

We make it easy to do business.



Best Price Guarantee
Buy with confidence with our Best Price Guarantee.



FREE, Live, 24/7 Tech Support
Talk with an expert in 20 seconds or less.



Double Diamond™ Warranty
Our exclusive warranty even protects your Black Box products from accidental damage.



Same-Day Shipping
Why wait? We ship 95% of all in-stock products the same day.

45-Day No-Risk Returns
Return your Black Box products for 45 days with no fee!



Proven Quality
Black Box is ISO 2001:9000 certified and follows proven quality procedures.



Educational Resources
Watch our latest "how-to" videos at blackbox.com.

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About Black Box

Your single source for voice communications and data infrastructure solutions.

No other provider offers the voice communications and data infrastructure solutions, support, and products that Black Box Network Services does.



Our global footprint, diverse capabilities, 30-plus year history, and deep commitment to provide the best technical solutions and support in the industry make us the right choice for your business.

A trusted provider.

Black Box Corporation (NASDAQ: BBOX) is a trusted provider of comprehensive voice communications and data infrastructure solutions. As a value-added reseller of platforms and applications from the industry's top manufacturers—and a provider of our own line of products and services—we design, build, and maintain today's complex voice and data networks.

Dedicated to helping you.

As a \$1 billion organization delivering services and solutions around the globe, at our core, we are an organization of top technical professionals dedicated to delivering personalized support to help you evaluate your technology options and implement the right voice communications, data infrastructure, and products to achieve your objectives.

Serving you locally and globally.

With the largest footprint in the industry, Black Box can serve you whether you have one office or a global enterprise. Headquartered near Pittsburgh, PA, Black Box maintains 191 offices and serves 141 countries. We have 175,000 clients in every major sector from government and education to manufacturing and transportation.

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Voice Communications

Comprehensive solutions with uncompromising support.

Put the world's largest independent provider of voice communications services on your team. With an unmatched portfolio from today's leading manufacturers and an extensive offering of maintenance solutions, we can deliver comprehensive solutions for clients of every size and industry.

VoIP | Converge your voice and data traffic onto your IP network for improved efficiency, cost savings, and application enablement.

Unified Communications | Bring your many communications functions together to better serve your customers and your employees.

Messaging | Enable your employees to stay connected and access all messages—voice, fax, and e-mail—through a single user interface.

Mobility | Cut the desktop wires but keep employees connected to your customers and to each other.

Contact Center | Turn your contact center into a dynamic, IP-based environment.

Traditional Telephony | Maximize the performance of your telephony system with solutions ranging from legacy platforms to cutting-edge technologies.

Maintenance | Get peace of mind with a comprehensive maintenance service plan.

Network Security | Safeguard your network and your company's assets with a fully integrated security solution.



Voice Communications

Bringing it all together.

Objective advice.
The right voice communications technologies.
Comprehensive maintenance services.
Extensive experience and support.



Our objective approach, breadth and depth of capabilities, years of experience, and unmatched expertise make Black Box Network Services the right voice communications partner.

An objective approach.

Because we are an independent provider, you'll receive a solution using world-class technologies from most leading manufacturers. Interoperability is critical and our vendor-neutral approach keeps us at the forefront of innovation to ensure that you get exactly the right solution for your business.

End-to-end solutions.

Whether you're looking for a traditional telephony system or want the latest in unified communications, call Black Box. We offer comprehensive solutions from design, planning, and installation through comprehensive maintenance and Day-2 support.

Extensive experience.

Voice communications is our business. We currently maintain more than four million ports for clients of every size and in every major industry. In addition, Black Box has one of the largest staffs of BICSI-certified RCDD engineers, and our techs boast more than 2000 certifications.

24/7/365 call center support.

Get help when you need it. Our Support Centers handle more than 34,000 calls each month. More than 95% of trouble calls are resolved without manufacturer assistance, and our remote resolution is more than 70%.

The industry's largest footprint.

Whether you need to make connections across town or across the country, Black Box Network Services can help. With 191 offices around the world and voice communications capabilities throughout North America, Black Box has the largest footprint in the industry. No matter where you are, you'll receive the benefit of full-scale Black Box services with the local support you want.

» United States

Alabama

Birmingham
Huntsville
Mobile
Montgomery

Arizona

Phoenix
Tempe

California

Fontana
Irvine
Redwood City
Sacramento
San Jose

Colorado

Centennial

Connecticut

South Windsor
Wethersfield

Florida

Destin
Ft. Myers
Hialeah
Jacksonville
Miramar
Orlando
Pompano Beach
Pensacola
St. Petersburg
Tallahassee
Tampa

Georgia

Chamblee
Duluth
Roswell

Idaho

Boise
Idaho Falls
Twin Falls

Illinois

Chicago
Countryside

Indiana

Indianapolis

Iowa

Des Moines

Kentucky

Louisville

Louisiana

Baton Rouge
Lafayette
New Orleans

Massachusetts

Milford
Worcester

Michigan

Troy
Warren

Minnesota

Brooklyn Park
Minnetonka

Mississippi

Jackson
Ocean Springs

Montana

Billings
Bozeman
Butte
Helena
Kalispell
Missoula

Nebraska

Lincoln

Nevada

Las Vegas

New Hampshire

Manchester

New Jersey

Marlton
Mt. Laurel

New York

Amityville
Maspeth
New Rochelle
New York

North Carolina

Cary
Charlotte
Winston-Salem

Ohio

Brecksville
Centerville

Cincinnati

Cleveland
Dayton
Strongsville

Oklahoma

Tulsa

Oregon

Eugene
Portland

Pennsylvania

Blue Bell
Bridgeville
Lafayette Hill
Lawrence
Mechanicsburg
Pittsburgh

South Carolina

Charleston
West Columbia

Tennessee

Johnson City
Knoxville
Memphis
Murfreesboro
Nashville

Texas

Arlington
Austin
Carrollton
El Paso
Houston
San Antonio

Virginia

Herndon
Sterling

Washington

Kennewick
Renton
Spokane

West Virginia

Huntington

Wisconsin

Waukesha

» Canada

Calgary
Edmonton
Markham
Richmond
Toronto

» Mexico

Puebla Pue
Santa Cruz
Atoyac

» Puerto Rico

Hato Rey

In addition to our physical locations, we remotely deploy hundreds of technicians strategically throughout the U.S.

Network Operations Centers.

» Black Box operates six centers in the U.S.:

Amityville, NY
Brecksville, OH
Houston, TX
Minnetonka, MN
Murfreesboro, TN
Wethersfield, CT



Voice Communications

The right partner makes the difference.







Count on Black Box Network Services to deliver the latest innovations from the industry's top manufacturers.



Black Box can offer you an unmatched portfolio of technology platforms and applications from today's leading manufacturers and the expertise backed by more than 2000 certifications.

Partner	Solutions offered
Aastra	Contact Center, Messaging, Mobility, Traditional Telephony, Unified Communications, VoIP
Aspect Software®	Contact Center, Traditional Telephony, Unified Communications, VoIP
AVST	Messaging, Mobility, Unified Communications
Cisco Systems	Contact Center, Messaging, Mobility, Network Security, Unified Communications, VoIP
Comview Corporation	Contact Center, Mobility, Traditional Telephony, Unified Communications, VoIP
Intervoice®	Contact Center, Messaging, Unified Communications, VoIP
NEC®	Contact Center, Messaging, Mobility, Network Security, Traditional Telephony, Unified Communications, VoIP
Nortel	Contact Center, Messaging, Mobility, Network Security, Traditional Telephony, Unified Communications, VoIP
Polycom®, Inc.	Mobility
ShoreTel®	Contact Center, Messaging, Mobility, Unified Communications, VoIP
Siemens Enterprise Communications	Contact Center, Messaging, Mobility, Network Security, Traditional Telephony, Unified Communications, VoIP
Symmetrics	Contact Center
Syntellect	Contact Center, Messaging, Traditional Telephony, Unified Communications, VoIP
Toshiba	Contact Center, Messaging, Mobility, Traditional Telephony, Unified Communications, VoIP

Find the right solution and partner for your business.

	Network Security	Contact Center	Messaging	Mobility	Traditional Telephony	Unified Communications	VoIP
AMSTRA	—	•	•	•	•	•	•
Aspect	—	•	—	—	•	•	•
AVST	—	—	•	•	—	•	—
	•	•	•	•	—	•	•
COMVIEW	—	•	—	•	•	•	•
intervoice SOLUTIONS FROM CONVERGYS	—	•	•	—	—	•	•
NEC	•	•	•	•	•	•	•
NORTEL Elite Partner	•	•	•	•	•	•	•
 POLYCOM	—	—	—	•	—	—	—
 ShoreTel	—	•	•	•	—	•	•
 SIEMENS	•	•	•	•	•	•	•
 SYMMETRICS Contact Center Reporting & Performance Management	—	•	—	—	—	—	—
 SYNTELLECT	—	•	•	—	•	•	•
TOSHIBA Leading Innovation >>>	—	•	•	•	•	•	•



Partners and people you can trust.

Voice Communications

Guaranteed budget friendly. Guaranteed performance.

Save up to 60% on remanufactured and next-to-new telephones, cards, systems, headsets, conference phones, and wireless/mobile equipment—all guaranteed to perform.



Black Box Resale Services:

Remanufactured | New | Next-to-New | Repaired

NORTEL
Elite Partner

SpectraLink

CORTELCO

Aastra

comvurgent

ClearOne

PLANTRONICS
SOUND INNOVATION

POLYCOM

EXECUTONE

interalia

NEC

**Black Box Resale Services also provides
Avaya, Siemens®, Cisco Systems, and Aspect Software® products.**

Certified remanufactured telephony equipment | Save up to 60% off MSRP plus get a risk-free, two-year warranty on most remanufactured products.

Next-to-new and new equipment | Get fantastic prices on unused, premium stock products (next-to-new) and new products from most leading manufacturers.

Advanced repair and replacement program | Our certified technicians fix all major brands and models. Eliminate downtime, too, with our 24-hour advanced replacement and five-day repair turnaround programs.

The widest selection | Choose from one of the largest selections anywhere with 15,000 products from all leading manufacturers—in stock and ready to ship.

Go green | Keep equipment that can be repaired and refurbished out of landfills. With our free disposal services and Buy Back program, we can help you help the environment and help control unnecessary costs.

Government: serving those who serve.

For more than 30 years, Black Box Network Services has been delivering voice communications, data infrastructure, and product solutions to federal, state, and local government agencies. Whether your mission is to serve the citizenry, protect our borders, or defend our country from threats, both foreign and domestic, we serve those who serve.

Voice Communications

- Complete solutions including evaluation, design, procurement, implementation, and maintenance.
- TDM, VoIP, and unified communications for facility, campus, base, metropolitan, and enterprise networks.
- Call/contact center integration.
- Communications facilities, including HVAC and power.

Data Infrastructure

- Complete network infrastructures, including planning, design, installation, and maintenance.
- Wired and wireless data networks.
- EoIP, IPv4-IPv6 transition, wireless, and tactical/mobile networks.
- Transport: SONET and Dense Wave Division Multiplexing.
- Passive Optical Networks (PON/GPON).
- Physical layer, inside and outside plant systems.
- Data center solutions built on the best commercial practices.

For voice communications and data infrastructure services, contact Black Box Network Services—Federal at 703-885-7900 or go to <http://federal.blackbox.com>.

Products

- More than 118,000 products.
- More than 17,000 products on the GSA Schedule.
- Same-day responses for GSA pricing requests.
- Mil spec packaging where required.
- Kitting to your requirements.
- Smart Bundle™ services for staging.
- Custom products.



GSA Schedule 70
GSA Contract # GS-35F-0158J

Open to all government agencies.

Cage Code: 59951

DUNS# 082254871

Federal ID# 25-1272662

Black Box accepts all government purchasing cards.

WAWF Invoicing.

Black Box GSA listed products are also available on:

- NASA (SEWP IV).
- NETCENTS.

For more information on GSA products, contact a government specialist at 877-877-2269 or go to www.blackbox.com.



Data Infrastructure

End-to-end data networks.

Talk to Black Box Network Services for complete start-to-finish services for your data infrastructure.



For new installations, system upgrades, and moves/adds/changes, Black Box is the only source you need for planning and design through installation and maintenance.

Structured Cabling | From design through installation and maintenance, we offer a complete structured cabling solution including a lifetime guarantee.

Data Centers | You know your organization and we know how to design today's complicated data centers. Together we can build an environment that works for you.

Data Networking | Your data network is the backbone of your business. Keep it optimized with a solution including the latest innovations from leading manufacturers such as Cisco Systems, NEC®, Nortel, Siemens®, and our own Black Box® brand products.

Wired and Wireless | From copper and fiber wired networks to wireless systems, we have the expertise to tackle any network challenge.

Wireless Bridges | Extend the range of your network with a point-to-point wireless bridge. It's a cost-effective solution when laying cable isn't possible.

CATV/Video/Digital Signage | We offer a robust portfolio of solutions to support your CATV, CCTV, and digital signage infrastructure needs.

Black Box exclusives.

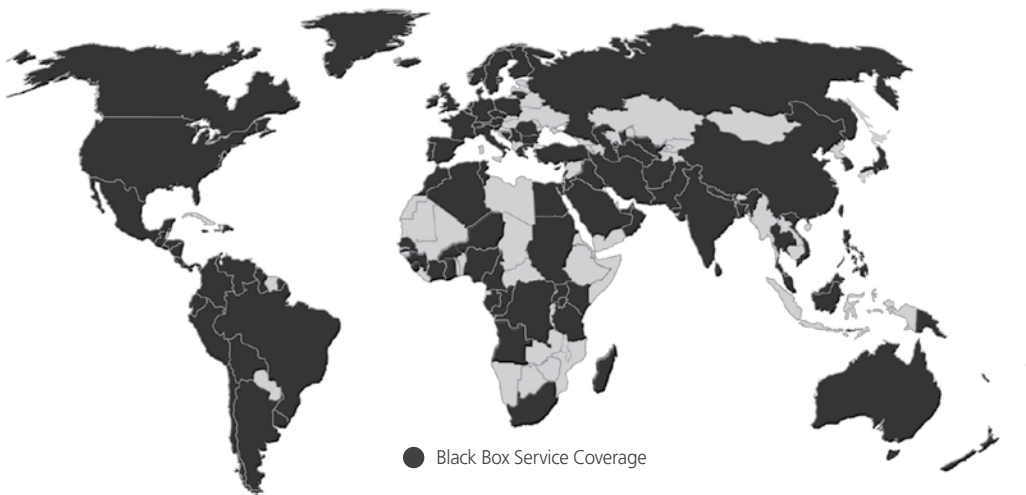
Work with the experts | You'll work with one of the largest staff of Registered Communications Distribution Designers (RCDDs) and BICSI-trained and certified technicians.

Guaranteed-for-life structured cabling | Receive a guaranteed-for-life warranty on your Black Box® brand structured cabling system—from products to performance.

Certification Plus | If Black Box designs and installs your structured cabling system with materials from another vendor, we'll certify and guarantee your network application—for life!

Build your network with our worldwide network services.

Why risk working with multiple vendors in multiple locations with multiple results? The solution for worry-free, multisite projects is simple: Black Box Network Services, the company with the largest footprint in the industry. You'll receive seamless project coordination for one site or thousands of sites. And we'll ensure every site receives the same high-quality design, workmanship, and equipment.



With 191 offices in 141 countries serving 175,000 clients, Black Box can connect your networks locally and globally. For specific locations and contact information for Black Box offices worldwide, go to blackbox.com.

North & South America

Argentina
Aruba
Bahamas
Barbados
Bermuda
Bolivia
Brazil
Canada
Cayman Islands
Chile
Colombia
Costa Rica
Dominican Republic
Ecuador
El Salvador
Grenada
Guatemala
Guyana
Honduras
Jamaica
Mexico
Netherlands
Antilles
Panama
Peru
Puerto Rico
Saint Helena
Saint Lucia
Trinidad & Tobago
Turks & Caicos

United States

Uruguay
Venezuela
Virgin Islands of Great Britain
Virgin Islands of the U.S.

Europe, Africa, & Middle East

Algeria
Andorra
Angola
Austria
Bahrain
Belgium
Benin
Bosnia & Herzegovina
Burkina Faso
Burundi
Cameroon
Cape Verde
Channel Islands
Congo (Zaire)
Croatia
Cyprus
Czech Republic
Denmark
Egypt
Estonia
Finland
France

Gabon
Gambia
Germany
Ghana
Gibraltar
Greece
Greenland
Guinea
Hungary
Iceland
Iraq
Ireland
(Republic of Ireland)
Israel
Italy
Ivory Coast
Jordan
Kenya
Kuwait
Latvia
Lebanon
Liechtenstein
Lithuania
Luxembourg
Macedonia
Madagascar
Malta
Monaco
Morocco
Netherlands
Niger

Nigeria
Norway
Oman
Poland
Portugal
Qatar
Republic of South Africa
Réunion
Romania
Russia
San Marino
Sao Tome & Principe
Saudi Arabia
Senegal
Sierra Leone
Slovakia
Slovenia
Spain
Sweden
Switzerland
Tunisia
Turkey
Uganda
United Arab Emirates
United Kingdom
Vatican City

Asia/Pacific Rim

Australia
Bangladesh
Brunei
China
Fiji
French Polynesia
Guam
Hong Kong
India
Indonesia
Japan
Korea (South)
Malaysia
Mauritius
Nepal
New Caledonia
New Zealand
Northern Marianas Islands
Pakistan
Papua New Guinea
Phillippines
Republic of Taiwan
Singapore
Sri Lanka
Tajikistan
Thailand
Turkmenistan
Vanuatu
Vietnam

Products

**Smart shopping:
118,000+ products,
the right prices,
plus FREE Tech Support.**

From simple cables to complex switches, you'll find everything you need to complete your network at Black Box Network Services.



Our goal is to be the best in the business—for your business. That means setting the standard for excellence and meeting it every day with top-quality products at unbeatable prices—all backed by our FREE, live Tech Support.

The building blocks of a world-class network.

Products from A to Z | Find everything you need to expand, upgrade, and complete your network from the latest technologies to hard-to-find and legacy products.

Custom products | Have a unique application? We'll design a one-of-a-kind solution.

Same-day shipping | We ship 95% of all in-stock products the same day. Just order before 8 P.M. E.T. weekdays or 11 A.M. E.T. Saturday.

Double Diamond™ Warranty | Your Black Box® brand products are even protected from accidental damage. And many products, such as cables, cabinets, racks, and manual switches are guaranteed for life!

The right prices!

Best price guarantee | You probably won't find a lower price elsewhere. But if you do find another manufacturer's product at a lower price than the Black Box® equivalent, provide us with a copy of the competitor's quote and we'll beat it with our own Black Box brand solution! (Certain custom products are excluded.)

Special pricing programs | Ask about discount pricing programs for:

- GSA schedule buyers
- Educational and healthcare institutions
- First-time buyers
- Closeouts, clearance, and overstocks
- Resellers and system integrators

FREE, fast Tech Support.

Tech Support the way it should be | Product questions? Contact our 24/7/365 Tech Support or go to blackbox.com. It's absolutely FREE—whether you buy or not! And it's *fast*. You'll talk to one of our U.S.-based experts in 20 seconds or less!

Another satisfied client:

"Being in the IT field, I have dealt with a lot of tech support. I congratulate your company for having an excellent product line, but most of all for what I believe to be the BEST technical support in the industry."

Roberto D. Perez
PC Support Specialist



Products

Satisfaction guaranteed.

Expect the best every time you do business with Black Box Network Services. You'll get it.



Take the risk out of buying from Black Box® with our exclusive Double Diamond™ Warranty programs and our 45-day return policy. Both are designed to ensure your complete satisfaction— guaranteed!

Absolute purchase protection.

Double Diamond Warranty | Our exclusive “no-questions-asked” warranty program even protects your Black Box products from accidental damage for the life of the warranty.

Two for one | Extend your Double Diamond Warranty or protect a previously purchased Black Box brand product for an additional year for only 10% of the current retail price— and we'll give you a second year of coverage free! (Certain products may not be eligible.)

45-day no-risk return policy | Return your Black Box products within 45 days with no restocking fee!

Quality you can count on | We don't compromise on quality. The performance of your network depends on it. All our products are tested and guaranteed, and we follow proven procedures to ensure quality.

- ISO 9001:2000 certification
- ETL-verified cabling
- RoHS-compliant products
- WEEE compliance
- BICSI-certified RCDDs
- AS9100 certification expected in 2009

The exclusive Double Diamond Warranty.

	Black Box Double Diamond™ Warranty	The Competition
Warranty length	One year to lifetime depending on the product!	Read the fine print.
Guaranteed for life!	Black Box® brand copper cables, manual switches, cabinets, racks, and more!	No.
Accidental damage	100% covered.	No.
Water damage	100% covered.	No.
Power surges	100% covered.	No.
Warranty replacements	No questions asked!	Forget it.
24/7/365 live Tech Support	100% FREE!	\$\$\$

Exceptional quality. Superior service.

It's what you'll get every time you do business with Black Box Network Services.

"With a background in Supplier Quality Engineering... I can easily recognize from the degree of responsiveness received from Black Box that I am dealing with a top-shelf organization."

Gary King
Three Arrows Corporation

"Everyone I dealt with was knowledgeable and courteous... Again, thank you for the pleasant experience, and for letting me know that there are still companies who believe in customer service."

Don Burns
Broadway Electric Service Corp.

"The ServSwitch is excellent! It exceeds all expectations. I would recommend your products to anyone looking for connectivity solutions."

Lynda Heigle
First USA Bank



Products

You'll find it at Black Box.

Browse our catalogs, search on-line at blackbox.com, or call our Tech Support experts. We're here to help you find exactly what you need.



Black Box Network Services is the industry's source for the latest technology as well as hard-to-find and legacy products. With more than 118,000 selections, you'll find everything you need to take your network from the data center to the desktop.

Cabling

- Get the best prices anywhere on CAT5e and CAT6 bulk cable.
- Receive guaranteed-for-life performance with ETL-Verified channel solutions.
- Complete your data networks with fiber, video, USB, and data comm cable; connectors; and hardware.

Digital Signage & Multimedia

- Create dazzling digital signage presentations.
- Build fully integrated multimedia, multiscreen systems.
- Convert, switch, extend, and split video.
- Choose solutions for point-of-purchase, hospitality, education, medical, airports, public buildings, trade shows, and more.

Cabinets & Racks

- House servers and network equipment.
- Create safe and clean data centers.
- Control environmental issues such as temperature and humidity.
- Meet standards with cable management.
- Get solutions for any size enterprise.

Power & Surge Protection

- Monitor and remotely control power.
- Guard against power surges, blackouts, and other anomalies.
- Back up critical equipment and supply redundant power.
- Protect data lines.
- Choose from a complete line of UPSs.

Testers & Tools

- Diagnose and certify networks.
- Verify fiber and copper runs.
- Troubleshoot cable and equipment.
- Select from our comprehensive line of Black Box® brand and Fluke Networks® products.
- Choose from general-use hand tools and tool sets.

Data Communications

- Communicate in harsh environments.
- Drive data over fiber and copper.
- Set up industrial communications.
- Send data over short runs.
- Set up ISDN, DDS, and T1/E1 communications.
- Select modems, modem sharing, and accessories.



We ship 95%
of all products
the same day!

KVM ServSwitch™

- Control multiple computers from a single KVM station.
- Mix and control computers from different platforms and manage servers over IP.
- Take command of your servers.
- Choose from KVM switches, extenders, console trays, and more.

Networking

- Select from a full range of components ranging from small and medium business (SMB) networks to global enterprise solutions.
- Build wired and wireless networks.
- Find industrial products for extreme conditions.
- Get adaptable solutions to expand networking configurations.

Interface & Protocol Converters

- Connect incompatible hardware, whether you need interface or protocol conversion.
- Find DIN rail solutions.
- Configure custom solutions.
- Choose from digital I/O and serial cards.
- Convert serial to parallel and vice versa.

Peripheral Switching & Sharing

- Share peripherals.
- Switch equipment electronically.
- Configure custom applications.
- Choose from manual and electronic switches, matrix switches, console port managers, and more!
- We build custom switches, too!

Environmental Monitoring & Control

- Set up sensors and alarms for monitoring temperature, humidity, airflow, water, smoke, and more.

Servers & Storage

- Customize server configurations.
- Match the server to the application.
- Accommodate future storage needs.

Voice Communications

- Choose from leading voice systems.
- Select desktop telephony equipment.
- Save with resale services and equipment.

Premise Security

- Configure remote surveillance systems.
- Construct building access systems.
- Mount CCTV cameras and enclosures.

Products

Custom solutions? Count on Black Box!

From one-of-a-kind cables to custom-configured switches, faceplates, and more, we'll build to your specs.



If you can't find it—just ask! If we don't have it, we'll find it or build it for you. Last year alone, our expert technicians built 150,000 custom products.

What type of custom do you need?

Patch cables | CAT5e. CAT6. Just tell us what pinning, length, and color you need.

Bundled CAT5e and CAT6 cables | Up to six UTP cables can be bundled and wrapped on one spool for more efficient installation.

Cut-to-length bulk fiber optic cable | Eliminate waste. We'll cut it to the exact length you need.

Terminated, multistrand fiber optic cable | Save time and improve field termination. Just specify an ST®, SC, LC, or MT-RJ connector and what length you need.

Custom serial and coax cables | DB9. DB25. RG-58. Just specify if you need special pinning, Y-configurations, lengths, and connectors.

Feed-through faceplates | We'll outfit wallplates with the connectors of your choice: CAT5e, CAT6, fiber, VGA, audio, S-video, and more.

Manual switches | Configured to your exact specifications.

KVM switches | Customs can include meeting MIL specs and enabling/disabling features.

Video splitters | Specify how many and what type of video channels you require.

Cabinets and accessories | If a standard cabinet doesn't work, we'll tailor one to your specs. And we can install your power strips, shelves, fans, lights and other accessories.

Custom packaging | Just ask for custom labeling, bar coding, packaging, MIL spec packaging, kitting, shipping, and more.

When you're ready:

Just call our Tech Support experts at. They'll ensure you get the right solution for your application. If you want a custom cable or adapter and know exactly what you need, use the Cable and Adapter Configurators at blackbox.com for faster service.

"The crunch was on when the Black Box rep called back. She worked magic and was able to get the custom adapters out to us in two days—literally! Not only were we ecstatic, but the client was very happy and relieved. Awesome teamwork!"

Jaime Schisel
Misys Healthcare Systems



Products

blackbox.com: your on-line resource center.

Browse our technical resources
and, remember, live support
is just 20 seconds away.



With just a click or two, you can tap into a wealth of educational resources and live support to help you maximize your communications and infrastructure investments.

Library | Looking for technical info? Check out our extensive library of Black Box Explains tutorials, videos, product data sheets, and more.

Tools & Other Resources | Learn more about networking with our Digital Signage and KVM microsities, buyer's guides, white papers, and more.

Training | Take communications classes at our Amityville, New York office. We'll even custom design a training session for you.

Support | Our FREE Tech Support experts are never more than a click or phone call away.

Library

Black Box Network Services has an extensive library of Tips For Techs how-to videos, Black Box Explains tutorials, and more to help you plan, implement, and maintain your network infrastructure.

Browse our Library by clicking on "Search the Complete Black Box Library" below.

- [Black Box Explains Tutorials](#)
- [Product Data Sheets](#)
- [Tips For Techs Videos](#)

Tools & Other Resources

Discover useful tools and other information to help you optimize your network.

- [Cable & Adapter Configuration](#)
- [Buyer's Guides](#)
- [Glossaries](#)
- [White Papers](#)
- [Case Studies](#)
- [Digital Signage Microsite](#)
- [ServSwitch Central™ Microsite](#)

Training

Black Box Network Services offers communications training, including a VoIP Fundamentals class and several courses focused on the NEC platform and exchanges. All classes are held in our Amityville, New York office. You can access the schedule, review the course outline, and register on-line.

- [Course Schedule](#)
- [Custom NEC Training](#)
- [How to Register](#)
- [Cancellation Policy](#)
- [Directions to Facility](#)
- [Hotel Accommodations](#)

Got Questions?



Talk to Black Box

A technical expert will call you in 20 seconds. It's live and it's free.

Your Name

(Area) Phone

Extension

(U.S. and Canada Only)

[call me](#)

Watch and learn at blackbox.com.

Watch quick, informative “Tips for Techs” videos on the most important subjects in IT networking. You’ll get inside advice from our experts on everything from selecting cabinets to setting up a KVM solution. Here’s a sampling of what you can tune into at blackbox.com.

**Tips
for
Techs**
a **BLACK BOX** production
See the video on blackbox.com.



How to Pick a Cabinet | Learn how to specify the right cabinet for your application including cooling, power, and security needs.



CAT5e and CAT6 Channel Solutions | Find out how to choose a cabling system that gives you reliable end-to-end performance and enough headroom for future growth.



An Introduction to Digital Signage | See what you need to set up a simple one-screen display to an advanced multi-screen system.



ServSwitch™ DTX | This production spotlights the next-generation KVM extender and multimedia solution: the ServSwitch DTX.



RapidRun™ | See this revolutionary, easy-to-install audiovisual cabling system in action and why it's the future of quick connect display systems.

Products

Black Box is turning green.

Becoming more energy efficient.
Incorporating eco-friendly practices.
Reducing our carbon footprint.



To become a more responsible environmental steward, Black Box Network Services continues to implement programs to reduce our environmental impact.

Paper reduction | We've committed to reducing our paper consumption by more than 30%, including our Big Book, specialty catalogs, and collateral mailings.

Recycling | Black Box aggressively recycles paper, catalogs, magazines, cardboard, glass, aluminum, steel, light bulbs, printer cartridges, and computer components at our offices.

Packaging | Black Box uses environmentally friendly packaging, including biodegradable air pillows and recycled cardboard.

Energy use reduction | We've initiated lighting and roof upgrades, automated HVAC controls, and power management strategies at our offices.

RoHS and WEEE compliances | Black Box follows strict processes to ensure our manufacturing processes and products meet RoHS and WEEE directives.

You can go green with these energy-saving ideas.

Power management | The average PC is responsible for 1000 pounds of CO₂ emissions every year. Reduce power consumption by automatically powering on/off non-critical equipment with power managers, such as the Elite™ Power Manager on [pages 298–299](#).

KVM remote management | An average monitor consumes 50 watts per hour. Save energy by eliminating extra monitors, keyboards, and mice with KVM switches and KVMoIP products, which also eliminate travel costs and lost productivity. See [pages 346–419](#).

GO GREEN | Look for the **GO GREEN** bullets throughout this catalog for eco-friendly product solutions.

Savings you can bank on!

If you don't see a savings plan that fits you, ask! We may be able to design a program especially for you.

Government | Federal, state, and local governments can save by buying through GSA Schedule 70 Contract # GS-35F-0158J. For more details, see [page 9](#).

First-time buyers | Save 15% on your first order.

Education | Save with GSA contract pricing, E & I member discounts, and the COSTARS program.

Healthcare | Hospitals, healthcare providers, and companies in the medical field can receive volume discounts on Black Box products.

Resellers | Black Box Network Services offers special pricing, volume discounts, and deal registration programs.

System integrators | Black Box offers special pricing, volume discounts, and deal registration programs.

National accounts | Take advantage of our national account programs for large multi-location corporations.

Quantity discounts | A large number of our products are eligible for a bulk quantity discount.

Closeouts, clearance, and overstocked items | Save up to 60% at [blackbox.com](#).

E-promotions | To receive valuable discounts and special promotions, sign up for e-promotions at [blackbox.com](#). We respect your privacy and your name is safe with us. We do not sell, rent, or disclose your e-mail address.



New Products

What's

new





at Black Box?

Turn the page
and find out!
We've got
more than
500
New Products!

New this issue

Cabling _____	26-36
Testers & Tools _____	37-38
Interface & Protocol Converters _____	39
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Find more New Products and
special offers throughout the
year at blackbox.com!

Products

RapidRun Modular Audio/Video Cabling System

Finally! An easy-to-install audiovisual cabling system you can

RapidRun is the easiest modular cabling system to install and change. Just pull the cable once and snap on different connectors when your equipment changes.

- Hundreds of configurations make RapidRun™ ideal for a broad range of applications.
- Pull the Runner cable once and make easy Break-Away flying lead or wallplate connections on each end.
- Need to upgrade equipment? Just change the Break-Aways.
- No tools, training, splicing, or soldering required.
- Transmit audio and video signals—including UXGA, Component, and S-Video—over a single cable.
- Pin pitch and insulator material make the connectors virtually transparent to video signals.
- Pulling caps prevent bent pins and protect connectors from dirt and dust.
- Durable Runner cables withstand up to 30 pounds/foot of pulling tension.
- Connectors are small enough to fit through a 3/4" conduit with a 90° sweep.
- Feature 100% EMI/RFI shielding.
- ♦♦ **WARRANTY** — Lifetime

RapidRun is the most complete modular audio/video cabling system ever. It's designed to save installation time, easily accommodate changes, and provide the reliability of factory terminations in the field.

The genius of RapidRun starts with the Runner, the only cable you need to pull through the walls or conduit. Each Runner cable is composed of multiple coax and/or twisted-pair cables to carry multiple signal types, such as VGA, Composite video, S-Video, and Component video. Choose the one that matches your application and the signals you need to carry.

Then terminate your Runner cable with preconfigured Break-Aways, either flying leads or wallplates. You'll need one for each end of your Runner cable. Use flying leads when the Runner terminates directly to the back of the equipment. Use a wallplate when the connection will be visible.

When you're ready to update your system or add different equipment, just use new flying leads or wallplates. It's that easy!

RapidRun is ideal for:

- Classrooms
- Conference rooms
- Home theaters
- Hospitality venues
- Auditoriums
- Healthcare facilities
- Trade shows
- Houses of worship
- Airports/transportation hubs
- Recreational vehicles and boats
- Restaurants and retail stores
- All digital signal applications

NEW Integrated Flying Leads and Wallplates

To make connections easier, new flying leads and wallplates combine connections for multiple signals: UXGA, 3.5-mm stereo audio, S-Video, Composite Video, and more. In addition, some wallplates feature keystone openings for network connections. Our GigaTrue®2 and GigaBase®2 jacks (pages 90 and 99) fit these openings.

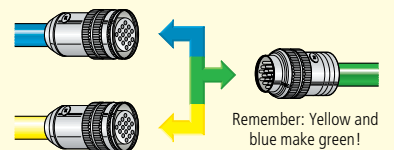
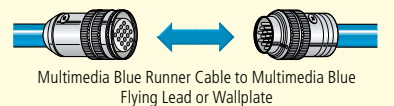
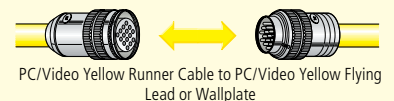
These new plates and flying leads give you the ability to pre-install different AV and network connections. Then you're ready to connect your PCs and all types of AV equipment.



Runner Cable
(50715)

How RapidRun works:

1. Choose your Runner cable: PC (yellow) or Multimedia (blue).
2. Choose a yellow, blue, or green Break-Away. You need one Break-Away for each end. You can use two flying leads, two wallplates, or a flying lead and a wallplate.



Multimedia Blue or PC/Video Yellow Runner Cable to Green Flying Lead or Wallplate (for either application)

Applications

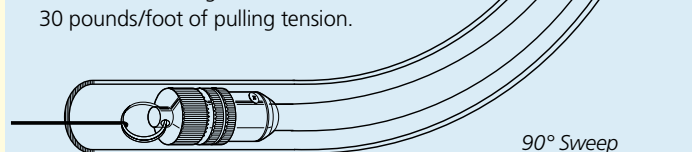
Yellow to yellow: UXGA video (includes VGA, SVGA, XGA, and SXGA) and stereo audio.

Blue to blue: Component, S-video, or Composite video, and digital or analog audio.

Yellow or blue to green: UXGA, Component video, S-Video, or Composite video, and stereo audio.

The RapidRun Runner makes installation quick and easy.

- Each Runner comes with two protective end caps with pulling eyes.
- End caps protect the MUVI contacts from dirt and dust.
- Use the pulling eye to easily pull the Runner through conduits as small as 3/4" diameter.
- Pull the Runner through a 90° sweep.
- The Runner is designed to withstand 30 pounds/foot of pulling tension.



terminate—and reterminate—in seconds.



Flying Lead Break-Away (40725)



42304



42305



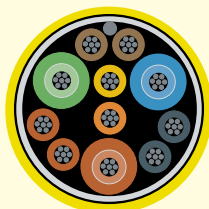
42322

New integrated flying leads and wallplates!



PC/Video Runner Cable (Yellow)

- (3) 28 AWG coax cables with individually braided copper shielding.
- (3) 24 AWG twisted pairs.
- (1) 24 AWG pair.
- Mylar® foil shield.
- UXGA supports resolutions up to 1600 x 1200 pixels (includes VGA, SVGA, XGA, and SXGA).
- Ideal for computer-based AV installations including digital signage, classroom projectors, video displays, and more.



Multimedia Runner Cable (Blue)

- (5) miniature coax RGBHV assemblies.
- 28 AWG stranded copper conductors individually shielded with Mylar® foil and 85% braided copper.
- Compatible with analog and SPDIF digital audio.
- Ideal for Component, Composite, or S-Video applications.
- Use for in-wall home theaters, hi-def video distribution, studio equipment interconnections, classrooms, and more.



NOTE: For residential installations, choose CL2-rated jackets. For commercial installations, use CMP plenum-rated Runners.

Item	Code	List Price
RapidRun Modular Audio/Video Cabling System		
First select your Runner Cable...		
Runner Cable		
PC/Video, Yellow		
UXGA PVC CL2	25-ft. (7.6-m)	50712
	35-ft. (10.6-m)	50714
	50-ft. (15.2-m)	50715
Plenum CMP		
	25-ft. (7.6-m)	50729
	35-ft. (10.6-m)	50730
	50-ft. (15.2-m)	40752
Multimedia, Blue		
Coax (5) PVC CL2		
	25-ft. (7.6-m)	50722
	35-ft. (10.6-m)	50723
	50-ft. (15.2-m)	50724
Plenum CMP	25-ft. (7.6-m)	50731
	35-ft. (10.6-m)	50732
	50-ft. (15.2-m)	40759

Item Code List Price

Item	Code	List Price
RapidRun Modular Audio/Video Cabling System (Continued)		
...next, select two Break-Aways for each Runner.		
Break-Aways		
Flying Leads, 1.5-foot (.5-m)		
	Yellow, HD15	40725
	Yellow, HD15, 3.5-mm	40853
	Green, (5) RCA	42071
	Blue, (3) RCA (RGB), S-Video	42075
	Blue, (3) RCA (YRW), S-Video	42095
	Blue, (3) RCA and S-Video	40728
	Green, HD15, 3.5-mm, (3) RCA	42323
	Green, (5) RCA	40727
	Green, (2) RCA and S-Video	40732
Wallplates, White, Single-Gang		
	Yellow, HD15	40735
	Yellow, HD15, 3.5-mm	40854
	Green, (5) RCA	40737
	Green, (2) RCA and (1) S-Video	40742
	Blue, (3) RCA and (1) S-Video	40738
Integrated Wallplates, Brushed Aluminum		
	Yellow, HD15, 3.5-mm, (3) RCA	
	Single-Gang*	42320
	(2) Keystone Openings, Dual-Gang*	42311
	(4) Keystone Openings, Dual-Gang*	42312
	Yellow, Blue, HD15, 3.5-mm, (3) RCA, S-Video,	
	Single-Gang	42322
	(2) Keystone Openings, Single-Gang	42304
	(4) Keystone Openings, Dual-Gang	42305
	Yellow, Blue, HD15, 3.5-mm, S-Video, Component Video,	
	Single-Gang	42307
	(4) Keystone Openings, Dual-Gang	42309
	Yellow, (2) HD15, (2) 3.5-mm, (3) RCA, (1) Keystone Opening,	
	Dual-Gang*	42310

* NOTE: For increased performance at higher resolutions, plenum Runner cables are recommended. While PVC Runners can be used, the performance is not as consistent as plenum cable.

To mount your Break-Away Wallplate, order a...

Pure Home™ Networking Impressa Faceplate
Single-Gang, Electric White JHN2200A

GigaTrue2 and GigaBase2 Jacks, pp. 90, 99.



Economy Fiber Patch Panels—ST, LC, SC

Super economical and built tough. These patch panels are guaranteed for life!



JPM395A



JPM390A



JPM430A

- All panels features female ST®, SC, or LC connectors on the front and back.
- LC connectors feature ceramic ferrules to withstand frequent plugging and unplugging.
- Panels are built tough. All are constructed of cold-rolled steel.
- Panels are only 1U high and fit standard 19" racks.
- All are RoHS compliant.
- ♦♦ **WARRANTY** — Lifetime

Customize your panel.

- The panels, modular in design, also support custom configurations to suit a variety of fiber and non-fiber applications.
- Simply snap in other types of compatible jacks (for details on which Black Box jack fittings work in the panel, contact our FREE Tech Support).
- You can even mix and match fiber and copper jacks.

NOTE: Assembly required to load jacks.

Item	Code	List Price
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Economy Fiber Patch Panels

ST 16 Simplex Adapters JPM395A

24 Simplex Adapters JPM425A

SC 16 Simplex Adapters JPM430A

LC 16 Duplex Adapters JPM390A

To customize your patch panels, order...

GigaStation2 Snap Fittings **See p. 115.**

Make your fiber panel connections with...

Multimode 62.5-Micron Fiber Optic

Patch Cable **See pp. 130–131.**

Single-mode 9-Micron Fiber Optic

Patch Cable **See pp. 138–139.**

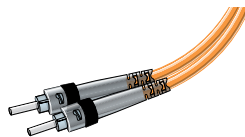
Guidelines for choosing fiber optic cable, pp. 124–125.



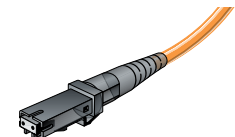
Black Box Explains

Fiber connectors.

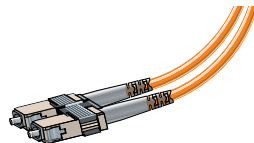
The ST® connector, which uses a bayonet locking system, is the most common connector.



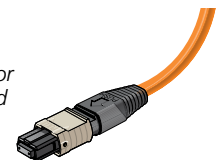
The MT-RJ connector, a small-form RJ-style connector, features a molded body and uses cleave-and-leave splicing.



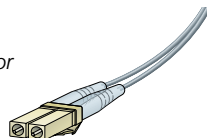
The SC connector features a molded body and a push-pull locking system.



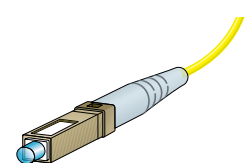
The MTO/MTP® connector is a fiber connector that uses high-fiber-count ribbon cable. It's used in high-density fiber applications.



The LC connector, with a small-form-factor connector, features a ceramic ferrule and looks like a mini SC connector.



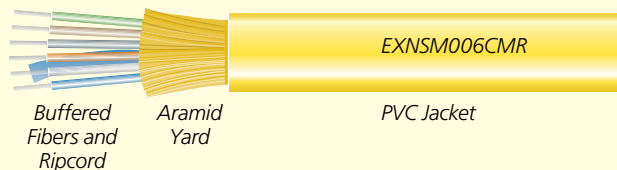
The MU connector resembles the larger SC connector, but it's much smaller. It uses a simple push-pull latching connection. Use it in high-density applications.



Single-Mode, 9-Micron, Distribution-Style, Custom-Length Fiber Optic Cable

Save money and order single-mode cable cut to the exact lengths you need.

- Why waste money? Get your single-mode cable cut to the exact lengths you need for each run.
- 9-micron fiber has a 125- μ m cladding and a 900- μ m coating for easy stripping and handling.
- Ideal for intrabuilding backbones.
- Run between telecommunications closets and equipment rooms.
- Terminate directly into loaded panels.
- Tested to meet or exceed EIA/TIA 568-A/GR-409-CORE standards.



- RoHS compliant (Directive 2002/95/EC).
- **◆◆ WARRANTY** — Lifetime

TECH SPECS

Bend Radius — Installation: 6-Strand: 3.0" (7.2 cm); 12-Strand: 3.5" (8.3 cm);
Long-Term: 6-Strand: 2.0" (5 cm); 12-Strand: 2.5" (5.5 cm)
Diameter (Nominal) — 6-Strand: 0.17" (.48 cm); 12-Strand: 0.22" (.55 cm)
Temperature — Installation/Operating:
PVC: -4 to +158° F (-20 to +70° C);
Plenum: 32 to 158° F (0 to 70° C);
Storage: -40 to + 167° F (-40 to +75° C)

Tension — Installation: 6-Strand: 286 lb. (1272 n); 12-Strand: 239 lb. (1063 n);
Long-Term: 6-Strand: 143 lb. (636 n); 12-Strand: 119 lb. (529 n)
Weight — 6-Strand: PVC: 12 lb./1000 ft. (17 kg/km); Plenum: 13 lb./1000 ft. (20 kg/km);
12-Strand: PVC: 17 lb./1000 ft. (25 kg/km); Plenum: 20 lb./1000 ft. (30 kg/km);

Item	Code	List Price
Single-Mode, 9-Micron Distribution-Style Custom-Length Fiber Optic Cable PVC CMR		
6-Strand	EXNSM006CMR	
12-Strand	EXNSM012CMR	
Plenum CMP		
6-Strand	EXPSM006CMP	
12-Strand	EXPSM012CMP	

Single-Mode, 9-Micron, Armored Loose-Tube Outside-Plant Fiber Optic Bulk Cable

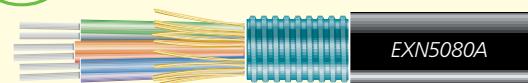
Outdoor fiber cable with a built-in conduit.

- Single-mode 9/125- μ m fiber.
- Consists of color-coded fibers in buffer tubes stranded around a central member.
- Steel armor and steel strength members.
- Core is surrounded by an aramid yarn layer and jacketed with medium-density PVC.
- **◆◆ WARRANTY** — Lifetime



TECH SPECS

Attenuation (Maximum) — 0.35/0.35/0.25 dB/km @ 1310/1383/1550 nm
Bend Radius — Loaded: 10" (25.4 cm); Unloaded: 7" (17.8 cm)
Crush Resistance — 55 lb. per inch for 10 minutes
Fiber Type — Single-mode 9/125 μ m
Jacket Type — Outdoor-rated, medium-density Polyethylene (MDPE)
Outer Diameter — 0.48" (12.2 mm)
Weight — 98 lb./km



Item	Code	List Price
Single-Mode, 9-Micron, Armored Loose-Tube Outside-Plant Fiber Optic Bulk Cable, Custom Lengths, 24-Fiber	EXN5080A	

Single-Mode, 9-Micron, Loose-Tube Outside-Plant Fiber Optic Bulk Cable

Outdoor fiber cable for interbuilding runs.

- Single-mode 9/125- μ m fiber.
- Designed for outdoor applications.
- Ideal for going from building to building.
- Delivers optimum performance in extreme conditions — aerial installations, ducts, or buried.
- FDDI compliant.
- **◆◆ WARRANTY** — Lifetime



TECH SPECS

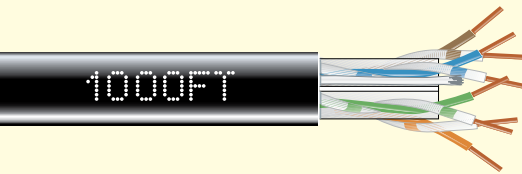
Attenuation (Maximum) — 0.35/0.35/0.25 dB/km @ 1310/1383/1550 nm
Bend Radius — Loaded: 8" (20.3 cm); Unloaded: 4" (10.2 cm)
Crush Resistance — 55 lb. per inch for 10 minutes
Fiber Type — Single-mode 9/125 μ m
Jacket Type — Outdoor-rated, medium-density Polyethylene (MDPE)
Outside Diameter — 0.42" (10.7 mm)
Weight — 53 lb./km



Item	Code	List Price
Single-Mode, 9-Micron Loose-Tube Outside-Plant Fiber Optic Bulk Cable, Custom Lengths 24-Fiber	EXN5080NA	

GigaBase CAT5e and GigaTrue CAT6 Solid Bulk Cable (UTP)

Our most popular bulk cable now comes in black!



CAT5e

CAT6



- Black color is ideal for running in open-joint ceilings.
- Extra headroom gives room for growth.
- Cable is marked in two-foot increments.
- ♦♦ **WARRANTY** — Lifetime

NOTE: For specifications, see blackbox.com.

GigaBase CAT5e Cable, p. 93.
GigaTrue CAT6 Cable, p. 86.



Item	Code	List Price
GigaBase® 350 CAT5e Solid Bulk Cable (UTP) 1000 ft. (304.8-m), Black PVC	EYN861A-PB-1000	
Plenum	EYN860A-PB-1000GigaTrue®	
550 CAT6 Solid Bulk Cable (UTP) 1000 ft. (304.8-m), Black PVC	EYN880A-PB-1000	
Plenum	EYN881A-PB-1000	

Economy CAT6 Patch Panel

Great performance at a great price.

- Meets CAT6 TIA/EIA-568-B.2-1 specs.
- Extremely economically priced.
- Features RJ-45 jacks on the front and IDC-110 contacts on the rear.
- Durability rating for the IDC contacts is 200 termination cycles.
- The insertion life is rated for 750 mating cycles with FCC compliant RJ-45 plugs.
- Fits standard 19" racks.
- UL® Listed.



CAT6

- ♦♦ **WARRANTY** — 5 Years

Item	Code	List Price
Economy CAT6 Patch Panel 24-Port, 1U	JPM624A	
48-Port, 2U	JPM648A	

CAT6 STP Modular Plugs

Prevent interference in high-speed CAT6 networks.



- Ideal for 100BASE-TX and 1000BASE-T applications.
- Use in areas with high EMI/RFI.
- Plugs meet or exceed CAT6 specifications.
- Terminate 24–26 AWG solid or stranded cable with these eight-conductor plugs.
- Includes a conductor load bar for ease of termination.
- ♦♦ **WARRANTY** — Lifetime

CAT6



Item	Code	List Price
CAT6 Shielded Modular Plugs 10-Pack	FMTP6S-10PAK	
25-Pack	FMTP6S-25PAK	
50-Pack	FMTP6S-50PAK	
100-Pack	FMTP6S-100PAK	
250-Pack	FMTP6S-250PAK	

Black Box Explains

CAT6.

Category 6 has more stringent specifications for crosstalk and system noise than CAT5e. For cabling to transmit according to CAT6 specs, it must be used in a complete channel solution with vendor-specific jacks, patch cords, and patch panels, and the cabling must be tuned correctly. GigaTrue is the channel solution offered by Black Box.

The worst case GigaTrue NEXT (Near-End Crosstalk) specification at 100 MHz is 46.5 dB (as of Nov. 2008), allowing for 7.2 dB of headroom

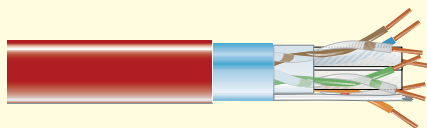
above the CAT6 channel specification. In theory, a channel with headroom like this performs better than a channel that only meets the minimum requirements.

You can always contact Black Box Tech Support to answer your cabling questions. Our techs can recommend cable testers and steer you in the right direction when you're installing new cabling. And the advice is FREE!

CAT6 Shielded 400-MHz Solid Bulk Cable (STP)

Shielded cable for long runs in noisy environments.

CAT6



- Ideal for carrying data, audio, and video.
- Foil shield protects against noise and EMI/RFI.
- Meets TIA/EIA-568-B.2-1 Category 6, ISO/IEC 11801, UL® 444, RoHS 2002/95/EC.
- **◆◆ WARRANTY** — Lifetime

Buyer's Guide | Electrical Specifications

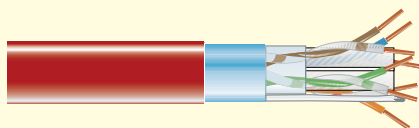
MHz	Attenuation 100 m (dB) Min.	ACR 100 m (dB) Min.	PS-ACR 100 m (dB) Min.	ELFEXT (dB) Min.	PS-ELFEXT (dB) Min.	NEXT (dB) Min.	PS-NEXT (dB) Min.
100	19.8	24.5	22.5	27.8	24.8	44.3	42.3
250	32.8	5.5	3.5	19.8	16.8	38.3	36.3
300	36.4	0.8	0	18.2	15.2	37.2	35.2
400	43.0	—	—	15.7	12.7	35.3	33.3

Item	Blue	Gray	Yellow	White	Red	Green	List Price
CAT6 Shielded 400-MHz Solid Bulk Cable (STP), 24 AWG, 4-Pair							
1000-ft. (304.8-m) PVC	EVNSL0601A-1000	EVNSL0602A-1000	EVNSL0604A-1000	EVNSL0605A-1000	EVNSL0606A-1000	EVNSL0607A-1000	
Plenum	EVNSL0611A-1000	EVNSL0612A-1000	EVNSL0614A-1000	EVNSL0615A-1000	EVNSL0616A-1000	EVNSL0617A-1000	

CAT5e Shielded 350-MHz Solid Bulk Cable (STP)

Shielded cable for long 350-MHz horizontal runs.

CAT5e



- Ideal for long runs in industrial environments.
- Meets TIA/EIA-568-B.2 CAT5e specifications.
- Low attenuation and near-end crosstalk provide excellent transmission.
- **◆◆ WARRANTY** — Lifetime

Buyer's Guide | Electrical Specifications

MHz	Attenuation 100 m (dB) Min.	ACR 100 m (dB) Min.	PS-ACR 100 m (dB) Min.	ELFEXT (dB) Min.	PS-ELFEXT (dB) Min.	NEXT (dB) Min.	PS-NEXT (dB) Min.
100	22.0	13.3	10.3	23.8	20.8	35.3	32.3
200	32.4	—	—	17.7	14.7	30.8	27.8
300	36.0	—	—	14.2	11.2	28.2	25.2
350	44.9	—	—	12.9	9.9	27.1	24.1

Item	Blue	Gray	Yellow	White	Red	Green	List Price
CAT5e Shielded 350-MHz Solid Bulk Cable (STP), 24 AWG, 4-Pair							
1000-ft. (304.8-m) PVC	EVNSL0501A-1000	EVNSL0502A-1000	EVNSL0504A-1000	EVNSL0505A-1000	EVNSL0506A-1000	EVNSL0507A-1000	
Plenum	EVNSL0511A-1000	EVNSL0512A-1000	EVNSL0514A-1000	EVNSL0515A-1000	EVNSL0516A-1000	EVNSL0517A-1000	

CAT6 Shielded Patch Panel

Eliminate interference in high-performance CAT6 applications.

- Use in high-speed data, voice, and multimedia applications.
- Ideal for noisy environments.
- 110-type IDC terminations enable connections with 22–26-AWG cable.
- Contacts are 0.018" (0.46 mm) diameter phosphor bronze, 50-µm gold over nickel plating.
- Compatible with our CAT6 Shielded Jacks.
- Fits all 19" racks.
- **◆◆ WARRANTY** — Lifetime



CAT6



TECH SPECS

Current Rating — 1.5 amps
 Connectors — (24) RJ-45 jacks (8-wire);
 (24) 110-Type IDC
 Size — 1.75"H (1U) x 19"W x 4.3"D (4.4 x 48.3 x 10.9 cm)
 Weight — 4 lb. (1.8 kg)

Item	Code	List Price
CAT6 Shielded Patch Panel, 24-Port, 1U	JPS60A-24	

CAT6 Shielded Jack

Prevent interference and crosstalk in your CAT6 runs.

- Complies fully with TIA/EIA-568-B.2-1 CAT6 specifications for attenuation, Near- and Far-end crosstalk (NEXT and FEXT), and return loss.
- Tool-less jack is perfect for applications up to 1000BASE-T.
- Use with our CAT6 Shielded Patch Panel (above) in a channel to eliminate crosstalk in crowded data centers.
- Also works with our GigaStation2 Wallplates.
- Has a grounding belt.
- **◆◆ WARRANTY** — Lifetime

CAT6



Item	Code	List Price
CAT6 Shielded Jack	FMS300	

Tool-Less RJ-45 Jacks

No crimp tool needed.

- Use for field work when you don't have access to an RJ crimping tool.
- Ideal for testing connections before you make them permanent.
- Just put in wires and close the lid.
- Can be re-used up to 10 times.
- ♦♦ **WARRANTY** — Lifetime



TECH SPECS

Connectors — (1) RJ-45 male
Contact Pins — 50-micron gold
Wire Gauge — 24 or 26 AWG stranded
Wiring Standard — Any

NOTE: Plugs are non-data grade.

Item	Code	List Price
Tool-Less Modular Plugs 25-Pack	FM122-R2	

CAT6 Jacks, p. 90.
CAT5e Jacks, p. 99.



RJ-45 Dust Covers

Protect your terminations from dust and other environmental hazards.



- Use in patch panels to protect or reserve ports, or designate unused ports.
- Various colors make organization and identification easy.
- ♦♦ **WARRANTY** — Lifetime



Item	Code	List Price
RJ-45 Dust Covers, 25-Pack		
Blue	FMT100	
Black	FMT101	
Green	FMT104	
Red	FMT107	
White	FMT109	

Multimedia Patch Panels, p. 103.



USB 2.0 Extension Cable

Move your USB devices where you want them.

- Supports USB 2.0 and data rates up to 480 Mbps.
- Features one Type A male connector and one Type A female connector.
- Move USB devices such as printers, scanners, and storage drives to more convenient locations.
- Can be used with existing proprietary cable.
- Shielded twisted-pair construction.
- Available in three lengths. Extends your USB cable by up to 10 feet (3 m).
- ♦♦ **WARRANTY** — Lifetime



Item	Code	List Price
USB 2.0 Extension Cable		
Type A Male–Type A Female		
3-ft. (0.9-m)	USB05E-0003	
6-ft. (1.8-m)	USB05E-0006	
10-ft. (3.0-m)	USB05E-0010	

EZ-RJ45 CAT5e and CAT6 Modular Plugs

Make the easiest cable terminations ever!

CAT5e

CAT6



Clear connector enables simple, accurate threading.

- Make faster terminations and reduce wasted crimps and scraps.
- Simple one-piece design eliminates loading bar and liners.
- Verify proper wiring at a glance.
- Work with solid or stranded cable.
- Insert wires right through the connector.
- When done, pull the connector down over the cable jacket.
- Trim the wires and crimp the connector in one step with the EZ-RJ45® Crimp Tool.
- Available in CAT5e or CAT6.
- FCC compliant and UL® rated.
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
------	------	------------

EZ-RJ45 Modular Plugs		
CAT5e		
15-Pack	CAT5EEZ-15PAK	
30-Pack	CAT5EEZ-30PAK	
CAT6		
30-Pack	CAT6EZ-30PAK	

You may also need...

EZ-RJ45 Crimp Tool	FT1100A
EZ-RJPRO™ Crimp Tool	FT1150A
EZ-RJPRO Crimp Tool Replacement Blades	
EZ-RJ45, 2-Pack	FT1101
EZ-RJ12/11, 2-Pack	FT1151

CAT5e and CAT6 VoIP Wallplates

Make VoIP phone connections.



CAT5e

CAT6



- Include the jack and wallplate to make quick VoIP wall phone connections.
- Available in CAT5e or CAT6.
- Jack features universal wiring.
- Keystone-style wallplate has a flushmount finish and mushroom-style hooks for wallmounting.
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
------	------	------------

VoIP Wallplates		
CAT5e	WP369C5e	
CAT6	WP369C6	

VGA Splitter Cable

Send VGA video from one CPU to two displays.



- Ideal for splitting VGA video signals in desktop applications.
- Send analog video signals from one CPU or other video source to two VGA displays.
- Fully molded hood with thumbscrews makes installation easy.
- Provides DDC support. If you have questions about DDC support, call our FREE Tech Support.
- One monitor connector processes signals from all 15 leads and sets the resolution for both monitor connectors. The second monitor connector does not have Pin 15.
- ♦♦ **WARRANTY** — Lifetime

TECH SPECS

Capacitance — 56 pF/M at 100 Hz
Conductors — 14, 8 conductors, 3 coax
Impedance — 75 Ohms
Shield — Aluminum foil/Mylar®
Connectors — (1) HD15 M, (2) HD15 F

Item	Code	List Price
------	------	------------

VGA Video Splitter Cable		
6" (15.2 cm)	EVN21VGA	

NOTE: Not recommended in video extension applications.

CAT6 Protector Panels

Surge protection guards 100/1000BASE-T lines and equipment against lightning strikes.

- Protect sensitive equipment and data lines from damaging lightning strikes, power surges, and electrostatic discharge.
- Built-in, all-wire protection on each port makes this panel a time and money saver!
- Instead of buying multiple protectors, all you need is one of these panels.
- CAT6 compliant for use in high-speed data, voice, and multimedia applications.
- Ideal for hubs, routers, switches, and other high-speed equipment.
- Feature 110 IDC to RJ-45 straight-wired ports.
- Each port is individually protected.
- Panels feature a self-resetting, 2000-watt, bidirectional circuit.
- Super-fast response time of less than five nanoseconds.
- Overvoltages are safely shunted to a ground via an 11" (17.9-cm) braided wire and chassis frame.
- Fail-safe design destroys the port rather than the equipment if an extreme surge exceeds the panel's surge capacity.



JSM114A

- If a port fails, just pop in a new connector.
- Fit all 19" racks.
- **WARRANTY** — Lifetime

CAT6



TECH SPECS

Clamping Voltage — 7.5 V
Peak Pulse Current — 100 amps
Response Time — < 5 ns
Shunt Capacitance (Maximum) — <8 pF
Connectors — 110 block to RJ-45
Size — All: 19"W (48.3 cm);
 JSM112A: 1.75"H x 1.4"D (4.4 x 3.6 cm);
 JSM114A, JSM116A: 3.5"H x 1.4"D (8.9 x 3.6 cm)
Weight — JSM112A: 1.1 lb. (0.5 kg);
 JSM114A: 2.4 lb. (1.1 kg);
 JSM116A: 4.6 lb. (2.1 kg)

Item	Code	List Price
CAT6 Protector Panels		
12-Port, 1U	JSM112A	
24-Port, 2U	JSM114A	
48-Port, 2U	JSM116A	

GigaTrue® CAT6 Patch Cable, pp. 88–89.



CAT6 Feed-Through Patch Panels

No punchdowns needed with these feed-through panels.



JPM818A

- Feed-through connectors provide super-easy patching. Just plug in cables.
- Unique feed-through design features RJ-45 plugs on both sides of the patch panels, which simplifies cable management.
- Compliant with CAT6 specs.
- Perfect for data and voice transmissions.
- Work with either T568A or T658B wiring.
- Use in relay racks or comm cabinets.
- The 24-port models include one cable management bar; the 48-port models include two.
- **WARRANTY** — Lifetime

TECH SPECS

Construction — Steel
Shielding — JPM814A, JPM816A: (24) or (48) shielded RJ-45 ports
Wiring — Straight-through
Connectors — (24) or (48) RJ-45
Size — With cable management bar(s) installed:
 All: 19"W x 4.5"D (48.3 x 11.4 cm);
 JPM818A, JPM814A: 1.75"H (1U) (4.4 cm);
 JPM820A, JPM816A: 3.5"H (2U) (8.9 cm)
Weight — With cable management bar installed:
 JPM818A: 2 lb. (0.9 kg);
 JPM820A: 3 lb. (1.4 kg);
 JPM814A: 2.2 lb (1 kg);
 JPM816A: 4.1 lb. (1.9 kg)

Item	Code	List Price
CAT6 Feed-Through Patch Panels, 19"W		
Unshielded		
24-Port, 1U	JPM818A	
48-Port, 2U	JPM820A	
Shielded		
24-Port, 1U	JPM814A	
48-Port, 2U	JPM816A	

CAT6 Bulk Cable, pp. 86–87.



CAT6 Feed-Through Protector Panel

Get reliable surge protection plus the convenience of feed-through connectors.



- Built-in, all-wire protection on each port guards against lightning strikes, surges, overvoltages, and electrostatic discharge.
- Stops surges to protect hubs, switches, concentrators, and data lines.
- Super-fast response time of less than five nanoseconds.
- Fits all 19" cabinets and relay racks.
- Easy feed-through design. Patch cables without punching down wires. Just plug them in!
- CAT6 compliant.
- Ideal for high-speed data, voice, and multimedia applications, including 100/1000BASE-T networks.
- ♦♦ **WARRANTY** — Lifetime

CAT6



TECH SPECS

Clamping Voltage — 7.5 V
 Peak Pulse Current — 132 amps
 Response Time — < 5 ns
 Shunt Capacitance (Maximum) — <40 pF
 Connectors — (32) RJ-45:
 (16) in, (16) out
 Size — 3.5" H (2U) x 19" W x 0.75" D
 (8.9 x 48.3 x 1.9 cm)
 Weight — 1.7 lb. (0.8 kg)

Item	Code	List Price
CAT6 Feed-Through Protector Panel	JPM812A	

High-Density Shielded Patch Panel • CAT5e Shielded Jack

The right combo for eliminating crosstalk in crowded data centers.



JPS5E0A

CAT5e



FMS200

High-Density Shielded Patch Panel

- Only 1U high with 24 ports for high-density applications.
- Use in CAT5e networks.
- Jacks snapmount into keystone openings.
- 14-gauge all-steel construction for extreme durability and strength.
- A preloaded, 12-gauge, UL® rated grounding strap makes termination easy.
- A built-in cable management shelf provides strain relief for each cable.
- Panel mounts in standard 19" racks.

CAT5e Shielded Jack

- Shield housing made of die-cast solid zinc for better ANEXT and EMI protection.
- CAT5e channel compliant.
- Tool-less termination cap maintains pair twists.
- Unique wire management stuffer cap separates pairs, prevents crossed pairs, and reduces crosstalk.
- Inversely oriented, right-angled IDC contacts prevent NEXT.
- Features a quick grounding mechanism.

- ♦♦ **WARRANTY** — All: Lifetime

Item	Code	List Price
High-Density Shielded Patch Panel 24-Port	JPS5E0A	
CAT5e Shielded Jack, T568B	FMS200	

Panel-Mount Bezel

Customize panels with UTP, fiber, and coax connections.



- Use to make custom connections in enclosures, panels, and walls.
- Works with GigaStation2 Snap Fittings and GigaTrue2 and GigaBase2 jacks and (pp. 90, 99, 115).
- ♦♦ **WARRANTY** — Lifetime



Item	Code	List Price
Panel-Mount Bezel, Keystone Opening Silver	FMT1000	

CAT6 Straight-Through Couplers

Make in-line CAT6 patch cable connections.

- Directly connect two straight-pinned CAT6 cables to extend the distance of your run.
- Feature two RJ-45 (8-wire) modular jacks.
- Work with T568A or T568B wiring.
- Backwards compatible with CAT5e.
- ♦♦ **WARRANTY** — Lifetime

CAT6



FM606



FM608

Item	Code	List Price
CAT6 Straight-Through Couplers		
Unshielded		
White	Single	FM606
	10-Pack	FM606-10PAK
Off-White	Single	FM607
	10-Pack	FM607-10PAK
Black	Single	FM609
	10-Pack	FM609-10PAK
Shielded		
Metal	Single	FM608
	10-Pack	FM608-10PAK

Easy-AV Drop Boxes

Stylish boxes for easy embedding of ports and power outlets in conference room tables.



- Give you an elegant, unobtrusive way to install drops for audio/video and IT devices, phones, and AC power in a conference room environment.
- Can be installed in tables, desks, lecterns, control consoles, or any flat surface that's ¾" to 2½" thick.
- Complement any decor. Available in silver or black finish with round or square covers.
- Chassis is made of rugged, 16-gauge galvanized steel. Milled cover opens more than 90° and stays open when in use.
- Order with an AC power outlet and a VGA/audio connector; or with two AC power outlets.
- All have two keystone openings for populating with your choice of optional connectors.
- ♦♦ **WARRANTY** — Lifetime

BLACK BOX® Easy-AV Drop Boxes bring easy connectivity to conference room users who need convenient access to network drops, AC power sources, and audio/video displays.

The small footprint makes these boxes great for tables and workstations crowded with equipment. Streamlining and organizing work space connections, the drop assemblies eliminate the need to string cables and cords across work areas in various directions. Easy-AV Drop Boxes also offer you a safer alternative to running cables from wall or floor jacks.

The boxes can also be installed easily in:

- Lecterns and podiums
- Classroom desks and computer lab cubicles
- Hospital and medical lab tables
- Library settings
- Internet cafe and cafeteria tables
- R&D and workbench facilities
- Retail PoS kiosks and checkout counters

They're particularly ideal for schools and publicly accessible workstations, where you want to install connections at desks or cubicles but keep most of the wiring safely and securely concealed from the users.

Looking to spruce up your boardroom? Then Easy-AV Drop Boxes are the perfect accessories to accomplish that goal. They give you an elegant, stylish way to keep computer, projector, and phone connections out of sight. Undistracted by unsightly wiring, visitors and colleagues can keep focused on important matters.

Customizable connectivity.

The boxes are available in two configurations:

- With a 120-VAC power outlet and a VGA video and audio connector.
 - With dual 120-VAC power outlets.
- All drop boxes also include two keystone openings. You simply order two connectors you want to insert into the openings. Choose from:
- S-Video plug-ins;
 - RCA connectors for stereo audio and Composite video;
 - CAT5e and CAT6 network connections;
 - RJ-11 telephony jacks;
 - USB Type A/Type B connectors.

Blank covers and a number of other types of connectors in various colors are also available. To order what you need, call our FREE Tech Support.

Install easily and built to last.

Easy-AV Drop Boxes install easily in any flat surface that's ¾" to 2½" thick. Using a standard hole saw drill, you simply cut a 3½" diameter round hole in the table or other surface, then drop in the assembly and secure it using the included clamping screws. Drop boxes with round or square top covers are available.

Plus, they're built to last. They feature a CNC-milled solid cover with 16-gauge galvanized steel chassis, as well as a cable strain-relief attachment point to minimize physical demands on cables. The cover opens 96° and remains open, and because it features rubber grommets, it snaps shut quietly.



Item	Code	List Price
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First, order a drop box...

Easy-AV Drop Box with (2) Keystone Openings plus (1) AC Power Outlet and (1) HD15 VGA Port with 3.5-mm Audio Jack

Silver	Round Cover	AVS1000
	Square Cover	AVS1001
Black	Round Cover	AVS1010
	Square Cover	AVS1011

plus (2) AC Power Outlets

Silver	Round Cover	AVS1100
	Square Cover	AVS1101
Black	Round Cover	AVS1110
	Square Cover	AVS1111

...then choose any two connectors for the keystone openings in the Easy-AV Drop Box.

S-Video Connector Punchdown 110/4-Pin Mini DIN F	FMT375
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RCA Connectors Passthrough RCA Female/RCA Female	
Yellow	FMT400
Red	FMT420
White	FMT440

Punchdown 110/RCA Female	
Yellow	FMT410
Red	FMT430
White	FMT450

CAT5e Connectors Punchdown 110/ RJ-45 Female	FMT921-R2
Passthrough RJ-45 Female/RJ-45 Female	FM592

CAT6 Connectors Punchdown 110/ RJ-45 Female	FMT631-R2
Passthrough RJ-45 Female/RJ-45 Female	FM692

RJ-11 Phone Connector Punchdown 110/RJ-11 Female	FMT239
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USB Connector Type A Female/Type B Female	FMT1050
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NOTE: Other connectors and colors are available. Please contact our FREE Tech Support.

Power Panel CAT5/CAT6 DVM and Network PoE Tester

Protect expensive equipment—identify network devices and PoE voltages before you plug in anything on CAT5/6 lines!

- This combo Digital Voltmeter (DVM) and Power over Ethernet (PoE) tester belongs in every technician's toolbox.
- Know what's running on your CAT5/CAT6 lines before you plug in expensive equipment.
- Identify network devices, such as switches, NICs, and more.
- Detect PoE equipment, such as VoIP phones or surveillance cameras.
- See PoE voltages and power level in watts.
- Connect two PoE devices inline and measure the power (in watts) passing through.
- Ultrabright LEDs alert you to the presence of devices and voltage.
- Scans and identifies each cable pair and determines what is running on each, such as device type, voltage, and power level.
- Discover any connected phones and fax machines.
- **◆◆ WARRANTY** — 1 Year

TECH SPECS

CE Approval — Yes
Connectors — (2) RJ-45
Power — 9-V alkaline battery (included)
Size — 1.5"H x 3.8"W x 3.8"D (3.8 x 9.7 x 9.7 cm)
Weight — 0.5 lb. (0.2 kg)



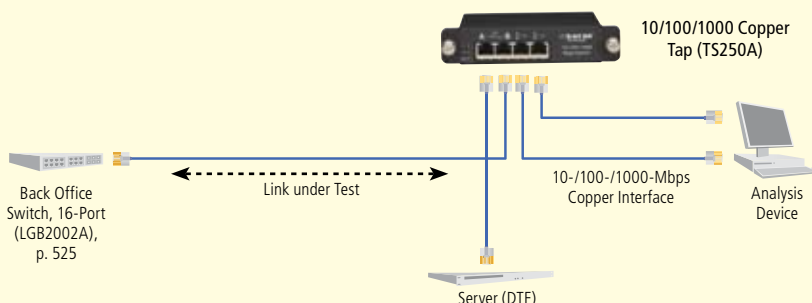
Item	Code	List Price
Power Panel CAT5/CAT6 DVM and Network PoE Tester	TS150A	

Copper Taps • Copper Aggregators • Optical Taps

Monitor high-speed copper or fiber links with no network disruption.



TS250A



- Get an accurate view of your copper or fiber optic network.
- Provide a complete copy of data from full-duplex network links.
- Operate transparently and don't block error packets.
- Provide passthrough signals.
- Can be left in place permanently.
- Connect and disconnect monitoring devices without disruption.
- The 10/100/1000 models autonegotiate for speed.
- Copper Tap model has separate transmit and receive channels; Aggregator models combine streams for dual monitoring.
- Provide continuous data flow if the power fails.
- **◆◆ WARRANTY** —1 Year

Get a complete view of the traffic on your copper or fiber optic network without any disruption or downtime.

Because you can leave the tap or aggregator inserted permanently without interfering with network operation and minimizing points of

failure, you can easily connect and disconnect different devices. Use them with network and protocol analyzers, security monitoring devices, remote monitoring applications, RMON probes, and more.

The **10/100 and 10/100/1000 Copper Taps** provide a complete copy of the data from a full-duplex copper link to your network analyzer. First, the tap replicates the full-duplex signal from the network. Then, it sends one signal back to the network and the other signal to a monitoring device. The tap operates passively and works regardless of traffic levels.

If you want to monitor, transmit, and receive data streams at the same time, choose a **10/100/1000 Copper Aggregator**. They combine, transmit, and receive data streams so you can see them together without switching from one to the other. Choose between models with either a 256 or 512 MB buffer, which continues to collect the data stream during spikes in network traffic. Need a larger buffer? Order the **1-GB Aggregator Tap**, which reduces the chance of dropped packets on Gigabit links.

We also offer **Optical Taps** for fiber optic monitoring. Use them on either side of the full-duplex link under test and a standard full-duplex

analyzer connection. They copy traffic from one optical link for one optical monitoring device.

Optical Taps have LC connectors and split the full-duplex signal in 50/50 ratios from the network into two signals, sending one back to your network and the other to your monitoring device (a dual-receive capture card is required). For fiber optic applications where you need to monitor links running 10-Gigabit Ethernet (10-GbE) traffic, order the **10-Gb Aggregator Tap**.

The **Rackmount Bracket** holds up to three taps or aggregators.

Item	Code	List Price
10/100 Copper Tap	TS230A-R2	
10/100/1000 Copper Tap	TS250A	
10/100/1000 Copper Aggregators		
256 MB Buffer	TS254A	
512 MB Buffer	TS255A	
1-GB Aggregator Tap	TS256A	
Single-Channel Optical Tap, 50/50 Split Ratio		
Multimode 50-µm	TS243A	
62.5-µm	TS240A-R2	
Single-Mode 9-µm	TS244A	
10-GB Optical Tap, 50/50 Split Ratio		
Multimode 50-µm	TS245A	
Single-Mode 9-µm	TS246A	
Rackmount Bracket, 19", 1U	TS253	

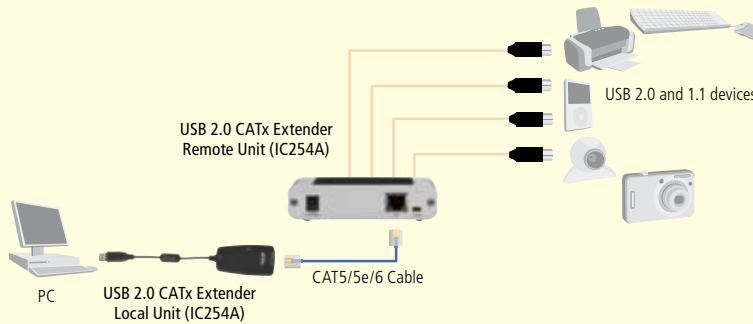
USB 2.0 CATx Extenders

Break the distance barrier and extend USB 2.0 runs up to 300 feet over CAT5/5e/6.

- Supports USB 2.0 and USB 1.1.
- Transmit signals up to 480 Mbps.
- Use inexpensive CATx cable you may already have installed.
- Ideal for connecting I/O devices, printers, scanners, cameras, keyboard, mice, and more.
- Use for device sharing, digital signage, security, industrial control, and other remote applications.
- True plug and play—no driver needed.
- Supports Windows® 98 SE or higher, Mac®, and Linux®.
- Use the 1-port model to extend a desktop connection to one USB device.
- To extend connections for four devices, choose the 4-port model with an integral hub.
- Includes a local and a remote unit.
- The local unit is bus powered at the CPU.
- An included adapter powers the remote unit.
- ♦♦ **WARRANTY** — 1 Year



IC254A: local unit



IC254A: remote unit

Item	Code	List Price
USB 2.0 CATx Extenders		
1-Port	IC253A	
4-Port	IC254A	
♦ Include (1) local unit, (1) remote unit, and a power adapter.		

DB9 Mini Converters (USB to Serial)

Connect RS-232/422/485 serial equipment to the USB port on your PC.



IC830A

- Add a COM port to your USB PC or laptop.
- Support USB 1.0, 1.1, and 2.0.
- Automatic configuration on Windows 98, Me, 2000, XP, and Windows Vista® systems.
- RS-485 models support TDA, TDB, RDA, RDB, and GND, plus Send Data Control (SDC). Use on RS-485 2-wire or RS-422/485 4-wire networks.
- RS-232 model offers full handshake support.
- The baud rate on RS-485 devices is up to 921 kbps; on the RS-232 converter, 460 kbps.
- Powered from the USB interface.
- Includes a 3.2-ft. (1-m) USB cable.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Connectors — IC830A–IC831A: (1) USB Type B F, (1) DB9 F, IC832A–IC833A: (1) USB Type B F, (1) terminal block; IC834A: (1) USB Type B M, (1) DB9 M

Item	Code	List Price
DB9 Mini Converters, USB to Serial		
RS-485, 2-Wire, DB9	IC830A	
RS-485, 4-Wire, DB9	IC831A	
RS-485, 2-Wire, Terminal Block	IC832A	
RS-485, 4-Wire, Terminal Block	IC833A	
RS-232, DB9	IC834A	

Async PCI Express Cards

Add serial devices and ports via the next-generation PCI bus.

Async RS-232/422/485 PCI Express Card

- Provides two serial ports.
- Configure ports for RS-232, RS-422, or RS-485.
- Uses 16C950 UARTs with 128-byte Tx/Rx FIFOs for data rates to 921.6 kbps.
- Fully compatible with legacy 16550 UARTs.
- In RS-485 modes, the transmitter is enabled in hardware, eliminating software control.
- Passes all modem signals in RS-232 mode.
- Use in low-profile PCI Express slots.
- Includes a 36" (91.4 cm) cable that terminates to two DB9 male connectors.

- ♦♦ **WARRANTY** — All: Lifetime

Async RS-232 PCI Express Card

- Compatible with X1 PCI Express slots for X2, X4, X8, X16, and X32.
- Features 16 RS-232 ports capable of data rates of 460.8 kbps.
- Uses 16C854 serial UARTs to provide 128-byte TX/RX FIFOs for maximum reliability in data-intensive data applications.
- Passes all modem signals.
- Compatible with standard PCI card software.
- Includes two 36" (91.4 cm) cables that terminate to eight DB25 male connectors each.

The IC984C includes two 36-inch cables with eight DB25 male connectors.



Item	Code	List Price
Async PCI Express Cards, Serial		
2-Port, RS-232/422/485	IC983C	
16-Port, RS-232	IC984C	

ClimateCab

No cooling available? One cabinet running hot?
No problem. Just use a self-contained ClimateCab.

NEMA 12

- Specifically engineered to solve those tough cooling problems.
- NEMA 12 rated for protection against dirt, dust, lint, debris, and splashing liquids.
- Air-conditioning units keep equipment cool even with ambient temperatures up to 100° F (37.8° C).
- Seamless door gaskets keep the cool air in and keep the dust and contaminants out.
- High-efficiency, closed-loop cooling system recirculates air in the cabinet and keeps outside air out.
- An internal evaporator eliminates condensation.
- Scratch-resistant safety glass window for easy viewing.
- Both models feature a robust 12-gauge frame and 14- or 16-gauge sides and doors.
- Lockable doors.
- **GO GREEN** — Save energy and money by cooling only the cabinet rather than a whole room or IT center.
- **◆◆ WARRANTY** — RM5010A, RM5000A: 5 Years; RMAC6000, RMAC8500: 1 Year

ClimateCab Data and Server Cabinets are full-sized 42U cabinets that come configured for servers or datacomm equipment. Both feature a welded 12-gauge steel frame with integral struts, so they support up to 1500 pounds (680 kg) of equipment.

The Data Cabinet features tapped rails and is wider and shallower to house switches, patch panels, and cable management.

The server model features standard 19" rails with M6 mounting holes. It's extra deep at 40" so you have room for larger servers.

Both the Data and the Server Cabinet are designed to work with our 6000- or 8500-BTU Air-Conditioning Units, which are sold separately. Air-Conditioning Units mount on the side of the cabinet.

Two sets of rails are adjustable from the front to rear. A mobile base enables easy placement. Levelers and an anti-tip bracket secure the cabinet to the floor.



Our 6000 or 8500 BTU Air-Conditioning Units mount on the side of the ClimateCab.

Buyer's Guide | ClimateCab

	RM5010A	RM5000A
Exterior Height	84"* (231.4 cm)	84"* (231.4 cm)
Rack Units	42U	42U
Exterior Width	27.9" (70.9 cm)	24.0" (61 cm)
Exterior Depth	33.3" (84.6 cm)	41.2" (104.6 cm)
Equipment Depth	28.3" (71.9 cm)	36.2" (91.9 cm)
Weight Capacity	1500 lb. (680.4 kg)	1500 lb. (680.4 kg)

* With casters.

NOTE: ClimateCab ships assembled without the Air-Conditioning unit mounted. Mounting the AC unit takes about two minutes.

NOTE: For kits or custom AC requirements see blackbox.com or call our FREE Tech Support.

Item	Code	List Price
ClimateCab Cabinets, 42U, Black (order Air-Conditioning Unit separately)		
Data, Tapped Rails	RM5010A	
Server, M6 Rails	RM5000A	
ClimateCab Air-Conditioning Units for RM5000A and RM5010A		
6000 BTU (1.5-kW)	RMAC6000	
8500 BTU (2.5-kW)	RMAC8500	

ClimateCab Wallmount Cabinets, facing page.



Wallmount ClimateCab

Protect and cool equipment in areas without air-conditioning.

- NEMA 12 rated for protection against falling dirt, circulating dust, lint, debris, and spashing liquids in indoor environments.
- Includes 19" rails with 12-24 tapped mounting holes.
- Scratch-resistant safety glass window for easy viewing.
- Fully welded body and door construction.
- Robust 12-gauge frame and 14- or 16-gauge sides and doors.
- Seamless door gaskets keep out dust and contaminants.
- Lockable doors.
- **GO GREEN** — Save energy and money by cooling only the cabinet rather than a whole room or IT center.
- **◆◆ WARRANTY** — 1 Year

ClimateCab with Air-Conditioning

- Perfect for harsh environments and remote locations without cooling infrastructure.
- 800-BTU air-conditioning units keep equipment cool even in ambient temperatures up to 100° F (37.8° C).
- Closed-loop cooling system recirculates air in the cabinet and keeps outside air out.
- An internal evaporator eliminates condensation.

NOTE: For more photos and information, see blackbox.com.

NOTE: ClimateCab ships assembled without the Air Conditioning unit mounted. Mounting the AC unit takes about two minutes.

ClimateCab with Fan

- Use the fan models in areas where you need protection from the elements, but temperature control is not a significant issue.
- Air filters on the bottom can be easily removed for cleaning without opening the cabinet.
- Pagoda-style fan top provides protection from falling liquids and debris.

Buyer's Guide

Exterior Height	24" (61 cm)
Rack Units	12U
Exterior Width	24" (61 cm)
Exterior Depth	24" (61 cm)
Equipment Depth	21.2" (53.8 cm)
Weight Capacity	100 lb.* (45.4 kg)

* Center section only.

NEMA 12



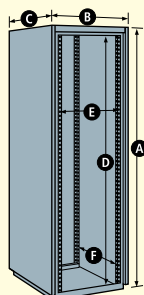
ClimateCab with Air-Conditioning and Double-Hinged Door (RMW5110AC)

Item	Code	List Price
ClimateCab Wallmount Cabinets, 12U, Beige with Air-Conditioning		
Single-Hinged	RMW5130AC	
Double-Hinged	RMW5110AC	
ClimateCab Wallmount Cabinets, 12U, Beige with Fan		
Single-Hinged	RMW5120AF	
Double-Hinged	RMW5100AF	

Zone 4 Seismic Cabinets

Server cabinets that won't be rocked.

- Weight capacity of 1100 pounds.
- Constructed of heavy-gauge welded steel.
- Protect servers, networking equipment, and telephony equipment through Zone 4 seismic activity.
- Vented heavy-gauge steel base can be bolted to floor with seismic-rated fasteners.
- Performance rating based on NEBS-Telcordia GR-63-CORE standard vibration test.
- Reinforced front door features smoke gray acrylic window.
- EIA standard for 19" rackmount equipment.
- Doors equipped with 3-point latching and keylock handle.
- Doors and side panels removable for easy installation and access.
- Tops feature two cable entry ports with caps and grommets, and two fan-ready cutouts with finger guards.
- With their "chimney" effect, the cabinets cool mounted equipment by drawing cool air through louvers and venting the heated air through the top.
- **◆◆ WARRANTY** — 5 Years



Buyer's Guide

	RM5100A	RM5110A
A Exterior Height	84"	84"
B Exterior Width	27.55"	27.55"
C Exterior Depth	39.4"	31.5"
D Rack Units	45U	45U
E Interior Width	28.5"	26.5"
F Interior Depth	37.9"	30"
Weight	400 lb.	376 lb.



RM5100A

Item	Code	List Price
Zone 4 Seismic Cabinets, 45U		
84"H x 28"W x 40"D	RM5100A	
84"H x 28"W x 32"D	RM5110A	

NOTE: Ships via motor freight.

More Zone 4 Seismic Cabinets and Racks, p. 245.

L-Box Wallmount Cabinet

Save on space without sacrificing access.



- Hinged, L-shaped door provides full access to installed equipment while maintaining a low profile.
- Weight capacity of 75 pounds.
- Constructed of 12-gauge mild steel.
- Spring-loaded, self-retained hinge pins enable you to remove the door.
- 120-degree door opening.
- Quarter-turn latches with key lock.
- Knockouts for 4-inch fan on top and bottom of enclosure.
- Two 3-inch knockouts on back for cables.
- Multiple cable tie-down points on back of enclosure.
- Includes (20) 10-32 mounting screws.
- UL® Listed; meets EIA 310 D standard.
- ♦♦ **WARRANTY** — Lifetime



Buyer's Guide

Exterior Height	24"
Exterior Width	13"
Exterior Depth	24"
Rack Units	6U
Interior Width	16.28"
Interior Depth	18.5"
Weight	50 lb.

Item	Code	List Price
L-Box	RM545AL	

Wireless Cabinet

Shelter equipment without blocking the signals of wireless devices.



- Weight capacity of 50 pounds.
- Fiberglass construction enables Wi-Fi® and WLAN signals to pass through unimpeded.
- NEMA 4X rated, so it can be used indoors and out, on walls, floors, and rooftops.
- Protects against windblown dust and rain, splashing water, corrosion, and ice formation.
- Seamless gasket provides a watertight and dust-tight seal.
- Fiberglass polyester resists chemicals and withstands temperature changes.
- Molded fiberglass can be easily punched, drilled, filed, or sawed.
- Removable, plenum-rated solid front door.
- Compact and lightweight.
- ♦♦ **WARRANTY** — Lifetime



Buyer's Guide

Exterior Height	18"
Exterior Width	16"
Exterior Depth	10"
Interior Width	14.25"
Interior Depth	7.7"

Item	Code	List Price
Wireless Cabinet	RM100A	
♦ Includes cabinet, mounting brackets, attachment screws, and mounting panel.		

Laptop Cart

Store, protect, and charge 20, 26, or 32 laptop computers.



- Perfect for classrooms.
- Recharge laptops overnight with built-in power strips.
- Holds up to 17" screen laptops.
- Translucent tambour door enables visual inventory while still keeping contents secure.
- Laminate top provides a surface for writing or equipment.
- Vented design for cooling.
- Includes locking swivel and rigid casters.
- Rubber corner bumpers.
- All measure 37.8"H x 26.25"D. Widths are 30.25", 35.8", or 41.8", respectively.
- UL® Listed.
- ♦♦ **WARRANTY** — Lifetime



Item	Code	List Price
Laptop Cart 20 Unit	LTC20	
Laptop Cart 26 Unit	LTC26	
Laptop Cart 32 Unit	LTC32	

Laptop Depot

Store and secure five or eight laptops under a desk or in a standalone cart.



- Laptop Depot consists of a vented enclosure with a locking door.
- To make a workstation, add the laminate top and caster base with locking drawer.
- The Laptop Depot can also be mounted under or on top of a desk.
- Includes power strip.
- UL® Listed.
- ♦♦ **WARRANTY** — Lifetime



NOTE: Other colors are available with minimum quantities. For details, call Customer Service at 724-746-5500.

LTD5 shown with optional laminate top and caster base with locking drawer.

Item	Code	List Price
Laptop Depot 5 Unit	LTD5	
Laptop Depot 8 Unit	LTD8	

To make a workstation, order...
Optional Laminate Top, and Caster Base with Locking Drawer

5 Unit	LTD5B
8 Unit	LTD8B

Elite Cable Managers

Run more cable in less time with these highly engineered cable managers.

- Use to manage and route cables efficiently in EIA standard 19" racks.
- Horizontal and vertical units can be used alone or together in a 2- or 4-post open frame rack.
- Double-hinged removable covers and doors provide easier access during installation.
- Economically converts to a double-sided unit with the addition of a Rear Post & Gate Kit.
- **◆◆ WARRANTY** — Lifetime

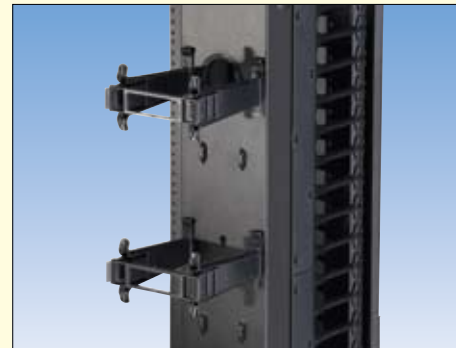


Elite Horizontal Cable Managers

- Available in 1U single-sided and 2U single- and double-sided versions.
- Arrowhead-shaped fingers funnel cables into the base and hold them securely.
- Enable easy cable routing. Insert and remove cables while maintaining retention.
- Rounded end posts maintain proper bend radius and protect cabling as it enters and exits the manager—no tearing and gouging of jackets when quickly routing cable.
- High capacity and extra depth for maximum CAT5e, CAT6, and CAT6a cabling density.
- Cover hinges on the top or bottom and snaps close to protect cabling, or it can be removed.
- Double-sided model has large passthrough holes for running cable from front to back.
- “Tool-less” snap-in design holds manager in place during installation.
- Constructed of durable, UL® Listed black composite material with rigid design.
- Include 10-32 and 12-24 screws for mounting.
- Add the steel Horizontal Tie-Down Bar to support and maintain bend radius for cables on the back side of a rack, behind a patch panel, for example. Can also be used to support runs between the horizontal and vertical managers, or above a patch panel to separate and control patch cables.



Horizontal Cable Managers keep patch cables organized.



The Vertical Post & Gate Kit has 10 sets of posts and gates that snap together quickly. Each set consists of two posts and one gate. The posts snap into prepunched holes on the cable manager. The gates swivel 280° in either direction for easy cable access.

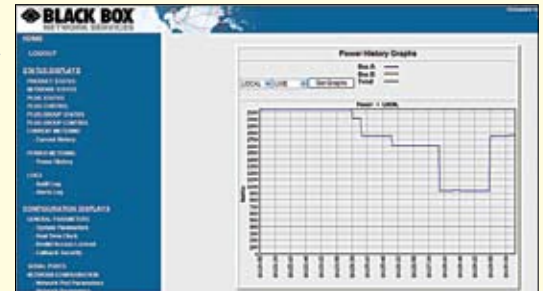
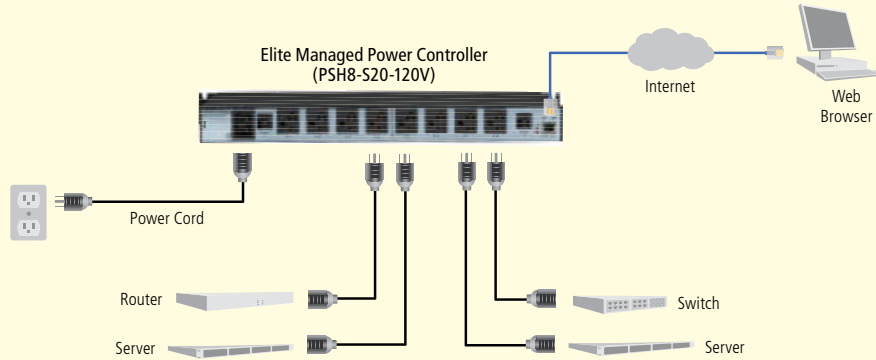
Elite Vertical Cable Managers

- Single-sided, 45U (7-foot-high) managers available in 6" and 12" widths.
- Mount on the side of or between 2- and 4-post open racks. Align easily with the bolt pattern on an open frame rack.
- Cover has a central spring-loaded latch and opens 180° to allow full access to cables from the left or right, or it can be removed.
- Generous finger depth for maximum cable density. Fingers are shaped like arrowheads to funnel cables into the base and secure them.
- Rounded edges on the manager and its grommets protect cable jackets from damage.
- Provide proper bend radius management.
- Feature passthrough holes for routing cable front to back, as well as rear cable tiedowns.
- Post and gates can be installed in multiple locations in the rear of the manager.
- Order extra 6" or 12" posts and gate sets as needed or to create a double-sided manager.
- Door and cable channel are lightweight aluminum; fingers and hinge points are made of composite material.

Item	Code	List Price
Elite Horizontal Cable Managers		
Single-Sided	1U ECMH1US	
	2U ECMH2US	
Double-Sided	2U ECMH2UD	
Horizontal Tie-Down Bar		
	1U ECMTDB	
Elite Vertical Cable Managers, 45U		
6"	ECMV45U6	
12"	ECMV45U12	
Vertical Rear Post & Gate Kit, (10) Sets		
6"	ECMVPG6	
12"	ECMVPG12	

Elite Managed Power Controllers

Remotely monitor, control, and report power for network equipment.



Easy-to-use Web-based management.

- Monitor equipment power and automatically notify you of changes in current levels, temperature, and circuit breaker status.
- Constantly measure current consumption, temperature levels, and other factors.
- Notify you via e-mail, SNMP, or Syslog messages, and with audible alarms from the controller, when user-defined thresholds are exceeded.
- Include one or two separate circuits of input feed handling capacity per circuit.
- Provide advanced circuit breaker protection.
- Total power control! Give you remote individual outlet switching, on/off/reboot/default/load shed switching, as well as timed on/off/reboot switching.
- Offer true RMS current metering and reporting.
- Front-panel LED displays amps, kilowatts, volts, and temperature readings for each circuit.
- Report-generating capabilities. Output detailed records of current and power consumption, with graphs showing daily, weekly, monthly, and yearly power histories.
- Four levels of access — you decide who gets control.
- Secure Shell (SSHv2) encryption and address-specific IP security masks help safeguard access to command and configuration functions.
- Support full MIB and SNMP traps.
- Expandable through their RJ-45 auxiliary ports. Link to three other power managers and control all four units under one IP address.
- Horizontal models include either (1) or (2) 15-amp removable power cords. If you plug the Controller into a 20-amp circuit, you will need 20-amp cords. For details, call our FREE Tech Support.
- Vertical models include either a 20-amp removable power cord or a 30-amp power cord hardwired to the unit.
- All models include rackmounting brackets.
- RoHS compliant.
- **GO GREEN** — Save energy and money by shutting off power to equipment during downtimes.
- **◆◆ WARRANTY** — 5 Years

With today's skyrocketing utility bills and the higher consumption caused by ever-increasing computing, you can't afford not to keep a close eye on power usage and current levels in high-density data centers — particularly after hours.

The Elite™ Managed Power Controller from Black Box gives you advanced power monitoring capabilities and more. As a power management and control solution, it not only distributes power to equipment at the rack, it also enables you to check circuit status, voltage supply, and monitor current constantly on its circuits. You can also use it to measure and record kilowatt hour draw and to monitor individual outlet usage.

Monitoring can be done over an IP link, an external modem, or a local terminal plugged into its RS-232 port. The power controller also features a 10BASE-T/100BASE-TX port for connecting it to a network.

Check power and temperature levels remotely to pinpoint peak levels in data centers. Then, if necessary, remotely switch power on and off to individual outlets or groups of outlets.

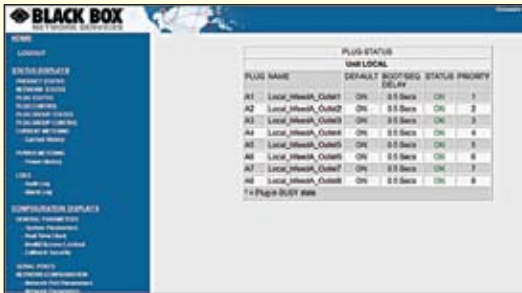
Go green and save power.

Conserve energy in the data center by setting scheduled shutdowns to turn off unused equipment during off hours.

Alarms triggered when power thresholds are exceeded.

Just set clearly defined thresholds, and when they're exceeded, the Elite Managed Power Controller immediately lights an LED and emits an audible alarm to alert anyone working nearby. Even better, it can also promptly send an e-mail, a SNMP alert, a Syslog message, or a text message to critical personnel off-site.

Once notified, users can then remotely turn power on or off or reboot the affected network devices — all from the comfort of home, another office, or anywhere with an Internet connection.



Just point and click to manage power.



PSH8-D20-120V: top: front view; bottom: rear view

Customizable alarms and automatic load shedding.

The Elite™ Managed Power Controller generates alarms based on different events:

- When current or rack temperature exceeds your preset thresholds.
- When input voltage is lost.
- When there's an open circuit breaker.
- When current consumption reaches a point that warrants further investigation.
- When current consumption reaches a level that's close to the maximum.

You can set up the Elite Managed Power Controller to respond on its own in case you're not there to respond when temperature or current rises to critical levels. It intelligently sheds the current load by temporarily shutting down nonessential devices.

PING watchdog with auto reboots.

You can also set the Elite Managed Power Controller to PING an IP address at specific intervals. If it doesn't respond, the power manager reboots one or more outlets.

The controller can watch for — and alert you to — multiple login attempts on its 10/100 network and serial ports.

In addition, you can set up alarms in case of loss of communications on the ports.

In-depth power history reporting.

The Elite Managed Power Controller generates power history reports to show total power usage on each circuit — information that helps you zero in on where you're wasting power.

Obtain historical data on unit temperature, current, and other power-related metrics. You can see and report spikes or drops in amperage, voltage, and temperature in rich, graphic detail. Graph daily, weekly, monthly, or even yearly power consumption data.

These reports and graphs can then be forwarded to technical personnel anywhere in the world.

Easy to set up, control, and manage.

The Elite Managed Power Controller can be controlled by a local PC (communicating with the unit via its serial port), by an external modem, or through a TCP/IP network. In Command Mode, you can communicate with the power manager using Telnet™ or SNMP, as well as a browser and an SSH client, in addition to a modem or local PC.

Through the controller's powerful management interface, you can designate groups of plugs that are dedicated to a similar function and ones

you'll want to switch or reboot all at the same time. In addition, you can schedule reboots to automatically occur at a selected time and day of the week.

The horizontal models come with one or two detachable 15-amp power cords. (If you plan to plug the controller into a 20-amp circuit, call our FREE Tech Support for a 20-amp power cord.) The 20-amp vertical models come with a detachable 20-amp power cord, and the 30-amp vertical models come with a 30-amp hard-wired cord.

TECH SPECS

Circuit Breakers — Single-circuit models: (1) 20-A breaker or (1) 30-A breaker;

Dual-circuit 120-VAC models:

(2) 20-A breakers (one for each circuit);

Dual-circuit 208-VAC models: (2) 16-A breakers (one for each circuit)

Inlets — (1) IEC 60320-C20 AC inlet per circuit; 30-amp units are hardwired

Maximum Load — Per outlet: PSH8-S20-120V,

PSH8-S20-208+, PSH8-D20-120V,

PSH16-D20-208+V: 20 A;

PSH16-D20-120V, PSH8-D20-208+V,

PSV20-S20-120V, PSV20-S20-208+V: 16 A;

PSV20-S30-120V, PSV20-S30-208+V: 30 A

Switched Outlets — 120-VAC models: (8), (16), or (20) NEMA 5-20R;

208-VAC models (8), (16), or (20) IEC320-C13

CE Approval — Yes

Connectors — Auxiliary: (3) RJ-45 (for connecting to additional Elite Managed Power Controllers; can also be reconfigured as RS-232 serial ports);

Remote port: (1) RJ-45 (for connecting optional Elite Managed Power Controller Display Unit);

Serial console: DB9 M (RS-232);

Network: (1) RJ-45 (10-/100-Mbps)

Power — Input: Either 100–120 VAC, 50/60 Hz or 100–250 VAC, 50/60 Hz, autosensing

Size — Horizontal, 8-outlet models: 1.75"H (1U) x

19"W x 8.7"D (4.4 x 48.3 x 22.1 cm);

Horizontal 16-outlet models: 3.5"H (2U) x

19"W x 8.7"D (8.9 x 48.3 x 22.1 cm);

Vertical models: 31"H x 4.5"W x 3.2"D

(78.7 x 11.4 x 8.1 cm)

Item	Code	List Price
Elite Managed Power Controllers		
Horizontal		
8-Outlet, Single-Circuit 120 VAC, 20-Amp 208+ VAC, 20-Amp	PSH8-S20-120V PSH8-S20-208+V	
8-Outlet, Dual-Circuit 120 VAC, 20-Amp 208–240 VAC, 20-Amp	PSH8-D20-120V PSH8-D20-208+V	
16-Outlet, Dual-Circuit 120 VAC, 20-Amp 208+ VAC, 20-Amp	PSH16-D20-120V PSH16-D20-208+V	
Vertical		
20-Outlet, Single-Circuit 120 VAC, 20-Amp 120 VAC, 30-Amp 208–240 VAC, 20-Amp 208–240 VAC, 30-Amp	PSV20-S20-120V PSV20-S30-120V PSV20-S20-208+V PSV20-S30-208+V	

NOTE: Additional models are available as custom orders. For details, call our FREE Tech Support.

AlertWerks II Environmental Monitoring System

Real-time environmental monitoring from across



The ServSensor V4P supports up to eight plug-and-play Intelligent Sensors plus up to four surveillance cameras (pp. 322–323).



The PT Dome Camera adds video surveillance capability to the ServSensor V4P (p. 323).



The basic ServSensor features eight autosensing RJ-45 ports for connecting Intelligent Sensors (pp. 324–325).

The AlertWerks II environmental monitoring system enables you to see physical conditions such as temperature, humidity—even video—in your data center or other facilities from your desktop. It's easy to install and operates over any IP network—you can even monitor your facilities over the Internet!

Start with the ServSensor.

AlertWerks II ServSensor hubs are the brains of your environmental monitoring system. All ServSensor models feature ports to connect a wide range of Intelligent Sensors. Some models provide additional dry contacts that you can customize to your requirements. The ServSensor V4P even supports video cameras so you get a visual overview of what's going on in your data center.

ServSensor installs in minutes. Just connect it to your network, assign an IP address, and connect to the embedded Web server.

Add Intelligent Sensors.

AlertWerks II Intelligent Sensors enable you to monitor a wide range of conditions from temperature, humidity, power, water leaks, smoke, motion, and more. Plug in any of our Intelligent Sensors and the ServSensor's autosensing feature will recognize the type and automatically configure it.

View and manage data.

AlertWerks II is network savvy. Connect it anywhere on your network and monitor your facilities through any Web browser with the easy-to-use graphical interface.

Because it operates over any IP network, you can even access it from the Internet to actively monitor the conditions in your rack, server room, data center, or anywhere else you need to protect critical assets.

The built-in database maintains a time-stamped log of all events, so you can go back to see what happened and when it happened. The integrated data collection and graphing package is especially useful in spotting trends in security, detection of AC power line voltage, measurement of DC voltage and control relays, and for providing historical information for analysis.

Alerts you when things go wrong.

In addition to enabling you to passively monitor sensors, the AlertWerks II ServSensor actively alerts you when sensors exceed limits you determine. It can send alerts via SNMP or by e-mail, so you know instantly when things go wrong.

Find out more.

For more information on the AlertWerks II Environmental Monitoring System, see pages 318–327 or call our FREE Tech Support.

Buyer's Guide | Environmental Monitoring Systems

	ServSensor Jr.	ServSensor	ServSensor Contact	ServSensor V4P	ServSensor V4-20P
Number of external sensors	2	8	8	8	8
Dry-contact inputs	No	No	20 (up to 100)	No	20 (up to 100)
Video surveillance	No	No	No	Up to four cameras	
Alarming	E-mail, SNMP	E-mail, SNMP	E-mail, SNMP	Sound, voice, fax, e-mail SNMP, SMS, MMS*	
Advanced alarm options	No	No	No	Yes	
Data graphing	Basic	Basic	Basic	Advanced	
Data export and remote collection	Yes	Yes	Yes	Yes	
Encrypted access	No	No	No	Web (HTTPS), SNMPv3	

* External e-mail to SMS or SNMP to SMS gateway required. Via Skype™ or external GSM/GPRS modem.

your network or across the Internet.



The ServSensor Contact features eight autosensing RJ-45 ports for connecting Intelligent Sensors plus 20 dry contacts to support third-party sensors (pp. 324–325).

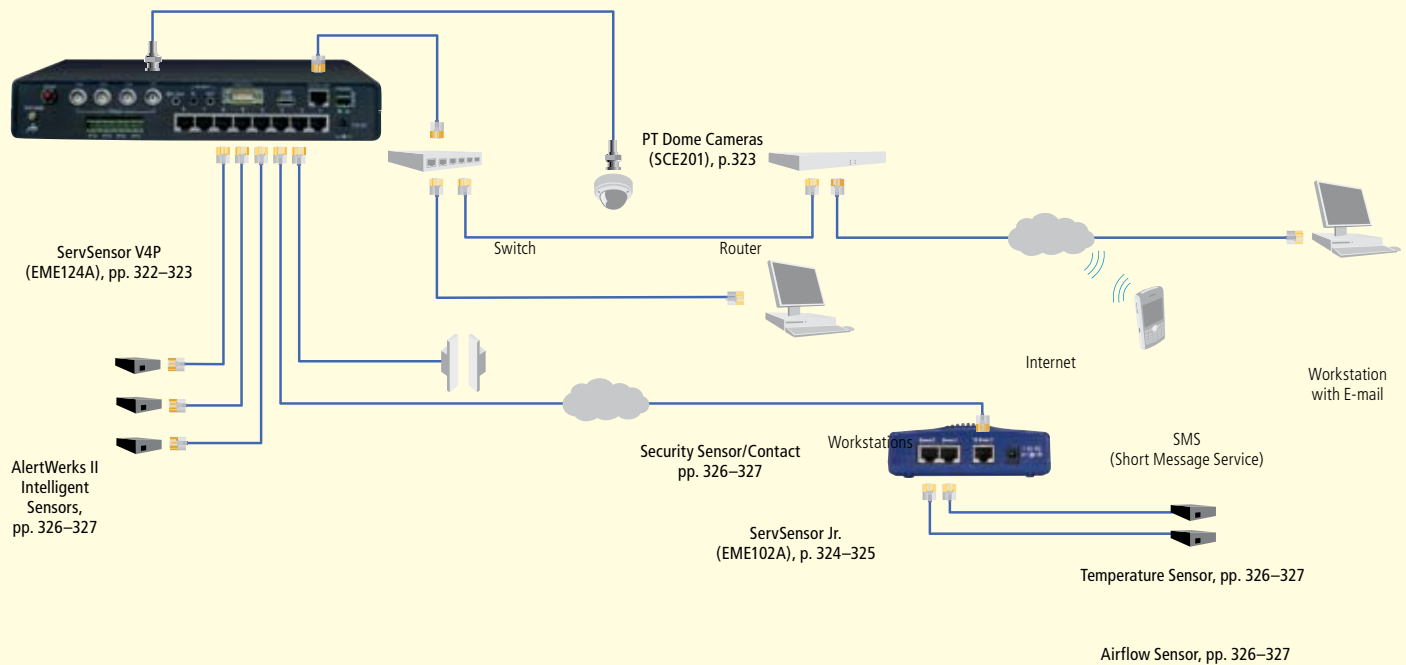


The compact, 2-port ServSensor Jr. is an economical choice for monitoring small areas such as wiring closets (pp. 324–325).

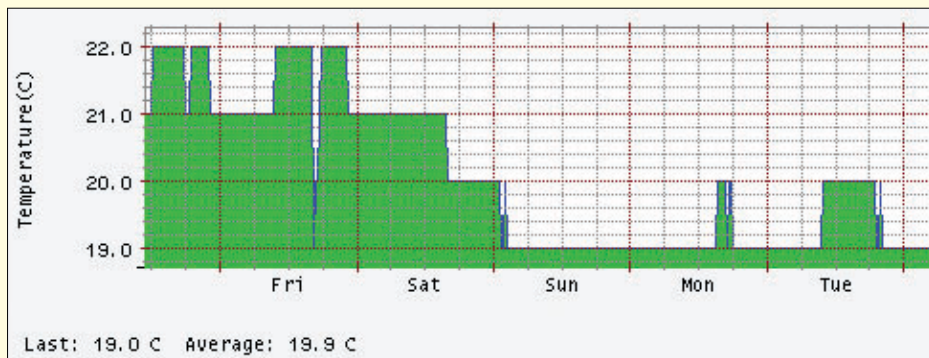


Plug-and-play Intelligent Sensors monitor temperature, humidity, power, water leaks, smoke, motion, voltage, and more (pp. 326–327).

Use multiple AlertWerks II ServSensor hubs on your network to keep tabs on your entire premises.



The ServSensor's integral software makes it easy to collect and organize data.



See the AlertWerks II family of products, pp. 318–327.



Pro Switching System Plus

Intelligent, secure switching for disaster recovery, access control, and network backup.



SM960A: front view.

- Offers secure switching via latching relays or micro-mirror switching mechanisms.
- Chassis holds up to 16 switch modules. Mix and match data, voice, video, and AC power switching modules in a single chassis.
- Use with copper and/or fiber optic cable.
- Supports CAT6 10-GbE as well as legacy RS-232 connections.
- Cascade multiple 18-slot chassis to support up to 4080 ports.
- Switch operates at Layer 1 and is transparent to data formats and protocols.
- Control switching locally or remotely.
- ♦♦ **WARRANTY** — 1 Year

The Pro Switching System Plus is an intelligent ganged switching system consisting of a chassis and individual interface cards. The advanced design of this system gives you incredible operational flexibility and performance. You can switch one card individually or switch the entire rack through a Controller Card. You can even daisychain multiple chassis to control up to 4080 individual ports.

The chassis includes a backplane for plugging in the cards. Just order the cards you need, as well as a Power Supply Module (or for redundancy, order two Power Supply Modules).

Switch securely.

For fail-safe operation, the system uses proprietary micro-mirror or latching relay switching technology. That means data can continue to pass through even if the power has been cut off. The cards perform Layer 1 switching, so the system operates independently of data rates, protocols, formats, or signal levels.

The Controller Card.

The key to the system is the Controller Card. One is required for each 18-slot chassis, and it takes up two card slots. The Controller Card

enables you to individually switch any port from the front panel, or gang switch the entire system. For more capabilities, choose models with an RS-232 serial controller, or an SNMP-based Ethernet controller, which also includes GUI Switchcenter software. These intelligent cards enable you to switch from anywhere in the world via an RS-232 or IP connection.

Each chassis also has a keyed switch so you can enable/disable manual switching from the front-panel toggle switches.

Pick a card, any card.

Switching cards are available for RS-232, video, fiber, and CAT5 and CAT6 connections.

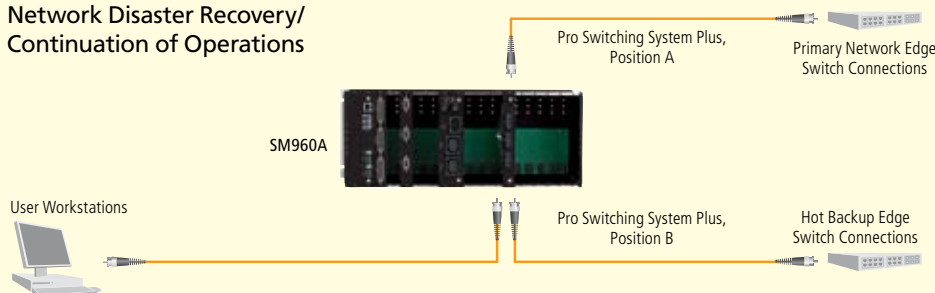
Mix it up.

Use the system to support both new and legacy technologies. Add cards for fast CAT6 10-GbE networking while keeping connections for older RS-232 and 75-ohm video connections.

Control power.

To power a backup network, choose the 1-In/2-Out Power Switch Modules. Or, to set up a redundant backup power supply, choose the 2-In/1-Out models. Both are available with advanced network reporting functions.

Network Disaster Recovery/ Continuation of Operations



TECH SPECS

Switches — SM962A–SM964A: (1) momentary toggle switch; (2) 8-position DIP switches, (1) momentary push-button switch

CE Approval — Yes

Connectors — SM962A–SM964A: (1) RJ-45, (2) RJ-11, (2) two-position DC power entry, (2) two-position alarm contact terminal block;

SM965A: (3) DB25 F;

SM966A: (3) DB9 F;

SM967A: (3) DB15 F;

SM968A–SM971A: (1) IEC 320 M, (2) IEC 320 F;

SM973A: (1) IEC 320 F, (2) IEC 320 M

SM977A-SC: (3) duplex SC;

SM977A-ST: (6) ST[®];

SM978A–SM979A: (3) RJ-45;

SM980A: (6) RJ-45;

Indicators — SM962A–SM964A: (3) LEDs: (2) power, (1) status, (2) alarm relay contacts;

A/B Switch Cards: (2) LEDs (A and B)

Size — SM960A: 7"H (4U) x 19"W x 6.5"D
(17.8 x 48.3 x 16.5 cm)

Item	Code	List Price
------	------	------------

First, order the chassis...

Pro Switching System Plus Chassis, 4U
SM960A

Next order at least one power supply (order two for redundant power)...

Power Supply Module, 120–240 VAC
SM961A-PS

...then select a controller card...

Controller Cards

SNMP, RS-232, Manual Switching
SM962A

RS-232, Manual Switching
SM963A

Manual Switching
SM964A

...next choose your A/B Switch Cards...

A/B Switch Cards

DB25 SM965A

DB9 SM966A

DB15 SM967A

Video F-Connector, 75-Ohm
SM976A

Fiber Optic, ST, Latching
SM977A-ST

Fiber Optic, SC, Latching
SM977A-SC

RJ-45 CAT5 SM978A

RJ-45 CAT6 10-GbE
SM979A

RJ-45 CAT6 10-GbE, Dual-Port
SM980A

AC Power A/B Switch Cards

120 VAC

Logic Only

1 In/2 Out SM968A

Processor, with Networked Reporting
1 In/2 Out SM969A

2 In/1 Out SM973A

240 VAC

Logic Only

1 In/2 Out SM970A

Processor, with Networked Reporting
1 In/2 Out SM971A

For empty slots, order...

Blank Rear Panel SM981

Fiber Optic AB, ABC, and ABCD Switches

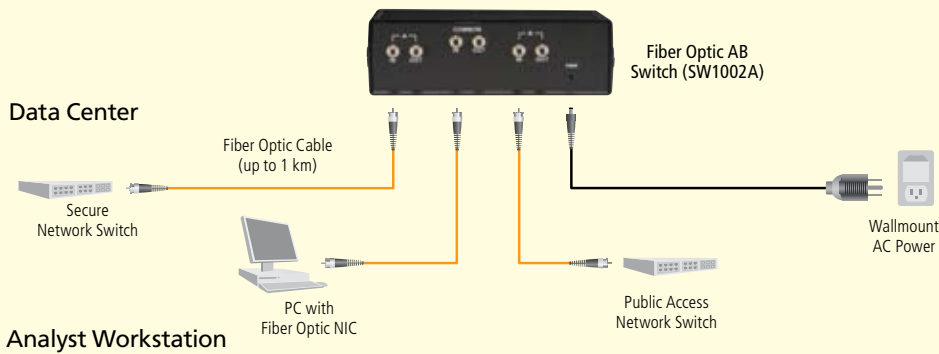
For ultra-secure, critical circuit switching, use these micro-mirror optical devices.

Super-secure switching!

- Ideal for government, healthcare, financial, or other applications where a private, data-sensitive network connects to a publicly accessible network.
- No optical-to-electrical conversion between fiber connections. Instead, the full-duplex switches use internal mirrors to optically move data between ports—technology that's trusted and time tested!
- Air-gap isolation provides a physical break in the circuit connection.
- For reliable switching in mission-critical environments, the micro-mirrors are bonded to precise positioning servos.
- Enable you to connect a single workstation to two or more networks or remote devices.
- Virtual zero power mode. Data passes through the switches even when power is removed.
- Latching switches latch mirror movement mechanically into a selected position and hold it there without the need for continuous electrical power.
- All non-latching versions except for the SW1003A fall back to C-to-A position if power is lost (the SW1003A falls back to the OFF position).
- The SW1003A's OFF position also prevents host-to-remote device communications.
- To route signals, just turn a front-panel knob.
- Operate transparently to signal rates, formats, and wavelengths, and don't require an upgrade when your data protocols or speeds change.
- Serial remote control and other custom configurations also available. For details, contact our Tech Support.
- ♦♦ **WARRANTY** — 1 Year



There's a reason why our switches continue to be the switches of choice for networks everywhere. They perform as promised year after year.



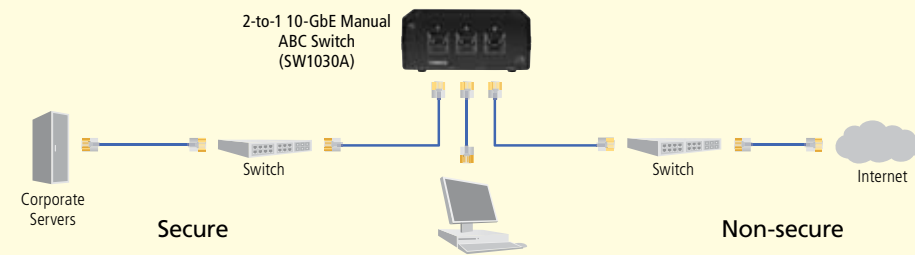
Item	Code	List Price
Fiber Optic AB (2-to-1) Switches, Multimode		
Non-Latching	ST SW1000A	
Non-Latching with Off Position, Rackmount	ST SW1003A	
Latching	ST SW1002A	
	SC SW1008A	
Fiber Optic AB (2-to-1) Switches, Single-Mode		
Non-Latching	ST SW1033A	
	SC SW1034A	
Latching	ST SW1035A	
	SC SW1036A	
Fiber Optic ABC (3-to-1) Switches, Multimode		
Non-Latching	ST SW1007A	
Latching	ST SW1001A	
Latching, Rackmount	ST SW1004A	
Fiber Optic ABCD (4-to-1) Switches, Multimode		
Non-Latching	ST SW1006A	
Latching	ST SW1005A	

2-to-1, 3-to-1, and 4-to-1 CAT6 10-GbE Manual ABC Switches

Securely access two, three, or four high-speed, 10-GbE networks!



SW1031A: front view



- Switch between two or three separate Ethernet networks from one PC without the need to plug and unplug cables.
- Provide total electrical isolation, so you can safely access secure and public networks from the same desktop.
- Use in networks from 10BASE-T to 10-Gigabit Ethernet (10-GbE).
- Proprietary design ensures crosstalk isolation for high-end performance and full 10-GbE support.
- Simply connect your host device or shared network link to Port C (Common Port), then connect the different networks or Ethernet devices to the A and B, or A, B, and D ports.
- Operated manually. Just push a button to switch to another network.
- No power required.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

MTBF — 100,000 cycles
 CE Approval — Yes
 Connectors — SW1030A: (3) RJ-45;
 SW1031A: (4) RJ-45;
 SW1032A: (5) RJ-45
 Power — None
 Size — 2.75"H x 6.1"W x 6.5"D (7 x 15.5 x 16.5 cm)
 Weight — 2 lb. (0.9 kg)

Item	Code	List Price
CAT6 10-GbE Manual ABC Switches		
2-to-1	SW1030A	
3-to-1	SW1031A	
4-to-1	SW1032A	

ServSwitch DT Basic II

Use a single PS/2 console to control multiple PS/2 CPUs with PS/2 or serial mice.



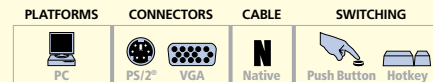
- Eliminates the need for multiple PS/2 keyboards, mice, and monitors.
- Supports resolutions up to 1920 x 1440.
- Small footprint makes it ideal for the desktop.
- Control switching with hotkeys or front-panel buttons, or run autoScan on all ports.
- LEDs indicate selected ports.
- Supports Microsoft® IntelliMouse®, IntelliTrackball, and serial mice.
- Easy to set up. No software to configure.
- ♦♦ **WARRANTY** — 1 Year

Control up to two or four PS/2 computer CPUs with just one PS/2 keyboard, PS/2 mouse, and a monitor.

Compact, portable, and powered by the interface, the ServSwitch DT Basic II works with most Windows® operating systems and requires no complicated setup. Its small footprint enables you to use it on or under a desk.

Switching CPUs is easy. To select ports, use either hotkeys or front-panel buttons. When you switch manually, the buttons' LEDs light to show you the corresponding active ports.

Or you can use the switch's autoscan function to scan all connected computers automatically, one by one, at 10-second intervals. This way, you can monitor computer activity without having to press any keys or buttons.



TECH SPECS

Operating Systems Supported — Windows 95/98/Me/XP, Windows NT®, Windows 2000

Resolution (Maximum) — 1920 x 1440

Connectors —

- CPU: Keyboard: (2) or (4) 6-pin mini DIN F;
- Mouse: (2) or (4) 6-pin mini DIN F;
- Monitor: (2) or (4) HD15 F;
- Console: Keyboard: (1) 6-pin mini DIN F;
- Mouse: (1) 6-pin mini DIN F;
- Monitor: (1) HD15 F

Power — From the interface

Size — KV7022A, KV7022A-K: 1.6"H x 4.9"W x 2.7"D (4 x 12.4 x 7 cm);
KV7024A, KV7024A-K: 1.7"H x 8.7"W x 5.1"D (4.4 x 22 x 13 cm)

Item	Code	List Price
ServSwitch DT Basic II		
2-Port	KV7022A	
4-Port	KV7024A	

ServSwitch DT Basic II Kits

2-Port	KV7022A-K
4-Port	KV7024A-K

♦ Includes (1) ServSwitch DT Basic II and (2) or (4) 6-ft. ServSwitch DT Basic II CPU Cables.

For your CPU connections, order...

ServSwitch DT Basic II CPU Cable		
6-ft. (1.8-m)	EHN70023-0006	
9-ft. (2.7-m)	EHN70023-0009	
15-ft. (4.5-m)	EHN70023-0015	

ServSwitch DT DVI with USB

Switch PCs with single-link DVI-D video and either transparent USB 2.0 or emulated USB keyboard/mouse.

- Switch up to four PCs.
- Supports resolutions up to 1920 x 1200 at 60 Hz.
- DDC EDID support via emulation.
- USB 2.0 transparent version (KV9604A) supports peripherals via a built-in hub.
- ♦♦ **WARRANTY** — 1 Year



Desktop switching with high-quality DVI-D video

The new ServSwitch DT DVI Series supports full DVI at resolutions up to 1920 x 1200 at 60 Hz. You can fine tune the signals, depending on signal strength.

Transparent USB 2.0

Switch DVI-D and audio signals with transparent USB 2.0 signals via push buttons. A built-in hub supports up to four USB peripherals.

Emulated USB for keyboard and mouse

For easy hotkey switching, the KV9614A is the right choice. It supports USB keyboard and mouse devices only.

Stereo audio support

Both models support stereo audio signal switching for speakers and microphones. Audio channels can be switched independently from USB and video.

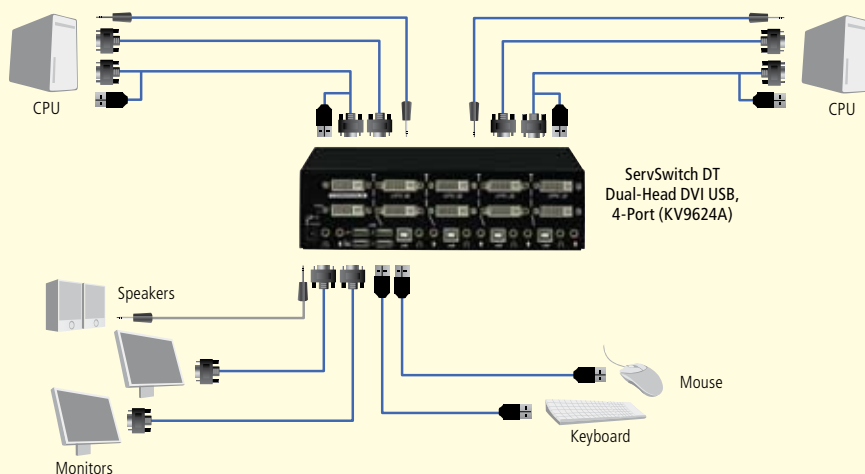
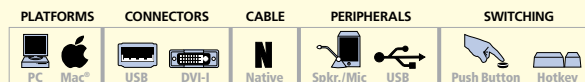
Item	Code	List Price
4-Port ServSwitch DT DVI with USB 2.0 Transparent		
	KV9604A	
with Emulated USB Keyboard/Mouse		
	KV9614A	

You may also need...

ServSwitch DT Series CPU Cables		
6-ft. (1.8-m)	EHN900024U-0006	
10-ft. (3.0-m)	EHN900024U-0010	
15-ft. (4.5-m)	EHN900024U-0015	
Audio Cables		
5-ft. (1.5-m)	EJ110-0005	
10-ft. (3.0-m)	EJ110-0010	

ServSwitch DT Dual-Head DVI USB

These two- or four-port KVM switches provide the ultimate in multimedia and USB switching.



TECH SPECS

Operating Systems Supported — Windows® 95/98/Me/XP, Windows NT®, Windows 2000, Mac® OS
Resolution (Maximum) — HDTV: 1080p;
 DVI-D: 1920 x 1200;
 Bandwidth: 1.5 Gbps
CE Approval — Yes
Connectors — CPU side: Video: (4) or (8) DVI-I;
 USB: (2) or (4) USB Type B;
 Audio: (4) or (8) 3.5-mm stereo jacks;
 Console side: Video: (2) DVI-I;
 USB workstation/device sharing: (4) USB Type A;
 Audio: (2) 3.5-mm stereo jacks
Power — 5 VDC, 2 A
Size — 2.5"H x 8.7"W x 5.1"D (6.4 x 22 x 13 cm)

- Access, control, boot, and reboot multiple USB-enabled multimedia computers using one USB keyboard, monitor, and mouse.
- Compatible with DVI flat screens.
- Supports digital resolutions up to an impressive 2560 x 1600.
- Also sends VGA analog video, supporting resolutions of 2048 x 1536.
- USB 2.0 device hub ports for high-speed USB device sharing.
- No configuration necessary—plug-and-play.
- Support DDC2B emulation.
- Choose from autoscan intervals of 3, 8, 15, and 30 seconds.
- Hotkey or push button switching.

- Audio and microphone switching is independent of the KVM switch.
- Flash upgradable.
- ♦♦ **WARRANTY** — 1 Year

The ServSwitch DT Dual-Head DVI USB KVM Switch enables you to control two or four multimedia computers. The switch supports digital resolutions up to 2560 x 1600 for sharp video plus stereo audio. The switch also supports analog video resolutions up to 2048 x 1536. Additionally, the switch is compatible with DVI flat screens.

In addition to multimedia capabilities, the Dual-Head DVI USB KVM switch features four USB ports. The device hub port supports USB 1.1 or 2.0 high-speed device sharing. The switch is truly plug-and-play with DDC2B emulation.

Item	Code	List Price
ServSwitch DT Dual-Head DVI USB 2-Port	KV9622A	
4-Port	KV9624A	

For your CPU keyboard video and primary video connections, order...

ServSwitch DT Series CPU Cables	
6-ft. (1.8-m)	EHN900024U-0006
10-ft. (3.0-m)	EHN900024U-0010
15-ft. (4.5-m)	EHN900024U-0015

...then for secondary video, order...

DVI-D Male to DVI-D Male Cables	
6-ft. (1.8-m)	EVNDVI02-0006
10-ft. (3.0-m)	EVNDVI02-0010
15-ft. (4.5-m)	EVNDVI01-0015

For audio, order...

Audio Cables	
5-ft. (1.5-m)	EJ110-0005
10-ft. (3.0-m)	EJ110-0010

ServSwitch Wizard DVI Dual Link (USB)

Share high-end video and any four USB peripherals between eight workstations.



4-port version available March 2009



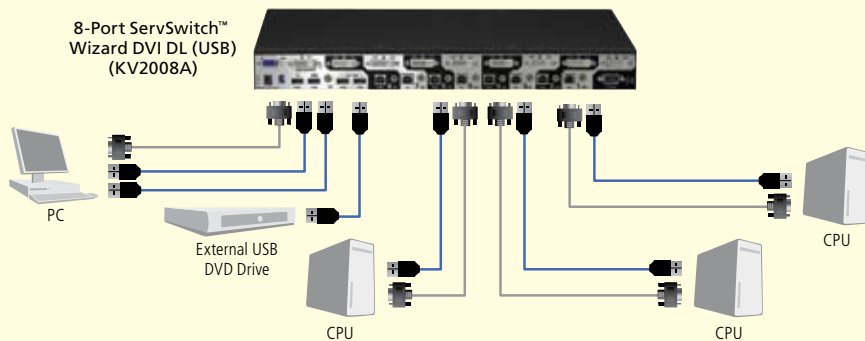
TECH SPECS

Video — DVI-dual link: 2560 x 1600 @ 60 Hz
 DVI-single link: 1920 x 1200 @ 60 Hz
 VGA: 1920 x 1200 @ 60 Hz
Connectors — (1) barrel jack (Power); (9) DVI-I F; (1) VGA HD15 F; (8) USB Type B F; (8) 3.5-mm audio jacks; (4) USB Type A F; (1) DB9 M options port
Indicators — Multisegment display control; (1) front-panel push button
Power — External: 100–240 VAC/5 VDC 6A
Size — 1.7"H x 19"W x 8.7"D (4.4 x 48.3 x 22 cm)
Weight — 5.5 lb. (2.5 kg)

What's included

- ServSwitch DVI DL (USB)
- Power supply
- IEC 320 power cord
- User's manual on CD
- (2) 19" rackmounting brackets

NOTE: Wizard DVI-DL does not convert video formats.



- Supports resolutions up to 2560 x 1600 at 60 Hz.
- True DDC EDID support.
- Up to eight PCs can be switched via hotkey, mouse, or RS-232/V.24.
- Supports dual-link DVI-D, single-link DVI-D, and VGA.
- Can be switched synchronously with other ServSwitch Wizard™ switches via the options port.
- Stereo audio switches independently from the video signal.
- ♦♦ **WARRANTY** — 2 Years

Intelligent options port

Flash upgrade the Wizard DVI DL (USB) via its intelligent options port. You can also switch it via simple RS-232 protocol or even dry contacts. When linked with another ServSwitch Wizard, the options port can be used for synchronous switching of multiple video heads.

USB 2.0 transparency

A clever architecture combines transparent USB 2.0 protocol with emulated keyboard and mouse control. To support this, there are two dedicated keyboard/mouse ports on the switch's console port plus two USB 2.0 transparent ports for any USB 2.0 peripherals.

Item	Code	List Price
ServSwitch Wizard DVI Dual Link (USB)		
4-Port	KV2004A	
8-Port	KV2008A	
You may also need...		
Spare Power Supply		
100–240 VAC/5 VDC 6A	PS650	
ServSwitch CPU Cables		
6-ft. (1.8-m)	EHN900024U-0006	
10-ft. (3.0-m)	EHN900024U-0010	
15-ft. (3.0-m)	EHN900024U-0015	
DVI-I M to VGA (HD15 F) Adapter	FA461	
DVI-I F to VGA (HD15 M) Adapter	FA462	
3.5-mm Stereo Audio Cables		
10-ft. (3-m)	EJ110-0010	

USB to PS/2 Converter

Support new keyboards and mice on your legacy equipment.

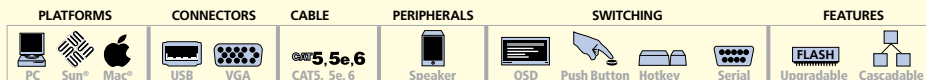
- Adapts your legacy PS/2® devices.
- Supports new keyboards and mice on your legacy computer equipment and KVM switches.
- ♦♦ **WARRANTY** — 1 Year



Item	Code	List Price
USB to PS/2 Converter	KVUSB-PS2	

ServSwitch CX Uno

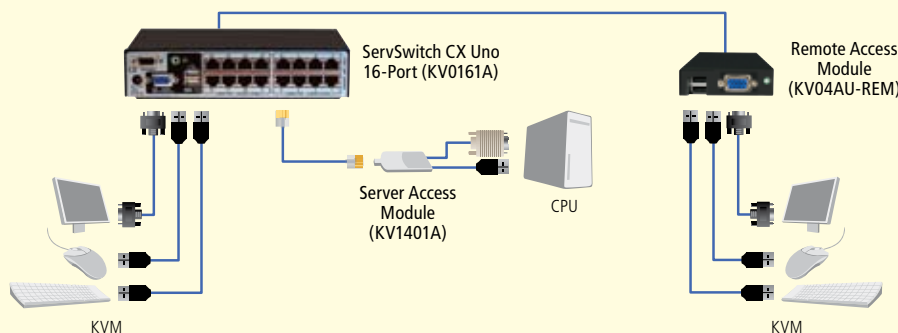
High-end, multiplatform KVM switching over CATx with remote access.



KV0161A



Remote Access Module (KV04U-REM)



TECH SPECS

Connectors — KV0081A: (8) RJ-45; KV0161A: (16) RJ-45; Both: (1) RJ-45 F; (1) RS-232 M; (2) USB Type A F; (1) HD15 F; (1) 3.55-mm audio jack F

Power Supply — 100–240 VAC/5 VDC 2 6A autosensing

CE Approval — Yes

Size — 1.7"H x 7.9"W x 4.7"D (4.4 x 20 x 12 cm)

Weight — 1.5 lb. (0.7 kg)

What's included

- ServSwitch CX Uno
- Power supply
- IEC 320 power cord
- User's manual on CD

- Place the remote console up to 984.3 feet (300 m) away.
- Supports resolutions up to 1920 x 1200 at 60 Hz.
- Reads DDC EDID from the display to avoid plug-and-play issues.
- Shared local and remote user console.
- Stereo audio support in both 8- and 16-port models.
- CATx cabling means you can cascade 31 CPUs in 1U.
- Flash upgradable.
- ♦♦ **WARRANTY** — 2 Years

8- and 16-port models available

The ServSwitch CX Uno comes in 8- and 16-port versions. You can add PS/2®, USB, or Sun® Server Access Modules (SAMs). All platforms are available with stereo audio support for speakers, too! Place servers up to 32.8 feet (10 m) from the switch and connect them with a simple CATx cable.

Small size, big delivery

Less than half the width of a standard 19" mountable device, the ServSwitch CX Uno supports up to 31 cascaded servers in 1U of rack space. Added to a KVM drawer like the KVT317A (page 400), it's an ideal solution for dense server rack environments.

Remote access option via CATx

With the Remote Access Modules for the CX Uno for PS/2 or USB (KV04-REM or KV04U-REM series), a remote user has access to the attached servers from more than 900 feet (300 m) away using a single CATx cable.

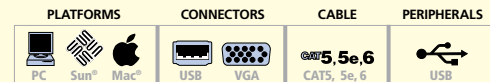
Remote control option

Like all CX series switches, the CX Uno can be switched remotely via RS-232 commands. You can also synchronize the switching of multiple units, enabling support for multi-head video.

Item	Code	List Price
ServSwitch CX Uno		
8-Port	KV0081A	
16-Port	KV0161A	
19" Rackmounting Kit 1U for		
Single Unit	RMK2004	
Two Units	RMK2004-2	
Server Access Modules (SAMs)		
PS/2	KV1400A	
USB	KV1401A	
PS/2 with Audio	KV1402A	
USB with Audio	KV1403A	
Sun with Audio	KV1404A	
Remote Access Modules		
PS/2	KV04-REM	
USB	KV04U-REM	
with Audio		
PS/2	KV04A-REM	
USB	KV04AU-REM	
with DeSkew and Audio		
PS/2	KV04AS-REM	
USB	KV04AUS-REM	

ServSwitch Wizard USB SRX KVM Extenders

Extend high-resolution VGA with USB 1.1 and stereo audio more than 160 feet over CATx cable.



- Transparent USB 1.1 and USB 2.0 support up to 164 feet (50 m) over a single CATx cable.
- Support resolutions up to 1920 x 1440 at 60 Hz.
- Extend video, audio, USB keyboard and mouse, and up to two USB peripherals.
- DDC EDID reads from the display, eliminating plug-and-play issues.
- Local VGA and stereo audio feedthrough.
- Dual-video model also works with RS-232.
- Rack up to 16 units with the Rackmount Chassis for ServSwitch KVM Extender (ACU5000A).
- ♦♦ **WARRANTY** — 2 Years



The power of transparent USB

ServSwitch Wizard™ USB SRX KVM Extenders from Black Box combine VGA, USB 1.1 or USB 2.0, and audio, and send them up to 164 feet across a single CATx cable. It's easy to fine-tune the video image on the remote unit and get crystal-clear stereo audio and transparent USB.

DDC EDID read and store support

Modern graphics adapter cards—even with analog output—require the presence of Display Data Channel (DDC) information. Without it, they output low-quality video or none at all. ServSwitch Wizard USB SRX Extenders read the DDC information from the attached display and store it in the local unit's non-volatile memory.

Small form factor

The ServSwitch Wizard USB SRX KVM Extender's compact chassis enables you to mount it side by side in the Rackmount Chassis for ServSwitch KVM Extender (ACU5000A). Use it to mount up to 16 single-video units or eight dual-video versions in just 2U.

Support for RS-232

The dual-video version of the SRX series (ACU5052A) uses two CATx links to transmit the signals. The second video link carries a transparent RS-232 port up to 19.2 kbps.

Local access

All local units have audio and VGA feedthrough, giving you local access just by plugging a keyboard and mouse directly into the spare PC USB ports.

Dual-user configuration

With two single-video units, you can connect two workstations with keyboards, monitors, and mice to one CPU tower. Two users can use the local connections to monitor and diagnose the CPU. This setup is ideal for a remote CPU that doesn't need to be monitored simultaneously by two users.

What's included

- Local unit
- Remote unit
- Power supply
- IEC 320 power cord
- VGA cable, ACU5052A (2)
- USB cable A-B
- Audio cable
- DB9 serial cable (ACU5052A only)
- User's manual on CD
- Mounting plate for local or remote unit

TECH SPECS

Connectors —

ACU5051A: Local Unit: (1) RJ-45; (1) USB Type B F; (2) HD15 F for VGA; (2) 3.5-mm audio jack F; (1) barrel jack for power;

Remote Unit: (1) RJ-45; (4) USB Type A; (1) HD15 F for VGA; (1) 3.5-mm audio jack F; (1) barrel jack for power;

ACU5052A: Local Unit: (2) RJ-45; (1) USB Type B; (4) HD15; (2) 3.5-mm audio jacks F; (1) DB9 F; (1) barrel jack;

Remote Unit: (2) RJ-45 F; (4) USB Type A F (2) HD15 F for VGA; (1) 3.5-mm audio jack F; (1) DB9 M; (1) barrel jack for power

Power — Autosensing 100–240 VAC/5 VDC 2.5 A (PS649-R3)

Size — ACU5051A: 1"H x 2.9"W x 4.9"D (2.6 x 7.5 x 12.5 cm);
ACU5052A: 2"H x 2.9"W x 4.9"D (5.2 x 7.5 x 12.5 cm)

Weight — 1.1 lb. (0.5 kg)

Item	Code	List Price
ServSwitch Wizard USB SRX KVM Extenders Single-Video, USB and Audio	ACU5051A	
Dual-Video, USB, Audio, and RS-232	ACU5052A	

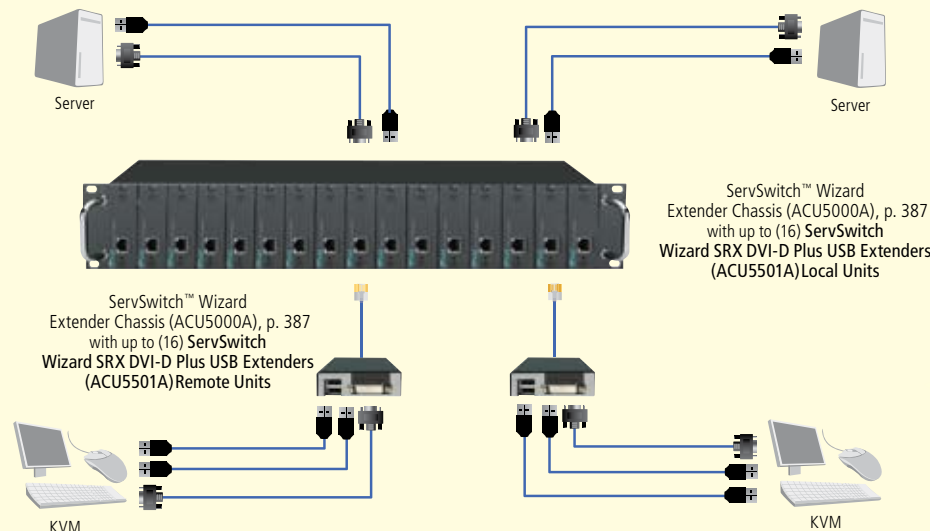
You might also need...

Rackmount Chassis for ServSwitch KVM Extender For up to 16 Units	ACU5000A	
5-VDC Power Supply	PS649-R3	

ServSwitch Wizard SRX DVI-D Plus USB Extender

Get single-link DVI-D extension with a USB keyboard and mouse over a single CAT6 cable.

PLATFORMS	CONNECTORS	CABLE	PERIPHERALS
PC Sun® Mac®	USB DVI-D	CAT5, 5e, 6	USB



- Extend DVI-D KVM up to 98.4 feet (30 m) at 1920 x 1200 or 164 feet (50 m) at 1280 x 1024 using only one CAT6 or higher cable.
- No compression or delay of video data.
- Supports USB keyboards and mice.
- Two-page EDID read-and-store, plug-and-play setup.
- ♦♦ **WARRANTY** — 2 Years

What's included

- Local unit
- Remote unit
- USB and DVI-D cables
- Power supply
- Power cord (IEC-320)
- User's manual on CD
- Mounting plate for local or remote unit

When less is more

More room and flexibility, less clutter — the Black Box® ServSwitch Wizard™ SRX DVI-D Plus USB Extender uses only a single CATx cable to extend keyboard, mouse, and uncompressed single-link DVI-D video up to 98.4 feet (30 m) at full 1920 x 1200 resolution!

USB keyboard and mouse support

The Wizard SRX DVI-D supports a variety of USB keyboards and mice as well as other Human Interface Devices (HIDs) such as touch screens.

DDC read and store

The Wizard SRX DVI reads the EDID from

the attached screen via the DDC channel and stores it in the local unit's memory to mirror the remote screen, so the graphics card can function properly.

19" mounting

Because of its small-form factor, you can mount up to 16 local or remote units in the Rackmount Chassis for ServSwitch Wizard Extender (ACU5000A).

Interface-powered local unit

The local unit of the Wizard SRX can be interface powered if your attached PC outputs do not exceed 500 mA. Otherwise, use the spare 5-VDC Power Supply (PS649-R3).

TECH SPECS

Resolution (Maximum) — 1920 x 1200 @ 60 Hz

Connectors —

Local unit: (1) USB Type B F; (1) DVI-D F;
Interconnect: (1) RJ-45;
Power: From the interface or via optional PS649-R3;

Remote Unit: (2) USB Type A F; (1) DVI-I D F;
Interconnect: (1) RJ-45;

Power: 90–240 VAC, 47–63 Hz, autosensing, external, with IEC 320 connector and cord

Size — 1"H x 2.9"W x 4.9"D (2.6 x 7.5 x 12.5 cm)

Item	Code	List Price
ServSwitch Wizard SRX DVI-D Plus USB Extender	ACU5501A	

You might also need...

Rackmount Chassis for ServSwitch Wizard KVM Extender

For up to 16 Local or Remote Units
ACU5000A

5-VDC Power Supply PS649-R3

ServSwitch Brand Fiber KVM Extender II and II-SM

Get high-quality, digital KVM extension up to 10 kilometers over duplex fiber.

- Sends your data up to 400 meters (1312.3 ft.) on 50- μ m multimode fiber cable or 10 kilometers (6.2 miles) on single-mode fiber cable.
- Supports resolutions up to 1280 x 1024 at 75 Hz.
- Digital format ensures high-quality transmission.
- Transmits KVM signals and audio over a duplex fiber optic cable.
- Supports an optional local monitor, keyboard, and mouse user station.
- **◆◆ WARRANTY** — 1 Year

Top-quality video

Unlike most KVM extenders, which use analog signals, the ServSwitch™ Brand Fiber KVM Extender II and II-SM use digital signals to maintain image quality. The local unit digitizes video output from a local CPU, then sends it across fiber optic cable to a remote unit, which converts it back to the original analog signal.

Because the extender uses fiber optic cable, transmissions are immune from electrical interference from sources such as nearby machinery or fluorescent lights.

Go the distance

Another benefit of using fiber optic cable is extraordinary reach — up to 10 kilometers (6.2 mi.) over single-mode fiber. Multimode fiber supports 220 meters (721.8 ft.) over 62.5- μ m cable or 400 meters (1312.3 ft.) over 50- μ m cable. Image quality is independent of cable length.

Minimize fiber requirements

The digital video signal is transmitted serially over a single fiber strand at rates up to 1.5 Gbps. The extenders use the second strand of the fiber pair to send remote mouse and keyboard information back to the local CPU.

Compared to the five strands some extenders need, these extenders only need two fiber strands for full operation so you save money by running less cable.

Wide compatibility

The extenders support many of the most common VGA-compatible video standards at resolutions up to 1280 x 1024.

The extenders also support all common PS/2® style two-button, three-button, and wheel mice, including Microsoft® IntelliMouse®, plus trackballs and more.

Cable Requirements —

ACS250A-R2: 62.5-/125- μ m multimode duplex fiber; 50-/125- μ m (to greater distances);
ACS251A-R2: 9-/125- μ m single-mode duplex fiber

Distance (Maximum) —

Between local and remote units:
ACS250A-R2: Over 62.5- μ m cable: 220 m;
Over 50- μ m cable: 400 m;
ACS251A-R2: Over 9- μ m cable: 10 km

Optical Budget — ACS250A-R2:

With 62.5- μ m cable: 6.7 dB maximum;
With 50- μ m cable: 7.5 dB maximum;
ACS251A-R2: With 9- μ m cable: 10.5 dB maximum

Optical Type and Wavelength —

ACS250A-R2: 850-nm multimode;
ACS251A-R2: 1300-nm single-mode

Receiver Sensitivity — ACS250A-R2: with 62.5- μ m cable: -12.5 dBm; with 50- μ m cable: -13.5 dBm;
ACS251A-R2: with 9- μ m cable: -14.4 dBm

Resolution and Refresh Rate — Supports resolutions up to 1280 x 1024 and refresh rates up to 75 Hz; maximum pixel clock (bandwidth) is 108 MHz

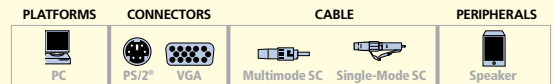
Transmitter Launch Power — ACS250A-R2: into either 50- μ m or 62.5- μ m cable: from -4.5 to -9 dBm;
ACS251A-R2: into 9- μ m cable: from -3 to -9 dBm

Audio, too

In addition to the keyboard, video, and mouse information, the local unit can also digitize audio signals from a local CPU or other audio device and encode it into the digital information sent to the remote unit on the video fiber. The sound quality doesn't approach high fidelity (stereo is converted to monoaural), but it's more than adequate for system sounds such as alerts.

Local and remote control

You can also connect an optional local user station (keyboard, monitor, and mouse only) to the local unit. The local unit passes video through to the local monitor and switches the keyboard and mouse.



ACS250A-R2

TECH SPECS

CE Approval — Yes

Interface — Extension: ACS250A-R2: Duplex multimode fiber optic;
ACS251A-R2: Duplex single-mode fiber optic;
Video: VGA compatible (DOS mode, VGA, SVGA, XGA, SXGA, UXGA, W-UXGA); plug-and-play for monitors and DDC is supported (emulation);
Keyboard and mouse: IBM® PS/2 compatible;
Sound: Mono audio

Connectors — Local unit: (4) 6-pin mini DIN F; (2) HD15 F; (1) 3.5-mm mono audio jack; (1) pair of SC; (1) 2.1-mm barrel jack; (1) 8-pin mini DIN for service;
Remote unit: (2) 6-pin mini DIN F; (1) HD15 F; (1) 3.5-mm mono audio jack; (1) pair of SC; (1) 2.1-mm barrel jack; (1) 8-pin mini DIN for service

Power — Input: 100–264 VAC, 47–63 Hz, autosensing;
Output: 12 VDC

Size — 2.5"H x 7.2"W x 7"D (6.6 x 18.5 x 18 cm)

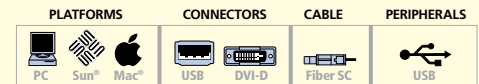
Weight — Local unit: 2.4 lb. (1.1 kg);
Remote unit: 2.2 lb. (1 kg)

The local user contends with the remote user for keyboard and mouse control of the CPU — once the active user station is idle for two seconds, the first user to type at the keyboard or move the mouse will be granted control.

Item	Code	List Price
ServSwitch Brand Fiber KVM Extenders II (Multimode)	ACS250A-R2	
II-SM (Single-Mode)	ACS251A-R2	
You may also need...		
19" Rackmount Tray	RMK250A	

ServSwitch DVI-D Plus USB KVM Extender Kits

DVI-D extension without compromise.

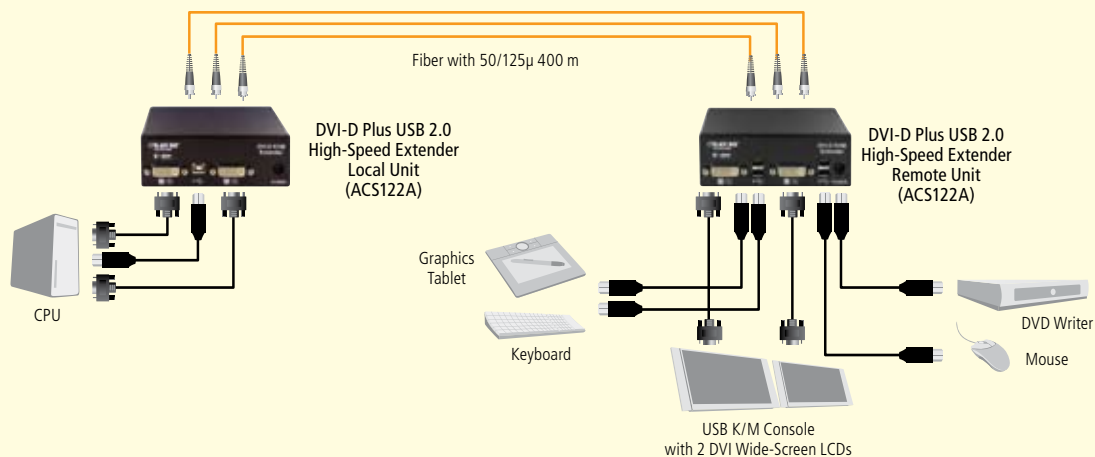


- Link up to 400 meters (1312.3 ft.) using only one multimode fiber.
- Supports resolutions from 640 x 480 to 1920 x 1200.
- No compression, no delay of video data.
- Choose USB HID or transparent USB 2.0 480-Mbps support.
- True EDID read mode.
- Easy setup, no adjustments.
- Dual-video versions available, too.
- ♦♦ **WARRANTY** — 2 Years

1920 x 1200
at 60 Hz!



ACS122A



The ideal high-resolution KVM extenders

ServSwitch™ DVI-D Plus USB Extenders give you a choice of USB peripherals. Choose the USB HID Extenders (ACS110A, ACS120A) for support of a variety of Human Interface Devices (HIDs) (such as keyboards or touch screens), or select the USB 2.0 High-Speed Extenders (ACS112A, ACS122A) for support of high-speed, transparent USB 2.0 devices.

The ServSwitch DVI-D Plus USB Extenders preserve the quality of the DVI video signal and offer real-time transmission without the delays and compression that degrades the high-resolution viewing experience.

Save fibers

The USB HID Extenders use Course Wave Division Multiplexing (CWDM) technology to convert the DVI 1.0 compliant video signal and the USB HID data of your workstation to pulses of laser light, which travel along one strand of multimode fiber. For the USB 2.0 High-Speed Extenders, the same technology

converts the DVI 1.0 from the PC or workstation into optical signals. You can place the receivers up to 400 meters (1312.3 ft.) away.

USB HID support

The ACS110A and ACS120A support USB HIDs on a single fiber. Keyboards and mice are the most common HIDs, but other devices based on HID protocol, including some touch screens, will work as well.

USB 2.0 support

The ACS112A and ACS122A use a second fiber to support transparent USB 2.0 at 480 Mbps. You can attach mass storage devices such as memory sticks, CD-ROM drives, or even DVD writers up to 400 meters (1312.3 ft.) from the workstation! Up to four USB peripherals are supported on the 4-port hub at the receiver end.

DDC read channel

With their DDC read capability, true EDID information is received from the attached display to guarantee optimum plug-and-play support.

Local video feed through

The local unit offers a DVI-D feed-through port. This enables you to connect a display at the computer end. Using a second USB output of the PC, local control is possible as long as the operating system supports multiple mice and keyboards.

Dual-head video

Dual-head video versions are available, too. The ACS120A has USB HID support and uses two fibers, one for each video signal. The ACS122A has USB 2.0 high-speed support, and uses three fibers, one for each video signal and another one for USB 2.0.

Item	Code	List Price
ServSwitch DVI-D Plus USB HID Extender Kits		
Single-Video	ACS110A	
Dual-Video	ACS120A	
ServSwitch DVI-D Plus USB 2.0 High-Speed Extender Kits (Available February 2009)		
Single-Video	ACS112A	
Dual-Video	ACS122A	

ServView V

Use this rackmountable 17", 1U console when space is at a premium.

- Dual-rail console drawer features keyboard, touch pad, and LCD monitor in 1U.
- Flip-open 17" LCD panel supports resolutions up to 1280 x 1024.
- Front-panel on-screen display (OSD) control and LED indicator enable adjustment of display image.
- Keyboard and LCD display slide in and out independently.
- KVM switch function module connects to VGA, and either PS/2® or USB servers.
- Cascade the console with other KVM switch modules to increase server management capacity.
- LED lighting bar indicates power status of console and KVM modules.
- ♦♦ **WARRANTY** — 1 Year



Left: ServView V with LCD panel open and keyboard and mouse tray drawer. Right: ServView V with LCD panel open and keyboard and mouse tray closed.

PLATFORMS	CONNECTORS	CABLE	SWITCHING	FEATURES
PC Sun® Mac®	PS/2® USB VGA	Composite	OSD Hotkey	Daisychainable

The ServView V offers server management in a space-saving, streamlined package. The tray includes a keyboard touch pad, a 17" TFT LCD panel, and an optional KVM switching module housed in an industry-standard 19" 1U rack drawer, saving you valuable cabinet space.

The dual-rail design enables the keyboard and LCD display to slide in and out of the rack independently of each other. Store the keyboard out of the way while keeping the display open so you can easily monitor your servers. Check system status even with the cabinet door closed.

Easy in-and-out

The sturdy, slim drawer helps reduce server room clutter. Pull it out and latch it securely in place to use. Or fold your display into the drawer, slide it into the rack, and lock it in place. The ServView V also includes a scratch-resistant surface and a slip-free handle.

Installation is easy, too. Its tilt-free bolt design means no tricky corners to navigate.

Easy to see

The LCD supports a maximum resolution of 1280 x 1024 at 60 Hz. On-screen menus provide quick access to adjust brightness, contrast, screen resolution, and refresh rates. At a 45-degree angle, the LCD monitor automatically shuts down, so you don't have to worry about leaving it on when you put it away. Additionally, Sun® native resolutions are supported for multiplatform functionality.

Easy to use

The drawer console features a full 105-key, low-profile keyboard. It also supports Sun and Mac® keyboard mapping.

The touch pad has simulated wheel control and is dust- and waterproof. Both the keyboard and the touch pad are replaceable.

Easy to order

Choose from single, 8-, or 16-port KVM switching modules. The single-port model includes all the cables you need; you will need to order cables with the 8- and 16-port models' USB or PS/2 connections.

What's included

- ServView V KVM tray
- KVM switch module (except for the single-port model)
- Power supply
- Power cord
- Rear rails
- User's manual
- Single-port model also includes computer cables for connection to USB or PS/2 devices

TECH SPECS

Active Display Area — 13.3" x 10.6" (33.8 x 27 cm) squared
Adjustments — On-screen display
Colors — 16.7 million
Contrast Ratio — 800:1
Display — 17" TFT LCD
Resolution (Maximum) — 1280 x 1024
CE Approval — Yes
Power — 100–240-VAC universal switching power with 12-VDC, 4-A output
Size — 1.7"H x 17.3"W x 27.2"D (4.4 x 44 x 69 cm)

Item	Code	List Price
ServView V		
Single-Port		
VGA, USB, PS/2	KVT517A-1UV	
with 8-Port KVM Switch		
VGA, PS/2	KVT517A-8PV	
with 8-Port KVM Switch		
VGA, USB, PS/2	KVT517A-8UV	
with 16-Port KVM Switch		
VGA, PS/2	KVT517A-16PV	
with 16-Port KVM Switch		
VGA, USB, PS/2	KVT517A-16UV	
You may also need...		
ServView V CPU Cables		
PS/2 Cables		
6-ft. (1.8-m)	EHN70001-0006	
10-ft. (3.0-m)	EHN70001-0010	
15-ft. (4.6-m)	EHN9000P-0015	
30-ft. (9.1-m)	EHN9000P-0030	
USB Cables		
6-ft. (1.8-m)	EHN9000U-0006	
10-ft. (3.0-m)	EHN9000U-0010	
15-ft. (4.6-m)	EHN9000U-0015	
30-ft. (9.1-m)	EHN9000U-0030	

Video and Audio over Ethernet Extender System

Simplify and save by using your LAN cabling to distribute HD-quality digital signage content.

- Innovative video-over-LAN technology for setting up a highly cost-effective networked digital signage system.
- Completely digital from end to end—your digital content is never compromised.
- Easy to cable with DVI-D and audio inputs.
- Clones a host PC's display using the DVI output from a graphics adapter, or accepts DVI or HDMI input from other sources.
- A single transmitter can deliver media to an unlimited number of displays.
- Delivers up to six independent media streams (including PowerPoint®, Flash, DVD, or HDMI content) over CATx cable.
- Stream live video using HDMI output from a camera.
- Includes software for uploading and scheduling content and network-based diagnostics.
- Also supports IT tasks such as running remote updates or backups.
- **◆◆ WARRANTY — 2 Years**

Stream high-definition synchronized video and audio at Gigabit speeds over your existing network cabling with the BLACK BOX® Video and Audio over Ethernet Extender System.

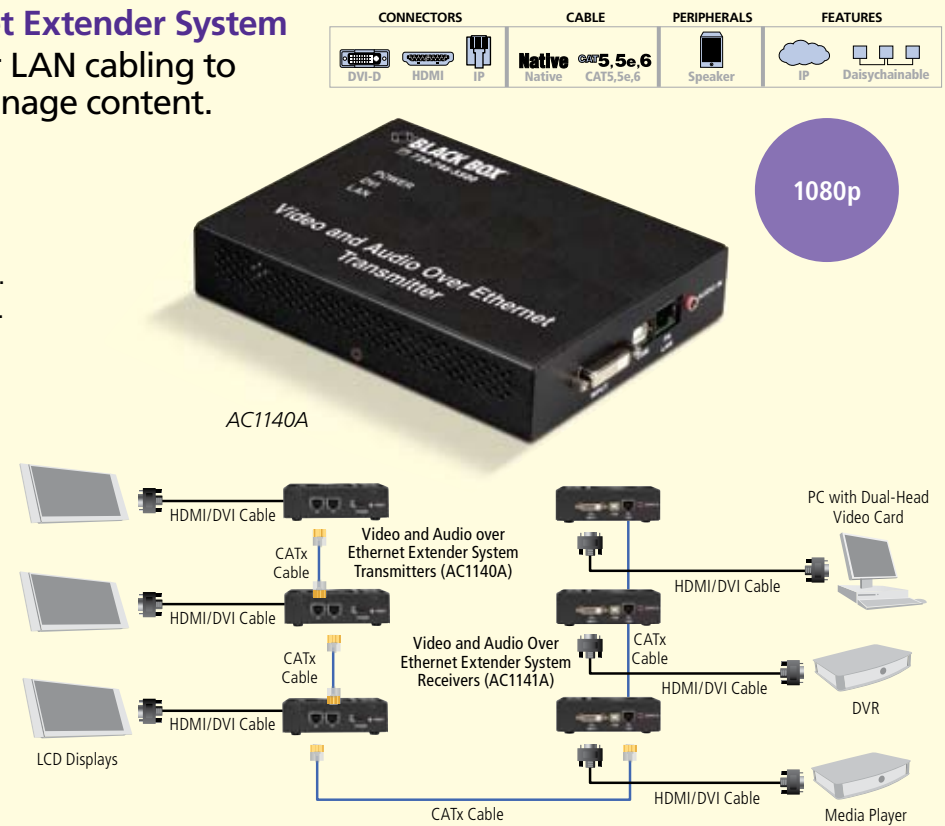
With it, you can avoid running expensive dedicated links from a back room to digital signage in lobbies or other public areas. That's because the versatile system uses an existing CAT5, CAT5e, or CAT6 network infrastructure to transmit video and audio streams to one or more displays located up to 300 feet (91.4 m) away. Want to go farther? Just add standard network switches to the system.

Distributing HD content for HD displays, the system transmits broadcast-quality video without amplifiers or expensive wiring. It supports 480p, 800 x 600, 1024 x 768, 720p, 1080i, and 1080p resolutions, no matter what the distance or the number of displays.

And because the extender system simulcasts video and audio synchronously, there's no lag from the first display to the last.

The transmitters

Available in standalone or PCI card versions, the transmitter packetizes digital video and audio input for distribution over CATx cabling. Simply plug in the DVI-D cable (or HDMI adapter cable) from a graphics adapter or other source, then connect an audio source, and you're ready to stream movie files and presentations across your LAN to one or more remote displays. The system supports six independent HD channels, so you can simulcast multiple channels over one CATx link.



The receiver

Plug the receiver into any network port on the dedicated LAN to convert Ethernet packets sent from the transmitter back to synchronized video for display. No software is required for the conversion, and it works with any brand of single-link DVI or HDTV display.

Plus, it works as a true Gigabit Ethernet switch, so you can connect multiple devices, including IP cameras or NAS components, through its three 10-/100-/1000-Mbps ports. For a multiple-display setup or a digital signage network with screens in different areas, just daisychain multiple receiver units via the CATx ports.

The content distribution software

For easy control of your entire digital signage network, the system comes with content distribution and display management software. It enables you to not only upload and stream content from a digital media source to any display, but also to perform diagnostics on the transmitter and receiver from the host PC, as well as log all system activity.

Through the software's easy-to-use GUI, you can instantly publish and update content on displays, as well as assign content distribution schedules to a transmitter or receiver or narrowcast live camera feeds to digital signage presentations. If necessary, you can also interrupt scheduled content to broadcast an emergency announcement or ad-hoc messaging. It's that versatile.

TECH SPECS

Operation — Point to point, multipoint, point to multipoint
Resolutions — 480p, 800 x 600, 1024 x 768, 720p, 1080i, 1080p
Speed — 1000 Mbps
CE Approval — Yes
Connectors — Transmitters: Audio: (1) stereo 3.5-mm; Video: (1) single-link DVI-D; System control: (1) USB; Interconnect: (3) RJ-45 (1000BASE-TX), daisychainable;
 Receiver: Audio: (1) stereo 3.5-mm; Video: (1) single-link DVI-D; System control: (1) USB, (1) DB9 F (RS-232, bidirectional); Interconnect/switch: (3) RJ-45 (1000BASE-TX), daisychainable
Power — AC1140A–AC1141A: 5-VDC adapter (included)
Size — Both standalone units: 1.1"H x 6.5"W x 5.5"D (2.8 x 16.5 x 14 cm)

Item	Code	List Price
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Order both a transmitter and receiver: Video and Audio over Ethernet Extender System		
Transmitter		
Standalone	AC1140A	
◆ Includes (1) transmitter, content distribution and display management software, (1) 3.5-mm audio cable, (1) USB cable, and (1) 5-VDC power adapter.		
PCI/PCI-e Card	AC1140C	
◆ Includes (1) transmitter, content distribution and display management software, (1) 3.5-mm-to-RCA audio adapter cable, and (1) USB cable.		
Receiver		
Standalone	AC1141A	
◆ Includes (1) receiver, (1) DVI–HDMI adapter, and (1) 5-VDC power adapter.		

HD and SD Digital Signage Network Appliances (DSNAs)

Put these DSNAs on your network and use a browser

- Complete all-in-one, plug-and-play digital signage solutions. Work right out of the box with software preinstalled and tested.
- Use as standalone or networked devices. You can set up multiple DSNAs as subscribers for a publisher DSNA unit.
- Controllable via a standard Web browser connection.
- Locally update screen content using ad-hoc facility to instantly add text messages, issue alerts, or select content for specific audiences.
- Support streaming of live TV or video and recorded content.
- Easy to manipulate layouts with drag-and-drop tool.
- Include free professionally designed screen layouts and free software updates.
- Enable you to set up multizone layouts with each zone playing different media from their own playlists.
- Highly secure, Linux® based devices with built-in firewalls.
- ♦♦ **WARRANTY** — 1 Year



Front view: AC4004A

Create, distribute, and manage digital signage content easily with HD and SD DSNAs. Ideal for both large organizations and small offices, the DSNAs work right out of the box with all software preinstalled — and no recurring licensing fees to deal with later. And software updates are free.

Because DSNAs support many media formats, you can combine video or live TV with scrolling text, photos, Flash, and Web content. In addition to HTML and RSS media, they handle MPEG, AVI, Quicktime®, and PowerPoint® media; JPEG, GIF, and TIFF images; and WAV and MP3 audio.

Install the DSNAs on your network and manage them via a browser from any PC or Mac® on a WAN. One DSNA can clone its media from another DSNA over the network, so the same analog VGA video output can be shown on remote displays — even on the other side of the world. Scaling from a standalone installation to a multichannel network with hundreds of screens is a matter of simply adding more DSNAs to your standard IT network configuration.

Use to play or publish, or as subscribers

All the DSNAs except for the AC4005A (a subscriber-only device) work one of three ways:

- As a **standalone player**, publishing to itself.
- As a **publisher**, through which you can create layouts, manage playlists, then publish one or more channels to itself as an FTP client or to a USB storage device or an external FTP client. It sends a snapshot of all required files to an FTP file server at a preconfigured location in your attached IP network.
- As **subscriber**, pulling down new content and instructions from an FTP client, USB storage device, or another DSNA.

Setup is easy. Just connect it to your network and to an LCD or other AV display device, power it up, and once it has an IP address from the network, you use a browser to access the DSNA via a DHCP server. Fixed IP addresses can also be set. To upload media, copy and paste image and audio files from your PC or Mac into the DSNA interface. All files can be stored on the DSNA's internal disk.

HD and SD versions available

Choose from three DSNA families (we recommend a publisher and subscriber from the same family):

- **AC4000A–AC4001A** models have dual-core 2 x 2-GHz processors, can play high-definition media (up to 1920 x 1080 resolution), have output resolution up to 2048 x 1535, and support two video zones — great for showing live and recorded video feeds side by side! All zones can be displayed with transparency. If you need a CATV or antenna TV feed, order the AC4001A, which has a TV capture card.
- **AC4002A–AC4003A** DSNAs feature a 2-GHz processor, can play standard-definition video, and have an output up to 1920 x 1200. They support a single video zone, and all zones can be displayed with transparency. The AC4003A has an integrated TV capture card.
- **AC4004A–AC4005A** DSNAs have a 1-GHz processor, can play standard-definition video, and have an output up to 1920 x 1200. The AC4005A works as a subscriber only.

Buyer's Guide | HD & SD DSNAs

Product Feature	AC4000A	AC4001A	AC4002A	AC4003A	AC4004A	AC4005A
Per-zone transparency	✓	✓	—	—	—	—
Number of zones	Unlimited, (2) video	Unlimited, (2) video	Unlimited, (1) video	Unlimited, (1) video	Unlimited, (1) video	Unlimited, (1) video
Portrait mode	✓	✓	✓	✓	—	—
HD media player	✓	✓	—	—	—	—
Central media publisher	✓	✓	✓	✓	✓	—
Local layout editing/creation	✓	✓	✓	✓	✓	—
Local playlist editing	✓	✓	✓	✓	✓	—
Video zones	2	2	1	1	1	1
HTML zones	Unlimited	Unlimited	Unlimited	Unlimited	2	2
Text, stills, audio zones	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited
Analog TV input	—	✓	—	✓	—	—



to create and stream multimedia content to displays.



Used as publishers, the DSNAs enable you to stream live TV into your digital signage displays, combining it with other media content. You can also control multiple displays from a browser-based Web connection.

Include sophisticated layout tools

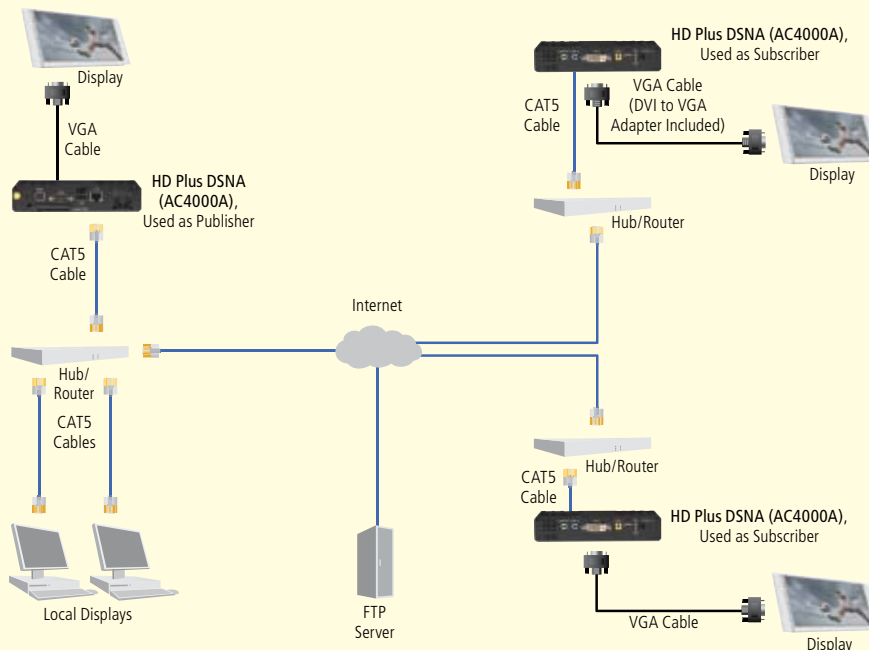
All DSNAs used in a publisher role have the capability to produce and control multiple content channels. Productivity tools enable you to deliver a high-impact display at the right time in the right place, whether it's stored media such as promotional ads, or live media such as RSS or TV feeds.

The included software comes with a number of free layouts, so you can be up and running, displaying your choice of content in a professionally designed format within minutes. Or you can create your own. The DSNAs' intuitive layout and design tool makes it easy to create and modify layouts. Adjust, resize, position, and layer zones with a simple click and drag! Also, you can manually set pixel or percentage measurements to achieve pixel-accurate alignment or lock a movie zone to a desired aspect ratio (16:9, 5:4, or 4:3).

Set up one or more screen layouts containing one or more rectangular zones for display. Every zone in the display layout has its own playlist, to which you can add multiple stored media files. When you activate a schedule, the relevant media will appear, as laid out, on your display device. Each playlist runs in a continuous loop per a preset schedule. Different layouts can be scheduled to play at different times of the day.

You can also add a live TV station to your playlist (as opposed to a video file stored on the internal disk), show text from an internal feed, and more. What's more, RSS subscriber features enable you to automatically collect and display text crawl feeds from the Internet—which is great for streaming news or stock tickers.

Plus, the DSNAs offer built-in status monitoring and content playout record features.



TECH SPECS

- CPU Processor** — AC4000A–AC4001A: Intel® Pentium® Core 2 Duo 2 x 2 GHz; AC4002A–AC4003A: Intel Atom® 1.6 GHz; AC4004A–AC4005A: VIA C7 1 GHz
- Memory** — 1024 MB RAM
- Media Supported** — HTML; JavaScript; Flash; Real; MPEG 1, 2, 4 (DivX); AVI; QuickTime; live analog TV (AC4001A and AC4003A also support analog TV input on capture card); GIF, TIFF, JPEG, PNG, scrolling or static text; RSS feeds; MP3, WAV
- Media Storage Type** — AC4000A–AC4003A: 80 GB, 7200 RPM, 3.5" HDD; AC4004A–AC4005A: CompactFlash™, 2 GB (as standard)
- Resolution** — AC4000A–AC4003A: 2048 x 1536; AC4004A–AC4005A: 1920 x 1200
- Connectors** — AC4000A–AC4003A: (1) HD15 F (VGA); (1) RJ-45 (10/100/1000 Mbps on AC4000A–AC4001A; 10/100 Mbps on AC4002A–AC4003A); (1) DB9 M (RS-232); (1) 6-pin mini DIN F (mouse); (1) 6-pin mini DIN F (keyboard); (4) USB Type B F; (2) 3.5-mm F audio line in/out; AC4001A, AC4003A also have: 75-ohm F connector (CATV); (1) 4-pin mini DIN F (S-Video); (1) RCA F (Composite video); AC4004A–AC4005A: (1) HD15 F (via included DVI-I to VGA adapter); (1) RJ-45 (10/100 Mbps); (1) DB9 M (RS-232); (1) 6-pin mini DIN F (mouse/keyboard); (2) USB Type B F; (2) 3.5-mm F audio line in/out
- Power** — Input: 100–240 VAC, 50–60 Hz; Consumption: AC4000A–AC4001A: 60 W; AC4002A–AC4003A: 45 W; AC4004A–AC4005A: 11 W
- Size** — AC4000A–AC4003A: 3"H x 11"W x 10.5"D (7.6 x 27.9 x 26.7 cm); AC4004A–AC4005A: 1.2"H x 6.1"W x 5.2"D (3 x 15.2 x 13.2 cm)

Item	Code	List Price
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Digital Signage Network Appliances (DSNAs)		
HD Plus High-Speed Player/Publisher/Subscriber	AC4000A	
HD Plus High-Speed Player/Publisher/Subscriber with TV Capture	AC4001A	
SD 2-GHz Player/Publisher/Subscriber	AC4002A	
SD 2-GHz Player/Publisher/Subscriber with TV Capture	AC4003A	
SD 1-GHz Player/Publisher/Subscriber	AC4004A	
SD 1-GHz Subscriber Only	AC4005A	

To give control to a network user, order...

DSNA Video Streaming Client License
AC4006A

To wallmount the AC4000A–AC4003A, order...

DSNA Wallmount Kit AC4007

To rackmount the AC4000A–AC4003A, order...

DSNA Rackmount Ears AC4008

High-Definition 1080p Media Player

Play content with 1080p clarity from CompactFlash and control it over a LAN with this standalone player.



- Delivers reliable, high-performance, high-definition video at 1080p resolution.
- Compact but powerful. Provides a simple and cost-effective digital signage solution.
- To load files and auto loop content instantly, just plug in CompactFlash card media.
- Or update content by uploading files through a LAN using its built-in Web browser interface.
- Control through 10BASE-T/100BASE-TX port.
- Plays MPEG 1/2/4.2, WMV-HD, VOB, AVI, DVD, and JPEG multimedia.
- Provides 1920 x 1080 resolutions on its HDMI interface, plus Component, Composite, S-Video, and VGA video output to large displays.
- XML-based content scheduling for day parting.
- Play media on separate zones within screens.



- Serial RS-232 and USB input/output.
- Features a powerful graphics engine, 200-MHz ARM-compatible processor, and Sigma Designs digital media processor/decoder.
- Stereo audio output.
- Includes crossover and HDMI cables, and a cover plate and screws for the media slot.
- **◆◆ WARRANTY** — 1 Year

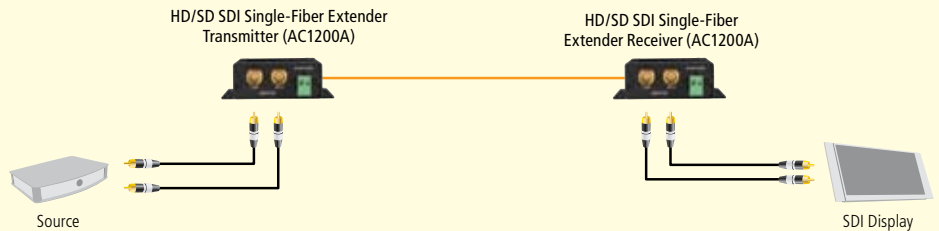
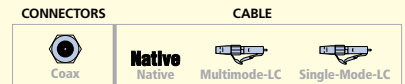
TECH SPECS

CE Approval — Yes
Connectors — Video output: (1) VGA (HD15 F); (1) HDMI (integrated audio), (1) Component (Y-PB-Pr), (1) Composite (RCA), (1) S-Video (4-pin mini DIN);
 Audio output: (2) RCA left/right stereo;
 Serial input/output: (1) DB9 F (RS-232);
 USB input/output: (2) USB Type A F;
 Network: (1) RJ-45 (10BASE-T/100BASE-TX);
 Media: (1) slot for CompactFlash™ Type I/II card
Power — Input: 100–240 VAC, 50–60 Hz;
 Output: 12 VDC 4.0 A
Size — 2" H x 7" W x 4.25" D (6.4 x 17.8 x 10.8 cm)
Weight — 1.5 lb. (0.7 kg)

Item	Code	List Price
High-Definition 1080p Media Player	HD700-S	

HD/SD SDI Single-Fiber Extender

Overcome the distance limits of sending SDI signals over coax cabling.



- Re-clocks and equalizes HD/SD-SDI signals locally and remotely, so the resolution, frame rate, and color fidelity of video images remain intact after extension.
- Great for high-end studio deployments! Widely compatible with a number of video devices.
- Immune to SDI pathological signal patterns over the entire link budget.

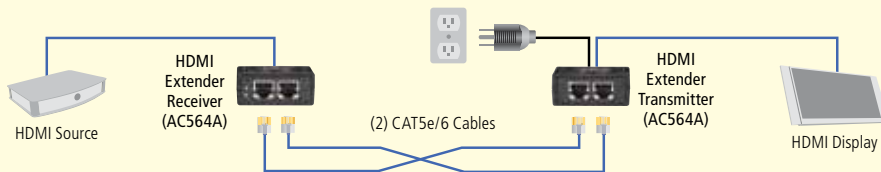
- Use with either single-mode (9- μ m) or multimode (62.5- or 50- μ m) fiber. Goes up to 48 kilometers (29.8 mi.) over single-mode and 7.5 kilometers (4.6 mi.) over multimode.
- Designed for interoperability with other SMPTE 297-2006-compliant devices up to 1.485 Gbps.
- Supports embedded audio and data inputs.
- Transmits over a single fiber.

- Includes a transmitter and receiver.
- Compact, low-profile enclosures—great for tight spaces or for use behind equipment.
- **◆◆ WARRANTY** — 3 Years

Item	Code	List Price
HD/SD SDI Single-Fiber Extender	AC1200A	

HDMI Extender Kit over CATx • 3-to-1 HDMI Switch/Extender Kit over CATx

Use two CAT5e or CAT6 cables to extend HDMI display video.



Each kit contains a transmitter and receiver. Shown above: AC565A.

HDMI Extender Kit

- Extends HDMI source video (even 1080i Deep Color video) up to 200 feet (60.9 m) over two CAT5e or CAT6 cables.
- Also extends 1080p video up to 66 feet (20.1 m) over CAT5e cables and up to 100 feet (30.4 m) using CAT6 cables.

3-to-1 HDMI Switch Extender Kit

- Enables you to connect and switch between three HDMI sources linked to a remote HDMI display over two CAT5e or CAT6 cables.
- Using CAT6, extends 1080i Deep Color video up to 280 feet (85.3 m) and 1080p video up to 130 feet (39.6 m).

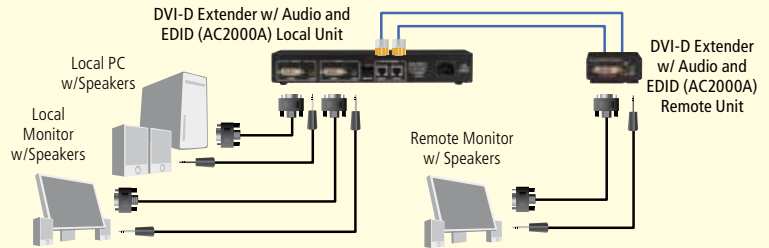
- **◆◆ WARRANTY** — All: 2 Years

Item	Code	List Price
HDMI Extender Kit over CATx	AC564A	
3-to-1 HDMI Switch/Extender Kit over CATx	AC565A	
110-VAC	AC565A-110	
220–240-VAC	AC565A-220	

DVI-D Extender with Audio and EDID

Extend DVI and EDID monitor info up to 300 feet over CAT5e or CAT6 cable!

CONNECTORS	CABLE	PERIPHERALS
DVI-I	Native CAT5,5e,6	Speaker Serial



- Transmits PC video up to 300 feet (91.4 m) over CAT6 cables and 200 feet (60.9 m) over CAT5e cables. Supports 1920 x 1080 PC resolutions at shorter distances.
- For HDTV, it extends 1080p video up to 150 feet (45.7 m) over CAT6 and 100 feet (30.4 m) over CAT5e. Lower HD resolutions (480p to 1080i) go farther, up to 300 feet over CAT6.
- Reads Extended Display Identification (EDID) information from a monitor connected to either the local DVI output port or the DVI port on the remote unit, optimizing the display to the fullest capability of the video card.

- EDID information can also be learned or set to a default.
- EDID info learned from an output device can be used to emulate that actual device.
- Multiple control methods, including locally from the front panel or remotely using serial commands or its GUI software.
- Download EDID info from a PC using the CLI.
- Also drives stereo audio and bidirectional RS-232 serial data over long cable runs.
- Includes local and remote extender units, and a serial control terminal adapter.
- **WARRANTY** — 2 Years

TECH SPECS

MTBF — 90,000 hours (est.)
Video Level — 0 to 0.7V p-p
Connectors — Local unit: Video: Input: (1) DVI-D; Output: (1) DVI-D; Remote unit: Output: (1) DVI-D;
 Both units: Audio: Input: (1) 3.5-mm mini-stereo; Output: (1) 3.5-mm mini-stereo;
 Interconnect: (2) RJ-45;
 Serial: (1) DB9 F (RS-232)
Power — 100–240 VAC, 50–60 Hz, 0.3 A
Size — 1.7"H x 11.25"W x 4.1"D (4.3 x 28.5 x 10.4 cm)
Weight — 2.1 lb. (1 kg)

Item	Code	List Price
DVI-D Extender with Audio and EDID	AC2000A	

CATx DVI-D SL Extender Kit

Extend high-resolution single-link DVI-D video more than 160 feet.

- Transmits single-link DVI-D video over one CAT5, CAT5e, or CAT6 cable.
- Overcome DVI cable limits. Kit offers distances of 164 feet (50 m).
- Crystal-clear video resolutions up to 1600 x 1200 @ 60 Hz.
- Supports DDC emulation.
- Ideal for use in conference rooms, or in office and industrial settings.
- **WARRANTY** — 1 Year

The CATx DVI-D SL Extender Kit is a cost-efficient solution to overcome the 16.4-foot limitation of the DVI specification.

Installation is a snap. Simply connect the DVI-D output of your PC with the local unit

and your display with the remote unit. Next, connect both with the CATx link cable, and turn on the power. Use the PC exactly as if you have a direct connection to your display.



CONNECTORS	CABLE
DVI-D	Native CAT5,5e,6

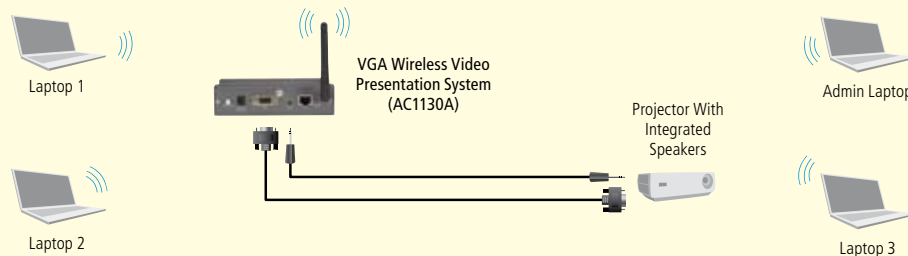


Kit includes a transmitter, receiver, and universal power supply (not shown).

Item	Code	List Price
CATx DVI-D SL Extender Kit	ACS2001A	

VGA Wireless Video Presentation System

Wirelessly control a projector presentation from a laptop.



- Ideal for controlling classroom, conference room, PowerPoint®, and real-time video presentations.
- Enables any desktop or notebook PC with Wi-Fi® to access a projector.
- Plugs into VGA port on the projector.
- Easy plug-and-play installation with auto-sharing to allow other PC users access, all while you play "traffic cop" for the presentation.

- Supports streaming video and plays MPEG1, 2, and 4 files.
- Features built-in DHCP and Web-based user interface for easy setup and configuration.
- Boasts secure login and Wi-Fi WEP protection.
- Also has RJ-45 port for wired LAN connections.
- **WARRANTY** — 1 Year

CONNECTORS	CABLE	PERIPHERALS
VGA	Native	Speaker



Plug it into an SVGA or WXGA projector for easy control of a presentation. It works with any system running Windows® 2000, XP, or Windows Vista®.

Item	Code	List Price
VGA Wireless Video Presentation System	AC1130A	

MultiView CAT5 Transmitters & Pollable Receivers

Our most popular video/stereo broadcast system now with pollable serial capabilities and skew compensation!

- Support the highest resolution 1080p video, WUXGA, from 600 to 2000 feet (609.6 m) over CAT5 or higher cable with no boosters!
- Pollable duplex RS-232 serial support enables bidirectional communication with individual displays — even daisychained displays.
- Ideal for advanced digital signage and narrowcasting, including retail, restaurants, gyms, churches, conference centers, and more!
- Easy one-button control for skew compensation of 65 ns.
- Compatible with RGBHV, HDTV, Composite video, and more.
- **◆◆ WARRANTY** — 1 Year

With duplex RS-232 serial communications and skew compensation, our most popular video/audio system gives you more broadcasting options than ever.

In addition to sending high-resolution video, digital audio, and display-addressable serial data over one CAT5 cable, you can now set up two-way communications with individual displays and/or receivers.

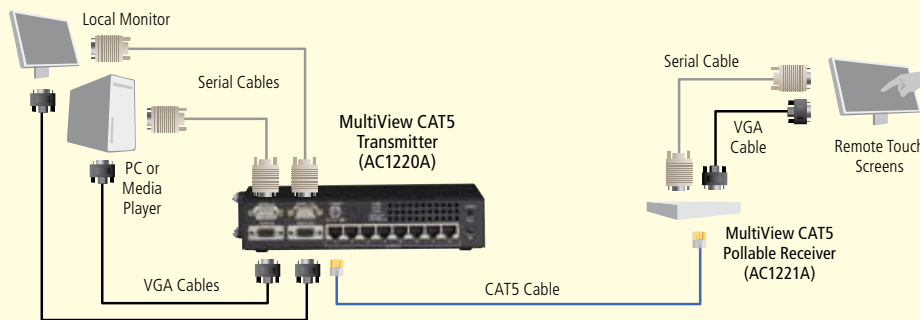
This is the ideal solution for dynamic signage metrics and control in digital networks, touch screens, and kiosk applications. Use MultiView CAT5 Transmitters and Pollable Receivers to send RS-232 serial data from a media player or other content server to multiple daisychained displays and have them report back. For example, you can collect time/date stamp information when menus change from lunch to dinner. Or collect data on

when particular ads run in sports centers, gyms, and other public areas.

To eliminate skew on UTP cable, simply turn a knob to adjust the skew delay.

Choose transmitters and receivers depending on the distance and number of displays you need, and if you want skew compensation.

CONNECTORS	CABLE	PERIPHERALS	FEATURES
VGA	Native CAT5,5e,6	Speaker Serial	Daisychainable



Item	Code	List Price
MultiView CAT5 1 x 8 Transmitter	AC1210A	
MultiView CAT5 Transmitter	AC1220A	
MultiView CAT5 Pollable Receivers		
600-feet (182.8-m)	AC1221A	
with Skew Compensation		
600-ft. (182.8-m)	AC1222A	
1200-ft. (365.7-m)	AC1223A	
2000-ft. (609.6-m)	AC1224A	

NOTE: All MultiView CAT5 Transmitters and Pollable Receivers work together.

Mini CAT5 VGA Extender Receiver

Super convenient video!
Plug your display into a wallplate!

- Receive VGA and Component video signals via an easy wallplate connection.
- Eliminate bulky coax cable. Use inexpensive CAT5/5e/6 cable.
- Receives signals from 500 feet (152.4 m) away.
- Single-gang wallplate saves space and eliminates the need for standalone receivers.
- Mounts in any standard junction box.
- The front features an HD15 connector.
- An RJ-45 connector on the rear makes termination easy.
- Supports resolutions up to 1920 x 1440.
- Receiver amplifies and compensates signals for clean, crisp images.
- Differential signaling eliminates ground loops and noise.
- No power needed. It's sent with the signals.
- An LED indicates Power Good.
- **◆◆ WARRANTY** — 2 Years



For more Mini CAT5 Extender information, see p. 429.

CONNECTORS	CABLE
VGA	Native CAT5,5e,6

Item	Code	List Price
Mini CAT5 VGA Extender Receiver	AC504A-WP-R	This receiver works with the entire Mini CAT5 Extender family (p. 429). To connect a single video source to a single receiver, order...
Mini CAT5 Extenders Wallplate Transmitter	AC504A-WP	
Standalone Transmitter with Local Port	AC603A	

Or to connect a single video source to multiple receivers, order...

Mini CAT5 Extenders VGA Transmitters		
2-Channel	AC600A	
4-Channel	AC601A	

You can also add additional receivers for each connected video display...

Mini CAT5 Splitter/Extender VGA Receiver	AC602A	
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You can also order a kit, which includes a transmitter and receiver...

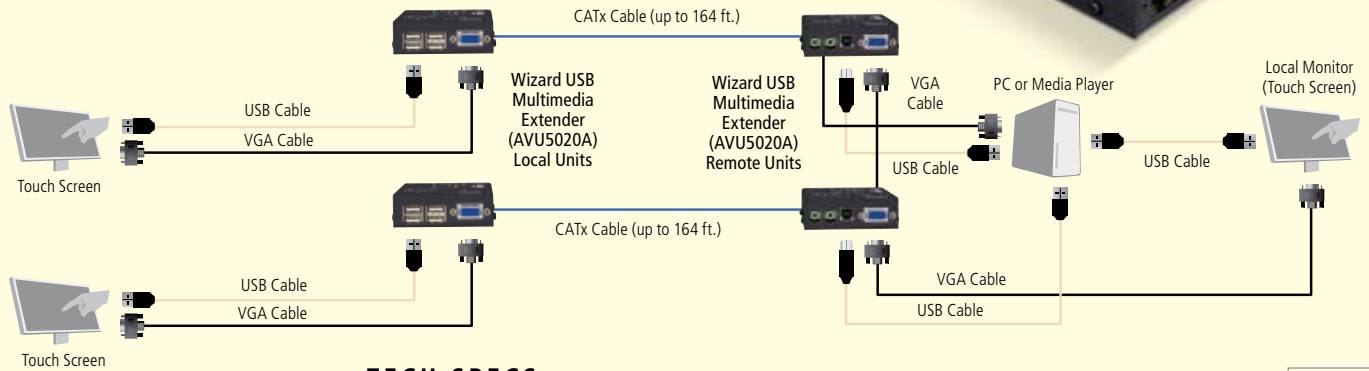
Mini CAT5 Extender Kits		
VGA	AC504A	
Component	AC504A-CP	

Wizard USB Multimedia Extender

Send audio and video to multiple touch screens over CATx.

- Extend VGA video and audio signals 164 feet (50 meters) over CAT5/5e/6 cable!
- Connect monitors, touch screens, speakers, keyboards, cameras, and other USB 2.0 and 1.1 devices.
- Extend video from computers with dual monitors to touch screens and interactive kiosks.
- Provides ultra sharp, high-resolution video of 1920 x 1200.
- Fully supports DDC for crisp, high-res video.
- Digital transmission of clickless 44.1-kHz CD-quality stereo audio.
- Operation is fully transparent; use with all USB devices and all operating systems.
- An extended common mode input range eliminates interference.
- Video and audio outputs on the local unit enable local control of remote devices.
- **◆◆ WARRANTY** — 2 Years

CONNECTORS	CABLE	PERIPHERALS
 VGA	Native  CAT5,5e,6	 Speaker  USB



TECH SPECS

Distance — 164 ft. (50 m) over CATx cable
Resolution (Maximum) — 1920 x 1200 at 60 Hz
CE Approval — Yes
Connectors — Local unit: (2) HD15 F (video in/out), (1) USB Type B, (2) 3.5-mm jack (audio in/out), (1) RJ-45, (1) 2.5-mm DC power jack;

Remote unit: (1) HD15 F (video out), (4) USB Type A, (1) 3.5-mm jack (audio out), (1) RJ-45, (1) 2.5-mm DC power jack
Power — 100–240 VAC, 50–60 Hz
Size — Each unit: 1.7"H x 4.7"W x 3"D (4.4 x 12 x 7.5 cm)
Weight — Each unit: 1 lb. (0.5 kg)

Item	Code	List Price
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Wizard USB Multimedia Extender
 AVU5020A
 ◆ Includes (1) local unit, (1) remote unit, (1) power supply with U.S. cord, (1) VGA cable, (1) USB cable, (1) audio cable, and user manual CD.

Component Video Extenders

Extend Component video up to 1000 feet over UTP cable.

- Extend Component video signals over CAT5e or CAT6 cable.
- Support 1080i resolution at 500 feet (152.4 m) and 1080p at 300 feet (91.4 m).
- Wide-bandwidth (450-MHz) differential amplifiers ensure sharp, crisp video at the remote end.
- Protect against interference, eliminating video hum and distortion.
- Match UTP cable impedance to prevent ghosting.
- **◆◆ WARRANTY** — 2 Years



CONNECTORS	CABLE
 Component	Native  CAT5,5e,6

TECH SPECS

Bandwidth — 20 Hz–450 MHz
Distance (Maximum) — 480i, 576i: 1000 ft. (304.8 m); 480p, 576p: 750 ft. (228.6 m); 720p, 1080i: 500 ft. (152.4 m); 1080p: 300 ft. (91.4 m)
Resolutions Supported — All standard-definition TV (SDTV) and high-definition TV (HDTV) resolutions from 480i to 1080p
Standards — Analog Component video (Y-Pb-Pr) or RGB signals with sync-on-green
CE Approval — Yes
Connectors — Each unit: Component video: (1) Y-Pb-Pr on (3) jacks;
 Power: (1) DC jack;
 Interconnect: (1) RJ-45
Power — Output: 9 VDC (center-positive)
Size — Each unit: 1.1"H x 2"W x 2.6"D (2.8 x 6.6 x 6.6 cm)

Item	Code	List Price
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Order the kit...
 Component Video Extender Kit
 AC651A
 ◆ Includes (1) transmitter, (1) receiver, (2) Component video cables, (1) power supply, and (1) manual.
 ...or order the components separately.
 Component Video Extender Transmitter
 AC652A
 Component Video Extender Receiver
 AC653A

For larger applications, order...
 8-Port Component/VGA Video Splitter
 AC654A

Extending Component video can be tricky. To avoid long Component cable runs, you can use baluns, but they can sometimes ghost images when transmitting high-def video. Worse yet, many baluns are prone to outside interference, and cause that annoying hum and distortion. They're also subject to facility grounding issues.

Avoid such issues by using this kit. It's designed specifically to push Component video signals over longer distances. It contains all you need to boost standard or HDTV Component video signals over ordinary CAT5e or CAT6 cable.

The kit features group loop isolation (GLI) and radio-frequency interference (RFI) immunity, which prevents video hum and distortion. The transmitter and receiver units operate as active devices and match the impedance of the UTP cable, so there's no image ghosting either.

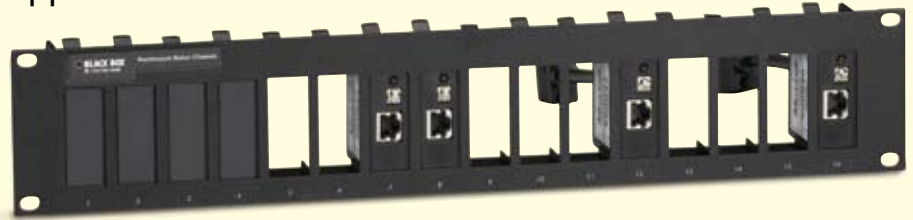
You can order the kit's extender components separately as individual transmitter and receiver units. Multiple receivers can also be used with our 8-Port Component/VGA Video Splitter (AC654A), which has eight RJ-45 outputs for extending to eight separate receiver locations.

16-Slot Rackmount Balun Chassis • Balun Mounts

Secure chassis and mounts for a variety of AV and digital signage system applications.

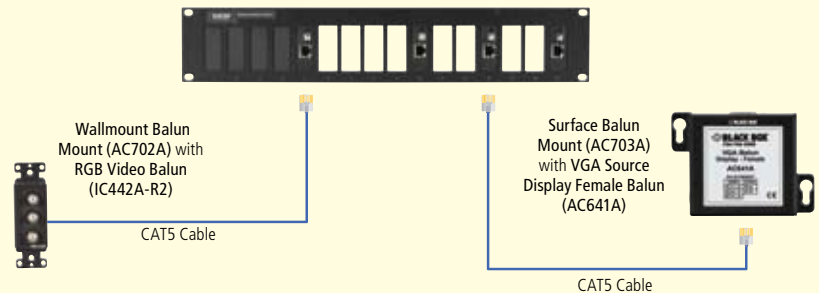


Left: AC702A shown holding an IC442A-R2 balun; right: AC703A holding an IC641A balun.



AC701A shown with four Blank Fillers (AC701) and four VGA Source Male Baluns (AC640A) installed.

16-Slot Rackmount Balun Chassis (AC701A) with (4) Blank Fillers (AC701), (1) RGB Video Balun (IC442A-R2), and (3) VGA Source Male Baluns (AC640A) Installed



16-Slot Rackmount Balun Chassis

- For high-end cable management. Enables multiple square baluns to be centralized and mounted in a 19" rack.
- Connects baluns for DVDs and other head-end equipment with CATx cabling in a wiring closet.
- One-piece, space-efficient design in 2U height supports up to 16 baluns.
- Snap-in design for secure balun installation.
- Baluns install front- or rear-facing.
- Blank fillers available for unfilled slots.

Wallmount Balun Mount

- One-piece design supports most square baluns.
- Spring clip holds balun securely, mounted forward or rear-facing.
- Attaches to standard gang boxes.

Surface Balun Mount

- For a more permanent, secure installation.
- One-piece design can be mounted to walls or desks.
- Two or more can be mounted close together.

- **WARRANTY** — All: Lifetime

TECH SPECS

CE Approval — Yes
Size — AC701A: 3.5"H x 19"W x 3"D (8.9 x 48.3 x 7.6 cm);
 AC702A: 4"H x 1.3"W x 2.7" (10.2 x 3.3 x 6.9 cm);
 AC703A: 2.4"H x 3.4"W x 1.1"D (6.1 x 8.6 x 2.8 cm)
Weight — AC701A: 1.9 lb. (0.9 kg);
 AC702A: 0.2 lb. (0.1 kg);
 AC703A: 0.1 lb. (<0.1 kg)

Item	Code	List Price
16-Slot Rackmount Balun Chassis	AC701A	
◆ Includes (1) 16-slot chassis, (4) rackmounting 10-32 screws, and (4) washers.		
Blank Fillers for 16-Slot Rackmount Balun Chassis	AC701	
Balun Mounts		
Wallmount	AC702A	
◆ Includes (1) wallmount fixture and (2) built-in Phillips 6-32 self-tapping screws.		
Surface	AC703A	
◆ Includes (1) surface-mount plate, (2) 10-32 screws, and (2) anchors.		

Item	Code	List Price
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All these fit into the chassis and mounts:
 VGA Baluns (Order both a source and a display balun.
 For details, see p. 427.)
 Source Male AC640A
 Display Female AC641A
 Display Male AC642A
 RGB Video Balun
 (For details, see p. 434.) IC442A-R2
 Component Video/Digital Audio Balun
 (For details, see p. 434.) IC566A
 S-Video Balun with Dual Audio Balun
 (For details, see p. 434.) IC449A
 Quad Audio Balun
 (For details, see p. 435.) IC565A
 Dual Audio/Video Balun
 (For details, see p. 435.) IC446A
 Video/Stereo Audio Balun
 (For details, see p. 435.) IC441A-R2
 Video PTZ Balun
 (For details, see p. 436.) IC450A-R2

CCTV Balun with RCA Connector

Eliminate bulky coax cable in CCTV applications with this balun.



- Transmit a single CCTV video signal plus audio over CATx UTP cable up to 2200 feet (670 m).
- With DVR equipment, the balun offers a maximum distance of 1000 feet (304.8 m).
- Features a compact design and low return loss.
- Enables quicker moves, adds, and changes, plus neater wiring.

- **WARRANTY** — Lifetime

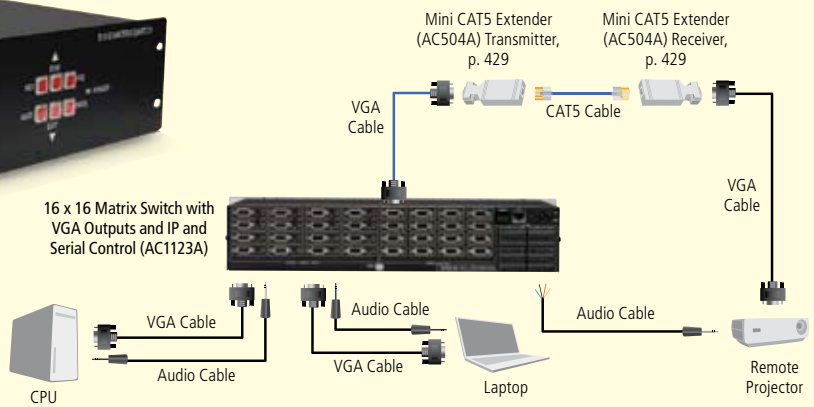
Item	Code	List Price
CCTV Balun with RCA Connector	IC444A-RCA	



VGA and Audio Matrix Switches

Switches that make it easy to route
VGA and 1080p HD video!

CONNECTORS	CABLE	PERIPHERALS	SWITCHING	FEATURES
VGA	Native	Speaker	OSD Push Button	Serial IP



- For cross-point switching of PC or HD (VGA or Y-Pb-Pr) video signals.
- Order with 16 or 32 ports (8 input/8 output or 16 input/16 output).
- Ideal for digital signage display systems where you want to switch source inputs for screen output on various screens.
- Switch using buttons on the front panel or by issuing RS-232 commands.
- Switched video output can also be blanked.
- Output PC resolutions up to 1900 x 1200 and HD video up to 1080p.
- Intuitive keypads enable you to check channel status and configure new input/output ties.
- Also work with analog SD video.
- Use front panel to view switch routings (ties) either from input or from output side.
- Can also be programmed to switch between preset patterns at certain times of the day—great for automating digital signage!

- Store up to 8 or 16 preset routing patterns. Reconfigure at the push of a button.
- All contain 8 or 16 HD15 VGA inputs.
- Models with VGA output can be used with Mini CAT5 Extender Transmitters and Receivers (page 429) to transmit VGA signals over CAT5 cable.
- Switches with RJ-45 output have the Mini CAT5 Extender Transmitters built in! Just pair each port with a receiver at the other end.
- VGA output switches with IP control also support matrix switching via their 10/100 port using Telnet™ or Virtual Serial Port Driver.
- 19" rackmountable enclosure.
- ♦♦ **WARRANTY** — 2 Years

Item	Code	List Price
VGA and Audio Matrix Switches		
with VGA Output and Serial Control		
8 x 8	AC1120A	
16 x 16	AC1122A	
with VGA Outputs and IP and Serial Control		
8 x 8	AC1121A	
16 x 16	AC1123A	
with RJ-45 Outputs and Serial Control		
8 x 8	AC1120A-RJ45	
16 x 16	AC1122A-RJ45	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

Premium VGA Video Extension Cable, PVC, HD15, Straight Hoods (Specify genders when ordering. For other lengths, see p. 151.)

50-ft. (15.2-m) EVNPS05-0050
100-ft. (30.4-m) EVNPS05-0100

A/V Switching Control System with Audio

Control conference room display devices remotely.

CONNECTORS	CABLE	PERIPHERALS	SWITCHING
VGA Composite S-Video	Native CAT5,5e,6	Speaker Serial	Push Button

- Add high-end A/V control capabilities to any classroom or conference room with this discreet wallplate transmitter and standalone receiver system.
- Supports 1080i video and PC resolutions up to 1600 x 1200 for UXGA projector output.
- Operate remotely from up to 750 feet (228.6 m) away over a UTP link.
- Switch between three sources for output to a projector or other display device and speakers.
- Accepts two VGA and one TV video (S-Video or Composite) each with its own stereo audio.
- Wallplate does not require a power supply.
- Receiver's built-in 20-watt (10 x 2) stereo amp drives a pair of 4- or 8-ohm speakers.
- Receiver also has serial output for controlling projector or other device via an RS-232 link.
- RoHS compliant.
- ♦♦ **WARRANTY** — 2 Years



TECH SPECS

Resolution — PC: 1600 x 1200 non-interfaced at up to 85 Hz;
HDTV: 1080i; NTSC, PAL, or SECAM S-Video or Composite video

Standards — VGA, SVGA, XGA, UXGA video; S-Video; Composite video

CE Approval — Yes

Size — Transmitter: 1.4"H x 8.2"W x 4.5"D (3.6 x 20.8 x 11.4 cm);
Receiver: 1.4"H x 6.5"W x 3.6"D (3.6 x 16.5 x 9.1 cm)

The system includes a 4-gang wallplate transmitter (left) and a small receiver (right)—components that fit easily and discreetly in most rooms!

Item	Code	List Price
A/V Switching Control System with Audio	AC1075A	

DVI-D DDC Ghost

Add true DDC support to your digital signage or multimedia system.



The easy-to-use DVI-D DDC Ghost resolves display resolution and color issues caused by a lack of DDC information.

- Prevents blank screens and boot problems.
- Plug it into a display device. It reads all EDID information, storing it in its non-volatile memory.
- Then install it between a graphics card and your switching or extension system.
- Great for computers unable to display images or render colors correctly because there's no DDC info or no option for DDC settings.
- Also helpful if your graphics card displays only the minimum resolution on your high-resolution screen.

- **WARRANTY** — 1 Year

TECH SPECS

Resolution — PC: Up to 1920 x 1200; HD: 480p, 720p, 1080i; 25–165 MHz
Connectors — (2) DVI-I F (video in/out), (1) power supply
Indicator — (1) LED (operation)
Power — 5 VDC, 2A, external
Size — 2.6"H x 2.2"W x 1.1"D (6.7 x 5.6 x 2.8 cm)
Weight — 0.3 lb. (0.1 kg)

Item	Code	List Price
DVI-D DDC Ghost	ACS2000A	



VGA DDC Ghost

Trouble-free VGA video connections for digital signage systems without DDC support.

- Helps prevent boot problems caused by missing DDC/EDID information.
- Plug it into a display device. It reads all EDID information, storing it in its non-volatile memory.
- Then install it between a graphics card and your switching or extension system.
- Can also use its built-in DDC emulation table.
- Resolutions up to 1920 x 1200.
- Ideal for digital signage, multimedia, or KVM switching systems with mixed analog and digital video, as well as for newer monitors supporting only a few high-resolution formats.

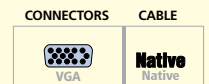
- Can also be used with plasma screens.
- **WARRANTY** — 2 Years

TECH SPECS

Resolution — Up to 1920 x 1200 at 60 Hz
Connectors — (2) HD15 F (video in/out), (1) optional external power supply
Indicator — (1) LED (operation)
Power — Via the interface or the optional external power supply
Size — 2.4"H x 1.4"W x 0.8"D (6.0 x 3.6 x 2.1 cm)
Weight — 0.1 lb. (<0.1 kg)



Item	Code	List Price
VGA DDC Ghost	ACS2100A	
If you need an external power supply order... 5-V Power Supply PS649-R3		



USB Docking Station

Use your computer's USB port to connect multiple USB peripherals, an additional monitor, and more!

- Designed for computers with extra connectivity demands.
- Extend connections from one USB port to USB peripherals, Ethernet networks, speakers, an additional monitor, and more.
- Eliminates the hassle of connecting or disconnecting peripherals from the rear of a computer.
- You can connect an additional monitor and configure it to either mirror your primary screen or extend the Windows® desktop, allowing you to view more applications within the confines of a single display.
- **WARRANTY** — 1 Year

TECH SPECS

Data Transfer Rates — Ethernet: 10 Mbps/20 Mbps (half-/full-duplex)
Memory — Embedded 20 KB SRAM for RX packet buffering and 20KB SRAM for TX packet buffering
Operating Systems Supported — Windows® 2000 SP4, XP® SP2, and Vista® 32-bit (32-bit edition only for all)
Standards — IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX
CE Approval — Yes
Connectors — USB: Upstream: (1) USB 2.0 Type B F; Downstream: (4) USB 2.0 Type A F; Network: (1) RJ-45 (10BASE-T/100BASE-TX); Video: DVI: (1) DVI-I (24-pin + 5-pin F); VGA: HD15 F; Audio: Microphone: (1) 3.5-mm stereo; Headphone/speaker: (1) 3.5-mm stereo
Power — Input: 100–240 VAC, 50–60 Hz; Output: 5 VDC, 2.5 A
Size — Main body without base: 6"H x 1.4"W x 3.5"D (15.3 x 3.5 x 9 cm)
Weight — 0.5 lb. (0.2 kg) including base



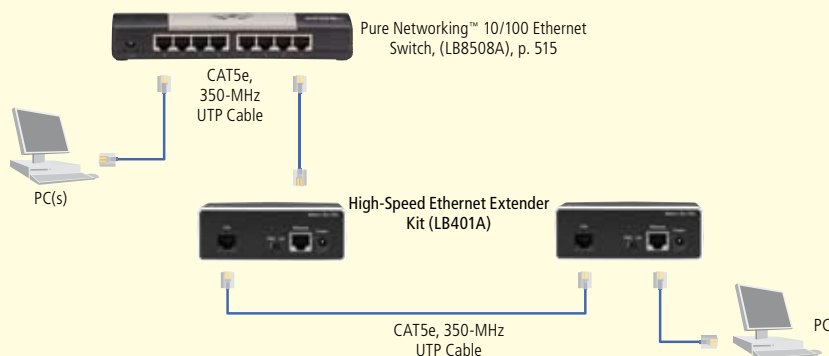
Item	Code	List Price
USB Docking Station	IC665A	

High-Speed Ethernet Extender Kit

Stretch your Ethernet network up to 6000 feet over ordinary voice-grade wiring!



- Use a single voice-grade twisted-pair cable to extend your network.
- Distances up to 6000 feet (1828.8 m).
- Ideal for extending 10-/100-Mbps links to remote buildings, those beyond the 328-foot (100-m) limit of Ethernet.
- Data rates up to 50 Mbps in each direction for full-duplex speed of 100 Mbps.
- Switch-selectable line rates.
- Asymmetric or symmetric operation.
- Simple to install, and there's no configuration or complex cabling to deal with.
- Autodetects 10-/100-Mbps connections, autonegotiating half- or full-duplex.
- Auto MDI/MDI-X.
- Bridges LANs transparently, passing higher layer protocols. Also supports 802.1Q VLAN tagged and untagged traffic.
- **◆◆ WARRANTY** —1 Year



Black Box Explains

DSL.

Digital Subscriber Line (DSL) was introduced as a low-cost, high-speed way to transmit data over ordinary phone lines. It actually shares a phone line with analog phone service. This is possible because analog phone service uses only a small amount of bandwidth, enabling DSL to piggyback high-speed data traffic onto the line.

To provide the ever-faster bandwidth customers demand, telco providers and other carriers have kept pace by offering ever-faster DSL variations, known collectively as xDSL.

DSL "alphabet soup".

Digital Subscriber Line (DSL)—DSL service can support transmissions over a local loop ranging up to 18,000 feet from the central office (CO).

As with most xDSL services, data rates increase near the CO and taper off with distance.

Note also:

Asymmetric DSL (ADSL) — ADSL provides speeds ranging from downstream/upstream rates of 9 Mbps/640 kbps over a relatively short distance to 1.544 Mbps/16 kbps as far away as 18,000 feet.

ADSL's asymmetrical nature provides more than sufficient bandwidth for downstream transmissions such as receiving data from a host computer or downloading multimedia files.

The lopsided nature of ADSL is what makes it most likely to be used for high-speed Internet access. And the various speed/distance options available within this range are one more point in ADSL's favor. And ADSL enables you to lease and pay for only the bandwidth you need.

SDSL (Symmetric DSL) — This represents the two-wire version of HDSL—which is actually symmetric DSL, albeit a four-wire version. Also known as HDSL2, it essentially offers the same

capabilities as HDSL with T1 rates (1.544 Mbps) at ranges up to 10,000 feet. It's primarily designed for business applications.

SHDSL — Also known as G.SHDSL, combines ADSL and SDSL features for transmittal of T1, E1, ISDN, IP, and ATM communications over a single pair of copper. SHDSL transmits symmetrical data at 192 kbps both upstream and downstream up to 24,000 feet. At shorter, 5000-foot distances, it supports speeds up to 5.7 Mbps downstream and upstream.

G.lite — Also known as ADSL lite and Universal ADSL, G.lite is a simplified xDSL offering standardized as G.992.2 by the ITU. When it was first introduced, G.lite represented the closest thing to plug-and-play DSL. G.lite, however, didn't quite catch on, mainly because of its speeds (1.5-Mbps downstream/ 512-kbps upstream rates) compared to those offered by other DSL technologies.

TECH SPECS

Duplexing Method — Frequency Division (FDD)
Modulation — Quadrature Amplitude (QAM) 4-band
Operation — Half- or full-duplex
Speed (Maximum) — 50 Mbps (see chart below)
CE Approval — Yes
Connectors — (1) RJ-45 (link); (1) shielded RJ-45 (LAN)
Indicators — (3) front-panel LEDs: Power, Link, Ethernet
Power — 100–240 VAC, 50–60 Hz, autosensing, external
Size — Each extender unit: 1.5"H x 4.1"W x 3.75"D (3.8 x 10.4 x 9.5 cm)
Weight — Each extender unit: 1.4 lb. (0.6 kg)

Buyer's Guide | Line Rates

Asymmetrical		
Upstream	Downstream	Distance
1 Mbps	4 Mbps	6000 ft. (1828.8 m)
1 Mbps	16 Mbps	4000 ft. (1219.2 m)
2 Mbps	50 Mbps	2000 ft. (609.6 m)
Symmetrical		
Upstream	Downstream	Distance
10 Mbps	10 Mbps	4000 ft. (1219.2 m)
25 Mbps	25 Mbps	2000 ft. (609.6 m)
50 Mbps	50 Mbps	800 ft. (243.8 m)

NOTE: Line rates are for 24 AWG, 0.5-mm cable.

Item	Code	List Price
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High-Speed Ethernet Extender Kit	LB401A	
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◆ Includes (2) extender units, switch-selectable for use as either a remote or local unit.

USB-Powered 10/100 5-Port Switch

The simple solution for expanding your network.



LBS005A: left: front view; right: rear view

- Pocket-size Fast Ethernet switches are a quick way to build a small network or add ports to an existing network.
- Can be powered through a PC's USB port so there's no need to find a spare outlet. Or use the included AC power supply.
- Easy plug-and-play operation.
- Compact so you can tuck it neatly in back of your PC.
- Five autosensing 10-/100-Mbps ports.
- Autonegotiating half-/full-duplex.
- Auto-MDI/MDI-X function on all ports, so no need for cross-pinned cables.
- Non-blocking, store-and-forward switching method.
- Easy-to-see LED indicators enable you to view network status.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Filtering and Forwarding Rate —
10 Mbps: 14,880 pps;
100 Mbps: 148,800 pps
MAC Addresses — 1K
Standards — IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-T, IEEE802.3x Flow Control
Switching Method—Store-and-forward
CE Approval — Yes
Connectors — (5) RJ-45, (1) Power
Indicators — LEDs: Per Unit: (1) Power; Per Port: (1) LINK/ACT
Power — From computer's USB port via power cable (included) or 115-VAC, 60-Hz external power supply (included)
Size — 0.8"H x 2.4"W x 3.1" D (2 x 6.2 x 7.9 cm)

Item	Code	List Price
USB-Powered 10/100 5-Port Switch	LBS005A	

Layer 3 Gigabit Ethernet Switches

Intelligent high-speed switching with routing features.

- Layer 3 full wire-speed routing among all ports.
- Non-blocking architecture.
- Flow control mechanism for zero packet loss.
- Store-and-forward switching.
- Port-mirroring function for network analysis.
- Link aggregation function (two to four ports per link).
- Support up to eight trunking groups.
- Multicast filtering (IGMP snooping).
- Eight-level priority for switching.
- IEEE 802.1D Spanning Tree Protocol.
- Rate limit control.
- 802.1x and Radius 802.1x.
- Layer 4 access control list.
- 802.1W Rapid Spanning Tree protocol and 802.1S Multiple Spanning Tree protocol.
- Single IP management.
- Web-based management through any standard Web browser.
- Support for SNMP RMON groups 1, 2, 3, and 9.
- MIB II, Ethernet MIB, Bridge MIB, and private MIB.
- Command line interface via Telnet.
- Firmware upgrade by TFTP FTP through Ethernet network.
- ♦♦ **WARRANTY** — 2 Years



LBG5803A

TECH SPECS

Architecture — Store-and-forward
Buffer — 1 MB
Console — RS-232
Environmental —
Temperature:
Operating: 32 to 104° F (0 to 40° C),
Storage: -40 to +158° F (-40 to +70° C);
Humidity:
Operating: 20 to 85% noncondensing,
Storage: 20 to 90% noncondensing
MAC Addresses — 16 K
Protocol — CSMA/CD
Standards — IEEE 802.3, 802.3u, 802.1q, 802.1p, 802.3x, 802.1d, 802.3ab, 802.3z, 802ac, RIP, RIP2, TCP/IP
System Configuration — Console port, Telnet, Web browser, SNMP
CE Approval — Yes
Connectors —
LBG5803A: (24) RJ-45, (4) SFP;
LBG5802A: (24) SFP, (4) RJ-45;
Both: (1) DB9 F (RS-232)
Indicators — Per unit: (1) Power;
Per Port: (1) LINK/ACT, (1) 1000-Mbps, (1) FDX
Power — 100 – 240 VAC, 50–60 Hz
Size — 3.5"H x 16.9"W x 13.8"D
(9 x 43 x 35 cm)
Weight — 14.3 lb. (7 kg)

Item	Code	List Price
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Layer 3 Gigabit Ethernet Switches
(24) 10/100/1000BASE-TX Ports, (4) SFP Slots
LBG5803A
(4) 10/100/100BASE-TX Ports, (24) SFP Slots
LBG5802A

Mini GBIC (SFP) Modules
1000BASE-T LFP301
1000BASE-SX (Multimode)
550 m LFP204
1000BASE-LX (Single-Mode)
15 km LFP205
40 km LFP206
70 km LFP207

WDM Single Strand (Single-Mode)
15 km (Order one of each.)
1310-nm TX/1550-nm RX
LFP208
1550-nm TX/1310-nm RX
LFP209
40 km (Order one of each.)
1310-nm TX/1550-nm RX
LFP210
1550-nm TX/1310-nm RX
LFP211 (NOTE: Order the single-strand in pairs: LFP208 and LFP209, or LFP210 and LFP211).

SFP-to-SFP Multipower Miniature Media Converter

SFP ports bring unparalleled versatility to this tiny converter.

- Two SFP interfaces enable you to use SFPs (**below**) to adapt the media converter to virtually any high-speed copper or fiber interface.
- Part of our Multipower Miniature Media Converter family on **page 555**.
- Compact size — measures just 0.8"H x 1.8"W x 3.4"D.
- Powered by a universal AC power supply, a PC's USB port, or the optional rackmount PowerTray.
- **◆◆ WARRANTY** — 6 Years



bottom: front view; top: rear view

This tiny media converter provides ultimate versatility. A pair of SFP ports enable you to use SFPs to adapt the converter to any 100- or 1000-Mbps interface. Although the converter is generally used for Fast or Gigabit Ethernet, it's protocol independent so you can also use it with unusual network types such as ATM.

Power the converter one of three ways: through the external AC power supply (included with each converter); through the optional USB Power Adapter Cable, which plugs into a PC's USB port; or via the optional rackmount PowerTray.

The Power Tray provides power for up to 18 converters in only 2U of rack space. Rackmount ears are included.

NOTE: Must be used in matching pairs—each converter in a pair must have the same model SFP installed.

TECH SPECS

- CE Approval** — Yes
- Connectors** — (2) SFP, (1) AC power, (1) 4-terminal DC power
- Power** — Dual power: AC: 100–240 VAC external power supply, 5 VDC, 2 amps; DC: 7–50 VDC at 2.5 watts, chassis grounded to negative terminal

Item	Code	List Price
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Multipower Miniature Media Converter
SFP-to-SFP, 100-/1000-Mbps
LGC300A

To power a single converter via your computer's USB port, order...

USB Power Adapter Cable
LHC021A

To rackmount multiple Miniature Media Converters, order...

PowerTray, 18-Slot
with AC Power LHC018A-AC-R2
with DC Power LHC018A-DC-R2

More Multipower Miniature Media Converters, p. 555. 

SFPs

Bring high-speed fiber and copper interfaces to any SFP slot.



- These small form-factor pluggable optical transceivers enable you to adapt an SFP slot to virtually any fiber or copper interface.
- Compatible with SFP slots on most network devices. For details, call our FREE Tech Support.
- Choose 155-Mbps models for use with 10- or 100-Mbps Ethernet and 1250-Mbps models for use with 1000-Mbps Ethernet.
- All models report basic link characteristics such as SFP type, length of fiber link, wavelength, and bit rate.
- Models with extended diagnostics also report information such as temperature, TX and RX power, voltage, and bias current.
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price
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SFPs		
155-Mbps Fiber		
850-nm Multimode, LC, 2 km	LFP104	
1300-nm Multimode, LC, 2 km	LFP105	
1310-nm Single-Mode, LC, 20 km	LFP106	
1310-nm Single-Mode, Plus-LC, 40 km	LFP107	
155-Mbps Fiber with Extended Diagnostics		
850-nm Multimode, LC, 2 km	LFP100	
1300-nm Multimode, LC, 2 km	LFP101	
1310-nm Single-Mode, LC, 20 km	LFP102	
1310-nm Single-Mode, Plus-LC, 40 km	LFP103	
1250-Mbps Fiber		
1310-nm Single-Mode, LC, 70 km	LFP207	
1550-nm Single-Mode, LC, 120 km	LFP259	

NOTE: These SFPs do not work with Cisco® switches.

Item	Code	List Price
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SFPs (Continued)		
1250-Mbps Fiber with Extended Diagnostics		
850-nm Multimode, LC, 550 m	LFP200	
1310-nm Single-Mode, LC, 15 km	LFP201	
1310-nm Single-Mode, LC, 40 km	LFP202	
1310-nm Single-Mode, Plus-LC, 70 km	LFP203	
1550-nm Single-Mode, LC, 120 km	LFP260	
1250-Mbps Copper		
10BASE-T/100BASE-TX/1000BASE-T	LFP300	
155-Mbps Fiber WDM Single-Strand		
1310-nm TX/1550-nm RX, Single-Mode	LFP108	
20 km	LFP109	
1550-nm TX/1310-nm RX, Single-Mode	LFP110	
20 km	LFP111	
1310-nm TX/1550-nm RX, Single-Mode	LFP110	
40 km	LFP111	
1550-nm TX/1310-nm RX, Single-Mode	LFP111	
40 km	LFP111	

(NOTE: Order the single-strand models in pairs: LFP108 and LFP109, or LFP110 and LFP111.)

Hardened Mini Industrial Switches and Media Converters

Tough DIN rail-mountable devices for switching 10/100 copper or copper-to-fiber traffic.



LBH120A-H-SC



LMC270A-MM-SC



- Inexpensive, unmanaged devices easily integrate your legacy 10-Mbps networks with 100-Mbps networks in harsh environments—without taking up much-needed space.
- Copper/fiber switches extend much farther than copper-only switches.
- Switches available in a 5-port 10BASE-T/100BASE-TX copper-only version and 5-port (4-to-1) 10BASE-T/100BASE-TX plus 100BASE-FX versions.
- For 1-to-1 copper-to-fiber media conversion, order the 2-port 10BASE-T/100BASE-TX to 100BASE-FX media converters.
- All switches and media converters feature an industrial-strength plastic case and comply with IEC 61000-Part 6-2 Generic standards for electromagnetic compatibility (EMC) in industrial environments.
- Offer full wire-speed forwarding rates across the network.
- Fiber models offer interference-free connections plus extended distances.
- Auto MDI/MDI-X copper ports autonegotiate for 10-/100-Mbps speed and autodetect full- or half-duplex mode.
- Support 2048 MAC addresses and feature a 384 KB buffer memory.
- Can be installed easily on a DIN rail. Mounting kit is included.
- For specifications, see page 572.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
Hardened Mini Industrial Switches		
5-Port		
(5) 10-/100-Mbps Copper	LBH120A-H	
5-Port (4-to-1)		
(4) 10-/100-Mbps Copper + (1) 100-Mbps Fiber		
Multimode SC 20 km	LBH120A-H-SC	
ST® 20 km	LBH120A-H-ST	
Single-Mode SC 20 km	LBH120A-H-20K-SC	
40 km	LBH120A-H-40K-SC	
75 km	LBH120A-H-75K-SC	
ST 20 km	LBH120A-H-20K-ST	
Hardened Mini Industrial Media Converters		
2-Port (1-to-1)		
(1) 10-/100-Mbps Copper to (1) 100-Mbps Fiber		
Multimode SC 20 km	LMC270A-MM-SC	
ST 20 km	LMC270A-MM-ST	
Single-Mode SC 20 km	LMC270A-MM-20K-SC	
40 km	LMC270A-MM-40K-SC	
75 km	LMC270A-MM-75K-SC	
ST 20 km	LMC270A-MM-20K-ST	

For your switch or media converter, choose a DIN rail-mountable DC power supply or an AC power adapter...

DIN Mount Power Supply	24-VDC	PSD012
	48-VDC	PSD014
External 100–240-VAC Power Adapter		
12-VDC Output Jack	U.S. Cord	PS002A
	No Cord	PS002
12-VDC Stripped Ends Output	U.S. Cord	PS003A
	No Cord	PS003

FireTunnel 10/30

Network connection and protection together in one convenient box.

- Combines an 8-port switch, router, firewall, and VPN in one convenient Internet appliance.
- Enables you to establish VPN tunnels for secure remote data access.
- FireTunnel 10 includes a firewall and supports up to 10 VPNs.
- FireTunnel 30 offers load balancing, firewall, and support for up to 30 VPN tunnels.
- ♦♦ **WARRANTY** — 1 Year

FireTunnel is a complete Internet access appliance, combining everything you need to establish a secure Internet connection in one device: VPN, firewall, router, and switch.

Comprehensive IPsec VPN protocols enable you to establish encrypted tunnels across the Internet. Remote network users can use VPN tunnels to link to your network without worrying about eavesdropping. VPN is perfect for connections to branch offices or employees who work from home. No special VPN client needed for Windows® 2000, XP, and Windows Vista®.

FireTunnel also includes a capable stateful inspection firewall with URL and port blocking. DOS protection keeps your network from being

overwhelmed by a denial-of-service attack. It can even be configured to e-mail you if your network comes under attack.

To complete the package, FireTunnel also includes an integral broadband router and an 8-port 10-/100-Mbps Ethernet switch.

The FireTunnel 30 also offers load balancing, enabling you to route traffic through two Internet connections simultaneously.



LRE1010E

Item	Code	List Price
FireTunnel 10, 10 Tunnels, 20-Mbps	LRE1010E	
FireTunnel 30, 40 Tunnels, 30-Mbps	LRE1030E	

Managed Field Switches

Heavy-duty switches ready to customize with fiber and copper 10/100 and Gigabit ports.

- Ideal for industrial networking applications in harsh environments.
- Advanced thermal chassis works as a heat sink and features a ribbed surface for heat dissipation.
- IP53-rated environmental protection. Also meets IEC 61850 and IEEE 1613 Environmental Standard for Electric Power Substations.
- Great for building a switched, hardened Ethernet infrastructure to connect edge devices, such as PLCs and IEDs with upstream switches or routers.
- Has four 10/100 copper ports in Slot A. For three other slots, choose from a number of copper or fiber modules (for a maximum of 16 total ports).
- Mixed-media modular capability makes it ideal for industrial applications where you need to accommodate existing Ethernet cabling and integrate interference-free fiber cabling into your LAN structure.
- Power over Ethernet (PoE) options available for 802.3af powered devices.
- Non-blocking, wire-speed filtering and forwarding across all ports.
- Handles stressful workloads, including a mix of bursty data traffic and priority streaming traffic.
- Features 802.3x flow control, 802.1p priority packet processing, a self-learning 4K-node address table, and large packet buffers.
- Comes with mounting brackets and full-featured management software.
- Supports SNMP management plus safe, secure browser-based access, and RADIUS and TACACS+ access protocols.
- Software GUI makes it easy to set up 802.1p QoS prioritization, tag-based VLANs, as well as IGMP snooping, IGMP-L2 multicast management, and port security.
- Alarm relay contacts enable monitoring through traps. Use software to record any losses of power signals and other user-defined events.



LE2325A-48VDC



LE2325A-48VDC: rear view

- Autonegotiating and auto-crossover (MDI-X) on all copper 10/100 ports. Operate at 10- or 100-Mbps speeds in full- or half-duplex.
- Monitor via two status LEDs sets, one on the port side; one on the front.
- **◆◆ WARRANTY** — 3 Years

TECH SPECS

- Enclosure** — High-strength extruded aluminum
- Filtering/Forwarding Rate** —
 Ethernet: 14,880 pps;
 Fast Ethernet: 148,800 pps;
 Gigabit Ethernet (optional): 1,488,000 pps
- MAC Addresses** — 4K
- Operating Temperature** —
 UL® 60950/component parts rating:
 -40 to +140° F (-40 to +60° C);
 IEC 60068 Type Test short term rating:
 -60 to +195° F (-50 to +85° C)
- Packet Buffer** — 240 KB for 10-/100-Mbps (120 KB for optional 1000 Mbps)
- Switching Processing Type** — Store-and-forward with IEEE 802.3x full-duplex flow control, non-blocking
- CE Approval** — Yes
- Connectors** —
 Ethernet/Fast Ethernet:
 LE2325A-POE48VDC: (4) RJ-45 PoE;
 Other switch chassis: (4) RJ-45;
 Management console: (1) DB15 (serial), (1) RJ-45;
 Alarm contacts: (1) NC indicating internal power, (1) NC software controllable
- Power** — Input: 12 VDC, 24 VDC, -48 VDC, 125 VDC, or 250 VDC, internal, on standard terminal block (-, GND, +)
- Size** — 6.9"H x 7.5"W x 2"D (17.5 x 19.1 x 5.1 cm)
- Weight** — 3 lb. (1.4 kg)

Item	Code	List Price
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First, choose a chassis which has (4) fixed RJ-45 ports in its Slot A...

Step 1	Item	Code	List Price
Step 1	Managed Field Switches with (4) 10-/100-Mbps Copper Ports		
	24-VDC Power Input	LE2325A-24VDC	
	-48-VDC Power Input	LE2325A-48VDC	
	125-VDC Power Input	LE2325A-125VDC	
	250-VDC Power Input	LE2325A-250VDC	
Step 2	Managed Field Switch with (4) 10-/100-Mbps Copper PoE Ports		
	-48-VDC Power Input	LE2325A-POE48DC	

...then, for Slot B, choose a switch port module...

Step 2	Item	Code	List Price
Step 2	Managed Field Switch Port Modules		
	(4) 10-/100-Mbps Copper	LE2326C	
	(2) 10-/100-Mbps Copper, (2) 100-Mbps Multimode Fiber MT-RJ, 2 km	LE2327C	
	(2) 10-/100-Mbps Copper, (2) 100-Mbps Multimode Fiber LC, 2 km	LE2328C	
	(2) 10-/100-Mbps Copper, (2) 100-Mbps Single-Mode Fiber LC, 15 km	LE2329C	
	(2) 10-/100-Mbps Copper, (1) 100-Mbps Multimode Fiber SC, 2 km	LE2330C	
	(2) 10-Mbps Multimode Fiber ST®, 2 km	LE2331C	
	(2) 100-Mbps Multimode Fiber ST, 2 km	LE2332C	
	(2) 100-Mbps Multimode Fiber SC, 2 km	LE2333C	
	(2) 100-Mbps Single-Mode Fiber SC, 20 km	LE2334C	
	(2) 100-Mbps Single-Mode Fiber SC, 40 km	LE2335C	
	(4) 100-Mbps Multimode Fiber MT-RJ, 2 km	LE2336C	
	(4) 100-Mbps Multimode Fiber LC, 2 km	LE2337C	
	(4) 100-Mbps Multimode Fiber LC, 15 km	LE2338C	
	(4) 10-/100-Mbps Copper PoE (for LE2325A-POE48VDC Only)	LE2339C	

Item	Code	List Price
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...next, order a module for Slot C...

Step 3	Item	Code	List Price
Step 3	Managed Field Switch Fiber Port Modules, 100-Mbps Multimode		
	(2) ST, 2 km	LE2340C	
	(1) ST, 2 km	LE2341C	
	(2) SC, 2 km	LE2342C	
	(1) SC, 2 km	LE2343C	
	(4) MT-RJ, 2 km	LE2348C	
	(2) MT-RJ, 2 km	LE2349C	
	(4) LC, 2 km	LE2350C	
	(2) LC, 2 km	LE2351C	
	Single-Mode		
	(2) SC, 20 km	LE2344C	
	(1) SC, 20 km	LE2345C	
	(2) SC, 40 km	LE2346C	
	(1) SC, 40 km	LE2347C	
(4) LC, 15 km	LE2352C		
(2) LC, 15 km	LE2353C		

...finally, for Slot D, choose either another module from the Step 2 list (all work in Slot D except for the PoE module) or one of these:

Step 4	Item	Code	List Price
Step 4	Managed Field Switch Gigabit Port Modules		
	(2) 1000-Mbps Fiber SFP Open Transceiver	LE2354C	
	(2) 10-/100-/1000-Mbps Copper	LE2355C	
	(1) 1000-Mbps Copper, (1) 1000-Mbps Fiber SFP Open Transceiver	LE2356C	
	(1) 1000-Mbps Fiber SFP Open Transceiver	LE2357C	
	(1) 10-/100-/1000-Mbps Copper	LE2358C	

Cabling

A woman in a white tank top and black shorts is rappelling down a dark, craggy rock face. She is wearing a helmet and sunglasses. A thick rope is attached to her harness and extends upwards. The background shows a bright blue sky and snow-covered mountain peaks. The image has a blue overlay on the right side with faint, stylized text and arrows.

At Black Box,
is the lifeline

we know cable
of your network.

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For New Products,
turn to pages 26–73.

Black Box ETL Verified Channel Solutions: Guaranteed for life, guaranteed performance, guaranteed best prices!

For proven performance in your demanding networks, choose BLACK BOX® GigaBase® CAT5e and GigaTrue® CAT6 channel solutions. They're guaranteed for life, ETL verified, and available at the best prices you'll find anywhere.



The best guarantees in the industry.

Talk about purchase protection! Black Box GigaBase® CAT5e and GigaTrue® CAT6 channel solutions are guaranteed for life! The channels consist of components engineered to work together so you get the absolute best performance. Better yet, our channel solutions give you application assurance. That means they will continue to operate the applications they were designed to support now and in the future.



Independent third-party testing.

To back up our performance claims, we put our channels to the test. Black Box engages independent third-party testing. Intertek Testing Services—ETL Semko, Inc. conducts rigorous ETL® Verification tests of our CAT5e and CAT6 channels. *Four* times a year, an ETL inspector comes to Black Box and randomly chooses products from our warehouse for on-going performance testing. The result time and time again: Black Box channels exceed all standard TIA/EIA key measurements for their respective categories.



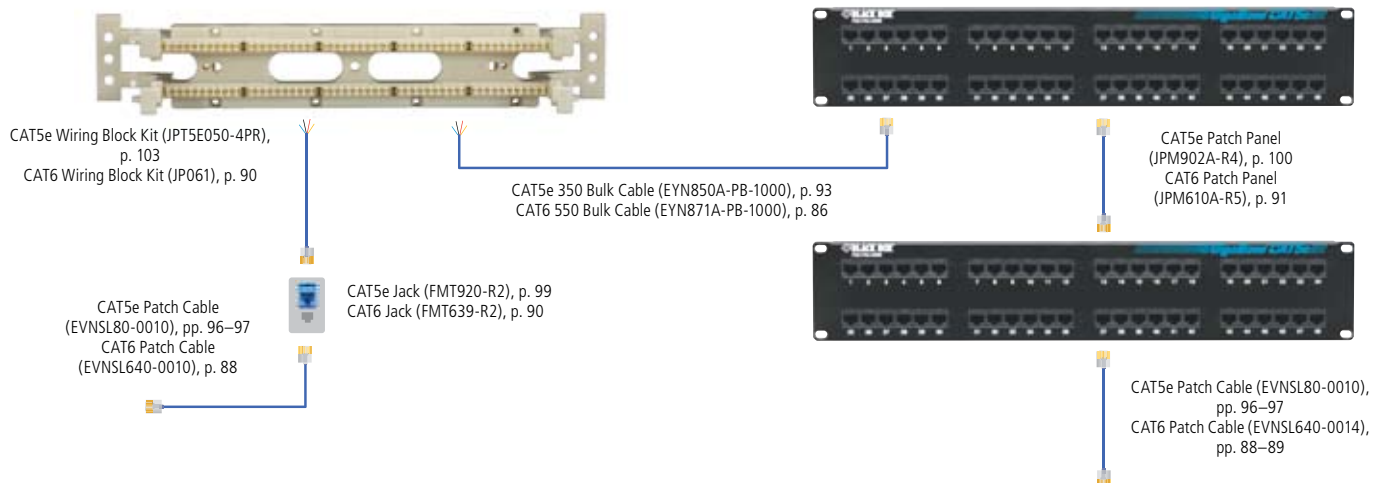
Top quality. LOW prices.

Save BIG with our everyday LOW prices on our CAT5e and CAT6 channels. You'll get proven top quality, but at the best prices in the industry, especially on our GigaBase CAT5e and GigaTrue CAT6 solid bulk cable. Slash your cable installation costs by buying directly from Black Box. If you find a better price, we'll meet or beat it with our Best Price Guarantee.



For complete ETL test results, see the Buyer's Guide under Resources at blackbox.com.

ETL Verified CAT5e and CAT6 channels





When you need it made to order, count on Black Box!

Special requirements? No problem!

Black Box can build a custom cable or adapter to your requirements. Every day, experienced technicians in our manufacturing facility in Lawrence, Pa., build custom cable assemblies, wallplates, switches, and more!

To start, just call our FREE Tech Support hotline or see our comprehensive configurators at blackbox.com.mx. After you submit your request to our engineers for review, a Black Box representative will contact you, typically in 24 hours or less to confirm your order.

Bundled CAT5e and CAT6 Bulk Cable

Black Box eases your installation worries by delivering bundled cables with the exact number of cables of the type and length you need. You can even specify color!

Ask about bundled and pre-terminated fiber cables, too!



Custom Feed-Through Faceplates

Black Box can customize feed-through faceplates to your installation. We build configurations with the connectors of your choice: CAT5e, CAT6, fiber optic, VGA, audio, S-Video, and more.



Call our FREE Tech Support hotline:
55 5420 0100

Copper cabling guidelines — considerations,

Choosing copper cabling

Choosing the right copper cable for your network can be a daunting proposition. You'll have to consider many factors such as network equipment, available space, future applications, and bandwidth specifications. Don't forget the less obvious considerations such as the electrical characteristics of your network environment and the cable you're going to use.

Because many less common copper cabling systems are either outdated or highly specialized (like Token Ring), these guidelines focus on twisted-pair Ethernet cabling—by far the most common networking cable and the one that supports the widest range of network equipment.

Basic considerations

These are some of the primary considerations when deciding what kind of cabling to use in your network:

- Network equipment and the bandwidth required.
- Anticipated changes and upgrades in equipment and applications.
- The maximum distance between devices on the network, including switches, routers, PCs, and other network hardware.
- Available space for adding new cable runs and equipment.
- EMI/RFI levels where cables and equipment will operate.
- Existing cable installations— will they support future upgrades and if not, can they be reused for applications that don't require better performance or more bandwidth?

Specifications

The need for increased bandwidth never ceases, and applications continually get more complex. For this reason, you may have to upgrade your network cable or, at the very least, add segments that support increasing bandwidth requirements. Listed below and at right are brief explanations of existing and proposed specifications for twisted pair as well as the applications for which each is best suited.

Category 5 (CAT5), ratified in 1991, was the defacto standard for 100-Mbps networks during the 1990s. It is no longer recognized by the TIA/EIA for use in data networking.

Category 5e (CAT5e), ratified in 1999, is designed to enable twisted-pair cabling to support full-duplex, 100-MHz applications, such as Fast Ethernet and Gigabit Ethernet. To this end, CAT5e has additional electrical measurements and stricter specifications for Near-End Crosstalk (NEXT)

and Return Loss (RL) than CAT5. It also includes specifications for Power Sum Near-End Crosstalk (PS-NEXT), Equal-Level Far-End Crosstalk (EL-FEXT), and Power Sum Equal-Level Far-End Crosstalk (PS-ELFEXT). CAT5e has long been a reliable choice for LANs and is still used in by many, many organizations.

Category 6 (CAT6) provides more stringent specifications for crosstalk and system noise than CAT5e. It's a 100-ohm cable with a specified frequency of 250-MHz. CAT6 easily handles Gigabit Ethernet transmissions, and has significantly improved bandwidth capacity. It is now the standard of choice for networking.

It's important to note that with a CAT6 installation, the quality of the signal transmission depends on the performance of all the components in the channel. So, to transmit according to CAT6 specs, all the components—jacks, patch cables, patch panels, cross-connects, and cabling—must meet CAT6 standards, regardless of the vendor who supplies them. For a detailed look at CAT5e and CAT6 specifications and how they compare individually and in the channel, see the Black Box Explains on the [facing page](#).

Additionally, all CAT6 components must be backwards compatible with CAT5e, CAT5, and Category 3 (CAT3) systems. If components from a different category are used with a CAT6 installation, the channel will achieve the transmission performance of the lower category.

Augmented Category 6 (CAT6a) was ratified in February 2008. This standard calls for 10-Gigabit Ethernet data transmission over a 4-pair copper cabling system up to 100 meters. CAT6a extends CAT6 electrical specifications from 250 MHz to 500 MHz to accommodate 10-Gigabit Ethernet. Like CAT6, it includes an integrated set of channel, permanent link, and component requirements. It also introduces a new measurement, Alien Crosstalk (ANEXT), which closely measures crosstalk outside the cabling jacket. CAT6a is a good choice for noisy environments with lots of EMI. For details on CAT6a, see [pages 82 and 85](#).

Category 7 (CAT7) is a proposed standard that will specify minimum performance standards for fully shielded cable (individually shielded pairs surrounded by an overall cable shield) transmitting data at rates up to 600 MHz. It aims to offer greater capacity for demanding applications such as broadband video. It's also well suited for applications where fiber optic cable would typically be used—but it costs much less. Because each CAT7 pair is fully shielded, it's ideal for areas prone to EMI/RFI.

Buyer's Guide | Twisted-Pair Cable Specifications Comparison

	CAT5	CAT5e	CAT6	CAT6a	CAT7 (Proposed)
Frequency	100 MHz	100 MHz	250 MHz	500 MHz	600 MHz
Attenuation (min. at 100 MHz)	22.0 dB	22.0 dB	19.8 dB	19.1 dB	20.8 dB
Characteristic Impedance	100 ± 15 ohms	100 ± 15 ohms	100 ± 15 ohms	100 ± 15 ohms	100 ± 15 ohms
NEXT (min. at 100 MHz)	32.3 dB	35.3 dB	44.3 dB	44.3 dB	62.1 dB
PS-NEXT (min. at 100 MHz)	—	32.3 dB	37.1 dB	42.3 dB	59.1 dB
EL-FEXT (min. at 100 MHz)	—	23.8 dB	27.8 dB	9.3 dB	(not yet specified)
PS-ELFEXT (min. at 100 MHz)	—	20.8 dB	24.8 dB	—	(not yet specified)
PS-ANEXT (min. at 500 MHz)	—	—	—	62.5 dB	—
PS-AELFEXT (min. at 500 MHz)	—	—	—	23.0 dB	14.1 dB
Return Loss (min. at 100 MHz)	15.1 dB	20.1 dB	20.1 dB	20.1 dB	14.1 dB
Delay Skew (max. per 100 m)	45 ns	45 ns	45 ns	45 ns	20 ns
Networks Supported	100BASE-T	1000BASE-T	1000BASE-TX	10GBASE-T	(not yet specified)

specifications, and applications.

Shielded (STP) vs. unshielded (UTP), solid vs. stranded

The design of twisted-pair cabling can make a big difference in how well a network functions. This is where the choice between STP and UTP, as well as solid and stranded cable, comes into play.

As a general rule, use STP in environments with high amounts of EMI/RFI. In electrically quiet environments, opt for UTP.

Solid-conductor cable should be used for longer-distance horizontal and backbone cable runs. Use it for runs between two wiring closets or from the wiring closet to a wallplate. Solid cable shouldn't be bent, flexed, or twisted repeatedly. Stranded-conductor cable, on the other hand, is more flexible and should be used for shorter runs like those from wallplates to NICs or patch panels to hubs and other rackmounted equipment.

A broken rule — video over CAT5 cable

As a general rule, more advanced cabling standards can handle applications and speeds that work on older standards. For instance, CAT5e or CAT6 cable should be able to do anything solid-conductor CAT5 can do — and significantly more. Although this backwards compatibility holds true in most cases, there is a notable exception when it comes to video applications.

CAT5e and CAT6 cables have tighter cable twists — and more of them — than CAT5. Because of this, the distance a signal has to travel is different for each pair. This isn't a problem with data, but with high-resolution analog video, you'll have problems with color separation (skew) because the red, green, and blue signals will arrive at slightly different times. In this case, less really is more and it's a good argument for keeping some of your CAT5 cabling while upgrading other parts of your network.

Black Box Explains

Power over Ethernet (PoE).

What is PoE and how does it work?

The seemingly universal network connection, twisted-pair Ethernet cabling, also plays another role: providing electrical power to low-wattage network devices. Power over Ethernet (PoE) was ratified by the Institute of Electrical and Electronic Engineers (IEEE) as the 802.3af-2003 standard. It defines the specifications for low-level power delivery—roughly 13 watts at 48 VDC—over twisted-pair cable to PoE devices such as IP phones, wireless access points, cameras, and speakers.

The way it works is simple. Ethernet cable that meets CAT5 (or better) standards consists of four twisted pairs of cable. Two pairs are used to transmit data on Ethernet networks, and the remaining two pairs are available for power. PoE offers two ways to send power over the remaining wires. The first sends the electricity through the spare pair. The second uses the data pairs for both power and data.

PoE applications and benefits:

- PoE works for video surveillance, building management, video kiosks, smart signs, and many other Ethernet systems and devices.
- Save money by eliminating the need to run electrical wiring in areas where you don't have readily available electrical power.
- If your LAN is protected from power failure by a UPS, connected PoE devices are also protected.

Black Box Explains

Component vs. channel testing.

When using a CAT6 system, the full specification includes testing each part individually and in an end-to-end-channel. Because CAT6 is an open standard, products from different vendors should work together.

Channel testing includes patch cable, bulk cable, jacks, patch panels, etc. These tests cover a number of measurements, including: attenuation, NEXT, PS-NEXT, ACR, PS-ACR, EL-FEXT, PS-ELFEXT, and Return Loss. Products that are tested together should work together as specified. In theory, products from all manufacturers are interchangeable. But, if products from different manufacturers are inserted in a channel, end-to-end CAT6 performance may be compromised.

Component testing, on the other hand, is much stricter even though only two characteristics are measured: crosstalk and return loss. Although all CAT6 products should be interchangeable, products labeled as component are guaranteed to perform to a CAT6 level in a channel with products from different manufacturers.

NOTE: In attenuation testing, the lower the number, the better. For all other electrical measurements testing, the higher the number, the better.

Buyer's Guide | CAT5e vs. CAT6 Cable

	CAT5e	CAT6
Standard	TIA-568-B.2	TIA-568-B.2-1
Frequency	100 MHz	250 MHz
Attenuation (max. at 100 MHz)		
Cable	22.0 dB	19.8 dB
Connector	0.4 dB	0.2 dB
Channel	24.0 dB	21.3 dB
NEXT (min. at 100 MHz)		
Cable	35.3 dB	44.3 dB
Connector	43.0 dB	54.0 dB
Channel	30.1 dB	39.9 dB
PS-NEXT (min. at 100 MHz) Channel	27.1 dB	37.1 dB
EL-FEXT (min. at 100 MHz)		
Cable	23.8 dB	27.8 dB
Connector	35.1 dB	43.1 dB
Channel	17.4 dB	23.3 dB
PS-ELFEXT (min. at 100 MHz) Channel	14.4 dB	20.3 dB
Return Loss (min. at 100 MHz)		
Cable	20.1 dB	20.1 dB
Connector	20.0 dB	24.0 dB
Channel	10.0 dB	12.0 dB
Characteristic Impedance	100 ± 15 ohms	100 ± 15 ohms
Delay Skew (max. per 100 m)	45 ns	45 ns

Category 7 S/FTP Patch Cable

Patch cable that delivers 1.2 GHz of bandwidth.



- This cable delivers twice the bandwidth of Category 7/Class F specifications. You'll get 1.2 GHz instead of 600 MHz when used in a TERA® system.
- Patented TERA shield quadrant plug design isolates pairs, virtually eliminating crosstalk.
- Fully shielded S/FTP construction.
- The 1- and 4-pair cables enable multiple applications from a single 4-pair outlet.
- Use in demanding applications such as broadband video or converged video, voice, and data.
- Interface is standards compliant and recognized within ISO/IEC 1101 Ed. 2.0, ISO/IEC 15108, ISO/IEC 14165-114 FCD, and IEC 61076-3-104.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Category 7 S/FTP Patch Cable, LS0H, PVC, Stranded, White		
1-Pair		
1-m (3.2-ft.)	EVNSL71-80-001M	
2-m (6.5-ft.)	EVNSL71-80-002M	
3-m (9.8-ft.)	EVNSL71-80-003M	
5-m (16.4-ft.)	EVNSL71-80-005M	
4-Pair		
1-m (3.2-ft.)	EVNSL74-80-001M	
2-m (6.5-ft.)	EVNSL74-80-002M	
3-m (9.8-ft.)	EVNSL74-80-003M	
5-m (16.4-ft.)	EVNSL74-80-005M	

Category 7 S/FTP Bulk Cable

Designed for 1000-MHz 10GBASE-T channel performance.



- Exceeds all TIA/EIA and ISO/IEC requirements for Category 7/Class F transmission performance.
- Use with other BLACK BOX® Category 7 components with TERA connectors for end-to-end channel performance.
- Ideal for data centers, healthcare imaging, and financial applications.
- Use in applications from 10/100BASE-T to 1000BASE-T and 10GBASE-T.
- Individually aluminum-polyester foil shielded pairs and overall tinned-copper braid ensure virtually zero Alien Crosstalk.
- Jacket features sequential measurement markings so you always know how much cable you have left.
- The cable diameter of 8.4 mm (0.33") provides 10-Gbps performance in a manageable cable size.
- Meets the following standards:
 - ISO/IEC 11801:2002 (Category 7).
 - IEC 61156-5:2002.
 - UL® CMR and CSA FT4.
 - UL® CMP and CSA FT6.
- Validated for TEMPEST high-security government applications.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Category 7 S/FTP Bulk Cable, Solid, 1000-MHz, Blue, 1000-ft. (304.8-m)		
PVC CMR	EYNC770A-1000	
Plenum CMP	EYNC771A-1000	

BLACK BOX® Category 7 S/FTP 1000-MHz Bulk Cable Transmission Specifications

	MHz	Insertion Loss 100 m (dB)	NEXT 100 m (dB) Min.	PS-NEXT 100 m (dB) Min.	EL-FEXT 100 m (dB)	PS-ELFEXT 100 m (dB)	Return Loss 100 m (dB)	Delay 100 m (ns)	ACR (dB)	PS-ACR (dB)
Bend Radius (Minimum) — PVC: 3.5" (8.9 cm); Plenum: 3.3" (8.4 cm)	100	19.0	72.4	69.4	54.0	51.0	20.1	480	53.4	50.4
Capacitance Unbalance — <330 pF/100 m	200	27.5	67.9	64.9	48.0	45.0	18.0	479	40.4	37.4
Characteristic Impedance — 100 ±15% @ 100 MHz; 200 ± 22% @ 160–250 MHz; 100 ± 25% @ 200–750 MHz	300	34.2	65.2	62.2	44.5	41.5	17.3	478	31.1	28.1
Delay Skew — ≤ 20 ns	400	40.0	63.4	60.4	42.0	39.0	17.3	478	23.4	20.4
DC Resistance — <9.38 ohms/100 m; Unbalance: 5%	550	47.7	61.3	58.3	39.2	36.2	17.3	478	13.6	10.6
Mutual Capacitance — 5.6 nF/100 m	600*	50.1	60.7	57.7	38.4	35.4	17.3	478	10.3	7.6
	800*	58.9	58.9	55.9	35.9	32.9	17.3	477	-0.1	-3.1
	900*	63.0	58.1	55.1	34.9	31.9	17.3	477	-4.9	-7.9
	1000*	66.9	57.4	54.4	34.0	31.0	17.3	477	-9.5	-12.5

NOTE: Performance specifications for frequencies beyond TIA and ISO requirements are for information only.

* Values for IEC 61156-5 above 600 MHz are for information only.

10-Gigabit Patch Panels

Get 10-Gbps performance from these shielded, high-density panels.



JPM10GF16



- Use in Category 7 S/FTP and CAT6a F/UTP channels.
- Resilient ground tabs and ground lugs ensure proper grounding. No secondary grounding needed.
- Feature built-in cable management and strain relief.
- Large port numbers make ID easy.
- Jacks snap in from the front or rear.
- Work with Category 7 S/FTP and CAT6a F/UTP outlet jacks (below and p. 85).
- Constructed of lightweight, high-strength steel.
- Include mounting hardware.

- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
10-Gigabit Patch Panels, Black, 19", 1.75"H, 1U		
16-Port	JPM10GF16	
24-Port	JPM10GF24	

Category 7 S/FTP Outlet Jack

Terminate fully shielded Category 7/Class F cables.

- TERA® outlet jack accepts 1-, 2-, and 4-pair plugs.
- Connector design ensures proper cable shield termination.
- Fully shielded to eliminate alien crosstalk.
- Quadrant design isolates pairs for optimum NEXT performance.
- Unique, hinged-door design prevents exposure to dust and other contaminants.
- No additional crimping is required to ground cable.
- Slim, compact design enables jacks to be stacked side by side.
- Jacks can be inserted from the front or rear of a patch panel or faceplate.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
Category 7 S/FTP Outlet Jack, 4-Port		
FMC700		

Category 7 S/FTP Faceplates

Make work-area Category 7 connections.

- Clear label covers feature quick, pressure-release design.
- Includes labels, clear label covers, and mounting screws.
- UV-resistant, high-impact plastic prevents color fading and adds durability.
- **◆◆ WARRANTY** — Lifetime



WPC7477

NOTE: Other port counts are also available.
For details, call our FREE Tech Support.

Item	Code	List Price
Category 7 S/FTP Faceplates		
Single-Gang		
1-Port	Black	WPC7453
	White	WPC7458
	Gray	WPC7455
	Ivory	WPC7454
2-Port	Black	WPC7459
	White	WPC7464
	Gray	WPC7461
	Ivory	WPC7460
3-Port	Black	WPC7465
	White	WPC7470
	Gray	WPC7467
	Ivory	WPC7466
Double-Gang		
6-Port	Black	WPC7477
	White	WPC7482
	Gray	WPC7479
	Ivory	WPC7478

Black Box Explains

Category 7/Class F.

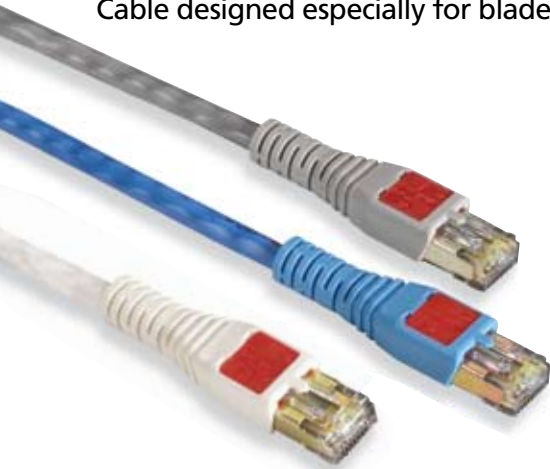
Category 7/Class F (ISO/IEC 11801:2002) specifies a frequency range of 1–600 MHz over 100 meters of fully shielded twisted-pair cabling. It encompasses four individually shielded pairs inside an overall shield, called Shielded/Foiled Twisted Pair (S/FTP) or Foiled/Foiled Twisted Pair (F/FTP). There is a pending Class F, based on the use of S/FTP cable to 1000 MHz. It can support 10GBASE-T transmissions.

With both types of cable, each twisted pair is enclosed in foil. In S/FTP cable, all four pairs are encased in an overall metal braid. In F/FTP, the four pairs are encased in foil. Category 7/Class F cable can be terminated with two interface designs as specified in IEC 6063-7-7

and IEC 61076-3-104. One is an RJ-45 compatible GG-45 connector. The other is the more common TERA connector, which was launched in 1999. Category 7/Class F is backwards compatible with traditional CAT6 and CAT5 cable, but has far more stringent specifications for crosstalk and system noise. The fully shielded cable virtually eliminates crosstalk between the pairs. In addition, the cables are noise resistant, which makes the Category 7/Class F systems ideal for high EMI areas, such as industrial and medical imaging facilities. Category 7/Class F cable can also increase security by preventing the emission of data signals from the cable to nearby areas.

CAT6a High-Density Data Center Patch Cable (UTP)

Cable designed especially for blade servers and tight spaces.



- Patent-pending push-pull boot design.
- Unique, slim design makes this cable perfect for high-density data center equipment, such as blade servers, patch panels, and other equipment for RJ-45 outlets.
- Easily insert and remove cable in blade servers and other tight-fitting areas.
- Low-profile boot design for side-by-side stackability.
- Boot provides excellent bend relief and has no thumb tab that can snag.
- Use with any standard RJ-45 opening.
- Laboratory tested.
- ♦♦ **WARRANTY** — Lifetime

CAT6a

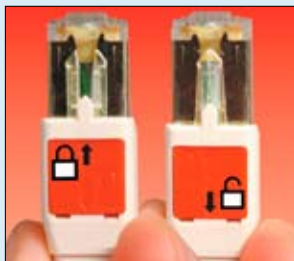


Item	Code	List Price
CAT6a High-Density Data Center Patch Cable (UTP), RJ-45, T568B, Stranded, CM		
3-ft. (0.9-m)		
Gray	EVNSL6A-70-BS-0003	
Blue	EVNSL6A-71-BS-0003	
White	EVNSL6A-80-BS-0003	
5-ft. (1.5-m)		
Gray	EVNSL6A-70-BS-0005	
Blue	EVNSL6A-71-BS-0005	
White	EVNSL6A-80-BS-0005	
7-ft. (2.1-m)		
Gray	EVNSL6A-70-BS-0007	
Blue	EVNSL6A-71-BS-0007	
White	EVNSL6A-80-BS-0007	
10-ft. (3.0-m)		
Gray	EVNSL6A-70-BS-0010	
Blue	EVNSL6A-71-BS-0010	
White	EVNSL6A-80-BS-0010	
15-ft. (4.5-m)		
Gray	EVNSL6A-70-BS-0015	
Blue	EVNSL6A-71-BS-0015	
White	EVNSL6A-80-BS-0015	
20-ft. (6.0-m)		
Gray	EVNSL6A-70-BS-0020	
Blue	EVNSL6A-71-BS-0020	
White	EVNSL6A-80-BS-0020	

High-Density Data Center Patch Cable Design



Unique push-pull plug fits any standard RJ-45 opening.



To use, simply push the boot forward to latch into the outlet. Then pull back to release.



The push-pull design enables easy access and removal in tight-fitting areas, such as blade servers.

More CAT6a Patch Cable, p. 84.



10-Gigabit CAT6a Patch Cable (UTP)

Cable designed for 10/100/1000BASE-T applications.



CAT6a



- 10-Gigabit Ethernet (10-GbE) qualified.
- Maximum bandwidth exceeds 625 MHz.
- Category 6a ANEXT component compliant.
- Exceeds 10GBASE-T link segment requirements.
- PoE and PoE+ ready. PoE rated to four times the standard.
- Use in analog and digital (VoIP) voice, and audio/video applications.
- Supports IEEE 802.3af and is DTE power compliant.
- Compatible with T568A and T568B wiring.

- Low-profile hood is ideal for high-density switch applications.
- Exclusive snagless hood design.
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
10-Gigabit CAT6a Patch Cable (UTP)		
3-ft. (0.9-m)	EVNSL6A-003	
5-ft. (1.5-m)	EVNSL6A-005	
7-ft. (2.1-m)	EVNSL6A-007	
10-ft. (3.0-m)	EVNSL6A-010	
15-ft. (4.5-m)	EVNSL6A-015	
20-ft. (6.0-m)	EVNSL6A-020	

Black Box Explains

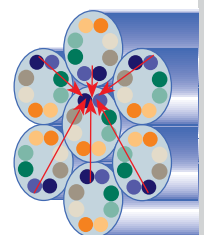
Alien Crosstalk.

Alien crosstalk (ANEXT) is a critical and unique measurement in 10-GbE systems. Crosstalk, used in 10/100/1000BASE-T systems, measures the mixing of signals between wire pairs within a cable. Alien Crosstalk, in 10-GbE systems, is the measurement of the signal coupling between wire pairs in different, adjacent cables.

The amount of ANEXT depends on a number of factors, including the proximity of adjacent cables and connectors, the cable length, cable twist density, and EMI. Patch panels and connecting hardware are also affected by Alien Crosstalk.

With Alien Crosstalk, the affected cable is called the disturbed or victim cable. The surrounding cables are the disturber cables.

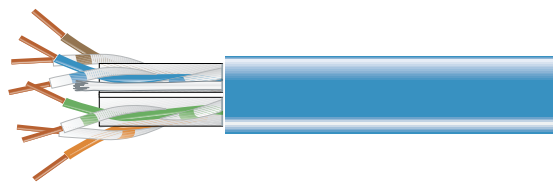
This illustrates a six around-one configuration with a disturbed or victim cable. Alien Crosstalk measures the crosstalk induced in a wire pair in the victim cable by wire pairs in adjacent disturber cables.



10-Gigabit CAT6a Solid Bulk Cable (UTP)

Get 625-MHz performance for 10-GbE applications.

- Exceeds Category 6a standards as ratified in TIA-568-B.2-10.
- Maximum bandwidth exceeds 625 MHz.
- Ideal for server-to-server, server-to-storage, and server-to-switch connections.
- Use also for distributed backbone, 10-GbE-to-desktop, and active-zone cabling applications.
- Unique jacket design reduces Alien Crosstalk (ANEXT).
- Supports PoE and PoE+ applications like VoIP, WAP, and security.
- Easy-pull cable features reverse sequential numbering, so you always know how much you have left.
- **◆◆ WARRANTY** — Lifetime



CAT6a



Item	Blue	White	Yellow	Gray	Green	List Price
10-Gigabit CAT6a Solid Bulk Cable (UTP), 4-Pair, 1000-ft. (304.8-m) PVC, Riser Plenum	EYN10G10A-1000 EYN10G00A-1000	EYN10G11A-1000 EYN10G01A-1000	EYN10G12A-1000 EYN10G02A-1000	EYN10G13A-1000 EYN10G03A-1000	EYN10G14A-1000 EYN10G04A-1000	

10-Gigabit CAT6a Patch Panels

Make fast connections for performance beyond 625 MHz.

JPM10G24:
top: front view;
bottom: rear view



CAT6a



- Feature controlled Alien Crosstalk (ANEXT).
- PoE rated to four times the standard.
- Include a universal wiring insert, clear plastic label holders, and hardware.
- Uses standard 1/2" x 1/2" labels.
- 14-gauge steel rolled-edge construction.
- Support T568A and T568B wiring.
- Beryllium copper nose contacts have 50-microinch gold plating.
- Make fast, one-punch terminations.
- Sealed adapter protects circuit board from damage.
- **◆◆ WARRANTY** Lifetime

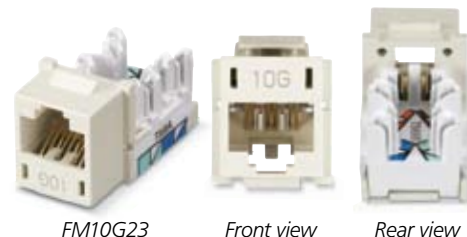
Item	Code	List Price
10-Gigabit CAT6a Patch Panels, 19", Universal Wiring 24-Port, 1.75"H, 1U	JPM10G24	
48-Port, 3.5"H, 2U	JPM10G48	

10-Gigabit CAT6a Jacks

Jacks qualified for 10-Gigabit Ethernet performance.

- Support data center 10-Gigabit Ethernet applications to 328 feet (100 m).
- Usable bandwidth beyond 625 MHz.
- PoE rated to four times the standard.
- Category 6a ANEXT component compliant.
- Guaranteed to meet ANEXT requirements in channel configurations from 1 meter (3.2 ft.) to 100 meters (328 ft.).
- Backwards compatible with CAT6, CAT5e, CAT5, and CAT3.
- Angled IDC towers provide separation for ANEXT suppression.
- Use standard 110 termination tools.
- Designed for easy lacing and one-punch terminations.
- Beryllium copper nose contacts have 50-microinch gold plating.
- **◆◆ WARRANTY** — Lifetime

CAT6a



Item	Code	List Price
10-Gigabit CAT6a Jacks		
Black	FM10G20	
Blue	FM10G21	
Gray	FM10G22	
Off White	FM10G23	
Orange	FM10G24	
White	FM10G25	

BLACK BOX® 10-Gigabit Ethernet CAT6a Channel Transmission Specifications

These transmission specifications are for the channel tested using the CAT6a 10-Gigabit Ethernet products shown on these two pages: Patch Cable, Bulk Cable, Patch Panels, and Jacks. The channel is TIA-568-B.1-10 CAT6a compliant. The specs are for the worst case in a 100-meter channel.

MHz	Insertion Loss 100 m (dB)	NEXT 100 m (dB) Min.	PS-NEXT 100 m (dB) Min.	EL-FEXT 100 m (dB)	PS-ELFEXT 100 m (dB)	Return Loss 100 m (dB)	Delay 100 m (ns)
100	18.4	59.0	59.1	43.1	41.8	32.0	538
200	26.7	54.1	55.3	38.8	35.2	29.4	537
300	33.3	51.5	50.0	34.6	31.4	27.5	536
400	39.4	45.8	45.5	32.4	28.5	25.4	536
550	44.8	43.2	42.8	29.3	27.3	24.1	536

CAT6a F/UTP Patch Cable

Shielded CAT6a cable designed for 10GBASE-T applications.



- Meets or exceeds all augmented CAT6 performance requirements.
- Fully shielded construction virtually eliminates Alien Crosstalk.
- Supports high-end applications such as 10GBASE-T and beyond.
- Compatible with T568A and T568B wiring.
- Super-slim boot design enables side-by-side stackability for high-density applications.
- Boot design provides bend relief.
- Plus components resist corrosion from humidity, extreme temperatures, and airborne contaminants.
- Cable is 100% transmission tested.
- Plugs can hold color clips for ID purposes.
- **◆◆ WARRANTY** — Lifetime

CAT6a



Item	Code	List Price
CAT6a F/UTP Patch Cable, Screened, LSOH, PVC, Stranded		
1-m (3.2-ft.)		
Gray	EVNSL6F-70-001M	
Blue	EVNSL6F-71-001M	
White	EVNSL6F-80-001M	
2-m (6.5-ft.)		
Gray	EVNSL6F-70-002M	
Blue	EVNSL6F-71-002M	
White	EVNSL6F-80-002M	
3-m (9.8-ft.)		
Gray	EVNSL6F-70-003M	
Blue	EVNSL6F-71-003M	
White	EVNSL6F-80-003M	
5-m (16.4-ft.)		
Gray	EVNSL6F-70-005M	
Blue	EVNSL6F-71-005M	
White	EVNSL6F-80-005M	

CAT6a F/UTP Bulk Cable

Delivers channel performance beyond CAT6a standards.



- Use with BLACK BOX® CAT6a F/UTP components for a 10GBASE-T channel over 100 meters with 4-connector topologies.
- Foil shield construction virtually eliminates Alien Crosstalk.
- Ideal for VoIP and IP video.
- Supports 10GBASE-T and all applications designed for CAT6a or lower cabling.
- A center isolation member maintains pair separation for optimal NEXT performance.
- Jacket is sequentially numbered so you always know how much cable is left.
- Cable diameter is 0.290".
- Drain wire runs under the cable jacket between a Mylar® tape and an aluminum foil tape.
- Meets the following standards:
 - ISO/IEC 11801:2002, Ed. 2, and Ed. 2, Amendment 1 (draft).
 - ANSI/TIA/EIA 568-B.2-1, and 568-B.2-10.
 - IEC 61156-5:2002.
 - UL® CMR and CSA FT4 or UL® CMP and CSA FT6.
- **◆◆ WARRANTY** — Lifetime

CAT6a



Item	Code	List Price
CAT6a F/UTP Bulk Cable, Solid, 750-MHz, 4-Pair 1000-ft. (304.8-m)		
PVC CMR		
Blue	EYN10G10FA-1000	
White	EYN10G11FA-1000	
Gray	EYN10G13FA-1000	
Plenum CMP		
Blue	EYN10G00FA-1000	
White	EYN10G01FA-1000	
Gray	EYN10G03FA-1000	

BLACK BOX® CAT6a F/UTP Bulk Cable Transmission Performance in a Channel (Typical)

Bend Radius (Minimum) — 2.0" (5 cm)
 Capacitance Unbalance — <330 pF/100 m
 Characteristic Impedance — 100 ±15% @ 100 MHz; 100 ± 22% @ 100–750 MHz
 DC Resistance — <9.38 ohms/100 m; Unbalance: 5%
 Delay Skew — ≤ 45 ns
 Mutual Capacitance — 5.6 nF/100 m
 Weight — PVC: 54 lb./1000 ft.; Plenum: 52 lb./1000 ft.

MHz	Insertion Loss 100 m (dB)	NEXT 100 m (dB) Min.	PS-NEXT 100 m (dB) Min.	ACR 100 m (dB)	PS-ACR 100 m (dB)	ACR-F 100 m (dB)	PS-ACR-F 100 m (ns)	Return Loss 100 m (dB)	Prop. Delay 100 m (ns)
100	18.1	56.0	52.0	37.9	33.9	51.0	45.0	31.6	513
200	27.3	52.0	47.8	24.7	20.5	45.0	39.0	29.8	512
250	31.1	50.0	46.0	18.9	14.9	43.0	37.0	28.7	511
300	35.0	49.0	45.0	14.0	10.0	38.0	35.0	28.0	511
400	40.0	47.0	43.0	7.0	3.0	36.0	33.0	27.1	511
500	42.0	47.0	42.0	5.0	0.0	34.0	32.0	26.0	510
550	43.0	46.0	42.0	3.0	-1.0	33.0	31.0	26.0	510
625*	44.9	46.0	41.0	1.1	-3.9	33.0	29.0	25.0	505
750*	49.0	45.0	41.0	-4.0	-8.0	32.0	27.0	25.0	504

* NOTE: Performance specifications for frequencies beyond TIA and ISO requirements are for information only.

10-Gigabit Patch Panels

Get 10-Gbps performance from these shielded panels.



JPM10GF16



- Use in augmented Category 6 F/UTP and Category 7 S/FTP channels.
- Resilient ground tabs and ground lugs ensure proper grounding. No secondary grounding needed.
- Feature built-in cable management and strain relief.
- Large port numbers make ID easy.
- Jacks snap in from the front or rear.
- Work with CAT6a F/UTP and CAT7 S/FTP outlet jacks (**below** and **page 81**).
- Constructed of lightweight, high-strength steel.
- Include mounting hardware.

- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
10-Gigabit Patch Panels, Black, 19", 1.75"H, 1U		
16-Port	JPM10GF16	
24-Port	JPM10GF24	

CAT6a F/UTP Outlet Jacks

Fully shielded for CAT6a F/UTP channels.

- Meet and exceed CAT6a requirements, particularly for transfer impedance and shield effectiveness.
- Fully shielded to protect against EMI and Alien Crosstalk.
- Rear shield protects IDC terminations.
- Use with shielded or foiled 22–24 AWG cable.
- Integrated grounding.
- Tool-less design makes termination easy.
- Standards include:
 - TIA/EIA-568-B.2-10.
 - ISO 60603-7-5 (draft).
 - ISO/IEC 11801 2nd ed.
 - EN50173 2nd ed.
- Includes one red and one blue icon.
- **◆◆ WARRANTY** — Lifetime

CAT6a



FM10GFKS



Item	Code	List Price
CAT6a F/UTP Outlet Jacks, Universal Wiring, 4-Pair		
Angled	FM10GFAN	
Flat	FM10GFFT	
Keystone	FM10GFKS	

CAT6a F/UTP Faceplates

Faceplates designed specifically for shielded CAT6a channels.

CAT6a



- Designed to provide optimal outlet separation to reduce Alien Crosstalk.
- Include labels, pressure-release clear label covers, and mounting screws.
- UV-resistant, high-impact plastic prevents color fading and adds durability.
- **◆◆ WARRANTY** — Lifetime



WPF459

Item	Code	List Price
CAT6a F/UTP Faceplates		
Single-Gang		
2-Port	Black WPF459	
	White WPF464	
	Gray WPF461	
	Ivory WPF460	
4-Port	Black WPF471	
	White WPF476	
	Gray WPF473	
	Ivory WPF472	
Dual-Gang		
6-Port	Black WPF477	
	White WPF482	
	Gray WPF479	
	Ivory WPF478	

Black Box Explains

Augmented Category 6 (CAT6a) over F/UTP.

CAT6a is a 10-Gigabit Ethernet (10-GbE) over copper standard. The IEEE ratified the standard (ANSI/TIA/EIA-568-B.2-10) in February 2008. The standard is defined as 10-Gigabit data transmission over a 4-conductor twisted-pair copper cable for a distance of 100 meters on Class F or Class E-augmented copper cabling. Class E cabling requires a line-encoding scheme (PAM 12) and electronics to achieve the 10-Gbps transmission for 100 meters. Current CAT6 cabling systems may support 10-Gigabit Ethernet over limited distances.

CAT6a extends electrical specifications from 250 MHz to 500 MHz. It also features Power Sum Alien Crosstalk (PS-ANEXT) to 500 MHz, a new measurement. Alien Crosstalk (ANEXT) is a coupled signal in a disturbed pair arising from a signal in a neighboring cable.

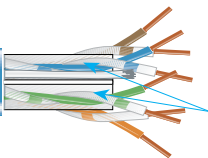
To virtually eliminate the problem of ANEXT, CAT6a F/UTP cable is used. The F indicates an outer foil shield that eliminates PS-ANEXT. When security is an issue, CAT6a is a good choice because it doesn't emit signals. In addition, CAT6a F/UTP cable works well in noisy environments with a lot of EMI.

GigaTrue 550 CAT6, 550-MHz Solid Bulk Cable (UTP)

Save BIG with our everyday LOW prices!

GigaTrue

CAT6



Cross-web design increases strength and performance.

NOTE: For additional specifications, see blackbox.com.

- Exceeds CAT6 with plenty of headroom.
- Guaranteed to exceed ANSI/TIA/EIA-568-B.2-1 CAT6 and ISO/IEC 11801 Class E requirements.
- Ideal for digital video, 100-Mbps TP-PMD, and 155-Mbps ATM and Gigabit Ethernet.
- Cable is marked in two-foot increments.
- **WARRANTY** — Lifetime

Buyer's Guide | Electrical Specifications

MHz	Attenuation 100 m (dB) Min.	ACR 100 m (dB) Min.	PS-ACR 100 m (dB) Min.	ELFEXT (dB) Min.	PS-ELFEXT (dB) Min.	NEXT (dB) Min.	PS-NEXT (dB) Min.
100	19.4	29.9	27.9	29.8	26.8	49.3	47.3
200	28.3	16.5	14.5	23.8	20.8	44.8	42.8
300	35.4	6.8	4.8	20.3	17.3	42.2	40.2
400	41.6	—	—	17.8	14.8	40.3	38.3
550	49.9	—	—	15.0	12.0	38.2	36.2

Item	Blue	Yellow	White	Gray	Green	Red	Black	List Price
GigaTrue® 550 CAT6, 550-MHz Solid Bulk Cable (UTP), 23 AWG, 4-Pair, 1100-ft. (335.2-m) or 1000-ft. (304.8), Pull Box								
PVC	EYN870A-PB-1000	EYN872A-PB-1000	EYN874A-PB-1000	EYN876A-PB-1000	EYN878A-PB-1000	EYN868A-PB-1000	EYN880A-PB-1000	
Plenum	EYN871A-PB-1000	EYN873A-PB-1000	EYN875A-PB-1000	EYN877A-PB-1000	EYN879A-PB-1000	EYN869A-PB-1000	EYN881A-PB-1000	

CAT6 250-MHz Solid Bulk Cable (UTP)

Ideal for high-bandwidth Ethernet, Fast Ethernet, Gigabit Ethernet, and 155- and 622-Mbps ATM.



- Tested and characterized to 250 MHz.
- Improved attenuation for cleaner data and video transmissions.
- Meets TIA/EIA-568-B.2-1 CAT6 standards.
- **WARRANTY** — Lifetime

CAT6



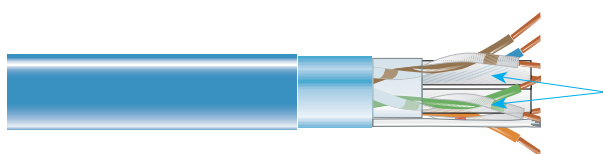
NOTE: For specifications, see blackbox.com.

NOTE: Cable comes on reels.

Item	Red	Orange	Yellow	Green	Gray	White	Black	List Price
CAT6 250-MHz Solid Bulk Cable (UTP), 23 AWG, 4-Pair, 1000-ft. (304.8-m)								
PVC	EYN600A-1000	EYN602A-1000	EYN604A-1000	EYN606A-1000	EYN610A-1000	EYN612A-1000	EYN614A-1000	
Plenum	EYN601A-1000	EYN603A-1000	EYN605A-1000	—	—	—	EYN615A-1000	

CAT6 Shielded 250-MHz Solid Bulk Cable (STP)

Shielded cable for long runs in noisy environments.



Cross-web design increases strength and performance.

CAT6



NOTE: For additional specifications, see blackbox.com.

- Ideal for carrying data, audio, and video.
- Foil shield protects against noise and EMI/RFI.
- Meets TIA/EIA-568-B.2-1, ISO/IEC 11801, UL® 444, RoHS 2002/95/EC.
- **WARRANTY** — Lifetime

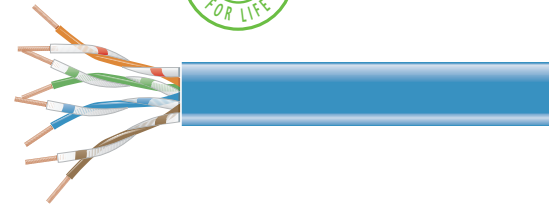
Buyer's Guide | Electrical Specifications

MHz	Attenuation 100 m (dB) Min.	ACR 100 m (dB) Min.	PS-ACR 100 m (dB) Min.	ELFEXT (dB) Min.	PS-ELFEXT (dB) Min.	NEXT (dB) Min.	PS-NEXT (dB) Min.
100	19.8	24.5	22.5	27.8	24.8	44.3	42.3
155	25.1	16.4	14.4	23.9	20.9	41.5	39.5
200	29.0	10.8	8.8	21.7	18.7	39.8	37.8
250	32.8	5.5	3.5	19.8	16.8	38.3	36.3

For our newest CAT6 Shielded Solid Bulk Cable, see New Products.

Item	Blue	Gray	White	Yellow	List Price
CAT6 Shielded 250-MHz Solid Bulk Cable (STP), 24 AWG, 4-Pair 1000-ft. (304.8-m)					
PVC	EVNSL601A-1000	EVNSL602A-1000	EVNSL605A-1000	EVNSL604A-1000	
Plenum	EVNSL611A-1000	EVNSL612A-1000	EVNSL615A-1000	EVNSL614A-1000	

GigaTrue 550 CAT6, 550-MHz Stranded Bulk Cable (UTP) CAT6 stranded cable for high-performance short runs.



GigaTrue[®]
CAT6

- Designed for use with GigaTrue[®] and GigaTrue2 components.
- Stranded copper makes cable ideal for patching or short runs.
- Meets TIA/EIA-568-B.2-1 CAT6 and ISO/IEC 11801 Class E requirements.
- For 1000BASE-T, 100BASE-TX, 100BASE-VG, 155-Mbps ATM, 100-Mbps FDDI/CDDI, and other high-speed applications.
- Perfect for full broadband and baseband video.
- Delivers full Power-Sum performance.
- Provides full-duplex operation.
- Meets balance requirements (LCL/LCTL), resulting in better transmission.
- **◆◆ WARRANTY** — Lifetime

Attenuation (Maximum) —
23.6 dB/100 m (328.1 ft.) @ 100 MHz;
34.6 dB/100 m (328.1 ft.) @ 200 MHz;
39.1 dB/100 m (328.1 ft.) @ 250 MHz
Impedance — 100 ± 15 ohms @ 100 MHz;
100 ± 22 ohms @ 100–550 MHz
NEXT (Minimum) —
45 dB/100 m (328.1 ft.) @ 100 MHz;
41 dB/100 m (328.1 ft.) @ 200 MHz;
39 dB/100 m (328.1 ft.) @ 250 MHz
PS-ACR — 32 dB (typical) @ 100 MHz

TECH SPECS

PS-NEXT (Minimum) —
43 dB/100 m (328.1 ft.) @ 100 MHz;
39 dB/100 m (328.1 ft.) @ 200 MHz;
37 dB/100 m (328.1 ft.) @ 250 MHz
Return Loss (Minimum) —
22.5 dB/100 m (328.1 ft.) @ 100 MHz;
21 dB/100 m (328.1 ft.) @ 200 MHz;
20.5 dB/100 m (328.1 ft.) @ 250 MHz

*NOTE: For additional specifications, see **blackbox.com**.*

Item	Gray	Blue	Green	Red	Yellow	Beige	List Price
GigaTrue 550 CAT6, 550-MHz Stranded Bulk Cable (UTP), 24 AWG, 4-Pair, PVC							
250-ft. (76.2-m)	EVNSL640A-0250	EVNSL641A-0250	EVNSL642A-0250	EVNSL643A-0250	EVNSL644A-0250	EVNSL645A-0250	
500-ft. (152.4-m)	EVNSL640A-0500	EVNSL641A-0500	EVNSL642A-0500	EVNSL643A-0500	EVNSL644A-0500	EVNSL645A-0500	
1000-ft. (304.8-m)	EVNSL640A-1000	EVNSL641A-1000	EVNSL642A-1000	EVNSL643A-1000	EVNSL644A-1000	EVNSL645A-1000	

Item	Pink	Black	Purple	Orange	White	List Price
GigaTrue 550 CAT6, 550-MHz Stranded Bulk Cable (UTP), 24 AWG, 4-Pair, PVC (Continued)						
250-ft. (76.2-m)	EVNSL646A-0250	EVNSL647A-0250	EVNSL648A-0250	EVNSL649A-0250	EVNSL650A-0250	
500-ft. (152.4-m)	EVNSL646A-0500	EVNSL647A-0500	EVNSL648A-0500	EVNSL649A-0500	EVNSL650A-0500	
1000-ft. (304.8-m)	EVNSL646A-1000	EVNSL647A-1000	EVNSL648A-1000	EVNSL649A-1000	EVNSL650A-1000	

CAT6 Solid-Conductor Backbone Cable (UTP) The 550-MHz backbone cable for fast CAT6 runs.

CAT6

- Meets or exceeds CAT6 specifications.
- Use in 1000BASE-T, 100BASE-T, and other high-speed, high-bandwidth applications.
- **◆◆ WARRANTY** — Lifetime

*NOTE: For custom colors and custom lengths, call our FREE Tech Support.
For specifications, see **blackbox.com**.*



Item	Blue	Green	Red	Yellow	White	List Price
CAT6 Solid-Conductor Backbone Cable (UTP), 550-MHz, 24 AWG, 4-Pair, T568B						
Straight-Pinned PVC, NEC [®] CM						
2-ft. (0.6-m)	EYN901MS-0002	EYN902MS-0002	EYN903MS-0002	EYN904MS-0002	EYN906MS-0002	
5-ft. (1.5-m)	EYN901MS-0005	EYN902MS-0005	EYN903MS-0005	EYN904MS-0005	EYN906MS-0005	
10-ft. (3.0-m)	EYN901MS-0010	EYN902MS-0010	EYN903MS-0010	EYN904MS-0010	EYN906MS-0010	
15-ft. (4.5-m)	EYN901MS-0015	EYN902MS-0015	EYN903MS-0015	EYN904MS-0015	EYN906MS-0015	
20-ft. (6.0-m)	EYN901MS-0020	EYN902MS-0020	EYN903MS-0020	EYN904MS-0020	EYN906MS-0020	
25-ft. (7.6-m)	EYN901MS-0025	EYN902MS-0025	EYN903MS-0025	EYN904MS-0025	EYN906MS-0025	
30-ft. (9.1-m)	EYN901MS-0030	EYN902MS-0030	EYN903MS-0030	EYN904MS-0030	EYN906MS-0030	
35-ft. (10.6-m)	EYN901MS-0035	EYN902MS-0035	EYN903MS-0035	EYN904MS-0035	EYN906MS-0035	
50-ft. (15.2-m)	EYN901MS-0050	EYN902MS-0050	EYN903MS-0050	EYN904MS-0050	EYN906MS-0050	
100-ft. (30.4-m)	EYN901MS-0100	EYN902MS-0100	EYN903MS-0100	EYN904MS-0100	EYN906MS-0100	
Plenum, NEC [®] CMP						
2-ft. (0.6-m)	EYN911MS-0002	EYN912MS-0002	EYN913MS-0002	EYN914MS-0002	EYN916MS-0002	
5-ft. (1.5-m)	EYN911MS-0005	EYN912MS-0005	EYN913MS-0005	EYN914MS-0005	EYN916MS-0005	
10-ft. (3.0-m)	EYN911MS-0010	EYN912MS-0010	EYN913MS-0010	EYN914MS-0010	EYN916MS-0010	
15-ft. (4.5-m)	EYN911MS-0015	EYN912MS-0015	EYN913MS-0015	EYN914MS-0015	EYN916MS-0015	
20-ft. (6.0-m)	EYN911MS-0020	EYN912MS-0020	EYN913MS-0020	EYN914MS-0020	EYN916MS-0020	
25-ft. (7.6-m)	EYN911MS-0025	EYN912MS-0025	EYN913MS-0025	EYN914MS-0025	EYN916MS-0025	
30-ft. (9.1-m)	EYN911MS-0030	EYN912MS-0030	EYN913MS-0030	EYN914MS-0030	EYN916MS-0030	
35-ft. (10.6-m)	EYN911MS-0035	EYN912MS-0035	EYN913MS-0035	EYN914MS-0035	EYN916MS-0035	
50-ft. (15.2-m)	EYN911MS-0050	EYN912MS-0050	EYN913MS-0050	EYN914MS-0050	EYN916MS-0050	
100-ft. (30.4-m)	EYN911MS-0100	EYN912MS-0100	EYN913MS-0100	EYN914MS-0100	EYN916MS-0100	

CAT6 patch cables for all your high-performance

- For 1000BASE-T, 100BASE-TX, 100BASE-VG, 155-Mbps ATM, 100-Mbps FDDI/CDDI, and other high-speed applications.
- Stranded cable delivers full power sum performance.
- Provide full-duplex operation for next-generation applications.

- Perfect for full broadband and baseband video.
- Meet balance requirements (LCL/LCTL), resulting in better transmission.
- Improved attenuation provides cleaner data and video transmissions.

GigaTrue CAT6 Component 550-MHz Patch Cable Molded Boots

Provides true CAT6 component performance.

- Our best CAT6 patch cable.
- Each cable is lab tested (includes report) for true CAT6 component performance.
- Use with BLACK BOX® GigaTrue® components or mix with components from other manufacturers' systems.
- Meets or exceeds all crosstalk and return loss specifications.
- ♦♦ **WARRANTY** — Lifetime

TECH SPECS

Attenuation — 23.9 dB @ 100 MHz;
39.6 dB @ 250 MHz
Conductor Gauge — 24 AWG (stranded)
Delay Skew (Maximum) — 25 ns/100 m (328 ft.)
Impedance — 100 ohms ± 15 @ 1–250 MHz
Mutual Capacitance — 56 pF/m (maximum)

NEXT — 44.3 dB @ 100 MHz;
38.3 dB @ 250 MHz
PS-NEXT — 42.3 dB @ 100 MHz;
36.3 dB @ 250 MHz
Resistance (Maximum) — 9.38 ohms/100 m (328 ft.)
Standards — TIA/EIA-568-B.2-1 Category 6

GigaTrue CAT6 Channel 550-MHz Patch Cables Snagless Boots or Basic Connectors


Get end-to-end channel performance.

- Get high-level CAT6 performance in an end-to-end BLACK BOX GigaTrue channel.
- Use in a BLACK BOX Guaranteed-for-Life Structured Cabling System with other GigaTrue channel products.
- Choose from cable with snagless boots or with basic connectors.
- ♦♦ **WARRANTY** — Lifetime

TECH SPECS

Attenuation — 23.6 dB @ 100 MHz;
39.1 dB @ 250 MHz
Conductor Gauge — 24 AWG
Delay Skew (Maximum) — 25 ns/100 m (328 ft.)
Impedance — 100 ± 15 ohms @ 100 MHz;
100 ± 22 ohms @ 100–550 MHz
Mutual Capacitance — 56 pF/m (maximum)
NEXT — 45.0 dB @ 100 MHz;
39.0 dB @ 250 MHz

PS-ACR — 32 dB (typical) @ 100 MHz
PS-NEXT — 43.0 dB @ 100 MHz;
37.0 dB @ 250 MHz
Resistance (Maximum) — 9.09 ohms/100 m (328 ft.)
Return Loss — 22.5 dB @ 100 MHz;
20.5 dB @ 250 MHz
Standards — TIA/EIA-568-B.2-1 Category 6
Structure Return Loss — 22.5 dB @ 100 MHz; 20.5 dB @ 250 MHz



- Component performance
- Molded boots

Item	Code	List Price
------	------	------------


GigaTrue CAT6 Component 550-MHz Patch Cable (UTP), Molded Boots, Stranded, 24 AWG, RJ-45, 4-Pair, T568B, PVC, Straight-Pinned

3-ft. (0.9-m)	EVNSL6XX-0003	
5-ft. (1.5-m)	EVNSL6XX-0005	
6-ft. (1.8-m)	EVNSL6XX-0006	
7-ft. (2.1-m)	EVNSL6XX-0007	
10-ft. (3.0-m)	EVNSL6XX-0010	
14-ft. (4.2-m)	EVNSL6XX-0014	
20-ft. (6.0-m)	EVNSL6XX-0020	

To order, replace the "XX" with the number assigned to each color.

Gray = 70	Yellow = 74	Purple = 78
Blue = 71	Beige = 75	Orange = 79
Green = 72	Pink = 76	White = 80
Red = 73	Black = 77	

Quantity discounts available.



- Channel performance
- Snagless boots

Item	Code	Single	25-Pack
------	------	--------	---------

GigaTrue CAT6 Channel 550-MHz Patch Cable (UTP), Snagless Boots, Stranded, 24 AWG, RJ-45, 4-Pair, T568B, PVC, Straight-Pinned

1-ft. (0.3-m)	EVNSL6XX-0001		
2-ft. (0.6-m)	EVNSL6XX-0002		
3-ft. (0.9-m)	EVNSL6XX-0003		
4-ft. (1.2-m)	EVNSL6XX-0004		
5-ft. (1.5-m)	EVNSL6XX-0005		
6-ft. (1.8-m)	EVNSL6XX-0006		
7-ft. (2.1-m)	EVNSL6XX-0007		
10-ft. (3.0-m)	EVNSL6XX-0010		
15-ft. (4.5-m)	EVNSL6XX-0015		
20-ft. (6.0-m)	EVNSL6XX-0020		
25-ft. (7.6-m)	EVNSL6XX-0025		
30-ft. (9.1-m)	EVNSL6XX-0030		
50-ft. (15.2-m)	EVNSL6XX-0050		
100-ft. (30.4-m)	EVNSL6XX-0100		
Custom Lengths	EVNSL6XX		

To order, replace the "XX" with the number assigned to each color. To order packs of 25, add -25PAK to the end of the code.

Gray = 40	Yellow = 44	Purple = 48
Blue = 41	Beige = 45	Orange = 49
Green = 42	Pink = 46	White = 50
Red = 43	Black = 47	

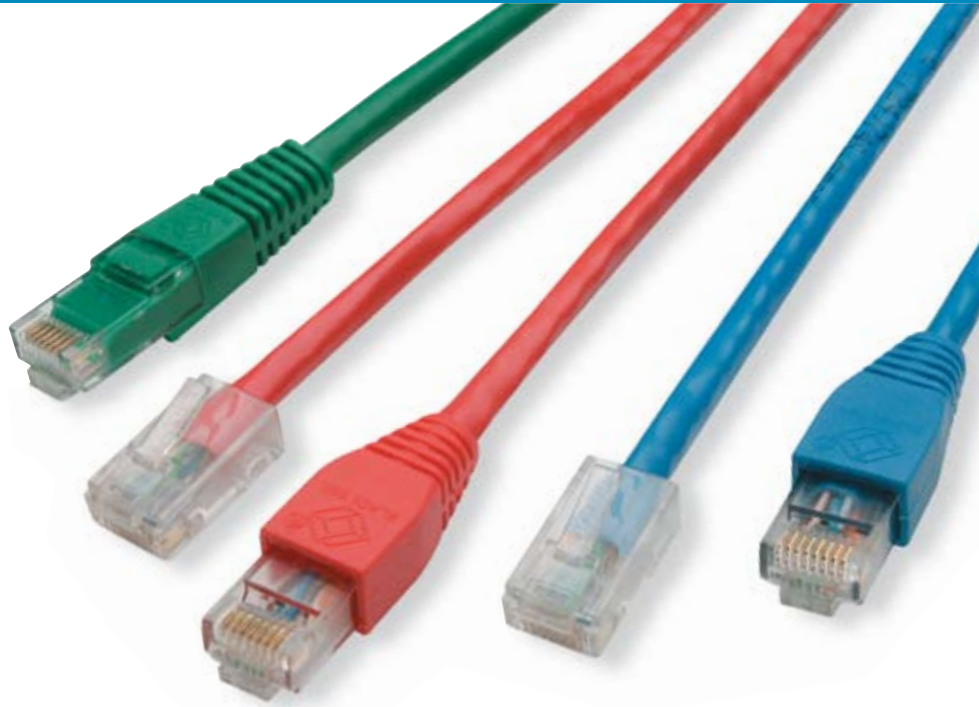
For details on component vs. channel testing, see the Black Box Explains on p. 79.

applications.

Tested to
550 MHz!

GigaTrue[®]

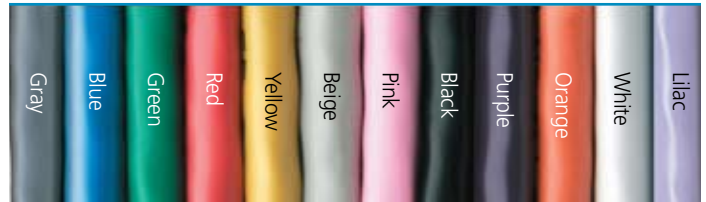
CAT6



Choose component cable with molded boots (green) or channel cables with either snagless boots or basic connectors (red and blue).



Choose from as many as 12 colors!



- Channel performance
- Basic connectors

Item	Code	Single	25-Pack
GigaTrue [®] CAT6 Channel 550-MHz Patch Cable (UTP), Basic Connectors, Stranded, 24 AWG, RJ-45, 4-Pair, T568B, PVC, Straight-Pinned			
1-ft. (0.3-m)	EVNSL6XX-0001		
2-ft. (0.6-m)	EVNSL6XX-0002		
3-ft. (0.9-m)	EVNSL6XX-0003		
4-ft. (1.2-m)	EVNSL6XX-0004		
5-ft. (1.5-m)	EVNSL6XX-0005		
6-ft. (1.8-m)	EVNSL6XX-0006		
7-ft. (2.1-m)	EVNSL6XX-0007		
10-ft. (3.0-m)	EVNSL6XX-0010		
15-ft. (4.5-m)	EVNSL6XX-0015		
20-ft. (6.0-m)	EVNSL6XX-0020		
25-ft. (7.6-m)	EVNSL6XX-0025		
30-ft. (9.1-m)	EVNSL6XX-0030		
50-ft. (15.2-m)	EVNSL6XX-0050		
100-ft. (30.4-m)	EVNSL6XX-0100		
Custom Lengths	EVNSL6XX		

To order, replace the "XX" with the number assigned to each color. To order packs of 25, add -25PAK to the end of the code.

Gray = 20	Yellow = 24	Purple = 28
Blue = 21	Beige = 25	Orange = 29
Green = 22	Pink = 26	White = 30
Red = 23	Black = 27	Lilac = 31

How to order these cables



First, select your cable. EVNSL or EVCRB are the base product codes. Then, fill in the "XX," which is a color number noted at the bottom of each price list.

The length, based on feet, is designated next. To order 25-packs, just add "-25PAK" to the end. If you have questions, call our FREE Tech Support.

CAT6 Patch Panels, pp. 91.



CAT6 High-Density Data Center Patch Cable (UTP)

Cable designed for data centers, blade servers, patch panels, and other tight spaces.



- Patent-pending push-pull design makes it easy to insert and remove cables.
- Low-profile boot enables side-by-side stackability.
- Boot provides excellent bend relief and has no thumb tab.
- RJ-45 plugs fit all standard RJ-45 equipment.
- 250-MHz cable supports 1-Gigabyte applications.
- Meets or exceeds all CAT6 specifications.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
CAT6 High-Density Data Center Patch Cable (UTP), RJ-45, T568B, Stranded, CM		
3-ft. (0.9-m)	Gray	EVNSL6-70-BS-0003
	Blue	EVNSL6-71-BS-0003
	White	EVNSL6-80-BS-0003
5-ft. (1.5-m)	Gray	EVNSL6-70-BS-0005
	Blue	EVNSL6-71-BS-0005
	White	EVNSL6-80-BS-0005
7-ft. (2.1-m)	Gray	EVNSL6-70-BS-0007
	Blue	EVNSL6-71-BS-0007
	White	EVNSL6-80-BS-0007
10-ft. (3.0-m)	Gray	EVNSL6-70-BS-0010
	Blue	EVNSL6-71-BS-0010
	White	EVNSL6-80-BS-0010
15-ft. (4.5-m)	Gray	EVNSL6-70-BS-0015
	Blue	EVNSL6-71-BS-0015
	White	EVNSL6-80-BS-0015
20-ft. (6.0-m)	Gray	EVNSL6-70-BS-0020
	Blue	EVNSL6-71-BS-0020
	White	EVNSL6-80-BS-0020

GigaTrue2 CAT6 Jacks • GigaTrue CAT6 Jacks
Jacks for your CAT6 channels.



Item	Single-Pack	List Price	25-Pack	List Price
GigaTrue2 CAT6 Jacks, Universal Wiring				
Blue	FMT630-R2		FMT630-R2-25PAK	
Black	FMT631-R2		FMT631-R2-25PAK	
Ivory	FMT632-R2		FMT632-R2-25PAK	
Gray	FMT633-R2		FMT633-R2-25PAK	
Green	FMT634-R2		FMT634-R2-25PAK	
Office White	FMT635-R2		FMT635-R2-25PAK	
Orange	FMT636-R2		FMT636-R2-25PAK	
Red	FMT637-R2		FMT637-R2-25PAK	
White	FMT639-R2		FMT639-R2-25PAK	
Yellow	FMT640-R2		FMT640-R2-25PAK	

GigaTrue2

GigaTrue®

- Ideal for multimedia applications.
- Meet TIA/EIA-568-B.2-1 CAT6 requirements.
- Backward compatible with CAT5e, CAT5, and CAT3 components.
- Use GigaTrue2 Jacks with GigaStation 2 Wallplates (page 114).
- Use GigaTrue Jacks with GigaStation Wallplates (page 116).
- **◆◆ WARRANTY** — Lifetime

Item	Single-Pack	List Price	25-Pack	List Price
GigaTrue® CAT6 Jacks, Universal Wiring				
Blue	FM630		FM630-25PAK	
Black	FM631		FM631-25PAK	
Electric Ivory	FM632		FM632-25PAK	
Gray	FM633		FM633-25PAK	
Green	FM634		FM634-25PAK	
Office White	FM635		FM635-25PAK	
Orange	FM636		FM636-25PAK	
Red	FM637		FM637-25PAK	
Telco Ivory	FM638		FM638-25PAK	
White	FM639		FM639-25PAK	
Yellow	FM640		FM640-25PAK	

CAT6 Modular Plugs

Eight-conductor plug is designed for high-speed applications.

- Use with 24 or 26 AWG solid or stranded cable with a diameter of up to 0.225" (5.7 mm).
- Include a conductor load bar for ease of termination.
- Use with the Universal RJ Crimp Tool (page 221).
- **◆◆ WARRANTY** — Lifetime

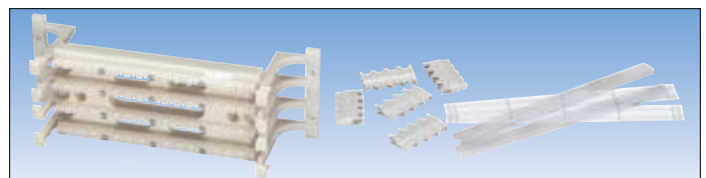


Item	Code	List Price
CAT6 Modular Plugs, RJ-45		
10-Pack	FMT6-R2-10PAK	
25-Pack	FMT6-R2-25PAK	
50-Pack	FMT6-R2-50PAK	
100-Pack	FMT6-R2-100PAK	
250-Pack	FMT6-R2-250PAK	

CAT6 Wiring Block Kit

Everything you need for easy CAT6 connections.

- Guaranteed to perform above CAT6 NEXT standards by 13 dB.
- Internal crosstalk barriers provide 360° pair isolation for superior NEXT ratings.
- Cables can be routed through the rear of the block directly to the point of termination.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
CAT6 Wiring Block Kit, 64 -Pair	JP061	
◆ Includes (1) wiring block with legs (detachable), connecting blocks, label holders, and labels.		

GigaTrue CAT6 Patch Panels

Patch panels made for CAT6 channel performance.

GigaTrue®

CAT6



JPM610A-R6: top: front view;
bottom: rear view



- Use in 350-MHz applications.
- ETL tested for CAT6 channel performance.
- Meet and exceed ANSI/TIA/EIA-568-B.2-1 CAT6 performance specs.
- Tested for NEXT, PS-NEXT, FEXT, return loss, and attenuation.
- The IDC-110 block has peaks to make lacing wires easier.
- Universal wiring—panels are supplied with labeling for both T568A and T568B.
- Paired punchdown sequence enables pair twist within 1/8" of termination.
- Stuffer caps hold the wires securely.
- Rolled-edge construction provides superior panel rigidity.
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
------	------	------------

GigaTrue® CAT6 Patch Panels, Universal Wiring		
24-Port 1U	JPM610A-R6	
48-Port 2U	JPM612A-R6	
96-Port 4U	JPM614A-R6	

♦ Includes cable ties and mounting hardware.

CAT6 Feed-Through Patch Panels

No punchdowns needed with these feed-through panels.

CAT6



TECH SPECS

Construction — Steel
Shielding — JPM814A, JPM816A: (24) or (48) shielded RJ-45 ports
Wiring — Straight-through
Connectors — (24) or (48) RJ-45
Size — With cable management bar(s) installed:
 All: 19"W x 4.5"D (48.3 x 11.4 cm);
 JPM818A, JPM814A: 1.75"H (1U) (4.4 cm);
 JPM820A, JPM816A: 3.5"H (2U) (8.9 cm)
Weight — With cable management bar installed:
 JPM818A: 2 lb. (0.9 kg);
 JPM820A: 3 lb. (1.4 kg);
 JPM814A: 2.2 lb (1 kg);
 JPM816A: 4.1 lb. (1.9 kg)

Item	Code	List Price
------	------	------------

CAT6 Feed-Through Patch Panels, 19"W		
Unshielded		
24-Port, 1U	JPM818A	
48-Port, 2U	JPM820A	
Shielded		
24-Port, 1U	JPM814A	
48-Port, 2U	JPM816A	

TECH SPECS

Size — JPM183A: 4.1"H x 17"W x 3.1"D (10.4 x 43.2 x 7.9 cm);
 JPM185A: 8.1"H x 17"W x 3.1"D (20.6 x 43.2 x 7.9 cm)
Weight — JPM183A: 4 lb. (1.8 kg);
 JPM185A: 6.8 lb. (3.1 kg)

Item	Code	List Price
------	------	------------

Wallmount CAT6 Patch Panels, Universal Wiring		
12-Port	JPM183A	
24-Port	JPM185A	

- Unique design features RJ-45 plugs on both sides of the patch panels.
- Feed-through connectors provide super-easy patching. Just plug in cables.
- Patch cables without punching down wires to the panels.
- Feed-through design simplifies cable management.
- Compliant with CAT6 specs.
- Perfect for data and voice transmissions.
- Work with either T568A or T658B wiring.
- Use in relay racks or comm cabinets.
- The 24-port models include one cable management bar. The 48-port models include two.
- ♦♦ **WARRANTY** — Lifetime

Wallmount CAT6 Patch Panels

Mount directly on the wall where it's convenient.

CAT6



- Support bandwidths up to 250 MHz.
- Meet or exceed all CAT6 specifications.
- Perform patch panel updates on-line.
- Make terminations to 110 clips and 8-position modular jacks from the front.
- Swiveling guides keep cables organized within panel's interior.
- Feature built-in cable management.
- Labels on the front cover enable you to identify port terminations easily.
- ♦♦ **WARRANTY** — Lifetime



JPM185A

Wallmount Patch Panel Brackets, p. 271.

CAT6 Protector Panels

Surge protection guards 100/1000BASE-T lines and equipment against lightning strikes.

- Protect sensitive equipment and data lines from damaging lightning strikes, power surges, and electrostatic discharge.
- Built-in, all-wire protection on each port makes this panel a time and money saver!
- Instead of buying multiple protectors, all you need is one of these panels.
- CAT6 compliant for use in high-speed data, voice, and multimedia applications.
- Ideal for hubs, routers, switches, and other high-speed equipment.
- Feature 110 IDC to RJ-45 straight-wired ports.
- Each port is individually protected.
- Panels feature a self-resetting, 2000-watt, bidirectional circuit.
- Super-fast response time of less than five nanoseconds.
- Overvoltages are safely shunted to a ground via an 11" (17.9-cm) braided wire and chassis frame.



JSM114A

- Fail-safe design destroys the port rather than the equipment if an extreme surge exceeds the panel's surge capacity.
- If a port fails, just pop in a new connector.
- Fit all 19" racks.
- **◆◆ WARRANTY** — Lifetime

CAT6



TECH SPECS

Clamping Voltage — 7.5 V
 Connectors — 110 block to RJ-45
 Size — All: 19"W (48.3 cm);
 JSM112A: 1.75"H x 1.4"D (4.4 x 3.6 cm);
 JSM114A, JSM116A: 3.5"H x 1.4"D (8.9 x 3.6 cm)
 Weight — JSM112A: 1.1 lb. (0.5 kg);
 JSM114A: 2.4 lb. (1.1 kg);
 JSM116A: 4.6 lb. (2.1 kg)

Item	Code	List Price
CAT6 Protector Panels		
12-Port, 1U	JSM112A	
24-Port, 2U	JSM114A	
48-Port, 2U	JSM116A	

CAT6 Feed-Through Protector Panel

Get reliable surge protection plus the convenience of feed-through connectors.



- Built-in, all-wire protection on each port guards against lightning strikes, surges, overvoltages, and electrostatic discharge.
- Stops surges to protect hubs, switches, concentrators, and data lines.
- Super-fast response time of less than five nanoseconds.
- Fits all 19" cabinets and relay racks.

- Easy feed-through design. Patch cables without punching down wires. Just plug them in!
- CAT6 compliant. Ideal for high-speed data, voice, and multimedia applications, including 100/1000BASE-T networks.
- **◆◆ WARRANTY** — Lifetime

CAT6



TECH SPECS

Clamping Voltage — 7.5 V
 Connectors — (32) RJ-45:
 (16) in, (16) out
 Size — 3.5"H (2U) x 19"W x 0.75"D
 (8.9 x 48.3 x 1.9 cm)
 Weight — 1.7 lb. (0.8 kg)

Item	Code	List Price
CAT6 Feed-Through Protector Panel		
	JPM812A	

CAT6 Feed- and Straight-Through Couplers

Join UTP or STP cables in seconds.

- Feature two RJ-45 (8-wire) modular jacks.
- Use straight-through couplers to connect two straight-pinned CAT6 cables and extend the distance of your run.
- Use feed-through couplers to join two patch cables or mount in keystone wallplates.
- Work with T568A or T568B wiring.
- Backwards compatible with CAT5e.
- **◆◆ WARRANTY** — Lifetime

CAT6



FM606



FM693

Item	Code	List Price
CAT6 Straight-Through Couplers		
Unshielded		
White	Single	FM606
	10-Pack	FM606-10PAK
Off-White	Single	FM607
	10-Pack	FM607-10PAK
Black	Single	FM609
	10-Pack	FM609-10PAK
Shielded		
Metal	Single	FM608
	10-Pack	FM608-10PAK
CAT6 Keystone Feed-Through, Straight-Pinned Couplers		
Unshielded	Black	FM692
	White	FM690
Shielded	Silver	FM693

Wallmount Patch Panel Brackets

p. 271.



GigaBase 350 CAT5e, 350-MHz Solid Bulk Cable (UTP)

Save BIG with our everyday LOW prices!



GigaBase[®]

CAT5e



- Cable is marked in two-foot increments.
- Extra headroom gives room for growth.
- Ideal for voice, 100BASE-TX, 100-Mbps TP-PMD, T1, 155-Mbps ATM, 622-Mbps ATM, Gigabit Ethernet, and other high-speed applications.

- Rip cord for easy jacket opening.
- Low attenuation and power-sum crosstalk characteristics over an extended frequency range.
- ♦♦ **WARRANTY** — Lifetime

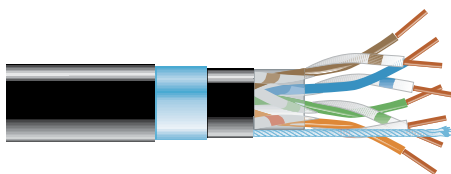
TECH SPECS

Cable Type — 4-pair UTP
Capacitance Unbalance (Maximum) — 3300 pF/km (Pair to ground)
Characteristic Impedance — 1–350 MHz: 100 ± 15 ohms
Conductor — 24 AWG, solid, bare copper
Conductor Resistance — 93.8 ohm/20° C maximum
Delay Skew (Maximum) — 1–350 MHz: 40 nS/100 m
Return Loss — 20.1 dB @ 100 MHz
Velocity of Propagation (Minimum) — 62.1% @ 350 MHz

Item	Blue	Yellow	White	Gray	Green	Red	Black	List Price
GigaBase [®] 350 CAT5e, 350-MHz Solid Bulk Cable (UTP), 4-Pair, 1000-ft. (304.8), Pull Box								
PVC	EYN851A-PB-1000	EYN855A-PB-1000	EYN853A-PB-1000	EYN857A-PB-1000	EYN859A-PB-1000	EYN849A-PB-1000	EYN861A-PB-1000	
Plenum	EYN850A-PB-1000	EYN854A-PB-1000	EYN852A-PB-1000	EYN856A-PB-1000	EYN858A-PB-1000	EYN848A-PB-1000	EYN860A-PB-1000	

Outdoor-Rated CAT5e Solid Bulk Cable (UTP)

Shield cable from the elements, crushing, and rodents.



For extra protection, the Armored Cable (EYN729A) features an aluminum jacket that's covered by a second polyethylene layer.

- Ideal for installing in the ground, in ducts, or lashed to an aerial support member.
- Armored cable offers extra protection. It's great for areas where cable is susceptible to rodent damage, crushing, and electrical interference.
- Steel armored cable available on request.
- ♦♦ **WARRANTY** — Lifetime

TECH SPECS

ACR (Minimum) — Typical: 30.5 dB/100 m (328.1 ft.) @ 100 MHz
Attenuation (Maximum) — 22 dB/100 m (328.1 ft.) @ 100 MHz
Conductor — 24 AWG, solid, insulated copper
Insulation — HD-polyethylene; Nominal diameter: Standard: 0.23" (0.58 cm); Armored: 0.34" (0.86 cm)
Jacket — UV-resistant, abrasion-resistant polyethylene
NEXT (Minimum) — Typical: 51.7 dB/100 m (328.1 ft.) @ 100 MHz
PS-NEXT (Minimum) — Typical: 44.8 dB/100 m (328.1 ft.) @ 100 MHz
Return Loss (Minimum) — Typical: 21.2 dB/100 m (328.1 ft.) @ 100 Hz
Temperature — -94 to +167° F (-70 to +75° C)
Time Delay Skew (Maximum) — 25 nanoseconds

CAT5e



UV-resistant, waterproof polyethylene jacket

Gel filling in core

(4) pairs of insulated 24 AWG conductors

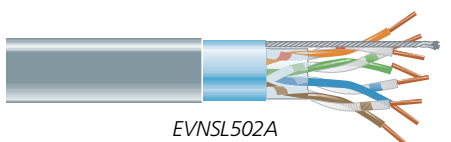
Rip cord

EYN728A

Item	Code	List Price
Outdoor-Rated CAT5e Solid Bulk Cable (UTP), Black		
Standard		
500-ft. (152.4-m)	EYN728A-0500	
1000-ft. (304.8-m)	EYN728A-1000	
Armored		
500-ft. (152.4-m)	EYN729A-0500	
1000-ft. (304.8-m)	EYN729A-1000	

CAT5e Shielded, Solid Bulk Cable (STP)

Shielded cable for long 100-MHz horizontal runs.



EVNSL502A

NOTE: For custom colors, call our FREE Tech Support.

- Ideal for long runs in industrial environments.
- ETL Verified to TIA/EIA-568-B.2 CAT5e specs.
- Low attenuation and near-end crosstalk provide excellent transmission.
- Find specs at blackbox.com.
- ♦♦ **WARRANTY** — Lifetime

CAT5e



For our newest CAT5e Shielded Solid Bulk Cable, see New Products.

Item	Blue	Gray	Beige	Yellow	White	List Price
CAT5e Shielded 100-MHz Solid Bulk Cable (STP), 24 AWG, 4-Pair, 1000-ft. (304.8-m), Spool						
PVC	EVNSL501A-1000	EVNSL502A-1000	EVNSL503A-1000	EVNSL504A-1000	EVNSL505A-1000	
Plenum	EVNSL511A-1000	EVNSL512A-1000	EVNSL513A-1000	EVNSL514A-1000	EVNSL515A-1000	

GigaBase 350 CAT5e, 350-MHz Stranded Bulk Cable (UTP)

Cable built for speedy 350-MHz runs.

- Use with GigaBase® components.
- Offers significant headroom.
- Meets TIA/EIA-568-B.2 standards.
- **◆◆ WARRANTY** — Lifetime

CAT5e



Item	Gray	Blue	Green	Red	Yellow	Beige	List Price
GigaBase 350 CAT5e, 350-MHz Stranded Bulk Cable (UTP), 24 AWG, 4-Pair, PVC							
250-ft. (76.2-m)	EVNSL80A-0250	EVNSL81A-0250	EVNSL82A-0250	EVNSL83A-0250	EVNSL84A-0250	EVNSL85A-0250	
500-ft. (152.4-m)	EVNSL80A-0500	EVNSL81A-0500	EVNSL82A-0500	EVNSL83A-0500	EVNSL84A-0500	EVNSL85A-0500	
1000-ft. (304.8-m)	EVNSL80A-1000	EVNSL81A-1000	EVNSL82A-1000	EVNSL83A-1000	EVNSL84A-1000	EVNSL85A-1000	

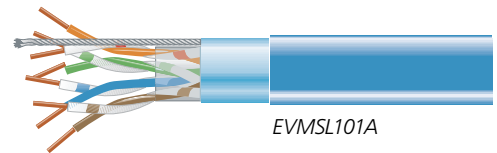
Item	Pink	Black	Purple	Orange	White	List Price
GigaBase 350 CAT5e, 350-MHz Stranded Bulk Cable (UTP), 24 AWG, 4-Pair, PVC (Continued)						
250-ft. (76.2-m)	EVNSL86A-0250	EVNSL87A-0250	EVNSL88A-0250	EVNSL89A-0250	EVNSL99A-0250	
500-ft. (152.4-m)	EVNSL86A-0500	EVNSL87A-0500	EVNSL88A-0500	EVNSL89A-0500	EVNSL99A-0500	
1000-ft. (304.8-m)	EVNSL86A-1000	EVNSL87A-1000	EVNSL88A-1000	EVNSL89A-1000	EVNSL99A-1000	

CAT5e Shielded 100-MHz Stranded Bulk Cable (STP)

Shielded cable for short cable patches.

- Use in riser applications for patching short cable runs through noisy areas.
- ETL verified to TIA/EIA-568-B.2 specs.
- **◆◆ WARRANTY** — Lifetime

CAT5e



NOTE: For custom colors, call our FREE Tech Support.

Item	Blue	Gray	Beige	Yellow	White	List Price
CAT5e Shielded 100-MHz Stranded Bulk Cable (STP), 26 AWG, 4-Pair, PVC, Spool						
1000-ft. (304.8-m)	EVMSL101A-1000	EVMSL102A-1000	EVMSL103A-1000	EVMSL104A-1000	EVMSL105A-1000	

CAT5e Solid-Conductor Backbone Cable (UTP)

Install superior-performance 350-MHz cable in backbone runs.

- Offers 350-MHz performance, more than triple the verified range of the CAT5e standard.
- **◆◆ WARRANTY** — Lifetime

CAT5e



EYN849MS EYN859MS EYN855MS EYN853MS EYN851MS

NOTE: For cross-pinned cable, call our FREE Tech Support or go to blackbox.com.

Item	Blue	Green	Red	Yellow	White	List Price
CAT5e Solid-Conductor Backbone Cable (UTP), 350-MHz, 24 AWG, 4-Pair, T568B						
Straight-Pinned						
PVC, NEC® CM						
2-ft. (0.6-m)	EYN851MS-0002	EYN859MS-0002	EYN849MS-0002	EYN855MS-0002	EYN853MS-0002	
5-ft. (1.5-m)	EYN851MS-0005	EYN859MS-0005	EYN849MS-0005	EYN855MS-0005	EYN853MS-0005	
10-ft. (3.0-m)	EYN851MS-0010	EYN859MS-0010	EYN849MS-0010	EYN855MS-0010	EYN853MS-0010	
15-ft. (4.5-m)	EYN851MS-0015	EYN859MS-0015	EYN849MS-0015	EYN855MS-0015	EYN853MS-0015	
20-ft. (6.0-m)	EYN851MS-0020	EYN859MS-0020	EYN849MS-0020	EYN855MS-0020	EYN853MS-0020	
25-ft. (7.6-m)	EYN851MS-0025	EYN859MS-0025	EYN849MS-0025	EYN855MS-0025	EYN853MS-0025	
30-ft. (9.1-m)	EYN851MS-0030	EYN859MS-0030	EYN849MS-0030	EYN855MS-0030	EYN853MS-0030	
35-ft. (10.6-m)	EYN851MS-0035	EYN859MS-0035	EYN849MS-0035	EYN855MS-0035	EYN853MS-0035	
50-ft. (15.2-m)	EYN851MS-0050	EYN859MS-0050	EYN849MS-0050	EYN855MS-0050	EYN853MS-0050	
100-ft. (30.4-m)	EYN851MS-0100	EYN859MS-0100	EYN849MS-0100	EYN855MS-0100	EYN853MS-0100	
Custom Lengths	EYN795MS	EYN802MS	EYN801MS	EYN803MS	EYN804MS	
Plenum, NEC® CMP						
2-ft. (0.6-m)	EYN850MS-0002	EYN858MS-0002	EYN848MS-0002	EYN854MS-0002	EYN852MS-0002	
5-ft. (1.5-m)	EYN850MS-0005	EYN858MS-0005	EYN848MS-0005	EYN854MS-0005	EYN852MS-0005	
10-ft. (3.0-m)	EYN850MS-0010	EYN858MS-0010	EYN848MS-0010	EYN854MS-0010	EYN852MS-0010	
15-ft. (4.5-m)	EYN850MS-0015	EYN858MS-0015	EYN848MS-0015	EYN854MS-0015	EYN852MS-0015	
20-ft. (6.0-m)	EYN850MS-0020	EYN858MS-0020	EYN848MS-0020	EYN854MS-0020	EYN852MS-0020	
25-ft. (7.6-m)	EYN850MS-0025	EYN858MS-0025	EYN848MS-0025	EYN854MS-0025	EYN852MS-0025	
30-ft. (9.1-m)	EYN850MS-0030	EYN858MS-0030	EYN848MS-0030	EYN854MS-0030	EYN852MS-0030	
35-ft. (10.6-m)	EYN850MS-0035	EYN858MS-0035	EYN848MS-0035	EYN854MS-0035	EYN852MS-0035	
50-ft. (15.2-m)	EYN850MS-0050	EYN858MS-0050	EYN848MS-0050	EYN854MS-0050	EYN852MS-0050	
100-ft. (30.4-m)	EYN850MS-0100	EYN858MS-0100	EYN848MS-0100	EYN854MS-0100	EYN852MS-0100	
Custom Lengths	EYN756MS	EYN753MS	EYN752MS	EYN754MS	EYN750MS	

CAT5e Shielded Cable (STP)

Shielded cable for noisy environments.



EVNSL172GY

- For use in areas with a lot of noise and EMI/RFI.
- Foil shielded with a drain wire.
- Supports high-speed networks.
- Meets the appropriate TIA/EIA and ISO/IEC 11801 standards.
- **◆◆ WARRANTY** — Lifetime

CAT5e



100 MHz

Item	Code	List Price
CAT5e Shielded Twisted-Pair Patch Cable (STP) with Snagless Boots, T568B, 4-Pair, RJ-45		
Solid, Plenum		
25-ft. (7.6-m)	EVNSL173GY-0025	
50-ft. (15.2-m)	EVNSL173GY-0050	
100-ft. (30.4-m)	EVNSL173GY-0100	
150-ft. (45.7-m)	EVNSL173GY-0150	
Custom Lengths	EVNSL173GY	
Stranded, PVC		
3-ft. (0.9-m)	EVNSL172GY-0003	
6-ft. (1.8-m)	EVNSL172GY-0006	
10-ft. (3.0-m)	EVNSL172GY-0010	
20-ft. (6.0-m)	EVNSL172GY-0020	
Custom Lengths	EVNSL172GY	

CAT5e 350-MHz Patch Cables (UTP) with Snagless Boots

Need T568A or USOC pinning?
Here are the cables you want.

- Boots prevent broken connections and bent pins when removing them from patch panels.
- Reduce crosstalk.
- All feature stranded conductors, four pairs, and RJ-45 connectors.
- **◆◆ WARRANTY** — Lifetime

CAT5e



350 MHz



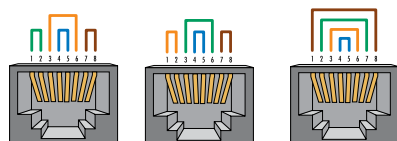
EVSA85T

Item	Code	List Price
CAT5e 350-MHz Patch Cable (UTP), Snagless Boots, 24 AWG, PVC		
T568A, Straight-Pinned		
1-ft. (0.3-m)	EVSA85T-0001	
3-ft. (0.9-m)	EVSA85T-0003	
6-ft. (1.8-m)	EVSA85T-0006	
10-ft. (3.0-m)	EVSA85T-0010	
20-ft. (6.0-m)	EVSA85T-0020	
Custom Lengths	EVSA85	
T568A or T568B, Crossover		
1-ft. (0.3-m)	EVCRB85-0001	
3-ft. (0.9-m)	EVCRB85-0003	
6-ft. (1.8-m)	EVCRB85-0006	
10-ft. (3.0-m)	EVCRB85-0010	
20-ft. (6.0-m)	EVCRB85-0020	
Custom Lengths	EVCRB85	

Item	Code	List Price
CAT5e 350-MHz Patch Cable (UTP), Snagless Boots, 24 AWG, PVC (Continued)		
USOC, Straight-Pinned		
1-ft. (0.3-m)	EVSU85T-0001	
3-ft. (0.9-m)	EVSU85T-0003	
6-ft. (1.8-m)	EVSU85T-0006	
10-ft. (3.0-m)	EVSU85T-0010	
20-ft. (6.0-m)	EVSU85T-0020	
Custom Lengths	EVSU85	
USOC, Crossover		
1-ft. (0.3-m)	EVCRU85T-0001	
3-ft. (0.9-m)	EVCRU85T-0003	
6-ft. (1.8-m)	EVCRU85T-0006	
10-ft. (3.0-m)	EVCRU85T-0010	
20-ft. (6.0-m)	EVCRU85T-0020	
Custom Lengths	EVCRU85	

Black Box Explains

T568A, T568B, and USOC wiring.



T568A T568B USOC
Pair 1 — Pair 3 —
Pair 2 — Pair 4 —

Black Box Explains

Straight-pinned and crossover cable.

Straight-pinned cable has the most common type of pinning. The send and receive pairs are wired straight through on either end of the cable.

Crossover cable is generally used for peer-to-peer connections. The send and receive pairs are crossed between Connector A to Connector B on either end of the cable.

T568A and T568B Crossover Cable		USOC Crossover Cable	
Connector (A)	Connector (B)	Connector (A)	Connector (B)
1	3	1	8
2	6	2	7
3	1	3	6
6	2	4	5
5	4	5	4
4	5	6	3
7	8	7	2
8	7	8	1

GigaBase 350 CAT5e Patch Cables (UTP)

Premium CAT5e cables tested to

- Feature stranded conductors for flexibility.
- All have 4-pair, 24 AWG construction with RJ-45 connectors.
- All meet or exceed T568B specifications.
- Tested to 350 MHz.



- Specially designed for use with other GigaBase® components.
- Improved near-end crosstalk (NEXT) compared to standard CAT5 cable.
- Superior construction offers significant headroom.
- Tuned-plug design maintains a tighter twist and reduces noise.
- Offer enhanced performance parameters and electrical characteristics.
- Gold-plated contacts are designed for an insertion/extraction life of 750 cycles.
- Choose from cables with snagless boots or basic connectors.
- Also available with straight- or cross-pinning.
- ♦♦ **WARRANTY** — Lifetime

TECH SPECS

Attenuation (Maximum) —	PS-NEXT (Minimum) —
24.2 dB/100 m (328.1 ft.) @ 100 MHz;	38.3 dB/100 m (328.1 ft.) @ 100 MHz;
49.3 dB/100 m (328.1 ft.) @ 350 MHz	30.2 dB/100 m (328.1 ft.) @ 350 MHz
Cable Type — 4-pair UTP	Return Loss (Minimum) —
Conductor Gauge — 24 AWG, stranded	20.1 dB/100 m (328.1 ft.) @ 100 MHz;
Frequency — Up to 350 MHz	16.3 dB/100 m (328.1 ft.) @ 350 MHz
Impedance — 100 ± 15 ohms	Standards — TIA/EIA-568-B.2
NEXT (Minimum) —	Category 5e
40.3 dB/100 m (328.1 ft.) @ 100 MHz;	
32.2 dB/100 m (328.1 ft.) @ 350 MHz	



- Snagless boots
- Straight-pinned

Item	Code	Single	25-Pack
------	------	--------	---------

GigaBase 350 CAT5e Patch Cable (UTP), Snagless Boots, Stranded, 24 AWG, RJ-45, 4-Pair, T568B, PVC, Straight-Pinned

1-ft. (0.3-m)	EVNSLXX-0001		—
2-ft. (0.6-m)	EVNSLXX-0002		—
3-ft. (0.9-m)	EVNSLXX-0003		—
4-ft. (1.2-m)	EVNSLXX-0004		—
5-ft. (1.5-m)	EVNSLXX-0005		—
6-ft. (1.8-m)	EVNSLXX-0006		—
7-ft. (2.1-m)	EVNSLXX-0007		—
10-ft. (3.0-m)	EVNSLXX-0010		—
15-ft. (4.5-m)	EVNSLXX-0015		—
20-ft. (6.0-m)	EVNSLXX-0020		—
25-ft. (7.6-m)	EVNSLXX-0025		—
30-ft. (9.1-m)	EVNSLXX-0030		—
50-ft. (15.2-m)	EVNSLXX-0050		—
100-ft. (30.4-m)	EVNSLXX-0100		—
Custom Lengths	EVNSLXX		—

To order, replace the "XX" with the number assigned to each color.
To order packs of 25, add -25PAK to the end of the code.

Gray = 80	Yellow = 84	Purple = 88
Blue = 81	Beige = 85	Orange = 89
Green = 82	Pink = 86	White = 90
Red = 83	Black = 87	



- Basic connectors
- Straight-pinned

Item	Code	Single	25-Pack
------	------	--------	---------

GigaBase 350 CAT5e Patch Cable (UTP), Basic Connectors, Stranded, 24 AWG, RJ-45, 4-Pair, T568B, PVC, Straight-Pinned

1-ft. (0.3-m)	EVNSLXX-0001		—
2-ft. (0.6-m)	EVNSLXX-0002		—
3-ft. (0.9-m)	EVNSLXX-0003		—
4-ft. (1.2-m)	EVNSLXX-0004		—
5-ft. (1.5-m)	EVNSLXX-0005		—
6-ft. (1.8-m)	EVNSLXX-0006		—
7-ft. (2.1-m)	EVNSLXX-0007		—
10-ft. (3.0-m)	EVNSLXX-0010		—
15-ft. (4.5-m)	EVNSLXX-0015		—
20-ft. (6.0-m)	EVNSLXX-0020		—
25-ft. (7.6-m)	EVNSLXX-0025		—
30-ft. (9.1-m)	EVNSLXX-0030		—
50-ft. (15.2-m)	EVNSLXX-0050		—
100-ft. (30.4-m)	EVNSLXX-0100		—
Custom Lengths	EVNSLXX		—

To order, replace the "XX" with the number assigned to each color.
To order packs of 25, add -25PAK to the end of the code.

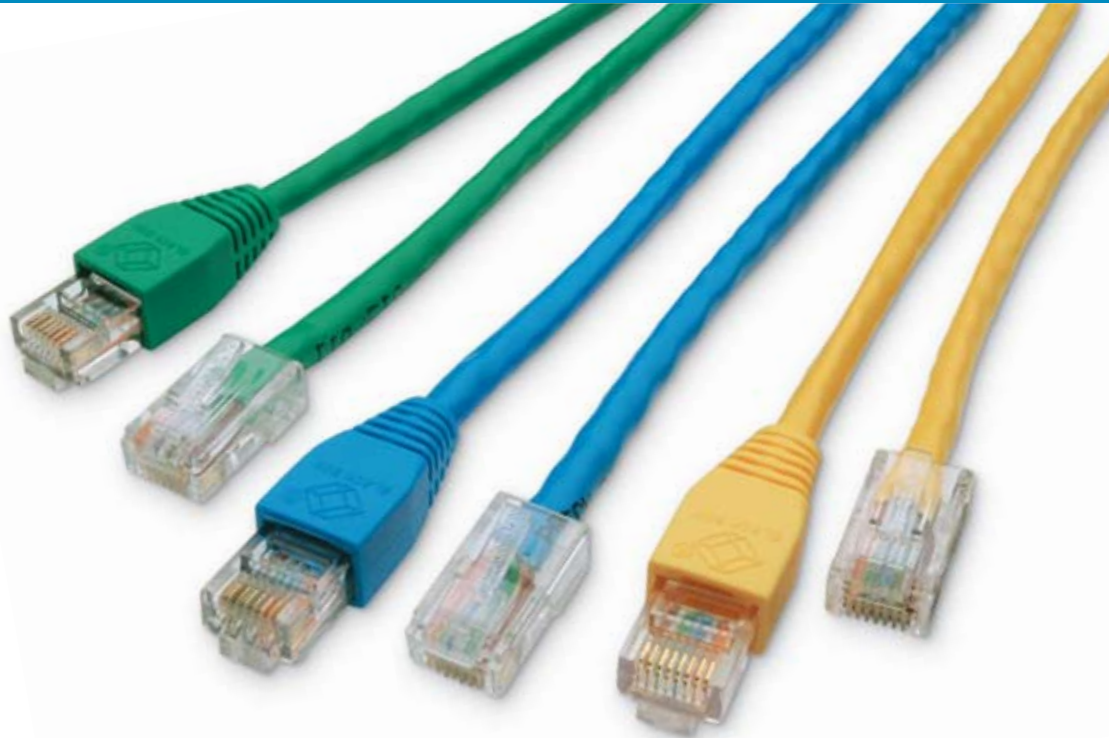
White = 20	Yellow = 54	Gray = 58
Blue = 51	Beige = 55	Orange = 59
Green = 52	Pink = 56	Purple = 79
Red = 53	Black = 57	

350 MHz!

CAT5e



350 MHz!



Choose Straight-Pinned Cable with either snagless boots or basic connectors, or Cross-Pinned Cable with snagless boots.

Choose from as many as 11 colors!



Item	Code	Single	25-Pack
<ul style="list-style-type: none"> • Snagless boots • Cross-pinned 			
GigaBase® 350 CAT5e Patch Cable (UTP), Snagless Boots, Stranded, 24 AWG, RJ-45, 4-Pair, PVC, Cross-Pinned			
1-ft. (0.3-m)	EVCBXX-0001		
3-ft. (0.9-m)	EVCBXX-0003		
6-ft. (1.8-m)	EVCBXX-0006		
7-ft. (2.1-m)	EVCBXX-0007		—
10-ft. (3.0-m)	EVCBXX-0010		
20-ft. (6.0-m)	EVCBXX-0020		
Custom Lengths	EVCBXX		

To order, replace the "XX" with the number assigned to each color.

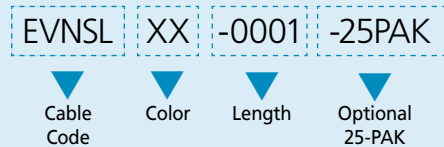
To order packs of 25, add -25PAK to the end of the code.

Gray = 80	Red = 83	Beige = 85
Blue = 81	Yellow = 84	White = 90
Green = 82		

Cross-Pinning: EVCBXX

1		3	White/Orange
2		6	Orange/White
3		1	White/Green
6		2	Green/White
4		5	Blue/White
5		4	White/Blue
7		8	White/Brown
8		7	Brown/White

How to order these cables



First, select your cable. EVNSL or EVCB are the base product codes. Then, fill in the "XX," which is a color number noted at the bottom of each price list.

The length, based on feet, is designated next. To order 25-packs, just add "-25PAK" to the end. If you have questions, call our FREE Tech Support.

CAT5e 100-MHz Patch Cables (UTP)

Affordable CAT5e cable tested to 100 MHz.

- Feature stranded conductors for short runs.
- All meet or exceed CAT5e specifications.
- Use for 100BASE-TX and other 100-MHz applications.
- Optional molded boots prevent cable kinks and provide strain relief.
- **◆◆ WARRANTY** — Lifetime

TECH SPECS

Attenuation — 26.4 dB/100 m (328.1 ft.) @ 100 MHz
Cable Type — 4-pair UTP
Conductor Gauge — 24 AWG, stranded
Delay Skew — 45 ns/100 m
ELFEXT — 26.4 dB/100 m (328.1 ft.) @ 100 MHz
Frequency — Up to 100 MHz
Impedance — 100 ± 15 ohms
Mutual Capacitance — 15 pF/ft.
NEXT — 35.3 dB/100 m (328.1 ft.) @ 100 MHz

Propagation Delay — 538 dB/100 m @ (328.1 ft.) 100 MHz
PS-ELFEXT — 20.8 dB/100 m (328.1 ft.) @ 100 MHz
PS-NEXT — 32.3 dB/100 m (328.1 ft.) @ 100 MHz
Resistance — 45 ohms/1000 ft.
Return Loss — 19.0 dB/100 m (328.1 ft.) @ 100 MHz
Structural Return Loss — 16 dB/100 m (328.1 ft.) @ 100 MHz



Choose Straight-Pinned Cable with either Molded Boots or Basic Connectors, or Cross-Pinned Cable with Basic Connectors.



CAT5e

- **Molded Boots**
- **Straight-Pinned**

Item	Code	Single	25-Pack
------	------	--------	---------

CAT5e 100-MHz Patch Cable (UTP), Molded Boots, Stranded, 24 AWG, RJ-45, T568B, PVC, Straight-Pinned

1-ft. (0.3-m)	EVNSLXXE-0001		
3-ft. (0.9-m)	EVNSLXXE-0003		
6-ft. (1.8-m)	EVNSLXXE-0006		
10-ft. (3.0-m)	EVNSLXXE-0010		
15-ft. (4.5-m)	EVNSLXXE-0015		
20-ft. (6.0-m)	EVNSLXXE-0020		
25-ft. (7.6-m)	EVNSLXXE-0025		
30-ft. (9.1-m)	EVNSLXXE-0030		
50-ft. (15.2-m)	EVNSLXXE-0050		
100-ft. (30.4-m)	EVNSLXXE-0100		

To order, replace the "XX" with the number assigned to each color.
 To order packs of 25, add -25PAK to the end of the code.

Blue = 21	Yellow = 24	Black = 27
Green = 22	Beige = 25	Purple = 28
Red = 23	Pink = 26	Orange = 29

- **Basic Connectors**
- **Straight-Pinned**

Item	Code	Single	25-Pack
------	------	--------	---------

CAT5e 100-MHz Patch Cable (UTP), Basic Connectors, Stranded, 24 AWG, RJ-45, T568B, PVC, Straight-Pinned

1-ft. (0.3-m)	EVNSLXXE-0001		
2-ft. (0.6-m)	EVNSLXXE-0002		—
3-ft. (0.9-m)	EVNSLXXE-0003		
4-ft. (1.2-m)	EVNSLXXE-0004		—
5-ft. (1.5-m)	EVNSLXXE-0005		—
6-ft. (1.8-m)	EVNSLXXE-0006		
7-ft. (2.1-m)	EVNSLXXE-0007		—
10-ft. (3.0-m)	EVNSLXXE-0010		
15-ft. (4.5-m)	EVNSLXXE-0015		
20-ft. (6.0-m)	EVNSLXXE-0020		
25-ft. (7.6-m)	EVNSLXXE-0025		
30-ft. (9.1-m)	EVNSLXXE-0030		
50-ft. (15.2-m)	EVNSLXXE-0050		
100-ft. (30.4-m)	EVNSLXXE-0100		
Custom Lengths	EVNSLXXE		

To order, replace the "XX" with the number assigned to each color.
 To order packs of 25, add -25PAK to the end of the code.

Blue = 01	Beige = 05	Gray = 11
Green = 02	Pink = 06	Purple = 13
Red = 03	Black = 07	Orange = 14
Yellow = 04	White = 10	

- **Basic Connectors**
- **Cross-Pinned**

Item	Code	Single	25-Pack
------	------	--------	---------

CAT5e 100-MHz Patch Cable (UTP), Basic Connectors, Stranded, 24 AWG, RJ-45, PVC, Cross-Pinned

1-ft. (0.3-m)	EVCRBXXE-0001		
3-ft. (0.9-m)	EVCRBXXE-0003		
6-ft. (1.8-m)	EVCRBXXE-0006		
10-ft. (3.0-m)	EVCRBXXE-0010		
15-ft. (4.6-m)	EVCRBXXE-0015		
20-ft. (6.0-m)	EVCRBXXE-0020		
Custom Lengths	EVCRBXXE		

To order, replace the "XX" with the number assigned to each color.
 To order packs of 25, add -25PAK to the end of the code.

Blue = 01	Green = 02	Red = 03
Yellow = 04	Beige = 05	

How to order these cables



First, select your cable. EVNSL or EVCRB are the base product codes. Then, fill in the "XX," which is a color number noted at the bottom of each price list. To see the colors, turn to pages 96–97. The length, based on feet, is designated next. To order 25-packs, just add "-25PAK" to the end. If you have questions, call our FREE Tech Support.

GigaBase2 CAT5e Jacks

Use with your GigaBase2 systems.

- Support up to 100 MHz.
- Compatible with GigaBase® CAT5e Cables (pages 93–94, 96–97).
- Also completely backward compatible with CAT5 and CAT3 components.
- Universal wiring.
- Clearly labeled with T568A and T568B wiring schemes.
- Make easy terminations using a 110 tool.
- The termination retention stuffer cap provides strain relief while enabling you to easily check terminations.
- IDC contacts are phosphor bronze with tin plating.
- Nose contacts feature 50-micron gold plating over nickel.
- Use with our GigaStation2 Wallplates and Surface-Mount Housings (pages 114–115).
- ♦♦ **WARRANTY** — Lifetime



FMT925-R2

GigaBase[®] CAT5e



Item	Single-Pack	List Price	25-Pack	List Price
GigaBase2 CAT5e Jacks, Universal Wiring				
Blue	FMT920-R2		FMT920-R2-25PAK	
Black	FMT921-R2		FMT921-R2-25PAK	
Ivory	FMT922-R2		FMT922-R2-25PAK	
Gray	FMT923-R2		FMT923-R2-25PAK	
Green	FMT924-R2		FMT924-R2-25PAK	
Office White	FMT925-R2		FMT925-R2-25PAK	
Orange	FMT926-R2		FMT926-R2-25PAK	
Red	FMT927-R2		FMT927-R2-25PAK	
White	FMT929-R2		FMT929-R2-25PAK	
Yellow	FMT930-R2		FMT930-R2-25PAK	

GigaStation2 Wallplates and Surface-Mount Housings, pp. 114–115.



GigaBase CAT5e Jacks

The right jack for GigaBase systems.



Front view



Side view
FM920



Top view

- Angled, staggered IDC 110 contacts, unique dual-plane nose, and printed circuit board provide better performance.
- Offset increases transmission performance and reduces wire-lacing time.
- Termination retention stuffer cap provides strain relief.
- Make easy, tool-less terminations or use a 110 tool if you prefer.
- Universal labels clearly display T568A and T568B wiring schemes.
- Use with our GigaStation Wallplates (page 116).
- ♦♦ **WARRANTY** — Lifetime

GigaBase[®] CAT5e



Item	Single-Pack	List Price	25-Pack	List Price
GigaBase CAT5e Jacks, Universal Wiring				
Blue	FM920		FM920-25PAK	
Black	FM921		FM921-25PAK	
Electric Ivory	FM922		FM922-25PAK	
Gray	FM923		FM923-25PAK	
Green	FM924		FM924-25PAK	
Office White	FM925		FM925-25PAK	
Orange	FM926		FM926-25PAK	
Red	FM927		FM927-25PAK	
Telco Ivory	FM928		FM928-25PAK	
White	FM929		FM929-25PAK	
Yellow	FM930		FM930-25PAK	

GigaStation Wallplates, p. 116.



CAT5e Modular Plugs

Use your choice of cable and wiring.



FMTP5E



FMTP5ES

- Meet or exceed CAT5e specifications.
- Eight-conductor plug works with flat, oval, or round cable.
- For use with 24 or 26 AWG solid or stranded cable.
- Recommended for 10BASE-T or 100BASE-TX applications.
- Choose shielded modular plugs for applications with high EMI/RFI.
- Use with the Universal RJ Crimp Tool (page 221).
- ♦♦ **WARRANTY** — Lifetime

CAT5e



Item	Code	List Price
CAT5e Modular Plugs, RJ-45		
10-Pack	FMTP5E-10PAK	
25-Pack	FMTP5E-25PAK	
50-Pack	FMTP5E-50PAK	
100-Pack	FMTP5E-100PAK	
250-Pack	FMTP5E-250PAK	
CAT5e Shielded Modular Plugs, RJ-45		
10-Pack	FMTP5ES-10PAK	
25-Pack	FMTP5ES-25PAK	
50-Pack	FMTP5ES-50PAK	
100-Pack	FMTP5ES-100PAK	
250-Pack	FMTP5ES-250PAK	

CAT5e Termination and Installation Kits, p. 241.



CAT5e and CAT6 Couplers

Join UTP or STP patch cables.

- Use couplers in-line to connect patch cables or mount in a wallplate.
- Feature two RJ-45, 8-wire jacks, unless noted.
- Use CAT6 Panel-Mount Feed-Through Coupler Kits to mount CAT6 couplers in virtually any panel thickness.
- Use the Bezel to make custom connections in enclosures, walls, and panels.
- **◆◆ WARRANTY** — Lifetime

CAT5e

CAT6



FM508-R2



FM509



FMT1020



FMT1021



FMT1000

Item	Single-Pack	List Price	10-Pack	List Price
CAT5e Couplers, RJ-45 to 110 Blocks				
Straight-Pinned	Unshielded	White	FM506-R2	FM506-R2-10PAK
		Beige	FM507-R2	FM507-R2-10PAK
		Black	FM509	FM509-10PAK
Cross-Pinned	Shielded	Silver	FM508-R2	FM508-R2-10PAK
		White	FM566-R2	FM566-R2-10PAK
		Beige	FM567-R2	FM567-R2-10PAK
	Shielded	Silver	FM568-R2	FM568-R2-10PAK
CAT5e Keystone Couplers for GigaStation2 Wallplates (p. 114)				
Straight-Pinned	Unshielded	White	FM590	FM590-10PAK
		Beige	FM591	FM591-10PAK
		Black	FM592	FM592-10PAK
		Silver	FM593	FM593-10PAK
	Shielded	Silver	FM451	—
Cross-Pinned	Unshielded	White	FM596	FM596-10PAK
		Beige	FM597	FM597-10PAK
		Silver	FM598	FM598-10PAK

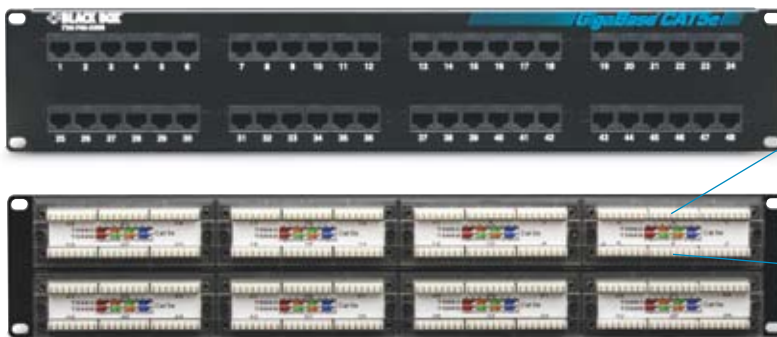
Item	Code	List Price
CAT5e Shielded Jack Couplers		
T568A		
Single-Jack, Left Cable Exit	38078	
Single-Jack, Right Cable Exit	38088	
T568B		
Double-Jack, Straight Cable Exit	38073	
CAT6 Feed-Through, Straight-Pinned Couplers		
Unshielded Black	FM692	
White	FM690	
Shielded Silver	FM693	
CAT6 Panel-Mount Feed-Through Coupler Kits		
Unshielded	FMT1020	
Shielded	FMT1021	
Panel-Mount Bezel for GigaStation2 Snap Fittings and GigaTrue2 and GigaBase® Jacks (p. 115)		
Silver	FMT1000	

GigaBase CAT5e Patch Panels

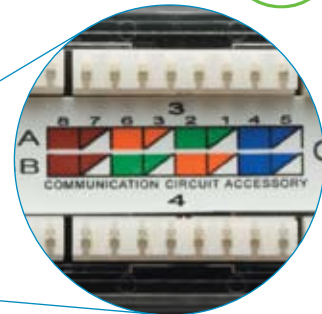
Patch panels designed for 350-MHz performance.

GigaBase®

CAT5e



JPM906A-R4: top: front view; bottom: rear view



- Use in 350-MHz applications.
- ETL tested and verified CAT5e channel performance.
- Meet or exceed ANSI/TIA/EIA-568-B.2 CAT5e specs.
- Provide significant headroom over CAT5e specifications.
- The IDC-110 block features peaks to make lacing wires easier.
- The panels include stuffer caps to hold the wires more securely.
- Universal wiring—panels are supplied with labeling for both T568A and T568B wiring.
- Rolled-edge construction provides superior panel rigidity to eliminate flex during termination.
- Include cable ties and mounting hardware.
- **◆◆ WARRANTY** — Lifetime

TECH SPECS

Size — JPM902A-R4: 1.75"H (1U) x 19"W x 1.25"D (4.4 x 48.3 x 3.2 cm);
 JPM906A-R4: 3.5"H (2U) x 19"W x 1.25"D (8.9 x 48.3 x 3.2 cm);
 JPM910A-R4: 7"H (4U) x 19"W x 1.25"D (17.8 x 48.3 x 3.2 cm)
Weight — JPM902A-R4: 1.5 lb. (0.7 kg);
 JPM906A-R4: 2.9 lb. (1.3 kg);
 JPM910A-R4: 5.8 lb. (2.6 kg)

Item	Code	List Price
GigaBase® CAT5e Patch Panels, Universal Wiring		
24-Port	1U	JPM902A-R4
48-Port	2U	JPM906A-R4
96-Port	4U	JPM910A-R4
◆ Includes patch panels, cable ties and mounting hardware.		

High-Density Shielded Patch Panel • CAT5e Shielded Jack

The right combo for eliminating crosstalk in crowded data centers.

CAT5e



High-Density Shielded Patch Panel

- Only 1U high with 24 ports for high-density applications.
- Use in CAT5e networks.
- Jacks snapmount into keystone openings.
- 14-gauge all-steel construction for extreme durability and strength.
- A preloaded, 12-gauge, UL® rated grounding strap makes termination easy.
- A built-in cable management shelf provides strain relief for each cable.
- Panel mounts in standard 19" racks.



JPS5E0A



FMS200

CAT5e Shielded Jack

- Shield housing made of die-cast solid zinc for better ANEXT and EMI protection.
- CAT5e channel compliant.

- Tool-less termination cap maintains pair twists.
- Unique wire management stuffer cap separates pairs, prevents crossed pairs, and reduces crosstalk.
- Inversely oriented, right-angled IDC contacts prevent NEXT.
- Features a quick grounding mechanism.
- ♦♦ **WARRANTY** — All: Lifetime

Item	Code	List Price
High-Density Shielded Patch Panel 24-Port	JPS5E0A	
CAT5e Shielded Jack, T568B	FMS200	

CAT5e Econo Patch Panels

Solid and reliable terminations for 100-MHz applications.

CAT5e



- Meet or exceed CAT5e performance specifications.
- Rear IDCs feature in-line paired punchdown sequence.
- The IDC-110 block is redesigned with peaks to make lacing wires easier.
- A paired punchdown sequence enables pair twist within 1/2" of termination.
- Feature universal T568A and T568B wiring.
- The panels include stuffer caps to hold the wires more securely.
- Interoperable and backward compatible with 10BASE-T and 100BASE-TX applications.
- Feature a high port density: 16, 24, 32, 48, or 96 ports.
- Rolled-edge construction provides superior panel rigidity to eliminate flex during termination.
- Include cable ties and mounting hardware.
- ♦♦ **WARRANTY** — Lifetime



JPM113A-R5: top: front view; bottom: rear view

TECH SPECS

Size — JPM110A-R5–JPM111A-R5: 1.75"H (1U) x 19"W x 1.25"D (4.4 x 48.3 x 3.2 cm);
 JPM112A-R5–JPM113A-R5: 3.5"H (2U) x 19"W x 1.25"D (8.9 x 48.3 x 3.2 cm);
 JPM114A-R5: 7"H (4U) x 19"W x 1.25"D (17.8 x 48.3 x 3.2 cm)
Weight — JPM110A-R5: 1.2 lb. (0.5 kg);
 JPM111A-R5: 1.3 lb. (0.6 kg);
 JPM112A-R5: 2.1 lb. (1 kg);
 JPM113A-R5: 2.2 lb. (1 kg);
 JPM114A-R5: 4.4 lb. (2 kg)

Item	Code	List Price
CAT5e Econo Patch Panels, Universal Wiring		
16-Port	1U	JPM110A-R5
24-Port	1U	JPM111A-R5
32-Port	2U	JPM112A-R5
48-Port	2U	JPM113A-R5
96-Port	4U	JPM114A-R5
♦ Includes patch panels, cable ties and mounting hardware.		

Black Box Explains

Category 5e (CAT5e).

CAT5e, also known as Enhanced Category 5, is a UTP cable standard ratified in 1999. It's an incremental improvement over Category 5 (CAT5) and is designed to enable cabling to support full-duplex Fast Ethernet and Gigabit Ethernet. The main differences between CAT5 and CAT5e are in the specifications. The performance requirements have been raised slightly in the CAT5e standard.

CAT5e has stricter specifications for Power-Sum Equal-Level Far-End Crosstalk (PS-ELFEXT), Near-End Crosstalk (NEXT), Attenuation, and Return Loss (RL) than those for CAT5. Like CAT5, CAT5e is a 100-MHz standard, but it has the capacity to handle bandwidth superior to that of CAT5. With these improvements, you can expect problem-free, full-duplex, 4-pair Ethernet transmissions over your CAT5e UTP.

CAT5e Feed-Through Patch Panels

No punchdowns needed with these feed-through panels.

CAT5e



JPM806A-R2: front view



JPM810A-R2: rear view

- Unique design features RJ-45 plugs on both sides of the patch panels.
- Feed-through connectors provide super-easy cable management.
- Perfect for voice and data transmission up to 1 Gigabit.
- Work with either T568A or T568B wiring.
- Ideal for locating desktop concentrators or hubs on a 19" rack.
- The 24-port models include one cable

management bar. The 48-port models include two cable management bars.

- **◆◆ WARRANTY** — Lifetime

TECH SPECS

Size — With cable management bar installed: 19" W x 4.5" D (48.3 x 11.4 cm)

Weight — With cable management bar installed:
JPM808A-R2: 2 lb. (0.9 kg);
JPM810A-R2: 3 lb. (1.4 kg);
JPM804A-R2: 2.2 lb. (1 kg);
JPM806A-R2: 4.1 lb. (1.9 kg)

Item	Code	List Price
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CAT5e Feed-Through Patch Panels, 19" W

Unshielded		
24-Port	1U	JPM808A-R2
48-Port	2U	JPM810A-R2
Shielded		
24-Port	1U	JPM804A-R2
48-Port	2U	JPM806A-R2



CAT5e 100-MHz cable, page 98.

Wallmount CAT5e Patch Panels

Perform patch panel updates on-line and get built-in cable management.

- Mount directly on the wall and plug all cables into the front.
- Make terminations to 110 clips and 8-position modular jacks.
- Swiveling guides keep cables organized within panel's interior.
- Support bandwidths up to 100 MHz.
- Meet or exceed all CAT5e specifications for near-end crosstalk, attenuation, and return loss.
- Labels on the front cover enable you to identify port terminations easily.
- **◆◆ WARRANTY** — Lifetime



TECH SPECS

Connectors — 8-position modular jacks; 110 clips

Size — JPM083A-R3: 4.1" H x 17" W x 3.1" D (10.4 x 43.2 x 7.9 cm);

JPM085A-R3: 8.1" H x 17" W x 3.1" D (20.6 x 43.2 x 7.9 cm)

Weight — JPM083A-R3: 4 lb. (1.8 kg);
JPM085A-R3: 6.8 lb. (3.1 kg)

CAT5e



JPM085A-R3

When you're done, put on the cover for termination protection and a tidy appearance.

Item	Code	List Price
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Wallmount CAT5e Patch Panels, Universal Wiring

12-Port	JPM083A-R3	
24-Port	JPM085A-R3	

CAT5e Hinged Fold-Down Panels

The perfect alternatives to a full-sized rack.

- CAT5e panels feature universal (T568A and T568B) wiring.
- Wallmountable or rackmountable versions available.
- Both panels fold down for easy front access and to serve as a bench during termination.
- The wallmount version also swings open.
- Inverted port numbers on rear panel identify ports when panel is folded down.
- **◆◆ WARRANTY** — Lifetime



TECH SPECS

Size — All: 7" H (4U) x 19" W (17.8 x 48.3 cm);
JPM201A-R2: 4" D (10.2 cm);
JPM202A-R2: 1.5" D (3.8 cm)

Weight — JPM201A-R2: 8 lb. (3.6 kg);
JPM202A-R2: 4 lb. (1.8 kg)

CAT5e



The Wallmount Hinged Fold-Down Panel (JPM201A-R2) folds down and swings open to provide access from the front.

Item	Code	List Price
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CAT5e Hinged Fold-Down Panels, 48-Port, 4U

Wallmount	JPM201A-R2	
Rackmount	JPM202A-R2	

High-Density Multimedia Patch Panels

Set up multiple applications in these high-density panels!



- High-density design for optimum use of rack space.
- Constructed of cold-rolled steel.
- Choose from panels designed for our Giga-system and Giga2-system jacks and snap fittings.
- **◆◆ WARRANTY** — Lifetime



JPM193A with Snap Fittings

NOTE: For maximum port density, the 36-port GigaStation model (JPM193A) doesn't have port numbers or labeling tags.

Item	Code	List Price
GigaStation High-Density Multimedia Patch Panels		
16-Port 1U	JPM191A	
24-Port 1U	JPM192A	
36-Port 1U	JPM193A	
48-Port 2U	JPM194A	
GigaStation Snap Fittings (For details, see p. 116.)		
Blank, 10-Pack		
Black	FM358	
Office White	FM330	
Telco Ivory	FM334	
Electric Ivory	FM335	
Gray	FM336	
White	FM359	

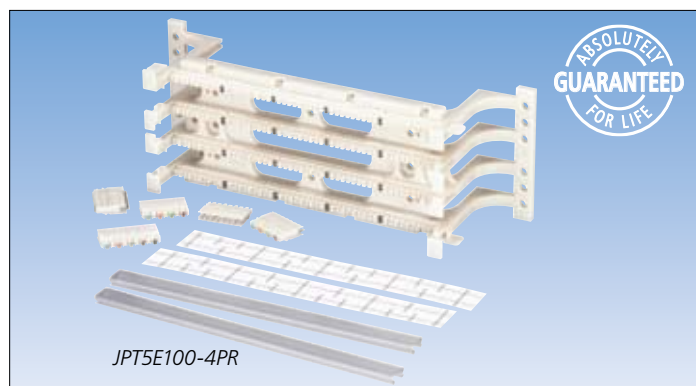
Item	Code	List Price
GigaStation2 High-Density Multimedia Patch Panels		
16-Port 1U	JPMT1016A	
24-Port 1U	JPMT1024A	
36-Port 1U	JPMT1036A	
48-Port 2U	JPMT1048A	
96-Port 2U	JPM176A	
GigaStation2 Snap Fittings (For details, see p. 115.)		
Blank, 10-Pack		
Office White	FMT330-R2	
Ivory	FMT335-R2	
White	FMT359-R2	

For our complete line of GigaStation and GigaStation2 Snap Fittings, see pp. 115–116.

CAT5e Wiring Block Kits

Kits for doing your own wiring.

CAT5e



JPT5E100-4PR

- Kits also include label holders, and labels.
- Versions available for 50-, 100-, and 300-pair wiring.
- **◆◆ WARRANTY** — Lifetime

Buyer's Guide | CAT5e Wiring Block Kits

Kits	Type 110 CAT5e Wiring Blocks	CAT5e Connecting Blocks			Code	List Price
		3-Pair	4-Pair	5-Pair		
50-Pair	(1)	—	(10)	(2)	JPT5E050-4PR	
	(1)	—	—	(10)	JPT5E050-5PR	
100-Pair	(1)	—	(20)	(4)	JPT5E100-4PR	
	(1)	—	—	(20)	JPT5E100-5PR	
300-Pair	(1)	(84)	(12)	—	JPT5E300-3PR	
	(1)	—	(60)	(12)	JPT5E300-4PR	
	(1)	—	—	(60)	JPT5E300-5PR	

Item	Code	List Price
CAT5e Connecting Blocks		
4-Pair	10-Pack	JPT5E-4PR-10PAK
	25-Pack	JPT5E-4PR-25PAK
	100-Pack	JPT5E-4PR-100PAK
5-Pair	10-Pack	JPT5E-5PR-10PAK
	25-Pack	JPT5E-5PR-25PAK
	100-Pack	JPT5E-5PR-100PAK
Wiring Block Cable Manager	JPTVBMGR	

blackbox.com

This may be the Big Book, but blackbox.com is even **BIGGER!**

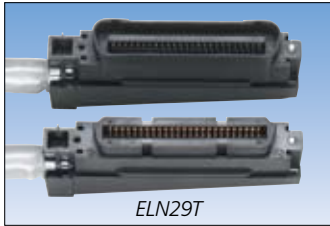
- There you'll find:
- Cables, adapters, interconnects, and more!
 - Information galore! Complete ETL test results, Black Box Explains tutorials, Buyer's Guides, white papers, Tips for Techs videos, and our custom cable and adapter configurators.
 - Savings. Find weekly specials and savings on featured cabling products.

If you still can't find what you need, just ask the experts at our FREE Tech Support hotline!

CAT5e Telco Connector Cables

The high-speed solution for your zone cabling and data center connections.

CAT5e



- Eliminate the need to punch down multiple conductors.
- Use these high-capacity, 100-MHz CAT5e cables in your wiring closet and data centers for zone cabling and switch connections.
- Ideal for extending data and voice circuits from 25-pair patch panels or punchdowns.
- Feature traditional AVAYA style pinning. AMP style pinning is available.
- Use with 10BASE-T, 100BASE-TX, 1000BASE-TX, broadband video, and more.
- For CAT5 versions, see [page 109](#).
- **◆◆ WARRANTY** — Lifetime

AVAYA-Style Pinning

1	_____	26
2	_____	27
3	_____	28
4	_____	29
5	_____	30
6	_____	31
7	_____	32
8	_____	33
9	_____	34
10	_____	35
11	_____	36
12	_____	37
13	_____	38
14	_____	39
15	_____	40
16	_____	41
17	_____	42
18	_____	43
19	_____	44
20	_____	45
21	_____	46
22	_____	47
23	_____	48
24	_____	49
25	_____	50

Item	Code	List Price
CAT5e Telco Connector Cables, Solid, 24 AWG, Straight-Wired, 25-Pair, PVC, AVAYA Style		
Straight Hood(s)		
50-Pin Telco Male to Open End (Blunt Cut)		
5-ft. (1.5-m)	ELN29T-0005-M	
25-ft. (7.6-m)	ELN29T-0025-M	
50-ft. (15.2-m)	ELN29T-0050-M	
100-ft. (30.4-m)	ELN29T-0100-M	
Custom Lengths	ELN29T-M	
50-Pin Telco Male to 50-Pin Telco Male		
5-ft. (1.5-m)	ELN29T-0005-MM	
25-ft. (7.6-m)	ELN29T-0025-MM	
50-ft. (15.2-m)	ELN29T-0050-MM	
100-ft. (30.4-m)	ELN29T-0100-MM	
Custom Lengths	ELN29T-MM	
50-Pin Telco Male to 50-Pin Telco Female		
5-ft. (1.5-m)	ELN29T-0005-MF	
25-ft. (7.6-m)	ELN29T-0025-MF	
50-ft. (15.2-m)	ELN29T-0050-MF	
100-ft. (30.4-m)	ELN29T-0100-MF	
Custom Lengths	ELN29T-MF	

NOTE: CAT5e Telco Connector Cables are rated CAT5e; however, the connectors are rated CAT5 because CAT5e 50-pin telco connectors are not being manufactured at this time.

Item	Code	List Price
CAT5e Telco Connector Cables, Solid, 24 AWG, Straight-Wired, 25-Pair, PVC, AVAYA Style (Continued)		
110° Hood, Right-Angle (For left-angle cable, call our FREE Tech Support.)		
50-Pin Telco Male to 50-Pin Telco Male		
5-ft. (1.5-m)	ELN28110T-0005-MM	
25-ft. (7.6-m)	ELN28110T-0025-MM	
50-ft. (15.2-m)	ELN28110T-0050-MM	
100-ft. (30.4-m)	ELN28110T-0100-MM	
Custom Lengths	ELN28110T-MM	
50-Pin Telco Male to 50-Pin Telco Female		
5-ft. (1.5-m)	ELN28110T-0005-MF	
25-ft. (7.6-m)	ELN28110T-0025-MF	
50-ft. (15.2-m)	ELN28110T-0050-MF	
100-ft. (30.4-m)	ELN28110T-0100-MF	
Custom Lengths	ELN28110T-MF	
180° Hood		
50-Pin Telco Male to 50-Pin Telco Male		
5-ft. (1.5-m)	ELN28180T-0005-MM	
25-ft. (7.6-m)	ELN28180T-0025-MM	
50-ft. (15.2-m)	ELN28180T-0050-MM	
100-ft. (30.4-m)	ELN28180T-0100-MM	
Custom Lengths	ELN28180T-MM	
50-Pin Telco Male to 50-Pin Telco Female		
5-ft. (1.5-m)	ELN28180T-0005-MF	
25-ft. (7.6-m)	ELN28180T-0025-MF	
50-ft. (15.2-m)	ELN28180T-0050-MF	
100-ft. (30.4-m)	ELN28180T-0100-MF	
Custom Lengths	ELN28180T-MF	

Color-Coded Pre-Plugs

Identify patch cords at a glance.

- **Snagless Pre-Plugs**—These snagless pre-plugs are rubber boots that go over an RJ-45 style connector.
- **Pre-Plugs**—Installed on bulk cable before termination to provide color identification.



Snagless Pre-Plugs

Item	Code	List Price
Color-Coded Snagless Pre-Plugs, 50-Pack		
Black	FMT718	
Blue	FMT717	
Green	FMT719	
Gray	FMT721	
Red	FMT720	
Yellow	FMT722	
White	FMT723	
Purple	FMT724	
Pink	FMT734	

Item	Code	List Price
◆◆ WARRANTY — All: Lifetime		
Color-Coded Snagless Pre-Plugs, 50-Pack (Continued)		
Beige	FMT735	
Orange	FMT736	
Color-Coded Pre-Plugs, 50-Pack		
Blue	FM711	
Gray	FM713	
Red	FM714	
White	FM716	
Purple	FM709	

CAT5 Unshielded 100-MHz Solid Bulk Cable (UTP)

Bulk cable for your 10BASE-T, 100BASE-TX, or 155-Mbps ATM applications.

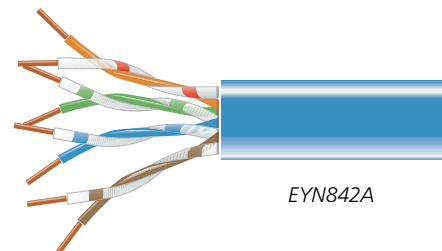
CAT5



- Tested to 100 MHz.
- Supports current Category 5 specifications.
- Solid, 24 AWG construction for your backbone runs.
- ETL verified to ANSI/TIA/EIA-568-A and TSB95 CAT5 specifications.
- Low attenuation and near-end crosstalk (NEXT) for your 100-MHz applications.
- Impedance is 100 ± 15 ohms.
- UL® Listed and CSA approved.
- PVC or plenum.
- ♦♦ **WARRANTY** — Lifetime

TECH SPECS

Attenuation (Maximum) — 22 dB/100 m at 100 MHz
 Cable Type — 4-pair UTP
 Capacitance (Nominal) — 15 pF/ft. at 1 kHz
 Conductors — 24 AWG solid, bare annealed copper
 Impedance — 100 ± 15 ohms at 100 MHz
 NEXT (Minimum) — 32 dB at 100 MHz
 Structural Return Loss (Minimum) — 16 dB at 100 MHz
 Velocity of Propagation (Nominal) — PVC: 70%; Plenum 72%
 Weight — PVC: 29 lb./1000 ft. (13.2 kg/304.8 m); Plenum: 24.4 lb./1000 ft. (11.1 kg/304.8 m)



Item	Blue	Gray	White	List Price
CAT5 Unshielded 100-MHz Solid Bulk Cable (UTP), 24 AWG, 4-Pair				
PVC 1000-ft. Spool	EYN842A-1000	EYN840A-1000	EYN841A-1000	
Box	EYN842A-B	EYN840A-B	EYN841A-B	
Plenum 1000-ft. Box	EYN862A-B	EYN860A-B	EYN861A-B	

CAT5 Shielded 100-MHz Solid Bulk Cable (STP)

Shielded cable for long, horizontal runs.

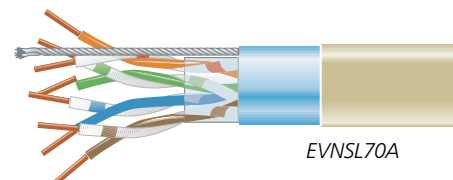
CAT5



- Use in riser applications in noisy environments.
- ETL verified to TIA/EIA-568-B specs.
- Low attenuation (22 dB) and near-end crosstalk (32 dB) for 100-MHz applications.
- Capacitance is 15 pF/ft.
- Resistance is 25 ohms, 1000 feet (304.8 m).
- ♦♦ **WARRANTY** — Lifetime

TECH SPECS

Attenuation (Maximum) — 22 dB/100 m (328.1 ft.) @ 100 MHz
 Frequency (Maximum) — 100 MHz
 Impedance — 100 ± 15 ohms
 NEXT (Minimum) — 32 dB @ 100 MHz



Item	Code	List Price
CAT5 Shielded 100-MHz Solid Bulk Cable (STP), 24 AWG, 4-Pair, Spool, Beige, 1000-ft. (304.8-m)		
PVC	EVNSL70A-1000	
Plenum	EVNSL71A-1000	

NOTE: For custom colors, call our FREE Tech Support.

Cross-Connect Wire • CAT5 Cable Prep Tool

Make phone system interconnections with these CAT5 and voice-grade cables.

CAT5



EYN7001RD-1000

CAT5 Cable Prep Tool (FT1300) is required for the CAT5 cable.

TECH SPECS

Conductor Gauge — 24 AWG
 Impedance — 100 ± 15 ohms
 Mutual Capacitance — 15 pF/ft.
 Resistance — 25 ohms/1000 ft.

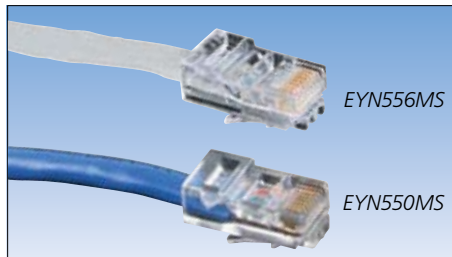
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
Cross-Connect Wire		
Voice-grade 1-Pair	White/Blue with Blue White/Red with Red White/Green with Green	EYN7001BL-1000 EYN7001RD-1000 EYN7001GR-1000
CAT5 2-Pair	White/Blue with Blue White/Orange with Orange	EVN1302-1000
3-Pair	White/Blue with Blue White/Orange with Orange White/Green with Green	EVN1303-1000
CAT5 Cable Prep Tool for Cross-Connect Wire	FT1300	

CAT5 Solid-Conductor Patch Cable (UTP)

Here is the ideal cable for 100-Mbps horizontal runs.

CAT5



- Supports ATM and 100BASE-TX—up to 100 Mbps.
- Improves near-end crosstalk (NEXT).
- Ideal for backbone and horizontal runs.
- Lower attenuation ratings at higher frequencies provide a better signal level.
- Better capacitance (15 pF/ft.), which means less signal attenuation.
- ♦♦ **WARRANTY** — Lifetime

TECH SPECS

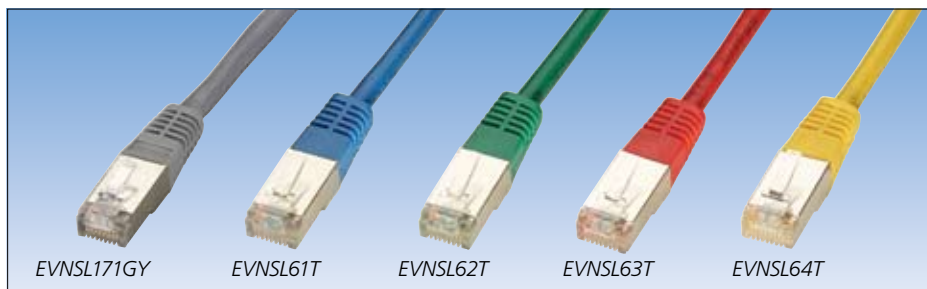
Cable Type — 4-pair solid copper UTP
Conductor Gauge — 24 AWG
Frequency — Up to 100 MHz
Impedance — 100 ± 15 ohms
Standards — ANSI/TIA/EIA 568-A and TSB95 Category 5
Connectors — RJ-45

Item		Beige	Blue	List Price	
CAT5 Solid-Conductor Patch Cable (UTP), 100-MHz, 24 AWG, 4-Pair, T568B					
PVC, NEC® CMR					
Straight-Pinned	2-ft. (0.6-m)	EYN556MS-0002	EYN550MS-0002		
	5-ft. (1.5-m)	EYN556MS-0005	EYN550MS-0005		
	10-ft. (3.0-m)	EYN556MS-0010	EYN550MS-0010		
	15-ft. (4.5-m)	EYN556MS-0015	EYN550MS-0015		
	20-ft. (6.0-m)	EYN556MS-0020	EYN550MS-0020		
	25-ft. (7.6-m)	EYN556MS-0025	EYN550MS-0025		
	30-ft. (9.1-m)	EYN556MS-0030	EYN550MS-0030		
	35-ft. (10.6-m)	EYN556MS-0035	EYN550MS-0035		
	50-ft. (15.2-m)	EYN556MS-0050	EYN550MS-0050		
	100-ft. (30.4-m)	EYN556MS-0100	EYN550MS-0100		
	Custom Lengths	EYN737MS	EYN790MS		
	Cross-Pinned	5-ft. (1.5-m)	EYN556M-0005		
		10-ft. (3.0-m)	EYN556M-0010		
15-ft. (4.5-m)		EYN556M-0015			
20-ft. (6.0-m)		EYN556M-0020			
25-ft. (7.6-m)		EYN556M-0025			
30-ft. (9.1-m)		EYN556M-0030			
35-ft. (10.6-m)		EYN556M-0035			
50-ft. (15.2-m)		EYN556M-0050			
100-ft. (30.4-m)		EYN556M-0100			
Custom Lengths		EYN737M			
Plenum, NEC® CMP					
Straight-Pinned	25-ft. (7.6-m)	EYN557MS-0025	EYN551MS-0025		
	50-ft. (15.2-m)	EYN738MS-0050	EYN551MS-0050		
	100-ft. (30.4-m)	EYN557MS-0100	EYN791MS-0100		
	Custom Lengths	EYN738MS	EYN791MS		
Cross-Pinned	Custom Lengths	EYN738M	—		

CAT5 Shielded Patch Cable (STP)

Shielded cable for 100-Mbps networks.

CAT5



100 MHz

- Meets or exceeds CAT5 standards.
- For use in areas with a lot of noise and EMI/RFI.
- Foil shielded with a drain wire.
- ♦♦ **WARRANTY** — Lifetime

TECH SPECS

Cable Type — EVNSL60, EVNSL60T–EVNSL64T:
 4-pair stranded STP;
 EVNSL171GY, EVNSL71: 4-pair solid STP
Conductor Gauge — EVNSL60, EVNSL60T–EVNSL64T:
 26 AWG;
 EVNSL171GY, EVNSL71: 24 AWG
Frequency — Up to 100 MHz
Impedance — 100 ± 15 ohms
Shield — Foil
Wiring Type — TIA/EIA-T568B

Item	Code	List Price
CAT5 Shielded Twisted-Pair Patch Cable (STP), T568B, 4-Pair, RJ-45, Gray, Solid-Conductor, Plenum		
2-ft. (0.6-m)	EVNSL171GY-0002	
5-ft. (1.5-m)	EVNSL71-0005	
10-ft. (3.0-m)	EVNSL171GY-0010	
15-ft. (4.5-m)	EVNSL171GY-0015	
20-ft. (6.0-m)	EVNSL171GY-0020	
25-ft. (7.6-m)	EVNSL171GY-0025	
50-ft. (15.2-m)	EVNSL171GY-0050	
100-ft. (30.4-m)	EVNSL171GY-0100	

Item	Blue	Green	Red	Yellow	Gray	List Price
CAT5 Shielded Twisted-Pair Patch Cable (STP), T568B, 4-Pair, RJ-45, Stranded, PVC						
3-ft. (0.9-m)	EVNSL61T-0003	EVNSL62T-0003	EVNSL63T-0003	EVNSL64T-0003	EVNSL60T-0003	
6-ft. (1.8-m)	EVNSL61T-0006	EVNSL62T-0006	EVNSL63T-0006	EVNSL64T-0006	EVNSL60T-0006	
10-ft. (3.0-m)	EVNSL61T-0010	EVNSL62T-0010	EVNSL63T-0010	EVNSL64T-0010	EVNSL60T-0010	
20-ft. (6.0-m)	EVNSL61T-0020	EVNSL62T-0020	EVNSL63T-0020	EVNSL64T-0020	EVNSL60T-0020	
Custom Lengths	EVNSL60BL	EVNSL60GR	EVNSL60RD	EVNSL60YL	EVNSL60	

CAT5 100-MHz Patch Cables (UTP)

CAT5 cables for T568A and USOC applications.



- Available in five standard lengths and in custom lengths.
- All feature stranded conductors, four pairs, and RJ-45 connectors.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
CAT5 100-MHz Patch Cables (UTP), 24 AWG, PVC, Gray		
T568A , Straight-Pinned		
1-ft. (0.3-m)	EVSA05T-0001	
3-ft. (0.9-m)	EVSA05T-0003	
6-ft. (1.8-m)	EVSA05T-0006	
10-ft. (3.0-m)	EVSA05T-0010	
20-ft. (6.0-m)	EVSA05T-0020	
Custom Lengths	EVSA05	
T568A or T568B , Crossover		
1-ft. (0.3-m)	EVCRB05E-0001	
3-ft. (0.9-m)	EVCRB05E-0003	
6-ft. (1.8-m)	EVCRB05E-0006	
10-ft. (3.0-m)	EVCRB05E-0010	
20-ft. (6.0-m)	EVCRB05E-0020	
Custom Lengths	EVCRB05	

CAT5

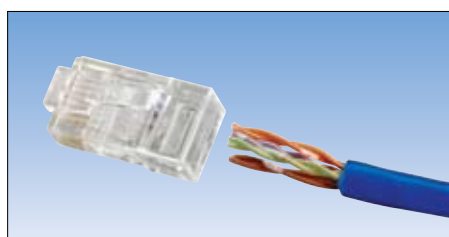


Item	Code	List Price
CAT5 100-MHz Patch Cables (UTP), 24 AWG, PVC, Gray (Continued)		
USOC , Straight-Pinned		
1-ft. (0.3-m)	EVSU05T-0001	
3-ft. (0.9-m)	EVSU05T-0003	
6-ft. (1.8-m)	EVSU05T-0006	
10-ft. (3.0-m)	EVSU05T-0010	
20-ft. (6.0-m)	EVSU05T-0020	
Custom Lengths	EVSU05	
USOC , Crossover		
1-ft. (0.3-m)	EVCRU05T-0001	
3-ft. (0.9-m)	EVCRU05T-0003	
6-ft. (1.8-m)	EVCRU05T-0006	
10-ft. (3.0-m)	EVCRU05T-0010	
20-ft. (6.0-m)	EVCRU05T-0020	
Custom Lengths	EVCRU05	

CAT5 Modular Plugs

Easy-load system simplifies cable termination!

- Exceed TIA/EIA-568 requirements for CAT5 4-pair (RJ-45) applications.
- Versions for unshielded (UTP) or shielded (STP) cable and for stranded or solid cable.
- Fit 24 AWG cable.
- Load bar eases wire insertion while maintaining ½" twist requirements.
- **◆◆ WARRANTY** — Lifetime



CAT5



Item	Code	List Price
CAT5 Modular Plugs (25/Bag)		
Stranded Conductor		
Unshielded	FMTPSU-STR	
Shielded	FMTSP5-STR	
Solid Conductor		
Unshielded	FMTPSU-SLD	
Shielded	FMTSP5-SLD	

High-Density Shielded Patch Panel • CAT5e Shielded Jack

The right combo for eliminating crosstalk in crowded data centers.



JPS5E0A



FMS200

CAT5e



High-Density Shielded Patch Panel

- Only 1U high with 24 ports for high-density applications.
- Use in CAT5e networks.
- Jacks snapmount into keystone openings.
- 14-gauge all-steel construction for extreme durability and strength.
- A preloaded, 12-gauge, UL®-rated grounding strap makes termination easy.
- A built-in cable management shelf provides strain relief for each cable.
- Panel mounts in standard 19" racks.

CAT5e Shielded Jack

- Shield housing made of die-cast solid zinc for better ANEXT and EMI protection.
- CAT5e channel compliant; backwards compatible with CAT5.
- Tool-less termination cap maintains pair twists.
- Wire management stuffer cap separates pairs, prevents crossed pairs, and reduces crosstalk.
- Features inversely oriented, right-angled IDC contacts to prevent NEXT.
- Features a quick grounding mechanism.

- **◆◆ WARRANTY** — All: Lifetime

Item	Code	List Price
High-Density Shielded Patch Panel 24-Port	JPS5E0A	
CAT5e Shielded Jack, T568B	FMS200	

25-Pair Patch Panels

The CAT5 25-pair solution for zone-distribution cabling in open offices!

CAT5



JPMT091A: front view



JPMT091A: rear view

- Feature a CAT5 25-pair system interface on the rear for easy plug-in connections to horizontal distribution cabling.
- Both have a standard 4-pair modular jack interface on the front. Each 24-port, 3.5" (8.9 cm) panel supports four 25-pair cables and includes cable management rings.
- Use these panels to connect equipment panels or hubs via RJ-45 modular patch cables.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
25-Pair Patch Panels		
T568B Wiring	2U JPMT090A	
T568A Wiring	2U JPMT091A	

AMP Style 25-Pair Telco Cable, facing page.

CAT5 Telco Patch Panels

Easy management for your CAT5 25-pair telco cable.

CAT5



JPMT152A

- Use with CAT5 25-Pair Telco Cable (ELN28T, facing page).
- Wire management bar for easy connections.
- T568B wiring for 100BASE-TX use.
- The 24-port panel features four female 50-pin telco connections; the 48-port panel features eight female 50-pin telco connections.
- **◆◆ WARRANTY** — Lifetime

TECH SPECS

Size — All: 19"W x 3.5"D (48.3 x 8.9 cm);
JPMT152A: 1.75"H (1U) (4.4 cm);
JPMT153A: 3.5"H (2U) (8.9 cm)
Weight — 1.5 lb. (0.7 kg)

Item	Code	List Price
CAT5 Telco Patch Panels, T568B Wiring		
24-Port	1U JPMT152A	
48-Port	2U JPMT153A	

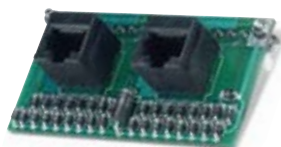
CAT5 Protected Patch Panel

Built-in data line protection guards against lightning strikes and electrostatic discharge.

CAT5



- Surge protection on all wires on each port.
- Save money—instead of buying multiple data line protectors, get everything you need in one patch panel.
- Provides bidirectional clamping and features a fail-safe mode.
- For maximum reliability, it's self-resetting up to 1500 watts.
- Ideal for organizations where system availability is critical.
- Designed for high-speed applications.
- Meets and exceeds ANSI/TIA/EIA-568-A and TSB95 Category 5 standards.
- Paired punchdown sequence enables pair twists within 1/2" of termination.
- **◆◆ WARRANTY** — Lifetime



Each module is mounted on a replaceable printed circuit board.



Top: front view; bottom: rear view

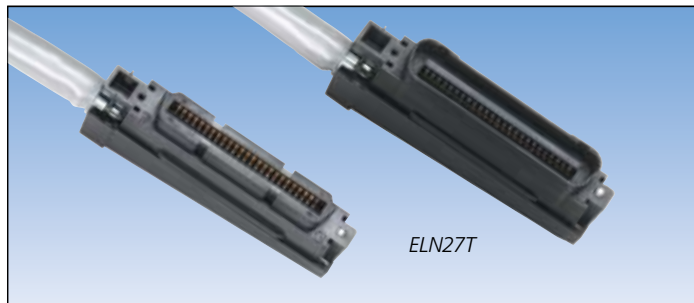
TECH SPECS

Clamping Voltage — 12 V
Response Time — <10 ns
CE Approval — Yes
Size — 3.5"H (2U) x 19"W x 1.3"D
(8.9 x 48.3 x 3.3 cm)
Weight — 1.4 lb. (0.6 kg)

Item	Code	List Price
CAT5 Protected Patch Panel, 24-Port, 19" T568B Wiring	2U JSM110A	

CAT5 Telco Connector Cables (UTP)

The high-speed solution for zone cabling and data center connections.



- Eliminate the need to punch down multiple conductors.
- Use in your wiring closet to extend data or voice circuits from 25-pair patch panels or punchdowns.
- Ideal for use in 100-MHz applications, including 10BASE-T, TP-PMD, ATM, and ISDN.
- Meet TIA/EIA-568-A and TSB95 CAT5 specifications.
- All feature 25 pairs of solid, 24 AWG conductors.
- The right-angle telco connector on Octopus Cable enables it to fit in tight spots.
- **◆◆ WARRANTY** — Lifetime

TECH SPECS

Attenuation — Nominal: 20.2 dB/100 m @ 100 MHz; Maximum: 22 dB/100 m @ 100 MHz	Insulation — HDPE
Conductors — 24 AWG, bare copper, 0.020" nominal diameter	Mutual Capacitance — 5.6 nF/100 m, nominal
DC Resistance — 9.38 ohms/100 m, maximum	PS-NEXT — Worst case: 32 dB @ 100 MHz
Impedance — 100 ± 15 ohms	Velocity of Propagation — 75% nominal

AMP-Style Pinning

1	2
3	4
6	5
8	7
10	9
11	12
14	15
16	17
18	19
20	21
22	23
24	25
26	27
28	29
30	31
32	33
34	35
36	37
39	40
41	42
43	44
45	46
47	48
49	50

NOTE: Pins 13 and 38 are skipped.

AVAYA-Style Pinning

1	26
2	27
3	28
4	29
5	30
6	31
7	32
8	33
9	34
10	35
11	36
12	37
13	38
14	39
15	40
16	41
17	42
18	43
19	44
20	45
21	46
22	47
23	48
24	49
25	50

Item	Code	List Price
CAT5 Telco Connector Cable (UTP), Solid, 24 AWG, Straight-Wired, 25-Pair, PVC, AMP-Style		
50-Pin Telco Male to Open End (Blunt Cut)		
5-ft. (1.5-m)	ELN27T-0005-M	
25-ft. (7.6-m)	ELN27T-0025-M	
50-ft. (15.2-m)	ELN27T-0050-M	
100-ft. (30.4-m)	ELN27T-0100-M	
50-Pin Telco Male to 50-Pin Telco Male		
5-ft. (1.5-m)	ELN27T-0005-MM	
25-ft. (7.6-m)	ELN27T-0025-MM	
50-ft. (15.2-m)	ELN27T-0050-MM	
100-ft. (30.4-m)	ELN27T-0100-MM	
50-Pin Telco Male to 50-Pin Telco Female		
5-ft. (1.5-m)	ELN27T-0005-MF	
25-ft. (7.6-m)	ELN27T-0025-MF	
50-ft. (15.2-m)	ELN27T-0050-MF	
100-ft. (30.4-m)	ELN27T-0100-MF	

NOTE: Not recommended for certain telco or LAN applications. For details, call our FREE Tech Support.

Item	Code	List Price
CAT5 Telco Connector Cable (UTP), Solid, 24 AWG, Straight-Wired, 25-Pair, PVC, AVAYA-Style		
50-Pin Telco Male to Open End (Blunt Cut)		
5-ft. (1.5-m)	ELN28T-0005-M	
25-ft. (7.6-m)	ELN28T-0025-M	
50-ft. (15.2-m)	ELN28T-0050-M	
100-ft. (30.4-m)	ELN28T-0100-M	
Custom Lengths	ELN28T-M	
50-Pin Telco Male to 50-Pin Telco Male		
5-ft. (1.5-m)	ELN28T-0005-MM	
25-ft. (7.6-m)	ELN28T-0025-MM	
50-ft. (15.2-m)	ELN28T-0050-MM	
100-ft. (30.4-m)	ELN28T-0100-MM	
Custom Lengths	ELN28T-MM	
50-Pin Telco Male to 50-Pin Telco Female		
5-ft. (1.5-m)	ELN28T-0005-MF	
25-ft. (7.6-m)	ELN28T-0025-MF	
50-ft. (15.2-m)	ELN28T-0050-MF	
100-ft. (30.4-m)	ELN28T-0100-MF	
Custom Lengths	ELN28T-MF	
CAT5 Telco Octopus Cable (UTP), PVC		
(1) 180° 50-Pin Telco Male to (12) RJ-45, Pins 1-3, 6 Active		
3-ft. (0.9-m)	ELNOC510-003	
6-ft. (1.8-m)	ELNOC510-006	
10-ft. (3.0-m)	ELNOC510-010	

NOTE: For Octopus Cable pinning, see blackbox.com.

CAT3 Solid Bulk Cable

Use 2- and 4-pair CAT3 cable for phones and baluns.



2-Pair PVC Cable (EYN712A)



NOTE: Not recommended for 16-MHz Token Ring or Fast Ethernet. Cable is gray unless otherwise noted.

- For making telephone, modem, or 10BASE-T connections.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
CAT3 Solid Bulk Cable, 24 AWG, NEC®, CMG, PVC, CMR		
2-Pair Spool 500-ft. (152.4-m)	EYN712A-0500	
1000-ft. (304.8-m)	EYN712A-1000	
Custom Lengths	EYN712A	
4-Pair Spool Custom Lengths	EYN730A	
4-Pair Boxed 1000-ft. (304.8-m) White	EYN732A-B	

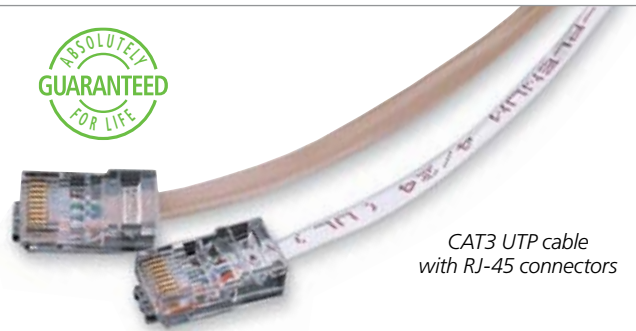
Item	Code	List Price
CAT3 Solid Bulk Cable, 24 AWG, NEC, Plenum, CMP		
2-Pair Spool Custom Lengths	EYN714A	
4-Pair Spool Custom Lengths	EYN734A	
4-Pair Boxed 1000-ft. (304.8-m) Gray	EYN734A-B	
White	EYN733A-B	

CAT3 Solid-Conductor Cable

CAT3 cable for voice or data networks up to 10 Mbps.



- This 4-pair telco-type cable runs at speeds up to 10 Mbps.
- Cost-effective means of wiring your horizontal cabling system.
- **◆◆ WARRANTY** — Lifetime



CAT3 UTP cable with RJ-45 connectors

Item	Code	List Price
CAT3 Solid-Conductor Cable, 4-Pair, PVC		
Straight-Pinned (T568B)	EYN730MS-MM	
Cross-Pinned	EYN730M-MM	
with Spade Lugs, Both Ends	EYN730S	

Item	Code	List Price
CAT3 Solid-Conductor Cable, 4-Pair, Plenum		
Straight-Pinned (T568B)	EYN734MS-MM	
Cross-Pinned	EYN734M-MM	
with Spade Lugs, Both Ends	EYN734S	

RJ-11, RJ-45, and MMJ Modular Connectors

Connectors for your telephone or 10BASE-T LAN.



RJ-45 Connector (FM110)



RJ-11 Connector (FM020)



- **Snagless RJ-45 Plug** — Doesn't snag on wires or other obstructions.
- **Snap-On Plugs** — Clamp on with pliers. No crimp tool needed.
- **Modular Connectors** — For stranded or solid, backbone or patch cables.
- **◆◆ WARRANTY** — All: Lifetime

NOTE: For the right crimp tools for your application, call our FREE Tech Support.

Item	Code	List Price
Modular Connectors, Special-Application		
Snagless RJ-45 Plug, 10-Pack	FM120	
10-Position Modular Plug, 10-Pack	FMTP1045-10PAK	
RJ-22 Handset Modular Plug, 25-Pack	FM101	
Snap-On Plugs		
RJ-45, 8-Wire, 10-Pack	FM122-R2	

Item	Single-Pack	10-Pack	25-Pack	50-Pack	100-Pack
Modular Connectors, RJ-11					
4-Wire	FM020	FMTP411-10PAK	FMTP411-25PAK	FMTP411-50PAK	FMTP411-100PAK
6-Wire	FM015	FMTP611-10PAK	FMTP611-25PAK	FMTP611-50PAK	
Modular Connectors, RJ-45, Flat Cable					
Stranded or Solid	FM010	FMTP845F-10PAK	FMTP845F-25PAK	FMTP845F-50PAK	FMTP845F-100PAK
Modular Connectors, RJ-45, Round Cable					
Stranded or Solid	FM110	FMTP845R-10PAK	FMTP845R-25PAK	FMTP845R-50PAK	FMTP845R-100PAK
Modular Connectors, MMJ					
	FM100	FMTPMMJ-10PAK	FMTPMMJ-25PAK	FMTPMMJ-50PAK	FMTPMMJ-100PAK

Telephone Bulk Cable, Stranded

The right cable for long telephone line runs.



4-Conductor Cable (EL04A)

- Use for telephones, modems, fax machines, DECconnect™
- Also for use in some RS-232 applications.
- Flat satin, voice-grade construction
- ♦♦ **WARRANTY** — Lifetime

TECH SPECS

Cable Type — Gray PVC (flat satin) Mutual Capacitance — 22 pF/ft.
 Conductor Gauge — 28 AWG Resistance — 45 ohms/1000 ft.
 Conductor Material — 7/37 tinned, stranded copper

Item	Code	List Price
Telephone Bulk Cable, Stranded, PVC		
4-Conductor	500-ft. (152.4-m)	EL04A-500
	1000-ft. (304.8-m)	EL04A-1000
	2000-ft. (609.6-m)	EL04A-2000
	Custom Lengths	EL04A
6-Conductor	500-ft. (152.4-m)	EL06A-500
	1000-ft. (304.8-m)	EL06A-1000
	Custom Lengths	EL06A
	8-Conductor	500-ft. (152.4-m)
	1000-ft. (304.8-m)	EL08A-1000
	Custom Lengths	EL08A

RJ-11 and RJ-45 Modular Cables, Stranded

Flat satin cabling for voice and data.



- Gray, 28 AWG, PVC cable for voice and data applications running up to 1 Mbps.
- ♦♦ **WARRANTY** — Lifetime

RJ-11 (4-Wire) Straight-Pinned



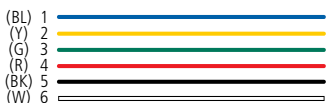
RJ-11 (4-Wire) Cross-Pinned



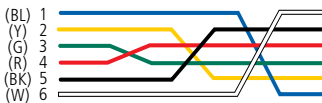
EL04MS

NOTE: The cross-pinned cable (EL04M) is for typical telephone use.

RJ-11 (6-Wire) Straight-Pinned



RJ-11 (6-Wire) Cross-Pinned



EL06MS

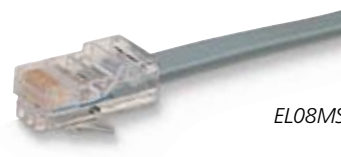
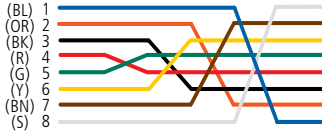
TECH SPECS

Conductor Gauge — 28 AWG
 Construction — Gray, flat satin, PVC
 Distance (Maximum) — As per equipment specifications
 Mutual Capacitance — 22 pF/ft.
 Resistance — 45 ohms/1000 ft.

RJ-45 (8-Wire) Straight-Pinned



RJ-45 (8-Wire) Cross-Pinned



EL08MS

Item	Straight-Pinned	Cross-Pinned	List Price
RJ-11 (4-Wire) Modular Cable			
4-ft. (1.2-m)	EL04MS-04	EL04M-04	
7-ft. (2.1-m)	EL04MS-07	EL04M-07	
14-ft. (4.2-m)	EL04MS-14	EL04M-14	
25-ft. (7.6-m)	EL04MS-25	EL04M-25	
Custom Lengths	EL04MS-MM	EL04M-MM	
RJ-11 (6-Wire) Modular Cable			
4-ft. (1.2-m)	EL06MS-04	EL06M-04	
7-ft. (2.1-m)	EL06MS-07	EL06M-07	
14-ft. (4.2-m)	EL06MS-14	EL06M-14	
25-ft. (7.6-m)	EL06MS-25	EL06M-25	
Custom Lengths	EL06MS-MM	EL06M-MM	

Item	Straight-Pinned	Cross-Pinned	List Price
RJ-45 (8-Wire) Modular Cable			
4-ft. (1.2-m)	EL08MS-04	EL08M-04	
7-ft. (2.1-m)	EL08MS-07	EL08M-07	
14-ft. (4.2-m)	EL08MS-14	EL08M-14	
25-ft. (7.6-m)	EL08MS-25	EL08M-25	
Custom Lengths	EL08MS-MM	EL08M-MM	

NOTE: Specify straight- or cross-pinned when ordering. For other lengths, call our FREE Tech Support.

NOTE: Not recommended for Token Ring or Ethernet applications.

Black Panel-Mount Couplers

Superior couplers for panel and wallplate mounting.



- Feature straight-through wiring.
- Contacts have 50-microinch gold plating.
- Housing is 94VO flammability rated.
- ♦♦ **WARRANTY** — Lifetime

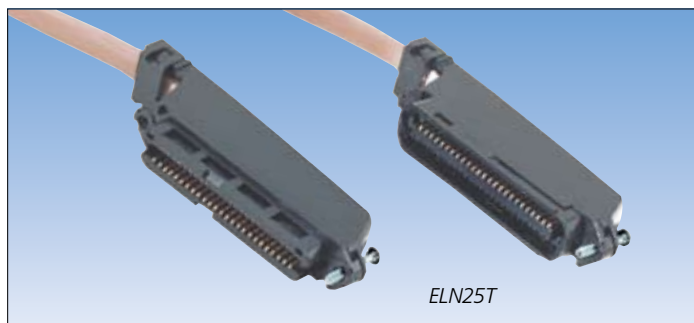


FM027

Item	Code	List Price
Black Panel-Mount Couplers		
RJ-12 6-Wire	FMT1080	
RJ-45 8-Wire	FMT1081	

CAT3 Telco Connector and CAT3 Octopus Cables (UTP)

Make quick telco connections for zone cabling and data centers.



- Quality UTP copper cable for use in extending voice connections.
- Use to expand PBXs in office phone systems.
- The 25-pair cable is available for PVC (ELN25T) or plenum (ELN25TP) applications.
- The CAT3 Telco Octopus Cables feature one 50-pin right angle telco connector to six RJ-11 or RJ-45 connectors. Use for extending voice connections.
- All feature solid, 24 AWG conductors.
- **◆◆ WARRANTY** — Lifetime

AVAYA Style Pinning

1	—	26	14	—	39
2	—	27	15	—	40
3	—	28	16	—	41
4	—	29	17	—	42
5	—	30	18	—	43
6	—	31	19	—	44
7	—	32	20	—	45
8	—	33	21	—	46
9	—	34	22	—	47
10	—	35	23	—	48
11	—	36	24	—	49
12	—	37	25	—	50
13	—	38			

Item	Code	List Price
CAT3 Telco Connector Cables (UTP), Solid, 24 AWG, Straight-Wired, AVAYA Style		
25-Pair, 50-Pin Telco Male to Open End (Blunt Cut)		
<i>(Cable with 50-pin telco female connector is also available. To order, replace "-M" in code with "-F.")</i>		
PVC	25-ft. (7.6-m) ELN25T-0025-M	
	50-ft. (15.2-m) ELN25T-0050-M	
	100-ft. (30.4-m) ELN25T-0100-M	
	200-ft. (60.9-m) ELN25T-0200-M	
	Custom Lengths ELN25T-M	
Plenum	Custom Lengths ELN25TP-M	
25-Pair, 50-Pin Telco Male to 50-Pin Telco Female		
<i>(Cables with 50-pin telco male/male or female/female connectors are also available. To order, replace "-MF" in code with "-MM" or "-FF.")</i>		
PVC	5-ft. (1.5-m) ELN25T-0005-MF	
	25-ft. (7.6-m) ELN25T-0025-MF	
	50-ft. (15.2-m) ELN25T-0050-MF	
	100-ft. (30.4-m) ELN25T-0100-MF	
	200-ft. (60.9-m) ELN25T-0200-MF	
	Custom Lengths ELN25T-MF	
Plenum	Custom Lengths ELN25TP-MF	

Item	Code	List Price
CAT3 25-Pair Telco Octopus Cables (UTP), PVC, 3-ft. (0.9-m)		
(1) 50-Pin Telco Male to (6) RJ-11		
	Pins 3-4 Active ELNOCT310	
	Pins 2-5 Active ELNOCT320	
	Pins 1-6 Active ELNOCT330	
(1) 50-Pin Telco Male to (6) RJ-45		
	Pins 1-8 Active ELNOCT340	
(1) 50-Pin Telco Female to (6) RJ-11		
	Pins 3-4 Active ELNOCT350	
	Pins 2-5 Active ELNOCT360	
	Pins 1-6 Active ELNOCT370	
(1) 50-Pin Telco Female to (6) RJ-45		
	Pins 1-8 Active ELNOCT380	

NOTE: For Octopus Cable pinning, see blackbox.com.

Drop Split Adapters

Simplify cabling. Turn multiple RJ-45 jacks into one 50-pin connector.



- Plug the UTP patch cables from your workstations into the RJ-45 jacks on the adapters. Then run one 25-pair telco cable back to the patch panel or hub in the wiring closet.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Drop Split Adapters		
T568B	(6) RJ-45 8-Wire Female, (1) Telco 50 Male FM052-R2	
10BASE-T	(12) RJ-45 4-Wire Female, (1) Telco 50 Female FM035	
	(12) RJ-45 4-Wire Female, (1) Telco 50 Male 36453	
USOC	(6) RJ-45 8-Wire Female, (1) Telco 50 Male 32621	

Telco Splice Blocks

Black Box has the interconnect equipment you need!

- Convenient solutions for doing your own wiring.
- Choose from 25- and 50-pair splice blocks for making telco interconnections.
- Accessories also available.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
Telco Splice Blocks, CAT3 Rated, Type 66		
25-Pair with (4) Connector Clips, Unwired	JP600	
with (2) Connector Clips, Prewired (1) Female, Telco, 50-Pin	JP601	
50-Pair with (4) Connector Clips, Unwired	JP620	
with (2) Connector Clips, Prewired (2) Female, Telco, 50-Pin	JP621	

You may also need...

Telco Splice Block Accessories Splice Block Cover (Protects Clip Field)	JP640
Stand-Off Bracket	JP642
Bridging Clips, (50) Pieces	JP650

Click and find at blackbox.com:
Prewired Modular Jack Blocks and Modular Patch Blocks.

CAT3 Jacks • USOC Jacks

Jacks for your Giga and Giga2 voice/data applications.

- Use Giga jacks with GigaStation Wallplates and GigaStation+ Modular Wallplates (pages 116–117).
- Use Giga2 jacks with GigaStation2 Wallplates and GigaStation2 Surface-Mount Housings (pages 114–115).

CAT3 Jacks

- For voice and data transmissions up to 16 MHz or 10 Mbps.

USOC RJ-11 Jacks

- Voice and data applications up to 1 Mbps.

Item	Code	List Price	25-Pack	List Price
Giga2-Style CAT3 Jacks				
Blue	FMT364-R2		FMT364-R2-25PAK	
Black	FMT365-R2		FMT365-R2-25PAK	
Ivory	FMT366-R2		FMT366-R2-25PAK	
Gray	FMT367-R2		FMT367-R2-25PAK	
Green	FMT368-R2		FMT368-R2-25PAK	
Office White	FMT369-R2		FMT369-R2-25PAK	
Orange	FMT370-R2		FMT370-R2-25PAK	
Red	FMT371-R2		FMT371-R2-25PAK	
White	FMT373-R2		FMT373-R2-25PAK	
Yellow	FMT374-R2		FMT374-R2-25PAK	
Giga2-Style USOC RJ-11 Jacks				
Blue	FMT238		FMT238-25PAK	
Black	FMT239		FMT239-25PAK	
Ivory	FMT240		FMT240-25PAK	
Gray	FMT242		FMT242-25PAK	
Green	FMT241		FMT241-25PAK	
Office White	FMT243		FMT243-25PAK	
Orange	FMT244		FMT244-25PAK	
Red	FMT245		FMT245-25PAK	
White	FMT247		FMT247-25PAK	
Yellow	FMT248		FMT248-25PAK	



FM364



FMT374-R2

- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price	Item	Code	List Price
Giga-Style CAT3 Jacks			Giga-Style USOC, RJ-11 Jacks		
Blue	FM364		Blue	FM238	
Black	FM365		Black	FM239	
Electric Ivory	FM366		Electric Ivory	FM240	
Gray	FM367		Gray	FM242	
Green	FM368		Green	FM241	
Office White	FM369		Office White	FM243	
Orange	FM370		Orange	FM244	
Red	FM371		Red	FM245	
Telco Ivory	FM372		Telco Ivory	FM246	
White	FM373		White	FM247	
Yellow	FM374		Yellow	FM248	

Accessories

Item	Code	List Price
To make easy 110 terminations, order...		
Punchdown Tool with 110 Blade and Light Pack	FT025A	
To protect your jacks, order...		
Hinged Dust Covers, 25 Pack	FM931	

NOTE: Colored Icons are available at blackbox.com.

Giga and Giga2—what you need to know:

Our Giga and Giga2 systems feature jacks, wallplates, surface-mount boxes, and other accessories designed to CAT6 and CAT5e specifications. Here, we explain the similarities and differences between the systems so you can make the right decisions when you're choosing your hardware.



GigaTrue2 CAT6 Jack
(FMT630-R2)
(p. 90)



GigaBase 350 CAT5e
Patch Cables
(pp. 96–97)

Similarities

- Each system is fully ETL tested and meets or exceeds either CAT6 or CAT5e specifications.
- Bulk cable, patch cable, and patch panels work with both systems.
- All feature universal T568A or T568B wiring.
- "True" in the product name (like our GigaTrue® CAT6 Jacks) means the products meet CAT6 specifications.
- "Base" in the product name (like our GigaBase® CAT5e Jacks), means the products meet CAT5e specifications.
- All come with lifetime guarantees.

Differences

- Giga products, such as jacks and wallplates, are designed to work with Giga products.
- Giga2 products, such as jacks and wallplates, are designed to work with Giga2 products.
- Our Giga patch cables, bulk cables, and patch panels work with both systems.
- Giga2 products are a newer line. They offer high quality and are priced economically.
- To meet the needs of existing Giga systems, we continue to carry all our high-quality Giga products.

- GigaStation2 products work with both GigaTrue2 and GigaBase2 products.
- GigaStation and GigaStation+ products work with both GigaTrue and GigaBase products.

Accessories and other products

We provide a variety of accessories and other products for our Giga and Giga2 systems. Call our FREE Tech Support or go to blackbox.com and click "Talk to a Tech."

GigaStation2 Wallplates

Mount your jacks and snap fittings in these sleek and secure wallplates.



- Rear-loading capability provides extra security at the workstation. Just snap in jacks from the back.
- The vertical orientation of all port openings provides a cleaner finish and eliminates mixing vertical and horizontal ports.
- Wallplates' rear design enables flush mounting of jacks for a smooth finish.
- Include paper labels with clear covers and color-matched covers. Both conform to the TIA/EIA 606 standard.
- Choose from ivory, office white, and white finishes with up to 12 ports.
- Hold GigaTrue2 CAT6 Jacks (page 90), and GigaBase2 CAT5e Jacks (page 99), CAT3 Jacks and USOC RJ-11 Jacks (page 113 and blackbox.com).
- Also accommodate all GigaStation2 Snap Fittings (page 115) and our Keystone CAT5e Couplers (page 100).
- **◆◆ WARRANTY** — Lifetime

Rounded edges provide a sleek look.

All ports mount flush for a smooth look and finish.

Choose from 2 labeling options: paper labels with clear covers or color-matched covers.



Rear-loading, snap-in ports provide extra security.

All ports mount vertically.

Choose from three colors (ivory, office white, and white) to match your office decor.

Single-Gang, 6-Port GigaStation2 Wallplate (WPT482), loaded with (2) USOC RJ-11 Jacks (Gray) (FMT242), blackbox.com, (2) GigaBase2 CAT5e Jacks (Blue) (FMT920-R2), p. 99, and (2) GigaStation2 F-Connector Snap Fittings (Ivory) (FMT338), p. 115.



Item	1-Port	2-Port	3-Port	4-Port	6-Port	9-Port	12-Port
GigaStation2 Wallplates	Single-Gang	Single-Gang	Single-Gang	Single-Gang	Single-Gang	Dual-Gang	Dual-Gang
Ivory	WPT454	WPT460	WPT466	WPT472	WPT478	WPT484	WPT490
Office White	WPT456	WPT462	WPT468	WPT474	WPT480	WPT486	WPT492
White	WPT458	WPT464	WPT470	WPT476	WPT482	WPT488	WPT494

GigaStation2 Snap Fittings

Install these next-generation jacks in a snap!

- Convenient snap-in jacks install easily.
- Give your workstations or telecommunications closets multimedia capabilities.
- You can use these Snap Fittings with our:
 - GigaStation2 Wallplates (page 114)
 - GigaStation2 Surface-Mount Housings (below);
 - Multimedia Patch Panels (page 122).
- **◆◆ WARRANTY** — Lifetime



Blank, White
(FMT359-R2)



F-Connector, Female/Female,
White (FMT361)



BNC, Female/Female,
White (FMT362-R2)



SC Simplex, White
(FMT346)



MT-RJ, Female/Female,
White (FMT350-R2)



LC, Non-Flush Mount,
White (FMT357-R3)



Item	Code	List Price
GigaStation2 Snap Fittings		
Blank, 10-Pack		
Office White	FMT330-R2	
Ivory	FMT335-R2	
White	FMT359-R2	
F-Connector, Female/Female		
Office White	FMT331	
Ivory	FMT338	
White	FMT361	
BNC, Female/Female		
Office White	FMT332-R2	
Ivory	FMT322	
White	FMT362-R2	

Item	Code	List Price
GigaStation2 Snap Fittings (Continued)		
S-Video, 110-Punchdown		
Black	FMT375	
ST [®] Adapter		
Office White	FMT333-R2	
Ivory	FMT324	
White	FMT323	
SC Simplex		
Office White	FMT343	
Ivory	FMT325	
White	FMT346	

Item	Code	List Price
GigaStation2 Snap Fittings (Continued)		
MT-RJ, Female/Female		
Office White	FMT347	
Ivory	FMT326	
White	FMT350-R2	
LC		
Office White	FMT354	
Ivory	FMT320	
White	FMT357-R3	

GigaStation2 Surface-Mount Housings

Install cable connections in areas with limited clearance.

- Adaptable design works with a wide range of jacks and snap fittings.
- Compatible with 2700, 2800, and 2900 Hinged Raceways on page 120.
- **◆◆ WARRANTY** — Lifetime

Our GigaStation2 Surface-Mount Housings work with GigaTrue2, GigaBase2, CAT3, and USOC Jacks (pages 90, 99, 113, and blackbox.com), and our GigaStation2 Snap Fittings (above).

They also are compatible with the Hinged Raceways on page 120. Because the raceways are fed in from the sides to accommodate low-clearance environments, Surface-Mount Housings only need 1.5" (3.8 cm) of clearance.

The Surface-Mount Housings require snap-in inserts to hold the jacks. Choose from 1- or 2-port inserts. Because the inserts can be pulled out of the Surface-Mount Housings from the front with the jacks in place, you don't need to remove the entire housing to check or change connections.



2-Insert GigaStation2 Surface-Mount Housing (WPT902) loaded with (1) 1-Port Insert (FMT901) with (1) GigaBase2 CAT5e Jack, (FMT920-R2), p. 99, and (1) 2-Port Insert (FMT902) with (2) GigaStation2 ST Adapter Snap Fittings (FMT333-R2), above.

The 1-port insert supports one GigaTrue2, GigaBase2, CAT3, or USOC Jack, or one GigaStation2 Snap Fitting. The 2-port insert supports up to two GigaTrue2, GigaBase2, CAT3, or USOC Jacks, or up to two GigaStation2 Snap Fittings.

Surface-Mount Housings are constructed of durable, high-impact office white thermoplastic and come with mounting screws. Each has a labeling slot with a protective plastic cover.



1-Insert GigaStation2 Surface-Mount Housing (WPT901) loaded with (1) 2-Port Insert (FMT902) with (2) GigaBase2 CAT5e Jacks (FMT920-R2), p. 99.

Item	Code	List Price
First, order the Surface-Mount Housings...		
GigaStation2 Surface-Mount Housings		
1-Insert (up to 2 Ports)	WPT901	
2-Insert (up to 4 Ports)	WPT902	
3-Insert (up to 6 Ports)	WPT903	
...then, order one, two, or three inserts per housing.		
Inserts for GigaStation2 Surface-Mount Housings		
1-Port	FMT901	
2-Port	FMT902	
Blank	FMT900	

GigaStation Wallplates

Rear-loading wallplates for GigaTrue and GigaBase systems.



Rounded edges provide a sleek look.

All ports mount flush for a smooth look and finish.

Choose from two labeling options: paper labels with clear covers or color-matched covers.



Single-Gang, 6-Port GigaStation Wallplate (WP480), loaded with GigaTrue CAT6 Jacks (FM633 and FM630), page 90, and F-Connector Snap Fittings (FM360), below.

Rear-loading, snap-in ports provide extra security at the workstation.

All ports mount vertically.

- Sleek look matches modern office decor.
- Rear-loading—snap in jacks from the back.
- Rear design of the wallplates enables flush mounting of jacks for a smooth finish.
- The vertical orientation of all port openings eliminates mixing vertical and horizontal ports.
- Choose from two labeling options, both conforming to the TIA/EIA 606 standard. Includes paper labels with clear covers or color-matched covers.
- Hold GigaTrue® CAT6 (page 90), GigaBase® CAT5e (page 99), Giga-Style CAT3 and USOC RJ-11 Jacks (page 113), or any Snap Fittings (below).
- ♦♦ **WARRANTY** — Lifetime

Item	1-Port	2-Port	3-Port	4-Port	6-Port	9-Port	12-Port
GigaStation Wallplates	Single-Gang	Single-Gang	Single-Gang	Single-Gang	Single-Gang	Dual-Gang	Dual-Gang
Black	WP453	WP459	WP465	WP471	WP477	WP483	WP489
Electric Ivory	WP454	WP460	WP466	WP472	WP478	WP484	WP490
Gray	WP455	WP461	WP467	WP473	WP479	WP485	WP491
Office White	WP456	WP462	WP468	WP474	WP480	WP486	WP492
Telco Ivory	WP457	WP463	WP469	WP475	WP481	WP487	WP493
White	WP458	WP464	WP470	WP476	WP482	WP488	WP494

GigaStation Snap Fittings

The easy way to fill in the blanks.



- Give your workstations or telecommunications closets multimedia capabilities.
- Use with GigaStation and GigaStation+ Wallplates (above and facing page) and our Surface-Mount Housings and Wallplates (page 119) and our Multimedia Patch Panels (page 122).
- ♦♦ **WARRANTY** — Lifetime



Item	Code	List Price
GigaStation Snap Fittings		
Blank, 10-Pack		
Black	FM358	
Office White	FM330	
Telco Ivory	FM334	
Electric Ivory	FM335	
Gray	FM336	
White	FM359	
F-Connector, Female/Female		
Black	FM360	
Office White	FM331	
Gray	FM337	
Electric Ivory	FM338	
White	FM361	
BNC, Female/Female		
Office White	FM332-R2	
Telco Ivory	FM339-R2	
Gray	FM340-R2	

Item	Code	List Price
GigaStation Snap Fittings (Continued)		
S-Video		
Black	FM363-R2	
S-Video, 110-Punchdown		
Black	FM375-R2	
ST Adapter		
Office White	FM333	
Telco Ivory	FM341	
Gray	FM342	
SC Simplex		
Office White	FM343	
Ivory	FM344	
Gray	FM345	
White	FM346	

Item	Code	List Price
GigaStation Snap Fittings (Continued)		
MT-RJ, Female/Female		
Office White	FM347	
Ivory	FM348	
Gray	FM349	
White	FM350	
MT-RJ Flush Adapter, Female/Female		
Office White	FM351	
Orange	FM352	
Yellow	FM353	
LC, Non-Flush Mount		
Office White	FM354	
Telco Ivory	FM355	
Gray	FM356	
White	FM357	



GigaStation+ Modular Wallplates and Modules

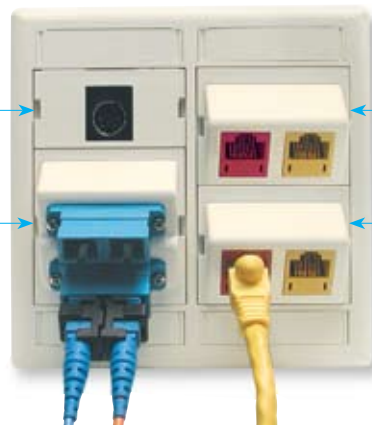
Create your own custom workstation outlets in three easy steps.

- Modular wallplate system offers quick and easy front-access installation.
- Select a variety of unloaded modules.
- Choose from flat modules or angled modules, which protect your cable bend radius.
- Both labeling options conform to the TIA/EIA 606 standard. Includes paper labels with clear covers or color-matched covers.
- The snap-in modules feature an easy front-release latch.
- ♦♦ **WARRANTY** — Lifetime

1-Unit Module:
1-Port Keystone Flat
(FM531)

2-Unit Module:
2 Duplex SC Angled
(FM561)

GigaStation+ Double-Gang Wallplate (WP562)



1.5-Unit Module: 2-Port
Keystone Angled
(FM549)

1.5-Unit Module: 2-Port
Keystone Angled
(FM549)

GigaTrue® and GigaBase®
Jacks are on pp. 90 and
99, and the GigaStation
Snap Fittings are on the
facing page.

Step 1 Order the GigaStation+ Modular Wallplates you need.



Single-Gang (WP556)



Double-Gang (WP562)

NOTE: The GigaStation+ Modular Wallplates are designed as part of a total solution. Use them with the GigaStation+ Modules and Blanks on this page, and the Giga-Style Jacks pp. 90, 99, and 113.

Item	Code	List Price
GigaStation+ Modular Wallplates		
Single-Gang		
Black	WP553	
Electric Ivory	WP554	
Gray	WP555	
Office White	WP556	
Telco Ivory	WP557	
White	WP558	
Double-Gang		
Black	WP559	
Electric Ivory	WP560	
Gray	WP561	
Office White	WP562	
Telco Ivory	WP563	
White	WP564	

Step 2 Choose GigaStation+ Modules for your application.



1-Port Keystone Flat,
1-Unit (FM531)



2-Port Keystone Flat,
1-Unit (FM537)



1-Port Keystone Angled,
1.5-Unit (FM543)



1 Duplex SC Angled,
1.5-Unit (FM555)

Item	1 Unit High	1 Unit High	1.5 Units High	1.5 Units High	1.5 Units High	2 Units High
GigaStation+ Modules	1-Port Keystone Flat	2-Port Keystone Flat	1-Port Keystone Angled	2-Port Keystone Angled	1 Duplex SC Angled	2 Duplex SC Angled
Black	FM528	FM534	FM540	—	FM552	FM558
Electric Ivory	FM529	FM535	—	FM547	FM553	FM559
Gray	FM530	FM536	FM542	FM548	FM554	FM560
Office White	FM531	FM537	FM543	FM549	FM555	FM561
Telco Ivory	FM532	FM538	FM544	FM550	FM556	FM562
White	FM533	FM539	FM545	FM551	FM557	FM563

NOTE: The GigaStation+ Modules are designed to accept only Giga-Style Jacks on pp. 90, 99, and 113 and the GigaStation Snap Fittings on the facing page.

Step 3 Order GigaStation+ Blanks for empty slots.



0.5-Unit (FM513)



1-Unit (FM519)



1.5-Unit (FM525)

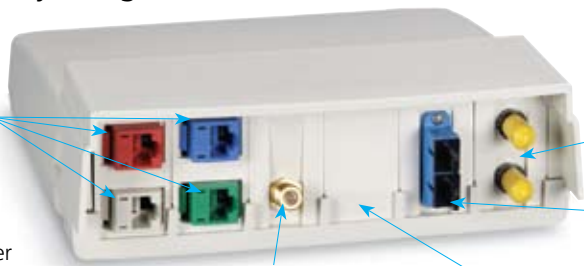
Item	0.5 Unit High	1 Unit High	1.5 Units High
GigaStation+ Blanks, 5-Pack			
Black	FM510	FM516	FM522
Electric Ivory	FM511	FM517	FM523
Gray	FM512	FM518	FM524
Office White	FM513	FM519	FM525
Telco Ivory	—	FM520	FM526
White	FM515	FM521	FM527

Advanced Multimedia Outlet

Modular design enables easy changes for mixed media environments.



(4) GigaBase CAT5e Jacks (p. 99) loaded into (2) Brackets with Jack Outlets (FMM105)



Base Unit Housing (FMM100-R2). The top opens up for easy connections and labeling,

Bracket with (2) ST® Adapters mounted (FMM110)

Bracket with (1) SC Duplex Adapter mounted (FMM115)

Video Coupler (FA855) in an F-Connector Bracket (FMM125)

Blank Bracket (FMM120)

NOTE: Bracket (FMM105) has openings only.

- Accommodates 12 fiber or copper UTP jacks, or a combination of other media, including high-density jacks, F-style video, and BNC connectors.
- Install components without special tools.
- Hidden field for 606 documentation.
- Fiber storage design enables better management of fiber bend radius.
- Compatible with our Media Track systems (page 121).
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Advanced Multimedia Outlet, Base Unit Housing (6 Bracket Locations)	FMM100-R2	
Brackets Single with (2) ST Adapters (Mounted)	FMM110	
with (1) SC Duplex Adapter (Mounted)	FMM115	
10-Pack with (2) Jack Outlets (No Connectors)	FMM105	
Blank (No Connectors)	FMM120	
F-Connector, (No Connectors)	FMM125	
Video Coupler, F-Connector, Female/Female (For details, see p. 158.)	FA855	

Angled Wallplates

The 45° downward angle protects cables.



45° angle

prevents cables from being damaged by furniture pushed too close to the wall and maintains the cable's proper bend radius.



Angled Wallplate with (4) Keystone Openings (WPP300) shown with GigaTrue CAT6 Jacks (p. 90).

- Low-profile wallplates can be used with our Giga-style jacks (page 90, 99, and 113).
- WPP300–WPP302 are for flushmounting and accept any four high-density jacks.
- WPP402 accommodates two high-density jack mountings and one SC duplex adapter.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Angled Wallplates, Single-Gang		
(4) Flush Keystone Openings		
Office White	WPP300	
Telco Ivory	WPP301	
Gray	WPP302	
(2) Flush Keystone Openings, (1) SC Opening		
Gray	WPP402	

Modular Wallplates (Plastic)

Plug in your RJ-11, RJ-45, and MMJ cables.



WP501



WP502



WP509

- **◆◆ WARRANTY** — Lifetime
- NOTE: Not for network applications.

Item	Code	List Price
Modular Wallplates (Plastic)		
RJ-11 (1) 4- or 6-Wire Jack	WP501	
(2) 4- or 6-Wire Jacks	WP502	
RJ-11/RJ-45		
(1) 4- or 6-Wire Jack, (1) 8-Wire Jack	WP503	
RJ-45 (2) 8-Wire Jacks	WP505	
MMJ (1) 6-Wire Jack	WP509	

Keystone Wallplates

Plug your cables into these durable, stainless steel wallplates.

- All Keystone Wallplates hold all Giga- and Giga2-style jacks (page 90, 99, and 113).
- For mounting wall phones, order the single-width Keystone Wallplate (WP369).
- **◆◆ WARRANTY** — Lifetime



WP370



WP371



WP372



WP373



WP369

Item	Code	List Price
Keystone Wallplates		
Single Width (1) Punch	WP370	
(2) Punch	WP371	
(3) Punch	WP372	
(4) Punch	WP373	
(6) Punch	WP374	
Double Width (6) Punch	WP375	
Keystone Wallplate for Mounting Wall-Style Telephone (Flushmount with Mushroom)		
Single Width (1) Punch	WP369	

Click and find at blackbox.com: Coax, D-style, and VGA wallplates.

Surface-Mount Housings

Mount on walls, desks, and other surfaces.

- Low-profile housings features jacks on the side to accept cables in low-clearance environments.
- Side-exit cable connections require 1.5" clearance.
- Install with self-stick adhesive or two included screws.
- Hold our Giga-style jacks (page 90, 99, and 113) and GigaStation Snap Fittings (page 116).
- Knockouts fit Media Track systems (page 121). All these housings work with Media Track 6. The 4-port housings also work with the dual-channel Media Track 8.
- **◆◆WARRANTY** — Lifetime

NOTE: Jacks are not included.



WP378-R3



WP273-R3

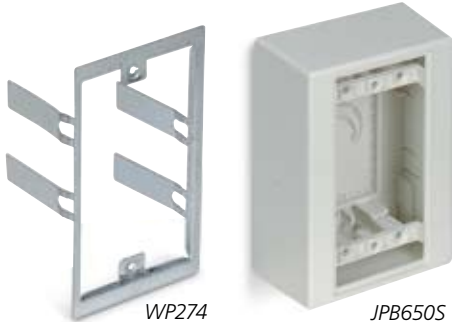


Item	Code	List Price
Surface-Mount Housings, 2-Port		
Office White	WP272-R3	
Telco Ivory	WP278-R3	
Electric Ivory	WP377-R3	
Gray	WP378-R3	
White	WP283-R3	

Item	Code	List Price
Surface-Mount Housings, 4-Port		
Office White	WP273-R3	
Telco Ivory	WP277-R3	
Electric Ivory	WP379-R3	
Gray	WP380-R3	
White	WP285-R3	

Flushmount Adapters • Surface-Mount Boxes

For simple installation—on a wall or in a wall.



WP274

JPB650S

- To go into the walls, use a **Flushmount Adapter** with flexible anchor arms to set up a wallplate position on drywall without installing an electrical box.
- Use the **Surface-Mount Box** to hold cable

terminations and jacks and anchor your data connections securely to the outside of a wall.

- Knockouts fit Media Track 6 and 8 (page 121).
- **◆◆WARRANTY**— All: Lifetime



Item	Code	List Price
Flushmount Adapters	Single-Gang	WP274
	Double-Gang	WP275
Surface-Mount Boxes (Office White)		
Standard Profile	Single-Gang	4.9"H x 3.25"W x 1.78"D
Deep Profile	Single-Gang	4.9"H x 3.25"W x 2.44"D
Communications	Double-Gang	4.9"H x 5.06"W x 2.44"D
		JPB650S
		JPB652D
		JPB653

Wallmount Blocks

Mount an RJ jack to add a phone or data connection.

Screw-Down Terminal Blocks

- For voice connections only.
- Have one RJ-11 or RJ-45 jack on the side.
- 0.8"H x 2"W x 2.2"D (2 x 5.1 x 5.6 cm).

110 Punchdown Blocks

- For voice and/or data connections.
- Category 3 rated.
- Feature 110 contacts.
- Have one or two RJ-45 jacks on the side.
- 1"H x 2.6"W x 3.5"D (2.5 x 6.6 x 8.9 cm).

- **◆◆WARRANTY** — All: Lifetime



31225

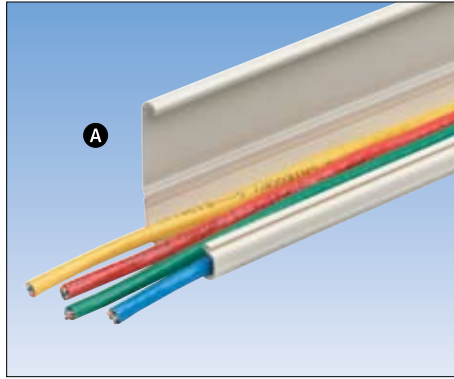
FM012



Item	Code	List Price
Wallmount Blocks		
Screw-Down Terminal Blocks, Voice Only		
(1) RJ-11, 4-Wire	FM012	
(1) RJ-11, 6-Wire	FM013	
(1) RJ-45, 8-Wire	FM014	
110 Punchdown Blocks, CAT3, 8-Wire		
(1) RJ-45, Data or Voice	50334	
(2) RJ-45, Data or Voice	50336	
(2) RJ-45 (One Keyed), Data and Voice	50337	
(2) RJ-45 (Two Keyed), Data and Voice	31225	

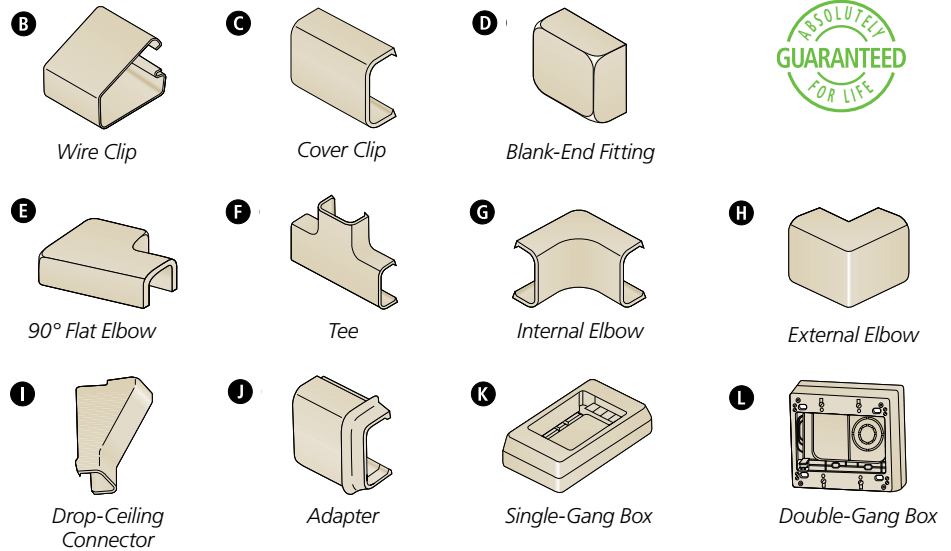
Hinged Raceways

Protect and hide cables without burying them inside walls.



These impact-resistant PVC raceways feature a durable, flexible hinged construction for repeated opening and closing without cracking or splitting—and they keep your work area neat.

- Run cables along the perimeter of walls in a neat manner. A variety of joints makes it easy.
- Hold UTP, STP, fiber optic, and other low-voltage cables.
- Raceways feature an easy-open, snap-close latch. Flexible co-extruded hinge provides flexibility and durability—even with repeated openings and closings.
- Lightweight, one-piece design is easy to handle, easy to install. Just cut to the size that you need.
- Durable PVC material resists impacts and corrosion.
- Nonflammable, self-extinguishing characteristics and tested to comparable specifications of UL® 94V-0.
- Ivory finish can be left as is or painted to match your decor.
- Adhesive backing for easy installation.
- Compatible with GigaStation2 Wallplates (page 114) and GigaStation2 Snap Fittings and Surface-Mount Housings (page 115).
- Also accept industry-standard and proprietary devices from a wide range of manufacturers.
- ♦♦ **WARRANTY** — Lifetime



Buyer's Guide | Cable Capacity*

	CAT3	CAT5e	CAT6	Telephone 4-Pair	Coax RG-58	Fiber, Duplex 62.5-µm
2700 Series	2	1	1	2	2	2
2800 Series	4	3	2	4	4	4
2900 Series	12	10	7	11	11	11

* Capacity is calculated at 40% of raceway, the maximum fill based on EIA/TIA-569.

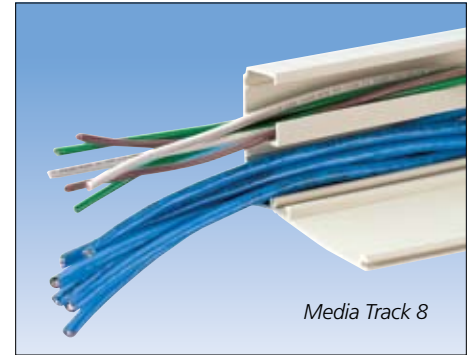
Buyer's Guide | 2700, 2800, & 2900 Series Hinged Raceways & Fittings*

	2700 Series (¾"W x ½"D)	2800 Series (1"W x ½"D)	2900 Series (1½"W x ¾"D)
A Hinged Raceway with Adhesive Rack Sold in 6-foot (1.8-m) lengths	36910 /6 ft.	36948 /6 ft.	36949 /6 ft.
B Wire Clip Use (1) every 2 feet (0.6 m)	36938	—	36940
C Cover Clip	36911	36918	36926
D Blank-End Fitting	36912	36919	36927
E 90° Flat Elbow	36913	36920	36928
F Tee	36914	36921	36929
G Internal Elbow	36915	36922	36930
H External Elbow	36916	36923	36931
I Drop-Ceiling Connector	36917	36924	36932
J Adapter to Connect with 2700 Series	—	36925	36934
2800 Series	36925	—	36933
2900 Series	36934	36933	—

Item	Size	Code	List Price
Device Boxes for 2700, 2800, and 2900 Series Hinged Raceways			
K Single-Gang	4¾"H x 3"W x 1¾"D	36935	
L Double-Gang	4¾"H x 4⅞"W x 1¾"D	36936	

Media Track 6 and 8

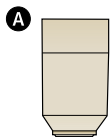
The nonmetallic surface cable raceways ready for UTP, fiber optic, and electrical cables.



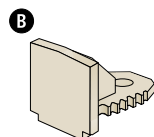
- Choose from two styles: the single-channel Media Track 6 or the dual-channel Media Track 8, which separates data cables from power cables.
- Single-piece, double-latching raceways provide fast and easy installation, as well as tamper resistance.
- Nonmetallic, so they're lightweight and nonconductive.
- Compliant with CAT5, CAT5e, and CAT6 copper cables, as well as video, voice, and fiber cables.
- Accept common electrical wiring; rated for use up to 600 volts.
- Meet fiber bend requirements.
- Full range of single- and dual-gang surface-mount boxes available.
- UL® Listed, CSA certified.
- Raceways available with double-sided adhesive tape.
- **◆◆ WARRANTY** — Lifetime

Why choose a multichannel raceway?
Instead of installing different tracks for different cable types, use a multi-channel raceway. Choose our dual-channel Media Track 8 (right) or for details on our triple-track Media Track 10, see our Web site or call our FREE Tech Support.

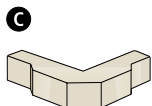
Item	Size	Code	List Price
For a single-channel raceway, order the Media Track 6...			
Media Track 6, Base and Cover 10 per Box with Adhesive without Adhesive	0.77"H x 0.84"W x 0.37"D (Closed) 7-ft. (2.1-m) Length	JPT605-ADH JPT600	
Media Track 6 Components			
A Conduit/Ceiling Fitting	3.9"H x 2.21"W x 3.31"D	JPT606	
B End Cap, 5 per Box	0.77"H x 0.84"W x 1"D	JPT610	
C External Elbow, Base and Cover	4.47"H x 2.48"W x 0.85"D	JPT616	
External Elbow, Cover Only, 5 per Box		JPT615	
D Flat Elbow, Base and Cover	2.62"H x 2.62"W x 0.85"D	JPT621	
Flat Elbow, Cover Only, 5 per Box		JPT620	
E Internal Elbow, Base and Cover	2.4"H x 2.40"W x 1.03"D	JPT626	
Internal Elbow, Cover Only, 5 per Box		JPT625	
F Splice Cover, 5 per Box	1.02"H x 1.09"W x 1.03"D	JPT645	
G Security Strap, 5 per Box	1.94"H x 0.86"W x 0.62"D	JPT637	
H Tee Base and Cover Tee Cover Only	2.62"H x 4.22"W x 0.85"D	JPT636 JPT635	
I Round Fitting Box	1.29"H x 5.31"D	JPB651	



JPT606, JPT806



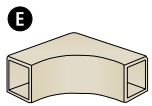
JPT610, JPT810



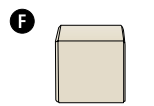
JPT616, JPT816



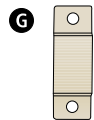
JPT621, JPT821



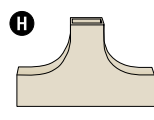
JPT626, JPT826



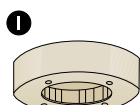
JPT645, JPT845



JPT637, JPT837



JPT636, JPT836



JPB651

Item	Size	Code	List Price
For a dual-channel raceway, order the Media Track 8.			
Media Track 8, Base and Cover with Adhesive, 10 per Box with Adhesive without Adhesive	2.12"W x 1.04"D (Closed) 7-ft. (2.1-m) Length	JPT805-ADH JPT800	
Media Track 8 Components			
A Conduit/Ceiling Fitting	4.2"H x 4.18"W x 3.32"D	JPT806	
B End Cap, 5 per Box	1.04"H x 2.14"W x 1"D	JPT810	
C External Elbow, Base and Cover	2.32"H x 5"W x 4.3"D	JPT816	
External Elbow, Cover Only		JPT815	
D Flat Elbow, Base and Cover	3.94"H x 3.94"W x 1.11"D	JPT821	
Flat Elbow, Cover Only		JPT820	
E Internal Elbow, Base and Cover	2.32"H x 2.83"W x 2.83"D	JPT826	
F Splice Cover, 5 per Box	1.11"H x 2.3"W x 1.11"D	JPT845	
G Security Strap, 5 per Box	0.62"H x 3.43"W x 1.12"D	JPT837	
H Tee Base and Cover	3.91"H x 5.42"W x 1.9"D	JPT836	
I Round Fitting Box	1.29"H x 5.31"D	JPB651	

Item	Size	Code	List Price
Complete your Media Track 6 or Media Track 8 system with these components.			
Media Track Surface-Mount Boxes			
Deep-Profile, Single-Gang	4.9"H x 3.25"W x 2.44"D	JPB652D	
Low-Profile, Single-Gang, Suitable for Switches	4.9"H x 3.25"W x 1.25"D	JPB650L	
Standard-Profile, Single-Gang	4.9"H x 3.25"W x 1.78"D	JPB650S	
Divided, Double-Gang	4.9"H x 5.06"W x 2.44"D	JPB650D	
Communications, Double-Gang	4.9"H x 5.06"W x 2.44"D	JPB653	
Media Track Wallplates			
Single-Gang	Blank	WP610	
2-Port		WP615	
3-Port		WP617	
Double-Gang	Blank	WP620	

Click and find at blackbox.com:
Media Track 7 and 10.

High-Density Multimedia Patch Panels

Set up multiple applications in these high-density panels!



JPM192A with Snap Fittings



JPM193A with Snap Fittings

- Support UTP, STP, fiber, and S-Video applications.
- High-density design for optimum use of rack space.
- Constructed of cold-rolled steel.
- Choose from panels designed for our Giga-system jacks and snap fittings, and panels designed for our Giga2-system jacks and snap fittings.
- **◆◆ WARRANTY** — Lifetime

BLACK BOX® High-Density Multimedia Patch Panels have the flexibility, modularity, and connection density you need. They support many media types, including jacks and adapters for copper UTP and STP, S-Video, and fiber.

The patch panels' maximum-density design makes the most of your precious rack space—they hold from 16 to 48 or 96 connectors in just one or two rack units of space! The industry-standard keystone openings enable flush fitting of jacks, which makes connections look neat.

GigaStation High-Density Multimedia Patch Panels

- Hold GigaTrue® CAT6 (page 90), GigaBase® CAT5e (page 99), CAT3, and USOC Jacks (page 113).
- Work with all GigaStation Snap Fittings (page 116) and high-density jacks.

GigaStation2 High-Density Multimedia Patch Panels

- Hold GigaTrue2 CAT6 (page 90), GigaBase2 CAT5e (page 99), CAT3, and USOC Jacks (page 113).
- Work with GigaStation2 Snap Fittings (page 115).

Item	Code	List Price
GigaStation High-Density Multimedia Patch Panels		
16-Port 1U	JPM191A	
24-Port 1U	JPM192A	
36-Port 1U	JPM193A	
48-Port 2U	JPM194A	
GigaStation Snap Fittings (For details, see p. 116.)		
Blank, 10-Pack		
Black	FM358	
Office White	FM330	
Telco Ivory	FM334	
Electric Ivory	FM335	
Gray	FM336	
White	FM359	
F-Connector (Female/Female)		
Black	FM360	
Office White	FM331	
Electric Ivory	FM338	
Gray	FM337	
White	FM361	
S-Video		
Black	FM363-R2	
S-Video, 110-Punchdown		
Black	FM375-R2	
ST® Adapter		
Office White	FM333	
Telco Ivory	FM341	
Gray	FM342	
SC Simplex		
Office White	FM343	
Ivory	FM344	
Gray	FM345	
White	FM346	
MT-RJ (Female/Female)		
Office White	FM347	
Ivory	FM348	
Gray	FM349	
White	FM350	
MT-RJ Flush Adapter (Female/Female)		
Office White	FM351	
Orange	FM352	
Yellow	FM353	
LC, Non-Flush Mount		
Office White	FM354	
Telco Ivory	FM355	
Gray	FM356	
White	FM357	

You may also need...

GigaTrue CAT6 Jacks
GigaBase CAT5e Jacks

See blackbox.com.
See blackbox.com.

Item	Code	List Price
GigaStation2 High-Density Multimedia Patch Panels		
16-Port 1U	JPMT1016A	
24-Port 1U	JPMT1024A	
36-Port 1U	JPMT1036A	
48-Port 2U	JPMT1048A	
96-Port 2U	JPM176A	
GigaStation2 Snap Fittings (For details, see p. 115.)		
Blank, 10-Pack		
Office White	FMT330-R2	
Ivory	FMT335-R2	
White	FMT359-R2	
F-Connector, Female/Female		
Office White	FMT331	
Ivory	FMT338	
White	FMT361	
BNC, Female/Female		
Office White	FMT332-R2	
Ivory	FMT322	
White	FMT362-R2	
S-Video, 110-Punchdown		
Black	FMT375	
ST Adapter		
Office White	FMT333-R2	
Ivory	FMT324	
White	FMT323	
SC Simplex		
Office White	FMT343	
Ivory	FMT325	
White	FMT346	
MT-RJ, Female/Female		
Office White	FMT347	
Ivory	FMT326	
White	FMT350-R2	
LC		
Office White	FMT354	
Ivory	FMT320	
White	FMT357	

You may also need...

GigaTrue2 CAT6 Jacks See blackbox.com.
GigaBase2 CAT5e Jacks See blackbox.com.

NOTE: For maximum port density, the 36-port GigaStation model (JPM193A) doesn't have port numbers or labeling tags.

NOTE: For GigaStation2 High Density 36-Port Panel (JPMT1036A), contact our FREE Tech Support for snap-fitting compatibility.

RJ-45 Modular Splitters

Break one RJ-45 jack into four.

- Break out one RJ-45 modular jack or plug into four jacks.
- Connections are made via an integral circuit board.
- **◆◆ WARRANTY** — Lifetime



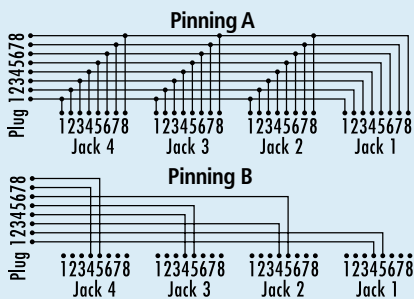
FM820-R2



FM800-R2



Pinning



Item	Code	List Price
RJ-45 Modular Splitters, 5-Position, 8 x 8		
Unshielded		
A Pinning	FM800-R2	
B Pinning	FM805-R2	
with 2.5" Cable		
A Pinning	FM820-R2	
B Pinning	FM825-R2	

Item	Code	List Price
RJ-45 Modular Splitters, 5-Position, 8 x 8 (Continued)		
Shielded		
A Pinning	FM810-R2	
B Pinning	FM815-R2	
with 2.5" Cable		
A Pinning	FM830-R2	
B Pinning	FM835-R2	

Modular Adapters and Couplers

Use these adapters for a phone or modem line addition or extension.



FM008



FM016



FM007



FM022

- Make new hookups or lengthen your line.
- Split one phone line into two with our **T Adapters**.
- Use **In-Line Couplers** to couple two modular cables. FM009 and FM017 are for RJ-11 cable; FM016 and FM018 are for non-category-rated

8-wire RJ-45 cable. FM007 is for 10-wire RJ-45 cable.

- **MMJ In-Line Couplers** are 6-wire off-set couplers for DEC™ MMJ.
- **◆◆ WARRANTY** — All: Lifetime



Item	Code	List Price
Modular T Adapters, 4- or 6-Wire Straight-Pinned		
Female/Female	FM008	
Female/Female on 15-ft. (4.5-m) Cord	FM011	
In-Line Couplers, Female/Female		
4- or 6-Wire Cross-Pinned	FM009	
6-Wire Straight-Pinned	FM017	
8-Wire Cross-Pinned	FM016	
8-Wire Straight-Pinned	FM018	
10-Wire Straight-Pinned	FM007	
MMJ In-Line Couplers, 6-Wire, Female/Female		
Straight-Pinned	FM022	
Cross-Pinned	FM024	

Outlet Jack Frames • Nylon Wallplates

We have basic outlets and frames for your home and office.



WP262



WP263-R2

- Use **Outlet Jack Frames** in standard electrical duplex wallboxes for all modular jacks.
- The **Nylon Wallplates** are single-gang size.
- **◆◆ WARRANTY** — All: Lifetime

Color Guide



Telco Ivory



Black



Office White



Item	Code	List Price
Outlet Jack Frames, (2) Jacks		
Telco Ivory	WP260	
Black	WP261	
Office White	WP262	
Nylon Wallplates		
Telco Ivory	WP265-R2	
Office White	WP263-R2	

Guidelines for choosing

The basics of fiber optic cable.

Fiber optic cable is one of the fastest-growing transmission mediums for both new cabling installations and upgrades, including backbone, horizontal, and even desktop applications. It's favored for applications that need high bandwidth, long distances, and complete immunity to electrical interference. It's ideal for high-data-rate systems such as Gigabit Ethernet, FDDI, multimedia, ATM, SONET, Fibre Channel, or any other network that requires the transfer of large, bandwidth-consuming data files, particularly over long distances. Fiber offers a number of advantages.



Greater bandwidth—Fiber provides far greater bandwidth than copper and has standardized performance up to 10 Gbps. But fiber also gives network designers future-proofing insurance with possible speeds up to 40 Gbps or even 100 Gbps. While not currently a standard, these speeds could become a reality in future proposals and ratifications. Keep in mind that fiber speeds are dependent on the type of cable used. Single-mode cable offers far greater distance than either 62.5- or 50-micron multimode cable. In addition, fiber optic cable can carry more information with greater fidelity than copper wire. That's why telephone and CATV companies are converting to fiber.

Low attenuation and greater distance—Because the fiber optic signal is made of light, very little signal loss occurs during transmission, and data can move at higher speeds and greater distances. Fiber does not have the 100-meter (328-ft.) distance limitation of unshielded twisted-pair copper (without a booster). Fiber distances can range from 300 meters (984.2 ft.) to 40 kilometers (24.8 mi.), depending on the style of cable, wavelength, and network. (Fiber distances are typically measured in metric units.) Because fiber signals need less boosting than copper ones do, the cable performs better.

Security—Your data is safe with fiber cable. It doesn't radiate signals and is extremely difficult to tap. If the cable is tapped, it's very easy to monitor because the cable leaks light, causing the entire system to fail. If an attempt is made to break the physical security of your fiber system, you'll know it.

Fiber networks also enable you to put all your electronics and hardware in one central location, instead of having wiring closets with equipment throughout the building.

Immunity and reliability—Fiber provides extremely reliable data transmission. It's completely immune to many environmental factors that affect copper cable. The core is made of glass, which is an insulator, so no electric current can flow through. It's immune to electromagnetic interference and radio-frequency interference (EMI/RFI), crosstalk, impedance problems, and more. You can run fiber cable next to industrial equipment without worry. Fiber is also less susceptible to temperature fluctuations than copper and can be submerged in water.

Design—Fiber is lightweight, thin, and more durable than copper cable. Plus, fiber optic cable has pulling specifications that are up to 10 times greater than copper cable's. Its small size makes it easier to handle, and it takes up much less space in cabling ducts. Although fiber is still more difficult to terminate than copper, advancements in connectors are making termination easier. In addition, fiber is actually easier to test than copper cable.

Migration—The proliferation and lower costs of media converters are making copper to fiber migration much easier. The converters provide seamless links and enable the use of existing hardware. Fiber can be incorporated into networks in planned upgrades.

Standards—TIA/EIA-785, ratified in 2001, provides a cost-effective migration path from 10-Mbps Ethernet to 100-Mbps Fast Ethernet over fiber (100BASE-SX). An addendum to the standard eliminates limitations in transceiver designs. In addition, in June 2002, the IEEE approved a 10-Gigabit Ethernet (10-GbE) standard. For details on 10-GbE, see pages 136–137.

Costs—The cost for fiber cable, components, and hardware is steadily decreasing. Installation costs for fiber are higher than copper because of the skill needed for terminations. Overall, fiber is more expensive than copper in the short run, but it may actually be less expensive in the long run. Fiber typically costs less to maintain, has much less downtime, and requires less networking hardware. And fiber eliminates the need to recable for higher network performance.

Black Box Explains

Fiber optic cable construction.

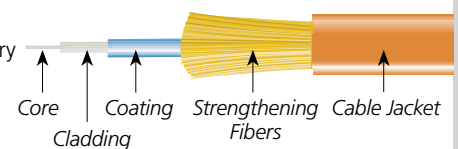
Core—This is the physical medium that transports optical data signals from an attached light source to a receiving device. The core is a single continuous strand of glass or plastic that's measured in microns (μm) by the size of its outer diameter. The larger the core, the more light the cable can carry.

All fiber optic cable is sized according to its core's outer diameter. The three multimode sizes most commonly available are 50, 62.5, and 100 microns. Single-mode cores are generally less than 9 microns.

Cladding—This is the thin layer that surrounds the fiber core and serves as a boundary that contains the light waves and causes the refraction, enabling data to travel throughout the length of the fiber segment.

Coating—This is a layer of plastic that surrounds the core and cladding to reinforce and protect the fiber core. Coatings are measured in microns and can range from 250 to 900 microns.

Strengthening fibers—These components help protect the core against crushing forces and excessive tension during installation.



The materials can range from aramid yarn (Kevlar®) to wire strands to gel-filled sleeves.

Cable jacket—This is the outer layer of any cable. Most fiber optic cables have an orange jacket, although some types can have black or yellow jackets.

fiber optic cable

Types of fiber cable and standards.

Multimode, 50- and 62.5-micron cable—Multimode cable has a large-diameter core and multiple pathways of light. It comes in two core sizes: 50-micron and 62.5-micron.

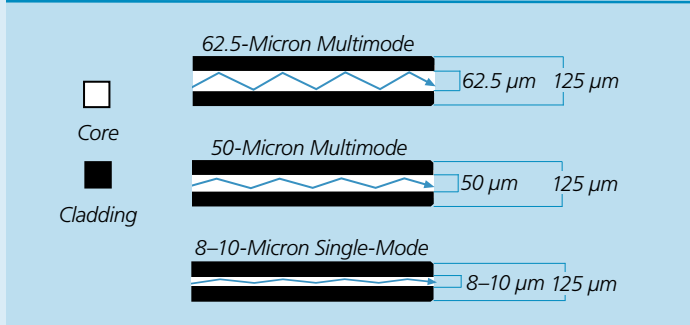
Multimode fiber optic cable can be used for most general data and voice fiber applications, such as adding segments to an existing network and in smaller applications such as alarm systems. Both 50- and 62.5-micron cable feature the same cladding diameter of 125 microns, but 50-micron fiber cable features a smaller core (the light-carrying portion of the fiber).

Although both can be used in the same way, 50-micron cable is recommended for premise applications (backbone, horizontal, and intrabuilding connections) and should be considered for any new construction and installations. Both also use either LED or laserlight sources. The big difference between the two is that 50-micron cable provides longer link lengths and/or higher speeds, particularly in the 850-nm wavelength.

Single-mode, 8–10-micron cable—Single-mode cable has a small 8–10-micron glass core and only one pathway of light. With only a single wavelength of light passing through its core, single-mode cable realigns the light toward the center of the core instead of simply bouncing it off the edge of the core as multimode does.

Single-mode cable provides 50 times more distance than multimode cable. Consequently, single-mode cable is typically used in long-haul network connections spread out over extended areas, including cable television and campus backbone applications. Telcos use it for connections between switching offices. Single-mode cable also provides higher bandwidth, so you can use a pair of single-mode fiber strands full-duplex for up to twice the throughput of multimode fiber.

Buyer's Guide | Fiber Cable Types



Buyer's Guide | Fiber Performance Standards

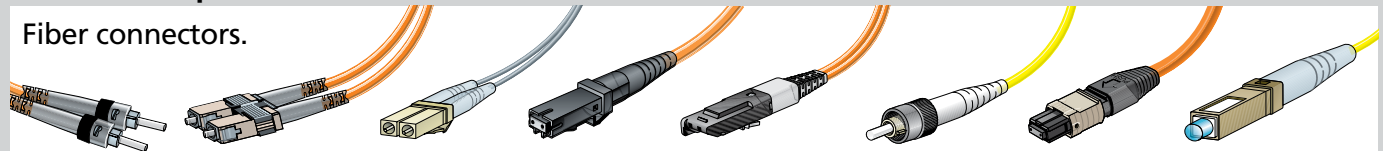
Fiber Type	Wavelength	Attenuation (dB/km) Max.	Bandwidth (MHz/km)
Multimode			
	850 nm	3.5	500
	1300 nm	1.5	500
62.5-/125-Micron	850 nm	3.5	160
	1300 nm	1.5	500
Single-Mode 8–10-Micron			
	1310 nm	1.0	—
	1550 nm	1.0	—
Premises	1310 nm	0.5	—
	1550 nm	0.5	—

Buyer's Guide | Fiber Gigabit Application Standards

IEEE 802.3 Ethernet	Speed (Nom.) (Mbps)	Baud Rate (Mbps)	Light Source	50-/125-Micron Link Length			62.5-/125-Micron Link Length		
				850 nm		1300 nm	850 nm		1300 nm
				500 MHz/km	2000 MHz/km	500 MHz/km	160 MHz/km	200 MHz/km	500 MHz/km
1000BASE-SX	1000	1250	850 nm VCSEL	550 m	860 m	—	220 m	275 m	—
1000BASE-LX	1000	1250	1310 nm FP	—	—	550 m	—	—	550 m
10GBASE-SR	10,000	10312.5	850 nm VCSEL	82 m	300 m	—	26 m	33 m	—
10GBASE-LX4	10,000	4 x 3125	1310 nm DFB	—	—	300 m	—	—	300 m

Black Box Explains

Fiber connectors.



The ST® connector, which uses a bayonet locking system, is the most common connector.

The SC connector features a molded body and a push-pull locking system.

The LC connector, with a small-form-factor connector, features a ceramic ferrule and looks like a mini SC connector.

The MT-RJ connector, a small-form RJ-style connector, features a molded body and uses cleave-and-leave splicing.

The VF-45™ connector is another small-form-factor connector. It uses a unique "V-groove" design.

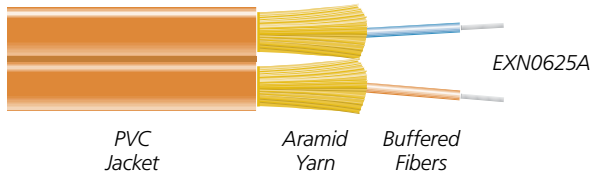
The FC connector is a threaded connector used in high-vibration environments.

The MTO/MTP® connector is a fiber connector that uses high-fiber-count ribbon cable. It's used in high-density fiber applications.

The MU connector resembles the larger SC connector, but it's much smaller. It uses a simple push-pull latching connection. Use it in high-density applications.

Multimode, 62.5-Micron, General-Purpose Fiber Optic Bulk Cable

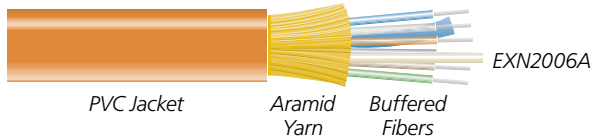
General-use, 62.5-micron cable for long runs.



- Use the PVC cable for horizontal and backbone network runs.
- Use the plenum cable in harsh environments or where fire ordinances require plenum.
- Fiber is surrounded with aramid yarn for tensile strength.
- Feature a 900- μ m coating for easy stripping and handling.
- **◆◆ WARRANTY** — 1 Year

Multimode, 62.5-Micron, Distribution-Style Fiber Optic Bulk Cable

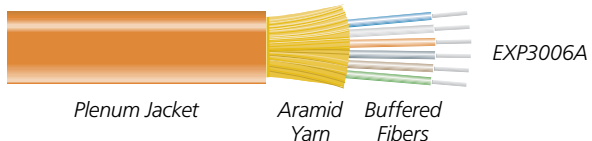
This tight-buffered, distribution cable is designed for backbone intrabuilding applications.



- Cable features tight-buffered, single-jacket construction.
- A 900- μ m coating provides easy stripping and handling.
- Rated for indoor use. Perfect for backbone, horizontal, and intrabuilding applications.
- Construction consists of flame-retardant outer PVC or plenum jacket, binder, subunit jacket, subunit aramid yarn, strength member, tight-buffered fibers, and a ripcord.
- **◆◆ WARRANTY** — 1 Year

Multimode, 62.5-Micron, Distribution-Style, Custom-Length Fiber Optic Bulk Cable

Run 62.5-micron tight-buffered cable in the exact lengths you want.



Fiber Snake on a Reel

The portable, durable solution for temporary fiber optic connections.



The Fiber Snake on a Reel comes with 62.5-micron multimode cable with ST® connectors. Other connectors and cable types are available.



NOTE: Longer minimum lengths may apply for all cables.

Item	Code	List Price
Multimode, 62.5-Micron, General-Purpose Fiber Optic Bulk Cable		
PVC, Riser	Zipcord Duplex	
	500-ft. (152.4-m)	EXN0625A-0500
	1000-ft. (304.8-m)	EXN0625A-1000
	Custom Lengths	EXN0625A
Plenum	Zipcord Duplex	
	500-ft. (152.4-m)	EXP0625A-0500
	1000-ft. (304.8-m)	EXP0625A-1000
	Custom Lengths	EXP0625A

NOTE: Longer minimum lengths may apply for all cables.

Item	Code	List Price
Multimode, 62.5-Micron, Distribution-Style Fiber Optic Bulk Cable		
PVC (OFNR)		
2-Fiber	Custom Lengths	EXN2002A
4-Fiber	500-ft. (152.4-m)	EXN2004A-0500
	Custom Lengths	EXN2004A
6-Fiber	Custom Lengths	EXN2006A
8-Fiber	Custom Lengths	EXN2008A
12-Fiber	Custom Lengths	EXN2012A
24-Fiber	Custom Lengths	EXN2024A
36-Fiber	500-ft. (152.4-m)	EXN2036A-0500
	Custom Lengths	EXN2036A
Plenum (OFNP)		
4-Fiber	500-ft. (152.4-m)	EXP2004A-0500
	Custom Lengths	EXP2004A
8-Fiber	Custom Lengths	EXP2008A
24-Fiber	500-ft. (152.4-m)	EXP2024A-0500
	Custom Lengths	EXP2024A
36-Fiber	Custom Lengths	EXP2036A

- Ideal for runs between wiring closets and equipment rooms.
- Terminate into loaded patch panels and equipment.
- Use for backbone intrabuilding runs.
- Construction consists of an outer jacket, aramid yarn, and tight-buffered fibers.
- **◆◆ WARRANTY** — Lifetime

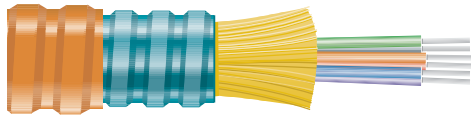
Item	Code	List Price
Multimode, 62.5-Micron, Distribution-Style, Custom-Length Fiber Optic Bulk Cable, Plenum, Custom Lengths		
6-Fiber	EXP3006A	
12-Fiber	EXP3012A	

- Double-wall tubing is crush-proof to 3000 pounds (1360.8 kg).
- Ideal for concerts, emergency centers, construction sites, etc.
- Can be used indoors or outdoors.
- Frame features heavy-duty wheels with locking casters.
- **◆◆ WARRANTY** — Lifetime

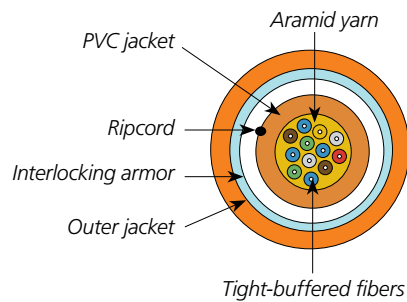
Item	Code	List Price
Fiber Snake on a Reel, Multimode, 62.5-Micron, Duplex, ST-ST, PVC		
25.0-m (82-ft.)	FSRI025M-STST	
50.0-m (164-ft.)	FSRI050M-STST	
91.4-m (300-ft.)	FSRI100M-STST	

Interlocking Armored, 12-Strand, 62.5-Micron Multimode Fiber Optic Cable

Save 30% or more! Run this armored cable anywhere in your building—no ducts required!



This fiber cable is jacketed in aluminum interlocking armor so you can run it anywhere in your building! There's no need to pull innerduct!



- Save a minimum of 30% on labor and materials. Pull this cable once instead of pulling conduit and then pulling cable!
- Cut labor costs by more than half!
- Built tough to go anywhere in your building.
- UL® Listed with aluminum interlocking armor covering an internal PVC jacket.
- Lightweight and flexible but also extraordinarily strong.
- Ideal for harsh environments, this cable is rugged and rodent resistant.
- Save plenum space, too! Cable is almost an inch smaller than innerducts!
- Ideal for out-of-the-way Gigabit Ethernet premise links.
- Features 12 tight-buffered 62.5-/125- μ m strands.
- **◆◆ WARRANTY** — Lifetime

Check out how you can save 30% or more on labor and materials!

The Expensive Way:

12-fiber plenum cable (500 ft.)	\$800
Plenum innerduct	\$1415
Labor to pull cable and innerduct	\$1300
Total	\$3515

The Interlocking Armored Way:
Interlocking Armored Cable

(500-ft.)	\$2000
Labor to pull cable.....	\$450
Total	\$2400
Save 30.3%	

NOTE: Costs based on a 500-foot run using Black Box materials. Labor costs are estimated and can vary widely based on the building and environment.

TECH SPECS

Attenuation (Maximum) — 850 nm: 3.5 dB/km;
1300 nm: 1.2 dB/km
Bend Radius — Installation: 8.0 in. (20.3 cm);
Long term: 5.3 in. (13.4 cm)
Diameter (Nominal) — 0.53" (13.5 mm)
Distance (Minimum) — Gigabit Ethernet: 850 nm:
300 m; 1300 nm: 550 m;
10-Gigabit Ethernet: 850 nm: 32 m; 1300 nm: N/A
Fiber Count — 12

Overfill Launch Bandwidth (Minimum) —
850 nm: 200 MHz/km;
1300 nm: 600 MHz/km
Temperature —
Installation: +32 to +158° F (0 to +70° C);
Operating: +4 to +158° F (-20° to +70° C);
Storage: -40 to +167° F (-40 to +75° C)
Tensile Load — Installation: 239 lb./ft. (1063 N);
Long term: 119 lb./ft. (529 N)
Weight — 31 lb./1000 ft. (46 kg/km)

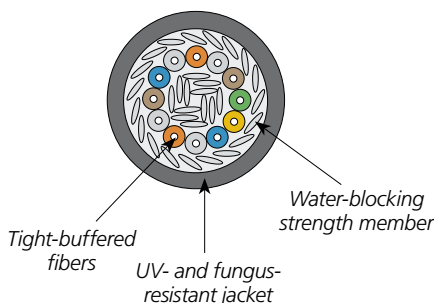
Item	Code	List Price
Interlocking Armored, 12-Strand, 62.5-Micron Multimode Fiber Optic Cable, Plenum (OFCP)		
Custom Lengths	EXPIA3012A	

Indoor/Outdoor 12-Strand, 62.5-Micron Multimode Fiber Optic Cable

With its plenum-rated, UV-resistant jacket, this cable performs indoors and out!



Run this tight-buffered fiber cable anywhere—indoors and outdoors.



- Can be pulled anywhere—between and within buildings.
- Moisture resistant with water-blocking strength member.
- Meets GR-20-CORE water penetration requirements, which also helps ensure that any cable damage can be contained to a repairable length.
- Outer jacket resists fungus—ideal for humid climates and underground runs.
- UV stabilizer guards against sun exposure.
- OFNP listed for indoor plenum runs.
- Doesn't have to be terminated within 50 feet (15.2 m) of its building entrance.
- Great for campus Gigabit Ethernet and Ethernet connections.
- **◆◆ WARRANTY** — Lifetime

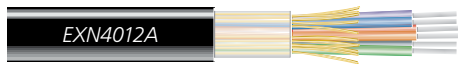
TECH SPECS

Attenuation (Maximum) — 850 nm: 3.5 dB/km;
1300 nm: 1.2 dB/km
Bend Radius — Installation: 5.5 in. (14 cm);
Long term: 2.8 in. (7 cm)
Diameter (Nominal) — 0.26" (7 mm)
Distance (Minimum) — Gigabit Ethernet: 850 nm:
300 m; 1300 nm: 550 m;
10-Gigabit Ethernet: 850 nm: 32 m; 1300 nm: N/A
Fiber Count — 12
Overfill Launch Bandwidth (Minimum) —
850 nm: 200 MHz/km;
1300 nm: 600 MHz/km
Temperature —
Installation: +32 to +158° F (0 to +70° C);
Operating: +4 to +158° F (-20° to +70° C);
Storage: -40 to +167° F (-40 to +75° C)
Tensile Load — Installation: 388 lb./ft. (1726 N);
Long term: 194 lb./ft. (863 N)
Weight — 34 lb./1000 ft. (60 kg/km)

Item	Code	List Price
Indoor/Outdoor 12-Strand, 62.5-Micron Multimode Fiber Optic Cable, Plenum (OFNP)		
Custom Lengths	EXPIO3012A	

Loose-Tube Multistrand 62.5-Micron Multimode Fiber Optic Bulk Cable

Run multiple fiber strands with one pull—even in the harshest conditions.



Loose-Tube Indoor/Outdoor Fiber Optic Bulk Cable

Bulk fiber suitable for both inter- and intrabuilding runs.

- Multimode 62.5-/125- μ m fiber.
- Designed with 12 or 24 250- μ m fibers in buffer tubes stranded around a central member.
- Includes rip cord, core binder, flame-retardant layer, overcoat, aramid yarn, and outer jacket.
- **◆◆ WARRANTY** — 1 Year

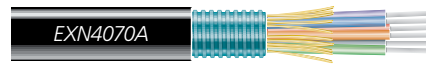
TECH SPECS

Attenuation (Maximum) — 3.5/1.0 dB/km @ 850/1300 nm
Bandwidth (Minimum) — 160/500 MHz-km @ 850/1300 nm
Crush Resistance — 55 lb. per inch for 10 minutes
Fiber Type — Multimode, 62.5/125 μ m
Jacket Type — Outdoor-rated PVC (Arid Core Standard)
Outer Diameter — 12-fiber: 0.57" (14.5 mm)

Item	Code	List Price
Loose-Tube Indoor/Outdoor Fiber Optic Bulk Cable, 1000-ft. (304.8-m)		
12-Fiber	EXN4012A-1000	
24-Fiber	EXN4024A-1000	

NOTE: Higher fiber count and custom lengths available—call our FREE Tech Support.

NOTE: Longer minimums may apply for standard and custom length cables. Cables are shipped in large protective reels, and spools can weigh more than 100 pounds (45.4 kg).



Armored Loose-Tube Outside-Plant Fiber Optic Bulk Cable

Outdoor fiber cable with a built-in conduit.

- Multimode 62.5-/125- μ m fiber.
- Consists of color-coded fibers in buffer tubes stranded around a central member.
- Steel armor and steel strength members.
- Core is surrounded by an aramid yarn layer and jacketed with medium-density PVC.
- **◆◆ WARRANTY** — 1 Year

TECH SPECS

Attenuation (Maximum) — 3.5/1.0 dB/km @ 850/1300 nm
Bandwidth (Minimum) — 160/500 MHz-km @ 850/1300 nm
Crush Resistance — 55 lb. per inch for 10 minutes
Fiber Type — Multimode, 62.5/125 μ m
Jacket Type — Outdoor-rated PVC (Arid Core Standard)
Outer Diameter — 6-fiber: 0.56" (14.2 mm)

Item	Code	List Price
Armored Loose-Tube Outside-Plant Fiber Optic Bulk Cable, 1000-ft. (304.8-m)		
6-Fiber	EXN4070A-1000	
12-Fiber	EXN4075A-1000	

NOTE: Higher fiber count and custom lengths available—call our FREE Tech Support.



Loose-Tube Outside-Plant Fiber Optic Bulk Cable

Outdoor fiber cable for interbuilding runs.

- Multimode 62.5-/125- μ m fiber.
- Ideal for going from building to building.
- Delivers optimum performance in extreme conditions—airial installations, ducts, or buried.
- FDDI compliant.
- **◆◆ WARRANTY** — 1 Year

TECH SPECS

Attenuation (Maximum) — 3.5/1.0 dB/km @ 850/1300 nm
Bandwidth (Minimum) — 160/500 MHz-km @ 850/1300 nm
Crush Resistance — 55 lb. per inch for 10 minutes
Fiber Type — Multimode, 62.5/125 μ m
Jacket Type — Outdoor-rated PVC (Arid Core Standard)
Outside Diameter — 6-fiber: 0.49" (12.4 mm)

Item	Code	List Price
Loose-Tube Outside-Plant Fiber Optic Bulk Cable Custom Lengths		
6-Fiber	EXN3006A	
12-Fiber	EXN3012A	
18-Fiber	EXN3018A	
24-Fiber	EXN3024A	
30-Fiber	EXN3030A	

Fan-Out Kits

Prepare 6- or 12-fiber loose-tube cables for termination.

- For field termination of loose-tube cable at cross-connects.
- Color-coded fan-out tubing makes it easy to keep track of your connections.
- Snap-together unit eliminates the need for epoxy.
- Can be screwed to a wall or bolted to your hardware for extra stability.
- Available in lengths of 25 or 36 inches (63.5 or 91.4 cm) for 6- or 12-fiber cables.
- Ideal for fiber routing.
- **◆◆ WARRANTY** — 1 Year

BLACK BOX® Fan-Out Kits are specifically designed for terminating 6- and 12-fiber loose-tube cables in the field.

Loose-tube distribution cable protects each strand of fiber in its own buffer sheath. Although the buffers are ideal for protecting each strand of fiber in multifiber cables, they're too narrow to terminate with standard fiber optic connectors.

The Fan-Out Kit solves that problem. Just strip the buffer sheath off the cable and thread each strand through the fan-out assembly.

The fan-out doesn't require any more space than any other cable termination or any additional hardware. And because the fan-out assembly snaps together, you don't even need epoxy!

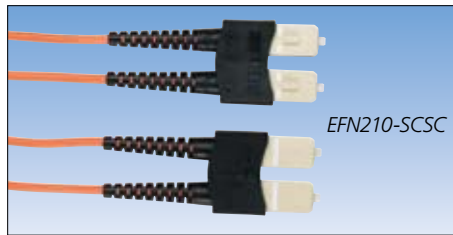
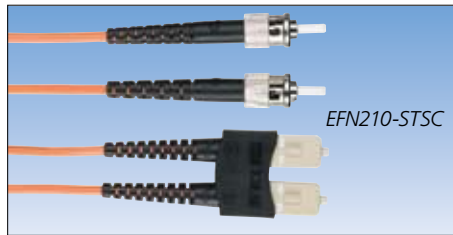
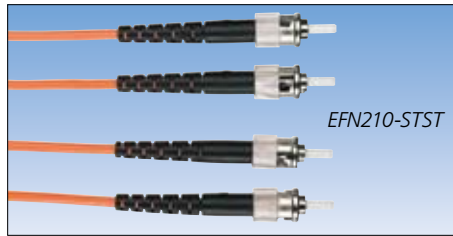


Item	Code	List Price
Fan-Out Kits		
6-Fiber Buffer Tube		
25-in. (63.5-cm)	EFN06-24	
36-in. (91.4-cm)	EFN06-36	
12-Fiber Buffer Tube		
25-in. (63.5-cm)	EFN12-24	
36-in. (91.4-cm)	EFN12-36	

NOTE: For indoor use only.

Economy Ceramic Multimode, 62.5-Micron Fiber Optic Patch Cable

For the budget conscious: fiber cable with ceramic connectors.



≤ 0.5-dB
insertion
loss

TECH SPECS

- Get the durability of ceramic connectors at a very economical price.
- Ceramic ferrules offer a typical insertion loss of ≤0.5 dB.
- Feature a multimode 62.5-/125- μ m construction.
- Duplex cable is joined together in a lamp-cord fashion for easy separation when installing.
- Choose from four connector styles.
- ♦♦ **WARRANTY** — Lifetime

Cable Size — ST, SC: 2.9 mm (0.11")/6.0 mm (0.23");
LC: 2.0 mm (0.07")/4.0 mm (0.15");
MT-RJ: 1.8 mm (0.07")/3.7 mm (0.14")
Fiber Type — Multimode (graded index)
Insertion Loss — ≤ 0.5 dB
Jacket — PVC: OFNR/FT4;
Plenum: OFNP/FT6
Operating Temperature — -4 to + 167° F
(-20 to + 75° C)
Standards — IEC 60793-2
Storage Temperature — -40 to + 185° F
(-40 to + 85° C)
Wavelength — 850/1300 nm

Item	Code	List Price
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Economy Ceramic Multimode, 62.5-Micron Fiber Optic Patch Cable

ST®-ST		
Duplex Riser		
1-m (3.2-ft.)	EFN210-001M-STST	
2-m (6.5-ft.)	EFN210-002M-STST	
3-m (9.8-ft.)	EFN210-003M-STST	
5-m (16.4-ft.)	EFN210-005M-STST	
10-m (32.8-ft.)	EFN210-010M-STST	
Duplex Plenum		
5-m (16.4-ft.)	EFP210-005M-STST	
10-m (32.8-ft.)	EFP210-010M-STST	
15-m (49.2-ft.)	EFP210-015M-STST	
Simplex Riser		
1-m (3.2-ft.)	EFN210-001M-ST	
2-m (6.5-ft.)	EFN210-002M-ST	
3-m (9.8-ft.)	EFN210-003M-ST	
5-m (16.4-ft.)	EFN210-005M-ST	
ST-SC		
Duplex Riser		
1-m (3.2-ft.)	EFN210-001M-STSC	
2-m (6.5-ft.)	EFN210-002M-STSC	
3-m (9.8-ft.)	EFN210-003M-STSC	
5-m (16.4-ft.)	EFN210-005M-STSC	
10-m (32.8-ft.)	EFN210-010M-STSC	
Duplex Plenum		
5-m (16.4-ft.)	EFP210-005M-STSC	
10-m (32.8-ft.)	EFP210-010M-STSC	
15-m (49.2-ft.)	EFP210-015M-STSC	
ST-LC		
Duplex Riser		
1-m (3.2-ft.)	EFN210-001M-STLC	
2-m (6.5-ft.)	EFN210-002M-STLC	
3-m (9.8-ft.)	EFN210-003M-STLC	
5-m (16.4-ft.)	EFN210-005M-STLC	
10-m (32.8-ft.)	EFN210-010M-STLC	

Item	Code	List Price
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Economy Ceramic Multimode, 62.5-Micron Fiber Optic Patch Cable (Continued)

ST-MT-RJ		
Duplex Riser		
1-m (3.2-ft.)	EFN210-001M-STMT	
2-m (6.5-ft.)	EFN210-002M-STMT	
3-m (9.8-ft.)	EFN210-003M-STMT	
5-m (16.4-ft.)	EFN210-005M-STMT	
10-m (32.8-ft.)	EFN210-010M-STMT	
SC-SC		
Duplex Riser		
1-m (3.2-ft.)	EFN210-001M-SCSC	
2-m (6.5-ft.)	EFN210-002M-SCSC	
3-m (9.8-ft.)	EFN210-003M-SCSC	
5-m (16.4-ft.)	EFN210-005M-SCSC	
Duplex Plenum		
5-m (16.4-ft.)	EFP210-005M-SCSC	
10-m (32.8-ft.)	EFP210-010M-SCSC	
15-m (49.2-ft.)	EFP210-015M-SCSC	
Simplex Riser		
3-m (9.8-ft.)	EFN210-003M-SC	
SC-LC		
Duplex Riser		
1-m (3.2-ft.)	EFN210-001M-SCLC	
2-m (6.5-ft.)	EFN210-002M-SCLC	
3-m (9.8-ft.)	EFN210-003M-SCLC	
5-m (16.4-ft.)	EFN210-005M-SCLC	
10-m (32.8-ft.)	EFN210-010M-SCLC	
SC-MT-RJ		
Duplex Riser		
1-m (3.2-ft.)	EFN210-001M-SCMT	
2-m (6.5-ft.)	EFN210-002M-SCMT	
3-m (9.8-ft.)	EFN210-003M-SCMT	
5-m (16.4-ft.)	EFN210-005M-SCMT	
10-m (32.8-ft.)	EFN210-010M-SCMT	

Item	Code	List Price
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Economy Ceramic Multimode, 62.5-Micron Fiber Optic Patch Cable (Continued)

LC-LC		
Duplex Riser		
1-m (3.2-ft.)	EFN210-001M-LCLC	
2-m (6.5-ft.)	EFN210-002M-LCLC	
3-m (9.8-ft.)	EFN210-003M-LCLC	
5-m (16.4-ft.)	EFN210-005M-LCLC	
10-m (32.8-ft.)	EFN210-010M-LCLC	
LC-MT-RJ		
Duplex Riser		
1-m (3.2-ft.)	EFN210-001M-LCMT	
2-m (6.5-ft.)	EFN210-002M-LCMT	
3-m (9.8-ft.)	EFN210-003M-LCMT	
5-m (16.4-ft.)	EFN210-005M-LCMT	
10-m (32.8-ft.)	EFN210-010M-LCMT	
MT-RJ-MT-RJ		
Duplex Riser		
1-m (3.2-ft.)	EFN210-001M-MTMT	
2-m (6.5-ft.)	EFN210-002M-MTMT	
3-m (9.8-ft.)	EFN210-003M-MTMT	
5-m (16.4-ft.)	EFN210-005M-MTMT	
10-m (32.8-ft.)	EFN210-010M-MTMT	

Premium Ceramic, Multimode, 62.5-Micron Fiber Optic Patch Cable

Our best terminated multimode fiber optic cable

- Ceramic connectors provide low signal loss of 0.3 dB, high reliability, and a long life.
- All feature multimode 62.5-µm/125-µm construction and aramid strength elements.
- Choose from duplex or simplex and from riser (PVC) or plenum.
- Available in ST®, SC, LC, and MT-RJ connector styles.
- LC connectors are easy-to-use RJ-45 type connectors and are half the size of standard SC and ST connectors.
- Duplex MT-RJ connectors are smaller than standard SC connectors and feature the familiar “RJ” latch.
- **◆◆ WARRANTY** — Lifetime

Low
0.3-dB
insertion
loss

ABSOLUTELY
GUARANTEED
FOR LIFE



TECH SPECS

Cable Size — ST, SC: 2.9 mm (0.11")/6.0 mm (0.23");
LC: 2.0 mm (0.07")/4.0 mm (0.15");
MT-RJ: 1.8 mm (0.07")/3.7 mm (0.14")

Core Diameter — 62.5 µm

Fiber Type — Multimode (graded index)

Insertion Loss — ≤ 0.3 dB

Jacket — PVC: OFNR/FT4; Plenum: OFNP/FT6

Standards — IEC 60793-2

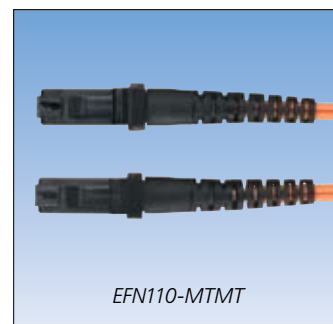
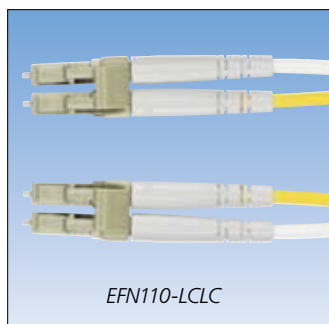
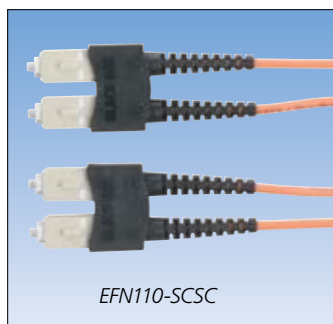
Temperature —
Operating: -4 to +167° F (-20 to +75° C);
Storage: -40 to +185° F (-40 to +85° C)

Wavelength — 850/1300 nm

Item	Code	List Price
Premium Ceramic, Multimode, 62.5-Micron Fiber Optic Patch Cable		
ST-ST		
Duplex Riser	1-m (3.2-ft.) EFN110-001M-STST	
	2-m (6.5-ft.) EFN110-002M-STST	
	3-m (9.8-ft.) EFN110-003M-STST	
	5-m (16.4-ft.) EFN110-005M-STST	
	10-m (32.8-ft.) EFN110-010M-STST	
	15-m (49.2-ft.) EFN110-015M-STST	
	20-m (65.6-ft.) EFN110-020M-STST	
	30-m (98.4-ft.) EFN110-030M-STST	
	Custom Lengths EFN110-STST	
Plenum	5-m (16.4-ft.) EFP110-005M-STST	
	10-m (32.8-ft.) EFP110-010M-STST	
	15-m (49.2-ft.) EFP110-015M-STST	
	30-m (98.4-ft.) EFP110-030M-STST	
	Custom Lengths EFP110-STST	
Simplex Riser	1-m (3.2-ft.) EFN110-001M-ST	
	2-m (6.5-ft.) EFN110-002M-ST	
	3-m (9.8-ft.) EFN110-003M-ST	
	5-m (16.4-ft.) EFN110-005M-ST	
ST-SC		
Duplex Riser	1-m (3.2-ft.) EFN110-001M-STSC	
	2-m (6.5-ft.) EFN110-002M-STSC	
	3-m (9.8-ft.) EFN110-003M-STSC	
	5-m (16.4-ft.) EFN110-005M-STSC	
	10-m (32.8-ft.) EFN110-010M-STSC	
	15-m (49.2-ft.) EFN110-015M-STSC	
	20-m (65.6-ft.) EFN110-020M-STSC	
	30-m (98.4-ft.) EFN110-030M-STSC	
	Custom Lengths EFN110-STSC	
Plenum	5-m (16.4-ft.) EFP110-005M-STSC	
	10-m (32.8-ft.) EFP110-010M-STSC	
	15-m (49.2-ft.) EFP110-015M-STSC	
	30-m (98.4-ft.) EFP110-030M-STSC	
	Custom Lengths EFP110-STSC	

Item	Code	List Price
Premium Ceramic, Multimode, 62.5-Micron Fiber Optic Patch Cable (Continued)		
SC-SC		
Duplex Riser	1-m (3.2-ft.) EFN110-001M-SCSC	
	2-m (6.5-ft.) EFN110-002M-SCSC	
	3-m (9.8-ft.) EFN110-003M-SCSC	
	5-m (16.4-ft.) EFN110-005M-SCSC	
	10-m (32.8-ft.) EFN110-010M-SCSC	
	15-m (49.2-ft.) EFN110-015M-SCSC	
	20-m (65.6-ft.) EFN110-020M-SCSC	
	30-m (98.4-ft.) EFN110-030M-SCSC	
	Custom Lengths EFN110-SCSC	
Plenum	5-m (16.4-ft.) EFP110-005M-SCSC	
	10-m (32.8-ft.) EFP110-010M-SCSC	
	15-m (49.2-ft.) EFP110-015M-SCSC	
	30-m (98.4-ft.) EFP110-030M-SCSC	
	Custom Lengths EFP110-SCSC	
Simplex Riser	3-m (9.8-ft.) EFN110-003M-SC	
LC-LC		
Duplex Riser	1-m (3.2-ft.) EFN110-001M-LCLC	
	2-m (6.5-ft.) EFN110-002M-LCLC	
	3-m (9.8-ft.) EFN110-003M-LCLC	
	5-m (16.4-ft.) EFN110-005M-LCLC	
	10-m (32.8-ft.) EFN110-010M-LCLC	
	15-m (49.2-ft.) EFN110-015M-LCLC	
	20-m (65.6-ft.) EFN110-020M-LCLC	
	30-m (98.4-ft.) EFN110-030M-LCLC	
	Custom Lengths EFN110-LCLC	
Plenum	5-m (16.4-ft.) EFP110-005M-LCLC	
	10-m (32.8-ft.) EFP110-010M-LCLC	
	15-m (49.2-ft.) EFP110-015M-LCLC	
	20-m (65.6-ft.) EFP110-020M-LCLC	
	30-m (98.4-ft.) EFP110-030M-LCLC	
	Custom Lengths EFP110-LCLC	

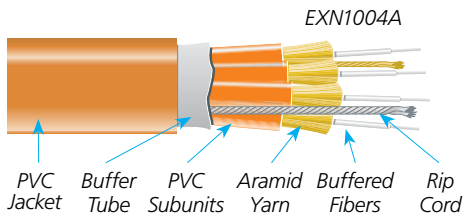
with precision ceramic connectors!



Item				Code	List Price		
Premium Ceramic, Multimode, 62.5-Micron Fiber Optic Patch Cable (Continued)							
LC-ST®							
Duplex	Riser	1-m	(3.2-ft.)	EFN110-001M-STLC			
		2-m	(6.5-ft.)	EFN110-002M-STLC			
		3-m	(9.8-ft.)	EFN110-003M-STLC			
		5-m	(16.4-ft.)	EFN110-005M-STLC			
		10-m	(32.8-ft.)	EFN110-010M-STLC			
		15-m	(49.2-ft.)	EFN110-015M-STLC			
		20-m	(65.6-ft.)	EFN110-020M-STLC			
		30-m	(98.4-ft.)	EFN110-030M-STLC			
				Custom Lengths		EFN110-STLC	
		Plenum		5-m	(16.4-ft.)	EFP110-005M-STLC	
15-m	(49.2-ft.)			EFP110-015M-STLC			
20-m	(65.6-ft.)			EFP110-020M-STLC			
30-m	(98.4-ft.)			EFP110-030M-STLC			
				Custom Lengths		EFP110-STLC	
LC-SC							
Duplex	Riser	1-m	(3.2-ft.)	EFN110-001M-SCLC			
		2-m	(6.5-ft.)	EFN110-002M-SCLC			
		3-m	(9.8-ft.)	EFN110-003M-SCLC			
		5-m	(16.4-ft.)	EFN110-005M-SCLC			
		10-m	(32.8-ft.)	EFN110-010M-SCLC			
		15-m	(49.2-ft.)	EFN110-015M-SCLC			
		20-m	(65.6-ft.)	EFN110-020M-SCLC			
		30-m	(98.4-ft.)	EFN110-030M-SCLC			
				Custom Lengths		EFN110-SCLC	
		Plenum		5-m	(16.4-ft.)	EFP110-005M-SCLC	
15-m	(49.2-ft.)			EFP110-015M-SCLC			
20-m	(65.6-ft.)			EFP110-020M-SCLC			
30-m	(98.4-ft.)			EFP110-030M-SCLC			
				Custom Lengths		EFP110-SCLC	
LC-MT-RJ							
Duplex	Riser	1-m	(3.2-ft.)	EFN110-001M-LCMT			
		2-m	(6.5-ft.)	EFN110-002M-LCMT			
		3-m	(9.8-ft.)	EFN110-003M-LCMT			
		5-m	(16.4-ft.)	EFN110-005M-LCMT			
		10-m	(32.8-ft.)	EFN110-010M-LCMT			
		15-m	(49.2-ft.)	EFN110-015M-LCMT			
		20-m	(65.6-ft.)	EFN110-020M-LCMT			
		30-m	(98.4-ft.)	EFN110-030M-LCMT			
				Custom Lengths		EFN110-LCMT	
		Plenum		5-m	(16.4-ft.)	EFP110-005M-LCMT	
15-m	(49.2-ft.)			EFP110-015M-LCMT			
20-m	(65.6-ft.)			EFP110-020M-LCMT			
30-m	(98.4-ft.)			EFP110-030M-LCMT			
				Custom Lengths		EFP110-LCMT	

Item				Code	List Price		
Premium Ceramic, Multimode, 62.5-Micron Fiber Optic Patch Cable (Continued)							
MT-RJ-MT-RJ							
Duplex	Riser	1-m	(3.2-ft.)	EFN110-001M-MTMT			
		2-m	(6.5-ft.)	EFN110-002M-MTMT			
		3-m	(9.8-ft.)	EFN110-003M-MTMT			
		5-m	(16.4-ft.)	EFN110-005M-MTMT			
		10-m	(32.8-ft.)	EFN110-010M-MTMT			
		15-m	(49.2-ft.)	EFN110-015M-MTMT			
		20-m	(65.6-ft.)	EFN110-020M-MTMT			
		30-m	(98.4-ft.)	EFN110-030M-MTMT			
				Custom Lengths		EFN110-MTMT	
		Plenum		5-m	(16.4-ft.)	EFP110-005M-MTMT	
15-m	(49.2-ft.)			EFP110-015M-MTMT			
20-m	(65.6-ft.)			EFP110-020M-MTMT			
30-m	(98.4-ft.)			EFP110-030M-MTMT			
				Custom Lengths		EFP110-MTMT	
MT-RJ-ST							
Duplex	Riser	1-m	(3.2-ft.)	EFN110-001M-STMT			
		2-m	(6.5-ft.)	EFN110-002M-STMT			
		3-m	(9.8-ft.)	EFN110-003M-STMT			
		5-m	(16.4-ft.)	EFN110-005M-STMT			
		10-m	(32.8-ft.)	EFN110-010M-STMT			
		15-m	(49.2-ft.)	EFN110-015M-STMT			
		20-m	(65.6-ft.)	EFN110-020M-STMT			
		30-m	(98.4-ft.)	EFN110-030M-STMT			
				Custom Lengths		EFN110-STMT	
		Plenum		5-m	(16.4-ft.)	EFP110-005M-STMT	
15-m	(49.2-ft.)			EFP110-015M-STMT			
20-m	(65.6-ft.)			EFP110-020M-STMT			
30-m	(98.4-ft.)			EFP110-030M-STMT			
				Custom Lengths		EFP110-STMT	
MT-RJ-SC							
Duplex	Riser	1-m	(3.2-ft.)	EFN110-001M-SCMT			
		2-m	(6.5-ft.)	EFN110-002M-SCMT			
		3-m	(9.8-ft.)	EFN110-003M-SCMT			
		5-m	(16.4-ft.)	EFN110-005M-SCMT			
		10-m	(32.8-ft.)	EFN110-010M-SCMT			
		15-m	(49.2-ft.)	EFN110-015M-SCMT			
		20-m	(65.6-ft.)	EFN110-020M-SCMT			
		30-m	(98.4-ft.)	EFN110-030M-SCMT			
				Custom Lengths		EFN110-SCMT	
		Plenum		5-m	(16.4-ft.)	EFP110-005M-SCMT	
15-m	(49.2-ft.)			EFP110-015M-SCMT			
20-m	(65.6-ft.)			EFP110-020M-SCMT			
30-m	(98.4-ft.)			EFP110-030M-SCMT			
				Custom Lengths		EFP110-SCMT	

Multimode, 62.5-Micron, Breakout-Style Fiber Optic Bulk Cable
Cable for voice, data, video, and imaging transmissions.



- Breakout design enables individual routing of fibers for termination and maintenance.
- Ideal for indoor backbone, horizontal, and intrabuilding runs.
- The special outer jacket isolates the fiber conductors from outside moisture.
- Easy-to-strip 900- μ m coating.
- **◆◆ WARRANTY** — 1 Year

NOTE: Single-mode version also available—call our FREE Tech Support.

NOTE: Longer minimum lengths may apply for all cables.

Item	Code	List Price
Multimode, 62.5-Micron, Breakout-Style Fiber Optic Bulk Cable		
PVC, Riser (OFNR/FT4)		
2-Fiber		
Custom Lengths	EXN1002A	
4-Fiber		
Custom Lengths	EXN1004A	
6-Fiber		
Custom Lengths	EXN1006A	
8-Fiber		
Custom Lengths	EXN1008A	

Item	Code	List Price
Multimode, 62.5-Micron, Breakout-Style Fiber Optic Bulk Cable (Continued)		
PVC, Riser (OFNR/FT4)		
12-Fiber		
Custom Lengths	EXN1012A	
24-Fiber		
500-ft.(152.4-m)	EXN1024A-0500	
Custom Lengths	EXN1024A	
Plenum (OFNP/FT6)		
4-Fiber		
Custom Lengths	EXP1004A	
6-Fiber		
Custom Lengths	EXP1006A	

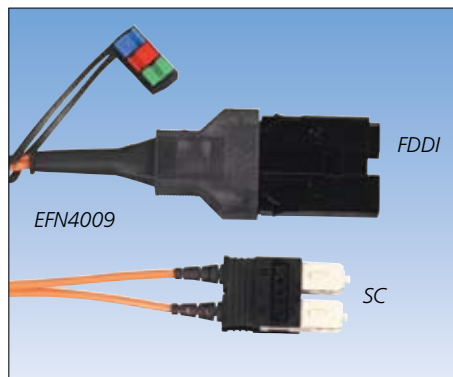
FDDI Multimode, 62.5-Micron Patch Cable

FDDI compatibility problems? Here's the solution.

- The FDDI connectors' keyed latching with polarity-preserved mating makes connections easy.
- FDDI ends feature a free-floating 2.5-mm ceramic ferrule and Media Interface Converter (MIC) connectors.



- UL® Listed.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
FDDI Multimode, 62.5-Micron Patch Cable		
FDDI-FDDI		
Riser, OFNR		
1-m (3.2-ft.)	EFN4001-001M	
3-m (9.8-ft.)	EFN4001-003M	
10-m (32.8-ft.)	EFN4001-010M	
15-m (49.2-ft.)	EFN4001-015M	
Plenum, OFNP		
1-m (3.2-ft.)	EFN4002-001M	
3-m (9.8-ft.)	EFN4002-003M	
5-m (16.4-ft.)	EFN4002-005M	
10-m (32.8-ft.)	EFN4002-010M	
15-m (49.2-ft.)	EFN4002-015M	

Item	Code	List Price
FDDI Multimode, 62.5-Micron Patch Cable (Continued)		
ST-FDDI		
Riser, OFNR		
1-m (3.2-ft.)	EFN4003-001M	
2-m (6.5-ft.)	EFN4003-002M	
Plenum, OFNP		
2-m (6.5-ft.)	EFN4004-002M	
SC-FDDI		
Riser, OFNR		
1-m (3.2-ft.)	EFN4009-001M	
2-m (6.5-ft.)	EFN4009-002M	
3-m (9.8-ft.)	EFN4009-003M	
5-m (16.4-ft.)	EFN4009-005M	
10-m (32.8-ft.)	EFN4009-010M	
15-m (49.2-ft.)	EFN4009-015M	

Fiber Optic In-Line Attenuators

Buffer overpowering fiber signals and eliminate errors.

- High-precision doping technology for low back reflection and increased fiber signal accuracy.
- Ideal for use in CATV, LAN, WAN, and telecommunications applications.
- Precision zirconia alignment sleeve.
- Guaranteed return loss of -55 dB for PC-type contacts and -60 dB for APC-type contacts.
- Use with single-mode fiber optic cable.
- **◆◆ WARRANTY** — 1 Year



TECH SPECS

Attenuation Tolerances — FC and SC models:
2 or 5 dB: ± 1.0 dB; 10 dB: ± 1.5 dB;
LC models: 2 or 5 dB: ± 0.5 dB;
10, 15, or 20 dB: ± 1.0 dB
Wavelength — 1310/1550 nm

Item	Code	List Price
Fiber Optic In-Line Attenuators, Single-Mode Male/Female		
FC PC	2-dB	FCPC02
	5-dB	FCPC05
	10-dB	FCPC10
APC	2-dB	FCAPC02
	5-dB	FCAPC05
	10-dB	FCAPC10
SC PC	2-dB	SCPC02
	5-dB	SCPC05
	10-dB	SCPC10
APC	2-dB	SCAPC02
	5-dB	SCAPC05
	10-dB	SCAPC10

Item	Code	List Price
Fiber Optic In-Line Attenuators, Single-Mode Male/Female (Continued)		
LC PC	5-dB	LCPC05
	10-dB	LCPC10
	15-dB	LCPC15
	20-dB	LCPC20
APC	2-dB	LCAPC02
	5-dB	LCAPC05
	10-dB	LCAPC10
	15-dB	LCAPC15
	20-dB	LCAPC20

Multimode, 62.5-Micron, Multicolored Fiber Optic Patch Cable

Add some color to your networking world with this fiber patch cable!



- Features a 62.5-/125-micron construction.
- High-performance, tight-buffer coating provides environmental and mechanical protection.
- Ferrule body design constructed of a zirconia/metal alloy.
- Compatible with all standard fiber optic equipment and connectors.
- Duplex, riser cable is ideal for general indoor use.
- Identify fiber connections in patching systems.
- ♦♦ **WARRANTY** — Lifetime

Our cable comes with four colors so you can color coordinate your fiber cable runs. Use a different color for every department. Or choose the colors based on the types of connections you're making.

This cable is resilient *and* flexible enough for general, indoor use. It's ideal for jumper, patch cord, and pigtail applications. Make routing

connections in your patching systems. Connect your main fiber cable to your network equipment. This cable does it all!

You'll get reliable performance, too. A tight-buffer coating on each optical fiber protects it against environmental and mechanical hazards.

The cable meets all appropriate fiber standards and is UL® Listed.

TECH SPECS

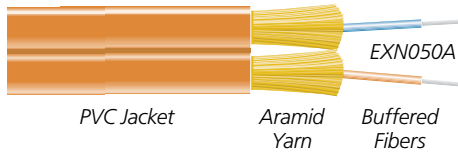
Attenuation — 3 dB/km @ 850 nm;
1 dB/km @ 1300 nm
Bandwidth — 200 MHz @ 850 nm;
500 MHz @ 1300 nm
Bend Radius (Minimum) — Complies with ANSI/TIA/
EIA-568-B.3 standard
Cable Size — 0.12" x 0.24" (3 x 6.1 mm)
Cladding Diameter — 125 µm
Core Diameter — 62.5 µm
Ferrule — Zirconia/metal alloy
Fiber Type — Multimode (graded index)
Operating Temperature — -40 to +185° F
(-40 to +85° C)
Standards — UL® Listed; ANSI X3T9.5 PMD;
155-Mbps ATM; 100-Mbps FDDI, Fibre Channel
FC-PH; GR-409-CORE; ICEA-83-596; TIA/EIA-568,
598-A, and 758

NOTE: An orange version is also available. To order, call our FREE Tech Support.

Item	Blue	Red	Green	Yellow	List Price	
Multimode, 62.5-Micron, Multicolored Fiber Optic Patch Cable, OFNR						
ST-ST®	1-m (3.2-ft.)	EXN063-001M-CC	EXN064-001M-CC	EXN065-001M-CC	EXN066-001M-CC	
	2-m (6.5-ft.)	EXN063-002M-CC	EXN064-002M-CC	EXN065-002M-CC	EXN066-002M-CC	
	3-m (9.8-ft.)	EXN063-003M-CC	EXN064-003M-CC	EXN065-003M-CC	—	
	5-m (16.4-ft.)	EXN063-005M-CC	EXN064-005M-CC	EXN065-005M-CC	EXN066-005M-CC	
	10-m (32.8-ft.)	EXN063-010M-CC	EXN064-010M-CC	EXN065-010M-CC	EXN066-010M-CC	
Custom Lengths	EXN063-CC	EXN064-CC	EXN065-CC	EXN066-CC		
ST-SC	1-m (3.2-ft.)	EXN4011-001M	EXN4013-001M	EXN4014-001M	EXN4015-001M	
	2-m (6.5-ft.)	EXN4011-002M	EXN4013-002M	EXN4014-002M	EXN4015-002M	
	3-m (9.8-ft.)	EXN4011-003M	EXN4013-003M	EXN4014-003M	EXN4015-003M	
	5-m (16.4-ft.)	EXN4011-005M	EXN4013-005M	EXN4014-005M	EXN4015-005M	
	10-m (32.8-ft.)	EXN4011-010M	EXN4013-010M	EXN4014-010M	EXN4015-010M	
Custom Lengths	EXN4011	EXN4013	EXN4014	EXN4015		
SC-SC	1-m (3.2-ft.)	EXN4026-001M	EXN4027-001M	EXN4028-001M	EXN4029-001M	
	2-m (6.5-ft.)	EXN4026-002M	EXN4027-002M	EXN4028-002M	EXN4029-002M	
	3-m (9.8-ft.)	EXN4026-003M	EXN4027-003M	EXN4028-003M	EXN4029-003M	
	5-m (16.4-ft.)	EXN4026-005M	EXN4027-005M	EXN4028-005M	EXN4029-005M	
	10-m (32.8-ft.)	EXN4026-010M	EXN4027-010M	EXN4028-010M	EXN4029-010M	
Custom Lengths	EXN4026	EXN4027	EXN4028	EXN4029		

Multimode, 50-Micron, General-Purpose Fiber Optic Bulk Cable

General-use, zipcord-duplex, 50-micron cable for long runs.



- Use the PVC cable for horizontal and backbone network runs.
- Use the plenum cable in harsh environments or where fire ordinances require plenum.
- Features a 900-µm coating for easy stripping and handling.

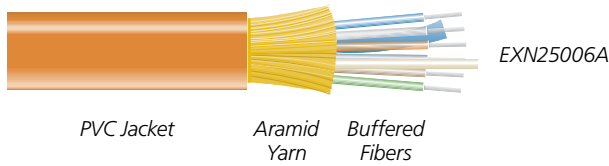
- **WARRANTY** — 1 Year

NOTE: Longer minimum cable lengths may apply.

Item	Code	List Price
Multimode, 50-Micron, General-Purpose Fiber Optic Bulk Cable		
PVC, Riser 1000-ft. (304.8-m)	EXN050A-1000	
Plenum Custom Lengths	EXP050A	

Multimode, 50-Micron, Distribution-Style Fiber Optic Bulk Cable

Get it here—tight-buffered, 50-micron distribution-style cables.



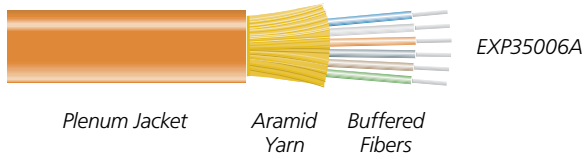
- Designed for backbone inter/intrabuilding applications.
- **WARRANTY** — 1 Year

NOTE: Longer minimum cable lengths may apply.

Item	Code	List Price
Multimode, 50-Micron, Distribution-Style Fiber Optic Bulk Cable		
PVC, Riser (OFNR/FT4)		
2-Fiber Custom Lengths	EXN25002A	
4-Fiber Custom Lengths	EXN25004A	
6-Fiber Custom Lengths	EXN25006A	
8-Fiber Custom Lengths	EXN25008A	
12-Fiber Custom Lengths	EXN25012A	
Plenum (OFNP/FT6)		
4-Fiber Custom Lengths	EXP25004A	
8-Fiber Custom Lengths	EXP25008A	

Multimode, 50-Micron, Distribution-Style, Custom-Length Fiber Optic Bulk Cable

Tight-buffered, 50-micron cable in the exact lengths you want.



- Custom cut to the length you need.
- Ideal for runs between wiring closets and equipment rooms as well as for backbone intrabuilding runs.
- Features a 900-µm coating for easy stripping and handling.
- Terminate into loaded patch panels and equipment.
- Cable is RoHS compliant.

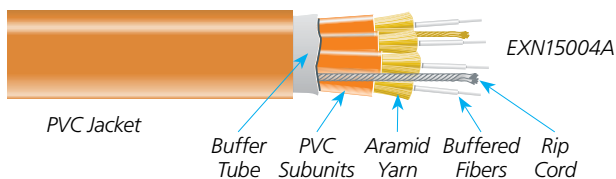
- **WARRANTY** — Lifetime



Item	Code	List Price
Multimode, 50-Micron, Distribution-Style, Custom-Length Fiber Optic Bulk Cable		
Plenum		
6-Fiber Custom Lengths	EXP35006A	
12-Fiber Custom Lengths	EXP35012A	

Multimode, 50-Micron, Breakout-Style Fiber Optic Bulk Cable

Tight-buffered, 50-micron cable that's ideal for high-bandwidth voice, data, and video signals.



- Breakout design enables individual routing of fibers for termination and maintenance.
- **WARRANTY** — 1 Year

NOTE: Longer minimum cable lengths may apply.

Item	Code	List Price
Multimode, 50-Micron, Breakout-Style Fiber Optic Bulk Cable		
PVC, Riser (OFNR/FT4)		
2-Fiber Custom Lengths	EXN15002A	
4-Fiber 500-ft. (152.4-m)	EXN15004A-0500	
4-Fiber Custom Lengths	EXN15004A	
6-Fiber Custom Lengths	EXN15006A	
8-Fiber Custom Lengths	EXN15008A	

Item	Code	List Price
Multimode, 50-Micron, Breakout-Style Fiber Optic Bulk Cable (Continued)		
Plenum (OFNP/FT6)		
4-Fiber Custom Lengths	EXP15004A	
6-Fiber Custom Lengths	EXP15006A	
8-Fiber Custom Lengths	EXP15008A	
12-Fiber 500-ft. (152.4-m)	EXP15012A-0500	
12-Fiber Custom Lengths	EXP15012A	

Multimode, 50-Micron, Duplex Fiber Optic Patch Cable

Get more with 50-micron fiber cable:
more bandwidth, more speed, more distance!

- This 50-micron fiber cable provides three times the bandwidth of standard 62.5-micron cable. That means greater performance over longer distances.
- Boasts an ultra-low insertion loss of less than 3 dB.
- Features two 900- μ m buffered fibers surrounded by aramid yarn strength members.
- Great for new buildings and upgrades to existing buildings.
- Ideal for storage area networks (SANs), high-speed parallel optics interconnects, and other high-speed, high-capacity interconnect applications.
- Ceramic connectors provide low signal loss, high reliability, and long life.
- Provide total immunity to electrical interference.
- Cables are RoHS compliant.
- **◆◆ WARRANTY** — Lifetime



Ultra-low
insertion loss



TECH SPECS

Bandwidth — 500 MHz/km @ 850 nm
Bend Radius (Minimum) —
 Loaded: 5 cm (2 in.);
 Installed: 3 cm (1.2 in.)
Buffering Diameter — 900 μ m
Cladding Diameter — 125 μ m
Connector Durability — \leq 0.2 dB
 change, 1000 rematings
Connector Tensile Strength —
 \leq 0.2 dB change, > 50 N
Core Diameter — 50 μ m
Ferrule — Ceramic
Fiber Count — 2

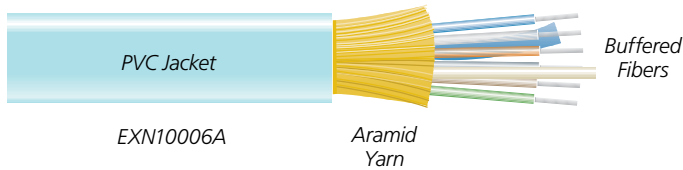
Fiber Type — Multimode
Insertion Loss — $<$ -3.0 dB/km
Operating Temperature —
 +14 to +140° F (-10 to +60° C)
Outer Diameter — 2.8 mm
Standards — NEC® OFNR, CSA FT-4,
 UL® 1666 flame resistance for riser
 and general building applications
Tensile Load (Maximum) —
 Short Term: 1000 N (225 lb./ft.);
 Long Term: 480 N (108 lb./ft.)
Weight — 9.4 lb./1000 ft. (14 kg/km)

Item	Code	List Price
Multimode, 50-Micron, Duplex Fiber Optic Patch Cable, PVC		
LC-LC	1-m (3.2-ft.)	EFN6020-001M
	2-m (6.5-ft.)	EFN6020-002M
	3-m (9.8-ft.)	EFN6020-003M
	5-m (16.4-ft.)	EFN6020-005M
	10-m (32.8-ft.)	EFN6020-010M
	Custom Lengths	EFN6020
LC-SC	1-m (3.2-ft.)	EFN6021-001M
	2-m (6.5-ft.)	EFN6021-002M
	3-m (9.8-ft.)	EFN6021-003M
	5-m (16.4-ft.)	EFN6021-005M
	10-m (32.8-ft.)	EFN6021-010M
	Custom Lengths	EFN6021
LC-ST®	1-m (3.2-ft.)	EFN6022-001M
	2-m (6.5-ft.)	EFN6022-002M
	3-m (9.8-ft.)	EFN6022-003M
	5-m (16.4-ft.)	EFN6022-005M
	10-m (32.8-ft.)	EFN6022-010M
	Custom Lengths	EFN6022
ST-ST	1-m (3.2-ft.)	EFN6023-001M
	2-m (6.5-ft.)	EFN6023-002M
	3-m (9.8-ft.)	EFN6023-003M
	5-m (16.4-ft.)	EFN6023-005M
	10-m (32.8-ft.)	EFN6023-010M
	Custom Lengths	EFN6023
ST-SC	1-m (3.2-ft.)	EFN6024-001M
	2-m (6.5-ft.)	EFN6024-002M
	3-m (9.8-ft.)	EFN6024-003M
	5-m (16.4-ft.)	EFN6024-005M
	10-m (32.8-ft.)	EFN6024-010M
	Custom Lengths	EFN6024

Item	Code	List Price
Multimode, 50-Micron, Duplex Fiber Optic Patch Cable, PVC (Continued)		
SC-SC	1-m (3.2-ft.)	EFN6025-001M
	2-m (6.5-ft.)	EFN6025-002M
	3-m (9.8-ft.)	EFN6025-003M
	5-m (16.4-ft.)	EFN6025-005M
	10-m (32.8-ft.)	EFN6025-010M
	Custom Lengths	EFN6025
MT-RJ-MT-RJ	1-m (3.2-ft.)	EFN6026-001M
	2-m (6.5-ft.)	EFN6026-002M
	3-m (9.8-ft.)	EFN6026-003M
	5-m (16.4-ft.)	EFN6026-005M
	10-m (32.8-ft.)	EFN6026-010M
	Custom Lengths	EFN6026
MT-RJ-ST	1-m (3.2-ft.)	EFN6027-001M
	2-m (6.5-ft.)	EFN6027-002M
	3-m (9.8-ft.)	EFN6027-003M
	5-m (16.4-ft.)	EFN6027-005M
	10-m (32.8-ft.)	EFN6027-010M
	Custom Lengths	EFN6027
MT-RJ-SC	1-m (3.2-ft.)	EFN6028-001M
	2-m (6.5-ft.)	EFN6028-002M
	3-m (9.8-ft.)	EFN6028-003M
	5-m (16.4-ft.)	EFN6028-005M
	10-m (32.8-ft.)	EFN6028-010M
	Custom Lengths	EFN6028
MT-RJ-LC	1-m (3.2-ft.)	EFN6029-001M
	2-m (6.5-ft.)	EFN6029-002M
	3-m (9.8-ft.)	EFN6029-003M
	5-m (16.4-ft.)	EFN6029-005M
	10-m (32.8-ft.)	EFN6029-010M
	Custom Lengths	EFN6029

10-Gigabit Multimode, 50-Micron Fiber Optic Cable

Here it is: the tight-buffered, 50-micron multimode cable



- Choose from three cable styles:
 - distribution-style bulk cable with a PVC or plenum jacket.
 - zipcord bulk cable with a PVC or plenum jacket.
 - zipcord patch cable with a PVC jacket.
- All feature tight-buffered fiber with an acrylate fiber coating and aramid yarn strength members.
- Use with either LED or laser light sources.
- With a laser light source, bandwidth increases to 2000 MHz/km.
- Works in 10-Gigabit Ethernet runs up to 300 meters, making this cable ideal for backbone and campus connections.
- **◆◆ WARRANTY** — Bulk Cables: 1 Year;
Patch Cables: Lifetime

TECH SPECS

Bulk Cable:	Patch Cable:
Attenuation — 3.5/1.0 dB/km @ 850/1300 nm	Attenuation — 3.0 dB/km @ 850 nm; 1.0 dB/km @ 1300 nm
Bandwidth — 1500/500 MHz/km @ 850/1300 nm	Bandwidth — LED: 1500/500 MHz/km OFL @ 850/1310 nm; Laser: 2000/500 MHz/km RML @ 850/1310 nm
Diameters — Core: 50 µm; Cladding: 125 µm; Buffer: 900 µm	Diameters — Core: 50 µm; Cladding: 125 µm; Buffer: 900 µm
Fiber Type — Laser-optimized multimode	Fiber Type — Laser-optimized multimode
Jacket — PVC or low-smoke plenum	Jacket — PVC
Operating Temperature — -4 to +185° F (-20 to +85° C)	Operating Temperature — -40 to +185° F (-40 to +85° C)

Item	Code	List Price
10-Gigabit Multimode, 50-Micron Distribution-Style Fiber Optic Bulk Cable		
PVC (OFNR)		
2-Fiber 1000-ft. (304.8-m)	EXN10002A-1000	
Custom Lengths	EXN10002A	
4-Fiber 500-ft. (152.4-m)	EXN10004A-0500	
Custom Lengths	EXN10004A	
6-Fiber Custom Lengths	EXN10006A	
8-Fiber Custom Lengths	EXN10008A	
12-Fiber 1000-ft. (304.8-m)	EXN10012A-1000	
Custom Lengths	EXN10012A	
24-Fiber Custom Lengths	EXN10024A	
36-Fiber Custom Lengths	EXN10036A	

Item	Code	List Price
10-Gigabit Multimode, 50-Micron Distribution-Style Fiber Optic Bulk Cable		
(Continued)		
Plenum (OFNP)		
2-Fiber Custom Lengths	EXP10002A	
4-Fiber 500-ft. (152.4-m)	EXP10004A-0500	
1000-ft. (304.8-m)	EXP10004A-1000	
Custom Lengths	EXP10004A	
6-Fiber Custom Lengths	EXP10006A	
8-Fiber Custom Lengths	EXP10008A	
12-Fiber Custom Lengths	EXP10012A	
24-Fiber Custom Lengths	EXP10024A	
36-Fiber Custom Lengths	EXP10036A	
10-Gigabit Multimode 50-Micron Fiber Optic Bulk Cable, Zipcord		
PVC (OFNR)		
2-Fiber Custom Lengths	EXN10000A	
Plenum (OFNP)		
2-Fiber Custom Lengths	EXP10000A	

NOTE: Longer minimum cable lengths may apply.

Black Box Explains

10-Gigabit Ethernet.

10-Gigabit Ethernet (10-GbE), ratified in June 2002, is a logical extension of previous Ethernet versions. 10-GbE was designed to make the transition from LANs to Wide Area Networks (WANs) and Metropolitan Area Networks (MANs). It offers a cost-effective migration for high-performance, long-haul transmissions—at up to 40 kilometers. Its most common application now is as a backbone for high-speed LANs, server farms, and campuses. It also enables you to connect geographically separated LANs to new WANs and MANs via dark fiber, dark wavelengths, or SONET/SDH networks.

10-GbE supports existing Ethernet technologies. It uses the same layers (MAC, PHY, and PMD) and the same frame sizes and formats.

But the IEEE 802.3ae spec defines two sets of physical interfaces: LAN (LAN PHY) and WAN (WAN PHY).

The most notable difference between 10-GbE and previous Ethernets is that 10-GbE operates in full-duplex only and specifies fiber optic media. The chart (right) notes the differences between Gigabit and 10-Gigabit Ethernet.

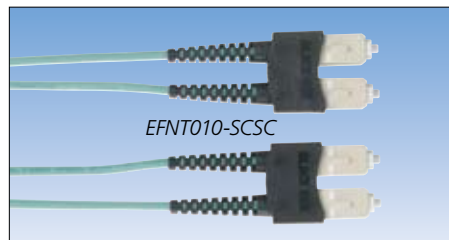
The alphabetical coding for 10-GbE is as follows:

S = 850 nm	X = 8B/10B signal encoding
L = 1310 nm	R = 66B encoding
E = 1550 nm	W = WIS interface (for use with SONET)

that's laser optimized for 10-Gigabit Ethernet.



50-Micron Connectors, p. 142.



Item	Code	List Price
10-Gigabit Multimode, 50-Micron Fiber Optic Patch Cable, Zipcord, PVC		
ST®-ST	1-m (3.2-ft.) EFNT010-001M-STST	
	2-m (6.5-ft.) EFNT010-002M-STST	
	3-m (9.8-ft.) EFNT010-003M-STST	
	5-m (16.4-ft.) EFNT010-005M-STST	
	10-m (32.8-ft.) EFNT010-010M-STST	
	Custom Lengths EFN010-STST	
ST-SC	1-m (3.2-ft.) EFNT010-001M-STSC	
	2-m (6.5-ft.) EFNT010-002M-STSC	
	3-m (9.8-ft.) EFNT010-003M-STSC	
	5-m (16.4-ft.) EFNT010-005M-STSC	
	10-m (32.8-ft.) EFNT010-010M-STSC	
	Custom Lengths EFN010-STSC	
ST-LC	1-m (3.2-ft.) EFNT010-001M-STLC	
	2-m (6.5-ft.) EFNT010-002M-STLC	
	3-m (9.8-ft.) EFNT010-003M-STLC	
	5-m (16.4-ft.) EFNT010-005M-STLC	
	10-m (32.8-ft.) EFNT010-010M-STLC	
	Custom Lengths EFN010-STLC	

Item	Code	List Price
10-Gigabit Multimode, 50-Micron Fiber Optic Patch Cable, Zipcord, PVC		
<i>(Continued)</i>		
SC-SC	1-m (3.2-ft.) EFNT010-001M-SCSC	
	2-m (6.5-ft.) EFNT010-002M-SCSC	
	3-m (9.8-ft.) EFNT010-003M-SCSC	
	5-m (16.4-ft.) EFNT010-005M-SCSC	
	10-m (32.8-ft.) EFNT010-010M-SCSC	
	Custom Lengths EFN010-SCSC	
SC-LC	1-m (3.2-ft.) EFNT010-001M-SCLC	
	2-m (6.5-ft.) EFNT010-002M-SCLC	
	3-m (9.8-ft.) EFNT010-003M-SCLC	
	5-m (16.4-ft.) EFNT010-005M-SCLC	
	10-m (32.8-ft.) EFNT010-010M-SCLC	
	Custom Lengths EFN010-SCLC	
LC-LC	1-m (3.2-ft.) EFNT010-001M-LCLC	
	2-m (6.5-ft.) EFNT010-002M-LCLC	
	3-m (9.8-ft.) EFNT010-003M-LCLC	
	5-m (16.4-ft.) EFNT010-005M-LCLC	
	10-m (32.8-ft.) EFNT010-010M-LCLC	
	Custom Lengths EFN010-LCLC	

NOTE: Cables with MT-RJ connectors are also available. For details, call our FREE Tech Support.

10-GbE	Distance	Wavelength	Cable
10GBASE-SR	300 m	850 nm	Multimode
10GBASE-SW	300 m	850 nm	Multimode
10GBASE-LR	10 km	1310 nm	Single-Mode
10GBASE-LW	10 km	1310 nm	Single-Mode
10GBASE-LX4	Multimode 300 m/ Single-Mode 10 km	1310 nm WWDM	Multimode or Single-Mode
10GBASE-ER	40 km	1550 nm	Single-Mode
10GBASE-EW	40 km	1550 nm	Single-Mode
10GBASE-CX4*	15 m	—	4 x Twinax
10GBASE-T*	25–100 m	—	Twisted Pair

* Proposed for copper.

At a glance—Gigabit vs. 10-Gigabit Ethernet

Gigabit

- CSMA/CD + full-duplex
- Leveraged Fibre Channel PMDs
- Reused 8B/10B coding
- Optical/copper media
- Support LAN to 5 km
- Carrier extension

10-Gigabit Ethernet

- Full-duplex only
- New optical PMDs
- New coding scheme 64B/66B
- Optical (developing copper)
- Support LAN to 40 km
- Throttle MAC speed for WAN
- Use SONET/SDH as Layer 1 transport

Single-Mode, 9-Micron, Duplex Fiber Optic Cable

Transmit at higher rates than multimode fiber—



- Get long-distance transmission—50 times farther than multimode.
- PVC cable is certified OFNR for use as riser cable.
- Plenum cable is certified OFNP for use in air plenums.

ST and SC Connectors

- Ideal for patching single-mode backbones to high-speed network devices, such as Gigabit Ethernet switches.

MT-RJ Connectors

- Small, snag-proof RJ-style connectors enable you to fit more terminations in a limited area than with SC connectors.

LC Connectors

- Almost half the size of standard ST and SC terminations.
- Ideal for high-density applications.

MU Connectors

- This small-form connector resembles the larger SC connector and also features a simple push-pull latching connection.
- Ideal for high-density applications, CATV, video, and more.
- **◆◆ WARRANTY** — Lifetime

Item			Code	List Price
Single-Mode, 9-Micron, Duplex Fiber Optic Cable				
ST®-ST	PVC	1-m (3.2-ft.)	EFN310-001M-STST	
		2-m (6.5-ft.)	EFN310-002M-STST	
		3-m (9.8-ft.)	EFN310-003M-STST	
		5-m (16.4-ft.)	EFN310-005M-STST	
		10-m (32.8-ft.)	EFN310-010M-STST	
		15-m (49.2-ft.)	EFN310-015M-STST	
		20-m (65.6-ft.)	EFN310-020M-STST	
		30-m (98.4-ft.)	EFN310-030M-STST	
		Custom Lengths	EFN5009	
		Plenum		5-m (16.4-ft.)
10-m (32.8-ft.)	EFP310-010M-STST			
15-m (49.2-ft.)	EFP310-015M-STST			
30-m (98.4-ft.)	EFP310-030M-STST			
Custom Lengths	EFP5010			
SC-SC	PVC	1-m (3.2-ft.)	EFN310-001M-SCSC	
		2-m (6.5-ft.)	EFN310-002M-SCSC	
		3-m (9.8-ft.)	EFN310-003M-SCSC	
		5-m (16.4-ft.)	EFN310-005M-SCSC	
		10-m (32.8-ft.)	EFN310-010M-SCSC	
		15-m (49.2-ft.)	EFN310-015M-SCSC	
		20-m (65.6-ft.)	EFN310-020M-SCSC	
		30-m (98.4-ft.)	EFN310-030M-SCSC	
		Custom Lengths	EFN5010	
		Plenum		5-m (16.4-ft.)
10-m (32.8-ft.)	EFP310-010M-SCSC			
15-m (49.2-ft.)	EFP310-015M-SCSC			
30-m (98.4-ft.)	EFP310-030M-SCSC			
Custom Lengths	EFP5010			

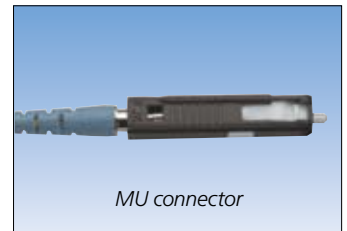
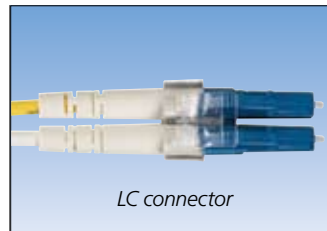
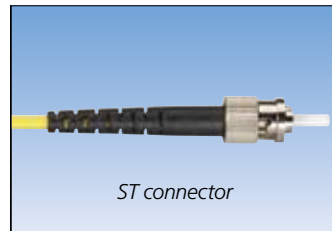
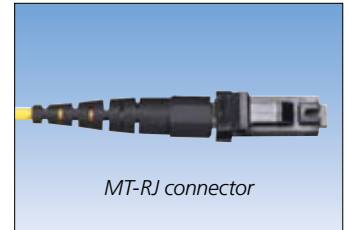
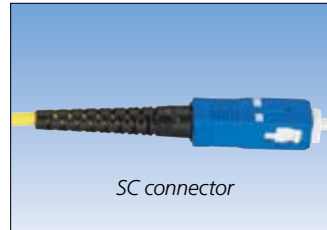
Item			Code	List Price
Single-Mode, 9-Micron, Duplex Fiber Optic Cable (Continued)				
ST-SC	PVC	1-m (3.2-ft.)	EFN310-001M-STSC	
		2-m (6.5-ft.)	EFN310-002M-STSC	
		3-m (9.8-ft.)	EFN310-003M-STSC	
		5-m (16.4-ft.)	EFN310-005M-STSC	
		10-m (32.8-ft.)	EFN310-010M-STSC	
		15-m (49.2-ft.)	EFN310-015M-STSC	
		20-m (65.6-ft.)	EFN310-020M-STSC	
		30-m (98.4-ft.)	EFN310-030M-STSC	
		Custom Lengths	EFN5011	
		Plenum		5-m (16.4-ft.)
10-m (32.8-ft.)	EFP310-010M-STSC			
15-m (49.2-ft.)	EFP310-015M-STSC			
30-m (98.4-ft.)	EFP310-030M-STSC			
Custom Lengths	EFP5011			
MT-RJ-MT-RJ				
PVC		2-m (6.5-ft.)	EFN310-002M-MTMT	
		Custom Lengths	EFN5013	
Plenum		5-m (16.4-ft.)	EFP310-005M-MTMT	
		10-m (32.8-ft.)	EFP310-010M-MTMT	
		15-m (49.2-ft.)	EFP310-015M-MTMT	
		30-m (98.4-ft.)	EFP310-030M-MTMT	
		Custom Lengths	EFP5013	

and choose from five different connector types!

TECH SPECS

Bend Radius —
Meets ANSI/TIA/EIA-568-B.3
standard
Cladding — 125 µm
Core — 9 µm
Crush Resistance — 750 N/cm
Ferrule — Ceramic
Housing — Composite

Insertion Loss — 0.2 dB typical
Operating Temperature —
-4 to +158° F (-20 to +70° C)
Return Loss — ≥ 55 typical
Tensile Strength —
240 N (54 lb./24.5 kg)
Wavelength — 1310 nm, 1550 nm

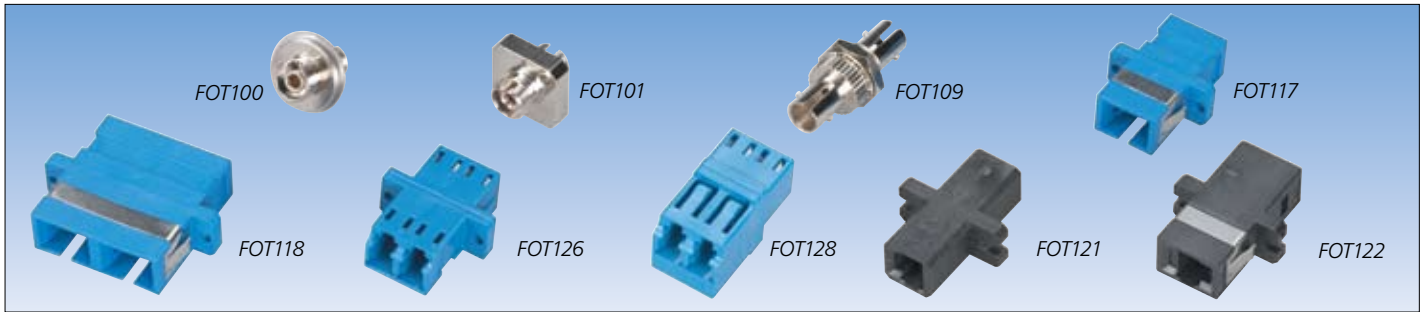


Item	Code	List Price	
Single-Mode, 9-Micron, Duplex Fiber Optic Cable (Continued)			
MT-RJ-ST PVC	1-m (3.2-ft.)	EFN310-001M-STMT	
	2-m (6.5-ft.)	EFN310-002M-STMT	
	3-m (9.8-ft.)	EFN310-003M-STMT	
	5-m (16.4-ft.)	EFN310-005M-STMT	
	10-m (32.8-ft.)	EFN310-010M-STMT	
	15-m (49.2-ft.)	EFN310-015M-STMT	
	20-m (65.6-ft.)	EFN310-020M-STMT	
	30-m (98.4-ft.)	EFN310-030M-STMT	
	Custom Lengths	EFN5014	
	Plenum	5-m (16.4-ft.)	EFP310-005M-STMT
		10-m (32.8-ft.)	EFP310-010M-STMT
		15-m (49.2-ft.)	EFP310-015M-STMT
		30-m (98.4-ft.)	EFP310-030M-STMT
	MT-RJ-SC PVC	1-m (3.2-ft.)	EFN310-001M-SCMT
2-m (6.5-ft.)		EFN310-002M-SCMT	
3-m (9.8-ft.)		EFN310-003M-SCMT	
5-m (16.4-ft.)		EFN310-005M-SCMT	
10-m (32.8-ft.)		EFN310-010M-SCMT	
15-m (49.2-ft.)		EFN310-015M-SCMT	
20-m (65.6-ft.)		EFN310-020M-SCMT	
30-m (98.4-ft.)		EFN310-030M-SCMT	
Custom Lengths		EFN5015	
Plenum		5-m (16.4-ft.)	EFP310-005M-SCMT
		10-m (32.8-ft.)	EFP310-010M-SCMT
		15-m (49.2-ft.)	EFP310-015M-SCMT
		30-m (98.4-ft.)	EFP310-030M-SCMT
LC-LC PVC		1-m (3.2-ft.)	EFN310-001M-LCLC
	2-m (6.5-ft.)	EFN310-002M-LCLC	
	3-m (9.8-ft.)	EFN310-003M-LCLC	
	5-m (16.4-ft.)	EFN310-005M-LCLC	
	10-m (32.8-ft.)	EFN310-010M-LCLC	
	15-m (49.2-ft.)	EFN310-015M-LCLC	
	20-m (65.6-ft.)	EFN310-020M-LCLC	
	30-m (98.4-ft.)	EFN310-030M-LCLC	
	Custom Lengths	EFN092	
	Plenum	5-m (16.4-ft.)	EFP310-005M-LCLC
		10-m (32.8-ft.)	EFP310-010M-LCLC
		15-m (49.2-ft.)	EFP310-015M-LCLC
		30-m (98.4-ft.)	EFP310-030M-LCLC

Item	Code	List Price	
Single-Mode, 9-Micron, Duplex Fiber Optic Cable (Continued)			
LC-ST* PVC	1-m (3.2-ft.)	EFN310-001M-STLC	
	2-m (6.5-ft.)	EFN310-002M-STLC	
	3-m (9.8-ft.)	EFN310-003M-STLC	
	5-m (16.4-ft.)	EFN310-005M-STLC	
	10-m (32.8-ft.)	EFN310-010M-STLC	
	15-m (49.2-ft.)	EFN310-015M-STLC	
	20-m (65.6-ft.)	EFN310-020M-STLC	
	30-m (98.4-ft.)	EFN310-030M-STLC	
	Custom Lengths	EFN093	
	Plenum	5-m (16.4-ft.)	EFP310-005M-STLC
		10-m (32.8-ft.)	EFP310-010M-STLC
		15-m (49.2-ft.)	EFP310-015M-STLC
		30-m (98.4-ft.)	EFP310-030M-STLC
	LC-SC PVC	1-m (3.2-ft.)	EFN310-001M-SCLC
2-m (6.5-ft.)		EFN310-002M-SCLC	
3-m (9.8-ft.)		EFN310-003M-SCLC	
5-m (16.4-ft.)		EFN310-005M-SCLC	
10-m (32.8-ft.)		EFN310-010M-SCLC	
15-m (49.2-ft.)		EFN310-015M-SCLC	
20-m (65.6-ft.)		EFN310-020M-SCLC	
30-m (98.4-ft.)		EFN310-030M-SCLC	
Custom Lengths		EFN094	
MU-MU PVC		1-m (3.2-ft.)	EFN095-001M
		2-m (6.5-ft.)	EFN095-002M
		3-m (9.8-ft.)	EFN095-003M
		5-m (16.4-ft.)	EFN095-005M
		10-m (32.8-ft.)	EFN095-010M
	Custom Lengths	EFN095	
MU-SC PVC	1-m (3.2-ft.)	EFN096-001M	
	2-m (6.5-ft.)	EFN096-002M	
	3-m (9.8-ft.)	EFN096-003M	
	5-m (16.4-ft.)	EFN096-005M	
	Custom Lengths	EFN096	
	MU-MT-RJ PVC	1-m (3.2-ft.)	EFN099-001M
2-m (6.5-ft.)		EFN099-002M	
3-m (9.8-ft.)		EFN099-003M	
5-m (16.4-ft.)		EFN099-005M	
10-m (32.8-ft.)		EFN099-010M	
Custom Lengths		EFN099	

Fiber Optic Couplings, Connectors, and Adapters

The easy way to mate



Fiber Optic Couplings

- Couple two fiber cables.
- All feature a panel-mount design.
- The bronze sleeves are better for multimode fiber applications where alignment is not crucial.
- The ceramic sleeves offer precise alignment and are better for single-mode applications.
- Ceramic sleeves are more durable than bronze sleeves.
- Choose from single-mode or multimode styles, and from multiple connector types.
- **◆◆ WARRANTY** — Lifetime

Item	Description	Sleeve	Flange	Code	List Price
Fiber Optic Couplings					
FC-FC	3/8" Diameter Mounting	Multimode, Simplex	Bronze	Metal	FOT100
		Single-Mode, Simplex	Ceramic	Metal	FOT102
	Square Mounting	Multimode, Simplex	Bronze	Metal	FOT101
		Single-Mode, Simplex	Ceramic	Metal	FOT103
ST-ST	3/8" Diameter Mounting	Multimode, Simplex	Bronze	Metal	FOT109
		Single-Mode, Simplex	Ceramic	Metal	FOT110
	Rectangular Mounting	Multimode, Duplex	Bronze	Plastic	FOT112
		Single-Mode, Duplex	Ceramic	Plastic	FOT111
SC-SC	Rectangular Mounting	Multimode, Simplex	Bronze	Plastic	FOT117
		Multimode, Duplex	Bronze	Plastic	FOT118
	Rectangular Mounting	Single-Mode, Simplex	Ceramic	Plastic	FOT119
		Single-Mode, Duplex	Ceramic	Plastic	FOT120
LC-LC	SC Footprint	Multimode, Duplex	Bronze	Plastic	FOT123
		Single-Mode, Duplex	Ceramic	Plastic	FOT126
	Panel Mount	Multimode, Simplex	Bronze	Plastic	FOT127
		Multimode, Duplex	Bronze	Plastic	FOT128
		Single-Mode, Simplex	Ceramic	Plastic	FOT124
	Single-Mode, Duplex	Ceramic	Plastic	FOT125	
MT-RJ-MT-RJ	Rectangular Mounting with Cap	Multimode, Simplex	Bronze	Plastic	FOT121
		Multimode, Simplex	Bronze	Plastic	FOT122

Fiber Optic Adapter Kit

Make fiber connections quickly with this handy adapter kit.



- The kit contains the most common interfaces, as well as some unusual interfaces you might normally not have on hand.
- With 11 different couplings and adapters, this is the perfect kit to keep around.
- All adapters feature bronze alignment sleeves and are compatible with single-mode or multimode connectors.
- Use the couplings to mate interfaces of the same type or to create interconnection points in bulkheads.
- Use the adapters to interconnect two different interfaces.
- The kit includes a handy, seven-compartment, plastic storage case that's small enough to fit in your toolbox.
- **◆◆ WARRANTY** — Lifetime

What's included

- ST®-ST simplex coupling
- SC-SC simplex coupling
- FC-FC simplex coupling
- SMA906-SMA906 simplex coupling
- LC-LC simplex coupling
- MT-RJ-MT-RJ duplex coupling
- MU-MU simplex coupling
- MTP-MTP coupling
- ST-SC simplex adapter
- ST-FC simplex adapter
- SC-FC simplex adapter
- Storage case

Item	Code	List Price
Fiber Optic Adapter Kit	F0217	

fiber connectors.



SC Loopback Connectors (FO211-R2, FO916)

- Use network application and equipment testing.
- Feature 0.5-dB insertion loss and 0.5" ferrule centerline.

MT-RJ Multimode Loopback Cable (FO900-R2)

- Loop fiber signals to check send and receive functions.
- No-polish, no-epoxy, quick termination.
- Use in duplex mode.

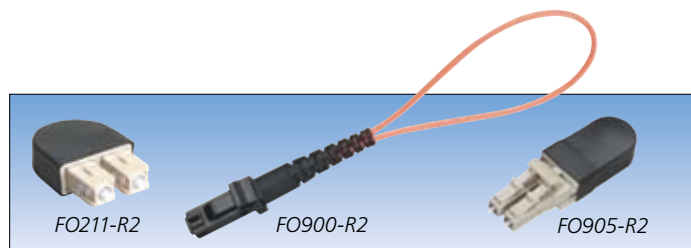
MTP Loopback Adapter, 12-Way (FO908)

- The 12 conductors can be configured in a variety of ways.

LC Loopback Adapters (FO905-R2, FO915-R2)

- Feature pull-proof, 900- μ m enclosed fiber loop design.

- **WARRANTY** — All: Lifetime



Item	Code	List Price
SC Loopback Connectors		
Multimode 62.5-/125- μ m	FO211-R2	
Single-Mode 8.5-/125- μ m	FO916	
MT-RJ Multimode Loopback Cable	FO900-R2	
MTP Loopback Adapter, 12-Way	FO908	
LC Loopback Adapters		
Multimode 62.5-/125- μ m	FO905-R2	
Single-Mode 8.5-/125- μ m	FO915-R2	

Fiber Optic Adapters

- Convert ST, SC, and FC connectors.
- All feature a panel mount design.
- The bronze sleeves are better for multimode fiber applications where alignment is not crucial.
- The ceramic sleeves offer precise alignment and are better for single-mode applications.
- Ceramic sleeves are more durable than bronze sleeves.
- **WARRANTY** — Lifetime



Item	Description	Sleeve	Flange	Code	List Price
Fiber Optic Adapters					
ST-FC	Square Mounting	Multimode, Simplex	Bronze	Metal	FOT104
	Rectangular Mounting	Multimode, Simplex	Bronze	Metal	FOT105
		Single-Mode, Simplex	Ceramic	Metal	FOT106
SC-FC	Square Mounting	Multimode, Simplex	Bronze	Metal	FOT107
		Single-Mode, Simplex	Ceramic	Metal	FOT108
ST-SC	Rectangular Mounting	Multimode, Simplex	Bronze	Plastic	FOT115
		Multimode, Duplex	Bronze	Plastic	FOT116
		Single-Mode, Simplex	Ceramic	Plastic	FOT113
		Single-Mode, Duplex	Ceramic	Plastic	FOT114
		MTP-MTP Bulkhead Adapter with Cap, Panel-Mount			Plastic

Fiber Adapter Cable Kits

Convert your equipment's LC connectors into SC or ST female connectors.

- Use these Adapter Cables to turn your equipment's uncommon LC female connectors into female SC or ST connectors for easier equipment/cable matings.
- Use the **LC-SC Adapter Cable (FO215)** to convert a female LC connector into a simplex SC female connector.
- Use the **LC-ST® Adapter Cable (FO216)** to convert a female LC connector into a simplex ST female connector.
- Kits consist of a cable and an adapter, which can be separated for different uses.
- Adapters feature bronze alignment sleeves for multimode applications.



- **WARRANTY** — Lifetime

Item	Code	List Price
Fiber Adapter Cable Kits		
LC-SC	FO215	
LC-ST	FO216	

What's included

LC-SC Adapter Cable Kit:

- LC-SC multimode simplex cable, 1-meter (3.2-ft.)
- SC-SC female/female coupling

LC-ST Adapter Cable Kit:

- LC-SC multimode simplex cable, 1-meter (3.2-ft.)
- SC-ST female/female simplex coupling

50-Micron Connectors

Ceramic-ferrule connectors designed just for 50-micron cable.

- Offer quick installation with no epoxy or polishing needed.
- Fast termination time makes them perfect for jobs requiring quick turnaround.
- Compliant with all ANSI and TIA/EIA standards.
- For use with the Fiber Connector Tool Kit (FT535-R2) on [facing page](#).
- Require no consumables.
- **◆◆ WARRANTY** — 1 Year



Item		Single-Pack	10-Pack
50-Micron Connectors	ST®	FO041	FO041-10PAK
	SC	FO042	FO042-10PAK
	LC	FO043	FO043-10PAK
	MT-RJ	FO044	FO044-10PAK

Fiber Optic Connectors

More than a few ways to connect multimode and single-mode cabling.

Ceramic-Ferrule Single-Mode and Multimode Connectors (FOT200–FOT227)

- All have a 126-micron diameter, except LC, which have 127- and 125-micron diameters.
- Boot openings measure 0.9-, 2.0-, and 3.0-mm.

UV-Curable, Reduced-Piece-Part, Preassembled, Glass-Insert Multimode Connectors (FO110–FO111)

- Only three pieces to assemble: boot, strain relief, and connector body.
- UV-curable adhesive comes in a syringe and cures in one minute or less.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
Fiber Optic Connectors		
Ceramic Ferrule		
ST Single-Mode Simplex		
126-µm/0.9-mm	FOT200	
126-µm/2.0-mm	FOT201	
126-µm/3.0-mm	FOT202	
ST Multimode Simplex		
126-µm/0.9-mm	FOT203	
10-Pack	FOT203-10PAK	
126-µm/2.0-mm	FOT204	
126-µm/3.0-mm	FOT205	
SC Single-Mode Simplex		
126-µm/0.9-mm	FOT206	
126-µm/2.0-mm	FOT207	
126-µm/3.0-mm	FOT208	

Item	Code	List Price
Fiber Optic Connectors (Continued)		
Ceramic Ferrule		
SC Multimode Simplex		
126-µm/0.9-mm	FOT209	
10-Pack	FOT209-10PAK	
126-µm/2.0-mm	FOT210	
126-µm/3.0-mm	FOT211	
FC Single-Mode Simplex		
126-µm/0.9-mm	FOT212	
126-µm/2.0-mm	FOT213	
126-µm/3.0-mm	FOT214	
FC Multimode Simplex		
126-µm/0.9-mm	FOT215	
126-µm/2.0-mm	FOT216	
126-µm/3.0-mm	FOT217	

Item	Code	List Price
Fiber Optic Connectors (Continued)		
Ceramic Ferrule		
LC Single-Mode Simplex		
125-µm/0.9-mm	FOT218	
125-µm/2.0-mm	FOT219	
125-µm/3.0-mm	FOT220	
LC Multimode Simplex		
127-µm/0.9-mm	FOT221	
127-µm/2.0-mm	FOT222	
127-µm/3.0-mm	FOT223	
LC Single-Mode Duplex		
125-µm/2.0-mm	FOT224	
125-µm/3.0-mm	FOT225	
LC Multimode Duplex		
127-µm/2.0-mm	FOT226	
127-µm/3.0-mm	FOT227	
UV-Curable, Reduced-Piece-Part, Preassembled, Glass-Insert		
ST Multimode	FO110	
SC Multimode	FO111	

Crimp-Lock Fiber Optic Connectors

The ideal choice for quick or emergency 62.5-micron multimode fiber connections.

- Meet TIA/EIA-568-A performance specs.
- No adhesive, setup, or electricity required.
- No epoxy means no mess and no waiting.
- Preradiused PC zirconia ceramic ferrule ensures fiber contact and performance.
- Press the locking arm to close the metal element securely around the fiber.
- There is no fiber splice or second joint inside the connector, and no added attenuation at the connection.
- **◆◆ WARRANTY** — 1 Year



Item	Code	List Price
Crimp-Lock Fiber Optic Connectors, Multimode		
SC	FO120	
ST	FO121	

Click and find at blackbox.com:
Fiber Optic Attenuators.

Fiber Connector Tool Kit

No-glue, no-polish ceramic-tip fiber connection. Just crimp!

ST, SC, FC,
MT-RJ
connections!

- Get an instant ceramic-tip fiber connection.
- Prepolished Fiber Connectors handle ST, SC, FC, and MT-RJ connections.
- One push with the Fiber Optic Cleaver (FT538) cuts fiber cable cleanly.
- Hold up to six splices securely in the Mechanical 6-Splice Tray (WP602).
- Stress-free splicing! No gluing or alignment problems with the No-Adhesive Mechanical Splice (FO030).
- The connector housing, two sleeves, and two compression-hood fittings make up the Prepolished Fiber Connector (FO031-R2).
- ♦♦ **WARRANTY** — 1 Year



Crimp Tool (FT546)

The BLACK BOX® Fiber Connector Tool Kit has everything you need for making fiber cable terminations: crimping and stripping tools, a bench clamp, electrical tape, an instructional video, and more!

Once you order your kit, order the **Prepolished Fiber Connectors** you need. Because the connectors are prepolished, there's no need for polishing and epoxy during installation.

All connectors come with a fiber stub in the connector tip, which is cemented firmly in place. You'll get the strength of a bonded connection with no gluing or polishing. The stub is polished to a Physical Contact (PC) finish.

The connector housing is also designed to make matching up the fiber stub and cable

easy. Insert a stripped and cleaved fiber cable in the connector, and when you feel little or no resistance, the fiber and stub are matched up correctly. Then just crimp!

The ST®, SC, FC, and MT-RJ Prepolished Fiber Connectors also feature a rotating cam that makes termination quick and smooth.

With the kit and connectors, you may also need our **No-Adhesive Mechanical Splice** package, which includes six twist-action splices. Just insert a stripped and cleaved fiber cable into each end of the splice and twist.

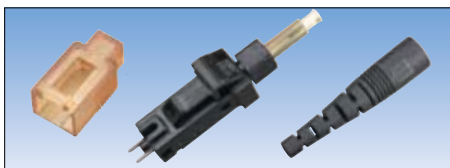
To protect and organize your cables, order the **Mechanical 6-Splice Tray**, which holds six spliced connections securely.

What's included

- Installation Tool/Bench Clamp, Crimp Tool, and Fiber Optic Cleaver
- Assembly manual and video
- Buffer tube stripper
- Ruler, strip-length gauge, scissors, and tweezers
- Electrical tape, alcohol wipes, and marker



The Multimode ST Prepolished Fiber Connector (FO031-R2) includes the housing, sleeves, and compression-hood fittings.



We even have a Multimode MT-RJ Prepolished Fiber Connector (FO034). (MT-RJ also available in single-mode.)



One push with the Fiber Optic Cleaver (FT538) cuts fiber cable cleanly.



Hold up to six splices securely in the Mechanical 6-Splice Tray (WP602).



You won't have gluing or alignment problems with the No-Adhesive Mechanical Splice (FO030). A cam locks the fibers into position for accurate alignment.

Item	Code	List Price
------	------	------------

Order your tool kit and connectors...

Fiber Connector Tool Kit	FT535-R2	
Prepolished Fiber Connectors		
Multimode		
ST	FO031-R2	
SC	FO032	
FC	FO033	
MT-RJ	FO034	
Single-Mode		
ST	FO036	
SC	FO037	
FC	FO038	
MT-RJ	FO039	

...or order the tools separately.

Installation Tool/Bench Clamp	FT545
Crimp Tool	FT546
Fiber Optic Cleaver	FT538

You may also need...

No-Adhesive Mechanical Splice, 6-Pack	FO030
Mechanical 6-Splice Tray	WP602

Fiber Termination Enclosures

Add the fiber connections you need—only

To access the cabinet from the rear, just fold open the back door. Thumbscrews hold it in place.

Each side of the cabinet has a large access opening for routing cables horizontally.

The cabinet comes with front or center adjustable brackets for easy mounting in other cabinets or racks. Use the included 10-32 or 12-24 panhead screws to mount in a 19" or 23" rack.

The inner tray pulls out for easy access to the adapter panels (page 146) that you install in the unloaded enclosure. A screw-lock safety catch keeps you from pulling out the tray too far.

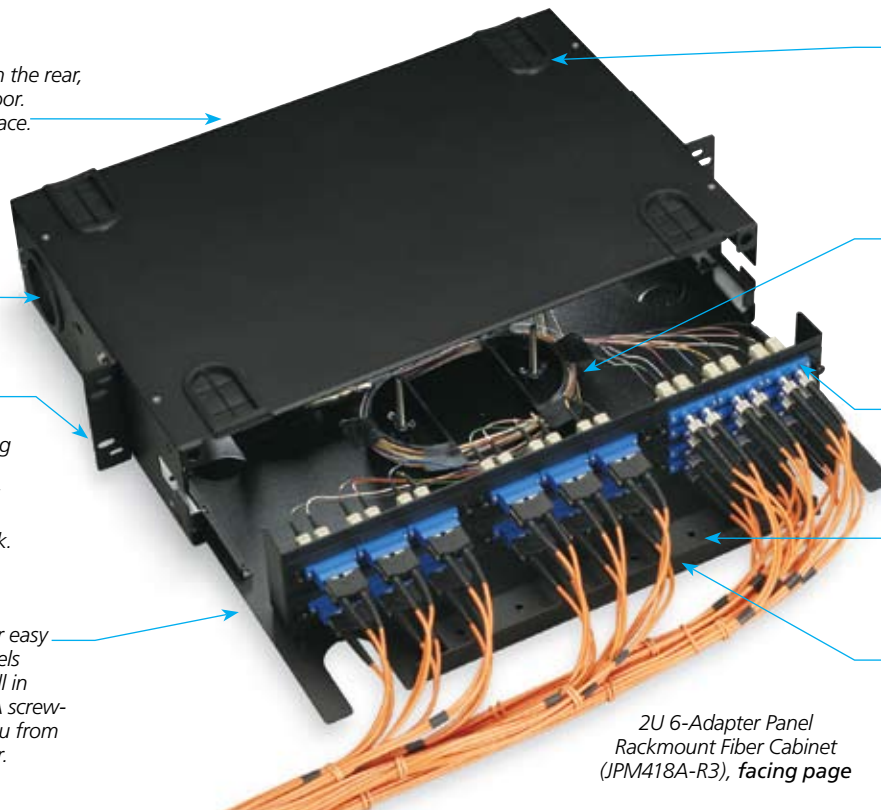
Four rubber grommet openings enable you to route fiber cable through the top of the enclosure. Four additional openings are also provided on the bottom.

Use the interior cable ties and black spool rings to hold distribution cable in place. The spool also provides storage for excess cable lengths.

Multipair fiber optic cable terminates in the snap-in adapter panels (page 146).

Rectangle cable holders (not shown but included) also snap into the tray.

The fold-down front door has a smoked plastic front cover (not shown) that enables you to view cable terminations when it's closed.



2U 6-Adapter Panel Rackmount Fiber Cabinet (JPM418A-R3), facing page

Fiber Wall Cabinets

Low-profile fiber enclosures for limited-space areas.

Open-Style Cabinets

Need a simple, economical solution for adding fiber workgroups? These low-profile cabinets conserve wall space and can be mounted almost anywhere. With these cabinets, you can interconnect to active equipment or patch vertical or horizontal runs.

The front cover extends past the connector field on the user side of the panel, providing full patch cord protection.

These super-flexible cabinets come unloaded. Snap in up to two or four adapter panels (page 146).

Lock-Style Cabinets

These cabinets are your interconnection solutions when installing secure fiber networks.

As you expand or reconfigure your system, add more panels without disturbing the network. Separate front covers provide access to the users' side and the technician's side, both of which are lockable. The cabinets feature full front access to pigtails and connectors as well as a splice tray mounting stud. They also come with all the hardware you need to route fibers and secure the cables.

The cabinets come unloaded, so you can snap in up to 4 or 12 adapter panels (page 146).

Wallmount



◆◆ **WARRANTY** — 1 Year

Item	Code	List Price
Fiber Wall Cabinets		
Open-Style		
2-Adapter Panel	JPM400A	
4-Adapter Panel	JPM401A-R2	
Lock-Style		
4-Adapter Panel	JPM402A-R2	
12-Adapter Panel	JPM403A	

TECH SPECS

Material — 16-gauge cold-rolled steel
Size — JPM400A: 10.5"H x 8.5"W x 2.5"D (26.7 x 21.6 x 6.4 cm);
 JPM401A-R2–JPM402A-R2: 12.1"H x 14"W x 3.4"D (30.7 x 35.6 x 8.6 cm);
 JPM403A: 16"H x 14"W x 6.5"D (40.6 x 35.6 x 16.5 cm)

where you need them.



Rackmount Fiber Cabinets

2U and 3U cabinets for 19" or 23" rackmount applications.

Satisfy your requirements for maximum flexibility and high-density terminations with these cabinets for your 19" or 23" rackmount fiber applications. Just snap in up to 6, 9, or 12 adapter panels (page 146). Smoked-plastic front covers protect your patch cords from dust and dirt, and make it easy to view connections. And because the front covers are lockable, you can keep your panel connections secure. A removable rear cover makes patch cords and pigtails accessible.

All models come with rackmount brackets. These brackets are adjustable for mounting in cabinets and two-post racks. They're set for 19" racks but can be reversed for use in 23" racks.

- ◆◆ **WARRANTY** — 1 Year



JPM406A-R4

TECH SPECS

Material — 16-gauge cold-rolled steel
Size — JPM418A-R3, JPM419A: 3.5"H (2U) x 17"W x 11"D (8.9 x 43.2 x 27.9 cm);
 JPM406A-R4: 5.25"H (3U) x 17"W x 11.5"D (13.3 x 43.2 x 29.2 cm)

Item	Code	List Price
Rackmount Fiber Cabinets		
2U 6-Adapter Panel	JPM418A-R3	
2U 9-Adapter Panel	JPM419A	
3U 12-Adapter Panel	JPM406A-R4	

Rackmount Fiber Shelf

Limited rack or cabinet space? This 1U fiber enclosure is your solution.



With this shelf, you can organize and protect fiber connections and splice trays in your 19" or 23" rackmount fiber applications. This shelf is particularly useful in cabinets and racks where little space is available. It accepts three snap-in adapter panels (page 146) for connections.

The adapter panels are recessed horizontally in the swing-out tray for superior patch cord protection. A splice tray stud enables you to install pigtail splice trays.

All models come with rackmount brackets. These brackets are adjustable for mounting in cabinets and two-post racks. They're set for 19" racks but can be reversed for use in 23" racks.

- ◆◆ **WARRANTY** — 1 Year

TECH SPECS

Material — 16-gauge cold-rolled steel
Size — 1.75"H (1U) x 17"W x 11"D (4.4 x 43.2 x 27.9 cm)

Item	Code	List Price
Rackmount Fiber Shelf		
1U 3-Adapter Panel	JPM407A-R3	

Adapter Panels

Panels for patching fiber cable to the termination enclosure of your choice.



Once you decide on your fiber termination enclosure (pages 144–145), choose your adapter panels. They snap easily into our Fiber Wall Cabinets, Rackmount Fiber Shelf, and Rackmount Fiber Cabinets, and enable you to make your fiber patch panel connections.

The adapter panels feature high-retention phosphor bronze alignment sleeves that work with both multimode fiber and nonangle-polish single-mode fiber.

The 4-Pack Jack Pack is an unloaded adapter panel for four snap fittings or keystone jacks.

Order the Blank Adapter Panel to snap into any unused slots in your enclosure.

- ◆◆ **WARRANTY** — 1 Year

Standard Adapter Panels

It's a snap to add ST, SC, MT-RJ, and LC connectors to your enclosure!

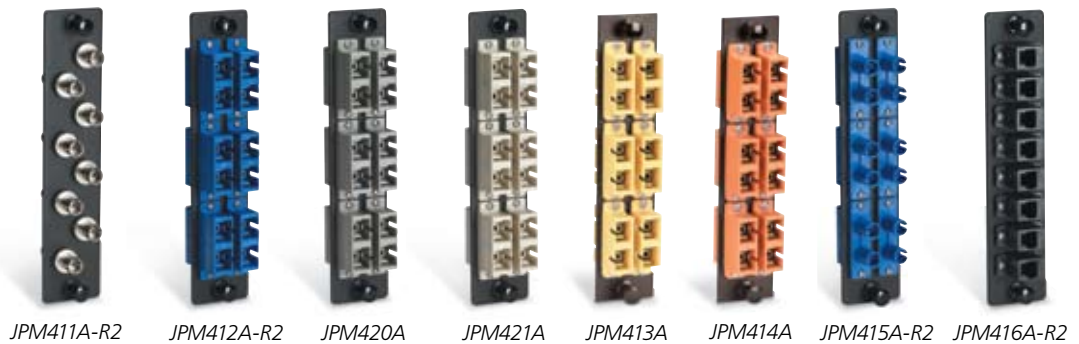


- Standard Adapter Panels are available with three ST® or SC duplex connectors each or six MT-RJ or LC connectors pairs each.
- An unloaded 4-Pack Jack Pack and a Blank Adapter Panel are also available.

Item	Code	List Price
Standard Adapter Panels		
(3) Duplex ST Pairs	JPM404A-R2	
(3) Duplex SC Pairs	JPM405A-R2	
(6) Duplex MT-RJ Pairs	JPM409A-R2	
(6) LC Pairs	JPM410A-R2	
4-Pack Jack Pack, Unloaded	JPM417A	
Blank Adapter Panel	JPM408A-R2	

HD Adapter Panels

Get more connectors in less space for your fiber patch panel applications.



- Choose from a 4-connector duplex ST model; a 6-connector duplex SC adapter panel available in five colors; a 6-connector duplex ST to SC model; an 8-connector MT-RJ version, and a 12-connector LC version.
- The ST–SC panel, which is used for adapting ST to SC connections, has six duplex ST pairs on its front and six duplex SC pairs on its rear.
- An unloaded 4-Pack Jack Pack and a Blank Adapter Panel are also available.

Item	Code	List Price
HD Adapter Panels		
(4) Duplex ST Pairs	JPM411A-R2	
(6) Duplex SC Pairs		
Blue	JPM412A-R2	
Gray	JPM420A	
Beige	JPM421A	
Yellow	JPM413A	
Orange	JPM414A	
(6) Duplex ST Pairs–(6) Duplex SC Pairs	JPM415A-R2	
(8) Duplex MT-RJ Pairs	JPM416A-R2	
(12) Duplex LC Pairs	JPM422A	
4-Pack Jack Pack, Unloaded	JPM417A	
Blank Adapter Panel	JPM408A-R2	

Rackmount Fiber Panels, Loaded

For convenience, order a rackmount panel that's preloaded with adapters.



- Choose from models loaded with 24 single-mode/multimode ST adapters, 12 duplex single-mode/multimode SC or LC adapters, or 24 duplex single-mode/multimode LC adapters.
- Adapters feature high-retention phosphor bronze alignment sleeves.
- Swing-out fiber management tray makes it easy to maintain fiber optic cable bend-radius requirements.
- Only 1U high.
- Fit in 19" or 23" racks.
- ♦♦ **WARRANTY** — 1 Year



These fiber panels come pre-loaded with a variety of fiber connectors. They occupy only one rack space and fit in both 19" and 23" racks. Mounting brackets and hardware are included.

All panels feature a swing-out fiber management tray for full front access to both front and rear interconnections, making it easier to maintain fiber optic cable bend-radius requirements.

The panels' preloaded adapters feature high-retention phosphor bronze alignment sleeves suitable for most single-mode and all multimode applications.

NOTE: Custom configurations are available for these panels and all the fiber termination enclosures featured on pages 144–145. For details, call our FREE Tech Support.

Rackmount Fiber Panels come with adapters and occupy only one rack slot. Top: JPM375A-R2; bottom: JPM370A-R2.

TECH SPECS

Material — 16-gauge cold-rolled steel **Size** — 1.75"H (1U) x 17"W x 11"D (4.4 x 43.2 x 27.9 cm)

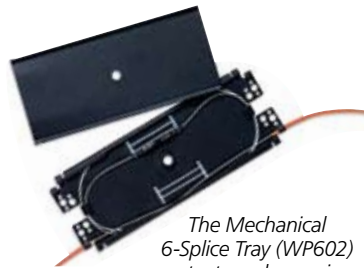
Item	Code	List Price
Rackmount Fiber Panels, 1U, with Single-Mode/Multimode Connectors with (24) Simplex ST	JPM370A-R2	
with (12) Duplex SC Pairs	JPM375A-R2	
with (12) Duplex LC Pairs	JPM380A	
with (24) Duplex LC Pairs	JPM385A	

Splice Trays

The practical accessories for your fiber enclosures.



The Splice Tray (JPM440A) mounts inside fiber termination enclosures (pages 144–145) and comes with a lid to protect your splices.



The Mechanical 6-Splice Tray (WP602) protects and organizes your cables.



No-Adhesive Mechanical Splice (FO030)

Splice Tray

- Run up to 24 strands of single-mode or multimode fiber optic cable straight through to make splices.
- Mounts inside the fiber termination enclosures on pages 144–145.
- Comes with a lid to protect your splices.
- ♦♦ **WARRANTY** — 1 Year

Mechanical Splice and Tray

- The FO030 splices up to six fiber optic cables. Insert a stripped and cleaved fiber cable into each end of the splice and twist. A cam locks the fibers into position for accurate alignment.
- Work with 250- or 900-µm cladding.
- ♦♦ **WARRANTY** — 1 Year

What's included with the JPM440A

- Top metal splice cover
- Bottom metal splice cover
- (4) multimode plastic bases
- (25) metal sleeves for single-mode splicing
- (4) single-mode plastic bases (already installed in the bottom splice cover)
- (4) yellow stickers for identifying single-mode plastic bases
- (3) 3" (7.6-cm) cable ties

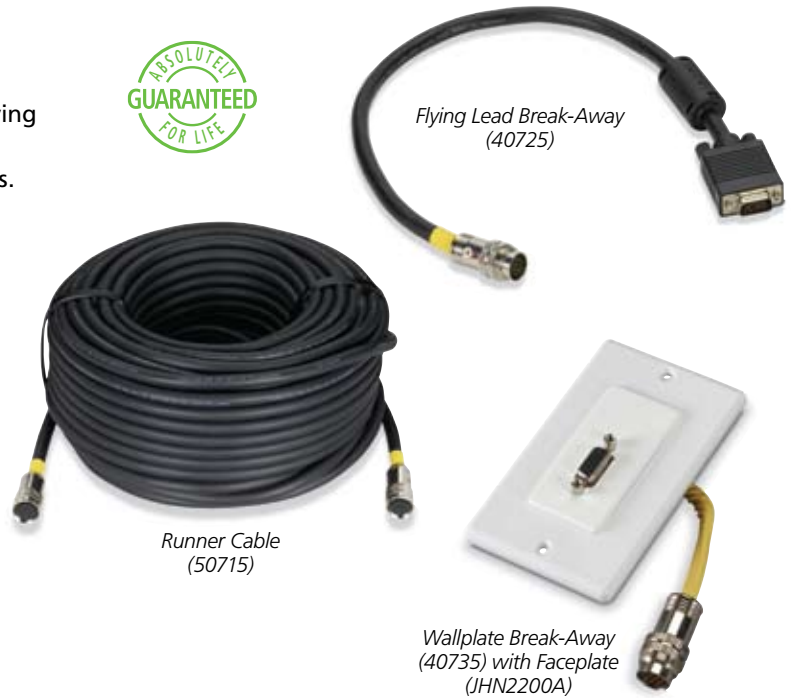
Item	Code	List Price
Splice Tray	JPM440A	
Mechanical Splice and Tray		
No-Adhesive Mechanical Splice, 6-Pack	FO030	
Mechanical 6-Splice Tray	WP602	

RapidRun Cable System

Finally! An easy-to-install audiovisual cabling system you can

Pull this cable once and just snap on different connectors when your equipment changes.

- Ideal for classrooms, auditoriums, and conference rooms.
- Pull the Runner cable once and make easy Break-Away flying lead or wallplate connections on each end.
- Need to change equipment? Just change the Break-Aways.
- No tools, training, splicing, or soldering required.
- Transmit stereo or digital audio and video signals — including UXGA, Component, and S-Video — over a single cable.
- Proprietary MUVI connectors prevent signal degradation and create secure connections.
- Threaded end caps with eye loops prevent bent pins and protect connectors from dirt and dust.
- Durable Runner cables withstand up to 15 pounds/foot of pulling tension.
- Feature 100% EMI/RFI shielding.
- CL2-rated PVC for residential use; CMP-rated plenum for commercial applications.
- ♦♦ **WARRANTY** — Lifetime



Modular connectivity.

Make audiovisual cable installations a whole lot easier with the RapidRun™ modular connectivity system. Just pull one cable, a Runner, throughout your installation and terminate it with preconfigured Break-Aways, either flying leads or wallplates. They work together to form a seamless link for your video and audio sources. When you're ready to update your system, just use new flying leads or wallplates with the appropriate connectors. It's that easy!

Simplicity and speed.

The convenient RapidRun Cable System starts with the Runner. This bundled, primary cable carries multiple conductors and multiple signal types. Just match the color-coded Runner with the color-coded

Break-Aways, which are flying leads or wallplates. If your application changes in the future, just change the Break-Away. The color-coding is based on signal type: Yellow is for PC/video, and blue is for home theater use. For details, see the **facing page** or for a simple, color-coded illustration, or go to **blackbox.com**.

MUVI connector.

Another key to this easy-to-use cabling system is the Multiuse Versatile Interconnect™ (MUVI™) connector, which has 19 precisely machined pins and is designed for strong, seamless connections. The Runners have female connectors, and the wallplates and flying leads have recessed male connectors.

What is RapidRun?

The RapidRun system consists of a Runner cable and Break-Aways, which are flying leads and wallplates. All have proprietary MUVI connectors.

To use the system, just pull the Runner cable through the walls or a conduit. Each Runner cable is actually composed of multiple coax and/or twisted-pair cables. Choose the one that matches your application and the signals you need to carry.

Then, choose the right Break-Aways for your application, either a flying lead or wallplate. You'll need one for each end of your Runner cable.

You can use the flying leads to connect your Runner cable directly to your equipment. Or, if you choose a wallplate, simply connect it to the Runner cable behind the wall. Then, connect your equipment to the front of the wallplate.

The RapidRun Runner makes installation quick and easy.

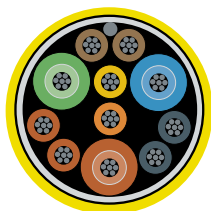
- Each Runner comes with two protective end caps with eye loops.
- End caps protect the MUVI contacts from dirt and dust.
- Use the eye loops to easily pull the Runner through conduits as small as 3/4" diameter.
- Pull the Runner through a 90° sweep.
- The Runner and end cap are strong enough to withstand 15 pounds/foot of pulling tension.



terminate—and reterminate—in seconds.

PC/Video Runner Cable (Yellow)

- (3) 28 AWG coax cables with braided copper shielding.
- (3) 24 AWG twisted pairs.
- (1) 24 AWG pair.
- Mylar® foil shield.
- UXGA supports resolutions up to 1600 x 1200 pixels (includes VGA, SVGA, XGA, and SXGA).
- Terminated with patent-pending MUVI™ connector.



RapidRun gives you simple connection choices.

To ensure quick and easy connections, RapidRun™ Runners are color coded. Just match the colors to your application.

- Yellow is for the PC/Video Runner.
- Blue is for the Home Theater Runner.

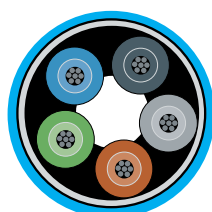
Yellow to Yellow: Yellow PC/video runner cable to yellow PC/video flying lead or wallplate.

Blue to Blue: Blue home theater runner cable to blue flying lead or wallplate.

Yellow or Blue to Green: Yellow PC/video runner cable or blue home theater runner cable to green flying lead or wallplate for either application. Remember: Yellow and blue make green!

Home Theater Runner Cable (Blue)

- (5) miniature coax assemblies.
- 28 AWG stranded copper conductors.
- Mylar foil shield.
- 85% braided copper shield.
- Ideal for Component, Composite, or S-Video applications.
- Compatible with analog and SPDIF digital audio.
- Terminated with patent-pending MUVI connector.



Buyer's Guide | Break-Away Selection Guide

	Application	Color	Flying Lead	Wallplate
HD15 Male	UXGA Video	Yellow	40725	40735
(5) RCA	Component Video, Audio	Green	40727	40737
(2) RCA, S-Video	S-Video, Audio	Green	40732	40742
(3) RCA, S-Video	Component Video, S-Video	Blue	40728	40738

Buyer's Guide | Runner Cable/Break-Away Usage Selection Chart

Primary Use	Application	Signal	PC/Video Runner Cable	Home Theater Runner Cable	Break-Aways	
					Lead	Wallplate
Video Presentation Projectors	Board Rooms, Auditoriums	UXGA Video	✓	—	40725	40735
High-Definition Video for Video Projectors and HDTVs and Stereo Audio	HDTV Home Theater	Component Video, Stereo Audio	✓	✓	40727	40737
Standard-Definition Video for Video Projection and HDTVs and Stereo Audio	Traditional Television (CRT)	S-Video, Stereo Audio	✓	✓	40732	40742
High-Definition and Standard-Definition Video for Video Projection and HDTVs	Component-to-HDTV Source (DVD Player), S-Video to DVR (TiVo®)	Component Video, S-Video	—	✓	40728	40738

Item	Code	List Price
RapidRun Cable System		
First select your Runner Cable...		
Runner Cable		
PC/Video, Yellow		
UXGA, PVC, 25-ft. (7.6-m)	50712	
UXGA, PVC, 35-ft. (10.6-m)	50714	
UXGA, PVC, 50-ft. (15.2-m)	50715	
UXGA, Plenum, 50-ft. (15.2-m)	40752	
Home Theater, Blue		
Coax (5), PVC, 35-ft. (10.6-m)	50723	

Item	Code	List Price
RapidRun Cable System (Continued)		
...next, select two Break-Aways for each Runner.		
Break-Aways		
Flying Leads		
Yellow, HD15	40725	
Green, RCA (5)	40727	
Green, RCA (2) and S-Video	40732	
Blue, RCA (3) and S-Video	40728	
Wallplates		
Yellow, HD15	40735	
Green, RCA (5)	40737	
Green, RCA (2) and S-Video	40742	
Blue, RCA (3) and S-Video	40738	

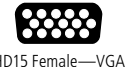
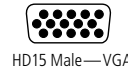
To mount your Break-Away Wallplate, order a...

Pure Home™ Networking Impressa Faceplate
Single-Gang, Electric White JHN2200A

VGA Video Cable with Ferrite Core

High-quality cable for superior video transmissions.

- HD15 video connectors have Pins 9 and 15 enabled for compliance with the Display Data Channel (DDC) standard.
- Features a tinned copper braid shield with an inner tape made of aluminum and Mylar®.
- Double shielding extends monitor signals.
- Ferrite core offers extra protection against external interference.
- Connect your monitors to other video equipment for professional PC-based presentations.
- **◆◆ WARRANTY** — Lifetime



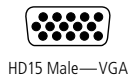
TECH SPECS

Conductors — Coax: (3) 75-ohm 28 AWG mini coax, (9) 24 AWG standard;
Hood Assembly — Molded plastic
Jacket — UL® CL2 CMP, CSA FT4
Operating Temperature — -4 to +176° F (-20 to +80° C)
Shielding — Shield: Tinned copper braid; Inner tape: Aluminum and Mylar; Outer braid: Tinned copper
Connectors — (2) HD15

Item	Female/Female	Male/Female	Male/Male	List Price
VGA Video Cable with Ferrite Core, HD15, PVC				
3-ft. (0.9-m)	EVNPS06-0003-FF	EVNPS06-0003-MF	EVNPS06-0003-MM	
5-ft. (1.5-m)	EVNPS06-0005-FF	EVNPS06-0005-MF	EVNPS06-0005-MM	
10-ft. (3.0-m)	EVNPS06-0010-FF	EVNPS06-0010-MF	EVNPS06-0010-MM	
20-ft. (6.0-m)	EVNPS06-0020-FF	EVNPS06-0020-MF	EVNPS06-0020-MM	
25-ft. (7.6-m)	EVNPS06-0025-FF	EVNPS06-0025-MF	EVNPS06-0025-MM	
50-ft. (15.2-m)	EVNPS06-0050-FF	EVNPS06-0050-MF	EVNPS06-0050-MM	
75-ft. (22.8-m)	EVNPS06-0075-FF	EVNPS06-0075-MF	EVNPS06-0075-MM	
100-ft. (30.4-m)	EVNPS06-0100-FF	EVNPS06-0100-MF	EVNPS06-0100-MM	
Custom Lengths	EVNPS06-FF	EVNPS06-MF	EVNPS06-MM	

Premium VGA Cable with Audio

The right cable for great audio *and* video performance!



- Listen to great sound while viewing clear, high-resolution video.
- Features HD15 video connectors and 3.5-mm audio connectors.
- Pins 9 and 15 are enabled for compliance with the Display Data Channel (DDC) standard.
- **◆◆ WARRANTY** — Lifetime

TECH SPECS

Cable Construction — Coax: 28 AWG, tinned copper; Audio: 24 AWG, stranded copper
Distance (Maximum) — 100 ft. (30.4 m)
Hood Assembly — Molded with strain relief
Impedance — Coax: 75 ohms
Jacket — Gray PVC
Shielding — Inner: Aluminum foil/Mylar; Outer: 93% coverage copper braid
Connectors — (2) HD15 M (15 pins); (2) 3.5-mm M stereo plug

Item	Code	List Price
Premium VGA Cable with Audio, (2) HD15 Male/(2) 3.5-mm Male, PVC		
3-ft. (0.9-m)	EVNPS09-0003	
5-ft. (1.5-m)	EVNPS09-0005	
10-ft. (3.0-m)	EVNPS09-0010	
15-ft. (4.5-m)	EVNPS09-0015	
20-ft. (6.0-m)	EVNPS09-0020	
25-ft. (7.6-m)	EVNPS09-0025	
35-ft. (10.6-m)	EVNPS09-0035	
50-ft. (15.2-m)	EVNPS09-0050	
75-ft. (22.8-m)	EVNPS09-0075	
100-ft. (30.4-m)	EVNPS09-0100	

Premium VGA Video Extension Cable

Move your VGA monitor up to 100 feet from your CPU.



- Connect your monitors to splitters for professional PC-based presentations.
- Run multiple CPUs from one monitor by linking them to a switch.
- EVNPS10 has 90° hoods, which make connections in tight spots easier.
- Triple shielded to extend monitor signals.
- Each coax wire has a separate drain wire.
- Compatible with all VGA computers.
- Thumbscrews for easy connections.
- Available with PVC or plenum jackets.
- ♦♦ **WARRANTY** — Lifetime



EVNPS05

EVNPS10



HD15 Male—VGA
(Pins 9 and 15 are removed on the EVNPS05 and EVNPS07 for compatibility with all VGA computers. EVNPS10 supports all 15 pins.)



HD15 Female—VGA

TECH SPECS

Conductors — Coax: (3) 75-ohm, 28 AWG, tinned copper;
VGA: (7) 24 AWG, tinned copper
Hood Assembly — Molded plastic
Operating Temperature — -4 to +176° F (-20 to +80° C)
Shielding — Shield: Tinned copper braid;
Inner tape: Aluminum and Mylar®;
Outer braid: Tinned copper
Connectors — (2) HD15

With Premium VGA Video Extension Cable from Black Box, your video applications truly go the distance!

You can make all kinds of connections, too! For example, connect a remote monitor to a network server. Or you can link a single monitor and several CPUs to a video switch. If your application is truly video intensive, this cable is great for connecting several monitors to a splitter so you can turn a PC-based presentation into a compelling video production. And if you just want to move your CPU to a safe place, our Premium VGA Video Extension Cable is the simple solution you need.

This cable enables you to put your monitors where you need them—up to 100 feet (30.4 m) away. With a video splitter, you can put your monitor up to 250 feet (76.2 m) from your CPU.

Our cable with 90° hoods enables you to make connections in close quarters, such as behind your CPU, against a wall, etc.

The plenum cable is safe for installation above suspended ceilings, in air ducts, and with raceways.

Why wait any longer to make long-distance video connections? Order this cable today!

Item	Female/Female	Male/Female	Male/Male	List Price
Premium VGA Video Extension Cable, HD15				
PVC, Straight Hoods				
3-ft. (0.9-m)	EVNPS05-0003-FF	EVNPS05-0003-MF	EVNPS05-0003-MM	
5-ft. (1.5-m)	EVNPS05-0005-FF	EVNPS05-0005-MF	EVNPS05-0005-MM	
10-ft. (3.0-m)	EVNPS05-0010-FF	EVNPS05-0010-MF	EVNPS05-0010-MM	
20-ft. (6.0-m)	EVNPS05-0020-FF	EVNPS05-0020-MF	EVNPS05-0020-MM	
25-ft. (7.6-m)	EVNPS05-0025-FF	EVNPS05-0025-MF	EVNPS05-0025-MM	
50-ft. (15.2-m)	EVNPS05-0050-FF	EVNPS05-0050-MF	EVNPS05-0050-MM	
75-ft. (22.8-m)	EVNPS05-0075-FF	EVNPS05-0075-MF	EVNPS05-0075-MM	
100-ft. (30.4-m)	EVNPS05-0100-FF	EVNPS05-0100-MF	EVNPS05-0100-MM	
150-ft. (45.7-m)	EVNPS05-0150-FF	EVNPS05-0150-MF	EVNPS05-0150-MM	
200-ft. (60.9-m)	EVNPS05-0200-FF	EVNPS05-0200-MF	EVNPS05-0200-MM	
300-ft. (91.4-m)	—	EVNPS05-0300-MF	EVNPS05-0300-MM	
Custom Lengths	—	EVNPS05-MF	—	
PVC, 90° Hoods				
5-ft. (1.5-m)	EVNPS10-0005-FF	EVNPS10-0005-MF	EVNPS10-0005-MM	
10-ft. (3.0-m)	EVNPS10-0010-FF	EVNPS10-0010-MF	EVNPS10-0010-MM	
20-ft. (6.0-m)	EVNPS10-0020-FF	EVNPS10-0020-MF	EVNPS10-0020-MM	
Custom Lengths	EVNPS10-FF	EVNPS10-MF	EVNPS10-MM	
Plenum, Straight Hoods				
5-ft. (1.5-m)	EVNPS07-0005-FF	EVNPS07-0005-MF	EVNPS07-0005-MM	
10-ft. (3.0-m)	EVNPS07-0010-FF	EVNPS07-0010-MF	EVNPS07-0010-MM	
20-ft. (6.0-m)	EVNPS07-0020-FF	EVNPS07-0020-MF	EVNPS07-0020-MM	
25-ft. (7.6-m)	EVNPS07-0025-FF	EVNPS07-0025-MF	EVNPS07-0025-MM	
35-ft. (10.6-m)	EVNPS07-0035-FF	EVNPS07-0035-MF	EVNPS07-0035-MM	
50-ft. (15.2-m)	EVNPS07-0050-FF	EVNPS07-0050-MF	EVNPS07-0050-MM	
75-ft. (22.8-m)	EVNPS07-0075-FF	EVNPS07-0075-MF	EVNPS07-0075-MM	
100-ft. (30.4-m)	EVNPS07-0100-FF	EVNPS07-0100-MF	EVNPS07-0100-MM	

VGA-**RGBHV** Cable

Connect a high-definition graphics monitor to your CPU.

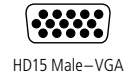


EYRGS4 features (1) HD15 and (5) BNC coax connectors.

- Attach a monitor with red, green, blue, and horizontal and vertical sync inputs to a VGA port.
- **◆◆ WARRANTY** — Lifetime

VGA-**RGBHV** Cable is specially designed to match **RGBHV** impedance standards. It has molded BNC leads for strain relief plus woven shielding to block EMI/RFI for clear, noise-free video.

This cable also enables horizontal and vertical sync signals to be carried on separate coax lines.



Item	Code	List Price
VGA- RGBHV Cable, (1) HD15 Male/(5) BNC Male		
PVC		
3-ft. (0.9-m)	EYRGS4-0003	
6-ft. (1.8-m)	EYRGS4-0006	
10-ft. (3.0-m)	EYRGS4-0010	
15-ft. (4.5-m)	EYRGS4-0015	
20-ft. (6.0-m)	EYRGS4-0020	
Custom Lengths	EYRGS4-MM	
Plenum		
Custom Lengths	EYPRGS4-MM	

RGBHV-RGBHV** Cable with Ferrite Bead**

High-quality video cable with five BNC connectors.

- Connects a high-resolution **RGBHV** video monitor.
- Five molded BNC leads provide strain relief.
- Spiral shielding blocks EMI/RFI.
- **◆◆ WARRANTY** — Lifetime

Connect your high-resolution **RGBHV** video display using versatile BLACK BOX® **RGBHV-**RGBHV** Cable with Ferrite Bead**.

This cable is specially designed to match **RGBHV** impedance standards. It has five molded BNC leads for strain relief and a spiral shield

conductor to block EMI/RFI for clear, noise-free video. Installation is easy because the coax cables are color coded for simple identification.

Don't sacrifice quality. Our high-resolution **RGBHV-**RGBHV** Cable with Ferrite Bead** ensures clean multiplatform video transmission!



Item	Code	List Price
RGBHV-RGBHV Cable with Ferrite Bead		
6-ft. (1.8-m)	EYRGS5-0006	
10-ft. (3.0-m)	EYRGS5-0010	
20-ft. (6.0-m)	EYRGS5-0020	

RGBS Video Cable

Move your monitor up to 50 feet away.

- Move your monitor 5 to 50 feet (1.5 to 15.2 m) from your CPU.
- Four BNC to four BNC connectors.
- Tinned-copper braid shielding.
- **◆◆ WARRANTY** — Lifetime

Four 75-ohm coax cables are twisted together with fiber filler and a polyester binder tape inside a PVC jacket. A tinned-copper braid shielding surrounds each coax cable to protect it from the effects of EMI/RFI interference.

All four cables are terminated with BNC connectors. Each individual cable is color coded to make it easy to install correctly.



NOTE: Also available in male/female versions. To order, call our FREE Tech Support.

TECH SPECS

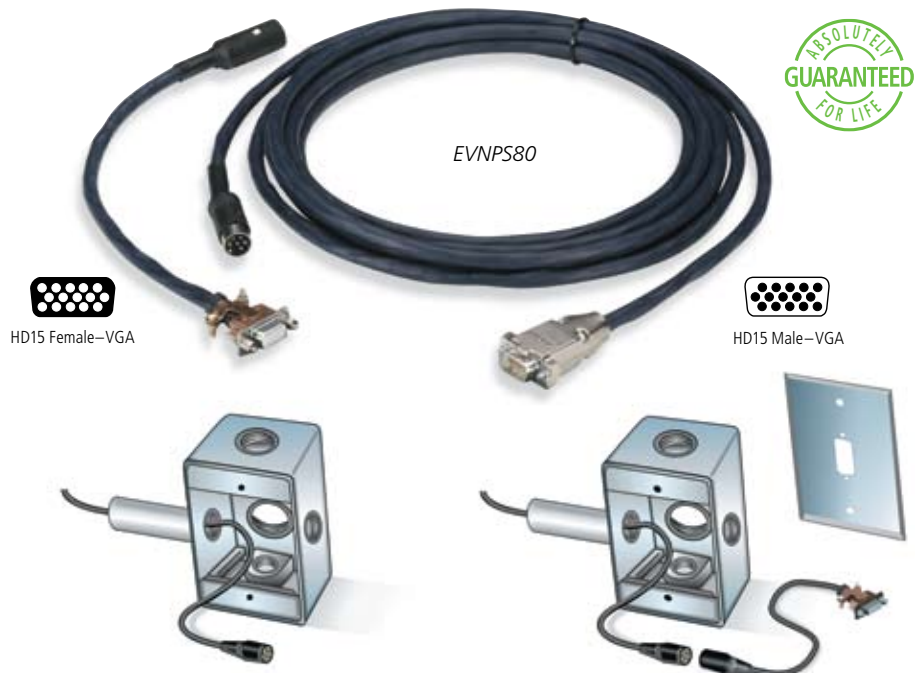
Attenuation — 2.5 dB/100 ft. @ 100 MHz
Conductors — (4) stranded copper cores
Diameter — 0.305" (0.775 cm)
Impedance — 75 ohms
Jacket Material — PVC
Jacket Thickness — 0.033" (0.084 cm)
Mutual Capacitance — 18.5 pF/ft.
Resistance — 0.098 ohms/ft. nominal
Shielding — 38 AWG tinned-copper braid, 90% coverage
Wire Gauge — 30 AWG, center conductor

Item	Code	List Price
RGBS Video Cable		
(4) BNC Male/(4) BNC Male		
10-ft. (3.0-m)	EYNRGS2-0010-MM	
25-ft. (7.6-m)	EYNRGS2-0025-MM	
50-ft. (15.2-m)	EYNRGS2-0050-MM	
(4) BNC Female/(4) BNC Female		
5-ft. (1.5-m)	EYNRGS2-0005-FF	
10-ft. (3.0-m)	EYNRGS2-0010-FF	
25-ft. (7.6-m)	EYNRGS2-0025-FF	
50-ft. (15.2-m)	EYNRGS2-0050-FF	

Easy-Pull VGA Cable

Run VGA cable through walls or inside tight conduits. This cable goes 150 feet or more!

- Ideal for system integration.
- Connects PC or RGB video sources to display devices like projectors, flat plasma screens, and more.
- Provides 1024 x 768 video resolution up to 150 feet and 800 x 600 video resolution up to 200 feet.
- Super flexible! You can pull it through 3/4" conduits, and it makes pull times faster.
- Plenum-rated jacket.
- Includes heat shrink tubing for permanent installation.
- Available in six standard lengths as well as custom lengths.
- The panel-mount HD15 connector works perfectly with our DB9 Stainless Steel Wallplates (blackbox.com).
- ♦♦ **WARRANTY** — Lifetime



HD15 Female-VGA



HD15 Male-VGA

When you need to transmit high-resolution SVGA video but have to route cable behind a wall or inside a conduit, choose our BLACK BOX® Easy-Pull VGA Cable.

This cable is perfect for system integration and can connect PC or RGB video to display devices such as projectors, video walls, flat plasma screens, and monitors. It maintains excellent signal strength and provides 1024 x 768 resolution up to 150 feet (45.7 m) and 800 x 600 resolution up to 200 feet (60.9 m).

Designed with a proprietary construction, Easy-Pull VGA Cable is flexible and simplifies system integration. It's perfect for tight spaces and shortens pull time. In fact, the cable's construction enables it to be pulled through a 3/4" conduit!

The jacket is plenum rated. It also comes with heat shrink tubing to secure the 6-pin DIN connector permanently.

Use Easy-Pull VGA Cable for video applications where cable needs to be routed behind the wall or inside a conduit to an outlet.

The cable includes heat shrink tubing and a panel-mount HD15 female connector. For permanent installation, slip the tubing over the cable and attach the connector to the faceplate.

TECH SPECS

- Attenuation** — 4.65 dB/100 ft. (30.4 m) nominal @ 100 MHz
- Cable Construction** — 26 AWG tinned, stranded copper
- Capacitance** — 16.3 pF/ft. nominal
- Impedance** — 75 ohms nominal
- Insulation** — Natural foamed fluorinated ethylene propylene, 0.072" (0.2 cm) diameter
- Jacket** — OFNP PVC
- Resistance** — 40 ohms/1000 ft. (304.8 m)
- Resolution (Maximum)** — 1024 x 768: 150 ft. (45.7 m); 800 x 600: 200 ft. (60.9 m)
- Shield** — Inner: Aluminum/polyester tape; Outer: Spiral 38 AWG tinned copper, 97% coverage
- Time Delay** — 1.20 ns/ft. nominal
- Velocity of Propagation** — 85%
- Connectors** — (1) HD15 M; (1) removable HD15 F; (1) 6-pin DIN M; (1) 6-pin DIN F

Item	Code	List Price
Easy-Pull VGA Cable		
15-ft. (4.5-m)	EVNPS80-0015	
25-ft. (7.6-m)	EVNPS80-0025	
35-ft. (10.6-m)	EVNPS80-0035	
50-ft. (15.2-m)	EVNPS80-0050	
100-ft. (30.4-m)	EVNPS80-0100	
150-ft. (45.7-m)	EVNPS80-0150	
Custom Lengths	EVNPS80	

You may need a wallplate...

DB9 Wallplates (For details, see blackbox.com.)

Item	Code	List Price
Single-Width		
(1) Punch	WP070	
(2) Punch	WP071	
Double-Width		
(1) Punch	WP072	
(2) Punch	WP073	

Ultra-Thin SVGA Cable

Big performance in a small package.

- When looks count, plug into this SVGA cable.
- Small size is excellent for travel — it's an easy fit for your carry-on or laptop case.
- Less than 0.18" in diameter, this cable actually consists of three ultra-thin coax lines.
- Flexible, so it's ideal for tight spaces.
- You can panel mount this cable, too. Connect each end with either male jack screws or hex standoffs (included).



HD15 Male-VGA

- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
Ultra-Thin SVGA Cable, HD15 Male/Male		
5-ft. (1.5-m)	EVNPS08-0005-MM	
10-ft. (3.0-m)	EVNPS08-0010-MM	
15-ft. (4.5-m)	EVNPS08-0015-MM	

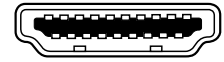
Black Box Explains

HDMI cable connectors.

High-Definition Multimedia Interface (HDMI) is the first digital interface to combine uncompressed high-definition video, multichannel audio, and intelligent format and command data in a single cable.

Based on a standard introduced in December 2002 and used by many leading consumer electronics manufacturers, HDMI supports standard, enhanced, and high-definition video. It has a bandwidth of up to 5 Gigabytes so it supports all HDTV standards and has bandwidth to spare for future applications.

HDMI is backward compatible with DVI equipment such as PCs, TVs, and other electronic devices using the DVI standard (the DVI device simply ignores the extra data), and is emerging as the connection standard for HDTV and the consumer electronics market.



HDMI

HDMI offers significant benefits over older analog A/V connections. It provides superior video and audio clarity because there's no signal loss from digital-to-analog conversions. HDMI supports resolutions of 1920 x 1080p and multiple audio formats from standard stereo to multichannel surround sound.

HDMI Cables and Adapters

Transmit your digital video and audio signals over one cable!



- Just one cable contains the wiring you need to transmit high-bandwidth compressed video, multichannel digital audio, and intelligent format and command data.
- Use to connect HDTV set-top boxes, digital TVs, DVDs, and other equipment with HDMI interfaces.
- Enables two-way communication between a video source and a digital TV for simple, remote, point-and-click configurations.
- Economical! Simplifies cabling in electronics and home theater installations.
- Order adapters to convert HDMI cables or ports to DVI, or vice versa. Swivel adapters turn 45° for an angled installation.
- All have matched impedance.
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
HDMI to HDMI Cable, PVC, Male/Male		
1-m (3.2-ft.)	EVHDMI01-001M	
2-m (6.5-ft.)	EVHDMI01-002M	
3-m (9.8-ft.)	EVHDMI01-003M	
5-m (16.4-ft.)	EVHDMI01-005M	
HDMI to DVI Cable, PVC, Male/Male		
2-m (6.5-ft.)	EVHDMI02-002M	
3-m (9.8-ft.)	EVHDMI02-003M	
5-m (16.4-ft.)	EVHDMI02-005M	
HDMI Adapters		
HDMI Male to DVI Female		
	FA790	
HDMI Male to DVI Male		
	FA795	
HDMI Swivel Adapters, 24-Pin		
HDMI Male to DVI Female		
	FA791	
HDMI Female to DVI Male		
	FA793	
HDMI Cable Adapter		
HDMI Male to DVI Female with 3-m (9.8-ft.) Cable		
	EVNDVI10-0010	

M1 Cables

The right cables to connect your digital and analog video projectors.



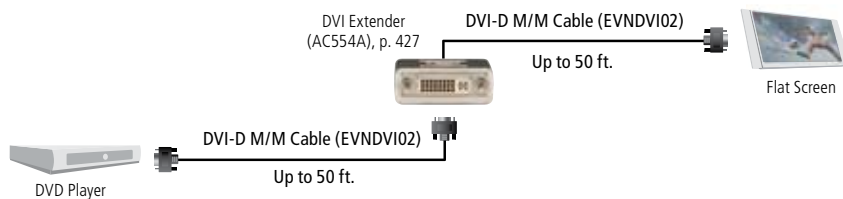
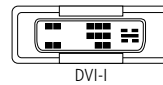
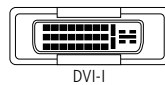
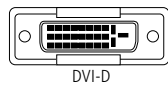
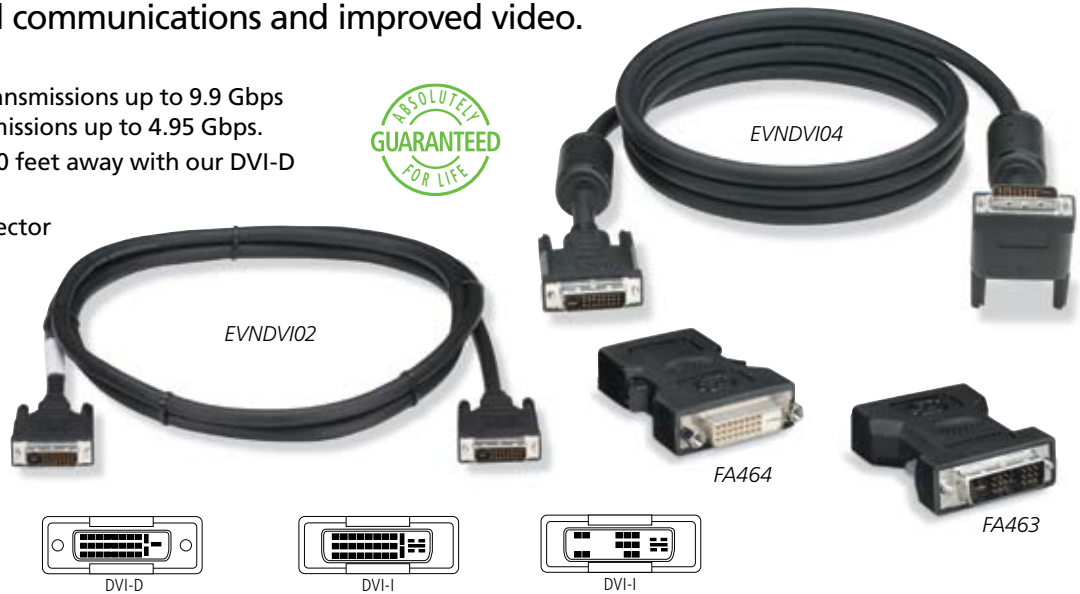
- Use these cables to connect digital video projectors with M1 connectors.
- Choose from cables with M1, VGA, and DVI-I connectors.
- The EVNM103 and EVNM105 are Y cables with a USB connector for attaching PDA interface cards or other USB equipment.
- Cables are UL® listed.
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price	Item	Code	List Price
M1 Cables, PVC, Beige					
M1-DA Male to M1-DA Male					
3-ft. (0.9-m)	EVNM101-0003		M1-DA Male to VGA Male and USB Type A Male		
6-ft. (1.8-m)	EVNM101-0006		3-ft. (0.9-m)	EVNM103-0003	
10-ft. (3.0-m)	EVNM101-0010		6-ft. (1.8-m)	EVNM103-0006	
15-ft. (4.5-m)	EVNM101-0015		10-ft. (3.0-m)	EVNM103-0010	
25-ft. (7.6-m)	EVNM101-0025		15-ft. (4.5-m)	EVNM103-0015	
M1-A Male to VGA Male					
3-ft. (0.9-m)	EVNM102-0003		M1-DA Male to DVI-I Male		
6-ft. (1.8-m)	EVNM102-0006		3-ft. (0.9-m)	EVNM104-0003	
10-ft. (3.0-m)	EVNM102-0010		6-ft. (1.8-m)	EVNM104-0006	
15-ft. (4.5-m)	EVNM102-0015		10-ft. (3.0-m)	EVNM104-0010	
25-ft. (7.6-m)	EVNM102-0025		15-ft. (4.5-m)	EVNM104-0015	
M1-DA Male to DVI-I Male and USB Type A Male					
3-ft. (0.9-m)	EVNM105-0003		M1-DA Male to DVI-I Male and USB Type A Male		
6-ft. (1.8-m)	EVNM105-0006		3-ft. (0.9-m)	EVNM105-0003	
10-ft. (3.0-m)	EVNM105-0010		6-ft. (1.8-m)	EVNM105-0006	
15-ft. (4.5-m)	EVNM105-0015		10-ft. (3.0-m)	EVNM105-0010	
			15-ft. (4.5-m)	EVNM105-0015	

DVI Cables and Adapters

Get high-speed digital communications and improved video.

- Supports dual-link digital transmissions up to 9.9 Gbps and single-link digital transmissions up to 4.95 Gbps.
- Send presentations up to 100 feet away with our DVI-D Cable and DVI Extender.
- Optimizes computer-to-projector connections, eliminating resolution or color changes and pixel-lock adjustments.
- Meets the requirements of digital video, digital telecommunications, and parallel computing.
- Cable with 90° hoods makes connections easier in tight spots.
- ♦♦ **WARRANTY** — Lifetime



Designed specifically for high-performance data-transmission applications, BLACK BOX® DVI Cables meet the requirements of digital video, digital telecommunications, and parallel computing applications.

For dual-link applications, the cables enable blistering speeds up to 9.9 Gbps! Data blazes at speeds up to 4.95 Gbps in single-link applications.

An all-digital connection also means your laptop is automatically optimized to work with a projector. That eliminates annoyances such as projector pixel-lock adjustments and computer resolution or color changes. The DVI cables enable you to use advanced features in PowerPoint® to create more impressive presentations.

Extend the DVI spec and send digital presentations up to 100 feet (30.5-m) away with our DVI-D/DVI-D cable and our DVI Extender on [page 427](#).

If you have a non-DVI monitor but want to take advantage of the high-performance digital video of DVI-I or DVI-D, you need our DVI Adapters. FA461 links a DVI-I female interface with a VGA HD15 male interface. FA462 connects a DVI-I male interface to a VGA HD15 female interface. Upgrade slower, lower-resolution DFP interfaces by selecting either FA463 for female DVI-D to male DFP or FA464 for male DVI-D to female DFP connectivity.

Item	Code	List Price
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DVI Cables		
DVI-A Male, Straight Hood/VGA HD15 Male		
6-ft. (1.8-m)	EVNDVI01-0006	
10-ft. (3.0-m)	EVNDVI01-0010	
15-ft. (4.5-m)	EVNDVI01-0015	
25-ft. (7.6-m)	EVNDVI01-0025	
DVI-A Male, 90° Hood/VGA HD15 Male		
6-ft. (1.8-m)	EVNDVI04-0006	
10-ft. (3.0-m)	EVNDVI04-0010	
Custom Lengths	EVNDVI04	
DVI-D Male/DVI-D Male, Straight Hoods		
6-ft. (1.8-m)	EVNDVI02-0006	
10-ft. (3.0-m)	EVNDVI02-0010	
15-ft. (4.5-m)	EVNDVI02-0015	
25-ft. (7.6-m)	EVNDVI02-0025	
35-ft. (10.6-m)	EVNDVI02-0035	
50-ft. (15.2-m)	EVNDVI02-0050	
DVI-D Male/DVI-D Female Extension		
6-ft. (1.8-m)	EVNDVI03-0006	
10-ft. (3.0-m)	EVNDVI03-0010	
DVI Adapters		
DVI-I Male-VGA HD15 Female	FA461	
DVI-I Female-VGA HD15 Male	FA462	
DVI-D Male-DFP Female	FA463	
DVI-D Female-DFP Male	FA464	

Black Box Explains

DVI cable connectors.

The Digital Visual Interface (DVI) standard is based on transition-minimized differential signaling (TMDS). In a typical single-line digital signal, voltage is raised to a high level and decreased to a low level to create transitions that convey data. To minimize the number of transitions needed to transfer data, TMDS uses a pair of signal wires. When one wire goes to a high-voltage state, the other goes to a low-voltage state. This balance increases the data-transfer rate and improves accuracy.

There are several types of connectors: DVI-D, DVI-I, DVI-A, DFP, and EVC. **DVI-D** is a digital-only connector. **DVI-I** supports both digital and analog RGB connections, and is used by some manufacturers on products instead of separate analog and digital connectors. **DVI-A** is used to carry an analog DVI signal to a VGA device, such as a display. **DFP**, like DVI-D, was an early digital-only connector used on some displays; it's being phased out. **EVC** (also known as **P&D**, for Plug & Display) is similar to DVI-I, only it's slightly larger in size. It also handles digital and analog connections, and it's used primarily on projectors.

Component Video Cable
Component Video Cable with Audio
Hard-to-find cable for high-resolution video and audio—at a great price!

- Use for digital imaging, high-definition TV, plasma screens, soundstages, recording equipment, DVDs, and more.
- Video connectors are green, blue, and red, and are labeled Y, Pb, and Pr.
- Audio connectors are red and white, and are labeled right and left.
- Video signals are carried over mini-coax conductors for superior performance.
- Coax conductors are protected by foil and copper braided shielding to reduce distortion.
- 24-karat gold plating ensures corrosion-free connections.
- **◆◆ WARRANTY** — Lifetime



Using only one cable reduces clutter and makes audio/video connections easy!

Item	Code	List Price	Item	Code	List Price
Component Video Cable, (3) Male RCA Connectors on Each End			Component Video Cable with Audio, (5) Male RCA Connectors on Each End		
2-ft. (0.6-m)	EJ517-0002		2-ft. (0.6-m)	EJ518-0002	
5-ft. (1.5-m)	EJ517-0005		5-ft. (1.5-m)	EJ518-0005	
10-ft. (3.0-m)	EJ517-0010		10-ft. (3.0-m)	EJ518-0010	
15-ft. (4.5-m)	EJ517-0015		15-ft. (4.5-m)	EJ518-0015	
20-ft. (6.0-m)	EJ517-0020		20-ft. (6.0-m)	EJ518-0020	
25-ft. (7.6-m)	EJ517-0025		25-ft. (7.6-m)	EJ518-0025	
50-ft. (15.2-m)	EJ517-0050		50-ft. (15.2-m)	EJ518-0050	
Custom Lengths	EJ517				

Deluxe Audio/Video Cable • Deluxe Video Cable • Deluxe Audio Cable
Don't pay top price for premium audio and video cable!

- Use for TVs, VCRs, DVD players, DDS satellite boxes, home stereo equipment, recording equipment, and more.
- Industry-standard color coding.
- 24-karat gold-plated connectors.
- Choose cables with right-angle plugs for making connections in tight spaces.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price	Item	Code	List Price	Item	Code	List Price
Deluxe Audio/Video Cable, (1) S-Video Male/ (2) RCA Male/Male Connectors on Each End			Deluxe Video Cable, (1) RCA Connector on Each End			Deluxe Dual Audio Cable, Right-Angle, (2) RCA Connectors on Each End		
(3) Male to (3) Male			(1) Male to (1) Male			(2) Male to (2) Male		
2-ft. (0.6-m)	EJ516-0002		5-ft. (1.5-m)	EJ513-0005-MM		5-ft. (1.5-m)	EJ512-0005-MM	
5-ft. (1.5-m)	EJ516-0005		10-ft. (3.0-m)	EJ513-0010-MM		10-ft. (3.0-m)	EJ512-0010-MM	
10-ft. (3.0-m)	EJ516-0010		15-ft. (4.5-m)	EJ513-0015-MM		15-ft. (4.5-m)	EJ512-0015-MM	
15-ft. (4.5-m)	EJ516-0015		25-ft. (7.6-m)	EJ513-0025-MM		15-ft. (4.5-m)	EJ512-0015-MM	
25-ft. (7.6-m)	EJ516-0025		50-ft. (15.2-m)	EJ513-0050-MM		25-ft. (7.6-m)	EJ512-0025-MM	
Custom Lengths	EJ516-MM		Custom Lengths	EJ513-MM		50-ft. (15.2-m)	EJ512-0050-MM	
Deluxe Audio/Video Cable, (3) RCA Connectors on Each End			(1) Male to (1) Female			Custom Lengths		
(3) Male to (3) Male			5-ft. (1.5-m)	EJ513-0005-MF		EJ512-MM		
5-ft. (1.5-m)	EJ511-0005-MM		10-ft. (3.0-m)	EJ513-0010-MF		(2) Male to (2) Female		
10-ft. (3.0-m)	EJ511-0010-MM		15-ft. (4.5-m)	EJ513-0015-MF		5-ft. (1.5-m)	EJ512-0005-MF	
15-ft. (4.5-m)	EJ511-0015-MM		25-ft. (7.6-m)	EJ513-0025-MF		10-ft. (3.0-m)	EJ512-0010-MF	
25-ft. (7.6-m)	EJ511-0025-MM		50-ft. (15.2-m)	EJ513-0050-MF		15-ft. (4.5-m)	EJ512-0015-MF	
50-ft. (15.2-m)	EJ511-0050-MM		Custom Lengths	EJ513-MM		25-ft. (7.6-m)	EJ512-0025-MF	
Custom Lengths	EJ511-MM		Cable, (2) RCA Connectors on Each End			Custom Lengths		
(3) Male to (3) Female			(2) Male to (2) Male			EJ512-MF		
5-ft. (1.5-m)	EJ511-0005-MF		5-ft. (1.5-m)	EJ510-0005-MM		Deluxe Single Audio Cable, (1) RCA Connector on Each End		
10-ft. (3.0-m)	EJ511-0010-MF		10-ft. (3.0-m)	EJ510-0010-MM		(1) Male to (1) Male		
15-ft. (4.5-m)	EJ511-0015-MF		15-ft. (4.5-m)	EJ510-0015-MM		5-ft. (1.5-m)	EJ514-0005-MM	
25-ft. (7.6-m)	EJ511-0025-MF		25-ft. (7.6-m)	EJ510-0025-MM		10-ft. (3.0-m)	EJ514-0010-MM	
50-ft. (15.2-m)	EJ511-0050-MF		50-ft. (15.2-m)	EJ510-0050-MM		15-ft. (4.5-m)	EJ514-0015-MM	
Custom Lengths	EJ511-MM		Custom Lengths	EJ510-MM		25-ft. (7.6-m)	EJ514-0025-MM	
(2) Male to (2) Female			(2) Male to (2) Female			50-ft. (15.2-m)		
5-ft. (1.5-m)	EJ510-0005-MF		5-ft. (1.5-m)	EJ510-0005-MF		EJ514-MM		
10-ft. (3.0-m)	EJ510-0010-MF		10-ft. (3.0-m)	EJ510-0010-MF		(1) Male to (1) Female		
15-ft. (4.5-m)	EJ510-0015-MF		15-ft. (4.5-m)	EJ510-0015-MF		5-ft. (1.5-m)	EJ514-0005-MF	
25-ft. (7.6-m)	EJ510-0025-MF		25-ft. (7.6-m)	EJ510-0025-MF		10-ft. (3.0-m)	EJ514-0010-MF	
50-ft. (15.2-m)	EJ510-0050-MF		50-ft. (15.2-m)	EJ510-0050-MF		15-ft. (4.5-m)	EJ514-0015-MF	
Custom Lengths	EJ510-MF		Custom Lengths	EJ510-MF		25-ft. (7.6-m)	EJ514-0025-MF	
(2) Male to (2) Female			(2) Male to (2) Female			50-ft. (15.2-m)		
5-ft. (1.5-m)	EJ510-0005-MF		5-ft. (1.5-m)	EJ510-0005-MF		EJ514-MF		
10-ft. (3.0-m)	EJ510-0010-MF		10-ft. (3.0-m)	EJ510-0010-MF				
15-ft. (4.5-m)	EJ510-0015-MF		15-ft. (4.5-m)	EJ510-0015-MF				
25-ft. (7.6-m)	EJ510-0025-MF		25-ft. (7.6-m)	EJ510-0025-MF				
50-ft. (15.2-m)	EJ510-0050-MF		50-ft. (15.2-m)	EJ510-0050-MF				
Custom Lengths	EJ510-MF		Custom Lengths	EJ510-MF				

Bulk Speaker Wire

Economy-grade speaker wire provides good sound at a great price!

- Connects your speakers to your stereo components.
- Parallel conductors.
- 18-gauge wire, zip-cord style.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
Bulk Speaker Wire, Parallel Conductors		
25-ft. (7.6-m)	EJ505-0025	
50-ft. (15.2-m)	EJ505-0050	
100-ft. (30.4-m)	EJ505-0100	

Bulk Premium In-Wall Speaker Cable

Our best in-wall speaker cable for incredible sound.

- Use for all audio applications.
- Designed to maximize sound quality and frequency response.
- Run behind the walls.
- Choose our 12-gauge speaker cable (EJ912) to minimize signal loss in extra long runs or for extremely high-power applications.
- For basic installations, choose our 16-gauge cable (EJ916).
- **◆◆ WARRANTY** — Lifetime

TECH SPECS

Jacket — CL2 (PVC)
Nominal Diameter (Overall) —
EJ912: 0.38" (9.65 mm);
EJ914: 0.34" (8.63 mm);
EJ916: 0.25" (6.35 mm);
EJ816: 0.52" (13.2 mm)

Item	Code	List Price
Bulk Premium In-Wall Speaker Cable, Black		
12-Gauge, 2-Conductor		
250-ft. (76.2-m)	EJ912-0250	
14-Gauge, 2-Conductor		
50-ft. (15.2-m)	EJ914-0050	
250-ft. (76.2-m)	EJ914-0250	



Item	Code	List Price
Bulk Premium In-Wall Speaker Cable, Black (Continued)		
16-Gauge		
2-Conductor		
50-ft. (15.2-m)	EJ916-0050	
250-ft. (76.2-m)	EJ916-0250	
4-Conductor		
250-ft. (76.2-m)	EJ816-0250	

TV Coax Cable (RG-6)

Connect TVs and VCRs to cable TV hookups.

- Supports high-bandwidth digital cable/satellite TV.
- Features gold-plated F-connectors.
- **◆◆ WARRANTY** — Lifetime

NOTE: For custom lengths, call our FREE Tech Support.



Item	Code	List Price
TV Coax Cable (RG-6) with Screw-On Connectors		
Black		
3-ft. (0.9-m)	EJ203-0003	
6-ft. (1.8-m)	EJ203-0006	
12-ft. (3.6-m)	EJ203-0012	
25-ft. (7.6-m)	EJ203-0025	
White		
3-ft. (0.9-m)	EJ204-0003	
6-ft. (1.8-m)	EJ204-0006	
12-ft. (3.6-m)	EJ204-0012	
25-ft. (7.6-m)	EJ204-0025	

S-Video Cable

Connect a DVD player or a video camera to a TV.



- 4-pin mini DIN connectors provide a video link between a DVD player, video camera, or VCR, and a TV or monitor.
- 85% tinned-copper braid and foil.
- Molded hoods.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
S-Video Cable		
6-ft. (1.8-m)	EHN058-0006	
12-ft. (3.6-m)	EHN058-0012	
25-ft. (7.6-m)	EHN058-0025	
50-ft. (15.2-m)	EHN058-0050	
100-ft. (30.4-m)	EHN058-0100	
S-Video Coupler	FA315	

NOTE: For custom lengths, see blackbox.com or call our FREE Tech Support.

Mini Stereo Headphone/Speaker Extension Cords

Extend the range of mini headphones or speakers.

- Both feature a 3.5-mm stereo plug on one end and a 3.5-mm stereo jack on the other.
- The EJ501 features a right-angle stereo plug.
- Coiled cord connectors are molded; non-coiled jacks are assembled.
- **◆◆ WARRANTY** — Lifetime

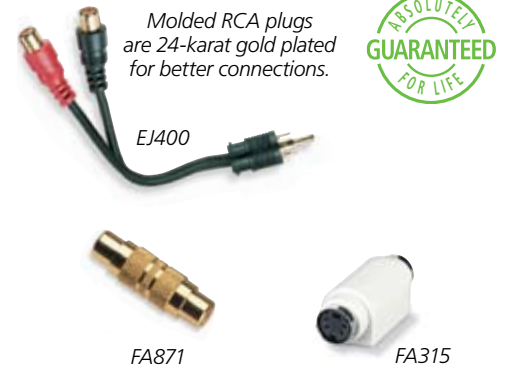


Item	Code	List Price
Mini Stereo Headphone/Speaker Extension Cords		
Coiled		
10-ft. (3.0-m)	EJ501	
Noncoiled		
10-ft. (3.0-m)	EJ502	
Custom Lengths	EJ502-MF	

Audio/Video Adapters, Couplers, and Converters

Make all kinds of audio and video connections!

- **Shielded Y Cords** split a single audio signal into two or combine two audio signals into one.
- **Deluxe Audio and Video Couplers/Adapters** minimize signal degradation from high-end audio/video equipment.
- The **S-Video Coupler** connects two S-Video cables.
- Use **Twist-On RG-6 Connectors** with dual-shielded RG-6 coax cable.
- **Crimp-On F59-Type Video Plugs** are solderless F59 plugs for RG-59/U cable.
- The **F-Type Video Coupler** extends runs terminated with a male F-type plug.
- The **Twist-On RG-6 Video Adapter** has an F-type jack and a Quick-Connect-type plug. Use with dual-shielded RG-6 coax.
- **◆◆ WARRANTY** — All: Lifetime



Item	Code	List Price
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Shielded Y Cords, 4-inch (10.2-cm)		
(1) RCA Plug Male/(2) RCA Jacks, Female/Female, Mono	EJ400	
(1) RCA Jack Female/(2) RCA Plugs, Male/Male	EJ401	
(1) 3.5-mm Mini Plug/(2) RCA Jacks, Female/Female	EJ402	

Item	Code	List Price
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Deluxe Audio and Video Couplers/Adapters		
RCA Female/BNC Male Video Adapter	FA870	
RCA Female/RCA Female Audio/Video Coupler	FA871	
RCA Female/3.5-mm Mono Audio Adapter	FA872	
S-Video Coupler, 4-Pin Mini DIN, Female/Female	FA315	

Item	Code	List Price
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Twist-On RG-6 Cable/Satellite TV Coax Connectors, 10-Pack	FA866	
Crimp-On F59-Type Video Plugs, 2-Pack	FA854	
F-Type Video Coupler, Female/Female	FA855	
Twist-On RG-6 Video Adapter/Slip-On Connector	FA857A	

Audio Plugs, Jacks, Posts, and Coupler

Everything you need to make gold-plated audio connections.

- Use **Banana Plugs** with Binding Posts.
- Use **RCA Jacks** and **Binding Posts** with GigaStation2, GigaStation, and GigaStation+ Wallplates found on pages 114, 116–117.
- The **RCA Female to RCA Female Audio/Video Coupler** joins two RCA male cables.
- **◆◆ WARRANTY** — All: Lifetime



Item	Code	List Price
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Banana Plugs, 2-Pack	FA873	
RCA Jacks, 2-Pack	FA874	
Binding Posts, 2-Pack	FA875	
Deluxe RCA Female to RCA Female Audio/Video Coupler	FA871	

Video Connectors, Splitters, and Baluns

Make the right connections.

- **Cable/Satellite TV Signal Splitters** divide signals up to 2 GHz for cable or satellite TV.
- **75-Ohm Hybrid (UHF/VHF) Splitters** divide one incoming signal into two or three signals.
- The **TV Signal Amplifier** provides an additional 10 decibels on an output port.
- Use the **Right-Angle Slip-On Video Balun** to convert a 300-ohm twin-lead antenna wire to a 75-ohm antenna input.
- The **Signal Combiner (75 to 300 Ohms)** combines VHF and UHF signals into one 75-ohm signal.
- **◆◆ WARRANTY** — All: Lifetime



Item	Code	List Price
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Cable/Satellite TV Signal Splitters, 2-GHz		
1-4	FA863	
1-2	FA865	
75-Ohm Hybrid (UHF/VHF) Splitters		
2-Pack	FA860A-R2	
Right-Angle Slip-On Video Balun	FA856	
Signal Combiner	FA858A	

3.5-mm Stereo Audio Cable

Connect stereo speakers to your computer for superior sound.



- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
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3.5-mm Stereo Audio Cable, 24 AWG		
Male/Male		
2-ft. (0.6-m)	EJ110-0002	
5-ft. (1.5-m)	EJ110-0005	
10-ft. (3.0-m)	EJ110-0010	
15-ft. (4.5-m)	EJ110-0015	
20-ft. (6.0-m)	EJ110-0020	
25-ft. (7.6-m)	EJ110-0025	
30-ft. (9.1-m)	EJ110-0030	

Item	Code	List Price
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3.5-mm Stereo Audio Cable, 24 AWG (Continued)		
Male/Female		
5-ft. (1.5-m)	EJ111-0005	
10-ft. (3.0-m)	EJ111-0010	
15-ft. (4.5-m)	EJ111-0015	
20-ft. (6.0-m)	EJ111-0020	


NOTE: For custom lengths, call Tech Support.

Keep your SCSI systems up and running.

SCSI getting scarce?

We know that many of you maintain equipment with SCSI connections and depend on us for replacement cables. We do our best to keep these items in stock, but we can't make any guarantees about how long they will be available. If you'll need replacement parts, consider ordering them today because some of these products may not be available tomorrow.


SCSI Cable

Item	Code	List Price
	Centronics® 50 Cable Male to Female, SCSI-1 to SCSI-1 3-ft. (0.9-m) EVMS3-0003 Male to Male for Macintosh® 3-ft. (0.9-m) EVMS14-0002	
	DB50 Cable Male to DB50 Male, SCSI-1 to SCSI-1 2-ft. (0.6-m) EVMSC06-0002-MM Male to Centronics® 50 Male, SCSI-1 to SCSI-1 3-ft. (0.9-m) EVMSC04-0003-MM Male to Micro D 50 Male, SCSI-1 to SCSI-2 3-ft. (0.9-m) EVMSC05-0003-MM	
	50 Cable Male to Male, SCSI-2 to SCSI-2 3-ft. (0.9-m) EVMSC01-0003-MM Male to Female, SCSI-2 to SCSI-2 6-ft. (1.8-m) EVMSC01-0006-MF Male to Centronics 50 Male, SCSI-2 to SCSI-1 3-ft. (0.9-m) EVMSC02-0003-MM Male to Burndy 68 Male, SCSI-2 to IBM® Controller 5-ft. (1.5-m) EVMS6-0005 Male to Male for Macintosh 3-ft. (0.9-m) EVMS17-0003	
	Micro D 68 Cable Male to Male, SCSI-3 to SCSI-3 3-ft. (0.9-m) EVNSC07-0003 Male to Centronics® 50 Male, SCSI-3 to SCSI-1 2-ft. (0.6-m) EVMS9-0002 Male to Micro D 50 Male, SCSI-3 to SCSI-2 2-ft. (0.6-m) EVMS4-0002 Male to Burndy 68 Male, SCSI-3 to IBM® Controller 5-ft. (1.5-m) EVMS7-0005	
	VHDCI 68 Male to Male, SCSI-5 to SCSI-5 2-ft. (0.6-m) EVMS20-0002 Male to Micro D 50 Male, SCSI-5 to SCSI-2 2-ft. (0.6-m) EVMS21-0002 Male to Micro D 68 Male, SCSI-5 to SCSI-3 3-ft. (0.9-m) EVMS8-0003-MM Male to Centronics 50 Male 3-ft. (0.9-m) EVMS22-0003	
	DB25 Cable Male to Female 6-ft. (1.8-m) EVMS12-0006	

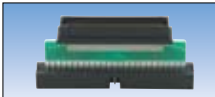
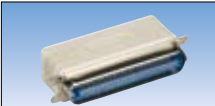

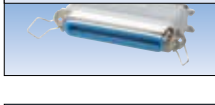





Find more SCSI products on-line.

You'll find many more SCSI cables and terminators at blackbox.com. Here, we list only the first part number in a series; other lengths and styles are available on-line. For example, the EVMS2 below is listed in a 3-foot length, but there are also 6- and 10-foot lengths on our Web site.

SCSI Cable (Continued)

Item	Code	List Price
	Internal SCSI Cables SCSI-3, Micro D 68 Male, Teflon, (2) Connectors 28" (71.1-cm) EVMSCC15 Ultra2 Ribbon w/Crimp-On LVD Terminator (2) Micro D 68 Male, 30" (76.2-cm) EVMSCC23-30 Ultra2 LVD SCSI Flat Twisted Wire (2) Micro D 68 Male 30" (76.2-cm) EVMSCC20 Ultra3 Ribbon w/Crimp-On LVD Terminator (2) Micro D 68 Male 30" (76.2-cm) EVMSCC24-30 Ultra3 Ribbon (2) Micro D 68 Female, (1) Micro D 68 Male 28" (71.1-cm) EVMSCC24-28 Internal Y Power Cable PCPW01 Internal Multidrive IDE Ribbon Cable EVMSCC04	

SCSI Adapters and Terminators

Item	Code	List Price
	Internal SCSI Adapters SCA80, Female to SCSI-3 Female (Micro D 68) EVNSCT33-R2 SCSI-3 (Micro D 68), Male to IDC 50 Male EVNSCT35-R2	
	SCSI Adapters SCSI-3, Female to SCSI-2 Male FA176	
	SCSI-1 Terminator, Centronics® 50 Male Active, Single-Ended EVNSCT21-R2	
	External SCSI-2 Terminators Low Profile (0.224"H), Single-Ended, Passive Unshielded EVNSCT08 Standard Height (0.495"H), Micro D 50, Active Single-Ended EVNSCT02	
	Internal SCSI-2 Terminator, IDC 50, Active IDC Ribbon EVNSCT06	
	SCSI Pass-Through Terminators, Active DB25, Male w/LED FA966 Centronics 50, External Pass-Through, Male/Female FA961 Micro D 50, External Pass-Through, Male/Female FA962	
	Ultra2 LVD SCSI Terminator, Single-Ended External Micro D 68 w/LED FA970	
	SCSI-3 Terminator, Low Profile, Micro D 68 Male PassiveDifferential EVNSCT11-R3	
	High-Line Terminators Micro D 68, Male↔Micro D 50 Female, Straight FA950 Internal Micro D 68, Male↔50-Pin IDC Male FA956	

Universal Serial Bus (USB) Cables

The right cables for USB!



USB Version 1.1 Cable

- Fully rated 12-Mbps speeds.
- Transfers async and isochronous data.
- Shielded, 28 AWG twisted-pair construction.

USB Version 2.0 Cable

- Supports rates up to 480 Mbps!
- Backward compatible with USB 1.1 devices.
- Connects hubs and peripherals, such as printers, scanners, and storage drives.
- Shielded twisted-pair construction.
- Versions with right-angle hoods enable you to make connections in a tight space.

USB 2.0 Passive Extension Cable

- Supports USB 2.0.
- Features one Type A male connector and one Type A female connector.

USB Active Extension Cable

- Connect up to four cables for a total maximum distance of 64 feet (19.5 m).
- Hub controller technology chip for better compatibility with USB devices.
- Buffers all data traffic.
- Embedded ASIC boosts signals.
- Compatible with USB Version 1.1 specs.
- **◆◆ WARRANTY** — All: Lifetime

Item	Code	List Price
USB Version 1.1 Cable		
Type A–Type B		
3-ft. (0.9-m)	USB01-0003	
6-ft. (1.8-m)	USB01-0006	
10-ft. (3.0-m)	USB01-0010	
15-ft. (4.5-m)	USB01-0015	
USB Version 2.0 Cable		
Type A–Type B		
3-ft. (0.9-m)	USB05-0003	
6-ft. (1.8-m)	USB05-0006	
10-ft. (3.0-m)	USB05-0010	
13-ft. (3.9-m)	USB05-0013	
Type A–Type Mini B		
6-ft. (1.8-m)	USB06-0006	
Right-Angle Type A Male to Type A Female		
4-ft. (1.2-m)	USBR08-0004	
8-ft. (2.4-m)	USBR08-0008	
13-ft. (3.9-m)	USBR08-0013	
Right-Angle Type B Male to Type A Male		
4-ft. (1.2-m)	USBR09-0004	
13-ft. (3.9-m)	USBR09-0013	
USB 2.0 Passive Extension Cable		
Type A–Type A		
10-ft. (3.0-m)	USB05E-0010	
USB Active Extension Cable		
Type A–Type A		
8-ft. (2.4-m)	USBR01-0008-R2	
16-ft. (4.8-m)	USBR01-0016-R2	

USB On-the-Go Cable

The right cable for connecting your mobile USB equipment.

- USB OTG provides limited host capability for communication between two mobile USB peripherals without a PC.
- USB OTG supplements USB 2.0 by adding host functionality to products that have traditionally been peripherals, such as PDAs, etc.
- USB OTG features low power usage to preserve peripheral battery life.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price	Item	Code	List Price
USB On-the-Go Cable			USB On-the-Go Cable (Continued)		
Mini USB B Male to Mini USB A Male			USB B Male to Mini USB A Male		
3-ft. (0.9-m)	MUSB04-0003		3-ft. (0.9-m)	MUSB01-0003	
10-ft. (3.0-m)	MUSB04-0010		Mini USB A Male to Blunt Cut		
15-ft. (4.5-m)	MUSB04-0015		15-ft. (4.5-m)	MUSB05-0015	

USB Gender Changers

The simple solution for incompatible USB connections.

- Connect like-gendered cables and solve gender mismatches.
- Feature durable, fully molded hoods with internal shielding to protect signals from EMI/RFI interference.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
USB Gender Changers		
Type A/Type A		
Female/Female	FAUSB01	
Male/Female	FAUSB02	
Male/Male	FAUSB03	
Type A/Type B		
Female/Female	FAUSB06	
Male/Female	FAUSB07	
Male/Male	FAUSB08	
Type B/Type B		
Female/Female	FAUSB11	
Male/Female	FAUSB12	
Male/Male	FAUSB13	

Click and find at **blackbox.com**:
Many more USB cables, connectors, and adapters.

USB Keyboard Adapter

Connect your PS/2 keyboard via the USB port on your computer.

- Perfect for when you want to use a full-size keyboard and mouse with your laptop.
- Plug your PS/2® compatible mouse and keyboard into one USB port on your computer.
- Plug-and-play installation—no rebooting required!
- Compliant with USB 1.0 and 2.0.
- No power needed.
- Supports a standard PS/2 mouse and PS/2 keyboard.
- Compatible with Windows® 98/Me/XP, Windows 2000, Windows Vista® Apple® OS 8.6 and up, NetWare®, UNIX®, and Linux®.
- ♦♦ **WARRANTY** — Lifetime



Item	Code	List Price
USB Keyboard Adapter USB Type A to 6-Pin Mini DIN Female	USBPS2	

IBM AT Keyboard Adapters

Get plugged in and adapt.



5-Pin DIN



6-Pin Mini DIN



FA222-R2



FA212-R2



FA211-R2



FA221-R2



- The simple solution for incompatible connectors.
- Use a full-sized keyboard with your notebook computer.
- Use the FA212-R2 or FA222-R2 to connect a PS/2® keyboard to an IBM® AT®.
- Use the FA211-R2 or FA221-R2 to connect an AT keyboard to an IBM PS/2.
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
IBM AT Keyboard Adapters 6-Pin Mini DIN Female to 5-Pin DIN Male	FA212-R2	
with 6" (15.2-cm) Cable	FA222-R2	
5-Pin DIN Female to 6-Pin Mini DIN Male	FA211-R2	
with 6" (15.2-cm) Cable	FA221-R2	

8-Pin Mini DIN Keyboard Cable

Have a Sun computer? Get your extension cable here.



8-Pin Mini DIN

- For Sun® computers.
- Convenient extension or replacement cables.
- This 28 AWG, foil-shielded cable features eight conductors and a drain wire.
- Can also be used with certain Apple® computers as a serial cable.
- ♦♦ **WARRANTY** — Lifetime

Item	Male/Male	Male/Female	List Price
8-Pin Mini DIN Keyboard Cable			
10-ft. (3.0-m)	EVMK8-0010-MM	—	
15-ft. (4.5-m)	EVMK8-0015-MM	—	
25-ft. (7.6-m)	—	EVMK8-0025-MF	

IEEE 1284 to USB Printer Cable Bridge

Connect your existing printer to your USB port.

- Links an IEEE 1284 compatible interface to a USB interface.
- Offers bidirectional communications enabling Windows printer drivers to print via the USB port.
- Compatible with most printers.
- Maximum throughput in ECP mode: 1.216 Megabytes per second.
- ♦♦ **WARRANTY** — Lifetime



Item	Code	List Price
IEEE 1284 to USB Printer Cable Bridge 6-ft. (1.8-m)	EQN500-0006-R2	

6-Pin Mini DIN Cable

Great for PS/2 and KVM connections.



6-Pin Mini DIN

- Connect your PS/2 computer, keyboard or mouse to a KVM switch.
- Features 28 AWG stranded copper, foil shield, and drain wire in a PVC jacket.
- **◆◆ WARRANTY** — Lifetime

Item	Male/Male	Male/Female	List Price
6-Pin Mini DIN Cable (CL2)			
2-ft. (0.6-m)	EVMP503-0002-MM	EVMP503-0002-MF	
3-ft. (0.9-m)	EVMP503-0003-MM	EVMP503-0003-MF	
6-ft. (1.8-m)	EVMP503-0006-MM	EVMP503-0006-MF	
10-ft. (3.0-m)	EVMP503-0010-MM	EVMP503-0010-MF	
20-ft. (6.0-m)	EVMP503-0020-MM	EVMP503-0020-MF	
25-ft. (7.6-m)	EVMP503-0025-MM	EVMP503-0025-MF	
50-ft. (15.2-m)	EVMP503-0050-MM	EVMP503-0050-MF	
Custom Lengths	EVNPS03-MM, -MF, or -FF		

DB9 Extension Cable with EMI/RFI Hoods

Our most popular cable for serial connections.



DB9 Female

- Run RS-232 serial data up to 500 feet (152.4 m).
- Features a 100% aluminum foil shield.
- Metal EMI/RFI hoods are removable.
- All nine pins are wired straight through.
- **◆◆ WARRANTY** — Lifetime

Item	Female/Female	Male/Female	Male/Male	List Price
DB9 Extension Cable with EMI/RFI Hoods				
5-ft. (1.5-m)	EDN12H-0005-FF	EDN12H-0005-MF	EDN12H-0005-MM	
10-ft. (3.0-m)	EDN12H-0010-FF	EDN12H-0010-MF	EDN12H-0010-MM	
20-ft. (6.0-m)	EDN12H-0020-FF	EDN12H-0020-MF	EDN12H-0020-MM	
25-ft. (7.6-m)	EDN12H-0025-FF	EDN12H-0025-MF	EDN12H-0025-MM	
50-ft. (15.2-m)	EDN12H-0050-FF	EDN12H-0050-MF	EDN12H-0050-MM	
75-ft. (22.8-m)	EDN12H-0075-FF	EDN12H-0075-MF	EDN12H-0075-MM	
100-ft. (30.4-m)	EDN12H-0100-FF	EDN12H-0100-MF	EDN12H-0100-MM	
150-ft. (45.7-m)	EDN12H-0150-FF	EDN12H-0150-MF	EDN12H-0150-MM	
200-ft. (60.9-m)	EDN12H-0200-FF	EDN12H-0200-MF	EDN12H-0200-MM	
250-ft. (76.2-m)	EDN12H-0250-FF	EDN12H-0250-MF	EDN12H-0250-MM	
Custom Lengths	EDN12H-FF	EDN12H-MF	EDN12H-MM	

DB9 Male/Female Serial Mouse Extension Cable

Extend your AT style mouse cable.



BC00200



DB9 Male



DB9 Female

- All nine pins are wired straight through.
- This 26 AWG cable is Mylar® shielded with molded ends and thumbscrews.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
DB9 Male/Female Serial Mouse Extension Cable		
6-ft. (1.8-m)	BC00200	
10-ft. (3.0-m)	BC00230	
15-ft. (4.5-m)	BC00231	
20-ft. (6.0-m)	BC00232	
25-ft. (7.6-m)	BC00233	

(For longer lengths, call our FREE Tech Support.)

Centronics Compatible Cable (36-Conductor, Shielded)

Extends your parallel connections.



EQN380T



Centronics Female



Centronics Male

- Compatible with all Centronics® applications.
- Features 24 AWG and low capacitance.
- Nonmolded with removable hoods.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
Centronics Compatible Cable, 36 Conductor, Shielded, 18 Pairs (Specify gender when ordering.)		
5-ft. (1.5-m)	EQN380T-0005	
10-ft. (3.0-m)	EQN380T-0010	
20-ft. (6.0-m)	EQN380T-0020	
25-ft. (7.6-m)	EQN380T-0025	
Custom Lengths	EQN380	



Parallel Printer Cable

Connect your parallel printer to your PC.

Dot-Matrix Printer (18-Conductor) Cable

- Our most popular printer cable.
- Connects the parallel port of a computer to any standard parallel printer.
- Suitable for dot-matrix printers.
- Fully molded with thumbscrews.

Printer Cable with Right-Angle Connectors

- Same features as the Dot-Matrix Cable.
- Right-angle Centronics® connector conserves space.

Laser-Printer (25-Conductor) Cable

- Suitable for laser printers.
- Fully molded with thumbscrews.
- Features 25-conductor, 28 AWG foil-shielded construction.
- **◆◆ WARRANTY** — All: Lifetime

Bidirectional Communications (12½ Pair) Cable

- Ideal for protecting data.
- Connectors are nonmolded for easy repinning.
- 24 AWG conductors for minimal resistance.

Bidirectional Communications Plus IEEE 1284 Compliance (12½ Pair) Cable

- Full IEEE 1284 compliance for maximum throughput.

Serial Printer Cables, p. 165.



Buyer's Guide | Parallel Printer Cables

Connectors	Lengths	Good		Better	Best	
		Dot-Matrix	with Right-Angle Connector	Laser Printer	Bidirectional Communications	Plus IEEE 1284 Compliant
 Centronics Male DB25 Male	6-ft. (1.8-m)	BC00601	BC01601	BC00201	EYN600-0006-MM	EQN202-0006
	10-ft. (3.0-m)	BC00602	BC01602	BC00202	EYN600-0010-MM	EQN202-0010
	15-ft. (4.5-m)	BC00603	—	BC00203	—	—
	20-ft. (6.0-m)	BC00604	—	BC00204	EYN600-0020-MM	EQN202-0020
	25-ft. (7.6-m)	BC00605	—	BC00205	—	—
	30-ft. (9.1-m)	—	—	—	—	EQN202-0030
Custom Lengths	Call Tech Support.			—	EYN600-MM	—
 Centronics Female DB25 Male	6-ft. (1.8-m)	—	—	—	EYN600-0006-MF	—
	10-ft. (3.0-m)	—	—	—	EYN600-0010-MF	—
	Custom Lengths	Call Tech Support.			—	EYN600-MF

DB9 Serial Extension Cable

Extends cable to serial devices.

- Molded hoods with thumbscrews.
- All nine pins are wired straight through.
- Cables are 28 AWG.
- Foil shielding.
- **◆◆ WARRANTY** — Lifetime

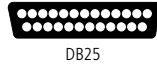


Item	Code	List Price
DB9 Serial Extension Cable		
Male/Male		
6-ft. (1.8-m)	BC00240-0006	
10-ft. (3.0-m)	BC00240-0010	
15-ft. (4.5-m)	BC00240-0015	
20-ft. (6.0-m)	BC00240-0020	
25-ft. (7.6-m)	BC00240-0025	
Female/Female		
6-ft. (1.8-m)	BC00242-0006	
10-ft. (3.0-m)	BC00242-0010	
15-ft. (4.5-m)	BC00242-0015	
20-ft. (6.0-m)	BC00242-0020	
25-ft. (7.6-m)	BC00242-0025	

Click and find at blackbox.com:
More keyboard and extension cables.

DB25 Extension Cable

Extends existing parallel or serial connections.



DB25

- Connects a switch box, a modem, and more.
- All 25 pins connected straight through (1-1, 2-2,...25-25).
- Foil shielded for EMI/RFI protection.
- Fully molded with thumbscrews.
- **◆◆ WARRANTY** — Lifetime

NOTE: For longer lengths, call our FREE Tech Support.

Item	Code	List Price
DB25 Extension Cable		
Female/Female		
6-ft. (1.8-m)	BC00701	
10-ft. (3.0-m)	BC00704	
15-ft. (4.5-m)	BC00707	
20-ft. (6.0-m)	BC00710	
25-ft. (7.6-m)	BC00713	
Male/Female		
6-ft. (1.8-m)	BC00702	
10-ft. (3.0-m)	BC00705	
15-ft. (4.5-m)	BC00708	
20-ft. (6.0-m)	BC00711	
25-ft. (7.6-m)	BC00714	
Male/Male		
6-ft. (1.8-m)	BC00703	
10-ft. (3.0-m)	BC00706	
15-ft. (4.5-m)	BC00709	
20-ft. (6.0-m)	BC00712	
25-ft. (7.6-m)	BC00715	

Enhanced Parallel Port Cables

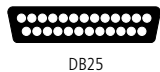
High-speed IEEE 1284 cables for bidirectional communications!



DB25 Female

Centronics®
36-Pin Male

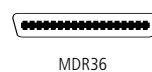
MDR36 Male



DB25



Centronics



MDR36



- Ideal for HP® LaserJet® 4 and 5, HP tape drives, scanners, parallel port adapters, Iomega® devices, and more.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Enhanced Parallel Port Cables		
DB25 Male/DB25 Male		
6-ft. (1.8-m)	EQN200-0006	
10-ft. (3.0-m)	EQN200-0010	
20-ft. (6.0-m)	EQN200-0020	
30-ft. (9.1-m)	EQN200-0030	
DB25 Male/DB25 Female		
6-ft. (1.8-m)	EQN201-0006	
10-ft. (3.0-m)	EQN201-0010	
20-ft. (6.0-m)	EQN201-0020	
30-ft. (9.1-m)	EQN201-0030	
DB25 Male/Centronics 36 Male		
6-ft. (1.8-m)	EQN202-0006	
10-ft. (3.0-m)	EQN202-0010	
20-ft. (6.0-m)	EQN202-0020	
30-ft. (9.1-m)	EQN202-0030	

Item	Code	List Price
Enhanced Parallel Port Cables (Continued)		
DB25 Male/MDR36 Male		
6-ft. (1.8-m)	EQN203-0006	
10-ft. (3.0-m)	EQN203-0010	
20-ft. (6.0-m)	EQN203-0020	
30-ft. (9.1-m)	EQN203-0030	
Centronics 36 Male/MDR36 Male		
6-ft. (1.8-m)	EQN204-0006	
10-ft. (3.0-m)	EQN204-0010	
20-ft. (6.0-m)	EQN204-0020	
30-ft. (9.1-m)	EQN204-0030	
MDR36 Male/MDR36 Male		
6-ft. (1.8-m)	EQN205-0006	
10-ft. (3.0-m)	EQN205-0010	
20-ft. (6.0-m)	EQN205-0020	
30-ft. (9.1-m)	EQN205-0030	

DB9 Serial Null-Modem Cable

Transfer files between AT computers.



EYN257H



DB9

- Ideal for AT to AT file transfers.
- Pins 2 and 3 are crossed for RS-232 standards compliance.
- Has 115-ohm nominal impedance at 1 MHz or above.
- **◆◆ WARRANTY** — Lifetime

NOTE: Standard male/male versions are also in stock — call our FREE Tech Support.

Item	Code	List Price
DB9 Serial Null-Modem Cable		
DB9 Male/DB9 Female		
6-ft. (1.8-m)	EYN257T-0006-MF	
10-ft. (3.0-m)	EYN257T-0010-MF	
15-ft. (4.5-m)	EYN257T-0015-MF	
25-ft. (7.6-m)	EYN257T-0025-MF	
50-ft. (15.2-m)	EYN257T-0050-MF	
Custom Lengths EYN257H		
DB9 Female/DB9 Female		
6-ft. (1.8-m)	EYN257T-0006-FF	
10-ft. (3.0-m)	EYN257T-0010-FF	
15-ft. (4.5-m)	EYN257T-0015-FF	
25-ft. (7.6-m)	EYN257T-0025-FF	
50-ft. (15.2-m)	EYN257T-0050-FF	
Custom Lengths EYN257H		

Serial Printer Cables

Connect your PC XT or AT to a serial printer.

- All have a 7-conductor configuration.
- The PC/XT Style and AT Style cables have a 28 AWG foil-shielded construction, and have fully molded hoods with thumbscrews.
- The Null-Modem AT Style cable has a 24 AWG foil-shielded construction, and non-molded assemblies with removable hoods and crimped contacts for convenient repinning.



- **WARRANTY** — Lifetime

NOTE: See pinning charts at blackbox.com



Item	Code	List Price
Serial Printer Cable, PC/XT Style		
DB25 Male/DB25 Female		
6-ft. (1.8-m)	BC09000-0006-MF	
10-ft. (3.0-m)	BC09000-0010-MF	
15-ft. (4.5-m)	BC09003	
20-ft. (6.0-m)	BC09000-0020-MF	
25-ft. (7.6-m)	BC09005	

Item	Code	List Price
Serial Printer Cable, AT Style		
DB25 Male/DB9 Female		
6-ft. (1.8-m)	BC08000-0006-MF	
10-ft. (3.0-m)	BC08000-0010-MF	
15-ft. (4.5-m)	BC08000-0015-MF	
DB25 Female/DB9 Female		
6-ft. (1.8-m)	BC19000-0006-FF	
10-ft. (3.0-m)	BC19000-0010-FF	
15-ft. (4.5-m)	BC19000-0015-FF	

Item	Code	List Price
Serial Printer Null-Modem Cable, AT Style (CL2)		
DB25 Male/DB9 Female		
6-ft. (1.8-m)	EVMTBPC-0006	
10-ft. (3.0-m)	EVMTBPC-0010	
25-ft. (7.6-m)	EVMTBPC-0025	
50-ft. (15.2-m)	EVMTBPC-0050	
Custom Lengths	EVMBPC	

PC/AT Modem Cables

Connect PC and AT compatibles to async modems or DCE devices.



- Standard cables have fully molded hoods.
- Premium cables have nonmolded assemblies with removable hoods.
- Both have a foil shield.
- **WARRANTY** — Lifetime



Item	Code	List Price
AT® Modem Cable, DB9 Female/DB25 Male, 9-Conductor		
Standard, 28 AWG		
6-ft. (1.8-m)	BC03000-0006-MF	
10-ft. (3.0-m)	BC03000-0010-MF	
Premium, 24 AWG,		
6-ft. (1.8-m)	EVMTBMC-0006	
10-ft. (3.0-m)	EVMTBMC-0010	
25-ft. (7.6-m)	EVMTBMC-0025	
50-ft. (15.2-m)	EVMTBMC-0050	
Custom Lengths	EVNBMC	

Item	Code	List Price
PC Modem Cable, DB25 Male/DB25 Female		
Standard, 10-Conductor, 28 AWG		
6-ft. (1.8-m)	BC00401	
10-ft. (3.0-m)	BC00402	
Premium, 25-Conductor, 24 AWG, Drain Wire		
6-ft. (1.8-m)	EVMTBSM-0006	
10-ft. (3.0-m)	EVMTBSM-0010	
25-ft. (7.6-m)	EVMTBSM-0025	
50-ft. (15.2-m)	EVMTBSM-0050	
Custom Lengths	EVNBSM	

DB25 Serial Null-Modem Cable

Connect two serial devices configured as DTE or DCE async only.

- Connect computer to computer for file transfer through a serial port.
- Cross-pinned.
- Can be used for hardware flow-control or X-ON/X-OFF applications.
- **WARRANTY** — Lifetime



NOTE: For female/female cable, see blackbox.com.

Item	Code	List Price
DB25 Serial Null-Modem Cable		
DB25 Male/DB25 Male		
6-ft. (1.8-m)	BC05000-0006-MM	
10-ft. (3.0-m)	BC05000-0010-MM	
15-ft. (4.5-m)	BC00506	
20-ft. (6.0-m)	BC05000-0020-MM	
25-ft. (7.6-m)	BC00510	

Serial AT and Parallel PC Adapters

Handy plug-in alternatives to special IBM® AT and PC connector cables.



- **WARRANTY** — Lifetime

Item	Code	List Price
AT Adapters (Serial)		
DB9 Female/DB25 Male	FA520A-R5	
DB9 Male/DB25 Female	FA521A-R3	



Item	Code	List Price
PC Adapters (Parallel)		
DB25 Female/Centronics® 36 Male	FA601	
DB25 Male/Centronics 36 Male	FA600	
DB25 Male/Centronics 36 Female	FA603	

Standard RS-232 Low-Noise Cable

The best cable for short RS-232 runs in low-noise environments.

- Absolute top quality—guaranteed for life!
- Support distances up to 50 feet (15.2 m).
- 22 AWG with unshielded PVC jacket.
- All conductors are straight wired.
- Removable hoods enable you to re-pin cable for custom applications.
- Many stock lengths and all gender combinations are available.
- **◆◆ WARRANTY** — Lifetime



ECM25T

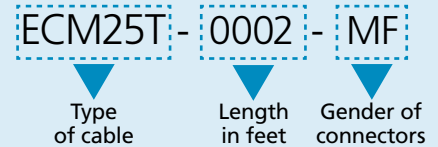
Item	Code	List Price
RS-232 Cables, Stranded, NEC® CL2		
25 Conductors (12½ Pairs)—Pins 1–25		
2-ft. (0.6-m)	ECM25T-0002	
5-ft. (1.5-m)	ECM25T-0005	
10-ft. (3.0-m)	ECM25T-0010	
15-ft. (4.5-m)	ECM25T-0015	
20-ft. (6.0-m)	ECM25T-0020	
25-ft. (7.6-m)	ECM25T-0025	
35-ft. (10.6-m)	ECM25T-0035	
50-ft. (15.2-m)	ECM25T-0050	
Custom Lengths	ECN25C	
16 Conductors (8 Pairs)—Pins 1–8, 15, 17, 20–25		
2-ft. (0.6-m)	ECM16T-0002	
5-ft. (1.5-m)	ECM16T-0005	
10-ft. (3.0-m)	ECM16T-0010	
15-ft. (4.5-m)	ECM16T-0015	
20-ft. (6.0-m)	ECM16T-0020	
25-ft. (7.6-m)	ECM16T-0025	
35-ft. (10.6-m)	ECM16T-0035	
50-ft. (15.2-m)	ECM16T-0050	
Custom Lengths	ECN16C	

Item	Code	List Price
RS-232 Cables, Stranded, NEC® CL2 (Continued)		
12 Conductors (6 Pairs)—Pins 1–8, 15, 17, 20, 22		
2-ft. (0.6-m)	ECM12T-0002	
5-ft. (1.5-m)	ECM12T-0005	
10-ft. (3.0-m)	ECM12T-0010	
15-ft. (4.5-m)	ECM12T-0015	
20-ft. (6.0-m)	ECM12T-0020	
25-ft. (7.6-m)	ECM12T-0025	
35-ft. (10.6-m)	ECM12T-0035	
50-ft. (15.2-m)	ECM12T-0050	
Custom Lengths	ECN12C	
7 Conductors (3½ Pairs)—Pins 2–4, 6–8, 20		
2-ft. (0.6-m)	ECM07T-0002	
5-ft. (1.5-m)	ECM07T-0005	
10-ft. (3.0-m)	ECM07T-0010	
15-ft. (4.5-m)	ECM07T-0015	
20-ft. (6.0-m)	ECM07T-0020	
25-ft. (7.6-m)	ECM07T-0025	
35-ft. (10.6-m)	ECM07T-0035	
50-ft. (15.2-m)	ECM07T-0050	
Custom Lengths	ECN07C	

Item	Code	List Price
RS-232 Cables, Stranded, NEC® CL2 (Continued)		
4 Conductors (2 Pairs)—Pins 2, 3, 7, 20		
2-ft. (0.6-m)	ECM04T-0002	
5-ft. (1.5-m)	ECM04T-0005	
10-ft. (3.0-m)	ECM04T-0010	
15-ft. (4.5-m)	ECM04T-0015	
20-ft. (6.0-m)	ECM04T-0020	
25-ft. (7.6-m)	ECM04T-0025	
35-ft. (10.6-m)	ECM04T-0035	
50-ft. (15.2-m)	ECM04T-0050	
Custom Lengths	ECN04C	

How to order cable

Choose the type of cable, the length, and the connector gender. Compose the order code this way:



NOTE: Specify gender (M/M, M/F, or F/F) and length when ordering.

Extended-Distance/Quiet Cable, Stranded

Maximum protection for short RS-232 runs in noisy environments.

- In extra-noisy environments, it's made for short runs—up to 50 feet (15.2 m).
- In extra-quiet environments, use it for long runs—up to 500 feet (152.4 m) at 9600 bps.
- EMI/RFI-resistant hoods stop damaging noise at the connection.
- Protect your data from end to end with a 100% foil shield plus an 85% tinned copper-braided shield.
- **◆◆ WARRANTY** — Lifetime



EBN25C

Item	Code	List Price
ED/Q Cable with Die-Cast Removable Metallic EMI/RFI Hoods, Stranded, DB25, NEC® CL2		
25 (12½ Pairs)—Pins 1–25		
5-ft. (1.5-m)	EBN25C-0005	
10-ft. (3.0-m)	EBN25C-0010	
20-ft. (6.0-m)	EBN25C-0020	
25-ft. (7.6-m)	EBN25C-0025	
50-ft. (15.2-m)	EBN25C-0050	
Custom Lengths	EBN25C	
16 (8 Pairs)—Pins 1–8, 15, 17, 20–25		
5-ft. (1.5-m)	EBN16C-0005	
10-ft. (3.0-m)	EBN16C-0010	
20-ft. (6.0-m)	EBN16C-0020	
25-ft. (7.6-m)	EBN16C-0025	
50-ft. (15.2-m)	EBN16C-0050	
Custom Lengths	EBN16C	
12 (6 Pairs)—Pins 1–8, 15, 17, 20, 22		
5-ft. (1.5-m)	EBN12C-0005	
20-ft. (6.0-m)	EBN12C-0020	
25-ft. (7.6-m)	EBN12C-0025	
50-ft. (15.2-m)	EBN12C-0050	
Custom Lengths	EBN12C	

Item	Code	List Price
ED/Q Cable with Die-Cast Removable Metallic EMI/RFI Hoods, Stranded, DB25, NEC® CL2 (Continued)		
7 (3½ Pairs)—Pins 2–4, 6–8, 20		
5-ft. (1.5-m)	EBN07C-0005	
10-ft. (3.0-m)	EBN07C-0010	
20-ft. (6.0-m)	EBN07C-0020	
25-ft. (7.6-m)	EBN07C-0025	
Custom Lengths	EBN07C	
4 (2 Pairs)—Pins 2, 3, 7, 20		
10-ft. (3.0-m)	EBN04C-0010	
25-ft. (7.6-m)	EBN04C-0025	
Custom Lengths	EBN04C	

Item	Code	List Price
ED/Q Thumbscrew Cable with Nonremovable EMI/RFI Hoods, Stranded, DB25, NEC® CL2		
25 (12½ Pairs)—Pins 1–25		
2-ft. (0.6-m)	EGM25C-0002	
5-ft. (1.5-m)	EGM25C-0005	
10-ft. (3.0-m)	EGM25C-0010	
15-ft. (4.5-m)	EGM25C-0015	
20-ft. (6.0-m)	EGM25C-0020	
25-ft. (7.6-m)	EGM25C-0025	
35-ft. (10.6-m)	EGM25C-0035	
50-ft. (15.2-m)	EGM25C-0050	
Custom Lengths	EGN25C	
9 (4½ Pairs)—All Pins		
2-ft. (0.6-m)	EGM12D-0002	
5-ft. (1.5-m)	EGM12D-0005	
10-ft. (3.0-m)	EGM12D-0010	
15-ft. (4.5-m)	EGM12D-0015	
20-ft. (6.0-m)	EGM12D-0020	
25-ft. (7.6-m)	EGM12D-0025	
35-ft. (10.6-m)	EGM12D-0035	
Custom Lengths	EGN12D	

NOTE: Specify gender (M/M, M/F, or F/F) and length when ordering.

Bulk RS-232 Cable, p. 171.
RS-232 Connector Kits, p. 178.





Extended-Distance Cables, Stranded

Transmit RS-232 data up to 500 feet at 9600 bps!

- All conductors are straight wired for connecting the serial output of your computer to a switch box.
- Male screw locks are standard.
- Foil shielded with drain wire.
- Low capacitance.
- NEC® CL2 compliant. For connecting computers inside a building.
- Not for use in risers or plenums.
- ♦♦ **WARRANTY** — Lifetime

TECH SPECS

Cable Construction — PVC
 Capacitance — 12 pF/ft. ± 2 pF/ft.
 Conductor Gauge — 24 AWG (7 x 32), stranded
 Outside Diameters — 0.245", 0.260", 0.335", 0.365", 0.430"
 Resistance — 30 ohms/1000 ft.

Extended-Distance Data Cables with Removable Hoods

- Feature an aluminum-foil shield for EMI/RFI protection and a drain wire.



Shielded, reppinnable

EDN25C

Item	Code	List Price
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Extended-Distance Data Cables

25 Conductors (12½ Pairs)—Pins 1–25		
35-ft. (10.6-m)	EDN25T-0035	
50-ft. (15.2-m)	EDN25T-0050	
75-ft. (22.8-m)	EDN25T-0075	
100-ft. (30.4-m)	EDN25T-0100	
150-ft. (45.7-m)	EDN25T-0150	
200-ft. (60.9-m)	EDN25T-0200	
250-ft. (76.2-m)	EDN25T-0250	
Custom Lengths	EDN25C	

Item	Code	List Price
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Extended-Distance Data Cables, (Continued)

16 Conductors (8 Pairs)—Pins 1–8, 15, 17, 20–25		
35-ft. (10.6-m)	EDN16T-0035	
50-ft. (15.2-m)	EDN16T-0050	
75-ft. (22.8-m)	EDN16T-0075	
100-ft. (30.4-m)	EDN16T-0100	
150-ft. (45.7-m)	EDN16T-0150	
200-ft. (60.9-m)	EDN16T-0200	
250-ft. (76.2-m)	EDN16T-0250	
Custom Lengths	EDN16C	
12 Conductors (6 Pairs)—Pins 1–8, 15, 17, 20, 22		
35-ft. (10.6-m)	EDN12T-0035	
50-ft. (15.2-m)	EDN12T-0050	
75-ft. (22.8-m)	EDN12T-0075	
100-ft. (30.4-m)	EDN12T-0100	
150-ft. (45.7-m)	EDN12T-0150	
200-ft. (60.9-m)	EDN12T-0200	
250-ft. (76.2-m)	EDN12T-0250	
Custom Lengths	EDN12C	

Item	Code	List Price
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Extended-Distance Data Cables, (Continued)

7 Conductors (3½ Pairs)—Pins 2–4, 6–8, 20		
35-ft. (10.6-m)	EDN07T-0035	
50-ft. (15.2-m)	EDN07T-0050	
75-ft. (22.8-m)	EDN07T-0075	
100-ft. (30.4-m)	EDN07T-0100	
150-ft. (45.7-m)	EDN07T-0150	
200-ft. (60.9-m)	EDN07T-0200	
250-ft. (76.2-m)	EDN07T-0250	
Custom Lengths	EDN07C	
4 Conductors (2 Pairs)—Pins 2–3, 7, 20		
35-ft. (10.6-m)	EDN04T-0035	
50-ft. (15.2-m)	EDN04T-0050	
75-ft. (22.8-m)	EDN04T-0075	
100-ft. (30.4-m)	EDN04T-0100	
150-ft. (45.7-m)	EDN04T-0150	
200-ft. (60.9-m)	EDN04T-0200	
250-ft. (76.2-m)	EDN04T-0250	
Custom Lengths	EDN04C	

NOTE: Specify gender when ordering.

NOTE: For plenum cable, call our FREE Tech Support.

Extended-Distance/Quiet (ED/Q) Cables with Molded Hoods



Extra shielding, molded hoods

EMN25C

Item	Code	List Price
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ED/Q Cables with Molded Hoods

25 Conductors (12½ Pairs)—Pins 1–25		
5-ft. (1.5-m)	EMN25T-0005	
10-ft. (3.0-m)	EMN25T-0010	
15-ft. (4.5-m)	EMN25T-0015	
20-ft. (6.0-m)	EMN25T-0020	
25-ft. (7.6-m)	EMN25T-0025	
35-ft. (10.6-m)	EMN25T-0035	
50-ft. (15.2-m)	EMN25T-0050	
75-ft. (22.8-m)	EMN25T-0075	
100-ft. (30.4-m)	EMN25T-0100	
150-ft. (45.7-m)	EMN25T-0150	
200-ft. (60.9-m)	EMN25T-0200	
Custom Lengths	EMN25C	

Item	Code	List Price
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ED/Q Cables with Molded Hoods (Continued)

16 Conductors (8 Pairs)—Pins 1–8, 15, 17, 20–25		
5-ft. (1.5-m)	EMN16T-0005	
10-ft. (3.0-m)	EMN16T-0010	
15-ft. (4.5-m)	EMN16T-0015	
20-ft. (6.0-m)	EMN16T-0020	
25-ft. (7.6-m)	EMN16T-0025	
35-ft. (10.6-m)	EMN16T-0035	
50-ft. (15.2-m)	EMN16T-0050	
75-ft. (22.8-m)	EMN16T-0075	
150-ft. (45.7-m)	EMN16T-0150	
200-ft. (60.9-m)	EMN16T-0200	
Custom Lengths	EMN16C	
12 Conductors (6 Pairs)—Pins 1–8, 15, 17, 20, 22		
5-ft. (1.5-m)	EMN12T-0005	
10-ft. (3.0-m)	EMN12T-0010	
15-ft. (4.5-m)	EMN12T-0015	
20-ft. (6.0-m)	EMN12T-0020	
25-ft. (7.6-m)	EMN12T-0025	
35-ft. (10.6-m)	EMN12T-0035	
50-ft. (15.2-m)	EMN12T-0050	
75-ft. (22.8-m)	EMN12T-0075	
100-ft. (30.4-m)	EMN12T-0100	
150-ft. (45.7-m)	EMN12T-0150	
200-ft. (60.9-m)	EMN12T-0200	
Custom Lengths	EMN12C	

Item	Code	List Price
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ED/Q Cables with Molded Hoods (Continued)

7 Conductors (3½ Pairs)—Pins 2–4, 6–8, 20		
5-ft. (1.5-m)	EMN07T-0005	
10-ft. (3.0-m)	EMN07T-0010	
15-ft. (4.5-m)	EMN07T-0015	
20-ft. (6.0-m)	EMN07T-0020	
25-ft. (7.6-m)	EMN07T-0025	
35-ft. (10.6-m)	EMN07T-0035	
50-ft. (15.2-m)	EMN07T-0050	
75-ft. (22.8-m)	EMN07T-0075	
100-ft. (30.4-m)	EMN07T-0100	
150-ft. (45.7-m)	EMN07T-0150	
200-ft. (60.9-m)	EMN07T-0200	
Custom Lengths	EMN07C	
4 Conductors (2 Pairs)—Pins 2–3, 7, 20		
5-ft. (1.5-m)	EMN04T-0005	
15-ft. (4.5-m)	EMN04T-0015	
20-ft. (6.0-m)	EMN04T-0020	
25-ft. (7.6-m)	EMN04T-0025	
35-ft. (10.6-m)	EMN04T-0035	
50-ft. (15.2-m)	EMN04T-0050	
75-ft. (22.8-m)	EMN04T-0075	
100-ft. (30.4-m)	EMN04T-0100	
200-ft. (60.9-m)	EMN04T-0200	
Custom Lengths	EMN04C	

- Molded, nonremovable hoods.

NOTE: Specify gender when ordering.

DB25 Extension Cable

The economical RS-232 extension cable for runs up to 25 feet.

- All 25 pins connected straight through (1–1, 2–2,...25–25).
- Foil shielded for EMI/RFI protection.
- Features 28 AWG conductors.
- Fully molded hoods with thumbscrews.
- It's ideal for connecting a computer to a modem.
- For longer lengths, call our FREE Tech Support.
- **◆◆ WARRANTY** — Lifetime



Item	Female/Female	Male/Female	Male/Male	List Price
DB25 Extension Cable				
6-ft. (1.8-m)	BC00701	BC00702	BC00703	
10-ft. (3.0-m)	BC00704	BC00705	BC00706	
15-ft. (4.5-m)	BC00707	BC00708	BC00709	
20-ft. (6.0-m)	BC00710	BC00711	BC00712	
25-ft. (7.6-m)	BC00713	BC00714	BC00715	

Universal DB25 RS-232 Cable Adapters

The quick solution when RS-232 connectors don't match.

- Ideal for techs who perform RS-232 testing and troubleshooting—use in place of gender changers and standard RS-232 ribbon cables.
- Male and female DB25 connectors on both ends.
- This compact cable folds over itself to tuck into tight spaces and connect hard-to-reach hardware.
- Straight-through pinning.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
Universal DB25 RS-232 Cable Adapters		
2-ft. (0.6-m)	EY236	
5-ft. (1.5-m)	EY237	
10-ft. (3.0-m)	EY238	

RS-530 Data Cable

Made for high-speed bridges or routers.

- Foil shielding.
- Works with balanced or unbalanced circuits.
- Sends data at half- or full-duplex
- **◆◆ WARRANTY** — Lifetime



Item	Female/Female	Male/Female	Male/Male	List Price
RS-530 Data Cable, 25-Pin (12½ Pairs)—Pins 1–25				
5-ft. (1.5-m)	EVNT530-0005-FF	EVNT530-0005-MF	EVNT530-0005-MM	
10-ft. (3.0-m)	EVNT530-0010-FF	EVNT530-0010-MF	EVNT530-0010-MM	
25-ft. (7.6-m)	EVNT530-0025-FF	EVNT530-0025-MF	EVNT530-0025-MM	
50-ft. (15.2-m)	EVNT530-0050-FF	EVNT530-0050-MF	EVNT530-0050-MM	
75-ft. (22.8-m)	EVNT530-0075-FF	EVNT530-0075-MF	EVNT530-0075-MM	
100-ft. (30.4-m)	EVNT530-0100-FF	EVNT530-0100-MF	EVNT530-0100-MM	
150-ft. (45.7-m)	EVNT530-0150-FF	EVNT530-0150-MF	EVNT530-0150-MM	
200-ft. (60.9-m)	EVNT530-0200-FF	EVNT530-0200-MF	EVNT530-0200-MM	
Custom Lengths	EVN530-FF	EVN530-MF	EVN530-MM	

RS-449 to RS-530 Cable

Connects RS-449 and RS-530 devices.



- Extremely low capacitance and resistance.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
RS-449 to RS-530 Cable		
DB37 Female to DB25 Female		
3-ft. (0.9-m)	EDN47T-0003-FF	
6-ft. (1.8-m)	EDN47T-0006-FF	
10-ft. (3.0-m)	EDN47T-0010-FF	
25-ft. (7.6-m)	EDN47J-0025-FF	
Custom Lengths	EDN47J-FF	
DB37 Male to DB25 Male		
3-ft. (0.9-m)	EDN47T-0003-MM	
6-ft. (1.8-m)	EDN47T-0006-MM	
10-ft. (3.0-m)	EDN47T-0010-MM	
20-ft. (6.0-m)	EDN47T-0020-MM	
25-ft. (7.6-m)	EDN47T-0025-MM	
Custom Lengths	EDN47J-MM	

Item	Code	List Price
RS-449 to RS-530 Cable (Continued)		
DB37 Male to DB25 Female		
3-ft. (0.9-m)	EDN47T-0003-MF	
6-ft. (1.8-m)	EDN47T-0006-MF	
10-ft. (3.0-m)	EDN47T-0010-MF	
20-ft. (6.0-m)	EDN47T-0020-MF	
25-ft. (7.6-m)	EDN47T-0025-MF	
Custom Lengths	EDN47J-MF	
DB37 Female to DB25 Male		
3-ft. (0.9-m)	EDN57T-0003-MF	
6-ft. (1.8-m)	EDN57T-0006-MF	
10-ft. (3.0-m)	EDN57T-0010-MF	
20-ft. (6.0-m)	EDN57T-0020-MF	
25-ft. (7.6-m)	EDN57T-0025-MF	
Custom Lengths	EDN57J-MF	

V.35 Interface Cable • V.35 Molded Cable • M/50 Connector Cable

You've found your source for top-quality V.35 and M/50 cable.

V.35 Interface Cable • V.35 Molded Cable

- Use to connect two V.35 devices, such as a modem and a mux.
- 24 AWG stranded copper cable with all 34 conductors pinned straight through.
- Low capacitance.
- Terminated with M/34 connectors.
- Metal EMI/RFI hoods ensure better transmission by offering protection from environmental interference.
- Molded cable has nonremovable hoods with plastic overmolds that provide maximum strain relief.
- For crossover pinning, see our V.35 Tail-Circuit Cable at blackbox.com.



TECH SPECS

Cable Construction — 24 AWG (7 x 32 AWG) stranded bare copper with 18½ pairs (EYN450, EYNT450), 17½ pairs (BC04503, BC04520), or 25 pairs (EYN500)

Hoods — EYN450, EYNT450: M-block EMI/RFI metal; BC04503, BC04520: EMI/RFI metal with plastic overmold; EYN500: EMI/RFI metal

Impedance — EYN450, EYNT450, BC04503, BC04520: 115 ohms, nominal; EYN500: 65 ohms, nominal

Jacket — PVC

Outside Diameter — EYN450, EYNT450: 0.515"; BC04503, BC04520: 0.433"; EYN500: 0.490"

Resistance — EYN450, EYNT450, EYN500: 25 ohms/1000 ft.; BC04503, BC04520: 93 ohms/1 km

Shield — Foil with a drain wire

Connectors — EYN450, EYNT450, BC04503, BC04520: (2) M/34; EYN500: (2) M/50

M/50 Connector Cable

- 24 AWG stranded copper cable with M/50 connectors and all 50 conductors pinned straight through.
- Use to connect Dataproducts® printers and other products with high-speed M/50 parallel interfaces.
- For protection from interference, has metal EMI/RFI hoods.
- ♦♦ **WARRANTY** — All: Lifetime

Item	Male/Male	Male/Female	Female/Female	List Price
V.35 Interface Cable, 34-Conductor				
3-ft. (0.9-m)	EYNT450-0003-MM	EYNT450-0003-MF	EYNT450-0003-FF	
6-ft. (1.8-m)	EYNT450-0006-MM	EYNT450-0006-MF	EYNT450-0006-FF	
10-ft. (3.0-m)	EYNT450-0010-MM	EYNT450-0010-MF	EYNT450-0010-FF	
20-ft. (6.0-m)	EYNT450-0020-MM	EYNT450-0020-MF	EYNT450-0020-FF	
25-ft. (7.6-m)	EYNT450-0025-MM	EYNT450-0025-MF	EYNT450-0025-FF	
Custom Lengths	EYN450-MM	EYN450-MF	EYN450-FF	
V.35 Molded Cable, 34-Conductor				
3-ft. (0.9-m)	—	—	BC04503-FF	
20-ft. (6.0-m)	—	—	BC04520-FF	
M/50 Connector Cable, 50-Conductor (Not for V.35 Applications)				
Custom Lengths	EYN500-MM	EYN500-MF	EYN500-FF	

V.35 Gender Changers, p. 174.



RS-530/V.35 Adapter Cable

Make Frame Relay connections.

- Adapt V.35 signals on a DB25 connector to an M/34 Winchester® block.
- Ideal for connecting Frame Relay equipment with DB25 connectors to CSUs with M/34 connectors.
- ♦♦ **WARRANTY** — Lifetime



NOTE: Not for tail-circuit applications.

Item	Code	List Price
RS-530/V.35 Adapter Cable		
V.35 Male		
6-ft. (1.8-m)	EHN067T-0006-MM	
10-ft. (3.0-m)	EHN067T-0010-MM	
V.35 Female		
6-ft. (1.8-m)	EHN067T-0006-MF	
10-ft. (3.0-m)	EHN067T-0010-MF	

DB37 Interface Cable

Specially designed for RS-422/485/449 equipment.



- Terminated with RS-449 (DB37) crimp connectors.

- Use with all your RS-449 devices.
- ♦♦ **WARRANTY** — Lifetime

Item	Female/Female	Male/Female	Male/Male	List Price
DB37 Interface Cable				
5-ft. (1.5-m)	EDN37T-0005-FF	EDN37T-0005-MF	EDN37T-0005-MM	
10-ft. (3.0-m)	EDN37T-0010-FF	EDN37T-0010-MF	EDN37T-0010-MM	
15-ft. (4.5-m)	EDN37T-0015-FF	EDN37T-0015-MF	EDN37T-0015-MM	
20-ft. (6.0-m)	EDN37T-0020-FF	EDN37T-0020-MF	EDN37T-0020-MM	
25-ft. (7.6-m)	EDN37T-0025-FF	EDN37T-0025-MF	EDN37T-0025-MM	
50-ft. (15.2-m)	EDN37T-0050-FF	EDN37T-0050-MF	EDN37T-0050-MM	
Custom Lengths	EDN37J-FF	EDN37J-MF	EDN37J-MM	

DB15 Thumbscrew Cable

Error-free transmission for Texas Instruments® and NCR® POS computers.

- EMI/RFI hoods with thumbscrews.
- Shielded cable with drain wire.
- **◆◆ WARRANTY** — Lifetime



Item	Female/Female	Male/Female	Male/Male	List Price
DB15 Thumbscrew Cable				
2-ft. (0.6-m)	EGM16T-0002-FF	EGM16T-0002-MF	EGM16T-0002-MM	
5-ft. (1.5-m)	EGM16T-0005-FF	EGM16T-0005-MF	EGM16T-0005-MM	
10-ft. (3.0-m)	EGM16T-0010-FF	EGM16T-0010-MF	EGM16T-0010-MM	
15-ft. (4.5-m)	EGM16T-0015-FF	EGM16T-0015-MF	EGM16T-0015-MM	
20-ft. (6.0-m)	EGM16T-0020-FF	EGM16T-0020-MF	EGM16T-0020-MM	
25-ft. (7.6-m)	EGM16T-0025-FF	EGM16T-0025-MF	EGM16T-0025-MM	
35-ft. (10.6-m)	EGM16T-0035-FF	EGM16T-0035-MF	EGM16T-0035-MM	
50-ft. (15.2-m)	EGM16T-0050-FF	EGM16T-0050-MF	EGM16T-0050-MM	
Custom Lengths	EGN16E-FF	EGN16E-MF	EGN16E-MM	

T1 Cable

The right cable for high-speed T1 connections.

Straight-Pinning, ETNMSR01

RJ-48C	RJ-48C
1	1 Orange/White
2	2 White/Orange
3	3 NC
4	4 Blue/White
5	5 White/Blue
6	6 NC
7	7 NC
8	8 NC



TECH SPECS

Cable Construction — 24 AWG solid copper, 2 pairs
Diameter — 0.209"
Impedance — 100 ohms
Jacket — Gray, PVC
Mutual Capacitance — 24 pF/ft.
Connectors — ETNMSR01, ETNMR01: (2) RJ-48C; ETNMSR02, ETNMR02: (2) DB15 M; ETNMSR03, ETNMR03: (1) DB15 M, (1) RJ-48C; ETNMSR04, ETNMR04: (1) DB15 M, (1) DB15 F

- Connects your T1 CSU/DSU.
- PVC construction.
- Suitable for 56K, T1, Frame Relay, and ISDN line connections.
- You're sure find the cable to match any device. Choose from RJ-48C, DB15 connectors, or a combination of both.
- **◆◆ WARRANTY** — Lifetime

Cross-Pinning, ETNMR01

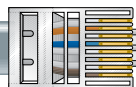
RJ-48C	RJ-48C
1	4 Orange/White
2	5 White/Orange
3	NC
4	1 Blue/White
5	2 White/Blue
6	NC
7	7 NC
8	8 NC

Item		Straight-Pinned	Cross-Pinned	List Price
T1 Cable				
RJ-48C/RJ-48C	5-ft. (1.5-m)	ETNMSR01-0005	ETNMR01-0005	
	10-ft. (3.0-m)	ETNMSR01-0010	ETNMR01-0010	
	25-ft. (7.6-m)	ETNMSR01-0025	ETNMR01-0025	
DB15 Male/DB15 Male	5-ft. (1.5-m)	ETNMSR02-0005	ETNMR02-0005	
	10-ft. (3.0-m)	ETNMSR02-0010	ETNMR02-0010	
	25-ft. (7.6-m)	ETNMSR02-0025	ETNMR02-0025	
DB15 Male/RJ-48C	5-ft. (1.5-m)	ETNMSR03-0005	ETNMR03-0005	
	10-ft. (3.0-m)	ETNMSR03-0010	ETNMR03-0010	
	25-ft. (7.6-m)	ETNMSR03-0025	ETNMR03-0025	
DB15 Male/DB15 Female	5-ft. (1.5-m)	ETNMSR04-0005	ETNMR04-0005	
	10-ft. (3.0-m)	ETNMSR04-0010	ETNMR04-0010	
	25-ft. (7.6-m)	ETNMSR04-0025	ETNMR04-0025	

NOTE: For custom lengths and plenum jackets, call Tech Support.

Black Box Explains

RJ-48.



An RJ-48 plug is often mistaken for RJ-45. On the outside, the two look identical — both are housed in miniature 8-position jacks. The difference is in the wire pairing.

In RJ-48, two of the wires are for transmit, two are for receive, and two are for the drain. The last two wires are reserved for future use.

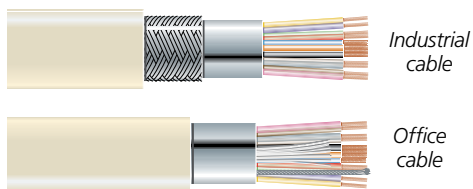
There are three subsets within RJ-48: RJ-48C, RJ-48X, and RJ-48S. RJ-48C and RJ-48X are very similar, though RJ-48C is more common. Both use lines 1, 2, 4, and 5, and connect T1 lines. RJ-48X connectors, however, have shorting bars. RJ-48S uses lines 1, 2, 7, and 8, and generally connects 56K DDS lines.

Here's how RJ-48C pinning compares to RJ-48S pinning:

Pin	RJ-48C	RJ-48S
1	Receive ring	Receive data +
2	Receive tip	Receive data -
3	No connection	No connection
4	Transmit ring	No connection
5	Transmit tip	No connection
6	No connection	No connection
7	No connection	Transmit data +
8	No connection	Transmit data -

Bulk Extended-Distance Cable, Industrial and Office

Send RS-232 data up to 500 feet in noisy or office environments.



- Industrial cable has a braided foil shield.
- Office cable has a foil shield.
- 16-, 12-, 7-, and 4-conductor industrial cables at blackbox.com.
- 37-, 25-, 16-, 12-, 7-, and 4-conductor office cables at blackbox.com.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Extended-Distance/Quiet Cable—Industrial Environment, PVC Jacket		
25 Conductors 500-ft. (152.4-m)	EMN25A-0500	
(12½ Pairs) 1000-ft. (304.8-m)	EMN25A-1000	
2000-ft. (609.6-m)	EMN25A-2000	
Custom Lengths	EMN25A	

Item	Code	List Price
Extended-Distance Data Cable—Office Environment, PVC Jacket		
50 Conductors 500-ft. (152.4-m)	EDN50A-0500	
(25 Pairs) 1000-ft. (304.8-m)	EDN50A-1000	
2000-ft. (609.6-m)	EDN50A-2000	
Custom Lengths	EDN50A	

Bulk RS-232 Plenum Cable, Office

Foil shielded for runs up to 500 feet in air plenums.



- 12- and 4-conductor cable at blackbox.com.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
RS-232 Plenum Cable—Office Environment		
25 Conductors 500-ft. (152.4-m)	EYN25A-0500	
(12½ Pairs) 1000-ft. (304.8-m)	EYN25A-1000	
2000-ft. (609.6-m)	EYN25A-2000	
Custom Lengths	EYN25A	

Bulk Standard RS-232 Cable

Standard, unshielded RS-232 cable for 50-foot runs.



- 16-, 12-, 7-, and 4-conductor cable at blackbox.com.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Bulk Standard RS-232 Cable		
25 Conductors 500-ft. (152.4-m)	ECN25A-0500	
(12½ Pairs) 1000-ft. (304.8-m)	ECN25A-1000	
2000-ft. (609.6-m)	ECN25A-2000	
Custom Lengths	ECN25A	

Bulk Individually Shielded Twisted-Pair Cable

Send data up to 50 feet in an industrial setting.

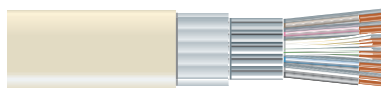


- Each pair has a foil shield and drain wire.
- 12-, 6-, and 4-conductor cable at blackbox.com.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Bulk Individually Shielded Twisted-Pair Cable (with Drain Wire)		
24 Conductors 500-ft. (152.4-m)	ESN24A-0500	
(12 Pairs) 1000-ft. (304.8-m)	ESN24A-1000	
2000-ft. (609.6-m)	ESN24A-2000	
Custom Lengths	ESN24A	

Individually Shielded Low-Capacitance Cable, Extra Distance

Send RS-422 and RS-485 data up to 4000 feet.

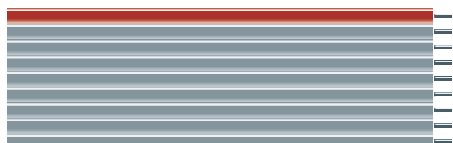


- Each pair has a foil shield and drain wire.
- 12-, 6-, and 4-conductor cable at blackbox.com.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Individually Shielded Low-Capacitance Cable—Extra Distance, PVC Jacket		
24 Conductors 500-ft. (152.4-m)	ERN24A-0500	
(12 Pairs) 1000-ft. (304.8-m)	ERN24A-1000	
2000-ft. (609.6-m)	ERN24A-2000	
Custom Lengths	ERN24A	

Bulk Flat (Ribbon) Cable

For short RS-232 or parallel runs.



- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Bulk Flat (Ribbon) Cable, 100-ft. (30.4-m) Spool		
50 Conductors	EY248A	
37 Conductors	EY242A	
36 Conductors	EY244A	
25 Conductors	EY230A	
15 Conductors	EY241A	
9 Conductors	EY240A	

Panel-Mount Adapters & Connectors

Superior adapters, connectors, and couplers for panel and wallplate mounting.

- Build quick-plug connectors into your equipment, panels, and faceplates.
- Choose panel-mount adapters with connectors for all your applications.
- Use with our stainless steel wallplates (page 118).
- ♦♦ **WARRANTY** — Lifetime



CAT6 Panel-Mount Feed-Through Couplers

- Use these kits to mount CAT6 couplers in virtually any panel thickness.
- Kits include everything you need to build a CAT6 panel-mount coupler.
- Solid, die-cast metal mounting frame provides secure mounting and reliable grounding.
- Choose from unshielded and shielded models.
- Backwards compatible with CAT5e.

USB Panel-Mount Adapters

- The right choice when you need to build USB connectors into panels.
- Adapters feature a USB Type A female connector on one side and a USB Type B female connector on the other.
- Choose from black and silver models.
- 4/40 screws are recommended.

Black Panel-Mount Couplers

- Feature straight-through wiring.
- Contacts have 50-microinch gold plating.
- Housing is 94VO flammability rated.
- For use in voice networks.

Feed-Thru Panel-Mount Adapters

- Use for panel or wallplate mounting mini DIN and DIN adapters.
- All are female/female and are suitable for jack-to-jack connections.

Panel-Mount Bezel

- Solid, die-cast bezel provides secure mounting and reliable grounding.
- Use to make custom connections in enclosures, panels, and walls.
- Accepts GigaStation2 Snap Fittings (page 115) and Giga2-style jacks (pages 90, 99, and 113).

Item	Code	List Price
CAT6 Panel-Mount Feed-Through Couplers		
Unshielded	FMT1020	
Shielded	FMT1021	
USB Panel-Mount Adapters		
Black	FMT1050	
Silver	FAUSB31	
Black Panel-Mount Couplers		
RJ-11 4-Wire	FMT1080	
RJ-45 8-Wire	FMT1081	
Feed-Thru Panel-Mount Adapters, Female/Female		
4-Pin Mini DIN	FM041	
6-Pin Mini DIN	FM042	
8-Pin Mini DIN	FM043	
5-Pin DIN	FM044	
Panel-Mount Bezel, Keystone Opening		
Silver	FMT1000	



NOTE: For details on our Water-Resistant Connector System, see blackbox.com.

Item	Code	List Price
Water-Resistant D-Style Panel-Mount Solder Connectors		
DB9 Male	FAW010	
DB9 Female	FAW011	
DB15 Male	FAW014	
DB15 Female	FAW015	
DB25 Male	FAW013	
DB25 Female	FAW012	
HD15 Male	FAW016	
HD15 Female	FAW017	
Water-Resistant D-Style Backshell Kits		
DB9 Male	FAW101	
DB9 Female	FAW100	
DB15 Male	FAW104	
DB15 Female	FAW105	
DB25 Male	FAW102	
DB25 Female	FAW103	
HD15 Male	FAW106	
HD15 Female	FAW107	

- Protect critical connections in harsh environments from dust and water.
- All have an IP67 rating and accommodate wire sizes from 30 to 20 AWG.
- Use a Connector with a Backshell Kit to make a water-resistant connection.
- Use with our stainless steel wallplates (blackbox.com).
- ♦♦ **WARRANTY** — Lifetime

Water-Resistant D-Style Panel-Mount Solder Connectors

- Solder cup connectors come in male or female versions.
- The maximum recommended panel thickness is 0.062" (0.15 cm).
- Construction consists of gold-plated brass contacts, nickel-plated steel shells, and a silicone insulating ring.
- 4/40 screws are recommended.

Water-Resistant D-Style Backshell Kits

- Include solder cup connectors in male and female genders.
- Backshell construction features ABS housing, nylon seals, nickel-plated brass thumbscrews, and rubber sealing gaskets.
- Come in rugged black PVC.

Gender Changers (D-Style and Centronics Compatible)

Instant D-style and Centronics cable matching.

- EMI/RFI shielding blocks out noise and interference to keep data signals clear.
- Connect like-gendered cables.
- **◆◆ WARRANTY** — Lifetime



Item	Male/Male	Female/Female	List Price
Gender Changers			
DB9 EMI/RFI Shielded	FA440-R2	FA445-R2	
DB15 EMI/RFI Shielded	FA450-R2	FA455-R2	
DB25 EMI/RFI Shielded	FA402-R2	FA412-R2	
Not Shielded	TS400	TS410	
DB37 EMI/RFI Shielded	FA460-R2	FA465-R2	
Not Shielded	—	TS475	
DB50 Not Shielded	TS460	TS465	
HD15 EMI/RFI Shielded	FA452-R2	FA454-R2	
Telco EMI/RFI Shielded	FA474-R2	FA476-R2	
Centronics® Compatible EMI/RFI Shielded	FA470-R2	FA472-R2	

Video Adapters

Make the right video connections.



FA13W3-R2



FA318



- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Video Adapters		
Sun ® 13W3 Female to HD15 Male	FA070-R2	
13W3 Male to HD15 Female	ACD002-R2	
PC 6-Pin Mini DIN Male to DB9 Male	FA318	
6-Pin Mini DIN Female to DB9 Female	FA319	
13W3 Gender Changer, Female to Female	FA13W3-R2	

VGA Stainless Wallplates

Make the easiest video connections ever!

- Stainless steel provides durability.
- WPVGA features a female HD15 VGA connector and screw-down terminals for customizing individual pins.
- WPVGA02 features a male/female gender changer.
- **◆◆ WARRANTY** — Lifetime



WPVGA

Item	Code	List Price
VGA Stainless Wallplates with HD15 F and Screw-Down Terminals	WPVGA	
with HD15 M/F Gender Changer	WPVGA02	

Mini DIN Adapters

Get plugged in and adapt.

- The simple solution for incompatible connectors.
- Use a full-sized keyboard with your notebook computer.
- Use the FA212-R2 or FA222-R2 to connect a PS/2® keyboard to an IBM® AT®.
- Use the FA211-R2 or FA221-R2 to connect an AT keyboard to an IBM PS/2.
- **◆◆ WARRANTY** — Lifetime



5-Pin DIN



6-Pin Mini DIN



8-Pin Mini DIN

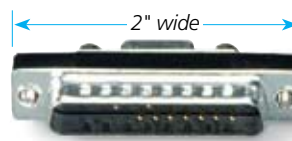


FA212-R2

Item	Code	List Price
Mini DIN Adapters		
6-Pin Mini DIN Female to 5-Pin DIN Male with 6" Cable	FA212-R2	
5-Pin DIN Female to 6-Pin Mini DIN Male with 6" Cable	FA222-R2	
6-Pin Mini DIN Gender Changer Female/Female	FA211-R2	
8-Pin Mini Din Gender Changer Female/Female	FA221-R2	
	FA316	
	FAMD8	

Slimline Adapters

70% smaller than full-sized adapters!



FA612

Only 3/4" deep!



FA618



FA619



- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Slimline Adapters		
DB9 to DB25	Male/Female	FA610
	Female/Male	FA612
	Male/Male	FA614
	Female/Female	FA616
6-Pin Mini DIN to 5-Pin DIN		
	Male/Female	FA618
To convert older Mac® DB9 serial ports to Mac 8-pin mini DIN serial, order...		
8-Pin Mini DIN to DB9	Female/Female	FA619
	Male/Male	FA619M

Port Protectors Right-Angle DB9 Adapters

Tight connections?
Try these adapters!

- **◆◆ WARRANTY** — Lifetime



FA650-R2



FA651-R2



Item	Code	List Price
Port Protectors	DB9	FA650-R2
	HD15	FA651-R2
	DB25	FA652-R2

Save when you order the Combo Pack!

Combo Pack		FA653-R2
◆ Includes (1) DB9, (1) HD15, and (2) DB25 Port Protectors.		
Right-Angle DB9 Adapters	Cable Exit 1	FA880
	Cable Exit 2	FA881

V.35 Adapters

Make V.35 connections.



FA052-R2



FA056



FA059-R2

NOTE: For the pinning, see blackbox.com.

To put an adapter on a wallplate or patch panel, order an Extra-Long Screw-Lock Kit, p. 179.

- ◆◆ **WARRANTY** — Lifetime

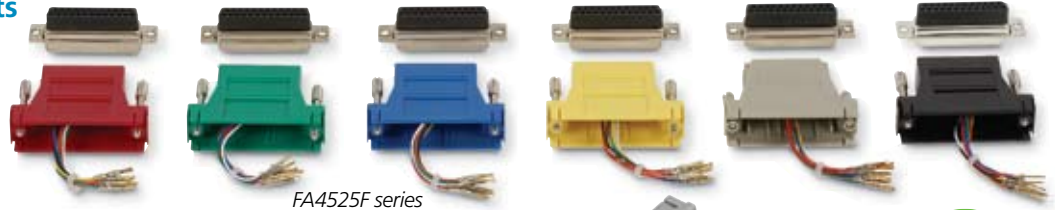


Item	Code	List Price
V.35 Adapters		
V.35 to V.35		
Male to Male	FA052-R2	
V.35 to DB25		
Female to Male	FA056	
Female to Male	FA058	
Male to Female	FA059-R2	

Colored Modular Adapter Kits

Color code your UTP system!

- Adapt DB25 or DB9 RS-232 ports to RJ-45 or RJ-11 modular jacks.
- Kits come unassembled.
- ◆◆ **WARRANTY** — Lifetime



FA4525F series

NOTE: For other D-Style adapters, call our FREE Tech Support.

NOTE: FA746 and FA748 are clearance priced and available only in extremely limited quantities.



FA1012



Item	Code	List Price
Colored Modular Adapter Kits, Unassembled, Thumbscrews		
RJ-45, 8-Wire		
DB25 Male		
Red	FA4525M-RD	
Green	FA4525M-GR	
Blue	FA4525M-BL	
Yellow	FA4525M-YE	
Gray	FA4525M-GY	
Black	FA4525M-BK	
DB25 Female		
Red	FA4525F-RD	
Green	FA4525F-GR	
Blue	FA4525F-BL	
Yellow	FA4525F-YE	
Gray	FA744	
Black	FA4525F-BK	
DB15		
Black, Male	FA4515M-BK	
Black, Female	FA4515F-BK	

Item	Code	List Price
Colored Modular Adapter Kits (Continued)		
RJ-45, 8-Wire		
DB9 Male		
Red	FA1005	
Green	FA1006	
Blue	FA4509M-BL	
Yellow	FA1008	
Gray	FA4509M-GY	
Black	FA4509M-BK	
DB9 Female		
Red	FA4509F-RD	
Green	FA4509F-GR	
Blue	FA4509F-BL	
Yellow	FA4509F-YE	
Gray	FA4509F-GY	
Black	FA4509F-BK	
RJ-45, 10-Wire, Gray		
DB25 Male	FA1011	
Female	FA1010	
DB9 Male	FA1013	
Female	FA1012	

Item	Code	List Price
Colored Modular Adapter Kits (Continued)		
RJ-11, 6-Wire		
DB25 Male		
Red	FA735	
Blue	FA737	
Yellow	FA738	
Gray	FA739	
DB25 Female		
Red	FA745	
Green	FA746	
Blue	FA747	
Yellow	FA748	
DB9 Male		
Red	FA780	
Green	FA781	
Blue	FA782	
Yellow	FA783	
DB9 Female		
Red	FA784	
Green	FA785	
Blue	FA786	
Yellow	FA787	

Screw Lock and Thumbscrew Modular Adapters

Convert D-style connectors.



FA024



FA756

- ◆◆ **WARRANTY** — Lifetime



Item	Code	List Price
Modular Adapter Kits, Unassembled, Screw Locks		
RJ-11, 4- or 6-Wire, Black		
DB25 Male	FA024	
Female	FA026	
Modular Adapter Kits, Assembled, Screw Locks		
RJ-45, 8-Wire, Black		
DB25 Male	FA015	
Female	FA016	

Item	Code	List Price
Modular Adapter Kits, Unassembled, Thumbscrews		
RJ-45, 8-Wire, Gray		
DB25 Male	FA770	
Female	FA771	
DB9 Male	FA755	
Female	FA756	
RJ-11, 4- or 6-Wire, Gray		
DB25 Male	FA751	
Female	FA752	

NOTE: Screw Lock Adapters can be mounted in a blank patch panel; Thumbscrew Adapters can't.

CAT5e Cable Economizer/Doubler

Attach two workstations to an existing CAT5e cable.

- Splits one 4-pair CAT5e UTP cable into two separate ports.
- Use in 10-/100-Mbps networks.
- Housing can be attached to the wall.
- **◆◆ WARRANTY** — Lifetime

Use the CAT5e Cable Economizer/Doubler to link two ports on a hub to a single, 4-pair CAT5e UTP wallplate. Then use one at the other end to split the signal to two work-stations.

CAT5e

NOTE: Must be used in pairs.

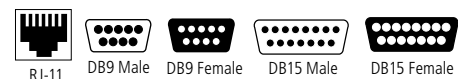
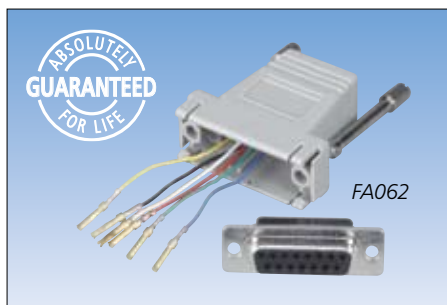


Item	Code	List Price
CAT5e Cable Economizer/Doubler	FAU962	

DB↔RJ-11 Adapter Kits

Install or move serial devices easily.

- Install or move serial printers, terminals, modems, and other devices.
- Pin your own modular adapter to connect your serial equipment.
- Use inexpensive twisted-pair cable.
- Support six leads.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
DB9↔RJ-11 Adapter Kits		
Female	FA4509F-BK	
Male	FA068	
DB15↔RJ-11 Adapter Kits		
Female	FA062	
Male	FA063	

MMJ Modular Adapter Kits

Make all your DEC connections with our MMJ Modular Adapter Kits.



- Use terminals and printers that have DB9 or DB25 ports with your DECconnect™ wiring scheme.
- **◆◆ WARRANTY** — Lifetime



Item	DEC™ Part #	Code	List Price
MMJ Modular Adapter Kits, Assembled			
DB25 Male to MMJ Female for VT300™ Terminals	(H8571C)	FA850	
DB25 Male to MMJ Female for LJ250 Color Printers	(H8571E)	FA852	
DB25 Female to MMJ Female for Terminals	(H8571A)	FA851	
DB9 Female to MMJ Female for Printer Connections, Unassembled	(H8571B)	FA853	
DB9 Male to MMJ	Male	FA765	
	Female	FA766	
DB25 Male to MMJ	Male	FA761	
	Female	FA762	

Ethernet Adapter Brackets • Latch Adapter

Keep your existing Ethernet interface card, thanks to these AUI accessories.



- **Ethernet Adapter Brackets** stop AUI cable from pulling away from transceiver cards.
- **Hexnut to Slide-Latch Adapter** makes an AUI cable and a NIC compatible.
- **◆◆ WARRANTY** — All: Lifetime

Item	Code	List Price
Ethernet Adapter Brackets, 10-Pack	FA459	
Hexnut to Slide-Latch Adapter	FA458	

CAT5e Hard-Wire Couplers

Extend solid-wire cable!

- Split voice and data lines.
- Feed power to wireless devices.
- Feature 110-style punchdown blocks.
- **◆◆ WARRANTY** — Lifetime



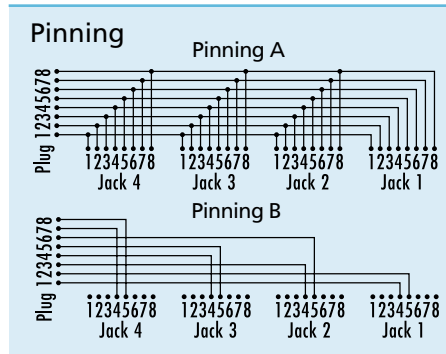
Item	Code	List Price
CAT5e Hard-Wire Couplers		
UTP	FAU963	
STP	FAU964	

RJ-45 Modular Splitters

Break one RJ-45 jack into four.



- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
RJ-45 Modular Splitters, 5-Position, 8 x 8		
Unshielded		
A Pinning	FM800-R2	
B Pinning	FM805-R2	
with 2.5" Cable		
A Pinning	FM820-R2	
B Pinning	FM825-R2	
Shielded		
A Pinning	FM810-R2	
B Pinning	FM815-R2	
with 2.5" Cable		
A Pinning	FM830-R2	
B Pinning	FM835-R2	

CAT5e and CAT6 Couplers

Join UTP or STP patch cables.

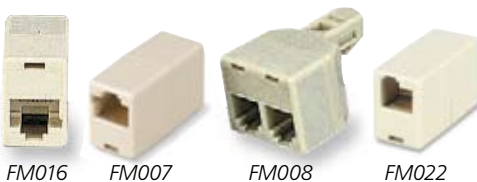
- Use **CAT5e Cross-Pinned Couplers** to cross wires of two straight-pinned cables.
- **CAT5e Keystone Couplers** work with GigaStation2 Wallplates (page 114).
- **CAT6 Feed-Through Couplers** fit standard keystone openings.
- **CAT6 Panel-Mount Feed-Through Coupler Kits** include: snap-in CAT6 coupler, mounting frame, and 4/40 screws.
- **◆◆ WARRANTY** — Lifetime



Item	Single-Pack	List Price	10-Pack	List Price	Item	Code	List Price		
CAT5e Couplers	Straight-Pinned	Unshielded	White	FM506-R2	FM506-R2-10PAK	CAT6 Feed-Through, Straight-Pinned Couplers	Unshielded		
			Beige	FM507-R2	FM507-R2-10PAK			Black	FM692
		Black	FM509	FM509-10PAK	White			FM690	
		Silver	FM508-R2	FM508-R2-10PAK	Shielded			Siler	FM693
	Cross-Pinned	Unshielded	White	FM566-R2	FM566-R2-10PAK		CAT6 Panel-Mount Feed-Through Coupler Kits	Unshielded	FMT1020
			Beige	FM567-R2	FM567-R2-10PAK				
		Shielded	Silver	FM568-R2	FM568-R2-10PAK				
CAT5e Keystone Couplers	Straight-Pinned	Unshielded	White	FM590	FM590-10PAK				
			Beige	FM591	FM591-10PAK				
			Black	FM592	FM592-10PAK				
		Shielded	Silver	FM593	FM593-10PAK				
	Cross-Pinned	Unshielded	White	FM596	FM596-10PAK				
			Beige	FM597	FM597-10PAK				
			Silver	FM598	FM598-10PAK				
		Shielded							

Modular Adapters and Couplers

Use for a phone or modem line addition or extension.



- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
In-Line Couplers, Female/Female		
4- or 6-Wire Cross-Pinned	FM009	
6-Wire Straight-Pinned	FM017	
8-Wire Cross-Pinned	FM016	
8-Wire Straight-Pinned	FM018	
10-Wire Straight-Pinned	FM007	

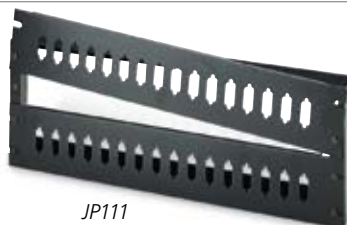
Item	Code	List Price
Modular T Adapters, 4- or 6-Wire Straight-Pinned Female/Female	FM008	
Female/Female on 15-ft. (4.5-m) Cord	FM011	
MMJ In-Line Couplers, 6-Wire, Female/Female		
Straight-Pinned	FM022	
Cross-Pinned	FM024	



Modular Junction Panels—DB Series

Customize your own D-style rack panel.

- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
Modular Junction Panels		
DB9	JP011	
DB15	JP111	
DB25	JP221	
DB37	JP281	

Crimp Shells

- Accept snap-in type crimp pins.
- **◆◆ WARRANTY** — Lifetime



FA010

Item		Single-Pack	10-Pack	25-Pack	50-Pack
Crimp Shells					
DB9	Male	FA110	FA110-10PAK	FA110-25PAK	FA110-50PAK
	Female	FA120	FA120-10PAK	FA120-25PAK	FA120-50PAK
DB15	Male	FA210	FA210-10PAK	FA210-25PAK	FA210-50PAK
	Female	FA220	FA220-10PAK	FA220-25PAK	FA220-50PAK
DB25	Male	FA010	FA010-10PAK	FA010-25PAK	FA010-50PAK
	Female	FA020	FA020-10PAK	FA020-25PAK	FA020-50PAK
DB37	Male	FA310	FA310-10PAK	FA310-25PAK	FA310-50PAK
	Female	FA320	FA320-10PAK	FA320-25PAK	FA320-50PAK
DB50	Male	FA410	FA410-10PAK	—	—
	Female	FA420	FA420-10PAK	FA420-25PAK	FA420-50PAK

Item		Single-Pack	10-Pack	25-Pack	50-Pack	100-Pack
Crimp Pins	Male	FA810	FA810-10PAK	FA810-25PAK	FA810-50PAK	FA810-100PAK
	Female	FA820	FA820-10PAK	FA820-25PAK	FA820-50PAK	FA820-100PAK

Solder Shells

- Solder contact points for wires.
- **◆◆ WARRANTY** — Lifetime



FB010

Item		Single-Pack	10-Pack	25-Pack	50-Pack
Solder Shells					
DB9	Male	FB110	FB110-10PAK	FB110-25PAK	FB110-50PAK
	Female	FB120	FB120-10PAK	FB120-25PAK	FB120-50PAK
DB15	Male	FB210	FB210-10PAK	FB210-25PAK	FB210-50PAK
	Female	FB220	FB220-10PAK	FB220-25PAK	FB220-50PAK
DB25	Male	FB010	FB010-10PAK	FB010-25PAK	FB010-50PAK
	Female	FB020	FB020-10PAK	FB020-25PAK	FB020-50PAK
DB37	Male	FB310	FB310-10PAK	FB310-25PAK	FB310-50PAK
	Female	FB320	FB320-10PAK	FB320-25PAK	FB320-50PAK
DB50	Male	FB410	FB410-10PAK	FB410-25PAK	FB410-50PAK
	Female	FB420	—	—	—

Item		Single-Pack	10-Pack	25-Pack	50-Pack	100-Pack
Solder Socket Pins						
	Male	FA830	FA830-10PAK	FA830-25PAK	FA830-50PAK	FA830-100PAK
	Female	FA840	FA840-10PAK	FA840-25PAK	FA840-50PAK	FA840-100PAK

Hoods

- Choose plastic or metal EMI-/RFI-shielded hoods.
- Extra-Long Screw-Lock Kit includes (2) 1/16" stand-off studs, (2) nuts with 4/40 threads, (2) flat washers, and (2) lock washers.
- **◆◆ WARRANTY** — Lifetime



FA031-R2

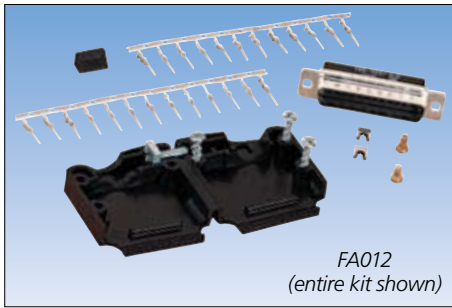
NOTE: Metric screw locks are also available. To order, call our FREE Tech Support.

Item		Single-Pack	10-Pack	25-Pack	50-Pack
Hoods					
DB9	Plastic	FA130-R2	FA130-R2-10PAK	FA130-R2-25PAK	FA130-R2-50PAK
	EMI/RFI	FA032-R2	FA032-R2-10PAK	FA032-R2-25PAK	FA032-R2-50PAK
DB15	Plastic	FA230-R2	FA230-R2-10PAK	FA230-R2-25PAK	FA230-R2-50PAK
	EMI/RFI	FA033-R2	FA033-R2-10PAK	FA033-R2-25PAK	FA033-R2-50PAK
DB25	Plastic	FA030-R2	FA030-R2-10PAK	FA030-R2-25PAK	FA030-R2-50PAK
	EMI/RFI	FA031-R2	FA031-R2-10PAK	FA031-R2-25PAK	FA031-R2-50PAK
DB37	Plastic	FA330-R2	FA330-R2-10PAK	FA330-R2-25PAK	FA330-R2-50PAK
	EMI/RFI	FA034-R2	FA034-R2-10PAK	FA034-R2-25PAK	FA034-R2-50PAK
DB50	Plastic	FA430-R2	FA430-R2-10PAK	FA430-R2-25PAK	FA430-R2-50PAK
	EMI/RFI	FA035-R2	FA035-R2-10PAK	FA035-R2-25PAK	FA035-R2-50PAK

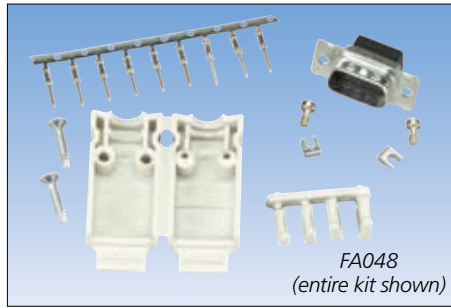
Item		Single-Pack	10-Pack	25-Pack	50-Pack	100-Pack
Screw Locks	Male	FA910	FA910-10PAK	FA910-25PAK	FA910-50PAK	—
	Female	FA920	FA920-10PAK	FA920-25PAK	FA920-50PAK	FA920-100PAK
Extra-Long Screw-Lock Kit		FA995	—	—	—	—

RS-232 Connector Kits • D-Style Crimp Tool

Everything you need for fast, trouble-free RS-232 connections.



FA012
(entire kit shown)



FA048
(entire kit shown)



FT073

- RS-232 kits available for DB25 or DB9 male or female connectors.
- D-Style tool makes crimping easy and accurate.
- Replacement locators and slides are available.
- ♦♦ **WARRANTY** — Lifetime

These BLACK BOX® RS-232 Connector Kits have everything you need for quick, secure RS-232 connections! Each kit contains (1) DB25 or DB9 crimp shell, (1) DB25 or DB9 hood, (25) or (9) crimp snap pins, (1) strain relief bar, and a set of screw locks. (Crimp shell type and gender, hood type, and number of crimp snap pins depend on the model ordered.)

The D-Style Crimp Tool has a locator and slide to hold connector pins securely, making it easy to crimp them accurately.

The Connector Kits Include

DB25 Kits:

- DB25 crimp shell
- DB25 hood
- (25) crimp snap pins
- Strain relief bar
- Set of screw locks

DB9 Kits:

- DB9 crimp shell
- DB9 hood
- (9) crimp snap pins
- Strain relief bar
- Set of screw locks

Item	Code	List Price
RS-232 Connector Kits		
DB25		
Male	FA012	
Female	FA022	
DB9		
Male	FA048	
Female	FA049	
D-Style Crimp Tool	FT073	
Replacement Locator	FT071	
Replacement Slide	FT072	

HD15 Crimp Connectors and Hoods

Choose the components you need to make HD15 video connectors.

- Pick a connector, hood, and crimp pins to create a complete HD15 termination solution.
- ♦♦ **WARRANTY** — Lifetime

NOTE: For Premium VGA Video Extension Bulk Cable (EVNPS05A), call our FREE Tech Support.



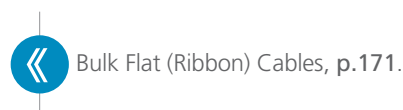
Item	Code	List Price
HD15 Crimp Connectors		
Male	00989	
Female	00942	
HD15 Crimp Pins		
Male	00855	
Female	00946	
HD15 Hoods		
Plastic	FA130-R2	
Metal	FA032-R2	

Ribbon Cable Connectors

Sure termination for ribbon cabling.

- No-fault installation on all types of standard multiconductor ribbon cables.
- Plastic insulation displacement connectors don't require stripping.
- Compact and neat—easy to manipulate and install.

- ♦♦ **WARRANTY** — Lifetime



Item	Male Single	Female Single	Single List Price	Male 10-Pack	Female 10-Pack	10-Pack List Price
Ribbon Cable Connectors						
DB9	FG105	FG100		FG105-10PAK	FG100-10PAK	
DB15	FG115	FG110		FG115-10PAK	FG110-10PAK	
DB25 (RS-232)	FG125	FG120		FG125-10PAK	FG120-10PAK	
DB37 (RS-449)	FG135	—		FG135-10PAK	—	
DB50	—	—		FG145-10PAK	FG140-10PAK	
Centronics 36	—	FG151		—	FG151-10PAK	

Two-Headed Hood Kits

Make custom pinnings on the spot.

- ◆◆ **WARRANTY** — Lifetime

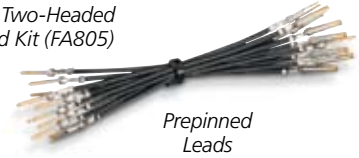
What's included

Hood Kits:

- (2) DB25 connectors or (2) DB9 connectors
- Hood assembly and hardware
- Full set of prepinning leads



DB9 Two-Headed Hood Kit (FA805)



Item	Single-Pack	10-Pack	25-Pack
DB25 Two-Headed Hood (Cover Only)	FA801	FA801-10PAK	FA801-25PAK
Additional 2-Inch Wire with Pre-crimped Pins (Specify Gender: Female/Female, Female/Female/Female, Male/Female, Male/Male)	EY800	—	EY800-25PAK

Item	Code	List Price
Two-Headed Hood Kits		
DB25		
Male/Female	FA800	
Male/Male	FA802	
Female/Female	FA804	
DB9		
Male/Female	FA805	
Male/Male	FA806	
Female/Female	FA808	

V.35 and M/50 Custom Pinning Equipment

Create your own custom pinning for V.35 and M/50.



Item	Code	List Price
V.35 Connector Shells, Crimp-on		
Male Single	FH011	
10-Pack	FH011-10PAK	
25-Pack	FH011-25PAK	
Female Single	FH021	
10-Pack	FH021-10PAK	
25-Pack	FH021-25PAK	
V.35 Connector Hoods		
Single	FH031	
10-Pack	FH031-10PAK	
25-Pack	FH031-25PAK	
V.35 Screw Locks, (1) Male, (1) Female		
Single	FH301	
10-Pack	FH301-10PAK	
25-Pack	FH301-25PAK	

Item	Code	List Price
M/50 Connector Shells, Crimp-on		
Male Single	FH040	
10-Pack	FH040-10PAK	
25-Pack	FH040-25PAK	
M/50 Connector Hoods		
10-Pack	FH060-10PAK	
M/50 Screw Locks, (1) Male, (1) Female		
Single	FH300	
10-Pack	FH300-10PAK	

Item	Code	List Price
V.35 and M/50 Pins		
Male Single	FH100	
10-Pack	FH100-10PAK	
25-Pack	FH100-25PAK	
50-Pack	FH100-50PAK	
100-Pack	FH100-100PAK	
Female Single	FH200	
10-Pack	FH200-10PAK	
25-Pack	FH200-25PAK	
50-Pack	FH200-50PAK	
100-Pack	FH200-100PAK	
Crimp Tool		
	FT012	
V.35 and M/50 Pin Extraction Tool		
	FT016	

V.35 Crimp Connector Kits

It's in there! Everything to make V.35 connectors is in one kit!

- ◆◆ **WARRANTY** — Lifetime



Item	Code	List Price
V.35 Crimp Connector Kits		
Female	502763	
Male	502764	

Extra-Long Screw-Lock Kit

Coming up short? Put a gender changer on a wallplate or patch panel!

- ◆◆ **WARRANTY** — Lifetime

What's included

- (2) 7/16" stand-off studs
- (2) nuts with 4/40 threads
- (2) flat washers
- (2) lock washers



Item	Code	List Price
Extra-Long Screw-Lock Kit		
	FA995	

High-Speed DS-3 Coax Cables

The right connections for your high-speed DS-3 equipment.



TECH SPECS

Capacitance (Nominal) — 75 ohms
 Conductors — 26 AWG silver-plated, solid copper
 Construction — 95% coverage braid
 CSA — CXC FT-4
 Dielectric — Cellular polyethylene
 Jacket — Gray PVC
 Rating — UL® listed, NEC Type CMR
 Return Loss (Minimum) — 30 dB @ 100 MHz
 Shield — Foil with tinned copper
 Structural — 30 dB @ 15–90 MHz
 Velocity of Propagation (Nominal) — 78%

- Use to interconnect or cross-connect DS-3 transmission equipment and Digital System Cross-connect (DSX) systems.
- Cables are Siamese-style with two conductors.
- Compliant with Bellcore GR-139-CORE specifications and flame resistant to UL® 1666.
- UL® Listed to NEC® and CEC Type CMR.
- For indoor environments.
- Low attenuation at standard frequencies.
- For superior performance, conductors are solid, silver-plated, 26 AWG copper.
- Choose cable with either BNC or TNC connectors.
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
High-Speed DS-3 Coax Cables		
BNC-BNC		
2-ft. (0.6-m)	DS3-0002-BNC	
5-ft. (1.5-m)	DS3-0005-BNC	
10-ft. (3.0-m)	DS3-0010-BNC	
25-ft. (7.6-m)	DS3-0025-BNC	
50-ft. (15.2-m)	DS3-0050-BNC	
75-ft. (22.8-m)	DS3-0075-BNC	
100-ft. (30.4-m)	DS3-0100-BNC	
Custom Lengths	DS3BNC	
TNC-TNC		
2-ft. (0.6-m)	DS3TNC-0002	
5-ft. (1.5-m)	DS3TNC-0005	
10-ft. (3.0-m)	DS3TNC-0010	
25-ft. (7.6-m)	DS3TNC-0025	
50-ft. (15.2-m)	DS3TNC-0050	
100-ft. (30.4-m)	DS3TNC-0100	
Custom Lengths	DS3TNC	

Bulk DS-3 Cable, p. 182.



Black Box Explains

DS-3 and DS-4.

Digital Signal (DS) speeds are used to classify the capacities of lines and trunks as designated by the Trunk (T) carrier systems. The most well-known T carrier system is the North American T1 standard, which was originally designed to transmit digitized voice signals at 1.544 Mbps (DS-1). T carrier systems now carry digital data as well as voice transmissions.

DS-3 lines offer the functional equivalent of 28 T1 channels, operating at 44.736 Mbps (commonly rounded up to 45 Mbps). These lines handle

up to 672 voice conversations and are used in high-speed interconnect and DS cross-connect (DSX) applications.

DS-4 offers 274.176-Mbps transmission—the same as 4032 standard voice channels—and has 168 times the capacity of T1. This performance level is generally used for carrier backbone networks.

Products offering DS-3 and DS-4 functionality comply with T3 and T4 standards, respectively, and with Bellcore GR-139-CORE specifications.

DS-3 Network Extender Kit

Extend your corporate LAN over a DS-3 line.

- Link a LAN across a DS-3 line without buying expensive and complicated routers.
- Use a pair of extenders to link two networks together.
- Operates at speeds up to 45 Mbps.
- Features 10-/100-Mbps autosensing Ethernet ports—they adjust automatically to the speed of your network.
- Easy setup—literally plug-and-play.
- Find out more on page 542.

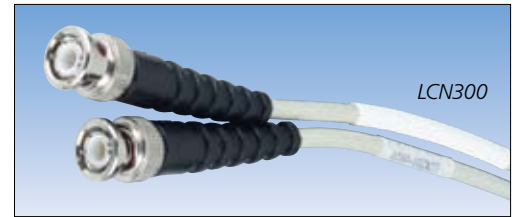


One of the extender units in the LR0025A-KIT.

ThinNet Cable • Coax Cable

High-quality cable for 10BASE2 and IBM systems.

- Use the ThinNet cable in 10BASE2 Ethernet systems.
- Connect the ThinNet cables between your NIC and a wallplate, or from the wallplate to the wiring closet.
- Use the coax cable with IBM® 3270, WANG®, or other coax equipment.
- Coax cables are for indoor use only.
- ♦♦ **WARRANTY** — Lifetime



Item	Code	List Price
ThinNet Cable, RG-58, 10BASE2		
PVC (CL2)	10-ft. (3.0-m)	LCN300-0010
	15-ft. (4.5-m)	LCN300-0015
	25-ft. (7.6-m)	LCN300-0025
	30-ft. (9.1-m)	LCN300-0030
	40-ft. (12.1-m)	LCN300-0040
	60-ft. (18.2-m)	LCN300-0060
Plenum (CL2P)	Custom Lengths	LCN300
	60-ft. (18.2-m)	LCN350-0060
	Custom Lengths	LCN350

NOTE: ThinNet and coax cables also available in 20- and 100-ft. (6.0- and 30.4-m) lengths.

Item	Code	List Price
Coax Cable		
RG-59 PVC (CL2)	6-ft. (1.8-m)	ETN59-0006-BNC
	10-ft. (3.0-m)	ETN59-0010-BNC
	25-ft. (7.6-m)	ETN59-0025-BNC
	50-ft. (15.2-m)	ETN59-0050-BNC
	Custom Lengths	ETN59-BNC
	RG-62 PVC (CL2) (IBM Part #2577672)	
Dual WANG Compatible Cable	6-ft. (1.8-m)	ETN62-0006-BNC
	10-ft. (3.0-m)	ETN62-0010-BNC
	25-ft. (7.6-m)	ETN62-0025-BNC
	50-ft. (15.2-m)	ETN62-0050-BNC
	Custom Lengths	ETN62-BNC
PVC (CL2) (WANG Part #120-2300-X)	EVNCDC	
Plenum (CL2P) (WANG Part #120-2303-X)	EVNPCP	

Standard Ethernet Backbone Coax Cable

Cable for your 10BASE5 system.



- Use as an Ethernet (10BASE5) 12 AWG trunk or backbone cable.
- Features N-type male connectors.
- Cable is marked every 8.2 feet (2.4 m) for transceiver connections.
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
Standard Ethernet Backbone Coax Cable, 802.3		
PVC (CL2)	77-ft. (23.4-m)	LCN100-0077
	230-ft. (70.1-m)	LCN100-0230
	384-ft. (117.0-m)	LCN100-0384
	Custom Lengths	LCN100

Ethernet Transceiver Cable (Office & Industrial Environments)

Cable for transceiver connections in all types of environments.

- Office cable features three 28 AWG pairs and one 24 AWG pair of stranded copper wire.
- Constructed with individual shields, a drain wire, and a double cable shield.
- Industrial cable is triple shielded for maximum protection.
- Features stranded, tinned, 20 AWG copper conductors.
- ♦♦ **WARRANTY** — Lifetime



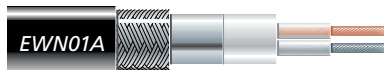
Buyer's Guide | Ethernet Transceiver Cable

Office	Type	Standard	Connectors		Lengths and List Prices						
			Straight	Angle	3-ft. (0.9-m)	6-ft. (1.8-m)	10-ft. (3.0-m)	15-ft. (4.5-m)	—	Custom Lengths	
LCN210	PVC	Version 2.0	✓	—							
LCN215	PVC	IEEE 802.3	✓	—							
LCN216	PVC	IEEE 802.3	—	✓							
Industrial	Type	Standard	Straight	Angle	10-ft. (3.0-m)	15-ft. (4.5-m)	30-ft. (9.1-m)	50-ft. (15.2-m)	150-ft. (45.7-m)	Custom Lengths	
LCN200	PVC	Version 2.0	✓	—							
LCN250	Plenum	Version 2.0	✓	—							
LCN205	PVC	IEEE 802.3	✓	—							
LCN206	PVC	IEEE 802.3	—	✓		—					
LCN255	Plenum	IEEE 802.3	✓	—			—				
LCN256	Plenum	IEEE 802.3	—	✓					—		

Click and find at blackbox.com:
Legacy twinax and Token Ring cable, data connectors, and IBM and Token Ring baluns.

Bulk Twinax Cable

For legacy IBM System 3X or AS/400 connections.



- Messenger cable is for indoor and outdoor use and has a moisture- and UV-resistant polyethylene jacket.
- For specifications, see blackbox.com.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Bulk Twinax Cable		
PVC, NEC® CL2	500-ft. (152.4-m)	EWN01A-0500
	1000-ft. (304.8-m)	EWN01A-1000
	2000-ft. (609.6-m)	EWN01A-2000
	Custom Lengths	ETN62A
Plenum, NEC® CL2P	500-ft. (152.4-m)	EWN020A-0500
	1000-ft. (304.8-m)	EWN020A-1000
	2000-ft. (609.6-m)	EWN020A-2000

Bulk ThinNet Cable, RG-58

ThinNet cables for legacy 10BASE2 LANs.

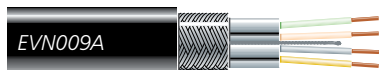


- 20 AWG, stranded conductor.
- For specifications, see blackbox.com.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Bulk ThinNet Cable, RG-58		
PVC Black	500-ft. (152.4-m)	LCN300A-0500
	1000-ft. (304.8-m)	LCN300A-1000
	2000-ft. (609.6-m)	LCN300A-2000
	Custom Lengths	LCN300A
Plenum Gray	500-ft. (152.4-m)	LCN350A-0500
	1000-ft. (304.8-m)	LCN350A-1000
	2000-ft. (609.6-m)	LCN350A-2000
	Custom Lengths	LCN350A

Bulk Token Ring Cable

150-ohm shielded STP cable.



- For specifications, see blackbox.com.
- **◆◆ WARRANTY** — Lifetime

NOTE: 1000-foot and custom lengths available. Plenum Type 1A and Type 1 cable also available. Contact our FREE Tech Support.

Item	Code	List Price
Token Ring Type A Bulk Cable, IEEE 802.5, STP		
Type 1A, 4 Conductors (2 Pairs)		
PVC	500-ft. (152.4-m)	EVN009A-0500
Type 1, 4 Conductors (2 Pairs)		
PVC	500-ft. (152.4-m)	EVN001A-0500
Type 6, 4 Conductors (2 Pairs)		
PVC	500-ft. (152.4-m)	EVN005A-0500

Bulk Coax Cable

Copper-braided, solid-conductor coax.

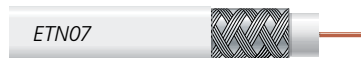


- For specifications, see blackbox.com.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Bulk Coax Cable		
RG-62, PVC, NEC® CL2		
	500-ft. (152.4-m)	ETN62A-0500
	1000-ft. (304.8-m)	ETN62A-1000
	2000-ft. (609.6-m)	ETN62A-2000
	Custom Lengths	ETN62A
RG-59, PVC, NEC® CL2		
	500-ft. (152.4-m)	ETN59A-0500
	1000-ft. (304.8-m)	ETN59A-1000
	2000-ft. (609.6-m)	ETN59A-2000
	Custom Lengths	ETN59A

RG-6 and RG-11 Coax Cable

Dual-shielded coax cable for your CATV and satellite TV applications.



- RG-6 cable: 8 AWG solid, bare, copper-covered steel conductor.
- RG-11 cable: 14 AWG solid, bare, copper-covered steel conductor.
- For specifications, see blackbox.com.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
RG-6 Coax Cable		
PVC Black	500-ft. (152.4-m)	ETN06-0500
	1000-ft. (304.8-m)	ETN06-1000
	500-ft. (152.4-m)	ETN07-0500
Plenum Black	1000-ft. (304.8-m)	ETNP06-1000

DS-3 Coax Cable

For DS-3 transmission equipment and DSX systems.



- Solid, silver-plated copper 26 AWG conductors.
- For specifications, see blackbox.com.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
DS-3 Coax Cable, PVC, Gray, 1000-ft. (304.8-m), (6) Conductors	ETN6DS3-1000	

Coax Connectors

All the connectors and components you need for 3270, ARCNET®, and video installations.



- ◆◆ **WARRANTY** — Lifetime



Item	Single-Pack	10-Pack
Crimp Coax Connector (RG-59/62), BNC (Male/Indoor)	FC050-R2	FC050-10PAK-R2
Solder Coax Connector, BNC (Male/Indoor)	FC090	FC090-10PAK
Bulkhead Solder Coax Connector, BNC (Bulkhead Jack)	FC225	FC225-10PAK
Feed-Through Coax Connectors, BNC		
Double Female Bulkhead Jack/Indoor	FC215	FC215-10PAK
Insulation Bushing 3/16"	FC211	FC211-10PAK
BNC Resistor Terminator Caps		
RG-59, 75-Ohm	FC235	FC235-10PAK
RG-58, 50-Ohm	FC135	—
RG-58, 50-Ohm with Strap	FC044	FC044-10PAK
ThinNet Insulator Boot	FC057	FC057-10PAK
Coax T Connectors (Nonbulkhead)		
BNC Auto T-Connector Female-Male-Female	FC040	FC040-10PAK
BNC F-Connector	FC042	FC042-10PAK
BNC Y-Connector	FC043	FC043-10PAK

Twinax Connectors

Adapters and connectors for twinax equipment.



- ◆◆ **WARRANTY** — Lifetime

Item	Single-Pack	10-Pack	Code	List Price
Twinax Connector				
Male (IBM® Part #7362229)	FD010	FD010-10PAK	FD050	
Twinax Bulkhead Feed-Through, Female/Female	FD110	FD110-10PAK	FD030	
Twinax Bulkhead Connector, Female/Solder Connection	FD020	—	FD100	
			FD115-R2	

Ethernet Connectors and Terminators

Everything for legacy Ethernet connections.

- The Transceiver Connector Kits contain everything you need to terminate an 802.3 DB15 connector.
- ◆◆ **WARRANTY** — Lifetime



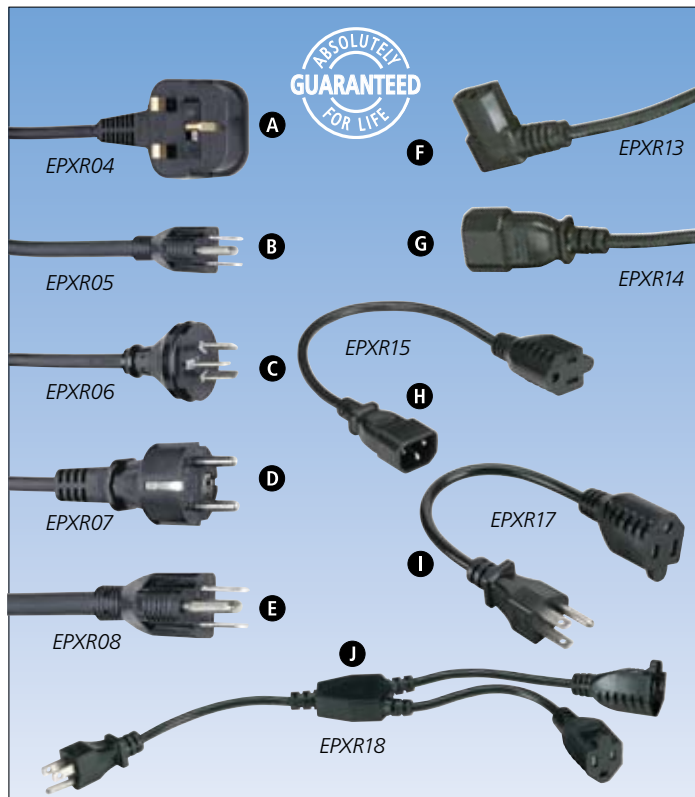
What's in the Transceiver Connection Kits

FA550: DB15 male connector (9) male contacts (2) locking posts Metal hood Ferrule	FA551: DB15 female connector (9) female contacts Slide latch Metal hood Ferrule
--	--

Item	Single-Pack	10-Pack
Transceiver Connector Kits, DB15	Male Female	FA550-10PAK FA551-10PAK
N-Type Barrel Connector		
Standard N-Type Connectors	Male	LN100-10PAK LN110-10PAK
N-Type Terminators	Male Female	— LN135-10PAK

Power Cords

Make your PC and monitor connections at home and when you travel internationally.



- One end features a molded IEC 320 plug for the computer connection. The other end has the appropriate power plug for that country or region.
- For equipment that fits snugly against the wall, or for use in cramped spaces, order our Right-Angle Power Cord.
- Use the Extension Power Cord to increase the distance between your PC and/or monitor and the wall outlet.
- Power devices through your computer with the PC Adapter Cords.
- Connect AC power adapters to a power strip or wall outlet with the Outlet Saver AC Mini Extension Cord.
- The Power Cord Y Adapter powers two devices through one cord.
- **WARRANTY** — Lifetime

Item	Code	List Price
International PC/Monitor Power Cords, 6.5-ft. (2.0-m)		
IEC 320 Female to Power Plug Male for:		
A U.K.	EPXR04	
B Japan	EPXR05	
C Australia	EPXR06	
D Europe	EPXR07	
Europe, Right-Angle	EPXR20	
North American (N.A.) PC/Monitor Power Cords		
IEC 320 Female to N.A. 3-Prong Power Plug Male		
E In-Line	6.5-ft. (2.0-m)	EPXR08
	10.0-ft. (3.0-m)	EPXR12
F Right-Angle	6.0-ft. (1.8-m)	EPXR13
Extension Power Cord		
G IEC 320 Female to Male	6.0-ft. (1.8-m)	EPXR14
PC Adapter Cords		
IEC 320 Male to N.A. 3-Prong Power Plug Female		
	H 1.0-ft. (0.3-m)	EPXR15
	6.0-ft. (1.8-m)	EPXR16
Outlet Saver AC Mini Extension Cord, 10" (25.4-cm)		
I N.A. 3-Prong Power Plugs, Male to Female		EPXR17
Power Cord Y Adapter, 12" (30.5-cm)		
J N.A. 3-Prong Power Plugs, Male to Female/Female		EPXR18

Indoor/Outdoor Extension Cords

Heavy-duty extension cords for indoor/outdoor use.

- Premium-quality 3-wire indoor/outdoor extension cords feature heavy-duty vinyl construction.
- Grounded cords feature one or three rugged outlets.
- Designed for industrial use and long life.
- **WARRANTY** — Lifetime



Tired of wimpy extension cords that can't handle the rigors of frequent use? Choose our tough Indoor/Outdoor Extension Cords instead!

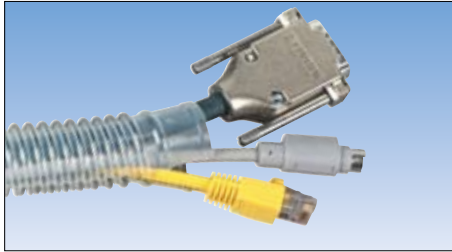
Constructed with heavy-duty vinyl, these cords feature up to three grounded outlets to supply power to multiple devices, appliances, tools—you name it!

Buyer's Guide | Power Cords

Length	Single-Outlet 14/3 Grounded Orange, Heavy-Duty	Triple-Outlet 14/3 Grounded Orange, Heavy-Duty	Triple-Outlet 14/3 Grounded Black, Heavy-Duty	Triple-Outlet 12/3 Grounded Blue, XX Heavy-Duty
15-ft. (4.5-m)	EPWR30	EPWR40	EPWR60	EPWR50
25-ft. (7.6-m)	EPWR32	EPWR42	EPWR62	EPWR52
50-ft. (15.2-m)	EPWR34	EPWR44	EPWR64	EPWR54
100-ft. (30.4-m)	EPWR36	EPWR46	EPWR66	EPWR56

Flexible Cable Manager

Clearly a great idea for cleaning up cable clutter.



- Organize PC, printer, modem, telephone, power, even stereo cords in a jiffy!
- Clear tubing is super flexible.
- Includes cable labels and reusable cable ties so you can be even more organized!
- Easy to use. Slip cables in the pre-cut slit.
- Too long? Just cut to fit.
- ♦♦ **WARRANTY** — Lifetime



Item	Code	List Price
Flexible Cable Manager, 7/8" x 5 ft. (2.2 cm x 1.5 m)	FT1010	
♦ Includes cable labels and (4) reusable cable ties.		

Cable Ducts

Organize your short or plenum cable runs.

Corrugated Cable Ducts

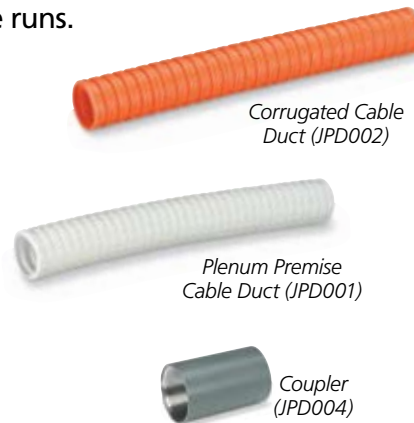
- Strong, crush-resistant HDPE is lightweight.

Plenum Premise Cable Ducts

- Constructed of plenum-rated material that meets or exceeds low-smoke requirements.
- Resist ignition.

Couplers

- Join Cable Ducts for longer cable runs.
- ♦♦ **WARRANTY** — Lifetime



NOTE: Not recommended for direct burial, riser applications, or for older duct structures.



Item	Code	List Price
Cable Ducts		
Corrugated, 1.25" (3.18-cm) Diameter		
250-ft. (76.2-m) Coil		
Orange	JPD002	
Black	JPD003	
Plenum Premise, 1.25" (3.18-cm) Diameter		
250-ft. (76.2-m) Coil		
Natural	JPD001-0250	
500-ft. (152.4-m) Coil		
Natural	JPD001-0500	
Couplers, 1.25" (3.18-cm) Diameter, 10-Pack		
	JPD004	

Cable Clamps

Organize cables at your home or office.



Left to right: FT1002, FT1005, FT1000

- Secure anything from desktop wires to thick bundles of cables.
- Super easy. Just pull open. Insert cables. Close the clamp!
- Patented design consists of durable polymers and stainless steel.
- Reusable and adjustable.
- Attach permanently using the reinforced hole.
- ♦♦ **WARRANTY** — Lifetime



Item	Code	List Price
Reusable Cable Clamps, 5-Pack		
Small	Black	FT1000
	Beige	FT1004
Medium	Black	FT1001
	Beige	FT1005
Large	Black	FT1002
	Beige	FT1006
Multipack (3 Small, 3 Medium, 3 Large)		
	Black	FT1003

Cable Tags, ID Plates, and Labels

Identify cables quickly and easily.



- **Cable Tags and ID Plates** are made of nylon and feature four holes, one in each corner, so they slide easily onto cable ties.
- **Cable Labels** have space for useful notes.
- **Marking Pens** with nylon tips are designed to write on nylon tags.



Item	Code	List Price
Cable Tags, 100-Pack		
1.5"L x 0.8"W	FT8510	
2.0"L x 0.8"W	FT8511	
2.5"L x 0.8"W	FT8512	
Cable ID Plates, 50-Pack		
1.5"L x 0.75"W	32786	
2.5"L x 0.75"W	32785	
Cable Labels, 50-Pack, 5"L x 2"W		
Black	FT930	
Five Colors	FT931	
Marking Pens		
Black	32788	
Red	32787	

- ♦♦ **WARRANTY** — Lifetime

Cable Ties

All-purpose ties for securing cable bundles.



- **Mini Cable Ties** are designed to fit through small slits in patch panels.
- **Cable Ties** secure the tags on your cable. They're ideal for bundling cable.
- **Plenum Cable Ties** don't release toxins when burned.
- **Cable Ties with Screw-Down Loop** have a circular opening on one end to accept a screw for fastening the tie.
- **Cable ID Ties with ID Plate** include a built-in label area.
- **◆◆ WARRANTY** — Lifetime

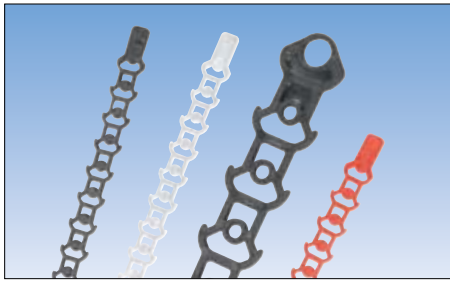


Item	Code	List Price
Mini Cable Ties, 1/8" W x 4" L, 100-Pack		
(50) Black/(50) Natural	FT610	
Assorted Colors	FT611	
Black	FT8011	
Natural	FT8010	
◆ FT611 includes (20) each of red, yellow, blue, fluorescent green, and orange ties.		
Mini Cable Ties, 1/8" W x 8" L, 100-Pack		
Black	FT8020	
Natural	FT8021	

Item		Max. Bundling Dia.	Length	Code	List Price
Cable Ties, 100-Pack	Short	0.98"	4.75"	FT8110A	
	Medium	2.12"	8.0"	FT8120A	
	Long	4.2"	14.5"	FT8130A	
Plenum Cable Ties, 100-Pack	Short	0.98"	4.75"	FT8210A	
	Medium	2.0"	8.0"	FT8220A	
	Long	4.2"	14.5"	FT8230A	
Cable Ties with Screw-Down Loop, 100-Pack		1.9"	8.0"	FT8310	
Cable ID Ties with ID Plate, 100-Pack	0.3" x 1" Plate	0.75"	4.0"	FT8351	
	0.5" x 1.2" Plate	1.75"	7.5"	FT8360	
	0.5" x 2.25" Plate	4.0"	14.5"	FT8361	

Flexi Cable Ties

Zip on. Zip off. These tough, *reversible* cable ties are gentle on your cable.



- Reversible and reusable. Undo by passing the tongue back through the latching hole.
- Designed for bundling data cables.
- No sharp edges to snag or cut.
- A flexible latch ensures a firm grip without pinching or crushing.
- Heavy-Duty Flexi Cable Ties are wider and can be used outdoors.
- **◆◆ WARRANTY** — Lifetime



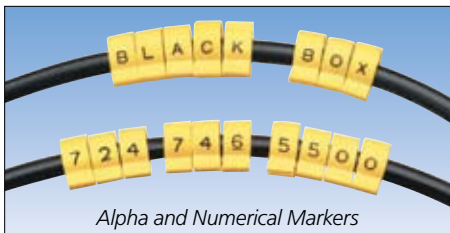
Item	Code	List Price
Flexi Cable Ties		
Black, 12", 100-Pack	FT195	
LSOH, Clear, 12", 100-Pack	FT198	
Heavy-Duty, Black, 22", 10-Pack	FT196	
Plenum UL® Listed, Red, 12", 100-Pack	FT197	

Snap-Lock Cable IDs

Possibly the best cable ID markers you'll ever use—and reuse again and again.

- The snap-on locking system locks into position around the cable and stays locked.
- Combine IDs to make words or numbers.
- Resists extreme weather conditions.

- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
Snap-Lock Cable IDs		
Alpha Markers		
A–Z, 10-Pack of One Letter	CM00X*	
Combination, 10 of Each Letter	CM260	
* To order, replace the "X" with the letter you want, A through Z.		

Item	Code	List Price
Snap-Lock Cable IDs (Continued)		
Numerical Markers		
0–9, 100-Pack of One Number	CM00X†	
Combination, 5 of Each Number	CM100	
† To order, replace the "X" with the number you want, 0 through 9.		
Word Markers, 1-Inch, 10-Pack		
(VOICE, DATA, FIBER, POWER, FAX, MODEM, PRINTER, VIDEO, KEYBOARD, MOUSE)	CM500	



Snap-Lock Cable Collars

Simply snap on to bundle cables.

- Wrap cables faster than traditional ties.
- Reusable. Simply unclasp it.
- Constructed of lightweight nylon.
- Use anywhere: in new systems, temporary systems, and existing buildings.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
Snap-Lock Cable Collars		
3/4"–1 1/4" 25-Pack	FT1500	
100-Pack	FT1510	
1 1/4"–2 1/4" 25-Pack	FT1520	
100-Pack	FT1530	



Hook and Loop Bundle Wrap

Wrap and roll—cable management at your fingertips!



- This black cable wrap is 3/8" wide and comes in 15-, 75-, and 600-foot rolls.
- Simple to use—just wrap and cut.
- Keeps all your cables organized. No more tripping over unsecured cables in your office or home!
- ♦♦ **WARRANTY** — Lifetime

NOTE: FT9555A comes on a spool.



Use only what you need!

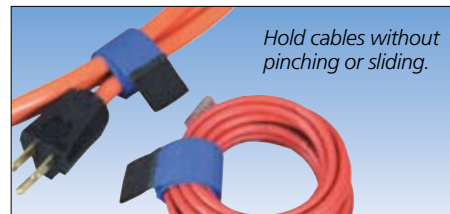
Item	Code	List Price
Hook and Loop Bundle Wrap, 3/8" Wide		
15-ft.	FT9545A	
75-ft.	FT9550A	
600-ft.	FT9555A	

Hook and Loop Cable Hangers and Cable Wraps

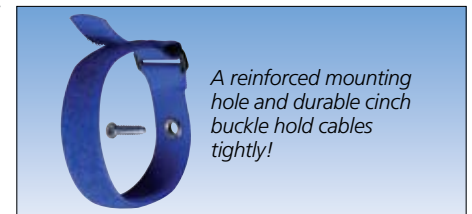
Zip, zip—cables stay put!



Eliminate clutter.



Hold cables without pinching or sliding.



A reinforced mounting hole and durable cinch buckle hold cables tightly!

Hook and Loop Lite Cable Hangers

- Fasten cables securely to desks, racks, and other equipment.
- Peel off the backing for installation.
- Just pull the hanger to release cables.

Item	Code	List Price
Hook and Loop Lite Cable Hangers		
1" x 2 1/2", 10-Pack		
Black	FT9370	
Red	FT9371	
Blue	FT9372	
Yellow	FT9373	
Green	FT9374	

Hook and Loop Lite Cable Wraps

- Webbed tabs enable you to secure and release cables quickly.
- Hold cables tightly.
- Cut clutter and keep cable runs tidy.

Item	Code	List Price
Hook and Loop Lite Cable Wraps		
1" x 6", 10-Pack		
Black	FT9380	
Red	FT9381	
Blue	FT9382	
Yellow	FT9383	
Green	FT9384	

- ♦♦ **WARRANTY** — Lifetime

Hook and Loop Plus Cable Wraps

- Fully adjustable and reusable.
- Anchor them anywhere you can install a screw!

Item	Code	List Price
Hook and Loop Plus Cable Wraps		
1/2" x 9", 10-Pack		
Black	FT9420	
Red	FT9421	
Yellow	FT9424	
Blue	FT9422	
Orange	FT9425	

Hook and Loop Flame-Retardant Cable Wrap



- Bundle cable up to 1.75" (4.4 cm) in diameter with this wrap.
- Maroon wrap follows industry color-coding guidelines for plenum-rated runs.

Item	Code	List Price
Hook and Loop Flame-Retardant Cable Wrap		
1/2" x 8"		
Maroon, 10-Pack	FT270-R2	

Basic Hook and Loop Cable Wraps



FT9264

- For nonwallmount applications.
- Use to secure and organize large bundles of cable.

Item	Code	List Price
Basic Hook and Loop Cable Wraps		
1/2" x 6", 10-Pack		
Black	FT9260	
White	FT9261	
Red	FT9262	
Gray	FT263	
Yellow	FT9263	
Blue	FT9264	
Green	FT9265	
Orange	FT9266	



FT9280

Item	Code	List Price
Basic Hook and Loop Cable Wraps (Continued)		
1/2" x 8", 100-Pack		
Black	FT9275	
Rainbow (Includes 20 Each of Black, White, Red, Blue, and Orange)	FT9280	
1/2" x 12", 10-Pack		
Black	FT9120	
White	FT9121	
Red	FT9122	
Yellow	FT9123	
Blue	FT9124	
Green	FT9125	
Orange	FT9126	

Connector Guide

D-Style Connectors



DB9

DB15

DB25

DB37

DB50

Centronics Connectors



Centronics® 36 (Male) (Telco 36)

Centronics 50 (Male)

MDR 36 (Male) (IEEE 1284)

HD-Type Connectors

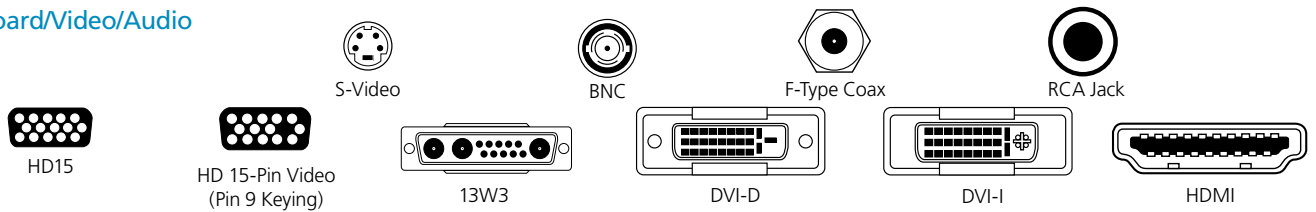


HD15

HD 15-Pin Video (Pin 9 Keying)

HDI 30-Pin (Male)

Keyboard/Video/Audio



HD15

S-Video

BNC

F-Type Coax

RCA Jack

HD 15-Pin Video
(Pin 9 Keying)

13W3

DVI-D

DVI-I

HDMI

USB & FireWire Connectors



USB Type A (Host)

USB Type B (Device)

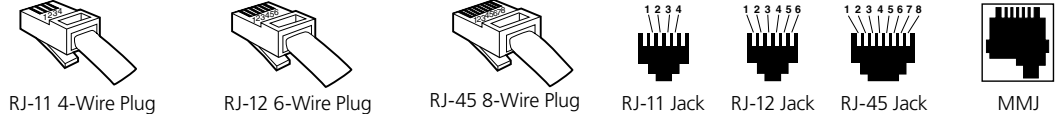
USB Type Mini A

USB Type Mini B

FireWire®, 4-Pin

FireWire, 6-Pin

Modular Connectors



RJ-11 4-Wire Plug

RJ-12 6-Wire Plug

RJ-45 8-Wire Plug

1 2 3 4

1 2 3 4 5 6

RJ-11 Jack

1 2 3 4 5 6

1 2 3 4 5 6 7 8

RJ-12 Jack

1 2 3 4 5 6 7 8

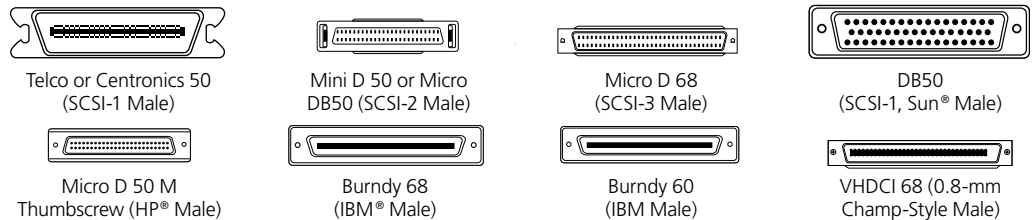
1 2 3 4 5 6 7 8

RJ-45 Jack

MMJ

SCSI Connectors

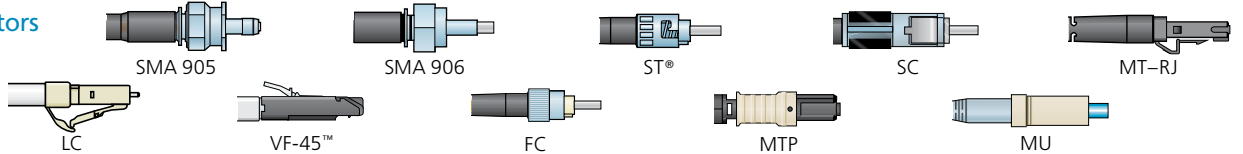
Need help identifying
a connector?
Call Tech Support!

Telco or Centronics 50
(SCSI-1 Male)Mini D 50 or Micro
DB50 (SCSI-2 Male)Micro D 68
(SCSI-3 Male)DB50
(SCSI-1, Sun® Male)Micro D 50 M
Thumbscrew (HP® Male)Burndy 68
(IBM® Male)Burndy 60
(IBM Male)VHDCI 68 (0.8-mm
Champ-Style Male)

DIN-Type Connectors

4-Pin Mini DIN
(Female)5-Pin DIN
(Female)6-Pin Mini DIN
(Female)8-Pin Mini DIN
(Female)

Fiber Connectors



SMA 905

SMA 906

ST®

SC

MT-RJ

LC

VF-45™

FC

MTP

MU

M-Block Connectors



M/34 (V.35)

M/50 (Winchester®)

Coax & Twinax Connectors



TNC

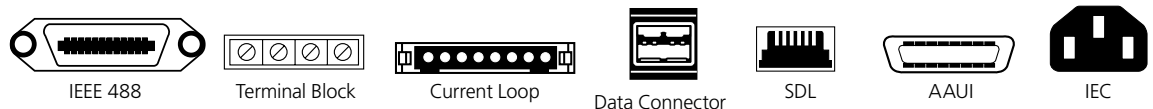
BNC

Twinax

F-Type Coax

N-Type Coax

Miscellaneous Connectors



IEEE 488

Terminal Block

Current Loop

Data Connector

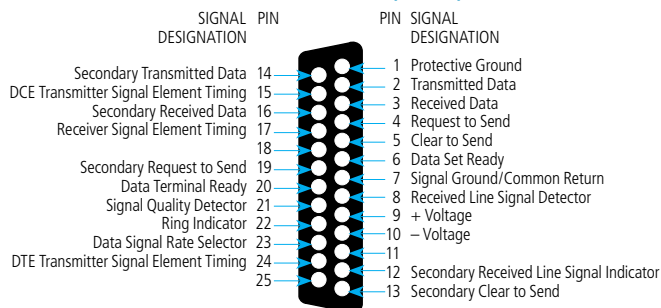
SDL

AAUI

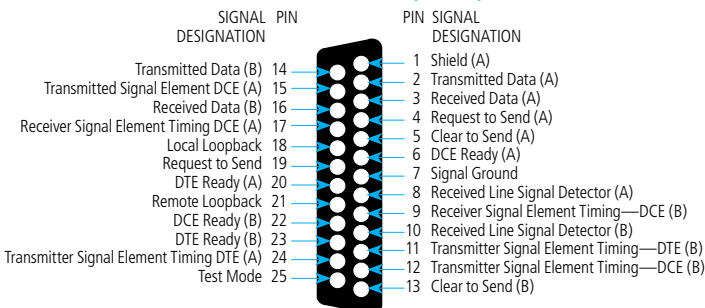
IEC

Data Interface Pinning

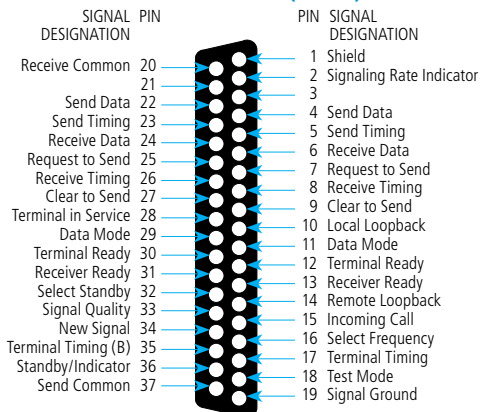
RS-232 Interface (DB25)



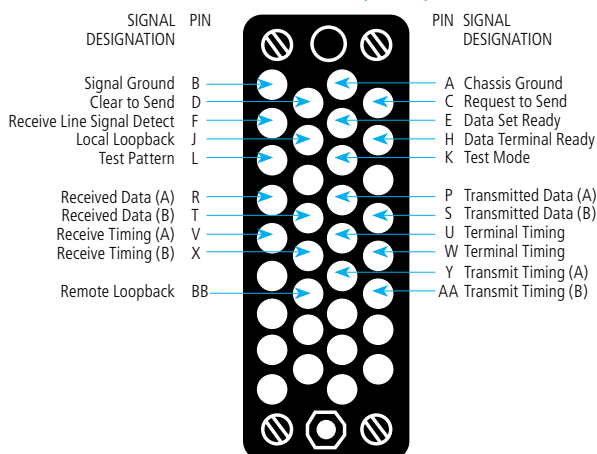
RS-530 Interface (DB25)



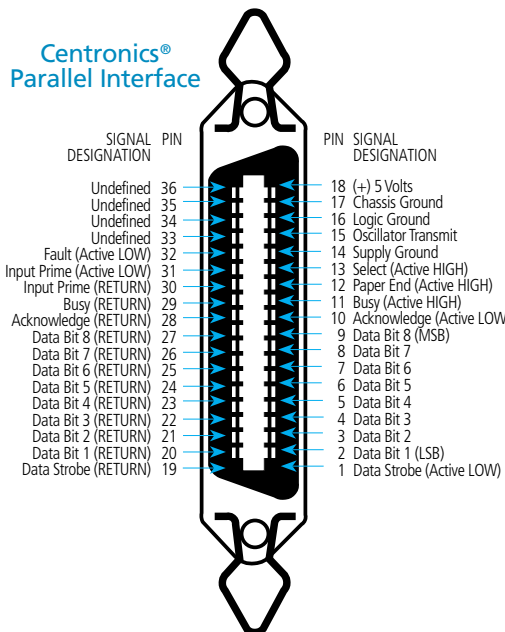
RS-449 Interface (DB37)



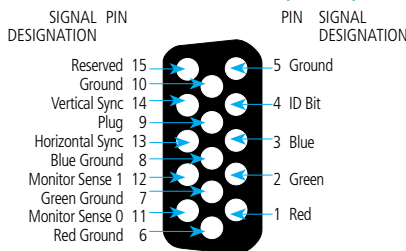
V.35 Interface (M/34)



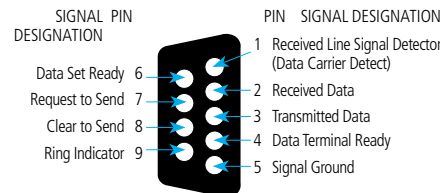
Centronics® Parallel Interface



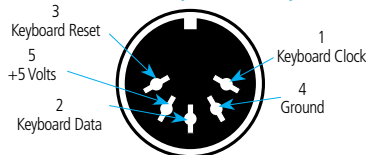
VGA Video Interface (HD15)



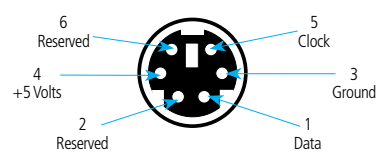
RS-232 Interface (DB9)



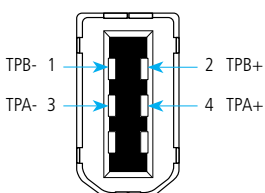
IBM® PC Keyboard Interface (5-Pin DIN)



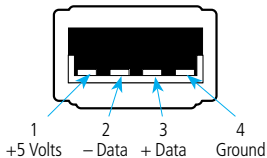
IBM PS/2® Keyboard Interface (6-Pin Mini DIN)



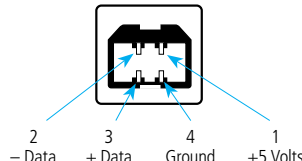
1394 (FireWire®) 4-Wire Interface



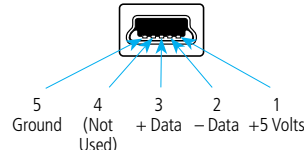
USB Type A



USB Type B



USB Mini Type B



Testers & Tools

Diagnose network problems quickly—
with a little help from Black Box.





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For New Products,
turn to pages 26–73.

Fiber Optic Power Meter and LED Source Kit

Perform precise optical measurements in the field with this rugged kit.

Both of the kit's components:

- Work together to accurately measure power loss in fiber optic cable, connectors, attenuators, or other passive optical components.
- Feature a rugged construction and waterproof case.
- **◆◆ WARRANTY** — 1 Year

The LED source:

- Supplies the temperature-stabilized light output that the power meter requires.
- Features one pair of ST® connectors.
- Provides output wavelengths of 850- and 1300-nm through dual LEDs, which operate in CW, 30 Hz, 500 Hz, or 2 kHz modulation.
- Uses a 9-volt battery (included).

The power meter:

- Calibrated at four wavelengths: 850-nm, 1300-nm, 1310-nm, and 1550-nm.
- Measures power levels as high as +20 dBm and as low as -60 dBm.
- Features a true resolution of 0.01 dBm at all levels, so you can trust readings below -45 dBm.
- Provides response time up to five times faster than other units—in fact, at most power levels, readings are instantaneous!
- Stores up to 999 readings per wavelength. Upload them to a PC for printing or analysis.
- In relative measurement modes, stores the zero reference reading for all wavelengths independently in nonvolatile memory.
- Features one ST connector.
- Operates on AC power, nickel-cadmium batteries (included), or alkaline batteries.



The waterproof carrying case protects devices—even in several feet of water.

NOTE: For specifications, see blackbox.com.

Item	Code	List Price
Fiber Optic Power Meter and LED Source Kit	TS1300A	

Fiber Optic Test Kits

Make precise, accurate measurements on all types of fiber cable.



TS1400A



TS1500A



TS515A-R2



TS525A

Single- and Multimode Test Kits

- Accurately measure power loss in passive optical components.
- Large, easy-to-read LCD display.
- 0.01-dBm resolution at all levels, so you can trust measurements below -45 dBm.
- Store up to 999 readings per wavelength.
- At most levels, readings are instantaneous.
- Upload readings to a PC.
- Operates on AC power, nickel-cadmium batteries, or alkaline batteries. A 9-V battery, and (4) AA alkaline batteries are included.
- Visible laser light source emits a red light to identify breaks at short distances.
- Both kits include a power meter, a 650-m visible laser light source, and a 1310-/1550-nm dual laser source.
- The **TS1500A** also includes an LED light source for long runs.

Multimode Test Sets

- Choose between 850-nm and 850-/1300-nm test sets.
- Both sets feature a 55-dB testing range.
- View test results on the high-contrast LCD.
- Pinpoint test results within 0.1-dB resolution.
- Machined aluminum construction ensures durability in tough environments.
- Single 9-volt battery powers both units—no need for troublesome battery snaps.
- Both include a power meter, a LED light source and a 9-V battery.

Dual Laser Light Source

- Dual laser source generates 1310- and 1550-nm temperature-stabilized outputs.
- Laser source's double-port design enables both emitters to function simultaneously.

- **◆◆ WARRANTY** — All: 2 Years

NOTE: For specifications, more information, and what's included in the Fiber Optic Test Kits see blackbox.com.

Item	Code	List Price
Single-Mode Test Kit	TS1400A	
Single-Mode and Multimode Test Kit	TS1500A	
Multimode Test Sets		
850-nm	TS515A-R2	
850-/1300-nm	TS520A-R2	
Dual 1310-/1550-nm Laser Light Source	TS525A	

Fiber Optic Maintenance Kit

One convenient kit for testing and cleaning fiber in the field.

- Use to measure attenuation on single- or multimode cables or connectors.
- Ideal for testing distributed data interfaces, such as FDDI.
- Optical power meter provides readings as precise as ± 25 dB.
- Store reference values for calibrated wavelengths in nonvolatile memory.
- LED source has two modes: Continuous Wave Output Mode and Modulated (or pulsed) Output Mode, both of which use 850- or 1300-nm wavelengths.
- **◆◆ WARRANTY** — 1 Year



NOTE: For specifications, see blackbox.com.

Item	Code	List Price
Fiber Optic Maintenance Kit	FT730A	
◆ Includes Optical power meter with ST adapter, dual-wavelength LED source with (2) ST adapters, connector cleaning unit, cleaning wands, and soft carrying case.		

You may also need...

Adapters for Fiber Optic Maintenance Kit	
(3) SC Style	FT731
(3) FC Style	FT732

Fiber Quick Check

See the light with this high-intensity, low-cost fiber light source.

- Easy to use and see. It removes the guesswork when tracing fiber cable.
- Use with all types of fiber: ST, SC-, FC-, RSD-, and FSD-type cables with 2.5-mm ferrules.
- Choose from two light modes—steady light signal or exclusive MICROPULSE™ signal pulsing.
- Steady light mode is perfect for testing cable spools.
- MICROPULSE mode produces an extremely bright red source LED (660 nm, 1400 mcd) to easily distinguish a particular fiber, making it great for bundles in wiring closets.
- LED is safe to view directly.
- **◆◆ WARRANTY** — 1 Year



CE Approval — Yes

Item	Code	List Price
Fiber Quick Check	FT825A	
◆ Includes (1) tester and (1) battery.		

Fiber Talk'n Test Pocket Fiber Tester Pocket Opto Source

Test cable before or after it's installed.

- Test cable with ST® or SMA connectors.
- With the **Fiber Talk'n Test**, you can talk to your partner while you test. Test installed cable or a new spool.
- The **Pocket Fiber Tester** also tests for continuity; it works with 50-, 62.5-, and 100-micron cable. It generates an 850-nm wavelength only.
- The **Pocket Opto Source** provides a light source for testing installed cable with the Pocket Fiber Tester.
- **◆◆ WARRANTY** — 1 Year



TS054A



TS055A



TS056A

NOTE: Fiber testers are for use with glass-core fiber optic cable only.

NOTE: The Fiber Talk'n Test must be used in pairs.

Item	Code	List Price
Fiber Talk'n Test, ST	TS054A	
Pocket Fiber Tester, ST	TS055A	
Pocket Opto Source, ST	TS056A	

Fault Finder

Locate breaks and bends causing losses in optical fibers.

- Pinpoint faults, cable breaks, tight bends, and bad connections with the ultra-bright 635-nm laser.
- Works with single-mode and multimode optical fibers and in ceramic ferrules.
- Detects breaks and faults up to 3 kilometers (1.8 mi.) away.
- Operates in either continuous-wave or blink mode.
- Compact and waterproof.
- Interface fits all 2.5-mm fiber optic connectors. Adapters for ST, SC, and FC connectors also available.
- **◆◆ WARRANTY** — 1 Year



TECH SPECS

Output — Into SMF-28 fiber: 1.0 mW;
CW output mode: 316 μ W
Connectors — Standard universal 2.5-mm receptacle
Power — (2) alkaline AA batteries (included)
Size — 1" diameter x 9"L (2.5 x 22.9 cm)
Weight — With pouch: 0.4 lb. (0.2 kg)

Item	Code	List Price
Fault Finder	TS725A	
◆ Includes (1) tester, (2) batteries, (1) dust cap, and (1) nylon carrying case.		
You may also need...		
ST Adapter	F0726	
SC Adapter	F0727	
FC Adapter	F0728	

Fiber Connector Tool Kit

No-glue, no-polish ceramic-tip fiber connection. Just crimp!

- Get an instant ceramic-tip fiber connection.
- Prepolished Fiber Connectors handle ST, SC, FC, LC, and MT-RJ connections.
- One push with the Fiber Optic Cleaver (FT538) cuts fiber cable cleanly.
- Hold up to six splices securely in the Mechanical 6-Splice Tray (WVP602).
- Stress-free splicing! No gluing or alignment problems with the No-Adhesive Mechanical Splice (FO030).
- The connector housing, two sleeves, and two compression-hood fittings make up the Prepolished Fiber Connector (FO031-R2).
- **◆◆ WARRANTY — 1 Year**

What's included in the FT535-R2

- Installation Tool/Bench Clamp, Crimp Tool, and Fiber Optic Cleaver
- Assembly manual and video
- Buffer tube stripper
- Ruler, strip-length gauge, scissors, and tweezers
- Electrical tape, alcohol wipes, and marker



One push with the Fiber Optic Cleaver (FT538) cuts fiber cable cleanly.



Hold up to six splices securely in the Mechanical 6-Splice Tray (WVP602).



The Multimode ST Prepolished Fiber Connector (FO031-R2) includes the housing, sleeves, and compression-hood fittings.



Crimp Tool (FT546)

ST, SC,
FC, MT-RJ
connections!

The BLACK BOX® Fiber Connector Tool Kit has everything you need for making fiber cable terminations: crimping and stripping tools, a bench clamp, electrical tape, an instructional video, and more!

Once you order your kit, order the **Prepolished Fiber Connectors** that you need. Because the connectors are prepolished, there's no need for polishing and epoxy during installation.

All connectors come with a fiber stub in the connector tip, which is cemented firmly in place. You'll get the strength of a bonded connection with no gluing or polishing. The stub is polished to a Physical Contact (PC) finish.

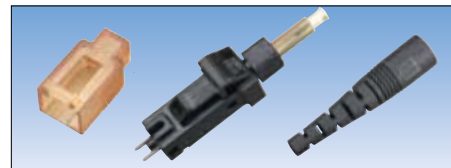
The connector housing is also designed to make matching up the fiber stub and cable easy.

Insert a stripped and cleaved fiber cable in the connector, and when you feel little or no resistance, the fiber and stub are matched up correctly. Then just crimp!

The ST® and FC Prepolished Fiber Connectors also feature a rotating cam that makes termination quick and smooth.

With the kit and connectors, you may also need our **No-Adhesive Mechanical Splice** package, which includes six twist-action splices. Just insert a stripped and cleaved fiber cable into each end of the splice and twist.

To protect and organize your cables, order the **Mechanical 6-Splice Tray**, which holds six spliced connections securely.



We even have a Multimode MT-RJ Prepolished Fiber Connector (FO034). (MT-RJ also available in single-mode.)



You won't have gluing or alignment problems with the No-Adhesive Mechanical Splice (FO030). A cam locks the fibers into position for accurate alignment.

Item	Code	List Price
------	------	------------

Order your tool kit and connectors...

Fiber Connector Tool Kit	FT535-R2	
Prepolished Fiber Connectors		
Multimode		
ST	FO031-R2	
SC	FO032	
FC	FO033	
MT-RJ	FO034	
Single-Mode		
ST	FO036	
SC	FO037	
FC	FO038	
MT-RJ	FO039	

...or order the tools separately.

Installation Tool/Bench Clamp	FT545	
Crimp Tool	FT546	
Fiber Optic Cleaver	FT538	

You may also need...

No-Adhesive Mechanical Splice, 6-Pack	FO030	
Mechanical 6-Splice Tray	WVP602	

Fiber Optic Installation Kits

An affordable and compact kit sized for any application.

- Custom soft-sided zipper case.
- Low-cost, compact, and lightweight.
- Use with connectors made by 3M, Pine Valley Precision, Methode, and more.
- Economical refill kits available.
- Step-by-step installation manual included.
- ♦♦ **WARRANTY** — 1 Year

This kit is a field installer's dream. It's affordable, compact, and complete! The kit includes everything you need to make high-quality fiber terminations using anaerobic adhesive. It includes the adhesives, polishing tool, crimp tool, strippers, and more.

Use the Fiber Optic Installation Kit to install approximately 100 connectors. And you can use it with a wide variety of connectors such as 3M, Pine Valley Precision, and Methode.

Econo Connectors are ST® Connectors with a zirconia ferrule, a metal housing, and a preradiused domed end-face for a Physical Contact (PC) finish. They can be installed on breakout- or distribution-style fiber cable.

To make a termination with the kit, just dip the end of the fiber optic cable into the primer. Then apply the adhesive to the connector using the syringe. The adhesive seizes in about 30 seconds.

Handy refill kits are available. Or you can choose just to refill the individual parts you need.



FT500A

What's included

All kits include:

- SC/FC/ST® 2.5-mm Polishing Tool (FT580A)
- 70-durometer polishing pad
- 0.3-, 1.0-, 5.0-µm aluminum film
- Kevlar® scissors
- Reversible blade carbide scribe
- Permanent marker
- Protective glasses and debris bottle
- Alcohol wipes, lint-free cleaning wipes, cotton swabs, syringe needle tips, and water bottle
- Anaerobic adhesive and primer
- Six-inch ruler
- Carrying Case

FT503A also includes:

- Economy 5-level buffer and jacket stripper
- Universal fiber crimp tool
- Acrylic polishing plate
- 100X inspection scope with 2.5-mm head

FT505A also includes:

- Universal 5-level buffer and jacket stripper
- Universal fiber crimp tool
- Glass polishing plate
- 200X inspection scope with 2.5-mm head
- Alcohol bottle

FT507A also includes:

- Professional 2-level buffer and jacket stripper
- Professional fiber crimp tool
- LC die set
- Glass polishing plate
- 0.1-µm diamond film
- LC 1.5-mm polishing puck
- 200X inspection scope with 2.5-mm head
- LC adapter for 200X inspection scope
- Alcohol bottle

FT500A also includes:

- No-Nik Stripping Tool
- Plier-type Buffer Tube Stripper
- Strip template
- 100x inspection scope with 2.5-mm head
- (10) ST Econo connectors
- (50) sheets of 1-µm polishing paper
- (50) sheets of 5-µm polishing paper
- Sapphire Scribe
- Primer stand
- Crimp tool frame
- Crimp die
- Alcohol bottle
- Plastic box with dividers
- Canned air
- Masking tape



Fiber Optic Refill Kit (FT550A)

Item	Code	List Price
Fiber Optic Installation Kits		
Starter	FT503A	
Basic	FT505A	
Professional	FT507A	
Professional Plus	FT500A	
You can also order refills and the Polishing Tool separately...		
Fiber Optic Refill Kit	FT550A	
♦ Includes (50) sheets of 5.5" x 5.5" 1-µm polishing paper (FT551A), (50) sheets of 5.5" x 5.5" 5-µm polishing paper (FT552A), (100) 4" x 4" wipes (FT553A), (20) syringes (FT554A), and (20) needle tips.		
Individual Refills for Fiber Optic Installation Kit		
1-µm Polishing Paper, 5.5" x 5.5", 50-Pack	FT551A	
5-µm Polishing Paper, 5.5" x 5.5", 50-Pack	FT552A	
Wipes, 4" x 4", 100-Pack	FT553A	
Syringes, 20-Pack	FT554A	
Polishing Tool	FT580A	

Fiber Optic Tool Kits

Complete kits for terminating your fiber cable with precision.

- ◆◆ **WARRANTY** — Lifetime



FT175A

What's included in both kits

- Crimpmaster® crimp tool frame
- Die set for SMA or SMB type hex fiber optic connectors (0.151, 0.178, 0.213)
- Scribe with 30° wedge-carbide tip
- 203-µm No-Nik® fiber stripper
- 2-in-1 fiber optic stripper with V-notch blades
- Serrated Kevlar® cutter with breaker notch
- Retractable snap knife (13 pt.) with blade
- Set of chain nose pliers with cutter, 4.75" L
- #1 straight probe (25-mm) with stainless steel tip
- Set of antimagnetic tweezers with Teflon® coating
- 4-in-1 screwdriver (Phillips type #1 and #2; slotted ¼" and ⅜")
- Polishing puck for ST®, SC, and FC connectors (2.5-mm)
- (20) sheets of 0.3-µm lapping film, 4.5" x 5.5"
- (20) sheets of 3-µm lapping film, 4.5" x 5.5"
- Polishing pad
- (20) manual syringes (3-cc)
- (50) stainless steel dispensing tips, 21 AWG (0.020" inside dia.)
- Gluematic pen of Loctite® Super Bonder 495 Instant Adhesive
- 100X fiber inspection microscope with case
- Mini MagLite® (AA) flashlight, 5.75" L
- 10-ft. tape measure
- 2-oz. bottle of isopropyl alcohol
- 30-foot roll of RipWrap™ 1"W self-gripping tape, white

The FT176A also includes

- 175-µm No-Nik fiber stripper
- 250-µm buffer stripper for 125-µm fiber
- 6-piece screwdriver set with slotted and cross-recess drivers
- Coax cable stripper, adjustable from ⅛" to 7/32" outside diameter
- Cable sheath stripper/ring tool
- Chrome adjustable crescent wrench, 1⅝" jaw cap, 6" L
- Micro spatula with 1.5" flat, tapered end, 4.4" L
- Eyeglass loupe (10X magnification at 1")
- Pair of safety glasses with clear lens (99.9% UV protection)
- (10) swabs, 6" L
- Round 4-oz HDPE solvent bottle
- Fiberclean dispenser with cleaning film
- (280) Kimberly-Clark® Kimwipes®, 4.5" x 8.5"
- Trash can for fiber optic wire scraps

Item	Code	List Price
Fiber Optic Tool Kits		
Standard	FT175A	
Deluxe	FT176A	

Hot Melt Termination Tool Kit

Install Hot Melt fiber optic connectors fast—no epoxy, no mess.



What's included

- 6-Port Hot Melt Oven (FT655)
- Universal connector holders
- Holder handles
- 100X microscope
- Safety glasses
- Scribe
- Crimp tool with 3M die set
- Jacket stripper
- Buffer stripper
- Pair of electrician's scissors
- Marker
- Ruler
- Stainless Steel Polishing Fixture for ST, SC, and FC (FT652)
- Polishing pads
- 1-µ polishing film
- Canned air dispenser
- Water bottle
- 120-ft. roll of masking tape
- Soft, lint-free wipes
- Alcohol-soaked pads
- Alcohol dispenser bottle
- Flip-top debris bottle
- Plastic box, utility pouch, and tool roll
- Templates and manuals
- Hard shell case with keys

- Use to terminate Hot Melt ST®, SC, and FC connectors.
- Included Hot Melt Oven heats the connector adhesive to the exact temperature, bonding it securely to the fiber cable.
- This kit's oven is ready to use in less than four minutes.
- Heater block ensures the precise amount of heat transfer and helps the oven to cool down quicker—saving you even more time.
- Built-in cooling tower eliminates the need for separate tower.
- Also includes termination tools, a microscope, consumables, and safety glasses to shield your eyes from flying glass particles.
- ◆◆ **WARRANTY** — Lifetime

NOTE: For a Black Box Explains on terminating fiber, see blackbox.com.

Item	Code	List Price
Hot Melt Termination Tool Kit	FT650	
You may also need...		
ST Hot Melt Connector, Multimode with White Boot	FO020	
NOTE: For SC and FC Hot Melt connectors, call our FREE Tech Support.		
You can also order the oven by itself...		
6-Port Hot Melt Oven	FT655	
For polishing ST, SC, and FC Hot Melt connectors, we offer an extra...		
Polishing Fixture	Stainless Steel	FT652
	Co-Polymer	FT654
To polish LC connectors, order...		
Stainless Steel LC Polishing Puck	FT653	

Black Box is your source for Fluke Networks Testers and Scanners.

- Fluke testers and scanners for fiber and copper give you the most reliable network performance analysis, application management, and monitoring.
- Intuitive interfaces and portable, efficient designs make network testing and analysis a snap.
- Black Box has a wide selection of Fluke Networks™ Testers and Scanners. For details, go to **blackbox.com**.
- Don't see what you need? Call our FREE Tech Support today!

Call for the latest prices!



NetTool™ Inline Network Tester

- Cable, network, and PC configuration testing in one palm-sized tool!
- Reduces the time associated with troubleshooting network connections.
- Easy-to-use interface features push-button navigation of icon-based menu.
- Now available with VoIP functionality.

Cable IQ™ Qualification Tester

- Identify which cables will support 10/100, VoIP, or Gigabit Ethernet.
- Locate opens, shorts, and elusive connection faults, and determine if they are at the near or far end.
- Determine what type of device is connected to the far end of the cable, or if it's an open.
- Test for length, shorts, split pairs, or opens; see distance to specific pin faults.
- Determine the speed and duplex settings of a PC and compare to the connected switch.

LinkRunner

- Verifies network connectivity and availability.
- Solves network problems at the Physical and Data Link layers.
- Identifies advertised speed, actual speed, and duplex (10/100, full/half).
- Determines if an active jack is Ethernet, telco, a hub, a NIC, or Token Ring.
- Tests cables for length, opens, shorts, split pairs, continuity, and pinning.

620 LAN CableMeter

- Portable unit tests links end-to-end without a tech or remote terminator at the other end.
- Detects open circuits, shorts, reversed polarity, and split pairs.
- 50 hours of continuous use.
- Power management feature prolongs battery life.
- Supports all types of twisted-pair cables: UTP, STP, FTP, and ScTP.
- Perfect for small offices and homes.

The best of both worlds: Fluke Networks testers and fast, FREE Black Box Tech Support.

Validator NT

The all-in-one tester for certifying, identifying, configuring, and documenting a network!

- A great value for technicians charged with troubleshooting interconnections. This kit includes everything you need to test, trace, and tune your network.
- Certifies individual Ethernet cable runs at up to Gigabit speeds per IEEE 802.3 specifications.
- Identifies active components of your network at the remote cable end.
- Configures links between nodes at Gigabit speed.
- Use the included software to document your network and print job reports.
- Port discovery and PING features.
- **◆◆ WARRANTY** — 1 Year

Lugging about multiple testers to perform a number of network tests? Lighten your load with the Validator NT. This kit has all that you need to certify, identify, configure, and document your network, as well as test coax, phone, audio, and security wiring.

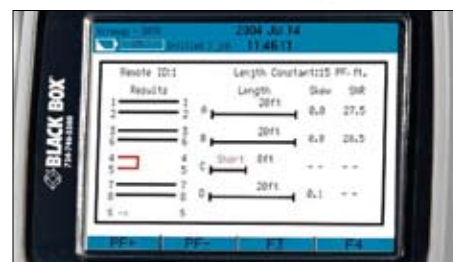
With its certification capabilities, you can test for TIA 568 interconnect problems, pinpointing fault locations and determining cable length and delay as well as noise conditions. At Gigabit speed, you can configure links between nodes on your network, checking IP addresses and more.

You can also use the Validator NT to validate whether a network performs at advertised speeds, making it ideal for billing a cable installation job.



Main Testing Unit

Remote Unit

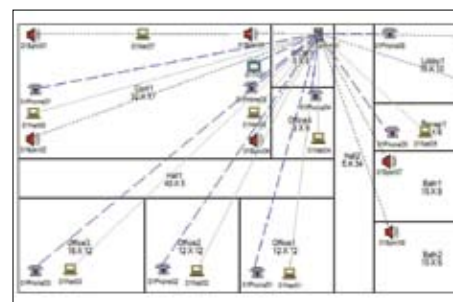


The Validator NT shows cable lengths as well as distances to shorts and faults.

Test and certify each cable run, print the results, and attach them to your invoice. It's that easy!

The tester also has port service discovery features and enables you to access IP addresses and PING equipment and flash hubs and switches for positive port location. No other tester/certifier does so much!

Produce elaborate test schedules and document test results, then print them with Plan-Um™ software (included). It ties together all the different cable criteria in complex installations and displays cable and equipment connections graphically. You can also use Plan-Um to create office layouts or import CAD drawings.



Create a complete layout of a network and cable pathways with the included software.

Functions included

Signal tests on network cable:

- Wiremap up to eight locations at a time
- TDR distance to opens and shorts
- Skew
- NEXT (all combinations on all 12 pairs)
- Channel response
- Echo testing (return loss) for impedance mismatches
- Signal-to-noise ratio (attenuation, amplitude, return loss)

Performance and speed certification:

- Supports IEEE 802.3 speed criteria with full BERT
- Tests interconnect specifications per TIA 568/570
- Measures signal quality through the cable against set criteria on cable data-carrying capability in real time
- Measures signal quality in actual link environments to help determine cause of any cable inadequacies

What's included

- Validator NT main testing unit
- Validator NT Smart Remote unit
- (8) wiremap remotes, RJ-45
- (2) lithium ion rechargeable batteries
- (2) AC adapter charger units
- (4) adapter cables:
 - (2) 8-position shielded RJ-45 modular jack cables with (8) alligator clips each
 - (2) 6-position RJ-12 modular jack cables
- (2) shielded RJ-45 patch cables
- (2) "F" coax to BNC (video) adapters
- USB cable
- 64 MB compact flash card
- Plan-Um design layout software

Click and find at blackbox.com. For additional wiremapping capabilities, see the Wiremapping Kit (FT970A).

TECH SPECS

- Cable Length for Split Pairs Testing (Maximum)** — 1500 ft. (457.2 m), depending on cable type
- Cable Types** — Shielded or unshielded CAT3, CAT5, CAT5e, CAT6; telephone; coax; speaker; and security and alarm wiring
- Display** — 256-color active backlight LCD
- Keypad** — Full navigation set; alphanumeric data entry; soft key functions
- Operating System** — Linux®
- Interface** — (1) serial port for direct printing; (1) USB for uploading files from/to a laptop or PC
- Power** — AC adapter and (2) lithium ion rechargeable batteries (included)
- Size** — Main unit: 9"H x 4.5"W x 2.1"D (22.9 x 11.4 x 5.3 cm); Smart Remote unit: 5.6"H x 4.4"W x 1.8"D (14.2 x 11.2 x 4.6 cm)
- Weight** — Main unit: 1.6 lb. (0.7 kg); Smart Remote unit: 0.75 lb. (0.3 kg)

Item	Code	List Price
Validator NT	NT955	

Tri-Porter™ All-in-One Network Tester

Verify all your “Triple-Play” services—without having to buy multiple testers!



WARNING: Do not attach the Tri-Porter to primary power lines.

- Ensure your premise cabling supports Triple-Play services: VoIP, 10/100BASE-T, POTS, and multimedia lines.
- Quickly test IP-based services for optimal performance.
- Uses IP address protocol and recognizes autonegotiation using fast link pulses to report advertised Ethernet capability.
- Cisco® Discovery Protocol ready.
- DSL safe and works with shielded or unshielded CAT3, CAT4, CAT5, CAT5e, or CAT6 cable; coax cable; and 2-, 4-, and 6-pair telephone wiring.
- Verifies phone outlets. Detects and displays Caller ID information and faults, both while it's on hook and off hook.
- Supports most diagnostic needs for communications and media services.
- Find Physical Layer or configuration errors on active networks, PING for IP address info, identify device speeds, and more.
- Discover ports and test to TIA-568 interconnect and length specs for CATx cables.
- Offers RF detection for testing signaling on high-end video systems.
- Main test unit has backlit LCD display with icons showing clear test results.
- ♦♦ **WARRANTY** — 1 Year

Six testing tools in one!

- DSL-safe phone test set
- Network tester
- Cable tester and verifier
- Tone detector and cable finder
- Tone generator
- Coax mapper

What's included

- Main test unit
- Remote tracer unit with round and “duckbill” probe tips
- Set of (20) coax remote identifiers (numbered 1–20)
- Set of (20) RJ-45 wire mappers (numbered 1–20)
- Set of (20) RJ-11 wire mappers (numbered 1–20)
- F-type-to-F-type coax coupler
- F-type-to-slide-on coax plug without center conductor
- Mini-headset with microphone
- Carrying case

Item	Code	List Price
Tri-Porter All-in-One Network Tester	IVT600	

LAN Solution Network Tester

The world-class cable tester and kit with advanced troubleshooting features.

- Tests cable and monitors and corrects network problems with Physical Layer and link conditions.
- Checks for opens, shorts, miswires, and split pairs when doing simple testing with the tester and remote.
- Use to test CAT3, CAT5, CAT5e, or CAT6 UTP or STP cable.
- Also enables you to test coax cable (with coax connectors attached), map to remotes while cable testing, and select which pins have tone—features lacking on many comparable LAN testers.
- Identifies port services like Ethernet, ISDN, POTS, and Token Ring.
- Reports speed, location, and capabilities of network devices.
- PINGing function verifies connections to devices and queries NICs.
- Detects Ethernet “phantom” power per IEEE 802.3af specifications and reports phone line current.



LAN Solution Network Tester Kit (TS565A)

- Test up to eight connections with the kit.
- Maps to its remotes while cable testing.
- Battery supports 50 hours of continuous cable testing and 12 hours of continuous network testing.
- ♦♦ **WARRANTY** — 1 Year

What's included

TS560A:

- LAN Solution Network Tester
- Remote
- (2) 12" RJ-45/alligator-clip cable assemblies
- (2) 12" UTP cables with RJ-45 connectors
- (2) 7.5" cable assemblies with RJ-12 connectors for RJ-11 and RJ-45 jacks
- Carrying case
- 9-V alkaline battery

TS565A:

All the above plus:

- (8) remotes
- Tone tracer
- (2) RJ-45-to-F type coax connectors

Item	Code	List Price
LAN Solution Network Tester	TS560A	
LAN Solution Network Tester Kit	TS565A	

LanTest CAT5e Tester/Analyzer

Calculate cable lengths quickly and identify cable faults along the way.



Push **MODE** to select modes for cable testing, length measurement, tone generation, or tester setup.

Use **SEL** to activate a new test, select cable pairs for testing, choose tone sounds, or change tester settings.

Arrow buttons enable you to scroll through the LCD screen to view settable options or to see pairs and pins that have signals on them.

Remote component snaps onto base unit for easy storage.

Wire mapping is displayed on the 2-line, 16-character LCD.

Screen displays **PASS** icon and sounds beeper when cable test verifies T568A/B compliance.

Powered by 9-V alkaline battery installed under a protective rubber cap.



LanTest Pro CAT5e Tester/Analyzer Kit (TS875A)

- Determines cable length, identifies multiple faults, and shows clear **PASS/FAIL** results on an alphanumeric LCD screen.
- Tests for shorts, opens, miswires, reversals, and split pairs.
- Built-in tone generator.
- Auto-on feature synchronizes the test cycle to the type of connected cable and delivers results in seconds.
- Four modes of operation.
- Adjust the length constant by pressing up and down buttons.
- Tests CAT3, CAT4, CAT5, CAT5e, UTP and STP cables.
- Customize to your application. Set test criteria for shielded cables or set the length constant to test in meters.
- You can even select which pins have tone and view an entire wire map on the screen—features not found on comparable testers.
- Test coax cables with adapters included in the LanTest Pro CAT5e Tester/Analyzer Kit (TS875A).
- Kit also contains extra remotes for convenient testing of multiple runs.
- To trace tones, order the optional Network Probe (TS155-R3).
- **◆◆ WARRANTY** — 1 Year

Leave troubleshooting guesswork to the amateurs. The LanTest provides precise cable measurements while it thoroughly probes network lines for faults.

Use this CAT5e tester/analyzer to determine the length and quality of new or installed premise wiring. Use it with unterminated patch cable, cable terminated at one end, or cable installed from an office jack to the patch panel.

LanTest powers on and begins testing automatically when it senses a connection to its remote unit. There's no waiting around for results, and there are no complex read-outs to decipher. Your application's wire map, ID, and faults appear on the alphanumeric LCD screen in seconds.

LanTest features four operating modes:

Cable Testing Mode — for testing with or without the remote attached. Without the remote, the tester inspects the line for shorts, opens, and split pairs (as a "pretest"). Used with the remote, LanTest tests for miswires and reversals, too.

Length Measurement Mode — calculates a cable's length by measuring its capacitance. You can even measure each pair individually.

Tone Generator Mode — for selecting individual wires or pairs to carry one of four available tones. To trace tones, order a Network Probe (TS155-R3) with the LanTest.

Setup Mode — for customizing the tester's functions to your application.

What's included

TS870A:

- LanTest main unit
- Remote unit
- (2) 1-ft. (0.3-m) jumper cables
- 9-V alkaline battery
- Carrying case

TS875A:

- LanTest main unit
- (8) Remote units
- (2) 1-ft. (0.3-m) jumper cables
- RJ-45 to (2) alligator clip cable
- (2) RJ-45 to coax F adapters
- 9-V alkaline battery
- Carrying case

TECH SPECS

Cable Test Lengths — Maximum: 2500 ft. (762 m); Minimum: For split pairs: 3 ft. (0.9 m); For pretest: 4 ft. (1.2 m)

Cable Types — Shielded or unshielded CAT3, CAT4, CAT5, CAT5e; coax (with TS875A kit's adapters attached)

CE Approval — Yes

Power — 9-V battery (included)

Size — 5.7"H x 2.9"W x 1.2"D (14.5 x 7.4 x 3 cm)

Weight — With battery installed: 0.4 lb. (0.2 kg)

Item	Code	List Price
For testing cable to a single point, order...		
LanTest CAT5e Tester/Analyzer (1 Remote)	TS870A	
For multipoint testing, order...		
LanTest Pro CAT5e Tester/Analyzer Kit (8 Remotes)	TS875A	
For tracing tones, order...		
Network Probe	TS155-R3	

Power Panel CAT5/CAT6 DVM and Network PoE Tester

Protect expensive equipment—identify network devices and PoE voltages before you plug in anything on CAT5/6 lines!

- This combo Digital Voltmeter (DVM) and PoE tester belongs in every technician's toolbox.
- Identify network devices, such as switches, NIC cards, and more.
- Detect Power over Ethernet equipment, such as VoIP phones or surveillance cameras.
- See a display of PoE voltages and power level in watts.
- Connect two PoE devices inline and measure the power (in watts) passing through.
- Ultrabright LEDs alert you to the presence of devices and voltage.
- Scans and identifies each cable pair and determines what is running on each, such as device type, voltage, and power level.

- ♦♦ **WARRANTY** —1 Year



TECH SPECS

Display — LCD
 Indicators — (3) LEDs: Network, Phone, PoE
 Function Select — (3) Push buttons: Force Link, Test PoE
 CE Approval — Yes
 Connectors — (2) RJ-45
 Power — 9-V alkaline battery (included)
 Size — 1.5"H x 3.8"W x 3.8"D (3.8 x 9.7 x 9.7 cm)
 Weight — 0.5 lb. (0.2 kg)

Item	Code	List Price
Power Panel CAT5/CAT6 DVM and Network PoE Tester	TS150A	

SecuriTEST CCTV/Security Tester

Six critical CCTV tools in one compact, practical unit.

- Combines a CCTV video tester, a PTZ camera controller and protocol analyzer, a digital multimeter (DMM), a UTP cable tester, and a test pattern generator.
- Integrated UTP port detects opens, shorts, and miswires; straight and crossed cables; and split pairs.
- Perfect for the technicians working alone—verify camera function away from the control center.
- Hand-held unit features a bright, easy-to-read LCD screen.
- Compatible with more than 12 PTZ protocols so you can test and program cameras in the field through the on-screen menus.
- ♦♦ **WARRANTY** —1 Year



TECH SPECS

Multimeter — AC/DC Voltage: 400 V; AC/DC Current: 4 mA, 400 mA, 10 A; Resistance: 40 Mohm
 PTZ Control — Baud rates: 2400 bps–38.4 kbps; Data: RS-422 or RS-485
 Time — Charging: 6 hours; Operating: 4 hours
 Video — Signal format: NTSC or PAL; Video level: 1Vpp, 140IRE
 CE Approval — Yes
 Connectors — (2) BNC F, (1) RJ-45, (1) auxiliary input, (1) terminal block
 Indicators — (4) LEDs: Power, Charge, Transmit, Receive
 Power — 12 VDC
 Size — 7.5"H x 3.5"W x 2.3"D (19.1 x 8.9 x 5.9 cm)
 Weight — 0.9 lb. (0.4 kg)

What's included

- SecuriTEST™ Security/CCTV Tester
- 4-ft. BNC video cable
- DMM test leads
- AC adapter/charger
- (6) AA batteries

Item	Code	List Price
SecuriTEST™ Security/CCTV Tester	TS201	

NetPower

The essential tool for testing PoE networks and cabling.

- Don't risk damaging your expensive equipment.
- Use to check network cable pairs for Power over Ethernet (PoE).
- Identifies the power type as IEEE 802.3af, Cisco Inline Power (ILP), or nonstandard.
- Makes power measurements with loads simulating powered devices.
- Displays voltage, polarity, and power configuration for wire pairs.
- Measures loop resistance to identify damaged cables and bad punchdowns.
- Detects 10BASE-T/100BASE-TX/1000BASE-T link speed and duplex mode.

- Measures cable length, opens, and shorts.
- Provides a port ID function.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Cable Type — UTP, STP
 Network Types — 10BASE-T (not for use with 10BASE-T4 equipment); 100BASE-TX (IEEE 802.3u); 1000BASE-T; PoE
 Connectors — (1) RJ-45
 Power — (4) AA batteries, included
 Size — 7"H x 13.2"W x 1.4"D (17.8 x 33.5 x 3.6 cm)
 Weight — 0.6 lb. (0.3 kg)



Item	Code	List Price
NetPower	TS574A	

Net-Ping Network IP Tester

PING: the first note in verifying 10/100 Ethernet connectivity.

- Provides full 10/100BASE-T PING capabilities. PINGs any 10BASE-T or 100BASE-T equipment or a 10/100 autonegotiating switch.
- Gigabit Link Signal Detection decodes 10, 100, 10/100BASE-T, and Gigabit signals.
- A profile storage capability enables you to prestore the parameters for eight locations for later recall at that site.
- Use on Ethernet networks running TCP/IP protocols.
- Verifies connectivity and operation in remote locations over the Internet.
- Designed to communicate directly with 10/100BASE-T equipment.
- Identifies hub and switch ports connected to specific outlets.
- Enables you to test networks before installing PCs, servers, and other network equipment.
- **◆◆ WARRANTY** — 1 Year

What's included

- Net-Ping Network IP Tester
- (4) AA alkaline batteries
- AC adapter
- User's guide

NOTE: For specifications, see blackbox.com.



Easy
10/100BASE-T
connectivity
testing!

Item	Code	List Price
Net-Ping Network IP Tester	TS670A-R2	

MultiTool Cable Tester

Find faults in cables up to 2500 feet long.

- Identifies and locates the distance to an open or a short in seconds.
- Measures cable length in a box, on a spool, or in a wall. Know how much cable you have left on a spool before beginning your pulls.
- Traces hidden cable runs with its transmit tone signals.
- Compatible with all common cables and features built-in library of 60 cable types.
- Enables you to find faults in a cable up to 2500 feet (762 m) using Time Domain Reflectometry (TDR) technology.
- Just select the appropriate cable type, adjust the nominal velocity of propagation, and attach the included test leads to the cable's conductors and press a button.
- Measures and displays wire voltage continuously to warn you of an unsafe condition.
- **◆◆ WARRANTY** — 1 Year



What's included

- MultiTool Cable Tester
- Red test lead with alligator clip
- Black test lead with alligator clip
- (4) AA alkaline batteries
- Carrying case

NOTE: For specifications, see blackbox.com.

Item	Code	List Price
MultiTool Cable Tester	TS570A	
For tracing tones, order...		
Network Probe	TS155-R3	

CAT5/5e/6 LAN Performance Verifier

Digitally certify UTP cables and devices in Gigabit Ethernet networks—and do it on a budget!

- Verify that UTP cables and LAN hardware perform at the promised speeds!
- Level 1 and Level 2 certifications.
- High-speed TDR provides nanosecond-accurate results.
- Locates opens, shorts, and splits—and pin-points the exact distance to the fault or split.
- Converts test results into graphs that show the cable's speed capability (CAT3/5/5e/6).
- Use to test in-line between two devices to determine the autonegotiated speed.
- Tests 10-, 100-, and 1000-Mbps devices for data signal levels.
- **◆◆ WARRANTY** — 1 Year

What's included

- LAN Performance Verifier
- Probe unit
- (2) CAT5e cables
- Test summary tablet
- "Passed" stickers
- 6-ft. serial data cable
- Software CD
- (2) 9-volt batteries
- (2) Coax to RJ-45 adapters
- User manual
- Zippered case

NOTE: Not recommended for use with shielded cable. Use with 4-pair, unshielded twisted-pair cable only.

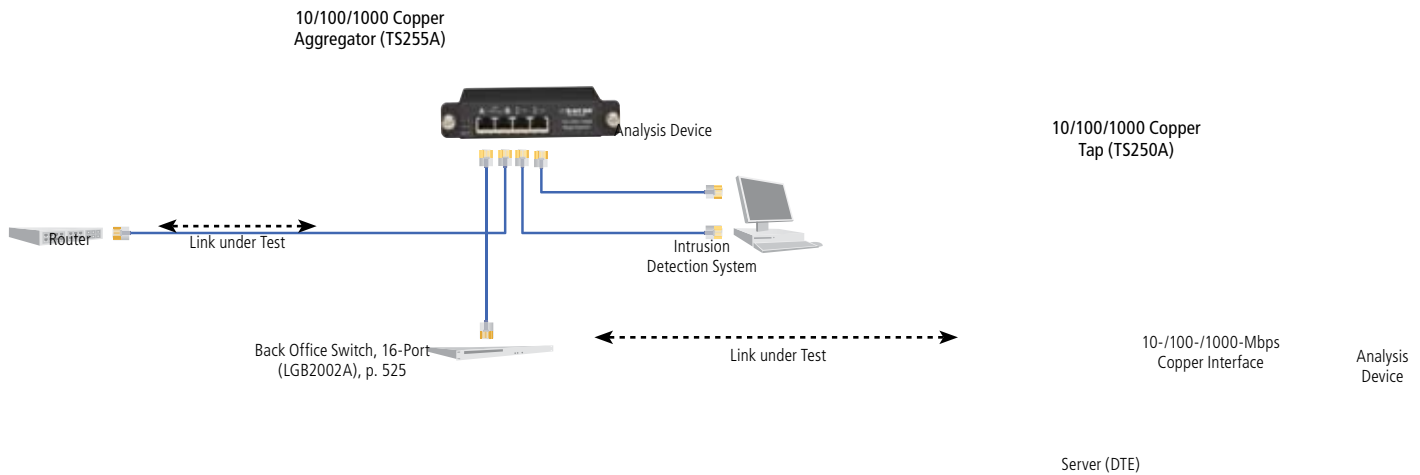


Item	Code	List Price
CAT5/5e/6 LAN Performance Verifier	TS580A-R2	

10/100/1000 Copper Tap and Aggregators

Monitor high-speed, full-duplex links with no network disruption.

- Get an accurate view of your copper network.
- Provide a complete copy of data from full-duplex network links.
- Offer complete network visibility regardless of traffic levels.
- Send separate copies of the TX, RX, and passthrough signals.
- Autonegotiate speed at 10, 100, and 1000 Mbps.
- Operate transparently.
- Doesn't block error packets.
- Can be left in place permanently.
- Connect and disconnect monitoring devices without disruption.
- Copper Tap model has separate transmit and receive channels; Aggregator models combine streams for dual monitoring.
- Provide continuous data flow if the power fails.
- **◆◆ WARRANTY** —1 Year



Get a complete view of the traffic on your 10-/100-/1000-Mbps Ethernet network without any disruption or downtime with the 10/100/1000 Copper Tap and 10/100/1000 Copper Aggregators.

The 10/100/1000 Copper Tap provides a complete copy of data from a full-duplex copper link to your network analyzer. First, the tap replicates the full-duplex signal from the network. Then, it sends one signal back to the network and the other signal to a monitoring device. If you're using a device with a single-receive capture card, you can monitor the transmit and receive signals separately. If you're using a device equipped with a dual-receive capture card, you can monitor transmit and receive signals simultaneously. The Tap operates passively and works regardless of traffic levels.

If you want to monitor, transmit, and receive data streams at the same time, choose a

10/100/1000 Copper Aggregator. They combine, transmit, and receive data streams so you can see them together without switching from one to the other. Even better, you can choose between models with either a 256 or 512 MB buffer, which continues to collect the data stream during spikes in network traffic.

Because you can leave the Tap or Aggregators inserted permanently without interfering with network operation and minimizing points of failure, you can easily connect and disconnect different devices. Use them with network and protocol analyzers, security monitoring devices, remote monitoring applications, RMON probes, and more.

Need to use more than one Tap or Aggregator at a time? Get the Rackmount Bracket—it can hold up to three Taps or Aggregators.

TECH SPECS

- CE Approval** — Yes
- Interface** — 10BASE-T/100BASE-TX/1000BASE-T Ethernet
- Connectors** — (2) RJ-45 analyzer ports; (2) RJ-45 link ports
- Indicators** — (7) LEDs: (3) Speed, (2) Link, (2) Analyzer
- Power** — 90–264 VAC, 4–63 Hz
- Size** — 1.1"H x 5.6"W x 7.6"D (2.8 x 14.2 x 19.3 cm)

Item	Code	List Price
10/100/1000 Copper Tap	TS250A	
10/100/1000 Copper Aggregators		
256 MB Buffer	TS254A	
512 MB Buffer	TS255A	
Rackmount Bracket, 19", 1U	TS253	

10/100BASE-T Network Tap Gigabit Fiber Tap Fiber Optic Splitter Module

Monitor your network and run test equipment without any disruption to your data flow.

10/100BASE-T Network Tap

- A redundant power supply supports the flow of traffic to the monitoring device.
- If no power is available, network traffic flows uninterrupted.
- Monitor 10 or 100BASE-T networks.
- Use a straight CAT5 cable to connect the two network ports to DTE and a crossover cable to connect the monitor ports to DCE.

Gigabit Fiber Tap

- Monitors traffic at up to 1000 Mbps.
- Features three multimode duplex SC 62.5-/125- μ m fiber connectors and a fiber wavelength of 850 nm, 1300 nm, and 1550 nm.
- Portable plug-in, plug-out design with no power source required.
- Order the 1-meter SC/SC fiber patch cord for use between the module and your LAN analyzer.

Fiber Optic Splitter Module

- Use with Fast Ethernet, Ethernet, ATM, SONET, and FDDI networks.
- Operates in half- and full-duplex modes and OC3 and OC12.
- Features three multimode duplex SC 62.5-/125- μ m fiber connectors and a fiber wavelength of 850 nm and 1300 nm.
- Portable plug-in, plug-out design with no power source required.
- **◆◆ WARRANTY** — All: 1 Year



TS240A

Item	Code	List Price
10/100BASE-T Network Tap	TS230A	
Gigabit Fiber Tap	TS240A	
Fiber Optic Splitter Module	TS220A-R2	
To rackmount up to three TS230A or TS240A units, order...		
3-Module Rack for Taps	TS241	
To cover any open slots in a TS241, order...		
Filler Blank for Module Rack	TS242	
To connect the 10/100BASE-T Network Tap at 20% savings, order...		
CAT5 Solid-Conductor Cables, 100-MHz, 24 AWG, RJ-45, 4-Pair, T568, Beige, 5-ft. (1.5-m) (For details, see p. 106.)		
Straight-Pinned	EYN556MS-0005	
Cross-Pinned	EYN556M-0005	
To connect to the TS240A's A/B analyzer port or to connect the TS220A-R2 to your LAN analyzer, order...		
Fiber Optic Analyzer Patch Cable, SC-SC, Duplex, 1-m (3.2-ft.)	EFN4029-CT	

Quick Checks

All you need for bench and remote testing.

Pro Quick Check

- Verifies continuity of 4-pair UTP/FTP to EIA 568 cabling.
- Tests shield continuity in FTP or STP Token Ring cabling.
- BNC coax test checks 10BASE2 buses and patch cords.

Ethernet Quick Check

- Verifies 10BASE-T and 10BASE2 cable runs.

Multi Quick Check

- Checks Ethernet 10BASE-T, Token Ring, and T568A or T568B cabling.

BNC Coax Quick Check

- Enables benchtop testing of coax with BNC connectors. Use adapters to check cables with different connectors.



TS031A

- **◆◆ WARRANTY** — All: 1 Year

NOTE: The Pro Quick Check provides live line protection. The others do not.

Item	Code	List Price
Quick Checks		
Pro	TS038A	
Ethernet	TS030A	
Multi	TS031A	
BNC Coax	TS032A	

Single-Line Tester

Test USOC, T568A, and T568B cabling.

- LEDs alert you to shorts, opens, reversals, and miswires at a glance.
- Built-in modular jacks for three different cabling systems—no need for adapters.
- Accurately verifies the integrity of 2-, 3-, and 4-pair voice and data channels.
- Snap and lock the master and remote when not in use.
- Lightweight, rugged, and impact resistant.
- Includes 9-volt alkaline battery.
- **◆◆ WARRANTY** — All: 1 Year



TECH SPECS

Connectors — Master unit: (3) RJ-45; Remote unit: (3) RJ-45
 Indicators — Master unit: (4) LEDs; Remote unit: (8) LEDs
 Power — (1) 9-V alkaline battery (included)
 Size — 1.6"H x 2.3"W x 5.5"D (4.1 x 5.8 x 14 cm)
 Weight — 0.5 lb. (0.2 kg)

NOTE: Designed strictly to test continuity. Do not insert into a live circuit.

Item	Code	List Price
Single-Line Tester	31616	
Carrying Case	32836	

Wi-Net Detector

Want to know the best place to put your wireless components? This lightweight detector gives you a clear picture.



- A must-have for installers and operators of wireless networks who need to identify and configure transmission equipment at a site.
- Supports interactive operation with wireless networks that have 64- or 128-bit Wired Equivalent Privacy (WEP) encryption.
- Picks up all IEEE 802.11a, b, and g signals.
- Provides critical information about the location of components.
- Constantly scans for wireless transmissions.
- Full alphanumeric LCD shows info clearly.
- Helps prevent Web access conflicts.
- Features audible pickup signal alerts.
- Displays encryption condition.
- Lists each signal as either an access point or an ad-hoc or a twin network type signal.
- Gives a clear picture of the range and availability of each access point.
- PING function enables you to access IP addresses and determine an Internet link condition.
- Negotiates with network DHCP for component ID.
- Shows router, DNS, and target info.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
Wi-Net Detector	TS950A	

LT Express

Twice the features and half the size of other telephone line test sets.

- Identify lines, check for clarity and wiring polarity, and listen for any problems caused by poor connections or improper terminations.
- Sounds crisp and clear, especially with the amplified monitor. No pops. No clicks.
- Tests and provides real-time line current/voltage measurements.
- Equipped with PBX pause button and mute switch.
- Works with Pulse and Tone Dialing.
- Talk with coworkers in remote locations.
- Includes 5-number memory and redial.
- ♦♦ **WARRANTY** — 1 Year



TECH SPECS

Battery Life — (Alkaline, 450 mA/hr.):
Operating: Min. 18 hours, max. 225 hours;
Standby: 3.4 years; Typical: 30–50 hours
DTMF Output — (into 600 ohms);
Tone frequency error: ±1.5%;
Tone level: High group: -6 dBm ± 2 dB;
Low group: -8 dBm ± 2 dB;
High vs. low difference: 2 dB ± 1 dB
Measurement — Voltage: 0–128 VDC ± 5%;
Current: 10–140 mA ± 5%
CE Approval — Yes
Power — (1) 9-V battery (included)
Size — 1.7"H x 2.5"W x 7.3"D (4.3 x 6.4 x 18.5 cm)

Item	Code	List Price
LT Express	TS147A	
♦ Includes LT Express, 9-volt battery, belt clip, headset, bed of nails cord set, and manual.		
Cable Set with Bed of Nails and Belt Clip (Spare)	TS148	

Veri-Net • Veri-Net+ • Veri-Net VoIP

Quickly test Ethernet links and more!

Veri-Net

- Decodes link signals and displays the exact configuration of connected equipment.
- Tests and verifies Ethernet/Fast Ethernet links.
- Tests wallplates with multiple outlets for "live" link and far-end Fast Ethernet compatibility.
- Verifies link connectivity to the far end, tests for reported faults, and determines polarity.

Veri-Net+

- Has all the features of the Veri-Net *plus*: a bidirectional Link Activation function, a tone generator to locate fault points, and a 6-inch pigtail for easier connections.
- Quickly verifies two-way link integrity.

Veri-Net VoIP

- Identifies and verifies ports for Voice over IP (VoIP) and Power over Ethernet (PoE).



- Measures port voltage.
 - Verifies connectivity for 10BASE-T, 100BASE-TX, or 1000BASE-TX links for 802.3 devices.
 - Identifies port speed, duplex mode, and autonegotiation capabilities for ports tested.
 - Detects and decodes link signals on Ethernet networks and identifies signaling type.
 - ♦♦ **WARRANTY** — TS022A, TS027A-R3, TS200A, TS155-R3: 1 Year; TS026: 2 Years
- | Item | Code | List Price |
|---|-----------|------------|
| Veri-Net | TS022A | |
| Veri-Net+ | TS027A-R3 | |
| Veri-Net VoIP | TS200A | |
| ♦ All include (1) RJ-45 coupler and (1) 9-volt battery. | | |
| You may also need... | | |
| Veri-Net Accessory Pack | TS026 | |
| ♦ Includes (1) 16" RJ-45 patch cable, (1) nylon mesh carrying pouch, and (1) RJ-45 coupler. | | |
| Tone Probe | TS155-R3 | |

For more details, see blackbox.com.

TVR 10/100/1000 Tester

10BASE-T, 100BASE-TX, and 1000BASE-TX hand-held testing with a small price tag!

- Performs verification for 10BASE-T/100BASE-TX/1000BASE-TX hubs and PCs.
- Matches your hub and PC (or two hubs). Simulates straight-through or crossover cable.
- Locates cables or hub ports using the included remote probe to detect a tone generated by the hand-held tester.
- Verifies terminated pairs in hubs or PCs, wired pairs, and pair reversals.
- For more information, see blackbox.com.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

CE Approval — Yes
Connectors — (4) RJ-45 jacks on tester
Indicators — Tester: (15) LEDs;
 Remote: (4) LEDs
Power — (2) 9-V alkaline batteries (included)
Size — Tester: 5.5"H x 3.3"W x 1"D
 (14 x 8.4 x 2.5 cm);
 Remote: 7"H x 1"W x 0.8"D (17.8 x 2.5 x 2 cm)
Weight — 0.5 lb. (0.2 kg)



Tester Remote Probe

Item	Code	List Price
------	------	------------

TVR 10/100/1000 Tester	TS029A-R4	
♦ Includes the tester and remote probe units, (2) 9-V batteries, (2) RJ-45 to RJ-45 jumper cables, a protective felt carrying case, and a user's manual.		

Tone Generator & Probe

Trace your lines with this two-in-one test set.

- Locate and identify open cable pairs, individual conductors, and telephone wires.
- Identify and trace wires or cables within a group.
- Tests polarity, continuity, and voltage.
- Choose either solid tone or a dual alternating tone operation.
- Volume control for noisy environments.
- Works at distances up to 5000 feet (1524 m).
- Includes red and black test leads.
- ♦♦ **WARRANTY** — 1 Year



TECH SPECS

Tone Generator:
Connectors — (1) 10" (25.4-cm) RJ-11 cable lead;
 (2) 24" (61-cm) alligator clip leads
Indicators — (1) 3-colored LED
Power — (1) 9-V battery (included)
Probe:
Connectors — (1) recessed terminal port for lineman's handset connection
Power — (1) 9-V battery (included)

Item	Code	List Price
------	------	------------

Tone Generator & Probe	TS141A-R2	
♦ Includes tone generator, probe, (2) 9-volt batteries, red and black test leads, 4-conductor modular cord and plug, manual, and heavy-duty nylon case.		

SOHO Tester

All you need to test your small office or home office wiring systems.



- Designed exclusively for low-voltage cables commonly used for home networking and home automation.
- Handheld unit reliably tests 8-wire network cables, 6-wire telephone lines, cable TV and audio coax cables, and more.
- Test for shorts, opens, miswires, reversals, and split pairs in any of its three test modes (telephone, coax, and network).
- Identifies remote while testing the cable.
- Displays the wiremap and any faults associated with the various cable types.
- Get clear pass/fail results on a large seven-segment LCD with a backlight.
- A Tone mode generates audio tones for use with tone traces on all pairs, a selected pair, or a selected pin.

- Order extra Coax Remote Identifiers as well as RJ-45 or RJ-11 Wire Mappers for identifying and mapping multiple points of termination.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
------	------	------------

SOHO Tester	TS590A	
♦ Includes (1) local unit, (1) remote unit, (1) Coax Remote Identifier, (1) 12" RJ-45-to-alligator clip cable, (1) 7.5" cable with RJ-12 connectors for RJ-45 or RJ-11 jacks, and a user's manual.		

You may also need...

Coax Remote Identifiers, 20-Pack	TS591	
Wire Mappers, 20-Pack		
RJ-45	TS592	
RJ-11	TS593	

PC Cable Quick Check Pro

Speedy testing for continuity and pinout of IBM® PC cables.

- Now tests more than 20 types of cables! It's updated to include PS/2®, S-Video, 4- and 6-pin FireWire™, and USB Type Mini-B connectors.
- Also tests RJ-11/RJ-12/RJ-45 telephone/network and RG-58/59 BNC coax cables, as well as Centronics® 36, DB9, DB15, DB25, HD15, USB Type A, and USB Type B cables.
- Provides a simple check and wiring configuration.
- Checks RG-58/59 BNC with a simple pass/fail test and provides a full diagnostic evaluation if the cable fails.
- Provides full wire mapping of cabling systems.
- Identifies open, shorted, and cross-connected wires.
- Performs "go/no-go" testing of production-built cable assemblies for cable manufacturing companies.

- Saves battery life with automatic shut-off feature.
- Ideal for network installers.
- Now has a built-in handle for carrying site to site.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

CE Approval — Yes
Connectors — (2) RJ-11/RJ-12/RJ-45, (2) RG-58/59 BNC, (2) DB9 M, (2) DB9 F, (2) DB15 M, (2) DB15 F, (2) HD15 M, (2) HD15 F, (2) DB25 M, (2) DB25 F, (1) Centronics 36, (2) USB Type A, (2) USB Type B, (2) USB Type Mini-B, (1) 6-pin mini DIN (PS/2) F, (1) 6-pin mini DIN (PS/2) M, (2) 4-pin mini DIN (S-Video), (2) 4-pin 1394 FireWire, (2) 6-pin 1394 FireWire
Indicators — (168) LEDs
Power — 9-V battery (included)
Size — 11.75"H x 7.75"W x 1.6"D (29.8 x 19.7 x 4.1 cm)
Weight — 1.7 lb. (0.8 kg)



NOTE: Not for use on live circuits.

Item	Code	List Price
PC Cable Quick Check Pro	TS075A-R3	

Network Tone Generator • Network Probe

The fastest way to find cables in a crowded punchdown block.



The Generator and Probe work together—order both!

- The tone generator sends a tone along any 4-, 6-, or 8-wire RJ-11 or RJ-45 cable.
- The probe, an inductive receiver, emits its locator tone when it touches the tip of the wire or even just the jacket.
- Use the probe to trace the tone through the cable, wiring bundle, and wiring closet. Locate the other cable end when the tone generator applies a tone through the cable.
- Tones travel up to 2000 feet (609.6 m), depending on whether the cable is a continuous run or if it connects to punchdown blocks, patch panels, or wallplates.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

CE Approval — Yes
Connectors — (1) RJ-45, (2) clip leads
Indicators — (3) LEDs for continuity and polarity
Power — TS151: 9-V battery; TS155-R3: 12-V battery
Size — TS151: 3.8"H x 2.3"W x 1"D (9.7 x 5.8 x 2.5 cm); TS155-R3: 7"H x 1.3"W x 0.8"D (17.8 x 3.3 x 2 cm)
Weight — TS151: 1 lb. (0.5 kg); TS155-R3: 0.3 lb. (0.1 kg)

Item	Code	List Price
First, order the generator...		
Network Tone Generator	TS151	
...then to locate cables easily, order the probe.		
Network Probe	TS155-R3	



No data center infrastructure? No problem. Use the self-contained ClimateCab instead.

- Perfect for small businesses without formal data centers or for harsh locations and industrial environments.
- Eliminates the need for rooms with expensive raised floors and cooling systems.
- NEMA 12 rated for protection against dirt, dust, lint, debris, and spashing liquids.
- Air conditioning units keep equipment cool even with temperatures up to 130°F.
- Closed-loop cooling system recirculates air in the cabinet and keeps outside air out.
- An internal evaporator eliminates condensation.
- Models available for nearly any application.
- Find them on **page 237**.

NetTone Network Tone and Probe

Easily identify hub or switch ports within active networks.

- The tone generator sends a trace tone; the probe detects the signal.
- Choose from three link pulse rates.
- Port ID function activates link light on connected hub or switch to show corresponding port link.
- The probe emits audible tones and features a nonconductive plastic tip. The tone generator features RJ-45 male or female connectors.
- Both work on Ethernet and telco cabling to detect short or open circuits. They work on inactive circuits, too!
- ♦♦ **WARRANTY** — 1 Year



What's included

- NetTone tone generator
- NetTone probe
- (2) alligator clip test leads (red and black)
- RJ-45–RJ-45 patch cable, 8.375" (21.3-cm)
- Carrying pouch

Item	Code	List Price
NetTone Network Tone and Probe	TS605A	

LAN Pro • LAN Pro Kit

Fast, convenient testing for twisted-pair and coax cables.



LAN Pro Kit
(TD050A-KIT)

- Test both coax and twisted-pair cable.
- One-button pass/fail or fault testing.
- Test cable status at both ends—results are displayed on both the main test unit and the remote unit.
- Show results in seconds.
- Test cable to 320 feet (97.5 m).
- Detect opens, shorts, crossed wires, and split pairs.
- Compact and lightweight.
- Auto shutoff preserves battery life.
- The kit has all the cables and adapters you need plus a sturdy carrying case.
- ♦♦ **WARRANTY** — 1 Year

What's included

LAN Pro:

- Main test unit and remote unit
- (2) shielded RJ-45 patch cables
- (2) belt clips
- Instructions
- 9-volt battery

LAN Pro Kit:

Same as the LAN Pro, plus:

- Shielded RJ-45/RJ-45 coupler
- (2) BNC coaxial cables
- BNC–BNC adapter
- (2) CATV F–BNC adapters

TECH SPECS

Power — 9-volt battery (included)
Size — 9.6"H x 5.4"W x 1.6"D (24.4 x 13.7 x 4.1 cm)
Weight — 1.5 lb. (0.7 kg)

Item	Code	List Price
LAN Pro	TD050A	
LAN Pro Kit	TD050A-KIT	

WAN Tester

Test your T1, E1, asynchronous, and synchronous lines!

- Test T1, Fractional T1, E1, Fractional E1, asynchronous, and synchronous facilities and equipment.
- Control the WAN tester from the front panel or local/remote VT100™ terminal.
- Comes with V.35, RS-232, RS-422/530, X.21, T1, and E1 interfaces.
- Displays G.821 performance measurements.
- Speeds from 50 bps to 8.192 Mbps.
- To select your parameters, simply scroll through values stored in its memory.
- Operates on Nickel Metal Hydride (NiMH) batteries for total portability! Battery and built-in recharger are included.
- ♦♦ **WARRANTY** — 1 Year



A 2-line x 16-character backlit LCD display and 16 LED indicators show selected mode, test and operating parameters, and test data.

TECH SPECS

Interface — Async/sync: RS-232, RS-422, RS-530, V.35;
Sync mode also tests X.21 interface;
T1: DS-1 Bipolar, AMI/B8ZS;
E1: CCITT G.703, CCITT G.704, HDB3 coding
Power — (8) NiMH batteries or via wallmounted power pack (90–130 VAC, 57–63 Hz, 6 W)
Size — 5"H x 7"W x 2"D (12.7 x 17.8 x 5.1 cm)
Weight — 1 lb. (0.5 kg)

Item	Code	List Price
WAN Tester	TS940A-R2	

You may also need...

- DB25 Male to M/34 Male Cable, 6-ft. (1.8-m) TS941
- Dual Bantam to RJ-48 Cable, 6-ft. (1.8-m) TS942
- Console Cable, RJ-11 to DB9, 5-ft. (1.5-m) TS943

DB9 PockeTester

Monitor DB9 data ports. Spot faults fast.

- Monitor seven RS-232 signals— DB9 Pins 1–4 and 6–8.
- Monitor TD, RD, DTR, DSR, RTS, CTS, and DCD.
- All nine pins are wired straight through.
- Works with any RS-232 DB9 interface.
- Standard RS-232 DB9 interface means you don't need any jumpers, switches, or special cables.
- Large, colorful LEDs are easy to see.
- Needs no external power source. Draws power directly from the RS-232 interface.
- ♦♦ **WARRANTY** — 1 Year



TECH SPECS

CE Approval — Yes
Connectors — (1) DB9 F, (1) DB9 M
Indicators — (7) Tri-state LEDs: TD, RD, DTR, DSR, RTS, CTS, DCD
Power — None required
Size — 2.7"H x 1.2"W x 0.8"D (6.9 x 3 x 2 cm)

Item	Code	List Price
DB9 PockeTester	TS500A-R2	

Comm Tool 1000

Carry a whole toolbox of testers in a single instrument!

- Easy-to-follow menus.
- Run eight kinds of tests.
- Automatically matches the speed and character structure of any async bit data stream up to 38.4 kbps.
- Can be used as a 25-conductor cable tester or parallel breakout box.
- Dual line trapping. Analyze data transmitted and received data simultaneously.
- Compatible with async, sync, SDLC, and Centronics® and Dataproducts® parallel formats.
- Stores test setups in nonvolatile memory.



Perform data monitoring, data trapping, cable testing, as well as BERT/BLERT, device exercising, device simulation, breakout box, and pulse-level voltmeter tests.

- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Data Format — ASCII, EBCDIC, Baudot, Transcode
Speed — Async: 50 bps to 38.4 kbps
Interface — RS-232 serial, Centronics parallel, Dataproducts parallel
Connectors — (2) DB25 F, (1) 36-pin Centronics F
Indicators — (100) LEDs: (50) red, (50) green; 32-character LCD
Power — (3) 9-V alkaline batteries, (1) AC adapter (not intended for recharging)
Size — 3.4"H x 10.9"W x 6"D (8.6 x 27.7 x 15.2 cm)
Weight — 2.6 lb. (1.2 kg), including batteries

Item	Code	List Price
Comm Tool 1000	DT450A	

♦ Includes (1) tester, (1) DB25 dual-gender ribbon cable, (1) 36-pin ribbon cable, (1) power supply, and (1) soft case.

Quick Test RS-232

Monitor the status of all DB9 and DB25 RS-232 lines with one tool!

- Monitors all your RS-232 leads.
- All-in-one line monitor also functions as a loopback unit to test installed DB9 and DB25 cables where signals are present.
- Monitor the status of all interface lines with 24 green and 24 red dual-state LEDs.
- Converts between DB9 and DB25 standards testing with two included mini adapters.
- Works as a continuity tester on DB9 and DB25 cables.
- ♦♦ **WARRANTY** — 1 Year



TECH SPECS

Connectors — (1) DB25 F, (1) DB25 M on unit, (2) DB25/DB9 mini adapters included
Indicators — (48) Dual-state LEDs: (24) red, (24) green
Size — 1"H x 9"W (2.5 x 22.9 cm)

Item	Code	List Price
Quick Test RS-232	TS000A	

♦ Includes (1) tester and (2) DB25/DB9 mini adapters.

Data Taps

Monitor your data lines without interrupting data flow.

- Three-way taps for monitoring active lines with a data scope.
- Use the DB25 Taps to monitor RS-232, RS-422, or RS-530 communication.
- Use the DB9 Taps to monitor RS-232, RS-422, or 802.5 communication.
- Economical temporary or permanent solutions for a "Y" or four-way connector cable.
- Compact size — easy to tuck into your tool kit.
- ♦♦ **WARRANTY** — 1 Year



3-Way DB25 Tap

NOTE: Four-way taps with DB25 connectors are also available. For details, see blackbox.com or call our FREE Tech Support.

Item	Data Connectors	Tap Connector	Code	List Price
Data Taps				
DB25 Taps, (3) DB25 Connectors				
	Female/Female	Female	FA140A	
	Female/Female	Male	FA141A	
	Male/Female	Female	FA142A	
	Male/Female	Male	FA143A	
	Male/Male	Female	FA144A	
	Male/Male	Male	FA145A	
DB9 Taps, (3) DB9 Connectors				
	Female/Female	Female	FA146A	
	Female/Female	Male	FA147A	
	Male/Female	Female	FA148A	
	Male/Female	Male	FA149A	
	Male/Male	Female	FA150A	
	Male/Male	Male	FA151A	

232/422 Monitor Advantage

Debug serial interfaces economically with this handheld test set.

- Captures serial data and isolates faults.
- Works on RS-232, RS-423, RS-422, and RS-485 interfaces.
- Stores 304,000 records in 1 MB nonvolatile RAM for transmit and received data.
- Line speeds up to 230.4 kbps async (half-duplex) or 64 kbps sync.
- Use the included SAM-232 Compact breakout box to



monitor voltage and run ground potential and loop tests.

- For details on the SAM, see [page 212](#).
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price
232/422 Monitor Advantage	DT400A	
◆ Includes test set, SAM 232-Compact breakout box, (1) DB9 M/DB25 F adapter, (1) DB9 F/DB25 M adapter, (1) DB9 M/F adapter, (1) 3-ft. (0.9-m) ribbon monitor cable, set of jumper wires, 9-V connector, (1) 9-V battery, (1) 3-V lithium battery, 115-VAC power adapter, carrying case.		

232 BERT • V.35 BERT

Identify modem and line problems—then read the results right on the LCD.

- Check rate calculations on the convenient four-digit LCD.
- Test functions and switch options are color-coded to save you time.
- Provide loopback test patterns.
- Connect two BERTs for full-duplex testing.
- Use the **232 BERT** to diagnose RS-232 sync or async transmission problems at test speeds from 300 bps to 19.2 kbps. It tests for bit and block error rates, errored seconds, number of bits, and error introduction on lines.
- The **V.35 BERT** finds faults in DDS links at test speeds up to 2.048 Mbps.



Both BERTs feature a 4-digit LCD with overflow and test-state indications.

- **◆◆ WARRANTY** — 1 Year

TECH SPECS

RS-232 Breakout Functions — 232 BERT: Jumper post to access all 25 RS-232 pins; DIP switches open/close the most-used pins of the RS-232 interface

Speed — 232 BERT: 300 bps to 19.2 kbps; V.35 BERT: Up to 2.048 Mbps, set by external clock

CE Approval — DT003A

Interface — 232 BERT: RS-232/V.24, male and female connectors on attached ribbon cable; normal configuration as DTE device; V.35 BERT: Synchronous V.35 male connector; DTE

Power — 232 BERT: (2) 9-V batteries; V.35 BERT: Plug-in AC transformer (included) or (2) 9-V batteries

Item	Code	List Price
232 BERT	DT003A	
V.35 BERT	DT004A	

232 Monitors

Choose from three handheld RS-232 activity monitors with the features you need.

232 Monitor Plus

- All the features of PC-based testers.
- Sync or async.
- Full QWERTY keyboard plus directional keypad.
- Displays 8 rows of 30/40 characters.
- Speed from 75 bps to 57.6 kbps async or 75 bps to 64 kbps sync.
- Complete real-time monitoring and testing from remote sites.



DT200A

232 Monitor

- Sync or async.
- Six keys.
- Displays 2 rows of 40 characters.
- BERT and BLERT testing.
- Speed from 75 bps to 57.6 kbps async or 75 bps to 64 kbps sync.

232 Monitor Basic

- Basic testing made affordable.
- Async only.
- Six keys.
- Displays 2 rows of 40 characters.
- Speed from 150 bps to 38.4 kbps.
- **◆◆ WARRANTY** —All: 1 Year

Item	Code	List Price
232 Monitor Plus	DT200A	
232 Monitor	DT150A	
232 Monitor Basic	DT100A	

Portable Cable Analyzer/Tester (P-CAT)

Get quick results with either manual or automatic scanning of DB25 cables.

Use the included Bounce-Back Module to test cable that's already installed.

- Great for field testing existing cable and for lab testing new cable.
- Test all 25 connections quickly or test them one by one.
- In SCAN mode, it tests each cable lead automatically for opens, shorts, and continuity.
- Use STEP mode to test each lead manually, one at a time.
- **◆◆ WARRANTY** — 1 Year



P-CAT

Bounce-Back Module

TECH SPECS

Interface — RS-232
Connectors — P-CAT: (2) dual-gendered DB25 connectors on 2" (5.1-cm) ribbon cable; Bounce-Back Module: (1) dual-gendered connector on 2" (5.1-cm) ribbon cable
Indicators — (53) LEDs: 25 per side, Continuity, Short, Open

Power — (1) 9-V battery (included); optional 9-VDC adapter also available
Size — P-CAT: 1.5"H x 3"W x 5.5"D (3.8 x 7.6 x 14 cm); Bounce-Back Module: 1"H x 3"W x 3.3"D (2.5 x 7.6 x 8.4 cm)
Weight — P-CAT: 0.5 lb. (0.2 kg); Bounce-Back Module: 0.1 lb. (<0.1 kg)

Item	Code	List Price
Portable Cable Analyzer/Tester (P-CAT)	TSW75A	
Optional 9-Volt AC/DC Adapter	PS175	

SAM 232-100 • SAM 232-Compact • SAM Deluxe

Test DB9 and DB25 interfaces, voltage, signals, and more.

- Monitor all 25 leads.
- Test cables for continuity.
- Use Bounce-Back Module with the SAM 232-100 to test cable that's already installed.
- If you need a compact, industrial-strength breakout box, order the SAM 232-Compact.
- For an all-in-one breakout box, SAM, ground potential difference tester, cable tester, and Current Loop tester, order the SAM Deluxe.
- The SAM Deluxe has a soft padded case and has been reengineered to reduce power consumption.
- ♦♦ **WARRANTY** — 1 Year



Item	Code	List Price
SAM 232-100 * †	TS010A	
SAM 232-Compact * †	TS158A	
Bounce-Back Module ‡	TSW76	
SAM Deluxe *	TS160A-R3	

SAM+ 449

Monitor and patch all 37 leads on RS-449 equipment.

- Full RS-449 breakout-box function.
- Crosses pins or checks for positive or negative signals.
- Patches all 37 leads.
- Monitors 10 leads.
- At-a-glance signal status via 11 LEDs.
- Powered by one 9-volt battery.
- Includes hard case.
- ♦♦ **WARRANTY** — 1 Year



TECH SPECS

Jumpers — (5) straight, (1) daisychain
Leads Monitored — SD, ST, RD, RS, RT, CS, DM, TR, RR, TT
Connectors — (1) DB37 M, (1) DB37 F
Indicators — LEDs: (10) Single, Red for high, Off for low; (1) Tri-state
Power — (1) 9-volt battery
Size — 1.5"H x 2.9"W x 5.6"D (3.8 x 7.4 x 14.2 cm)

Item	Code	List Price
SAM+ 449	TS270A	

SAM V.35

Analyze V.35 communication problems.

- Full-featured breakout box for interface testing.
- Built-in RS-232 cable for monitoring V.35 data on an RS-232 datascop.
- Crossover, patch, or jumper any combination of leads.
- Tri-state LEDs give you signal status at a glance.
- Monitors 12 leads.
- Powered by two 9-volt batteries.
- Includes color-coded jumpers and hard case.
- ♦♦ **WARRANTY** — 1 Year



TECH SPECS

Jumpers — (5) straight, (1) daisychain
Leads Monitored — C, D, E, F, H, J, K, P/S, R/T, U/W, V/X, Y/AA
Patching Voltage Source — +V, -V
CE Approval — Yes
Connectors — (1) M/34 M, (1) M/34 F, (1) DB25 M
Indicators — Tri-state LEDs: Red for high, Green for low, Off for unattended
Power — (2) 9-volt batteries
Size — 2"H x 4.5"W x 6.5"D (5.1 x 11.4 x 16.5 cm)

Item	Code	List Price
SAM V.35	TS291A	

SAM 232-60 Tri-State (Powered)

Monitor RS-232 leads with this breakout box.

- Includes switches for crossing TD and RD and for pulling CTS, DSR, or DCD high.
- Also switches to open data and handshake lines if necessary.
- Low battery indicator included.
- Includes soft case.
- ♦♦ **WARRANTY** — 1 Year



TECH SPECS

Jumpers — (5) straight, (1) daisychain
Leads Monitored — 2-6, 8, 15, 17, 20-22, 25; (1) spare
Patching Voltage Source — +V, -V
CE Approval — Yes
Connectors — (2) DB25 M/F (dual-gendered on each end)
Indicators — Tri-state LEDs: Red for high, Green for low, OFF for unattended
Power — (1) 9-V battery
Size — 2"H x 4.5"W x 6.5"D (5.1 x 11.4 x 16.5 cm)

Item	Code	List Price
SAM 232-60 Tri-State (Powered) * †	TS162A	

* Jumpers can be ordered separately. Straight jumpers (TSJ001) are , and 4-pin daisychain jumpers (TSJ002) are .

† An optional 115-VAC, 60-Hz AC power adapter (PS175) is available for .

‡ For details about the optional Bounce-Back Module (TSW76), call our FREE Tech Support.



Data Pro Kit

The complete kit for assembling and testing UTP/STP cables.

- Everything for cutting, stripping, terminating, and testing cables, and modular plug systems!
- Includes the LAN Pro (TD050A) for fast, convenient testing of twisted-pair and coax wiring.
- Contains five die sets for easy crimping of modular cable connectors.
- All tools feature soft handles for comfort and an easy grip.
- Adjust the impact level on the punchdown tool for different cable types.
- ♦♦ **WARRANTY** — Lifetime

The Data Pro Kit features tools and dies for installing the most commonly used connectors and punchdown termination blocks.

The kit also includes the LAN Pro (TD050A), a portable tester that offers one-button pass/fail testing of both coax and twisted-pair cable. It quickly tests for opens, shorts, crossed wires, and split pairs. Results are displayed on both the main tester and the remote unit. The auto-shutoff feature preserves battery life.



What's included

- LAN Pro tester (TD050A), including main tester and remote, p. 209
- Crimp tool
- UTP/STP Cable Cutter/Stripper (FT116)
- Type 110 reversible blade
- Type 66 reversible blade
- Punchdown Tool (FT025A), p. 223
- (5) die sets:
 - RJ-45 WE/SS style
 - RJ-45 AMP style
 - RJ-22 handset
 - RJ-11 DEC/MMJ
 - RJ-11/RJ-12 WE/SS style
- Soft carrying case with wrist strap

Item	Code	List Price
Data Pro Kit	FT115A	

Need Bix or Krone blades? See blackbox.com.

Premise Tool Kit

The complete kit for crimping, punching down, testing, and mapping your copper cables.



- All the tools you need to prepare and install CATV coax cables, flat satin telephone cables, and data network (USOC, TIA-568A, or TIA-568B) cables.
- Use tone generator/probe to test RJ-11 and RJ-45 connections, and map data and telephone installations.
- LAN Pro Data Network Cable Tester provides pass/fail results on twisted-pair and coax cabling in seconds.
- ♦♦ **WARRANTY** — Lifetime

Why buy a number of individual cable tools and testers for your premise cabling jobs when you can order this complete kit instead?

We've identified the must-have tools used by data, voice, and coax installers and put them in the BLACK BOX® Premise Tool Kit. Included in the heavy-duty carrying case are tools for cutting, stripping, and crimping. Die sets and adapters are also provided.

You also get test sets for tone tracing UTP, STP, and flat satin cables. To quickly test both twisted-pair and coax cable for opens, shorts, crossed wires, and split pairs, use the included LAN Pro Data Network Cable Tester. It gives you pass/fail results quickly at the press of a button.

What's included

- Crimp Tool Frame (FT001), p. 220
- RJ-45 WE/SS and RG-6/RG-60 CATV Female Combination Die Set (FT008), blackbox.com
- RJ-45 AMP/Tyco Modular Plug Die Set (FT005), blackbox.com
- RJ-11-12 WE/SS Modular Plug Die Set (FT003), blackbox.com
- Punchdown Tool (FT025A), p. 223
- 110 Punchdown Blade (FT026), p. 223
- 66 Punchdown Blade (FT027), p. 221
- LAN Pro tester (TD050A), including main tester and remote, p. 209
- Telephone test set and cable mapper, including (1) tone generator (mapper transmitter) and (1) tone probe (mapper receiver)
- Coax Cable Cutter (FT961), p. 220
- UTP/STP/Flat Cable Cutter and Stripper (FT116)
- Coax Cable Stripper (FT962), p. 220
- (2) RJ-45 8-way modular adapters
- (2) BNC-to-CATV female adapters
- (2) shielded RJ-45 patch cords
- RJ-11-to-alligator clip test cord
- Carrying case
- 6" RJ-45 unshielded patch cable

Item	Code	List Price
Premise Tool Kit	FT145A	

CAT6 Termination Kit • CAT6 Installation Kit

The tools for terminating CAT6 cable!

CAT6



- Terminate cable perfectly and ensure compliance with the Category 6 standard.
- The kits' tester identifies shorts, opens, and miswires while checking Ethernet 10BASE-T, Token Ring, and T568A or T568B cabling.
- The tester splits apart for benchtop and remote testing functions.
- Each kit comes complete with a sturdy, black carrying case.
- **◆◆ WARRANTY** — Lifetime

What's included with the FT490A-R2

- Multi Quick Check Tester (TS031A)
- Multi-Strip Cable Stripper (FT231A)
- Universal Crimp Tool (FT046A)
- (25) RJ-45 CAT6 Modular Plugs (FMTP6-R2-25PAK)
- 2-Position RJ-45 Crimp Die for Modular Jacks (FTM50)
- Carrying Case (FT390)

What's included with the FT495A-R4

- Everything in the CAT6 Termination Kit *plus* 1100 feet of GigaTrue® 550 CAT6 550-MHz, Solid, 4-Pair, Bulk Cable (EYN874A-PB-1000)



CAT6 Termination Kit (FT490A)

Item	Code	List Price
CAT6 Termination Kit	FT490A-R2	
CAT6 Installation Kit	FT495A-R4	

CAT5e Termination Kit • CAT5e Installation Kit

Do-it-yourselfers: Order a kit for BIG savings!

CAT5e



- Our best CAT5e tools—guaranteed for life!
- Terminate cable perfectly and ensure compliance with the Category 5e standard.
- Locate shorts, opens, and miswires, and verify 10BASE-T cable runs with the included tester.
- Tester also splits into master and remote units for remote and benchtop testing of patch cords or premise cabling.
- For extra convenience, the kits come complete with a sturdy, black carrying case.
- **◆◆ WARRANTY** — Lifetime

What's included with the FT480A-R2

- Multi Quick Check Tester (TS031A),
- Multi-Strip Cable Stripper (FT231A),
- Universal Crimp Tool (FT046A)
- (25) CAT5e Modular Plugs, RJ-45 (FM850-25PAK)
- 2-Position RJ-45 Crimp Die for Modular Jacks (FTM50)
- Carrying Case (FT390)

What's included with the FT475A-R2

- Everything in the CAT5e Termination Kit *plus* 1000 feet of our GigaBase® 350 CAT5e, 350-MHz Solid Bulk Cable (EYN857A-PB-1000)



CAT5e Termination Kit (FT480A)

Item	Code	List Price
CAT5e Termination Kit	FT480A-R2	
CAT5e Installation Kit	FT475A-R2	

blackbox.com

This may be the Big Book, but **blackbox.com** is even **BIGGER!**

- There you'll find:
- **Scanners**, cable and network testers, tools, kits, and more!
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 - **Savings.** Find weekly specials and savings on featured cabling products.

If you still can't find what you need, just ask the experts at our **FREE Tech Support hotline!**

Voice/Data Tool Kit

Tools for working on both phone lines and LANs.



- ◆◆ **WARRANTY** — Lifetime

What's included

- (3) slot screwdrivers: 1/8" x 4", 3/32" x 2", 3/16" x 6"
- (4) Phillips screwdrivers: #0, 1, 2, pocket
- Slot and Phillips screwholder
- (4) Torx® drivers: T10, T15, T20, T25
- (2) balldriver key sets: hex, metric
- Long-nosed pliers with cutter, 6"
- Slip-joint pliers, 6"
- Chain-nose pliers, 4"
- Standard locking pliers, 5"
- Electrician's scissors
- Precision knife, #1
- Adjustable wrench, 6"
- Metric tape measure
- Soldering iron, 25-watt, 3W
- Desolder braid, 5-ft. spool
- T6 stripper
- Circuit tester
- Telephone line tester
- Pocket flashlight
- Cutter with strip notch, 5"
- Stubby reversible screwdriver
- Wire cutter
- (4) nutdrivers: 3/16", 1/4", 5/16", 3/8"
- (3) adapters: DB9 female to DB25 female, modular, RS-232 to RJ-12/45
- Impact tool
- Type 110 blade
- (2) gender changers: DB25 female/female, DB25 male/male
- Classic shell, 8" case with removable top and bottom pallets and luggage tag

Item	Code	List Price
Voice/Data Tool Kit	FT103A-R2	
Hard Shell Case for Voice/Data Tool Kit	FT106A	

Professional's Tool Kit

All the tools the pros use for PC repair.



- ◆◆ **WARRANTY** — Lifetime

What's included

- Hex Allen set: 0.28 to 3/32"
- Desoldering tool
- Solder aid/brush
- Soldering iron
- (2) spudgers: component, wire
- Disposable flashlight
- AC polarity tester
- Trimpot adjuster
- Self-locking tweezers
- Slot screwstarter
- Phillips screwstarter
- (2) pocket screwdrivers
- Long-slot screwdriver, 1/8"
- (3) nutdriver blades: 3/16", 7/32", 1/4"
- (3) slotted screwdriver blades: 1/8", 3/16", 1/4"
- (3) Phillips screwdriver blades: #0, #1, #2
- (2) driver handles
- Extension blade, 4"
- Combo offset screwdriver
- Precision knife
- Electrician's scissors
- Adjustable wire stripper
- (2) diagonal cutting pliers: 4", 6"
- (2) chain-nosed pliers: 4", 6"
- Slip-joint pliers, 6"
- Adjustable wrench, 6"
- Magnetic parts extractor
- Cordura carrying case, 3"H x 16"W x 11"D

Item	Code	List Price
Professional's Tool Kit	FT805-R2	

VoIP Tool Kit

Specialty tools for voice applications in one handy kit.

- Essential tools and accessories for installing and servicing call centers and connections for the delivery of voice over IP.
- Includes tools for stripping, cutting, splicing, and punching down RJ-11, RJ-12, and RJ-45 cables.
- Use staple gun and crown staples to fasten low-voltage wiring.
- Can wrench/stripper has hex sockets for accessing panels, and strips PVC insulation and jackets from 22/4 and 24/4 phone cable.
- Convenient storage with the soft tote bag that has 14 pockets and a tray for organizing connectors, ties, and other small items.
- Crimp tool works with 6-position RJ-11/RJ-12 connectors and 8-position RJ-45 connectors on 28–24 AWG phone and data cable.
- Multipurpose cable stripper has an thumbscrew-adjustable blade for use with various types of cable, including 4-, 6-, and 8-conductor flat satin cables; 25-pair data and phone cables; and 4-, 6-, and 8-conductor twisted-pair cables.
- 6-way adapter for connecting telephone test sets and equipment to data and phone lines.
- Pen-size pocket probe and pick pulls wires and enables easy removal of debris from telephone blocks and terminal panels.
- Punchdown tool features spring-compression impact.
- ◆◆ **WARRANTY** — Lifetime



What's included

- Cable splicer kit
- Stripping/splicing knife and electrician's scissors in leather sheath
- UTP/STP/flat satin cable stripper
- Connector crimping pliers with side cutter
- Punchdown tool with Type 110 and 66 reversible blades
- Crimp tool for RJ-11/RJ-12/ RJ-45 connectors
- Can wrench/stripper for 22/4 and 24/4 wire, with 3/8"–3/16" hex sockets
- 6-way modular adapter for tip/ring voice applications
- Staple gun with (85) T25 staples
- (1000) crown staples for T25 and T2025, 3/16"
- Pocket probe and pick
- Tool bag (16.9"H x 9"W x 12"D) with luggage tag

Item	Code	List Price
VoIP Tool Kit	FT179A	

LAN/WAN Tool Kit • LAN Tool Kit

Complete tool kits for networking professionals.

- Packed with tools for cutting, crimping, and preparing cables, and maintaining small- and large-network connections.
- Include assorted miniature, pocket-size, and standard-size screwdrivers, as well as a number of wrenches and pliers.
- The **LAN/WAN Tool Kit (FT177A)** contains extra soldering tools, DIP insertion and extraction tools, a wire-wrapping dispenser complete with 50 feet of blue Kynar® wire, and much more! It's perfect for technicians who service large networks.
- The **LAN Tool Kit (FT178A)** has a wide selection of network tools and accessories all organized in a soft Cordura case.
- **◆◆ WARRANTY** — 1 Year



FT177A



FT178A

FT177A includes

- 1/16" x 4 1/8" handle with:
 - (9) hex nutdriver blades (3/16", 7/32", 1/4", 9/32", 5/16", 11/32", 3/8", 7/16", 1/2")
 - (2) slotted screwdriver blades (3/16", 1/4")
 - (2) Phillips screwdriver blades (#1, #2)
- Phillips screwdriver (#0) with pocket clip, 4.25"L
- Slotted screwdriver, 1/8" x 8" (10.6"L)
- Pocket-style slotted (3/32") screwdriver, 4.25"L
- Screw-holding screwdriver, 3/16" x 12"
- Screwdriver with screw-guiding pin
- Double-ended offset Phillips (#1, #2) screwdriver
- Offset slotted (#2, #6) screwdriver
- Phillips screwstarter, 2.9"L
- Acu-Min® precision miniature screwdriver set with (1) handle and (6) blades
- 9-piece set of hex keys (0.50"–3/16")
- Low-static, standard-tipped Soldapull® desoldering tool
- Soldering iron with 1/8" tip and pencil, 8.25"L
- Pocket-Pak solder with Sn60Pb40 tin/lead alloy (for 0.031" wire)
- Desolder braid, 5-ft. spool
- Fork-and-hook solder aid tool
- Non-impact tool with Type 66 blade
- Plumb ball-peen hammer, 10.5"L
- Curved-jaw VISE-GRIP® pliers with cutter, 10"L
- Long-nose VISE-GRIP pliers with cutter, 6"L
- Flat-nose pliers with smooth jaws, 5"L
- Solid-joint crescent pliers for side cutting, 7.25"L
- Convertible retaining ring pliers with 0.047" tip
- Long chain-nose pliers with side cutter, crescent, 7.5"L
- Long-nose pliers with insulation (22–24 AWG) skinner
- Long-nose pliers with concave outer jaw
- Combination crescent pliers and wire cutter, 8"L
- Crescent tongue-and-groove pliers with straight jaw, 10"L
- Heavy-duty diagonal crescent cutter, 7"L
- (2) adjustable crescent wrenches: (1) 4"L with 1/2" jaw cap; (1) 8"L with (1) 1 1/2" jaw cap
- Can socket wrench, 3/8" and 7/16" hex, with standard handle
- 8-piece open-end ignition wrench set (SAE)
- 14-piece socket set (1/4" drive, 6 point)
- 5-in-1 10–22 AWG wire stripper/crimper
- Cable cutter, 9.5"L
- Mini hacksaw, 10"L
- Diagonal cutter, 5"L
- Diagonal cutter with skinning hole, 5"L
- #1 knife with #11 blade and safety cap
- 5-piece blade set with (2) #11, (1) #10, (1) #16, (1) #17 blades
- Electrician's knife with screwdriver
- Electrician's scissors, nickel-plated, 5"L
- Center punch, 3/8", 4"L
- T-handle reamer, 1/8"–1/2" capacity
- Scratch awl with 3.75" blade, 6.5"L
- Safe-T-Grip® no-slip fuse puller (for 1/4"–1/2" fuses)
- Double-ended, pull-and-lift spring hook, 8"L
- 8-piece spring hook set with (2) extensions
- Key cap puller
- Magnetic, insulated pickup tool
- Filament holder tweezers, 6"L
- Orangewood stick
- 4-piece needle file set with handle
- Adjustable fiberglass eraser scratch brush
- Straight holder with ratchet-lock handles, 5.5"L
- Oval sash brush with hog bristles, 10.5"L
- 0.5" parts brush with nylon bristles, 6.6"L
- 10-ft. tape measure
- Magnetic torpedo level, 9"L
- 5X magnifier, packette
- Flashlight with circuit tester
- Standard banjo adapter
- Thickness gauges, (43) leaves
- DIP inserter, 14–16 pin capacity
- DIP extractor, 4–48 pin, antistatic ABS, with spring and aluminum teeth
- DIP pliers, 4–48 pin
- Set of (3) contact burnishers
- Pocket contact burnisher with (6) 0.007" thick blades
- Dispenser with 50 feet of 30 AWG Kynar® wire-wrapping wire (blue)
- Unwrap tool for 20–26 AWG wire
- Cable tie tool, 15–50 lb. tie
- 30-foot roll of 0.75"W cold shrink tape
- ID kit for telephone cable
- Insulated fiberglass mirror, 1" diameter
- D battery
- 2-oz. wash bottle
- Luggage tag
- 24" x 24" field service kit with (2) pockets
- Silver case (18.5"H x 13.5"W x 10"D) with (3) pallets

FT178A includes

- 1/16" x 4 1/8" handle with:
 - (9) hex nutdriver blades (3/16", 7/32", 1/4", 9/32", 5/16", 11/32", 3/8", 7/16", 1/2")
 - (3) slotted screwdriver blades (1/8", 1/4", 5/16")
 - (2) Phillips screwdriver blades (#1, #2)
 - (2) Torx screwdriver blades (T10, T15)
 - 4" extension for handle
- Pocket-clip Phillips screwdriver (#0), 4.25"L
- Pocket-style slotted screwdriver (3/32"), 4.25"L
- 12-in-1 screwdriver with Phillips and slotted blades
- Slotted screwdriver (5/32" x 4"), 6.6"L
- Offset slotted (#2, #6) screwdriver
- Double-ended screwstarter, 6.25"L
- Acu-Min precision miniature screwdriver set with (1) handle and (6) blades
- 8-piece open-end ignition wrench set (SAE)
- 12-piece ballpoint L-wrench set, 0.050"–5/16"
- Curved-jaw VISE-GRIP pliers with cutter, 5"L
- Chain-nose pliers with side cutter, 6.6"L
- (2) adjustable crescent wrenches: (1) 4"L with 1/2" jaw cap; (1) 8"L with (1) 1 1/2" jaw cap
- Soldering iron with 1/8" tip and pencil, 8.25"L
- Desolder braid, 5-ft. spool
- Insertion/extraction tool, 20–24 AWG, pin and socket
- Wire stripper with cutter, up to 10 AWG, 5"L
- Cut/crimp/strip service tool, 22–10 AWG, 7.5"L
- Oval diagonal cutter, semi-flush, 4.25"L
- Straight holder with ratchet-lock handles, 5.5"L
- Electrician's scissors, nickel-plated, 5"L
- #1 knife with #11 blade and safety cap
- 5-piece blade set with (2) #11, (1) #10, (1) #16, (1) #17 blades
- Insulated fiberglass mirror, 1" diameter
- Filament holder tweezers, 6"L
- Tool ruler, 6"L
- Plumb ball-peen hammer, 10.5"L
- Digital multimeter (600 VAC/500 VDC/200 mADC)
- Luggage tag
- Soft Cordura® case (18"H x 12"W x 7"D), black

Item	Code	List Price
LAN/WAN Tool Kit	FT177A	
LAN Tool Kit	FT178A	

Technician's Tool Kit

The compact kit for PC repair.



What's included

- Reversible Torx® tool
- Parts gripper/picker
- Adjustable wrench, 6"
- (2) nutdrivers: 3/16", 1/4"
- Spare-parts storage tube
- (3) Phillips screwdrivers
- (3) standard-blade screwdrivers
- Chip inserter and extractor
- Spring-loaded soldering clamp
- Compress and expand tweezers
- Needle-nose pliers with insulated handles
- Spring-loaded vacuum desoldering pump
- (6) soldering tools, cleaners, scrapers, picks
- 4-in-1 wire stripper, cutter, crimper, sizer tool
- 35-watt UL® listed soldering iron, removable tip, 6-ft. cord
- Padded vinyl zipper case, 11.6"W x 8.8"D

- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
Technician's Tool Kit	FT812-R2	

Technical Tool Kit

The 19 tools technicians use every day.



PC Tool Kit

The tool kit for do-it-yourself maintenance.



What's included

- Flat blade screwdriver, 1/8"
- Phillips screwdriver, #0
- (4) nutdriver bits: 1/2", 5/16", 1/4", 3/16"
- (2) Flat blade reversible screwdriver bits: 3/16", 1/4"
- (2) Phillips reversible screwdriver bits: #1, #2
- (2) Reversible torque driver bits: T10, T15
- IC extractor
- IC insertion tool, 14–16 pin ICS
- Tweezers
- Reverse-action tweezers
- Three-prong holder
- Bit driver tool
- Spare-parts tube
- Knife
- Side cutter, 4 1/2"
- Wire stripper, crimping tool, 8"
- Long-nose pliers, 5"
- Lineman pliers, 6"
- Soldering aid tools
- Adjustable wrench, 6"
- Black zippered case

What's included

- (2) nutdrivers: 3/16", 1/4"
- Prong parts extractor, 3
- Assembly tweezers
- Torx® driver, T15
- Spare parts tube
- (2) Phillips screwdrivers
- (2) Slotted screwdrivers
- Vinyl case

- ♦♦ **WARRANTY** — Lifetime

- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
Technical Tool Kit	FT814	

Item	Code	List Price
PC Tool Kit	FT810-R2	

Service Tool Kit

For the all-around network technician.



What's included

- Metal rule, 6"
- 6-piece short arm
- Chain-nose pliers, 4"
- Diagonal cutter, 4"
- Electrician's scissors
- Desolder braid, 5-ft. spool
- Adjustable wrench, 4"
- Precision knife, #1
- Junior handle
- (2) screwdriver blades: 1/4", 3/16"
- (3) Phillips blades: #0, #1, #2
- Phillips screwdriver, #0
- Slot screwdriver, 3/32" x 2"
- Adjustable wire stripper
- Alignment tool, nonmetallic
- Telephone line tester
- Zipper case
- LCD display pen

- **WARRANTY** — Lifetime

Item	Code	List Price
Service Tool Kit	FT100A-R2	
Softsided Case for Service Tool Kit	FT104A	

Insulated Terminal Kit

Electrical wiring jobs are easier with Scotchlok® terminals.



- **WARRANTY** — Lifetime

What's included

- (275) rings in the following wire gauges/stud sizes:
 - (50) each of 18–22 AWG/8, 18–22 AWG/5–6, 14–16 AWG/5–6, 14–16 AWG/8, 14–16 AWG/10;
 - (25) each of 10–12 AWG/10
- Crimp Tool (FT073), p. 221
- (50) gap disconnects with 0.11" width and 0.02" gap
- (125) butt splices in the following gauges:
 - (50) each of 18–22 AWG and 14–16 AWG;
 - (25) each of 10–12 AWG
- (200) fork terminals in the following wire gauges/stud sizes: (50) each of 18–22 AWG/8, 18–22 AWG/6, 14–16 AWG/8, 14–16 AWG/10
- Wire marker tape dispenser
- (200) cable ties (2 sizes)
- Divided metal storage case

Item	Code	List Price
Insulated Terminal Kit	FTM950	

RS-232/RS-449 Connector Kit

Repair and replace RS-232/449 subminiature connectors.



- **WARRANTY** — Lifetime

What's included

- (100) sockets
- (100) pins
- (12) receptacles (3 each): 9-, 15-, 25-, and 37-position
- (24) plugs (6 each): 9-, 15-, 25-, and 37-position
- (24) cable clamps (6 each): 9-, 15-, 25-, and 37-position
- Service tool
- Insertion/extraction tool
- Compartmentalized metal case

Item	Code	List Price
RS-232/RS-449 Connector Kit	FTM800	

Deluxe Modular Plug Kit CAT5 Modular Plug Kit

Complete kits for repairing or installing RJ-type modular plugs.

CAT5



- **WARRANTY** — Lifetime

FTM650

What's included

- Deluxe Modular Plug Kit:**
 - Deluxe Modular Plug Termination Tool
 - 4- to 6-position die set (RJ-11)
 - 8-position die set (RJ-45)
 - (25) 4-position RJ-11 plugs
 - (25) 6-position RJ-12 plugs
 - (25) 8-position RJ-45 plugs
 - Compact metal case (1.5"H x 11.5"W x 8"D, 4 lb.)
- CAT5 Modular Plug Kit:**
 - Deluxe Modular Plug Termination Tool
 - CAT5 4-pair UTP die set
 - (100) solid 8-position high-performance CAT5 modular RJ-45 plugs
 - Compact metal case (1.5"H x 11.5"W x 8"D, 4 lb.)

Item	Code	List Price
Deluxe Modular Plug Kit	FTM600	
CAT5 Modular Plug Kit	FTM650	



Twisted-Pair LAN Tool Kit

Maintain and repair all common UTP networks.



- Contains tools chosen specifically for maintaining and repairing UTP cable in data and voice networks.
- Also includes tools for general repairs—wrenches, screwdrivers, pliers, and cutters.
- **◆◆ WARRANTY** — Lifetime

What's included

- (3) slot screwdrivers: 1/8" x 4", 3/32" x 2", 5/16" x 6"
- (4) Phillips screwdrivers: #0, 1, 2, pocket
- Slot and Phillips screwdriver
- (4) Torx drivers: T10, T15, T20, T25
- (2) balldriver key sets: hex, metric
- Long-nosed pliers with cutter, 6"
- Slip-joint pliers, 6"
- Chain-nose pliers, 4"
- Standard locking pliers, 5"
- Electrician's scissors
- Precision knife, #1
- Adjustable wrench, 6"
- Metric tape measure
- Soldering iron, 25-watt, 3W
- Solder (pocket pack)
- Desolder braid, 5-ft. spool
- T6 stripper
- Circuit tester
- Telephone line tester
- Pocket flashlight
- Diagonal cutter, 4"
- Universal cable, 4-ft.
- Impact tool
- 110-type replacement blade
- (2) gender changers: DB25 female/female, DB25 male/male
- (2) couplers: RJ-11, RJ-45
- (2) 14-ft. telco cables: RJ-11, RJ-45
- Soft-sided Cordura case
- Clear plastic luggage tag

Item	Code	List Price
Twisted-Pair LAN Tool Kit	FT101A	
If you need a spare carrying case, order...		
Soft-sided Cordura Case for Twisted-Pair LAN Tool Kit	FT105A	

Professional Technician's Kit

The essential tools for the wiring closet in a convenient belt clip holster.

- Includes virtually everything you need to punch down cables in one handy holster you can clip to your belt.
- Punchdown Tool features finger grips and nonslip cushioned sides for comfort. It also provides blade storage, and includes a multiuse spudger and built-in pick and hook.
- Multipurpose cutter/stripper can be used on 4-, 6-, and 8- conductor flat satin cables; UTP/STP data cables; 25-pair data and phone cables; multiconductor round cables; and 14-8 AWG wire.
- Ergonomically designed scissors feature serrated blades for easy cuts and a built-in wire stripper.
- Holster keeps tools within reach.
- **◆◆ WARRANTY** — Lifetime



Clips neatly onto your belt.

What's included

- Punchdown Tool (FT024)
- Reversible Type 110/66 punchdown blade
- UTP/STP flat cable cutter and stripper
- Utility scissors
- Sharpie® permanent marker
- Maglite AA cell flashlight with batteries
- Heavy-duty, molded PVC pouch
- Detachable swivel belt clip

Item	Code	List Price
Professional Technician's Kit	FT995A	

All-in-One Modular Crimp Tool

Installs modular plugs on UTP and telephone cable.

- Installs RJ-11 and RJ-45 modular plugs on UTP or telephone cable.
- Works with Conductors 2 through 8.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
All-in-One Modular Crimp Tool	32070	

LAN, Coax, and Modular Crimp Tools and Dies

Get a complete kit or order only the components you need.



LAN Crimp Tool Kit (FT096A)

- Each kit includes a Universal (Blank Tool) Frame (FT084A), a stripping tool, an Allen wrench, and a case.

LAN Crimp Tool Kit (FT096A) includes seven die sets: one D-style die (FT094), three coax dies (FT086–FT087, FT089), and three RJ dies (FT081, FT083–FT084).

Universal Coax Crimp Tool Kit (FT097A) includes four coax die sets (FT086–FT089).

RG-58/59 Coax Crimp Tool Kit (FT098A) includes two coax die sets (FT086, FT088) and two packs of PVC-type BNC connectors.

Modular Plug Crimp Tool Kit (FT099A) includes three modular plug dies (FT081–FT083) and one pack each of RJ-11 and RJ-45 connectors.

D-Style Crimp Tool Kit (FT110A) includes a D-style die set (FT094) and one pack each of male and female pins (FA810, FA820).

NOTE: The die is marked for wire size (18–20, 22–24, etc.), not pin type.

- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
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Order the complete kit...

Crimp Tool Kits	LAN	FT096A-R2
	Universal Coax	FT097A
	RG-58/59 Coax	FT098A
	Modular Plug	FT099A
	D-Style	FT110A

...or order only the components you need.

Universal (Blank Tool) Frame	FT080A	
Dies		
6-Position Modular Plug		
Short Body	FT081	
Long Body	FT082	
8-Position Modular Plug	FT083-R2	
10-Position Modular Plug	FT084	
Spade	FT085	
Coax	RG-58/59, Hex Pin	FT086
	RG-174/8281	FT087
	RG-58/59, Square Pin	FT088
	RG-58/59, Plenum	FT089
	RG-174/Fiber Optic	FT090
Fiber Optic and Hex	FT091	
High-Density D-Style	FT093	
D-Style	FT094	
Power Pole, 20–12 AWG	FT092	
Empty Case	FT095	
Connector and Crimp Pin Smart Paks		
Coax	RG-58 Round Crimp, 25-Pack	FC331
	RG-59 Hex Crimp, 25-Pack	FC332
Modular		
D-Style		

See p. 110.
See p. 177.

Crimp Tool

Angled head prevents awkward wrist bending.



FT001

- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
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First, order the frame...

Crimp Tool (Frame Only)	FT001	
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...then select the Die Sets you need.

Die Sets	RJ-45 WE/SS	FT002
	RJ-11-12 WE/SS	FT003
	RJ-22 Handset	FT004
	RJ-45 AMP/Tyco	FT005
	RJ-11 DEC-MMJ	FT006
	Universal Fiber Optic	FT007
	RJ-45 WE/SS and RG-6/RG-60 CATV	FT008

SealTite™ Waterproof Connector Kit

For CATV and satellite dish installations, carry this kit.



- Kit includes all of the tools shown below plus a case.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
------	------	------------

Order the complete kit...

SealTite Waterproof Connector Kit	FT960A	
-----------------------------------	--------	--

Or only the tools you need...

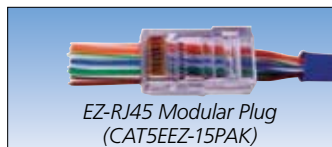
Coax Cable Cutter	FT961	
Coax Cable Stripper	FT962	
SealTite Crimper	FT963	
RG-59 and RG-6 Quad Flaring Tool	FT964	
SealTite RG-6 Connectors, 10-Pack	FT965	

EZ-RJPRO and EZ-RJ45 Crimp Tools

Crimp and trim EZ-RJ45 connectors in one step.



FT1150A



EZ-RJ45 Modular Plug
(CAT5EEZ-15PAK)



- Use with EZ-RJ45® Modular Plugs.
- Get a uniform crimp each time with the ratcheted straight action motion.
- Features precision-cast crimping dies and a built-in wire cutter and stripper for silver satin cable.
- Rugged all-steel frame construction.
- The Pro model has molded rubber grip handles for extra comfort.
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
EZ-RJPRO™ Crimp Tool	FT1150A	
EZ-RJ45 Crimp Tool	FT1100ACAT6	
15-Pack CAT6EZ-15PAK		
CAT5e EZ-RJ45 Modular Plugs, 15-Pack	CAT5EEZ-15PAK	

Universal RJ Crimp Tool and Tool Kit

The most versatile tool kit for all your RJ crimping.

- ♦♦ **WARRANTY** — Lifetime



FT046A



What's included with the FT046A

- Crimp tool frame
- RJ-11 4-/6-position die set
- RJ-45 8-position die set
- Storage pouch

What's included with the FT047A

- Steel frame with built-in cutter and stripper for flat or round cables
- RJ-45 8-position die set
- RJ-11 4-/6-position die set
- RJ-10-position modular die set
- Storage container
- (2) Allen wrenches

Item	Code	List Price
Universal RJ Crimp Tool	FT046A	
Universal RJ Tool Kit	FT047A	
Replacement Blade Set	FT048	
Replacement Die Sets		
RJ-22 4-Position	FT051	
RJ-11 4-/6-Position	FT052	
RJ-45 8-Position	FT053	
Snagless Standard	FT054	
RJ 10-Position Modular	FT055	

D-Style Crimp Tool

This tool ensures accurate D-style crimping.

- The D-Style Crimp Tool's locator and slide hold connector pins securely while you crimp them accurately.

- ♦♦ **WARRANTY** — Lifetime



Item	Code	List Price
D-Style Crimp Tool	FT073	
Replacement Locator	FT071	
Replacement Slide	FT072	

LAN Tool Kit 100

Crimping hardware for every LAN connector.



- ♦♦ **WARRANTY** — Lifetime

What's included

- Coax Crimp Tool Frame (FT156A), p. 224
- RJ crimp tool with built-in cable cutter and cable stripper for twisted-pair and flat cable
- Multipurpose stripping tool for twisted-pair and flat cable
- D-style Die for FA810 and FA820 Crimp Pins, blackbox.com
- Standard Ethernet die — standard N-type for LN110 connector, p. 183
- RG-58/59 round die — ThinNet BNC "O" crimp for PVC (FC058); plenum (FC055); and RG-59, RG-62 BNC (FC090) connectors, p. 183
- RG-58/59 hex die — ThinNet BNC hex crimp for PVC (FC058), plenum (FC055), and RG-59, RG-62 (FC090) connectors, p. 183
- RJ-45 die — 8-position modular die set for modular plugs
- Padded storage container

Item	Code	List Price
LAN Tool Kit 100	FT060	



PowerPlay Tools

Multitools crafted for today's multitasking cable pros!

- Designed specifically for datacomm, telecomm, and electrical professionals.
- Patented Compound Leverage™ system gives you twice the cutting and gripping power of ordinary multitools.
- Developed with SOG Specialty, renowned makers of high-quality tools and knives—

- there's even a SOG Knife built in!
- Open up effortlessly with one-handed flip.
- All include pliers; slotted and Phillips screwdrivers; tools for punching down, stripping, and cutting wiring, and punching through drywall; and even a bottle opener.
- The FT5250 and FT5400 also have Romex

- and CAT5e tools, a drywall saw, wire hook, spudger, and a hex driver.
- The FT5400 also has scissors, lug crimpers for both insulated and non-insulated cables, and 14 and 16 AWG wire strippers.
- ♦♦ **WARRANTY** — Lifetime



30 tools in 1

FT5400



24 tools in 1

FT5250



18 tools in 1

FT5100

What's included in the FT5400

- Scissors
- Needle-nose pliers
- Drywall punch
- Gripping pliers
- Type 110 punchdown tool
- Type 66 punchdown tool
- (7) wire strippers (12, 14, 16, 18, 20, 22, 24 AWG)
- CAT5e UTP stripper
- Romex wire cutter
- Drywall saw
- #4 slotted screwdriver
- #6 slotted screwdriver
- #1 Phillips screwdriver
- 1/4" driver for sockets
- 3/8" hex driver socket
- 7/16" hex driver socket
- SOG stainless steel knife
- Lug crimper for insulated 18–14 AWG
- Lug crimper for non-insulated 12–14 AWG
- Wire hook and spudger
- File
- Bottle opener
- Ruler

What's included in the FT5250

- Needle-nose pliers
- Drywall punch
- Drywall saw
- Gripping pliers
- Type 110 punchdown tool
- Type 66 punchdown tool
- (5) wire strippers (12, 18, 20, 22, 24 AWG)
- CAT5e UTP stripper
- Romex wire cutter
- #4 slotted screwdriver
- #6 slotted screwdriver
- #1 Phillips screwdriver
- 1/4" hex driver/adaptor
- SOG stainless steel knife
- 3-in-1 file
- Wire hook and spudger
- Bottle opener
- Ruler

What's included in the FT5100

- Needle-nose pliers
- Drywall punch
- Gripping pliers
- Type 110 punchdown tool
- (4) wire strippers (18, 20, 22, 24 AWG)
- Wire cutter
- #4 slotted screwdriver
- #6 slotted screwdriver
- #1 Phillips screwdriver
- SOG stainless steel knife
- 3-in-1 file
- Bottle opener
- Ruler

Item	Code	List Price
PowerPlay™ Tools		
30-Tool	FT5400	
24-Tool	FT5250	
18-Tool	FT5100	



Elite: the ultimate server cabinets for any configuration.

- Choose from cabinets in many different sizes and heights to accommodate regular and extra-deep servers.
- Cabinets offer a variety of door and rail options.
- Outfit your cabinet with a multitude of shelves and other accessories.
- Find them on pages 230–231, 238–241, and 251.

Punchdown Tool with 110 Blade

Throw fast punches with this no slip, easy grip tool.

- This no-slip punchdown tool includes a 110-style blade.
- Accepts all manufacturers' twist-and-lock style blades.
- The handle is designed with finger grips and nonslip cushioned sides. Also provides blade storage.
- Includes a multiuse spudger—it works as a screwdriver or as an IDC contact insertion tool.
- A built-in pick and hook help you separate twisted pairs and feed wires through holes.
- The impact force is adjustable for use with all types of cables.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
Order the tool set...		
Punchdown Tool with 110 Blade	FT025A	
...or the individual components.		
Punchdown Tool (Handle Only)	FT024	
Type 110 Blade	FT026	
Type 66 Blade	FT027	
Bix Blade	FT028	
Krone Blade	FT029	

Thicknet Coax Crimp Tool

Makes fast and secure N-type connections.



- Comes with a standard Ethernet die.
- Rated at 50,000 cycles.
- Fine blank steel construction.
- For crimping Standard N-Type Connectors (LN110), see page 183.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Thicknet Coax Crimp Tool	FT152	

AntiStatic Service Kit

Everything you need to prevent static blowouts.



- Protects against electrostatic discharge (ESD).
- Long-lasting mat features shields against static discharges on work surfaces and floors.
- Large mat gives you plenty of space to work on circuit boards and other components.
- Mat features two large pockets for conveniently holding parts, tools, and other equipment.
- Kit includes a carrying case for transporting sensitive electronic printed circuit boards.

What's included

- Blue AntiStatic Mat, 23.25" x 23/25" (59 x 59 cm) with two 11.5" x 7.75" (29.2 x 19.7 cm) pockets
- (2) 12-ft. (3.6-m) coiled ground cords with banana/alligator plug and snap plug
- Blue cloth wristband with snap plug
- Zippered ESD shielding bag, 9.8" x 6.8" (24.9 x 17.3 cm)

- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
AntiStatic Service Kit	FT200-R2	

5-Pair Termination Tool

Push just once for five perfect twisted-pair terminations.



- Makes five, four, or three perfect terminations at a time on 110-type patch panels.
- Performs multipair terminations on both sides of a 110-style connector block.
- Save time—one push gives you five complete terminations on the cable side and the cross-connect side of the block.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
5-Pair Termination Tool	FT950A	

RG-Style Coax Cable Tools

Strip and crimp coax cable—quickly and securely.



Crimp Tool Frame
(FT156A)



- Tools specially designed for fast, clean termination of RG-style coax cable, including video cable.
- Use the tool kits, crimp tool frame, and die sets to add the connectors you need.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
RG-Style Coax Cable Tools		
Easy-Strip Tool		
2-Level	FT8200	
3-Level	FT8300	
Coax CR Tool with Hex and Round Die Set		
	FT150	
◆ Includes Crimp Tool Frame (FT156A), Hex Die (FT185), and Round Die (FT190).		
Coax Tool Kit, 4 Dies	FT154A	
◆ Includes Crimp Tool Frame (FT156A); hex dies for RG-8, RG-58/59, RG-59, and RG-174; 3-Level Easy-Strip Tool (FT8300); and an Allen Wrench.		
Crimp Tool Frame	FT156A	
Die Sets		
RG-58, RG-59, RG-62A/U	FT185	
RG-8, RG-11, RG-213	FT187	
RG-6, RG-59	FT188	
RG-58, RG-59	FT190	

Hand Stripper • Multi-Strip

The right tools for stripping solid and twisted-pair cable.



FT230A



Hand Stripper

- Nick-free wire stripping ranging from solid 8 AWG to stranded 22 AWG.
- Crimps conductor portions, noninsulated terminals, and splices.
- Cuts five different machine screw sizes.



FT231A

Multi-Strip

- Slits and strips twisted-pair and flat satin cable.
- Removes a wide variety of jacket materials.
- Features a tension loop and adjustment screw to control blade penetration.

- **◆◆ WARRANTY** — All: Lifetime

Item	Code	List Price
Hand Stripper	FT230A	
Multi-Strip	FT231A	

Universal Stripping Tool with UTP Cartridge

Use a single tool to strip UTP, coax, and CATV cable jackets.



FT2500A



- Removes a UTP cable's outer jacket without nicking the twisted-pair conductors.
- Holds two cartridges.
- Durable blades are crafted from glass-filled polycarbonate.

- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Universal Stripping Tool with UTP Cartridge	FT2500A	
Additional Cartridges		
RG-58/59/62 Three-Level		
Green (0.240/0.240)	FT2501	
Brown (0.328/0.109)	FT2502	
CATV RG6/59 Two-Level		
Black (0.250/0.312)	FT2503	
CATV RG-7/11 Two-Level		
Gray (0.250/0.312)	FT2504	
Spare UTP Strip Cartridge		
Blue	FT2505	

Brother P-Touch Labeler and Labeling Tapes

Create neat, professional labels in seconds!



- Prints eight type styles in five sizes—even up to two lines horizontally and vertically.
- Also features repeat printing, auto numbering, and 70 built-in symbols.
- Underline and frame text with the touch of a button.
- **◆◆ WARRANTY** —Lifetime

Item	Code	List Price
Brother P-Touch Labeler	PT1000	
Choose the labeling tape you need...		
Brother Labeling Tapes, Black-on-White		
¼" W (0.6-cm)	TZ-211	
⅜" W (1.0 cm)	TZ-221	
½" W (1.3-cm)	TZ-231	

Installation Accessories

The best accessories to help you make your mark.

Large Gatemouth Tool Bag

- Industrial-quality, durable polyester bag.
- Tradesman-designed. Combines the best features of a toolbox, a tool belt, and a mason's bag.



Hard Hat

- Four-point ratchet suspension.
- Sturdy quality at an economical price.

Safety Glasses

- Side shields and browguards molded onto the one-piece, antiscratch-coated lens.
- Adjustable frame for angling the lens.

- **◆◆ WARRANTY** — All: Lifetime

Item	Code	List Price
Large Gatemouth Tool Bag	FT2050A	
Hard Hat, White	FT2060	
Safety Glasses	FT2061	

Steel Fish Tape



- 100 feet (30.4 m) of 1/8" (0.3 cm) steel fish tape in an impact-resistant case.
- Retaining strap on the inside of the case holds tape securely.
- Easy to rewind.
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price
Steel Fish Tape, 100-ft. (30.4-m)	438-10	

Screwdrivers and Nutdrivers

Tools with the *drive* to get the job done!

Ratchet Screwdriver Set



This 36-piece set comes in its own carrying case!

What's included

- Ratchet driver tool
- (9) fractional sockets (3/16" to 1/2")
- (9) metric sockets (5 mm to 13 mm)
- (3) Phillips-type bits (#1, #2, #3)
- (3) square-recess bits (#1, #2, #3)
- (3) slotted-type screwdriver bits (5/32", 3/16", 1/4")
- (6) Torx bits (TX10 to TX40)

Item	Code	List Price
Ratchet Screwdriver Set	SDMBR-1	

Cushion-Grip Screwdriver Set



What's included

- (3) round-shank cabinet-tip drivers (3/16" x 3", 3/16" x 6", 1/4" x 4")
- (2) round-shank Phillips-tip drivers (3", 4")
- Round-shank keystone-tip driver (5/16" x 6")
- Square-shank keystone-tip driver (1/4" x 4")

Item	Code	List Price
Cushion-Grip Screwdriver Set	85076	

Cushion-Grip Nutdriver Set



What's included

- (7) nutdrivers: 3/16", 1/4", 5/16", 1/2", 3/8", 7/16", 1/2"

Item	Code	List Price
Cushion-Grip Nutdriver Set	631	

Magnetic Screwdriver Set



What's included

- Screwdriver
- (4) interchangeable bits: (2) slotted-type (3-4, 6-8), (2) Phillips-type (#1, #2)

Item	Code	List Price
Magnetic Screwdriver Set	15511	

Spudger

Spudgers—a must for every toolbox.

- Use the Spudger to trace wires on a punchdown block.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
Spudger Single	FT328	
10-Pack	FT328-10	

Cabinets & Racks

Black Box server cabinets seal in the cool.





In this section

Cabinets and Racks Overview	228–229
Freestanding Cabinets	230–239
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Select Server	233
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Accessories	261–291
Ladder Rack	292–293
Cable Tray	294–295



For New Products,
turn to pages 26–73.

No matter the application, you'll find



Elite Server Cabinet



NetRack Plus and NetRack



ServShield

Freestanding Cabinets

- **Elite Server Cabinets**
Our most complete line of server and data cabinets includes your favorite features as standard items, not extras! _____ 230–231, 238
- **Select Plus Cabinets**
Our most popular server cabinets feature split rear doors and are deep enough to hold extra-large servers. _____ 232
- **Select Server Cabinets**
These heavy-duty workhorses hold up to 2200 pounds. _____ 233
- **Universal Server Cabinets**
Great functionality at a great price. _____ 234–235
- **Universal Flat Pack Cabinet**
Flat-pack, knock-down design makes it easy to carry through doors. _____ 235
- **Performance Plus Cabinets**
Robust and full-featured, designed for maximum weight capacity. _____ 236
- **NetRack and NetRack Plus**
Preassembled and loaded with cable management. _____ 239
- **Elite SC**
Twice the space, twice the options, and no assembly required. _____ 244
- **Comm Cabinets**
Flat-packed for easy placement. _____ 244

Specialty Cabinets

- ClimateCabs**
No data center infrastructure? No problem. Use a self-contained ClimateCab instead. Choose from Server, Data, PC, and Wallmount cabinets. _____ 236, 255
- Zone 4 Seismic Cabinets and Racks**
Rock on with server cabinets and racks that won't be rocked! _____ 245
- **PC Shelter**
The economical way to protect PCs in hard-working environments. _____ 246
- **ServShield**
Protect your equipment from dust, dirt, and moisture. _____ 247
- **DataSafe NEMA Outdoor Cabinets**
Give your components shelter in outdoor installations. _____ 255
- **NEMA 12 Wallmount Cabinets**
Keep equipment safe—but within sight—in harsh indoor environments. _____ 255–256

Watch and learn: How to pick a cabinet

Before investing a lot of money in a new cabinet, invest a few minutes watching our Tips for Techs video: How to pick a cabinet.

You'll learn how to choose the right cabinet for your application—from the equipment you want to put in it to the environment it's in. Just go to blackbox.com and click on videos.



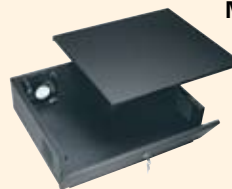
Laptop Cart



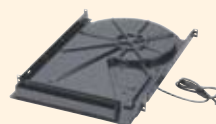
Server Side-Mount Wall Cabinet



Wallmount ClimateCab



Time-Lapse Lockbox



Enclosure Blower

Desk, Wireless, and Laptop Cabinets

- **12U Under-Desk Cabinet**
Hide equipment under your desk. _____ 254
- **CPU Security Cabinets**
Protect CPUs. _____ 257
- **Wireless and Equipment Cabinets**
Protect WiFi and telephone equipment indoors and outdoors. _____ 253, 256
- new** • **Laptop Cabinet and Carts**
Protect laptops from theft. _____ 257

Wallmount Cabinets

- **Wallmount Cabinets**
Variety plus—preassembled cabinets in three heights and two depths. _____ 248
- **SOHO Cabinets**
Packed with big features for small and home offices. _____ 249
- new** • **L-Box**
L-shaped door gives full access. _____ 249
- **Server Side-Mount Wall Cabinet**
Mount servers sideways to get more in a tight space. _____ 250
- **Deep Wallmount Cabinets**
Store and secure extra-deep servers and equipment. _____ 250, 252
- **Elite Series Wallmount Cabinets**
Elite security and design in three wallmount cabinets. _____ 251
- **Low Profile Wallmount Cabinets**
Mount equipment vertically. _____ 251, 253
- **Select Wallmount Cabinets**
Economical cabinets in three sizes. _____ 252
- **2U Wallmount Cabinets**
Designed for hubs, routers, and switches. _____ 253
- new** • **Wallmount ClimateCab**
Climate-controlled protection. _____ 255

Multimedia Storage

- **Computer Multimedia Cabinet**
Safely store your media in this lockable, heavy-duty steel cabinet. _____ 258
- **Audio/Video Cabinets and Shelving**
These cabinets and shelves are designed for audio/video media. _____ 258
- **Video Security Cabinet**
Keep cameras and multimedia equipment out of harm's way. _____ 254
- **Time-Lapse Lockboxes**
Protect time-lapse recorders. _____ 254

Cabinet Accessories

- **Enclosure Blower**
Give cabinets maximum ventilation. _____ 233
- **Shelves and Trays**
Customize your cabinet with shelving, drawers, and keyboard trays. _____ 240–241
- **Panels**
Add fans, top, and filler panels to your cabinets. _____ 240, 243
- **Cable Management**
Keep cables neat and tidy. _____ 242

the right cabinet and rack—right here!



LAN Management System

Workstations

- **ServCenter**
The complete network center that can grow with your network. 259
- **ServRacks**
Choose from desktop and tower models. 367
- **LAN Management System**
This wire rack workstation provides portability and super ventilation. 273

Distribution Racks

- **Premier Aluminum Distribution Racks**
Affordable quality: sturdy, cable managers, and versatile shelving. 260
- **Elite Rack Manager**
Its footprint fits a 24-inch floor tile. 262
- **Rack Manager**
Its nickname is the Cable Manager! 262
- **Cable Controller Racks and Organizers**
Large pass-through holes make cable management easy. 263
- **19" Steel Distribution Racks**
A wide base enables these sturdy racks to stand tall. 263



Premier Aluminum Distribution Racks

4-Post Racks

- **Action Organizers**
Organize equipment and cables in this modular, open rack. 264
- **ServCenter Rack**
This heavy-duty 4-post rack is adjustable and holds 2000 pounds. 265
- **Expandable Cable Management Rack**
Get the ultimate in adjustability and management options. 264
- **Freedom Rack Plus**
Adjustable to hold equipment of different depths. 265
- **4-Posts Racks**
Get exceptional quality at economical prices. 265



Action Organizers



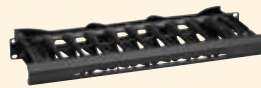
Swing Rack

Wallmount Racks, Frames, and Brackets

- **Swing Rack**
The frame of this rack swings out 90° for easy equipment access. 266
- **Wallmount Frames, Racks, and Brackets**
Choose from a wide selection of wallmounting solutions. 268–272
- **Portable Racks**
Store and move equipment anywhere. 274

Cable Management

- **Elite Cable Managers**
Easy-to-assemble with superior cable access and a high cable capacity. 261
- **Cable Managers and Raceways**
Organize cables with this wide selection of cable managers. 282–289
- **Cable Ties, Tags, and ID Labels**
Hold, secure, and ID cables. 290–291



Elite Cable Manager

Rack Accessories

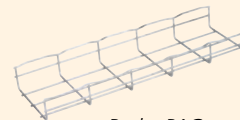
- **Rack Shelves**
Choose from many sliding and stationary solid and vented shelves, and keyboard trays. 276–279
- **Rackmount Media Drawers and Holders**
Store and organize your media. 275
- **Hardware and Accessories**
Find adapters, hinge kits, grounding equipment, thermostat controllers, fan trays, and lights here. 280–281



Rackmount fan Trays

Cable Tray and Ladder Rack

- **Ladder Rack**
Run cables along ceilings and walls. 292–293
- **BasketPAC Cable Tray**
An easy-to-install cable tray system. 294–295



BasketPAC Cable Tray

blackbox.com

This may be the Big Book, but **blackbox.com** is even **BIGGER!**

- There you'll find:
- **Cabinets and Racks** for servers, networks, and data comm equipment.
 - **Information galore!** Black Box Explains tutorials, Buyer's Guides, white papers, videos, and our custom cable and adapter configurators.
 - **Savings.** Find weekly specials and savings on featured cabling products.

If you still can't find what you need, just ask the experts at our **FREE Tech Support hotline!**

Elite Server Cabinets

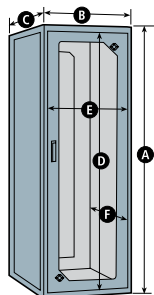
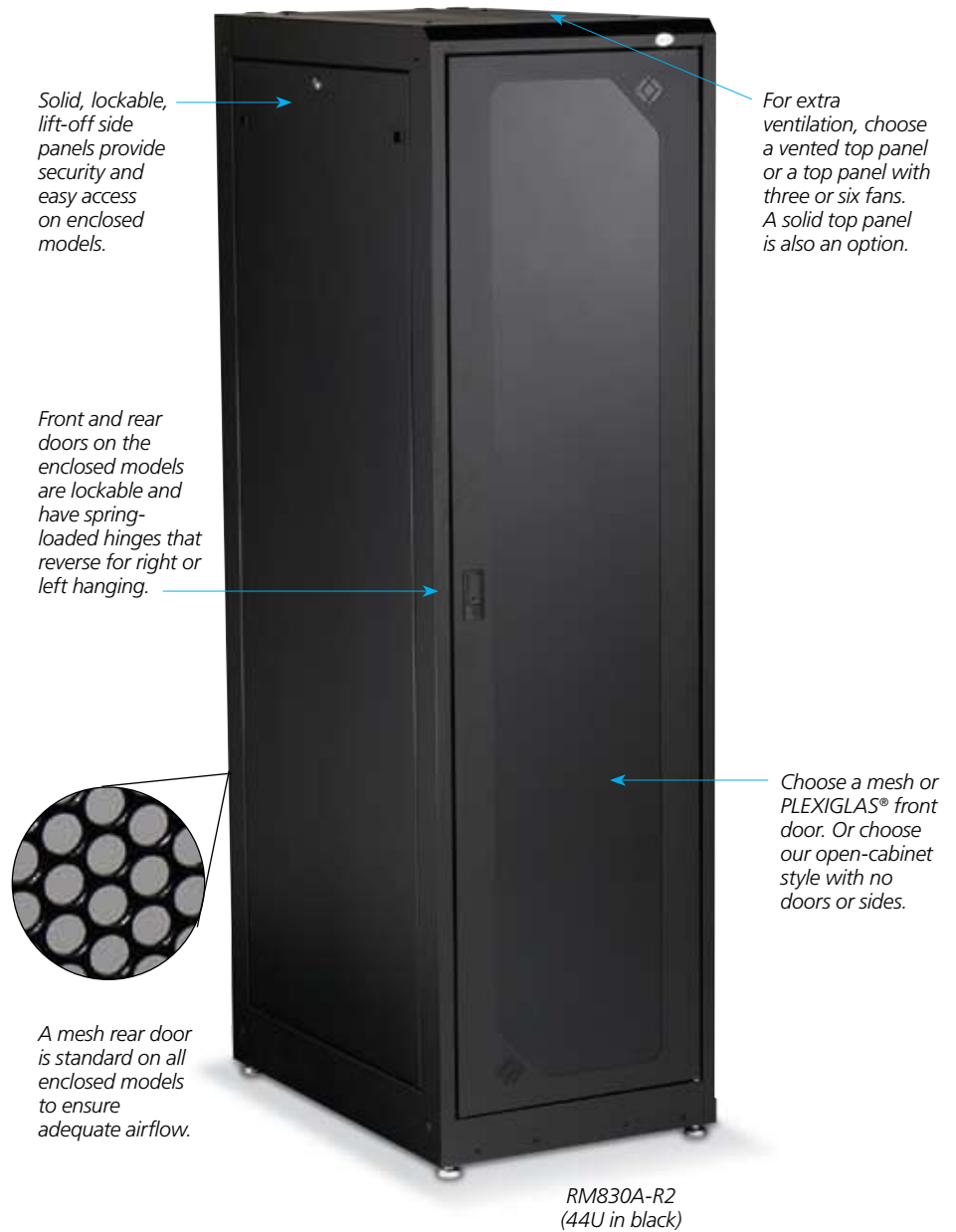


- Weight capacity of 1800 pounds.
- UL® Listed.
- Fully welded steel construction: frame is 16 gauge, sides are 18 gauge, and mounting rails are 12 gauge.
- Three pairs of M6 rails can be moved in 1" increments from front to rear. They're marked every 3U for easy installation.
- For extra-deep servers, choose a 24"W x 42"D cabinet. For extra width, too, order a 29" x 42" model. Both feature removable, split side panels for easier handling.
- Rails are supported top-to-bottom, leaving sides and corners open for cable management.
- Four 1½" diameter cable access holes on the top rear of the cabinet and two identical holes on the bottom rear—plus a removable rear bottom cover plate—enable additional cable routing options.
- A movable power strip has 16 outlets for 44U models and 8 outlets for 24U models.
- Baying is easy with the optional Multicabinet Joining Kit.
- For optional shelves and other cabinet accessories, see pp. 240–243 or call our FREE Tech Support.
- ♦♦ **WARRANTY** — Lifetime

What's included

- Casters
- Leveling glides
- Movable 16-outlet power strip
- Mounting hardware
- (3) sets of rails

The ultimate server cabinet is ready



Buyer's Guide

	44U 24"W x 36"D	44U 24"W x 42"D	44U 29"W x 42"D	24U 24"W x 36"D
A Exterior Height	84.0"	84.0"	84.0"	48.0"
B Exterior Width	24.0"	24.0"	29.0"	24.0"
C Exterior Depth	36.0"	42.0"	42.0"	36.0"
D Rack Units	44U	44U	44U	24U
E Interior Width	22.5"	23.73"	28.75"	22.5"
F Interior Depth	34.5"	40.0"	40.0"	34.5"
Weight	350 lb.; Open: 250 lb.	435 lb.	450 lb.	250 lb.; Open: 150 lb.

for your configuration.



**Tips
for
Techs**

a **BLACK BOX** production
See the video on blackbox.com.



RM817A
(Open style)



RM816A
(24U in light gray)

Item	Front Door	Color	Top Panel	Code	List Price		
Elite™ Server Cabinets with M6 Rails							
44U 24"W x 36"D	Mesh	Black	Vented Mesh	RM820A-R2			
			3-Fan	RM820A-3F-R2			
			6-Fan	RM820A-6F-R2			
		Light Gray	Vented Mesh	RM825A			
			3-Fan	RM825A-3F			
			6-Fan	RM825A-6F-R2			
	PLEXIGLAS®	Black	Vented Mesh	RM830A-R2			
			3-Fan	RM830A-3F-R2			
			6-Fan	RM830A-6F-R2			
		Light Gray	Vented Mesh	RM835A-R2			
			3-Fan	RM835A-3F-R2			
			6-Fan	RM835A-6F-R2			
Open-Cabinet Style (No Doors or Side Panels)							
24"W x 42"D	Mesh	Black	Vented Mesh	RM817A-R2			
		Black	Vented Mesh	RM4100A			
29"W x 42"D	Mesh	Black	Vented Mesh	RM4200A			
24U 24"W x 36"D	Mesh	Black	Vented Mesh	RM810A-R2			
			Vented Mesh	RM812A			
		Light Gray	Vented Mesh	RM814A-R2			
	Vented Mesh		RM816A				
	Open-Cabinet Style (No Doors or Side Panels)						
			Black	Vented Mesh		RM818A-R2	
To join two or more Elite Server Cabinets, order...							
			Multicabinet Joining Kit	40169			
For the RM4100A or RM4200A, you may also need...							
			Vertical Cable Manager	RM4205			
			Horizontal Cable Manager (For use with RM4200A only)	RM4207			
Also for the RM4100A and RM4200A, you can add a top fan panel...							
			Top Fan Panel, 250-cfm	for RM4100A for RM4200A	RM4000 RM4211		
Need adapter panels for Compaq®, HP®, and Sun® servers? Call our FREE Tech Support.							
You may also want to add...							
			Rackmount Remote Power Managers				

NOTE: When ordering your server from the manufacturer, be sure to specify that you need rackmounting hardware.

NOTE: Shipping is via motor freight only.

See page 300.

More Elite accessories, pp. 240–243.



Select Plus Cabinets

These cabinets have split rear doors and now come in models deep enough to hold extra-large servers!

- Weight capacity of 2200 pounds.
- Constructed of 16-gauge steel.
- New 42"-deep models hold deeper servers with plenty of room for rear cabling.
- Feature mesh split rear doors.
- Server cabinets feature mesh front doors; network cabinets have tempered glass front doors.
- UL® listed.
- Cabinet baying is easy with the optional Multicabinet Joining Kit.
- These cabinets offer versatile mounting with standard 19" M6 rails that work with most BLACK BOX® Cabinet Accessories.
- Two sets of adjustable rails provide even more versatility.
- Generous cable access.
- Arrive fully assembled.
- ♦♦ **WARRANTY** — Lifetime

42"-deep models now available



Select Plus Cabinets feature mesh split rear doors for easy access.



The optional 6-Fan Unit keeps the air flowing!

What's Included

- 2.5" casters
- Leg levelers
- Tempered glass or mesh front door
- Mesh split rear door

Item	Code	List Price
------	------	------------

Select Plus Cabinets, Mesh Split Rear Door
Server, Mesh Front Door

15U	RM2500A	
38U	RM2520A	
42U	RM2540A	
42U (42"D)	RM2640A	

Network, Tempered Glass Front Door

15U	RM2510A	
38U	RM2530A	
42U	RM2550A	
42U (42"D)	RM2650A	

To join two or more cabinets, order...

Multicabinet Joining Kit	RM2407	
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To ground a cabinet, order...

Grounding Kit	RM2408	
---------------	--------	--

For cooling, ventilate from the top with...

3-Fan Unit	RM2409	
6-Fan Unit	RM2415	

...or from within the cabinet itself with...

Rackmount Fan Trays		
Vertical	RM077	
Horizontal	RM075	

...or from the bottom using our heavy-duty...

Enclosure Blower (For details, see p. 233.)	RM801	
---	-------	--

You may also need...

Heavy-Duty Sliding Server Shelf	RMT411	
with Fins	RMT400	

Cage Nuts and Screws, 20-Pack, M6, 5/8" Long	RM388	
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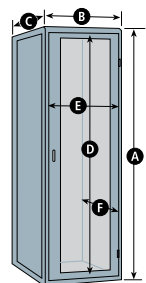
Horizontal Cable Managers (For details, p. 287.)

2U with Cover	RM239	
1U with Cover	RM240	
1U Filler Panel (For other RU heights, see blackbox.com.)	RMTB01	

Elite Manager Power Controller

See pp. 298–299.

We offer a number of other accessories for your Select Plus Cabinet. If you don't see what you need, call our FREE Tech Support.



Buyer's Guide | Select Plus Cabinets

	RM2500A, RM2510A	RM2520A, RM2530A	RM2540A, RM2550A	RM2640A, RM2650A
A Exterior Height	30.4"	70.7"	77.6"	80.5"
B Exterior Width	24"	24"	24"	24"
C Exterior Depth	40"	40"	40"	43"
D Rack Units	15U	38U	42U	42U
E Interior Width	21.3"	21.3"	21.3"	21.3"
F Interior Depth	38.5"	38.5"	38.5"	42"
Weight	190 lb.	323 lb.	340 lb.	343 lb.

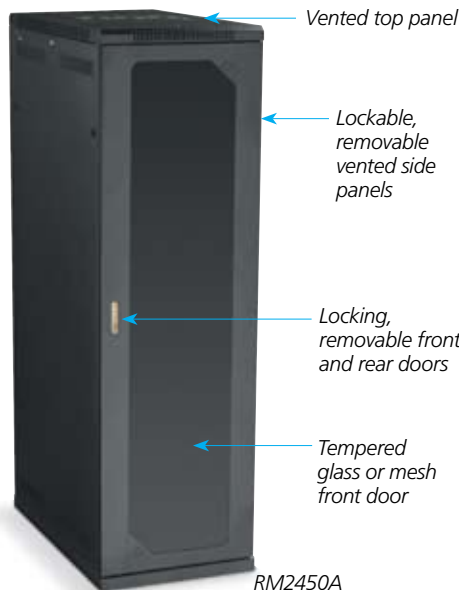
Select Server Cabinets

Fully assembled and ready for heavy-duty server center work.

- Weight capacity of 2200 pounds.
- Constructed of 16-gauge steel.
- Standard 19" M6 rails work with most BLACK BOX® Cabinet Accessories.
- Generous cable access.
- Mesh rear door.
- Arrive fully assembled and ready to go to work in your data center.
- Available in three heights.
- ♦♦ **WARRANTY** — Lifetime



The optional 6-Fan Unit keeps the air flowing!



What's Included

- 2.5" casters
- Leg levelers
- Tempered glass or mesh front door
- Mesh rear door

Item	Door	Code	List Price
Select Server Cabinets			
15U	Mesh	RM2400A	
	Tempered Glass	RM2410A	
38U	Mesh	RM2420A	
	Tempered Glass	RM2430A	
42U	Mesh	RM2440A	
	Tempered Glass	RM2450A	

To join two or more Select Server Cabinets, order...

Multicabinet Joining Kit
RM2407

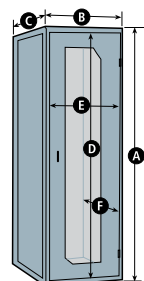
To ground your Select Server Cabinets, order...

Grounding Kit
RM2408

To ventilate your Select Server Cabinets, order...

3-Fan Unit
RM2409

6-Fan Unit
RM2415

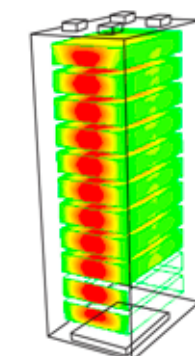
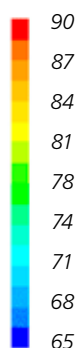


Buyer's Guide | Select Server Cabinets

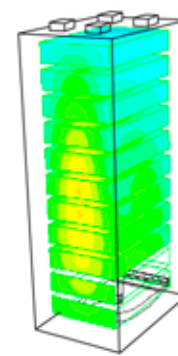
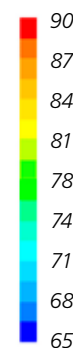
	RM2400A, RM2410A	RM2420A, RM2430A	RM2440A, RM2450A
A Exterior Height	30.4"	70.7"	77.6"
B Exterior Width	23.6"	23.6"	23.6"
C Exterior Depth	39.4"	39.4"	39.4"
D Rack Units	15U	38U	42U
E Interior Width	21.3"	21.3"	21.3"
F Interior Depth	38.5"	38.5"	38.5"
Weight	190 lb.	323 lb.	340 lb.

Enclosure Blower

Maximum ventilation for your cabinets.



Before Enclosure Blower



After Enclosure Blower

- Cools cabinets by improving air circulation.
- Draws cool air from the bottom of the cabinet and delivers it right across the front of servers or other network components.
- Air distribution cools cabinet hotspots by 15°F, extending server life and minimizing downtime.
- Requires only 2U of mounting space.
- Fits on standard 19" rails.
- Installs easily on bottom of any EIA-30 compliant cabinet.
- Designed for quiet, long life operation.
- Keep circulating air free of dust. The optional Filter Assembly removes up to 80% of 2-micron particles from circulating air.
- ♦♦ **WARRANTY** — 1 Year

NOTE: Works with any EIA-30 compliant cabinet from any manufacturer.

TECH SPECS

Fan Capacity — 250 cfm
Power — 115 VAC, 60 Hz, 0.65 amp
Size — 4.3" H x 18.4" W x 28.5" D
 (10.9 x 46.7 x 72.3 cm) plus 6.5-ft. (2-m) power cord
Weight — 14 lb. (6.4 kg)

Item	Code	List Price
Enclosure Blower	RM801	
You may also need...		
Enclosure Blower Filter Assembly	RM802	
Enclosure Blower Replacement Filters (12)	RM803	

Universal Server Cabinets

The tough, easy-access server cabinets

- Weight capacity of 2640 pounds.
- Constructed of welded steel.
- Generous 42" or 48" depths accommodate your deepest servers plus cabling and power.
- Ideal for high-density blade server installations.
- Perforated front and rear doors plus a vented top panel provide optimum ventilation.
- Add an optional fan tray to increase ventilation.
- Rear door is split for easy access.
- Quick-release split side panels provide instant access to components.
- Heavy-duty casters and leveling feet are included.
- Front door features a keyed double-handle lock.
- Rear door, side panels, and top panel are also key locked.
- Protective grounding provisions.
- ♦♦ **WARRANTY** — Lifetime



Quick-release split side panels.

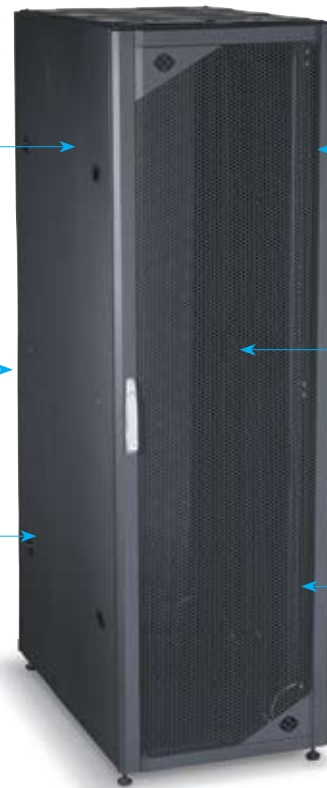
Perforated front door.

Split perforated rear door.

Mesh doors feature a unique hexagonal pattern to maximize airflow.

Split side provides easier access for equipment installation or maintenance.

Large cable channels.



RM8042A

Today's high-density servers need the Universal Server Cabinet from Black Box. Tailored for their requirements, it's designed for maximum airflow, efficient cable management, and optimum security.

Elbow room.

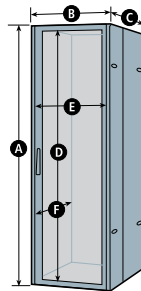
There's plenty of space for even the largest servers plus room for cables and power. Vertical and multidirectional cable channels make routing cable easy. Cabling is top to bottom and front to rear so you don't waste valuable rackmounting or access space.

Heavy lifter.

The Universal Server Cabinet stands up to the heavy loads imposed by very-high-density installations. Use the included extension plinth to fasten the cabinet to the floor for extra stability. A grounding kit is also included.

Universal storage.

The standard 19" rails with M6 holes are ideal for mounting regular servers and blade servers from leading vendors such as Apple®, Dell®, HP®, IBM®, and Sun®. For convenience, rails are marked to indicate rack units.



Buyer's Guide | Universal Server Cabinets

	RM8042A	RM8048A
A Exterior Height	80"	80"
B Exterior Width	24"	24"
C Exterior Depth	42"	48"
D Rack Units	42U	42U
E Interior Width	21.3"	21.3"
F Interior Depth	38.5"	38.5"
Weight	190 lb.	323 lb.

Item

Code

List Price

Universal Server Cabinets, 42U

42"D

RM8042A

48"D

RM8048A

♦ Include (1) cabinet, (4) heavy-duty casters, (4) leveling feet, (1) grounding kit, (1) extension plinth, and (50) M6 screws.

You may also need...

Heavy-Duty Fixed Shelves, 220-lb. Capacity

27.6"D

RM8000

31.5"D

RM8001

Rackmount Fan Tray, 1U

RM8002

Baying Kit

RM8003

Enclosure Blower (For details, see p. 233.)

RM801

Enclosure Filter Assembly

RM802

Enclosure Replacement Filters (12)

RM803

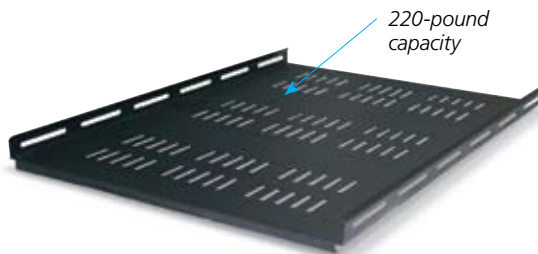
designed to maximize airflow.



Heavy-duty door hinges open to 150°.



Keyed double-handle lock on the front door.



220-pound capacity

Order the Heavy-Duty Fixed Shelf to accommodate equipment that's not rackmountable.



The optional Rackmount Fan Tray provides extra internal ventilation while occupying only 1U of rack space.



Rails are marked with rack units for easy reference.



A set of four heavy-duty casters is included.

Universal Flat Pack Cabinet

This economical 42U cabinet ships unassembled for easy transport.

- Weight capacity of 1320 pounds.
- Constructed of 16-gauge steel.
- Flat-pack, knock-down design makes it easy to carry into areas with narrow entrances.
- Assembly is simple! Just six main pieces to put together.
- High quality at an economical price.
- Frame assembly accommodates various server sizes.
- Offers extra space for front and rear cable management.
- Vertical rails are marked at 1U increments for proper alignment of 19" equipment.
- **WARRANTY** — Lifetime



NOTE: When ordering your server from the manufacturer, be sure to specify that you need rackmounting hardware.

NOTE: The cabinet ships unassembled in flat-pack boxes. Shipping is via motor freight.

Vented top panel helps keep equipment cool.

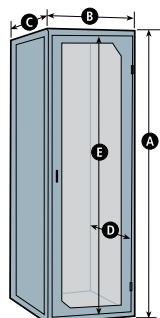
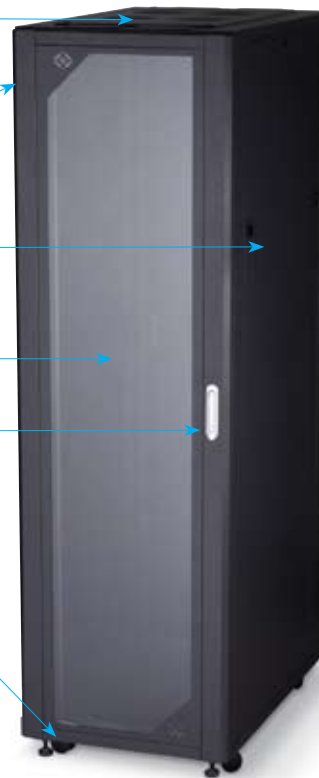
Side panels can be locked to keep equipment secure.

Side panels feature quick-release slam latches.

Glass front door enables you to monitor equipment while the door is closed.

Front door features swing-handle lock.

Rolls through a 7-foot doorway, even with casters.



Buyer's Guide | Universal Flat Pack Cabinet

A Exterior Height with Casters	80.0"
B Exterior Width	24.0"
C Exterior Depth	38.0"
D Interior Depth	35.0"
E Rack Units	42U
Weight	232 lb.

Item	Code	List Price
Universal Flat Pack Cabinet	RMT3200A	

Performance Plus Cabinets

Extraordinarily robust cabinets with the features your modern data center needs.



Performance Plus Cabinets (RM3000A–RM3007A)

- Weight capacity of 2000 pounds; unlike other cabinets, weight capacity is not affected by rail position.
- Great for blade servers!
- Our 40" D cabinet has more usable depth than most 42" D cabinets.
- Torsion free for strength and rigidity.
- Doors and sides are supported by the top and bottom frames.
- Unique multifold rails provide many internal mounting surfaces and mounting points.
- Doors and side panels secure to the outside of the top and bottom frames, providing maximum access to the inside of the cabinet.
- Seismic rated to Zone 3 according to Telcordia GR-63-CORE (NEBS).

Performance Plus Extra-Wide Cabinets (RM3008A–RM3009A, RM3110)

- Get all the great features of our Performance Plus Cabinets, but in extra-wide versions.
- 31.5" depth gives you extra room for cable management.
- Side Vent Baffle Kit redirects hot exhaust from side-breathing equipment out the back of the cabinet.
- Baffle is designed for hot aisle/cold aisle installations.



RM3001A: Left: front view; right: rear view

Tool-Less Shelf (RM2010)

- Weight capacity of 150 pounds.
- Fixed shelf mounts easily on standard EIA rails without tools or extra hardware.
- Measures 17.3" W x 23.6" D.

- Adjustable to fit cabinets up to 35.5" deep.
- Full ventilation helps to maintain airflow around servers.

- ♦♦ **WARRANTY** — All: Lifetime

Buyer's Guide | Performance Plus Cabinets

	RM3000A	RM3001A	RM3002A	RM3003A	RM3004A	RM3005A	RM3006A	RM3007A	RM3008A	RM3009A
Exterior Height	78.0"	78.0"	78.0"	78.0"	78.0"	78.0"	78.0"	78.0"	78.0"	78.0"
Exterior Width	24.0"	24.0"	24.0"	24.0"	24.0"	24.0"	24.0"	24.0"	31.5"	31.5"
Exterior Depth	36.0"	36.0"	40.0"	40.0"	36.0"	36.0"	40.0"	40.0"	40.0"	40.0"
Rack Units	42U	42U	42U	42U	42U	42U	42U	42U	42U	42U
Weight	245 lb.	310 lb.	255 lb.	320 lb.	245 lb.	310 lb.	259 lb.	315 lb.	385 lb.	385 lb.

Item	Code	List Price
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Performance Plus Cabinets

Server (Mesh Front Door, Mesh Split Rear Door) 78"H x 24"W x 36"D		
No Sides	RM3000A	
with Sides	RM3001A	
78"H x 24"W x 40"D		
No Sides	RM3002A	
with Sides	RM3003A	

new Extra-Wide Server (Mesh Front Door, Mesh Split Rear Door)

78"H x 31.5"W x 36"D		
No Sides	RM3008A	
with Sides	RM3009A	

new Outfit your Extra-Wide Cabinet with...

Side Vent Baffle Kit for use with Cisco®		
Side-Vent Switches	RM3110	

Item	Code	List Price
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Network (Smoked PLEXIGLAS® Front Door, Mesh Split Rear Door)

78"H x 24"W x 36"D		
No Sides	RM3004A	
with Sides	RM3005A	
78"H x 24"W x 40"D		
No Sides	RM3006A	
with Sides	RM3007A	

Outfit all your cabinets with...

Performance Plus Cabinet Accessories		
Tool-Less Shelf	RM2010	
Roof-Mounted Fan Tray		
	RM2012	
Support Brackets	RM3100	
Baying Kit	RM3101	
Mounting Plates	RM3106	
Casters	RM3107	

Item	Code	List Price
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You may also need...

Sliding Server Shelf (For details, see p. 240.)	RMT411	
Sliding Server Shelf with Fins (For details, see p. 240.)	RMT400	
Cage Nuts and M6 Screws (20 of Each) (For details, see p. 277.)	RM388	
Vertical Cable Manager, 44"L (For details, see p. 288.)	JPM535A	
Filler Panels		See p. 243.



ClimateCab

No cooling available? One cabinet running hot?
No problem. Just use a self-contained ClimateCab.

NEMA 12



- A series of cabinets specifically engineered to solve those tough cooling problems.
- NEMA 12 rated for protection against dirt, dust, lint, debris, and spashing liquids.
- Air conditioning units keep equipment cool even with temperatures up to 130° F.
- Seamless door gaskets keep the cool air in and keep out dust and contaminants.
- High efficiency closed-loop cooling system recirculates air in the cabinet and keeps outside air out.
- An internal evaporator eliminates condensation.
- Scratch-resistant safety glass window provides easy viewing.
- All feature a robust 12-gauge frame and 14- or 16-gauge sides and doors.
- Doors lock and come with keys.
- **GO GREEN** — Save energy and money by cooling only the cabinet rather than a whole room or IT center.
- **◆◆ WARRANTY** — RM5000A, RM5010A: 5 Years; All others: 1 Year

ClimateCab Server and Data Cabinets

These full-sized 42U cabinets come configured for servers or datacomm equipment. Both feature robust construction of welded 12-gauge steel frame with integral struts, so they support up to 1500 pounds (680 kg) of equipment.

The Server Cabinet features standard 19" rails with M6 mounting holes. It's extra deep at 40" so you have room for larger servers.

The Data Cabinet features tapped rails and is wider and shallower to house switches and patch panels.

Both the Server and the Data Cabinet are designed to work with our 4000- or 8500-BTU Air Conditioning Units, sold separately. Air Conditioning Units mount on the side of the cabinet.

Two sets of rails are adjustable from the front to rear. A mobile base enables easy placement. Levelers and an anti-tip bracket secure the cabinet to the floor.

ClimateCab PC Cabinet

Equipped with a 2000-BTU air conditioner, the ClimateCab PC is perfect when you need to house a PC workstation in a harsh environment.

The keyboard/mouse drawer is sealed independently. Front and rear lockable doors make it easy to access equipment. The rear split panel doesn't require tools for convenient access to cables.

The cabinet accommodates a monitor up to 21" on three adjustable, ventilated shelves. Lockable, industrial-grade casters provide ease of movement.

ClimateCab Wallmount Cabinets

Wallmount cabinets are the answer for anywhere you need to install a small amount of rackmount equipment in less-than-ideal environments. Choose from models with a fan only or with an AC Unit. For more information, see [page 255](#).

Buyer's Guide | ClimateCabs

	RM5000A	RM5010A	RM1000A	RM1100A	RMW5120AF	RMW5100AF	RMW5130AC	RMW5110AC
Exterior Height	84"† (231.4 cm)	84"† (231.4 cm)	60" (152.4 cm)	60" (152.4 cm)	24" (61 cm)	24" (61 cm)	24" (61 cm)	24" (61 cm)
Rack Units	42U	42U	18U	18U	12U	12U	12U	12U
Exterior Width	27.9" (70.9 cm)	24" (61 cm)	28" (71.1 cm)	28" (71.1 cm)	24" (61 cm)	24" (61 cm)	24" (61 cm)	24" (61 cm)
Exterior Depth	33.3" (84.6 cm)	41.2" (104.6 cm)	34.7" (88.14 cm)	34.7" (88.14 cm)	24" (61 cm)	24" (61 cm)	24" (61 cm)	24" (61 cm)
Equipment Depth	28.3" (71.9 cm)	36.2" (91.9 cm)	24.8" (62.9 cm)	24.8" (62.9 cm)	21.2" (53.8 cm)	21.2" (53.8 cm)	21.2" (53.8 cm)	21.2" (53.8 cm)
Weight Capacity	1500 lb. (680.4 kg)	1500 lb. (680.4 kg)	500 lb. (226.8 kg)	500 lb. (226.8 kg)	100 lb*. (45.4 kg)	100 lb*. (45.4 kg)	100 lb*. (45.4 kg)	100 lb*. (45.4 kg)

* Center section only. † With casters.

NOTE: All ClimateCabs ship assembled.

Item	Code	List Price
For a full-sized cabinet, order...		
ClimateCab Cabinets, 42U, Black (order AC Unit separately)		
Server, M6 Rails	RM5000A	
Data, Tapped Rails	RM5010A	
Select an AC Unit for each ClimateCab Server or Data Cabinet...		
ClimateCab Air Conditioning Units for RM5000A and RM5010A		
4000 BTU (1-kW)	RMAC4000	
8500 BTU (2.5-kW)	RMAC8500	

Item	Code	List Price
For smaller jobs, order...		
ClimateCab Wallmount Cabinets, 12U, Beige with Fan		
Single-Hinged	RMW5120AF	
Double-Hinged	RMW5100AF	
with Air Conditioning		
Single-Hinged	RMW5130AC	
Double-Hinged	RMW5110AC	

Item	Code	List Price
To protect a PC in a harsh environment, order...		
ClimateCab PC Cabinet, 18U (includes Air Conditioning Unit)		
Black	RM1000A	
Beige	RM1100A	
To secure your ClimateCab PC Cabinet, order...		
ClimateCab Bolt-Down Legs		
	RM1020	
To add rails to a ClimateCab PC Cabinet, order...		
ClimateCab Rack Channel, 18U		
	RM1010	

More on ClimateCab
Wallmount Cabinets, p. 255.

Elite Series Data Cabinets

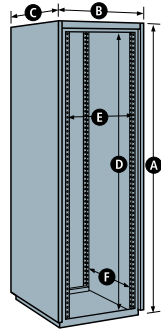
Preassembled and ready to go. Just choose size, color, top panel, and rails.



- Weight capacity of 1500 pounds.
- Constructed of 16-gauge rolled steel.
- Move the four mounting rails in 1" increments from front to rear, or to accommodate 19", 23", or 24" rackmount equipment.
- 10-32 rails are standard in all cabinet sizes; M6 rails are available on 72", 78", and 84" cabinets.
- Rails are marked every 3U for easy equipment installation.
- Removable side panels install flush.
- Rails are supported top and bottom with no side brackets, leaving sides and corners open for cable management.
- Louvered back panel improves air circulation.
- Put power where you need it with the included movable AC strip.
- For heavy-duty cabinet shelves and other accessories, see the pages 240–243.
- ♦♦ **WARRANTY** — Lifetime

What's included

- Power strip
- Leveling legs
- Casters



Buyer's Guide

	525057-R2	525061-R2	525067-R2	525071-R2	525075-R2	525079-R2	536001-R2
A Exterior Height	30"	48"	60"	72"	78"	84"	84"
B Exterior Width	29"	29"	29"	29"	29"	29"	29"
C Exterior Depth	30"	30"	30"	30"	30"	30"	36"
D Rack Units	12U	23U	30U	37U	40U	43U	43U
E Interior Width	27.5"	27.5"	27.5"	27.5"	27.5"	27.5"	27.5"
F Interior Depth	28.5"	28.5"	28.5"	28.5"	28.5"	28.5"	34.5"
Hole-to-Hole	Rails adjustable for 19", 23", or 24" rackmounting						
Weight	100 lb.	125 lb.	150 lb.	200 lb.	250 lb.	300 lb.	400 lb.

Item	Code	List Price
Elite™ Series Data Cabinets (10-32 Rails Unless Noted), Black		
30"H x 30"D Cabinet with 6-Outlet Power Strip with Louvered Top Panel	525057-R2	
with 3-Fan Top Panel	525057-3F-R2	
with 6-Fan Top Panel	525057-6F-R2	
48"H x 30"D Cabinet with 8-Outlet Power Strip with Louvered Top Panel	525061-R2	
with 3-Fan Top Panel	525061-3F-R2	
with 6-Fan Top Panel	525061-6F-R2	
60"H x 30"D Cabinet with 16-Outlet Power Strip with Louvered Top Panel	525067-R2	
with 3-Fan Top Panel	525067-3F-R2	
with 6-Fan Top Panel	525067-6F-R2	
72"H x 30"D Cabinet with 16-Outlet Power Strip with Louvered Top Panel	525071-R2	
with M6 Rails and 3-Fan Top Panel	525071-3F-M6-R2	
with 3-Fan Top Panel	525071-3F-R2	
with 6-Fan Top Panel	525071-6F-R2	

Item	Code	List Price
Elite Series Data Cabinets, Black (Continued)		
78"H x 30"D Cabinet with 16-Outlet Power Strip with Louvered Top Panel	525075-R2	
with M6 Rails and 3-Fan Top Panel	525075-3F-M6-R2	
with 3-Fan Top Panel	525075-3F-R2	
with 6-Fan Top Panel	525075-6F-R2	
84"H x 30"D Cabinet with 16-Outlet Power Strip with Louvered Top Panel	525079-R2	
with M6 Rails and 3-Fan Top Panel	525079-3F-M6-R2	
with 3-Fan Top Panel	525079-3F-R2	
with 6-Fan Top Panel	525079-6F-R2	
84"H x 36"D Cabinet with 16-Outlet Power Strip with Louvered Top Panel	536001-R2	
with M6 Rails and 3-Fan Top Panel	536001-3F-M6-R2	
with 3-Fan Top Panel	536001-3F-R2	
with 6-Fan Top Panel	536001-6F-R2	

NOTE: Also available in blue, ivory, and gray, and with a solid top panel. To order, call our FREE Tech Support.



The top rear of the cabinet features four 1 3/4" diameter cable access holes.

Multiple top options available.

Front and rear doors lock and have spring-loaded hinges that can be reversed easily for right or left hanging.

Remove the rear bottom cover plate for cable routing.

The rear of the cabinet features two cable access holes.

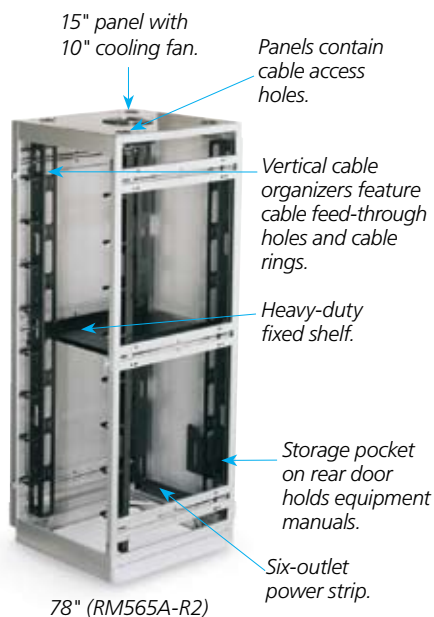
NetRack Plus • NetRack

Preassembled, secure, and ready-to-use—just add your equipment!



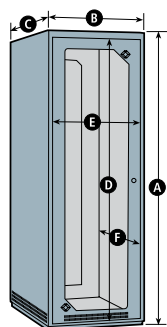
NetRack Plus

- Weight capacity of 1500 pounds.
- Fully welded 14-gauge steel construction.
- The 14-gauge rear door has a lock, bottom vents, and removable hinge pins.
- Comes preassembled and loaded with cable management.
- Top panels feature 3" cable access holes with grommets to protect cable and prevent kinks.
- The 19" rails comply with TIA standards and contain 10-32 mounting holes and bridge lances for securing cable.
- Vertical cable organizers feature cable feed-through holes and cable rings.
- Extra-deep and extra-wide cabinet gives you lots of built-in space for cabling.
- For more storage, optional sliding or solid fixed or vented fixed shelves are available.
- Available in black and beige.
- Optional full-swivel, heavy-duty casters are available.



NetRack

- Weight capacity of 1200 pounds.
- Economically priced for applications requiring limited cable management.
- Fully welded 16-gauge steel construction.
- Optional bottom-mount tower sliding shelf holds 90 pounds.
- Optional caster base holds 900 pounds.
- Available in black and beige.
- Locking back door provides added security and offers extra access to equipment.
- Frames can be bolted to the floor and joined together for modular configurations.
- ♦♦ **WARRANTY** — All: Lifetime



Buyer's Guide

	RM550A-R2 RM555A-R2	RM560A-R2 RM565A-R2	RM500A-R3 RM505A-R3
A Exterior Height	52"	78"	85"
B Exterior Width	28.28"	28.28"	26.25"
C Exterior Depth	33"	33"	31.2"
D Rack Units	25U	40U	45U
E Interior Width	28.08"	28.08"	26.05"
F Interior Depth	31.75"	31.75"	30"
Weight	241 lb.	315 lb.	275 lb.

What's included

NetRack Plus

- 10" high-power cooling fan
- Six-outlet power strip
- Heavy-duty fixed shelf (holds 100 pounds)
- (4) full-length vertical cable organizers
- Heavy-duty reusable cable ties
- Overhead interior lighting
- Rear storage pocket

NetRack

- Two adjustable-height shelves

Item	Code	List Price
NetRack™ Plus		
52" Black	RM550A-R2	
78" Black	RM560A-R2	
78" Beige	RM565A-R2	
NetRack Plus Accessories		
Shelves Black		
Sliding	RM170-R2	
Fixed Solid	RM171	
Fixed Vented	RM172-R2	
Heavy-Duty Casters, Set of 4	RM173-R3	

NOTE: The NetRack Plus is not intended to be bayed with another cabinet.

NOTE: Shipping height of the 78" rack is approximately 83", including the pallet.

NOTE: Shipping height of the 85" rack is approximately 90", including the pallet.

Item	Code	List Price
NetRack™ (Includes 2 Shelves) 85" H		
Black	RM500A-R3	
Beige	RM505A-R3	
NetRack Accessories		
Top Fan Panel		
Black	RM501-R3	
Beige	RM506-R3	
Bottom-Mount Tower Shelves, Set of 2		
Black	RM502-R2	
Beige	RM507-R2	
Extra Stationary Shelf		
Black		
Solid	RM314	
Vented	RM315-R2	
Beige		
Vented	RM615-R2	
Multibay Joining Kit	RM329	
Caster Base		
Black	RM503-R3	
Beige	RM508-R3	

Drawers, shelves, keyboards, and more for your

Heavy-Duty Solid Shelf



- Weight capacity of 300 pounds.
- Measures 17" wide and 20 3/4" deep.
- For mounting heavy servers and other equipment.
- Mounts anywhere in your Elite Server-Mount Cabinet.
- Mounts on 19" rails.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Heavy-Duty Solid Shelf	RM590	

19" Rackmount Drawer with Writing Surface



- Weight capacity of 100 pounds.
- Drawer is 6 1/2" high by 16" wide, and it's 14 1/2" deep.
- Stores log books, manuals, and other documents.
- Mounts on 19" rails.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
19" Rackmount Drawer with Writing Surface	RM595	

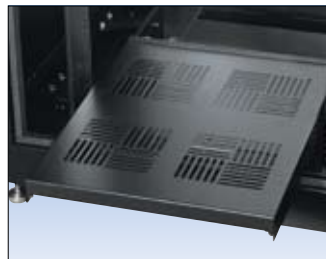
Sliding Server Shelf with Fins



- Weight capacity of 125 pounds.
- Shelf measures 17 1/2" wide and 29" deep.
- Three sections to keep smaller components in place.
- Fins and cable management bar are removable.
- Mount it anywhere in your cabinet.
- Mounts on 19" rails.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Sliding Server Shelf with Fins	RMT400	
Sliding Server Shelf Only	RMT411	
Fins Only	RMT412	

Sliding Server Shelf



- Weight capacity of 100 pounds.
- Measures 17" wide by 22" deep.
- Slides out for easy access.
- Mounts in the bottom of the cabinet only.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Sliding Server Shelf, 22"D	39970	

Heavy-Duty Sliding Server Shelf, 26"D



- Weight capacity of 125 pounds.
- Measures 17 1/2" wide and 29" deep.
- Provides easy access to the back of your servers and other equipment.
- Mounts on 19" rails.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Heavy-Duty Sliding Server Shelf, 29"D	RMT411	



Multifan Top Panels

- 3-fan top—225 cfm.
- 6-fan top—650 cfm.

Solid Top Panel

- Works well with cabinets loaded with equipment that doesn't generate a lot of heat.
- **◆◆ WARRANTY** — Lifetime

Item	Black	Light Gray	List Price
Multifan Top Panels with (3) Fans	RM821	RM826	
with (6) Fans	RM822	RM827	
Solid Top Panel	RM823	RM828	



Elite Server-Mount Cabinets.

Rackmount Keyboard

- Constructed of 16-gauge steel.
- Measures 18.3" long.
- Occupies only 1U.
- Features a three-button trackball mouse or a touch-pad interface.
- All required cables are included.
- Mounts on 19" rails.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
Rackmount Keyboard, Trackball	RM418-R3	
Rackmount Keyboard, Touchpad	RM419	

19" Sliding Pivoting Keyboard Tray with Mouse Tray

- Slide in your keyboard sideways for storage, then pull it out up to 19" when you need it.
- Measures 20.6" wide and 9.5" deep.
- Holds a keyboard up to 20.5" wide.
- Cushioned wrist rest.
- Use the mouse tray on the left or right.
- Mounts on 19" rails.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
19" Sliding Pivoting Keyboard Tray with Mouse Tray	RMT385	

Fixed Vented Server Shelves

- The 22¼"-deep model has a 200-pound weight capacity.
- The 27¼"-deep and 30"-deep models have a 150-pound weight capacity.
- Measure 17½" wide.
- Mount in a four-point pattern on 19" rails.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
Fixed Vented Server Shelves 22¼"D, 200-lb. Capacity	RM399	
27¼"D, 150-lb. Capacity	RM403	
30"D, 150-lb. Capacity	RM410	

Rackmount Sliding Vented 4-Point Shelves

- Weight capacity of 50 pounds.
- 24" deep.
- Provide easy access to lightweight equipment.
- Mount on 19" or 23" rails.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
Rackmount Sliding Vented 4-Point Shelves 19" Rails	RMS1924S	
23" Rails	RMS2324S	

Rackmount Fixed Vented 4-Point Shelves

- Weight capacity of 50 pounds.
- Measure 24" deep.
- For lightweight equipment.
- Mount on 19" or 23" rails.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
Rackmount Fixed Vented 4-Point Shelves 19" Rails	RMS1924F	

Tool-less Telescoping Shelves

- Support up to 150 pounds.
- For use on standard 19-inch rails with square M6 holes.
- Easy installation — no tools required.
- Two sizes to accommodate most cabinet depths.
- Cable slots and pre-punched D-ring holes.
- Vented for air circulation.
- **◆◆ WARRANTY** — Lifetime



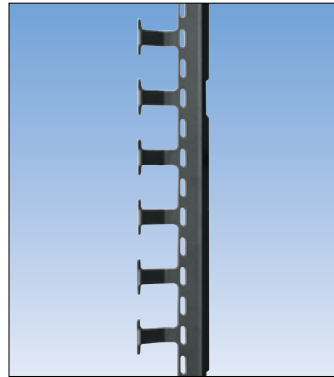
Item	Code	List Price
Tool-less Telescoping Shelves 23.6"—35.4"D	RM047	
35.4"—47.2"D	RM049	

Elite II Server Cabinet Vertical Cable Manager

Manage cables in your Elite II Server Cabinet.



- Vertical Cable Manager mounts on rear corner posts.
- Measures 65.25"H with 3.25" fingers.
- ♦♦ **WARRANTY** — Lifetime



Item	Code	List Price
Elite II Server Cabinet Vertical Cable Manager	RM4205	

Hook and Loop Bundle Wrap

Wrap and roll—cable management at your fingertips!



- This black cable wrap is 3/8" wide and comes in 15- and 75-foot rolls.
- Simple to use—just wrap and cut.
- Keeps all your cables organized. No more tripping over unsecured cables in your office or home!
- ♦♦ **WARRANTY** — Lifetime



Use only what you need!

NOTE: FT9555A comes as (8) 75-foot rolls.

Item	Code	List Price
Hook and Loop Bundle Wrap, 3/8" Wide		
15-ft.	FT9545A	
75-ft.	FT9550A	
600-ft..	FT9555A	

19" Wire Managers

Support and route patch cable.



- Has rolled edges for added strength and four split rings for patch cable support and routing.
- Mounting hardware is included.
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
19" Wire Manager	JPM140A	

Three-Way Vertical Cable Hangers

Add orderly cable routing to any part of your rack!



- Designed like an IBM® style vertical cable loop.
- May be mounted two different ways: on the side of the rails and on the front of the rails facing the front or back.
- The 1 1/2" hole-to-hole centers are standard.
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
Three-Way Vertical Cable Hangers		
Single	RMT588	
10-Pack	RMT588-10PACK	

Filler Panels and Covers

Panels for all applications and environments—all guaranteed for life!



Tool-Less Filler Panels



- Save time on installation—no tools or hardware required!
- Fasten easily with a quarter-turn fastener.
- Fill empty racking space to help control airflow.
- Fit 19" rails with square M6 holes.
- Constructed of 14-gauge steel with black powder coat finish.

- **WARRANTY** — Lifetime

Item	Code	List Price
Tool-Less Filler Panels		
1U	RM1031	
2U	RM1032	
3U	RM1033	
4U	RM1034	
5U	RM1035	

Filler Panels



- Constructed of heavy metal with a matte black or white finish.
- Mount easily to a 19" cabinet or rack with four included 10-32 screws.
- **WARRANTY** — Lifetime

Item	Code	List Price
Filler Panels		
Black 1U (1.75")	RMTB01	
2U (3.50")	RMTB02	
3U (5.25")	RMTB03	
4U (7.00")	RMTB04	
5U (8.75")	RMTB05	
6U (10.50")	RMTB06	
White 1U (1.75")	RMTW01	
2U (3.50")	RMTW02	
3U (5.25")	RMTW03	
4U (7.00")	RMTW04	

Perforated Vent Panels

- Constructed of 16-gauge perforated steel.
- Flanged for extra strength.
- Mount on 19" rails.
- **WARRANTY** — Lifetime



Item	Code	List Price
Perforated Vent Panels		
1U	RMT945	
2U	RMT946	
3U	RMT947	
4U	RMT948	

Vent Panels with Slots

- Constructed of 16-gauge aluminum.
- Mount on 19" rails.
- **WARRANTY** — Lifetime



Item	Code	List Price	Item	Code	List Price
Vent Panels with Vertical Slots			Vent Panels with Horizontal Slots		
Black 1U	RM996		Black 1U	RM261	
2U	RM997		2U	RM262	
Silver 1U	RM998		3U	RM263	
2U	RM999		Silver 1U	RM264	
			2U	RM265	
			3U	RM266	

Security Covers



- Constructed of 16-gauge steel.
- Include rubber edging to protect against scratches.
- Perforations provide views of equipment or LEDs, and keep everything secure.
- Each cover is 1" deep.
- Mount on 19" rails.
- **WARRANTY** — Lifetime

Item	Code	List Price
Security Covers, Large Perforation		
1U	RM949	
2U	RM950	
3U	RM951	
4U	RM952	
Security Covers, Fine Perforation		
1U	RM953	
2U	RM954	
3U	RM955	
4U	RM956	

PLEXIGLAS Covers

- Provide security for 19" rackmount equipment.
- Non-hinged covers are 16-gauge steel and 1" deep.
- Hinged cover Features a steel frame and a lockable, 3/16", smoked-gray, PLEXIGLAS door.
- Hinged cover is for cabinets and racks with a usable height of 4U.
- **WARRANTY** — Lifetime

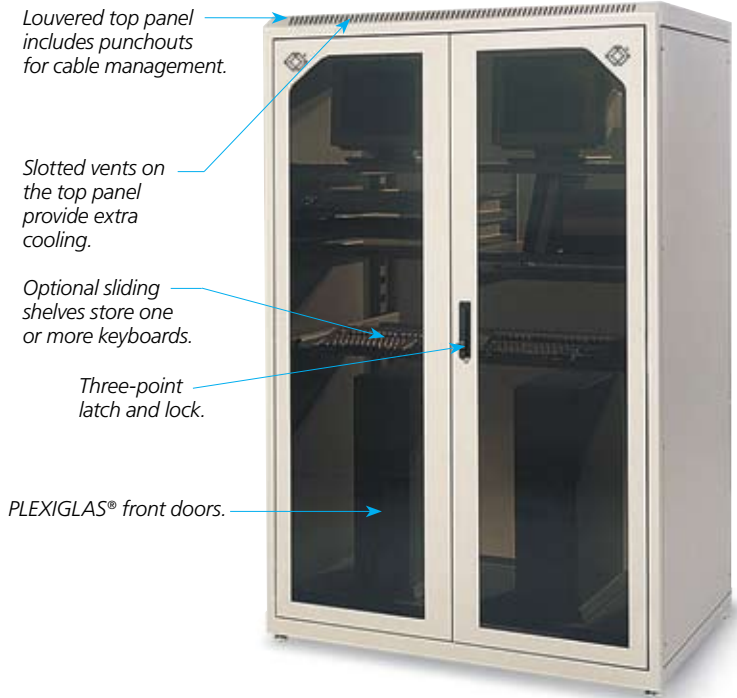


Item	Code	List Price
PLEXIGLAS Security Covers		
1U	RM966	
2U	RM967	
3U	RM968	
Hinged PLEXIGLAS Cover		
	RMT029	

Elite SC

Twice the space, twice the rackmount options, and no assembly required!

- Weight capacity of 700 pounds.
- Constructed with a 14-gauge folded-steel frame.
- Roomy enough to hold your equipment and act as a data center.
- Extra wide (48") and deep (32") to hold large equipment.
- Preassembled for easy set up and use.
- Hold two optional fan assemblies that exhaust warm air and cool equipment.
- Vented rear doors.
- An optional 5U Rackmount Kit is available.
- **◆◆ WARRANTY** — Lifetime



NOTE: For accessories for the Elite SC, including shelves, casters, keyboard trays, drawers, cable management, and more, see blackbox.com.

Item	Code	List Price
Elite SC		
Black	RF200A	
Beige	RF300A	
◆ Includes (2) Stationary shelves with 300 lb. capacity, 16-position power strip, (2) door keys, and (2) side panels keys.		

Item	Code	List Price
Elite SC with Installed Dual 19" EIA Mounting Kit, 39U		
Black	RF199A-RKMT	
Beige	RF299A-RKMT	
19" EIA Rackmount Kits, 5U		
Black	RF201	
Beige	RF301	
Dual 19" EIA Rackmount Kit, 39U		
Black	RF206	

Comm Cabinets

These versatile steel cabinets come in compact cartons for convenient shipping!

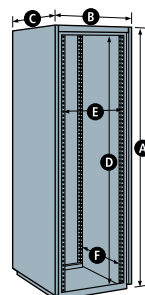


- Weight capacity of 1200 pounds.
- Constructed of 16-gauge steel.
- Choose optional steel or PLEXIGLAS® front doors.
- Cabinets ship knock-down style for added freight savings and convenience.
- Easy to assemble. Only eight nut-and-bolt joints are needed for the basic shell assembly, including top, bottom, sides, and mounting channels.
- Equipment access from the top, front, and rear.
- Features a versatile modular design for various cabinet configurations.

- Bolt cabinets together easily to form a double-, triple-, or other multiple-bay system.
- 19" EIA adjustable, steel mounting rails.
- **◆◆ WARRANTY** — Lifetime

NOTE: Cabinets ship unassembled. Shipping is via motor freight.

NOTE: Cabinet front door is sold separately. Choose from steel or PLEXIGLAS. For accessories for the Comm Cabinet, including shelves, casters, drawers, and more, see blackbox.com.



Buyer's Guide

	RM3010A	RM3020A	RM3030A	RM3040A
A Exterior Height	83.125"	83.125"	48.125"	48.125"
B Exterior Width	24.02"	24.02"	24.02"	24.02"
C Exterior Depth	31.25"	25.25"	31.25"	25.25"
D Rack Units	44U	44U	24U	24U
E Interior Width	23.75"	23.75"	23.75"	23.75"
F Interior Depth	30"	24"	30"	24"
List Price				



Zone 4 Seismic Cabinets and Racks

Server cabinets and racks that won't be rocked.

Zone 4 Seismic Cabinets

- Weight capacity of 1100 pounds.
- Constructed of heavy-gauge welded steel.
- Protect servers, networking equipment, and phone and voice mail equipment through Zone 4 seismic activity.
- Vented heavy-gauge steel base can be bolted to floor with seismic-rated fasteners.
- Performance rating based on NEBS-Telcordia GR-63-CORE standard vibration test.
- Reinforced front door features smoke gray acrylic window.
- EIA standard for 19"-rackmount equipment.
- **◆◆ WARRANTY** — All: 5 Years

Zone 4 Seismic Cabinets

If it can stand up to the activity in California, it can handle what happens in your server room. The Zone 4 Seismic Cabinets are designed to protect up to 1100 pounds of server room equipment from the rigors of Zone 4 seismic activity. Since they meet EIA standards, the cabinets can be used in different applications with 19-inch rackmount equipment and fans.

The top of both cabinets features two cable entry ports with caps and grommets, and two fan-ready cutouts with finger guards. With their "chimney" effect, the cabinets cool mounted equipment by drawing cool air through louvers and venting the heated air through the top. The louvers are on the lower third of the rear door.

Zone 4 2-Post Seismic Rack

The Zone 4 2-Post Seismic Rack gives you a stable base and the convenience of an open rack. It meets California Building Code requirements, so you know it'll stand up under extreme conditions. With standard rails, 19" rack accessories and equipment mount easily in this open frame rack. Additionally, it can be bayed with other 2- and 4-post racks to encompass your server and equipment storage needs.

Zone 4 Seismic Racks

- Weight capacity — RM5200A: 500 lb. RM5210A: 1000 lb.
- Constructed of 10-gauge steel.
- Meet California Building Code requirements.
- Fully welded for maximum rigidity.
- Pre-drilled holes on the top make runway installation a cinch.
- Cable entry cutouts on the top and bottom.
- Integral front waterfall top.
- Easily join with other 4-post or 2-post racks to meet all your equipment mounting needs.
- EIA standard to fit 19" rack equipment and accessories.
- Grounding kit included.
- Pre-assembled.

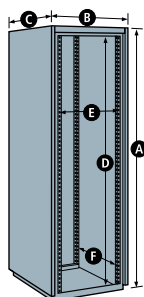
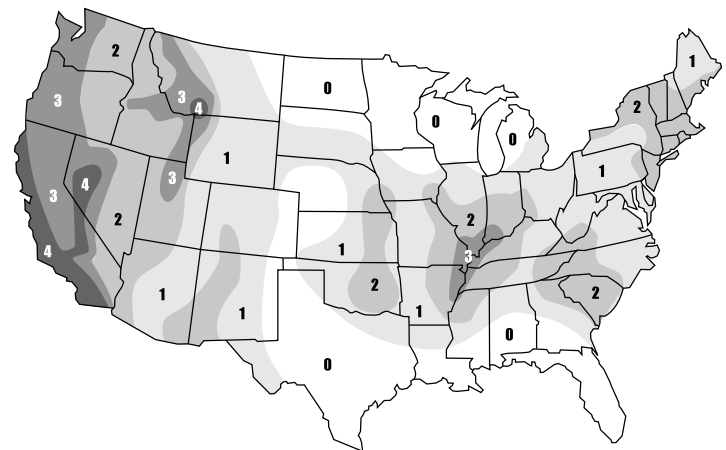
Zone 4 4-Post Seismic Rack

The Zone 4 4-Post Seismic Rack gives you the mounting security of a cabinet with the convenience of an open rack. An adjustable depth and solid base make this rack well suited for heavy, deep networking equipment, telephone and voice mail equipment, routers, servers, and switches. This rack easily exceeds the load capacity of a 2-post rack.

With standard rails, 19" rack accessories and equipment mount easily in this open frame rack. Additionally, it can be bayed with other 2- and 4-post racks to encompass your server and equipment storage needs.



RM5100A



Buyer's Guide

	RM5100A	RM5110A	RM5200A	RM5210A
A Exterior Height	84"	84"	84"	84"
B Exterior Width	27.55"	27.55"	26.75"	26.75"
C Exterior Depth	39.4"	31.5"	18"	39.9"
D Rack Units	45U	45U	45U	45U
E Interior Width	28.5"	26.5"	17.75"	18.31"
F Interior Depth	37.9"	30"	6"	38.6"
Weight	400 lb.	376 lb.	170 lb.	313 lb.

Item	Code	List Price
Zone 4 Seismic Cabinets, 45U		
84"H x 28"W x 40"D	RM5100A	
84"H x 28"W x 32"D	RM5110A	
Zone 4 2-Post Seismic Rack		
	RM5200A	
Zone 4 4-Post Seismic Rack		
	RM5210A	

NOTE: Ships via motor freight.

PC Shelter

The economical way to protect PCs in hard-working environments.



- Protects computers from dust, dirt, grease, and moisture.
- Ideal for factories, warehouses, machine shops, and food service facilities.
- Locking doors protect computers from prying hands as well as the environment.
- Two interior compartments hold a single workstation with a printer.
- Each compartment has a cable access slot, which seals tightly around cables to keep contaminants out.
- The top compartment has a sturdy monitor shelf with a pull-out keyboard drawer underneath.
- The lower compartment has a pair of locking doors and a fixed shelf.
- The shelf in each compartment has a cable access slot.
- A fan on the rear panel of the bottom compartment provides ventilation to the CPU.
- For added convenience, the fan has a removable, washable filter.
- The beige, textured, water-resistant surface is easy to clean, doesn't show fingerprints, and protects against humid environments.
- ♦♦ **WARRANTY** — Lifetime



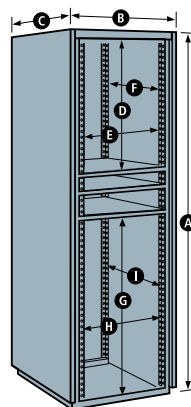
Front panel slides up into the cabinet. The locking door has a 23" window so you can view the monitor.

A keyboard drawer under the monitor pulls out when you want to use the PC.

A storage drawer includes a separate lift-out writing surface.

The lower compartment features a pair of locking doors, a fixed shelf with a cable access hole, and a rear-panel, filtered fan to provide ventilation.

Casters lock for safety.



Buyer's Guide

A Exterior Height	69.0"	
B Exterior Width	28.1"	
C Exterior Depth	29.5"	
	Top Compartment	Lower Compartment
Interior Height	D 23.2"	G 35.8"
Interior Width	E 27.5"	H 27.7"
Interior Depth	F 27.7"	I 26.7"
Weight	262 lb.	

Item	Code	List Price
PC Shelter™	RMT885A-R2	

ServShield

Protect your equipment from dust, dirt, and moisture.



- Weight capacity of 600 pounds.
- New 36" depth accommodates larger PCs and servers.
- Fully welded construction; made of 16-gauge steel.
- Gasketed doors and a filtered air-intake system provide the best resistance to circulating dust and dripping water.
- Water-resistant gaskets and compression latches provide superior protection.
- Unique air-filtering system draws air through the front door filters and expels it through the rear.
- Bottom door features a separate key to keep hardware safe.
- Each compartment features two pairs of adjustable 19" rails tapped for 10-32 screws.
- Rear door features twin compression latches for a strong, water-resistant seal.
- Features cable access holes on the top and bottom.
- ♦♦ **WARRANTY** — Lifetime



The vented, fixed monitor shelf holds 200 pounds.

Isolated, steel locking drawer holds a keyboard up to 18.5" wide.

Side panels are removable.

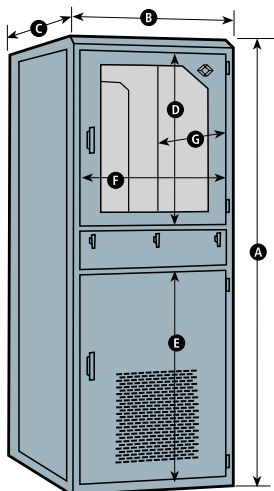
Vented door features an air filter to protect against dust.



Three rear fans generate a cool 225 cfm to keep your hardware healthy. Filters keep the air clean.



Adjustable Tower Shelf (RM471) holds tower CPUs. (Fins and cable management arm are removable.)



What's included

- Casters
- Rubber feet
- Leveling guides

Buyer's Guide

A Exterior Height	72"
B Exterior Width	26"
C Exterior Depth	36"
Rack Units	
D Top	14U
E Bottom	17U
F Interior Width	19"
G Interior Depth	32.5"
Weight	300 lb.

Item	Code	List Price
ServShield	RM470A-R2	
You may also need...		
19" W Rackmount, Sliding, Adjustable Tower Shelf with Fins, 22"D	RM471	
Replacement Filters		
Rear Fan (Order One per Fan)	RM475	
Front Door	RM476	

To control two PCs from a single workstation, order...

ServSwitch DT Basic 2-Port KV7002A

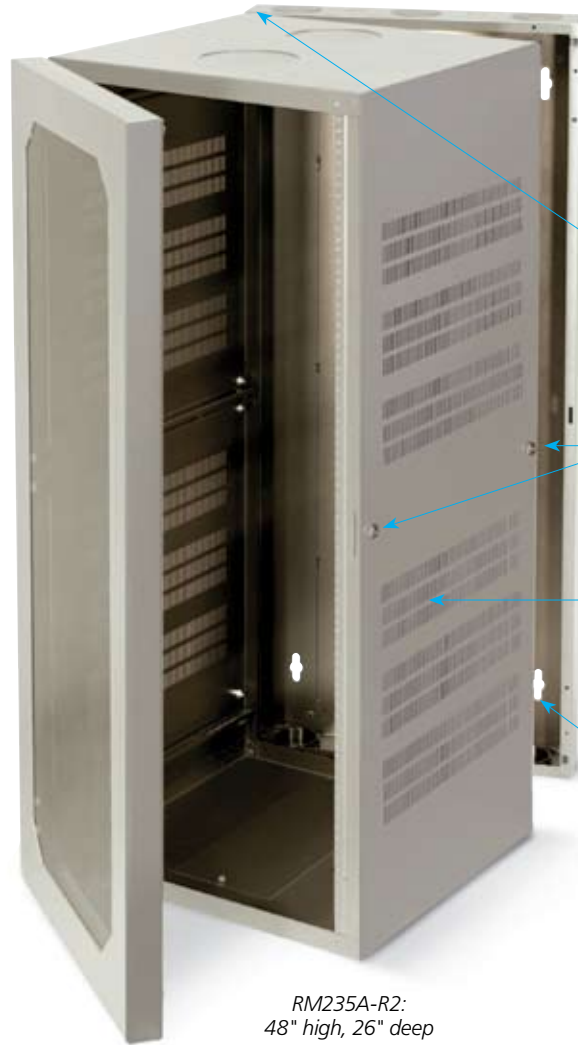
For details or for other BLACK BOX™ ServSwitch KVM switches, see blackbox.com.

Wallmount Cabinets

Variety plus—choose preassembled wallmount cabinets in three heights and two depths!

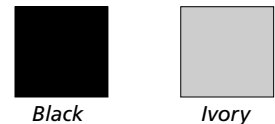


- Weight capacity—12U models: 150 pounds; 20U models: 250 pounds; 26U models: 300 pounds.
- Fully welded construction; 14- and 16-gauge steel.
- Choose from two different depths.
- Designed to hold 19" equipment.
- Two sets of adjustable rails accommodate equipment with different depths.
- Mounting rails on the cabinets feature both 10-32 and 12-24 tapped holes.
- Ideal for computer rooms where there's no space for a full-sized rack or cabinet.
- Mount securely on the wall.
- Ship fully assembled.
- Outfit the cabinet with optional shelves, fans, and power strips.
- ♦♦ **WARRANTY** — Lifetime

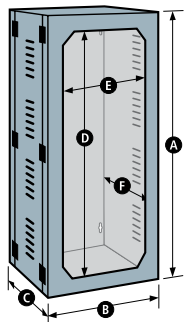


The optional Dual-Fan Kit (RM386) installs in the top of the cabinets and puts out 150 cfm of cooling power.

Color Guide



RM235A-R2:
48" high, 26" deep



Buyer's Guide

	RM232A-R2-233A-R2	RM334A-R2-335A-R2	RM435A-R2-436A-R2	RM433A-R2-434A-R2	RM234A-R2-235A-R2	RM336A-R2, 231A-R2
A Exterior Height	23.13"	23.13"	37.13"	37.13"	48.13"	48.13"
B Exterior Width	21.25"	21.25"	21.25"	21.25"	21.25"	21.25"
C Exterior Depth	26.0"	20.15"	26.0"	20.15"	26.0"	20.15"
D Rack Units	12U	12U	20U	20U	26U	26U
E Interior Width	21.0"	21.0"	21.0"	21.0"	21.0"	21.0"
F Interior Depth	20.15"	14.15"	20.15"	14.15"	20.15"	14.15"
Weight	88 lb.	75 lb.	111 lb.	95 lb.	129 lb.	100 lb.

Item	Code	List Price
Wallmount Cabinets		
12U 24"H x 26"D	Black RM232A-R2	
	Ivory RM233A-R2	
24"H x 20"D	Black RM335A-R2	
	Ivory RM334A-R2	
20U 36"H x 26"D	Black RM435A-R2	
	Ivory RM436A-R2	
36"H x 20"D	Black RM433A-R2	
	Ivory RM434A-R2	

Item	Code	List Price
Wallmount Cabinets (Continued)		
26U 48"H x 26"D	Black RM234A-R2	
	Ivory RM235A-R2	
48"H x 20"D	Black RM336A-R2	
	Ivory RM231A-R2	
You may also need...		
Dual-Fan Kit	RM386	

Item	Code	List Price
To add a shelf, order...		
Rackmount Fixed Shelves, 35-lb. Capacity		
(For details, see p. 276.)		
Solid	RMTS01	
Vented	RM002-R2	
To add a power strip, order...		
19" Rackmount Power Strips, 6-Outlet		
(For details, see blackbox.com .)		
Switchable	PS186A	
Switchless	PS188A	

SOHO Cabinets

These compact cabinets offer big features for small or home offices.

- Weight capacity of 400 pounds.
- Constructed of a welded 14-gauge steel frame with four rack angle mounting struts.
- Fit under standard-height modular desktops.
- Open bottom promotes air circulation. Cool air is drawn from the floor and base vents through the fan cutouts on the rear door, creating a chimney effect to cool equipment.
- The optional Fan Assembly with two 4-inch fans and finger guards can be added to the rear door to provide additional heat dissipation.
- Run cables through an adjustable gland plate with strain relief on the bottom rear of the cabinet.
- Meet EIA industry standards.
- **◆◆ WARRANTY** — Lifetime



Side panels and rear door feature keylocks.

Side panels are removable.

Doors and side panels are set flush with the frame.

Front door hinges left and is removable.



Front door features a smoke-gray, acrylic window.

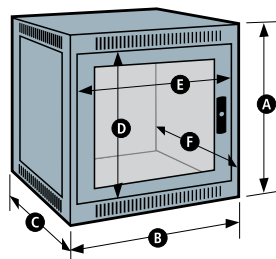
Locking handle; the same key fits all doors and side panels.

Vented base provides air circulation and hides the casters.

RM140A

What's included

- Casters
- (2) sets of L-shaped rack angles with EIA spacing and square M6 holes
- (20) cage nuts and screws
- Set of keys



Buyer's Guide

	RM140A	RM145A
A Exterior Height	26.21"	26.21"
B Exterior Width	23.63"	23.63"
C Exterior Depth	23.62"	35.43"
D Rack Units	11U	11U
E Interior Width	21.45"	21.45"
F Interior Depth	22"	34"
Weight	103 lb.	124 lb.

Item	Code	List Price
SOHO Cabinets		
23.6"D	RM140A	
35.4"D	RM145A	
Fan Assembly	RM141	

L-Box Wallmount Cabinet

Save on space without sacrificing on access.

- Hinged, L-shaped door provides full access to installed equipment while maintaining a low profile.
- Weight capacity of 75 pounds.
- Constructed of 12-gauge mild steel.
- Spring-loaded, self-retained hinge pins enable you to remove the door.
- 120-degree door opening.
- Quarter-turn latches with key lock.
- Knockouts for 4-inch fan on top and bottom of enclosure.
- Two 3-inch knockouts on back for cables.
- Multiple cable tie-down points on back of enclosure.
- Includes (20) 10-32 mounting screws.
- UL® Listed; meets EIA 310 D standard.
- **◆◆ WARRANTY** — Lifetime



Buyer's Guide

	RM545AL
Exterior Height	24"
Exterior Width	13"
Exterior Depth	24"
Rack Units	6U
Interior Width	16.28"
Interior Depth	18.5"
Weight	50 lb.



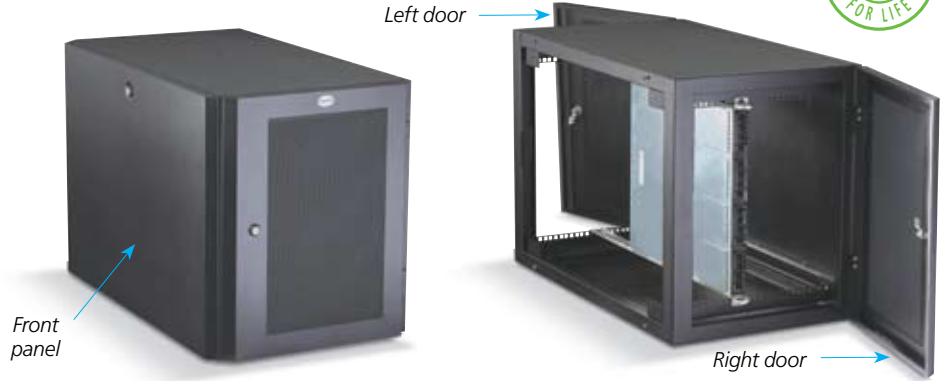
Item	Code	List Price
L-Box	RM545AL	

Server Side-Mount Wall Cabinet

Save space when mounting servers.

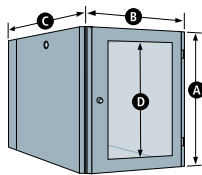


- Weight capacity of 350 pounds when secured to three wall studs.
- Unique side-mount design — enables you to get more servers in a tighter space by mounting them sideways!
- Mesh doors ensure optimal airflow to keep hard-working servers cool.
- For convenient access, just open left and right doors at the sides of the cabinet to expose server controls and cable connections.
- 34" of usable space with a maximum of 29" of front-to-rear spacing*.
- Flexible cable routing. Concentric knockouts at the top, bottom, and rear enable you to easily run 1", 2", and 3" conduit to mounted equipment.
- Designed for easier wall hanging with three studs mounted on 16" centers.



- Left and right doors, as well as the side panel, can be locked to safeguard your expensive servers and prevent tampering.
- Includes M6 cage nuts and screws.
- UL® and cUL Listed.
- **◆◆ WARRANTY** — Lifetime

* NOTE: At 29" rail spacing, the cabinet provides 2" of space in the front and 3" in the rear. The 10U of space isn't possible with all equipment configurations. For example, if you mount a 29" server in the cabinet, the maximum space is 8 RU because of the necessary rail adjustments.



Buyer's Guide

A Exterior Height	24"
B Exterior Width	20.5"
C Exterior Depth	36.1"
D Rack Units	10U
Weight	100 lb.

Item	Code	List Price
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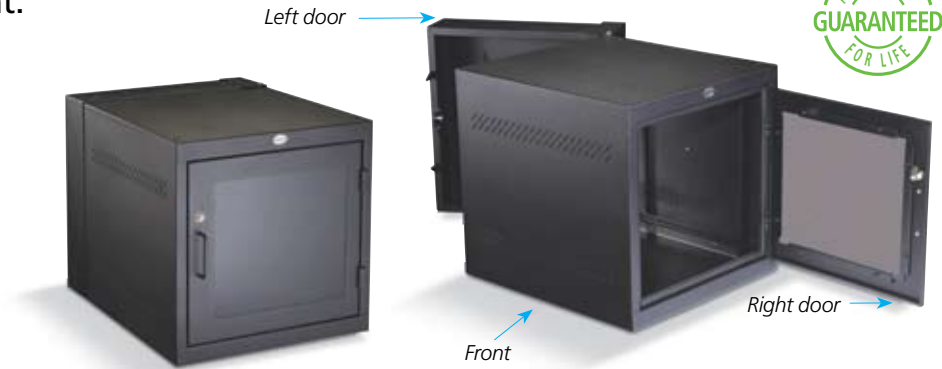
Server Side-Mount Wall Cabinet	RM610A	
To add fan cooling to the top of the cabinet, order a...		
Wallmount Cabinet Dual-Fan Kit	RM386	

Deep Wallmount Cabinet

Sized for extra-deep equipment.



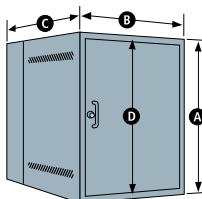
- Weight capacity of 250 pounds when properly mounted.
- Up to 30" of interior depth to accommodate larger equipment.
- PLEXIGLAS® front door enables you to view equipment without opening the door.
- The rear door is removable for easy installation.
- Rear door enables you to swing the entire cabinet away from the wall for access to the rear of your equipment.
- Rails are fully adjustable front to back.
- Equipment mounting hardware is included.
- Knockouts at the top, bottom, and rear for 1", 2", or 3" cable openings.
- Side vents provide air movement.
- Locking front door.
- **◆◆ WARRANTY** — Lifetime



* NOTE: Maximum rail-spacing 23". Maximum usable depth is 30".

What's included

- Cabinet
- (2) pairs of 12-24 tapped 19" rails
- (28) 12-24 screws
- Set of keys



Buyer's Guide

A Exterior Height	24"
B Exterior Width	24"
C Exterior Depth	32.13"
D Rack Units	11U
Weight	125 lb.

Item	Code	List Price
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Deep Wallmount Cabinet	RM3050A	
To add fan cooling to the top of the cabinet, order a...		
Wallmount Cabinet Dual-Fan Kit	RM386	

Elite Series Wallmount Cabinets

Elite security and design in three wallmount cabinets.

- Weight capacity — RM339A: 150 pounds; RM412A: 250 pounds; RM414A: 300 pounds.
- Fully welded construction; 14-gauge steel.
- Designed for optimum functionality and security.
- Two sets of adjustable 19" rack rails accommodate components with different depths.
- Rails are stamped with lines every 1U (1.75"), so you can install and align equipment easily.
- Mounting holes are drilled to a standard 5/8", 3/8", and 1/2" scheme and tapped for 10-32 hardware.
- **◆◆ WARRANTY** — Lifetime



RM339A

Vented side panels keep equipment cool.

The unique symmetrical design means you can have right- or left-handed entry simply by flipping over the cabinet.



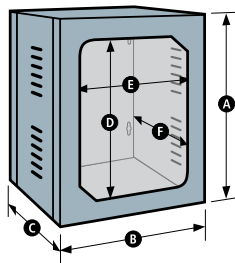
Lock both the front and back doors to limit access to valuable hardware.

What's included

- 6-outlet 15-amp power strip with 15-ft. cord
- (50) zinc-plated 10-32 panhead screws
- (4) door keys
- 75 inches of rubber grommet



Three cable knockouts on the top and bottom provide many cable management options.



Buyer's Guide

	RM339A	RM412A	RM414A
A Exterior Height	24.0"	36.0"	48.0"
B Exterior Width	22.75"	22.75"	22.75"
C Exterior Depth	20.29"	20.29"	20.29"
D Rack Units	12U	19U	25U
E Interior Width	22.25"	22.25"	22.25"
F Interior Depth	19.5"	19.5"	19.5"
Weight	150 lb.	250 lb.	300 lb.

Item	Code	List Price
Elite™ Series Wallmount Cabinets		
12U	RM339A	
19U	RM412A	
25U	RM414A	
To cool your cabinet, order...		
Dual Fan Kit	RM386	

Low-Profile Secure Wallmount Cabinets

The vertical wallmount cabinet that locks for extra security.

- Weight capacity of 150 pounds.
- Constructed of 18-gauge steel.
- Save space by mounting your networking equipment vertically.
- Both the solid top cover and the body are lockable.
- The 23" usable depth and 10-32 adjustable rack rail provide plenty of space for D-ring cable managers.
- Solid and durable top features a hinged cover for added strength.
- Feature a 12" x 3" knockout on the back panel for cable management.
- Ground studs on the bottom of the back panel make wiring easy.
- Power cord included.
- Bottom panel accepts two optional 4.5" Cooling Fans (115 VAC, 95 cfm).
- **◆◆ WARRANTY** — Lifetime



Mount hubs, routers, and other equipment "heads-up."

Unique vertical racking provides a generous 23" usable depth.



Solid, locking hinged top cover.

Locking hinged body swings right or left.

Accepts two 4.5" fans (optional) on the bottom panel. Fan grills are built-in.

Buyer's Guide

	RM352A-R2	RM353A-R2
Exterior Height	29.23"	29.23"
Exterior Width	26.43"	26.43"
Exterior Depth	8.63"	12.13"
Rack Units	4U	6U
Mounting Depth	23.0"	23.0"
Weight	51 lb.	53 lb.

Item	Code	List Price
Low-Profile Secure Wallmount Cabinets		
4U	RM352A-R2	
6U	RM353A-R2	
4.5" Cooling Fan	RM373	

Pro Series Wallmount Cabinet

Store and secure communications equipment.



- Supports up to 200 pounds.
- Extra depth accommodates large servers and still provides plenty of room for cable management.
- Front door has rounded corners and edges for safety.
- Rear door enables you to swing the cabinet out from the wall for access to the rear of the equipment.
- Both the front and the rear doors are reversible so the cabinet opens in the direction you want.

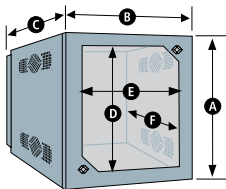
- Side panels are vented for airflow.
- 12U of racking height.
- One set of standard 19" M6 rails. Additional rails are available.
- Eight grommeted holes for 2½" conduit fittings top and bottom.
- Clear acrylic door enables you to view the front of your equipment.
- Front and rear doors lock for security.
- **◆◆ WARRANTY** — Lifetime



RM4001A

Buyer's Guide

	RM4001A
A Exterior Height	24"
B Exterior Width	24"
C Exterior Depth	30"
D Rack Units	12U
E Interior Width	19"
F Interior Depth	28.75"
Weight	94 lb.
Load Capacity	200 lb.



Item	Code	List Price
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Pro Series Wallmount Cabinet	RM4001A	
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You may also need...

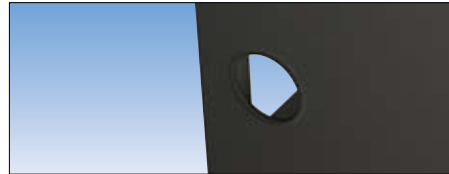
Fan Tray	RM4002A	
Filter Tray	RM4003A	
Blanking Panel	RM4004A	
Extra Vertical Rails	RM4005A	
45° Rear Mounting Rails	RM4006A	
10" Shelf	RM4007A	

Select Wallmount Cabinets

The economical way to keep your equipment safe.



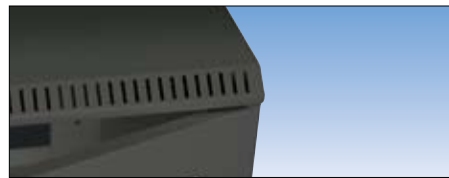
RM2413A



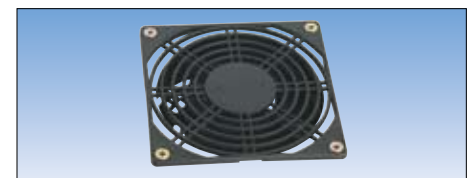
Left- and right-side cable knockouts for cabling ease.



Key lock for security.



Top and bottom venting holes provide adequate ventilation.



Low-noise, top-mounted fan for air movement.

- Weight capacity of 50 pounds.
- Solid welded construction.
- Reversible door—hinges left or right.
- Clear acrylic window enables you to view indicators.
- Standard 19" M6 rails.
- **◆◆ WARRANTY** — Lifetime

Buyer's Guide

	RM2411A	RM2412A	RM2413A
Exterior Height	13"	16.5"	20"
Exterior Width	22"	22"	22"
Exterior Depth	23.6"	23.6"	23.6"
Rack Units	6U	8U	10U
Interior Width	18.3"	18.3"	18.3"
Interior Depth	22.6"	22.6"	22.6"
Weight	41 lb.	46 lb.	50 lb.

Item	Code	List Price
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Select Wallmount Cabinets		
6U	RM2411A	
8U	RM2412A	
10U	RM2413A	

Low-Profile Side Wallmount Cabinets

SQUEEZED for space? Go up against the wall.

- Weight capacity is 50 pounds.
- 16-gauge steel frame construction.
- For extra room, mount hubs and other network equipment against the wall.
- Efficient design keeps your equipment out of sight and out of the way.
- Equipment mounting depth is adjustable for convenient cable management.
- A preinstalled 10-32 rack rail makes equipment mounting easy.
- The cover conceals your equipment and keeps it free from dust.
- Fully compliant with TIA/EIA specifications.
- **◆◆ WARRANTY** — Lifetime

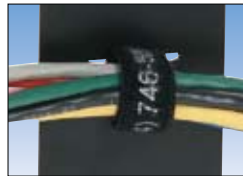


This Low-Profile Side Wallmount Cabinet (RM355A-R2) is shown with installed equipment (sold separately). For cabling convenience, components can be mounted in the cabinet at depths of 3/16", 1/2", or 3".



Buyer's Guide

	RM355A-R2	RM356A-R2
Exterior Height	19.75"	19.75"
Exterior Width	19.18"	19.18"
Exterior Depth	3.7"	7.2"
Rack Units	2U	4U
Mounting Depth	16.0"	16.0"
Weight	17 lb.	20 lb.



The cabinets include cable lacing points at the rear of each unit to help you organize and manage cable runs.

Item

Low-Profile Side Wallmount Cabinets
2U
4U

Code

RM355A-R2
RM356A-R2

List Price

2U Wallmount Cabinets

Compact cabinets designed for hubs, routers, and switches.



RM425A-R2

These cabinets feature a Black Box exclusive design!



- Constructed of rugged 16-gauge steel.
- Vented on both sides to cool equipment.
- Two built-in, 3" cable knockouts on each side.
- Keyhole mounting holes make installation easy.
- **◆◆ WARRANTY** — Lifetime

Buyer's Guide

Exterior Height	20"
Exterior Width	20.75"
Exterior Depth	4.5"
Rack Units	2U
Interior Width	20"
Interior Depth	19"
Weight	23 lb.

Item

2U Wallmount Cabinets
Black
Beige

Code

RM425A-R3
RM525A-R2

List Price

Wireless Cabinet

Shelter equipment without shuttering the signals of wireless devices.



- Weight capacity of 50 pounds.
- Fiberglass construction allows WiFi and WLAN signals to pass through unimpeded.
- NEMA 4X rated, so it can be used indoors and out, on walls, floors and rooftops.
- Protects against windblown dust and rain, splashing water, corrosion, and ice formation.
- Seamless gasket provides a watertight and dust-tight seal.
- Fiberglass polyester resists chemicals and withstands temperature changes.
- Molded fiberglass can be easily punched, drilled, filed, or sawed.
- Removable, plenum-rated solid front door.
- Compact and lightweight.
- **◆◆ WARRANTY** — Lifetime



Buyer's Guide

Exterior Height	18"
Exterior Width	16"
Exterior Depth	10"
Interior Width	14.25"
Interior Depth	7.7"

Item

Wireless Cabinet
◆ Includes mounting brackets, attachment screws, and mounting panel.

Code

RM100A

List Price

NEMA 4X Equipment Cabinet • Wallmount Equipment Termination Cabinets

Secure housing for wireless access points, telephone terminations, cross connects, and more.

NEMA 4X Equipment Cabinet

- Constructed of molded fiberglass polyester that doesn't interfere with wireless signals.
- Includes a 3/4" plywood panel for equipment mounting.
- Integral DIN boss as well as molded boss on the door provide additional mounting options.
- Seamless door gasket gives the cabinet a dust- and water-resistant seal.
- Cabinet can be rotated 180 degrees for left or right door opening.
- Door opens 180 degrees.
- Molded-in drip shields.
- Replaceable breakaway hinges.
- Keylock handle.
- Plenum rated.
- **◆◆ WARRANTY** — Lifetime

Wallmount Equipment Termination Cabinets

- Suitable for indoor or outdoor use.
- Lift-off hinges.
- 4-position grounding bar.
- Tamper-resistant quarter-turn latch opens using a 5/16" 12-point socket or a square 7-mm key.
- Padlock hasp enables you to use your own lock.
- Extensive knock-outs for conduits.
- 3/4" plywood panel for equipment mounting.
- Gray polyester powder paint finish.
- Optional Locking T Handle.
- **◆◆ WARRANTY** — Lifetime



RM900A

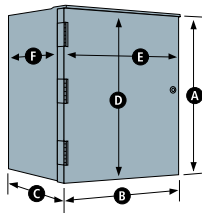


RM901A



Buyer's Guide

	RM900A	RM901A	RM902A	RM903A
A Exterior Height	24.6"	36"	36"	48"
B Exterior Width	24.1"	36"	36"	48"
C Exterior Depth	12.6"	12"	9"	8"
D Interior Height	23.9"	35.3"	35.3"	47.3"
E Interior Width	23.4"	35"	35"	47"
F Interior Depth	11.3"	11"	8"	8"
Panel Size	21" x 21"	33" x 33"	33" x 33"	45" x 45"



Item	Code	List Price
NEMA 4X Equipment Cabinet	RM900A	
Wallmount Equipment Termination Cabinets		
36"H x 36"W x 12"D	RM901A	
36"H x 36"W x 9"D	RM902A	
48"H x 48"W x 9"D	RM903A	
Locking T Handle	RM904A	

NEMA 12 Wallmount Cabinets

Tough enclosures built to keep components safe!

- Weight capacity—RMN600A: 150 pounds, RMN625A: 250 pounds; RMN650A: 300 pounds.
- Fully welded steel construction: M6 mounting rails are 12 gauge; rear section's main body is 14 gauge; door is 16 gauge.
- 24" wide for mounting 19" EIA 310-D compliant equipment.
- Independently tested and certified to NEMA-250-1997 Type 12 standard. Meets guidelines for protection against dirt, dust, and noncorrosive liquids.
- **◆◆ WARRANTY** — Lifetime



RMN650A



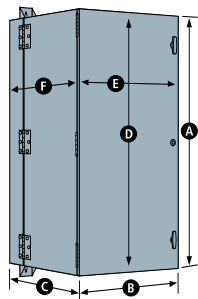
NOTE: Ships fully assembled via motor freight.

Front and back sections lock independently.

Unique double hinging enables access to the front and back of your equipment.

Buyer's Guide

	RMN600A	RMN625A	RMN650A
A Exterior Height	24"	36"	48"
B Exterior Width	24"	24"	24"
C Exterior Depth	24"	24"	24"
D Rack Units	12U	19U	26U
E Interior Width	23"	23"	23"
F Interior Depth	23"	23"	23"
Weight	105 lb.	140 lb.	175 lb.



What's included

- (50) screws for mounting
- (50) cage nuts for mounting
- (2) sets of keys

Item	Code	List Price
NEMA 12 Wallmount Cabinets		
12U	RMN600A	
19U	RMN625A	
26U	RMN650A	

Wallmount ClimateCab

Protect and cool equipment in areas without air conditioning.

- NEMA 12 rated for protection against falling dirt, circulating dust, lint, debris, and spashing liquids in indoor environments.
- Include 19" rails with 12-24 tapped mounting holes.
- Scratch-resistant safety glass window provides easy viewing.
- Fully-welded body and door construction.
- Robust 12-gauge frame and 14- or 16-gauge sides and doors.
- Seamless door gaskets keep out dust and contaminants.
- Choose from single- or double-hinged front doors.
- Doors lock and come with keys.
- Choose from ClimateCab with 800-BTU AC or with a fan panel.
- **GO GREEN** — Save energy and money by cooling only the cabinet rather than a whole room or IT center.
- **◆◆ WARRANTY** — All: 1 Year

NEMA 12



ClimateCab with Air Conditioning and Double-Hinged Door (RMW5110AC)



ClimateCab with Air Conditioning

- The AC models are perfect for harsh environments and remote locations without cooling infrastructure.
- Air conditioning units keep equipment cool even with temperatures up to 130°F.
- Closed-loop cooling system recirculates air in the cabinet and keeps outside air out.
- An internal evaporator eliminates condensation.

ClimateCab with Fan

- Use the fan models in areas where you need protection from the elements, but temperature control is not a significant issue.
- Air filters on the bottom can be easily removed for cleaning without opening the cabinet.
- Pagoda style fan top provides protection from falling liquids and debris.



ClimateCab Fan Panel (RMW5120AF, RMW5100AF)

NOTE: For more photos and information, see blackbox.com.

NOTE: ClimateCab ships assembled without the Air Conditioning unit mounted. Mounting the AC unit takes about two minutes.

ClimateCab server, network, and PC cabinets, p. 237.

Buyer's Guide

Exterior Height	24" (61 cm)
Rack Units	12U
Exterior Width	24" (61 cm)
Exterior Depth	24" (61 cm)
Equipment Depth	21.2" (53.8 cm)
Weight Capacity	100 lbs. (45.4 kg)

Item	Code	List Price
ClimateCab Wallmount Cabinets, 12U, Beige with Air Conditioning		
Single-Hinged	RMW5130AC	
Double-Hinged	RMW5110AC	
with Fan		
Single-Hinged	RMW5120AF	
Double-Hinged	RMW5100AF	

DataSafe NEMA 12 Wallmount Cabinets

Keep equipment safe—but within sight—in harsh indoor environments.

NEMA 12



- Weight capacity of 175 pounds.
- Designed to protect against dust and liquids in indoor settings.
- Oil-resistant, foam-in-place gasket and adhesive provide a secure seal.
- Front compartment opens with a quarter-turn latch to allow for access to rear connections.
- Front door has a window for easy monitoring of cabinet's interior. Glass is bonded in place to ensure maximum visibility with a high degree of safety.
- Adjustable square hole rack angles and EIA-standard universal spacing make installing 19" equipment of different depths easy.
- Rear compartment's self-aligning latching gives you more reliability.
- Front door locks with slotted screwdriver.
- **◆◆ WARRANTY** — Lifetime

Buyer's Guide

	RMN300A	RMN350A
Exterior Height	24.93"	30.18"
Exterior Width	23.62"	23.62"
Exterior Depth	21.65"	21.65"
Interior Height	13U	16U
Interior Width	22.62"	22.65"
Interior Depth	20.65"	20.65"
Weight	95 lb.	100 lb.



RMN350A-R2

Item	Code	List Price
DataSafe NEMA 12 Wallmount Cabinets		
13U	RMN300A-R2	
16U	RMN350A-R2	
◆ Both include wallmount brackets.		

Item	Code	List Price
For installing "non-rackmountable" devices in your cabinet, order...		
13U Panel (for RMN300A)		
	RMN301-R2	
16U Panel (for RMN350A)		
	RMN351-R2	

Video Security Cabinet

Keep cameras and multimedia equipment out of harm's way.

- Weight capacity of 70 pounds.
- Fully welded 14-gauge steel construction.
- Measures 32.5"H x 21.5"W x 20.5"D.
- Dust-resistant and tamper-proof.
- Secure, locking front door is field reversible with removable hinge pins.
- Includes an adjustable solid shelf for non-rackmount equipment.
- Adjustable levelers offer maximum stability.
- Rear panel is solid with two 2" cable access ports for easy access.
- The 20-cfm fan keeps your security equipment cool.
- Preassembled for quick set up.
- **◆◆ WARRANTY** — All: Lifetime



- What's included**
- Adjustable shelf
 - Leg levelers
 - 20-cfm fan

Buyer's Guide

	RM910A
Exterior Height	32.5"
Exterior Width	21.5"
Exterior Depth	21.5"
Interior Height	28.0"
Interior Width	20.5"
Interior Depth	20.5"



RM910A

Item	Code	List Price
Video Security Cabinet	RM910A	
Swivel Casters	RM913	
Additional Solid Shelf	RM914	

12U Under-Desk Cabinet

Protect and hide rackmount equipment under your desk.



- Weight capacity of 200 pounds.
- 12U of interior space gives you up to 21.7" of usable depth.
- Front of cabinet is angled 15 degrees for easy viewing of internal components.
- Features effective thermal management design for keeping equipment cool.
- Front and rear doors lock securely and can be removed.
- Easy cable management.
- Measures 26.875"H x 23"W x 26"D including casters.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
12U Under-Desk Cabinet	RM147A	

Time-Lapse Lockboxes

Protect time-lapse recorders from prying hands.

- Fully welded construction; 16-gauge steel.
- Preassembled for quick installation.
- Dust-free storage for video time-lapse recorders and similar equipment.
- Takes up a small space—use under desks or counters, or on shelves.
- The 4½" fan with washable filter keeps equipment from overheating.
- Locking hinged front panel and removable interlocking top offer quick, convenient access.
- The optional Wallmount Kit enables fast and easy wallmounting.
- **◆◆ WARRANTY** — All: Lifetime



Buyer's Guide

	RM790	RM971
Exterior Height	8.125"	5.5"
Exterior Width	20.75"	20.0"
Exterior Depth	20.875"	17.25"
Interior Height	8.0"	5.375"
Interior Width	20.625"	19.875"
Interior Depth	20.75"	17.0"



RM790

Item	Code	List Price
Time-Lapse Lockboxes		
8.0"H	RM790	
5.5"H	RM791	
Wallmount Kit for RM790	RM792	

Laptop Depot

Store and secure five or eight laptops under a desk or in a standalone cart.



- Laptop Depot consists of vented cube with a locking tambour door.
- To make a workstation, add the Base, Top, and Locking Drawer, or to mount under a desk or on a surface, just order the cabinet.
- For mobility in classrooms and training centers, add the optional caster set.
- Includes power strips.
- UL® listed.
- ♦♦ **WARRANTY** — Lifetime

*NOTE: Other colors are available with minimum quantities.
For more information contact customer service.*



Item	Code	List Price
Laptop Depot		
5 Unit	LTD5	
8 Unit	LTD8	
To make a workstation, order...		
Optional Laminate Top, and Base with Locking Drawer		
5 Unit	LTD5B	
8 Unit	LTD8B	
Laptop Depot Caster Set		
	LTDCS	

CPU Security Cabinets

Keep CPUs away from prying fingers.

- Lock down your computer's CPU, preventing access to the computer's CD and disk drives.
- Slide-out tray for easy access to the CPU.
- Plenty of vents to prevent heat buildup.
- Cable grommets organize loose cables.
- Mobile cabinets can be mounted under a desk for added stability.
- ♦♦ **WARRANTY** — Lifetime

NOTE: For specifications, see blackbox.com.



RM193A

Item	Code	List Price
CPU Security Cabinets		
Office White	RM192A	
Light Gray	RM194A	
Black	RM196A	
CPU Mobile Security Cabinets		
Office White	RM193A	
Light Gray	RM195A	
Black	RM197A	

Laptop Cart

Store, protect, and charge 20, 26, or 32 laptop computers.

- Perfect for classrooms.
- Recharge laptops overnight with built-in power strips.
- Holds up to 17" screen laptops.
- Dual entry design for security.
- Translucent tambour door enables access to laptops while limiting access to electrical timer.
- Laminate top provides a surface for writing or equipment.
- Vented design for cooling.
- Includes swivel and rigid casters.
- Rubber corner bumpers.
- All measure 37.8" H x 26.25" D. Widths are 30.25", 35.8", or 41.8", respectively.
- UL® listed.



- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
Laptop Cart		
20 Unit	LTC20	
26 Unit	LTC26	
32 Unit	LTC32	

Laptop Security Cabinet

Protect up to 35 laptops from theft!

- Solid steel construction; 16-gauge base and top, 20-gauge door and tier.
- Prevents theft of valuable laptop computers when premises are unattended at night and on weekends.
- Ideal for schools and training rooms.
- Partitions separate the laptops.
- Measures 73.5" H x 24" W x 19.25" D (186.7 x 61 x 48.9 cm).
- ♦♦ **WARRANTY** — Lifetime



Item	Code	List Price
Laptop Security Cabinet	RM190A	

Laptop Cabinet

The lockbox designed exclusively for laptops.

- Fully welded construction; 16-gauge steel.
- Protect your laptop computer and your data from theft and vandalism by storing it and other valuables under lock and key.
- Mounts virtually anywhere: under your desk, on the wall, in closets, and more!
- Features a heavy-duty security lock.
- ♦♦ **WARRANTY** — Lifetime



What's included

- (2) keys
- Mounting hardware

Item	Code	List Price
Laptop Cabinet	RM415A	

Computer Multimedia Cabinet

Safely store your media in this lockable, heavy-duty steel cabinet.

- Sturdy, heavy-gauge steel construction stands up to lots of use.
- Designed to accommodate multiple media types.
- Measures 27.75"H x 37"W x 17.375"D.
- High-quality drawer guides provide smooth, quiet operation.
- Can be stacked to provide additional storage.
- Chrome handles and label holders.
- Each 6" high drawer contains six 10-slot media trays.
- Use any slot for any type of media.
- Choose the optional base (RMM210) to raise cabinet 5" off the floor.
- Key lock.
- **◆◆ WARRANTY** — 1 Year



Each slot holds one of the following selections:

- (10) 3.5" diskettes
- (2) CDs
- (1) DLT tape
- (2) Zip™ disks
- (1) Jaz disk
- (1) Q/C
- (2) 5.25" opticals
- (1) Syquest SparQ
- (1) Ditto
- (1) Travan
- (2) 4-mm tapes
- (1) 8-mm tape

Item	Code	List Price
Computer Multimedia Cabinet	RMM200A	
Cabinet Base	RMM210	

Audio/Video Media Cabinet

The stackable steel cabinet for audio/video media.



Two stacked Audio/Video Media Cabinets shown with Cabinet Base.

- Constructed of heavy-gauge steel.
- Measures 27.75"H x 37"W x 17.375"D.
- Stores media such as CDs, DVDs, 4- or 8-mm tapes, and audio cassettes.
- High-quality drawer guides provide smooth, quiet operation.
- Can be stacked to provide additional storage.
- Chrome handles and label holders.
- Front-to-back steel dividers are fully adjustable in 1/2" increments.
- Bookend dividers are adjustable, front to back.
- Choose the optional base (RMM210) to raise cabinet 5" off the floor.
- Key lock.
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price
Audio/Video Media Cabinet	RMM220A	
Cabinet Base	RMM210	

Audio/Video Adjustable Shelving

Adjustable shelves enable you to store media as you see fit.



- Constructed of heavy-gauge steel.
- Measures 78.25"H x 36"W x 13.25"D.
- Stores media such as CDs, DVDs, audio cassettes, and VHS tapes.
- The twelve 6" deep shelves adjust up and down in 1" increments.
- Bookend dividers keep media neatly in place.
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price
Audio/Video Adjustable Shelving	RMM240A	

ServCenter

Modular and flexible—build the network center you need today. Expand it tomorrow as your network grows.



- Weight capacity of more than 2000 pounds. With standard end brackets, each shelf has a weight capacity of more than 300 pounds.
- Its one-piece frames are welded from 12-gauge 1" x 2¾" steel tubing.
- The one-piece frames attach to each end upright with five bolts to form the basic structure.
- Interchangeable components enable you to create everything from a simple server-stacking rack to a complete network control center.
- Design the ServCenter to fit your specific network requirements. You choose where to place the shelves and supports to best fit your system and work style.
- As your system grows, add accessories (see below) or attach more ServCenters for a multiple-unit system.
- ♦♦ **WARRANTY** — Lifetime



ServCenter 48" (RF515A)

The ServCenter is shown with 48" Electronic/Tower Shelves. Additional shelves available separately; for details, see below.

All ServCenters include vertical cable management.

The work surface is made of 1¼" thick laminate.

Caster base shelf.

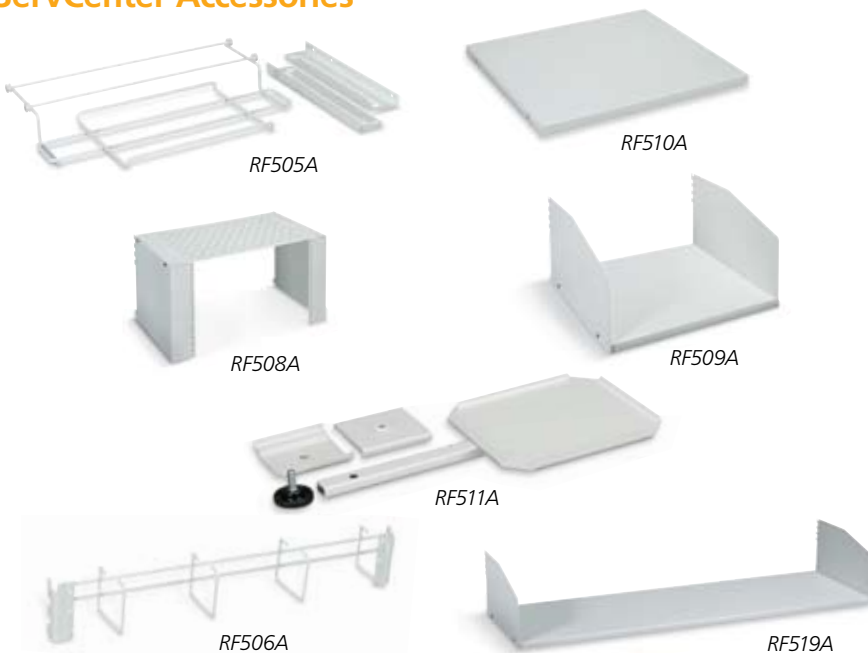
NOTE: The frames are one-piece, welded units and must ship via motor freight.

Buyer's Guide | ServCenter 48" & 72" Configurations

Item	Code	Accessories Included				Outside Dimensions (All Are 34.25"D)	List Price
		Add-On Shelf	Electronic/Tower Shelf	Tower Floor Shelf with Roll-Out Kit	Caster Base Shelf		
ServCenter, 48" Inside Width	RF501A	1	1	—	1	90"H x 52.4"W	
	RF515A	—	2	—	1	90"H x 52.4"W	
	RF513A	1	1	1	—	85.5"H x 52.4"W	
	RF514A	—	2	1	—	85.5"H x 52.4"W	
ServCenter, 72" Inside Width	RF500A	1	1	—	1	90"H x 76.4"W	
	RF504A	—	2	—	1	90"H x 76.4"W	
	RF502A	1	1	1	—	85.5"H x 76.4"W	
	RF503A	—	2	1	—	85.5"H x 76.4"W	

ServCenter Accessories

Item	Code	List Price
Retractable Keyboard Holder 24"W	RF505A	
Mini Electronic/Tower Shelf 24"W x 22"D	RF509A	
Mini Add-On Shelf 24"W x 22"D	RF510A	
Adjustable Mouse Tray	RF511A	
Horizontal Cable Managers 24"W	RF506A	
48"W	RF517A	
72"W	RF516A	
Rackmount Panel Assembly 24"W x 12"H	RF508A	
Patch Panel Bracket	RF512A	
Electronic/Tower Shelves 48"W x 22"D	RF518A	
72"W x 22"D	RF519A	
Vertical Cable Management Cover	RF523A	
Add-On Shelves 48"W x 22"D	RF518A	
72"W x 22"D	RF519A	
CD Holder	RF526	



Premier Aluminum Distribution Racks

High quality you'll appreciate: sturdy racks, generous cable managers, versatile shelves.

Distribution Racks

- Weight capacity of 750 to 1000 pounds.
- Constructed of high-grade 6061-T6 aluminum.
- UL® 1863 approved.
- Easy to assemble — they're self-squaring and self-supporting.
- Available in 2-post and new 4-post versions.

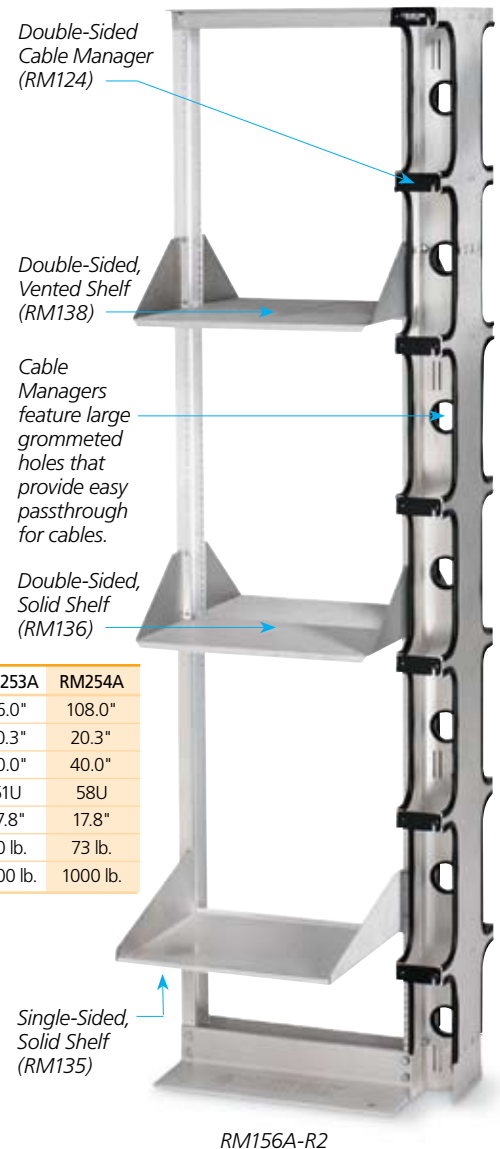


Shelves

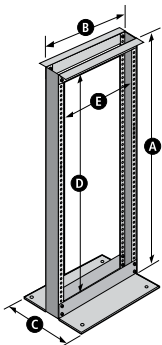
- Single-sided shelves have a weight capacity of 50 pounds.
- Double-sided shelves have a weight capacity of 125 pounds and consist of a pair of shelves that join in the center of the rack.
- Constructed of 11-gauge aluminum.
- Choose from solid or vented shelves.
- EIA standard.

Cable Managers

- Constructed of heavy-gauge aluminum.
- Conceal and protect cables.
- Latches hold and separate wiring.
- Optional Hinged Plexi Door features an easy-to-use latch and slip hinges to make cover removal simple.
- Narrow and wide styles available.
- ♦♦ **WARRANTY** — All: Lifetime



NOTE: All parts shown have a mill finish.



Buyer's Guide | Premier Aluminum Distribution Racks

	RM155A-R2	RM156A-R2	RM161A-R2	RM162A-R2	RM251A	RM252A	RM253A	RM254A
A Exterior Height	72.0"	84.0"	72.0"	84.0"	96.0"	108.0"	96.0"	108.0"
B Exterior Width	19.0"	19.0"	24.0"	24.0"	20.3"	20.3"	20.3"	20.3"
C Base Depth	15.0"	15.0"	15.0"	15.0"	14.0"	14.0"	40.0"	40.0"
D Rack Units	38U	45U	38U	45U	51U	58U	51U	58U
E Interior Width	17.72"	17.72"	17.72"	17.72"	17.812"	17.812"	17.8"	17.8"
Weight	27.5 lb.	30.2 lb.	27.5 lb.	30.2 lb.	27.5 lb.	31 lb.	70 lb.	73 lb.
Weight Capacity	1000 lb.	1000 lb.	1000 lb.	1000 lb.	750 lb.	750 lb.	1000 lb.	1000 lb.

Buyer's Guide | Premier Shelves

Width	Depth	Finish	Single-sided/ Double-sided	Solid/ Vented	Code	List Price
19.0"	17.4"	Mill	Single-sided	Solid	RM135	
19.1"	10.8"	Mill	Double-sided	Solid	RM136	
19.0"	17.4"	Mill	Single-sided	Vented	RM137	
19.1"	10.8"	Mill	Double-sided	Vented	RM138	

Buyer's Guide | Premier Cable Managers

Height	Channel Width	Weight	Finish/ Color	Single-sided/ Double-sided	Code	List Price
84.0" (45U)	3.0"	25 lb.	Mill	Single-sided	RM122	
84.0" (45U)	6.0"	26 lb.	Mill	Single-sided	RM123	
84.0" (45U)	3.0"	26 lb.	Mill	Double-sided	RM124	
84.0" (45U)	6.0"	27 lb.	Mill	Double-sided	RM125	
84.0" (45U)	3.0"	25 lb.	Black	Single-sided	RM128	
84.0" (45U)	6.0"	26 lb.	Black	Single-sided	RM129	
84.0" (45U)	3.0"	26 lb.	Black	Double-sided	RM130	
84.0" (45U)	6.0"	27 lb.	Black	Double-sided	RM131	
Hinged Plexi Door						
84.0" (45U)	3.0"	5 lb.	Smoked Plastic	—	RM132	
84.0" (45U)	6.0"	6 lb.	Smoked Plastic	—	RM133	

Item	Code	List Price
2-Post Premier Aluminum Distribution Racks		
Mill Finish		
72"	RM155A-R2	
84"	RM156A-R2	
Black Finish		
72"	RM161A-R2	
84"	RM162A-R2	
96"	RM251A	
108"	RM252A	
4-Post Premier Aluminum Distribution Racks		
Black Finish		
96"	RM253A	
108"	RM254A	

Elite Cable Managers

Run more cable in less time with these highly-engineered cable managers.

- Use to manage and route cables efficiently in EIA standard 19" racks.
- Horizontal and vertical units can be used alone or together in a 2- or 4-post open frame rack.
- Double-hinged removable covers provide easier access during installation.
- No obstructions. An entire unit can be used for cable routing.
- Easy to put together and run cables through.
- **◆◆ WARRANTY** — All: Lifetime



Horizontal Elite Cable Managers

- Available in 1U single-sided and 2U single- and double-sided versions.
- Arrowhead-shaped fingers funnel cables into the base and hold them securely.
- Enable easy cable routing. Insert and remove cables while maintaining retention.
- Rounded end posts maintain proper bend radius and protects cabling as it enters and exits the manager—no tearing and gouging of jackets when quickly routing cable.
- High capacity and extra depth for maximum CAT5e, CAT6, and CAT6a cabling density.
- Cover hinges on the top or bottom and snaps close to protect cabling, or it can be removed.
- Double-sided model has large passthrough holes for running cable from side to side.
- “Tool-less” snap-in design holds manager in place during installation.
- Constructed of durable, UL® Listed black composite material with rigid design.
- Include 10-32 and 12-24 screws for mounting.
- Add the steel Horizontal Tie-Down Bar to support and maintain bend radius for cables on the back side of a rack, behind a patch panel, for example. Can also be used to support runs between the horizontal and vertical managers, or above a patch panel to separate and control patch cables.

Vertical Elite Cable Managers

- Single-sided, 45U (7-foot-high) managers available in 6" and 12" widths.
- Mount on the side of or between 2- and 4-post open racks. Align easily with the bolt pattern on an open frame rack.
- Cover has a central spring-loaded latch and opens 180° to allow full access to cables from the left or right, or it can be removed.
- Generous finger depth for maximum cable density. Fingers are shaped like arrowheads to funnel cables into the base and secure them.
- Rounded edges on the manager and its grommets protect cable jackets from damage.
- Provide proper bend radius management.
- Feature passthrough holes for routing cable front to back, as well as rear cable tiedowns.
- Post and gates on the rear can be moved easily up and down on the manager. When closed, they support and secure cable bundles.
- Order extra 6" or 12" posts and gate sets as needed or to create a double-sided manager.
- Door and cable channel are lightweight aluminum; fingers and hinge points are made of composite material.



ECMV45U6



Horizontal Cable Managers keep patch cables organized.

Item	Code	List Price
Horizontal Elite Cable Managers		
Single-Sided	1U ECMH1US	
	2U ECMH2US	
Double-Sided	2U ECMH2UD	
Horizontal Tie-Down Bar		
	1U ECMTDB	



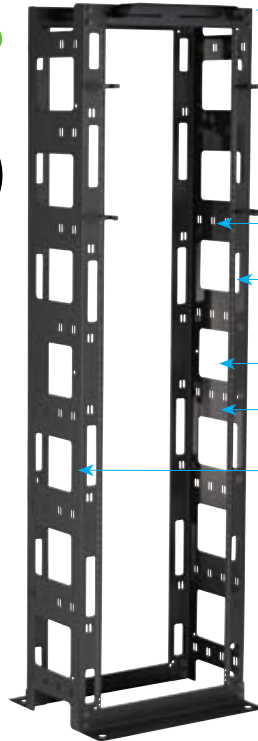
The Vertical Post & Gate Kit has 10 sets of posts and gates that snap together quickly. Each set consists of two posts and one gate. The posts snap into prepunched holes on the cable manager. The gates swivel 280° in either direction to allow easy cable access.

Item	Code	List Price
Vertical Elite Cable Managers, 45U		
6"	ECMV45U6	
12"	ECMV45U12	
Vertical Rear Post & Gate Kit, (10) Sets		
6"	ECMVPG6	
12"	ECMVPG12	

Elite Rack Manager

Extensive cable management on a footprint that fits on a 24-inch floor tile.

- Weight capacity of 1000 pounds.
- Waterfall trays on the top front and rear maintain proper cable bend radius.
- Rack is designed with abundant cable management for high-density networks.
- Side channels measure a whopping 3"W x 12"D (7.6 x 30.5 cm).
- Eight cable rings can be rotated for horizontal or vertical cable management.
- Keep cables tidy with the more than 88 cable tie slots.
- This standard 19" EIA 310-D compliant rack can be adjusted to 23".
- Features tapped 12-24 rails.
- Compatible with the Ladder Rack, pages 292–293.
- **WARRANTY** — Lifetime



- Adjustable waterfall trays run front to rear. Use with a Ladder Rack to maintain proper cable bend radius.
- Comes with eight cable rings, which can be mounted in any direction. (Not all are shown here.)
- Designed with more than 88 cable tie slots.
- Features eight large 1.75" x 6" slots (four in front, four in rear) on each upright for cable management.
- Large side openings for better cable management.
- Super-sized channels are 12"D and 3"W to handle high-density network connections.
- Networking holes line up the 4-post racks.

Buyer's Guide

Exterior Height	84.0"
Rack Units	45U
Base Depth	21.0"
Base Width	23.9"
Weight Capacity	1000 lb.

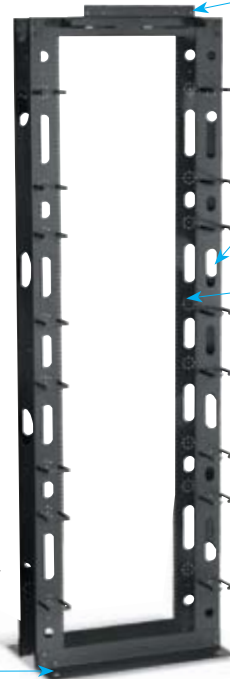
Item	Code	List Price
Elite Rack Manager	RM945A	

Base can be adjusted to 23".

Rack Manager

Take control of cable management with this steel rack.

- Weight capacity of 750 pounds.
- Constructed of 14-gauge steel.
- Standard drilled and tapped 12-24 holes.
- Each base panel measures 4.25"D.
- Racks may be joined together for multitrack systems.
- Meets EIA standards.
- Base has predrilled holes for bolting the rack to the floor.
- **WARRANTY** — Lifetime



- Top channel is designed with an adjustable waterfall to support cables and protect bend radius.
- Features 16 built-in steel cable rings, (8 in front, 8 in back). Cable rings can be adjusted 90 degrees.
- Side channels feature 6" holes for threading cable. Additional front and rear cable access cutouts provide more cable management options.
- Extra-wide and extra-deep upright channels provide plenty of room for cable management. Channels measure 3.5"W x 6.5"D.

Buyer's Guide

Exterior Height	84.0"
Base Depth	15.5" total
Rack Units	45U
Interior Height	78.9"
Weight	45 lb.

Item	Code	List Price
Rack Manager	RM940A	

Base features predrilled holes for bolting the rack to the floor for extra stability.

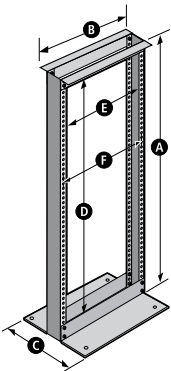
Zone 4 Seismic Racks, page 245.

Cable Controller Racks • Cable Controller Vertical Organizers

Large pass-through holes make your cable management easy!

Cable Controller Racks

- Weight capacity of 700 pounds.
- Constructed of 6061-T6 structural-grade aluminum.
- UL® 1863 Listed.
- Choose from 3" or 6" depths, depending on the complexity of your installation.
- Rails feature a 3/8", 1/2", 5/8" universal mounting hole pattern.
- VELCRO® slots on rack uprights provide additional support.
- Include 24 12-24 x 1/2" mounting screws.
- Meet EIA requirements.
- **◆◆ WARRANTY** — All: Lifetime



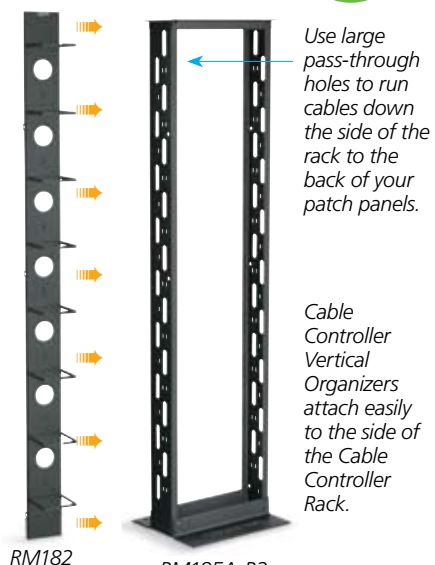
Cable Controller Vertical Organizers

- Evenly spaced rings on the front make patch cable organization and moves/adds/changes easier.
- Feed-through holes make it convenient to run patch cable to the back of the rack for equipment connections.
- When used between racks or at the end of a rack lineup, the back of an organizer forms a U-shaped pathway for running cables to patch panels.
- Meet EIA standards.
- Double-sided capability with VELCRO® loops on back.
- Choose from 3" or 6" widths, depending on your rack.

NOTE: VELCRO® is a registered trademark of Velcro Industries.

Buyer's Guide | Cable Controller Racks

	RM180A-R2	RM185A-R2
A Exterior Height	84.0"	84.0"
B Exterior Width	19.0"	19.0"
C Base Depth	15.0"	18.0"
D Rack Units	45U	45U
E Interior Width	17.8"	17.8"
F Hole-to-Hole	18.3"	18.3"
Weight	30 lb.	35 lb.



Item	Code	List Price
Cable Controller Racks		
3"D Side Channels	RM180A-R2	
6"D Side Channels	RM185A-R2	
Cable Controller Vertical Organizers		
3"W	RM181	
6"W	RM182	

19" Steel Distribution Racks

Organize your computer room with steel distribution racks.

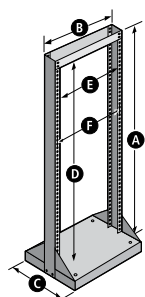
- Constructed of rugged 16-gauge steel.
- For use in secure computer rooms where access is limited and locking cabinets aren't needed.
- Use them to mount patch panels, hubs, shelves, and more.
- Racks feature 10-32 holes on the front and back of the vertical rails for mounting accessories on both sides.
- All racks are 21.2"W and are drilled and tapped with 10-32 holes and spaced for standard 19" TIA/EIA mounting.
- Three different heights are available.

- Easy to assemble and take apart. Bolts enable simple disassembly for compact storage.
- **◆◆ WARRANTY** — Lifetime



Buyer's Guide

	RM392A-R2	RM391A-R2	RM390A-R2
A Exterior Height	39.0"	74.0"	86.5"
B Exterior Width	21.2"	21.2"	21.2"
C Base Depth	21.0"	21.0"	21.0"
D Rack Units	20U	40U	47U
E Interior Width	17.5"	17.5"	17.5"
F Hole-to-Hole Centers	18.3"	18.3"	18.3"



Item	Code	List Price
19" Steel Distribution Racks		
20U	RM392A-R2	
40U	RM391A-R2	
47U	RM390A-R2	

Action Organizers

Organize your equipment and cables in this dual-purpose open rack.



RM920A



- Weight capacity of 1000 pounds.
- Constructed of 13-gauge steel.
- Open design for airflow.
- Racks provide solid, four-post stability to hold equipment.
- Use the built-in cable management or add optional channels.
- Wiring troughs recessed into frame's front and back keep cables clear of shelf and rackmounted components.

What's included

- (4) vertical rails
- (2) top angles
- (4) brackets to join the front and back sections
- (40) hex-head bolts and nuts
- (50) cage nuts and screws

Buyer's Guide

	RM920A	RM928A	RM930A
Exterior Height	84"	84"	84"
Exterior Width	24"	24"	24"
Exterior Depth	24"	30"	36"
Rack Units	45U	45U	45U
Interior Width	19"	19"	19"
Weight	110 lb.	118 lb.	120 lb.

- Attach multiple frames together in a modular configuration.
- Meet EIA standard for 19" racks.
- Flexible power options. You can mount power strips directly to the back of the rack or to the optional Cable Channel.
- Ship completely assembled.
- **WARRANTY** — Lifetime

Item	Code	List Price
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Action Organizers		
24"D	RMT920A	
30"D	RMT928A	
36"D	RMT930A	

For storing equipment that can't be rackmounted, order...

Vented Quick-Release Shelves		
22"D for RMT920A	RMT921	
28"D for RMT928A	RMT929	
34"D for RMT930A	RMT922	

For additional cable management, you may need...

Cable Management Kits		
4" D-Ring	RMT923	
6" D-Ring	RMT924	
Cable Management Channel ([6] 6" x 2" D-Rings)	RMT926	

To connect multiple Action Organizer racks, order...

Action Organizer Joining Kit	RM927	
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4-Post Racks

Exceptional stability plus great Black Box quality—all at an economical price.

- Weight capacity of 2200 pounds.
- Constructed of 12-gauge cold-rolled steel.
- Four-post stability.
- Open design provides maximum ventilation.
- M6 mounting.
- Shipped unassembled.
- Assembly hardware and mounting hardware is included.
- Can be standalone, or bayed with other racks with optional Baying Kit.
- EIA 310-D compliant.
- **WARRANTY** — Lifetime



RM7000A



Buyer's Guide

	RM7003A	RM7001A	RM7000A	RM7004A	RM7005A
Exterior Height	33.25"	45.5"	80.5"	96"	108"
Exterior Width	20.6"	20.6"	20.6"	20.6"	20.6"
Exterior Depth	29"	29"	29"	29"	29"
Rack Units	15U	22U	42U	51U	58U
Interior Width	19"	19"	19"	19"	19"
Weight	60 lb.	65 lb.	80 lb.	94 lb.	101 lb.

Item	Code	List Price
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4-Post Racks		
15U	RM7003A	
22U	RM7001A	
42U	RM7000A	
51U	RM7004A	
58U	RM7005A	

Baying Kit	RM7002	
Caster Set	RM7006	
Flat Top	RM7007	

You may also need...

Fixed Vented Server Shelves		
(For details, see blackbox.com .)		
27 1/4"D	RM403	
30"D	RM410	

Rack Accessories **See blackbox.com.**

Freedom Rack Plus

Freedom is a rack you can adjust to fit equipment with different depths.



RM082A

Four-post, open design eliminates ventilation worries and provides access to all sides of equipment.

Choose from 5/8", 5/8", 1/2" spaced 12-24 or M6 holes.

Customizable with a variety of adjustable shelves.

Depth is adjustable in 1" increments from 17.72" to 41.34".

Predrilled mounting holes at the base enable you to anchor the rack to the floor for a safe and secure installation.



- Weight capacity of 2500 pounds.
- Uprights and top and bottom angles are constructed of lightweight, 6063-T6 alloy, extruded aluminum.
- Holds 19" wide servers, panels, and other components.
- UL® 1863 Listed.
- Link multiple racks side-by-side with the joining kit (sold separately).
- Ships to you unassembled, enabling easy transport to a job site.
- ♦♦ **WARRANTY** — Lifetime

Buyer's Guide

	RM082A	RM084A, RM088A	RM086A	RM089A
Exterior Height	72.0"	84.0"	96.0"	84"
Exterior Width	20.25"	20.25"	20.25"	24.25"
Exterior Depth	17.72"–41.34"	17.72"–41.34"	17.72"–41.34"	17.72"–41.34"
Rack Units	38U	45U	51U	45U
Weight	65 lb.	69 lb.	73.5 lb.	75 lb.

Item	Code	List Price
Freedom Rack Plus		
with 19" 12-24 Rails		
38U	RM082A	
45U	RM084A	
51U	RM086A	
with M6 Rails		
45U, 19" Rails	RM088A	
45U, 23" Rails	RM089A	
Joining Kit	RM087	
Adjustable Vented Shelves		
1U, 150-lb. Capacity	RM083	
2U, 60-lb. Capacity	RM085	
You may also need...		
Keyboard Tray (For details, see p. 278.)	RM385	
Keyboard Shelf	RM447-R2	

Black Box Explains

10-32, 12-24, and M6 rails.

The rails on cabinets and racks typically come with one of three mounting options: 10-32, 12-24, or M6.

The 10-32 and 12-24 options are round holes found on drilled and tapped rails. You'll find 10-32 openings on cabinets, while 12-24 holes are more commonly found on relay racks and frames. However, exceptions do exist. It's very important to find out which type of mounting option your equipment requires before you order a cabinet or rack.

M6 holes are square, rather than round. M6 rails were developed to hold rackmount equipment, and you will find them on most server cabinets.

What makes M6 rails so popular on server cabinets? They're adaptable. With just one cage nut, you can change a square hole into a round one. That gives you much more versatility in your equipment and mounting choices.

If you have a wide array of equipment, such as rackmount servers, hubs, routers, and patch panels, your best bet is a cabinet with M6 rails. It will accommodate the rackmount servers, and the other equipment can be mounted on those same rails using cage nuts.

If you're unsure what type of cabinet, rack, or frame is best for your application, contact the experts at Black Box Tech Support. They'll be glad to help you find the right enclosure for your equipment.

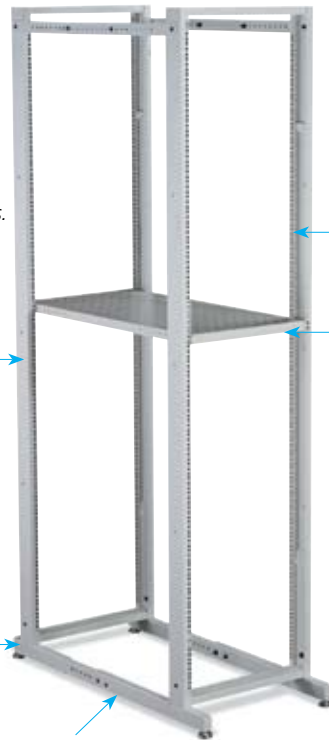
ServCenter Rack

Adjust the depth on this four-column rack to fit your server equipment.

- Weight capacity of 2000 pounds.
- Constructed of 12-gauge welded steel.
- No walls—access equipment from all sides!
- Use alone or add onto a ServCenter (page 259) for a complete data center.
- Sturdy steel cable managers (optional) don't break under stress.
- Includes all necessary hardware.
- **WARRANTY** — Lifetime



Features "U-shaped" rails. Please check your server installation manual before rackmounting your server.



The depth adjusts from 30" to 36" in one-inch increments.

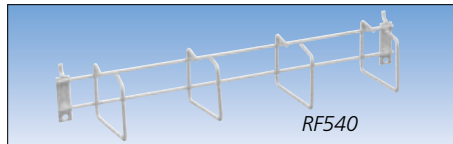
The base is designed to be bolted to the floor or equipped with either levelers (included) or 3-inch locking casters (optional).

Buyer's Guide

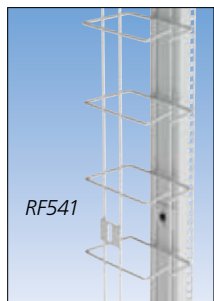
Exterior Height	86.0"
Exterior Width	20.25"
Exterior Depth	30.0"–36.0"
Rack Units	45U
Weight	106 lb.

M6 mounting holes accommodate servers and equipment from multiple vendors.

Customize your rack with one of our optional shelves in two different depths: 30" and 36". Each shelf supports up to 150 pounds.



Add 19" Horizontal Cable Managers. The Mega model (shown above) boasts extra-large 4"D rings.



Our 70" Mega Vertical Cable Manager (left) has extra-large cable rings measuring 6"W x 4"D and installs on the rack's side panel. Our Two-Position model has 3.6"W x 2"D rings and can be installed with the rings facing forward or out to the side.

Item	Code	List Price
ServCenter Rack, 86"H	RF535A	
You may also need...		
Caster Kit (4 Casters)	RF536	
Shelves, Vented, 4-Point, 17.5"W		
30"D	RF537	
36"D	RF538	
Horizontal Cable Managers, 19"		
3" Rings	RF539	
Mega (4" Rings)	RF540	
Vertical Cable Managers, 70"		
Mega	RF541	
Two-Position	RF542	

Swing Rack

Access the back of mounted devices just by opening the rack!

- Weight capacity is 500 pounds.
- Constructed of 12-gauge, cold-rolled steel.
- Freestanding! Installs by anchoring to the floor, so you save valuable wall space.
- Makes day-to-day maintenance and troubleshooting easier—no need to remove an entire piece of hardware just to make a minor adjustment at its rear.
- To troubleshoot mounted hardware connections, just open up the frame. Equipment up to 18.5" deep can pivot 90 degrees.
- 43U high and 10-32 tapped for mounting 19" equipment.
- The swing-out frame is supported by a heavy-duty caster, alleviating excess strain on the entire rack frame.
- Includes a top channel, foot angles, two posts, and a stop channel.
- The 14 3.5" x 3.75" cable management openings keep your cables organized.
- Assemble the swing-out frame hinged right or hinged left.

- Allows cable routing from the top or bottom, without interfering with the movement of the swinging frame.
- EIA-310-D compliant mounting.
- Open design enables airflow to reach heat-sensitive equipment more easily.
- Also comes with an assembly hardware kit and 80 10-32 panhead Phillips screws for panel and equipment mounting.
- **WARRANTY** — Lifetime

NOTE: The Swing Rack must be anchored securely to the floor before any rackmount hardware is installed. We recommend you have a qualified installer evaluate the mounting location to determine the proper anchoring required.



The equipment-mounting frame swings out 90°!

Buyer's Guide

Exterior Height on Entire Rack	84"
Exterior Height on Pivoting Frame	72.25"
Exterior Width	34.38"
Rack Units	43U
Interior Width	18.31"
Weight	179 lb.

Item	Code	List Price
Swing Rack, 84"H	RM600A	
You may also need...		
Power Strip Mounting Kit	RM602	
Wire Basket Mounting Bracket (2"H x 24"W x 8"D)	RM603	

Desktop ServRack • Tower ServRack

Install up to four CPUs, a keyboard, and a monitor in one sturdy rack.



- Rack has a weight capacity of 600 pounds.
- Monitor shelf has a weight capacity of 75 pounds.
- Sturdy steel CPU shelves have a weight capacity of 100 pounds each.
- Constructed of 12-gauge steel.
- Feature a heavy-duty, ball-bearing, sliding keyboard shelf and mouse tray.
- CPU shelves are height adjustable and double sided.
- For added capacity, order extra CPU and Sliding Keyboard Shelves.
- The upright channels are predrilled for even more expansion options.
- Includes a six-outlet power strip with surge protection and all assembly hardware.
- Packed flat for easy shipping. All you need are a Phillips screwdriver and a 3/4" socket wrench.
- ♦♦ **WARRANTY** — Lifetime



At 5.5 feet, the heavy-duty steel monitor shelf holds your monitor at the perfect viewing height.

Switch compartment is 4"H x 17.6"W x 10"D.

Sturdy steel monitor and CPU shelves stand up to your heaviest equipment.

RM361A-R4

Both racks include:

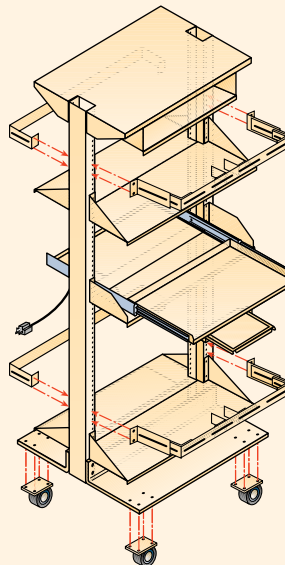
- Steel monitor shelf with compartment that holds most ServSwitch™ models. To see if yours fits, call our FREE Tech Support.
- 23" sliding keyboard shelf with mouse extension tray.
- Six-outlet surge-protected power strip with 6-foot power cord.
- (2) heavy-duty extruded-aluminum uprights.
- (2) heavy-duty extruded-aluminum freestanding bases.

The Desktop ServRack also includes:

- Plus!** (4) fully adjustable, double-sided steel rack shelves that mount back-to-back.
- (4) pairs of tie-down straps to secure your CPUs.

The Tower ServRack also includes:

- Plus!** (2) fully adjustable, double-sided steel rack shelves that mount back-to-back.
- (2) pairs of adjusting brackets to secure your CPUs.



Item	Code	List Price
Desktop ServRack		
Beige	RM360A-R4	
Black	RM361A-R4	
Tower ServRack		
Beige	RM364A-R4	
Black	RM365A-R4	
Optional CPU Shelf for Desktop or Tower ServRack		
Black	RMTS07-23	
Optional Sliding Keyboard Shelf with Mouse Extension		
Black	RM359-R2	
Optional Casters (4)	RM369-R2	

For dual-access KVM switching, add...

ServSelect™ III, 2 Users x 16 Ports
(For details or other ServSwitch choices, go to blackbox.com or call our FREE Tech Support.)
KV22016A-R2

Wallmount Frames

Get room to move—quick-release pins swing the rack open left or right!



RM069A-R2

- Weight capacity of 75 pounds.
- Heavy-duty 14-gauge steel construction adds stability.
- Quick-release pins enable the rack to swing open easily, either left or right, even when fully loaded.
- 12-24 rails accommodate 5/8"-long 12-24 panhead screws.

- Easy rear access for punching down cable or troubleshooting.
- Slots for cable ties are incorporated in the frame's top, sides, and bottom, making cable management simple.
- **◆◆ WARRANTY** — Lifetime



Buyer's Guide

	RM070A-R3	RM069A-R2	RM080A-R3
Exterior Height	23.9"	37.9"	46.7"
Exterior Width	20.7"	20.7"	20.7"
Exterior Depth	18.0"	18.0"	18.0"
Rack Units	12U	20U	25U

Item	Code	List Price
Wallmount Frames		
12U	RM070A-R3	
20U	RM069A-R2	
25U	RM080A-R3	
12-24 Panhead Screws, 5/8"-Long, 20-Pack (For details, see p. 279.)	RM428-R2	

Ultra Wallmount Racks

Mount your heavy network equipment in tight spaces.

- Weight capacity of 150 pounds.
- Reinforcement pan on the bottom is constructed of 12-gauge steel.
- Mount 19" equipment to the wall without losing access for moves, adds, and changes.
- The 25" depth provides plenty of room to open and close the rack, even when it's fully loaded with patch panels, hubs, or routers.
- The racks swing open to the left or right.
- Self-squaring design simplifies installation.
- UL® Listed.
- Fire-retardant VELCRO® straps are included to bundle cable neatly.
- Feature 12-24 mounting holes and include (12) 12-24 x 1/2" screws.
- Drilled with a 5/8", 5/8", 1/2" universal hole pattern.
- **◆◆ WARRANTY** — Lifetime



RM051A



Buyer's Guide

	RM050A	RM051A
Exterior Height	24.25"	38.25"
Exterior Width	19.8"	19.8"
Exterior Depth	25"	25"
Rack Units	11U	19U

Item	Code	List Price
Ultra Wallmount Racks		
11U	RM050A-R2	
19U	RM051A-R2	

Flushmount Wall Brackets

A great equipment rack for areas where there isn't a lot of floor space.



- Weight capacity of 50 pounds.
- Constructed of 1/8"-thick aluminum.
- Flushmount equipment vertically against a wall.
- For installations with limited space.
- Predrilled 10-32 holes accommodate 19" equipment.
- Rails have 3" channels.
- Black semi-gloss powder coat finish.
- ♦♦ **WARRANTY** — Lifetime

NOTE: Switch shown in photo is not included.

Item	Code	List Price
Flushmount Wall Brackets		
3U	RM048	
6U	RM052	

Wallmount Swing Bracket

Get convenient access to the back of your components.

- Weight capacity of 75 pounds.
- Constructed of 14-gauge welded steel.
- Provides 6U of convenient wallmount racking space.
- 12-24 tapped holes for rackmounting.
- The Hinged Panel enables you to swing out rackmount components. It can be mounted to swing left or right.
- Customize the Wallmount Bracket (RM096A) by adding the Adjustable Shelf (RM097) or Hinged Dust Cover (RM099).
- ♦♦ **WARRANTY** — Lifetime



Item	Code	List Price
Wallmount Swing Bracket		
	RM095A	
♦ Includes Wallmount Bracket (RM096A) and Hinged Panel (RM098A).		
Wallmount Bracket	RM096A	
Hinged Panel	RM098	
Adjustable Shelf	RM097	
Hinged Dust Cover	RM099	

Wallmount Shelf

For even more space, use this wallmount shelf.

- Constructed of 16-gauge steel.
- Mounts directly to your wall — no distribution rack needed.
- Measures a space-saving 10"H x 20"W x 12.5"D — yet it's large enough to hold a variety of equipment.
- Ideal for network cameras.
- Two 2" diameter cutouts enable cable feed-through.
- Includes 3/8" lip to keep equipment securely where you put it.
- Four screw slots enable easy and secure mounting to wall studs.
- ♦♦ **WARRANTY** — Lifetime



Item	Code	List Price
Wallmount Shelf	RM094	

Heavy-Duty Wallmount Frames

Swing mounted equipment out of the way for easy connections.



Heavy-Duty Wallmount Frames swing out easily for complete access to the back of your equipment. The RM071A-R3 is shown here.



- Weight capacity of 100 pounds.
- Constructed of 11-gauge steel.
- Feature pivoting points instead of hinges; the front panel swings out, making it easy to manage equipment and access cables.
- You can even punch down cable while the frame is open.
- Interior tie points coupled with cable loops tame unruly cable clusters.
- Built-in cable management points help you organize cable.
- Black finish.
- 10-32 rack screws and VELCRO® cable-tie loops are included.
- ♦♦ **WARRANTY** — Lifetime

Buyer's Guide

	RM071A-R3	RM072A-R3
Exterior Height	21"	35"
Exterior Width	20.6"	20.6"
Exterior Depth	18"	18"
Rack Units	12U	20U

Item	Code	List Price
Heavy-Duty Wallmount Frames		
12U	RM071A-R3	
20U	RM072A-R3	

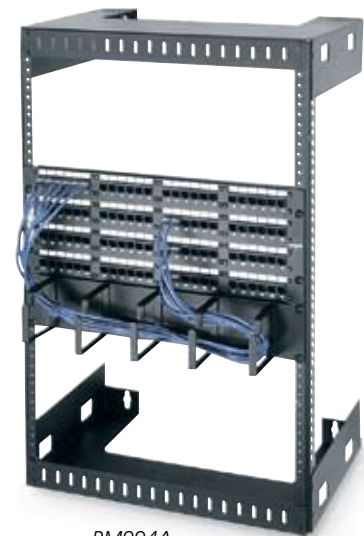
Open Frame Racks

For equipment you need to access or change frequently.



- Weight capacity — RM990A–RM991A: 200 pounds; RM992A: 175 pounds; RM993A–RM994A: 150 pounds; RM995A: 125 pounds.
- Constructed of 11-gauge steel.
- Extra deep—spaced a full 12" from the wall to provide space to work and space for your larger equipment.
- Perfect for patch panels, switches, and all your rackmount network devices.
- Self-aligning design.
- Fixed-frame design prevents kinking or breaking of fiber optic cables.
- Black finish.
- Include a 10-32 threaded rack rail and rack screws.
- ♦♦ **WARRANTY** — Lifetime

NOTE: Patch panels and cable manager are not included.



RM994A

Buyer's Guide

	RM990A	RM991A	RM992A	RM993A	RM994A	RM995A
Exterior Height	17.75"	30.0"	56.25"	17.75"	30.0"	56.25"
Exterior Width	19.78"	19.78"	19.78"	19.78"	19.78"	19.78"
Exterior Depth	12.0"	12.0"	12.0"	18.0"	18.0"	18.0"
Rack Units	8U	15U	30U	8U	15U	30U
Weight Capacity	200 lb.	200 lb.	175 lb.	150 lb.	150 lb.	125 lb.

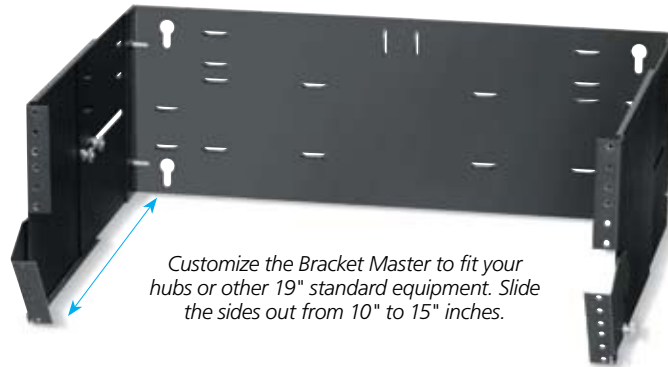
Item	Code	List Price
Open Frame Racks		
12"D 8U	RM990A	
15U	RM991A	
30U	RM992A	
18"D 8U	RM993A	
15U	RM994A	
30U	RM995A	

Bracket Master

Master terminations with this flip-down adjustable bracket.



- Weight capacity of 50 pounds.
- Constructed of 14-gauge steel.
- Provides 4U total rack space—2U for modular connections and 2U for hubs.
- Holds standard 19" equipment.
- Designed for LANs with 20 to 40 drops.
- Side panels are self-locking. Dual hinges slide into place without tools for super-fast installation and enable easy access from the left or right.
- Eight VELCRO® strips secure cable from the wall to the patch panel.
- Power up your hubs by attaching your power strip on the back panel.
- ♦♦ **WARRANTY** — Lifetime



Customize the Bracket Master to fit your hubs or other 19" standard equipment. Slide the sides out from 10" to 15" inches.



NOTE: The switch, patch panel, and power strip are not included. To order the patch panel, see page 100. For details on the switch and our power accessories, call our FREE Tech Support.

Flip down the patch panel for easy terminations and maintenance. Shown with a BLACK BOX® Express Ethernet Switch (LB9017A-R3) (see blackbox.com) and our GigaBase® CAT5e Patch Panel (JPM902A-R4), p. 100.

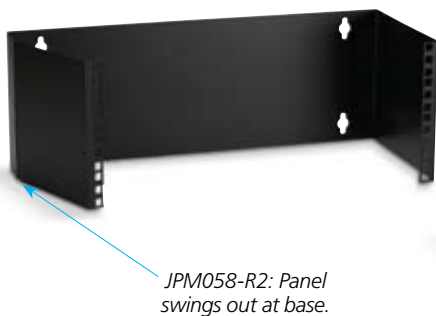
Buyer's Guide

Exterior Height	7.0"
Exterior Width	19.3"
Exterior Depth	10" to 15"
Rack Units	4U
Weight	7.3 lb.

Item	Code	List Price
Bracket Master	JPM087-R2	

Wallmount Patch Panel Brackets

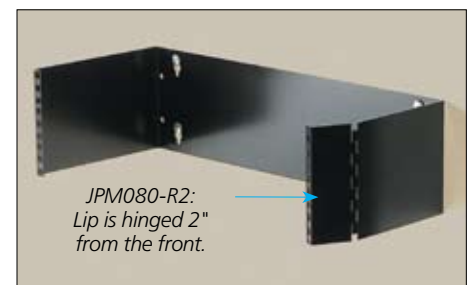
Rack 'em up with these easy-to-install, easy-access brackets.



JPM058-R2: Panel swings out at base.



JPM054-R2: Hinged lip swings out for easy access.



JPM080-R2: Lip is hinged 2" from the front.

- The JPM082-R2 and JPM080-R2 are constructed of 14-gauge steel. All other models feature all-steel construction.
- Choose a bracket with hinged lips, one hinged 2" (5.1 cm) from the front, or one that's hinged at the base.

- Universal left- or right-hinging design.
- Accommodate standard 19" equipment.
- Mounting holes on 16" centers for easy mounting to wall studs.
- Tapped holes accept both 10-32 and 12-24 screws.
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
Wallmount Patch Panel Brackets, 19"W, M6 Holes		
4"D, Hinged Lip		
2U	JPM049-R2	
3U	JPM053-R2	
4U	JPM054-R2	
8U	JPM057-R2	
8"D, Hinged 2" from Front, Tapped Holes		
2U	JPM082-R2	
4U	JPM080-R2	
8"D, Hinged at Base, M6 Holes		
4U	JPM058-R2	
12"D Extra Deep, Hinged Lip, M6 Holes		
4U	JPM059-R2	

Heavy-Duty Pivoting Panel

A swing-down panel that's designed for easy punchdowns.

- Weight capacity of 60 pounds.
- Constructed of 11-gauge steel.
- Holds up to 8U of equipment.
- Has a 14" usable height; overall height is 16.25".
- The front panel pivots forward, enabling easy rear access to cable punchdowns.
- Built-in tie points work with hook-and-loop cable fasteners for efficient cable management.
- **◆◆ WARRANTY** — Lifetime



NOTE: Patch panel not included.



Item	Code	List Price
Heavy-Duty Pivoting Panel, 14"H x 19"W x 12"D	JPM088	
◆ Includes rack screws and cable-tie loops.		

Heavy-Duty Hinged Wall Bracket

Wallmount your equipment and route cable through the wall.



NOTE: Patch panel not included.

- Hinged front panel swings out, making rear access to your mounted equipment quick and easy.
- Holds 6U of equipment.
- Measures 10.5"H x 19"W x 9"D.
- Features a large cutout in the rear for smooth cable passthrough from the wall into your mounted equipment.

- Has built-in cable lacing points for organizing cable clusters.
- Includes all rack screws.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
Heavy-Duty Hinged Wall Bracket 10.5"H x 19"W x 9"D	JPMT093	

Vented Wallmount Shelf

Wallmount your cameras, recorders, and other multimedia equipment.

- Weight capacity of 200 pounds.
- Constructed of fully welded, 16-gauge steel.
- Use to wallmount non-rackmount equipment, such as surveillance monitors and other security components.
- Vented bottom enables air to circulate.
- Shelf bottom includes 1/2" and 3/4" electrical knockouts for cables.
- **◆◆ WARRANTY** — Lifetime



Buyer's Guide

Exterior Height	14"
Exterior Width	20.5"
Exterior Depth	17"
Weight	17.75 lb.

Item	Code	List Price
Vented Wallmount Shelf	RMT964	

Desktop Rack

Desktop organization made inexpensive and simple.



- Weight capacity of 75 pounds.
- Rack rail is constructed of 11-gauge steel.
- Quickly organize desktop network and testing equipment.
- Provides easy access to equipment.
- 12U of usable height.
- Fits in small spaces.
- Easy to assemble.
- Features 10-32 drilled and tapped rails to hold standard equipment.
- **◆◆ WARRANTY** — Lifetime



Buyer's Guide

Exterior Height	23"
Exterior Width	19.8"
Exterior Depth	11.6"
Rack Units	12U
Weight	5.5 lb.

Item	Code	List Price
Desktop Rack	RMT372A	

LAN Management System • Wire LAN Workstation

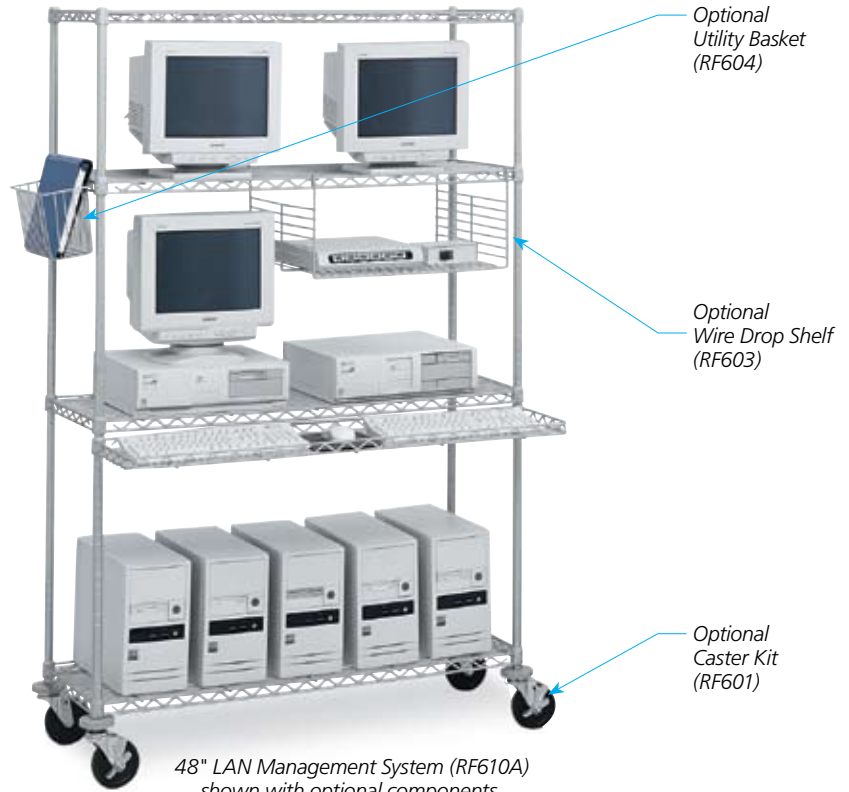
Wire rack workstation systems give you portability and super ventilation!

LAN Management System

- Each 18" wire shelf has a weight capacity of 650 pounds.
- Open-shelf design maximizes air circulation among components.
- Cantilevered shelf extends 10¾".
- All models measure 73"H x 29"D; available in three different widths.
- Outfit your system with a choice of accessories.
- **Caster Kit (RF601)** includes four swivel 5" rubber casters (two of which lock) with bumper guards.
- **Wire Keyboard Holder (RF602)** stores keyboards on upper shelves.
- **Wire Drop Shelf (RF603)** measures 10⅞"H x 23⅜"W x 18¼"D.
- **Utility Basket (RF604)** measures 8½"H x 13¼"W x 5⅞"D.
- ♦♦ **WARRANTY** — 1 Year

Wire LAN Workstation

- Its two wire-frame shelves each have a weight capacity of 650 pounds and can be adjusted up or down in 1" increments.
- Heavy-duty steel frame features a 48"W x 30"D laminate work surface.
- Pull-out keyboard and mouse tray and two pull-out wire keyboard holders free up valuable work space.
- Included 42"W x 24"D mobile server shelf rolls easily on casters, enabling easy access to cables.
- Add an optional Utility Basket for more storage capacity.
- ♦♦ **WARRANTY** — 1 Year



48" LAN Management System (RF610A) shown with optional components.

Item	Code	List Price
LAN Management System		
30"W	RF600A	
48"W	RF610A	
72"W	RF620A	
Optional LAN Management System Components		
Caster Kit	RF601	
♦ Includes (4) swivel 5" rubber casters ([2] locking) with bumper guards.		
Wire Keyboard Holder (Chrome)	RF602	
Wire Drop Shelf	RF603	
Utility Basket	RF604	
Wire LAN Workstation	RF630A	

4-Post Modular Rack with Adjustable Rails

A portable, open-design rack that's great for frequent moves, adds, and changes.



- Weight capacity of 600 pounds.
- Constructed of 14-gauge steel.
- Only 12U high. Low-profile 23" height makes it ideal for racking and storing equipment underneath a shelf or desk.
- Four 2" swivel casters make it easy to move.
- Adjust EIA standard rails to accommodate different sizes of hardware.
- Open design allows access to all sides of mounted equipment for everyday maintenance and troubleshooting.
- Black finish.
- Easy to assemble with front and rear frames, front-to-rear posts, and EIA rails. Hex bolts and nuts are included.
- ♦♦ **WARRANTY** — Lifetime



Item	Code	List Price
4-Post Modular Rack with Adjustable Rails		
23"H x 21"W x 36"D	RM625A	

Portable Racks

Store your equipment—then move it anywhere!

- Weight capacity of 500 pounds.
- Fully welded 16-gauge steel construction and 1/8"-thick, laser-cut corner braces offer maximum strength.
- Equipment mounting is a snap with front adjustable 11-gauge, 10-32 threaded rails and numbered rack spaces.
- Have 4" locking casters and spring-loaded, recessed side handles for easy mobility.
- Front and rear doors lock for security.
- Include laser-cut openings for smooth cable management.
- Choose the standard black laminate top or the marbled graphite laminate top and PLEXIGLAS® front door.
- **◆◆ WARRANTY** — 1 Year



21U Portable Rack with Marbled Graphite Laminate Top and PLEXIGLAS Front Door (RM274A).

Buyer's Guide

	RM271A	RM273A	RM272A	RM274A
Exterior Height	33.75"	46.0"	34.75"	47.0"
Exterior Width	22.625"	22.625"	22.625"	22.625"
Exterior Depth	23.0"	23.0"	23.0"	23.0"
Rack Units	14U	21U	14U	21U
Interior Width	22"	22"	22"	22"
Interior Depth	22.75"	22.75"	22.75"	22.75"
Weight	110 lb.	136 lb.	143 lb.	173 lb.

NOTE: All dimensions include casters.

Item	Code	List Price
Portable Racks, Black Laminate		
14U	RM271A	
21U	RM273A	
Portable Racks with Marbled Graphite Laminate Top and PLEXIGLAS Front Door		
14U	RM272A	
21U	RM274A	
To add a rear rack rail, order...		
14U Rear Rack Rail Kit	RM275	
21U Rear Rack Rail Kit	RM276	

Black Laminate Racks

Attractive, modular racks hold a wide array of components.

- Weight capacity of 200 pounds.
- Constructed of 5/8" sturdy, furniture-grade MDF board.
- Come with 11-gauge, 10-32 threaded front rack rail installed.
- Modular, studio-grade components for permanent installations.
- Include an Allen wrench and driver bit for easy assembly.
- Optional Caster Kit with two locking casters.
- **◆◆ WARRANTY** — 1 Year



Top: RM277A; bottom: RM281A



The 19" Rolling Equipment Rack (RM288A) has 16U of rack space on the bottom and 12U on its top, which is sloped at 25 degrees.

Buyer's Guide | 16"D Racks

	RM277A	RM278A	RM279A	RM280A	RM281A	RM282A
Exterior Height	5"	8.5"	15.5"	22.5"	29.5"	36.5"
Exterior Width	20.375"	20.375"	20.375"	20.375"	20.375"	20.375"
Exterior Depth	16"	16"	16"	16"	16"	16"
Rack Units	2U	4U	8U	12U	16U	20U
Interior Width	19.75"	19.75"	19.75"	19.75"	19.75"	19.75"
Interior Depth	15.5"	15.5"	15.5"	15.5"	15.5"	15.5"
Weight	19 lb.	22 lb.	27 lb.	28 lb.	38 lb.	44 lb.

Item	Code	List Price
Black Laminate Racks, 16"D		
2U	RM277A	
4U	RM278A	
8U	RM279A	
12U	RM280A	
16U	RM281A	
20U	RM282A	

Buyer's Guide | 18"D Racks

	RM283A	RM284A	RM285A	RM286A
Exterior Height	15.5"	22.5"	29.5"	36.5"
Exterior Width	20.375"	20.375"	20.375"	20.375"
Exterior Depth	18"	18"	18"	18"
Rack Units	8U	12U	16U	20U
Interior Width	19.625"	19.625"	19.625"	19.625"
Interior Depth	17.25"	17.25"	17.25"	17.25"
Weight	31 lb.	35 lb.	42 lb.	48 lb.

Item	Code	List Price
Black Laminate Racks, 18"D		
8U	RM283A	
12U	RM284A	
16U	RM285A	
20U	RM286A	
Caster Kit for RM277A–RM286A	RM287	
Black Laminate Rolling Equipment Rack		
54.25"H x 19"W x 16"D	RM288A	

Rackmount Media Storage Drawers and Partitions

Store and organize your media with these rackmount solutions.



RMM19



RMM16

Media Storage Drawers

- Rugged construction.
- Measure 15.9"W x 14.5"D.
- Fully enclosed top.
- Spring-loaded latches.
- Fit standard 19" rails.

Media Partitions

- Divide Media Storage Drawers for storing media or other small objects.
- Snap together easily.
- **◆◆ WARRANTY** — All: Lifetime

Item	Code	List Price
Media Storage Drawers		
2U Black	RMM17	
3U Black	RMM18	
4U Black	RMM19	
4U Silver	RMM16	
Media Partitions for Media Storage Drawers		
2U Stores 84 DAT Tapes	RMM20	
3U Stores 24 VHS Tapes	RMM24	
4U Stores 101 CDs	RMM22	

Rackmount Media Holders

Own a variety of media? Our rackmount holders store CDs, cassettes, tapes, and DVDs!



RMM07



RM965

CD Holders

- The 1U CD Holders hold up to six CDs.
- The 4U CD Holders provide rackmount storage for up to 40 CDs and are partitioned to keep CDs from tipping.
- Measure 5.75"D.
- Fit standard 19" rails.

Cassette Holders

- Hold up to 25 audio cassettes.
- Occupy 3U of rack space.
- Measure 3"D.
- Fit standard 19" rails.

DAT Tape Holders

- Hold up to 26 DAT tapes.
- Occupy 3U of rack space.
- Measure 2.6"D.
- Fit standard 19" rails.

VHS Tape Holders

- Hold up to 14 VHS tapes in regular cases.
- Occupy 5U of rack space.
- Measure 4.8"D.
- Fit standard 19" rails.

Media Holders

- Hold large media such as laser discs, LPs, or binders.
- Occupy 8U of rack space.
- Measure 12.6"D.
- Fit standard 19" rails.

DVD Holders

- Hold up to 28 DVDs in regular cases.
- Occupy 5U of rack space.
- Measure 5.5"D.
- Fit standard 19" rails.

- **◆◆ WARRANTY** — All: Lifetime

Item	Code	List Price
CD Holders		
1U Black	RMM08	
1U Silver	RMM02	
4U Black	RM965	
4U Silver	RMM01	
Cassette Holders		
3U Black	RMM09	
3U Silver	RMM03	
DAT Tape Holders		
3U Black	RMM10	
3U Silver	RMM04	
VHS Tape Holders		
5U Black	RMM11	
5U Silver	RMM05	
Media Holders		
8U Black	RMM12	
8U Silver	RMM06	
DVD Holders		
5U Black	RMM13	
5U Silver	RMM07	

Rack Accessories

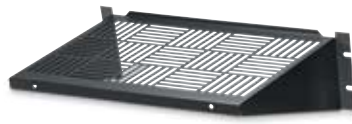
Accessories to help you build the perfect rack.



Rackmount Solid Fixed Shelf

- Weight capacity of 35 pounds.
- Constructed of 18-gauge steel.
- Measures 5.2"H x 19"W x 12"D.
- Uses 3U of rack space.
- Mounts on EIA standard 19" rails.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Rackmount Solid Fixed Shelf	RMTS01	



Rackmount Vented Fixed Shelf

- Weight capacity of 35 pounds.
- Constructed of 18-gauge steel.
- Measures 5.2"H x 19"W x 12"D.
- Uses 3U of rack space.
- Vented for improved air circulation.
- Mounts on EIA standard 19" rails.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Rackmount Vented Fixed Shelf	RMTS02	



Heavy-Duty Rackmount Vented Fixed Shelf

- Weight capacity of 60 pounds.
- Constructed of 16-gauge steel.
- Measures 5.2"H x 19"W x 17.8"D.
- Uses 3U of rack space.
- Vented for improved air circulation.
- Mounts on EIA standard 19" rails.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Heavy-Duty Rackmount Vented Fixed Shelf	RMTS03	



Heavy-Duty Rackmount Solid Fixed Shelf

- Weight capacity of 50 pounds.
- Constructed of 16-gauge steel.
- Measures 5.2"H x 19"W x 12"D.
- Uses 3U of rack space.
- Mounts on EIA standard 19" rails.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Heavy-Duty Rackmount Solid Fixed Shelf	RMTS04	



Extra-Deep Rackmount Vented Fixed Shelves

- Weight capacity of 35 pounds.
- Constructed of 18-gauge steel.
- Measure 5.2"H x 19"W x 18"D.
- Use 3U of rack space.
- Vented for improved air circulation.
- Mount on EIA standard 19" rails.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Extra-Deep Rackmount Vented Fixed Shelves		
Black	RMTS05B	
Ivory	RMTS05I	



Rackmount Vented Sliding Shelves

- Weight capacity of 50 pounds.
- Constructed of 18-gauge steel.
- Measure 4"H x 19"W x 18"D.
- Slide out for easy access.
- Vented for improved air circulation.
- Mount on EIA standard 19" rails.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Rackmount Vented Sliding Shelves		
Black	RMTS06B	
Ivory	RMTS06I	



Rackmount Server Shelves

- Weight capacity of 200 pounds.
- Constructed of 18-gauge steel.
- Mount back-to-back to create a 20" deep shelving area to hold desktop- or tower-style CPUs.
- Measure 19" or 23"W x 10"D.
- Mount on EIA standard 19" rails.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Rackmount Server Shelves		
19"	RMTS07-19	
23"	RMTS07-23	



Vented Center-Weight Shelf

- Weight capacity of 50 pounds.
- Constructed of 16-gauge steel.
- Measures 19"W x 18.5"D.
- Uses 2U of rack space.
- Vented for improved air circulation.
- Mounts on EIA standard 19" rails.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Vented Center-Weight Shelf	RMTS08	



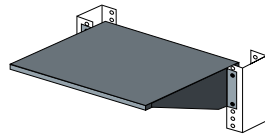
19" Sliding Pivoting Keyboard Tray with Mouse Tray

- Slide in your keyboard sideways for storage, then pull it out up to 19" when you need it.
- Measures 20.6"W x 9.5"D.
- Holds a keyboard up to 20.5" wide.
- Cushioned wrist rest.
- Use the mouse tray on the left or right.
- **◆◆ WARRANTY** — Lifetime

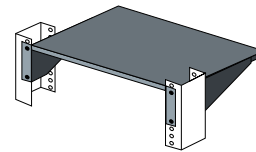
Item	Code	List Price
19" Sliding Pivoting Keyboard Tray with Mouse Tray	RMT385	

Multi Configuration Shelf, 19"

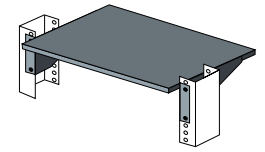
This shelf has 18 mounting options!



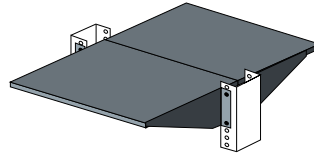
Shelf back to rack center.



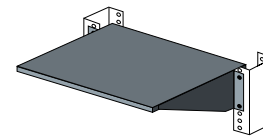
Shelf front flush to rack front.



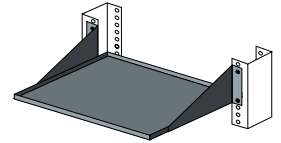
Shelf front 1/4" beyond rack front.



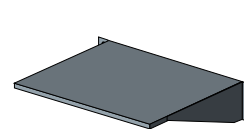
Two units for a 24" double-sided shelf.



Brackets can be inverted to meet mounting space requirements.



Shelf can be inverted to make a 3/4" deep tray.



Wallmount positions.



- Weight capacity of 50 pounds.
- Mounts at least 18 different ways in your rack or on the wall.
- Mounts on 3" or 6" channel equipment racks.
- Invert brackets to mount them over or under the shelf.
- Flip shelf over and it becomes a 3/4"-deep tray.
- Mount two shelves back-to-back to create a double-sided shelf.
- Includes mounting hardware.
- ♦♦ **WARRANTY** — Lifetime

TECH SPECS

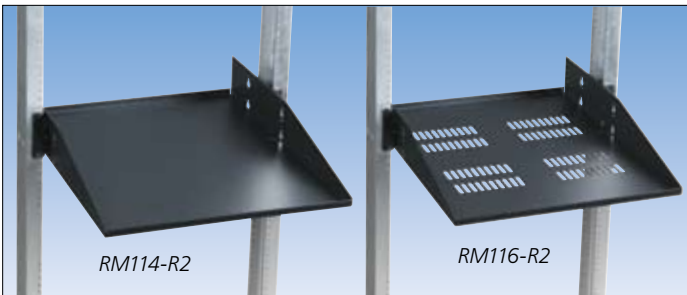
Color — Black
Construction — 16-gauge steel

Size — 5.25"H (3U) x 17.5"W x 12"D (13.3 x 44.5 x 30.5 cm)

Item	Code	List Price
Multi Configuration Shelf, 19"	RM112-R2	

Heavy-Duty Equipment Shelves

Put up to 150 pounds of equipment on a single shelf.



RM114-R2

RM116-R2

- Weight capacity of 150 pounds.
- Constructed of 16-gauge steel.
- Store heavy equipment in one convenient place.
- Mount on standard 19" equipment racks with 3" or 6" channels.
- Mounting depth within rack is adjustable.
- Includes mounting hardware.
- ♦♦ **WARRANTY** — Lifetime

TECH SPECS

Color — Black
Construction — 16-gauge steel

Size — 3.5"H (3U) x 17.4"W x 21.75"D (8.9 x 44.2 x 55.2 cm)

Item	Code	List Price
Heavy-Duty Equipment Shelves		
Solid	RM114-R2	
Vented	RM116-R2	

Miscellaneous Hardware

10-32 or 12-24? You'll find both right here.

- Use the heavy-duty **Cage Nuts (RM408)** with rails that have square M6 holes.
- **Panhead Screws** come with nylon washers.
- ♦♦ **WARRANTY** — Lifetime



Cage Nuts (RM327)



Cage Nuts and Screws (RM408)



10-32 Panhead Screws, 5/8" Long (RM528-R2)



10-32 Panhead Screws, 1" Long (RM328-R2)



12-24 Panhead Screws, 3/8" Long (RM428-R2)



Mounting Screws (RM389)

Item	Screw Length	Code	List Price
Cage Nuts			
20-Pack	10-32	RM327	
Cage Nuts and Screws			
20-Pack	M6 5/8" Long	RM408	
Panhead Screws			
20-Pack	10-32 5/8" Long	RM528-R2	
	10-32 1" Long	RM328-R2	
	12-24 5/8" Long	RM428-R2	
Mounting Screws			
50-Pack	10-32	RM389	

19" Sliding Pivoting Keyboard Tray with Side Mouse Tray

Pull out and pivot into position to type. Pivot and push in for storage.



Pull the tray out and pivot it from side to side for the best working position. You can even place the mouse tray on either the right or left.

- Holds a keyboard up to 20.5" wide, so you can use a keyboard even if it's wider than your cabinet or rack.
- Slides out up to 19".
- Cushioned wrist rest for more comfortable use.
- Mouse tray features nonskid surface for easy rolling, pointing, and clicking.
- Features adjustable four-point 19" EIA mounting.
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
19" Sliding Pivoting Keyboard Tray with Side Mouse Tray	RMT385	

Keyboard Tray/Monitor Shelf, 19", 4U

Add a complete KVM workstation to your rack.



- Weight capacity of 100 pounds.
- Constructed of 16-gauge steel.
- Enables you to keep your keyboard, monitor, and mouse within a two-post 19" rack for easier troubleshooting and maintenance.
- Mounts to the front and back surfaces of both standard 3" rails in a two-post open frame rack.
- Cantilevered monitor shelf extends 10.5" beyond the front of the rack and is 13.3" deep.
- Keyboard tray slides out an additional 7" and holds a full-size keyboard.
- Slide-out mouse tray is attached to the keyboard tray.
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
Keyboard Tray/Monitor Shelf, 19", 4U	RM028	

19" Sliding Pivoting Keyboard Tray with Front Mouse Tray

The rackmount tray for tight work spaces.



- Holds a keyboard up to 20.5" wide, so you can use a keyboard even if it's wider than your cabinet or rack.
- Mouse tray slides out from the front of the keyboard tray, enabling its use in crowded or narrow areas.
- Pull out the tray and pivot it from side to side for the best working position.
- Cushioned wrist rest for more comfortable use.
- Mouse tray features nonskid surface for easy rolling and clicking.
- Features adjustable four-point 19" EIA mounting.
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
19" Sliding Pivoting Keyboard Tray with Front Mouse Tray	RMT387	

Rackmount Keyboard

This retracting keyboard tucks into only 1U of rack space.



- Standard 101-key AT® style keyboard.
- Slides neatly into your cabinet or rack—and out of your way—when not in use.
- Articulated arm for cable management.
- Built-in three-button trackball mouse or touchpad and wrist pads.
- Includes all cables.
- Telescoping rear supports extend from 17" to 25" to fit most cabinets and racks.
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
Rackmount Keyboard with Trackball	RM418-R3	
with Touchpad	RM419	

Keyboard/Monitor Shelf

Add a workstation to your rack with this heavy-duty steel shelf.



- Weight capacity of 200 pounds.
- Steel construction.
- Monitor compartment that's more than 15" deep.
- Uses 3U of vertical rack space. To mount in a cabinet, simply adjust the shelf's angles so there's adequate door clearance.
- The 7"-deep keyboard compartment holds a full-size keyboard.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Keyboard/Monitor Shelf	RM691	

Rackmount Drawers Rackmount Writing Surface

Get both for security and a convenient work surface.



Rackmount Drawers

- 2U- or 3U-high steel units contain a drawer enclosed in a steel box.

Rackmount Writing Surface

- Steel construction holds up to heavy use.
- Attach it to Rackmount Drawer; lift up for access to the compartment.
- **◆◆ WARRANTY** — All: Lifetime

Item	Code	List Price
Rackmount Drawers 2U	RM688	
Rackmount Drawers 3U	RM689	
Rackmount Writing Surface	RM690	

Miscellaneous Hardware

10-32 or 12-24? You'll find both right here.

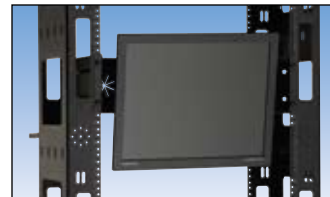
- Use the heavy-duty **Cage Nuts (RM327)** with rails that have square M6 holes.
- **Panhead Screws** come with nylon washers.
- **◆◆ WARRANTY** — Lifetime



Item	Screw Length	Code	List Price
Cage Nuts 20-Pack	10-32	RM327	
Cage Nuts and Screws 20-Pack	M6 5/8" Long	RM388	
Panhead Screws 20-Pack	10-32 5/8" Long	RM528-R2	
	10-32 1 1/8" Long	RM328-R2	
	12-24 5/8" Long	RM428-R2	
Mounting Screws 50-Pack	10-32	RM389	

Flat-Panel Monitor Mounts

Securely rackmount your flat panel monitor.



- Great for rack applications — fit standard 19" racks.
- Fixed mount holds monitor up to 17 3/4" wide.
- Pivoting mount enables screen larger than 17 3/4" wide to be mounted in front of console frame.
- **◆◆ WARRANTY** — Lifetime

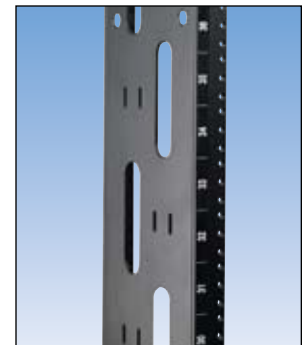
Item	Code	List Price
Flat-Panel Monitor Mounts Fixed	RM982F	
Flat-Panel Monitor Mounts Pivoting	RM983P	

Rack Unit Labels

R U confused? Keep equipment lined up rail-to-rail with labels.



- Self-adhesive, clear Mylar® labels enable you to add numbered guides to the sides of open-frame racks or rack angles to simplify equipment installation.
- Numbers are spaced 1U apart.
- Each label is provided in two pieces (numbers 1–29 and 30–58) and can be used for bottom-up or top-down numbering.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
Rack Unit Labels, 2-Pack	RM093	

Keyboard Compartment for 19" Racks

Store and protect your rack's keyboard.

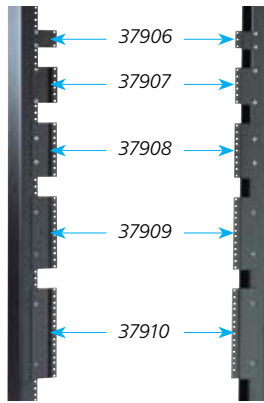


- Lightweight aluminum construction.
- Fits standard 19" racks and is 2U high.
- Accommodates keyboards up to 16.5" wide.
- Compartment is more than 10" deep.
- Latching front door opens to reveal a sliding keyboard tray.
- Route keyboard cable through rear cable-access hole.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Keyboard Compartment for 19" Racks	RM092	

23"-to-19" Rackmount Adapters

Mount equipment on 19" or 23" rails.



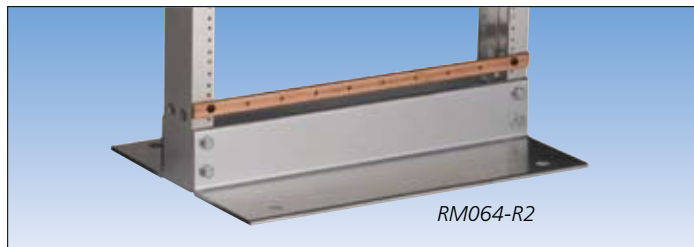
- Weight capacity of 40 pounds per rack unit.
- Constructed of 14-gauge steel.
- Enable you to mount 19" equipment on your 23"-wide rack or cabinet rails with EIA standard 10-32 holes.
- **◆◆ WARRANTY** — Lifetime

NOTE: These adapters are sold in pairs.

Item	Code	List Price
23"-to-19" Rackmount Adapters, 2.6"W		
1U	37906	
2U	37907	
3U	37908	
4U	37909	
5U	37910	

Grounding Equipment

Safety first—be sure to properly ground your equipment.



Grounding Bars

- Solid copper bars mount at the bottom of each rack for a conducting connection between racks.
- Mounting hardware and junction bar are included.

Wallmount Buss Bars

- Copper bars provide a central ground point for equipment.
- Provide a 2¾" standoff from wall.
- Include insulators and standoff brackets.
- **◆◆ WARRANTY** — All: Lifetime

Item	Code	List Price
Grounding Bars for 19" Rack (0.2"H x 0.75"W x 20.2"L)	RM064-R2	
for 23" Rack (0.2"H x 0.75"W x 24.2"L)	RM065	
Wallmount Buss Bars 12" (15 Holes)	RM066-R2	
20" (27 Holes)	RM067-R2	

Patch Panel Hinge Kits

Access the back of your patch panels.



- Constructed of 16-gauge steel.
- Use with rackmount panels to increase accessibility to rear connections.
- Mount between one end of your patch panel and a standard EIA rail. The other end of the patch panel mounts to the opposite rail.
- For convenient maintenance or modifications, just unscrew the patch panel mounted to the rail and swing it out.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Patch Panel Hinge Kits		
1U	RMT011	
2U	RMT012	
3U	RMT013	
4U	RMT014	

19" Bottom-Hinged Panels

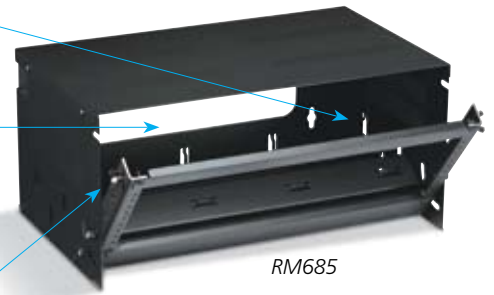
This wallmount enclosure's front panel also serves as a punchdown platform!



Rear keyhole mounting slots accommodate up to ⅜" diameter mounting fasteners (not included).

Large cable exit holes on the back and bottom make hookups easy.

Thumbscrews hold the front panel in the upright position to protect equipment.



- Weight capacity—RM685: 25 pounds, RM686–RM687: 50 pounds.
- Front panel is 12-gauge steel; front body is 16-gauge steel.
- Hinged front panel pivots 90 degrees to give you a stable platform for punching down equipment connections.
- When closed, panel protects interior equipment and cables.
- Built-in VELCRO® tiedown slots for easy cable routing and to manage strain relief.
- Ideal for mounting equipment where floor space is at a premium.
- EIA universal 10-32 tapped holes.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
19" Bottom-Hinged Panels		
4U	RM685	
6U	RM686	
8U	RM687	

Fan Thermostat Controller

Temperature control where you need it for cabinet-mounted equipment.

- Works with exhaust fans to control a cabinet's temperature and keep heat-sensitive components cool.
- Compact size (10"H x 4.7"W x 3.5"D) for convenient mounting alongside equipment in the vertical recesses of a cabinet.
- Controls one or two fans plugged into its dual 15-amp outlets.
- When the temperature rises above the thermostat-controlled level, power is supplied to the fans automatically!
- Thermostat has an adjustable range from 50 to 90° F.
- UL® Listed and CSA certified.
- Has a 6-foot cord and can be mounted anywhere in a cabinet or enclosure—including high in a cabinet where the temperature's often the greatest.
- **Go Green:** save on power by turning on fans only when they're needed.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
Fan Thermostat Controller	RM616	

Rackmount Fan Trays

Direct maximum airflow to rackmount equipment.



RM077



- Three built-in 75-cfm fans.
- Include fan guards for safety.
- Choose from fan trays that mount vertically or horizontally.
- Vertical model is positioned at a 90° angle, so air is distributed more evenly to both top- and bottom-mounted components.
- Vertical model installs in the front or back of any 19" cabinet or rack at any position on the rails—you can even put it at the bottom if your most heat-sensitive components are there.
- Horizontal model takes only 1U of rack space.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Rackmount Fan Trays		
Vertical	RM077	
Horizontal	RM075	

Rackmount Lights Magnetic Work Light

Lighting for your cabinets or racks.



RM618



RM978

Rackmount Lights

- Each light is recessed in a flexible 12" long gooseneck cord for directing light into specific areas.
- You can also position the lights so they work together to shed light evenly onto components in a cabinet or rack.
- Feature bright 5-watt bulbs, a dimmer rheostat for precise light control, and a 6-foot cord.
- Panel uses just 1U of rack space and mounts in a standard 19" cabinet or rack.

Magnetic Work Light

- Provides lighting when installing or servicing equipment.
- Magnetic base doesn't mar surfaces.
- Quadruple-jointed support arm makes it easy to point the light just where you need it.
- Takes a 60-watt bulb. A rough-service bulb is included.
- The 18-foot power cord eliminates the need for an extension cord.
- **◆◆ WARRANTY** — All: Lifetime

Item	Code	List Price
Rackmount Lights	RM618	
Magnetic Work Light	RM978	

Quiet Fan Panels

Equipment cooling without the noise.

RMT078



RMT079



- Run at under a whisper-quiet 33 dB.
- Each fan is 50 cfm.
- Mount horizontally in only 3U (5.25") of rack space.
- Include fan guards for safety.
- Include cord and plug.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
Quiet Fan Panels		
With (1) Fan	RMT078	
With (2) Fans	RMT079	

Patch Cable Management Panels

Patch panel space getting tight? Get the room you need with these panels.



37803-R2



37804-R2

- Rackmount panels organize your cables.
- Provide reliable CAT5 cable support.
- The panels and rings are black enameled steel for long life and durability.
- Equipped with five sturdy steel rings for cable routing without damage from overtightened cable ties.
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
Patch Cable Management Panels		
1U Panel with 1.25" x 3" Rings	37803-R2	
2U Panel with 3" x 3" Rings	37804-R2	

Horizontal & Vertical Organizers

Better wire management no matter which direction you're running cable.



- Organize and deliver cable to 110 clips on the back; distribute patch cords to jacks in front.
- Maintain proper twists and bend radii.
- Minimize length of exposed pairs.
- One piece for front and back management.
- Sturdy steel construction with black finish.
- ♦♦ **WARRANTY** — Lifetime



JPM700A

Buyer's Guide | Horizontal and Vertical Organizers

	Size	Horizontal Front Rings	Horizontal Back Rings	Vertical Front Rings	Vertical Back Rings
JPM700A	19"H x 1.8"W x 3.8"D	(4) 1"H x 1.75"D	(4) 1"H x 1.75"D	—	—
JPM702A	19"H x 3.5"W x 3.8"D	(4) 1"H x 1.75"D	(4) 2.5"H x 1.6"D	—	—
JPM701A	19"H x 1.8"W x 3.8"D	—	—	(2) 1.75"H x 1.75"D	(2) 1"H x 1.8"D
JPM703A	19"H x 3.5"W x 3.8"D	—	(4) 2.5"H x 1.6"D	(4) 1.75"H x 1.75"D	—
JPM704A	19"H x 3.5"W x 5.8"D	(4) 1.8"H x 1.75"D	(2) 2.5"H x 1.6"D	(4) 1.75"H x 1.75"D	—
JPM705A	80"H x 3"W x 5.3"D	—	—	(5) 2"H x 3.2"D	—
JPM706A	80"H x 6"W x 5.3"D	—	—	(5) 2"H x 3.2"D	—

Item	Code	List Price	Item	Code	List Price
19" Horizontal Organizers			19" Deep Combo Organizer		
1U	JPM700A-R2		2U	JPM704A	
2U	JPM702A		Vertical Organizers		
19" Combo Organizers			84"H x 3"W	JPM705A-R2	
1U	JPM701A		84"H x 6"W	JPM706A	
2U	JPM703A				

Zero U-Height Cable Manager

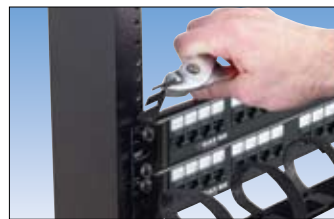
Put more equipment on your rack with the Zero U-Height Cable Manager.



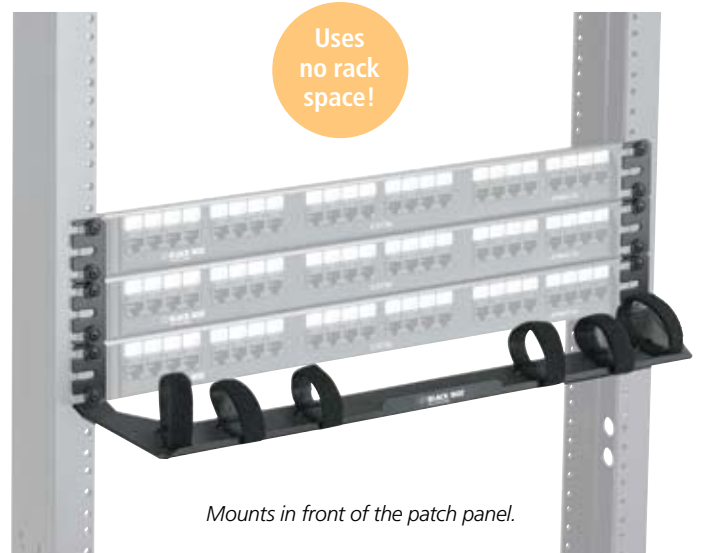
- Free up your rack space for patch panels and other equipment.
- Support cables in front of the patch panel, providing easy and convenient port access.
- Protect cables from performance-robbing cinching and bending—secure and adjust cables with VELCRO® fastening strips.
- Install in minutes. No need to move panels. And you can use existing equipment screws.
- To mount two Zero U-Height Cable Managers together, just install the second unit upside down below the first.
- Designed with a standard rack hole pattern to fit all equipment.
- ♦♦ **WARRANTY** — Lifetime



Installs quickly with existing patch panel or equipment screws.



Use with 1U-, 2U-, or 3U-height equipment. Just break off the unused mounting tabs with pliers.



Mounts in front of the patch panel.

NOTE: The Zero U-Height Cable Manager is shown with our GigaBase® CAT5e Patch Panels (JPM902A-R4).

Item	Code	List Price
Zero U-Height Cable Manager	JPM500A-R2	
You may also need...		
GigaBase CAT5e Patch Panel, 24-Port, Universal Wiring (For details, see p. 100.)	JPM902A-R4	

5-Ring Guide Panels with Covers

Sleek guide panels keep cable runs organized.



39707

- Designed for 19" racks.
- Guides feature five black plastic rings mounted on a metal panel.
- Both measure 19"W x 2.5"D (48.3 x 6.4 cm).
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
5-Ring Guide Panels with Covers		
1U	39707	
2U	39706	

Cable Management Guide Panels

Organize cables above and below your patch panels.



39698

39699

- Feature black plastic rings mounted on a gray metal panel.
- Variety of sizes and configurations available.
- Mount on 19" rails.
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
Cable Management Guide Panels, 5-Ring		
Shallow Run		
1U x 2.5"D	32827	
2U x 2.6"D	39698	
Deep Run		
1U x 5"D	39699	

S110 Wire Managers

Take control of complicated cable runs.



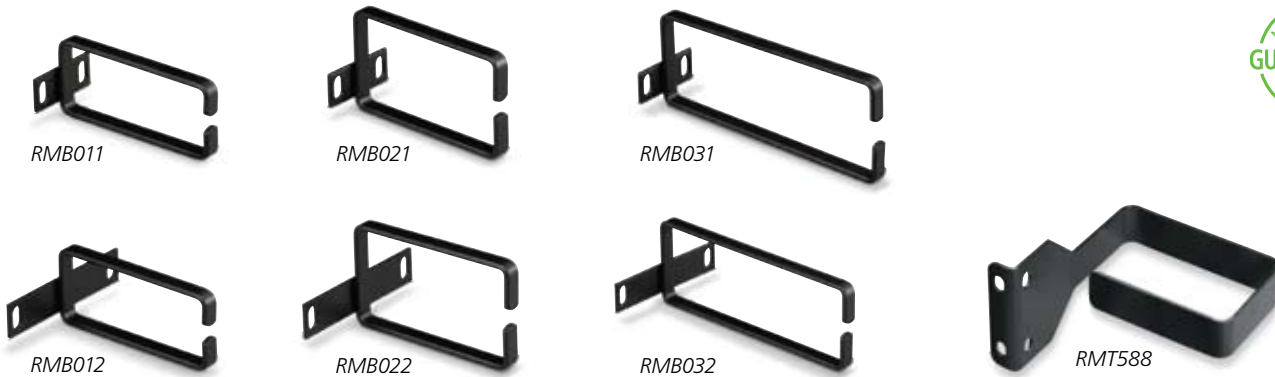
- Made of high-strength, flame-retardant thermoplastic.
- Keep related cables together in one conduit.
- Use on standard 19" racks or wallmounted.
- Compact 1U (1.75") height.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
S110 Wire Managers, 19"W		
Black	JPM040	
White	JPM041	

Rackmount Ring Brackets • Three-Way Vertical Cable Hangers

Add ordinary cable routing to any part of your cabinet or rack.



- Sizes available to fit almost any rackmount configuration.
- Brackets available in either 1U or 2U mounting heights.
- Mount on any standard cabinet or rack.
- Steel construction.
- **Rackmount Ring Brackets** fit most configurations and mount on any TIA/EIA standard rail.
- **Three-Way Vertical Cable Hangers** are used for vertical cable runs. Mount them on the side of rails or on the front of the rails facing the front or back.
- **◆◆ WARRANTY** — All: Lifetime

Item	Code	List Price
Rackmount Ring Brackets		
1U x 1.5"W 3"D	RMB011	
1U x 2.5"W 3"D	RMB021	
6"D	RMB031	
2U x 1.5"W 3"D	RMB012	
2U x 2.5"W 3"D	RMB022	
6"D	RMB032	
Three-Way Vertical Cable Hangers, 2U x 4"W x 4"D		
Single-Pack	RMT588	
10-Pack	RMT588-10PACK	

Individual Side Rings

Make vertical cable routing simpler and less expensive.

- Mount on a TIA/EIA rail to dress cables vertically.
- Choose from shallow- or deep-run styles and from 1U or 2U sizes.
- Come with mounting screws.
- **◆◆ WARRANTY** — Lifetime



TECH SPECS
Size — 32826: 1.75"H x 1.6"W x 2.5"D (4.3 x 4 x 6.4 cm);
39711: 3.5"H x 1.6"W x 2.6"D (4.3 x 8.9 x 6.6 cm);
39710: 1.75"H x 1.6"W x 5"D (4.3 x 4 x 12.7 cm)

Item	Code	List Price
Individual Side Rings		
Shallow Run 1U	32826	
2U	39711	
Deep Run 1U	39710	

Elite Cable Managers

Easy-to-assemble managers that offer superior cable access and extra-high cable capacity.



- Use to manage and route cables efficiently in EIA standard 19" racks.
- Horizontal and vertical units can be used alone or together in a 2- or 4-post open frame rack.
- Double-hinged removable covers provide easier access during installation.
- No obstructions. An entire unit can be used for cables routing.
- Easy to put together and run cables through.
- **WARRANTY** — All: Lifetime

ECMV45U6



ECMH2US



ECMH1US

Horizontal Elite Cable Managers

- Available in 1U single-sided and 2U single- and double-sided versions.
- Arrowhead-shaped fingers funnel cables into the base and hold them securely.
- Enable easy cable routing. Insert and remove cables while maintaining retention.

For more about Elite Cable Managers, see p. 261.

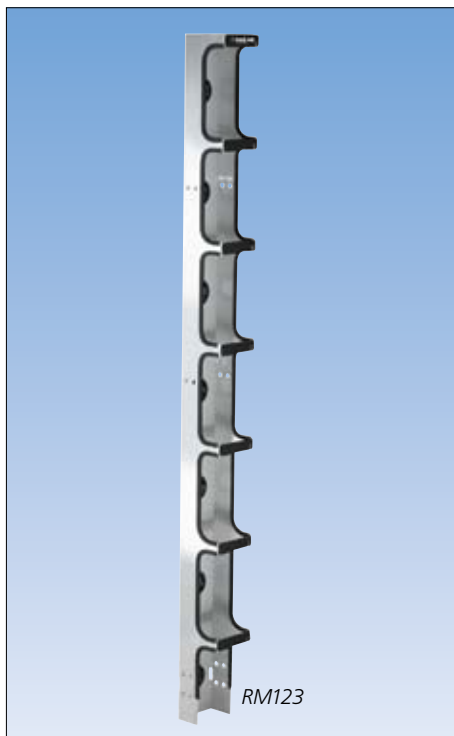
Vertical Elite Cable Managers

- Single-sided, 45U (7-foot-high) managers available in 6" and 12" widths.
- Mount on the side of or between 2- and 4-post open racks. Align easily with the bolt pattern on an open frame rack.
- Add the Vertical Rear Post & Gate Kit to make your Vertical Elite Cable Manager two sided in seconds!

Item	Code	List Price
Horizontal Elite Cable Managers		
Single-Sided	1U ECMH1US	
	2U ECMH2US	
Double-Sided	2U ECMH2UD	
Horizontal Tie-Down Bar		
	1U ECMTDB	
Vertical Elite Cable Managers, 45U		
6"	ECMV45U6	
12"	ECMV45U12	
Vertical Rear Post & Gate Kit, (10) Pieces		
6"	ECMVPG6	
12"	ECMVPG12	

Premier Vertical Cable Managers

Keep your cables hidden, protected, and organized.



RM123

- Constructed of heavy-gauge aluminum.
- Conceal and protect cables.
- Latches hold and separate wiring.
- Optional Hinged Plexi Door features an easy-to-use latch and slip hinges to make cover removal simple. For details, see page 260.
- Narrow and wide styles available.
- Mounts on any EIA standard 2- or 4-post rack.
- **WARRANTY** — Lifetime



Buyer's Guide | Premier Vertical Cable Managers

Height	Channel Width	Weight	Finish/Color	Single-sided/Double-sided	Code	List Price
84.0" (45U)	3.0"	25 lb.	Mill	Single-sided	RM122	
84.0" (45U)	6.0"	26 lb.	Mill	Single-sided	RM123	
84.0" (45U)	3.0"	26 lb.	Mill	Double-sided	RM124	
84.0" (45U)	6.0"	27 lb.	Mill	Double-sided	RM125	
84.0" (45U)	3.0"	25 lb.	Black	Single-sided	RM128	
84.0" (45U)	6.0"	26 lb.	Black	Single-sided	RM129	
84.0" (45U)	3.0"	26 lb.	Black	Double-sided	RM130	
84.0" (45U)	6.0"	27 lb.	Black	Double-sided	RM131	

Rackmount Cable Raceways

Organize cable runs on your racks.



- Mount onto any distribution rack.
- Slotted ducts provide ample space for cables.
- Single-sided raceways are perfect for tighter spaces where you may have less cable.
- Double-sided raceways route cables on both the front and back of a rack.

- Horizontal Raceways are available in either 1U or 2U heights for a perfect fit.
- Vertical Center-Mount Raceways join two distribution racks.
- **◆◆ WARRANTY** — Lifetime

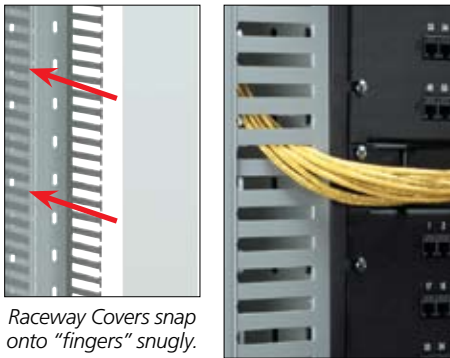
TECH SPECS

Size — RMT100A-R2: 1.75"H (1U) x 19"W x 2"D (4.4 x 48.3 x 5.1 cm);
 RMT102A-R2: 3"H (2U) x 19"W x 2"D (7.6 x 48.3 x 5.1 cm);
 RMT200A-R2–RMT201A-R2: 34"H x 4"W x 4"D (86.4 x 10.2 x 10.2 cm);
 RMT101A-R2: 1.75"H (1U) x 19"W (4.4 x 48.3 cm), 2"D (5.1 cm) on each side;
 RMT103A-R2: 3"H (2U) x 19"W (7.6 x 48.3 cm), 3"D (7.6 cm) on each side;
 RMT202A-R2–RM203A-R2: 34"H x 4"W (86.4 x 10.2 cm), 4"D (10.2 cm) on each side

Item	Code	List Price
Rackmount Cable Raceways		
Single-Sided		
Horizontal, 19"	1U RMT100A-R2	
	2U RMT102A-R2	
Vertical		
Side-Mount	RMT200A-R2	
Center-Mount	RMT201A-R2	
Double-Sided		
Horizontal, 19"	1U RMT101A-R2	
	2U RMT103A-R2	
Vertical		
Side-Mount	RMT202A-R2	
Center-Mount	RMT203A-R2	

Slotted-Duct Raceway System

Innovative "finger" design holds cables in place.



- Slotted holes enable flexible cable mounting.
- Fingers are rounded to prevent abrasion.
- Simply remove cover to reroute cables.
- Raceways run flush for increased density.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Slotted-Duct Raceway, 6-ft. (1.8-m) Lengths		
2"H x 2"W (5.1 x 5.1 cm)		
Gray	RMT300A	
Black	RMT301A	
4"H x 2"W (10.2 x 5.1 cm)		
Gray	RMT400A	
Black	RMT401A	
4"H x 4"W (10.2 x 10.2 cm)		
Gray	RMT402A	
Black	RMT403A	
Raceway Covers		
2"W (5.1 cm)		
Gray	RMT310A	
Black	RMT311A	
4"W (10 cm)		
Gray	RMT410A	
Black	RMT411A	

Cable Managers • Wire Managers

Keep cable paths organized.



- The **Latch-Type Cable Manager** comes assembled with 10 small latch gates.
- The **Hanger-Type Cable Manager** has three rings for vertical mounting of cable hangers.

- The **Wire Managers** have rolled edges and four split rings for cable support and routing.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
Cable Managers		
Latch-Type		
1U x 19"W x 1.5"D	JPM146A-R2	
Hanger-Type		
2U x 19"W x 4"D	JPM147A-R2	
Wire Managers		
1U x 19"W x 3.8"D	JPM140A	
2U x 19"W x 3.8"D	JPM141A	

Workstation Cable Manager

Organization for every workstation.



- Self-adhesive harness mounts to desks, workstations, and more!
- 21" long.
- Four adjustable VELCRO® loops.
- Quick and easy installation.
- ♦♦ **WARRANTY** — Lifetime



Tame the tangle of cables in your workstation with a couple of our Workstation Cable Managers!

Is a web of cables keeping you tied to your desk? Get the Workstation Cable Manager from Black Box and get organized! This self-adhesive bar quickly mounts to your desk or other surface. Then you can use the adjustable VELCRO® wraps to secure your cables.



Item	Code	List Price
Workstation Cable Manager	JPM540A	

19" Horizontal Cable Manager

Maximum control for your horizontal cable runs.



- Constructed of 16-gauge steel.
- Routes and bundles cables horizontally in open-frame racks.
- Fits into standard 19" racks and occupies 2U.
- Its 5" depth accommodates thick cable bundles.
- Hinged cover protects cables and gives your rack a neat appearance by keeping bundles tucked out of sight.
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
19" Horizontal Cable Manager	RM090	

19" Horizontal/Vertical Cable Manager

Manage both horizontal and vertical cable runs in your racks.



- Constructed of 16-gauge steel.
- Four horizontal and four vertical cable management rings enable you to route and bundle cables horizontally and vertically in your open-frame racks.
- Fits standard 19" racks and occupies 2U.
- Horizontal rings are 3.5"W x 3.5"D and vertical rings are 2"W x 4"D—large enough to keep your hard-to-handle bundles organized and tidy.
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
19" Horizontal/Vertical Cable Manager	RM091	

Horizontal Cable Managers

Manage cables on relay racks and cabinets!

- Metal-clad bars are easy to install.
- VELCRO® loops hold cables securely.
- Screw mount the loops to your cabinet or rack in seconds.
- Replacement loops are available.
- ♦♦ **WARRANTY** — Lifetime

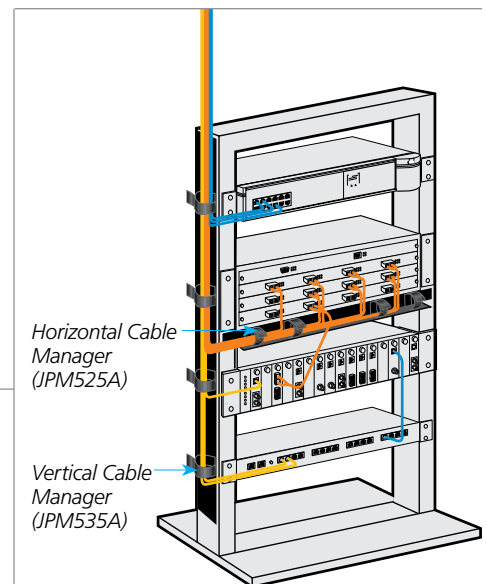


JPM525A

Do dangling cables on your relay racks and cabinets drive you crazy? Black Box has your solution: Horizontal Cable Managers!

These metal horizontal bars with attached VELCRO loops keep your cables in order. Available in 19"W or 23"W to accommodate most setups, the Horizontal Cable Managers quickly screw into your cabinet or rack.

Item	Code	List Price
Horizontal Cable Managers, 1U, 4 Loops		
19"W	JPM525A	
23"W	JPM530A	
Replacement VELCRO Loops		
1U, 4 Loops	JPM526	



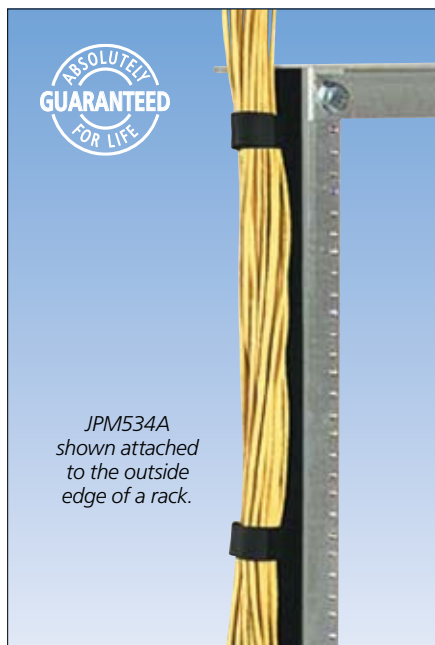
Horizontal Cable Manager (JPM525A)

Vertical Cable Manager (JPM535A)

Use Horizontal and Vertical Cable Managers for a clean, efficient data center!

Vertical Cable Managers

Run cables on the edge of your desk or rack!



JPM534A shown attached to the outside edge of a rack.

- Strong and durable construction.
- Available in 21" and 44" lengths.
- Four adjustable VELCRO loops keep cables bound securely.
- Install quickly via a self-adhesive vertical strip.
- Simply peel off the backing and attach the cable manager to a surface.
- Use the 21" manager to organize cables on the inside or outside of desks or workstations.
- The longer 44" manager is ideal for attaching to a rack or cabinet.
- ♦♦ **WARRANTY** — Lifetime

Vertical Cable Managers from Black Box get rid of those nasty tangles in your wiring closet or at your workstation! Simply peel off the backing and attach the self-adhesive vertical bar to the side of your desk, cabinet, or rack. Four super-strong VELCRO loops keep your cables bound securely.

Item	Code	List Price
Vertical Cable Managers		
21"-Long	JPM540A	
44"-Long	JPM535A	

Hook and Loop Bundle Wrap

Wrap and roll—cable management at your fingertips!



- This black cable wrap is 3/8" wide and comes in 15- and 75-foot rolls.
- Simple to use—just wrap and cut.
- Keeps all your cables organized. No more tripping over unsecured cables in your office or home!
- ♦♦ **WARRANTY** — Lifetime

NOTE: FT9555A comes as (8) 75-foot rolls.



Use only what you need!

Item	Code	List Price
Hook and Loop Bundle Wrap, 3/8" Wide		
15-ft.	FT9545A	
75-ft.	FT9550A	
600-ft.	FT9555A	

Hook and Loop Cable Hangers and Cable Wraps

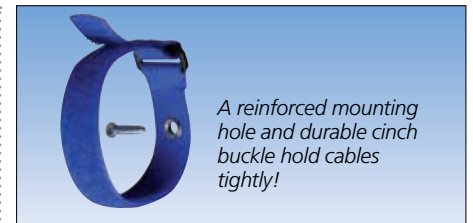
Cables stay put with these solutions!



Eliminate clutter.



Hold cables without pinching or sliding.



A reinforced mounting hole and durable cinch buckle hold cables tightly!



- ♦♦ **WARRANTY** — All: Lifetime

Hook and Loop Lite Cable Hangers

- Fasten cables securely to desks, racks, and other equipment.
- Peel off the backing for installation.
- Just pull the hanger to release cables.

Item	Code	List Price
Hook and Loop Lite Cable Hangers		
1" x 2 1/2", 10-Pack		
Black	FT9370	
Red	FT9371	
Blue	FT9372	
Yellow	FT9373	
Green	FT9374	

Hook and Loop Lite Cable Wraps

- Webbed tabs enable you to secure and release cables quickly.
- Hold cables tightly.
- Cut clutter and keep cable runs tidy.

Item	Code	List Price
Hook and Loop Lite Cable Wraps		
1" x 6", 10-Pack		
Black	FT9380	
Red	FT9381	
Blue	FT9382	
Yellow	FT9383	
Green	FT9384	

Hook and Loop Plus Cable Wraps

- Fully adjustable and reusable.
- Anchor them anywhere you can install a screw!

Item	Code	List Price
Hook and Loop Plus Cable Wraps		
1/2" x 9", 10-Pack		
Black	FT9420	
Red	FT9421	
Yellow	FT9423	
Blue	FT9422	
Orange	FT9425	

Hook and Loop Flame-Retardant Cable Wrap



- Bundle cable up to 1.75" (4.4 cm) in diameter with this wrap.
- Maroon wrap follows industry color-coding guidelines for plenum-rated runs.

Item	Code	List Price
Hook and Loop Flame-Retardant Cable Wraps		
1/2" x 8", 10-Pack		
Maroon	FT270-R2	

Basic Hook and Loop Cable Wraps



FT9264

- For nonwallmount applications.
- Use to secure and organize large bundles of cable.

Item	Code	List Price
Basic Hook and Loop Cable Wraps		
1/2" x 6", 10-Pack		
Black	FT9260	
White	FT9261	
Red	FT9262	
Gray	FT263	
Yellow	FT9263	
Blue	FT9264	
Green	FT9265	
Orange	FT9266	

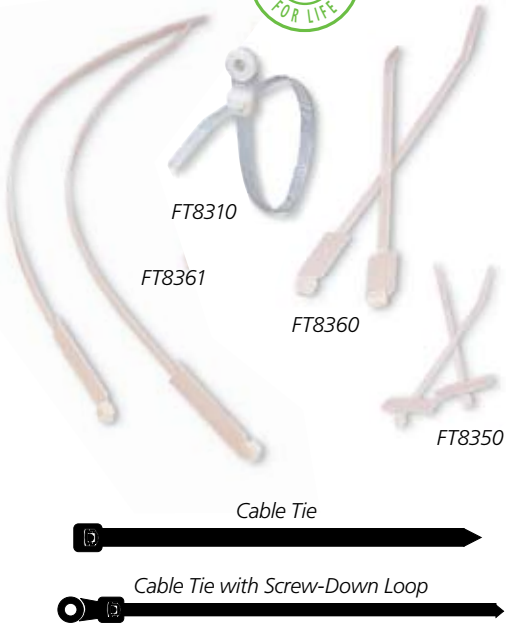


FT9280

Item	Code	List Price
Basic Hook and Loop Cable Wraps (Continued)		
1/2" x 8", 100-Pack		
Black	FT9275	
Rainbow (Includes 20 Each of Black, White, Red, Blue, and Orange)	FT9280	
1/2" x 12", 10-Pack		
Black	FT9120	
White	FT9121	
Red	FT9122	
Yellow	FT9123	
Blue	FT9124	
Green	FT9125	
Orange	FT9126	

Cable Ties

All-purpose ties for securing cable bundles.



- **Cable Ties** secure the tags on your cable. They're ideal for bundling cable.
- **Plenum Cable Ties** don't release toxins when burned.
- **Cable Ties with Screw-Down Loop** have a circular opening on one end to accept a screw for fastening the tie.
- **Cable ID Ties with ID Plate** include a built-in label area.
- **Mini Cable Ties** are designed to fit through small slits in patch panels to manage cable.
- **◆◆ WARRANTY** — All: Lifetime



Item	Code	List Price
Mini Cable Ties, 1/8" W x 4" L, 100-Pack		
Black/Natural	FT610	
Assorted Colors	FT611	
◆ FT611 includes (20) each of red, yellow, blue, fluorescent green, and orange ties.		

Item		Max. Bundling Dia.	Length	Code	List Price
Cable Ties, 100-Pack	Short	0.9"	4.0"	FT8110A	
	Medium	1.9"	7.5"	FT8120A	
	Long	4.0"	14.5"	FT8130A	
Plenum Cable Ties, 100-Pack	Short	0.9"	4.0"	FT8210A	
	Medium	1.9"	7.5"	FT8220A	
	Long	4.0"	14.5"	FT8230A	
Cable Ties with Screw-Down Loop, 100-Pack		1.8"	8.0"	FT8310	
Cable ID Ties with ID Plate, 100-Pack	0.3" x 1" Plate	0.75"	4.0"	FT8350	
	0.5" x 1.2" Plate	1.75"	7.5"	FT8360	
	0.5" x 2.25" Plate	4.0"	14.5"	FT8361	

Cable Tags, ID Plates, and Labels

Identify cables quickly and easily.



- **Cable Tags and ID Plates** are made of nylon and feature four holes, one in each corner, so they slide easily onto cable ties.
- **Cable Labels** have space for useful notes.
- **Marking Pens** with nylon tips are designed to write on nylon tags.



- **◆◆ WARRANTY** — All: Lifetime

Item	Code	List Price	
Cable Tags, 100-Pack			
	1.5" L x 0.8" W	FT8510	
	2.0" L x 0.8" W	FT8511	
	2.5" L x 0.8" W	FT8512	
Cable ID Plates, 50-Pack			
	1.5" L x 0.75" W	32786	
	2.5" L x 0.75" W	32785	
Cable Labels, 50-Pack, 5" L x 2" W			
	Black	FT930	
	Five Colors	FT931	
Marking Pens			
	Black	32788	
	Red	32787	

Black Box Explains

Cable management.

Managing cables from inside a telecommunications closet can be a daunting task. To connect cable bundles to rackmounted equipment like patch panels, hubs, switches, or routers, you need to direct the bundles overhead, vertically, and horizontally.

Ladder racks are a popular choice for overhead cable routing because they can support large cable bundles neatly and safely. Run them along a wall supported by brackets, or install them overhead and support them with a threaded rod. Bundles lie flat on a ladder rack, so cables aren't subjected to harsh bends.

You can also run the racks directly to the top of most standard telecommunications racks that conform to TIA/EIA standards.

Use vertical cable managers to route cable bundles along the sides of a rack. These "cable troughs," as they're sometimes called, can be single sided or double sided to route cable bundles to the rear of equipment and to the ports on the front as well.

Vertical cable managers usually come with some type of protection for the cable, such as grommeted holes to protect the cable jacket or a cover that may clip on or act as a door.

Horizontal cable managers are usually a series of rings that direct cables toward the ports of hubs, switches, and patch panels.

FloorTrak

Flexible floor covers keep pedestrian traffic and your cables safe.



- Protect pedestrians and cable.
- Easy to install.
- Blend in with office decor.
- ♦♦ **WARRANTY** — Lifetime

You can't always avoid running cable across a floor. But you can avoid dangers to pedestrian traffic and to the cable by slipping it into a FloorTrak™ Cable Cover. Each one is preslit to make installing the cable easy.

Widths are available for 10-foot (3.0-m) and 5-foot (1.5-m) runs across a floor. Both widths are available in gray and black to match office carpets and other decor.



Item	Code	List Price
FloorTrak Cable Covers—10-ft. (3.0-m) (Center Diameter: 0.5" x 0.312")		
Gray	FK213	
Black	FK210	
FloorTrak Cable Covers—5-ft. (1.5-m) (Center Diameter: 0.75" x 0.5")		
Gray	FK313	
Black	FK310	

Flexi Cable Ties

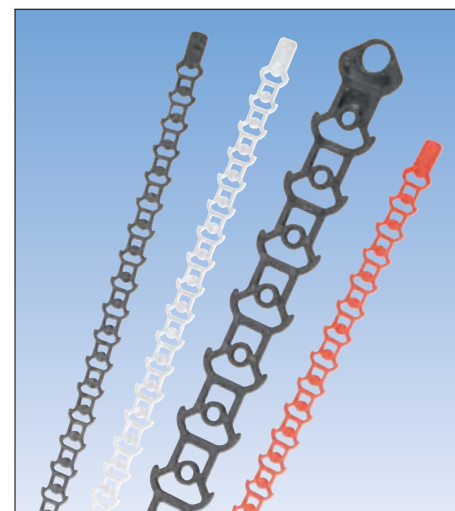
Zip on. Zip off. The tough, reversible cable ties that are gentle on your cable.



- Reversible and reusable. Undo by passing the tongue back through the latching hole.
- Ties are designed for bundling sensitive data cables.
- No sharp edges to snag or cut your cable.
- Feature a flexible latch that controls the amount of force applied—this ensures a firm grip without pinching or crushing the cable.
- Quick-fitting and self-adjusting. Simply thread the tongue through the last hole in the strip, pull onto the bundle, and cut off the excess.
- Excess tie can be used on other cable bundles, so there's much less waste.
- Great for holding cable bundles in place while you work on them.
- Bind multiple bundles with just one strip.
- Do the job of more expensive hook-and-loop style fasteners and cable ties. Use just one Flexi Cable Tie to secure a bundle and hold it to a frame.



- Heavy-Duty Flexi Cable Ties feature a wider format for heavier bundles, plus mounting and fixing holes on every cell for hooking or nailing the tie in place. Plus they're UV- and bacterial-resistant for use outdoors.
- Plenum UL® Listed and Low-Smoke Zero Halogen (LSOH) versions are also available.
- Mille-Tie™ construction.
- ♦♦ **WARRANTY** — Lifetime



Item	Code	List Price
Flexi Cable Ties		
Black, 12", 100-Pack	FT195	
Heavy-Duty, Black, 22", 10-Pack	FT196	
Plenum UL® Listed, Red, 12", 100-Pack	FT197	
LSOH, Clear, 12", 100-Pack	FT198	

Black Box Explains

Bend radius.

One of the most important considerations when managing cables is maintaining the minimum bend radius.

Bending a fiber cable excessively may cause the optical signal to refract and escape through the cladding. It could also cause permanent damage by creating micro cracks on the delicate glass fibers. And when overbending interferes with light transmission, the resulting increased attenuation compromises the integrity of your valuable data. The minimum bend radius for fiber optic cable should be specified both for long-term installation and for when the cable is

subject to tensile load. A typical value for a cable under no-load conditions, or "unloaded," is 10 times the cable's outside diameter. When a cable is under tensile load or "loaded," the minimum bend radius is usually 15 times the cable's outside diameter.

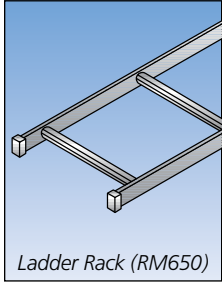
Copper cable is also sensitive to bend radius. Excessive bending of the cable disturbs the geometry of the twists, reducing cable performance. Copper cable requires a bend radius of at least 1", and many require a larger bend radius of up to 2".

Ladder Rack and Accessories

The cable management solution for ceilings,

- Create a cable management solution to fit your installation exactly.

- **WARRANTY** — Lifetime

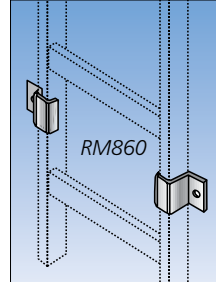


Ladder Racks

- Constructed of 16-gauge tubular steel.

Item	Code	List Price
Ladder Racks		
6' x 12"		
Black	RM650	
Gray	RM663	
10' x 12"		
Black	RM651	
Gray	RM664	

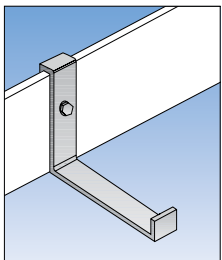
Ladder Rack (RM650)



Wall Brackets

- The **Vertical Wall Bracket** secures Ladder Rack section to wall or other flat surface.
- **Wall Angle Support Brackets** support the Ladder Rack perpendicularly to the wall.

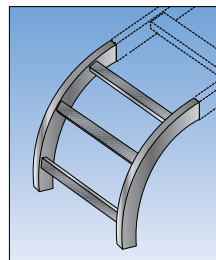
Item	Code	List Price
Vertical Wall Bracket		
Vertical Wall Bracket	RM860	
Wall Angle Support Brackets		
Black	RM655	
Gray	RM668	



L-Bracket Kit

- Supports cables, such as power cables, that need to be separated from the main cable run.
- Includes mounting hardware.

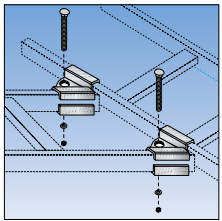
Item	Code	List Price
L-Bracket Kit	RM692	



Cable Runway Radius

- Joins Ladder Racks in a 90-degree fashion.
- Maintains cable bend radius.
- Has 33 degrees between stringers.
- Mounts with Butt Splice Kit (RM657) (above).

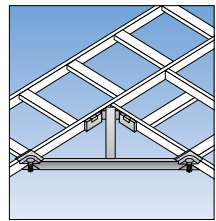
Item	Code	List Price
Cable Runway Radius, 12"W		
Black	RM652	
Gray	RM666	



Adjustable Junction Splice Kit

- Connects two Ladder Rack sections at any junction angle.

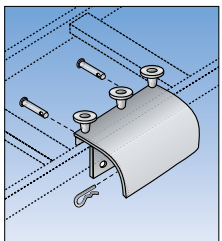
Item	Code	List Price
Adjustable Junction Splice Kit	RM862	



Corner Support Bracket Kit

- Provides extra support for 90° Ladder Rack junctions.

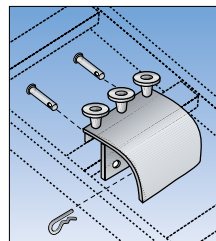
Item	Code	List Price
Corner Support Bracket Kit	RM693	



Stringer Radius Drop Kits

- Constructed of aluminum.
- Mount over Ladder Rack stringer to provide bend radius for cable.

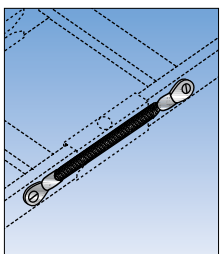
Item	Code	List Price
Stringer Radius Drop Kits		
Black	RM864	
Gray	RM863	



Radius Drop Kits

- Constructed of aluminum.
- Mount over Ladder Rack cross member to provide bend radius for cable.

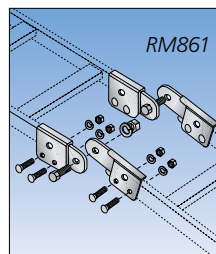
Item	Code	List Price
Radius Drop Kits		
Black	RM867	
Gray	RM866	



Grounding Kit

- Eight-inch braided copper grounding strap provides continuous ground across Ladder Rack splices.
- Requires drilling mounting-screw holes in Ladder Rack stringers.

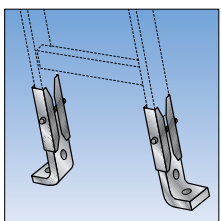
Item	Code	List Price
Grounding Kit	RM865	



Butt Splice Kits

- Join Ladder Racks to form a continuous runway.
- Adjustable Butt Splice Kit adjusts to any angle from 0 to 90 degrees.

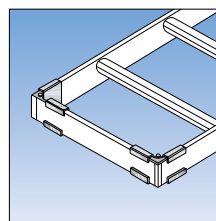
Item	Code	List Price
Adjustable Butt Splice Kit	RM861	
Butt Splice Kit	RM657	



Foot Kit

- Used to secure Ladder Rack to floor or wall.
- Includes: (2) cable rack foot angles, (4) splice plates, head bolts, hex nuts, and split lock washers.

Item	Code	List Price
Foot Kit	RM649-R2	

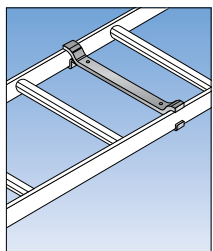
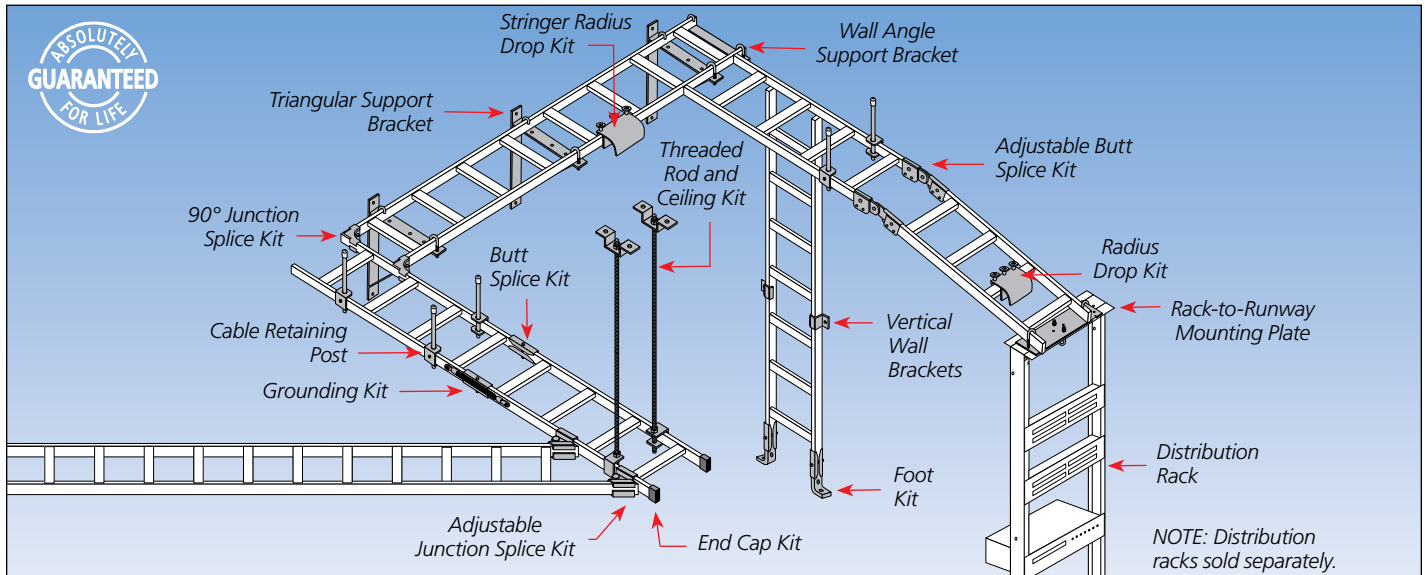


Runway Termination Kit

- Finishes and stabilizes the last section when the Ladder Rack ends away from a wall.

Item	Code	List Price
Runway Termination Kit	RM694	

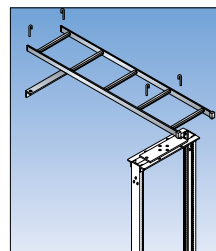
walls, and wiring closets.



Movable Cross Member

- Helps to support cable at drop locations between welded cross members.
- For maximum cable protection, use together with the Radius Drop Kit.

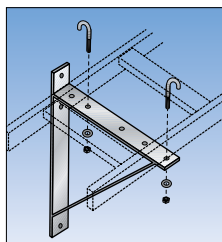
Item	Code	List Price
Movable Cross Member	RM695	



Rack-to-Wall Kit

- Includes one section of straight Ladder Rack plus all needed hardware.
- The ladder section is 54" long by 12" wide.
- Also includes a wall angle support, a rack-to-runway mounting kit, and an end-cap kit.

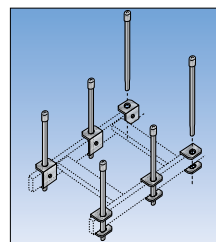
Item	Code	List Price
Rack-to-Wall Kit	RM696	



Triangular Support Brackets

- Provide parallel wall support for the Ladder Rack.

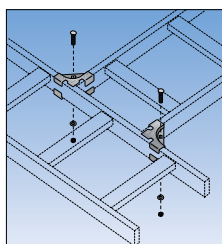
Item	Code	List Price
Triangular Support Brackets, 12" W		
Black	RM654-R2	
Gray	RM667-R2	



Cable Retaining Posts

- Post is constructed of steel tubing.
- Mount on Ladder Rack side stringers to form 6" side legs for cable retention.

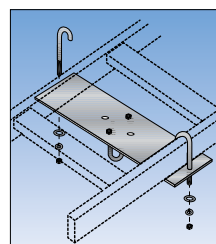
Item	Code	List Price
Cable Retaining Posts (One per Pack)		
Black	RM658-R2	
Gray	RM669-R2	



90° Junction Splice Kit

- Completes a right-angle Ladder Rack "T" junction.
- Includes: (4) corner clamp latches, (2) 3/8" x 3/8" round-head, square-neck bolts, (2) 3/8" hex nuts, and (2) split lock washers.

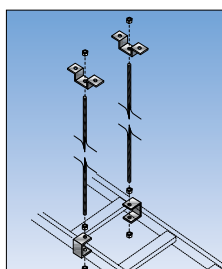
Item	Code	List Price
90° Junction Splice Kit	RM656	



Rack-to-Runway Mounting Plates

- Constructed of 11-gauge steel.
- Feature hole pattern for attaching Ladder Rack to top of wide variety of racks.

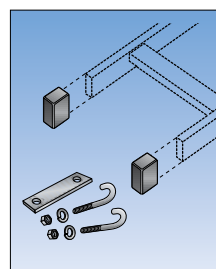
Item	Code	List Price
Rack-to-Runway Mounting Plates		
Black	RM653-R2	
Gray	RM665-R2	



Threaded Rod • Threaded Ceiling Kit

- Used to suspend Ladder Rack from ceiling.
- Recommended spacing is 5 feet between kits.
- Rod dimensions are 5/8" x 6 ft.
- Kit includes (1) ladder rack bracket, (1) ceiling bracket, and (4) hex nuts.

Item	Code	List Price
Threaded Rod (each)	RM660	
Threaded Ceiling Kit	RM659-R2	



Miscellaneous Hardware

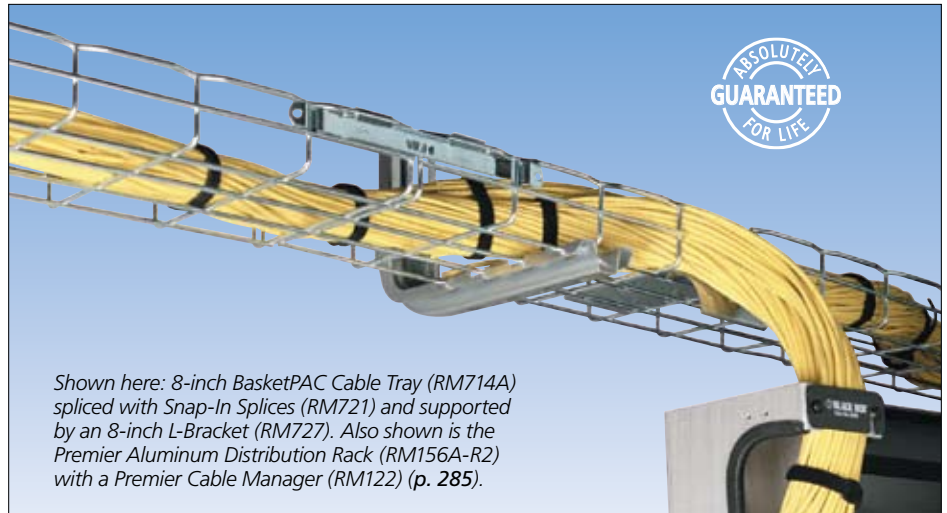
- **End Caps** cover exposed ends of the Ladder Rack.
- Use the **J-Bolt Kit** to attach the Ladder Rack to Wall Angle Support Bracket (facing page).

Item	Code	List Price
End Cap Kit (2 Caps)	RM661	
J-Bolt Kit (2 Bolts with Nuts)	RM662	

BasketPAC Cable Tray

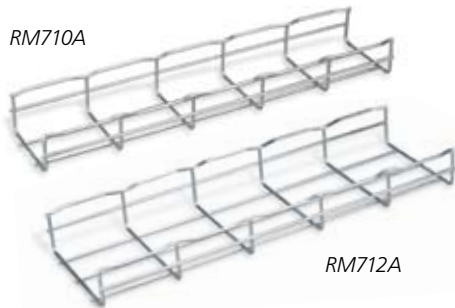
- Constructed of precision-engineered, high-quality welded steel wire.
- Our 4-Pack Cable Tray Sections are a convenient 78" length, compact enough for ground shipping.
- Easy and fast to install. Simplified hardware minimizes labor costs.
- Individual Cable Tray Sections with 10-foot lengths also available.
- Choose from several joining methods including bolt-free splices.
- Special safety edge protects installers from sharp wires and keeps cables from fraying.
- Compatible with Premier Aluminum Distribution Racks (page 260).
- **◆◆ WARRANTY** — Lifetime

The professional-grade cable tray system



Shown here: 8-inch BasketPAC Cable Tray (RM714A) spliced with Snap-In Splices (RM721) and supported by an 8-inch L-Bracket (RM727). Also shown is the Premier Aluminum Distribution Rack (RM156A-R2) with a Premier Cable Manager (RM122) (p. 285).

Step 1 Cable Tray Sections



- Choose from four 4-Pack Cable Tray Sections with 78" lengths. They include Fast Splices that enable you to connect sections quickly and easily without bolts.
- Choose from five individual Cable Tray Sections with 10-foot lengths.
- For alternative splicers, order a Splice Washer Kit (right) or Snap-In Splices (far right).

Item	Code	List Price
Cable Tray Sections, 2"H x 78"L		
4-Pack		
4"W	RM710A	
6"W	RM712A	
8"W	RM714A	
12"W	RM716A	
◆ All include Fast Splices.		
For individual Cable Tray Sections with longer lengths, order...		
Cable Tray Sections, 2"H x 10-ft. L		
2"W	RM780	
4"W	RM781	
6"W	RM782	
8"W	RM783	
12"W	RM784	

NOTE: Fast Splices not included.

Step 2 Joining Hardware

Splice Washer Kit & Spare Parts



- For sturdy, permanent connections.

Item	Code	List Price
Splice Washer Kit		
50-Pack	RM723	
◆ Each kit includes (50) Large Clamp Washers with attached Nuts and (50) Small Clamp Washers with attached Bolts.		
Large Splice Washers, 25-Pack	RM724	
Large Clamp Washers, 50-Pack	RM718	
Small Clamp Washers, 50-Pack	RM719	
Nuts and Bolts, 50-Pack	RM720	
Threaded Rod, 1/4" x 72"L	RM745	
J-Bolts, 5/16" Nut, 2-Pack	RM746	

Snap-in Splices



- Easy bolt-free installation.

Item	Code	List Price
Snap-in Splices, 50-Pack	RM721	

Universal Splice Bars



- Install with the Splice Washer Kit (left).

Item	Code	List Price
Universal Splice Bars, 50-Pack	RM722	

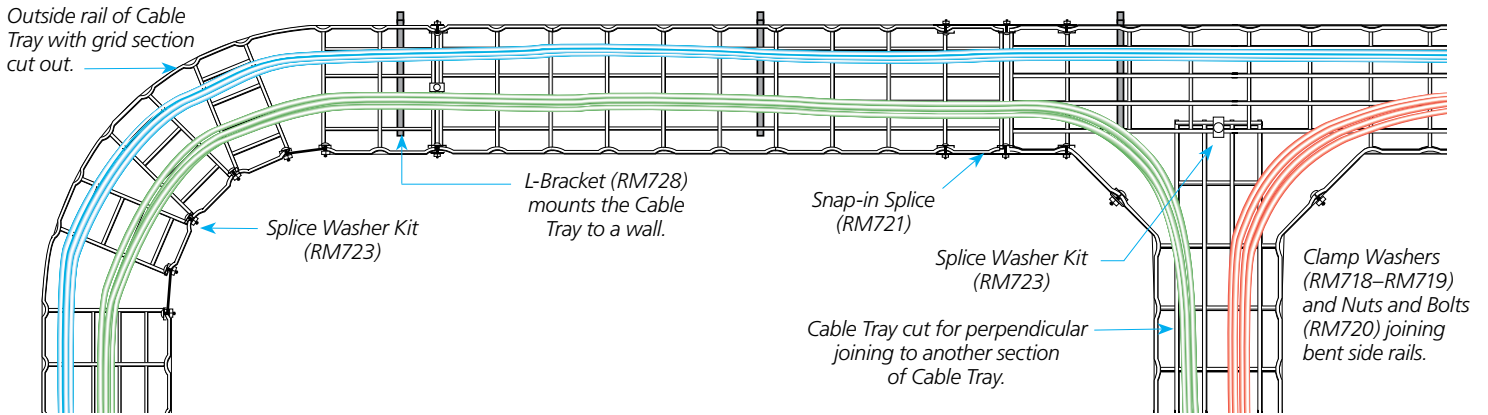
Turn & Tee Kit



- Use to form 90-degree turns.

Item	Code	List Price
Turn & Tee Kit, 2-Pack	RM725	

that's simple to install.



◀ Premier Aluminum Distribution Racks and Premier Cable Managers, pp. 260, 285.

◀ Cable Ties and Tags, pp. 290-291.

Step 3 Cable Tray Supports

L-Bracket



Item	Code	List Price
L-Bracket, 1-Pack		
6"	RM726	
8"	RM727	
12"	RM728	

C-Bracket



Item	Code	List Price
C-Bracket, 1-Pack		
8"	RM733	
12"	RM734	

Trapeze Supports



Item	Code	List Price
Trapeze Bar, 16"	RM739	
Trapeze Hanging Clip, 50-Pack	RM738	

Wall Bracket



Item	Code	List Price
Wall Bracket, 1-Pack		
6"	RM729	
8"	RM730	
12"	RM731	
Wall End Mount	RM732	

Center Bracket



Item	Code	List Price
Center Bracket, 1-Pack		
6"	RM735	
12"	RM736	
Center Hanger Clip, 50-Pack	RM737	

Under-Floor Supports



Item	Code	List Price
Under-Floor Support	RM740	
12" Pedestal Support	RM741	

Step 4 Accessories

Offset Tray Cutter

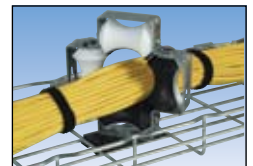


- Cut cable tray sections for installation.

Item	Code	List Price
Offset Tray Cutter	RM744	

Cable Roller Kit

- Use for pulling cable.
- Mount on side or center of rack.
- Top opens to release cables.
- Includes a carrying case.



Item	Code	List Price
Cable Roller Kit, 6-Pack	RM742	

Snap-in Cable Radius



- Protects cable by maintaining minimum-bend radius.

Item	Code	List Price
Snap-in Cable Radius	RM743	

Power & Surge Protection

Don't
power





experiment with
protection.

In this section

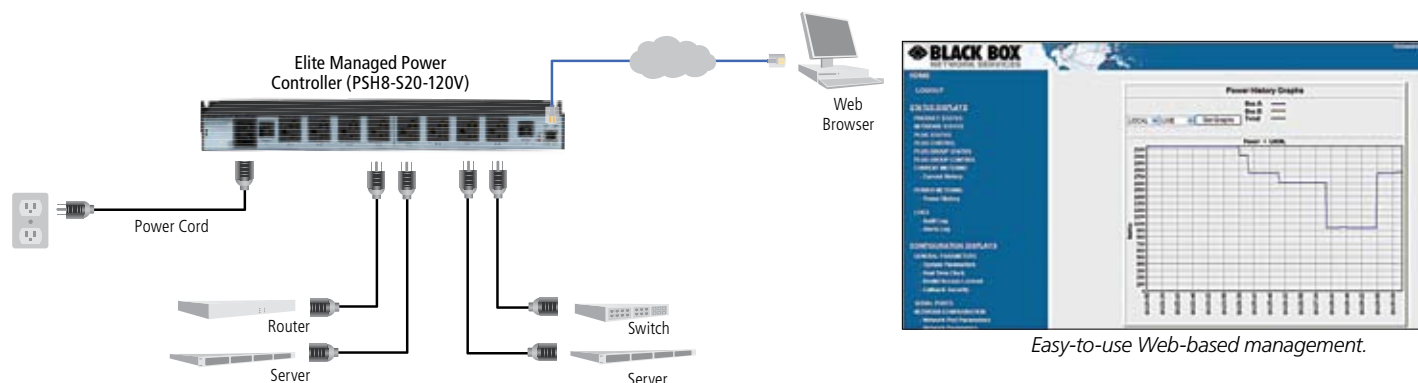
Power Management	298–301
Elite Managed Power Controllers	298–299
Rackmount Remote Power Managers	300
Power View Enhanced PDU	301
Intelligent Power Managers	301
Power Mate	301
Network Power Switch Jr.	301
Power & Surge Protection	302–307
High-Performance Power Distribution Unit	302
20-Amp Power Strip with Digital Ammeter	302
Power Strip Buyer's Guides	303
Rackmount Surge Protection	304–305
Power Strips	306–307
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Power over Ethernet Surge Protectors	309
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ISDN Surge Protectors	311–312
PoE Surge Protectors	311
CCTV Surge Protectors	311, 313
CAT5 Surge Protectors	312
Telco RJ-11 Surge Protectors	311–312
T1 RJ-45 Surge Protectors	311–312
DDS RJ-45 Surge Protectors	312
Power Solution	314–315
UPSs	316–317



For New Products,
turn to pages 26–73.

Elite Managed Power Controllers

Remotely monitor, control, and report power for network equipment.



Easy-to-use Web-based management.

- Monitors equipment power and automatically notifies you of changes in current levels, temperature, and circuit breaker status.
- Constantly measures current consumption, temperature levels, and other factors.
- Notifies you via e-mail, SNMP, or Syslog messages, and with audible alarms from the controller, when user-defined thresholds are exceeded.
- Includes one or two separate circuits of input feed handling capacity per circuit.
- Provides advanced circuit breaker protection.
- Total power control! Gives you remote individual outlet switching, on/off/reboot/default/load shed switching, as well as timed on/off/reboot switching.
- Offers true RMS current metering and reporting.
- Front-panel LED displays amps, kilowatts, volts, and temperature readings for each circuit.
- Report-generating capabilities. Outputs detailed records of current and power consumption, with graphs showing daily, weekly, monthly, and yearly power histories.
- Four levels of access—you decide who gets control.
- Secure Shell (SSHv2) encryption and address-specific IP security masks help safeguard access to command and configuration functions.
- Supports full MIB and SNMP traps.
- Expandable through its RJ-45 auxiliary ports. Link to three other power managers and control all four units under one IP address.
- Horizontal models include either (1) or (2) 15-amp removable power cords. If you plug the Controller into a 20-amp circuit, you will need 20-amp cords. For details, call our FREE Tech Support.
- Vertical models include either a 20-amp removable power cord or a 30-amp power cord hardwired to the unit.
- All models include rackmounting brackets.
- RoHS compliant.
- **GO GREEN** — Save energy and money by shutting off power to equipment during downtimes.
- **◆◆ WARRANTY** — 5 Years

With today's skyrocketing utility bills and the higher consumption caused by ever-increasing computing, you can't afford not to keep a close eye on power usage and current levels in high-density data centers—particularly after hours.

The Elite™ Managed Power Controller from Black Box gives you advanced power monitoring capabilities and more. As a power management and control solution, it not only distributes power to equipment at the rack, it also enables you to check circuit status, voltage supply, and monitor current constantly on its circuits. You can also use it to measure and record kilowatt hour draw and to monitor individual outlet usage.

Monitoring can be done over an IP link, an external modem, or a local terminal plugged into its RS-232 port. The power controller also features a 10BASE-T/100BASE-TX port for connecting it to a network.

Check power and temperature levels remotely to pinpoint peak levels in data centers. Then, if necessary, remotely switch power on and off to individual outlets or groups of outlets.

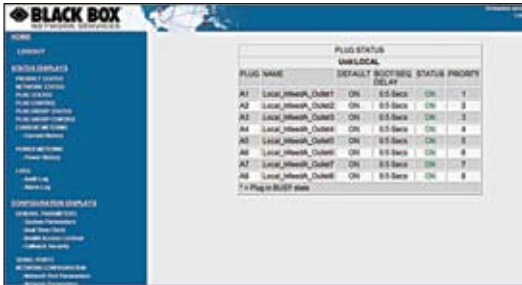
Go green and save power.

Conserve energy in the data center by setting scheduled shutdowns to turn off unused equipment during off hours.

Alarms triggered when power thresholds are exceeded.

Just set clearly defined thresholds, and when they're exceeded, the Elite Managed Power Controller immediately lights an LED and emits an audible alarm to alert anyone working nearby. But, even better, it can also promptly send an e-mail, SNMP alert, Syslog message, or text message to critical personnel off-site.

Once notified, users can then remotely turn power on or off or reboot the affected network devices—all from the comfort of home, another office, or anywhere with an Internet connection.



Just point and click to manage power.



Customizable alarms and automatic load shedding.

The Elite Managed Power Controller generates alarms based on different events:

- When current or rack temperature exceeds your preset thresholds.
- When input voltage is lost.
- When there's an open circuit breaker.
- When current consumption reaches a point that warrants further investigation.
- When current consumption reaches a level that's close to the maximum.

You can set up the Elite Managed Power Controller to respond on its own, in case you're not there to respond when temperature or current rise to critical levels. It intelligently sheds the current load by temporarily shutting down nonessential devices.

PING watchdog with auto reboots.

You can also set the Elite Managed Power Controller to PING an IP address at specific intervals. If it doesn't respond, the power manager reboots one or more outlets.

The controller can watch for—and alert you to—multiple login attempts on its 10/100 network and serial ports.

Plus you can set up alarms in case of loss of communications on the ports.

In-depth power history reporting.

The Elite Managed Power Controller generates power history reports to show total power usage on each circuit—information that helps you zero in on where you're wasting power.

Obtain historical data on unit temperature, current, and other power-related metrics. You can see and report spikes or drops in amperage, voltage, and temperature in rich, graphic detail. Graph daily, weekly, monthly, or even yearly power consumption data.

These reports and graphs can then be forwarded to technical personnel anywhere in the world.

Easy to set up, control, and manage.

The Elite Managed Power Controller can be controlled by a local PC (communicating with the unit via its serial port), by an external modem, or through a TCP/IP network. In Command Mode, you can communicate with the power manager using Telnet or SNMP, as well as a browser and an SSH client, in addition to a modem or local PC.

Through the controller's powerful management interface, you can designate groups of plugs

that are dedicated to a similar function and ones you'll want to switch or reboot all at the same time. In addition, you can schedule reboots to automatically occur at a selected time and day of the week.

The horizontal models come with one or two detachable 15-amp power cords. (If you plan to plug the controller into a 20-amp circuit, call our FREE Tech Support for a 20-amp power cord.) The 20-amp vertical models come with a detachable 20-amp power cord, and the 30-amp vertical models come with a 30-amp hard-wired cord.

TECH SPECS

Circuit Breakers — Single-circuit models: (1) 20-A breaker or (1) 30-A breaker;

Dual-circuit 120-VAC models:

(2) 20-A breakers (one for each circuit);

Dual-circuit 208-VAC models: (2) 16-A breakers (one for each circuit)

Inlets — (1) IEC 60320-C20 AC inlet per circuit; 30-amp units are hardwired

Maximum Load — Per outlet: PSH8-S20-120V,

PSH8-S20-208+, PSH8-D20-120V,

PSH16-D20-208+V: 20 A;

PSH16-D20-120V, PSH8-D20-208+V,

PSV20-S20-120V, PSV20-S20-208+V: 16 A;

PSV20-S30-120V, PSV20-S30-208+V: 30 A

Switched Outlets — 120-VAC models: (8), (16), or (20) NEMA 5-20R;

208-VAC models (8), (16), or (20) IEC320-C13

CE Approval — Yes

Connectors — Auxiliary: (3) RJ-45 (for connecting to additional Elite Managed Power Controllers; can also be reconfigured as RS-232 serial ports);

Remote port: (1) RJ-45 (for connecting optional Elite Managed Power Controller Display Unit);

Serial console: DB9 M (RS-232);

Network: (1) RJ-45 (10-/100-Mbps)

Power — Input: Either 100–120 VAC, 50/60 Hz or

100–250 VAC, 50/60 Hz, autosensing

Size — Horizontal, 8-outlet models: 1.75"H (1U) x

19"W x 8.7"D (4.4 x 48.3 x 22.1 cm);

Horizontal 16-outlet models: 3.5"H (2U) x

19"W x 8.7"D (8.9 x 48.3 x 22.1 cm);

Vertical models: 31"H x 4.5"W x 3.2"D

(78.7 x 11.4 x 8.1 cm)

Item	Code	List Price
Elite Managed Power Controllers		
Horizontal		
8-Outlet, Single-Circuit		
120 VAC, 20-Amp	PSH8-S20-120V	
208+ VAC, 20-Amp	PSH8-S20-208+V	
8-Outlet, Dual-Circuit		
120 VAC, 20-Amp	PSH8-D20-120V	
208–240 VAC, 20-Amp	PSH8-D20-208+V	
16-Outlet, Dual-Circuit		
120 VAC, 20-Amp	PSH16-D20-120V	
208+ VAC, 20-Amp	PSH16-D20-208+V	
Vertical		
20-Outlet, Single-Circuit		
120 VAC, 20-Amp	PSV20-S20-120V	
120 VAC, 30-Amp	PSV20-S30-120V	
208–240 VAC, 20-Amp	PSV20-S20-208+V	
208–240 VAC, 30-Amp	PSV20-S30-208+V	

NOTE: Additional models are available as custom orders. For details, call Tech Support.

Rackmount Remote Power Managers

Convenient rackmount power control for up to 16 remote network devices.

- Reboot up to 4, 5, 8, or even 16 network devices.
- Control devices via Telnet™ over a TCP/IP network, a Web browser and a modem, or serial commands.
- Feature individually controllable outlet plugs.
- Versions available for 105–120-VAC, 100–120-VAC, 105–240-VAC, and 208–240-VAC equipment.
- Include password protection plus encrypted 64-bit password security.
- Only authorized users can make configuration changes.
- ♦♦ **WARRANTY** — 2 Years



Reboot up to 16 network devices from across your network, by modem, or even from the Internet. Just type the power manager's IP address into your Web browser, enter your name and password, and access your network devices to switch them on, switch them off, or reboot. The power managers are perfect for remotely rebooting servers, routers, network switches, Web cams, firewalls, and other network devices.

The Web browser interface works across any TCP/IP network—even the Internet—with any

JavaScript enabled Web browser. Its intuitive interface features easy-to-use menus. Control power by plug number or a name that you assign.

You can also operate a Rackmount Remote Power Manager through an ASCII command line interface via Telnet over a TCP/IP network, through a modem connection, or from a local PC using a terminal emulator.

Built-in password security prevents unauthorized users from switching devices or changing

configurations. Both the Web browser and the command line interface use 64-bit encryption.

Two levels of operational passwords provide an additional layer of security: System-level passwords provide access to all configuration and switching functions. The user level limits switching to assigned plugs.

The Power Managers feature an IP-addressed 10BASE-T interface for network connections and an RS-232 port for modem connections.

TECH SPECS

Data Format — PS580A–PS581A, PS565A:

Serial ASCII, 8 bits, no parity;

PS567A, PS584A: Serial ASCII, 8 bits, no parity; 7 bits, odd/even, 300 bps–38.4 kbps;

PS568A–PS569A, PS582A–PS583A: Serial ASCII, 7/8 bits, no parity, 300 bps–38.4 kbps

Operating Environment —

Temperature: 32 to 122 °F (0 to 50 °C);

Humidity: 10 to 90% noncondensing

Connectors — All: RS-232C: (1) DB9 M (DTE);

Network: (1) RJ-45 (10BASE-T Ethernet);

PS580A: AC input: (1) IEC 320 inlet;

AC output: (4) NEMA 5-15 outlets;

PS568A: AC input: (2) IEC 320-C14 inlets;

AC output: (8) NEMA 5-15 outlets;

PS569A: AC input: (2) IEC 320-C14 inlets;

AC output: (16) NEMA 5-15 outlets;

PS581A: AC input: (1) IEC 320-C14 inlet;

AC output: (4) IEC 320-C13 outlets;

PS582A: AC input: (2) IEC 320-C14 inlets;

AC output: (8) IEC 320-C13 outlets;

PS583A: AC input: (2) IEC 320-C14 inlets;

AC output: (16) IEC 320-C13 outlets;

PS565A: AC input: (1) IEC 320 inlet;

AC output: (5) NEMA 5-15 outlets;

PS567A: AC input: (2) IEC 320 inlets;

AC output: (16) NEMA 5-15 outlets;

PS584A: AC input: (1) IEC 320-C14 inlet;

AC output: (16) IEC 320-C13 outlets

User Controls — PS580A–PS581A, PS565A:

(1) manual control button, (1) circuit breaker;

PS568A–PS569A, PS582A–PS583A, PS567A,

PS584A: (1) manual control button,

(2) circuit breakers

Power — PS580A: AC input: 105–120 VAC, 60 Hz,

15 amps maximum; AC output: (4) plugs,

supporting a load of 15 amps total;

PS568A: AC input: 100–120 VAC, 50/60 Hz,

15 amps maximum per circuit; AC output:

(8) plugs split into (2) 15-amp circuits with

Power Circuit A (Plugs 1–4) and Power Circuit B

(Plugs 5–8) supporting a load of 30 amps total;

PS569A: AC input: 100–120 VAC, 50/60 Hz,

15 amps maximum per circuit; AC output:

(16) plugs split into (2) 15-amp circuits with

Power Circuit A (Plugs 1–8) and Power Circuit B

(Plugs 9–16) supporting a load of 30 amps total;

PS581A: AC input: 208–240 VAC, 50/60 Hz,

10 amps maximum; AC output: (4) plugs,

supporting a load of 10 amps total;

PS582A: AC input: 208–240 VAC, 50/60 Hz,

10 amps maximum per circuit; AC output:

(8) plugs split into (2) 10-amp circuits with

Power Circuit A (Plugs 1–4) and Power Circuit B

(Plugs 5–8) supporting a load of 20 amps total;

PS583A: AC input: 208–240 VAC, 50/60 Hz,

10 amps maximum per circuit; AC output:

(16) plugs split into (2) 10-amp circuits with

Power Circuit A (Plugs 1–8) and Power Circuit B

(Plugs 9–16) supporting a load of 20 amps total;

PS565A: AC input: 105–120 VAC, 60 Hz, 15 amps

maximum; AC output: (5) plugs, supporting a

load of 15 amps total;

PS567A: AC input: 105–120 VAC, 60 Hz, 15 amps

maximum per circuit; AC output: (16) plugs split

into (2) 15-amp circuits with Power Circuit A

(Plugs 1–8) and Power Circuit B (Plugs 9–16)

supporting a load of 30 amps total;

PS584A: AC input: 105–240 VAC, 50/60 Hz,

10 amps maximum per circuit; AC output:

(16) plugs split into (2) 10-amp circuits with

Power Circuit A (Plugs 1–8) and Power Circuit B

(Plugs 9–16) supporting a load of 20 amps total

Size — PS580A–PS581A: 1.75"H x 19"W x 4.5"D

(4.4 x 48.3 x 11.4 cm);

PS568A, PS582A: 1.75"H x 19"W x 7"D

(4.4 x 48.3 x 17.8 cm);

PS569A, PS583A: 3.5"H x 19"W x 7"D

(8.9 x 48.3 x 17.8 cm);

PS565A: 21.25"H x 1.75"W x 3"D

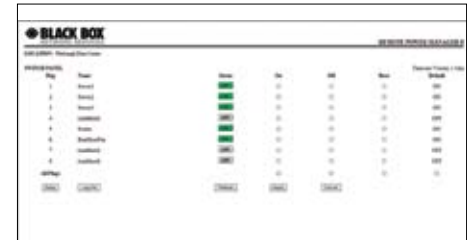
(54 x 4.4 x 7.6 cm);

PS567A: 43.75"H x 1.75"W x 3"D

(111.1 x 4.4 x 7.6 cm);

PS584A: 43.75"H x 2.13"W x 3"D

(111.1 x 5.4 x 7.6 cm)



Easy-to-use graphical interface.

Item	Code	List Price
Horizontal Rackmount Remote Power Managers		
105–120 VAC		
Single Circuit, (4) NEMA 5-15 Outlets	PS580A	
100–120 VAC		
Dual Circuit, (8) NEMA 5-15 Outlets	PS568A	
Dual Circuit, (16) NEMA 5-15 Outlets	PS569A	
208–240 VAC		
Single Circuit, (4) IEC-320-C13 Outlets	PS581A	
Dual Circuit, (8) IEC-320-C13 Outlets	PS582A	
Dual Circuit, (16) IEC-320-C13 Outlets	PS583A	
Vertical Rackmount Remote Power Managers		
105–120 VAC		
Single Circuit, (5) NEMA 5-15 Outlets	PS565A	
Dual Circuit, (16) NEMA 5-15 Outlets	PS567A	
105–240 VAC		
Dual Circuit, (16) IEC 60320 Outlets	PS584A	

Power View Enhanced PDU

Intelligent remote power management *plus* environmental monitoring.



- Provides intelligent power distribution, remote management, power monitoring, and environmental monitoring.
- Operate via your network or the Web.
- Control power up to eight devices.
- Switch outlets on or off, or reboot.
- Switch individual outlets or groups of outlets.
- Monitor amperage over the entire circuit.
- Supports a robust 20 amps over 8 outlets.
- Power sequencing staggers the loads.
- Has password protection and four user levels.
- Has one RJ-45 Ethernet port, one RJ-45 serial port, one RJ-12 environmental monitor port, and eight NEMA 5-20 outlets.

- **WARRANTY** — 2 Years

Item	Code	List Price
Power View Enhanced PDU	PS570A	
Environmental Monitor for Power View	PS572	
◆ Includes (1) Monitor Unit, RJ cable, (1) Temperature and Humidity Probe.		
Temperature and Humidity Probe for Power View	PS573	
Water Sensor Probe for Power View	PS574	

Intelligent Power Managers

Reboot four or eight devices remotely over the Internet.

- Direct, control, and manage power for all your connected network equipment: file servers, routers, network switches, and more.
- Turn equipment on, off, or reboot.
- Remote control is via the Web, Telnet or a Telnet with Web function, RS-232 DB9 male or female console port, or an RS-485 RJ-11 port.
- Monitor input line voltage, total load current, and line frequency.
- Sequentially power on and power off.
- Overcurrent protected at 15 amps.
- Configure the unit as a master PDU with slaves linked via RS-232 or RS-485.



Both the PS540A (shown at left) and the PS545A feature convenient Web-based setup and control.

- Features Auto-PING function.
- Sends e-mail alerts to up to three people.
- Feature two isolated contact inputs for remote messaging and two auxiliary output contacts for predefined assignments.
- A temperature sensor can be added.
- **WARRANTY** — 2 Years

NOTE: For more details and specs, see blackbox.com.

Item	Code	List Price
Intelligent Power Managers		
20-Amp, Single-Input, 4-Device	PS540A	
40-Amp, Dual-Input, 8-Device	PS545A	

Power Mate • Network Power Switch Jr.

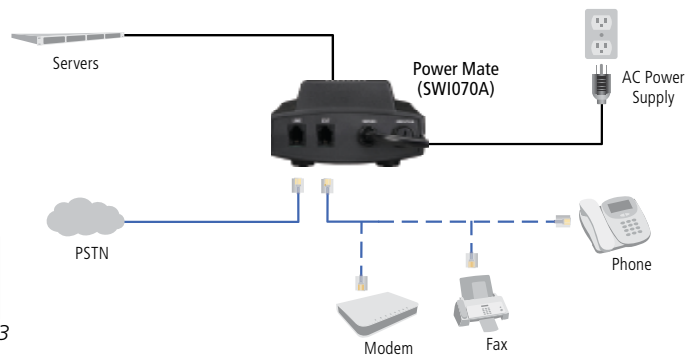
Control power to remote equipment via an existing phone line or over the Web.



SWI070A



SWI080A-R3



- Remotely reboot, switch on, and switch off remote PCs, computer devices, and non-network equipment, such as fans or pumps.

Power Mate (SWI070A)

- Uses your existing phone line to control a single AC outlet at a remote location.
- Can share a line with a phone, fax, or modem.
- Features a dual-security mode.
- Control it remotely by entering tone digits from an ordinary dial tone (DTMF) phone.
- Features a manual locking switch for local control.

Network Power Switch Jr. (SWI080A-R3)

- Provides easy access through any Web browser across any IP network. Use your corporate intranet or the Internet.
- Performs timed reboots.
- Features a built-in Ethernet hub.
- Offers password protection.
- AutoPING checks IP devices and detects failed equipment.

- **WARRANTY** — All: 2 Years

NOTE: For more details, see blackbox.com.

Item	Code	List Price
Power Mate	SWI070A	
◆ Includes (1) power switch and (1) built-in 6-ft. 18 AWG line cord.		
Network Power Switch Jr.	SWI080A-R3	
◆ Includes (1) power switch, (1) 7-ft. power cord for North America, (1) 6-ft. CAT5 cable, and (1) IEC to NEMA 5-15 cord.		

High-Performance Power Distribution Unit

The powerful “zero U” rackmount surge protector.



Unique, “zero U” space-saving design

- Hardware included to mount the PDU two ways:
 - Horizontally in a standard 1U rack pattern.
 - Vertically in the rear of the rack, which uses no rack space!
- Designed for enclosures where space is at a premium.

Powerful surge protection

- Powerful 24-amp surge protection.
- Dual circuit breakers provide overload protection. Response time is <1 ns.

- Guards against surge currents up to 66,000 amps (33,000 per circuit) at a frequency of 60 Hz.
- Features six NEMA 5-15R outlets on the front and six on the rear.

Built to last

- Rugged, steel enclosure.
- Meets UL® 1950 and ITE standards.
- Includes a 12-foot power cord.
- The 10/3 SJT power cord features a 30-amp twist-lock L5-30P plug for durability.
- ♦♦ **WARRANTY** — Lifetime

TECH SPECS

AC Voltage — Input and output: 100–127 VAC
Circuit Breaker — (2) 15 amp
Circuitry — (2) 4-element, 4-stage hybrid
Clamping Level — 280 volts
Frequency — 60 Hz
Load Capacity (Maximum) — 24 amps:
 (2) 12-amp circuits
Noise Reduction — 60 dB
Outlets — (12) NEMA 5-15R: (6) front, (6) rear
Power Cable — Cable: 10/3 SJT Type, 12 ft. (3.6 m L);
 Plug: L5-30P
Response Time — < 1 ns
Standards — UL® 1950, ITE
Surge Current (Maximum) — 60,000 amps
 (33,000 per circuit)
Indicators — (2) LEDs
Size — 1.75"H x 17"W x 9"D (4.4 x 43.2 x 22.9 cm);
 with the included 1U rackmount bracket:
 1.75"H x 19"W x 9"D (4.4 x 48.3 x 22.9 cm)
Weight — 10 lb. (4.5 kg)

Item	Code	List Price
High-Performance Power Distribution Unit	SP425A	

20-Amp Power Strip with Digital Ammeter, Rackmount

Power distribution that’s metered and displayed.

- Steel construction.
- Ammeter measures AC current flowing through the receptacles and shows current draw on a digital LCD readout.
- Breaker provides overload protection up to 20 amps.
- Six rear-mounted NEMA 5-20R receptacles enable you to plug in multiple devices.
- Fits standard EIA 19" cabinets and racks.
- Input and output voltage ranges from 100–127 VAC at 60 Hz.
- Includes a 6-foot (1.8-m) power cord.
- ♦♦ **WARRANTY** — 2 Years



TECH SPECS

AC Voltage — Input and output: 100–127 VAC
Circuit Breaker — 20 amp
Current (Maximum) — 20 amps
Frequency — 60 Hz
Housing — Matte black steel
Mounting — 19" rackmount, EIA standard
Operating Temperature — 32 to 140° F (0 to 60° C)
Output Receptacles — (6) NEMA 5-20R, mounted in the rear
Size — 1.75"H (1U) x 19"W x 2.75"D
 (4.4 x 48.3 x 7 cm) with 6-ft. (1.8-m) cord

Item	Code	List Price
20-Amp Power Strip with Digital Ammeter	PS365A-R2	

NOTE: This strip does not provide surge protection.

Buyer's Guide | Rackmount Power Strips

	Amps	On/Off Switch	Outlets	Surge Protection	Clamping Voltage	IEEE Let-Through	EMI/RFI Noise	Single-Pulse Energy Rating	Peak Current	Code	List Price
Power Strip with Digital Ammeter	20	✓	6 Rear	✓	—	—	—	—	—	PS365A-R2	
19" Rackmount Power Strip		—	6 Rear	—	—	—	—	—	—	PS186A-R2	
		✓	6 Front	—	—	—	—	—	—	PS189A-R2	
		✓	6 Rear	—	—	—	—	—	—	PS188A	
Rackmount Power	15	✓	8 Rear	—	—	—	—	—	—	SP196A-R2	
Rackmount Power	20	✓	8 Rear	—	—	—	—	—	—	SP194A-R2	
Rackmount Surge Protector Power Strip	20	✓	8 Rear	✓	330 V	—	40 dB	—	—	SP472A-R3	
Premium Rackmount Surge Suppressor	15	—	6 Rear	✓	330 V	320 V	60 dB	420 joules	13,000 amps	SP215A-R2	
Mega Rack Power Strip	15	—	8	✓	400 V	340 V	20 dB	360 joules	—	SP175A	
All-in-One Power and Surge Protector	15	✓	6	✓	330 V	—	—	1072 joules	—	SPT930	

Buyer's Guide | Power Strips

	Amps	On/Off Switch	Outlets	Surge Protection	Clamping Voltage	IEEE Let-Through	EMI/RFI Noise	Single-Pulse Energy Rating	Peak Current	Code	List Price
High Performance Power Dist. Unit	24	—	12 (6F/6R)	✓	280 V	—	—	—	60,000	SP425A	
Dual-Circuit Power Distribution Unit	15	—	24	✓	—	—	—	—	—	PS585A	
Vertical AC Power Outlet Strips		✓	16	—	—	—	—	—	—	PS181A-R2	
		✓	8	—	—	—	—	—	—	PS182A-R2	
Vertical AC Power Outlet Strips w/ Surge <i>For all SKUs, see p. 306.</i>		✓	10	✓	330 V	—	—	—	—	SP197A	
Premium Plugstrip Surge Protectors <i>For all SKUs, see p. 307.</i>		✓	6	✓	400 V	200 V	—	210 joules	19,500	SP410A-R2	
Outlet Power Strips <i>For all SKUs, see p. 307.</i>		✓	6	—	—	—	—	—	—	PS163A-R2	
Wallmount and In-Line Surge Protectors <i>For all SKUs, see p. 307.</i>		—	2	✓	—	—	✓	—	—	SP417A	

Black Box Explains

Power problems.

Threat	Cause	Effect
Sags A sag is a decline in the voltage level. Also known as "brownouts," sags are the most common power problem.	Sags can be caused locally by the start-up demands of electrical devices such as motors, compressors, and elevators. Sags may also happen during periods of high electrical use, such as during a heat wave.	Sags are often the cause of "unexplained" computer glitches such as system crashes, frozen keyboards, and data loss. Sags can also reduce the efficiency and lifespan of electrical motors.
Blackouts A blackout is a total loss of power.	Blackouts are caused by excessive demand on the power grid, an act of nature such as lightning or an earthquake, or a human accident such as a car hitting a power pole or a backhoe digging in the wrong place.	Of course a blackout brings everything to a complete stop. You also lose any unsaved data stored in RAM and may even lose the total contents of your hard drive.
Spikes A spike, also called an impulse, is an instantaneous, dramatic increase in voltage.	A spike is usually caused by a nearby lightning strike but may also occur when power is restored after a blackout.	A spike can damage or completely destroy electrical components and also cause data loss.
Surges A surge is an increase in voltage lasting at least 1/20 of a second.	When high-powered equipment such as an air conditioner is powered off, the excess voltage is dissipated through the power line, causing a surge.	Surges stress delicate electronic components, causing them to wear out before their time.
Noise Electrical noise, more technically called electromagnetic interference (EMI) and radio frequency interference (RFI), interrupts the smooth sine wave expected from electrical power.	Noise has many causes, including nearby lightning, load switching, industrial equipment, and radio transmitters. It may be intermittent or chronic.	Noise introduces errors into programs and data files.

Rackmount Power Strips and Surge Protectors

You've got the power to protect

All-in-One Power and Surge Protector

- Stop power surges cold with 1000 joules of protection.
- Gives your equipment maximum protection with a clamping voltage of 330 volts.
- Plug in up to six pieces of equipment.
- Protects telephone and data lines from surges through RJ-11 and RJ-45 jacks.
- Also offers EMI/RFI noise filtration.
- Features a circuit breaker reset button.
- Has six outlets, two of which are always on.
- Includes a main power switch.
- Specially designed brackets on the back hold power cords neatly and securely to prevent accidental disconnects.
- **◆◆ WARRANTY** — 2 Years



TECH SPECS

AC Spike Capacity (Maximum) — 4500 amps
Alarm — Overload buzzer at 1800 watts/2250 watts
Clamping Voltage — 330 volts (UL® 1449)
EMI/RFI Noise Filtration — 99% removed from 100 kHz to 1 MHz
EMI/RFI Response Time — Instantaneous, <1 ns
Input Voltage — 100–120 VAC, 50/60 Hz
Modes — Line to neutral, line to ground, neutral to ground
Output Current — 125 volts, 15 amps (maximum)

Overload Protection — 200%, 4~10 seconds
Power Rating — 125 V, 1800 VA
Receptacles — (2) outlets: always on; (6) outlets: power switch control on/off; (2) IEC female sockets
Surge Energy Rating — 1072 joules
Indicators — AC voltage: 1 V accuracy; Frequency accuracy: 0.1 Hz; Load: 125 volts; 200 watts~2000 watts
Size — 1.7"H x 17.5"W x 5.8"D (4.3 x 44.5 x 14.7 cm)
Weight — 5.1 lb. (2.3 kg)

Item	Code	List Price
All-in-One Power and Surge Protector, 1U 9.8-ft. (3-m) Power Cord	SPT930	

Mega Rack Power Strip

- Compact unit—only 1U high—includes surge protection.
- Protect up to eight devices.
- Design provides plenty of room to install transformers side by side without wasting outlets.
- Features eight outlets, four in the front and four in the back, all spaced 2.1" apart.
- Outlets are rotated 90° to fit most transformers.
- Fits a standard 19" data center rack.
- You can recess the Mega Rack Power Strip into your data center rack to protect transformers from being knocked loose accidentally.
- UL® rated 15-amp, 125-VAC, 1875-watt output.
- **◆◆ WARRANTY** — 2 Years



TECH SPECS

EMI/RFI Noise Protection — 20 dB
IEEE Let-Through Voltage — <340 volts
Single-Pulse Energy Rating — 360 joules
UL® 1449 Clamping Voltage — 400 volts
Power — 115 VAC, 60 Hz
Size — 1.75"H (1U) x 17"W x 4.5"D
 (4.4 x 43.2 x 11.4 cm)
Weight — 5 lb. (2.3 kg)

Item	Code	List Price
Mega Rack Power Strip	SP175A	

Black Box Explains

The difference between a power strip and a surge protector.

A power strip is essentially a multiple outlet extension cord. It provides a convenient way to plug in your devices, but provides no protection from power surges—a sudden increase in power will go right through the power strip and cook your electronics. Power strips are for use when you need additional power outlets in an area where surge protection is already being provided by a device such as a UPC.

A surge protector (also called a surge protector power strip or a surge suppressor), on the other hand, protects your electronics from electrical surges and spikes. Most surge protectors work primarily by

diverting excess power into the power outlet's grounding wire. Most also feature a fuse or a circuit breaker that cut power when an extreme power surge occurs. This saves connected devices from suffering damage by sacrificing the surge protector.

When shopping for surge protectors, look for the let-through rating, which is a measure of how much of a spike or surge each protector will let through to your electronic equipment. The lower the let-through rating, the better the suppression.

equipment and organize power cords.

20-Amp Rackmount Surge Protector Power Strips

- Surge suppression is fail-safe 330-volt computer grade.
- Meet today's higher load-capacity requirements.
- SP472A-R3 features a high-capacity 14/3C SJT 15-foot (4.5-m) cord.
- The SP194A-R2 has a 9-foot (2.7-m) cord.
- Include a 20-amp circuit breaker.
- Fit all standard 19" relay racks.
- Feature eight, rear-mounted receptacles with 3" center-to-center spacing.
- **◆◆ WARRANTY** — 2 Years



Top: SP472A-R3, front view;
bottom: SP472A-R3, rear view

TECH SPECS

AC Voltage — Input and output: 100–127 volts
Frequency — 60 Hz
Output Receptacles — SP472A-R3: (8) NEMA 5–20;
 SP194A-R2: (9) NEMA 5–20
Plug Type — NEMA 5-20P
Size — SP472A-R3: 1.75"H (1U) x 19"W x 4.5"D
 (4.4 x 48.3 x 11.4 cm);
 SP194A-R2: 1.75"H (1U) x 19"W x 8.75"D
 (4.4 x 48.3 x 22.2 cm)

Buyer's Guide

Twist-Lock Plug	On/Off Switch	Outlets	Circuit Breaker	Surge Protection	Clamping Voltage	EMI/RFI Noise	Surge Current (Maximum)	Code	List Price
✓	✓	8 Rear	20 amp	✓	330 V	✓	30,000 amp	SP472A-R3	
✓	✓	1 Front, 8 Rear	20 amp	✓	330 V	✓	30,000 amp	SP194A-R2	

Rackmount Power Strips and Surge Suppressors

- Organize your power cords with rackmountable power strips and surge suppressors.
- All measure 1.8"H x 19"W x 2.8"D except the SP196A-R2, which measures 1.75"H (1U) x 19"W x 8.75"D.
- **◆◆ WARRANTY** — 2 Years



Top: SP215A-R2;
middle: PS188A-R2;
bottom: PS189A-R2



Left: SP196A-R2, front view; right: SP196A-R2, rear view

Buyer's Guide

	Reset/Power	On/Off Switch	Outlets	Protection	Surge Voltage	Clamping Through	IEEE Let-Noise	EMI/RFI Energy Rating	Single-Pulse Current	Code	List Price
19" Rackmount Power Strip	✓	—	6 Rear	—	—	—	—	—	—	PS186A-R2	
	—	—	6 Rear	—	—	—	—	—	—	PS188A	
	✓	—	6 Front	—	—	—	—	—	—	PS189A-R2	
Premium Rackmount Surge Suppressor	✓	—	6 Rear	✓	330 V	—	—	420 joules	30,000 amps	SP215A-R2	
Rackmount Power	✓	✓	1 Front, 8 Rear	✓	330 V	✓	—	420 joules	30,000 amps	SP196A-R2	

Power Strips

Add power outlets exactly where you need

High-Performance Power Distribution Unit

- Mount the PDU two ways:
 - Horizontally in a standard 1U rack.
 - Vertically in the rear of the rack, which uses no rack space!
- Powerful 24-amp surge protection.
- Dual circuit breakers provide overload protection and a <1 ns response time.
- Features six NEMA 5-15R outlets on the front and six on the rear.
- Guards against surge currents up to 66,000 amps (33,000 per circuit) at a frequency of 60 Hz.
- Rugged, steel enclosure.
- The 10/3 SJT 12-foot power cord features a 30-amp twist-lock L5-30P plug.
- **◆◆ WARRANTY** — Lifetime



Unique, "zero U" space-saving design

TECH SPECS

Clamping Level — 280 volts
 Load Capacity (Max.) — 24 amps: (2) 12-amp circuits
 Standards — UL® 1950, ITE
 Surge Current (Maximum) — 60,000 amps (33,000 per circuit)
 Indicators — (2) LEDs
 Size — 1.75"H x 19"W x 9"D (4.4 x 48.3 x 22.9 cm)
 Weight — 10 lb. (4.5 kg)

Item	Code	List Price
High-Performance Power Distribution Unit	SP425A	



Dual-Circuit Power Distribution Unit, 30-Amp

- Provides 24 NEMA 5-20R receptacles.
- 30-amp capacity enables you to draw twice as much power as a standard power strip.
- Features two 15-amp UL® 489 Listed 15-amp circuit breakers, each with a front reset.
- Each circuit is independent—when one is overloaded, the other still gets power.
- Has a 12-foot power cord with L5-30P plug.
- Install with T-slot mounting rail or included rackmount brackets.
- Aluminum housing.
- **◆◆ WARRANTY** — 2 Years

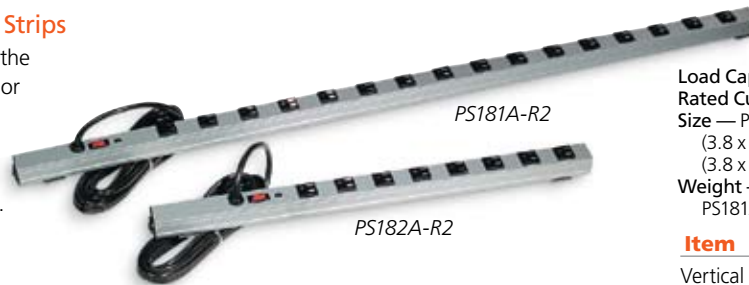
TECH SPECS

Conformance Standards — UL® 60950-1 1st Edition
 Size — 2.8"H x 48"W x 1.5"D (7.1 x 121.9 x 3.8 cm)
 Weight — 8 lb. (3.6 kg)

Item	Code	List Price
Dual-Circuit Power Distribution Unit, 30-Amp	PS585A	

Vertical AC Power Outlet Strips

- Mount these outlet strips to the vertical rails in your cabinets or racks to get the outlets you need.
- Fast and easy installation.
- Include 15-foot power cords.
- **◆◆ WARRANTY** — 2 Years

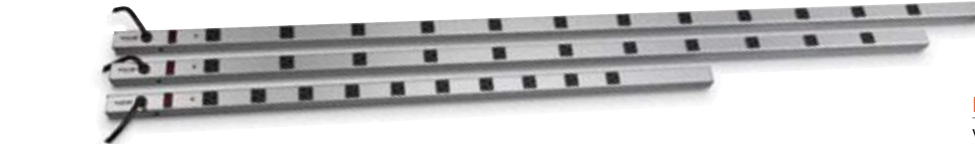


TECH SPECS

Load Capacity — 15 amp (circuit breaker)
 Rated Current — 120 VAC, 60 Hz, 15 A
 Size — PS182A-R2: 1.5"H x 1.2"D x 26"L (3.8 x 3 x 66 cm); PS181A-R2: 1.5"H x 1.2"D x 49"L (3.8 x 3 x 124.5 cm)
 Weight — PS182A-R2: 2.75 lb. (1.2 kg); PS181A-R2: 3.5 lb. (1.6 lb)

Item	Code	List Price
Vertical AC Power Outlet Strips		
26" 8-Outlet	PS182A-R2	
49" 16-Outlet	PS181A-R2	

Vertical AC Power Outlet Strips with Surge Protection



Top: SP199A-R2; middle: SP198A-R2; bottom: SP197A-R2

- 120-VAC strips provide surge protection for cabinet- or rackmounted equipment.
- A green light indicates surge suppression.
- Include a 15- or 20-amp circuit breaker.
- Meet UL® standards.
- Integral 15-foot cords with molded-on plugs.
- Wallmounting hardware included.

- **◆◆ WARRANTY** — 2 Years

TECH SPECS

Total Transient Energy — 420 joules
 UL® 1449 Clamping Voltage — 330 volts
 Indicators — (1) green surge suppression
 Power — 120 VAC nominal, 15 or 20 amps, 57–63 Hz
 Size — 1.5"H x 1.2"D; (3.8 x 3 cm)

Item	Code	List Price
Vertical AC Power Outlet Strips with Surge Protection		
15-Amp		
48" 10-Outlet	SP197A-R2	
70" 11-Outlet	SP198A-R2	
77" 12-Outlet	SP199A-R2	
20-Amp		
24" 8-Outlet	SP214A-R3	
48" 10-Outlet	SP216A-R2	
70" 11-Outlet	SP217A-R2	
77" 12-Outlet	SP218A-R2	

them: cabinets, racks, closets, and offices.

Premium Plugstrip Surge Protectors



Top: SP420A-R2;
bottom: SP411A

- Here's the BEST surge protection you can get for the home and office!
- All models include a 6-foot (1.8-m) cord.
- All offer a 15-amp rated current, a switch-operated circuit breaker, and a 120 VAC, 50/60 Hz. frequency.
- **◆◆ WARRANTY** — Lifetime

Buyer's Guide

	Standard 6-Outlet		Advanced 8-Outlet		Maximum 8-Outlet
	SP410A-R2	SP411A-R2	SP412A-R2	SP413A-R2	SP420A-R2
Physical Features					
Telephone Line Protection	No	Yes	No	Yes	Yes
Transformer-Ready Outlets	No	No	Yes	Yes	Yes
Performance Features					
Clamping Voltage	330 V	330 V	330 V	330 V	330 V
Single-Pulse Energy Rating	350 joules	1050 joules	1050 joules	1050 joules	2100 joules
Peak Current NM/MC	6500 amps	19,500 amps	19,500 amps	19,500 amps	39,000 amps
EMI/RFI Noise Rejection	None	Up to 20 dB	Up to 20 dB	Up to 20 dB	Up to 20 dB
List Price					

Outlet Power Strips

- Add power outlets wherever you need them.
- Feature a circuit breaker with reset button.
- Electrically and mechanically grounded.
- Rated at 15 amps, 125 volts, 60 Hz maximum. (Rating is for the entire strip, not individual outlets.)
- The lighted power switch gives you power status at a glance.
- Include two slide-on mounting clips and two screws.
- Constructed of aluminum.
- **◆◆ WARRANTY** — 2 Years

NOTE: These strips do not provide surge protection.

TECH SPECS

Size — 6-outlet models: 2"H x 12.5"L x 1.75"D (5.1 x 31.6 x 4.4 cm);
8-outlet models: 2"H x 15.25"L x 1.75"D (5.1 x 38.7 x 4.4 cm)
Weight — PS163A-R2: 1.5 lb. (0.7 kg);
PS164A-R2: 1.8 lb. (4.6 kg);
PS166A-R2: 2.3 lb. (1.0 kg);
PS167A-R2: 2.5 lb. (1.1 kg)



Item	Code	List Price
Outlet Power Strips		
6-ft. (1.8-m) Cord		
6-Outlet	PS163A-R2	
8-Outlet	PS164A-R2	
15-ft. (4.5-m) Cord		
6-Outlet	PS166A-R2	
8-Outlet	PS167A-R2	
◆ All include (1) power strip, (2) slide-on mounting clips and (2) screws.		

Wallmount and In-Line Surge Protectors

- Perfect for laptop and notebook computer accessories.
- Wallmount models feature EMI/RFI noise filters and a 15-amp rating.
- Audible Alarm models alert you when they detect excess current. LEDs indicate protection and outlets are working.
- Wallmount and in-line models available with protection for fax/modem/telephone (RJ-11) or CATV/antenna (coax) lines.
- **◆◆ WARRANTY** — Lifetime



Audible alarm!

Item	Code	List Price
Wallmount Surge Protectors with Audible Alarm		
2-Outlet	SP417A	
2-Outlet + Fax/Modem/Telephone Protection	SP419A	
Wallmount Surge Protectors		
1-Outlet	SP080A	
1-Outlet + Fax/Modem/Telephone Protection	SP081A	
1-Outlet + CATV/Antenna Protection	SP082A	
3-Outlet	SP083A	
In-Line Surge Protectors		
Fax/Modem/Telephone Protection	SP084A	
CATV/Antenna Protection	SP085A	

Opto-Isolators

Stop ground loops of up to 2500 volts from wreaking havoc on your system.

Our **High-Speed Opto-Isolator (SP340A-R3)** protects devices with 115.2-kbps serial ports up to 1000 feet (304.8 m) on either side of the interface.

Our **Opto-Isolator II (SP402A)** has an RS-422/485 interface and a 4-screw terminal instead of RJ-45 ports. It protects lines up to 2000 feet (609.6 m).

The **RS-422/485 Opto Isolator (SP401A)** protects RS-422/485 lines up to 2000 feet (609.6 m). Order the special converter model (IC109A-R3) from blackbox.com to protect RS-232 to RS-422/485 lines.



SP340A-R3

- ◆◆ **WARRANTY** — SP340A-R3: 5 Years; SP402A, SP401A: 1 Year

TECH SPECS

Protocol — Asynchronous
Speed — SP340A-R3: Serial data rates up to 115.2 kbps;
 SP402A, SP401A: Up to 19.2 kbps
Interface — SP340A-R3: RS-232;
 SP402A, SP401A: RS-422/485
Connectors — SP340A-R3: (1) DB25 F, (1) DB25 M;
 SP402A: (1) 4-screw terminal;
 SP401A: (2) RJ-45
Power — SP340A-R3: From the interface or optional 120-VAC wallmount power supply (PS1002);
 SP402A, SP401A: From the Receive data pair
Size — SP340A-R3: 0.8"H x 2.1"W x 3.8"D (2 x 5.3 x 9.7 cm);
 SP402A, SP401A: 1"H x 2.3"W x 2.3"D (2.5 x 5.8 x 5.8 cm)
Weight — SP340A-R3: 0.8 lb. (0.4 kg);
 SP402A, SP401A: 0.1 lb. (<0.1 kg)

Item	Code	List Price
High-Speed Opto-Isolator	SP340A-R3	
Opto-Isolator II	SP402A	
RS-422/RS-485 Opto-Isolator	SP401A	
You may also need...		
Optional 120-VAC Power Supply for SP340A-R3	PS1002	

Black Box Explains

Ground loops.

A ground loop is a current across a conductor created by a difference in potential between two grounded points. An example of two such grounded points includes a pair of buildings connected by the same data line. When two devices are connected and their potentials are different, voltage flows from high to low by traveling through the cable.

If the voltage potential is large enough, your equipment won't be able to handle the excess voltage and one of your ports will be damaged.

You can't test for ground loops. You don't know you have one until a vital component fails. Only prevention works—use optical isolation or fiber optic cable on all your long data lines.

Quick-Connect Surge Protectors

These data line protectors couldn't be easier to install.



- Easy installation right at the port with Quick-Connect connectors. Just strip the cable and insert.
- Spring-loaded design prevents wires from loosening, corroding, or becoming brittle.
- Protection for RS-232, RS-422/423/485, 10BASE-T, and Token Ring.
- Avalanche diode technology.
- Low shunt capacitance reduces signal loss.
- Keeps your network and communications devices (I/O cards, controllers, modems, programmable logic controllers, hubs, CSU/DSUs, and muxes) up and running.
- ◆◆ **WARRANTY** — 5 Years

TECH SPECS

Clamp Voltage — RS-232 and Token Ring models: ±18 V;
 RS-422/423/485 and 10BASE-T models: ±7.5 V
CE Approval — Yes
Size — 2- and 4-wire models: 0.9"H x 1.5"W x 3.6"D (2.3 x 3.8 x 9.1 cm);
 6-, 8-, 10-, and 32-wire models: 1.5"H x 3.5"W x 5.4"D (3.8 x 8.9 x 13.7 cm)
Weight — 2- and 4-wire models: 0.2 lb. (0.1 kg);
 6-, 8-, and 10-wire models: 0.5 lb. (0.2 kg);
 32-wire models: 1.8 lb. (0.8 kg)

Item	Code	List Price
Quick-Connect Surge Protectors		
RS-232 and Token Ring		
2-Wire	SP600A	
4-Wire	SP602A	
6-Wire	SP604A	
8-Wire	SP606A	
10-Wire	SP608A	
32-Wire	SP610A	
RS-422/423/485 and 10BASE-T		
2-Wire	SP601A	
4-Wire	SP603A	
6-Wire	SP605A	
8-Wire	SP607A	
10-Wire	SP609A	
32-Wire	SP611A	

Buyer's Guide | Terminal-Strip Applications

Barrier Strips	Network Type			
	10BASE-T Ethernet	Token Ring	RS-422, RS-423, RS-485	RS-232, V.35, or Digital 4-20-mA Current Loop
2-Wire	SP601A	SP600A	SP601A	SP600A
4-Wire	SP603A	SP602A	SP603A	SP602A
6-Wire	SP605A	SP604A	SP605A	SP604A
8-Wire	SP607A	SP606A	SP607A	SP606A
10-Wire	SP609A	SP608A	SP609A	SP608A
32-Wire	SP611A	SP610A	SP611A	SP610A

CAT6 In-Line Surge Protector

Protects network interfaces up to CAT6 from damaging power surges.

- Protects CAT5, CAT5e, and CAT6 LAN interfaces against power surges, electrostatic discharges, and ground loops.
- Supports network speeds up to 1000 Mbps making it ideal for Gigabit Ethernet applications.
- Use to protect network devices such as PCs, switches, routers, and more.
- State-of-the-art avalanche diode and thyristor technology.
- Low shunt capacitance reduces signal loss.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
CAT6 In-Line Surge Protector	SP529A	

CAT6 Protected Patch Cord

Stop sudden surges on CAT6.

- Data line protection attached to a 10-foot (3-m) cord.
- Guards against data line surges and transients.
- Features avalanche diode technology with low-capacitance circuitry.
- Compact, in-line installation.
- Transparent to high-speed CAT6 or CAT5e networks.
- **◆◆ WARRANTY** — Lifetime



TECH SPECS

Cord Length — 10 ft. (3 m)
 Peak Pulse Current — 10 x 1000 US S.C. waveform@ Vcl: 132 amps
 Response Time — <5 ns
 Shunt Capacitance (Maximum) — 5 pF (device only)
 Standard Clamping Voltage — 7.5 volts

Item	Code	List Price
CAT6 Protected Patch Cord 10-ft. (3-m)	SP010A-R2	

Power over Ethernet Surge Protectors

Protect the access points on your wireless Ethernet network.

- Prevent damaging power surges and spikes from wreaking havoc on the access points on your wireless Ethernet network.
- Provide protection for both line-to-line data transmissions and ground-to-line surges.
- Attach to wireless access points in schools, restaurants, airports, offices—everywhere!
- **◆◆ WARRANTY** — 5 Years

TECH SPECS

Both Models: Pins 1, 2, 3, and 6:
 Peak Pulse Current — 10/100 Waveform: 132 amps
 Protection — Differential and common mode
 Response Time — <5 ns
 Shunt Capacitance (Maximum) — <25 pF
 Standard Clamping Voltage — 7.5 volts

Both Models: Pins 4, 5, 7, and 8:
 Peak Pulse Current — 10/100 Waveform:
 SP075A: 50 amps;
 SP077A: 103 amps
 Protection — SP075A: Differential and common mode, line to ground;
 SP077A: Common mode, line to ground
 Response Time — <5 ns
 Standard Clamping Voltage — SP075A: 60 volts;
 SP077A: 30 volts



Item	Code	List Price
Power over Ethernet Surge Protectors 60-Volt	SP075A	
30-Volt	SP077A	

USB Opto-Isolators

Protect computer and USB devices from voltage spikes and ground loops.

- The **USB Opto-Isolator** protects a PC or Mac® and four USB 1.5- or 12-Mbps USB devices. Provides 2500 volts of isolation.
- The **USB to RS-232 Opto-Isolator** provides 2000-volt RMS isolation against ground loops.
- The **USB to RS-422/RS-485 Opto-Isolator** provides 2000-volt protection.
- **◆◆ WARRANTY** — 2 Years



TECH SPECS

Isolation — SP380A: 2500 volts;
 SP385A: 2000 volts RMS;
 SP390A-R2: 2000 volts

Operating Systems Supported — All: Windows® 98/98 SE/Me, Windows 2000, Windows XP;
 SP380A: Also supports Apple® iMac™; OHCI and UHCI compliant USB host compatible with available USB port

Standard — USB Revision 1.1

CE Approval — Yes

Connectors — SP380A: (1) USB Type A F on attached 1-m (3.2-ft.) USB cable; (4) USB Type A F;

SP385A: (1) DB9 M, (1) USB Type B;
 SP390A-R2: Terminal block, (1) USB Type B
Indicators — SP380A: LEDs: (1) Power, (1) Suspend, (1) Reset, (1) Upstream Port, (1) Port 1, (1) Port 2, (1) Port 3, (1) Port 4;
 SP385A, SP390A-R2: LEDs: (1) RD, (1) TD
Power — SP380A: Input: 15 VDC, 1.0 amp;
 SP385A, SP390A-R2: From the USB bus
Size — SP380A: 1.2"H x 5.6"W x 3.8"D (3 x 14.2 x 9.7 cm);
 SP385A: 0.9"H x 3"W x 1.7"D (2.3 x 7.6 x 4.3 cm);
 SP390A-R2: 0.9"H x 5"W x 2.7"D (2.3 x 12.7 x 6.9 cm)

NOTE: Must be used in pairs.

Item	Code	List Price
USB Opto-Isolator	SP380A	
USB to RS-232 Opto-Isolator	SP385A	
USB to RS-422/RS-485 Opto-Isolator	SP390A-R2	

100BASE-TX In-Line Surge Protector

Protect a 100-MHz 100BASE-TX or 155-Mbps ATM port.



- Offers low capacitance.
- Protects against electrical noise.
- Guards all eight wires.
- Shielded RJ-45 sockets tied to surge protection circuitry.
- ♦♦ **WARRANTY** — 5 Years

TECH SPECS

Clamping — 12 volts
Pulse Current — 97 amps
Response Time — <5 ns
Shunt Capacity (Maximum) — <40 pF

Item	Code	List Price
100BASE-TX In-Line Surge Protector, RJ-45 1-Port	SP512A-R3	

100BASE-TX Hub Surge Protectors

Save up to 12 ports on a hub from disaster.



SP532A-R2

- Support 100BASE-T, RS-422, and RS-485 RJ-45 ports.
- Guard all eight wires on each port.
- ♦♦ **WARRANTY** — 5 Years

TECH SPECS

Clamping — 7.5 volts
Pulse Current — 750 amps
Response Time — <5 ns
Shunt Capacity (Maximum) — <40 pF

Item	Code	List Price
100BASE-TX Hub Surge Protectors, RJ-45		
4-Port	SP530A-R2	
8-Port	SP531A-R2	
12-Port	SP532A-R2	

Token Ring Surge Protectors

Protection for 4- and 16-Mbps Token Ring UTP cable.

- Easy in-line installation.
- Perfect for MAUs, repeaters, and devices that span long runs.
- Shielded RJ-45 sockets tied to surge protection circuitry.
- ♦♦ **WARRANTY** — 5 Years



SP361A-R2

TECH SPECS

Clamping — 18 volts
Pulse Current — 60 amps
Response Time — <5 ns
Shunt Capacity (Maximum) — <40 pF
CE Approval — Yes

Item	Code	List Price
Token Ring Surge Protectors		
DB9	SP361A-R2	
RJ-11 (UTP)	SP515A-R2	
RJ-45 (UTP)	SP522A-R2	

10BASE5 and 10BASE2 Surge Protectors

Get avalanche-diode safety for a variety of interfaces.



SP350A-R2



SP362

- Easy in-line installation.
- ♦♦ **WARRANTY** — 5 Years

TECH SPECS

Clamping — 7.5 volts
Pulse Current — 132 amps
Response Time — <5 ns
Shunt Capacity (Maximum) — <30 pF

Item	Code	List Price
Ethernet Surge Protectors		
Thicknet Female/Female	SP505A	
Male/Female	SP506A	
Thin Protector-ST® In-Line	SP350A-R2	
Thin Protector-T Protected Tee	SP501A	
AUI	SP362	

DIN-Rail Mount In-Line Surge Protectors

Save space and keep organized with this new in-line surge protection in a compact DIN-rail mount format.



- Protect data lines with state-of-the-art avalanche diode and thyristor technology
- Maximize uptime by protecting data lines at the source.
- Low shunt capacitance reduces signal loss.
- Order the Rackmount DIN-Rail Shelf to fit up to 16 compact in-line surge protectors on 19" rails using only 1U of rack space.
- **WARRANTY** — 5 Years

TECH SPECS

Peak Pulse Current —
 SPD512A: 100 Amps;
 SPD515A: 60 Amps;
 SPD050A, SPD450A: 50 Amps;
 SPD010A: 45 Amps;
 SPD075A: Pins 1, 2, 3, 6: 132 Amps,
 Pins 4, 5, 7, 8: 50 Amps;
 SPD365A: 75 Amps

Response Time — Less than 5 nanoseconds

Shunt Capacitance (Maximum) —
 SPD512A: <8pF;
 SPD515A: <40pF;
 SPD050A: <75pF;

SPD010A: <15pF;
 SPD075A: <25pF (Ethernet lines only);
 SPD450A: <25pF;
 SPD365A: <95pF

Standard Clamp Voltage —
 SPD512A: 7.5 Volts;
 SPD515A: 18 Volts;
 SPD050A, SPD010A, SPD450A: 60 Volts;
 SPD075A: Pins 1, 2, 3, 5: 7.5 Volts,
 Pins 4, 5, 7, 8: 60 Volts;
 SPD365A: 240 Volts

Connectors — SPD450A: (2) BNC F;
 All others: (2) RJ-45



NOTE: To determine the correct PoE surge protector for your application, contact our FREE Tech Support.

Item	Code	List Price
DIN-Rail Mount In-Line Surge Protectors		
10/100/1000BASE-TX, RS-422, RS-485, RS423	SPD512A	
RS-232	SPD515A	
ISDN, T1, DDS (Fused)	SPD050A	
60-volt CAT6 End Span PoE	SPD010A	
PoE	SPD075A	
CCTV/DS3	SPD450A	
Dial-up 2 Center Wire (Fused)	SPD365A	

To rackmount up to 16 surge protectors on 19" rails, order...

Rackmount DIN-Rail Shelf for In-Line Surge Protectors
 SPDINRAK

RS-232 Surge Protectors

Perfect for equipment designed to span long cable runs.

- Data rates over 40 Mbps.
- **WARRANTY** — 5 Years



TECH SPECS

Clamping — 18 volts
Pulse Current — 60 amps
Response Time — <10 ns
Shunt Capacity (Maximum) — <40 pF
CE Approval — Yes

Item	Code	List Price
RS-232 Surge Protectors		
DB9	SP361A-R2	
DB15	SP507A	
DB25		
4-Wire Serial	SP141A	
All Wires	SP360A	
RJ-11 (UTP)	SP515A-R2	
RJ-45 (UTP)	SP522A-R2	

RS-422, -423, -485 Surge Protector

This protector handles long runs, noise, and surges.

- Avalanche-diode technology.
- Data rates higher than 40 Mbps.
- Simple installation at the port.
- **WARRANTY** — 5 Years



TECH SPECS

Clamping — 7.5 volts
Pulse Current — 132 amps
Response Time — <5 ns
Shunt Capacity (Maximum) — <40 pF

Item	Code	List Price
RS-422, -422, -423, -585 Surge Protector, DB15	SP508A	

CAT5, Telco, CSU/DSU, T1 Non-Span, DDS, ISDN Surge Protectors
Protect UTP, Telco, DDS, and ISDN communication lines.

◆◆ **WARRANTY** — All: 5 Years

ISDN Data Line Surge Protectors, RJ-45

- The fastest suppression technology available protects terminal adapters, NTUs, and other ISDN equipment. UL® Listed. IEC conformance.
- Available for U and S/T interfaces.
- Standard clamping voltage is 62 volts.



SP050A-R2

Item	Code	List Price
ISDN Data Line Surge Protectors, RJ-45		
U Interface	SP050A-R2	
S/T Interface (8-Pin)	SP060A-R2	

10BASE-T Hub Surge Protector, RJ-45

- Minimal effect on data speed.
- Guards your 10BASE-T hubs and networks from electrical damage.
- Eight-wire protection for RJ-45 connectors.
- Standard clamping voltage is 12 volts.



Item	Code	List Price
10BASE-T Hub Surge Protector, RJ-45, 1-Port	SP512A-R3	

Token Ring Surge Protector, UTP, RJ-45

- Protects your MAUs, repeaters, and other Token Ring devices.
- Overcurrent and overvoltage protection.
- Installs directly at the interface port.
- Standard clamping voltage is 18 volts.



Item	Code	List Price
Token Ring Surge Protector, UTP, RJ-45	SP522A-R2	

T1 Non-Span Surge Protectors, RJ-45

- Overcurrent and overvoltage protection.
- The SP513A-R2 has 8-wire protection for RJ-45 connectors. The SP526A has 4-wire protection for RJ-45 connectors.
- Custom-wired to guard the four active leads on a standard T1 line.
- Easy installation. Plug in between the data line and I/O port.
- Standard clamping voltage is 7 volts.



SP513A-R2

Item	Code	List Price
T1 Non-Span Surge Protectors, RJ-45		
8-Wire	SP513A-R2	
4-Wire	SP526A	

CAT5 100BASE-TX Surge Protectors

- The Primary Surge Protector is designed to be installed at the building entrance; the Secondary Surge Protector is specifically designed for point-of-use installation.
- Support many balanced interfaces.
- Standard clamping voltage for SP250A-R2 is 13 volts; for SP251A-R2, it's 15 volts.



SP251A-R2

Item	Code	List Price
CAT5 100BASE-TX Surge Protectors		
Primary (to 2.0 kV)	SP250A-R2	
Secondary (to 0.5 kV)	SP251A-R2	

Telco (Dialup Modem/Fax) RJ-11 Surge Protector

- Guards your fax machines, phone system, and modems.
- Overcurrent and overvoltage protection.
- Protects two center wires.
- Standard clamping voltage is 240 volts.



Item	Code	List Price
Telco RJ-11 Surge Protector	SP365A-R2	

RS-232 Surge Protector, RJ-11

- Affordable protection from both line-to-ground and line-to-line surges.
- Protects four center wires.
- Great for data rates over 40 Mbps.
- Ideal for short-haul modems, concentrators, A/B switches, muxes, repeaters, or other devices designed to span long cable runs that are prone to noise and surges.
- Standard clamping voltage is 18 volts.



Item	Code	List Price
RS-232 Surge Protector, RJ-11	SP515A-R2	

DDS Surge Protector, RJ-45

- Custom-wired to guard the four active leads on a standard DDS line.
- Standard clamping voltage is 7 volts.



Item	Code	List Price
DDS Surge Protector, RJ-45	SP527A	

Special-Application Surge Protectors

Protect keyboards, printers, video, and V.35 equipment.

- ◆◆ **WARRANTY** — SP070A: Lifetime; All others: 5 Years

DSL Surge Protector

- Provides 6-wire RJ-11, all-pin protection.
- Defends against surges, power interference, ground loops, and discharges.
- High-speed, high-energy handling capability.
- Low shunt capacitance reduces signal loss.
- Compact for simple in-line installation.



Item	Code	List Price
DSL Surge Protector	SP070A	

V.35 Data Line Protector

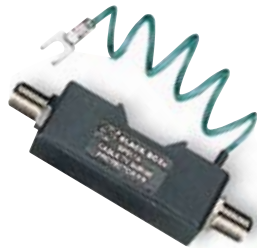
- Protects V.35 equipment—modems, CSU/DSUs, T1 components—from incoming surges.
- Two connectors—one V.35 male and one V.35 female.



Item	Code	List Price
V.35 Data Line Protector	SP143A-R2	

CATV Surge Protector

- Ideal for use with your CATV equipment.
- Simple in-line installation at the port.
- Features two F-type connectors.



Item	Code	List Price
CATV Surge Protector	SP090A	

CCTV (BNC Coax) Surge Protector

- Connects directly to CCTV coax transmission lines.
- Ideal for elevated CCTV cameras.
- Features two BNC female connectors.
- Also includes a BNC male-to-male gender changer.



Item	Code	List Price
CCTV (BNC Coax) Surge Protector	SP450A-R2	

Keyboard Surge Protectors

- For use between an AT® or a PS/2® keyboard and a PC. Perfect for video/keyboard switches, too.
- Simple in-line installation at the port.
- SP518A-R2 features 5-pin DIN connectors; SP519A-R2 features 6-pin mini DIN connectors.



Item	Code	List Price
AT Type Keyboard Surge Protector	SP518A-R2	
PS/2 Type Keyboard Surge Protector	SP519A-R2	

PC Parallel Port (DB25) Surge Protector

- Connects directly to a DB25 parallel port.
- Protects all 25 pins.



Item	Code	List Price
PC Parallel Port (DB25) Surge Protector	SP451A-R2	

Cable TV/Cable Modem Protector

- Protects your TVs, cable boxes, and cable modems from in-line power surges.
- Provides affordable, superior security for the sensitive electrical components in your favorite equipment.
- State-of-the-art avalanche diode technology provides high-speed, high-energy handling capability.
- A separate grounding wire provides an isolated path to ground.



Item	Code	List Price
Cable TV/Cable Modem Protector	SP090A	



Black Box is your complete solution for

When your network goes down, that's a problem. Your customers complain, you lose revenue, and productivity plummets. You may even lose valuable data.

Power problems are a frequent cause of network failure. Think not just of power outages, but of surges that can destroy delicate components, and of "dirty" power that can stealthily cause data problems and memory loss. But probably the most annoying power problem has nothing to do with the quality of the power going to your network devices—it's the problem of how to switch the power off and on to reboot frozen equipment when you're nowhere near the locked-up equipment.

Remote control of power and more.

Experienced IT managers often say that many network problems can be solved simply by rebooting the equipment. Just a flick of the power switch and the problem is solved.

Unfortunately, your networking equipment isn't always nearby, meaning that if locked-up equipment needs to be rebooted, you need to get someone else to flick that power switch. This can mean significant delays and, often, expense.

The solution to this dilemma is to implement a system to cycle power off and on remotely. Ideally, you should be able to reboot devices individually rather than, for instance, having to reboot all the devices attached to a UPS.

That is why we offer remote power managers, such as our Elite Managed Power Controller (pp. 298–299). A remote power manager provides a logical, software-controlled interface that enables you to reboot individual power receptacles from anywhere on your network or around the world.

With a remote power manager, you can quickly cycle power off and on to an individual device, bringing it back on-line with minimum delay. Some remote power managers have additional capabilities, enabling you to monitor conditions such as power consumption and cabinet temperature. Many remote power managers are programmable and can send alarms if conditions exceed predefined limits, or they can shut down, power up, or reboot devices on a predetermined schedule.

Remote power control improves network reliability.

- **Improve response time.** Servers and networking lock up can be quickly rebooted and restored to operational status.
- **Reduce field service visits.** The need for on-site third-party maintenance technicians commuting to off-site or field locations is dramatically reduced, which greatly saves on maintenance expenses.
- **Improve network availability.** Remote power managers can be used to test and verify network management applications. For example, network operators can power routers or Frame Relay controllers on and off to determine if the network management application is detecting the correct alarms.
- **Improve facility security.** Protect access to equipment with a username/password security interface and assign specific access to individual network devices with password-per-port security.

Black Box is your one source for everything power.

Ultimately, an effective power strategy creates an integrated system that includes not only remote power managers, but also surge protection and uninterruptible power supplies. For help planning your power strategy, contact our FREE Tech Support.

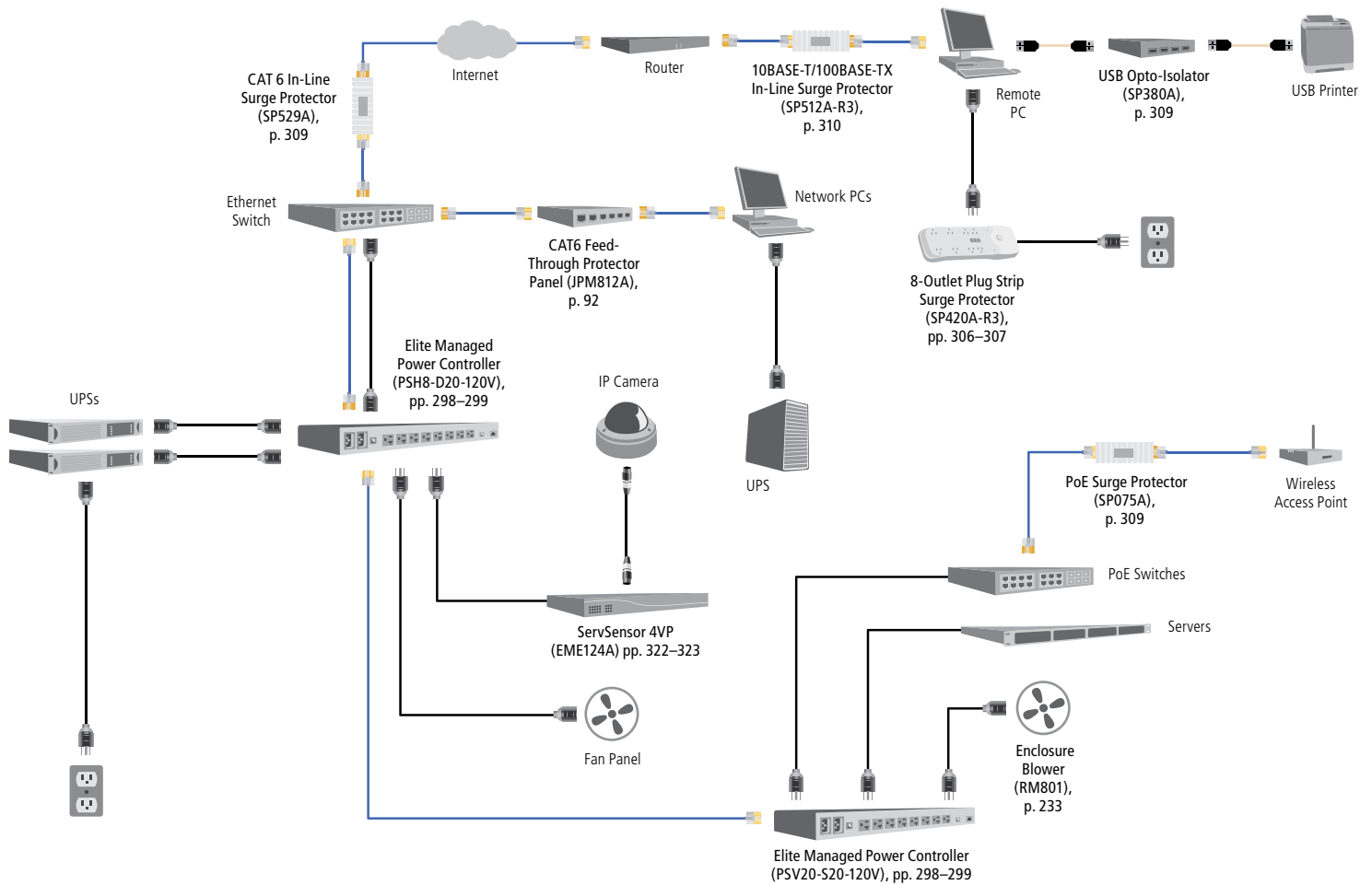
Remote management is for more than just power.

See our other remote monitoring and control solutions:

- AlertWerks II Remote Monitoring System, pp. 322–327.
- ServSwitch™ CX, pp. 362–363.
- ServSelect™ IP VM, p. 365.
- ServReach™ KVMoIP, p. 369.
- ServReach KVMCube and ServReach KVMGate, p. 380.
- ServSwitch Wizard™ IP, p. 381.



power protection and management.



With one phone call:
Power protection from Black Box *and* APC.

Black Box is your source for power protection. One call brings you reliable Black Box brand power protection *plus* the full range of APC® UPS and power protection products. And all are backed by our fast, FREE Tech Support hotline.

For help selecting the right power protection for your application, just give us a call—we'll make sure you have what you need to ensure reliable, safe power.



Rackmountable Smart-UPS Series
The smart choice for economical rackmount protection.

- Brings reliable, clean power to servers, hubs, PBXs, and other rackmountable equipment and peripherals.
- Shields equipment from lightning and surges.
- Mounts easily on standard 19" racks.
- All models feature an RS-232 serial port, and most feature a SmartSlot for adding extra management and expansion capabilities.
- ♦♦ **WARRANTY** — 2 Years



SUA1000RM2U

When power blackouts, brownouts, or other power anomalies hit, the APC® Rackmountable Smart-UPS takes over, providing reliable power to keep your systems on-line. It also provides superior lightning and surge protection, plus full-time EMI/RFI filters help to suppress line noise that can corrupt data.

Reliable hot-swappable batteries charge during normal operation for peak efficiency. The Smart-UPS automatically runs a self-test every

two weeks to ensure that the batteries are fully charged and ready to go.

With the included PowerChute® management software, you can automatically and safely shut down your system if there's a power failure. The software supports all major operating systems.

Other management features include software-configurable alarms, scheduled self-test, and reboot of attached devices.

Most Smart-UPS models featured here also have a SmartSlot for adding optional APC cards for extra management and interface capabilities.

We even offer a UPS that suits 208-VAC equipment and has a 10BASE-T port for making Web/SNMP/Telnet™ connections and managing from a network.

Not sure what to order? For help, just call our FREE Tech Support.

Buyer's Guide | APC Rackmountable Smart-UPS Series

Item	USB Port	Smart Slot	Number of Outlets (NEMA)	Surge Rating (Joules)	Output Power Capacity (W/VA)	Typical Backup Time (Minutes)		Code	List Price
						at Half Load	at Full Load		
750 VA, 2U	✓	✓	(6) 5-15R	459	750/480	16.6 (240 W)	5.5 (480 W)	SUA750RM2U	
1000 VA, 2U	✓	✓	(6) 5-15R	459	670/1000	29.9 (335 W)	8.8 (670 W)	SUA1000RM2U	
1500 VA, 2U	✓	✓	(6) 5-15R	459	980/1440	26.5 (490 W)	7.4 (980 W)	SUA1500RM2U	
1400 VA, 3U, XL	—	—	(6) 5-15R	800	1050/1400	23.5 (525 W)	6.6 (1050 W)	SU1400RMXLB3U	
2200 VA, 3U	✓	✓	(6) 5-15R, (2) 5-20R	480	1980/2200	15.7 (990 W)	5.2 (1980 W)	SUA2200RM2U	
3000 VA, 5U	—	✓	(6) 5-15R, (2) 5-20R	480	2700/3000	11.3 (1350 W)	3.0 (2700 W)	SUA3000RM2U	

NOTE: Other discounts do not apply.



Black Box offers more than 5000 APC products!

For desktop use:

Back-UPS® RS

High-performance battery backup and power protection.

Back-UPS ES

Value-priced battery backup and power protection.

For servers and voice and data networks:

Smart-UPS®

Reliable network-grade power.

Smart-UPS XL

Scalable runtime for servers and networks.

Smart-UPS RT

Scalable runtime in a space-saving chassis.

For data centers and other facilities:

Symmetra® PX

Scalable power and runtime for data centers.

Symmetra MW

High-performance redundant power protection with scalable power and runtime.



BE750G



SUA3000RMXL3U



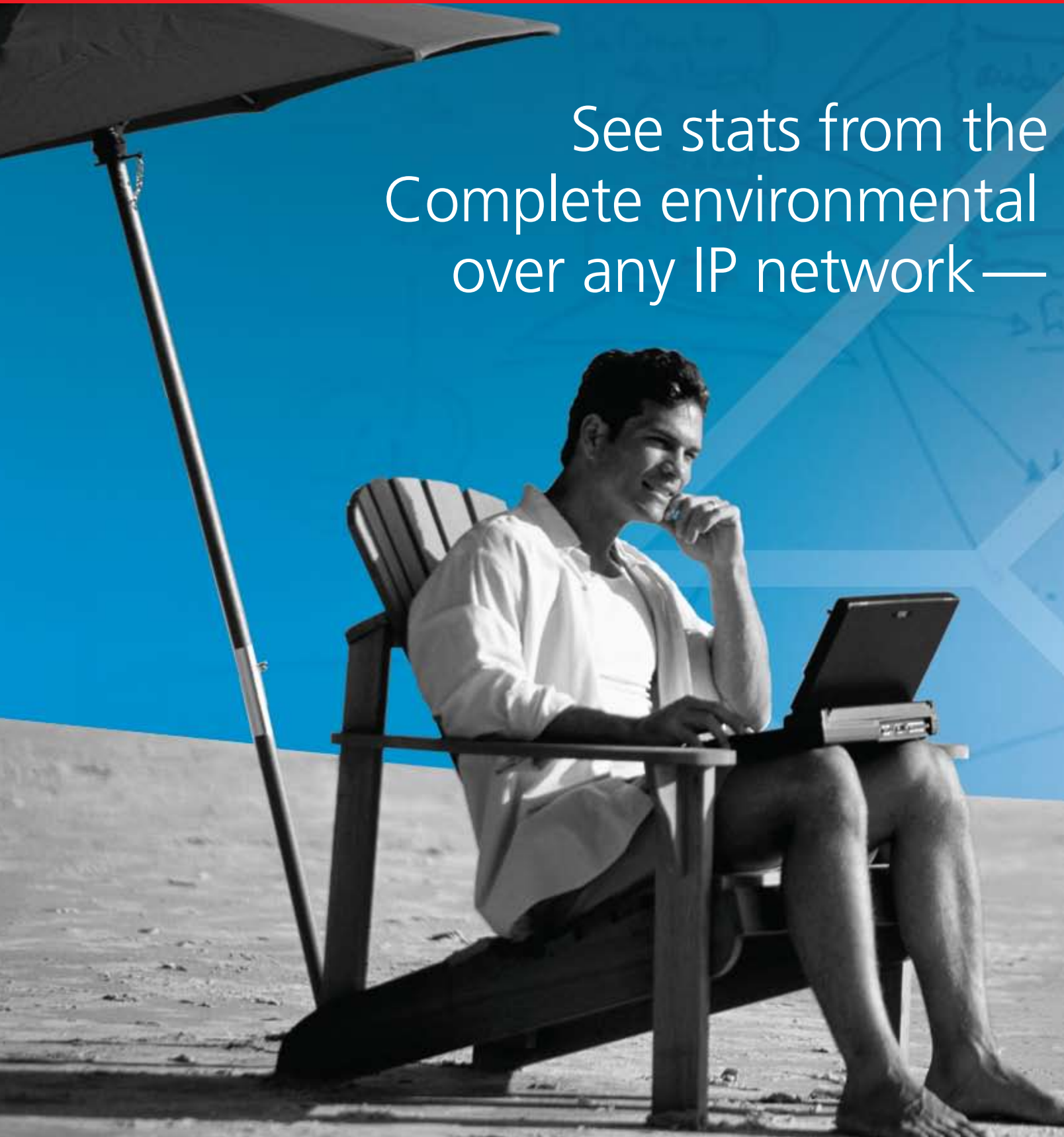
SURTA1500RMXL



SY161248H-PD

Environmental Monitoring & Control

See stats from the
Complete environmental
over any IP network—



seashore.
monitoring
even the Internet.

In this section

Environmental Monitoring Solutions _ 320–321

AlertWerks II _____ 322–327

ServSensor V4P _____ 322

PT Dome Camera _____ 323

ServSensor _____ 324–325

Intelligent Sensors _____ 326–327



For New Products,
turn to pages 26–73.

Environmental Monitoring Solutions

Guard your mission-critical IT equipment against physical



Beyond virus protection.

It has become almost automatic to protect your data center by backing up your servers, installing firewalls and virus protection, and keeping the firewall and virus protection up-to-date.

But what about more tangible threats? Do you have hot spots in your racks? If the cooling system shuts down, how will you know when temperatures climb out of control? Are you alerted to humidity changes or water leaks that threaten your equipment?

Planning for the unexpected is a critical task because there are more systems performing mission-critical functions than ever before. These systems are often deployed without the proper environmental infrastructure to support them. Equipment density is increasing constantly, which is creating more stress on ventilation and power.

That's where Black Box's environmental monitoring systems enter the picture.

The top three IT risks:

1. Environmental disruption.

The number one cause of downtime for remote locations, environmental problems go beyond fires and floods and affect as much as 30% of a company's mission-critical infrastructure. Cooling and power are key points of exposure and increase as equipment density does.

2. Unnecessary risk.

When systems are housed in less-than-optimal settings, or are in remote and unsupervised locations, any error causes downtime. Yet, it's not practical to have someone babysitting the servers. We offer more effective ways to keep track of your equipment.

3. Sabotage.

Regardless of the probability, terrorism is now something each of us must plan for. Your systems can also be brought down from within if the proper security safeguards are not in place.

What's an environmental monitoring system?

Environmental monitoring products enable you to actively monitor the conditions in your rack, server room, data center, or anywhere else you need to protect critical assets. Conditions monitored include extreme temperatures, humidity, power spikes and surges, water leaks, smoke, and chemical materials. With proper environmental monitoring, you're alerted to any conditions that could have an adverse effect on your mission-critical equipment. These products can also alert you to potential damage from human error, hacking, or prying fingers.

Environmental monitors consist of three main elements: a base unit, probes or sensors, and network connectivity and integration. The base units may contain one or more built-in sensors, as well as ports for hooking up external probes. Additionally, they include an Ethernet port and have software for remote configuration and graphing. This software may also work with existing network management software, such as SNMP systems.

Features:

Measurement (see chart below).

The environmental monitoring appliance displays the values measured by the attached probes, e.g. temperature, humidity, airflow, status of dry contact, door, motion detector, and other sensors.

Alerting (see chart on facing page).

When the measured value exceeds the predefined threshold, it triggers an alert: a blinking LED on the front panel, an audible alarm, SNMP trap, e-mail, etc. The environmental monitoring appliance can also activate an external alarm system like a siren or strobe light.

Data collecting and Graphing (see chart on facing page).

The measurements are periodically stored in the internal memory or external storage media and displayed as graphs.

Benefits of environmental monitoring:

- **Reduced downtime**—When things go wrong, you're the first to know. Minimize downtime by being alerted about conditions that cause damage to servers and other network devices.

- **Increased profits**—Black Box environmental monitoring systems are easy to implement. Also, they help you cut replacement equipment costs and redistribute your workforce more effectively.
- **Increased employee satisfaction** — With built-in notification features like e-mail, SMS, and SNMP traps, a remote monitoring system enables employees to better manage their work.



Applications:

The Black Box AlertWerks II system consists of SNMP-enabled, Web-based monitors that alert the user to any abnormal conditions. AlertWerks II monitors multiple environmental conditions, including temperature, humidity, airflow, smoke, security, and voltage. Black Box has complete solutions for a variety of applications, including:

- Data center monitoring
- Computer room monitoring
- Rackmount industrial equipment
- Telecommunications
- UPS/battery backup
- Educational institutions
- Food and beverage applications
- Buildings/warehouses
- Air conditioner/refrigerants/freezer monitoring
- Greenhouses

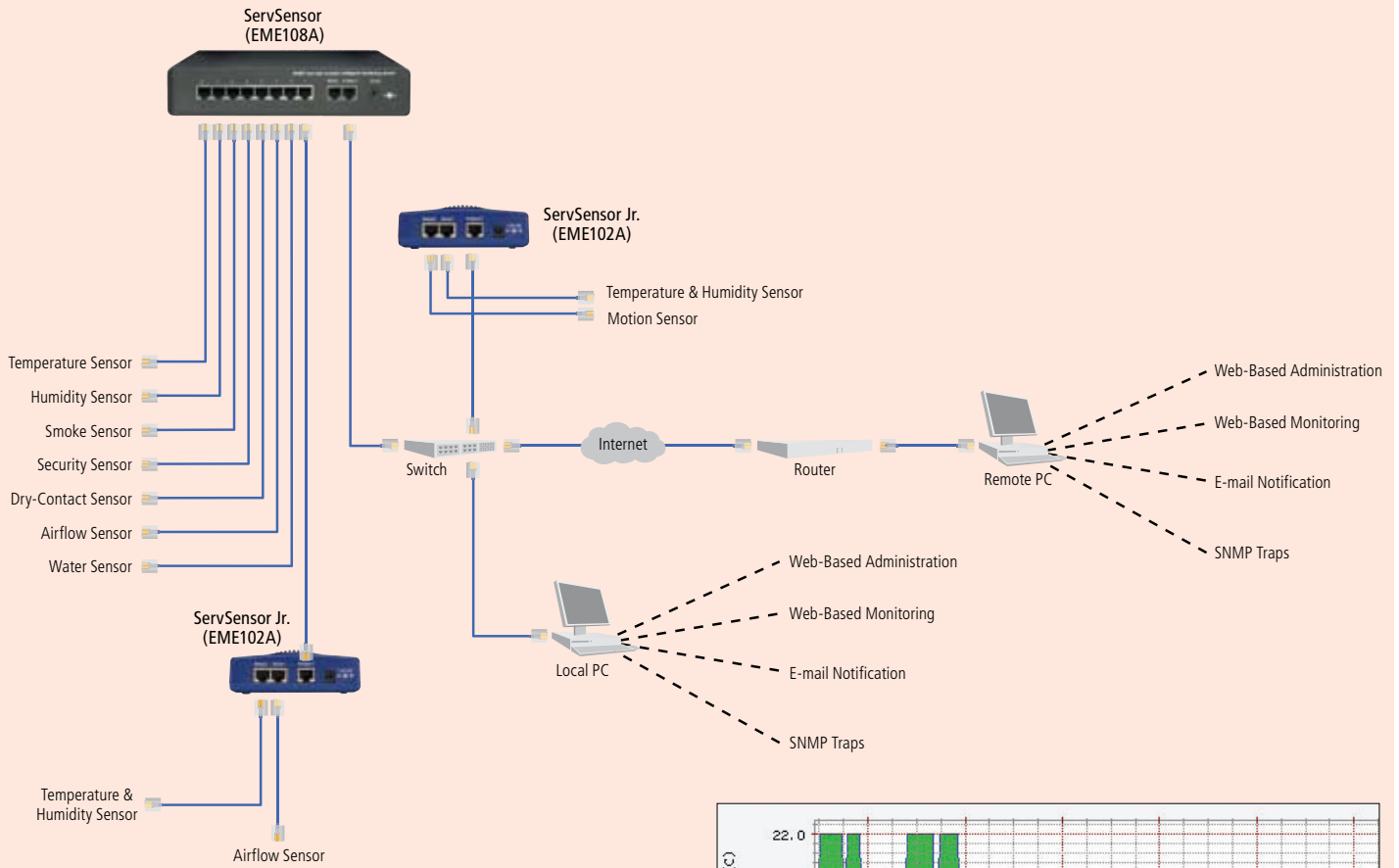
Temp Rack 03	66° F (19° C)
Humidity Rack 03	34%

Measurement

AlertWerks II System, pp. 322-327.

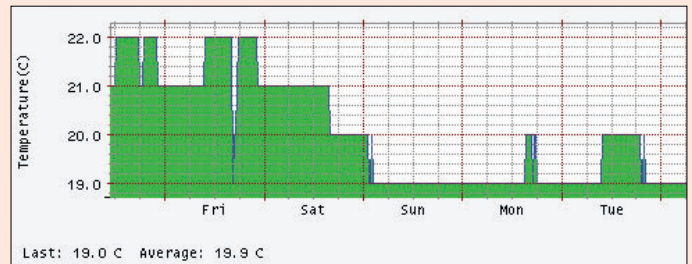


threats—from temperature extremes to water damage.



Sensor Name	Action on Status	Action Name
Temp Rack 03	High Critical	Email notification
	High Warning	
	Low Warning	
	Low Critical	
	Send Email	

Alerting



Data Collecting and Graphing

Buyer's Guide | Environmental Monitoring Systems

	ServSensor Jr.	ServSensor	ServSensor Contact	ServSensor V4P	ServSensor V4-20P
Number of external sensors	2	8	8	8	8
Dry-contact inputs	No	No	20 (up to 100)	No	20 (up to 100)
Video surveillance	No	No	No	Up to four cameras	
Alarming	E-mail, SNMP	E-mail, SNMP	E-mail, SNMP	Sound, voice, fax, e-mail SNMP, SMS, MMS*	
Advanced alarm options	No	No	No	Yes	
Data graphing	Basic	Basic	Basic	Advanced	
Data export and remote collection	Yes	Yes	Yes	Yes	
Encrypted access	No	No	No	Web (HTTPS), SNMPv3	

* External e-mail to SMS or SNMP to SMS gateway required. Via Skype™ or external GSM/GPRS modem.

AlertWerks II ServSensor V4P

Real-time, extensive environment and video monitoring and alerting system.



EME124A: front view



EME124A: rear view



EME129A-20

- Supports up to eight plug-and-play Intelligent Sensors (pages 326–327).
- Also supports up to four surveillance cameras.
- Notifies you of alarms in a variety of ways, including e-mail, SNMP, and text messages.
- Manageable through an easy-to-use Web interface.
- ♦♦ **WARRANTY** — 1 Year

The AlertWerks II ServSensor V4P enables you to integrate environmental sensors and surveillance cameras into one seamless remote monitoring system that watches over your premises. Use it to monitor data centers, offices, or anywhere it's important to keep an eye on conditions on the ground.

Plug-and-play sensor integration.

Plug up to eight AlertWerks II Intelligent Sensors (pages 326–327) into the RJ-45 ports of the ServSensor V4P. Sensors automatically configure and go on-line, ready to report any status change. Choose from a wide variety of

sensors, including temperature, humidity, water, airflow, motion, and voltage. The EME129A-20 model also offers 20-dry contact inputs to support third-party sensors.

Video surveillance.

The ServSensor V4P supports up to four AlertWerks II PT Dome Cameras (facing page). You can also use it with a wide range of analog cameras — your existing security cameras, sophisticated night vision cameras, outdoor cameras, or low-cost CCTV cameras.

The ServSensor V4P supports video of up to 640 x 480 dpi from up to four cameras. Set it to scan between cameras or show all cameras at once. It has enough memory to store up to 2320 pictures.

A built-in 4-port Pelco-D compatible pan/tilt controller eliminates the need for expensive additional controllers and enables you to move and zoom cameras from the Web interface.

See and organize data from the graphical interface.

The ServSensor V4P gathers and displays sensor data in its easy-to-use Web-based user interface. It automatically generates day, week,

month, and year graphs for each sensor. The data can be downloaded in a text file for external processing or remotely polled and saved automatically to a PC.

Notification Wizard.

The Notification Wizard enables the ServSensor V4P to notify you of changes in sensor status in real time. Configure each notification by choosing a sensor, selecting the alarm condition, and defining what to do when the alarm is triggered. You can choose to be notified in a variety of ways: audible alarm, SNMP trap, e-mail, e-mail with attached picture, text message to your phone, or fax.

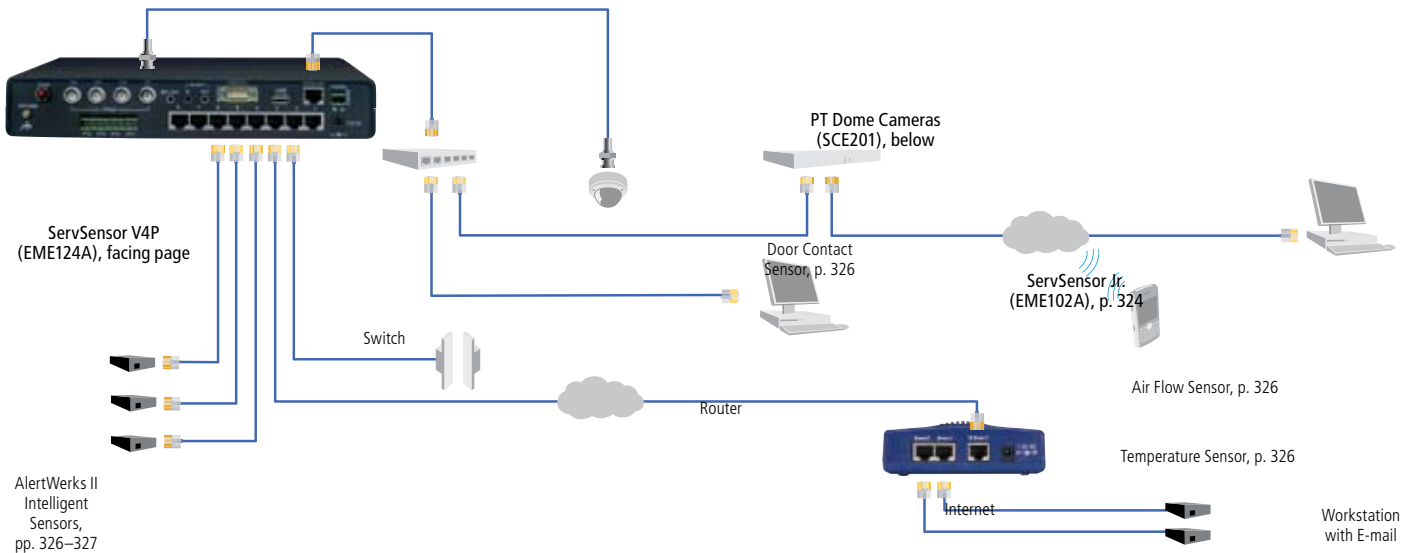
For instance, you can have ServSensor V4P text you when it detects that the door of a server cabinet is opened or e-mail everyone on your IT staff whenever the temperature in your data center goes over 86° F (30° C).

TECH SPECS

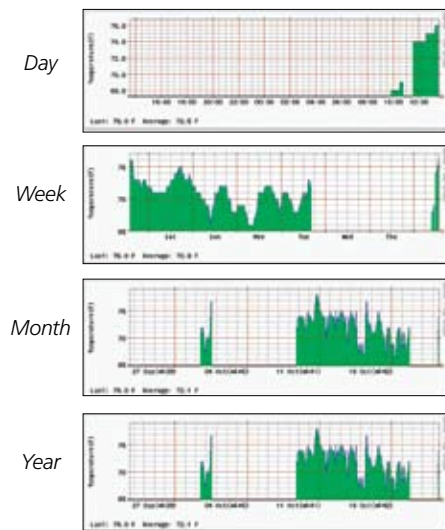
Audio — Sampling Rate: 8 kHz
Configuration — Via Web browser (HTTP / HTTPS)
Encryption — SSL 128 bit (HTTPS), SNMPv3
Environmental — Temperature: 32 to 131° F (0 to 55° C);
 Humidity: 20 to 80%, noncondensing;
 Altitude: 0 to 9842 ft. (0 to 3000 m)
Memory — 64 MB SDRAM, 128 MB NVRAM
Operating System — Embedded Linux®
Processor — 32-bit Xscale PXA270, 312 MHz
Protocols Supported (Client) — DHCP, DNS, SMTP, (S) NTP, SNMP
Video — Sampling Resolution: Up to 640 x 480 dpi;
 Frame Rate: Up to 30 fps;
 Color Depth: Up to 16 bit;
 Streaming Refresh Rate: Up to 15 fps @ 320 x 240 dpi

CE Approval — Yes
Connectors — All: (8) RJ-45 sensor, (4) BNC F video, (3) 3.5-mm audio jacks, (1) USB Type A, (1) RJ-45 10BASE-T/100BASE-TX Ethernet, (4) 2-pin RS-485 PTZ; (1) DB9 M RS-232/V.24 console port, (1) 2-pin RS-485
 EME129A-20 also has: (20) 2-pin dry contacts
Indicators — All: (1) Power, (1) Link, (1) Activity, (8) Status, (8) Online;
 EME129A-20: (20) Status, (20) Online
Power — Autosensing 100–240 VAC, 47–63 Hz external power supply
Size — EME124A: 1.8"H x 10.9"W x 5.4"D (4.6 x 27.6 x 13.8 cm);
 EME129A-20: 1.8"H x 17.2"W x 5"D (4.6 x 43.6 x 12.7 cm)
Weight — EME124A: 2.6 lb. (1.2 kg);
 EME129A-20: 3 lb. (1.7 kg)

Item	Code	List Price
AlertWerks II ServSensor V4P	EME124A	
AlertWerks II ServSensor V4P with 20 Dry-Contact Inputs	EME129A-20	
AlertWerks II ServSensor V4P with 1 PT Dome Camera (SCE201)	EME125A	



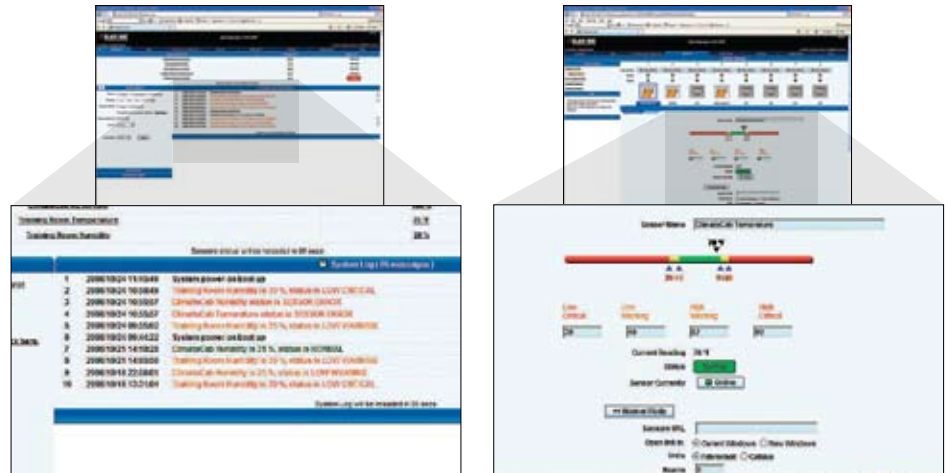
AlertWerks II Intelligent Sensors, pp. 326-327



ServSensor V4P automatically generates graphs for each sensor.

Workstations

SMS (Short Message Service)



Access the clear, easy-to-use graphical interface from your Web browser, like Alert log (left) and Sensor configurations..

AlertWerks II PT Dome Camera High-resolution pan/tilt dome camera.

- High-resolution 1/8" Sony™ CCD camera.
- Remote pan and tilt for use with ServSensor V4P (facing page).
- Adds video capability to the ServSensor V4P.
- Enables you to monitor your infrastructure from anywhere in the world.
- Clear, sharp pictures, even in low light conditions.
- Features Auto White Balance (AWB).
- Horizontal resolution of 640 pixels.
- A precision, custom-designed stepper motor moves the camera over 330° (pan) and 160° (tilt) and can be controlled by the ServSensor V4P via its Web interface.
- The RS-485 interface enables extended distances between the camera and the unit.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Engine — Image sensor: Type: 1/8" Interline CCD;
Min. illumination: 0.5 Lux / F1.2;
Picture elements: 640(H) x 480(V);
S/N ratio: 45dB or more (AGC off)

Environmental — Temperature: 32 to 104° F (0 to 40° C);
Humidity: 10–80% relative humidity, noncondensing

Opticals — Lens type: fixed;
Focal length: 3.6 mm;
Viewing angle: 92°;
Video resolution: 330 TV lines;
Features: auto white balance, electronic iris 1/50 to 1/100,000 (PAL)
P/T: Pan movement: 0 to 330°
Tilt movement: 0 to 80°

Connectors — Video: (1) BNC M video composite, (1) Pan/tilt terminal block, (1) Power input

Power — 9 VDC, external power supply
Size — 4.2"H x 4.5"W (10.7 x 11.5 cm)
Weight — 1.1 lb. (0.5 kg)



Item	Code	List Price
AlertWerks II PT Dome Camera	SCE201	

AlertWerks II ServSensors

Safeguard your infrastructure and resources



EME102A: front view



EME108A: front and rear view

- Function as a central hub for your AlertWerks II Intelligent Sensors.
- Work with a wide range of sensors: temperature, humidity, water, airflow, smoke, motion, security, dry contact, and AC and DC voltages. For sensors, see pages 326–327.
- Java™ based Web user interface enables you to access the hub over any IP network—even the Internet.
- Sends alerts through SNMP or e-mail.

◆◆ **WARRANTY** — 1 Year



EME102A: rear view

The brains of your environmental monitoring system.

The AlertWerks II ServSensor is the central hub of the AlertWerks II environmental monitoring system. Connect it to your network, attach AlertWerks II sensors (pp. 326–327), and you're ready to remotely view the status of your data centers and other facilities. Check for temperature, humidity, and liquids. Know when server cabinet doors are open or closed and whether the cabinet is overheating. Use it for remote monitoring and management of a wide range of devices such as HVAC systems, security equipment, UPSs, generators, and industrial equipment.

Wide range of sensors.

The ServSensor hubs enable you to connect up to eight AlertWerks II Intelligent Sensors in any combination to monitor temperature, humidity, water leakage, airflow, and more. For details, see pages 326–327. Plus, the ServSensor Contact supports customized sensors for conditions like motion, gas, and sound. For details, contact our FREE Tech Support.

A clever hub.

The ServSensor is smart. Its embedded Web server enables you to use a standard Web browser to view sensor status over any IP network—even the Internet. Check out the status of your data center from your office, from home, or from the road.

It's fully SNMP manageable, so you can integrate it easily into any SNMP-managed network and monitor it through standard SNMP software such as HP® OpenView®.

The built-in database maintains a time-stamped log of all events, so you can go back to see what happened and when it happened. The integrated data collection and graphing package is especially useful in spotting trends in security, detection of AC power line voltage, measurement of DC voltage, and control relays, and for providing historical information for analysis.

Active alarming.

In addition to enabling you to passively monitor sensors, the AlertWerks II ServSensor actively alerts you when sensors exceed limits you determine. It can send alerts via SNMP or by e-mail.

Nice and easy.

The ServSensor installs in minutes. Simply assign an IP address and connect to the embedded Web server. Plug in any of our Intelligent Sensors and the ServSensor's autosensing feature will recognize the type and automatically configure it.

ServSensor

The basic ServSensor features eight autosensing RJ-45 ports for connecting any of the Intelligent Sensors on pages 326–327.

ServSensor Junior

For small installations, choose the ServSensor Junior. With only two sensor ports, it's an economical way to watch over limited areas like wiring closets.

with this affordable monitoring hub.



EME111A-20: Top: front view;
bottom: rear view

ServSensor Contact

Use the ServSensor Contact with equipment and devices that use dry contact outputs to send alarm signals. The ServSensor Contact is adaptable to a wide range of devices such as UPSs, other remote monitoring systems, and building management systems.

The hub comes with eight autosensing RJ-45 ports for connecting any of the Intelligent Sensors on pages 326–327 plus 20 additional 2-wire, dry-contact ports. These specially designed ports enable you to make your own dry-contact cables quickly and easily.

You can easily expand the number of dry-contact inputs up to 100 by using up to two optional external input modules with 40 dry contacts each. For details, call our FREE Tech Support. The ServSensor Contact is rackmountable on standard 19" rails and includes rackmount ears.

Just call to get started.

For help planning your complete AlertWerks II environmental monitoring system, call our FREE Tech Support. Our experts can help you decide how many hubs and sensors you need to meet your monitoring needs.

TECH SPECS

Configuration — Software utility for IP setup, then over Web browser

Environmental —

Temperature: EME108A–EME110A, EME102A–EME104A: 32 to 104° F (0 to 40° C);

EME111A-20: 32 to 131° F (0 to 55° C)

Humidity: EME108A–EME110A, EME102A–104A: 30 to 70% noncondensing;

EME111A-20: 20 to 80%, noncondensing

Monitoring and Alarms — Via Web browser, e-mail, SNMP trap

Protocols Supported (Client) —

EME111A-20: DHCP, DNS, SMTP, (S) NTP, SNMPv1

Security— User/administrator password-protected login

Connectors —

EME108A–EME110A: (8) RJ-45 sensor ports, (1) 10BASE-T Ethernet port;

EME102A–EME104A: (2) RJ-45 sensor ports; (1) 10BASE-T Ethernet port;

EME111A-20: (8) RJ-45 sensor ports, (20) dry contacts,

(1) RJ-45 10BASE-T Ethernet port

Indicators — All: (1) Power On; (1) Link; (1) Activity;

EME108A–EME110A: (8) Status;

(8) Online;

EME102A–EME104A: (2) Sensor On;

EME111A-20: (8) Status,

(8) Online; Per dry contact

input: (1) Status, (1) Online

Power —

EME108A–EME110A, EME102A–

EME104A: 90–260 VAC,

47–63 Hz autosensing

external power supply;

EME111A-20: 100–240 VAC,

47–63 Hz autosensing

external power supply

Size —

EME108A–EME110A: 1.8"H x 9.2"W x

5.4"D (4.6 x 23.4 x 13.8 cm);

EME102A–EME104A: 1.3"H x 4.5"W x

2.5"D (3.2 x 11.4 x 6.4 cm);

EME111A-20: 1.7"H x 18"W x 5"D

(4.2 x 45.7 x 12.7 cm)

Black Box Explains

Dry contacts.

A dry contact, also called a volt-free contact, is a relay contact that does not supply voltage. The relay energizes or de-energizes when a change to its input has occurred. In other words, a dry contact simply detects whether or not an input switch is open or closed.

The dry contacts in the ServSensor Contact provide a simple two-wire interface that can be easily adapted to third-party sensors and devices. Because you define what the open or closed condition means, dry contacts are infinitely adaptable.

Use dry contacts to monitor alarms such as fire alarms, burglar alarms, and alarms on power systems such as UPSs. A very common use for dry contacts is to detect whether a cabinet door is open or closed.

Item	Code	List Price
AlertWerks II ServSensors		
ServSensor		
8-Port, No Sensor	EME108A	
8-Port, (1) Temperature Sensor (Kit)	EME109A	
8-Port, (1) Dual Temperature and Humidity Sensor (Kit)	EME110A	
ServSensor Junior		
2-Port, No Sensor	EME102A	
2-Port, (1) Temperature Sensor (Kit)	EME103A	
2-Port, (1) Dual Temperature and Humidity Sensor (Kit)	EME104A	
ServSensor Contact		
8-Port, 20 Dry Contacts, No Sensor	EME111A-20	

AlertWerks II Intelligent Sensors, turn the page.



AlertWerks II Intelligent Sensors

Choose from a wide range of sensors to



EME1T2-005

Temperature Sensors

- Never needs calibration.
- Measurement range of -67 to +167° F (-55 to +75° C) with 1° F resolution.
- Measurement accuracy of ±0.9° F from +14 to +167° F (-10 to +75° C).
- Connect up to four daisychainable sensors with CAT5 cable for a total distance of up to 1000 feet (304.8 m).
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
------	------	------------

AlertWerks II Temperature Sensors

Standard		
1-ft. (0.3-m) Cable	EME1T1-001	
Remote		
5-ft. (1.5-m) Cable	EME1T2-005	
Waterproof		
15-ft. (4.5-m) Cable	EME1T3-015	
Daisychainable	EMEDTEMP	
4-Pack	EMEDTEMP4	
8-Pack	EMEDTEMP8	
Thermocouple		
5-ft. (1.5-m) Cable	EME1TC1-005	



EME1TH3-015

Dual Temperature Humidity Sensors

- Measure temperature from -40 to 167° F (-40 to +75° C) in 1° F increments.
- Accurate to ±0.9° F.
- Measure 0 to 100% relative humidity with 1% resolution and accuracy of ±3% at 77° F.
- Sensor element is water resistant.
- Capacitive semiconductor sensor.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
------	------	------------

AlertWerks II Dual Temperature Humidity Sensors

Standard		
1-ft. (0.3-m) Cable	EME1TH1-001	
Remote		
5-ft. (1.5-m) Cable	EME1TH2-005	
Waterproof		
15-ft. (4.5-m) Cable	EME1TH3-015	



EME1W1-015

Water Sensors

- Wet or dry measurement range of -4 to 140° F (-20 to +60° C).
- Accurate enough to measure distilled water.
- Microprocessor-controlled sensor.
- Capacitance measurement technology.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
------	------	------------

AlertWerks II Water Sensors

15-ft. (4.5-m) Cable	EME1W1-015	
60-ft. (18.2-m) Cable	EME1W1-060	
100-ft. (30.5-m) Cable	EME1W1-100	



EME1Y1-015

Security Sensors/Contacts

- Open/closed contact switch indicates Alarm or Normal.
- Tell you when doors to secure areas have been opened.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
------	------	------------

AlertWerks II Security Sensors/Contacts

15-ft. (4.5-m) Cable	EME1Y1-015	
60-ft. (18.2-m) Cable	EME1Y1-060	
100-ft. (30.5-m) Cable	EME1Y1-100	



EME1F1-005

Airflow Sensor

- On/off alarm signal for airflow.
- Two LEDs indicate the status of airflow and that the sensor is properly plugged into the ServSensor.
- Thermistor sensor.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
------	------	------------

AlertWerks II Airflow Sensor

5-ft. (1.5-m) Cable	EME1F1-005	
---------------------	------------	--

NOTE: For other sensor lengths, call Tech Support.



EME1K1-015

Dry-Contact Sensors

- Open/closed contact switch indicates Alarm or Normal.
- The input voltage range of 0 to 5 VDC can be set through software.
- Normally open; normally closed can be set through software.
- Current Range: can sink up to 20 mA.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
------	------	------------

AlertWerks II Dry-Contact Sensors

15-ft. (4.5-m) Cable	EME1K1-015	
60-ft. (18.2-m) Cable	EME1K1-060	
100-ft. (30.5-m) Cable	EME1K1-100	

work with AlertWerks II ServSensor hubs.



EME1D1-005

DC Voltage Sensor

- Enable you to integrate a custom sensor with the ServSensor while still retaining all the features of the standard sensors.
- Readings are available in both raw data and as a percentage of full scale.
- Full scale is user programmable with both the base and top voltage from 0 to 60 volts.
- Measurement range: High Warning, Low Warning, High Critical, Low Critical.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
AlertWerks II DC Voltage Sensor 5-ft. (1.5-m) Cable	EME1D1-005	



EME1A1-005

AC Voltage Sensor

- Open/closed contact switch detects voltage from 50 to 250 VAC.
- LED indicator on sensor shows if voltage is present.
- Indicates Alarm or Normal.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
AlertWerks II AC Voltage Sensor 5-ft. (1.5-m) Cable	EME1A1-005	



EME1S1-005-R2

Smoke Detector Sensor

- Alarms when smoke is detected.
- LED indicates the status of smoke detector.
- Includes disconnect alarm, which checks that the sensor is securely plugged into the ServSensor.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
AlertWerks II Smoke Detector Sensor 5-ft. (1.5-m) Cable	EME1S1-005-R2	



EME1P1-005

Power Switch

- Relay contacts rated at 15A/220 VAC.
- Powered by the ServSensor hub.
- Metal oxide varistors (MOVs) and snubber circuit protect the open contact of the relays from high-voltage spikes.

Item	Code	List Price
AlertWerks II Power Switch, 1-Port 5-ft. (1.5-m) Cable	EME1P1-005	



EME1M1-005-R2

Motion Detection Sensor

- Detection speed of 0.5–9.8 feet per second (0.15–3 m/sec).
- Temperature range of -4 to 144° F (-20 to +50° C).
- 150° detection angle.
- Measures 3.15"H x 2.4"W x 1.4"D (6 x 8 x 3.6 cm).
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
AlertWerks II Motion Detector Sensor 5-ft. (1.5-m) Cable	EME1M1-005-R2	



EME1SS-005

Siren and Strobe Light

- Combines a strobe light and a siren.
- Siren sounds at 100 ± 3 dB at 100 cm.
- Supports maximum cable runs of up to 1000 feet (304.8 m). For details, contact our FREE Tech Support.
- Plug-and-play installation.
- Can be triggered by any other sensor connected to the ServSensor hub.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
AlertWerks II Siren and Strobe Light 5-ft. (1.5-m) Cable	EME1SS-005	

Peripheral Switching & Sharing

Have a backup route?
With a Black Box Switch,
you do.





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For New Products,
turn to pages 26–73.

USB 2.0 Share Switches

Two or four users can easily share USB peripherals.

- Enables two or four users to share a USB printer, scanner, or other USB peripheral.
- Easy installation with plug-and-play convenience.
- Switch by pushing just a hotkey.
- A glance at the LEDs tells you which computers are active.
- Compatible with Windows® and Mac® computers.
- No power supply needed. The switches run off bus power.
- USB Version 2.0 compliant.
- ♦♦ **WARRANTY** — 1 Year



SW212A

Item	Code	List Price
USB 2.0 Share Switches		
2-Port	SW212A	
4-Port	SW213A	

USB Auto Share Switches

Two or four computer users can share two or four peripherals.

- Any one user can connect to and control any attached peripheral, such as USB printers, scanners, and keyboards.
- Switch by pushing a button or via an application program, which also displays the peripheral status and type.
- LEDs show which ports are active.
- USB Version 1.1 compliant.
- Run off bus power or an external power supply (included).
- Offer overcurrent prevention.
- Automatically detect and connect to printers.
- ♦♦ **WARRANTY** — 1 Year



SW210A

Item	Code	List Price
USB Auto Share Switches		
2 Users x 2 Peripherals	SW210A	
4 Users x 4 Peripherals	SW211A	
♦ Both include (1) USB cable, (1) power adapter, (1) CD software driver, and (1) user manual.		

2-to-1 HDMI Switch

Switch between two HDMI sources for display on a single screen.

- Enables two HDMI™ sources to share one HDTV display.
- To select the desired source for display, just press a button.
- HDMI 1.3, HDCP 1.1, and DVI 1.0 compliant.
- Supports 30-/36-/48-bit color depth display.
- For true multimedia, also supports high-end audio, including lossless Dolby® Digital TrueHD and DTS-HD surround sound, through the video/audio HDMI interface.
- Auto signal enhancement feature for improving the signal quality of long-distance transmissions.



1080p HDTV

- Ideal for home theater integration.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
2-to-1 HDMI Switch	SW215A	

3-to-1 HDMI Switch with Remote

Connect three high-definition devices to your HDTV.

- Send HDMI signals from three HDMI devices to your HDTV.
- Use with digital HD receivers, HD DVD players, and even analog DVD players (via our AC551A converter on page 447).
- Drives signals up to 50 feet (15.2 m) over HDMI cable.
- Compensates for loss in long cable runs.
- LED indicates which device is selected.
- 1.65-Gbps bandwidth provides sharp digital images.



1080p HDTV

Switch using the front panel or a remote control.

- Supports resolutions up to 1080p HD and 1600 x 1200 PC.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
3-to-1 HDMI Switch with Remote	SW214A	

8-to-1 HDMI Switch with Remote

Enable up to eight HDMI sources to share a single HDTV display.



1080p HDTV

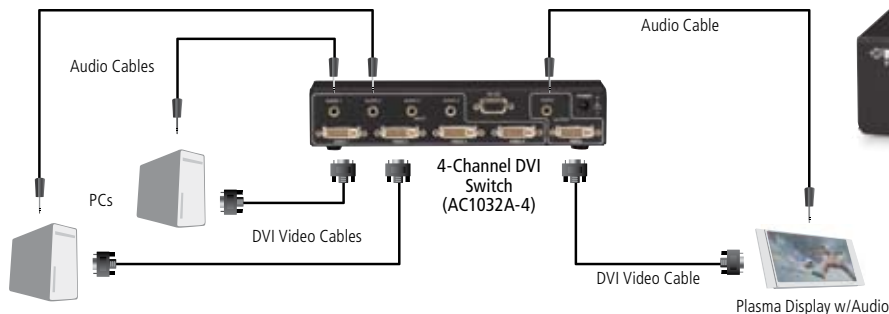
- To select the desired source, use the included IR remote or simply press a button.
- Corresponding front-panel LED lights indicate the source you've selected.
- Also has a rear-panel RS-232 port for linking to a console for remote control.
- HDMI 1.2, HDCP 1.1, and DVI 1.0 compliant.
- Ideal for home theater integration.
- For true multimedia, also supports high-end audio, including lossless Dolby Digital TrueHD and DTS-HD surround sound.
- Signal enhancement feature for improving the signal quality of long-distance transmissions. An LED lights when the signal is enhanced.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
8-to-1 HDMI Switch with Remote	SW216A	

Use this remotely controlled device for switching between as many as eight HDMI sources (including DVD, HD-DVD, or Blu-ray players) for output to a single LCD or plasma screen.

DVI Switches with Audio and Serial Control

Route multiple DVI-I video and audio inputs to a single display.



AC1032A-4A

NOTE: To switch between a PC with DVI and a PC with VGA, you need a DVI monitor that supports DVI-I signals and an HD15 to DVI cable. To order the cable, see p. 155.

- Ideal for multimedia presentations at meetings and small conferences.
- Switch video from multiple DVI-equipped devices like PCs to a common DVI display.
- Skip unused inputs automatically.
- Resolutions up to 1600 x 1200 on PCs and 1080p on HDTVs.
- Support cabling up to 65 feet (19.8 m) on the inputs. Plus, they drive DVI signals as far as 50 feet (15.2 m).

- DVI-I single-link compliant. Support both digital and analog signals (DVI-I) for use with most PCs.
- Also feature audio and serial control, so you can switch both video and high-quality stereo audio on each channel from a console connected to their RS-232 serial port.
- Hot-swappable. Add units without shutting down and restarting devices.

- Support industry-standard DCC2 spec and HDCP for all output ports (plug-and-play EDID).
- **WARRANTY** — 2 Years

Item	Code	List Price
DVI Switches with Audio and Serial Control		
2-Channel	AC1032A-2A	
4-Channel	AC1032A-4A	

You may also need...

DVI Cables

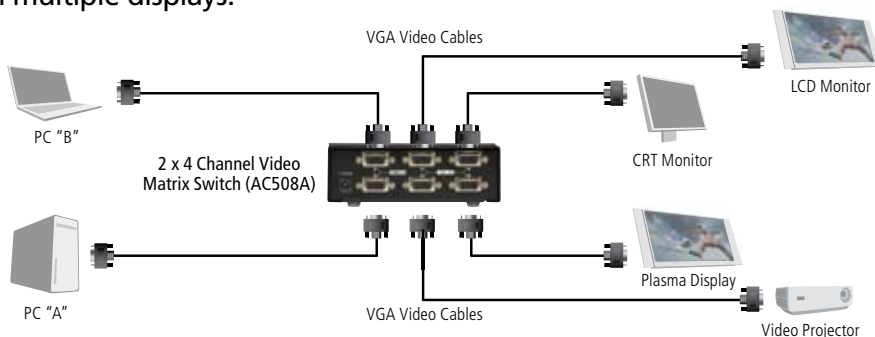
See p. 155.

Video Matrix Switches (2 x 4 and 2 x 8)

Show video from two separate sources on multiple displays.



AC508A



- Intelligent functionality gives you the flexibility to use a wide range of video devices, from CRT and LCDs to plasma TVs or video projectors.
- Built-in video signal enhancement for placing monitors up to 213.2 feet (65 m) away.
- Support VGA, SVGA, XGA, and multisync monitors or equivalent multimedia projectors.

- Accept input from PC or Mac® sources.
- Cascadable for even more flexibility.
- Work with high-resolution, 250-MHz pixel frequency and resolutions up to 1920 x 1440.
- Support VESA DDC, DDC2, DDC2B standards (for video out Ports 1 and 2).
- Output is compatible with standard VGA cards.

- Source video is easily selectable via front-panel switches.
- **WARRANTY** — 1 Year

Item	Code	List Price
Video Matrix Switches		
2 x 4 Channel	AC508A	
2 x 8 Channel	AC509A	

Compact VGA Switches • Compact VGA Switches with Audio (2 x 1 and 4 x 1)

Set up a multimedia information kiosk—switch between two or four VGA video sources to a single monitor!

- Boosters drive signals up to 150 feet (45.7 m).
- Resolutions of up to 1600 x 1200.
- Switch by pushing a button or via an attached RS-232 device.
- Set the switches to scan automatically between VGA inputs at certain intervals.
- Display VGA inputs based on priority.
- Blank output from one source or switch manually.
- Buffered output protects signal integrity.
- **WARRANTY** — 2 Years



AC505A: top: front view; bottom: rear view

Item	Code	List Price
Compact VGA Switches		
2 x 1	AC505A	
4 x 1	AC506A	

Both switches include (1) serial cable. The AC505A also includes (1) push-button cable.



Item	Code	List Price
Compact VGA Switches with Audio		
2 x 1	AC505A-2A	
4 x 1	AC506A-4A	

Both switches include (1) serial cable.

4-to-1 S-Video/Audio Switch with Serial Control

Connect four DVD, VCR, and CD player devices to your TV for multimedia presentations.



Use it to punch up your business presentation or, for home use, have it work as an integral component of your home theater system.

- Works with NTSC, PAL, and SECAM S-Video, and analog stereo audio equipment.
- Switch using front-panel buttons or a PC connected via its RS-232 port.
- Features active switching. Its 250-MHz video and 15-kHz audio buffers guarantee perfect output integrity.
- Use Scan Mode to cycle between devices at a user-selected rate of 1 to 60 seconds.
- Has female 4-pin mini DIN connectors (four for input and one for output).

- Features four left/right audio inputs on eight RCA jacks and one left/right output on two RCA jacks.
- **WARRANTY** — 2 Years

Item	Code	List Price
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4-to-1 S-Video/Audio Switch with Serial Control	SW202A	
---	--------	--

- ◆ Includes (1) 5-ft. serial control cable (3.5-mm plug to DB9 female).

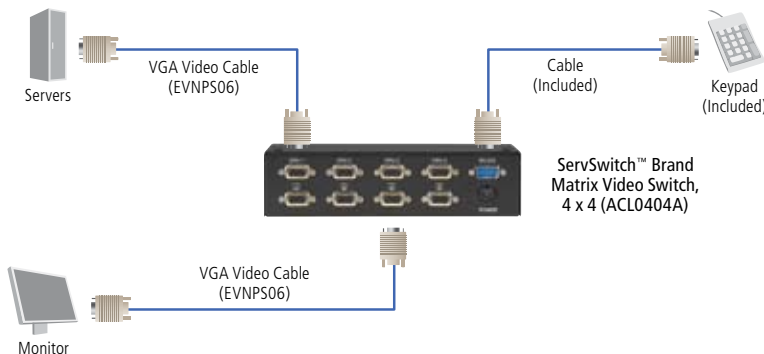
FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

S-Video Cables

See p. 157.

ServSwitch Brand Matrix Video Switches

Mix and match video displays from four or eight PCs.



Show something different on each screen or show the same video on each screen. Above: ACL0404A.

- Set up a video presentation for your trade show booth and provide real-time information updates on multiple screens.
- Send video from up to four PCs to up to four video monitors in any combination with the 4 x 4 model.
- Or use the 8 x 2 model to send video from up to eight PCs to two monitors.
- Easy switching with the included keypad.
- Perfect video — even at 1600 x 1200 resolution.
- All inputs are terminated and all outputs are buffered using special video amplifiers.
- Support cable lengths of 150 feet (45.7 m).
- Use ordinary VGA cable.
- Compatible with SVGA (RGBHV), RGBS, or RGSB with resolutions up to 1600 x 1200 pixels.
- **WARRANTY** — 1 Year

Item	Code	List Price
------	------	------------

ServSwitch™ Brand Matrix Video Switches	4 x 4	ACL0404A
	8 x 2	ACL0802A

- ◆ Both include a keypad and power supply.

VGA & SVGA Switches

Bring reliable and clear video to your desktop switching applications.



SW922A: rear view



HD15 female

TECH SPECS

Size — SWL780A: 2.5"H x 6"W x 6.3"D (6.4 x 15.2 x 16 cm);
SW922A: 3.5"H x 6"W x 6.3"D (8.9 x 15.2 x 16 cm)
Weight — 1.5 lb. (0.7 kg)

- Share up to three monitors with one PC.
- For all VGA and Super VGA video connections.
- **WARRANTY** — Lifetime

Item	Code	List Price
------	------	------------

VGA & SVGA Switches		
2-to-1	SWL780A-FFF	
3-to-1	SW922A	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

Premium VGA Video Extension Cable
10-ft. (3-m), Male/Male

(For other lengths or genders, see p. 151.)

EVNPS05-0010-MM



DB25 Switches

Rugged, versatile, and guaranteed for life.

- Tested to 25,000 use-cycles to ensure reliability.
- Share printers, modems, or other peripherals.
- Monitor system activity via six front-panel LEDs: TX, RX, RTS, CTS, DSR, and DTR.
- Perfect for devices with flow-control requirements.
- **◆◆ WARRANTY** — Lifetime



DB25 female



SWL025A: rear view

TECH SPECS

Size — 2.5"H x 6"W x 6.3"D
(6.4 x 15.2 x 16 cm)
Weight — 1.5 lb. (0.7 kg)

NOTE: If you have PCs that need to share a laser printer, see our MicroSwitches (page 344) for the one that's right for you.

Item	Code	List Price
DB25 Switches, ABC (2 to 1) Switches (Specify gender when ordering.)		
25 Leads, Serial or Parallel (for PC Users)	SWL025A	
12 Leads	SWL088A	

DB15 Switches



SW043A: rear view



DB15 female

- For Apple® Macintosh® video connections.
- The **ABC (2 to 1)** models enable one common device to be shared by two other devices.
- The **ABCDE (4 to 1) Switch** links one peripheral to four devices.
- The **X (2 to 2) Switch** enables two input devices to share two output devices.
- **◆◆ WARRANTY** — All: Lifetime

Item	Code	List Price
DB15 Switches (Specify gender when ordering.)		
ABC (2 to 1)	SW040A	
ABC (2 to 1) Lockable	SW044A	
ABCDE (4 to 1)	SW041A	
X (2 to 2)	SW043A	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

DB15 Thumbscrew Cable, 10-ft. (3.0-m) (For other lengths, see p. 170.)
Specify gender when ordering. EGM16T-0010

DB9 Switches



SWL031A: rear view



DB9 female

- For sharing PCs, printers, plotters, and modems.
- The **ABC (2 to 1) Switches** link one peripheral to two devices.
- The **ABCDE (4 to 1) Switch** connects one peripheral to four devices.
- Both ABC and ABCDE models have a wiring harness and use a "stackpole" switching mechanism. They have solder connections from the switching mechanism to the connectors.
- The **X (2 to 2) Switch** shares two peripherals among two devices.
- The **6 to 1 Switch** gives access to one peripheral from six devices.
- **◆◆ WARRANTY** — All: Lifetime

Item	Code	List Price
DB9 Switches (Specify gender when ordering.)		
ABC (2 to 1)	SWL030A	
ABC (2 to 1) Lockable	SW034A	
ABCDE (4 to 1)	SWL031A	
X (2 to 2)	SW033A	
6 to 1 (Available with female connectors only.)	SW035A	

blackbox.com

Don't see the switch you need? Look on blackbox.com!

- There you'll find:
- A bigger selection of manual and electronic switches for your legacy applications.
 - Information galore on all our products! Complete ETL test results, Black Box Explains tutorials, Buyer's Guides, white papers, videos, and our custom cable and adapter configurators.
 - Savings. Find weekly specials and savings on a whole host of products.

If you still can't find what you need, just ask the experts at our FREE Tech Support hotline!

2-to-1, 3-to-1, and 4-to-1 CAT6 10-GbE Manual Switch (ABC)

Securely access two, three, or four high-speed, 10-GbE networks!

- Switch between two or three separate Ethernet networks from one PC without the need to plug and unplug cables.
- Provides total electrical isolation, so you can safely access secure and public networks from the same desktop.
- Use in networks from 10BASE-T to 10-Gigabit Ethernet (10-GbE).
- Proprietary design ensures crosstalk isolation for high-end performance and full 10-GbE support.
- Simply connect your host device or shared network link to Port C (Common Port), then connect the different networks or Ethernet devices to the A and B, or A, B, and D ports.
- Operated manually. Just push a button to switch to another network.
- No power required.
- **WARRANTY** — 1 Year



SWL1030A: front view

TECH SPECS

CE Certified — Yes	Power — None
MTBF — 100,000 cycles	Size — 2.75"H x 6.1"W x 6.5"D
Connectors — SW1030A: (3) RJ-45;	(7 x 15.5 x 16.5 cm)
SW1031A: (4) RJ-45;	Weight — 2 lb. (0.9 kg)
SW1032A: (5) RJ-45	

Item	Code	List Price
CAT6 10-GbE Manual Switch (ABC)		
2-to-1	SW1030A	
3-to-1	SW1031A	
4-to-1	SW1032A	

100-Mbps ABC Manual Switch

One PC can switch between two 100-Mbps connections or two PCs can share one 100-Mbps link.



SWJ-100A: rear view



RJ-45
8-wire

- Toggle between two separate Fast Ethernet connections from one PC.
- Enables two PC users to take turns accessing a single Fast Ethernet connection.
- Switches 100BASE-T 100-MHz signals.
- Ideal for users who have both secure and nonsecure connections at the desktop.
- Chassis measures 2.5"H x 6"W x 6.3"D.
- **WARRANTY** — Lifetime

Item	Code	List Price
100-Mbps ABC Manual Switch	SWJ-100A	

10-Mbps ABC Manual Switch

Share access to a 10BASE-T network or access two different networks.



SWL065A: rear view



RJ-45
8-wire

- One PC can switch between two Ethernet networks.
- Two PCs can take turns accessing one Ethernet connection.
- Switches 10BASE-T 10-MHz signals.
- Use modular adapters on both ends to switch between one computer and two terminals.
- Chassis measures 2.5"H x 6"W x 6.3"D.
- **WARRANTY** — Lifetime

Item	Code	List Price
10-Mbps ABC Manual Switch	SWL065A	

RJ-11 & RJ-45 Switches

Support up to six RJ-11 leads or eight RJ-45 leads.



SWL036A: rear view



RJ-11
6-wire



RJ-45
8-wire



- For telephone lines and RS-232.
- RJ-11 switches support four or six leads.
- RJ-45 switches support eight leads.
- SWL036A, SWL037A, and SWL060A measure 2.5"H x 6"W x 6.3"D.
- SW076A and SW061A measure 3.5"H x 6"W x 6.3"D.
- **WARRANTY** — Lifetime

Item	Code	List Price
RJ-11 Switches		
ABC (2 to 1)	SWL036A	
ABCDE (4 to 1)	SWL037A	
6 to 1	SW076A	
RJ-45 Switches		
ABC (2 to 1)	SWL060A	
ABCDE (4 to 1)	SW061A	

2-to-1 Fiber Switches

The simple fiber switch for Fast Ethernet, FDDI, and ATM!

- Switch between two multimode fiber optic links while providing complete separation between them.
- Full compliance with optical standards for Fast Ethernet, FDDI, and ATM.
- Integral fiber transceivers support distances of 2 kilometers (1.2 mi.) over 1300-nm multimode fiber.
- Ideal for switching to backup network connections or physically isolating network segments.



SW459A-SC: top: front view; bottom: rear view

- Enable a single PC to access both a public and a private network.
- LEDs give visual confirmation of segment connection.
- **WARRANTY** — 1 Year

Item	Code	List Price
2-to-1 Fiber Switches		
SC	SW459A-SC	
ST®	SW459A-ST	

Coax Switches



SW560A-BNC: rear view



BNC female

- Share your dual BNC coax equipment.
- Support center conductor and shield leads.
- For your IBM® 3270 connections.
- SWL550A-BNC and SW570A-BNC measure 2.5"H x 6"W x 6.3"D.
- SW560A-BNC and SW580A-BNC measure 3.5"H x 6"W x 6.3"D.
- **WARRANTY** — Lifetime

NOTE: For LAN applications and Coax Switches with TNC connectors, call our FREE Tech Support.

Item	Code	List Price
Coax Switches		
ABC (2 to 1)	SWL550A-BNC	
ABCDE (4 to 1)	SW560A-BNC	
X (2 to 1)	SW570A-BNC	
6 to 1	SW580A-BNC	

2-to-1 DB37 Switches



SWL350A: rear view



DB37 female

50-Pin Manual Switches



SW872A: rear view

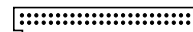
- The **Telco Switch** supports your SCSI and telephone applications, plus 1–50 leads.
- The **DB50 Switch** is for UNIVAC® Dataproducts®, Datapoint®, and other 50-pin interfaces.
- The **ABC Bus Switch** is for your



50-pin Telco female



DB50S female



Male 50-pin header

Berg type header connectors, and it supports 48 leads.

- All chassis measure 3.5"H x 6"W x 6.3"D.
- **WARRANTY** — All: Lifetime

Item	Code	List Price
Telco Switch (Specify gender when ordering.)		
ABC (2 to 1)	SW872A	
DB50 Switch (Specify gender when ordering.)		
ABC (2 to 1)	SW400A	
ABC Bus Switch	SW430A	

ABC Dual Switches



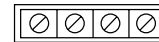
SW180A: rear view



DB25 female



RJ-11



4-Wire



RJ-45



BNC female

- Two switches in one.
- Each switch has two sets of ABC connectors on the back of the box.
- Turn the knob on the front panel to switch both sets to either

the A or the B position simultaneously.

- All chassis measure 3.5"H x 6"W x 6.3"D.
- **WARRANTY** — Lifetime

Item	Code	List Price
ABC Dual Switches (Available with female connectors only.)		
DB25 and RJ-11	SW180A	
DB25 and RJ-45	SW182A	
DB25 and DB25 for RS-232	SW184A	
for IBM® PC	SW186A	
DB25 and 4-Wire Terminal Strip	SW188A	

- For RS-449 standard connections.
- ABC switch supports 37 leads.
- Chassis measures 3.5"H x 6"W x 6.3"D.
- **WARRANTY** — Lifetime

Item	Code	List Price
DB37 Switches (Specify gender when ordering.)		
ABC (2 to 1)	SWL350A	

Rackmount Manual Switches

Assemble a switch rack customized to your exact application.

Rackmount switches are ideal when space is tight and you need to consolidate multiple switches. Simply pick the switches you need, and we'll install them in the 19" Rackmount Chassis that best fits your application.

If you order fewer switches than the maximum number the chassis holds, you can specify additional punchouts for future expansion—FREE!

Most switches are available with male or female connectors. For details, call our FREE Tech Support.

- ◆◆ **WARRANTY** — Lifetime



Top: SR001A with SR060
Bottom left: SR000A with SR041
Bottom right: SR000A with SR025 and SRP025

How to order customized Manual Switches:

Step 1 Pick the switches for your application.

Select switches with the connectors that match your cables and equipment, the correct pinning, and the number of switch positions. (Remember, for example, that an ABC switch has just two positions, not three.) You can mix several types of switches in the same chassis. The chart below lists the maximum number of switches each chassis can hold—or call our FREE Tech Support. Find the switch with the connectors you need on the charts.

* For full specifications, refer to the standalone versions of these switches on the pages listed under "For More Info" in the Buyer's Guide.

† Specify pinning for these switches. For pinning specifications, see the pinning diagrams on pages 188–189 or call our FREE Tech Support.

Step 2 Choose a Standard or Mini Chassis.

Our Standard Rackmount Chassis fits a standard 19" rack. It holds up to eight switch modules, depending on switch size. The chart below shows how many switches of each type can fit in each Rackmount Chassis.

Our Mini Rackmount Chassis takes only 3.5 inches (8.9 cm) of vertical space. It generally holds either three ABC or two ABCDE switches.

RACKMOUNT CHASSIS SIZES

- Standard (Style E) — 7"H x 19"W x 5.9"D (17.8 x 48.3 x 15 cm)
- Mini (Style D) — 3.5"H x 19"W x 5.9"D (8.9 x 48.3 x 15 cm)

Item	Code	List Price
Rackmount Chassis Standard	SR000A	
Mini	SR001A	

Step 3 Specify punchouts.

If there's space left over in your Rackmount Chassis, plan for future expansion by specifying punchouts—extra holes for additional switches. You'll need to specify the punchouts when you order.

The "Free Punches Codes" are in the last column of the charts below

Ordering Example:

- Step 1: (3) ABC-DB25 Switches
SR025 = x 3 =
- Step 2: Rackmount Chassis (Standard)
- Step 3: (3) Punchouts (SRP025)
- Total

Click and find at **blackbox.com**. More information about manual switches and rackmount chassis.

You can also order a prebuilt Rackmount Chassis Switch.

Save time! Order our Preassembled Rackmount Manual Switches.

We have four rackmount chassis already loaded in our most frequently requested configurations.

Durability guaranteed.

These BLACK BOX® Switches are tested and certified in our Test Lab and backed with our lifetime guaranteed.

We ship from stock immediately. Plenty of switches in any of the four configurations listed below are available.

- ◆◆ **WARRANTY** — Lifetime

PREBUILT SWITCH SIZE
7"H x 19"W x 5.9"D (17.8 x 48.3 x 15 cm)

Item	Code	List Price
Preassembled Rackmount Manual Switches		
ABC-25 (8 Switches), All Female		
12-Lead	SM088A-FFF	
25-Lead	SM025A-FFF	
ABCDE-25 (5 Switches), All Female		
25-Lead	SM026A-FFFFF	
ABC-Coax (12 Switches), All BNC Female	SM550A-BNC	



SM025A-FFF



Buyer's Guide | Rackmount Manual Switches

Switch	Code	*For More Info	Max. No. per Chassis Std.	Mini	List Price	Free Punches Code
DB25 Switches						
ABC-DB25 (25 Leads)	SR025	p. 333	8	3		SRP025
ABC-DB25 (4 Leads)	SR084	—	8	3		SRP025
ABCDE-DB25 (25 Leads)	SR026	—	5	2		SRP026
X-DB25 (25 Leads)	SR027	—	6	3		SRP027
6-to-1-DB25 Parallel	SR059	—	4	1		SRP090
6-to-1-DB25 Serial	SR090	—	4	1		SRP090
Modem & Telco Switches						
ABC-Telco†	SR870	—	6	1		SRP870
ABC-RJ-11	SR036	p. 334	8	3		SRP036
ABCDE-RJ-11	SR037	p. 334	8	2		SRP037
6-to-1-RJ-11	SR076	p. 334	4	2		SRP076
ABC-RJ-45	SR060	p. 334	8	3		SRP060
6-to-1-RJ-45	SR077	—	5	2		SRP077
Other D-Style Switches						
ABC-DB9	SR030	p. 333	8	3		SRP030
ABCDE-DB9	SR031	p. 333	5	2		SRP031
X-DB9	SR033	p. 333	6	3		SRP033
6-to-1 DB9	SR035	p. 333	5	2		SRP035
ABC-DB15	SR040	p. 333	8	3		SRP040
ABCDE-DB15	SR041	p. 333	5	2		SRP041
ABCDE-DB37†	SR360	—	4	1		SRP360

Automatic Switching System

Use our advanced software to control multiple ganged switch systems.



- Individual and full ganged switching control without the cost of a fully automated network management system!
- Configuration Software works with the SM533-C and SM534-C Control Cards to give you customized switching control.
- Use the software GUI to name all chassis and ports, view all connections, and check their status in real time while performing basic and user-defined switch operations.
- Combine the software with the SM533-C or SM534-C cards to control multiple systems remotely via a Web connection.
- You can also control the system via a Web browser, SNMP, ASCII, or locally.
- Each chassis holds up to 16 interface rack cards.
- Large selection of hot-swappable cards enables you to change systems easily just by swapping cards.
- Daisychain up to 64 chassis and control up to 2048 switching channels with a single master switch!
- Redundant power supply options for mission-critical applications.
- Ideal for deploying in commercial, industrial, and government applications where system availability is crucial.
- **WARRANTY** — 1 Year



Hot-swappable interface cards plug right into the rear of the chassis. There are no wires to disconnect and there's no need to power down to change configurations.

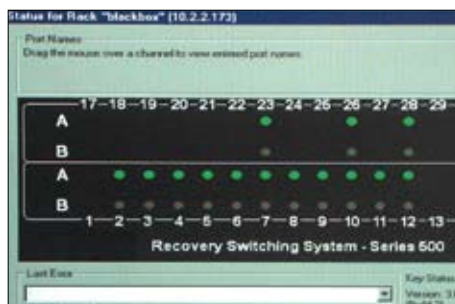
TECH SPECS

Automatic Switching System Chassis:

Relay Specifications — Latching type;
Contact material: Gold-clad silver;
Current capacity: 1 amp;
Initial contact resistance: 50 milliohms
CE Approval — Yes
Interface — Digital: RS-232/V.24, V.35, X.21/X.25, T1/T2;
Analog: RJ-11, RJ-45;
Coax: BNC, twinax
Size — 7"H (4U) x 19"W x 6.5"D (17.8 x 48.3 x 16.5 cm)
Weight — 12 lb. (5.4 kg) fully populated

Switching Interface Cards:

CE Approval — Yes
Connectors — SM501-C: (3) M/34 F;
SM503-C: (3) DB25 F;
SM503-C-FM: (2) DB25 F, (1) DB25 M;
SM504-C: (3) BNC F;
SM505-C: (3) twinax F;
SM507-C: (6) BNC F;
SM508-C: (3) RJ-11 (4-wire);
SM508-C-2: (6) RJ-11;
SM509-C: (3) RJ-45 (8-wire);
SM509-C-2: (6) RJ-45 (8-wire);
SM511-C: (3) DB9 F;
SM512-C: (3) DB15 F;
SM530-C: (3) HD15 F



Using the Configuration Software (SM540A), you can control groups within one or more Automatic Switching System Chassis (SM500A) with point-and-click ease from a Windows® PC.

Item	Code	List Price
------	------	------------

First, order the chassis...
Automatic Switching System Chassis
SM500A

...then order a Control Card with or without remote control for a chassis...
Control Cards for Manual (Local) Control
12-VAC (Requires SM514A-PS or SM514A-PS-E)
SM531-C
-48-VDC SM532-C
Control Cards for Web Browser, SNMP, ASCII, and Manual (Local) Control
12-VAC (Requires SM514A-PS or SM514A-PS-E)
SM533-C
-48-VDC SM534-C

For your 12-VAC Control Card's power source, you'll need an external AC power adapter (order two for redundant power)...

Power Supplies	Code	List Price
110-VAC	SM514A-PS	
220-VAC	SM514A-PS-E	

To provide redundant power to a daisychain of multiple chassis, order...

Dual Redundant Power Supply (115-/230-VAC, Switch-Selectable)	Code	List Price
	SM535A	

(NOTE: A single SM535A provides redundant power for up to eight connected chassis. In this daisychain configuration, it attaches to the master chassis.)

For advanced GUI-based management, order...	Code	List Price
Configuration Software	SM540A	

Item	Code	List Price
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...then order switching interface cards for your chassis.
AB V.35 Conductor (21 Leads) Card
SM501-C
AB RS-232 Conductor (25 Leads) Cards
DB25 Female/DB25 Female
SM503-C
DB25 Female/DB25 Male
SM503-C-FM
AB Coax BNC Card (100 Mbps)
SM504-C
AB Twinax Card
(NOTE: Occupies two chassis slots.)
SM505-C
AB Double Coax Card (100 Mbps)
SM507-C
AB RJ-11 (4-Wire) Card
SM508-C
AB Dual RJ-11 (4-Wire) Card
SM508-C-2
AB RJ-45 (8-Wire) Card
SM509-C
AB Dual RJ-45 (8-Wire) Card
SM509-C-2
AB DB9 Card
SM511-C
AB DB15 Card
SM512-C
SVGA Video Card (HD15)
SM530-C

For empty slots, order...	Code	List Price
Blank Panel for SM500A	SM518	

Fiber Optic AB, ABC, and ABCD Switches

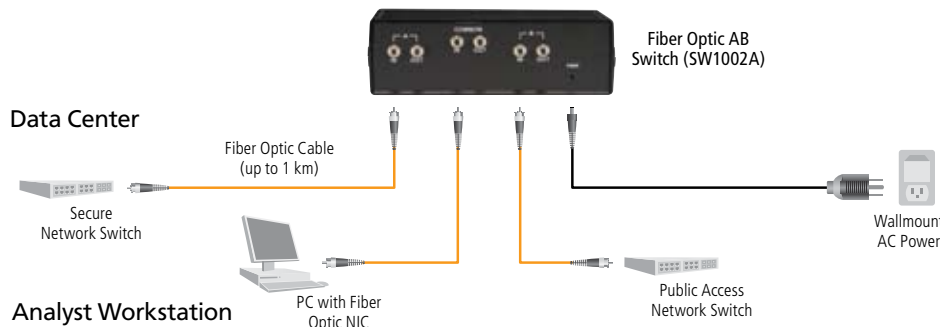
For ultra-secure, critical circuit switching, use these micro-mirror optical devices.

Super-secure switching!

- Ideal for government, healthcare, financial, or other applications where a private, data-sensitive network connects to a publicly accessible network.
- No optical-to-electrical conversion between fiber connections. Instead, the full-duplex switches use internal mirrors to optically move data between ports—technology that's trusted and time tested!
- Air-gap isolation provides a physical break in the circuit connection.
- For reliable switching in mission-critical environments, the micro-mirrors are bonded to precise positioning servos.
- Enable you to connect a single workstation to two or more networks or remote devices.
- Virtual zero power mode. Data passes through the switches even when power is removed.
- Latching switches latch mirror movement mechanically into a selected position and hold it there without the need for continuous electrical power.
- All non-latching versions except for the SW1003A fall back to C-to-A position if power is lost (the SW1003A falls back to the OFF position).
- The SW1003A's OFF position also prevents host-to-remote device communications.
- To route signals, just turn a front-panel knob.
- Operate transparently to signal rates, formats, and wavelengths, and don't require an upgrade when your data protocols or speeds change.
- Work with 62.5-/125-micron multimode.
- Serial remote control and single-mode versions available. For details, contact our Tech Support.
- ♦♦ **WARRANTY** — 1 Year



There's a reason why our switches continue to be the switches of choice for networks everywhere: They perform as promised year after year.



Item	Code	List Price
Fiber Optic AB Switches		
Non-Latching ST®	SW1000A	
Non-Latching with Off Position, Rackmount	ST	SW1003A
Latching	ST	SW1002A
Latching	SC	SW1008A
Fiber Optic ABC Switches		
Non-Latching	ST	SW1007A
Latching	ST	SW1001A
Latching, Rackmount	ST	SW1004A
Fiber Optic ABCD Switches		
Non-Latching	ST	SW1006A
Latching	ST	SW1005A

Fiber Optic AB Switches with Loopback

Run fiber loopback tests on your optically mirrored switching ports!

Secure optical switching!

- Use the same super-secure and reliable micro-mirror technology as the switches above, with all data passed between circuits via optical beams.
- Enable you to test an idle fiber link from a central office to ensure that the circuit is operating correctly.
- Use to switch between two networks or remote devices from a single workstation.
- Latching optical mirror movement maintains the selected position even when there's a power failure.
- Virtual zero power mode. Data passes through even when power is removed.
- Pass fiber wavelengths and formats transparently now and in the future, when speeds and protocols change.
- Compatible with 62.5-micron, duplex, multimode fiber optic cable.
- ♦♦ **WARRANTY** — 1 Year



SW1010A: Front view



SW1010A: Rear view

Use a tried-and-true Fiber Optic AB Switch with Loopback to verify the integrity of your backup fiber optic link—while still connected to your primary fiber link. This is especially useful in failover applications where you want to continuously test the “unused” circuit to ensure that it's available.

In addition to their loopback capabilities, the Fiber Optic AB Switches with Loopback feature dependable switching technology, using micro-mirrors instead of electronics to route data signals from one fiber optic port to the next.

And unlike conventional electronic switches, there are no complex and vulnerable electronic circuits to monitor and protect from intrusion, component failure, or interference.

Item	Code	List Price
Fiber Optic AB Switches with Loopback		
Latching	ST	SW1010A
Latching	SC	SW1009A
FOR OPTIMUM PERFORMANCE, and a 20% savings, order...		
Premium Ceramic, Multimode, 62.5-Micron Fiber Optic Patch Cable, Duplex Riser, PVC, Custom Lengths (For specific lengths, see pp. 130-131.)		
ST-ST	EFN110-STST	
SC-SC	EFN110-SCSC	

NOTE: For single-mode fiber optic switching, call our FREE Tech Support.

CAT6 and Fiber Auto Bypass Switches, 2U

The failover switches you need for redundancy in mission-critical applications!



- Don't risk costly downtime! If a problem occurs on your "normal" network path, they switch traffic automatically to a bypass or failover path to minimize service disruption.
- Each 18-slot rack comes with one AB card group installed as one switching circuit and can be upgraded to hold up to five AB switching circuits.
- Each card group has an independent controller card that provides automatic control of its respective AB switch cards.
- Available for 10-, 100-, or 1000-Mbps (10G Ethernet) CAT6 or multimode fiber optic-based Ethernet environments.
- User-configurable controls for independent auto-bypass and auto-recovery switching functions.
- Can be set up to automatically remove network monitoring devices from the network for maintenance while simultaneously providing basic network connectivity via the bypass path.
- Or switch remotely using an Ethernet or RS-232 serial link to the controller card (a DB9 to RJ-11 adapter and an RJ-11 to RJ-11 crossover cable are included).
- Issue ICMP echo request (PING) packets from an internal Ethernet node, through the normal network path, to any user- specified external Ethernet node.
- Also support manual toggle switching.
- Highly reliable with non-latching telecommunications relays or non-latching optical switching mechanisms.
- ♦♦ **WARRANTY** — 1 Year

CAT6 Auto Bypass Switch (SW1021A) chassis with an extra CAT6 circuit (SW1022A) installed.



TECH SPECS

Controls — (1) momentary toggle switch and (1) 8-position DIP switch on both the switch and controller card; (1) key-lock switch on controller card
CE Approval — Yes
Connectors — All: Controller card: (1) RJ-45, (2) RJ-11; SW1021A–SW1022A: (3) RJ-45 (CAT6); SW1023A–SW1024A: (3) pairs of ST; SW1025A–SW1026A: (3) pairs of SC; SW1021A, SW1023A, SW1025 also have a power card with (2) two-position Molex® M

Indicators — AB switch cards: (2) LEDs: (1) A, (1) B; Controller cards: (2) LEDs: (1) Power, (1) Status; Power cards: (2) LEDs: (1) PS1 Active, (1) PS2 Active (if more than one power supply is connected)
Power — From (1) or (2) external power supplies: Input: 100–240 VAC, 50–60 Hz; Output: 12 VDC, 5 A
Size — SW1021A, SW1023A, SW1025A: 3.5"H (2U) x 19"W x 12.5"D (8.9 x 48.3 x 31.8 cm)

Item	Code	List Price
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First, order your switching platform...

Auto Bypass Switch, 2U, with (1) Path Installed		
CAT6	RJ-45	SW1021A
Fiber Optic	ST*	SW1023A
	SC	SW1025A

- ♦ All include (1) chassis with (1) AB card group, (1) controller card, and (1) power card installed, (1) external power supply, (1) DB9 to RJ-11 adapter, and (1) RJ-11 to RJ-11 crossover cable.

Item	Code	List Price
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...then add up to four extra switching circuits.

Auto Bypass Switch Upgrade Kits		
CAT6	RJ-45	SW1022A
Fiber Optic	ST	SW1024A
	SC	SW1026A

- ♦ All kits include (1) AB card group, (1) controller card, (1) DB9 to RJ-11 adapter, and (1) RJ-11 to RJ-11 crossover cable.

For redundant rack power, add a second...

Auto Bypass Power Supply		
		PS1021

10/100/1000 Auto Bypass Switch, 1U

Give your important Gigabit traffic a failover route.



- This dual-port AB switch automatically switches 10-, 100-, and 1000-Mbps data to a bypass or failover path if the "normal" network path is disrupted.
- User-configurable parameters control independent auto-bypass and auto-recovery functions for automatically switching connection states.
- You can also control switching remotely using SNMP commands over a TCP/IP Ethernet network or via an RS-232 serial console connection.
- Or manually control it via its front-panel momentary contact toggle switch.
- Completely transparent to data formats, rates, and protocols.
- Set up to send ICMP echo request (PING) packets from an internal Ethernet node, through a normal network path, to any external Ethernet node.
- Typical applications include connecting all network traffic through an intrusion prevention system with automatic failover to a bypass path.
- Non-latching telecommunications relays for automatic failover to bypass path during power outages.
- For maximum uninterrupted power, features redundant power supplies.
- Fits in just 1U of cabinet or rack space.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Controls — (1) momentary toggle switch, (1) key-lock switch
CE Approval — Yes
Connectors — Network paths: (6) RJ-45; Ethernet remote control (PING source): (1) RJ-45; Serial: (1) DB9 F (RS-232); Power: (2) IEC 320 sockets for redundant power
Indicators — Power: (2) LEDs: PS1 Active, PS2 Active (showing primary or redundant power); Switch position: (2) LEDs: All ports A to C connection state or all ports B to C connection state
Power — Input: Dual 100–240-VAC, 50–60-Hz internal power supplies with (2) power cords
Size — 1.75"H (1U) x 19"W x 10.5"D (4.5 x 48.3 x 26.7 cm)
Weight — 5 lb. (2.3 kg)

Item	Code	List Price
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10/100/1000 Auto Bypass Switch, 1U		
		SW1020A

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

GigaTrue® 350 CAT6 550-MHz Patch Cable (UTP), Molded Boots, Stranded, Straight-Pinned, 4-Pair, PVC, Gray, 10-ft. (3-m) (For other boots, colors, lengths, and pinings, see pp. 88–89.)
EVNSL670-0010

Code-Operated Switch-II (COS-II)

Control up to eight serial devices from a single PC.



SW590A-R2: top: rear view;
bottom: front view

- Individual port selection for word size, flow control, speed, parity, and DCE/DTE operation.
- Features an 8 KB buffer for speed and word-format conversion; buffer downshifts data for slower devices.
- Four ports become eight with the optional expansion board.
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price
Code-Operated Switch-II (COS-II)	SW590A-R2	
To double the number of ports, order... 4-Port Expansion Board for COS-II	SW591C	
To rackmount your COS-II, order... Rackmount Brackets	TL486	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

Extended-Distance Data Cable, 25-Conductor, 10-ft. (3-m)
(For other lengths or conductors, see p. 167. Specify gender when ordering.)
EDN25T-0035

Serial Code-Operated Switch (SCOS-2)

Use software commands to control two serial devices.



- Switch ports via a special "trigger" character or by flipping a toggle switch.
- Use its internal DIP switches to select word format, speed, DTE/DCE, and trigger character.
- Async, full-duplex operation.
- Three modes of operation, selectable from the front panel.
- Front-panel LEDs indicate the channel selected and the switch time mode.
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price
Serial Code-Operated Switch (SCOS-2)	SW281A-R2	

Code-Operated Matrix Switch

Centralize your switching with this flexible, any-port-to-any-port switch.



- Shows the current status of all ports to any PC user running terminal emulation.
- Port-independent selection of speed, flow control, and data format.
- No "master" port—any port can talk to any other.
- Rackmountable with optional brackets.
- Switch is controlled by arming characters.
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price
Code-Operated Matrix Switch	SW540A-R3	
To add four ports to your switch, order... 4-Port Expansion Board	SW541-C	
To mount your switch in a 19" rack, order... Rackmount Brackets	TL486	

NOTE: If you need 115-kbps throughput and full flow control, see our Remote Console Port Managers at blackbox.com or call our FREE Tech Support.

Code-Operated Switches (RS-232 & RS-422)

Control up to eight serial devices—RS-232 or RS-422—from your PC.



SW853A-R2: top: front view;
bottom: rear view

- Switch your serial devices with codes.
- Support speeds up to 76.8 kbps!
- DTE/DCE selectable—need no crossover cables.
- Hardware-handshake lead in each direction for extra control.
- No unintended triggering—no matter what data you're sending.
- Your connection is safe—once a connection is made, other ports are locked out.
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price
Code-Operated Switches RS-232 4-Port	SW853A-R2	
8-Port SW854A-R2		
4-Port SW421A-R2		RS-422

2 x 1 SCSI Switches (LVD/SE and Differential)

Switch electronically between two SCSI buses.

- Support connections to as many as 15 SCSI peripherals.
- Choose between Low-Voltage Differential (LVD)/Single-Ended (SE) SCSI and Differential SCSI models.
- SW488A supports Ultra320, Ultra160, and Ultra2; SW489A supports Ultra and Fast SCSI.
- Front-panel push button switch enables you to cycle between and choose the right SCSI bus.
- Internal termination is automatic.
- Install anywhere on the bus—units don't require SCSI device ID.

- Remote management is easy with GUI interface and either 10BASE-T or RS-232 serial port.
- ♦♦ **WARRANTY** — 1 Year

What's included

- 2 x 1 SCSI Switch
- SCSI switch control CD-ROM (for Windows®)
- 10-ft. (3-m) DB9 male/DB9 female RS-232 cable
- Universal power supply
- 6-ft. (1.8-m) power cord
- User's manual



SW488A

Item	Code	List Price
2 x 1 SCSI Switches		
Low-Voltage Differential/Single-Ended	SW488A	
Differential	SW489A	

Local/Remote Electronic Switches

The simple, inexpensive alternative to a code-operated switch.



SW980A

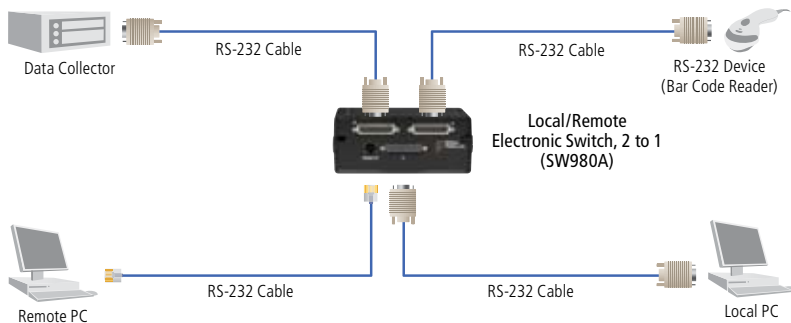
- Electronic switching for all your needs—and it's safe for your LaserJet® printer!
- Work locally and remotely with a wide range of input voltages.
- Choose your remote access port: RS-232, RS-422, RS-485, RS-530, TTL, or dry contacts.
- Switch them remotely through EIA or TTL control signals, or switch locally by turning the knob.

- Ideal for use in process control and automated environments.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
Local/Remote Electronic Switches		
ABC (2 to 1)	SW980A	
ABCDE (4 to 1)	SW982A	
X (2 to 2)	SW981A	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

- RS-232 Cable, 25-Conductor, 10-ft. (3.0-m) (For other lengths or conductors, see p. 166. Specify gender when ordering.) ECM25T-0010
- Parallel Printer Cable, 10-ft. (3.0-m), Male/Male (For other lengths or genders, see p. 163.) EYN600-0010-MM
- RJ-45 (8-Wire) Modular Cable, Straight-Pinned, 7-ft. (2.1-m) (For other lengths or pinnings, see p. 111.) EL08MS-07



blackbox.com

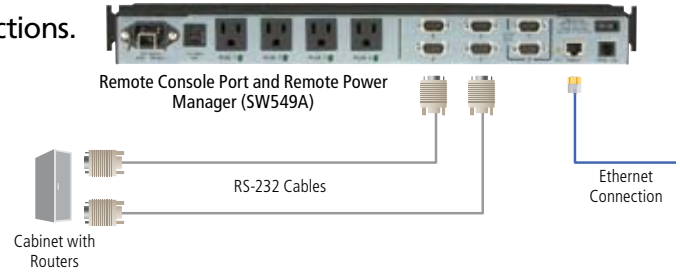
This may be the Big Book, but blackbox.com is even **BIGGER!**

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 - **Savings.** Find weekly specials and savings on featured and warehouse clearance products.

If you still can't find what you need, just ask the experts at our **FREE Tech Support hotline!**

Remote Console Port and Remote Power Manager

Remotely manage six RS-232 ports and four power connections.



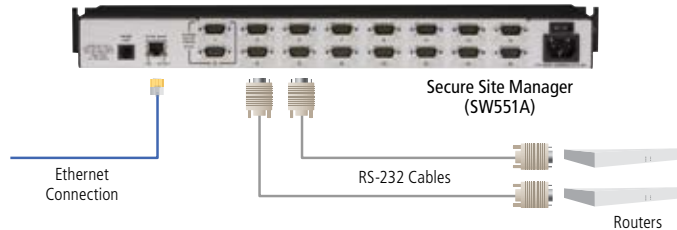
- Dial in from a remote location to control up to six RS-232 ports.
- Use to remotely control power to four devices.
- Offers easy local and remote any-port-to-any-port matrix switching.
- Get in-band and out-of-band server management.
- Change configurations, connect users, and more.
- Reboot servers, routers, firewalls, and other remote equipment.
- Compatible with modem speeds from 300 bps to 115.2 kbps.
- Includes a built-in 33.6-kbps modem.

- Includes dialback security and invalid access lockout.
- Use Web browser access for easy setup and operation.
- A 32 KB buffer on each port captures incoming data.
- ♦♦ **WARRANTY** — 5 Years

Item	Code	List Price
Remote Console Port and Remote Power Manager 100–120 VAC	SW549A	

Secure Site Managers

Establish secure access to your network equipment’s serial console ports from anywhere!



- Provide in-band and out-of-band access to 8 or 16 DB9 RS-232 serial console ports and maintenance ports on UNIX® servers, routers, and any other network equipment that has a serial console port.
- Include a built-in V.92 modem and a 10BASE-T/100BASE-TX port.
- Access serial ports over the network via SSH connections and simple menu-driven commands, or through a discrete TCP port connection to one of the unit’s serial outputs.
- Features SSHv2 encryption, RADIUS authentication, and HTTPS/SSL.
- Full matrix capability enables you to connect any two ports, even if they have different communications settings.

- Send buffered console messages via SYSLOG. Each port has 256 KB of buffering.
- Alert via SNMP when incoming console messages are captured.
- Two levels of security: one for the supervisor and one for the user.
- ♦♦ **WARRANTY** — 5 Years

Item	Code	List Price
Secure Site Managers 8-Port	SW551A	
16-Port	SW552A	

Power Mate

Control power to remote equipment via an existing phone line.

- Uses your existing phone line to control a single AC outlet at a remote location.
- Enables you to reboot, pulse power, or turn power on or off.
- Can share a line with a phone, fax, or modem.
- Dual-security mode.
- Control it remotely by entering tone digits from an ordinary dial tone (DTMF) phone.
- Features a manual locking switch for local control.
- ♦♦ **WARRANTY** — 1 Year



Item	Code	List Price
Power Mate ♦ Includes (1) built-in 6-ft. 18 AWG line cord.	SWI070A	

Network Power Switch Jr.

Use a Web browser to control power to remote devices.

- Reboots any device remotely—even those not connected to your network.
- Provides easy access through any Web browser across any IP network. Use your corporate intranet or the Internet.
- Switches power on or off, or performs a timed reboot.
- Built-in Ethernet hub.
- ♦♦ **WARRANTY** — 1 Year



Item	Code	List Price
Network Power Switch Jr. ♦ Includes (1) 7-ft. power cord for North America, (1) 6-ft. CAT5 cable, and (1) IEC to NEMA 5-15 cord.	SWI080A-R3	

RS-232 Fallback Switch (FBS)

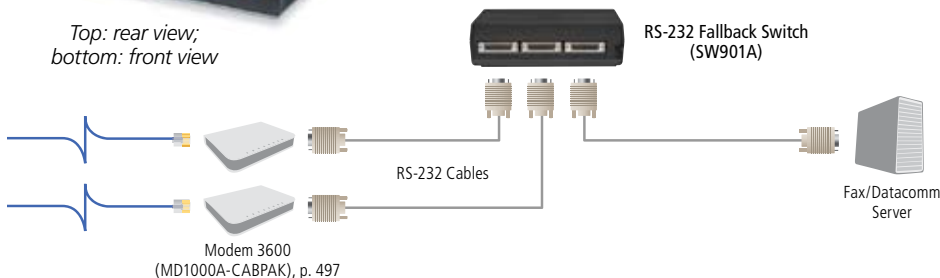
This switch provides automatic RS-232 backup.



Top: rear view;
bottom: front view

- The instant it detects a lapse in the primary line, it switches your system to a backup line.
- When signal is restored, the FBS switches you back to the primary line.
- Maximum distance is 50 feet (15.2 m) to any attached RS-232 device using standard cables.
- Use it as a line sharer with automatic flow control.

- Supports data rates as high as your RS-232 line can carry.
- Has three DB25 ports. Master port is DCE; primary and alternate ports are DTE.
- Front-panel LEDs show you system status at a glance.
- Keeps leased-line failures from costing you both time and money.
- Also ideal for disaster recovery.
- ♦♦ **WARRANTY** — 1 Year



NOTE: All 12 required leads of the RS-232 interface for async or sync are switched.

Item	Code	List Price
RS-232 Fallback Switch (FBS)	SW901A	

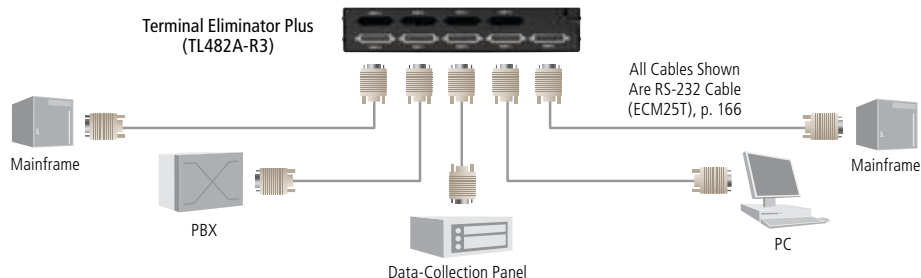
Terminal Eliminator Plus

Control up to eight devices from one monitor station.

- Ends the need for separate monitor consoles/keyboards for hardware that logs data from a serial port.
- One monitor/keyboard station controls and views activity on four CPUs.
- To boost the number of slave devices to eight, add the 4-Port Expansion Board.
- Cascade units for up to 4096 slave ports!
- Features 32 KB of RAM. Optional memory expansion doubles buffer capacity to 64 KB.
- Works as an asynchronous RS-232 DTE or DTE device with 4-wire full-duplex operation.
- ♦♦ **WARRANTY** — 1 Year



The Terminal Eliminator Plus supports four input devices and one output device.



Item	Code	List Price
Terminal Eliminator Plus	TL482A-R3	
4-Port Expansion Board	TL483-C	
32 KB Memory Expansion	TL484	
To rackmount the unit, order...		
Rackmount Bracket	TL486	

Intelligent Printer Switches (Parallel)

Fast, easy print sharing for up to six PCs with Windows.

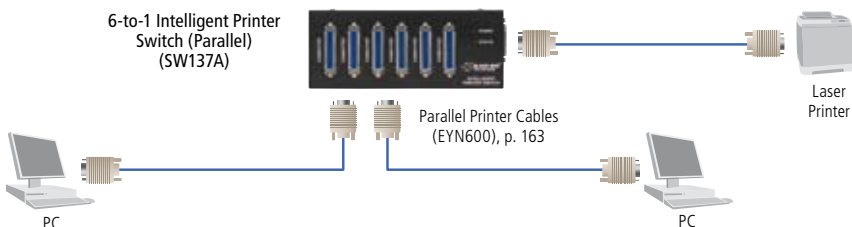
- Enable you to easily share a printer between two, four, or six computers.
- Improve the printing performance of PCs and printers with their unique Interface Matching Technology.
- Ideal for Windows® and graphics-intensive applications.
- Work on a first-come, first-printed basis.
- High performance with speeds up to 75,000 characters per second.
- Work with all printers and plotters that have standard Centronics® parallel interfaces. Has a DB25 output.
- ♦♦ **WARRANTY** — 1 Year



SW136A

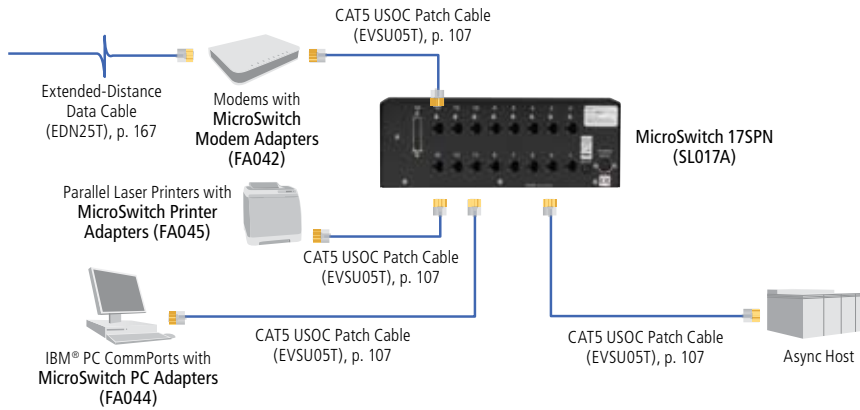
Item	Code	List Price
Intelligent Printer Switches (Parallel)		
2-to-1	SW135A	
4-to-1	SW136A	
6-to-1	SW137A	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...
Parallel Printer Cable, 10-ft. (3.0-m), Male/Male (For other lengths or genders, see p. 163.) EYN600-0010-MM



MicroSwitches

Maximum versatility, minimum cost.



SL017A: top: front view;
bottom: rear view

- The economical choice for office automation, CAD/CAM, machine control, data collection, local area networking, telecommunications, and retail POS.
- Four models available with a choice of serial or parallel ports, or combinations of both.
- Include 64 KB memory buffer, which can be expanded up to 4 MB using optional boards.
- Easy configuration menu for simple setup.
- Can handle port contention for a host or a modem without the need for a PC. Share hosts just by connecting terminals.
- A simple status command enables you to see queued jobs by source, destination, status, priority, and length.
- Queue up to 64 jobs at once. Time-outs keep one PC or terminal from monopolizing a port.
- Order adapters for connecting a modem, AT® device, PC, or printer to your MicroSwitch.
- Rackmountable with optional bracket.
- ♦♦ **WARRANTY** — 1 Year

Item	Ports	Connectors	Code	List Price
MicroSwitches				
3SP	(3) Serial or Parallel	(3) DB25 Female, (3) RJ-45	SL001A	
5S	(5) Serial	(5) DB25 Female	SL003A	
9SP	(9) Serial or Parallel	(9) DB25 Female, (9) RJ-45	SL015A	
17SPN	(16) Serial, (1) Parallel	(16) RJ-45, (1) DB25 Female	SL017A	
To expand your memory, order...				
Memory Expansion Boards		256 KB	SL012-C	
		512 KB	SL013-C	
		1 MB	SL014-C	
Order the adapter you need for your network application...				
MicroSwitch Adapters		Modem (DB25 Male/RJ-45)	FA042	
		AT® (DB9 Female/RJ-45)	FA043	
		PC (DB25 Female/RJ-45)	FA044	
		Printer (DB25 Male/RJ-45)	FA045	

To expand your memory, order...

Order the adapter you need for your network application...

To rackmount your MicroSwitch, order...

MicroSwitch Rackmount Bracket RM014A

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

For parallel connections:

Extended-Distance Data Cable, 25-Conductor, 50-ft. (15.2-m)
(For other lengths, see p. 167. Specify gender when ordering.) EDN25T-0050

For serial connections:

CAT5 100-MHz Patch Cable, USOC, Straight-Pinned, 10-ft. (3.0-m)
(For other lengths or pinings, see p. 107.) EVSU05T-0010

Compact Bidirectional AutoSwitches

Parallel print sharing for small offices.



SW179A



SW177A

Reversible

- Connect two computers to an IEEE 1284 Bi-Tronics printer or other parallel device.
- Or use two parallel devices with one computer.
- Works with HP® DeskJet® printers without disabling bidirectional communications.

Dual Bus

- Connect two or four computers to two IEEE 1284 Bi-Tronics printers or other parallel devices.
- Dual-bus architecture features two independent channels for simultaneous access to parallel devices.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
Compact Bidirectional AutoSwitches		
Reversible 1-to-2, 2-to-1	SW177A	
Dual Bus 2-to-2	SW178A	
4-to-2	SW179A	

To send data farther than 15 feet, order...

Optional Power Supply PS121-R2

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

Enhanced Parallel Port Cable, 6-ft. (1.8-m), DB25 Male/Male (For other lengths or connectors, see p. 164.) EQN200-0006

Give us your idea. We'll design it and build it to spec!

- Have an idea for a customizing one of our legacy switches or creating something new altogether? Call us! In one year, it's not uncommon for us to build 150,000 custom products—including thousands of custom switches!
- We can even change equipment color to match your office.
- Many custom products become stocked products because of tremendous demand!
- Even custom products are covered by our unbeatable Double Diamond™ Warranty. And our nonpowered manual switches are guaranteed for life!
- Custom products are also backed by our outstanding FREE Tech Support. Our experts answer your calls 24 hours a day, 7 days a week.



There are no limits with switches customized for *your* application!

Sure, we provide almost 700 switching solutions every day, from simple ABC switches to complex, multiuser, multiplatform ServSwitch™ KVM switches. But what if you're looking for unique features that nobody has on their shelves?

We're still your source! We've been solving customers' switching problems for more than 30 years. Our Custom Services team puts our Tech Support experts on the trail of your custom solution. They'll work with you to determine the extra capabilities your application requires. After the consultation, our techs will find or build exactly what you need. We can even provide customized chassis colors and custom labeling!

There are no limits to what we can do for your business!

Custom Switches Request Form

Download the order form from our Web site or call us!

To get your custom switches order form, just go to blackbox.com/go/custom at our Web site. After you get your form, fill in the appropriate information and fax it to us. You'll hear from a Black Box representative within 24 hours.

Interested in more than switches? The blackbox.com Custom Product Forms section has forms for customizing other types of products, too. Or just call Tech Support for service.

Switches
built to
your specs!

KVM ServSwitch

Stretch your budget
with KVM switches
that save you money.





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For New Products,
turn to pages 26–73.

Buyer's Guide | Desktop KVM

	Product Code	No. of Users	No. of CPUs	Console/User		CPU Platform				Audio	Switching Method			Page		
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MICRO	ServSwitch Micro™	KV401A	1	2	•	—	•	—	•	—	—	—	•	•	352	
		KV402A	1	2	•	—	—	—	•	—	—	—	•	•	352	
		KV403A	1	2	•	•	•	•	•	—	—	—	•	•	352	
		KV407A	1	2	—	•	—	•	•	—	—	—	•	•	352	
	ServSwitch Micro with Audio	KV404A	1	2	•	—	•	—	•	—	•	—	•	•	352	
		KV405A	1	2	•	—	•	—	•	—	•	—	•	•	352	
		KV406A	1	2	•	—	•	•	•	—	•	—	•	•	352	
		KV408A	1	2	—	•	—	•	•	—	•	—	•	•	352	
DT	ServSwitch™ DT Basic	KV7002A	1	2	•	—	•	—	•	—	—	•	•	•	blackbox.com	
		KV7003A	1	4	•	—	•	—	•	—	—	•	•	•	blackbox.com	
	ServSwitch DT Basic with Audio	KV7004A	1	2	—	•	—	•	•	—	—	•	•	•	353	
		KV7005A	1	4	—	•	—	•	•	—	—	•	•	•	353	
	ServSwitch DT Pro	KV7010A	1	2	—	•	—	•	•	—	—	•	•	•	blackbox.com	
	ServSwitch DT Series DVI	KV9502A	1	2	•	—	•	—	—	•	—	•	•	•	354	
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ServSwitch USB Plus	KV822A	1	2	•	•	—	•	•	—	—	•	•	•	355		
	KV824A	1	4	•	•	—	•	•	—	—	•	•	•	355		
WIZARD	Product Code	No. of Users	No. of CPUs	Console/User		User Console Video			CPU Platform			Switching Method		Page		
	PS/2	USB	Single	Dual	Quad	Keyboard/Mouse PS/2	USB	Video VGA	DVI	Hotkey Command	Autoscan					
	ServSwitch Wizard DVI	KV1002A-R2	1	2	•	—	•	—	—	•	—	—	•	•	356	
		KV1004A-R2	1	4	•	—	•	—	—	•	—	—	•	•	356	
		KV1022A-R2	1	2	•	—	—	•	—	•	—	—	•	•	356	
		KV1024A-R2	1	4	•	—	—	•	—	•	—	—	•	•	356	
		KV1042A-R2	1	2	•	—	—	—	•	•	—	—	•	•	356	
		KV1044A-R2	1	4	•	—	—	—	•	•	—	—	•	•	356	
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		SW617A	1	4	•	—	—	—	—	•	•	•	—	•	•	356
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 - Savings. Find weekly specials and savings on featured ServSwitch KVM products.

If you still can't find what you need, just ask the experts at our **FREE Tech Support** hotline!

Buyer's Guide | Server Room/Enterprise KVM

	Product Code	No. of Users	No. of Servers	Console			Server Interfaces				CATx Cable & SAM	On-Screen	SYSLOG	Page(s)	
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SINGLE-USER	ServSwitch Uno™	KV6016FA-R2	1	16	•	—	—	•	•	•	—	•	—	357	
	ServSwitch Uno USB	KV6508SA	1	8	•	•	—	•	•	•	—	•	—	357	
	ServSwitch EC for PS/2 Servers and Consoles	KV9004A	1	4	—	—	—	•	—	—	—	•	—	358–359	
		KV9008A	1	8	—	—	—	•	—	—	—	•	—	358–359	
		KV9016A	1	16	•	—	—	•	—	—	—	•	—	358–359	
	ServSwitch EC for PS/2 and USB Servers and PS/2 Consoles	KV9104A	1	4	•	—	—	•	•	•	—	•	—	358–359	
		KV9108A	1	8	•	—	—	•	•	•	—	•	—	358–359	
		KV9116A	1	16	•	—	—	•	•	•	—	•	—	358–359	
	ServSwitch EC for PS/2 and USB Servers and PS/2 or USB Consoles	KV9204A	1	4	•	•	—	•	•	•	—	•	—	358–359	
		KV9208A	1	8	•	•	—	•	•	•	—	•	—	358–359	
		KV9216A	1	16	•	•	—	•	•	•	—	•	—	358–359	
	ServSwitch EC with Built-In IP for PS/2 and PS/2 Consoles	KV9304A-R2	1	4	•	•	—	•	•	•	•	—	•	•	359
		KV9308A-R2	1	8	•	•	—	•	•	•	•	—	•	•	359
		KV9316A-R2	1	16	•	•	—	•	•	•	•	—	•	•	359
	ServSwitch EC with Built-In IP for USB and USB Consoles	KV9404A	1	4	—	—	—	•	•	•	•	—	•	•	359
		KV9408A	1	8	—	—	—	•	•	•	•	—	•	•	359
		KV9416A	1	16	—	—	—	•	•	•	•	—	•	•	359
	ServSwitch	SW721A-R5	1	2	•	•	—	•	•	—	—	—	•	—	360
		KV3104MA-R5	1	4	•	•	—	•	•	—	—	—	•	—	360
		SW722A-R5	1	4	•	•	—	•	•	—	—	—	•	—	360
		KV3108SA-R5	1	8	•	•	—	•	•	—	—	—	•	—	360
		SW723A-R5	1	8	•	•	—	•	•	—	—	—	•	—	360
		SW724A-R5	1	12	•	•	—	•	•	—	—	—	•	—	360
		SW725A-R5	1	16	•	•	—	•	•	—	—	—	•	—	360
	ServSwitch Ultra™	KV5002MA-R2	1	2	•	•	•	•	•	—	—	—	•	—	360
		KV5004MA-R2	1	4	•	•	•	•	•	—	—	—	•	—	360
		KV5004SA-R2	1	4	•	•	•	•	•	—	—	—	•	—	360
		KV5008SA-R2	1	8	•	•	•	•	•	—	—	—	•	—	360
		KV5008FA-R2	1	8	•	•	•	•	•	—	—	—	•	—	360
		KV5012FA-R2	1	12	•	•	•	•	•	—	—	—	•	—	360
		KV5016FA-R2	1	16	•	•	•	•	•	—	—	—	•	—	360
	ServSwitch Panther™	KV1108A	1	8	•	•	—	•	•	—	—	—	•	—	361
ServSelect™ III	KV1116A	1	16	•	•	—	•	•	—	—	—	•	—	361	
	KV21008A-R2	1	8	•	•	•	•	•	—	—	—	•	•	361	

Buyer's Guide | Server Room/Enterprise KVM

	Product Code	No. of Users	No. of Servers	Console			Server Interfaces Supported				CATx Cable & SAM	On-Screen	IP Connect Method			Page(s)
				PS/2®	USB	Sun®	PS/2	USB	Sun	Serial			Virtual Network	Browser	Unit Software	
ServSwitch CX™	KV0416A-R2	4	16	•	—	•	—	•	—	—	—	•	—	—	362–363	
	KV0424A-R2	4	24	•	—	•	—	•	—	—	—	•	—	—	362–363	
ServSwitch CX with IP	KV1416A-R2	1	16	•	•	•	•	•	—	—	—	•	•	•	362–363	
	KV1424A-R2	2	24	•	•	—	•	•	—	—	—	•	•	•	362–363	
ServSelect™ III	KV22008A	2	8	•	—	•	—	•	—	•	—	•	—	—	364	
	KV22016A-R2	2	16	•	—	•	—	•	—	•	—	•	—	—	364	
ServSelect III VM	KV0216A	2	16	•	—	•	•	•	—	•	—	•	—	—	364	
ServSelect IP VM	KV2116A	4	16	•	•	—	•	•	—	•	—	•	•	•	365	
	KV4116A	2	16	•	—	•	—	•	—	•	—	•	•	•	365	
ServSwitch Duo™	KV6104SA-R2	2	4	•	—	•	—	•	—	—	•	•	—	—	366	
	KV6108SA-R2	2	8	—	•	—	•	•	—	—	•	•	—	—	366	
	KV6112FA-R2	2	12	—	•	—	•	•	—	—	•	•	—	—	366	
	KV6116FA-R2	2	16	—	•	—	•	•	—	—	•	•	—	—	366	
ServSwitch Duo USB	KV6608SA	2	8	—	•	—	•	•	—	—	•	•	—	—	366	
	KV6616FA	2	16	•	—	•	—	•	—	—	•	•	—	—	366	
ServSwitch Quadro™	KV6416FA-R2	4	16	•	—	•	—	—	•	—	•	•	—	—	366	
Matrix ServSwitch	SW741A-R3	2	4	•	—	—	•	•	—	—	•	•	—	—	367	
	SW742A-R3	2	8	•	—	—	•	•	—	—	•	•	—	—	367	
	SW743A-R3	4	16	—	•	—	•	•	—	—	•	•	—	—	367	
	SW764A-R3	4	4	—	•	—	•	•	—	—	•	•	—	—	367	
	SW765A-R3	4	8	•	•	—	•	•	—	—	•	•	—	—	367	
	SW766A-R3	2	16	•	•	—	•	•	—	—	•	•	—	—	367	

Buyer's Guide | Server Room/Enterprise KVM

	Product Code	No. of Users	No. of Servers	Console			Server Interfaces Supported				CATx Cable & SAM	On-Screen	IP Connect Method			Page	
				PS/2®	USB	Sun®	PS/2	USB	Sun	Serial			Virtual Network	Browser	Unit Software		
MULTI-USER	ServSwitch CX™ Multiplatform Matrix ServSwitch	SW761A-R4	2	4	•	•	—	•	•	—	—	•	•	•	—	—	367
		SW762A-R4	2	8	•	•	—	•	•	—	—	•	•	•	—	—	367
		SW763A-R4	4	16	•	•	—	•	•	—	—	•	•	•	—	—	367
		SW767A-R4	4	4	•	•	—	•	•	—	—	•	•	•	—	—	367
		SW768A-R4	4	8	•	•	—	•	•	—	—	•	•	•	—	—	367
		SW769A-R4	4	16	•	•	—	•	•	—	—	•	•	•	—	—	367
	ServSwitch Octet™	KV1703A	4	16	•	•	—	•	•	—	—	•	•	•	—	—	368
		KV1700A	8	42	•	•	—	•	•	—	—	•	•	•	—	—	368
		KV1701A	16	32	•	•	—	•	•	—	—	•	•	•	—	—	368
	ServReach™ KVMoIP System	KV1702A	1	64	•	•	—	•	•	—	—	•	•	•	—	—	368
		KVIP1000A	1	1	•	•	—	•	•	—	—	•	•	•	•	•	369
		KVIP1001A	1	1	•	•	—	•	•	—	—	•	•	•	•	•	369
	ServReach KVMManager	KVIP1016A	1	16	•	•	—	•	•	—	—	•	•	•	•	•	369
		KVMGR-32	—	—	•	•	—	•	•	—	—	•	•	•	•	•	369
		KVMGR-64	—	—	•	•	—	•	•	—	—	•	•	•	•	•	369
	ServSwitch DTX	KVMGR-512	—	—	•	•	—	•	•	—	—	•	•	•	•	•	369
DTX5000		—	—	•	•	—	•	•	—	—	•	•	•	•	•	370	
	DTX5002	—	—	•	•	—	•	•	—	—	•	•	•	•	•	370	

Buyer's Guide | Remote KVM IP Access Gateways

	Product Code	No. of Users	No. of Servers per Switch	Max no. of Servers	User Console		Servers Supported		Audio	Serial	VM Support		IP Connect Method			Page
					PS/2	USB	PS/2	USB			Yes	No	Virtual Computing	Browser	Unit Software	
ServReach™ KVMoIP System, KVMCube KVMGate,	KVIP1001A	1	1	1	•	—	—	•	—	—	•	—	—	—	—	369
	KVIP1000A	1	4	4	•	—	—	•	—	—	•	—	—	—	—	369
	KVIP1016A	1	16	16	•	—	—	•	—	—	•	—	—	—	—	369
ServReach KVM Manager Appliance for																
32 KVM Devices	KVMGR-32	1	2	2	•	—	•	—	•	—	•	—	—	—	—	369
64 KVM Devices	KVMGR-64	1	4	4	•	—	•	—	•	—	•	—	—	—	—	369
512 KVM Devices	KVMGR-512	1	2	2	•	—	—	•	•	—	•	—	—	—	—	369
ServSwitch Wizard IP	ACR2004A	1	4	4	•	—	—	•	•	—	•	—	•	•	—	381
ServSwitch Wizard IP Plus	ACR2005A	1	2	2	•	—	•	—	•	•	—	—	•	•	—	381

Buyer's Guide | KVM Extension over Fiber

	Product Code	Compatibility		Fiber Interface	Resolution (Max.)	Distance (Max.)	Video Type	Audio Support	Page
		PS/2®	USB						
ServSwitch™ Brand Fiber KVM Extender II & II-SM	ACS250A-R2	•	•	Multi-mode SC	1280 x 1024	400 m 10 km	VGA, SVGA, XGA, SXGA	•	396
	ACS251A-R2	•	•	Single-mode SC					
ServSwitch Fiber Optic KVM Extenders	ACS335A	—	—	Multi-mode	1280 x 1024	1 km	VGA, SVGA, XGA, SXGA	—	397
	ACS335A-AS	—	—	—					
ServSwitch DVI/VGA Fiber Extenders	ACS253A-U-MM	—	—	Multi-mode SC	1600 x 1200	400 m	DVI,	•	398
	ACS253A-U-SM	—	—	Single-mode SC	1600 x 1200	10 km	VGA to UXGA	•	398
ServSwitch DVI Fiber Optic KVM extenders	ACS2009A-R2-MM	•	•	Multi-mode SC	1600 x 1200	400 m	Single DVI-D	—	398
	ACS2009A-R2-SM	•	•	Single-mode SC	1600 x 1200	10 km	Single DVI-D	—	398
	ACS4001A-R2-MM	—	•	Multi-mode SC	1600 x 1200	400 m	Single DVI-D	—	398
	ACS4001A-R2-SM	—	•	Single-mode SC	1600 x 1200	10 km	Single DVI-D	—	398
	ACS2209A-R2-MM	•	—	Multi-mode SC	1600 x 1200	400 m	Dual DVI-D	—	398
	ACS2209A-R2-SM	•	—	Single-mode SC	1600 x 1200	10 km	Dual DVI-D	—	398
	ACS4201A-R2-MM	—	•	Multi-mode SC	1600 x 1200	400 m	Dual DVI-D	—	398
	ACS4201A-R2-SM	—	•	Single-mode SC	1600 x 1200	10 km	Dual DVI-D	—	398

Buyer's Guide | Wireless KVM Extension

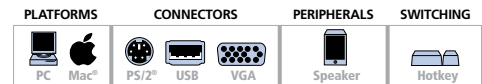
	Product Code	Compatibility	Radio Protocol	Resolution (Max.)	Distance (Max.)	Video Type	Audio Support	Page
ServSwitch Wireless KVM Extender	ACU5200A	PS/2	IEEE 802.11g	1024 x 768	100 Feet	VGA, SVGA, XGA	•	399

Buyer's Guide | KVM Extension over Copper

	Product Code	Compatibility		Access		Spkr./ Mic	Serial	Video Type					Distance (Max.)	Page(s)		
		PS/2®	USB	Single	Dual			Single	Dual	Quad	VGA	DVI				
0-150 Feet	ServSwitch Brand™ CATx KVM Micro Extender Kits	ACU3001A	•	—	•	—	—	—	•	—	—	•	—	150 ft.	382	
		ACU3009A	•	—	—	•	—	—	•	—	—	•	—		382	
		ACU3022A	•	—	•	—	•	•	•	—	—	•	—		382	
	ServSwitch Brand USB Micro Extender Kits	ACU4001A	—	•	•	—	—	—	—	•	—	—	•	—	164 ft.	383
		ACU4201A	—	•	•	—	—	—	—	•	—	—	•	—		383
		ACU4222A	—	•	•	—	•	•	—	•	—	—	•	—		383
ServSwitch Brand Micro (Dual-Video) Extender Kits	ACU3201A	•	—	•	—	—	—	—	•	—	—	•	—	164 ft.	383	
	ACU3222A	•	—	•	—	•	•	—	•	—	—	•	—		383	
	ACU3209A	•	—	—	•	—	—	—	•	—	—	•	—		383	
	ACU3228A	•	—	—	•	•	•	—	•	—	—	•	—		383	
0-300 Feet	Low-Cost ServSwitch Wizard™ Extender Kits	ACU5001A	•	—	•	—	—	—	•	—	—	•	—	328 ft.	384	
		ACU5002A	•	•	•	—	—	—	•	—	—	•	—		384	
	ServSwitch Brand Mini CATx KVM Micro Extenders with Auto Equalization	ACU7017A	•	—	•	—	—	—	—	•	—	—	•	—	300 ft.	384
		ACU7025A	•	—	•	—	—	—	—	•	—	—	•	—		384
	ServSwitch Wizard USB KVM Extender with Audio	ACU5050A	•	—	—	•	—	—	—	•	—	—	•	•	393.7 ft.	385
ServSwitch DVI/VGA CATx Extenders	ACS253A-CT	•	•	•	•	•	•	•	•	•	•	•	•	328 ft.	385	
0-400 Feet	ServSwitch DVI CATx KVM Extenders	ACS2009A-R2	•	—	•	—	—	—	•	—	—	—	•	400 ft.	386	
		ACS4001A-R2	—	•	—	•	—	—	—	•	—	—	•		386	
		ACS2209A-R2	•	—	•	—	—	—	—	•	—	—	•		•	386
		ACS4201A-R2	—	•	—	•	—	—	—	—	•	—	—		•	386
0-650 Feet	ServSwitch Wizard Multimedia KVM Extender w/Built-in Switch	ACU1600A	•	—	—	•	•	—	•	—	—	•	—	650 ft.	387	
	ServSwitch Wizard Extender Kits	ACU5010A	•	—	•	—	—	—	•	—	—	•	—	650 ft.	387	
		ACU5011A	•	—	•	—	—	—	—	•	—	—	•		387	
ACU5013A		•	—	—	•	—	—	—	•	—	—	•	—		387	
0-1000 Feet	ServSwitch Brand CAT5 KVM Extenders	ACU1001A	•	•	•	•	•	•	•	•	•	•	•	1000 ft.	388–389	
		ACU1002A	•	•	•	•	•	•	•	•	•	•	•		388–389	
		ACU1008A	•	•	•	•	•	•	•	•	•	•	•		388–389	
	ServSwitch Brand CAT5 KVM Extenders w/Serial Extension and Stereo Support	ACU1022A	•	—	—	—	•	•	•	•	—	—	•	—	1000 ft.	388–389
		ACU1028A	•	—	—	—	•	•	•	•	—	—	•	—		388–389
	ServSwitch Brand Single-Video CATx Extenders	ACU2001A	•	—	•	—	—	—	—	•	—	—	•	—	1000 ft.	388–389
		ACU2009A	•	—	—	•	—	—	—	•	—	—	•	—		388–389
	ServSwitch Brand Single-Video CATx Extenders with Serial and Audio	ACU2022A	•	—	•	•	•	•	—	—	—	—	•	—	1000 ft.	388–389
		ACU2028A	•	—	—	•	•	•	—	—	—	—	•	—		388–389
	ServSwitch Brand Dual-Video CATx Extenders	ACU2201A-R2	•	—	•	—	—	—	—	•	—	—	•	—	1000 ft.	388–389
		ACU2209A	•	—	—	•	—	—	—	•	—	—	•	—		388–389
	ServSwitch Brand Dual-Video CATx Extenders w/Serial and Audio	ACU2222A-R2	•	—	•	—	•	•	—	—	•	—	•	—	1000 ft.	388–389
		ACU2228A	•	—	—	•	•	•	—	•	—	—	•	—		388–389
	ServSwitch Wizard Extenders Kits with Skew Compensation	ACU5110A	•	—	•	—	—	—	—	•	—	—	•	—	1000 ft.	390
		ACU5114A	•	—	•	—	—	—	—	•	—	—	•	—		390
		ACU5112A	•	—	•	—	•	—	—	•	—	—	•	—		390
		ACU5122A	•	—	—	•	•	•	—	•	—	—	•	—		390
ACU5142A		•	—	—	•	•	•	•	—	—	•	•	—	390		
ACU7001A		•	—	•	—	—	—	—	•	—	—	•	—	390		
ServSwitch Brand Mini CATx KVM Extenders w/Auto Skew Compensation	ACU7009A	•	•	•	—	—	—	—	•	—	—	•	—	1000 ft.	390	
	CATx USB KVM Extenders, Single-Video Channel	ACU6001A	—	•	—	•	—	—	—	•	—	—	•		—	391
		ACU6022A	—	•	—	—	•	—	—	•	•	—	•		—	391
	CATx USB KVM Extenders, Dual-Video Channel	ACU6201A	—	•	—	•	—	—	—	•	—	—	•		—	391
		ACU6222A	—	•	—	•	•	•	—	•	—	—	•		—	391
	ServSwitch Brand CAT5 Extenders for Sun with Built-in Switching	ACU1004A	8-Pin Mini DIN	—	—	•	—	—	—	•	—	—	•		—	1000 ft.
ACU1005A		8-Pin Mini DIN	—	—	•	—	—	—	•	—	—	•	—	392		
ServSwitch CAT5 KVM Switching Extender	ACU1049A	•	—	—	•	—	—	—	•	—	—	•	—	1000 ft.	392	
	Rackmount ServSwitch Brand CAT5 KVM Extender Hubs	ACU1006RA	—	—	—	—	—	—	—	—	—	—	—	1000 ft.	395	
		ACU1006SRA	—	—	—	—	—	—	—	—	—	—	—		395	
ACU1012RA		—	—	—	—	—	—	—	—	—	—	—	395			
Rackmount ServSwitch Brand CAT5 KVM Extender Hubs w/Serial and Bidirectional Stereo Audio	ACU1006VRA	•	—	•	—	•	•	•	•	—	—	•	—	1000 ft.	395	
	ACU1006DVRA	•	—	—	•	•	•	•	—	—	—	•	—		395	
ServSwitch Brand Quad-Video CATx Extenders	ACUR004A	•	—	—	—	—	—	—	—	—	•	•	—	1000 ft.	388–389	
ServSwitch Brand Quad-Video CATx Extenders w/Serial and Audio	ACURA004A	•	—	—	—	•	•	—	—	—	•	•	—	1000 ft.	388–389	

ServSwitch Micro

Control two computers with our low-cost KVM in a cable.



- Access two computers from a single shared monitor, keyboard, and mouse.
- Supports video resolutions up to 1920 x 1440.
- Models available with PS/2 and USB console support.
- Use it to control two computers with PS/2 connectors, two computers with USB connectors, or one computer with PS/2 connectors and one with USB connectors.
- Ultra small size—1.9" H x 2.4" W x 0.8" D (4.8 x 6.1 x 2 cm)—means it's perfect for tight spaces and small offices.
- Powered from the interface. No external power supply is required.
- Two status LED indicators show at a glance on which computer you are working.
- Plug-and-play technology makes it a snap to install and set up.
- Optional high-quality audio support if you need it!
- ♦♦ **WARRANTY** — 2 Years

The ServSwitch Micro™ is smaller than a standard mouse, but it works just like a larger, full-featured ServSwitch™ to enable you to access two computers from a single shared monitor, keyboard, and mouse.

Its small footprint makes it perfect for the tightest KVM stations. In fact, the ServSwitch Micro takes up virtually no space at all. You can use it under the desk and eliminate clutter on your desktop. It's just the type of ServSwitch for small office/home office (SOHO) environments, as well as larger enterprises where you want to provide KVM switching to individual workstation users requiring access to multiple computers.

All connections are self contained in a single cable for hassle-free setup. What's more, the ServSwitch Micro draws its power from the equipment interface, so you reduce space—and power—requirements further.

Plus, the simple yet powerful KVM switch is easy to operate with no software to configure. Simply plug in the device and turn on your computers. Switch with simple hotkey commands at the keyboard. The commands enable you to select either computer, to toggle between them, to resync the mouse, or to initiate and abort an autoscan feature.

Simple to connect CPUs and stations.

It features plug-and-play connections, so installing the switch is as easy as plugging in the KVM peripherals.

All connectors are embedded on a 6-foot (1.8-m) cable that links the computers to a KVM console. The console side of the cable features an HD15 connector and, depending on the model you order, two 6-pin mini DIN or two USB ports for your mouse and keyboard; the other side has connectors for plugging into each computer (two HD15 video connectors and two 6-pin mini DIN or two USB mouse/keyboard connectors).

Get great stereo sound, too.

Advanced video-enhancement technology on all ServSwitch Micro versions provides you with sharp, clear VGA quality up to 1920 x 1400. But the ServSwitch Micro with Audio versions also have two audio plugs for speakers on the console side and two audio jacks for connecting to the computers on the other side.

This way, you can listen to stereo audio from two applications using one set of speakers. They're ideal for multimedia applications requiring frequent switching between computers.

NOTE: The ServSwitch Micro does not support serial mice.

TECH SPECS

Operating Systems Supported — Windows® 98/SE/Me/XP®, Windows 2000®, Windows Vista®, Linux®, USB models will support Mac OS X

Cable Length to Computer — 6 ft. (1.8 m)

DDC Support — DDC, DDC2, and DDC2B

Scan Interval — 3, 8, 15, and 30 seconds

Connectors —

User ports:

KV401A–KV406A:

- (1) HD15 F for connection to shared monitor,
- (2) 6-pin mini DIN F for connection to shared keyboard and mouse;

KV407A–KV408A: (1) HD15 F for connection to shared monitor, (2) USB Type A F for connection to shared keyboard and mouse;

KV404A–KV406A, KV408A also have:

- (1) 3.5-mm F stereo audio connector;

CPU ports:

KV401A, KV404A: (2) HD15 M,

(4) 6-pin mini DIN M;

KV402A, KV405A, KV407A–KV408A:

(2) HD15 M, (2) USB Type A M;

KV403A, KV406A: (2) HD15 M, (1) USB Type A M,

(2) 6-pin mini DIN M;

KV404A–KV406A, KV408A also have:

- (2) 3.5-mm M stereo audio connectors

Indicators — (2) LEDs

Power — From the interface

Size — 1.9" H x 2.4" W x 0.8" D (4.8 x 6.1 x 2 cm)

Item	Code	List Price
ServSwitch Micro		
PS/2 Console		
(2) PS/2 Computers	KV401A	
(2) USB Computers	KV402A	
(1) USB and (1) PS/2 Computer	KV403A	
USB Console		
(2) USB Computers	KV407A	
ServSwitch Micro with Audio		
PS/2 Console		
(2) PS/2 Computers	KV404A	
(2) USB Computers	KV405A	
(1) USB and (1) PS/2 Computer	KV406A	
USB Console		
(2) USB Computers	KV408A	

ServSwitch DT Basic with Audio

A compact KVM switch that's designed for consoles in multimedia environments.

- Clear video resolution up to 2048 x 1536.
- Features built-in speaker and microphone jacks.
- Keyboard and mouse emulation to prevent lockups.
- Easy to set up with no drivers or software to load.
- **◆◆ WARRANTY** — 1 Year

With this ServSwitch™, you can control up to two or four computers from a single HD15 keyboard, mouse, and monitor console—and receive audio from the connected computers, too. Just plug your speakers into the audio jack on the switch's back panel, which also features a jack for plugging in a microphone.

Small, portable, and designed to fit on or under a desk, the ServSwitch DT Basic with Audio is simple to set up. Just order the specially designed 3-in-1 cable (EHN70045-0002) for console connections. This cable incorporates HD15 and 6-pin mini DIN circuitry into a single HD15 connector that plugs into the switch.

To switch between computers, you can use either front-panel buttons or hotkeys. Or use autoscan—it enables you to monitor the activity of the connected computers at regular 10-second intervals, so you don't have to press any keys or buttons.

PLATFORMS	CONNECTORS	CABLE	PERIPHERALS	SWITCHING
PC	PS/2 VGA	Composite	Spkr./Mic	Push Button Hotkey



Left: KV7004A front; right: KV7005A front

Left: KV7004A rear; right: KV7005A rear

TECH SPECS

Operating Systems Supported — Windows® 95/98/Me/XP®, Windows NT®, Windows 2000®, Windows Vista®

Resolution (Maximum) — 2048 x 1536

Connectors — Both: (1) barrel connector for power; Console: Monitor, keyboard, mouse: (1) HD15 F; Audio/microphone: (2) 3.5-mm jacks; CPU: Monitor, keyboard, mouse: (2) or (4) HD15 F; Audio/microphone: (4) or (8) 3.5-mm jacks

Indicators — (2) or (4) Port LEDs

Power — From the interface

Size — KV7004A: 0.3"H x 3.4"W x 1.4"D (0.8 x 8.6 x 3.6 cm); KV7005A: 0.2"H x 4.7"W x 1.8"D (0.5 x 11.9 x 4.6 cm)

Weight — KV7004A: 1 lb. (0.5 kg); KV7005A: 1.6 lb. (0.7 kg)

Item	Code	List Price
ServSwitch DT Basic with Audio		
2-Port	KV7004A	
4-Port	KV7005A	
ServSwitch DT Basic with Audio Kits		
2-Port	KV7004A-K	
4-Port	KV7005A-K	
◆ Include (1) 2-ft. ServSwitch DT Basic with Audio User Cable and (2) or (4) 6-ft. ServSwitch DT Basic with Audio CPU Cables.		
For your CPU connections, order...		
ServSwitch DT Basic CPU Cable		
6-ft. (1.8-m)	EHN70045-0006	
9-ft. (2.7-m)	EHN70045-0009	
15-ft. (4.5-m)	EHN70045-0015	
...then for console-side connections, order...		
ServSwitch DT Basic User Cable		
2-ft. (0.6-m)	EHN70045-0002	
For the KV7004A, you may also need...		
Optional Power Supply		
	PS725-US	

ServSwitch DT Pro II

Simple, efficient, and reliable 2- or 4-desktop KVM switching for PS/2 or USB CPUs.

- Supports 2048 x 1536 maximum resolution and crystal-clear audio.
- Supports three switching layers: KVM, audio, and USB peripherals. Switch layers together or independently.
- Integral LEDs on push buttons show port activity.
- Provides audio connections.
- Enables USB 2.0 peripheral switching.
- Autoscan function enables you to automatically scan and monitor attached computers.
- Works with Windows 98/Me/XP, Windows 2000, Windows NT®, Linux®, NetWare®, and Mac® OS operating systems.
- Power supply works in United States, Europe, UK, and Australia.
- **◆◆ WARRANTY** — 1 Year

Control and switch multiple PS/2 or USB CPUs and their keyboard, video, mouse, audio, and USB peripheral connections with the ServSwitch DT Pro II KVM switch. Link PS/2 KVM to PS/2 CPUs, USB KVM to PS/2 CPUs, PS/2 KVM to USB CPUs, or USB KVM to USB CPUs. Plus, you can connect audio and USB peripherals to the KVM switch.

To switch, simply press the front-panel button that corresponds to the CPU you want to switch or use hotkeys to start Autoscan.

Hotkeys also enable you to select or switch channels, bind or unbind switching, or to start or stop autoscan.

What's included

- ServSwitch DT Pro II
- Power supply (PS72021)
- User's manual
- Stand for holding switch vertically

PLATFORMS	CONNECTORS	CABLE	PERIPHERALS	SWITCHING	FEATURES
PC Mac®	PS/2 USB VGA	Composite	Spkr./Mic USB	Push Button Hotkey	FLASH Upgradable



Top: KV7021A, front view; bottom: KV7021A, rear view

Item	Code	List Price
ServSwitch™ DT Pro II		
2-Port	KV7020A	
4-Port	KV7021A	
For your CPU connections, order...		
ServSwitch CPU Cables for DT Series		
6-ft. (1.8-m)	EHN7002021-0006	
9-ft. (2.7-m)	EHN7002021-0009	
15-ft. (4.6-m)	EHN7002021-0015	

ServSwitch DT Series DVI

ServSwitch convenience *plus* DVI quality!

- Control two or four PS/2 computers with just one PS/2 keyboard, PS/2 mouse, and DVI monitor.
- Supports all standard VESA resolutions from 640 x 480 to 1600 x 1200.
- Brings DVI sharpness and clarity to your KVM switching applications.
- Hotkey functions enable easy switching. Also supports push button port selection.
- Autoscan function for port scanning at 3-, 8-, 15-, or 30-second intervals.
- Operating system independent, making it transparent to all applications and hardware.
- Saves the keyboard states for each channel as you switch between CPUs—a real time-saver when you're managing several CPUs at once.
- True plug-and-play capability makes it a snap to install.
- Supports Microsoft® IntelliMouse®.
- Provides keyboard and mouse emulation for preventing lockups.
- **◆◆ WARRANTY** — 1 Year

PLATFORMS	CONNECTORS	CABLE	SWITCHING
PC	PS/2® DVI-I	Native	Push Button Hotkey



KV9502A: top: front view;
KV9504A: middle: front view;
bottom: rear view

TECH SPECS

Operating Systems Supported — Windows® 98/Me/XP®, Windows NT®, Windows 2000®, Windows Vista®

Resolution (Maximum) — 1600 x 1200 @ 60 Hz

User Controls — KV9502A: (1) port selection button;
KV9504A: (4) port selection buttons

CE Approval — Yes

Connectors — KV9502A: CPU: PS/2 keyboard:
(2) 6-pin mini DIN F;

PS/2 mouse: (2) 6-pin mini DIN F;

Monitor: (2) DVI-I F;

Console: PS/2 keyboard: (1) 6-pin mini DIN F;

PS/2 mouse: (1) 6-pin mini DIN F;

Monitor: (1) DVI-I F;

KV9504A: CPU: PS/2 keyboard: (4) 6-pin mini DIN F;

PS/2 mouse: (4) 6-pin mini DIN F;

Monitor: (4) DVI-I F;

Console: PS/2 keyboard: (1) 6-pin mini DIN F;

PS/2 mouse: (1) 6-pin mini DIN F;

Monitor: (1) DVI-I F

Power — From the included external power supply (PS7090)

Size — KV9502A: 1.6"H x 4.9"W x 2.7"D
(4.1 x 12.4 x 6.9 cm);

KV9504A: 1.75"H (1U) x 8.7"W x 5.1"D
(4.4 x 22.1 x 13 cm)

Item	Code	List Price
ServSwitch DT Series DVI		
2-Port	KV9502A	
4-Port	KV9504A	
ServSwitch DT Series DVI Kits		
2-Port	KV9502A-K	
4-Port	KV9504A-K	
◆ Include (1) ServSwitch DT Series DVI and (2) or (4) 6-ft. ServSwitch DT Server Cables for PS/2.		
For your server connections, order...		
ServSwitch DT Server Cable for PS/2		
6-ft. (1.8-m)	EHN900024P-0006	
10-ft. (3.0-m)	EHN900024P-0010	

ServSwitch DT Series DVI with USB and Audio

DVI clarity for up to four computers from one IBM console.

- Control four USB computers with just one USB keyboard, USB mouse, and DVI monitor, plus audio.
- Supports resolutions up to 1600 x 1200.
- AutoScan function for port scanning at 3-, 8-, 15-, or 30-second intervals.
- Saves the keyboard states for each channel as you switch between CPUs—saving you time when you're managing several CPUs at once.
- Audio can be switched independently or together with KVM.
- Easy to install with true plug-and-play capability.

PLATFORMS	CONNECTORS	CABLE	PERIPHERALS	SWITCHING
PC	USB DVI-I	Native	Spkr./Mic USB	Push Button



- Supports Microsoft IntelliMouse.
- **◆◆ WARRANTY** — 1 Year

TECH SPECS

Operating Systems Supported — Windows 98 SE/Me/XP, Windows 2000, Windows Vista™

Resolution (Maximum) — 1600 x 1200 @ 60 Hz

User Controls — (4) port buttons (labeled 1–4) also used for scan time buttons and autoscan, (1) function button

CE Approval — Yes

Connectors — (1) Power;

Console end: Monitor: (1) DVI-I;

Keyboard and mouse: (4) USB Type A;

Audio/microphone: (2) 3.5-mm jacks;

CPU: Monitor: (4) DVI-I;

Keyboard and mouse: (4) USB Type B;

Audio/microphone: (8) 3.5-mm jacks

Power — From the interface or via a 5-VDC, 2-A power supply (included)

Size — 1.7"H x 8.7"W x 5.1"D (4.4 x 2.2 x 13 cm)

Weight — 2.2 lb. (1 kg)

Item	Code	List Price
ServSwitch DT Series DVI with USB and Audio		
4-Port	KV9604A	
For your server connections, order...		
ServSwitch DT Server Cable for USB		
6-ft. (1.8-m)	EHN900024U-0006	
10-ft. (3.0-m)	EHN900024U-0010	
15-ft. (4.7-m)	EHN900024U-0015	
For your audio connections, order...		
3.5-mm Stereo Audio Cable		
2-ft. (0.6-m)	EJ110-0002	
5-ft. (1.5-m)	EJ110-0005	
10-ft. (3.1-m)	EJ110-0010	
15-ft. (4.7-m)	EJ110-0015	

ServSwitch Wizard

The professional desktop KVM switch with Sun support.



Sun keyboard mapping

When you use the ServSwitch Wizard with a Sun CPU, you can emulate the extra keys on a Sun keyboard by using the Sun keyboard emulator along with the following PS/2® equivalents:

PS/2 Keyboard	Sun Keyboard
Right-[Ctrl] [F1]	Stop
Right-[Ctrl] [F2]	Again
Right-[Ctrl] [F3]	Props
Right-[Ctrl] [F4]	Undo
Right-[Ctrl] [F5]	Front
Right-[Ctrl] [F6]	Copy
Right-[Ctrl] [F7]	Open
Right-[Ctrl] [F8]	Paste
Right-[Ctrl] [F9]	Find
Right-[Ctrl] [F10]	Cut
Right-[Ctrl] [1]	Mute
Right-[Ctrl] [2]	Volume-
Right-[Ctrl] [3]	Volume+
Right-[Ctrl] [4]	Power*
Right-[Ctrl] [H]	Help

* Certain PS/2 keyboards have a power key that will be mapped to perform the same function for a Sun system.



SW652A

Multiplatform capabilities!

- Supports high-end monitors with up to 1600 x 1280 video resolution at 100 Hz.
- Switch between a mix of PCs, including desktop PCs, laptops, Mac, and Sun®.
- Also compatible with laptops that have USB connectors, IBM® ThinkPad® notebooks with "Y" cables, IBM RS/6000®, Compaq® Alpha®, and SGI™.
- Built-in PS/2 and AT® compatibility, plus IntelliMouse® and burst-mode/prompt-mode support.
- Cascadable to support up to 64 CPUs.
- Flash upgradable for firmware changes.
- Password security.
- ♦♦ **WARRANTY** — 2 Years

Item	Code	List Price
ServSwitch Wizard™ (Rear-Access Chassis)		
2-Port	SW651A	
4-Port	SW652A	
For PS/2 to PS/2 connections, order...		
ServSwitch™ PS/2 Computer Cable		
(For details, see p. 416.)		
10-ft. (3.0-m)	EHN408-0010	
20-ft. (6.0-m)	EHN408-0020	
For PS/2 to USB connections, order...		
PS/2 to USB Flash Cable (For details, see p. 416.)		
6-ft. (1.8-m)	EHN428-0006	
For PS/2 to Sun connections, order...		
PS/2 to Sun Flash Cable (For details, see p. 416.)		
6-ft. (1.8-m)	EHN429-0006	
For an external DC power supply, order...		
5-V Power Supply	PS649-R3	

ServSwitch USB • ServSwitch USB Plus

Use a single control station to access up to four USB computers and your USB devices!



KV824A: top: front; bottom: rear

- Control two to four USB-compatible computers from one workstation.
- Switch between CPUs and all attached USB peripherals—printers, scanners, speakers, cameras, and more!
- Fully compliant with the USB standard.
- Compatible with USB-enabled operating systems, including Windows® 98, Mac® OS 8 and higher, and Windows 2000.
- Built-in USB hub functionality.
- Both USB and USB Plus versions are available with either two or four ports.
- ♦♦ **WARRANTY** — 1 Year

NOTE: These switches are not recommended for use with Windows 95.

NOTE: For help with Macintosh® operating systems, call our FREE Tech Support.

Apple keyboard mapping

When you use the ServSwitch USB or ServSwitch USB Plus with an Apple CPU, it's easy to emulate the extra keys on an Apple keyboard by pressing multiple keys simultaneously on a PC keyboard (see the chart below).

PC Keyboard	Apple® Keyboard
Left Control	Left Control
Left Alt	Left Option (alt)
Left Windows Start	Left Command (Apple)
Right Windows Start	Right Command (Apple)
Right Alt or Alt Graph	Right Option (alt)
Right Ctrl	Right Control

Item	Code	List Price
ServSwitch USB		
2-Port	KV812A	
4-Port	KV814A	
ServSwitch USB Plus		
2-Port	KV822A	
4-Port	KV824A	
To connect your ServSwitch USB or ServSwitch USB Plus to your CPU, order...		
ServSwitch USB CPU/Server Cables		
(For details, see p. 417.)		
4-ft. (1.2-m)	EHN810-0004	
8-ft. (2.4-m)	EHN810-0008	
12-ft. (3.6-m)	EHN810-0012	
16-ft. (4.8-m)	EHN810-0016	
To take full advantage of the ServSwitch USB Plus model's capabilities, order...		
Remote Control Module		
	KV6REM	
Control Station Extension Cables		
10-ft. (3.0-m)	EHN409-0010	
30-ft. (9.1-m)	EHN409-0030	
FOR OPTIMUM PERFORMANCE, and a 20% savings, order...		

USB Version 1.1 Cables, Type A–Type B
(For other lengths, see p. 160.)
3-ft. (0.9-m) USB01-0003
10-ft. (3.0-m) USB01-0010

ServSwitch Wizard DVI

KVM switching comes to DVI video.

PLATFORMS	CONNECTORS	CABLE	SWITCHING	FEATURES
PC	PS/2 [®] DVI-D	Native	Push Button Hotkey Mouse	FLASH Upgradable Cascadable



KV1042A-R2: top: front view; bottom: rear view

TECH SPECS

Distance (Maximum) — 6.5 ft. (2 m) via interface power or 16.4 ft. (5 m) via AC power to any attached keyboard, monitor, and mouse; 16.4 ft. (5 m) to any attached CPU or cascaded KVM switch

Speed (Maximum) — 165 Mpixels per second per head

CE Approval — Yes

Interface — Video: Single-link DVI; Keyboard and mouse: IBM PS/2 compatible; Serial: TIA/EIA RS-232 proprietarily pinned on DB15 1200 baud async

Indicators — (1) 7-segment status display

Power — From external power supply (PS650):

Input: 100–240 VAC at 50–60 Hz;

Output: 5 VDC at up to 4 A;

Consumption: 20 watts maximum

Size — 4"H x 10.3"W x 5.9"D (10.2 x 26.2 x 15 cm)

- Models available for two to four CPUs.
- Single-Head models support 1600 x 1200 at up to 60 Hz; Dual-Head models support Composite resolutions as high as 2400 x 1600; and the Quad-Head models support Composite resolutions up to 3200 x 2400.
- Control multiple CPUs that output Digital Visual Interface (DVI) video with one keyboard, one mouse, and one or more monitors.
- Ideal for use with high-end video cards and flat-panel displays.
- Choose a Dual- or Quad-Head model if your video cards and monitor(s) support "compositing" images.
- Cascadable to control more CPUs.
- Compatible with PC, IBM[®], RS/6000[®], Compaq[®] Alpha[®], or SGI[™] computers that have PS/2 style keyboards and mice.
- Supports DDC2B Display Data Channel signaling.
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price	Item	Code	List Price
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ServSwitch™ Wizard DVI			You may also need...		
Single-Head			Single-Video KVM Cables, (1) DVI-D Male/Male,		
2-Port	KV1002A-R2		(2) 6-Pin Mini DIN Male/Male		
4-Port	KV1004A-R2		3-ft. (0.9-m)	EHN450-0003	
Dual-Head			6-ft. (1.8-m)	EHN450-0006	
2-Port	KV1022A-R2		10-ft. (3.0-m)	EHN450-0010	
4-Port	KV1024A-R2		Dual-Video KVM Cables, (2) DVI-D Male/Male,		
Quad-Head			(2) 6-Pin Mini DIN Male/Male		
2-Port	KV1042A-R2		3-ft. (0.9-m)	EHN460-0003	
4-Port	KV1044A-R2		6-ft. (1.8-m)	EHN460-0006	
			10-ft. (3.0-m)	EHN460-0010	

To add an optional power supply, order...

Single-Head Power Supply	PS649-R3		Quad-Video KVM Cables, (4) DVI-D Male/Male,		
Dual- and Quad-Head Power Supply	PS650		(2) 6-Pin Mini DIN Male/Male		
			6-ft. (1.8-m)	EHN470-0006	
			10-ft. (3.0-m)	EHN470-0010	

Multihead ServSwitch

Here's the ServSwitch for CPUs with multiple video ports.

PLATFORMS	CONNECTORS	CABLE	SWITCHING	FEATURES
PC Sun [®] Mac [®]	PS/2 [®] VGA	Native	Push Button Hotkey Mouse	FLASH Upgradable Cascadable

- Supports resolutions up to 1920 x 1440!
- Dual-Video units support two monitors; Quad-Video units support four monitors.
- Share multiple monitors among multiple CPUs with a single keyboard and mouse.
- Access two or four IBM PC/AT or PS/2 type CPUs with two or four video outputs, plus Sun and Mac with flash cables.
- Ideal for use in banks, flight simulators, police control centers, and high-end publishing.
- Supports Windows[®] 3.x/95/98, Windows XP[®], Windows NT[®], Windows 2000, UNIX[®], Linux[®], NetWare[®], OS/2[®], Windows Vista[®], and more.
- DDC signaling for improved communications between CPUs and high-end monitors.
- **◆◆ WARRANTY** — 2 Years



SW616A: top: front; bottom: rear

TECH SPECS

Connectors — CPU: Video: (2) or (4) HD15 F per CPU;

Mouse: (1) 6-pin mini DIN F per CPU;

Keyboard: (1) 6-pin mini DIN F per CPU;

User: Video: (2) or (4) HD15 F;

Mouse: (1) 6-pin mini DIN F;

Keyboard: (1) 6-pin mini DIN F;

Options: (1) DB15 F;

Power: (1) barrel jack for optional DC power;

Remote controller/serial port: (1) DB15 F

Indicators — (7) LEDs

CE Approval — Yes

Power — From the interface; optional 5-VDC,

300-mA power supply available

Size — 4.1"H x 10.3"W x 6"D (10.4 x 26.2 x 15.2 cm)

Weight — 5.5 lb. (2.5 kg)

What's included

- Multihead ServSwitch
- User's manual

Item	Code	List Price
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Multihead ServSwitch		
2-Port (2 CPUs)		
Dual-Video	SW614A	
Quad-Video	SW616A	
4-Port (4 CPUs)		
Dual-Video	SW617A	
Quad-Video	SW619A	

To connect the ServSwitch to your CPU's KVM connections, order...

CPU Cables (For other lengths, see p. 416.)		
10-ft. (3.0-m)	EHN408-0010	
30-ft. (9.1-m)	EHN408-0030	

Cables for other connections from Multihead ServSwitch, page 416.



ServSwitch Uno ServSwitch Uno USB

Control 8 or 16 PC, Mac, or Sun CPUs from a USB or PS/2 workstation.



KV6016FA-R2



KV6508SA

- Enable you to access and control 8 or 16 CPUs or servers with a single keyboard, monitor, and mouse.
- Built-in DDC support with resolutions up to 1920 x 1440.
- Support connections to wide range of IBM® compatible computers. With the appropriate flash cable (page 416), also connect to Sun or Macintosh® computers.
- ServSwitch Uno™ supports PS/2 and PC/AT® keyboards and mice, including a three-button mouse, IntelliMouse®, or other common wheel mice.
- ServSwitch Uno USB supports a USB keyboard and mouse workstation.
- Expandable. Cascade multiple units to support more CPUs.
- On-screen menus provide easy switching. Or switch from the front panel, with keyboard hotkeys, or from a mouse.
- Password security.
- Flash upgradable via the serial port.
- Compatible with our ServSwitch Duo™ and ServSwitch Quadro™ (page 366).
- ♦♦ **WARRANTY** — 1 Year

The ServSwitch Uno offers exceptional server management capabilities in a single-user KVM switch. It's perfect for the IT professional who wants flexibility but doesn't require multiuser or remote access.

Access and control up to 8 or 16 CPUs or servers, including PC, Mac, and Sun models (with the appropriate flash cables), with a single local keyboard, monitor, and mouse.

For accessing up to 16 CPUs or servers from a PS/2 workstation, order the ServSwitch Uno. It supports PC keyboard modes 1, 2, and 3, making it compatible with all PC/AT and PS/2 style keyboards. The 8-port ServSwitch Uno USB, however, interfaces with a USB keyboard and mice.

Cascade multiple switches to control 150 servers (with the Uno USB) or as many as 300 servers (with the standard Uno model). All Uno models work with the ServSwitch Duo and the ServSwitch Quadro (for details on both, see page 366). The autoscan feature makes monitoring CPUs or servers easy.

Compatibility is no problem—the ServSwitch Uno plays well with others. Both versions support a wide range of PC-compatible hardware and software platforms. To connect workstations to your switch, use the cables that came with your keyboard, monitor, and mouse. For more cables, see page 416, or call our FREE Tech Support.

TECH SPECS

Controls — On-screen menus;

Keyboard commands;
Mouse-click functions;
Serial switching: (1) DIP switch for firmware upgrade;
Push buttons: (1) for CPU selection, (1) for user logout

Distance (Maximum) —

From PS/2 CPU ports to any directly attached CPU or KVM switch:
Both: 98.4 ft. (30 m);
From user port to the directly attached user station:

KV6016FA-R2: 32.8 ft. (10 m);
KV6508SA: 16.4 ft. (5 m)

Resolution (Maximum) —

1920 x 1440 @ 100 Hz

Video DDC Support — 1 and 2

Interface —

Video: VGA (including SVGA, XGA, and VESA DDC support) with DDC 1 and DDC 2 signaling;
Keyboard and mouse:
KV6016FA-R2: IBM PS/2 compatible; with adapters, also supports PC/AT style keyboards for CPU keyboard ports and serial CPU mouse ports;
KV6508SA: USB Type A;
Serial: Subset of TIA-574 (IBM PC DB9) pinout of TIA/EIA RS-232

Connectors —

KV6016FA-R2: Serial port:
(1) DB9 F for flash upgrades;
User port: (1) HD15 F for monitor, (2) 6-pin mini DIN F for keyboard and mouse;
CPU ports: (16) with each consisting of: (1) HD15 F for video-port attachment, (2) 6-pin mini DIN F for keyboard and mouse;
Power: (2) barrel jacks;
KV6508SA: Serial port: (1) DB9 F for flash upgradeS;
User port: (1) HD15 F for monitor, (2) USB Type A F for keyboard and mouse;
CPU ports: (8) with each consisting of: (1) HD15 F for video-port attachment, (2) 6-pin mini DIN F for keyboard and mouse;
Power: (1) barrel jack
Power — External 100–240 VAC, 50–60 Hz, autosensing
Size — KV6016FA-R2:
3.5"H (2U) x 17.3"W x 8.7"D (8.9 x 43.9 x 22.1 cm)
KV6508SA:
1.75"H (1U) x 17.3"W x 8.7"D (4.4 x 43.9 x 22.1 cm)
Weight — KV6016FA-R2: 8.8 lb. (4 kg)
KV6508SA: 5.5 lb. (2.5 kg)

Item	Code	List Price
ServSwitch Uno™ 1 x 16	KV6016FA-R2	
♦ Includes a rackmount kit for a 19" rack.		
ServSwitch Uno USB 1 x 8	KV6508SA	
♦ Includes a rackmount ears for installation in a 19" rack.		
For redundant power capabilities, order...		
5-V Power Supply	PS649-R3	

ServSwitch Uno Cables, page 416.

ServSwitch EC

Control up to 16 PS/2 *and/or* USB

KV9008A: top: front; bottom: rear



KV9116A: top: front; bottom: rear



KV9216A: top: front; bottom: rear

- Choose from three versions.
 - Manage up to 16 PS/2 servers and consoles (PS/2 keyboard, PS/2 mouse, and monitor).
 - Manage up to 16 PS/2 and USB servers from a single PS/2 KVM console.
 - Manage up to 16 PS/2 and USB servers from a PS/2 or USB console!
- Supports resolutions up to 1920 x 1440.
- Choose the console mode on the KV9200 series by sliding a switch on the back panel.
- Cascade up to 136 servers!
- Save rack space—only 1U high!
- Supports Microsoft® IntelliMouse® (Pro).
- Operating system independent and transparent to all applications.
- Switch manually or use autoscan, which selects servers sequentially.
- Assign unique names to servers.
- Save and store keyboard settings while switching.
- Hot-pluggable keyboard/mouse ports.
- Password protected.
- Plug-and-play configuration.
- DDC2B compatible.
- ♦♦ **WARRANTY** — 1 Year

Want the option of using either a PS/2® or USB console (keyboard, mouse, and monitor) to control a number of PS/2 and/or USB servers? The ServSwitch™ EC makes it possible.

Expand your system.

Choose models to switch between 4, 8, or 16 servers from a single console. To expand your switching platform to include additional servers, simply cascade units in a master-slave configuration. Cascade up to 16 servers with the 4-port models, up to 64 servers with the 8-port models, and up to 136 servers with the 16-port models. Best of all, the ServSwitch EC is

plug-and-play, so you can add or subtract servers almost as quickly as you can plug and unplug cables.

Tight quarters.

Ideal for applications where you have a limited amount of space, the 1U-high ServSwitch EC can be used on the desktop or mounted in a rack or cabinet. (Brackets are included with the 8- and 16-port models.)

To save more space, the keyboard, monitor, and mouse circuitry is concentrated in a single HD15 connector at the server end. This way, you have fewer cables to install when making server connections.

Very switchable.

A simple yet well-designed on-screen display makes these switches very easy to use for managing server connections. You can assign 14-character server names that make sense to you. Switch between servers using front-panel buttons or hotkeys. Or you can let the switch do it automatically with its autoscan function. The ServSwitch EC will scan and switch between servers, one by one, at an interval that you determine. When autoscan detects any keyboard or mouse activity, it suspends the scanning until activity stops, and then resumes with the next computer in sequence.

Set it and forget it.

System settings and name entries are stored in nonvolatile memory so you don't have to worry about a power outage wiping out your information. The ServSwitch EC also saves your keyboard settings for each server and restores them when you come back to that machine.

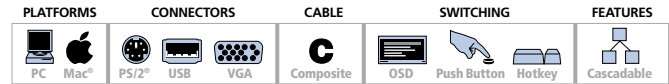
Check it.

The front panel includes port LEDs, which light with the corresponding active port when you switch between servers. You can also use the on-screen display to view the connection status on each port and lock servers from unauthorized users.

Digital quality.

With video enhancement technology that ensures superb quality and resolutions up to 1920 x 1440, the ServSwitch EC is DDC2B compatible, so it can be used with the latest digital monitors. What's more, the switch is operating-system independent and transparent to all applications.

servers from your desktop.



TECH SPECS

Autoscan Intervals — 3, 8, 15, and 30 seconds
Cable Length (Maximum) —
 At console: 20 ft. (6 m);
 At PC ports for PS/2 server: 30 ft. (9.1 m);
 At PC ports for USB server: 15 ft. (4.5 m)
Operating Systems Supported —
 Windows® 98/Me/XP®, Windows NT®, Windows 2000,
 Windows Vista®, Mac OS
Resolution (Maximum) — 1920 x 1440
User Controls —
 4-port models: (4) port selection buttons;
 8- and 16-port models: (8) port selection buttons
Connectors —
 Server: (4), (8) or (16) HD15 F;
 Console:
 Keyboard: All except KV9208A and
 KV9216A: 6-pin mini DIN F;

KV9208A, KV9216A: (1) 6-pin mini
 DIN F or (1) USB Type A F;
 Mouse: All except KV9208A and
 KV9216A: (1) 6-pin mini DIN F;
 KV9208A, KV9216A: (1) 6-pin mini
 DIN F or (1) USB Type A F;
 Monitor: (1) HD15 F
Indicators — LEDs: (2) per port, (1) power per unit
Power — 115 VAC, 60 Hz, external
Size — 4-port models: 1.75"H (1U) x 8.6"W x 5.1"D
 (4.4 x 21.8 x 13 cm);
 8- and 16-port models: 1.75"H (1U) x 17.3"W x 7"D
 (4.4 x 43.9 x 17.8 cm)
Weight — 4-port models: 2.2 lb. (1 kg);
 8-port models: 4.8 lb. (2.2 kg);
 16-port models: 5.7 lb. (2.6 kg)

Item	Code	List Price
ServSwitch™ EC		
for PS/2 Servers and Consoles		
4-Port	KV9004A	
8-Port	KV9008A	
16-Port	KV9016A	
for PS/2 and USB Servers and PS/2 Consoles*		
4-Port	KV9104A	
8-Port	KV9108A	
16-Port	KV9116A	
for PS/2 and USB Servers and PS/2 or USB Consoles*		
4-Port†	KV9204A	
8-Port	KV9208A	
16-Port	KV9216A	

For your CPU connections, order...

ServSwitch EC Server Cable		
PS/2	6-ft. (1.8-m)	EHN70001-0006
	10-ft. (3.0-m)	EHN70001-0010
	15-ft. (4.5-m)	EHN9000P-0015
	30-ft. (9.1-m)	EHN9000P-0030
USB	6-ft. (1.8-m)	EHN9000U-0006
	10-ft. (3.0-m)	EHN9000U-0010
	15-ft. (4.5-m)	EHN9000U-0015

NOTE: Master units can only cascade to slave units that have the same or fewer number of ports.

*You can also cascade KV910xA and KV920xA switches with PS/2 only switches (KV900xA).

†The 4-port model is for USB consoles only.

What's included

- ServSwitch EC
- AC power adapter
- Set of foot pads
- (2) mounting brackets
- User's manual

KV9208A and KV9216A also have:

- Y adapter cable for PS/2 user station connections

ServSwitch EC with Built-In IP for PS/2 and USB Servers and PS/2 or USB Consoles

Economical server control across TCP/IP networks.

- Securely access and control up to 16 remote servers across any TCP/IP network.
- Resolutions up to 1600 x 1200 (local unit).
- Use with PS/2 or USB consoles.
- Cascade up to 136 servers.
- Support for 16-bit color and real-time remote readings of temperature and voltage levels.
- Incredible protection includes: SSL encryption, SSH tunneling, and RADIUS authentication.
- Set up password-protected accounts.
- SNMP manageable.
- Can be used with any Java™ enabled Web browser or VNC client.
- Manage up to an additional 16 serial devices by using the serial modules.
- **WARRANTY** — 1 Year

What's included

- ServSwitch EC with Built-In IP
- Power adapter with (1) AC cord
- (1) DB9 RS-232 null-modem serial cable
- Set of foot pads
- 19" rackmount kit with screws
- User's manual



KV9308A-R2: front view



KV9308A-R2: rear view



KV9408A: rear view

TECH SPECS

Resolution (Maximum) — Local: 1600 x 1200 @ 85 Hz;
 Remote: 1280 x 1024 @ 85 Hz (16-bit color)
CE Approval — Yes
Connectors —
 All: Monitor: (1) HD15 F;
 Keyboard: KV930xA-R2: (1) 6-pin mini DIN F;
 KV940xA: (1) USB Type A;
 Mouse: KV930xA-R2: (1) 6-pin mini DIN F;
 KV940xA: (1) USB Type A
 Ethernet: (1) RJ-45;
 Serial RS-232 (DTE): (1) DB9 M;
 8- and 16-port models: (1) R-port
 with KV9SRL-module;
 Servers: (4), (8), or (16) integrated HD15 F;
 Future use: (1) 8-pin mini DIN
Indicators — LEDs: (1) Link Activity, (1) System Status,
 (1) Ethernet Activity, (1) System Okay
Power — 115 VAC, 60 Hz, external
Size — 4-port models: 1.7"H x 7.3"W x 8.7"D
 (4.3 x 18.5 x 22.1 cm);
 8- and 16-port models: 1.75"H (1U) x
 15.9"W x 8.7"D (4.4 x 40.4 x 22.1 cm)

Item	Code	List Price
ServSwitch EC with Built-In IP		
for PS/2 and USB Servers and PS/2 Consoles		
4-Port	KV9304A-R2	
8-Port	KV9308A-R2	
16-Port	KV9316A-R2	
for PS/2 and USB Servers and USB Consoles		
4-Port	KV9404A	
8-Port	KV9408A	
16-Port	KV9416A	

For your server connections, order...

ServSwitch EC Server Cable		
PS/2	6-ft. (1.8-m)	EHN70001-0006
	10-ft. (3.0-m)	EHN70001-0010
	15-ft. (4.5-m)	EHN9000P-0015
	30-ft. (9.1-m)	EHN9000P-0030
USB	6-ft. (1.8-m)	EHN9000U-0006
	10-ft. (3.0-m)	EHN9000U-0010
	15-ft. (4.5-m)	EHN9000U-0015

To add a serial device, order...

Serial Module	KV9-SRL
---------------	---------

ServSwitch
ServSwitch Ultra

Options you want in a single-user KVM System.



KV3108SA-R5



KV50085A-R2: Top
KV016FA-R2: bottom

ServSwitch

- Maximum resolution up to 1600 x 1240.
- Supports PC or PC-compatible and select UNIX® CPUs.
- Cabling available to support USB, audio, or serial applications.
- Compatible with ServSwitch Remote (page 379).
- Highly durable and reliable computer and user cable connections

ServSwitch™ and ServSwitch Ultra™ families bring you the options you need in a single-platform server management program. They are ideal for complex office and network server installations. ServSwitch Ultra even works in installations including the latest blade servers.

ServSwitch and ServSwitch Ultra bring premium video resolution to your CPUs, up to 1600 x 1280 at 100 Hz.

Our original ServSwitch features PS/2 mouse conversion so you can mix PS/2 and AT® style CPUs. With the Ultra, your PS/2 can mingle with serial mice, as well as Sun and Mac mice.

These KVM switches feature cable distances of up to 100 feet (30.4 m) without additional extenders. They have on-screen menus and security features to make switching easy, and safe.

ServSwitch and ServSwitch Ultra are available in 2-, 4-, 8-, 12-, and 16-port models in three chassis styles.

ServSwitch Ultra

- Optimized for use in audio applications—just use standard or coax audio cables.
- Multiplatform! Supports PC, Sun®, Mac®, and select UNIX servers.
- For use in server installations that include the latest blade servers.
- Highly durable and reliable computer and user-cable connections.

- **WARRANTY** — All: 2 Years

What's included

- ServSwitch or ServSwitch Ultra
 - Power cord (EPWR08)
 - Flash Kit KV99FLASH (Serial to RJ-11 adapter and a 7-ft. RJ-11 cable)
 - User's manual
- Mini chassis units also include:
- Power supply

TECH SPECS

Distance (Maximum) — 20 ft. (6 m) using standard ServSwitch cable; for higher resolutions and greater distances, use coax cable (up to 100 ft. [30.4 m])

Resolution (Maximum) — 1600 x 1280 @ 100 Hz

CE Approval — Yes

Connectors — (1) IEC 320 input for power; (1) RJ-11 for serial control and flash-ROM upgrades; (1) DB25 F for common KVM; (1) DB25 F for each CPU port

Indicators — LEDs: (1) Power; (2) for every CPU port: (1) CPU Selected, (1) CPU Power

Power — 100–240 VAC, 50–60 Hz, autosensing, with IEC 320 connector

Size — Mini: 1.75"H (1U) x 8.9"W x 5.1"D (4.4 x 22.6 x 13 cm); Slim: 1.75"H (1U) x 16.75"W x 5.5"D (4.4 x 42.5 x 14 cm); Full: 3.5"H (2U) x 16.75"W x 5.5"D (8.9 x 42.5 x 14 cm)

NOTE: For details on compatibility with laptop and notebook computers, call our FREE Tech Support.

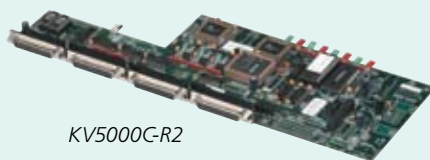
Item	Chassis Style	Code	List Price
ServSwitch™			
2-Port	Mini	SW721A-R5	
4-Port	Mini	KV3104MA-R5	
4-Port	Slim	SW722A-R5	
8-Port	Slim	KV3108SA-R5	
8-Port	Full	SW723A-R5	
12-Port	Full	SW724A-R5	
16-Port	Full	SW725A-R5	
ServSwitch Ultra™			
2-Port	Mini	KV5002MA-R2	
4-Port	Mini	KV5004MA-R2	
4-Port	Slim	KV5004SA-R2	
8-Port	Slim	KV5008SA-R2	
8-Port	Full	KV5008FA-R2	
12-Port	Full	KV5012FA-R2	
16-Port	Full	KV5016FA-R2	

ServSwitch and ServSwitch Ultra cables, pp. 406–409.



ServSwitch Expansion Cards • ServSwitch Serial Flash Kit

Accessories to give you more of what you want your ServSwitch to have.



KV5000C-R2



KV99FLASH

ServSwitch Expansion Cards

- Add up to 12 additional ports to your full-sized ServSwitch Ultra or ServSwitch chassis (above).
- Cards must be installed by Black Box—for details, call our FREE Tech Support.

ServSwitch Serial Flash Kit

- Flash upgrade your ServSwitch Affinity™ (page 378), ServSwitch (above), ServSwitch Ultra (above), or Matrix ServSwitch (page 367) firmware via the RJ-11 serial port.

- Connect the RJ-11 serial port on the back of your ServSwitch to a DB9 serial PC port.
- **WARRANTY** — 1 Year

Item	Code	List Price
4-Port Expansion Cards		
ServSwitch Ultra (Multiplatform)	KV5000C-R2	
ServSwitch (PC Platform)	KV5100C-R5	
ServSwitch Serial Flash Kit		
	KV99FLASH	

◆ Includes (1) RJ-11 to DB9 adapter and (1) 10-ft. RJ-11 (6-wire) straight-through cable.

ServSwitch Panther

The entry-level ServSwitch that uses UTP cables.

- Connect 8 or 16 computers via low-cost UTP; control them all with an inexpensive ServSwitch™.
- Cascade multiple 16-port units to control up to 256 computers.
- Extend the distance between a computer and the switch up to 30 meters.
- Rackmountable 1U height.
- PS/2 and USB Access Modules make CPU connections simple and easy.
- Hot swappable—disconnect and reconnect computers without rebooting!
- CE Approval — Yes
- ♦♦ **WARRANTY** — 2 Years

This sleek, 1U-sized switch uses a combination of CAT5, CAT5e, or CAT6 cable, and PS/2 or USB (PC-style) Server Access Modules that make connections to CPUs or servers easy.

From a security standpoint, the ServSwitch Panther is hard to beat. Through the OSD software, you can assign three levels of users, who can only access the system by entering a password.

An "Administrator" can set and modify all passwords and security profiles, fully access any

computer, and use all functions. A "Supervisor" can fully access or scan any computer. And you can designate up to six "Users," each of whom only has access to the particular computers to which you assign them.

Buyer's Guide | Resolution Table

	5-m	10-m	15-m	20-m	30-m
800 x 600 @ 75 Hz	Best	Best	Best	Best	Best
1024 x 768 @ 75 Hz	Best	Best	Best	Best	Fair
1280 x 1024 @ 75 Hz	Best	Best	Best	Fair	Poor
1600 x 1200 @ 75 Hz	Best	Best	Fair	Poor	Poor



KV1108A

Item	Code	List Price
ServSwitch Panther		
8-Port	KV1108A	
16-Port	KV1116A	
To link the ServSwitch Panther to CPUs or servers, order one Access Module for each connection...		
ServSwitch Panther Server Access Modules		
PS/2	KV1120A	
USB	KV1121A	

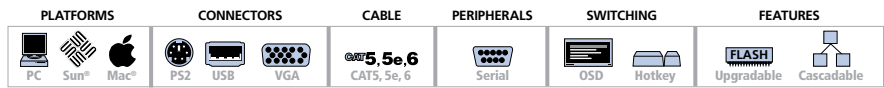
ServSelect III

Access and control up to eight servers — no matter what platform — over CAT5 cable.

- Optimal 1600 x 1280 resolution for VGA, SVGA, and XGA, with a 10-ft. (3-m) cable.
- Daisychain multiple units to control up to 128 servers!
- Extend distance between computer and switch up to 30 meters.
- Switch between, troubleshoot, and reboot all connected servers and other ServSwitch units from your control station.
- Two operation modes: Scan and Broadcast.
- Scan mode displays the status of up to 16 servers on-screen.
- Broadcast mode ensures selected servers receive the same input.
- Built-in password protection and keep-alive functionality.
- CE Approval — Yes
- ♦♦ **WARRANTY** — 1 Year

Buyer's Guide | Resolution Table

	5-m	10-m	15-m	20-m	30-m
800 x 600 @ 75 Hz	Best	Best	Best	Best	Best
1024 x 768 @ 75 Hz	Best	Best	Best	Best	Fair
1280 x 1024 @ 75 Hz	Best	Best	Best	Fair	Poor
1600 x 1200 @ 75 Hz	Best	Best	Fair	Poor	Poor



Cut cable clutter in your server room!

Item	Code	List Price
ServSelect™ III		
1 User x 8 Ports	KV21008A-R2	
For each server connection, you need...		
ServSelect III Cables		
PS/2® Style ([1] HD15 Male, [2] 6-Pin Mini DIN Male, [1] RJ-45 Male)		
7-ft. (2.1-m)	EHN21000PS2-0007	
10-ft. (3.0-m)	EHN21000PS2-0010	
15-ft. (4.5-m)	EHN21000PS2-0015	
USB Style ([1] HD15 Male, [1] USB Type A Male, [1] RJ-45 Male)		
7-ft. (2.1-m)	EHN21000USB-0007	
10-ft. (3.0-m)	EHN21000USB-0010	
15-ft. (4.5-m)	EHN21000USB-0015	

NOTE: Legacy Sun video connections require an ACD002-R2 adapter.

Item	Code	List Price
To connect to servers more than 15 feet (4.5 m) away, order...		
ServSelect Server Access Modules		
VT100 Style	KV123A	
PS/2 Style		
([1] HD15 Male, [2] 6-Pin Mini DIN Male)	KV125A	
USB Style ([1] HD15 Male, [1] USB Type A Male)	KV126A	
You may also need...		
Adapter for Legacy Sun Video®		
([1] HD15 Female to [1] 13W3 Male)	ACD002-R2	
Power Supply for VT100 Server Access Module	PS123A	

NOTE: The VT100 Style Server Access Module (KV123A) requires a power supply (PS123A).

ServSwitch CX • ServSwitch CX with IP

Switch between 16 or 24 servers over CATx connections...



KV0416A-R2

- Multi-user KVM switches for connecting to, switching between, and accessing 16 or 24 computer CPUs or servers.
- Enable you to set up KVM user stations as far as 982.4 feet (300 m) away from CPUs over CAT5, CAT5e, or CAT6 cable.
- Support resolutions up to 1920 x 1440.
- Cascade switches to control up to 128 servers.
- For accessing servers over a TCP/IP network or the Internet, order the ServSwitch CX with IP. It gives you browser-based or VNC server access and control, *and* includes a serial port for modem connection.
- Both switch versions feature a four-user architecture.
- Use the power control port to reset one or more host system power switches.
- Support traditional PS/2® or newer USB keyboards and mice either at a local workstation or the remote consoles (PS/2 and USB SAMs and remote units available).
- Order SAMs and remote units with audio to hear audio prompts and for use in multimedia workstations.
- Include rackmounting hardware.
- ♦♦ **WARRANTY** — 2 Years

The ServSwitch™ CX and ServSwitch CX with IP may just be our most versatile ServSwitch models ever—they have all the features you're looking for to help manage your enterprise network.

Not only are they compatible with all major computer platforms and connect via lightweight, inexpensive twisted-pair cable to 16 or 24 servers, they also give you PS/2 and USB server and workstation flexibility—just add the appropriate Server Access Modules (SAMs) and remote units.

And if you opt for the ServSwitch CX with IP model, you can access servers across any IP network.

Both switch versions feature a four-user architecture. With the ServSwitch CX with IP, you can connect one local analog console user, up to two remote users over CATx, and one user via an IP link, whereas the standard ServSwitch CX has four remote CATx ports and one local analog console user port (with KVM access limited to four simultaneous users only).

Although all ServSwitch CX models support up to 16 or 24 directly connected servers, this is

by no means the limit—you can daisychain switches to control up to 128 host servers with IP or 512 with non-IP. You can cascade up to three levels deep with servers situated at any level within the cascade tree.

Easier connections than ever!

All ServSwitch CX models enable up to four users to connect to the switch via CAT5, CAT5e, or CAT6 cable. UTP cable provides more distance than KVM cable, and this extra distance makes it practical to set up duplicate workstations within your building—in your server room, in your office, wherever it's convenient for you.

Mix and match different kinds of servers on the same CX switch. Simply choose the appropriate SAMs for each server, and you're all set. CATx cables connect the SAMs to the switch's server port, and servers can be placed up to 164 feet (50 m) from the switch.

Connect the ServSwitch CX to either a local PS/2 or USB keyboard and mouse (including Macintosh®) For remote workstation connections, choose a PS/2 or USB ServSwitch Remote Unit, or a mix of both.

Whether you're working at a user station or the local analog console port in the server room, you can select a server to access and control via on-screen menus or hotkeys. On-screen menus make server selection simple because you can give each server a name that makes sense to you.

Reaches as far as your network.

Both the ServSwitch CX and the ServSwitch CX with IP support wired remote KVM connections at maximum of 984.2 ft. (300 m) over UTP cable for 1024 x 1280 resolution. For super-sharp resolutions up to 1920 x 1440, the KVM switches support distances up to 164 feet (50 m). The switches all feature effective software-based skew compensation.

To go even farther than what's possible with UTP, order the ServSwitch CX with IP. With it, you can also access and switch remotely between servers over a private intranet or over the Internet. All you need is a Java™ enabled Web browser or VNC. For added flexibility, the ServSwitch CX with IP has a port for communicating with the switch via a modem link, too.

Plus, it's secure. Although the ServSwitch CX with IP can be installed behind the security of your network firewall, it also has the robust security features it needs to be safe on its own. Sophisticated 128-bit public/private key protection locks the switch tight against unauthorized access.

Two-tier password protection—administrative and non-administrative—adds another layer of protection. You can also restrict client IP addresses, limit access to dialup connections only, or use non-standard port numbers to further confound would-be hackers.

What's included

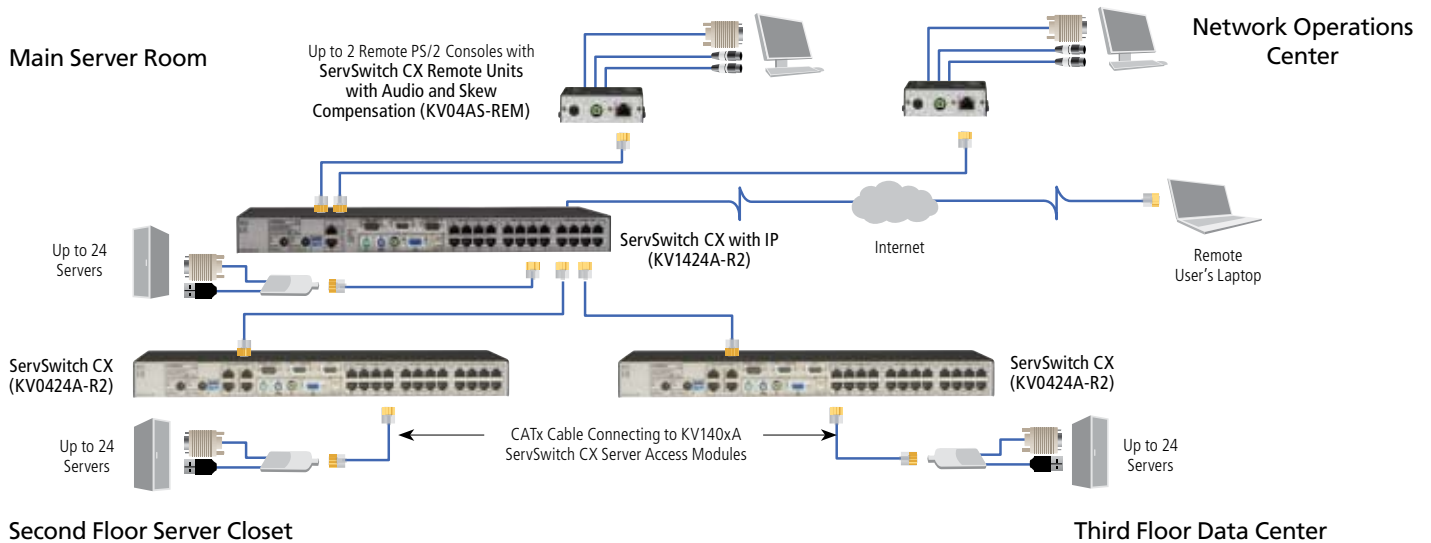
- ServSwitch CX or CX with IP unit
- Power supply
- Power cord
- Serial cable DB9M to DB9F
- Set of (2) rackmount ears
- Set of (4) rubber feet
- User's manual



or even remotely using a browser-based or VNC IP link!



KV1424A-R2



TECH SPECS

Distance (Maximum) — 984.2 ft. (300 m)
 Resolution (Maximum) — 1920 x 1440 @ 164 ft. (50 m)
 CE Approval — Yes
 Connectors — KV0416A-R2, KV0424A-R2,
 KV1416A-R2, KV1424A-R2: Local analog console port:
 All: Monitor: (1) HD15 F; Keyboard and mouse:
 PS/2: (2) 6-pin mini DIN F; USB: (2) Type A F;
 Remote CATx ports: KV0416A-R2, KV0424A-R2:
 (4) RJ-45;
 KV1416A-R2, KV1424A-R2: (2) RJ-45;
 Server ports: KV0416A-R2, KV1416A-R2:
 (16) RJ-45;
 KV0424A-R2, KV1424A-R2: (24) RJ-45;
 Audio: All: (1) 3.5-mm jack;
 Power control: All: (1) DB9 M;
 Power input: All: (2) barrel F;
 Serial RS-232 (DTE): All: (1) DB9 F;
 Serial options port:
 KV0416A-R2, KV0424A-R2 only:
 (1) DB9 F;
 Modem port: KV1416A-R2, KV1424A-R2 only:
 (1) DB9 M;
 IP remote user port: KV1416A-R2, KV1424A-R2
 only:
 (1) RJ-45 (10-/100-Mbps Ethernet, autosensing)
 Power — 100–240 VAC, 50–60 Hz, autosensing
 Size — KV0416A-R2, KV0424A-R2:
 1.75"H (1U) x 19"W x 8.5"D (4.4 x 48.3 x 21.6 cm);
 KV1416A-R2, KV1424A-R2:
 1.75"H (1U) x 19"W x 11"D (4.4 x 48.3 x 27.9 cm)

Item	Code	List Price
ServSwitch CX, (1) Local Console Port + (4) Remote CATx User Ports (16) Servers	KV0416A-R2	
(24) Servers	KV0424A-R2	
ServSwitch CX with IP, (1) Local Console Port + (2) Remote CATx User Ports + (1) IP User Port + (1) Modem Port (16) Servers	KV1416A-R2	
(24) Servers	KV1424A-R2	

For each server connection, you need...

ServSwitch CX Server Access Modules	Code
PS/2 Basic	KV1400A
with Audio	KV1402A
USB Basic	KV1401A
with Audio	KV1403A
Sun with Audio	KV1404A

To connect a remote console to any of the switches using CATx cable, order...

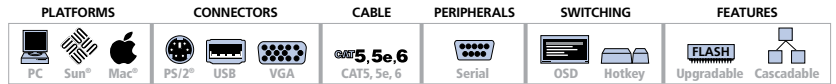
ServSwitch CX Remote Units	Code
PS/2 Basic	KV04-REM
with Audio	KV04A-REM
with Audio and Skew Compensation	KV04AS-REM
USB Basic	KV04U-REM
with Audio	KV04AU-REM
with Audio and Skew Compensation	KV04AUS-REM

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

GigaBase® CAT5e 350-MHz Patch Cable, 4-Pair, Straight-Pinned, PVC, Blue, 10-ft. (3.0-m)
 (For other lengths, colors, or pinnings, see pp. 96–97) EVNSL81-0010

ServSelect III • ServSelect III VM

Access up to 256 or 4096 servers, and eliminate bulky cables in your server room.



KV22016A-R2



KV0216A

- Access up to 16 servers or serial devices.
- Daisychain multiple units to control up to 256 servers with ServSelect III or up to 4096 servers with ServSelect III VM.
- The ServSelect III VM features built-in virtual media support, which enables you to transfer data between the attached media device and the attached servers.
- On-screen display features a graphical user interface with mouse control.
- Maximum video resolution is 1600 x 1200 with a 10-foot (3.0 m) cable.
- Built-in password protection and keep-alive functionality.
- ♦♦ **WARRANTY** — Both: 1 Year

With the ServSelect™ III, two users can access up to 16 servers or serial devices. Plus you can cascade up to 16 ServSelect III units to control up to 256 servers! This unit features four USB ports for keyboards and mice.

With the ServSelect III VM, control up to 4096 servers. Plus, the built-in VM feature adds an extra dimension to KVM switching. Instead of just connecting to servers, you can now share directly connected USB compatible media storage devices — CDs, flash drives, external hard drives! Along with the four USB ports for keyboards and mice, the ServSelect III VM features four virtual media USB ports.

Manage switching a la mode.

Four operational modes enable you to manage your switching activities.

In Scan mode, the ServSelect III and ServSelect III VM sequentially display the status of up to 16 servers on-screen. You select which servers are scanned in a sequence and how many seconds each is displayed.

In Broadcast mode, a user can simultaneously control more than one server to ensure that all selected servers receive the same input.

In Switch mode, either user can select and share any server at any time.

In Share Mode, two users can gain access to a primary server. Determine the amount of time the target can remain idle before the other user can take control.

The genius of ServSelect III Cables.

Make connections to individual servers with nonflashable ServSelect III Cables. These CATx cables provide keyboard, video, and mouse connectivity. Simply connect a cable's RJ-45 end to your ServSelect III and the other end to your server.

Multplatform connectivity.

To connect VT100™, PS/2, or USB servers more than 15 feet (4.5 m) from these ServSelect units, order our ServSelect Server Access Modules (SAMs). Powered by their connected servers, the modules “keep alive” even if the unit loses its power. Order one for each switch-to-server connection.

The modules feature built-in KVM connectors. All you need is CATx cable to link your ServSelect III or ServSelect III VM with these modules.

ServSelect III Cable with Integrated Dongle



Cut cable clutter in your server room!

Order one ServSelect III Cable for each switch-to-server connection—the USB or PS/2 KVM connectors are already built in! It's available in three lengths. These cables do not work with VM switches.

Item	Code	List Price
ServSelect™ III		
2 Users x 8 Ports	KV22008A-R2	
2 Users x 16 Ports	KV22016A-R2	
ServSelect III VM		
2 Users x 16 Ports	KV0216A	

For each server connection less than 15 feet (not for use with VM models), you need...

ServSelect III Cables		
PS/2 Style ([1] HD15 Male, [2] 6-Pin Mini DIN Male, [1] RJ-45 Male)		
7-ft. (2.1-m)	EHN21000PS2-0007	
10-ft. (3.0-m)	EHN21000PS2-0010	
15-ft. (4.5-m)	EHN21000PS2-0015	
USB Style ([1] HD15 Male, [1] USB Type A Male, [1] RJ-45 Male)		
7-ft. (2.1-m)	EHN21000USB-0007	
10-ft. (3.0-m)	EHN21000USB-0010	
15-ft. (4.5-m)	EHN21000SUB-0015	

To connect to servers more than 15 feet (4.5 m) away, order...

ServSelect Server Access Module	
VT100 Style	KV123A
PS/2 Style ([1] HD15 Male, [2] 6-Pin Mini DIN Male)	KV125A
USB Style ([1] HD15 Male, [1] USB Type A Male)	KV126A

For servers supporting virtual media, order by keyboard and mouse type...

ServSelect Virtual Media Modules	
USB Style ([1] RJ-45 Male, [1] USB Type A Male)	KV124A-USB
PS/2 Style ([1] RJ-45 Male, [2] 6-Pin Mini DIN Male, [1] USB Type A Male)	KV124A-PS/2

You may also need...

Adapter for Legacy Sun Video ([1] HD15 Female to [1] 13W3 Male)	ACD002-R2
Power Supply for VT100 Server Access Module	PS123A

ServSelect IP VM

Up to 4 remote users can control up to 16 servers and 4 media storage devices from anywhere in the world!

- Virtual media support enables you to transfer data between connected media devices and servers!
- Available for two or four IP users.
- Increase your control to up to 4096 multiplatform devices!
- On-line demonstration available.
- **◆◆ WARRANTY** — 2 Years



KV2116A: top: front; bottom: rear

With the ServSelect™ IP VM, up to four authorized remote users can access and control up to 16 multiplatform servers from anywhere in the world—and they can also attach USB media storage devices to **any server** connected to the switch with a Virtual Media Module!

In addition to the ports for IP access, both ServSelect IP VM models are equipped with an analog port on the local side for traditional KVM switching functions. The local user can also transfer data between connected servers and USB media storage devices such as CDs, flash drives, and external hard drives.

Make simple server connections.

To connect VT100™, PS/2, or USB servers, order our ServSelect Server Access Modules (SAMs). Powered by their connected servers, the modules (**facing page**) “keep alive” even if the switch loses power. Order one for each switch-to-server connection.

The modules feature built-in KVM connectors. All you need is CAT5 cable to link your ServSelect IP VM with these modules. All ServSelect SAMs are flash upgradable to keep your system up to date.

Convenient on-screen menus.

To access the ServSelect IP VM as well as all attached systems remotely, just load the included software or connect to the unit’s IP address with a Web browser. Graphical (mouse-controllable) on-screen menus enable you to configure your system and select servers and other switches. You can easily identify each server by a unique name, ID number, or port number.

Four operational modes enable you to manage your switching activities: Scan, Broadcast, Share, and Switch.

In Scan mode, the ServSelect IP VM sequentially displays the status of up to 16 servers on-screen. You select which servers are scanned in a sequence and how many seconds each is displayed.

In Broadcast mode, a user can simultaneously control more than one server to ensure that all selected servers receive the same input.

In Switch mode, either user can select and share any server at any time.

In Share mode, two users can gain access to a primary server. You determine the amount of time the target can remain idle before the other user can take control.

Security now, security for the future.

Protect your system with a screen-saver password for each user. When a user station is unused for a period of time, the monitor enters a screen-saving mode and can only be unlocked by typing a password.

The ServSelect IP VM is also flash upgradable, which secures your investment for the future. Update your firmware by using the switch’s simple update utility.

Maximum control.

Want to control more than 16 servers and four USB media devices? If you put the ServSelect IP VM at the top of a switching tier of ServSelect III VM switches (**facing page**), up to four users can connect to up to 4096 servers and devices. Now that’s control!

◀ Server Access Modules, p. 364.

TECH SPECS

- Distance (Maximum)** — 100 feet (30.5 m)
- Peripherals Supported** — IBM® Scrollpoint® mouse, Kensington® Expert mouse, Logitech™ Mouseman+, Marble Plus and Marble FX mice, Microsoft® IntelliMouse® (PS/2 only), PS/2 style keyboard and mouse
- Resolution (Maximum)** — Local: 1600 x 1200; Remote: 1280 x 1024 @ 75 Hz
- Servers Supported** — USB; IBM PC, PS/2, and compatibles; also VT100 with corresponding Server Access Module
- User Consoles Supported** — Software: PC running ServSelect IP VM console application and Windows NT® 4.0, Windows® 2000, or Windows XP®, Windows Vista®; Minimum configuration: 300-MHz Pentium® III, 64 MB RAM, 100BASE-T NIC, XGA video; Recommended configuration: 450-MHz Pentium III, 128 MB RAM, 100BASE-T NIC, SXGA video
- Video Supported** — VGA
- CE Approval** — Yes
- Connectors** — Digital ports: (2) or (4) RJ-45; Analog ports: (2) 6-pin mini DIN F (PS/2), (1) HD15 F (VGA); USB media devices: (5) USB 2.0 Type A F; Servers: (16) RJ-45; Configuration port: (1) DB9 F (serial RS-232); Power: (1) IEC 320
- Power** — 100–240 VAC, 50–60 Hz, autosensing
- Size** — 1.75" H (1U) x 17" W x 11" D (4.4 x 43.2 x 27.9 cm)
- Weight** — 7.3 lb. (3.3 kg)

NOTE: Distance and environmental conditions may affect resolution.

Item	Code	List Price
ServSelect™ IP VM for (2) Digital Users over IP + (1) Analog Port, (4) USB Ports, and (16) Server Ports	KV2116A	
for (4) Digital Users over IP + (1) Analog Port, (4) USB Ports, and (16) Server Ports	KV4116A	
For servers supporting virtual media, order by keyboard and mouse type...		
ServSelect Virtual Media Modules		
USB Style ([1] RJ-45 Male, [1] USB Type A Male)	KV124A-USB	
PS/2 Style ([1] RJ-45 Male, [2] 6-Pin Mini DIN Male, [1] USB Type A Male)	KV124A-PS/2	

ServSwitch Duo • Quadro • Duo USB

Get true multiuser server access and PS/2 or USB support!

- Support resolutions up to 1920 x 1440 with built-in DDC support.
- Wide range of IBM compatibles, including PS/2, PC/AT®, and USB style keyboards, mice, and ports— even laptops.
- Multiple video heads supported by synchronizing units together.
- Limit access with password security.
- Flash upgradable via the serial port.
- Optional Extender gives you access to user stations up to 656.1 feet (200 m) away.
- **◆◆ WARRANTY** — 2 Years

Grow to sweet 16.

Using the ServSwitch Duo™, 2 users can access 4 to 16 servers. With the Quadro™, 4 users can access up to 16 servers. Using the Duo USB, 2 users can access 8 to 16 servers.

Get some distance.

The Duo and Quadro have a built-in local extender, so if you want to connect a keyboard, monitor, and mouse up to 656.1 feet (200 m) away, just order the Receiver (Remote) Module (ACU5011A). The ServSwitch Duo has one RJ-45 port; the Quadro has two.

Go configure.

DDC support enables a control station's monitor to communicate with the attached servers' video cards and configure their video drivers automatically at bootup.

Up-front and personal switching.

On-screen menus pop up on demand and make it simple to select a server. Give each server a name that makes sense to you. No software is

Controls — On-screen menus;

Keyboard commands;

Mouse-click functions:

- (2) push buttons for user and server selection;
- (1) DIP switch for firmware upgrade

Distance (Maximum) —

User ports to any directly attached user station or KVM switch: 16.4 ft. (5 m);

Server ports to any directly attached CPU or KVM switch: 35 ft. (10.6 m) using EHN428—EHN429

Resolution (Maximum) — 1920 x 1440 @ 100 Hz CE Approval — Yes

Interface —

Video: VGA;

Keyboard and mouse:

Duo and Quadro: IBM PS/2 compatible; also support PC/AT® style keyboards or server keyboard ports and serial server mouse ports with adapters;

Duo USB: USB only



KV6108SA-R2



KV6608SA-R2



KV6416FA-R2

required either. You can also switch via on-screen menus, a three-button mouse, an IntelliMouse, hotkey sequences, or the front-panel buttons.

Good in crowds, and very friendly.

These switches handle large installations, too. Cascade them to control hundreds of servers!

Compatibility is no problem either. All support a wide range of PC-compatible hardware and software platforms, including some high-end IBM® PS/2 compatible computers such as IBM RS/6000® Compaq®, Alpha®, and SGI®.

Automatic mouse conversion means the Duo and Quadro work with all PS/2, IntelliMouse, PC/AT, and RS-232 mice. You can even mix styles in one installation. Sun compatibility is available using cable EHN428 for USB and cable EHN429 for legacy support. See **page 416** for cables.

The Duo USB also works with USB keyboards and mice.

For remote connections over IP, add the ServSwitch Wizard IP (ACR2004A, **page 381**).

To connect Mac CPUs, call our FREE Tech Support.

Keep an eye on your servers.

Monitor all connected servers with autoscans. You can also scan only active servers attached to one chassis or selected servers attached to any chassis in your system. Program your preferred scan rate and view each server at your own pace.

More good stuff.

The ServSwitch Quadro brings another flexible feature to your KVM switching: video switching. It functions as an inexpensive matrix video switch that can be controlled via the front panel or serially with an automation system.

For more robust signaling and ease of use than you get with standard connectors paired with your PC cables, we recommend our Control Station Cables (**page 416**).

TECH SPECS

Serial: Subset of TIA-574 (IBM PC DB9) pinout of TIA/EIA RS-232;

Computer: USB and Sun with appropriate converter cables; VGA PS/2 with appropriate cables

Connectors —

Power: Duo and Quadro: (2) barrel jacks; Duo USB: (1) power jack;

Serial: Duo and Quadro: (1) DB15 F; Duo USB: (1) DB9 F

User ports: (2) or (4), each consisting of: (1) HD15 F for monitor, and either (2) 6-pin mini DIN F or (2) USB Type A F for keyboard and mouse;

Server: (4), (8), (12), or (16), each consisting of: (1) HD15 F for video-port attachment, (2) 6-pin mini DIN F for keyboard and mouse;

Remote user ports: (1) Duo or (2) Quadro consisting of (1) RJ-45 for extender attachment

Power — External 100–240 VAC, 50–60 Hz,

Item	Code	List Price
------	------	------------

Select the ServSwitch™ for your application...

ServSwitch Duo™		
4-Port	KV6104SA-R2	
8-Port	KV6108SA-R2	
12-Port	KV6112FA-R2	
16-Port	KV6116FA-R2	
ServSwitch Quadro™		
16-Port	KV6416FA-R2	
ServSwitch Duo USB		
8-Port	KV6608SA	
16-Port	KV6616FA	

To place control stations up to 656.1 feet (200 m) from the ServSwitch, order...

ServSwitch Extender Receiver (Remote) Module ACU5011A

To add a redundant power supply, order...

5-V Power Supply PS649-R3

To connect the extender at a 20% savings...

CAT5 Unshielded 100-MHz Bulk Cable, Solid, 4-Pair, PVC, 1000-ft. (304.8-m) Spool, Beige (For other colors, or plenum cable, see p. 105.) EYN840A-1000

You may also need...

ServSwitch Cables

See p. 416.

Matrix ServSwitch • Multiplatform Matrix ServSwitch



Freedom of choice: Give two or four independent users simultaneous server access, or manage CPUs from two or four locations!



SW743A-R3

- True multichannel operation—simultaneous and independent control by two or four users.
- Video resolution up to 1600 x 1280.
- All models support USB keyboards and mice and work with most newer PC, Sun, and Macintosh® CPUs.
- Connect CPUs and control stations up to 100 feet (30.4 m) from the switch.
- Multiplatform Matrix controls serial devices as well as computers, and uses VT100 emulation.
- Optional expansion module enables you to daisychain chassis and support up to 1000 CPUs!
- Security features keep data safe.
- ♦♦ **WARRANTY** — 2 Years

What's included

- Matrix ServSwitch chassis
- Terminator card
- Power cord
- Flash Kit KV99FLASH (DB9 to RJ-11 adapter and a 7-ft. RJ-11 cable)
- User's manual

Independence day, every day!

Use these switches to connect 2 or 4 independent KVM users to 4, 8, or 16 PC-only or PC and Sun CPUs. Growing? Use the Expansion Module to add as many as 1000 CPUs.

Each user has total and independent access to any of the connected CPUs or servers on the system.

Multipoint access for those on the go.

These switches are ideal for IT departments where two or four people need simultaneous access to a number of CPUs. If you need more than one access point, put a keyboard, monitor, and mouse in the computer room, and a second set in the office. Need more access points? Order a 4-user switch.

And that's not all.

Advanced on-screen display technology is the best in the industry, offering a crisp resolution of 1600 x 1280.

A user-defined ID and password keep prying eyes out of your servers. You can also restrict user access and monitor access.

Full keyboard and mouse emulation eliminates keyboard and mouse compatibility worries and lockups. All enable simultaneous, automatic booting of all connected CPUs by sensing any

TECH SPECS

Distance (Maximum) — Standard cable: 20 ft. (6 m);
Coax cable: 100 ft. (30.4 m)
CE Approval — Yes
Connectors — User: (2) or (4) DB25 F;
Each CPU: (1) DB25 F;
Serial: (1) 6-wire RJ-11 (RJ-12);
Power: (1) IEC 320;
Expansion (optional): (1) DB15 F, (1) DB15 M
Indicators — LEDs: All: (1) Power;
SW741A-R3—SW743A-R3, SW761A-R4—SW763A-R4
only: (2) LEDs for each CPU port:
(1) CPU Selected, (1) CPU Power
Power — 90–240 VAC, 50–60 Hz, autosen-
sing
Size — See chassis sizes on page 360

computer powering up and emulating the keyboard and mouse signals as if the peripherals were directly connected to each CPU.

Item	Chassis	Code	List Price
Matrix™ ServSwitch			
2 Users x 4 CPUs	Slim	SW741A-R3	
2 Users x 8 CPUs	Slim	SW742A-R3	
2 Users x 16 CPUs	Full	SW743A-R3	
4 Users x 4 CPUs	Full	SW764A-R3	
4 Users x 8 CPUs	Full	SW765A-R3	
4 Users x 16 CPUs	Full	SW766A-R3	
Multiplatform Matrix ServSwitch			
2 Users x 4 CPUs	Slim	SW761A-R4	
2 Users x 8 CPUs	Slim	SW762A-R4	
2 Users x 16 CPUs	Full	SW763A-R4	
4 Users x 4 CPUs	Full	SW767A-R4	
4 Users x 8 CPUs	Full	SW768A-R4	
4 Users x 16 CPUs	Full	SW769A-R4	
To add daisychain capabilities, order...			
Matrix Expansion Module		SW740C-R3-B	

To connect multiple chassis, order...

Matrix Expansion Cables			
10-ft. (3.0-m)		KV140010	
35-ft. (10.6-m)		KV140035	
100-ft. (30.4-m)		KV140100	
Matrix ServSwitch and Multiplatform Matrix ServSwitch Cables			See pp. 410–415.

blackbox.com

This may be the Big Book, but blackbox.com is even **BIGGER!**

- There you'll find:
- KVM switches, extenders, trays, accessories, and more!
 - Information galore! Black Box Explains tutorials, Buyer's Guides, white papers, videos, and our custom cable and adapter configurators.
 - Savings. Find weekly specials and savings on featured new and legacy ServSwitch products.

If you still can't find what you need, just ask the experts at our FREE Tech Support hotline!

ServSwitch Octet Cutting-edge server management with support for USB, serial RS-232, and audio!



- Supports connections up to 984.2 feet (300 m) over solid CAT5, CAT5e, or CAT6 cabling.
- Maximum resolution of 1600 x 1200 at 100 feet (30.4 m); up to 1280 x 1024 at 984.2 feet (300 m) using the Enhanced Video User Station.
- Outstanding for remote system control.
- Control and configure locally.
- Security allows access for authorized users only.
- Ideal for mission-critical environments.
- Future-proof flash memory for firmware.
- Remote access with real-time performance.
- Non-blocking access to servers.
- **WARRANTY** — 2 Years

Great control and security features!



KV1700A: top: front view;
bottom: rear view

State-of-the-art system control.

The ServSwitch Octet™ offers server management at its best with all the control and security features you need!

The included Octoware control software enables you to monitor complete system setup via IP access, scan connected devices, edit user profiles, and flash upgrade system components.

Octoware also monitors and stores the entire system's switching activities and logins, providing you with a great deal of security.

Security and monitoring.

LDAP integration enables seamless integration into standard network security setups. If the network link fails, the ServSwitch Octet is still protected by its own proprietary security settings.

You can configure the ServSwitch Octet to create SNMP traps to flag certain events. And you can control the ServSwitch Octet via SNMP.

High resolution over great distances.

The ServSwitch Octet minimizes video signal degradation. This enables transmissions of higher screen resolutions at even longer distances over solid CAT5 UTP cable or higher. You can connect servers homogeneously end to end up to a distance of 984.2 feet (300 m).

The system in detail.

The system consists of the ServSwitch, a User Station, and Server Access Modules (SAMs). Connect them all by using CAT5 or higher cable.

The Basic User Station offers video resolutions up to 1024 x 768. The Enhanced-Video User Station adjusts for skew between RGB signals and offers video resolutions up to 1280 x 1024.

Use the USB User Station with Serial/Audio Support with a PS/2 or USB keyboard and mouse. It offers video resolutions up to 1280 x 1024.

For each attached CPU, you need one SAM. Each SAM is a matchbox size unit with KVM connectors on the end of a pigtail cable. The SAM draws no power, ensures keep-alive functionality, provides keyboard and mouse emulation, and is independent of the switching system's status.

The Dual RJ-45 SAMs with Audio/Serial RS-232 Support enable two users to share access to one CPU. They provide redundant system setup, eliminating single point-of-failure risk. They also transfer stereo audio to the user station and mono audio back to the attached CPU.

TECH SPECS

Distance to Keyboard/Monitor/Mouse (Maximum) — 984.2 ft. (300 m)

Distance to Server (Maximum) — 984.2 ft. (300 m)

Extension Options — Included, up to 984.2 ft. (300 m)

Mice Supported —

User and CPU: Wheel mouse, PS/2, Sun;
KV1713A: Also USB

Number of CPUs (Maximum) —

KV1703A: 256;
KV1700A: 800;
KV1701A: 4096;
KV1702A: 16,384

Platforms Supported — IBM® PC and compatible, PS/2®, Sun®, Sun USB, serial, Macintosh® USB

Resolution (Maximum) — 1600 x 1200 @ 75 Hz

Security — Password, user profiles, auto time logout, event log, LDAP

CE Approval — Yes

Connectors —

KV1703A: (21) RJ-45, (1) DB9 M, (1) IEC 320;
KV1700A: (47) RJ-45, (1) DB9 M, (1) IEC 320;
KV1701A: (41) RJ-45, (1) DB9 M, (1) IEC 320;
KV1702A: (81) RJ-45, (1) DB9 M, (1) IEC 320;
KV1711A-R2: (2) RJ-45, (2) 6-pin mini DIN F, (1) 8-pin DIN F, (1) HD15 F, (1) DB9 F, (1) IEC 320;

KV1712A-R2: (2) RJ-45, (2) 6-pin mini DIN F, (1) USB type A, (1) HD15 F, (1) DB9 F, (1) IEC 320;

KV1713A: (2) RJ-45, (2) 6-pin mini DIN F, (2) USB Type A F, (1) DB9 M, (2) 3.5-mm F;

KV1720A: (1) RJ-45, (2) 6-pin mini DIN M, (1) HD15 M;
KV1721A: (1) RJ-45, (1) USB Type A M, (1) HD15 M;

KV1724A: (2) RJ-45, (1) DB9 F;
KV1725A: (2) RJ-45, (2) 6-pin mini DIN M, (1) HD15 M, (1) DB9 M, (2) 3.5-mm M;

KV1726A: (2) RJ-45, (1) USB Type A M, (1) HD15 M, (1) DB9 M, (2) 3.5-mm M;

KV1727A: (2) RJ-45, (1) 8-pin mini DIN M, (1) HD15 M plus HD15 F to 13W3 adapter, (1) DB9 M, (2) 3.5-mm M

Power — 100–240 VAC, 50–60 Hz, internal, autosensing

Size — KV1703A, KV1700A: 1.7"H x 17"W x 13.9"D (4.3 x 43.2 x 35.3 cm);

KV1701A: 1.7"H x 17"W x 11.1"D (4.3 x 43.2 x 28.2 cm);

KV1702A: 3.5"H x 17"W x 11.1"D (8.9 x 43.2 x 28.2 cm);

KV1711A-R2, KV1712A-R2, KV1713A: 1.75"H x 11"W x 11.5"D (4.4 x 27.9 x 29.2 cm)

Item	Code	List Price
ServSwitch Octet™		
4 Users x 16 CPUs	KV1703A	
4 Users x 42 CPUs	KV1700A	
8 Users x 32 CPUs	KV1701A	
16 Users x 64 CPUs	KV1702A	
User Stations		
Basic	KV1711A-R2	
Enhanced-Video	KV1712A-R2	
USB with Serial/Audio Support		
	KV1713A	
Server Access Modules		
for PS/2	KV1720A	
for USB	KV1721A	
for Serial RS-232/V.24	KV1724A	
(32) Server Access Modules for PS/2		
	KV1720A-32	
Dual RJ-45 Server Access Modules with Audio/Serial RS-232 Support		
for PS/2	KV1725A	
for USB	KV1726A	
for Sun HD15	KV1727A	
To provide power for up to four KV1724A Server Access Modules, order...		
Power Supply	PS123A	
To rackmount a User Station, order...		
1U Rackmount Kit	RMK171X	
To connect remotely to your server room over IP, order...		
ServSwitch Wizard™ IP (For details, see p. 381.)		
ACR2004A		

ServReach KVMoIP System

Create a virtual data center and reach every server in every office worldwide!



KVIP1000A: top: rear view;
bottom: front view

KVIP1001A



KVIP1016A: top: rear view;
bottom: front view



KVMGR-32: top: rear view;
bottom: front view

NOTE: See blackbox.com for ServReach videos, specifications, and figures.

ServReach KVMCube KVMoIP (1 x 1)

- IP addressable for BIOS-level connections.
- Gives you complete control of mission-critical servers no matter their location.
- Can be managed directly or with the KVMManager.
- Single RJ-45 port on a palm-sized device.
- Has 10-/100-Mbps RJ-45 port and 26-pin MDR port for connecting target server interface cables.
- Boasts 128-bit SSL security.
- Cost-effective and scalable.
- Use it with its external power supply or as a Power over Ethernet (PoE) device.
- Has USB keyboard/mouse connections and includes a 2-ft. (0.6-m) USB/VGA cable. For PS/2 applications, order an optional PS/2 Cable.
- Superior video; absolute mouse sync.

ServReach KVMGate KVMoIP (1 x 1)

- Serves as the IP gateway for KVM switches.
- Enables you to add IP capability to most manufacturer's KVM switches.
- Cut costs associated with downtime, equipment replacement, and service calls.
- Access the unit through the Internet, a LAN, or a local KVM station.
- Get BIOS-level control of USB or PS/2 servers over IP.
- Boasts 128-bit SSL encryption to guard your data effectively.
- Advanced power management options.
- No software to install—you only need Internet Explorer® 6.0 or higher.
- Just place on your LAN, attach it to your target KVM switch, and you're in business.
- Works with the ServReach KVMCube and the 1 x 16 ServReach KVMMultiport.
- Can be managed with the KVMManager.
- Compatible with many other KVM switches.

ServReach KVMMultiport KVMoIP (1 x 16)

- Can be managed with the KVMManager or work as a standalone KVM-over-IP switch.
- Enables BIOS-level remote server access over IP networks.
- Access target servers through the Web, a LAN, a modem, or a local KVM station.
- Place servers up to 33 feet (10 m) from the switch!
- Use Server Access Modules (SAMs) to reduce cable clutter at the rack.
- Cost-effective and scalable.
- Features 128-bit SSL security.
- No software to install—you only need a browser running Internet Explorer 6.0 or higher.
- Cuts costs associated with downtime and service calls.

ServReach KVMManager KVMoIP

- Enables you to manage the KVMCube, KVMGate, and KVMMultiport, and other ServSwitch™ systems with one appliance.
- Gives you global IP access to ServReach™ connected servers at the BIOS level, as well as other ServSwitch switching systems.
- Intuitive management interface provides you with a unified and logical view of your ServReach/ServSwitch framework.
- Great for growing distributed server environments and existing enterprises.
- Housed in a slim, rackmountable (1U) unit.
- LDAP-compatible; uses 128-bit SSL security.
- Designed for compliance with existing security policies for more effective user administration and overall security.
- ♦♦ **WARRANTY** — All: 2 Years

Item	Code	List Price
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ServReach™ KVMCube, 1 x 1
KVIP1001A

You might also need...

USB/VGA Cable
2.0-ft. (0.6-m) KVIPUSB-0.6M
6.6-ft. (2.0-m) KVIPUSB-2M

For PS/2 connections...

PS/2/PS/2/VGA Cable
2.0-ft. (0.6-m) KVIPPS2-0.6M
6.6-ft. (2.0-m) KVIPPS2-2M

For an additional power supply...

12-V, 1000-mA Power Supply
KVIP1001-PS

ServReach KVMGate, 1 x 1
KVIP1000A

ServReach KVMMultiport, 1 x 16
KVIP1016A

To link the KVMMultiport to target servers, order one SAM for each connection at the target...

Server Access Module (SAM)
PS/2 KV1120A
USB KV1121A

Item	Code	List Price
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Order one or more appliances for managing all your ServReach devices...

ServReach KVMManager Appliance for 32 KVM Devices
KVMGR-32
for 64 KVM Devices
KVMGR-64
for 512 KVM Devices
KVMGR-512

NOTE: For more than 512 KVM devices, call our **FREE Tech Support**.

To manage even more ServReach devices with your KVMManager, order...

64-Device Upgrade for KVMManager
KVMGR-UPGD64
512-Device Upgrade for KVMManager
KVMGR-UPGD512

For backup management and data replication, add...

Replication Unit for KVMManager
KVMGR-REPL

ServSwitch DTX

The next-generation KVM extender, matrix switch, and multimedia solution!

- Extends a USB or PS/2 computer's KVM, audio, and USB 2.0 peripheral signals hundreds or even thousands of miles over an IP network to a workstation with one or two DVI-I monitors, speakers, and a USB or PS/2 keyboard and mouse.
- Available in kits or individual components.
- The ServSwitch DTX Control appliance enables matrix switching, control, and authentication capabilities.
- Dual-head receivers enable you to use two DVI-I monitors at a remote workstation.
- Features USB virtual media (VM) support.
- Connect up to four USB 2.0 devices to a receiver.
- Encrypts media streams for Secure Socket Layer (SSL) connections over a TCP/IP link.
- Using the extender's password-protected serial interface menu, you can configure network connections, change video settings, perform flash upgrades, configure hotkeys, and more.
- Supports PC, Sun, and Mac CPUs and works with Windows®, Redhat Linux, Sun Solaris®, and Mac operating systems.
- The single-head components support resolutions up to 1280 x 1024 at 60 Hz. Dual-head components support resolutions up to 1920 x 1200 at 60 Hz!
- **◆◆ WARRANTY** — 1 Year

TECH SPECS

Network Encryption — SSL/AES 128-bit

Speed — Serial: Up to 19.2 kbps;

Network: 100 Mbps or 1 Gbps

CE Approval — Yes

Connectors —

Transmitter:

Keyboard and mouse:

(1) [dual-head] or (2) [single-head]

USB Type A M;

Digital/analog video: (1) [single-head] or

(2) [dual-head] DVI-I M;

Speakers: (1) 3.5-mm stereo plug;

Network: (1) RJ-45 (10/100/1000 Mbps);

DTX5000 and DTX5000-T transmitter units also

include (1) mono plug for a microphone;

Receiver:

Keyboard and mouse: (2) USB Type A F;

USB peripherals: (2) [dual-head] or (4) [single-

head if PS/2 keyboard and mouse are used];

Digital/analog video: (1) [single-head] or

(2) [dual-head] DVI-I F;

Speakers: (1) 3.5-mm stereo jack;

Network: (1) RJ-45 (10/100/1000 Mbps);

Serial: (1) DB9 M;

DTX5000 and DTX5000-R receiver units also

include (2) 6-pin mini DIN F (PS/2) for

keyboard/mouse and (1) mono jack for

a microphone

Power — Transmitter: From the USB bus;

consumption: 6 watts; an optional power

supply (DTX5000-PS) is also available

Receiver: 100–240 VAC, 50–60 Hz, 1.2 A, 8 watts

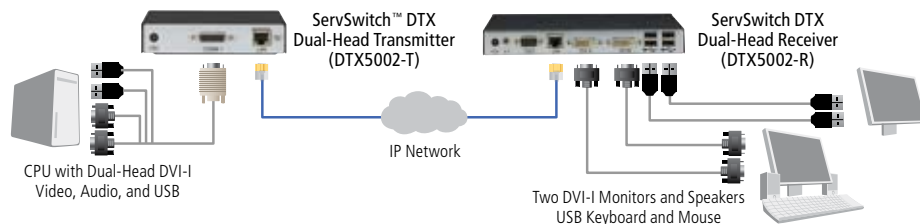


ServSwitch DTX receiver (DTX5000-R): top: front view; bottom: rear view

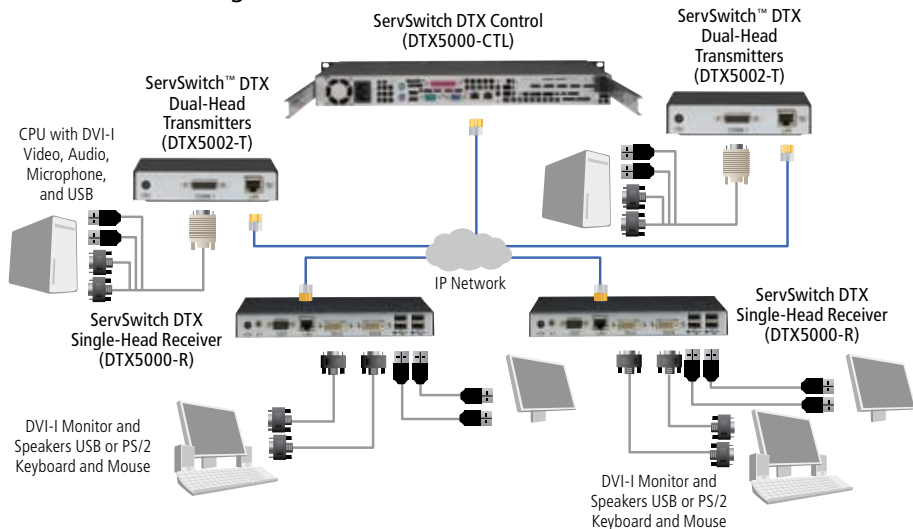


KVM over IP!

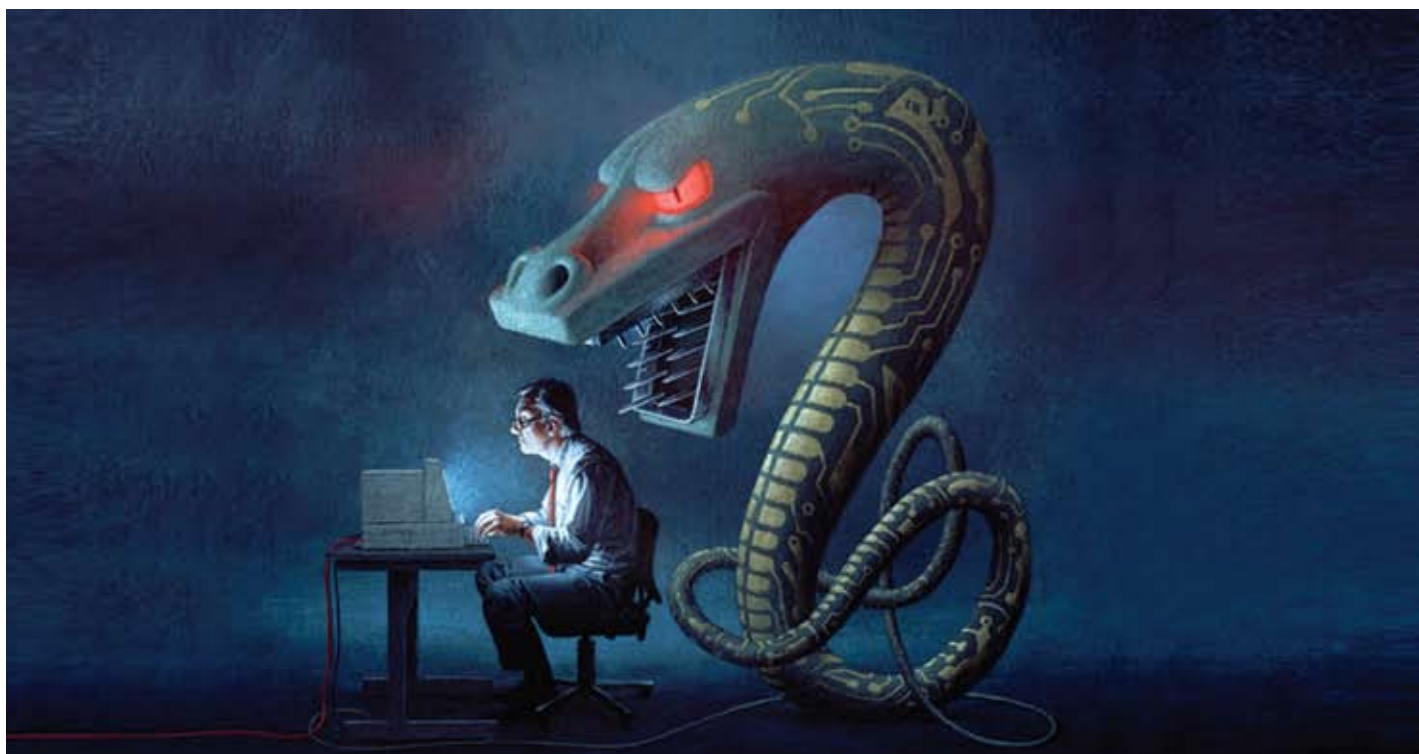
Dual-Monitor DVI Extension over IP



KVM Matrix Switching with USB Virtual Media over IP



Item	Code	List Price
For point-to-point KVM extension over IP, order...		
ServSwitch™ DTX Kits	Single-Head	DTX5000
	Dual-Head	DTX5002
◆ Both kits include (1) transmitter and (1) receiver. The DTX5000 includes (1) autosensing power supply the DTX5002 includes (2) power supplies.		
For individual ServSwitch DTX units, order...		
ServSwitch DTX Single-Head	Transmitter	DTX5000-T
	Receiver	DTX5000-R
◆ The DTX5000-R includes (1) autosensing power supply.		
ServSwitch DTX Dual-Head	Transmitter	DTX5002-T
	Receiver	DTX5002-R
◆ Both dual-head units include (1) autosensing power supply.		
For KVM matrix switching over IP with single-head applications, order...		
ServSwitch DTX Control		DTX5000-CTL
For each DTX5000-T transmitter unit not connected to a CPU's USB port, you'll need...		
ServSwitch DTX Transmitter Power Supply		DTX5000-PS
To mount a receiver to the back of a flat-panel monitor or to a flat surface, order...		
ServSwitch DTX Receiver Mounting Plate		DTX5000-MMK
To connect a VGA monitor to the receiver, order...		
DVI-I Male-VGA HD15 Female Adapter (See p. 155.)		FA461
To connect the transmitter to a CPU with a VGA video output, order...		
DVI-I Female-VGA HD15 Male Adapter (See p. 155.)		FA462



Make the switch between classified and unclassified networks.

ServSwitch Secure

Secure KVM switching that keeps snoopers where they belong — outside your network!

The TEMPEST-approved* ServSwitch™ Secure KVM Switch (with USB) enables users to safely switch between secured and unsecured networks as well as those with multiple security classifications. The switches are ideal for government agencies, including military, defense, or national security, or private sector corporations that must secure classified, financial, or other private or personal data from both external and internal threats. See [pages 372–373](#) for more information.

Plus, you get all the benefits of KVM switching. Save time by using one workstation for accessing different networks. Save space on your desktop by using just one keyboard, monitor, and mouse. And save money by reducing hardware costs.



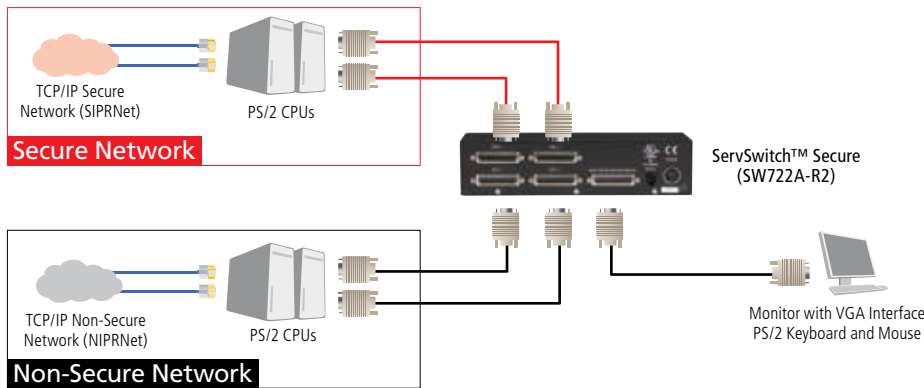
*NSA tested and TEMPEST approved for and by the U.S. Air Force. Other agencies under review for approval. For details, call Tech Support.

ServSwitch Secure

Secure KVM switch with 2 or 4 ports and PS/2 support.

- Supports digital resolution up to 1600 x 1200 and analog up to 1920 x 1440.
- Provides control and separation of up to four computers or servers connected to both secure and unsecure networks through just one keyboard, monitor, and mouse.
- The switch is permanently hard wired and each circuit is soldered, so there is no way to use software to access one CPU from the other or to access one network from the other.
- Nonupgradable ROM for security.
- Channel-to-channel crosstalk isolation protects against signal snooping.
- Boot connected servers simultaneously or one by one.
- Easy-to-read LEDs provide you with quick status updates on each channel.
- For higher resolutions, use coax cable.
- If you need to use this switch with USB CPUs, call our FREE Tech Support.
- **◆◆ WARRANTY** — 2 Years

With the ServSwitch™ Secure, what's on one network can never cross to the other.



PLATFORMS	CONNECTORS	CABLE	SWITCHING
PC	PS/2 [®] USB VGA	Composite	Push Button Hotkey Serial

TEMPEST approved!



SW722A-R2

This is one tough switch. The robust metal case is built for hard use and provides excellent shielding against EMI/RFI, and the switching mechanism is built to keep on switching for years!

NOTE: For TEMPEST approval questions or documents, call our FREE Tech Support.

Item	Code	List Price
ServSwitch Secure 2-Port	SW721A-R2	
ServSwitch Secure 4-Port	SW722A-R2	

You may also need...
ServSwitch Secure Cables

Go to blackbox.com or call our FREE Tech Support.

ServSwitch Secure (with USB)

Secure KVM switch with 2 or 4 ports, USB and DVI-I.

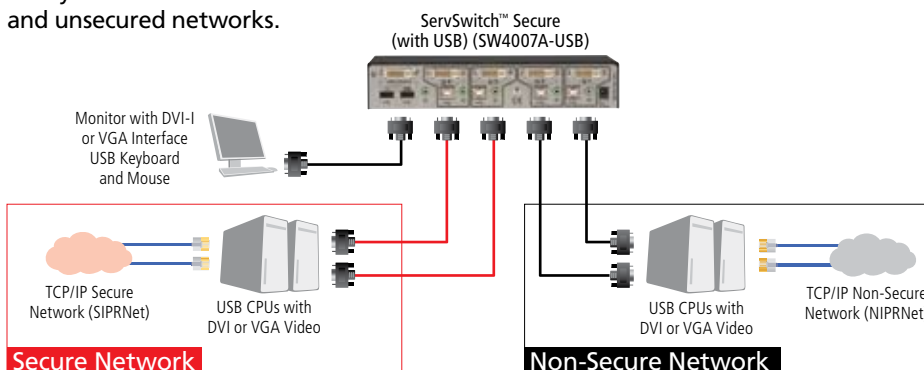
TEMPEST approved!



SW4007A-USB

NOTE: For TEMPEST approval questions or documents, call our FREE Tech Support.

Safely access servers between secured and unsecured networks.



PLATFORMS	CONNECTORS	CABLE	PERIPHERALS	SWITCHING
PC Sun [®] Mac [®]	USB DVI-I	Native	Speaker	Push Button

- Supports digital resolution up to 1600 x 1200 and analog up to 1920 x 1440.
- All microprocessors are One Time Programmable (OTP) with no flash ROM.
- Shielded, secure metal casing is electrically bonded to ensure low electromagnetic emissions for minimized snooping risks.
- High levels of port isolation prevent data leakage.
- Unexpected operations (signaled by the ERR indicator) cause channel isolation and require you to find the fault and reboot the unit.
- Each USB port is powered independently—shorting the supply on one port doesn't switch off power to other ports.
- Unidirectional keyboard and mouse signaling via data diodes ensures that USB data cannot leak back through the switch.
- DVI-I video provides exact video quality and is backwards compatible with analog VGA equipment.
- Digital DVI-I video signals are differential, DC balanced, and encoded.
- True DDC video support. For highly secure installations, DDC data can be bypassed or disabled.
- Tamper-evident seals and screws.
- **◆◆ WARRANTY** — 2 Years

* NSA tested and TEMPEST approved for and by the U.S. Air Force. Other agencies under review for approval. For details, call Tech Support at 877-877-2269.

NOTE: For VGA applications, adapters are required: FA461 for monitor or FA462 for computers.

Item	Code	List Price
ServSwitch™ Secure (with USB) 2-Port	SW2007A-USB	
ServSwitch™ Secure (with USB) 4-Port	SW4007A-USB	

For connections to a DVI-I monitor, order...
ServSwitch DVI Cable
6-ft. (1.8-m) EHN900024U-0006
10-ft. (3.0-m) EHN900024U-0010
Shielded Audio Cable for ServSwitch Secure
9-ft. (2.7-m) EJ4007-9000

ServSwitch Secure Plus (with USB)

Thwart hackers from accessing information with the added security of a built-in card reader.

- Supports digital resolution up to 1600 x 1200 and analog up to 1920 x 1440.
- Data isolation prevents data from leaking between computers. Plus, all microprocessors are One Time Programmable (OTP) with no flash ROM.
- Up to 60 dB of channel-to-channel crosstalk isolation protects against signals from one computer being detectable on another computer.
- Heavy-duty metal casing is electrically bonded to ensure low emissions.
- Built-in card reader provides additional security. Authorized users can access only the computers they are permitted to operate.
- Unidirectional keyboard and mouse signaling ensures that USB data cannot leak back through the switch. It also thwarts hacking via timing analysis, USB common storage Trojans, and forced overload malfunction mechanisms.
- USB connections enable you to use the latest keyboards.
- DVI-I video is backwards compatible with older analog VGA equipment.
- Digital DVI-I video signals are differential, DC balanced, and encoded.
- True DDC video support. For highly secure installations, DDC data can be bypassed or disabled.
- Tamper-evident seals and screws.
- **◆◆ WARRANTY** — 2 Years

TECH SPECS

Resolution (Maximum) — Digital: 165 MHz per DVI link, dual-link DVI supported;
Analog: 1920 x 1280

Connectors —

SW4007A-USB-PLUS:

CPU: (4) DVI-I F, (4) USB Type B F, (4) 3.5-mm audio jacks;

User: (1) DVI-I F, (2) USB Type A F, (1) 3.5-mm audio jack;

Card reader: (1) internal;
Power: (1) 2.5-mm barrel F

Indicators — LEDs: (1) Power, (1) Error, (1) CPU Selected per port

CE Approval — Yes

Power — 100–240 VAC, 50–60 Hz, external

Size — 1.75"H (1U) x 9.1"W x 5.6"D
(4.4 x 23.1 x 14.2 cm)

NOTE: Specifications are subject to change.



SW4007A-USB-PLUS

NOTE: For VGA applications, adapters are required: FA461 for monitors or FA462 for computers.

Item	Code	List Price
ServSwitch™ Secure Plus (with USB) 4-Port	SW4007A-USB-PLUS	
For connections to a DVI-I monitor, order...		
ServSwitch DVI Cable 6-ft. (1.8-m)	EHN900024U-0006	
10-ft. (3.0-m)	EHN900024U-0010	
Shielded Audio Cable for ServSwitch Secure 9-ft. (2.7-m)	EJ4007-0009	
For VGA applications, order...		
DVI Adapters		
DVI-I M↔VGA HD15 F	FA461	
DVI-I F↔VGA HD15 M	FA462	

Black Box Explains

TEMPEST types.

TEMPEST pertains to technical security countermeasures, standards, and instrumentation that prevent or minimize the exploitation of vulnerable data communication equipment by technical surveillance or eavesdropping.

What puts your data communication equipment at risk? Many things. But first and foremost, its microchip.

Any device with a microchip generates an electromagnetic field, often called a “compromising emanation” by security experts. With the proper surveillance equipment, these emanations can be intercepted and the signal reconstructed and analyzed. Unprotected equipment can, in fact, emit a signal into the air like a radio station—risking the broadcasting of national security or trade secrets into the public airwaves.

Some of the most vulnerable devices are speakerphones, printers, fax machines, scanners, external disc drives, and other high-speed, high-bandwidth peripherals.

If the “snooper” is using a high-quality interception device, your equipment’s signals can be acquired up to several hundred feet away.

Arguably one of the most vulnerable pieces of equipment is an analog VGA monitor. If a spy were to introduce a virus into your system, he or she could monitor and store key presses and passwords used during the day. When the system’s not in use at night, the spy could pulse the VGA screen with grayscale images that have a strong signal at particular frequencies. VGA uses single-ended signaling that has a high common-mode emission level not protected by cable shielding, and it’s possible to monitor these signals outside the secure zone using a radio receiver. Even without a virus, a sophisticated receiver located nearby picks up and views what’s on the VGA monitor.

TEMPEST-approved devices have a rating based on their application and/or environment:

Type 1: This rating is for classified cryptographic equipment used for national

security purposes. It’s endorsed by the National Security Agency (NSA) for securing telecommunications and automated information systems and for the protection of sensitive U.S. Government information.

Type 2: This rating is for unclassified cryptographic equipment used by U.S. Government agencies, state and local governments, and sponsored U.S. Government contractors. It’s endorsed by the NSA for securing telecommunications and automated information systems and for the protection of unclassified but sensitive information, such as contract bids.

Type 3: This rating is for unclassified commercial cryptographic equipment that implements an algorithm registered with the National Institute of Standards and Technology (NIST). It’s for use in protecting sensitive information, like a corporation’s network communications.

Display video from four servers on one screen



KVP4000A: top: front view; bottom: rear view

- Great for control rooms, server farms, and security systems.
- Touch screens supported!
- View video in four different modes: Full-Screen, Dual-Screen, Quad-Screen, and Picture in Picture (PiP).
- Video signals can be analog VGA (1600 x 1200) or digital DVI (1900 x 1200).
- Switch via push buttons, keyboard commands, or mouse.
- Get full KVM switching capability for up to four USB or PS/2® servers.
- Supports USB and PS/2 keyboards and mice for multiplatform use.
- Works with KVM-over-IP access points.
- Less than 1U high. Rackmount kit is included.
- No software needed.
- ♦♦ **WARRANTY** — 2 Years

One for all.

The ServSwitch™ 4site gives you true KVM switching for controlling four servers from one keyboard and mouse. Plus, it enables you to display the video from those four servers on one monitor—all at the same time, and in real time!

This ServSwitch is a real bonus if you work in a control room or need to keep track of multiple screens. You can view them all on the one monitor at your workstation instead of setting up a bank of monitors.

You have four ways to view the video from your different computers: Full-Screen Mode, Quad-Mode, Dual-Mode, and Picture-in-Picture (PiP) Mode.

One-to-one Full-Screen Mode.

In Full-Screen Mode, the video from one of the four connected CPUs or servers is displayed on the entire screen and in maximum resolution. Operation of the keyboard and mouse automatically switches to the selected CPU or server.

Four-in-one Quad Mode.

In Quad Mode, the screen is split into four fields of equal size. Each field displays the live video from one of the connected CPUs or servers. Select keyboard and mouse operation from the field of the corresponding computer.

Seeing double with Dual Mode.

When you only have two computers attached to the ServSwitch 4site, use Dual Mode. Video from each of the CPUs or servers is displayed on a single monitor. As in Quad Mode, select keyboard and mouse operation from the field of the corresponding computer.

Three-on-one Picture-in-Picture Mode.

In Picture-in-Picture (PiP) mode, you can display the full-screen video from one of your computers. Then, the video from up to three other computers is shown as thumbnail images down the right margin of the screen. This way, you can monitor one computer while simultaneously keeping an eye on the other three. You can also scale the images to a comfortable viewing size.

Clearly compatible.

The ServSwitch 4site gives you the flexibility to use all types of monitors and video equipment. It supports all combinations of analog VGA and digital DVI video cards, monitors, even cameras.

The switch automatically determines the resolution of the monitor and each of the four servers. For clear, sharp video, digital resolutions up to 1920 x 1200 at 60 Hz are supported, and VGA analog resolutions of 1600 x 1200 are supported.

What's included

- ServSwitch 4Site
- IEC-320 power cord
- 6.7-foot (2-m) DB9 female to RJ-45 male serial flash control cable
- Manual on CD-ROM

NOTE: To link the switch to the computers/ KVM switching system, you need to purchase additional cables. See the ordering block on the facing page.

Easy switching.

You can switch between the four operation modes, and select your keyboard and mouse operation by using the front-panel buttons, keyboard commands, mouse functions, or touch screens.

Use almost anywhere.

You can use this switch in a variety of environments, such as in control rooms, server farms, security systems, and anywhere you need to monitor multiple video sources.

Visualize everything.

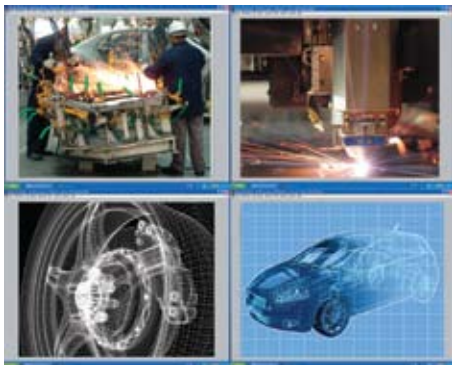
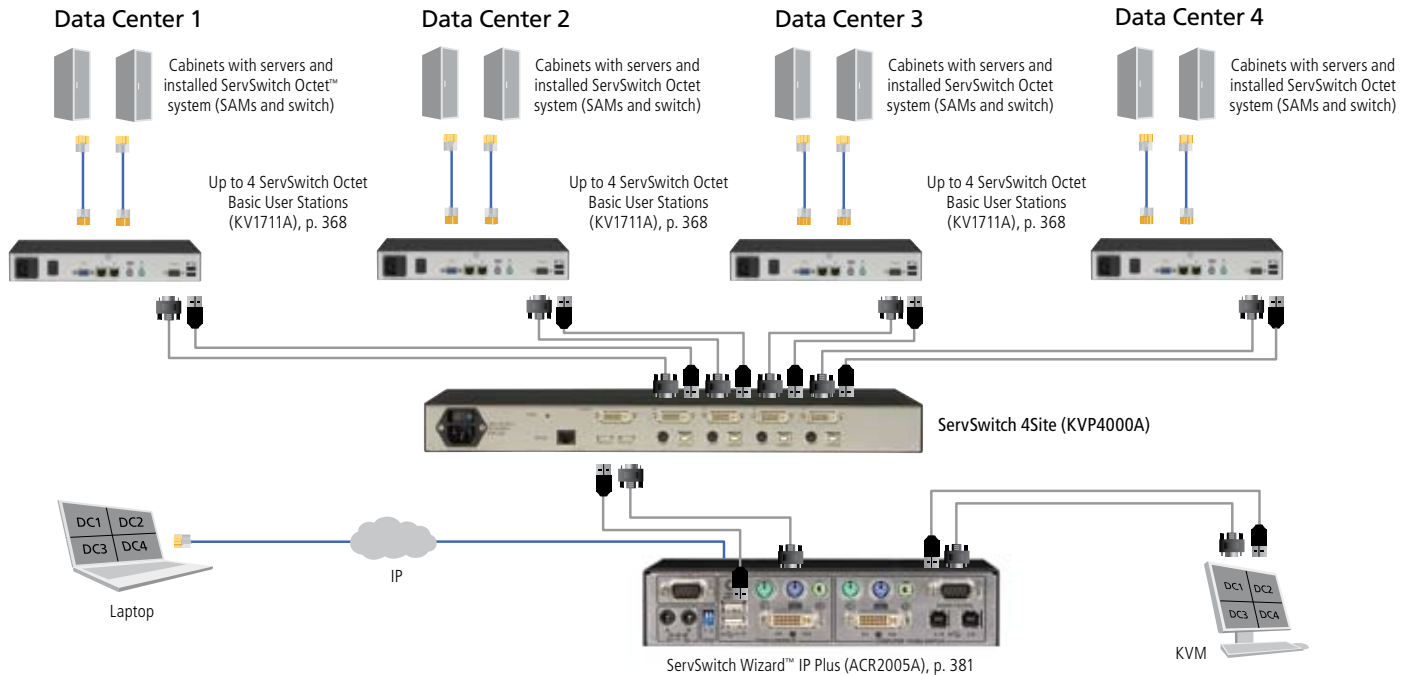
You can also use the ServSwitch 4site to tie up to four KVM switching systems together. Centralize management for the ultimate KVM switching experience!

Connect it to a ServSwitch Octet™ (page 368) for use in large-scale systems. Display and control video on your local console from any four computers out of a much larger pool of servers.

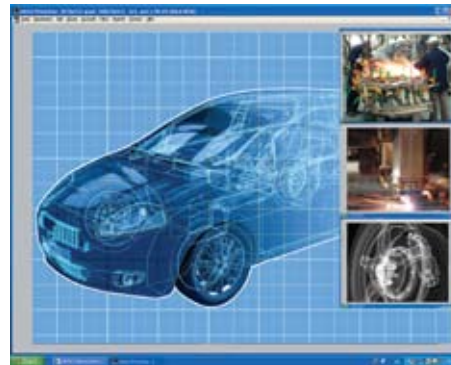
You can even control it remotely over the Internet using a KVM-over-IP access point, such as the ServSwitch Wizard™ IP Plus (page 381). Connect all devices to the ServSwitch from any location using Web client via a LAN or the Internet.



simultaneously and in real time!



In Quad Mode, you can view the entire screen from four different video sources.



In Picture-in-Picture Mode, you can view the full screen display on one video source along with smaller images from the three other video sources.

Easy, menu-based configuration.

Set up your ServSwitch 4site parameters with an easy-to-use on-screen display. Use different menus to set up your preferences for System Hotkey, Configuration, Console, Video, Computer, and Help.

With the System Hotkey, you can set hotkeys, timeouts, language, security levels, zoom, position, and more.

In the Configuration Mode, you can save the current parameters, restore the last saved

configuration, or reset the unit to the factory defaults.

With the Console setup, you can select keyboard layout, resolution, and more.

In the Video screen, you can set parameters such as brightness, contrast, etc.

Select your keyboard and mouse type with the Computer setup screen.

Check keyboard commands, firmware, and contact information in the Help screen.

TECH SPECS

- Controls** — (4) port-switching front buttons; (1) Quad-Mode button; (1) PiP-Mode button
- Distance (Maximum)** — 16.4 ft. (5 m) to console; 16.4 ft. (5 m) to CPU
- Resolution (Maximum)** — VGA: 1600 x 1200; DVI: 1920 x 1200
- Connectors** — CPU: (4) DVI-I F, (4) 6-pin mini DIN F, (4) USB Type B M; Console: (1) DVI-I F, (2) USB Type A F; Management port: (1) RJ-45 (serial RS-232); Power: (1) IEC 320
- Indicators** — (6) LEDs; (4) Select/Powered status, (1) Quad Mode, (1) PiP Mode
- Power** — 100–240 VAC, 50–60 Hz, 40 W maximum
- Size** — 1.7"H x 17.1"W x 9.2"D (4.3 x 43.4 x 23.4 cm)
- Weight** — 6.4 lb. (2.9 kg)

Item	Code	List Price
ServSwitch 4site	KVP4000A	
You may also need...		
ServSwitch 4site Cable		
6-ft. (1.8-m)	EHN900024U-0006	
10-ft. (3.0-m)	EHN900024U-0010	

ServShare

Access a single CPU or ServSwitch from up to four workstations!



Top: 2-Port ServShare (KV752A);
bottom: 4-Port ServShare (KV754A)

- Support resolutions up to 1280 x 1024.
- With the 2-port model, up to two workstations have access to a single CPU.
- With the 4-port model, up to four workstations have access to a single CPU.
- Great for automation control and industrial environments where multiple user stations have to share a single server.
- Works with many ServSwitch™ products—add multiple access points to your applications!
- Supports PS/2 and AT type keyboards, and any two-button PS/2 or serial mouse.
- During normal operation, the ServShare displays video to all user stations simultaneously, so the active user's on-screen activities can be seen by the other user(s).
- For temporary privacy or uninterrupted use, disable or freeze the keyboard, mouse, and video functions of the other user(s).
- To enable or disable keyboard-command input from user stations, just adjust a DIP switch.
- ♦♦ **WARRANTY** — 1 Year

PLATFORMS	CONNECTORS	CABLE
PC	PS/2* VGA	Composite

TECH SPECS

Distance (Maximum) — 100 ft. (30.4 m)
 Keyboard Modes Supported — 1, 2, or 3
 Resolution (Maximum) — 1280 x 1024
 Connectors — KV752A: (3) DB25 F;
 KV754A: (5) DB25 F
 Indicators — KV752A: Front-panel LEDs:
 (1) Power, (2) Station Status,
 (1) Multiple Station Video;
 KV754A: Front-panel LEDs:
 (1) Power, (4) Station Status,
 (1) Multiple Station Video
 CE Approval — Yes
 Power — 110-VAC, 60-Hz transformer included
 (230-VAC versions on request)
 Size — KV752A: 2.1"H x 8.9"W x 4.9"D
 (5.3 x 22.6 x 12.4 cm);
 KV754A: 5.3"H x 13.1"W x 4.9"D
 (13.5 x 33.3 x 12.4 cm)
 Weight — KV752A: 7 lb. (3.2 kg);
 KV754A: 10 lb. (4.5 kg)

Item	Code	List Price
ServShare™ 2-Port	KV752A	
4-Port	KV754A	
For PS/2 CPUs, order cables...		
Computer Cables		See p. 418.
User Cables		See p. 419.
To rackmount your ServShare, order...		
19" Rackmount Kits		
for KV752A	SW727	
for KV754A	SW728	

ServShare II

The flexible solution for computer resource sharing.

- Supports resolutions up to 1600 x 1280 on longer cable lengths and higher resolutions of up to 1900 x 1440 with shorter links.
- Two or four users can share computer resources.
- Flexible operation! Use as a video splitter to up to four video displays or use it to enable up to four users to share a KVM switch.
- Enables many users to connect to several different systems when used with other ServShare™ II units and KVM switches.
- Built-in video booster ensures that picture quality is sharp over longer distances.
- When the switch is used with its external power supply, you can use relatively long cable links between ServShare II, user consoles, your system's shared resources, and other KVM switches.
- Compatible with PS/2 or USB CPUs or Sun. Just choose the cable you need.
- Flash upgradable for future compatibility.
- Transparently supports extra keys on "Internet style" keyboards.
- ♦♦ **WARRANTY** — 1 Year



KV421A

Use as a video splitter or sharer!

PLATFORMS	CONNECTORS	CABLE	FEATURES
PC Sun* Mac*	PS/2* VGA	Native	FLASH Upgradable

TECH SPECS

Connectors —
 KV221A: CPU: (1) HD15 F, (2) 6-pin mini DIN F;
 User: (2) HD15 F, (4) 6-pin mini DIN F;
 Power: (1) 2.5-mm barrel F;
 KV421A: CPU: (1) HD15 F, (2) 6-pin mini DIN F;
 User: (4) HD15 F, (8) 6-pin mini DIN F;
 Power: (1) 2.5-mm barrel F
CE Approval — Yes
Power — For connections up to 6.5 ft. (2 m):
 115 VAC, 60 Hz, internal;
 For connections beyond 6.5 ft. (2 m): 115 VAC,
 60 Hz, external (included)
Size — KV221A: 1.2"H x 5.8"W x 2.8"D
 (3 x 14.7 x 7.1 cm);
 KV421A: 1.7"H x 5.8"W x 2.8"D
 (4.3 x 14.7 x 7.1 cm)
Weight — 1.1 lb. (0.5 kg)

Item	Code	List Price
ServShare™ II 2-Port	KV221A	
4-Port	KV421A	
For PS/2 CPUs, order cables...		
Standard KVM Connections		
Computer Cables		
<i>(For other lengths, see p. 416.)</i>		
10-ft. (3.0-m)	EHN408-0010	
20-ft. (6.0-m)	EHN408-0020	
Control Station Cables		
<i>(For other lengths, see p. 416.)</i>		
10-ft. (3.0-m)	EHN409-0010	
20-ft. (6.0-m)	EHN409-0020	
For CPUs with a USB port for keyboard and mouse connections, order...		
PS/2 to USB Flash Cable <i>(For details, see p. 416.)</i>		
6-ft. (1.8-m)	EHN428-0006	
PS/2 to Sun Flash Cable <i>(For details, see p. 416.)</i>		
6-ft. (1.8-m)	EHN429-0006	

ServSwitch Wizard PRO

These sturdy, entry-level switches support Sun CPU connections, too!

- Features resolutions up to 1600 x 1280 at 100 MHz and Display Data Channel (DDC) support for correct video card communications.
- Switch easily between four or eight PCs.
- Also supports Sun CPUs with the addition of flash cables.
- Use with the ServSwitch Wizard™ IP (page 381) for multiplatform control of CPUs over an Internet connection.
- Includes an options port for attaching a remote control unit or controlling the ServSwitch Wizard PRO via a serial port.
- Can be used with Microsoft® IntelliMouse®.
- Also includes flash-upgradable firmware and 19" rackmount kit.
- ♦♦ **WARRANTY** — 2 Years

TECH SPECS

CE Approval — Yes
 Connectors — Both: (1) DB15 F options port, (1) power jack;
 SW644A also has:
 (10) 6-pin mini DIN F, (5) HD15 F;
 SW648A also has:
 (18) 6-pin mini DIN F, (9) HD15 F

Power — From the interface; optional 5-VDC, 300-mA power supply (PS649-R2) available
 Size — 1.75"H (1U) x 17.1"W x 8.1"D (4.4 x 43.4 x 20.6 cm)
 Weight — 3.2 lb. (1.5 kg)



SW644A

Item	Code	List Price
ServSwitch Wizard PRO™		
4-Port	SW644A	
8-Port	SW648A	
If you need an external power supply, order...		
5-VDC Power Supply	PS649-R3	
To operate your ServSwitch Wizard PRO remotely, order...		
ServSwitch Remote Control Module	KV6REM	

Flash cables for ServSwitch Wizard PRO, p. 416.

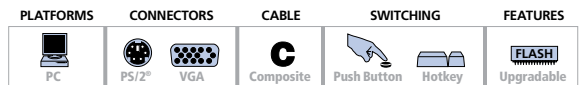
ServSwitch Jr.

This desktop PC switch is flash upgradable!



SW622A-R3

- Video resolutions up to 1600 x 1280.
- Perfect for workgroups and small and home offices.
- Enables you to control up to eight PC/AT® or PS/2 CPUs with one monitor, keyboard, and mouse.
- To switch between CPUs, press the port-selection buttons on the front panel or send switching commands from the shared keyboard.
- Supports Microsoft IntelliMouse.
- Powered by the keyboard and mouse interfaces of the attached CPUs.
- CE Approval — Yes
- ♦♦ **WARRANTY** — 2 Years



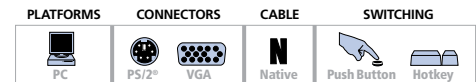
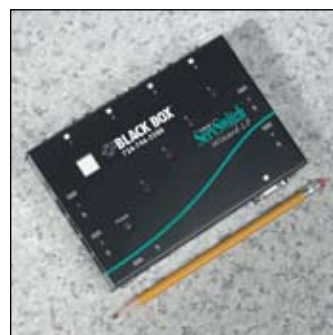
NOTE: For compatibility with laptop and notebook PCs, call our FREE Tech Support.

Item	Code	List Price
ServSwitch Jr.™		
2-Port	SW621A-R3	
4-Port	SW622A-R3	
8-Port	SW629A-R3	
To support flash upgrades, five-button mice, and Microsoft wheel mice—and to upgrade R2 models—order...		
ServSwitch Jr. Chip	KV99JR	
Order a cable for each attached CPU. For distances up to 20 feet (6 m), use standard cables. For higher resolutions and greater distances, use coax.		
CPU/Server to ServSwitch™ Cables (Computer Cables)		
PS/2 Standard	5-ft. (1.5-m)	EHN151-0005
Coax	50-ft. (15.2-m)	EHN382-0050
AT Standard	5-ft. (1.5-m)	EHN048-0005
Coax	50-ft. (15.2-m)	EHN382-0050

ServSwitch Wizard LP

Reliable switching for tight spaces!

- Excellent video quality—1600 x 1280 at 100 Hz.
- Built-in PS/2 and AT compatibility.
- IntelliMouse and burst-mode/prompt-mode support.
- Powered by the interface or with the optional power supply.
- Space-saving design. Great for users requiring access to desktop computers and laptops.
- CE Approval — Yes
- ♦♦ **WARRANTY** — 2 Years



Item	Code	List Price
ServSwitch Wizard™ LP		
2-Port	SW641A	
4-Port	SW642A	
ServSwitch Wizard LP Kits		
2-Port	SW641A-K	
4-Port	SW642A-K	
♦ The kits include a 2- or 4-port Wizard LP, (2) or (4) 10-ft. premium KVM user cables, (2) or (4) DB9↔6-pin mini DIN adapters, and (2) or (4) 5-pin DIN↔6-pin mini DIN adapters.		
For an external DC power supply, order...		
5-V Power Supply	PS649-R3	

Cables for PS/2 connections (to PS/2, USB, and Sun), p. 416.

ServSwitch Affinity

Get access to up to 1000 servers for yourself and up to 15 staff members simultaneously.

- Up to 4 users can access up to 16 servers with just a single chassis!
- Up to 16 users can simultaneously access up to 1000 servers in a system.
- Video resolution up to 1280 x 1024.
- Features serial emulation (VT100).
- Integrated autoswitching power supply.
- Models available with redundant power supplies.
- Provides simplified setup in larger configurations.
- Flash memory for easy firmware upgrades.
- Equip it with DB15 or HD15 expansion cards and cables.
- Dedicated expansion port enables you to connect up to 1000 servers!
- Programmable security keeps your servers safe from unauthorized users.
- **◆◆ WARRANTY** — 2 Years

Helpful on-screen display!

- The on-screen display pops up in front of existing video.
- Choose servers from a window that has adjustable color, position, and fonts.
- The name of a selected server fades after an adjustable time interval.
- Or use a keyboard command to show or hide a server name instantly.
- Easy-to-use menus enable you to configure all settings.
- Includes screen saver with four patterns.
- Also includes the ISO8859-1 character set for international support.



On-screen menus make it easy to identify the system status of computers in an installation.



KV130A

Your ServSwitch Affinity™ options are limited only by your application needs! Choose our preconfigured models for either 2 users and 8 servers (KV132A-R2) or for 4 users and 16 servers (KV134A-R2). Or start with an empty expansion chassis (KV130A, KV130DA, KV138A, KV138DA, KV139A, or KV139DA) and add plug-in cards to create a ServSwitch Affinity configuration that suits your application perfectly!

Access your servers in one of four ways:

- In **view mode**, a control station's monitor reflects a selected server's activity, but the keyboard and mouse are disabled and no changes can be made.
- In **share mode**, the control stations gain access to servers on a first-come, first-served basis. A control station releases control of a server for use by the other station(s) after a time-out period.

- In **control mode**, one control station can take exclusive control of a server. Other stations can access the server but cannot control it in any way.
- In **private mode**, one control station has exclusive access and control over a server.



Add cards to your ServSwitch Affinity chassis to create a "made-to-order" configuration.

Item	Code	List Price
Order the chassis for your application...		
ServSwitch Affinity™ Preconfigured		
1 User x 16 Servers (plus Terminator Card)	KV131A-R2	
2 Users x 8 Servers (plus Terminator Card)	KV132A-R2	
4 Users x 16 Servers (plus Terminator Card)	KV134A-R2	
4-User Architecture with Redundant Power Supply	KV130A	
8-User Architecture with Redundant Power Supply	KV130DA	
8-User Architecture with Redundant Power Supply	KV138A	
8-User Architecture with Redundant Power Supply	KV138DA	
16-User Architecture with Redundant Power Supply	KV139A	
16-User Architecture with Redundant Power Supply	KV139DA	
...then add up to four cards per chassis (for the KV130A, KV130DA, KV138A, KV138DA, KV139A, or KV139DA)...		
ServSwitch Affinity Cards		
0 Users x 4 Servers	KV1300C	
1 User x 4 Servers	KV1301C-R2	
If you're building a single-chassis configuration with the KV130A or KV130DA, order...		
ServSwitch Affinity Terminator Card	KV1304C	
Use one expansion card for each 8-user chassis and two expansion cards for each 16-user chassis (even in a single-user installation); the 4-user chassis only requires an expansion card in a multiple-chassis environment...		
ServSwitch Affinity Expansion Cards		
DB15 4-User	KV1305C	
HD15 8-/16-User (High-Density)	KV1306C	

Click and find at **blackbox.com**.
ServSwitch Affinity Rackmount Kits and Chassis with Expansion Cards.

ServSwitch Affinity Computer and Expansion Cables, pp. 413–414.



ServSwitch Summit

Scale the Summit to control more than 1000 CPUs over ordinary CAT5 cable.

- Centralized server management for enterprise-level data centers.
- Locate users and CPUs up to 500 feet (152.4 m) apart.
- Connect all components within the system using CAT5 cable.
- Cascade switches to support more than 1000 CPUs.
- Simple plug-and-play, autoconfiguring installation.
- Computer Interface Modules (CIMs) available for various connection types and platforms.
- High-resolution video—up to 1280 x 1024 at 75 Hz.
- Flexible, multilevel security options ensure only authorized CPU access.
- **WARRANTY** — 2 Years

The ServSwitch Summit™ system, designed especially for use in high-density server environments, is particularly well-suited for corporate data centers, server farms, Web hosting facilities, and test labs. There are no bulky cables to further crowd your server room.

The ServSwitch Summit has three modes of operation:

- **Private Mode**, in which server access is restricted to one user at a time.

- **Public View**, which enables one user to view the monitor of a second user while the second user accesses a server.

- **PC Share Mode**, in which a server can be accessed by more than one user (although only one user can be in control at any one time).

Whatever the mode, your system's authorized users can access connected servers—seamlessly and transparently.



KV1502A

Item	Code	List Price
ServSwitch Summit™ CAT5 KVM Switching System Base Units		
2 Users x 42 CPUs	KV1500A	
4 Users x 42 CPUs	KV1501A	
8 Users x 32 CPUs	KV1502A	
16 Users x 64 CPUs	KV1503A	
For each user console, you need...		
Summit User Station	KV1510A-R2	
For each CPU connection, you need...		
Summit Computer Interface Modules (CIMs)		
Direct-Connect PS/2	KV1515A	
Direct-Connect USB	KV1517A	
Local PC to User Station	KV1519A	



CAT5 Unshielded 100-Mhz Solid Bulk Cable, p. 105.

ServSwitch Ultra Remote • ServSwitch Remote

Worldwide reach: remote access to your servers over your LAN or WAN.

- Access remote servers over Ethernet.
- Compatible with the ServSwitch Affinity™ (facing page), the ServSwitch Ultra™ and the ServSwitch™ (page 360), and many other ServSwitch products.
- Quad view so you can see four servers on one screen.
- Support up to 1280 x 1024 resolution.
- Password security.
- Easily installed remote client application requires no licensing.
- Image scaling reduces the amount of data sent and enables fast screen updates even over slow links.
- **WARRANTY** — 1 Year

Experience convenience in server management with the ServSwitch Ultra Remote and ServSwitch Remote. With these powerful units, you can access your computers from anywhere in the world!

Access your servers two ways: from anywhere on your Ethernet LAN or WAN, or through a locally connected keyboard, monitor, and

mouse. It's never been so easy to access and control servers.

Password protection is easy-to-configure. Passwords and keyboard data are encrypted with the latest (SSL) technology. For extra reliability, the Ultra Remote and Remote are constructed as solid-state, fully embedded units with no hard drives or complicated operating systems.



Top: ACR9005A, front view;
bottom: ACR9000A, front view

Item	Code	List Price
ServSwitch Ultra Remote		
Single-User	ACR9000A	
Dual-User	ACR9002A	
Quad-User	ACR9004A	
ServSwitch Remote		
Single-User	ACR9005A	

ServSwitch Ultra Remote and ServSwitch Remote Cables, pp. 418–419.



ServReach KVMCube KVMoIP (1 x 1)

Create a virtual data center and reach every server in every office worldwide!

- IP addressable for BIOS-level connections.
- Single RJ-45 port on a palm-sized device.
- Has 10-/100-Mbps RJ-45 port and 26-pin MDR port for connecting target server interface cables.
- Has USB keyboard/mouse connections and includes a 2-ft. MDR USB computer cable. For PS/2 applications, order an optional MDR PS/2 cable.
- Gives you complete control of mission-critical servers no matter their location.
- Supports virtual media for simplified file transfer.
- Can be managed directly or with the ServReach KVMManager (page 369).
- Boasts 128-bit SSL security.
- Cost-effective and scalable.

What's included

- ServReach KVMCube KVMoIP (1 x 1)
- 2-ft. (6.0-m) MDR cable to attach to USB computers
- Power supply
- Rackmount kit
- User's manual

- Use it with its external power supply or as a Power over Ethernet (PoE) device.
- Superior video; absolute mouse sync!
- ♦♦ **WARRANTY** — 2 Years

TECH SPECS

Operating Systems — USB target server: DOS, Windows® 98SE and higher, Novell, Linux®, UNIX®, Sun Solaris®, Mac; PS/2 target server: DOS, Windows, Novell, Linux, UNIX, Sun Solaris; Client (USB or PS/2): Windows NT® 4.0, Windows 2000, XP, 2003 Server, or Vista running Internet Explorer 6.0 or 7.0

Resolution — Host: 1600 x 1200 at 85 Hz (*NOTE: Resolution on client computer should be higher than resolution on target server.*)

Video and Mouse Synchronicity — Auto and manual modes

CE Approval — Yes

Connectors — (1) 10-/100-Mbps autosensing RJ-45, (1) 26-pin MDR connector for attachment of target server interface cables; Included USB cable: Video: (1) HD15 F; Keyboard and mouse: (1) USB Type A M; Optional PS/2 cable: Video: (1) HD15 F; Keyboard: (1) 6-pin mini DIN F; Mouse: (1) 6-pin mini DIN F

Power — External: 12 V, 1000 mA; PoE: 4.5 W

Size — 1.3"H x 3.2"W x 4.1"D (3.3 x 8 x 10.5 cm)

Weight — 0.6 lb. (0.3 kg)

PLATFORMS	CONNECTORS	CABLE	PERIPHERALS	FEATURES
PC Sun® Mac®	PS/2® USB VGA	Composite	VM Serial	IP FLASH Upgradable



KVIP1001A

Item	Code	List Price
ServReach™ KVMCube, 1 x 1	KVIP1001A	

You might also need...

USB/VGA Computer Cable		
2.0-ft. (0.6-m)	KVIPUSB-0.6M	
6.6-ft. (2.0-m)	KVIPUSB-2M	

For PS/2 connections...

PS/2/PS/2/VGA Computer Cable		
2.0-ft. (0.6-m)	KVIPPS2-0.6M	
6.6-ft. (2.0-m)	KVIPPS2-2M	

For an additional power supply...

12-V, 1000-mA Power Supply		
	KVIP1001-PS	

ServReach KVMGate KVMoIP (1 x 1)

Add all the benefits of KVM over IP switching— even for KVM switches that don't support IP!



KVIP1000A: top: rear view; bottom: front view

What's included

- ServReach KVMGate KVMoIP (1 x 1)
- 2-ft. (6.0-m) PSP/VGA computer cable
- Power cord for U.S.
- Power cord for Europe
- Rackmount kit
- Flash cable
- User's manual

- Get BIOS-level control of USB or PS/2 servers over IP.
- Serves as the KVM IP gateway for each server.
- Adds IP capability to most manufacturers' KVM switches.
- Cut costs associated with downtime, equipment replacement, and service calls.
- Place the unit through the Internet, a LAN, or a local KVM station.
- Boasts 128-bit SSL encryption to guard your data effectively.
- Advanced power management options.
- No software to install—you only need Internet Explorer® 6.0 or 7.0.
- Just place on your LAN, attach it to your target KVM switch, and you're in business.
- Works with the ServReach KVMCube (above) and the 1 x 16 ServReach KVMMultiport (page 369).
- Can be managed directly or with the ServReach KVMManager (page 369).
- Supports resolutions up to 1600 x 1200.
- Compatible with many other KVM switches.
- ♦♦ **WARRANTY** — 2 Years

TECH SPECS

Operating Systems — Target servers: Windows NT 4.0, Windows 98 and higher, Novell® 3.12–6, Linux®, DOS; Client workstation: Windows NT 4.0, Windows 2000, XP, 2003 Server, or Vista running Internet Explorer 6.0 or 7.0

Resolution — Host: 1600 x 1200 at 85 Hz (*NOTE: Resolution on client workstation should be higher than resolution on target server.*)

Video and Mouse Synchronicity — Microsoft® or default OS driver

CE Approval — Yes

Connectors — RJ-45: (1) serial, (1) LAN; USB: (1) USB Type B F; Video: (2) HD15 F; Keyboard and mouse: (2) 6-pin mini DIN F

Power — 100–240 VAC, 50–60 Hz, autosensing

Size — 1.6"H x 10.6"W x 8.7"D (4 x 27 x 22.1 cm)

Weight — 3.6 lb. (1.6 kg)

Item	Code	List Price
ServReach KVMGate, 1 x 1	KVIP1000A	

« The complete ServReach KVMoIP System, p. 369.

ServSwitch Wizard IP ServSwitch Wizard IP Plus

Add IP connectivity to your existing KVM switch or single computer.

- Access an attached ServSwitch™ and all servers connected to it via an IP network or dialup connection.
- Plus model includes USB, DVI-I, and audio connectors for streaming data and sound.
- Compatible with VNC and Java™ (Web browser) viewers.
- Robust, enterprise-grade security with AES 128 encryption and RSA 2048 authentication.
- No software needed, so you save money!
- Remotely reboot the entire system after a power crash.
- Link to just about any other ServSwitch or connect it directly to a USB-equipped Sun, Mac, or PC server.
- True DDC support for use with computer video cards.
- Easy on-screen display enables fast set up.
- ♦♦ **WARRANTY** — 2 Years



Connect the Wizard IP above to just about any other ServSwitch product as well as IBM compatible, Sun, or Mac servers. The updated firmware enables you to use either a PC or Mac computer to view connected servers from a remote location. The Wizard IP and IP Plus are also rackmountable.

The ServSwitch Wizard™ IP from Black Box® enables you to remotely access an attached ServSwitch and all servers connected to it from anywhere in the world via an IP network or a dialup connection. No special software is needed.

Full server control.

The ServSwitch Wizard IP only requires a keyboard, video monitor, and mouse (KVM) connection to your servers and doesn't need special software to be loaded on the controlled servers. Unlike software-only remote access solutions, the ServSwitch Wizard IP provides full control—even during computer bootup.

The ServSwitch Wizard IP has a power control port that enables a remote user to reset one or more power switches in the host system. You can reboot the host remotely no matter how much it has locked up!

RJ-45 and DB9 port connections.

Up to four simultaneous remote users can view the ServSwitch Wizard IP, although only one user has complete control. You can connect all users via its RJ-45 network port or link one of four remote users via its modem/ISDN DB9 port. You can also use the DB9 port as a backup access route should the network fail.

Accessible via a VNC viewer.

The ServSwitch Wizard IP and Plus contain an embedded VNC server, which you can access securely using a VNC viewer or a browser running Java. No extra software seat licenses are needed. Private or shared access modes are supported from up to four viewers.

An on-screen display with innovative in-picture configuration menus simplifies the VNC viewer into a single software application, and makes it easy to set up and control the switch.

Plus audio, video, and USB connections.

With the Plus version, you get all the features of the Wizard IP but with a faster (533-MHz) processor and better video performance, making it ideal for high-end server rooms. Additionally, the Virtual Media feature enables you to remotely make files available to any host computer linked to the Wizard IP Plus.

The Plus has USB, DVI-I, and audio connectors for streaming data and sound to a remote virtual network collaborator (VNC). The console connectors include PS/2 and USB ports for a keyboard and mouse, an audio jack for plugging in speakers, and a DVI-I port that autosenses between digital and analog video connections. The DVI-I port converts an analog input signal into a DVI signal to give you much clearer video displays. There's also an audio jack for "audio-over-IP" applications so you can feed audio signals from a host site to remote VNC viewers.

NOTE: The ServSwitch Wizard IP and IP Plus are compatible with most of our ServSwitch products. For details, call our FREE Tech Support.

TECH SPECS

Hardware Compatibility — IBM® PC, PS/2, and compatibles; Sun USB; Mac USB; RS/6000®; DEC™ Alpha; SGI™

Operating Systems Supported — Windows® 3.x/95/98/Me/XP, Windows NT®, Windows 2000, Windows 2003 Server, Windows Vista®, DOS, Linux®, UNIX®, BSD, Sun, Macintosh®, NetWare®

Peripherals Supported — Keyboards: PS/2 style; Mice: 2-button, 3-button, wheel, IntelliMouse®, IntelliMouse Explorer; ACR2005A also supports USB-style keyboards and mice

Resolution (Maximum) — 1600 x 1200 @ 60 Hz

Software Compatibility — Limited security: AT&T® 3.3.3, RealVNC 3.3.4 and higher; Full security: Available on both the VNC and Java™ based RealVNC 4.0 viewers

CE Approval — Yes

Connectors —

Connected ServSwitch™:
PS/2 keyboard: (1) 6-pin mini DIN F;
PS/2 mouse: (1) 6-pin mini DIN F;
Video: ACR2004A: (1) HD15 F;

ACR2005A: (1) DVI-I F;
ACR2005A also has
USB keyboard/mouse: (1) USB Type B F;
USB virtual media support: (1) USB Type B F;
Audio: (1) 3.5-mm jack;
Local KVM console:
PS/2 keyboard: (1) 6-pin mini DIN F;
PS/2 mouse: (1) 6-pin mini DIN F;
Video: ACR2004A: (1) HD15 F;
ACR2005A: (1) DVI-I F;
ACR2005A also has:
USB keyboard/mouse: (2) USB Type A F;
Audio: (1) 3.5-mm jack;
Network: (1) 10-/100-Mbps autosensing RJ-45;
Modem/ISDN: (1) DB9 M;
Power control: (1) DB9 M;
Power input: ACR2004A: (1) 2.5-mm barrel jack;
ACR2005A: Included adapter: (1) barrel F;
For optional redundant power: (1) barrel F

Item	Code	List Price
ServSwitch Wizard IP	ACR2004A	
♦ Includes (1) ServSwitch Wizard IP (1) power supply, (1) CD-ROM, and (4) self-adhesive rubber feet.		
ServSwitch Wizard IP Plus	ACR2005A	
♦ Includes (1) power supply, (1) CD-ROM, and (4) self-adhesive rubber feet.		

To rackmount your ServSwitch Wizard IP and IP Plus, order...

ServSwitch Wizard IP Rackmount Kits	
Single Unit	RMK2004
Dual Units	RMK2004-2

Cable to connect your CPUs, p. 416.

ServSwitch Brand CATx KVM Micro Extender Kits

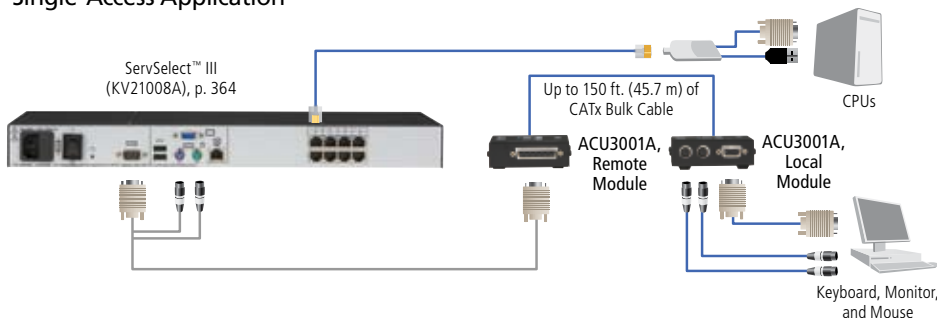
A compact, low-cost way to extend KVM signals up to 150 feet!

- Put some distance—150 feet (45.7 m)—between your CPU or ServSwitch and your keyboard, monitor, and mouse.
- Adjustable video equalization and 1280 x 1024 resolution for crisp, clear video.
- Use ordinary CATx cable, which you may already have installed.
- Transmit high-resolution video even up to the maximum distance.
- Intelligent keyboard and PS/2 emulation prevents remote CPU lockup—even if your keyboard or interconnect cable is disconnected.
- Built-in surge protection protects the CATx link side from surges and spikes.
- Enable you to place CPUs where you want them.
- The ACU3009A enables you to place a keyboard, monitor, and mouse both near your CPU and at a remote location up to 150 feet (45.7 m) away!
- The ACU3022A provides additional serial and audio support!
- To use Extender Kits with an AT® mouse, add a GHOST Emulator (AC244A), page 404.
- ♦♦ **WARRANTY** — 1 Year

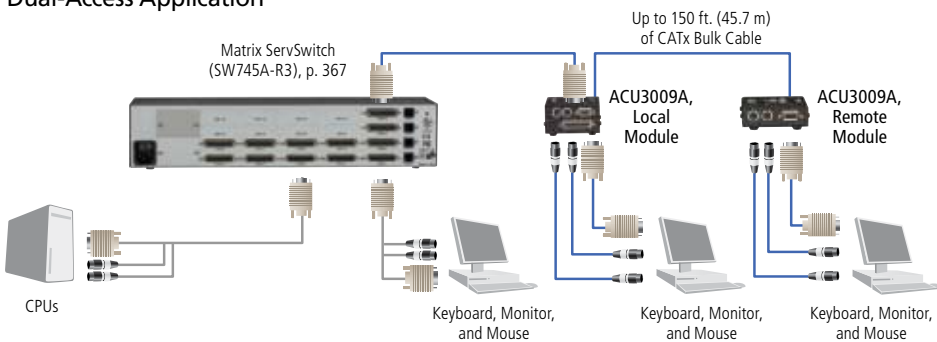
Built-in surge protection!



Single-Access Application



Dual-Access Application



TECH SPECS

Resolution (Maximum) — 1280 x 1024 @ 150 ft. (45.7 m)

Clamping Voltage — 15 volts

Compatibility — Keyboard: PC/AT, PS/2;

Video: VGA, Super VGA, XGA;

Mouse: PS/2 mouse only

Connectors — Local modules:

CPU: (1) DB25 F;

Interconnect: (1) RJ-45;

ACU3009A also has: Monitor: (1) HD15 F;

Keyboard and mouse: (2) 6-pin mini DIN F;

ACU3022A also has: Audio: (2) 3.5-mm F;

Serial: (1) DB9 F;

Remote modules:

Interconnect: (1) RJ-45;

Monitor: (1) HD15 F;

Keyboard and mouse: (2) 6-pin mini DIN F;

Power: (1) barrel connector M;

ACU3022A also has: Audio: (2) 3.5-mm F;

Serial: (1) DB9 F

CE Approval — Yes

Power — Local module: From the CPU;

Remote module: 100–240 VAC, 50–60 Hz, autosensing, external, with IEC 320 connector and power cord

Size — ACU3001A local and remote modules,

ACU3009A remote module: 1"H x 4.3"W x 3.1"D (2.5 x 10.9 x 7.9 cm);

ACU3009A local module: 1.7"H x 4.3"W x 3.1"D (4.3 x 10.9 x 7.9 cm);

ACU3022A local and remote modules:

2"H x 3.2"W x 4.3"D (5.1 x 8.1 x 10.9 cm)

What's included

- Local unit
- Remote unit
- (1) 3-ft. coax CPU cable
- Power supply (PSU1002E-R3)

ACU3022A also includes:

- (1) 3-ft. serial cable
- (1) 6-ft. audio cable

Item	Code	List Price
For single-access applications, order...		
ServSwitch Brand CATx KVM Micro Extender Kit	ACU3001A	
For dual-access applications, order...		
ServSwitch Brand Dual-Access CATx KVM Micro Extender Kit	ACU3009A	
For bidirectional serial and audio support, order...		
ServSwitch Brand CATx KVM Micro Extender Kit with Bidirectional Serial and Audio Support	ACU3022A	
For longer distances between your CPU and local module, order...		
Coax CPU Cables for CATx KVM Extenders		
10-ft. (3.0-m)		EHN230-0010
15-ft. (4.5-m)		EHN230-0015

ServSwitch Brand Micro Extender Kits

Transmit single- and dual-video—plus serial and audio—up to 150 feet away!

- Transmit VGA as well as keyboard and mouse signals up to 150 feet over CAT5, CAT5e, and CAT6 UTP cable.
- Support up to 1600 x 1200 resolution.
- Choose from models for PS/2 or USB keyboard and mouse consoles.
- Dual-VGA units support two monitors.
- Dual-access versions enable you to connect two workstations for local and remote server control.
- Serial and audio models enable you to connect devices such as touch screens and hear audible alarms.
- Standalone remote units work with our CAT5 KVM Extender Hubs.
- Kits include a local and a remote unit.
- **◆◆ WARRANTY** — 1 Year

Two kinds of consoles: PS/2 or USB.

Our ServSwitch Brand Micro Extender Kits enable you to place your workstation up to 150 feet (45.7 m) away from a server with either a PS/2 or USB keyboard and mouse console. The extenders transparently send VGA and USB 1.1 signals over CAT5/5e/6 cable. And with up to 1600 x 1200 resolution, you get sharp, clear video, even on large monitors.

A 4-port USB hub built into the USB remote units enables you to connect USB 1.1 devices such as memory sticks and PDAs in addition to the keyboard and mouse.

"I need two."

If you need to use two monitors at your local workstation, go for the dual-VGA models. The additional VGA signals runs over a second CAT5/5e/6 cable.

Twice the access.

Dual-access models enable two dual-monitor workstations—one local and one remote—to access a server. You can have a local workstation in your server room and another in your office or other remote location.

Send serial and audio, too!

Two kits (ACU3222A, ACU3228A) support serial RS-232 signals as well as audio on the same CAT5/5e/6 cable. Use them to connect serial touch screens and printers. Audio extension provides bidirectional stereo transmission so you can hear audible alarms at your workstation.

All purpose.

All models are flash upgradable and provide local passthrough for video signals so you can connect a local VGA monitor for administration.

PLATFORMS	CONNECTORS	CABLE	PERIPHERALS	FEATURES
PC SUN [®] MAC [®]	PS/2 [®] USB VGA	CAT5, 5e, 6	Spkr./Mic USB Serial Touch Screen	FLASH Upgradable



ACU3201A: remote and local unit; front and rear view

TECH SPECS

Connectors —

All PS/2 local units: (1) DB25 F, (1) HD15 M, (1) 2.5-mm barrel power jack, (2) RJ-45;
 ACU3209A, ACU3228A also include: (2) HD15 F, (2) 6-pin mini DIN F;
 ACU3222A, ACU3228A also include:
 (2) 3.5-mm audio jacks, (1) DB9 F;

All PS/2 remote units: (2) DB15 F, (2) 6-pin mini DIN F, (1) 2.5-mm barrel power jack, (2) RJ-45;
 ACU3222A, ACU3228A also include: (2) 3.5-mm audio jacks, (1) DB9 M;

All USB local units: (1) HD15 F, (1) HD15 M, (1) USB Type B F, (1) barrel power jack, (1) RJ-45;
 ACU4201A, ACU4222A also include: (1) HD15 F, (1) HD15 M, (1) RJ-45;

ACU4222A also has: (2) 3.5-mm audio jacks, (1) DB9 F;

USB remote units, ACU4xxxA: (1) DB15 F, (4) USB Type A F, (1) barrel power jack, (1) RJ-45;
 ACU4201A, ACU4222A also include: (1) HD15 F, (1) RJ-45;

ACU4222A also has: (2) 3.5-mm audio jacks, (1) DB9 M

CE Approval — Yes

Power — PS/2 local units: Via PS/2[®] interface or optional external 9-VDC power supply (PSU1002E-R3; for details, call our FREE Tech Support);

PS/2 remote units: Included external power supply, 100–240 VAC, 50–60 Hz;

USB local units: Via USB interface or optional external 5-VDC power supply (PSU1006E-R2; call our FREE Tech Support);

USB remote units: Included external power supply, 100–240 VAC, 50–60 Hz

Size — PS/2 local units: All except ACU3201A:

1.7"H x 5.7"W x 4.3"D
 (4.3 x 14.5 x 10.9 cm);
 ACU3201A: 1.1"H x 5.7"W x 4.3"D
 (2.8 x 14.5 x 10.9 cm);

PS/2 remote units: All except ACU3201A:
 1.7"H x 4.7"W x 4.3"D (4.3 x 11.9 x 10.9 cm);
 All others: 1.1"H x 4.7"W x 4.3"D
 (2.8 x 11.9 x 10.9 cm);

USB local units: ACU4001A: 1.1"H x 4.7"W x 4.3"D
 (2.8 x 11.9 x 10.9 cm);

ACU4201A: 1.7"H x 4.7"W x 4.3"D
 (4.3 x 11.9 x 10.9 cm);

ACU4222A: 1.7"H x 5.8"W x 4.3"D
 (4.3 x 14.7 x 10.9 cm);

USB remote units: ACU4001A: 1.1"H x
 5.4"W x 3.9"D (2.8 x 13.7 x 9.9 cm);

ACU4201A: 1.1"H x 5.4"W x 3.9"D
 (2.8 x 13.7 x 9.9 cm);

ACU4222A: 1.7"H x 5.4"W x 3.9"D
 (4.3 x 13.7 x 9.9 cm)

What's included

The **Micro Extender kits** include:

- Local unit
- Remote unit
- (1) 9 VDC 1-amp power supply transformer and output cord
- (1) Power supply input cord suitable for your country or region
- (1) 3-ft. HD15 to HD video cable
- (1) 3-ft. Micro Extender cable (EHN230-0003)

The **USB Micro Extenders** include:

- (1) 5-VDC power supply
- (1) 3.3-ft. USB/Video Cable with USB connector and VGA video (HD15 M-F)

Item	Code	List Price
------	------	------------

For PS/2 applications, order...

ServSwitch™ Brand Micro Extender Kits
 Dual-VGA ACU3201A
 with Serial and Audio
 ACU3222A

For two-user PS/2 applications, order...

Dual-Access ServSwitch Brand
 Micro Extender Kits
 Dual-VGA ACU3209A
 with Serial and Audio
 ACU3228A

For USB applications, order...

ServSwitch Brand USB Micro Extender Kits
 Single-VGA ACU4001A
 Dual-VGA ACU4201A
 with Serial and Audio
 ACU4222A

To rackmount up to three local or remote units, order...

Rackmount Kit for CATx Extenders, 19" Rack
 RMK19U-X3

Low-Cost ServSwitch Wizard Extender Kits

Use a PS/2 keyboard and mouse at your remote console to connect to a PS/2 or USB computer up to 328 feet away.

- Extend KVM over CATx up to 328 feet (100 m) for PS/2 or USB computers.
- Provide 1600 x 1200 resolution at up to 328 feet (100 m).
- Provide 1900 x 1440 resolution at up to 164 feet (50 m).
- Compatible with a wide range of operating systems: Windows®, DOS, Linux, UNIX®, BSD, Sun® OS, Solaris, Mac®, NetWare®, and more!
- Fully support DDC for automatic video setup plus USB emulation and built-in skew compensation.
- Ensure bright and clear images with their own brightness correction.
- Work with flat-screen and CRT-style monitors.
- Include Rackmount Mounting Plate.
- **◆◆ WARRANTY** — 1 Year



ACU5001A:
top: local module;
bottom: remote module

What's included

- User station
- PS/2 or USB SAM (Server Access Module)
- Power supply
- Power cord
- Set of (4) rubber feet

PLATFORMS	CONNECTORS	CABLE	FEATURES
PC Sun® Mac®	PS/2® USB VGA	CAT5, 5e, 6	FLASH Upgradable

TECH SPECS

Resolution (Maximum) — 1600 x 1200 up to 328 ft. (100 m);
1900 x 1440 up to 164 ft. (50 m)

Connectors — ACU5001A:
Local module: Interconnect: (1) RJ-45;
Keyboard and mouse: (2) 6-pin mini DIN M;
Video: (1) HD15 M;
Remote module: Interconnect: (1) RJ-45;
Keyboard and mouse: (2) 6-pin mini DIN F;
Video: (1) HD15 F;
Power: (1) 2.5-mm jack;

ACU5002A:
Local module: Interconnect: (1) RJ-45;
Keyboard and mouse: (1) USB Type A M;
Video: (1) HD15 M;
Remote module: Interconnect: (1) RJ-45;
Keyboard and mouse: (2) 6-pin mini DIN F;
Video: (1) HD15 F;
Power: (1) 2.5-mm jack

CE Approval — Yes

Power — 100–240 VAC, 50–60 Hz, autosensing, external

Item	Code	List Price
Low-Cost ServSwitch Wizard™ Extender Kits		
PS/2	ACU5001A	
USB	ACU5002A	

ServSwitch Brand Mini CATx KVM Extenders with Automatic Equalization

With flash upgradability and VESA DDC, good things *do* come in small packages!

- Ideal for space-limited applications! Use CAT5, CAT5e, or CAT6 UTP to place a remote control station up to 300 feet (91.4 m) from local equipment.
- Maximum resolutions of 1600 x 1280 at 200 feet (60.9 m) and 1280 x 1024 at 300 feet (91.4 m).
- Adjust video equalization and gain for cable length automatically.
- VESA enhanced DDC enables plug-and-play capability.
- Small size saves valuable desktop space.
- **◆◆ WARRANTY** — 1 Year



ACU7017A:
left: remote unit;
front view
right: local unit;
front view

ACU7025A:
left: remote unit;
rear view
right: local unit;
rear view

PLATFORMS	CONNECTORS	CABLE	FEATURES
PC Sun® Mac®	PS/2® USB VGA	CAT5, 5e, 6	FLASH Upgradable

TECH SPECS

Compatibility — Keyboard: PC/AT®, PS/2;
Mouse: PS/2 two-button, Microsoft® IntelliMouse®, Logitech™ three-button

Distance (Maximum) — 300 ft. (91.4 m)

CE Approval — Yes

Power — Local units: From the connected PC;
Remote units: 100–240 VAC, 50–60 Hz, external, autosensing, with IEC 320 connector

Size — Local units: 0.6"H x 1.4"W x 2.4"D (1.5 x 3.6 x 6.1 cm);
Remote units: 0.8"H x 2.2"W x 2.5"D (2 x 5.6 x 6.4 cm)

What's included

- Local unit
 - Remote unit
 - (1) Power supply
 - (1) Power cord
- ACU7017A also includes:
- (1) PS/2 Y cable

Item	Code	List Price
ServSwitch Brand Mini CATx KVM Extenders with Automatic Equalization		
PS/2	ACU7017A	
USB	ACU7025A	

To connect to local and remote units at a 20% savings, order...

CAT5 Unshielded 100-MHz Bulk Cable, Solid, Beige, PVC, 1000-ft. (304.8-m) Spool
(For other colors or plenum versions, see p. 105.)
EYN840A-1000

Mini CATx KVM Extenders with Automatic Skew Compensation, p. 390.

ServSwitch Wizard USB KVM Extender with Audio

Put distance between your CPU and your USB peripherals in high-density applications.

- Extends transmissions up to 328 feet (100 m) over CATx between USB peripheral devices and the CPU, including audio.
- Supports resolutions up to 1600 x 1280.
- Ideal for high-density applications where you want to use USB keyboards, mice, and other devices, but the server is not close by.
- Extender package includes a local and a remote unit; the remote unit features a 4-port USB hub.
- To transmit bidirectional audio for microphone or speaker signals, attach a second CATx link.
- Video signal boost features ensure video signal remains clear.
- Supports emulated DDC for high-quality video resolution.
- Rackmountable with the optional ServSwitch Wizard Extender Chassis (ACU5000A).
- **◆◆ WARRANTY** — 1 Year

TECH SPECS

Resolution (Maximum) — 1600 x 1200 @ 60 Hz
CE Approval — Yes
Connectors — Local unit: Audio: (2) 3.5-mm jacks
 Video: (1) HD15 F
 USB: (1) USB Type B
 Interconnect: (2) RJ-45;
 Remote unit: Audio: (2) 3.5-mm jacks
 Video: (1) HD15 F
 USB: (4) USB Type A
 Interconnect: (2) RJ-45
Size — 1"H x 2.9"W x 6.4"D (2.5 x 7.4 x 16.3 cm)
Weight — Local and remote units: 1 lb. (0.5 kg)

What's included

- Local unit
- Remote unit
- (1) 5-VDC 2.5-amp power supply transformer and output cord
- (1) Power-supply input cord suitable for your country or region
- (1) 3.3-ft. (1-m) video cable
- (1) USB cable
- (1) Audio cable

PLATFORMS	CONNECTORS	CABLE	PERIPHERALS	FEATURES
PC Sun® Mac®	USB VGA	CAT5, 5e, 6	Spkr./Mic USB	FLASH Upgradable



Item	Code	List Price
ServSwitch Wizard USB KVM Extender with Audio	ACU5050A	
Rackmount multiple local and remote units...		
ServSwitch Wizard Extender Chassis	ACU5000A	
To connect the local and remote units at a 20% savings, order...		
CAT5 Solid-Conductor Cable, 100-MHz, 24 AWG, 4-Pair, Straight-Pinned, 568B, PVC, Custom Lengths (For specific lengths or plenum cable, see p. 106.)	EYN737MS	

ServSwitch DVI/VGA CATx Extender

Extend analog VGA and digital DVI video signals over CAT5, CAT5e, or CAT6 UTP cable!



- Perfect image quality even at the maximum distance of 328 feet (100 m).
- Resolutions up to 1600 x 1200.
- Combine VGA and DVI video in your extension applications!
- Flexible architecture is ready for future changes.
- On-screen display enables easy video adjustments.
- CE approved.
- **◆◆ WARRANTY** — 1 Year

With flat-panel displays so popular, you need the BLACK BOX® ServSwitch™ DVI/VGA CATx Extender. It supports DVI extension with resolutions up to 1600 x 1200 at distances up to 328 feet (100 m).

If you use VGA equipment today but plan to upgrade to DVI in the near future, this extender is ready for the changeover. The DVI/VGA CATx Extender also includes flash ROM memory, so you can download the latest software enhancements from our FTP site!

This extender enables you to lock your server up in a safe, secure room and access it from your remote workstation. With its on-screen display, the extender makes adjusting your video a simple matter.

The DVI/VGA CATx Extender is perfect for KVM extension applications that demand exceptional image quality. It's also ideal for air traffic control systems, passenger information systems, and co-locating a user's computers in a call center.

For DVI/VGA combinations over fiber, check out our DVI/VGA Fiber Extenders on pages 397–398.

PLATFORMS	CONNECTORS	CABLE	FEATURES
PC	PS/2® DVI-I	CAT5, 5e, 6	FLASH Upgradable

What's included

- Local unit
- Remote unit
- (2) power supplies and cords
- (2) DVI-I male to VGA HD15 female adapter cables
- DVI-I female to VGA HD15 male adapter cable
- 3-in-1 PS/2 DVI cable to CPU

Item	Code	List Price
ServSwitch DVI/VGA CATx Extender	ACS253A-CT	
You may also need...		
19" Rackmount Kit	RMK253A	
To connect the local and remote units at a 20% savings, order...		
CAT5 Solid-Conductor Cable, 100-MHz, 24 AWG, 4-Pair, Straight-Pinned, 568B, PVC, Custom Lengths (For specific lengths or plenum cable, see p. 106.)	EYN737MS	

ServSwitch DVI CATx KVM Extenders

Bring versatile KVM extension capabilities to your DVI-D video applications!

- Transmit keyboard, mouse, and DVI-D video signals up to 400 feet over backbone cabling.
- Transmit signals up to 200 feet over patch cabling.
- Get resolutions up to 1920 x 1200.
- Models available for PS/2 and USB keyboards and mice.
- Enables dual access for a single user. You can connect a monitor, keyboard, and mouse to the computer and have a KVM console on the remote end. Use your computer at either location!
- Dual DVI models enable you to connect up to two DVI-D monitors to the computer and at the remote KVM console.
- **◆◆ WARRANTY** — 2 Years

With the CATx KVM extenders, you can send keyboard, mouse, and DVI-D video signals up to 400 feet (121.9 m) over CAT5/5e/6 cable.

Choose from four models. The ACS2009A-R2 and ACS4001A-R2 work with a PS/2 or USB keyboard and mouse respectively. Connect a keyboard, mouse, and DVI-D monitor directly to the computer on the transmitting end of the link and a KVM console with a DVI-D monitor on the receiving end. This method of dual access enables you to use your computer at either location. The dual DVI versions take it even farther!

The ACS2209A-R2 and ACS4201A-R2 are built for today's computers with dual video heads. Unlike the Single DVI models, you can connect up to two DVI-D monitors directly to the computer on the transmitting end of the link and two DVI-D monitors at the receiving KVM console.

You can do more with more monitors connected to your computer. You can put a different application on each monitor to eliminate switching between applications. Or if you have an application that uses lots of small windows, you can expand it across both monitors to provide more work space.

PLATFORMS	CONNECTORS	CABLE	FEATURES
PC Sun® Mac®	PS/2® USB DVI-D	CAT5, 5e, 6	FLASH Upgradable



ACS4001A-R2: local and remote units

TECH SPECS

Distance (Maximum) — 24 AWG solid: 400 ft. (121.9 m); 24, 26 or 28 AWG patch: 200 ft. (60.9 m)

Operating Environment —
 Temperature: 41 to 113° F (5 to 45° C);
 Humidity: Up to 80% noncondensing

Resolution (Maximum) — 1920 x 1200 @ 60 Hz
CE Approval — Yes

Connectors —

ACS2009A-R2:

Local unit:

Keyboard and mouse: (1) 6-pin mini DIN F;
 Monitor: (2) DVI-D F;
 Interconnect: (1) RJ-45;

Remote unit:

Keyboard and mouse: (2) 6-pin mini DIN F;
 Monitor: (1) DVI-D F;
 Interconnect: (1) RJ-45;

ACS4001A-R2:

Local unit:

Keyboard and mouse: (1) USB Type B F;
 Monitor: (2) DVI-D F;
 Interconnect: (1) RJ-45;

Remote unit:

Keyboard and mouse: (2) USB Type A F;
 Monitor: (1) DVI-D F;
 Interconnect: (1) RJ-45;

ACS2209A-R2:

Local unit:

Keyboard and mouse: (1) 6-pin mini DIN F;
 Monitor: (4) DVI-D F;
 Interconnect: (2) RJ-45;

Remote unit:

Keyboard and mouse: (2) 6-pin mini DIN F;
 Monitor: (2) DVI-D F;
 Interconnect: (2) RJ-45;

ACS4201A-R2:

Local unit:

Keyboard and mouse: (1) USB Type B F;
 Monitor: (4) DVI-D F;
 Interconnect: (2) RJ-45;

Remote unit:

Keyboard and mouse: (2) USB Type A F;
 Monitor: (2) DVI-D F;
 Interconnect: (2) RJ-45

Power — 90–240 VAC, 47–63 Hz, autosensing, external, with IEC 320 connector and cord

Size — Single DVI local and remote units:

1.1"H x 4"W x 5.6"D (2.8 x 10.2 x 14.2 cm) each;

Dual DVI local and remote units:

1.6"H x 4"W x 5.6"D (4.1 x 10.2 x 14.2 cm) each

Weight —

Local and remote units: 1.3 lb. (0.6 kg) each

Item	Code	List Price
ServSwitch™ DVI CATx KVM Extenders		
Single DVI		
PS/2	ACS2009A-R2	
USB	ACS4001A-R2	
Dual DVI		
PS/2	ACS2209A-R2	
USB	ACS4201A-R2	

To connect local and remote units at a 20% savings, order...

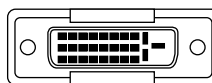
GigaTrue® 550 CAT6, 550-MHz Stranded Bulk Cable (UTP), 4-Pair, Beige, PVC, 500-ft. (152.4-m) (For other lengths or colors, see p. 87.) EVNSL645A-0500

Black Box Explains

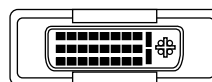
Digital Visual Interface (DVI).

The Digital Visual Interface (DVI) video standard is based on transition-minimized differential signaling (TMDS). In a typical single-line digital signal, voltage is raised to a high level and decreased to a low level to create transitions that convey data. To minimize the number of transitions needed to transfer data, TMDS uses a pair of signal wires. When one wire goes to a high-voltage state, the other goes to a low-voltage state. This balance increases the data-transfer rate and improves accuracy.

Although there are four types of DVI connectors, only DVI-D and DVI-I are commonly used for monitors. DVI-D is a digital-only connector. DVI-I supports both digital and analog RGB connections.



DVI-D



DVI-I

ServSwitch Wizard Multimedia KVM Extender

CAT5 extension and KVM switching all in one box!



Connect either a single CPU or a KVM switch to the Wizard's local unit. To take advantage of the multimedia support in a KVM switch configuration, the switch must have audio passthrough capabilities.

- Supports distances up to 650 feet (198.1 m) between local and remote units over a single CAT5 cable.
- Crystal-clear video, up to 1600 x 1280.
- You get a combination KVM switch and KVM extender all in one box!
- Integrated KVM switch enables you to connect a secure CPU into the remote unit.
- Connect workstations to the local and remote units for two points of access!
- Stereo and microphone inputs gives you multimedia capabilities.
- Works with PS/2, serial, and wheel mouse and PS/2 and AT® keyboards.
- **◆◆ WARRANTY** — 1 Year

TECH SPECS

Resolution (Maximum) — 1600 x 1280 @ 100 Hz

CE Approval — Yes

Connectors — Local unit: VGA: (2) HD15 F;

Serial: (1) DB9 F;

Keyboard and mouse: (4) 6-pin mini DIN F;

Audio: (4) 3.5-mm stereo jacks;

Link: (1) RJ-45;

Remote unit: VGA: (2) DB15 F;

Serial: (1) DB9 F;

Keyboard and mouse: (4) 6-pin mini DIN F;

Audio: (4) 3.5-mm stereo jacks;

Link: (1) RJ-45

Power — 100–240 VAC, 50–60 Hz, 5 volts, external, with IEC 320 connector

Size — 1.3"H x 6.5"W x 5.6"D (3.3 x 16.5 x 14.2 cm)

Weight — 7.5 lb. (3.4 kg)

PLATFORMS	CONNECTORS	CABLE	PERIPHERALS	SWITCHING
PC	PS/2 VGA	CAT5	Spkr./Mic Serial	Hotkey

What's included

- Local unit and remote unit
- (2) External power supplies
- 5-ft. (1.5-m) CPU cable (EHN408-0005)
- 10-ft. (3.0-m) CPU cable (EHN408-0010)
- (4) Audio cables
- (4) Hook-and-loop mounting strips
- PS/2→serial mouse adapter
- PS/2→PC/AT keyboard adapter

Item	Code	List Price
------	------	------------

ServSwitch Wizard Multimedia KVM Extender
ACU1600A

For CPU connections not covered by the included cables, order...

Computer Cables (For other lengths, see p. 416.)

5-ft. (1.5-m) EHN408-0005

10-ft. (3.0-m) EHN408-0010

30-ft. (9.1-m) EHN408-0030

To rackmount your Wizard, order...

Rackmount Kit RMK19WX

To connect the units at a 20% savings, order...

CAT5 Unshielded Bulk Cable, 100-MHz,

Solid, 4-Pair, PVC, Beige, 1000-ft. (304.8-m)

Spool (For other colors or plenum cable,

see p. 105.) EYN840A-1000

ServSwitch Wizard Extender Kits

These flexible extender kits grow as your operation grows.



ACU5010A

TECH SPECS

Connectors —

ACU5010A: Local module:

Interconnect: (1) RJ-45;

CPU: (1) DB25 F;

Power: (1) 8-pin mini DIN F;

Remote module: Interconnect: (1) RJ-45;

Video: (1) HD15 F;

Keyboard and mouse: (2) 6-pin mini DIN F;

Power: (1) barrel connector;

ACU5013A: Interconnect: (2) RJ-45;

Video: (2) HD15;

Keyboard and mouse: (2) 6-pin mini DIN F;

Power: (1) 8-pin mini DIN F;

ACU5011A: Interconnect: (1) RJ-45;

Video: (1) HD15 F;

Keyboard and mouse: (2) 6-pin mini DIN F;

Power: (1) barrel connector

- Transmit KVM, serial, and audio signals up to 650 feet (200 m) away over CAT5 cable, CAT5e or CAT6 cable with an external skew compensator, or skew-free CAT5e cable.
- Resolutions up to 1600 x 1280.
- Start small, and add more extenders as your system grows.
- Optional rackmount chassis neatly houses up to 16 modules in only 2U of rack space.
- The Single-Access Kit comes with a transmitter, a receiver, and an adapter cable to connect the local module to your CPU's keyboard, video, and mouse connectors.
- The receiver module features an optional password security function.
- To connect a CPU with two video outputs to a workstation with two video monitors, use the Dual-Video Transmitter (ACU5013A) with two ServSwitch Wizard Extender Receivers (ACU5011A).
- You can also use the Dual-Video Transmitter to connect a PC to two separate workstations, each with a keyboard, mouse, and monitor. Maximum distance is 656.1 feet (200 m).
- Flash upgradable.
- **◆◆ WARRANTY** — 1 Year

PLATFORMS	CONNECTORS	CABLE	FEATURES
PC	PS/2 VGA	CAT5, 5e, 6	FLASH Upgradable

Item	Code	List Price
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ServSwitch Wizard™ Single-Access Extender Kits

Basic ACU5010A

◆ Includes (1) transmitter, (1) receiver, (1) adapter cable, and (1) Rackmount Blanking Plate.

For dual-video or two-user applications, order...

ServSwitch Wizard Extender Dual-Video Transmitter

ACU5013A

◆ Includes (1) transmitter and (1) Rackmount Blanking Plate.

For two-user applications, you also need a receiver for each connected workstation.

ServSwitch Wizard Extender Receiver

ACU5011A

◆ Includes (1) receiver and (1) Rackmount Blanking Plate.

To rackmount up to 16 local (transmitter) modules or remote (receiver) modules, order...

Rackmount Chassis for ServSwitch Wizard

KVM Extender ACU5000A

To supply power to up to four rackmounted remote (receiver) modules, order...

Rackmountable Power Distribution Module

PS5000-R2

ServSwitch Brand Single-Channel CAT5 and Single- or Dual-Channel KVM Extenders

Send one or two high-quality video



ACU2028A: top: remote unit, rear view;
bottom: local unit, rear view

Built-in surge protection!



ACU2009A: top:
remote unit, rear view;
bottom: local unit, rear view

- CAT5 extender kits support extensions of 1600 x 1280 video up to 200 feet (60.9 m); CATx kits support extensions of 1600 x 1200 video up to 656.1 feet (200 m) from your CPU. Go even farther at lower resolutions!
- Place your keyboard, monitor, and mouse station far from your CPU and get clear video at the remote end.
- All dual-access units have single/dual local video outputs.
- Dual-video versions suit CPUs with multihead video applications.
- Serial models are available for transmitting touch screen and other RS-232 serial port data.
- Audio versions for CATx transmit near-digital-quality audio from the CPU to the remote end.
- Single- and dual-access kits available.
- CATx remote units include built-in skew compensator.
- All monitor skew compensation can be fine-tuned easily via keyboard hotkey commands—even at long distances and high resolutions.
- Video settings store in nonvolatile memory.
- Keyboard/mouse emulation provides keep-alive functionality.
- Flash-upgradable remote units.
- ACU2201A-R2 and ACU2222A-R2 extender kits feature DDC support and higher video bandwidth, and can be flash upgraded on the local end.
- To pair individual extender remote units with hub extenders or to set up quad-video extensions, see our CATx extenders on pages 394–395.
- ♦♦ **WARRANTY** — 1 Year

What's included

All kits:

- Local unit
- Remote unit
- Cable from CPU to local unit
- Video input cable (dual-access units)
- 9-volt power supply and power cord

Kits with serial also have:

- Serial cable

Kits with audio also have:

- Audio cable

Extend one or two video channels over UTP cable with the ServSwitch™ Brand CAT5 KVM Extenders or ServSwitch Brand Single- or Dual-Video CATx KVM Extenders. They enable you to separate your VGA monitor, keyboard, and mouse from a CPU at distances much farther than what's possible with ordinary KVM cables.

Serial and audio support, too.

If you also need to extend RS-232 port data, for example, to connect serial devices such as touch screens, order the KVM extenders featuring serial support. There are also versions for extending high-quality sound along with serial signals. They're particularly useful in applications in which you need to hear audio alerts on remote monitors.

All extender kits include local and remote units, and CPU cables; dual-access units also include monitor cables. Kits that support serial and/or audio extension also come with serial and/or audio cables. Local and remote components communicate over a single dedicated UTP cable, and keyboard, mouse, and video signals—as well as serial and audio signals on models that support them—are fully buffered to ensure consistent remote operation of your PC.

With the dual-access models, you can attach an additional monitor, keyboard, and mouse to the local unit. You can then operate the PC from either the local or remote user station. These stations share access on a “first-come, first-served” basis.

Ultimate video at the remote end.

You can expect clear, high resolution video at the remote end with these KVM extenders. Remote units feature a built-in skew compensator that removes unsightly color shadows by delaying some color signals so that all color signals arrive at the same time at the remote end.

With the CAT5x extender kits, simple keyboard hotkey commands enable you to fine-tune the monitor image to fix skew attenuation and losses. Use keyboard controls to equalize red, green, and blue to compensate for the differing pair lengths found in CAT5e and higher cables. Independent low-frequency (LF) and high-frequency (HF) equalization adjustment ensure optimum video tuning. Preset modes also help you find the right image balance quickly, and Quick Skew features help make video tuning nearly automatic.

The precise equalization on the CATx extenders enable resolution of 1280 x 1024 up to 984.2 feet (300 m) or 1600 x 1200 resolution up to 656.1 feet (200 m).

With the CAT5 extender kits, you can achieve 1600 x 1280 resolution up to 200 feet (60.9 m), 1280 x 1024 resolution at 300 feet (91.4 m), or 1024 x 768 resolution at 1000 feet (304.8 m).

PLATFORMS	CONNECTORS	CABLE	PERIPHERALS	FEATURES
PC	PS/2* VGA	CAT5, 5e, 6	Spkr./Mic Serial Touch Screen	FLASH Upgradable

channels to a remote site over CAT5 or higher cable.



ACU1009A: top:
local unit, rear view;
bottom: remote unit, rear view

TECH SPECS

Compatibility — Keyboard: PS/2, PC/AT* (with optional AC244A and FA222-R2);
Video: VGA, Super VGA, XGA, UXGA;
Mouse: PS/2 mouse only (user)

Clamping Voltage — 15 volts

Resolution (Maximum) — CAT5 versions: 1600 x 1280: 200 ft. (60.9 m);
1280 x 1024: 300 ft. (91.4 m);
1024 x 768: 1000 ft. (304.8 m);
CATx versions: 1600 x 1200: 656.1 ft. (200 m);
1280 x 1024: 984.2 ft. (300 m);

For all versions, higher resolutions may be possible at shorter distances

CE Approval — Yes

Connectors — ACU1001A, ACU2001A: Local: (1) RJ-45, (1) HD15 M, (2) 6-pin mini DIN F;

Remote: (1) RJ-45, (1) HD15 F, (2) 6-pin mini DIN F;

ACU1002A: Local: (1) RJ-45, (1) HD15 M, (2) 6-pin mini DIN F, (1) DB9 F;

Remote: (1) RJ-45, (1) HD15 F, (2) 6-pin mini DIN F, (1) DB9 F;

ACU1009A, ACU2009A: Local: (1) RJ-45, (1) HD15 M, (1) HD15 F, (4) 6-pin mini DIN F;

Remote: (1) RJ-45, (1) HD15 F, (2) 6-pin mini DIN F;

ACU1008A: Local: (1) RJ-45, (1) HD15 M, (1) HD15 F, (4) 6-pin mini DIN F, (1) DB9 F;

Remote: (1) RJ-45, (1) HD15 F, (2) 6-pin mini DIN F, (1) DB9 F;

ACU1022A, ACU1028A: Local: (1) RJ-45, (1) HD15, (2) 6-pin mini DIN F, (1) 3.5-mm barrel jack, (1) DB9 F;

Remote: (1) RJ-45, (1) HD15, (2) 6-pin mini DIN F, (1) 3.5-mm barrel jack, (1) DB9 F;

ACU2022A: Local: (1) RJ-45, (1) HD15 M, (2) 6-pin mini DIN F, (2) 3.5-mm audio, (1) DB9 F;

Remote: (1) RJ-45, (1) HD15 F, (2) 6-pin mini DIN F, (2) 3.5-mm audio, (1) DB9 F;

ACU2028A: Local: (1) RJ-45, (1) HD15 M, (1) HD15 F, (4) 6-pin mini DIN F, (2) 3.5-mm audio, (1) DB9 F;

Remote: (1) RJ-45, (1) HD15 F, (2) 6-pin mini DIN F, (2) 3.5-mm audio, (1) DB9 F;

ACU2201A-R2: Local: (2) RJ-45, (1) DB25 F, (1) HD15 M;

Remote: (2) RJ-45, (2) HD15 F, (2) 6-pin mini DIN F;

ACU2209A: Local: (2) RJ-45, (1) HD15 M, (2) HD15 F, (1) DB25 F, (2) 6-pin mini DIN F;

Remote: (2) RJ-45, (2) HD15 F, (2) 6-pin mini DIN F;

ACU2222A-R2: Local: (2) RJ-45, (1) HD15 M, (1) DB25 F, (2) 3.5-mm audio, (1) DB9 F;

Remote: (2) RJ-45, (2) HD15 F, (2) 6-pin mini DIN F, (2) 3.5-mm audio, (1) DB9 F;

ACU2228A: Local: (2) RJ-45, (1) HD15 M, (2) HD15 F, (1) DB25 F, (2) 6-pin mini DIN F, (2) 3.5-mm audio, (1) DB9 F;

Remote: (2) RJ-45, (2) HD15 F, (2) 6-pin mini DIN F, (2) 3.5-mm audio, (1) DB9 F

Power — Local units: From the PC;

Remote units: 100–240 VAC, 50–60 Hz, external, autosensing, with IEC 320 connector

Size — ACU1001A–ACU1002A, ACU1008A–ACU1009A, ACU1022A, ACU1028A: Both

local and remote units: 1.4"H x 7.8"W x 3.9"D (3.6 x 19.8 x 9.9 cm);

ACU2001A, ACU2009A, ACU2228A: Local units: 1.4"H x 3.9"W x 7.8"D

(3.6 x 9.9 x 19.8 cm);

Remote units: 1.1"H x 5.7"W x 5.5"D (2.8 x 14.5 x 14 cm);

ACU2022A, ACU2028A: Local units: 1.7"H x 3.9"W x 7.8"D (4.3 x 9.9 x 19.8 cm);

Remote units: 1.7"H x 5.7"W x 5.5"D (4.3 x 14.5 x 14 cm);

ACU2201A-R2: Local unit: 1.1"H x 5.8"W x 4.3"D (2.8 x 14.7 x 10.9 cm);

Remote unit: 1.7"H x 5.7"W x 5.5"D (4.3 x 14.5 x 14 cm);

ACU2222A-R2: Local unit: 1.6"H x 5.7"W x 4.3"D (4.1 x 14.5 x 10.9 cm);

Remote unit: 1.7"H x 5.7"W x 5.5"D (4.3 x 14.5 x 14 cm)

Buyer's Guide | Compatible local extender hubs

Remote Extender Units	Local Extender Hub Units
ACUR001A–ACUR002A, ACUR004A	ACU1006DRA, ACU1006RA, ACU1012RA
ACURA001A–ACURA002A, ACURA004A	ACU1006DSRA, ACU1006DVRA, ACU1006SRA, ACU1006VRA

Item	Code	List Price
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For point-to-point extension for one monitor over CAT5 cable, order...

ServSwitch Brand CAT5 KVM Extenders

Single-Access Kit ACU1001A

Dual-Access Kit ACU1009A

For point-to-point extension for one monitor and serial signals over CAT5 cable, order...

ServSwitch Brand CAT5 KVM Extenders with Serial

Single-Access Kit ACU1002A

Dual-Access Kit ACU1008A

For point-to-point extension for one monitor and serial and audio signals over CAT5 cable, order...

ServSwitch Brand CAT5 KVM Extenders with Serial Extension and Stereo Audio

Single-Access Kit ACU1022A

Dual-Access Kit ACU1028A

For point-to-point extension for one monitor over CAT5, CAT5e, or CAT6 cable, order...

ServSwitch Brand Single-Video CATx KVM Extenders

Single-Access Kit ACU2001A

Dual-Access Kit ACU2009A

For point-to-point extension for one monitor and serial and audio signals over CAT5, CAT5e, or CAT6 cable, order...

ServSwitch Brand Single-Video CATx KVM Extenders with Serial and Audio

Single-Access Kit ACU2022A

Dual-Access Kit ACU2028A

For point-to-point extension for two monitors over CAT5, CAT5e, or CAT6 cable, order...

ServSwitch Brand Dual-Video CATx KVM Extenders

Single-Access Kit ACU2201A-R2

Dual-Access Kit ACU2209A

For point-to-point extension of two monitors and serial and audio signals over CAT5, CAT5e, or CAT6 cable, order...

ServSwitch Brand Dual-Video CATx KVM Extenders with Serial and Audio

Single-Access Kit ACU2222A-R2

Dual-Access Kit ACU2228A

To rackmount an extender unit, order...

19" Rackmount Kit for a Local Unit RMK19U-R2

for a Remote Unit RMK19U-X3

To flash upgrade a remote unit, order...

Flash Cable for CAT5 and CATx Remote Extender Units

ACUFLH

To connect an AT style computer, order...

AT→PS/2 Mouse GHOST Emulator (For details, see p. 404.)

AC244A

5-Pin DIN Male to 6-Pin Mini DIN Female Keyboard Adapter

FA222-R2

KVM Extension over Copper (0–1000 feet)

ServSwitch Wizard Extender Kits with Skew Compensation

Discover the versatility of high-end KVM extension over CAT5, CAT5e, or CAT6 cable.

- Maximum resolutions of 1600 x 1200 at 60 Hz at distances of 656.1 feet (200 m) or 1280 x 1024 at 60 Hz at the full distance of 984.2 feet (300 m).
- Provide more bandwidth and longer distances for your KVM extension applications.
- Built-in skew compensation (adjustable up to 62 ns) reduces color drift and keeps images sharp.
- Latest video components and circuitry ensure clear images and boost bandwidth.
- All kits include a local and a remote module and offer transparent 56-kbps RS-232 serial transmission.
- Dual- and quad-head versions offer local access and multiple serial and stereo audio connections—ideal for control room environments.
- True DDC support for optimal operation with modern graphics adapter cards.
- Password protection prevents unauthorized access to connected CPUs or your switching system.
- Can be used as standalone extenders or mounted in the optional 16-slot Rackmount Chassis.
- **◆◆ WARRANTY** — 1 Year

PLATFORMS	CONNECTORS	CABLE	PERIPHERALS	FEATURES
PC	PS/2 [®] VGA	CAT5, 5e, 6	Serial Touch Screen	FLASH Upgradable



ACU5110A

What's included

- Local unit
- Remote unit
- Power supply (for remote module)
- Front plate for mounting in an optional Rackmount Chassis (ACU5000A)
- Set of rubber feet
- Complete set of cables to connect the local module to a CPU (only [1] serial cable)
- ACU5142A also has (1) power supply (for local module)

Item	Code	List Price
ServSwitch Wizard™ Extender Kits with Skew Compensation		
Serial	Single-Access	ACU5110A
	Dual-Access	ACU5114A
Serial and Bidirectional Stereo Audio	Single-Access	ACU5112A
	Dual-Access	ACU5116A
	Dual-Access, Dual-Head	ACU5122A
	Dual-Access, Quad-Head	ACU5142A
To rackmount local or remote modules, order...		
Rackmount Chassis for ServSwitch Wizard Extender		ACU5000A
To supply power to up to four single-head remote modules, order...		
Rackmountable Power Distribution Module		PS5000-R2
To cover unused slots in the Rackmount Chassis, order...		
Rackmount Chassis Blanking Plates	Single Slot	ACU5003
	Four Slots	ACU5004
For video-only applications, you will need...		
Spare Power Supply for Remote Module		PS649-R3

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

DB15 Thumbscrew Cable, 10-ft. (3.0-m) (For other lengths, see blackbox.com. Specify gender when ordering.) EGM16T-0010

ServSwitch Brand Mini CATx KVM Extenders with Automatic Skew Compensation

Extend KVM transmissions to 1000 feet with skew compensation over CAT5e or CAT6 UTP.

PLATFORMS	CONNECTORS	CABLE	FEATURES
PC Sun [®] Mac [®]	PS/2 [®] USB VGA	CAT5, 5e, 6	FLASH Upgradable



ACU7001A:
left: remote unit;
right: local unit

- Place a remote control station up to 1000 feet (304.8 m) from local equipment.
- Resolution of 1024 x 768 at 1000 feet (304.8 m); higher resolutions at shorter distances.
- Automatically adjust video quality and fix color drift associated with CAT5e and CAT6 cable.
- Connect directly to a PC's VGA connector or to the DB25 connector of a ServSwitch.
- Keyboard and mouse emulation.
- VESA enhanced DDC enables plug-and-play capability.
- Flash upgradable firmware prevents obsolescence.
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price
ServSwitch™ Brand Mini CATx KVM Extenders with Automatic Skew Compensation		
Local CPU to Remote Station Kit		
PS/2		ACU7001A
USB		ACU7009A
To connect to local and remote units at a 20% savings, order...		
CAT5 Unshielded 100-MHz Bulk Cable, Solid, Beige, PVC, 1000-ft. (304.8-m) Spool		EYN840A-1000
(For other colors or plenum versions, see p. 107.)		

ServSwitch Brand CATx USB KVM Extenders

Send high-resolution VGA video and USB signals over CAT5 or higher cable.

- Extend USB and VGA signals over CATx cable up to 1000 feet (300 m).
- Support high-resolution video: 1600 x 1200 at 60 Hz over 650 feet (200 m) or 1280 x 1024 at 75 Hz over 1000 feet (300 m).
- Models with single- or dual-head video support.
- Fully integrated skew compensation cancels color shift and enhances image sharpness.
- Optional bidirectional stereo audio (16-bit digitized) support for high-quality, low-noise audio extension.
- Status indicator LEDs on each RJ-45 port.
- Surge protection on each CATx port and power supply unit overvoltage detection.
- Small-footprint chassis.
- Rackmount kit available.
- **◆◆ WARRANTY** — 1 Year



ACU6001A:
front view



ACU6001A:
rear view

Use ServSwitch Brand CATx USB KVM Extenders to send VGA video and signals for USB keyboards, mice, and other HID devices up to 1000 feet (300 m) over ordinary CAT5, CAT5e, or CAT6 cable.

Each extender system includes a local unit that attaches to the CPU (or a ServSwitch) and a remote unit that connects the user's KVM console. But you can also plug in a monitor on the local side—which is great for monitoring and administrative purposes right at the computer.

Choose from models that extend single- or dual-head video with or without serial and bidirectional stereo audio signals. A CATx cable is required for each video channel between local and remote ends.

All extenders deliver crystal-clear video with their very precise video circuits. Additionally, the extenders feature emulated DDC on the local

units to ensure compatibility with multi-head graphics cards. The remote units feature transparent DDC, reading DDC tables from all attached monitors, then transferring and storing data in the local unit to support non-standard displays.

Independent low frequency and high frequency cable equalization control ensures optimum video tuning across different cable types, so you don't need to spend a lot of money on installation. Control and video tuning are carried out using the remote keyboard with settings stored in EEPROM memory.

The transparent serial port on the audio-enabled models lets any serial device be extended up to 19.2-kbps rates. Extend one device requiring handshaking lines or up to three simple serial devices with no handshaking.

Installing the ServSwitch Brand CATx USB KVM Extenders is a simple plug-and-play

procedure with nothing to configure. Local video output enables dual-access operation when a local keyboard and mouse are connected directly to the CPU. With a simple hotkey command, you can switch to a private mode, leaving the remote video dark. This is useful during maintenance or other processes you wish to protect from prying eyes.

In most applications, the local unit draws its power from the USB interface but, if necessary, also can be powered externally by the optional Power Supply (PSU1006E-R2). The remote unit requires an external power supply, which is included.

Compact in design, the extender units easily fit on a desktop. Or three units can be rackmounted in 1U of space within a 19" standard cabinet or rack using the optional Rackmount Kit (RMK19U-X3).

TECH SPECS

CE Approval — Yes

Connectors — Local modules:

Video input: ACU6001A, ACU6022A: (1) HD15 M; ACU6001A, ACU622A: (2) HD15 M;
Video output: ACU6001A, ACU6022A: (1) HD15 F; ACU6001A, ACU622A: (2) HD15 M;
USB: (1) USB Type B;
Interconnect: ACU6001A, ACU6022A: (1) RJ-45; ACU6201A, ACU6222A: (2) RJ-45;
Serial: ACU6022A, ACU6222A only: (1) DB9 F DCE;
Audio: ACU6022A, ACU6222A only: (2) 3.5-mm stereo jack;

Remote modules:

Video output: ACU6001A, ACU6022A: (1) HD15 F; ACU6001A, ACU622A: (2) HD15 M;
USB HID: (4) USB Type B;
Interconnect: ACU6001A, ACU6022A: (1) RJ-45; ACU6201A, ACU6222A: (2) RJ-45;

Serial: ACU6022A, ACU6222A only: (1) DB9 F DCE;
Audio: ACU6022A, ACU6222A only: (2) 3.5-mm stereo jack

Power — Local modules: 5 VDC from the USB interface or optional Power Supply (PSU1006E-R2);

Remote modules: Input: 100–240 VAC, 50–60 Hz, autosensing, external;
Output: 9 VDC, 4 A (20 W)

Size — Local modules: ACU6001A: 4.9"H x 4.5"W x 1.2"D (12.4 x 11.3 x 3.0 cm);

ACU6201A, ACU6022A: 4.9"H x 4.5"W x 1.7"D (12.4 x 11.3 x 4.4 cm);

ACU6222A: 5.7"H x 4.5"W x 1.2"D (14.5 x 11.3 x 3.0 cm)

Remote modules: ACU6001A, ACU6201A:

5.7"H x 5.9"W x 1.2"D (14.4 x 15.1 x 3.0 cm);
ACU6022A, ACU6222A: 5.7"H x 5.9"W x 1.7"D (14.4 x 15.1 x 4.4 cm)

Item	Code	List Price
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ServSwitch™ Brand CATx USB KVM Extenders

Single-Head VGA		
Standard	ACU6001A	
with Serial and Audio	ACU6022A	
Dual-Head VGA		
Standard	ACU6201A	
with Serial and Audio	ACU6222A	

You may also need...

Power Supply	PSU1006E-R2
Rackmount Kit for CATx Extenders	RMK19U-X3

KVM Extension over Copper (0–1000 feet)

ServSwitch Brand CAT5 KVM Extenders for Sun

Extend Sun KVM signals up to 1000 feet!

PLATFORMS	CONNECTORS	CABLE
Sun®	8-Pin VGA	CAT5 CAT5



ACU1004A

- Place your Sun keyboard, monitor, and mouse up to 1000 feet (304.8 m) from a CPU or ServSwitch.
- Use easy-to-handle CAT5 UTP cable.
- Single-access and dual-access kits available.
- Fully adjustable video equalization for the best possible video quality—even at long distances or high resolutions.
- Provides 1600 x 1280 resolutions at 200 feet (60.9 m), 1152 x 900 resolutions at 400 feet (121.9 m), or 1024 x 768 resolutions at 1000 feet (304.8 m).
- Intelligent keyboard and mouse emulation, so your remote CPUs won't lock up even if the keyboard or interconnect cable is unplugged.
- Dual-access enables you to have a local control station near the CPU or ServSwitch plus a remote station up to 1000 feet away.
- Feature built-in surge protection for the CAT5 link.
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price
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Choose the extender kit for your application...

ServSwitch Brand CAT5 KVM Extenders for Sun Single-Access Kit	ACU1004A	
Dual-Access Kit	ACU1005A	

To connect remote units at a 20% savings, order...

CAT5 Unshielded 100-MHz Solid Bulk Cable, 24 AWG, 4-Pair, Gray, 1000-ft. (304.8-m) Spool (For plenum applications, other colors, or boxed cable, see p. 105.)	EYN840A-1000	
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To connect the extenders to a nearby patch panel or wall jack at a 20% savings, order...

Category 5 Patch Cable, 100-MHz, 4-Pair, Straight-Pinned, PVC, Beige		
10-ft. (3.0-m)	EYN556MS-0010	
15-ft. (4.5-m)	EYN737MS-0015	

ServSwitch CAT5 KVM Switching Extender

Now you can transmit vibrant and sharp video nearly 1000 feet—and get inexpensive switching, too!

PLATFORMS	CONNECTORS	CABLE	SWITCHING
PC	PS/2® VGA	CAT5 CAT5	Hotkey

- Enables you to place your remote workstation 984.2 feet (300 m) away.
- Integrated KVM switch enables you to connect a CPU to the remote unit.
- Video resolutions up to 1280 x 1024 over 393.7 feet (120 m).
- Double Private Mode locks out the second workstation, preventing conflicts.
- Adjustable video equalization compensates for signal degradation over long distances.
- Full surge protection on the CAT5 interface.
- **◆◆ WARRANTY** — 1 Year

Built-in surge protection!



TECH SPECS

Clamping Voltage — 15 volts

Compatibility — Keyboard: PC/AT®, PS/2, RS/6000®; Video: VGA, Super VGA, XGA; Mouse: PS/2, Logitech™, Microsoft® IntelliMouse®

Resolution (Maximum) — 1280 x 1024 over 393.7 feet (120 m); 1024 x 768 over 984.2 feet (300 m)

CE Approval — Yes

Connectors —

Local unit: Keyboard/mouse: (2) 6-pin mini DIN F; Video: Input: (1) HD15 M; Output: (1) HD15 F; Interconnect: (1) RJ-45;

Remote unit: Keyboard/mouse: (2) 6-pin mini DIN F; Video: (1) HD15 F; Interconnect: (1) RJ-45; CPU: (1) DB25 F; Power supply: (1) 2.5-mm F barrel connector

Power — Local unit: From the connected PC;

Remote unit: 100–240 VAC, 50–60 Hz, external

Size — 1.4"H x 7.8"W x 3.9"D (3.6 x 19.8 x 9.9 cm)

What's included

- Local unit
- Remote unit
- VGA extension cable
- CPU cable
- User's manual
- Power supply with output cord
- Power supply input cord

Item	Code	List Price
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ServSwitch CAT5 KVM Switching Extender	ACU1049A	
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To connect the local and remote units at a 20% savings, order...

CAT5 Unshielded 100-MHz Solid Bulk Cables, 24 AWG, 4-Pair, Gray, 1000-ft. (304.8-m) Spool (For other colors or boxed cable, see p. 105.)		
PVC	EYN840A-1000	
Plenum	EYN860A-B	

BLACK BOX[®] ServSwitch CENTRAL[™]



Manage and maintain.

Manage different and distributed systems—and your server growth—while maintaining the security and accuracy of your mission-critical data.

Use ServSwitch Central.

Black Box's KVM ServSwitch line has made us the industry leader in server management. Black Box has combined its extensive range of server management solutions with its Tech Support to create ServSwitch Central[™], which offers:

- On-line demonstrations.
- Data center planning and design.
- Nationwide installation and post-installation services.

Rackmount ServSwitch Brand CAT5 KVM Extender Hubs and CAT5/CATx Remote Units

Extend your KVM signals up to 1000 feet *and* add, switching,



Top left: ACUREM; right: ACUMREM;
middle: ACU1006RA, front view;
bottom: ACU1006RA, rear view



Top left: ACUWREM;
top right: ACUVREM;
bottom: ACU1006DVRA

- Send keyboard, monitor, and mouse signals—plus optional serial data—1000 feet (304.8 m) from a CPU or ServSwitch.
- Or just send KVM 150 feet (45.7 m) with the compact Micro models.
- It's like getting 6 or 12 extenders in one rackmountable box!
- With dual-access hubs, you can attach a local KVM or KVM switch to each CPU.
- Bidirectional stereo audio available, too.
- Feature built-in surge protection with a clamping voltage of 15 volts.
- Fully adjustable video equalization for the best possible video quality.
- A number of standalone remote units to choose from, including models for connecting one, two, or four screens over CATx cable, as well as models for plugging in stereo speakers, touch screens, and other serial devices.
- **◆◆ WARRANTY** — 3 Years

Our extender hubs make it easy to put your CPUs or ServSwitch™ KVM switches where you want them—*and* get rackmount convenience!

These units combine 6 or 12 local hubs into one rackmount chassis. Just attach your CPUs with our Coax CPU Cable (EHN230, [page 382](#)), then connect remote units via existing UTP CAT5 (EYN840A-1000, [page 105](#)). Some remote units support cable higher than CAT5, too.

The hubs and remote units require no software, are operating system independent, and work with a variety of hardware including Microsoft® IntelliMouse®. The hubs perform complete PS/2 keyboard/mouse emulation for the attached CPUs.

The hubs and remote units also feature built-in surge protection to defend your UTP link side against surges and spikes.

Your extender hub selections:

Standard Extender Hubs, available in 6-port (ACU1006RA) and 12-port (ACU1012RA) versions, extend KVM signals and support one remote user station per CPU. To also extend serial signals, choose the ACU1006SRA, a 6-port extender with a serial port.

Standard Dual-Access and Dual-Access with Serial models (ACU1006DRA, ACU1006DSRA) take our single-access hubs and add six sets of local KVM connections, one for each attached CPU, so you can attach two workstations to each CPU—

one local and one remote. Just plug the keyboard, monitor, and mouse into the connectors for the CPU you wish to monitor. Or add a ServSwitch and have local access to all CPUs.

Order the ACU1006DSRA extender hub version to send serial signals along with the KVM signals to the remote station.

For applications where you need to extend audio with KVM and serial data, order our Standard 6-Port Extender Hub with Serial and Bidirectional Stereo Audio (ACU1006VRA). It provides stereo transmission across the link on all ports, sending audio digitally for noise-free, near-CD-quality sound. Need two workstations for each CPU (one local and one remote)? Order the 6-Port Dual-Access Extender Hub with Serial and Bidirectional Stereo Audio (ACU1006DVRA).

Standalone remote units:

In extender applications where you want to make KVM-only connections over CAT5, order a CAT5 Standalone Remote Unit (ACUSREM) for each active port on a Standard Extender Hub (ACU1006RA, ACU1012RA, ACU1006DRA). Or provide additional functionality to these active ports with standalone remote units with dual-VGA (ACUMR02A) or dual-VGA plus serial and audio (ACUMRA02A).

For remote connections to active ports on hub extenders that support serial data (ACU1006SRA,

ACU1006DSRA), order Serial Standalone Remote Units (ACUSREM).

To add remote switching to a Standard Extender Hub (ACU1006RA, ACU1012RA) setup, add a Standalone Remote Unit with Integrated KVM Switch (ACUREMSW). This unit enables the remote station to switch between the local and remote CPU with a simple keyboard code.

If you choose extender hubs with serial and audio (ACU1006VRA, ACU1006DVRA), order a 6-Port Standalone Remote Unit with Serial and Bidirectional Stereo Audio (ACUVREM) unit for each active port. However, for remote stations requiring just serial and KVM connectivity, choose the Serial Standalone Remote Unit (ACUSREM).

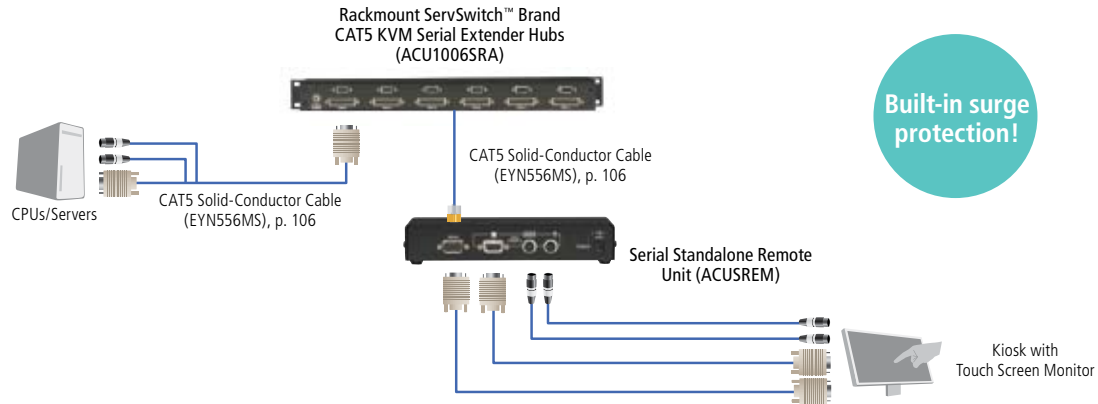
All these remote units support 1000-foot extensions. But if you only need to extend 150 feet (45.7 m) over CAT5, order the Micro (ACUMREM) or Micro with Serial and Bidirectional Stereo Audio (ACUWREM). Use the ACUMREM with the ACU1006RA, ACU1012RA, and ACU1006DRA. Order an ACUWREM for each active hub port on the ACU1006DVRA. Or, if you like, order a convenient Rackmount Micro Chassis (ACU1006MRA, ACU1006MRVA). The former contains six standard Micro (ACUMREM) units in a single chassis, and the latter has six serial and audio Micro (ACUWREM) units. Use the ACU1006MRA with the ACU1006RA, ACU1012RA, or ACU1006DRA. Use the ACU1006MRVA with the ACU1006VRA or ACU1006DVRA.

We also offer extender units for use with CAT5 or higher cabling, available in single- (ACUR001A), dual- (ACUR002A), and quad-video (ACUR004A) versions. The multi-video remote units enable you to connect up to two or four separate video feeds to make full use of CPUs with multiple video outputs. Use keyboard controls to compensate for the differing pair lengths found in CAT5e and higher cables.

If you also need to extend RS-232 port data and high-quality sound, order CATx remote units featuring serial and audio support (ACURA001A–ACURA002A, ACURA004A).



audio, serial devices, and multiple monitors at the far end!



TECH SPECS

Compatibility — Keyboard: PC/AT®, PS/2®; Monitor: VGA, Super VGA, XGA; Mouse: PS/2 mouse only (user)

Distance (Maximum) —

- Between extender hubs and any remote Micro unit: 150 ft. (45.7 m)
- Between extender hubs and all other remote units: 1000 ft. (304.8 m);
- Between extender hubs and local equipment: 16.4 ft. (5 m);
- Between remote units and remote equipment: 16.4 ft. (5 m)

NOTE: With high-quality cables, it might be possible to run farther than 16.4 ft. (5 m) from the hub or a remote unit to attached equipment.

Resolution (Maximum) —

- CAT5 Standalone Remote Units except Micro versions: 1600 x 1280: 200 ft. (61 m); 1280 x 1024: 300 ft. (91.4 m); 1024 x 768: 1000 ft. (304.8 m);
- CAT5 Standalone Micro Remote Units: 1280 x 1024: 150 ft. (45.7 m);
- CATx Standalone Remote Units: 1600 x 1200: 656 ft. (200 m); 1280 x 1024: 984 ft. (300 m)

NOTE: Higher resolutions may be possible at shorter distances

Connectors — ACU1006RA, ACU1012RA, ACU1006DRA:

- Interconnect: (6) or (12) RJ-45;
- CPU: (6) or (12) DB25 F;
- ACU1006DRA also has: Keyboard and mouse: (12) 6-pin mini-DIN F; Monitor: (6) HD15 F;

ACU1006SRA, ACU1006DSRA:

- Interconnect: (6) RJ-45;
- CPU: (6) DB25 F, (6) DB9 F;
- ACU1006DSRA also has: Keyboard and mouse: (12) 6-pin mini-DIN F; Monitor: (6) HD15 F;

ACU1006VRA, ACU1006DVRA:

- Interconnect: (6) RJ-45;
- CPU: (6) DB25 F, (6) DB9 F;
- Audio I/O: (12) 3.5-mm stereo jacks;
- ACU1006DVRA also has:

- Interconnect: (6) RJ-45;
- Keyboard and mouse: (12) 6-pin mini DIN F;
- Monitor: (6) HD15 F;

ACUMR02A, ACUMRA02A: Interconnect: (2) RJ-45;

- CPU: (2) DB15 F;
- Keyboard and mouse: (6) 6-pin mini DIN F;
- ACUMRA02A also has: Audio: (1) 2.5-mm barrel power jack

- ACUREM, ACUMREM, ACUREMSW, ACUSREM, ACUVREM, ACUWREM: Interconnect: (1) RJ-45; Keyboard and mouse: (2) 6-pin mini-DIN F; Monitor: (1) HD15 F; ACUSREM also has: Serial: (1) DB9 F; ACUVREM, ACUWREM also have: Serial: (1) DB9 M; Audio: (2) 3.5-mm stereo jacks; ACUREMSW also has: Switch: (1) DB25 F;
- ACU1006MRA, ACU1006MRVA: Interconnect: (6) RJ-45; Keyboard and mouse: (12) 6-pin mini-DIN F; Monitor: (6) HD15 F; ACU1006MRVA also has: Serial: (6) DB9 F; Audio: (12) 3.5-mm stereo jacks;
- ACUR001A, ACURA001A: Interconnect: (1) RJ-45; Keyboard and mouse: (2) 6-pin mini-DIN F; Monitor: (1) HD15 F; ACURA001A also has: Serial: (1) DB9 F; Audio: (2) 3.5-mm stereo jacks;
- ACUR002A, ACURA002A: Interconnect: (2) RJ-45; Keyboard and mouse: (2) 6-pin mini-DIN F; Monitor: (2) HD15 F; ACURA002A also has: Serial: (1) DB9 M; Audio: (2) 3.5-mm stereo jacks;
- ACUR004A, ACURA004A: Interconnect: (4) RJ-45; Keyboard and mouse: (2) 6-pin mini-DIN F; Monitor: (4) HD15 F; ACURA004A also has: Serial: (1) DB9 M; Audio: (2) 3.5-mm stereo jacks

Indicators — Hubs: Front-mounted LEDs (1 for each port) for power and link integrity;

Power — Hubs: 100–240 VAC, 50–60 Hz, external, autosensing, with IEC connector and power cord; Remote units: From the interface

Size — ACU1006RA, ACU1012RA, ACU1006DRA, ACU1006SRA, ACU1006DSRA, ACU1006VRA, ACU1006MRA, ACU1006MRVA:

- 1.75"H x 19"W x 4.5"D (4.4 x 48.3 x 11.4 cm);
- ACU1006DVRA: 3.5"H x 17.3"W x 4.5"D (8.9 x 43.9 x 11.4 cm);

ACUREM, ACUSREM, ACUREMSW: 1.4"H x 7"W x 3.9"D (3.6 x 17.8 x 9.9 cm);

ACUMREM: 1.5"H x 3.1"W x 4.3"D (3.8 x 7.9 x 10.9 cm);

ACUVREM: 1.4"H x 7.8"W x 3.9"D (3.6 x 19.8 x 9.9 cm);

ACUWREM: 2"H x 3.1"W x 4.3"D (5.1 x 7.9 x 10.9 cm)

ACUR001A, ACURA001A, ACUR002A, ACURA002A: 1.1"H x 5.7"W x 5.5"D (2.8 x 14.5 x 14 cm)

ACUR004A, ACURA004A: 1.1"H x 10.8"W x 5.7"D (2.8 x 27.4 x 14.5 cm)

Item Code List Price

First, choose a hub for your application...

Rackmount ServSwitch Brand CAT5 KVM Extender Hubs

- 6-Port Standard ACU1006RA
- 12-Port Standard ACU1012RA
- 6-Port with Serial ACU1006SRA
- 6-Port Standard Dual-Access ACU1006DRA
- 6-Port Dual-Access with Serial ACU1006DSRA
- 6-Port with Serial and Bidirectional Stereo Audio ACU1006VRA
- 6-Port Dual-Access with Serial and Bidirectional Stereo Audio ACU1006DVRA

...then order a remote unit for each active hub port.

Standalone Remote Units

- CAT5 Single-Video Standard ACUREM with Integrated KVM Switch ACUREMSW with Serial ACUSREM with Serial and Stereo Audio ACUVREM Micro ACUMREM Micro with Serial and Stereo Audio ACUWREM
- Dual-VGA ACUMR02A with Serial and Audio ACUMRA02A
- Rackmount Micro Remote Chassis with (6) Micro (ACUMREM) Units ACU1006MRA (6) Serial and Stereo Audio (ACUWREM) Units ACU1006MRVA
- CATx Single-Video Standard ACUR001A with Serial and Stereo Audio ACURA001A
- CATx Dual-Video Standard ACUR002A with Serial and Stereo Audio ACURA002A
- CATx Quad-Video Standard ACUR004A with Serial and Stereo Audio ACURA004A

ServSwitch Brand Fiber KVM Extender II and II-SM

Long-distance digital KVM extension over two-strand fiber optic cable.

- Send your data up to 400 meters (1312.3 ft.) on 50- μ m multimode fiber cable or 10 kilometers (6.2 mi.) on single-mode fiber cable.
- Support resolutions up to 1920 x 1200 and refresh rates up to 75 Hz.
- Digital format ensures high-quality transmission.
- Support an optional local monitor, keyboard, and mouse user station.
- Compatible with most VGA standards.
- **◆◆ WARRANTY** — 1 Year

Use the ServSwitch™ Brand Fiber KVM Extender II and II-SM for digital transmission of keyboard, video, mouse, and audio information over two fiber optic strands up to 400 meters (1312.3 ft.) on multimode cable or 10 kilometers (6.2 mi.) on single-mode cable.

Top-quality video.

Unlike most KVM extenders, which use analog signals, the ServSwitch Brand Fiber KVM Extender II and II-SM use digital signals to maintain high image quality. The local unit digitizes video output from a local CPU, then sends it across fiber optic cable to a remote unit, which converts it back to the original analog signal.

Plus, because the extender uses fiber optic cable, transmissions are immune from electrical interference from sources such as nearby machinery or fluorescent lights.

Go for distance.

These extenders use fiber optic cable for extraordinary reach—up to 10 kilometers (6.2 mi.) over single-mode fiber. Multimode fiber supports 220 meters (721.7 ft.) over 62.5- μ m cable or 400 meters (1312.3 ft.) over 50- μ m cable. Image quality is independent of cable length.

Minimize fiber requirements.

The digital video signal is transmitted serially over a single fiber strand at rates up to 1.5 Gbps. The extenders use the second strand of the fiber pair to send remote mouse and keyboard information back to the local CPU.

Because each extender only needs these two fiber strands for full operation you save money by running less cable.

Wide compatibility.

The extenders support all common PS/2® style mice and pointing devices, including two-button mice, three-button mice, wheel mice such as Microsoft® IntelliMouse®, trackballs, and more.

Audio, too!

In addition to the keyboard, video, and mouse information, the local unit can also digitize audio signals from a local CPU or other audio device and encode it into the digital information sent to the remote unit on the video fiber. The sound quality doesn't approach high fidelity (stereo is

converted to monaural), but it's more than adequate for system sounds such as alerts.

Local and remote control.

You can also connect an optional local user station (keyboard, monitor, and mouse only) to the local unit. The local unit passes video through to the local monitor and switches the keyboard and mouse. (The local user contends with the remote user for keyboard and mouse control of the CPU—once the active user station is idle for two seconds, the first user to type at the keyboard or move the mouse will be granted control.)

Cable Required —

ACS250A-R2: 62.5-/125- μ m multimode duplex fiber optic; 50-/125- μ m (to greater distances); ACS251A-R2: 9-/125- μ m single-mode duplex fiber optic

Compliance — FCC Part 15, Subpart B Class A, IC Class/classe A

Distance (Maximum) —

Between local and remote units:

ACS250A-R2: Over 62.5- μ m cable: 220 m (721.7 ft.); Over 50- μ m cable: 400 m (1312.3 ft.); ACS251A-R2: Over 9- μ m cable: 10 km (6.2 mi.)

Optical Budget — ACS250A-R2: With 62.5- μ m cable: 6.7 dB maximum;

With 50- μ m cable: 7.5 dB maximum;

ACS251A-R2: With 9- μ m cable: 10.5 dB maximum

Optical Type and Wavelength —

ACS250A-R2: 850-nm multimode;
ACS251A-R2: 1300-nm single-mode

Receiver Sensitivity — ACS250A-R2: With 62.5- μ m cable: -12.5 dBm; With 50- μ m cable: -13.5 dBm;
ACS251A-R2: With 9- μ m cable: -14.4 dBm

Resolution and Refresh Rate — Supports resolutions up to 1920 x 1200 and refresh rates up to 75 Hz; maximum pixel clock (bandwidth) is 165 MHz

Transmitter Launch Power — ACS250A-R2: Into either 50- μ m or 62.5- μ m cable: From -4.5 to -9 dBm;

ACS251A-R2: Into 9- μ m cable: From -3 to -9 dBm

Item	Code	List Price
ServSwitch™ Brand Fiber KVM Extenders II (Multimode)	ACS250A-R2	
II-SM (Single-Mode)	ACS251A-R2	

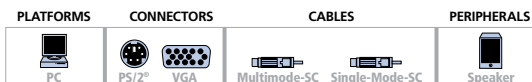
You may also need...

19" Rackmount Tray RMK250A

To connect your extender at a 20% savings, order...

Premium Ceramic, Multimode, 62.5-Micron Fiber Optic Patch Cable, Duplex, Riser, SC-SC, 10-m (32.8-ft.) (For other lengths or plenum cable, see pp. 130-131.)

EFN110-010M-SCSC



ACS250A-R2

What's included

- Local unit
- Remote unit
- (2) power supplies (1 for each unit)
- (2) power cords, one for each power supply
- (2) 6.6-ft. (2-m) PS/2 cables (M/M)
- 6-ft. (1.8-m) VGA cable (HD15, M/M)
- Audio cable

TECH SPECS

CE Approval — Yes

Interface — Extension: ACS250A-R2: Duplex multimode fiber optic; ACS251A: Duplex single-mode fiber optic;

Video: VGA compatible (DOS mode, VGA, SVGA, XGA, SXGA); plug-and-play for monitors and DDC supported; VXGA, WVXGA

Keyboard and mouse: IBM® PS/2 compatible; Audio: 3.5-mm mono

Connectors — Local unit: (4) 6-pin mini DIN F; (2) HD15 F; (1) 3.5-mm stereo audio jack; (1) pair of SC; (1) 2.1-mm barrel jack; (1) 8-pin mini DIN for service;

Remote unit: (2) 6-pin mini DIN F; (1) HD15 F; (1) 3.5-mm stereo audio jack; (1) 2.1-mm barrel jack; (1) 8-pin mini DIN for service

Power — Input: 100–264 VAC, 47–63 Hz, autosensing, up to 0.8A at 115 VAC or 100 mA at 230 VAC; 40A max inrush
Output: 12 VDC at up to 2 amps (local unit draws only 1 amp maximum, remote unit only 1.1 amps)

Size — 2.6"H x 7.3"W x 7.1"D (6.6 x 18.5 x 18 cm)

Weight — Local unit: 2.4 lb. (1.1 kg); Remote unit: 2.2 lb. (1 kg)

Item	Code	List Price
10-Gigabit Multimode, 50-Micron Fiber Optic Patch Cable, Zipcord, PVC, SC-SC, 10-m (32.8-ft) (For other lengths, see pp. 136-137)	EFNT010-010M-SCSC	

Single-Mode Fiber Optic Cable, Duplex, 9- μ m/125- μ m, SC-SC, Custom Lengths (For specific lengths, see pp. 138-139.)
EFN5010

ServSwitch Fiber Optic KVM Extenders

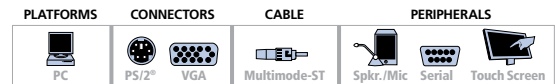
Extend KVM signals—and even serial and bidirectional stereo audio—up to 1 kilometer!



Immune to interference

ACS335A-AS: left: front and rear views of local unit; right: front and rear views of remote unit

- Extend KVM signals up to 1 kilometer (0.62 mi.).
- Provide sharp resolutions up to 1280 x 1024.
- Enables dual access for a single user. You can connect a monitor, keyboard, and mouse at the computer and have a KVM console on the remote end. Use your computer at either location!
- The ACS335A-AS version enables the transmission of full-duplex serial signals up to 19.2 kbps as well as bidirectional stereo audio signals. Connect a set of speakers and a microphone to its receiver unit for multimedia capability.
- The ACS335A-AS also can handle one serial device requiring hardware handshaking or—using breakout cable—up to three 2-wire serial devices requiring TX/RX only.
- **◆◆ WARRANTY** — 2 Years



TECH SPECS

CE Approval — Yes
Connectors — Local unit:
 Keyboard and mouse: (4) 6-pin mini DIN F;
 Monitor: (1) HD15 M, (1) HD15 F;
 Interconnect: ACS335A: (5) ST®;
 ACS335A-AS: (5) ST;
 ACS335A-AS Local unit also includes:
 Audio: (2) 3.5-mm jacks;
 Serial: (1) DB9 F;
 Remote unit:
 Keyboard and mouse: (2) 6-pin mini DIN F;
 Monitor: (1) HD15 F;
 Interconnect: ACS335A: (5) ST;
 ACS335A-AS: (5) ST;
 ACS335A-AS remote unit also includes:
 Audio: (2) 3.5-mm jacks;
 Serial: (1) DB9 M
Power — 90–240 VAC, 47–63 Hz, autosensing
Size — 1.7"H x 7.1"W x 5.2"D (4.3 x 18 x 13.2 cm)

Item	Code	List Price
ServSwitch™ Fiber Optic KVM Extenders	ACS335A	
with Serial and Bidirectional Stereo Audio	ACS335A-AS	
To connect local and remote units at a 20% savings, order...		
Breakout-Style Fiber Optic Bulk Cable, 6-Fiber Custom Lengths	EXN1006A	

ServSwitch DVI/VGA Fiber Extenders

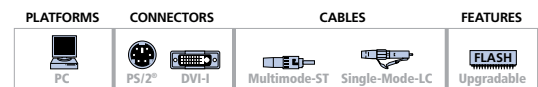
Use fiber to extend digital DVI and analog VGA signals in electrically noisy environments.

- Get perfect image quality up to 400 meters (1312.3 ft.) over multimode or up to 10 kilometers (6.2 mi.) over single-mode!
- Combine DVI and VGA video in your KVM extension applications. Ideal for VGA now plus future expansion to DVI.
- Access a server locally and remotely!
- Built-in video processors determine the best resolution and pixel phase.
- All local and remote units feature diagnostic LEDs.
- **◆◆ WARRANTY** — 2 Years

Picture-perfect images up to 10 kilometers!



ACS253A-MM



TECH SPECS

Chassis — Each unit: Metal case
Distance (Maximum) — Multimode: 200 m (656.1 ft.) with 62.5-/125- μ m cable, 400 m (1312.3 ft.) with 50-/125- μ m cable;
 Single-mode: 10 km (6.2 mi.) with 9-/125- μ m cable
Operating Environment — Temperature: 50 to 113° F (10 to 45° C);
 Humidity: 80% noncondensing
Resolution (Maximum) — 1600 x 1200 @ 60 Hz; lower resolutions operate @ 75 Hz
Video Compatibility —
 Analog: VGA to UXGA (separate sync, composite sync, or sync-on-green);
 Digital: DVI-I
Wavelength — Multimode: 850 nm;
 Single-mode: 1300 nm
CE Approval — Yes

Connectors —
 Local unit: Keyboard: (2) 6-pin mini DIN F;
 Mouse: (2) 6-pin mini DIN F;
 Monitor: (2) DVI-I F;
 Interconnect: (1) pair of SC;
 Remote unit: Keyboard: (1) 6-pin mini DIN F;
 Mouse: (1) 6-pin mini DIN F;
 Monitor: (1) DVI-I F;
 Interconnect: (1) pair of SC
Indicators — Each unit: (4) LEDs: Communication Error, Link Status, Device Ready, Video Signal/ Mode Detection
Power — 90–240 VAC, 47–63 Hz, autosensing, with IEC 320 connector and cord
Size — Each unit: 1.75"H (1U) x 6.7"W x 5.2"D (4.4 x 17 x 13.2 cm)
Weight — Each unit: 2.2 lb. (1 kg)

Item	Code	List Price
ServSwitch™ DVI/VGA Fiber Extenders		
Multimode	ACS253A-MM	
Single-Mode	ACS253A-SM	
You may also need...		
19" Rackmount Kit	RMK253A	
To connect the local and remote units at a 20% savings, order...		
Premium Ceramic, Multimode, 62.5-Micron Fiber Optic Patch Cable, Duplex, Riser, SC-SC, Custom Lengths (For specific lengths or plenum cable, see pp. 130–131.)	EFN110-SCSC	

Single-Mode Fiber Optic Cable, Duplex, 9- μ m/125- μ m, SC-SC, PVC, Custom Lengths (For specific lengths or plenum cable, see pp. 138–139.) EFN5010

ServSwitch DVI/VGA Fiber Extenders with USB

Support for today's DVI monitors plus USB keyboards and mice.

- Extend DVI video up to more than 400 meters (1312.3 ft.) over multimode or up to 10 kilometers (6.2 mi.) over single-mode!
- Support resolutions up to 1600 x 1200 at 60 Hz.
- Provide access to a remote server with VGA or DVI video.
- Ideal for VGA now plus future expansion to DVI.
- Include a 4-port USB hub for USB keyboards, mice, and peripherals.
- Choose multimode or single-mode models.
- Built-in video processors determine the best resolution and pixel phase.
- Upgradable, too! Just plug in the programming cable to transfer downloaded updates.
- All units feature diagnostic LEDs.
- **◆◆ WARRANTY** — 2 Years



ACS253A-U-MM

What's included

- Local unit
- Remote unit
- (2) universal power supplies and cords
- (2) DVI-I male to VGA HD15 female adapter cables
- DVI-I female to VGA HD15 male adapter cable
- DVI-I male-to-female video cable
- USB Type A to Type B cable
- DB9 male to RJ-11 programming cable

PLATFORMS	CONNECTORS	CABLE	PERIPHERALS	FEATURES
PC Sun® Mac®	USB DVI-I	Multimode-SC® Single-Mode-SC	USB	FLASH Upgradable

DVI plus USB up to 10 kilometers!

Item	Code	List Price
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ServSwitch™ DVI/VGA Fiber Extenders with USB Multimode	ACS253A-U-MM	
Single-Mode	ACS253A-U-SM	

You may also need...

19" Rackmount Kit	RMK253A	
USB 2.0 (4-Port) Hub	IC147A-R2	(For details, see p. 463.)

To connect the local and remote units at a 20% savings, order...

Premium Ceramic, Multimode, 62.5-Micron Fiber Optic Patch Cable, Duplex, Riser, SC-SC, Custom Lengths (For specific lengths or plenum cable, see pp. 130-131.) EFN110-SCSC

Single-Mode Fiber Optic Cable, Duplex, 9-µm/125-µm, SC-SC, PVC, Custom Lengths (For specific lengths or plenum cable, see pp. 138-139.) EFN5010

USB Version 1.1 Cables, Type A-Type B 10-ft. (3.0-m) (For other lengths, see p. 160.) USB01-0010

ServSwitch DVI Fiber Optic KVM Extenders

Choose from a variety of DVI-D KVM extension options for multimode or single-mode fiber!

- Transmit keyboard, mouse, and DVI-D video signals at up to 400 meters (1312.3 ft.) over multimode fiber or at up to 10 kilometers (6.2 mi.) over single-mode fiber!
- Support resolutions up to 1600 x 1200.
- Models available for PS/2 and USB keyboards and mice.
- All enable dual access for a single user. You can connect a monitor, keyboard, and mouse to the computer and have a KVM console on the remote end. Use your computer at either location!
- Dual DVI models enable you to connect up to two DVI-D monitors to the computer and at the remote KVM console.
- Put a different application on each monitor.
- Or expand an application that uses lots of small windows across both monitors to provide more workspace.
- **◆◆ WARRANTY** — 2 Years



ACS2209A-SM-R2: local and remote units

PLATFORMS	CONNECTORS	CABLE	FEATURES
PC Sun® Mac®	PS/2® USB DVI-D	Multimode-LC Single-Mode-LC	FLASH Upgradable

Item	Code	List Price	Item	Code	List Price
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ServSwitch™ DVI Fiber Optic KVM Extenders

Single DVI, PS/2®		
Multimode	ACS2009A-R2-MM	
Single-Mode	ACS2009A-R2-SM	
Single DVI, USB		
Multimode	ACS4001A-R2-MM	
Single-Mode	ACS4001A-R2-SM	
Dual DVI, PS/2		
Multimode	ACS2209A-R2-MM	
Single-Mode	ACS2209A-R2-SM	
Dual DVI, USB		
Multimode	ACS4201A-R2-MM	
Single-Mode	ACS4201A-R2-SM	

To connect local and remote units at a 20% savings, order...

Premium Ceramic, Multimode, 62.5-Micron Fiber Optic Patch Cable, LC-LC, Duplex, Riser, Custom Lengths (For specific lengths, see pp. 130-131.) EFN110-LCLC

Single-Mode, 9-Micron Fiber Optic Cable, LC-LC, Duplex, PVC, Custom Lengths (For specific lengths, see pp. 138-139.) EFN092

ServSwitch Wireless KVM Extender

Transmit keyboard, video, and mouse signals up to 100 feet—live without a wire.

- Transmits up to 54 Mbps within the 5-GHz band up to 100 feet (30.5 m).
- Supports resolutions up to 100 feet (30.5 m).
- OFDM technology enables the transmission of large amounts of digital data over radio and reduces crosstalk in signal transmissions.
- Perfect for fast and easy monitoring expansion, frequent moves, and clean rooms.
- Receiver (remote) unit supports speakers and headphones.
- Advanced Encryption Standard (AES) provides secure communications based on the IEEE 802.11a standard.
- **◆◆ WARRANTY** — 2 Years

We have ServSwitch™ extension technology for wireless, too!

The news on radio is 54-Mbps transmissions.

The Wireless KVM Extender processes inbound and outbound analog video using a compression engine. The engine features a multimedia digital signal processor (DSP) and Field-Programmable Gate Array (FPGA) chip that are coupled to an IEEE 802.11a radio board. Its design makes the Wireless KVM Extender compatible with virtually every PC, display technology, and operating system.

Installation is plug-and-play and requires no software. A convenient on-screen display enables you to make adjustments and fine-tune the video.

The extender's radio board transmits data up to a scorching 54 Mbps within the 5-GHz band. It uses Orthogonal Frequency Division Multiplexing (OFDM) technology, which enables the transmission of large amounts of digital data over radio. OFDM also reduces the amount of crosstalk in signal transmissions.

Black Box Explains

How to maximize your wireless range.

To transmit wireless communications up to their maximum range, there are four simple rules to follow:

- Try to keep a direct line between the transmitter and receiver.
- Minimize the number of walls and ceilings between the transmitter and receiver. Such obstructions reduce the range.
- If there are obstructions, be sure the wireless signal passes through drywall or open doorways and not other materials.
- Keep the transmitter and receiver at least 3 to 6 feet (0.9 to 1.8 m) from electrical devices or appliances, especially those that generate extreme RF noise.

PLATFORMS	CONNECTORS	PERIPHERALS
 PC	 PS/2*  VGA	 Speaker



Data communication without cables.

The Wireless KVM Extender is ideal for a variety of applications. Expand your network where wires cannot go. Or if you move users frequently, the Wireless KVM Extender gives you the mobility you require.

Connect the transmitter directly to your CPU to send audio and video data. The transmitter unit also provides for local KVM connections. It includes a 4-foot (1.2-m) cable with video and PS/2 compatible keyboard and mouse connectors.

Connect the receiver unit directly to your remote keyboard, monitor, and mouse to serve as the radio interface for these components. It receives audio and video data from the source (local) CPU, and it can send keyboard and mouse data to the source CPU.

What's included

- Local unit
- Remote unit
- (2) power supplies
- (1) audio cable

TECH SPECS

Audio Support — Analog
Compatibility — Video: VGA, SVGA, XGA;
 Peripherals: PS/2 keyboard and mouse, extended speakers
Compliance — FCC Class A, UL®, cUL
Operating Temperature — 32 to 104° F (0 to 40° C)
Radio Frequency — 5150–5350, 5725–5825 MHz
Radio Protocol — IEEE 802.11a
Resolutions Supported — 640 x 480, 800 x 600, 1024 x 768 @ 60 Hz
Security — AES encryption with 802.1x authentication
Connectors — Transmitter and receiver:
 Video: (1) DB15 F;
 Keyboard and mouse: (2) 6-pin mini DIN F;
 Stereo: (1) 3.5-mm mini jack
Power — 12 VDC, external
Size — 1.75"H (1U) x 6.25"W x 5.25"D
 (4.4 x 15.9 x 13.3 cm)

Item	Code	List Price
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ServSwitch Wireless KVM Extender
ACU5200A

ServView KVM Drawer with LCD Saves space in the server room.



- Features a 15", 17", or 19" Class A active matrix TFT LCD panel with resolutions up to 1280 x 1024.
- Set up a compact workstation inside a 19" cabinet or 4-post rack and reduce server room clutter.
- The KVT315A, KVT317A, and Sun models take up just 1U of rack space.
- Includes a PS/2® keyboard and trackball mouse.
- USB support is coming to KVT315A, KVT317A, and KVT319A soon!
- The KVTS317A and KVTS319A are Sun compatible: They include a USB Sun compatible keyboard, three-button trackball mouse, and Sun administrative keys on a keypad.
- Adjust and fine-tune LCD setting using an on-screen display (OSD).
- Includes mounting hardware and cables.
- To control more than one server, just add a ServSwitch™.
- ♦♦ **WARRANTY** — 2 Years



TECH SPECS

Contrast Ratio — KVT315A: 300:01:00;
KVT317A: 350:01:00;
KVT319A: 500:01:00
KVT317A, KVTS319A: 700:1

Display Area — KVT315A: 12" x 9"
(30.5 x 22.9 cm);
KVT317A, KVTS317A: 13.3" x 10.6"
(33.8 x 26.9 cm);
KVT319A, KVTS319A: 14.8" x 11.9"
(37.6 x 30.2 cm)

Display Colors —
KVT315A, KVT317A, KVTS317A:
16.2 million;
KVT319A, KVTS319A: 16.7 million

Input Signal — Analog RGB 0.7 Vp-p

Racking Depth —
KVT31xA: 15.34" —35.04"
KVTS31xA: 24" —36"

Resolution (Maximum) —
KVT315A: 1024 x 768;
KVT317A, KVT319A, KVTS317A,
KVTS319A: 1280 x 1024

Sync — KVT315A:
Horizontal: 48–60 kHz;
Vertical: 60–75 Hz;

KVT317A, KVTS317A:
Horizontal: 56.7–82.082 kHz;
Vertical: 55–77 Hz;
KVT319A, KVTS319A:
Horizontal: 53–79.796 kHz;
Vertical: 50–75 Hz

Viewing Angle —
KVT315A, KVT317A: 140° x 120°;
KVT319A: 170° x 170°;
KVTS317A, KVTS319A: 150° x 135°

CE Approval — Yes

Power — 12-VDC adapter with VESA DPMS power management

Size — KVTS317A: 1.75"H (1U) x 17.4"W x 23.6"D (4.4 x 44.2 x 59.9 cm)
KVT315A, KVT317A, KVTS319A:
1.75"H (1U) x 17.4"W x 25.6"D
(4.4 x 44.2 x 65 cm);
KVT319A: 2.6"H x 17.4"W x 26.4"D
(6.6 x 44.2 x 67.1 cm)

Weight — KVTS317A: 32 lb. (14.5 kg);
KVTS319A: 34.2 lb. (15.5 kg);
KVT315A: 41.8 lb. (19 kg);
KVT317A: 44 lb. (20 kg);
KVT319A: 48.4 lb. (22 kg)

Item	Code	List Price
ServView™ KVM Drawer with LCD		
15" LCD	KVT315A	
17" LCD	KVT317A	
19" LCD	KVT319A	
ServView KVM Drawer with LCD for Sun		
17" LCD	KVTS317A	
19" LCD	KVTS319A	

ServView KVM Drawer with Separate Drawer for Keyboard/Mouse and LCD

Keep the keyboard/mouse stored away while viewing the LCD monitor!



- Features a 17" or 19" LCD display with resolutions up to 1280 x 1024.
- Stores away in a cabinet or 4-post rack and uses only 2U of space.
- Flip up and view the monitor without pulling out the keyboard/mouse tray.
- Great for high-security server areas.
- PS/2 keyboard tray features an integrated three-button trackball mouse and a handle.
- USB support coming soon!
- Use on-screen display (OSD) controls to easily adjust display resolution and other LCD settings.
- Drawer assembly's sturdy design stands up to heavy use.
- ♦♦ **WARRANTY** — 2 Years



TECH SPECS

Brightness — 300 cd/m2

Contrast Ratio — 700:1

Display — 17" or 19" Class A active matrix TFT LCD panel

Display Area —
KVT217A: 13.3" x 10.6"
(33.8 x 26.9 cm);
KVT219A: 14.8" x 11.9"
(37.6 x 30.2 cm)

Display Colors —
KVT217A: 16.2 million;
KVT219A: 16.7 million

OSD Controls — Brightness, contrast, color, clock, H. position, V. position, phase, scaling, autoconfiguration, input select, multiwindow, clear EEPROM, OSD adjust

Racking Depth — 15.34" —27.56"
(38.9 to 70.1 cm)

Sync —
KVT217A:
Horizontal: 56.7–82.082 kHz;
Vertical: 55–77 Hz;

KVT219A:
Horizontal: 53–79.796 kHz;
Vertical: 50–75 Hz

Viewing Angle — 150° x 135°

CE Approval — Yes

Connectors — (1) integrated HD15 (VGA), which connects via the included 3-in-1 cable to the server's HD15 (VGA) and 6-pin mini DIN (PS/2 keyboard and mouse) ports

Power — 12-VDC adapter with VESA DPMS power management

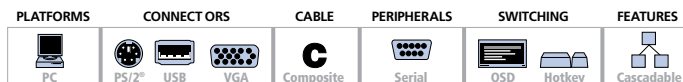
Size —
KVT217A: 3.5"H (2U) x 17.4"W x 17.3"D (8.9 x 44.2 x 43.9 cm);
KVT219A: 3.5"H (2U) x 17.4"W x 18.9"D (8.9 x 44.2 x 48 cm)

Weight — KVT217A: 39.7 lb. (18 kg);
KVT219A: 41.9 lb. (19 kg)

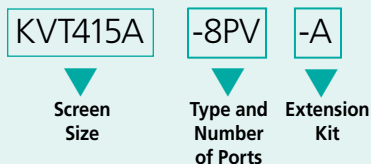
Item	Code	List Price
ServView KVM Drawer with Separate Drawer for Keyboard/Mouse and LCD		
17" LCD	KVT217A	
19" LCD	KVT219A	

ServTray Complete

Install a rackmounted keyboard, monitor, and mouse together with a KVM switch module.



How to order ServTray Complete



1. Select the screen size for your ServTray Complete using the following base codes:

- 15" Screen = **KVT415A**
- 17" Screen = **KVT417A**
- 19" Screen = **KVT419A**

2. Choose your KVM switch module by adding the code (in red) that corresponds to the module you want.

1-Port Module	PS/2 or USB = 1UV
8-Port Modules	PS/2 only = 8PV PS/2 or USB = 8UV
16-Port Modules	PS/2 only = 16PV PS/2 or USB = 16UV

3. Add the code that indicates the bracket extension you need to mount the ServTray Complete.

Rear Bracket Extension Kits*

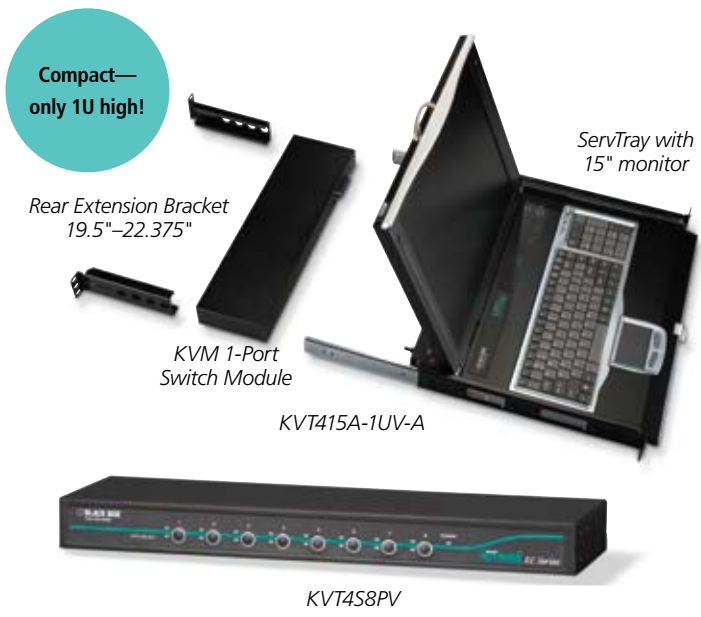
19.5"–22.375"	A
22.625"–27.75"	B
26.625"–31.625"	C
30.5"–35.625"	D
34.5"–39.5"	E

So, for example, the code for a ServTray Complete with a 15" screen, (1) 8-Port PS2-only switch module, and 19.5"–22.375" bracket extension would be **KVT415A-8PV-A**.

Remember to order the cables from the price block below. And don't forget—for "PS/2 only" switch modules, you can only use PS/2 cables. If you have USB machines or think that you might upgrade to USB PCs, you may want to consider ordering USB-enabled switch modules and USB cables.

* NOTE: The measurements listed are the depths between the front rail and rear rail inside a cabinet or rack, not the outside depth of a cabinet or rack enclosure.

- Choose a 15", 17", or 19" monitor!
- Get 1-, 8-, or 16-port KVM switching modules.
- Mounts in a standard 19" cabinet or four-post rack with depths from 19.5" to 39.5".
- Compact—only 1U high.
- Features a touchpad with an ergonomic hand rest.
- Includes a full 105-key keyboard.
- Reduce clutter in your server room.
- Costs less than other rackmount devices!
- The pull-out tray has an attractive front panel to conceal the unit when not in use.
- Features an autosensing 100- to 240-VAC power supply.
- CE approved.
- To control even more PS/2 CPUs, just add a ServSwitch EC Series (KV90xx or KV91xx).
- **◆◆ WARRANTY — 1 Year**



If you're looking for a way to make your server room even more functional without sacrificing valuable space, you've found it. Our ServTray Complete—an integrated keyboard, monitor, and mouse that only takes up 1U of rackspace—fits into standard server cabinets and can enable you to manage as many as 16 PS/2 or USB servers or a combination of the two.

Designed for heavy-duty use, the ServTray Complete can replace that bulky local workstation you've been using. Just slide the drawer out and open the flat-screen monitor. When you're done, simply slide it back in place. The front panel conceals the unit when not in use.

The ServTray Complete is available with screen sizes of 15", 17", and 19", and it can accommodate switching modules with 1, 8, or 16 ports.

Once you've chosen your screen size, switching module, and bracket extensions, just choose your cables and you're in business.

Item	Code	List Price
ServTray Complete	KVT4S8PV	
15" Screen	KVT415A-XXX-X	See "How to order..."
17" Screen	KVT417A-XXX-X	See "How to order..."
19" Screen	KVT419A-XXX-X	See "How to order..."
ServTray Complete Server Cables		
<i>(NOTE: You'll only need cables for 8- and 16-port switching modules; the cables are included with the 1-port module.)</i>		
PS/2 only		
6-ft. (1.8-m)	EHN70001-0006	
10-ft. (3.0-m)	EHN70001-0010	
15-ft. (4.5-m)	EHN9000P-0015	
30-ft. (9.1-m)	EHN9000P-0030	
PS/2 or USB		
6-ft. (1.8-m)	EHN9000U-0006	
10-ft. (3.0-m)	EHN9000U-0010	
15-ft. (4.5-m)	EHN9000U-0015	

ServView II • ServView II Ultra • ServView III • ServSwitch IV

Reduce clutter in your server room with



ServView II

- Features a 15" LCD with 1024 x 768 maximum resolution.
- VGA, SVGA, XGA, Mac VGA, and Mac XGA video compatibility.
- Heavy duty with full-size PS/2 keyboard and trackball, and a front panel that conceals the drawer when it's not in use.
- Fits in 1U of space in a standard rack or cabinet with four mounting rails.
- Models with an integrated ServSwitch are available.
- Monitor features 16.7 million colors, a 50:1 contrast ratio, and has front-panel controls for easy adjustment.
- Supports AT®/XT, PS/2, UNIX® computers.
- ♦♦ **WARRANTY** — 1 Year

ServView II Ultra

- Comes with a 17" LCD with 1280 x 1024 maximum resolution.
- VGA, SVGA, XGA, Mac VGA, and Mac XGA video compatibility.
- Supports AT/XT, PS/2, UNIX, Sun, and Mac computers.
- Slides in and out; front panel conceals the drawer when it's not in use.
- Basic model has a full-size PS/2 keyboard and trackball. Optionally available with a USB keyboard and/or touchpad glidepoint mouse.
- Also available with an integrated ServSwitch.
- Fits in 1U of space in a standard rack or cabinet with four mounting rails.
- Monitor features 16.7 million colors, a 150:1 contrast ratio.
- On-screen display for easy fine-tuning of monitor display.
- ♦♦ **WARRANTY** — 1 Year

ServView II models include

- **Basic:** ServView II with PS/2 keyboard, trackball mouse, and 15" LCD; telescoping, rackmount rail assembly; (1) cable-carrier arm; (8) 10-32 5/8" self-tapping screws; (2) pieces of VELCRO®; and (1) power cord.
- **KITA:** ServView II Basic contents + an 8-Port ServSwitch (KV3108SA-R5, [page 360](#)) for control of up to eight PC-only computers, an additional power cord, and (1) 1-ft. ServSwitch-to-keyboard/monitor/mouse cable for PS/2.
- **KITB:** ServView II Basic contents + a Matrix ServSwitch (SW742A-R3, [page 367](#)) for control of up to eight PC-only computers from two computers, an additional power cord, (1) PS/2 serial adapter, and (1) 1-ft. ServSwitch-to-keyboard/monitor/mouse cable for PS/2.
- **KITC:** ServView II Basic contents + (1) ServSwitch Ultra (KV5008SA-R2, [page 360](#)) for multiplatform use with up to eight PC, Mac, and Sun computers, an additional power cord, (1) PS/2 serial adapter, and (1) 1-ft. ServSwitch-to-keyboard/monitor/mouse cable for PS/2.
- **KITD:** ServView II Basic contents + (1) Multiplatform Matrix ServSwitch (SW762A-R4, [page 367](#)) to control up to eight PC and Sun computers, an additional power cord, (1) PS/2 serial adapter, and (1) 1-ft. ServSwitch-to-keyboard/monitor/mouse cable for PS/2.

ServView II Ultra models include

- **Basic:** ServView II Ultra with PS/2 or USB keyboard, trackball or glidepoint touchpad mouse, and 17" LCD; (1) telescoping, rackmount rail assembly; (1) cable carrier arm; (8) 10-32 x 5/8" self-tapping screws; (2) pieces of VELCRO, and (1) power cord.
- **KITA:** ServView II Ultra Basic contents + an 8-Port ServSwitch (KV3108SA-R5, [page 360](#)) for control of eight PC-only computers.
- **KITB:** ServView II Ultra Basic contents + a Matrix ServSwitch (SW742A-R3, [page 367](#)) to control eight PC-only computers from two workstations.
- **KITC:** ServView II Ultra Basic contents + a ServSwitch Ultra (KV5008SA-R2, [page 360](#)) for multiplatform use with eight PC, Mac, and Sun computers.
- **KITD:** ServView II Ultra Basic contents + a Multiplatform Matrix ServSwitch (SW762A-R4, [page 367](#)) to control up to eight PC and Sun computers from two workstations.

Item	Code	List Price
ServView™ II with PS/2 Keyboard and Trackball Mouse		
Basic	KVT122A-R3	
with 8-Port ServSwitch	KVT122A-R3-KITA	
with Matrix ServSwitch for PC, 2 x 8	KVT122A-R3-KITB	
with 8-Port ServSwitch Ultra	KVT122A-R3-KITC	
with Multiplatform Matrix ServSwitch, 2 x 8	KVT122A-R3-KITD	

Item	Code	List Price
ServView™ II Ultra		
To order a standalone ServView KVM Tray...		
Basic		
PS/2 Keyboard and Trackball Mouse	KVT130A-R3	
USB Keyboard and Trackball Mouse	KVT186A	
USB Keyboard and Glidepoint		
Touchpad Mouse	KVT176A	
PS/2 Keyboard and Glidepoint		
Touchpad Mouse	KVT166A	

To add a ServSwitch to your ServView KVM Tray, insert the red code from above in the "_____".

with 8-Port ServSwitch	KVT____-KITA
with Matrix ServSwitch for PC, 2 x 8	KVT____-KITB
with 8-Port ServSwitch Ultra	KVT____-KITC
with Multiplatform Matrix ServSwitch, 2 x 8	KVT____-KITD



these console drawer options.



19" LCD



Sun Keyboard!

ServView III

- Features a large 19" LCD with 1280 x 1024 maximum resolution.
- VGA, SVGA, XGA, Mac VGA, and Mac XGA video compatibility.
- Full-size PS/2 or USB keyboard.
- Models come with glidepoint touchpad or trackball mice.
- Slides in and out, with a front panel that conceals the drawer when it's not in use.
- Fits in 1U of space in a standard rack or cabinet with four mounting rails.
- Models with an integrated ServSwitch are available.
- Monitor features 16.7 million colors, a 150:1 contrast ratio, and has front-panel controls for easy adjustment.
- ♦♦ **WARRANTY** — 1 Year

ServView III models include

- **Basic:** ServView III with PS/2 or USB keyboard, trackball or glidepoint touchpad mouse, (1) telescoping, rackmount rail assembly; (1) cable carrier arm; (8) 10-32 5/8" self-tapping screws; (2) pieces of VELCRO®; and (1) power cord. The kits include (1) additional power cord and (1) 1-ft. ServSwitch to keyboard/monitor/mouse cable for PS/2 or USB.
- **KITA:** ServView III Basic contents + an 8-Port ServSwitch (KV3108SA-R5, [page 360](#)) for control of eight PC-only computers.
- **KITB:** ServView III Basic contents + a Matrix ServSwitch (SW742A-R3, [page 367](#)) to control eight PC-only computers from two workstations.
- **KITC:** ServView III Basic contents + a ServSwitch Ultra (KV5008SA-R2, [page 360](#)) for multiplatform use with eight PC, Mac, and Sun computers.
- **KITD:** ServView III Basic contents + a Multiplatform Matrix ServSwitch (SW762A-R4, [page 367](#)) to control up to eight PC and Sun computers from two workstations.

ServView IV

- Choose from models with 17" or 19" LCD monitors that feature 1280 x 1024 maximum resolution.
- Video compatibility includes DVI-D, S-Video, and Composite, along with VGA, SVGA, XGA, Mac VGA, and Mac XGA.
- Installs in standard 19" cabinets with four mounting rails.
- Drawer slides out and unfolds for operation, and folds down and slides in when not needed; front panel conceals drawer when not in use.
- Full-size Sun keyboard features separate numeric keypad and special keys for Sun servers.
- Also available with an integrated ServSwitch.
- On-screen display for easy fine-tuning of monitor display.
- ♦♦ **WARRANTY** — 1 Year

ServView IV models include

- **KVT160A or KVT163A:** ServView IV with (1) telescoping, rackmount rail assembly; (1) cable carrier arm; (8) 10-32 5/8" self-tapping screws; (2) pieces of VELCRO; and (1) power cord.
- The ServView IV models can be outfitted with any 8-port ServSwitch you choose. See [pages 352–378](#) and [page 381](#), or call our FREE Tech Support.
- **KITC:** KVT160A or KVT163A contents + a ServSwitch Ultra (KV5008A-R2, [page 360](#)), (1) additional power cord and (1) 1-ft. ServSwitch to keyboard/monitor/mouse cable for Sun.
- **KITD:** KVT160A or KVT163A contents + a Multiplatform Matrix ServSwitch (SW762A-R4, [page 367](#)) to control up to eight PC and Sun computers from two workstations.

Item	Code	List Price
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ServView™ III

To order a standalone ServView KVM Tray...

Basic

PS/2 Keyboard and Trackball Mouse	KVT140A-R2	
USB Keyboard and Trackball Mouse	KVT191A	
USB Keyboard and Glidepoint Touchpad Mouse	KVT176A	
PS/2 Keyboard and Glidepoint Touchpad Mouse	KVT166A	

To add a ServSwitch to your ServView KVM Tray, insert the red code from above in the "____".

with 8-Port ServSwitch	KVT____-KITA	
with Matrix ServSwitch for PC, 2 x 8	KVT____-KITB	
with 8-Port ServSwitch Ultra	KVT____-KITC	
with Multiplatform Matrix ServSwitch, 2 x 8	KVT____-KITD	

NOTE: For specifications on all the ServView KVM Tray models, go to [blackbox.com](#).

Item	Code	List Price
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ServView™ IV for Sun with USB		
17" LCD Display, 1U	KVT160A	
with 8-Port ServSwitch Ultra	KVT160A-KITC	
with Multiplatform Matrix ServSwitch	KVT160A-KITD	
19" LCD Display, 2U	KVT163A	
with 8-Port ServSwitch Ultra	KVT163A-KITC	
with Multiplatform Matrix ServSwitch	KVT163A-KITD	

GHOST Emulators

Our mouse and keyboard emulators scare away unauthorized users.



AC247A

- Your computer will boot and run flawlessly without an attached keyboard or mouse.
- Without an attached keyboard and mouse, accidental use of the computer is impossible and purposeful misuse is more difficult.
- Plug a keyboard and mouse into the device when you need to operate the computer.
- The AC244A translates between AT® serial and PS/2® mouse protocols automatically.
- PS/2® connectors on AC247A have PC99 color coding for instant identification.
- ♦♦ **WARRANTY** — 1 Year



AC244A

NOTE: The AC244A works best when used with switches or extenders that supply their own power. If you're connecting a PS/2 mouse directly, a low-powered mouse is recommended. Some mice might not operate properly if they draw more power than the serial port can provide.

TECH SPECS

Hardware Requirements — AC244A:
PC with AT serial mouse port;
AC247A: PC with PS/2 keyboard and mouse ports
CE Approval — Yes
Connectors — AC244A: (1) DB9 F,

(1) 6-pin mini DIN F;
AC247A: PC connection: (2) 6-pin mini DIN M; optional keyboard and mouse connection: (2) 6-pin mini DIN F
Power — From the PC

Item	Code	List Price
GHOST Emulators		
AT→PS/2 Mouse	AC244A	
PS/2 Keyboard and Mouse GHOST Emulator	AC247A	

USB to 8-Pin Mini DIN Keyboard and Mouse Converter for Sun

Operate a newer USB Sun computer using an older 8-pin mini DIN keyboard and mouse!



NOTE: The converter does not emulate a PS/2 mouse.

- For a single Sun® computer connection, attach the converter's USB Type A connector cable to the computer's USB port. Then connect the keyboard's 8-pin mini DIN cable to the converter's 8-pin mini DIN port.
- To connect the converter to a KVM switch with Sun legacy interface, attach the converter's USB Type A connector cable to the computer's USB port. Then link the KVM switch's 8-pin mini DIN cable to the converter's 8-pin mini DIN port.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Device Driver — USB host controller installed
Integrated Cable Length — 9.8" (24.9 cm)
System Requirements — Sun Solaris®

Connectors — (1) USB Type A M, (1) 8-pin mini DIN F
Power — From the USB bus
Size — 0.9"H x 1.9"W x 1.5"D (2.2 x 4.9 x 3.9 cm)

Item	Code	List Price
USB to 8-Pin Mini DIN Keyboard and Mouse Converter for Sun	KVUSB2SUN	

USB to PS/2 Flash-Upgradable Converter Cable

Connect your PS/2 keyboard and mouse to a USB computer!



- Converts PS/2® keyboard and mouse signals to the USB interface.
- Supports PC, Macintosh® and Sun® USB computers and servers.
- Flash-upgradability makes updating easy.
- Also great for KVM switching applications with our ServSwitch™ solutions.
- **◆◆ WARRANTY** — 2 Years

Item	Code	List Price
USB to PS/2 Flash-Upgradable Converter Cable	KVUSB2PS2	

Buyer's Guide | Replacement Power Supplies

Product Names	Product Codes	Page Numbers	Compatible Power Supply SKU	List Price
ServSwitch™ (Secure) KVM Switch, ServSwitch KVM Switch, ServSwitch Ultra™ KVM Switch	SW721A-Rx, KV3104MA-Rx, KV3104MN-Rx, KV5002MA-Rx, KV5004MA-Rx, MV5004MN-Rx, SW722A-R2	p. 360, pp. 372–373	PS024	
ServSelect™ SAM, ServSwitch Octet™ SAM	KV123A, KV1724A	pp. 364–365, p. 368	PS123A	
ServSwitch Multi Base, ServSwitch Multi Expansion	KV150A, KV150A-R2, KV160A, KV160A-R2	blackbox.com	PS150	
ServSwitch Wizard™ Extenders (in chassis) and Rackmount Chassis, ServSwitch Wizard Skew Compensator	ACU5000 Series Extenders (when in rack shelf), ACU5100 Series Extenders (when in rack shelf)	p. 381, pp. 384–385	PS5000-R2	
ServSwitch Wireless KVM Extender	ACU5200A	p. 399	PS5200	
ServSwitch USB Plus, ServSwitch Wizard DVI, ServSwitch Uno™, ServSwitch Duo™, ServSwitch Quadro™, ServSwitch Wizard PRO, ServSwitch Wizard (Rear-Access Chassis), ServSwitch Wizard Rackmount Chassis, ServSwitch Wizard Skew Compensator, ServSwitch Wizard LP, ServSwitch Wizard MP for Sun and Mac	KV61054A-R2, KV61085A-R2, KV6112FA-R2, KV6116FA-R2, SW644A, SW648A, KV6016FA-R2, KV6508SA, KV1002A-R2, KV1004A-R2, SW651A, SW652A, ACU5000 Series Extenders (Standalone), ACU5100 Series Extenders (Standalone), SW641A, SW642A, KV804A, KV805A, KV6416FA-R2, KV822A, KV824A	p. 355, pp. 356–357, p. 366, p. 377, p. 381, pp. 384–385	PS649-R3	
ServSwitch Wizard DVI	KV1022A-R2, KV1024A-R2, KV1042A-R2, KV1044A-R2	p. 356	PS650	
ServSwitch DT Low-Profile KVM Switch, ServSwitch DT Series DVI, ServSwitch EC for PS/2, ServSwitch EC for PS/2 and USB, ServSwitch EC for PS/2 and USB Servers	KV7000A, KV7001A, KV9502A, KV9504A, KV9004A, KV9008A, KV9016A, KV9104A, KV9108A, KV9116A, KV9204A, KV9208A, KV9216A	blackbox.com, p. 354, pp. 358–359	PS7090	
ServSwitch DT Pro II	U.S. PS for KV7020A, KV7021A Japanese PS for KV7020A, KV7021A	p. 353 p. 353	PS72021 PS72021-JP	
ServSwitch DT Basic, ServSwitch DT Basic with Audio	US PS for KV7002A, KV7003A, KV7004A, KV7005A	p. 353	PS725-US	
ServSwitch EC with Built-In IP for PS/2 and USB with PS/2 Consoles and USB Servers	KV9304A, KV9308A, KV9316A, KV9404A, KV9408A, KV9416A	p. 359	PS9300	
ServTray™ Basic	KVT201A, KVT201A-R2, KVT202A, KVT202A-R2, KVT203A	blackbox.com	PS-KVT2	
ServSwitch Extra Power Supply	Used to supply 5 volts on a PS/2 connector	blackbox.com, p. 405	PSMD6	
ServSwitch Brand CAT5 and CATx Extenders with 9 VDC Output	ACU1001A, ACU1002A, ACU1008A, ACU1009A, ACU1004A, ACU1005A, ACU1022A, ACU1028A, ACU3001A, ACU3009A, ACU3022A, ACUREM, ACUSREM, ACUMREM, ACUVREM, ACUWREM, ACUREMSW, ACU1049A, ACU1006MRA, AND ACU1006MRVA, ACU2001A, ACU2009A, ACU2022A, ACU2028A, ACUR004A, and ACURA004A	pp. 382–393	PSU1002E-R3	
ServSwitch and Rackmount ServSwitch Extenders and Extender Hubs with 5 VDC Output	ACU1006RA, ACU1006DRA, ACU1006SRA, ACU1006VRA, ACU1006DSRA, ACU1006DVRA, ACU1012RA, ACU1007A, ACU2201A Local, ACU2222A Local	pp. 394–395	PSU1006E-R2	
ServReach™ KVMCube KVMoIP (1 x 1)	KVIP1001A	p. 380	KVIP1001-PS	
ServSwitch DVI/VGA CATx Extenders, ServSwitch DVI/VGA Fiber Extenders, ServSwitch DVI/VGA Fiber Extenders with USB	ACS253A-CT, ACS253A-MM, ACS253A-SM, ACS253A-U-MM, ACS253A-U-SM	p. 385, pp. 397–398	PS253A	
ServSwitch DTX Transmitters and Receivers	DTX5000-T, DTX5000-R, DTX5002-T, DTX5002-R	p. 370	DTX5000-PS	

Computer Cables for ServSwitch, ServSwitch Ultra, ServSwitch Multi Video, and ServSwitch Ultra Multi Video

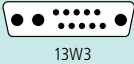













- To connect a switch at short distances, order standard PS/2® cables.
- For higher resolutions and greater distances, order coax cables.
- Audio cables have 3.5-mm connectors for stereo speakers and a microphone.
- Low-Smoke, Zero-Halogen cables are for areas where PVC isn't permitted.
- USB computer cables provide connectivity for IBM® PC-compatible computers, Sun® computers, Apple® computers, and other platforms.
- Sun cables link a ServSwitch to a Sun computer with either 13W3 or HD15 monitor ports.
- ♦♦ **WARRANTY** — Lifetime



Item	Platform	Monitor	Keyboard	Mouse	Audio	Serial	Code	List Price
ServSwitch™, ServSwitch Ultra™, ServSwitch Multi™ Video, and ServSwitch Ultra Multi Video Cables								
Computer Cables								
PS/2 Standard	PS/2				—	—	EHN151-0005 EHN151-0010 EHN151-0020	
5-ft. (1.5-m)								
10-ft. (3.0-m)								
PS/2 Standard with Audio	PS/2					—	EHN151A-0005 EHN151A-0010 EHN151A-0020	
5-ft. (1.5-m)								
10-ft. (3.0-m)								
PS/2 Coax	PS/2				—	—	EHN382-0005 EHN382-0010 EHN382-0020 EHN382-0035 EHN382-0050 EHN282-0075 EHN282-0100	
5-ft. (1.5-m)								
10-ft. (3.0-m)								
20-ft. (6.0-m)								
35-ft. (10.6-m)								
50-ft. (15.2-m)								
75-ft. (22.8-m)								
100-ft. (30.4-m)								
PS/2 Coax with Audio	PS/2					—	EHN382A-0005 EHN382A-0010 EHN382A-0020 EHN382A-0035 EHN382A-0050 EHN382A-0075 EHN382A-0100	
5-ft. (1.5-m)								
10-ft. (3.0-m)								
20-ft. (6.0-m)								
35-ft. (10.6-m)								
50-ft. (15.2-m)								
75-ft. (22.8-m)								
100-ft. (30.4-m)								
PS/2 Coax, Low-Smoke, Zero-Halogen	PS/2				—	—	EHN382-0005-LS EHN382-0010-LS EHN382-0020-LS EHN382-0035-LS	
5-ft. (1.5-m)								
10-ft. (3.0-m)								
20-ft. (6.0-m)								
PS/2 Coax for Touch Screen Support	PS/2				—		EHN382S-0001 EHN382S-0005 EHN382S-0010 EHN382S-0020	
1-ft. (0.3-m)								
5-ft. (1.5-m)								
10-ft. (3.0-m)								
20-ft. (6.0-m)								
USB Coax	Multiplatform		—		—	—	EHN485-0005 EHN485-0010 EHN485-0020 EHN485-0035 EHN485-0050 EHN485-0075 EHN485-0100	
5-ft. (1.5-m)								
10-ft. (3.0-m)								
20-ft. (6.0-m)								
35-ft. (10.6-m)								
50-ft. (15.2-m)								
75-ft. (22.8-m)								
100-ft. (30.4-m)								
USB Coax with Audio	Multiplatform		—			—	EHN485A-0005 EHN485A-0010 EHN485A-0020 EHN485A-0035 EHN485A-0050	
5-ft. (1.5-m)								
10-ft. (3.0-m)								
20-ft. (6.0-m)								
35-ft. (10.6-m)								
50-ft. (15.2-m)								
USB Coax, Low-Smoke, Zero-Halogen	Multiplatform		—		—	—	EHN485-0005-LS EHN485-0010-LS	
5-ft. (1.5-m)								
10-ft. (3.0-m)								

Sun Computer Cables for ServSwitch, ServSwitch Ultra, ServSwitch Multi Video, and ServSwitch Ultra Multi Video

Item	Platform	Monitor	Keyboard/Mouse	Audio	Code	List Price
ServSwitch™, ServSwitch Ultra™, ServSwitch Multi™ Video, and ServSwitch Ultra Multi Video Cables (Continued)						
Computer Cables						
Sun 13W3 Coax 5-ft. (1.5-m) 10-ft. (3.0-m) 20-ft. (6.0-m) 35-ft. (10.6-m) 50-ft. (15.2-m) 75-ft. (22.8-m) 100-ft. (30.4-m)	Sun	 13W3	 8-Pin Mini DIN (Pigtail)	—	EHN206-0005 EHN206-0010 EHN206-0020 EHN206-0035 EHN206-0050 EHN206-0075 EHN206-0100	
Sun 13W3 Coax with Audio 5-ft. (1.5-m) 10-ft. (3.0-m) 20-ft. (6.0-m) 35-ft. (10.6-m) 75-ft. (22.8-m) 100-ft. (30.4-m)	Sun	 13W3	 8-Pin Mini DIN (Pigtail)	 3.5-mm  3.5-mm (Pigtail)	EHN206A-0005 EHN206A-0020 EHN206A-0035 EHN206A-0075 EHN206A-0100	
Sun HD15 Coax 5-ft. (1.5-m) 10-ft. (3.0-m) 20-ft. (6.0-m) 35-ft. (10.6-m) 50-ft. (15.2-m) 100-ft. (30.4-m)	Sun	 HD15	 8-Pin Mini DIN (Pigtail)	—	EHN515-0005 EHN515-0010 EHN515-0020 EHN515-0035 EHN515-0050 EHN515-0100	
Sun HD15 Coax with Audio 10-ft. (3.0-m) 75-ft. (22.8-m) 100-ft. (30.4-m)	Sun	 HD15	 8-Pin Mini DIN (Pigtail)	 3.5-mm  3.5-mm (Pigtail)	EHN515A-0010 EHN515A-0075 EHN515A-0100	















User Cables for ServSwitch, ServSwitch Ultra, ServSwitch Multi Video, and ServSwitch Ultra Multi Video



PS/2 User Cables

• Cables for your ServSwitch-to-workstation connections.

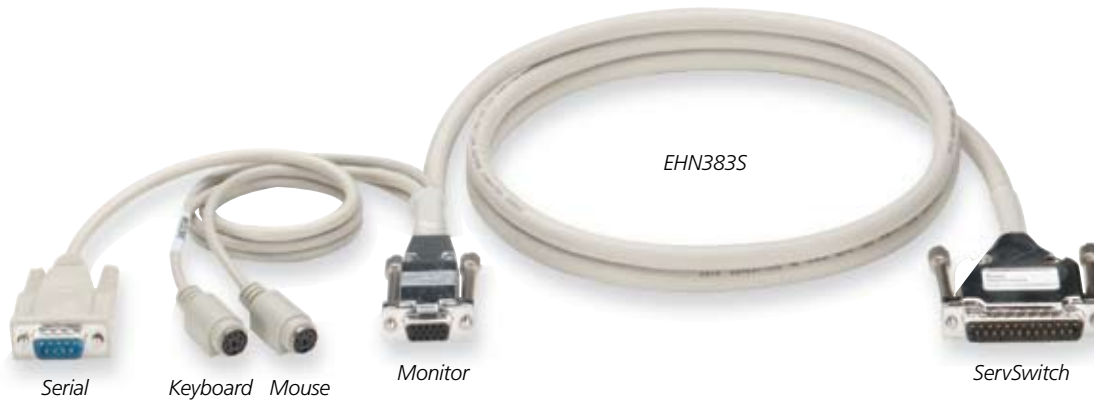
• **◆◆ WARRANTY** — Lifetime

Item	Platform	Monitor	Keyboard	Mouse	Audio	Code	List Price
ServSwitch, ServSwitch Ultra, ServSwitch Multi™ Video, and ServSwitch Ultra Multi Video Cables							
User Cables							
PS/2 Standard 1-ft. (0.3-m) 5-ft. (1.5-m) 10-ft. (3.0-m) 20-ft. (6.0-m)	PS/2®	 HD15	 6-Pin Mini DIN	 6-Pin Mini DIN	—	EHN154-0001 EHN154-0005 EHN154-0010 EHN154-0020	
PS/2 Standard with Audio 1-ft. (0.3-m) 5-ft. (1.5-m) 10-ft. (3.0-m) 20-ft. (6.0-m)	PS/2	 HD15	 6-Pin Mini DIN	 6-Pin Mini DIN	 3.5-mm	EHN154A-0001 EHN154A-0005 EHN154A-0010 EHN154A-0020	
PS/2 Coax 5-ft. (1.5-m) 10-ft. (3.0-m) 20-ft. (6.0-m) 35-ft. (10.6-m) 50-ft. (15.2-m) 100-ft. (30.4-m)	PS/2	 HD15	 6-Pin Mini DIN	 6-Pin Mini DIN	—	EHN383-0005 EHN383-0010 EHN283-0020 EHN383-0035 EHN383-0050 EHN383-0100	
PS/2 Coax with Audio 1-ft. (0.3-m) 5-ft. (1.5-m) 10-ft. (3.0-m) 20-ft. (6.0-m) 35-ft. (10.6-m) 50-ft. (15.2-m) 75-ft. (22.8-m) 100-ft. (30.4-m)	PS/2	 HD15	 6-Pin Mini DIN	 6-Pin Mini DIN	 3.5-mm	EHN383A-0001 EHN383A-0005 EHN383A-0010 EHN383A-0020 EHN383A-0035 EHN383A-0050 EHN383A-0075 EHN383A-0100	

For more PS/2 and other user cables, turn the page.



« For more PS/2 user cables, turn the page.



In addition to PS/2 style KVM workstation connectors, this coax cable has a DB9 connector for connecting a ServSwitch, ServSwitch Ultra, ServSwitch Multi Video, or ServSwitch Ultra Multi Video to a touch screen.

PS/2 User Cables (Continued)

- Low-Smoke, Zero-Halogen cables are for areas where PVC isn't permitted.
- Touch Screen Support cables feature a DB9 connector for serial communications between a compatible ServSwitch and a workstation with PS/2® style connectors.
- ♦♦ **WARRANTY** — Lifetime

Multiplatform User Cable

- Connect a USB keyboard and mouse to a ServSwitch.
- ♦♦ **WARRANTY** — 2 Years



The ever-versatile ServSwitch Ultra. It can accommodate the widest variety of computer and user cable connections. Top: KV5008SA-R2; bottom: KV5016FA-R2

Item	Platform	Monitor	Keyboard	Mouse	Serial	Code	List Price
ServSwitch™, ServSwitch Ultra™, ServSwitch Multi™ Video, and ServSwitch Ultra Multi Video Cables (Continued)							
User Cables							
PS/2 Coax, Low-Smoke, Zero-Halogen	PS/2	 HD15	 6-Pin Mini DIN	 6-Pin Mini DIN	—	5-ft. (1.5-m)	EHN383-0005-LS
10-ft. (3.0-m)						EHN383-0010-LS	
20-ft. (6.0-m)						EHN383-0020-LS	
PS/2 Coax for Touch Screen Support	PS/2	 HD15	 6-Pin Mini DIN	 6-Pin Mini DIN	 DB9	1-ft. (0.3-m)	EHN383S-0001
5-ft. (1.5-m)						EHN383S-0005	
10-ft. (3.0-m)						EHN383S-0010	
20-ft. (6.0-m)						EHN383S-0020	
35-ft. (10.6-m)						EHN383S-0035	
50-ft. (15.2-m)						EHN383S-0050	
100-ft. (30.4-m)	EHN383S-0100						
USB Cable	Multiplatform	 HD15	 USB Type A	 USB Type A	—	1-ft. (0.3-m)	EHNUSB-0001
5-ft. (1.5-m)						EHNUSB-0005	
10-ft. (3.0-m)						EHNUSB-0010	
20-ft. (6.0-m)						EHNUSB-0020	



Sun User Cables

- Sun® user cables connect a Sun keyboard, mouse, and monitor with either a 13W3 or HD15 connector to the ServSwitch Ultra.
- Audio cables feature 3.5-mm connectors for both stereo speakers and a microphone.
- ♦♦ **WARRANTY** — Lifetime



Item	Platform	Monitor	Keyboard/Mouse	Audio	Code	List Price
ServSwitch™, ServSwitch Ultra™, ServSwitch Multi™ Video, and ServSwitch Ultra Multi Video Cables (Continued)						
User Cables						
Sun 13W3 Coax	Sun	 13W3	 8-Pin Mini DIN (Pigtail)	—	EHN201-0001	
1-ft. (0.3-m)					EHN201-0005	
5-ft. (1.5-m)					EHN201-0010	
10-ft. (3.0-m)					EHN201-0020	
20-ft. (6.0-m)					EHN201-0035	
35-ft. (10.6-m)					EHN201-0050	
50-ft. (15.2-m)	EHN201-0100					
100-ft. (30.4-m)						
Sun 13W3 Coax with Audio	Sun	 13W3	 8-Pin Mini DIN (Pigtail)	 3.5 mm 3.5 mm (Pigtail)	EHN201A-0005	
5-ft. (1.5-m)					EHN201A-0075	
75-ft. (22.8-m)					EHN201A-0100	
100-ft. (30.4-m)						
Sun HD15 Coax	Sun	 HD15	 8-Pin Mini DIN (Pigtail)	—	EHN225-0005	
5-ft. (1.5-m)					EHN225-0010	
10-ft. (3.0-m)					EHN225-0020	
20-ft. (6.0-m)					EHN225-0035	
35-ft. (10.6-m)					EHN225-0050	
50-ft. (15.2-m)					EHN225-0075	
75-ft. (22.8-m)	EHN225-0100					
100-ft. (30.4-m)						
Sun HD15 Coax with Audio	Sun	 HD15	 8-Pin Mini DIN (Pigtail)	 3.5 mm 3.5 mm (Pigtail)	EHN225A-0005	
5-ft. (1.5-m)					EHN225A-0010	
10-ft. (3.0-m)					EHN225A-0035	
35-ft. (10.6-m)					EHN225A-0075	
75-ft. (22.8-m)					EHN225A-0100	
100-ft. (30.4-m)						

NOTE: EHN201, EHN201A, EHN225, and EHN225A user cables are for use with the ServSwitch Ultra and ServSwitch Ultra Multi Video only.

NOTE: For the ServSwitch Multi Video and the ServSwitch Ultra Multi Video, see blackbox.com.

Want to control up to 1000 CPUs? We have the widest

Computer Cables for ServSwitch Affinity, Matrix ServSwitch, and Multiplatform Matrix ServSwitch

PS/2 and Multiplatform Computer Cables

- To connect a switch at short distances, order PS/2® standard cables. For higher resolutions and greater distances, order PS/2 coax cables.
- Low-Smoke, Zero-Halogen cables are for areas where PVC isn't permitted. These cables are available for PS/2 and USB connections.
- USB computer cables provide connectivity for IBM® PC-compatible computers, Sun® computers, Apple® computers, and other platforms.
- ♦♦ **WARRANTY** — Lifetime



Concerned about flammability, smoke, halogen content, and oil resistance with PVC-jacketed coax cables? Our Low-Smoke, Zero-Halogen cables have low toxicity properties, excellent abrasion characteristics, and meet IEEE 383 flame test requirements.

Item	Platform	Monitor	Keyboard	Mouse	Audio	Serial	Code	List Price
ServSwitch Affinity™, Matrix ServSwitch, and Multiplatform Matrix ServSwitch Cables								
Computer Cables								
PS/2 Standard								
5-ft. (1.5-m)	PS/2				—	—	EHN151-0005	
10-ft. (3.0-m)							EHN151-0010	
20-ft. (6.0-m)							EHN151-0020	
PS/2 Coax								
5-ft. (1.5-m)	PS/2				—	—	EHN382-0005	
10-ft. (3.0-m)							EHN382-0010	
20-ft. (6.0-m)							EHN382-0020	
35-ft. (10.6-m)							EHN382-0035	
50-ft. (15.2-m)							EHN382-0050	
75-ft. (22.8-m)							EHN282-0075	
100-ft. (30.4-m)							EHN282-0100	
PS/2 Coax, Low-Smoke, Zero-Halogen								
5-ft. (1.5-m)	PS/2				—	—	EHN382-0005-LS	
10-ft. (3.0-m)							EHN382-0010-LS	
20-ft. (6.0-m)							EHN382-0020-LS	
35-ft. (10.6-m)							EHN382-0035-LS	
USB Coax								
5-ft. (1.5-m)	Multiplatform				—	—	EHN485-0005	
10-ft. (3.0-m)							EHN485-0010	
20-ft. (6.0-m)							EHN485-0020	
35-ft. (10.6-m)							EHN485-0035	
50-ft. (15.2-m)							EHN485-0050	
75-ft. (22.8-m)							EHN485-0075	
100-ft. (30.4-m)							EHN485-0100	
USB Coax, Low-Smoke, Zero-Halogen								
5-ft. (1.5-m)	Multiplatform				—	—	EHN485-0005-LS	
10-ft. (3.0-m)							EHN485-0010-LS	

variety of computer, user, expansion, and serial cables!



Sun Computer Cables

- Sun® computer cables connect a ServSwitch™ to a Sun CPU with either 13W3 or HD15 monitor ports.
- ♦♦ **WARRANTY** — Lifetime



NOTE: EHN206 and EHN515 computer cables are not for use with the Matrix ServSwitch.

Not only can you use computer and user cables with the powerful ServSwitch Affinity, you can also connect multiple chassis with expansion cables and use serial cables to connect serial devices to it from up to 50 feet away! For details on expansion and serial cables, see pages 414–415.



Item	Platform	Monitor	Keyboard/Mouse	Code	List Price
ServSwitch Affinity™ and Multiplatform Matrix ServSwitch Cables (Continued)					
Computer Cables					
Sun 13W3 Coax	Sun	 13W3	 8-Pin Mini DIN (Pigtail)	EHN206-0005	
5-ft. (1.5-m)				EHN206-0010	
10-ft. (3.0-m)				EHN206-0020	
20-ft. (6.0-m)				EHN206-0035	
35-ft. (10.6-m)				EHN206-0050	
50-ft. (15.2-m)				EHN206-0075	
75-ft. (22.8-m)	EHN206-0100				
100-ft. (30.4-m)					
Sun HD15 Coax	Sun	 HD15	 8-Pin Mini DIN (Pigtail)	EHN515-0005	
5-ft. (1.5-m)				EHN515-0010	
10-ft. (3.0-m)				EHN515-0020	
20-ft. (6.0-m)				EHN515-0035	
35-ft. (10.6-m)				EHN515-0050	
50-ft. (15.2-m)				EHN515-0100	
100-ft. (30.4-m)					

For user, expansion, and serial cables, see pp. 412–415.



User Cables for ServSwitch Affinity, Matrix ServSwitch, and Multiplatform Matrix ServSwitch

PS/2 and Multiplatform User Cables

- Cables for your ServSwitch™ to workstation connections.
- To connect a switch at short distances, order PS/2® standard cables. For higher resolutions and greater distances, order PS/2 coax cables.
- Low-Smoke, Zero-Halogen cables are for areas where PVC isn't permitted.
- USB cable enables you to connect a USB keyboard and mouse to a flash-upgradable ServSwitch.
- **◆◆ WARRANTY** — EHNUSB: 2 Years; All others: Lifetime



Daisychain multiple Matrix ServSwitch models with expansion cables (page 414), and a single KVM station can access up to 1000 CPUs. Serial cables (page 415) enable you to access serial devices as well! Shown at left: 16-port Matrix ServSwitch (SW743A-R3, page 367).

Item	Platform	Monitor	Keyboard	Mouse	Audio	Code	List Price
ServSwitch Affinity™, Matrix ServSwitch™, and Multiplatform Matrix ServSwitch Cables (Continued)							
User Cables							
PS/2 Standard							
1-ft. (0.3-m)	PS/2				—	EHN154-0001	
5-ft. (1.5-m)						EHN154-0005	
10-ft. (3.0-m)						EHN154-0010	
20-ft. (6.0-m)						EHN154-0020	
PS/2 Coax							
5-ft. (1.5-m)	PS/2				—	EHN383-0005	
10-ft. (3.0-m)						EHN383-0010	
20-ft. (6.0-m)						EHN283-0020	
35-ft. (10.6-m)						EHN383-0035	
50-ft. (15.2-m)						EHN383-0050	
100-ft. (30.4-m)	EHN383-0100						
PS/2 Coax, Low-Smoke, Zero-Halogen							
10-ft. (3.0-m)	PS/2				—	EHN383-0010-LS	
20-ft. (6.0-m)						EHN383-0020-LS	
USB Coax							
1-ft. (0.3-m)	Multiplatform				—	EHNUSB-0001	
5-ft. (1.5-m)						EHNUSB-0005	
10-ft. (3.0-m)						EHNUSB-0010	
20-ft. (6.0-m)						EHNUSB-0020	

« For computer cables, see pp. 410–411.

Sun User Cables

- Sun® user cables connect a Sun keyboard, mouse, and monitor with either a 13W3 or an HD15 connector to a ServSwitch Affinity or a Multiplatform Matrix ServSwitch.
- ♦♦ **WARRANTY** — Lifetime



NOTE: EHN201 and EHN225 user cables are not for use with the Matrix ServSwitch.



Get access to up to 1000 CPUs for yourself and up to 15 of your staff members with the ServSwitch Affinity. Shown left: two-user model to control eight CPUs (KV130A, page 378.)

Item	Platform	Monitor	Keyboard/Mouse	Code	List Price
ServSwitch Affinity™ and Multiplatform Matrix ServSwitch™ Cables (Continued)					
User Cables					
Sun 13W3 Coax 1-ft. (0.3-m) 5-ft. (1.5-m) 10-ft. (3.0-m) 20-ft. (6.0-m) 35-ft. (10.6-m) 50-ft. (15.2-m) 100-ft. (30.4-m)	Sun	 13W3	 8-Pin Mini DIN (Pigtail)	EHN201-0001 EHN201-0005 EHN201-0010 EHN201-0020 EHN201-0035 EHN201-0050 EHN201-0100	
Sun HD15 Coax 5-ft. (1.5-m) 10-ft. (3.0-m) 20-ft. (6.0-m) 35-ft. (10.6-m) 50-ft. (15.2-m) 75-ft. (22.8-m) 100-ft. (30.4-m)	Sun	 HD15	 8-Pin Mini DIN (Pigtail)	EHN225-0005 EHN225-0010 EHN225-0020 EHN225-0035 EHN225-0050 EHN225-0075 EHN225-0100	

For expansion and serial cables, see pp. 414–415.



Expansion Cables for ServSwitch Affinity, Matrix ServSwitch, and Multiplatform Matrix ServSwitch

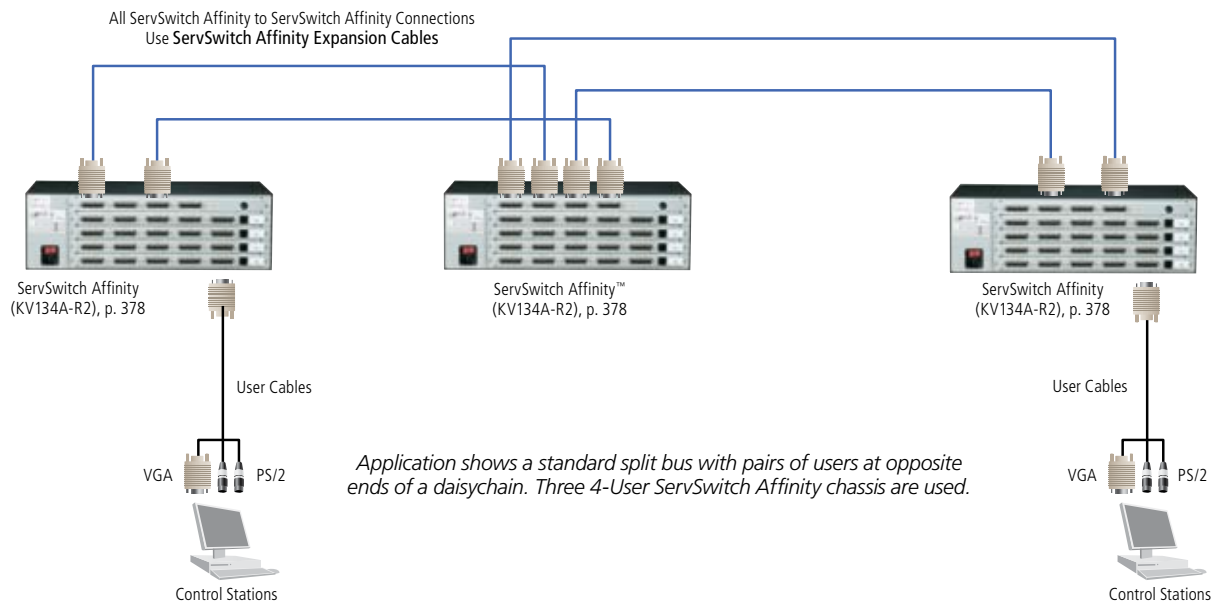
Daisychain multiple chassis with these PVC or plenum cables.



- Enable you to cascade multiple ServSwitch™ chassis to add capacity for more computers or user stations.
- Versions for 1-, 2-, and 4-User chassis architecture connect multiple ServSwitch Affinity (page 378), Matrix ServSwitch (page 367), and Multiplatform Matrix ServSwitch (page 367) units.
- Versions for 8- and 16-User chassis architecture connect multiple ServSwitch Affinity (page 378) units.
- Available with either PVC or plenum jackets.
- Daisychain units in a bus, split-bus*, or ring topology.
- Carry computer and KVM signals from one unit's Expansion Card or Expansion Module output ports to another unit's input ports.
- ♦♦ **WARRANTY** — Lifetime



* NOTE: 16-user bus topologies are not recommended.



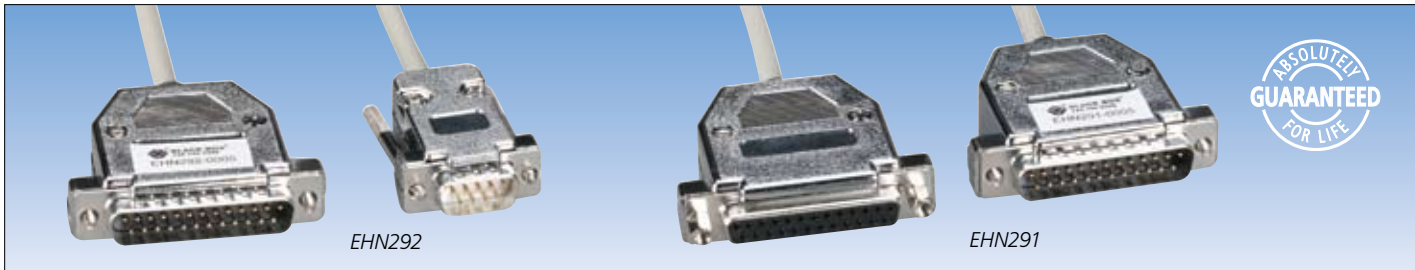
Item	Code	List Price
ServSwitch Affinity™, Matrix ServSwitch, and Multiplatform Matrix ServSwitch Cables (Continued)		
Expansion Cables (DB15)		
PVC	1-/2-/4-User	
	10-ft. (3.0-m)	KV140010
	50-ft. (15.2-m)	KV140050
	100-ft. (30.4-m)	KV140100
Plenum	1-/2-/4-User	
	10-ft. (3.0-m)	KV140010-PL
	50-ft. (15.2-m)	KV140050-PL
	100-ft. (30.4-m)	KV140100-PL

Item	Code	List Price
ServSwitch Affinity, Matrix ServSwitch, and Multiplatform Matrix ServSwitch Cables (Continued)		
Expansion Cables (HD15)		
PVC	8-/16-User	
	10-ft. (3.0-m)	KV180010
	50-ft. (15.2-m)	KV180050
	100-ft. (30.4-m)	KV180100
Plenum	8-/16-User	
	10-ft. (3.0-m)	KV180010-PL
	100-ft. (30.4-m)	KV180100-PL

⏪ For computer and user cables, see pp. 410–413.

Serial Cables for ServSwitch Affinity and Multiplatform Matrix ServSwitch

Connect serial devices up to 50 feet from your ServSwitch.



- Use with ServSwitch Affinity models (R2 versions) (page 378), and Multiplatform Matrix ServSwitch models (R4 versions) (page 367).
- Available with a DB9 or DB25 male or female connector for the serial device.
- Five lengths are available.
- Configure your switches' CPU ports as serial ports.

- Use your switches to access Ethernet hubs, UNIX® devices, and other RS-232 serial devices.
- These cables make it easy to monitor your serial equipment.
- **◆◆ WARRANTY** — Lifetime

NOTE: EHN290–EHN293 serial cables are not for use with the Matrix ServSwitch.

Item	Code	List Price
ServSwitch Affinity™ and Multiplatform Matrix ServSwitch Cables (Continued)		
Serial Cables		
DTE Cables with DB9 Female Connector		
5-ft. (1.5-m)	EHN290-0005	
10-ft. (3.0-m)	EHN290-0010	
20-ft. (6.0-m)	EHN290-0020	
35-ft. (10.6-m)	EHN290-0035	
50-ft. (15.2-m)	EHN290-0050	
DTE Cables with DB25 Female Connector		
5-ft. (1.5-m)	EHN291-0005	
10-ft. (3.0-m)	EHN291-0010	
20-ft. (6.0-m)	EHN291-0020	
35-ft. (10.6-m)	EHN291-0035	
50-ft. (15.2-m)	EHN291-0050	

Item	Code	List Price
ServSwitch Affinity and Multiplatform Matrix ServSwitch Cables (Continued)		
Serial Cables		
DCE Cables with DB9 Male Connector		
5-ft. (1.5-m)	EHN292-0005	
10-ft. (3.0-m)	EHN292-0010	
20-ft. (6.0-m)	EHN292-0020	
35-ft. (10.6-m)	EHN292-0035	
50-ft. (15.2-m)	EHN292-0050	
DCE Cables with DB25 Male Connector		
5-ft. (1.5-m)	EHN293-0005	
10-ft. (3.0-m)	EHN293-0010	
20-ft. (6.0-m)	EHN293-0020	
35-ft. (10.6-m)	EHN293-0035	
50-ft. (15.2-m)	EHN293-0050	

ServSwitch to ServSwitch Cables

Cascade multiple ServSwitch models.



- Cascade multiple ServSwitch™ (page 360) and ServSwitch Ultra™ (page 360) units.
- Constructed of molded coax.
- Cable has two DB25 connectors.
- Choose from 5-, 10-, 20-, 50-, or 100-ft. lengths.
- **◆◆ WARRANTY** — Lifetime

Item	Code	List Price
ServSwitch to ServSwitch Cables		
PC Coax		
5-ft. (1.5-m)	EHN284-0005	
10-ft. (3.0-m)	EHN284-0010	
20-ft. (6.0-m)	EHN284-0020	
50-ft. (15.2-m)	EHN284-0050	
100-ft. (30.4-m)	EHN284-0100	

Our most popular cables for ServSwitch!

Computer Cables for ServSwitch Uno, ServSwitch Uno USB, ServSwitch Duo, ServSwitch Duo USB, ServSwitch Quadro, ServSwitch Wizard, ServSwitch Wizard IP, ServSwitch Wizard LP, ServSwitch Wizard PRO, Multihead ServSwitch, and ServShare II



PS/2 Cable

- Use it for distances up to 50 feet (15.2 m).
- PS/2 connectors are color coded and labeled for instant identification.
- **◆◆ WARRANTY** — Lifetime

Flash Cables

- Our EHN428 cable connects IBM® compatible, Macintosh®, and Sun CPUs with a USB Type A keyboard and mouse connector to a ServSwitch™ with PS/2 connectors.
- Our EHN429 cable connects Sun CPUs with an 8-pin mini DIN keyboard and mouse connector to a ServSwitch with PS/2 connectors.
- Fully emulate USB or Sun keyboard and mouse signals.
- Both cables contain a mini-microprocessor circuit that is flash upgradable for future applications.
- Color-coded connectors are easy to attach.
- Downloadable drivers are compatible with extra keys (Search, Home, Back, Forward, etc.) supported by Windows® 2000 and Windows XP.
- EHN428 detects and suppresses annoying USB “phantom” keys.
- EHN429 enables extra Sun keystrokes to be generated by PS/2 key combinations.
- Robust design can’t be destroyed by an interrupted upgrade.
- **◆◆ WARRANTY** — 2 Years

Platform	Monitor	Keyboard/Mouse				
PS/2	 HD15	 (2) 6-Pin Mini DIN (EHN408)	or	 (1) USB Type A (EHN428)	or	 (1) 8-Pin Mini DIN (EHN429)

Item	Code	List Price
------	------	------------

ServSwitch Uno™, ServSwitch Uno USB, ServSwitch Duo™, ServSwitch Duo USB, ServSwitch Quadro™, ServSwitch Wizard™, ServSwitch Wizard IP, ServSwitch Wizard LP, ServSwitch Wizard PRO, Multihead ServSwitch, and ServShare™ II Cables

Computer Cables		
PS/2®		
5-ft.	(1.5-m)	EHN408-0005
10-ft.	(3.0-m)	EHN408-0010
20-ft.	(6.0-m)	EHN408-0020
30-ft.	(9.1-m)	EHN408-0030
50-ft.	(15.2-m)	EHN408-0050
PS/2 to USB Flash Cable		
6-ft.	(1.8-m)	EHN428-0006
16-ft.	(4.8-m)	EHN428-0016
32.8-ft.	(10.0-m)	EHN428-010M
PS/2 to Sun® Flash Cable		
6-ft.	(1.8-m)	EHN429-0006
16-ft.	(4.8-m)	EHN429-0016

For each additional CPU monitor connection with the Multihead ServSwitch, or to extend the distance between additional monitors and the Multihead ServSwitch, order...

VGA Video Cables with Ferrite Core, HD15, PVC, Male/Male		
3-ft.	(0.9-m)	EVNPS06-0003-MM
5-ft.	(1.5-m)	EVNPS06-0005-MM
10-ft.	(3.0-m)	EVNPS06-0010-MM
20-ft.	(6.0-m)	EVNPS06-0020-MM
25-ft.	(7.6-m)	EVNPS06-0025-MM
50-ft.	(15.2-m)	EVNPS06-0050-MM

User Cable for ServSwitch Uno, ServSwitch Duo, ServSwitch Quadro, ServSwitch Wizard, ServSwitch Wizard IP, ServSwitch Wizard LP, ServSwitch Wizard PRO, Multihead ServSwitch, and ServShare II



- PS/2 connectors are color coded and labeled for instant identification.
- Because the keyboard and mouse cables are two inches longer than the video cable with the locking connector, all cable stress is absorbed by the locking VGA connector, making accidental disconnection next to impossible!
- **◆◆ WARRANTY** — Lifetime

Platform	Monitor	Keyboard	Mouse
PS/2	 HD15	 6-Pin Mini DIN	 6-Pin Mini DIN

Item	Code	List Price
------	------	------------

ServSwitch Uno, ServSwitch Duo, ServSwitch Quadro, ServSwitch Wizard, ServSwitch Wizard IP, ServSwitch Wizard LP, ServSwitch Wizard PRO, Multihead ServSwitch, and ServShare II Cables

User Cable		
PS/2		
10-ft.	(3.0-m)	EHN409-0010
20-ft.	(6.0-m)	EHN409-0020
30-ft.	(9.1-m)	EHN409-0030

NOTE: This cable is not for use with the ServSwitch Uno USB and ServSwitch Duo USB.

Computer Cable for ServSwitch USB and ServSwitch USB Plus

Here is the cable you need for ServSwitch to CPU connections.

- This zip-cord style cable features two cables in one: a video cable and a USB cable.
- Use these cables for connecting USB-enabled CPUs and servers to the ServSwitch USB and the ServSwitch USB Plus (page 355).
- The cables feature molded plastic hoods. The USB cable features a braid and foil shield.
- The video cable includes a braid and foil shield.
- Four cable lengths available: from in 4- to 16-foot (1.2- to 4.8-m) lengths.
- Distance is limited by the USB specification.
- ♦♦ **WARRANTY** — Lifetime



Monitor

CPU or Server

ServSwitch

TECH SPECS

Hood Assembly — Molded plastic

Jacket Assembly — PVC

Shielding — USB: Foil;

RGB video: Braid and foil

Wire Gauge —

USB: 26 AWG stranded copper;

RGB video: 24 AWG RGB coax

Connectors —

CPU or server: (1) USB Type A;

Monitor: (1) HD15 M;

ServSwitch: (1) HD15 M and

(1) USB Type B

Platform	Monitor	USB Connectors
PC or Mac®	 HD15	 USB Type A USB Type B

Item	Code	List Price
ServSwitch USB and ServSwitch USB Plus Cables		
Computer Cable		
USB		
4-ft. (1.2-m)	EHN810-0004	
8-ft. (2.4-m)	EHN810-0008	
12-ft. (3.6-m)	EHN810-0012	
16-ft. (4.8-m)	EHN810-0016	

NOTE: To connect workstations to the ServSwitch USB or ServSwitch USB Plus, use the cables that came with your keyboards, monitors, and mice.

USB to PS/2 Converter (Flashable or Nonflashable)

Connect a USB keyboard and mouse to a PS/2 style computer or to a ServSwitch.



KVUSB

- Both converters must be used with PS/2® style ServSwitch user cables.
- Flashable converter works with:
 - ServSwitch Ultra™ (page 360).
 - The original ServSwitch™ (page 360).
 - Matrix ServSwitch (page 367).
 - ServSwitch Affinity™ (page 378).
 - ServSwitch Ultra Remote (page 379).
 - ServSwitch Multi Video and ServSwitch Ultra Multi Video (blackbox.com).
- Nonflashable converter works with ServSwitch Secure models SW721A-R2 and SW722A-R2 (page 372).
- ♦♦ **WARRANTY** — Lifetime

Item	Code	List Price
USB to PS/2 Flashable Converter	KVUSB	
USB to PS/2 Nonflashable Converter	KVUSBNF	

Make the simplest computer and user cable connections,

Computer Cables for ServSwitch Secure, ServShare, ServSwitch Remote, and ServSwitch Ultra Remote



PS/2 and Multiplatform Computer Cables

- To connect a switch at short distances, order standard PS/2® cables. For higher resolutions and greater distances, order coax PS/2 cables.
- Low-Smoke, Zero-Halogen cables are for areas where PVC isn't permitted.
- USB computer cables provide connectivity for IBM® PC-compatible computers, Sun® computers, Apple® computers, and other platforms.
- ♦♦ **WARRANTY** — Lifetime



With the ServSwitch Secure, you can enjoy PS/2 or USB keyboard and mouse support to control your secure and non-secure computers.

Item	Platform	Monitor	Keyboard	Mouse	Code	List Price
ServSwitch™ Secure, ServShare™, ServSwitch Remote, and ServSwitch Ultra Remote Cables						
Computer Cables						
PS/2 Standard	PS/2	HD15	6-Pin Mini DIN	6-Pin Mini DIN	EHN151-0005 EHN151-0010 EHN151-0020	
5-ft. (1.5-m)						
10-ft. (3.0-m)						
20-ft. (6.0-m)	PS/2	HD15	6-Pin Mini DIN	6-Pin Mini DIN	EHN382-0005 EHN382-0010 EHN382-0020 EHN382-0035 EHN382-0050 EHN282-0075 EHN282-0100	
PS/2 Coax						
5-ft. (1.5-m)						
10-ft. (3.0-m)						
20-ft. (6.0-m)						
35-ft. (10.6-m)						
50-ft. (15.2-m)						
75-ft. (22.8-m)						
100-ft. (30.4-m)	PS/2	HD15	6-Pin Mini DIN	6-Pin Mini DIN	EHN382-0005-LS EHN382-0010-LS EHN382-0020-LS EHN382-0035-LS	
PS/2 Coax, Low-Smoke, Zero-Halogen						
5-ft. (1.5-m)						
10-ft. (3.0-m)						
20-ft. (6.0-m)	Multiplatform	HD15	USB Type A (Pigtail)		EHN485-0005 EHN485-0010 EHN485-0020 EHN485-0035 EHN485-0050 EHN485-0075 EHN485-0100	
USB Coax						
5-ft. (1.5-m)						
10-ft. (3.0-m)						
20-ft. (6.0-m)						
35-ft. (10.6-m)						
50-ft. (15.2-m)						
75-ft. (22.8-m)						
100-ft. (30.4-m)						

no matter how complex your ServSwitch is!

User Cables for ServSwitch Secure, ServShare, ServSwitch Remote, and ServSwitch Ultra Remote

PS/2 and Multiplatform User Cables

- Cables for your ServSwitch to workstation connections.
- To connect a switch at short distances, order standard cables. For higher resolutions and greater distances, order coax cables.
- Low-Smoke, Zero-Halogen cables are for areas where PVC isn't permitted.
- Nonflashable cable works with ServSwitch Secure models only.
- ♦♦ **WARRANTY** — EHNUSBNF1: 2 Years; All others: Lifetime



EHN154



With the ServSwitch Remote and ServSwitch Ultra Remote, you can access your servers two ways: through a locally connected KVM workstation or via remote access over your LAN or WAN. Worldwide access is easy!

Item	Platform	Monitor	Keyboard	Mouse	Code	List Price
ServSwitch™ Secure, ServShare™, ServSwitch Remote, and ServSwitch Ultra Remote Cables						
User Cables						
PS/2 Standard	PS/2®	 HD15	 6-Pin Mini DIN	 6-Pin Mini DIN	EHN154-0001 EHN154-0005 EHN154-0010 EHN154-0020	
1-ft. (0.3-m)						
5-ft. (1.5-m)						
10-ft. (3.0-m)						
20-ft. (6.0-m)	PS/2	 HD15	 6-Pin Mini DIN	 6-Pin Mini DIN	EHN383-0005 EHN383-0010 EHN283-0020 EHN383-0035 EHN383-0050 EHN383-0100	
5-ft. (1.5-m)						
10-ft. (3.0-m)						
20-ft. (6.0-m)						
35-ft. (10.6-m)						
50-ft. (15.2-m)	Multiplatform	 HD15	 6-Pin Mini DIN	 6-Pin Mini DIN	EHN383-0010-LS EHN383-0020-LS	
10-ft. (3.0-m)						
20-ft. (6.0-m)						
PS/2 Coax, Low-Smoke, Zero-Halogen	Multiplatform	 HD15	 6-Pin Mini DIN	 6-Pin Mini DIN	EHN383-0010-LS EHN383-0020-LS	
10-ft. (3.0-m)						
20-ft. (6.0-m)	Multiplatform	 HD15	 USB Type A	 USB Type A	EHNUSBNF1-0001 EHNUSBNF1-0005 EHNUSBNF1-0010 EHNUSBNF1-0020	
1-ft. (0.3-m)						
5-ft. (1.5-m)						
10-ft. (3.0-m)						
20-ft. (6.0-m)						

Digital Signage & Multimedia



Draw attention
with Black Box
digital signage.

In this section

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For New Products,
turn to pages 26–73.

Look to Black Box for your digital signage solution!

We're your *everything behind the screens* provider.

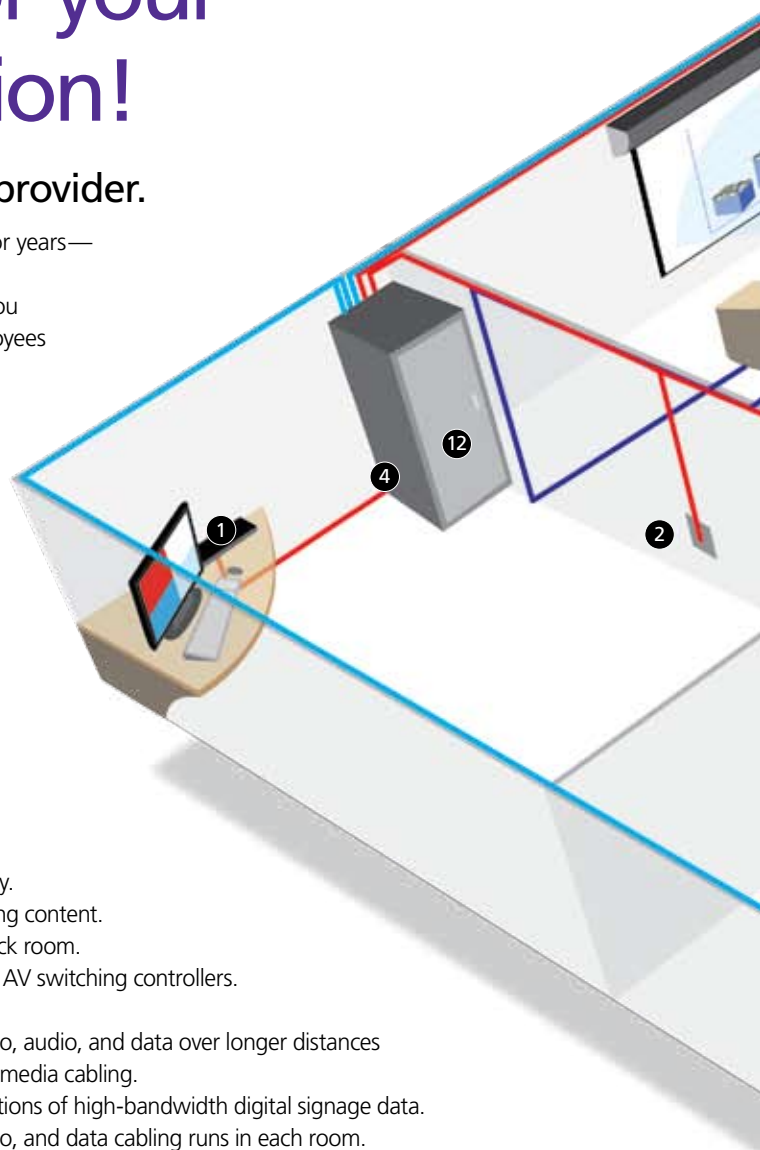
Black Box has had audio and video extension and distribution products for years—long before digital signage became all the rage.

Building on this, we've expanded our already-huge product line to give you *everything* you need to deliver eye-catching content to customers and employees in a digital signage deployment.

From the server room out, we have what you need to create, manage, and distribute content to your target audience. Stream live content, mix it with recorded media and boilerplates, and tailor messaging specific to them with our many digital signage solutions.

For an application like the one illustrated **at right**, Black Box has:

- **Server room** switching, control, and storage solutions, including:
 - Specialty KVM switches for controlling multiple multimedia servers from one workstation *and* displaying the video from all those servers on one monitor—at the same time and in real time.
 - Transmitters for extending VGA, DVI, HDMI, S-Video, and other types of video as well as audio—and even serial data—over long distances.
 - Gigabit switches for redirecting information from your intranet onto your networked digital signage system.
 - Climate-controlled cabinets built to keep components safe and secure.
 - **Reception area** components such as:
 - Large LCDs and plasma screens to give your presentations Hi-Def™ clarity.
 - Digital signage media players, either standalone or networked, for playing content.
 - AV extension remote units that receive video and signals sent from a back room.
 - **Conference room** devices, such as LCD and SVGA projectors and remote AV switching controllers.
 - **AV infrastructure and cabling products**, including:
 - Best-in-the-industry CAT5, CAT5e, and CAT6 cabling for extending video, audio, and data over longer distances without having to provision and pull expensive coax, DVI, or other multimedia cabling.
 - High-quality fiber optic cabling for secure, interference-free communications of high-bandwidth digital signage data.
 - Durable wallplates, jacks, and junction boxes for terminating video, audio, and data cabling runs in each room.
 - Premium VGA, DVI, HDMI, Component, S-Video, and Composite cabling for standard-distance equipment connections.
- Also see our selection of splitters, scalars, multi-image rotation units, matrix switches, and baluns on the following pages.



What to get...



ServSwitch™ 4site (KVP4000A), pp. 374–375



GigaStation Wallplates (WVP457), p. 116



A/V Switching Control System with Audio (AC1075A), see blackbox.com



HD View Transmitters (AC3008A), p. 430



HD View Receivers (AC3005A), p. 430



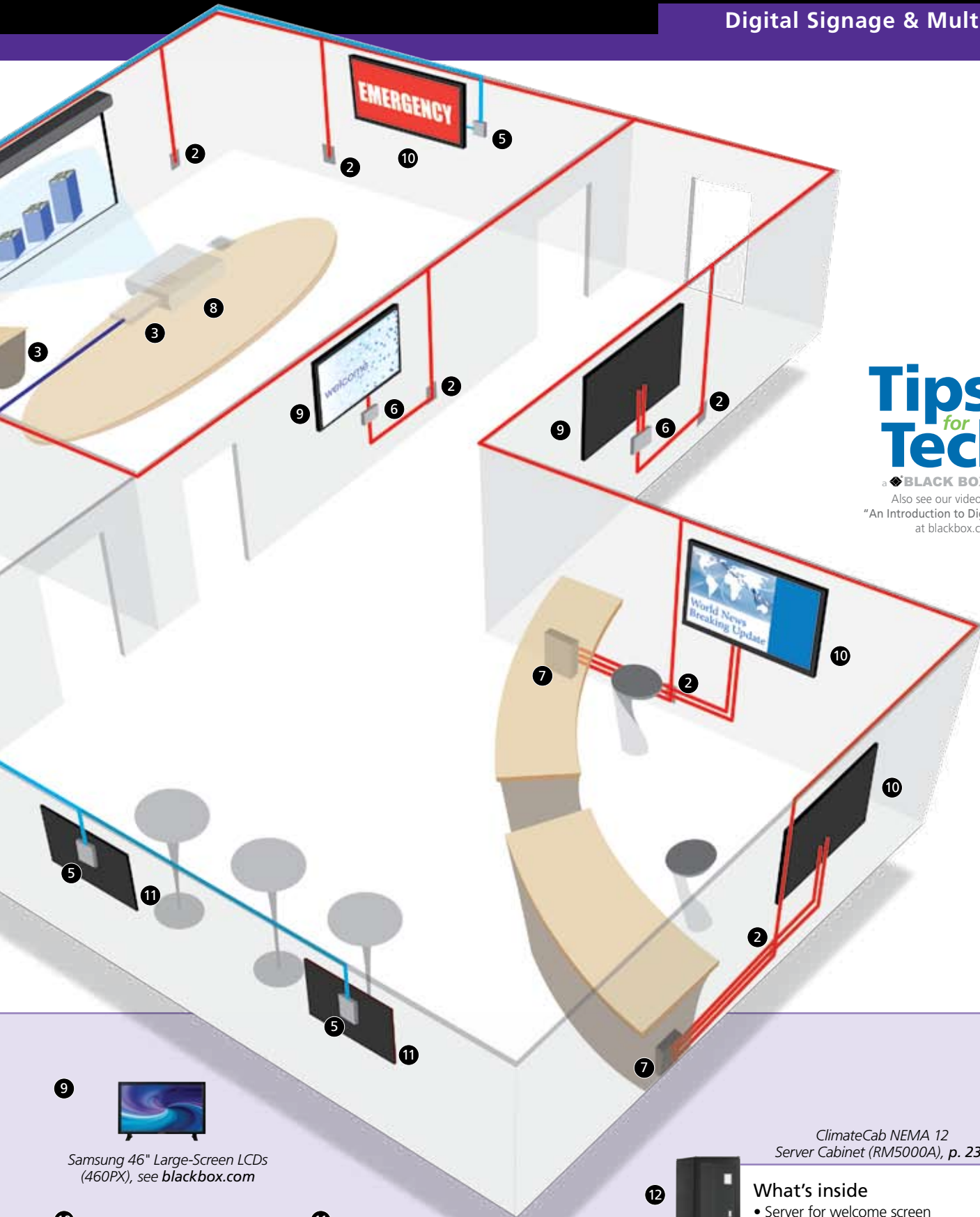
miniBox Networked Media Player (SD200-N), p. 449



SWEF Digital Signage Players (070379-002), p. 449




InFocus Work Big DLP SVGA 2500-lumen Projector (IN35), see blackbox.com




Tips for Techs

a **BLACK BOX** production
 Also see our video tutorial:
 "An Introduction to Digital Signage"
 at blackbox.com.

9 
 Samsung 46" Large-Screen LCDs
 (460PX), see blackbox.com

10 
 Samsung 32" Large Screen LCDs
 (320PX), see blackbox.com

11 
 Samsung SyncMaster 24" LCD
 Wide-Screen Displays (2443BW),
 see blackbox.com

12 

What's inside

- Server for welcome screen
- Emergency server
- (2) servers for reception area
- L2 Managed Gigabit Ethernet Switch (LGB1002A-R2), p. 526

ClimateCab NEMA 12
 Server Cabinet (RM5000A), p. 237

Buyer's Guide | Extenders

Video Standard	Extender Family	Description	Max. Resolution	Media	Max. Distance	Audio Support	Serial Support	Code	Page(s)
HDMI	HDMI CATx Extenders	Transmitter and extenders for HDMI	1920 x 1200: HDMI, 1080p: HD	CATx cabling	820.2 ft.	✓	—	AC560A–AC561A	p. 424
HDMI	HDMI Extender	In-line extender for HDMI	1920 x 1200: HDMI, 1080p: HD	HDMI cabling	130 ft.	—	—	AC550A	p. 424
DVI	DVI-D Extender	In-line extender for DVD-D	1680 x 1050: DVI-D, 1080p: HD	DVI cabling	100 ft.	—	—	AC554A	p. 425
DVI	DVI Extender	DVI repeater	1920 x 1200: VGA, 1080p: HD	DVI cabling	50 ft. on each side of extender	—	—	AC554A	p. 425
DVI	CATx DVI-D Extender	1-port CATx transmitter for DVD-D	1680 x 1050: DVI-D, 1080p: HD	CATx cabling	164 ft.	—	—	ACS2001A	p. 425
DVI	Multi DVI Extenders	Daisychainable DVI extenders with pollable serial port options	1680 x 1050: DVI-D, 1080p: HD	CATx cabling	Contact Tech Support	✓	✓	AC1080A, etc. AC1100A, etc.	p. 426
DVI	DVI Fiber Extender Kit	Kit with a 1-port transmitter and 1-port receiver for extending DVI over fiber	1920 x 1200: no compression DVI-D	Single- or multimode fiber cabling	9.3 mi	✓	—	AC1037A	p. 427
VGA	VGA Baluns	Baluns for VGA conversion and extension over UTP	1280 x 1024: VGA	CATx cabling	450 ft.	—	—	AC640A–AC642A	p. 427
VGA	VGA Extenders	VGA extenders with or without audio	1024 x 768: VGA	CATx cabling	500 ft.	✓	—	AC555A–AC556A	p. 428
VGA	CAT5 Video/RS-232 Extender Kit	A kit for extending video and RS-232 serial data	1600 x 1200: VGA	CATx cabling	360 ft.	—	✓	AC163A	p. 428
VGA	Mini CAT5 Extenders	Low-cost, single-channel VGA extenders	1920 x 1440: VGA	CATx cabling	500 ft.	—	—	AC504A, AC600A–AC601A	p. 429

HDMI CATx Extender

Transmit HDMI video up to 820 feet over inexpensive CAT5, CAT5e, or CAT6 cables.

- Receivers support distances of up to 50, 150, or 250 meters (164, 492, or 820 ft.).
- Place your video source up to 820 feet (250 meters) away from your display.
- Extends HDMI video and DDC signals over two CATx cables.
- Supports high-definition video up to 1080p.
- Works with a wide range of HD video sources.
- Just plug in the cables and you're ready to go!
- Compliant with HDMI 1.2, HDCP 1.1, and DVI 1.0 specifications.
- **◆◆ WARRANTY** — 1 Year



AC560A

NOTE: Must be used in pairs. Order the transceiver and select a receiver appropriate for the distance of your installation.



Item	Code	List Price
HDMI CATx Extender		
Transmitter	AC560A	
Receivers		
50-m (164-ft.)	AC561A-50	
150-m (492-ft.)	AC561A-150	
250-m (820-ft.)	AC561A-250	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

CAT5 Solid-Conductor Cables, 4-Pair, Straight-Pinned, 100-ft. (30.4-ft.), Beige (For other lengths or colors, see page 106.) EYN556MS-0100

HDMI Extender

Place your HDMI display up to 130 feet away!



- Extend your HDMI LCD or plasma display connection up to 130 feet (39.6 m) or 65 feet (19.8 m) on each side of this digital signal booster.
- Corrects signal degradation in long HDMI cable runs.
- Eliminates pixilation, sparkles, and the loss of video and audio that happens with HDMI cable connections longer than 15 feet (4.5 m).

- Offers high-quality resolutions of 1080p or 1920 x 1200.
- Provides up to 2.5 times the gain on the input to compensate for cable loss.
- Easy plug-and-play installation.
- Backward compatible with DVI (with adapter).
- HDCP compliant.
- **◆◆ WARRANTY** — 2 Years



Item	Code	List Price
HDMI Extender	AC550A	

Buyer's Guide | Extenders, cont.

Video Standard	Extender Family	Description	Max. Resolution	Media	Max. Distance	Audio Support	Serial Support	Code	Page(s)
VGA	VGA Extenders	VGA extenders with or without audio	1024 x 768: VGA	CATx cabling	500 ft.	✓	—	AC555A–AC556A	p. 428
VGA	CAT5 Video/RS-232 Extender Kit	A kit for extending video and RS-232 serial data	1600 x 1200: VGA	CATx cabling	360 ft.	—	✓	AC163A	p. 428
VGA	Wizard Multimedia Extenders	VGA extenders with audio	1600 x 1280: VGA	CATx cabling	984.2 ft.	✓	—	AVU5010A	p. 429
VGA	RGBHV/Stereo-Audio Fiber Extenders	A video/audio extender kit and individual receivers	1920 x 1080: VGA, 1080i: HD	Single- or multimode fiber	Single-mode: 30 km, multimode: 750 m;	✓	—	AC1020A–AC1024A	p. 433
VGA	CAT5 A/V Broadcaster	An family of 8-port audio and VGA extension and splitter products	1600 x 1200: VGA	CATx cabling	360 ft.	✓	—	AC156A-8, etc.	p. 440
VGA	CAT5 VGA Video Splitters	2- and 4-channel splitter/ extenders for VGA	1280 x 1024: VGA	CATx cabling	820 ft.	—	—	AC500A-R2, AC503A-R2	p. 441
VGA, S-Video	Universal Video/Stereo Audio Fiber Extender	An extender for VGA, S-Video, Composite video and stereo audio over one single-mode fiber	480p: HD	(1) single-mode fiber	60 km	✓	—	AC300A-TX–AC300A-RX	p. 433
S-Video	S-Video Balun	A balun with or without audio for S-Video	486 pixel	CATx cabling	1000 ft.	✓	—	IC447A, IC449A	p. 434
Component/Composite	Component/Composite Video Baluns	Video baluns for Component or Composite video	1080i or 1080p: HD	CATx cabling	1000 ft.	✓	—	IC442A-R2–IC556A	p. 434
CATV/CCTV	CATV/CCTV Baluns	Various extender baluns for CATV and CCTV video	—	CATx cabling	2500 ft.	—	—	IC450A-R2, etc.	pp. 435–436

DVI-D Extender

Extend the distance to your DVI-D displays up to 100 feet.

- Boost your DVI-D signals up to 100 feet (30.4 m)—50 feet (15.2 m) on each side of the extender.
- Use it to connect your media player, PC, DVD player, or other video source to an HDTV or a plasma or LCD screen.
- Supports HD resolutions of 1080p or VGA resolutions of 1920 x 1200.
- HDCP compatible.
- Corrects signal degradation in long DVI cable runs.
- Eliminates pixilation, sparkles, or loss of video on DVI cable connections longer than 15 feet (4.5 m).
- An equalizer compensates for the loss of LVDS signals.
- Just plug it in and go!
- When used in 50-foot (15.2-m) runs, place the extender at the display end.
- Includes an external 100–240-VAC power adapter.
- ♦♦ **WARRANTY** — 2 Years



Item	Code	List Price
DVI-D Extender	AC554A	

CATx DVI-D SL Extender Kit

Extend high-resolution single-link DVI-D video over 160 feet.



- Transmits single-link DVI-D video over one CAT5, CAT5e, or CAT6 cable.
- Overcome DVI cable limits. Kit offers distances of 164 feet (50 m).
- Crystal-clear video resolutions up to 1600 x 1200 @ 60 Hz.
- DDC emulation.
- Ideal for use in conference rooms, or in office and industrial settings.
- Kit includes transmitter, receiver, and universal power supply.
- ♦♦ **WARRANTY** — 1 Year

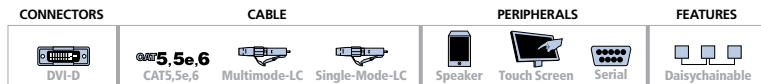


The CATx DVI-D SL Extender Kit is a cost-efficient solution to overcome the 16.4-foot limitation of the DVI specification. Installation is a snap. Simply connect the DVI-D output of your PC with the local unit and your display with the remote unit. Next, connect both with the CATx link cable, and turn on the power. Use the PC exactly as if you have a direct connection to your display.

Item	Code	List Price
CATx DVI-D SL Extender Kit	ACS2001A	

Multi DVI-D Extenders over Fiber or CATx

Distance, control, and flexibility—these DVI extenders are perfect for video/audio/serial digital signage anywhere.



- Flexible distribution and configuration—fit almost all video network footprints.
- Virtually unlimited extension capabilities with daisychaining.
- Use pollable RS-232 models to manage groups and single units.
- Go the distance—6.2 miles (10 km) over single-mode fiber, 1,640 feet (500 m) over multimode fiber, or 600 feet (182.8 m) over copper.
- Carry nearly all video formats over fiber or copper lines.
- Simple to install, configure, and use.
- Proprietary algorithms provides security.
- Durable design is ideal for harsh environments such as factories, shops, and other industrial settings.
- **◆◆ WARRANTY — 1 Year**



Front: From top: AC1080A, AC1081A, and AC1085A

Rear: From left: AC1080A, AC1081A, and AC1085A

Here's an efficient, manageable way to extend high-resolution DVI-D signals and stereo audio over copper or fiber.

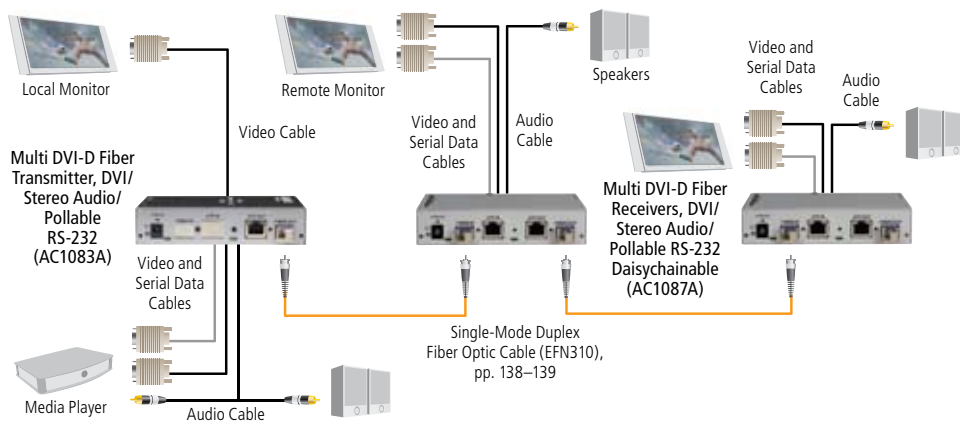
Use fiber for long-haul applications—as far as 6.2 miles (10 km) over single-mode fiber or 1640 feet (500 m) over multimode fiber. Or use copper for short to medium distances—500 feet (152.4 m) over CAT5/5e and up to 600 feet (182.8 m) over CAT6. Best of all, if you're using the daisychainable models, the distance limitations for video, stereo audio, and serial data are erased because there's virtually no limit on how many of these units you can string together. This saves you money by enabling you to use a single "building-block" system that can expand or contract based on your needs.

To add control to your video and audio broadcasting application, choose models that feature pollable RS-232 ports. These enable you to create addresses for one or groups of receivers in the daisychain and control them from a PC.

Daisychain the extenders in fiber, copper, or mixed domains. They use digital formatting, so signal repetition is perfect. The DVI (digital) format doesn't skew in the fiber models. The copper models mix the colors over all four pairs, and a series of algorithms self-compensates for skew.

This system supports video resolutions, distances, and formats over all VESA standards as high as UXGA (1600 x 1200) at 60 Hz, as well as HDTV formats up to 1080p.

This system is perfect for medical facilities, schools, trade shows, retail outlets, and any other application that requires sending video and stereo audio over long distances or large areas.



TECH SPECS

Resolution — Virtually all formats supported
CE Approval — Yes
Connectors — Audio: 4-pin Phoenix; Serial: 5-pin Phoenix; Video: DVI-D; Fiber: LC; UTP: RJ-45
Power — 5-V adapter, external
Size — 1.2" H x 4.1" W x 5.5" D (3 x 10.4 x 14 cm)

Tips for Techs

a BLACK BOX® production
 See the video on blackbox.com.

Item	Code	List Price
Multi DVI-D Extenders		
Single-Mode Fiber Transmitters		
DVI-D Only	AC1080A	
DVI-D/Stereo Audio/Pollable RS-232	AC1083A	
Single-Mode Fiber Receivers		
DVI-D Only	AC1081A	
DVI-D Daisychainable	AC1082A	
DVI-D/Stereo Audio/RS-232	AC1084A	
DVI-D/Stereo Audio/RS-232 Daisychainable	AC1085A	
DVI-D/Stereo Audio/Pollable RS-232	AC1086A	
DVI-D/Stereo Audio/Pollable RS-232 Daisychainable	AC1087A	
Multimode Fiber Transmitters		
DVI-D Only	AC1088A	
DVI-D/Stereo Audio/Pollable RS-232	AC1092A	

Item	Code	List Price
Multi DVI-D Extenders (Continued)		
Multimode Fiber Receivers		
DVI-D Only	AC1089A	
DVI-D Daisychainable	AC1091A	
DVI-D Daisychainable Fiber to UTP	AC1090A	
DVI-D/Stereo Audio/RS-232	AC1094A	
DVI-D/Stereo Audio/RS-233 Daisychainable	AC1093A	
DVI-D/Stereo Audio/Pollable RS-232 Daisychainable Fiber to UTP	AC1095A	
DVI-D/Stereo Audio/Pollable RS-232 Daisychainable	AC1096A	
CATx Transmitters		
DVI-D Only	AC1100A	
CATx Receivers		
DVI-D Only	AC1101A	
DVI-D Daisychainable	AC1102A	

DVI-D and Stereo Audio Fiber Extender Kit

Extend DVI multimedia over a single fiber—and display video on two remote displays!

- Great for digital signage in stadiums, airports, and more!
- Transmits single-link DVI-D and stereo audio over a single-mode fiber with no compression or deskewing.
- Receiver features dual DVI outputs—display the same image on two screens to reach a larger audience!
- All-digital transmission ensures higher clarity, and advanced input circuit equalizes and reclocks noisy input signals.
- Supports up to 1920 x 1200 at 165 MHz.
- DVI screens can be linked up to 45 feet (13.7 m) from the output side.
- Distribute content while keeping video sources secure.
- RoHS compliant.
- **◆◆ WARRANTY** — 3 Years

Send Hi-Def™ video and stereo audio to the edges of your digital signage or multimedia network with these extender kits. They transmit single-link DVI resolutions up to 1920 x 1200—without compression. With DVI video in your application, you get bolder, truer colors and sharper images than with conventional displays, and you make better use of graphics processors at the PC end.

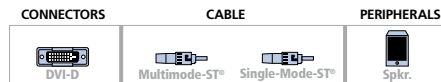
The single-mode extender supports distances up to 15 kilometers (9.3 mi.) and the multimode model can transmit up to 750 meters (2460.6 ft). Because the kits work over a single fiber, you use your optical media more economically.

Use the extenders in lobby, health care, educational, or retail settings. They also enhance broadcast applications where you want to keep a noisy PC away from audio pickups in the studio, as well as any area where there simply isn't room for both a PC and a display.

Ideal for digital signage!



Transmit video without compression!



TECH SPECS

Audio Channels — (2) unbalanced
Audio Crosstalk —100 dB (1 kHz)
Audio Impedance — Input: >24 kohms; Output: <1 ohm
Audio Level (Maximum) — +10 dBu
Color Space Format Supported — RGB or Y-Pr-Pb
Distance (Maximum) —
 Fiber interconnect: 9.3 mi. (15 km);
 Input (from PC to transmitter unit): 45 ft. (13.7 m);
 Output (to local loop-through display or remote displays): 16.4 ft. (5 m)
Fiber Loss Budget — 0–15 dB
Fiber Type — 8 to 10/125-µm single-mode
Fiber Wavelength — 1300 to 1600 nm
Pixel Clock Range — 25–165 MHz, continuous
Video Channels — (1) single-link DVI-D up to 1920 x 1200
Video Processing — 24 bits, no compression/scaling

Video Scanning System Supported — Progressive or interlaced
CE Approval — Yes
Power — Input: 100–240 VAC, 50–60 Hz, autosensing; Output: 12 VDC
Connectors — Transmitter unit: Video input: DVI-D or DVI-I (digital signal only) single-link; Video output: (1) DVI (in loop-through EDID DDC mode); Interconnect: (1) ST (single fiber); Audio input: (1) stereo jack; Receiver unit: Output: (2) DVI; Interconnect: (1) ST (single fiber); Audio output: (1) stereo jack
Size — Each unit: 1.2" H x 8" W x 6.5" D (3 x 20.3 x 16.5 cm)
Weight — Each unit: 1 lb. (0.5 kg)

NOTE: For simplex, single-mode fiber, call our FREE Tech Support.

◀ Fiber cables, pp. 124–139.

Item	Code	List Price
DVI-D and Stereo Audio Fiber Extender Kit Single-Mode	AC1037A	
Multimode	AC1037A-MM	
◆ Both include (1) transmitter, (1) receiver, and (2) power supplies.		

VGA Baluns • Keyboard/Mouse Extender

Use CAT5 to extend your classroom projector, digital signage, or boardroom systems.

- VGA Baluns convert VGA signals for transmission over 4-pair UTP.
- Great for long source-to-display links where using VGA cables can be cumbersome and expensive.
- Add the Keyboard/Mouse Extender to connect a PS/2® keyboard and mouse to a projector or PC up to 350 feet (106.7 m) away.
- Baluns support VGA resolutions of 640 x 480 (15 MHz) up to 450 feet (137.1 m). Higher resolutions are possible at shorter distances with SVGA, XGA, and SXGA.
- Save conduit space by using existing UTP cables to distribute video, as well as keyboard/video signals, to rooms.
- **◆◆ WARRANTY** — All: Lifetime



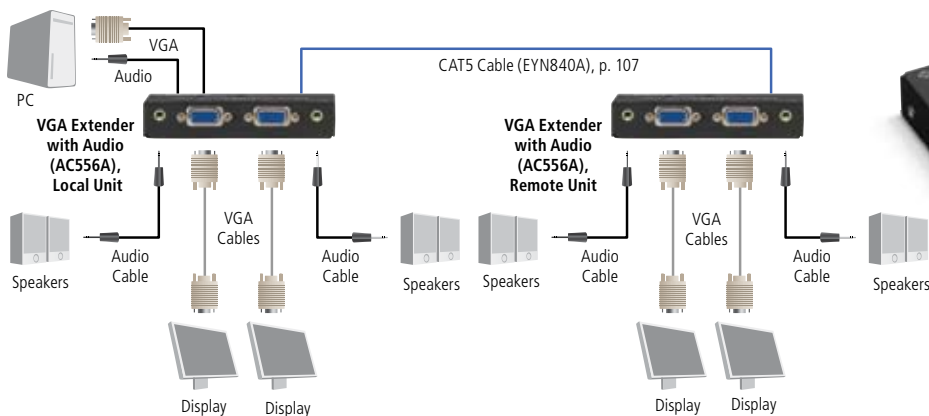
ABSOLUTELY GUARANTEED FOR LIFE

Item	Code	List Price
<u>Order a balun for both source and display...</u>		
VGA Source Balun Male	AC640A	
VGA Display Balun Female	AC641A	
Male	AC642A	

Item	Code	List Price
<u>Order both a local and a remote unit...</u>		
Keyboard/Mouse Extender Local Unit	AC643A	
Remote Unit	AC644A	

VGA Extenders

Place remote displays and speakers up to 500 feet away over CAT5, CAT5e, or CAT6 cable.



- Ideal for digital signage applications, such as exhibits, retail, trade shows, and airports.
- Kits available to extend VGA or VGA *and* audio signal up to 500 feet (152.4 m) on ordinary CAT5, CAT5e, or CAT6 cable.
- Each kit consists of a local transmitter and a remote receiver unit. Units support either two monitors or two monitors with speakers.
- An equalization (gain) control on the remote units enables you to fine-tune the picture.

- Also available: an individual 4-Port VGA Transmitter (AC555A-4) for extending VGA to four separate locations over CAT5, CAT5e, or CAT6 cable. The transmitter also includes a local VGA passthrough port.
- For each remote site in an AC555A-4 transmitter application, add a VGA Receiver (AC555A-REM) unit, which connects two remote monitors at each location.
- **WARRANTY** — 1 Year

CONNECTORS	CABLE	PERIPHERALS
VGA	CAT5, 5e, 6	Spkr.



AC555A: left: local transmitter; right: remote receiver (AC555A-REM)

Item	Code	List Price
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For an complete solution, order a kit...

VGA Extender Kit	AC555A	
VGA Extender with Audio	AC556A	

- ◆ Each kit includes (1) local unit, (1) remote unit (AC555A-REM), (1) 6-ft. VGA male/female cable, (2) power supplies with (2) cords. The AC556A also includes (1) 6-ft. male/male audio cable.

Or order a transmitter with four UTP ports:
4-Port VGA Transmitter

AC555A-4

...then add a receiver for each remote site:

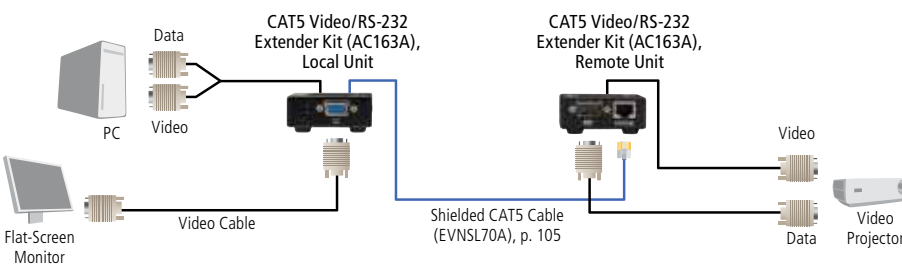
VGA Receiver	AC555A-REM	
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FOR OPTIMUM PERFORMANCE,
and a **20% savings,** order...

CAT5 Unshielded Solid Bulk Cable, 100-MHz, 4-Pair, PVC, Beige, 1000-ft. (304.8-m), Spool
(For other colors or boxed cable, see p. 105.)
EYN840A-1000

CAT5 Video/RS-232 Extender Kit

Extend video and RS-232 signals up to 360 feet over CAT5 cable!



- Broadcast a high-resolution VGA video image on a screen up to 360 feet (109.7 m) from your host PC.
- Remotely control a video projector with RS-232 serial connectors.
- These plug-and-play local and remote units communicate over easy-to-install shielded CAT5 cable.
- **WARRANTY** — 3 Years

The CAT5 Video/RS-232 Extender Kit has many applications. It's not only ideal for conference room and classroom environments, but it's also great for point-of-sale retail settings. For example, you can use the extenders to connect a plasma screen in a high-traffic area while maintaining control of the on-screen information through a locally attached PC and monitor.

The system uses bidirectional RS-232 for transmit and receive signals. And because local and remote units use shielded twisted pair for communications, the kit is easy to connect.

CONNECTORS	CABLE	PERIPHERALS
VGA	CAT5, 5e, 6	Touch Screen Serial



Item	Code	List Price
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CAT5 Video/RS-232 Extender Kit	AC163A	
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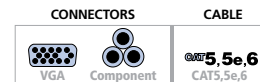
- ◆ Includes (1) local unit, (1) remote unit, (2) power supplies, and (2) power cords.

FOR OPTIMUM PERFORMANCE,
and a **20% savings,** order...

CAT5 Shielded Bulk Cable, 100-MHz, 4-Pair, Solid, Beige, PVC, 1000-ft. (304.8-m) Spool
(For details, see p. 105.)
EVNSL70A-1000

Mini CAT5 Extender Kits • Mini CAT5 Splitter/Extenders

Extend digital signage video up to 500 feet—or farther—over ordinary CAT5 cable.



AC504A



- Use ordinary CAT5 cable to send 1600 x 1200 video up to 300 feet at 85 Hz or 1280 x 1024 video up to 500 feet at 60 Hz.
- Eliminate the need for bulky, difficult-to-terminate VGA cables.
- Buffer and boost signals for clear video images at the remote end.
- Differential signaling eliminates ground loops and noise.
- For extensions up to 300 feet (91.4 m), a single power supply is all you need.
- Support a maximum resolution of 1920 x 1440 noninterlaced at 60 Hz and HDTV at 60 Hz to 1080p.
- Compatible with CAT5e or CAT6 cable.
- Choose from a simple kit (one transmitter and one receiver); splitter/extenders that send one signal to 2, 4, or 8 monitors; a transmitter with a local port; or an extender single-gang wallplate transmitter.
- **◆◆ WARRANTY** — All: 2 Years

NOTE: For CAT5 video extensions over 300 feet (91.4 m), you'll need to connect a power supply at both ends. To order a separate power supply for a remote unit, call our FREE Tech Support.

Item	Code	List Price
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For an out-of-box kit that connects a single video source to a single receiver, order...

Mini CAT5 Extender Kit		
VGA	AC504A	
Component	AC504A-CP	
◆ Each kit includes (1) transmitter, (1) receiver, and (1) power supply. The AC504A also includes (1) VGA male/male cable. The AC504A-CP also includes (2) cables with (1) HD15 male to (3) RCA male.		

To connect a single VGA video source to multiple receivers, order a transmitter...

Mini CAT5 VGA Splitter/Extender Transmitter		
2-Channel	AC600A	
4-Channel	AC601A	
◆ Include (1) transmitter, (1) VGA male/male cable, and (1) power supply.		
8-Port Component/VGA Video Splitter	AC654A	

For extension capabilities in a junction box, order the following VGA extender transmitter...

Mini CAT5 VGA Extender Wallplate Transmitter	AC504A-WP	
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To connect a local VGA display, too, order this VGA extender transmitter...

Mini CAT5 VGA Transmitter with Local Port	AC603A	
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...then pair your transmitters with a receiver at the remote VGA video display.

Mini CAT5 VGA Receiver	AC602A	
------------------------	--------	--

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

CAT5 Solid-Conductor Cables, 4-Pair, Straight-Pinned, 100-ft. (30.4-ft.), Beige	EYN556MS-0100	
<i>(For other lengths or blue cable, see p. 106.)</i>		

Wizard Multimedia Extenders

Go the distance with video and audio over CAT5, CAT5e, or CAT6 cable.



- An ideal choice for digital signage and narrowcasting applications.
- Extend video and stereo audio up to 1000 feet (304.8 m).
- Wide variety of configurations—all transmitters work with all receivers.
- Use as standalone units or rackmount up to 16 modules in 3U chassis.
- Dual video and audio outputs on receivers.
- **◆◆ WARRANTY** — 2 Years

Item	Code	List Price
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Wizard Multimedia Extenders Kit	AVU5010A	
◆ Includes (1) Single Video/Stereo Audio Transmitter (AVU5001A), (1) Receiver with Dual Video/Stereo Audio Ports (AVU5011A), (2) universal power supplies, (2) 6-ft. power cords, (2) sets of rubber feet, and (1) CD.		

You can also order the transmitters and receivers individually...

Transmitters		
Single Video/Stereo Audio	AVU5001A	
Quad Video/Stereo Audio	AVU5004A	
Receivers		
with Dual Video/Stereo Audio Ports	AVU5011A	
with Dual Video/Stereo Audio Ports, CATx Daisychain Port and Integral Deskew	AVU5111A-R2	
◆ Individual transmitters and receivers include (1) universal power supply, (1) 6-ft. power cord, (4) rubber feet, and (1) CD.		

To rackmount these extenders, order...

Rackmount Chassis	AVU5000A	
Order one of these for every module you plan to rackmount...		
Universal Plates	AVU5002	

HD View

Get sizzling digital signage with Hi-Def video, stereo, audio and full serial control.

- Ultimate control and distribution—from the media player to the screens!
- Perfect for LCD and plasma screens, bulletins, and training aids.
- Full, bidirectional RS-232 communications from media players to screens.
- Plug-and-play and modular. Installs quickly without any unnecessary hardware.
- Supports and distributes high-definition video resolutions of 1080p (1920 x 1440 at 60 Hz) and high-quality stereo audio to as many as 256 screens.
- System offers a maximum distance of 1000 feet (304.8 m).
- Query monitors and control on/off functions to extend screen life.
- Daisychainable 2-port receiver links a second remote screen and another segment.
- Variable, VESA-standard mounting options for discreet installation.
- Organize screens individually or in groups.
- **◆◆ WARRANTY** — 3 Years

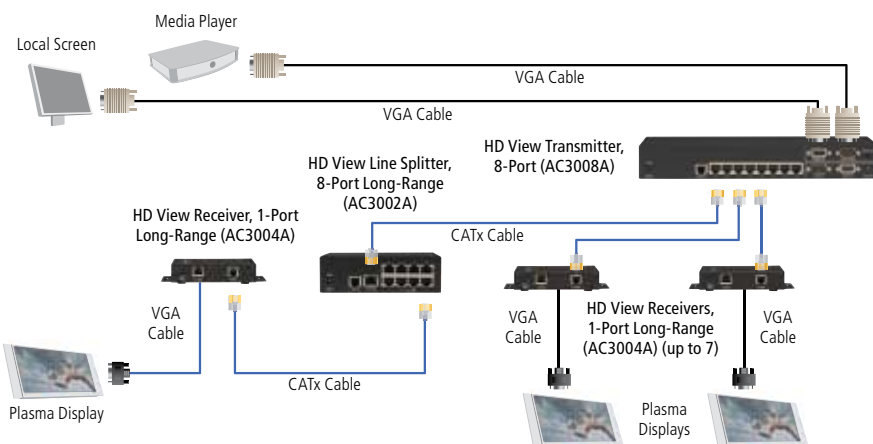
Designed for high-end presentations, the HD View is a truly modular multimedia transmission system for extending video, audio, and serial control over CAT5, CAT5e, CAT6, or proposed CAT7 cable.

Use it to deliver Hi-Def™ video and stereo audio to remote plasma/LCD screens. Mix and match units to send video at varying distances to one or more areas. Keep it simple by pairing a 1-port transmitter with a standard receiver to link a screen up to 360 feet (109.7 m) away, or set up an elaborate configuration with multiple receivers linked to multiple splitters and as many as 128 screens up to 1000 feet (304.8 m) away.

HD View also has support for DDC, which gives you optimal player-to-screen configurations. Out-of-band management frees the network for video transfer, and with RS-232 control, you can use simple commands to turn one or more screens on and off, preserving your screens and maximizing your system's life.

We also offer a tuning unit, which you can connect to a remote splitter or long-range receiver and optimize video settings using preset or unique tuning parameters.

Great for distributing 1080p video!



NOTE: The maximum possible distance for remote end video is 1000 feet (308.4 m).

TECH SPECS

DDC — Complies with VESA DDC-2 specification
Distance (Maximum) — Standard: 360 ft. (109.7 m); Long-range: 1000 ft. (304.8 m)
Input/Output Video Signals — Analog signal RGB; 0.7v p-p; 75 ohm
Resolution (Maximum) — 1920 x 1440 at 60 Hz (depending on the cable length)
RS-232 Connection — Full serial = RXD, TXD, DTR, DSR, RTS, CTS
Serial Baud Rate — 57 kbps
Skew Compensation (Maximum) — 63 nsec
System Cable — CATx UTP/FTP, 24 AWG solid conductor
CE Approval — Yes
Connectors — Transmitters: Video in: (1) HD15 M; Video local out: (1) HD15 F; Stereo audio in: (1) 3.5-mm jack; Stereo speakers out: (1) 3.5-mm jack; Serial in: (1) DB9 F; Serial local: (1) DB9 M; System out: (1), (8), or (16) RJ-45; Control (serial download): (1) RJ-11;

Line splitters: System in: (1) RJ-45; System out: (8) RJ-45; All except for the AC3003A also have: Control: RJ-11 (for connecting AC3006A);
Receivers: System in: (1) RJ-45; Video out: (1) or (2) HD15 F; Audio out: (3) jacks (L, R, L&R); Serial out: DB9 M; AC3005A also has system out: (1) RJ-45;
Tuning unit: (1) RJ-11 (for connecting splitters or all receivers except for the AC3003A)
Power — Transmitters, line splitters: External, 5 VDC, 2 A; Receivers: External, 5 VDC, 1 A; Tuning unit: From the connected splitter or receiver
Size — Transmitters: AC3000A: 6"H x 5.5"W x 1.75"D (15.3 x 14 x 4.5 cm); AC3008A, AC3016A: 1.7"H x 11.6"W x 6.1"D (4.3 x 29.5 x 15.5 cm); Line splitters: 1.7"H x 6.4"W x 8.5"D (4.3 x 16.3 x 21.6 cm); Receivers: 1"H x 5.8"W x 5.7"D (2.5 x 14.7 x 14.5 cm)

CONNECTORS	CABLE	PERIPHERALS	FEATURES
VGA	CAT5, 5e, 6	Speaker Serial	Daisychainable



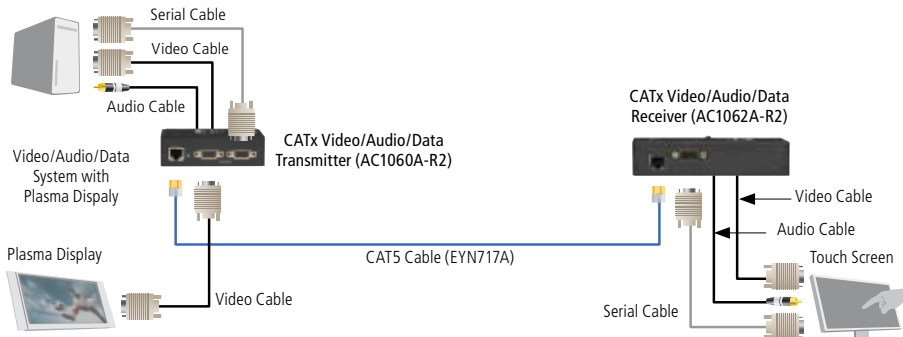
AC3008A

Item	Code	List Price
HD View		
Transmitters		
1-Port	AC3000A	
8-Port	AC3008A	
16-Port	AC3016A	
◆ Include (1) transmitter, (1) video cable, (1) serial extender cable, (1) serial download cable, and (1) audio cable.		
Line Splitters		
8-Port Standard	AC3001A	
8-Port Long-Range	AC3002A	
Receivers		
1-Port Standard	AC3003A	
1-Port Long-Range	AC3004A	
2-Port, Daisychainable Long-Range	AC3005A	

For convenient fine-tuning of video linked to a splitter or long-range receivers, order... Video Tuning Unit (for the AC3001A–AC3002A, AC3004A–AC3005A) AC3006A
 ◆ Includes (1) tuning unit and (1) RJ-11 cable.

CATx Video/Audio/Data System

Send high-res video, stereo audio, and serial data 600 or 2000 feet over CAT5 or higher cable!



CONNECTORS	CABLE	PERIPHERALS	FEATURES
VGA	CAT5, Se, 6	Speaker Touch Screen	Serial Daisychainable



- Great for a wide range of digital signage applications, including retail stores, restaurants, churches, conference centers, colleges, and many more!
- Send video, stereo audio, and full-duplex data up to 2000 feet (606.9 m).
- The system supports RGBHV, S-Video, Component, and Composite video.
- System includes models for point-to-point and multipoint configurations.
- Dedicated UTP cable operates independently of your network.
- Daisychainable models reduce transmitter count and cost per source.
- Flexible and rugged design for a variety of configurations and environments.
- ♦♦ **WARRANTY** — 1 Year

Do you need to send high-resolution video, stereo audio, and full-duplex serial data over UTP cable? You've found your solution with our CATx Video/Audio/Data System. This signal distribution system is flexible, reliable, and expertly designed for a wide variety of applications.

It's perfect for touch screen applications when you need to have your PC in one place and your screen in another, such as conference centers, sport complexes, colleges, and any other facility

where you need to send and receive video, audio, and data.

You can configure the system as point-to-point for touch screen applications like a single kiosk or as point-to-multipoint for applications in which you need to control screens, power, or volume.

NOTE: To send video, audio, and serial data at distances greater than 2000 feet (609.6 m), call our FREE Tech Support.

Item	Code	List Price
First order your transmitter...		
CATx Video/Audio/Data System Transmitter (Universal), Daisychainable	AC1060A-R2	
Then order your receiver for the distance and ports you need...		
CATx Video/Audio/Data System Receivers with Full-Duplex RS-232 and Stereo Audio		
Single-Port, Non-Daisychainable		
600-ft. (182.9-m)	AC1062A-R2	
2000-ft. (609.6-m)	AC1064A-R2	
Dual-Port, Daisychainable		
600-ft. (182.9-m)	AC1062A-DA-R2	
2000-ft. (609.6-m)	AC1064A-DA-R2	

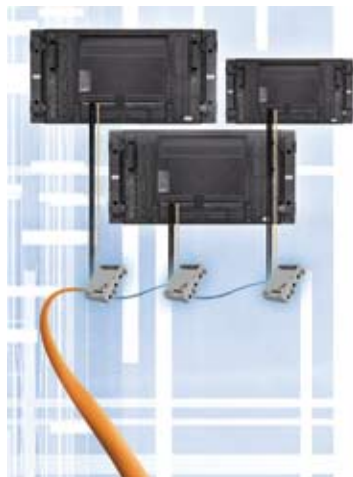
To connect S-Video, Component, or Composite video, order...

CATx Video/Audio/Data System Cables	
S-Video to HD15, 6-ft. (1.8-m)	AC1067A
RCA (3) to HD15, 3-ft. (0.9-m)	AC1068A

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

CAT5 Solid-Conductor Bulk Cable, 2-Pair, PVC, Custom Lengths
EYN717A

NOTE: Use the TIA/EIA T568B wiring specification when pinning the UTP cable used with these products. These units are not designed to operate through an Ethernet network.



EVERYTHING BEHIND THE SCREENS

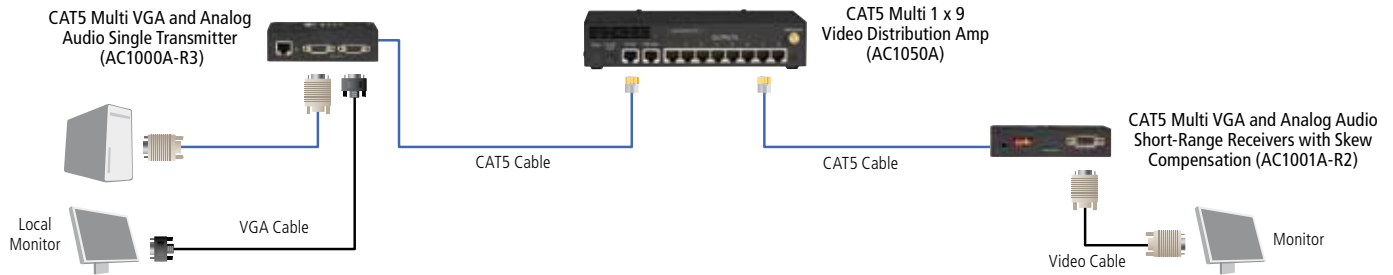
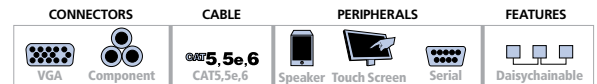
Go to blackbox.com/go/digitalsignage and you'll find:

- Our full selection of digital signage components, including all our extenders for CAT5 and fiber, additional splitters, video scalars, and converters, as well as the industry-best AV cabling and infrastructure products.
- Information galore! In addition to a glossary of industry terms, we offer case studies and step-by-step tutorials explaining how to plan your digital signage system.
- A helpful Solution Finder page where you can find your solution based on your task.

If you still can't find what you need, just call our FREE 24/7 Tech Support hotline!

CAT5 Multi Video System

Send video *plus* audio or RS-232 data—
over inexpensive CAT5 cable.



1080p
HD video



- Keep everyone in the loop with this multimedia distribution system that uses your already-installed CAT5 cable.
- Use Quad-Hub Transmitters and Dual-Daisychainable Receivers to build any combination of hub and daisychain topologies.
- The **CAT5 Multi 1 x 9 Video Distribution Amp** distributes Composite, Component, and computer video—plus audio and serial signals—to thousands of displays and takes up only 1U of space.
- The **CAT5 Multi 16 x 16 Matrix Switch** switches signals over CAT5 cable to any number of 16 possible outputs and takes up only 2U of space.
- **◆◆ WARRANTY** — All: 1 Year

The CAT5 Multi Video System enables you to send a variety of media over CAT5 cable to any number of locations far away. System components are inexpensive, and they use ordinary CAT5 cable—which is likely installed at your site already.

With the system, it's easy to communicate your message consistently from one content device to video displays or monitors in lobbies, conference rooms, and other areas!

CAT5 Multi Transmitters and Receivers share VGA video, analog audio, and even RS-232 signals. Choose from single or quad-hub transmitters, and single and dual-daisychainable receivers with skew compensation. All units support video resolution up to 2048 x 1536 at 70 Hz.

No software is needed, and they're operating system independent. Plus, they're all plug-and-play and can be rackmounted with the optional brackets for even greater convenience.

The CAT5 Multi VGA and Analog Audio units work together to give you video and audio extensions as far as 2000 feet (609.6 m) when the system includes the AC1014A-R2 receiver.

The CAT5 Multi RS-232 components support VGA and two-way serial communications at up to 1200 feet (365.7 m) when the AC1015A-R2 receiver is included. They're particularly ideal for controlling touch screens from a remote location, or broadcasting video and serial data to multiple monitors that have RS-232 inputs. You can display video and text simultaneously, and change the text message without updating the video. You can also use the serial link to carry control signals for VGA protection systems.

NOTE: Transmitters and receivers for Hi-Def Component video and Sony/Philips Digital Interface (SPDIF) audio are also available. To order, see blackbox.com or call our FREE Tech Support.

Item	Code	List Price
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CAT5 Multi VGA and Analog Audio

Transmitters		
Single	AC1000A-R3	
Quad Hub	AC1003A	
Receivers with Skew Compensation		
Single		
500-ft.	AC1001A-R2	
Dual Daisychainable		
600-ft.	AC1002A-R3	
1200-ft.	AC1013A-R2	
2000-ft.	AC1014A-R2	

CAT5 Multi VGA System, RS-232

Transmitters		
Single	AC1004A-R3	
Quad Hub	AC1007A	
Receivers with Skew Compensation		
Single		
600-ft.	AC1005A-R3	
Dual Daisychainable		
600-ft.	AC1006A-R3	
1200-ft.	AC1015A-R2	

You may also need...

Rackmount Brackets		
for Single Transmitters and Single and Dual-Daisychainable Receivers		
1 Unit	AC1008	
4 Units	AC1009	
8 Units	AC1010	
for Quad-Hub Transmitters		
3 Units	AC1011	
6 Units	AC1012	

CAT5 Multi 1 x 9 Video Distribution Amp

	AC1050A	
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CAT5 Multi 16 x 16 Matrix Switch

	AC1051A	
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Universal Video/Stereo Audio Fiber Extender

Ensure the quality of video and audio in noisy environments—use fiber!



Top: receiver (AC300A-RX);
bottom: transmitter (AC300A-TX)

- Send one video and two audio signals over a *single* 1310-nm single-mode fiber—up to 60 kilometers! (37.2 mi.) over 1310-nm single-mode.
- All-digital transmission provides excellent image quality and sound.
- Works with five types of video formats: Composite video, S-Video, Component video, 480p HDTV, and Progressive Scan DVD.
- Use with multimode and single-mode fiber, and all analog TV video equipment.
- Ideal for professional audio/video applications, POS displays, kiosks, and more.
- Two stereo audio channels give you crystal-clear fidelity.
- Easy installation.
- **◆◆ WARRANTY** — 3 Years

CONNECTORS	CABLE	PERIPHERALS
Composite S-Video	Multimode-ST* Single-Mode-ST	Speaker

What's included

Both the transmitter and receiver include:

- 12-ft. Composite video cable, BNC/BNC
- 6-ft. S-Video cable, 4-pin mini DIN to (2) BNC
- 10-ft. Component video cable, (3) BNC to (3) RCA plugs
- 10-ft. stereo audio cable, (4) tin-lead-shielded twisted pairs to (2) RCA plugs
- BNC to RCA adapter
- Universal power supply

Item	Code	List Price
Universal Video/Stereo Audio Fiber Extender Transmitter	AC300A-TX	
Receiver	AC300A-RX	

RGBHV/Stereo-Audio Fiber Extenders

Transmit audio and video signals for digital signage over a single fiber strand.

- Ideal for digital signage or video and audio extensions.
- Send high-resolution RGB and stereo audio up to 750 meters (2460.6 ft.) over multimode fiber optic cable or up to 30 kilometers (18.6 mi.) over single-mode fiber optic cable.
- Require only a single fiber strand.
- Transmit VGA, SVGA, XGA, and WXGA.
- Support HDTV resolutions of 480p, 720p, and 1080i (RGBHV format only).
- Work in point-to-point, point-to-multipoint, and drop-and-repeat configurations.
- Digital processing ensures crystal-clear transmission with no color pixel skewing.



Item	Code	List Price
RGBHV/Stereo-Audio Fiber Extenders Transmitters		
(1) ST Optical Output, (1) RGB Input, (1) 3.5-mm Audio Jack	AC1021A-XMIT	
(4) ST Optical Outputs, (1) RGB Input with Loop-Through, (1) 3.5-mm Audio Jack with Loop-Through	AC1022A	

CONNECTORS	CABLE	PERIPHERALS
VGA	Multimode-ST Single-Mode-ST	Speaker

- **◆◆ WARRANTY** — 3 Years

Item	Code	List Price
Receivers		
(1) ST Optical Input, (1) RGB Output, (1) 3.5-mm Audio Jack	AC1021A-REC	
(1) ST Optical Input, (1) 1x4 RGB Output, (1) 3.5-mm Audio Jack	AC1023A	
(1) ST Optical Input, (1) ST Optical Loop-Through, (1) RGB Output, (1) 3.5-mm Audio Jack	AC1024A	
Kit (AC1021A-XMIT and AC1021A-REC)	AC1020A	

FiberPath

No interference, high bandwidth, low cost. Fiber secures your video displays!

- Ideal for long-distance information displays, signs, and security systems.
- Sends video up to 2.4 kilometers (1.5 mi.).
- Eliminates ground-loop problems.
- Immune to electrical interference.
- Compatible with all standard video formats, including NTSC, PAL, and SECAM.
- **◆◆ WARRANTY** — 1 Year



Transmitter

Receiver

NOTE: The transmitter and receiver must be used in pairs.

CONNECTORS	CABLE
Composite	Multimode-ST

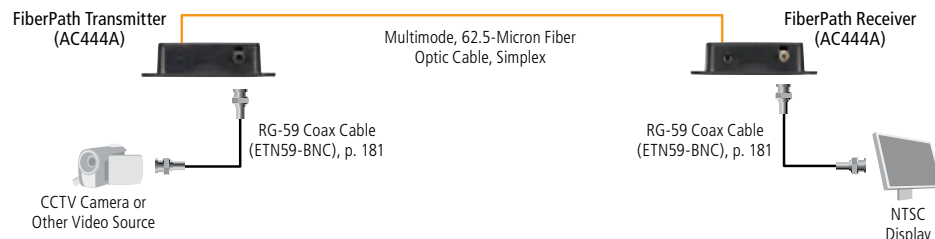
Item	Code	List Price
FiberPath	AC444A	
◆ Includes (1) transmitter, (1) receiver, and (2) power supplies.		

If you need a replacement unit, order...

Transmitter	AC445A-TX
Receiver	AC446A-RX

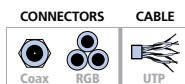
NOTE: These are intended as replacement units and do not include power supplies.

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...
Multimode, General-Purpose, Distribution-Style Bulk Fiber Optic Cable, Simplex, 1000-ft. (304.8-m), PVC **Call Tech Support.**



RGB Video Balun

Use inexpensive CAT5 UTP cable to transmit RGB video up to 500 feet.



- Convert RGB or Y-Pb-Pr Component signals from three coax cables to UTP.
- Use existing cabling to connect most baseband audio/video equipment, such as monitors, VCRs, and security cameras.
- Supports Component RGB/Y-Pb-Pr video with synchronization signals on one of the color signals (i.e. sync on green).



- Use with RGB monitors.
- Ideal for videoconferencing, classrooms, and security.
- **WARRANTY** — Lifetime

NOTE: Must be used in pairs.

Item	Code	List Price
RGB Video Balun ♦ Includes (3) coax jumper cables.	IC442A-R2	

Video Only Balun

Run video over twisted-pair cable.



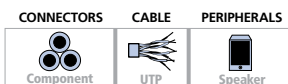
- Converts a single Composite baseband video signal from 75-ohm coax cable to UTP via an RJ-45 connection.
- Eliminates the need to use coax cable to extend Composite video.
- **WARRANTY** — Lifetime

NOTE: Must be used in pairs.

Item	Code	List Price
Video Only Balun	IC440A	

Component Video/Digital Audio Balun

Make HDTV video and digital audio extensions easier.



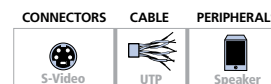
- Connect HDTV devices at long distances over CAT5.
- Enables point-to-point video/audio connections between DVD players, monitors, switches, etc.
- Extends 480i/p video up to 1000 feet (304.8 m) and 720p/1080i/p video up to 500 feet (152.4 m).
- Female RCA input for audio and molded 6" (15.2-cm) cable lead with color-coded male RCA jacks for video.
- **WARRANTY** — Lifetime

NOTE: Must be used in pairs.

Item	Code	List Price
Component Video/Digital Audio Balun	IC566A	

S-Video Balun S-Video Balun with Dual Audio Balun

Send S-Video — and audio signals, too — up to 1000 feet over simple CAT5 cable!



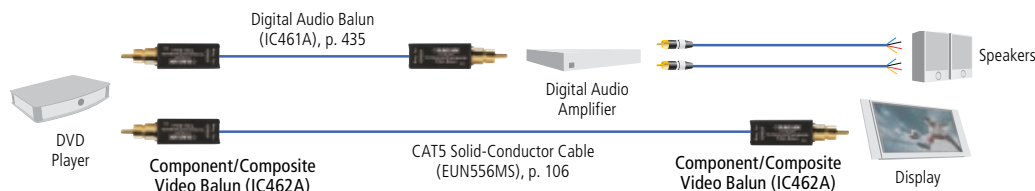
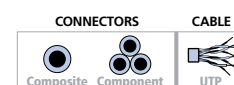
- Use with DVD players, satellite receivers, etc.
- IC449A has two audio channels.
- Use to move and connect video equipment to any modular outlet.
- Work with the Video CCTV-A/V Hub (IC445A) on facing page.
- Feature a built-in S-Video cable lead.
- **WARRANTY** — Lifetime

NOTE: Must be used in pairs.

Item	Code	List Price
S-Video Balun	IC447A	
S-Video Balun with Dual Audio Balun	IC449A	

Component/Composite Video Balun

Save on cabling costs when connecting high-end video devices that are far apart.



- Use inexpensive UTP cable instead of costly coax and/or Component cable.
- Ideal for home theaters or rooms where UTP cable is already installed or where conduits don't allow for multiple runs.
- For high-resolution Component video, order three baluns per side to transmit all Y-Pb-Pr components up to 1000 feet (304.8-m).
- Use for transmitting single-signal Composite (NTSC, PAL, SECAM) video at distances up to 2200 feet (670.5 m).
- **WARRANTY** — Lifetime



NOTE: For Composite video, all baluns must be used in pairs.

Item	Code	List Price
Component/Composite Video Balun	IC462A	

Audio Baluns (Analog and Digital)

Use inexpensive CAT5 cable instead of coax to extend analog or digital audio.

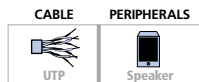
- The **Analog Balun** supports unbalanced analog mono or stereo audio connections up to 5000 feet (1524 m) over CAT5. For stereo, order two per side.
- The **Digital Balun** carries Dolby® Digital, dts®, and other types of digital audio up to 600 feet (182.8 m) over CAT5.
- Use with Component/Composite Video Balun (IC462A, facing page) to extend audio/video links.
- **WARRANTY** — All: Lifetime



Analog Audio Balun (IC460A)

Digital Audio Balun (IC461A)

NOTE: Must be used in pairs.



Item	Code	List Price
Audio Baluns		
Analog	IC460A	
Digital	IC461A	

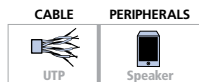
Quad Audio Balun

Extend up to four audio signals over inexpensive UTP.

- Send four analog audio signals up to 5000 feet (152.4 m) over CAT5.
- Connect audio receivers, audio matrix switchers, and other unbalanced line-level audio devices.
- A great alternative to using coax cables for audio extensions in point-to-point applications.
- Four RCA jacks for audio and one RJ-45 connector for UTP cable.
- A Quad Video Balun (IC564A) is also available at right.
- **WARRANTY** — Lifetime



NOTE: Must be used in pairs.



Item	Code	List Price
Quad Audio Balun	IC565A	

Video CCTV-A/V Hub

Run multiple combinations of audio/video signals.

- Run one S-Video signal or two baseband Composite video and two audio signals up to 2500 feet (762 m) to eight locations over CAT5.
- Broadcast different programs on multiple monitors without rewiring your building.
- Supports NTSC and PAL systems.
- Video and audio pairs are independent of each other, so it's not necessary to use all in one application or for all signals to be transmitted in the same direction.

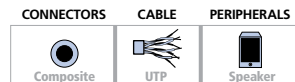


Top: front view;
bottom: rear view

- Integrates seamlessly with many other baluns. Contact our FREE Tech Support.
- **WARRANTY** — 2 Years

Dual Audio/Video Balun Video/Stereo Audio Balun

- Forget coax! Use UTP cable to extend Composite video and audio signals.
- For color CAT5 extensions, the **Dual Audio/Video Balun** provides distances of up to 2000 feet (609.6 m). The **Video/Stereo Audio Balun** supports distances up to 2200 feet (670.6 m).
 - Eliminate the expense of running up to four coax cables.
 - Enable connections to structured cabling via a modular wall jack.
 - Great for classrooms, kiosks, or other video/audio extensions.



IC446A



- Can be used with the Video CCTV-A/V Hub (IC445A) below.
 - **WARRANTY** — All: Lifetime
- NOTE: Must be used in pairs.

Item	Code	List Price
Dual Audio/Video Balun	IC446A	
Video/Stereo Audio Balun	IC441A-R2	

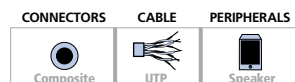
Quad Video Balun

Extend up to four Composite video signals over CAT5 cable.

- Eliminates the need for up to four coax runs.
- Enables extended distances via ordinary twisted pair up to 2200 feet (670 m)!
- RCA inputs for Composite, NTSC, PAL, SECAM, and 480i/p Component video.
- Great for videoconferencing, security, and digital signage applications.
- **WARRANTY** — Lifetime



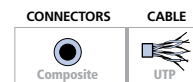
NOTE: Must be used in pairs.



Item	Code	List Price
Quad Video Balun	IC564A	

CCTV Power-Through Baluns • CCTV Passive Hubs

Extend CCTV video and remote power over CAT5 cable instead of coax.



IC561A



IC562A

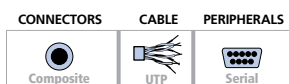


- Support NTSC, PAL, and SECAM.
- The **CCTV Power-Through Baluns** transmit color video up to 2200-foot (670.5-m) over a single CAT5 cable and 1500 feet (457.2 m) over a CAT3 cable.
- They also support 24-VAC power at up to 518 feet (157.8 m) when using 5 VA.
- The 1U rackmountable **Passive Hubs** send video, power, and PTZ control over one CAT5 cable.
- The hubs send video at up to 2500 feet (762 m), power up to 350 feet (106.6 m), and PTZ control up to 4000 feet (1.2 km), and work with the CCTV Power-Through Baluns and the CCTV Baluns (below).
- Both hubs have RJ-45 connectors on the front and either coax or screw terminals on the rear.
- Set ports individually for power-through or pass-through mode.
- The hubs are ideal for managing security cameras.
- **◆◆ WARRANTY** — All: Lifetime

Item	Code	List Price
CCTV Power-Through Baluns with RJ-45 Connectors	IC560A	
with Screw Terminal Connectors	IC561A	
CCTV Passive Hubs with (16) BNC Coax Connectors	IC562A	
with (16) 2-Pole Screw Terminal (Twisted-Pair) Connectors	IC563A	

CCTV Baluns

Connect closed-circuit cameras over CAT5 cable instead of coax.



- Send Composite (NTSC, PAL, SECAM) video via one UTP cable.
- Passthrough model transfers remote power and PTZ signals in addition to video signals.
- Fit in camera domes.
- **◆◆ WARRANTY** — Lifetime



IC452A

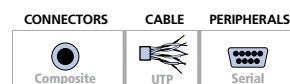


NOTE: Must be used in pairs or with another type of CCTV balun. For details, call our FREE Tech Support, or go to blackbox.com.

Item	Code	List Price
CCTV Baluns Mini-Coax	IC451A	
Passthrough	IC452A	

Video PTZ Balun

Put closed-circuit TV and PTZ control signals on UTP.



- Transmit CCTV video and PTZ signals over UTP instead of coax.
- Integrates CCTV security devices into your cabling system.
- Sends color images up to 2200 feet (670.5 m) over CAT5 cable.
- Works with Pelco™ Coaxitron™, Vicon™, and most other popular digital coax PTZ control systems.
- Includes a VELCRO® mounting strip and a 10" (2.5-cm) BNC to BNC coax cable.
- **◆◆ WARRANTY** — Lifetime



NOTE: Must be used in pairs.

Item	Code	List Price
Video PTZ Balun	IC450A-R2	

CCTV Video Balun

Transmit CCTV video over one UTP cable wired to a terminal strip.



- Run color video up to 2200 feet (670.5 m) or black-and-white up to 2500 feet (762 m).
- Connect CCTV equipment to UTP cable already installed in a building.
- Compact enough to fit alongside a security camera or other device in a tight area.
- Weather-resistant unit features BNC and screw terminal connections, a polarity identification label, and cable strain relief.
- **◆◆ WARRANTY** — Lifetime



NOTE: Must be used in pairs.

Item	Code	List Price
CCTV Video Balun	IC444A	

CATV Balun

Integrate CATV equipment into your CAT5 structured cabling system.



- Use your building's existing CAT5 cable to make CATV connections.
- Works with CATV, VHF, and FM systems.
- F-type connector minimizes signal loss.
- Connects directly to most equipment.
- Low return loss eliminates ghosting.
- Connects cable TV lines and modems, satellite receivers, and other broadband video equipment.
- **◆◆ WARRANTY** — Lifetime



NOTE: Must be used in pairs.

Item	Code	List Price
CATV Balun	IC448A-R2	

Buyer's Guide | Splitters

Video Standard	Splitter Family	Description	Max. Resolution	Media	Max. Distance	Audio Support	Code	Page
HDMI	HDMI Splitters	(1) HDMI in/ (2) or (4) HDMI out	1080p: HD	HDMI cable	40 ft. (12.2 m)	✓	AC552A-2 AC552A-4	p. 437
DVI	DVI Splitters	(1) DVI in/ (2) or (4) DVI out	1600 x 1200: DVI	DVI cable	33 ft. (10.1 m)	—	AC1031A-2 AC1031A-4	p. 438
VGA	VGA Video Splitters	(1) VGA in/ (2), (4), or (8) VGA out	2048 x 1536: VGA	VGA cable	210 ft. (64 m)	—	AC1056A-2 AC1056A-4 AC1056A-8	p. 438
VGA	VGA Buffered Video Splitters	(1) VGA in/ (2), (6), (4), (8), or (10) VGA out	1920 x 1440: VGA	VGA cable	250 ft. (76.2 m)	—	AC056A-R3 AC057A-R3 AC158A-R3 AC059A-R3 AC160A-R3	p. 438
VGA	2-/4-Port A/V Splitters	(1) VGA-audio in/ (2) or (4) VGA-audio out	2048 x 1536: VGA	VGA cable	213-ft. (64.9 m)	✓	AC650A-2 AC650A-4	p. 439
VGA	4-Port VGA Video Splitter	(1) VGA in/4 VGA out	1600 x 1200: VGA	VGA cable	200-ft.* (60.9 m)	—	AC090A	p. 439
VGA	2-Port VGA Booster	(1) VGA in/(2) VGA out	1024 x 768: VGA	VGA cable	700-ft. (213.4 m)	—	AC074A-R3	p. 439
VGA	CAT5 Audio/Video Splitter	(1) VGA-audio in/(1) VGA-audio out; (2) or (4) RJ-45 out/(1) RJ-45 in; (1) VGA-audio out	1280 x 1024	CAT5 cable	500 ft. (152.4 m)	✓	AC154A-2 AC154A-8 AC155A-R2	p. 439
VGA	CAT5 Audio/Video Broadcaster	AC156A-8: (1) VGA-audio in/(1) VGA-audio out; (8) RJ-45 out/ (1) RJ-45 in; AC157A-8: (8) RJ-45 out/(1) RJ-45 in	1600 x 1200	CAT5 cable	360 ft. (109.7 m)	✓	AC156A-8, AC157A-8, AC158A-REM, AC158A- PWREM	p. 440
Component	2-Port Component Video Splitter/Switch	(1) Component in/ (2) Component out	1080i: HD	Component cable	100 ft. (30.5 m)	—	AC1030A	p. 440
Composite	2-Port Composite Video Splitter	(1) Composite in/ (2) Composite out	150-MHz bandwidth	BNC cable	250 ft. (76.2 m)	—	AC176A-R2	p. 441
Composite	2-Port Composite Video/Audio Splitter	(1) Composite in/(2) Composite out with stereo audio	150-MHz bandwidth	BNC cable	250 ft. (76.2 m)	✓	AC179A	p. 441
S-Video	2-Port S-Video Splitter	(1) S-Video in/(2) S-Video out	150-MHz bandwidth	S-Video cable	250 ft. (76.2 m)	—	AC177A-R2	p. 441
S-Video	2 Port S-Video Splitter with Audio	(1) S-Video in/(2) S-Video out with stereo audio	150-MHz bandwidth	BNC cable	250 ft. (76.2 m)	✓	AC178A	p. 441

* Two ports can go 600 ft. (182.9 m)

HDMI Splitters

Stream HDMI video and audio signals for display on two, four, or more HDTV screens!

- Split HDMI signals for display on more than one HD LCD, plasma, or other Hi-Def screen.
- Drive signals 40 feet (12.1 m).
- Send video from a DVD player, satellite receiver, digital recorder, or even a PC.
- Cascade up to three units for more outputs.
- Buffer digital signals so uncompressed HD video and multichannel audio are reproduced without loss.
- The 1.65-Gbps bandwidth provides clear amplification of HDMI signals.
- Support HDTV resolutions up to 1080i and 1080p.
- HDCP compliant.
- Compact design for use in crowded equipment rooms and A/V cabinets.
- Easy to set up with plug-and-play connections.

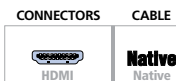
- Ideal for trade shows and conference rooms.
- Split signals in retail settings and keep your source equipment in a secure area.

◆◆ **WARRANTY** — 2 Years

1080p HD

TECH SPECS

Bandwidth (Maximum) — 1.65 Gbps
Component Video Resolution — 480i, 480p, 720p, 1080i, 1080p
Compliance — HDMI 1.2, HDCP 1.1, DVI 1.0
Supported PC Resolutions — VGA, SVGA, XGA, SXGA, UXGA to 1600 x 1200
CE Approval — Yes
Connectors — Input: (1) HDMI F; Output: (2) or (4) HDMI F
Indicators — (1) Power LED
Power — 100–240 VAC, 50–60 Hz, autosensing
Size — 0.9"H x 7.5"W x 3.75"D (2.3 x 19.1 x 9.5 cm)
Weight — 1.1 lb. (0.5 kg)



NOTE: An adapter is required for DVI connections.

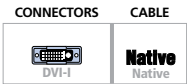
Item	Code	List Price
HDMI Splitters		
2-Channel	AC552A-2	
4-Channel	AC552A-4	

For DVI connections, order...

HDMI Male Adapters to DVI Male	FA790
to DVI Female	FA795

Digital Visual Interface (DVI) Splitters

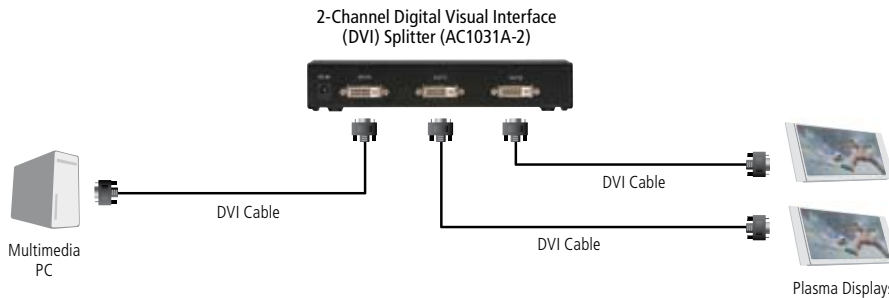
For eye-catching digital images on multiple screens, order a splitter!



- Great for digital signage applications.
- Split your PC's DVI signals to two or four separate DVI displays.
- Accurately and reliably reproduce the digital video signal without any signal attenuation and distortion.
- Support DVI-I (integrated analog and/or digital) video signals.
- Also work as amplifiers and extenders, so you can put your DVI monitors up to 33 feet (10 m) from the source PC.
- Provide digital resolution up to 1600 x 1200 @ 60 Hz.
- Can be cascaded for additional outputs.
- **◆◆ WARRANTY** — 2 Years



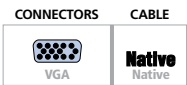
2-Channel Digital Visual Interface (DVI) Splitter (AC1031A-2)



Item	Code	List Price
Digital Visual Interface (DVI) Splitters		
2-Channel	AC1031A-2	
4-Channel	AC1031A-4	
◆ Both include (1) splitter, (1) DVI-I input cable, (1) power supply, and (1) user manual.		

VGA Video Splitters

Connect two, four, or eight monitors to one PC for a great multimedia presentation.



- Broadcast your PC monitor displays on two, four, or eight monitors up to 210 feet (64 m) away.
- The 2- and 4-channel splitters feature 350-MHz bandwidth; the 8-channel model provides 300-MHz bandwidth.
- Provide clear, sharp images whether you're using VGA, Super VGA (SVGA), or multisync monitors!
- Cascade units to increase VGA outputs to connect more monitors.
- Quick set up. Just connect the VGA cables, power up your system, and start duplicating images for multiple monitors.
- **◆◆ WARRANTY** — 1 Year

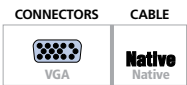


Top left: AC1056A-4 rear view; top right: AC1056A-2 rear view; bottom: AC1056A-8 rear view

Item	Code	List Price
VGA Video Splitters		
2-Channel	AC1056A-2	
4-Channel	AC1056A-4	
8-Channel	AC1056A-8	
◆ All include (1) splitter, (1) 6-ft. HD15 male/HD15 male VGA input cable and, depending on the model ordered, (1), (3), or (7) 10-ft. HD15 male/HD15 female VGA output cable(s).		

VGA/Buffered Video Splitters

These fully buffered splitters deliver crisp VGA video to as many as 10 monitors!



- The 300-MHz bandwidth gives you clear, sharp images at any resolution: VGA, Super VGA, and XGA.
- Can also be used to connect older monochrome monitors in legacy systems.
- Send displays up to 250 feet (76.2 m)!
- Add power to demonstrations, classrooms, or even manufacturing facilities.
- Distribute on-line information to factory floor workstations while keeping your CPU in a separate room.
- Cascade units to connect more monitors.
- Drive VGA signals up to 700 feet (213.3 m) with our 2-Channel VGA Booster (facing page).
- **◆◆ WARRANTY** — 1 Year



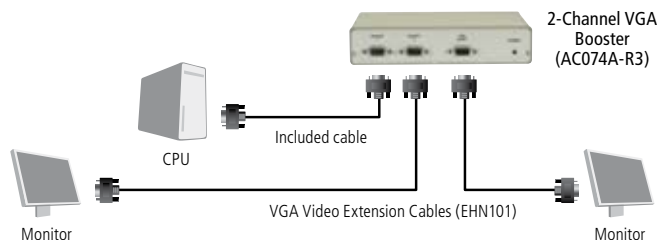
AC058A-R3: top: front view; bottom: rear view



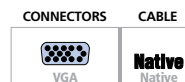
Item	Code	List Price
VGA/Buffered Video Splitters		
2-Channel	AC056A-R3	
4-Channel	AC057A-R3	
6-Channel	AC159A-R3	
8-Channel	AC058A-R3	
10-Channel	AC160A-R3	
◆ Each splitter includes (1) 6-ft. HD15 male/male VGA input cable; and (1), (3), (5), (7), or (9) 10-ft. male/female VGA video extension cables (depending on the model).		

2-Channel VGA Booster

Picture this: great video displays at great distances.



- The ideal solution for public information displays.
- Transmit information for education, transportation, medical, and other public applications.
- Clear video at up to 700 feet (213.3 m).
- Display on two remote monitors simultaneously.
- Protect your CPU by securing it out of view.
- **◆◆ WARRANTY** — 1 Year



VGA, Super VGA, or XGA

The 2-Channel VGA Booster is plug-and-play easy—just plug in the cables and go.

Item	Code	List Price
------	------	------------

2-Channel VGA Booster AC074A-R3
 ◆ Includes (1) 6-ft. VGA input cable (male/male).

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

VGA Video Extension Cable, Male/Male	Code	List Price
50-ft. (15.2-m)	EHN101-0050	
75-ft. (22.8-m)	EHN101-0075	
100-ft. (30.4-m)	EHN101-0100	

2-/4-Port Audio/Video Splitters

Their 400-MHz, 2048 x 1536 resolution keeps pace with today's highest video standards.

- Pixel resolutions up to 400 MHz.
- Support monitor resolutions up to 2048 x 1536 at 60 Hz.
- Place monitors up to 213.2 feet (65 m) away.
- Compatible with a broad range of video interfaces, including VGA, SVGA, XGA, UXGA, QXGA, and multisync.
- Support the VESA DDC, DDC2, DDC2B (for video out Port 1).
- Easy-to-use front-panel select switches.
- Cascadable for creating more outputs.
- Has HD15 connectors for video input/outputs and 3.5-mm stereo jacks for audio.
- **◆◆ WARRANTY** — 2 Years



Top: AC650A-4 front view; bottom: AC650A-4 rear view

Item	Code	List Price
------	------	------------

Audio/Video Splitters
 2-Port AC650A-2
 4-Port AC650A-4

4-Port XGA Video Splitter

Connects four XGA or VGA monitors to one multimedia PC.

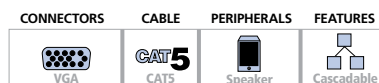


- Splits one XGA or VGA video signal into four signals for digital signage display on up to four monitors.
- All four channels support a standard distance of 100 to 200 feet (30.4 to 60.9 m), depending on the resolution.
- Or configure two of the channels to support distances of up to 600 feet (182.8 m) without a video booster.
- Supports resolutions up to 1600 x 1200 (UXGA).
- The 250-MHz bandwidth ensures clear images at any resolution.
- **◆◆ WARRANTY** — 2 Years

Item	Code	List Price
4-Port XGA Video Splitter	AC090A	

Compact CAT5 Audio/Video Splitters

Use CAT5 cable to send stereo audio and video to multiple locations.



AC154A-2



AC154A-8

- Support VGA video up to 1280 x 1024 at 60 to 85 Hz.
- Operate up to 500 feet (152.4 m) over inexpensive CAT5 shielded cable.
- Can cascade up to 3 units to support up to 24 speakers and monitors.
- Differential signaling provides protection from EMI/RFI interference.
- Super compact size!
- **◆◆ WARRANTY** — 2 Years

Item	Code	List Price
------	------	------------

First, choose your splitter...
 Compact CAT5 Audio/Video Splitters
 2-Channel AC154A-2
 8-Channel AC154A-8

...then, order one receiver for each channel.
 Compact CAT5 Audio/Video Receiver AC155A-R2

CAT5 Audio/Video Broadcaster

Broadcast real-time audio and video multimedia over inexpensive CAT5 cable.

CONNECTORS	CABLE	PERIPHERALS	SWITCHING
VGA	CAT5, 5e, 6	Spkr. & Mic	Serial

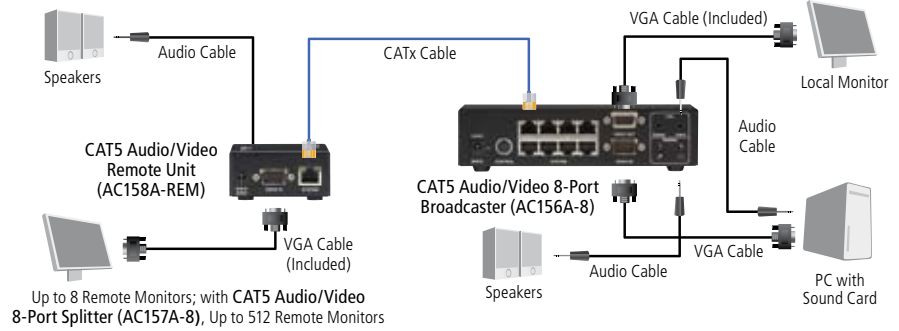
- Ideal for broadcasting real-time information in airports, train stations, stock exchanges, at trade shows, and more.
- Sends video and mono audio signals to hundreds of displays.
- Supports VGA video up to 1600 x 1200 at 75 Hz—up to 360 feet (109.7 m).
- Also great for schools, universities, or any classroom training application. Send a screen to an entire class or just one student display at the push of a button.
- The components are Windows® compatible and communicate with PCs that have 100BASE-TX network cards installed.
- “Darken All” feature on the broadcaster control unit (AC156A-8) enables an instructor to darken all remote monitors.
- To broadcast from 8 to 512 remote displays, add one or two splitters (AC157A-8). For simple systems, connect the broadcaster (AC156A-8) directly to the remote units.
- The broadcaster includes a control unit, two speaker/microphone cables, and a VGA cable.
- The CAT5 Audio/Video Remote Unit (AC158A-REM) works with shielded CAT5 cable, and includes VGA and speaker/microphone cables.



AC158A-PWREM



AC156A-8



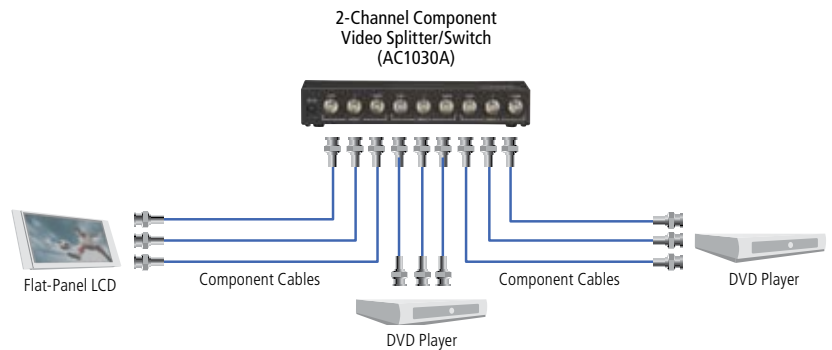
- The CAT5 Audio/Video Powered Remote Unit (AC158A-PWREM) provides higher audio quality, works with unshielded CAT5 cable, and includes VGA and speaker/microphone cables.
- The AC156A-8, AC157A-8, and AC158A-PWREM all include 115–230-VAC autosensing, external power supplies.
- The AC158A-REM is interface powered.
- **◆◆ WARRANTY** — 3 Years

Item	Code	List Price
First, order one broadcaster...		
CAT5 Audio/Video Broadcaster 8-Port	AC156A-8	
...next, for system expansion, order a splitter...		
CAT5 Audio/Video Splitter 8-Port	AC157A-8	
...then, order one remote for each display.		
CAT5 Audio/Video Remote Unit	AC158A-REM	
CAT5 Audio/Video Powered Remote Unit	AC158A-PWREM	

2-Channel Component Video Splitter/Switch

Output Component video to two multimedia screens or switch between two Component sources.

CONNECTORS	CABLE	SWITCHING
Component	Native	Push Button



- Great for digital signage applications.
- Works as either a splitter or a switch.
- Send a Component signal from a video source to two TV screens or switch between two Component sources linked to a single screen.
- BNC connectors for both input and output—perfect for high-quality video.

- Compatible with Component video (Y-Cb-Cr or Y-Pb-Pr) and RGB (sync-on-green) signals.
- Supports all interlaced and noninterlaced RGB, TV, and HDTV resolutions, including 720p, 1080i, and 1920 x 1080.
- Autosensing 100–240-VAC power supply.
- **◆◆ WARRANTY** — 2 Years

Item	Code	List Price
2-Channel Component Video Splitter/Switch	AC1030A	
◆ Includes (1) video splitter/switch, (9) RCA-to-BNC adapters, and (1) power supply.		

CAT5 VGA Video Splitters

Set up a digital signage distribution system.

CONNECTORS	CABLE
VGA Composite	CAT5, 5e, 6 CAT5, 5e, 6

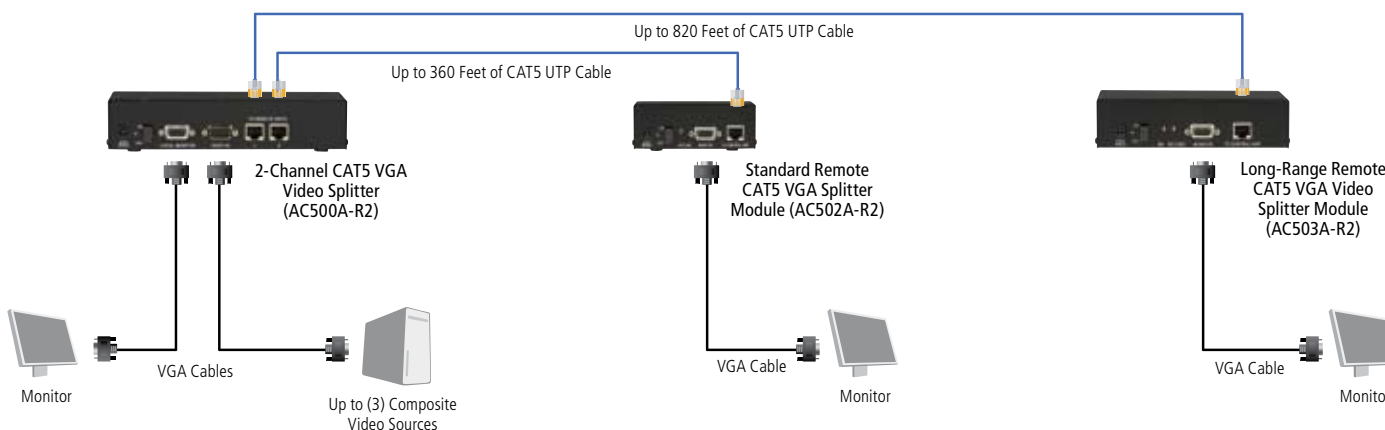


Top: AC502A-R2;
bottom: AC503A-R2

Top: AC501A-R2;
bottom: AC500A-R2



AC512A



- Simultaneously broadcast a VGA display to as many as four remote VGA displays.
- Use inexpensive CAT5 UTP cable.
- Add Composite Adapters to broadcast Composite video sources and audio instead of VGA.
- When you pair a host module with a Standard Remote Module, you can transmit up to 360 feet (109.7 m).
- If you use a Long-Range Remote Module, your distance more than doubles to 820 feet (249.9 m)!
- Support resolutions up to 1280 x 1024.
- Support Composite and left/right audio or Component video.
- Used with splitters, Composite Adapters enable you to broadcast video from three Composite sources to 6 or 12 screens.
- Perfect for education and training applications, as well as for digital signage.
- Work with IBM® PC, PS/2®, and compatible machines, and support SVGA, VGA, and XVGA video along with Composite and Component sources.
- Can also be used with Mac® or SGI machines.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
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First, order a host module...

CAT5 VGA Video Splitters		
2-Channel	AC500A-R2	
4-Channel	AC501A-R2	
♦ Each includes (1) 5-ft. video cable.		

...next, order one of the following for each remote monitor you want to connect.

Remote CAT5 VGA Video Splitter Modules		
Standard	AC502A-R2	
Long-Range	AC503A-R2	

For Composite video, order a local adapter for the host module and a remote adapter for each channel...

Composite Adapters		
Local	AC512A	
Remote	AC513A	

1-to-2 Composite Video Splitter • 1-to-2 S-Video Splitter

Send one Composite or S-Video signal to two locations.



AC177A-R2: rear view

- Enable you to send video signals from one source, such as a video camera, to two different displays or devices, such as a TV, VCR, or monitor.
- Individually buffered output ports and 150-MHz bandwidth provide excellent signal strength and quality.
- Also amplify the source signal and perform line driver duty for boosting images over longer cable runs.
- NTSC, PAL, and SECAM compatible.

CONNECTORS	CABLE
Composite S-Video	Native Native

- Composite model has a single BNC female input and two BNC female outputs.
- S-Video version has a 4-pin mini DIN female input and two 4-pin mini DIN female outputs.
- ♦♦ **WARRANTY** — 2 Years

Item	Code	List Price
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1-to-2 Composite Video Splitter		
	AC176A-R2	
1-to-2 S-Video Splitter	AC177A-R2	

Buyer's Guide | Switches

Video Standard	Switch Family	Description	Max. Resolution	Media	Max. Distance	Audio Support	DDC Support	HDCP Support	Code	Page
HDMI	2-to-1 HDMI Switch	(2) HDMI in/ (1) HDMI out	1080p: HD; 1600 x 1200 VGA	HDMI cable	50 ft.	✓	✓	✓	SW215A	p. 442
HDMI	3-to-1 HDMI Switch with Remote	(3) HDMI in/ (1) HDMI out	1080p: HD; 1600 x 1200: VGA	HDMI cable	50 ft.	✓	✓	✓	SW214A	p. 442
HDMI	8-to-1 HDMI Switch with Remote	(8) HDMI in/ (1) HDMI out	1080p: HD; 1600 x 1200: VGA	HDMI cable	50 ft.	✓	✓	✓	SW216A	p. 442
DVI	DVI Switches with Audio and Serial Control	(2) or (4) DVI in/ (1) DVI out with audio and serial	1080p: HD; 1600 x 1280: VGA	DVI cable	50 ft.	✓	✓	✓	AC1032A-2A, AC1032A-4A	p. 442
VGA	Compact VGA Switches	(2) or (4) VGA in/ (1) VGA out	1600 x 1200: VGA	VGA cable	150 ft.	—	—	—	AC505A- AC506A	p. 443
VGA	Video Matrix Switches	(4) or (8) VGA in/ (2) VGA out	1920 x 1440: VGA	VGA cable	213 ft.	—	✓	—	AC508A- AC509A	p. 443

HDMI Switches

Connect two, three, or even eight high-definition devices to your HDTV.



2-to-1 HDMI Switch

- Push a button to select a source for display.
- Offers HD resolutions to 1080p and PC resolutions to 1600 x 1200.
- HDMI 1.3, HDCP 1.1, and DVI 1.0 compliant.
- Supports 30-/36-/48-bit color depth display and high-end audio, such as lossless Dolby® Digital TrueHD and DTS-HD surround sound.
- Auto signal enhancement feature for improving long-distance transmissions.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
2-to-1 HDMI Switch	SW215A	

3-to-1 HDMI Switch with Remote

- Switch using its remote or on the front panel.
- Offers 1.65-Gbps bandwidth for sharp images.
- Supports HD resolutions to 1080p and PC resolutions to 1600 x 1200.
- HDMI 1.1, HDCP 1.1, DVI 1.0 compliant.
- Booster button to drive signals up to 50 feet (15.2 m) over HDMI cable.
- Automatic equalizers compensate for losses in long cable runs.
- ♦♦ **WARRANTY** — 2 Years

Item	Code	List Price
3-to-1 HDMI Switch with Remote	SW214A	

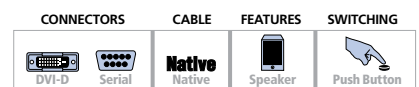
8-to-1 HDMI Switch with Remote

- Switch using its remote or on the front panel.
- Also has a rear-panel RS-232 port for linking to a console for remote control.
- 1080p HD and 1600 x 1200 PC resolutions.
- HDMI 1.2, HDCP 1.1, and DVI 1.0 compliant.
- Audio support for lossless Dolby Digital TrueHD and DTS-HD surround sound.
- Signal enhancement feature for improving the signal quality of long-distance transmissions.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
8-to-1 HDMI Switch with Remote	SW216A	

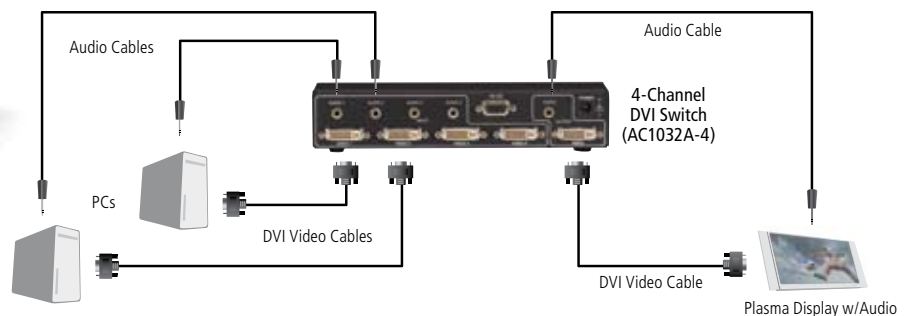
DVI-D Switches with Audio and Serial Control

Route multiple DVI-D video and audio inputs to a single display.



AC1032A-4A

- Switch video and stereo audio from multiple DVI-equipped devices like PCs to a common DVI display while using a console connected to the RS-232 serial port.
- Skip unused inputs automatically.
- Resolutions up to 1600 x 1200 on PCs and 1080p on HDTVs.
- Support cabling up to 65 feet (19.8 m) on the inputs.



- Drive DVI signals up to 50 feet (15.2 m).
- DVI-D single-link compliant.
- For more information, see page 331.
- ♦♦ **WARRANTY** — 2 Years

Item	Code	List Price
DVI Switches with Audio and Serial Control		
2-Channel	AC1032A-2A	
4-Channel	AC1032A-4A	

Buyer's Guide | Switches, cont.

Video Standard	Switch Family	Description	Max. Resolution	Media	Max. Distance	Audio Support	DDC Support	HDCP Support	Code(s)	Page
VGA	ServSwitch Matrix Video Switch, 4 x 4	(4) VGA in/ (4) VGA out	1600 x 1200: VGA	VGA cable	150 ft. (total cable)	—	✓	—	ACL0404A	p. 443
VGA	ServSwitch Matrix Video Switch, 8 x 2	(8) VGA in/ (2) VGA out	1600 x 1200: VGA	VGA cable	150 ft. (total cable)	—	✓	—	ACL0802A	p. 443
VGA	VGA Matrix Switch with Serial Control, 8 x 8	(8) VGA in/ (8) VGA out with serial	1080p: HD; 1900 x 1200: VGA	VGA cable	150 ft.	—	—	—	AC1120A	p. 444
VGA	VGA Matrix Switch with Serial Control, 16 x 16	(16) VGA in/ (16) VGA out with serial	1080p: HD; 1900 x 1200: VGA	VGA cable	150 ft.	—	—	—	AC1122A	p. 444
S-Video	4-to-1 S-Video/Audio Switch with Serial Control	(4) S-Video in/ (1) S-Video out with audio	250 MHz	S-Video and RCA cables	100 ft.	✓	—	—	SW202A	p. 444

Compact VGA Switches (2 x 1 and 4 x 1)

Switch between two or four VGA sources to a single monitor!

- Boosters drive signals up to 150 feet (45.7 m).
- Resolutions of up to 1600 x 1200.
- Switch by pushing a button or via an attached RS-232 device.
- Can be set to scan inputs at certain intervals.
- Display VGA inputs based on priority.
- Blank a source's output or switch manually.
- Buffered output protects the signal integrity.
- Fit into tight spaces and withstand heavy use.



AC505A: top: front view; bottom: rear view



- ♦♦♦ **WARRANTY** — 2 Years

Item	Code	List Price
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Compact VGA Switches
 2 x 1 AC505A
 4 x 1 AC506A
 ♦ Both switches include (1) serial cable. The AC505A also includes (1) push-button cable.

2 x 4 and 2 x 8 Video Matrix Switches

Show video from two separate sources on multiple displays.



AC508A: top: front view; bottom: rear view

- Gives you the flexibility to use a broad range of video devices, from CRT and LCD monitors to new plasma TVs or video projectors.
- Built-in video signal enhancement for placing monitors up to 213.2 feet (65 m) away.
- Great for remote display applications
- Support VGA, SVGA, XGA, and multisync monitors or equivalent multimedia projectors.
- Accept input from PC or Mac® sources.
- Work with high-resolution, 250-MHz pixel frequency and resolutions up to 1920 x 1440.



- Support VESA DDC, DDC2, DDC2B standards (for video out Ports 1 and 2).
- Cascadable for even more flexibility.
- Output is compatible with standard VGA cards.
- Select source video via front-panel switches.
- ♦♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
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Video Matrix Switches
 2 x 4 Channel AC508A
 2 x 8 Channel AC509A

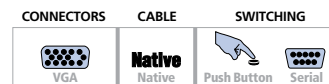
ServSwitch Brand Matrix Video Switches

Mix and match video displays from four or eight PCs.



ACL0404A: top: front view; bottom: rear view

- Show something different on each screen or the same video on each screen.
- Send video from four PCs to up to four monitors in any combination with the 4 x 4 model.
- Or use the 8 x 2 model to send video from up to eight PCs to two monitors.
- All inputs are terminated and all outputs are buffered using special video amplifiers.
- Easy switching with the included keypad(s).
- No special cables required—the switches use ordinary VGA cable.



- Total cable length of 150 feet (45.7 m).
- Compatible with SVGA (RGBHV), RGBS, or RGSB with resolutions up to 1600 x 1200.
- ♦♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
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ServSwitch™ Brand Matrix Video Switches
 4 x 4 ACL0404A
 8 x 2 ACL0802A
 ♦ Both switches include (1) power supply; the ACL0404A also includes (1) keypad; the ACL0802A also includes (2) keypads.

VGA Matrix Switches with Serial Control

Switches that make it easy to route VGA and 1080i HD video!

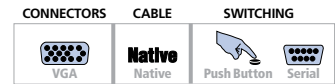
- For cross-point switching of PC or HD (VGA or YPbPr) video signals.
- Order with 16 or 32 HD15 ports (8 input/8 output or 16 input/16 output).
- Ideal for digital signage display systems where you want to switch source inputs for screen output on various screens.
- Switch using buttons on the front panel or by issuing RS-232 commands.
- Switched video output can also be blanked.
- Output PC resolutions up to 1900 x 1200 and HD video up to 1080p. Also work with analog SD video.
- Have two independent RS-232 interfaces (a screw terminal and an RJ-45 port). Control the switch remotely through either.
- Use front panel to view switch routings (ties) either from input or from output side.
- Intuitive keypads enable you to check channel status and configure new input/output ties.



AC1120A

- Store up to 8 or 16 preset routing patterns. Reconfigure at the push of a button.
- Can also be programmed to switch between preset patterns at certain times of the day—great for automating digital signage!
- Use with Mini CAT5 Extenders (page 429) to transmit VGA signals over CAT5 cable.
- 19" rackmountable enclosure.
- **◆◆ WARRANTY** — 2 Years

NOTE: HD15-to-3 RCA cables may be required for some video connections. To order, contact our FREE Tech Support.



TECH SPECS

CE Approval — Yes
MTBF — 900,000 hrs. (estimated)
Resolutions Supported (Maximum) — 1900 x 1200 at 60 Hz (PC), 1080p (HD)
Video Level Supported — 0.3 V to 0.7 V (1 V p-p) on RGB; 0 to 5 VDC on sync
Connectors — Video input: (8) or (16) HD15 F (VGA); Video output: (8) or (16) HD15 F (VGA); Serial (RS-232) control: (1) 3-screw terminal with detachable mating connector, (1) RJ-45 (auxiliary)
Power — 100–240 VAC, 50–60 Hz, autosensing
Size — 3.5"H (2U) x 19"W x 12.8"D (8.9 x 48.3 x 7.2 cm)
Weight — 9.4 lb. (4.3 kg)

Item	Code	List Price
VGA Matrix Switches with Serial Control		
8 x 8	AC1120A	
16 x 16	AC1122A	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

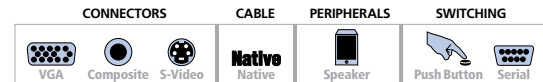
Premium VGA Video Extension Cable, PVC, HD15, Straight Hoods (Specify genders when ordering. For other lengths, see p. 151.)
 50-ft. (15.2-m) EVNPS05-0050
 100-ft. (30.4-m) EVNPS05-0100

Video-to-VGA Converter/Switch

Get crisp, clear VGA video from NTSC or PAL video input.



- The intelligent conversion solution for NTSC or PAL multimedia devices.
- Converts Composite (NTSC or PAL) video or S-Video into VGA for display on a computer monitor.
- Switch between four video/audio input ports (one VGA, two Composite, and one S-Video) with a front-panel push button.
- Or in Auto mode, it switches automatically to the active video port.
- Eliminates interlace flicker from video presentations.



- Doubles the frame rate by turning the interlaced NTSC or PAL signal into a noninterlaced signal.
- No software required.
- Has a 120–240-VAC, 50–60-Hz autosensing power supply.
- Includes VGA and stereo audio cables.
- **◆◆ WARRANTY** — 2 Years

Item	Code	List Price
Video-to-VGA Converter/Switch		
	AC135A-R2	

4-to-1 S-Video/Audio Switch with Serial Control

Connect four DVD, VCR, and CD player devices to your TV for multimedia presentations.

- Perfect for creating business presentations or for use in home theater systems.
- Switch between up to four devices.
- Works with NTSC, PAL, SECAM S-Video, and analog stereo audio equipment.
- Select video and audio equipment with the front-panel push buttons or using a PC connected via its RS-232 port.
- Its 250-MHz video and 15-kHz audio buffers guarantee perfect output integrity.
- **◆◆ WARRANTY** — 2 Years



Use this switch to punch up your next business presentation or have it work as an integral component of your home theater system.



What's included

- 5-ft. serial control cable, 3.5-mm plug to DB9 F
- 100–240-VAC, 50–60-Hz external power supply

Item	Code	List Price
4-to-1 S-Video/Audio Switch with Serial Control		
	SW202A	

Buyer's Guide | Converters

Converter	Description	Input	Resolution Input	Video Output	Audio	Item	Page
PC to Video Converter	(2) computer input to (2) video outputs	Computer: (1) HD15	VGA: 640 x 480 to 1280 x 1024	Composite or S-Video (NTSC or PAL switch selectable)	—	AC336A	p. 445
PC Video/Component Video to HDMI Converter with Audio	(2) video inputs to (1) video output	Video: (1) VGA, (1) Component (switch selectable)	VGA: 640 x 480 to 1600 x 1200; HDTV: 480i to 1080p	HDMI: 640 x 480 to 1600 x 1200; HDTV: 480i to 1080p (same as input, no scaling or scan converting)	✓	AC551A	p. 445
Video Scan Converter Plus	(2) computer inputs to (2) video outputs	Computer: (1) HD15 (VGA), (1) DB15 (Mac)	Computer video: 320 x 200 to 1280 x 1024 (passthrough)	Composite or S-Video (NTSC or PAL switch selectable)	—	AC098A	p. 446
TV to VGA/HDTV Video Scaler	(4) video inputs to up to (2) computer outputs	Video: (1) S-Video, (1) Composite, (1) Component; Computer: (1) HD15	VGA: 640 x 480 to 1600 x 1200; HDTV: 480i to 1080p (passthrough)	VGA scaled: VGA 640 x 480 to 1280 x 1024; HDTV scaled: 480p, 576p, 720p, 1080i	—	AC136A	p. 446
VGA to Video Ultimate Pro	(1) computer input to (2) video outputs	Computer: (1) HD15	VGA: 640 x 480 to 1024 x 768	Composite or S-Video (NTSC or PAL switch selectable)	—	AC340A	p. 446
Video-to-VGA Converter Switch	(4) video inputs to (1) computer output	Video: (2) Composite, (1) S-Video; Computer: (1) HD15	VGA: 640 x 480 to 1600 x 1200 (passthrough)	VGA: 640 x 480 (NTSC) or 800 x 600 (PAL)	✓	AC098A	p. 446
Video to PC/HDTV Switching Scaler with Audio	(4) video inputs to up to (2) computer outputs	Video: (1) S-Video, (1) Composite, (1) Component; Computer: 1 x HD15	VGA : 640 x 480 to 1600 x 1200; HDTV: 480i to 1080p (passthrough)	VGA scaled: VGA 640 x 480 to 1280 x 1024; HDTV scaled: 480p, 576p, 720p, 1080i	—	AC136A	p. 446
RGB to DVI/VGA Converter	(1) RGB input to (1) VGA/DVI output	Video: TTL (CGA, MDA, or EGA), RGB, RGBS, RGBHV	VGA: 512 x 256 to 1280 x 1024	VGA & DVI-I: Up to 1280 x 1024	—	ACU315A-R2	p. 447
Video to VGA Converter	(3) video inputs to (1) computer output	Video: (1) Composite, (1) S-Video or Composite; Computer: (1) HD15	VGA: 640 x 480 to 1600 x 1200 (passthrough)	RGBHV, RGBS, RGSB 640 x 480 to 1600 x 1200	✓	AC211A-R2	p. 448
Multi-Input Video Scaler	(5) video inputs to up to (3) simultaneous computer outputs	Video: (2) Composite, (1) S-Video, (1) Component or RGB/S or RGSB; Computer: (1) HD15 PC or Mac® (RGBHV, RGBS)	Computer video: 640 x 480 to 1600 x 1200 (passthrough)	VGA or DVI-I: 4/3: 640 x 480 to 1600 x 1200; 16/9: 852 x 480 to 1366 x 768	✓	AC216A-R2	p. 448
VGA-to-RGB Converter	(1) VGA in to RGB out	Computer: (1) HD15	VGA: 640 x 480 to 1600 x 1280	(3) BNC for RGSB	—	AC312A	p. 448
DVI-D to VGA Adapter	DVI-D input to VGA output	Computer: (1) DVI-D	DVI-D: Up to 1920 x 1080	VGA: 1024 x 768 preferred, programmable non-standard resolutions	—	AC1038A	p. 541

PC Video/Component Video to HDMI Converter with Audio

View your PC or DVD video on a high-definition display.



- Use with HDMI plasma or LCD screens.
- Works with Component video and VGA video.
- Converts analog VGA signals so you can display your PC's video on a HDMI screen.

- Also converts Component video Y-Pb-Pr signals from a legacy DVD player for a high-definition display.
- Simply flip a switch to choose between VGA or Component video conversion.
- Compliant with HDMI 1.0 specifications.
- Supports input resolutions of 1600 x 1200 @ 60 Hz for VGA or up to 1080p for Component video.
- Stereo analog line level input.
- **◆◆ WARRANTY** — 2 Years

Item	Code	List Price
PC Video/Component Video to HDMI Converter with Audio	AC551A	

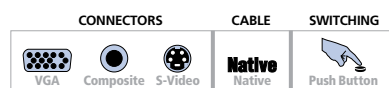


PC to Video Converter

The inexpensive and compact yet versatile video converter.

- Convert video from your PC for your TV or projector with one simple box.
- No software or external power required.
- Resolutions up to 1280 x 1024 at 60 Hz.
- VGA input and output for simultaneous television/CRT viewing.
- Composite and S-Video outputs.
- Adjust screen size in VGA mode.
- **◆◆ WARRANTY** — 1 Year

NOTE: This product can only be used with NTSC (North America) televisions and projectors.



What's included

- PC to Video Converter
- Composite video cable
- S-Video cable
- VGA cable
- USB power cable

Item	Code	List Price
PC to Video Converter	AC336A	

VGA to Video Ultimate Pro

Convert VGA to Composite, S-Video, or Component signals.

- A portable, universal devices that converts VGA for display on nearly any TV, or for recording on a videotape or recordable DVD. It works with current multimedia equipment!
- Features cable outputs for connecting your PC or Mac® video card to Composite video, S-Video, or Component video equipment.
- Works with most HDTV and plasma screens and video projectors.
- Offers sharp and stable image video output.
- Provides a maximum resolution of 1600 x 1280 (NTSC or PAL) for PCs and 1152 x 864 for Mac® computers.
- Powered from the PS/2® or USB interface.
- "Plug-and-display" — no software needed.

- Measures only 1.3"H x 3.1"W x 4.9"D (3.3 x 7.9 x 12.4 cm).
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Hardware Requirements — IBM® PC compatible, 286 or faster with VGA display card; or Mac G3/G4 or iMac® with CRT port
Resolution (Maximum) — PC: 1600 x 1280 (NTSC or PAL);
 Mac: 1152 x 864
Video Requirements — Television or other video display device with Composite video, S-Video (S-VHS), or Component video (Y-Cb-Cr)
CE Approval — Yes
Power — From the PS/2® or USB interface
Size — 1.3"H x 3.1"W x 4.9"D (3.3 x 7.9 x 12.4 cm)
Weight — 0.4 lb. (0.2 kg)



Item	Code	List Price
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VGA to Video Ultimate Pro
 AC340A
 ♦ Includes (1) converter, (1) remote control with (2) AAA batteries, (1) Composite cable, (1) S-Video cable, (1) Component cable, (1) VGA Y cable, and (2) power cables (USB and PS/2).

TV to VGA/HDTV Video Scaler

Show DVD or VCR video on an HDTV or a high-res VGA monitor.

- It's a video scaler and a multiple-input video switch in one compact device!
- Accepts four types of video inputs: S-Video, Composite, Component (Y-Cb-Cr), and PC computer.
- NTSC and PAL compatible.
- Supports VGA, SVGA, XGA, or SXGA PC output resolution.
- Also supports 480p, 576p, 720p, and 1080p HDTV output resolution.
- Supports 4/3 and 16/9 screen formats.
- Control via a serial device, the included remote control unit, or via on-screen displays.
- VGA (computer) input directly displays images on a flat-screen monitor or video projector.
- ♦♦ **WARRANTY** — 2 Years



Top: front view;
 bottom: rear view

TECH SPECS

CE Approval — Yes
Computer Input Resolution — 1600 x 1200;
User Controls — Infrared remote control (included) and (5) front-panel buttons (Power, Up-arrow, Down-arrow, Source/Mode, and Picture)
Connectors — (1) 4-pin mini DIN for S-Video, (1) BNC for Composite, (3) BNC for Component (Y-Cb-Cr), (1) HD15 VGA input, (1) DB9 F serial port, (1) RGB/Pb-Pr output for VGA or HDTV output
Power — 100-240-VAC, 50-60-Hz
Size — 1.8"H x 6"W x 8"D (4.6 x 15.2 x 20.3 cm)



Scalable output resolution:

4/3: SVGA: 800 x 600; XGA: 1024 x 768; SXGA: 1280 x 1024; SXGA+: 1400 x 1050; UXGA: 1600 x 1200;
 16/9: WVGA: 852 x 480; 720p: 1280 x 720; WXGA: 1366 x 768 (D-ILA)

Item	Code	List Price
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TV to VGA/HDTV Video Scaler
 AC136A
 ♦ Includes (1) scaler, (1) HD15 M to HD15 M cable, (1) S-Video Y/C cable, (1) RCA to RCA Composite cable, (1) BNC to RCA adapter, (1) IR remote control unit, and RS-232 control software.

Video Scan Converter Plus

Display crisp, sharp video from your PC or Mac for more multimedia control.

- Multimedia, multiplatform — it's PC and Mac® compatible!
- Record VGA video on a VCR.
- Supports resolutions up to 1280 x 1024 @ 60 Hz.
- Four antiflicker settings.
- Five zoom settings. Input zoom processing enables a true increase or decrease in resolution when zooming in or out.
- Control video functions from your PC.
- Has 24-bit support for up to 16.8 million colors.
- NTSC/PAL switch-selectable video output.
- Compatible with Composite and S-Video.
- 100-250-VAC autosensing power supply.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Input Sampling — 24-bit (8 bits per RGB) support for 16.8 million colors
Input Sync Types Supported — Separate H&V, Composite sync (with or without serration), sync-on-green
Resolution (Maximum) — 1280 x 1024 @ 60 Hz
System Requirements — IBM® PC compatible or Macintosh computer; NTSC or PAL monitor
Video Memory — 720 x 740 x 16 bits (one video frame)
Video Output — NTSC or PAL (switch selectable); Composite and S-Video
Zoom/Shrink Ratios — 5
CE Approval — Yes
Connectors — With included computer-to-converter cable: VGA in: (1) HD15 M; VGA out: (1) HD15 F; Mac® in: (1) DB15 M; Mac out: (1) DB15 F; Composite: (1) BNC F; S-Video: (1) 4-pin mini DIN M
Power — 100-250 VAC, 47-63 Hz
Size — 1.5"H x 7.3"W x 11"D (3.8 x 18.5 x 27.9 cm)



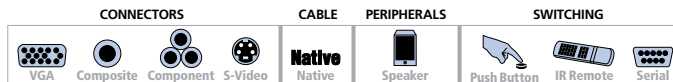
Top: rear view; bottom: front view

Item	Code	List Price
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Video Scan Converter Plus
 AC098A
 ♦ Includes (1) Converter, (1) 12-ft. Composite output cable, (1) 12-ft. S-Video output cable, (1) BNC male to RCA female adapter, (1) 6-ft. HD15 male to DB15 male computer-to-converter input cable, and (1) AC power cable.

Video to PC/HDTV Switching Scaler with Audio

Professional video scaler and multiformat switcher for HDTV outputs up to 1080i.



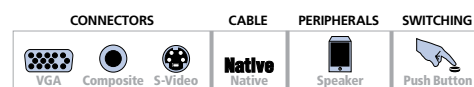
- Upconverts multiple analog video standards so you can display them on a Hi-Def screen.
- Features four different video inputs: PC, Component, Composite, and S-Video.
- Scaled output can be switched to any input.
- Enables you to specify output and resolution as either PC or Component video on an HDTV-ready set or display.
- Scaled output for 480p, 576p, 720p, and 1080i HDTV resolutions, as well as VGA/SVGA/XGA/SXGA resolutions.
- Time-based correction for clean display.
- Includes all necessary cables and adapters you need for video input and YCbCr output.
- Switch easily using the included remote controller or with push buttons on the unit.
- Or connect a console and switch via an RS-232 serial connection. Control software is included.
- Fine-tune the display image for sharpness and color, set aspect ratio, apply a 3D comb filter for a jitter-free picture, and more.
- Switches audio, too and enables you to control volume on each channel.
- Supports pass-through video up to 1920 x 1440.
- Digital noise reduction feature.
- RoHS compliant.
- ♦♦ **WARRANTY** — 2 Years



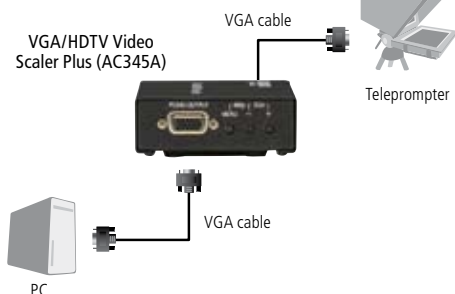
Item	Code	List Price
Video to PC/HDTV Switching Scaler with Audio	AC138A	

VGA/HDTV Video Scaler Plus

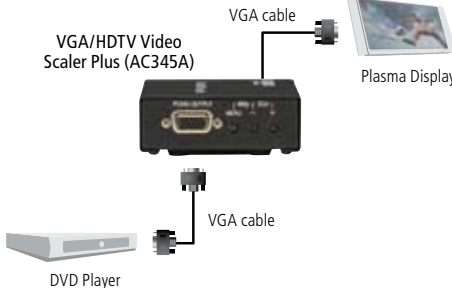
Scalable resolution plus video output mirroring—a converter that's great for use with telepromters.



PC to Telepromter Application



DVD to HDTV Application



- Get the functions of a video scaler, scan converter, and format transformer in one.
- High-performance VGA/HDTV to VGA/HDTV converter offers the unique capability to mirror the VGA input signal.
- Inverts the VGA output horizontally. Perfect for telepromters and rear-projection systems.
- Scale the resolution of any PC or HDTV video signal up or down to match that of another PC or HDTV.
- Fine-tune the output picture by adjusting the resolution and refresh rates.
- Provides a steady VGA signal to your display device, enabling you to switch seamlessly from one input to another.
- Automatically detects the input mode and timing parameters.
- Converts between RGBHV and Y-Pb-Pr.
- Offers easy push-button/on-screen display menu control.

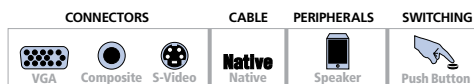


- A large memory enables real-time frame-rate capture and conversion.
- Enclosure is EMI shielded.
- ♦♦ **WARRANTY** — 2 Years

Item	Code	List Price
VGA/HDTV Video Scaler Plus	AC345A	
♦ Includes (1) 3-ft. HD15 to (3) RCA cable, (1) 3-ft. VGA male/male cable, (1) power supply, and (1) user manual.		

Video-to-VGA Converter/Switch

Get crisp, clear VGA video from NTSC or PAL video input.



- The intelligent conversion solution for NTSC or PAL multimedia devices.
- Converts Composite (NTSC or PAL) video or S-Video into VGA for display on a computer monitor.
- Switch between four video/audio input ports (one VGA, two Composite, and one S-Video) with a front-panel push button.
- Or in Auto mode, it switches automatically to the active video port.
- Doubles the frame rate by turning the interlaced NTSC or PAL signal into a noninterlaced signal.
- ♦♦ **WARRANTY** — 2 Years

Item	Code	List Price
Video-to-VGA Converter/Switch	AC135A-R2	

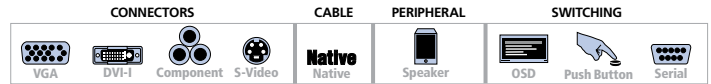
Multi-Input Video Scaler

A multimedia box for the conference room or home theater.

- A switch and scaler in one multiport unit!
- Optimizes output for brilliant display.
- Has BNC, RGB, and YUV Component input and DVI output.
- Supports 4/3 and 16/9 screen formats.
- Also has MCO audio connector.
- PC, Mac®, or Sun® Workstation® input.
- Easy to manage via RS-232 control software.
- 115–230-VAC autosensing power supply.



• ♦♦ **WARRANTY** — 3 Years



Item	Code	List Price
Multi-Input Video Scaler	AC216A-R2	
♦ Includes (1) scaler, (1) remote control, RS-232 software, (1) HD15 male/male cable, (1) S-Video Y/C cable, (1) DVI male/male cable, (3) MCO connectors, and (1) power cord.		

Video to VGA Converter

Display PAL, SECAM, and NTSC video on high-resolution TFT, plasma, or video projectors!

- Perfect for conference room installations.
- Provides video to high-resolution image conversion with audio!
- With multiple output resolutions up to 1400 x 1050, enhances the brightness and sharpness of any video signal.
- Powerful auto 3:2 and 2:2 pull-down film detection removes flickering and movement artifacts.
- ♦♦ **WARRANTY** — 1 Year

Inputs and outputs

Inputs:

- 1: Composite: PAL, SECAM, NTSC; audio;
- 2: Composite/S-Video: PAL, SECAM, NTSC; audio;
- 3: Computer: RGBHV, RGBS, RGsB; audio

Outputs:

- 1–2: Computer: RGBHV, RGBS, RGsB;
- 3: Computer: RGBHV, RGBS, RGsB; audio; buffered loopthrough



Item	Code	List Price
Video to VGA Converter	AC211A-R2	
♦ Includes (1) converter, (1) 6-ft. VGA cable, (1) 5-pin terminal block for audio, and (1) CD-ROM with manual and control software.		

VGA→RGB Converter

Save when connecting to a multiport, high-end video switch.

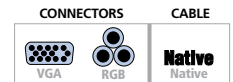
- An economical and easy way to convert VGA/XGA/SXGA connector signals to three RGB sync-on-green BNC coax connectors.
- Great for connecting your laptop to a video projector.
- Maximum resolution is 1600 x 1280 @ 75 Hz.
- Powered by the VGA/XGA/SXGA signals.
- Supports all emulated video modes, including CGA, MDA, EGA, VGA, XGA, and SXGA.

NOTE: The converter includes a cable for making easy connections to your PC's VGA port.



• ♦♦ **WARRANTY** — 3 Years

Item	Code	List Price
VGA→RGB Converter	AC312A	



Remote Video System IP

Connect a monitor, USB, and serial devices to a secure server over IP.



- Monitor serial, USB, and VGA/SVGA devices over an IP connection.
- Eliminate a peripheral-supporting host PC in high-traffic or harsh areas.
- Ideal when you need to secure a server.
- Video over IP eliminates distance barriers.
- No dedicated servers or software changes required.

- Supports multiple units per server.
- Troubleshoot remotely.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
Remote Video System IP	AC1059A	



AGNPRO miniBox Media Players

Standalone and networked digital signage solutions.



- Enable you to display part messages so your audience will see them when you want.
- Ideal for PoS, airports, arenas, educational and medical facilities, and more.
- Support MPEG-1, -2, -4 video, Macromedia Flash, Windows® AVI, and PowerPoint®.
- Also play JPEG and most PC media formats.
- Include VGA, S-Video, and Composite video parts, as well as stereo line out.
- DVD-quality video output.
- Solid-state, compact construction.

AGNPRO miniBox SD100

- Use this compact model for applications that don't require frequent updating.

AGNPRO miniBox SD200-N

- Choose this model for digital signage networks with frequently changed messages.
- Update and schedule content through a 10/100 Ethernet network.
- Remote management one of three ways:
 - Connect automatically through the miniBox on-line Central Management Server (optional);
 - Control from a network via HTTP;
 - Control command interface through Telnet/SSH.
- ♦♦ **WARRANTY** — All: 1 Year



Item	Code	List Price
AGNPRO miniBox™ SD100	SD100	
AGNPRO miniBox SD200-N	SD200-N	

SWEP Digital Signage Players and Software

Create instant, professional-looking digital signage—and make updates over an IP network connection.



070379-002



- Mix images, text, and real-time video within a screen.
- Use the included Sedao® Image Flyer software for mixing media content such as .wav, live TV, audio, Flash, and more.
- Media players are built tough and resistant to temperature fluctuations, so you can use them almost anywhere.
- Web-enabled, so you can make quick updates over an IP network link.
- ♦♦ **WARRANTY** — 1 Year

SWEP Digital Signage Players enable you to quickly create professional digital signage with prerecorded and real-time media content, including RSS feeds from the Web.

The players work with whatever screen you choose—they're optimized for all TFT flat panels, plasma screens, and touch screens, as well as rear-projection setups. They offer DVI-D dual-link (HDMI supported), Composite (PAL/NTSC/SECAM), S-Video, and VGA ports.

SWEP Digital Signage Players are easy to use through their Windows® XP Pro based menu interface. You can also access their integrated Web servers remotely over your LAN or across the Internet. Upload media several ways: through their USB, FireWire™, or 10/100/1000 ports. Players have a total of four USB ports for plugging in, for instance, extra storage drives. Stereo jacks and an S/PDIF optical jack provide for compressed digital audio output and 5.1 Surround Sound.

Plus, the system is scalable. Add more players as displays multiply. It's also highly reliable and resistant to temperature fluctuations, so you can use it in industrial or factory settings.

Desktop Maxi SWEP Digital Signage Player (070379-001)

- Enables you to incorporate a live video feed into your display content and then switch between video feeds at will. Or set it up to automatically display feeds in sequence.
- GeForce® GPU for artifact-free video output.
- Built-in memory card reader for quick uploads from CompactFlash™ (CF) and Secure Digital™ (SD) cards.
- Also has an extra FireWire port, a DB9 serial port, and DB25 parallel port.
- 16x DVD-ROM drive and a suite of Roxio® DVD burning software.

Compact Micro SWEP Digital Signage Player (070379-002)

- Just 2 inches tall with a footprint that makes it ideal for mounting discreetly behind or underneath screens.
- Powerful with 512 MB DDR2 memory, 60 GB SATA hard drive, advanced thermal design, and Intel® Celeron® M 420 processor.
- Slot-loading CD-RW/DVD combo drive.

QuickChange PROject (070379-003)

- For more control of signage graphics, order this software CD. It supplements the Image Flyer application included with the players.
- Gives you a template-based artwork library to create eye-catching digital signage displays, in-house and in no time at all.
- Comes with hundreds of templates—each designed specifically for digital screens.
- Saves time. Changes update automatically in linked files, as well as content stored in databases and spreadsheets.
- Automate content to run automatically at certain times of the days on specific displays.
- Add colorful banners, backgrounds, and other imagery with ease.

Item	Code	List Price
To stream live and recorded content, order...		
Sedao® SWEP Digital Signage Players		
Desktop Maxi	070379-001	
Compact Micro	070379-002	

For creating dazzling signage, also order...
Sedao QuickChange PROject Software
070379-003

In living color: Displays pop on plasma or LCD screens!

You know Black Box for our huge selection of products that enable you to split, convert, extend, and scale your multimedia. But, remember, we can also supply you with actual display screen technology, so you get the sharpest images for your digital signage. To see all our plasma screens and LCDs, just go to blackbox.com or call our FREE Tech Support.

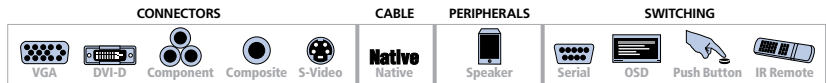
Plasma screens feature wide viewing angles and high contrast ratios, so they're great for displays in large, brightly lit rooms. LCDs, in contrast, use less power and have a higher number of pixels per square inch, which makes them better for displaying static imagery from computers or VGA sources for the most impact in smaller rooms. Plus, their displays last longer, so they're ideal for around-the-clock applications.

Also see blackbox.com for all your screen mounting options, including wallmount brackets and other hardware for positioning your screens at the right viewing angles. They're also perfect for delivering the most impact in the tightest areas.



DIDO Pro and DIDO Jr. High Resolution Scalers/Multi-Image Rotation Units

Create high-resolution, split- or quad-screen imaging for digital signage, trade shows, and retail displays.



- Single integrated units that work as a video processor, video scaler, PIP generator, and an audio/video switch.
- Great for digital signage, trade shows, retail displays, videoconferencing, and security monitoring applications.
- Support high-resolution, split-screen imaging.
- Image-enhancing capabilities, such as motion adaptive deinterlacing, low-angle directional interpolation, 3:2 and 2:2 inverse pull-down, Moiré cancellation color correction, adaptive flesh tone adjustments, image zoom, and shrink.
- Enable image rotation for digital signage.
- Connect multiple units to create a video wall as large as 16 x 16 screens!

- Manipulates on-screen images multiple ways and in real time.
- Internal event scheduler with real-time clock enables special effects to be scheduled locally and between DIDO Pro and DIDO Jr. units connected via the RS-485 bus.
- Accepts digital and analog video inputs, including DVI/RGB, Y-Pb-Pr output/input with resolutions up to 1900 x 1200, as well as digital stereo audio.
- Audio propagation delay compensation ensures correct sync with video.
- Controllable with the included infrared (IR) remote or via an RS-232 connection.
- Flash upgradable.



DIDO PRO

- The DIDO Pro has dual S-Video and DVI video inputs, so you can create quad-screen displays.
- **Warranty** — Limited Lifetime

Item	Code	List Price
Aurora Multimedia DIDO Pro High-Resolution Scaler/Multi-Image Rotation Unit	DIDO PRO	
Aurora Multimedia DIDO Jr. High-Resolution Scaler/Multi-Image Rotation Unit	DIDO JR	

WACI NX Jr. & WACI NX+ Web Access Controllers

Control multimedia devices via IP connections while using virtually any platform.



- Control conference room devices and video signage from afar.
- Run a wide range of applications for content delivery or redundant storage.
- Work with Windows®, Mac® OS X, Linux, UNIX®, and other operating systems.
- Program using standard Web languages.
- Compatible with Internet Explorer 5.x, Netscape Navigator®, Mozilla Firefox™, and Apple® Safari™ browsers.
- Up to 1 BIPS (billion instructions per second) of 32-bit processing power.
- Connect multiple units to control multiple devices from a single interface.
- Set up and run diagnostics using built-in LCD with six-button menu navigation.
- Link to infrared (IR) controllable devices.

- Features 16 MB of 32-bit Wide flash memory, expandable to more than 2 GB.
- Also features 32 MB of DDR memory.
- Server-side operation. You don't need a dedicated server or any special applications on your PC to access any WACI unit.
- Built-in network security features, including encryption and password protection.
- WACI NX+ also features:
 - Four programmable DSP ports for A/D, D/A, I/O, or audio.
 - Four SPDT relay ports for contact closure sensing and triggering relays.
 - Two extra IR device ports.
 - Extra memory and cipher co-processor for 256-bit SSL, AES, and VPN support.
 - SQL database.
- **Warranty** — Limited Lifetime



WACI NX+

Item	Code	List Price
Aurora Multimedia Web Access Controllers		
WACI NX Jr.	WACI NX JR	
◆ Includes (2) IR port emitters.		
WACI NX+	WACI NX+	
◆ Includes (4) IR port emitters.		

USB-DVI Adapter

The easy way to add a DVI display or two to your PC.

- Quickly add a monitor, LCD, or projector to your PC.
- Use two adapters to add two monitors, for a total of three.
- Plugs into a PC's USB 2.0 port.
- Eliminates a video card.
- Ideal for expanding your viewing area with more room for extra views, windows, etc.
- Configure three ways: mirror image, extended desktop, and as a primary display.
- Hot-swappable.
- Windows Vista™ compatible.
- Resolutions of 1280 x 1024
- (1) USB Mini B female and (1) DVI-I 24-pin female connector.
- **◆◆ WARRANTY** — 2 Years



CONNECTORS	CABLE	PERIPHERALS	SWITCHING
DVI-D	Native Native	USB	OSD

Item	Code	List Price
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USB-DVI Adapter	AC1039A	◆ Includes (1) USB-DVI adapter, (1) USB cable, and (1) DVI to VGA adapter.
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RGB to DVI/VGA Converter

Display video from an RGB source on a DVI or VGA screen.



- Use to output RGB video from devices incompatible with the newest monitors.
- On-screen display gives you control over the converted image's quality.
- Scaling options mean you can fine-tune the output to match your specific DVI or VGA application.
- Also enables you to control pixel clock and phase, brightness, contrast, color calibration, and more!
- **◆◆ WARRANTY** — 2 Years

CONNECTORS	CABLE	SWITCHING
VGA	DVI-I	RGB
Native Native	OSD	

NOTE: Some flat screens might not recognize the resolution output from the converter. For details, call our FREE Tech Support.

Item	Code	List Price
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RGB to DVI/VGA Converter	ACU315A-R2	
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DVI-D to VGA Adapter

An easy way to view images from CPUs with a DVI output on a VGA monitor.

- Converts single-link digital DVI signals from a graphics card on a computer for display on an analog VGA monitor or projector.
- Saves money on equipment and enables you to take advantage of an existing monitor.
- Compact, lightweight, and easy to install.
- Built-in "virtual DDC" takes VGA analog DDC signals and converts them to DVI digital DDC signals to support the most popular resolutions.
- DVI-D video cable is included.
- **◆◆ WARRANTY** — 2 Years



CONNECTORS	CABLE
VGA	DVI-D
Native Native	

Item	Code	List Price
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DVI-D to VGA Adapter	AC1038A	
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FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

Premium VGA Extension Cable, HD15, PVC, 5-ft. (1.5-m), Male/Male (For details, see p. 151.) EVNPS05-0005-MM

Compact RGB Skew Compensator

Out of the shadows! Eliminate color drift from VGA or Component video.



- Eliminates color drift or delay skew from having long CAT5e or CAT6 cable runs—no more color shadows on the screen!
- Features both standard VGA and Component video (Y-Pb-Pr). Works with all types of video transmission systems.
- Adjusts each color individually.
- Buffers the output signals to ensure optimal image quality.
- Select colors via front-panel push buttons.
- **◆◆ WARRANTY** — 2 Years

CONNECTORS	CABLE	SWITCHING
VGA	Native Native	Push Button

Item	Code	List Price
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Compact RGB Skew Compensator	AC354A	
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◆ Includes (1) skew compensator, (1) 8" ultra-thin HD15 VGA cable, (1) 100-240-VAC power supply, and (1) IEC-320 North American power cord.

Advanced Projector Controller with 2-Channel VGA Splitter

Automate projector and device functions for presentations.

- Automatically detects VGA, Composite, or S-Video inputs and issues control commands to the attached device via a bidirectional RS-232 port.
- Built-in dual VGA splitter boasts a 150-foot (45.7-m) drive capability.
- Connect your PC, notebook, VCR, DVD, camera, etc. to the video input of the unit.
- Supports resolutions to 1600 x 1200 at any refresh rate.
- **◆◆ WARRANTY** — 2 Years



Top: rear view;
bottom: front view

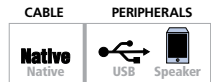
CONNECTORS	CABLE	SWITCHING
VGA	Composite	S-Video
Native Native	OSD	

Item	Code	List Price
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Advanced Projector Controller with 2-Channel VGA Splitter	AC1033A	
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USB 5.1 Channel Sound Adapter

Add amazing sound to any USB-equipped multimedia computer!



- Connect up to five pieces of equipment, such as microphones, stereos, musical instruments, and more.
- Add speakers to your computer for a surround sound effect.
- Playback and record without a sound card.
- Supports suspend/resume and remote wake-up.
- Easy plug-and-play operation.
- USB Version 1.1 compliant.
- PC and Mac® compatible.
- Powered from the interface.
- Jacks include: three speaker/line-out, one microphone, and one line-in.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
USB 5.1 Channel Sound Adapter	AC670A	

USB 2.0 Multi-Plus Card Reader

Transfer images from seven different memory cards to your multimedia PC.



- Four-slotted reader accepts various storage media for transferring images via the USB port on your PC or Mac®.
- Provides a maximum transfer rate of 480 Mbps for quick file uploads.
- Supports plug-and-play and hot swapping.
- Compatible with all major brands of memory cards—CompactFlash™ Type I/II, IBM® Microdrive™, SmartMedia™, SecureDigital™, MultiMediaCard™, Memory Stick®, and Memory Stick PRO®.
- ♦♦ **WARRANTY** — 1 Year



What's included

- USB 2.0 Multi-Plus Card Reader with embedded USB 2.0 Type A cable for quick connection to your computer
- Driver CD
- Quick-installation guide

Item	Code	List Price
USB 2.0 Multi-Plus Card Reader	AC1057A	

USB 2.0 Multi-Plus Bay Card Reader/Writers • USB 2.0 Hub

Transform your digital camera's memory card into a disk drive, or choose our adaptable USB 2.0 hub for your multimedia needs.



IC651A



IC655A

USB 2.0 Multi-Plus Bay Card Reader/Writers

- Read from, write to, and erase the most popular formats of memory cards.
- Remove a memory card from your digital camera, insert it into the card reader, then access the card as a disk drive.
- Installs as a 3.5" front bay on your computer.

USB 2.0 Hub

- Installs as a 3.5" front bay on your computer.

- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
------	------	------------

- | | | |
|--|-----------|--|
| USB 2.0 Multi-Plus Bay Card Reader/Writers | | |
| White | IC651A | |
| Black | IC651A-BK | |
| ♦ Both models include (1) reader/writer, (1) mounting rack, (1) bracket, mounting screws, (1) USB 2.0 cable, (1) CD-ROM, and (1) installation guide. | | |
| USB 2.0 Hub, 4-Port Bay | IC655A | |
| ♦ Includes (1) hub and (1) user's manual. | | |

USB 2.0↔USB 2.0 Data Transfer

Transfer multimedia files between USB-enabled hosts with this easy-to-use link.



- For host-to-host file transfers via USB port.
- Integral 6-foot (1.8-m) cable with USB Type A connectors at each end.
- Transfers files at rates up to 480 Mbps.
- Easy-to-manage transfers—drag and drop files via the included software's user-friendly interface.
- ♦♦ **WARRANTY** — 1 Year



On the go? With the USB 2.0↔USB 2.0 Data Transfer, USB mobile PC and multimedia connections are a breeze. It offers simple setup and is easy to use with the included software.

Item	Code	List Price
------	------	------------

- | | | |
|---|-----------|--|
| USB 2.0↔USB 2.0 Data Transfer | IC149A-R4 | |
| ♦ Includes (1) data transfer unit and cable and (1) driver installation disc. | | |



Video Adapters, Snap Fittings, Wallplates, and Cables

Make all your digital signage connections with our quality infrastructure products.

Adapters, Couplers, and Converters



- **Shielded Y Cords** split a single audio signal into two or combine two audio signals into one.
- **Deluxe Audio and Video Couplers/Adapters** minimize signal degradation from AV devices.
- **S-Video Coupler** connects two S-Video cables.
- Use **Twist-On RG-6 Connectors** with dual-shielded RG-6 coax cable.
- **Crimp-On F59-Type Video Plugs** are solderless F59 plugs for RG-59/U cable.
- The **F-Type Video Coupler** extends runs terminated with a male F-type plug.
- The **Twist-On RG-6 Video Adapter** has an F-type jack and a Quick-Connect-type plug. Use with dual-shielded RG-6 coax.
- **Cable/Satellite TV Signal Splitters** divide signals up to 2 GHz for cable or satellite TV.
- For more couplers, connectors, and plugs, including audio plugs, see **page 158**.

◆◆ **WARRANTY** — All: Lifetime

Item	Code	List Price
Shielded Y Cords, 4-inch (10.2-cm) (1) RCA Plug Male/(2) RCA Jacks, Female/Female, Mono	EJ400	
(1) RCA Jack Female/(2) RCA Plugs, Male/Male	EJ401	
(1) 3.5-mm Mini Plug/(2) RCA Jacks, Female/Female	EJ402	
Deluxe Audio and Video Couplers/Adapters RCA Female/BNC Male Video Adapter	FA870	
RCA Female/RCA Female Audio/Video Coupler	FA871	
RCA Female/3.5-mm Mono Audio Adapter	FA872	
S-Video Coupler, 4-Pin Mini DIN, Female/Female	FA315	
Crimp-On F59-Type Video Plugs, 2-Pack	FA854	
F-Type Video Coupler, Female/Female	FA855	
Twist-On RG-6 Video Adapter/Slip-On Connector	FA857A	
Cable/Satellite TV Signal Splitters, 2-GHz 1-4	FA863	
1-2	FA865	

Snap Fittings

- Install easily to provide multimedia capabilities.
- GigaStation fittings go in GigaStation Wallplates (below), GigaStation+ Wallplates (**page 117**) and Surface-Mount Housings (**page 115**).
- GigaStation2 fittings work with GigaStation2 Wallplates (below) and GigaStation2 Surface-Mount Housings (**page 115**).
- All fittings also snap into Multimedia Patch Panels (**page 122**).
- ◆◆ **WARRANTY** — Lifetime



Item	Code	List Price
GigaStation Snap Fittings (For other connectors, genders, and colors, see p. 116.) F-Connector, Female/Female White	FM361	
BNC, Female/Female Office White	FM332-R2	
S-Video, 4-pin Mini DIN Female/110 Punchdown Black	FM375-R2	
GigaStation2 Snap Fittings (For other connectors, genders, and colors, see p. 115.) F-Connector, Female/Female White	FMT361-R2	
BNC, Female/Female White	FMT362-R2	
S-Video, 4-pin Mini DIN Female/110 Punchdown Black	FMT375	

Wallplates

6-Port GigaStation2 Wallplate (WPT482), with (2) USOC RJ-11 Jacks (FMT242), **blackbox.com**, (2) GigaBase2 CAT5e Jacks (FMT920-R2), p. 99, and (2) Ivory GigaStation2 F-Connector Snap Fittings (FMT338), p. 115.



- Rear-loading capability provides extra security at the workstation.
- Vertical orientation provides a cleaner finish.
- For other wallplates, see **blackbox.com**.
- ◆◆ **WARRANTY** — Lifetime

Item	Code	List Price
GigaStation Wallplates, Single-Gang, White (For 2-, 3-, 9-, and 12-port plates, see p. 116.) 1-Port	WP458	
6-Port	WP482	
GigaStation2 Wallplates, Single-Gang, White (For 2-, 3-, 9-, and 12-port plates, see p. 114.) 1-Port	WPT458	
6-Port	WPT482	

VGA Cable

- Triple shielded to extend monitor signals.
- For other VGA cables, see **pages 150–153**.
- ◆◆ **WARRANTY** — Lifetime



Item	Code	List Price
Premium VGA Extension Cable, PVC, Straight Hoods HD15 Female/Female (For other genders and lengths, 90° hoods, and plenum cable, see p. 151.) 3-ft. (0.9-m)	EVNPS05-0003-FF	
10-ft. (3.0-m)	EVNPS05-0010-FF	
100-ft. (30.4-m)	EVNPS05-0100-FF	

DVI Cables

- For other DVI–VGA cables and DVI adapters, see **page 155**.
- ◆◆ **WARRANTY** — Lifetime



Item	Code	List Price
DVI-D Male/DVI-D Male Cables, Straight Hoods 6-ft. (1.8-m)	EVNDVI02-0006	
10-ft. (3.0-m)	EVNDVI02-0010	
DVI-D Male/DVI-D Female Extension Cables 6-ft. (1.8-m)	EVNDVI03-0006	
10-ft. (3.0-m)	EVNDVI03-0010	

HDMI Cables

- Video and audio in one cable.
- For HDMI cables and adapters, see **page 154**.
- ◆◆ **WARRANTY** — Lifetime



Item	Code	List Price
HDMI to HDMI Cable, PVC, Male/Male 2-m (6.5-ft.)	EVHDMI01-002M	
5-m (16.4-ft.)	EVHDMI01-005M	
HDMI to DVI Cable, PVC, Male/Male 2-m (6.5-ft.)	EVHDMI02-002M	
5-m (16.4-ft.)	EVHDMI02-005M	

A/V Cables

- For other lengths and video-only cables, see **pages 156–157**.
- ◆◆ **WARRANTY** — Lifetime



Item	Code	List Price
Composite Video Cable with Audio 5-ft. (1.5-m)	EJ511-0005-MM	
S-Video Cable with Audio 5-ft. (1.5-m)	EJ516-0005	
Component Video Cable with Audio 5-ft. (1.5-m)	EJ518-0005	

Don't see what you need here?
See the Cables & Infrastructure
section, pp. 74–189.

Interface & Protocol Converters

Trying to fit a square
peg into a round hole?

Black Box converters
solve all types of
compatibility problems.





In this section

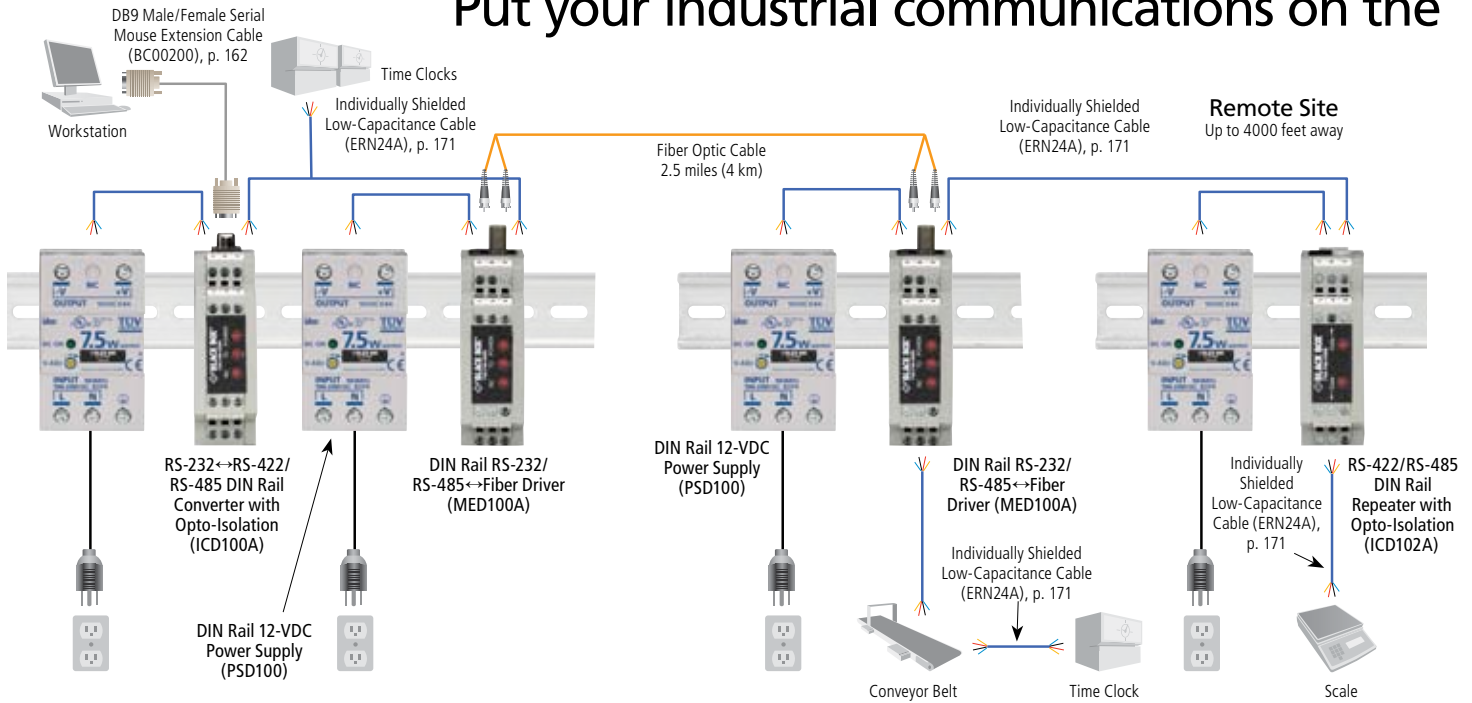
DIN Rail _____	456–458
USB _____	459–466
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For New Products,
turn to pages 26–73.

DIN Rail Converters, Repeaters, and Fiber Driver

Put your industrial communications on the



RS-232↔RS-422/RS-485 DIN Rail Converter with Opto-Isolation



- Optically isolates and converts unbalanced half- or full-duplex RS-232 signals to optically isolated and balanced full-duplex RS-422 or 2-wire half- or 4-wire full-duplex RS-485.
- Switch-selectable data rates between 2400 bps and 19.2 kbps.
- Conveniently mounts on optional DIN Rails (facing page).
- ♦♦ **WARRANTY** — 1 Year



DIN Rail Repeaters with Opto-Isolation

- The RS-422/RS-485 model acts as a repeater, isolator, extender, and converter. It features switch-selectable data rates between 2400 bps and 115.2 kbps.
- The RS-232 model isolates the TD, RD, RTS, and CTS channels. All four channels support speeds up to 115.2 kbps.
- ♦♦ **WARRANTY** — 1 Year



Item	Code	List Price
RS-232↔RS-422/RS-485 DIN Rail Converter with Opto-Isolation	ICD100A	

Item	Code	List Price
DIN Rail Repeaters with Opto-Isolation		
RS-422/RS-485	ICD102A	
RS-232	ICD103A	

Black Box Explains

DIN rail.

DIN rail is an industry-standard metal rail, usually installed inside an electrical enclosure, which serves as a mount for small electrical devices specially designed for use with DIN rails. These devices snap right onto the rails, sometimes requiring a set screw, and are then wired together.

Many different devices are available for mounting on DIN rails: terminal blocks,

interface converters, media converter switches, repeaters, surge protectors, PLCs, fuses, or power supplies, just to name a few.

DIN rails are a space-saving way to accommodate components. Because DIN rail devices are so easy to install, replace, maintain, and inspect, this is an exceptionally convenient system that has become very popular in recent years.

A standard DIN rail is 35 mm wide with raised-lip edges, its dimensions outlined by the Deutsche Institut für Normung, a German standardization body. Rails are generally available in aluminum or steel and may be cut for installation. Depending on the requirements of the mounted components, the rail may need to be grounded.



right track with convenient DIN rail solutions.

TECH SPECS

Distance (Maximum) — ICD100A, ICD102A: 4000 ft. (1219.2 m); ICD103A: 50 ft. (15.2 m); ICD101A: 2000 ft. (609.6 m); MED100A: 2.5 mi. (4 km)

Isolation — ICD100A: 2000 VAC optical isolation of data signals and ground; ICD102A: 2000 VRMS for 1 minute of optical isolation of data lines; ICD103A: 2000 VDC for 1 minute; ICD101A: 1000 VDC for 1 second

Operating Environment — ICD100A, ICD102A–ICD103A, MED100A:
Temperature: -40 to +176° F (-40 to +80° C); Humidity: Up to 95% noncondensing;

ICD101A:
Temperature: 32 to 176° F (0 to 80° C); Humidity: Up to 95% noncondensing

Operation — ICD100A:
RS-232: Half- or full-duplex; RS-485: 2-wire half-duplex or 4-wire full-duplex; RS-422: Full-duplex;

ICD102A:
RS-485: 2-wire half-duplex or 4-wire full-duplex; RS-422: Full-duplex;

ICD103A:
RS-232: Half- or full-duplex; RS-422/RS-485: Up to 460.8 kbps

ICD101A:
RS-232: Half- or full-duplex; Current Loop: 20 mA, active or passive;

MED100A:
RS-232: Half- or full-duplex; RS-485: 2-wire half-duplex or 4-wire full-duplex; RS-422: Full-duplex; Fiber ring: Half-duplex over multimode; all transmissions are async

Speed — ICD100A: 2400 bps to 19.2 kbps, switch-selectable; other rates available between 1200 bps and 115.2 kbps; ICD102A: 2400 bps to 115.2 kbps, switch-selectable; other rates available up to 460.8 kbps; ICD103A: Up to 115.2 kbps; ICD101A: Up to 19.2 kbps; MED100A:
RS-232: Up to 115.2 kbps; RS-422/RS-485: Up to 460.8 kbps

Surge Suppression — ICD100A:
Bidirectional avalanche breakdown device: 7.5 V; Peak power dissipation: 500 W; Clamping time: <1 psec;

ICD102A:
Bidirectional overvoltage suppressor: 6.5 V; Peak power dissipation: 600 W; Capacitance (maximum): 3000 pF

CE Approval — Yes

Connectors — ICD100A: (2) 6-position terminal blocks, (1) DB9 F (DCE); ICD101A–ICD103A: (2) 6-position terminal blocks; MED100A: (2) 6-position terminal blocks, (1) pair of ST

Indicators — ICD100A: (3) LEDs: (1) RS-485 transmit data, (1) RS-485 receive data, (1) power; ICD101A–ICD102A: (2) LEDs: Data flow direction; ICD103A: (5) LEDs: (4) data flow direction, (1) power

Power — ICD100A–ICD103A: 10–30 VDC, 100 mA; MED100A: 10–30 VDC, 140 mA

Size — ICD100A: 1"H x 3.1"W x 4.2"D (2.5 x 7.9 x 10.7 cm); ICD101A–ICD102A: 0.9"H x 2.9"W x 3.9"D (2.3 x 7.4 x 9.9 cm); ICD103A: 1"H x 2.9"W x 3.9"D (2.5 x 7.4 x 9.9 cm); MED100A: 1"H x 2.3"W x 4.3"D (2.5 x 5.8 x 10.9 cm)

RS-232↔Current Loop DIN Rail Converter with Opto-Isolation



- Has one 20-mA transmit loop and one 20-mA receive loop.
- Both signals feature 1000-VDC opto-isolation to protect against surges and ground loops.
- Both loops can be set as active or passive. When set to active, an isolated 20-mA current is supplied to each loop.
- Top speed of 19.2 kbps.
- ♦♦ **WARRANTY** — 1 Year



Item	Code	List Price
RS-232↔Current Loop DIN Rail Converter with Opto-Isolation ICD101A		

DIN Rail RS-232/RS-485↔Fiber Driver



- Enables any two async serial devices to communicate half- or full-duplex over two multimode ST® fibers at distances up to 2.5 miles (4 km).
- RS-232 signals are supported up to 115.2 kbps; RS-422 or RS-485 signals are supported up to 460.8 kbps.
- Replaces converters and isolators when you connect remote equipment.
- ♦♦ **WARRANTY** — 1 Year



Item	Code	List Price
DIN Rail RS-232/RS-485↔Fiber Driver	MED100A	

Item	Code	List Price
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FOR OPTIMUM PERFORMANCE, and a **20% savings**, order...

For DB9 male/female connections, order...

DB9 Male/Female Cable, 6-ft. (1.8-m)
(For other lengths, see p. 162.) BC00200

For RS-422 and RS-485 interfaces, order...

Individually Shielded Low-Capacitance Cable—Extra Distance,
PVC Jacket, 4 Conductors (2 Pairs), 2000-ft. (609.6-m)
(For other lengths, p. 171.) ERN24A-2000

Item	Code	List Price
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You may also need...

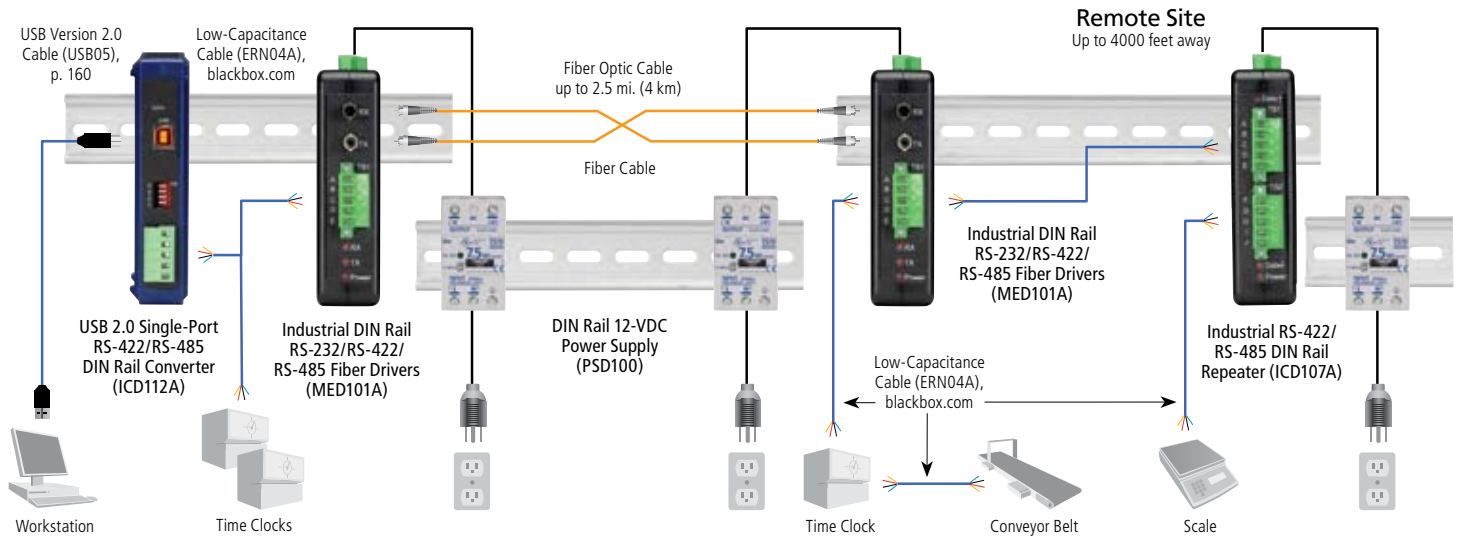
DIN Rail, 1-m (3.2-ft.) DR100
DIN Rail DB25 to Terminal Block Adapter IC980

To power six converters or repeaters—or four fiber drivers—order...

DIN Rail 12-VDC Power Supply PSD100

Industrial DIN Rail Converters, Repeaters, and Fiber Driver

DIN rail workhorses with the durability to connect with heavy-duty equipment!



◆◆ **WARRANTY** — 1 Year

Industrial RS-232↔RS-422/RS-485 DIN Rail Converter

- Three-way isolation, 2000-V input/output.
- Converts unbalanced half- or full-duplex RS-232 signals to balanced full-duplex RS-422 or 2-wire half- or 4-wire full-duplex RS-485.
- Extends communications up to 4000 feet (1219.2 m).

Industrial RS-422/RS-485 DIN Rail Repeater

- Three-way isolation, 2000-V input/output.
- Features optical isolation plus 600 W of surge suppression.
- Adds 4000 feet (1219.2 m) and another 32 nodes to an RS-485 data circuit. Configure one side as RS-422 and the other side as RS-485 to enable a 4-wire RS-422 device to communicate with a 2-wire RS-485 device.

Industrial RS-232 DIN Rail Repeater

- Three-way isolation, 2000-V input/output.
- Features optical isolation plus 600 W of surge suppression.
- Isolates the TD, RD, RTS, and CTS channels.
- Modbus ASCII or RTU compatible.

Industrial DIN Rail RS-232/RS-422/RS-485↔Fiber Driver

- Three-way isolation, 2000-V input/output.
- Enables any two async serial devices to communicate half- or full-duplex over two multimode ST® fibers at distances up to 2.5 miles (4 km).
- Supports RS-232 signals up to 115.2 kbps; supports RS-422 or RS-485 signals up to 460.8 kbps.

USB 2.0↔Single-Port RS-232 DIN Rail Converter

- Provides 3000-VDC optical isolation between ports and 15-kV ESD surge protection.
- Data rates up to 12 Mbps for USB and 460.8 kbps for RS-232.
- Uses all RS-232 handshaking.
- RoHS compliant.

USB 2.0↔Dual-Port RS-232 DIN Rail Converter

- Includes two DB9 RS-232 ports.
- Provides 3000-VDC optical isolation between ports and 15-kV ESD surge protection.
- Data rates up to 12 Mbps for USB and 460.8 kbps for RS-232.
- Uses all RS-232 handshaking.
- RoHS compliant.

USB 2.0↔Single-Port RS-422/RS-485 DIN Rail Converter

- Provides 3000-VDC optical isolation between ports.
- Use on 2-wire RS-485 or 4-wire RS-422/RS-485 networks.
- Data rates up to 12 Mbps for USB and 921.6 kbps for RS-422/RS-485.
- RoHS compliant.

USB 2.0↔Dual-Port RS-422/RS-485 DIN Rail Converter

- Provides 3000-VDC isolation.
- Use on 2-wire RS-485 or 4-wire RS-422/RS-485 networks.
- Data rates up to 12 Mbps for USB and 921.6 kbps for RS-422/RS-485.
- RoHS compliant.

Item	Code	List Price
------	------	------------

Industrial DIN Rail Converters, Repeaters, and Fiber Driver

To connect a computer with an RS-232 interface to industrial devices, order...

Industrial RS-232↔RS-422/RS-485 DIN Rail Converter	ICD105A	
Industrial RS-422/RS-485 DIN Rail Repeater	ICD107A	
Industrial RS-232 DIN Rail Repeater	ICD108A	
Industrial DIN Rail RS-232/RS-422/RS-485 Fiber Driver	MED101A	

To connect a USB 2.0 computer to industrial devices, order...

USB 2.0↔Single-Port RS-232 DIN Rail Converter	ICD110A	
USB 2.0↔Dual-Port RS-232 DIN Rail Converter	ICD111A	
USB 2.0↔Single-Port RS-422/RS-485 DIN Rail Converter	ICD112A	
USB 2.0↔Dual-Port RS-422/RS-485 DIN Rail Converter	ICD113A	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

For DB9 male/female connections, order...

DB9 Male/Female Cable, 6-ft. (1.8-m)	BC00200
--------------------------------------	---------

For RS-422 and RS-485 interfaces, order...

Individually Shielded Low-Capacitance Cable—Extra Distance, PVC Jacket, 4 Conductors (2 Pairs), 2000-ft. (609.6-m)	ERN04A-2000
--	-------------

You may also need...

DIN Rail, 1-m (3.2-ft.)	DR100
DIN Rail DB25 to Terminal Block Adapter	IC980

To power six converters or repeaters—or four fiber drivers—order...

DIN Rail 12-VDC Power Supply	PSD100
------------------------------	--------

Remote Port Wireless USB 2.0 Hub

Extend USB 2.0 communications over a standard 802.11g wireless link!



IC252A-US local and remote units

NOTE: For specifications, see blackbox.com.

- Enables wireless connection of USB devices up to 98.4 feet (30 m) from the host computer.
- Combines USB 2.0 extension technology and industry-standard IEEE 802.11g radio.
- Attach up to four USB devices to the remote unit—a keyboard and mouse, a DVD burner, a printer, whatever!
- True plug-and-play.
- You can select a different radio channel to reduce interference and improve signal quality and data rates.

- No additional software drivers need to be installed.
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price
Remote Port Wireless USB 2.0 Hub		
North America	IC252A-US	
◆ Includes (1) local unit with antenna, (1) remote unit with antenna, (2) AC power adapters, (1) 2-m USB cable, (1) user's guide, and (1) quick-start guide.		
Europe	IC252A-EU	
United Kingdom	IC252A-UK	

Remote Port USB 2.0

Achieve 480-Mbps USB 2.0 rates for extension applications—over CAT5 UTP cable!

- Extend your range by 50 meters (164 ft.)!
- Connect to Hi-Speed USB 2.0 devices such as CD/DVD burners, scanners, cameras, etc.
- Get support for Full-Speed USB 1.1 devices like disk drives as well as Low-Speed 1.1 devices such as joysticks.
- Extend USB 2.0 and 1.1 devices in the same application.
- Plug-and-play compatible with Windows®, Macintosh®, and Sun® operating systems.
- Increase the number of devices by using standard hubs on either the local or remote unit.



IC247A remote and local units

- Wallmount power adapters also included.
- **◆◆ WARRANTY** — 1 Year

NOTE: The maximum length of the CAT5 UTP cable must not exceed 50 meters (164 ft.).

Item	Code	List Price
Remote Port USB 2.0		
1-Port	IC247A	
4-Port	IC248A	
◆ Includes (1) local unit, (1) remote unit, (2) 110-V power adapters, and (1) 2-m USB cable.		
FOR OPTIMUM PERFORMANCE, and a 20% savings, order...		

CAT5 Solid-Conductor Cable, 4-Pair, Straight-Pinned, PVC, 100-ft. (30.4-m)
(For other lengths or pinnings, see p. 106.)
EYN556MS-0100

4-Port USB 2.0 to Fiber Optic Extenders

Extend four USB peripheral connections up to 10 kilometers over fiber!



IC249A-MM local and remote units

- The IC249A-MM extends multimode links up to 500 meters (1640.4 ft.) with 50- μ m fiber or 300 meters (984.2 ft.) with 62.5- μ m fiber.
- The IC249A-SM transmits up to 10 kilometers (6.2 mi.) over 8.5- μ m single-mode.
- **◆◆ WARRANTY** — 1 Year

NOTE: To add peripheral ports on either the local or remote side, order a USB hub (page 463, or see blackbox.com).

Item	Code	List Price
4-Port USB 2.0 to Fiber Optic Extenders		
Multimode	IC249A-MM	
Single-Mode	IC249A-SM	
◆ Includes (1) local unit, (1) remote unit, (2) 110-V power adapters, and (1) 2-m USB cable.		
FOR OPTIMUM PERFORMANCE, and a 20% savings, order...		

Ceramic Terminated Multimode Fiber Optic Cables Duplex, PVC, 62.5- μ m/125- μ m, LC-LC
(For other lengths or connectors, see pp. 130–131.)
10-m (32.8-ft.) EFN110-010M-LCLC

Fiber Remote Port USB

Use secure fiber to place USB 1.1 devices 500 meters away.

- Connect up to four USB devices, such as Low-Speed USB 1.1 (1.5-Mbps) keyboards and mice, and Full-Speed USB 1.1 (12-Mbps) Web cams and printers, to the remote extender.
- Run USB links up to 500 meters (1640.4 ft.) to each device.
- Fiber means your data's secure and safe from EMI/RFI.
- Compatible with most operating systems—Windows® 98/Me/XP, Windows 2000, Macintosh® OS X, or Linux®.



C243A remote and local units.

- Fully compliant with USB 1.1.
- Easy setup! The Fiber Remote Port USB appears as a generic USB hub to the operating system.
- Plug-and-play operation with no software to install.
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price
Fiber Remote Port USB	IC243A	
◆ Includes (1) local unit, (1) 4-port remote unit, and (1) power adapter.		
FOR OPTIMUM PERFORMANCE, and a 20% savings, order...		

USB Version 1.1 Cable, Type A–Type B
(For other lengths, see p. 160.)
6-ft. (1.8-m) USB01-0006

Ceramic Terminated Multimode Fiber Optic Cables Duplex, PVC, 62.5- μ m/125- μ m, MT-RJ–MT-RJ
(For other lengths or connectors, see pp. 130–131.)
5-m (16.4-ft.) EFN110-005M-MTMT
10-m (32.8-ft.) EFN110-010M-MTMT

USB→CAT5 Extenders

Extend your USB range by 50 or 100 meters, and supply power to remote devices.



IC246A-R2 local and remote units.

- Transmit power and data to one or two USB 1.1 devices over the same CAT5 cable.
- Deliver enough power to the remote unit to support most USB devices.
- Connect up to three hubs in series with the 50-meter models.
- Connect up to four hubs between the workstation and the 100-meter model's local unit.
- The 50-meter models support 12- and 1.5-Mbps USB devices; the 100-meter model only supports 12-Mbps USB devices.
- Contain an internal USB hub.
- ♦♦ **WARRANTY** — 1 Year

NOTE: Each additional hub connected in series to the 50-meter models reduces the extenders' maximum range by 10 meters (32.8 ft.).

TECH SPECS

Standards — USB 1.1
 CE Approval — Yes
 Connectors —
 IC244A-R2-IC245A-R2: Local: (1) USB Type B, (1) RJ-45;
 Remote: (1) USB Type A, (1) RJ-45;
 IC246A-R2: Local: (1) USB Type B, (1) RJ-45;
 Remote: (2) USB Type A, (1) RJ-45
 Power — IC244A-R2, IC246A-R2: From the USB bus;
 IC245A-R2: USB power required at local unit: 5 VDC @ 500 mA; USB power available at remote unit: 5 VDC @ 300 mA
 Size — Local and remote units: 1.2"H x 4"W x 2.8"D (3 x 10.2 x 7.1 cm) each

Item	Code	List Price
Single USB→CAT5 Extenders		
50-m (164-ft.)	IC244A-R2	
100-m (328-ft.)	IC245A-R2	
♦ Include (1) local unit and (1) remote unit.		
Dual USB→CAT5 Extender		
50-m (164-ft.)	IC246A-R2	
♦ Includes (1) local unit and (1) remote unit.		

Remote Port USB

Move USB 1.1 devices up to 100 meters from your PC.

- Break the standard USB 5-meter (16.4-ft.) distance limit and put your USB 1.1 devices up to 100 meters (328 ft.) from your PC.
- Make your runs over ordinary CAT5 cable.
- Both models handle Full-Speed USB 1.1 (12 Mbps) and Low-Speed USB 1.1 (1.5 Mbps).
- Use with all USB devices, including cameras, hubs, keyboards, mice, scanners, and printers.
- Increase the number of devices simply by adding standard USB hubs.
- Ideal for long-distance applications, such as installing a high-speed USB Web cam to monitor a hallway.
- Easy to use. Just connect USB devices into the USB Type A port and you're ready.
- ♦♦ **WARRANTY** — 1 Year



With the Remote Port USB (IC241A, shown above), you get local and remote units that communicate over ordinary CAT5 UTP cable.

TECH SPECS

Distance (Maximum) — 100 m (328 ft.) over CAT5 UTP
 Standards — USB 1.1
 Connectors — IC240A-R2: (1) RJ-45, (1) USB Type A F;
 IC241A: (1) RJ-45, (4) USB Type A F
 Power — 100–240 VAC, 50–60 Hz, autosensing
 Size — Each unit: 1"H x 3"W x 4"D (2.5 x 7.6 x 10.2 cm)

Item	Code	List Price
Remote Port USB		
1-Port	IC240A-R2	
4-Port	IC241A	
♦ Include (1) local and (1) remote unit, and (1) power supply (for either the local or remote side).		
To connect even more devices, order...		
USB 2.0 (4-Port) Hub (For details, see p. 463.)	IC147A-R2	

USB X-Tender

Break through the USB 15-foot barrier!

- Extends two USB channels over a single CAT5 UTP cable.
- Break through the USB 15-foot (4.7-m) barrier to use USB for long-distance applications.
- Supports all USB devices, including cameras, hubs, keyboards, mice, scanners, and printers.
- Compatible with both low-speed (1.5-Mbps) and full-speed (12-Mbps) USB 1.1 devices.
- Speed/distance is independently selectable for each of the two channels.
- No hub needed.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Channels — 2
 Controls — (2) DIP switches: low-speed or full-speed
 Distance (Maximum) — 1.5 Mbps: 1000 ft. (304.8 m);
 12 Mbps: 150 ft. (45.7 m)
 Connectors — Local (host) module:
 USB extension bus: (1) RJ-45;
 Outputs (to host): (2) USB Type B;
 Remote (device) module:
 USB extension bus: (1) RJ-45;
 Inputs (from devices): (2) USB Type A;
 Power supply: (1) 5.5-mm barrel jack
 Power — 115 VAC, 60 Hz
 Size — Each module: 1.1"H x 2.9"W x 3.4"D (2.8 x 7.4 x 8.6 cm) (without flanges)
 Weight — Each module: 1 lb. (0.5 kg)



IC169A: local and remote units

Item	Code	List Price
USB X-Tender	IC169A	
♦ Includes (1) local module, (1) remote module, (1) 115-VAC, 60-Hz power supply with cords for remote module, (2) 6-ft. (1.8-m) USB output cables, user's manual.		
To connect even more devices, order...		
USB 2.0 (4-Port) Hub (For details, see p. 463.)	IC147A-R2	

USB Director RS-232

Turn one or more USB ports into high-speed serial ports.



IC1002A: top: front view;
right: rear view



- Hassle-free solutions to add serial ports to your PC, laptop, Thin client, or server via a single USB port!
- High-speed ports support speeds of up to 230 kbps.
- Detects peripheral speed automatically.
- Costs less per port than serial boards.
- To add more COM ports, connect multiple units through a hub.
- Configurable COM port assignment.
- No external power required.
- ♦♦ **WARRANTY** — 5 Years

Turn your PC's USB port into high-speed RS-232 ports with the USB Director RS-232. This intelligent, plug-and-play USB-to-serial converter gives you flexible port expansion.

The USB Director RS-232 converts the USB port(s) on your desktop PC, laptop, or Thin client to high-speed RS-232 DB9 serial port(s). Attach any peripheral that uses a standard serial interface—without a serial card.

Installation is super easy. The converter auto-detects peripheral speed and connection. Just plug in the included USB cable.

Make connections without powering down the network, rebooting, or removing the cover of your PC. Stack multiple units for additional COM ports (as long as you connect the units through a hub).

TECH SPECS

Operating Systems Supported — Windows® 98 SE/Me/XP, Windows 2000, Windows CE
Speed (Maximum) — 230 kbps per port
Standards — USB 1.1, 1.0
UART — 128-byte buffer per direction
CE Approval — Yes
Connectors — Serial: (2), (4), or (8) DB9 M;
 USB: (1) Type B F
Power — From the USB bus
Size — IC1000A: 0.8" H x 1.75" W x 3" D (2 x 4.4 x 7.6 cm);
 IC1001A, IC135A: 1" H x 7" W x 4" D (2.5 x 17.8 x 10.2 cm);
 IC1002A: 1.75" H x 7" W x 4.25" D (4.4 x 17.8 x 10.8 cm)
Weight — IC1000A: 0.1 lb. (<0.1 kg);
 IC1001A: 0.8 lb. (0.4 kg);
 IC135A, IC1002A: 1 lb. (0.5 kg)

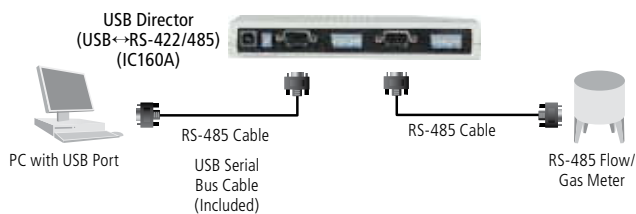
Item	Code	List Price
USB Director RS-232		
1-Port	IC1000A	
2-Port	IC1001A	
4-Port	IC135A	
8-Port	IC1002A	
♦ Include (1) USB Director, drivers on CD-ROM, and (1) 3.2-ft. USB cable.		
USB 2.0 (4-Port) Hub (For details, see p. 463.)		
	IC147A-R2	



USB cables and adapters, pp. 160–161.

USB Directors (USB↔RS-422/485 • USB↔RS-422)

Take advantage of your USB port with industrial RS-422/RS-485 equipment.



IC160A

- Turn your USB port into two or four high-speed serial ports for easy connections to modems, printers, point-of-sale, industrial controls, and other RS-422/RS-485 devices.
- No PC slots required. No IRQ conflicts.
- Plug-and-play setup.
- Fully compliant with USB Specification Rev. 1.0 and HID Class Definition Rev. 1.0.
- ♦♦ **WARRANTY** — 5 Years

TECH SPECS

Hardware Requirements — PC with Pentium® processor, 16 MB RAM recommended; (1) available USB Type A port
Operating Systems Supported — Windows 98/Me/XP, Windows 2000
Operation — IC160A: RS-422/485, 2- or 4-wire; IC161A: RS-422, 4-wire only
Connectors — Serial: (2) or (4) DB9 M; USB: (1) Type B F
Power — From the USB bus
Size — 1.5" H x 9" W x 5" D (3.8 x 22.9 x 12.7 cm)

Item	Code	List Price
USB Directors		
USB↔RS-422/485, 2-Port	IC160A	
USB↔RS-422, 4-Port	IC161A	
♦ Include (1) USB Director and (1) 3-ft. USB cable.		

NOTE: For optional Windows NT® 4.0 support, call our FREE Tech Support.

USB Single-Port Hubs

Easily connect legacy serial devices to any USB-enabled PC.



IC265A

TECH SPECS

Hardware Requirements — IBM® compatible PC, USB port, CD drive

Speed (Maximum) — RS-232: 460.8 kbps; RS-422/485/530: 921.6 kbps

CE Approval — Yes

Connectors — Serial: (1) DB25 M; USB: (1) Type A F
Indicators — LEDs: (1) USB Enabled, (1) TD, (1) RD
Size — 1"H x 2.3"W x 3.8"D (2.5 x 5.8 x 9.7 cm)

- Give your standard serial devices the hot-swappable convenience of USB.
- Software makes speed selection easy.
- Easy to install—just plug it in.
- Use the RS-232 model for legacy serial devices like printers and modems.
- Use the RS-422/485/530 model for the speed and distance of RS-422 or RS-485.
- Powered from the interface.
- **◆◆ WARRANTY** — Lifetime

◀ Bulk Individually Shielded Twisted-Pair Cables (with Drain Wire), p. 171.

Item	Code	List Price
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USB Single-Port Hubs		
RS-232	IC265A	
RS-422/485/530	IC266A	
◆ Include (1) hub, drivers for Windows 98/Me/XP/2000, (1) 6-ft. USB cable, and (1) user's manual.		

To connect twisted-pair cable to a hub, order...

DB25 Female/Terminal Block and Cable	IC267A	
--------------------------------------	--------	--

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

RS-530 Data Cable, 25-Pin (12½ Pairs), Male/Female, 200-ft. (60.9-m) (For other lengths or genders, see p. 168.)	EVNT530-0200-MF	
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USB Hubs (RS-232, RS-422/485, and RS-232/RS-422/RS-485)

Connect your non-USB peripherals to your USB bus!



- Make serial connections easy by putting your serial printers, bar-code scanners, industrial equipment, etc. on your PC's USB bus!
- No more internal serial adapters to add extra COM ports.
- Make plug-and-play connections to serial peripheral devices with the external connectors.
- Hot-swappable. Install them without having to power down your PC.
- Hubs perform autoconfiguration.
- You can also configure each of the ports on the RS-232/RS-422/RS-485 models with internal DIP switches.
- Get incredibly fast data rates—up to 460.8 kbps for RS-232 and 921 kbps for RS-422/RS-485.
- Ideal for connecting devices in harsh and/or industrial environments where communications may be affected by noise and voltage spikes.



Top: IC1026A, rear view;
middle: IC1022A, rear view;
bottom: IC1023A, rear view

- Automatic RS-485 data enable/disable.
- Include a DB9 connector that's backward-compatible with PCI and ISA 422 products.
- Compatible with Windows® 98/Me/XP and Windows 2000.
- Compliant with USB 1.1.
- **◆◆ WARRANTY** — 5 Years

Item	Code	List Price
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USB Hubs		
2-Port		
RS-232	IC1026A	
RS-422/RS-485	IC1028A	
RS-232/RS-422/RS-485	IC1020A	

4-Port		
RS-232	IC1027A	
RS-422/RS-485	IC1021A	
RS-232/RS-422/RS-485	IC1022A	

8-Port		
RS-232	IC1023A	
RS-422/RS-485	IC1024A	
RS-232/RS-422/RS-485	IC1025A	

To mount USB Hubs on DIN rails, order...

DIN Rail Mounting Kit for 2- and 4-Port Hubs	DR110	
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DIN Rail Mounting Kit for 8-Port Hubs	DR111	
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FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

USB Version 1.1 Cable, Type A-Type B		
10-ft. (3.0-m) (For other lengths, see p. 160.)	USB01-0010	
DB9 Extension Cable (with EMI/RFI Hoods), Foil Shielded, 10-ft. (3.0-m) (For other lengths, or genders, see p. 162.)	EDN12H-0010	

USB→16 DIO Channel Controller

Control and automate up to 16 devices from your PC!



- Features 16 Single-Pole Single-Throw (SPST) relays for digital output.
- Connects to your PC's USB port.
- Serial string naming feature enables multiple USB→16 DIO Channel Controllers to retain their identities in large systems.
- **◆◆ WARRANTY** — Lifetime

TECH SPECS

Application Programmer Interface (API) — Windows compatible

Contact Current (Maximum) — 0.5 amps DC or AC RMS

Contact Power Rating (Maximum) — 10 W

Contact Resistance (Initial) — 0.15 ohms

Contact Voltage (Maximum) — 100 volts DC or AC

CE Approval — Yes

Power — From the USB bus



Item	Code	List Price
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USB→16 DIO Channel Controller	IC1016A	
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FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

CAT5 Solid-Conductor Cable, 4-Pair, Straight-Pinned, PVC, Beige, 100-ft. (30.4-m) (For other lengths, colors, or pinnings, see p. 106.)	EYN556MS-0100	
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USB 2.0 Hubs

Connect digital cameras, CD/DVD burners, and more to your PC!

- Fully compliant with USB 2.0 and backward-compatible with USB 1.1 devices.
- Four or seven independent downstream ports support data transfer rates up to 480 Mbps—40 times faster than USB 1.1!
- Compatible with Windows® 98/Me/XP and Windows 2000, and Mac® OS 8.6 or higher.
- ♦♦ **WARRANTY** — 1 Year

With a compact USB 2.0 Hub from Black Box, you can easily add up to four or seven USB devices to your PC. You can even daisychain the hubs to add more USB devices—a single USB bus can support up to 127 devices at a time!

These hubs are USB 2.0 compliant and support data transfer rates of 1.5, 12, and 480 Mbps, which makes them suitable for devices ranging from low-speed devices such as keyboards to high-bandwidth external storage devices like CD-RW drives and hard drives.



TECH SPECS

Distance (Maximum) — 15 ft. (4.5 m)
CE Approval — Yes
Connectors — IC147A-R2: (4) USB Type A F, (1) USB mini Type B F;
 IC148A: (7) USB Type A F, (1) USB mini Type B F
Indicators — IC147A-R2: (1) LED: Overcurrent and high speed;
 IC148A: (8) LEDs: (7) green for self-power for each port, (1) red for power supply
Power — USB interface and external power supply:
 Input: 120 VAC, 0.4 amps, 47–63 Hz;
 Output: 6 VDC, 3.5 amps
Size — IC147A-R2: 0.5"H x 1.4"W x 3.3"D (1.3 x 3.6 x 8.4 cm);
 IC148A: 0.6"H x 4.5"W x 2.4"D (1.5 x 11.4 x 6.1 cm)

Item	Code	List Price
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USB 2.0 Hubs		
4-Port	IC147A-R2	
7-Port	IC148A	
♦ Includes (1) hub and (1) USB mini Type B male to USB Type A male cable.		

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

Item	Code	List Price
USB Version 2.0 Cables, Type A–Type B		
3-ft. (0.9-m)	USB05-0003	
6-ft. (1.8-m)	USB05-0006	
10-ft. (3.0-m)	USB05-0010	
13-ft. (3.9-m)	USB05-0013	

USB Solo (USB→Serial), DB9 with Cable

Compatibility and convenience for your serial peripherals.

- Connect non-USB devices, such as modems, printers, and GPS devices, to a USB 1.1-compliant PC.
- Connection for RS-232 peripherals on DB9 male connectors.
- Compatible with Windows 98 SE/Me/XP and Windows 2000.
- Software drivers included.
- Differential and bidirectional access.
- Data-transfer rates from 300 bps to 115.2 kbps.
- ♦♦ **WARRANTY** — 1 Year



TECH SPECS

Distance (Maximum) — 16.4 ft. (5 m)
Standards — USB 1.1
CE Approval — Yes
Connectors — (1) USB Type B F, (1) DB9 M
Power — From the interface
Size — 0.7"H x 1.3"W x 2.3"D (1.8 x 3.3 x 5.8 cm)
Weight — 0.1 lb. (<0.1 kg)

Item	Code	List Price
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USB Solo (USB→Serial), DB9 with Cable		
	IC199A-R3	
♦ Includes (1) USB Solo, (1) software driver CD, and (1) 44-inch USB Type A male to Type B male cable.		

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

Item	Code	List Price
USB Version 1.1 Cables, Type A–Type B		
3-ft. (0.9-m)	USB01-0003	
6-ft. (1.8-m)	USB01-0006	
10-ft. (3.0-m)	USB01-0010	
15-ft. (4.5-m)	USB01-0015	

USB Solo (USB→Serial), DB25

Compatibility and convenience for your legacy peripherals.



- Connect non-USB modems, printers, and digital assistants to a USB-compliant PC.
- Plug-and-play connection for RS-232 peripherals with DB25 connectors.
- Compatible with Windows 98/Me/XP or Windows 2000.
- Data-transfer rates from 300 bps to 115.2 kbps.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
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USB Solo (USB→Serial), DB25		
	IC138A-R3	
♦ Includes (1) USB Solo and (1) software driver CD.		

◀ USB cables and adapters, pp. 160–161.

USB Bluetooth Dongles

Add Bluetooth capability to a desktop or notebook computer!

- Create a Bluetooth® personal area network with other compatible Bluetooth devices such as PDAs, headsets, and mobile phones.
- Support a wide variety of applications: network and Internet access, wireless file transfer, data synchronization, printing, gaming, and more!
- Encryption and user authentication features enable secure data transmissions.
- Automatically detect and display other Bluetooth devices within range.
- The Class I dongle has a range of 100 meters (328 ft.); the Class II dongle has a range of 10 meters (32.8 ft.).
- Perfect when you're working away from your desk or for wireless networking at home.
- Compatible with PCs and Mac® computers.
- Require only 64 MB of RAM and a 200-MHz processor.
- Work with most laptops that are USB 1.1 compatible.
- ♦♦ **WARRANTY** — 1 Year

NOTE: For specifications, see blackbox.com.



Item	Code	List Price
USB Bluetooth Dongles		
Class I	ICB100A	
Class II	ICB101A	
♦ Include (1) dongle and (1) Bluetooth utility CD-ROM.		

USB 2.0 Docking Station with Network Port

Connect to 2 USB and 5 non-USB devices. Or link the unit to multiple hubs and connect up to 127 total devices!

- Enables you to connect multiple USB 2.0 or 1.1 devices to your computer.
- Also enables you to connect a PS/2® keyboard and mouse, an IEEE 1284 parallel printer, a serial device, and an Ethernet or a Fast Ethernet device to your computer.
- File transfer port enables direct USB-to-USB data exchange between two notebooks or desktop computers.
- Link the unit to multiple hubs and connect up to 127 devices!
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Operating Systems Supported — Windows® 98 SE/Me/XP or Windows 2000
Speed (Maximum) — 480 Mbps
CE Approval — Yes
Connectors —
 Computer: (1) USB 2.0 Type B F;
 Peripherals: (2) USB 2.0 Type A F;
 File transfer: (1) USB 2.0 Type B F;
 Keyboard and mouse: (2) 6-pin mini DIN F;
 Serial: (1) DB9 M;
 Parallel: (1) DB25 F;
 Network: (1) RJ-45
Power — From the USB bus or from the included 100–240-VAC, 50–60-Hz autosensing adapter



Item	Code	List Price
USB 2.0 Docking Station with Network Port	IC652A	
♦ Includes (1) station, (1) power adapter, (1) USB 2.0 cable, (1) CD-ROM, and (1) installation guide.		

USB 2.0 IDE External Enclosure 3.5

Recycle IDE disk drives to store data, music, videos, and more!



- Put your unused IDE hard drive to work as a storage drive with this USB 2.0 enclosure.
- Get extra storage without changing the hardware.
- Compatible with USB-enabled PCs.
- Stores MP3, JPEG, archive video, and data files.
- Maximum transfer rates up to 480 Mbps.
- USB storage class version 1.0.
- Plug-and-play operation.
- ♦♦ **WARRANTY** — 1 Year

NOTE: Drive is not included.

TECH SPECS

System Requirements — Software: Windows 98 SE/XP, Windows NT®, Windows 2000;
 Hardware: IBM® compatible Pentium® 233-MHz processor, 64 MB RAM; available USB 2.0 port
CE Approval — Yes
Interface — USB 2.0, IDE
Connectors — (1) USB 2.0 F, (1) 4-pin DC power
Indicators — (2) LEDs: Power (red), TX (green)
Power — Input: 100–240 VAC, 50/60 Hz, autosensing; Output: 5 VDC
Size — 5.9"H x 1.4"W x 8.9"D (15 x 3.6 x 22.6 cm)
Weight — 2.3 lb. (1 kg)

Item	Code	List Price
USB 2.0 IDE External Enclosure 3.5	IC656A	

USB 2.0 to SATA 3.5-Inch External Enclosure

Bridge between USB, SATA, and ATA/ATAPI-based mass storage devices.

- Accepts any standard 3.5" SATA or SATA II hard drive.
- Use a new SATA drive with an older computer that has only IDE and USB interfaces.
- Compliant with Serial ATA II Electrical 1.0.
- Compliant with USB Mass Storage Class, Bulk-Only Transport specification.
- Supports plug-and-play and SATA hot-plug feature.



- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
USB 2.0 to SATA 3.5-Inch External Enclosure	IC663A	
♦ Includes (1) external enclosure, (1) power adapter, (1) USB 2.0 cable, (1) quick installation guide, (1) installation CD, (1) stand, (4) screws, (6) adhesive rubber pads, and (1) gasket.		

USB 2.0 PCI Card

Add four speedy 480-Mbps, internal USB 2.0 ports to your PC.



- Connect USB 2.0 digital cameras, external storage devices, Web cams, printers, scanners, and more to your PC—even if you don't have a USB 2.0 port!
- Compliant with USB 2.0 and 1.1 standards, plus PCI 2.2.
- Supports simple plug-and-play operation.
- Includes a CD driver.
- Compatible with the USB 2.0 4-Port-Bay Hub (IC655A); see blackbox.com.

- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
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USB 2.0 PCI Card	IC1030C-R2	
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FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

USB Version 2.0 Cable, Type A–Type B, 6-ft. (1.8-m) <i>(For other lengths, see p. 160.)</i>	USB05-0006	
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USB 2.0 Card Bus

Connect newer USB 2.0 peripherals to your laptop.

- Add a speedy, 480-Mbps USB 2.0 port to your laptop.
- This 32-bit Type II PCMCIA card gives you two USB 2.0 ports for connecting printers, digital cameras, and more.
- Supports transfer rates of 1.5, 12, and 480 Mbps.
- Plug-and-play operation.
- Compatible with Windows® 98 SE/Me/XP, Windows 2000, and Mac® OS X operating systems.



- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
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USB 2.0 Card Bus	IC1031A-R2	
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FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

USB Version 2.0 Cable, Type A–Type B, 6-ft. (1.8-m) <i>(For other lengths, see p. 160.)</i>	USB05-0006	
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USB 2.0 4 + 1-Port Hub

Connect a non-data-transfer USB device to the hub's USB power port.

- Features one upstream USB port and four downstream USB ports.
- Connect up to four USB 2.0 devices to a PC.
- Plug-and-play installation.
- Bus Power mode (for low-power devices like mice) and Self Power mode (for adapter-supplied power).
- Data rates up to 480 Mbps.
- Backward-compatible with USB 1.1 devices.
- Connect up to 127 USB devices to your computer by daisy chaining.

- Works with Windows 98 SE/Me/XP, Windows 2000, and Mac OS X.1 and above.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Standards — USB 1.1 and 2.0
Speed (Maximum) — 480 Mbps
Connectors — (4) USB Type A for peripherals, (1) USB Type A for power
Power — From the adapter:
 Input: 100–240 VAC, 50–60 Hz;
 Output: 5 V, 2.5 A
Size — 0.9"H x 6.3"W x 17.7"D (2.3 x 16 x 45 cm)



Also has an additional USB power port.

Item	Code	List Price
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USB 2.0 4 + 1-Port Hub	IC650A	
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USB 2.0 Share Switch Hub

Use two computers to share multiple USB printers, scanners, and other peripherals.



- Has four downstream USB ports and two upstream USB ports.
- Switch by pressing a button.
- Plug-and-play installation.
- Bus Power mode (for low-power devices like mice) and Self Power mode (for adapter-supplied power).
- Data rates up to 480 Mbps.
- Backward-compatible with USB 1.1.
- Features overcurrent detection.

- Works with Windows® 98 SE/Me/XP, Windows 2000, and Mac® OS X.1 and above.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
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USB Share Switch Hub	IC654A	
♦ Includes (1) hub, (1) USB 2.0 A–B cable, and (1) switching power adapter.		

USB 2.0 to IDE/SATA Combo Adapter

Connect an IDE and a SATA drive to your USB port—simultaneously.



- Get two adapters in one: IDE and SATA .
- Transfer data between your SATA drive or IDE drive at SATA's fast 150-Mbps speed.
- Make two connections and run two drives simultaneously.
- The 2.5" to 3.5" IDE converter is perfect for attaching a 3.5" IDE drive or even a 5.25" CD/DVD drive.
- Turn older IDE drives into external USB storage devices.
- USB 2.0 compliant.
- Easy, plug-and-play operation.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
USB 2.0 to IDE/SATA Combo Adapter	IC661A	
♦ Includes (1) USB to IDE/SATA adapter, (1) power adapter, (1) power cord, (1) serial ATA cable, (1) 2.5" to 3.5" IDE converter, and (1) HDD power cable.		

Vista USB 2.0 Link Adapter

Swap files between a PC running Windows Vista and another PC running Windows Vista or XP.



- Transfer accounts, files, and program settings directly from one PC to another without having to transfer the files to intermediary data storage.
- Supports two-way data transfer.
- Specially designed to work with Windows Vista™ Easy Transfer.
- No additional driver or software required with Windows Vista.
- Supports data transfer rate of up to 480 Mbps.
- Bus powered.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
Vista USB 2.0 Link Adapter	IC1033A	

SATA to IDE Converter

Connect an IDE hard drive or a CD-ROM to a PC.



- Connect an IDE hard drive, CD-ROM, CD-RW, DVD-ROM, or DVD+RW to your computer's ATA PCI card.
- Supports Ultra DMA data transfer rates up to 150 MBps.
- Plug-and-play.
- Features master/slave device emulation support.
- Complies with Serial ATA 1.0.
- Supports ATAPI Packet command set.
- Also supports additional ATA command for serial ATA SCR access.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
SATA to IDE Converter	IC664A	
♦ Includes (1) converter, (1) serial ATA cable, and (1) power cable.		

USB 2.0↔USB 2.0 Data Transfer

Transfer multimedia files between USB-enabled hosts with this easy-to-use link.



On the go? With the USB 2.0↔USB 2.0 Data Transfer, USB mobile PC and multimedia connections are a breeze. It offers simple setup and is easy to use with the included software.

- For host-to-host file transfers via USB port.
- Integral 6-foot (1.8-m) cable with USB Type A connectors at each end.
- Transfers files at rates up to 480 Mbps.
- Easy-to-manage transfers—drag and drop files via the included software's user-friendly interface.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
USB 2.0 USB 2.0 Data Transfer	IC149A-R4	
♦ Includes (1) data transfer unit and cable and (1) driver installation disc.		

RS-232↔RS-422 Converters

Simple 64-kbps async RS-232↔RS-422 conversion.



IC107A-R3



- Our basic 64-kbps converter.
- Transmit data up to 4000 feet (1219.2 m).
- Full-duplex operation over 4-wire lines.
- Can be enabled for RS-422 use only.
- Feature DIP switches instead of DIP shunts for easy setup.
- Async (data leads) only.
- For a converter that supports handshake and clocking leads, see the RS-232↔RS-422/449 Interface Converters, right.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
RS-232↔RS-422 Converters		
Standalone	IC107A-R3	
Rackmount Card	IC107C-R3	

To rackmount your cards, order...

16-Card Multifunction Rack	RM005	See blackbox.com
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FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

RS-232 Cables	ECM25T	See p. 166.
AT® Modem Cables	EVMTBMC	See p. 165.

RS-232↔RS-422/449 Interface Converters

Convert sync or async RS-422 interfaces to RS-232.



IC456A-R5



- Convert sync or async RS-422 interfaces bidirectionally with RS-232.
- Full RS-422 data conversion: data handshaking and clock signal.
- Speeds up to 64 kbps.
- Designed to operate with one port configured as DTE and the other as DCE.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
RS-232↔RS-422/449 Interface Converters		
Standalone	IC456A-R5	
Rackmount Card	IC456C-R5	
♦ Both include (1) converter; (1) 5-ft. RS-232 Cable, 25-Conductor (ECM25T-0005); and (1) DB9 Female to DB25 Male Serial Adapter (FA520A-R3).		

To rackmount your cards, order...

8-Card Rack	RM060	See blackbox.com.
11-Card Rack (48-VDC)	RM062A	See blackbox.com.

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

DB37 Interface Cables	EDN37J	See p. 169.
RS-449 to RS-530 Cables	EDN47J	See p. 168.

Universal RS-232↔RS-422/485 Converter • Universal RS-232↔RS-422/485 Converter with Opto-Isolation

Handy devices for multiple serial conversions.

- Convert RS-232 to 4-wire RS-422 or to 2- or 4-wire RS-485.
- Enable you to select RS-485 2-wire half-duplex or RS-485 4-wire full-duplex operation.
- Selectable RS-422 operation with transmit and receive always enabled.
- Automatic RS-485 driver control, so it works without any special programming for handshaking signals.
- No external power is required if two RS-232 output handshake lines are available.

Universal RS-232↔RS-422/485 Converter

- Bidirectional data conversion.
- Enables transmitter from RS-232 TD signal and receiver when not transmitting.
- Set operating mode with four switches.
- Converts using either port power or power from an external 12-VDC power supply (not included).
- ♦♦ **WARRANTY** — 5 Years

Universal RS-232↔RS-422/485 Converter with Opto-Isolation

- Features 2000-VAC isolation to guard against damaging ground loops.
- Converts power from an external 12-VDC power supply (not included).
- ♦♦ **WARRANTY** — 1 Year



IC820



IC821A

Item	Code	List Price
Universal RS-232↔RS-422/485 Converter	IC820A	
Universal RS-232↔RS-422/485 Converter with Opto-Isolation	IC821A	

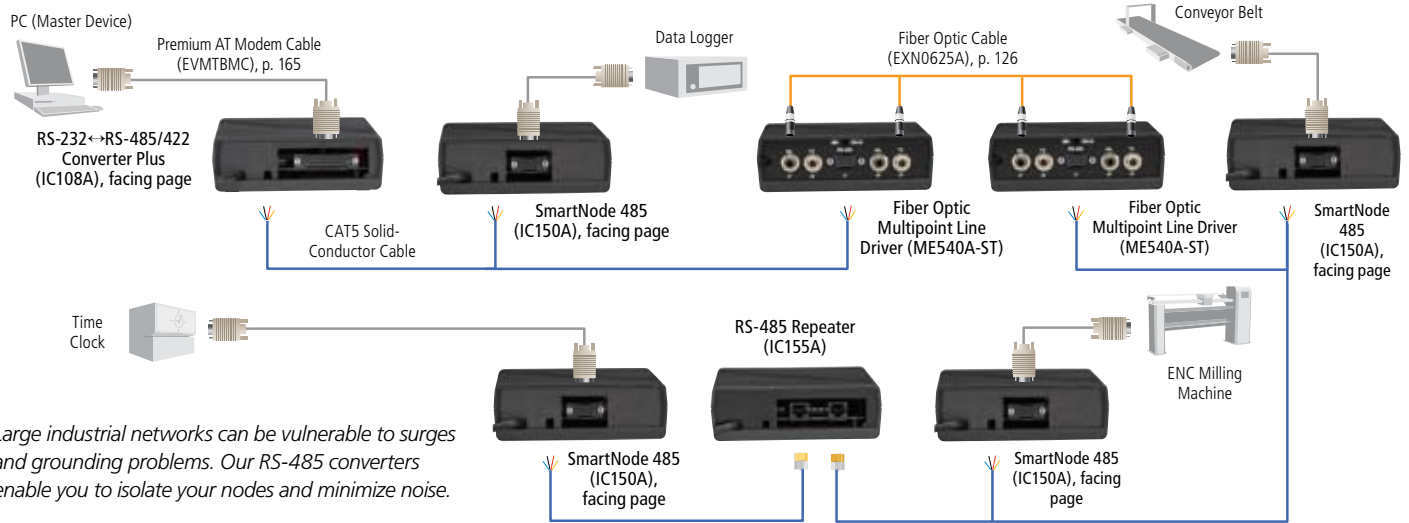
You may also need...

120-VAC/12-VDC Wallmount Power Supply	PS1002
---------------------------------------	--------

Click and find at blackbox.com.

Read more about these converters, including specs.

Turn RS-232 equipment into a complete



Large industrial networks can be vulnerable to surges and grounding problems. Our RS-485 converters enable you to isolate your nodes and minimize noise.

Fiber Optic Multipoint Line Driver

Run multipoint through industrial settings over fiber.

- Supports RS-232, RS-485, or Current Loop installations.
- Ideal for electrically "noisy" industrial applications.
- Provides centralized control of a multipoint polled system from just one PC.
- Speeds as high as 128 kbps.
- ♦♦ **WARRANTY** — 1 Year



TECH SPECS	
Distance (Maximum) — 5000 ft. (1524 m) on 62.5-µm fiber cable	CE Approval — Yes
Number of Drops — 64	Interface — RS-232 (DCE/DTE), RS-485, 20-mA Current Loop (Transmit and Receive can be active or passive), fiber optic
Operation — Network mode (multipoint, half-duplex); master/slave mode (multipoint, half-duplex); point-to-point, full-duplex	Connectors — (1) DB9 F, (2) pairs of ST (1) 4-screw terminal block
Protocol — Asynchronous	Indicators — (10) LEDs
Speed — Transparent through 20 kbps on 20-mA Current Loop port; 64 kbps on RS-232 port; 128 kbps on RS-485 port	Power — 115 VAC, 60 Hz, external
	Size — 1.8"H x 5.5"W x 8.5"D (4.6 x 14 x 21.6 cm)

NOTE: Must be used in pairs.

Item	Code	List Price
Fiber Optic Multipoint Line Driver ST®	ME540A-ST	
FOR OPTIMUM PERFORMANCE, and a 20% savings, order...		
DB9 Extension Cable, Male/Female, 10-ft. (3.0-m) (For other lengths or genders, see p. 162.)	EDN12H-0010-MF	
Multimode, General-Purpose, Bulk Fiber Optic Cable, 62.5-/125-Micron, PVC, Riser, Zipcord Duplex, Custom Lengths (For specific lengths, see p. 126.)	EXN0625A	

RS-485 Repeaters

Extend your RS-485 network to 4000 feet and add up to 31 more devices.

- Send controller signals up to 4000 feet (1219.2 m).
- Ideal for connecting multiple RS-485 segments located in different rooms and floors.
- The opto-isolated model protects lines from ground loops and other electrical problems.
- Both support either 2- or 4-wire applications in full- or half-duplex operation.
- ♦♦ **WARRANTY** — 1 Year



IC155A

NOTE: These repeaters do not feature collision detection or hardware flow control.

TECH SPECS

Flow Control — Transparent
Leads Supported — Both ports: TDA, TDB, RDA, RDB
Operation — Half- or full-duplex
Speed — Transparent up to 128 kbps
CE Approval — Yes
Connectors — (2) 4-wire terminal blocks, (2) RJ-45
Indicators — Power, Carrier Detect (both ports)
Power — 115 VAC, 60 Hz (230-VAC, 50-Hz version on request)
Size — 1.8"H x 5.5"W x 8.5"D (4.6 x 14 x 21.6 cm)

Item	Code	List Price
RS-485 Repeater	IC155A	
RS-485 Repeater (Opto-Isolated)	IC158A	

solution for your industrial network.

RS-232↔RS-485/422 Converter Plus • RS-232↔RS-422 Converter

Send data up to 4000 feet away in industrial environments!

RS-232↔RS-485/422 Converter Plus

- Transmits data up to 4000 feet (1219.2 m) and at speeds up to 115.2 kbps. (Autotransmitter enable is available up to 64 kbps.)
- Operates in multipoint applications; 2- or 4-wire operation, full- or half-duplex, async (data leads) only.
- Selectable RTS-CTS turnaround delay and loopback test feature.
- Features a terminate/unterminate option.
- Transmitter is always on or controlled by data or RTS.
- Available with opto-isolation to protect against power surges.

RS-232↔RS-422 Converter (Data Leads Only)

- Transmits data up to 4000 feet (1219.2 m) at speeds up to 64 kbps.
- Has a jumper transmitter that's always on or controlled by RTS.
- For 4-wire, full-duplex, point-to-point applications.
- ♦♦ **WARRANTY** — All: 1 Year

How fast do you want to send data? Our top-selling converters give you two speed options.

If your PC has a 16550 UART chip, you can send data at 115.2 kbps with the **RS-232↔RS-485/422 Converter Plus!** It has a line bias feature that prevents it from receiving line noise as it sends or receives signals. The converter works in all popular 2- or 4-wire applications, and it's available in models with built-in opto-isolation.

The **RS-232↔RS-422 Converter** supports 64-kbps speeds and has a jumper transmitter that's always on or controlled by RTS.



« 232 | 485/422 »

« 232 | 422 »



IC108A

TECH SPECS

Operation — IC108A, IC108C, IC109A-R3, IC109C: 4-wire, half- or full-duplex; 2-wire, half-duplex; IC107A-R3; 4-wire, full-duplex
Protocol — Asynchronous
CE Approval — Yes
Connectors — (1) DB25 F (DTE or DCE), (1) 4-screw terminal
Power — Standalone models: 115 VAC, 60 Hz (230-VAC, 50-Hz versions on request)
Size — IC108A, IC109A-R3: 1.8"H x 5.5"W x 8.4"D (4.6 x 14 x 21.3 cm); IC108C-IC109C: 4.7"H x 0.6"W x 7.4"D (11.9 x 1.5 x 18.8 cm); IC107A-R3: 1.8"H x 5.5"W x 9"D (4.6 x 14 x 22.9 cm)

Item	Code	List Price
RS-232 RS-485/422 Converter Plus Standalone	IC108A	
Rackmount Card	IC108C	
RS-232↔RS-485/422 Converter Plus with Opto-Isolation Standalone	IC109A-R3	
♦ Includes (1) 6-ft. DB25 Male/DB9 Female Cable (EVMBMC-0006) and (1) DB9 Male/DB25 Female Adapter (FA521A-R2).		
Rackmount Card	IC109C	
RS-232↔RS-422 Converter (Data Leads Only) Standalone	IC107A-R3	
To rackmount your cards, order...		
16-Card Rack (For details, see blackbox.com .)	RM005	

SmartNode 485

All the benefits of multidrop RS-485 with RS-232 devices.

- Build your own RS-485 industrial network using your RS-232 equipment.
- The 8 KB buffer means no data loss.
- Address each RS-232 device as an intelligent RS-485 peripheral.
- ♦♦ **WARRANTY** — 1 Year

The SmartNode 485 responds to address polls, holds information until send time, and even converts data rates and word structures. You can set each port for different speeds and word structures. The SmartNode 485 also includes 2-wire RS-485 support.

To use other RS-485 equipment with SmartNode and to add serial interface capabilities to your PC, see our selection of PCI cards (page 475). They can turn your PC into the master on a SmartNode network without adding an external converter. For external conversion, use the IC108A or IC109A-R3 (above). Or if you're at your distance limit, add the RS-485 Repeaters (facing page).



IC150A

TECH SPECS

Operation — RS-232: half- or full-duplex; RS-485: 4-wire, half- or full-duplex; 2-wire, half-duplex
Protocol — Asynchronous
Speed — 45.5 bps to 38.4 kbps
CE Approval — IC150A
Interface — RS-232 DTE, RS-485
Connectors — (1) DB9 F, (1) 4-position terminal block
Power — 115 VAC, 60 Hz (230-VAC, 50-Hz version on request)
Size — 1.8"H x 5.5"W x 8.5"D (4.6 x 14 x 21.6 cm)
Weight — 2 lb. (0.9 kg)

Item	Code	List Price
SmartNode 485 Standalone	IC150A	
Card	IC150C	
To rackmount your cards, order...		
12-Card Rack for SmartNode 485	RM010-SN	
DB9 Male to DB25 Female AT Adapter (For details, see p. 165).	FA521A-R3	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

9-Pin to Modem Cable (DB25 Male/DB9 Male) EHM024-0010
 9-Pin to AT® Cable (DB9 Female/DB9 Male) EHM025-0010

RS-232↔TTL Converters

Perfect for programmable logic controllers.

- Bidirectional conversion of RS-232 to TTL levels.
- Both convert four channels in each direction.
- Support speeds of up to 115 kbps.
- Interface powered—no AC outlet needed.
- ♦♦ **WARRANTY** — 1 Year



IC1156A



Item	Code	List Price
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RS-232↔TTL Converters
DB25 Female/DB25 Male
IC1156A
DB9 Female/DB9 Male IC1157A

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

RS-232 Cable, 25-Conductor, DB25 Male/DB25 Male, 10-ft. (3-m) (For other lengths, genders, or conductors, see p. 166.)

ECM25T-0010-MM

TECH SPECS

CE Approval — Yes
Connectors —

IC1156A: RS-232: (1) DB25 F; TTL: (1) DB25 M;
IC1157A: RS-232: (1) DB9 F; TTL: (1) DB9 M

Power — From the interface
Size — 2.2"H x 2.2"W x 0.6"D (5.6 x 5.6 x 1.5 cm)

RS-232↔422 Opto-Isolators

Send your data up to 19.2 kbps with opto-isolation.



- Bidirectionally convert RS-232 and RS-422 signals.
- Prevent damaging ground loops when transmitting between buildings.
- Stop ground loops by internally transforming electrical signals into fiber optic light pulses, creating an "air gap" between the two AC systems.
- ♦♦ **WARRANTY** — 1 Year

NOTE: Cannot be used in pairs.

TECH SPECS

Operation — 4-wire, full-duplex, point-to-point
Protocol — Asynchronous
Speed (Maximum) — 19.2 kbps, transparent
CE Approval — Yes
Connectors — RS-232: (1) DB25 F;
RS-422: (1) 4-screw terminal block
Power — From both RS-232 and RS-422 interfaces
Size — 0.7"H x 2"W x 2.7"D (1.8 x 5.1 x 6.9 cm)
Weight — 0.1 lb. (<0.1 kg)

Item	Code	List Price
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RS-232↔422 Opto-Isolators
Female IC457A-F
Male IC457A-M

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

CAT5 Solid-Conductor Bulk Cables, 2-Pair
EYN717A

See blackbox.com.

Async RS-232↔2-Wire RS-485 Interface Converters

Transmit your asynchronous data point-to-point between RS-232 and RS-485 interfaces.

- All RS-232 and RS-485 data signals passed straight through.
- Provide async, point-to-point, half-duplex operation over two wires.
- Data flies at up to 115.2 kbps.
- Pass transmit and receive data in each direction.
- No RTS toggle required.
- Use data to enable the transmitter.
- No user configuration necessary—ready to go right out of the box.
- DB25 is configured as DCE.
- Go the distance with a range of up to 4000 feet (1219.2 m).
- Operate transparently as if there were a standard cable connection.
- Powered from the RS-232 data and control signals. No batteries or power adapters needed.
- ♦♦ **WARRANTY** — 1 Year



IC1521A-F

IC1520A-F

TECH SPECS

Distance (Maximum) — 4000 ft. (1219.2 m)
Operation — 2-wire, RS-485, half-duplex, point-to-point
Protocol — Async
Speed (Maximum) — 115.2 kbps
Transmitter Control — Data
CE Approval — Yes
Connectors — IC1520A-F: (1) 5-screw terminal block, (1) DB25 F;
IC1521A-F: (1) RJ-45, (1) DB25 F
Power — From the RS-232 interface
Size — IC1520A-F: 0.7"H x 2.1"W x 3.3"D (1.8 x 5.3 x 8.4 cm);
IC1521A-F: 0.7"H x 2.1"W x 2.7"D (1.8 x 5.3 x 6.9 cm)

NOTE: The RS-232 RTS (Pin 4) and CTS (Pin 5) are tied together. DSR (Pin 6), DCD (Pin 8), and DTR (Pin 20) are all tied together.

Item	Code	List Price
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Async RS-232↔2-Wire RS-485 Interface Converters
Terminal Block to DB25 Female
IC1520A-F
RJ-45 to DB25 Female IC1521A-F

You may also need...

DB25 EMI/RFI Shielded Gender Changer
Male/Male (For details, see p. 173.)
FA402-R2

Async RS-232↔RS-485 Interface Converters

The five best ways to convert your async RS-232 communications.



- The RS-232 side has a DB25 or DB9 male or female connector configured as DCE.
- The RS-485 side has a male or female DB25 or DB9 connector, or a terminal block.
- Choose from three converters if the RS-232 side uses a DB25 connector.
- Choose from two converters if the RS-232 side uses a DB9 connector. Both convert unbalanced RS-232 signals to balanced half-duplex RS-485 signals.
- Run at up to 115.2 kbps for distances up to 4000 feet (1219.2 m).
- Use point-to-point or multipoint.
- Operate in half- or full-duplex over two or four wires.
- Work with or without transmit "echo."
- **◆◆ WARRANTY** — 1 Year



IC1478A-F



IC1620A-F

TECH SPECS

Operation — IC1476A-F-US, IC1477A-M-US: 2- or 4-wire, half- or full-duplex operation; IC1478A-F, IC1620A-F, IC1625A-F: 2-wire, half-duplex

Transmitter Control — IC1476A-F-US: RTS or data or always on; IC1477A-M-US, IC1478A-F, IC1620A-F, IC1625A-F: Data

CE Approval — Yes

Power — IC1476A-F-US, IC1477A-M-US: 120 VAC, 60 Hz, external; IC1478A-F, IC1620A-F, IC1625A-F: From the interface

Item	Code	List Price
Async RS-232↔RS-485 Interface Converters		
DB25 Female to Terminal Block	IC1476A-F-US	
DB25 Male to DB25 Female	IC1477A-M-US	
DB25 Female to DB25 Male	IC1478A-F	
DB9 Female to Terminal Block	IC1620A-F	
DB9 Female to DB9 Female	IC1625A-F	
To convert from DCE to DTE, order...		
Asynchronous Modem Eliminators (AMEs)		
DB25 Male/Male	ME201	
DB25 Male/Female	ME202	
DB9 Male/Female	ME212	
DB9 Male/Male	ME213	

Async RS-232↔RS-422 Interface Converters

Async conversion and a choice of connectors priced right for your budget.

- Convert unbalanced RS-232 signals to balanced RS-422 signals.
- The RS-232 side has a DB25 or DB9 port configured as DCE.
- The RS-422 side has a terminal block or DB9 or DB25 connector.
- RS-422 pin-outs of the DB9 female/female model match an SMPTE video standard-compatible controlling device.
- For the DB25 models, power is derived from the transmit data line (Pin 2) and the handshake control lines (Pins 4, 5, 6, 8, and 20).
- For DB9 equipment, if the peripheral operates on the RS-422 signal, use only one DB9 converter. But if the transmitting and receiving equipment only operates on RS-232, use two converters.
- All provide 115.2-kbps speed for distances up to 4000 feet (1219.2 m).
- **◆◆ WARRANTY** — 1 Year



IC1473A-F

TECH SPECS

Operation — 4-wire, full-duplex

Transmitter Control — Always on

CE Approval — Yes

Power — IC1470A-M, IC1470A-F, IC1473A-F: From the interface or optional power supply (PS1003); IC1471A-M: From the interface; IC1474A-F: From the interface DTR and RTS

Item	Code	List Price
Async RS-232↔RS-422 Interface Converters		
DB25 Male to Terminal Block	IC1470A-M	
DB25 Female to Terminal Block	IC1470A-F	
DB25 Male to DB25 Female	IC1471A-M	
DB9 Female to Terminal Block	IC1473A-F	
DB9 Female to DB9 Female	IC1474A-F	
You may also need...		
Power Supply for IC1470A-M, IC1470A-F, and IC1473A-F		
	PS1003	

Async RS-232↔2-Wire RS-485 Interface Converters

Transmit your data across RS-232 and RS-485 interfaces.

- Data rates up to 115.2 kbps.
- Point-to-point, half-duplex operation over two wires.
- Pass transmit and receive data in each direction.
- Powered from the RS-232 data and control signals.
- No RTS toggle required for the transmitter control.
- DB25 is configured as DCE.
- ♦♦ **WARRANTY** — 1 Year



Tired of trying to figure out how to configure DCE equipment? BLACK BOX® Async RS-232↔2-Wire RS-485 Interface Converters are ready to go right out of the box—no configuration is necessary. In minutes, your data will fly between RS-232 and RS-485 interfaces at speeds up to a zippy 115.2 kbps!

These interface converters provide big-time performance in small packages. They derive their power from RS-232 data and control signals, so no batteries or clunky AC power adapters are required.

Transmit and receive data are passed in each direction. You get async, point-to-point operation for your 2-wire, half-duplex applications. Options include DB25 female connectors matched with either an RJ-45 connector or a terminal block with built-in strain relief.

Get the distance you need, too. The Async RS-232↔2-Wire RS-485 Interface Converters have a range of up to 4000 feet (1219.2 m). Once installed, the converters operate transparently as if there were a standard cable connection. All data signals from the RS-232 and RS-485 interfaces are passed straight through.



IC520A-M

TECH SPECS

Distance (Maximum) — 4000 ft. (1219.2 m)
Operation — 2-wire, half-duplex, point-to-point
Protocol — Async
Speed (Maximum) — 115.2 kbps
CE Approval — Yes
Connectors — (1) terminal block with strain relief or (1) RJ-45; (1) DB25 M or F
Power — From the RS-232 data and control signals
Size — 0.7"H x 2.1"W x 2.7"D (1.8 x 5.3 x 6.9 cm)

Item	Code	List Price
Interface Converters		
Terminal Block to		
DB25 Female	IC520A-F	
DB25 Male	IC520A-M	
RJ-45 to		
DB25 Female	IC521A-F	
DB25 Male	IC521A-M	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

CAT3 Solid-Conductor Bulk Cable, 2-Pair, PVC, Custom Lengths (For specific lengths or plenum cable, see p. 110.) EYN712A

Async RS-232↔RS-485 Interface Converters with Opto-Isolation

Fast, secure, and ready for 2- or 4-wire transmissions.

- Transmit full- or half-duplex over 4 wires or half-duplex over 2 wires.
- Support a maximum distance of 4000 feet (1219.2 m).
- Built-in 2500-Vrms optical isolators provide isolation between the RS-232 and RS-485 interfaces.
- RTS or DTR transmitter control.
- Includes an AC adapter.
- ♦♦ **WARRANTY** — 1 Year



IC526A-F

Our Async RS-232↔RS-485 Interface Converters have the versatility you need and include built-in 2500-Vrms optical isolators that provide isolation between the RS-232 and RS-485 interfaces.

And if equipment protection isn't enough, these converters work with both 4-wire and 2-wire installations! Use them to transmit full- or half-duplex over 4 wires or half-duplex over 2 wires.

Choose between two different models. The RS-232 interface features either a male or female DB25 connector. The RS-485 side has an RJ-45 connector.



TECH SPECS

Distance (Maximum) — 4000 ft. (1219.2 m)
Operation — 4-wire full- or half-duplex, 2-wire half-duplex, point-to-point or multipoint
Speed (Maximum) — 115.2 kbps
Transmission Format — Async
Connectors — IC526A-F: (1) DB25 F, (1) RJ-45; IC526A-M: (1) DB25 M, (1) RJ-45
Power — External power adapter, 5 VDC, 300 mA
Size — 0.8"H x 2.1"W x 3.8"D (2 x 5.3 x 9.7 cm)

Item	Code	List Price
Async RS-232↔RS-485 Interface Converters with Opto-Isolation		
DB25 Female to RJ-45	IC526A-F	
DB25 Male to RJ-45	IC526A-M	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

CAT3 Solid-Conductor Bulk Cable, 2-Pair, PVC, Custom Lengths (For specific lengths or plenum cable, see p. 110.) EYN712A

Async RS-232↔RS-485 Interface Converters

Convert your high-speed RS-232 applications to RS-485!

- Half- or full-duplex operation over two or four wires, point-to-point or multipoint.
- Distances up to 9 miles (14.4 km).
- Async data rates up to 115.2 kbps.
- Operate with or without transmit "echo."
- Two-wire half-duplex turnaround controlled by the RS-232 RTS signal.
- The RS-232 connector is a DB9 or DB25; the RS-485 connector is DB25, RJ-11, RJ-45, or a terminal block.
- Built-in silicon avalanche diode surge protection against data loss and equipment damage from transient surges.
- You can also "fine tune" impedance and "echo" characteristics for your individual application.
- For configuration, the DB25 Male/Male model (IC478A-M-R2) has a DTE/DCE slide switch and an internal 8-position DIP switch; the others feature two internal 4-position DIP switches.
- **◆◆ WARRANTY** — 1 Year



TECH SPECS

Distance (Maximum) — 9 mi. (14.4 km), depending on data rate and cable type
Operation — 2-wire half-duplex or 4-wire full- or half-duplex, point-to-point or multipoint
Speed (Maximum) — 115.2 kbps
Transmission Format — Async
Connectors — IC478A-M-R2: (1) DB25 M, (1) DB25 M; IC623A-M: (1) DB9 M, (1) RJ-11; IC624A-M: (1) DB9 M, (1) RJ-45; IC623A-F: (1) DB9 F, (1) RJ-11; IC624A-F: (1) DB9 F, (1) RJ-45; IC620A-F: (1) DB9 F, (1) terminal block
Power — From RS-232 data and control signals
Size — IC478A-M-R2: 0.8"H x 2.1"W x 2.7"D (2 x 5.3 x 6.9 cm); All others: 0.8"H x 1.2"W x 2.5"D (2 x 3 x 6.4 cm)



IC631A-F

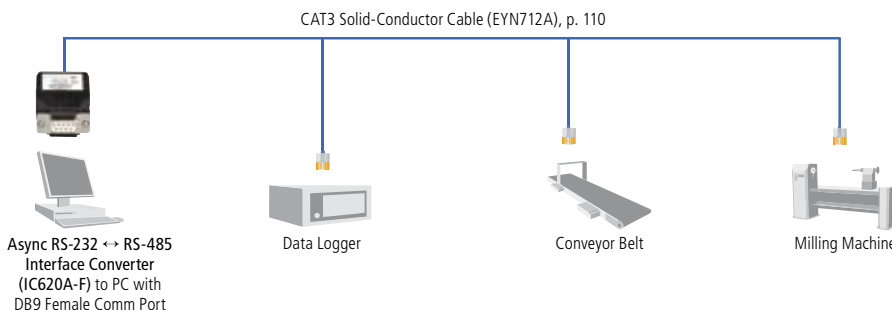
Item	Code	List Price
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Async RS-232↔RS-485 Interface Converters
DB25 Male to DB25 Male

	IC478A-M-R2	
DB9 Male to RJ-11	IC623A-M	
RJ-45	IC624A-M	
DB9 Female to RJ-11	IC623A-F	
RJ-45	IC624A-F	
Terminal Block	IC620A-F	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

CAT3 Solid-Conductor Bulk Cable, 2-Pair, PVC, Custom Lengths (For specific lengths or plenum cable, see p. 110.) EYN712A



Async RS-232↔RS-422 Interface Converters

Let your high-speed RS-232 devices communicate with your RS-422 devices.



IC631A-F



TECH SPECS

Distance (Maximum) — 4000 ft. (1219.2 m)
Operation — 4-wire full-duplex, point-to-point
Speed (Maximum) — 19.2 kbps
Transmission Format — Async
Connectors — IC630A-M: (1) DB9 M, (1) RJ-11; IC630A-F: (1) DB9 F, (1) RJ-11; IC631A-F: (1) DB9 F, (1) RJ-45
Power — From RS-232 data and control signals
Size — 0.8"H x 1.2"W x 2.5"D (2 x 3 x 6.4 cm)

- Full-duplex data transmission over four wires.
- Distances up to 4000 feet (1219.2 m).
- Async data rates up to 19.2 kbps.
- The RS-232 connector is a DB9; the RS-422 connector is an RJ-11 or RJ-45.
- Connect directly to RS-232 equipment.
- No power supply required—power is drawn from RS-232 data and control signals.
- Loop back all RS-232 handshaking signals.
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price
------	------	------------

Async RS-232↔RS-422 Interface Converters

DB9 Male to RJ-11	IC630A-M	
DB9 Female to RJ-11	IC630A-F	
RJ-45	IC631A-F	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

CAT3 Solid-Conductor Bulk Cable, 2-Pair, PVC, Custom Lengths (For specific lengths or plenum cable, see p. 110.) EYN712A

RS-232↔Current Loop Interface Converters

Electrical interference in industrial jobs? No problem!



Top: CL412A-M;
bottom: CL050A-R3



Active or Passive (CL050A-R3, CL050-C) and Passive Only (CL051A)

- Match your system's 20-, 30-, or 60-mA Current Loop interface.

Interface-Powered (CL412A)

- Features a 4-screw terminal block and works in passive applications.
- **◆◆ WARRANTY** — All: 1 Year

Item	Code	List Price
RS-232↔Current Loop Interface Converter (232/CL-E), AC-Powered, Active or Passive		
Standalone	CL050A-R3	
◆ Includes (1) 6-ft. AT® Modem Cable (EVMBMC-0006) and (1) DB9 Male to DB25 Female AT Adapter (FA521A-R3).		
Rackmount Card	CL050-C	
130-VDC, 20/60-mA Converter, Passive Only		
Standalone	CL051A	
RS-232↔Current Loop Interface-Powered Converter		
Male	CL412A-M	
Female	CL412A-F	

To rackmount your interface converter card, order...

16-Card Rack (For details, see blackbox.com.)
RM005

NOTE: The 232/CL-E can be the active Current Loop device; the others are passive only.

PS/2 Bar-Code Reader

Get speed and accuracy for your inventory control.



- Use with Code 39, UPC-A&E, EAN-8, EAN-13, Codabar, and more.
- Scans compressed, expanded, and multiple codes without changing software.
- Install the software and wave the wand over the codes on the configuration menu.
- Use the reader between your keyboard and CPU.

- Includes (1) Y cable with DIN connector, VELCRO® strips, a wand and wand holder, a laminated setup menu sheet, and a mounting bracket.
- **◆◆ WARRANTY** — 2 Years

Item	Code	List Price
PS/2 Bar-Code Reader	DA026	

RS-232↔Current Loop Converters

Control Current Loop devices from your PC.



- Bidirectional conversion of an async RS-232 device to digital 20-mA Current Loop device.
- Configured as RS-232 (DCE) but adaptable to DTE with an optional modem eliminator.
- Active or passive operation.
- Optical isolation protects data.
- **◆◆ WARRANTY** — 1 Year



CL1090A-F-US

Item	Code	List Price
RS-232↔Current Loop Converters		
DB25 Female/DB25 Male	CL1060A-M-US	
DB25 Female/DB25 Female	CL1060A-F-US	
DB25 Male/Terminal Block	CL1090A-M-US	
DB25 Female/Terminal Block	CL1090A-F-US	

To convert the RS-232 interface from DCE to DTE, order...

Asynchronous Modem Eliminator (AME),
Male/Female

See blackbox.com.

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

RS-232 Cable, 25-Conductor, DB25 Male/DB25 Male, 10-ft. (3.0-m)
(For other lengths, genders, or conductors, see p. 166.)
ECM25T-0010-MM

NOTE: For international versions, call our FREE Tech Support.

Communications Adapter Plus (CAP) User-Programmable Communications Adapter Plus (CAP)

Overcome any data incompatibility with your async RS-232 devices!

Communications Adapter Plus

- Enables two mismatched async serial devices to communicate by translating between protocols.
- Converts bidirectionally between half- and/or full-duplex modes and speeds from 45.5 bps to 38.4 kbps.
- Configure the two RS-232 ports individually via DIP switches.



CMA005A

User-Programmable Communications Adapter Plus

- Enables you to program any number of single- or multiple-character conversions.

- Perfect for applications in which you need to change a character or string.
- **◆◆ WARRANTY** — All: 1 Year

NOTE: 230-VAC, 50-Hz power supply available. For details, call our FREE Tech Support.

Item	Code	List Price
Communications Adapter Plus (CAP)	CMA02A	
User-Programmable Communications Adapter Plus (CAP)	CMA005A	

You may also need...

DB9 Male to DB25 Female Adapter FA521A-R3

PCI Cards

Add ports—and speed—for serial devices via your PCI bus.

Async RS-232 Cards

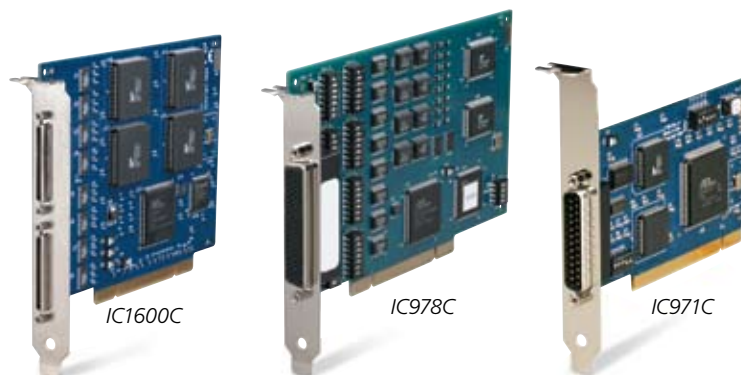
- Four cards are universal bus compatible and operate in 5-V or 3.3-V signaling level systems! (See IC970C-LP, IC188C-R2, IC190C-R2, and IC1600C.)
- Cards with 16850 and 16854 UARTs achieve 460.8-kbps sustained data rates.
- The 16650 and 16750 UART cards support data rates of 460.8 kbps in bursts.
- The 16554 UART cards support 115.2 kbps.
- Include drivers for Windows® diagnostics.
- Support all PCI interrupts.

Async RS-232/422/485 Cards

- Two cards offer universal bus compatibility and operate in 5-V or 3.3-V signaling level systems! (See IC972C-R2 and IC978C.)
- The 16864 card offers a burst speed of 921.6 kbps!
- The 16850 UART cards feature sustained speeds of 460.8 kbps and have a 128-byte FIFO buffer for fewer CPU interrupts!
- The 16550 UART cards provide 115.2-kbps rates.
- For RoHS compliance, choose the ICR975C-LP.
- Configure ports as RS-232 for standard serial COM ports or choose RS-422 for long-distance connections.
- RS-422 and RS-485 interfaces support 2- or 4-wire operation.

Async RS-422/485 Cards

- The 16850 UART cards support sustained speeds of 460.8 kbps.
- The 4-port 16550 UART card (IC141C-R2) offers 115.2-kbps speed.
- Use RS-422 in areas where noise immunity and high data integrity are essential.
- Select RS-485 to capture data from peripherals in a multidrop network.
- Autoenable circuitry enables the RS-485 transmitter during data transmission.
- Support 2- or 4-wire operation.
- **◆◆ WARRANTY** — All: Lifetime



TECH SPECS

Async RS-232 Cards:

Speed (Maximum) — IC970C-LP, IC188C-R2, IC190C-R2, IC1600C: 460.8 kbps (sustained); IC140C-R2, IC143C-R2: 460.8 kbps (burst); IC142C: 115.2 kbps

CE Approval — Yes

Connectors — IC970C-LP: (1) DB9 M; IC140C-R2, IC143C-R2: (2) DB9 M; IC188C-R2: (1) DB37 M on card; (1) DB37 F to (4) DB25 M on the included cable; IC142C, IC190C-R2: (1) DB78 F on card; (1) DB78 F and (8) DB25 M on the included cable; IC1600C: (2) VHDCI68 F on card; (2) included cables, each with (1) VHDCI68 M and (8) DB25 M

Async RS-232/422/485 Cards:

Speed (Maximum) — IC133C-R2: 115.2 kbps; IC975C-LP, ICR975C-LP, IC972C-R2, IC187C, IC973C, IC187C-LP, IC974C: 460.8 kbps (sustained); IC978C: 921.6 kbps (burst), 460.8 kbps (sustained)

CE Approval — Yes

Connectors — IC975C-LP, ICR975C-LP, IC972C-R2:

(1) DB25 M; IC133C-R2, IC187C, IC973C: (2) DB9 M; IC187C-LP: (1) DB25 M on card; (2) DB9M on the included cable; IC974C: (1) DB37 F on card; (4) DB9 M on the included cable; IC978C: (1) DB78 F on card; (8) DB9 M on the included cable

Async RS-422/485 Cards:

Speed (Maximum) — IC971C, IC189C: 460.8 kbps (sustained); IC141C-R2: 115.2 kbps

CE Approval — Yes

Connectors — IC971C: (1) DB25 M; IC141C-R2, IC189C: (1) DB37 M on card; (1) DB37 F and (4) DB9 M on the included cable

Item	Code	List Price
Async PCI Cards		
RS-232		
1-Port Low-Profile		
16850 UART	IC970C-LP	
2-Port		
16650 UART	IC140C-R2	
16750 UART	IC143C-R2	
4-Port Low-Profile		
16854 UART	IC188C-R2	
◆ Each 4-port card includes (1) DB37 female connector to (4) 3-ft. cables with DB25 male connectors.		
8-Port	16554 UART	IC142C
8-Port Low-Profile		
16854 UART	IC190C-R2	
◆ Each 8-port card includes (1) DB78 female connector to (8) 3-ft. cables with DB25 male connectors.		
16-Port	16854 UART	IC1600C
◆ Includes (2) cables, each with (1) VHDCI68 male to (8) DB25 male connectors.		
RS-232/422/485		
1-Port Low-Profile		
16850 UART	IC975C-LP	
16850 UART, RoHS	ICR975C-LP	
1-Port Low-Profile with Opto Isolation		
16850 UART	IC972C-R2	
2-Port	16550 UART	IC133C-R2

Item	Code	List Price
Async PCI Cards (Continued)		
RS-232/422/485 (Continued)		
2-Port	16850 UART	IC187C
2-Port with Opto Isolation		
16850 UART	IC973C	
2-Port Low-Profile		
16850 UART	IC187C-LP	
4-Port	16850 UART	IC974C
◆ Includes (1) DB37 female connector to (4) 3-ft. cables with DB9 male connectors.		
8-Port	16864 UART	IC978C
◆ Includes (1) DB78 female connector to (8) 3-ft. cables with DB9 male connectors.		
RS-422/485		
1-Port	16850 UART	IC971C
4-Port	16550 UART	IC141C-R2
16850 UART	IC189C	
◆ Each 4-port card includes (1) DB37 female connector to (4) 3-ft. cables with DB9 male connectors.		

Async ISA Cards

An array of adapter cards for adding serial device ports on your ISA bus.



RS-232 ISA Cards

- High-speed models feature a higher-speed crystal oscillator.
- Select from up to nine interrupts. Each port is individually addressable and needs its own interrupt.
- Cards with Interrupt Status Port (ISP) offer more throughput when servicing multiple ports on a single interrupt line.

RS-232/422/485 ISA Card

- Configure two RS-232 ports, two RS-422/485 ports, or one of each.
- Features 11 interrupt options and supports interrupt sharing.
- Offers 2- or 4-wire operation for RS-422 and RS-485 interfaces.

RS-422/485 ISA Cards

- Cards are COM-1 through COM-4 addressable and also feature nonstandard I/O addressing.
- Cards with autoenable circuit activate the RS-485 transmitter during character transmission.
- Offer 2- or 4-wire operation.
- ♦♦ **WARRANTY** — All: Lifetime



IC113C

TECH SPECS

Speed (Maximum) — IC102C-R2, IC113C: 115.2 kbps; IC600C, IC057C: 115.2 kbps;
CE Approval — Yes
Connectors — IC102C-R2: (1) DB37 F, (4) DB25 M; IC113C: (2) DB9 M; IC600C, IC057C: (2) DB9 M;

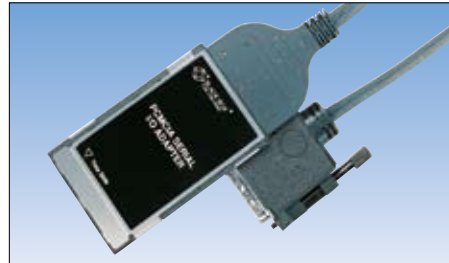
Item	Code	List Price
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Async ISA Cards		
RS-232 4-Port with ISP, 16554 UART	IC102C-R2	
♦ Includes (1) DB37 female connector to (4) 3-ft. cables with DB25 male connectors.		
RS-232/422/485, 2-Port 16550 UART	IC113C	
RS-422/485 with 4 IRQs, 2-Port 16550 UART	IC600C	
RS-422/485 with 11 IRQs and Autoenable 2-Port with Optical Isolation (500 VDC), 16550 UART	IC057C	

PCMCIA Async or Sync Serial I/O Adapters

Get more mobility with an extra comm port.

- Control/automate RS-232 or RS-422/485 devices without being tied to your desk.
- RS-232 distances up to 50 feet (15.2 m); RS-422/485 to 4000 feet (1219.2 m).
- Async data up to 460.8 kbps (sustained) with the 16850 UART model!
- Dual-port adapters feature two UARTs!
- Include drivers for Windows.
- Comply fully with PCMCIA Type II specs.
- To connect to async bar-code readers, scales, or any RS-232 peripherals, use our async models.
- For protocols such as SDLC, HDLC, and X.25—and for sync communications—choose our sync adapter. It comes with developer tool kit software!
- ♦♦ **WARRANTY** — 1 Year



TECH SPECS

Hardware Requirements — PC, notebook, or laptop with a PCMCIA Type II slot and a 3.5" floppy drive
Speed (Maximum) — IC114A-R2–IC115A-R2, IC118A: 115.2 kbps; IC119A: 460.8 kbps (sustained); IC117A-R2: 200 kbps
CE Approval — Yes
Connectors — IC118A–IC119A: Interface cable (included): (2) DB9 M to PCMCIA Type II dongle; All others: Interface cable (included): (1) DB25 M to PCMCIA Type II dongle



Item	Code	List Price
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PCMCIA Serial I/O Adapters		
Single-Port		
Async RS-422/485 16550 UART	IC114A-R2	
Async RS-232 16550 UART	IC115A-R2	
Sync RS-232/422/530/V.35 Zilog™ 85233 SCC	IC117A-R2	
♦ Include (1) DB25 male to PCMCIA Type II dongle interface cable.		
Dual-Port		
Async RS-232 (2) 16550 UARTs	IC118A	
Async RS-232 (High-Speed) (2) 16850 UARTs	IC119A	
♦ Include (2) DB9 male to PCMCIA Type II dongle interface cables.		

Black Box Explains

UARTS at a glance.

Universal Asynchronous Receiver/Transmitters (UARTs) are integrated circuits that convert bytes from the computer bus into serial bits for transmission. By providing surplus memory in a buffer, UARTs help applications by giving maximum throughput to high-performance peripherals without slowing down CPUs.

Early UARTs didn't include buffering (RAM or memory). But with the advent of higher-speed devices, the need for UARTs that could handle more data became critical. Manufacturers then began adding 16-byte First-In First-Out (FIFO) buffers to UARTs for greater throughput.

Relay/Digital I/O Cards • Relay Output Cards

Relay on the relay! Count on these cards for long-lasting control.



- Use for PC-based control and automation of industrial equipment including sensors, switches, security control systems, and other automation systems.
- Use PCI bus slots for simple input/output or output-only control.
- Include drivers for Windows® 98/Me/XP, Windows NT®, and Windows 2000.
- IC904C features isolated inputs to protect equipment from transient spikes and surges.
- Ideal for integrating unattended status-monitoring equipment and fallback network-switching circuits.
- Additional management software is included.
- Software development kit is also included—write your own applications!
- ♦♦ **WARRANTY** — 1 Year



IC903C-R2

Relay/Digital IO Cards (IC903C-R2, IC909C)

- Support all PCI interrupts.
- 32 or 48 inputs or outputs.
- Flexible interrupt options available.
- Multiple adapters can reside in same computer.
- Card with 32 I/O includes one 50-pin IDC connector to industry-standard relay racks.
- Card with 48 I/O includes two 50-pin IDC connectors to industry-standard relay racks, plus one DB37 male connector.
- Cables available for simple connection to industry-standard relay racks.

Relay Output Cards (IC905C, IC908C)

- Support all PCI interrupts.
- Addressing from 100H–3FFH.
- Models with 16 or 32 reed relay outputs.
- Highly reliable 10-VA DIP reed relays.

TECH SPECS

Channels — IC903C-R2: (32) inputs or outputs; IC909C: (48) inputs or outputs; IC905C: (16) outputs; IC908C: (32) outputs

Input Isolation — 400-V optical

Input Range — IC903C-R2, IC909C: 3–12 VDC

MTBF — >150,000 hours (calculated)

Output Relay — 200 million operations, 10-VA resistive load

Relay Contact Current (Maximum) — 0.5 A DC or AC RMS

Relay Contact Power Ratings (Maximum) — 10 W

Relay Contact Resistance — Initial: 0.15 ohms

Relay Contact Speed — Operate: 0.5 ms; Release: 0.5 ms; Bounce: 0.5 ms

Relay Contact Voltage (Maximum) — 100-V AC/DC

Relay Rated Life — Low load: 200,000,000 closures; Maximum load: 100,000,000 closures

Signal — TTL compatible address, data, and control

Throughput (Maximum) — 600 Hz

CE Approval — Yes

Connectors — IC903C-R2: (1) 50-pin IDC; IC909C: (1) DB37 M, (2) 50-pin IDC; IC905C: (1) DB37 M; IC908C: (1) DB37 M, (1) DB37 F

Power — From the bus; Consumption: Supply line: +5 VDC; Rating: 270 mA

Item	Code	List Price
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Relay/Digital I/O Cards, PCI		
32 Inputs or Outputs	IC903C-R2	
48 Inputs or Outputs	IC909C	
Relay Output Cards, PCI		
16 Outputs	IC905C	
32 Outputs/Kit	IC908C	
♦ IC908C includes (1) Relay Output Card and (2) 37-pin male/female terminal blocks.		

Order one adapter for each card...

DB25 to Terminal Block Adapter	IC980	
DB9 to Terminal Block Adapter	IC981	
50-Pin to Terminal Block Adapter	IC982	

You may also need...

50-Pin Ribbon to Edge Cable	IC909C-CABL	
50-Pin Ribbon to IDC Cable	IC909C-IDC	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

CAT5 Solid-Conductor Bulk Cable, 2-Pair, PVC, Custom Lengths (For specific lengths or plenum applications, see blackbox.com.)
EYN717A

blackbox.com

This may be the Big Book, but blackbox.com is even **BIGGER!**

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 - **Savings.** Find weekly specials and savings on featured converter products.

If you still can't find what you need, just ask the experts at our **FREE Tech Support hotline!**

Serial↔Parallel Converter IV

The serial/parallel converter for 25 MHz—and higher—machines.

- Converts serial to parallel or parallel to serial.
- Automatically selects parallel-to-serial and serial-to-parallel operation and DCE/DTE modes.
- Just flip switches to choose word structure and speed.
- Serial data rates up to 115.2 kbps.
- Supports software and hardware flow control.
- Compatible with all popular printers and computers.
- Has a power supply for low-power interfaces.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Buffer — 96 Bytes
Data Format — 7 data bits, even or odd parity; 8 data bits, no parity; 1 stop bit
Diagnostics — Self test
Flow Control — Serial: Hardware handshaking DTR Software X-ON/X-OFF; Parallel: Hardware (Busy, Acknowledge)
Speed (Maximum) — 115.2 kbps
CE Approval — Yes
Interface — Asynchronous RS-232 serial and parallel DB25
Connectors — (2) DB25 F
Power — From the interface or DTR and RTS or included power supply
Size — 4.3"H x 1.7"W x 0.8"D (10.9 x 4.3 x 2 cm)
Weight — 1 lb. (0.5 kg)



Item	Code	List Price
Serial↔Parallel Converter IV	PI1115A-US	
♦ Includes a 120-VAC power supply.		

IEEE 1284 Serial→Parallel Converter

Connect async serial hardware to an IEEE 1284 bidirectional interface.



- Converts serial to IEEE 1284 parallel.
- Runs at speeds up to 115.2 kbps.
- Supports Compatible and Nibble modes.
- On the serial side, the converter translates Nibble operations into standard HP® LaserJet® IV serial printer escape sequences.
- Backward-compatible with Bi-Tronics Level 2 hardware.
- Features 10-kV electrostatic discharge (ESD) protection on the serial interface.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Flow Control — Serial: Hardware or software (X-ON/X-OFF), user selectable; Parallel: Hardware
Leads Supported — Serial: 1–8; Parallel: Pins 1–13 active; 31, 32, 36 held high; 16–30 ground
Power — IEEE 1284 B interface must support optional 5 V on Pin 18, IEEE 1284 C must support interface Pin 36; or use included external AC power supply
CE Approval — Yes
Connectors — Serial: (1) RJ-45; Parallel: (1) 36-pin Centronics® M

Item	Code	List Price
IEEE 1284 Serial→Parallel Converter	PI049A	
♦ Includes (1) external AC wallmount transformer.		

Serial↔Parallel Converter V

Easy conversion—no other devices needed.

- Makes the DB9 serial port on your PC compatible with parallel devices.
- Connect your PC to a printer—even with something plugged into its parallel port.
- Converts serial to parallel or vice versa.
- Automatic serial/parallel mode detection.
- Runs at speeds up to 38.4 kbps.
- Built-in 6-foot (1.8-m) cable includes a DB9 female socket for serial ports and a Centronics® or DB25 male plug on the other end.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Controls — External DIP switches: Speed, flow control, parity, word length
Data Format — Even, odd, or no parity; 7 or 8 data bits, 1 stop bit
Flow Control — Hardware or X-ON/X-OFF
Speed — 300 bps to 38.4 kbps, switch-selectable
CE Approval — Yes
Interface — Serial: Asynchronous; Parallel: Centronics
Connectors — Both: (1) DB9 F (DCE); PI045A: (1) 36-pin Centronics M; PI046A: (1) DB25 M
Indicators — (1) LED
Power — From the RS-232 interface
Size — 2.7"H x 1.3"W x 0.8"D (6.9 x 3.3 x 2 cm)



PI045A

Item	Code	List Price
Serial↔Parallel Converter V		
DB9/Centronics	PI045A	
DB9/DB25	PI046A	

Serial↔Parallel Converter (38.4 kbps)

Quick conversion for everyday print jobs.



- Save money. Put your old, reliable parallel printer to good use with your serial PC.
- Converts serial data to parallel data.
- Supports transmission speeds up to 38.4 kbps.
- Set speeds with with internal jumpers.
- Built-in 1-kbit buffer prevents data loss.
- Supports both X-ON/X-OFF and hardware flow control.
- DTE/DCE is switch selectable.
- Powered from the RS-232 interface.
- Includes 6-foot (1.8-m) connector cable.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Buffer Size — 1 kbit
Flow Control — Serial: Hardware or software X-ON/X-OFF; Parallel: Hardware (BUSY/ACK)
Leads Supported — Serial: Pins 1–9, 11, 19, 20; Parallel: Pins 1–11 active; 16–19, 30, 33, 36 ground
Speed — 300 bps to 38.4 kbps, switch-selectable
CE Approval — Yes
Interface — Serial: Asynchronous; Parallel: Centronics
Connectors — Serial (1) DB25 F; Parallel: (1) 36-pin Centronics M
Power — From the RS-232 interface
Size — 2.6"H x 1.3"W x 0.8"D (6.6 x 3.3 x 2 cm)

Item	Code	List Price
Serial↔Parallel Converter (38.4 kbps)	PI080A-R2	

SCSI Differential Converter

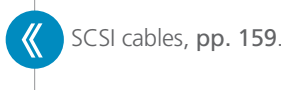
Convert between Single-Ended and Differential SCSI and extend your SCSI bus.



- Converts Single-Ended SCSI to Differential or vice versa.
- Extends the SCSI bus to 36 meters (118.1 ft.).
- Supports SCSI-1, -2, and -3.
- Up to 10-Mbps sync or 5-Mbps async.
- Completely transparent to SCSI-1 and 8-bit SCSI-2 commands.
- **◆◆ WARRANTY** — 1 Year

TECH SPECS

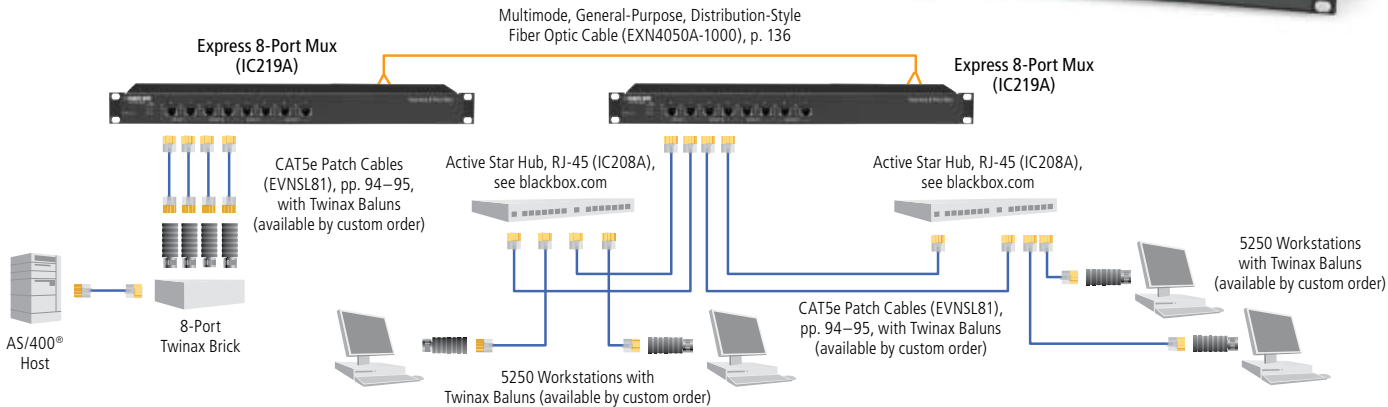
Cable Length (Maximum) — 25 m (82 ft.)
 CE Approval — 230-VAC version: IC152AE
 Connectors — (2) 68-pin HD F
 Power — 110/220 VAC, 48–65 Hz, autosensing
 Size — 2.1"H x 6"W x 9.5"D (5.3 x 15.2 x 24.1 cm)
 Weight — 2.5 lb. (1.1 kg)



Item	Code	List Price
SCSI Differential Converter	IC152A	

Express 8-Port Mux

Use your AS/400 host to control workstations via fiber and UTP!



- With a pair of these muxes, you can link your AS/400® host to your 5250 workstations via fiber and UTP!
- Add Active Star Hubs (see blackbox.com) to control up to 56 devices.
- Features split polling without requiring performance-robbing Programming Temporary Fixes.
- Detects standard 1-Mbps data rates and 2-Mbps IBM® 5250 Express data rates automatically.
- You can separate two AS/400 controller polling groups up to 15,000 feet (4572 m) over multimode fiber!

TECH SPECS

Active Pair — Port configurable;
 Defaults: Ring = Pin 4, Tip = Pin 5
 Distance (Maximum) —
 Host to mux: 2000 ft. (609.6 m);
 Mux to device: 2200 ft. (670.5 m);
 Mux to mux: 6600 ft. (2011.6 m)
 Fiber Optic Budget — 12 dB, typical
 Input Impedance — 100 ohms, nominal
 Speed — 1 or 2 Mbps, depending on IBM 5250
 CE Approval — Yes
 Connectors — (8) RJ-45, (1) DB25 M, (1) pair of ST®
 Indicators — LEDs: Power, Port Activity, Mode
 Power — 100–240 VAC, +5 VDC, external
 Size — 1.75"H (1U) x 19"W x 8.8"D
 (4.4 x 48.3 x 22.4 cm)

- Supports point-to-point and multipoint.
- Includes a field-replaceable power supply.
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price
Express 8-Port Mux	IC219A	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

GigaBase® CAT5e 350-MHz Patch Cable, 4-Pair, Straight-Pinned, PVC, Blue, 10-ft. (3.0-m) (For other lengths, colors, or pinings, see pp. 96-97.)
 EVNSL81-0010

You may also need...
 Twinax Baluns **Contact Tech Support.**

Ethernet to Twinax/Coax Print Server

Connect system printers to 10-/100-Mbps Ethernet!



- Connects twinax or coax IPDS™, SCS, or SCS/DSC printers to an Ethernet network.
- Enables an IPDS twinax or IPDS coax system printer to be addressed via TCP/IP from an AS/400 or a 3270-type mainframe.
- SCS/DSC coax system printers become available to virtually any host.

- Works with laser printers, line printers, and dot-matrix printers.
- Autosenses 10- and 100-Mbps speeds.
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price
Ethernet to Twinax/Coax Print Server	PC435A	

Data Communications

A good driver makes all the difference, from the tee ...
or from the T1.





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For New Products,
turn to pages 26–73.

Black Box Explains

How a line driver operates.

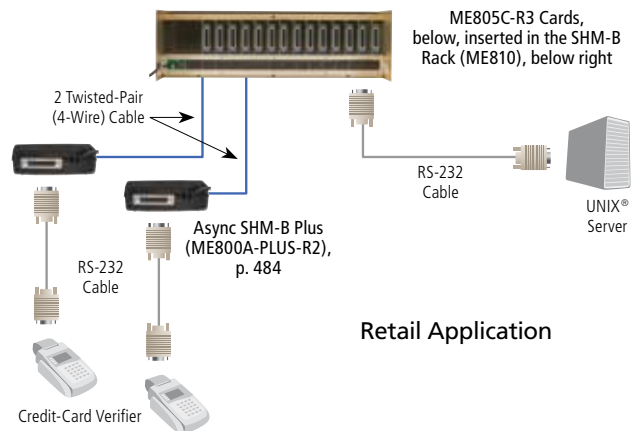
Driving data? Better check the transmission.

Line drivers can operate in any of four transmission modes: 4-wire full-duplex, 2-wire full-duplex, 4-wire half-duplex, and 2-wire half-duplex. In fact, most models support more than one type of operation. So how do you know which line driver to use in your application?

The deal with duplexing.

First, you must decide if you need half- or full-duplex transmission. In half-duplex transmission, voice or data signals are transmitted in only one direction at a time as in a CB radio conversation. In full-duplex operation, voice or data signals are transmitted in both directions at the same time, as in a telephone conversation.

In half-duplex mode, the entire bandwidth is available for your transmission. In full-duplex mode, however, the bandwidth must be split in two because data travels in both directions simultaneously.

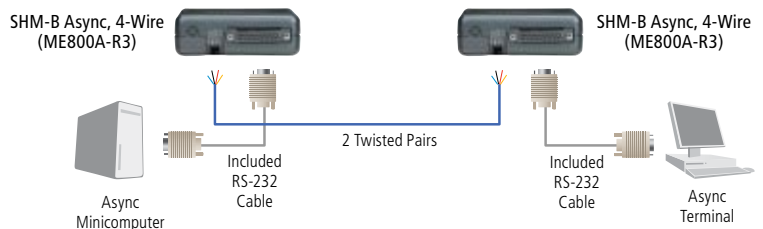


The simple way to connect RS-232 devices

Short-Haul Modem-B Async (SHM-B Async)



ME800A-R3



- Ideal for point-of-sale applications.
- Transmit 2 or 4 miles (3.2 or 6.4 km) over 2-wire or 4-wire RS-232.
- The Short-Haul Modem-B Async, 4-Wire models include a 6-foot cable and an adapter.
- With the High-Speed SHM-B Async, you can transmit data up to 1.5 miles (2.4 km) at speeds up to 115.2 kbps. Or transmit data up to 4 miles (6.4 km) at speeds up to 4800 bps.
- ♦♦ **WARRANTY** — 1 Year

Are your users too far away from the host in your RS-232 async environment? Then you need a BLACK BOX® Short-Haul Modem-B (SHM-B). Just choose the model for your application's speed.

RS-232 is the most common serial interface in use today. This means you can use your SHM-B in thousands of RS-232 installations—industrial applications; security systems; UNIX®, DEC™, and HP® workstation connectivity; and more. Remember to use SHM-Bs in pairs.

Short-Haul Modem-B Async, 2-Wire

Use our 2-Wire SHM-B Async to transmit data up to 2 miles (3.2 km). These models are made especially for your existing 2-wire cabling. You save money because you don't have to run new wire. To troubleshoot, run loopback tests from the front panel.

Short-Haul Modem-B Async, 4-Wire

Choose our 4-Wire SHM-B Async to transmit data up to 4 miles (6.4 km)! Run loopback tests simply by pressing a front-panel button. Open the standalone model's (ME800A-R3) flip-top lid for quick DTE/DCE selection.

Transformer and optical isolation protect your data from electrical interference. The 4-Wire SHM-B Async is compatible with the SHM-B Parallel (ME806A–ME807A) on [page 488](#).

High-Speed Short-Haul Modem-B Async, 4-Wire

The High-Speed SHM-B Async transmits your async data up to 1.5 miles (2.4 km) at speeds of up to 115.2 kbps! Go even farther—up to 4 miles (6.4 km)—at 4800 bps. Use it for applications that require higher speeds.

The high-speed standalone model (ME802A-R3) is housed in a sturdy metal case. Run loopback tests simply by pressing a front-panel button. And you get the same great transformer and optical isolation as the SHM-B Async.

NOTE: Remember to use one SHM-B on each end.

TECH SPECS

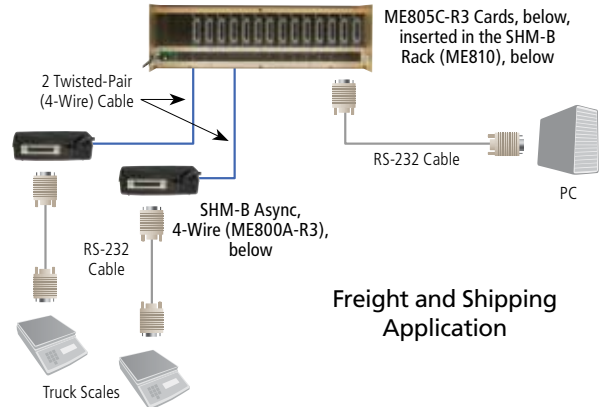
- Distance (Maximum)** —
ME755A, ME755-C: 3 mi. (3.2 km);
ME800A-R3, ME805C-R3, ME802A-R3, ME802C:
4 mi. (6.4 km)
- Operation** — ME755A, ME755-C: 2-wire full-duplex;
ME800A-R3, ME805C-R3, ME802A-R3, ME802C:
4-wire full-duplex
- Speed (Maximum)** — ME755A, ME755-C,
ME800A-R3, ME805C-R3: 19.2 kbps;
ME802A-R3, ME802C: 115.2 kbps
- CE Approval** — ME805C-R3
- Interface** — RS-232
- Connectors** — (1) DB25 F, (1) 4-screw terminal block
- Power** — 115 VAC, 60 Hz ± 10% (wallmount), 5 watts
- Size** — ME755A, ME800A-R3, ME802A-R3:
1.5"H x 4.3"W x 4.5"D (3.8 x 10.9 x 11.4 cm);
ME755-C, ME805C-R3, ME802C: 0.5"H x 4.3"W x
4.5"D (1.3 x 10.9 x 11.4 cm)

Two wires or not two wires? That is the question.

You must also consider the type of twisted-pair cable you need to complete your data transmissions. Generally, you need twisted-pair cable with either two or four wires. Often the type of cabling already installed in a building dictates what kind of line driver you use. For example, if two twisted pairs of UTP cabling are available, you can use a line driver that operates in 4-wire applications, such as the Short-Haul Modem-B Async, 4-Wire (below). Otherwise, you might choose a line driver that works for 2-wire applications, such as the Short-Haul Modem-B Async 2-Wire (below) or the Async/Sync 2-Wire Short-Haul Modem (page 488).

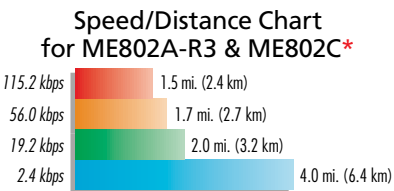
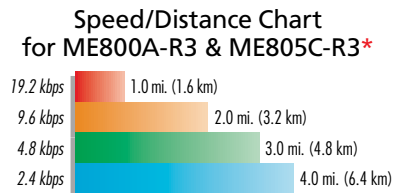
If your application supports both 2- and 4-wire operation in half- or full-duplex mode, take a look at our line drivers that support all four types of operation, such as the LD485A-MP on page 484.

As always, if you're unsure will work for your application, call our FREE Tech Support.



Freight and Shipping Application

over ordinary phone wire.



*Based on 24 AWG unshielded twisted pair. Actual distances may vary.

Switch between DTE and DCE easily. Use an ordinary straight-pinned cable—no special pinning.

Optical isolation eliminates ground-loop problems.

Monitor RS-232 Receive and Transmit. Green indicates low RS-232 level. Red indicates high level.

Check SHM-B operation at both ends with a loopback test. Just push this button.



ME800A-R3

Rack your cards! How many slots do you need?



Short-Haul Modem-B Desktop Rack, 8-Card

- Groups up to eight Short-Haul Modem-B Cards in one desktop rack.
- Rack sits on any flat surface.
- Cuts down on cabling and organizes all your controls in one central site.
- Uses less space than standalone models.
- All cabling is routed into rear of rack.
- 6.3"H x 10"W x 8"D (16 x 25.4 x 20.3 cm).

Item	Code	List Price
Short-Haul Modem-B Desktop Rack, 8-Card	RM007	



Short-Haul Modem-B 19" Rack, 16-Card

- Groups up to 16 Short-Haul Modem-B Cards in a neat 19" rack—all your controls are at your fingertips.
- Mounts easily in any 19" cabinet.
- Uses less space than standalone models.
- All cabling is routed into rear of rack.
- 5.5"H x 19"W x 8.8"D (14 x 48.3 x 22.4 cm).

Item	Code	List Price
Short-Haul Modem-B Rack, 16-Card	ME810	

Item	Code	List Price
Short-Haul Modem-B Async, 2-Wire Standalone	ME755A	
Rackmount Card	ME755-C	
Short-Haul Modem-B Async, 4-Wire Standalone with Flip-Top Lid	ME800A-R3	
Rackmount Card	ME805C-R3	
◆ Includes (1) short-haul modem, (1) power supply, (1) 6-ft. RS-232 DB25 male/DB9 female cable, and (1) DB25 female/DB9 male adapter.		
High-Speed Short-Haul Modem-B Async, 4-Wire Standalone with Metal Enclosure	ME802A-R3	
◆ Includes (1) short-haul modem, (1) power supply, (1) 6-ft. RS-232 DB25 male/DB9 female cable, and (1) DB25 female/DB9 male adapter.		
Rackmount Card	ME802C	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

RS-232 Cable, 25-Conductor, 10-ft. (3.0-m), Male/Female (For other lengths or genders, see p. 166.) ECM25T-0010-MF

Async Short-Haul Modem-B Plus

For extending RS-232 circuits, nothing sets up easier or works better.

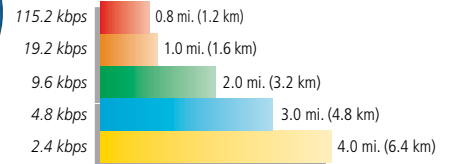


Distance (Maximum) — 4 mi. (6.4 km)
Operation — 4-wire, full-duplex
Speed (Maximum) — 115.2 kbps
Interface — RS-232

- Transmits data up to 4 miles (6.4 km) on 4 wires or at speeds up to 115.2 kbps, and it comes with plenty of extras!
- External DTE/DCE switch.
- External switch for flow control selection.
- Improved power-supply jack for easy plug in.
- Built-in optical isolation for extra safety.
- RJ-11 or 4-screw terminal block makes it easy to connect.
- ♦♦ **WARRANTY** — 1 Year



Speed/Distance Chart*



*Based on 24 AWG unshielded twisted pair. Actual distances may vary.

TECH SPECS

Connectors — (1) DB25 F, (1) RJ-11, (1) 4-screw terminal block
Power — 115 VAC, 60 Hz ± 10% (wallmount), 5 watts (230-VAC version on request)
Size — 1.5"H x 5.2"W x 5.2"D (3.8 x 13.2 x 13.2 cm)

Item	Code	List Price
------	------	------------

Async Short-Haul Modem-B Plus
ME800A-PLUS-R2
♦ Includes (1) power supply, (1) 6-ft. RS-232 DB25 male/DB9 female cable, and (1) DB25 female/DB9 male adapter.

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

GigaBase® 350 CAT5e, 350-MHz Solid Bulk Cable, 4-Pair, PVC, 1100-ft. (335.2-m) Pull Box, Blue (For other colors or plenum cable, see p. 93.)
EYN851A-PB-1000

CAT5 Line Driver

The affordable, plug-and-play solution for controlling RS-232 equipment 3000 feet away!

- Access RS-232 equipment—including touch screens and server console ports—anywhere you want, up to 3000 feet (914.4 m) away.
- Use inexpensive CAT5 cable and break the RS-232 distance limitation.
- Plug-and-play! No need for setup or configuration.
- The driver is a pure hardware solution with no software conflicts.
- Provides full-duplex transmission and hardware handshake signals.
- Use one power supply at either end for distances under 1000 feet (304.8 m); use a power supply at each end for distances from 1000 to 3000 feet.

- ♦♦ **WARRANTY** — 3 Years



TECH SPECS

Cable Requirement — CAT5 shielded
Distance (Maximum) — 3000 ft. (914.4 m)
Operation — Point-to-point, full-duplex
Speed (Maximum) — 57.6 kbps
CE Approval — Yes
Interface — RS-232
Connectors — Local unit: (1) DB9 F, (1) RJ-45, (1) power jack;
Remote unit: (1) DB9 M, (1) RJ-45, (1) power jack
Power — Input: 100–240 VAC;
Output: 12-VDC
Size — 1"H x 1.7"W x 2.9"D (2.5 x 4.3 x 7.4 cm)
Weight — 0.2 lb. (0.1 kg)

Item	Code	List Price
------	------	------------

CAT5 Line Driver, DB9
ME890A
♦ Includes (1) local unit, (1) remote unit, and (2) power supplies.

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

CAT5 Shielded 100-MHz Solide Bulk Cable, 4-Pair, PVC, 1000-ft. (304.8-m), Beige (For custom lengths or plenum cable, see p. 105.)
EVNSL70A-1000

RS-232/RS-485 Multipoint Line Drivers (LD485A-MP)

Run up to 64 drops for your RS-232 async multipoint applications.

- Daisychain and run up to 64 devices with a single controller.
- Drivers can be enabled by data or RTS control.
- Point-to-point or multipoint applications.
- Convert RS-232 to RS-485/422.
- Run 4-wire full-duplex or 2-wire half-duplex.
- Transmit data up to 4 miles (6.4 km).
- Send data at speeds up to 64 kbps.
- ♦♦ **WARRANTY** — 1 Year



ME836A-R5

TECH SPECS

Distance (Maximum) — 4 mi. (6.4 km)
Operation — 4-wire full-duplex, 2-wire half-duplex, point-to-point or multipoint
Protocol — Asynchronous
Speed (Maximum) — 64 kbps

Interface — RS-232, RS-485
Connectors — (1) DB25 F, (1) 4-screw terminal block
Power — 115 VAC, 60 Hz (230-VAC, 50-Hz version on request)
Size — 1.8"H x 5.5"W x 8.5"D (4.6 x 14 x 21.6 cm)

Item	Code	List Price
------	------	------------

RS-232/RS-485 Multipoint Line Drivers
Standalone ME836A-R5
Rackmount Card ME836C-R5
♦ Both include (1) 6-ft. RS-232 DB25 male to DB25 female cable and (1) DB9 female to DB25 male adapter.

To rackmount your cards, order...
16-Card Rack (For details, see blackbox.com.)
RM005

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

CAT5 Unshielded 100-MHz Solid Bulk Cable, 2-Pair, PVC, 1000-ft. (304.8-m), Gray (For other lengths or plenum cable, see blackbox.com.)
EYN717A-1000

RS-232/RS-485 High-Speed Line Drivers (LD485A-HS)

The perfect industrial driver: 115-kbps speeds, surge protection, and optional optical isolation.

- Convert RS-232 to RS-485/422.
- Improved surge protection circuitry guards against surges on the RS-485 side.
- Switch the RS-232 interface for DCE or DTE.
- Set line bias to match RS-485 equipment. Can also be set to terminate or unterminate the RS-485 side.
- **◆◆ WARRANTY** — 1 Year

TECH SPECS

Distance (Maximum) — 4000 ft. (1219.2 m)
Operation — 4-wire half- or full-duplex; 2-wire half-duplex, point-to-point or multipoint
Protocol — Asynchronous
Speed (Maximum) — 115 kbps
CE Approval — Yes
Interface — Equipment: RS-232; Line: RS-485
Power — 115 VAC, 60 Hz (230-VAC version on request)
Size — 1.8"H x 5.5"W x 8.5"D (4.6 x 14 x 21.6 cm)
Weight — 1.9 lb. (0.9 kg)



ME838A-R3

Item	Code	List Price
------	------	------------

RS-232/RS-485 High-Speed Line Drivers (LD485A-HS)		
Standalone	ME837A-R3	
Rackmount Card	ME837C-R3	
with Opto-Isolation (LD485A-HS Opto-Isolated)		
Standalone	ME838A-R3	

To rackmount your cards, order...
16-Card Rack (For details, see blackbox.com.)
RM005

Short-Haul Modem-FSK (SHM-FSK)

Extend communications over a single pair—even in the noisiest environments!



ME840A-M

- Frequency Shift Key (FSK) operates above most industrial noise for extreme immunity to EMI/RFI; totally transparent to data.
- Transmits in full-duplex mode up to 3.8 miles (6.1 km) at speeds up to 9600 bps.
- Point-to-point and multipoint operation.
- Adjustable for changing line conditions; modulates between 100 and 156.5 kHz to send signals above harsh industrial noise.
- **◆◆ WARRANTY** — 1 Year

TECH SPECS

Distance (Maximum) — 3.8 mi. (6.1 km)
Line Type — One twisted pair
Operation — 2-wire full- or half-duplex; point-to-point or multipoint, up to 10 slaves
Protocol — Asynchronous
Speed (Maximum) — 9600 bps
Interface — RS-232; optional 2-wire RS-485 and 4-wire RS-422 modules available
Connectors — (1) DB25 F, (1) 2-screw terminal block
Power — 115 VAC, 60 Hz
Size — 1.8"H x 7.5" x 10.5"D (4.6 x 19.1 x 26.7 cm)

Item	Code	List Price
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Short-Haul Modem-FSK (SHM-FSK)		
Master	ME840A-M	
Slave	ME840A-S	

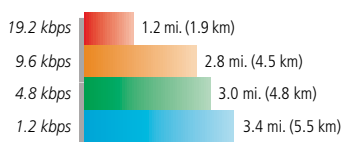
Optional Modules		
2-Wire	RS-485	MD3317
4-Wire	RS-422	MD3318

Short-Haul Modem-Nonpowered, Async

Transmit full-duplex, async data more than 3 miles over 4 wires.

- Select data rates to 19.2 kbps.
- Send data 1 mile (1.6 km) at 19.2 kbps or up to 3.4 miles (5.4 km) at 1200 bps.
- Features a DCE/DTE switch for connection to another DCE without a crossover cable.
- Transformer isolation protects against overvoltages.
- Features DB25 connectors and a terminal block and either an RJ-11 or RJ-45 connector.
- An internal filter provides high noise immunity.
- Ideal for connecting full-duplex async terminals to computers.
- No power needed. Draws power from DTE signals.
- **◆◆ WARRANTY** — 1 Year

Speed/Distance Chart*



*Based on 24 AWG wire.

TECH SPECS

Clocking — None
Leads Supported — 1–8; 20
Line Type — Two twisted pairs
Operation — 4-wire full-duplex, point-to-point
Protocol — Asynchronous
Speed (Maximum) — 19.2 kbps
CE Approval — Yes
Connectors — ME1721A : (1) RJ-11, (1) terminal block, (1) DB25 M or F; ME1821A-F: (1) RJ-45, (1) terminal block, (1) DB25 M or F
Size — 0.7"H x 2.1"W x 2.1"D (1.8 x 5.3 x 5.3 cm)
Weight — 0.1 lb. (<0.1 kg)



ME1821A-F

Item	Code	List Price
------	------	------------

Short-Haul Modem-Nonpowered, Async		
RJ-11/Terminal Block		
DB25 Male	ME1721A-M	
DB25 Female	ME1721A-F	
RJ-45/Terminal Block		
DB25 Male	ME1821A-M	
DB25 Female	ME1821A-F	

Miniature Short-Haul Modem NPR

Send async data half- or full-duplex in either point-to-point or multipoint applications!

- Sends data up to 2.2 miles.
- Maximum data rates of 19.2 kbps.
- Supports async data over full- or half-duplex links.
- Use point-to-point or multipoint (carrier signal is strap-selectable).
- Features transformer isolation!
- No AC power required — use it anywhere.
- Compact — plugs unobtrusively into any DB25 data port.
- Features an internal DTE/DCE selector switch, as well as switch-selectable printer-support mode.



ME795A-M-RJ11-R2; order one unit for each attached device.

- **◆◆ WARRANTY** — 1 Year

TECH SPECS

Distance (Maximum) — 2.2 mi. (3.5 km) at 9600 bps
 Operation — 4-wire half- and full-duplex
 Protocol — Asynchronous
 Speed (Maximum) — 19.2 kbps at 1 mi. (1.6 km)
 CE Approval — Yes

Interface — RS-232 (DTE or DCE)
 Power — 6 VDC from the RS-232 interface;
 DTE Mode: Pins 3, 6, or 8;
 DCE Mode: Pins 2, 4, or 20
 Size — 0.7"H x 2.1"W x 2.6"D (1.8 x 5.3 x 6.6 cm)

Item	Code	List Price
Miniature Short-Haul Modem NPR		
RJ-11/DB25 Male	ME795A-M-RJ11-R2	
/DB25 Female	ME795A-F-RJ11-R2	
RJ-45/DB25 Male	ME796A-M-RJ45-R2	
/DB25 Female	ME796A-F-RJ45-R2	

Microdriver 9 • Mini Driver MP9

Tight space? Try one of these mighty mini drivers.

Microdriver 9

- Sends data up to 3.7 miles (5.9 km) at 19.2 kbps.
- Async, 4-wire line driver that's ideal for PC/AT® or other systems.

Mini Driver MP9

- Runs up to 115.2 kbps as far as 1.4 miles (2.2 km).
- Operates half- or full-duplex, async, multipoint or point-to-point over two or four wires.
- Built-in surge protection!
- Handles 50 multipoint drops.
- **◆◆ WARRANTY** — All: 1 Year



ME775A-MSP

NOTE: Order one unit for each attached device.

Short-Haul Modem-Nonpowered, Async (SHM-NPR)

Simple and reliable — this 4-wire, async plug-in SHM drives data more than five miles!

- Flexible. Use them with our Short-Haul Modem B Async (ME800A-R3) (pages 482–483).
- Pushes data more than 5 miles (8 km) at 2400 bps or up to 1.2 miles (2 km) at 19.2 kbps.
- Features a 4-screw terminal block plus a DB25 male or female connector.
- RoHS compliant.
- **◆◆ WARRANTY** — 1 Year



NOTE: Must be used in pairs or with the SHM-B Async (ME800A-R3) on pages 482–483.

Item	Code	List Price
Microdriver 9 RJ-11/DB9 Male	ME790A-M	
with Surge Protection	ME792A-MSP	
DB9 Female	ME790A-F	
with Surge Protection	ME792A-FSP	
Microdriver 9 RJ-45/DB9 Male	ME794A-M	
Mini Driver MP9 with Surge Protection Terminal Block/DB9 Male	ME775A-MSP	
/DB9 Female	ME775A-FSP	
RJ-11/DB9 Female	ME776A-FSP	
RJ-45/DB9 Male	ME777A-MSP	
/DB9 Female	ME777A-FSP	

Item	Code	List Price
Short-Haul Modem-Nonpowered, Async 4-Screw Terminal		
DB25 Male	ME721A-M-R3	
DB25 Female	ME721A-F-R3	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

GigaBase® 350 CAT5e, 350-MHz Bulk Cable, 4-Pair, PVC, 1000-ft. (304.8-m), Pull Box, Blue (For other colors or plenum cable, see p. 94.)
 EVNLS81A-1000

blackbox.com

This may be the Big Book, but blackbox.com is even **BIGGER!**

- There you'll find:
- Copper and fiber extenders, modem accessories, drivers, and more!
 - Information galore! Black Box Explains tutorials, Buyer's Guides, white papers, and videos.
 - Savings. Find weekly specials and savings on featured data communications products.

If you still can't find what you need, just ask the experts at our FREE Tech Support hotline!

232-Coax Balun

Run RS-232 on coax up to 10 miles at 1200 kbps!



- Extend transmission distance up to 10 miles (16 km).
- When speed is your priority, you can still transmit up to 1 mile (1.6 km) at up to 19.2 kbps.
- Send RS-232 data farther by using coax cable.
- Great for extending RS-232 signals in both broadcasting and networking applications.
- Comes with a 6" (15.2-cm) DB25 cable for connection at each end of your coax cable.
- **◆◆ WARRANTY** — 1 Year

NOTE: Must be used in pairs.

TECH SPECS

Leads Supported — Pins 2–8, 20
Operation — Point-to-point
Protocol — Asynchronous
Speed (Maximum) — 19.2 kbps at 1 mi. (1.6 km)
Connectors — (1) DB25 M with 6" (15.2-cm) cable attached; (1) built-in BNC F
Power — 115 VAC, 60 Hz, 28 VDC at 100 mA (230-VAC, 50-Hz version on request)
Size — 1.3"H x 2"W x 2.5"D (3.3 x 5.1 x 6.4 cm)

Item	Code	List Price
232-Coax Balun	IC025A	

Parallel Line Drivers

Transmit parallel data up to 2000 feet over one pair.

- Send your data up to 2000 feet (609.6 m).
- Adapt to a wide variety of parallel printers.
- Selectable BUSY/ACKNOWLEDGE flow control.
- Interface powered — it even works with "low-power" ports by transferring power from the PC.
- **◆◆ WARRANTY** — 1 Year

TECH SPECS

Speed (Maximum) — 5 kbps parallel
CE Approval — Yes
Connectors — Parallel port: ME190A, ME192A: (1) DB25 M; ME191A, ME193A: (1) 36-pin Centronics M; Line side: ME190A–ME191A: (1) two-position terminal block; ME192A–ME193A: (1) RJ-11
Power — From the interface, 3–7 VDC; ME190A, ME192A: Pins 1, 17, 13, 14, or 16; ME191A, ME193A: Pins 10, 11, 12, 13, 18, 32, 16, or 17
Size — 0.7"H x 2.1"W x 2.7"D (1.8 x 5.3 x 6.9 cm)



Item	Code	List Price
Parallel Line Driver–Transmitter, DB25 Male/Terminal Block	ME190A	
RJ-11	ME192A	
Parallel Line Driver–Receiver, Centronics Male/Terminal Block	ME191A	
RJ-11	ME193A	

MicroRACK System

Take control of your network.

- Midplane architecture, separate front and rear cards make changing interfaces easy.
- Hot-swappable. Replace the MicroRACK cards without powering down.
- **◆◆ WARRANTY** — 1 Year



RM216: top: front view; bottom: rear view

TECH SPECS

Width — 4-Port: 5.5" (14 cm); 8-Port: 9.5" (24.1 cm); 16-Port: 19" (48.3 cm)
Size — 3.8"H x 7.3"D (9.7 x 18.5 cm)
MicroRACK Card:
Size — 3.1"H x 5.4"W x 1"D (7.9 x 13.7 x 2.5 cm)
Weight — 1 lb. (0.5 kg)

NOTE: More MicroRACK Cards, as well as adapter cables, are available. See blackbox.com or call our FREE Tech Support.

Item	Code	List Price
First, select the MicroRACK Chassis...		
MicroRACK		
4-Port	RM204	
8-Port	RM208	
16-Port	RM216	

...then order at least one power supply card for each rack...

AC	PS460A
48-VDC	PS461A

...then, add your cards.

MicroRACK Interface Converter Card	
Async, RS-232→422/530, 2-Port	
RJ-11/RJ-11	IC474C

Async/Sync Short-Haul Modem

Send async or sync RS-232 data up to 57.6 kbps.

- Distances from 5.3 miles (8.5 km) to 11.4 miles (18.3 km) over 24 AWG wire.
- Point-to-point or multipoint operation.
- Operates in 2-wire (half-duplex) or 4-wire (full- or half-duplex) in synchronous or asynchronous modes.
- Transformer isolation and surge protection.
- V.54 loopback and V.52 BERT pattern generator.
- Internal, external, or received loopback clocking in sync mode.
- LED indicators for analysis of RS-232 signals and for V.54 tests.

- **◆◆ WARRANTY** — 1 Year

TECH SPECS

Clocking — Internal, external, receive
Line Type — (2) twisted pair
Operation — 2-wire half-duplex or 4-wire half- or full-duplex
Speed (Maximum) — 57.6 kbps
Interface — RS-232 (DCE)
Connectors — (1) DB25 F, (1) RJ-45, (1) terminal block
Indicators — LEDs: TD, RD, RTS, CD, Error, Test
Power — 120–230 VAC, 50–60 Hz, switch-selectable
Size — 1.5"H x 4.2"W x 5"D (3.8 x 10.7 x 12.7 cm)



Item	Code	List Price
Async/Sync Short-Haul Modem	ME475A	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

GigaBase® 350 CAT5e, 350-MHz Bulk Cable, 4-Pair, PVC, 1000-ft. (304.8 cm) Pull Box, Blue (For other colors or plenum cable, see p. 93.) EYN851A-PB-1000

Short-Haul Modem-B Parallel (SHM-B Parallel)

Push your parallel data an amazing five miles!

- Send data at 19.2 kbps up to 1 mile (1.6 km) away, or send data at 1200 bps up to 5 miles (8 km) away.
- Operates parallel-to-parallel, parallel-to-serial, or serial-to-parallel.
- Use the T and R models together for your parallel-to-parallel applications.
- To run parallel and serial applications, combine with our Short-Haul Modem-B Async (see pages 482-483).
- ♦♦ **WARRANTY** — 1 Year



ME806A

NOTE: Must be used in pairs (one transmitter, one receiver) or with the BLACK BOX® Short-Haul Modem-B Async (see pp. 482-483).

Item	Code	List Price
------	------	------------

For parallel-to-parallel communications, order both a transmitter and receiver:

- Short-Haul Modem-B Parallel-T (Transmitter) ME806A
- Short-Haul Modem-B Parallel-R (Receiver) ME807A

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

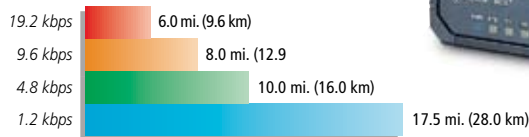
GigaBase® 350 CAT5e, 350-MHz Bulk Cable, 4-Pair, PVC, 1100-ft. (335.2-m), Pull Box, Blue (For other colors or plenum cable, see p. 93.) EYN851A-PB-1000

19.2-kbps RS-232 Line Drivers

Choose speed or distance: 19.2 kbps or 15 miles.

- Send RS-232 data over 24 AWG wire up to 6 miles (9.6 km) at 19.2 kbps or up to 17.5 miles (28 km) at 1200 bps!
- Use ordinary unconditioned phone lines.
- Differential diphase modulation provides clean transmissions.
- Dedicated isolation transformers protect against damaging AC or DC overvoltages.
- Run sync or async, point-to-point or multipoint.
- Operate half-duplex over two wires, or full- or half-duplex over four wires.
- Eight selectable data rates up to 19.2 kbps for both point-to-point and multipoint applications.
- V.54 diagnostics perform local and remote loopback tests.
- Card version mounts in our RackNest 2/14 (for details, see blackbox.com).
- ♦♦ **WARRANTY** — 1 Year

Speed/Distance Chart*



*Based on 24 AWG wire.

NOTE: Must be used in pairs.

TECH SPECS

Clocking — Internal, external, receive
Distance (Maximum) — 17.5 mi. (28 km)
Operation — 2-wire half- or 4-wire half- or full-duplex, point-to-point or multipoint
Speed (Maximum) — 19.2 kbps
CE Approval — ME760C and 230-VAC version: ME760AE-R2
Interface — RS-232 (DCE)
Connectors — (1) DB25 F, (1) 5-screw terminal
Power — 115 VAC ± 10%, 60 Hz
Size — 1.6"H x 9.6"W x 7.6"D (4.1 x 24.4 x 19.3 cm)



Item	Code	List Price
------	------	------------

- 19.2-kbps RS-232 Line Drivers (LDM-MR19.2) Standalone ME760A-R2
- Rackmount Card ME760C

To rackmount your cards, order...

- RackNest 2/14 (For details, see blackbox.com) RM110A

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

CAT3 Solid Bulk Cable, 24 AWG, PVC, 2-Pair, Custom Lengths (For standard lengths, see p. 110.) EYN712A
 RS-232 Cable, 25-Conductor, 10-ft. (3.0-m) (For other lengths, see p. 166. Specify gender when ordering.) ECM25T-0010

Async/Sync 2-Wire Short-Haul Modem

Transmit at multiple rates using 2B1Q line coding over 2-wire twisted pair.

- Use to transmit async data up to 38.4 kbps and sync data up to 128 kbps using 2B1Q line coding and a single channel.
- Adaptive equalizer provides noise immunity and high performance over low-quality lines.
- Transmits up to 3.4 miles (5.4 km)—even at maximum speeds.
- Features 2-wire, twisted-pair operation.
- Also transmits full-duplex using echo cancellation.
- Full diagnostics include internal BERT, and local and remote loopbacks.
- Includes power protection circuits.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Clocking — Internal, external, receive
Distance (Maximum) — Over 26 AWG: 3.4 mi. (5.4 km)
Operation — 2-wire full-duplex, point-to-point
Protocol — Asynchronous or synchronous
Speed (Maximum) — Asynchronous: 38.4 kbps; Synchronous: 128 kbps
Interface — RS-232 (DCE)
Connectors — (1) DB25 F, (1) 4-screw terminal block, (1) RJ-45
Power — 115 VAC, 60 Hz (230-VAC, 50-Hz version on request)
Size — 1.7"H x 10.5"W x 9.6"D (4.3 x 26.7 x 24.4 cm)

NOTE: Must be used in pairs.



Item	Code	List Price
------	------	------------

- Async/Sync 2-Wire Short-Haul Modem RS-232 ME375A-R2

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

RS-232 Cable, 25-Conductor, 10-ft. (3.0-m) (For other lengths, see p. 166. Specify gender when ordering.) ECM25T-0010

256-kbps Line Driver

This V.35 driver minimizes line distortion for reliable 256-kbps data communications.

- Use a pair of these to drive data up to 3 miles (4.8 km) at 256 kbps.
- Or go farther at slower speeds—unit offers selectable speeds.
- Runs in full- or half-duplex mode.
- Conditioned diphas modulation provides immunity from background noise, eliminating line distortion for more efficient data transmission and reception.
- Built-in BERT supports V.54 loop diagnostics.



- Run loopback tests right from the front panel or from the interface's control signals.
- **◆◆ WARRANTY** — 1 Year

NOTE: Must be used in pairs.

TECH SPECS

Clocking — Internal, external, receive
Operation — 4-wire half- or full-duplex
Protocol — Asynchronous and synchronous
Speed (Maximum) — 256 kbps

CE Approval — Yes
Size — 1.6"H x 9.6"W x 7.6"D (4.1 x 24.4 x 19.3 cm)
Weight — 3.1 lb. (1.4 kg)

Item	Code	List Price
256-kbps Line Driver (LDM-MR128)	ME444A-R3	

2.048-Mbps Short-Range Driver High-Speed Short-Range Line Drivers

Win the data race with this speedy driver!

- Transmit up to 2.048 Mbps in point-to-point applications.
- Choose from 13 data rates.
- Extend V.35, X.21, or RS-422/449/530 communications.
- Reduce file-transfer times and enable bridges to work at their true speed.
- **◆◆ WARRANTY** — 1 Year



NOTE: Must be used in pairs.

TECH SPECS

Clocking — Internal, external, receive
Distance (Maximum) — 0.8 mi. (1.2 km) at 2.048 Mbps
Line Coding — HDB3, AMI, B8ZS
Operation — 4-wire half- or full-duplex, point-to-point
Protocol — Synchronous
Speed (Maximum) — 2.048 Mbps

Connectors — All: (1) terminal block;
 ME270A-R3: (1) M/34 F;
 ME271A-R3: (1) DB15 F;
 ME272A-R3: (1) DB25 F for RS-422/530, (1) DB37 adapter for RS-422/449
Power — 115–230 VAC, 60–50 Hz
Size — 1.6"H x 9.6"W x 7.6"D (4.1 x 24.4 x 19.3 cm)

Item	Code	List Price
2.048-Mbps Short-Range Driver V.35	ME270A-R3	
High-Speed Short-Range Line Drivers X.21	ME271A-R3	
RS-422/449/530	ME272A-R3	

RS-232/RS-485 Multipoint Line Drivers

Dispatch your sync data to up to 64 locations.

- Deliver reliable communications in industrial environments.
- Support up to 64 drops.
- Switch-selectable speeds range from 1200 bps to 128 kbps.
- Distances up to 4 miles (6.4 km).
- Offer a range of transmit-clock select options and delayed RTS/CTS settings.
- LEDs indicate flow-control status.
- **◆◆ WARRANTY** — 1 Year



TECH SPECS

Clocking — Internal, external, receive
Operation — 4-wire half- or full-duplex, 2-wire half-duplex
Protocol — Synchronous
CE Approval — 230-VAC version (ME742AE-R3)
Connectors — (1) DB25 F, (1) 4-screw terminal
Power — 115 VAC, 60 Hz
Size — Standalone: 1.8"H x 5.5"W x 8.5"D (4.6 x 14 x 21.6 cm)

Item	Code	List Price
RS-232/RS-485 Multipoint Line Drivers (LD4855-MP)		
Standalone	ME742A-R5	
Rackmount Card	ME742C-R5	
◆ Both include (1) 6-ft. DB25 male to DB25 male RS-232 extension cable (BC00703). To rackmount the ME742C-R5, order...		
16-Card Rack (for details, see blackbox.com.)	RM005	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

GigaBase® 350 CAT5e, 350-MHz Bulk Cable, 4-Pair, PVC, 1100-ft. (335.2-m), Pull Box, Blue (For other colors or plenum cable, see p. 93.)
 EYN851A-PB-1000

Short-Haul Modem-B Sync

Get sync RS-232 data transmissions with optical isolation for outdoor runs.

- Built-in optical isolation protects your data when you run cable underground or between buildings.
- Sync data travels up to 5 miles (8 km) in RS-232 applications.
- Run loopback tests right from the front panel.
- Flip-open housing makes it easy for you to get inside to connect your 4-wire cabling.
- **◆◆ WARRANTY** — 1 Year



TECH SPECS

Clocking — Internal
Distance (Maximum) — 5 mi. (8 km)
Operation — 4-wire full-duplex
Protocol — Synchronous
Speed (Maximum) — 19.2 kbps
CE Approval — Yes
Connectors — (1) DB25 F, (1) 4-screw terminal block
Power — 115 VAC, 60 Hz, 5 watts
Size — 1.5"H x 4.3"W x 4.5"D (3.8 x 10.9 x 11.4 cm)

NOTE: Must be used in pairs.

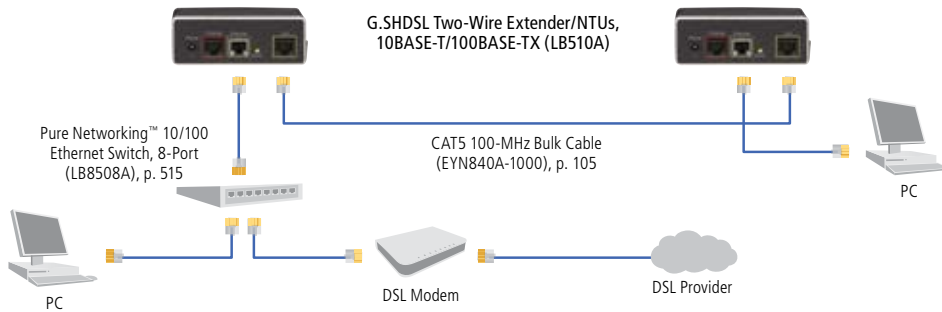
Item	Code	List Price
Short-Haul Modem-B Sync (SHM-B Sync)	ME801A	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

GigaBase 350 CAT5e, 350-MHz Bulk Cable, 4-Pair, PVC, 1100-ft. (335.2-m), Pull Box, Blue (For other colors or plenum cable, see p. 93.)
 EYN851A-PB-1000

G.SHDSL Two-Wire Extender/NTUs

Use just two wires to extend your network and achieve G.SHDSL performance!



- Work as symmetrical high data rate DSL (G.SHDSL) modems to extend 10-/100-Mbps Ethernet, V.35, or E1/T1 communications.
- Provide data rates up to 4.6 Mbps over 2-wire, voice-grade wiring.
- Save by using your existing phone wiring!
- Selectable 64-kbps rates enable you to choose the bandwidth you need.
- Support distances up to 9.9 miles (15.9 km) at lower speeds over 19 AWG wiring.
- Built-in probe determines the optimum data rate supported by the local/remote link.
- Support G.994.2 handshaking, enabling them to adapt the rate automatically to the existing line conditions.
- Connect a console via their RS-232 port.
- Transformer-coupled two-wire interface boasts 2500-VRMS isolation.
- Work with other extender/NTUs to provide interface conversion along with network termination and extension.
- The 10/100 version has a built-in Web server for browser-based management.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Interconnection Cable Required — Twisted-pair, unconditioned, dry, metal wire 19 AWG (0.9 mm) to 26 AWG (0.4 mm)

Data Rates — 64 kbps to 4.6 Mbps in 64-kbps steps

Distance (Maximum) — 26 AWG (0.4-mm) wire: 4 mi. (6.4 km) at 192 kbps; 1 mi. (1.6 km) at 4.6 Mbps;
24 AWG (0.5-mm) wire: 5.3 mi. (8.5 km) at 192 kbps; 1.3 mi. (2.1 km) at 4.6 Mbps;
22 AWG (0.6-mm) wire: 6.6 mi. (10.6 km) at 192 kbps; 1.7 mi. (2.7 km) at 4.6 Mbps;
19 AWG (0.9-mm) wire: 9.9 mi. (15.9 km) at 192 kbps; 2.5 mi. (4 km) at 4.6 Mbps

Line Coding — Trellis Coded Pulse Amplitude Modulation (TCPPM)

CE Approval — Yes

Connectors — Interface:

LB510A: (1) RJ-45 (10 Mbps/100 Mbps);
ME233A: (1) DB25 F with M/34 converter (included);
ME231A: (2) BNC F, (1) RJ-48C;

G.SHDSL: (1) RJ-11 (2-wire polarity insensitive on Pins 3 and 4);

Console: (1) RJ-45 (RS-232)

Power — Input: 90–260 VAC, 50–60 Hz, autosensing

Size — 1.6"H x 5.5"W x 4.2"D (4.1 x 14 x 10.7 cm)

NOTE: Actual distance and link performance may vary depending on the environment and gauge and type of wire you use.

NOTE: Must be used in pairs.

Item	Code	List Price
G.SHDSL Two-Wire Extender/NTUs 10BASE-T/100BASE-TX	LB510A	
V.35	ME233A	
E1/T1	ME231A	

Async Local RS-232 Muxes

Multiplex 4 or 8 async channels and drive data 3000 feet away.



38887

- These time division muxes feature integral four-wire line drivers.
- Ideal for point-to-point communications over short distances to 3000 feet (914.4 m).
- Per-port speeds are: 64 kbps for the 4-Port Mux and 38.4 kbps for the 8-Port Mux.
- Feature one 4-screw terminal block and 4 or 8 RJ-45 connectors.
- Plug-and-play installation.
- ♦♦ **WARRANTY** — 1 Year

NOTE: Must be used in pairs.

Item	Code	List Price
Async Local RS-232 Multiplexors 4-Port	38887	
8-Port	38889	

You may also need...

Modular Adapters for External DTE Devices

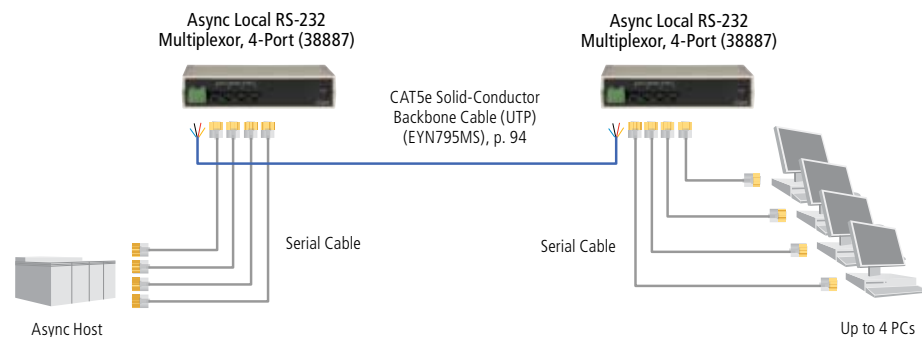
DB25 Male↔RJ-45 Female
523951

DB25 Female↔RJ-45 Female
523952

DB9 Female↔RJ-45 Female
523954

Modular Adapter for External DCE Devices

DB25 Male↔RJ-45 Female
523953



Fiber Drivers

Powered to ensure continuous, reliable transmission over fiber.

- Transmit data at up to 76.8 kbps.
- Autosensing 110–220-VAC power supply ensures reliability and continuous transmission.
- Drive data at distances up to 4 kilometers (2.5 mi.) at any speed.
- A range select feature compensates for coupled power variations.
- Switch-selectable DTE/DCE.
- Support RS-232 async, bidirectional transmission.
- Transmit RS-232 data from serial devices.
- Use with multimode fiber.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Data Format — Asynchronous, bidirectional
Data Rate — Transparent up to 76.8 kbps
Distance — Dependent on type of multimode cable, power budget, and loss/km; preset ranges
Fiber Cable — 850-nm multimode
Flow Control — X-ON/X-OFF
Operation — Full-duplex
CE Approval — Yes
Interface — RS-232 (DCE or DTE switch selectable)
Connectors — Serial: (1) DB25 M or F;
 Fiber optic: (2) ST®
Power — 5 VDC @ 600 mA;
 External: 110–220 VAC, 50–60 Hz, autosensing
Size — 1"H x 2.7"W x 4.2"D (2.5 x 6.9 x 10.7 cm)
Weight — 1.4 lb. (0.6 kg)



Item	Code	List Price
Fiber Drivers		
ST to DB25 Male	MD940A-M	
ST to DB25 Female	MD940A-F	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

Multimode Distribution-Style, Fiber Optic Bulk Cable, Plenum, Custom Lengths, 12-Fiber		
62.5-Micron	EXP3012A	
50-Micron	EXP35012A	

Async Fiber Optic Mini Modems

The handy drivers for multimode transmissions up to 3.2 kilometers.

- Operate half- or full-duplex over safe, secure multimode fiber optic cable.
- Async transmissions at speeds up to 19.2 kbps.
- Send data up to 3.2 kilometers (2 mi.) regardless of data rate.
- Powered from the RS-232 interface.
- Transfer one control signal end-to-end.
- Switch-selectable DCE/DTE.
- LED indicator for transmit data.
- ♦♦ **WARRANTY** — 1 Year



ME605A-FST

NOTE: Must be used in pairs.

TECH SPECS

Operation — Half- or full-duplex, point-to-point
Protocol — Asynchronous
CE Approval — Yes
Interface — RS-232 (DCE or DTE)
Connectors — Serial: (1) DB25 M or F;
 Fiber optic: (1) pair of ST
Power — From the interface;
 DTE: From Pins 5, 6, or 8;
 DCE: From Pins 4 or 20
Size — 0.7"H x 2.1"W x 3.1"D (1.8 x 5.3 x 7.9 cm)
Weight — <0.1 lb. (<0.1 kg)

Item	Code	List Price
Async Fiber Optic Mini Modems, ST®		
DB25 Female	ME605A-FST	
DB25 Male	ME605A-MST	

Universal Async Fiber Optic Extender

Extend serial communications up to 4 kilometers — or more — through electrically noisy areas.

- Take advantage of the inherent EMI/RFI resistance, as well as the security, offered by fiber. Also, eliminate ground loops!
- Gives you the flexibility to link RS-232, RS-422, or RS-485 async serial devices over multimode fiber optic cabling.
- Use point-to-point or in a multidrop fiber ring configuration in which multiple serial devices communicate with another.
- Supports half- or full-duplex communications over two fibers at distances up to 4 kilometers (2.5 mi.).
- To extend a link farther, add the Fiber Optic Repeater (ME611A-US). Used in the middle of a fiber link, it effectively doubles the transmission distance.
- Also converts RS-232 to RS-422/RS-485.
- Can be used with most multimode fiber.
- The LED emitter and photodetector operate in the 820-nm fiber wavelength.
- Set mode of operation for RS-422 or RS-485 with DIP switches.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Fiber Cable — Dual multimode optical cable
Fiber Optic Wavelength — 820 nm
Fiber Ring Length (Maximum) — 4 km (2.5 mi.)
Operation — Asynchronous, point-to-point, half- or full-duplex, or multipoint (fiber ring) half-duplex
Speed (Maximum) — RS-232: 115.2 kbps;
 RS-422/RS-485: 500 kbps

CE Approval — Yes
Interface — RS-232, RS-422, RS-485
Connectors — Serial: (1) DB25 F;
 Fiber optic: (1) pair of ST
Power — From the included 12-VDC power supply
Size — 4.3"H x 2.3"W x 1"D (10.9 x 5.8 x 2.5 cm)



ME610A-US

NOTE: ME610A-US must be used in pairs. The ME611A-US must be used in the middle of the link at a point where power is available.

Item	Code	List Price
Universal Async Fiber Optic Extender		
	ME610A-US	
For extended distances, order...		
Fiber Optic Repeater	ME611A-US	

FlexPoint RS-232 to Fiber Converters

Use fiber cabling to extend RS-232 communications as far as 60 kilometers!

- Work as serial RS-232 fiber converters and extenders that autosense speeds up to 115.2 kbps.
- Feature DTE/DCE configuration for easy connections to DTE or DCE devices using straight-through cabling.
- Support half- and full-duplex.
- Remote loop capability for remote fiber testing and LEDs for status monitoring.
- All work as standalone or hot-swappable chassis-based extenders.
- Include DC power supplies. Or you can power multiple units with the space-saving 19" rackmountable FlexPoint Power Chassis.
- Mounting options include wallmount, DIN-rail mount, 5-slot rackmount, and 14-slot redundant power chassis.
- LED indicators.
- Easy to install.
- **◆◆ WARRANTY** — 2 Years

NOTE: Must be used in pairs.



ME660A-MST

TECH SPECS

Fiber Type — 50/125-, 62.5/125-, or 100/140- μ m multimode or 9/125- μ m single-mode
Flow Control — Software: X-ON, X-OFF; Hardware: RTS, CTS, DCD, DTR, DSR
Operation — Asynchronous, point-to-point
Speed (Maximum) — 115.2 kbps
CE Approval — Yes
Connectors — RS-232: DB9 F; Fiber: (1) pair of ST, SC, or MT-RJ
Power — From the included DC power supply (9 VDC/500 mA or 5 VDC/750 mA); or from the FlexPoint Power Chassis
Size — 1"H x 3"W x 4"D (2.5 x 7.6 x 10.2 cm)
Weight — 0.4 lb. (0.2 kg)

Item	Code	List Price
FlexPoint™ RS-232 to Fiber Converters, DB9 to		
Multimode		
2.5 km	ST®	ME660A-MST
	SC	ME660A-MSC
5 km	ST	ME661A-MST
	SC	ME661A-MSC
	MT-RJ	ME661A-MRJ
Single-Mode		
30 km	ST	ME662A-SST
	SC	ME662A-SSC
	MT-RJ	ME662A-SRJ
60 km	SC	ME663A-SSC

You may also need...

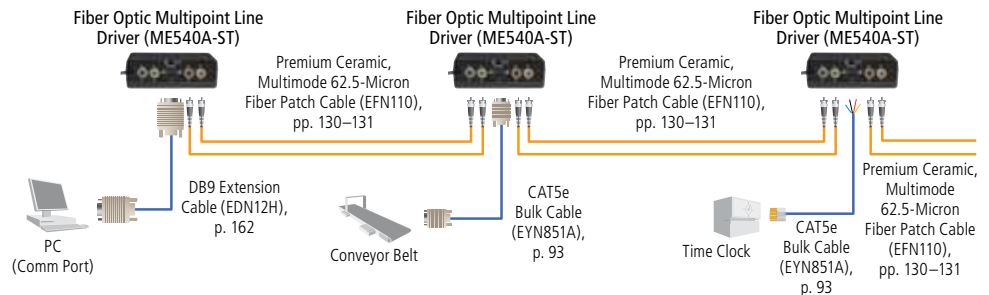
- FlexPoint 14-Slot Power Chassis
- Single Power Supply
 - 115-230 VAC LMC200
 - 48-VDC LMC200A-DC
- Dual Power Supply
 - 115-230 VAC LMC200-2PS
 - 48-VDC LMC200A-2PS-DC

FlexPoint T1/E1 solutions, p. 505.

Additional FlexPoint media converters, pp. 560-1563.

Fiber Optic Multipoint Line Driver

Run multipoint through industrial settings.



- Supports RS-232, RS-485, or Current Loop installations.
- Fiber optic cable is immune to the EMI and RFI generated by heavy-duty motors and industrial machinery, so this line driver is ideal for electrically "noisy" industrial applications.
- Provides centralized control of a multipoint polled system from just one PC.

- Speeds as high as 128 kbps.
- Monitor and control up to 64 industrial devices—time clocks, conveyor belts, even printers and controllers.
- Configure in any of three modes: network, master/slave, or full-duplex, point to point.
- Completely automate your factory operations. Just call Black Box!

- **◆◆ WARRANTY** — 1 Year

NOTE: Must be used in pairs or multiples. See diagram above.

Item	Code	List Price
Fiber Optic Multipoint Line Driver, ST	ME540A-ST	

Async Mini Fiber Optic Modem

Extend RS-485 or RS-422 data over fiber—even in harsh industrial settings.

- Transmits async data over fiber optic cable at speeds up to 115.2 kbps.
- Operates at distances of up to 10 miles (16 km) for multimode or 16 miles (25.7 km) for single-mode.
- Supports RS-485, RS-422, V.11, V.52, and V.54.
- Use in point-to-point applications.
- Includes a built-in V.52 BER tester for link integrity.
- **◆◆ WARRANTY** — 15 Months



ME615A

Fiber optic cable, pp. 124-139.

TECH SPECS

Operation — 4-wire half- or full-duplex, point-to-point (RS-422/485)
CE Approval — Yes
Interface — RS-422/485, V.11, V.52, V.54
Connectors — (1) pair of ST, (1) terminal block
Power — 115 VAC, 60 Hz (230-VAC, 50-Hz version on request)
Size — 0.9"H x 2.1"W x 3.9"D (2.3 x 5.3 x 9.9 cm)

NOTE: Must be used in pairs.

Item	Code	List Price
Async Mini Fiber Optic Modem, ST Multimode, 850-nm	ME615A	

Universal Fiber Optic Line Driver Transceivers

RS-232, RS-422, or RS-485—these compact fiber optic transceivers handle all three.

- Use fiber instead of copper to send your RS-232/422/485 data—without routing it through protocol converters.
- Transmit and receive signals in both point-to-point and drop-and-repeat topologies.
- Mix protocols! For instance, one transceiver can be set to interface with an RS-232 device at one end and another to interface with an RS-485 device at the opposite end.



MD650A-85:
top: front view;
bottom: rear view

- **WARRANTY** — 3 Years

NOTE: Must be used in pairs.

NOTE: For specs, see blackbox.com.

Item	Code	List Price
Universal Fiber Optic Line Driver Transceivers		
Multimode, 850-nm	MD650A-85	
Single-Mode, 1310-nm	MD650A-13	

Async/Sync Fiber Optic Modems

Send async or sync data up to 2 miles at 38.4 kbps over duplex fiber.



ME570A-FST-R2

NOTE: Must be used in pairs.

- V.54 loopback and V.52 BERT pattern generator.
- Internal, external, or receive clocking in sync mode.
- Powered from the RS-232 interface.
- Carrier options for "Continuously On" or "Controlled by RTS."
- Two LEDs indicate Error and Test modes.
- Operates in half- and full-duplex.
- **WARRANTY** — 1 Year

Item	Code	List Price
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Async/Sync Fiber Optic Modems, ST®

Standalone		
DB25 Female	ME570A-FST-R2	
DB25 Male	ME570A-MST-R2	

Rackmount Card		
HD DB26 Female	ME570C-ST-R2	

Order one of these cables for each rackmount card...

HD DB26 to DB25 Male Cable	EHN088-0006	
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To rackmount your cards, order...

MicroRACK System		See p. 487.
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Async Fiber Optic Mux-24

Merge data from 24 async RS-232 devices onto a single duplex fiber line.

- Features eight RS-232 ports. The optional Adapter Cable enables you to attach 3 devices to each port for a total of 24 devices.
- Each channel supports speeds of up to 142 kbps!
- The fiber part of the circuit is completely transparent, so each RS-232 channel operates independently in full-duplex.
- **WARRANTY** — 1 Year

TECH SPECS

Distance (Maximum) — 1.9 mi. (3 km)
 Speed — Channel: Up to 142 kbps;
 Composite: 40 Mbps
 CE Approval — Yes
 Connectors — RS-232: (8) DB25 F;
 Fiber optic: (2) ST
 Power — 115 VAC, 60 Hz, 60 watts
 Size — 2.5"H x 12"W x 11.3"D (6.4 x 30.5 x 28.7 cm)
 Weight — 9.4 lb. (4.3 kg)



Item	Code	List Price
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Async Fiber Optic Mux-24 MX512A-ST

You may also need...

3-to-1 Adapter Cable	EYN512	
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Async Local Fiber Optic RS-232 Muxes

The clarity and speed of fiber optics for your local communications.

- These time-division multiplexors feature built-in fiber optic line drivers.
- The 4-port model supports speeds up to 64 kbps per port; the 8-port model supports speeds up to 19.2 kbps per port.
- Duplex operation at distances up to 10,000 feet (3048 m) over point-to-point fiber cabling.
- Dual ST multimode fiber connectors on the Composite interfaces.
- **WARRANTY** — 1 Year



38888-R2

NOTE: These muxes support software flow control (X-ONIX-OFF) only.

NOTE: Must be used in pairs.

Item	Code	List Price
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First, order the mux...

Async Local Fiber Optic RS-232 Muxes		
4-Port	38888-R2	
8-Port	38890-R2	

...then select any adapters you may need.

Modular Adapters for External DTE Devices		
DB25 Male↔RJ-45 Female	523951	
DB25 Female↔RJ-45 Female	523952	
DB9 Female↔RJ-45 Female	523954	

Modular Adapter for External DCE Devices		
DB25 Male↔RJ-45 Female	523953	

POTS 2-Wire to Fiber Converters

Connect your standard analog phone system with fiber.

- Connect central office voice signals to distant "Plain Old Telephone" (POTS) equipment over fiber cables while using standard telephone signaling.
- Support both FXS (connects to PBX) and FXO (connects to phone device).
- Digitize voice calls and send data at greater distances without degradation. Plus no amplification required.
- Ideal for areas with high interference.
- Choose from multimode or single-mode fiber operations.
- Include audio transmission, Caller ID, and automatic ringdown.
- Support loop start service.
- ♦♦ **WARRANTY** — Lifetime

Sure, a lot of folks are moving to VoIP systems these days. But the fact is, many businesses still rely on an old analog phone system with a central PBX for trunking and switching voice calls. And what if you want to route calls from your proprietary circuit-switched system over secure, crystal-clear fiber cabling at farther distances? Then you need POTS 2-Wire to Fiber Converters.

They enable you to set up high-quality voice links without having to upgrade to a campus-wide, IP-based PBX system with IP phones connected to a network. They do this by inexpensively connecting basic analog phone services from 2-wire FXS copper lines to optical wiring. Easily link Central Office devices to distant POTS equipment while gaining all the advantages and bandwidth of fiber media! They're particularly great for areas where ground loops and EMI/RFI interference may be a problem.



TE160A

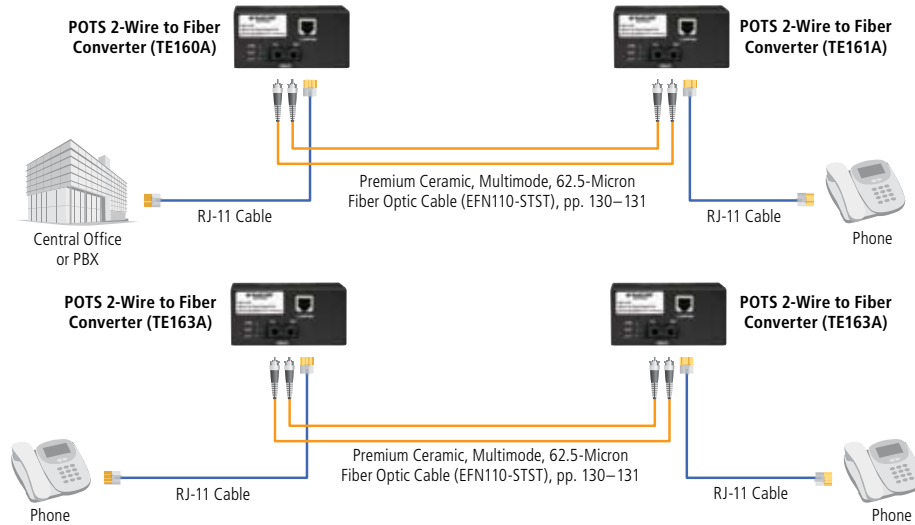
TECH SPECS

Distance (Maximum) — Multimode: 3.1 mi. (4.9 km);
Single-mode: 12.4 mi. (19.9 km)
Input Power — Multimode: -14.0 dBm;
Single-mode: -8.0 dBm
Link Budget — Multimode: 11.0 dB;
Single-mode: 16.0 dB
RX Sensitivity — Multimode: -31.0 dBm;
Single-mode: -30.0 dBm
TX Power — Multimode: -19.0 dBm to -14.0 dBm;
Single-mode: -15.0 dBm to -8.0 dBm
CE Approval — Yes
Connectors — TE160A–TE161A: (1) RJ-11, (1) pair of ST®;
TE162A–TE165A: (1) RJ-11, (1) pair of SC
Power — Output: 12 VDC, 0.6 A from external power supply
Size — 1.9"H x 3.7"W x 4.8"D (4.8 x 9.4 x 12.2 cm)
Weight — 2 lb. (0.9 kg)

NOTE: Must be used in pairs.

Item	Code	List Price
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POTS 2-Wire to Fiber Converters		
FXS to Multimode ST	TE160A	
FXO to Multimode ST	TE161A	
FXS to Multimode SC	TE162A	
FXO to Multimode SC	TE163A	
FXS to Single-Mode SC	TE164A	
FXO to Single-Mode SC	TE165A	



Office Linc Up • Linc Ups Plus

Connect your analog modems to your digital phone systems—without damaging circuitry.



- Use to connect an analog modem to virtually any digital phone system.
- Easy to install—just plug one into the handset jack of your PBX phone.
- ♦♦ **WARRANTY** — 1 Year

Most large organizations use a digital PBX system for their phones. That's not a problem—unless you want to connect an analog modem or a speakerphone. Black Box has the solution: Linc Ups.

The **Office Linc Up (MC116A)** is for office computers. It handles modem speeds up to 28.8 kbps and supports all fax protocols. It has a four-position phone level switch to match the modem signal to the phone being used and adjust signal levels for optimum performance.

The **Linc Ups Plus (MC119A–MC121A)** have the same features as the Office Linc Up *plus* autodial and autoanswering capabilities. They work with any PBX connection—no need for a phone set.

Linc Up Plus models are available for connecting analog modems to Northern Telecom phone systems (such as Nortel Meridian 1 or Norstar digital PBX systems), as well as Lucent Definity or System 75/85 systems, and Siemens ROLM systems.

Item	Code	List Price
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Office Linc Up	MC116A	
Linc Ups Plus		
Northern Telecom®	MC119A	
AT&T® or Lucent	MC120A	
Siemens® ROLM	MC121A	

Black Box Explains

Modem eliminators.

Save money—use just one modem eliminator to connect a local terminal and computer port instead of the pair of modems you'd normally use. A modem eliminator enables DTE-to-DTE data and control-signal connections that are not easily achieved by standard cables or connectors in a synchronous environment.

A modem eliminator simulates a sync DCE data link two ways. First, it provides clocking, which is mandatory for sync devices to communicate. Second, it provides the control-signal handshaking.

Synchronous Modem Eliminator—4M for RS-232 IBM® compatibility at 38.4 kbps. Run sync or async, too!

- Use to regenerate your IBM® equipment's RS-232 signals and connect equipment up to 100 feet (30.4 m) apart.
- Provides clocking to both DTEs.
- Runs at 38.4 kbps.
- Operates full- or half-duplex.
- Sync or async modes.
- Has two DB25 connectors and six LEDs (TX, CTS, and DSR for each of the two ports).



- Small and lightweight, it minimizes logistics problems and simplifies installation and replacement in the field.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Distance (Maximum) — 100 ft. (30.4 m)
Operation — Full- or half-duplex
Protocol — Synchronous or asynchronous
Speed (Maximum) — 38.4 kbps
Interface — RS-232
Connectors — (2) DB25 F
Power — 115 VAC, 60 Hz (230-VAC version on request)
Size — 1.8"H x 5.5"W x 8.6"D (4.6 x 14 x 21.8 cm)
Weight — 2 lb. (0.9 kg)

Item	Code	List Price
Synchronous Modem Eliminator—4M for RS-232 (SME-4M) 38.4 kbps	ME251A-R3	

High-Speed Synchronous Modem Eliminators-V.35 V.35 at the speed you need.

- Sends data at T1 and E1 speeds up to 2.048 Mbps, and beyond typical V.35 distance limitations.
- Use to set up a high-speed local connection between sync devices, such as routers, up to 4000 feet (1219.2 m) apart.
- Internal, recovered, and external clocking.



ME107A

- Configure via strap selection.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Speed (Maximum) — 2.048 Mbps
CE Approval — Yes
Interface — V.35
Connectors — (2) M/34 F
Power — ME107A: 115-VAC, 60-Hz; ME107C: From the RM060 rack
Size — ME107A: 2.1"H x 8.8"W x 11.5"D (5.3 x 22.4 x 29.2 cm)

Item	Code	List Price
High-Speed Synchronous Modem Eliminators (SME-V.35) M/34 Female Standalone	ME107A	
Rackmount Card	ME107C	

To rackmount your card, order...

8-Card Rack (for details, see blackbox.com.)
RM060

Synchronous Modem Eliminator—RS-422/RS-449 Transmit data as fast as 1.344 Mbps or up to 4000 feet at 64 kbps.

- Establish communications between two sync devices at greater distances—without a modem or line driver.
- Perfect for sync devices with RS-422/RS-449 interfaces.
- Distance up to 4000 feet (1219.2 m) at 64 kbps.
- Speeds up to 1.344 Mbps at shorter distances.
- Half- or full-duplex operation.



- Monitor activity with TX, RX, DCD, RTS, CTS, and Power LEDs.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Distance (Maximum) — 4000 ft. (1219.2 m)
Operation — Half- or full-duplex
Protocol — Synchronous
Speed (Maximum) — 1.344 Mbps
CE Approval — Yes
Connectors — (2) DB37 F
Power — 115 VAC ±10%, 60 Hz
Size — 2.1"H x 8.8"W x 11.5"D (5.3 x 22.4 x 29.2 cm)
Weight — 2 lb. (0.9 kg)

Item	Code	List Price
Synchronous Modem Eliminator—RS-422/RS-449 1.344 Mbps	ME101A-R2	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

DB37 Interface Cable, 10-ft. (3.0-m), Male/Male
(For other lengths or genders, see p. 169.) EDN37T-0010-MM

RS-232 Serial Line Booster

Put your printer where you need it.

- Boosts serial transmission over 100 or even 150 feet (30.4 or 45.7 m) of cable, provided conditions are similar over the entire run and the booster is in the center.
- Regenerates weak RS-232 signals.
- Cuts the signal-to-noise ratio in half.
- Data and data-format transparent.
- Can be powered from the interface or from its wallmount transformer.
- ♦♦ **WARRANTY** — 1 Year



TECH SPECS

Leads Supported — Pins 2–10, 15, 17, 20–22, 24
Operation — Full-duplex, point-to-point
Protocol — Serial async or sync
Speed (Maximum) — 19.2 kbps
Connectors — (1) DB25 F, (1) DB25 M
Power — From Pins 9 and 10 or 115-VAC, 60-Hz, 12-W wallmount transformer (recommended)
Size — 1.1"H x 3.5"W x 4.5"D (2.8 x 8.9 x 11.4 cm)
Weight — 4 lb. (1.8 kg)

NOTE: Install in the middle of the line, not at the beginning or end.

Item	Code	List Price
RS-232 Serial Line Booster	ME001A-R2	

USRobotics 56K V.92 Data Faxmodem

Go for the fastest downloads over analog phone lines.

- Get the fastest dialup speeds possible. Upload at 48 kbps and download at 56 kbps.
- Send e-mail and attachments faster, thanks to V.92 support.
- Modem on Hold feature for taking incoming calls without losing an Internet connection.
- Screen and take incoming calls with Internet Call Notification.
- Software upgradability enables you to download the latest features and enhancements into the modem's memory for regular updating.



- Includes installation CD with drivers and fax and Internet software.
- Has a DB25 RS-232 interface.
- **Warranty** — 2-Year Limited

NOTE: Although this faxmodem is capable of 56-kbps downloads, FCC regulations limit download speeds to 53 kbps.

Item	Code	List Price
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USRobotics® 56K V.92 Data Faxmodem USR5686E
◆ Includes installation CD-ROM and (1) 7-ft. RJ-11C cord.

Multi-Tech MultiModem ZDX • MultiModem ZBA

Surf and download at the 56-kbps dialup speeds.

- The **MultiModem® ZDX** works with dialup lines.
- The **MultiModem ZBA** models work with both dialup and 2-wire leased lines.
- Both modem versions are ideal for downloading data at 56 kbps and transmitting faxes at 33.6 kbps.
- V.44 data compression.
- Include data and fax software.
- Plug-and-play. Integrated "virtual modem drive" differentiates between incoming data and fax calls and automatically starts up the appropriate Windows® software.
- Automatically answer calls.
- Modem on-hold capability.
- Callback security protects your network.



MT5634ZBA-115V

- See who's calling with Caller ID.
- Support remote configuration.
- Store 30 phone numbers for automatic dialing.
- Self-resetting lightning protection.
- Small footprint and stackable design. ideal for UNIX®, medical, and retail PoS applications.
- Put multiple modems in Multi-Tech ZDXModemRack (right).
- **Warranty** — 10 Years

Item	Code	List Price
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Multi-Tech® MultiModem ZDX 115 VAC	MT5656ZDX	
Multi-Tech MultiModem ZBA 115-VAC	MT5634ZBA-115V	
100–240-VAC, No Power Cord	MT5634ZBA-V92-NPC	
100–240-VAC, U.S. Power Cord	MT5634ZBA-V92-NAM	

USRobotics Courier 56K V.92 Business Modem

Your most dependable business modem!

- An enterprise modem with top-notch security features, including password prompting and dialback security checks.
- Supports sync or async dial-up or leased-line applications.
- Carrier loss redial automatically senses a dropped connection and redials.
- ASL technology delivers throughput even over bad lines.
- Advanced line probing technology finds the fastest connections.
- Brownout protection keeps you connected when power fluctuates.



- Quick Connect feature for faster dialup connections.
- Detects data or fax calls.
- Supports Caller ID and Distinctive Ring.
- Flash-ROM is upgradable.
- Remote management capability.
- RoHS compliant.
- **Warranty** — Limited Lifetime

Item	Code	List Price
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USRobotics Courier™ 56K V.92 Business Modem USR3453C
◆ Includes (1) RJ-11 cable.

Multi-Tech ZDXModemRack

The clutter-free way to rackmount up to 12 standalone Multi-Tech modems.



- Gives you a convenient, centralized platform for storing up to 12 Multi-Tech MultiModem ZDX and ZBA models (left).
- Chassis fits into a standard 19" rack.
- Measures only 5.25" (3U) high.
- Super easy to use. Just slide in the entire modem.
- There's no disassembly, so the modems can still be used again on a desktop.
- Has a 90–240-VAC, 50–60-Hz autosensing power supply. Distributes power from a single wall outlet to each device and uses a universal input.
- An integrated redundant power supply ensures power stability if one circuit should fail.
- A replacement power supply is also available.
- **Warranty** — 10 Years

Item	Code	List Price
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Multi-Tech ZDXModemRack	ZDXRACK	
You may also need... Replacement Power Supply	ZDRACK-POWER	

Multi-Tech MultiModem II

The cosmopolitan data/fax modem: Use it for dialup and leased lines in the U.S. and around the world.



- Use with dialup, 2-wire leased lines, or 4-wire leased lines with dialup backup.
- Approved for use in many countries, so it is ideal for multisite, multicountry operations.
- Use for dialup backup to a leased line connection.
- Supports both synchronous and asynchronous data.

- Features V.92/56-kbps download speeds.
- Upload at 48 kbps with V.92 servers.
- Send faxes at 14.4 kbps with MNP® 5 data compression.
- V.44 compression improves data throughput rates.
- Easy to configure through its LCD panel.
- Can be configured remotely.
- Features passthrough and callback security, Caller ID, number storage, and DTR dialing.
- Flash upgradable.
- **Warranty** — 5 Years

Item	Code	List Price
Multi-Tech® MultiModem® II without Power Cord	MT5600BA-V92-NPS	
with U.S. Power Cord	MT5600BA-V92-NAM	

Modem 3600

This secure dialup modem features 33.6-kbps speeds and works with dialup or leased lines.



MD1000A



- Includes features that enhance operations on less-than-ideal transmission lines, such as: echo canceling, automatic adaptive line equalizing, trellis coding techniques, adaptive baud rate selection, transmit power selection, constellation shaping, and nonlinear encoding and precoding.
- Operates over dialup analog or 2-/4-wire leased lines.

Global 56K Modem

The secure V.90 business modem for both dialup or leased lines.



- Security features: 64-bit DES encryption (country specific), dialback security, dialout restrictions, Caller ID inclusion or exclusion, and password protection.
- Operates over dialup lines or 2-wire/4-wire leased lines, sync or async.
- Automatic dial backup.
- Remotely configurable and accessible.
- Compression and error correction.
- Extensive command set.
- Digital PABX line surge protection.
- MNP 10 enables increased speed on cellular circuits.
- **WARRANTY** — 1 Year

Item	Code	List Price
Global 56K Modem	MD1276A	
◆ Includes (1) 6-ft. RJ-11 to RJ-11 cable.		

Modem Rack II

Rack up to 16 leased-line and dialup modem cards.

- Specially designed for 16 leased-line or 16 dialup ports, or a combination of both.
- Manage leased and dialup modem links, or back up each leased line with dialup lines.
- Mounts in a standard 19" or 23" rack.
- Backplane features three connectors for each slot: DB25, leased line, and dialup line.
- A recessed power bus on the inside of the backplane distributes power to all the cards, so you don't have power cords dangling from the back!
- **WARRANTY** — 2 Years

TECH SPECS

Number of Modems (Maximum) — 16	Power — 115 VAC, 60 Hz (230-VAC, 50-Hz version on request)
Connectors — (16) RJ-45 dialup; (16) RJ-45 leased line	Size — 7"H x 19"W x 11"D (17.8 x 48.3 x 27.9 cm)
Indicators — (1) LED: Power	Weight — 32 lb. (14.5 kg)

- Remote configuration lets you to tend to distant modems from your office.
- With data-transfer calls originating from one modem, you centralize and consolidate your corporate call billing.
- Programmable dialback security remembers codes for 50 nodes.
- **WARRANTY** — 2 Years

Item	Code	List Price
Modem 3600 Standalone		
AC	MD1000A	
AC CABPAK	MD1000A-CABPAK-R2	
◆ The CABPAK includes (1) 10-ft. RS-232 cable and (1) DB9 male/DB25 female adapter.		
Modem 3600 Rackmount Card	MD1000C	
To rackmount your MD1000C, order...		
Modem Rack II (For details, see below.)	RM421A	



MD1000C

Modem Rack II with Modem 3600 Rackmount Cards (MD1000C), above

Item	Code	List Price
Modem Rack II	RM421A	

Modem 32144

19.2-kbps V.terbo support and options for use in any application!

- V.terbo enables sync data to run 19.2 kbps over 4-wire leased lines or 2-wire dialup lines.
- Three levels of async security—password, callback, or none.
- Program unattended autodial and auto-answer at night when rates are lower with V.25 bis mode. Get autodial backup, too.
- V.42 bis, V.32 bis, and MNP® 5 data compression provides 57.6-kbps async data throughput for lower phone bills.



DC-power versions available!

- Simulated switch-carrier operation (V.13) is perfect for sync IBM® mainframe networks.
- To order rack for card version, call our FREE Tech Support.
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price
Modem 32144, AC-Powered		
Standalone	MD833A-R5	
Standalone with RS-232 Cable and Adapter	MD833A-R7	
Rackmount Card	MD833C-R5	
◆ All include (1) RJ-11 to RJ-45 cable and (1) RJ-11 to RJ-11 cable. The MD833A-R7 also includes (1) RS-232 cable and DB25 male to DB9 female cable (BC00301).		
Modem 32144, DC-Powered		
24-Volt DC	MD833A-D24	
48-Volt DC	MD833A-D48	
◆ Both include (1) RJ-11 to spade lug 4-wire adapter and (1) RJ-45 to RJ-11 2-wire adapter.		

Modem 202T

The reliable modem for polling equipment.

- Supports the Bell 202T modem standard and it's built tough for outdoor environments.
- Operates point-to-point or multipoint, for polled systems, full- or half-duplex, 2- or 4-wire.
- Perfect for banks, PLCs, and industrial applications.
- Works on copper lines that don't meet conventional specifications.
- Circuitry prevents carrier-detect and data errors over noisy lines.



- Antistreaming capability.
- Easy for you to verify transmitted and received data via its diagnostic feature.
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price
Modem 202T AC	MD1970A	
DC	MD1970A-DC	

9600 FP Modems

Tough modems for super-fast polling times in multidrop applications.

- For industrial or outdoor areas with temperatures ranging from -40 to +185° F (-40 to +85° C).
- Feature a 23-msec RTS/CTS delay at 9600 bps in FlashPoll mode and an 8-ms delay at 1800 bps in Bell 202T mode.
- Adaptive equalizer with DSP technology enables fast speeds even on unconditioned lines.
- Fast response, short training time, and low throughput delay.
- Ideal for large polled networks requiring thousands of drops!
- Auto RTS enables multidrops for devices with 3-wire data interfaces and no RTS control signal.
- Operate 4-wire full-duplex or 2-wire half-duplex over a voice leased line.
- Heavy-duty surge protection for its power supply as well as for leased or private lines.
- **◆◆ WARRANTY** — 1 Year



Protect against surges!

Modem 34336

The 33.6-kbps dialup modem chock-full of features!

- Digital Signal Processing (DSP) technology accelerates the modem to 33.6 kbps.
- Also falls back automatically to whatever standard it's connected to. It even sends your faxes at 14.4 kbps.
- Supports V.42 bis and MNP for error correction and data compression.
- Dials a stored number upon DTR, so it can connect to devices that use bandwidth on demand and line backup via DTR. If your primary line goes down, it dials the backup line automatically.
- Built-in "hacker-proof" security for your sensitive transmissions.



- Operates over 2-wire full-duplex dialup or leased lines, and over 4-wire full-duplex leased lines.
- Dual flash ROM—upgrade to new firmware and keep your old firmware.
- Supports V.54 tests.
- Configure via its front-panel LCD and buttons or by using standard AT commands.
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price
Modem 34336		
Standalone	MD885A-R2	
Standalone with RS-232 Cable and Adapter	MD885A-R4	
◆ Both include (1) leased line cable and (1) dialup phone cable. The MD885A-R4 also includes (1) RS-232 cable and (1) DB25 male to DB9 female cable (BC00301).		

Modem 202

It's updated, upgraded, and ready for work.

- Supports the Bell 202 leased-line standard.
- Use it as a modem or in pairs as line drivers for links up to 20 miles (32.1 km) long over your own twisted-pair lines.
- Supports voice-band Frequency-Shift Keying (FSK) simplex or half-duplex operation at up to 1200 bps on two wires or full-duplex up to 1200 bps on four wires over nonswitched leased lines.



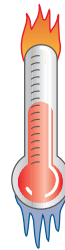
- Ideal for government offices or businesses that rely on Bell 202 modems for daily commerce.
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price
Modem 202	MD845A-R2	
◆ Includes (1) RJ-11 cable.		

Industrial Pocket Modems

Tiny yet tough, these modems put reliability in the pocket!

- Ideal for remote monitoring in the harshest environments.
- Built-in surge protection guards against brownouts and spikes.
- Operate over standard phone lines with line speeds up to 33.6 kbps.
- Easy to mount. Attach to a DIN rail or a flat panel.
- Powered directly from any 12- or 24-VDC source—they draw the same power that runs your system.
- **General-Purpose (MD3450A)** model works at -22 to +158° F (-30 to +70° C) and meets the Class I, Div. 2 (Zone 2) hazardous-location standard.
- **PLC Self-Dialing (MD3451A)** model has the features of the General-Purpose unit *plus* Programmable Logic Controller (PLC) self-dialing.
- **RS-422/RS-485 (MD3452A)** model has all the features of the General-Purpose unit *plus* an RS-422/RS-485 port to connect to multidrop or industrial devices.
- **◆◆ WARRANTY** — 1 Year



MD3450A

Protect against surges!

Item	Code	List Price
Industrial Pocket Modems		
General-Purpose	MD3450A	
PLC Self-Dialing	MD3451A	
RS-422/RS-485	MD3452A	
◆ All include (1) modem and (1) 6-ft. DB9 male/female cable and (1) CD-ROM.		

Industrial Modem RF115

Transmit data through harsh environments — up to 20 miles!

The MDR100A-R4 has a fixed-whip antenna but can also be used with an optional RF antenna. Use two modems to communicate point to point or contact multiple remote devices in a polled multipoint setting.



TECH SPECS

Occupied Bandwidth — 230 kHz
Radio Frequency — 902- to 928-MHz
 Frequency-Hopping Spread Spectrum; no FCC license required
Speed (Maximum) — 115.2 kbps half-duplex (57.6 kbps full-duplex)
Spreading Function — Frequency hopping: 12 channels (96 channels international)
Interface — RS-232 (with RS-485 [2-wire] or RS-422 [4-wire] as option)

Connectors — RS-232: DB9 F; Antenna: Standard-thread SMA F; RS-485/422: 2- or 4-wire screw terminal strip

Operating Temperature — -40 to +167° F (-40 to +75° C)

Power — Input: 115/230-VAC, 50/60 Hz; Output: 12 VDC (24 VDC available as special order)

Size — 1.4"H x 5"W x 7.8"D (3.6 x 12.7 x 19.8 cm)

NOTE: To match older modems or antennas with newer versions, call our FREE Tech Support.

- Ideal for remote monitoring in the harshest environments.
- Transmits uncompressed data at speeds up to 115 kbps, half-duplex.
- Uses Frequency-Hopping Spread Spectrum technology to transmit RS-232 (or optional RS-485 or RS-422) data point-to-point or multipoint.
- Heavy-gauge steel and extended-temperature components. Modem attaches to a DIN rail or a flat panel and has built-in surge protection.
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price
Industrial Modem RF115	MDR100A-R4	
◆ Includes (1) modem with fixed-whip antenna and (1) power supply.		
For RS-485 or RS-422 connectivity, order...		
Industrial Modem Module	2-Wire RS-485	MD3311-R2
	4-Wire RS-422	MD3310-R2

For long-distance, line-of-sight connections, order...

Omnidirectional RF Antenna with Bracket Mount (3-dB)		
10-ft. (3.0-m) Cable		MDR151-0010-R2
25-ft. (7.6-m) Cable		MDR151-0025-R3
50-ft. (15.2-m) Cable		MDR151-0050-R3
100-ft. (30.4-m) Cable		MDR151-0100-R3
Yagi (Unidirectional) RF Antenna with Bracket Mount (6-dB)		
25-ft. (7.6-m) Cable		MDR152-0025-R4
50-ft. (15.2-m) Cable		MDR152-0050-R4
100-ft. (30.4-m) Cable		MDR152-0100-R4

Serial Transceivers

Go wireless to control your serial RS-232 or RS-485 equipment.

- For mobile, temporary, or fixed installations—point-to-point or multipoint.
- Support RS-232 or RS-485 2-wire, half-duplex communications.
- The 900-MHz models support outdoor, clear-line-of-sight links up to 20 miles (32.1 km). Indoor links can go up to 1500 feet (457.2 m).
- Internationally accepted 2.4-GHz models support outdoor, clear-line-of-sight links to 1 mile (1.6 km). Indoor links are up to 500 feet (152.4 m).
- For USB instead of serial port connections, order the 900-MHz USB host.
- **◆◆ WARRANTY** — 1 Year

NOTE: To configure the RS-485 models, you need an RS-232↔RS-485 Interface Converter, such as the IC1620A-F on page 471.

Use FHSS wireless technology!

Set up secure wireless links for serial-control applications with our Serial Transceivers. Shown at right: MDR292A



Item	Code	List Price
900-MHz Serial Transceivers		
RS-232	(1) Client/Server Unit	MDR292A
	(2) Client/Server Units (Kit)	MDR293A-KIT
RS-485	(1) Client/Server Unit	MDR294A
	(2) Client/Server Units (Kit)	MDR295A-KIT
USB (200 mW)	(1) Host Unit	MDR291A

Item	Code	List Price
2.4-GHz Serial Transceivers		
RS-232	(1) Client/Server Unit	MDR242A
	(2) Client/Server Units (Kit)	MDR243A-KIT
RS-485	(1) Client/Server Unit	MDR244A
	(2) Client/Server Units (Kit)	MDR245A-KIT

Modular Wireless Extenders for Digital or Analog I/O and/or Serial Data

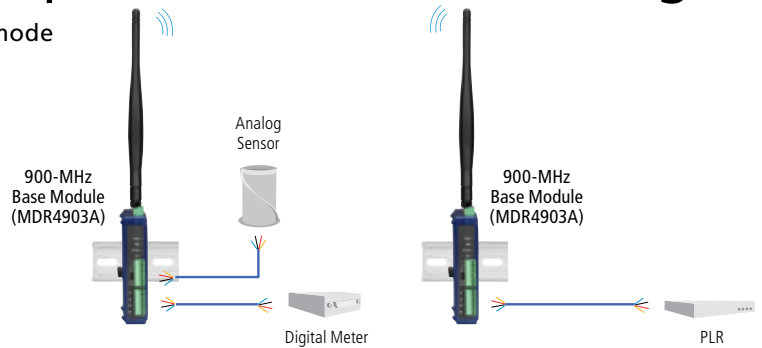
Extend input/output and RS-422/RS-485 signals



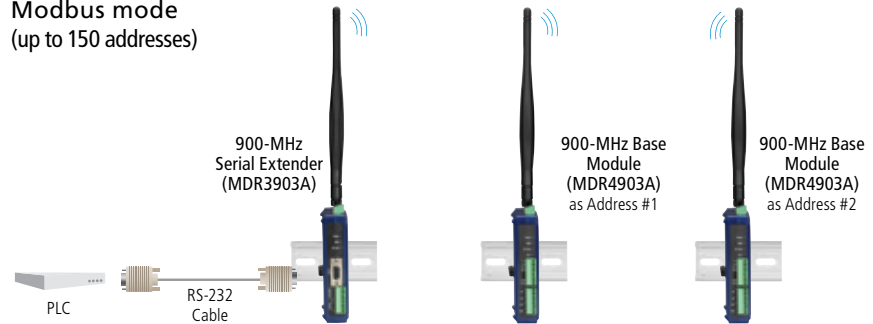
Left to right: MDP01, MDE01A and MDR4902A.

- Just what you need to build an expandable wireless system suitable for electronically "noisy" areas.
- Base modules communicate with sensors, meters, PLRs, and other input/output monitoring devices. Add expansion modules as needed.
- Use serial data extenders to enable data communications between the base modules and PLCs and other RS-232, RS-422, or RS-485 devices.
- Build a system with a mix of both base modules and serial extenders (see Steps 1 through 4 on facing page).
- 2.4-GHz or 900-MHz frequencies.
- The 1-mW-to-1W 900-MHz models feature a 14-mile (22.5-km) range!
- DIN-rail mountable. Rugged IP30-rated cases protect internal circuitry.
- Fit easily into most industrial power control and automation systems.
- Work with Modbus® and PROFIBUS® systems — no converters are needed!
- Offer constant signal strength for easy installation and troubleshooting.
- RoHS compliant.
- **WARRANTY** — Modules: 5 Years
Extenders: 1 Year

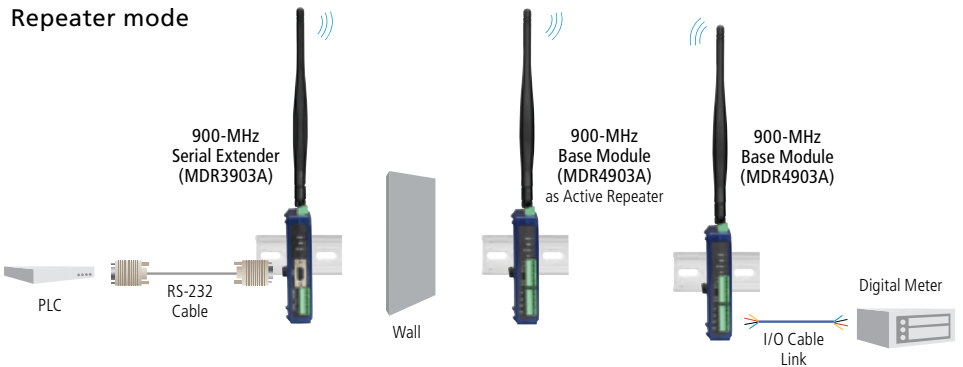
Peer-to-peer mode



Modbus mode (up to 150 addresses)



Repeater mode



TECH SPECS

Antenna — 2.4 GHz models: 2.1-dBi male RPSMA dipole;
900-MHz models: 3-dBi male RPSMA dipole

Data Rate — On serial extenders only:
MDR3241A, MDR3901A: 9600 bps;
MDR3242A, MDR3902A: 19.2 kbps;
MDR3243A: 250 kbps;
MDR3903A: 115 kbps

Digital/Analog I/O Voltage —
Base and expansion modules only:
Digital inputs: 0–48 VDC;
Digital outputs: 10–48 VDC (from PNP sourcing transmitters);
Analog inputs and outputs: 4–20 mA, 0–20 mA or 0–10 VDC (software-selectable)

DIN Rail Mount — 35 mm

Distance (Maximum) —
MDR4243A–MDR4244A, MDR3241A–MDR3242A:
Indoor: 600 ft. (182.8 m); Outdoor: 3 mi. (4.8 km);
MDR4241A–MDR4242A, MDR3243A:
Indoor: 300 ft. (91.4 m); Outdoor: 1 mi. (1.6 km);
MDR4901A–MDR4902A, MDR3901A–MDR3902A:
Indoor: 1500 ft. (457.2 m); Outdoor: 7 mi. (11.2 km);
With high-gain antenna: 20 mi. (32.1 km);
MDR4903A–MDR4904A, MDR3903A:
Indoor: 3000 ft. (914.4 m); Outdoor: 14 mi. (22.5 km);
With high-gain antenna: 40 mi. (64.3 km)

Encryption — MDR3903A only: 256-bit

Frequency — 2.400 GHz–2.4385-GHz ISM band or 902-MHz–928-MHz ISM band

Modulation — Frequency shift keying

Temperature Tolerance — 40 to 185° F (4 to 85° C)

Connectors — Base and expansion modules:
I/O: 2-, 4-, or 8-position terminal block(s);
Base module also has:
Power: 2-position terminal block;
Serial extenders: RS-232: (1) DB9 F;
RS-232/RS-422/RS-485: Terminal block;
Power: Terminal block;
Programming module: (1) DB9 F;
Optional antenna for base module or serial extender:
(1) SMA F (reverse polarity plug);
All base, expansion, and programming modules also have: (2) 14-pin local bus connectors (M/F) for plugging modules together

Power — Base modules and serial extenders:
Input: 10–48 VDC /18–30 VAC (not included);
Expansion and programming modules:
From the connected base module

Size — Base, expansion, and programming modules:
1.2"H x 3.7"W x 5"D (3 x 9.4 x 12.7 cm);
Serial extenders: 4.7"H x 1.2"W x 3.3"D (11.9 x 3 x 8.4 cm)

as far as 14 miles in harsh industrial areas.

Step 1 Choose a base module for digital and/or analog I/O and distance.

- Send your digital and analog inputs (I) and outputs (O) wirelessly.
- Built-in repeater functionality.
- Terminal block inputs map to outputs automatically in peer-to-peer mode.
- In Modbus mode (working with serial extenders below), support up to 150 base modules in a system and up to six systems running simultaneously by different network I/O.



Item	Power	Digital	Analog	Range*	Code	List Price
Wireless I/O Base Modules						
2.4-GHz	50-mW	(2) I, (2) O	(2) I, (2) O	3 miles	MDR4243A	
		(4) I, (4) O	— —	3 miles	MDR4244A	
	100-mW	(2) I, (2) O	(2) I, (2) O	1 mile	MDR4241A	
		(4) I, (4) O	— —	1 mile	MDR4242A	
900-MHz	100-mW	(2) I, (2) O	(2) I, (2) O	7 miles	MDR4901A	
		(4) I, (4) O	— —	7 miles	MDR4902A	
	1-mW-1-W (Selectable)	(2) I, (2) O	(2) I, (2) O	14 miles	MDR4903A	
		(4) I, (4) O	— —	14 miles	MDR4904A	

*NOTE: Range is the maximum outdoor distance (for details, see Tech Specs).
NOTE: Must be used in pairs or with compatible serial extenders (below).

Step 2 Add expansion modules to base modules.

- Connect to base modules by plugging the modules together, engaging the local bus connectors on the sides of the boxes.
- Up to six modules can be plugged into a base module, enabling you to add more I/O capabilities in any combination needed.

Item	Code	List Price
Wireless I/O Expansion Modules		
with (8) D Inputs	MDE01A	
with (8) D Outputs*	MDE02A	
with (4) D Inputs/(4) D Outputs*	MDE03A	
with (4) A Inputs	MDE04A	
with (4) A Outputs	MDE05A	
with (2) A Inputs/(2) A Outputs	MDE06A	

*NOTE: Transistor outputs.

Step 3 Choose an RS-232/RS-422/RS-485 serial modem to communicate with a base module.

- Transmit critical data to PLCs, devices with touch screens, and other serial equipment on or near the factory floor or at remote sites.
- Boast strong receiver sensitivity.
- Advanced filtering technology keeps other wireless signals from disrupting communications.
- Integrated omnidirectional dipole whip antenna for radio links. External high-gain antennas also available for 900-MHz models (for details, call our FREE Tech Support).
- Include software for configuring your COM port for baud rate and other settings. The software also supports AT commands, terminal emulation, RSSI signal range tests, and modem emulation.
- DIP switch-selectable for 2-wire RS-485 or 4-wire RS-422 /RS-485 operation (RS-232 is always present via its DB9 port).
- For advanced security, the 900-MHz 115-kbps model also has a 256-bit AES (Advanced Encryption Standard) key.



Buyer's Guide | Matching base modules to extenders

Base modules above work with the following serial data extender(s):

2.4-GHz	MDR4243A	MDR3241A-MDR3242A
	MDR4222A	MDR3241A-MDR3242A
	MDR4241A	MDR3243A
	MDR4242A	MDR3243A
900-MHz	MDR4901A	MDR3901A-MDR3902A
	MDR4902A	MDR3901A-MDR3902A
	MDR4903A	MDR3903A
	MDR4904A	MDR3903A

NOTE: Must be used in pairs or with compatible base modules (above).

Item	Power	Speed	Range*	Code	List Price
Wireless Serial Data Extenders					
2.4-GHz	50-mW	9600 kbps	3 miles	MDR3241A	
		19.2 kbps	3 miles	MDR3242A	
	100-mW	250 kbps	1 mile	MDR3243A	
900-MHz	100-mW	9600 kbps	7 miles	MDR3901A	
		19.2 kbps	7 miles	MDR3902A	
	1-mW-1-W (Selectable)	115 kbps	14 miles	MDR3903A	

*NOTE: Range is the maximum outdoor distance (for details, see Tech Specs).

To power a DIN rail-mounted extender, order a...

DIN Rail-Mount Power Supply (24-VDC, 40-Watt)	PDS200
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Step 4 Add a programming module to easily configure your entire system.



- A convenient way to use a PC to interface with base and expansion modules.
- Plugs into either module and links to PC via an RS-232 serial link using the included 6-foot (1.8-m) cable.
- Use software to configure the modules and manage I/O devices.

Item	Code	List Price
Programming Module with Cable	MDP01	
with Cable and Software CD	MDP02	

Network Termination Unit-1 (NTU-1)

Make a connection between your ISDN line and equipment.

- Provides an interface between your ISDN line and your premise ISDN equipment.
- Ideal for use with a terminal adapter that doesn't have a built-in NT1.
- Supports point-to-point and multipoint configurations and distances up to 3.4 miles (5.4 km) over 26 AWG cable.
- Equipped with three RJ-45 connectors (two for the S/T interface and one for the U interface).
- Surge protected.
- External power supply is included.
- ♦♦ **WARRANTY** — 1 Year



TECH SPECS

Line Type — Basic rate ISDN (2B1Q)
Speed (Maximum) — Async: 115.2 kbps;
 Sync: 128 kbps
Switch Compatibility — AT&T, NT, Siemens, GTE®
Connectors — (3) RJ-45
Indicators — (6) LEDs: Network, Test, Error, Ready, Local Error, Power
Power — 120-VAC, 60-Hz external supply
Size — 1.4"H x 6.3"W x 3.8"D
 (3.6 x 16 x 9.7 cm)

Item	Code	List Price
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Network Termination Unit-1	IS200A-R2	
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♦ Includes (1) NTU and (1) power supply.

CSU/DSU 56/64 kbps

Your cost-effective DDS line terminator.

- Features a V.35 DCE interface.
- Operates synchronously at 56 or 64 kbps.
- For use in point-to-point or multipoint applications.
- Offers high performance at an economical price.
- Simple to set up and configure via an eight-position DIP switch.
- Built-in test capabilities make troubleshooting your line easily.
- Use as either a desktop or wallmount unit.
- Verify operation and functions with 11 LEDs.
- **Warranty** — 1 Year

TECH SPECS

Diagnostics — Network-test-center activated: CSU loopback on sealing current reversal in local loop, DSU loopback;
 User activated: Self-test, local loopback, V.54 activated remote loopback with 2047 test pattern or DTE data/data from external test set
Speed — 56 or 64 kbps
Interface — Loop interface: 4-wire, full-duplex;
 DTE interface: V.35, full- or half-duplex
Connectors — (1) RJ-45, (1) M/34 F
Indicators — (11) LEDs: RS, CS, TD, RD, CD, ALM, DTE, LOOP, RDL, PTRN, ERROR; (2) TEST buttons
Power — 115 VAC, 60 Hz, 2 watts
Size — 1.6"H x 6.5"W x 8.3"D (4.1 x 16.5 x 21.1 cm)
Weight — 1.5 lb. (0.7 kg)



Item	Code	List Price
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CSU/DSU 56/64 kbps	MT146V	
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To protect your T1 equipment, order...
 DDS Surge Protector, RJ-45 (For details, see p. 312.)
 SP527A

CSU/DSU MS

An easy-to-manage all-rate CSU/DSU for switched or dedicated DDS service.

- Use to terminate a 64K DDS link or a 4-wire Switched 56 network at a V.35 or DB25 DTE interface.
- Automatic rate adaptation enables support of sync and async rates on the primary channel.
- Secondary async channel rates go to 2400 bps.
- Local or remote configuration.
- Automatic or manual dialing.
- Autoanswers incoming calls.
- Ideal for offices that are moving from analog to digital but don't want to replace all existing DTE devices with speedier digital equipment.
- Configure the unit and perform testing via front-panel controls.
- Includes V.54 remote loopback, BERT test patterns, and four DDS stress patterns.



TECH SPECS

Diagnostics — DTE, DTE/loop, DTE with test pattern, loop only, test pattern
Speed (Maximum) — 64 kbps sync, 57.6 kbps async
Interface — RS-232, V.35
Connectors — (2) DB25 F, (1) M/34 F, (1) RJ-48C
Indicators — RTS, CTS, TD, RD, CD, ALRM, TEST
Power — 115 VAC, 60 Hz, 8 watts
Size — 2.3"H x 8.8"W x 10.3"D (5.8 x 22.4 x 26.2 cm)
Weight — 3 lb. (1.4 kg)

Item	Code	List Price
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CSU/DSU MS	MT132V-R2	
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To protect your equipment from unexpected surges from the DDS line, order...
 DDS Surge Protector, RJ-45 (For details, see p. 312.)
 SP527A

- Sync channel rates to 64 kbps.
- **Warranty** — 1 Year

Micro T1 CSU/DSU

This tiny box connects your V.35 equipment to T1!



- Pocket-size CSU/DSU makes it simple and affordable to connect V.35 to T1.
- Plugs directly into your equipment's V.35 interface.
- Supports fractional T1 speeds from 128 kbps to 1.536 Mbps.
- May also be used in pairs for your point-to-point applications to link two V.35 devices at data rates up to 1.544 Mbps at up to 6000 feet (1.82 m)!
- Easy-to-read diagnostic LEDs.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Distance (Maximum) — 6000 ft. (1828.8 m), point-to-point, when used in pairs
Line Coding/Framing — AMI/B8ZS, D4/ESF
Operation — 4-wire
Protocol — Sync
Speed (Maximum) — 1.536 Mbps
CE Approval — Yes
Interface — V.35
Connectors — (1) RJ-48C
Indicators — TXD, RXD, LOS, ALM, ERR, TST, PWR
Power — 115-VAC, 60-Hz, external transformer
Size — 0.8"H x 2.1"W x 4.6"D (2 x 5.3 x 11.7 cm)
Weight — 2 lb. (0.9 kg)

Item	Code	List Price
Micro T1 CSU/DSU	MT120A-R2	

Standalone T1 CSU/DSUs

Terminate T1/FT1 circuits and convert to V.35, RS-530, or Ethernet.



MT910A-35

TECH SPECS

Clocking — Internal, external, or network
Coding — AMI or B8ZS
Framing Format — D4 or ESF
Speed (Maximum) — 1.544 Mbps
CE Approval — Yes
Connectors — MT910A-35: (1) M/34 F, (1) RJ-48C;
 MT910A-530: (1) DB25 F, (1) RJ-48C;
 MT910A-10BT: (1) RJ-45, (1) RJ-48C
Power — 100–240 VAC, 50–60 Hz
Size — 1.5"H x 4.2"W x 5.8"D (3.8 x 10.7 x 14.7 cm)

Item	Code	List Price
Standalone T1 CSU/DSUs		
V.35	MT910A-35	
RS-530	MT910A-530	
10BASE-T	MT910A-10BT	

- Connect to V.35, RS-530, or 10BASE-T terminal interface types.
- Terminate T1/FT1 circuits over a 4-wire RJ-48C interface.
- VT100™ control port with full DSO mapping.
- Provides common-framed N x 56/64 rates up to 1.536 Mbps and unstructured rates at 1.544 Mbps.
- Use the 10BASE-T model for LAN-to-LAN connections. MAC forwarding and built-in bridging provide seamless links without the need for routers.
- Loaded with diagnostics: V.52 511 BERT, V.54 loopbacks, CO loop-up/loop-down, and more!
- ♦♦ **WARRANTY** — 1 Year

T1/FT1 CSU/DSU • Managed T1/FT1 CSU/DSUs

Take control of your T1 and Fractional T1 connections.

- Comply with full and fractional T1, and they support Frame Relay services.
- DSX (drop and insert) model enables you to connect to a PBX and share voice/data bandwidth.
- Provide T1 format processing at speeds from 56 kbps to 1.544 Mbps for V.35 or RS-530 segments in your network.
- All have a DB9 (DCE) console port; managed models also include a DB9 SNMP port.



MT1500A

- Managed units display date- and time-stamped alarm info.
- Perfect for router-to-router and LAN-to-WAN links.
- Use for image transfers, videoconferencing, and host-to-host communications.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Data Rates — T1/FT1: 1.544 Mbps; T1/FT1 sync: N x 56 kbps or N x 64 kbps; Serial: MT1500: 9600 bps; MT1510A-35, MT1511A, MT1510A-530: 1200, 2400, 4800, 9600, 14400, 19200 bps
 DSX: MT1511A only: 1.544 Mbps
Distance (Maximum) — In Line Driver mode: T1/FT1: 6000 ft. (1828.8 m); DSX: MT1511A only: 655 ft. (199.6 m)
Operation — Full-duplex
Connectors — All: T1/FT1: (1) RJ-48C; DTE: (1) M/34 F (V.35 or RS-530); Console: (1) DB9 F (RS-232); MT1510A-35, MT1511A, MT1510A-530 only: SNMP: (1) DB9 F (RS-232)
 MT1511A also has: DSX: (1) RJ-48C
Power — 117 VAC, 60 Hz
Size — 2"H x 8.5"W x 5.5"D (5 x 21.5 x 14 cm)

NOTE: For rackmount and DC versions, call our FREE Tech Support.

Item	Code	List Price
T1/FT1 CSU/DSU		
	MT1500A	
♦ Includes (1) 6-ft. RJ-48C cable and (1) 6-ft. V.35 F to V.35 M cable.		
Managed T1/FT1 CSU/DSUs		
V.35	MT1510A-35	
V.35 with DSX	MT1511A	
RS-530	MT1510A-530	
♦ All include (1) 6-ft. RJ-48C cable. The MT1510A-35 and MT1511A also include (1) 6-ft. V.35 F to V.35 M cable. The MT1510A-530 also has (1) 6-ft. V.35 F to RS-530 M cable.		

T1 and E1 Extenders

Zero-configuration extenders go three times as far over half the pairs.

- Enable you to extend T1 lines to 3.5 miles (5.6 km) and E1 lines to 3 miles (4.8 km) over a single twisted pair.
- Ideal for T1/E1 backhauls from a remote site, relocation, extension across a campus, and last-mile TDM delivery.
- Completely plug-and-play with no configuration required.
- Put one unit on each side of the dry copper pair, connect your T1 or E1 devices, and go.
- Use only two polarity-insensitive pins so you can connect either wire to either pin.
- Operate in Clear Channel mode to easily transport voice and data circuits (F-bit included.)
- Check status via the front-panel LEDs.
- To stack and organize extenders and other devices in a 19" rack, order rackmount panels. Each slot operates independently.



- ♦♦ **WARRANTY** — All: 1 Year

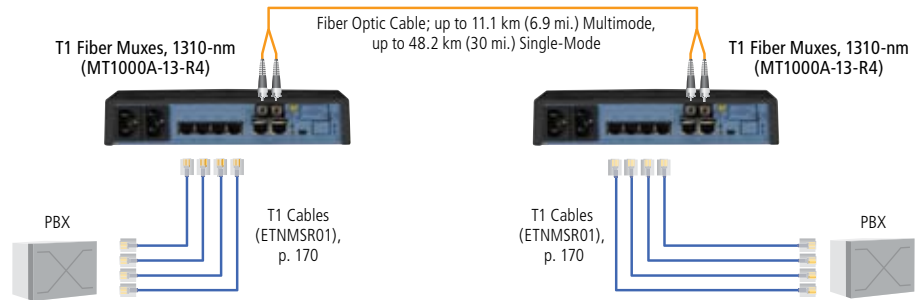
Item	Code	List Price
T1 Extender	MT195A-T1	
E1 Extender	MT196A-E1	
♦ Both extenders include (1) CO unit and (1) CPE unit.		
Universal Rackmount Panels, 19"W		
2-Unit, 1U	ME330-2	
10-Unit, 4U	ME330-10	

T1 Fiber Muxes

Multiplex four T1 channels plus 10/100 Ethernet traffic over a fiber link.

- The 1310-nm single-mode model transmits as far as 47 kilometers (29.2 mi.).
- Each channel has its own set of indicators for link status.
- Manage and configure via its RS-232 interface or Ethernet port.
- Fiber provides security and immunity against EMI/RFI and ground loops.
- 850-nm mux uses 62.5/125- μ m multimode cable; 1310-nm model uses 9/125- μ m single-mode cable.
- **WARRANTY** — 1 Year

BLACK BOX® T1 Fiber Muxes give you an inexpensive way to combine four T1 channels for extension over a campus or enterprise network, up to 6 kilometers (3.7 mi.) with the multimode model or as far as 47 kilometers (29.2 mi.) with the single-mode version.



Use the muxes to transparently extend Ethernet, voice, data, and video services over an interference-free, highly secure fiber optic link. Because the muxes transfer each T1 signal independently, each channel can be set to a different clock source.

The muxes also offer comprehensive test and diagnostic features, including local and remote loopbacks on the uplink interface as well as each T1 tributary link. You also get AIS alarm generation and recognition, and dry contact relays for major and minor alarms.

TECH SPECS

Distance (Maximum) —
850-nm model: 6 km (3.7 mi.);
1310-nm model: 47 km (29.2 mi.)
Fiber Type — 850-nm model: 62.5/125- μ m multimode;
1310-nm model: 9/125- μ m single-mode
Line Code — B8ZS
Line Impedance — 100 ohm, balanced
Power Output (Typical) — 850-nm model: -7 dBm;
1310-nm model: -12 dBm
Receiver Sensitivity — -34 dB
Speed (Maximum) — Line: 1.544 Mbps;
Control port: 115.2 kbps

Transmitter Type — 850-nm model: VCSEL laser;
1310-nm model: Laser
Connectors — Alarm: (1) RJ-45;
Control: (1) mini-USB 5, async RS-232 (DCE);
Ethernet: (1) shielded RJ-45 (10BASE-T/100BASE-TX);
Fiber: (1) pair of ST®;
T1 channels: (4) RJ-45, balanced
Power — 100–240-VAC, 50–60-Hz, autosensing, or
-48 VDC
Size — 1.7"H x 8.5"W x 6.7"D
(4.3 x 21.6 x 17 cm)
Weight — 1.1 lb. (0.5 kg)

NOTE: Must be used in pairs.

NOTE: An optional kit for mounting a single mux or two muxes (side by side) in a standard rack is also available. To order, call our FREE Tech Support.

Item	Code	List Price
T1 Fiber Muxes, ST		
850-nm Multimode	MT1000A-85-R4	
1310-nm Single-Mode	MT1000A-13-R4	

T1 Fiber Optic Line Driver

Convert signals from the T1 line to fiber optic pulses for distance and immunity.



- Uses an LED light source to send data up to 2 kilometers (1.2 mi.).
- Provides high speed with security.
- Framing transparency and selectable options enable transmission with AMI, HDB3, or B8ZS signals.
- Operates over multimode fiber.
- Great for linking a T1 line at its demarcation point to fiber.
- **WARRANTY** — 1 Year

The phone company brings a T1 line to your building and terminates it. For a price, they'll extend the line from the demarcation point to your T1 equipment. Or you can do it yourself with a T1 Fiber Optic Line Driver.

The driver enables you to get the extra distance you need and immunity to electrical noise and surges with fiber cable. It converts T1's electrical signals to fiber optic light pulses and maintain the speed, clarity, and data integrity of your T1 line.

TECH SPECS

Distance (Maximum) — 2 km (1.2 mi.)
MTBF — Approximately 100,000 hours
MTTR — 20 minutes
Operating Wavelength — 850 nm
Optic Launch Power (Nominal) — -10 dBm into
100- μ fiber; -14 dBm into 62.5- μ m fiber
Receiver Sensitivity (Nominal) — -28 dBm
Speed — 1.544 Mbps

Interface — DSX-1, G.703 balanced or unbalanced;
75, 100, or 120 ohms; jumper-selectable
Connectors — (1) DB15 F, (2) BNC F,
(1) pair of ST
Power — 115 VAC, 60 Hz (230-VAC, 50-Hz version on
request)
Size — 1.5"H x 6.5"W x 8.5"D (3.8 x 16.5 x 21.6 cm)
Weight — 5.5 lb. (2.5 kg)

NOTE: Must be used in pairs.

Item	Code	List Price
T1 Fiber Optic Line Driver, ST		
820-nm Multimode	MT612A-ST	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

T1 Cables, DB15 Male/RJ-48C		
Straight-Pinned	ETNMSR03	See p. 170.
Cross-Pinned	ETNMR03	See p. 170.

FlexPoint T1/E1 Copper to Fiber Line Drivers

The T1/E1 fiber drivers that work as standalone devices or in a powered chassis.



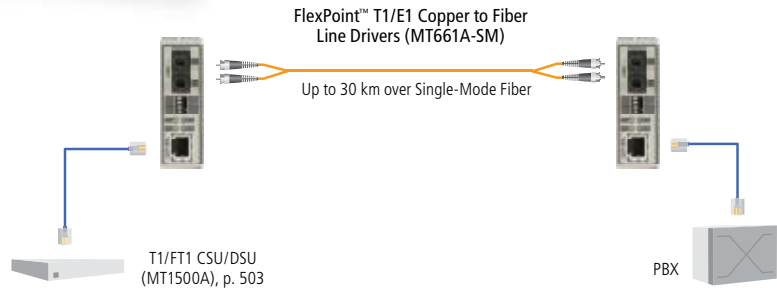
The 14-Slot Power Chassis (LMC200) loaded with multiple line drivers and converters. For the complete FlexPoint family, see pages 560–563.



MT660A-MM



MT661A-SM



- Extend T1/E1 networks over fiber— as far as 60 kilometers (37.2 mi.).
- AMI, B8ZS, and HDB3 line coding.
- Easy installation with no software.
- A crossover switch on the RJ-45/RJ-48 network port enables easy equipment connections.
- LEDs display link status, diagnostics modes, and line errors.
- Diagnostic tests include local and remote loopbacks, and all 1s insertion (AIS) mode.
- Gain the advantages of fiber: distance and security plus immunity to EMI/RFI.
- All work as standalone or hot-swappable chassis-based line drivers.
- The optional power chassis holds 14 converters and fits standard 19" racks.
- Chassis features single or dual hot-swappable AC or DC power supplies.
- Can also be mounted on a wall with optional hardware.
- ♦♦ **WARRANTY** — 1 Year

NOTE: Must be used in pairs.

Here is one of the easiest ways you'll ever find to extend your T1 or E1 copper network over fiber. With FlexPoint T1/E1 Copper to Fiber Line Drivers, you can connect your T1 and E1 DTE and DCE equipment, such as PBXs, CSU/DSUs, and routers, over multimode or single-mode fiber cable.

The multimode line drivers support distances up to 5 kilometers (3.1 mi.). Using the long-distance single-mode version, you can drive data up to an incredible 60 kilometers (37.2 mi.).

The line drivers support AMI, B8ZS, and HDB3 line encoding. Set the codes and line lengths using DIP switches. A crossover switch on the copper port makes connections simple because it eliminates the need for crossover cables or complex configurations.

Diagnostics tests include local and remote loopbacks, and all 1s insertion (AIS) mode. With the help of the LEDs, you can check the status of power, line connections, loopback modes, and even check if all the 1s are being received.

Dry relay contacts give you the option of connecting the converter to an alarm that activates when the power goes out.

You can use FlexPoint T1/E1 Copper to Fiber Line Drivers as standalone devices or wallmount them. Or, you can mount them in either a 5-unit Rackmount Shelf or in the 14-unit Power Chassis, which is available with AC or DC power supplies.

TECH SPECS

Diagnostics — Local loopback on RJ-45/RJ-48 and fiber; Transmit all 1s insertion on RJ-45/RJ-48 and Fiber (AIS); remote loopback on fiber
Distance — Copper: T1: 1.8 km (1.1 mi.); E1: 2.4 km (1.5 mi.); Fiber: Multimode 1300-nm: 5 km (3.1 mi.); Single-mode 1300-nm: 60 km (37.2 mi)
Encoding — AMI, B8ZS, HDB3
Fiber Type — 50/125-, 62.5/125-, or 100/140- μ m multimode or 9/125- μ m single-mode
Operation — Asynchronous, point-to-point
Speed (Maximum) — T1: 1.544 Mbps; E1: 2.048 Mbps
Standards — ANSI, AT&T, ITU, ETSI

CE Approval — Yes
Connectors — Network side: RJ-45/RJ-48 (selectable); Fiber side: (1) pair of ST or SC
Indicators — LEDs: Power, RJ-45/RJ-48/AIS Link, Fiber/AIS Link; Diagnostics
Power — From the included DC power supply (9 VDC/500 mA or 5 VDC/750 mA); or from the FlexPoint Power Chassis
Size — 1"H x 3"W x 4"D (2.5 x 7.6 x 10.2 cm)
Weight — 0.4 lb. (0.2 kg)

Item	Code	List Price
FlexPoint™ T1/E1 Copper to Fiber Line Drivers		
1310-nm		
Multimode, 5 km, ST®	MT660A-MM	
Single-Mode, 30 km, ST	MT661A-SM	
Multimode, 5 km, SC	MT662A-MSC	
Single-Mode, 28 km, SC	MT663A-SSC	
Single-Mode, 60 km, SC	MT664A-SSC	

To rackmount multiple units, order...

FlexPoint 14-Slot Power Chassis (For details, see p. 563.)		
Single Power Supply	115–230 VAC	LMC200
	48-VDC	LMC200A-DC
Dual Power Supply	115–230 VAC	LMC200-2PS
	48-VDC	LMC200A-2PS-DC
DC Converter	18 to 72 VDC, Standalone	LMC204A
5-Position Rackmounting Kit		LMC205
Wallmounting Hardware		LMC206-WALL

For the complete FlexPoint family, pp. 560–563.

T1/E1 Fiber Optic Line Drivers

Extend T1 lines from demarcation all the way to your equipment.

- Convert T1 or E1 signals to fiber optic pulses.
- Single-mode models feature a laser driver to send data up to 50 kilometers (31 mi.).
- Multimode models use a VCSEL light source and send data up to 7 kilometers (4.3 mi.).
- Support AMI, B8ZS, and HDB3 line codes.
- **WARRANTY** — 1 Year



Maintain the speed, clarity, and data integrity of a T3 or E3 line while converting to fiber with these line drivers. Shown above: MT618A-ST-R3 (top: front view; bottom: rear view).

NOTE: Must be used in pairs.

Item	Code	List Price
T1/E1 Fiber Optic Line Drivers, ST Standalone		
850-nm Multimode	MT651A-ST-R2	
1310-nm Single-Mode	MT650A-ST-R3	
1310-nm Single-Mode, DC	MT653A-ST-D48-R3	
Rackmount Cards		
850-nm Multimode	MT651C	
1310-nm Single-Mode	MT650C-R2	

To rackmount your cards, order... RackNest 2/14 (For power supplies and other accessories, see blackbox.com.) RM110A

T3 Fiber Optic Line Drivers

Bring blazing T3 speeds from the demarc to your fiber LAN or WAN!

- Convert super-fast electrical signals of T3 (44.736 Mbps) to fiber optic light pulses.
- Framing transparency and selectable options enable transmission with AMI, HDB3, or B8ZS signals.
- **WARRANTY** — 1 Year



MT618A-ST-R3: top: front view; bottom: rear view.

TECH SPECS

Distance (Maximum) — Multimode: 2.4 km (1.5 mi.); Single-mode: 40 km (24.8 mi.)
CE Approval — Yes
Interface — DSX-1, G.703 balanced 100 or 120 ohms, or unbalanced 75 ohms, jumper selectable
Connectors — (1) DB9 F, (2) BNC F, (1) pair of ST
Power — 100–230 VAC, 50–60 Hz, autosensing
Size — 1.7"H x 7"W x 8"D (4.3 x 17.8 x 20.3 cm)

NOTE: Must be used in pairs.

Item	Code	List Price
T3 Fiber Optic Line Drivers, ST		
850-nm Multimode	MT619A-ST-R2	
1300-nm Single-Mode	MT618A-ST-R3	

T1/E1 to Fiber Converter Modules

Bring extra distance and fiber immunity to your legacy WAN links.



LME001A installed in the LMC5101A.

- Link WAN T1 or E1 lines to duplex fiber cable.
- Ideal for extending a T1 or E1 PBX or switch, or legacy telco circuits.
- Built-in jitter removal.
- Support AMI/B8ZS/HDB3 line encoding.
- SNMP manageable.
- Troubleshoot with line integrity test feature, three loopback test modes, and a transmit data source diagnostic feature.
- MDI-II/MDI-X switch configures the RJ-48 port for crossover or straight-through cable.
- **WARRANTY** — 6 Years

NOTE: Must be used in pairs.

Item	Code	List Price
First, choose your modules...		
T1/E1 to Fiber Converter Modules RJ-48 to		
Multimode 1300-nm, 2 km		
ST	LME001A	
SC	LME002A	
Single-Mode 1310-nm Plus, 40 km		
ST	LME004A	
SC	LME005A	
Single-Mode 1310-nm Long, 80 km		
ST	LME006A	
...to power a single module, order...		
1-Slot Desktop (AC)	LMC5101A	
1-Slot Desktop Multi-Power (AC/DC)	LMC5103A	...to power multiple modules, order...
High-Density Media Conversion System II		See pp. 556–559.

DS3/E3/STS-1 to Fiber Converter Modules

Link your high-speed coax circuits over fiber optic connections.

- Convert coax circuits to duplex multimode or single-mode fiber optic cabling.
- Extend high-speed coax circuits.
- Ideal for inter-building links.
- Advanced line conditioning and jitter removal features.
- Fiber loopback and coax loopback test.
- Transmit data source diagnostic feature and FiberAlert™ for troubleshooting the fiber link.
- Automatic MDI-II/MDI-X.
- SNMP manageable.
- **WARRANTY** — 6 Years



LME020A

NOTE: Must be used in pairs.

Item	Code	List Price
First, choose your modules...		
DS3/E3/STS-1 to Fiber Converter Modules, BNC to		
Multimode 1300-nm, 2 km		
ST	LME020A	
SC	LME021A	
Single-Mode 1310-nm Plus, 40 km		
ST	LME022A	
SC	LME023A	
Single-Mode 1310-nm Long, 80 km		
SC	LME025A	
...to power a single module, order...		
1-Slot Desktop (AC)	LMC5101A	
1-Slot Desktop Multi-Power (AC/DC)	LMC5103A	...or to power multiple modules, order...
High-Density Media Conversion System II		See pp. 556–559.

G.703 ClearChannel NTU • G.703/G.704 NTU

Terminate E1 and get conversion to a 10BASE-T or V.35 network.

- MT330A works with G.703 ClearChannel.
- MT335A terminates E1 G.703/G.704 services for all N x 64-kbps rates to 2.048 Mbps.
- Provide conversion for connection to LANs with a 10BASE-T or V.35 interface, routers, FRADs, or CODECs.
- Offer 75-ohm dual coax and 120-ohm twisted-pair G.703 connections.
- DIP switches provide quick configurations.
- Offer flexible clocking, switch-selectable AMI/HDB3 coding, V.54/V.52 diagnostics, and user-selectable data rates.
- Check status via front-panel LEDs.
- Provide local and remote loopbacks.
- **◆◆ WARRANTY** — 1 Year

TECH SPECS

Clocking — Smooth clocking: internal, external or receive recover
Distance (Maximum) — 1 mi. (1.6 km)
Diagnostics — MT330A: Local loop;
 MT335A: Local/remote loopback, 511, 511d ERT
Line Coding — AMI or HDB3
Line Framing — Both: G.703 (unframed);
 MT335A also: G.704/G.732 (framed)
Speed — Both: 2.048 Mbps;
 MT335A also: N x 64 kbps
Connectors — MT330A: (2) RJ-48, (2) BNC;
 MT335A: (1) RJ-48, (1) V.35
Indicators — E1 Link Status, TD, RD, Loss of Sync, Error, Test Mode
CE Approval — Yes
Power — MT330A: 100–240 VAC, 50–60 Hz;
 MT335A: 100–240 VAC, 50–60 Hz, external
Size — 1.5"H x 4.2"W x 5.8"D (3.8 x 10.7 x 14.7 cm)
Weight — 1 lb. (0.5 kg)

G.703!



MT330A

Item	Code	List Price
G.703 ClearChannel NTU		
10BASE-T	MT330A	
G.703/G.704 NTU		
V.35	MT335A	

Balun Mate • Balun Mate II

Connect your 75-ohm equipment to a 120-ohm G.703 network.

Coax | Twisted-Pair

G.703!

- Connect 120-ohm STP to 75-ohm unbalanced coax equipment.
- Speeds up to E1 (2.048 Mbps).
- Make up to 16 mixed-media connections.
- Bidirectional signal conversion.
- Take only 2U of rack space.
- Both feature dual coax BNC connectors.
- The Balun Mate II connectors have 1.6/5.6 plugs to connect to E1 equipment. The Balun Mate II also has transformer isolation to 500 volts.
- **◆◆ WARRANTY** — 1 Year



Balun Mate (MT243A)

Balun Mate Chassis (RM243A) shown with Balun Module (MT243C-F)



TECH SPECS

Speed — 2.048 Mbps
Transmission Line — G.703 (unstructured)
Connectors — MT243A, MT243C-F: 75-ohm: Dual coax BNC F; 120-ohm: Shielded RJ-45 jack (internal terminal block included);
 MT257A: 75-ohm: Dual coax BNC with 1.6/5.6 F plugs; 120-ohm: Shielded RJ-45 jack (internal terminal block included)
Power — From the interface

Item	Code	List Price
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[Choose a complete solution...](#)

Balun Mate	MT243A	
◆ Includes Chassis and (16) MT243C-F modules.		
Balun Mate II	MT257A	
◆ Includes Chassis and (16) modules that are not sold separately.		
...or order the Chassis and individual modules.		
Balun Mate Chassis	RM243A	
Balun Module	MT243C-F	

G.703 75–120 Adapter with 1.6/5.6 Connectors

Supports 2.048 Mbps.

- 1.6/5.6 dual-coax connectors.
- Transformer isolation protects against ground loops.
- **◆◆ WARRANTY** — 1 Year

MT256A-F



Coax | Twisted-Pair

G.703!

Item	Code	List Price
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G.703 75–120 Adapter with 1.6/5.6 Connectors
Female MT256A-F

G.703 75–120 Adapters

Use twisted-pair equipment with G.703.

- Make 75-ohm (dual-coax) and 120-ohm (twisted-pair) network connections.
- Transformer isolation.
- **◆◆ WARRANTY** — 1 Year



MT1242A-M

Coax | Twisted-Pair

G.703!

Item	Code	List Price
------	------	------------

G.703 75–120 Adapters, 2.048-Mbps
Male MT1242A-M
Female MT1242A-F

T1 and Dual T1 Network Extender Kits

Extend your corporate office LAN over a T1 leased line.

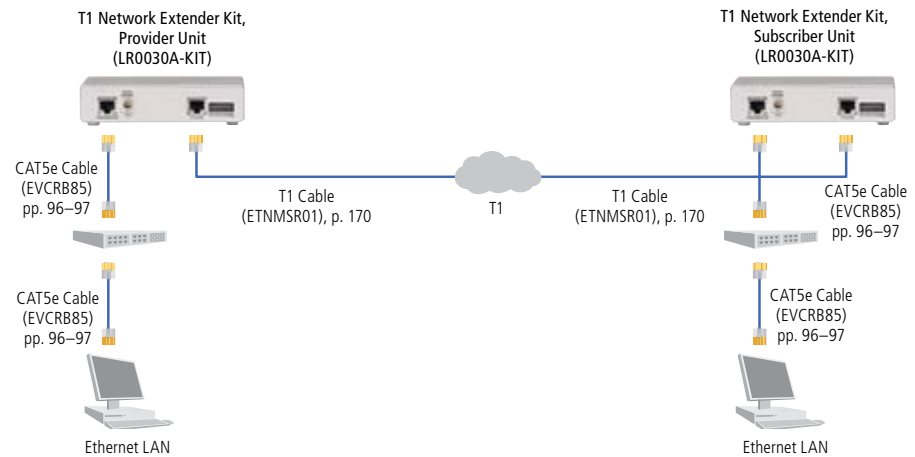


LR0030A-KIT



LR0032A-KIT

- Link a LAN across T1 lines without having to buy any expensive and complicated routers.
- 10-/100-Mbps autosensing Ethernet ports adjust to the speed of your network automatically.
- Both kits feature an integrated CSU/DSU on their T1 port.
- Dual T1 Extender Kit provides loop-bonded T1 lines that enable up to 3.09 Mbps of symmetrical bandwidth.
- Easy setup—literally plug-and-play.
- ♦♦ **WARRANTY** — 1 Year



These long-distance T1 Network Extender Kits provide simple LAN connectivity across a T1 leased line. Use a pair of the extenders in a point-to-point application to link two networks together. For instance, you can link a branch-office network to your corporate network. Because you're using leased lines provided by your telco, there are no distance limitations—you can extend your network anywhere you can get a line.

Use the T1 Network Extender Kit (LR0030A-KIT) for speeds up to 1.55 Mbps. Our Dual T1 Network Extender Kit (LR0032A-KIT), however, provides up to 3.09 Mbps of symmetrical bandwidth over two loop-bonded T1 lines.

Both extender kits use packet-based, IPacket™ compliant technology for optimum throughput and reliability.

Plus, an integrated CSU/DSU is built into the T1 port. The 10-/100-Mbps Ethernet port on each unit is autosensing. Just connect to your switch, and the extender adapts to your network speed automatically.

Installation is easy—the extenders are totally transparent to network protocols, and there's no software to install. Just plug an extender into your Ethernet switch and your T1 or DSL line, and you're ready to go! Quite simply, there's no easier solution for connecting Ethernet over a leased line.

TECH SPECS

Bandwidth — LR0030A-KIT: Selectable to 1.55 Mbps;

LR0032A-KIT: Selectable to 3.09 Mbps

CE Approval — Yes

Interface — Network: IEEE 802.3 Ethernet 10BASE-T, 100BASE-TX

Connectors — LR0030A-KIT: Each unit: T1: (1) RJ-48C;

10/100 autosensing: (1) RJ-45;

LR0032A-KIT: Each unit: T1: (2) RJ-48C;

10/100 autosensing: (1) RJ-45

Power — 100–120 VAC, 60 Hz

Size — Each unit: 1.75"H x 17"W x 18"D

(4.4 x 43.2 x 45.7 cm)

Item	Code	List Price
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For 1.55-Mbps T1 applications with 10-/100-Mbps autosensing Ethernet support, order this kit:

T1 Network Extender Kit
LR0030A-KIT

For loop-bonded T1 applications with 10-/100-Mbps autosensing Ethernet support, choose this kit:

Dual T1 Network Extender Kit
LR0032A-KIT

- ♦ Both kits include (1) Single-Port Provider Unit with power supply and (1) Single-Port Subscriber Unit with power supply.

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

GigaBase® 350 CAT5e Patch Cable, 4-Pair, PVC, 10-ft. (3.0-m), Beige (For other lengths or colors, see pp. 96–97.)

Straight-Pinned	EVNSL85-0010
Crossover	EVCRB85-0010



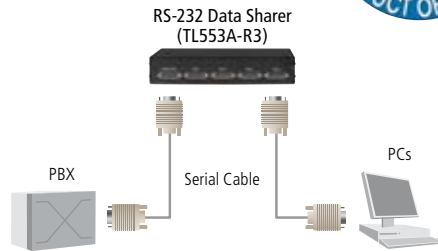
For T1 surge protection, see p. 312.

RS-232 Data Sharers

Connect up to eight RS-232 devices over one line.



Top: TL601A-R2;
middle: TL553A-R3; bottom: TL554A-R3



TECH SPECS

Clock Source — External (from DCE)
Contention Type — RTS/CTS
Leads Supported — 1–8, 15, 17, 20, 22
Operation — Full- or half-duplex
Protocol — Synchronous or asynchronous
CE Approval — TL553A-R3 and 230-VAC versions:
 TL601AE-R2, TL553AE-R3–TL554AE-R3
Interface — RS-232 (master port DTE, slave ports DCE)
Connectors — (3), (5), or (9) DB25 F
Power — 115 VAC, 60 Hz (230-VAC version on request)
Size — TL601A-R2: 2.5"H x 8.1"W x 11.3"D
 (6.4 x 20.6 x 28.7 cm);
 TL553A-R3–TL554A-R3: 2.9"H x 12.5"W x 11.1"D
 (7.4 x 31.8 x 28.2 cm)

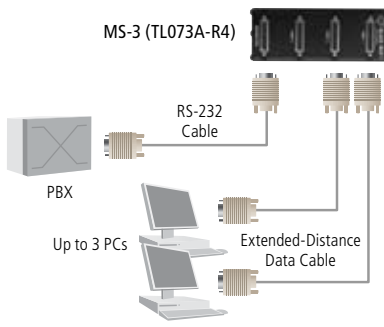
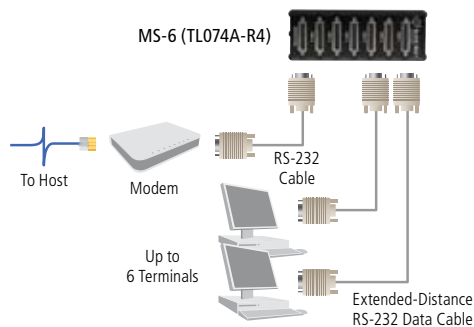
- Cut extra modem costs and leased-line charges for your RS-232 system.
- Use a single phone line and modem to share up to two, four, or eight RS-232 devices.
- All three models feature transparent operation up to 64 kbps and convenient LED monitoring.
- Front-panel switches enable and disable RTS on each input port.
- Run sync or async, half- or full-duplex.
- Feature antistreaming circuitry to lock out any port the instant it begins to stream.
- Works with popular IBM® protocols.
- On the 4- and 8-port models, hardware-prioritized scanning lets the most frequently used channels go first.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
RS-232 Data Sharers		
2-Port (in Metal Case)	TL601A-R2	
4-Port	TL553A-R3	
8-Port	TL554A-R3	

Modem Splitters

Share a high-speed modem six ways!

- Both models include DB25 extension cable and a serial AT® adapter.
- Modem sharing for as many as six users. Connect multiple terminals to one modem and save on the expense of extra modems and lines!
- Work equally well in sync and async environments.
- Transparent to speed and protocol.
- ♦♦ **WARRANTY** — 1 Year



Left: TL073A-R4;
right: TL074A-R4

Item	Code	List Price
Modem Splitters		
3-Port (MS-3)	TL073A-R4	
6-Port (MS-6)	TL074A-R4	
♦ Each includes (1) modem splitter, (1) 6-ft. DB25 M/DB25 F extension cable, and (1) serial AT adapter, DB9 F/DB25 M.		

Nonpowered Modem-Sharing Device (NPMS)

Eliminate the cost of extra modems and communication ports.

- Active port contention.
- Powered from the RS-232 line.
- Transparent in sync or async environments.
- Support speeds up to 19.2 kbps.
- Shares one modem over two terminals—there's nothing to set!
- ♦♦ **WARRANTY** — 1 Year



TECH SPECS

Contention Type — Control (RTS) signal
Leads Supported — 1–8, 15, 17, 20, 24
Protocol — Synchronous or asynchronous
CE Approval — Yes
Interface — RS-232
Connectors — (1) DB25 M (modem), (2) DB25 F (port)
Size — 1"H x 2"W x 5"D (2.5 x 5.1 x 12.7 cm)

Item	Code	List Price
Nonpowered Modem-Sharing Device (NPMS)	TL112A	

Programmable Sharing Devices

Merge multiple DTEs onto a single host port.

- Switch-selectable DCE/DTE. Connect terminals or modems without crossover cables.
- Use to give multiple sync terminals or modems access to an IBM® host.
- Or let four or eight terminals share a modem, or four or eight modems or terminals share a host.
- Includes antistreaming capability to automatically disable a faulty channel.
- Includes a built-in buffer.
- ♦♦ **WARRANTY** — 1 Year



TL304A

Programmable Sharing Devices (PSDs) enable multiple sync terminals or modems to access an IBM host via a single-host port connection.

The PSDs work with synchronous or asynchronous equipment at data rates of up to 19.2 kbps. Plus, they provide local clocking for on-site setups or external clocking for remote applications. Configure them to disable "active" ports that

haven't sent data for a predefined length of time or disable ports manually with the front-panel switches. Flexible contention methods (RTS, DCD, or actual data signals) offer easy control.

Installing a PSD is easy and requires only a straight-through cable. Crossover connections are done inside the unit and are controlled by a switch.

TECH SPECS

Clock — Internal or external (from DTE or DCE)
 Contention Type — RTS/DCD control or data signals
 Operation — Synchronous or asynchronous
 Speed (Maximum) — 19.2 kbps
 CE Approval — Yes
 Interface — RS-232

Connectors — (5) or (9) DB25 F
 Power — 115 VAC, 60 Hz, 10 watts (230-VAC versions on request)
 Size — TL304A: 1.8"H x 14"W x 10.5"D (4.6 x 35.6 x 26.7 cm);
 TL305A: 1.7"H x 17"W x 8.2"D (4.3 x 43.2 x 20.8 cm)

Item	Code	List Price
Programmable Sharing Devices		
4-Port	TL304A	
8-Port	TL305A	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...
 RS-232 Cable, 25-Conductor, 10-ft. (3.0-m)
(For other lengths or conductors, see p. 166. Specify gender when ordering.)
 ECM25T-0010

V.35 Data Sharers

Save with high-speed V.35 links—connect two or four circuits over just one CSU/DSU.



Top: TL555A;
bottom: TL570A

- Run two or four remote controllers from one host at V.35 speeds.
- Versatile bidirectional sharers that run sync or async, local or remote.
- In broadcast mode, the host sends a polling message to all controllers simultaneously. After a port is selected, all the controllers continue to receive the host's transmissions.

- In select mode, only one device gets host transmissions until the host polls again.
- Transparent to data.
- Two-channel model supports 64-kbps speeds; four-channel unit offers 2.048-Mbps speeds.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Contention Type — RTS/CTS
 Operation — Synchronous/asynchronous; half- or full-duplex
 Interface — Master port is DTE, slave port is DCE
 Connectors — TL555A: (3) M/34 F;
 TL570A: (5) M/34 F

Power — TL555A: 115 VAC, 60 Hz;
 TL570A: 115/230 VAC, 60/50 Hz, 25 watts
 Size — TL555A: 2.5"H x 8.1"W x 11.3"D (6.4 x 20.6 x 28.7 cm);
 TL570A: 1.8"H x 12"W x 8"D (4.6 x 30.5 x 20.3 cm)

Item	Code	List Price
V.35 Data Sharers		
2-Channel	TL555A	
4-Channel	TL570A	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...
 V.35 Interface Cable, 10-ft. (3.0-m), Male/Male
(For other lengths or genders, see p. 169.)
 EYNT450-0010-MM

Telco Line Bridge (TLB)

Send data to four leased lines with one modem.

- Cost-effective leased-line management. Consolidate instead of paying for multipoint leased line services.
- Use in local and remote networks.
- Set the gain or attenuation of each port separately.
- ♦♦ **WARRANTY** — 1 Year



You've come to the bridge. Now you can cross from one leased line to another—no matter what the line conditions are. Shown at left: TL205A-R2.

TECH SPECS

Line Impedance — 600-ohm, transformer-coupled
 Operation — 4-wire, analog, full-duplex leased line
 Transmit and Receive Levels — With 0-dBm input: ±16 dBm in 2-dB increments; independently selectable for each line
 CE Approval — TL205C-R2 and 230-VAC version: TL205AE-R2

Connectors — (2) 10-position terminal strips for up to 5 leased lines
 Power — 115 VAC, 60 Hz, 5 watts
 Size — TL205A-R2: 2.1"H x 8.8"W x 11.5"D (5.3 x 22.4 x 29.2 cm)
 Weight — TL205A-R2: 3 lb. (1.4 kg)

Item	Code	List Price
Telco Line Bridge (TLB)		
Standalone	TL205A-R2	
Rackmount Card	TL205C-R2	
To rackmount your card, order...		
8-Card Rack <i>(For details, see blackbox.com.)</i>	RM060	

Data Broadcast Units

Send your training demo to eight PCs simultaneously.

- Send async data to as many as eight printers, terminals, PCs, plotters, and other slave devices.
- All ports are DTE/DCE switch-selectable.
- Ideal for polling applications or other controlled environments.
- DB25 model is rackmountable and enables you to connect each port directly and quickly to slave ports.
- Use RJ-11 version in modular wiring environments. Order an optional RJ-11 Adapter Kit to connect it to premise DTEs equipped with DB25 connectors.
- **◆◆ WARRANTY** — 1 Year

TECH SPECS

Flow Control — Software only, transparent to speed and data
Protocol — Asynchronous
Speed — Transparent up to 19.2 kbps
User Channels — 8
Interface — RS-232
Connectors — TL158A-R4: (9) DB25 F; TL159A: (9) RJ-11
Power — 115 VAC, 60 Hz
Size — TL158A-R4: 2.3"H x 12.2"W x 11.1"D (5.8 x 31 x 28.2 cm); TL159A: 1.5"H x 5.5"W x 8.5"D (3.8 x 14 x 21.6 cm)
Weight — TL158A-R4: 8.3 lb. (3.8 kg); TL159A: 2.4 lb. (1.1 kg)



TL158A-R4

Item	Code	List Price
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Data Broadcast Units		
DB25	TL158A-R4	
RJ-11	TL159A	

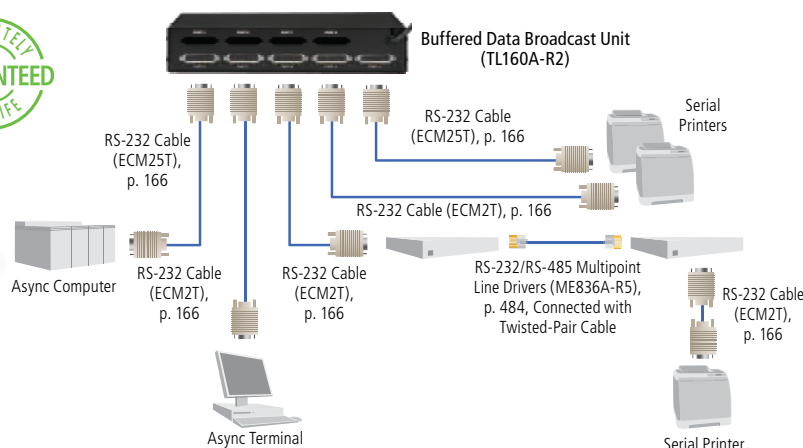
To rackmount the TL158A-R4, order...
Rackmount Bracket TL486

For the TL159A, you may also need...

RJ-11 Adapter Kits		
Male	FA252	
Female	FA253	

Buffered Data Broadcast Unit

Broadcast data to eight printers or terminals without delay.



- Broadcast async RS-232 data simultaneously to eight terminals or printers.
- Buffers data individually for each port.
- Dynamically allocates memory.
- Configure each port individually.
- Sends data to four or eight users (with expansion card).
- All ports are DTE/DCE switch-selectable.
- Add a 32 KB Memory Expansion to keep data moving.
- **◆◆ WARRANTY** — Lifetime

TECH SPECS

Buffer Size — Expandable to 64 KB
Flow Control — Hardware or software, transparent to speed and data
Protocol — Asynchronous, ASCII
Speed (Maximum) — 19.2 kbps
User Channels — 4 (expands to 8)
Interface — RS-232, DTE/DCE selectable
Connectors — (5) DB25 F; (9) with TL160-C
Power — 115 VAC, 60 Hz
Size — 2.3"H x 12.2"W x 11.1"D (5.8 x 31 x 28.2 cm)

Item	Code	List Price
------	------	------------

Buffered Data Broadcast Unit	TL160A-R2	
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To enhance your broadcast unit, order...
4-Port Expansion Card

32 KB Memory Expansion	TL484	
------------------------	-------	--

V.11 LS

Support for your high-speed data broadcasting.



- Up to eight high-speed receive-only devices at once.
- Continuously broadcasts receive data, receive timing, and a control signal from the data source.
- Use to distribute noncritical data to multiple LANs, PCs, or receive-only printers.
- Data-rate buffering up to 10 Mbps.
- Tandem DB15 connectors enable you to cascade without losing user ports.
- Compatible with V.35, RS-422/RS-449, RS-530, and RS-485.
- **◆◆ WARRANTY** — 3 Years

Item	Code	List Price
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V.11 LS	TL576A	
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Networking

Where in the world will
your network take you?





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For New Products,
turn to pages 26–73.

Pure Networking Broadband Routers

These routers hide a network address from hackers—in secure, undisclosed locations!

- Translate your WAN IP address into private LAN IP addresses, hiding your network from the Internet.
- Enable up to 253 network users to transparently share the same broadband Internet connection.
- Provide firewall protection for network users.
- Built-in 4-port switch—you don't need to buy a separate switch!
- Built-in print server enables all networked PCs to share printers.
- Support VPN tunneling.
- Automatically adapts to 10- or 100-Mbps Ethernet speeds.
- **◆◆ WARRANTY** — 1 Year

These Broadband Routers offer you a versatile and secure interface between a small network and the Internet. They're an easy way for up to 253 network users to transparently share the same broadband Internet connection.

Firewall protection for broadband.

An "always on" Internet connection, such as a DSL or cable modem, is particularly vulnerable to hackers. These routers add a layer of security by translating your WAN IP address into a private LAN IP address, hiding your network from the Internet.



LR9601A

Plus, there's even more security: PAP/ CHAP/ MS-CHAP authentication provides password protection for users dialing into your network from the outside. The routers support VPN tunneling via L2TP, PPTP, and IPsec passthrough. A security log displays any illegal attempts to access your network.

Built-in 4-port switch.

A built-in 4-port Ethernet switch enables you to connect PCs directly to the routers to build a small network. To expand your network to more than four PCs, just connect an Ethernet switch to one of the router's ports. Autosensing ports adapt automatically to 10- or 100-Mbps Ethernet.

Built-in print server.

A built-in print server enables you to connect a parallel printer so everyone on your network can use it. It supports LPD printing protocol and a Windows® print server network driver is included.

Easy to manage, too!

Easy-to-use Web-based management is accessible via any standard Web browser.



TECH SPECS

Memory — Flash: 2 MB NOR; RAM: 16 MB SDRAM
Protocols Supported — TCP/IP, UDP, ICMP, PPPoE, PPTP, NAT/PAT, DHCP, PAP/CHAP/MS-CHAP, L2TP, PPTP, IPsec passthrough
Standards — IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX
Throughput — LR9603A: 40 Mbps; LR9601A: 20 Mbps
CE Approval — Yes
Connectors — LAN: (4) RJ-45; WAN: (1) RJ-45; Print server: LR9603A: (2) USB Type A; LR9601A: (1) DB25 F
Indicators — LEDs: (1) Power, (1) WAN, (4) LAN
Power — 120 VAC, 60 Hz, external
Size — 1.2"H x 7.4"W x 3.9"D (3 x 18.8 x 9.9 cm)
Weight — 0.6 lb. (0.3 kg)

Item	Code	List Price
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Pure Networking™ Broadband Routers with USB Print Server

LR9603A

with Parallel Print Server

LR9601A

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

GigaBase® CAT5e 350-MHz Patch Cable, 4-Pair, Straight-Pinned, PVC, Blue, 10-ft. (3.0-m)
(For other lengths, colors, or pinnings, see pp. 96–97.)
 EVNSL81-0010

Pure Networking 802.11g Wireless Router with Switch

Routing plus wireless connectivity at up to 54 Mbps.

- Full compliance with the IEEE 802.11g standard.
- Supports high-bandwidth 802.11g multimedia applications.
- Backward compatible with 802.11b. Upgrade part of your network while using your existing 802.11b devices!
- Easy setup and configuration.
- Compatible with Windows XP/2000/98/SE/Me!
- Includes an access point and a 4-port switch.
- IP sharing with NAT/NAPT enables up to 253 wired or wireless computers to share a single connection.
- Works with ADSL, cable modem, and leased line.
- Security includes a Stateful Packet Inspection (SPI) firewall, virtual server and DMZ function, IEEE 802.1x and AES/TKIP/ WEP Data Encryption.
- **◆◆ WARRANTY** — 1 Year



TECH SPECS

Distance (Maximum) — 328 ft. (100 m)
Memory — 2 MB flash, 16 MB DRAM
Speed — Wireless: 54, 48, 36, 24, 18, 12, 11, 9, 6, 5.5, 2, 1 Mbps with auto fallback;
 Ethernet: 10/100 Mbps, autosensing
Standards — IEEE 802.11b, IEEE 802.11g, IEEE 802.3, IEEE 802.3u
Transmit Power — 18 dBm
CE Approval — Yes
Connectors — (1) RJ-45 WAN, (4) RJ-45 LAN
Power — 115-VAC, 60-Hz external adapter
Size — 1.2"H x 7.4"W x 4.2"D (3 x 18.8 x 10.7 cm)



Item	Code	List Price
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Pure Networking 802.11g Wireless Router with Switch

LW6005A-R2

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

GigaBase® CAT5e 350-MHz Patch Cable, 4-Pair, Straight-Pinned, PVC, Blue, 10-ft. (3.0-m)
(For other lengths, colors, or pinnings, see pp. 96–97.)
 EVNSL81-0010

Pure Networking 10/100 Ethernet Switches

Traffic management for Ethernet and Fast Ethernet.

- A size for most every network: choose from 5, 8, or 16 10-/100-Mbps ports.
- Determine which Ethernet addresses are in use on each segment. Switches build a table as packets are passed through them.
- Autosensing ports adapt automatically to 10- or 100-Mbps Ethernet and send data to the correct port.
- Autonegotiating half-/full-duplex.
- Full wire speed with nonblocking, store-and-forward switching architecture.
- Auto MDI/MDI-X function on all ports eliminates the need for cross-pinned cables.
- Easy to set up.
- **◆◆ WARRANTY** — 1 Year



Top: 5-Port Switch (LB8505A-R2); middle: 8-Port Switch (LB8508A); bottom: 16-Port Switch (LB8516A)

TECH SPECS

Buffer — LB8505A-R2: 128 KB;
LB8508A: 256 KB;
LB8516A: 512 KB

Filtering and Forwarding Rate — 148,800 pps
MAC Addresses — LB8505A-R2: 1K;
LB8508A, LB8516A: 8K

Standards — IEEE 802.3 10BASE-T, IEEE 802.3u
100BASE-TX

Switching Architecture — Store and forward
CE Approval — Yes

Connectors — (5), (8), or (16) RJ-45

Indicators — LEDs: Per unit: (1) Power;
Per port: (1) 10/100 Mbps; (1) LNK/ACT
Power — 120 VAC, 60 Hz, external
Size — LB8505A-R2: 1.3"H x 5"W x 3.3"D
(3.3 x 12.7 x 8.4 cm);
LB8508A: 1.4"H x 7.4"W x 3.9"D
(3.6 x 18.8 x 9.9 cm);
LB8516A: 1.4"H x 11.4"W x 3.9"D
(3.6 x 29 x 9.9 cm)
Weight — LB8505A-R2: 0.4 lb. (0.2 kg);
LB8508A: 0.6 lb. (0.3 kg);
LB8516A: 1.1 lb. (0.5 kg)

Item	Code	List Price
Pure Networking 10/100 Ethernet Switches		
5-Port	LB8505A-R2	
8-Port	LB8508A	
16-Port	LB8516A	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

GigaBase 350 CAT5e 350-MHz Patch Cable, 4-Pair, Straight-Pinned, PVC, Beige, 10-ft. (3.0-m) (For other lengths or colors, see pp. 96-97.)
EVNSL85-0010

Pure Networking 10-/100-/1000-Mbps Switch

Affordable Gigabit Ethernet for your small network.



- Features eight autosensing 10-/100-/1000-Mbps ports.
- Easy plug-and-play operation.
- Autonegotiating for duplex.
- Auto MDI/MDI-X on each port.
- **◆◆ WARRANTY** — 1 Year

The Pure Networking 8-Port 10-/100-/1000-Mbps Switch is an easy and affordable way to bring Gigabit speeds to your small-office or home network.

It's so easy to use—literally plug-and-play! Just connect the cable, and the switch senses and adjusts to the speed of each connected device automatically.

Each port is independent so you can mix and match Ethernet types, keeping your favorite older

Ethernet devices in your network while adding new high-speed devices. The 256 KB RAM buffer prevents data from bottlenecking when different Ethernet speeds operate within the same network.

The switch also autonegotiates duplex, supporting half- or full-duplex for 10-Mbps and 100-Mbps speeds and full-duplex only at Gigabit speeds. And with Auto MDI/MDI-X on all ports, you don't have to worry about having a crossover cable on hand.



TECH SPECS

Distance (Maximum) — 100 m (328 ft.)

MAC Addresses — 8K

Operating Environment —

Temperature: 32 to 104° F (0 to 40° C);

Humidity: 10 to 70% noncondensing

Standards — IEEE 802.3, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3x

Switching Method — Store and forward

CE Approval — Yes

Connectors — (8) RJ-45

Indicators — LEDs: Per unit: (1) PWR;

Per port: (1) LNK/ACT, (1) 100M, (1) 1000M

Power — 100-240 VAC, 50-60 Hz, autosensing

Size — 1.1"H x 6.7"W x 3.9"D (2.8 x 17 x 9.9 cm)

Item	Code	List Price
Pure Networking™ 10-/100-/1000-Mbps Switch		
8-Port	LGB2001A	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

GigaBase® 350 CAT5e 350-MHz Patch Cable, 4-Pair, Straight-Pinned, PVC, Beige, 10-ft. (3.0-m) (For other lengths or colors, see pp. 96-97.)
EVNSL85-0010

USB 2.0 Ethernet Adapter

Access an Ethernet network through your USB port.

- Connect PCs, notebooks, laptops, and handheld computing devices to an Ethernet LAN.
- Plug-and-play for speedy installation!
- Compact size makes it easy to pack with your laptop.
- Attaches to your PC's USB port or a USB hub with the included 1-foot (0.3-m) USB cable.
- Supports USB 2.0.
- Windows® compatible.
- Data transfer rates of 10 or 100 Mbps.
- **◆◆ WARRANTY** — Lifetime



Item	Code	List Price
USB 2.0 Ethernet Adapter	LE9001A-USB-R2	

USB 2.0↔Gigabit Ethernet Adapter

Convert a USB port into a 10-/100-/1000-Mbps Ethernet port.

- Data transfer rates of 10, 100, or 1000 Mbps.
- Easy to upgrade to 1000 Mbps. Just plug into a USB 2.0 port!
- Attaches to your PC's USB port or a USB hub via the included 1-foot (0.3-m) USB cable.
- Compact size makes it easy to pack with your laptop.
- Windows compatible.
- **◆◆ WARRANTY** — 1 Year



TECH SPECS		
Access Method — Differential and bidirectional per USB specification 2.0		
Operating Systems Supported — Windows 95/98, Windows 2000, Windows XP, Windows Vista		
Protocols — TCP/IP, IPX/SPX™, NetBEUI		
Speed — 10, 100, and 1000 Mbps		
Connectors — (1) USB Type A, (1) RJ-45		
Indicators — LEDs: (1) Link, (1) Power		
Power — From the USB bus		
Item	Code	List Price
USB 2.0↔Gigabit Ethernet Adapter	LG600A	

Pure Networking PCI Bus Network Adapters

Connect your PC to 10/100 or 10/100/1000 Ethernet economically.

- Installs easily in a PCI slot.
- Senses network speed automatically.
- Features 32-bit busmastering design.
- Full- or half-duplex operation.
- Includes drivers for most popular operating systems.
- Supports Wake-on-LAN.
- **◆◆ WARRANTY** — 1 Year



Item	Code	List Price
Pure Networking™ PCI Bus Network Adapters		
10/100	LE1600C-R2	
10/100/1000	LG9230CTX-32	

PCI Fiber Adapters

Reap the benefits of running fiber cable to the desktop!



- The 10/100 adapter provides an upgrade path for your 10-Mbps environment and includes built-in redundancy.
- 32-bit adapters support full-duplex to 2 kilometers (1.2 mi.) and half-duplex to 400 meters (1312.3 ft.).
- Work with most popular operating systems.
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price
PCI Fiber Adapters		
10BASE-T (RJ-45)/10BASE-FL		
ST®	LE1352C-ST	
SC	LE1353C-SC	
100BASE-FX		
ST	LH1350C-ST-R3	
SC	LH1350C-SC-R3	
10BASE-T/100BASE-TX/100BASE-FX		
SC	LH1351C	

Pure Networking 802.11g Wireless Adapters

Speedy wireless connections for your laptop at up to 54 Mbps.

- The 32-bit CardBus Adapter (LW6000A) plugs into the PCMCIA slot of your laptop.
- The PCI Adapter (LW6001A) connects to the PCI slot of your desktop PC.
- The High-Gain USB Adapter (LW6002A) plugs into your desktop computer's USB 2.0 port.
- The Mini USB Adapter (LW6007A) connects to your laptop's USB 2.0 port.
- **◆◆ WARRANTY** — 1 Year



Item	Code	List Price
Pure Networking 802.11g Wireless Adapters		
CardBus (PCMCIA)	LW6000A	
PCI	LW6001A	
High-Gain USB	LW6002A	
Mini USB	LW6007A	
◆ LW6002A includes (1) adapter and (1) 1-ft. USB Type A male to Mini USB Type A male cable.		

Pure Networking 802.11g Wireless Speedy wireless connections at up to 54 Mbps.

- Full compliance with the IEEE 802.11g standard.
- Supports high-bandwidth 802.11g multimedia applications.
- Backward compatible with 802.11b.
- Easy setup and configuration.
- **◆◆ WARRANTY** — 1 Year



LW6004A-R2



LW6005A-R2

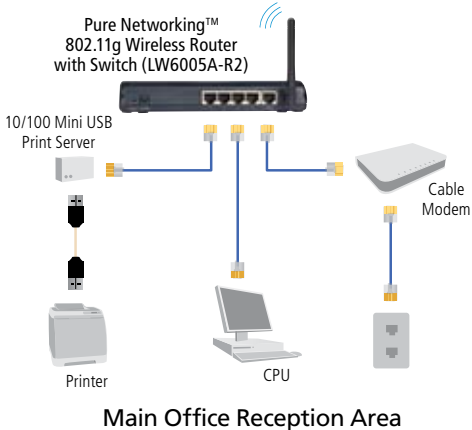
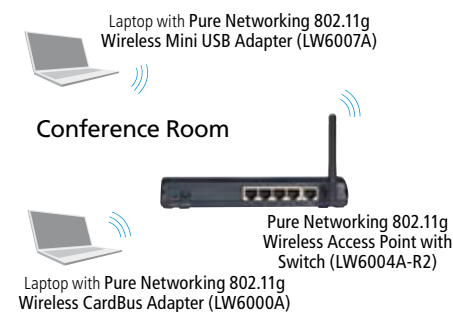
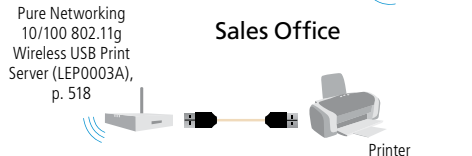
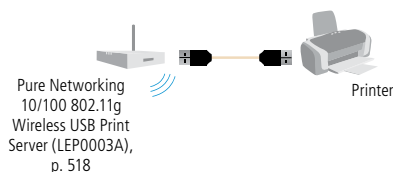
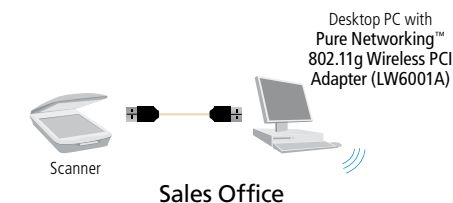
Pure Networking 802.11g Wireless Access Point with Switch

- Enables your wireless PCs to communicate with each other and with computers on your wired Ethernet network.

- Includes an integrated switch with five 10-/100-Mbps Ethernet ports for your wired LAN connections.
- Wire Distributed System (WDS) Repeater Mode enables it to act as an access point and a

repeater simultaneously. Use it to build wireless networks in point-to-point or multipoint topologies for coverage of large areas.

- Standard 4-/128-/152-bit WEP encryption as well as WPA security, including MAC access control, IEEE 802.1x authentication, TKIP, and hide ESSID. The built-in RADIUS server supports EAP-MD5 authentication.



Pure Networking 802.11g Wireless Router with Switch

- Includes an access point and a 4-port switch.
- IP sharing with NAT/NAPT enables up to 253 wired or wireless computers to share a single connection.
- Works with ADSL, cable modem, and leased line.
- Security includes a Stateful Packet Inspection (SPI) firewall, virtual server and DMZ function, IEEE 802.1x, and AES/TKIP/ WEP Data Encryption.

Item	Code	List Price
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Pure Networking™ 802.11g Wireless Access Point with Switch	LW6004A-R2	
Pure Networking 802.11g Wireless Router with Switch	LW6005A-R2	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

GigaBase® 350 CAT5e 350-MHz Patch Cable, 4-Pair, Straight-Pinned, PVC, Beige, 10-ft. (3.0-m) (For other lengths or colors, see pp. 96-97) EVNSL85-0010

Pure Networking 802.11g 2.4-GHz Antennas Superb signal reception—inside or out!

- The 8-dBi Omnidirectional Antenna is pole-mountable and boosts distance up to 0.6 miles (1 km). It measures 0.7"W x 24.8"L (1.8 x 63 cm).
- The 14-dBi Directional Panel Antenna is 9.4"H x 9.4"W x 2.8"D (23.9 x 23.9 x 7.1 cm) and mounts on a pole or on the wall and boosts distance up to 1.8 miles (2.8 km).
- Both antennas feature a single N-type female connector, are waterproof and wind resistant, and can be used either indoors or outdoors.
- **◆◆ WARRANTY** — 1 Year



LW6201A-R2

TECH SPECS

Cable Length — LW6200A-R2: 19.7" (50 cm); LW6201A-R2: 11.8" (30 cm)
 Distance (Maximum) — LW6200A-R2: 0.6 mi. (1 km); LW6201A-R2: 1.8 mi. (2.8 km)
 Frequency Band — 2.4000-2.5 GHz
 Gain — LW6200A-R2: 8 dBi; LW6201A-R2: 14 dBi
 Impedance — 50 ohms
 Survival Wind Speed — 111.8 mi./hr. (180 km/hr.)

Item	Code	List Price
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Pure Networking 802.11g 2.4-GHz Antennas 8-dBi Omnidirectional	LW6200A-R2	
14-dBi Directional Panel	LW6201A-R2	

Pure Networking Print Servers

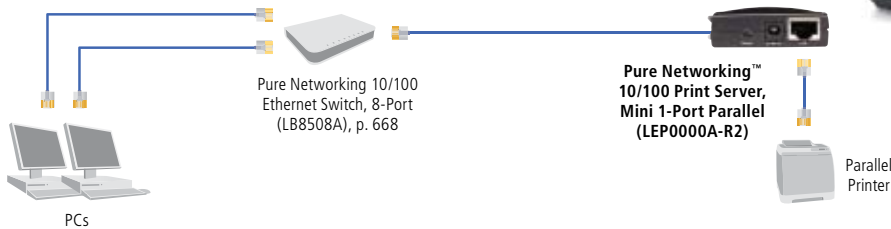
Give your network users easy access to USB and parallel printers.



LEP0005A-R2



LEP0006A



- Share USB or parallel printers on your wired or wireless LAN.
- Wireless models comply with the IEEE 802.11g standard.
- Select peer-to-peer or server-based printing.
- Support common protocols and operating systems.
- Wireless models work in networks with or without an access point.
- Accessible via a Web browser connection, so you can share printers with your Internet users!
- ♦♦ **WARRANTY** — 1 Year

Pure Networking Print Servers enable everyone on a small network to share one or more printers. Print by sending jobs directly to the print server (peer-to-peer) or by sending jobs via the print server to a network server that queues them for output (server-based printing).

The print servers work with all major operating systems, including Windows® 95/98/Me, Windows NT®, Windows 2000, Windows XP, Mac®, Novell® NetWare®, UNIX®, and Linux®.

Because the print servers support bidirectional communications, you can both send information to and retrieve information from the attached printers. This way, you can troubleshoot your printer operation over the network or over the Internet.

The print servers come with a CD-based utility that includes an installation wizard for complete configuration and management on the print server side. The included Web manager utility enables you to access the print server by entering its IP address into your browser's address field.

Flash memory enables convenient upgrades to the print servers.

For compact installations involving only one printer, choose Mini Print Servers (LEP0000A-R2, LEP0001A).

For busy environments where users need access to more than one printer, choose the 3-Port Desktop Print Server (LEP0005A-R2).

To put your USB printers within range of your wired *and* wireless network users, choose 802.11g Wireless Print Servers (LEP0003A, LEP0006A).

TECH SPECS

Memory — LEP0000A-R2, LEP0001A:

Flash: 512 MB NOR;
RAM: 2 MB SDRAM;

LEP0005A-R2, LEP0003A, LEP0006A:

Flash: 2 MB NOR;
RAM: 16 MB SDRAM

CE Approval — Yes

Connectors — Printer port(s):

LEP0000A-R2: (1) Centronics® M;
LEP0001A: (1) USB 1.1 Type A F;
LEP0005A-R2: (2) USB 1.1 Type A F, (1) DB25 F;
LEP0003A: (1) USB 2.0 Type A;
LEP0006A: Printer ports: (2) USB 1.1 Type A, (1) DB25 F;

LAN port: (1) RJ-45 (10/100 Mbps, autosensing)

Indicators — (1) Power, (1) WLAN, (1) LAN, (3) Print

Power — Input: 120 VAC, 60 Hz;

Output: LEP0000A-R2, LEP0001A: 7 VDC;
LEP0005A-R2, LEP0003A, LEP0006A: 12 VDC

Standards — LEP0000A-R2, LEP0001A, LEP0005A-R2:

IEEE 802.3, IEEE 802.3u
LEP0003A, LEP0006A: IEEE 802.3, IEEE 802.11g,
IEEE 802.3u

Size — LEP0000A-R2: 0.8"H x 2.2"W x 2.4"D

(2 x 5.6 x 6.1 cm);
LEP0001A: 0.8"H x 2.2"W x 2.1"D
(2 x 5.6 x 5.3 cm);
LEP0005A-R2: 1.2"H x 7.4"W x 1.6"D
(3 x 18.8 x 4.1 cm)
LEP0003A: 0.8"H x 2.2"W x 2.9"D
(2 x 5.6 x 7.4 cm);
LEP0006A: 1.2"H x 7.4"W x 4.2"D
(3 x 18.8 x 10.7 cm)

Item	Code	List Price
Pure Networking 10/100 Print Servers		
Mini 1-Port		
(1) Parallel	LEP0000A-R2	
(1) USB	LEP0001A	
Desktop 3-Port		
(2) USB, (1) Parallel	LEP0005A-R2	
802.11g Wireless Print Servers, USB		
1-Port	LEP0003A	
3-Port	LEP0006A	



Pure Home Networking

Wire your home for a complete multimedia network: data, voice, video, and audio.



Structured cabling for home and office.

Organize and centralize your wiring.

One of the easiest, most cost-effective ways to increase your home's value is to install a structured cabling system for all its communications systems such as telephone, cable TV, Internet, and audio.

Pure Home™ is designed specifically for use in homes, apartments, condos, and small offices. This system provides an easy, structured way to wire your home for Internet, DSL, telephone, video, CATV, CCTV, security, audio, and more.

Modular for easy installation.

With Pure Home Networking, you design your own network. Choose from four distribution boxes — all your communications wiring is organized in one distribution box — and a wide array of data, voice, video, and audio modules.

When you're really to expand, simply add more modules. It's the easy, logical, and economical way to consolidate all your communications wiring.

Just contact us to get started.

With Pure Home Networking you'll have the infrastructure to share a high-speed Internet connection and computer peripherals, listen to music and watch movies, and watch TV from anywhere in your home. It's easy to install yourself, or, in most areas, Black Box can even install it for you.

To find out more about Pure Home Networking, just call our FREE Tech Support or visit blackbox.com.

blackbox.com

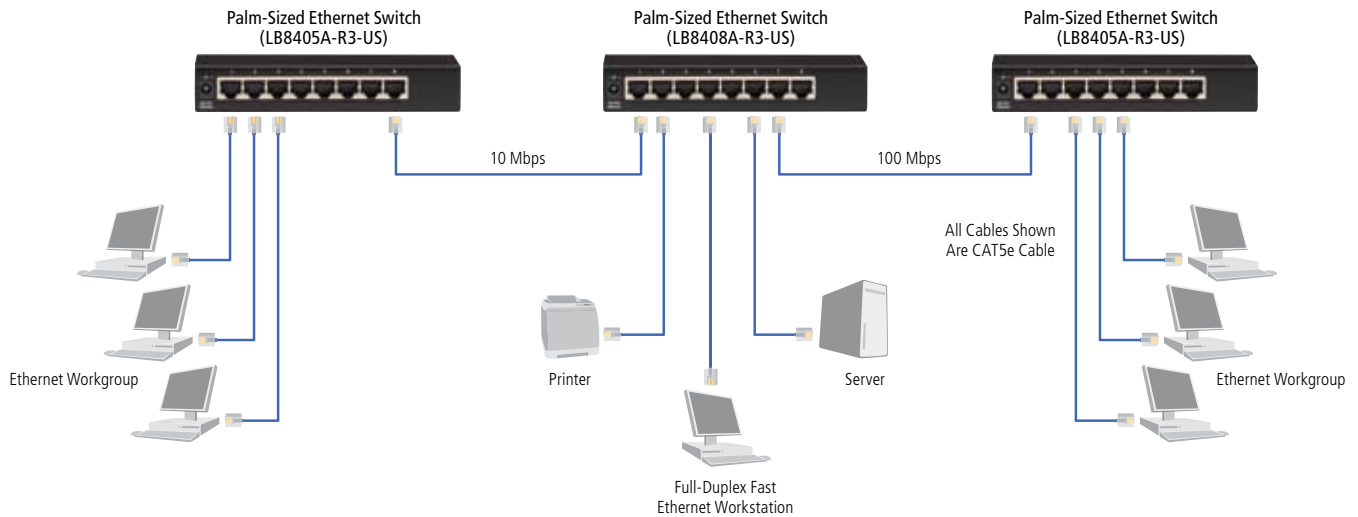
This may be the Big Book, but blackbox.com is even **BIGGER!**

- There you'll find:
- Everything you need to build a home- or small-office network.
 - Information galore! Black Box Explains tutorials, Buyer's Guides, white papers, videos, and our custom cable and adapter configurators.
 - Savings. Find weekly specials and savings on featured networking products.

If you still can't find what you need, just ask the experts at our FREE Tech Support hotline!

Palm-Sized Ethernet Switches

Unmanaged dual-speed switching—even fiber uplinks—in the palm of your hand!



The 8-port Palm-Sized Ethernet Switch (LB8408A-R3-US) supports autosensing, autonegotiating 10-/100-Mbps switching on its eight RJ-45 ports.

- Their low prices make our most popular Ethernet switches more affordable than ever!
- Feature 10-/100-Mbps autonegotiation with autosensing ports. They're perfect for networks running 10 Mbps, 100 Mbps, or a mixture of the two.
- Choose a switch with a fiber uplink port to connect a workgroup to a fiber backbone.
- Nonblocking switch architecture makes these switches ideal for video and data-intensive applications.
- Store-and-forward switching reduces error packet propagation.
- Plug-and-play installation makes network integration easy.
- **WARRANTY** — 1 Year

TECH SPECS

Buffer — 1 MB
Distance (Maximum) — RJ-45 ports: 100 m (328 ft.) using 10BASE-T UTP CAT3, 4, 5 cable or 100BASE-TX UTP CAT5 or 5e cable; On models with multimode ST® or SC ports: 2 km (1.2 mi.)
Forwarding Rate — 10 Mbps: 14,880 pps; 100 Mbps: 148,800 pps
MAC Addresses — 2K
Switching Method — Store-and-forward
CE Approval — Yes
Power — LB8405A-R3-US, LB8406A-US, LB9005A-FO-R2-US, LB8408A-R3-US, LB8415A-US, LB8418A-US: 115 VAC, 60 Hz; LB8405A-R3, LB8406A, LB9005A-FO-R2, LB8408A-R3, LB8415A, LB8418A: 100–120 VAC/200–240 VAC, 50–60 Hz, external supply with plugs for U.S., U.K., E.U., and South Africa
Size — 1.1"H x 6.3"W x 3.2"D (2.8 x 16 x 8.1 cm)
Weight — 0.9 lb. (0.4 kg)

Item Code	List Price
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Palm-Sized Ethernet Switches	
115-VAC, 5-Port	
(5) RJ-45LB8405A-R3-US	
(4) RJ-45, (1) Multimode ST LB8406A-US	
(4) RJ-45, (1) Multimode SC LB9005A-FO-R2-US	
115-VAC, 8-Port	
(8) RJ-45LB8408A-R3-US	
(7) RJ-45, (1) Multimode ST LB8415A-US	
(7) RJ-45, (1) Multimode SC LB8418A-US	
Autosensing, 5-Port	
(5) RJ-45LB8405A-R3	
(4) RJ-45, (1) Multimode ST LB8406A	
(4) RJ-45, (1) Multimode SC LB9005A-FO-R2	
Autosensing, 8-Port	
(8) RJ-45LB8408A-R3	
(7) RJ-45, (1) Multimode ST LB8415A	
(7) RJ-45, (1) Multimode SC LB8418A	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

GigaBase® 350 CAT5e 350-MHz Patch Cable, 4-Pair, Straight-Pinned, PVC, Beige, 10-ft. (3.0-m) (For other lengths or colors, see pp. 96–97.) EVNSL85-0010

Port Multipliers

Four-port switches for quickly increasing copper or copper/fiber port density!

- These popular devices now come with more interface options than ever.
- Enable you to quickly expand your network and increase port density.
- Copper/fiber versions act as media converters for connecting LAN workgroups and multiple Ethernet devices to a fiber optic run.
- 10-/100-Mbps copper ports are autosensing for speed and duplex.
- 100-/240-VAC, 50-/60-Hz, external autoswitching power supply.
- Compact chassis fits easily in tight networking applications.
- ♦♦ **WARRANTY** — 6 Years



LB1004A



LB1008A

Use BLACK BOX® Port Multipliers to easily add ports at the edge of your network or for quick network expansion.

These compact switches have the features you're looking for—the copper ports support both 10- and 100-Mbps Ethernet and are auto-sensing for speed and duplex. The copper/fiber models act as media converters, so they're great for aggregating multiple network devices onto your fiber optic infrastructure.

Auto MDI/MDI-X means you never have to hunt for crossover cables. Just plug-and-play and you're ready to go!

All Port Multipliers perform store-and-forward switching with 1K MAC addresses, and the fiber models have LinkLoss™ and FiberAlert™ features that alert you via diagnostic LEDs if the fiber link fails.

For copper-only port expansion:

Choose the LB1006A Port Multiplier model to quickly add copper ports at the end of a twisted-pair link.

Just mount it on the wall next to your RJ-45 Ethernet wall outlet, connect it with a patch cable, and you have three Ethernet ports where there used to be one! A wallmount bracket is included.

For adding ports to duplex fiber runs:

The duplex fiber Port Multiplier models (LB1004A–LB1005A, LB1008A, LB1007A, LB1010A, and LB1009A) terminate a fiber run and add three autosensing 10/100 Ethernet ports. They're the perfect way to install far-flung workstations and Ethernet devices such as IP security cameras at a great distance from your central switches.

We offer both multimode and single-mode versions of the duplex fiber Port Multipliers—with two of the single-mode models supporting fiber uplinks as far as 60 kilometers (37.2 miles).

And for adding ports to a single fiber:

To add three copper ports at both ends of a single-mode, single-strand fiber optic cabling run, order either our LB1020A/LB1021A combination or an LB1022A/LB1023A combination.

These Port Multipliers enable you to transmit and receive on a single fiber at great distances. The LB1022A/LB1023A combo, for instance, extends 10/100 communications as far as 40 kilometers (24.8 mi.).

And because these Port Multipliers transmit over a single fiber, you use your optical media more economically and save on cabling infrastructure!

Item	Code	List Price
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Item	Code	List Price
Port Multipliers		
(4) 10/100 Copper Ports		
100 m		
RJ-45	LB1006A	
(3) 10/100 Copper Ports + (1) 100-Mbps 1300-nm Multimode Fiber Uplink Port		
2 km		
SC	LB1004A	
ST*	LB1005A	
(3) 10/100 Copper Ports + (1) 100-Mbps 1310-nm Single-Mode Fiber Uplink Port		
40 km		
SC	LB1008A	
ST	LB1007A	
60 km		
SC	LB1010A	
ST	LB1009A	
(3) 10/100 Copper Ports + (1) 100-Mbps 1310-nm Single-Mode, Single-Strand Fiber Port		
20 km		
<i>(NOTE: The LB1020A and LB1021A work in pairs. Order one of each.)</i>		
SC, 1310-nm TX/1550-nm RX	LB1020A	
SC, 1550-nm TX/1310-nm RX	LB1021A	
40 km		
<i>(NOTE: The LB1022A and LB1023A work in pairs. Order one of each.)</i>		
SC, 1310-nm TX/1550-nm RX	LB1022A	
SC, 1550-nm TX/1310-nm RX	LB1023A	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

GigaBase® 350 CAT5e 350-MHz Patch Cable (UTP), 4-Pair, Straight-Pinned, PVC, Beige, 10-ft. (3.0-m) (For other lengths or colors, see pp. 96–97.) EVNSL85-0010

TECH SPECS

Distance (Maximum) — On the uplink port:
 LB1006A: 100 m (328 ft.);
 LB1004A–LB1005A: 2 km (1.2 mi.);
 LB1008A, LB1007A, LB1022A–LB1023A:
 40 km (24.8 mi.);
 LB1010A, LB1009A: 60 km (37.2 mi.);
 LB1020A–LB1021A: 20 km (12.4 mi.)

MAC Addresses — 1024

Switching Method — Store-and-forward
CE Approval — Yes

Connectors — LB1006A: (4) RJ-45;
 LB1004A, LB1008A, LB1010A: (1) pair of SC,
 (3) RJ-45;
 LB1005A, LB1007A, LB1009A: (1) pair of ST*,
 (3) RJ-45;
 LB1020A–LB1023A: (1) SC (single-strand), (3) RJ-45
Power — 100/240 VAC, 50/60 Hz, external autoswitching
Size — 0.9"H x 3.5"W x 4.4"D (2.3 x 8.9 x 11.2 cm)

PoE PD Switches

Power over Ethernet plus fiber options make these the perfect switches for your network's edge.

- These compact Power over Ethernet (PoE) Powered Device (PD) switches are perfect for your network's edge.
- Choose from a wide range of port options, including single-strand fiber.
- Use fiber ports to extend your network up to 100 kilometers (62.1 miles).
- Use copper ports to increase network port density.
- Single-strand fiber models transmit and receive on a single fiber, enabling you to maximize use of your fiber infrastructure.
- All copper ports are autosensing 10-/100-Mbps Ethernet with MDI/MDI-X.
- One port supports PoE.
- Feature a VoIP port for high-priority VoIP packets.
- DiffServ/TOS IP packet prioritization on all ports for QoS prioritization.
- Fiber ports provide notification of link loss at the far end of the fiber.
- Include broadcast storm protection.
- Support 1916-byte packet size.
- ♦♦ **WARRANTY** — 6 Years

TECH SPECS

CE Approval — Yes
Power — Inline PoE power injector
Size — 1.6"H x 4.8"W x 7.3"D
(4.1 x 12.2 x 18.5 cm)
Weight — 1.8 lb. (0.8 kg)



LPD100A: top: front view;
bottom: rear view

Item	Code	List Price
PoE PD Switches		
(5) 10BASE-T/100BASE-TX	LPD100A	
(4) 10BASE-T/100BASE-TX plus (1) 155-Mbps SFP Slot	LPD101A	
(3) 10BASE-T/100BASE-TX plus (1) 100BASE-SX, Multimode, 850-nm 300 m, ST®	LPD102A	
300 m, SC	LPD103A	
(3) 10BASE-T/100BASE-TX plus (1) 100BASE-FX, Multimode, 1300-nm 2 km, ST	LPD104A	
2 km, SC	LPD105A	
(3) 10BASE-T/100BASE-TX plus (1) 100BASE-LX, Single-Mode 1310-nm 40 km, ST	LPD106A	
40 km, SC	LPD107A	
80 km, ST	LPD108A	
80 km, SC	LPD109A	
100 km, SC	LPD110A	

Item	Code	List Price
PoE PD Switches (Continued)		
(3) 10BASE-T/100BASE-TX plus (1) Single-Strand 100BASE-FX, Single-Mode 20 km, SC (Order One of Each.)	LPD111A	
1310-nm TX/1550-nm RX	LPD112A	
1550-nm TX/1310-nm RX	LPD113A	
40 km, SC (Order One of Each.)	LPD114A	
1310-nm TX/1550-nm RX	LPD115A	
1550-nm TX/1310-nm RX	LPD116A	
60 km, SC (Order One of Each.)		
1310-nm TX/1550-nm RX		
1550-nm TX/1310-nm RX		

8-Port Unmanaged 10/100 Fast Ethernet Switch with 4 PoE Ports

Save on infrastructure and power up to four devices with PoE.



- Conforms to IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX and IEEE 802.3x flow control standards.
- Power end-devices directly through LAN cables.
- Works with wireless access points, VoIP phones, security cameras, and more.
- Centralize power distribution and backup without the need to increase infrastructure.
- Auto detection of powered devices and consumption levels.

- Supports 10-/100-Mbps autodetect half- and full-duplex.
- Supports TP interface auto MDI/MDI-X function for auto TX/RX swap.
- Smart feature for PD on/off, PD detection, power level, PD status, and power feeding priority.
- Supports 802.3x flow control pause packet for full duplex.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Forwarding Rate — 10 Mbps: 14,880 pps;
100 Mbps: 148,800 pps
Operating Environment — Temperature: 32 to 104° F
(0 to 40° C);
Humidity: 5 to 90%
Standards — IEEE 802.3, IEEE 802.3u, IEEE 802.3x
Switching Method — Store and forward
CE Approval — Yes
Indicators — LEDs: Power, Link/Act, Speed, PoE activity
Size — 1.7"H x 8.7"W x 5.1"D (4.4 x 22 x 13.1 cm)
Weight — 2.2 lb. (1 kg)

Item	Code	List Price
8-Port Unmanaged 10/100 Fast Ethernet Switch with 4 PoE Ports	LPB208A	

Express Ethernet Switches

The best in dual-speed network switching for less than you might imagine.

- Choose copper only, copper and fiber, copper with fiber uplinks, or fiber only.
- Fiber ports provide extra distance — up to 2 kilometers!
- Half- and full-duplex operation on all RJ-45/copper ports.
- Nonblocking switching for efficient data throughput.
- Universal power supplies adapt to worldwide voltages.
- Wire-speed forwarding.
- On/off switch for easy reset.
- ♦♦ **WARRANTY** — 1 Year



LBG1000A-R2

8-, 16-, or 24-Port 10-/100-Mbps Copper (LB9108A-R2, LB9019A-R4, LB9020A-R3)

- Feature autosensing 10-/100-Mbps ports.
- The 8-port switch supports up to 16K MAC address entries; the 16- and 24-port switches support 2K MAC addresses with address filtering.
- Auto MDI/MDI-X.

2-Port 10-/100-Mbps Copper and 100-Mbps Fiber (LB9002A-SC-R3, LB9002A-ST-R3)

- Ideal for adding a 100-Mbps fiber island to your existing network or for extending a network long distances over fiber.
- Divide a network into a 10-/100-Mbps copper segment and a 100-Mbps fiber segment.
- Support 8K MAC address entries.
- Push-button uplink.

8-Port 10-/100-Mbps Copper and 100-Mbps Fiber (LB9006A-SC, LB9006A-ST, LB9021A-LB9022A, LB9007A-SC-R3, LB9007A-ST-R3)

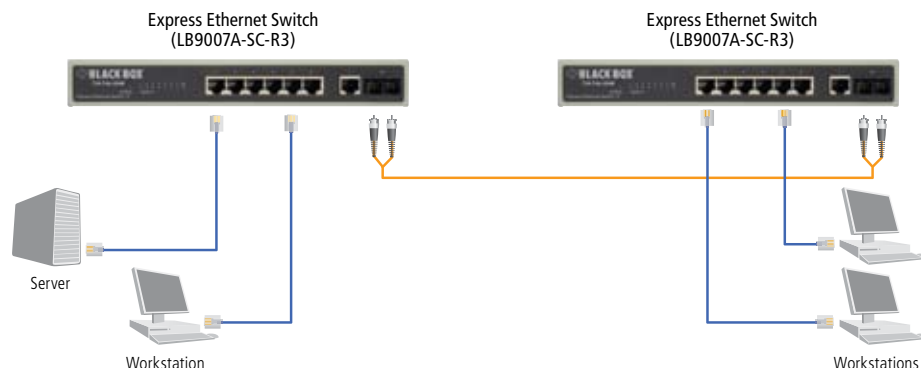
- Easily integrate 100-Mbps fiber into your existing 10-/100-Mbps network!
- Extend network segments up to 1.2 miles (2 km) over fiber.
- The LB9006A-SC, LB9006A-ST, LB9021A, and LB9022A models have DIP switches for controlling port operation manually.
- All models support 1K MAC addresses.
- Push-button uplink.
- You can even rackmount each switch (except the LB9007A-SC-R3 and LB9007A-ST-R3) with the included hardware.

8-Port 100-Mbps Fiber (LB9008A-FO-R2)

- Supports distances of up to 1.2 miles (2 km).
- Also supports 1K MAC address entries.
- Easy to rackmount (hardware included).

16- or 24-Port 10-/100-Mbps Copper (LB9017A-R4, LB9024A-R2) and Optional 100-Mbps Fiber Uplink (LB9017C-SC-R2, LB9007C-ST-R2)

- Feature autosensing 10-/100-Mbps ports plus a slot for a fiber uplink module.
- Trunking provides 400 Mbps of extra bandwidth between two switches.
- The LB9017A-R4 supports 4K MAC address entries; the other models support 2K.



- Include a RS-232 console port.
- Access port-based VLAN and trunking features to segment or isolate traffic at Layer 2.
- Regulate standard backpressure and autonegotiation on individual ports.
- Easy to rackmount (hardware included).

24-Port 10-/100-Mbps Copper, Modular Managed (LBG1000A-R2) and Optional Gigabit Fiber Module (LBG1001C)

- Feature 24 autosensing, 10/100 RJ-45 ports, plus you can link it to your WAN through the super-fast Gigabit uplink.
- Includes robust management features, plus it supports 32K MAC addresses.
- Auto MDI/MDI-X.

16- or 24-Port 10-/100-/1000-Mbps Copper Gigabit (LGB316A-R2, LGB324A-R2)

- Unmanaged switches with 16 or 24 autonegotiating 10/100/1000 Ethernet ports plus four SFP ports.
- Inexpensively add Gigabit speeds on CAT5e cable.
- Auto MDI/MDI-X on each port.
- Support half- and full-duplex at 10 and 100 Mbps.
- Support full-duplex only at 1000 Mbps.
- 8K MAC address table.
- 512 KB RAM for data buffering.
- IEEE 802.3x flow control for full-duplex data transmission.

NOTE: For technical specifications on Express Ethernet Switches, see blackbox.com.

Item	Code	List Price
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Item	Code	List Price
Express Ethernet Switches		
10-/100-Mbps Copper		
(8) RJ-45	LB9108A-R2	
(16) RJ-45	LB9019A-R4	
(24) RJ-45	LB9020A-R3	
10-/100-Mbps Copper, 100-Mbps Fiber		
2-Port		
(1) RJ-45, (1) SC	LB9002A-SC-R3	
(1) RJ-45, (1) ST	LB9002A-ST-R3	
8-Port		
(2) RJ-45, (6) SC	LB9006A-SC	
(2) RJ-45, (6) ST	LB9006A-ST	
(6) RJ-45, (2) SC	LB9021A	
(6) RJ-45, (2) ST	LB9022A	
(7) RJ-45, (1) SC	LB9007A-SC-R3	
(7) RJ-45, (1) ST	LB9007A-ST-R3	
100-Mbps Fiber		
(8) SC	LB9008A-FO-R2	
10-/100-Mbps Copper, 100-Mbps Fiber, Modular		
(16) RJ-45, (1) Slot for Optional Fiber Uplink	LB9017A-R4	
(24) RJ-45, (1) Slot for Optional Fiber Uplink	LB9024A-R2	

For fiber uplinks on LB9017A-R4 or LB9024A-R2, order...

100-Mbps Fiber Modules		
SC	LB9017C-SC-R2	
ST*	LB9007C-ST-R2	
10-/100-Mbps Copper, Modular Managed		
(24) RJ-45 Ports, (2) Slots for Optional 100BASE-SX Fiber Uplink	LBG1000A-R2	
♦ Includes (1) switch and (1) rackmount kit.		

For the LBG1000A-R2 Gigabit slots, order...

100BASE-SX Fiber Module		
	LBG1001C	
10-/100-/1000-Mbps Copper with (4) SFP Ports		
(16) RJ-45	LGB316A-R2	
(24) RJ-45	LGB324A-R2	

Managed Express Ethernet Switches

Managed dual-speed switching—even fiber uplinks—in one small package!



The 8-Port Managed Express Ethernet Switch (LB9030A-R2) supports autosensing, autonegotiating 10-/100-Mbps switching on its seven RJ-45 ports.

- Affordable Ethernet switches that include management!
- Nonblocking switch architecture makes these switches ideal for video and data-intensive applications.
- Store-and-forward switching.
- Feature auto MDI/MDI-X.
- Feature seven autonegotiating RJ-45 ports for 10-Mbps Ethernet or 100-Mbps Fast Ethernet links.
- All also have one multimode or single-mode 100-Mbps fiber port.
- Manage them out-of-band through the RS-232 console port or across the network using any Web browser.
- 802.3p Priority Queuing enables you to prioritize different types of traffic.
- 802.1Q Tagged VLAN support improves traffic management and network security.
- 802.3x flow control and backpressure prevent overflow of data frames.
- Support for QoS.
- ♦♦ **WARRANTY** — 1 Year

Industrial Switches, pp. 568–579. 

TECH SPECS

Buffer — 256 KB
Distance (Maximum) — RJ-45 ports: 100 m (328 ft.);
 100-Mbps multimode fiber port: 2 km (1.2 mi.);
 100-Mbps single-mode fiber port: 20 km (12.4 mi.);
 Gigabit fiber port: 220 m (721.8 ft.)
Forwarding Rate — 10 Mbps: 14,880 pps;
 100 Mbps: 148,800 pps;
 1000 Mbps: 1,488,000 pps
MAC Addresses — 4K
Operating Environment — Temperature: 32 to 104° F
 (0 to 40° C);
 Humidity: 10 to 90% noncondensing

Standards — IEEE 802.3, IEEE 802.3u, IEEE 802.3z,
 IEEE 802.3ab, IEEE 802.1d
Switching Method — Store and forward
VLAN Support — Port-based VLAN and 802.1Q
 Tagged VLAN
CE Approval — Yes
Indicators — Per Unit LEDs: (1) Power;
 Per 10-/100-Mbps port LEDs: (1) TX: 100-Mbps
 Speed, (1) Link, (1) TC, (1) Collision, (1) RX,
 (1) Duplex;
Power — 100–240 VAC, 60–50 Hz, internal
Size — 1.4"H x 9.9"W x 5.3"D (3.6 x 25.2 x 13.5 cm)
Weight — 3.5 lb. (1.6 kg)

Item	Code	List Price
Managed Express Ethernet Switches, 8-Port (7) RJ-45, (1) Multimode SC	LB9030A-R2	
(7) RJ-45, (1) Multimode ST®	LB9031A-R2	
(7) RJ-45, (1) Single-Mode SC	LB9032A-R2	

**FOR OPTIMUM PERFORMANCE,
and a 20% savings, order...**

GigaBase® 350 CAT5e 350-MHz Patch Cable (UTP),
 4-Pair, Straight-Pinned, PVC, Beige, 10-ft. (3.0-m)
 (For other lengths or colors, see pp. 96–97.)
 EVNSL85-0010

Web Smart Gigabit Switch

Manage this high-speed switch through your Web browser.



Here's the switch that makes migrating to Gigabit Ethernet easy and affordable.

Setup is easy. Just use any Web browser to log onto the built-in CLI interface to configure or monitor the switch.

All 24 10-/100-/1000-Mbps copper ports are autosensing for speed and autonegotiating for duplex. The switch also features Auto MDI/MDI-X, which means you never need a crossover cable. Plus, you can populate the SFP slot with a wide range of Gigabit and WDM uplink modules.

- Features eight autosensing 10-/100-/1000-Mbps ports plus two slots for SFPs.
- Use any standard Web browser to monitor and control the switch.
- ♦♦ **WARRANTY** — 1 Year

Tagged and port-based VLAN provides precise control over network traffic segmentation and broadcast domains with up to four trunk groups. You also get support for IEEE 802.x flow control for full-duplex mode and collision-based backpressure for half-duplex mode, plus Quality of Service (QoS) with a two-level priority queue.

SNMP trap management alerts you instantly when something goes wrong. Port mirroring helps to track network errors or abnormal packet transmission.

TECH SPECS

Buffer — 144 KB
MAC Addresses — 8K
Operating Environment —
 Temperature: 41 to 104° F (5 to 40° C);
 Humidity: 10 to 90% noncondensing
Standards — IEEE 802.3, 802.3u, 802.1ab, 802.3z,
 802.3x, ANSI/IEEE 802.3 autonegotiation,
 IEEE 802.1q VLAN
System Configuration — Web
CE Approval — Yes
Connectors — (8) RJ-45;
 (2) SFPs (Shared)
Power — 100–240 VAC, 50–60 Hz, autosensing
Size — 1.75"H (1U) x 5.2"W x 8.5"D
 (4.4 x 13.2 x 21.7 cm)

NOTE: For information about SFPs, call our FREE Tech Support.

Item	Code	List Price
Web Smart Gigabit Switch	LGB2008A-R2	

Managed Back Office Switch SNMP management plus Gigabit speed in a convenient rackmount switch.

- Features 24 10-/100-Mbps ports plus a slot for a Gigabit fiber uplink module.
- Supports IEEE 802.x flow control for full-duplex.
- Supports collision-based backpressure for half-duplex mode.
- Manage all the devices on the network with SNMP management.
- SNMP accessible in-band, through out-of-band management through the RS-232 port, or even your Web browser.
- Port-based VLAN capabilities provides precise control over network traffic segmentation and broadcast domains.
- 14K MAC addresses.
- Store-and-forward switching.
- QoS with priority queues.
- Traffic management features include by-port egress/ingress rate control, head of line (HOL) blocking prevention, and IP multicasting.
- **◆◆ WARRANTY** — 1 Year



TECH SPECS

Distance (Maximum) — Copper: 100 m (328 ft.); Multimode fiber: 2 km (1.2 mi.); Single-mode fiber: 20 km (12.4 mi.)
MAC Addresses — 14K
SNMP — SNMP V1, V2, MIB II, Bridge MIB, Ethernet Interface MIB, RMON, IGMP Snooping v1, DHCP, TFTP
CE Approval — Yes
Indicators — LEDs: Per unit: (1) PWR; Per port: (1) LNK/ACT, (1) 100M;
Power — 100–240 VAC, 50–60 Hz, autosensing
Size — 1.75"H (1U) x 17.5"W x 7.2"D (4.4 x 44.5 x 18.3 cm)

Item	Code	List Price
Managed Back Office Switch (24) 10-/100-Mbps Ports + (1) Gigabit Ethernet Uplink Slot	LGB2004A	
To uplink to Gigabit Ethernet, order...		
Gigabit Ethernet Uplink Modules		
2-Port Multimode, 1000BASE-SX SC	LGB2004C-MMSX	
2-Port Single-Mode, 1000BASE-LX SC	LGB2004C-SMLX	

Managed Back Office Switches with SFP The smart way to grow small and mid-sized networks.



LGB2002A-R2



LGB200C-SLC10

- Connect from copper-based to fiber-based Gigabit Ethernet.
- Provide enhanced QoS support for real-time applications.
- Bandwidth aggregation is ideal for high-volume communications.
- 8K MAC addresses.
- Rackmountable switches feature 16 or 24 RJ-45 connectors; transceivers feature (1) pair of LC connectors.
- **◆◆ WARRANTY** — 1 Year

Expand your network the smart way! Use one of these switches to connect up to 16 or 24 Gigabit Ethernet, Fast Ethernet, or Ethernet devices. Plus, you can populate two switch ports with Small Form-Factor Pluggable (SFP) Optical Transceivers and connect to fiber-based Gigabit Ethernet!

Both switches have the management capabilities network administrators need. Simply access a switch via your Web browser and log on to monitor, configure, and control each port's activity. They also support Quality of Service

(QoS), port mirroring, tag- and port-based VLAN, and bandwidth-aggregation capability.

SFP Optical Transceivers are hot-swappable and available in multimode and single-mode versions. Because they're Layer 1 devices, they're transparent to your application.

These switches support Layer 2 802.1p Priority Queue control, provide enhanced QoS support for real-time applications like Voice over IP (VoIP), and support Layer 4 TCP/UDP port and ToS classification.

Port mirroring copies traffic from one specific port to a second target port so you can track network errors or abnormal packet transmissions without interrupting data flow. All ports are capable of port mirroring.

You can combine ports to create a multilink, load-sharing trunk. Port trunks are useful for switch-to-switch cascading, which provides very fast, full-duplex speeds for high-volume communications.

With the LGB2002A-R2, you can set up to eight ports per trunk. The switch supports up to eight trunking groups.

Item	Code	List Price
Managed Back Office Switches with SFPs		
16-Port	LGB2002A-R2	
24-Port	LGB2003A-R2	
To connect to fiber-based Gigabit Ethernet, order...		
Small Form-Factor Pluggable (SFP) Optical Transceivers		
Multimode, 850-nm, 550 m	LGB200C-MLC	
Single-Mode, 1310-nm, 10 km	LGB200C-SLC10	
Single-Mode, 1550-nm, 30 km	LGB200C-SLC30	
FOR OPTIMUM PERFORMANCE, and a 20% savings, order...		
GigaBase® 350 CAT5e 350-MHz Patch Cable, 4-Pair, Straight-Pinned, PVC, Beige, 10-ft. (3.0-m) (For other lengths or colors, see pp. 96–97.)		
	EVNSL85-0010	
Premium Ceramic, Multimode, 62.5-Micron Fiber Optic Patch Cable, 1-m (3.2-ft.), LC-LC (For other lengths, see pp. 130–131.)		
	EFN110-001M-LCLC	
Single-Mode, 9-Micron Duplex Fiber Optic Cable, 1-m (3.2-ft.), LC-LC (For other lengths, see pp. 138–139.)		
	EFN310-001M-LCLC	

PoE L2 Managed Ethernet Switches with (2) Dual-Media SFP Ports Power VoIP phones and other network devices—plus uplink to fiber!



LPB201A



LBP200A

- Provide power to PoE PD devices with these manageable switches.
- 10/100 model provides 185 watts of power.
- Gigabit model supplies 135 watts of power.
- Both have two dual-media SFP ports for adding fiber SFP modules or configuring as extra copper ports.
- Support all 802.3/u/x/z/ab/af specs.
- Autodetect consumption levels.
- Circuit protection prevents interference.
- Combine ports for higher bandwidth.
- Set a higher layer of classification and prioritization for dependable QoS.
- Web, SNMP, and RMON manageable.
- Broadcast/multicast storm suppression and port mirroring.
- RoHS compliant.
- **◆◆ WARRANTY** — 1 Year

TECH SPECS

Frame Buffer — 208 KB on-chip; Packet: 256K; Control: 128K
MAC Addresses — 8K
QoS Supported — LPB201A: Port-based (VIP port); 802.1p, IP TOS and Diffserv (IP v.4/v.6) based packet classification; with four-level priority queues to prioritize inbound and outbound traffic; WRR and strict scheduling; priority in a Q-in-Q tag;
 LBP200A: Layer 4 TCP/UDP port and ToS classification; 802.1p QoS with two-level priority queue; priority in a Q-in-Q tag
Switching Capacity — Non-blocking wire-speed performance; 9K jumbo frame support
VLAN Capabilities — Port-based VLANs; IEEE 802.1q tag-based VLANs, up to 256 active VLANs; Q-in-Q for enabling subscriber aggregation
CE Approval — Yes
Connectors — Twisted-pair ports: (12) or (24) RJ-45; SFP dual-media ports: (2) SFP/RJ-45
Power — Input: 100–240 VAC, 50–60 Hz, autosensing

Item	Code	List Price
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PoE L2 Managed Ethernet Switches with (2) Dual-Media SFP Ports + (24) 10BASE-T/100BASE-TX Ports		
	LPB201A	
(12) 10BASE-T/100BASE-TX/1000BASE-T Ports		
	LPB200A	

To connect to fiber-based Gigabit Ethernet, order...

Small Form-Factor Pluggable (SFP) Optical Transceivers		
Multimode, 850-nm, 550 m	LGB200C-MLC	
Single-Mode, 1310-nm, 10 km	LGB200C-SLC10	
Single-Mode, 1550-nm, 30 km	LGB200C-SLC30	

L2 Managed Gigabit Ethernet Switches with Dual-Media SFP Ports

Give important traffic priority and bandwidth when switching Gigabit copper—and fiber!



LGB1005A-R2

- SFP ports support SFPs only.
- Dual-media ports support SFPs or function as copper ports.
- Copper ports are autosensing for 10BASE-T/100BASE-TX/1000BASE-T.
- Traffic prioritization ensures that important data gets through first.
- Allocate bandwidth where you need it.
- Support all 802.3/u/x/z specs.
- Use 802.3ad LACP aggregation to create a high-bandwidth port.
- Program a higher layer classification and prioritization for reliable QoS.
- Manage via SNMP or the Web.
- VLAN and robust security capabilities.
- Storm suppression and port mirroring.
- Spanning Tree (802.1w) algorithms.
- RoHS compliant.
- All include a 19" rackmount kit.
- **◆◆ WARRANTY** — 1 Year

TECH SPECS

Frame Buffer — LGB1001A-R2: 144 KB on-chip; LGB1002A-R2: 400 KB on-chip; LGB1003A-R2, LGB1005A-R2: 1392 KB on-chip; LGB1048A:
MAC Addresses — 8K
QoS Supported — Layer 4 TCP/UDP port and ToS classification; 802.1p QoS with two-level priority queue; priority in a Q-in-Q tag
Switching Capacity — Non-blocking, wire-speed performance; 9K jumbo frame support
VLAN Capabilities — Port-based VLANs; IEEE 802.1q tag-based VLANs, up to 4000 active VLANs; Q-in-Q for enabling subscriber aggregation
CE Approval — Yes
Power — Input: 100–240 VAC, 50–60 Hz, autosensing
Size — LGB1001A-R2: 1.7"H x 8.5"W x 5.2"D (4.3 x 21.6 x 13.2 cm); LGB1002A-R2–LGB1003A-R2, LGB1005A-R2, LGB1048A: 1.7"H x 17.4"W x 8.2"D (4.3 x 44.2 x 20.8 cm)

Item	Code	List Price
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L2 Managed Gigabit Ethernet Switches with (16) SFP Ports + (8) Dual-Media Ports		
	LGB1005A-R2	
with (2) Dual-Media Ports + (8) 10BASE-T/100BASE-TX/1000BASE-T Ports		
	LGB1001A-R2	
with (4) Dual-Media Ports + (12) 10BASE-T/100BASE-TX/1000BASE-T Ports		
	LGB1002A-R2	
(20) 10BASE-T/100BASE-TX/1000BASE-T Ports		
	LGB1003A-R2	
(44) 10BASE-T/100BASE-TX/1000BASE-T Ports		
	LGB1048A	

To connect to fiber-based Gigabit Ethernet, order...

Small Form-Factor Pluggable (SFP) Optical Transceivers		
Multimode, 850-nm, 550 m	LGB200C-MLC	
Single-Mode, 1310-nm, 10 km	LGB200C-SLC10	
Single-Mode, 1550-nm, 30 km	LGB200C-SLC30	

Modular Express Ethernet Switch

The basic modular switch with copper and fiber options.

- Features two and a half expansion slots: two slots for 8-port modules and a third "half" slot for single-port fiber uplink modules.
- Mix and match copper and fiber ports to fit your application.
- All copper ports are 10-/100-Mbps, autosensing for speed and duplex and support Auto MDI/MDI-X.
- All fiber ports are 100-Mbps multimode.
- True nonblocking architecture with full wire-speed forwarding.
- Backpressure and IEEE 802.3-x-compliant flow control help to prevent network congestion.
- Rackmountable in only 1U of rack space.
- **◆◆ WARRANTY** — 1 Year



LB9217A-R2

TECH SPECS

Duplex Support — Half and full, autonegotiating
Forwarding Rate — 10 Mbps: 14,880 pps;
 100 Mbps: 148,800 pps
MAC Addresses — 8K
Switching Method — Store-and-forward
CE Approval — Yes
Indicators — LEDs: Per Unit: (1) Power;
 Per Port: (1) LNK/ACT, (1) FDX/COL
Power — 100–240 VAC, 50–60 Hz, autosensing,
 internal
Size — 1.75"H x 17.3"W x 11.2"D (4.4 x 43.9 x 28.4 cm)
Weight — 7.5 lb. (3.4 kg)

Item	Code	List Price
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First, order the switch...

Modular Express Ethernet Switch
 LB9217A-R2

...then select the modules.

Modular Express Ethernet Switch Modules

8-Port Fiber	ST®	LB9214A
	SC	LB9215A
2-Port Fiber, 6-Port RJ-45	ST	LB9216A
	SC	LB9218A
8-Port RJ-45		LB9213A
4-Port Fiber, 4-Port RJ-45	SC	LB9219A
1-Port Fiber Uplink for Half-Slot	ST	LB9220C-ST
	SC	LB9220C-SC-R2

Modular Fiber Switches

The easy, flexible way to increase network efficiency!



LE1408A

Extend
distances
to 40
kilometers!

- Mix and match fiber ports with twisted-pair ports. Mix and match speeds, too: 10 Mbps, 10/100 Mbps, and 100 Mbps.
- Configure any chassis with as few as four ports. Then add modules according to the demands of your network.
- All RJ-45 module ports are 10/100 switching and 10-/100-Mbps autonegotiating.
- All ports support half- and full-duplex modes.
- Full-speed filtering and forwarding across all ports.
- Store-and-forward switching.
- Rackmountable in only 1U of rack space.
- The 100-Mbps single-mode SC fiber module (LE1421C-40K) supports full-duplex transmissions up to 40 kilometers (24.8 mi.).
- **◆◆ WARRANTY** — 3 Years

TECH SPECS

Cooling Method — Internal 9-cfm fan
Filtering and Forwarding Rate — 16-port aggregate: 2380K packets per second
Latency — 100 Mbps: 5 μs + packet time;
 10 Mbps: 15 μs + packet time
MAC Addresses — 24K
Packet Buffers — 8 MB dynamic
Processing Type — Store and forward with IEEE 802.3x full-duplex flow control
Standards — IEEE 802.3: 10BASE-T, 10BASE-FL; IEEE 802.3u: 100BASE-TX, 100BASE-FX
Connectors — LE1401A, LE1408A: (1) power, (2) slots for modules;
 LE1416A: (1) power, (4) slots for modules;
 LE1424C, LE1428C: (4) pairs of ST;
 LE1419C, LE1421C, LE1421C-40K: (4) pairs of SC;
 LE1422C: (4) pairs of MT-RJ;
 LE1423C: (4) pairs of VF-45;
 LE1425C: (4) RJ-45;

LE1427C: (3) RJ-45, (1) pair of ST;
 LE1426C, LE1426C-SM: (3) RJ-45, (1) pair of SC
Indicators — LEDs: Per Chassis: Power;
 Per UTP port: (1) LNK, (1) ACT, (1) FDX/HDX, (1) 10/100;
 Per fiber port: (1) FDX/HDX, (1) LNK, (1) ACT
Power — Input: 110–240 VAC, 47–63 Hz, internal, autosensing;
 Consumption: LE1401A, LE1408A: 20 W, typical;
 LE1416A: 35 W, typical
Size — LE1401A: 1.75"H (1U) x 9"W x 9"D (4.4 x 22.9 x 22.9 cm);
 LE1408A, LE1416A: 1.75"H (1U) x 17"W x 9"D (4.4 x 43.2 x 22.9 cm)
Weight — LE1401A: 2.5 lb. (1.1 kg);
 LE1408A, LE1416A: 4 lb. (1.8 kg)

Item	Code	List Price
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First, choose a chassis for your application...

Modular Fiber Switches

8-Port	LE1401A
8-Port Rackmount	LE1408A
16-Port Rackmount	LE1416A

◆ The LE1408A and LE1416A include a 19" rackmount kit.

...next, choose up to four 4-port modules.

Fiber Modules, 4-Port

10-Mbps Multimode ST	LE1424C
100-Mbps Multimode ST	LE1428C
Multimode SC	LE1419C
Multimode MT-RJ	LE1422C
Multimode VF-45	LE1423C
Single-Mode SC	LE1421C
100-Mbps (Transmissions up to 40 km) Single-Mode SC	LE1421C-40K

Twisted-Pair Module, 4-Port (One with Uplink)
 10-/100-Mbps RJ-45 LE1425C

Mixed-Media Modules, 4-Port
 (3) 10-/100-Mbps RJ-45, (1) 100-Mbps Fiber

Multimode ST	LE1427C
Multimode SC	LE1426C
Single-Mode SC	LE1426C-SM

To cover any unused port, order...

Blank Panel LE1416A-BLANK

Layer 3 Gigabit Ethernet Switches

Intelligent high-speed switching with routing features.



LBG5803A

- Layer 3 full wire-speed routing among all ports.
- Non-blocking architecture.
- Flow control mechanism for zero packet loss.
- Store-and-forward switching.
- Port-mirroring function for network analysis.
- Link Aggregation function (two to four ports per link).
- Support up to eight trunking groups.
- Multicast filtering (IGMP snooping).
- Eight-level priority for switching.
- IEEE 802.1D Spanning Tree Protocol.
- Rate limit control.
- 802.1x and Radius 802.1x
- Layer 4 access control list.
- 802.1W Rapid Spanning Tree protocol and 802.1S Multiple Spanning Tree protocol.
- Single IP management.
- Web-based management through any standard Web browser.
- Support for SNMP RMON group 1, 2, 3, and 9.
- MIB II, Ethernet MIB, Bridge MIB, and private MIB.
- Command line interface via Telnet.
- Firmware upgrade by TFTP through Ethernet network.
- **◆◆ WARRANTY** — 2 Years

TECH SPECS

Architecture — Store-and-forward
Buffer — 1 MB
Console — RS-232
Environmental —
 Temperature:
 Operating: 32 to 104° F (0 to 40° C),
 Storage: -40 to 158° F (-40 to 70° C);
 Humidity:
 Operating: 20 to 85% noncondensing,
 Storage: 20 to 90% noncondensing
MAC Address — 16 K
Protocol — CSMA/CD
Standards — IEEE 802.3, 802.3u, 802.1q, 802.1p,
 802.3x, 802.1d, 802.3ab, 802.3z, 802ac, RIP, RIP2,
 TCP/IP
System Configuration — Console port, Telnet, Web
 browser, SNMP
CE Approval — Yes
Connectors —
 LBG5803A: (24) RJ-45, (4) SFP;
 LBG5802A: (24) SFP, (4) RJ-45;
 Both: (1) DB9 F (RS-232)
Indicators — Per unit: (1) Power;
 Per Port: (1) LINK/ACT, (1) 1000-Mbps, (1) FDX
Power — 100 – 240 VAC, 50–60 Hz
Size — 3.5"H x 16.9"W x 13.8"D
 (9 x 43 x 35 cm)
Weight — 14.3 lb. (7 kg)

Item	Code	List Price
Layer 3 Gigabit Ethernet Switches		
(24) 10/100/1000BASE-TX Ports, (4) SFP Slots	LBG5803A	
(4) 10/100/100BASE-TX Ports, (24) SFP Slots	LBG5802A	
Mini GBIC (SFP) Modules		
1000BASE-T	LFP301	
1000BASE-SX (Multimode)		
550 m	LFP204	
1000BASE-LX (Single-Mode)		
15 km	LFP205	
40 km	LFP206	
70 km	LFP207	
WDM Single Strand (Single-Mode)		
15 km (Order one of each.)		
1310-nm TX/1550-nm RX	LFP208	
1550-nm TX/1310-nm RX	LFP209	
40 km (Order one of each.)		
1310-nm TX/1550-nm RX	LFP210	
1550-nm TX/1310-nm RX	LFP211	

(NOTE: Order the single-strand in pairs: LFP208 and LFP209, or LFP210 and LFP211)

SFPs

Bring high-speed fiber and copper interfaces to your Ethernet switch's SFP slot.



LFP106

- These Small Form-Factor Pluggable Optical Transceivers enable you to adapt an SFP slot to virtually any fiber or copper interface.
- Compatible with SFP slots on most network devices. For details, call our FREE Tech Support.
- Choose 155-Mbps models for use with 10- or 100-Mbps Ethernet and 1250-Mbps models for use with 1000-Mbps Ethernet.
- All models report basic link characteristics such as SFP type, length of fiber link, wavelength, and bit rate.
- Models with extended diagnostics also report information such as temperature, TX and RX power, voltage, and bias current.
- **◆◆ WARRANTY** — 1 Year

Item	Code	List Price	Code	List Price
SFPs			SFPs (Continued)	
155-Mbps Fiber			1250-Mbps Fiber with Extended Diagnostics	
850-nm Multimode, LC, 2 km	LFP104		850-nm Multimode, LC, 550 m	LFP200
1300-nm Multimode, LC, 2 km	LFP105		1310-nm Single-Mode, LC, 15 km	LFP201
1310-nm Single-Mode, LC, 20 km	LFP106		1310-nm Single-Mode, LC, 40 km	LFP202
1310-nm Single-Mode, Plus-LC, 40 km	LFP107		1310-nm Single-Mode, Plus-LC, 70 km	LFP203
155-Mbps Fiber with Extended Diagnostics			1550-nm Single-Mode, LC, 120 km	LFP260
850-nm Multimode, LC, 2 km	LFP100		1250-Mbps Copper	
1300-nm Multimode, LC, 2 km	LFP101		10BASE-T/100BASE-TX/1000BASE-T	LFP300
1310-nm Single-Mode, LC, 20 km	LFP102		155-Mbps Fiber WDM Single-Strand	
1310-nm Single-Mode, Plus-LC, 40 km	LFP103		1310-nm TX/1550-nm RX, Single-Mode	
1250-Mbps Fiber			20 km	LFP108
1310-nm Single-Mode, LC, 70 km	LFP207		1550-nm TX/1310-nm RX, Single-Mode	
1550-nm Single-Mode, LC, 120 km	LFP259		20 km	LFP109
			1310-nm TX/1550-nm RX, Single-Mode	
			40 km	LFP110
			1550-nm TX/1310-nm RX, Single-Mode	
			40 km	LFP111

NOTE: These SFPs do not work with Cisco switches.

(NOTE: Order the single-strand models in pairs: LFP108 and LFP109, or LFP110 and LFP111.)

Compact Single-Port Terminal Servers

Connect a remote serial device to your network with ease.

- Easy to install, configure, and use—no additional software required.
- Speeds up to 115.2 kbps.
- Industry-standard TCP/IP protocols.
- Rlogin, Telnet, and Reverse Telnet remote terminal applications.
- PPP and SLIP remote access.
- Network management and control with SNMP and MIB II.
- User-defined initialization commands for automatic connections on power-up.
- Also available in a DC-powered version!
- ♦♦ **WARRANTY** — 1 Year



LE995A-R5

TECH SPECS

Ethernet Coprocessor — SMC91C94
Flow Control — Hardware or software
Management — SNMP/MIB-II; command-line interface
Memory — RAM: 64 KB;
 NVRAM: 2 KB;
 EPROM: 256 KB
Processor — Toshiba® 68HC000
Speed — Ethernet: 10 Mbps;
 RS-232: 50 bps to 115.2 kbps
Standards — IEEE 802.3 Ethernet; RS-232C
CE Approval — Yes
Connectors — Network interface: (1) RJ-45 10BASE-T;

Terminal interface: (1) RJ-45 RS-232C (accepts 4-, 6-, or 8-pin RJ-45 plugs)
Indicators — (2) LEDs: Power, Link Integrity
Power — LE995A-R5: Input: 115 VAC, 60 Hz, external wallmount;
 Output: 6 VDC, 200 mA, unregulated;
 LE996A-R2: No power supply included; accepts any 2-position DC power strip from -48 VDC to +48 VDC, including 12V, 24V, and 48V
Size — 1.2"H x 2.6"W x 4.9"D (3 x 6.6 x 12.4 cm)
Weight — 0.4 lb. (0.2 kg)

Designed for optimum network and terminal performance, the Compact Single-Port Terminal Server provides true terminal baud rates. Because its port is dedicated to one serial device, you'll always get maximum performance.

Item	Code	List Price
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Compact Single-Port Terminal Servers		
AC Power Supply	LE995A-R5	
DC Powered	LE996A-R2	
♦ Include (1) terminal server and (1) 4-ft. DB9 F to RJ-45 cable.		

To adapt the RJ-45 ports for your serial devices, order...

Serial Adapters		
Printer DTE, RTS/CTS, RJ-45 F/DB9 F	FA702	
Printer DTE, RTS/CTS, RJ-45 F/DB25 F	FA703	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

CAT5 Solid-Conductor Cable, 4-Pair, Straight-Pinned, PVC, 10-ft. (3-m)	EYN556MS-0010	
(For other lengths or pinnings, see p. 106.)		
RS-232 Cable, 25-Conductor, 10-ft. (3-m)	ECM25T-0010	
(For other lengths or conductors, see p. 166. Please specify gender when ordering.)		

10/100 Terminal Servers 10/100 Secure Device Servers

Fast, easy access to a serial device across your Ethernet network.

Both the terminal servers and the device servers feature:

- Software-selectable RS-232, RS-422, and RS-485 interface prevents tampering in the field.
- Choose from four serial connector types.
- The 10-/100-Mbps Ethernet port is autosensing for speed and duplex.
- Full bidirectional modem support.
- Completely manageable through any Web browser or Telnet™.
- Support SNMP management.
- Include COMredirect software to provide true remote serial ports over an Ethernet LAN.
- Also include Device Manager software to provide central control of multiple terminal servers.
- Built-in surge protection on all interfaces.
- Clear LEDs for easy troubleshooting.
- Feature a 66-MHz, 87-MIPS processor.
- Housed in a solid steel enclosure, which can be used on the desktop or wallmounted.
- Optional DIN rail mounting with a DIN Rail Mounting Kit.



LES4011A

10/100 Secure Device Servers also feature:

- The device servers have all the features of the terminal servers plus superior security in a wide range of interface options.
- Secured with 128-, 192-, and 256-bit AES, 3DES, Blowfish, and CAST128, plus ARCFour or ARCTWO data encryption across the LAN via SSH and SSL.
- Support Next Generation IP (IPv6), making them compatible with networks that have upgraded to this new IP standard.
- ♦♦ **WARRANTY** — All: 1 Year

Item	Code	List Price
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10/100 Terminal Servers, 1-Port, RS-232/422/485		
DB9 Male	LES4011A	
DB25 Male	LES4012A	
DB25 Female	LES4013A	
RJ-45	LES4014A	
10/100 Secure Device Servers, RS-232/422/485		
DB9 Male	LES5011A	
DB25 Male	LES5012A	
DB25 Female	LES5013A	
RJ-45	LES5014A	
RJ-45 PoE	LES5015A	
RJ-45 with Modem	LES5016A	

You may also need...

DIN Rail Mounting Kit	LCA100	
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Power over Ethernet to RS-232 Converter

The serial server that virtually eliminates power-cord clutter.



LPD401A

- Connect your serial bar code readers, time clocks, slip printers, and other legacy equipment to your 10/100BASE-T LAN.
- Transparent 10-/100-Mbps operation.
- Offers simple plug-and-play operation.
- Ports are current-limited for short-circuit protection.
- Compatible with the IEEE 802.3af Power over Ethernet (PoE) standard.
- **◆◆ WARRANTY** — 5 Years

TECH SPECS

Speed — 10/100 Mbps, autosensing
CE Approval — Yes
Connectors — LAN: (1) RJ-45; Serial: (1) DB9 M; Power: (1) terminal block
Indicators — LEDs: Ethernet Connection, LAN Link, Data Activity
Power — From the PoE device

Item	Code	List Price
Power over Ethernet to RS-232 Converter	LPD401A	

RS-232/422/485 Device Server

Access serial devices across your Ethernet network.

- Supports RS-232/422/485 serial standards.
- Access printers, scanners, industrial devices, and other serial devices.
- No need to run separate serial cable. Anywhere your network goes, you can make a connection.
- Transparent operation.
- Encapsulates serial data into packets for transport over Ethernet.
- Manage through your Web browser, the serial port, or by using Telnet™
- Accepts AT commands, so you can use it as a modem substitute.
- RoHS compliant.
- **◆◆ WARRANTY** — 2 Years



TECH SPECS

Data Rate — Ethernet: 10/100 Mbps, autosensing or software selectable; Serial: 300 bps to 230 kbps, software selectable
Management — Included Windows based configuration software, serial login, SNMP, Telnet login, HTTP
Serial Interface — RS-232, RS-422, or RS-485, software selectable; 7 or 8 data bits; even, odd, or no parity; 1 or 2 stop bits; CTS/RTS; X-ON/X-OFF
Standards — IEEE 802.3, IEEE 802.3u, ARP, UDP, TCP, ICMP, Telnet, TFTP, AutoIP, DHCP, HTTP, SNMP
CE Approval — Yes
Connectors — (1) RJ-45, (1) DB25 F
Indicators — LEDs: (1) Power, (1) Link/Activity, (1) Status
Power — 100–240-VAC, 50–60-Hz external

Item	Code	List Price
RS-232/422/485 Device Server	LES290A	

Dual Serial Bridges

Access two serial devices over your network—even your wireless network!

- Easily connect two serial devices across 10BASE-T/100BASE-TX Ethernet/Fast Ethernet, 100BASE-FX Fast Ethernet, or 802.11b wireless Ethernet.
- Dual serial ports are switch selectable to RS-232, RS-422, or RS-485.
- Extended temperature range for industrial environments.
- DIN-rail mountable.
- Serial ports are individually configurable and manageable through any Web browser.
- The baud rate is programmable from 110 bps to 230.4 kbps.
- Include configuration and management utility.
- Auto Discovery function enables you to find any Dual Serial Bridge connected to your network.
- Support watchdog timer.
- Password security.
- Wireless model features an extra layer of WEP 64- and 128-bit encryption.
- **◆◆ WARRANTY** — 1 Year

TECH SPECS

Baud Rate — Programmable: 230.4, 115.2, 57.6, 38.4, and 19.2 kbps; 9600, 4800, 2400, 1200, 600, 300, 150, and 110 bps
Data Format — Programmable: 5, 6, 7, 8 bits
Flow Control — Hardware (RTS/CTS) or software (X-ON/X-OFF, None)
Protocols — TCP, UDP, IP, ICMP, HTTP, TFTP, ARP, DHCP Client, SNMP (get)
Serial Parity — Programmable: Even, Odd, None, Mask, Space
Serial Stop Bit — Programmable: 1 (default), 2 bits
UART — 4096-byte buffer per direction
CE Approval — 220-VAC versions only
Connectors — LES300A: (2) DB9 M, (1) RJ-45; LFS400A: (2) DB9 M, (1) pair of ST®; LFS402A: (2) DB9 M, (1) pair of SC; LWS100A: (2) DB9 M, (1) RSMA antenna
Power — 110-VAC, 60-Hz external power supply; 220-VAC power supply on request
Size — LES300A: 0.9"H x 4.5"W x 3.5"D (2.3 x 11.4 x 8.9 cm); LFS400A, LFS402A: 0.9"H x 4.5"W x 4.1"D (2.3 x 11.4 x 10.4 cm); LWS100A: Without antenna: 0.9"H x 4.6"W x 3.5"D (2.3 x 11.7 x 8.9 cm)
Weight — LES300A, LFS400A, LFS402A: 0.6 lb. (0.3 kg); LWS100A: 0.7 lb. (0.3 kg)



LFS400A

Item	Code	List Price
Dual Serial Bridges		
10/100BASE-TX	LES300A	
100BASE-FX Fiber Multimode, ST, 2 km	LFS400A	
Single-Mode, SC, 2 km	LFS402A	
Wireless LAN	LWS100A	

You may also need...

Serial Adapters for Dual Serial Bridges		
DB9 to RJ-45 RS-232	LA126	
DB9 to RJ-45 RS-422/485	LA127	
DB9 to RS-232/422/485 Terminal Strip	LA128	
DIN Rail Mounting Kit for Dual Serial Bridges	DR125	

10/100 Secure Terminal Servers

Secure access to your RS-232 devices with a PoE option!

- Secure access to up to four RS-232 devices such as PBXs, servers, routers, or network storage equipment.
- Feature four RJ-45 serial ports.
- Autosensing 10-/100-Mbps Ethernet port.
- Easy Web browser management.
- The Power over Ethernet (PoE) model can be installed even where there is no nearby power outlet.
- Secured with 128-, 192-, and 256-bit AES, 3DES, Blowfish, and CAST128, plus ARCFOUR or ARCTWO data encryption across the LAN via SSH and SSL.
- Support SNMP V3 management plus Syslog and e-mail event notification.
- Includes COMredirect software to provide true remote serial ports over an Ethernet LAN.
- Feature a 66-MHz, 87-MIPS processor.
- The LES6044A has a 120-VAC, 50-Hz external power supply. International power supplies are available on request.
- The LES6045A is fully 802.3af PoE compliant: data pins (1, 2 and 3, 6) or unused pins (4, 5 and 7, 8). It also comes with an external AC power adapter.
- DIN rail mountable with the DIN Rail Mounting Kit.
- Built-in surge protection on all interfaces.
- **◆◆ WARRANTY** —1 Year



LES6044A: top: front view; bottom: rear view

Item	Code	List Price
10/100 Secure Terminal Servers		
4-Port	LES6044A	
4-Port PoE	LES6045A	
You may also need...		
DIN Rail Mounting Kit	LCA101	

10/100/1000 Secure Console Servers

Superior security plus support for Gigabit Ethernet.



LES7164A: top: front view; bottom: rear view

- Secured with 128-, 192-, and 256-bit AES, 3DES, Blowfish, and CAST128, plus ARCFOUR or ARCTWO data encryption across the LAN via SSH and SSL.
- Supports SNMP V3 management with MIB II and e-mail event notification.
- Support for Syslog enables you to track system events for routine troubleshooting and incident handling.
- Includes COMredirect software to provide true remote serial ports over an Ethernet LAN.
- Feature a 400-MHz, 750-MIPS, 32-bit processor.
- Have a 120–240-VAC, 50–60-Hz internal power supply. International power supplies are available on request.
- Each unit measures 1.75" (1U) H x 17.1" W x 10.4" D (4.4 x 43.4 x 26.4 cm).
- Housed in a sturdy 1U rackmount chassis.
- Built-in surge protection on all interfaces.
- **◆◆ WARRANTY** —1 Year

Item	Code	List Price
10/100/1000 Secure Console Servers		
4-Port	LES7044A	
8-Port	LES7084A	
16-Port	LES7164A	
24-Port	LES7244A	

Dual 10/100/1000 Secure Console Servers

Dual Gigabit Ethernet ports for redundancy.

- Secure access to RS-232 serial console ports across your Ethernet network.
- Dual Gigabit Ethernet ports provide the security of backup links when the primary link goes down.
- Choose optional dual power inputs for redundant power.
- The RS-232 ports feature an RJ-45 interface.
- Feature a powerful 400-MHz, 750-MIPS, 32-bit processor.
- Secured with 128-, 192-, and 256-bit AES, 3DES, Blowfish, and CAST128, plus ARCFOUR or ARCTWO data encryption across the LAN via SSH and SSL.
- Advanced user authentication through RADIUS, TACACS+, LDAP, Kerberos, NIS, and RSA.
- Manageable through Windows Device Manager, HTTP, HTTPS/SSL/TLS, SSH, or Telnet.
- Includes COMredirect software to provide true remote serial ports over an Ethernet LAN.
- The power supply is autosensing 100–240 VAC, 50–60 Hz with single or dual IEC 320 inputs.
- Each unit measures 1.75" (1U) H x 17.1" W x 10.4" D (4.4 x 43.4 x 26.4 cm).
- The rackmountable steel chassis is only 1U high and can be front or rear mounted.
- Built-in surge protection on all interfaces.
- **◆◆ WARRANTY** —1 Year



LES8164A

Item	Code	List Price
Dual 10/100/1000 Secure Console Servers		
8-Port	LES8084A	
8-Port, Dual Power Inputs	LES8084A-2AC	
16-Port	LES8164A	
16-Port, Dual Power Inputs	LES8164A-2AC	
32-Port	LES8324A	
32-Port, Dual Power Inputs	LES8324A-2AC	

Advanced Console Servers

Remote console port management plus interface flexibility!

- Provide secure in-band and out-of-band network management and support modular interfaces.
- Can also be used as SLA concentrators, for disaster recovery, WAN backup, or server management.
- Include two PCMCIA slots—just slide in the interface card you need.
- Use to manage console ports or as terminal servers.
- Support Windows® 2003 Server EMS, Sun® break-safe (Solaris Ready™ Certified), and Break Over SSH.
- Local or remote off-line data buffering (NFS/Sylog); time stamp for data buffering.
- Provide direct access to their serial ports by TCP port, IP address, or server name.
- Offer event notification via e-mail, a pager, or an SNMP trap.
- GUI interface enables you to perform most administrative tasks for the server.
- Connect the console server to your network by simply running CAT5 patch cable from its 10/100 port to an Ethernet hub or switch.
- Great for industrial automation or remote access applications.
- Support Secure Shell, Telnet™, and Web browser access.
- Available with 1, 4, 8, 16, 32, and 48 serial ports.
- All models except the 1-port model can be rackmounted.
- ♦♦ **WARRANTY** — 5 Years



LS1001A

NOTE: To convert the RJ-45 connector to a DB9 or DB25 connector, call our FREE Tech Support.

NOTE: 48-VDC and dual, fault-tolerant AC power supplies are also available. For details, call our FREE Tech Support.

NOTE: For information on ordering compatible PCMCIA cards, call our FREE Tech Support.

TECH SPECS

Memory — 128 MB DIMM SDRAM;
16 MB CompactFlash

Connectors — Serial RS-232 ports:

LS1001A: (1) RJ-45; LS1004A: (4) RJ-45;
LS1008A: (8) RJ-45; LS1016A: (16) RJ-45;
LS1032A: (32) RJ-45; LS1048A: (48) RJ-45;

Network: (1) RJ-45 (10BASE-T/100BASE-T);
Management: (1) RJ-45 (RS-232)

Power — 100–240 VAC, 50–60 Hz, internal redundant power supply

Size — LS1001A: 1.5"H x 4"W x 6.3"D

(3.8 x 10.2 x 16 cm);
All others: 1.75"H (1U) x 17"W x 8.5"D
(4.4 x 43.2 x 21.6 cm)

Item	Code	List Price
Advanced Console Servers		
1-Port	LS1001A	
4-Port	LS1004A	
8-Port	LS1008A	
16-Port	LS1016A	
32-Port	LS1032A	
48-Port	LS1048A	

Enhanced TCP/IP Terminal Servers

More than just terminal servers—connect terminals, printers, modems, bar-code, and RS-232 serial devices.

- Use TCP/IP for your software connection — eliminate long serial cable runs.
- Full modem control on all ports.
- Asynchronous data speeds up to 115.2 kbps per port.
- Multipoint remote access using PPP, SLIP, or CSLIP protocols.
- Support Reverse Telnet, configurable on a per-port basis.
- Surge-protected serial ports.
- Dial-in support for UNIX and Microsoft® networks.
- 2-, 4-, 8-, and 16-port models suit a wide range of applications.
- Full bidirectional modem support.
- Flash ROM for easy software upgrades.
- ♦♦ **WARRANTY** — 1 Year

NOTE: Serial ports are pinned as DTE. To connect modems and other DCEs, use RS-232 cables pinned straight through. For cables to connect DTEs, such as terminals and printers, call our FREE Tech Support.



TECH SPECS

Memory — 1 MB DRAM, 512 KB Flash

CE Approval — Yes

Connectors — 37688-R2:

(1) 10/100 RJ-45, (8) serial DB25 F;
37687-R2: (1) 10/100 RJ-45, (16) serial DB25 F;
41872-R3: (1) 10/100 RJ-45, (2) serial RJ-45;
41874-R3: (1) 10/100 RJ-45, (4) serial RJ-45;
40871-R3: 40871-DC-R3

(1) 10/100 RJ-45, (8) serial RJ-45;

40870-R3:

(1) 10/100 RJ-45, (16) serial RJ-45

Power — 37688-R2, 37687-R2,
41872-R3, 41874-R3: 110–230 VAC,
50–60 Hz, autosensing, external;

40871-R3, 40870-R3: 90–250 VAC,

50/60 Hz, internal, autosensing

40871-DC-R3:

48–60 VDC screw terminal

Size — 37688-R2, 37687-R2: 1.8"H x 9"W x 12"D

(4.6 x 22.9 x 30.5 cm);

41874-R3, 41872-R3: 1.3"H x 9.1"W x 6.4"D

(3.3 x 23.1 x 16.3 cm);

40871-R3, 40870-R3, 40871-DC-R3:

1.75"H (1U) x 19.3"W x 11.8"D

(4.4 x 49 x 30 cm)

Item	Code	List Price
Enhanced TCP/IP Terminal Servers		
DB25 Async	8-Port	37688-R2
	16-Port	37687-R2
RJ-45 Async	2-Port	41872-R3
	4-Port	41874-R3
RJ-45 Async, Rackmount	8-Port	40871-R3
	16-Port	40870-R3
RJ-45 Async, DC-Powered, Rackmount	8-Port	40871-DC-R3

To adapt the RJ-45 ports for your serial devices, order...

Serial Adapters

PC/Terminal DTE, RJ-45 F/DB9 F
FA705

PC/Terminal DTE, RJ-45 F/DB25 F
FA706

Modem DCE, RJ-45 M/DB25 F
FA707

Series 500 Branch Office Frame Relay Routers

Make 20 or 40 Frame Relay links and save a bundle!



LR1531A-R2

TECH SPECS

Management — LR1535A-R2: LSNMPV2, WEB II, Bridged MIB, Enterprise MIB, Telnet™, Console port
CE Approval — LR1531A-R2

Interface — All LAN: 10BASE-T MDI and MDI-X ports;
LR1530A-R3: WAN: DB25 F;
LR1531A-R2: WAN: V.35;
LR1535A-R2: WAN: T1/E1

Connectors — LR1530A-R3: LAN: (1) RJ-45;
WAN: (1) DB25 F;

LR1531A-R2: LAN: (1) RJ-45; WAN: (1) RJ-45;
LR1535A-R2: LAN: (1) RJ-45; WAN: (1) RJ-48

Power — Input: 120 VAC, 60 Hz; Output: 5 VDC, 1 A
Size — 1.6"H x 6.1"W x 4.3"D (4.1 x 15.5 x 10.9 cm)

Weight — 0.7 lb. (0.3 kg)

- Operable with your Frame Relay equipment.
- All 10BASE-T LAN ports feature MDI/MDI-X.
- Route IP/IPX™. Provide transparent bridging of all nonroutable protocols.
- ♦♦ **WARRANTY** — 1 Year

Base Model

- Data rates of 56 kbps—or 128 kbps with compression.
- Supports up to 20 Frame Relay links to various devices.

56K CSU/DSU Model

- Supports up to 20 Frame Relay links.
- Ethernet speeds up to 2.048 Mbps; leased line speeds up to 56 kbps.
- Internal 56K CSU/DSU.

T1 CSU/DSU Model

- T1 speeds of 1.544 Mbps or E1 speeds of 2.048 Mbps.
- Supports up to 40 Frame Relay links.

Frame Relay
at 56K, T1, or
E1 speeds

Item	Code	List Price
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Series 500 Branch Office Frame Relay Routers		
Base	LR1530A-R3	
56K CSU/DSU	LR1531A-R2	
T1 CSU/DSU	LR1535A-R2	

For RS-232 and RS-530/RS-422, order...

RS-232 Cable, DB25 Male/DB25 Male 6.5-ft. (2-m)	EHC2625-MM
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For V.35, order...

V.35 Cable, DB25 Male/M/34 Male 6.5-ft. (2-m)	EHC530C-MM
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**FOR OPTIMUM PERFORMANCE,
and a 20% savings, order...**

GigaBase® 350 CAT5e 350-MHz Patch Cable,
4-Pair, Straight-Pinned, PVC, Beige, 10-ft.
(3.0-m) (For other lengths or colors,
see pp. 94-95.) EVNSL85-0010

Series 500 Branch and Small Office ISDN Router

We have Net needs covered for branch and small offices!

Branch Office ISDN Routers

- Connect up to 25 remote users to a central LAN or the Internet.
- All users can send or receive data at up to 64 kbps (128 kbps with BONDING).
- Send or receive phone and fax calls at the same time with the LR1580A-ST-R2.
- PPP and multipoint software included.
- Feature PAP, CHAP, and XID security.
- Route IP/IPX protocols and bridge all other nonroutable protocols.
- STAC LZS data compression boosts bandwidth up to 600%!
- NetWizard GUI configuration utility.

Small Office ISDN Router

- Connect up to 10 learned or configured users to a central LAN or the Internet.
- Enables you to remotely access and transfer files, send print jobs, and use e-mail.
- Connect up to two voice, fax, and modem devices to the voice ports.
- Provides Internet firewall protection.
- Features STAC LZS data compression, SNMP, and support for NAT and DHCP.
- Includes NetWizard GUI configuration utility plus a 10BASE-T Ethernet LAN port and an ISDN BRI WAN module.
- Console cable included.



LR1560A-U-R2

- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
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Series 500 ISDN Routers		
Branch Office		
S/T Interface	LR1560A-ST-R2	
S/T Interface/Voice	LR1580A-ST-R2	
U Interface	LR1560A-U-R2	
Small Office		
IP with PPP	LR1500A-US-R3	

TECH SPECS

Protocols — LAN: IP, IPX™; WAN: PPP

CE Approval — LR1500A-US-R3

Interface — LAN: 10BASE-T MDI and MDI-X ports;
WAN: ISDN BRI U or S/T

Connectors — LAN: RJ-45;
WAN: ISDN BRI U or S/T

Power — 12 VDC, 1 A

Size — 1.6"H x 6.1"W x 4.3"D (4.1 x 15.5 x 10.9 cm)

Black Box Explains

Router basics.

Routers are intelligent, high-level devices that enable individual logical networks to communicate with each other while maintaining their own identities. A router forms the boundary between networks. It connects logically separate networks operating under the same transport protocol such as TCP/IP or SNA. Routers are protocol dependent and must support the protocols being routed. Thanks to

the Internet, these protocols have become fairly standardized.

Part of a router's function is to choose a path over which to send packets. This path may involve multiple hops from the source device to a destination that can be across multiple physical networks—even on another continent. In an enterprise-wide WAN divided by routers, each network is managed separately and is

assigned a unique network number, usually an IP address.

A router learns the network number of each connected LAN and stores these numbers in a routing table. If a network changes, the router learns and stores the change automatically. The router uses these routing tables combined with a routing algorithm to decide the best way to route a packet.

Remote MiniRouter

The low-cost little router with the high-powered performance.

- Choose from three WAN interfaces.
- 4-wire interface supports several distances, depending on the cable and Mbps:
 - 10 Mbps over CAT5: 1640.4 feet (600 m);
 - 5 Mbps over CAT5: 2296.5 feet (700 m);
 - IBM® Type 1: 4265 feet (1300 m);
 - Telephone cable: 492.1 feet (150 m) nominal.
- Fiber interface enables inter-WAN links up to 1.8 miles (2.8 km)!
- Filtering rate is 35,000 pps; forwarding rate, 30,000 pps.
- Telnet™ and SNMP MIB support.
- WAN links at speeds of 10 Mbps, synchronous; LAN links at 20 Mbps, full-duplex.
- Bidirectional wire-speed filtering and forwarding.
- Support for IP multicast and LAN-based IGMP applications.
- Frame Relay, HDLC, and PPP support.
- Fully compatible with IEEE 802.3/Ethernet v.2.
- **◆◆ WARRANTY** — 1 Year



LR0019A-4U

Item	Code	List Price
Remote MiniRouters (10BASE-T) V.35 with V.35 Female Cable 4-Wire Multimode Fiber, 850-nm, ST	LR0019A-V35F LR0019A-4U LR0019A-MMST	

T1 WAN Access Router

Connect small to medium enterprises to an IP network.

- Connects enterprise networks or remote offices to an IP/Internet network.
- Includes a full suite of LAN/WAN routing features.
- Provides advanced IP features such as NAT/NAPT, firewall, and DHCP.
- PPP and Frame Relay offer versatile WAN options for use in any network.
- Easy installation via Console/VT100™, Telnet, and HTTP/SNMP management.
- Come with an autosensing full-duplex 10/100BASE-T Ethernet port.
- Includes an integrated T1/E1 CSU/DSU for connection to T1/E1 services.
- **◆◆ WARRANTY** — 1 Year



TECH SPECS

Ethernet Connection — Single-port 10/100BASE-T switch, autosensing, full-/half-duplex, built-in MDI-X
Speed — 1.544 Mbps or 2.048 Mbps
CE Approval — Yes

Connectors — WAN: (1) RJ-48C F; LAN: (1) RJ-45
Power — 90–260 VAC
Size — 1.6"H x 7.3"W x 6.6"D (4.1 x 18.5 x 16.8 cm)

Item	Code	List Price
T1 WAN Access Router	LR120A	

Series 5200 Bridge/Router and Modules

Get the job done with this versatile and powerful network router.

- Autosensing, autonegotiating 10-/100-Mbps LAN connections.
- Bandwidth on demand and ISDN protocol spoofing save on line costs and maintain a high level of network efficiency.
- Data compression factor of 600% enhances throughput.
- Many models support 2.048 Mbps (E1) data rates and aggregate rates up to 4 Mbps.
- SNMP v.2, Telnet, and console port management.
- Dual ISDN lines can be compressed to 256 kbps.
- Multiple-vendor Frame Relay support.
- Many WAN connection choices.
- Features 2 MB flash and 8 MB DRAM memory.
- Multiprotocol support.
- **◆◆ WARRANTY** — 1 Year



Item	Code	List Price
First, order the Series 5200 Bridge/Router...		
Series 5200 Bridge/Router (10/100 LAN Port)	LR5200A-R2	
...then select up to two modules that suit your application.		
Series 5200 Modules		
10BASE-T LAN	10 Mbps	LR5201C
X.21/V.11 WAN	1.544 Mbps (T1)	LR5202C
RS-232/V.24 WAN	Up to 56 kbps	LR5203C
V.35 WAN	1.544 Mbps (T1)/2.048 Mbps (E1)	LR5204C
ISDN BRI U WAN	Up to 128 kbps	LR5208C

Nortel Secure 1001, 1002, 1004 Routers

Efficient T1/E1 routing for your branch offices and remote sites.

- Ideal for Internet access over T1/E1 enterprise networks, LAN access to branch offices, and ISPs.
- Connect 10- or 100-Mbps Ethernet networks to up to four T1 or E1 lines.
- Multilink bonding multiplexes up to four lines into one integrated circuit.
- Offer wire-speed performance, even with small packets and all network services enabled.
- Include extensive Quality of Service (QoS) features.
- **Warranty — 1 Year**

Nortel Secure Routers deliver the highest throughput at wire speed of any comparable router, making them particularly well suited for secure, converged solutions.

The 1001 models are ideal for use in companies that want to connect branch offices and remote sites to a single-line T1/E1 service, and for a direct Internet connection. The 1001 models feature a single T1/E1 port and a 266-MHz processor for high-value at an economical price. Choose the 1002 or 1004 models for high-performance WAN access. These routers provide two or four T1/E1 ports and also include integrated CSU/DSUs and high-performance 300-MHz processors.

Secure Routers are loaded with wire-speed performance, multilink bonding, VLAN tagging and forwarding, Frame Relay support, and sophisticated management and security.

In addition, high-availability features, such as Border Gateway Protocol (BGP-4) and Virtual Router Redundancy Protocol (VRRP), help eliminate potential points of failure and enable redundant router configurations.

Secure routers include the features you need to protect your data from unauthorized access or corruption; including Virtual Private Networks (VPNs) to provide secure communications for your offices over public infrastructures.

When you need more bandwidth, Secure Routers bridge the gap by maximizing bandwidth across multiple circuits to lower operational costs.



2-Port (SR2101008E5)



4-Port (SR2101018E5)

A fast-path forwarding engine maintains wire-speed throughput with low latency. Advanced Layer 2 switching and Layer 3 routing keep packets moving. QoS optimizes bandwidth for data, voice, and video traffic so vital applications get priority.

Item	Code	List Price
Nortel Secure 1001 Routers		
1-Port	SR2101001E5	
with VPN	SR2101002E5	
Nortel Secure 1002 Routers		
2-Port	SR2101008E5	
with VPN	SR2101012E5	
Nortel Secure 1004 Routers		
4-Port	SR2101018E5	
with VPN	SR2101026E5	

Nortel Secure 3120 Routers

Powerful, modular routing you can customize for your enterprise network.

- Customize these scalable modular routers to your enterprise network.
- Converge routing, security, and multimedia traffic into one scalable platform.
- Make 10- or 100-Mbps Ethernet connections.
- Modules enable customizable T1/E1, DS3/T3, and serial connections.
- Multilink bonding multiplexes multiple lines into one circuit.
- Offer wire-speed performance, even with small packets and all network services enabled.
- Include extensive Quality of Service (QoS) features.
- **Warranty — 1 Year**

The Nortel 3120 Secure Routers are scalable, so they're perfect for WANs and enterprise networks requiring high-speed IP or Internet access. They're particularly well suited for converged solutions including VoIP, private-line WAN connectivity, IPsec VPN, and data backup.

This modular system consists of a chassis and modules. Start with only what you need now and expand as your operations expand.

The 2-slot chassis hold two modules. Each chassis is 1U high and features two 10/100 Ethernet ports, one console port, and one auxiliary port. Choose a chassis with one AC or DC power supply, or two of each for redundancy. Or choose a chassis with both an AC and a DC power supply.

Secure 3120 Routers are loaded with multilink bonding, Frame Relay support, and sophisticated management and security. Advanced QoS features optimize bandwidth for voice, video, and data traffic. In addition, high-availability features, such as Border Gateway Protocol (BGP-4) and Virtual Router Redundancy Protocol (VRRP), help eliminate potential points of failure and enable redundant configurations.

These routers feature an extensive array of security features such as Virtual Private Networks (VPNs), a stateful packet inspection firewall, encryption, authentication, access control, Network Address Translation (NAT), and VLAN tagging and forwarding.



SR2102001E5

Item	Code	List Price
Nortel Secure 3120 Routers		
Chassis, 2-Slot, 1U		
(1) 120–230 VAC Power Supply	SR2102001E5	
(1) DC -48 V Power Supply	SR2102002E5	
(2) 120–230 VAC Power Supplies	SR2102003E5	
(2) DC -48 V Power Supplies	SR2102004E5	
(1) 120–230 VAC Power Supply, (1) DC -48 V Power Supply	SR2102005E5	
Modules		
T1/E1, CSU/DSU		
4-Port	SR2104001E5	
8-Port	SR2104002E5	
DS3/T3, Clear Channel		
1-Port	SR2104005E5	
Serial Interface Expansion		
2-Port	SR2104003E5	
4-Port	SR2104004E5	

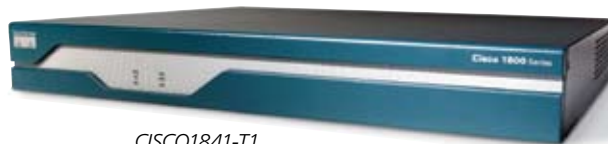
Cisco Integrated Services Routers



These integrated services routers are the total package!



CISCO851-K9



CISCO1841-T1

Cisco 800 Series Routers

- Provide secure WAN connectivity with Stateful Inspection Firewall and IPSec VPN support for small offices.
- The 851 features a 10-/100-Mbps interface and a built-in 4-port 10-/100-Mbps switch.
- The 871 shares the same features as the 851 model and also has Quality of Service (QoS) for optimizing voice and video.
- The 805 features QoS, choice of encapsulation, flash memory, a serial port connection to DTE or DCE, and an RJ-45 console port for software configuration or troubleshooting.
- **Warranty** — 1 Year

Item	Code	List Price
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Cisco 800 Series Routers

851	CISCO851-K9	
871	CISCO871-K9	
805	CISCO805	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

GigaBase® 350 CAT5e 350-MHz Patch Cable, 4-Pair, Straight-Pinned, PVC, Blue, 10-ft. (3.0-m) (For other lengths or colors, see pp. 96-97.)
EVNSL81-0010

Cisco 1841 Modular Router

- Features high-quality delivery of multiple, concurrent services for small and mid-sized businesses and branch offices.
- Offers more than five times the speed of Cisco 1700 Series Routers.
- Dramatically increases interface card slot performance and density over Cisco 1700 Series Routers while maintaining support for more than 30 WAN interface cards and multiflex trunk cards.
- Provides embedded hardware-based encryption enabled by an optional Cisco IOS® Software security package.
- Also offers further enhancement of VPN performance with an optional VPN acceleration module.
- Provides IPSec and firewall functions plus support for integrated switch ports.
- **Warranty** — 1 Year

Item	Code	List Price
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Cisco 1841 Modular Router

CISCO1841-T1

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

GigaBase 350 CAT5e 350-MHz Patch Cable, 4-Pair, Straight-Pinned, PVC, Blue, 10-ft. (3.0-m) (For other lengths or colors, see pp. 96-97.)
EVNSL81-0010



CISCO2801

Cisco 2800 Series Routers

- Support more than 90 modules, including most WICs, VICs, and AIMs. The Cisco 2811 and 2821 also support network modules.
- Cisco IOS Software provides support for a complete suite of transport protocols, QoS tools, and advanced security.
- Integrated Dual 10-/100-Mbps ports on the 2801 and 2811. Integrated Dual 10-/100-/1000-Mbps ports on the 2821.
- Up to two (2801) or four (2811 and 2821) integrated HWIC slots offer up to 800 Mbps of full-duplex throughput and Power over Ethernet (PoE) support.
- Optional scalable analog and digital IP phone support.
- **Warranty** — 1 Year

Item	Code	List Price
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Cisco 2800 Series Routers

2801	CISCO2801	
2811	CISCO2811	
2821	CISCO2821	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

GigaBase 350 CAT5e 350-MHz Patch Cable, 4-Pair, Straight-Pinned, PVC, Blue, 10-ft. (3.0-m) (For other lengths or colors, see pp. 96-97.)
EVNSL81-0010



CISCO3825

Cisco 3800 Series Routers

- Support one or two double-wide network module(s), double-wide enhanced network module(s), and high-density extension module(s); two or four standard network modules, enhanced network modules, and enhanced-extended network modules; and four high-speed slots for WICs, VICs, and VWICs.
- Also include a console port, integrated Dual 10-/100-/1000-Mbps ports, two AIM slots, four PVDM slots, and two USB 1.1 ports.
- Both include embedded VPN, 64 MB Compact Flash, and 256 MB DDR SDRAM.
- **Warranty** — 1 Year

Item	Code	List Price
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Cisco 3800 Series Routers

3825	CISCO3825	
3845	CISCO3845	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

GigaBase 350 CAT5e 350-MHz Patch Cable, 4-Pair, Straight-Pinned, PVC, Blue, 10-ft. (3.0-m) (For other lengths or colors, see pp. 96-97.)
EVNSL81-0010

Nortel VPN Router 1010 • Nortel VPN Router 1050

The secure way to bring branch offices and remote sites into your WAN.

- Functions as an IP access router and a dedicated VPN device.
- Standards-based IPSec, L2TP, and PPTP tunneling for secure connections across the Internet.
- Supports dynamic routing and load-balancing for tunneled and non-tunneled traffic.
- Sophisticated quality-of-service (QoS), and bandwidth management features.
- 1050 models incorporate a 4-port switch.
- Optional licenses available for stateful firewall; advanced Routing (OSPF, VRRP, bandwidth management); Multi-OS VPN Client for MAC, UNIX®, Pocket PC; and Data Link Switching (DLSw). For details, call our FREE Tech Support.
- Manageable via secure, encrypted Internet tunnel, Web browser, or command-line interface.
- Requires no changes to network, workstations, applications, or operating systems.
- RoHS compliant.
- **Warranty** — 1 Year



DM1401092E5



DM1401094E5

TECH SPECS

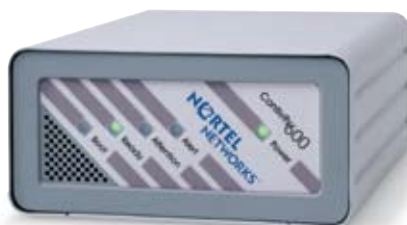
Authentication — User name and password, NT Domains Login, LDAP, RADIUS, SecureID, AXENT	Connectors — 1010 models: (2) 10-/100-Mbps RJ-45 Ethernet, (1) DB9 console port; 1050 models: (1) 10-/100-Mbps RJ-45 Ethernet, (4) RJ-45 switch ports, (1) DB9 console port
Encryption — DES, 3DES, AES, RC4	Power — 100–240 VAC, 50–60 Hz
Management — HTTP, SNMP	Size — 1.7"H x 8.5"W x 8"D (4.3 x 21.6 x 20.3 cm)
Memory — 128 MB RAM, 64 MB Flash	Weight — 2.6 lb. (1.2 kg)
Routing Protocols — RIP-1, RIP-2, OSPF, VRRP	
Standards — IEEE 802.3, IEEE 802.3u	
Throughput — Encrypted VPN: 3DES: 20 Mbps	
CE Approval — Yes	

Item	Code	List Price
Nortel VPN Routers		
1010, 5 Tunnels	DM1401092E5	
1010, 30 Tunnels	DM1401143E5	
1050, 5 Tunnels, 4-Port Switch	DM1401094E5	
1050, 30 Tunnels, 4-Port Switch	DM1401144	
Nortel VPN Routers do NOT include a power cord, so you need to order it separately...		
Power Cord for Nortel VPN Router 1010/1050, North America	AA0020035E6	FREE

NOTE: Power cords for other countries are also available. For details, call our FREE Tech Support.

Nortel VPN Router 600

High-powered routing with up to 50 secure VPN tunnels.



DM1401066E5

- Create site-to-multisite VPNs with up to 50 tunnels.
- Includes Internet connectivity, IPSec tunneling, firewall protection, authentication, and encryption.
- Transparent to operating systems and applications.
- Supports packet filtering.
- 128 MB RAM.
- 56-bit DES (Data Encryption Standard), 112-bit 3DES, or RC4 encryption.
- Logs all transactions for audit and trend reporting.
- Manageable via secure, encrypted Internet tunnel, Web browser, or command-line interface.
- Optional licenses available for stateful firewall; advanced Routing (OSPF, VRRP, bandwidth management); Multi-OS VPN Client for MAC, UNIX, Pocket PC; and Data Link Switching (DLSw). For details, call our FREE Tech Support.
- RoHS compliant.
- **Warranty** — 1 Year

TECH SPECS

Authentication — LDAP, shared secret, x.509	Connectors — (2) 10-/100-Mbps RJ-45 Ethernet, (1) DB9 console port, (1) PCI expansion slot
Encryption — DES, 3DES, AES, RC4	Power — 100–240 VAC, 50–60 Hz
Management — HTTP, SNMP	Size — 4"H x 11"W x 8.5"D (10.2 x 27.9 x 21.6 cm)
Memory — 128 MB RAM	Weight — 6 lb. (2.9 kg)
Routing Protocols — RIP-1, RIP-2, OSPF	
Standards — IEEE 802.3, IEEE 802.3u	
Throughput — Encrypted VPN: 3DES: 15 Mbps	
CE Approval — Yes	

Item	Code	List Price
Nortel VPN Router 600		
50 Tunnels	DM1401066E5	
Nortel VPN Routers do NOT include a power cord, so you need to order it separately...		
Power Cord for Nortel VPN Router 600, North America	AA0020046	

NOTE: Power cords for other countries are also available. For details, call our FREE Tech Support.

Cisco ASA 5500 Firewalls/VPN Concentrators • Cisco Secure Access Control Servers
Your network is surrounded by dangers. Protect it with the industry's best defenses.



ASA5505-50-BUN-K9

- Protect your network from hackers, spyware, and viruses.
- Prevent unauthorized network access.
- Keep your private information private.
- Scalable solutions for growing networks of all sizes.
- Protection for network users on-site, in branch offices, or telecommuting from home.
- Choose from firewalls with comprehensive malware and anti-X options.
- Choose Access Control Servers for centralized identity security.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
Cisco® ASA 5500 Firewalls/VPN Concentrators		
5505 50-User Bundle	ASA5505-50-BUN-K9	
♦ Includes (1) 8-port Fast Ethernet switch, 3DES/AES licensing, and support for (10) IPSec VPN peers and (2) SSL VPN peers.		
5505 SSL/IPSec VPN Edition	ASA5505-SSL10-K9	
♦ Includes (1) 8-port Fast Ethernet switch and support for (10) IPSec VPN peers, (10) SSL VPN peers, and (50) firewall users.		
5510 Firewall Edition	ASA5510-BUN-K9	
♦ Includes (1) 3-port Fast Ethernet switch, 3DES/AES licensing, and support for (250) IPSec VPN peers and (2) SSL VPN peers.		
5520 Firewall Edition	ASA5520-BUN-K9	
♦ Includes (1) 5-port switch with (4) Gigabit Ethernet ports + (1) Fast Ethernet port, 3DES/AES licensing, Active/Active and Active/Standby high availability, and support for (750) IPSec VPN peers and (2) SSL VPN peers.		
Cisco ASA 5500 Firewalls/VPN Concentrators with Antivirus and Spyware Protection		
5510 Anti-X Edition	ASA5510-CSC10-K9	
♦ Includes (1) 3-port Fast Ethernet switch, firewall services, comprehensive malware protection, a one-year subscription to antivirus/antispyware for (50) users, and support for (250) IPSec VPN peers and (2) SSL VPN peers.		
5520 Anti-X Edition	ASA5520-CSC10-K9	
♦ Includes (1) 5-port switch with (4) Gigabit Ethernet ports + (1) Fast Ethernet port, firewall services, comprehensive malware protection, a one-year subscription to antivirus/antispyware for (50) users, and support for (750) IPSec VPN peers and (2) SSL VPN peers.		
Cisco Secure Access Control Servers		
ACS 2.3.6 UNIX®	CSU-2.3	
ACS 4.0 for Windows®	CSACS-4.0-WIN-K9	
ACS 4.0 Solution Engine 1113 Appliance	CSACSE-1113-K9	

ZyXEL Internet Security Appliances

Scalable, reliable, and affordable protection.

- Protect your system with a matrix of features, including IPSec VPN.
- Real-time attack and alert logs.
- Manageable over the Web, with Command Line Interface (CLI), through firmware upgrades, or with ZyXEL's Vantage management software.
- Dial backup and dual-WAN failover/fallback.

ZyXEL's Internet Security Appliances are designed to provide a high-quality, secure networking environment without sacrificing your budget or valuable time on excessive maintenance and upkeep.

ZyXEL's ZYWALL series provides a scalable, reliable Internet security solution at an affordable price designed to give even small companies what they need, as well as the option to expand in the future.

From small and home offices to businesses with as many as 100 VPNs, there is a ZYWALL appliance for your needs. Unified Threat Management (UTM) Kits add antivirus and IDP protections. UTM kits also automatically update attack and virus signatures while providing real-time attack alerts and logs.

- Customizable security zones and bandwidth management improve your control over your network.
- Support 10-/100-/1000-Mbps speeds.
- ♦♦ **WARRANTY** — 1 Year



ZYWALL 2 PLUS

Item	Code	List Price
ZyXEL Internet Security Appliances		
First order a ZyWALL 1050 VPN Concentrator...		
ZyWALL 1050 VPN Concentrator	ZYWALL1050	
...then add as many Personal Firewall Appliances as you need.		
Firewall Appliances and Unified Threat Management (UTM) Kits		
For small and home offices with 2 VPNs...		
ZyWALL 2 Plus	ZYWALL 2 PLUS	
For small and home offices with as many as 10 VPNs, get...		
ZyWALL 5	ZYWALL5	
ZyWALL 5 UTM Firewall Kit	ZYWALL5UTMKIT	
For small and medium businesses with as many as 35 VPNs, order...		
ZyWALL 35	ZYWALL35	
ZyWALL 35 UTM Firewall Kit	ZYWALL35UTMKIT	
For small and medium businesses with as many as 100 VPNs, order...		
ZyWALL 70	ZYWALL70	
ZyWALL 70 UTM Firewall Kit	ZYWALL70UTMKIT	
For comprehensive security, use...		
Firewall Appliance with Secure Socket Link (SSL)		
ZyWALL SSL 10	ZYWALLSSL10	
For secured wireless access, use...		
Wireless Firewall Appliance		
ZyWALL 2 WG	ZYWALL2WG	

Save money—extend Ethernet over ordinary phone wire or leased lines.

10BASE-T/100BASE-TX Ethernet Extender



- **The simple way to extend your LAN.**

This extender's plug-and-play simplicity makes it easy to extend your Ethernet network over ordinary voice-grade copper wire at speeds of up to 30 Mbps. _____ p. 540

High-Speed Ethernet Extender Kit



- **Data rates of up to 50 Mbps in each direction for full-duplex speed of 100 Mbps.**

With plug-and-play ease of installation, this extender achieves extraordinary speeds—up to 50 Mbps—over ordinary voice-grade wiring. _____ p. 542

Network Extender Kits



- **Extend your LAN using one, two, or four pairs of unconditioned copper cable.**

Add more pairs to add bandwidth for speeds of up to 9.2-Mbps over four pairs. Ideal for campus applications. _____ p. 541

T1 Extender Kits



- **Extend your Ethernet LAN over a T1 or DS3 leased line.**

No need to buy and configure a router—extend 10BASE-T or 100BASE-TX Ethernet over leased lines with plug-and-play ease. _____ p. 543

Ethernet Extenders



- **Speeds to 16.67 Mbps, distances to a mile.**

Extend your network up to a mile at speeds of up to 16.67 Mbps. These extenders feature switch-selectable symmetric or asymmetric operation and operate over lower grade CAT3 cable or phone wire you may already have installed. _____ p. 542

SDSL Ethernet Access Devices



- **Go long distance over CAT3—up to 4.5 miles.**

Use ordinary voice-grade CAT3 cable to extend your Ethernet network up to 4.5 miles! Loop-bonding model uses two pairs for double the speed. _____ p. 543

Buyer's Guide | Ethernet Extenders

Item	Description	Ethernet Speed	Interconnect Speed	Distance	Page
LB300A-R2	10BASE-T/100BASE-TX Ethernet Extender	10/100 Mbps	60 Mbps (max.) (30 Mbps upstream/ 30 Mbps downstream)	6336 ft. (max.)	540
LR0035A-KIT	Network Extender Kit	10/100 Mbps	4.6 Mbps ([2] loop bonded 2.3 Mbps UTP lines)	11,300 ft.	541
LR0020A-KIT-R2	Network Extender Kit	10/100 Mbps	2.3 Mbps	11,300 ft.	541
ME0010A-VDSL-R2	Ethernet Extender	10/100 Mbps	33.34 Mbps (max.) (16.7 Mbps upstream/ 16.7 Mbps downstream)	5500 ft. (max.)	542
LB200A	Ethernet Extender	10/100 Mbps	33.34 Mbps (max.) (16.7 Mbps upstream/ 16.7 Mbps downstream)	5500 ft. (max.)	542
LB401A	High Speed Ethernet Extender Kit	10/100 Mbps	100 Mbps (max.) (50 Mbps upstream/ 50 Mbps downstream)	6000 ft. (max.)	542
LR0030A-KIT	T1 Network Extender Kit	10/100 Mbps	1.55 Mbps (T1 leased Line from Telco provider)	Unlimited	543
LR0032A-KIT	Dual T1 Network Extender Kit	10/100 Mbps	3.1 Mbps ([2] T1 Leased Lines loop bonded from telco provider)	Unlimited	543
LR101A-P-US	SHDSL Ethernet Access Device	10/100 Mbps	5.7 Mbps (max.)	24,000 ft. (max.)	543
LR101A-S-US	SHDSL Ethernet Access Device	10/100 Mbps	5.7 Mbps (max.)	24,000 ft. (max.)	543
LR102A-P-US	SHDSL Ethernet Access Device	10/100 Mbps	11.4 Mbps (max.)	24,000 ft. (max.)	543
LR102A-S-US	SHDSL Ethernet Access Device	10/100 Mbps	11.4 Mbps (max.)	24,000 ft. (max.)	543

10BASE-T/100BASE-TX Ethernet Extender

Point-to-point and plug-and-play—the simple way to extend your LAN.



- Extends 10- or 100-Mbps Ethernet up to 1.2 miles (1.9 km).
- Simple plug-and-play installation.
- Saves wiring costs by using voice-grade copper wire — even phone wire you already have installed.
- Perfect for connecting an isolated user in another building or in another part of a large building.
- Uses symmetrical vDSL for speeds of up to 30 Mbps.
- Transparent to network protocols.
- Eight speeds with easy-to-read speed indicator LEDs on top of the extender.
- Auto MDI/MDI-X on the Ethernet ports.
- Autosensing for Ethernet speed and duplex.
- Hot swap extenders without powering down.
- A switch configures the extender for local (CO) or remote (CP) use.
- Choose the hardened version for use in harsh environments.
- **WARRANTY** — 1 Year

The 10BASE-T/100BASE-TX Ethernet Extender uses vDSL to provide an easy, inexpensive way to extend the reach of your Ethernet network over ordinary voice-grade copper wire. Because you use your existing copper infrastructure, you save on cabling costs!

Easy setup

Just plug an extender into each end of your copper wire and use simple DIP switches to set one unit as local (CO) and the other as remote (CP).

The extender is transparent to upper level protocols such as TCP/IP, and there's never any software to install. Plus, the RJ-45 port autosenses

speed and duplex, and it features MDI/MDI-X, so your Ethernet connection is virtually foolproof!

Standalone or rackmount

You can use this compact extender as a desktop or a wallmount standalone unit. For larger installations, you can mount it in a convenient 16-slot rackmount chassis. The chassis has ventilation holes plus a fan to keep the extenders cool.

Choose hardened for tough areas

The extender is also available in a hardened version for use at an extended temperature range of -40 to +167° F.

The 16-Slot Chassis (LB300A-RACK) provides an easy way to rackmount extenders.

TECH SPECS

Environmental — Operating Temperature:
 LB300A-R2: -4 to +140° F (-20 to +60° C),
 LB303A: -40 to +167° F (-40 to +75° C);
 Humidity: Both: 5–90%, noncondensing

CE Approval — Yes

Connectors — (1) RJ-11, (1) RJ-45

Indicators — LEDs:
 (1) Power;
 (4) Speed:
 (1) Ethernet Link/Activity;
 (1) Ethernet Full Duplex;
 (1) VDSL Error;
 (1) VDSL Link;
 (1) VDSL Local;
 (1) VDSL Remote

Power — LB300A-R2: 100–240 VAC, 50–60 Hz, external power supply;
 LB303A: 100–240 VAC (PS002A) to terminal block or 24 VDC (PSD012) to DC jack; power supply sold separately

Size — LB300A-R2: 0.9"H x 4.3"W x 3.2"D (2.3 x 10.9 x 8.1 cm);
 LB303A: 2"H x 5.3"W x 4.3"D (5.1 x 13.5 x 10.2 cm)

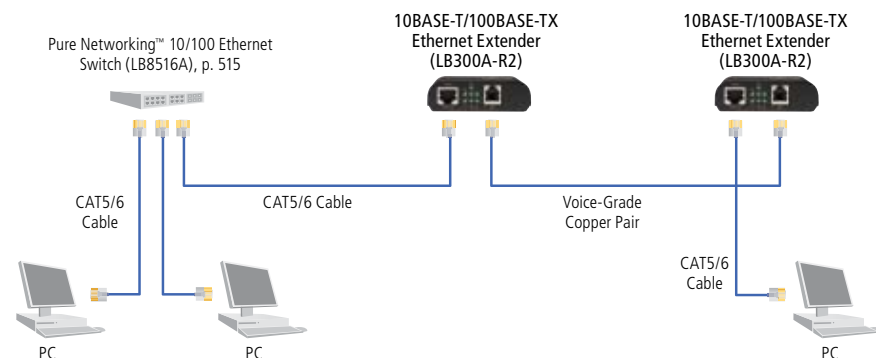
Weight — LB300A-R2: 0.3 lb. (0.2 kg);
 LB303A: 1.8 lb. (0.8 kg)

Buyer's Guide

24 AWG Wire	Maximum Speed	
	Upstream	Downstream
1900 m (1.2 mi.)	1 Mbps	1 Mbps
1700 m (1.1 mi.)	3 Mbps	3 Mbps
1600 m (1.0 mi.)	5 Mbps	5 Mbps
1500 m (4921.2 ft.)	10 Mbps	10 Mbps
1400 m (4593.1 ft.)	15 Mbps	15 Mbps
1000 m (3280.8 ft.)	20 Mbps	20 Mbps
800 m (2624.6 ft.)	25 Mbps	25 Mbps
600 m (1968.5 ft.)	30 Mbps	30 Mbps

NOTE: With symmetric transmissions like vDSL, upstream and downstream data rates are the same.

NOTE: Must be used in pairs.



Item	Code	List Price
10BASE-T/100BASE-TX Ethernet Extender	LB300A-R2	
16-Slot Chassis for the LB300A-R2, 2U, 19"	LB300A-RACK	
10BASE-T/100BASE-TX Hardened Ethernet Extender (Power Supply not included)	LB303A	
Hardened Power Supplies for LB303A		
100–240 VAC	PS002A	
24 VDC	PSD012	

Network Extender Kits

Extend your LAN over ordinary voice-grade copper — using one, two, or four pairs.



LR0020A-KIT

- Ideal for provider-based services who want to offer greater bandwidth over longer distances.
- Send data at 2.3, 4.6, or 9.2 Mbps.
- Loop bonding technology multiplexes two or four 2.3-Mbps copper pairs into one for double the bandwidth at any distance.
- Use in point-to-point applications.
- Switch-selectable data rates.
- Automatic failover and recovery.
- Use in half- or full-duplex modes.
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Bandwidth — LR0040A-KIT: Selectable up to 2.3 Mbps per SHDSL port, up to 9.2 Mbps loop bonded (symmetrical); LR0035A-KIT: Selectable up to 2.3 Mbps per SDSL port or up to 4.6 Mbps loop bonded (symmetrical); LR0020A-KIT-R2: Selectable 272 kbps, 528 kbps, 784 kbps, 2.3 Mbps (symmetrical);

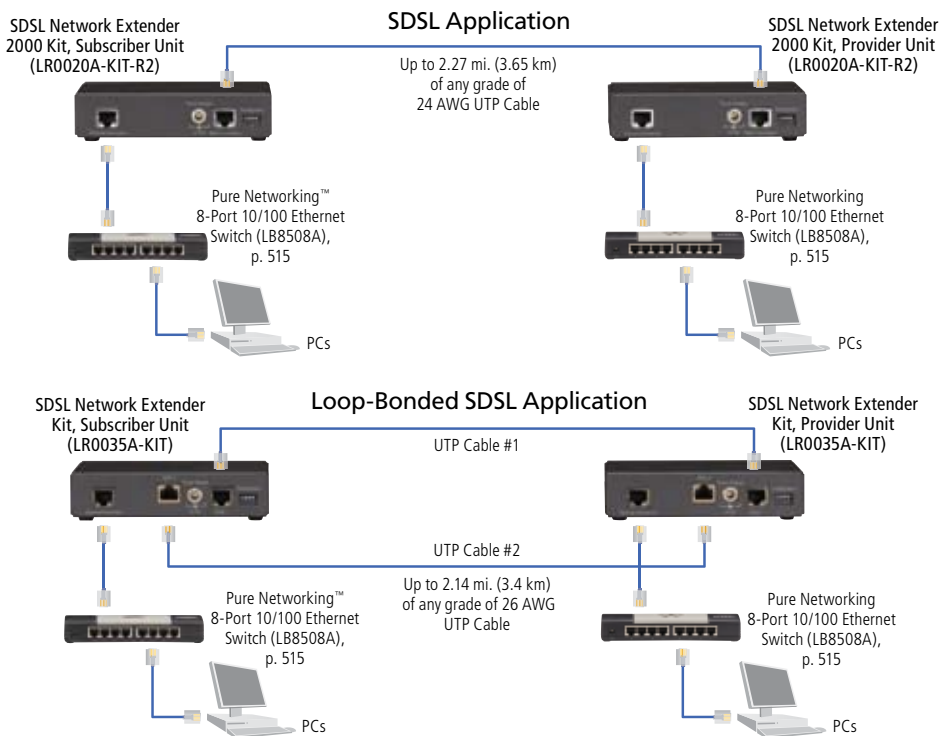
Distance (Maximum) — Over 24 AWG: LR0040A-KIT, LR0035A-KIT: 2.320 Mbps: 11,300 ft. (3444 m); LR0020A-KIT-R2: 2.320 Mbps: 12,000 ft. (3657.6 m);

CE Approval — Yes

Protocols — IEEE 802.3 Ethernet 10BASE-T; SDSL/SHDSL: TC-PAM encoding

Connectors — LR0040A-KIT: Each unit: Network: (1) RJ-45; SHDSL: (4) RJ-11/RJ-45 hybrid; LR0035A-KIT: Each unit: Network: (1) RJ-45; SDSL: (2) RJ-45 2-wire; LR0020A-KIT: Each unit: Network: (1) RJ-45; SDSL: (1) RJ-45

Power — 100–120 VAC, 60 Hz, external



Item	Code	List Price
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For point-to-point 9.2-Mbps SHDSL transmissions over four copper pairs, order...
SHDSL Network Extender Kit

LR0040A-KIT

For point-to-point 4.6-Mbps SDSL transmissions over two copper pairs, order...
SDSL Network Extender Kit with Loop Bonding

LR0035A-KIT

For 2.3-Mbps SDSL applications with 10-Mbps Ethernet support, order...

SDSL Network Extender 2000 Kit

LR0020A-KIT-R2

- ♦ All kits include (1) Single-Port Provider Unit with power supply and (1) Single-Port Subscriber Unit with power supply.

Black Box Explains

DSL

Digital Subscriber Line (DSL) was introduced as a low-cost, high-speed way to transmit data over ordinary phone lines. It actually shares a phone line with analog phone service. This is possible because analog phone service uses only a small amount of bandwidth, enabling DSL to piggyback high-speed data traffic onto the line.

To provide the ever-faster bandwidth customers demand, telco providers and other carriers have kept pace by offering ever-faster DSL variations, known collectively as xDSL.

DSL Alphabet Soup

Digital Subscriber Line (DSL) — DSL service can support transmissions over a local loop ranging up to 18,000 feet from the CO.

As with most xDSL services, data rates will increase near the CO and taper off with distance. Note also:

Asymmetric DSL (ADSL) — ADSL provides speeds ranging from downstream/upstream rates of 9 Mbps/640 kbps over a relatively short distance to 1.544 Mbps/16 kbps as far away as 18,000 feet.

ADSL's asymmetrical nature provides more than sufficient bandwidth for downstream transmissions such as receiving data from a host computer or downloading multimedia files.

The lopsided nature of ADSL is what makes it most likely to be used for high-speed Internet access. And the various speed/distance options available within this range are one more point in ADSL's favor. And ADSL enables you to lease and pay for only the bandwidth you need.

SDSL (Symmetric DSL) — This represents the two-wire version of HDSL—which is actually symmetric DSL, albeit a four-wire version. Also known as HDSL2, it essentially offers the same

capabilities as HDSL with T1 rates (1.544 Mbps) at ranges up to 10,000 feet. It's primarily designed for business applications.

SHDSL — Also known as G.SHDSL, combines ADSL and SDSL features for transmittal of T1, E1, ISDN, IP, and ATM communications over a single pair of copper. SHDSL transmits symmetrical data at 192 kbps both upstream and downstream up to 24,000 feet. At shorter, 5000-foot distances, it supports speeds up to 5.7 Mbps downstream and upstream.

G.lite — Also known as ADSL lite and Universal ADSL, G.lite is a simplified xDSL offering standardized as G.992.2 by the ITU. When it was first introduced, G.lite represented the closest thing to plug-and-play DSL. G.lite, however, didn't quite catch on, mainly because of its speeds (1.5-Mbps downstream/512-kbps upstream rates) compared to those offered by other DSL technologies.

Ethernet Extenders

Connect Ethernet LAN segments at 16.67 Mbps across ordinary CAT3 cables.

- Break Ethernet distance limitations and extend your Ethernet network one mile (1.6 km) at speeds up to 16.67 Mbps.
- Operate across any 2-wire unconditioned 24 AWG cable—even phone cables!
- Switch-selectable symmetric or asymmetric operation.
- Support half- or full-duplex Ethernet.
- Plug-and-play operation!
- Autosensing 10-/100-Mbps Ethernet ports adapt to your network speeds.
- The Data/Voice model features a POTS splitter for simultaneous data and voice connection.
- Include (1) CO unit and (1) CP unit.
- ♦♦ **WARRANTY** —1 Year



ME0010A-VDSL-R2



LB200A

TECH SPECS

Clocking — Internal, external, or receive recover
Distance and Speed (Maximum) — See Buyer's Guide, below
Format — Sync or async, switch selectable
Operation — Point-to-point, synchronous or asynchronous; half- or full-duplex
Surge Suppression — 20 kA (8/20ms) gas tube
CE Approval — Yes
Connectors — ME0010A-VDSL-R2: (3) RJ-45; LB200A: (2) RJ-45

Indicators — (5) LEDs: Power, DSL Link, Error, Ethernet Link, Activity
Power — 120/250 VAC, 50/60 Hz, autosensing, external
Size — 1.6"H x 4.1"W x 6"D (4.1 x 10.4 x 15.2 cm)
Weight — 2.2 lb. (1 kg)

Item	Code	List Price
Ethernet Extenders		
Data/Voice	ME0010A-VDSL-R2	
Data Only	LB200A	
♦ Include (1) CO unit and (1) CP unit.		

Buyer's Guide | Line Rates

	Maximum Speed	
	Upstream	Downstream
Asymmetric:		
5500 ft. (1676.4 m)	1.56 Mbps	9.38 Mbps
5000 ft. (1524 m)	2.34 Mbps	16.67 Mbps
Symmetric:		
4000 ft. (1219.2 m)	12.50 Mbps	12.50 Mbps
3300 ft. (1005.8 m)	16.67 Mbps	16.67 Mbps

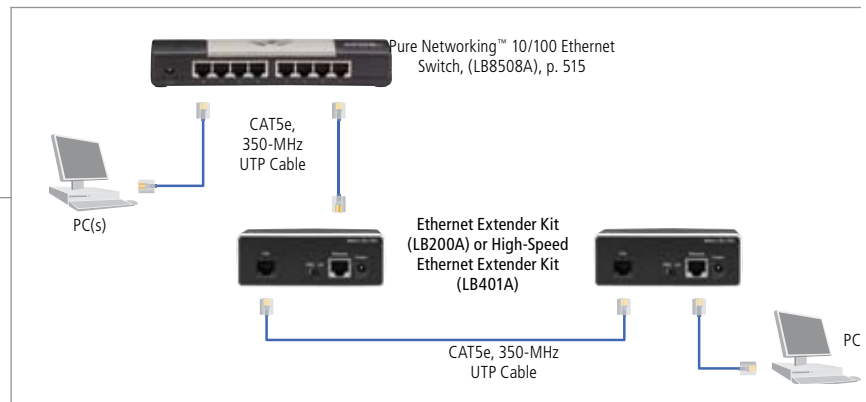
High-Speed Ethernet Extender Kit
Stretch your Ethernet network up to 6000 feet over ordinary voice-grade wiring!



Buyer's Guide | Line Rates

Asymmetrical		
Upstream	Downstream	Distance
1 Mbps	4 Mbps	6000 ft. (1828.8 m)
1 Mbps	16 Mbps	4000 ft. (1219.2 m)
2 Mbps	50 Mbps	2000 ft. (609.6 m)
Symmetrical		
Upstream	Downstream	Distance
10 Mbps	10 Mbps	4000 ft. (1219.2 m)
25 Mbps	25 Mbps	2000 ft. (609.6 m)
50 Mbps	50 Mbps	800 ft. (243.8 m)

- Use a single voice-grade twisted-pair cable to extend your network.
- Distances up to 6000 feet (1828.8 m).
- Ideal for extending 10-/100-Mbps links to remote buildings, those beyond the 328-foot (100-m) limit of Ethernet.
- Data rates up to 50 Mbps in each direction for full-duplex speed of 100 Mbps.
- Switch-selectable line rates.
- Asymmetric or symmetric operation.
- Simple to install, and there's no configuration or complex cabling to deal with.
- Autodetects 10-/100-Mbps connections, autonegotiating half- or full-duplex.
- Auto MDI/MDI-X.
- Bridges LANs transparently, passing higher layer protocols. Also supports 802.1Q VLAN tagged and untagged traffic.
- ♦♦ **WARRANTY** —1 Year



TECH SPECS

Duplexing Method — Frequency Division (FDD)
Modulation — Quadrature Amplitude (QAM) 4-band
Operation — Half- or full-duplex
Speed (Maximum) — 50 Mbps (see chart at left)
CE Approval — Yes
Connectors — (1) RJ-45 (link); (1) shielded RJ-45 (LAN)
Indicators — (3) front-panel LEDs: Power, Link, Ethernet
Power — 100–240 VAC, 50–60 Hz, autosensing, external
Size — Each extender unit: 1.5"H x 4.1"W x 3.75"D (3.8 x 10.4 x 9.5 cm)
Weight — Each extender unit: 1.4 lb. (0.6 kg)

NOTE: Line rates are for 24 AWG, 0.5-mm cable.

Item	Code	List Price
High-Speed Ethernet Extender Kit	LB401A	
♦ Includes (2) extender units, switch-selectable for use as either a remote or local unit.		

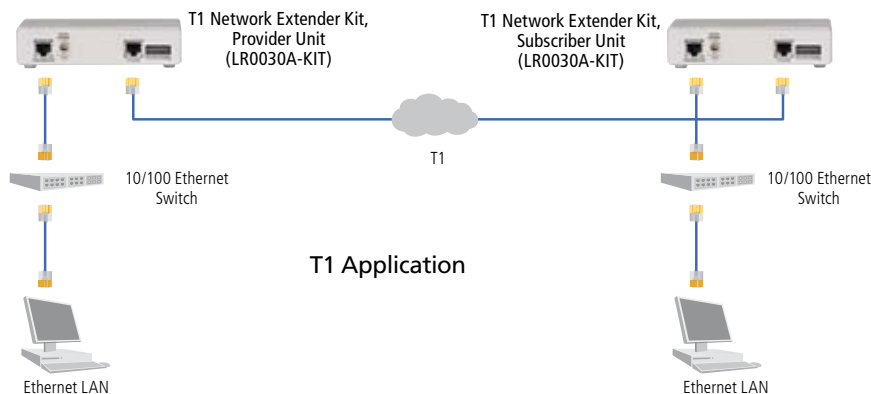
T1 and DS3 Network Extender Kits

Extend your corporate office LAN over a T1 or DS3 leased line.

- Link a LAN across T1 or DS3 without buying expensive and complicated routers.
- 10-/100-Mbps autosensing Ethernet ports adjust to the speed of your network automatically.
- All feature an integrated CSU/DSU on their T1 or DS3 port.
- Dual T1 Extender Kit provides loop-bonded T1 lines that enable up to 3.09 Mbps of symmetrical bandwidth.
- Easy setup—literally plug-and-play.



LR0030A-KIT



T1 Application

- **WARRANTY** —1 Year

Item	Code	List Price
------	------	------------

For 1.55-Mbps T1 applications with 10-/100-Mbps autosensing Ethernet support...
T1 Network Extender Kit

LR0030A-KIT

For loop-bonded T1 applications with 10-/100-Mbps autosensing Ethernet support...
Dual T1 Network Extender Kit

LR0032A-KIT

For 45-Mbps DS3 applications with 10-/100-Mbps autosensing Ethernet support...
DS3 Network Extender Kit

LR0025A-KIT

- ◆ All kits include (1) Single-Port Provider Unit with power supply and (1) Single-Port Subscriber Unit with power supply.

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

GigaBase® 350 CAT5e Patch Cable, 4-Pair, PVC, 10-ft. (3.0-m), Beige (For other lengths or colors, see pp. 96-97.)
Straight-Pinned Crossover EVNSL85-0010
EVCRB85-0010

SHDSL Ethernet Access Devices

Extend your Ethernet network more than 4.5 miles!



LR101A-P-US

- Extend Ethernet by sending data over one or two pairs of CAT3 voice grade cable.
- Each SHDSL port provides up to 5.7 Mbps of symmetrical bandwidth. The 2-port model supports loop bonding and can combine both ports over 2 pairs for a total speed of up to 11.4 Mbps.
- At lower speeds, you can achieve distances of up to 24,000 feet (7315.2 m)—that's more than 4.5 miles!
- Or get a full 5.7 Mbps per port bandwidth at up to 5000 feet (1524 m). At almost a mile, this is more than enough distance for most campus applications.
- Failure recovery feature picks up dropped lines automatically.
- 2-port model features automatic load for optimum throughput and redundancy.
- Compatible with most SHDSL network extender products.
- Easy, plug-and-play setup and operation.
- Support 10- and 100-Mbps network connections, autonegotiating speed and duplex with Auto MDI/MDI-X while converting 10BASE-T or 100BASE-TX to SHDSL.
- Feature transparent 802.1D bridging.
- Offer full multimedia traffic management functions, including 802.1p priority and 802.1Q VLAN traffic management.
- Point-to-point or multipoint operation.
- **WARRANTY** —1 Year

TECH SPECS

Distance (Maximum) — 24,000 ft. (7315.2 m)

Speed (Maximum) — 5.7 Mbps per port

Standards — ITU G.991.2 G.SHDSL;

IEEE 802.3 Ethernet;

IEEE 802.1D Bridging

Connectors — LR101A-P-US, LR101A-S-US:

(1) 10-/100-Mbps RJ-45 Ethernet,

(1) RJ-11/RJ-45 SHDSL;

LR102A-P-US, LR102A-S-US:

(2) 10-/100-Mbps RJ-45 Ethernet,

(2) RJ-11/RJ-45 SHDSL

Power — 100-240-VAC, 50-60 Hz, external power supply

Size — 1.4"H x 8.4"W x 5"D (3.6 x 21.3 x 12.7 cm)

Weight — 1 lb. (0.5 kg)

Buyer's Guide | Line Rates

Upstream	Symmetrical, per Port	
	Downstream	Distance
192 kbps	192 kbps	24,000 ft. (7315.2 m)
5.7 Mbps	5.7 Mbps	5000 ft. (1524 m)

NOTE: Must be used in pairs. Order one Provider Unit and one Subscriber Unit.

Item	Code	List Price
------	------	------------

SHDSL Ethernet Access Devices

1-Port

Provider Unit LR101A-P-US

Subscriber Unit LR101A-S-US

2-Port

Provider Unit LR102A-P-US

Subscriber Unit LR102A-S-US

Black Box has the right media

Standalone Media Converters



PC Media Converters

- Install in a spare PCI or ISA slot in your PC.

Enables you to use an older PC as a media converter chassis. Or install in a working PC to bring fiber to the desktop. _____ 546



Pure Networking™ Media Converters

- Simple, economical media conversion.

These compact, straightforward media converters come with all the features you're looking for: a wide range of interfaces, MDI/MDI-X crossover, and, best of all, a very economical price. _____ 547



MicroConverter Media Converter

- Tiny and easy to set up.

Convert 10BASE-T to ST® fiber in the blink of an eye. The autosensing universal power supply makes it especially versatile. _____ 548



AutoCross Media Converters

- Never worry about the UTP port.

Autocross on the RJ-45 port gives you plug-and-play copper-to-fiber conversion for 10BASE-T or 100BASE-TX. _____ 548



Ethernet Twisted Pair-to-Fiber Media Converters

- Bring fiber to the desktop.

Choose from an extremely compact single-port model or a 12-port hub to convert 10BASE-T to fiber. _____ 548



Crossover Media Converters

- Configurable UTP ports for easy setup.

Configurable MDI/MDI-X uplink ports mean you never need to worry about your cable. Choose from a wide array of models with 10BASE-T, 100BASE-TX, ThinNet, multimode fiber, and single-mode fiber interfaces. _____ 549



PSE Media Converters

- Convert fiber to copper and power PoE devices.

Use fiber to beat the distance limits of PoE over copper. Place PoE devices such as cameras and wireless access points over a mile away on multimode fiber and up to an astounding 62 miles away on single-mode fiber. _____ 550



PD Media Converters

- These compact media converters get their power over Ethernet.

Bridge long-distances over fiber without the need for a local power supply. Available in multimode or single-mode. _____ 550



PSE Compact Media Converters

- Power PoE cameras and access points.

PoE plus media conversion in a wide range of interface options, including single-strand fiber. Also available in a hardened version for use in high-temperature areas. _____ 551



MultiLink and MultiLink II Media Converters

- Connect multiple RJ-45 ports to fiber.

MultiLink enables you to connect three or four 10BASE-T/100BASE-TX links to a single fiber pair. MultiLink II also offers a redundant fiber link. _____ 551



Compact Media Converters

- Compact size and solid construction, plus the features you're looking for.

These standalone media converters have it all: an extraordinary range of interface options including Gigabit Ethernet, universal auto-sensing power supply, auto MDI/MDI-X, and advanced diagnostics. _____ 552-553



Media Converter Switches

- Layer 2 media converters for office or industrial use.

It's a switch, it's a media converter, and there's a model for every environment. Choose from models for clean, climate-controlled indoor environments, for dirty factory floors, or even for use outdoors with nothing but protection from rain. DIN rail mount models, too!

_____ 576-577

converter for every job.

Chassis-Based Media Converters



Modular Media Converters

- A solid modular converter system for 10BASE-T or Fast Ethernet.

This chassis-based media converter system is a very capable, entry-level solution for small-to-medium-sized networks. Four chassis sizes provide versatility. _____ 554



FlexPoint Modular Media Converters

- Work alone or in a rackmount chassis.

Ultimate versatility for your growing network. Start with standalone modules, then add a rackmount chassis when your network grows. This system also includes some legacy interface options.

- 10-, 100-, and 1000-Mbps Ethernet.
- Multimode or single-mode fiber.
- Duplex or single-strand fiber.
- 10/100 rate converters.
- Fiber mode converter.
- ThinNet.
- Token Ring.
- ATM OC-3 and OC-12.
- T1/E1 line drivers. _____ 560–563

Minature Media Converters

- Tiny converters for use in a chassis or on their own.

Use these little converters as standalone media converters or choose the power tray to mount up to 18 media converters in only 2U of rack space. It's a perfect way to bring fiber to the desktop. _____ 555



6-Slot Chassis with Modules

High-Density Media Converter System II

- This versatile media converter system enables you to monitor and manage from a central location.

Manage this system from any standard SNMP system or with the included software. Choose from managed and unmanaged chassis and an extensive range of modules including:

- Layer 1 basic media conversion and Layer 2 switching modules.
- 10-, 100-, and 1000-Mbps Ethernet modules.
- Single- or multimode fiber modules.
- Duplex or single-strand fiber modules.
- T1/E1/J1 and DS3/E3/STS-1 modules.
- Fiber repeater module.
- Fiber mode conversion modules. — 556–559



20-Slot Chassis with Modules



Dynamic Fiber Conversion System

- Serious conversion for serious networks.

This is the ultimate choice for large enterprise networks. The system features tough construction, a vast array of chassis and module choices, and complete manageability.

- Layer 1 basic media conversion and Layer 2 switching modules.
- Modules that support VLAN tagging.
- 10-, 100-, and 1000-Mbps Ethernet modules.
- Multimode or single-mode fiber modules.
- Duplex or single-strand fiber modules.
- Fiber mode conversion modules.
- Redundant modules.
- Switch module.
- ATM modules.
- T1/E1 modules.
- UTP-to-coax module. _____ 564–567

blackbox.com

This may be the Big Book, but **blackbox.com** is even **BIGGER!**

- There you'll find:
- A vast selection of networking devices from simple switches to high-end routers.
 - Information galore! Black Box Explains tutorials, Buyer's Guides, white papers, videos, and our custom cable and adapter configurators.
 - Savings. Find weekly specials and savings on featured cabling products.

If you still can't find what you need, just ask the experts at our FREE Tech Support hotline!

PC Media Converters

Use any PC with a spare PCI or ISA slot for media conversion.

- Translate between twisted-pair copper and multimode fiber, single-mode fiber, or Thin coax.
- The 4-pin power connector plugs right into your PC's power supply.
- No IRQ addresses are required.
- Diagnostic LEDs notify you of link failures.
- For more converters and specifications, see blackbox.com.
- ♦♦ **WARRANTY** — 6 Years

Use BLACK BOX® PC Media Converters to take advantage of open PCI or ISA slots to bring fiber to the desktop or to connect a legacy ThinNet network. Just jumper a PC Media Converter to an installed twisted-pair card. The converter draws its power from the PC, so there are no power supplies to worry about. Best of all, these easy-to-use cards don't take any space on your desktop!

All PC Media Converters have diagnostic LEDs, which make troubleshooting and network diagnostics quick and easy. The fiber models feature Link Loss™ and Fiber Alert™ LEDs on each twisted-pair and fiber port to notify you of any "silent failures."

Connect to legacy ThinNet.

Connect today's PCs to yesterday's ThinNet with ease—without using up valuable desk space.

The 10BASE2 model (LE6609C-R3) supports half-duplex operation only. Plus, it features a switch for enabling/disabling 50-Ohm termination on the BNC port. It supports distances up to 185 meters (610 ft.).

Convert twisted pair to fiber.

Converting to fiber infrastructure? It's easy to bring fiber to the desktop by jumpering this converter to an installed 10BASE-T/100BASE-TX card.

For the LH6618C–LH6619C models, you can configure UTP ports with simple manual cross-over/passthrough switches. For the LH6620C–LH6621C, LG6630C–LG6631C models, however, the UTP port configuration is automatic because they use autocross configuration.

Fiber models support both half- and full-duplex operation and support distances up to 15 kilometers (9.3 mi.), depending on the model you order.



LH6620C

Item	Code	List Price
PC Media Converters		
10BASE-T to 10BASE2 ThinNet, 300 m BNC	LE6609C-R3	
Switching 10/100BASE-T to 100BASE-FX Duplex Multimode Fiber		
1300-nm, 2 km		
ST	LH6618C	
SC	LH6619C	
1300-nm, 2 km		
ST	LH6620C	
SC	LH6621C	
1000BASE-T to 1000BASE-FX Duplex Multimode Fiber		
850-nm, 550 m		
SC	LG6630C	
1000BASE-T to 1000BASE-FX Duplex Single-Mode Fiber		
1310-nm, 15 km		
SC	LG6631C	
♦ All models include (1) media converter, (1) Y power cable, (1) PCI bracket, and (1) ISA bracket. Fiber optic models also include (1) 1-ft. RJ-45 CAT5e cable.		

Black Box Explains

Media converters.

Media converters transparently convert the incoming electrical signal from one cable type and then transmit it over another type—thick coax to Thin, UTP to fiber, and so on. Traditionally, media converters were purely Layer 1 devices that only converted electrical signals and physical media and didn't do anything to the data coming through the link.

Today's media converters, however, are often more advanced Layer 2 Ethernet devices that, like traditional media converters, provide Layer 1 electrical and physical conversion. But, unlike traditional media converters, they also provide Layer 2 services and route Ethernet packets based on MAC address. These media converters are often called media converter switches, switching media converters, or Layer 2 media converters. They enable you to have multiple connections rather than just one simple in-and-out connection. And because they're switches, they increase network efficiency.

Media converters are often used to connect newer 100-Mbps, Gigabit Ethernet, or ATM equipment to existing networks, which are generally 10BASE-T, 100BASE-T, or a mixture of both. They can also be used in pairs to insert a fiber segment into copper networks to increase cabling distances and enhance immunity to electromagnetic interference.

Rent an apartment...

Media converters are available in standalone models that convert between two different media types and in chassis-based models that house many media converters in a single chassis.

Standalone models convert between two media. But, like a small apartment, they can be outgrown. Consider your current and future applications before selecting a media converter. A good way to anticipate future network requirements is to choose media converters that work as standalone devices but can be rackmounted if needed later.

...or buy a house.

Chassis-based or modular media converter systems are normally rackmountable and have slots to house media converter modules. Like a well-planned house, the chassis gives you room to grow. These are used when many Ethernet segments of different media types need to be connected in a central location. Modules are available for the same conversions performed by the standalone converters, and they enable you to mix different media types such as 10BASE-T, 100BASE-TX, 100BASE-FX, ATM, and Gigabit modules. Although enterprise-level, chassis-based systems generally have modules that can only be used in a chassis, many midrange systems feature modules that can be used individually or in a chassis—as well.

Pure Networking Media Converters

Match cable types simply and affordably!

- Link copper and fiber networks.
- Connect many different types of media and connectors without adding to your repeater count.
- Feature MDI/MDI-X crossover for configuring the RJ-45 port.
- Transparent to network operation.
- Use on the desktop or wallmount.
- Status LEDs for easy monitoring of network connections.
- **◆◆ WARRANTY** — 1 Year



10BASE-T Media Converter

- Operates in half-duplex.
- Features one RJ-45 connector and one pair of SC connectors.
- Push button MDI/MDI-X selection.

10BASE-T/100BASE-TX Media Converters

- Autosensing for MDI/MDI-X ports and duplex on UTP ports.
- The UTP port senses network speed automatically.
- The fiber port offers switch-selectable half- or full-duplex operation.
- All feature one RJ-45 connector. The LH1706A-ST-US has one pair of ST connectors. All others have one pair of SC connectors.

TECH SPECS

Operation — LE1606A-SC-US: Half-duplex;
LGC1713A-SX-US, LGC1713A-LX-US: Full-duplex;
All others: Half- or full-duplex

Standards — IEEE 802.3u

CE Approval — Yes

Connectors — LH1706A-ST-US, LH1700A-ST-US:

(1) RJ-45, (1) pair of ST®;

LE1606A-SC-US, LH1706A-SC-US–LH1708A-SC-US,

LH1700A-SC-US–LH1702A-SC-US,

LGC1713A-SX-US, LGC1713A-LX-US: (1) RJ-45,

(1) pair of SC;

LH1709A-SCTS-US, LH1710A-SCRS-US,

LH1711A-SCTS-US, LH1712A-SCRS-US: (1) RJ-45,

(1) SC

Indicators — LEDs: LE1606A-SC-US: (2) Link,

(2) Receive, (1) Power;

LH1706A-ST-US, LH1706A-SC-US, LH1707A-SC-US,

LH1708A-SC-US: (2) Link/Activity,

(2) Full-Duplex/Collision, (1) 100, (1) Power;

LH1700A-ST-US, LH1700A-SC-US, LH1701A-SC-US,

LH1702A-SC-US: (2) Link, (2) Receive,

(1) Full-Duplex, (1) Power;

LH1709A-SCTS-US, LH1710A-SCRS-US,

LH1711A-SCTS-US, LH1712A-SCRS-US:

(2) Link/Activity, (2) Full-Duplex/Collision,

(1) Full-Duplex, (1) Power;

LGC1713A-SX-US, LGC1713A-LX-US: (2) Link,

(2) Receive, (1) Full-Duplex, (1) Power

Power — 120-VAC, 60-Hz power supply (included)

Size — 0.9"H x 2.9"W x 5"D (2.3 x 7.4 x 12.7 cm)

Weight — 0.3 lb. (0.1 kg)

100BASE-TX Media Converters

- Link your 100BASE-TX UTP Ethernet lines quickly and easily to 100BASE-FX multimode or single-mode.
- Autonegotiate half- or full-duplex operation.
- All feature one RJ-45 connector. The LH1700A-ST-US has one pair of ST connectors. All others have one pair of SC connectors.
- Push button MDI/MDI-X selection.

WDM (Single-Strand) Media Converters

- Wave-Division Multiplexing (WDM) over a single fiber strand increases the capacity of your fiber infrastructure.
- Extend 100BASE-TX over a single strand of single-mode fiber.
- These converters autosense half- or full-duplex operation.
- All have one RJ-45 and one SC connector.
- Push button MDI/MDI-X selection.

- Link your 1000BASE-T UTP Ethernet lines quickly and easily to 1000BASE-SX multimode or 1000BASE-LX single-mode fiber.
- Comply with the IEEE 802.3z 1000BASE-SX/LX standard.
- RJ-45 port supports Auto MDI/MDI-X and auto polarity connection.
- Feature autonegotiation and NWay support on the fiber port.
- Use the DIP switch to enable local and remote loopback testing for installation and troubleshooting.
- Compatible with other Gigabit 1000BASE-T/SX/LX devices.
- Both feature one RJ-45 connector and one pair of SC connectors.

Item	Code	List Price
Pure Networking™ 10BASE-T Media Converters to 10BASE-FL Single-Mode, 1310-nm	15 km SC LE1606A-SC-US	
Pure Networking 10BASE-T/100BASE-TX Media Converters to 100BASE-FX Multimode, 1310-nm	2 km ST LH1706A-ST-US SC LH1706A-SC-US	
to 100BASE-FX Single-Mode, 1310-nm	15 km SC LH1707A-SC-US	
to 100BASE-FX Single-Mode, 1310-nm	30 km SC LH1708A-SC-US	
◆ All include (1) media converter, mounting screws, rubber feet, and (1) power supply.		
Pure Networking 100BASE-TX Media Converters to 100BASE-FX Multimode, 1310-nm	2 km ST LH1700A-ST-US SC LH1700A-SC-US	
to 100BASE-FX Single-Mode, 1310-nm	15 km SC LH1701A-SC-US	
to 100BASE-FX Single-Mode, 1310-nm	30 km SC LH1702A-SC-US	
◆ All include (1) media converter, mounting screws, rubber feet, and (1) power supply.		
Pure Networking WDM (Single-Strand) Media Converters 100BASE-TX to 100BASE-FX Single-Mode (Must be used in complementary pairs.)		
1310-nm TX/1550-nm RX	20 km SC LH1710A-SCRS-US	
1550-nm TX/1310-nm RX	20 km SC LH1709A-SCTS-US	
1310-nm TX/1550-nm RX	40 km SC LH1712A-SCRS-US	
1550-nm TX/1310-nm RX	40 km SC LH1711A-SCTS-US	
Pure Networking 1000BASE-T Media Converters to 1000BASE-SX Multimode, 1310-nm	2 km SC LGC1713A-SX-US	
to 1000BASE-LX Single-Mode, 1550-nm	10 km SC LGC1713A-LX-US	

MicroConverter

Super simple 10BASE-T-to-fiber conversion.



- Easy setup—just an RJ-45 connector and a pair of ST® connectors!
- Works with half-duplex Ethernet.
- Passes link-fault signals through to other devices, so you can keep an eye on cable faults from your management station.
- Autosensing universal power supply.
- Four diagnostic LEDs.
- ♦♦ **WARRANTY** — 5 Years

TECH SPECS

Operation — Half-duplex
Standards — IEEE 802.3, IEEE 802.2, 10BASE-T, 10BASE-FL, FOIRL
CE Approval — Yes
Connectors — (1) pair of ST, (1) RJ-45 (10BASE-T); (1) Mini DC barrel input
Power — 110–240 autosensing
Size — 2.3"H x 3.3"W x 3.7"D (5.8 x 8.4 x 9.4 cm)
Weight — 0.2 lb. (0.1 kg)

Item	Code	List Price
MicroConverter	LE2120A-R4	
♦ Includes (1) media converter and (1) 10-ft. CAT5 Solid-Conductor Cable (EYN556MS-0010).		

AutoCross Media Converters

Why worry about the UTP port? Let "the Box" figure it out!

- Seamless copper-to-fiber conversion for Ethernet or Fast Ethernet.
- Easy plug-and-play operation.
- Reconfigure themselves for proper UTP cabling—no more crossover cables!
- Support for half- and full-duplex operation.
- Uplink/downlink fault detection is provided by LinkAlert™!
- ♦♦ **WARRANTY** — Lifetime

Connect Ethernet or Fast Ethernet segments to fiber segments without using crossover cables. With BLACK BOX® AutoCross Media Converters, you no longer have to deal with mismatched transmit and receive cable pairs.

These converters contain a switch that senses the type of circuit connected to the UTP port and automatically configures the port to match. Because the UTP side is autosensing to MDI/MDI-X, you can use either a straight or crossed cable to connect a switch or NIC.

The converters feature LinkAlert to monitor for uplink and downlink failures, and alert the network if transmission fails.

Use AutoCross Media Converters up to 100 meters (328 ft.) on the UTP link, up to 2 kilometers (1.2 mi.) on a multimode fiber link, and up to 20 kilometers (12.4 mi.) on a single-mode fiber link.

10BASE-T versions of the AutoCross Media converter are not compatible with autosensing devices (for example, a 10-/100-Mbps switch); they only work with standard 10-Mbps devices.



LE2122A-R4

Autosensing
port
configuration!



LH2001A-ST-R3



TECH SPECS

CE Approval — Yes
Connectors — LE2122A-R4, LH2001A-ST-R3: (1) RJ-45, (1) pair of ST; LE2122A-SM-R4, LH2001A-SC-R3, LH2001A-SCSM-R3: (1) RJ-45, (1) pair of SC
Indicators — LEDs: (1) Power; (1) Link Status and (1) Activity (per each twisted-pair and fiber port)
Power — 110–240 VAC, 50–60 Hz, external autosensing power supply
Size — 1"H x 3"W x 4"D (2.5 x 7.6 x 10.2 cm)
Weight — 0.4 lb. (0.2 kg)

Item	Code	List Price
AutoCross Media Converters		
10BASE-T to Duplex 10BASE-FL Multimode		
ST	LE2122A-R4	
Single-Mode SC	LE2122A-SM-R4	
100BASE-TX to Duplex 100BASE-FX Multimode		
ST	LH2001A-ST-R3	
Multimode SC	LH2001A-SC-R3	
Single-Mode SC	LH2001A-SCSM-R3	

Black Box Explains

Autocross conversion.

When using media converters with 10BASE-T or 100BASE-TX cable, you may need to connect your converter to a non-hub device such as a PC or printer, which requires a specially pinned crossover cable for a connection. A media converter with autocross enables you to use an ordinary straight-pinned 10BASE-T patch cable in place of the crossover cable—a manual or automatic switch on the converter makes the crossover connection for you.

Autocross conversion eliminates the need to crosspin cables and set an uplink switch. It adapts to the pin assignment of the twisted-pair cable whether it's crossed or uncrossed.

Ethernet Twisted Pair-to-Fiber Converters

The affordable fiber-to-the-desktop solution.

- Run fiber without replacing existing 10BASE-T hubs, switches, and NICs!
- The 12-port model provides high-density conversion for your wiring closet plus autosensing power.
- Both support half- or full-duplex operation and are fully 10BASE-T/10BASE-FL compatible.



Top: LE2070A;
bottom: LE2072A

- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
Ethernet Twisted Pair-to-Fiber Converters		
Mini Single-Port	LE2070A	
12-Port	LE2072A	

Crossover Media Converters, 10-Mbps

Inexpensive media conversion with configurable UTP ports.



LE1502A-R3

- Make 10BASE-T to legacy ThinNet or 10BASE-T to fiber conversions.
- Use the built-in uplink switch to configure the UTP port: straight through or crossover!
- Mount multiple units in optional Rackmount Trays.
- The 10BASE-T to ThinNet model has an internal BNC termination.
- **WARRANTY** — 3 Years

TECH SPECS

Distance (Maximum) —
 LE1502A-R3, LE1502AE-R4:
 185 m (606.9 ft.);
 LE1501A-R2: 10 km (6.2 mi.);
 LE1505A: 2 km (1.2 mi.)

Operation — Half- or full-duplex

CE Approval — Yes

Indicators — LEDs: LE1502A-R3,
 LE1502AE-R4, LE1501A-R2:
 (1) PWR, (1) LINK, (2) RX, (2) COL,
 (1) POL, (1) JAB;
 LE1505A: (1) PWR, (2) LINK, (2) RX;

Power — LE1502A-R3, LE1501A-R2,
 LE1505A:
 95–125 VAC, 60 Hz, external;
 LE1502AE-R4: 100–240 VAC,
 50–60 Hz, autosensing, external

Size — LE1502A-R3, LE1502AE-R4,
 LE1501A-R2: 3.5"H x 3"W x 1"D
 (8.9 x 7.6 x 2.5 cm);
 LE1505A: 2.1"H x 3"W x 0.8"D
 (5.3 x 7.6 x 2 cm)

Weight — LE1502A-R3, LE1502AE-R4
 LE1501A-R2: 0.3 lb. (0.1 kg);
 LE1505A: 0.4 lb. (0.2 kg)

Item	Code	List Price
Crossover Media Converters, 10-Mbps		
10BASE-T to ThinNet with 120-VAC Power Supply	LE1502A-R3	
with Universal Power Supply	LE1502AE-R4	
10BASE-T to Duplex Fiber Single-Mode ST®	LE1501A-R2	
Multimode ST with Link Pass-Through	LE1505A	
◆ Include (1) media converter, VELCRO® mounts, and (2) metal wallmounting brackets.		
To rackmount your media converters, order...		
Rackmount Tray	LE1505-RACK	
Powered Rackmount Tray	LH1505P-RACK	
For DIN rail mounting order...		
DIN Rail Mounting Bracket	DIN-RAIL MC2	

Crossover Media Converters, 100-Mbps

Configurable UTP ports make Fast Ethernet media conversion even easier!

- Convert 100BASE-TX/fiber.
- A built-in uplink switch means you change the switch, not the cable, and make the right connection instantly.
- Mount multiple units in optional Rackmount Trays.
- **WARRANTY** — 3 Years



LH1504A

Don't repin cable—just flip a switch!

Crossover Media Converters, 100-Mbps enable you to translate between twisted pair and fiber. A crossover feature is built in, so you don't need to worry about using external crossover cables.

For rackmounting, order the Rackmount Tray (LE1505-RACK) or the Powered Rackmount Tray (LH1505P-RACK). Each tray holds up to 16 media converters. The powered tray supplies power for up to eight media converters. You can also wallmount the converters with the included VELCRO® or metal brackets. DIN Rail Mounting Brackets are available, too.

TECH SPECS

Distance (Maximum) — LH1503A–
 LH1504A, LH1506A:
 2 km (1.2 mi.);
 LH1507A: 20 km (12.4 mi.);
 LH1508A: 40 km (24.8 mi.)

Network Standards —
 100BASE-TX: IEEE 802.3u

Operation — Autonegotiating
 half- or full-duplex

CE Approval — Yes

Indicators — (10) LEDs: (1) Power,
 (1) Link (copper port), (1) Link (fiber
 port), (2) RX/ACT (copper and fiber
 ports) plus redundant set on side
 of unit

Power — 95–125 VAC, 60 Hz, external

Size — 3.5"H x 3"W x 1"D
 (8.9 x 7.6 x 2.5 cm)

Weight — 0.3 lb. (0.1 kg)

Item	Code	List Price
Crossover Media Converters, 100-Mbps		
100BASE-TX/Duplex Fiber Multimode SC	LH1503A	
Multimode ST	LH1504A	
Multimode MT-RJ	LH1506A	
Single-Mode SC	LH1507A	
Single-Mode Long-Haul SC	LH1508A	
◆ Include (1) media converter, VELCRO mounts, and (2) metal wallmounting brackets.		
To rackmount your media converters, order...		
Rackmount Tray	LE1505-RACK	
Powered Rackmount Tray	LH1505P-RACK	
For DIN rail mounting order...		
DIN Rail Mounting Bracket	DIN-RAIL MC2	

FOR OPTIMUM PERFORMANCE, and a 20% savings, order...

Premium Ceramic Multimode 62.5-Micron Fiber Optic Patch Cable, Duplex Riser, 10-m (32.8-ft.) SC-SC (For other lengths, connectors, or plenum cables, see pp. 130-131.) EFN110-010M-SCSC

PoE PSE Media Converters

Convert fiber to copper *and* power PoE devices.



LPM600A

- Constrained by the distance limits of PoE over copper? Incorporate fiber into your network.
- Convert 10-/100-Mbps copper cabling to 100-Mbps fiber optic cabling.
- Undercurrent and overcurrent detection and load sensing.
- RoHS compliant.
- **◆◆ WARRANTY** — 1 Year

The PoE PSE Media Converters not only enable you to connect copper cables to long-distance fiber data links, they also safely power compatible devices plugged in on the copper side.

Fully compliant with the 802.3af Power over Ethernet (PoE) standard, the converters function as power source equipment (PSE) to provide -48 VDC power via copper wiring to access points, cameras, and similar devices in areas without nearby power outlets.

For equipment protection, they offer overcurrent and undercurrent detection, as well as fault protection input and power monitoring. They also have powered device signature sensing to detect when an 802.3af-compliant device is connected downstream.

Plus, link-fault passthrough and far-end fault detection features keep you from sending valuable data across invalid links.

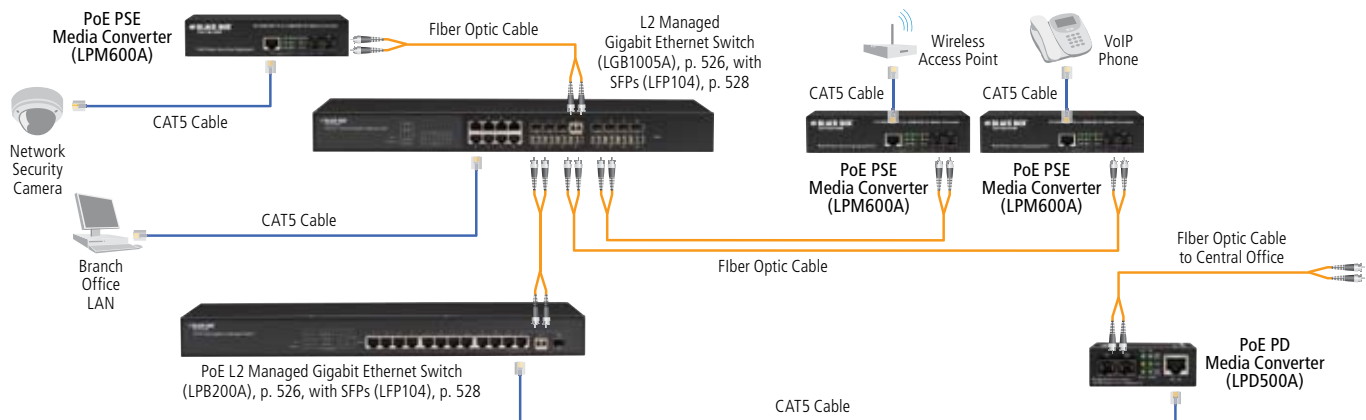
For fiber connections up to 2 kilometers (1.2 mi.), order a multimode converter. To extend fiber links as far as 100 kilometers (62.1 mi.), order the single-mode model.

TECH SPECS

Flow Control — 802.3x for full-duplex; backpressure for half-duplex
Forwarding Rate — 100 Mbps: 148,800 pps; 10 Mbps: 14,880 pps
CE Approval — Yes
Connectors — Copper: (1) RJ-45; Fiber: (1) pair of SC or ST
Power — Input: 100–240 VAC, 50–60 Hz, autosensing; Consumption: 24 W
Size — 1.6" H x 6.25" W x 5.25" D (4.1 x 15.9 x 13.3 cm)

Item	Code	List Price
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PoE PSE Media Converters		
10BASE-T/100BASE-TX to 100BASE-FX		
Multimode	SC	LPM600A
	ST®	LPM601A
Single-Mode	SC	LPM602A



PoE PD Media Converters

Compact copper-to-fiber converters that get their power over Ethernet.

- Translate 10-/100-Mbps copper media to 100-Mbps fiber optic connections.
- Work as powered devices (PD) that receive their power from the spare pairs of copper data cable.
- Connect to PoE switches, mid-span hubs, or other 802.3af power source equipment (PSE).
- Link-fault passthrough enhances the integrity of the copper and fiber links.
- Far-end fault detection keeps data from being sent over an invalid link.
- Easy to configure with DIP switch.
- Multimode and single-mode models.
- RoHS compliant.
- **◆◆ WARRANTY** — 1 Year

Bridge long-distance Fast Ethernet fiber optic segments with Ethernet or Fast Ethernet copper cabling—without a local power supply.

Because the converters are compatible with the 802.3af PoE standard, they draw their power via UTP cable connected to a PoE PSE. This setup makes the converter ideal for remote areas of a network without AC power outlets.

TECH SPECS

Flow Control — 802.3x for full-duplex; backpressure for half-duplex
Forwarding Rate — 100 Mbps: 148,800 pps; 10 Mbps: 14,880 pps
CE Approval — Yes
Connectors — Copper: (1) RJ-45; Fiber: (1) pair of SC or ST
Power — Requires 1 A at +5 VDC AC/DC adapter or 60 mA at -48 VDC from 802.3af PSE or PoE
Size — 1" H x 2.7" W x 3.7" D (2.5 x 6.9 x 9.4 cm)



LPD500A

Item	Code	List Price
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PoE PD Media Converters		
10BASE-T/100BASE-TX to 100BASE-FX		
Multimode	SC	LPD500A
	ST	LPD501A
Single-Mode	SC	LPD502A

PSE Compact Media Converters

Power PoE access points and PoE cameras!



The Standalone PoE Media Converter (LMC5126A) gives you flexibility to put access points where you need them.

- Act as Power Sourcing Equipment (PSE) for your wireless equipment.
- IEEE 802.3af compliant.
- Include fixed, internal 100–240 VAC, 50/60 Hz power supply.
- Available for multimode and single-mode for duplex fiber and single-mode for single-strand fiber.
- Measures 1.6"H x 4.8"W x 5"D (4.1 x 12.2 x 12.7 cm).
- **◆◆ WARRANTY** — 6 Years

Item	Code	List Price
Standard PSE Compact Media Converters 32 to 122° F (0 to 50° C) 100BASE-TX to 100BASE-SX/FX		
Duplex Fiber		
Multimode 850-nm, 2 km		
ST®	LMC5128A	
SC	LMC5129A	
Multimode 1300-nm, 2 km		
ST	LMC5125A	
SC	LMC5126A	
Single-Mode 1310-nm, 40 km		
ST	LMC5130A	
SC	LMC5131A	
Single-Mode 1310-nm, 80 km		
ST	LMC5154A	
SC	LMC5155A	
Single-Mode 1550-nm, 80 km		
SC	LMC5156A	
Single-Strand Fiber (Must be used in complementary pairs.)		
Single-Mode 1310-nm TX/1550-nm RX, 20 km		
SC	LMC5142A	
Single-Mode 1550-nm TX/1310-nm RX, 20 km		
SC	LMC5143A	
Single-Mode 1310-nm TX/1550-nm RX, 40 km		
SC	LMC5146A	
Single-Mode 1550-nm TX/1310-nm RX, 40 km		
SC	LMC5147A	
Single-Mode 1310-nm TX/1550-nm RX, 60 km		
SC	LMC5150A	
Single-Mode 1550-nm TX/1310-nm RX, 60 km		
SC	LMC5151A	

Item	Code	List Price
Hardened PSE Compact Media Converters 32 to 149° F (0 to 65° C) 100BASE-TX to 100BASE-SX/FX		
Duplex Fiber		
Multimode 1300-nm, 2 km		
ST	LMC5135A	
SC	LMC5136A	
Single-Mode 1310-nm, 40 km		
ST	LMC5140A	
SC	LMC5141A	
Single-Mode 1310-nm, 80 km		
ST	LMC5157A	
SC	LMC5158A	
Single-Mode 1550-nm, 80 km		
SC	LMC5159A	
Single-Strand Fiber (Must be used in complementary pairs.)		
Single-Mode 1310-nm TX/1550-nm RX, 20 km		
SC	LMC5144A	
Single-Mode 1550-nm TX/1310-nm RX, 20 km		
SC	LMC5145A	
Single-Mode 1310-nm TX/1550-nm RX, 40 km		
SC	LMC5148A	
Single-Mode 1550-nm TX/1310-nm RX, 40 km		
SC	LMC5149A	
Single-Mode 1310-nm TX/1550-nm RX, 60 km		
SC	LMC5152A	
Single-Mode 1550-nm TX/1310-nm RX, 60 km		
SC	LMC5153A	

NOTE: You can mix Standard with Hardened models as long as distance capabilities, fiber types, and connectors match.

MultiLink and MultiLink II Media Converters

Link multiple RJ-45 ports to fiber for faster speeds, greater distance, and higher security.

- Function as media converters, Ethernet switches, and secure Ethernet switches.
- Link multiple RJ-45 Ethernet ports to fiber for long-distance transmission.
- Layer 2 switching media conversion with custom VLAN mode for true aggregation functionality.
- Choose from managed or unmanaged models.
- Buffered media conversion eliminates PDV calculations.
- Support multimode fiber to 2 km and single-mode fiber to 15 or 40 km.

MultiLink Media Converters

- MultiLink models enable you to connect three or four 10BASE-T/100BASE-TX links over a single fiber optic pair.
- Available with three or four RJ-45 ports.

MultiLink II Media Converters

- MultiLink II versions connect two 10BASE-T/100BASE-TX links over a single fiber pair and offer a redundant fiber link—the second fiber



Top: LB1351A-SM15;
Bottom: LB1302A-SC

- port acts as a backup and takes over automatically if the first port fails.
- Support dual fiber connections.
- Link two RJ-45 ports over one or two ports of single-mode or multimode fiber cable.
- Ideal for mission-critical applications.
- **◆◆ WARRANTY** — All: 1 Year

Item	Code	List Price
MultiLink Media Converters		
Unmanaged		
Multimode, 1310 nm, 2 km		
SC	LB1350A-SC	
Single-Mode, 1310 nm, 15 km		
SC	LB1350A-SM15	
Single-Mode, 1310 nm, 40 km		
SC	LB1350A-SM40	
Managed		
Multimode, 1310 nm, 2 km		
ST	LB1351A-ST	
Single-Mode, 1310 nm, 40 km		
SC	LB1351A-SM40	
MultiLink II Media Converters		
Unmanaged		
Multimode, 1310 nm, 2 km		
SC	LB1301A-SC	
ST	LB1301A-ST	
Single-Mode, 1310 nm, 15 km		
SC	LB1301A-SM15	
Single-Mode, 1310 nm, 40 km		
SC	LB1301A-SM40	
Managed		
Multimode, 1310 nm, 2 km		
SC	LB1302A-SC	
ST	LB1302A-ST	
Single-Mode, 1310 nm, 15 km		
SC	LB1302A-SM15	
Single-Mode, 1310 nm, 40 km		
SC	LB1302A-SM40	

Compact Media Converters

The converters you need for simple

- Integrate copper with fiber seamlessly.
- Compact 1U size saves space!
- Multimode models send data 2 km (1.2 mi.).
- Single-mode models send data 15 to 80 kilometers (9.3 to 49.7 mi.).
- 10BASE-T/ThinNet version enables you to integrate your legacy coax infrastructure into your twisted-pair network.
- With the single-strand models, you can convert 100- or 1000-Mbps copper wiring to 100- or 1000-Mbps single-mode fiber using a single strand that carries 1310- and 1550-nm wavelengths.
- Integral universal power supply autosenses 95–240 VAC for use around the world.
- No crossover cable needed on the UTP side! Auto MDI/ MDI-X detection figures out wiring type and adjusts to it automatically.
- Front-panel LEDs indicate activity, and Link-Fault Detection makes troubleshooting easy.
- LinkLoss™ and FiberAlert™ notify you automatically of “silent failures” on the fiber side.
- Converters feature externally accessible port settings.
- Half- or full-duplex operation.
- DIP switches for forcing modes of operation.
- ♦♦ **WARRANTY** — 6 Years



LMC001A-R5

Save space.

Only 1U high, these converters are the ideal choice when space is at a premium. They also feature internal power supplies so you don't need to make space for bulky external transformers. And because the power supplies are autosensing 120–240 VAC, you can use these converters internationally.

Port settings are externally accessible, and each port includes diagnostic LEDs. Twisted-pair ports feature a straight-through/crossover switch. The BNC port on the LMC009A-R4 features a termination switch.

When faults occur, diagnostic LEDs alert you to location and type, so you can quickly isolate any breaks or problems on the copper or fiber segments. LinkLoss and FiberAlert notify you automatically of connection failures on the fiber side. You can enable or disable LinkLoss/FiberAlert with a DIP switch.

What's more, these converters really go the distance. Multimode models send data 2 km (1.2 mi.). Single-mode models send data 15 km to 60 kilometers (9.3 to 37.2 mi.). Powerful Plus models run up to 80 kilometers (49.7 mi.).

Black Box Explains

Single-strand fiber WDM.

Traditional fiber optic media converters perform a useful function but don't really reduce the amount of cable needed to send data on a fiber segment. They still require two strands of glass to send transmit and receive signals for fiber media communications. Wouldn't it be better to combine these two logical communication paths within one strand?

That's exactly what single-strand fiber conversion does. It compresses the transmit and receive wavelengths into one single-mode fiber strand.

The conversion is done with Wavelength Division Multiplexing (WDM) technology. WDM technology increases the information-carrying capacity of optical fiber by transmitting two or more signals simultaneously at different wavelengths on the same fiber. The way it usually works is that one unit transmits at 1550 nm and receives at 1310 nm. The other unit transmits at 1310 nm and receives at 1550 nm. The two wavelengths operate independently and don't interfere with each other. Wavelength-sensitive filters are used at the receiving end to separate the wavelengths.

This bidirectional traffic flow effectively converts a single fiber into a pair of “virtual fibers,” each driven independently at different wavelengths.

WDM on single-strand fiber is most often used for point-to-point links on a long-distance network. It's also used to increase network capacity or relieve network congestion.

Although the WDM used in media converters typically offers two channels on single-strand fiber at 10-, 100-, or 1000-Mbps speeds, WDM is a rapidly evolving technology that's increasing the capacity of fiber infrastructure by leaps and bounds.

Coarse wavelength-division multiplexing (CWDM) uses wavelengths between 1310 nm and 1610 nm and usually multiplexes signals across eight channels, although some versions support up to 16 channels. The relatively new 10GBASE-LX4 Ethernet standard achieves its 10-Gigabit speeds by using CWDM to divide the data stream into four separate 3.125-Gbps channels for transmission over fiber cable.

Dense wavelength-division multiplexing (DWDM) uses the 1550-nm band and increases channel density even more. It can achieve as many as 64 channels on a single fiber strand. With DWDM it's possible to achieve speeds of hundreds of Gbps across a single fiber. Its ability to handle vast amounts of traffic — even different kinds of traffic moving at different speeds — makes DWDM the technology of choice for metropolitan area networks. Companies that offer TV, Internet, and phone service on fiber use this technology.

high-end copper to fiber conversion.



LMC7001A-R4



LMC009A-R4



LHC5129A-R3

Double your fiber capacity.

With the single-strand models, you get all the benefits of Compact Media Converters, plus the ability to double your fiber capacity. Whether you already have fiber or you're planning to install it, you can make better use of it with these converters.

Ideal for ISPs and enterprise networks, these converters enable you to double your fiber capacity when converting 100BASE-TX wiring to fiber optic wiring in Ethernet networks. The converters compress two individual channels that contain transmit and receive wavelengths (1310 or 1550 nm) onto one single-mode, full-duplex fiber. The converters must be used in matched transmit and receive pairs.

NOTE: Single-strand models must be used in matched transmit and receive pairs. For example, to send your data 20 kilometers, order the LHC5129A-R3 and the LHC5130A-R3 together. Questions? Call our FREE Tech Support.

TECH SPECS

Approvals — UL®, cUL®, CE

Distance (Maximum) —

10BASE-T links: 100 m (328 ft.);

10BASE2 link: 185 m (606.9 ft.);

Fiber links: see price block below

Operation — Half- or full-duplex

Connectors — All: RJ-45;

All 10BASE-FL and 100BASE-TX

models except Single-Strand also

have: (1) pair of ST, SC, or MT-RJ;

Single-Strand models also have:

(1) SC;

LMC009A-R4 also has: (1) BNC

Indicators —

10BASE-T/100BASE-TX Autosensing models: Power;

Twisted Pair: Twisted Pair Link,

Act, 100, Link Fault Detection,

A for PHP Transparent Mode;

Fiber: Link, Act, 100;

All others: Fiber Receive, Twisted-

Pair Link, Fiber Alert, Fiber Link

Power — 120–240 VAC, 50–60 Hz,

internal, autosensing

Size — 1.65"H x 4.8"W x 5"D

(4.2 x 12.2 x 12.7 cm)

Weight — 2 lb. (0.9 kg)

Item	Code	List Price
Compact Media Converters		
10BASE-T to 10BASE-FL		
Multimode		
850-nm	2 km ST®	LMC001A-R5
	SC	LMC002A-R5
1300-nm	2 km ST	LMC003A-R5
	SC	LMC004A-R5
Single-Mode Plus		
1310-nm	40 km ST	LMC007A-R5
	SC	LMC008A-R5
	80 km ST	LMC010A
	SC	LMC011A
1550-nm	80 km SC	LMC012A
10BASE-T to ThinNet	300 m	LMC009A-R4
10BASE-T/100BASE-TX Autosensing to 100BASE-SX Duplex		
Multimode		
850-nm	2 km ST	LMC7001A-R4
	SC	LMC7002A-R4
10BASE-T/100BASE-TX Autosensing to 100BASE-FX Duplex		
1300-nm	2 km ST	LMC7005A
	SC	LMC7006A
Single-Mode Plus		
1310-nm	40 km ST	LMC7003A-R4
	SC	LMC7004A-R4
	80 km ST	LMC7007A
	SC	LMC7008A
1550-nm	80 km SC	LMC7009A
100BASE-TX to 100BASE-FX Duplex		
Multimode		
850-nm	2 km ST	LHC008A-R3
	SC	LHC009A-R3
1300-nm	2 km ST	LHC001A-R4
	SC	LHC002A-R4

Item	Code	List Price
Compact Media Converters (Continued)		
100BASE-TX to 100BASE-FX Duplex (Continued)		
Single-Mode Plus		
1310-nm	40 km ST	LHC005A-R4
	SC	LHC006A-R4
	80 km ST	LHC037A
	SC	LHC038A
1550-nm	80 km SC	LHC039A
100BASE-TX to 100BASE-BX Single-Strand		
Single-Mode (Use in matched pairs.)		
1310-nm TX/1550-nm RX	20 km SC	LHC5129A-R3
1550-nm TX/1310-nm RX	20 km SC	LHC5130A-R3
1310-nm TX/1550-nm RX	40 km SC	LHC5132A-R3
1550-nm TX/1310-nm RX	40 km SC	LHC5133A-R3
1310-nm TX/1550-nm RX	60 km SC	LHC5134A
1550-nm TX/1310-nm RX	60 km SC	LHC5135A
1000BASE-TX to 1000BASE-SX Duplex		
Multimode		
850-nm	2 km SC	LGC5134A-R3
1000BASE-TX to 1000BASE-LX Duplex		
Single-Mode		
1310-nm	15 km SC	LGC5137A
1310-nm	40 km SC	LGC5135A-R3
1550-nm	70 km SC	LGC5138A
1000BASE-TX to 1000BASE-LX Single-Strand		
Single-Mode (Use in matched pairs.)		
1310-nm TX/1550-nm RX	15 km SC	LGC5139A
1550-nm TX/1310-nm RX	15 km SC	LGC5140A
1310-nm TX/1550-nm RX	40 km SC	LGC5141A
1550-nm TX/1310-nm RX	40 km SC	LGC5142A

Modular Media Converters

Absolute flexibility! Here's everything you need to convert UTP and fiber segments.



LE7412A with modules: top: front view; bottom: rear view. Rackmount ears can be mounted front or back.

CHASSIS SPECS

CE Approval — Yes
Power — LE7401A-R2, LE7404A, LE7408A, LE7412A: 120/240 VAC, 50/60 Hz;
 LE7412A-DC: -48 VDC
Size — LE7401A-R2: 1.5"H x 4.7"W x 4.4"D (3.8 x 11.9 x 11.2 cm);
 LE7404A: 1.8"H x 8.6"W x 5"D (4.6 x 21.8 x 12.7 cm);
 LE7408A: 1.8"H x 17.5"W x 5"D (4.6 x 44.5 x 12.7 cm);
 LE7412A, LE7412A-DC: 1.75"H x 17.5"W x 8.8"D (4.4 x 44.5 x 22.4 cm)
Weight — LE7401A-R2: 2 lb. (0.9 kg);
 LE7404A: 3.5 lb. (1.6 kg);
 LE7408A: 6.3 lb. (2.9 kg);
 LE7412A, LE7412A-DC: 11 lb. (5 kg)

- High-powered modules for powerful networks!
- Support a mix of 10- or 100-Mbps segments for UTP and single-mode or multimode fiber.
- LinkLoss™ provides instant notification of fiber segment link problems.
- ♦♦ **WARRANTY** — 1 Year

Convert 100-Mbps segments between twisted-pair and single-mode or multimode fiber in half- or full-duplex mode. Choose from 6 different chassis and 12 converter modules for exactly the right configuration.

Chassis

Choose a 1-, 4-, 8-, or 12-slot chassis. The 1- and 4-slot chassis are standalone models. The 8- and 12-slot chassis are rackmountable and 1U high. The 12-slot chassis has a slot for a Redundant Power Supply Module.

Conversion Modules

The 10- and 100-Mbps modules have a LinkLoss feature, so you can identify problems on the fiber segment from the twisted-pair side, and vice-versa.

The FiberAlert™ feature minimizes problems associated with the loss of one strand of fiber cable by sending fault alerts.

All 10-Mbps twisted-pair modules feature an internal two-position switch on the twisted-pair port, which eliminates the need for a cross-over cable.

Use the 100-Mbps modules to convert from twisted-pair Fast Ethernet to single-mode or multimode fiber with ST® or SC connectors.

The 1300-nm Single-Mode to 1300-nm Multimode Modules come in two-packs, work in pairs, and require two chassis slots. One module features a single-mode receive port and a multimode transmit port; the other has a multimode receive port and a single-mode transmit port.

Item	Code	List Price
First order the chassis...		
Chassis 120-/240-VAC Power Supply	1-Slot Standalone 4-Slot Standalone 8-Slot (1U) 12-Slot (1U) 12-Slot (1U)	LE7401A-R2 LE7404A LE7408A LE7412A LE7412A-DC
48-VDC Power Supply		
For redundant power, order...		
Redundant Power Supply Modules for 1U 12-Slot Chassis 40 Watts, 120/240-VAC		PS7412A
...then add the modules for your application.		
10-Mbps Copper to 10 Mbps ThinNet or Duplex Fiber Media Conversion Modules		
10BASE2	100 m	LE740-TPBNC
Multimode, 850-nm	4 km	ST LE740-TPSTM-R2 SC LE740-TPSTM-SC-R2
Single-Mode Plus, 1310-nm	40 km	ST LE740-TPSTS20-R2
100-Mbps Copper to 100-Mbps Duplex Fiber Media Conversion Modules		
Multimode, 850-nm	300 m	ST LH742-TPSTM-SX SC LH742-TPSCM-SX
Multimode, 1300-nm	2 km	ST LH740-TPSTM-R3 SC LH740-TPSCM-R3
Single-Mode Plus, 1310-nm	40 km	ST LH740-TPSTS20-R3 SC LH740-TPSCS20-R3
10-/100-Mbps Copper to 100-Mbps Duplex Fiber Media Conversion Modules		
Multimode, 850-nm	300 m	ST LH741-TPSTSXM SC LH741-TPSCSXM
Multimode, 1300-nm	2 km	ST LH741-TPSTM SC LH741-TPSCM
Single-Mode, 1310-nm	40 km	SC LH741-TPSM
10-/100-Mbps Copper to 100-Mbps Single-Strand Fiber Media Conversion Modules		
Single-Mode (Order one of each.)		
1310-nm TX/1550-nm RX	20 km	SC LH741-TPSCS13/15
1550-nm TX/1310-nm RX	20 km	SC LH741-TPSCS15/13
Single-Mode Plus (Order one of each.)		
1310-nm TX/1550-nm RX	40 km	SC LH741-TPSCS13/154
1550-nm TX/1310-nm RX	40 km	SC LH741-TPSCS15/134
1000-Mbps Copper to Duplex Fiber Media Conversion Modules		
1000BASE-SX Multimode, 850-nm	300 m	SC LG741-TXSXSC
1000BASE-LX Single-Mode, 1310-nm	10 km	SC LG741-TXLXSC
	40 km	SC LG741-TXLXSC40
	70 km	SC LG741-TXLXSC70
1000-Mbps Copper to 1000BASE-LX Single-Strand Fiber Media Conversion Modules		
Single-Mode (Order one of each.)		
1310-nm TX/1550-nm RX	10 km	SC LG741-TXLXSC-13
1550-nm TX/1310-nm RX	10 km	SC LG741-TXLXSC-15
Single-Mode Plus (Order one of each.)		
1310-nm TX/1550-nm RX	40 km	SC LG741-TXLXSC-1340
1550-nm TX/1310-nm RX	40 km	SC LG741-TXLXSC-1540

Multipower Miniature Media Converters

These tiny converters are perfect for bringing fiber to the desktop!



LHC018A with (9) LHC015A and (9) LHC036A converters



LHC013A

LHC014A

- Connect Ethernet, Fast Ethernet, or Gigabit Ethernet copper ports to fiber optic cable.
- Compact size—measure just 0.8"H x 1.8"W x 3.4"D.
- 10/100 versions autonegotiate for speed and duplex.
- Powered by a universal AC power supply, a PC's USB port, or the optional rackmountable PowerTray.
- Auto MDI/MDI-X means you never need to worry about what kind of cable to use.
- ♦♦ **WARRANTY** — 6 Years

Simple connections.

Bring fiber to the desktop more conveniently and at a lower cost than installing fiber NICs. Just connect a Multipower Miniature Media Converter to your PC's copper port with a CAT5 cable. (You can use unshielded or shielded CAT5 or higher.) Then connect a fiber cable to the converter's other side. Best of all, you can tuck these tiny converters unobtrusively behind your PC.

The 10-/100-/1000-Mbps models also work as data rate converters, performing speed auto-negotiation on the twisted-pair port.

Choose your model.

Choose from multimode and single-mode duplex fiber versions, and single-mode single-strand fiber versions.

For long-distance transmissions, order single-mode media converters. They support distances of 20 kilometers (12.4 mi.), 40 kilometers (24.8 mi.), or even 70 kilometers (43.4 mi.), depending on the model.

The SFP-to-SFP model (LGC300A) enables you to adapt the media converter to the interfaces of your choice simply by adding SFPs.

Optional PowerTray.

The PowerTray provides power for up to 18 converters in only 2U of rack space. Rackmount ears are included.

◀ SFPs, p. 528.

TECH SPECS

CE Approval — Yes

Connectors — All except SFP model: (1) RJ-45; LHC040A, LHC013A, LHC036A: (1) pair of ST®, LHC041A, LHC014A–LHC015A, LGC010A–LGC013A, LGC120A–LGC128A: (1) pair of SC; LHC042A–LHC043A, LHC028A–LHC031A, LGC014A–LGC017A: (1) SC; LGC300A: (2) SFP, (1) AC power, (1) 4-terminal DC power

Power — All except the SFP model: From the included external 100–240-VAC, 50–60-Hz adapter; Via USB Power Adapter Cable (LHC021A) connected to a computer's USB port; From the PowerTray with a 100–240 VAC, 50–60 Hz (LHC018A-AC) or -48 VDC (LHC018A-DC) power supply; LGC300A: Dual power: AC: 100–240 VAC external power supply, 5 VDC, 2 amps; DC: 7–50 VDC at 2.5 watts, chassis grounded to negative terminal

Item	Code	List Price
Multipower Miniature Media Converters		
10-/100-Mbps Copper to 100-Mbps Duplex Fiber		
Multimode, 850-nm	300 m ST	LHC040A
	SC	LHC041A
Multimode, 1300-nm	2 km ST	LHC013A
	SC	LHC014A
Single-Mode, 1310-nm	40 km ST	LHC036A
	SC	LHC015A
10-/100-Mbps Copper to 100-Mbps Single-Strand Fiber, 300 m (Order one of each.)		
Multimode, 1310-nm TX/1550-nm RX	SC	LHC042A
Multimode, 1550-nm TX/1310-nm RX	SC	LHC043A
10-/100-Mbps Copper to 100-Mbps Single-Strand Fiber, 20 km (Order one of each.)		
Single-Mode, 1310-nm TX/1550-nm RX	SC	LHC028A
Single-Mode, 1550-nm TX/1310-nm RX	SC	LHC029A
10-/100-Mbps Copper to 100-Mbps Single-Strand Fiber, 40 km (Order one of each.)		
Single-Mode, 1310-nm TX/1550-nm RX	SC	LHC030A
Single-Mode, 1550-nm TX/1310-nm RX	SC	LHC031A
1000-Mbps Copper to 1000-Mbps Duplex Fiber		
Multimode, 850-nm	300 m SC	LGC010A
Single-Mode, 1310-nm	10 km SC	LGC011A
	40 km SC	LGC012A
	70 km SC	LGC013A
1000-Mbps Copper to 1000-Mbps Single-Strand Fiber, 10 km (Order one of each.)		
Single-Mode, 1310-nm TX/1550-nm RX	SC	LGC014A
Single-Mode, 1550-nm TX/1310-nm RX	SC	LGC015A
1000-Mbps Copper to 1000-Mbps Single-Strand Fiber, 40 km (Order one of each.)		
Single-Mode, 1310-nm TX/1550-nm RX	SC	LGC016A
Single-Mode, 1550-nm TX/1310-nm RX	SC	LGC017A
10-/100-/1000-Mbps Copper to 1000-Mbps Duplex Fiber		
Multimode, 850-nm	300 m SC	LGC120A
Single-Mode, 1310-nm	10 km SC	LGC121A
	40 km SC	LGC122A
	70 km SC	LGC124A
10-/100-/1000-Mbps Copper to 1000-Mbps Single-Strand Fiber, 10 km (Order one of each.)		
Single-Mode, 1310-nm TX/1550-nm RX	SC	LGC125A
Single-Mode, 1550-nm TX/1310-nm RX	SC	LGC126A
10-/100-/1000-Mbps Copper to 1000-Mbps Single-Strand Fiber, 40 km (Order one of each.)		
Single-Mode, 1310-nm TX/1550-nm RX	SC	LGC127A
Single-Mode, 1550-nm TX/1310-nm RX	SC	LGC128A
100-/1000-Mbps SFP-to-SFP		LGC300A
To power a single converter via your computer's USB port, order...		
USB Power Adapter Cable		LHC021A
To rackmount multiple Miniature Media Converters, order...		
PowerTray, 18-Slot	with AC Power	LHC018A-AC-R2
	with DC Power	LHC018A-DC-R2

High-Density Media Converter System II

Monitor and manage your network's copper-to-fiber

- The included MIBs enable you to manage the system from any standard SNMP system or the included iView software.
- Many modules offer Layer 2 media conversion.
- Choose a rackmountable chassis for installation in a central location, such as a computer room.
- Select the 2-slot desktop model for remote locations.
- Hot-swappable modules.
- Single-mode modules support distances up to 80 kilometers (49.7 mi.).
- Redundant power supplies are available.
- ♦♦ **WARRANTY** — 6 Years

The BLACK BOX® High-Density Media Converter System II offers fully manageable rackmount and desktop chassis, and it has the option of high-speed Layer 2 media conversion.

Monitor and manage.

The system enables you to monitor and manage the media converters in your large network from one location. It's perfect for twisted-pair networks with fiber segments.

Fix network failures from your desk with the included iView™ software. Compatible with Windows NT®, Windows® 2000, and Windows XP, it provides an easy-to-use graphic interface to help you manage your High-Density Media Converter System II. You can also use it as a front-end snap-in to integrate with HP® OpenView®.

What's more, the system works with the interface modules from the original High-Density Media Converter System for complete network management!

Chassis with Modular SNMP Management

These heavy-duty chassis are manageable through a separate SNMP Management Module (LMC5200A).

Choose from 1U, 6-slot chassis or 3U, 20-slot chassis. Each chassis has one additional slot for the SNMP module.

A built-in SNMP switch enables you to disable chassis management. Even with management turned off, the SNMP agent continues to communicate with installed modules.

An SNMP write-lock switch protects the configurations of your installed modules from being accidentally overwritten.

Because the chassis has an embedded DHCP agent, its IP address is dynamically assigned when connected to a LAN with a DHCP server.

Models with dual power supplies eliminate a point of failure. Plus, a "last gasp" feature alerts you when one of the power supplies or AC power fails. And there are even more features to ensure reliability: The dual fans are easily field replaceable in the 20-slot chassis. In the 6-slot chassis, fans activate only when the chassis reaches a preset temperature. Fan speed and chassis temperature can be monitored remotely via SNMP. The chassis come with blank plates installed and include rackmounting hardware.

Unmanaged Chassis

You can also choose from a 1- or 2-slot Unmanaged Chassis for desktop use. Although these chassis are unmanaged, modules within them can be accessed through a managed chassis in the same system.

In addition to internal power supplies, all chassis feature redundant, 6.8-cfm-rated cooling fans to keep them from becoming overheated and causing downtime.



LMC5207A



LMC5203A

Item	Code	List Price
High-Density Media Converter System II		
Chassis		
3-Slot Desktop		
AC Power	LMC5233A	
DC Power	LMC5235A	
6-Slot Rackmount or Desktop		
AC Power	LMC5203A	
Dual AC Power	LMC5204A	
DC Power	LMC5206A	
Dual DC Power	LMC5205A	
20-Slot Rackmount		
AC Power	LMC5227A	
Dual AC Power	LMC5207A-R2	
Dual DC Power	LMC5208A	
Spare Power Supplies for 6-Slot Rackmount or Desktop Chassis		
AC Module	LMC5214A	
DC Module	LMC5213A	
Spare Power Supplies for 20-Slot Rackmount Chassis		
AC Module	LMC5210A-R2	
DC Module	LMC5212A	
For SNMP management, you need...		
SNMP Management Module	LMC5200A	
You may also need...		
Backup/Spare Fan Assembly for 20-Slot Rackmount Chassis	LMC5209A	
Unmanaged Chassis		
1-Slot Desktop		
AC Power	LMC5101A	
1-Slot Multipower Desktop		
AC/DC Power	LMC5103A	
2-Slot Desktop		
AC Power	LMC5201A	
DC Power	LMC5202A	
Accessories for Unmanaged Chassis...		
Rackmount Brackets	LMC5167A-RM	
Rackmount Shelf	LMC5165A-RM	
Wallmount Brackets	LMC5166A-WM	
Accessories for all chassis...		
North American Power Adapter Clip	LMC5216A	
European Power Adapter Clip	LMC5215A	

converters from a central location.

Layer 1 Modules

Layer 1 Media Converter Modules for the High-Density Media Converter System II convert the incoming electrical signal from one cable type and then transmit it over another type. These media converters bridge the gap between two different Ethernet types and are totally transparent to network operation, having no effect on the data being sent across the link.

Layer 1 Media Converter Modules include the LinkLoss™ feature, which notifies you of “silent failures” on copper-to-fiber links. LinkLoss enables you to troubleshoot network problems just by looking at the media converter’s Link LED — the link status of the fiber segment is always reflected by the twisted-pair segment so you’re informed quickly of fiber problems.

Many twisted-pair modules feature autocrossover ports to eliminate the worry of whether to use straight- or cross-pinned cabling.

The twisted-pair modules without automatic termination have a push button for you to choose the crossover.

10BASE-T to 10BASE-FL

- Convert between 10BASE-T Ethernet devices and 10BASE-FL multimode or single-mode fiber optic devices.
- Use a pair across a fiber optic link to increase your fiber reach.

10BASE-T/100BASE-TX to 100BASE-SX/FX

- Feature an autosensing 10/100 copper port and a 100-Mbps fiber port.

Item	Code	List Price
High-Density Media Converter System II Layer 1 Modules		
10BASE-T to 10BASE-FL		
Multimode, 850-nm		
2 km ST	LMC5014C-R2	
SC	LMC5015C-R2	
Multimode, 1300-nm		
2 km ST	LMC5016C-R2	
SC	LMC5017C-R2	
Single-Mode Plus, 1310-nm		
40 km ST	LMC5020C-R2	
SC	LMC5021C-R2	
10BASE-T/100BASE-TX to 100BASE-SX		
Multimode, 850-nm		
2 km ST*	LMC5040C	
10BASE-T/100BASE-TX to 100BASE-FX		
Multimode, 1300-nm		
2 km ST	LMC5196C	
SC	LMC5195C	
Single-Mode Plus, 1310-nm		
40 km ST	LMC5194C	
SC	LMC5193C	
100BASE-TX to 100BASE-FX		
Multimode, 850-nm		
2 km ST	LMC5182C	
SC	LMC5181C	
Multimode, 1300-nm		
2 km ST	LMC5022C	
SC	LMC5023C	
MT-RJ	LMC5183C	
Single-Mode Plus, 1310-nm		
40 km ST	LMC5026C	
SC	LMC5027C	
Single-Mode Long, 1310-nm		
80 km ST	LMC5111C	
SC	LMC5110C	
Single-Mode Long, 1550-nm		
80 km SC	LMC5180C	



LGC5108C-R2

100BASE-TX to 100BASE-FX

- Convert between 100BASE-TX and 100BASE-FX devices.
- Extend your network’s reach up to 80 kilometers (49.7 mi.).

100BASE-TX to 100BASE-FX Single-Strand

- Extend Fast Ethernet connections over a single strand of fiber cable by compressing the transmit and receive wavelengths into one single-mode fiber strand.
- Must be used in complementary pairs. For details, call our FREE Tech Support.

100BASE-TX to 1000BASE-SX

- Extend Gigabit Ethernet connections up to 550 meters (1640.2 ft.).
- Establish backbone runs either within a building or between neighboring buildings in a campus environment.

100BASE-TX to 1000BASE-LX

- Achieve blazing Gigabit throughput at distances of up to 40 kilometers (24.8 mi.) over single-mode fiber cable.

100BASE-TX to 1000BASE-SSLX Single-Strand

- Send Gigabit Ethernet up to 40 kilometers (24.8 mi.) over a single fiber strand.

Item	Code	List Price
High-Density Media Converter System II Layer 1 Modules (Continued)		
100BASE-TX to 100BASE-FX Single-Strand		
Single-Mode (Must be used in complementary pairs.)		
1310-nm TX/1550-nm RX		
20 km SC	LMC5113C	
1550-nm TX/1310-nm RX		
20 km SC	LMC5114C	
Single-Mode Plus (Must be used in complementary pairs.)		
1310-nm TX/1550-nm RX		
40 km SC	LMC5116C	
1550-nm TX/1310-nm RX		
40 km SC	LMC5117C	
1000BASE-TX to 1000BASE-SX		
Multimode, 850-nm		
550 m SC	LGC5108C-R2	
1000BASE-TX to 1000BASE-LX		
Single-Mode, 1310-nm		
15 km SC	LGC5184C	
Single-Mode Plus, 1310-nm		
40 km SC	LGC5109C-R2	
1000BASE-TX to 1000BASE-SSLX Single-Strand		
Single-Mode (Must be used in complementary pairs.)		
1310-nm TX/1550-nm RX		
15 km SC	LGC5844C	
1550-nm TX/1310-nm RX		
15 km SC	LGC5845C	
Single-Mode Plus (Must be used in complementary pairs.)		
1310-nm TX/1550-nm RX		
40 km SC	LGC5846C	
1550-nm TX/1310-nm RX		
40 km SC	LGC5847C	

More system options, turn the page. »

Layer 2 Switching Modules

Use a pair of Layer 2 Switching Modules at opposite ends of a fiber optic link to increase your fiber reach.

Unlike Layer 1 media converters, which only convert one Ethernet media type to another, Layer 2 Modules for the High-Density Media Converter System II are true switches—they actively store, filter, and forward Ethernet packets like any other MAC-layer switch.

Layer 2 media converters increase network efficiency and reduce network overhead, significantly increasing data throughput.

Because Layer 2 media converters are also switches, they incorporate 10/100 or 10/100/1000 ports in contrast to the single-speed ports of Layer 1 converters. You can set the RJ-45 ports for autonegotiation or set them for 10-, 100-, or 1000-Mbps speed as well as for half- or full-duplex. You can set the fiber port for half- or full-duplex, too.

Layer 2 media converter modules include LinkLoss™, which notifies you of “silent failures” on copper-to-fiber links. With LinkLoss, a fault on the fiber port is mirrored to the Ethernet twisted-pair port. If the fiber link is lost at the converter, the converter disables the twisted-pair Link LED so you can see at a glance that the link is down. Twisted-pair ports are autocrossover.

10BASE-T/100BASE-TX to 100BASE-FX

These converters feature an autosensing 10/100 copper port and a 100-Mbps fiber port. They're a good choice for remote Fast Ethernet connections to Ethernet devices that may later be upgraded to Fast Ethernet.

10BASE-T/100BASE-TX to 100BASE-FX Single-Strand

These modules extend Fast Ethernet connections over a single strand of fiber cable by compressing the transmit and receive wavelengths into one single-mode fiber strand.

The copper port is autosensing for speed; the fiber port is Fast Ethernet.

10BASE-T/100BASE-TX/1000BASE-T to 1000BASE-SX

Choose these short-range modules for Gigabit Ethernet connections



LMC5118C

of up to 550 meters (1640.2 ft.). Autosensing 10-/100-/ 1000-Mbps ports on the copper side provide maximum versatility.

10BASE-T/100BASE-TX/1000BASE-T to 1000BASE-LX

These modules achieve Gigabit throughput at distances of up to 70 kilometers (43.4 mi.) over single-mode fiber cable. The copper port supports Ethernet, Fast Ethernet, and Gigabit Ethernet and autonegotiates speed and duplex.

10BASE-T/100BASE-TX/1000BASE-T to 1000BASE-SSLX Single-Strand

Send Gigabit Ethernet at distances of up to 10 or 40 kilometers (6.2 or 24.8 mi.) over a single fiber strand. Maximum fiber utilization plus autosensing 10/100/1000 ports make it extremely versatile.

Item	Code	List Price
High-Density Media Converter System II Layer 2 Switching Modules		
10BASE-T/100BASE-TX to 100BASE-FX		
Multimode, 1300-nm		
2 km ST	LMC5118C	
SC	LMC5119C	
Single-Mode Plus, 1310-nm		
40 km ST	LMC5120C	
SC	LMC5121C	
10BASE-T/100BASE-TX to 100BASE-FX Single-Strand		
Single-Mode (Order one of each.)		
1310-nm TX/1550-nm RX		
20 km SC	LMC5123C	
1550-nm TX/1310-nm RX		
20 km SC	LMC5124C	
10BASE-T/100BASE-TX to 100BASE-FX Single-Strand		
Single Mode Plus (Order one of each.)		
1310-nm TX/1550-nm RX		
40 km SC	LMC5126C	
1550-nm TX/1310-nm RX		
40 km SC	LMC5127C	

Item	Code	List Price
High-Density Media Converter System II Layer 2 Switching Modules (Continued)		
10BASE-T/100BASE-TX/1000BASE-T to 1000BASE-SX		
Multimode, 850-nm		
550 m SC	LGC5950C	
10BASE-T/100BASE-TX/1000BASE-T to 1000BASE-LX		
Single-Mode, 1310-nm		
15 km SC	LGC5951C	
Single-Mode Plus, 1310-nm		
40 km SC	LGC5952C	
Single-Mode Long, 1550-nm		
70 km SC	LGC5953C	
10BASE-T/100BASE-TX/1000BASE-T to 1000BASE-SSLX Single-Strand		
Single-Mode (Order one of each.)		
1310-nm TX/1550-nm RX		
15 km SC	LGC5940C	
1550-nm TX/1310-nm RX		
15 km SC	LGC5941C	
Single-Mode Plus (Order one of each.)		
1310-nm TX/1550-nm RX		
40 km SC	LGC5942C	
1550-nm TX/1310-nm RX		
40 km SC	LGC5943C	

« More system options, turn the page.



LME001A

T1/E1/J1 Modules

- Extend T1/J1 or E1 up to 80 kilometers (49.7 mi.) over fiber cable.
- Selectable for 1.544-Mbps T1, 2.048-Mbps E1, or 1.544-Mbps J1.
- Include full diagnostics, including three modes of operation for loopback testing (Fiber Analog Loopback, Fiber Digital Loopback, and Twisted-Pair Digital Loopback), a line integrity test feature, and a Transmit Data Source diagnostic feature.
- Built-in jitter removal ensures maximum throughput.
- An MDI/MDI-X switch configures the RJ-48 port for crossover or straight-through cable connection automatically.

Item	Code	List Price
High-Density Media Converter System II T1/E1/J1 Modules		
Twisted Pair (RJ-48) to Multimode, 1300-nm, 2 km		
ST*	LME001A	
SC	LME002A	
MT-RJ	LME003A	
Twisted Pair (RJ-48) to Single-Mode, 1310-nm, 40 km		
ST	LME004A	
SC	LME005A	
Twisted Pair (RJ-48) to Single-Mode, 1310-nm, 80 km		
ST	LME006A	
SC	LME007A	
Twisted Pair (RJ-48) to Single-Mode, 1550-nm, 80 km		
SC	LME008A	
Twisted Pair (RJ-48) to Single-Strand Single-Mode (Must be used in complementary pairs.)		
1310-nm TX/1550-nm RX		
20 km SC	LMC5192C	
1550-nm TX/1310-nm RX		
20 km SC	LMC5191C	
1310-nm TX/1550-nm RX		
40 km SC	LMC5190C	
1550-nm TX/1310-nm RX		
40 km SC	LMC5189C	

Fiber Mode Conversion Modules

- Protocol-independent conversion from multimode to single-mode.
- Add up to 80 kilometers (49.7 mi.) to your fiber infrastructure.
- 155-Mbps modules support 10-Mbps Ethernet, 100-Mbps Fast Ethernet, and OC-3 ATM.
- 622-Mbps modules support OC-12 ATM.
- 1250-Mbps modules support Gigabit Ethernet or OC-12 ATM.
- FiberAlert™ notifies you of “silent failures.”

Item	Code	List Price
High-Density Media Converter System II Fiber Mode Conversion Modules		
Multimode, 850-nm to Single-Mode, 1310-nm (155 Mbps)		
40 km ST/ST	LMC5032C	
80 km ST/ST	LMC5034C	
SC/SC	LMC5035C	
Multimode, 1300-nm to Single-Mode, 1310-nm (155 Mbps)		
40 km ST/ST	LMC5028C	
SC/SC	LMC5029C	
80 km ST/ST	LMC5030C	
SC/SC	LMC5031C	
OC12 ATM, Multimode, 1300-nm to Single-Mode, 1310-nm (622 Mbps)		
40 km SC/SC	LMC5010C	
Multimode, 850-nm to Single-Mode, 1310-nm (1250 Mbps)		
15 km SC/SC	LMC5036C	
Single-Mode Plus, 1310-nm (1250 Mbps)		
40 km SC/SC	LMC5011C	
Single-Mode Long, 1550-nm (1250 Mbps)		
70 km SC/SC	LMC5012C	
Multimode to Single-Strand Single-Mode (1250-Mbps) (Order one of each.)		
1310-nm TX/1550-nm RX		
40 km SC	LMC5169C	
1550-nm TX/1310-nm RX		
40 km SC	LMC5168C	

DS3/E3/STS-1 Modules

- Ideal for converting incoming coax circuits to fiber for distribution.
- Selectable to extend DS3 (45 Mbps), E3 (34 Mbps), or STS-1 (52 Mbps) up to 80 kilometers (49.7 mi.) over fiber.
- Advanced line conditioning and jitter removal features ensure maximum throughput.
- Advanced diagnostics including FiberAlert for troubleshooting the fiber link.
- Auto MDI-II/MDI-X on the copper side.

Item	Code	List Price
High-Density Media Converter System II DS3/E3/STS-1 Modules		
BNC Coax to Multimode, 1300-nm, 2 km		
ST	LME020A	
SC	LME021A	
BNC Coax to Single-Mode, 1300-nm, 40 km		
ST	LME022A	
SC	LME023A	
BNC Coax to Single-Mode, 1310-nm, 80 km		
ST	LME024A	
SC	LME025A	
BNC Coax to Single-Mode, 1550-nm, 80 km		
SC	LME026A	
BNC Coax to Single-Strand Single-Mode (Must be used in complementary pairs.)		
1310-nm TX/1550-nm RX		
20 km SC	LMC5188C	
1550-nm TX/1310-nm RX		
20 km SC	LMC5187C	
1310-nm TX/1550-nm RX		
40 km SC	LMC5186C	
1550-nm TX/1310-nm RX		
40 km SC	LMC5185C	

FlexPoint Modular Media Converters

- FlexPoint Modular Media Converters work as standalone or hot-swappable, chassis-based media converters.
- Easy installation — no software required.
- LEDs on each media converter display status.
- Converter choices even include legacy systems, such as ThinNet™ and Token Ring.
- The FlexPoint Power Chassis holds up to 14 media converters and features single or dual hot-swappable AC or DC power supplies.
- Plus, the FlexPoint Power Chassis fits into a standard 19" rack to save space.
- **◆◆ WARRANTY — 1 Year**

FlexPoint™ Modular Media Converters from Black Box are versatile and cost-effective standalone media converters that you can upgrade to a chassis-based system. They provide the ultimate in flexibility and reliability for your expanding multimedia LAN.

FlexPoint offers a very wide range of converter options, including media converters for legacy systems such as ThinNet and Token Ring. Your choices include:

- Ethernet
- Fast Ethernet
- Gigabit Ethernet
- Token Ring
- UTP
- Single-mode fiber
- Multimode fiber
- ThinNet
- Single-mode to multimode fiber converters
- Long-distance fiber converters
- ATM OC-3
- ATM OC-12
- 10/100 rate converters
- T1/E1 Line Drivers

The incredible variety and versatility of this system make it ideal for networks that are subject to constant upgrades and changes.

Tailor the system to your requirements. Get the media converters you need now and use them individually. Then, when your LAN grows, mount your media converters on the wall, in the 5-Position Rackmounting Kit, or as modules in the Power Chassis. The Power Chassis holds 14 media converters and a Single or Dual AC or DC Power Supply.

The flexible media

10BASE-T to BNC Media Converters

- Connect 10BASE-T devices to ThinNet (coax) devices.
- Support ThinNet cable to 185 meters (606.9 ft.) and up to 30 stations.
- UTP crossover switch plus automatic polarity detection.
- Switch-selectable ThinNet line termination.

Item	Code	List Price
FlexPoint Modular Media Converters		
10-Mbps UTP to ThinNet 10BASE-T to BNC	LMC210A	

10BASE-T to 10BASE-FL Media Converters

- Convert 10BASE-T (twisted pair) to 10BASE-FL (fiber).
- Adapt automatically to 10-Mbps half-duplex or 20-Mbps full-duplex Ethernet.
- Increase bandwidth and distance in full-duplex operation.
- A UTP crossover switch eliminates the need for a crossed cable.
- LED indicators provide network status.



LMC212A-MM-R3

Item	Code	List Price
FlexPoint Modular Media Converters		
10-Mbps UTP to 10-Mbps Fiber 10BASE-T to 10BASE-FL		
Multimode		
850-nm, 2 km, ST®	LMC212A-MM-R3	
850-nm, 2 km, SC	LMC212A-MM-SC-R2	
1300-nm, 5 km, ST	LMC212A-13MM-R3	
Single-Mode		
1300-nm, 15 km, ST	LMC212A-SM-R3	
1300-nm, 28 km, ST	LMC212A-SM-LH-R2	
1550-nm, 85 km, SC	LMC212A-SM-XLH	
1550-nm, 110 km, SC	LMC212A-SM-SLH	

10BASE-FL to BNC Media Converters

- Connect ThinNet network segments via fiber optic cable while retaining their collision domain.
- Support single-mode or multimode fiber optic cable connections to 2 kilometers (1.2 mi.).
- Support ThinNet cable to 185 meters (606.9 ft.) and 30 stations.
- Switch-selectable ThinNet line termination.



LMC211A-MM

Item	Code	List Price
FlexPoint Modular Media Converters		
10-Mbps Fiber to ThinNet 10BASE-FL to BNC		
Multimode, 850-nm, 2 km, ST	LMC211A-MM	
Multimode, 1300-nm, 2 km, ST	LMC211A-13MM	
Single-Mode, 1300-nm, 2 km, ST	LMC211A-SM	

converter solution.



The 14-Slot Power Chassis (LMC200) makes the FlexPoint system easy to expand.
To order, see p. 563.

100BASE-TX to 100BASE-FX Media Converters

- Convert 100BASE-TX (twisted pair) to 100BASE-FX (fiber).
- Connect Fast Ethernet switches, hubs, and workstations up to 110 kilometers (68.3 mi.)!
- Autosense half- and full-duplex.
- Manual override switch provides manual control of half- and full-duplex operation.
- The UTP crossover switch eliminates the need for crossed Ethernet cables.
- Multimode and single-mode versions are available.



LMC213A-MMST-R2

Gigabit UTP to Fiber Media Converters

- Convert your copper Gigabit Ethernet network to fiber.
- Support IEEE 802.3ab 1000BASE-T and 1000BASE-SX/LX standards.
- Send data from 220 meters (721.7 ft.) up to an incredible 65 kilometers (40.3 mi.), depending on the model.
- Both UTP and fiber ports support full- and half-duplex operation.
- Manual switches give you the option to control port operation.
- Diagnostic LEDs report power availability and status of attached devices.



LMC1003A-R3

Item	Code	List Price
FlexPoint™ Modular Media Converters		
100-Mbps UTP to 100-Mbps Fiber		
100BASE-TX to 100BASE-FX		
Multimode		
1300-nm, 2 km Full-Duplex, 412 m Half-Duplex, ST®	LMC213A-MMST-R2	
1300-nm, 2 km Full-Duplex, 412 m Half-Duplex, SC	LMC213A-MMSC-R2	
1300-nm, 2 km Full-Duplex, 412 m Half-Duplex, MT-RJ	LMC213A-MMRJ	
Single-Mode		
1300-nm, 25 km, ST	LMC213A-SMST-R2	
1300-nm, 25 km, SC	LMC213A-SMSC-R2	
1300-nm, 25 km, MT-RJ	LMC213A-SMRJ	
1300-nm Plus, 58 km, ST	LMC214A-STP-R2	
1300-nm Plus, 58 km, SC	LMC214A-SCP-R2	
1550-nm, 85 km, SC	LMC213A-SM-XLH-R2	
1550-nm, 110 km, SC	LMC213A-SM-SLH-R2	

Item	Code	List Price
FlexPoint Modular Media Converters		
1000-Mbps UTP to 1000-Mbps Fiber		
1000BASE-T to 1000BASE-SX		
Multimode		
850-nm, 220 m, SC	LMC1003A-R3	
850-nm, 220 m, MT-RJ	LMC1007A-R3	
1000BASE-T to 1000BASE-LX		
Single-Mode		
1300-nm, 10 km, SC	LMC1004A-R3	
1300-nm, 10 km, MT-RJ	LMC1008A-R3	
1300-nm, 10 km, LC	LMC1009A-R3	
1300-nm, 25 km, SC	LMC1005A-R3	
1300-nm, 25 km, LC	LMC1010A-R3	
1550-nm, 65 km, SC	LMC1006A-R3	
1550-nm, 65 km, LC	LMC1011A-R3	

For more FlexPoint Media Converters, turn the page.





LTM215A

Token Ring UTP to Fiber Media Converters

- Autosense 4-/16-Mbps Token Ring.
- Support both active and passive Token Ring MAUs and concentrators.
- The UTP crossover switch eliminates crossed cables.
- Network distance up to 20 kilometers (12.4 mi.) on single-mode fiber optic cable or up to 2.5 kilometers (1.5 mi.) on multimode fiber optic cable.
- Self-configure automatically to operate on Token Ring main ring as well as lobe connections.

Item	Code	List Price
FlexPoint™ Modular Media Converters		
Token Ring UTP to Fiber		
850-nm, Multimode, 2.5 km	LTM215A-MM	
1300-nm, Single-Mode, 20 km	LTM215A-SM	

100-Mbps Multimode-to-Single-Mode Converters

- Extend, convert, or connect mismatched fiber segments.
- Between-unit connections are made over single-mode fiber so you get distance—up to 58 kilometers (36 mi.)!
- Support 10- and 100-Mbps Ethernet.
- Half- or full-duplex operation.

Item	Code	List Price
FlexPoint Modular Media Converters		
100-Mbps Fiber-to-Fiber Mode Converters		
500 m Multimode to 28 km Single-Mode		
ST to ST	LMC251A-ST	
SC to SC	LMC251A-SC	
850-nm Multimode to 100BASE-SX 1300-nm Single-Mode, 5 km Multimode to 58 km Single-Mode		
ST to ST	LMC251A-ST-LH	
SC to SC	LMC251A-SC-LH	
1300-nm Multimode to 1300-nm Multimode, 5 km to 5 km Full-Duplex, 412 m to 412 m Half-Duplex		
ST to ST	LMC253A-ST	
SC to SC	LMC253A-SC	
1300-nm Multimode to 1300-nm Single-Mode, 5 km Multimode to 28 km Single-Mode		
ST to ST®	LMC250A-ST	
SC to SC	LMC250A	
1300-nm Multimode to 100BASE-FX 1300-nm Single-Mode, 5 km Multimode to 58 km Single-Mode		
ST to ST	LMC250A-ST-LH	
SC to SC	LMC250A-LH	

1000-Mbps Multimode-to-Single-Mode Converters

- Extend, convert, or connect mismatched fiber segments.
- Between-unit connections are made over single-mode fiber so you get distance—up to 50 kilometers (31 mi.)!
- Support Gigabit Ethernet.
- Full-duplex operation.

Item	Code	List Price
FlexPoint Modular Media Converters		
1000-Mbps Fiber-to-Fiber Mode Converters		
850-nm Multimode to 1300-nm Single-Mode, 220 m Multimode to 5 km Single-Mode		
SC to SC	LMC1001A	
850-nm Multimode to 1550-nm Single-Mode, 220 m Multimode to 50 km Single-Mode		
SC to SC	LMC1000A	



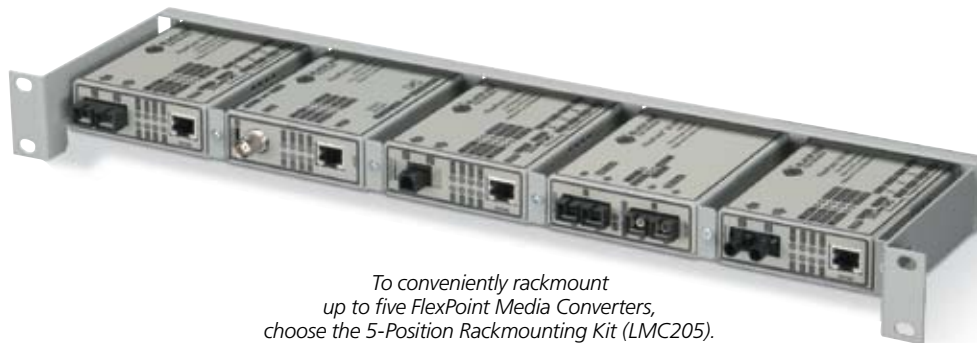
LMC100A-R2

10/100 Rate Converters

- Link copper-based 10BASE-T or 100BASE-TX to 100BASE-FX.
- Function as a Layer 2 switch—each port is capable of learning and aging up to 1K MAC addresses.
- Send data up to 100 kilometers (62.1 mi.).
- Comply with 10BASE-T, 100BASE-TX, and 100BASE-FX IEEE 802.3 standards.
- Both UTP and fiber ports support half- and full-duplex operation.
- UTP port autosenses 10- or 100-Mbps speeds.
- Manual override switch for extra control over fiber and UTP ports.
- Crossover switch provides easy connections to hubs or switches.

Item	Code	List Price
FlexPoint Modular Media Converters		
10/100 Rate Converters		
1300-nm Multimode, up to 2 km		
ST	LMC100A-R2	
SC	LMC100A-SC-R2	
MT-RJ	LMC100A-RJ-R2	
1300-nm Single-Mode, up to 28 km		
ST	LMC100A-SM-R2	
SC	LMC100A-SMSC-R2	
MT-RJ	LMC100A-SMRJ-R2	
1300-nm Single-Mode, up to 58 km		
SC	LMC100A-SMSC-LH-R2	
1550-nm Single-Mode, up to 85 km		
SC	LMC100A-SMSC-XLH-R2	

⏪ For more FlexPoint Media Converters, turn the page.



To conveniently rackmount up to five FlexPoint Media Converters, choose the 5-Position Rackmounting Kit (LMC205).

Mode Converters for ATM OC-3 and OC-12

- Support OC-3 or OC-12 standards over ATM networks and the Synchronous Optical NETWORK (SONET).
- Perfect for extending line drops in large corporations, regional and national telco switching offices, and other intercampus telecommunication systems.

Item	Code	List Price
FlexPoint™ Modular Media Converters		
Fiber-to-Fiber Mode Converters for ATM OC-3		
850-nm Multimode to 1300-nm Single-Mode, 5 km to 28 km		
ST® to ST	LMC156A-ST	
SC to SC	LMC156A-SC	
850-nm Multimode to 1300-nm Single-Mode, 5 km to 50 km		
ST to ST	LMC156A-ST-LH	
SC to SC	LMC156A-SC-LH	
1300-nm Multimode to 1300-nm Single-Mode, 5 km to 28 km		
ST to ST	LMC155A-ST	
SC to SC	LMC155A	
1300-nm Multimode to 1300-nm Single-Mode, 5 km to 58 km		
ST to ST	LMC155A-ST-LH	
SC to SC	LMC155A-LH	
1300-nm Multimode to 1550-nm Single-Mode, 5 km to 85 km		
SC to SC	LMC155A-XLH	
Fiber-to-Fiber Mode Converters for ATM OC-12 LX		
1300-nm Multimode to 1300-nm Single-Mode, 550 m to 5 km		
SC to SC	LMC622A	
1300-nm Multimode to 1300-nm Single-Mode, 550 m to 20 km		
SC to SC	LMC622A-LH	
1300-nm Multimode to 1550-nm Single-Mode, 550 m to 50 km		
SC to SC	LMC622A-LLH	

T1/E1 Copper to Fiber Line Drivers

- Extend T1/E1 over fiber.
- Convert coax and twisted pair to multimode or single-mode fiber.
- Feature a crossover switch on the RJ-45/RJ-48 port for easy connections to equipment.
- Equipped with dry relay contacts for connection to alarm equipment on Pins 3 and 6 of the RJ-45 connector.
- LEDs display the T1/E1 link status, diagnostic modes of operation, and line segment errors.
- Support AMI, B8ZS, and HDB3 line codes.



MT660A-MM

Item	Code	List Price
FlexPoint Line Drivers		
T1/E1 Copper to Fiber		
1310-nm Multimode, 5 km		
ST	MT660A-MM	
1310-nm Single-Mode, 28 km		
ST	MT661A-SM	



Use Wallmounting Hardware (LMC206-WALL) to mount individual FlexPoint Media Converters on virtually any surface.

Item	Code	List Price
You may also need accessories or replacement parts...		
FlexPoint 14-Slot Power Chassis		
Single Power Supply		
115-230 VAC	LMC200	
48-VDC	LMC200A-DC	
Dual Power Supply		
115-230 VAC	LMC200-2PS	
48-VDC	LMC200A-2PS-DC	
5-Position Rackmounting Kit	LMC205	
Wallmounting Hardware	LMC206-WALL	
Extra Power Supply for Power Chassis		
115-230 VAC	PSFP200	
48 VDC	PSFP20-DC	
DC Power Converter, 18-72 VDC, Standalone		
	LMC204A	
Wallmounting Kit for LMC204A	LMC206A-WALL-DC	
International Power Supply for All FlexPoint Models (9 V, 1.0 A)		
	LMC203A	

Dynamic Fiber Conversion System

- Many module choices—including 10/100/1000 Ethernet.
- Modules with VLAN tagging enable you to shut down remote connections to thwart hackers.
- Dynamic modular system grows with your network.
- Most modules have Network Equipment Building System (NEBS) Level 3 certification.
- Many modules are hot-swappable. For details, contact our FREE Tech Support.
- SNMP manageable or use without management.
- Many chassis options to fit any size network.
- 19- and 5-slot chassis available with single or redundant, hot-swappable AC or DC power supplies.
- ♦♦ **WARRANTY** — 4 Years

The Dynamic Fiber Conversion System is the battleship of media conversion systems. It's tough, extremely versatile, and manageable, making it perfect for a wide range of network demands. Our Tech Support team raves about it and consistently recommends it as its top choice for enterprise-level media conversion systems.

NEBs Level 3 certification.

The Dynamic Fiber Conversion System is built to last. It's NEBS Level 3 certified, meeting the stringent durability requirements for carrier-class applications. NEBS Level 3 certification guarantees that the equipment performs well in harsh environmental conditions and does not interfere with nearby electronic devices. To verify certification of individual modules, call our FREE Tech Support.

More interface choices.

This professional-grade system features an exceptional range of interface options: multimode fiber, single-mode fiber, single-strand fiber, 10/100/1000 Ethernet, Gigabit Ethernet, a 4-port switch module, and much, much more! The system is manageable and all modules are hot swappable (although there are special procedures for hot swapping DC power supplies).

Item	Code	List Price
Dynamic Fiber Conversion System		
19-Slot Power Chassis, Managed, Rackmount		
with (1) AC Power Supply	LMC3004A	
with (2) AC Power Supplies	LMC3005A	
with (1) -48-VDC Power Supply	LMC3007A	
with (2) -48-VDC Power Supplies	LMC3008A	
5-Slot Power Chassis, Managed, Rackmount		
with (1) AC Power Supply	LMC3010A	
with (2) AC Power Supplies	LMC3080A	
with (1) -48-VDC Power Supply	LMC3012A	
with (2) -48-VDC Power Supplies	LMC3081A	
2-Slot Power Chassis, Managed, for Desktop Use		
with (1) AC Power Supply	LMC3014A	
1-Slot Power Chassis, Unmanaged, for Desktop Use		
with (1) AC Power Supply	LMC3015A	
Blank Panels for Unused Slots	LMC3002A	
Wallmounting Kit for 1-or 2- Slot Chassis	LMC3017C	
Spare Power Supplies		
for 19-Slot Chassis (Holds up to Three Power Supplies)		
AC	LMC3006P	
DC	LMC3009P	
for 5-Slot Chassis (Holds up to Two Power Supplies)		
AC	LMC3011P	
DC	LMC3013P	

This tough system brings you



NEBS
Level 3

The 19-Slot Power Chassis (LMC3004A) shown with modules.

The system is ideally suited for fiber-based carrier, enterprise, and government networks. It's built to withstand harder use than most media conversion systems and offers a far wider choice of modules—including autosensing 10/100/1000 Ethernet and switches—than any other system. Plus, it's fully SNMP manageable. You aren't going to find a harder working, more versatile system anywhere!

Chassis

Choose from four different powered chassis with a choice of power supplies. All Power Chassis are constructed of rugged metal and are NEBS Level 3 tested and certified. All but the 1-Slot Power Chassis are SNMP manageable with the addition of the SNMP Management Module.

The **19-Slot Power Chassis** is available with single or dual AC or DC power supplies and holds up to three universal 110/230 AC or -48 VDC power supplies. When more than one power supply is installed, they provide both redundancy and load sharing. The 2U (3.5") chassis mounts in any standard 19" rack. A 23" rackmount kit is available by special request—for details, call our FREE Tech Support. Backplane speed is 100-Mbps half-duplex or 200-Mbps full-duplex, enabling two modules to share a broadcast domain.

Choose the **5-Slot Power Chassis** for smaller applications. It's only 1U (1.75") high and mounts in any standard 19" rack. The chassis is available with single or dual, AC or DC power supplies and holds up to two power supplies. Shared backplane speed is 100-Mbps half-duplex or 200-Mbps full-duplex, providing 1.0-Gbps total switching performance for five slots at 200 Mbps duplex each. Choose a **1-Slot or 2-Slot Power Chassis** for desktop use.

Item	Code	List Price
Dynamic Fiber Conversion System (Continued)		
SNMP Management Module	LMC3000A	
Management Software	LMC3003A	
SNMP Management Module Cascade Cable, 3-ft. (0.9-m)	LMC3001A	
UTP to Multimode Duplex Fiber Modules		
10BASE-T/10BASE-FL		
850-nm, 2 km		
ST®	LMC3018C-R2	
SC	LMC3021C-R2	
1310-nm, 5 km		
ST	LMC3019C-R2	
100BASE-TX to 100BASE-FX		
1310-nm, 5 km		
ST	LMC3023C	
SC	LMC3026C	
10BASE-T/100BASE-TX to 100BASE-FX		
1310-nm, 5 km		
ST	LMC3033C	
SC	LMC3036C	
1000BASE-T to 1000BASE-SX		
850-nm, 220 m/550 m		
SC	LMC3051C	
MT-RJ	LMC3054C	
10BASE-T/100BASE-TX/1000BASE-T to 1000BASE-SX		
850-nm, 220 m/ 550 m		
SC	LMC3058C	

serious conversion for serious networks.



The 5-Slot Power Chassis (LMC3010A) uses less rack space—only 1U—but still offers optional management and hot-swappable, redundant AC or DC power supplies.

The 1-Slot Power Chassis is unmanaged; you can use the SNMP Management Module with the 2-Slot Power Chassis. These chassis come with one fixed AC or DC power supply.

Management Module

The Dynamic Fiber Conversion System is completely SNMP manageable. Just install one **SNMP Management Module** in each chassis you wish to manage. You can manage the system with SNMP and Telnet™, in-band or out-of-band. Connect up to 16 SNMP Management Modules in different chassis by using **SNMP Management Module Cascade Cables** and manage them as a single IP address.

For software customized to the Dynamic Fiber Conversion System, order **Management Software**. It works as a standalone application in Windows® or you can integrate it with a management program such as HP® OpenView®. The software features an intuitive GUI that gives you real-time network status and control of your system. It monitors power, voltage, current, and temperature of the chassis and enables you to remotely and selectively monitor and configure the chassis, modules, and ports.

UTP-to-Fiber Modules

Extend your copper network over fiber optic cable. The Dynamic Fiber Conversion System offers both multimode and single-mode dual-fiber modules as well as single-mode, single-fiber modules with support for distances from 2 to 80 kilometers (1.2 to 49.7 mi.).

The 10-, 100-, and 1000-Mbps modules are Layer 1 media converters and devices. They don't monitor packet size, they're transparent to oversized packets such as 802.1Q, and they don't connect to the backplane.

Autosensing 10-/100-Mbps or 10-/100-/1000-Mbps modules (LMC3033C–LMC3042C, LMC3058C–LMC3063C) are Layer 2 media converters that can act on oversized packets. They pass packets up to 1536 bytes and accommodate VLANs.

UTP to Multimode Duplex Fiber Modules enable you to extend your network over a multimode fiber pair. Modules are available to support distances of up to 60 kilometers (37.2 mi.) or speeds of up to 1000 Mbps. There is even a module that supports autosensing 10-/100-/1000-Mbps Ethernet.

UTP to Single-Mode Duplex Fiber Modules enable you to extend your network over a single-mode fiber pair.

UTP to Single-Mode Single-Strand Fiber Modules extend your network over just one single-mode fiber strand, enabling you to get double the use from duplex fiber cable. These modules work by using different wavelengths to send and receive data.

Item	Code	List Price
Dynamic Fiber Conversion System (Continued)		
UTP to Single-Mode Duplex Fiber Modules		
10BASE-T/10BASE-FL, 1310-nm		
30 km, ST®	LMC3020C	
30 km, SC	LMC3022C	
100BASE-TX to 100BASE-FX, 1310-nm		
30 km, ST	LMC3024C	
30 km, SC	LMC3027C	
60 km, ST	LMC3025C	
60 km, SC	LMC3028C	
10BASE-T/100BASE-TX to 100BASE-FX, 1310-nm		
30 km, ST	LMC3034C	
30 km, SC	LMC3037C	
60 km, ST	LMC3035C	
60 km, SC	LMC3038C	
1000BASE-TX to 1000BASE-LX, 1310-nm		
12 km, SC	LMC3052C	
12 km, MT-RJ	LMC3055C	
34 km, SC	LMC3053C	
10BASE-T/100BASE-TX/1000BASE-T to 1000BASE-LX, 1310-nm		
12 km, SC	LMC3059C	
34 km, SC	LMC3060C	
10BASE-T/100BASE-TX/1000BASE-T to 1000BASE-LX, 1550-nm		
80 km, SC	LMC3061C	

Item	Code	List Price
Dynamic Fiber Conversion System (Continued)		
UTP to Single-Mode Single-Strand Fiber Modules		
100BASE-TX to 100BASE-FX		
20 km, SC (Order one of each.)		
1310-nm TX/1550-nm RX	LMC3029C	
1550-nm TX/1310-nm RX	LMC3031C	
40 km, SC (Order one of each.)		
1310-nm TX/1550-nm RX	LMC3030C	
1550-nm TX/1310-nm RX	LMC3032C	
10BASE-T/100BASE-TX to 100BASE-FX		
20 km, SC (Order one of each.)		
1310-nm TX/1550-nm RX	LMC3039C	
1550-nm TX/1310-nm RX	LMC3041C	
40 km, SC (Order one of each.)		
1310-nm TX/1550-nm RX	LMC3040C	
1550-nm TX/1310-nm RX	LMC3042C	
1000BASE-TX to 1000BASE-LX		
20 km, SC (Order one of each.)		
1310-nm TX/1550-nm RX	LMC3056C	
1550-nm TX/1310-nm RX	LMC3057C	
10BASE-T/100BASE-TX/1000BASE-T to 1000BASE-LX		
20 km, SC (Order one of each.)		
1310-nm TX/1550-nm RX	LMC3062C	
1550-nm TX/1310-nm RX	LMC3063C	

More system options, turn the page. 

NEBS
Level 3



2-Slot Power Chassis (LMC3014A) shown with LMC3029C (top) and LMC3058C (bottom)



LMC3037C

Mode Converters

Mode converters interconnect multimode and single-mode fiber optic cable, enabling you to extend your multimode fiber network over long distances with single-mode fiber optic cable.

The **100BASE-FX Multimode Duplex to 100BASE-FX Single-Mode Duplex** modules enable you to extend your multimode fiber runs up to 120 kilometers (74.5 mi.) over single-mode cable. The **Gigabit 1000BASE-SX Multimode Duplex to 1000BASE-LX Single-Mode Duplex** modules support distances of up to 80 kilometers (49.7 mi.). The **1000BASE-X Multimode Duplex to 1000BASE-X Single-Mode Single-Strand** media converter modules enable you to seamlessly connect multimode duplex fiber to a single strand of single-mode fiber.

Mode converter modules have Link Fault Detection (Link Propagation) for remote troubleshooting. All are Layer 1 media converters and do not connect to the backplane.

Redundant Modules

Redundant Modules provide redundant link operation for networks that require copper or fiber link redundancy. These modules provide the hot backup you need for your critical connections, switching to the redundant link within 100 microseconds if the primary link goes down.

All ports support full- or half-duplex operation; UTP ports autonegotiate duplex, and fiber ports can be set manually. All UTP ports support MDI/MDI-X, eliminating the need for crossover cables. All ports support LinkLoss™ Carry Forward (Link Propagation).

Redundant modules do not connect to the backplane and must be deployed in pairs.

Switch Module

The switch module (LMC3050C) is not a media converter, but it works with the Dynamic Fiber Conversion System. Use it to add four switched autosensing 10/100BASE-T ports wherever you need them.

The switch module is autosensing for both speed and duplex with hardware control available for two ports and software control available for all four ports.

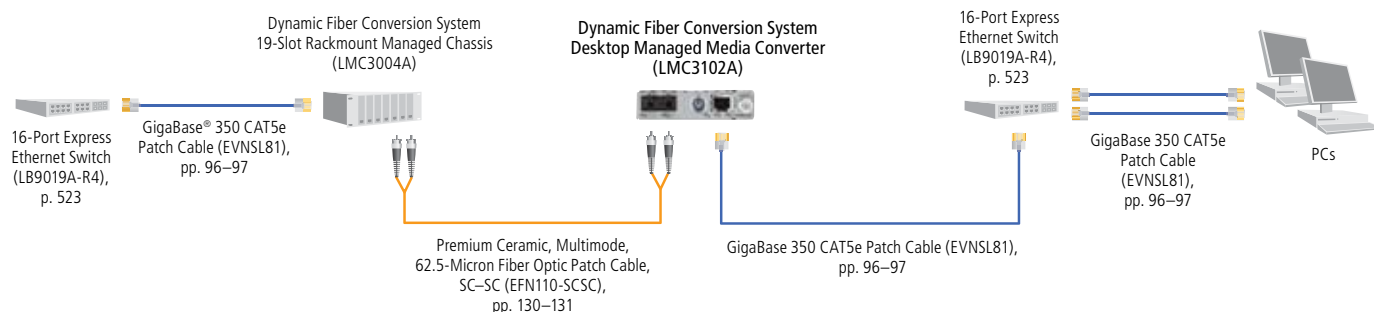
Because the switch module supports MDI/MDI-X crossover, you never need to worry about having a crossover cable. Port 1 has a manual crossover switch; Ports 2, 3, and 4 feature automatic crossover detection.

The switch module can pass through oversized packets up to a maximum of 1536 bytes, easily accommodating normal VLAN packets (1522 bytes) as well as extended VLAN packets. It also supports MIB-Stats and per-port VLANs. Nine status LEDs enable you to view switch status at a glance.

Item	Code	List Price
Dynamic Fiber Conversion System (Continued)		
Mode Converters		
100BASE-FX Multimode Duplex to 100BASE-FX Single-Mode Duplex		
1310-nm/1310-nm, Multimode, 5 km/Single-Mode		
30 km, ST	LMC3064C	
30 km, SC	LMC3066C	
60 km, ST	LMC3065C	
60 km, SC	LMC3067C	
1310-nm/1550-nm, Multimode, 5 km/Single-Mode		
120 km, SC	LMC3068C	
1000BASE-SX Multimode Duplex to 1000BASE-LX Single-Mode Duplex		
850-nm/1310-nm, Multimode, 220/550 m/Single-Mode		
12 km, SC	LMC3069C	
34 km, SC	LMC3070C	
1000BASE-X Multimode Duplex to 1000BASE-X Single-Mode		
Single-Strand, Multimode, 220/550 m/Single-Mode		
20 km, SC (Order one of each.)		
1310-nm TX/1550-nm RX	LMC3072C	
1550-nm TX/1310-nm RX	LMC3073C	
Redundant Modules		
UTP to Dual UTP		
(1) 100BASE-TX to (2) 10BASE-T/100BASE-TX		
100 m, RJ-45	LMC3043C	

Item	Code	List Price
Dynamic Fiber Conversion System (Continued)		
Redundant Modules (Continued)		
UTP to Dual Multimode Duplex		
(1) 100BASE-TX to (2) 100BASE-FX, 1310-nm		
5 km, ST	LMC3044C	
5 km, SC	LMC3047C	
UTP to Dual Single-Mode Duplex		
(1) 100BASE-TX to (2) 100BASE-FX, 1310-nm		
30 km, ST	LMC3045C	
30 km, SC	LMC3048C	
60 km, ST	LMC3046C	
60 km, SC	LMC3049C	
Switch Module		
4-Port 10/100 Ethernet Switch		
RJ-45	LMC3050C	
ATM OC3 Modules, Multimode Duplex to Single-Mode Duplex Fiber		
1310-nm/1310-nm		
5 km/30 km, ST	LMC3074C	
5 km/30 km, SC	LMC3075C	
T1/E1 Copper to 1310-nm Multimode Duplex Fiber		
5 km, ST	LMC3076C	
5 km, SC	LMC3078C	
30 km, ST	LMC3077C	
30 km, SC	LMC3079C	

⏪ For more system options, turn the page.



ATM OC3 Modules

ATM OC3 modules are mode converters that support OC3 over ATM or SONET. They enable you to convert legacy ATM fiber runs from duplex multimode to duplex single-mode fiber optic cable, adding up to 30 kilometers (18.6 mi.) of distance to your OC3 network.

T1/E1 Modules

T1/E1 modules convert copper T1 lines with RJ-48 connectors to single-mode or multimode fiber for long-range transmission. These extenders provide electrical protection and isolation, increasing network reliability.

Test modes include Local Loopback, Force 1s to Copper, Force 1s to Fiber, and Fiber Test. The modules support B8ZS and AMI modes. The B8ZS mode is the default mode; when both Local Loopback and Fiber Test functions are enabled, the module is forced into AMI mode. A DCE/DTE switch eliminates the need for crossover cable when connecting to devices such as PBXs and CSUs.

UTP to Coax Module

This module provides quick and simple 10BASE-T UTP to 10BASE2 coax conversion.

VLAN Tagging Modules

This family of modules provides an additional layer of network security by enabling you to use management software to shut down remote connections. Because these modules enable you to override physical DIP switch settings for the backplane port, you can easily disable the fiber link when your remote office is shut down or taken over by intruders.

VLAN Tagging modules support IEEE 802.1Q Tag/VLAN packet tagging and untagging, including double tagging (1Q1Q double stacking), enabling you to tunnel VLAN networks with up to 64 tags transparently throughout your enterprise network and providing excellent control of traffic flow between the module's fiber, UTP, and backplane ports.

Desktop Managed Media Converters

For a remote media converter that's also fully managed, choose a Desktop Managed Media Converter. These compact standalone media converters are completely compatible with modules from our Dynamic Fiber Conversion System (as noted in the price block below).

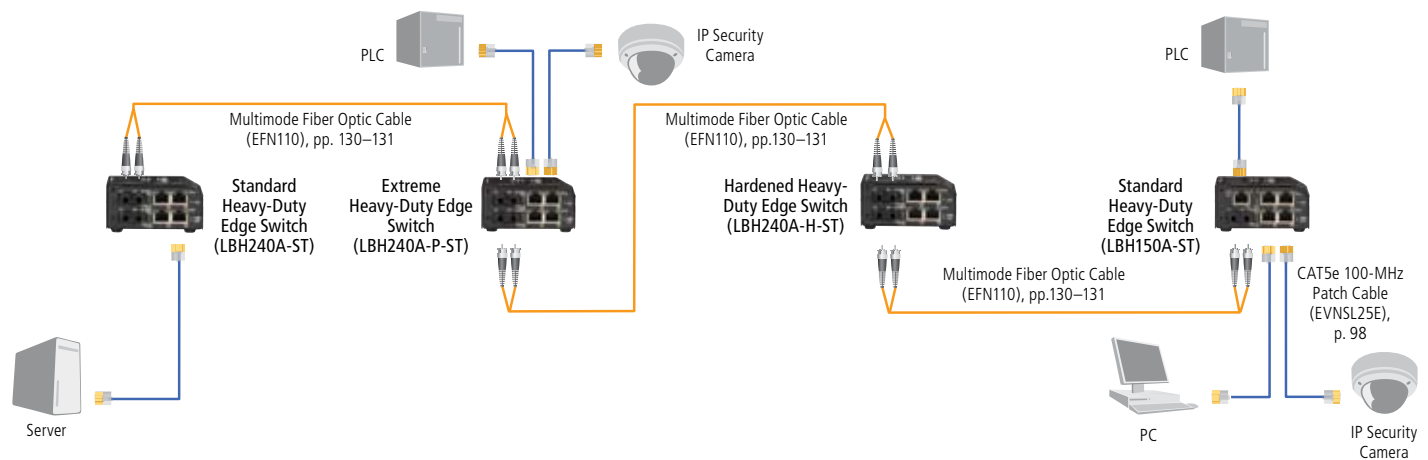
The Dynamic Fiber Conversion System is also compatible with many more managed and unmanaged standalone media converters. To find the best match, call our FREE Tech Support.

Item	Code	List Price
Dynamic Fiber Conversion System (Continued)		
UTP to Coax Module		
10BASE-T to 10BASE2	LMC3083C	
10BASE-T/100BASE-TX to 100BASE-FX Modules with VLAN Tagging		
1310-nm, Multimode		
5 km, ST	LMC3084C	
5 km, SC	LMC3087C	
5 km, MT-RJ	LMC3091C	
1310-nm, Single-Mode		
30 km, ST	LMC3085C	
30 km, SC	LMC3088C	
30 km, MT-RJ	LMC3092C	
30 km, LC	LMC3093C	
1550-nm, Single-Mode		
60 km, ST	LMC3086C	
60 km, SC	LMC3089C	
60 km, LC	LMC3094C	
1550-nm, Single-Mode		
120 km, SC	LMC3090C	
120 km, LC	LMC3095C	

Item	Code	List Price
Dynamic Fiber Conversion System (Continued)		
For remote units order...		
Desktop Managed Media Converters		
10BASE-T/100BASE-TX to 100BASE-FX, 1310 nm, Multimode, 5 km		
ST (Compatible with LMC3033C on p. 564.)	LMC3100A	
SC (Compatible with LMC3036C on p. 564.)	LMC3102A	
10BASE-T/100BASE-TX to 100BASE-FX, 1310 nm, Single-Mode, 30 km		
ST (Compatible with LMC3034C on p. 565.)	LMC3101A	
SC (Compatible with LMC3037C on p. 565.)	LMC3103A	

Heavy-Duty Edge Switches

Rough, tough switches for the wild



- Choose from versions for office, industrial, or outdoor environments.
- Feature six ports to expand your network.
- Variety of port types and power options available.
- RJ-45 ports support autonegotiation, so you can easily attach any 10- or 100-Mbps device.
- Two sets of LEDs enable you to see status information from the front, top, or side.
- Panel or DIN-rail mount.
- Support VLAN tagging and Spanning Tree passthrough.
- Convection cooled, sealed against dust and dirt.
- **◆◆ WARRANTY** — 3 Years

Mix and match standard, hardened, and extreme Heavy-Duty Edge Switches in one installation.

Unlike the Ethernet switches in your wiring closet or computer center, the Ethernet switches at the edges of your network have to put up with the bumps, the dirt, the dampness, and the temperature fluctuations that happen out in the real world. This is where Heavy-Duty Edge Switches from Black Box come in.

These tough, 6-port Ethernet switches enable you to expand your network even into such harsh areas as factory floors or the outdoors. They're robust, they're easy to set up, and they're available with a vast array of interface, power, and durability options. They're everything you're looking for in an industrial edge switch!

Built tough.

All Heavy-Duty Edge Switches come in a sturdy steel case that withstands heavy use. Plus, they're available in three versions to adapt to nearly any environment. Because all three types work together seamlessly, you can use inexpensive Standard Heavy-Duty Edge Switches in protected office environments and choose the more robust Hardened or Extreme Heavy-Duty Edge Switches for harsh locations at your network's edge.

Standard Edge Switches

- For use in clean, temperature-controlled environments such as offices and wiring closets.
- Feature the same heavyweight metal case as our more robust models.

Hardened Edge Switches

- For use in dusty or dirty environments—ideal for demanding industrial applications.
- Rated for a temperature range of -13 to +140° F (-25 to +60° C).
- The metal case functions as a heat sink.
- Resist dust, dirt, moisture, smoke, and insects.

Extreme Edge Switches

- Robust units for outdoor use only require protection from direct rainfall or standing water.
- Ideal for traffic-signal control or for outdoor sensors or cameras.
- Rated for above-the-ceiling plenum installation.
- Rated for an extreme temperature range of -40 to +167° F (-40 to +75° C).
- Sealed case uses its own metal shell as a heat sink.

Multiple power options.

- Standard models come with AC power adapters only, in a choice of 115 or 240 VAC.
- AC-powered Hardened and Extreme Switches feature robust 100- to 240-VAC power supplies.
- DC-powered Hardened and Extreme units have internal screw terminals for DC power in addition to an AC power jack. Because these models have dual power connections, you can easily bench test or provide redundant power input.

Run the distance in harsh environments!

Multimode models support up to 2 kilometers (1.2 mi.) between switches. For longer distances, choose single-mode models for up to 20 kilometers (12.4 mi.) or single-mode, long-distance models for an incredible 40 kilometers (24.8 mi.) between links!

You can daisy-chain Heavy-Duty Edge Switches together indefinitely, making them ideal for applications such as wind farms and traffic signals where many switches are needed over a long distance.

frontiers of your network!

Easy to set up.

Heavy-Duty Edge Switches are literally plug-and-play. All copper ports are autosensing for speed and duplex, adjusting to the connected device automatically. Plus, the UTP ports feature Auto MDI/MDI-X, eliminating the need for crossover cables.

Each switch has two full sets of LED indicators: one set on the front for viewing convenience when the switch is DIN rail or wallmounted, and one set mounted in the end next to the media ports for easy viewing when units are in a rackmount tray.

Heavy-Duty Edge Switches feature nonblocking switching architecture with a 2K MAC address table. The 128K buffer memory makes it easy to interconnect 10- and 100-Mbps devices.

Fast, redundant backup.

These switches feature Link-Loss-Learn (LLL) for fast network recovery in redundant applications. In configurations with primary and backup links, the network can take a few minutes to recover after the primary link goes down, using its old MAC address table to try to send data to the disabled port. With LLL, the switch senses the disconnect and instantly clears its MAC address table, forcing a new one that includes the new link. LLL works on both copper and fiber ports.

Don't see it? Just ask.

If you require a port combination, power source, PoE, or mounting option not listed, call our FREE Tech Support.

TECH SPECS

Approvals — UL® Listed (UL60950), CE
Altitude — -200 to 50,000 ft. (-60.9 to 15,240 m)

Distance (Maximum) — Multimode models: 2 km (1.2 mi.);
 Single-mode SC models: 20 km (12.4 mi.);
 Single-mode LC models: 15 km (9.3 mi.);
 Single-mode, long-distance SC models: 40 km (24.8 mi.)

Enclosure — Metal

Humidity — 5–95%, noncondensing
Standards — IEEE 802.3, IEEE 802.3u, IEEE 802.1p/q

Temperature Rating —

All models:
 Storage: -40 to +185° F (-40 to +85° C);
 Standard models:
 Operating: 32 to 104° F (0 to 40° C);

Hardened models:

Long-term operating:
 -13 to +140° F (-25 to +60° C);
 Short-term operating:
 -40 to +185° F (-40 to 85° C);
 Cold start to -4° F (-20° C);

Extreme models:

Long-term operating:
 -40 to +167° F (-40 to +75° C);
 Short-term operating:
 -58 to +212° F (-50 to +100° C);
 Cold start to -40° F (-40° C)

Indicators — LEDs:

Per Unit: (2) Power;
 Per Port: (2) LK/ACT, (2) F/H;
 Per Copper Port: (2) 10/100

Size — 3.6"H x 3"W x 1.7"D (9.2 x 7.6 x 4.3 cm)

Weight — Switches: 0.8 lb. (0.4 kg);
 Standard and Hardened Power Supplies: 0.4 lb. (0.2 kg);
 Extreme Power Supplies: 0.5 lb. (0.2 kg)



LBH600A



LBH240A-H-SC



LBH150A-P-SC

Buyer's Guide | 10-/100-Mbps Heavy-Duty Edge Switches, Standard: +32 to +104° F (0 to +40° C)

		(6) 10-/100-Mbps Copper					
115 VAC, 60 Hz		LBH600A					
230 VAC, 50 Hz w/IEC Power Connector		LBH600AE					
		(5) 10-/100 Mbps Copper and (1) 100-Mbps Multimode Fiber			(5) 10-/100-Mbps Copper and (1) 100-Mbps Single-Mode Fiber		
		SC	ST	MT-RJ	SC	LC	Long-Distance/SC
115 VAC, 60 Hz		LBH150A-SC	LBH150A-ST	LBH150A-MT	LBH150A-SSC	LBH150A-SLC	LBH150A-SSCL
230 VAC, 50 Hz w/IEC Power Connector		LBH150AE-SC	LBH150AE-ST	LBH150AE-MT	LBH150AE-SSC	LBH150AE-SLC	LBH150AE-SSCL
		(4) 10-/100 Mbps Copper and (2) 100-Mbps Multimode Fiber			(4) 10-/100-Mbps Copper and (2) 100-Mbps Single-Mode Fiber		
		SC	ST	MT-RJ	SC	LC	Long-Distance/SC
115 VAC, 60 Hz		LBH240A-SC	LBH240A-ST	LBH240A-MT	LBH240A-SSC	LBH150A-SLC	LBH150A-SSCL
230 VAC, 50 Hz w/IEC Power Connector		LBH240AE-SC	LBH240AE-ST	LBH240AE-MT	LBH240AE-SSC	LBH240AE-SLC	LBH240AE-SSCL

For more Heavy-Duty Edge Switches, turn the page. 

◀ For details on Heavy-Duty Edge Switches, turn the page.



DIN-RAIL MC2: rear view



DIN-RAIL MC2: front view



The DIN Rail Mounting Bracket (DIN-RAIL MC2) is a sturdy metal mounting clip for DIN-rail use.

10-/100-Mbps Heavy-Duty Edge Switches, Hardened: -13 to +140° F (-25 to +60° C)

	(6) 10-/100-Mbps Copper					
115 VAC, 60 Hz	LBH600A-H					
230 VAC, 50 Hz w/IEC Power Connector	LBH600AE-H					
12 VDC	LBH600A-H-12					
24 VDC	LBH600A-H-24					
24 VDC, DIN Rail	LBH600A-HD-24					
48 VDC	LBH600A-H-48					
	(5) 10-/100-Mbps Copper and (1) 100-Mbps Multimode Fiber			(5) 10-/100-Mbps Copper and (1) 100-Mbps Single-Mode Fiber		
	SC	ST [®]	MT-RJ	SC	LC	Long-Distance/SC
100–240 VAC, 47–63 Hz	LBH150A-H-SC	LBH150A-H-ST	LBH150A-H-MT	LBH150A-H-SSC	LBH150A-H-SLC	LBH150A-H-SSCL
100–240 VAC, 47–63 Hz w/IEC Power Connector	LBH150AE-H-SC	LBH150AE-H-ST	LBH150AE-H-MT	LBH150AE-H-SSC	LBH150AE-H-SLC	LBH150AE-H-SSCL
12 VDC	LBH150A-H-SC-12	LBH150A-H-ST-12	LBH150A-H-MT-12	LBH150A-H-SSC-12	LBH150A-H-SLC-12	LBH150A-H-SSCL-12
24 VDC	LBH150A-H-SC-24	LBH150A-H-ST-24	LBH150A-H-MT-24	LBH150A-H-SSC-24	LBH150A-H-SLC-24	LBH150A-H-SSCL-24
24 VDC, DIN Rail	LBH150A-HD-SC-24	LBH150A-HD-ST-24	LBH150A-HD-MT-24	LBH150A-HD-SSC-24	LBH150A-HD-SLC-24	LBH150A-HD-SSCL-24
48 VDC	LBH150A-H-SC-48	LBH150A-H-ST-48	LBH150A-H-MT-48	LBH150A-H-SSC-48	LBH150A-H-SLC-48	LBH150A-H-SSCL-48
	(4) 10-/100-Mbps Copper and (2) 100-Mbps Multimode Fiber			(4) 10-/100-Mbps Copper and (2) 100-Mbps Single-Mode Fiber		
	SC	ST	MT-RJ	SC	LC	Long-Distance/SC
100–240 VAC, 47–63 Hz	LBH240A-H-SC	LBH240A-H-ST	LBH240A-H-MT	LBH240A-H-SSC	LBH240A-H-SLC	LBH240A-H-SSCL
100–240 VAC, 47–63 Hz w/IEC Power Connector	LBH240AE-H-SC	LBH240AE-H-ST	LBH240AE-H-MT	LBH240AE-H-SSC	LBH240AE-H-SLC	LBH240AE-H-SSCL
12 VDC	LBH240A-H-SC-12	LBH240A-H-ST-12	LBH240A-H-MT-12	LBH240A-H-SSC-12	LBH240A-H-SLC-12	LBH240A-H-SSCL-12
24 VDC	LBH240A-H-SC-24	LBH240A-H-ST-24	LBH240A-H-MT-24	LBH240A-H-SSC-24	LBH240A-H-SLC-24	LBH240A-H-SSCL-24
24 VDC, DIN Rail	LBH240A-HD-SC-24	LBH240A-HD-ST-24	LBH240A-HD-MT-24	LBH240A-HD-SSC-24	LBH240A-HD-SLC-24	LBH240A-HD-SSCL-24
48 VDC	LBH240A-H-SC-48	LBH240A-H-ST-48	LBH240A-H-MT-48	LBH240A-H-SSC-48	LBH240A-H-SLC-48	LBH240A-H-SSCL-48

10-/100-Mbps Heavy-Duty Edge Switches, Hardened: -13 to +140° F (-25 to +60° C)

	(6) 10-/100-Mbps Copper					
115 VAC, 60 Hz	LBH600A-P					
230 VAC, 50 Hz w/IEC Power Connector	LBH600AE-P					
12 VDC	LBH600A-P-12					
24 VDC	LBH600A-P-24					
24 VDC, DIN Rail	LBH600A-PD-24					
48 VDC	LBH600A-P-48					
	(5) 10-/100-Mbps Copper and (1) 100-Mbps Multimode Fiber			(5) 10-/100-Mbps Copper and (1) 100-Mbps Single-Mode Fiber		
	SC	ST®	MT-RJ	SC	LC	Long-Distance/SC
100–240 VAC, 47–63 Hz	LBH150A-P-SC	LBH150A-P-ST	LBH150A-P-MT	LBH150A-P-SSC	LBH150A-P-SLC	LBH150A-P-SSCL
100–240 VAC, 47–63 Hz w/IEC Power Connector	LBH150AE-P-SC	LBH150AE-P-ST	LBH150AE-P-MT	LBH150AE-P-SSC	LBH150AE-P-SLC	LBH150AE-P-SSCL
12 VDC	LBH150A-P-SC-12	LBH150A-P-ST-12	LBH150A-P-MT-12	LBH150A-P-SSC-12	LBH150A-P-SLC-12	LBH150A-P-SSCL-12
24 VDC	LBH150A-P-SC-24	LBH150A-P-ST-24	LBH150A-P-MT-24	LBH150A-P-SSC-24	LBH150A-P-SLC-24	LBH150A-P-SSCL-24
24 VDC, DIN Rail	LBH150A-PD-SC-24	LBH150A-PD-ST-24	LBH150A-PD-MT-24	LBH150A-PD-SSC-24	LBH150A-PD-SLC-24	LBH150A-PD-SSCL-24
48 VDC	LBH150A-P-SC-48	LBH150A-P-ST-48	LBH150A-P-MT-48	LBH150A-P-SSC-48	LBH150A-P-SLC-48	LBH150A-P-SSCL-48
	(4) 10-/100-Mbps Copper and (2) 100-Mbps Multimode Fiber			(4) 10-/100-Mbps Copper and (2) 100-Mbps Single-Mode Fiber		
	SC	ST	MT-RJ	SC	LC	Long-Distance/SC
100–240 VAC, 47–63 Hz	LBH240A-P-SC	LBH240A-P-ST	LBH240A-P-MT	LBH240A-P-SSC	LBH240A-P-SLC	LBH240A-P-SSCL
100–240 VAC, 47–63 Hz w/IEC Power Connector	LBH240AE-P-SC	LBH240AE-P-ST	LBH240AE-P-MT	LBH240AE-P-SSC	LBH240AE-P-SLC	LBH240AE-P-SSCL
12 VDC	LBH240A-P-SC-12	LBH240A-P-ST-12	LBH240A-P-MT-12	LBH240A-P-SSC-12	LBH240A-P-SLC-12	LBH240A-P-SSCL-12
24 VDC	LBH240A-P-SC-24	LBH240A-P-ST-24	LBH240A-P-MT-24	LBH240A-P-SSC-24	LBH240A-P-SLC-24	LBH240A-P-SSCL-24
24 VDC, DIN Rail	LBH240A-PD-SC-24	LBH240A-PD-ST-24	LBH240A-PD-MT-24	LBH240A-PD-SSC-24	LBH240A-PD-SLC-24	LBH240A-PD-SSCL-24
48 VDC	LBH240A-P-SC-48	LBH240A-P-ST-48	LBH240A-P-MT-48	LBH240A-P-SSC-48	LBH240A-P-SLC-48	LBH240A-P-SSCL-48

Item	Code	List Price	Item	Code	List Price
For spare power supplies, order...			For rackmounting, order...		
AC Power Supplies for Heavy-Duty Edge Switches			Rackmount Tray with No Power Supply (Holds up to 8 Switches)	LE1505-RACK	
Standard			Rackmount Tray with (1) 9-V Power Supply (Powers up to 3 Switches)	LH1505P-RACK	
115 VAC	LBH100A-115-VAC		Rackmount Tray with (2) 9-V Power Supplies (Powers up to 6 Switches)	LH1505P-RACK-2-9-V	
240 VAC	LBH100AE-240-VAC		To supply redundant power to both the AC power jack and the DC screw terminal on 24-VDC models only, order...		
Hardened			Dual-Source Cable Kit	LH1505-CK	
100–240 VAC	LBH100A-H-PS		For DIN rail mounting, order...		
100–240 VAC with IEC Connector	LBH100AE-H-PS		DIN Rail Mounting Bracket	DIN-RAIL MC2	
Extreme			<i>NOTE: Panel-mounting brackets are included.</i>		
100–240 VAC	LBH100A-P-PS				
100–240 VAC with IEC Connector	LBH100AE-P-PS				

NOTE: AC-powered models come complete with an AC power supply. Order a separate AC power supply to provide backup power to DC-powered Heavy Duty Edge Switches.

Hardened Mini Industrial Switches and Media Converters

Tough DIN rail-mountable devices for switching 10/100 copper or copper-to-fiber traffic.



LBH120A-H-SC



LMC270A-MM-SC

- Inexpensive, unmanaged devices easily integrate your legacy 10-Mbps networks with 100-Mbps networks in harsh environments—without taking up much-needed space.
- Copper/fiber switches extend much farther than copper-only switches.
- Switches available in a 5-port 10BASE-T/100BASE-TX copper-only version and 5-port (4-to-1) 10BASE-T/100BASE-TX plus 100BASE-FX versions.
- For 1-to-1 copper-to-fiber media conversion, order the 2-port 10BASE-T/100BASE-TX to 100BASE-FX media converters.
- All switches and media converters feature an industrial-strength plastic case and comply with IEC 61000-Part 6-2 Generic standards for electromagnetic compatibility (EMC) in industrial environments.
- Offer full wire-speed forwarding rates across the network.
- Fiber models offer interference-free connections plus extended distances.
- Auto MDI/MDI-X copper ports autonegotiate for 10-/100-Mbps speed and autodetect full- or half-duplex mode.
- Support 2048 MAC addresses and feature a 384 kb buffer memory.
- Can be installed easily on a DIN rail. Mounting kit is included.
- **◆◆ WARRANTY** — 1 Year

TECH SPECS

Enclosure — Plastic case, IP30 rated
Filtering/Forwarding Rate —
 Ethernet: 14,880 pps;
 Fast Ethernet: 148,800 pps
MAC Addresses — 2K
Operating Temperature —
 +14 to +140° F (-10 to +60° C)
Packet Buffer — 384 kb
Switching Processing Type — Store
 and forward with half-duplex back
 pressure and IEEE 802.3x full-duplex
 flow control
CE Approval — Yes

Connectors — Ethernet/Fast Ethernet:
 (1), (4), or (5) RJ-45;
 Fiber optic: (1) pair of SC or ST®
Power — Input: 12–48 VDC
 (terminal block);
 Output: Per optional DC or AC power
 supply ordered
Size — 4.3"H x 1"W x 2.8"D
 (10.9 x 2.5 x 7.1 cm)
Weight — 0.5 lb. (0.2 kg)

Item	Code	List Price
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Hardened Mini Industrial Switches		
5-Port		
(5) 10-/100-Mbps Copper	LBH120A-H	
5-Port (4-to-1)		
(4) 10-/100-Mbps Copper + (1) 100-Mbps Fiber		
Multimode SC 20 km	LBH120A-H-SC	
ST 20 km	LBH120A-H-ST	
Single-Mode SC 20 km	LBH120A-H-20K-SC	
40 km	LBH120A-H-40K-SC	
75 km	LBH120A-H-75K-SC	
ST 20 km	LBH120A-H-20K-ST	

Hardened Mini Industrial Media Converters		
2-Port (1-to-1)		
(1) 10-/100-Mbps Copper to (1) 100-Mbps Fiber		
Multimode SC 20 km	LMC270A-MM-SC	
ST 20 km	LMC270A-MM-ST	
Single-Mode SC 20 km	LMC270A-SM-20K-SC	
40 km	LMC270A-SM-40K-SC	
75 km	LMC270A-SM-75K-SC	
ST 20 km	LMC270A-SM-20K-ST	

For your switch or media converter, choose a DIN rail-mountable DC power supply or an AC power adapter...

DIN Mount Power Supply	24-VDC	PSD012
	48-VDC	PSD014
External 100–240-VAC Power Adapter		
12-VDC Output Jack	U.S. Cord	PS002A
	No Cord	PS002
12-VDC Stripped Ends Output	U.S. Cord	PS003A
	No Cord	PS003

4-Port Power over Ethernet Switch

Connect PoE devices at the edge of your network—even outdoors!

- This compact switch works as Power Source Equipment (PSE) that provides power across UTP cable to up to four attached PoE devices.
- Designed for use in industrial and sheltered outdoor environments.
- Connect wireless access points, ID badge readers, security cameras, sensors, and other PoE equipment at the edge of your 10BASE-T or 100BASE-TX network.
- Heavy-duty metal case is designed to keep out dust, dirt, moisture, smoke, and insects.
- RJ-45 ports support autonegotiation.
- Power supply is not included. The switch requires 48-VDC, 1.5-amp power on the integral terminal block to provide power for PoE devices or -12-VDC, 0.35-amp power to the barrel connector for non-PoE applications. Power consumption total is 66 watts maximum.
- **◆◆ WARRANTY** — 3 Years



Item	Code	List Price
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4-Port Power over Ethernet Switch	LP004A	
For rackmounting, order...		
Rackmount Tray	LE1505-RACK	
Powered Rackmount Tray	LH1505P-RACK	
For DIN rail mounting, order...		
DIN Rail Mounting Bracket	DIN-RAIL MC2	

Managed Field Switches

A heavy-duty switch ready to customize with fiber and copper 10/100 and Gigabit ports.



LE2325A-48VDC



LE2325A-48VDC: rear view



- Ideal for industrial networking applications in harsh environments.
- Advanced thermal chassis works as a heat sink and features a ribbed surface for heat dissipation.
- IP53-rated environmental protection. Also meets IEC 61850 and IEEE 1613 Environmental Standard for Electric Power Substations.
- Great for building a switched, hardened Ethernet infrastructure to connect edge devices, such as PLCs and IEDs with upstream switches or routers.
- Has four 10/100 copper ports in Slot A. For three other slots, choose from a number of copper and fiber modules (for a maximum of 16 total ports).
- Mixed-media modular capability makes it ideal for industrial applications where you need to accommodate existing Ethernet cabling and integrate interference-free fiber cabling into your LAN structure.
- Power over Ethernet (PoE) options available for 802.3af powered devices.
- Non-blocking, wire-speed filtering and forwarding across all ports.
- Handles stressful workloads, including a mix of bursty data traffic and priority streaming traffic.
- Features 802.3x flow control, 802.1p priority packet processing, a self-learning 4K-node address table, and large packet buffers.
- Comes with mounting brackets and full-featured management software.
- Supports SNMP management plus safe, secure browser-based access, and RADIUS and TACACS+ access protocols.
- Software GUI makes it easy to set up 802.1p QoS prioritization, tag-based VLANs, as well as IGMP snooping, IGMP-L2 multicast management, and port security.
- Alarm Relay contacts enable monitoring through traps. Use software to record any losses of power signals and other user-defined events.
- Autonegotiating and auto-crossover (MDI-X) on all copper 10/100 ports. Operate at 10- or 100-Mbps speeds in full- or half-duplex.
- Monitor via two status LEDs sets, one on the port side; one on the front.
- **◆◆ WARRANTY** — 3 Years

TECH SPECS

Enclosure — High-strength extruded aluminum

Filtering/Forwarding Rate — Ethernet: 14,880 pps; Fast Ethernet: 148,800 pps; Gigabit Ethernet (optional): 1,488,000 pps

MAC Addresses — 4K

Operating Temperature — UL® 60950/component parts rating: -40 to +140° F (-40 to +60° C); IEC 60068 Type Test short term rating: -60 to +195° F (-50 to +85° C)

Packet Buffer — 240 KB for 10-/100-Mbps (120 KB for optional 1000 Mbps)

Switching Processing Type — Store and forward with IEEE 802.3x full-duplex flow control, non-blocking

CE Approval — Yes

Connectors — Ethernet/Fast Ethernet: LE2325A-POE48VDC: (4) RJ-45 PoE; Other switch chassis: (4) RJ-45; Management console: (1) DB15 (serial), (1) RJ-45; Alarm contacts: (1) NC indicating internal power, (1) NC software controllable

Power — Input: 12 VDC, 24 VDC, -48 VDC, 125 VDC, or 250 VDC, internal, on standard terminal block (-, GND, +)

Size — 6.9"H x 7.5"W x 2"D (17.5 x 19.1 x 5.1 cm)

Weight — 3 lb. (1.4 kg)

Item	Code	List Price
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First, choose a chassis, which has (4) fixed RJ-45 ports in its Slot A...

Step 1	Managed Field Switches with (4) 10-/100-Mbps Copper Ports	
	24-VDC Power Input	LE2325A-24VDC
	-48-VDC Power Input	LE2325A-48VDC
	125-VDC Power Input	LE2325A-125VDC
	250-VDC Power Input	LE2325A-250VDC
	Managed Field Switch with (4) 10-/100-Mbps Copper PoE Ports	
	-48-VDC Power Input	LE2325A-POE48VDC

...then, for Slot B, choose a switch port module...

Step 2	Managed Field Switch Port Modules	
	(4) 10-/100-Mbps Copper	LE2326C
	(2) 10-/100-Mbps Copper, (2) 100-Mbps Multimode Fiber MT-RJ, 2 km	LE2327C
	(2) 10-/100-Mbps Copper, (2) 100-Mbps Multimode Fiber LC, 2 km	LE2328C
	(2) 10-/100-Mbps Copper, (2) 100-Mbps Single-Mode Fiber LC, 15 km	LE2329C
	(2) 10-/100-Mbps Copper, (1) 100-Mbps Multimode Fiber SC, 2 km	LE2330C
	(2) 10-Mbps Multimode Fiber ST®, 2 km	LE2331C
	(2) 100-Mbps Multimode Fiber ST, 2 km	LE2332C
	(2) 100-Mbps Multimode Fiber SC, 2 km	LE2333C
	(2) 100-Mbps Single-Mode Fiber SC, 20 km	LE2334C
	(2) 100-Mbps Single-Mode Fiber SC, 40 km	LE2335C
	(4) 100-Mbps Multimode Fiber MT-RJ, 2 km	LE2336C
	(4) 100-Mbps Multimode Fiber LC, 2 km	LE2337C
	(4) 100-Mbps Multimode Fiber LC, 15 km	LE2338C
	(4) 10-/100-Mbps Copper PoE (for LE2325A-POE48VDC Only)	LE2339C

...next, order a module for Slot C...

Step 3	Managed Field Switch Fiber Port Modules, 100-Mbps Multimode	(2) ST, 2 km	LE2340C
		(1) ST, 2 km	LE2341C
		(2) SC, 2 km	LE2342C
		(1) SC, 2 km	LE2343C
		(4) MT-RJ, 2 km	LE2348C
		(2) MT-RJ, 2 km	LE2349C
		(4) LC, 2 km	LE2350C
		(2) LC, 2 km	LE2351C
	Single-Mode	(2) SC, 20 km	LE2344C
		(1) SC, 20 km	LE2345C
		(2) SC, 40 km	LE2346C
		(1) SC, 40 km	LE2347C
		(4) LC, 15 km	LE2352C
		(2) LC, 15 km	LE2353C

...finally, for Slot D, choose either another module from the Step 2 list above (all work in Slot D except for the PoE module) or one of these:

Step 4	Managed Field Switch Gigabit Port Modules	
	(2) 1000-Mbps Fiber SFP Open Transceiver	LE2354C
	(2) 10-/100-/1000-Mbps Copper	LE2355C
	(1) 1000-Mbps Copper, (1) 1000-Mbps Fiber SFP Open Transceiver	LE2356C
	(1) 1000-Mbps Fiber SFP Open Transceiver	LE2357C
	(1) 10-/100-/1000-Mbps Copper	LE2358C

Managed Fiber Switch

The flexible, modular switch that stands up to tough environments.

NEBS Level 3
Certified

- Four modular slots enable you to add 10-, 100-, or 1000-Mbps Ethernet ports.
- Nonblocking wire-speed performance.
- 802.1p QoS traffic prioritization.
- Includes SNMP, RMON, VLANs, QoS, Port Security, Telnet™, TFTP, DHCP, SNTP, Event Log, IGMP, Rapid Spanning Tree Protocol, and SNMPc GUIs.
- Add security and management with Castle Rock SNMPc. See blackbox.com or call our FREE Tech Support.
- Features 100–240 VAC autosensing power supply. DC power supplies are available.
- ♦♦ **WARRANTY** — 3 Years

The BLACK BOX® Managed Fiber Switch is a rugged switch for the most demanding locations. This NEBS Level 3 certified switch withstands extremes of temperature and humidity, is encased in a rugged metal chassis, and includes three internal cooling fans. With its 100–240-VAC internal autosensing power supply, it's adaptable to nearly any power situation. The switch is ideal for applications such as telecomm central offices (CO), traffic control systems, water treatment plants, or manufacturing plants.



LE2425A-CHASSIS

NOTE: Because this switch is built to order and modules are installed at our factory, this product is returnable only for functional failures. Please allow an extra day for delivery.

The switch offers a wide range of interface options and support for Gigabit links. The chassis have four slots for modules. The first three slots (A, B, and C) are full-sized slots, which can be used for copper or fiber ports at 10 or 100 Mbps, or as a Gigabit uplink port with the LE2433C module.

The fourth slot (D) is a ¼-size slot, which can only be configured as a Gigabit uplink port with the LE2432C module.

The switch comes with rackmount ears.

TECH SPECS

Approvals — UL® Listed (UL60950), cUL, CE, Emissions meet FCC Part 15, Class A, NEBS Level 3, ETSI, NEMA TS-1 for traffic control

MAC Addresses — 4000 nodes, self learning, with address aging

Network Standards —

- IEEE 802.3: 10BASE-T;
- IEEE 802.3u: 100BASE-TX/FX;
- IEEE 802.3z, IEEE 802.3ab: 1000BASE-X;
- IEEE 802.1p: Priority protocol;
- IEEE 802.3x: Flow control

Operating Environment — Temperature:

- Ambient: +25 to +130° F (-4 to +54° C);
- Storage: -40 to +185° F (-40 to +85° C);
- Humidity: 5 to 95% noncondensing;
- Altitude: -200 to +13,000 ft. (-60.9 to +3962.4 m)

Switching Method — Store and forward with IEEE 802.3x full-duplex flow control, nonblocking

Indicators — LEDs:

- Per RJ-45 port: (1) Link, (1) Activity, (1) Full-/half-duplex, (1) 10/100;
- Per fiber port: (1) Link, (1) Activity, (1) Full-/half-duplex

Power — 100–240 VAC, 47–63 Hz, autosensing; -48-VDC; 24-VDC; or 125-VDC power supplies

Size — 1.75"H x 17"W x 9"D (4.4 x 43.2 x 22.9 cm)

Weight — 5 lb. (2.3 kg)

Item	Code	List Price
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First, order the switch chassis...

Managed Fiber Switch Chassis		
AC	LE2425A-CHASSIS	
DC 24 VDC	LE2425A-24VDC	
48 VDC	LE2425A-48VDC	
125 VDC	LE2425A-125VDC	

...then select the modules for your application.

4-Port Managed Fiber Switch Modules		
(4) 10BASE-FL, Multimode ST®	2 km	LE2427C
(4) 100BASE-FX, Multimode ST	2 km	LE2445C
(4) 100BASE-FX, Multimode SC	2 km	LE2426C
(2) 10BASE-FL Multimode ST plus		
(2) 100BASE-FX Single-Mode ST	2 km	LE2446C
6-Port Managed Fiber Switch Modules		
(2) 10BASE-FL Multimode ST plus		
(4) 100BASE-FX Multimode MT-RJ	2 km	LE2447C
(4) 10-/100-Mbps RJ-45 plus		
(2) 10BASE-FL Multimode ST	2 km	LE2440C
(4) 10-/100-Mbps RJ-45 plus (2) 100BASE-FX Multimode ST	2 km	LE2429C
Multimode SC	2 km	LE2430C
Single-Mode SC	20 km	LE2431C
	40 km	LE2441C

Item	Code	List Price
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8-Port Managed Fiber Switch Modules		
(4) 10-/100-Mbps RJ-45 plus (4) 100BASE-FX Multimode MT-RJ	2 km	LE2442C
Multimode LC	2 km	LE2443C
Single-Mode LC	15 km	LE2444C
(6) 10-/100-Mbps RJ-45 plus (2) 100BASE-FX Multimode MT-RJ	2 km	LE2438C
Single-Mode LC	15 km	LE2439C
(8) 10-/100-Mbps RJ-45		LE2428C
(8) 100BASE-FX Multimode MT-RJ	2 km	LE2436C
Multimode LC	2 km	LE2448C
Single-Mode LC	15 km	LE2437C

You may also want to populate your chassis' A slot and/or B slot with a Gigabit Module.

First, order a Slot Module...

Gigabit Slot Module for 1 A-, B-, or C-Slots	LE2433C
Gigabit Slot Module for 1 D-Slot	LE2432C

Item	Code	List Price
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...then add a GBIC Transceiver for each Gigabit Slot Module.

GBIC Transceivers for LE2433C or LE2432C		
(1) 1000BASE-TX	100 m RJ-45	LE2451C
(1) 1000BASE-SX, Multimode	220 m SC	LE2434C
(1) 1000BASE-LX/LH, Single-Mode 1310-nm	10 km SC	LE2449C
	25 km SC	LE2450C
(1) 1000BASE-ZX, Single-Mode 1550-nm	40 km SC	LE2452C
	70 km SC	LE2453C

You may also need...

Blank Covers for Unused A-, B-, or C-Slots		
		LE2435C
Alarm Contacts, (1) Power, (1) Software		
		LE2459C
Two Separate Power Inputs (24, 48, or 125 V)		
		LE2458C
Console Attachment Cable, Serial Null-Modem		
DB9		LE2454C
USB		LE2455C
Rackmount Kits		
23" Telco, 1U		LE2456RM
ETSI, 1U		LE2457RM

Vertical-Mount Managed Fiber Switch

When your network isn't typical, you need more than a typical switch.

- Ideal for industrial applications such as transportation and traffic control systems, utilities, factories, and surveillance systems.
- Supports up to 16 ports.
- Space-saving vertical wallmount configuration.
- Operates in an extreme temperature range of -40 to +140° F.
- Heavy-duty metal enclosure.

The chassis

- Each chassis features an A slot and a B slot that can be outfitted with Multiport Media Modules, Gigabit Modules, or User-Selectable GBIC Transceiver Modules.
- Mount with the included brackets or a pair of DIN Rail Brackets (LEV2556DR).
- Use the DC Power Supply (LE2458C) with the 24, -48, and 125 VDC Chassis.

The modules

- All RJ-45 ports feature Auto MDI/MDI-X autonegotiation and autocrossover. Use straight-through or crossover CAT5 or CAT5e cables.
- To uplink to Gigabit Ethernet, choose the **Gigabit Slot Modules**. Each houses one or two User-Selectable GBIC Transceiver Modules.
- Use **User-Selectable GBIC Transceivers** to uplink to Gigabit Ethernet.

Robust management features

- Manage via SNMP, tag-based VLANs, and IGMP Snooping and Port Security. Rapid Spanning Tree protocol, SNMP, QoS, GUI, and Event Log are included.
- Includes nonblocking speed on all ports and 802.1p Quality of Service (QoS) traffic prioritization.
- Use where a mix of bursty data traffic and priority streaming traffic for Voice over IP (VoIP) and audio/video signals are present.
- **◆◆ WARRANTY** — 1 Year

NOTE: Because this switch is built to order and modules are installed at our factory, this product is returnable only for functional failures. Please allow an extra day for delivery.



TECH SPECS

Approvals — CE, UL® Listed (UL650950), NEMA TS-2 for traffic control
Cooling Method — Convection, designed for vertical mounting
Flow Control — IEEE 802.3x full-duplex, nonblocking
MAC Addresses — 4K
Management — Via software: SNMP, tag-based VLAN support, IGMP Snooping and Port Security, Rapid Spanning Tree protocol, GUI, CLI, Event Log, DHCP
Operating Environment —
 Temperature: -60 to +205° F (+51 to +96° C);
 Humidity: 5 to 95% noncondensing;
 Altitude: -200 to +13,000 ft. (-60.9 to 3962.4 m)
Packet Buffer Size — 10 or 100 Mbps: 240 KB;
 1000 Mbps: 120 KB
Standards — IEEE 802.3, 802.3u, 802.3z,

802.3ab, 802.1p, 802.1d, 802.1q, 802.3x
Connectors — Chassis: (1) DB9 F management console;
 Modules: For details, see price block.
Indicators — LEDs: RJ-45 ports: LK, ACT, F/H, 100/10; 10/100-Mbps fiber ports: LK, ACT, F/H
Power — LEV2525A-CHASSIS: 100 to 240 VAC, 47 to 63 Hz, autosensing, internal;
 LEV2525A-24VDC: 18 to 36 VDC, internal;
 LEV2525A-48VDC: -36 to -70 VDC, internal;
 LEV2525A-125VDC: 88 to 300 VDC, internal;
 LE2458C: Redundant power inputs available for 24-VDC, -48-VDC, or 125-VDC operation
Size — 9.5"H x 8.75"W x 1.75"D (24.1 x 22.2 x 4.4 cm)
Weight — 4.2 lb. (1.9 kg)

Item	Code	List Price
First, order the switch chassis...		
Vertical-Mount Managed Fiber Switch Chassis		
AC	LEV2525A-CHASSIS	
DC 24 VDC	LEV2525A-24VDC	
48 VDC	LEV2525A-48VDC	
125 VDC	LEV2525A-125VDC	
...then select the modules for your application.		
4-Port Modules		
(4) 10BASE-FL Multimode ST	2 km LEV2545C	
(4) 100BASE-FX Multimode ST®	2 km LEV2527C	
(4) 100BASE-FX Multimode SC	2 km LEV2526C	
(2) 10BASE-FL Multimode ST plus		
(2) 100BASE-FX Multimode ST	2 km LEV2546C	
6-Port Modules		
(2) 10BASE-FL Multimode ST plus		
(4) 100BASE-FX Multimode MT-RJ	2 km LEV2547C	
(4) 10-/100-Mbps RJ-45 plus		
(2) 10BASE-FL Multimode ST	2 km LEV2540C	
(4) 10-/100-Mbps RJ-45 plus (2) 100BASE-FX Multimode ST	2 km LEV2529C	
Multimode SC	2 km LEV2530C	
Single-Mode SC	20 km LEV2531C	
	40 km LEV2541C	

Item	Code	List Price
8-Port Modules		
(4) 10-/100-Mbps RJ-45 plus (4) 100BASE-FX Multimode MT-RJ	2 km LEV2542C	
Multimode LC	2 km LEV2543C	
Single-Mode LC	15 km LEV2544C	
(6) 10-/100-Mbps RJ-45 plus (2) 100BASE-FX Multimode MT-RJ	2 km LEV2538C	
Single-Mode LC	15 km LEV2539C	
(8) 10-/100-Mbps RJ-45	LEV2528C	
(8) 100BASE-FX Multimode MT-RJ	2 km LEV2536C	
Multimode LC	2 km LEV2537C	
Single-Mode LC	15 km LEV2548C	
You may also want to populate your chassis' A slot and/or B slot with a Gigabit Module. First, order a Slot Module...		
Gigabit Slot Modules		
for (1) User-Selectable GBIC Transceiver	Gigabit Only LEV2533C	
for (2) User-Selectable GBIC Transceivers	Gigabit Only LEV2562C	

Item	Code	List Price
Gigabit Slot Modules (Continued)		
for (1) User-Selectable GBIC Transceiver	Gigabit + (4) 10-/100-Mbps RJ-45	LEV2560C
Gigabit + (2) 100BASE-FX Multimode, SC,	2 km	LEV2561C
...then add a User-Selectable GBIC Transceiver for each Gigabit Slot Module.		
User-Selectable GBIC Transceivers		
(1) 1000BASE-TX, RJ-45		LE2451C
(1) 1000BASE-SX Multimode SC, 1310-nm	2 km	LE2434C
(1) 1000BASE-LX/LH Single-Mode SC, 1310-nm	10 km	LE2449C
	25 km	LE2450C
(1) 1000BASE-ZX Single-Mode SC, 1550-nm	40 km	LE2452C
	70 km	LE2453C
You may also need...		
Blank Cover for Unused Slots		LE2435C
DC Power Supply with (2) Inputs		LE2458C
Console Attachment Cable, Serial Null-Modem	DB9	LE2454C
USB		LE2455C
(2) DIN Rail Mounting Brackets		LEV2556DR

Media Converter Switches

These Media Converter Switches can

- Function as both a media converter and a switch.
- Provide one 100-Mbps fiber port and two 10-/100-Mbps UTP switch ports.
- Support VLAN tagging and Spanning Tree passthrough.
- Tough enough to withstand any environment—whether it's the wiring closet, the factory floor, or even the desert!
- RJ-45 ports support autonegotiation, so you can easily attach any 10- or 100-Mbps device.
- Many fiber port types and power options are available.
- Support both half- and full-duplex operation.
- Two sets of LEDs enable you to see status information from the front, top, or side.
- Mount on DIN rails with optional brackets.
- Rackmount up to 16 units in the optional Rackmount Tray or Powered Rackmount Tray.
- Also available in 10-Mbps versions. For details, call our FREE Tech Support.
- ♦♦ **WARRANTY** — 3 Years

Media Converter Switches adapt from one cable type to another and are true Ethernet switches. You can cascade them together indefinitely without worrying about interrepeater links.

All three types work together so you can mix them in your network. Also, all feature the same heavyweight metal case.

Standard Media Converters

- For use in clean, temperature-controlled environments such as offices and wiring closets.

Hardened Media Converters

- For use in dusty or dirty environments.
- The case is a heat sink so no internal airflow is needed for cooling.
- Sealed case resists contaminants such as dust, dirt, and moisture.

Extreme Media Converters

- For outdoor use, they only require protection from water.
- Ideal for applications such as traffic-signal control, or for sensors or surveillance cameras in outdoor plants.
- Rated for above-the-ceiling plenum installation.
- Features a sealed case, which uses its own metal shell as a heat sink.

The features you're looking for.

Media Converter Switches are super simple to set up and use—just plug and go! Both copper ports are autosensing for speed and duplex. Plus, the UTP ports feature Auto MDI/MDI-X, eliminating the need for crossover cables.

Media Converter Switches each have two full sets of LED indicators: one set in the front and one on the side for viewing when mounted in a DIN rail, on the wall, or in a rackmount tray.

To add extra distance, just daisychain another switch. If you need more ports at your remote location, just add a Convenient Switch, which is a simple, 4-port, autosensing, 10-/100-Mbps switch.

Power options.

Power supplies with recessed IEC power connectors work with any IEC standard power cord, making them adaptable to most international



LBH100A-H-ST

Media Converter Switches feature LEDs on two sides so you can view network status at a glance no matter which way the unit is mounted.



The DIN Rail Mounting Bracket (DIN-RAIL MC2) features a spring latch that enables you to quickly add or remove a module without using a screwdriver. Like the media converter switches, the DIN Rail Bracket is all metal, tough, and durable.

locations. DC-powered Hardened and Extreme units have internal screw terminals for connecting DC power in addition to the AC power jack. Because these models have dual power connections, you can use them simultaneously with both your DC power supply and an AC power adapter (sold separately) to provide redundant power input.

TECH SPECS

Altitude — -200 to 13,000 ft. (-60.9 to 3962.4 m)	Standards — IEEE 802.3, IEEE 802.3u, IEEE 802.1p/q
Approvals — CE, UL® Listed 60950	Temperature Rating — Storage: -40 to +185° F (-40 to +85°C); Operating: See charts on facing page
Distance (Maximum) — Multimode models: 2 km (1.2 mi.); Single-mode SC models: 20 km (12.4 mi.); Single-mode LC models: 15 km (9.3 mi.); Single-mode, long-distance SC models: 40 km (24.8 mi.)	Size — 3.5"H x 3"W x 1"D (8.9 x 7.6 x 2.5 cm)
Enclosure — Steel	Weight — Media Converter Switches and Convenient Switches: 0.3 lb. (0.1 kg); Standard and Hardened Power Supplies: 0.4 lb. (0.2 kg); Extreme Power Supplies: 0.5 lb. (0.2 kg)
Humidity — 5–95%, noncondensing	

withstand even the toughest environments.

Buyer's Guide | 10-/100-Mbps Media Converter Switches, Standard: +32 to +104° F (0 to +40° C)

	Multimode		Single-Mode
	ST*	SC	SC
115 VAC, 60 Hz	LBH100A-ST	LBH100A-SC	LBH100A-SSC
230 VAC, 50 Hz w/IEC Power Connector	LBH100AE-ST	LBH100AE-SC	LBH100AE-SSC

Buyer's Guide | 10-/100-Mbps Media Converter Switches, Hardened: -13 to +140° F (-25 to +60° C)

	Multimode			Single-Mode		
	SC	ST	MT-RJ	SC	LC	Long-Distance/SC
100–240 VAC, 47–63 Hz	LBH100A-H-SC	LBH100A-H-ST	LBH100A-H-MT	LBH100A-H-SSC	LBH100A-H-SLC	LBH100A-H-SSCL
100–240 VAC, 47–63 Hz w/IEC Power Connector	LBH100AE-H-SC	LBH100AE-H-ST	LBH100AE-H-MT	LBH100AE-H-SSC	LBH100AE-H-SLC	LBH100AE-H-SSCL
12 VDC*	LBH100A-H-SC-12	LBH100A-H-ST-12	LBH100A-H-MT-12	LBH100A-H-SSC-12	LBH100A-H-SLC-12	LBH100A-H-SSCL-12
24 VDC*	LBH100A-H-SC-24	LBH100A-H-ST-24	LBH100A-H-MT-24	LBH100A-H-SSC-24	LBH100A-H-SLC-24	LBH100A-H-SSCL-24
48 VDC*	LBH100A-H-SC-48	LBH100A-H-ST-48	LBH100A-H-MT-48	LBH100A-H-SSC-48	LBH100A-H-SLC-48	LBH100A-H-SSCL-48

Buyer's Guide | 10-/100-Mbps Media Converter Switches, Extreme: -40 to +167° F (-40 to +75° C)

	Multimode			Single-Mode		
	SC	ST	MT-RJ	SC	LC	Long-Distance/SC
100–240 VAC, 47–63 Hz	LBH100A-P-SC	LBH100A-P-ST	LBH100A-P-MT	LBH100A-P-SSC	LBH100A-P-SLC	LBH100A-P-SSCL
100–240 VAC, 47–63 Hz w/IEC Power Connector	LBH100AE-P-SC	LBH100AE-P-ST	LBH100AE-P-MT	LBH100AE-P-SSC	LBH100AE-P-SLC	LBH100AE-P-SSCL
12 VDC*	LBH100A-P-SC-12	LBH100A-P-ST-12	LBH100A-P-MT-12	LBH100A-P-SSC-12	LBH100A-P-SLC-12	LBH100A-P-SSCL-12
24 VDC*	LBH100A-P-SC-24	LBH100A-P-ST-24	LBH100A-P-MT-24	LBH100A-P-SSC-24	LBH100A-P-SLC-24	LBH100A-P-SSCL-24
48 VDC*	LBH100A-P-SC-48	LBH100A-P-ST-48	LBH100A-P-MT-48	LBH100A-P-SSC-48	LBH100A-P-SLC-48	LBH100A-P-SSCL-48

Buyer's Guide | 10-/100-Mbps Convenient Switches (4 UTP Ports)

	115 VAC, 60 Hz	240 VAC, 50 Hz	100–240 VAC, 47–63 Hz	12 VDC*	24 VDC*	48 VDC*
Standard +32 to +104° F	LBH101A	LBH101AE	—	—	—	—
Hardened -13 to +140° F	—	—	LBH101A-H	LBH101A-H-12	LBH101A-H-24	LBH101A-H-48
Extreme -40 to +167° F	—	—	LBH101A-P	LBH101A-P-12	LBH101A-P-24	LBH101A-P-48

* Models with terminal blocks for DC power also feature a jack for an AC power adapter (not included).

Item	Code	List Price	Item	Code	List Price
For spare power supplies, order...			For DIN rail mounting, order...		
AC Power Supplies for Media Converter Switches			DIN Rail Mounting Bracket		
Standard			DIN-RAIL MC2		
115 VAC	LBH100A-115-VAC		For rackmounting, order...		
240 VAC	LBH100AE-240-VAC		Rackmount Tray	LE1505-RACK	
Hardened			Powered Rackmount Tray	LH1505P-RACK	
100–240 VAC	LBH100A-H-PS		<i>NOTE: Media Converter Switches are available in 10-Mbps versions as well as with additional interface types, such as other fiber connectors and BNC connectors. We also offer additional power options and DIN-rail-ready models. For details, call our FREE Tech Support.</i>		
100–240 VAC with IEC Connector	LBH100AE-H-PS				
Extreme					
100–240 VAC	LBH100A-P-PS				
100–240 VAC with IEC Connector	LBH100AE-P-PS				

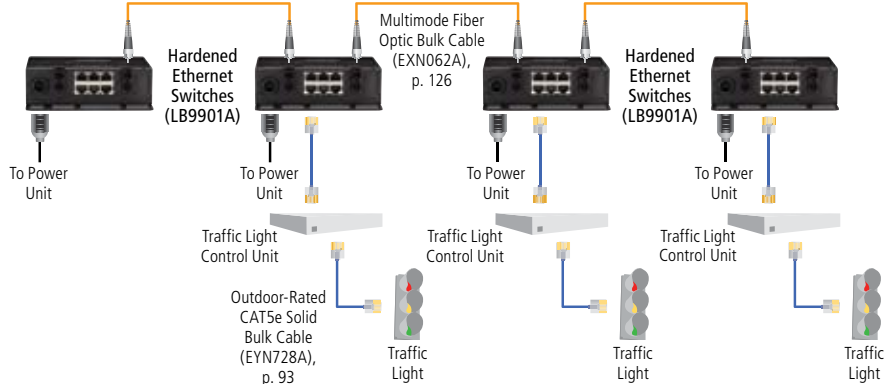
Hardened Ethernet Switches

When the going gets tough, these tough switches get your data going over copper or fiber in all climates!

AC-powered modules include an external AC power supply that has surge protection to withstand lightning strikes up to 150 joules.



- Operate in conditions of uncontrolled heat or cold—even outdoors.
- Rugged, 18-gauge steel cases seal out insects, dirt, smoke, and other contaminants.
- Cases also operate as heat sinks, drawing heat away from internal components.
- Install in NEMA 4 metal enclosures for all-weather outdoor use.
- All have two fiber ports; the single-mode SC ports transmit up to 20 kilometers (12.4 mi.) away!
- Daisychain the switches for a fiber optic Ethernet network hundreds of kilometers long!
- Plug-and-play, software transparent.
- AC models offer surge protection.
- **◆◆ WARRANTY** — 3 Years



Item	Code	List Price
Hardened Ethernet Switches -40 to +160° F (-40 to +71° C)		
AC Power		
(6) 10-/100-Mbps RJ-45 Ports plus		
(2) 100-Mbps Multimode SC Ports	LB9901A	
(1) 100-Mbps Multimode SC Port and (1) 100-Mbps Single-Mode SC (20-km) Port	LB9902A	
(2) 100-Mbps Single-Mode SC (20-km) Ports	LB9903A	
DC Power		
(6) 10-/100-Mbps RJ-45 Ports plus		
(2) 100-Mbps Multimode SC Ports	LB9904A	
(1) 100-Mbps Multimode SC Port and (1) 100-Mbps Single-Mode SC (20-km) Port	LB9905A	
(2) 100-Mbps Single-Mode SC (20-km) Ports	LB9906A	
You may also need...		
Spare AC Power Supply	LB9907PS	

Industrial MultiPower Media Converters

Choose from four different ways to power these hardened media converters.

- Power up one of four ways: with AC or DC power, via a PC's USB port, or using Power over Ethernet (PoE).
- Use multiple power options at the same time to provide maximum redundancy.
- Connect Ethernet and Fast Ethernet copper ports to duplex or single-strand 100-Mbps fiber.
- Operate in temperatures from -31 to +158° F.
- Single-Mode Long versions for duplex fiber support distances up to 80 kilometers (49.7 mi.).
- Copper ports autonegotiate for speed and duplex.
- Support IEEE 802.3af PoE.
- Auto MDI/MDI-X means you never need to worry about what cable to use.
- Include clips for mounting on DIN rails.
- To install multiple converters on a DIN rail, use one DC input source, and cascade from one DC block to the next until you reach the maximum current available.
- **◆◆ WARRANTY** — 6 Years



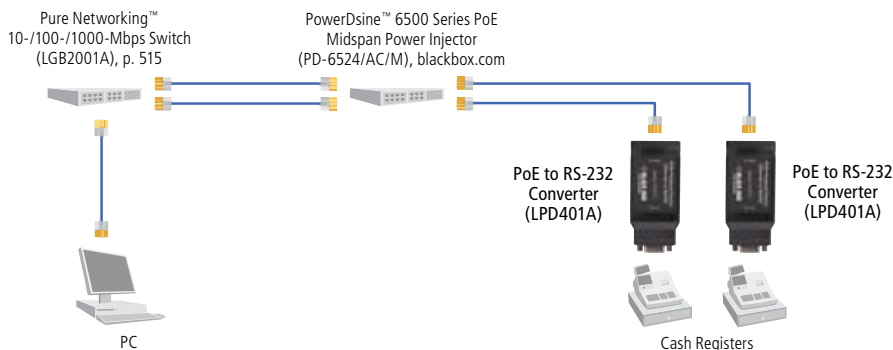
LIC023A units mounted on a DIN rail (not included)

Item	Code	List Price
Industrial MultiPower Media Converters		
10-/100-Mbps Copper to 100-Mbps Fiber		
Duplex Fiber		
Multimode 1300-nm, 2 km		
ST®	LIC022A	
SC	LIC023A	
Single-Mode 1310-nm, 40 km		
ST®	LIC024A	
SC	LIC025A	
Single-Mode Long 1310-nm, 80 km		
ST®	LIC026A	
SC	LIC027A	
Single-Strand Fiber		
Single-Mode 1310-nm TX/1550-nm RX, 20 km		
SC	LIC052A	
Single-Mode 1550-nm TX/1310-nm RX, 20 km		
SC	LIC053A	
Single-Mode 1310-nm TX/1550-nm RX, 40 km		
SC	LIC054A	
Single-Mode 1550-nm TX/1310-nm RX, 40 km		
SC	LIC055A	
Single-Mode 1310-nm TX/1550-nm RX, 60 km		
SC	LIC056A	
Single-Mode 1550-nm TX/1310-nm RX, 60 km		
SC	LIC057A	
NOTE: Single-Strand Fiber Media Converters must be used in matched pairs. Use LIC052A with LIC053A; use LIC054A with LIC055A; and use LIC056A with LIC057A.		
To power a single converter via your computer's USB port, order ...		
USB Power Adapter Cable	LHC021A	

Power over Ethernet to RS-232 Converter

The serial server that virtually eliminates power-cord clutter.

- Connect your serial bar code readers, time clocks, slip printers, and other legacy equipment to your 10/100BASE-T LAN.
- Features transparent 10-/100-Mbps operation.
- Offers simple plug-and-play operation.
- Ports are current-limited for short-circuit protection.
- Compatible with the IEEE 802.3af Power over Ethernet (PoE) standard.
- **◆◆ WARRANTY** — 5 Years



TECH SPECS

Speed — 10/100 Mbps, autosensing
CE Approval — Yes
Connectors — LAN: (1) RJ-45;
Serial: (1) DB9 M;
Power: (1) terminal block

Indicators — LEDs: Ethernet Connection, LAN Link, Data Activity
Power — From the PoE device

Item	Code	List Price
Power over Ethernet to RS-232 Converter RS-232	LPD401A	

Pure Networking Fiber Device Servers

Run an Ethernet fiber link to an RS-232/422/485 device.



LS4100A-US-R2

- Run 100BASE-FX to your serial device.
- Connect industrial serial equipment, such as programmable logic controllers, to your Fast Ethernet network.
- Ideal for harsh manufacturing environments.
- Offer easy plug-and-play installation.
- Use as a standalone device, in a rackmounted chassis, or on a DIN rail.
- **◆◆ WARRANTY** — 1 Year

TECH SPECS

Control Signals — RS-232: TX, RX, CTS, RTS, DTR, DSR, RI, DCD, GND;
RS-422: TX, RX, GND; RS-485: Data, GND

Distance (Maximum) —
Fiber: Multimode: 1.2 mi. (2 km);
Single-Mode: 12.4 mi. (20 km);
Serial: RS-232: 50 ft. (15.2 m);
RS-422/485: 0.7 mi. (1.1 km)

Management — CLI, Telnet™, RS-232 console, menu-driven interfaces

Operation — 4-wire full duplex, 2-wire half-duplex

Speed — Fiber: 100 Mbps; Serial: 50–115.2 kbps async

Standards — IEEE 802.3u; EIA/TIA-232, EIA/TIA-574

CE Approval — Yes

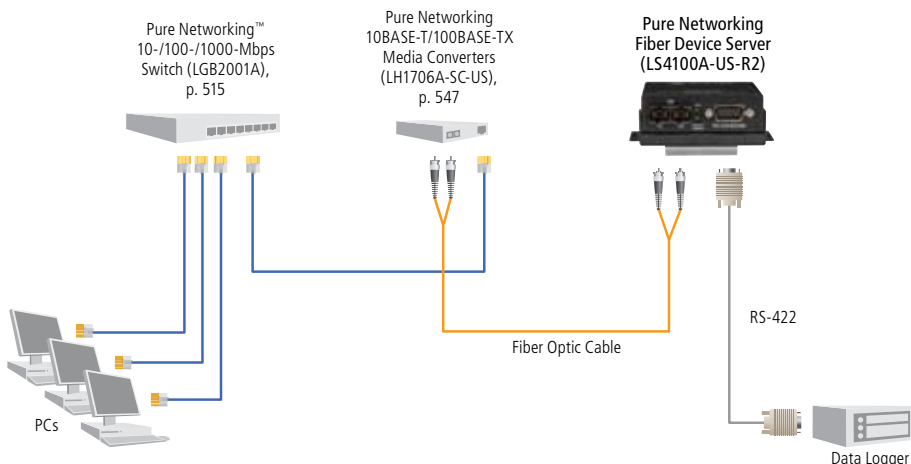
Connectors — LS4100A-US-R2—LS4102A-US-R2:

(1) DB9 F, (1) pair of SC or ST®;
LS4103A-US-R2: (1) DB9 F, (1) RJ-45

Indicators — (3) LEDs: Power, Link, Receive

Power — 120 VAC, 60 Hz external adapter,
12 VDC @ 800 mA

Size — 0.9"H x 2.9"W x 4.3"D (2.3 x 7.4 x 10.9 cm)



Item	Code	List Price
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Pure Networking™ Fiber Device Servers

RS-232/422/485 to Fiber

Multimode SC LS4100A-US-R2

Multimode ST LS4101A-US-R2

Single-Mode SC LS4102A-US-R2

Pure Networking Copper Device Server

RS-232/422/485 to Copper

RJ-45 LS4103A-US-R2

PowerDsine™ PoE Midspan Power Injectors, Splitters, and Tester

Power network cameras without the need for AC outlets or adapters.



Top: PD8001/AC; middle: PD-8006/AC/M;
bottom: PD-8012/AC/M

PowerDsine PoE Midspan Power Injectors

- Power standard PoE devices such as wireless access points and network cameras.
- Fully IEEE 802.3af compliant.
- Power non-PoE devices with midspan power injectors with PoE Splitters.
- Monitor and configure managed models from a Web browser.
- Connect easily to your existing Ethernet infrastructure using standard CAT5 or higher cable.

3000 Series

- These 1-, 6-, and 12-port models can handle most PoE applications.
- The 1-port model interlocks side-by-side to help keep your computer room neat.
- Rackmount kit available for the 6- and 12-port models.

6000 and 6500 Series

- Port densities from 1 to 24 ports and optional Gigabit Ethernet capabilities.
- Managed models also feature SNMP V3 (Secured SNMP version) and MIB support.
- Models for both 10-/100-Mbps and 10-/100-/1000-Mbps Ethernet.
- Remote Management models have the high port densities your enterprise network requires. All include an integrated Web browser.

8000 Series

- Delivers up to 39 watts of power on each port—perfect for devices such as PTZ cameras that require more power than standard PoE.
- Compatible with the not-yet-ratified IEEE 802.3at High-Power PoE standard, as well as the existing IEEE 802.3a standard.
- Managed models also feature SNMP V3 (Secured SNMP version) and MIB support.

PoE Splitters

- Enable you to use PoE with legacy non-PoE devices.

PoE Tester

- Detects PoE standard or non-standard power in an RJ-45 connector.
- **Warranty** — All: 1 Year



Item	Code	List Price
PowerDsine 3000 Series PoE Midspan Power Injectors		
1-Port	PD-3001/AC	
6-Port	PD-3006/AC	
12-Port	PD-3012/AC	
To provide power to one non-PoE device, order...		
Power Bundle	PD-KIT-3001-12V	
To rackmount the 6- or 12-port models, order...		
19" Rackmount Kit	PD-3000/MBK	
PowerDsine 6000 Series PoE Midspan Power Injectors		
10/100 Mbps		
24-Port	PD-6024/AC	
10/100/1000 Mbps with Remote Management		
6-Port	PD-6006G/AC/M	
12-Port	PD-6012G/AC/M	
24-Port	PD-6024G/AC/M	
PowerDsine 6500 Series PoE Midspan Power Injectors		
10/100/1000 Mbps with Remote Management		
6-Port	PD-6506/AC/M	
12-Port	PD-6512/AC/M	
24-Port	PD-6524/AC/M	
24-Port, High Power	PD-6524/AC/M-F	
48-Port	PD-6548/AC/M	

Item	Code	List Price
PowerDsine 8000 Series High-Powered PoE Midspan Power Injectors		
1-Port	PD-8001/AC	
6-Port	PD-8006/AC	
12-Port	PD-8012/AC	
with Remote Management		
6-Port	PD-8006/AC/M	
12-Port	PD-8012/AC/M	
To provide power to one non-PoE device, order...		
Power Bundle	PD-KIT-8001-12V	
PowerDsine PoE Splitters		
Active		
48 VDC to 12 VDC		
5.5 x 2.5 mm	PD-AS-401/12	
5.5 x 3.3 mm, Center Pin 1 mm	PD-AS-401/12-PAN	
48 VDC to 5 VDC		
5.5 x 2.1 mm	PD-AS-401/5	
4.7 x 1.7 mm, Center Pin 1 mm	PD-AS-401/5-COLUB	
High-Power		
48 VDC to 12 VDC		
5.5 x 2.5 mm	PD-AS-801/12	
Passive (Dongle) for Cisco		
	PD-PS-401/CISCO	
PowerDsine PoE Tester		
RJ-45	PD-TESTER	

Analog VoIP Gateway Routers

Connect up to eight voice/fax analog calls to VoIP.



VOE231A

- Transparently connect your analog phones and fax machines to VoIP.
- Combine voice and data traffic for routing over your IP network or the Internet.
- Choose from small-office/home-office (SOHO) units or enterprise units.
- FXS analog ports connect any legacy phone or PBX and provide services such as dial-tone, ringing, and Caller ID.
- FXO ports access the local PSTN for backup. ClearConnect automatically routes your call to the PSTN when your IP network goes down.
- Dual 10-/100-Mbps Ethernet ports.
- VPN and security features keep private calls private.
- Complete routing with IPSEC, PPPoE, DHCP, and NAT.
- Quality of Service (QoS) for clear voice throughput every time.
- ToIP provides real-time PSTN and VoIP call switching for any PBX, switch, or phone.
- Access SOHO models through your Web browser.
- SOHO and Enterprise models feature SIP signaling and support SNMP. Enterprise versions also support H.323v4 signaling.
- Universal 90–264-VAC, 47–63-Hz external power supplies.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
Analog VoIP Gateway Routers		
SOHO		
1-Port FXS	VOE221A	
2-Port FXS	VOE223A	
Enterprise		
2-Port FXS	VOE231A	
4-Port FXS	VOE232A	
6-Port FXS	VOE233A	
8-Port FXS	VOE234A	
2-Port FXS, 2-Port FXO	VOE235A	
4-Port FXS, 4-Port FXO	VOE238A	

Mediatrix 2102 VoIP Access Device

Connect your analog phones plus a PC or a router to a broadband modem.

- Carrier-grade voice quality.
- Enables you to connect two analog phones or a phone and a fax to the Internet for VoIP.
- Features two FXS ports and two 10-/100-Mbps Ethernet ports.
- Manageable through any standard Web browser or SNMP.
- Support encrypted configuration files.
- Transparent IP address sharing—the Mediatrix® and the PC or router connected to the second Ethernet port share the same public IP address.
- High-compression codecs on both analog ports save bandwidth.
- **Warranty** — 3 Years

Take advantage of Voice over IP while keeping your existing analog phones and fax machines! The Mediatrix 2102 VoIP Access device enables you to save money by connecting these analog devices to VoIP across your IP network or the Internet. Its low price and ease of use make it ideal for bringing VoIP connectivity to homes and small offices.

It's easy to install—just plug your phones and your PC or broadband router and use your Web browser for setup. Mediatrix can also autoprovision by fetching encrypted configuration information from a TFTP, HTTP, or HTTPS server.

It's adaptable, too, with multiple country tone support plus support for phone features such as Call Forwarding, Call Transfer, Conference Call, and Call Waiting.

NOTE: Other port configurations are available. For details, call our FREE Tech Support.



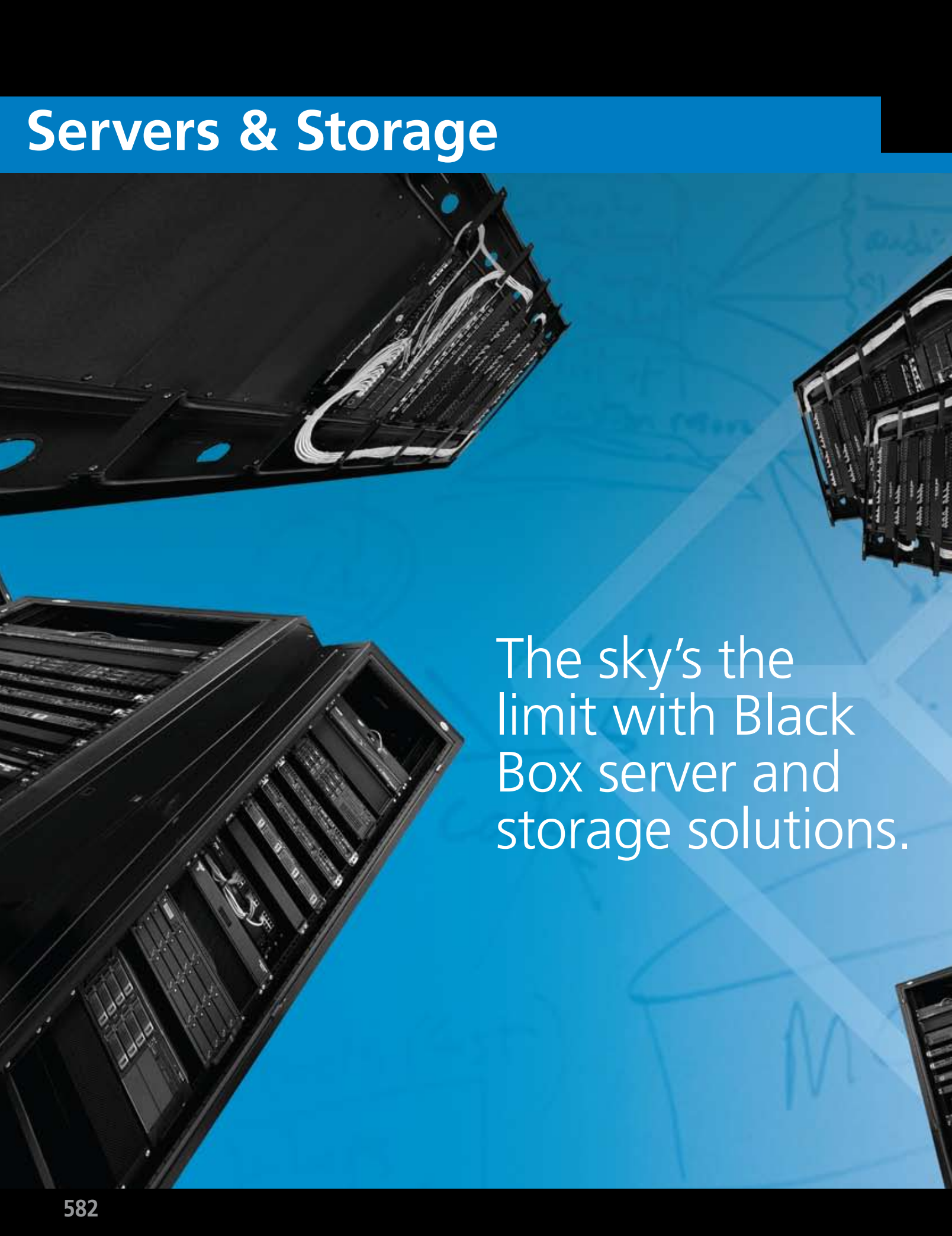
2102MXS5000K00

TECH SPECS

Data Features — PPPoE client; DHCP server; STUN client
Echo Cancellation — G.168
Protocols — IP Telephony: SIP; Real-Time Transport: RTP/RTCP; Network Management: SNMPv3, DHCP, TFTP, Syslog, HTTP 1.0, HTTP 1.1, Basic and digest HTTP authentication
QoS — ToS, DiffServ, 802.1p, 802.1Q
Vocoders — G.711 (a-law, μ-law) with optional VAD support, G.723.1, G.726, G.729a, ab
Connectors — (2) RJ-45, (2) RJ-11
Size — 2"H x 8"W x 5.5"D (5.1 x 20.3 x 14 cm)
Weight — 1.2 lb. (0.5 kg)

Item	Code	List Price
Mediatrix 2102 VoIP Access Device		
2-Port	2102MXS5000K00	

Servers & Storage



The sky's the limit with Black Box server and storage solutions.



In this section

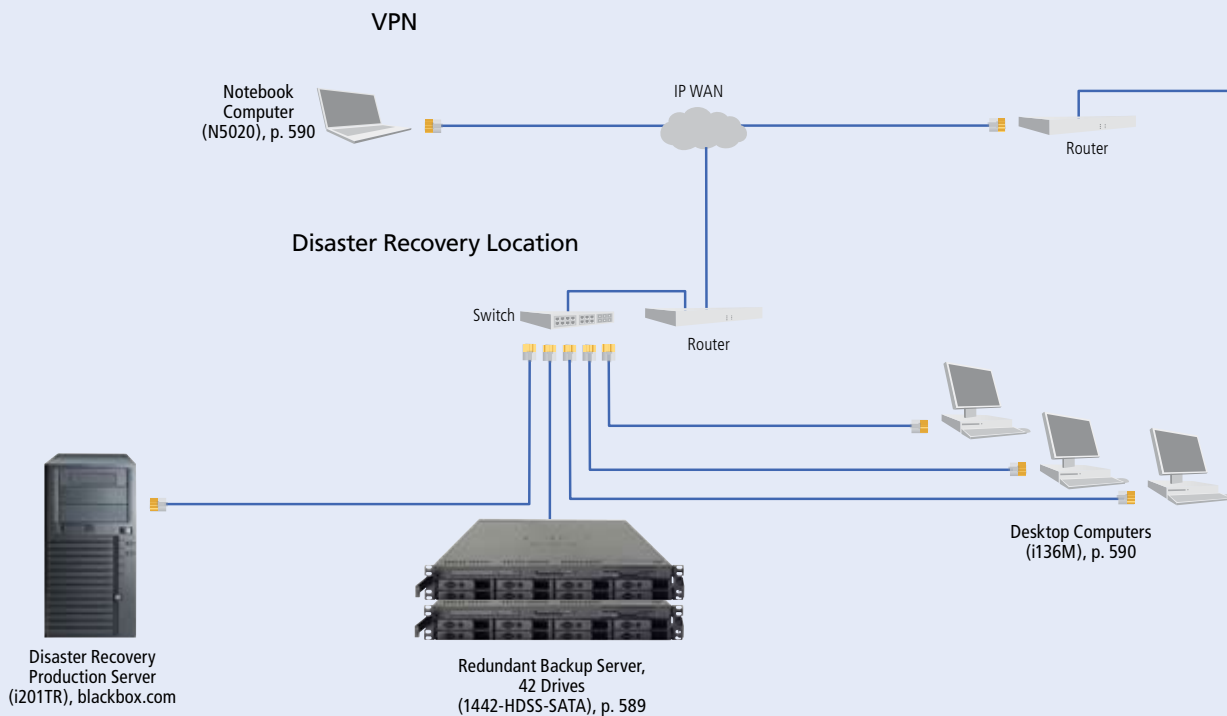
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- SAN/NAS _____ 588
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For New Products,
turn to pages 26–73.

Servers are the core of a reliable network.

Here are typical applications for servers in a medium-sized company. This particular application has robust processing demands and requires a significant amount of storage capacity.



Server selection: Take the chance out of the choice.

You should consider several factors when deciding what kind of server you need, and the choice can be a tricky one. You have to think about application, processor speed, storage capacity, users, growth, and budget.

Here's the real trick: Get enough capacity and power to support current applications and users, *plus* leave room for expansion—without underbuying and leaving your network short or overbuying and getting capabilities you won't likely need.

It's a complex decision, and you can call us anytime for help. Here are a few considerations to help you take the chance out of the choice when you're choosing a server:

Applications

- What do you need the server to do?
- Do your applications demand strong processors, significant storage capacities, or are both important considerations?

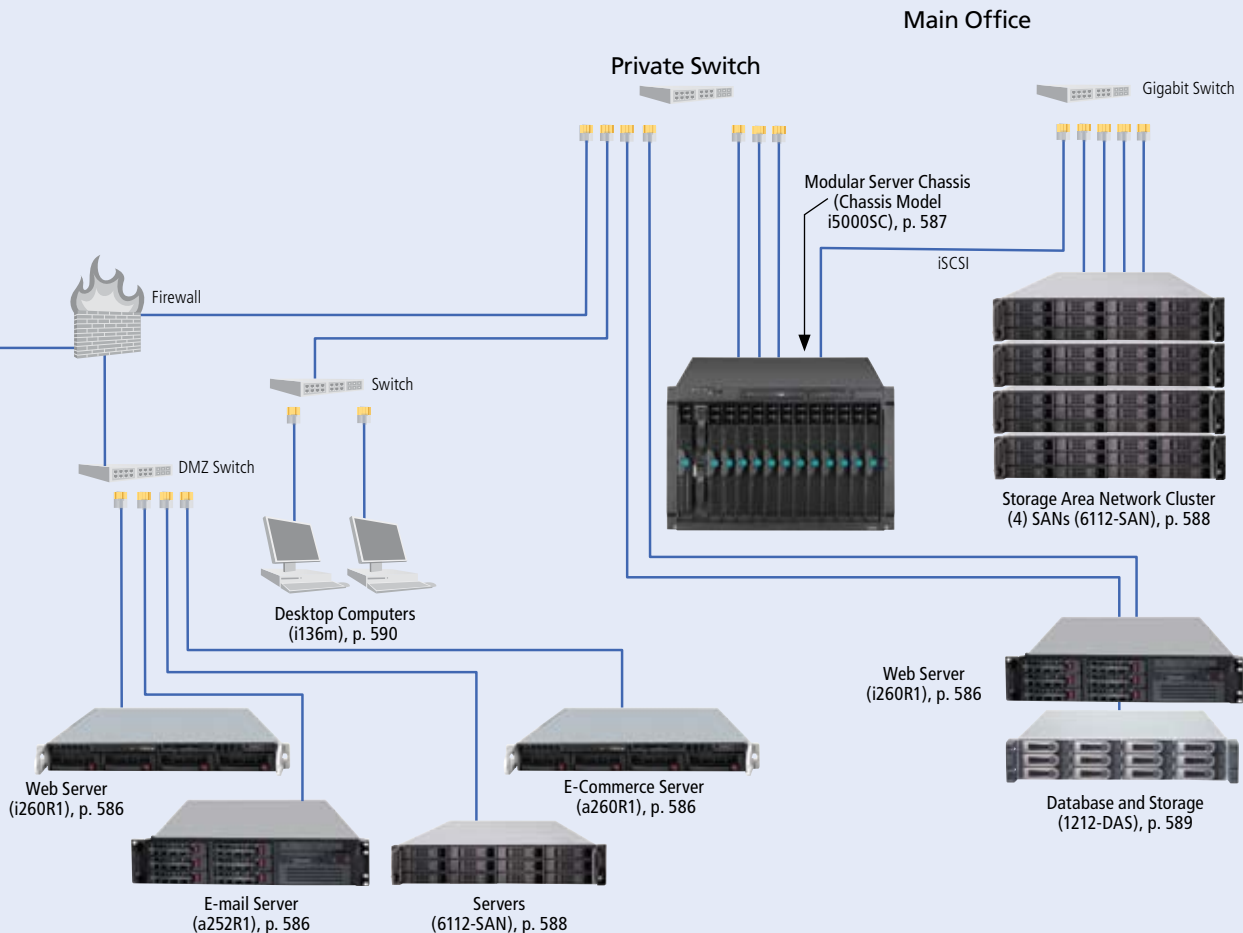
Users

- Make sure the processing power and storage is appropriate for the number of people who will use the server.
- The relative size of your network is also important. An application server for one company might barely pass muster as a file server for another.

Growth and technology: the bigger picture

- Roughly how many people does your company plan to hire in the next three years? Be sure to purchase a server that will account for this extra network load.
- Are there any demanding technologies or applications that your business is likely to adopt in the near term? Remember, not too long ago, 10 Mbps was incredibly fast, a 486 processor was powerful, and 2 GB was plenty of server storage space.
- If you think the server you're considering isn't powerful enough, it probably isn't. For help choosing the best server, call our FREE Tech Support.

Let Black Box help you build yours.



The Black Box Server Configurator

Our Server Configurator is an easy and efficient way to customize your server. You can choose the processor, memory, controller, number and type of hard drives, and other important components like the operating system and additional drives. We have models that cover everything—from basic network functions like file access to the powerful performance delivered from dual-processor servers.

The Configurator is a snap to use:

1. Go to blackbox.com > **Catalog/Store** > **Servers, Storage, & PCs** > **Server Configurator**.
2. Select your server.
3. Customize it with the features and components you'd like.
4. Call our FREE Tech Support to order your customized server.

Questions? Give us a call. For more than 30 years, Black Box has offered quality solutions and expert advice.

Our experts are here every hour, every day of the year—and we're the only place in the industry you'll find that kind of support!

i191R1

This 20-inch-deep server fits many environments.



- Features up to four SAS/SATA hard drives and remote management options in 1U of rack space.
- Supports one Intel® processor.
- Intel® Xeon® dual/quad core processor and 520-watt high efficiency power supply.
- Maximum supported memory is 8 GB.
- ATI ES1000 graphics card.
- To customize this server for your application, call our FREE Tech Support hotline.

a252R1

Supports dual AMD multicore processors.



- Powerful, 1U server supports two AMD® Opteron 2000 series processors (quad-core ready).
- 32 GB of memory and 560-watt high-efficiency power supply.
- NVIDIA® MCP55 Pro chipset.
- ATI™ ES1000 graphics card.
- Dual Gigabit Ethernet ports.
- To customize this server solution for your application, call our FREE Tech Support hotline.

i191R1RTS

Two SATA hard drives and dual Gigabit Ethernet ports in a ready-to-ship, 1U server.



- 20 inches deep for implementation into many different server environments.
- 2 GB of ECC DDR2 667 memory.
- 3065 dual-core Intel Xeon processor.
- Intel 3210 chipset.
- Seagate SATA II hard drives in a RAID 1 configuration.
- To customize this server solution for your application, call our FREE Tech Support hotline.

i153R1

Rack-optimized with three SATA hot-swap drives.



- Features up to three hot-swappable SATA drives in 1U of rack space.
- Up to 8 GB of memory.
- Quad-core Intel Xeon 32xx and 33xx processors.
- Intel 3200 chipset.
- Dual Gigabit Ethernet ports.
- To customize this server solution for your application, call our FREE Tech Support hotline.

i260R1

I/O scalability and CPU performance in 1U of space.



- Features up to eight hot-swappable SAS drives.
- Multicore Intel Xeon processors with 667-MHz, 1066-MHz, or 1333-MHz system bus.
- Intel 5000P chipset.
- Integrated ATI PCI graphics with 16 MB memory.
- Dual Gigabit Ethernet ports.
- 650-watt power supply.
- To customize this server solution for your application, call our FREE Tech Support hotline.

Modular Server

This Modular Server brings business-in-a-box to your data center space.

Modular Server i5000SC, 6U

- Integrates storage, computing, and networking to simplify complex IT environments.
- Supports up to six server Compute Modules (CM) and 14 SAS 2.5" hard disk drives, plus two Ethernet switch modules, an integrated SAN, and a management module.
- The multicore Intel® Xeon® dual-processor-based i5000 CMs (**below**) are custom configurable and work with the Modular Server.
- Integrated SAN features virtual drives to increase flexibility and maximize storage capacity.

- Virtual Presence GUI enables remote management of your system.
- Dual Gigabit Ethernet switches offer 10 1-GbE uplinks per module.
- Includes four 1000-watt power supplies that use 100–240 VAC power.
- Blower fans keep equipment cool.
- To customize this modular server solution for your application, call our FREE Tech Support hotline.



i5000 CM Compute Module

- Features dual Intel Xeon Dual-Core 5110 Series processors, which support 1.6 GHz/1066 FSB/4 MB L2.
- Has 8 DIMM memory slots for adding up to 32 GB memory.
- Holds up to two integral 2.5 SAS drives.
- ATI™ ES1000 graphics card.
- Plugs easily into the i5000SC Modular Server to provide twice the density of a standard rackmount server installation.

- Features an integrated KVM, remote media redirection, and a remote serial console for remote control and administration.
- Add this module to the i5000SC (**above**) to create an all-in-one business solution with today's requirements for management.
- To customize the CMs for your application, call our FREE Tech Support hotline.



Black Box Explains

Modular computing.

Modular computing consists of multiple computers of different types with high-performance, networked access to a unified data store. It combines multiple systems deployed in three-tier configurations.

Applications in this environment run over Internet, Web services, and grid computing interfaces. This new operating system provides a uniform view and access to all the systems in the server.

Network edge and load-balancing devices make up the first tier of a modular computing setup; banks of application servers in parallel are the second tier; and the third tier is comprised of back-end, high-performance database servers. In this setting, network transactions occur across multiple systems.

The three areas of distributed systems software that enable modular computing are Web services, grid or clustered computing, and distributed provisioning and management services.

Web services enable applications to operate with any operating system. Applications written to a Web services module can transparently access any other portion of the application via TCP/IP.

Processor power to the application can be scaled on demand via grids, clusters, and virtual operating systems. These systems enable you to build fault-tolerant applications, which leads to improved reliability. Both grids and clusters complement Web services, making applications scalable and more reliable.

For software installation and ongoing control of multiple servers (or individual blades in a blade server), distributed provisioning and management software is used.



These Modular Servers are a great match for our Performance Plus Cabinets, p. 236.

6112 SAN, 2U Rackmount

Serve massive storage to capacity-hungry applications with this iSCSI SAN.



- Specify up to 12 hot-swappable SATA drives for as much as 9 TB capacity.
- Built on the Promise VTrack M-Class iSCSI VTM310i storage system platform with reliable RAID architecture (RAID levels 0, 1, 1E, 5, 6, 10, and 50 support) and a hardware-based TCP/IP and iSCSI offload engine.
- Provides wide interoperability. Loaded with iSCSI/IP features for mapping SCSI over TCP/IP networks, plus immediate data, CHAP authentication, VLAN, link aggregation, and jumbo frame capabilities.
- Offers near-wire-speed performance, embedded Web-based GUI management via an Ethernet link, and iSNS for network device discovery.
- Solve challenging storage problems without disrupting your clients.
- Includes redundancy. A highly reliable solution for disk-to-disk backup, media serving, video surveillance, and compliance-storage applications.
- Features a front-accessible, 19" rackmountable enclosure with 1 GB iSCSI I/O ports and a 72-hour battery backup.
- Holds any off-the-shelf 3.5" 3-Gbps or 1.5-Gbps SATA drives.
- To customize this SAN for your specific application, call our FREE Tech Support.

NASs

Store and protect valuable multimedia and network data on your desktop.



3001-NAS, All-In-One

- A slim, full-featured NAS system with a single SATA drive, available hard drive from 160 GB to 1 TB.
- Features Ethernet, USB, and eSATA connections.
- High performance, 500-MHz CPU supports Windows®, Linux®, Mac®, and UNIX® clients.
- Complete backup utility and encrypted remote replication.
- Q-RAID 1 technology enhances data security.

3404-NAS, Desktop

- An affordable Intel® Entry Storage System SS4000-E that offers up to 3 TB of storage capacity in a compact desktop cube.
- Can be specified with up to four SATA drives.
- Features Gigabit Ethernet and USB device connection ports.
- Works as a DHCP server; has a built-in FTP server and Web management.
- Advanced data protection through RAID levels 0, 1, 5, and 10 (JBOD). Protect valuable data and quickly restore from backup, and limit access to shared files by user names or groups.
- To customize either of these NAS systems for your application, call our FREE Tech Support.

Black Box Explains

Server and storage terms.

Cluster — A group of servers and/or storage devices that acts as a single system in either one location or distributed across multiple sites.

DAS (Direct-Attached Storage) — Storage that's directly connected to a server and only accessible from that server. DAS provides very fast access to data. A DAS device most often has a SCSI interface.

Failover — The process in which a secondary device takes over the duties of a failed primary device so that services remain uninterrupted.

Fibre Channel — A high-speed storage interface often used in SANs to connect servers to shared storage.

HDSS — 1) High-Density Storage Servers: Servers that pack a very high capacity into a small footprint.

2) Holographic Data Storage System: Optical interference images recorded in a light-sensitive medium.

iSCSI (Internet SCSI) — A protocol for the transport of SCSI data over IP networks.

JBOD (Just a Bunch of Disks) — A group of separately housed disks that have been combined to appear as a single logical disk but still operate independently of one another. Because the disks aren't configured in a redundant array (RAID), there's no fault tolerance in the group.

NAS (Network-Attached Storage) — Storage that's accessible from a network rather than just one individual server. A NAS device is not a server—it only stores data and doesn't provide services such as e-mail, authentication, or file management. A server still handles all the processing, but the NAS delivers the data. A NAS enables you to quickly add more storage space to a network without shutting down servers. It doesn't need to be near a server and can provide data for multiple servers.

RAID (Redundant Array of Independent Disks) — A method of storing the same data over multiple physical disks to ensure that if one hard disk fails, a copy of the data exists and is easily available.

Redundancy — The duplication of hardware or data to ensure that if a primary resource fails, a secondary resource can take over its function.

SAN (Storage Area Network) — A network of storage devices. A SAN may include host servers, switches, and disk storage subsystems, and is often based on a Fibre Channel for host-to-storage connections. Storage is generally available to multiple hosts at the same time.

Server — A computer or device that manages network resources. Servers may provide many network functions or be dedicated to only a single task, such as performing as a file server, print server, or database.

1442-HDSS-SATA

An 8U-high HDDS with up 42 bays for 42 TB capacity!

- This High-Density Storage Server (HDDS) can store a massive 42 TB of data.
- Has 40 front bays and 2 rear bays in a 8U high-density form-factor chassis for hot swapping 1 TB of SATA II hard drives.
- Features quad-core Intel® Xeon® CPUs with a 5000P chipset.
- Equipped with 3Ware® RAID controller (RAID 0, 1, 10, 5, 50, JBOD) with 16-port SATA RAID card, and a 16 MB ATI graphics card.
- Integrated dual Gigabit LAN card connection plus a PCI slot, two PCI-X slots, three PCI-E slots, and eight memory sockets for up to 32 GB of memory.
- Redundant power supplies included.
- To customize this HDSS-SATA for your application, call our FREE Tech Support.



1442-HDSS-SATA

DAS Subsystems

Back up systems with a portable, 500 GB drive or a 12-drive platform offering 12 TB storage.

1007-DAS (500 GB) Storage RTS

- A portable, ultra-quiet external hard drive with "one-touch" file backup.
- High-speed USB 2.0 port and cable for easy file backups and transfers.
- Also offers eSATA connectivity. Comes with an eSATA cable and eSATA adapter.
- Maximum capacity of 500 GB.
- FREE 2-day shipping!



1212-DAS, 2U

1212-DAS, 2U

- Order with up to 12 drives in a 2U chassis for highly available storage in both SAS and SATA. Offers a maximum capacity of 12 TB.
- Includes fully redundant, hot-swappable single or dual controllers.
- Expandable by adding up 1312-DAS-JBOD units (right).
- Uses any RAID levels 0, 1, 1E, 5, 6, 10, 50, and 60 at the same time.
- Constantly monitors components for continuous operation of disks, controller(s), power, and cooling units, and provides redundant paths.
- Configurable via its WebPAM PROe software and manageable through a local Ethernet connection, locally or across a LAN, or remotely via the Web. Provides error reporting and e-mail notification.

- To customize any of these DAS systems for your application, call our FREE Tech Support.

1312-DAS-JBOD, 2U

- A 12-bay, SAS/SATA JBOD system that gives you additional capacity—up to 12 TB of raw storage—in a 2U-high rackmount platform.
- Use either SAS or SATA drives. Choose SAS host RAID controllers with battery backup or as a storage capacity JBOD add-on to the 1212-DAS (left).
- Manage from a network via in-band, 3-Gbps SAS (choose from single- or dual-I/O module options). Works with existing servers.
- Redundant, hot-swappable fans and power supplies.
- Cascade up to four units.

blackbox.com

This may be the Big Book, but **blackbox.com** is even **BIGGER!**

- There you'll find:
- **Handy configurator links!** Specify your exact server on-line to get just the system you need.
 - **More PCs!** In addition to more servers, you'll find our most up-to-date line of desktop and laptop PCs in ready-to-ship, mainstream, and entry-level versions—customizable for business or home use.
 - **Savings.** Find weekly specials and savings on featured products.

If you still can't find what you need, just ask the experts at our FREE Tech Support hotline!

i484 Quad Core

Loaded desktop brings powerful computing to your space.



- Microsoft® Windows XP® and Vista™ operating systems.
- Intel® Core2 Quad processor.
- Choose your own video card.
- Dual-channel DDR3 RAM with space for up to 8 GB.
- Six SATAs with RAID support.
- DVD/DVD-RW optical drive is standard.
- Gigabit Ethernet port.
- Includes (1) PCI Express x 4 and (2) PCI Express x 16, plus (3) PCI Express for expansion.
- To customize this desktop for your application, call our FREE Tech Support hotline.

i136M Desktop

Value-priced, business-class desktop.



- Microsoft Windows XP and Vista operating systems.
- Intel Celeron® to Core2 Duo processor.
- Integrated GMA 950 graphics card.
- DDR2 dual-channel memory to 2 GB.
- SATA-100 IDE hard drive to 80 GB.
- DVD/CD-RW/DVD-RW optical drive.
- PCI Express x 1; PCI Express x 16.
- Integrated high-definition audio.
- Integrated Gigabit Ethernet.
- To customize this desktop for your application, call our FREE Tech Support hotline.

N5020 Notebook Computer

Sharp graphics and audio—to go!



- Intel Core2 Duo processors with Intel 945PM chipset.
- Microsoft Windows XP or Vista operating systems.
- 17" TFT WXGA Bright LCD display.
- Integrated Intel GMA 950 graphics.
- DDR2-667 memory (up to 2 GB maximum).
- 60 GB 5400-RPM SATA hard drive.
- DVD-RW optical drive.
- 802.11a/b/g wireless Ethernet and integrated Bluetooth®.
- I/O ports: (1) VGA, (3) USB 2.0, (1) S-Video, (1) 1394, (1) audio, (1) RJ-11 modem port, and (1) RJ-45 10-/100-/1000-Mbps Ethernet port.
- Lithium-ion battery with AC charger.
- 1.4"H x 11.2"W x 15.8"D (40.1 x 28.4 x 3.6 cm).
- To customize this notebook for your application, call our FREE Tech Support hotline.

N4030 Ultimate Business Laptop

At the office or away from it, this laptop delivers.



- Intel Core Duo Processors with an Intel 965GM chipset.
- Microsoft Windows Vista operating system.
- 15.4" TFT WXGA Bright LCD display.
- Integrated GMA x3100 graphics.
- DDR2-667 memory (4 GB maximum).
- DVD-RW optical drive.
- 802.11a/b/g wireless Ethernet.
- Integrated modem and 10/100/1000 LAN.
- I/O ports: (1) HDMI, (1) S-Video, (1) 1394, (4) USB 2.0, (1) audio, (1) ExpressCard 34 slot, (1) card reader, (1) RJ-11 modem port, and (1) RJ-45 10-/100-/1000-Mbps Ethernet port.
- Lithium-ion battery with AC charger.
- 1.3"H x 10.4"W x 14.1"D (35.8 x 26.4 x 3.3 cm).
- To customize this notebook for your application, call our FREE Tech Support hotline.

Servers with the world's best support!



Black Box supports your servers with:

- Expert customization by our Tech Support experts.
- Fast, FREE 24/7/365 Tech Support hotline.
 - A wide range of warranty options.
 - Optional on-site support.

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Voice Communications





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is your source for
top-of-the-line
communications
products—
pass it on!

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For New Products,
turn to pages 26–73.

Pro-Fit Office Headset

Super adaptability—three wearing styles.



- The most comfortable headset on the market. It's lightweight and practically floats on your ear.
- Wear with a headband, with the flexible earhook that easily adjusts to the shape of your ear, or with an earloop.
- The flexible boom is fully adjustable.
- Noise-canceling microphone screens out environmental noise.
- DuraFlex cable technology provides superior RF suppression and shielding for the clearest possible reception and transmission.
- **Warranty** — 1 Year Plus Limited Lifetime

Item	Code	List Price
Pro-Fit Office Headset	HS200A	
<i>You may also need...</i>		
Amplifiers for Black Box Headsets		
Multi-Purpose	HS100A-R2	
Two-Prong Carbon	HS101A	

Polycom VoiceStation 300

Crystal-clear conferencing for smaller rooms and desktops.



- Business-class communications for up to four users.
- Acoustic Clarity Technology enables simultaneous, two-way communication.
- Dynamic Noise Reduction reduces background noise.
- Up to 7 feet (2.1 m) of 360-degree microphone coverage.
- Put it anywhere you need to in the room. It includes a 21-foot RJ-45 cable and a 7-ft. RJ-11 cable.
- **Warranty** — 1 Year

Item	Code	List Price
Polycom® VoiceStation® 300	2200-17910-001	
◆ Includes (1) phone, (1) power supply, (1) 21-ft. RJ-45 cable, and (1) 7-ft. RJ-11 cable.		

Plantronics 1.9-GHz Wireless Office Headset System

Clear communications up to 300 feet away.



- Uses the 1.9-GHz voice-dedicated frequency for optimal clarity. The less-crowded frequency means you don't have to worry about interference from nearby Wi-Fi® networks and other wireless devices operating in more common frequencies.
- Enables you to move up to 300 feet (91.4 m) from your desk during a call.
- Includes an extended boom and noise-canceling mic that makes it ideal for use in areas with lots of background noise.
- One-step remote answering.
- Eight hours of battery talk time.
- Optional Handset Lifter (HL10) available.
- **Warranty** — 1 Year

Item	Code	List Price
Plantronics® 1.9-GHz Wireless Office Headset System	CS55	
<i>To add one-touch remote call answer/end capabilities, order...</i>		
Handset Lifter	HL10	

Polycom SoundPoint Pro

A professional desktop and conference phone in one!



- Provides corporate-quality audio-conferencing capabilities.
- High-quality, full-duplex audio for natural two-way conversations.
- Easily switches from personal conference room mode to 360° conference mode.
- Works with either a handset or a headset, or in speaker mode.
- Features Caller ID, Caller ID on Call Waiting, and more.
- Programmable 20-number speed dial saves dialing time.
- Has a 99-number caller history.
- **Warranty** — 1 Year

Item	Code	List Price
Polycom SoundPoint Pro, 2-Line	2200-06325-001	

Polycom SoundStation2 • Polycom SoundStation Premier

The ultimate in audioconferencing!



2200-16000-001



2200-05200-001

- Operates full-duplex for natural, simultaneous two-way conversations.
- Three hypercardioid microphones for 360-degree coverage. Walk around a room while speaking and always be heard clearly.
- Dynamic Noise Reduction (DNR) provides maximum microphone sensitivity while reducing distracting room and background noise.
- Intelligent mixing so only the microphone closest to the speaker is on and there are fewer extraneous noises during the call.
- Integrated keypad, including mute button and flash key, operates just like the keypad on any handset phone.
- Easy to install—just plug into a power outlet and a standard analog phone jack.
- ♦♦ **WARRANTY** — SoundStation2: 1 Year;
SoundStation Premier: 3 Years

SoundStation2

- Choose the Non-Expandable model if you plan to teleconference in an office or a small conference room with up to eight people and want clear conversations from up to 10 feet (3 m) away.
- For medium to large conference rooms, order the Expandable model. It supports two optional external microphones (2200-16155-001) that increase coverage for use in larger rooms and enable up to 25 people to join your conference call.
- Large backlit graphical display enables you to see telephone functions and caller-related information, such as Caller ID, more easily.
- Also has an expanded user interface with extra soft keys for scrolling through menus and accessing context-sensitive functions.
- Built-in phonebook and speed dial list can hold up to 25 entries.

SoundStation Premier

- Provides a 16-character LCD to display Caller ID, time, and the length of call.
- Custom-built neodymium speaker provides high-fidelity sound with a dynamic and balanced range, powerful bass, and enough volume to fill even a large room.

TECH SPECS

Audio Bandwidth — 200–3500 Hz	Size — SoundStation2:
Speaker Volume — Adjustable to 89 dB	2.3"H x 11.9"W x 12.4"D
Connectors — (1) 2-wire RJ-11 for PBX or PSTN, (1) RCA jack for tape recorder	(5.8 x 30.2 x 31.5 cm);
Power — 110 VAC, 60 Hz, 25 W (220-VAC version on request)	SoundStation Premier:
	2.5"H x 13"W x 13.8"D
	(6.4 x 33 x 35.1 cm)

Item	Code	List Price
Polycom® SoundStation2™		
Non-Expandable	2200-16000-001	
Expandable (SoundStation2 EX)	2200-16200-001	
♦ Include (1) phone, (1) 21-ft. console cord, and (1) 7-ft. phone jack cable.		
Polycom SoundStation Premier		
Non-Expandable	2200-05200-001	
♦ Includes (1) phone, (1) 25-ft. console cord, and (1) 7-ft. phone jack cable.		
To increase SoundStation2 EX's coverage in larger rooms, order...		
(2) Extended Hypercardioid Microphones for SoundStation2 EX	2200-16155-001	
You can also increase a legacy SoundStation Premier EX's coverage in larger rooms!		
(2) Extended Hypercardioid Microphones for SoundStation Premier EX	2200-02138-001	

To connect your SoundStation2 or SoundStation Premier to a digital line, order...

Conference Linc Up (For details, see blackbox.com.)

MC117A

Phone Line Manager 120B • Phone Line Manager 230B

Share one phone line between three or four devices.



FX121A-R2

Phone Line Manager 120B

- Connects three devices, such as a phone, answering machine, fax machine, or modem, to one phone line.
- Perfect for the home or small office.
- Automatically recognizes faxes.
- Remote message-notification feature forwards tones to the number you specify.
- Works with Distinctive Ring, Voice Mail, and Caller ID services.

- ♦♦ **WARRANTY** — All: 1 Year

TECH SPECS

Line Type — 2-wire dialup
Operation — Full-duplex
Connectors — FX121A-R2: (4) RJ-11;
FX126A: (5) RJ-11

Power — 115-VAC, 60-Hz wallmount adapter (included)
Size — 2.3"H x 6.5"W x 7.3"D (5.8 x 16.5 x 18.5 cm)

Phone Line Manager 230B

- Connects four devices, such as a phone, answering machine, fax machine, or modem to one phone line.
- Or connect three devices to two phone lines.
- Compatible with two-line phones.
- Converts your fax machine into a full-page, multidocument scanner or printer.
- Supports remote message notification.
- Works with Distinctive Ring, Voice Mail, and Caller ID services.

Item	Code	List Price
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Phone Line Managers		
120B	FX121A-R2	
230B	FX126A	

Phone Line Manager 208B

Connect eight devices to two telephone lines.

- Eliminate six dedicated phone lines.
- Two-line capacity means multiple telephony devices can be on-line simultaneously.
- Use it with modems, remote monitoring systems, fax machines, credit card terminals, POS terminals, metering machines, and more!
- Port lockup and device failure detection features remove failing devices from the line.
- Advanced CPC detection detects when devices hang up.
- Caller-selectable port access.
- Data calls don't ring phone ports.
- Automatic fax detection routes fax calls.
- Built-in surge protection.
- ♦♦ **WARRANTY** — 3 Years



Above: front view;
right: rear view



TECH SPECS

Connectors — Line: (1) RJ-11 2-wire, (1) RJ-14 4-wire;
Device: (8) RJ-11 2-wire
Indicators — Power LED; Line 1; Line 2; P1-P8
Power — Input: 120 VAC, 60 Hz;
Output: 12 VAC, 0.83 A
Size — 2.3"H x 7.3"W x 6.3"D (5.8 x 18.5 x 16 cm)

Item	Code	List Price
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Phone Line Manager 208B	FX165A	
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**FOR OPTIMUM PERFORMANCE,
and a 20% savings, order...**

RJ-11 (4-Wire) Modular Cable, Cross-Pinned,
25-ft. (7.6-m) (For other lengths or pinnings,
see p. 111.) EL04M-25

Phone Line Manager Pro 104

The phone line manager built for heavy-duty commercial use.

- Connect four devices to one phone line.
- Or connect three devices to two phone lines.
- The four device ports have three fully independent connections.
- Provides true four-port sharing, so each of the four connected devices has its own port.
- An "emergency override" feature enables you to use the phone.
- Compatible with Call Waiting, Caller ID, Distinctive Ring, and Voice Mail services.
- For security, a remote-access code keeps hackers and spies out.
- Has built-in power and telephone line surge protection.
- Offers 35 programmable features!
- ♦♦ **WARRANTY** — 1 Year

TECH SPECS

Connectors — (5) RJ-11 (2-wire)
Indicators — (6) LEDs: (5) Port, (1) Power
Power — 120 VAC, 50/60 Hz
Size — 2"H x 6"W x 7.3"D (5.1 x 16.5 x 18.5 cm)
Weight — 3 lb. (1.4 kg)



Item	Code	List Price
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Phone Line Manager Pro 104	FX134A	
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- ♦ Includes (1) phone line manager, (1) RJ-11 cable, (1) mounting kit, and (1) power supply.

**FOR OPTIMUM PERFORMANCE,
and a 20% savings, order...**

RJ-11 (4-Wire) Modular Cable, Cross-Pinned,
25-ft. (7.6-m) (For other lengths or pinnings,
see p. 111.) EL04M-25

Modem Router Switches

Switch multiple inbound modem calls on one phone line.



40417-R2

- Connect up to eight modems to a phone line.
- Switch inbound calls between four or eight user-selected modems attached to PCs, servers, and other DTEs.
- Eight-position rotary and four-bit DIP switches enable easy programming and ensure secure access.
- Use in voice, fax, and other analog switching applications.
- Route dialback calls to the proper PC.
- ♦♦ **WARRANTY** — 2 Years

TECH SPECS

Connectors — 40416-R2: (7) RJ-11; 40417-R2: (11) RJ-11
Indicators — LEDs: (4) or (8) link, (1) power, (1) mode
Power — 115 VAC, 60 Hz
Size — 0.8"H x 7.5"W x 4.3"D (2 x 19.1 x 10.9 cm)

Item	Code	List Price
Modem Router Switches		
4 Ports, 1 Line	40416-R2	
8 Ports, 1 Line	40417-R2	

2- to 4-Wire Hybrid Converter

Your 2-wire private-line modem can use a 4-wire leased line.



- Saves the cost of purchasing additional equipment, even rewiring.
- Passive device converts 2-wire analog modems for use on 4-wire, 600-ohm leased lines.
- Connects to the modem and line with either RJ-11 modular jacks and/or screw terminals.
- Terminal and jack connections can be mixed.

- Both the 2-wire and 4-wire connections are polarity insensitive.
- Requires no external power.
- ♦♦ **WARRANTY** — 1 Year

Item	Code	List Price
2- to 4-Wire Hybrid Converter	MC118A	

Linc Up Plus

Your analog modem can dial and answer calls automatically — even on a digital phone system.

- Connect any 2-wire analog modem or fax to virtually any digital phone system.
- Get full use of your PC's modem over your digital phone system.
- Works with any PBX connection.
- Operates with or without a digital telephone attached.
- Supports incoming and outgoing analog calls.
- Autodial and autoanswering capabilities.
- Compatible with all desktop systems with modems and communications software, and with all fax machines.
- Full-duplex operation supports speakerphone functions.
- ♦♦ **WARRANTY** — 1 Year



MC119A

Item	Code	List Price
Linc Up Plus		
Northern Telecom®	MC119A	
AT&T® or Lucent	MC120A	
Siemens® ROLM	MC121A	

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This may be the Big Book, but **blackbox.com** is even **BIGGER!**

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