

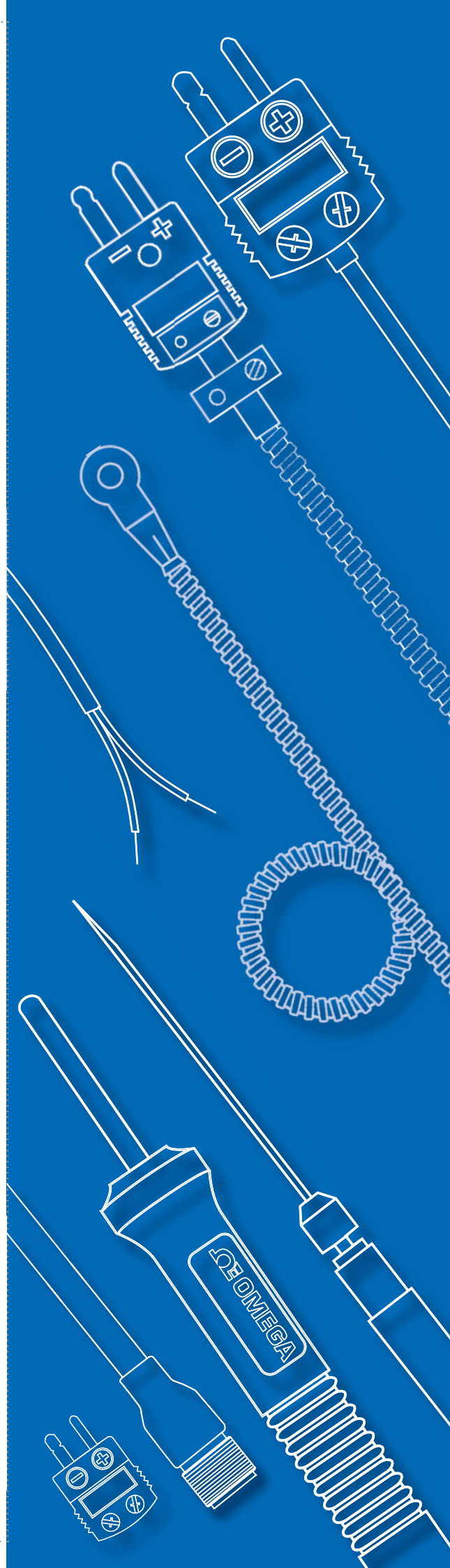


Temperature Measurement

Volume 2

*Thermocouple sensors, connectors,
wire, surface probes and accessories*

www.omega.co.uk



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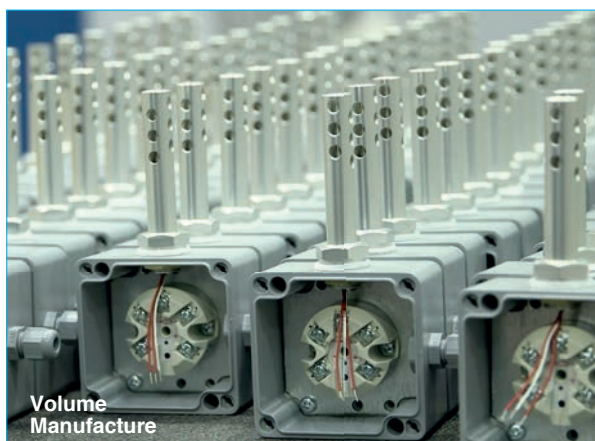
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Precision Manufacturing

OMEGA gives customers the widest choice of standard & bespoke products. Grouped into product lines and technologies including temperature, industrial heaters, pressure, flow, data acquisition, automation, laboratory and environmental control. We truly are your single source provider for all product needs. We can provide custom designs and assemblies and we offer volume manufacturing for OEM needs in temperature, pressure and electronic controls.

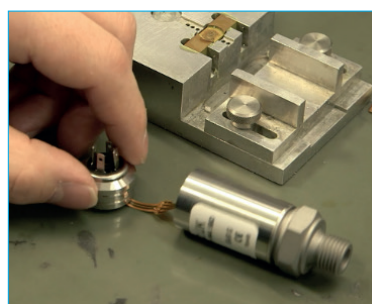


Standard and Bespoke Products

All product designs are tested and perfected in our state-of-the-art facility. The testing that takes place here assures that you receive the best products for your applications. Once an OMEGA product design is perfected and tested, stock production takes place at our Manchester manufacturing facility.



Manchester Manufacturing HQ.



Our Manchester HQ has over 45,000 sq ft. of operations and a skilled work force to manufacture your products. Our dedicated pressure facility produces the

highest quality transducers, transmitters and custom order products. Our temperature department specializes in high precision assembly capable of manufacturing exotic probes, MI thermocouple probes, connectors, RTD sensors, wire and patch sensors, M12 sensors, and custom designed solutions.

Custom Design Solutions

Whether you need a simple modification of a standard product or complete customised system engineering, OMEGA can accommodate your special request.



Unlike many online stores and distributors OMEGA has the capability to design and manufacture probes - all compliant to CE standards.

Each OMEGA product goes through a quality control process that ensures all dispatched items are of the highest standard.

Calibration Services

OMEGA is constantly striving to find new ways to increase the level of service available to our customers. To this end, OMEGA continues to expand the range of calibration services available, offering a broad selection of standards for use in calibrating temperature, infrared humidity, pressure, flow, and force products. By maintaining these standards in-house, we can ensure fast turnaround time on calibrations.



Our calibration laboratory is able to calibrate a wide variety of testers ranging from electrical meters such as multimeters and clamp meters to specific testers such as barometers, vacuum gauges, anemometers, digital thermometers and much more.

We calibrate -30 °C to +1200 °C

Our specialist facilities can calibrate your:

- Thermocouples (-30 °C to +1200 °C)
- RTD's (-30 °C to 300 °C)
- Thermistors (-30 °C to 300 °C)
- Infrared devices (-18 °C to +400 °C)

Interested in our calibration services? Here is a list of areas we cover:

- Temperature, Infrared
- Pressure, Strain & Force
- Electrical, Voltmeters, Multimeters
- Airspeed, Anemometers
- Humidity

And we offer **ISO certified calibration traceable to UK & NIST standards.**

From food production to pharmaceuticals, many industry bodies require system calibration to ensure measurement integrity. With state-of-the-art reference equipment, OMEGA provides calibration that is fully traceable back to a wide range of standards.

All calibrations are performed by our technicians. Contact OMEGA's Customer Service Department (0161 777 2225) to discuss your specific calibration requirements.



After Sales Care

Omega has technical Engineering Support for both pre and post sales product usage questions. They are available to help you with any in-depth application needs regarding Omega products you are considering purchasing. After purchase they can also help you with questions regarding installation and use of our products.

Call **0161 777 2225** to speak with an expert.

What are thermocouples? Why Use Them? How Do They Work?

What is a thermocouple?

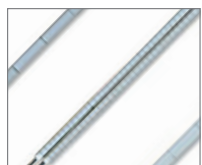
A thermocouple is a sensor for measuring temperature. This sensor consists of two dissimilar metal wires, joined at one end, and connected to a thermocouple thermometer or other thermocouple-capable device at the other end. When properly configured, thermocouples can provide temperature measurements over wide range of temperatures.

Why use a thermocouple instead of a RTD or thermistor sensor?

Thermocouples are known for their low cost, durability and versatility as temperature sensors, therefore they are commonly used on a wide range of applications - from heavy industrial and process industry usage to laboratory and environmental testing. Due to their wide range of permutations and technical specifications, it is important to understand their basic structure, how they work, and their limitations in order determine what is the right type and material of thermocouple for your application.

Choose the right thermocouple

Beaded Wire Thermocouple



A beaded wire thermocouple is the simplest form of thermocouple. It consists of two pieces of thermocouple wire joined together with a welded bead. Because the bead of the thermocouple is exposed,

there are several application limitations. The beaded wire thermocouple should not be used with liquids that could corrode or oxidize the thermocouple alloy. Metal surfaces can also be problematic. Often metal surfaces, especially pipes are used to earth electrical systems. The indirect connection to an electrical system could impact the thermocouple measurement. In general, beaded wire thermocouples are a good choice for the measurement of gas temperature. Since they can be made very small, they also provide very fast response time.

Thermocouple Probe

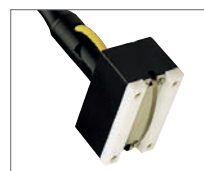


A thermocouple probe consists of thermocouple wire housed inside a metal or ceramic tube. The wall of the tube is referred to as the sheath of the probe. Common sheath materials include stainless steel and

Inconel®. Inconel supports higher temperature ranges than stainless steel, however, stainless steel is often preferred because of its broad chemical compatibility. For very high temperatures, exotic metal or ceramic

sheath materials are also available. View our range of high temperature exotic thermocouple probes. The tip of the thermocouple probe is available in three different styles. Grounded, insulated and exposed. With a grounded tip the thermocouple is in contact with the sheath wall. A grounded junction provides a fast response time but it is most susceptible to electrical earth loops. In insulated junctions, the thermocouple is separated from the sheath wall by a layer of insulation. The tip of the thermocouple protrudes outside the sheath wall with an exposed junction. Exposed junction thermocouples are the fastest responding and best suited for non-corrosive gas and dry air temperature measurements.

Surface Probe



Measuring the temperature of a solid surface is difficult for most types of temperature sensors. To ensure accurate readings, the entire measurement area of the sensor must be in good

thermal contact with the surface. This is difficult when working with a rigid sensor and a rigid surface. Since thermocouples are made of pliable metals, the junction can be formed flat and thin to provide maximum contact with a rigid solid surface. These thermocouples are an excellent choice for surface measurement. The thermocouple can even be built in a mechanism which rotates, making it suitable for measuring the temperature of a moving surface.

Wireless Thermocouples



Bluetooth, Zigbee and WIFI wireless transmitters that connect with laptops, smartphones or tablets to log and monitor temperature measurements remotely.

How does a thermocouple work?

When two wires composed of dissimilar metals are joined at both ends and one of the ends is heated, there is continuous current which flows in the thermoelectric circuit. If this circuit is broken at the centre, the net open circuit voltage (the Seebeck voltage) is a function of the junction temperature and the composition of the two metals. Which means that when the junction of the two metals is heated or cooled a voltage is produced that can be correlated back to the temperature.

What are thermocouples? Why Use Them? How Do They Work?

Different combinations of metals

Thermocouples are available with different combinations of metals, known as types or calibrations. The most common are the “Base Metal” thermocouples known as Types K, J, T, E and N. There are also high temperature calibrations - also known as Noble Metal thermocouples - Types R, S, C, D and B.

Calibration	Tem Range	Std. Limits of Error	Spec. Limits of Error
J	0°C to 750°C (32° F to 13382°F)	Greater of 2.2°C or 0.75%	Greater of 1.1°C or 0.4%
K	-200°C to 1250°C (-328° F to 2282°F)	Greater of 2.2°C or 0.75%	Greater of 1.1°C or 0.4%
E	-200°C to 900°C (-328° F to 1652°F)	Greater of 1.7°C or 0.5%	Greater of 1.0°C or 0.4%
T	-250°C to 350°C (-328° F to 662°F)	Greater of 1.0°C or 0.75%	Greater of 0.5°C or 0.4%

Common Thermouple Temperature ranges

Each type has a different temperature range, tolerance and environmental considerations. Although the thermocouple type dictates the temperature range, the maximum range may also be limited by the diameter of the thermocouple wire. That is, a very thin thermocouple may not reach the full temperature range. K Type Thermocouples are known as general purpose thermocouples due to their low cost and wide temperature measurement range.

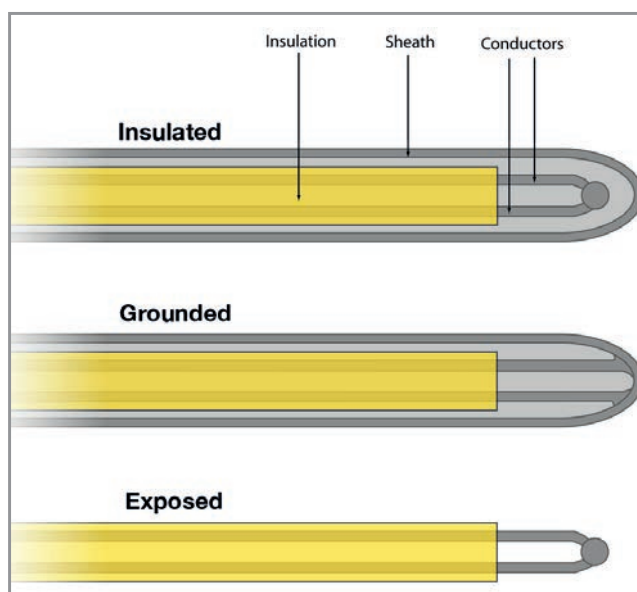
How do I choose a thermocouple?

1. Determine the application where the thermocouple sensor will be used.
2. Note the minimum and maximum temperatures the thermocouple will be exposed to.
3. Consider any chemical resistance needed for the thermocouple or sheath material.
4. Evaluate the need of abrasion and vibration resistance.
5. List any installation requirements.

How do I know which junction type to choose?

Sheathed thermocouple probes are available with one of three junction types: grounded, insulated or exposed. At the tip of a grounded junction probe, the thermocouple wires are physically attached to the inside of the probe wall. This results in good heat

transfer from the outside, through the probe wall to the thermocouple junction. In an insulated probe, the thermocouple junction is detached from the probe wall. Response time is slower than the grounded style, but the insulation provides electrical isolation.



The thermocouple in the exposed junction style protrudes out of the tip of the sheath and is exposed to the surrounding environment. This type offers the fastest response time, but is limited in use to noncorrosive and non-pressurized applications. See the illustration above for a full discussion of junction types. The sheath insulation is sealed where the junction extends to prevent penetration of moisture or gas which could cause errors.

The grounded junction is recommended for the measurement of static or flowing corrosive gas and liquid temperatures and for high pressure applications. The junction of a grounded thermocouple is welded to the protective sheath giving faster response than the ungrounded junction type.

An insulated junction is recommended for measurements in corrosive environments where it is desirable to have the thermocouple electrically isolated from and screened by the sheath. The welded wire thermocouple is physically insulated from the thermocouple sheath by MgO powder.

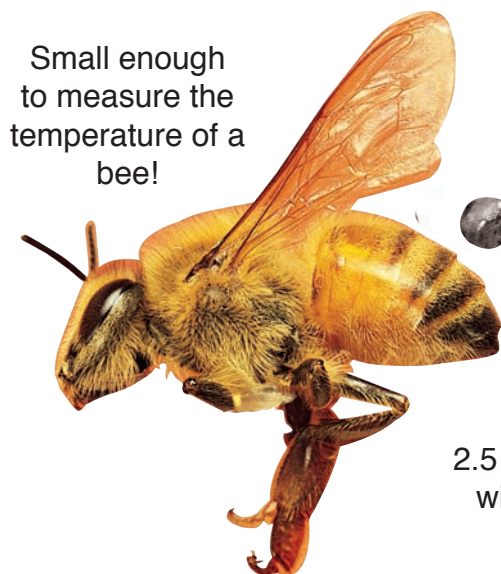
All OMEGA Thermocouple Wire, Probes and Connectors are available with either ANSI or IEC Colour Codes. On our website, model numbers reflect the IEC Colour-Coded Product. Please contact sales or visit omega.co.uk for instructions on how to order ANSI Colour-Coded products

ANSI Code	ANSI MC 96.1 Colour Coding		Alloy Combination		IEC 584-3 Colour Coding		IEC Code
	Thermocouple Grade	Extension Grade	+ Lead	- Lead	Thermocouple Grade	Intrinsically Safe	
J			IRON Fe (magnetic)	CONSTANTAN COPPER-NICKEL Cu-Ni			J
K			CHROME [®] NICKEL- CHROMIUM Ni-Cr	ALOMEGA [®] NICKEL-ALUMINUM Ni-Al (magnetic)			K
T			COPPER Cu	CONSTANTAN COPPER-NICKEL Cu-Ni			T
E			CHROME [®] NICKEL- CHROMIUM Ni-Cr	CONSTANTAN COPPER-NICKEL Cu-Ni			E
N			OMEGA-P [®] NICROSIL Ni-Cr-Si	OMEGA-N [®] NISIL Ni-Si-Mg			N
R	NONE ESTABLISHED		PLATINUM- 13% RHODIUM Pt-13% Rh	PLATINUM Pt			R
S	NONE ESTABLISHED		PLATINUM- 10% RHODIUM Pt-10% Rh	PLATINUM Pt			S
U	NONE ESTABLISHED		COPPER Cu	COPPER-LOW NICKEL Cu-Ni			U
B	NONE ESTABLISHED		PLATINUM- 30% RHODIUM Pt-30% Rh	PLATINUM- 6% RHODIUM Pt-6% Rh			B
G* (W)	NONE ESTABLISHED		TUNGSTEN W	TUNGSTEN- 26% RHENIUM W-26% Re	NO STANDARD USE ANSI COLOUR CODE		G (W)
C* (W5)	NONE ESTABLISHED		TUNGSTEN- 5% RHENIUM W-5% Re	TUNGSTEN- 26% RHENIUM W-26% Re	NO STANDARD USE ANSI COLOUR CODE		C (W5)
D* (W3)	NONE ESTABLISHED		TUNGSTEN- 3% RHENIUM W-3% Re	TUNGSTEN- 25% RHENIUM W-25% Re	NO STANDARD USE ANSI COLOUR CODE		D (W3)

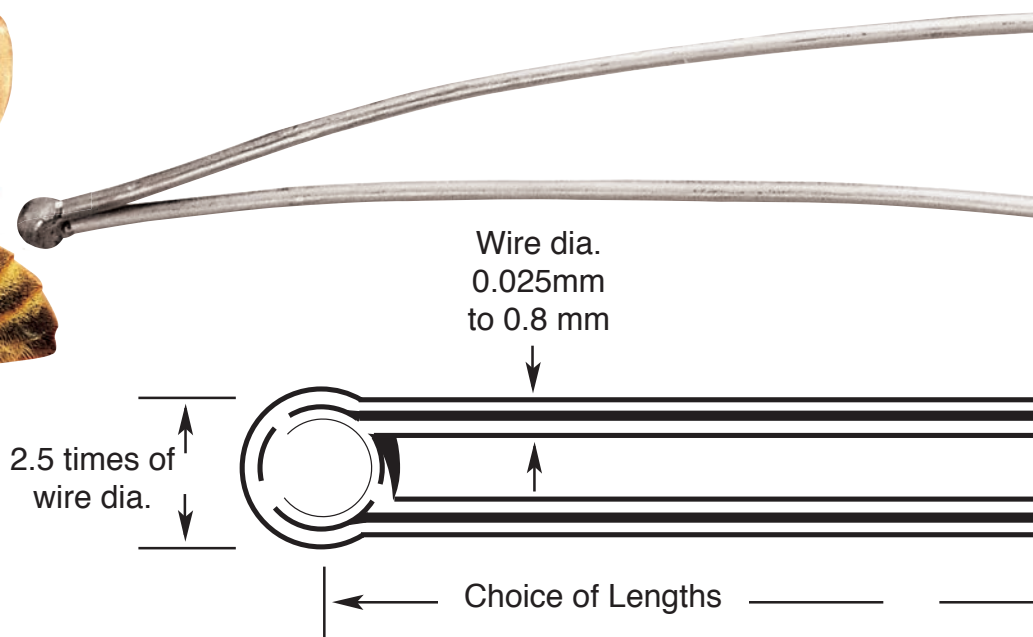
* Not official symbol or standard designation

Unsheathed Fine Gauge Thermocouples

Fast, accurate temperature measurements on a miniature scale



Small enough
to measure the
temperature of a
bee!



Maximum Service Temperature

Type	0.13 mm	0.81 mm
J	315°C	482°C
K	593°C	982°C
N	593°C	982°C
T	149°C	260°C
E	315°C	593°C
R,S	—	1450°C
B	—	1700°C

All measurements in mm

CHAL SERIES

Applications:

- Internal combustion engine temperatures
- Gas chromatography
- Scientific instruments
- Biophysics

Wire Diameter Choose from:

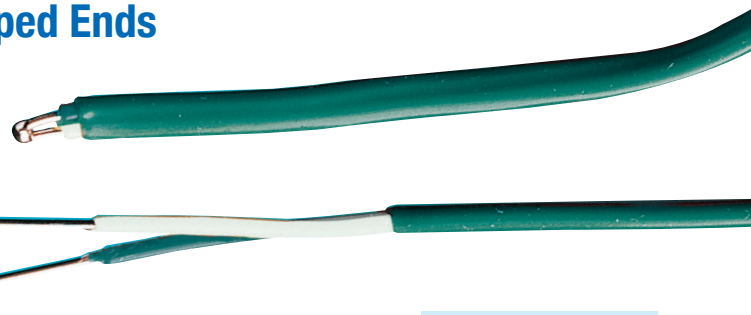
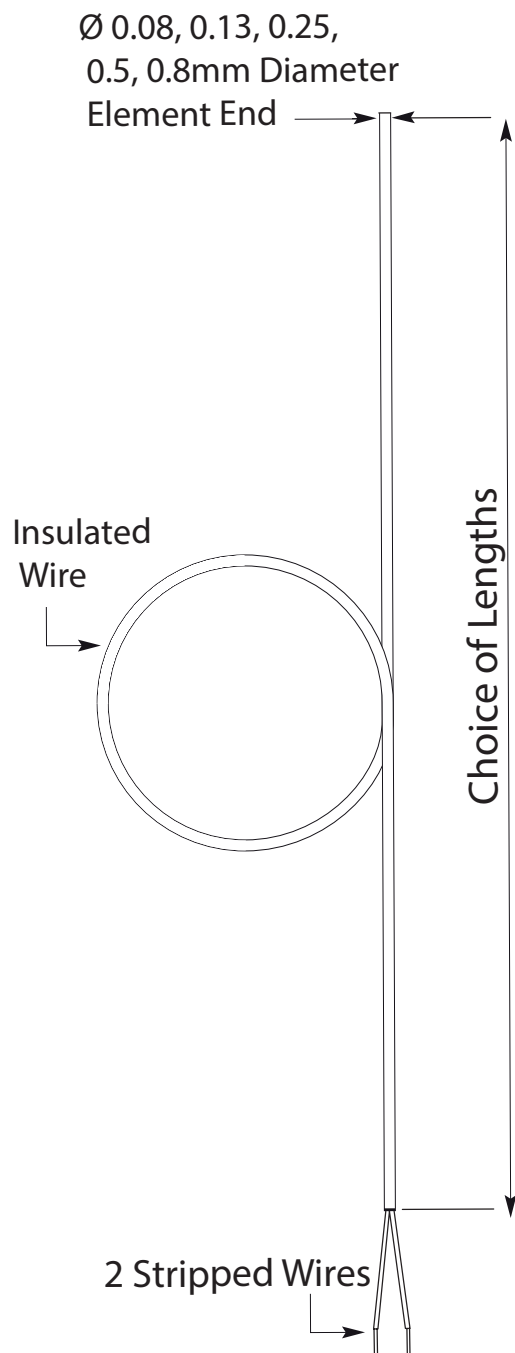
0.025 mm to
0.8 mm Diameter

Length Any Length Available:

The fine wire diameters enable accurate temperature measurements without disturbing the base temperature of the body, in which the installation is made, by keeping heat transfer via the leads to a minimum. Also, the fine junction permits accurate “pin-pointing” of the measured values. They are available in wire sizes ranging from 0.025 to 0.8 mm in diameter. All fine gauge thermocouples are made from carefully selected materials

- Diameters down to 0.025 mm
- Unsheathed fine diameter thermocouples for fast response
- Low heat transfer

Insulated Wire Thermocouples with Stripped Ends Supplied in Convenient Packs of 5



5TC SERIES

5TC SERIES Options

5TC - (1) - (2) - (3) - (4) - (5)

(1) Thermocouple Insulation:

TT for PFA

GG for Glass Braid

KK for Kapton

(2) Thermocouple Type:

KI for K Thermocouple

TI for T Thermocouple

JI for J Thermocouple

EI for E Thermocouple

(3) Wire Gauge select from:

20 for 0.8 mm Dia.

24 for 0.5 mm Dia.

30 for 0.25 mm Dia.

36 for 0.13 mm Dia.

40 for 0.08 mm Dia.

(4) Thermocouple Length:

1M for 1 m

2M for 2 m

(5) Connectors select from:

(Leave Blank) Stripped Ends

SMPW-M for Mini Plug

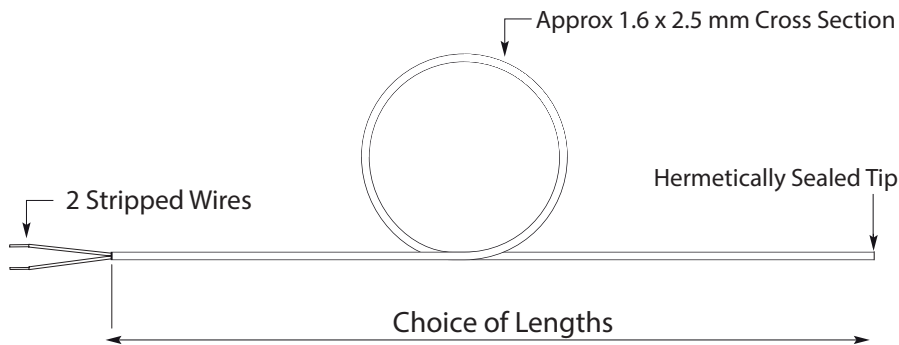
OSTW-M for Standard Plug

All measurements in mm

Beaded wire thermocouples available with PFA, Glass Fibre or Kapton insulation in a variety of lengths and gauges.

- PFA (260C rated), Glass Braid (480C rated)
- 0.8, 0.5, 0.25, 0.13 and 0.08 mm Dia. Conductors
- 1m and 2m Lengths Standard

Hermetically Sealed Thermocouple Sensors HSTC Series



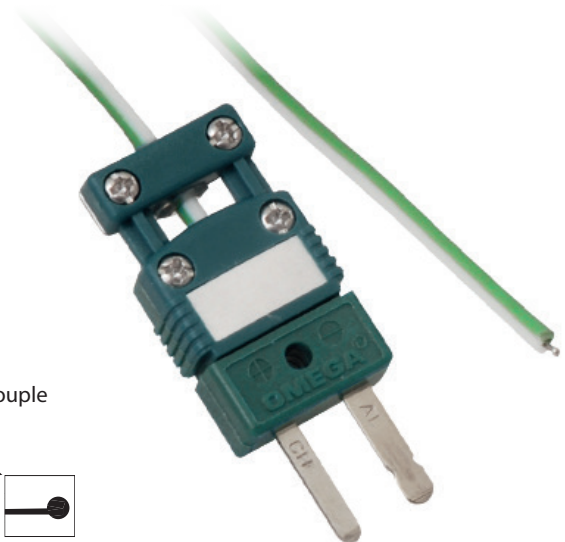
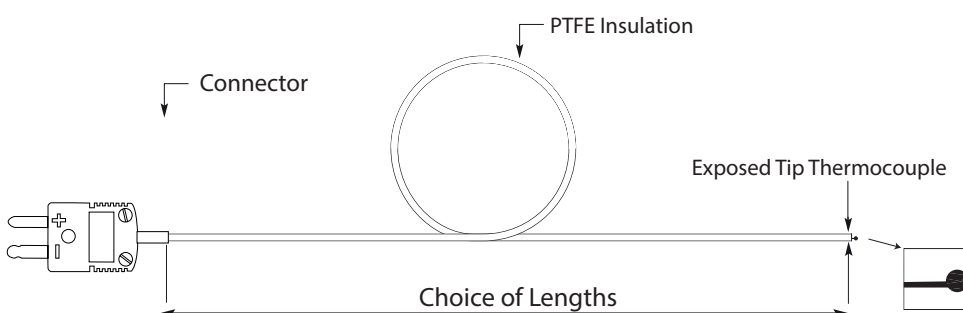
HSTC Series

All measurements in mm

These PFA insulated thermocouple wire sensors are hermetically seal-welded at the sensor tip to provide continuous PFA protection over the measurement junction. This unique design provides a small, flexible, and electrically isolated thermocouple, suited to a variety of applications.

- Insulation rated from -270 to 250°C
- Highly resilient to chemicals
- Many lengths standard

Single-Shot Wire Thermocouple Sensor PTFE Insulated 'Single Shot' Thermocouple Cable



TC-TS Series

All measurements in mm

The unique construction of this "single shot" thermocouple wire allows for a fast responding, exposed tip, thermocouple junction while still providing a high degree of resistance to ingress of air or liquid. Available with or without a miniature thermocouple plug and strain relief, in 1, 2 or 5 metre lengths. Other lengths and connector types are available on request..

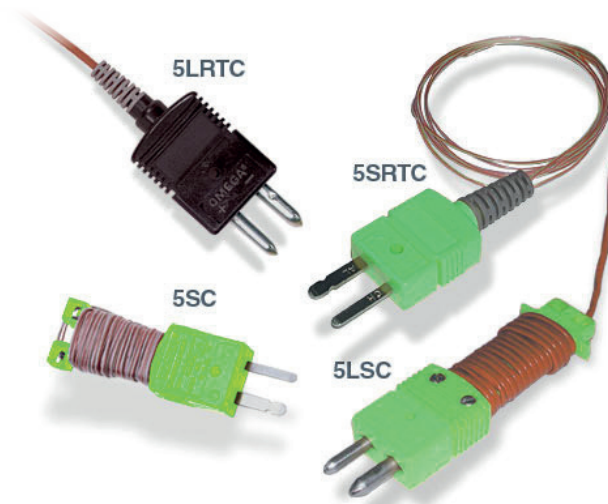
- Temperature range: -75°C to +250°C
- Fast response, exposed tip
- Class 1 tolerance wire

Fast response insulated thermocouple with connectors 5LSC, 5SRTC, and 5SC Series

Glass braid
Insulation



PFA
Insulation

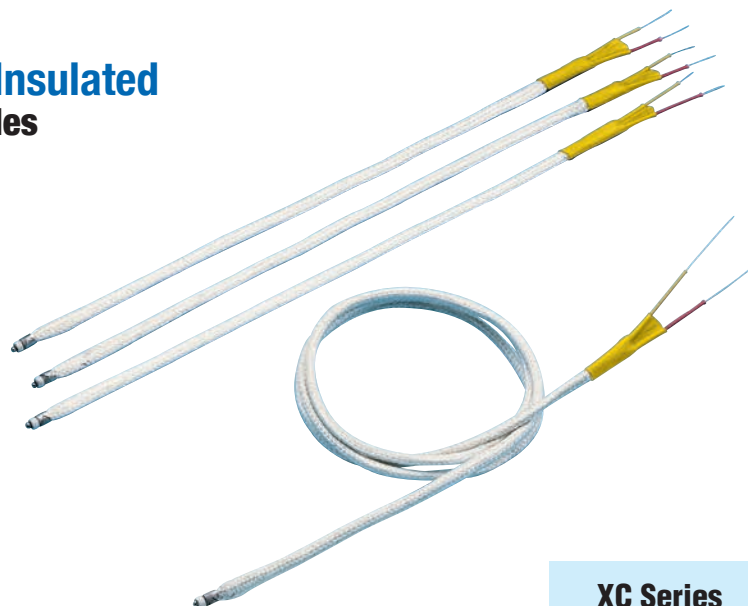


All models are available with 1 or 2 metre wire lengths and 3 types of wire insulation: Kapton and PFA provide good protection against moisture and abrasion resistance and are rated for maximum service temperatures of 315°C and 260°C respectively providing at the same time a fast response to temperature changes. Glass Braid is rated for a maximum service temperature of 480°C. Wire diameters of 0.08, 0.13, 0.25, 0.5 and 0.8mm are available.

- PFA Insulation max. 250°C, Kapton Insulation max. 315°C, Glass Braid Insulation. max. 480°C
- Fast response K, T, J and E Thermocouple Types
- 1 and 2m Lengths Standard

High Temperature Ceramic Fibre Insulated Nextel Ceramic Insulated Thermocouples

OMEGA
Thermowell and
head assembly
with XC series
thermocouple



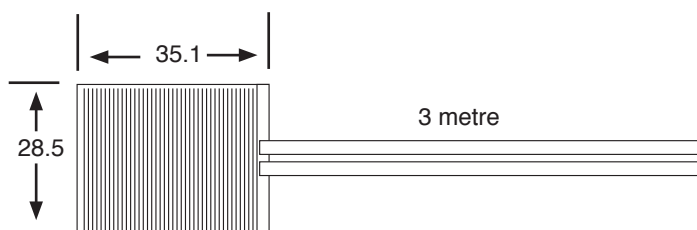
XC Series

All measurements in mm

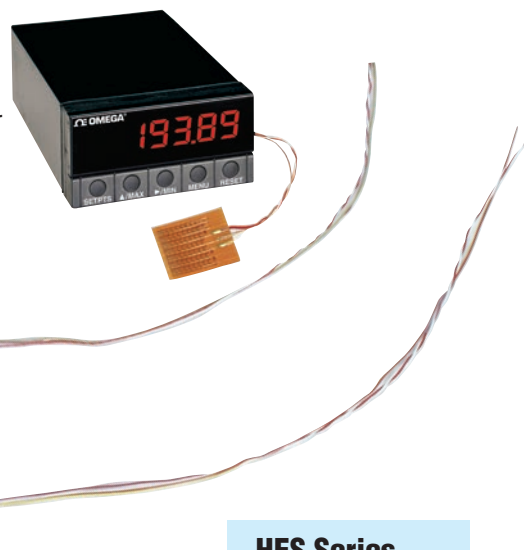
OMEGA® Nextel Ceramic Insulated Thermocouples are easy-to-use precise temperature elements manufactured to meet the highest industry standards. The Nextel ceramic insulation is rated for 1200°C continuous use, or 1425°C short term. These highly versatile elements are the ideal solution for many high temperature applications. Combined with OMEGA's stock thermowells and industrial heads, a complete head and well assembly can be quickly assembled for fast delivery.

- Insulation Temperature Rated: 1200°C Continuous, 1425°C Short Term
- Available in Thermocouple Types K, N, J and E
- Diameters of 1.6, 0.8 and 0.5 mm

Thin-Film Heat Flux Sensors HFS Series



Shown with
DP41-E digital
process indicator



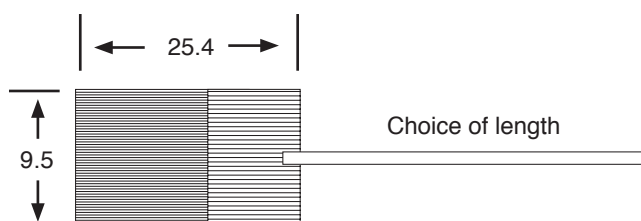
All measurements in mm

HFS Series

The HFS series sensor is designed for precise measurement of heat loss or gain on any surface. It can be mounted on flat or curved surfaces, and employs buttbonded junctions with a very low thermal profile for efficient reading. Each HFS series heat flux sensor functions as a self-generating thermopile transducer. It requires no special wiring, reference junctions or signal conditioning.

- Temperature range -200 to 150°C
- Easily attaches to curved and flat surfaces
- Type K thermocouple is standard

Surface Thermocouple probe Available in K, T, and J Thermocouple Types



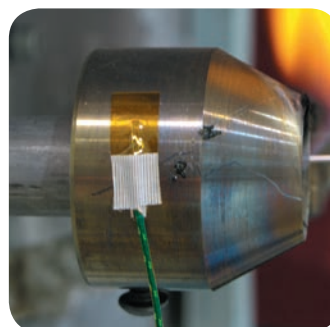
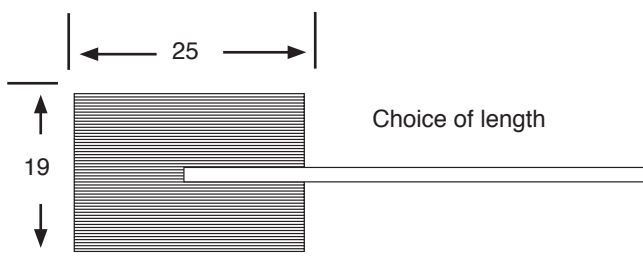
All measurements in mm

SA1XL Series

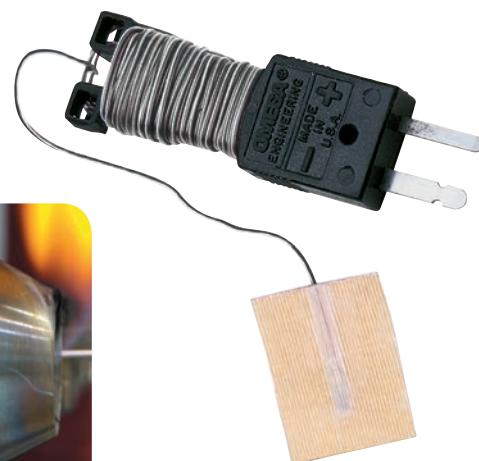
The surface thermocouple probes from the SA1XL series achieve response times of less than 0.15 seconds. This thermocouple is constructed using a Kapton/fibreglass junction insulation along with a fibreglass-insulated lead wire. The SA1XL can be used as a self-adhering thermocouple for temperatures up to 260°C or it can be cemented in place for use at temperatures up to 315°C. Supplied in convenient packs of 5.

- Temperature range: -73°C to +260°C
- Stripped Leads Standard (Moulded Miniature Plug with Integral Strain Relief Optional)
- Stocked in 1, 2, and 3 metre Lengths, custom lengths available

Fast Response, Self-Adhesive Surface Thermocouples Better than 0.3 second response times



175°C Temperature Rating



SA1 Series

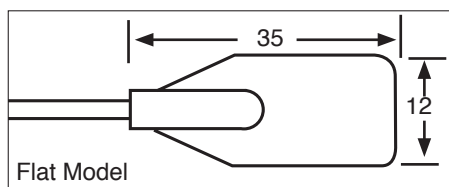
All measurements in mm

OMEGA's self-adhesive thermocouples have now been expanded to include the popular miniature connector with our patented wire caddy. The wire caddy provides a convenient way to store the thermocouple wire that is not needed for the application.

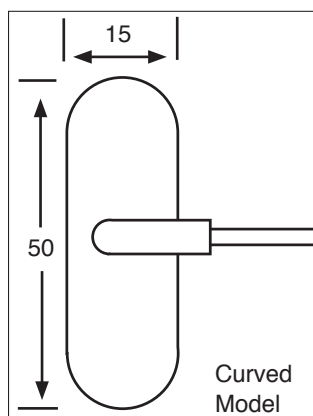
- Self Adhesive Backing for Easy Installation
- 1 m or 2 m Colour-Coded PFA
- Available in J, K, T, and E Calibrations

Self Adhesive Silicone Patch Surface Sensors Surface thermocouple sensor with temperature range from -30 to +150°C

Available for Flat or Curved Surfaces



All measurements in mm



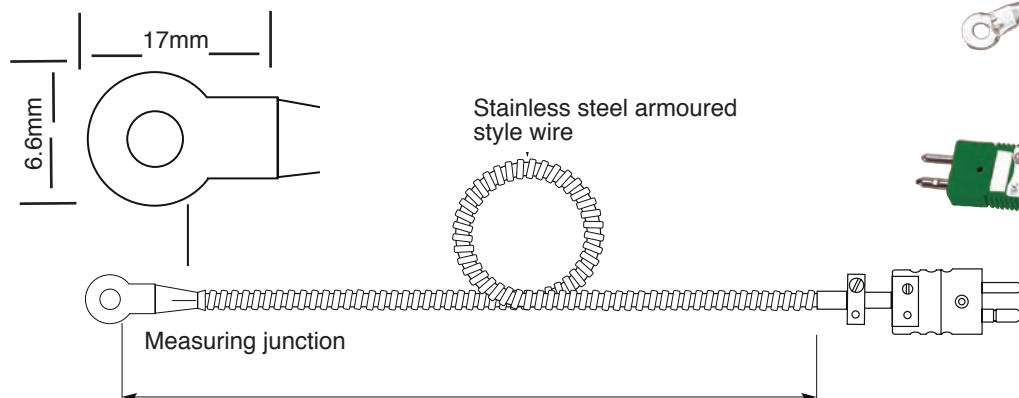
SA2 Series

These sensors are available in 2 different mounting styles for flat or curved surfaces. The integral thermocouple sensor is bonded onto the inner surface of the self adhesive aluminium foil strip, which is provided for faster response times.

- Surface sensor with Temperature Range from -30 to +150°C
- Available in K, T, J and E. Colour Coded for Instant Thermocouple Recognition
- Available for Flat or Curved Surface

Heavy Duty Bolt-On Washer Thermocouple Assemblies

Rugged thermocouple, for surface mount applications



All measurements in mm

WT-DT Series

Rugged thermocouple, for surface mount applications. Rated to 480°C, has a SS mounting washer with dimensions of 17.3 mm O.D., with a 6.6 mm mounting hole. Attached to the mounting surface: 2 m of SS flexible armour cable with stripped wire ends. Armour cable has 7.0 mm O.D., with 1.8 mm washer thickness. Standard thermocouple plugs are available for cold-end termination.

- J, K, T, and N Thermocouple Types
- Available with Stripped Leads or OSTW Standard Plug
- 2 m Stainless Steel Armour Cable

Bolt On Washer Thermocouple

Easily mounts to a variety of surfaces

Made from 0.8 mm Dia. Glass-On-Glass or PFA-Insulated Class 1 Tolerance Wire



All measurements in mm

WT Series

A versatile thermocouple assembly that easily mounts to a variety of surfaces. Suitable for a number of surface temperature measurement applications where fixed mounting is possible. J, K, T, and E thermocouple available in a new rugged design. Come in either M3.5, M4, M4.5 and M6 Screw Sizes and made from 0.8 mm Dia. Glass-On-Glass or PFA-Insulated Class 1 Tolerance Wire

- J, K, T, and E Thermocouple
- For M3.5, M4, M4.5 and M6 Screw Sizes
- Rated up to 480°C for Glass-On-Glass Insulation
Rated up to 260°C for PFA Insulation

High Temperature Inconel Overbraided Ceramic Fibre

Family of high temperature types J, K, E or N thermocouples

Style 1 Rounded tip



Style 2 Bead weld



Style 3 Bead weld



Style 4 Grounded with hole



Style 5 Air hood



All measurements in mm

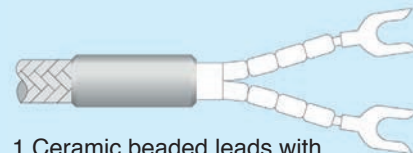
Unique OMEGA® family of high temperature types J, K, E or N thermocouples are double-protected with abrasion-resistant Inconel overbraid with high temperature ceramic fibre insulation. A temperature rating of 980°C continuous service and 1090°C short-term service makes these products ideal for many high temperature measurement applications. They are unexcelled for profiling ovens and furnaces. The 0.8mm diameter solid conductor thermocouple wires are insulated with braided ceramic fibre.

- Thermocouples with ceramic Fibre Insulation with inconel overbraid
- High temperature, flexible, abrasion resistant withstand temperatures up to 1090°C
- Five convenient styles for easy application

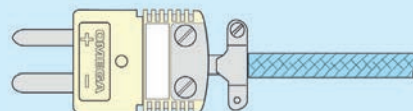


XCIB SERIES

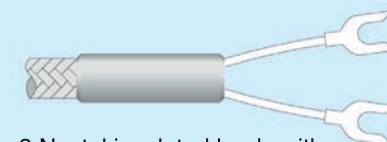
Termination Types



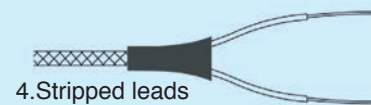
1.Ceramic beaded leads with compensated spade lugs



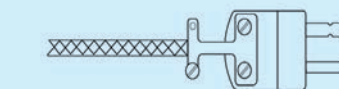
2.Type OSTW (220 °C) or NHXH (650 °C) male connectors



3.Nextel insulated leads with compensated spade lugs



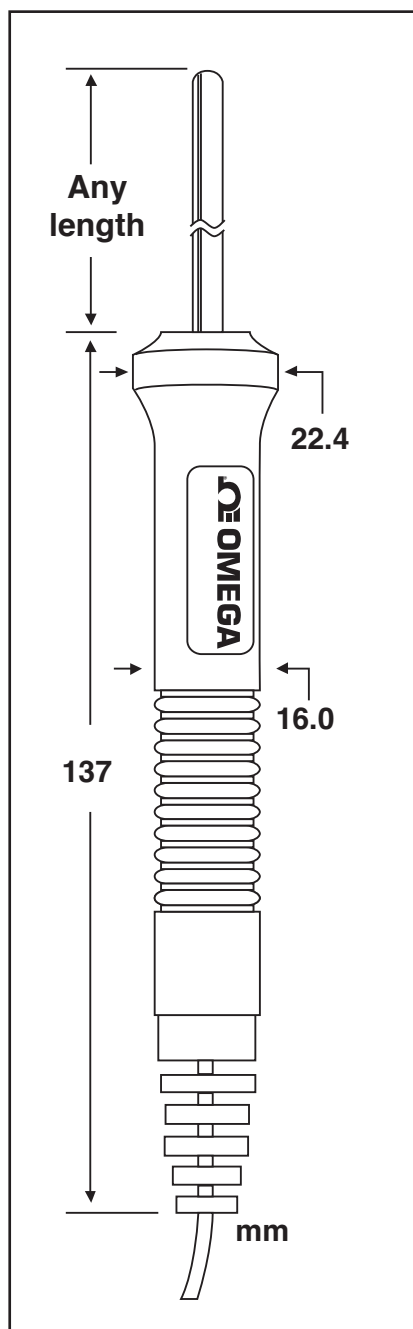
4.Stripped leads



5.SMPW mini-male (220 °C) or SHX mini-male (650 °C) connectors

Utility Thermocouple Handle Probes

Includes Cable and Miniature Connector



**150, 300, and 600mm Lengths Standard,
Custom Lengths Available.**

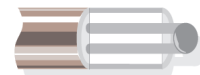
JHIN-RSC

Probe Tip Junction Types

Grounded



Exposed

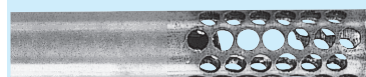


**Ungrounded/
Insulated**



Includes Miniature
Thermocouple Plug,
For Use with Hand-
held Indicators

Special tip options



Air Probe - Exposed element allows
airflow for fast measurement. Rated
to 870°C.



Penetration Probe Conical tip,
for insertion Rated to 870°C.

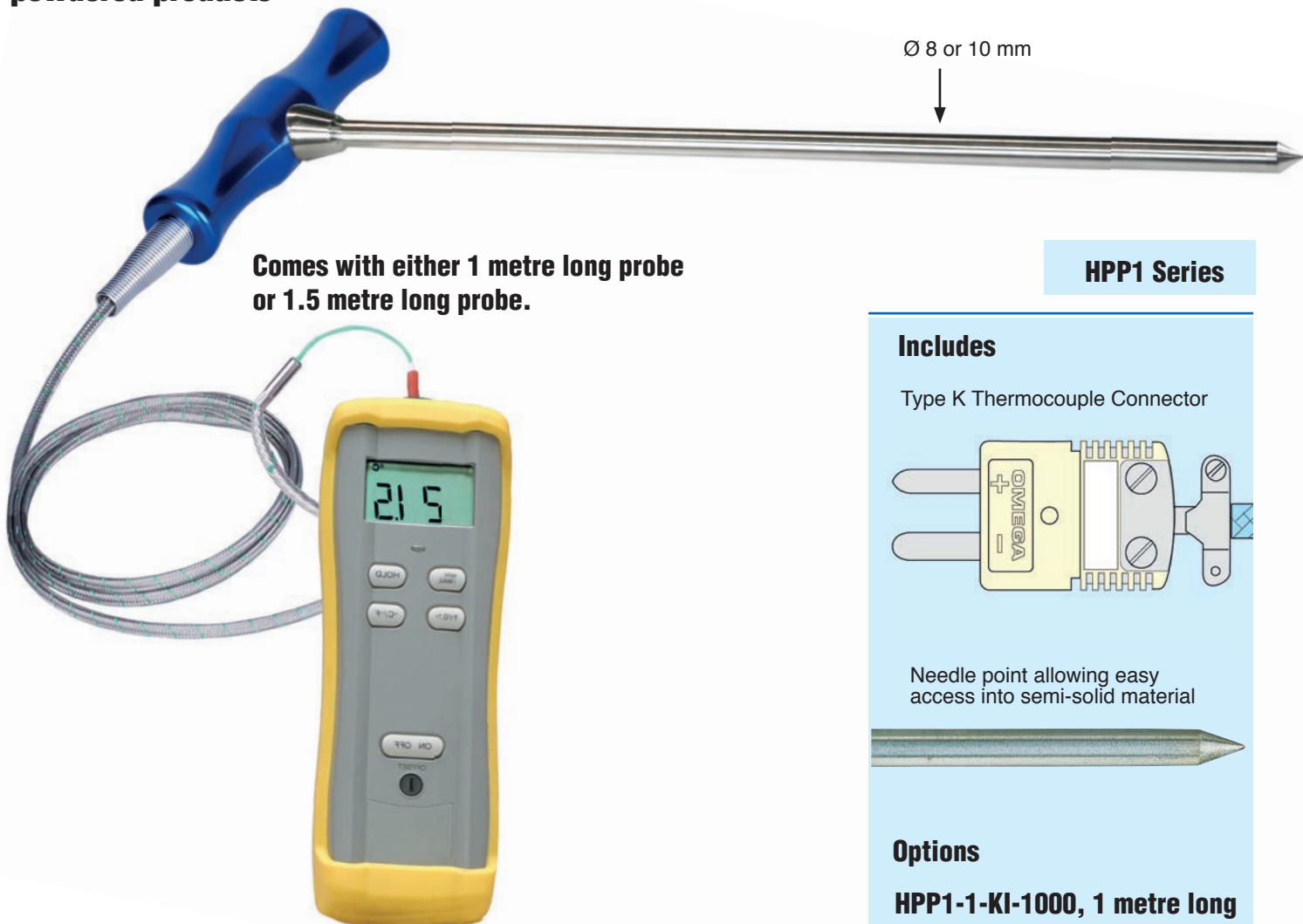
All measurements in mm

Probes made from OMEGACLAD™ wire are available with either 304 SS, 310 SS, 316 SS, 321 SS and Super XL 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 and 321 SS is rated to 870°C, while Inconel is rated to 1150°C.

- Moulded Handle Rated to 220°C
- 300, 450 and 600 mm Lengths Standard—Custom Lengths Available
- Mini Thermocouple Plug for Use with Handheld Thermometers

Heavy-Duty Hand-Held Thermocouple Probe

Measure the temperature of stored grain, compost or powdered products



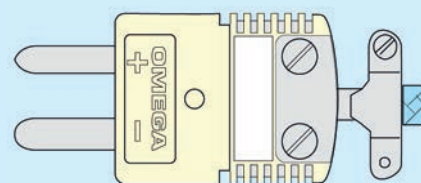
Comes with either 1 metre long probe or 1.5 metre long probe.

Shown connected to HH11B
(sold separately)

HPP1 Series

Includes

Type K Thermocouple Connector



Needle point allowing easy access into semi-solid material



Options

HPP1-1-KI-1000, 1 metre long probe with Ø 8mm

HPP1-1-KI-1500, 1.5 metre long probe with Ø 10mm

A 4 point profile probe version complete with 4 thermocouple connectors is also available

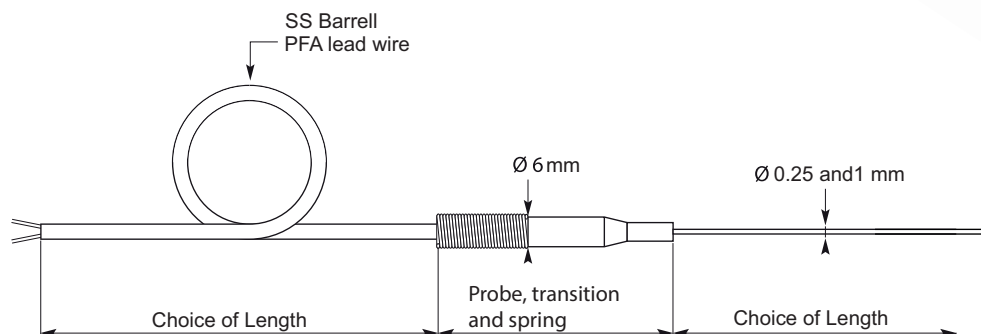
Custom lengths and variations available, Call for more info.

All measurements in mm

Omega's heavy duty, hand-held probe consists of a type K thermocouple placed inside a 316SS outer sheath, with a standard length of 1 or 1.5 metres. They are ideal for monitoring the temperature of stored grain, compost or powdered products, including pulverized fuel, where "hot spots" could lead to spoiling of the product, or ignition.

- Maximum Temperature 260C
- Rugged Aluminium "T" Handle
- Suitable for Dry and Moist Applications

0.25 to 1.0 mm Fine Diameter MI Construction Thermocouples Terminated With A Moulded Transition to 1m of PFA Lead Wire



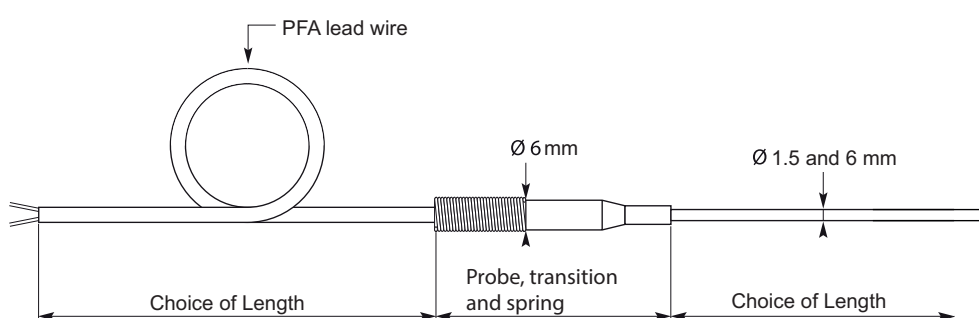
TJMINI Seies

All measurements in mm

The fine diameter thermocouple probes of the TJ series feature a stainless steel pot seal, rated to 200°C, a spring strain relief and a 1 metre PFA-insulated lead wire with stripped ends as standard. 150 mm and 300 mm lengths are always in stock and there are choices of grounded, insulated or exposed junction.

- Sheath Diameters from 0.25 to 1.0 mm
- Grounded, Insulated or Exposed Junctions
- 150 mm and 300 mm Lengths in Stock

1.5 to 6mm Diameter MI Construction Thermocouples Terminated With A Moulded Transition to 1m of PFA Lead Wire



TJ Seies

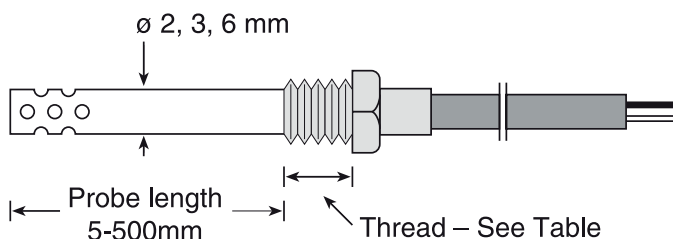
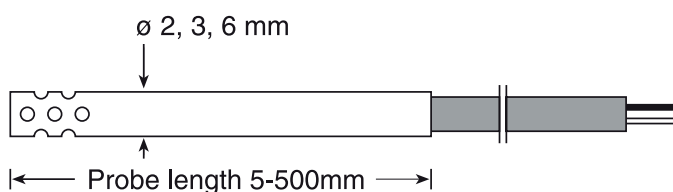
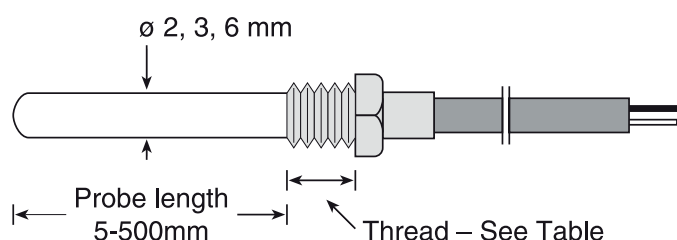
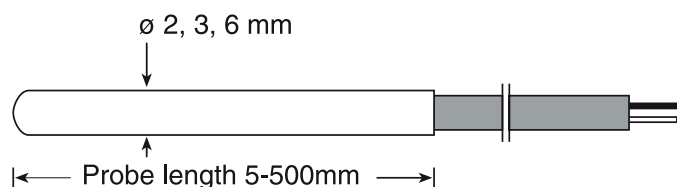
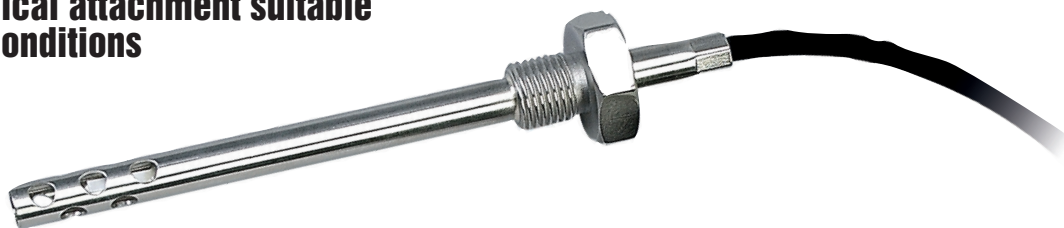
All measurements in mm

OMEGA's TJ style thermocouples feature a moulded liquid crystal polymer transition junction which is rated for temperatures up to 260°C and have a 1 metre PFA insulated lead with stripped ends as standard. The probes are available with diameters from 1.5 mm to 6.0mm.

- Sheath Diameters from 1.5 to 6mm.
- 300 and 600mm Lengths Standard, Other Lengths Available on Request
- Grounded, Insulated or Exposed Junctions

Thermocouple for Industrial, airsteam and laboratory Applications

Wide variety of mechanical attachment suitable for a range of process conditions



Probe Options

(1) Sensor Type

P = Pt100
P10 = Pt1000
J = Type J Thermocouple
K = Type K Thermocouple
T = Type T Thermocouple
N = Type N Thermocouple

(2) Style

M = Closed Sheath
L = Airstream Sheath
H = Hand-Held Probe
EH = Hand-Held Probe with Penetration Tip

(3) Accuracy

1 = Class A (Standard)

(4) Sheath Diameter

6 = 6mm
3 = 3mm
2 = 2mm

(5) Sheath Length

Any length in mm
 5mm, 10mm, 15mm etc.

(6) Thread

O = No Thread
M6 = M6x1
M8 = M8x1
M10 = M10x1
G1/8 = 1/8" BSPP
G1/4 = 1/4" BSPP
G1/2 = 1/2" BSPP
 Length of Threads -
 M6 (6mm), M8 (9mm),
 M10 (10mm), G1/8 (10mm),
 G1/4 (12mm), G1/2 (15mm).

(7) Lead Wire Insulation Or Connector

P - PVC
S - Silicone
T - Neoflon® FEP
G - Glass Fibre
PS - PVC Screened
TS - FEP Screened
GS - Glass Braided

(8) Any Wire Length

1, 2, 3, 4 etc.
 Cable Length in metres

Part No. example

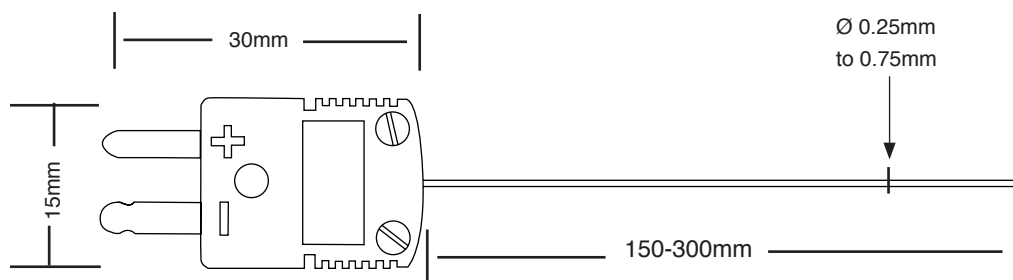
(1) (2) (3) (4) (5) (6) (7) (8)
P - M - 1 - 3 - 15 - M6 - GS - 1

All measurements in mm

OMEGA temperature probes for industrial applications are produced with a wide variety of mechanical attachment suitable for a range of process conditions. They may be specified to your precise requirements by the sensor type in either a closed-end or airstream version, accuracy, probe length, different threads, wire material in shielded and unshielded versions.

- Temperature Range of 100 to 400°C
- Thermocouples J, K, T, E and L with tolerance to IEC Class 1
- 2, 3 or 6 mm Diameter

0.25 to 0.75mm Fine Diameter MI Construction Thermocouples Terminated with a miniature plug



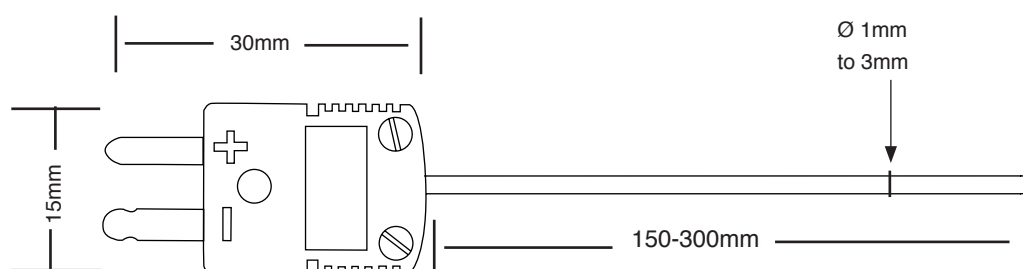
All measurements in mm

KMQSS Seies

OMEGA's Quick Disconnect Thermocouples with Miniature Connectors are high quality, economical thermocouple probes. They feature a glass filled nylon connector which is rated for temperatures up to 220°C. The probes are available with diameters as small as 0.25mm and as large as 3.0mm.

- Fine Sheath Diameters from 0.25 to 0.75mm
- 150mm and 300 mm Lengths in Stock
- Grounded, Insulated or Exposed Junction

1 to 3mm Diameter MI Construction Thermocouples Terminated with A miniature plug



All measurements in mm

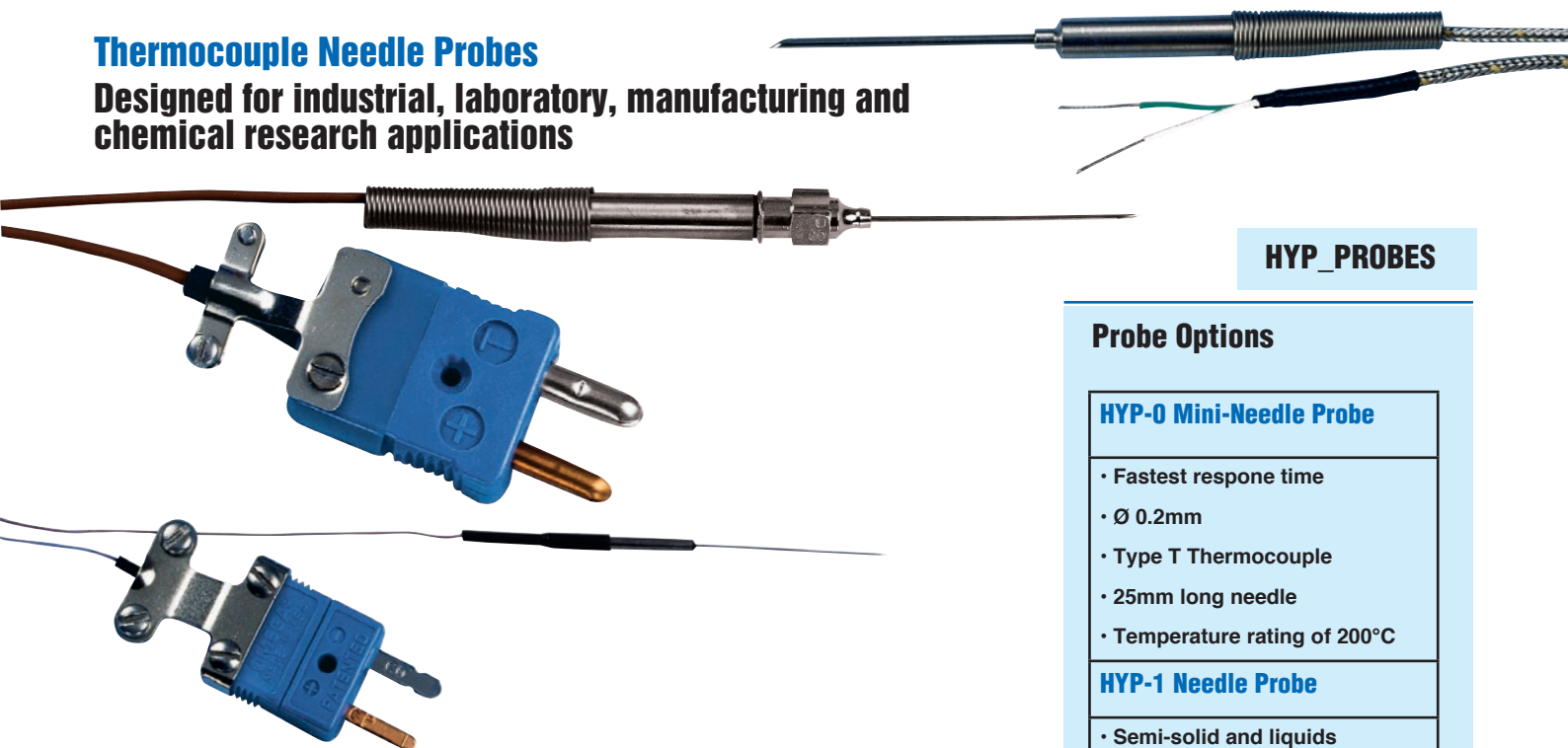
KMQSS Seies

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- Sheath Diameters from 1 to 3mm.
- 150mm and 300 mm Lengths in Stock
- Grounded, Insulated or Exposed Junctions

Thermocouple Needle Probes

Designed for industrial, laboratory, manufacturing and chemical research applications



HYP_PROBES

Probe Options

HYP-0 Mini-Needle Probe

- Fastest response time
- Ø 0.2mm
- Type T Thermocouple
- 25mm long needle
- Temperature rating of 200°C

HYP-1 Needle Probe

- Semi-solid and liquids
- Ø 0.3mm
- Type T Thermocouple
- 15mm long needle
- Temperature rating of 200°C

HYP-2 Needle Probe

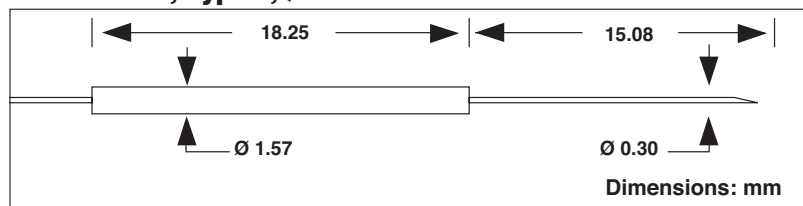
- Industrial / Food Processing
- Ø 0.81mm
- Type T Thermocouple
- 38mm long needle
- Temperature rating of 200°C

HYP-3 Needle Probe

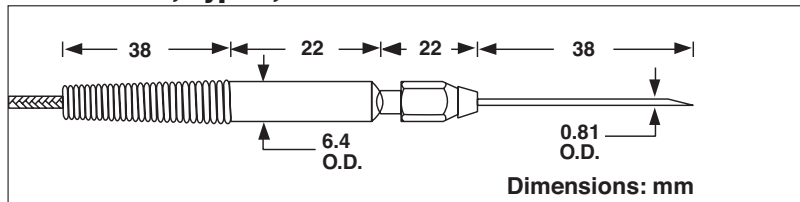
- Heavy Industrial
- Ø 1.65mm
- Type J,K,T,E Thermocouple
- 38mm long needle
- Temperature rating of 200°C

HYP-4 Pt100 Needle Probe also available.

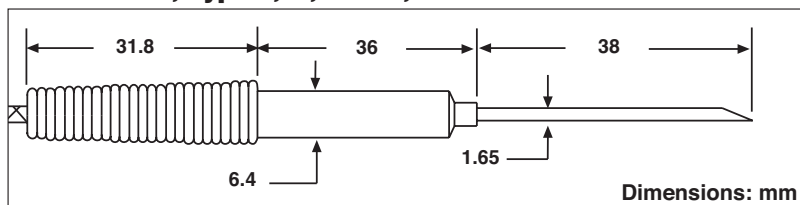
Model HYP1, Type T, Ø 0.2mm Needle



Model HYP2, Type T, Ø 0.81mm Needle



Model HYP3, Type J, K, T or E, Ø 1.65mm Needle



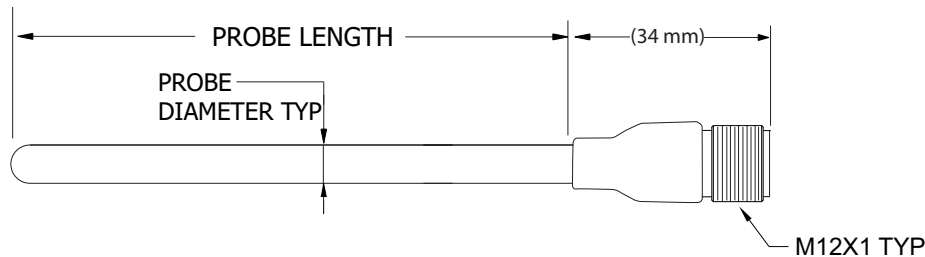
All measurements in mm

OMEGA Hypodermic Needle Temperature Probes are designed for industrial, laboratory, manufacturing and chemical research applications. Five probe types are available, with diameters from 0.2 to 1.65 mm. The HYP0, HYP1 and HYP2 have type T (Copper-Constantan) thermocouple elements, while the HYP3 is available in J, K, T or E calibration, and the HYP4 has a 100 Ω Platinum RTD.

- Designed for Industrial, Laboratory, Manufacturing and Chemical Applications
- Small Size Provides Fast Response Time
- Diameters from 0.2mm to 1.65 mm

Thermocouple Probes with M12 Moulded Connectors

Quick and reliable means for connection



All measurements in mm

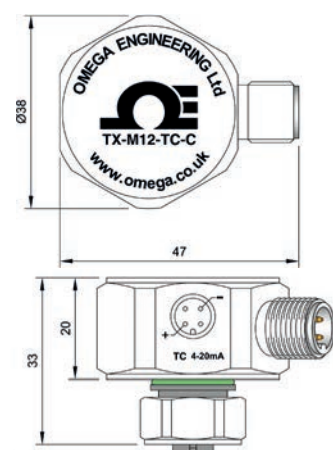
M12M Series

The M12 Series thermocouple probes are available as Type K thermocouples with Inconel 600 sheaths, or as Type J thermocouples with 304 Stainless Steel Sheaths. Standard probe diameters are 3mm and 6mm, with standard lengths of 250, 500, 1000 and 1500 mm. These thermocouple sensors can also be requested in other lengths as required.

- -50 to 90°C M12 Connector Temperature Range
- Available with 6mm & 3mm Diameter Probe Sheaths
- Standard Probe Lengths of 250mm, 500mm, 1000mm and 1500mm

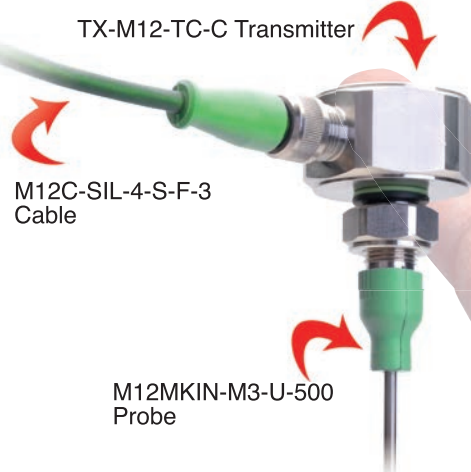
Mini Thermocouple Temperature Transmitter

A modern alternative to heavy, bulky industrial heads



Weight Approx. 100 grams

All measurements in mm

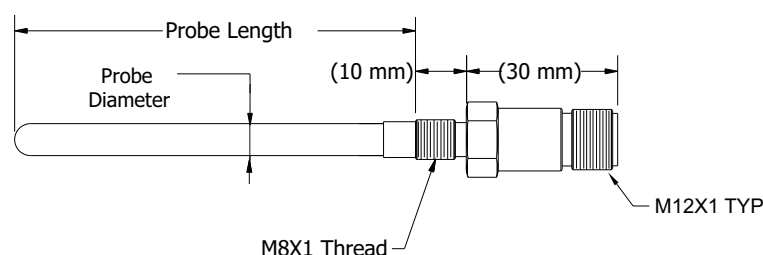
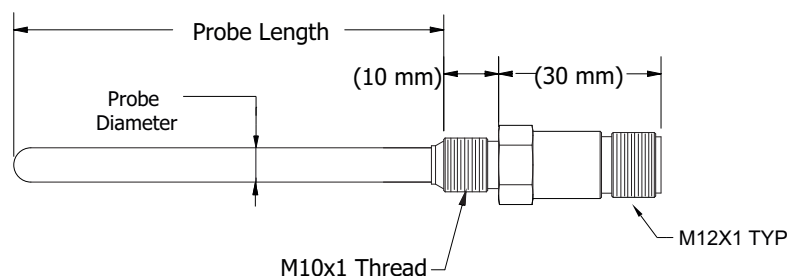
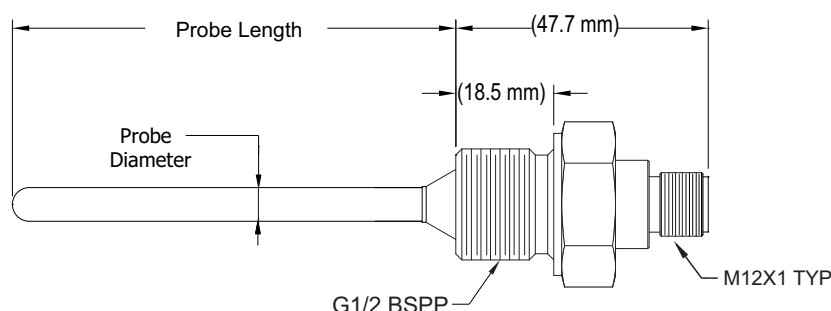
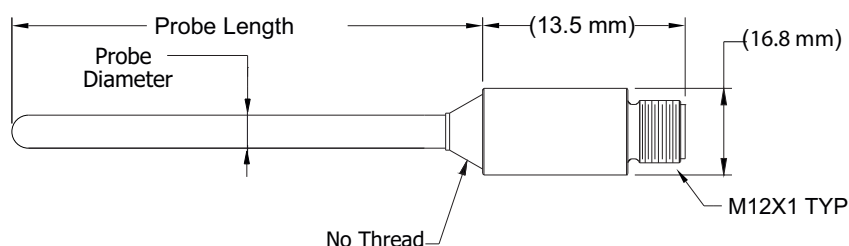


TX-M12-TC

Omega's TXM12 series transmitters offer improved performance over conventional in-head transmitters yet are a fraction of their size and weight. Integral M12 connectors maintain IP67 protection and connection integrity whilst allowing for a quick and simple change of sensor. The TX-M12-TC-C transmitter is ideal for use with Omega's M12 range of thermocouple probes, which connect directly to the TXM12 sensor input.

- Easily Scaled Using the Optional USB Interface & Free Software
- Accepts thermocouple types K, T, J, N, E, R, S, L, U, B, C, D and G
- Operating Temperature Range:
-40 to +85°C Ambient Operating Temperature

Thermocouple Sensor with M12 Connector Supplied with M12 connector with thermocouple compensated pins



All measurements in mm



M12 Series

M12 Series Options

Mounting Thread Choose from:

None
M8x1
M10x1
G^{1/2} BSPP
G^{1/4} BSPP

Element Choose from:

Type "J" Thermocouple with 304
Stainless Steel Sheath
Type "K" Thermocouple with Inconel
600 Sheath

Sheath Diameter Choose from:

3mm Diameter
6mm Diameter

Length Any Length Available:

150mm
250mm
350mm
etc.....

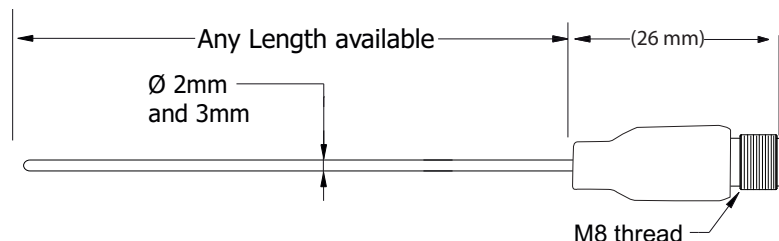
The thermocouple compensated M12 connector provides a quick and reliable means for connecting the sensor to your monitoring or control equipment using a compensated M12 extension cable.

The M12 Series thermocouple probes are available as Type K with Inconel 600 sheaths or as Type J with 304 Stainless Steel Sheaths. Standard probe sheath diameters are 3mm and 6mm, with a standard length of 200mm.

- -50 to 90°C Connector Temperature Range
- Available in 6mm & 3mm Sheath Diameters
- Bendable Probes Using a Minimum Suggested Bend Radius of 2x the Probe Diameter

Thermocouple Probes with M8 Moulded Connectors

Quick and reliable means for connection



M8M Series

All measurements in mm

The M8M Series Thermocouples, with their small diameter probes and M8 moulded connectors offer IP67 protection and can be used where other sensors can't. Their small size gives a fast response time and allows for measurements in tight spaces, or when you need to have a minimum impact on the thermal environment.

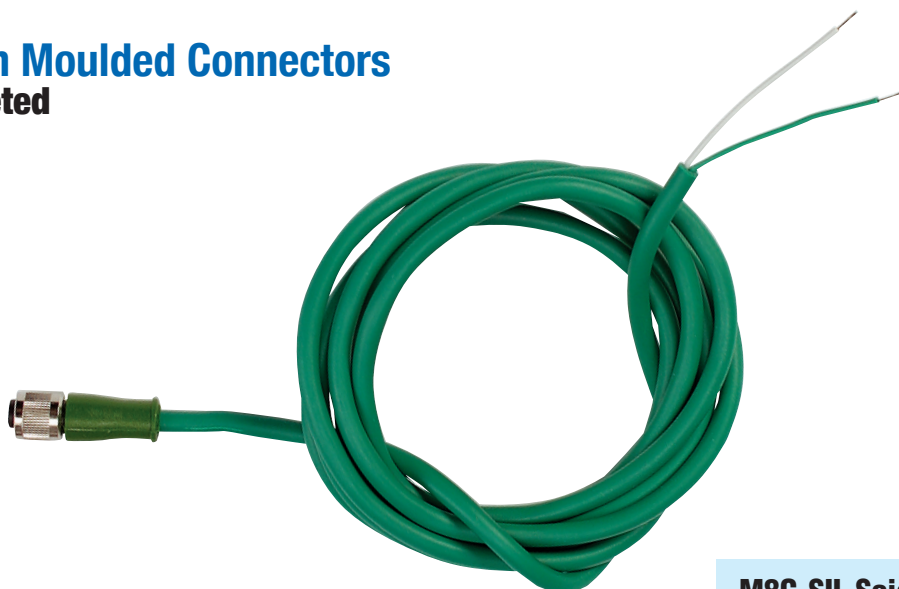
- -50 to 90°C M12 Connector Temperature Range
- Available with 1mm & 2mm Diameter Probe Sheaths
- Standard Probe Lengths of 250mm, 500mm, 1000mm and 1500mm

M8 Extension Cables with Moulded Connectors

Silicone Insulation and Jacketed



M8M Series probe



M8C-SIL Series

These cables have M8 and M12 connectors containing uncompensated connector sockets and thermocouple cables in Types K and J. Cables have a female connector one end and stripped leads on the other.

Temperature Range: 90°C Max at the Connector and 180°C Max for the Cable

- Type J and K Thermocouple Calibrations
- Temperature Range: 90°C Max at the Connector and 180°C Max for the Cable
- Many lengths available

Exotic Thermocouple Probes

Designed for use in extreme temperatures



XMO Series

Thermocouple Elements

- Tungsten/Rhenium
- Platinum/Rhodium

XMO Sheath Materials

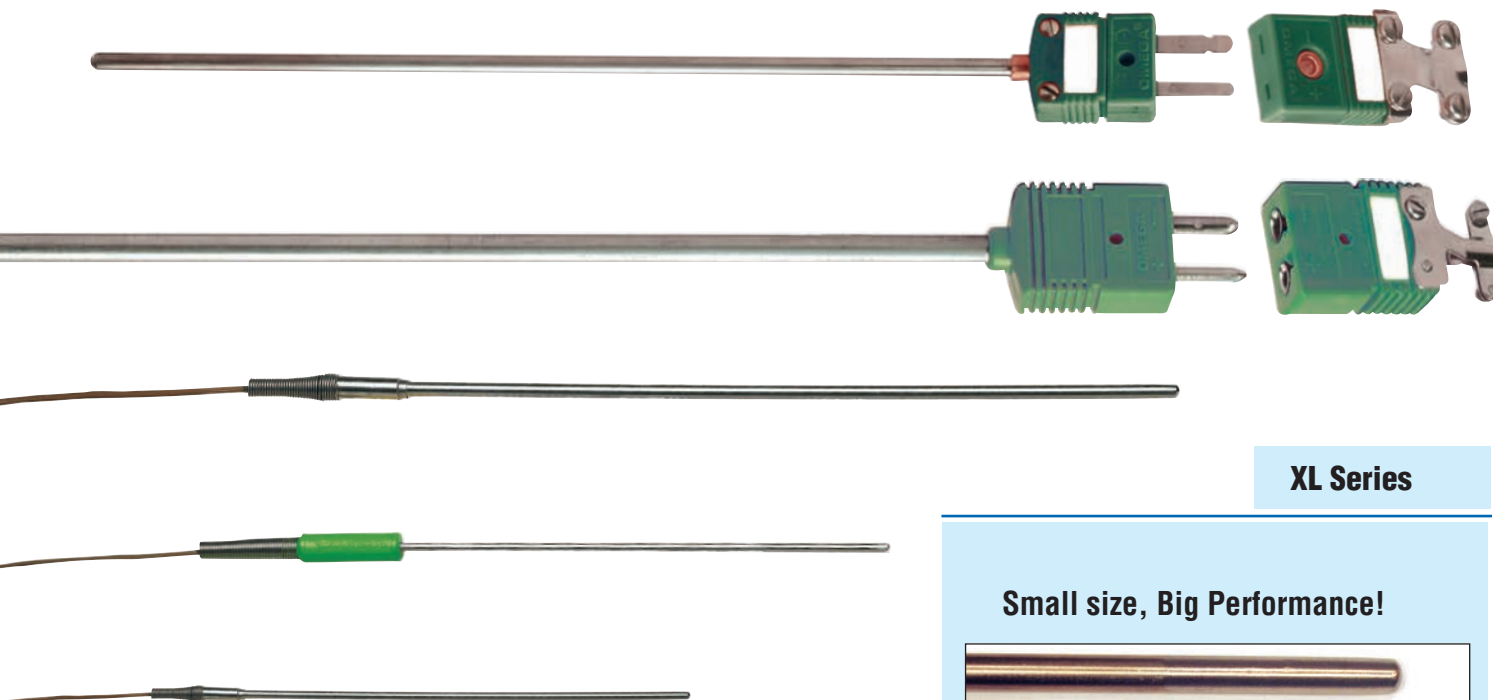
Code	Material	Max Operating Temp.	Working Environment	Melting Point
XTA	Tantalum	2300°C	Vacuum	3000°C
XMO	Molybdenum	2200°C	Inert Vacuum Reducing	2610°C
XPA	Platinum-Rhodium Alloy	1650°C	Oxidizing Inert	1870°C
XIN	Inconel 600	1150°C	Oxidizing Inert Vacuum	1400°C

Insulation Materials

Code	Material	Max Operating Temp.	Melting Point
H	Hafnia (HfO ₂)	2500°C	2830°C
M	Magnesia (MgO)	1650°C	2790°C
A	Alumina (Al ₂ O ₃)	1540°C	2010°C

OMEGA® Exotic Thermocouple Probes are designed for use in extreme temperatures, up to 2315 °C. These probes utilise either Platinum/Rhodium (types R, S, or B) or Tungsten/Rhenium (types G, C, or D) elements, with a variety of insulations and sheath materials. Depending upon the sheath material selected, these probes may be used in inert, oxidizing, reducing or vacuum conditions. The maximum temperature is based on the lowest max. temperature of the element, insulation and sheath material. Five cold end probe terminations are available: stripped ends, subminiature or standard size ceramic connector, heavy-duty standard size, molybdenum-sheathed nylon connector, or transition joint with 2 metre long lead wire.

Super OMEGACLAD™ XL Probes Very Low Drift at High Temperatures



XL Series

Small size, Big Performance!

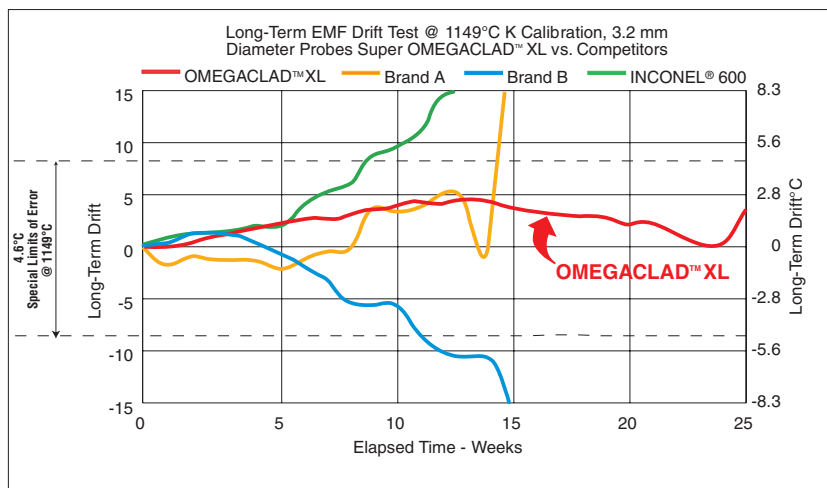
6 mm - response time 2.25 sec**

3 mm - response time 0.55 sec**

1.5 mm - response time 0.3 sec**

0.75 mm - response time 0.25 sec**

**Approx. response time ungrounded in water

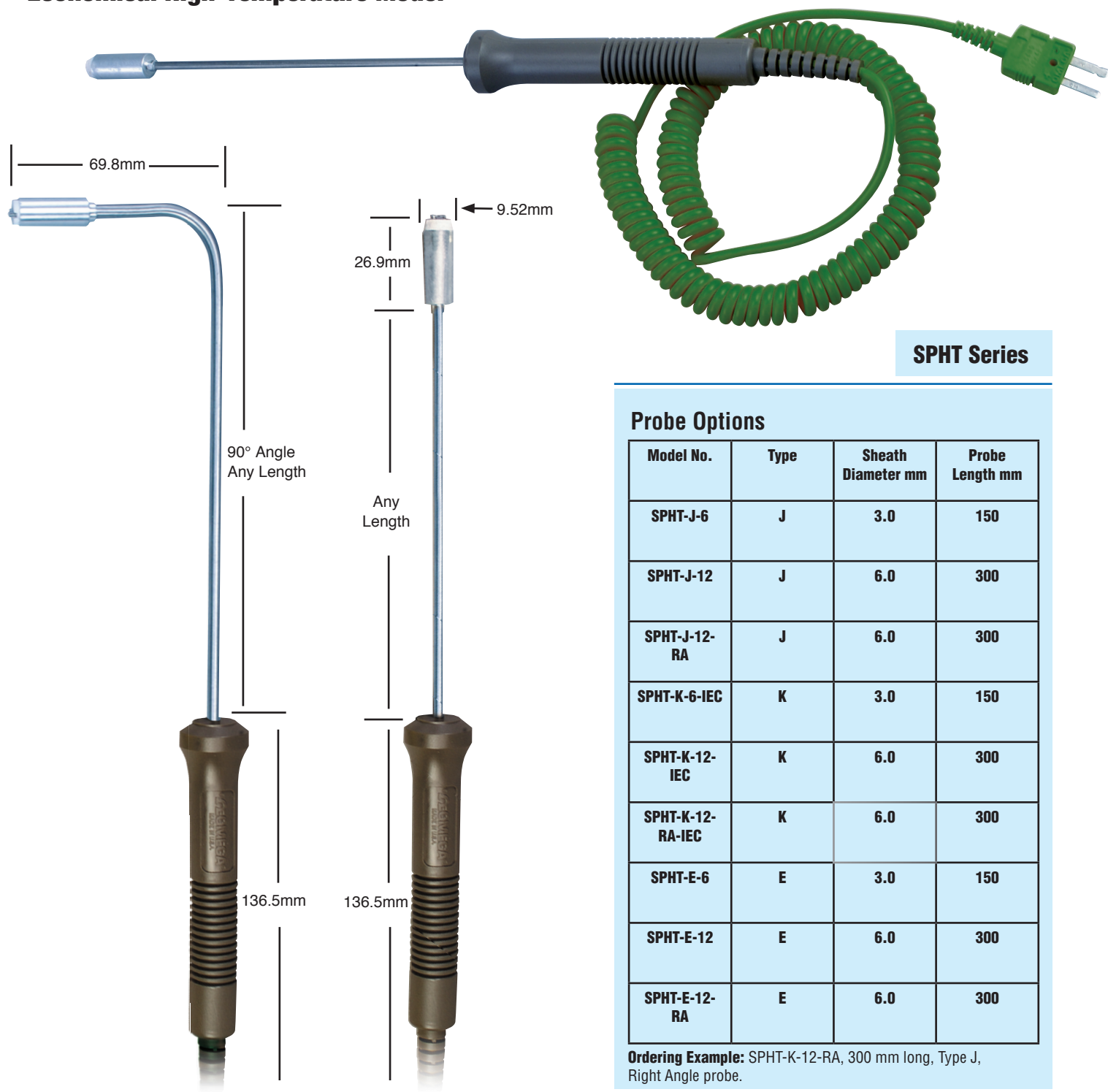


If your application operates at the punishing temperature of 1205°C, changing out failed thermocouples costs money in excessive maintenance, slows or cuts production, and can cause inconsistent product quality. Super OMEGACLAD™ XL Thermocouple probes consistently post the best performance results.

Super OMEGACLAD® XL Probes are an excellent choice for high temperature measurement. They provide very low drift at high temperatures as compared to conventional Inconel and Stainless Steel sheathed probes. They are available in both K and N thermocouple calibrations. Omega offers probes in a variety of styles.

- For Use Up to 1335°C
- Excellent Long Term Stability at High Temperatures
- Standard Probe Lengths of 300mm and 450mm, custom lengths available

Surface Temperature Thermocouple Probe Economical High-Temperature Model



SPHT Series

Probe Options

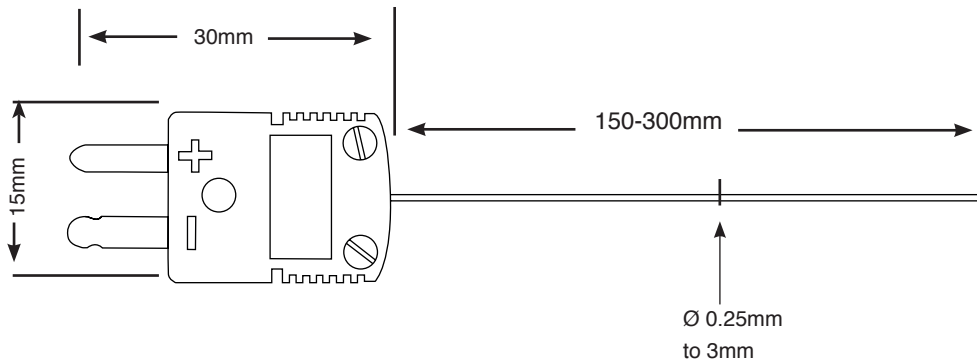
Model No.	Type	Sheath Diameter mm	Probe Length mm
SPHT-J-6	J	3.0	150
SPHT-J-12	J	6.0	300
SPHT-J-12-RA	J	6.0	300
SPHT-K-6-IEC	K	3.0	150
SPHT-K-12-IEC	K	6.0	300
SPHT-K-12-RA-IEC	K	6.0	300
SPHT-E-6	E	3.0	150
SPHT-E-12	E	6.0	300
SPHT-E-12-RA	E	6.0	300

Ordering Example: SPHT-K-12-RA, 300 mm long, Type J, Right Angle probe.

The spring mounted thermocouple tip ensures optimum surface contact and a fast response time. The SPHT comes with a mini plug which makes the probe ideal for use with handheld thermocouple thermometers. The sensor head is 9.5 mm diameter and 27 mm long, mounted on a 3 mm diameter stem for 150 mm long probes and 6 mm diameter for 300 mm.

- Ceramic Tip Rated to 650°C
- J, K, or E Surface Probes Available
- Probe Lengths of 150 mm and 300 mm Standard

1 to 3mm Diameter MI Construction Thermocouples with High Temperature Ceramic Miniature Size Plug



All measurements in mm

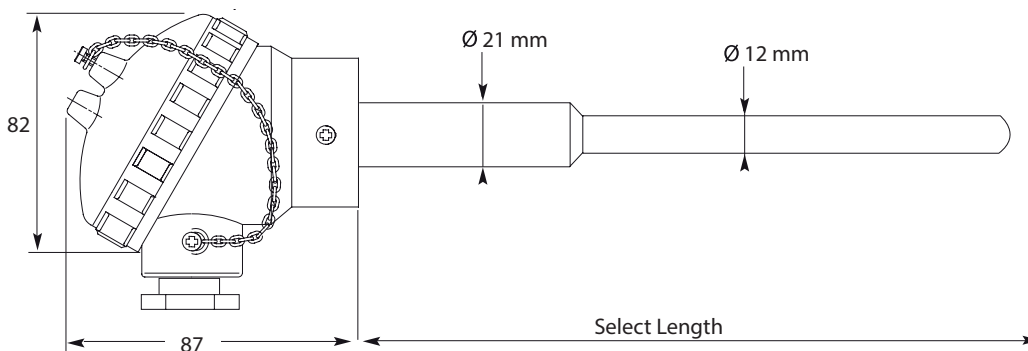
SICSS Seies

Features SHX or NHX Type Ceramic Connector Rated to 650°C. Comes in 150 and 300 mm lengths standard, other lengths available on request. Probe diameters of 0.25mm, 0.50mm, 0.75mm, 1mm, 1.5mm and 3 mm available

- SHX Type Ceramic Mini Plug, Rated to 650°C
- Available in K, J, T, N and E Thermocouple
- Tube Clamp Included for Extra Strength



Ceramic Kiln Thermocouples for high temperature Furnaces, kilns and other high temperature applications



All measurements in mm

NB12-CP Seies

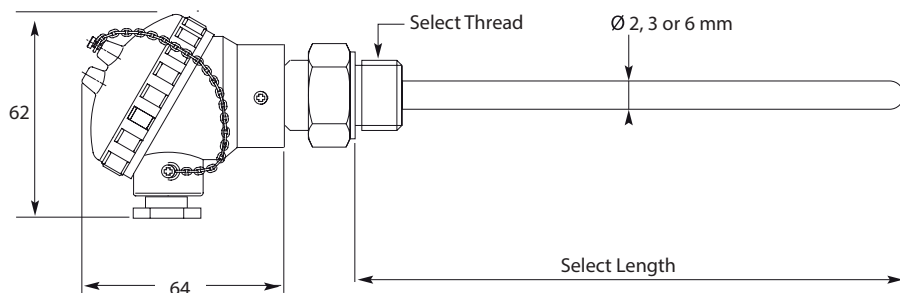
The 100 mm long stainless steel support tube attaches the ceramic sheath to the industrial head and is included in the overall sheath length. An optional cast iron mounting flange with two 8.6 mm diameter mounting holes on 70 mm centres clamps the protection tube for ease of mounting at the required depth

- Types K and N with recrystallised Aluminous Porcelain sheaths, rated to 1400°C
- Types R and S with recrystallised Alumina sheaths, rated to 1600°C
- 12 mm diameter ceramic sheath with 21 mm O.D. support tube, 100 mm long



Industrial Mineral-Insulated Thermocouples
OMEGA offers a wide range industrial thermocouple heads from cast iron to feral iron alloy, also we have many options available for thermouple lengths and threads

Miniature Aluminium Protection Head

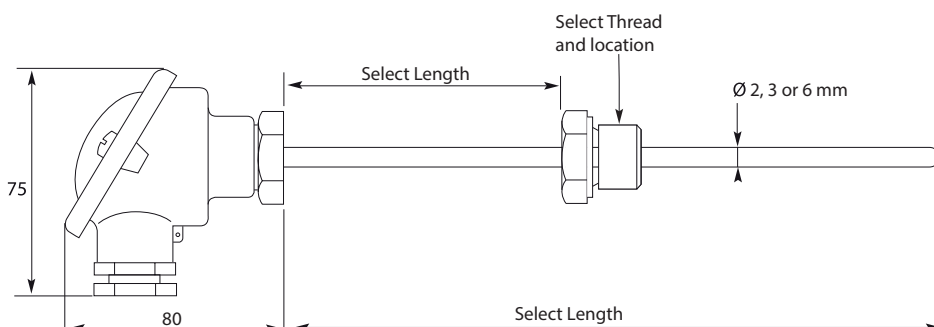


All measurements in mm



NB-11

Sub-Miniature Aluminium Protection Head, DIN form B

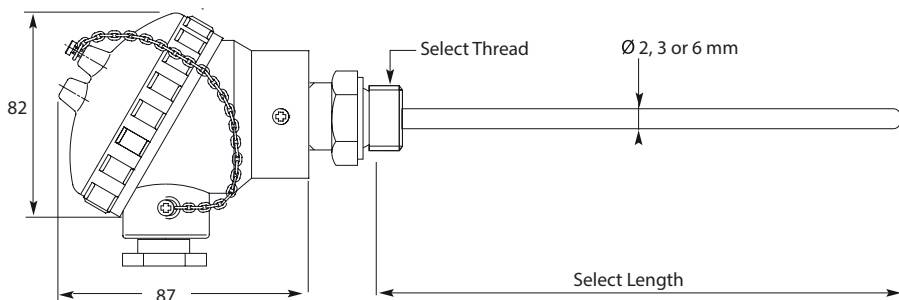


All measurements in mm



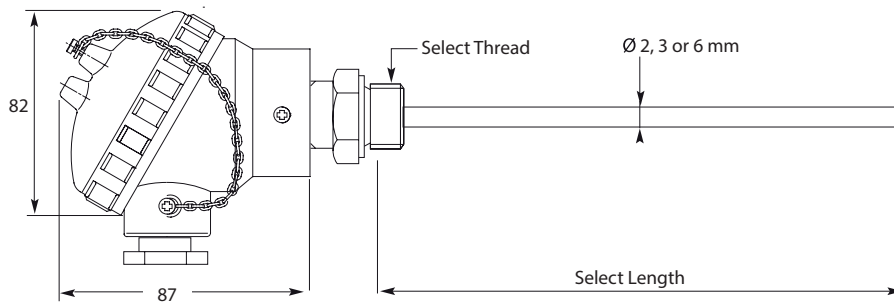
NB6

Low Profile Aluminium Connection Head



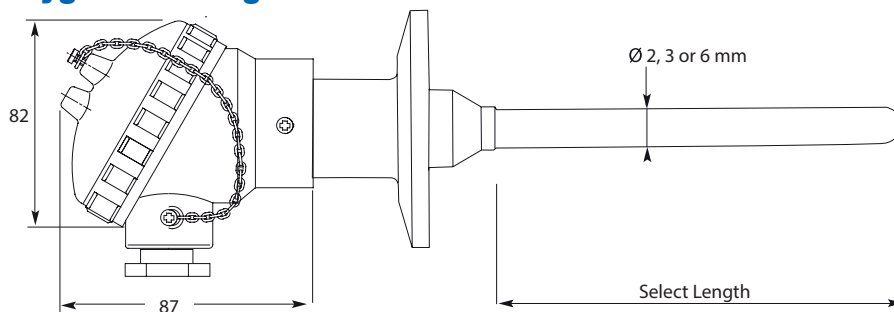
NB12

Cast Iron Connection Head



NB5 Cast Iron Head

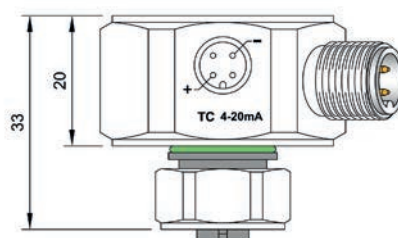
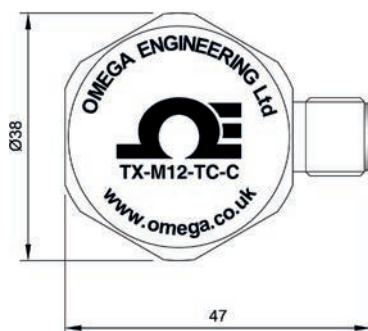
Hygienic Fitting and Protection Head



PRS NB9

M12 Mini Thermocouple Temperature Transmitter

A modern alternative to heavy, bulky industrial heads



Weight Approx. 100 grams



TX-M12-TC

All measurements in mm

Omega's industrial protection head temperature probes are offered in many different mechanical constructions and have multiple options and fittings, making them suitable for a wide range of applications.

Standard probes have a stainless steel tube sheath, and have an operating range of -30 to +350°C.

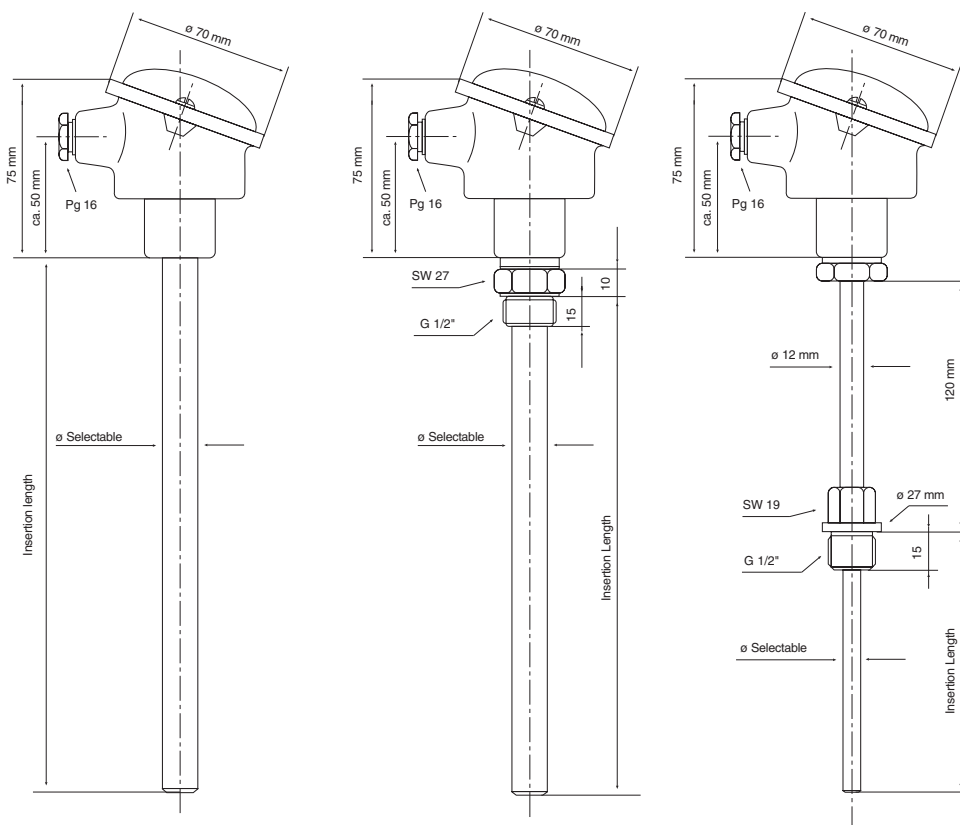
Mineral insulated (MI) Sheaths are also available and have an extended temperature range of -200 to +650°C.

The following can be specified at time of order:

- Protection Head Type
- Sensor Type
- Fixed, Replaceable or Mineral Insulated
- Accuracy Class
- Diameter
- Insertion and Lagging Lengths
- Process Fittings and Optional Head-Mount Transmitter

Thermocouple Assemblies with DIN B Heads

Wide Range of Process Fittings/Threads



All measurements in mm



Mounting Thread Choose from:

None
M18
G^{1/2} BSPP
G^{1/4} BSPP
R^{1/4} BSPT
R^{1/2} BSPT
M18 with lagging ext.
G^{1/4} BSPP with lagging ext.
G^{1/2} BSPP with lagging ext.

Sheath Diameter Choose from:

6mm Diameter
9mm Diameter
11mm Diameter
15mm Diameter

Length Any Length Available:

Omega's industrial protection head temperature probes are offered in 3 different mechanical constructions and with many options and fittings, making them suitable for a wide range of applications.

The following may be specified at time of order: sensor type; fixed, replaceable or mineral insulated construction; accuracy class; diameter; insertion and lagging lengths; process fittings and optional head-mount transmitter.

- Temperature Range from -200°C to +800°C
- Sheath Lengths of 20 to 500mm as Standard
- Sheath Diameters of 6, 9, 11 and 15mm
- Wide Range of Process Fittings/Threads

Wireless Industrial Thermocouple Probe Assemblies



See the part number builder at omega.co.uk/uwtc-NB9

UW (1) TC ▾ -NB9- (2) CA ▾ (3) IN ▾ - (4) M15 ▾ (5) U ▾ - (6) 600 ▾ (7) -G4 ▾

(1) Sensor Type *select from:*

TC for Thermocouple
RTD for Pt100

(2) Sensor Sub-Type *select from:*

1PT for Pt100 DIN Class A

CA for type K

IC for type J

CP for type T

NN for type N (Inconel sheath only)

(9) Brake Sheet Material

(3) Probe Sheath Material

316 for 316 SS sheath (for
304 for 304 SS sheath (for

IN for inconel

(4) Sheath Diameter *select from:*

M15 for 1.5 mm

M30 for 3.0 mm

M45 for 4.5 mm

M60 for 6.0 mm

(5) Junction Type *select from:*

U for Insulated junction for thermocouple probes

Nothing(leave field blank) for Pt100 probes

(6) Probe Length *select from:*

600 for 600 mm

450 for 450 mm

300 for 300 mm

150 for 150 mm

155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000

(7) Process Thread *see*

- Nothing for 1/2"

-G4 for 1/4" BSPP

-G2 for 1/2" BSPP

UWTC-NB9

Thermocouple Measurement Range:

J	-100 to 760°C
K	-100 to 1260°C
T	-200 to 400°C
N	-100 to 1260°C
E	-200 to 1000°C
R	260 to 1760°C
S	260 to 1760°C
B	760 to 1820°C
C	0 to 2315°C

Thermocouple Accuracy:

J, K: $\pm 0.5\%$ of reading or $\pm 1.0^{\circ}\text{C}$, whichever is greater

T, N, E: $\pm 0.5\%$ of reading or $\pm 2.0^{\circ}\text{C}$,
whichever is greater

R, S, B, C: $\pm 0.5\%$ of full scale

Omega's Wireless Industrial Thermocouple and Pt100 assemblies feature a ready to install, temperature sensor and in-head mounted wireless transmitter. Each battery powered wireless unit will transmit measurements back to a host receiver up to 120 metres away. Each transmitter comes pre-programmed to operate as a Type J, K, T, N, E, R, S, B, C thermocouple or Pt100. Each probe measures and transmits: process temperature, ambient temperature and battery condition.

- Complete Industrial Assembly Includes: Probe, NB9 Head with Built-In Wireless Transmitter and Long Life Battery
- ½" BSPT (R½) Process Fitting Standard
- ½" or ¼" BSPP (G½ or G¼) Process Threads Available

Wireless Thermocouple temperature monitoring

Readings back to a host receiver up to 120 m away



All measurements in mm

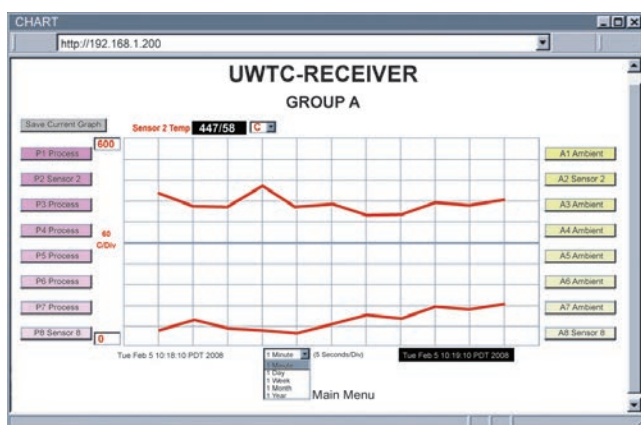
UWTC Series

Compact, battery powered thermocouple connectors that transmit their readings back to a host receiver up to 120 m away. Each unit can be programmed in the field to work as a type J, K, T, E, R, S, B, N or C calibration connector. When activated the connector will transmit readings continuously at a pre set time interval that was programmed by the user during the initial setup. Measures and transmits: Thermocouple Input Reading, Connector Ambient Temperature, RF Signal Strength.

- Temperature range -100 to 1820°C (thermocouple dependant)
- Low Power Operation and Sleep Mode For Long Battery Life
- Each Wireless Connector Transmits Thermocouple Temperature, Ambient Temperature, Signal Strength and Battery Status in Real Time

Wireless Receiver for Web-Based Process Monitoring

Works with UWTC-NB9 & UWTC Series Transmitters



UWTC-REC3

The OMEGA UWTC-REC3 receiver lets you monitor and record temperature over an Ethernet network or the Internet without any special software: just your web browser. It is easily configured from a web browser and can be password protected. The UWTC-REC3 can trigger an alarm if variables go above or below a setpoint that you can determine. Your alarm can be sent by e-mail to a group distribution list. You could also send text messages to mobile phones by emailing a suitable third party web based gateway. The UWTC-REC3 receiver serves active web pages to display real time temperature readings and charts. You can also log data in standard data formats for use in a spreadsheet or data acquisition program such as Excel or Visual Basic. OMEGA offers a free, user-friendly program for logging data to Excel.

OMEGA manufacture thermocouple wire in many different gauges and thermocouple types. The following insulation materials are available to suit your application.

Insulation Code	Insulation		Appearance of Thermocouple Grade Wire	Temperature Range Insulation	Abrasion Resistance	Flexibility	Water Submersion
	Overall	Conductors					
PP (Extension Grade-EXPP)	Polyvinyl Chloride (PVC)	Polyvinyl Chloride (PVC)		-40 to 105°C	Good	Excellent	Good
FF (Extension Grade-EXFF)	FEP PFA or Neoflon	FEP PFA or Neoflon		-200 to 200°C	Excellent	Good	Excellent
TT (Extension Grade-EXTT)	PFA PFA or Neoflon	PFA PFA or Neoflon		-267 to 260°C	Excellent	Good	Excellent
KK	Kapton	Kapton		-267 to 260°C	Excellent	Good	Good
TG	Glass Braid	PFA PFA or Neoflon		-73 to 260°C	Good	Good	Excellent
GG (Extension Grade-EXGG)	Glass Braid	Glass Braid		-73 to 482°C	Poor	Good	Poor
HH	High Temp Glass Braid	High Temp Glass Braid		-73 to 704°C	Poor	Good	Poor
XR	Refrasil Braid	Refrasil Braid		-73 to 871°C	Poor	Good to 315°C	Poor to 315°C
XC Standard Braid XL-Loose Braid XT-Tight Braid	Nextel Braid	Nextel Braid		-73 to 1204°C	Poor	Good	Poor
XS	Silica	Silica		-73 to 1087°C	Poor	Good	Poor
TFE	TFE PFA	TFE PFA		-267 to 260°C	Excellent	Good	Excellent

Single Strand PFA Insulated Fine Gauge Thermocouple Wire

Build Your Part Number

(1)	(2)	(3)	(4)
IEC- TF	CC	010	30M

(1) Colour Code

IEC = IEC
Blank = ANSI

(2) Thermocouple Alloy

IR for Iron (J)
CI for Constantan* (J)
CH for Chromel (CHROMEGA®) (E)
CC for Constantan* (E)
CP for Copper (T)
CC for Constantan* (T)
CY for Chromel (CHROMEGA®) (K)
AL for Alumel (ALOMEGA®) (K)

*Constantan is matched to either iron copper or Chromel. When ordering matched pairs be sure to specify TFCI /TFIR or TFCC /TFCP or TFCC /TFCH.

(3) Wire Diameter select from:

003 for 0.08 mm (0.003 Inch)
005 for 0.13 mm (0.005 Inch)
010 for 0.25 mm (0.010 Inch)
015 for 0.38 mm (0.015 Inch)
020 for 0.51 mm (0.020 Inch)
032 for 0.81 mm (0.032 Inch)

(4) Reel Length select from:

50 for 50 Feet (for ANSI colours)
15M for 15 metres (for IEC colours)
100 for 100 Feet (for ANSI colours)
30M for 30 metres (for IEC colours)
500 for 500 Feet (for ANSI colours)
150M for 150 metres (for IEC colours)
1000 for 1000 Feet (for ANSI colours)
300M for 300 metres (for IEC colours)



TF Series

OMEGA's thin-wall covering process guarantees continuous lengths up to 300 m

- Single Strand
- Extruded PFA
- Colour Coded
- Excellent in a Vacuum
- Non-Flammable
- Available in 15 m and 30 m Reels for Convenient Small Quantity Needs

Spool Sizes

15 metres

30 metres

150 metres

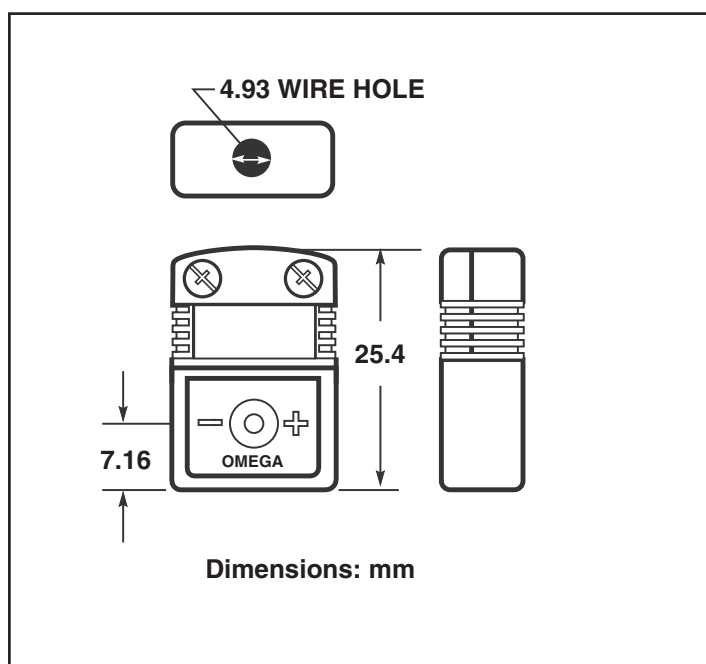
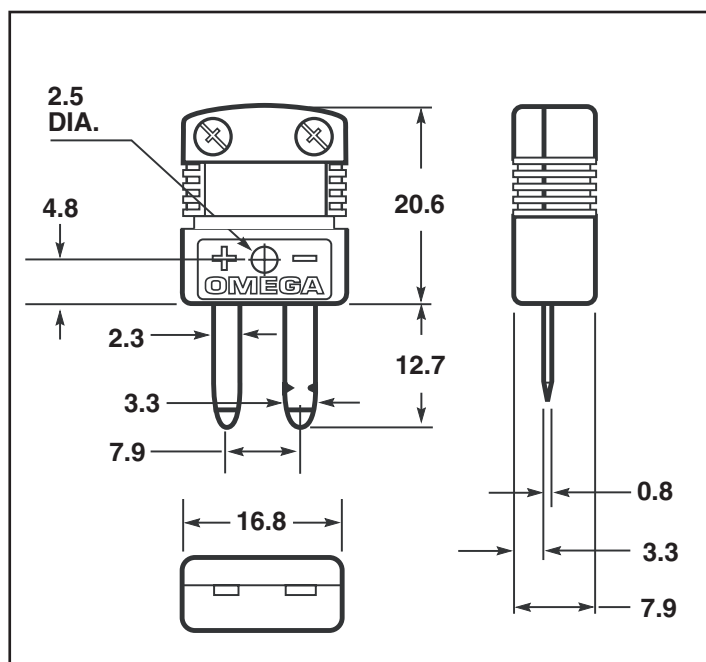
300 metres

In order to meet the immediate needs of science and industry for highest quality thermocouple wire in practical quantities at reasonable prices, OMEGA® makes available thermocouple materials in a variety of wire sizes and isolation materials.

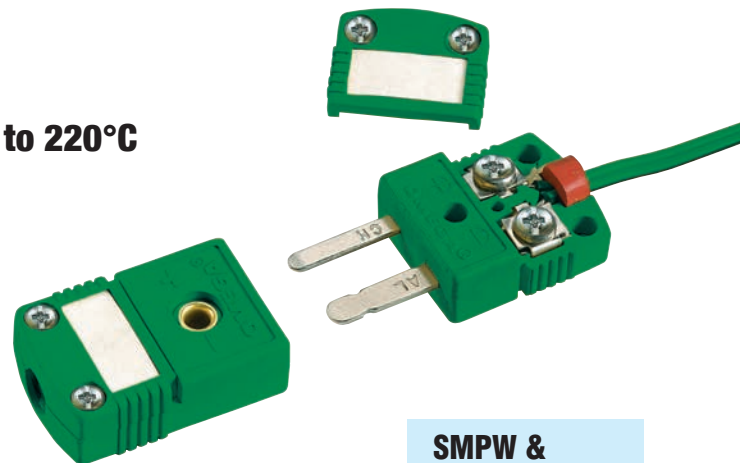
- Fine Gauge Thermocouple Wire
- Thermocouple Extension Cable
- Twisted/Screened
- Overbraided
- High Temperature
- Multipair Extension cable

Most Popular Miniature Connectors

HMPW series rated to 260°C, SMPW series rated to 220°C



All measurements in mm



SMPW &
HMPW Series

Build Your Part Number

(1)	(2)	(3)
SMPW	KI	M

Options

(1) Connector Style

SMPW for Glas-Filled Nylon 220°C Ambient
HMPW for Liquid Crystal Polymer 260°C Ambient

(2) Thermocouple Type and Colour Code

KI for K Thermocouple IEC Green
K for K Thermocouple ANSI Yellow
J for J Thermocouple IEC/ANSI Black
TI for T Thermocouple IEC Brown
T for T Thermocouple ANSI Blue
NI for N Thermocouple IEC Pink
N for N Thermocouple ANSI Orange
E for E Thermocouple IEC/ANSI Purple
R/SI for R/S Thermocouple IEC Orange
R/S for R/S Thermocouple ANSI Green
G for G Thermocouple Red
C for C Thermocouple Red
D for D Thermocouple Red
U for Uncompensated or B Thermocouple White

(3) Connector Type

M for Plug
F for Socket

Ideal for even the most demanding temperature measurement applications. These connectors offer a host of features including heavy duty construction and chisel point male contacts for ease of connection. SMPW connectors are made from glass-filled Nylon and have a maximum temperature rating of 220°C. HMPW connectors are made from Liquid Crystal Polymer and have a maximum temperature rating of 260°C.

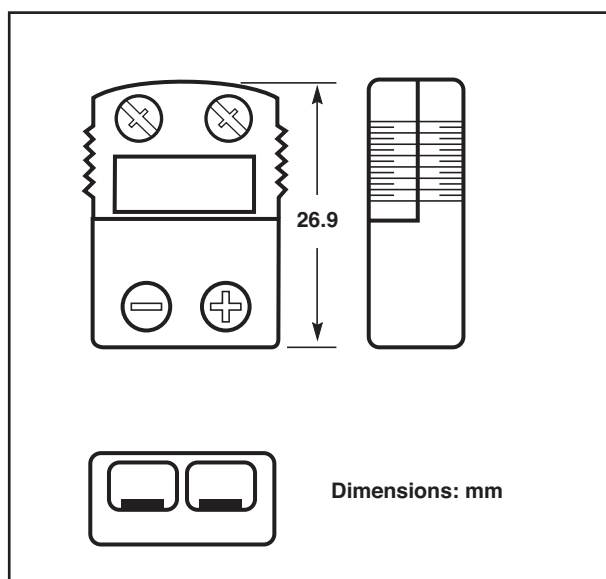
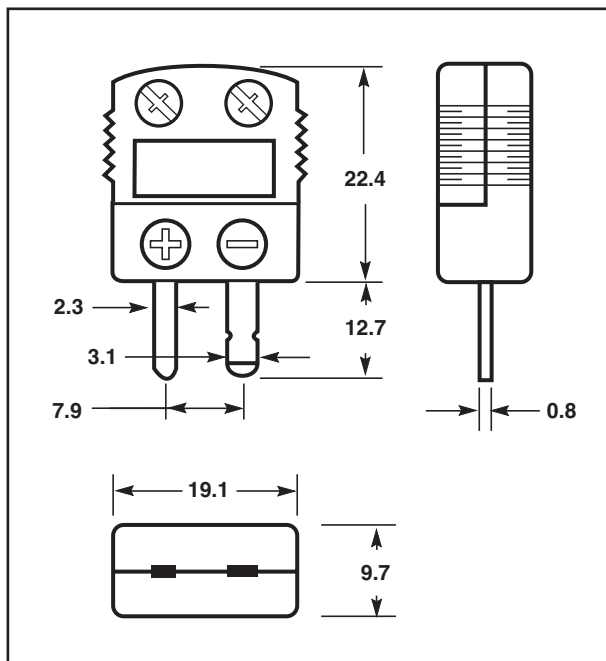
- Heavy Duty Construction
- Accepts Stranded or Solid Wire up to 0.8 mm Diameter
- SMPW Series Rated to 220°C
- HMPW Series Rated to 260°C

Ceramic Ultra High Temperature Miniature Connectors

OMEGA's exclusive high purity alumina body type SHX & USHX rated from -29 to 650°C



SHX & USHX Series



All measurements in mm

SHX miniature connectors are ideal for use with fine diameter thermocouple wires in applications where high temperatures are required. The SHX connector is permanently coded with a coloured dot to conform to ANSI or IEC standards. For applications such as high vacuum furnaces where contamination would adversely affect the process, USHX connectors are shipped with a removable colour-coding dot. Two-piece ceramic construction assures long life, while the oversized terminal screws allow for easy wiring.

Build Your Part Number

(1)	(2)	(3)
SMPW	KI	M

Options

(1) Connector Style

SHX for Glazed connector with colour coded dot
USHX for Unglazed connector with removable colour dot

(2) Thermocouple Type and Colour Code

KI for K Thermocouple IEC Green
K for K Thermocouple ANSI Yellow
J for J Thermocouple IEC/ANSI Black
TI for T Thermocouple IEC Brown
T for T Thermocouple ANSI Blue
NI for N Thermocouple IEC Pink
N for N Thermocouple ANSI Orange
E for E Thermocouple IEC/ANSI Purple
R/SI for R/S Thermocouple IEC Orange
R/S for R/S Thermocouple ANSI Green
G for G Thermocouple Red
C for C Thermocouple Red
D for D Thermocouple Red
U for Uncompensated or B Thermocouple White

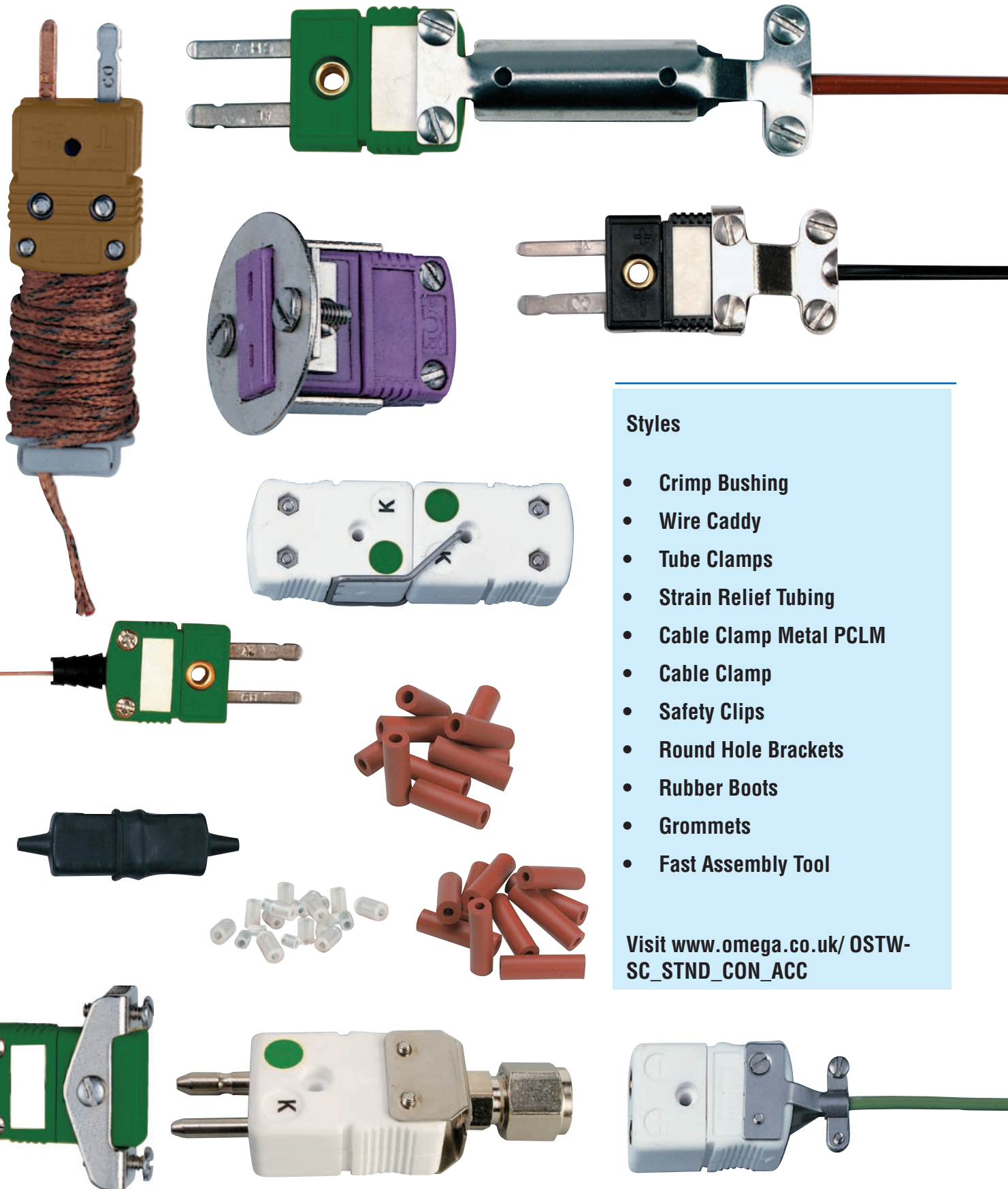
(3) Connector Type

M for Plug
F for Socket
MF for Plug/Socket Pair

- Heavy Duty Ceramic Construction
- One-Piece Body with Removeable Cap Design
- Accepts Stranded or Solid Wire up to 0,8 mm dia.
- USHX Series Has No Glaze or Marking Ink to Contaminate High Vacuum Furnaces

Connector Accessories

For standard, miniature and ceramic connectors

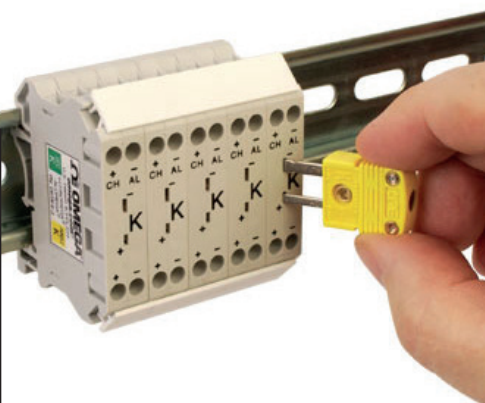
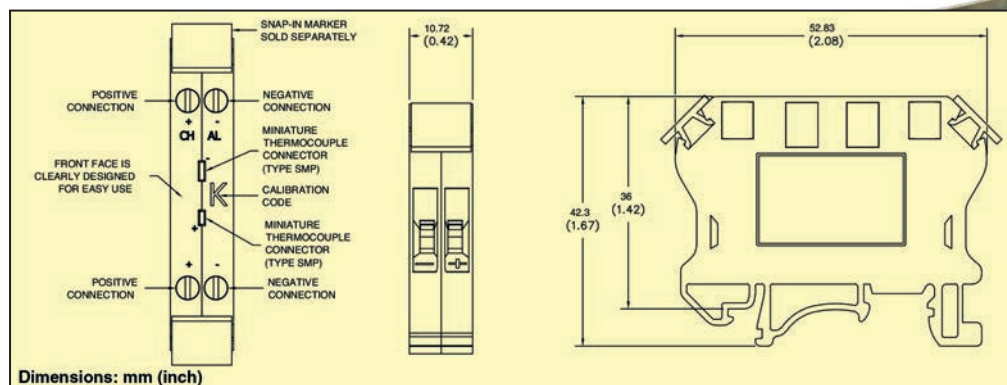


Styles

- Crimp Bushing
- Wire Caddy
- Tube Clamps
- Strain Relief Tubing
- Cable Clamp Metal PCLM
- Cable Clamp
- Safety Clips
- Round Hole Brackets
- Rubber Boots
- Grommets
- Fast Assembly Tool

Visit www.omega.co.uk/OSTW-SC_STND_CON_ACC

Thermocouple Terminal Blocks DIN-Rail Mount



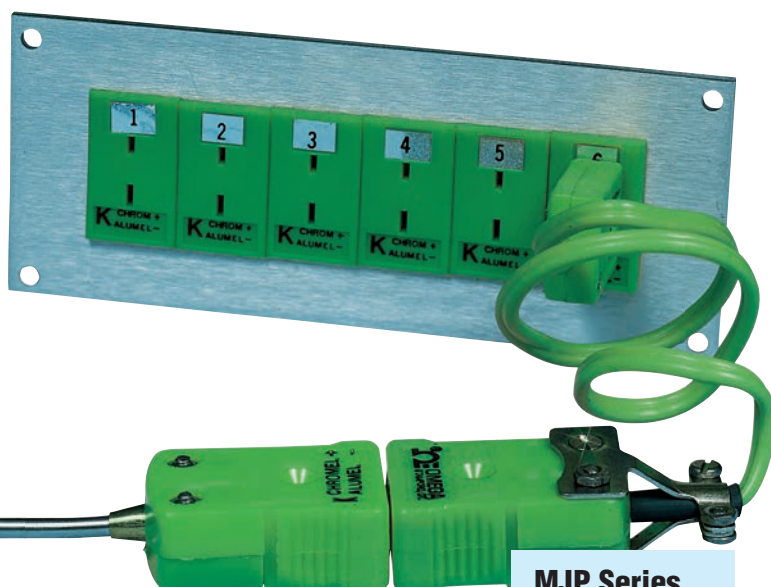
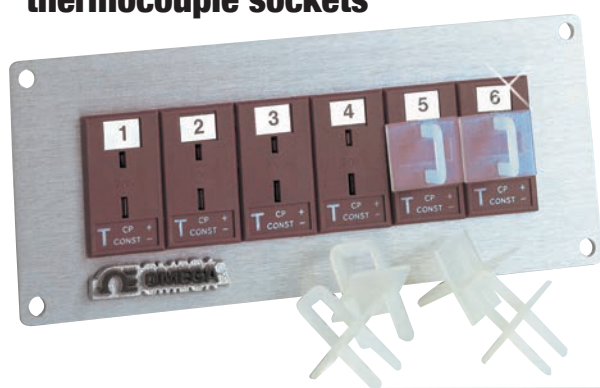
DRTB-2

All measurements in mm

Tap Into Advanced Connectivity! Audit your temperature signals anytime, anywhere without interrupting the signal. The new patented DRTB-2 Series thermocouple terminal blocks are manufactured with thermocouple-grade alloys to guarantee accurate readings. A built-in socket accepts a miniature thermocouple connector. The socket allows the user to plug in to a handheld meter for data collection.

- Terminal blocks for K, J, T, E, N and R/S Thermocouple
- Screw Type Terminal for Secure and Maintenance Free Connections
- Built-In Miniature Thermocouple Socket for Auditing and Troubleshooting

Connector Panels With colour coded miniature thermocouple sockets



MJP Series

All measurements in mm

OMEGA® Miniature Panels are fabricated using miniature panel-mount thermocouple sockets in a clear anodized aluminium plate. Special panels are available with switches, meter or both. Specify number of rows, total number of sockets and thermocouple type. The connector bodies are moulded from high-impact plastic and have a maximum service temperature of 205°C. The panels are machined from rugged 2.3 mm thick aluminum with a brushed finish.

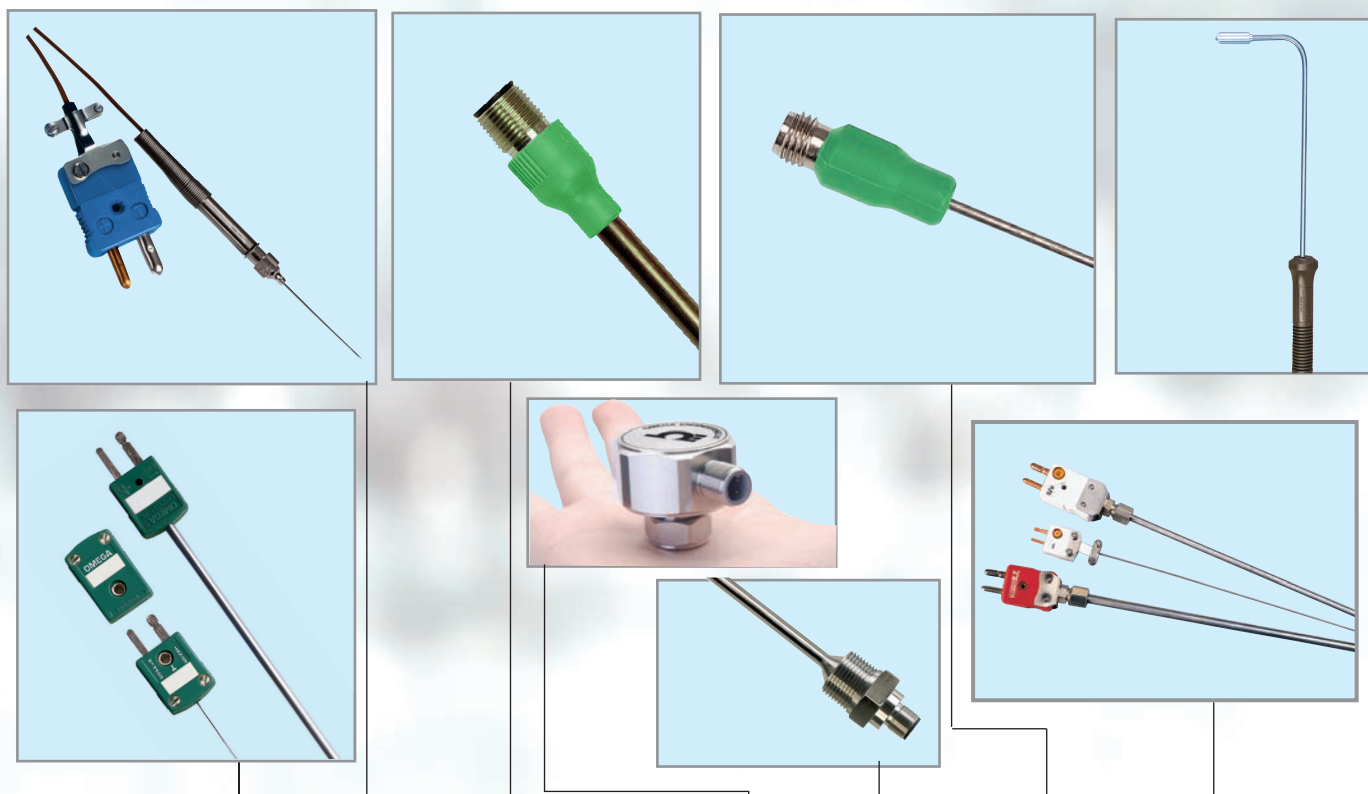
- Snap-in Sockets
- Accepts Miniature Thermocouple Plugs
- 2.3 mm Thick Anodized Aluminium Panels

Thermocouple Product Guide



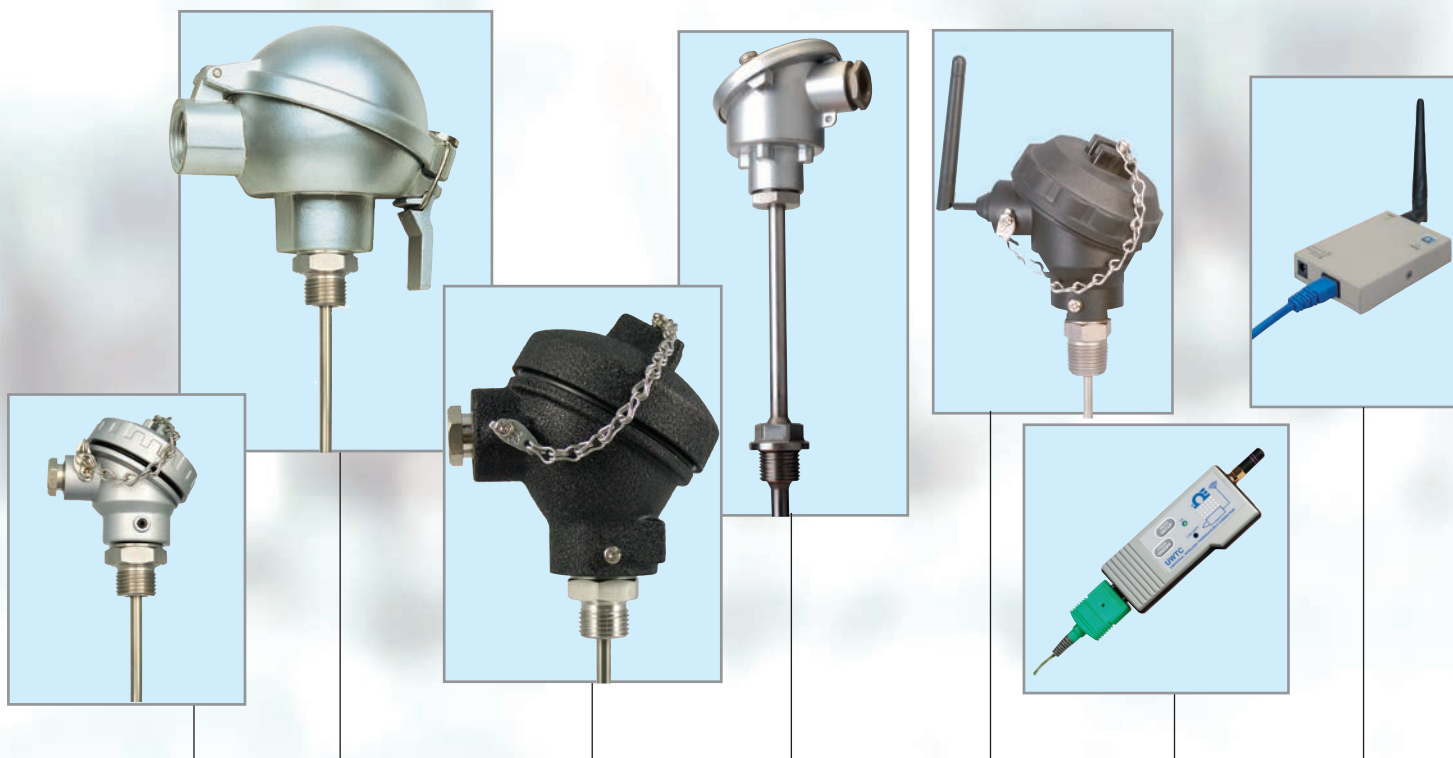
Series No	SA2 Series	WT-DT	WT Series	XCIB Series	JHIN-RSC Series	HPP1 Series	TJMINI Series	TJ Series
Configuration	Self-adhesive patch	Insulated with armoured cable	Wire with mounting washer	Overbraided or ceramic	MI Sheath with handle	Metal Sheathed Needle-Point	Metal Sheath, metal transition junction probes	Metal Sheath, metal transition junction probes
Available Calibration	J, K, T, E,	J, K, T, E,	J, K, T, E,	K, J, E, N	K, N	K	K, T, J, N	K, T, J, N
Temperature Range °C	To 150°C	To 480°C	To 480°C	To 1090°C	To 1150°C	To 260°C	To 700°C	To 1150°C
Typical Applications	Ovens, furnaces	Heavy duty, surface measurement	Surface measurement	Ovens, Furnaces	High temperature	Stored grain, compost or powdered products,	Imersion in liquid, gas or air	Imersion in liquid, gas or air
Insulating/ Sheathing	None	Spiral armour	Glass braid and PFA	High temperature silica with overbraid	MgO insulation with Nickel-Chrome Sheathing	316SS sheath metal overbraided cable	MgO insulation with Nickel-Chrome Sheathing	MgO insulation with Nickel-Chrome Sheathing

Thermocouple Product Guide



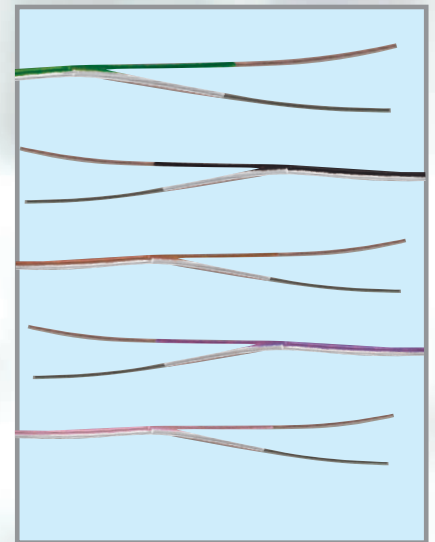
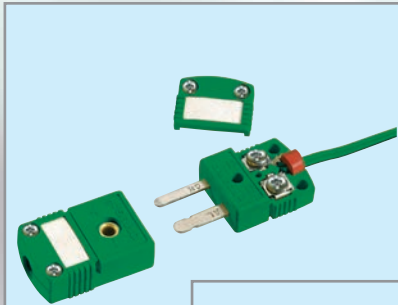
Series No	KMQSS	HYP Probes	M12M	TXM12-TC	M12 Series	M8M Series	XMO Series	SPHT
Configuration	Quick Disconnect	Metal sheathed hypodermic	Thermocouple Junction Insulated from Probe Sheath	Mini M12 Head with integrated transmitter	304 or 600 Inconel Sheath	304 or 600 stainless steel sheaths	Tungsten/ Rhenium Platinum/ Rhodium	Metal Sheath High Temperature Probe with handle
Available Calibration	K, T, J, N	J, K, T, E,	J, K,	K, T, J, N, E, R, S, L, U, B, C, D and G	K, J	K, J	R, S, B, G, C, D	J, K, E
Temperature Range °C	To 1150°C	To 200°C	1150°C	85°C ambient	1150°C	1150°C	To 2315°C	To 650°C
Typical Applications	Immersion in liquids, gas or air	Laboratory	Industrial and laboratory	Alternative to heavy, bulky industrial heads	Bendable version also available	allows for measurements in tight spaces,	Extreme temperatures	High temperature surfaces
Insulating/ Sheathing	MgO insulation with Nickel-Chrome Sheathing	Stainless steel needle	MgO insulation with Nickel-Chrome Sheathing	P67, Stainless Steel Housing	304 or 600 stainless steel sheath and housing except connector insert	304 or 600 stainless steel sheath and housing except connector insert	Hafnium Oxide (HfO ₂) Magnesia (MgO) Alumina (Al ₂ O ₃)	Ceramic insulated tip

Thermocouple Product Guide



Series No	NB-11	NB3	NB5	B-P	UWTC-NB9	UWTC Series	UWTC-REC3
Probe Type	Process Connection	304SS Sheath	304SS Sheath	316SS Sheath, Optional Lagging Extension	Reinforced Nylon Head with wireless transmitter	Wireless temperature transmitter	Wireless receiver
Termination Style	Miniature Aluminium Screw Top Protection Head	Aluminium Flip Top Protection Head	Cast Iron Screw Top Protection Head	Aluminium DIN Head	Wireless	J, K, T, E, R, S, B, N, C	32 channel channel
Thermocouple Junction\ Features	G for Grounded U for Ungrounded/ Insulated E for Exposed	G for Grounded U for Ungrounded/ Insulated E for Exposed	G for Grounded U for Ungrounded/ Insulated E for Exposed	K, T, N	K, T, N	Built-In Cold Junction Compensation	Includes Embedded Web Server
Typical Applications	Industrial Heavy Duty	Industrial Heavy Duty	Industrial Heavy Duty	Industrial Heavy Duty	Industrial Applications	Light Industrial, Laboratory	Works with OMEGA Wireless Transmitters
Options Available	PFA Coating, Custom Bends	PFA Coating, Custom Bends	PFA Coating, Custom Bends	PFA Coating, Custom Bends	Compatible with UWTC-REC Wireless Receivers	Accepts Both Miniature and Standard Size Thermocouple Plugs	Range: Up to 120 m line of sight

Thermocouple Accessories



Connector Accessories

- Strain Relief
- Crimp Bushes
- Wire Caddies
- Tube Clamps

Thermocouple Plugs & Sockets

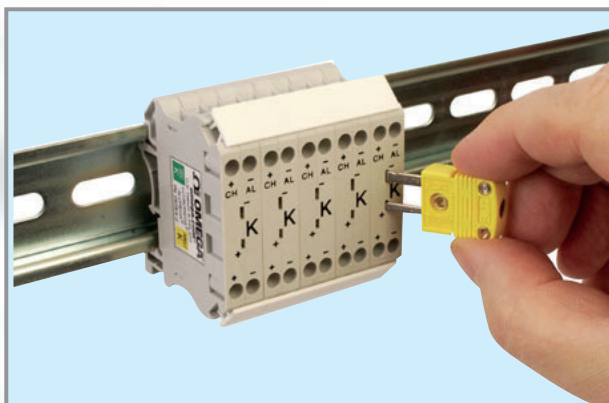
- Standard Round-Pin
- Miniature Flat-Pin
- Plastic and Ceramic Connectors

Thermocouple Wire

Standard Lengths from
7.5m to 300 m

Wide choice of insulation

- PFA
- PVC
- Glass Fibre
- Ceramic
- Kapton
- Screened/Braided
- Multipar



DIN Rail Mount Thermocouple Terminals

Compensated Alloys and Mini Socket



Thermocouple Connector Panels

Panels, Miniature, Standard, 19 inch Rack

European Sales & Service



Our sales team is at your disposal to find the best solution for your needs while respecting your budget. Do not hesitate to contact your sales representative or to consult our website with an offer of more than 100,000 products online.



Watch our manufacturing & capability video.



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