EATON | Powerware

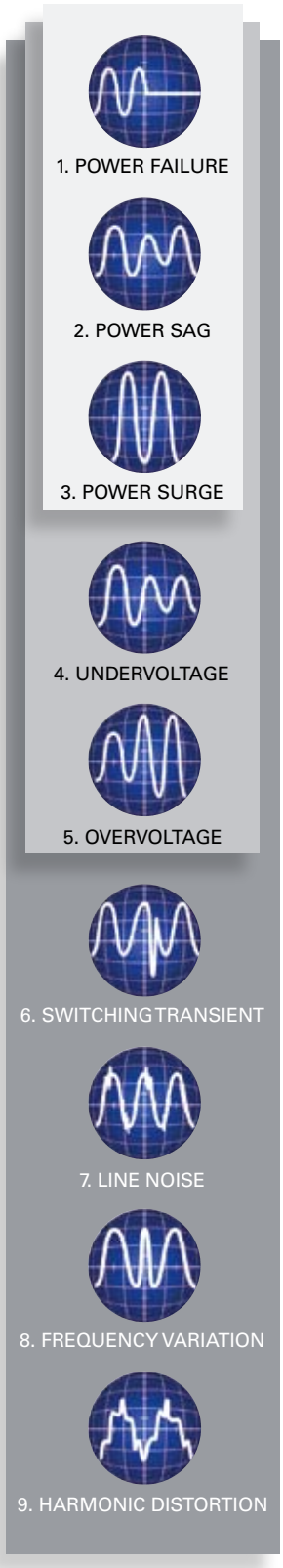
Powerware 9155 8–30 kVA
Powerware 9355 8–40 kVA

Reliability in tough places easier than ever

Like never before

Eaton, under the Powerware brand, the number one UPS manufacturer in the world in the above-5-kVA category*, introduces a new high-end product. The new Powerware 9155 and 9355 combine good looks with uncompromised efficiency and reliability. It provides an affordable solution for 24/7 power protection across a wide range of critical IT and electrical engineering applications. The 9155 and 9355 cover the power range 8–40 kVA and can be paralleled for redundancy and capacity using Eaton's patented Hot Sync® technology.

**Frost & Sullivan: World UPS market 2003*



Never before has a UPS been so powerful, yet so slim.

And never before has a UPS had such a combination of features and benefits.

Powerware 9155 and 9355 combine style and small footprint with high performance. With its elegant black casing and its fully graphic, blue backlit LCD display, its strikingly modern appearance sets it clearly apart from the computer-grey masses of older equipment usually found in offices and server rooms.

Reliable

But good looks are just the surface. The 9155 and 9355 are a Series 9 UPSs, meaning that they protect from all of the nine types of most common power disturbances.

Thanks to Eaton's patented Hot Sync technology, two or more UPS units can be paralleled to provide no-compromise protection of the load even if one of the units is out of commission for service. More than that, the 9155 and 9355's design incorporate well thought-through solutions geared to keep their total life-cycle cost at the lowest possible level.

For example, they have up to 93% efficiency, provide 0.99 input power factor and are rated for 0.9 output power factor loads.

Easy to use

Floor space is expensive. That is why the 9155 and 9355 were designed in a slim, compact tower to provide maximum power per square metre. Their small footprint also means that you will be able to increase your UPS capacity considerably without expanding your present server room. Not to mention easier transport and installation.

Even the standard battery configuration provides integral 31 minutes of backup time (at 20 kVA computer load), and you can extend it to several hours by adding extra battery packs.

The fully graphic LCD display with blue backlight makes the 9155 and 9355 easy to control and monitor. For example, the inputs and outputs are configurable, enabling UPS customisation for the critical application.

With a bundled software suite and a wide range of communication options, the 9155 and 9355 are easy to run remotely using a variety of protocols.

The 9155 and 9355 offer you confidence that lets you stop worrying about power.

Powerware 9155 and 9355 feature inherent reliability. Only the most reliable hardware and technologies are used in their manufacture.

INFORMATION TECHNOLOGY SOLUTIONS

- Data networks, particularly in areas with frequent mains disturbances
- Web server hotels
- Telecom applications
- Financial institutions

ELECTRICAL ENGINEERING SOLUTIONS

- Office buildings
- Manufacturing machinery
- Process control

Reliable hardware, software and world-class service

If your business or application depends on a continuous power supply, look at the Powerware 9155 and Powerware 9355. They will provide you with the most reliable and affordable power protection today, packed in an elegant casing.

Thanks to its new advanced rectifier technology, the 9155 and 9355 give you the best in input power factor control (0.99 PF). Through their low harmonics content (2-5% THDi), the 9155 and 9355 are extremely mains-friendly.

Reliability is increased by advanced battery management functions such as ABM™ (Advanced Battery Management), automatic discharge testing and temperature compensated charging voltage. Together, they can increase your battery lifetime considerably and will make sure your batteries — the most important component of the UPS — always remain in top condition!

Because the 9155 and 9355 come bundled with a software suite, you have total control over the system. The software package includes shutdown software, basic-level monitoring and integrates your UPS to your data network.

No mechanical device will run forever without servicing. That is why Eaton offers you additional peace of mind through a range of service agreement options that can easily be customised to your needs and budget. Your Eaton representative will be happy to tell you more.

POWERWARE 9155 AND POWERWARE 9355

Feature	Benefit
Double conversion topology	Trouble-free output. Solution for critical 24/7 applications. Zero-break thyristor transfer to bypass for fault clearing.
Input power factor control (PFC)	Active 0.99 input power factor control leading to low current distortion in the input. Network friendly and reduces harmonics up to 5% THDi level.
Hot Sync®	Patented paralleling technology requires no communication between modules, eliminating a system-level single point of failure.
Advanced Battery Management (ABM™)	Reduced battery corrosion resulting significantly longer battery lifetime.
Self-diagnostics	No unexpected failures. Digital DSP technology constantly monitors internal UPS operation.
High output power factor rating	0.9 output power factor is suitable for today's PFC computer and server loads.
Communication options	Wide range of options for network and building management uses, selectable Web/SNMP or ModBus/Jbus as needed.

Highlights that (almost) let you forget about power

Active power factor control for less disturbances in low-voltage networks

Thanks to their cutting-edge active-front rectifier, the 9155 and 9355 provide a perfect sine-wave input and 0.99 input power factor. This means that they avoid disturbances in the feeding mains network that energy converters tend to cause. With minimal current distortion (2-5% THDi) the 9155 and 9355 are extremely "mains-friendly" and do not require special harmonics filtering.

Hot Sync—unbreakable security

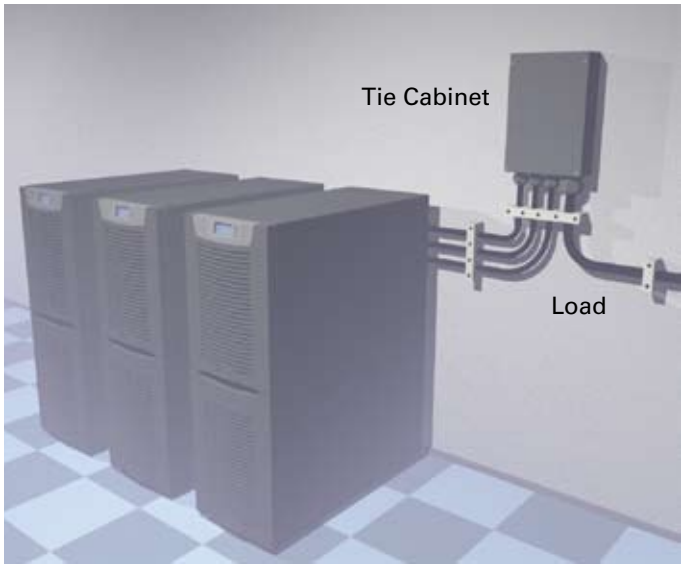
Hot Sync parallels two or more UPS units. Units are capable of load sharing without the need for communications wiring, hitherto the most vulnerable point of failure in all UPS systems. Each Powerware module has the ability to synchronise and support the critical load independently of the other modules. Thus all critical loads are supported by UPS-grade power, whatever maintenance needs—scheduled or unscheduled—should arise.

Hot Sync—redundant is an N+1 module system allowing full maintenance to be performed on all modules and the parallel cabinet without the need for an external maintenance bypass and without having to remove the critical load from conditioned power.

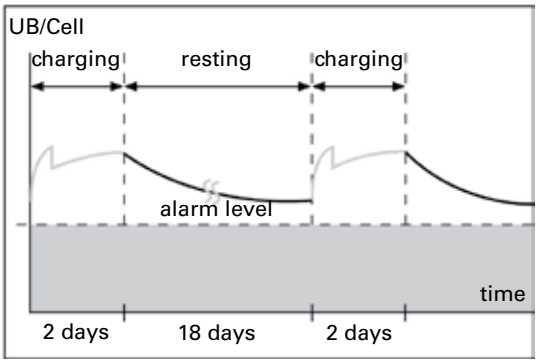
ABM—significantly more battery life

ABM constantly monitors battery charge status and only recharges when necessary. Compared with the traditional trickle-charging method, this reduces battery corrosion enough to provide significantly longer battery lifetimes! ABM compensates for changes in ambient temperature for proper charging.

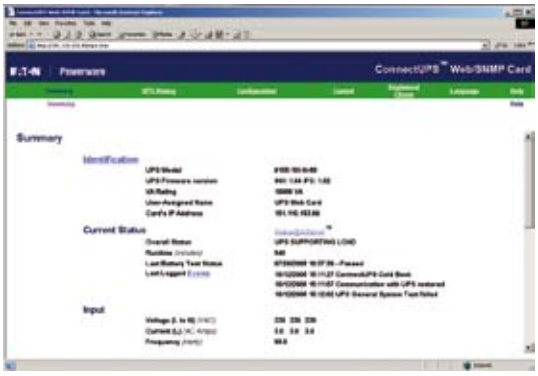
Battery monitoring provides real-time information on battery string health and remaining runtime. This allows you to proactively plan maintenance operations instead of reacting to emerging problems. UPS tests the batteries regularly with the rectifier connected, thus providing consistent test results regardless of inverter load at testing time. Moreover, as the load is never supported by the battery alone, the UPS will keep your critical load adequately protected at all times.



Hot Sync Redundant / Capacity



ABM™ with the intermittent charging method



Web card view of the UPS in a browser

Communication options —connect anywhere

ConnectUPS Web/SNMP card is a complete UPS monitoring, control and shutdown solution in a networked IT environment. In case of alert the Web/SNMP card can notify users and administrators through email and SNMP traps. In case of a prolonged power failure the protected computer systems can be shut down in a graceful manner with NetWatch and LanSafe software.

HTTP, SNMP, e-mail, WAP and Telnet compatibility enable dynamic and versatile support for a large variety of system configurations.

The XSlot™ card for the 9155 and 9355 also integrates a 3-port switching hub to support multiple PCs or networking equipment.

Environmental Monitoring Probe (EMP) enables you to remotely monitor environmental conditions as easily as you monitor power conditions. It adds temperature, humidity and two contact closure monitoring capabilities to ConnectUPS Web/SNMP card. It can trigger operating system shutdown if user-defined thresholds are exceeded or contact closure status changes.

Relay/AS400 card provides an easy connection to IBM AS/400 series computers as well as industrial and building management systems. You can also build a solution for a remote ON/OFF function with the relay card.

Powerware Modbus Card is an XSlot UPS connectivity device that provides continuous, reliable and accurate remote monitoring of your UPS system through a Building Management System (BMS) or Industrial Automation System (IAS). The card integrates data from the UPS into the user's management system using Modicon®, Modbus RTU Protocol. Key power quality and UPS status information may be monitored in real time to aid in the management of the UPS and notification of potential power problems.

Multi-Server card is a power quality connectivity product designed to enable multiple devices connected to a single UPS system to be managed and controlled independently. The Multi-Server Card allows separate communication with up to six connected servers with mixed operating systems.

PowerVision software monitors one or multiple UPSs, power distribution and environmental sensors across the enterprise and alarms the administrator in case of events. Its data analysis tools and graphical views help prevent problems before they occur.

Powerware Software Suite CD-ROM is bundled with every UPS. It contains LanSafe and NetWatch shutdown solutions as well as a 30 day trial of PowerVision monitoring software.

Please check www.powerware.com/Software/Products.asp for latest information.

Dimensions

20–40 kVA

8–15 kVA

Accessories

External Maintenance Bypass Switch (MBS)		
9155-MBS-15kVA	15 kg	
9355-MBS-15kVA	17 kg	
9355-MBS-30kVA	30 kg	

Battery cabinets (BAT) for 8-15 kVA		
9X55-BAT5-64x7Ah	195 kg	(5 years)
9X55-BAT5-96x7Ah	310 kg	(5 years)
9X55-BAT10-64x7Ah	195 kg	(10 years)
9X55-BAT10-96x7Ah	310 kg	(10 years)
9X55-BAT10-L-32x24Ah	480 kg	(10 years)
9X55-BAT10-L-64x24Ah	800 kg	(10 years)

Battery cabinets (BAT) for 20-40 kVA		
9X55-BAT-1x24Ah	510 kg	(10 years)
9X55-BAT-2x24Ah	870 kg	(10 years)
9X55-BAT10-1x110	520 kg	(10 years)
9X55-BAT10-2x110	890 kg	(10 years)

Connectivity
XSlot: Web/SNMP card
XSlot: AS/400 relays card
XSlot: RS232 port
XSlot: Modbus/Jbus card
XSlot: Hot Sync card

Specials:
Isolation output transformer
Input isolation transformer
Special colours
MarineUPS version

Technical specifications Powerware 9155 and Powerware 9355

Rating	8 kVA	10 kVA	12 kVA	15 kVA	20 kVA	30 kVA	40 kVA
Part number	9155-8-S 9155-8-S 9355-8-N	9155-10-S 9155-10-N 9355-10-N	- 9155-12-N 9355-12-N	- 9155-15-N 9355-15-N	- 9155-20-N 9355-20-N	- 9155-30-N 9355-30-N	- - 9355-40-N
Capacity (kVA/kW)	8 / 7.2	10 / 9	12 / 10.5	15 / 13.5	20 / 18	30 / 27	40 / 36
Dimensions HxWxD (mm) With extra runtime	817x305x702 1214x305x702				1684x494x762		
Weight							
UPS+1xBAT	155 kg	155 kg	160 kg	160 kg	300 kg	400 kg	517 kg
UPS+2xBAT	265 kg	265 kg	270 kg	270 kg	400-600 kg	500-600 kg	617 kg
Input connection	UPS input hardwired, Bypass input (redundancy) hardwired						
Output connection	1-ph (9155), 3-ph (9355), UPS output hardwired						
Typical runtime							
UPS+1xBAT	15 min	10 min	8 min	5 min	5 min	- min	- min
UPS+2xBAT	33 min	25 min	20 min	15 min	23 min	7 min	- min
UPS+3xBAT	49 min	40 min	28 min	22 min	22 min	13 min	8 min
UPS+4xBAT	79 min	57 min	45 min	37 min	31 min	20 min	12 min

Operational	
Nominal input voltage (Vac)	S models: 220/230/240 Vac single phase; N models: 220/380, 230/400, 240/415 Vac three phase
Input voltage range	±20% from nominal at 100% load, -50%, +20% from nominal at 50% load
Operating frequency	50/60 Hz (45 to 65 Hz)
Input power factor	0,99
Input current distortion	2-5% THD in nominal load condition
Nominal output voltage	220/230/240 Vac single phase (9155), 380/400/415 three phase (9355)
Output voltage regulation	±2% static; ±5% dynamic at 100% load change, < 1 ms response time
Overload capacity	150% for 1 min / 125% for 10 min / 110% for 60 min (mains available) 150% for 5 sec (on battery)
Permitted load power factors	0,7 lag – 0,8 leading, no derating needed
Efficiency	92% with computer load, 93% with linear load

User interface	
LCD display	Graphical LCD with blue backlight: English, French, German and Spanish languages std.
LED	4 LED
Standard communication ports	1 x RS232 for local support, 2 x XSlot (empty); 1 x relay contact, 1 x emergency power-off input, 2 x environmental input
Optional	External battery cabinets; Temperature Probe (EMP) Isolation transformer; External Maintenance Bypass Switch (MBS) Slot connectivity: Web/SNMP, Modbus/Jbus, Relay, Hot Sync, RS 232 cards

Environmental	
Operating temperature	0°C to +40°C, +45°C with 7,5% derating; Batteries recommended max. +25°C
Storage temperature	-15°C to +45°C
Altitude	< 1000 m
Audible noise	< 50 dB(A) at 1 meter (noise less room); 53 dB(A) according to ISO 7779

Certification	
Quality	ISO 9001: 2000 and ISO 14001:1996
Markings	CE and GOST marking
Safety	IEC 62040-1-1, IEC 60950, EN 62040-1-1
EMC	EN 50091-2 Class A

Performance according to IEC 62040-3 VFI-SS-111

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