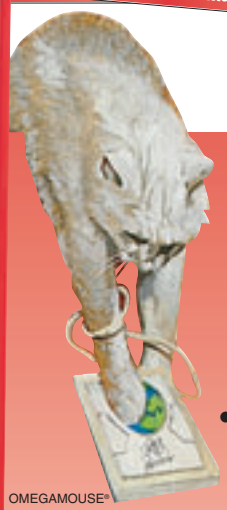
DILBERT™

OMEGATEMP™

New Horizons® in Temperature, Measurement & Control

Includes 42 Dilbert Cartoons!



Volume 1

Preview of OMEGA's Made In The USA Edition Handbook

- Non-Contact IR Temperature Measurement
- Temperature Probes & Sensors
- Industrial Meters & Controllers
- Laboratory Calibration Equipment
- Transmitters, Recorders & Data Loggers For Temperature & Humidity Measurement
- The Best Temperature Connectors, Cable & Wire In The Industry

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Preview

Made in the USA

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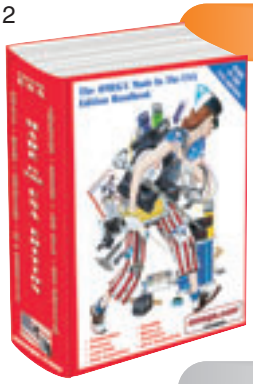
1-800-TC-OMEGA

Welcome to OMEGA!

Introducing The Made In USA Handbook



The New Horizons® Vol 1 and 2 previews a selection of exciting products that will be featured in the upcoming OMEGA® Made in the USA Edition Handbook™. Vol. 1 contains non-contact IR temp. measurement probes; sensors; meters; controllers; lab calibration equipment and dataloggers.

Exceeding Your Expectations

Since 1962, OMEGA has grown from manufacturing a single product line of thermocouples to being an established global leader in the technical marketplace, offering more than 100,000 state-of-the-art products for measurement and control of temperature, humidity, pressure, strain, force, flow, level, pH and conductivity. OMEGA also provides customers with a complete line of data acquisition, electric heating and custom engineered products. It is our commitment to quality instrumentation and exceptional customer service that has remained the cornerstone of our success. OMEGA's priority is clear: Our facilities exist to "facilitate" solutions to your needs.

Easy to Order: By Phone —

Ordering is as easy as picking up the phone and dialing: (USA and Canada)

1-800-82-66342®
1-800-TC-OMEGA

One of our courteous, trained sales representative will assist you with product selection and placing your order.If you need more technical assistance, we have degreed application engineers available to help you solve your application problem.

By Internet —

Use you web browser to go to

www.omega.com

Our online store has over 100,000 products available at the click of a mouse. After you place you order, it is reviewed and delivery confirmation is promptly emailed to you.

Fast Delivery!

OMEGA ships most of its orders within 48 hours. We also have overnight service available for customers who need product the next day.

Prices in U.S. Dollars

Table of Contents

Ready-Made Insulated Thermocouples

With Standard OST and Mini Spool Caddies

US Patent No. D327,054
Canada Patent No. 66767

Standard OST
Spool Caddy

- Available from Stock in Convenient 5-Packs
- Type J, K, T and E Thermocouples
- Made from Special Limits of Error Wire
- 20 and 24 AWG Diameter Wires
- Glass Braid Insulation with Max Service Temp of 480°C (900°F)
- PFA Teflon® Insulation with Max Service Temp of 260°C (500°F)
- Kapton® Insulation with Max Service Temp of 316°C (600°F)
- 36 and 72" Lengths Standard
- Max Service Temp for Connector Body 220°C (425°F)

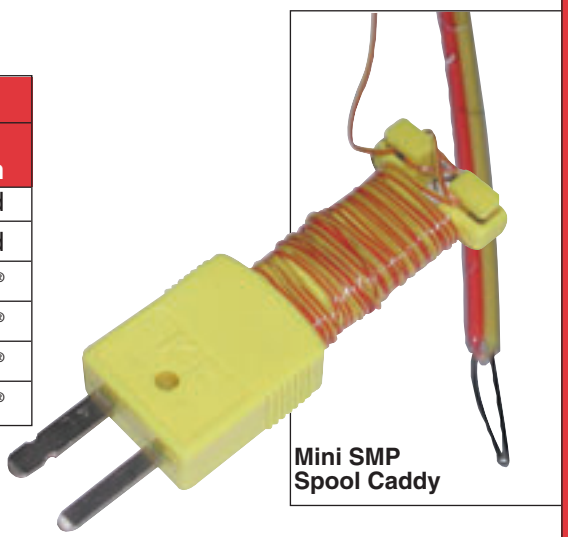
New! STANDARD OST Spool Caddy Thermocouples

To Order *(Specify Model Number)*					
Model Number**	AWG Gage	Dia mm (")	Price Per 5 Pack 36"	72"	Insulation
5LSC-GG-(*)-20-(**)	20	.81 (.032)	$64	$74	Glass Braid
5LSC-GG-(*)-24-(**)	24	.51 (.020)	58	68	Glass Braid
5LSC-TT-(*)-20-(**)	20	.81 (.030)	75	95	Teflon®
5LSC-TT-(*)-24-(**)	24	.51 (.020)	64	74	Teflon®
5LSC-KK-(*)-20-(**)	20	.81 (.032)	75	95	Kapton®
5LSC-KK-(*)-24-(**)	24	.51 (.020)	64	74	Kapton®

**** Insert calibration J, K,T, or E. **Specify length 36 or 72 inches***

Note *- Add **$5.00** per additional 1 foot /per package of 5 on GG or TT wire. On KK wire add **$7.50** per additional 1 foot /per package.*

Ordering Example: 5LSC-KK-K-20-72, *a 5-pack of Type K OST spool cap thermocouples with 72" of 20 AWG Kapton insulated wire, **$95.***



Mini SMP
Spool Caddy

New! Mini SMP Spool Caddy Thermocouples

To Order *(Specify Model Number)*					
Model Number**	AWG Gage	Dia mm (")	Price Per 5 Pack 36"	72"	Insulation
5SC-GG-(*)-30-(**)	20	.81 (.032)	$58	$68	Glass Braid
5SC-TT-(*)-30-(**)	30	.25 (.010)	69	89	Teflon®
5SC-TT-(*)-36-(**)	36	.13 (.005)	75	95	Teflon®
5SC-TT-(*)-40-(**)	40	.076 (.003)	85	105	Teflon®
5SC-KK-(*)-30-(**)	30	.25 (.010)	85	105	Kapton®

**** Insert calibration J, K,T, or E. **Specify length 36 or 72 inches***

Note *- Add **$5.00** per additional 1 foot /per package of 5 on GG or TT wire. On KK wire add **$7.50** per additional 1 foot /per package.*

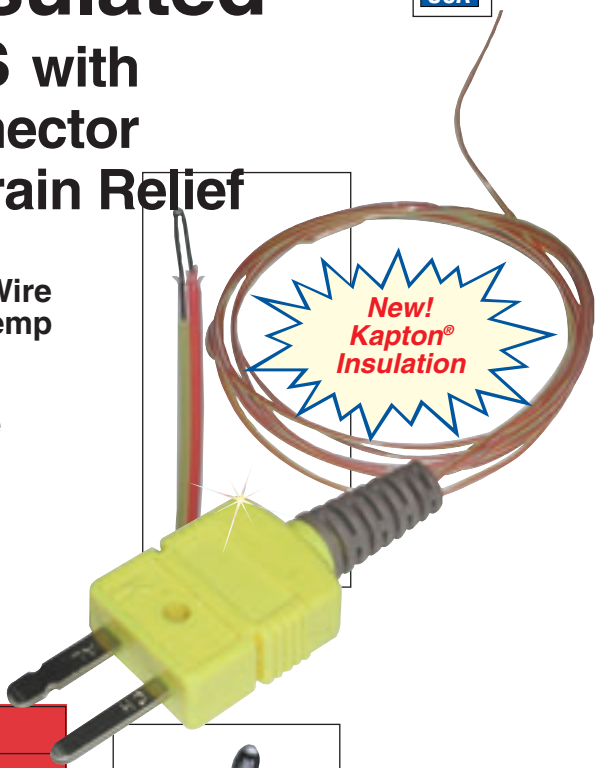
Ordering Example: 5SC-KK-K-30-72, *a 5-pack of Type K mini SMP spool cap thermocouples with 72" of 30 AWG Kapton insulated wire, **$105.***

- Available from Stock in Convenient 5-Packs
- Type J, K, T and E Available
- Made from Special Limits of Error Wire
- 30 AWG Glass Braid Insulated Wire with Max Service Temp of 480°C (900°F)
- 30, 36 and 40 AWG PFA Teflon® Insulated Wire with Max Service Temp of 260°C (500°F)
- 30 AWG Wire Kapton® Insulated Wire with Max Service Temp of 316°C (600°F)
- 36 and 72" Lengths Standard
- Max Service Temp for Connector Body 220°C (425°F)

Ready-Made Insulated Thermocouples with Molded SMP Male Connector and Heavy Duty Flex Strain Relief

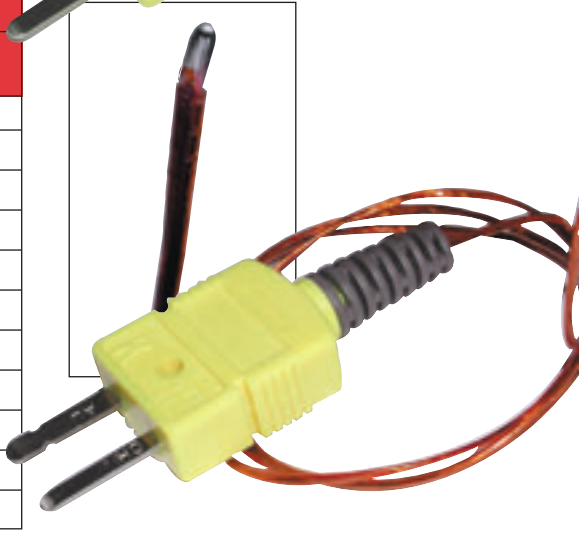
MADE IN USA

- Available from Stock in Convenient 5-Packs
- NIST Calibration Available
- 20, 24, 30, 36, and 40 AWG PFA Teflon® Insulated Wire with Max Service Temp of 260°C (500°F)
- 20, 24, and 30 AWG Glass Braid Insulated Wire with Max Service Temp of 480°C (900°F)
- 20, 24, and 30 AWG Kapton® Insulated Wire with Max Service Temp of 316°C (600°F)
- Made from Special Limits of Error Wire
- Available in 36" and 72" Lengths
- Max Service Temp for Connector Body 220°C (425°F)



New! Thermocouples with Snap-on Strain Relief

To Order *(Specify Model Number)*					
Model Number	AWG Gage	Dia. mm (")	Price Per 5 Pack 36"	72"	Insulation
5SRTC-GG-(*)-20-(**)	20	.81 (.032)	$54	$64	Glass Braid
5SRTC-GG-(*)-24-(**)	24	.51 (.020)	48	58	Glass Braid
5SRTC-GG-(*)-30-(**)	30	.25 (.010)	48	58	Glass Braid
5SRTC-TT-(*)-20-(**)	20	.81 (.032)	65	85	Teflon®
5SRTC-TT-(*)-24-(**)	24	.51 (.020)	54	64	Teflon®
5SRTC-TT-(*)-30-(**)	30	.25 (.010)	59	79	Teflon®
5SRTC-TT-(*)-36-(**)	36	.13 (.005)	65	85	Teflon®
5SRTC-TT-(*)-40-(**)	40	.076 (.003)	75	95	Teflon®
5SRTC-KK-(*)-20-(**)	20	.81 (.032)	65	85	Kapton®
5SRTC-KK-(*)-24-(**)	24	.51 (.020)	54	64	Kapton®
5SRTC-KK-(*)-30-(**)	30	.25 (.010)	75	95	Kapton®



**** Insert calibration J, K,T, or E. **Specify length 36 or 72 inches***
Note *- Add* ***$5.00*** *per additional 1 foot /per package of 5 on GG or TT wire.*
On KK wire add ***$7.50*** *per additional 1 foot /per package.*
Ordering Example: 5SRTC-KK-K-20-72, *a 5-pack of Type K thermocouples with 72" of 20 AWG Kapton insulated wire and a molded SMP connector with snap-on strain relief,* ***$85.***

Please note the 5SRTC design will replace any requests for the 5TC with SMP-MC (molded male connector)

New! 5TC's with Kapton Insulation

To Order *(Specify Model Number)*					
Model Number	AWG Gage	Dia mm (in.)	Price Per 5 Pack 36"	72"	Insulation
5TC-KK(*)-20-(**)	20	0.81 (0.032)	$50	$70	Kapton®
5TC-KK(*)-24-(**)	24	0.50 (0.020)	39	49	Kapton®
5TC-KK(*)-30-(**)	30	0.25 (0.010)	60	80	Kapton®
5TC-TT(*)-40-(**)	40	0.075 (0.003)	60	80	Teflon®

Our most popular line of Thermocouples - the 5TC's - have been expanded to now include 36" and 72" Insulated Thermocouples made with Kapton Insulated Wire

**** Insert calibration J, K,T, or E. **Specify length 36 or 72 inches***
Notes *- Add* ***$5.00*** *per additional 1 foot /per package of 5 on GG or TT wire.*
On KK wire add ***$7.50*** *per additional 1 foot /per package.*
Add ***$25.00*** *for the manually assembled SMP-M*
Ordering Example: 5TC-KK-K-24-72, *a 5-pack of Type K thermocouples with 72" of 24 AWG Kapton insulated wire with stripped end termination,* ***$49.***

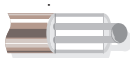
Transition Junction Style Probes with High Temperature Molded Construction

MADE IN USA — OMEGACAL™ Factory Cal Available

- Made from Special Limits of Error Material
- 150 mm (6") and 300 mm (12") Lengths in Stock†
- Sheath Diameters from 0.25 mm (0.010") to 3.18 mm (0.125")
- 304SS or Inconel Sheath
- Grounded, Ungrounded or Exposed Junction
- 914 mm (36") Teflon®-Coated Lead Wires Standard
- Environmentally Friendly Cadmium-Free Liquid Crystal Polymer Molded Transition Junction Rated to 260°C (500°F)

IEC Colors Available

Exposed

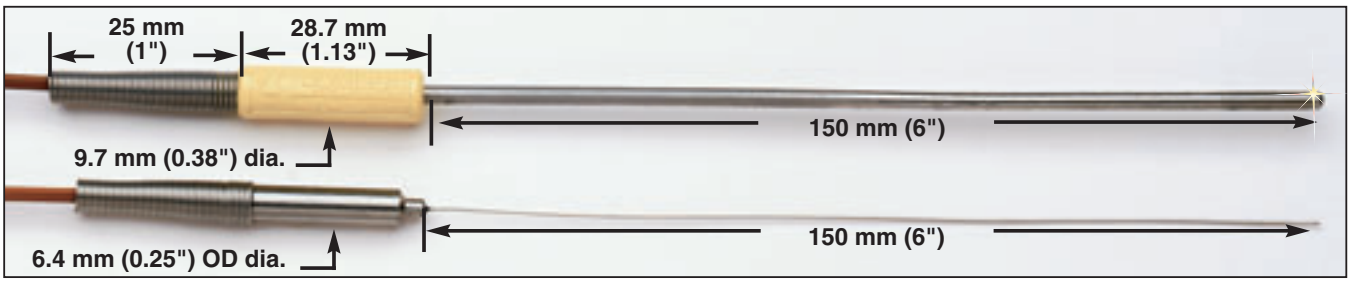


Grounded

Ungrounded

SUPER OMEGACLAD® THERMOCOUPLE WIRE
MAXIMUM PERFORMANCE SHEATING ELIMINATES HIGH TEMPERATURE DRIFT
Available in Type K or Type N, Consult Sales for Specifications and Pricing

Discount Schedule	
1–10 Units	Net
11–24 Units	10%
25-49 Units	20%
50 and Up	Consult Sales



Note: Probes with 1.0 mm (0.040") diameter and larger supplied with molded transition joints. Smaller-size probes supplied with stainless steel transition joints. All type-N probes supplied with stainless steel transition joints.

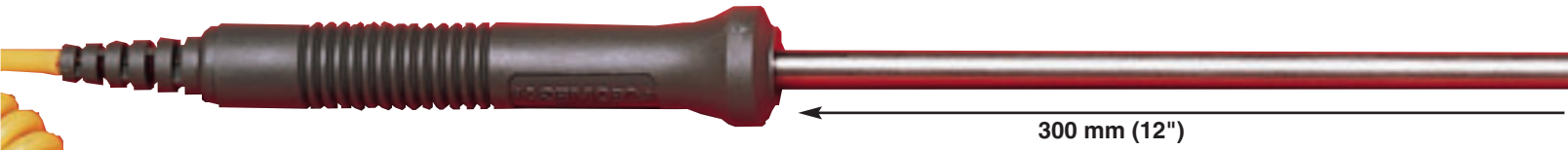
To Order *(Specify Model Number)* — ALL MODELS IN STOCK FOR FAST DELIVERY!

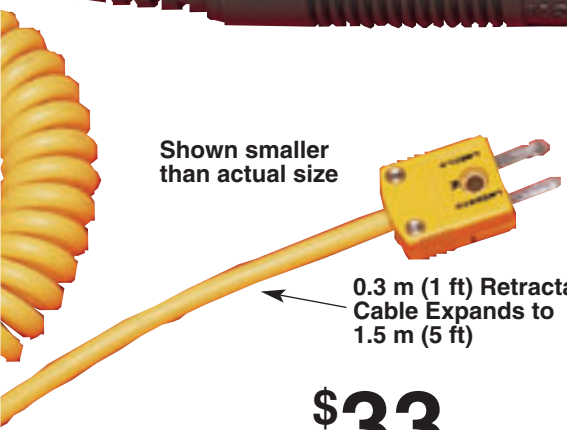
Thermocouple Alloy	Sheath Dia. mm (in.)	Model No. 150mm (6") Length	Price G*/E*	Price U*	Model No. 300 mm (12") Length	Price G*/E*	Price U*	Price/Add'l 150mm (6")
Iron-Constantan 304 SS Sheath **J**	0.25 (0.010")	HJMTSS-010(*)-6	$51	$71	HJMTSS-010(*)-12	$52.25	$72.25	$1.25
	0.50 (0.020")	HJMTSS-020(*)-6	31	33	HJMTSS-020(*)-12	31.65	33.65	.65
	0.75 (0.032")	HJMTSS-032(*)-6	31	33	HJMTSS-032(*)-12	31.65	33.65	.65
	1.0 (0.040")	HJMTSS-040(*)-6	31	33	HJMTSS-040(*)-12	31.65	33.65	.65
	1.5 (0.062")	HJMTSS-062(*)-6	27	29	HJMTSS-062(*)-12	27.80	29.80	.80
	3.0 (0.125")	HJMTSS-125(*)-6	27	29	HJMTSS-125(*)-12	27.95	29.95	.95
CHROMEGA® ALOMEGA® 304 SS Sheath **K**	0.25 (0.010")	HKMTSS-010(*)-6	51	71	HKMTSS-010(*)-12	52.25	72.25	1.25
	0.50 (0.020")	HKMTSS-020(*)-6	31	33	HKMTSS-020(*)-12	31.65	33.65	.65
	0.75 (0.032")	HKMTSS-032(*)-6	31	33	HKMTSS-032(*)-12	31.65	33.65	.65
	1.0 (0.040")	HKMTSS-040(*)-6	31	33	HKMTSS-040(*)-12	31.65	33.65	.65
	1.5 (0.062")	HKMTSS-062(*)-6	27	29	HKMTSS-062(*)-12	27.80	29.80	.80
	3.0 (0.125")	HKMTSS-125(*)-6	27	29	HKMTSS-125(*)-12	27.95	29.95	.95
CHROMEGA® Constanan 304 SS Sheath **E**	0.25 (0.010")	HEMTSS-010(*)-6	51	71	HEMTSS-010(*)-12	52.25	72.25	1.25
	0.50 (0.020")	HEMTSS-020(*)-6	31	33	HEMTSS-020(*)-12	31.65	33.65	.65
	0.75 (0.032")	HEMTSS-032(*)-6	31	33	HEMTSS-032(*)-12	31.65	33.65	.65
	1.0 (0.040")	HEMTSS-040(*)-6	31	33	HEMTSS-040(*)-12	31.65	33.65	.65
	1.5 (0.062")	HEMTSS-062(*)-6	27	29	HEMTSS-062(*)-12	27.80	29.80	.80
	3.0 (0.125")	HEMTSS-125(*)-6	27	29	HEMTSS-125(*)-12	27.95	29.95	.95
Copper-Constantan 304 SS Sheath **T**	0.50 (0.020")	HTMTSS-020(*)-6	31	33	HTMTSS-020(*)-12	31.65	33.65	.65
	0.75 (0.032")	HTMTSS-032(*)-6	31	33	HTMTSS-032(*)-12	31.65	33.65	.65
	1.0 (0.040")	HTMTSS-040(*)-6	31	33	HTMTSS-040(*)-12	31.65	33.65	.65
	1.5 (0.062")	HTMTSS-062(*)-6	27	29	HTMTSS-062(*)-12	27.80	29.80	.80
	3.0 (0.125")	HTMTSS-125(*)-6	27	29	HTMTSS-125(*)-12	27.95	29.95	.95

Specify junction type: **E (exposed), **G** (grounded) or **U** (ungrounded).*
†Other lengths available, consult Sales Department
To order with Inconel Sheath,** Change "**SS**" in model no. to "**IN**". No additional charge. Example: **HKMTIN-125G-6, $27.
Ordering Example: HKMTSS-125G-6**, subminiature transition joint probe, type K, 1.5 mm (0.125") O.D. stainless steel sheath, 150 mm (6") length, grounded junction, **$27

Utility Thermocouple Handle Probes

MADE IN USA — OMEGACAL™ Factory Cal Available





$33
Basic Unit

Handle Is Permanently Molded to Probe Sheath Includes Cable and Miniature Connector

- Made with Special Limits of Error Material
- Molded Handle Rated to 220°C (425°F)
- Retractable Cable with Superior Memory Expands to 1.5 m (5 Ft.)
- Subminiature Connector for Use with Handheld Thermometers
- 300, 450 and 600 mm (12, 18 and 24") Lengths Standard– Custom Lengths Available
- Companion RTD Probe, Type PR-16

SUPER OMEGACLAD® THERMOCOUPLE WIRE
MAXIMUM PERFORMANCE SHEATING ELIMINATES HIGH TEMPERATURE DRIFT
Available in Type K or Type N, Consult Sales for Specifications and Pricing

Grounded | Exposed | Ungrounded

ALL MODELS IN STOCK FOR FAST DELIVERY!

Thermocouple Alloy	Sheath Dia. mm (in.)	Model No. 300mm (12") Length	Price G/E*	Price U*	Model No. 450mm (18") Length	Price G/E*	Price U*	Model No. 600mm (24") Length	Price G/E*	Price U*	Price/Add'l 300m (Ft.)
Iron-Constantan Inconel Sheath J	1.5 (1/16")	JHIN-116(*)-RSC-12	$33	$40	JHIN-116(*)-RSC-18	$33.80	$40.80	JHIN-116(*)-RSC-24	$34.55	$41.55	$1.55
	3.0 (1/8")	JHIN-18(*)-RSC-12	34	41	JHIN-18(*)-RSC-18	35.60	42.60	JHIN-18(*)-RSC-24	37.15	44.15	3.15
	4.5 (3/16")	JHIN-316(*)-RSC-12	36	39	JHIN-316(*)-RSC-18	38.20	41.20	JHIN-316(*)-RSC-24	40.35	43.35	4.35
	6.0 (1/4")	JHIN-14(*)-RSC-12	38	41	JHIN-14(*)-RSC-18	41.80	44.80	JHIN-14(*)-RSC-24	45.50	48.50	7.50
Iron-Constantan 304 SS Sheath J	1.5 (1/16")	JHSS-116(*)-RSC-12	$33	$40	JHSS-116(*)-RSC-18	$33.80	$40.80	JHSS-116(*)-RSC-24	$34.55	$41.55	$1.55
	3.0 (1/8")	JHSS-18(*)-RSC-12	34	41	JHSS-18(*)-RSC-18	34.90	41.90	JHSS-18(*)-RSC-24	35.85	42.85	1.85
	4.5 (3/16")	JHSS-316(*)-RSC-12	36	39	JHSS-316(*)-RSC-18	37.60	40.60	JHSS-316(*)-RSC-24	39.15	42.15	3.15
	6.0 (1/4")	JHSS-14(*)-RSC-12	38	41	JHSS-14(*)-RSC-18	40.50	43.50	JHSS-14(*)-RSC-24	43.00	46.00	5.00
CHROMEGA®-ALOMEGA® Inconel Sheath K	1.5 (1/16")	KHIN-116(*)-RSC-12	$33	$40	KHIN-116(*)-RSC-18	$33.80	$40.80	KHIN-116(*)-RSC-24	$34.55	$41.55	$1.55
	3.0 (1/8")	KHIN-18(*)-RSC-12	34	41	KHIN-18(*)-RSC-18	35.60	42.60	KHIN-18(*)-RSC-24	37.15	44.15	3.15
	4.5 (3/16")	KHIN-316(*)-RSC-12	36	39	KHIN-316(*)-RSC-18	38.20	41.20	KHIN-316(*)-RSC-24	40.35	43.35	4.35
	6.0 (1/4")	KHIN-14(*)-RSC-12	38	41	KHIN-14(*)-RSC-18	41.80	44.80	KHIN-14(*)-RSC-24	45.50	48.50	7.50
CHROMEGA®-ALOMEGA® 304 SS Sheath K	1.5 (1/16")	KHSS-116(*)-RSC-12	$33	$40	KHSS-116(*)-RSC-18	$33.80	$40.80	KHSS-116(*)-RSC-24	$34.55	$41.55	$1.55
	3.0 (1/8")	KHSS-18(*)-RSC-12	34	41	KHSS-18(*)-RSC-18	34.90	41.90	KHSS-18(*)-RSC-24	35.85	42.85	1.85
	4.5 (3/16")	KHSS-316(*)-RSC-12	36	39	KHSS-316(*)-RSC-18	37.60	40.60	KHSS-316(*)-RSC-24	39.15	42.15	3.15
	6.0 (1/4")	KHSS-14(*)-RSC-12	38	41	KHSS-14(*)-RSC-18	40.50	43.50	KHSS-14(*)-RSC-24	43.00	46.00	5.00
CHROMEGA®-Constantan Inconel Sheath E	1.5 (1/16")	EHIN-116(*)-RSC-12	$33	$40	EHIN-116(*)-RSC-18	$33.90	$40.90	EHIN-116(*)-RSC-24	$34.85	$41.85	$1.85
	3.0 (1/8")	EHIN-18(*)-RSC-12	34	41	EHIN-18(*)-RSC-18	35.90	42.90	EHIN-18(*)-RSC-24	37.75	44.75	3.75
	4.5 (3/16")	EHIN-316(*)-RSC-12	36	39	EHIN-316(*)-RSC-18	38.50	41.50	EHIN-316(*)-RSC-24	41.00	44.00	5.00
	6.0 (1/4")	EHIN-14(*)-RSC-12	38	41	EHIN-14(*)-RSC-18	41.80	44.80	EHIN-14(*)-RSC-24	45.50	48.50	7.50
CHROMEGA®-Constantan 304 SS Sheath E	1.5 (1/16")	EHSS-116(*)-RSC-12	$33	$40	EHSS-116(*)-RSC-18	$33.80	$40.80	EHSS-116(*)-RSC-24	$34.55	$41.55	$1.55
	3.0 (1/8")	EHSS-18(*)-RSC-12	34	41	EHSS-18(*)-RSC-18	35.30	42.30	EHSS-18(*)-RSC-24	36.50	43.50	2.50
	4.5 (3/16")	EHSS-316(*)-RSC-12	36	39	EHSS-316(*)-RSC-18	37.60	40.60	EHSS-316(*)-RSC-24	39.15	42.15	3.15
	6.0 (1/4")	EHSS-14(*)-RSC-12	38	41	EHSS-14(*)-RSC-18	40.50	43.50	EHSS-14(*)-RSC-24	43.00	46.00	5.00
Copper-Constantan Inconel Sheath T	1.5 (1/16")	THIN-116(*)-RSC-12	$33	$40	THIN-116(*)-RSC-18	$33.90	$40.90	THIN-116(*)-RSC-24	$34.85	$41.85	$1.85
	3.0 (1/8")	THIN-18(*)-RSC-12	34	41	THIN-18(*)-RSC-18	35.90	42.90	THIN-18(*)-RSC-24	37.75	44.75	3.75
	4.5 (3/16")	THIN-316(*)-RSC-12	36	39	THIN-316(*)-RSC-18	38.50	41.50	THIN-316(*)-RSC-24	41.00	44.00	5.00
	6.0 (1/4")	THIN-14(*)-RSC-12	38	41	THIN-14(*)-RSC-18	41.80	44.80	THIN-14(*)-RSC-24	45.50	48.50	7.50
Copper Constantan 304 SS Sheath T	1.5 (1/16")	THSS-116(*)-RSC-12	$33	$40	THSS-116(*)-RSC-18	$33.80	$40.80	THSS-116(*)-RSC-24	$34.55	$41.55	$1.55
	3.0 (1/8")	THSS-18(*)-RSC-12	34	41	THSS-18(*)-RSC-18	35.30	42.30	THSS-18(*)-RSC-24	36.50	43.50	2.50
	4.5 (3/16")	THSS-316(*)-RSC-12	36	39	THSS-316(*)-RSC-18	37.60	40.60	THSS-316(*)-RSC-24	39.15	42.15	3.15
	6.0 (1/4")	THSS-14(*)-RSC-12	38	41	THSS-14(*)-RSC-18	40.50	43.50	THSS-14(*)-RSC-24	43.00	46.00	5.00

Specify junction type: **E (Exposed), **G** (Grounded) or **U** (Ungrounded)*
***Note:** PFA Coating is available, with a handle that is not molded in place. Order standard part number with a suffix "**-PFA**".*
*Price: add **$20** to 300 mm (12") probes, **$25** to 450 mm (18") probes and **$30** to 600 mm (24") probes. 200°C (400°F) Max.*
Ordering Example: KHSS-316G-RSC-12**, Type K, 4.5 mm (3/16") grounded junction, 300 mm (12") long, 304 SS sheath, **$36
No additional charge for lengths from 50 to 300 mm (2 to 12"). For lengths over 600 mm (24"), consult sales
***To Order 321 Stainless Steel sheath**, change the "**SS**" in the Model No. to "**321SS**"; no additional charge.*
Ordering Example: TH321SS-14U-RSC-18**, Type T, 6 mm (1/4") ungrounded junction, 450 mm (18") long, 321SS sheath, **$43.50

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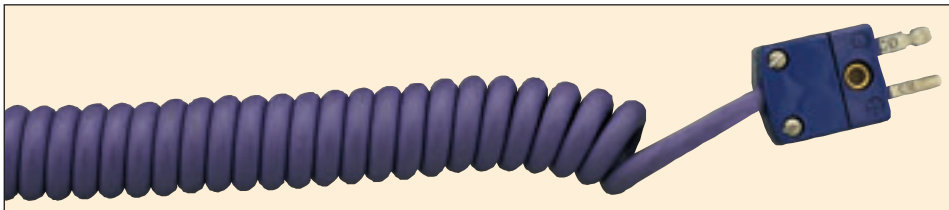
OMEGACAL™ Factory Cal AVAILABLE

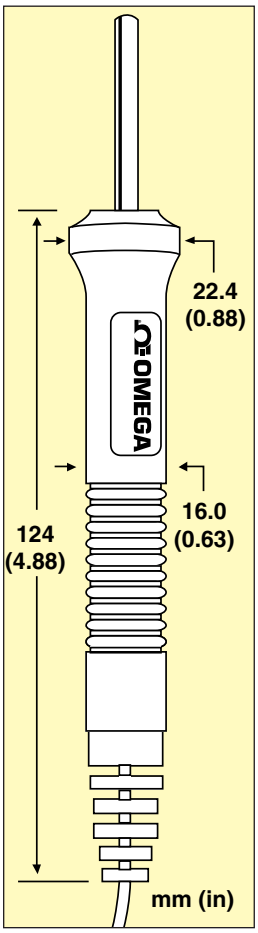
SUPER OMEGACLAD® THERMOCOUPLE WIRE
MAXIMUM PERFORMANCE SHEATING
ELIMINATES HIGH TEMPERATURE DRIFT
Available in Type K or Type N, Consult Sales for Specifications and Pricing

NEW®



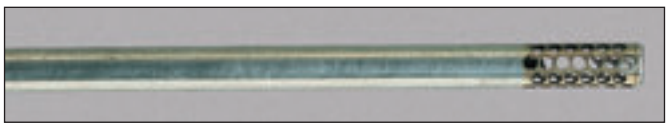
0.3 m (1') retractable cable expands to 1.5 m (5') Standard miniature connector mates with most handheld thermometers for convenient hook-up.

Discount Schedule	
1-10 Units	Net
11-24 Units	10%
25-49 Units	20%
50 and Up	Consult Sales



Custom Tip Probes

*Temperature ratings are dependent on Thermocouple type, sheath dia. and environment.

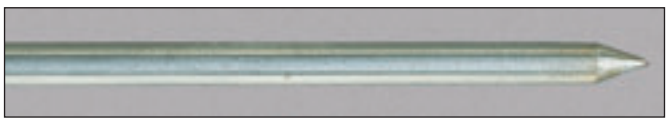


Air Probe

Exposed element allows airflow for fast measurements. Rated to 870°C (1600°F). Available with 4.5 mm (3⁄16") diameter and exposed junction only.

To order, add suffix "**-AP**" to model number, and add **$25** to price.

Ordering Example: KHSS-316E-RSC-12-AP**, 300 mm (12") long handle probe, type K, 4.5 mm (⅜") O.D., 304 SS sheath, exposed junction, air probe tip, $36 + 25 = **$61



Penetration Probe

Conical tip, for insertion into soft and semi-frozen material. Rated 1150°C (2100°F). Available with 4.5 mm (3⁄16") or 6 mm (¼") diameter and grounded junction only.

To order, add suffix "**-NP**" to model number, and add **$10** to price.

Ordering Example: KHSS-316G-RSC-12-NP**, 300 mm (12") long handle probe, type K, 4.5 mm (⅜") O.D., 304 SS sheath, grounded junction, conical probe tip, $36 + 10 = **$46

SHEATH MATERIALS

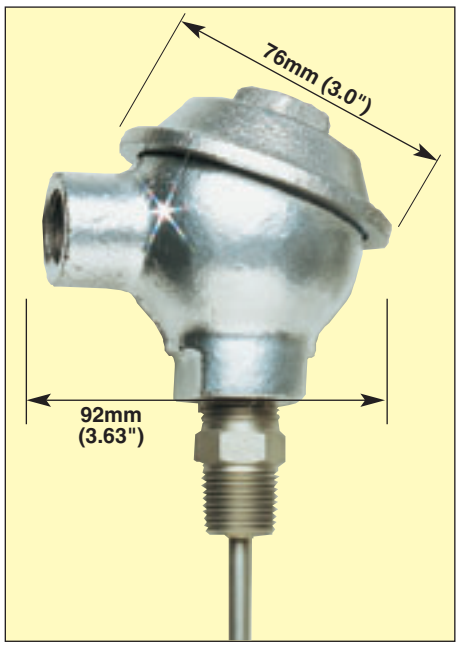
Probes made from OMEGACLAD® wire are available with either 304 Stainless Steel, 321 Stainless Steel or Inconel 600 Sheathing. While all may be used in a variety of applications, the differences between them can help determine which should be used in a particular application. 304 SS is rated to 900°C (1650°F) and 321 is rated to 870°C (1600°F), while Inconel is rated to 1150°C (2100°F). Both materials are rated "Very Good" in oxidizing, vacuum and inert atmospheres, and rated "Good" in Hydrogen atmospheres. 304 SS and 321 SS are recommended for general chemical applications, food applications, oil refinery use and steam lines. 321 SS is the same as 304 except for the addition of titanium as a stabilizer. The titanium helps prevent weld decay at temperatures above 650°C (1200°F). Inconel 600 is preferred in gas furnaces, lead bath, and bath mixtures containing cyanide. Inconel should not be used in salt baths contaminated by sulphur.

Industrial Thermocouples
Protection Head Design

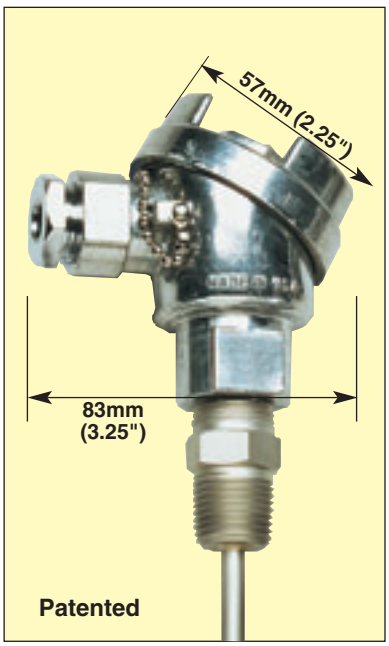
MADE IN USA

SUPER OMEGACLAD® THERMOCOUPLE WIRE
MAXIMUM PERFORMANCE SHEATING ELIMINATES HIGH TEMPERATURE DRIFT
Available in Type K or Type N, Consult Sales for Specifications and Pricing

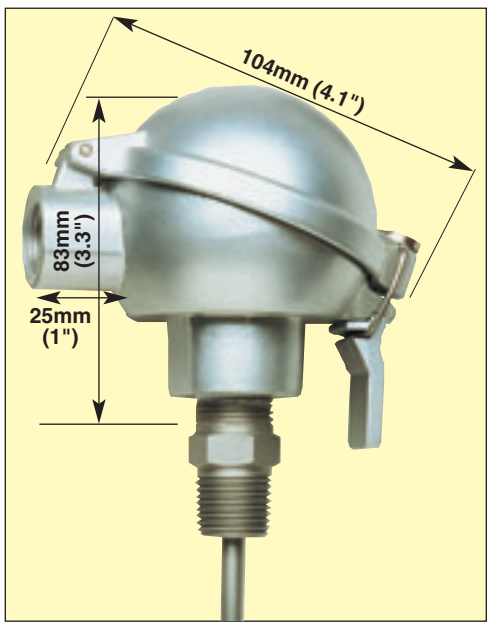
Probe length includes approx. 12.5 mm (½") allowance for threads



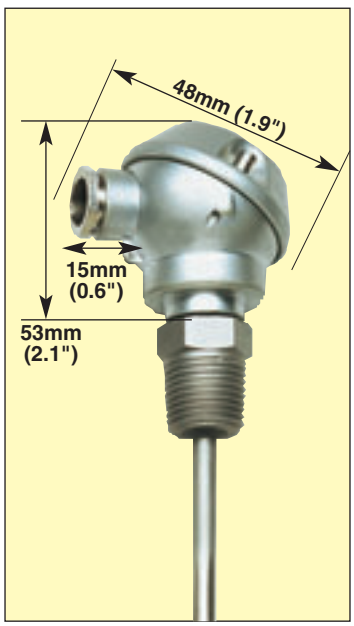
NB1, Cast Iron



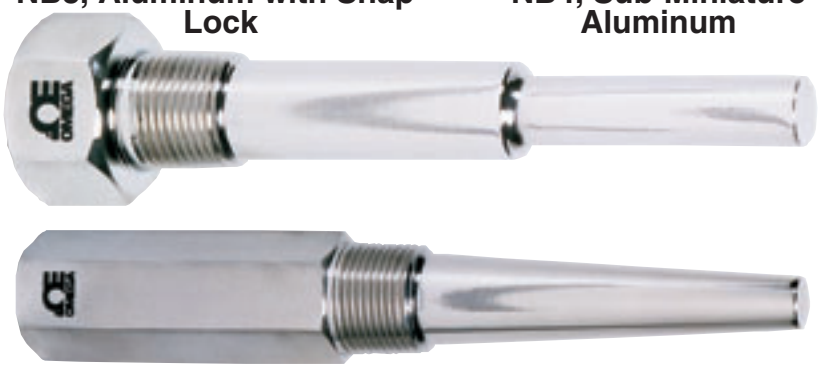
NB2, Aluminum



NB3, Aluminum with Snap-Lock



NB4, Sub-Miniature Aluminum



For a complete selection of thermowells and extension wire, request the complete OMEGA Made in the USA Handbook or visit *www.omega.com*

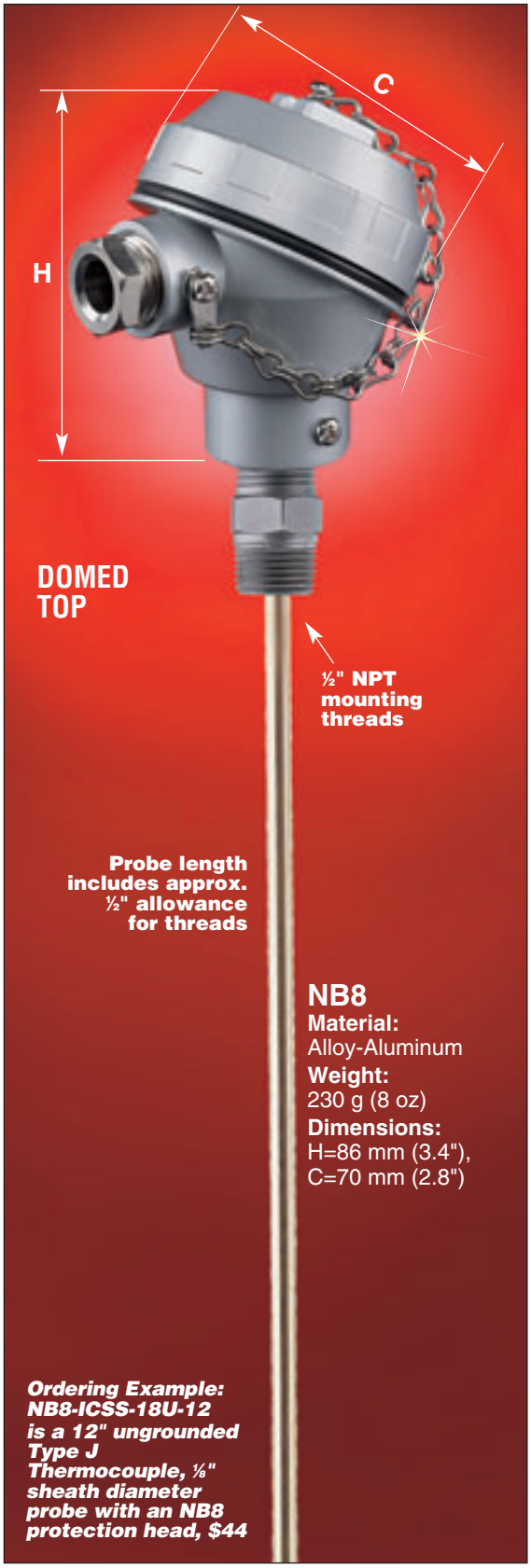
New and Improved Protection Heads
for Industrial Thermocouples

SUPER OMEGACLAD® THERMOCOUPLE WIRE
MAXIMUM PERFORMANCE SHEATING ELIMINATES HIGH TEMPERATURE DRIFT
Available in Type K or Type N, Consult Sales for Specifications and Pricing

NEW®

All models start at
$42

MADE IN USA



NB8
Material: Alloy-Aluminum
Weight: 230 g (8 oz)
Dimensions: H=86 mm (3.4"), C=70 mm (2.8")

***Ordering Example:** NB8-ICSS-18U-12 is a 12" ungrounded Type J Thermocouple, ⅛" sheath diameter probe with an NB8 protection head, $44*

CAST IRON NB5
Material: Cast iron
Weight: 1.6 kg (3.5 lb)
Dimensions: H=95 mm (3.8"), C=86 mm (3.4")

Fast Delivery!

DEEP BASE NB6
Material: Alloy-Aluminum
Weight: 250 g (8.8 oz)
Dimensions: H=82 mm (3.2"), C=82 mm (3.2")

FLIP TOP NB7
Material: Alloy-Aluminum
Weight: 250 g (8.8 oz)
Dimensions: H=93 mm (3.7"), C=76 mm (3")

Industrial Thermocouple Protection Head Probe Assembly

LOW PROFILE

NB12

Material: Alloy-Aluminum
Weight: 274 g (9.7 oz)
Dimensions:
H=87 mm (3.4"),
C=82 mm (3.2")
IP67 Approval

All models start at

$42

MINIATURE BAKELITE

NB10

Material: Bakelite
Weight: 82 g (2.9 oz)
Dimensions:
H=68 mm (2.7"),
C=61.5 mm (2.4")
O-Ring Seal

SUPER OMEGACLAD® THERMOCOUPLE WIRE
MAXIMUM PERFORMANCE SHEATING ELIMINATES HIGH TEMPERATURE DRIFT
Available in Type K or Type N, Consult Sales for Specifications and Pricing

MINIATURE ALUMINUM

NB11

Material: Alloy-Aluminum
Weight: 140 g (4.9 oz)
Dimensions:
H=67 mm (2.6"),
C=62 mm (2.4")
IP67 Approval

NYLON & GLASS FIBER

TO ORDER
Insert the number 5, 6, 7, 8, 9, 10, 11, or 12 for NB5, NB6, NB7, NB8, NB9, NB10, NB11, or NB12 heads respectively in the probe part number (*), price is as shown on A-116.

Ordering Example: NB9-CASS-18G-12 is a 12" grounded Type K thermocouple, ⅛" sheath diameter probe with an NB9 protection head, $42

NB9

Material: Nylon & Glass Fiber
Weight: 144 g (5 oz)
Dimensions:
H=87 mm (3.4"),
C=82 mm (3.2")

- **New NB5, 6,7,8,9,10, 11,12 Models**
- **NB1 Cast Iron Protection Head with Internal Terminal Block**
- **NB2 Miniature Aluminum Head with Internal Terminal Block**
- **NB3 Aluminum Head with Convenient Snap-Lock Design with Internal Terminal Block**
- **NB4 Sub-Miniature Aluminum Head with Internal Terminal Block**
- **½" NPT Mounting Thread**
- **300 mm (12") Length Standard†**
- **Made with Special Limits of Error Material**

The industrial style assemblies offer a variety of protection heads to meet the environmental and size requirements of most applications. Available in J, K T or E calibrations, with either 304SS, 321SS or Inconel sheathing. Standard lengths are 300 mm (12") including ½" for the pipe thread, with other lengths available. Both the thread on the probe and the extension wire opening are 1/2" NPT. The NB2 and NB4 include a compression fitting nut and rubber ferrule for ⅛" to ¼" O.D. wires or tubing. The internal terminal block is standard on all models. Consult Technical Quotation Dept. for price and delivery on a wide variety of non-metallic and other specialized heads.

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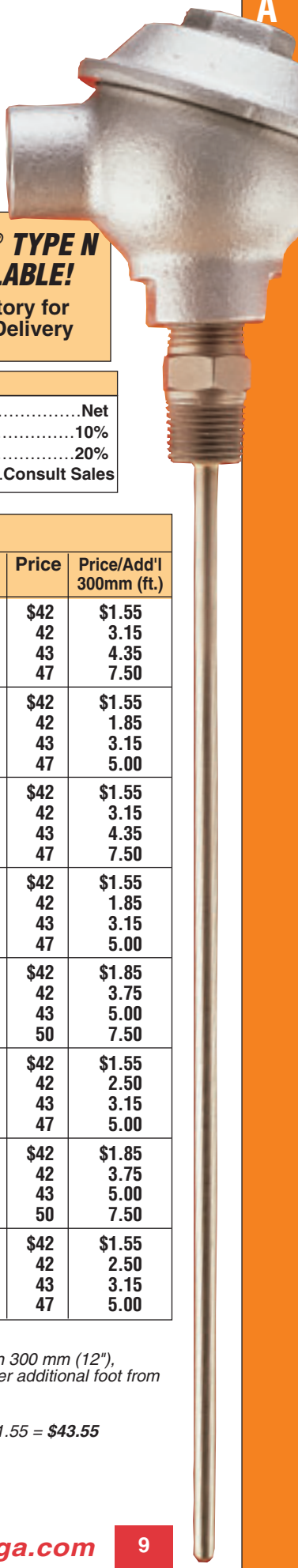
SUPER OMEGACLAD® THERMOCOUPLE WIRE
MAXIMUM PERFORMANCE SHEATING
ELIMINATES HIGH TEMPERATURE DRIFT
Available in Type K or Type N, Consult Sales for Specifications and Pricing



OMEGALLOY® TYPE N NOW AVAILABLE!
Consult Factory for Pricing and Delivery

Discount Schedule	
1-10	Net
11-24	10%
25-49	20%
55 and over	Consult Sales

To Order 300 mm (12") Lengths *(Specify Model Number)*

Thermocouple Alloy	Sheath Dia. mm (in.)	Grounded Junction	Price	Ungrounded Junction	Price	Exposed Junction	Price	Price/Add'l 300mm (ft.)
Iron-Constantan Inconel Sheath **J**	1.5 (1/16")	NB(*)-ICIN-116G-12	$42	NB(*)-ICIN-116U-12	$44	NB(*)-ICIN-116E-12	$42	$1.55
	3.0 (⅛")	NB(*)-ICIN-18G-12	42	NB(*)-ICIN-18U-12	44	NB(*)-ICIN-18E-12	42	3.15
	4.5 (3/16")	NB(*)-ICIN-316G-12	43	NB(*)-ICIN-316U-12	45	NB(*)-ICIN-316E-12	43	4.35
	6.0 (¼")	NB(*)-ICIN-14G-12	47	NB(*)-ICIN-14U-12	49	NB(*)-ICIN-14E-12	47	7.50
Iron-Constantan 304 SS Sheath **J**	1.5 (1/16")	NB(*)-ICSS-116G-12	$42	NB(*)-ICSS-116U-12	$44	NB(*)-ICSS-116E-12	$42	$1.55
	3.0 (⅛")	NB(*)-ICSS-18G-12	42	NB(*)-ICSS-18U-12	44	NB(*)-ICSS-18E-12	42	1.85
	4.5 (3/16")	NB(*)-ICSS-316G-12	43	NB(*)-ICSS-316U-12	45	NB(*)-ICSS-316E-12	43	3.15
	6.0 (¼")	NB(*)-ICSS-14G-12	47	NB(*)-ICSS-14U-12	49	NB(*)-ICSS-14E-12	47	5.00
CHROMEGA®-ALOMEGA® Inconel Sheath **K**	1.5 (1/16")	NB(*)-CAIN-116G-12	$42	NB(*)-CAIN-116U-12	$44	NB(*)-CAIN-116E-12	$42	$1.55
	3.0 (⅛")	NB(*)-CAIN-18G-12	42	NB(*)-CAIN-18U-12	44	NB(*)-CAIN-18E-12	42	3.15
	4.5 (3/16")	NB(*)-CAIN-316G-12	43	NB(*)-CAIN-316U-12	45	NB(*)-CAIN-316E-12	43	4.35
	6.0 (¼")	NB(*)-CAIN-14G-12	47	NB(*)-CAIN-14U-12	49	NB(*)-CAIN-14E-12	47	7.50
CHROMEGA®-ALOMEGA® 304 SS Sheath **K**	1.5 (1/16")	NB(*)-CASS-116G-12	$42	NB(*)-CASS-116U-12	$44	NB(*)-CASS-116E-12	$42	$1.55
	3.0 (⅛")	NB(*)-CASS-18G-12	42	NB(*)-CASS-18U-12	44	NB(*)-CASS-18E-12	42	1.85
	4.5 (3/16")	NB(*)-CASS-316G-12	43	NB(*)-CASS-316U-12	45	NB(*)-CASS-316E-12	43	3.15
	6.0 (¼")	NB(*)-CASS-14G-12	47	NB(*)-CASS-14U-12	49	NB(*)-CASS-14E-12	47	5.00
CHROMEGA®-Constantan Inconel Sheath **E**	1.5 (1/16")	NB(*)-CXIN-116G-12	$42	NB(*)-CXIN-116U-12	$44	NB(*)-CXIN-116E-12	$42	$1.85
	3.0 (⅛")	NB(*)-CXIN-18G-12	42	NB(*)-CXIN-18U-12	44	NB(*)-CXIN-18E-12	42	3.75
	4.5 (3/16")	NB(*)-CXIN-316G-12	43	NB(*)-CXIN-316U-12	45	NB(*)-CXIN-316E-12	43	5.00
	6.0 (¼")	NB(*)-CXIN-14G-12	50	NB(*)-CXIN-14U-12	52	NB(*)-CXIN-14E-12	50	7.50
CHROMEGA®-Constantan 304 SS Sheath **E**	1.5 (1/16")	NB(*)-CXSS-116G-12	$42	NB(*)-CXSS-116U-12	$44	NB(*)-CXSS-116E-12	$42	$1.55
	3.0 (⅛")	NB(*)-CXSS-18G-12	42	NB(*)-CXSS-18U-12	44	NB(*)-CXSS-18E-12	42	2.50
	4.5 (3/16")	NB(*)-CXSS-316G-12	43	NB(*)-CXSS-316U-12	45	NB(*)-CXSS-316E-12	43	3.15
	6.0 (¼")	NB(*)-CXSS-14G-12	47	NB(*)-CXSS-14U-12	49	NB(*)-CXSS-14E-12	47	5.00
Copper-Constantan Inconel Sheath **T**	1.5 (1/16")	NB(*)-CPIN-116G-12	$42	NB(*)-CPIN-116U-12	$44	NB(*)-CPIN-116E-12	$42	$1.85
	3.0 (⅛")	NB(*)-CPIN-18G-12	42	NB(*)-CPIN-18U-12	44	NB(*)-CPIN-18E-12	42	3.75
	4.5 (3/16")	NB(*)-CPIN-316G-12	43	NB(*)-CPIN-316U-12	45	NB(*)-CPIN-316E-12	43	5.00
	6.0 (¼")	NB(*)-CPIN-14G-12	50	NB(*)-CPIN-14U-12	52	NB(*)-CPIN-14E-12	50	7.50
Copper-Constantan 304 SS Sheath **T**	1.5 (1/16")	NB(*)-CPSS-116G-12	$42	NB(*)-CPSS-116U-12	$44	NB(*)-CPSS-116E-12	$42	$1.55
	3.0 (⅛")	NB(*)-CPSS-18G-12	42	NB(*)-CPSS-18U-12	44	NB(*)-CPSS-18E-12	42	2.50
	4.5 (3/16")	NB(*)-CPSS-316G-12	43	NB(*)-CPSS-316U-12	45	NB(*)-CPSS-316E-12	43	3.15
	6.0 (¼")	NB(*)-CPSS-14G-12	47	NB(*)-CPSS-14U-12	49	NB(*)-CPSS-14E-12	47	5.00

Note: *PFA Coating is available, 400°F (204°C) Max. †Other lengths available, consult Sales Department.*

**Insert the number 1, 2, 3, or 4 for NB1, NB2, NB3, and NB4 heads, respectively. To order probes with lengths other than 300 mm (12"), change the last two digits of the model number from "12" to the desired length in inches, and add the appropriate price per additional foot from the last column.*

***To order 321 stainless steel sheath**, change "SS" in model number to "321SS". No additional charge.*

Ordering Example: NB3-ICSS-116G-24**, a 600 mm (24") grounded probe, type J, 1.5 mm (1/16") sheath diameter, $42 + 1.55 = **$43.55
NB1-CA321SS-14U-36**, a 900 mm (36") ungrounded, type K, 6 mm (¼") sheath diameter, $49 + 10 = **$59

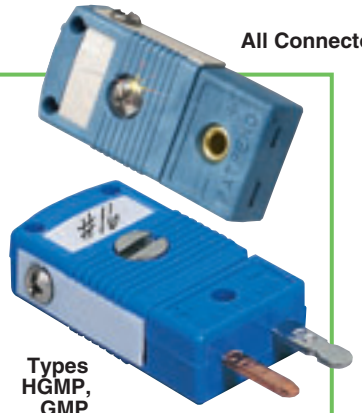
Quick Disconnect Connectors for RTDs and Thermocouples

All Connectors Shown Actual Size

MADE IN USA

From $3.60

Types HGST, GST



Types HGMP, GMP

Online at omega.com

STANDARD SIZE

Low Noise Thermocouple Connectors, Page G-5 and G-12 in the Made in USA Handbook

- Write-on pads standard for side and face
- Use ground strap with shielded or grounded wire to maintain ground wire connection from connector to wire, probe or another connector
- Optional ground strap strengthens mechanical connection between connectors
- Color-coded to match thermocouple calibration

MINIATURE SIZE

WRITE ON Surfaces for Quick Identification

Extra Heavy-Duty Thermocouple Connectors, Page G-21 in the Made in USA Handbook

Type OGP

From $6.00

Online at omega.com

- Solid pin construction for maximum durability and service
- Available with solid cover or quick-wiring caps which accommodate solid wire up to 14 AWG (16 AWG stranded)
- Color-coded, rugged, glass filled nylon shell
- Integral notch for security clip and hole to facilitate mounting
- Color-coded to match thermocouple calibration

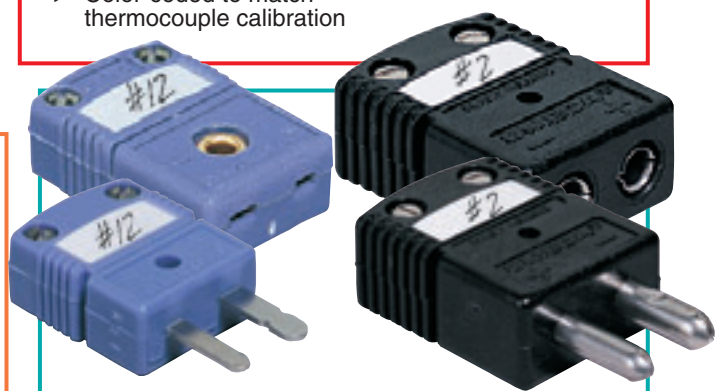
Universal Thermocouple Connector, Page G-17 in the Made in USA Handbook

Featured in this book on page 12

Type USTW

Type UST

- Accepts both standard and miniature size plugs
- Write-on connector pad available
- Rugged glass-filled nylon construction
- For types J, K, T, E, R, S, U and N thermocouples

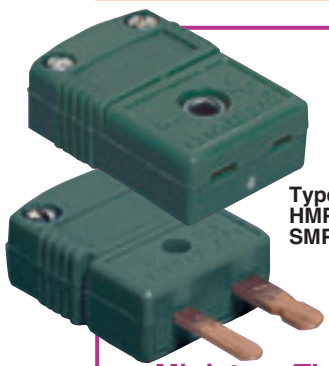


Types HMPW, SMPW

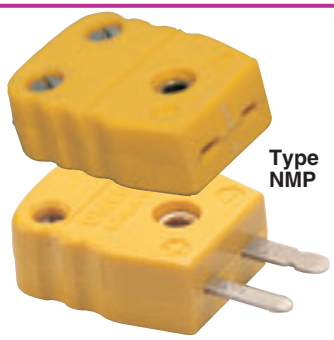
Types HSTW, OSTW

Thermocouple Connectors with Write-On Connector Pads, Pages G-13, G-14, G-19 and G-20 in the Made in USA Handbook

- Standard removable/reversible write-on connector pads
- Color coded for various thermocouple types
- Standard and miniature sizes



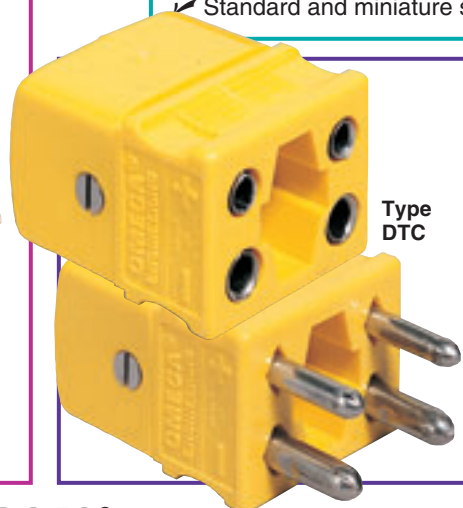
Types HMP, SMP



Type NMP

Miniature Thermocouple Connectors, G-13, G-14 and G-15 in the Made in USA Handbook

- Available in two styles
- For thermocouple types J, K, T, E, R, S, G, C, D, U and N
- Color-coded to match thermocouple calibration



Type DTC

4-Pin, Dual Circuit Thermocouple Connectors, Page G-22 in the Made in USA Handbook

- For connecting two separate pairs of thermocouple wires or one dual thermocouple to two pairs of extension wires
- Maintains electrical isolation between circuits
- Interlocking parts for added strength
- Single screw caps

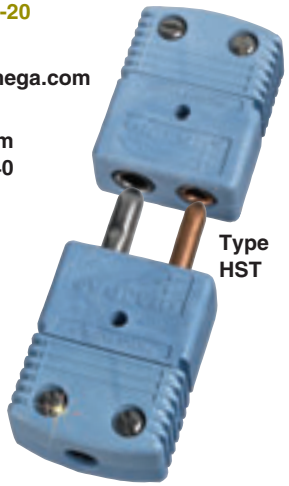
Full details with pricing is available online for all connectors featured here and more. Visit *www.omega.com*.

Standard Thermocouple Connectors, Page G-18, G-20 in the Made in USA Handbook

Online at omega.com

From $3.40

Type OST



Type HST

- Color-coded, rugged, glass filled nylon shell
- High purity thermocouple alloy pins and sockets
- Large terminal screws for easy wire installation
- Integral notch for security clip and hole to facilitate mounting
- Available with solid cover or quick-wiring caps which accommodate wire up to 14 AWG
- Color-coded to match thermocouple calibration

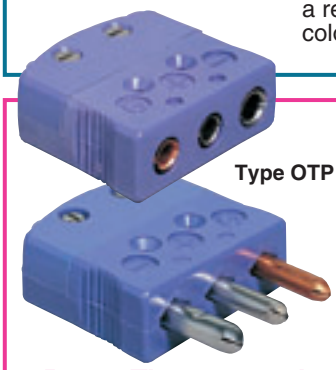
Heavy-Duty Ceramic Thermocouple Connectors, Pages G-27 thru G-29 in the Made in USA Handbook

Type NHX, NHXH

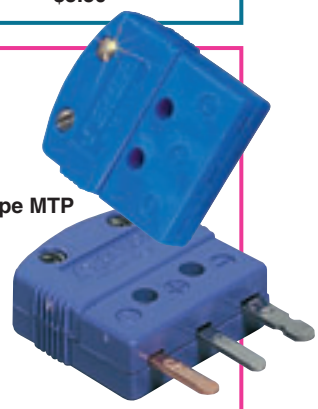
- High purity, heavy duty ceramic construction
- Standard and miniature sizes
- Temperature rating to 1200°F
- Oversized terminal screws for easy wiring
- Also available with a removable color-coding dot

Type SHX

From $5.50



Type OTP



Type MTP

From $2.50

3-Prong Thermocouple Connectors, Pages G-30 and G-31 in the Made in USA Handbook

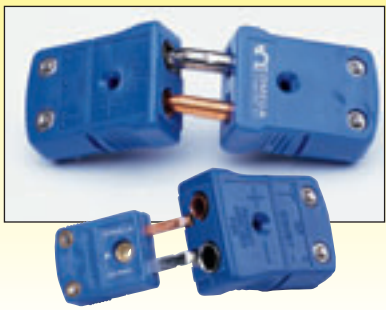
- For RTDs and 3-wire thermistors
- Standard shield connection pin for grounded thermocouples
- Also available with a removable color-coding dot

In Stock	Connector Style	USA HB Page	Mini	Size Std	Universal	Low Noise	Write-On Pad	2-Prong	3-Prong	Dual Circuit	Flat Pin	Hollow Pin	Solid Pin	Nylon 425°F	LCP 500°F	Ceramic 1200° F
Yes	HGMP	G-5	X			X	X	X			X			X	X	
Yes	GMP	G-7	X			X	X	X			X			X		
Yes	HGST	G-9		X		X	X	X				X			X	
Yes	GST	G-11		X		X	X	X				X		X		
Yes	HMPW	G-14	X				X	X			X				X	
Yes	HMP	G-14	X					X			X				X	
Yes	SMPW	G-13	X				X	X			X			X		
Yes	SMP	G-13	X					X			X			X		
Yes	NMP	G-15	X					X			X			X		
Yes	USTW	G-17		X	X		X	X						X		
Yes	UST	G-17		X	X			X						X		
Yes	HST	G-20		X				X				X			X	
Yes	HSTW	G-20		X			X	X				X			X	
Yes	OSTW	G-19		X			X	X						X		
Yes	OST	G-18		X				X				X		X		
Yes	OGP	G-21		X				X					X	X		
Yes	DTC	G-22		X				X		X		X		X		
Yes	SHX	G-26	X					X			X					X
Yes	NHXH	G-27		X				X				X				X
Yes	NHX	G-28		X				X					X			X
Yes	NOX	G-29		X				X					X			X
Yes	MTP	G-30	X						X		X			X		
Yes	OTP	G-31		X					X			X		X		

Universal Connector Write-On Female

Works With ALL Miniature and Standard Male Connectors

Type USTW Glass-Filled Nylon Rated to 220°C (425°F)



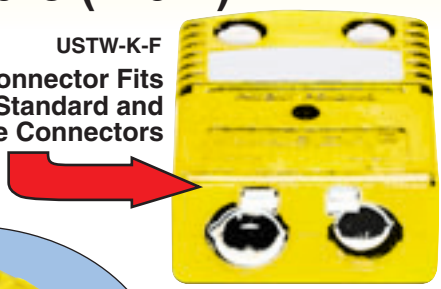
"FITS ALL"

- 2 Connectors in 1
- Universal Female Fits Both Miniature and Standard Connectors
- Removable/Reversible Write-On Window
- Accepts Stranded or Solid Wire up to Size 14 AWG
- Fully Compatible with OMEGA's as Well as All Industry Miniature AND Standard Size Thermocouple Connectors

MADE IN USA

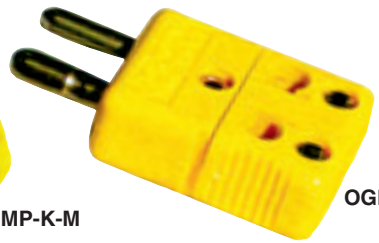
USTW-K-F

Patented Connector Fits Both Standard and Miniature Connectors



$5.40
USTW Female

USTW-K-F



NMP-K-M

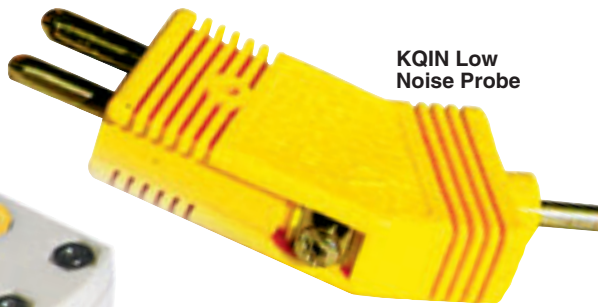
OGP-K-M

"FITS ALL"

GST-K-M

Shown Approximately Actual Size

OST-K-M



KQIN Low Noise Probe

SHX-K-M

"FITS ALL"

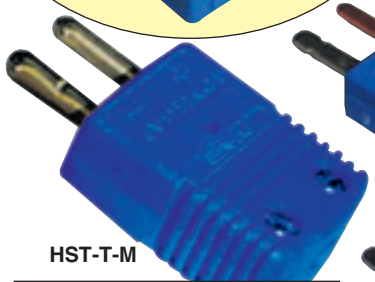
2 Connectors in 1!

Fits Standard and Miniature Connectors

USTW-T-F

NHXH-T-M

HMPW-T-M



HST-T-M

SMPW-T-M

Ordering Example

Model USTW – K – F $5.40

USTW – K – F

Universal Connector	Window Style	Calibration	Female (only)

The Write-On Connector is a trademark of OMEGA Engineering, Inc.
Covered by U.S. and Foreign Patents and Pending Applications

Prices in U.S. Dollars

To Order *(Specify Model Number)* ***IN STOCK FOR FAST DELIVERY!***

Alloy Code†	Compensating Alloy Used in Connector +	Compensating Alloy Used in Connector —	Shell Color	Write-on Window Style	Price Female (F)
K	CHROMEGA®	ALOMEGA®	Yellow	USTW-K-F	$5.40
T	Copper	Constantan	Blue	USTW-T-F	5.40
J	Iron	Constantan	Black	USTW-J-F	5.40
E	CHROMEGA®	Constantan	Purple	USTW-E-F	5.40
R/S	Copper	Alloy #11	Green	USTW-R/S-F	5.40
U	Copper	Copper	White	USTW-U-F	5.40
N	OMEGA-P®	OMEGA-N®	Orange	USTW-N-F	7.60

† *J, K, T, E, R, S and B are ANSI designations. OMEGA-P® and OMEGA-N® are generically known as Nicrosil-Nisil.*
Note: Type U (uncompensated) connectors are used with type B thermocouples (Pt/6%Rh-Pt/30%Rh)

13

Collection Series #13-001001

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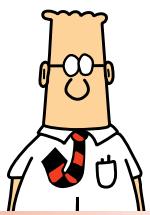
DILBERT® by Scott Adams

13

Collection Series #13-001002



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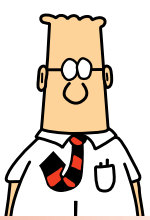
omega.com® OMEGA®
One Omega Drive, P.O. 4047
Stamford, CT 06907-0047

www.omega.com • e-mail: info@omega.com

DILBERT® by Scott Adams

13

Collection Series #13-001003



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omega.com® OMEGA®
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Stamford, CT 06907-0047

DILBERT® by Scott Adams

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Collection Series #13-001004

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DILBERT® by Scott Adams

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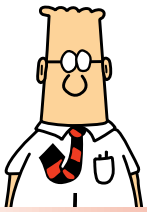
Collection Series #13-001005



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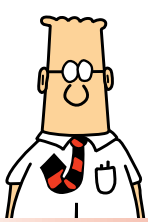
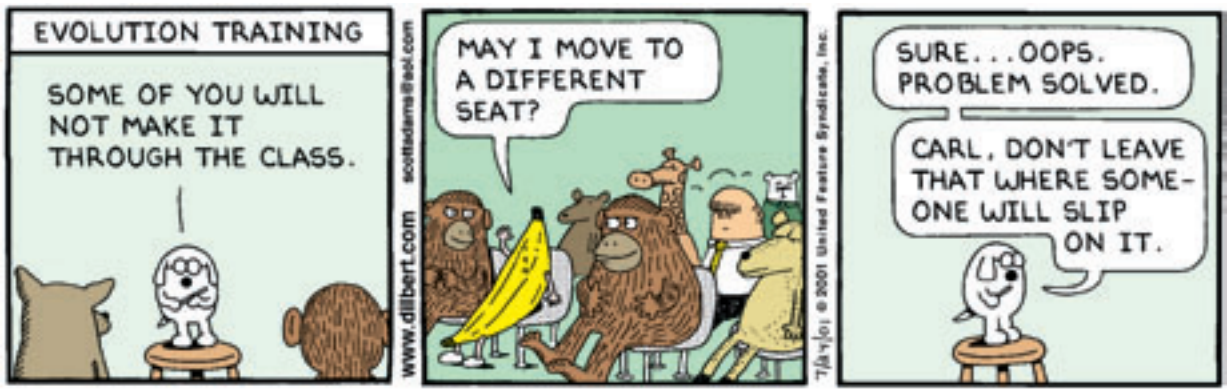
DILBERT® by Scott Adams

13

Collection Series #13-001006





7/24/01 DILBERT © United Feature Syndicate, Inc.

Universal Snap-In Panel Jacks

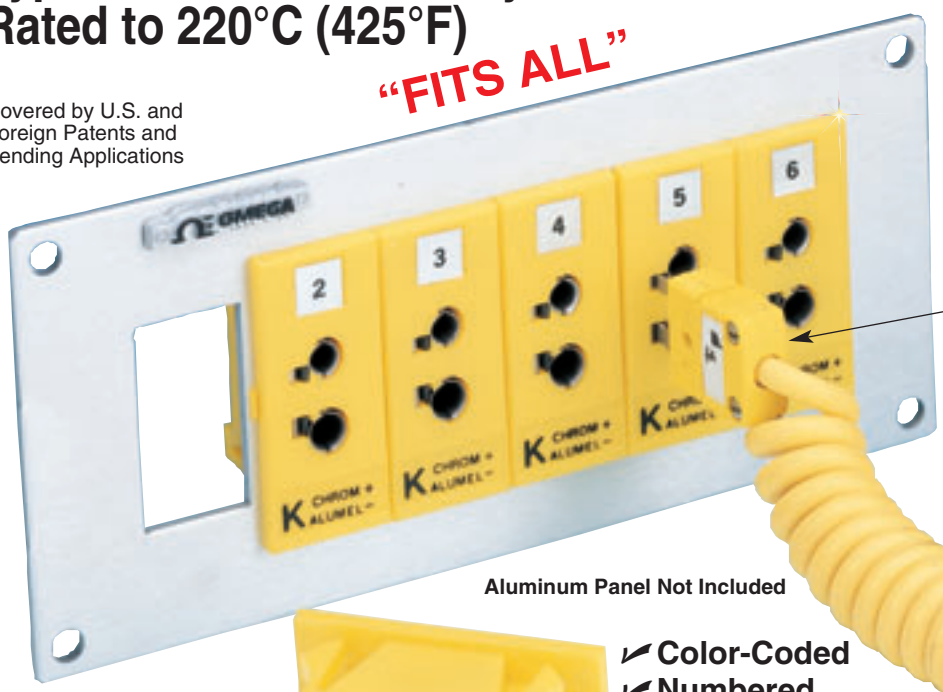
Works with ALL Miniature and Standard Male Connectors ***TWO CONNECTORS IN ONE!***

Type UPJ Glass-Filled Nylon Rated to 220°C (425°F)

MADE IN USA

Covered by U.S. and Foreign Patents and Pending Applications

"FITS ALL"



Aluminum Panel Not Included

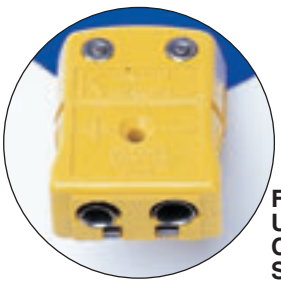
FREE! ID Number Labels and Dust Cap Supplied with Each Jack

Extra Supply of our Patented Design Dust Caps **SPJ-CAP** **$6.00**/pkg of 12

Miniature Connector

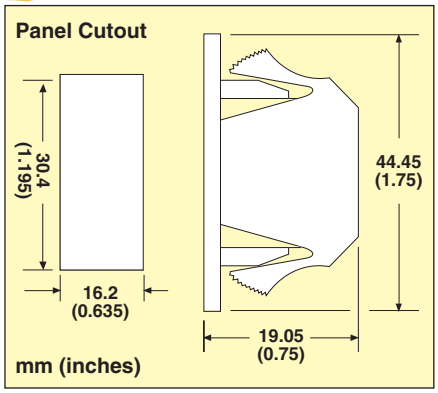
Standard Connector

- **Heavy Duty**
- **No Special Mounting Hardware Required**
- **No Installation Tools Needed**
- **Interlocking Design**
- **Color-Coded**
- **Numbered, Reusable**
- **Accepts Stranded or Solid Wire up to Size 14 AWG**



For Additional Universal Connectors, See Page 12.

Discount Schedule	
1-10 units	Net
11-24 units	10%
25-49 units	15%
50-99	20%
100-999	25%
1000 and up	Consult Sales



IN STOCK FOR FAST DELIVERY!

To Order ***(Specify Model Number)***

Alloy Code†	Type of Thermocouple Used With Connector	Compensating Alloy Used in Connector +	Compensating Alloy Used in Connector –	Shell Color	Model Number (Female)	Price of Jack
K	CHROMEGA®-ALOMEGA®	CHROMEGA®	ALOMEGA®	Yellow	**UPJ-K-F**	**$5.25**
T	Copper-Constantan	Copper	Constantan	Blue	**UPJ-T-F**	**5.25**
J	Iron-Constantan	Iron	Constantan	Black	**UPJ-J-F**	**5.25**
E	CHROMEGA®-Constantan	CHROMEGA®	Constantan	Purple	**UPJ-E-F**	**5.25**
R/S	Pt/13% Rh-Pt	Copper	Alloy #11	Green	**UPJ-R/S-F**	**5.25**
U	Uncompensated	Copper	Copper	White	**UPJ-U-F**	**5.25**
N	OMEGALLOY®	OMEGA-P®	OMEGA-N®	Orange	**UPJ-N-F**	**6.25**

OMEGALLOY® is generically known as Nicrosil-Nisil
†K, T, J, E, R, S and B are ANSI designations
NOTE: *Type U (Uncompensated) connectors are used with type B thermocouples, (Pt/6%Rh-Pt/30%Rh)*

Removal Tool SIRT-1 $15

For the large volume user who requires the ability to quickly remove installed connectors, the SIRT-1 removal tool is invaluable. Operating easily even in densely packed panels, the tool compresses all spring clips together, allowing the UPJ to be pushed out of the panel from the rear.

Rotary Selector Switches

For Thermocouple, RTD and Thermistor Circuits

GOLD or SILVER Contacts Available

OSW Series

$95

Basic Unit

- **3", 5" and 1/4 DIN Sizes**
- **Gold or Silver Plated Contacts**
- **2 or 3 Poles in 76 mm (3") and 127 mm (5") sizes**
- **2, 3, or 4 Poles in ¼ DIN Size**
- **2 to 34 Positions**
- **Round or Pistol Grip Handles**
- **Wire Connecting Screws Included**

For isothermal, low resistance switching of temperature measurement circuits, OMEGA offers three styles of selector switches. The OSW style features silver plated contacts, while the OSWG line includes gold plated contacts. The SW14 ¼ DIN switches

New ¼ DIN Size!

come with gold or silver-plated contacts. Each style offers 2 to 34 positions in a break-resistant Noryl case.

The isothermal design of these rotary switches minimizes temperature gradients between the input and output thermocouple wiring. This in turn minimizes errors in transmitting thermocouple signals due to the generation of a thermal emf at the wire junctions. The low resistance of the silver or gold plated contacts also enables switching of temperature sensitive resistance devices, such as RTDs and thermistors.

Two pole SW and OSW series switches have a convenient "off" position. The "off" position may be left as an open circuit or shorted to keep spurious signals from registering on thermocouple instruments. Each pole is fully isolated. For quick and easy wiring, the terminals located at the rear of the switch are clearly marked.

Shown actual size

MONOGRAM® SERIES with gold plated contacts

Any switch is available with a standard round knob or an optional pistol grip handle. Viewing the switch from a distance is generally easier with a pistol grip handle, as is switching its position while wearing gloves.

¼ DIN Rotary Selector Switches with "Jab-In" Connections

- Fits Standard ¼ DIN Cutout
- Gold or Silver Plated Contacts
- 2, 3, or 4 Poles
- 2 to 34 Positions
- Round or Pistol Grip Handles

Shown actual size

OMEGA can supply pre-configured 19" panels with connectors, switch and meter installed for most any application. Consult sales for details.

SW142-10-M

$125

Basic Unit

OMEGA is pleased to offer a rotary selector switches in a ¼ DIN size. Like our other rotary selector switches, this model is available with Break Before Make and Make Before Break contact action. Models are available with 2 to 34 positions in 2, 3 or 4 pole versions. Available with a standard round knob or optional pistol-grip handle. The ¼ DIN switch also has "jab-in" style connections.

New! Jab-in Connections
on 1/4 DIN Switch only

Easy to Use Jab-In Connections; No Loose Hardware

Dimensions

Bezel: 96 mm (3.78") sq, ¼ DIN

Panel Depth:
2-pole, 63 mm (2 13/32")
3-pole, 82 mm (3 5/32")
4-pole, 101 mm (3 29/32")

Panel Cutout: 92 mm (3.5/8") dia.

Face Height: 28 mm (1 3/32");
67 mm (2 5/8") with pistol grip

ALL MODELS AVAILABLE FOR FAST DELIVERY

To Order *(Specify Model Number)* ¼ DIN Units

No. of Poles	No. of Positions	Silver-Plated Contacts		Gold-Plated Contacts	
		Model No.	Price	Model No.	Price
2 includes "off" position	2	SW142-2-(*)	$105	SW142G-2-(*)	$157
	4	SW142-4-(*)	109	SW142G-4-(*)	163
	6	SW142-6-(*)	115	SW142G-6-(*)	172
	8	SW142-8-(*)	119	SW142G-8-(*)	179
	10	SW142-10-(*)	125	SW142G-10-(*)	186
	12	SW142-12-(*)	130	SW142G-12-(*)	195
	16	SW142-16-(*)	140	SW142G-16-(*)	209
	18	SW142-18-(*)	145	SW142G-18-(*)	216
	20	SW142-20-(*)	150	SW142G-20-(*)	225
	24	SW142-24-(*)	160	SW142G-24-(*)	239
	30	SW142-30-(*)	174	SW142G-30-(*)	261
	34	SW142-34-(*)	184	SW142G-34-(*)	275
3 NO "off" position	2	SW143-2-(*)	107	SW143G-2-(*)	161
	4	SW143-4-(*)	115	SW143G-4-(*)	172
	6	SW143-6-(*)	123	SW143G-6-(*)	183
	8	SW143-8-(*)	130	SW143G-8-(*)	194
	10	SW143-10-(*)	137	SW143G-10-(*)	205
	12	SW143-12-(*)	145	SW143G-12-(*)	216
	16	SW143-16-(*)	160	SW143G-16-(*)	238
	18	SW143-18-(*)	167	SW143G-18-(*)	249
	20	SW143-20-(*)	174	SW143G-20-(*)	261
	24	SW143-24-(*)	185	SW143G-24-(*)	278
	30	SW143-30-(*)	207	SW143G-30-(*)	311
	34	SW143-34-(*)	222	SW143G-34-(*)	333
4 NO "off" position	2	SW144-2-(*)	118	SW144G-2-(*)	178
	4	SW144-4-(*)	127	SW144G-4-(*)	190
	6	SW144-6-(*)	136	SW144G-6-(*)	202
	8	SW144-8-(*)	143	SW144G-8-(*)	214
	10	SW144-10-(*)	151	SW144G-10-(*)	226
	12	SW144-12-(*)	160	SW144G-12-(*)	238
	16	SW144-16-(*)	176	SW144G-16-(*)	262
	18	SW144-18-(*)	184	SW144G-18-(*)	274
	20	SW144-20-(*)	192	SW144G-20-(*)	288
	24	SW144-24-(*)	204	SW144G-24-(*)	306
	30	SW144-30-(*)	228	SW144G-30-(*)	343
	34	SW144-34-(*)	245	SW144G-34-(*)	367

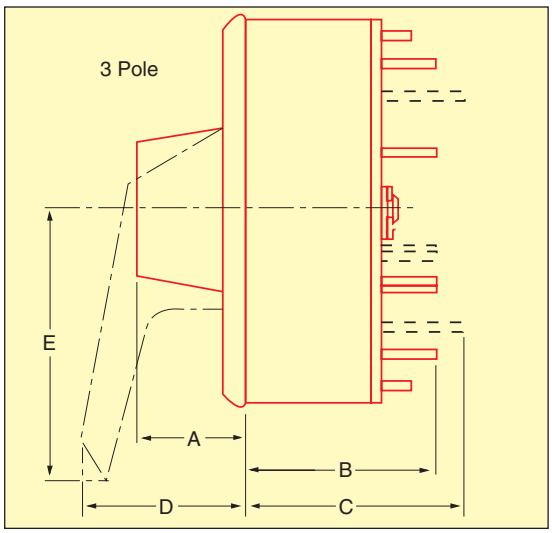
Specify contact action: "B" = Break Before Make, "M" = Make Before Break. Comes complete with mounting hardware, panel cutout template and instruction manual. To order with optional pistol grip handle add suffix '-PG' to model number and **$7.50 to price*

***To Order a Retro-fit Kit for Pistol Grip Handle Specify: SW14-PG** for silver plated contacts, **$10**, **SW14G-PG** for gold plated contacts, **$10**.*

Ordering Example: SW142-10-M-PG** specifies a 2-pole, 10-position switch with Make Before Break action, silver-plated contacts and optional pistol grip handle, $125 + 7.50 = **$132.50.

Ordering Example: SW143-12-B** 3-pole, 12 position switch with Break Before Make action, silver-plated contacts **$145.

Standard Size Rotary Selector Switches for Thermocouples and RTDs



*To order with optional pistol grip, add suffix '**-PG**' to model no. Comes complete with mounting hardware, panel mounting template and instruction manual. Add **$6.50** to price.*

Ordering Example:** OSWG3-20-PG, 3" (76 mm) switch, 20 positions, gold contacts, with optional pistol grip, $204 + 6.50 = **$210.50.

- **Gold or Silver Plated Contacts**
- **Standard Screw Termination**

Insulation Resistance: 20 MΩ at 300 Vdc
Contact Resistance: 0.004 Ω or less
Also Available: Pistol grip handle retrofit kit; specify OSW-PG and switch size, **$10**.

OSW Switch Dimensions

Switch Size	Dim. A mm (in)	Dim. B* mm (in)	Dim. C mm (In)	Dim. D mm (in)	Dim. E mm (in)	Bezel Size mm (in)
76 mm (3")	28.6 (1⅛")	54 (2⅛")	62 (2⁷⁄₁₆")	44.4 (1¾")	66.7 (2⅝")	82.55 (3¼")
127 mm (5")	38.1 (1½")	54 (2⅛")	62 (2⁷⁄₁₆")	58.7 (2⅝")	92.07 (3⅝")	133.35 (5¼")

ALL MODELS AVAILABLE FOR FAST DELIVERY

To Order *(Specify Model Number)*

No. of Poles	No. of Positions	Contact Action	Size	Silver Plated Contacts Model No.	Price	Gold Plated Contacts Model No.	Price
2 POLE	2	Break Before Make	3"	OSW3-2	$ 95	OSWG3-2	$142
	3			OSW3-3	97	OSWG3-3	145
	4			OSW3-4	99	OSWG3-4	148
	5			OSW3-5	102	OSWG3-5	153
	6			OSW3-6	104	OSWG3-6	156
	8			OSW3-8	108	OSWG3-8	162
	9			OSW3-9	111	OSWG3-9	166
	10			OSW3-10	113	OSWG3-10	169
	12	Make Before Break	3"	OSW3-12	118	OSWG3-12	177
	14			OSW3-14	122	OSWG3-14	183
	16			OSW3-16	127	OSWG3-16	190
	18			OSW3-18	131	OSWG3-18	196
	20			OSW3-20	136	OSWG3-20	204
	24			OSW5-24	145	OSWG5-24	217
	28		5"	OSW5-28	154	OSWG5-28	231
	30			OSW5-30	158	OSWG5-30	237
includes	32			OSW5-32	162	OSWG5-32	243
"off"	36			OSW5-36	171	OSWG5-36	256
	40			OSW5-40	185	OSWG5-40	277
3 POLE	6	Make Before Break	(5")	OSWT-6	111	OSWGT-6	166
	10			OSWT-10	124	OSWGT-10	186
	12			OSWT-12	131	OSWGT-12	196
	18			OSWT-18	151	OSWGT-18	226
	20			OSWT-20	158	OSWGT-20	237
	24			OSWT-24	168	OSWGT-24	252
	28			OSWT-28	181	OSWGT-28	271
	30			OSWT-30	188	OSWGT-30	282
	32			OSWT-32	195	OSWGT-32	292
	36			OSWT-36	208	OSWGT-36	312
no "off"	40			OSWT-40	222	OSWGT-40	333

Matched Pair Noble Metal Thermocouple Wire

NEW

- **Order Platinum Thermocouple Wire as Matched Pairs!**
- **Types S, R, and B Selected to Give the Highest Accuracy**

MADE IN USA

For high resistance to oxidation and corrosion at high temperatures, OMEGA offers the highest quality uninsulated wire for three types of "noble metal" thermocouples. They are:

Type S: Platinum (–) vs. Platinum 10% Rhodium (+)

Type R: Platinum (–) vs. Platinum 13% Rhodium (+)

Type B: Platinum 6% Rhodium (–) vs. Platinum 30% Rhodium (+)

Types R and S are recommended for continuous use in oxidizing or inert atmospheres up to 2550°F (1398°C) or short term exposures to 2700°F (1482°C). Type B is rated for continuous use up to 3100°F (1704°C) in oxidizing or inert atmospheres. When operating near these maximum temperatures, the heavier gage wire sizes are recommended.

All three thermocouple types can be used in a vacuum for short periods of time. Type B offers greater stability in such applications. None should be used in reducing atmospheres or in atmospheres containing metallic or non-metallic vapors unless protected by non-metallic protection tubes. Do not insert directly into metallic protection tubes.

Sizes range from 0.001 to 0.032" (0.025 to 0.812 mm) diameter. These matched pairs are selected to meet or exceed standard limits of error. Reference Grade wire is also available as matched pairs, consult sales for price and availability.

Uninsulated Matched Pair Noble Metal Thermocouple Wire

To Order *(Specify Model Number)*

T/C Type	Material	Wire Dia. (inch)	Model No.	Price/ Double Inch*
R	Platinum vs Platinum-13% Rhodium	0.001	SP13R-001	$1.50
		0.002	SP13R-002	1.25
		0.003	SP13R-003	1.95
		0.005	SP13R-005	1.90
		0.008	SP13R-008	3.10
		0.010	SP13R-010	3.85
		0.015	SP13R-015	8.80
		0.020	SP13R-020	14.00
		0.025	SP13R-025	24.10
		0.032	SP13R-032	32.50
S	Platinum vs Platinum-10% Rhodium	0.001	SP10R-001	1.50
		0.002	SP10R-002	1.25
		0.003	SP10R-003	1.95
		0.005	SP10R-005	1.85
		0.008	SP10R-008	3.05
		0.010	SP10R-010	3.80
		0.015	SP10R-015	7.80
		0.020	SP10R-020	13.25
		0.025	SP10R-025	21.70
		0.032	SP10R-032	23.00
B	Platinum-6% Rhodium vs Platinum-30% Rhodium	0.008	SP30R-008	4.70
		0.010	SP30R-010	5.30
		0.015	SP30R-015	10.00
		0.020	SP30R-020	14.60
		0.032	SP30R-032	36.40

**Ordering Unit of Measure is double inch. A double inch is one inch of positive and one inch of matching negative wire.*

Ordering Example: *1.) Quantity=100 of* ***SP10R-010****, 100 inches of Type S positive and 100 inches of matching Type S negative wire, 0.010 dia. 100 x 3.80 =* ***$380.***

Note: Prices are subject to change due to fluctuations in the precious metals market.

Twisted Shielded Extension Grade Thermocouple Wire

UL Listed

TWSH-UL Wire

$245

1000' Spool
Basic Unit

Spool Pricing

1. Determine price per 1000 ft. spool
2. Establish price per foot for the standard lengths available:

25 ft. = $\frac{\text{Price per 1000'}}{1000}$ x 2.5

50 ft. = $\frac{\text{Price per 1000'}}{1000}$ x 2

100 ft. = $\frac{\text{Price per 1000'}}{1000}$ x 1.75

200 ft. = $\frac{\text{Price per 1000'}}{1000}$ x 1.5

500 ft. = $\frac{\text{Price per 1000'}}{1000}$ x 1

1000 ft. = Price per 1000' (Net per ft)

3. Multiply price per foot by spool length desired.
4. Round price to the nearest dollar.

Examples:

50 ft. spool of type EX wire, 16 gage (EXPP-E-16-TWSH-UL, Price= $685 for 1000'):

50 ft. = $\frac{\$685 \times 2}{1000}$ = 1.37 per foot,

$1.37 x 50 ft. = $68.50 or $69.00/50 ft spool

Extension Grade
CHROMEGA®-ALOMEGA® Duplex
ANSI Type KX

KX

IN STOCK FOR FAST OFF-THE-SHELF DELIVERY!

Use with Low Noise Thermocouple Probes Shown in Section A!
GTMQSS-062G-6, Low Noise Miniature Thermocouple, $27

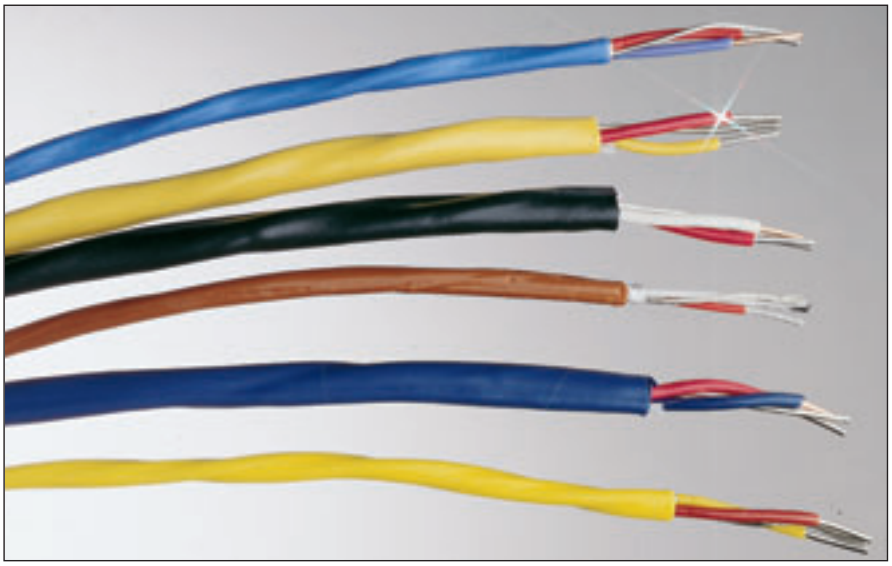
- **UL Listed Type PLTC, 300 V; Listed Under UL Subject 13, File E153789**
- **Extruded PVC Single Conductor and Duplex Insulation**
- **Aluminized Polyester Shield with Drain Wire Reduces Electrical Noise**
- **ANSI Color Coded**
- **Resistant to Moisture, Abrasion, Chemicals, and UV Light**
- **Optional Stainless Steel and Tinned Copper Wire Overbraiding**

ANSI Color Code: Positive Wire, Yellow; Negative Wire, Red; Overall, Yellow

FOR LONGER LENGTHS CONSULT SALES FOR PRICE AND DELIVERY!

Model Number	AWG	Bare Conductor Diameter		Nominal Insulation Thickness				Nominal Overall Size		Approx. Ship Wt lb/1000' spool	Price/ 1000 ft
				Conductor		Overall					
		inches	mm	inches	mm	inches	mm	inches	mm		
EXPP-K-16-TWSH-UL	16	0.051	1.29	0.020	0.508	0.035	0.889	0.256	6.50	49	**$675**
EXPP-K-16S-TWSH-UL	16S	0.060	1.52	0.020	0.508	0.035	0.889	0.275	6.98	50	**1095**
EXPP-K-20-TWSH-UL	20	0.032	0.813	0.015	0.381	0.035	0.889	0.198	5.03	28	**350**
EXPP-K-20S-TWSH-UL	20S	0.038	0.965	0.015	0.381	0.035	0.889	0.210	5.33	30	**600**

Note: *Overbraiding wire invalidates UL Rating.* ***Ordering Example:*** *1000' of type* ***EXPP-K-16-TWSH-UL*** *extension grade thermocouple wire, 16 gage, type K, twisted shielded, UL listed* ***$675***



Wire is shielded and supplied with an integral tin/copper drain wire

OMEGA® twisted/shielded thermocouple wire is ideal for systems sensitive to induced voltages and electrical noise. The wire conductors are insulated with color-coded PVC, then twisted with a tin/copper drain wire. Next, an aluminized polyester tape is wrapped around the wires, followed by a final layer of PVC coating. The wire is UL listed for Power Limited Tray Cable (PLTC) applications.

IN STOCK FOR FAST OFF-THE-SHELF DELIVERY!

Extension Grade Iron/Constantan Duplex ANSI Type JX

ANSI Color Code: Positive Wire, White; Negative Wire, Red; Overall, Black

Ordering Example: *100' of type* ***EXPP-J-16-TWSH-UL*** *extension grade thermocouple wire, twisted shielded, type J, 16 gage, UL listed* ***$81***

Model Number	AWG	Bare Conductor Diameter		Nominal Insulation Thickness				Nominal Overall Size		Approx. Ship Wt lb/1000' spool	Price/ 1000 ft
				Conductor		Overall					
		inches	mm	inches	mm	inches	mm	inches	mm		
EXPP-J-16-TWSH-UL	16	0.051	1.29	0.020	0.508	0.035	0.889	0.256	6.50	49	$460
EXPP-J-16S-TWSH-UL	16S	0.060	1.52	0.020	0.508	0.035	0.889	0.275	6.98	50	765
EXPP-J-20-TWSH-UL	20	0.032	0.813	0.015	0.381	0.035	0.889	0.198	5.03	28	240
EXPP-J-20S-TWSH-UL	20S	0.038	0.965	0.015	0.381	0.035	0.889	0.210	5.33	30	380

Extension Grade Copper/Constantan Duplex ANSI Type TX

ANSI Color Code: Positive Wire, Blue; Negative Wire, Red; Overall, Blue

Ordering Example: *500' of type* ***EXPP-T-20-TWSH-UL*** *extension grade thermocouple wire, twisted shielded, type T, 20 gage, UL listed* ***$120***

Model Number	AWG	Bare Conductor Diameter		Nominal Insulation Thickness				Nominal Overall Size		Approx. Ship Wt lb/1000' spool	Price/ 1000 ft
				Conductor		Overall					
		inches	mm	inches	mm	inches	mm	inches	mm		
EXPP-T-16-TWSH-UL	16	0.051	1.29	0.020	0.508	0.035	0.889	0.256	6.50	49	$460
EXPP-T-16S-TWSH-UL	16S	0.060	1.52	0.020	0.508	0.035	0.889	0.275	6.98	50	765
EXPP-T-20-TWSH-UL	20	0.032	0.813	0.015	0.381	0.035	0.889	0.198	5.03	28	240
EXPP-T-20S-TWSH-UL	20S	0.038	0.965	0.015	0.381	0.035	0.889	0.210	5.33	24	380

Extension Grade CHROMEGA®/Constantan Duplex ANSI Type EX

ANSI Color Code: Positive Wire, Purple; Negative Wire, Red; Overall, Purple

Ordering Example: *1000' of type* ***EXPP-E-20-TWSH-UL*** *extension grade thermocouple wire, twisted shielded, type E, 20 gage, UL listed* ***$615***

Model Number	AWG	Bare Conductor Diameter		Nominal Insulation Thickness				Nominal Overall Size		Approx. Ship Wt lb/1000' spool	Price/ 1000 ft
				Conductor		Overall					
		inches	mm	inches	mm	inches	mm	inches	mm		
EXPP-E-16-TWSH-UL	16	0.051	1.29	0.020	0.508	0.035	0.889	0.256	6.50	49	$685
EXPP-E-16S-TWSH-UL	16S	0.060	1.52	0.020	0.508	0.035	0.889	0.275	6.98	50	1110
EXPP-E-20-TWSH-UL	20	0.032	0.813	0.015	0.381	0.035	0.889	0.198	5.03	28	615
EXPP-E-20S-TWSH-UL	20S	0.038	0.965	0.015	0.381	0.035	0.889	0.210	5.33	24	620

Relative Humidity Transmitter
Wall, Duct Mount and Remote Probe Models

Model HX92AC

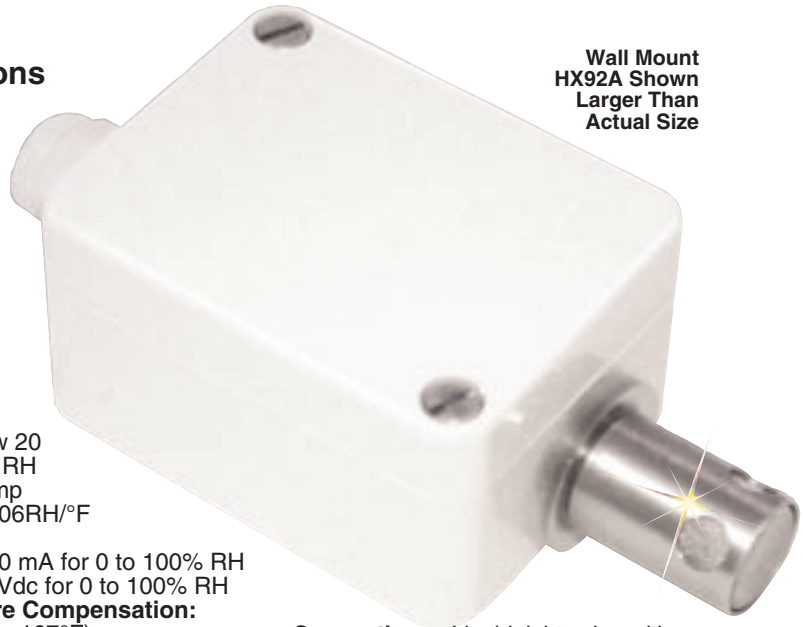
$190

- 4-20mA or 0-1V Output
- Compact Size for Mounting Versatility
- Watertight Enclosure
- Accurate to 2.5% RH

The model HX92A is an economical humidity transmitter, providing on-site continuous monitoring of relative humidity. It is a 2-wire transmitter with either voltage or current output. The transmitter output is linearized, and RH readings are temperature compensated. A thin-film polymer capacitor senses relative humidity. The sensor is protected by a stainless mesh-type filter that is easily removable for cleaning. The case and weathertight protection, and screws are provided for mounting the unit via internal hole. An unusually low minimum voltage of 6 V allows the use of large impedances for longer wire runs. The HX93A is a similar unit that provides transmitter outputs for both humidity and temperature.

Specifications

Input Voltage Range: 24 Vdc nominal (6 to 30 Vdc)
Measuring Range RH: 3 to 95%
Temperature: -20 to 75°C (-4 to 167°F)
Accuracy RH: ±2.5% RH from 20 to 80% RH; ±3.1% RH below 20 and above 80% RH @ 25°C with temp coefficient of -0.06RH/°F
Output
HX92AC: 4 to 20 mA for 0 to 100% RH
HX92AV: 0 to 1Vdc for 0 to 100% RH
RH Temperature Compensation: -20 to 75°C (-4 to 167°F)
RH Time Constant (90% response at 25°C, in moving air at 1m/s): >10 seconds, 10 to 90% RH; >15 seconds, 90 to 10% RH
Repeatability: ±1% RH, 0.5°F
Housing: ABS plastic watertight enclosure; meets NEMA 1, 2, 3, 3R, 4, 4X, 5, 12 and 13 specifications



Wall Mount HX92A Shown Larger Than Actual Size

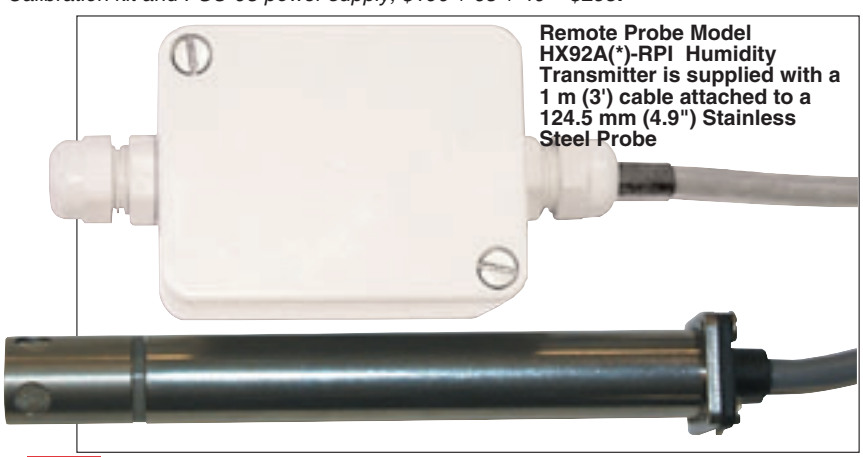
Connections: Liquid-tight nylon with neoprene gland, for 0.09 to 0.265" diameter cable; internal 4-pin terminal block accepts 14 to 22 gage wire
Dimensions: HX92A(*) & HX92A(*)-D: Enclosure: 49.8 x 64.8 x 34.8 mm (1.96" x 2.55 x 1.37") HX92A(*)-D: Probe: 15.7 D x 124.5 mm L (.620" x 4.9")
Weight: HX92A(*): 82 g (2.9 oz); HX92A(*)-D: 100 g (3.5 oz)

To Order *(Specify Model Number)*

Model No.	Price	Description
HX92A(*)	$190	Wall Mount Relative Humidity Transmitter
HX92A(*)-D	205	Duct Mount Relative Humidity Transmitter
HX92A(*)-RPI	235	Remote Probe RH Transmitter
HX92-CAL	65	Calibration Kit, 11 and 75% RH Standards
PSU-93	40	Unregulated Power Supply, 16 to 23Vdc, 300mA max
TX4-100	28.50	4 conductor shielded transmitter cable (100 ft)
CAL-3-HU	125	NIST Traceable Calibration
HX90DM-KIT	12	Duct Mounting Kit (for HX92A(*)-D or HX92A(*)-RPI only)

To order, Specify "C" for 4 to 20mA output, or "V" for 0-1 Vdc output.
Ordering Example: HX92AC, *humidity transmitter with current output, with HX92-CAL Calibration kit and PSU-93 power supply, $190 + 65 + 40 =* ***$295.***

MOST POPULAR MODELS HIGHLIGHTED!



Remote Probe Model HX92A(*)-RPI Humidity Transmitter is supplied with a 1 m (3') cable attached to a 124.5 mm (4.9") Stainless Steel Probe

Duct Mount Model Shown Smaller Than Actual Size

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13

Collection Series #13-001007

DILBERT® by Scott Adams

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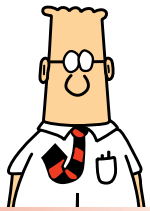

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Stamford, CT 06907-0047

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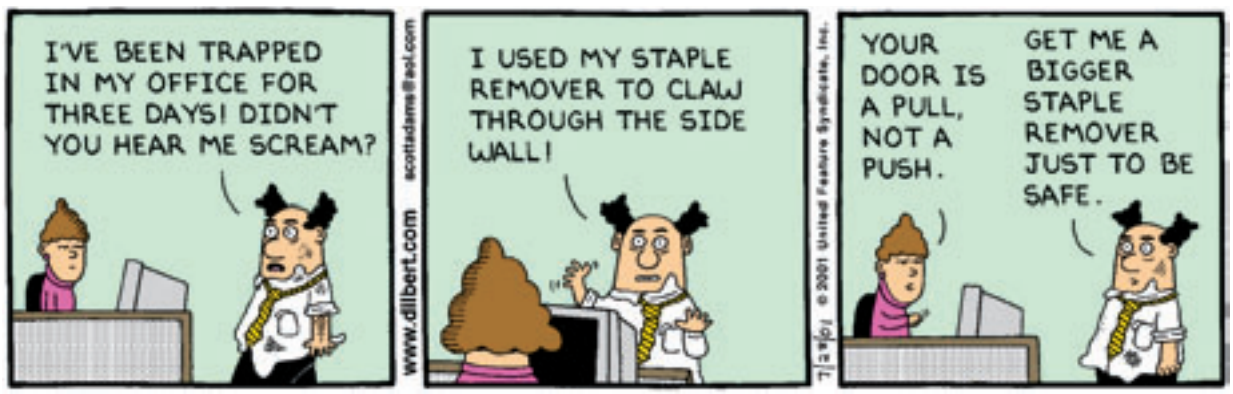

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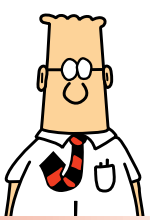
Collection Series #13-001009



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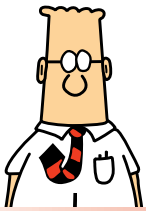
Collection Series #13-001011



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DILBERT® by Scott Adams

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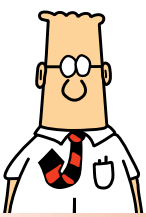
Collection Series #13-001012



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RH/Temperature Transmitter

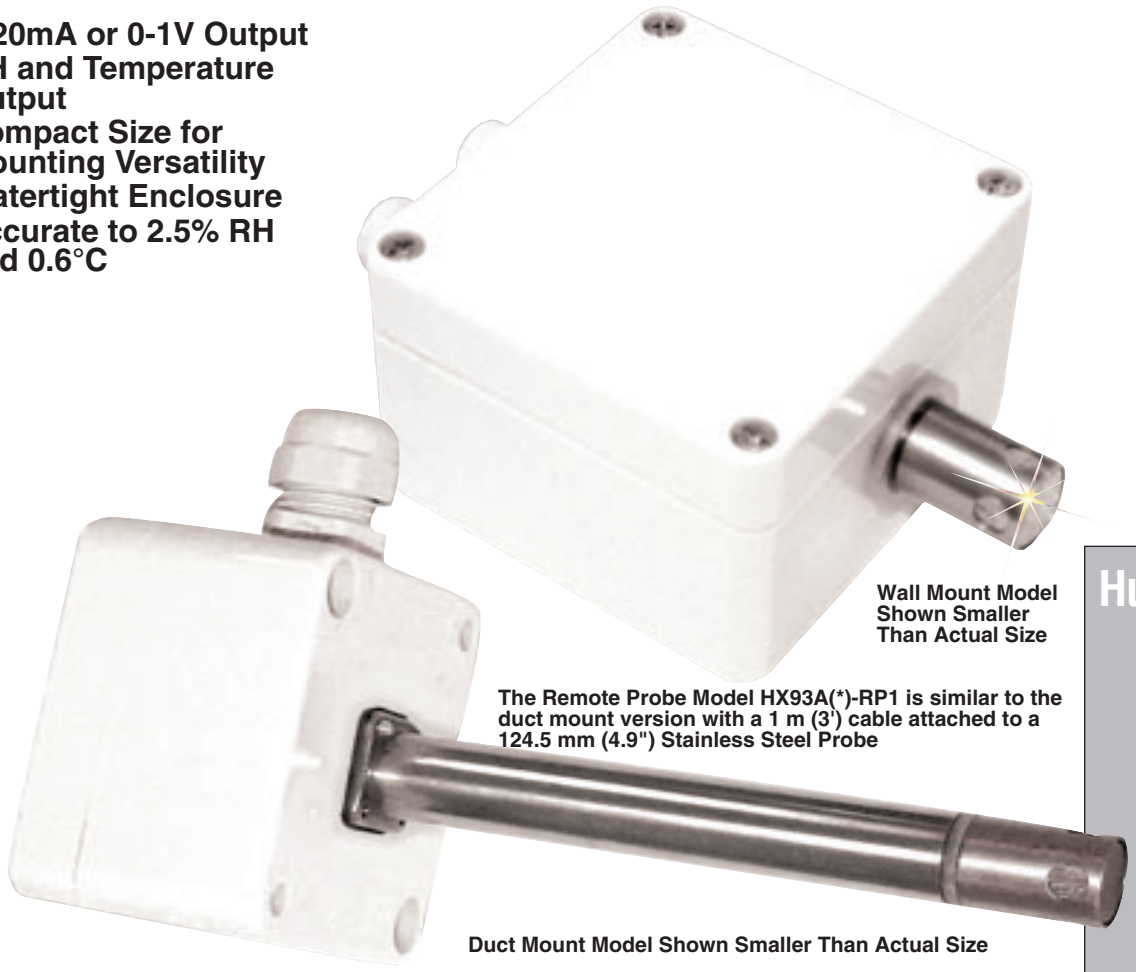
Wall, Duct Mount and Remote Probe Models

Model HX93A

$225

- 4-20mA or 0-1V Output
- RH and Temperature Output
- Compact Size for Mounting Versatility
- Watertight Enclosure
- Accurate to 2.5% RH and 0.6°C

The HX93A transmitter provides remote or on-site monitoring of relative humidity and temperature. The HX93A outputs a linearized current or voltage signal proportional to the measured humidity or temperature. RH outputs are temperature compensated. Current output models enable placing of the transmitter at a remote location virtually any distance away from the readout or datalogging device. HX93A utilizes a thin-film polymer capacitor to sense relative humidity, and a Platinum 100Ω RTD to accurately sense temperature. A stainless steel mesh type filter protects the sensors, which is easily removable for cleaning. Mounting screws are easily accessible inside the rugged, ABS enclosure, which houses and protects the electronics to NEMA 13 specifications. An unregulated power supply providing a voltage of 6-30V powers the HX93A.



Wall Mount Model Shown Smaller Than Actual Size

The Remote Probe Model HX93A(*)-RP1 is similar to the duct mount version with a 1 m (3') cable attached to a 124.5 mm (4.9") Stainless Steel Probe

Duct Mount Model Shown Smaller Than Actual Size

Specifications

Input Voltage Range:
24 Vdc nominal (6 to 30Vdc)
MEASURING RANGE
RH: 3 to 95%
Temperature:
-20 to 75°C (-4 to 167°F)
ACCURACY
RH: ±2.5% RH from 20 to 80%RH; ±3.1% RH below 20 and above 80% RH@ 25°C with temp coefficient of -0.06RH/°F
Temperature: 0.6°C (±1°F)
OUTPUT
HX93AC: 4 to 20mA for 0 to 100% RH and -20 to 75°C (-4 to 167°F)
HX93AV: 0 to 1Vdc for 0 to 100% RH and -20 to 75°C (-4 to 167°F)
RH Temperature Compensation:
-20 to 75°C (-4 to 167°F)
RH Time Constant (90% response at 25°C, in moving air at 1m/s):
>10 seconds, 10 to 90% RH;
>15 seconds, 90 to 10% RH

Repeatability: ±1% RH, 0.5°F
Housing: ABS plastic watertight enclosure; meets NEMA 1, 2, 3, 3R, 4, 4X, 5, 12 and 13 specifications
Connections: Liquid-tight nylon with neoprene gland, for 0.09 to 0.265" diameter cable; internal 4-pin terminal block accepts 14-22 gauge wire

Dimensions: HX93A(*) & HX93A(*)-D: Enclosure: 79.8 x 81.8 x 54.9 mm (3.14" x 3.22" x 2.16")
HX93A(*)-D: Probe: 15.7 D x 124.5 mm L (.620" x 4.9")
Weight: HX93A(*): 170 g (6 oz)
HX93A(*)-D: 187 g (6.6 oz)

MOST POPULAR MODELS HIGHLIGHTED!

To Order ***(Specify Model Number)***

Model No.	Price	Description
HX93A(*)	**$225**	Wall Mount RH and Temperature Transmitter
HX93A(*)-D	**235**	Duct Mount RH and Temperature Transmitter
HX93A(*)-RPI	**265**	Remote Probe Relative Humidity/Temp Transmitter (not shown)
HX92-CAL	**65**	Calibration Kit, 11 and 75% RH Standards
PSU-93	**40**	Unregulated Power Supply, 16 to 23Vdc, 300mA max
TX4-100	**28.50**	4 conductor shielded transmitter cable (100 ft)
CAL-3-Hu	**125**	NIST Traceable Calibration
HX90DM-KIT	**12**	Duct Mounting Kit (for HX92A(*)-D or HX92A(*)-RPI only)

** To order, Specify "C" for 4 to 20mA output(s), or "V" for 0-1 Vdc output(s)*
Ordering Example: HX93AC**, humidity transmitter with 4-20mA output, with HX92-CAL Calibration kit $225 + 65 = **$290.

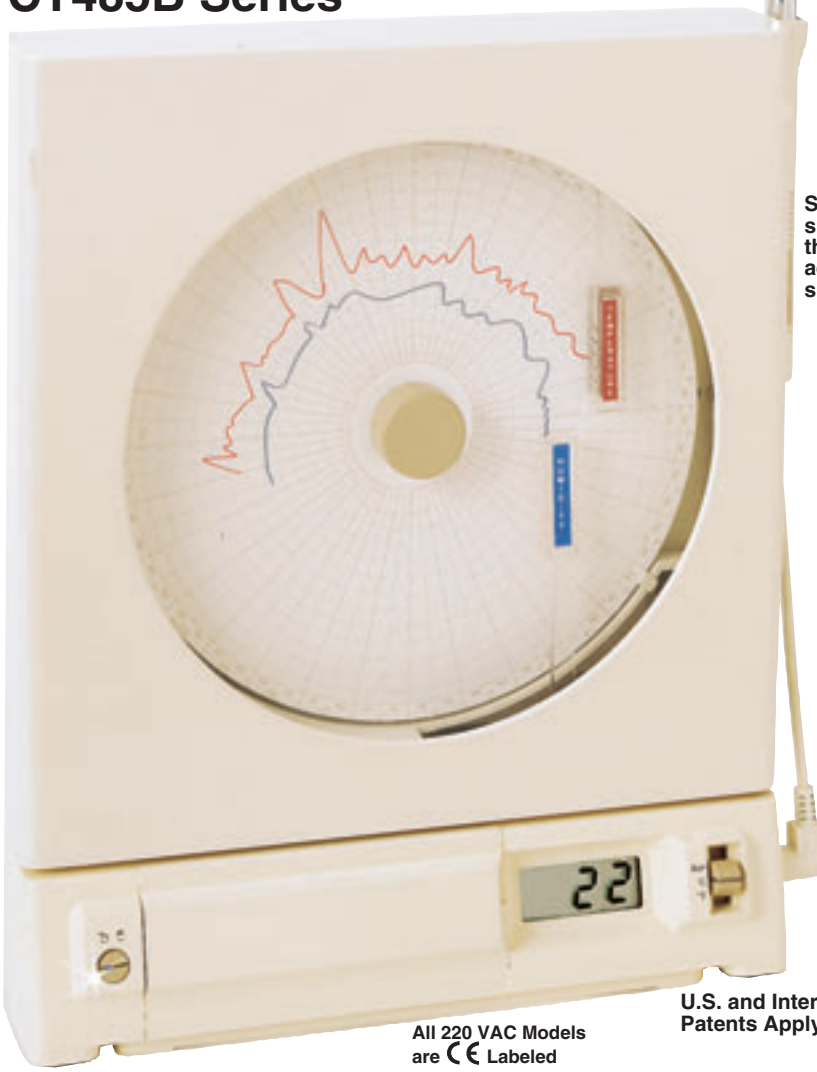
Microprocessor-Based Temperature/Relative Humidity Recorder

CT485B Series

MADE IN USA | OMEGA CARE Extended Warranty Programme | EMC SERVICES

$642

Basic Unit includes 120 double sided charts



Shown smaller than actual size

All 220 VAC Models are CE Labeled

U.S. and International Patents Apply.

- Available in Computer Room White or Charcoal Gray
- Versatile Remote Mounting Sensor
- Convenient Front Panel Programming
- 200 mm (8") Chart for 1, 7, or 32-Day Recording
- Fully Electronic Microprocessor Control
- Benchtop or Wall Mounted
- Alarm Contact Standard
- 1,2,3 Year Extended Warranty Comes with Extra Pens, Paper, Batteries
- Sensors Not Recommended for Use in a Corrosive Environment
- Companion Pressure & pH Recorder Available

Complete with 120 Assorted Double-Sided Charts, 2 Sets of Pens, 6' Remote Sensor Cable, Wall Mounting Kit, Cal-Lock Kit, Batteries, and ac Adaptor

The new Model CT485B completely self-contained temperature/ relative humidity recorder is microprocessor based to accurately measure, indicate and record temperature and relative humidity.

This rugged unit comes standard with alarms. They contain a single, integral relay contact which closes in response to an alarm condition. Simultaneous high and low alarm points for temperature and relative humidity are user selectable. When the current conditions exceed any of the preset values, the 2 Amp relay contact closes and an audible alarm sounds.

Flipping open a hinged front panel door permits access to the power switch and controlling functions of the recorder. The door comes with a locking mechanism. The user may select 1, 7 or 32 day operation, program the instrument to record in °C or °F, and access alarm and calibration controls or max/min functions.

A separate 3-position switch next to the digital display selects a °C,°F or %RH readout. The chart drive is stepper controlled for precision, and a unique magnetic retaining knob eliminates the possibility of paper tear.

Calibration of alarm models is digital, and a user may make calibration adjustments in the field using the convenient panel pushbuttons. An optional calibration lockout cover prevents unauthorized changing of calibration codes.A stabilizing arm provides added stability for benchtop use. The arm conveniently rotates under the unit for wall mounting. Recessed rear mounting slots and a wall template enable easy wall mounting. A decorative cover for the stabilizing arm is supplied for wall mount use. A standard 110 Vac power adaptor is supplied for continuous long-term operation, along with four D-cell batteries for backup power or field use. Each unit includes 6 feet of cable for remotely mounting the sensor. A sensor holder clip is provided.

Units come standard with two chart light bulbs. When using the ac power adaptor, these bulbs provide easy viewing of the chart in dimly lit conditions. A switch is provided to allow the chart lights to be turned on or off.

Specifications

Measurement Inputs: Temperature and humidity, with plug-in external sensor, removable for remote location, 6' extension cable included; 0.02 to 1.20 Vdc signal with voltage input adaptor

TEMPERATURE

Range: -17 to 49°C (2 to 120°F)

Accuracy: ±1°C

Sensor: Solid state

Response Time: 5 minutes for 63% step change

Display Resolution: 1°C/1°F

HUMIDITY

Range: 2 to 98% RH

Accuracy: ±3% @25°C, between 20 and 90% of range (±5% below 20% and above 90% @25°C)

Sensor: resistive polymer. Not recommended for use in corrosive air environments

Response Time: 5 minutes for a 30 to 80% step change

Display Resolution: 1% RH

2½ digit LCD, 0.5" high; low battery

Display Modes: Front panel switchable between °C, °F and %RH for continuous digital display; max/min storage for both temperature and humidity or flashing to indicate alarm condition

ELECTRONICS

Type: Microprocessor-controlled and linearized high and low peak hold for both temperature and humidity, re-initializes position at every chart change

CHART

Type: 8" circular, linear radial divisions, double sided; 1, 7 and 32 days, °C and °F scales

CHART DRIVE

Type: Stepper motor

Ranges: 1, 7 and 32 day, selectable

Accuracy: 1% of rotation

Chart Hold Down: magnetic hub lock

RECORDING PENS

Type: Disposable fiber tip, red for temperature, blue for humidity

PEN DRIVES

Type: Motorized linear screw drive

Deadband: 1°F, 1% RH

Zero: Automatic zero during chart change or power interruption

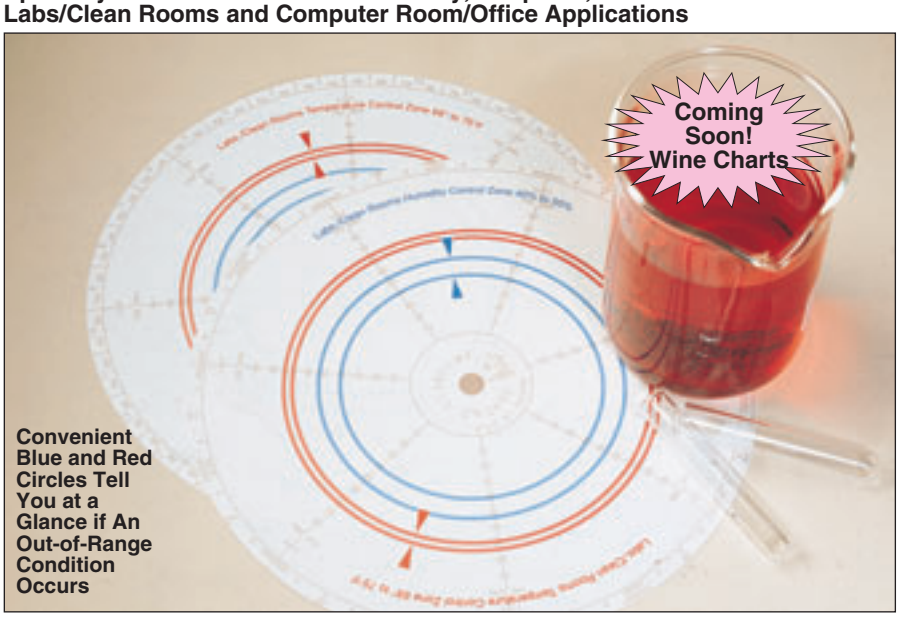
Penlift: Automatic on door opening; pens are door mounted and swing clear of the chart when door opens

Pen Arms: Clear plastic to allow full chart viewing

Available in Computer Room White or Charcoal Gray.

CE labeled 220Vac model shown with included Ferrite core noise suppressor (included on CE models)

Specialty Charts for Museum/Art Gallery, Hospitals, Labs/Clean Rooms and Computer Room/Office Applications



Convenient Blue and Red Circles Tell You at a Glance if An Out-of-Range Condition Occurs

OPERATING CONDITIONS (RECORDER)
Temperature: 0 to 49°C (32 to 120°F)
Humidity: 0 to 90% RH, non-condensing

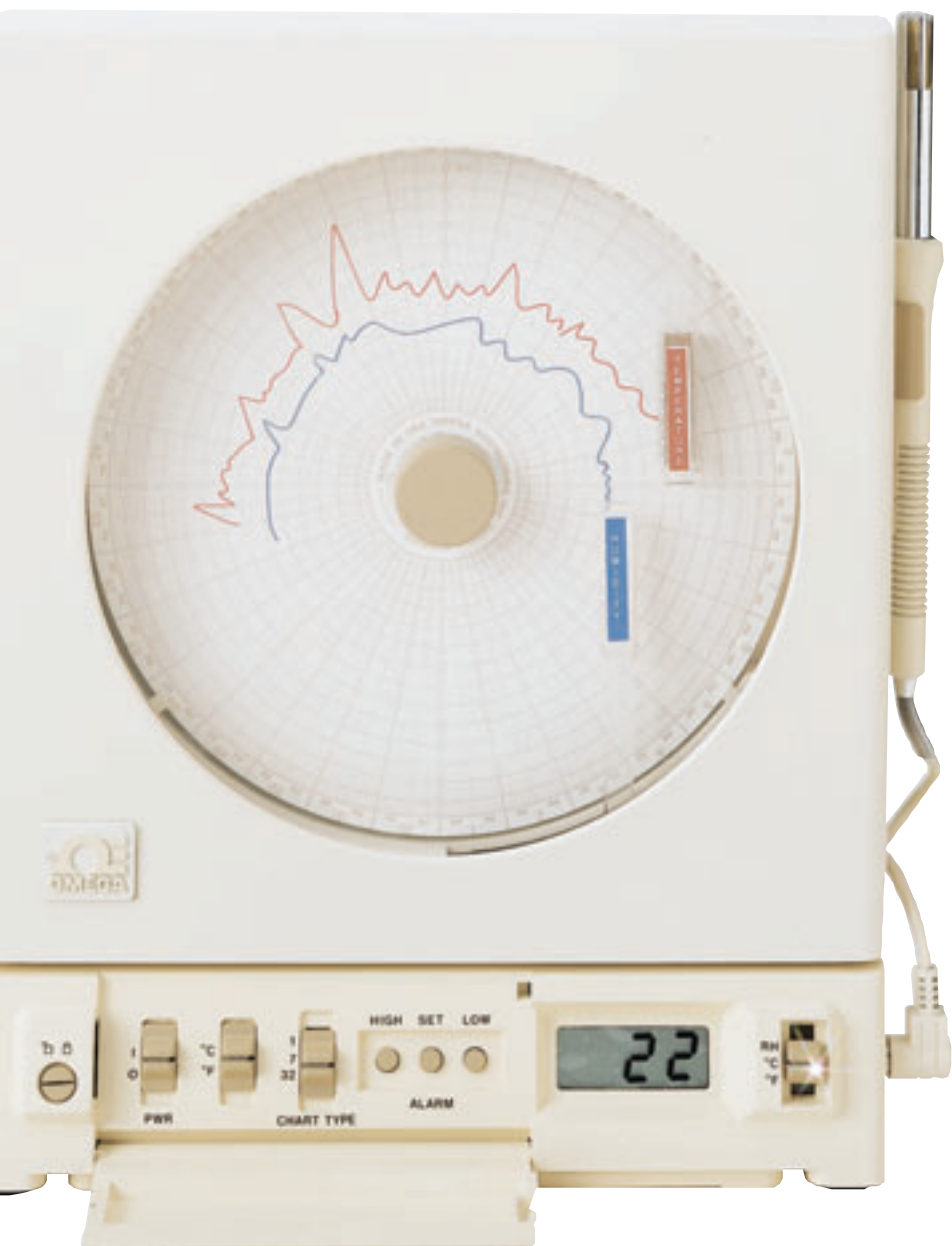
OPERATING CONDITIONS (SENSOR REMOTE)
(Sensors not recommended for use in a corrosive environment)
Temperature: -17 to 49°C (2 to 120°F)
Humidity: 0 to 98% RH

ALARMS
Alarms: User-selectable for high or low temperature and humidity
Audible Alarm: Integral piezoelectric beeper
Alarm Relay Contacts: 1 Amp, 30 Vdc Normally open, single pole, single throw (SPST)
Power (Recorder): Four D cells or 9Vdc/110, 50/60 Hz power adaptor (supplied); 220 Vac power adaptor supplied where applicable
Battery Life: more than 1 month continuous operation in 32-day mode (average conditions)
Power Requirements: 300 mA "normal" during pen movement for battery (dc) power; 500 mA "normal" during pen movement for ac power using ac adaptor with chart lights on (***Note:*** the light bulbs drain 200 mA of current)
DC Power Jack Voltage: 8.3 to 12.4 Vdc (nominal 9 Vdc), 1 Amp max.

MECHANICAL
Dimensions: 33.5 cm H x 27.1 cm W x 6.7 cm D mm (13³⁄₁₆" x 10¹¹⁄₁₆" x 2⅝")
Weight: Approx. 7 lbs including batteries (3.2 Kg)
Mounting: "Keyhole" slots for wall mounting; foot cover for benchtop use
Case: Rugged ABS plastic

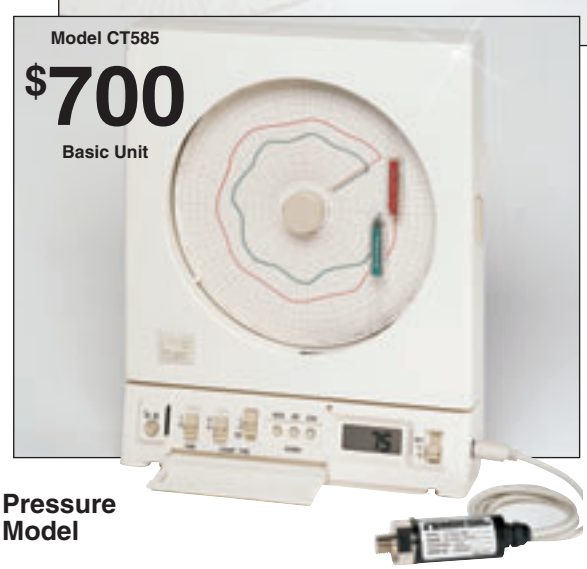
ANALOG VOLTAGE INPUT ADAPTOR
Input: 20 mVdc to 1200 mVdc records as 2 to 120°F, (-17 to 49°C)input protection up to 20 Vdc or 10 Vac RMS
Input Impedance: 330 Kohms min.
Input Connections: Banana jacks, 19mm (0.75") spacing
Cable Length: 305 mm (12")

Companion pH and Pressure Recorders, See Section S in the Temperature Section of the Made in USA Handbook



pH Model

Model CTPH
$970
Basic Unit



Model CT585
$700
Basic Unit

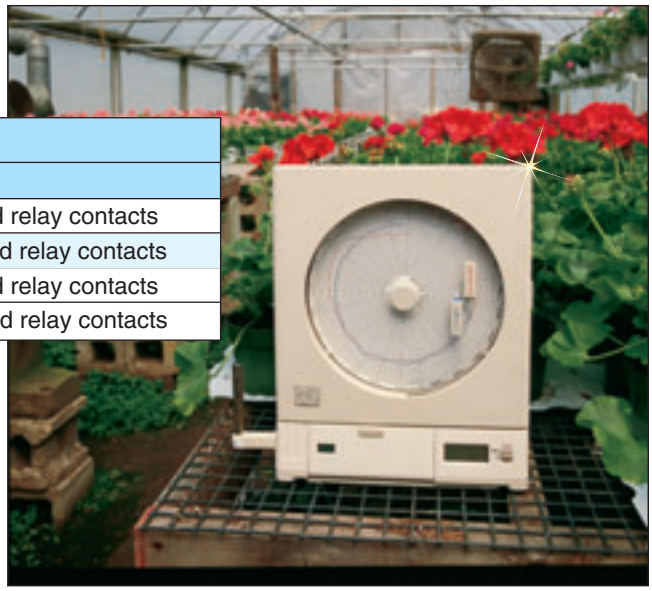
Pressure Model

CE

All 220VAC Models

Microprocessor-Based Temperature/Relative Humidity Recorder

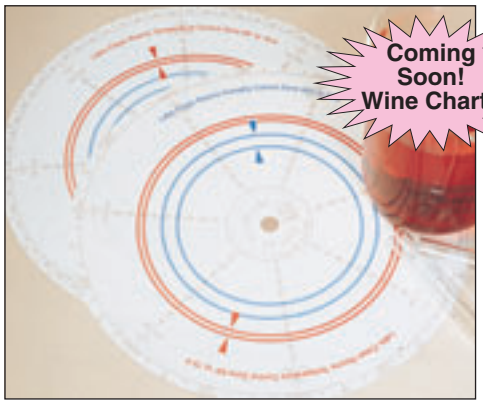
MOST POPULAR MODELS HIGHLIGHTED!



To Order *(Specify Model Number)*

Model Number	Price	Description
CT485B-110V-G-AL	**$642**	Gray, 110 Vac, with alarms and relay contacts
CT485B-110V-W-AL	**650**	White, 110 Vac, with alarms and relay contacts
CT485B-220V-G-AL	**662**	Gray, 220 Vac, with alarms and relay contacts
CT485B-220V-W-AL	**670**	White, 220 Vac, with alarms and relay contacts

Ordering Example: CT485-220V-W-AL CE *labeled white recorder with alarms and relay contacts, 220 V, with 120 double sided charts,= $**662**.*
*Extra charts **CT485-CWC,** package of 100 charts, 7 days, °C (celsius) temperature measurements, **$19.***



Shown smaller than actual size

Charts

Standard Chart Paper (double-sided - available as single package of 100 or 6 packages of 100 charts)

Model No.	Price	Description
CT485-CDF	**$19.00**	100 Charts, 1 day am/pm, °F
CT485-CDC	**19.00**	100 Charts, 1 day am/pm, °C
CT485-C24F	**20.00**	100 Charts, 24 hour clock, °F
CT485-C24C	**20.00**	100 Charts, 24 hour clock, °C
CT485-CWF	**19.00**	100 Charts, 7 day, °F
CT485-CWC	**19.00**	100 Charts, 7 day, °C
CT485-CMF	**19.00**	100 Charts, 32 day, °F
CT485-CMC	**19.00**	100 Charts, 32 day, °C
CT485-CSP	**19.00**	120 Charts, 20 of each style
CT485-CDF-6	**87.50**	600 Charts, 1 day, °F
CT485-CDC-6	**87.50**	600 Charts, 1 day, °C
CT485-CWF-6	**87.50**	600 Charts, 7 day, °F
CT485-CWC-6	**87.50**	600 Charts, 7 day, °C
CT485-CMF-6	**87.50**	600 Charts, 32 day, °F
CT485-CMC-6	**87.50**	600 Charts, 32 day, °C

Specialty Paper

(All double-sided, packages of 20 charts)

Model Number	Price	Description
CT485-MW(*)	**$20**	Museums/art galleries, 7 days (in °C or °F) 18.3 to 22.2 (65° to 72°F), 40 to 50% RH
CT485-MM(*)	**20**	Museums/art galleries, 32 days (in °C or °F) 18.3 to 22.2 (65° to 72°F), 40 to 50% RH
CT485-HW(*)	**20**	Hospitals, 7 days (in °C or °F) 20 to 23.3 (68° to 74°F), 40 to 50% RH
CT485-HM(*)	**20**	Hospitals, 32 days (in °C or °F) 20 to 23.3 (68° to 74°F), 40 to 50% RH
CT485-LW(*)	**20**	Lab, clean rooms, 7 days (in °C or °F) 20° to 23.9°C (68° to 75°F), 40 to 55% RH
CT485-LM(*)	**20**	Lab, clean rooms, 32 days (in °C or °F) 20° to 23.9°C (68° to 75°F), 40 to 55% RH
CT485-PW(*)	**20**	Computer rooms/offices, 7 days (in °C or °F) 18.3° to 23.9°C (65° to 75°F), 45 to 60% RH
CT485-PM(*)	**20**	Computer rooms/offices, 32 days (in °C or °F) 18.3° to 23.9°C (65° to 75°F), 45 to 60% RH
CT485-WMC	**20**	Wine storage 32 days, 10 to 15.6°C, 60 to 70% RH
CT485-WMF	**20**	Wine storage 32 days, 50 to 60°F, 60 to 70% RH

**Insert C (for °C) or F (for °F)*

Ordering Example: CT485-MWC *specialty paper for museums and art galleries, 7 days, with °C (celsius) temperature measurements, **$20**.*

Accessories

Model Number	Price	Description
CT485-CABLE-6W	**23.75**	6 ft. (2 meter) remote sensor cable, white
CT485-CABLE-6G	**23.75**	6 ft. (2 meter) remote sensor cable, gray
CT485B-CAL-LABEL	**5.00**	Calibration lockout cover labels (sheet of 10)
CT485B-CLIP-KIT	**25.00**	Sensor clip kit
CT485-AMV-W	**22.50**	Analog voltage input adaptor (cable), white
CT485-AMV-G	**22.50**	Analog voltage input adaptor (cable), gray
CT485-PS	**10.00**	Pen set, red and blue, package of 1 each
CT485-PS-6	**52.00**	Pen set, red and blue, package of 6 each
CT485B-CAL-KIT	**75.00**	Calibration kit for 110V or 220V units
CAL-3-HU	**125.00**	NIST Traceable Calibration
CT485B-RP-W	**80.00**	White replacement probe
CT485B-RP-G	**80.00**	Gray replacement probe

Note: *all charts are double sided.*
Ordering Example: CT485-CWC *package of 600 double sided charts, 7 days, with °C (celsius) temperature measurements, **$87.50***

Hu

Next Generation SUPERMETER® With Laser Sighting

3 METERS IN 1

HHM290

$345

MADE IN USA · 1 YEAR WARRANTY · CE · EMC SERVICES

- Full Function Auto-Ranging Digital Multimeter
- Infrared Pyrometer with Patented Switchable Laser Circle/Dot Sighting
- Dual Input Thermometer with Differential Temperature Function

Non-contact Temperature Measurement

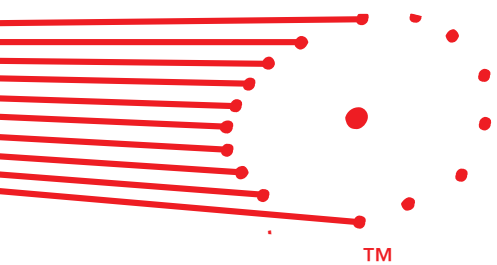
Differential Temperature Measurement

Patented User Switchable Laser Sighting!

Switch From ⋮ To

Laser Dot
Range: Up to 23 m (75 ft.)

Laser Circle
Range: Up to 7.6 m (25 ft.)



TM

Designed in the U.S.A.
Patented in the U.S.A.
American Laboratory Verified *
Manufactured in Taiwan with US and Foreign Components

* Manalab emc, test and calibration facility, Spring Hill PA

U.S. and Foreign Patents and Patents Pending

True RMS Measurement!

SUPERMETER®
3 METERS IN 1!

Includes:
Test Lead Set
Two (2) Type K Beaded Wire Thermocouples with Spool Caps
Six (6) "AA" Batteries
Rubber Boot, Tilt Stand
Spare Fuse and
Operator's Manual

- **Built-in Non-Contact Infrared Pyrometer**
- **Full Function Multimeter Featuring Min, Max, and Average Readings**
- **Dual Type K Thermocouple Inputs and Selectable Temperature Display (T1 & T2) as well as Differential Temperature (T1-T2)**

1 YEAR WARRANTY CE

Technology Breakthrough!

"It's a technician's dream come true!" OMEGA's new, patented, "all-in-one" SUPERMETER® Model HHM290 combines the power of a True RMS full function Multimeter, Non-contact Infrared Pyrometer with laser sighting and a Dual input Type-K Thermocouple meter with a differential measurement feature into one power-packed handheld instrument. The Multimeter measures: DC/AC Voltage, Current, Resistance, Frequency, Capacitance and features a built-in Logic & Diode tester. The Infrared Pyrometer offers adjustable emissivity, a wide temperature range, a 10:1 field of view and a laser sighting selector switch used to select between "a single laser dot" for hot spot locating and "a laser circle pattern" that outlines the optical field of view for average area measurement. The large backlit LCD display features simultaneous readings in both digital and analogue bargraph format with settings for Min/Max and Average readings. Each unit features Auto power-off, fused multimeter inputs, both battery or optional AC wall adapter operation and comes complete with safety test leads, dual type-K temperature probes, rubber protective boot, batteries, spare fuse, user's manual and is CE marked.

Specifications

GENERAL:
Operating Temperature:
0 to 50°C
Power: 6AA size 1.5 Vdc Batteries (included) or optional DC Adaptor, 9 Vdc @ 200 mA
Display: Dual Backlit LCD with digital readout of 43,000 counts and analogue bar graph of 40 counts.
Display Resolution:

Range	Display Resolution
0-4.3	0.0001
0-43	0.001
0-430	0.01
0-4300	0.1
0-43000	1

Low Battery Indication:
Icon on LCD
Battery Life: 100 hours normal operation No Laser or LCD Backlit
Tripod Mount: ¼"-20 UNC
Dimensions: 203 x 101 x 51 mm (8 x 4 x 2")
Weight: 640 g (1.42 lb)

Multimeter

DC VOLTS
Range: 430 mV to 1000 V
Accuracy: 0.25% Rdg + 1 Digit
AC VOLTS
Range:
430 mVac to 750 Vac
Accuracy:
1% Rdg + 2 Digits
DC CURRENT
Range:
430 uA to 10 A
Accuracy:
0.5% Rdg + 1 Digit (Up to 43 mA)
2% Rdg + 1 Digit (Up to 10 A)

AC Current

Range: 430 µA to 10 A
Accuracy:
1% Rdg + 2 Digits (Up to 43 mA)
2.5% Rdg + 2 Digits (Up to 10 A)

Resistance

Range: Up to 43 MΩ
Accuracy:
0.3% Rdg + 3 Digits
(Up to 4.3 MΩ)

Frequency

Range: Up to 1.8 MHz
Accuracy: 1% Rdg
+ 3 Digits

Capacitance

Range: 4.3 nF to 430 µF
Accuracy: 5% Rdg
+ 10 Digits

Shown with Tilt Stand and Rubber Boot (Included)

Temperature Measurement

Thermocouple Type: Dual K type
Display: T1, T2, or T1-T2
Accuracy: 2% Rdg or 2°C
Measurement Range:
-40 to 1315°C (-40 to 2400°F)

Infrared Measurement

Measurement Range:
-20 to 550°C (4 to 1022°F)
Accuracy @22°C: 2% of Rdg or 1.7°C, whichever is greater
IR Resolution: 1°C or °F
Optical Field of View: 10 to 1
Spectral Response: 8 to 14 micron
Emissivity: 0.1 to 1.00 adjustable
Response Time: ≤1.5 seconds

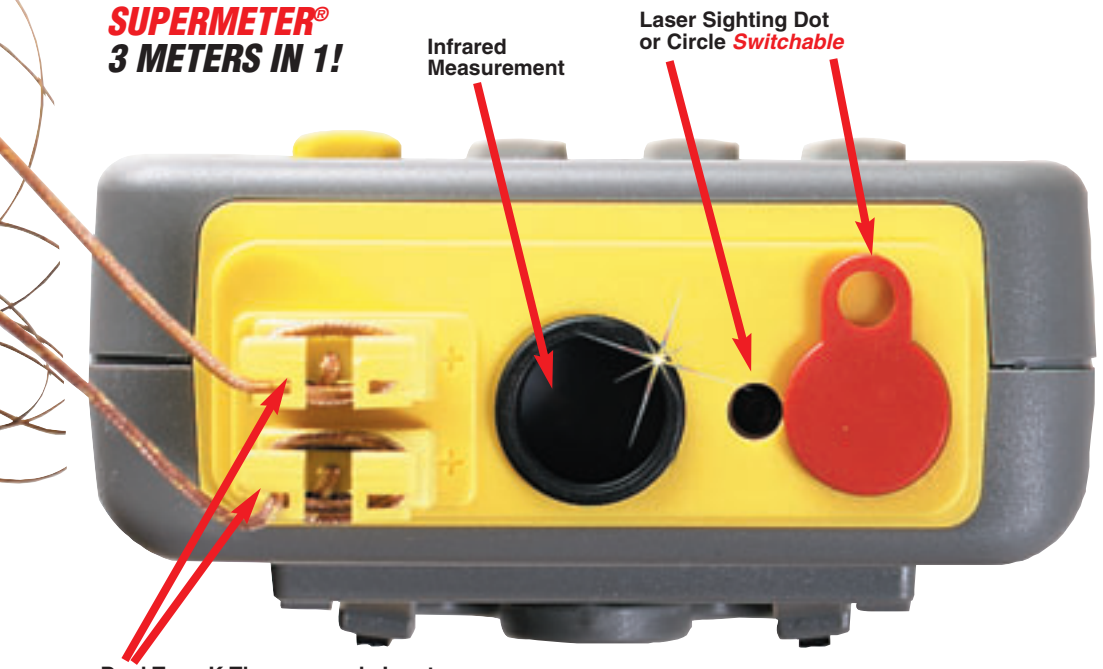
Laser Sighting

Wavelength (Color):
630-700 nm, (Red)
Operating Distance:
Laser Dot – Up to 23 m (75 ft.)
Laser Circle – Up to 7.6 m (25 ft.)
Maximum Optical Power Output:
<5 mW. Class IIIa Laser Product
Laser Indicator:
Laser icon on the display

Optional ac Power Adaptor (See "To Order" on next page)

Tripod Mountable

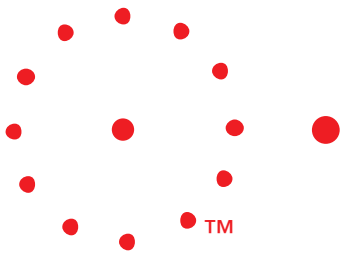
SUPERMETER®
3 METERS IN 1!



NEW®

Patented Laser Sighting Circle or Dot Switchable

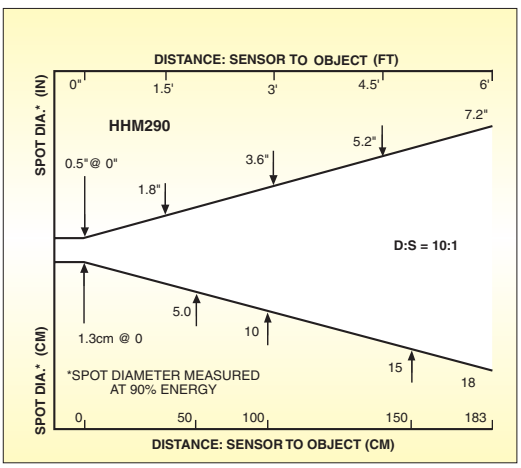
Switch From ••••••••► To



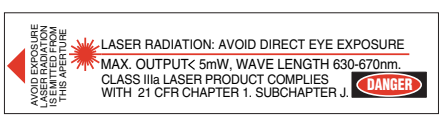
Patent Notice: U.S. PAT. B1 5,368,392; 5,524,984; 5,727,880; 5,465,838; 5,823,678, 5,823,679, 6,095,682; 6,123,453, European Patent No. 0644408. Other Patents Pending.

- Built-in Non-Contact Infrared Pyrometer
- Full Function Multimeter Featuring Min, Max, and Average Readings
- Dual K Type Thermocouple Input and Temperature Display (T1 & T2) as well as Differential Temperature (T1-T2)
- Built-in Patented Laser Circle Sighting for Infrared Measurement
- Digital Emissivity Adjustment from 0.1 to 1.00 in 0.01 Steps
- Optical Field of View of 10:1 (Distance to Spot Size)
- High Performance, Rugged Design with Large Backlit LCD Display
- Measures Voltage, Current, Resistance, Capacitance, Inductance, and Frequency
- Built-in Diode and Logic Test
- Battery Powered as well as AC Powered Using an Adaptor
- Auto Power Shut Off Feature
- Tripod Mount and a Built-in Rubber Boot

10:1 Field of View



Immediate Delivery Available



To Order *(Specify Model Number)*

Model Number	Price	Description
HHM290	**$345**	Digital multimeter/infrared thermometer with laser sighting Dot/Circle Switch
Options and Accessories		
HHM290-SC	**15**	Soft carrying case
HHM-TL	**5**	Replacement test leads (1set)
OS520-Adaptor-110V	**25**	110 Vac adaptor
OS520-Adaptor-220V	**25**	220 Vac adaptor
KTSS-HH	**29**	General Purpose, immersion probe, type K
88001K	**110**	General purpose surface probe, type K
CALIBRATION	*****	NIST Traceable Calibration

** Consult Sales for price and Calibrations available*
Each unit comes complete with rubber boot, two (2) type K beaded wire thermocouples, 6 AA alkaline batteries, test leads and operator's manual.
***Ordering Example: HHM290**, Digital multimeter/infrared thermometer with laser sighting $345, **HHM290-SC**, soft carrying case $15.00, **KTSS-HH**, general purpose immersion probe $29.00, **$345 + 15 + 29.00 = $389.00**.*

We make running changes when technical advances allow. Check at time of ordering for additional features.

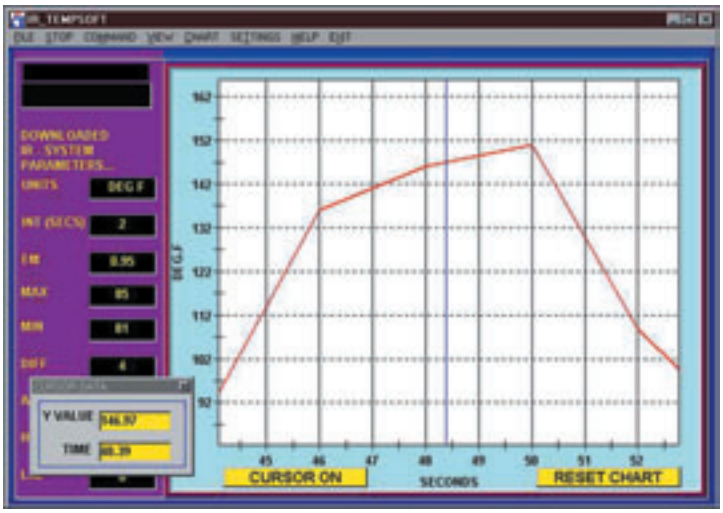
IR-TEMPSOFT™ Datalogging Software for Infrared Temperature Measurement

Windows PC Interface

- This Windows-based Software is Distributed FREE with the Following Infrared Products: OS523, OS524, OS533RS, OS533-CF, OS534-CF, OS534-DL, OS552, OS553,OS554
- Charts Temperature in Real-Time
- Data Can be Stored to Text File or Exported to Microsoft Excel
- Chart Can be Saved to a File and Pasted to Other Microsoft Windows Applications
- Includes Temperature Bar Graph with Configurable Alarm Limits
- Chart Includes Zoom/Reset and Measurement Cursor Operations
- Help Documentation is in HTML Format for Dynamic Viewing
- Downloads Stored Temperature Data Points for Viewing or Saving to a Text File

Viewing the downloaded stored temperature data points.

Using the Chart cursor feature to measure any temperature vs. time



OMEGASOFT®

MINIMUM SYSTEM REQUIREMENTS:

PC with Pentium Class Processor (Any speed)

Mouse or similar pointing device

Microsoft Windows 95, 98, NT 4.0 or greater

32 MB of RAM

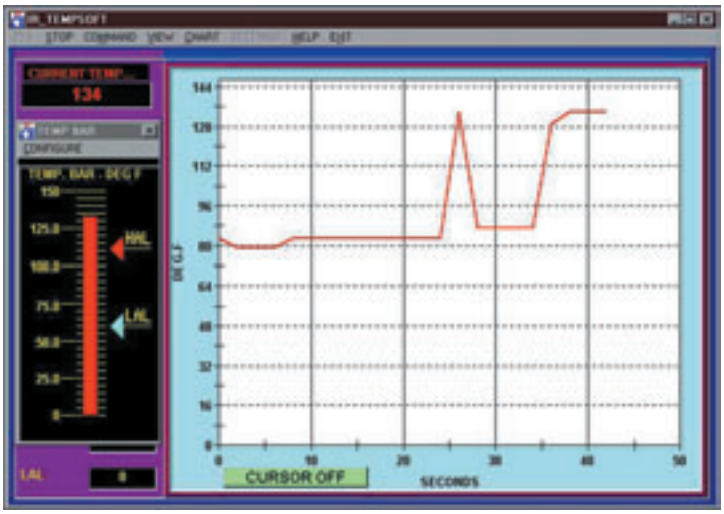
14 MB of hard drive space

VGA display adapter (Super VGA recommended)

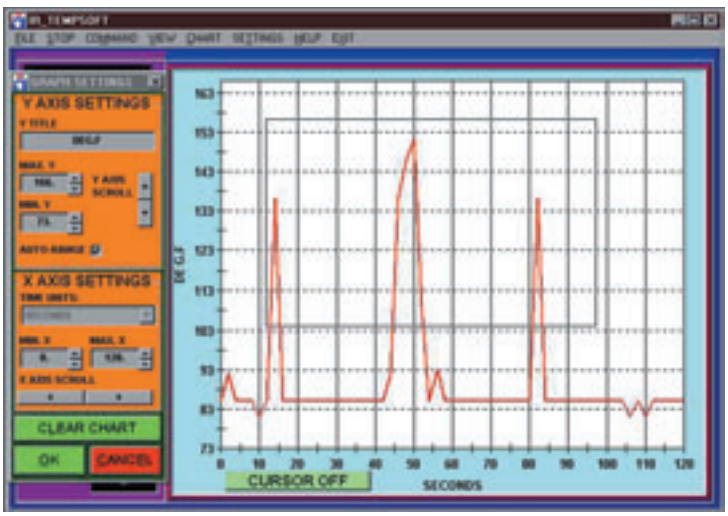
CD-ROM Drive

RS-232 Communications Port

HTML viewer or Microsoft Internet Explorer to view help documentation



Charting real-time temperature data with the moveable Temperature Bar Graph enabled



Using the Chart Zoom feature to zero in on area of interest

IR-Tempsoft makes your Temperature Data Logging applications easy with its user-friendly Microsoft Windows interface. With its advanced chart operations, easy data file storage/ retrieval, easy connection to above stated IR devices, and online help manual, you can use IR Tempsoft to quickly start your temperature measurement applications.

For the complete selection of Infrared products, visit OMEGA online at www.omega.com

DILBERT® by Scott Adams

13

Collection Series #13-001013

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DILBERT® by Scott Adams

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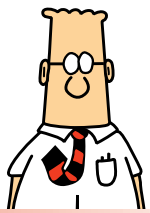
Collection Series #13-001014



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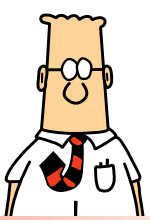
Collection Series #13-001015



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Collection Series #13-001016

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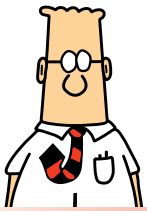
Collection Series #13-001017



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DILBERT® by Scott Adams

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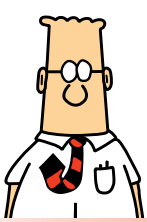
Collection Series #13-001018



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IR-TEMPSOFT™ Datalogging Software for Infrared Temperature Measurement

Windows PC Interface OMEGASOFT®

IR-TEMPSOFT Price
FREE!
with Instrument Purchase Shown Below

OMEGA's IR-TEMPSOFT™ software is included completely FREE with these Handheld and Fixed Mount Infrared Pyrometers

You Can Also Download Your Copy at *www.omega.com*

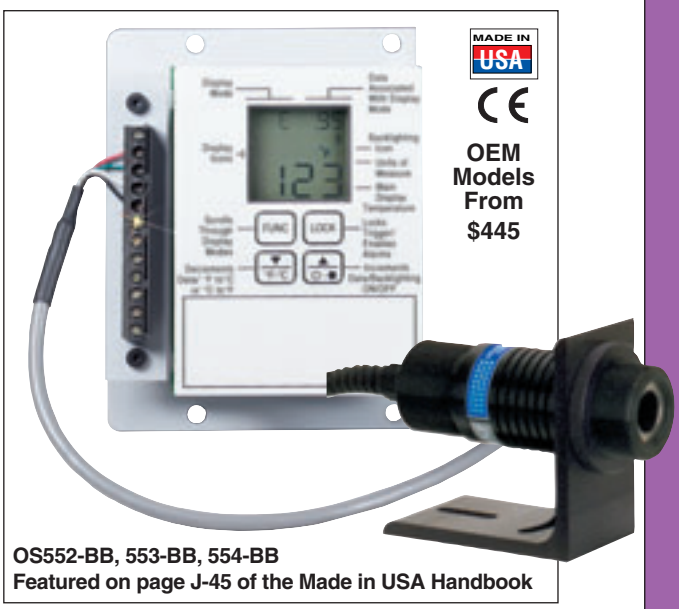
OMEGASCOPE® Models

OS533RS, 533DL
Featured on page J-9 thru J-12 of the Made in USA Handbook

OS523, 524
Featured on page J-13, 14 of the Made in USA Handbook

OS533-CF, OS534-CF
Featured on page J-9 thru J-12 of the Made in USA Handbook

OS552, 553, 554
Featured on page J-43 of the Made in USA Handbook



OS552-BB, 553-BB, 554-BB
Featured on page J-45 of the Made in USA Handbook

J

NEW OMEGASCOPE® Handheld Infrared Thermometer Series

With Built-In Dot/Circle Laser Sighting Thermocouple Input and Close Focus Models

OMEGASCOPE®
OS530 Series

$295

Model OS532L

TM

Tops in its Class!

Made in U.S.A.
Covered by several U.S. and foreign patents and pending applications

Model OS532, $550, shown close to actual size. Thermocouple Probe sold separately Model 88006 $ 115

OMEGASCOPE®
Unmatched Performance, Features and Value

MONOGRAM SERIES

MADE IN USA | 2 YEAR WARRANTY | CE | OMEGACARE Extended Warranty Programme | EMC SERVICES

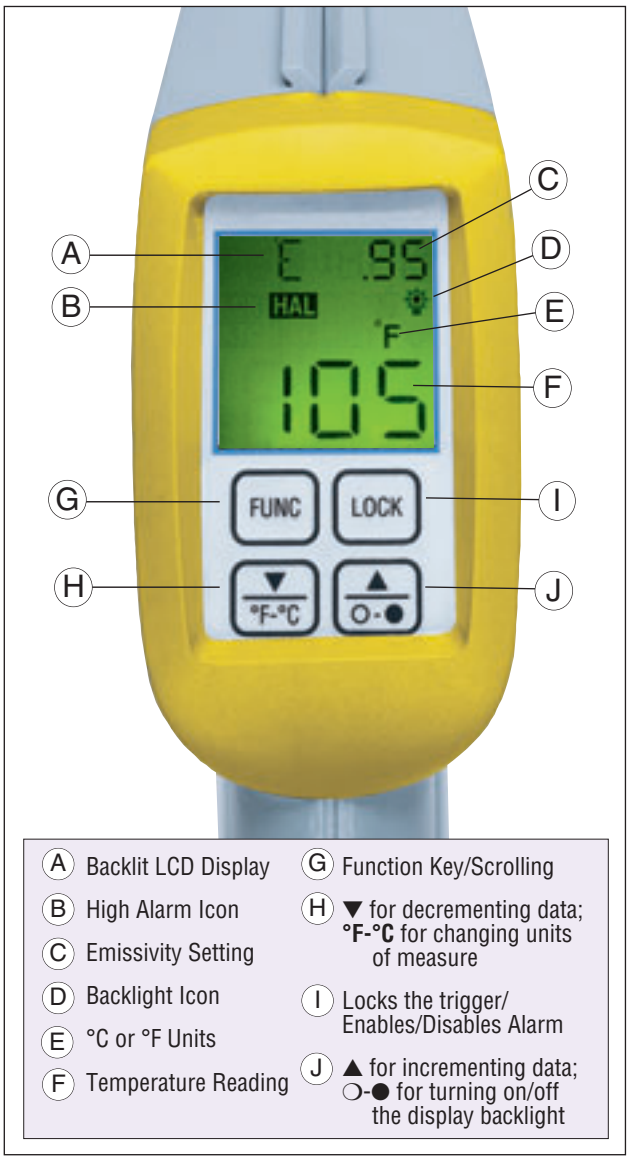
Built-In Laser Sighting

Laser Circle to Dot Switchable

Rugged, High-Performance Design

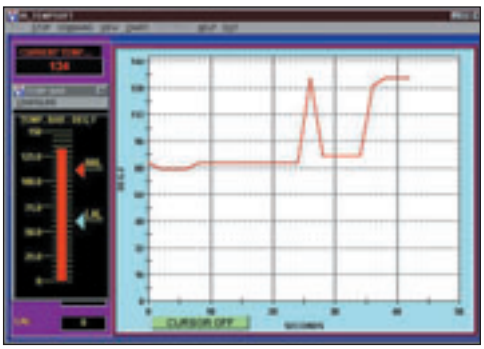
- **Built-In Patented Laser Sighting is Switchable Between Laser Dot or Circle Patterns**
- **New Series Includes High Performance, General Purpose, Close Focus and High Resolution Models**
- **Models Available with Temperature Ranges to 870°C (1600°F)**
- **Emissivity Adjustable from 0.1 to 1.00 in 0.01 steps**
- **Backlit LCD Display**
- **Dual Digital Display Indicates Current with Min, Max, Average, or Difference Temperatures**
- **°C/°F Selectable**
- **1 mV/Degree Analog Output Standard**
- **RS-232 Output Models Include FREE Data Logging Software**
- **Audible and Visible Alarms**
- **Integral Tripod Mount**
- **Type K T/C Input Available**
- **Temperature Data Storage Available**
- **Electronic Trigger Lock**
- **Last Temperature Recall**
- **All Models Include Laser Sighting, Wrist Strap, Soft Carrying Case, Lithium Batteries and User's Manual. RS-232 Models Include Free Data Logging Software.**

Continued on Next Page



A Backlit LCD Display	G Function Key/Scrolling
B High Alarm Icon	H ▼ for decrementing data; **°F-°C** for changing units of measure
C Emissivity Setting	
D Backlight Icon	I Locks the trigger/ Enables/Disables Alarm
E °C or °F Units	
F Temperature Reading	J ▲ for incrementing data; ❍-● for turning on/off the display backlight

IR-TEMPSOFT™ Datalogging Software

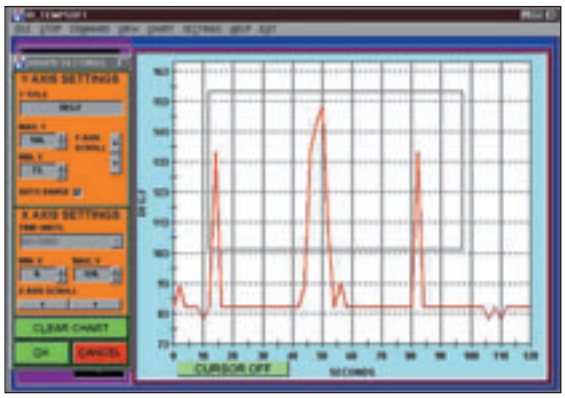


FREE!

OMEGASOFT® Included

This Windows-based Software is Included FREE with the Following Infrared Products: OS533RS, OS534DL, OS533-CF, OS534-CF, OS523, OS524.

See Page J-15 in the Made in USA Handbook for complete Details.

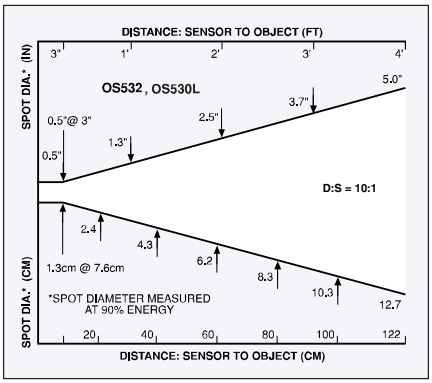


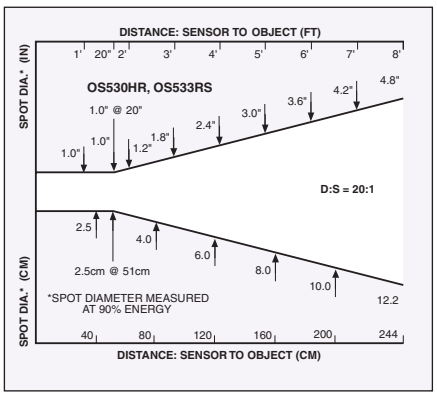
OMEGASCOPE® Handheld Thermometer Series

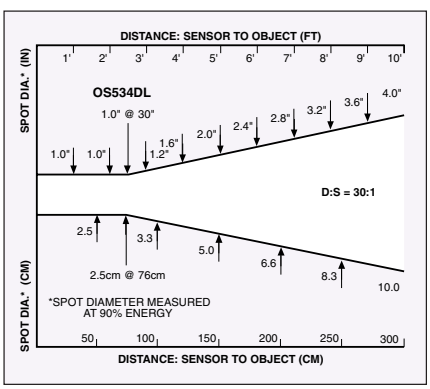
Patented Laser Switchable from Circle to Dot

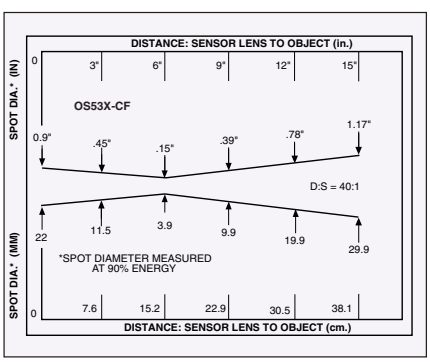
With a combination of powerful features, the portable and rugged OS530 Series infrared thermometers offer solutions for many non-contact temperature measurement applications. Emissivity adjustable in 0.01 increments, the OS530 series provides versatility when measuring a variety of surfaces.
A custom backlit LCD display provides dual digital display of both current and max, min, diff or average temperatures simultaneously. This provides the user with more information at a glance. Built-in laser sighting creates a 12-point circle which clearly indicates the target area being measured.
The OS530 also features a high alarm setpoint, providing both audible and visual indication of the alarm status. The standard 1 mV per degree analog output allows interfacing with data acquisition equipment, including chart recorders, dataloggers and computers.

Optical Field of View

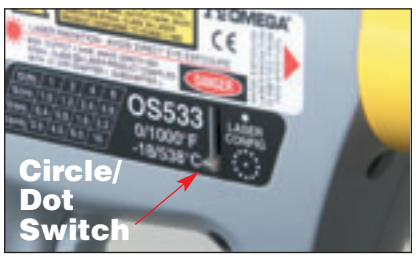


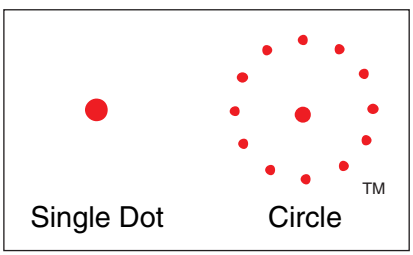




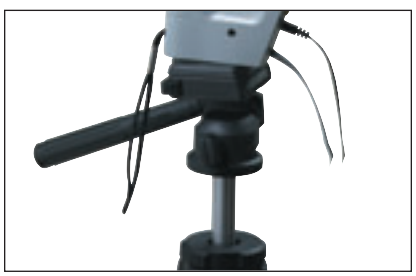


Standard Features





Patented Laser Sighting Switchable Between Dot and Circle Laser Pattern



Tripod Mountable

Laser Safety Switch

Analog output standard on all models.

Large Backlit Display

We make running changes when technical advances allow. Check at time of ordering for additional features.

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order

OS530 Series Infrared Thermometers

NEW®

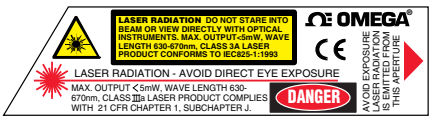
The OS530 Series is Engineered, Designed, Patented and Manufactured in the U.S.A.

EVERY UNIT INCLUDES!

- Built-in Laser Sighting
- Display and Lens Protective Bumpers
- Wrist Strap
- Soft Carrying Case
- Long Life Lithium Batteries
- User's Manual with Emmisivity Reference Chart

Specifications

Repeatability: ±(1% rdg + 1 digit)
Resolution:
1°C or 1°F (0.1°C or °F on OS530HR)
Response Time: 250 msec
Spectral Response: 8 to 14 µ
Emissivity: 0.10 to 1.00 in 0.01 increments
Operating Ambient:
0 to 50°C (32 to 122°F)
Power:
4 'AA' batteries included or ac adaptor
Battery Life:
60 hr, alkaline; 10 days, lithium
Analog Output:
1 mV/°C or 1 mV/°F
Tripod Mount: ¼"-20 UNC
Display: Backlit LCD; displays current and min or max, differential, average temperatures simultaneously
Alarm: High alarm standard, with audible and visual indication
RS-232: One way communication



Laser Sight Specifications

Wavelength (color): 650 nm (red)

Operating Distance:
Laser Dot: 2-75 ft.
Laser Circle: 2-25 ft.
FDA Classification: Class IIIa
Safety Classification: Class 3A
Beam Diameter: 5mm
Operating Temperature: 0 to 50°C

MOST POPULAR MODELS HIGHLIGHTED!

J

To Order *(Specify Model Number)*

Model Number	OS530L	OS530HR	OS530L-CF	OS532	OS533-CF	OS533RS	OS534-CF	OS534DL
Price	**$295**	**$345**	**$345**	**$550**	**$695**	**$650**	**$750**	**$750**
Accuracy*	±1% rdg	±1% rdg	±1% rdg	±1% rdg	±1% rdg	±1% rdg	±1% rdg	±1% rdg
Range	-18 to 538°C 0 to 1000°F	-30 to 121°C -22 to 250°F	-18 to 538°C 0 to 1000°F	-18 to 538°C 0 to 1000°F	-18 to 538°C 0 to 1000°F	-18 to 538°C 0 to 1000°F	-18 to 871°C 0 to 1600°F	-18 to 871°C 0 to 1600°F
Emissivity	adjustable	adjustable	adjustable	adjustable	adjustable	adjustable	adjustable	adjustable
Backlit Dual Display	std	std	std	std	std	std	std	std
Distance to Spot Size Ratio	10:1	20:1	0.15"@6"	10:1	0.15"@6"	20:1	0.15"@6"	30:1
Differential Temperature	std	std	std	std	std	std	std	std
Min/Max Temperature	std	std	std	std	std	std	std	std
Average Temperature	std	std	std	std	std	std	std	std
High Alarm	std	std	std	std	std	std	std	std
Low Alarm	—	—	—	—	std	std	std	std
Audible Buzzer & Indicator	std	std	std	std	std	std	std	std
Ambient Target Temp Comp.	—	—	—	—	std	std	std	std
Analog Output	1 mV/deg	1 mV/deg	1 mV/deg	1 mV/deg	1 mV/deg	1 mV/deg	1 mV/deg	1 mV/deg
RS-232 Output	—	—	—	—	std	std	std	std
Thermocouple Input	—	—	—	std	std	std	std	std
Data Storage	—	—	—	—	—	—	std	std
Laser Sight (Built-In)	dot/circle	dot/circle	dot	dot/circle	dot	dot/circle	dot	dot/circle
Trigger Lock	std	std	std	std	std	std	std	std
Last Temperature Recall	std	std	std	std	std	std	std	std

** or 1.7°C (3°F), whichever is greater.*
***Ordering Example: OS532**, Handheld Infrared Thermometer with Built-In Laser Sighting Circle, **$550**.*

Accessories

Model No.	Description	Price
OS520-ADAPTER-110V	110 Vac wall adaptor	**$ 25**
OS520-ADAPTER-220V	220 Vac wall adaptor	**25**
OS520-RCC	Hard Carrying Case	**30**
88013K	Surface Probe, up to 815°C (1500°F)	**110**
88001K	Surface Probe, up to 482°C (900°F)	**110**
CAL-3-IR	NIST Traceable Calibration	**125**

OS950 Series Digital Infrared Scanner

High Accuracy–Certified NIST Traceability

MADE IN USA · 1 YEAR WARRANTY · CE

OS950 Series Infrared Scanners from OMEGA provide the highest accuracy available anywhere!

The OS950 Series is an entirely different type of instrument than conventional temperature measuring devices. Designed specifically for the highest possible accuracy, it is the only infrared instrument which can be certified with NIST-traceable accuracy on real surfaces of unknown emissivity, while remaining completely free of the contact errors and heat errors of contact devices.

OS951
$299
Basic Model

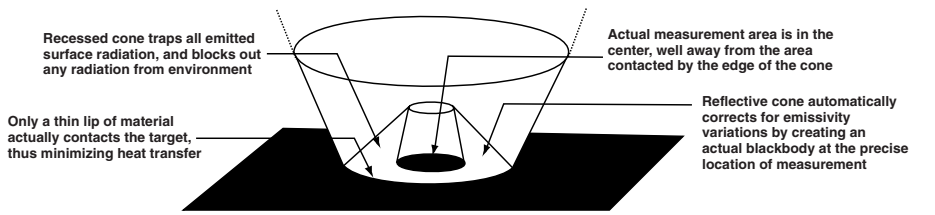
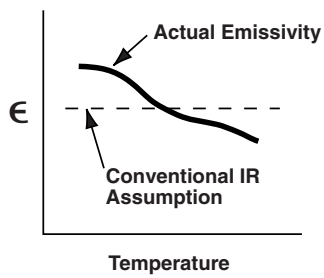


Figure 1. Unique Automatic Emissivity Compensation System (AECS) produces accurate temperatures everywhere the infrared probe is placed by creating its own blackbody

The sensing area of the OS950 Scanner is equipped with a reflective surface to correct for emissivity variations

Common Surface Temperature Measurement Errors	OS590 Series IR Thermometers	Conventional IR "Point and Shoot" Guns & Probes Including Laser-Aimed Units	Conventional Contact Probes, Thermocouples, RTDs, Thermistors
Preset Emissivity Errors	No effect	Very sensitive	No effect
Emissivity Shift Errors	No effect	Very sensitive	No effect
User Adjustment Errors	No effect	Very sensitive	No effect
Background Errors	No effect	Very sensitive	No effect
Contact Errors	No effect	No effect	Very sensitive
Friction Heating Errors	No effect	No effect	Very sensitive
Heat Sinking Errors	No effect	No effect	Very sensitive
Time-Based Errors	No effect	No effect	Very sensitive



Eight Reasons the OS950 Series of Handheld Infrared Scanners from OMEGA are Superior to Conventional Devices:

1. No Emissivity Errors
The true emissivity of a surface can never be accurately determined by conventional infrared devices. Without OMEGA's Automatic Emissivity Compensation System, IR devices with a preset emissivity setting can only display an approximate temperature over their entire temperature range.

The accuracy specifications given by most manufacturers are only for a "blackbody" calibration and do not hold outside laboratory conditions. Blackbody calibrations totally ignore emissivity shifts, ambient change effects on the target, and other phenomenon. Only OMEGA's OS950 Series is unaffected by these distortions.

2. No Emissivity Shift Errors
Even if an IR "gun" is set to the correct emissivity to read a surface accurately at a particular temperature, it does not mean that the gun will read the same target correctly at other temperatures. Emissivity of virtually all surfaces changes with temperature. A common assumption for conventional IR thermometry is that emissivity is constant with changes in target surface temperature. Real materials do not have this characteristic. The average value for non-metals for which the change in emissivity with respect to surface temperature has been reported is approximately -2% per 100°F target temperature change (-3% per 100°C).

Effect of Emissivity on Temperature Reading for a 260°C (500°F) Target in 21°C (70°F) Ambient

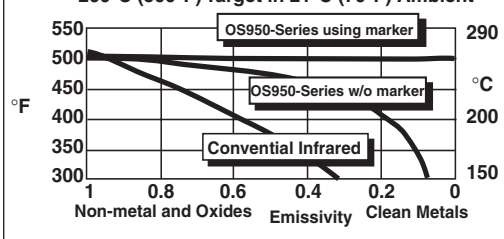


Figure 2. The OS950 Series is accurate over a wide emissivity range, sufficient to include all non-metals. If a marker (or any other non-metal coating) is used, the OS950 Series is accurate on clean metals as well. Conventional IR devices have considerable inaccuracy on these surfaces.

High Accuracy = High Speed in Your Process!

Eight Reasons the OS950 Series of Handheld Infrared Scanners from OMEGA are Superior to Conventional Devices:

3. No User Adjustment Errors
A setting of emissivity = 0.9 on an IR "gun" from one manufacturer will not necessarily match that of a different gun from another manufacturer. No industry-wide standards exist for the precise use of emissivity in measurement. Therefore, Quality Assurance programs should not rely upon any instrument that allows users to alter the instrument settings and to let it display whatever the user wishes.

4. No Background Reflection Errors
Even if the emissivity were constant at all temperatures (see Reason 2), there would still be errors induced by changing ambient temperatures. For example, with emissivity = 0.9, ambient reflections account for 10% of the signal that the IR gun will see. If the ambient temperature changes, the IR gun will display a different target temperature, even if the target remains at the same temperature. (see fig. 3)

5. No Contact Errors
Thermocouples, RTDs, thermistors and other contact devices only measure their own temperature. They do not measure surface temperature. Published "Accuracy" specifications are for the probes only, not the surfaces they must measure. Users must guarantee that the probes are brought to the same temperature as the surface. Can you guarantee that your probes are brought to the same temperature as the targets to be measured?

6. No Friction Heating Errors
For moving surfaces, a contact probe is prone to frictional heating. The size of the error depends on the roughness of the surface, the speed, the coating on the probe, and so on. It is impossible to control all the variables.

7. No Heat Sinking Errors
For most non-metals, heat sinking errors can be quite large. The metal leads required on contact probes conduct heat faster than the target material can replace it, resulting in unknown and fairly sizeable errors. In general, the less thermally conductive the target material, the larger the heat sinking ºerror with a contact probe.

8. No Time Based Errors
Contact temperature probes are slow. The temperature of a target can change more quickly than most probes can measure, resulting in errors in real time measurement.

Specifications

Temperature Range:
OS951/2: -45 to 287°C (-50 to 550°F),
OS953/4: -18 to 540°C (0 to 1000°F),
OS955: 86 to 653°C (186 to 1207°F),
OS956: 86 to 871°C (186 to 1600°F)

Emissivity Adjustment:
Automatic Emissivity Compensation System

Linearity Error (% of Reading):
OS951/2: 1%, **OS953/4:** 3%,
OS955: 3%, **OS956:** 3%

Emissivity Error: -1% maximum of difference between target temperature and instrument temperature when touching, for emissivity of 0.8 to 1.0

Repeatability: 0.1°C (-0.1°F)

Resolution: 0.1°C (0.1°F)

Response Time: approx. 0.1 s

Field of View: 1:1 (approx. 53°)

Minimum Spot Size:
approx. 6.4 mm (¼")

Spectral Sensitivity:
2 to 20 microns

Digital Output:
RS232 (optional on all units)

°C/°F Conversion: Yes

Instrument Operating Temperature:
0 to 50°C (32 to 122°F)

Battery Life: Approximately 5000 readings from a 9V alkaline battery (included)

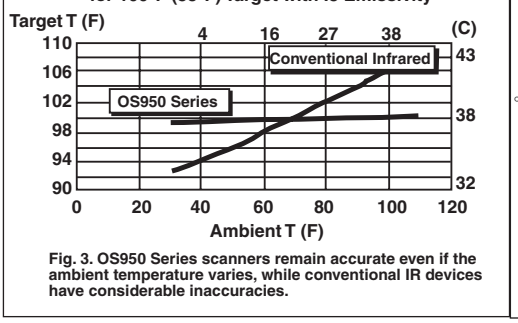


Fig. 3. OS950 Series scanners remain accurate even if the ambient temperature varies, while conventional IR devices have considerable inaccuracies.

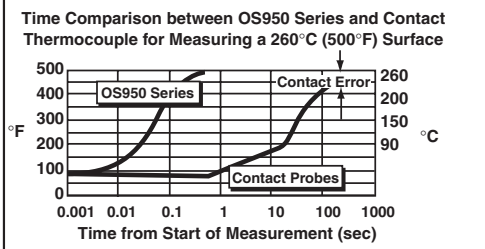


Fig. 4. OS950 Series scanners measure surface temperature in a fraction of a second, while contact probes (thermocouples, RTDs, thermistors, etc) require several minutes to achieve equilibrium. In addition, contact probes always have a residual error due to imperfect heat transer from the surface to the probe.

MOST POPULAR MODELS HIGHLIGHTED

To Order *(Specify Model Number)*

Model No.	Price	Range	Description
OS951	**$299**	-45 to 287°C (-50 to 550°F)	Handheld IR with integral sensor
OS952	**499**	-45 to 287°C (-50 to 550°F)	Handheld IR with remote sensor
OS953	**699**	-18 to 540°C (0 to 1000°F)	Handheld IR with integral sensor
OS954	**899**	-18 to 540°C (0 to 1000°F)	Handheld IR with remote sensor
OS955	**974**	86 to 653°C (186 to 1207°F)	Handheld IR with remote sensor
OS956	**1049**	86 to 871°C (186 to 1600°F)	Handheld IR with remote sensor
Options	**Price**	**Description**	
-RS232	**$45**	RS232 digital output with 6 ft. cable and 9-pin female connector	

Each unit supplied with complete operator's manual and 9V battery and is NIST certified.
Ordering Example: OS952-RS232**, handheld infrared scanner with remote sensor, -45 to 287°C (-50 to 550°F) range, and RS232 communications option, $499 + $45 = **$544.

Miniature Low Cost Non-Contact IR Temperature Sensor/ Transmitter

OS101-MV-(*)

$195

Basic Unit

MADE IN USA | 2 YEAR WARRANTY | CE | & EMC SERVICES

- **-18 to 538°C (0 to 1000°F) Measurement Range**
- **Adjustable Emmissivity From 0.10 to 1.0**
- **Fast, Accurate, Repeatable Readings**
- **Type K Thermocouple, 0 to 5 Vdc, 4 to 20 mA or 1 mV /Deg Analog Output Models**
- **Rugged, Miniature Industrial Design with Remote Sensor Head**
- **User Adjustable High or Low Alarm Standard**
- **NEMA-4 Metal Housing**

OMEGA's new low cost OS100 Series mini infrared transmitter system features a remotely mounted infrared temperature sensor and high performance microprocessor based signal conditioner. The OS100's miniature sensor head design is ideal for measuring temperature in confined, hard-to-reach places and harsh environments. The sensor head is connected to the main electronics housing via a 6 ft shielded cable standard on all models. The signal conditioners main electronics are mounted in a rugged NEMA-4 rated diecast aluminum housing and feature adjustable emissivity, linear voltage, current or type K thermocouple output calibrated for the temperature range of -18 to 538°C (0 to 1000°F). A user adjustable high/low alarm output is standard on all models.

Each OS101 comes complete with sensor head and 1.8 m (6') cable, sensor head mounting nut, main electronics housing and operator's manual. Shown smaller than actual size.

SPECIFICATIONS (PRELIMINARY)

Accuracy: ±2% of reading or 4°F whichever is greater
Repeatability: ±1% of reading
Spectral Response: 8-14 µm
Response Time: 150 mSec (0 to 63% of final reading)
Emissivity Range: 0.10 to 1.0
Field of View: 6:1
Open Aperture: 0.4"
Ambient Operating Range:
Main electronics: 0 to 50°C (32 to 122°F)
Sensor head: 0 to 70°C (32 to 158°F)
High temp sensor head (-HT): 0 to 85°C (32 to 158°F)

Power: 12 to 24 Vdc
Temperature Range:
-18 to 538°C (0 to 1000°F)
Alarm: Adjustable, open drain (100 mA)
Transmitter Output: Type K thermocouple, 1 mV/deg, 0 to 5 Vdc or 4 to 20 mA
Electronics Housing:
NEMA-4, diecast aluminum
Sensor Head Cable Length:
6' (2 m) standard
Dimensions:
11.4 x 6.3 x 3 cm (4.5" x 2.5" x 1.2")
Weight: 272 g (0.6 lb)
Sensor Head: 25 dia. x 64 mm long (1" x 2.5") with ¾-16 UNF thread

MOST POPULAR MODEL HIGHLIGHTED!

To Order *(Specify Model Number)*

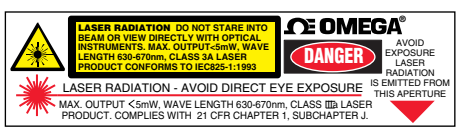
Model Number	Price	Description
OS101-MV-(*)-**	**$195**	Transmitter with 1 mV/°C or °F output
OS101-K-**	**195**	Transmitter with type K output
OS101-VI-**	**195**	Transmitter with 0 to 5 Vdc output
OS101-MA-**	**245**	Transmitter with 4 to 20 mA output

*(*) Insert **F** for mV/°F or **C** for mV/°C output*
*** Insert **-HT** to model number for high temperature sensor head and add **$100.***
Ordering Example: OS101-MA + OS100-LS + OS100-CA15FT,** is a transmitter with 4 to 20 mA output, laser sighting accessory and 15' sensor head extension cable, $245 + 175 + 35 = **$455.

Accessories

MOST POPULAR MODEL HIGHLIGHTED!

Model Number	Price	Description
OS100-MB	**$20**	Mounting Bracket
OS100-DR	**25**	DIN Rail Mounting Adaptor
OS100-AP	**30**	Air Purge Collar
OS100-WC	**175**	Water Cooling Jacket
OS100-LS	**175**	Laser Sighting Accessory
OS100-CA15FT	**35**	Sensor Head Extension Cable 15' (4.6 m)
OS100-CA25FT	**45**	Sensor Head Extension Cable 25' (7.6 m)
TX8-100	**45.50**	Power / Output Cable 100' (30 m)
PSU-93	**40**	24 Vdc Power Supply
CAL-3-IR	**125**	NIST Traceable Calibration



Miniature Low Cost Non-Contact IR Temperature Sensor/Transmitter with Built-in LED Display

Each OS102 comes complete with sensor head and 1.8 m (6') cable, sensor head mounting nut, main electronics housing and operator's manual

Shown smaller than actual size

OS102-MV-(*)
$270
Basic Unit

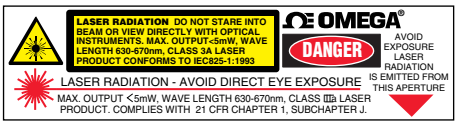
MADE IN USA | 2 YEAR WARRANTY | CE | EMC SERVICES

- **-18 to 538°C (0 to 1000°F) Range**
- **Adjustable Emissivity From 0.10 to 1.0**
- **Fast, Accurate, Repeatable Readings**
- **Built-in °F/°C Switchable LED Display**
- **0 to 5 Vdc, 4 to 20 mA or 1 mV/Deg. Analog Outputs Available**
- **Rugged, Miniature Industrial Design with Remote Sensor Head**
- **User Adjustable High or Low Alarm Standard**
- **NEMA-4 Metal Housing**

OMEGA's new low cost OS102 Series mini infrared transmitter system features a remotely mounted infrared temperature sensor and high performance microprocessor based signal conditioner with built-in LED display. The OS102's miniature sensor head design is ideal for measuring temperature in confined, hard-to-reach places and harsh environments. The sensor head is connected to the main electronics housing via a 1.8 m (6') shielded cable standard on all models. The signal conditioners main electronics are mounted in a rugged NEMA-4 rated diecast aluminum housing and feature adjustable emissivity, linear voltage, current output calibrated for the temperature range of -18 to 538°C (0 to 1000°F). A user adjustable high/low alarm output is standard on all models.

Specifications

Accuracy: ±2% of reading or 4°F, whichever is greater
Repeatability: ±1% of reading
Spectral Response: 8-14 µm
Response Time: 150 mSec (0 to 63% of final reading)
Emissivity Range: 0.10 to 1.0
Field of View: 6:1
Open Aperture: 10 mm (0.4")
Ambient Operating Range: Main electronics: 0 to 50°C (32 to 122°F) Sensor head: 0 to 70°C (32 to 158°F)
High temp sensor head option (-HT):
0 to 85°C (32 to 185°F)
Sensor Head with Water Cool Jacket:
0 to 200°C (32 to 392°F)
Power: 12 to 24 Vdc



Alarm: Adjustable, open drain (100 mA)
Temperature Range:
-18 to 538°C (0 to 1000°F)
Transmitter Output:
1 mV/deg, 0 to 5 Vdc or 4 to 20 mA
Display: Built-in LED, °F/°C switchable

Electronics Housing: NEMA-4, diecast aluminum
Sensor Head Cable Length: 1.8 m (6') standard
Dimensions: 11.4 x 6.3 x 5.6 cm (4.5" x 2.5" x 2.2")
Weight: 300 g (0.66 lb)
Sensor Head: 2.5 dia. x 6.3 cm long (1" x 2.5") with ¾-16 UNF thread

MOST POPULAR MODEL HIGHLIGHTED!

To Order *(Specify Model Number)*		
Model Number	**Price**	**Description**
OS102-MV-(*)	**$270**	Transmitter with 1 mV/°C or °F output
OS102-V1	**270**	Transmitter with 0 to 5 Vdc output
OS102-MA	**320**	Transmitter with 4 to 20 mA output
Models with High Temperature Sensing Head		
OS102-MV-(*)-HT	**$370**	Transmitter with 1 mV/°C or °F output
OS102-V1-HT	**370**	Transmitter with 0 to 5 Vdc output
OS102-MA-HT	**420**	Transmitter with 4 to 20 mA output

*(*) Insert **F** for mV/°F or **C** for mV/°C output*
Ordering Example: OS102-MA + OS100-LS + OS100-CA15FT,** is a transmitter with 4 to 20 mA output, laser sighting accessory and (4.6 m) 15' sensor head extension cable, $320 + 175 + 35 = **$530.

Accessories

Model Number	Price	Description
OS100-MB	**$20**	Mounting Bracket
OS100-DR	**25**	DIN Rail Mounting Adaptor
OS100-AP	**30**	Air Purge Collar
OS100-WC	**175**	Water Cooling Jacket, up to 200°C
OS100-LS	**175**	Laser Sighting Accessory
OS100-CA15FT	**35**	Sensor Head Extension Cable 4.6 m (15')
OS100-CA25FT	**45**	Sensor Head Extension Cable 7.6 m (25')
TX8-100	**45.50**	Power / Output Cable 30 m (100')
PSU-93	**40**	24 Vdc Power Supply
CAL-3-IR	**125**	NIST Traceable Calibration

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Collection Series #13-001019

DILBERT® by Scott Adams

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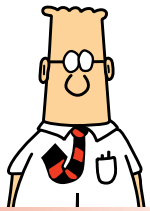
Collection Series #13-001020



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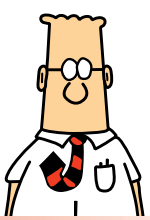
Collection Series #13-001021



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Collection Series #13-001022

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DILBERT® by Scott Adams

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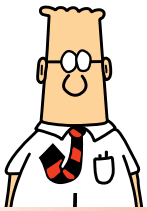
Collection Series #13-001023



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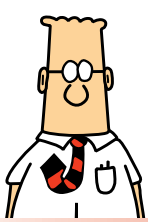
DILBERT® by Scott Adams

13

Collection Series #13-001024



9/04/01 DILBERT © United Feature Syndicate, Inc.

Industrial Non-Contact Infrared Thermometer / Transmitter

with Local Display and Analog Output

- Accuracy ±1% of Reading
- Models with Temperature Ranges Measuring up to 2500°F (1370°C)
- Current,Voltage or Millivolt Output
- Laser Sight Optional
- °C/°F Keypad Selectable
- Local Backlit LCD Display Standard
- Dual Display Indicates Current plus Min, Max, Average or Differential Temperatures on Most Models
- Visual and Audible High/Low Alarm
- Emissivity Adjustable from 0.1 to 1.00 in 0.01 steps via the Programmable Keypad
- Fast 250 msec response time
- Complete NEMA-4 System
- RS-232 Communication

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order.

OS550 Series

$495

Basic System

FREE datalogging software featured on page 30; included with models OS552, 553 and 554

Shown smaller than actual size

OS550 Sensor Head Shown With Optional Mounting Bracket and Mounting Nut

Available Accessories

OS550-MN Mounting Nut $15

OS550-MF Mounting Frame, $65

OS550-WC Air/Water Cooling Jacket, $195

OS550-MB Mounting Bracket, $35

OS550-AP Air Purge Collar, $65

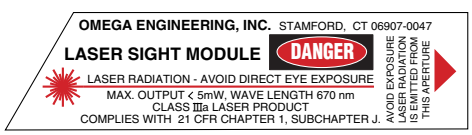
We make running changes when technical advances allow. Check at time of ordering for additional features.

OMEGA's OS550 Series industrial, high performance, economical thermometer/transmitter offers a wide choice of temperature ranges, optical patterns or fields of view and three outputs (1 mV/degree, 4-20 mA, and 0-5 Vdc) to feed directly into panel meters, recorders, temperature/process controllers, dataloggers, data acquisition systems or other process instrumentation.
Since the OS550 Series infrared thermometers do not use chopper motors or vibrator mechanisms, they can be mounted in any position and in hostile environments without suffering any loss in performance. This rugged design coupled with their relatively small dimensions make these sensors ideally suited for a wide variety of applications.

Specifications:

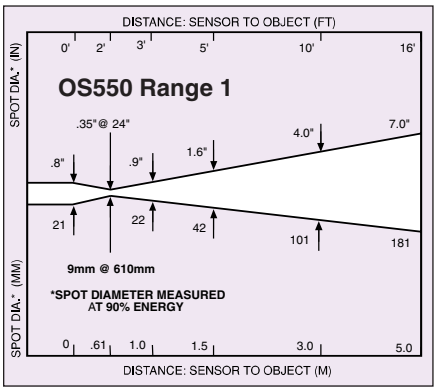
Accuracy: ±1% of reading @ 25°C ambient or 3°F, whichever is greater
Repeatability: ±1% rdg ±1 digit
Spectral Response: 8-14 microns
Emissivity Range: 0.10 to 0.99
Field of View (FOV): See Diagrams
Display: Backlit LCD
Transmitter Outputs:
1 mV/degree, 0–5 Vdc, or 4–20 mA
Power: 7–24 Vdc @ 80 mA
Environmental Ratings: NEMA-4 water tight and dust tight for sensing head and electronics enclosure
Ambient Operating Range:
sensing head 0 to 185°F (-18 to 85°C) with OS550-WC; (0 to 50°C) without OS550-WC electronics, 32 to 122°F (0 to 50°C)
Response Time:
250 msec; 0 to 63.2%

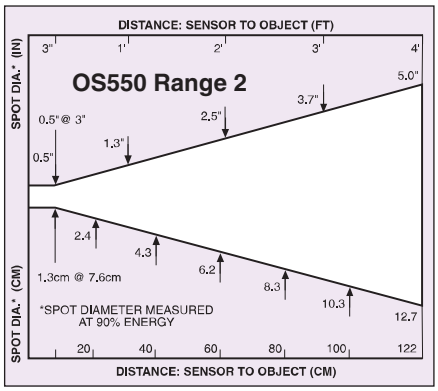
Alarms: Visual and audible
RS-232: Standard on OS552, OS553, and OS554 models. One way communication.PC compatible software included.
Connection: 4.5 m (15 ft.) Head and Power Cable Included
Dimensions:
Sensing Head: 10.9 x 4.1 cm (4.30 x 1.63"),1½-20 thread
Electronics: 13.3 x 9.1 cm (5.25 x 3.62")
Weight:
Sensing Head: 0.45 kg (12 oz)
Electronics Mounted in NEMA-4 Enclosure: 1.2 kg (43.2 oz)

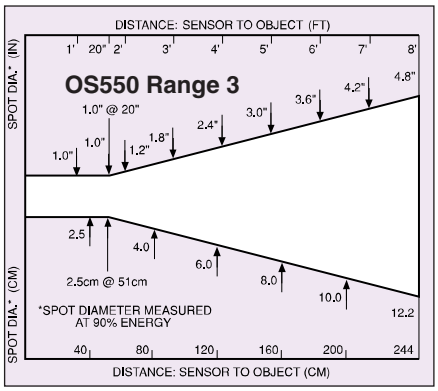


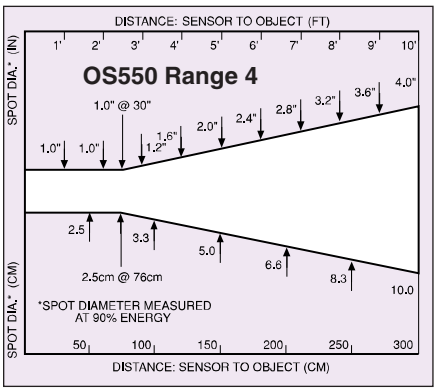
Industrial Infrared Thermometer, OS550 Series

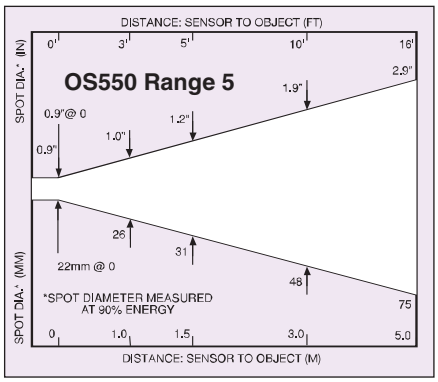
OS550 Series Optical Field of View Diagrams

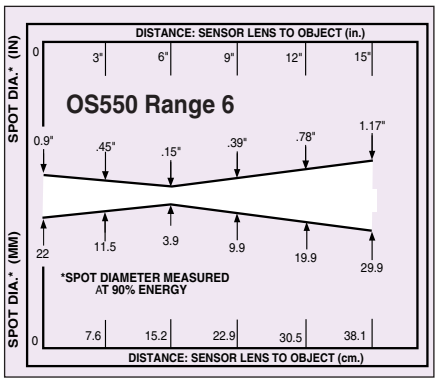












MOST POPULAR MODELS HIGHLIGHTED!

To Order Complete NEMA-4 SYSTEM *(Specify Model No.)*

Model Number	Price	Output	Temperature Range	RS-232	Free PC Software
OS551-MV-(*)	**$495**	1 mV/deg.	0 to +750°F (-18 to +400°C)	—	—
OS551-MA-(*)	**495**	4-20 mA	0 to +750°F (-18 to +400°C)	—	—
OS551-V1-(*)	**495**	0-5 Vdc	0 to +750°F (-18 to +400°C)	—	—
OS552-MV-(*)	**550**	1 mV/deg.	0 to +1000°F (-18 to + 540°C)	Standard	Standard
OS552-MA-(*)	**550**	4-20 mA	0 to +1000°F (-18 to + 540°C)	Standard	Standard
OS552-V1-(*)	**550**	0-5 Vdc	0 to +1000°F (-18 to + 540°C)	Standard	Standard
OS553-MV-(*)	**650**	1 mV/deg.	0 to +1600°F (-18 to +870°C)	Standard	Standard
OS553-MA-(*)	**650**	4-20 mA	0 to +1600°F (-18 to +870°C)	Standard	Standard
OS553-V1-(*)	**650**	0-5 Vdc	0 to +1600°F (-18 to +870°C)	Standard	Standard
OS554-MV-(*)	**750**	1 mV/deg.	0 to +2500°F (-18 to +1370°C)	Standard	Standard
OS554-MA-(*)	**750**	4-20 mA	0 to +2500°F (-18 to +1370°C)	Standard	Standard
OS554-V1-(*)	**750**	0-5 Vdc	0 to +2500°F (-18 to +1370°C)	Standard	Standard

** Insert optics code from table below.*
Ordering Example: *OS552-MA-2, Infrared thermometer with 0 to 1000°F range, 4-20 mA output and spot size .5" at 3",* ***$550.***
Note: *Sensor head cable can be extended at the factory at time of purchase to a maximum of 50 feet (15m). Add suffix -(*) FT to order number and* ***$1*** *per FT over 15FT to price.* ***Ordering Example:*** *OS551-MA-2-35 FT, OS551 with current output, .5 at 3" FOV, 35 FT sensor head cable, $495 + 20 =* ***$515. OCW-1*** *OMEGACARE℠ extends standard 2-year warranty to a total of 3 years ($51), $515 + 51 =* ***$566.***

Optical Table*

Optical Range Code	Field of View (FOV)
– 1	Spot Size .35" @ 24"
– 2	Spot Size .5" @ 3"
– 3	Spot Size 1" @ 20"
– 4	Spot Size 1" @ 30"
– 5	Spot Size 1" @ 60"
– 6	Spot Size .15" @ 6"

Accessories

MOST POPULAR MODELS HIGHLIGHTED!

Model Number	Price	Description
OS550-AP	**$ 65**	Air purge collar
OS550-WC	**195**	Air/water cooling jacket
OS550-MF	**65**	Mounting frame
OS550-MB	**35**	Right-angle mounting bracket
OS550-MN	**15**	Mounting nut
OS550-LS	**195**	Sighting viewer (laser) (not shown)*
CAL-3-IR	**125**	NIST Calibration Certification
PSU-93	**40**	24 Vdc power supply
TX4-100	**28.50**	Power/output extension wire (100 feet)

**One unit suitable for aligning many heads.*

Fast Response Infrared Fiber Optic Thermometer/Transmitter

With Local Display and Analog Output

Model OS1592

$2320

Basic Unit

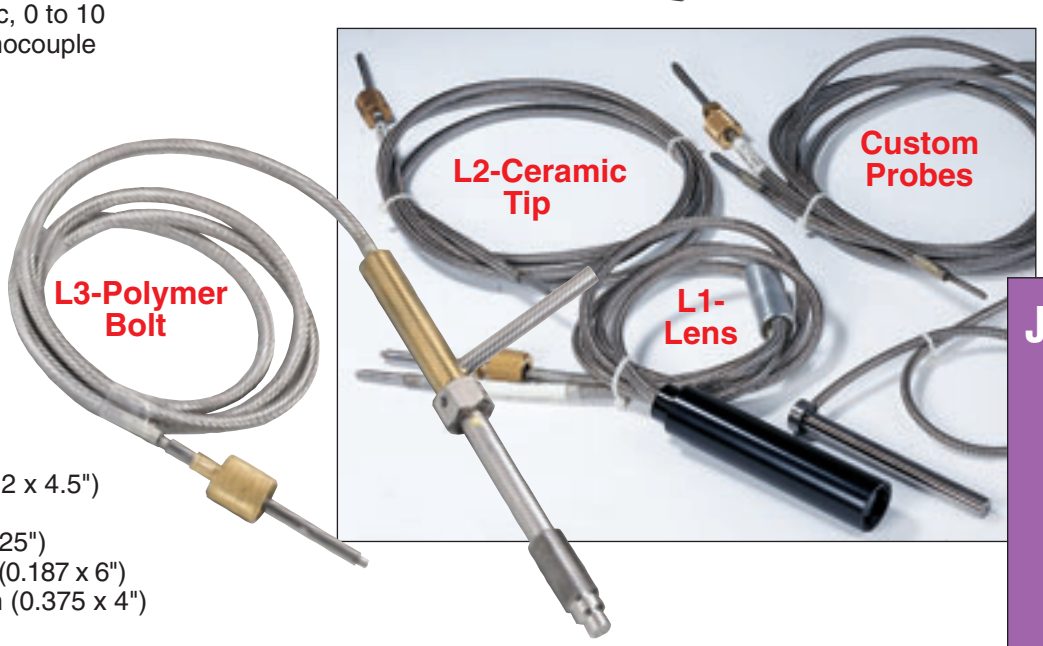
- **Well-suited for Both Hard to Reach and Polymer Bolt Applications**
- **Accuracy 1% of Reading**
- **Models with Temperature Ranges Measuring up to 2482°C (4500°F)**
- **Isolated Analog Output, mV, °C or °F, and Either Current, Voltage, Millivolt or Thermocouple Output**
- **°C/°F Keypad Selectable**
- **Local Backlit LCD Display Standard**
- **Visual Alarm and Built-In Relay**
- **Dual Display Indicates Current Plus Min, Max, or Differential Temperatures**
- **Emissivity Adjustable from 0.05 to 1.00 in 0.01 Steps Via the Keypad**
- **Fast, 25 msec Time Constant (0 to 63% of Final Value)**
- **Complete NEMA-4 System**
- **Dual Analog Outputs Isolated from Power Supply Input**

OMEGA's new CE marked low cost OS1590 Series infrared fiber optic thermometer/ transmitter system measures temperature ranges up to 2482°C (4500˚ F) and provides dual analog outputs (4-20 mA, 0-5 Vdc, 0-10 Vdc, 1 mV/Deg, J, K T/C) electrically isolated from the DC power supply input. The main Electronics is in a NEMA 4 rated Aluminum housing with a local backlit LCD, built-in Relay, alarm LED, and a 4-position programmable keypad.

IR Thermometer/Transmitter

Specifications

Temperature Range:
-R1: 260 to 538°C (500 to 1000°F)
-R2: 538 to 1093°C (1000 to 2000°F)
-R3: 1093 to 2482°C (2000 to 4500°F)
Accuracy: 1% of rdg
Repeatability: 0.75% of rdg
Response Time: 25 msec (0 to 63% of final value)
Emissivity: 0.05 to 1.00 adjustable, set via keypad
Spectral Response: 0.8 to 1.8 microns
Analog Output: 1 mV/deg, standard
Second Analog Output: 0 to 5 Vdc, 0 to 10 Vdc, 4-20 mA, or Type J or K thermocouple
Display: Backlit Dual LCD
Keypad: 4 position, tactile feedback membrane switch
Calculated Temperature Values: Maximum, minimum, differential
High Alarm: Set via keypad with built-in relay
Relay Contact Rating: 12 A
Operating Ambient Temperature: 0 to 50°C (32 to 122°F)
Enclosure: Die cast aluminum, NEMA-4
Dimensions:
Main Housing:
8.9 W x 5.6 H x 11.4 L cm (3.5 x 2.2 x 4.5")
Optical Assembly:
L1- Lens: 2.5 Dia. x 15.9 cm (1 x 6.25")
L2- Ceramic Tip: 0.47 Dia. x 15.2 cm (0.187 x 6")
L3- Polymer Bolt: 0.95 Dia. x 10 cm (0.375 x 4")
Power: 18 to 36 Vdc



To Order *(Specify Model No.)*				
Model Number	**Price**	**Temperature Range**	**Opt. Assy. (Spot Size)**	**Cable Length**
OS1592-L1-R1-1-*	**$2320**	260 to 538°C (500 to 1000˚F)	Lens Probe (0.25" @ 8")	1.5 m (5')
OS1592-L2-R1-*	**2360**	260 to 538°C (500 to 1000˚F)	Ceramic Tip, 6" Probe	1.5 m (5')
OS1592-L3-R1-*	**2965**	260 to 538°C (500 to 1000˚F)	Polymer Bolt, 4" Probe	1.5 m (5')
OS1592-L1-R2-1-*	**2320**	538 to 1093°C (1000 to 2000˚F)	Lens Probe (0.25" @ 8")	1.5 m (5')
OS1592-L1-R2-2-*	**2320**	538 to 1093°C (1000 to 2000˚F)	Lens Probe (0.19" @ 20")	1.5 m (5')
OS1592-L1-R2-3-*	**2320**	538 to 1093°C (1000 to 2000˚F)	Lens Probe (0.076" @ 6")	1.5 m (5')
OS1592-L2-R2-*	**2360**	538 to 1093°C (1000 to 2000˚F)	Ceramic Tip, 6" Probe	1.5 m (5')
OS1592-L3-R2-*	**2965**	538 to 1093°C (1000 to 2000˚F)	Polymer Bolt, 4" Probe	1.5 m (5')
OS1592-L1-R3-2-*	**2320**	1093 to 2482°C (2000 to 4500˚F)	Lens Probe (0.19" @ 20")	1.5 m (5')
OS1592-L1-R3-3-*	**2320**	1093 to 2482°C (2000 to 4500˚F)	Lens Probe (0.076" @ 6")	1.5 m (5')

Accessories	Price	Description
OS1500-BLS	**$495**	Backlight Source
OS1500-BLF	**145**	Backlight Fiber Assembly to use with OS1500-BLS
OS1500-RC	**35**	Replacement Bulb for backlit source
PSU-93	**40**	Unregulated 24 Vdc Supply

The unit provides two separate analog outputs. The first is 1mV/Deg. The second is specified -* , where:
- mA = 4-20 mA output; **- V1** = 0/5 Vdc output; **- V2** = 0/10 Vdc output; **- K** = Thermocouple output, K type (For R1& R2 Temp range only); **- J** = Thermocouple output, J type (For R1 Temp range only)

High Precision Handheld Calibrator/Thermometers

3 YEAR WARRANTY · MADE IN USA · CE · NIST · OMEGACARE Extended Warranty Program

- **0.5°F Accuracy Over the Range of 18°C to 28°C (64°F to 82°F)**
- **NIST Traceable Certificate of Calibration**
- **Simulates and Measures Thermocouples, RTDs, Thermistors and Ohms**
- **0.1°F/0.1°C Resolution**
- **10 Memory Locations for Saving Meter Readings and/or Calibrator Outputs**
- **Step Calibrator, Meter Hold, Thermometer Functions**
- **Ramp Function (Models CL25 and CL27)**

Need to comply with ISO-9000 reporting specifications? These meters can help. All conform to the temperature/voltage tables of the National Institute of Standards and Technology (N.I.S.T.). OMEGA provides a free NIST Traceable Certificate of Calibration for your records.

Since ISO-9000 requires that calibration be done at the equipment site, these meters are a perfect choice. With 0.5° accuracy in an ambient temperature range of 64 to 82°F, you're not confined to the lab. Take it everywhere. The ABS plastic case protects it from dust, dirt.

The OMEGA CL20 series calibrator/thermometers simulate, measure and record RTD, ohm, thermocouple and thermistor signals–all in one meter. They outperform the competition in the lab and on the factory floor with 0.5°F accuracy and in ambient temperatures from 18 to 28°C (64 to 82° F).

This powerful handheld meter allows the user to calibrate in the field as well as in the lab and offers many additional functions that translate into cost-effectiveness, increased productivity and long-lasting versatility and reliability.

The 5-digit LCD display indicates all active functions and allows users to have 0.1° resolution in both Fahrenheit and Celsius. This convenient display takes the guesswork out of which sensor has been selected, displaying °F or °C and operating mode.

Programming a CL20 series calibrator is a snap. The keypad allows direct entry of calibrator setpoints. Setpoints can also be entered from an outside source by inputting temperatures or voltages through the thermometer mode. There are no reprogramming hassles. The program won't be lost when the meter is shut off. All values are retained and can be retrieved for fast repeat use.

These calibrators feature 10 memory locations that can instantly recall any programmed value, and the step function lets the user run through the test points at the push of a button. This efficient feature saves time by allowing the user to simply enter the output value and calibrate.

The ramp function of Models CL25 and CL27 makes calibrating switch and alarm setpoints quick and easy. By entering the upper limit, lower limit and step size, the meter automatically ramps between the limits. There is also a manual ramp function.

No matter what thermocouple type is used, one of these meters can handle it. Features to choose from include 100 ohm and 1000 ohm RTD and 2252 ohm thermistor capabilities.

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order.

Model CL23A
$545

Model CL25
$845

Model CL24
$600

Model CL26
$895

Probes sold separately See the OMEGA® Made in USA Handbook

or visit OMEGA online at www.omega.com

CL20 Series Temperature Measurement and Calibration Range

Input Type	Range		Resolution
K	-328 to 2502°F	-200 to 1371°C	0.1°
J	-346 to 1400°F	-210 to 760°C	0.1°
T	-328 to 752°F	-200 to 399°C	0.1°
E	-382 to 1832°F	-230 to 999°C	0.1°
N	-328 to 2372°F	-200 to 1299°C	0.1°
B	932 to 3308°F	499 to 1815°C	0.1°
R	32 to 3214°F	0 to 1768°C	0.1°
S	32 to 3214°F	0 to 1768°C	0.1°
G	572 to 4201°F	299 to 2315°C	0.1°
C	32 to 4201°F	0 to 2315°C	0.1°
D	32 to 4201°F	0 to 2315°C	0.1°
RTD	-328 to 1562°F	-200 to 849°C	0.1°
Series 400 Thermistor 2252 Ω	-40 to 302°F	-40 to 150°C	0.1°

Specifications

Display: 5-digit LCD custom indicators for calibration type, units hold, recall, store, operating mode, bal, loaded memory locations (up to 10)
Keypad: Momentary switches with tactile feedback, select power, thermocouple type, units, resolution, hold, store/recall, stop/clear, operating mode
Configuration Retention: selected operating mode, thermocouple type, units, resolution and memory contents retained on power off
Diagnostics: low battery, open input, invalid keypad entry, out of range, internal hardware fault
Accuracy: see ordering matrix for details
Ambient Temperature: 0 to 50°C (32 to 122°F), 0 to 90% RH
Reading Rate: 1 per second
Input Current: 50 nA typical(meter mode)
Output Load: 100 ohms, min. (calibrator mode)
Max. Common Mode Voltage: 42 V peak to earth ground
Power: 9 Vdc battery
Battery Life: 16 hrs alkaline
Dimensions: 178 H x 74 W x 28 mm D (7.0 x 2.9 x 1.1")
Weight: 340 g (12 oz)

CL26 and CL27 Resistance Measurement and Calibration Outputs

Ohms Range	Resolution	Models
0-100 Ω	0.01 Ω	CL26 & CL27
0-1000 Ω	0.1 Ω	CL27
0-100,000 Ω	1.0 Ω	CL26

CL20 Series Accessories

Model Number	Price	Description
HH22-AC	$50	NiCad battery and adaptor, 110 V
HH22-AC-220	120	NiCad battery and adaptor, 220 V
CL-300-CABLE-(*)-2	10	Calibration cable, 2', 24 AWG, SMP to spade lug
CL-300-CABLE-(*)-10	20	Calibration cable, 10', 24 AWG, SMP to spade lug
CL-300-RSC-(**)-2	20	Calibration cable 2', retractable, expands to 10', SMP to spade lug

** Insert type (J, K, T, E, R/S, N or mV)* *** Insert type (J, K, T, E)*

MOST POPULAR MODELS HIGHLIGHTED!

To Order *(Specify Model Number)*

Model Number	Price	Features						
		TC Types	Platinum RTDs	Thermistor	Resistance 0 to:	Resistance Resolution	Accuracy Calibrator & Thermometer	Ramp Feature
CL23A*	**$545**	K, J, T	—	—	—	—	±0.5°F from -50 to 1250°F 0.04% over 1250°F ±1.0°F under -50°F	No
CL23EC*†	**545**	K, T, E, J-DIN	—	—	—	—	±0.5°F from -50 to 1250°F 0.04% over 1250°F ±1.0°F under -50°F	No
CL24	**600**	K, J, T, E	—	—	—	—	±0.5°F from -50 to 1250°F 0.04% over 1250°F ±1.0°F under -50°F	No
CL25	**845**	K,J,T,E,N,R, S,B,G,C,D	—	—	—	—	±0.5°F full scale K,J,T,E,N 1.5°F full scale B,R,S,G,C,D	Yes
CL25EC†	**845**	K,J,T,E,N,R, S,B,G,C,J-DIN	—	—	—	—	±0.5°F full scale K,J,T,E,N 1.5°F full scale B,R,S,G,C,D,J-DIN	Yes
CL26	**895**	K, J, T ,E	100 Ω	400 Series 2252 Ω	100 kΩ 100 Ω	1 Ω 0.01 Ω	±0.5°F from -50 to 1250°F 0.04% over 1250°F ±1.0°F under -50°F Ohms: 0.04% of range ±0.5°F RTD & thermistor	No
CL27	**1095**	K,J,T,E,N,R, S,B,G,C,D	100 Ω 1000 Ω	—	1k Ω 100 Ω	0.1 Ω 0.01 Ω	±0.5°F full scale K,J,T,E,N ±1.5°F full scale B,R,S,G,C,D Ohms: 0.02% of range 0.2°F full scale RTD	Yes
CL28MA	**495**	0 to 21 mA simulator/meter					±0.05% of range	Yes

**Note: Not compatible with Type E thermocouple. †These models are CE marked.*
Each CL20 series unit is supplied as a complete kit with 4 beaded wire thermocouples (J, K, T, or E), 4 TAS standard to mini thermocouple adaptors (J,K,T,E), 4 calibration cables (J, K, T, or E), shock resistant holster, belt clip, integral tilt stand/handle, wrist strap, rugged carrying case, and certificate of calibration. The CL26 and CL27 also include one 3-wire RTD calibration cable, one 2-wire resistance cable and one TA4F RTD adaptor. CL23A does not include type E thermocouple, adaptor or cable.
Ordering Examples: CL24** J/K/T/E calibration/thermometer kit, **$600. CL26** J/K/T/E, thermistor and RTD calibration/thermometer kit, **$895.; OCW-1** OMEGACARE℠ extends standard 2-year warranty to a total of 3 years ($89), $895 + 89 = **$984.

See OMEGA's Complete Line of BLACKPOINT™ Calibration Sources

Featured In Section K of the Temperature Section in The Made In USA Handbook or online at omega.com

Used to Test and Calibrate Your Non-Contact Infrared Pyrometers and Transmitters

MADE IN USA CE NIST

OMEGA CARE Extended Warranty Program

& EMC SERVICES

Provides Both Hot & Cold Surface

THE BEST IN THE INDUSTRY!

Rugged and Economical

Model BB701 Hot/Cold, $2995
-17 to 148°C (0 to 300°F),
2.5" Target Plate
0.95 emissivity

Large Target Area!

Model BB704, $2490
100 to 400°C (212 to 752°F), 4" Target Plate
0.95 emissivity

Model BB702, $1995
32 to 215°C (90 to 420°F), 2.5" Target Plate
0.95 emissivity

High Temp – Laboratory Grade

Model BB705, $9990
100 to °1198C (212 to 2190°F),
1.75" Cavity Cone
0.985 emissivity

Small – Compact Unit!

Model BB703, $890
32 to 400°C (90 to 752°F), 1.125" Target Plate
0.95 emissivity

Get Complete Details and Specifications Fast — Online at omega.com

High Temp – Portable Unit

Model BB-4A, $3595
100 to 982°C (212 to 1800°F),
.8" (22 mm) cavity cone;
.98-.99 emissivity

J

hot point® Dry Block Probe Calibrator
CL900A/CL950A Series

1 YEAR WARRANTY · MADE IN USA · NIST

EMC SERVICES · OMEGACARE Extended Warranty Program · CE 230 Vac model only

Shown smaller than actual size

HH20 Series Handheld Thermometer Featured on pages 49 & 50.

CL900A Calibrator, shown with HH-21 handheld meter. Thermocouple probe not included.

- **User Selectable °C or °F Display**
- **Calibrates Thermistors, Thermocouples and RTD's in Seconds**
- **Highly Accurate ±0.8°C (±1.5°F) & Exceptional Stability ±0.2°C (±0.3°F) for Precision Calibrations**
- **Completely Portable for Factory, Laboratory and Instrument Shops**
- **Wide Temperature Range Ambient +22 to 482°C (Ambient +40 to 900°F); Covers Most Industrial Applications**
- **NIST Traceable CAL Certificate with Three Data Points Included**
- **CE Marked Models**
- **RS-232 Standard**
- **Companion ice point™ Reference Cell Available Model TRCIII-A**

CL900A Series

$3295

Basic Unit

OMEGA's hot point® calibrator is part of a new family of calibrators which allows calibration of thermocouple and RTD probes quickly and easily with an accuracy to ±0.8°C (±1.5°F). An integral RTD sensor assures high measurement accuracy and repeatability. A built-in microprocessor-based PID digital controller assures exceptional stability. Setpoint and actual temperature are displayed simultaneously. Temperature can be set in one degree increments from ambient +22 to 482°C (ambient +40 to 900°F).

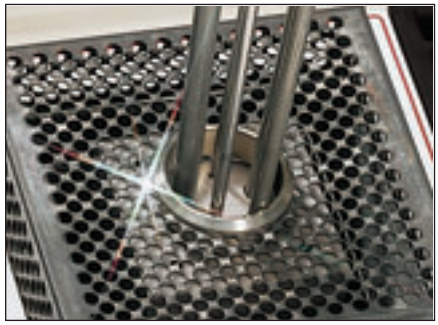
The CL900A calibrator accepts a variety of optional inserts which are available in 4" and 6" depths, and probe diameters from ⅛" to ⅜". An undrilled insert is also available. The CL900A comes complete with a 6" deep insert well for ¼" diameter probes, and insert removal tongs. Additional inserts can be ordered separately as required for other diameter probes. 6" well depth inserts are used for probes 7" and longer. 4" well depth inserts are used for probes 5" and longer.

The CL950A has a fixed thermal well with holes 1⁄16", ⅛", 3⁄16" and ¼" diameter holes. The CL950A-M has metric holes (2 mm, 3 mm, 4.5 and two 6 mm diameter holes).

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order.

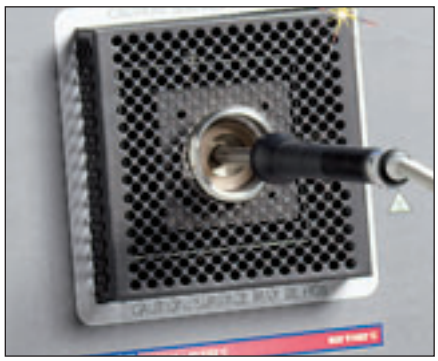
We make running changes when technical advances allow. Check at time of ordering for additional features.

Caution: To avoid fire hazard or damage to your calibrator, always allow your calibrator to cool down to ambient temperature before returning to storage.



The model CL950A British multi-well accepts up to 5 probes at one time and comes standard with 1/16", 1/8", 3/16" and two 1/4" diameter holes.

The model CL950A-M metric multi-well accepts up to 5 probes at one time and comes standard with 2 mm, 3 mm, 4.5 mm, and two 6 mm diameter holes



Model CL900A accepts any insert listed in the table at right

Specifications

(All specifications are based on the test probes, being in contact with the bottom of the test well)

Temperature Range:
Ambient +22 to 482°C
(Ambient+40 to 900°F)

Operating Ambient Temperature Range: 5 to 38°C (40 to 100°F)

Accuracy: (1° resolution) CL900A with 6" test well inserts: ±0.8°C (±1.5°F). CL900A with 4" test well inserts: ±1.7°C (±3°F).
CL950A: ±0.8°C (±1.5°F).

Control Stability: ±0.15°C (±0.3°F)

Temperature Uniformity (within the bottom 1" of the test well):
CL900A: with 6" test well inserts: ±0.3%rdg with 4" test well inserts: ±0.4%rdg. CL950A; ± 0.3% rdg

Max. Probe Immersion: CL900A: with 6" test well inserts: 150 mm (6") with 4" test well inserts: 100 mm (4").
CL950A; 150 mm (6")

Control: Microprocessor-based PID digital controller

Power: 115 Vac, 50/60 Hz, 230 Vac, 50/60 Hz,1050 Watts

Dimensions: 312 H x 363 W x 191 mm D (12.3 x 14.3 x 7.5")

Weight: 11.4 kg (25 lb)

Note: Only 230 Vac models are CE marked.

CE
230 Vac model only

Use Your CL900A standing up or tilted on a bench

Handheld Meter and Probes Sold Separately - See Section A of the OMEGA Made in U.S.A. Handbook

Inserts for CL900A Series

Model Number	Price	Description
CL901	**$89**	Insert, 1/8" dia. x 4" deep test well
CL901-M	**89**	Metric insert, 2 mm dia. x 106.6 mm deep test well
CL902	**89**	Insert, 1/8" dia. x 6" deep test well
CL902-M	**89**	Metric insert, 2 mm dia. x 152.4 mm deep test well
CL903	**89**	Insert, 3/16" dia. x 4" deep test well
CL903-M	**89**	Metric insert, 3 mm dia. x 106.6 mm deep test well
CL904	**89**	Insert, 3/16" dia. x 6" deep test well
CL904-M	**89**	Metric insert, 3 mm dia. x 152.4 mm deep test well
CL905	**89**	Insert, 1/4" dia. x 4" deep test well
CL905-M	**89**	Metric insert, 4.5 mm dia. x 106.6 mm deep test well
CL906	**89**	Insert, 1/4" dia. x 6" deep test well
CL906-M	**89**	Metric insert, 4.5 mm dia. x 152.4 mm deep test well
CL907	**89**	Insert, 5/16" dia. x 4" deep test well
CL907-M	**89**	Metric insert, 6 mm dia. x 106.6 mm deep test well
CL908	**89**	Insert, 5/16" dia. x 6" deep test well
CL908-M	**89**	Metric insert, 6 mm dia. x 106.6 mm deep test well
CL909	**89**	Insert, 3/8" dia. x 4" deep test well
CL910	**89**	Insert, 3/8" dia. x 6" deep test well
CL911	**78**	Insert, undrilled

To Order *(Specify Model Number)*

Model Number	Price	Description
CL900A-110	**$3295**	hot point® probe calibrator, 115 Vac
CL900A-220	**3295**	hot point® probe calibrator, 230 Vac
CL950A-110	**3595**	hot point® multi-well British probe calibrator, 115 Vac
CL950A-220	**3595**	hot point® multi-well British probe calibrator, 230 Vac
CL950A-M-110	**3595**	hot point® metric multi-well probe calibrator, 115 V
CL950A-M-220	**3595**	hot point® metric multi-well probe calibrator, 230 V

*Comes with complete operator's manual. Inserts are for CL900 and CL900A hot point® calibrators only. To order NIST Calibration points, add suffix "**-NIST**" to model number and **$175** to price.*
Ordering Example: CL900A-110**, hot point® calibrator, 110 Vac, and **CL905** 10 cm (4") test well insert for 6.3 cm (¼") probes, $3295 + 89 = **$3384.

Milliamp Calibrator

- NIST Traceable
- Simulates and Measures 0 to 21 mA
- ±0.05 % of Range
- Ramp/Step Function
- Simulates 2-Wire Transmitters
- Reads mA or Percent

Combination milliamp simulator and meter has numerous pre-programmed operating modes making this a versatile and time-saving instrument. It has user-programmable setups backed up with non-volatile memory for repeated special tests. Both the simulation and measurement modes operate with external loop power supplies or with an internal 24 V power source. The CL28MA can be programmed with either mA or percent-of-scale data. When operating, the unit can toggle between mA or percent modes with the touch of one button. Instead of fuses, the CL28MA is protected with PTC resistors. These devices automatically reset when a fault condition is corrected. Protection is provided between any combination of terminations in the input and output connectors.

Model CL28MA
$495

Shown smaller than actual size, scaling the Model DP24-E Process Indicator

See page 54 for Additional New Process Indicators & Controllers

Specifications

Simulator Output and Measure Input Connectors: Female SMP
Simulator Output and Measure Input Current: 0.00 to 21.00 mA
Accuracy (64°F to 82°F ambient, 1 year): ±0.05% of range
Temp. Coefficient: 64 to 82°F; included in accuracy specifications; from 14 to 64°F and 82 to 122°F; ±0.0015% of range per °F

SIMULATOR SELECTIONS
Range: 0.00 to 21.00 mA/0.0% to 105.0%; 4.00 to 21.00 mA/0.0% to 106.3%
Loop Power Source: External: (56 Vdc max.); Internal: (24 Vdc nom.)
Fixed Outputs: Keypad entered and memory recalled value/power source (5 locations)
Pre-Set Ramp/Step Outputs
4:1 Linear Steps: 4, 8, 12, 16, 20 mA (4-20 mA); 0, 5, 10, 15, 20 mA (0-20 mA)
4.2 Square Root Steps: 4, 5, 8, 12, 20 mA (4-20 mA); 0, 12.5, 5, 11.25, 20 mA (0-20 mA)
User-Programmed Ramp/Step Outputs (5 memory locations): Step size, start point, high limit, low limit, dwell time
Ramp Stepping: Manual and automatic

MEASURE SELECTIONS
Range: 0.00 to 21.00 mA/0.0% to 105.0%; 4.00 to 21.00 mA/0.0% to 106.3%
Loop Power Source: External (56 Vdc); internal (24 Vdc nom.)
Store/Recall Measurements: 5 memory locations
Run/Hold Simulator Drive Capability: 900 ohms max.
Measure Input Resistance: 10 ohm shunt in series with 1Ω (nom.) PTC resistor for overload protection
Power: 9 V alkaline battery (supplied), lithium, or NiCd (rechargeable) battery
Battery Life, Continuous:
Alkaline: External loop: 30 hrs typical. Internal loop: (12 mA) 7 hrs typical; (20 mA) 4 hrs typical
Lithium: Approx. twice life of alkaline battery
NiCd: Approx. ¼ life of alkaline battery
Error Messages: LO (under range current), HI (over range current), -POL (input current reversed), and OL (output loop overload)
Operating Temp. Range: -10 to 50°C (14 to 122°F), <90% RH; reduce RH by 1.7%/°F from 95 to 122°F
Storage Temp. Range: -22 to 60°C (-30 to 140°F), <95% RH up to 95°F, reduce RH limit by 1.7%/°F from 95 to 140°F
Dimensions: 17.8 H x 7.4 W x 2.8 cm D (7.0 x 2.9 x 1.1")
Weight: 284 g (10 oz)

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order.

To Order *(Specify Model No.)* **IN STOCK FOR FAST DELIVERY**

Model Number	Price	Description
CL28MA	$495	0-21 mA Simulator/Meter

Supplied with calibration cable, 9 V battery, carrying case, NIST Certificate, protective rubber boot and complete operator's manual.
Ordering Example: CL28MA** simulator, meter, **$495. OCW-1** OMEGACARE℠ extends standard 3-year warranty to a total of 4 years ($49), $495 + 49 = **$544.

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13

Collection Series #13-001025

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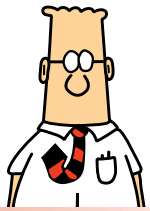

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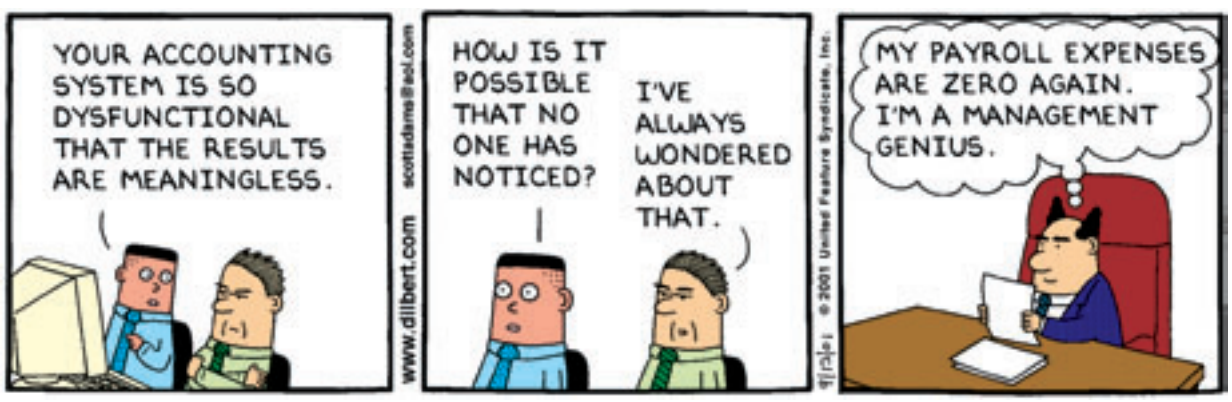

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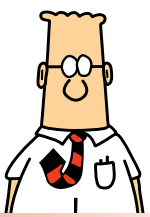

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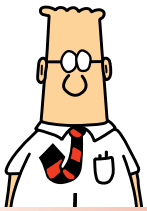

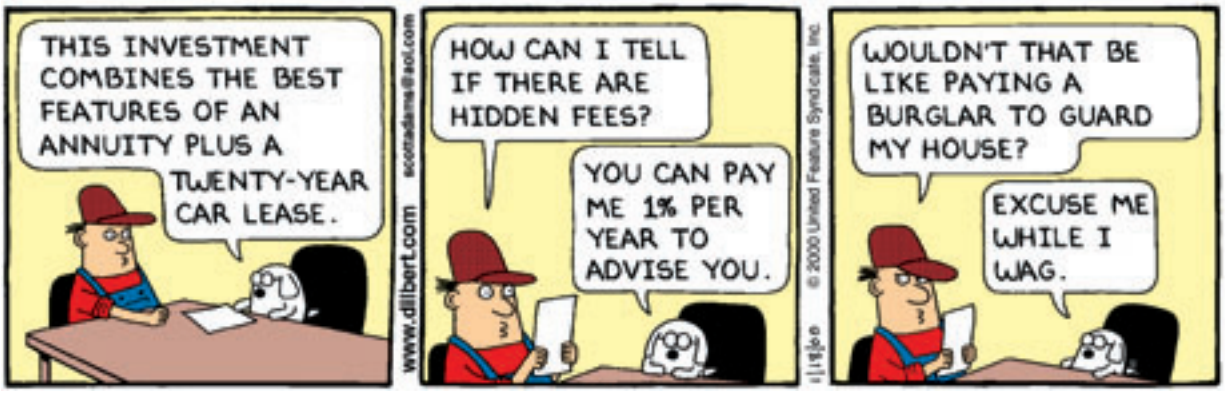

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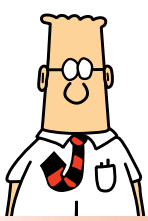

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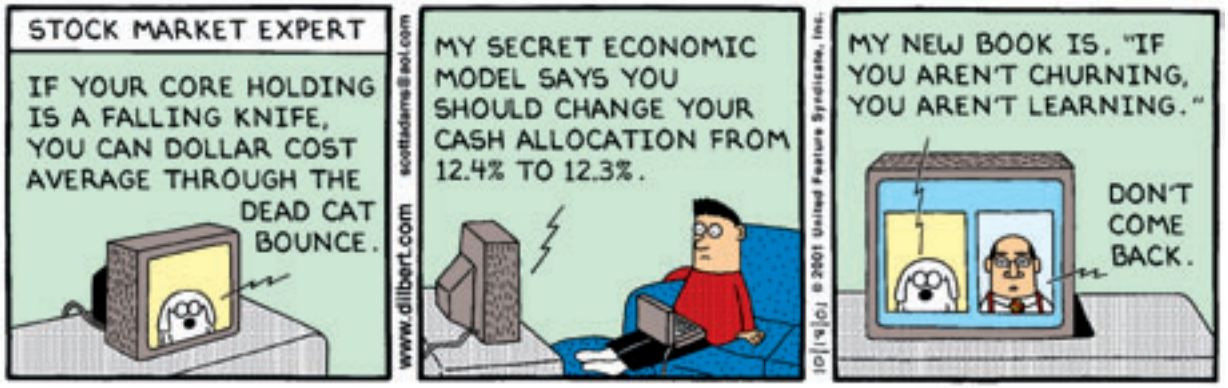

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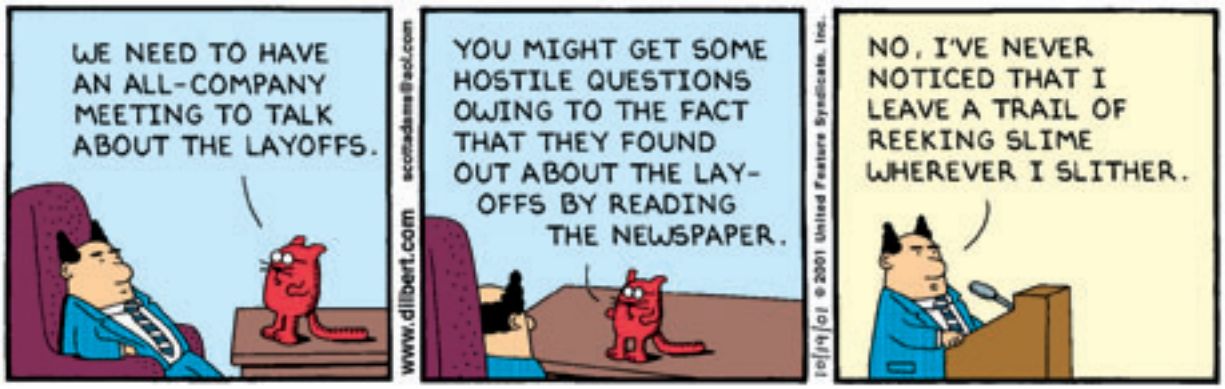

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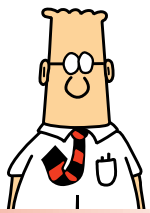

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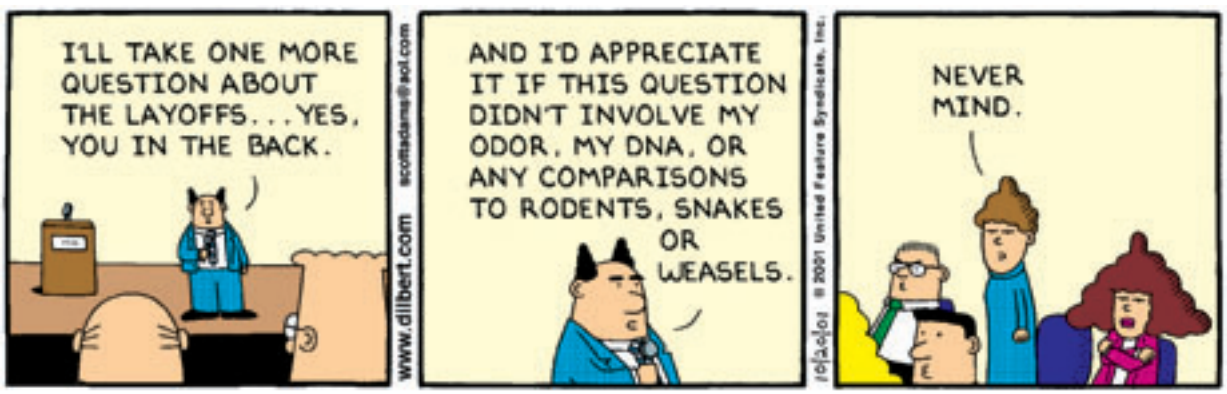

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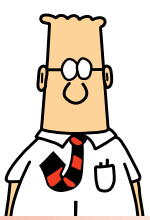

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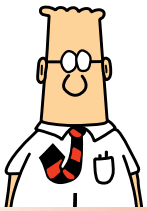

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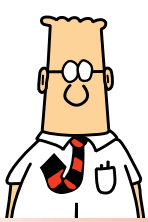

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Exceptional Accuracy Digital Thermometers

HH-20 Series, Single and Dual Input Models

Model HH-21

$159

Single J/K/T Input

NIST · MADE IN USA · 3 YEAR WARRANTY · OMEGACARE Extended Warranty Programme · CE

The HH-20 series microprocessor-based handheld thermometers offer wide-ranging temperature readings and feature state-of-the-art innovations. The easy-to-read custom 5-digit LCD readout with trend display and self-diagnostics are all standard. The case is drop/splash and dust-proof, and has a built-in tilt stand/handle for bench use or hands-free field measurements.

The HH-21 is a single input unit that accepts J, K and T thermocouple types. From the front panel, the user can select the thermocouple type, display units (°C or °F), and display resolution (0.1° or 1°). The HH-21 also has a display hold function. As with all HH-20 series units, the HH-21 features exceptionally high accuracy, 0.1% of reading plus 1°F.

The HH-22 and HH-23 accept dual inputs. The HH-22 accepts either J or K thermocouples, while the HH-23 works with J, K or T types. Both models can display T1 (input 1), T2 (input 2), T1-T2 (difference), or scan between T1, T2 and T1-T2. Standard features for both the HH-22 and HH-23 include display hold, Min and Max storage, and trend indication. The Min and Max functions record minimum and maximum values for T1, T2 and T1-T2. Trend indication shows if the displayed input is increasing, decreasing or stable.

When you turn on an HH-20, it remembers what you were doing; the thermocouple type, resolution, and temperature units are stored in non-volatile memory so you don't have to reprogram every time you start up.

HOLSTER INCLUDED!

Model JTSS-HH miniature transition joint probe sold separately, $29. See Section A of the Made in the USA Handbook for additional probes.

- **Each Unit Comes With a Certificate Stating NIST Traceability**
- **Single and Dual Input Models with Display Hold**
- **Dual Input Models Feature Trend, Min/Max and Differential Measurements**
- **HH-21 and HH-23 Accept J, K and T Inputs**
- **HH-22 Accepts J and K Inputs**
- **0.1 Resolution in °F and °C Over Full Range**
- **High 0.1% Reading Accuracy**
- **Self-Diagnostics and Retention of User Programming**

The HH20-H holster (std) provides additional shock protection and a convenient belt clip. Spare holster (HH20-H)

Model HH-22

$209

Dual J/K Input

Each unit supplied with beaded wire probe, integral tilt stand, wrist strap, 9 V battery, protective rubber holster (HH20-H), NIST Certificate and user's manual.

Model HH-23

$219

Dual J/K/T Input

Resolution: 0.1° throughout entire range
Temperature Coefficient: (0.02% rdg + 0.1°C) below 64°F (18°C) and over 82°F (28°C); included in accuracy, between 18 and 28°C (64 and 82°F)
Ambient Temperature:
0 to 50°C (32 to 122°F), 0 to 90% RH
Reading Rate: 1 per second
Max Common Mode Voltage: 42 V peak to earth ground
Power: 9 Vdc battery, alkaline
Battery Life: 100 h, typical, alkaline battery
Dimensions:
178 H x 74 W x 28 mm D (7.0 H x 2.9 W x 1.1" D)
Weight: 284 g (10 oz)
Accessories Included: 9 Vdc alkaline battery, beaded wire type K probe (for each input), integral tilt stand/handle, wrist strap, rubber holster, NIST calibration, operator's manual.

Model KTSS-HH miniature transition joint probe sold separately; see section A of the USA Handbook

The HH20SW, $149 multiprobe switchbox allows up to 6 probes. Order below.

The HH20-CAL, $109, turns a handheld into a portable calibrator. See page L-12 in the Made in the USA Handbook or visit omega.com for complete details

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order.

Specifications

Display: 5-digit LCD; custom indicators for thermocouple type °C/°F units, hold and low battery; HH-22 and HH-23 have additional indicators for input (T1, T2, T1-T2, scan), up/down trend arrows and min/max data storage.
Keypad: momentary switches with tactile feedback; on-off, thermocouple type, units, resolution, hold; HH-22 and HH-23 have additional keys for record min/max, view min/max, stop/clear record input type (T1, T2, T1-T2, scan)
Configuration Retention: selected readout, input type, units and resolution retained on power-off
Diagnostics: low battery, open thermocouple, invalid keypad entry, out of range, internal hardware fault
Accuracy: 0.1% rdg +1°F (.5°C)
Repeatability: 0.2°C for 1 week at constant temperature

MOST POPULAR MODELS HIGHLIGHTED

To Order *(Specify Model Number)*			
Model Number	**Price**	**No. of Inputs**	**Input Types**
HH-21	**$159**	1	J/K/T
HH-22	**209**	2	J/K
HH-23	**219**	2	J/K/T

Each unit supplied complete with beaded wire type K probe (for each input), TAS transition adaptor, integral tilt stand/handle, wrist strap, 9 V battery, shock resistant holster (HH20-R) and user's manual.
Ordering Example: HH-22**, digital thermometer with type J/K input, **$209.
OCW-1** OMEGACARE℠ extends standard 2-year warranty to a total of 3 years, $209 + 25 = **$234.

Input Ranges

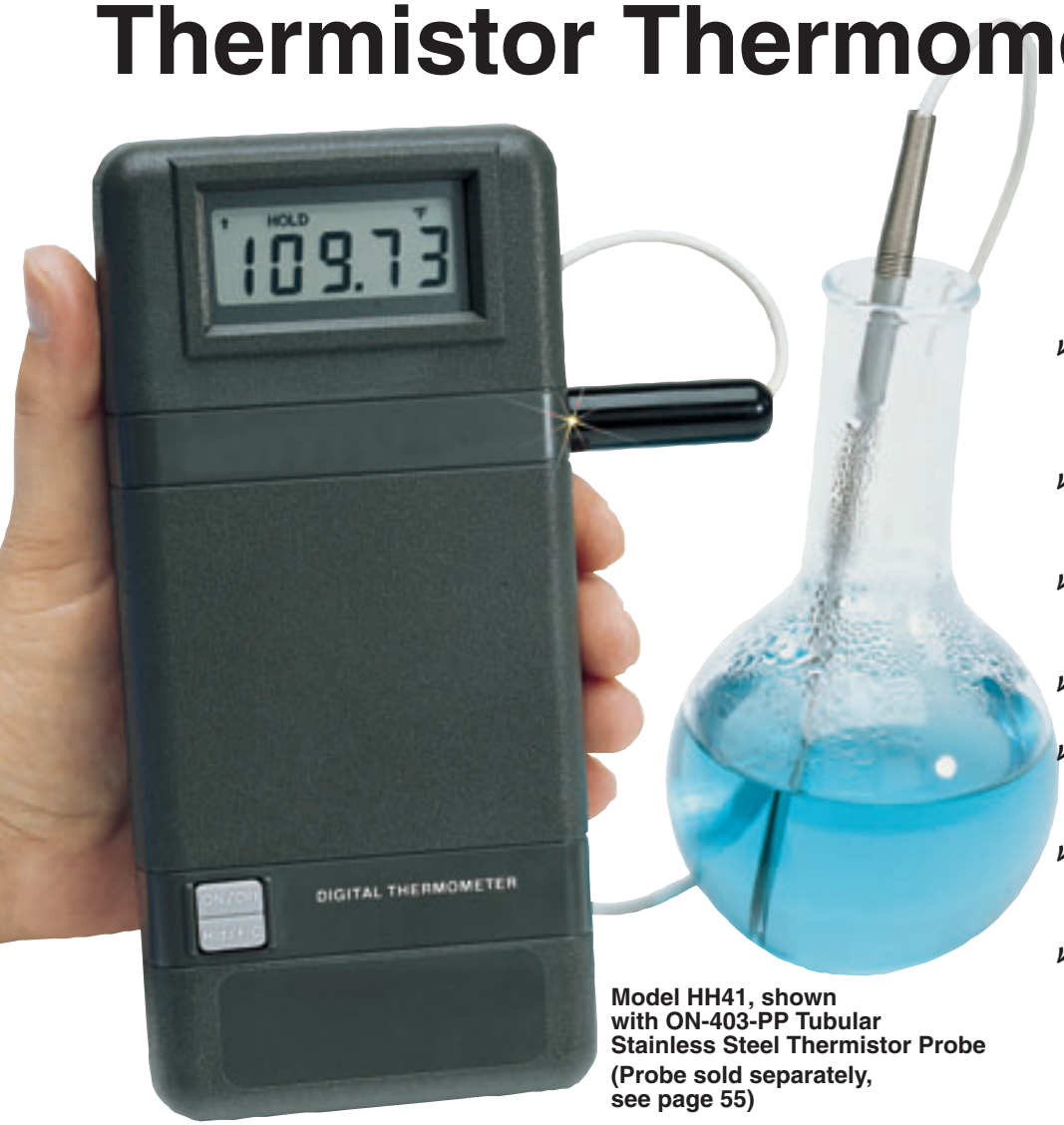
Type	°F Range	°C Range
J	-346 to 1400	-210 to 760
K	-328 to 2502	-200 to 1372
T	-328 to 752	-200 to 400

Accessories

Model No.	Price	Description
SC-450L	**$12**	Soft carrying case
HH22-AC	**50**	9 V NiCad battery with 110 Vac charger for HH22 or HH23
MN1604	**3**	Extra alkaline battery
CAL-3	**125**	NIST Traceable Calibration
HH20CAL	**109**	Portable calibrator accessory
HH20SW-(*)	**149**	Multiprobe switchbox

(*) Specify calibration J, K or T

Ultra-High-Accuracy & Resolution Handheld Thermistor Thermometer



Model HH41, shown with ON-403-PP Tubular Stainless Steel Thermistor Probe
(Probe sold separately, see page 55)

Shown smaller than actual size

HH40 Series

$400

Basic Unit

1 YEAR WARRANTY · MADE IN USA · NIST

- **Works with Standard OMEGA® "400" Series Thermistor Probes with Phone Jack Termination**
- **Ultra-High Accuracy, up to ±0.015°C (±0.027°F)**
- **Includes NIST Traceable Calibration Certificate**
- **High Resolution, up to 0.01°F or °C**
- **-20 to 130°C (-4 to 266°F) Temperature Range**
- **Model HH42 has RS-232 Communications**
- **Hold Function, Auto Shutoff, Rate of Change Arrow Indicators, Over/ Under Range and Low Battery Indication**

The Model HH41 handheld thermistor thermometer is a rugged, field tested unit that fits a wide variety of temperature measurement applications requiring ultra-high accuracy and high resolution at an economical price. The HH41 accepts OMEGA's 400 Series thermistor probes with phone jack termination. The HH41 features display hold and °F/°C selection from the single front panel tactile feedback silicone function button. The unit's LCD display features a low battery indication and also rate of temperature change arrows which, flashing at different speeds, inform the operator of the rate at which the temperature is changing. The unit has internal jumpers to disable selection of °F or °C from the front panel and enable display of either °F or °C only. Internal jumpers are also present to select either auto or manual shutoff mode.

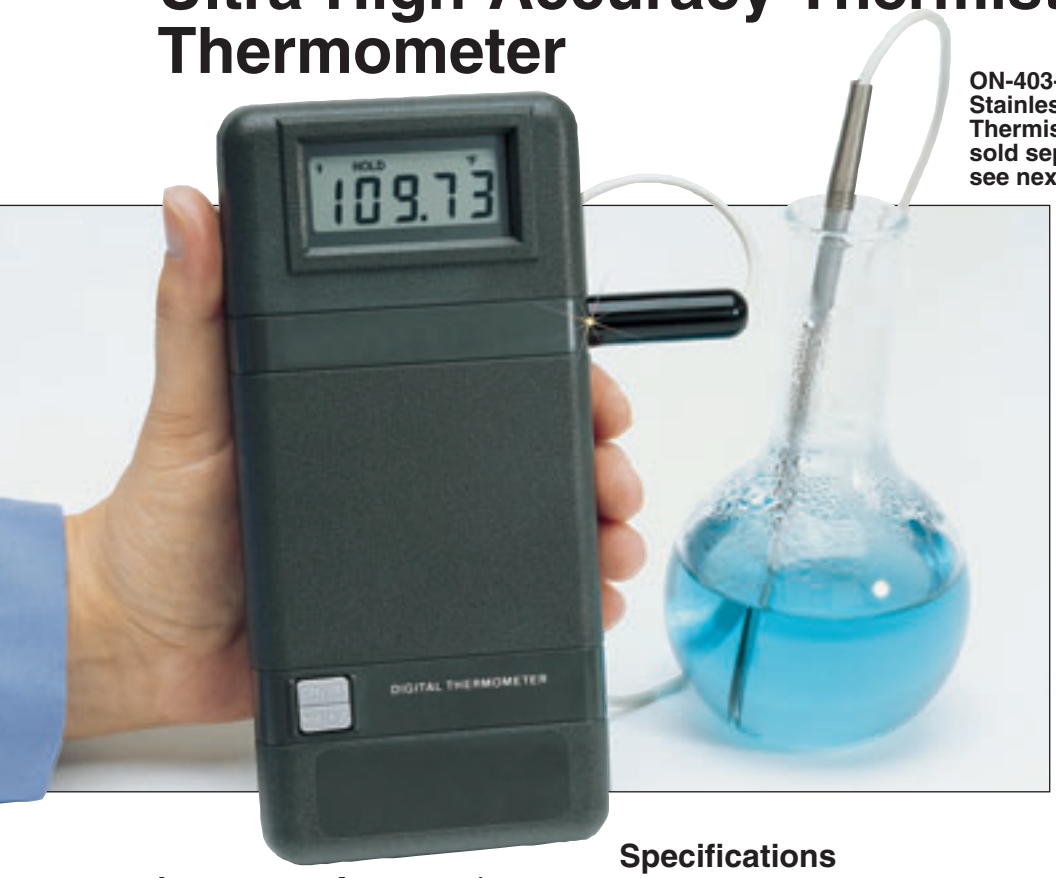
In the auto shutoff mode, the unit will automatically shut off 10 minutes after the last function key entry. Model HH42 has all the features of the HH41 with the addition of RS-232 communications.

Applications

- **R & D Labs**
- **Metrology Labs**
- **Industry**

In situations where very high system accuracy is required, OMEGA offers a total system calibration service (probe plus meter); ask for CAL-4.

Ultra-High-Accuracy Thermistor Thermometer



ON-403-PP Tubular Stainless Steel Thermistor Probe sold separately, $70, see next page.

Instrument Accuracy* vs. Temperature

Temp °C (°F)	Accuracy °C (°F)
-20 (-4)	±0.016 (0.029)
-10 (14)	±0.015 (0.027)
0 (32)	±0.015 (0.027)
10 (50)	±0.015 (0.027)
20 (68)	±0.015 (0.027)
30 (86)	±0.015 (0.027)
40 (104)	±0.017 (0.031)
50 (122)	±0.019 (0.034)
60 (140)	±0.023 (0.041)
70 (158)	±0.029 (0.052)
80 (176)	±0.037 (0.067)
90 (194)	±0.049 (0.088)
100 (212)	±0.066 (0.119)
110 (230)	±0.088 (0.158)
120 (248)	±0.117 (0.211)
130 (266)	±0.156 (0.281)

**Ambient temperature: 18 to 28°C (64 to 82°F)*

Display Resolution

Temp Range °C (°F)	Resolution °C (°F)
-20 to 102 (-4 to 215)	0.01 (0.01)
102 to 130 (215 to 266)	0.02 (0.05)

Specifications

Accuracy: See Instrument Accuracy vs. Temperature Table at left

Resolution: see Resolution Table below

Repeatability: 0.002 to 0.01°C (-20 to 70°C); 0.004 to 0.02°F (-4 to 158°F) typical for one week at constant ambient temperature

Temperature Range: -20 to 130°C (-4 to 266°F)

Reading Rate: 2 per second

Display: 4½ digit LCD

Power: 9 Vdc battery, alkaline (included), optional 110 Vac or 220 Vac adaptor

Battery Life: 20 hr, typical, alkaline battery

Battery Indicator: Displays flashing battery indicator when less than 1 hour of battery life remains

Temperature Unit Selection: °F/°C selectable from front panel function button, or internal jumpers to enable °F or °C only

Shutoff Mode: Internal jumper selection for auto or manual shutoff mode; auto shutoff in 10 min with no function key entry

Thermistor Sensor: Works with OMEGA® 400 Series thermistor probes with ¼" phone jack (Model PPM-2) connection

Operating Ambient: 10 to 40°C (50 to 104°F); 0 to 85% RH

RS-232 Communications: 9600 baud, no parity

Case Material: ABS

Dimensions: 184.1 x 83.8 x 31.8 mm (7.25 H x 3.30 W x 1.25"D)

Weight: 312 g (11 oz)

MOST POPULAR MODELS HIGHLIGHTED

To Order ***(Specify Model Number)***

Model Number	Price	Description
HH41	**$400**	Handheld thermistor thermometer
HH42	**480**	Handheld thermistor thermometer with RS-232 communications

Each unit is supplied complete with 9 Vdc alkaline battery, NIST traceable calibration certificate and complete operator's manual

Ordering Example: *HH41 thermometer plus HH40-AC 110 Vac adaptor $400 + $56 =* ***$456.***

Accessories

Model Number	Price	Description
HH40-AC	**$56**	110 Vac adaptor for HH41 or HH42
HH40-AC220	**65**	220 Vac adaptor for HH41 or HH42
HH40-SOFT	**99**	Software for HH42
SC57	**9**	Soft case for HH41 or HH42
RCC-1000	**20**	Rigid attache style case for HH41 or HH42 plus probes
MN1604	**3**	Extra alkaline battery

OMEGA® "400" Series Thermistor Probes

Popular Precision Thermistor Probes for Laboratory Applications

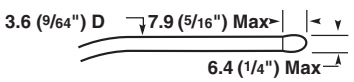
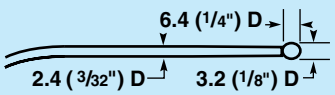
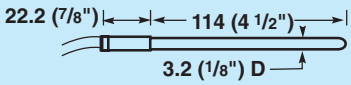
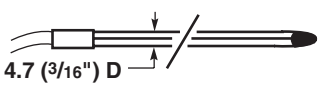
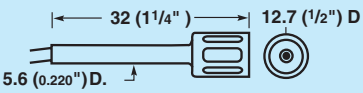
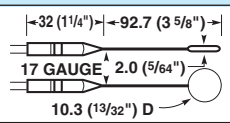
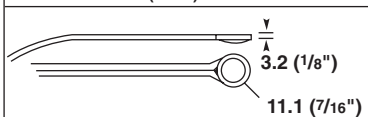
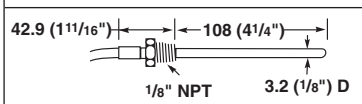
MADE IN USA

OMEGA ENGINEERING Series "400" probes are for use in laboratory and R&D applications and have interchangeable sensor accuracy of ±0.1°C. Each sensor is supplied with a 10-foot vinyl cable and phone-plug connector. The Series "400" probes are 2252 Ω @ 25°C.

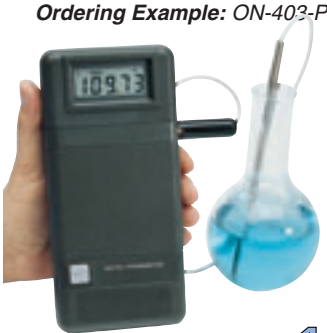
(Price includes phone termination and 10 feet of vinyl lead wire. Extra length wire is available at a price of **$.80**/ft.)

MOST POPULAR MODELS HIGHLIGHTED ***AVAILABLE FOR "OFF-THE-SHELF" DELIVERY***

To Order *(Specify Model Number)*

Configuration	Model Number	Description	Temp. Rating	Application	Price
	**ON-401-PP**	**General Purpose.** Used for short-term water and sub-soil readings. Most rugged, water resistant construction.	100°C 212°F	Buried	**$50**
	ON-401-PP-V	Vinyl tipped version of above model.			
	**ON-402-PP**	**Small Flexible.** Vinyl sheath and tip. Cuvette temperatures. General purpose measurement. Continuous length.	100°C 212°F	General Purpose	**80**
	**ON-403-PP**	**Tubular.** Stainless steel probe for rugged duty. Often used for liquid immersion. Probe is immersible only to cap.	100°C 212°F	Liquid	**70**
	**ON-404-PP**	**Tubular-Glass.** Chemically inert for liquid immersion use. Thermometric titration. Freezing point determination. Pyrex, 5" (127 mm) long.	100°C 212°F	Liquid	**114**
	**ON-405-PP**	**Air Temperature.** Stainless steel probe suitable for test rooms, incubators, remote air readings, monitoring of gas streams, etc.	100°C 212°F	Gas	**70**
	ON-406-PP	Same as ON-405-PP but with economical plastic housing.			**65**
	**ON-408-PP**	**"Banjo" Surface Temperature.** Skin, oral, axillary, water bath, air, surfaces temperatures. Stainless steel.	100°C 212°F	Surface	**130**
	**ON-409-PP**	**Attachable Surface Temperature.** Stainless steel cup, epoxy-backed. Easy to tape on flat surfaces. Good for heat loss or compression efficiency study of piping.	100°C 212°F	Surface	**62**
	**ON-410-PP**	**Tubular With Fitting.** Rugged, stainless steel probe with pipe fitting.Suitable for taking readings in pipes or inside closed vessels.	100°C 212°F	Gas, Liquid	**70**

Ordering Example: *ON-403-PP, Tubular thermistor with ±0.1°C accuracy,* ***$70.***



OMEGA's precision "400" Series probes are recommended for use with OMEGA® Model HH41 Precision Thermistor Thermometer featured on pages 51 and 52 of this publication.

See OMEGA's complete line of Panel Meters, Benchtop Meters and Popular Thermistor Handheld Meters in Sections M and L of the OMEGA® Made in the USA Handbook.

iSeries

Temperature, Process &

MONOGRAM®

MADE IN USA · 5 YEAR WARRANTY

$150
1/32 DIN meter
$195
with 2 control outputs

i/32

i/16

i/8

- **User Friendly, Simple to Configure**
- **High Quality**
- **Extended 5-Year Warranty**
- **Powerful Features**
- **Free Software, Active X Controls**
- **Full Autotune PID Control**
- **Totally Programmable Color Displays, Standard**
- **High Accuracy ±0.5°C (0.9°F), 0.03% Reading**
- **Temperature Stability ±0.04°C/°C RTD and ±0.05°C/°C TC @ 25°C (77°F)**
- **Both RS-232 and RS-485 MODBUS on One Instrument Selectable from Menu, Optional**
- **Universal Inputs: Thermocouple, RTD, Process Voltage/Current, Strain**
- **Built-in Excitation, Standard**
- **2 Control or Alarm Outputs. Choice of dc Pulse, Solid State Relays, Mechanical Relays, Analog Voltage and Current.**

The innovative OMEGA® iSeries devices feature state of the art technology, uncompromising accuracy, and quality backed by an extended 5-year warranty.

The iSeries family includes extremely accurate digital panel meters and single loop PID controllers that are simple to configure and use, while providing tremendous versatility and a wealth of powerful features.

Embedded Internet and Serial Communications

Featuring optional "Embedded Internet" (specify EI option) the iSeries are the first instruments of their kind that connect directly to an Ethernet network and transmit data in standard TCP/IP packets, or even serve Web pages over a LAN or the Internet. The iSeries are also available with serial communications. With the C24 option, the user can select from the push-button menu between RS-232, RS-422, and RS-485, with straightforward ASCII commands or MODBUS.

iSeries FAMILY

The OMEGA® iSeries is a family of microprocessor-based instruments offered in three true DIN sizes with NEMA-4, IP65 rated front bezels. All of the instruments share a similar set-up and configuration menu and method of operation, which is a tremendous time saver for integration of a large system.

Programmable Color Display

The OMEGA iSeries are the first complete series of 1/8, 1/16 and 1/32 DIN process control instruments with totally programmable color displays. The display can be programmed to change color at any set point or alarm point.

For example, the instrument can be programmed to display the process value in GREEN during warm-up, switching to AMBER to signal the normal operating range, and in RED to signal an alarm condition. The changes in color are quickly seen from a distance, and machine operators can intuitively react to changing conditions. The colors can be programmed to change back when the value drops back below the alarm point or to "latch" on until being reset by the operator.

The instrument can also be programmed to display only one unchanging color: GREEN, AMBER, or RED. This is a useful way to let an operator identify, at a glance, process values in three separate locations, or to display three different measurements such as Temperature, Pressure, and Flow.

QUALITY and TECHNOLOGY

Designed and manufactured in the USA, the innovative OMEGA® iSeries of meters & controllers features an extended five (5) YEAR warranty at no extra charge. The iSeries packs a wealth of power and features into the smallest of packages, utilizing COB (chip-on-board) and SMT (surface mount technology) assembly techniques and automation. Every iSeries instrument is thoroughly calibrated and tested at several stages throughout production. The iSeries offers the highest accuracy for industrial instrumentation at 0.03% of reading. The analog-to-digital conversion utilizes a proprietary 20-bit ASIC (application specific integrated circuit) patented algorithms and smart filtering.

Universal Inputs

The innovative iSeries offers the broadest selection of signal inputs available on one industrial instrument. The choices are easily selected from the menu with four front panel pushbuttons, or by serial or Ethernet communications.

10 Thermocouple Types

The iSeries handles TEN (10) thermocouple types: K, J, T, E, R, S, B, C, N, and J DIN. The patented thermocouple linearization algorithms employed in the iSeries produce the highest standard of accuracy.

Strain Meters & PID Controllers

Most Accurate RTD Measurements

The iSeries works with the widest selection of RTD's and produces the most accurate RTD measurements. Handles both Pt 0.00385 and 0.00392 curves, and 100 (ohm), 500 (ohm) and 1000 (ohm). A choice of 2-, 3- and 4-wire RTD connections ensures the absolute highest degree of accuracy.

Process Voltage and Current

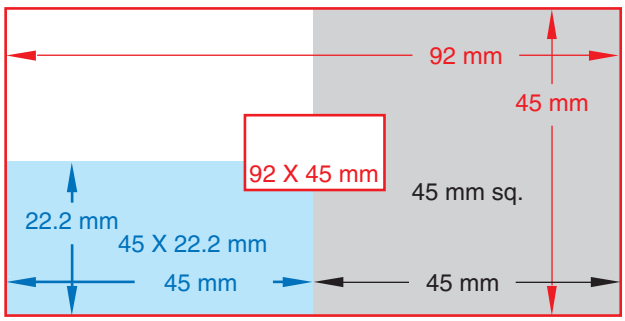
The OMEGA® iSeries measures process voltage: 0-100 millivolt, 0-1 Volt, 0-10 Volt ranges, and process current: 0-20 mA.

STRAIN GAUGE

The STRAIN/PROCESS meters and controllers measure inputs from Load Cells, Pressure Transducers, and most any strain gauge sensor. Input ranges include 0 to 100 mVdc, -100 mVdc to 1Vdc and 0 to 10 Vdc in addition to 0-20mA. Excitation for transducers of 5 Volt and 10 Volt is standard. Strain/Process meters and controllers are available in all **iSeries** Models.

Analog Output

The optional analog output can be programmed within a range of 0-10 Vdc or 0-20 mA. It is selectable as either a control output or as a calibrated retransmission of the process value -- a unique feature among controllers.



Built-in Excitation Standard

The iSeries comes standard with built-in excitation for transmitters or other devices, 24 Vdc @ 25 mA. This means the same instrument can handle thermocouples, for strain/process model 5V, 10V excitation standard RTD's, and 4-20 mA transmitters, with its own excitation. (Built-in excitation is not available with optional isolated RS-232/ RS-485 serial communications and DC option.)

Control Functions

The iSeries can control simple manual operation to ON-OFF and full Autotune PID control. (Selectable preset tune, adaptive tune, PID, PI, PD control modes.) The dual control outputs can be configured for a variety of independent control and alarm applications such as heat/heat, heat/cool, heat/alarm, cool/cool, cool/alarm or alarm/alarm. The ramp-to-setpoint feature allows the user to define the rate of rise to setpoint, minimizing thermal shock to the load during start-up. Maximum ramp time: 99.59 (HH.MM), Soak: 00.00 to 99.59 (HH.MM), Damping: 1 to 8 in unit steps.

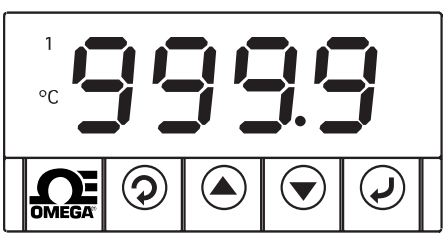
AutoScaling automatically shifts the decimal point right or left depending on the process value of the meter.

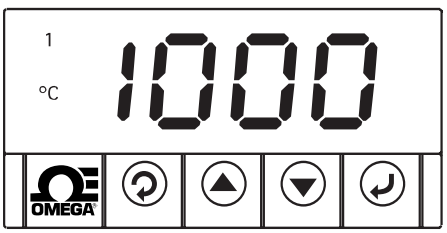
AutoScaling is active only for temperature reading.

iSeries U.S.Patent #6,243,021

Totally Programmable Color Displays

The OMEGA® i/8, i/16, and i/32 are the first complete series of ⅛, 1/16 and 1/32 DIN process control instruments with totally programmable color displays. The display can be programmed to change color at any setpoint or alarm point.





Meter Selection Guide

MONOGRAM

i Series

i8

i8DH

i8DV

	i8	i8DH	i8DV
Description	1/8 DIN Single Display Monitor/ Controller	1/8 DIN Dual Display Horizontal PID Controller	1/8 DIN Dual Display Vertical PID Controller
Input **Process and Temperature (model "i")** T/C: (J,K,T,E,R,S,B,C,N,J DIN) RTD: Pt 100,500,1000 Ohms (385,392) 4-20mA, 0-100mV, 0-1V, 0-10V	✓	✓	✓
Strain and Process (model "iS") 4 to 20mA, 0 to 100 mVdc, -100 mVdc to -1Vdc, 0 to 10 Vdc Ratiometric/Non-Ratiometric 10 pt linearization	✓	✓	✓
Display Nine Segment LED Digits Color Programmable:Red, Amber, Green Height of Digits	Single Display 21mm (0.83")	Dual Display Process Value: 21mm(0.83") top display Setpoint Value: 10.2mm(.40") bottom display	Dual Display Process Value: 10.2 mm (.40") top display Setpoint Value: 10.2mm (.40") bottom display
Available Output Options (Any combination of Two) SSR's: Solid State Relays 0.5A @120/240Vac Relays: Form "C" SPDT 3A @120/240Vac Pulse: 10Vdc @20mA (for use w/ external Programmable Analog Voltage & Current Output (non-isolated) ***Optional*** Isolated Programmable Analog Voltage & Current Output (i8A only)		Two Outputs Standard	Two Outputs Standard
	✓	✓	✓
	✓	✓	✓
	✓	✓	✓
	✓	✓	✓
	✓		
Power (standard) 90-240 Vac, 50-400Hz 110-375 Vdc, Equivalent voltage	✓	✓	✓
Low Voltage Power Option 12-36Vdc, **3W**	✓	✓	✓
Mechanical **(size: H x W x D)**	48 x 96 x 127 mm (1.89 x 3.78 x 5")	48 x 96 x 127 mm (1.89 x 3.78 x 5")	96 x 48 x 127 mm (3.78 x 1.89 x 5")
Weight	295 g (0.65 lb)	295 g (0.65 lb)	295 g (0.65 lb)
Network Options 1. RS232,RS424,RS485, modbus (-C24) 2. Ethernet + RS485,Modbus (-C4EI) 3. Ethernet (-EI)	✓	✓	✓
	✓	✓	✓
	✓	✓	✓
Base Unit Pricing	DPi8 **$240**	CNi8DH33 **$340**	CNi8DV33 **$340**
Most Popular Model	CNi833-C24 1/8 DIN single display controller with two mechanical relay output + Serial output	CNi8DH33-C4EI 1/8DIN dual display Horizontal Controller with two mechanical relay output + Serial and Ethernet output	CNi8DV43 1/8 DIN dual display Vertical Controller with pulse and relay output

Temperature, Process & Strain Meters & PID Controllers

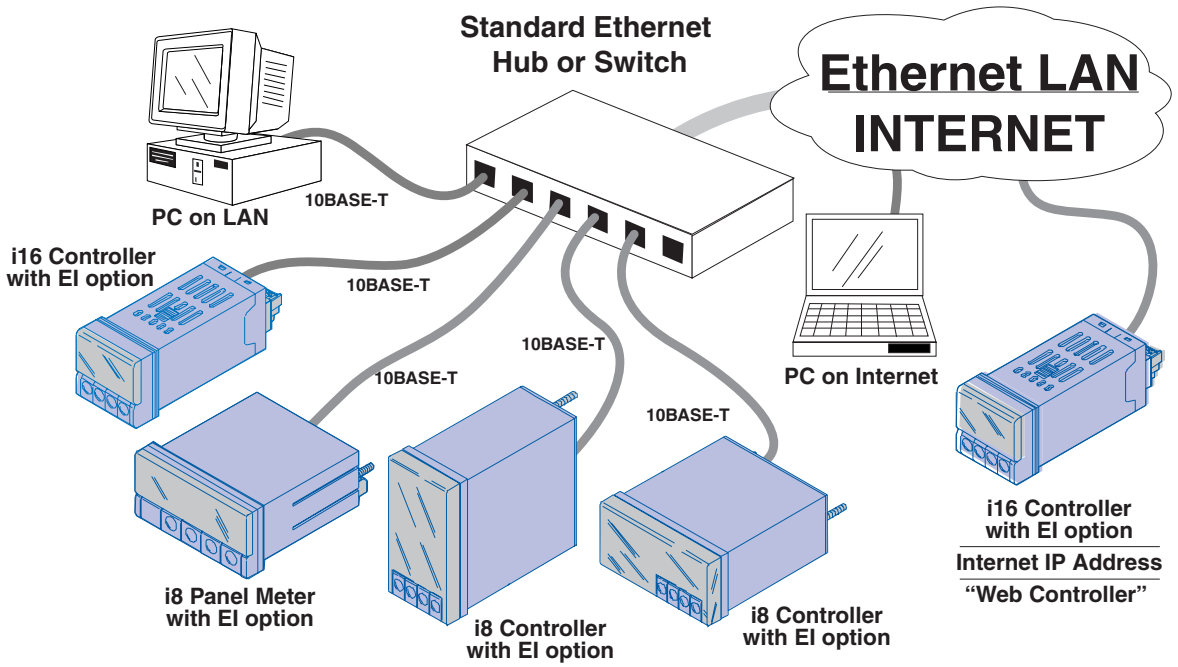
Made in the U.S.A.

 i8C	 i16	 i16D	 i32
1/8 DIN Ultra Compact Monitor/ Controller	1/16 DIN Single Monitor/ Controller	1/16 DIN Dual Display Monitor/ Controller	1/32 DIN Single Monitor/ Controller
✓	✓	✓	✓
✓	✓	✓	✓
Single Display 21mm (0.83")	Single Display 10.2 mm(.40")	Dual Display Process Value: 10.2 mm (.40") top display Setpoint Value: 10.2mm (.40") bottom display	Single Display 10.2 mm(.40")
		Two Outputs Standard	
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
✓	✓	✓	✓
48 x 96 x 54.84 mm (1.89 x 3.78 x 2.159) 255 g (0.55 lb)	48 x 48 x 127 mm (1.89 x 1.89 x 5") 159g (0.35 lb)	48 x 48 x 127 mm (1.89 x 1.89 x 5") 159g (0.35 lb)	25.4 x 48 x 127 mm (1.0 x 1.89 x 5") 127g (0.28 lb)
✓	✓	✓	✓
		✓	
EIS module	EIS module	✓	EIS module
DPi8C **$285** CNi8C53 1/8 DIN compact controller with analog and relay output	DPi16 **$180** CNi1633 1/16 DIN single display controller with two relay outputs	CNi16D33 **$245** CNi16D43-C24 1/16 DIN Dual Display with pulse and relay output + serial output	DPi32 **$150** CNi3243-C24 1/32 DIN controller with pulse and relay output + serial output

iSeries Embedded Internet

iSeries Meters and Controllers - Direct connection to Ethernet

(Each device has own IP Address)



EMBEDDED INTERNET

The OMEGA® iSeries devices can connect directly to an Ethernet network with a standard RJ-45 connector and can send and receive data in standard TCP/IP packets. (Please specify EI or C4EI option.)

The iSeries devices can serve Web pages over an Ethernet LAN or even over the Internet making it possible to monitor and control a process through a web browser (such as Microsoft Internet Explorer) from anywhere in the facility or anywhere in the world.

Remote Control

For example, using an iSeries 1/16 DIN temperature controller to control a heater, an engineer can monitor the temperature, change set points or alarm points, turn the heater on and off, or make other modifications from anywhere on the local network, or anywhere on the Internet. The web pages are easily customized and secure password protected access to the devices is easily controlled. And it requires absolutely no special software on the engineer's computer to view the data and "supervise" the controller--nothing other than a Web Browser.

Email and Alarm

In fact, the iSeries controller can even send an email to the engineer (or anyone they choose) alerting them to an alarm condition or updating the status. Leveraging the technology of the Internet, the engineer could receive a message from the iSeries controller on an Internet enabled pager or cell phone.

Most remarkable is that all this can be accomplished without a computer. The OMEGA® iSeries device (meter or controller) connects directly to the Ethernet Network -- not to the serial port of a computer functioning as a "server" and "master" to "slave" instruments connected through serial communications. The iSeries devices are also available with RS-232, RS-422, RS-485 and MODBUS serial communications. (Specify the C24 option.) In fact, the iSeries are the first instruments of this type which include all these serial protocols on one device, selectable from a menu.

Internet Appliances

With the EI option, these small 1/8 DIN and 1/16 DIN instruments are stand-alone Web Servers. The Ethernet and Web Server capability is actually embedded in the device. (The smallest 1/32 DIN size device must be connected to an external iServer.)

The OMEGA® iSeries device is assigned an IP address on the network and can also be assigned an easily remembered name such as "Heater1". In fact, the device could be assigned an authorized Internet IP address from an Internet Service Provider and function as a World Wide Web Server delivering whatever specific information is called for. (For an example, please see www.newportUS.com/iserver)

The iSeries devices work well with conventional industrial automation, data acquisition and control programs as well as Microsoft Visual Basic and Excel. OMEGA® provides free software and demos which makes it fast and easy to get up and running with many applications.

MONOGRAM®

13

Collection Series #13-001031

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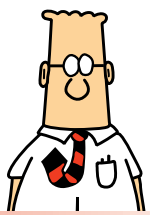
DILBERT® by Scott Adams

13

Collection Series #13-001032



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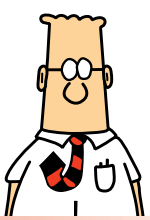
DILBERT® by Scott Adams

13

Collection Series #13-001033



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One Omega Drive, P.O. 4047
Stamford, CT 06907-0047

DILBERT® by Scott Adams

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Collection Series #13-001034

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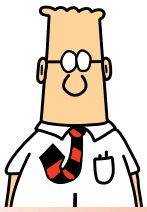
Collection Series #13-001035



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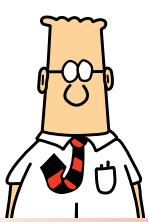
DILBERT® by Scott Adams

13

Collection Series #13-001036



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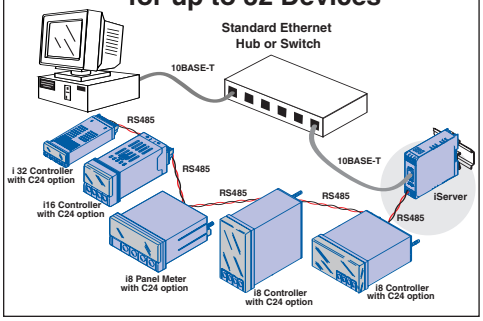
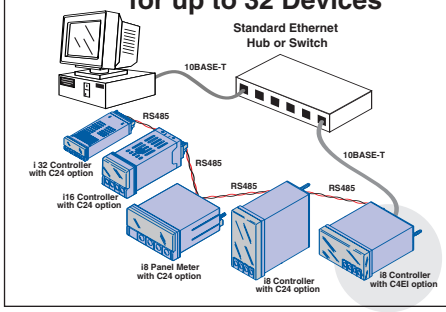
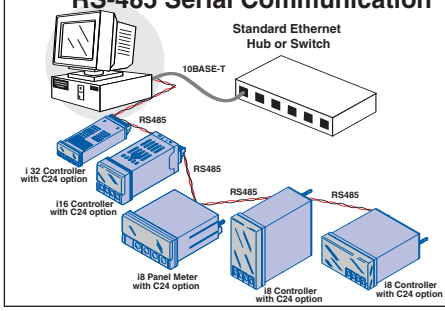
Using iServer as HUB/Server for up to 32 Devices

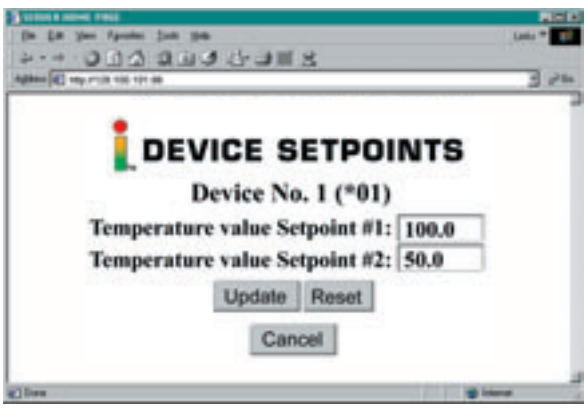


Using OMEGA® 1/8 DIN iSeries controller with C4EI option as HUB for up to 32 Devices



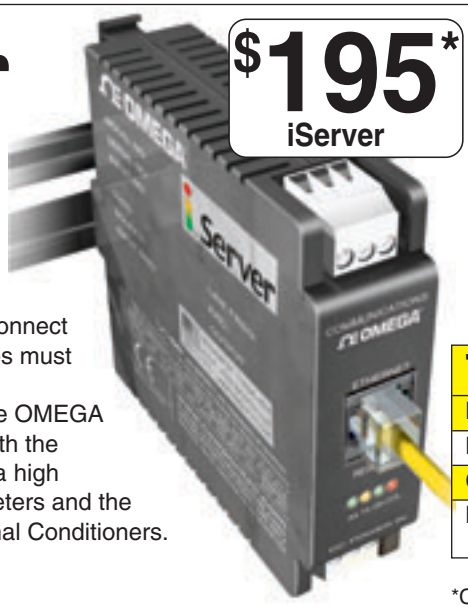
Conventional Serial Communication connections using PC with RS-485 Serial Communication





Get Internet E-mail Notification of Alarm Status on your web enabled phone or PDA.

iServer™



$195* iServer

The "iServer" is a DIN rail device which can be a hub connecting up to 32 instruments to the Ethernet and Internet. The "iServer" is both a Web Server and an Ethernet-Serial bridge. To connect to the iServer, iSeries devices must feature the "C24" Serial Communications option. The OMEGA iServer is also compatible with the **MICROMEGA®** family of ultra high performance digital panel meters and the OMEGA® DRX family of Signal Conditioners.

- **A Web Server and an Ethernet bridge**
- **Serves up to 32 devices**

The iServer is an alternate way to connect iSeries devices to an Ethernet LAN or Internet. Instead of Connecting each iSeries device directly to the Ethernet network, with individual IP Addresses for each device, the iServer can be a HUB/Server for up to 32 devices.

To Order

Model Number	Description	Price
EIS2	Embedded Internet Server, serves 32 devices	195
Options		
DRN-PS-1000	Power supply (switching), 95 to 240 Vac input, 24 Vdc output @ 1 A (powers 10 units)	150

*Contact Omega for Quantity and OEM pricing.

MONOGRAM®

iSeries™

⅛ DIN Temperature, Process, & Strain Meters & PID Controllers

i/8

MADE IN USA · 5 YEAR WARRANTY · CE · c UL us

$240 1/8 DIN meter

$310 with 2 control outputs

- **High Quality**
- **5-Year Warranty**
- **High Accuracy ±0.5°C (0.9°F), 0.03% Reading**
- **User-friendly, Simple to Configure**
- **Free Software**
- **Full Autotune PID Control**
- **Universal Inputs: Thermocouple, RTD, Process Voltage/Current, Strain**
- **Totally Programmable Color Displays, Standard**
- **Built-in Excitation, Standard**
- **2 Control or Alarm Outputs, Choice of dc Pulse, Mechanical Relays, Analog Voltage and Current.**

The OMEGA® DPi8/CNi8 is a 1/8 DIN size (96mm x 48mm) Digital Panel Meter featuring the big iSeries color-changing display. The digits are twice the size of typical 1/8 DIN panel meters. The iSeries meters feature the only LED displays that can be programmed to change color between Green, Amber, and Red at any set point or alarm point. The "DPi8/CNi8" model is available as an extremely accurate programmable digital panel meter with no outputs or with dual outputs for controlling or alarming functions. Other options include isolated programmable analog output, serial communications, Modbus and Ethernet. The user can easily program the CNi8 for any control or alarming requirement from simple on-off to full autotune PID with a choice of Form C SPDT relays, Solid State Relays, DC pulse, and Analog (voltage and current) outputs.

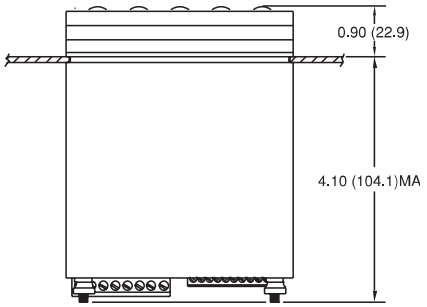
Fully Isolated Analog Output for retransmission of the process value is available in addition to the control and alarm relays (specify model CNi8A33).

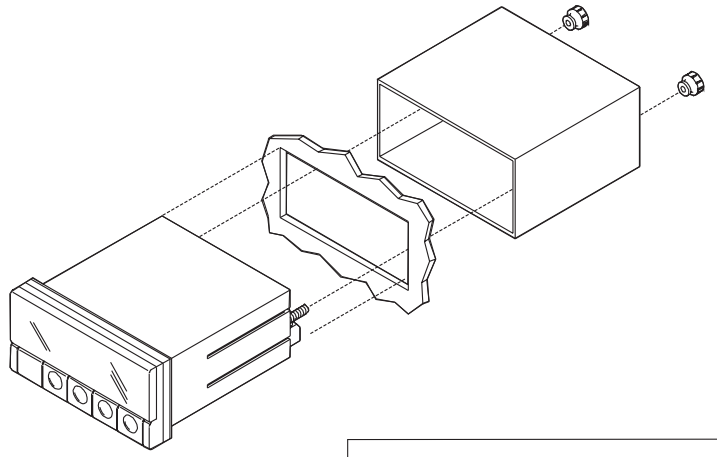
The DPi8/CNi8 covers a broad selection of transducer and transmitter inputs with two input models:

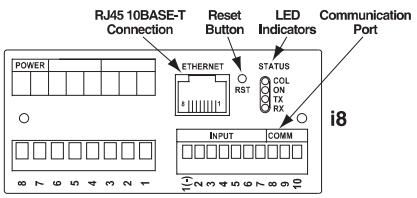
The UNIVERSAL TEMPERATURE & PROCESS instrument (model "i") handles ten common types of thermocouples, multiple RTD's , and several Process (DC) Voltage and Current ranges. This model also features built-in excitation, 24 Vdc @ 25 mA. With it's wide choice of signal inputs, this model is an excellent choice for measuring or controlling temperature with a thermocouple, RTD, or 4-20mA transmitter.

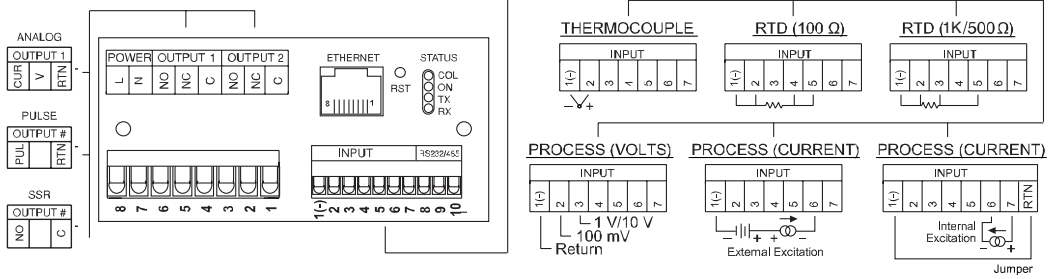
The STRAIN & PROCESS instrument (model "iS") measures inputs from Load Cells, Pressure Transducers, and most any strain gauge sensor as well as Process Voltage and Current ranges. The "iS" has built-in 5 or 10 Vdc excitation for bridge transducers, 5Vdc@ 40mA or 10 Vdc @ 60mA. (Any excitation voltage between 5 and 24 Vdc is available by special order.) This "iS" model supports 4 and 6 wire bridge configurations, ratiometric and non-ratiometric measurements. The "iS" features fast and easy "in process" calibration/scaling of the signal inputs to any engineering units. And this model also features 10 Point Linearization which allows the user to linearize the signal input from extremely nonlinear transducers of all kinds. The OMEGA® DPi8/CNi8 1/8 DIN enclosure has a NEMA 4 (IP65) rated front bezel and removable rear connectors for easy installation and wiring.

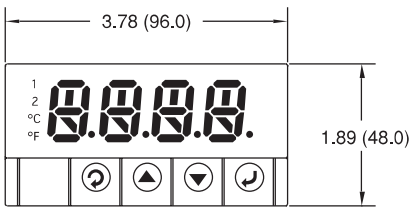
Input Type		Range	Accuracy
	Process Voltage	0 to 100 mV, 0 to 1 V, 0 to 10 Vdc	0.03% rdg
	Process Current	0 to 20 mA (4 to 20 mA)	0.03% rdg
J	Iron-Constantan	-210 to 760°C/-346 to 1400°F	0.4°C/0.7°F
K	CHROMEGA®-ALOMEGA®	-270 to -160°C/-160 to 1372°C -454 to -256°F/-256 to 2502°F	1.0°C/0.4°C 1.8°F/0.7°F
T	Copper-Constantan	-270 to -190°C/-190 to 400°C -454 to -310°F/-310 to 752°F	1.0°C/0.4°C 1.8°F/0.7°F
E	CHROMEGA®-Constantan	-270 to -220°C/-220 to 1000°C -454 to -364°F/-364 to 1832°F	1.0°C/0.4°C 1.8°F/0.7°F
R	Pt/13%Rh-Pt	-50 to 40°C/40 to 1768°C -58 to 104°F/104 to 3214°F	1.0°C/0.5°C 1.8°F/0.9°F
S	Pt/10%Rh-Pt	-50 to 100°C/100 to 1768°C -58 to 212°F/212 to 3214°F	1.0°C/0.5°C 1.8°F/0.9°F
B	30%Rh-Pt/6%Rh-Pt	100 to 640°C/640 to 1820°C 212 to 1184°F/1184 to 3308°F	1.0°C/0.5°C 1.8°F/0.9°F
C	5%Re-W/26%Re-W	0 to 2320°C/32 to 4208°F	0.4°C/0.7°F
N	Nicrosil-Nisil	-250 to -100°C/-100 to 1300°C -418 to -148°F/-148 to 2372°F	1.0°C/0.4°C 1.8°F/0.7°F
L	J DIN	-200 to 900°C/-328 to 1652°F	0.4°C/0.7°F
RTD	Pt, 0.00385, 100, 500, 1000 Ω	-200 to 900°C/-328 to 1652°F	0.4°C/0.7°F
RTD	Pt, 0.00392, 100, 500, 1000 Ω	-200 to 850°C/-328 to 1562°F	0.4°C/0.7°F











Dimensions shown in inches (mm)

To Order *(*Specify Model No.)*

Model Number			Description	Price
DPi8			Temperature/Process (Monitor only) 1/8 DIN	240
DPi8A			Temperature/Process Monitor with Isolated Analog Output 1/8 DIN *1	295
DPiS8			Strain/Process (Monitor only) 1/8 DIN	275
CONTROL OUTPUTS #1 & 2 Direct (Cool) or Reverse (Heat) Acting				
CNi8	(*)	(*)	Temperature/Process with 2 Control Outputs	310
CNi8A	(*)	(*)	Temperature/Process with Isolated Analog Output and 2 Outputs*1	365
CNiS8	(*)	(*)	Starin/Process with 2 Control Outputs	370
	2	2	Two solid state relays (SSR's): 0.5 A @ 120/240 Vac continuous	
	2	3	SSR and relay: Form "C" SPDT 3 A @ 120 Vac, 3 A @ 240 Vac	
	2	4	SSR and pulsed 10 Vdc @ 20 mA (for use with external SSR)	
	3	3	2 Relays: Form "C" SPDT 3 A @ 120 Vac, 3 A @ 240 Vac	
	4	2	Pulsed 10 Vdc @ 20 mA (for use with external SSR) and SSR	
	4	3	Pulsed 10 Vdc @ 20 mA (for use with external SSR) and relay: Form "C" SPDT 3 A @ 120 Vac, 3 A @ 240 Vac	N/C
	4	4	Two pulsed 10 Vdc @ 20 mA (for use with external SSR)	
	5	2	Analog Output selectable as either control or retransmission of process value; 0 to 10 Vdc or 0-20 mA @ 500 ohm max. and SSR	
	5	3	Analog Output 0 to 10 Vdc or 0-20 mA @ 500 ohm max. and Relay	
	5	4	Analog Output 0 to 10 Vdc or 0-20 mA @ 500 ohm max. and Pulse 10 Vdc	

*1 Analog Output (Option 5) and Ethernet Options are not available for the i8A controller.
*2 -DC, -C24, or -C4EI not available with excitation.

NETWORK OPTIONS		Price
-EI	Ethernet with Embedded Internet	55
-C24	Isolated RS-232 and RS-485 300 to 19.2 k baud *2	60
-C4EI	Ethernet with Embedded Web Server + Isolated RS-485/422 hub for up to 31 devices*2	115
POWER SUPPLY		
*	Standard power input: 90-240 Vac/dc, 50-400 Hz (no entry required)	N/C
-DC	12-36 Vac/dc, 24 Vac *2	25
FACTORY SETUP		
-FS	Factory Setup and Configuration (req. -C24 Serial Communication option)	N/C

ORDERING EXAMPLE: DPi8A** is a 1/8 DIN Meter with isolated scalable analog retransmission of the process value **$295.

i Series change color

at any set point*

Totally Programmable Color Displays

The OMEGA® i/8, i/16, and i/32 are the first complete series of 1/8, 1/16 and 1/32 DIN process control instruments with totally programmable color displays. The display can be programmed to change color at any setpoint or alarm point.

iSeries

⅛ DIN Dual Display

Temperature, Process & Strain PID Controllers

MADE IN USA · 5 YEAR WARRANTY · CE · c UL us

$340
Dual Output Controller

- **First 1/8 DIN Controller with Embedded Ethernet Connectivity (Optional)**
- **Dual Display with Bright Color Changing Feature**
- **Programmable Digital Filter**
- **2 Control or Alarm Outputs. Choice of DC Pulse, Solid State Relays, Mechanical Relays, Analog Voltage and Current**
- **Full Autotune PID Control**
- **Built-In Excitation Standard**
- **Front Removable**

The OMEGA® CNi8DH and CNi8DV are high quality, highly accurate single loop Autotune PID Temperature and Process Controllers for 1/8 DIN (96mm x 48mm) horizontal or vertical panel cutouts. Both devices feature the same state of the art technology, uncompromising accuracy, and quality backed by an extended 5-year warranty.

The CNi8DH and CNi8DV are simple to configure and use, while providing tremendous versatility and a wealth of powerful features.

The CNi8DH and CNi8DV come standard with your choice of two control or alarm outputs in almost any combination: solid state relays (SSR) rated at 0.5A @120/240 Vac; Form "C" SPDT (Single Pole Double Throw) relays rated at 3 amps @120/240 Vac; pulsed 10 Vdc output for use with an external SSR; or Analog Output (0-10 Vdc or 0-20mA) selectable for control or retransmission of the process value.

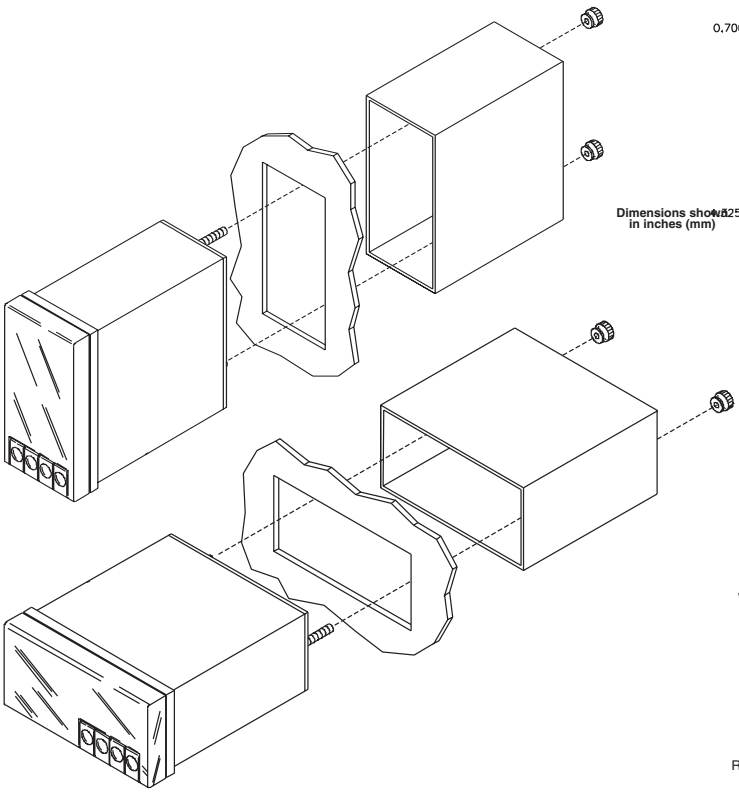
The UNIVERSAL TEMPERATURE & PROCESS instrument (model "i") offers a selection of 10 thermocouple types as well as 2, 3 or 4 wire RTD's, process voltage and current. The CNi8DH and CNi8DV are ideal controllers for use with transmitters and amplified transducers. Built in excitation is standard (24Vdc @ 25mA). The devices handle 0-20mA Process Current and Process Voltage in three scales: 0-100mV, 0-1V, and 0-10V.

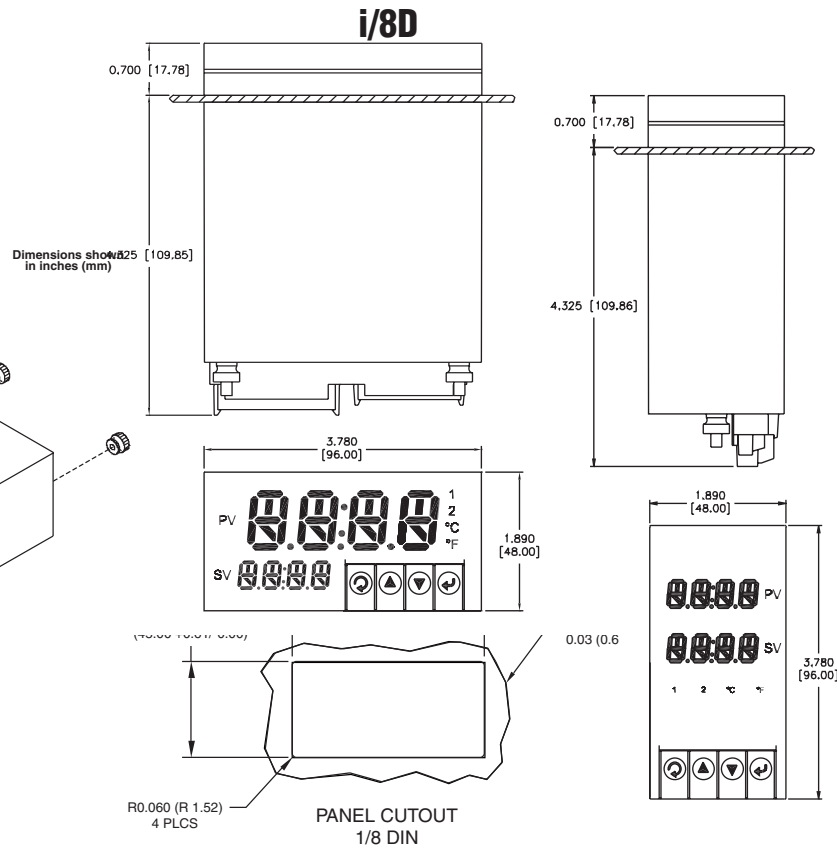
As with all iSeries devices, the Process Value display can be programmed to change color between Green, Amber and Red at any set point or alarm point. The LED's displaying the Process Value on the CNi8DH (horizontal 1/8 DIN) are the largest digits of any 1/8 DIN controller.

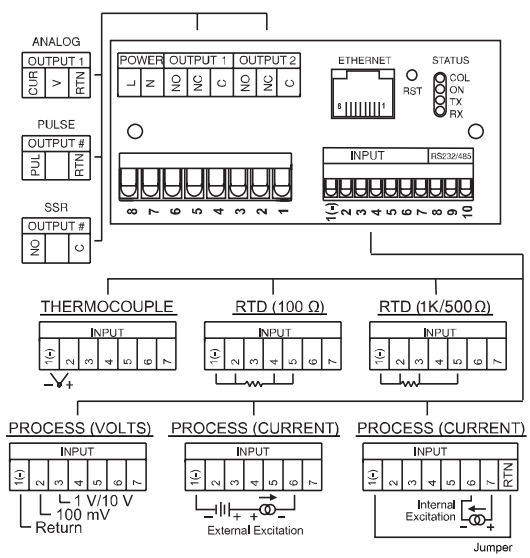
The STRAIN/PROCESS instrument (model "iS") meters and controllers measure inputs from Load Cells, Pressure Transducers, and most any strain gauge sensor. Input ranges include 0 to 100mVdc, -100 mVdc to 1Vdc, 0 to 10 Vdc in addition to 0-20mA. Excitation for transducers of 5 Volt and 10 Volt is standard.

The highly recommended Networking and Communications options include direct Ethernet LAN connectivity with an Embedded Web Server, and serial communications. The C24 serial communications option includes both RS-232 and RS-485 which can be selected from the menu as well as both a straightforward ASCII protocol or MODBUS. The C4EI option includes both Ethernet and RS-485 ASCII/MODBUS on one device.

The iSeries are designed for easy integration with popular industrial automation, data acquisition and control programs as well as Microsoft Visual Basic and Excel. OMEGA® provides free configuration and data acquisition software and demos which makes it fast and easy to get up and running with many applications.







The **i**/8 Series controllers feature plug/removable connectors and a sturdy panel mounting sleeve with adjustable thumb nuts for easy secure installation.

To Order *(*Specify Model No.)*

Model Number			Description	Price
CONTROL OUTPUTS #1 & 2 Direct (Cool) or Reverse (Heat) Acting				
CNi8DH	(*)	(*)	Temperature/Process 1/8 DIN Dual Display Horizontal with 2 Control Outputs	**340**
CNi8DV	(*)	(*)	Temperature/Process 1/8 DIN Dual Display Vertical with 2 Control Outputs	**340**
CNiS8DH	(*)	(*)	Strain/Process 1/8 DIN Dual Display Horizontal with 2 Control Outputs	**400**
CNiS8DV	(*)	(*)	Strain/Process 1/8 DIN Dual Display Vertical with 2 Control Outputs	**400**
	2	**2**	Two solid state relays (SSR's): 0.5 A @ 120/240 Vac continuous	**N/C**
	2	**3**	SSR and relay: Form "C" SPDT 3 A @ 120 Vac, 3 A @ 240 Vac	
	2	**4**	SSR and pulsed 10 Vdc @ 20 mA (for use with external SSR)	
	3	**3**	2 Relays: Form "C" SPDT 3 A @ 120 Vac, 3 A @ 240 Vac	
	4	**2**	Pulsed 10 Vdc @ 20 mA (for use with external SSR)an Solid State	
	4	**3**	Pulsed 10 Vdc @ 20 mA (for use with external SSR) and relay: Form "C" SPDT 3 A @ 120 Vac, 3 A @ 240 Vac	
	4	**4**	Two pulsed 10 Vdc @ 20 mA (for use with external SSR)	
	5	**2**	Analog Output selectable as either control or retransmission of process value; 0 to 10 Vdc or 0-20 mA @ 500 ohm max. and SSR	
	5	**3**	Analog Output 0 to 10 Vdc or 0-20 mA @ 500 ohm max. and Relay	
	5	**4**	Analog Output 0 to 10 Vdc or 0-20 mA @ 500 ohm max. and Pulse 10 Vdc	

*1 -DC, -C24, or -C4EI not available with excitation.

NETWORK OPTIONS		Price
-EI	Ethernet with Embedded Web Server	**55**
-C24	Isolated RS-232 and RS-485/422. 300 to 19.2k Baud *1	**60**
-C4EI	Ethernet with Embedded Web Server + Isolated RS-485/422 hub for up to 31 devices *1	**115**
POWER SUPPLY		
*	Standard power input: 90-240 Vac/dc, 50-400 Hz (no entry required)	**N/C**
-DC	12-36 Vac/dc, 24 Vac *1	**25**
FACTORY SETUP		
-FS	Factory Setup and Configuration (req. -C24 Serial Communication option)	**N/C**

ORDERING EXAMPLE: CNi8DH43** is a horizontal 1/8 DIN Dual display with pulse and relay **$340.

MONOGRAM

iSeries

1/16 DIN Temperature, Process & Strain Meters & PID Controllers

$180
1/16 DIN meter
$225
with 2 control outputs

- High Quality
- 5-Year Warranty
- High Accuracy ±0.5°C (0.9°F), 0.03% Reading
- First 1/16 DIN Controller with Totally Programmable Color Displays (Standard)
- User-friendly, Simple to Configure
- Free Software
- Full Autotune PID Control
- Universal Inputs: Thermocouple, RTD, Process Voltage/Current, Strain
- Embedded Ethernet connectivity

The OMEGA® DPi16/CNi16 is the popular 1/16 DIN size (48mm square) meter or controller. The meter (model "DPi16") displays the process value and has no control outputs.

The controller is available with a single (model "CNi16") or dual display (model "CNi16D") that displays a set point along with the process value. The DPi16/CNi16 display can be programmed to change color at any set point or alarm point. The CNi16 is the first 1/16 DIN controller with the option of both RS-232 and RS-485 in one instrument with both MODBUS serial protocol and the straightforward OMEGA® ASCII protocol. And of course the CNi16 is the first 1/16 DIN Controller that can connect directly to an ethernet network and features an embedded web server. OMEGA® provides free configuration and data acquisition software for the **iSeries** on CD-ROM and for download off the Web.

The DPi16/CNi16 enclosure has a NEMA 4 (IP65) rated front bezel. The electronics are removable from the front panel.

- First 1/16 DIN Controller Offering Both RS-232 and RS-485 Serial Communications in One Instrument (Optional)
- First 1/16 DIN Controller with Built-in Excitation, 24 Vdc, Standard
- First 1/16 DIN Instrument with Analog Output Selectable as a Control Output or as a Calibrated Retransmission of Process Variable

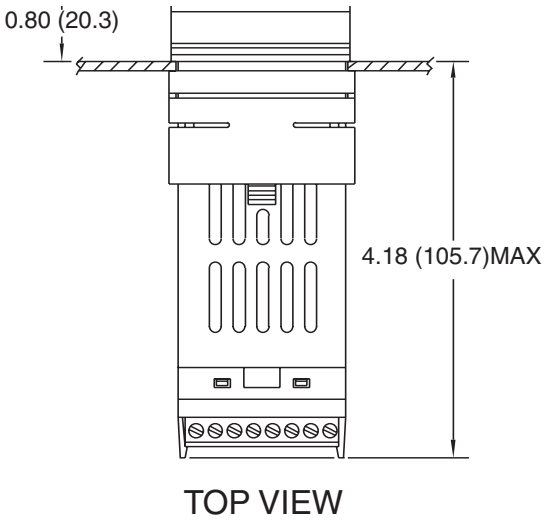
- NEMA-4, IP65 Front Bezel
- 2 Control or Alarm Outputs (Optional) dc Pulse Solid State Relays (SSR's) Mechanical Relays Analog Voltage & Current
- ±0.04°C/°C RTD and ±0.05°C/°C TC @ 25°C (77°F)
- Front Removable and Plug Connectors

MADE IN USA · 5 YEAR WARRANTY · CE · cUL

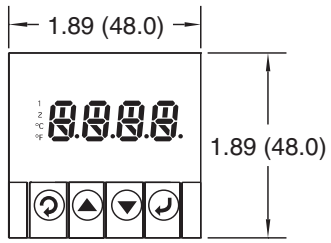
Access Vital information Anytime, Anywhere, on the World Wide Web

$295

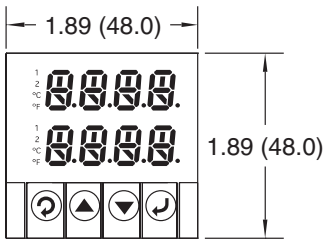
1/16 DIN Controller With Embedded Web Server, Dual Control Outputs, Dual Display



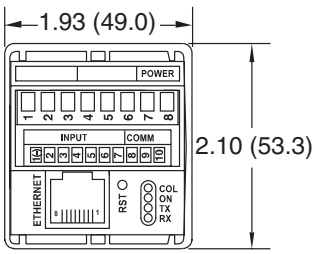
TOP VIEW



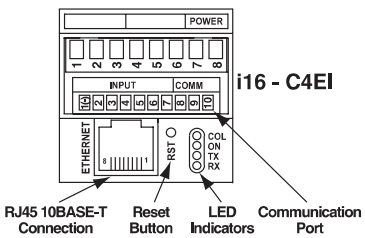
FRONT VIEW

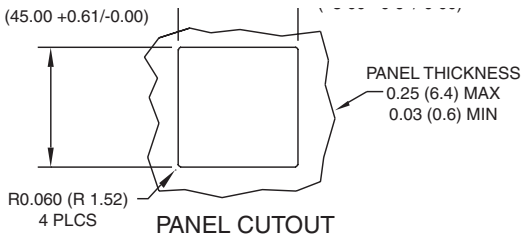


DUAL FRONT VIEW

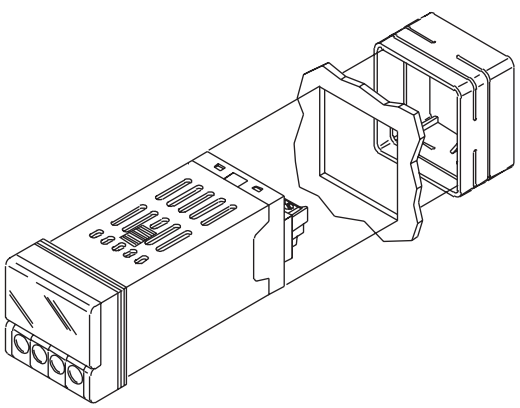


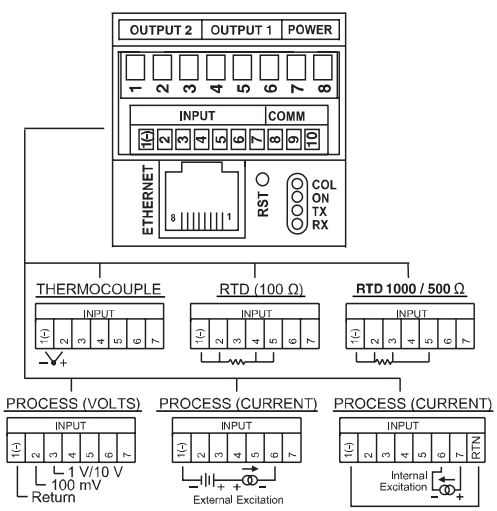
REAR VIEW





PANEL CUTOUT
1/16 DIN





To Order *(*Specify Model No.)*

Model Number			Description	Price
DPi16			Temperature/Process (Monitor only) 1/16 DIN	**180**
DPiS16			Strain/Process (Monitor only) 1/16 DIN	**230**
CONTROL OUTPUTS #1 & 2 Direct (Cool) or Reverse (Heat) Acting				
CNi16	(*)	(*)	Temperature/Process with 2 Control Outputs	**225**
CNi16D	(*)	(*)	Temperature/Process Dual Display with 2 Control Outputs *1	**245**
CNiS16	(*)	(*)	Strain/Process with 2 Control Outputs	**275**
CNiS16D	(*)	(*)	Strain/Process Dual Display with 2 Control Outputs *1	**295**
	2	**2**	Two solid state relays (SSR's): 0.5 A @ 120/240 Vac continuous	**N/C**
	2	**3**	SSR and relay: Form "C" SPDT 3 A @ 120 Vac, 3 A @ 240 Vac	
	2	**4**	SSR and pulsed 10 Vdc @ 20 mA (for use with external SSR)	
	3	**3**	2 Relays: Form "C" SPDT 3 A @ 120 Vac, 3 A @ 240 Vac	
	4	**2**	Pulsed 10 Vdc @ 20 mA (for use with external SSR) and SSR	
	4	**3**	Pulsed 10 Vdc @ 20 mA (for use with external SSR) and relay: Form "C" SPDT 3 A @ 120 Vac, 3 A @ 240 Vac	
	4	**4**	Two pulsed 10 Vdc @ 20 mA (for use with external SSR)	
	5	**2**	Analog Output selectable as either control or retransmission of process value; 0 to 10 Vdc or 0-20 mA @ 500 ohm max. and SSR	
	5	**3**	Analog Output 0 to 10 Vdc or 0-20 mA @ 500 ohm max. and Relay	
	5	**4**	Analog Output 0 to 10 Vdc or 0-20 mA @ 500 ohm max. and Pulse 10 Vdc	

*1 Ethernet options are available for the i16D and iS16D Controller only.
*2 -DC, -C24 or -C4EI not available with excitation.

NETWORK OPTIONS		Price
-EI	Ethernet with Embedded Web Server *1	**55**
-C24	Isolated RS-232 and RS-485/422. 300 to 19.2k Baud *2	**60**
-C4EI	Ethernet with Embedded Web Server & Isolated RS-485/422 hub for up to 31 devices *1, *2	**115**
POWER SUPPLY		
*	Standard power input: 90-240 Vac/dc, 50-400 Hz (no entry required)	**N/C**
-DC	12-36 Vac/dc, 24 Vac *2	**25**
FACTORY SETUP		
-FS	Factory Setup and Configuration (req. -C24 Serial Communication option)	**N/C**

ORDERING EXAMPLE: CNi16D44 *is a 1/16 DIN dual display PID Controller with two pulse control outputs* ***$245****.*

MONOGRAM®

MADE IN USA · 5 YEAR WARRANTY · CE · c UL

i/32

iSeries™

1/32 DIN Temperature,

$150 1/32 DIN meter

$195 with 2 control outputs

- **High Quality**
- **5-Year Warranty**
- **High Accuracy ±0.5°C (0.9°F), 0.03% Reading**
- **First 1/32 DIN Instrument with Totally Programmable Color Displays (Standard)**
- **User-friendly, Simple to Configure**
- **Free Software, Active X Controls**
- **Full Autotune PID Control**
- **Universal Inputs: Thermocouple, RTD, Process Voltage/Current, Strain**
- **First 1/32 DIN Instrument Offering Both RS-232 and RS-485 Serial Communications in One Instrument (Optional)**
- **First 1/32 DIN Instrument with Built-in Excitation, 24 Vdc, Standard**
- **±0.04°C/°C RTD and ±0.05°C/°C TC @ 25°C (77°F)**
- **NEMA-4, IP65 Front Bezel**
- **First 1/32 DIN Instrument with Analog Output Selectable as a Control Output or as Retransmission of Process Variable**
- **2 Control or Alarm Outputs (Optional) dc Pulse Solid State Relays (SSR's) Mechanical Relays Analog Voltage & Current**
- **Front Removable and Plug Connectors**

The OMEGA® DPi32/CNi32 is the **iSeries** meter/ controller in the extremely compact and increasingly popular 1/32 DIN size. The DPi32/CNi32 is the most sophisticated and accurate instrument available in the small 1/32 DIN package, yet is still easy to configure.

The DPiS32/CNiS32 has built-in excitation for bridge transducers, 5Vdc @ 40mA or 10 Vdc @ 60mA. When communications options are installed, external excitation may be used and ratiometric operation maintained by connecting the external excitation to the sense leads. Both 4 or 6-wire bridge configurations are supported for internal or external excitation. Non-ratiometric operation is also supported for voltage and current transducers. Non-ratiometric operation is also valuable in measuring offset and millivolt output of bridge devices during manufacturing and calibration. The DPi32/CNi32 introduces a number of unique features not yet found on any other 1/32 DIN instrument. The DPi32/CNi32 is the first 1/32 DIN controller with a totally programmable display that can change color at any set point or alarm point.

The unique 9-segment LED characters greatly improves alphanumeric representations.

The DPi32/CNi32 handles more thermocouple, RTD, process voltage and current inputs than any other 1/32 DIN controller.

The CNi32 is the first 1/32 DIN controller with built-in excitation for transmitters or other devices, 24 Vdc @ 25mA.

The CNi32 is the first 1/32 DIN controller offering 2 SPDT (Single Pole Double Throw) Form C relays, instead of the single throw relays on typical 1/32 DIN controllers.

The DPi32/CNi32 is the first to offer both RS-232 and RS-422/485 serial communications in one instrument (C24 option). Both ASCII protocol and modbus protocol are selectable from the menu.

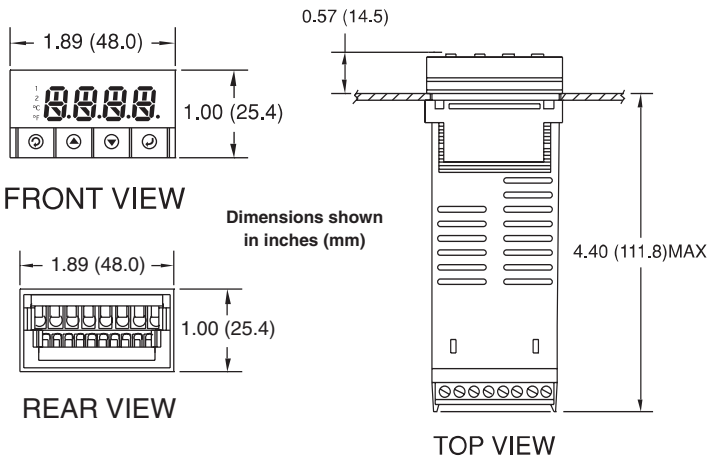
The **iSeries** displays feature unique 9-segment LED characters, which greatly improves alphanumeric representations. The 7-segment LED characters found on most instruments are adequate for presenting numbers, but not letters. Words are easier to read with the unique 9-segment LED characters on the **iSeries**, which makes operating and programming simpler and easier.

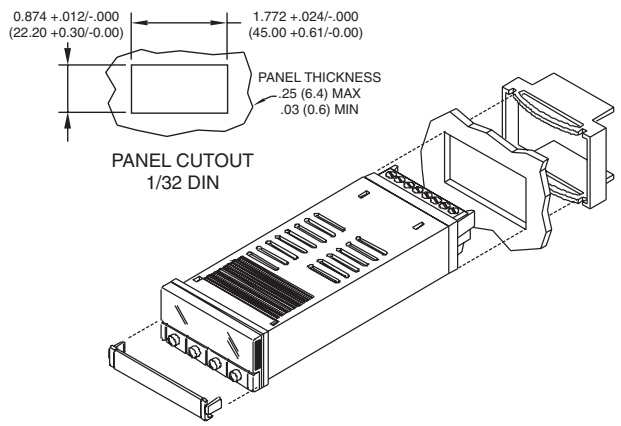
9-segment LED

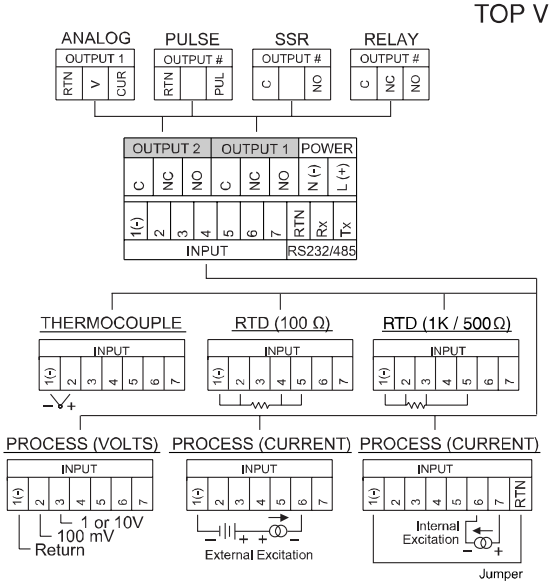
7-segment display

9-segment display

Process & Strain Meters & PID Controllers







To Order *(*Specify Model No.)*

Model Number			Description	Price
DPi32			Temperature/Process (Monitor only) 1/32 DIN	150
DPiS32			Strain/Process (Monitor only) 1/32 DIN	195
CONTROL OUTPUTS #1 & 2 Direct (Cool) or Reverse (Heat) Acting				
CNi32	(*)	(*)	Temperature/Process with 2 Control Outputs	195
CNiS32	(*)	(*)	Strain/Process with 2 Control Outputs	240
	2	2	Two solid state relays (SSR's): 0.5 A @ 120/240 Vac continuous	N/C
	2	3	SSR and relay: Form "C" SPDT 3 A @ 120 Vac, 3 A @ 240 Vac	
	2	4	SSR and pulsed 10 Vdc @ 20 mA (for use with external SSR)	
	3	3	2 Relays: Form "C" SPDT 3 A @ 120 Vac, 3 A @ 240 Vac	
	4	2	Pulsed 10 Vdc @ 20 mA (for use with external SSR) and SSR	
	4	3	Pulsed 10 Vdc @ 20 mA (for use with external SSR) and relay: Form "C" SPDT 3 A @ 120 Vac, 3 A @ 240 Vac	
	4	4	Two pulsed 10 Vdc @ 20 mA (for use with external SSR)	
	5	2	Analog Output selectable as either control or retransmission of process value; 0 to 10 Vdc or 0-20 mA @ 500 ohm max. and SSR	
	5	3	Analog Output 0 to 10 Vdc or 0-20 mA @ 500 ohm max. and Relay	
	5	4	Analog Output 0 to 10 Vdc or 0-20 mA @ 500 ohm max. and Pulse 10 Vdc	

*1 -DC, -C24 not available with Excitation.

iServer

The "iServer" is a DIN rail mounted device which can be a hub connecting up to 32 instruments to the Ethernet and Internet. The "iServer" is both a Web Server and an Ethernet-Serial bridge. To connect to the iServer, iSeries devices must feature the "C24" Serial Communications option.

NETWORK OPTIONS		Price
-C24	Isolated RS-232 and R-485/422. 300 to 19.2k Baud *1	60
EIS	Ethernet-Serial; Bridge/Hub	95
POWER SUPPLY		
*	Standard power input: 90-240 Vac/dc, 50-400 Hz (no entry required)	N/C
-DC	12-36 Vac/dc, 24 Vac *1	25
FACTORY SETUP		
-FS	Factory Setup and Configuration (req. -C24 Serial Communication option)	N/C

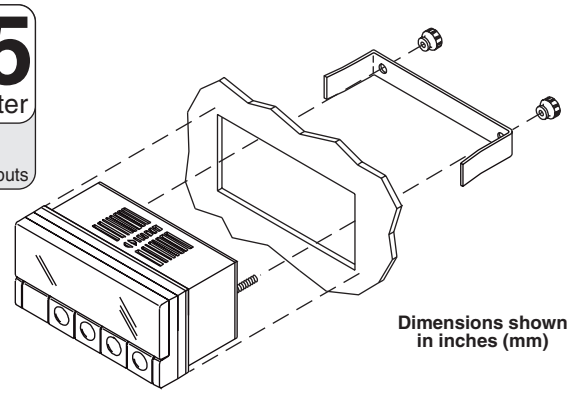
ORDERING EXAMPLE: ***CNi3222-C24*** *is a 1/32 DIN PID Controller with two solid state relays for PID control and serial communications, both RS-232 and RS-485* $195 + $60 = ***$255***.

iSeries™

⅛ DIN Ultra Compact Case Temperature, Process & Strain Meters & PID Controllers

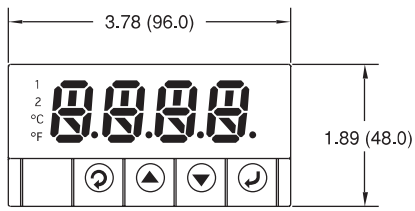
MADE IN USA · 5 YEAR WARRANTY · CE · c UL us

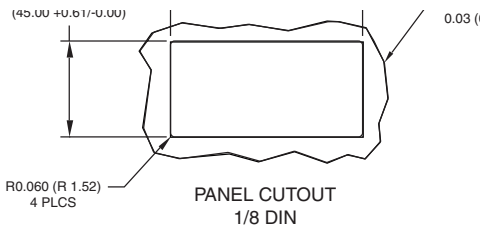
$285
1/8 DIN meter
$355
with 2 control outputs



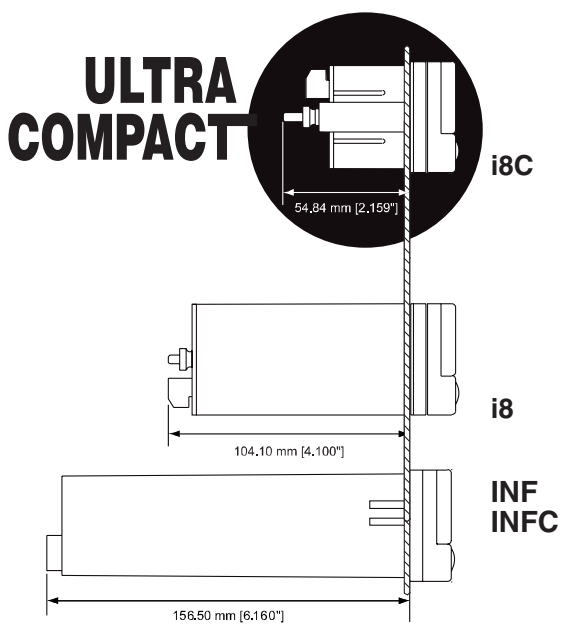
Dimensions shown in inches (mm)

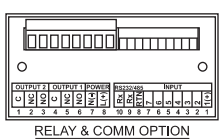
- **Ultra Compact 1/8 DIN Meter and Controller**
- **Built-in Excitation**
- **NEMA 4 (iP65) Bezel**
- **RS-232, RS 422/485 or Modbus Communication, Menu Selectable**



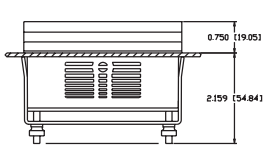


The Ultra Compact DPi8C/CNi8C Meters and Controllers are similar to the full size DPi8/CNi8 in an Ultra Compact enclosure. Only 2 inches behind the panel.





RELAY & COMM OPTION



To Order *(*Specify Model No.)*

Model Number			Description	Price
DPi8C			Temperature/Process (Monitor only) 1/8 DIN Compact Case	285
DPiS8C			Strain/Process (Monitor only) 1/8 DIN Compact Case	345
CONTROL OUTPUTS #1 & 2 Direct (Cool) or Reverse (Heat) Acting				
CNi8C	(*)	(*)	Temperature/Process with 2 Control Outputs Compact Case	355
CNiS8C	(*)	(*)	Strain/Process with 2 Control Outputs Compact Case	415
	2	2	Two solid state relays (SSR's): 0.5 A @ 120/240 Vac continuous	
	2	3	SSR and relay: Form "C" SPDT 3 A @ 120 Vac, 3 A @ 240 Vac	
	2	4	SSR and pulsed 10 Vdc @ 20 mA (for use with external SSR)	
	3	3	2 Relays: Form "C" SPDT 3 A @ 120 Vac, 3 A @ 240 Vac	
	4	2	Pulsed 10 Vdc @ 20 mA (for use with external SSR) and SSR	
	4	3	Pulsed 10 Vdc @ 20 mA (for use with external SSR) and relay: Form "C" SPDT 3 A @ 120 Vac, 3 A @ 240 Vac	N/C
	4	4	Two pulsed 10 Vdc @ 20 mA (for use with external SSR)	
	5	2	Analog Output selectable as either control or retransmission of process value; 0 to 10 Vdc or 0-20 mA @ 500 ohm max. and SSR	
	5	3	Analog Output 0 to 10 Vdc or 0-20 mA @ 500 ohm max. and Relay	
	5	4	Analog Output 0 to 10 Vdc or 0-20 mA @ 500 ohm max. and Pulse 10 Vdc	

*1 -DC, -C24, not available with excitation.

NETWORK OPTIONS		Price
-C24	Isolated RS-232 and RS-485 300 to 19.2 k baud *1	60
EIS	Ethernet-Serial; Bridge/Hub	95
POWER SUPPLY		
*	Standard power input: 90-240 Vac/dc, 50-400 Hz (no entry required)	N/C
-DC	12-36 Vac/dc, 24 Vac *1	25
FACTORY SETUP		
-FS	Factory Setup and Configuration (req. -C24 Serial Communication option)	N/C

ORDERING EXAMPLE: ***CNi8C33*** *is a 1/8 DIN Compact universal temperature process controller with 2 relay output* ***$355****.*

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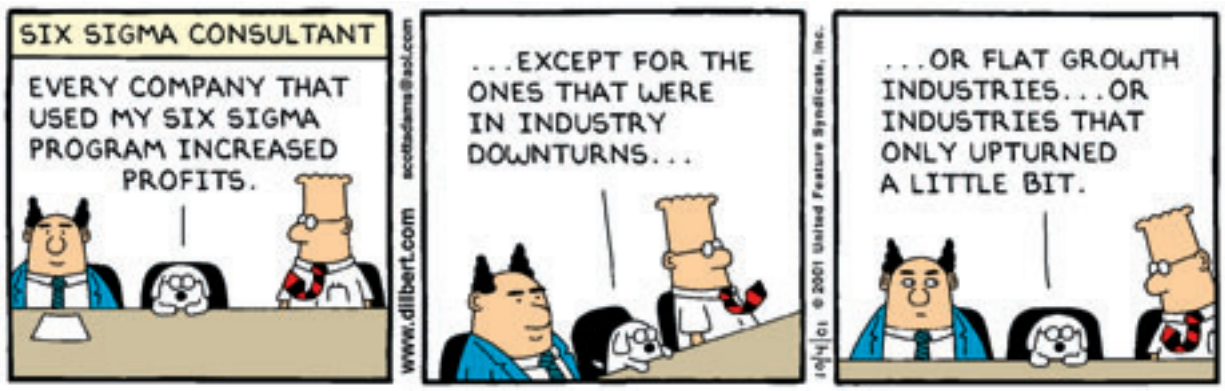
13

Collection Series #13-001037

DILBERT® by Scott Adams



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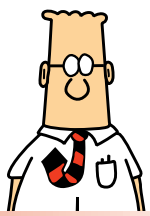
Collection Series #13-001038



DILBERT® by Scott Adams

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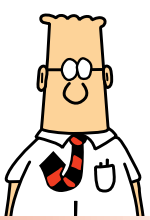
Collection Series #13-001039



DILBERT® by Scott Adams

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Collection Series #13-001040

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DILBERT® by Scott Adams

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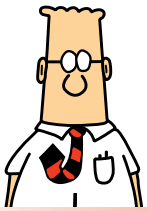
Collection Series #13-001041



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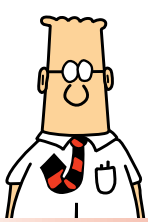
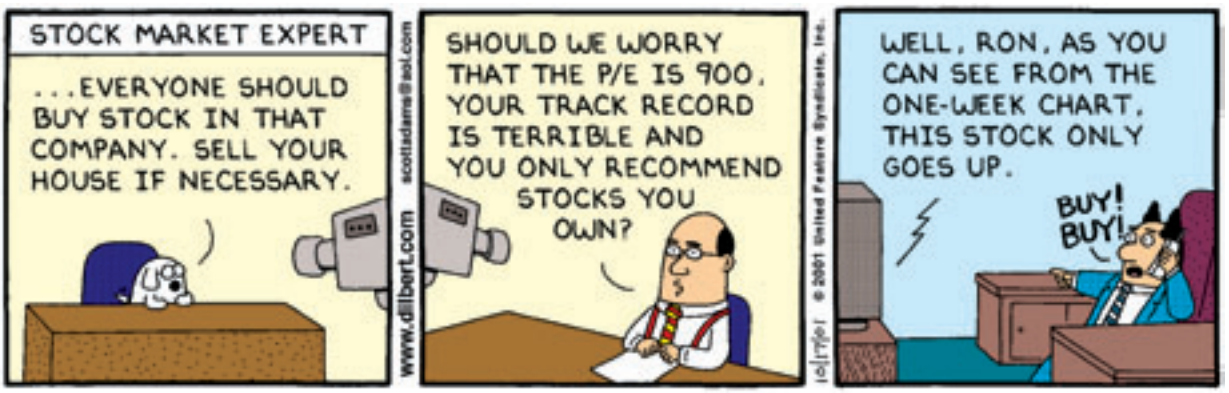
DILBERT® by Scott Adams

13

Collection Series #13-001042





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Remote Display/ Programmer

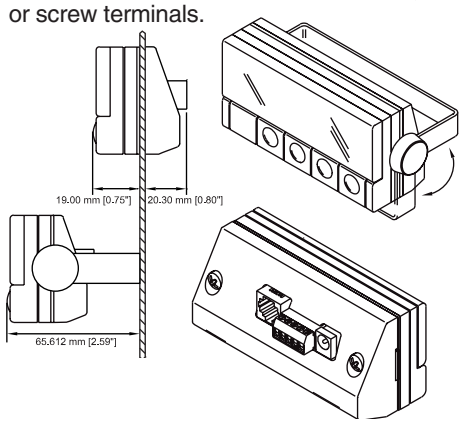
Compatible with all iSeries meters and Controllers

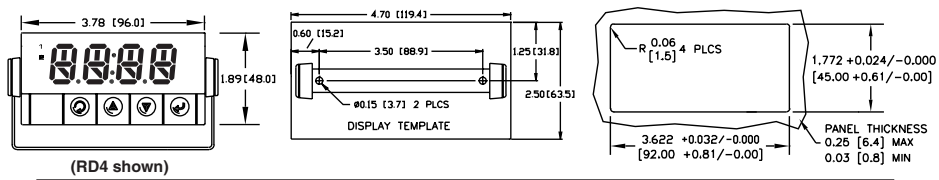
$150

- ⅛ DIN Panel Cutout or Surface Mount
- Big LED's 21 mm (.83")
- Alarm Indicators, and Color change
- Serial Input ASCII RS-232, RS-485 Menu selectable
- NEMA-4 (IP65) ⅛ DIN Bezel
- 20 mm (0.80") Behind Panel and only 39 mm (1.6") overall

REMOTE DISPLAY

The RD4/RD6 Remote Display is compatible with all iSeries devices as well as the MICROMEGA® controller, DP41 meters and the DRN/DRX signal conditioners shown elsewhere in this handbook. The process value, peak or valley from any iSeries device can be displayed on one or more RD4/RD6 Remote Displays up to 1000 feet away. With the RD4/RD6, the user can also program and configure the iSeries meter or controller, to change set points or alarm points, for example (Compatible iSeries devices must feature the C24 or C4EI serial communications option.) The RD4/RD6 remote display can be mounted in a 1/8 DIN panel cutout, or surface mounted with the included bale. It features big bright 21mm (.83") 9-segment LED's that can be programmed to change color between Green, Amber and Red to indicate alarms. Color can be programmed to return to normal or latch on until reset. Serial Connections can be made to an RJ-11 jack or screw terminals.





Specifications

Serial: ASCII Interface RS-232/RS-485
Baud rate: 300, 600, 1200, 2400, 4800, 9600, 19200.
Data Formats: 7 data/odd parity/ 1 stop, 7 data/even parity/1 stop, 8 data/no parity/1 stop.
Power Requirements: 10 to 36 Vdc, or a 12 Vdc/200mA AC-adapter optional
Storage Temperature: -20 to +85 degree C
Relative Humidity: 0 to 85%
Power Consumption: 2 W
Operating Temperature: 0-50 °C
Protection: NEMA-4x (IP65)
Mechanical Dimensions:
3.78" (96 mm) x 1.89" (48 mm) x 1.6 (39 mm)
Panel Cutout:
3.622" (92 mm) x 1.772" (45 mm)

To Order *(*Specify Model No.)*

Model Number	Description	Price
RD4	4-Digit Remote Display for iSeries Monitors and Controllers	150
RD6	6-Digit Remote Display for iSeries Monitors and Controllers	200
Options		
CT485-Adap-110	110 Volt Power Supply	23.75
CT485-Adap-220	220 Volt Power Supply	23.75

MONOGRAM®

iSeries

BiG Display

iLD Series

$795
Basic Unit

MADE IN USA

CE

NEW

- **BIG Bright 2.25" (57.2 mm) or 4.00" (101.6 mm) LED Digits**
- **Program to Change Colors: RED, AMBER, GREEN**
- **Many Input Choices**
- **Optional Relays for Alarm and Full PID Control**
- **Communications Via Ethernet, RS-232, RS-485, and MODBUS**
- **Embedded Web Server**
- **Free Software, Active X Controls**

The award-winning **iSeries** meters and controllers now features a new **BIG** Display.

Like all **iSeries** meters, the new **BIG** Display can be programmed to change colors between **RED**, **AMBER**, and **GREEN** at any set point or alarm point. For example, the instrument can be programmed to display the process value in **GREEN** during warm-up, switching to **AMBER** to signal the normal operating range, and in **RED** to signal an alarm condition.
The changes in color are quickly seen from a distance, and equipment operators can intuitively react to changing conditions.

The **BIG** Display can be mounted flush in a panel or surface mounted with the included brackets. The entire **BIG** Display enclosure provides NEMA 4/IP65 protection. Whether panel-mounted or surface-mounted, the **BIG** Display does not need to go inside a bulky and expensive NEMA enclosure.

iSeries Big Display

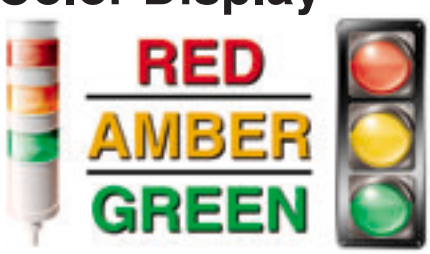
2.25" and 4" Displays Available

The **BIG** Displays can handle a wide variety of signal inputs directly from transducers or process transmitters as well as display data transmitted from other OMEGA devices via Serial Communications or Ethernet.

The "**Universal Temperature + Process BIG Display**" is designed for Thermocouples, RTD's, and Process (DC) Voltage or Current. It handles TEN (10) thermocouple types: K, J, T, E, R, S, B, C, N, & J DIN. It works with a wide selection of RTD's, both Pt. 0.00385 and 0.00392 curves for 100 Ohm, 500 Ohm, and 1000 Ohm and it measures with 2, 3, or 4 wire connections for the highest accuracy. This model also measures process voltage: 0-100 mV, 0-1 Volt, 0-10 Volt ranges and process current, 0-20 mA (4-20 mA) with built-in excitation of 10 Vdc and 24 Vdc standard.

The "**Universal Strain + Process BIG Display**" handles a wide variety of DC voltage and current outputs from all common load cells, pressure transducers, and most any strain gauge type of transducer. The meter measures input ranges of 0 to 100 mVdc, -100 mVdc to 1 Vdc, 0 to 10 Vdc, 0-20 mA (4-20 mA) with built-in excitation of 5 Vdc and 10 Vdc standard. This model also features Ten (10) Point Linearization enabling accurate measurements from a wide assortment of unique and nonlinear transducers.

Totally Programmable Color Display



The "**AC BIG Displays**" provide accurate isolated measurement of AC Voltage and Current signals. The AC Voltage model can be scaled for ranges from 0-400mVAC through 0-400VAC. The AC Current model covers ranges from 0-10 mA through 0-5 Amps AC.

The "**Frequency Pulse BIG Display**" provides accurate isolated measurement of frequency (from 200 Hz to 50 kHz) and pulse signals (up to 200M pulses full scale) that can be scaled to any engineering units.

The "**Serial Communications BIG Display**" can display data transmitted via serial communications from OMEGA instruments, from a computer, or from other devices which transmit ASCII data via RS-232, RS-422, or RS-485. The Serial Communications **BIG** Display is compatible with virtually all Omega devices that feature serial communications including: **iSeries** meters and controllers, **DP41** Series digital panel meters, **MICROMEGA®** controllers, DRX & DRN DIN-RAIL mounted signal conditioners, and many more.

The "**Ethernet BIG Display**" is similar to the Serial Communications Display except that it displays data transmitted via an Ethernet Network.

The **BIG** Displays are easy to configure and scale to virtually any engineering units with the push buttons on the front panel, or with a personal computer using the free configuration software and the optional Ethernet connectivity or Serial Communications. The Ethernet option allows the device to be connected on a standard Ethernet network and communicates using standard TCP/IP protocol. The Ethernet option also includes RS-485 (and RS-422) Serial Communications. The serial communications option includes both RS-232 and RS-485 (and RS-422) on one instrument. It communicates with a straightforward ASCII communicates protocol, as well as MODBUS protocol.

The **BIG** Display features a choice of two optional outputs: Form C SPDT (single pole double throw) mechanical relays, Solid State Relays, DC pulse, and/or programmable analog output selectable as either a controlling function or as retransmission of the process value.

The new **iSeries** are the world's first Panel Meters and Controllers with an embedded Web Server and can connect directly to Ethernet/Internet. You can "see" your meter and control your process through a web browser over the Internet from halfway around the world. With the new **BIG** Display, you can also see your meter from a hundred feet away.

Universal Temperature & Process Input (Model UTP)
Accuracy: ±0.5°C temp; 0.03% reading process
Resolution: 1°/0.1°; 10 µV process
Temperature Stability:
1) RTD: 0.04°C/°C
2) TC @ 25°C (77°F): 0.05°C/°C - Cold Junction Compensation
3) Process: 50 ppm/°C
NMRR: 60 dB
CMRR: 120 dB
A/D Conversion: Dual slope
Reading Rate: 3 samples per second
Digital Filter: Programmable
Display: 4-digit or 6-digit, 7-segment LED 57.2 mm (2.25") or 101.6 mm (4.00") red, green and amber programmable colors for process variable, set point and temperature units
Input Types: Thermocouple, RTD, Analog Voltage, Analog Current
Thermocouple Lead Resistance: 100 ohm max
Thermocouple Type (ITS 90): J, K, T, E, R, S, B, C, N, L
RTD Input (ITS 68): 100/500/1000 ohm Pt sensor, 2-, 3- or 4-wire; 0.00385 or 0.00392 curve
Voltage Input: 0 to 100 mV, 0 to 1 V, 0 to 10 Vdc
Input Impedance: 10 Mohm for 100 mV 1 Mohm for 1 or 10 Vdc
Current Input: 0 to 20 mA (5 ohm load)
Configuration: Single-ended
Polarity: Unipolar
Step Response: 0.7 sec for 99.9%
Decimal Selection: None, 0.1 for temperature. None, 0.1, 0.01 or 0.001 for process
Setpoint Adjustment: -1999 to 9999 counts
Span Adjustment: 0.001 to 9999 counts
Offset Adjustment: -1999 to +9999

Universal Strain & Process Input (Model SP)
Accuracy: 0.03% reading
Resolution: 10/1µV
Temperature Stability: 50 ppm/°C
NMRR: 60 dB
CMRR: 120 dB
A/D Conversion: Dual slope
Reading Rate: 3 samples per second
Digital Filter: Programmable
Input Types: Analog Voltage, Analog Current
Voltage Input: 0 to 100 mVdc, -100 mVdc to 1 Vdc, 0 to 10 Vdc
Input Impedance: 10 Mohm for 100 mV; 1 Mohm for 1 V or 10 Vdc
Current Input: 0 to 20 mA (5 ohm load)
Linearization Points: Up to 10 Linearization Points
Configuration: Single-ended
Polarity: Unipolar
Step Response: 0.7 sec for 99.9%
Decimal Selection: None, 0.1, 0.01 or 0.001
Setpoint Adjustment: -1999 to 9999 counts

Span Adjustment: 0.001 to 9999 counts
Offset Adjustment: -1999 to ±9999
Excitation (optional in place of Communication): 5 Vdc @ 40 mA; 10 Vdc @ 60 mA.
Serial Communications Input (Model RS)
Serial Input: Serial ASCII RS-232 or RS-485 Menu selectable
Input Levels: RS-232 and RS-485 Standard Voltage levels
Baud Rate: 300, 600, 1200, 2400, 4800, 9600, 19200
RS-485 Address: 0 to 99
Mode: Host or Slave
Data Format: 7O1-7 bit: Odd, 1 stop bit
7E1-7 bit: Even, 1 stop bit
8N1-8 bit: No parity, 1 stop bit

AC Current Input (Model ACC)
Input Ranges: 10 mA, 100 mA, 1 Amp, 5 Amp AC current dedicated input terminals for (10, 100 mA same input), 1 Amp and 5 Amp. Return terminal common to all ranges
Frequency Range: 30Hz to 1 KHz
Input Impedance: 3.3 Ohms for 10, 100 mA input; 0.2 Ohms for 1 amp input; 0.04 Ohms for 5 Amp input
Isolation: Dielectric strength to 1000 Vrms transient per 1 min. test based on EN 61010 for 50 Vdc or Vrms working voltage
Three way Isolation: Power to input; Power to Analog output/ communication; Input to Analog output/communication
Input Over-Current Protection: 10% Above full scale continuously; 100% Above full scale for 10 sec.
Analog to Digital Technique: Dual slope
Read Rate: 3 readings/sec.
Accuracy at 25°C: ±0.2% of FS; 30 Hz to 1Hz
Temperature Stability:10, 100 mA Range 100 ppm/°C typical;
1 Amp Range 150 ppm/°C typical;
5 Amp Range 200 ppm/°C typical
Step Response: 2 sec. to 99% of the final value (filter time constant = 64)

AC Voltage Input (Model ACV)
Input Ranges: 400 mV, 4V, 40 V, 400 V
Frequency Range: 30Hz to 1 KHz
Input Impedance: 2.1 Meg for all ranges
Isolation: Dielectric strength to 1000 Vrms transient per 1 min. test based on EN 61010 for 50 Vdc or Vrms working voltage
Input Over-Voltage Protection: 10% Above full scale continuously; 100% Above full scale for 10 sec.
Analog to Digital Technique: Dual slope
Read Rate: 3 readings/sec.
Accuracy at 25°C: 400 mV, 4V, 40V and 400 V ranges; 49 Hz to 500 Hz ±0.2% of FS; 30 Hz to 1KHz ±0.2% of FS ±10 counts
Temperature Stability: 400 mV and 40 Volt range, 150 ppm/°C typical; 4 V and 400 Volt range, 100 ppm/°C typical
Step Response: 2 sec. to 99% of the final value (filter time constant = 64)

Frequency Pulse Input (Model FP)
Input Types: Min. Low level signal input (magnetic pickups): From 0 mV to 120 mV

- Open Collector NPN
- Open Collector PNP
- TTL/CMOS Input
- NAMUR Sensors: 8.2 V Excitation

Operating Modes:
Frequency: Range = 0.2 Hz to 50 KHz

Frequency	Resolution
0 to 9.99999 Hz	0.00001 Hz
10 to 99.9999 Hz	0.0001 Hz
100 to 999.999 Hz	0.001 Hz
1000 to 9999.99 Hz	0.01 Hz
10000 to 50000.0 Hz	0.1 Hz
0 to 50000 Hz	1 Hz

Totalize with Reset:
Range = 0 to 999999*
A-B Totalize (Reset input used as a +A input): Range = -99999 to 999999*
Quadrature (Reset input used as second input):
Range = -99999 to 999999*
*Resolution is 1 count
Input Impedance: Input: 1 Mohm to +EXC; Reset: 100K to +5V
Isolation: Dielectric strength to 1000 Vrms transient per 1 min. test based on EN 61010 for 50 Vdc or Vrms working voltage
Input Over-Voltage Protection: With 1K pull down: 14V; With 3K pull up: 20V; Without pull up/down: 60V
Excitation: 5, 8.2 or 12.5V at 25mA, programmable
Accuracy at 25°C: ±0.1% of FS Crystal time base accuracy: ± 50 ppm
Temperature Stability: ±50 ppm/°C typical; Time base stability: ±1 ppm/°C
Step response for RS485 Output: 0.1 second to 99% of the final value (Filter time constant = 0, Gate time = 0.05 Sec)

FOR ALL MODELS:

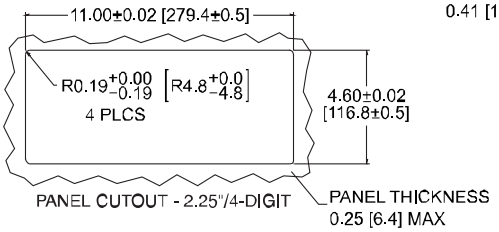
COMMUNICATIONS (optional)
RS-232 or RS-485 programmable: 300 to 19.2 K baud; complete programmable setup capability; program to transmit current display, alarm status, Peak and Valley value.
RS-485: Addressable from 0 to 199
Connection: Screw terminals

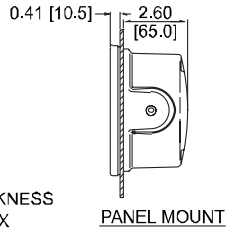
CONTROL for UTP, SP
Action: Reverse (heat) or direct (cool)

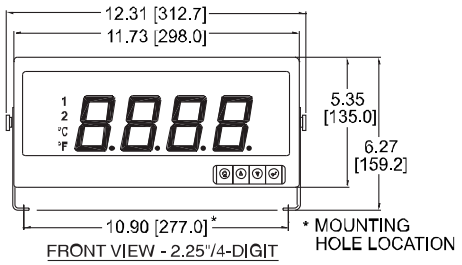
ALARM 1 & 2 (programmable)
Operation: High/low, above/below, band, latch/unlatch, normally open/normally closed and process/deviation; front panel configurations

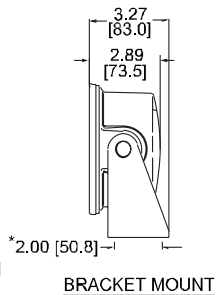
INSULATION
Power to Input/Output: 2500 Vac per 1 minute test (RS-232/485, Input or Output)
Between Inputs: 500 Vac per 1 minute test

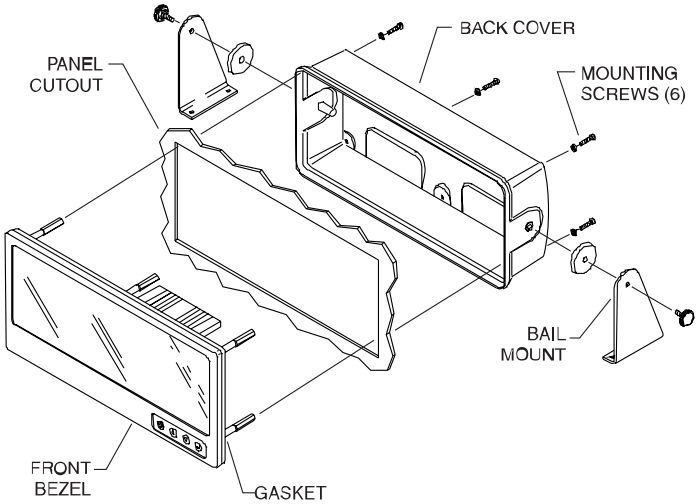
GENERAL
Power: 100-240 Vac +/-10%, 50/60 Hz 22.5 W
Environmental Conditions: 0 to 40°C (32 to 104°F), 90% RH non-condensing
Warm up to rated Accuracy: UTP, SP, FP, ACC, ACV = 60 minutes.
Installation Category: II per EN61010-1
Equipment Class: II per EN61010-1
Pollution Degree: 2 per EN61010-1
Protection: NEMA-4 (IP65) front bezel
Dimensions: 2.25"/4-Digit: 11.75" L x 5.375" W x 2.875" D (289 mm L x 137 mm W x 73 mm D)
Weight: 1,360 g (3 lb)

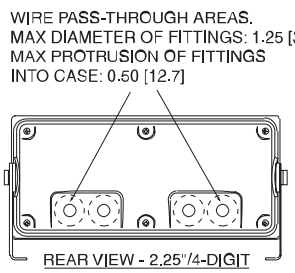












Mounts in panel or on surface with included bracket

ORDERING MATRIX - OPTIONAL OUTPUTS				
	METER	2 RELAYS	SERIAL OUT	ETHERNET
T+P	X	X	X	X
S+P	X	X	X	X
FP	X		X	X
ACC	X		X	X
ACV	X		X	X
RS	X			
EI	X			

To Order *(Specify Model No.)*

Basic Model	Description	Price
iLD24-UTP	2.25" 4-digit display, Universal Temperature/Process, Monitor/Controller	795
iLD44-UTP	4" 4-digit display, Universal Temperature/Process, Monitor/Controller	995
iLD24-SP	2.25" 4-digit display, Strain Gauge/Process, Monitor/Controller	795
iLD44-SP	4" 4-digit display, Strain Gauge/Process, Monitor/Controller	995
iLD24-FP	2.25" 4-digit display with Frequency/Pulse Totalize input	795
iLD26-FP	2.25" 6-digit display with Frequency/Pulse Totalize input	995
iLD44-FP	4" 4-digit display with Frequency/Pulse Totalize input	995
iLD46-FP	4" 6-digit display with Frequency/Pulse Totalize input	1,195
iLD24-ACC	2.25" 4-digit display with AC Current input	795
iLD44-ACC	4" 4-digit display with AC Current input	995
iLD24-ACV	2.25" 4-digit display with AC Voltage input	795
iLD44-ACV	4" 4-digit display with AC Voltage input	995
iLD24-RS	2.25" 4-digit display with RS-232 or RS-485/422 input	795
iLD44-RS	4" 4-digit display with RS-232 or RS-485/422 input	995
iLD26-RS	2.25" 6-digit display with RS-232 or RS-485/422 input	995
iLD46-RS	4" 6-digit display with RS-232 or RS-485/422 input	1,195
iLD24-EI	2.25" 4-digit display with Ethernet, RS-232, RS-485/422, MODBUS Input	795
iLD44-EI	4" 4-digit display with Ethernet, RS-232, RS-485/422, MODBUS Input	995
iLD26-EI	2.25" 6-digit display with Ethernet, RS-232, RS-485/422, MODBUS Input	995
iLD46-EI	4" 6-digit display with Ethernet, RS-232, RS-485/422, MODBUS Input	1,195
CONTROL OUTPUTS		
-33	2 relays: Form "C" SPDT 3A @ 120/240 Vac. (Available on UTP and SP models only)	100
NETWORK OPTIONS		
-C24	Isolated RS-232 and RS-485/422 with baud rate from 300 to 19.2k	100
-C4EI	Ethernet with embedded Web Server + RS-485/422 hub for up to 31 devices	150

Network Options available on (UTP, SP, FP, ACC, ACV) only. Contact sales for custom Control or Alarm Outputs.

Ordering Example: iLD24-SP-33** is a Large 2.25" display, Strain Gauge/Process, Controller **$795 + $100 = $895

i Series Common Specifications (All i/8, i/16, i/32 DIN)

Universal Temperature & Process Input (Model "i")
Accuracy: ±0.5°C temp; 0.03% reading process
Resolution: 1°/0.1°; 10 µV process
Temperature Stability:
1) RTD: 0.04°C/°C
2) TC @ 25°C (77°F): 0.05°C/°C - Cold Junction Compensation
3) Process: 50 ppm/°C
NMRR: 60 dB
CMRR: 120 dB
A/D Conversion: Dual slope
Reading Rate: 3 samples per second
Digital Filter: Programmable
Display: 4-digit 9-segment LED
10.2 mm (0.40"): i32, i16, i16D, i8DV
21 mm (0.83"): i8
10.2 mm (0.40") and 21 mm (0.83"):i8DH
red, green and amber programmable colors for process variable, set point and temperature units

Input Types: Thermocouple, RTD, Analog Voltage, Analog Current
Thermocouple Lead Resistance: 100 ohm max
Thermocouple Type (ITS 90): J, K, T, E, R, S, B, C, N, L
RTD Input (ITS 68): 100/500/1000 ohm Pt sensor, 2-, 3- or 4-wire; 0.00385 or 0.00392 curve
Voltage Input: 0 to 100 mV, 0 to 1 V, 0 to 10 Vdc
Input Impedance: 10 Mohm for 100 mV 1 Mohm for 1 or 10 Vdc
Current Input: 0 to 20 mA (5 ohm load)
Configuration: Single-ended
Polarity: Unipolar
Step Response: 0.7 sec for 99.9%
Decimal Selection: None, 0.1 for temperature. None, 0.1, 0.01 or 0.001 for process
Setpoint Adjustment: -1999 to 9999 counts
Span Adjustment: 0.001 to 9999 counts
Offset Adjustment: -1999 to +9999

Universal Strain & Process Input (Model "iS")
Accuracy: 0.03% reading
Resolution: 10/1µV
Temperature Stability: 50 ppm/°C
NMRR: 60 dB
CMRR: 120 dB
A/D Conversion: Dual slope
Reading Rate: 3 samples per second
Digital Filter: Programmable
Input Types: Analog Voltage, Analog Current
Voltage Input: 0 to 100 mVdc, -100 mVdc to 1 Vdc, 0 to 10 Vdc
Input Impedance: 10 Mohm for 100 mV; 1 Mohm for 1 V or 10 Vdc
Current Input: 0 to 20 mA (5 ohm load)
Linearization Points: Up to 10 Linearization Points
Configuration: Single-ended
Polarity: Unipolar
Step Response: 0.7 sec for 99.9%
Decimal Selection: None, 0.1, 0.01 or 0.001
Setpoint Adjustment: -1999 to 9999 counts
Span Adjustment: 0.001 to 9999 counts
Offset Adjustment: -1999 to ±9999
Excitation (optional in place of Communication): 5 Vdc @ 40 mA; 10Vdc@60mA

Control
Action: Reverse (heat) or direct (cool)
Modes: Time and Amplitude Proportional Control Modes; selectable Manual or Auto PID, Proportional, Proportional with Integral, Proportional with Derivative with Anti-reset Windup and ON/OFF
Rate: 0 to 399.9 seconds
Reset: 0 to 3999 seconds
Cycle Time: 1 to 199 seconds; set to 0 for ON/OFF operation
Gain: 0.5 to 100% of span; Setpoints 1 or 2
Damping: 0000 to 0008
Soak:
00.00 to 99.59 (HH:MM), or OFF
Ramp to Setpoint:
00.00 to 99.59 (HH:MM), or OFF
Auto Tune:
Operator initiated from front panel

Control Output 1 & 2
Relay: 250 Vac or 30 Vdc @ 3 A (Resistive Load); configurable for on/off, PID and Ramp and Soak
Output 1: SPDT type, can be configured as Alarm 1 output
Output 2: SPDT type, can be configured as Alarm 2 output
SSR: 20-265 Vac @ 0.05 - 0.5 A (Resistive Load); continuous
DC Pulse: Non-Isolated; 10 Vdc @ 20 mA
Analog Output (Output 1 only)**:** Non-Isolated, Proportional 0 to 10 Vdc or 0 to 20 mA; 500 Ω max

Network and Communications
Ethernet: Standards Compliance IEEE 802.3 10Base-T
Supported Protocols:
TCP/IP, ARP, HTTPGET

RS-232/RS-422/RS-485: selectable from menu; both ASCII and Modbus protocol selectable from menu. Programmable 300 to 19.2 K baud; complete programmable setup capability; program to transmit current display, alarm status, min/max, actual measured input value and status
RS-485: Addressable from 0 to 199
Connection: Screw terminals

Alarm 1 & 2 (programmable)
Type: Same as Output 1 & 2
Operation:
High/low, above/below, band, latch/unlatch, normally open/normally closed and process/deviation; front panel configurations
Analog Output (programmable):
Non-Isolated, Retransmission 0 to 10 Vdc or 0 to 20 mA, 500 Ω max (Output 1 only). Accuracy is ± 1% of FS when following conditions are satisfied.
1) Input is not scaled below 1% of Input FS.
2) Analog Output is not scaled below 3% of Output FS.

EXCITATION
(Not included with Communication):
24 Vdc @ 25 mA (Not Available for Low Power Option)
Insulation
Power to Input or Output: 2500 Vac per 1 minute test (RS-232/485, Input or Output)
For Low Voltage Power Option:
1500 Vac per 1 minute test (RS-232/485, Input or Output)
Power to Relay/SSR Option:
2500 Vac per 1 minute test
Relay/SSR to Relay/SSR Option:
2500 Vac per 1 minute test
RS-232/485 to Input/Options:
500 Vac per 1 minute test

Approvals: UL, C-UL, CE per EN50081-1, EN50082-2, EN61010- 1

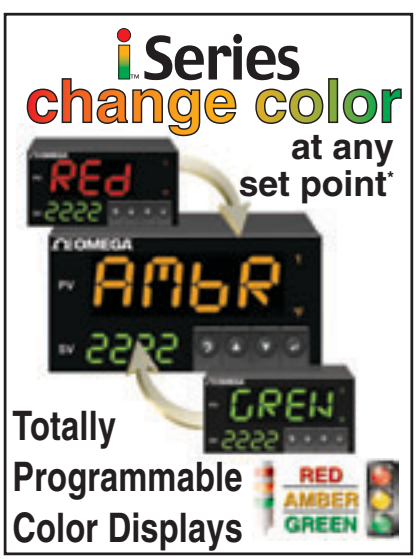
General
Power: 90-240 Vac ±10%, 50-400 Hz*, 110-375 Vdc, equivalent voltage
Low Voltage Power Option: 24 Vac ±10%, 12 - 36 Vdc, from qualified safety approved source
Environmental Conditions:
0 to 50°C (32 to 122°F), 90% RH non-condensing - CNi8DV, CNi8DH, CNi16D; 0 to 55° C (32-131°F) 90% RH non-condensing- i/8, i/16, i/32.
Installation Category:
II per EN61010-1
Equipment Class: II per EN61010-1
Pollution Degree: 2 per EN61010-1
Protection:
NEMA-4 (IP65) front bezel

Dimensions
i/8 Series: 48 H x 96 W x 127 mm D (1.89 x 3.78 x 5")
i/16 Series: 48 H x 48 W x 127 mm D (1.89 x 1.89 x 5")
i/32 Series: 25.4 H x 48 W x 127 mm D (1.0 x 1.89 x 5")

Panel Cutout
i/8 Series: 45 H x 92 mm W (1.772" x 3.622"), 1/8 DIN
i/16 Series: 45 mm (1.772") square, 1/16 DIN
i/32 Series: 22.5 H x 45 mm W (0.886" x 1.772"), 1/32 DIN

Weight
i/8 Series: 295 g (0.65 lb)
i/16 Series: 159 g (0.35 lb)
i/32 Series: 127 g (0.28 lb)

* No CE compliance above 60 Hz



CSC32 Series Compact Benchtop Controllers

Optional Communications Bundled with Free Software

From
$345
Basic Unit

1 YEAR WARRANTY

OMEGACARE Extended Warranty Program

- Rugged Metal Benchtop Enclosure
- 4-Digit Display, 1 or 0.1° Resolution
- Full Autotune PID Heat-Cool Control
- Single Ramp and Soak Capability
- High Accuracy (± 0.25% full scale ± 1.5°C)
- Models with Dedicated Thermocouple, RTD, Process Voltage or Current Input
- Two 5 Amp Vac SSR Outputs Standard
- Second Output May be Used for Control or One of Five Types of Alarms
- Optional RS-232 or RS-485 MODBUS Communications with Free CN9-SW Communications Software and Cable

CN9500 Series Controllers are used in the CSC32 series benchtop units.

CSC32K Benchtop Controller Shown with LHM Series Heating Mantle, Flask, and KMTSS-125G-6 Thermocouple Probe.

Coming Soon:
230 Vac Model with CE Approval

See Section A of the Made in USA Handbook for a Complete Selection of Thermocouple probes. Also See the OMEGALUX Complete Electric Heater Handbook and Encyclopedia™ for a Complete Selection of Heating Elements.

The CSC32 series compact benchtop controllers are ideal for laboratory use and applications requiring portable temperature and process control. Pre-wired input and output receptacles in the rear of the case enable quick and easy connections to power, input, power output and digital communications. These benchtop controllers are factory configured and calibrated for a dedicated input type by model number.

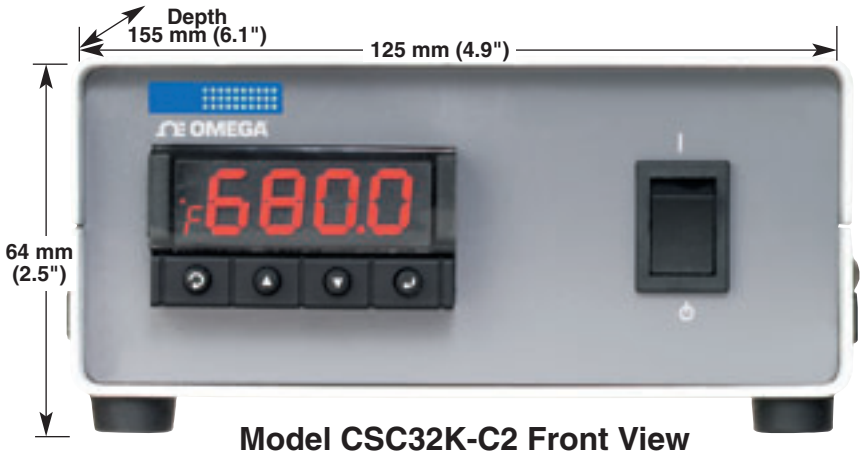
The ⅛ DIN CN9500 controller used in this benchtop controller series can be programmed for either On/Off, or PID Autotune Control (with autotune Feature) via the front panel or through the use of a PC and CN9-SW communications software.

CN9-SW software is designed to interface with the CN9300, CN9400, CN9500 and CSC32 Series benchtop controllers with optional communication hardware. Benefits:

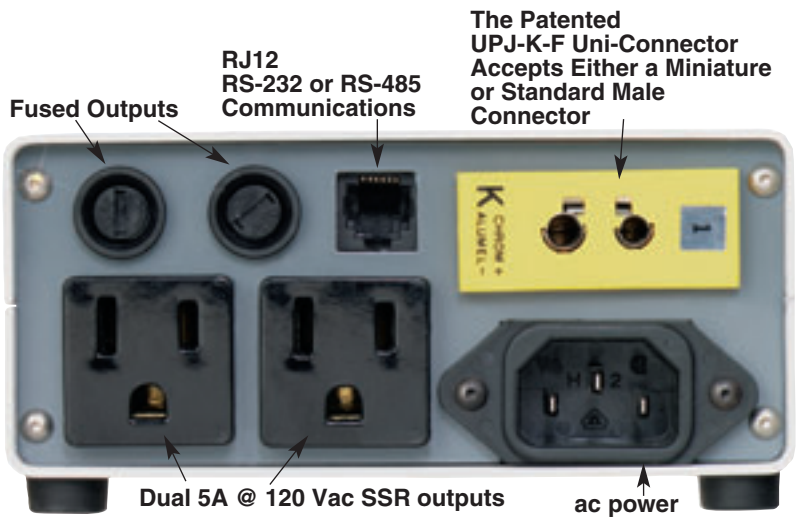
- Time saving benefit and convenience of remotely configuring and adjusting units.
- Saving and retrieving settings to and from files.
- Highly flexible logging and "real time" charting capability for providing hard copy QA records for ISO-9000 and other management purposes.
- Software is capable of logging readings from up to 128 instruments which it stores in data files.
- The data can be exported into text files in Comma Separated Variable format.
- In addition, up to 12 controllers can be displayed on a single chart, or individual charts can be set up for each instrument.
- A virtual full color chart recorder can log process variables such as: °C, °F, Bar, PSI, pH, rH, or user defined engineering units

Specifications

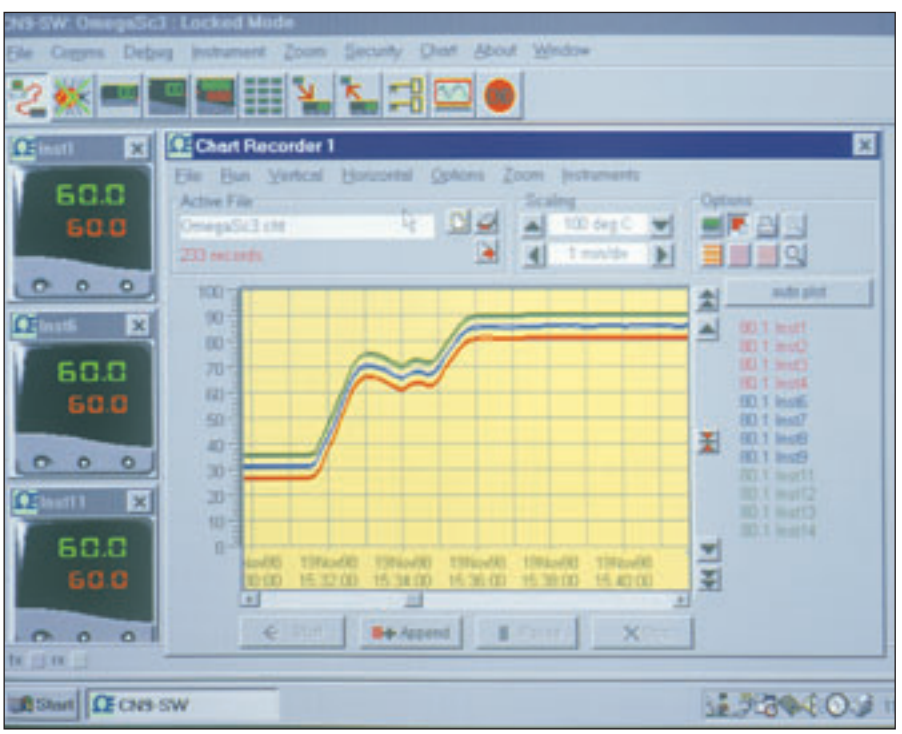
Power: 115 Vac, ±10%, 50/60 Hz
Coming Soon
Optional 230 Vac 50/60 Hz
Display: 4-digit LED, 10 mm (0.4"), high brightness green display
Display Range:
-199 to 9999 counts
(hi-res mode -199.9 to 999.9)



Model CSC32K-C2 Front View

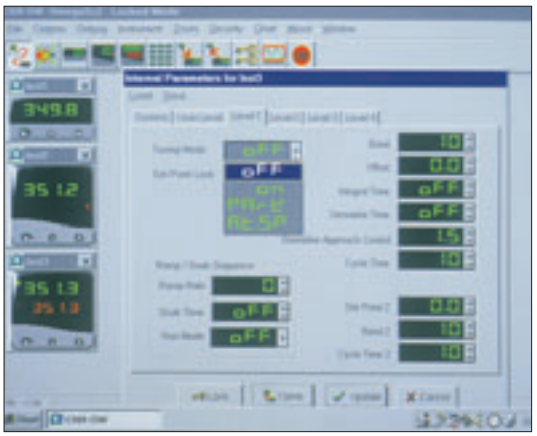


Model CSC32K-C2 Rear View



Graph Displaying Real Time Charting Using CN9-SW Software

Range: Sensor limited 2000°C/3500°F; -99.9 to 999.9° in 0.1° resolution
Display Indicators: Process variable (PV), Setpoint (SP), LED output indicators-flashing Output 1 (SP1 square), green; Output 2 (SP2 round), red; error messages, Function/Option mnemonics
Control Modes: PID Autotune, ON/OFF, Direct/Reverse,
Alarm Modes: deviation high, deviation low, deviation band, full Scale high, or full scale low
Thermocouple External Resistance: 100 Ω max
Thermocouple: See Table
Standards: IPTS/68/DIN43710
RTD Input: Pt100 2-wire (.00385)
Linear Process Inputs: mV range: 0 to 50 mV (1 ohm shunt resistor supplied for mA inputs)
Calibration Accuracy: ±0.25% of Full Scale ±1.5 °C
Sampling Frequency: Input 10 Hz, CJC 2 sec
Common Mode Rejection: Negligible effect up to 140 dB, 240 V, 50 to 60 Hz
Temperature Coefficient: 150 ppm/°C sensor max
Input Connection:
Thermocouple; Accepts both miniature and standard male Thermocouple Connectors Note: A miniature and standard size male mating connector is included with each benchtop controller
RTD, mA or mV; Accepts OMEGA® T series model TA3F Keyed-3-pin Locking Connector. Note: A mating connector is included with each benchtop controller
Outputs: Two solid state relays rated for 5 A @120Vac. (Internally, the controller provides two dc pulse outputs to drive a built-in dual solid state relay.)
Operating Ambient Range: 0 to 50°C (32 to 130°F)
Benchtop Case Material: Aluminum
Controller Case: Flame retardant polycarbonate
Power Connection: Std. three prong power cord (provided)
Output Connections: Two standard 120 Vac outlets
Weight: 0.9 kg (2 lbs)



Computer screen depicting the internal parameters setup for tuning mode, ramp/soak sequence and security lockouts when using CN9-SW Software. When a satisfactory instrument configuration has been achieved, these settings can be saved to a file for later use or cloned to other instruments on the network.

Input and Range Table

Input Code	Input Type	Linearized Range (Units are °C/°F Switchable)	Linearity °C
J	Iron-Constantan	-0 to 800°C/32 to 1472°F	0.5
K	CHROMEGA®-ALOMEGA®	-50 to -1200°C/-58 to 2192°F	0.25
T	Copper-Constantan	-200 to -250°C/-273 to 482°F	0.25
E	CHROMEGA®-Constantan	0 to 600°C/32 to 1112°F	0.5
R	Pt-13%Rh/Pt	-50 to 40°C/40 to 1768°F	2.0
S	Pt-10%Rh/Pt	0 to 1600°C/32 to 2912°F	2.0
N	OMEGA-P®-OMEGA-N®	-50 to 1200°C/-58 to 2912°F	0.25
RTD	100ΩPt, 2-Wire	-200 to 400°C/-273 to 752°F	0.25
MA	LINEAR CURRENT	0 to 20 mA(-250 to 3000 Max. Scale)	±0.5%
MV	LINEAR VOLTAGE	0 to 20 mV(-250 to 3000 Max. Scale)	±0.5%

To Order (Specify Model No.)

Model Number	Price	Description
CSC32(*)	$345	Benchtop controller

** Insert Input Code: **J, K, T, E, R, S, N, RTD, MV or MA from Input and Range Table***

Each model comes with an operator's manual and 120 Vac power cord and input connector.
***Ordering Example: CSC32K-C2**, benchtop controller, type K input and RS-232 communications option: $345 + 125 = $470*
OMEGACARE℠ extended warranty program is available for models shown on this page.
Ask your sales representative for full details when placing an order.
OCW-1** OMEGACARE℠ extends standard 1-year warranty to a total of 2 years ($47), $470 + 47 = **$517

Communications Options (Pre-wired 6' communications cable included)

Suffix	Price	Description
-C2	$125	RS-232 communications bundled with free CN9-SW
-C4	$125	RS-485 communications bundled with free CN9-SW

Protocol Manual for CN9-SW Software

Model Number	Price	Description
BD9-PROTOCOL*	N/C	Modbus Protocol Manual (not required when using the CN9-SW software)

***Note:** This protocol manual provides the address information necessary to communicate with the CN9300/CN9400/CN9500 and CSC32 Series, with communications options installed, when interacting with custom or other commercially available software.*

"Smart" Temperature Transmitters

2 YEAR WARRANTY | MADE IN USA | OMEGACARE Extended Warranty Program

TX66A Series

$295
Basic Unit

TX60-2A two-line plug-in display

TX66A transmitter

Both models shown smaller than actual size

- **Small, Economical**
- **2-Wire, 4 to 20 mA output**
- **Thermocouple, RTD, and mV Inputs**
- **Automatic Cold Junction Compensation**
- **Automatic Self-Calibration**

The TX66 "smart" transmitter offers isolation, linearization, automatic temperature compensation, automatic self-calibration, and easy-to-use menus. These compact units accept a large number of inputs. The optional 1-line display will fit within the same footprint as the transmitter. The 2-line plug-in display is slightly larger, with two push buttons and LCD glass. Both displays are easily field mounted. At least one display is required to set up the transmitter.

TX66A transmitter shown with explosion-resistant housing. See Section B in the Made in USA Handbook for Protection Heads

Specifications

Linearization: ±0.05°C
Output: Analog: 2-wire, 4 to 20 mA; Digital
Minimum Output Range: None
Output Resolution:
Analog: 3.5 µA; digital: 4 significant digits
Accuracy: Digital: ±0.03% of the millivolt or ohm equivalent reading or the accuracy from the table below, whichever is greater; Analog: digital accuracy plus ±4 µA, typical, ±8 µA max.
Repeatability: One-half of accuracy
Fail safe: User programmable for High, Low, or Off
Weight: 227 g (8 oz)
Operating Temp. Range:
Transmitter: -40 to 85°C (-40 to 185°F); Display: -20 to 70°C (-4 to 158°F), 0 to 100% RH, non-condensing
Isolation: 500 Vdc or peak ac; operating input-output voltage: 250 V p-p ac or ±250 Vdc
Power and Load:
12 to 48 Vdc; $V_{SUPPLY\ (MIN)}$ = 12 + (R_{LOAD} in kΩ) x 23 mA
Common Mode Rejection: 120 dB
Reverse Polarity Protection:
42 Vdc applied with either polarity
Dimensions: 61 Dia x 41 mm H (2.4 x 1.6")

Input Type	Range		Accuracy	
	°C	°F	°C	°F
B	100 to 1800	212 to 3272	±0.6	±1.08
C	0 to 2320	32 to 4208	±0.5	±0.9
E	-50 to 1000	-58 to 1832	±0.2	±0.36
J	-180 to 750	-292 to 1382	±0.2	±0.36
K	-180 to 1250	-292 to 2282	±0.2	±0.36
L	-200 to 900	-328 to 1652	±0.4	±0.72
N	0 to 1200	32 to 2192	±0.2	±0.36
R	0 to 1600	32 to 2912	±0.5	±0.9
S	0 to 1550	32 to 2822	±0.5	±0.9
T	-150 to 400	-238 to 752	±0.3	±0.54
U	-100 to 600	-148 to 1112	±0.4	±0.72
100 Ω Pt RTD[1]	-200 to 850	-328 to 1562	±0.08	±0.14
100 Ω Pt RTD[2]	-200 to 645	-328 to 1193	±0.08	±0.14
Millivolt		-15 to 115 mV		±0.006 mV
Ohm		0 to 500 Ω		±0.002 Ω

[1] Din Curve (α = 0.00385) [2] Samma Curve (α = 0.003923). Call factory for special units with 100 Ω Ni, 120 Ω Ni and 10 Ω Cu

To Order *(Specify Model Number)*

Model No.	Price	Description
TX66A	**$295**	Basic transmitter
TX67A	**325**	Intrinsically safe transmitter

Comes with complete operator's manual

***Note:** TX60-2A required for scaling input in the field.*

***Ordering Example: TX67A** intrinsically safe transmitter plus optional **TX60-2A** 2-line digital display, $325 + 159 = **$484**.*

OMEGACARE℠ extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order.

Accessories

MOST POPULAR MODELS HIGHLIGHTED!

Model Number	Price	Description
TX60-1A	**$ 80**	One-line, plug-in display
TX60-2A	**159**	Two-line, plug-in display
NEP-TX-66A-(*)	**400**	TX66A in explosion resistant housing†
NEP-TX-66A-RTD	**440**	TX66A in explosion resistant housing with ¼" OD, 12" long, 100 Ohm platinum RTD
NEP-TX-67A-*	**430**	TX67A in explosion resistant housing†
NEP-TX-67A-RTD	**470**	TX67A in explosion resistant housing with ¼" O.D. 12" long, 100 ohm platinum RTD

(*) Add thermocouple type (J, K, T, or E)
† ¼" OD, 12" long, (J, K, T, or E) ungrounded thermocouple probe with ½" NPT

Ordering Example: NEP-TX-66A-K,** TX66A transmitter in an explosion resistant housing, 12" ungrounded thermocouple, ¼" OD, type K probe with ½" NPT, **$400

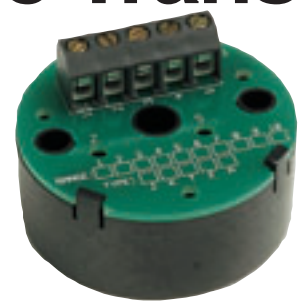
Miniature Low-Cost Temperature Transmitters

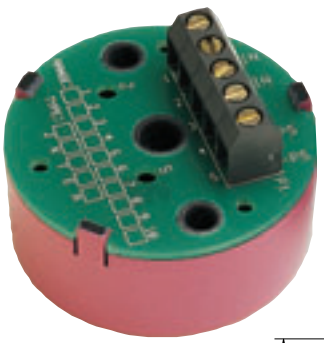
TX90A Series

$99

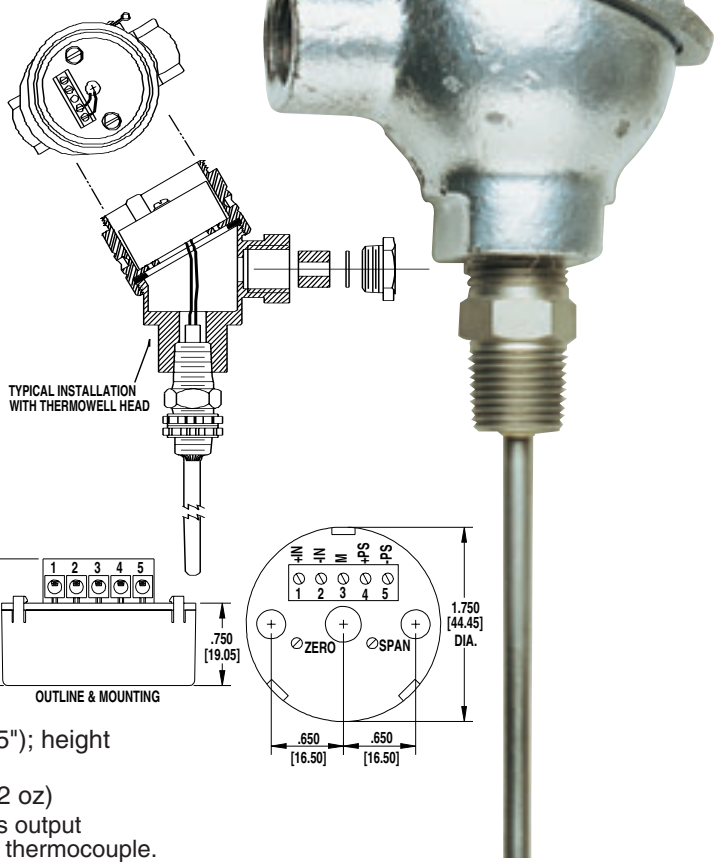
5 YEAR WARRANTY

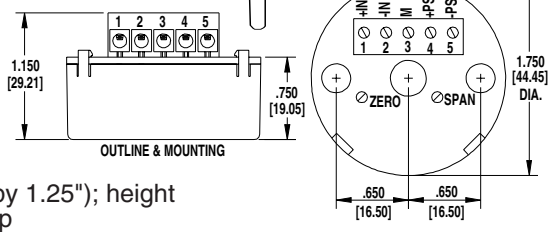
MADE IN USA





NB1TXA Thermocouple Head Shown





- **Two-Wire Transmitter**
- **4-20 mAdc Output**
- **±0.1% Accuracy**
- **Upscale Break Protection**
- **Non-Isolated**
- **Mountable in any Standard Protection Head**
- **Accepts J, K, T, E Thermocouple or 100Ω Platinum RTD Inputs**

The low-cost TX90A Series transmitters convert thermocouple or RTD signals into a 4-20 mA dc signal output that is directly referenced to the mV input. The TX90A transmitters mount directly within OMEGA's standard protection heads for connection to your sensor.

Specifications

Output Range: 4 to 20 mA dc

Zero and Span Adjustment Range: ±25% for °F and ±10% for °C

Accuracy: ±0.1% of FS (includes effects of linearity, hysteresis and repeatability) referenced to the mV input

Operating Temperature Range: -40 to 85°C (-40 to 185°F)

Storage Temperature Range: -46 to 121°C (-50 to 250°F)

Supply Voltage: 8-50 Vdc, 24V nominal

Max Loop Resistance:

$$\frac{Vs - 8}{0.020A}$$

Dimensions: 44.5 mm diameter x 31.75 mm tall (1.75 by 1.25"); height includes terminal strip

Weight: 34 g (less than 1.2 oz)

Note: Thermocouple Models output proportional to mV output of thermocouple. Not linearized to temperature.

IN STOCK FOR FAST DELIVERY!

MOST POPULAR MODELS HIGHLIGHTED!

To Order *(Specify Model Number)*

Model No.	Price	Description
TX91A-(*)	**$ 99**	Thermocouple (J, K, T, E)
TX92A-(*)	**99**	RTD transmitter (100Ω Pt100, alpha = 0.00385)
NB1TXA-(*)	**148**	NB1 Cast Iron Thermocouple Head, probe, 12" L, ¼ O.D., ungrounded junction, 304SS sheath, with TX91A Transmitter
NB3TXA-(*)	**148**	NB3 Aluminum Thermocouple Head, probe, 12" L, ¼ O.D., ungrounded junction, 304SS sheath, with TX91A Transmitter
PRTXA-(*)	**189**	PR-12 RTD probe, 12" L, ¼ O.D., 304SS sheath, with TX92A Transmitter

**Specify range code from chart below. Each unit comes complete with operator's manual.*

Ordering Example: TX91A-J2** specifies a Type J transmitter, with 0 to 200°F range, **$99

Range Codes

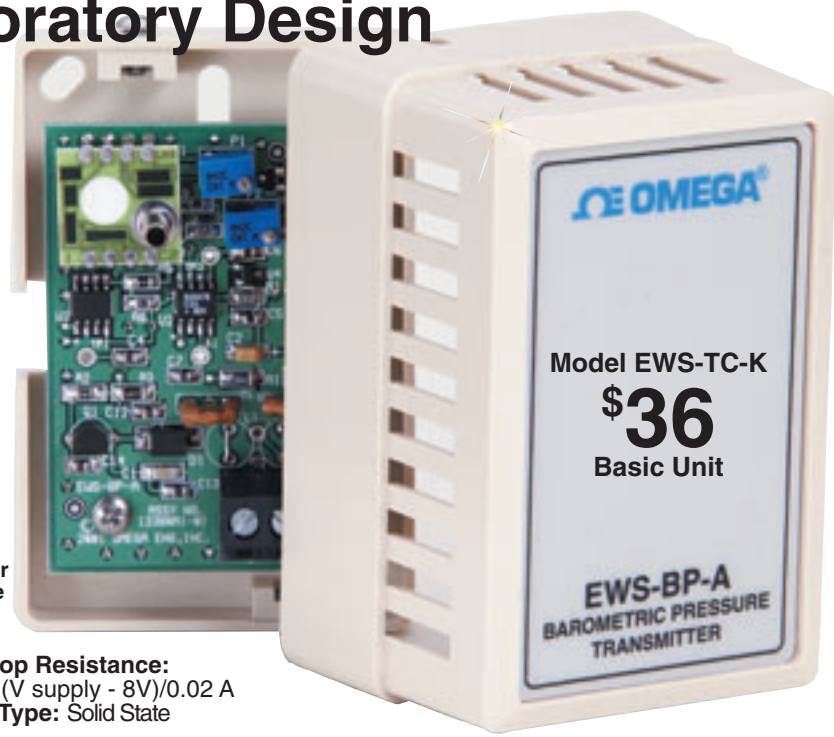
Model Number					Range
TX91A				TX92A	
J	K	T	E	RTD	
–	–	–	–	1	-40 to 60°C (-40 to 140°F)
J2	K2	T2	E2	2	-18 to 93°C (0 to 200°F)
J3	K3	T3	E3	3	-18 to 149°C (0 to 300°F)
J4	K4	T4	E4	4	-18 to 260°C (0 to 500°F)
J5	K5	T5	E5	5	-18 to 399°C (0 to 750°F)
J6	K6	–	E6	6	-18 to 538°C (0 to 1000°F)

Economical Environmental Wall Mount Sensors,

Stylish Office/ Laboratory Design

- **Thermocouple, RTD or Thermistor Sensor Models**
- **Temperature, Temperature/Humidity and Barometric Pressure Transmitter Models**
- **Stylish Design Blends in Well with Office, Computer Room or Laboratory Décor**

OMEGA's new low cost environmental wall mount sensors offer the perfect solution for keeping your office, computer room or laboratory's décor looking great at an economical price. These miniature units come in 6 models that will interface directly with most process meters, controllers, recorders, data loggers and data acquisition systems. Thermocouple, RTD and Thermistor models come with 914 mm (36") leads standard. Temperature, temperature/ humidity and pressure units come with user selectable industry standard 4-20 mA or 1-5 Vdc output.



Wall mount sensor shown actual size

Specifications General

Enclosure Material:
Acrylonitrile Butadiene Styrene
Dimensions: 79 x 54 x 45 mm (3.12 L x 2.12 W x 1.78" H)

THERMOCOUPLE SENSORS
Max. Temperature: 60°C (140°F)
Accuracy: ±1.1°C (1.98°F)
Sensor Types: J,K,T,E
Sensor Lead Length: 914 mm (36")
Lead Material: 24 AWG, Teflon® coated

RTD SENSOR
Max. Temperature: 60°C (140°F)
Accuracy: ±1°C (1.8°F)
Sensor Type: 100 Ohm Pt. .00385
Sensor Lead Length: 914 mm (36")
Lead Material: Teflon insulated 3 conductor 26 AWG stranded Nickel Plated Copper

THERMISTOR SENSOR
Max. Temperature: 60°C (140°F)
Accuracy: ±.2°C (.36°F)
Sensor Type: OMEGA® "400" Series 2252 Ω @ 25°C
Sensor Lead Length: 914 mm (36")
Lead Material: PVC insulated 2 conductor 22 AWG stranded Nickel Plated Copper

TEMPERATURE TRANSMITTER
Temperature Specifications:
Range: -15 to 60°C (5 to 140°F)
Accuracy@ 25°C:
In Still Air: ±1.2°F(0.7°C)@24°C; ±2.5°F (1.4°C) across full range
In Moving Air: ±2.5°F(1.4°C)@25°C; ±3°F(1.7°C) across full range
Note: Not recommended for fast moving air applications
Repeatability: ±0.5°F (0.3°C)
Output: 4-20 mA or 1 to 5 Vdc (scaled across range)
Temp Time Constant: (for 63.2% response); 9 sec. in moving air (1M/sec.); 30 sec. in still air
Power: 8 to 24 Vdc @ 20 mA
Max. Loop Resistance:
Ohms = (V supply - 8V)/0.02 A
Sensor Type: Solid State

TEMPERATURE/HUMIDITY TRANSMITTER
Relative Humidity Specifications:
Range:5-95 (non-condensing)
Accuracy@ 25°C:
From 5-20%, ±4% RH
From 20-80%,±3%RH
From 80-95%,±4%RH
Repeatability: ±1%RH
Output: 4-20 mA or 1 to 5 Vdc (scaled for 0 to 100%RH
Power: 8 to 24 Vdc @ 20 mA
Max. Loop Resistance:
Ohms = (V supply - 8V)/0.02 A
RH Time Constant: 100 sec., from 20-90%, 60 sec from 90-20%
Sensor Type: Thin film polymer capacitor

(See Temperature Transmitter for Temperature Specifications)

BAROMETRIC PRESSURE TRANSMITTER
Pressure Range: 21.4 to 32 in. of Hg
Temp Compensation: Across full range
Accuracy: ±1% of span @ 25°C (77°F) plus ±0.11%/°C (0.06%/°F)
Operating Temp Range: 0 to 60°C (32 to 140°F)
Output: User selectable 4-20 mA, 1 to 5 Vdc
Power: 8 to 24 Vdc @ 40 mA
Max. Loop Resistance:
(V supply - 8V) 0.020 A = Ohms
Media Compatibility: Clean dry air, non-corrosive gases

Teflon® is a registered trademark of DuPont.

ALL MODELS IN STOCK!

To Order *(Specify Model Number)*

Model No.	Price	Description
EWS-TC-(*)	$36	Wall mount thermocouple sensor
EWS-RTD	46	Wall mount RTD sensor (100 Ω Pt., .00385)
EWS-TH	46	Wall mount 400 series thermistor sensor
EWS-TX	69	Wall mount temperature transmitter
EWS-RH	145	Wall mount temperature/humidity transmitter
EWS-BP-A	145	Wall mount barometric pressure transmitter
EWS-MB	12	Conduit box mounting bracket/wall plate adaptor kit
PSU-93	40	24 Vdc power supply (for transmitter models)
TX4-100	28.50	Shielded 4 conductor transmitter cable (100 ft)

Note:** -TC, -RTD and -TH models come with 914 mm (36") of lead wire standard. For longer lead wire add suffix "-(†)ft." and add $1 per ft. to the price. Example: **EWS-TC-K-8ft**., wall mount type K thermocouple sensor with 8 ft. lead wire, $36 + 5 = **$41
** Insert Thermocouple Type J,K,T,E † Insert desired lead wire length in feet*
Ordering Example: EWS-TX**,Temperature Transmitter, EWS-MB, Bracket/Wall Plate, **PSU-93**, Power Supply, **TX4-100** Transmitter Cable, $69 + 12 + 40 + 28.50 = **$149.50

Warranty/Disclaimer

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Send order confirmations to:
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P.O. BOX 2669
STAMFORD, CT 06906 USA

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For fast, efficient processing of your order, please include:

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Telephone Number of Requisitioner

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