Delta Sensor
Produção e Comercialização
de Sistemas Industriais, Lda

Product Technical Information
DS_EIT-10_2109_EN

Series EItemp, Model EIT 10

Mineral insulated thermocouple insert
Simplex or duplex configurations. Customized versions up to 1700ºC

Application

The thermocouple insert EItemp EIT 10 is manufactured with thermocouple standard elements type T, J, K, N and R or S, embedded in mineral insulated cable MgO.
The EItemp EIT 10 is spare part for threaded or flanged temperature assemblies PROtemp TTH 10/11P or hygienic type HIGItemp TTH 30H.
Are available a wide range of configurations single or double and customised protective sheaths, allowing the measuring inserts EItemp EIT 10 to be used in many high demanding applications.
If requested, can be supplied with temperature transmitter, PC or HART programmable 4...20mA 2 wires technology, according to customer requested range.
Making use of industry standards for instrumentation, it could be used as spare part of other manufacturer's temperature assemblies.

Your Advantages

- High immunity to plant vibrations
- Fully metallic construction
- All current available thermocouples
- Standard simplex and duplex
- OEM customization

Overview

Informative Signs

	Information	This symbol contains device-oriented information which does not result in personal injury.
	Checking	This symbol contains procedures and other facts to get the most of the device and which do not result in personal injury.
	Caution	This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in damaged device and which do not result in personal injury.
	Warning	This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or medium injury.
	Danger	This symbol alerts you to a dangerous situation. Failure to avoid this situation will result in serious or fatal injury.

Product Overview

A thermocouple consists of the junction of two different metals at one end called the hot junction, producing an electromotive force when the hot junction and the cold junction at the other end are placed at different temperatures. The hot junction is the part of the thermocouple to be subjected to the process temperature. The cold or reference junction is usually at a lower (ambient) temperature and will compensate for the hot junction. The electromotive force generated by the thermocouple varies with the junction metals. The thermocouple element usually ends at a connection head. However, it can be transferred by compensation cable to other measuring and control instruments. Thermocouples are used for temperature measurement in the range of -270ºC to 2200ºC.
The mineral insulated thermocouple was initially developed for applications in the nuclear sector, and was later extended to other sectors of the production process. The main reasons that generated its development were the need for a thermocouple with a shorter response time than that obtained with the conventional thermocouple mounted with a protection tube and that the thermo-elements do not come into direct contact with the environment in which they would be inserted.

The manufacture of a thermocouple with mineral insulation cable starts from a conventional thermocouple assembled with a protection tube or sheath. In this process, the thermo-elements are isolated from each other by a compacted powder of magnesium oxide and protected by a metal sheath (originally the protection tube). Thus, despite the fact that a given thermocouple has a permissible range of use for a given process, it must be taken into account whether the material selected for the protective sheath is sufficiently resistant to the type of medium to be immersed. A correct selection of the material for this component, allows establishing a longer period of life for the thermocouple, with greater reliability and lower operating costs.
Mineral-insulated thermocouples can be assembled with the isolated, grounded or exposed measurement junction. If not specified, they will be manufactured with isolated junction

Consider a conventional thermocouple with a metal protection tube. Realizing that it is subjected to a temperature difference, as part of it is in contact with the process and the other end is in contact with the environment, each of them at its temperature. It is inevitable that through the sensor / protection tube assembly there is a heat flow from the highest temperature to the lowest temperature region. The balance occurs when the heat flow received by the sensor is equal to that lost by the sensor, and in this situation its temperature is not necessarily equal to the process temperature.

Since it is desired to measure the process temperature and the temperature value measured by the sensor is as close as possible to it, it is necessary that in the installation in the process some care is taken when choosing the sensor set and its accessories.

- ☑ The sensor / accessory set must have a mass that is as small as possible when compared to the process mass. There is a thermal resistance of the set that can cause a temperature difference between the sensor and the process and the greater the mass of this set, the greater the value of this resistance. Another undesirable phenomenon is when the process has fluctuations in the value of its temperature and by the inertia of the sensor, these fluctuations are attenuated or simply not detected, a fact directly related to the mass of the sensor.

- ☑ Another relevant factor is the depth of immersion of the sensor in the medium whose temperature is to be measured. The greater the immersion of the sensor, the lower the temperature gradient that, in the case of a thermocouple, the measurement junction will be subjected to. The consequence is that the temperature of the measuring junction approaches the temperature of the medium. A practical recommendation is that the immersion depth is at least 6 times the value of the external diameter of the set for measurement in liquids and 20 times for air, gases or steam.

- ☑ When the thermocouple / extension cable set is installed in the process close to electromagnetic fields, it is very likely that inductions will occur in the set, causing an erroneous reading of the measured temperature values. In this situation, insulated junction thermocouples must be used, with the sheath or protective tube to earth, as well as the extension / compensation cable, which must also be shielded and connected to earth.

- ☑ It should be considered that thermocouples in general deteriorate over time, occurring quite significantly when installed in processes at high temperature and in aggressive environments. Therefore, due to the peculiarities of each process, it is necessary to establish a useful life for the sensor and proceed to its preventive replacement or periodic calibration of the set.

	This product is not intended to be used in oxygen service or in classified zones under ATEX directive.
	This device is intended to be installed inside a thermocouple assembly and cannot be installed directly in the process.
	Please note ambient temperature cannot be greater than measuring insert sealing.
	Make sure the measuring insert has the correct immersion length and load springs are compressing the insert against the bottom of the thermowell.

Types of Thermocouples

The most common thermocouples used in industrial applications are types, K, J, T, N, S and R. Below is shown the main features for those thermocouples.

Thermocouple Type K (NICKEL CHROMIUM - NICKEL)

Positive Element (KP)	Ni90%Cr10%	Measurement range	-270°C to 1200°C
Negative Element (KN)	Ni95%Mn2%Si1%A12%	Thermocouple emf	-6,458 mV to 48,838 mV

Can be used on oxidant and inertial atmospheres. Due to its oxidation resistance is used at high temperatures above 600ºC and low temperatures below 0ºC. Should not be used on reducer and sulphuric atmospheres. At high temperatures and with low oxygen content, chromium diffusion happens, leading to a thermocouple response curve gap.

Thermocouple Type J (IRON - CONSTANTAN)

Positive Element (JP)	Fe99,5%	Measurement range	-210°C to 760°C
Negative Element (JN)	Cu55%Ni45%	Thermocouple emf	-8,096 mV to 42,919 mV

Can be used in neutral, oxidant or reducer atmospheres. Is not recommendable to be used at relative humidity (RH) atmospheres and at low temperatures (the thermo element JP becomes fragile). Above 540°C, iron suffers oxidation very quickly. Also, not recommendable to be used on sulphur atmospheres above 500°C.

Thermocouple Type T (COPPER - CONSTANTAN)

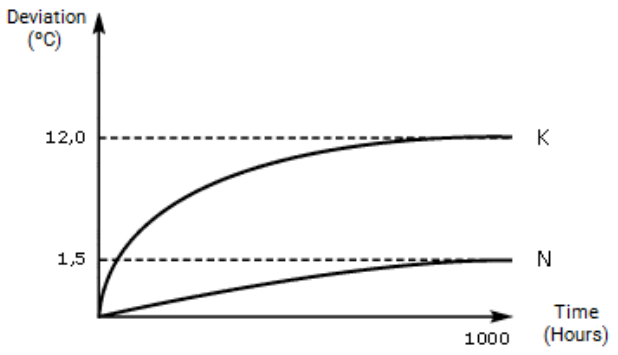
Positive Element (TP)	Cu100%	Measurement range	-270°C to 400°C
Negative Element (TN)	Cu55%Ni45%	Thermocouple emf	-6,258 mV to 20,872 mV

Can be used in neutral, oxidant or reducer atmospheres. It shows very good accuracy, due to copper properties. Above 300°C, the copper oxidation becomes very intense, reducing the thermocouple lifetime and causing deviation on the thermocouple original response curve.

Thermocouple Type N (NICROSIL - NISIL)

Positive Element (NP)	Ni84,4%Cr14,2%Si1,4%	Measurement range	-270°C a 1300°C
Negative Element (NN)	Ni95,45%Si4,40%Mg0,15%	Thermocouple emf	-4,345 mV a 47,513 mV

Newer thermocouple, which is a substitute for type K thermocouple, as it has a much higher resistance to oxidation and in many cases, it is also a substitute for platinum-based thermocouples due to their maximum temperature of use.
The normal operating temperature should not exceed 1100ºC. It is recommended for oxidizing, inert or low oxygen atmospheres, as it does not suffer from the green-root effect.
It must not be exposed to sulphurous atmospheres. The graph shows the temperature deviation suffered by the type N thermocouple compared to the type K in an oxidizing atmosphere at a temperature of 1000ºC.



Thermocouple Type S (PLATINUM RHODIUM – PLATINUM)

Positive Element (SP)	Pt90%Rh10%	Measurement range	-50°C to 1768°C
Negative Element (SN)	Pt100%	Thermocouple emf	-0,236 mV to 18,693 mV

Can be used on oxidant and inertial atmospheres, with reliability and stability at high temperatures, much higher than other thermocouples limits without platinum thermo-elements. The thermo-elements should not be exposed to metallic vapours or reducer atmospheres. This type of thermo-elements shouldn't be assembled directly in metallic pipes, but using ceramic isolators and protection pipe, alumina based (Al2O3) with high purity level (99,7%), commercially known as 799 (old 710). Still is possible to manufacture the thermocouple using ceramic pipes with alumina content of 67%, known as 610, but is not recommendable for these platinum types thermocouples. For temperatures above 1500°C is used platinum pipes. Is not recommendable to use these types of thermocouples in temperatures below 0°C, due to response sensor instability.

Thermocouple Type R (PLATINUM RHODIUM – PLATINUM)

Positive Element (RP)	Pt87%Rh13%	Measurement range	-50°C to 1768°C
Negative Element (RN)	Pt100%	Thermocouple emf	-0,226 mV to 21,101 mV

Has the same thermocouple S features, with approximately 11% more thermoelectric power.

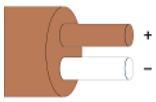
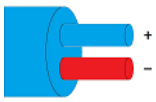
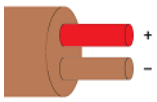
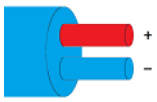
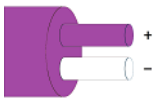
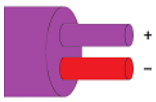
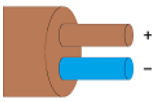
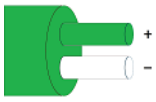
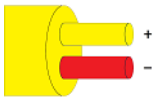
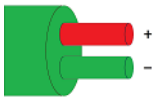
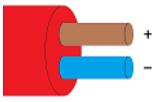
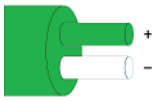
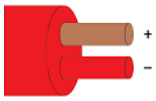
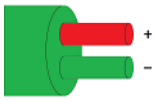
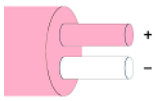
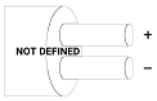
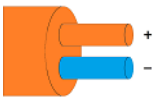
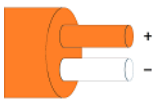
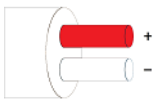
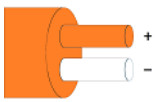
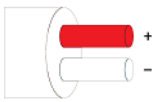
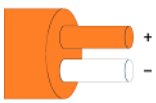
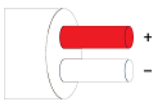
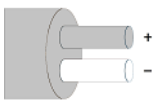
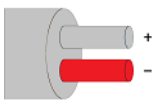
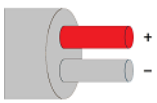
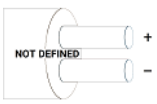
Tolerance Classes

Table 1 shows the tolerance classes (classes 1 and 2), according to the type of thermocouple, temperature of use and deviation, according to IEC 60584.

	Types	R and S	B	J	T	E	K and N
Class 1	Temperature Range [°C]	0 to 1100 1100 to 1600	-	-40 to 375 375 to 750	-40 to 125 125 to 350	-40 to 375 375 to 800	-40 to 375 375 to 1000
	Deviation [°C]	± 1 ± (1 + 0,003(t - 1100)	-	± 1,5 ± 0,004 (t)	± 0,5 ± 0,004 (t)	± 1,5 ± 0,004 (t)	± 1,5 ± 0,004 (t)
Class 2	Temperature Range [°C]	0 to 600 600 to 1600	600 to 800 800 to 1700	-40 to 333 333 to 750	-40 to 133 133 to 350	-40 to 333 333 to 900	-40 to 333 333 to 1200
	Deviation [°C]	± 1,5 ± 0,0025 (t)	± 0,0025 (t) ± 0,005 (t)	± 2,5 ± 0,0075 (t)	± 1,0 ± 0,0075 (t)	± 2,5 ± 0,0075 (t)	± 2,5 ± 0,0075 (t)

Table 1 - Classes of thermocouples according to IEC 60584

Colour Codes

TC Types	Conductor Combinations		Standards			
	+ Leg	- Leg	IEC 60584-3	ANSI Mc96.1	DIN43714	BS 1843
T	Copper	Constantan				
J	Iron	Constantan				
E	Nickel - Chromium	Constantan				
K	Nickel - Chromium	Nickel - Aluminum				
Vx	Copper	Constantan				
N	Nicrosil	Nisil				
S	Platinum - 10% Rhodium	Platinum				
R	Platinum - 13% Rhodium	Platinum				
U	Copper	Nickel				
B	Platinum - 30% Rhodium	Platinum - 6% Rhodium				
G	Tungsten	Tungsten – 26% Rhenium				
D	Tungsten – 3% Rhenium	Tungsten – 25% Rhenium				
C	Tungsten – 5% Rhenium	Tungsten – 26% Rhenium				

Vx is the compensating cable designation for thermocouple type K, also defined as KCA/KCB
U is the compensating cable designation for thermocouple types S and R.

Materials

Below are the characteristics of materials, available for thermocouple manufacturing.
Note that there are materials with severe availability for mineral insulated cable sheaths of thermocouple.

SS 304 (1.4301 / X5CrNi18-10)

AISI 304 is a widely-used austenitic chromium-nickel stainless steel. Stainless steel 304 has excellent corrosion resistance in a wide variety of environments and when in contact with different corrosive media. Pitting and crevice corrosion can occur in environments containing chlorides. Stress corrosion cracking can occur at temperatures over 60°C. Stainless steel 304 has good resistance to oxidation in intermittent service up to 870°C and in continuous service to 900°C. However, continuous use at 425-860°C is not recommended if corrosion resistance in water is required. The steel is common throughout industry particularly in food processing as the material is not susceptible to corrosion from acids found in common foodstuffs. As a consequence, such steel is ideal for items such as sinks, work surfaces, preparation areas and refrigerators. It is also a perfect material for use in the pharmaceutical industry for environments such as clean rooms.

SS 316L (1.4404 / X2CrNiMo17-12-2)

SS 316 is the standard molybdenum-bearing grade, second in importance to 304 amongst the austenitic stainless steels. The molybdenum gives to SS 316 better overall corrosion resistant properties than Grade 304, particularly higher resistance to pitting and crevice corrosion in chloride environments. The SS 316L, the low carbon version of 316 and is immune from sensitization (grain boundary carbide precipitation). Thus, it is extensively used in heavy gauge welded components. The austenitic structure also gives these grades excellent toughness, even down to cryogenic temperatures. Compared to chromium-nickel austenitic stainless steels, 316L stainless steel offers higher creep, stress to rupture and tensile strength at elevated temperatures. SS 316L with excellent corrosion resistance properties in acids (low concentration and temperature phosphoric and sulfuric) in non-oxidizing atmospheres. Maximum temperature of 927ºC.

SS 321 (1.4541 / X6CrNiTi18-10)

Stainless steel similar to SS 304 but with titanium compound, which gives it better properties when subjected to welding operations and increasing chemical resistance for use in the food and chemical industry. Characterised by high corrosion resistance in general atmospheric corrosive environments it exhibits excellent resistance to most oxidizing agents, general foodstuffs, sterilizing solutions, dyestuffs, most organic chemicals plus a wide variety of inorganic chemicals, also hot petroleum gases, steam combustion gases, nitric acid, and to a lesser extent sulphuric acid. It displays good oxidation resistance at elevated temperatures has excellent resistance to intergranular corrosion and has excellent weldability. Maximum temperature of 900ºC.

Inconel 600 (2.4816 / NiCr15Fe)

Alloy 600 is a nonmagnetic, nickel-based high temperature alloy possessing an excellent combination of high strength, hot and cold workability, and resistance to ordinary form of corrosion. This alloy also displays good heat resistance and freedom from aging or stress corrosion throughout the annealed to heavily cold worked condition range. The high chromium content of alloy 600 raises its oxidation resistance considerably above that of pure nickel, while its high nickel content provides good corrosion resistance under reducing conditions. This alloy exhibits high levels of resistance to stress and salt water, exhaust gases, and most organic acids and compounds. Good resistance to oxidation at high temperatures. Maximum temperature of 1149ºC.

SS 446-1 (1.4749 / X18CrN28)

SS 446-1 is a ferritic, heat resisting, stainless chromium steel, characterized by extremely good resistance to reducing sulphurous gases, very good resistance to oxidation in air, good resistance to oil-ash corrosion and good resistance to molten copper, lead and tin. SS 446-1 should be chosen mainly for service at temperatures above 700°C where the excellent resistance of the material to slag corrosion and sulphidizing gases is particularly advantageous. Typical applications for SS 446-1 are recuperators in the metallurgical and glass industries, thermocouple protection tubes, soot blower tubes, injection nozzles and muffle tubes in continuous wire annealing furnaces.

ALLOY C-276 (2.4819 / UNS N10276)

ALLOY C-276 is a Nickel-chromium-molybdenum wrought alloy that is considered the most versatile corrosion resistant alloy available. This alloy is resistant to the formation of grain boundary precipitates in the weld heat-affected zone, thus making it suitable for most chemical process applications in an as welded condition. Alloy C-276 also has excellent resistance to pitting, stress-corrosion cracking and oxidizing atmospheres up to 1030ºC. Alloy C-276 has exceptional resistance to a wide variety of chemical environments. Some typical applications of ALLOY C-276 include equipment components in chemical and petrochemical organic chloride processes and processes utilizing halide or acid catalysts. Other industry applications are pulp and paper (digesters and bleach areas), scrubbers and ducting for flue gas desulfurization, pharmaceutical and food processing equipment.

MONEL 400 (2.4361 / UNS N04400)

Monel 400 is a nickel-copper alloy (about 67% Ni – 23% Cu) that is resistant to sea water and steam at high temperatures as well as to salt and caustic solutions. This nickel alloy is particularly resistant to hydrochloric and hydrofluoric acids when they are de-aerated. As would be expected from its high copper content, alloy 400 is rapidly attacked by nitric acid and ammonia systems. A low corrosion rate in rapidly flowing brackish or seawater combined with excellent resistance to stress-corrosion cracking in most freshwaters, and its resistance to a variety of corrosive conditions led to its wide use in marine applications and other non-oxidizing chloride solutions. Monel 400 can be used in temperatures up to 535ºC.

SS 310 (1.4845 / X8CrNi25-21)

AISI 310 stainless steel is a high chromium nickel austenitic stainless steel with a high carbon content. It has excellent mechanical properties, high temperature oxidation resistance and heat resistance in continuous service up to 1150ºC. AISI 310 is used in various industrial furnaces, steam boilers and petroleum system parts and thermocouple protection tubes. Examples include fire box sheets, furnace linings, boiler baffles, thermocouple wells, aircraft cabin heaters, and jet engine burner liners.

SS 904L (1.4539 / X1NiCrMoCu25-20-5)

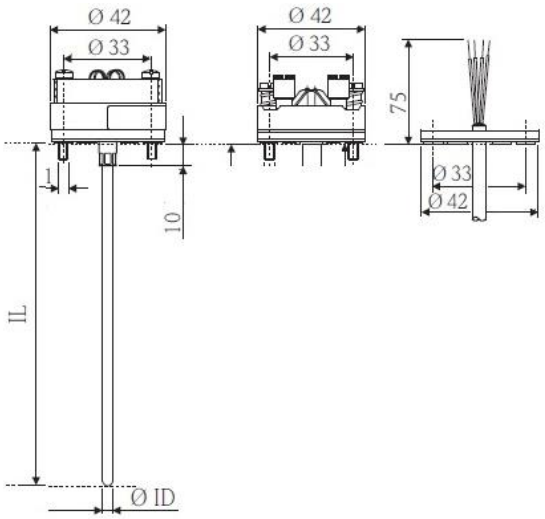
Grade 904L stainless steel is a non-stabilized austenitic stainless steel with low carbon content. This high alloy stainless steel is added with copper to improve its resistance to strong reducing acids, such as sulphuric acid. The steel is also resistant to stress corrosion cracking and crevice corrosion. Grade 904L stainless steels have excellent resistance to warm seawater and chloride attack. Grade 904L stainless steels offer good oxidation resistance. However, the structural stability of this grade collapses at high temperatures, particularly above 400ºC. major applications of grade 904L stainless steels include pulp and paper processing industries and acetic, phosphoric and sulphuric acid processing plants.

Materials	Maximum Temperature (ºC)
Carbon Steel	550
Aisi 446-1	1093
Aisi 304	899
Aisi 310	1147
Hasteloy B	815
Hasteloy C	1038
Monel	893
Nicrobell	1250
Molybdenum	1870
HR-160	1200
Titanium: Oxidant Atmosphere	538
Titanium: Reducer Atmosphere	1260
Tantalum	2349
Thermo-alloy APM	1425
Metal Ceramic LT-1	1375
Recrystalized Silicone Carbide	1600
Platinum	1699

Table 2 - Maximum material service temperature: Indicative temperatures, subject to change according to atmosphere / medium

Mechanical Construction

Generic Configuration



All dimensions in millimetres (mm)

Left: Device with temperature transmitter.
Middle: Device with standard ceramic terminal block
Right: Device with soft free end wires

ℹ	The assembly pictured on right side is not available for thermocouples noble metals based, as types S and R.
ℹ	For better long-term stability, you may choose a terminal block with grounding post. (Not pictured)
⚠	Please make sure, if you use a proper compensation cable to connect the device to your system.

Technical Data

Device			
Application	Temperature measurement		
Principle	Thermocouple		
Types	Thermocouple types J, K, N, R, S, T		
Accuracy	Class 1 and 2 IEC60584; Special tolerances on demand		
Configuration	Standard simplex and duplex; Triplex configuration on request		
Electrical Specifications			
Output signal	Thermocouple emf	mV	
	4-20 mA	Loop power 2 wires	
	4-20mA HART	Loop power 2 wires	Version 7
	Digital communication	Profibus PA	Version 3.02
		Fieldbus Foundation H1	Profiles 31PS,32L/113
Temperature Transmitter	Mounting	Housings with Ø 33mm fixing 2 x M4 threads	
	Power supply	Analogue	11 to 35 Vdc
		HART/PA/FF	9 to 32 Vdc
	Input	Thermocouples	Universal
	Minimum span	25 K	
	Load [RL]	RL ≤ (UB – 8V) / 0.025 A	
	Galvanic insulation	Min 500 VAC	
Insulation resistance	>100 MΩ/250 Vdc @room temp. or according to ASTM E780-17, whichever is greater (Not for grounded hot-junction)		
Mechanical Characteristics			
Sheath Materials	Aisi 316	Types T and J, simplex and duplex	
	Aisi 321	Types J and K, simplex and duplex	
	Inconel 600	Types K and N, simplex and duplex	
	Nicrobell	Type N, simplex only	
	SS	Types K, S and R, simplex only	
	Pt10%Rh	Types S and R, simplex only	
Dimensions	Length	50 to 4000 mm, customized; over 4000 mm on request	
	Diameter	From 1.5mm to 8mm, depending on thermocouple	
Terminal Block, Spring Loaded	Up to 6 poles	Ceramic, posts nickel plated brass, bush SS 316	
	Up to 4 poles with ground	Ceramic, posts nickel plated brass, bush SS 316	
Environmental Conditions			
Operating temperature	Absolute Min	-196°C	
	Absolute Max	1700°C	
Storage temperature	-30 to 80°C		
Relative humidity	0 to 90 %RH		
Calibration units	°C, °F, K		
Weight	Depending on material, diameter and length + block/transmitter		
Protection class (complying with EN 60529)	Refer to assembly housing		
Approvals, Certifications	RoHS 2, CE, ATEX zone 2		

	Make sure power supply is switched off during wiring procedures.
	Make sure power supply is according to specification on device label.
	Check if connection cable is according device connector requirements.
	Check if maximum load resistance is according device specifications.

Additional Information

Maintenance

The thermocouple inserts of EItemp series do not require a specific maintenance. The only recommendation is to check periodically the sensor integrity and perform an annual recalibration.

Factory Calibration Protocol

This factory quality protocol is supplied with every unit. This acts as an inspection report that shows compliance with DIN/EN 60584 essential points. One measurement point is issued for the effect.

Factory Calibration Certificate

The factory calibration certificate must be ordered with the device. The measurement points according to customer specifications and inside device operating temperature range.

Materials Certificate

A certificate according to EN10204-3.1 is available as option and if necessary, has to be ordered with the device.

Accessories

As accessories or spare parts, we have available PC programming temperature transmitters and interface kit with software.

Delivery Time

For small quantities, less than 10 pieces with basic options, the delivery times are likely 4 to 5 working days or express manufacturing (48h) with feasibility according configuration and required quantities.

How to Order

Sign		Instruction
Tick	✓	Single option selection field necessary
Double tick	✓✓	Multiple option selection field available
Added extra	⊕	Not mandatory selection field

Order Code		Description
EIT 10-		Mineral Insulated Thermocouple Insert Series EItemp Model EIT 10
010	✓	Thermocouple Type and Configuration; Class; Hot-junction
H		Thermocouple type J duplex; Cl 1 IEC60584; Isolated hot-junction
J		Thermocouple type J simplex; Cl 1 IEC60584; Isolated hot-junction
K		Thermocouple type K simplex; Cl 1 IEC60584; Isolated hot-junction
L		Thermocouple type K duplex; Cl 1 IEC60584; Isolated hot-junction
M		Thermocouple type N duplex; Cl 1 IEC60584; Isolated hot-junction
N		Thermocouple type N simplex; Cl 1 IEC60584; Isolated hot-junction
P		Thermocouple type S simplex; Cl 2 IEC60584; Isolated hot-junction
Q		Thermocouple type R simplex; Cl 2 IEC60584; Isolated hot-junction
R		Thermocouple type R simplex; Cl 1 IEC60584; Isolated hot-junction
S		Thermocouple type S simplex; Cl 1 IEC60584; Isolated hot-junction
T		Thermocouple type T simplex; Cl 1 IEC60584; Isolated hot-junction
U		Thermocouple type T duplex; Cl 1 IEC60584; Isolated hot-junction
Y		Special version on request
020	✓	Shape of the Tip
S		Straight, standard response
Y		Special version on request
030	✓	Process Immersion (Sheath) Length IL
1		50 mm
2		100 mm
3		150 mm
4		200 mm
5		250 mm
6		300 mm
7		350 mm
8		400 mm
X		Customized length
9		Special version on request

How to Order (continuation)

040	✓	MI Cable, Sheath Diameter and Material
H3		Type K Diam 3 mm, Aisi 321
H6		Type K Diam 6 mm, Aisi 321
J3		Type J Diam 3 mm, Aisi 321
J6		Type J Diam 6 mm, Aisi 321
K3		Type K Diam 3 mm, Inconel 600
K5		Type K Diam 4.5 mm, Inconel 600
K6		Type K Diam 6 mm, Inconel 600
M6		Type N Diam 6 mm, Nicrobell
N3		Type N Diam 3 mm, Inconel 600
N6		Type N Diam 6 mm, Inconel 600
R3		Type R Diam 3 mm, Pt10%Rh
R6		Type R Diam 6 mm x 2x0.45 mm wire, SS
S3		Type S Diam 3 mm, Pt10%Rh
S6		Type S Diam 6 mm x 2x0.45 mm wire, SS
T3		Type T Diam 3 mm, Aisi 316
T6		Type T Diam 6 mm, Aisi 316
U6		Type K Diam 6 mm, SS
U8		Type K Diam 8 mm, SS
Not all options are listed here. Please contact us know current production plan for this device		
050	✓	Terminal Block
B		Installed, without grounding post
P		Spring loaded disk with bushing prepared for temperature transmitter (33 mm)
S		Without terminal block; free end wires
Y		Special version on request
060	✓	Temperature Transmitter
A0		Without, standard leads
A1		Without, leads with 150 mm
W5		Universal input, output 4-20mA
S2		Universal input, output 4-20mA HART
Y9		Special version on request

How to Order (continuation)

⊕ 070	✓	Label and Product Documentation Language
EN		English
FR		French
PT		Portuguese
⊕ 080	✓	Approval
AEM		Zone 2 ATEX II 3G/D Ex ec mc IIC Gc
AEN		Zone 2 ATEX II 3G/D Ex nL IIC Gc
AIA		Zone 2 ATEX II 3G/D Ex ic IIC Gc IIIC Dc
AYY		Other on request, according to specification
⊕ 090	✓✓	Quality Assurance Documentation
C2		Factory calibration certificate, 2-point customer specification
C3		Factory calibration certificate, 3-point customer specification
M2		Materials certificate according to EN10204-3.1

Selection Example	
Thermocouple insert type 1x K up to 1000ºC, Inconel 600 sheath with diameter of 6mm and length of 420 mm. With terminal block. Factory calibration certificate in 3 points.	
Order code	EIT 10-KSXK6BA0+ENC3/420 mm

Contact

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