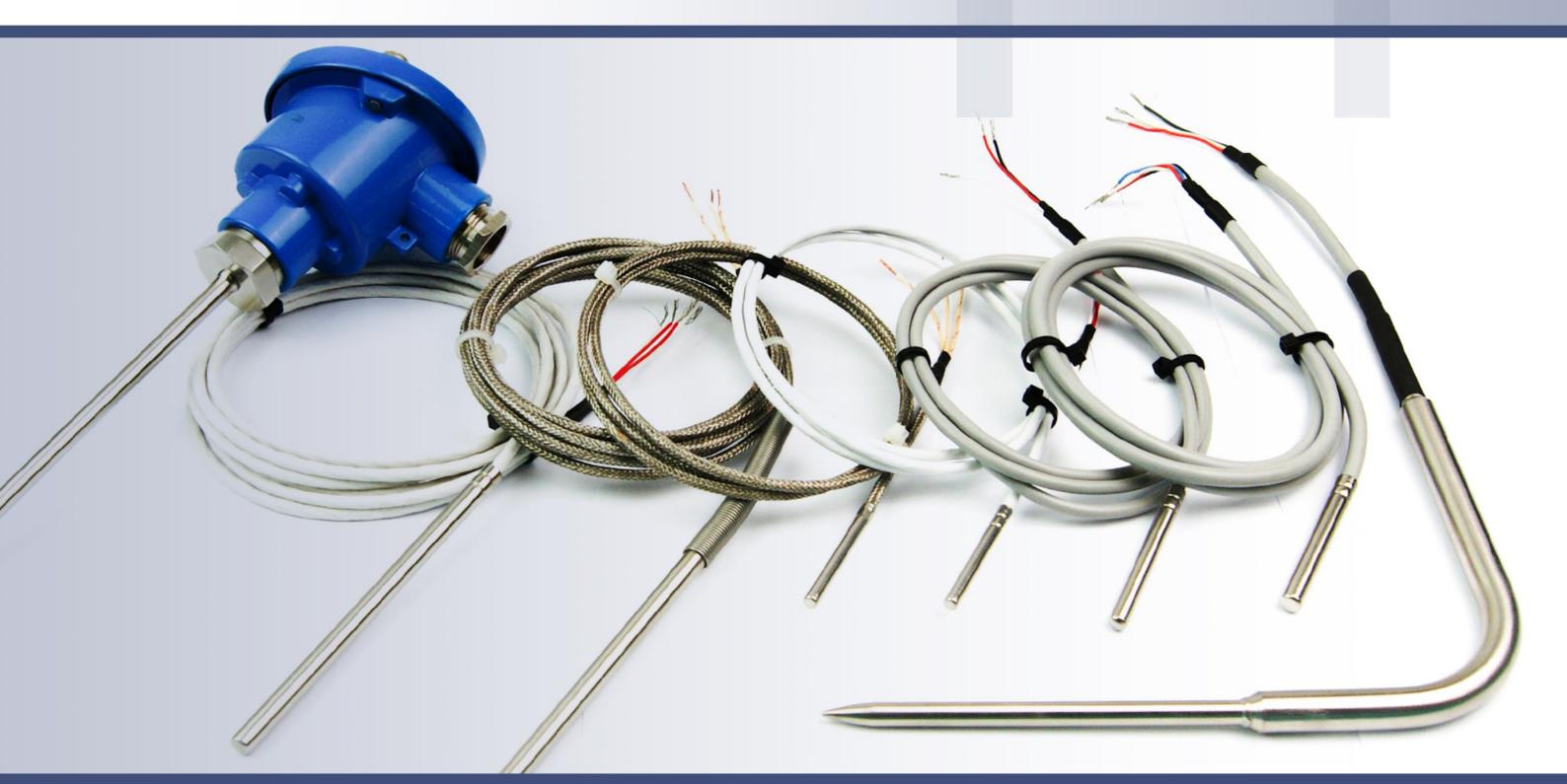
RTDS (Resistance Temperature Detectors)



Contents

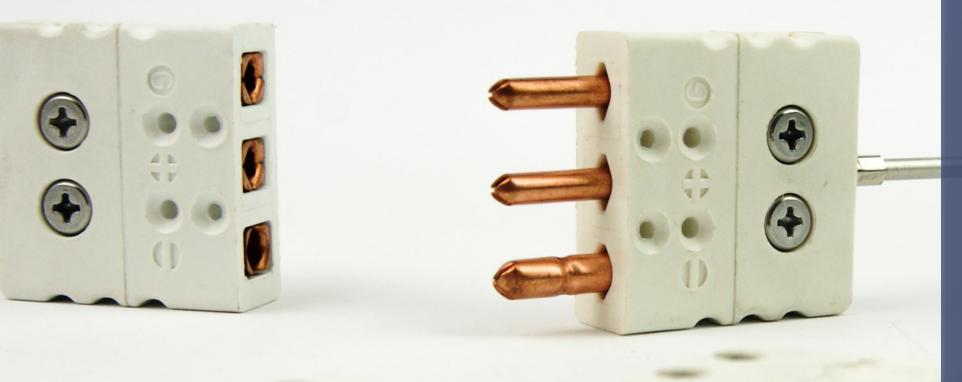
Mineral insulated RTDs	06
Technical information	07
Data sheets	
Wired RTDs	26
Technical information	
Data sheets	
RTDs with protection tube	36
Technical information	
Data sheets	
Penetration RTDs	53
Technical information	
Data sheets	

TDs with thread connection	71
chnical information	72
ata sheets	74-89
TDs with terminal head	91
echnical information	
ata sheets	95-118
urface RTDs	120
echnical information	
ata sheets	
mbient RTDs	148
echnical information	
pata sheets	





Mineral insulated RTDs



Contents

Technical information	187
PM00 - Stripped	190
PM10 - Miniature connector termination	191
PM12 - Standard connector termination	192
PM14 - LEMO connector	193
PM20 - Cable prolongation	194
PM21 - Cable prolongation with connector	195
PM30 - Reduced tip	196
PM40 - Cable prolongation with fixed threaded fitting	197
PM53 - Bayonet	198
PM60 - Disk plate insert	199
PM61 - Insert with terminal block (spring loaded)	200
PM62 - Insert with transmitter (spring loaded)	201
PM70 - Connection head	202
PM71 - Connection head with fixed threaded fitting	203
PM73 - Connection head (spring loaded)	204

Mineral insulated RTDs - Technical information



What is an RTD sensor ?

An RTD (Resistance Temperature Detector) is a type of sensor used to measure temperature. It usually consists of a platinum material (PT100,PT500 or PT1000) which has a resistance that changes proportionally with temperature.

RTDs are used for accurate, stable and reliable temperature measurements in generally high temperature ranges.

RTDs advantages

RTDs have several advantages over other types of temperature sensors:

High precision

RTDs have high temperature sensitivity, typically in the range of 0.1 to 0.2% per °C, allowing for accurate temperature measurement.

Long term stability

RTDs have long-term stability and longer life than thermistors, making them more reliable for long-term applications.

Wide operating temperature range

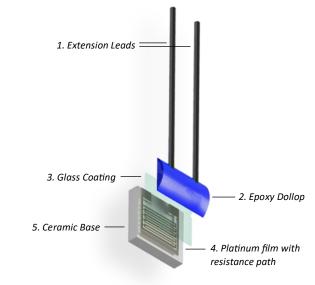
RTDs can operate in a temperature range of -200 to 850°C, making them suitable for many industrial applications.

Low ohmic resistance

RTDs have a low ohmic resistance compared to thermistors, which makes them easier to use with electronic circuits.

What is a PT probe ?

A PT (Platinum Resistance Thermometer) is a type of temperature sensor that uses a temperature deflection resistor (RTD) to measure temperature.



It is based on the principle that the electrical resistance of a conductive material increases when its temperature increases.

How does an RTD work ?

An RTD (variable temperature resistor) is a sensor that measures temperature using the variation of the electrical resistance of a conductive material. RTDs are usually made from platinum, gold or nickel. The operating principle of RTDs is based on Ohm's law of electrical resistance, which establishes a relationship between the electrical resistance of a conductor and its temperature. According to this law, the electrical resistance of a conductor generally increases when its temperature increases.

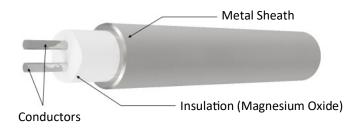
որհ

Mineral insulated RTDs - Technical information

- I-II-

What is a mineral insulated probe ?

Mineral insulated probes are made from mineral insulated cable. It has a metallic sheath and on the inside, the conductors are insulated with densely packed magnesium oxide (MgO).

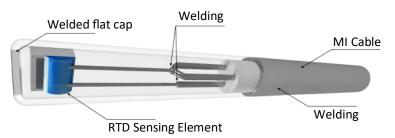


This construction bears a lot of advantages for temperature sensors. Mineral insulated probes are often referred to as sheathed temperature sensors.

Characteristics of sheathed probes

A sheathed RTD has an extremely wide temperature range: from below -200 °C up to more than 850 °C.

Furthermore, sheathed RTDs are resistant to vibration and scratches which proves their longevity. At the same time, they are bendable. Surprisingly, they are affordable as well: MI cable costs about the same as fiberglass cable.



We manufacture MI probes in diameters from 1.5 mm up to 8mm. To ensure maximum water tightness, we make either a connector or a robust cable transition onto the probe.

Sheath material types

When it comes to the production of mineral-insulated (MI) RTDs, two materials are commonly used for the sheath:

AISI 304L (up to 900°C)

18% Chrome 8% Nickel (Reduced carbon content). Reduced carbon content to improve weldability.

• AISI 316L (up to 900°C)

16% Chrome 10% Nickel 2-3% Molybdenum (Reduced carbon content). Reduced carbon content which improves corrosion resistance at low temperatures and better weldability.

Understanding the naming of Pt100, Pt500 and Pt1000 sensors

First of all, "Pt" is the chemical symbol for platinum because platinum is the basic material for making the measuring element. The naming conventions of P100, PT500, and PT1000 sensors are closely tied to the nominal resistance values they exhibit at 0°C. P100 sensor has a nominal resistance of 100 Ω at 0°C, Pt500 sensor has a nominal resistance of 500 Ω at 0°C and Pt1000 sensor has a nominal resistance of 1000 Ω at 0°C. Understanding the meaning behind these designations allows us to discern their specific characteristics and applications. Whether you require a standard PT100 sensor or a higher resistance variant like PT500 or PT1000, these RTD sensors provide reliable and accurate temperature measurements in a wide range of industries and applications.

Classes

Tolerances of RTD sensors can be tailored to customer specifics and thus manufactured to different tolerances. The higher the tolerance the smaller the margin of error relative to lower tolerances.

A system where these tolerances are classified is helpful for the end user and helps the interchangeability of these sensors. The IEC system is seen as the standard for the industry although there are other standards and other tolerance classes.

	IEC Standard	DIN4370	Temperature Range ºC	Tolerance Ω at 0ºC	Tolerance [©] C
	W0.03	1/10 DIN	-100 to 350	100±0.012 Ω	±0.03 °C
	/	1/5 DIN	-100 to 350	100±0.024 Ω	±0.06 °C
-	W0.1	1/3 DIN	-100 to 350	100±0.04 Ω	±0.10 °C
1	W0.15	Class A	-100 to 450	100±0.06 Ω	±0.15 °C
1	W0.3	Class B	-196 to 660	100±0.12 Ω	±0.30 °C

Mineral insulated RTDs - Technical information

RTDs accessories

Temperature sensor accessories are equipment used to improve the performance of temperature measuring devices.

It is important to choose quality sensor accessories to ensure optimal performance and long-term reliability.

Our accessories are made of strong and resistant materials to guarantee maximum durability.

Eurosensors offers a wide selection of temperature sensor accessories to meet your specific needs.

Accessories include: thermocouple cables for reliable and accurate data transmission, compression fittings for easy installation, thermowells to protect sensors from mechanical damage, terminal heads for easy access to sensors, transmitters for networked data transmission, and ceramic terminal blocks for electrical isolation.

How to choose your accessory ?

It is important to choose the right type of cable, fitting, thermowell, terminal head, connector and transmitter to ensure that your temperature sensor operates reliably and accurately. **The compression fitting** must match the type of sensor you are using. It must also be compatible with the sensor diameter and location thread.

The thermowell protects the sensor from mechanical damage and high temperatures. It must be selected according to the operating temperature and the required mechanical strength.

The connection head must be compatible with the type of cable and the application. It must also be able to withstand the temperatures and environment in which it will be used.

The connector can be diverse, due to the non-standardization of RTD sensors. Our company can make all the connectors you need according to your request

The RTD transmitter must be compatible with the type of sensor used and must be able to convert the signal to a standard electrical signal.

The ceramic terminal block is used to attach electrical cables to a control box. It must be compatible with the type of cable used and resistant to high temperatures.

RTD connectors



Due to the lack of standardization in RTD connectors, our company takes pride in its ability to produce a wide range of RTD connectors.

We understand that different industries and applications have unique requirements when it comes to temperature measurement, and that includes the connectors used. With our expertise and advanced manufacturing capabilities, we have the flexibility to design and produce various types of RTD connectors.

որհ

Terminal heads

Many alternative types of terminal head are available to meet the requirements of various applications. Variations exist in size, material, accommodation, resistance to media, resistance to fire or even explosion and in other parameters. Common types are shown below but there are many special variants available to meet particular requirements.



Terminal block located in a "head" allow for the connection of extension wires. Various materials are used for screw or solder terminations including copper, plated brass and, for the best performance in the case of thermocouples, thermoelement alloys. The various head styles cater for a wide variety of probe diameters and cable entries.

Additional accessories

For more detailed information see "Accessories".



PM00 – Mineral insulated RTDs Stripped

L1 Ordering information	L
1. Element type: Pt 100 Pt 500 Other:	Additional: Application: Operating temperature (min/max):
2. Element class:	Type of environment: Accessories: See the part "Accessories"
3. Number of elements:	Quantity: Note:
5. Sheath length L (mm):	
6. Sheath diameter Ø: (Ø 1,5 et 2 mm only for one element x1) ☐ 1,5 mm ☐ 3 mm ☐ 4,5 mm ☐ 6 mm ☐ 8 mm ☐ Other:	
7. Sheath material:	
8. Stripping length L1 (mm):	

How to order?

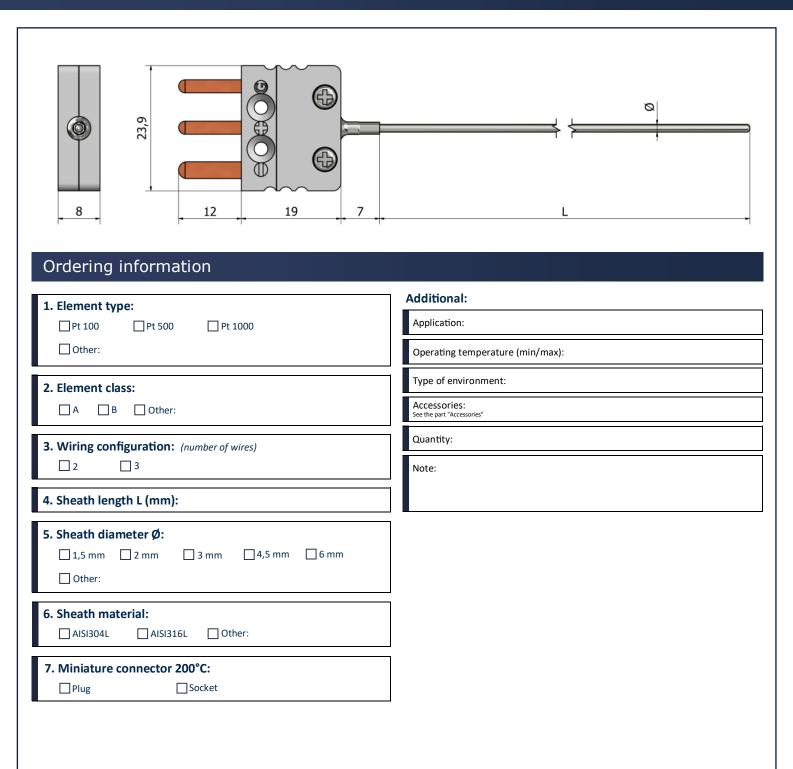
Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.

alahe

սիսի։

PM10 – Mineral insulated RTDs Miniature connector termination

սիսի։



How to order?

a a le

PM12 – Mineral insulated RTDs Standard connector termination

Ordering information	
1. Element type:	Additional:
□ Pt 100 □ Pt 500 □ Pt 1000	Application:
Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Wiring configuration: (number of wires)	Quantity:
2 3	Note:
4. Sheath length L (mm):	
5. Sheath diameter Ø: ☐ 1,5 mm ☐ 2 mm ☐ 3 mm ☐ 4,5 mm ☐ 6 mm ☐ Other:	
6. Sheath material:	
7. Standard connector 200°C:	

How to order?

alale

PM14 – Mineral insulated RTDs LEMO connector

սիսի։

Ordering information 1. Element type: Pt 100 Pt 500 Pt 1000 Other:	Additional: Application: Operating temperature (min/max):
 2. Element class: A B Other: 3. Wiring configuration: (number of wires) 	Type of environment: Accessories: See the part "Accessories" Quantity:
□ 2 □ 3 □ 4 4. Sheath length L (mm):	Note:
5. Sheath diameter Ø: ☐ 1,5 mm ☐ 2 mm ☐ 3 mm ☐ 4,5 mm ☐ 6 mm ☐ Other:	
6. Sheath material: AISI304L AISI316L Other: 7. LEMO connector type:	
Socket Socke	

How to order?

alahe

PM20 – Mineral insulated RTDs Cable prolongation

50 LC	
Ordering information	
1. Element type: ☐ Pt 100	10. Crimp protection: Spring Heat shrink sleeve Without
2. Element class:	Application:
A B Other:	Operating temperature (min/max):
3. Number of elements:	Type of environment:
4. Wiring configuration: (number of wires per element)	Accessories: See the part "Accessories"
	Quantity:
5. Sheath length L (mm):	Note:
6. Sheath diameter Ø: (Ø 1,5 and 2 mm only for one element x1) □ 1,5 mm □ 2 mm □ 3 mm □ 4,5 mm □ 6 mm □ Other:	
7. Sheath material:	
8. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	
9. Cable length LC (mm):	
How to order?	վոր

alalle

PM21 – Mineral insulated RTDs Cable prolongation with connector

սիսիս

Ordering information 1. Element type: Pt 100 Pt 500 Pt 1000 Other:	10. Connector: Miniature Standard Plug Socket Other:
2. Element class:	11. Option: □ Cable clamp □ Custom ID label □ Without
3. Wiring configuration: (number of wires)	Additional: Application:
4. Sheath length L (mm):	Operating temperature (min/max):
5. Sheath diameter Ø: □ 1,5 mm □ 2 mm □ 3 mm □ 4,5 mm □ 6 mm □ Other:	Type of environment: Accessories: See the part "Accessories" Quantity:
6. Sheath material:	Note:
7. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	
8. Cable length LC (mm):]
9. Crimp protection:]
How to order?	սի

PM30 – Mineral insulated RTDs Reduced tip

50LC	L.
Ordering information 1. Element type: Pt 100 Pt 500 Pt 1000 Other:	8. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:
2. Element class:	9. Cable length LC (mm): 10. Crimp protection: Spring Heat shrink sleeve Without
 3. Number of elements: 1 × 1 × 2 4. Wiring configuration: (number of wires per element) 2 3 4 5. Sheath length L (mm): 	11. Connector: Miniature Miniature Plug Socket Vithout Other:
6. Sheath diameter Ø: (Ø 1,5 and 2 mm only for one element x1) □ 1,5 mm □ 2 mm □ 3 mm □ 4,5 mm □ 6 mm □ Other:	12. Option: Cable clamp Custom ID label Without Additional:
 5. Sheath length L1 (mm): 6. Sheath diameter Ø1: (requirement Ø1 > Ø) ☐ 6 mm ☐ Other:	Application: Operating temperature (min/max): Type of environment:
7. Sheath material:	Accessories: See the part "Accessories" Quantity: Note:
How to order?	ղո

սիսիս

PM40 – Mineral insulated RTDs Cable prolongation with fixed threaded fitting

սիսի։

50 LC	
Ordering information	*Thread material Stainless steel (304 / 304L / 316 / 3
. Element type: □ Pt 100 □ Pt 500 □ Pt 1000	10. Crimp protection: Spring Heat shrink sleeve Without
Other: Element class: A B Other:	11. Connector: Miniature Miniature Plug Socket Vithout Other:
Number of elements: × 1 × 2 Wiring configuration: (number of wires per element)	12. Option:
2 3 4 Sheath length L or L1(mm):	13. Thread: 1/2" BSPP 1/4" BSPP 1/4" BSPT M10
Sheath diameter Ø: (Ø 1,5 and 2 mm only for one element $x1$)	☐ 1/2" NPT ☐ Other:
□ 1,5 mm □ 2 mm □ 3 mm □ 4,5 mm □ 6 mm	Additional: Application:
Sheath material:	Operating temperature (min/max):
AISI304L AISI316L Other:	Type of environment:
Cable prolongation: □ PVC (105°C) □ Silicone (180°C) □ Teflon (260°C)	Accessories: See the part "Accessories" Quantity:
Fiberglass (400°C) Other:	Note:
. Cable length LC (mm):	

PM53 – Mineral insulated RTDs Bayonet

alale

	L2 *Bayonet cap Nickel-plated brass
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	8. Connector: Miniature Miniature Standard Standard Plug Socket Plug Socket Without Other:
2. Element class:	Additional: Application:
3. Wiring configuration: (number of wires) Operating temperature (min/max):	Operating temperature (min/max):
	Type of environment:
4. Sheath lengths L1, L2, L3 (mm):	Accessories: See the part "Accessories"
1/ 13	

Quantity:

Note:

How to order?

5. Sheath diameter Ø:

4,5 mm

AISI316L

7. Bayonet cap Øin: (to suit sheath Ø mm)

🗌 6 mm

12,4 mm (4,5 mm)

Other:

14,5 mm (6 mm)

3 mm

Other:

6. Sheath material: AISI304L

10,3 mm (3 mm)

Other:

alale

PM60 – Mineral insulated RTDs Disk plate insert

1. Element type: Pt 100 Pt 500 Pt 100 Other: A Application: Operating temperature (min/max): 2. Element class: A B Other: A B Other: Type of environment: 3. Number of elements: × 1 × 2 4. Wiring configuration: (number of wires per element) Quantity: 2 3 4 5. Sheath length L (mm): Note: 6. Sheath diameter Ø: (Ø 1,5 and 2 mm only for one element x1) B mm 1,5 mm 3 mm Other: B mm	Ordering information	L *Disc plate material Stainless steel 304L
2. Element class:	□ Pt 100 □ Pt 500 □ Pt 1000	Application:
3. Number of elements: 1 1 1 2 4. Wiring configuration: (number of wires per element) 12 2 3 4 5. Sheath length L (mm):		Accessories:
6. Sheath diameter Ø: (Ø 1,5 and 2 mm only for one element x1) □ 1,5 mm □ 3 mm □ 4,5 mm □ 6 mm □ 8 mm □ Other:	4. Wiring configuration: (number of wires per element)	
	6. Sheath diameter Ø: (Ø 1,5 and 2 mm only for one element x1) □ 1,5 mm □ 3 mm □ 4,5 mm □ 6 mm □ 8 mm	

How to order?

alahe

PM61 – Mineral insulated RTDs Insert with terminal block (spring loaded)

փի

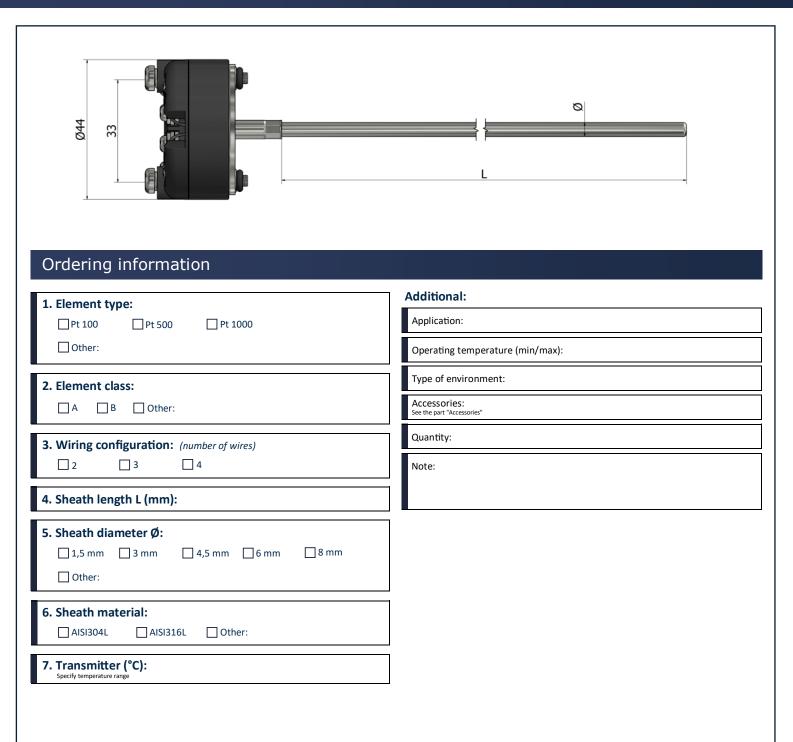
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	Additional: Application: Operating temperature (min/max):
2. Element class:	Type of environment: Accessories: See the part "Accessories"
3. Number of elements:	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
5. Sheath length L (mm):	
6. Sheath diameter Ø: (Ø 1,5 and 2 mm only for one element x1) □ 1,5 mm □ 3 mm □ 4,5 mm □ 6 mm □ 8 mm □ Other:	
7. Sheath material:	

How to order?

alale

PM62 – Mineral insulated RTDs Insert with transmitter (spring loaded)

սիսի։



How to order?

a a te

PM70 – Mineral insulated RTDs Connection head

սիսիս

Ordering information	
	Additional:
1. Element type: □ Pt 100 □ Pt 500 □ Pt 1000	Application:
☐ Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
	Accessories: See the part "Accessories"
3. Number of elements:	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
5. Sheath length L (mm):	
6. Sheath diameter Ø: (Ø 1,5 and 2 mm only for one element x1) □ 1,5 mm □ 3 mm □ 4,5 mm □ 6 mm □ 8 mm □ Other: 7. Sheath material: □ AISI304L □ AISI316L □ Other:	
8. Connection head: (see the part "Accessories") Type B Type DAN Type M Type N Type Ex Type NS Other:	
9. Mounting: Wires Terminal block Transmitter (°C): Specify temperature range	

How to order?

alahe

PM71 – Mineral insulated RTDs Connection head with fixed threaded fitting

սիսիս

	L1 L L *Thread material Stainless steel (304 / 304L / 316 / 316
Ordering information 1. Element type:	10. Thread:
□ Pt 100 □ Pt 500 □ Pt 1000 □ Other:	☐ 1/2" BSPP ☐ 1/4" BSPP ☐ 1/4" BSPT ☐ M10 ☐ 1/2" NPT ☐ Other:
	Additional:
2. Element class:	Application:
3. Number of elements:	Operating temperature (min/max):
	Type of environment:
4. Wiring configuration: (number of wires per element)	Accessories: See the part "Accessories"
5. Sheath length L or L1 (mm):	Quantity:
6. Sheath diameter Ø: (Ø 1,5 and 2 mm only for one element x1) 1,5 mm 3 mm 4,5 mm 6 mm 8 mm Other:	Note:
7. Sheath material:	
8. Connection head: (see the part "Accessories") Type B Type DAN Type M Type N Type Ex Type NS Other:	
9. Mounting: Wires Terminal block Transmitter (°C): Specify temperature range	
How to order?	վոր

ուս

PM73 – Mineral insulated RTDs Connection head (spring loaded)

	L1 *Thread material Stainless steel (304 / 304L / 316 / 316L
Ordering information 1. Element type: Pt 100 Pt 500 Pt 1000 Other:	9. Mounting: Wires Terminal block Transmitter (°C): Specify temperature range 10. Thread:
2. Element class:	10. Inread: 1/2" BSPP 1/2" NPT Other:
3. Number of elements: $\Box \times 1$ $\Box \times 2$	Additional: Application:
4. Wiring configuration: (number of wires per element)	Operating temperature (min/max):
5. Sheath lengths L1, L2, L3 (mm):	Type of environment: Accessories:
L1 L2 L3	See the part "Accessories"
6. Sheath diameter Ø: (Ø 1,5 and 2 mm only for one element x1) □ 1,5 mm □ 3 mm □ 4,5 mm □ 6 mm □ 8 mm □ Other:	Quantity: Note:
7. Sheath material:	
8. Connection head: (see the part "Accessories") Type B Type DAN Type M Type N Type Ex Type NS Other:	

How to order?

alahe

Wired RTDs

Contents

Technical InformationPC00 - Twisted teflonPC30 - PVC braidedPC35 - PVCPC40 - TeflonPC50 - FiberglassPC60 - Silicone



27
29
30
31
32
33
34
31 32 33



Wired RTDs - Technical information

- I-I-I-

What is an RTD sensor ?

An RTD (Resistance Temperature Detector) is a type of sensor used to measure temperature. RTDs are used for accurate, stable and reliable temperature measurements in generally high temperature ranges.

RTDs advantages

RTDs have several advantages over other types of temperature sensors:

High precision

RTDs have high temperature sensitivity, typically in the range of 0.1% to 0.2% per °C, allowing for accurate temperature measurement.

Long term stability

RTDs have long-term stability and longer life than thermistors, making them more reliable for long-term applications.

Wide operating temperature range

RTDs can operate in a temperature range of -200 to +850°C, making them suitable for many industrial applications.

Low ohmic resistance

increases.

RTDs have a low ohmic resistance compared to thermistors, which makes them easier to use with electronic circuits.

How does an RTD work ?

An RTD is a sensor that measures temperature using the variation of the electrical resistance of a conductive material. RTDs are usually made from platinum, gold or nickel. The operating principle of RTDs is based on Ohm's law of electrical resistance, which establishes a relationship between the electrical resistance of a conductor and its temperature.

According to this law, the electrical resistance of a conductor generally increases when its temperature increases.

What is a PT probe ?

A PT (Platinum Resistance Thermometer) is a type of temperature sensor that uses a temperature deflection resistor (RTD) to measure temperature. It is based on the principle that the electrical resistance of a conductive material increases when its temperature

Understanding the naming of Pt100, PT500 and PT1000 sensors

First of all, "Pt" is the chemical symbol for platinum because platinum is the basic material for making the measuring element. The naming conventions of P100, PT500, and PT1000 sensors are closely tied to the nominal resistance values they exhibit at 0°C. P100 sensor has a nominal resistance of 100 Ω at 0°C, Pt500 sensor has a nominal resistance of 500 Ω at 0°C and Pt1000 sensor has a nominal resistance of 1000 Ω at 0°C. Understanding the meaning behind these designations allows us to discern their specific characteristics and applications. Whether you require a standard PT100 sensor or a higher resistance variant like PT500 or PT1000, these RTD sensors provide reliable and accurate temperature measurements in a wide range of industries and applications.

Pt-s classes

Tolerances of Pt-s sensors can be tailored to customer specifics and thus manufactured to different tolerances. The higher the tolerance the smaller the margin of error relative to lower tolerances.

A system where these tolerances are classified is helpful for the end user and helps the interchangeability of these sensors. The IEC system is seen as the standard for the industry although there are other standards and other tolerance classes.

IEC Standard	DIN4370	Temperature Range ^o C	Tolerance Ω at 0ºC	Tolerance ^o C
W0.03	1/10 DIN	-100 to 350	100±0.012 Ω	±0.03 °C
/	1/5 DIN	-100 to 350	100±0.024 Ω	±0.06 °C
W0.1	1/3 DIN	-100 to 350	100±0.04 Ω	±0.10 °C
W0.15	Class A	-100 to 450	100±0.06 Ω	±0.15 °C
W0.3	Class B	-196 to 660	100±0.12 Ω	±0.30 °C

Wired RTDs - Technical information

որի

Types of RTDs cables For additional information about RTD cables see "Accessories - Cables". Description: Fiberglass fiberglass/fiberglass/braid Operating T°: 4 wire RTD configurations. -60°C / 400°C Cross section shape: round Description: **Teflon braided** teflon/braid/teflon **Operating T°:** -190°C / +260°C Cross section shape: round Description: **PVC** braided PVC/braid/PVC connectors. Operating T°: -30°C/+105°C Cross section shape: round Description: Silicone silicone/silicone Operating T°: -60°C/+180°C Cross section shape: round Description: Teflon teflon/teflon Operating T°: -190°C / +260°C Cross section shape: round Description: Teflon/Silicone teflon/silicone **Operating T°:** -60°C / +180°C Cross section shape: round Description: **PVC** PVC/PVC Operating T°: -30°C/+105°C Cross section shape: round

Pt-s wiring configurations

The cable has certain resistance which adds to the RTD resistance. Thus, the total resistance is the sum of the RTD resistance and the lead wire resistance. This causes more voltage drop across the RTD measurement system and as a result causes inaccuracy in measurement. This is the reason why we use 2 wire, 3 wire, and

RTD connectors

Due to the lack of standardization in RTD connectors, our company takes pride in its ability to produce a wide range of RTD connectors. We understand that different industries and applications have unique requirements when it comes to temperature measurement, and that includes the connectors used. With our expertise and advanced manufacturing capabilities, we have the flexibility to design and produce various types of RTD



Global cable insulation characteristics

	PVC	Silicone	Teflon	Fiberglass
Abrasion resistance	Very good	Fair	Good	Fair
Chemical resistance	Very good	Poor	Excellent	Good
Moisture resistance	Good	Good	Excellent	Poor
Fire resistance	Good	Good	Excellent	Excellent

PC00 – Wired RTDs Twisted teflon

-190°C / +260°C Short term +280°C

Ordering information	
1. Element type:	Additional:
□ Pt 100 □ Pt 500 □ Pt 1000	Application:
Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
	Quantity:
3. Wiring configuration: (number of wires)	Note:
 4. Wire and cable size: □ 7 × 0,2 (0,22 mm²) □ Other: 	
5. Cable length L (mm):	
6. Insulation material: Fiberglass Teflon heat Other: shrink sleeve	
7. Insulation method:	
To the measuring element	
Over the measuring element	

How to order?

alahe

PC30 – Wired RTDs PVC braided (pvc/braid/pvc)

-30°C / +105°C Short term +135°C

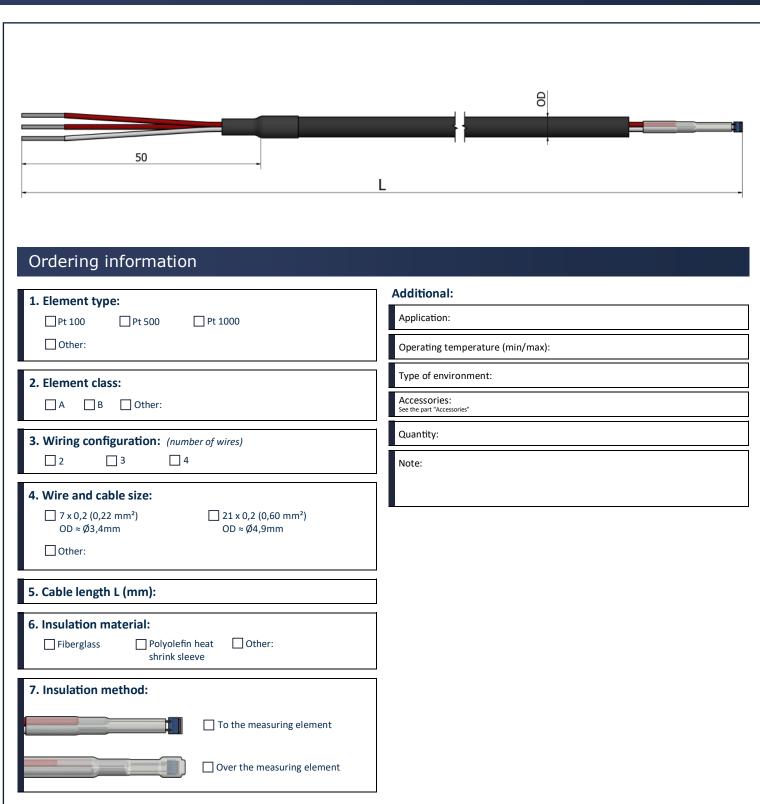
50
1. Element type: Pt 100 Other: A B Other: Cuention: A B Cuention: Cuention: Cuention: Cuention: A B Cuention: Cuention: A Cuention:
I. Element type: Pt 100 Other: A B Other: Accessories: See the part "Accessories" Output
Other: Operating temperature (min/max): Type of environment: A B Other: A B Other: Operating temperature (min/max): Type of environment: Accessories: See the part "Accessories" Ownetities:
2. Element class: Type of environment: A B Other:
A B Other: A B A B A B A B B Other: Accessories: See the part "Accessories" Output
A D Other See the part "Accessories"
3. Wiring configuration: (number of wires)
2 3 4 Note:
4. Wire and cable size:
\square 7 x 0,2 (0,22 mm ²) OD \approx Ø4,2mm
Other:
5. Cable length L (mm):
6. Insulation material:
Fiberglass Polyolefin heat Other:
7. Insulation method:
To the measuring element
Over the measuring element

How to order?

alahe

PC35 – Wired RTDs PVC (pvc/pvc)

-30°C / +105°C Short term +135°C



How to order?

a a le

PC40 – Wired RTDs Teflon (teflon/braid/teflon)

-190°C / +260°C Short term +280°C



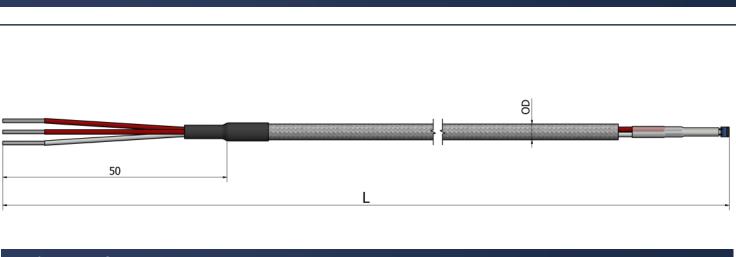
50	
Ordering information	
1. Element type:	Additional:
□ Pt 100 □ Pt 500 □ Pt 1000	Application:
Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Wiring configuration: (number of wires)	Quantity:
	Note:
 4. Wire and cable size: 	
5. Cable length L (mm):]
6. Insulation material: Fiberglass Teflon heat Other: shrink sleeve	
7. Insulation method:	
To the measuring element	
Over the measuring element	

How to order?

alahe

PC50 – Wired RTDs Fiberglass (fiberglass/fiberglass/braid)

-60°C / +400°C Short term +600°C որհե



Ordering information

1. Element type:	Additional:
□ Pt 100 □ Pt 500 □ Pt 1000	Application:
Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Wiring configuration: (number of wires)	Quantity:
2 3 4	Note:
 4. Wire and cable size: 7 x 0,2 (0,22 mm²) OD ≈ Ø3,0mm Other: 	
5. Cable length L (mm):	
6. Insulation material:	
7. Insulation method:	
To the measuring element	
Over the measuring element	

How to order?

alale

PC60 – Wired RTDs Silicone (silicone/silicone)

-60°C / +180°C Short term +230°C սիսիս

- 50	
Ordering information	
1. Element type: Pt 100 Pt 500 Pt 1000 Other:	Additional: Application: Operating temperature (min/max):
2. Element class:	Type of environment: Accessories: See the part "Accessories"
3. Wiring configuration: (number of wires)	Quantity: Note:
 4. Wire and cable size: 7 x 0,2 (0,22 mm²) OD ≈ Ø5,0mm Other: 	
5. Cable length L (mm):	
6. Insulation material: Fiberglass Teflon heat Other: shrink sleeve	
7. Insulation method:	

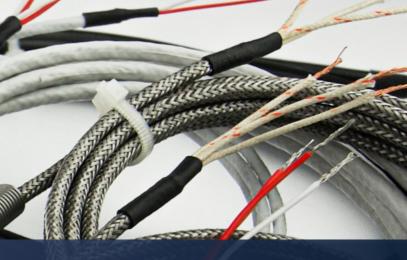
How to order?

alahe

RTDs with protection tube

Contents

PT00 - Free leads
PT10 - Standard tube
PT12 - Standard tube (90° bend) .
PT20 - Pot seal
PT21 - Pot seal with reduced tip
PT25 - Open air
PT30 - Plug-in (Clamp)
PT35 - Plug-in (Miniature)
PT40 - Integrated M12 connector
PT41 - Integrated M12 connector
PT45 - RTD connector
PT50 - Armored cable prolongatio
PT60 - For aggressive environmen



	37
	39
	40
	41
	42
	43
	44
	45
	46
	47
transmitter	48
	49
	50
	51

RTDs with protection tube - Technical information

What are the characteristics of RTDs with protection tube ?

Protection tubes play a crucial role by providing a robust shield for the RTD sensor, safeguarding it from potential mechanical damage, corrosive substances, high-pressure environments, and other adverse conditions that may compromise its accuracy or integrity. The primary purpose of the protection tube is to act as a physical barrier between the external environment and the delicate RTD sensor. It serves as a protective sheath, shielding the

sensor from impacts, vibrations, abrasion, and other mechanical stresses that can occur during

operation. This ensures the longevity and reliability of the sensors in rugged industrial settings. We have several sizes and types of tubes. See *"Technical data* -



Protection tube materials

For the production of tubes, stainless steel, copper and brass are often used. Due to its good characteristics such as corrosion resistance, strength (abrasion resistance) and good thermal conductivity, stainless steel (SS316) stands out as the most common material from which tubes are produced.

Tube materials:

- Stainless steel (SS316)
- Stainless steel (SS316L)
- Stainless steel (SS316Ti)
- Brass
- Aluminum - Copper

What is an RTD sensor ?

An RTD (Resistance Temperature Detector) is a type of sensor used to measure temperature. RTDs are used for accurate, stable and reliable temperature measurements in generally high temperature ranges.

RTDs advantages

RTDs have several advantages over other types of temperature sensors:

High precision

RTDs have high temperature sensitivity, typically in the range of 0.1 to 0.2% per °C, allowing for accurate temperature measurement.

Long term stability

RTDs have long-term stability and longer life than thermistors, making them more reliable for long-term applications.

Wide operating temperature range

RTDs can operate in a temperature range of -200 to +850°C, making them suitable for many industrial applications.

Low ohmic resistance

RTDs have a low ohmic resistance compared to thermistors, which makes them easier to use with electronic circuits.

How does an RTD work ?

An RTD (variable temperature resistor) is a sensor that measures temperature using the variation of the electrical resistance of a conductive material. RTDs are usually made from platinum, gold or nickel. The operating principle of RTDs is based on Ohm's law of electrical resistance, which establishes a relationship between the electrical resistance of a conductor and its temperature. According to this law, the electrical resistance of a conductor generally increases when its temperature increases.

վեր

RTDs with protection tube - Technical information

What is a PT probe ?

A PT (Platinum Resistance Thermometer) is a type of temperature sensor that uses a temperature deflection resistor (RTD) to measure temperature. It is based on the principle that the electrical resistance of a conductive material increases when its temperature increases.

Understanding the naming of Pt100, PT500 and PT1000 sensors

First of all, "Pt" is the chemical symbol for platinum because platinum is the basic material for making the measuring element. The naming conventions of P100, PT500, and PT1000 sensors are closely tied to the nominal resistance values they exhibit at 0°C. P100 sensor has a nominal resistance of 100 Ω at 0°C, Pt500 sensor has a nominal resistance of 500 Ω at 0°C and Pt1000 sensor has a nominal resistance of 1000 Ω at 0°C. Understanding the meaning behind these designations allows us to discern their specific characteristics and applications. Whether you require a standard PT100 sensor or a higher resistance variant like PT500 or PT1000, these RTD sensors provide reliable and accurate temperature measurements in a wide range of industries and applications.

Pt-s wiring configurations

The cable has certain resistance which adds to the RTD resistance. Thus, the total resistance is the sum of the RTD resistance and the lead wire resistance. This causes more voltage drop across the RTD measurement system and as a result causes inaccuracy in measurement. This is the reason why we use 2 wire, 3 wire, and 4 wire RTD configurations.

RTD connectors

Due to the lack of standardization in RTD connectors, our company takes pride in its ability to produce a wide range of RTD connectors. We understand that different industries and applications have unique requirements when it comes to temperature measurement, and that includes the connectors used. With our expertise and advanced manufacturing capabilities, we have the flexibility to design and produce various types of RTD connectors.



Pt-s classes

վեր

Tolerances of RTD sensors can be tailored to customer specifics and thus manufactured to different tolerances. The higher the tolerance the smaller the margin of error relative to lower tolerances.

A system where these tolerances are classified is helpful for the end user and helps the interchangeability of these sensors. The IEC system is seen as the standard for the industry although there are other standards and other tolerance classes.

IEC Standard	DIN4370	Temperature Range ºC	Tolerance Ω at 0ºC	Tolerance ^⁰ C
W0.03	1/10 DIN	-100 to 350	100±0.012 Ω	±0.03 °C
/	1/5 DIN	-100 to 350	100±0.024 Ω	±0.06 °C
W0.1	1/3 DIN	-100 to 350	100±0.04 Ω	±0.10 °C
W0.15	Class A	-100 to 450 100±0.06 Ω ±0.1		±0.15 °C
W0.3	Class B	-196 to 660	100±0.12 Ω	±0.30 °C



Global cable insulation characteristics

	PVC	Silicone	Teflon	Fiberglass
Abrasion resistance	Very good	Fair	Good	Fair
Chemical resistance	Very good	Poor	Excellent	Good
Moisture resistance	Good	Good	Excellent	Poor
Fire resistance	Good	Good	Excellent	Excellent

PT00 – RTDs with protection tube Free leads

alalle

Ordering information 1. Element type: Pt 100 Pt 500 Pt 1000 Other:	Additional: Application: Operating temperature (min/max):
2. Element class:	Type of environment: Accessories: See the part "Accessories" Quantity:
3. Number of sensor elements: x 1 x 2 4. Wiring configuration: (number of wires per element) 2 3 4	Note:
5. Tube dimensions (mm): (material Stainless steel 316L) L Ø G. Free leads length LC (mm):	

How to order?

alahe

PT10 – RTDs with protection tube Standard tube

alalle

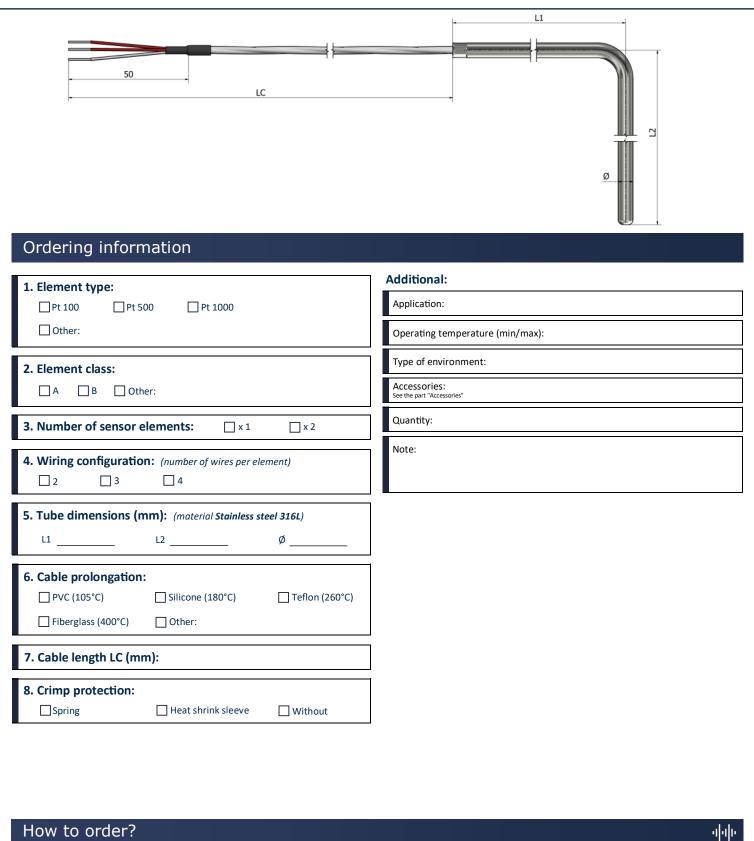
50 LC Ordering information	
1. Element type: Pt 100 Pt 500 Other:	Additional: Application: Operating temperature (min/max):
2. Element class:	Type of environment: Accessories: See the part "Accessories"
3. Number of sensor elements: x 1 x 2 4. Wiring configuration: (number of wires per element) 2 3 4	Quantity: Note:
5. Tube dimensions: (material Stainless steel 316L) □ Ø3 x 50 mm □ Ø4 x 40 mm □ Ø5 x 50 mm □ Ø6 x 50 mm □ Other:	
6. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	
7. Cable length LC (mm): 8. Crimp protection: Spring Heat shrink sleeve Without	

How to order?

alahe

PT12 - RTDs with protection tube Standard tube (90° bend)

u u u



PT20 – RTDs with protection tube Pot seal

սիր

Ordering information 1. Element type: Pt 100 Pt 500 Other: 2. Element class: A B A B Other: 3. Number of sensor elements: X 1 2 3 4. Wiring configuration: (number of wires per element) 2 3 2. Tube dimensions (mm): (material Stainless steel 3161) L Ø PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other: 7. Cable length LC (mm): Teflon (260°C)	50 LC	
Application: Pt 100 Pt 500 Other: Operating temperature (min/max): Celement class: Type of environment: A B Other: A Wiring configuration: (number of wires per element) Quantity: Quantity: Note: Note: S. Tube dimensions (mm): (material Stainless steel 316L) Virtual Stainless steel 316L) Virtual Stainless (400°C) PVC (105°C) Silicone (180°C) Teflon (260°C) Virtual Stainless (400°C) PVC (105°C) Other: Virtual Stainless (400°C) Virtual Stainless (400°C) S. Cripp protection: Stainless (400°C) Virtual Stainless (400°C) Virtual Stainless (400°C)		
Other: Operating temperature (min/max): Z. Element class: Type of environment: A B Other: 3. Number of sensor elements: x 1 g Guantity: Quantity: Note: Operating temperature (min/max): Note: Cable prolongation: PVC (105°C) Piberglass (400°C) Other: Z. Cable length LC (mm): Chercitic Science: B. Crimp protection: Construction:		
2. Element class: Image: Construction of the second of		
2. Element class:		
3. Number of sensor elements: x 1 x 2 4. Wiring configuration: (number of wires per element) 2 2 3 4 5. Tube dimensions (mm): (material Stainless steel 316L)		Accessories:
3. Number of sensor elements: x1 x2 4. Wiring configuration: (number of wires per element) 2 3 4 5. Tube dimensions (mm): (material Stainless steel 316L)		See the part "Accessories"
6. Cable prolongation: PVC (105°C) Silicone (180°C) Teflon (260°C) Fiberglass (400°C) Other: 7. Cable length LC (mm): 8. Crimp protection:		Note:
□ PVC (105°C) □ Silicone (180°C) □ Teflon (260°C) □ Fiberglass (400°C) □ Other: 7. Cable length LC (mm): 8. Crimp protection:		
8. Crimp protection:	□ PVC (105°C) □ Silicone (180°C) □ Teflon (260°C)	
	7. Cable length LC (mm):	

PT21 – RTDs with protection tube Pot seal with reduced tip

սիսիս

50 LC	
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	Additional: Application: Operating temperature (min/max):
2. Element class:	Type of environment: Accessories: See the part "Accessories"
3. Number of sensor elements: $x 1$ $x 2$ 4. Wiring configuration: (number of wires per element) 2 3 4	Quantity: Note:
5. Tube dimensions L and Ø (mm): (material Stainless steel 316L) L <	
6. Tube dimensions L1 and Ø1 (mm): (material Stainless steel 316L)	
7. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	
8. Cable length LC (mm): 9. Crimp protection:	
9. Crimp protection:	

How to order?

alale.

PT25 – RTDs with protection tube Open air

սիսիս

50 LC	
Ordering information	*Tube material Stainless steel 316L Additional:
1. Element type:	Application:
□ Pt 100 □ Pt 500 □ Pt 1000	
Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
$\square A \square B \square Other:$	Accessories:
	See the part "Accessories"
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
5. Tube length L (mm):	
6. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	
7. Cable length LC (mm):	
8. Crimp protection:	
Spring Heat shrink sleeve Without	

How to order?

alahe

EuroSensors بالاال

PT30 – RTDs with protection tube Plug-in (clamp)

50 LC	
Ordering information	
1. Element type:	Additional: Application:
□ Pt 100 □ Pt 500 □ Pt 1000 □ Other:	Operating temperature (min/max):
	Type of environment:
2. Element class:	Accessories: See the part "Accessories"
	Quantity:
3. Number of sensor elements: x 1 x 2 4. Wiring configuration: (number of wires per element) 2 3 4	Note:
5. Tube dimensions (mm): (material Stainless steel 316L) L Ø	
6. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	
7. Cable length LC (mm):	
8. Crimp protection: Spring Heat shrink sleeve Without	
How to order?	վվի

սիդիս

PT35 – RTDs with protection tube Plug-in (miniature)

50 LC	
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	Additional: Application: Operating temperature (min/max): Type of environment:
2. Element class:	Accessories: See the part "Accessories"
3. Number of sensor elements: x 1 x 2 4. Wiring configuration: (number of wires per element) 2 3 4	Quantity: Note:
5. Tube dimensions (mm): (material Stainless steel 316L) L Ø	
6. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	
7. Cable length LC (mm):	
8. Crimp protection:	
How to order?	սիփո

Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.

սիրի

PT40 – RTDs with protection tube Integrated M12 connector

- I-I-I-

Ordering information	
1. Element type:	Additional:
□ Pt 100 □ Pt 500 □ Pt 1000	Application:
Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Number of sensor elements: x1 x2	Quantity:
4. Wiring configuration: (number of wires per element) 2 3 4	Note:
5. Tube dimensions (mm): (material Stainless steel 316L)]
L Ø	
	-

How to order?

alahe

PT41 – RTDs with protection tube Integrated M12 connector with transmitter

ululu

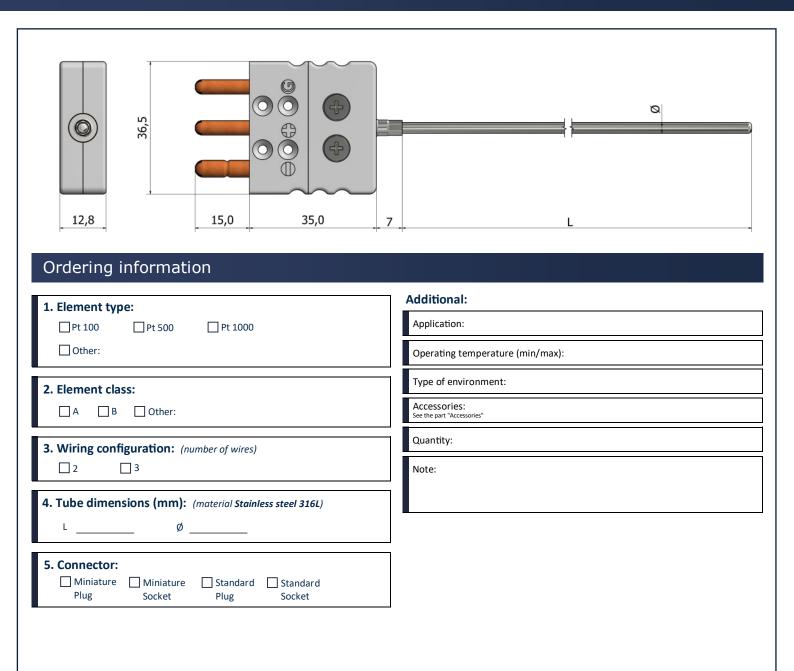
11,0	
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	Additional: Application: Operating temperature (min/max):
2. Element class:	Type of environment: Accessories: See the part "Accessories"
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
5. Tube dimensions (mm): (material Stainless steel 316L) L	
6. Transmitter (°C): Specify temperature range	
	-

How to order?

alale.

PT45 – RTDs with protection tube RTD connector

սիսի։



How to order?

alale.

PT50 – RTDs with protection tube Armored cable prolongation

50 LP LC		
Ordering information	*Armored cable material Stainless steel 304	
	Additional:	
1. Element type:	Application:	
Other:		
	Operating temperature (min/max):	
2. Element class:	Type of environment:	
A B Other:	Accessories: See the part "Accessories"	
3. Number of sensor elements: $\square \times 1$ $\square \times 2$	Quantity:	
4. Wiring configuration: (number of wires per element)	Note:	
5. Tube dimensions (mm): (material Stainless steel 316L)		
L Ø		
6. Cable prolongation:		
□ PVC (105°C) □ Silicone (180°C) □ Teflon (260°C)		
Fiberglass (400°C) Other:		
7. Cable length LC (mm):		
8. Bare cable length LP (mm):		
9. Crimp protection: Spring Heat shrink sleeve Without		

How to order?

alale.

սիդիս



PT60 – RTDs with protection tube For aggressive environments (with PTFE protection up to 250°C)

ululu

50 LC	
Ordering information	*Protection material PTFE
1. Element type: Pt 100 Pt 500 Other:	Additional: Application: Operating temperature (min/max):
2. Element class:	Type of environment: Accessories: See the part "Accessories"
3. Number of sensor elements: x1 x2	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
5. Tube dimensions (mm): (material SS 316L with PTFE protection) L	
6. Cable prolongation: PVC (105°C) Silicone (180°C) Teflon (260°C) Fiberglass (400°C) Other:	
7. Cable length LC (mm):	

How to order?

alale.

IIII EuroSensors

Penetration RTDs

Contents

Technical Information
PP01 - Standard
PP02 - Standard (90° bend)
PP11 - Metal handle
PP12 - Metal handle (90° bend)
PP13 - Plastic handle
PP20 - Ergonomic handle
PP31 - Armored cable prolongation
PP32 - Armored cable prolongation
PP40 - Reduced tip
PP41 - Miniature
PP50 - T shape
PP51 - T shape with thread
PP60 - T shape for compost
PP61 - Robust T shape for compost



	54
	56
	57
	58
	59
	60
	61
	62
0° bend)	63
	64
	65
	66
	67
	68
	69

contact@eurosensors.eu www.eurosensors.eu

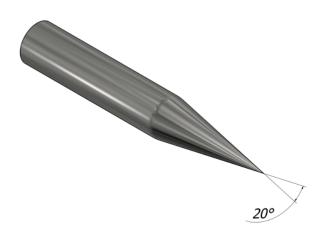
EuroSensors بالاال

Penetration RTDs - Technical information

-d-de-

What are the characteristics of penetration RTDs ?

What sets penetration RTDs apart is their ability to measure the internal temperature of objects with pinpoint accuracy. Penetration probes are slender, pointed sensors designed for insertion into materials such as food, liquids, or even soil.



Here are some key applications where they prove invaluable:

Food safety and culinary arts: In the culinary world, achieving the perfect level of doneness and ensuring food safety go hand in hand. Penetration probes allow chefs and food inspectors to measure the core temperature of dishes, ensuring they are both delicious and safe to eat.

Industrial processes: From chemical reactions to metallurgical processes, knowing the temperature within materials or substances is crucial. Penetration probes provide real-time insights into the temperature profiles of these processes, aiding in quality control and optimization.

Medical applications: In the healthcare sector, penetration probes are used for patient monitoring, particularly during surgeries where monitoring body temperature accurately is vital for patient safety.

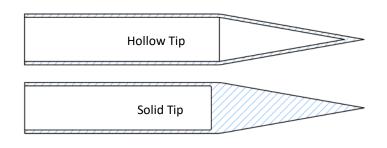
Environmental research: Environmental scientists utilize penetration probes to measure soil temperature accurately, helping them understand the impact of temperature variations on ecosystems.

Curly cable

Due to the frequent movement of the cable while using penetration probes, there is a option to put a curly cable that will ensure a easier and more comfortable way of use.

Types of penetration probes

There are two types of penetration probes with hollow tip and solid tip. Hollow tip probes provides a faster response while solid tip probe is used in places where it is required to break through harder materials



What is an RTD sensor ?

An RTD (Resistance Temperature Detector) is a type of sensor used to measure temperature. RTDs are used for accurate, stable and reliable temperature measurements in generally high temperature ranges.

RTDs advantages

RTDs have several advantages over other types of temperature sensors:

High precision

RTDs have high temperature sensitivity, typically in the range of 0.1 to 0.2% per °C, allowing for accurate temperature measurement.

Long term stability

RTDs have long-term stability and longer life than thermistors, making them more reliable for long-term applications.

Wide operating temperature range

RTDs can operate in a temperature range of -200 to +850°C, making them suitable for many industrial applications.

Low ohmic resistance

RTDs have a low ohmic resistance compared to thermistors, which makes them easier to use with electronic circuits.

How does an RTD work ?

An RTD (variable temperature resistor) is a sensor that measures temperature using the variation of the electrical resistance of a conductive material. RTDs are usually made from platinum, gold or nickel. The operating principle of RTDs is based on Ohm's law of electrical resistance, which establishes a relationship between the electrical resistance of a conductor and its temperature. According to this law, the electrical resistance of a conductor generally increases when its temperature increases.

EuroSensors بالاال

Penetration RTDs - Technical information

որհե

What is a PT probe ?

A PT (Platinum Resistance Thermometer) is a type of temperature sensor that uses a temperature deflection resistor (RTD) to measure temperature. It is based on the principle that the electrical resistance of a conductive material increases when its temperature increases.

Understanding the naming of Pt100, PT500 and PT1000 sensors

First of all, "Pt" is the chemical symbol for platinum because platinum is the basic material for making the measuring element. The naming conventions of P100, PT500, and PT1000 sensors are closely tied to the nominal resistance values they exhibit at 0°C. P100 sensor has a nominal resistance of 100 Ω at 0°C, Pt500 sensor has a nominal resistance of 500 Ω at 0°C and Pt1000 sensor has a nominal resistance of 1000 Ω at 0°C. Understanding the meaning behind these designations allows us to discern their specific characteristics and applications. Whether you require a standard PT100 sensor or a higher resistance variant like PT500 or PT1000, these RTD sensors provide reliable and accurate temperature measurements in a wide range of industries and applications.

Pt-s wiring configurations

The cable has certain resistance which adds to the RTD resistance. Thus, the total resistance is the sum of the RTD resistance and the lead wire resistance. This causes more voltage drop across the RTD measurement system and as a result causes inaccuracy in measurement. This is the reason why we use 2 wire, 3 wire, and 4 wire RTD configurations.

RTD connectors

Due to the lack of standardization in RTD connectors, our company takes pride in its ability to produce a wide range of RTD connectors. We understand that different industries and applications have unique requirements when it comes to temperature measurement, and that includes the connectors used. With our expertise and advanced manufacturing capabilities, we have the flexibility to design and produce various types of RTD connectors.



Pt-s classes

Tolerances of RTD sensors can be tailored to customer specifics and thus manufactured to different tolerances. The higher the tolerance the smaller the margin of error relative to lower tolerances.

A system where these tolerances are classified is helpful for the end user and helps the interchangeability of these sensors. The IEC system is seen as the standard for the industry although there are other standards and other tolerance classes.

IEC Standard	DIN4370	Temperature Range ºC	Tolerance Ω at 0ºC	Tolerance ^o C
W0.03	1/10 DIN	-100 to 350	100±0.012 Ω	±0.03 °C
/	1/5 DIN	-100 to 350	100±0.024 Ω	±0.06 °C
W0.1	1/3 DIN	-100 to 350	100±0.04 Ω	±0.10 °C
W0.15	Class A	-100 to 450	100±0.06 Ω	±0.15 °C
W0.3	Class B	-196 to 660	100±0.12 Ω	±0.30 °C



Global cable insulation characteristics

	PVC	Silicone	Teflon	Fiberglass
Abrasion resistance	Very good	Fair	Good	Fair
Chemical resistance	Very good	Poor	Excellent	Good
Moisture resistance	Good	Good	Excellent	Poor
Fire resistance	Good	Good	Excellent	Excellent

PP01 – Penetration RTDs Standard

50 LC	
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	Additional: Application: Operating temperature (min/max):
2. Element class:	Type of environment: Accessories: See the part "Accessories"
3. Number of sensor elements: x1 x2	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
5. Needle diameter Ø: (material Stainless steel 316L) Ø3 mm Ø4 mm Ø6 mm Other:	
6. Needle length L (mm):	
7. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	
8. Cable length LC (mm):	
9. Crimp protection: Spring Heat shrink sleeve Without	

How to order?

alahe

PP02 – Penetration RTDs Standard (90° bend)

50 LC	
Ordering information	Additional:
1. Element type: □ Pt 100 □ Pt 500 □ Pt 1000	Application:
Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Number of sensor elements: $\square \times 1$ $\square \times 2$	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
 5. Needle diameter Ø: (material Stainless steel 316L) Ø3 mm Ø4 mm Ø5 mm Other: 	
6. Needle lengths L (mm):	
7. Cable prolongation: PVC (105°C) Silicone (180°C) Teflon (260°C) Fiberglass (400°C) Other: Teflon (260°C)	
8. Cable length LC (mm):]
9. Crimp protection:	
How to order?	ղի

PP11 – Penetration RTDs Metal handle

alalle

50 LC	
Ordering information	*Handle material Stainless steel 316L
1. Element type:	Additional:
□ Pt 100 □ Pt 500 □ Pt 1000	Application:
Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
5. Needle diameter Ø: (material Stainless steel 316L) □ Ø3 mm □ Ø4 mm □ Ø5 mm	
$\square \phi 6 \text{ mm}$ $\square O ther:$	
6. Needle length L (mm):	
7. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	
8. Cable length LC (mm):	
9. Crimp protection:	

How to order?

alahe

PP12 – Penetration RTDs Metal handle (90° bend)

alalle

	110
	*Handle material Stainless steel 316L
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	Additional: Application: Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Number of sensor elements: x 1 x 2	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
5. Needle diameter Ø: (material Stainless steel 316L) Ø3 mm Ø4 mm Ø6 mm Other:	
6. Needle length L (mm):	
7. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	
8. Cable length LC (mm):	
9. Crimp protection: Spring Heat shrink sleeve Without	

How to order?

alahe

PP13 – Penetration RTDs Plastic handle

alale

50 LC	
Ordering information	*Handle material Plc
1. Element type:	Additional:
Pt 100 Pt 500 Pt 1000	Application:
Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Number of sensor elements:	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
 5. Needle diameter Ø: (material Stainless steel 316L) Ø3 mm Ø4 mm Ø5 mm Ø6 mm Other: 	
6. Needle length L (mm):	
7. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Curly polyurethane (105°C) Other: Silicone	
8. Cable length LC (mm):]
9. Crimp protection:	
How to order?	ղի

PP20 – Penetration RTDs Ergonomic handle

alalle

	Image: state of the state
Ordering information	
1. Element type:	Additional:
□ Pt 100 □ Pt 500 □ Pt 1000	Application:
Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
$\square A \square B \square Other:$	Accessories: See the part "Accessories"
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Quantity:
4. Wiring configuration: (number of wires per element) 2 3	Note:
5. Needle diameter Ø: (material Stainless steel 316L) Ø3 mm Ø4 mm Ø6 mm Other:	
6. Needle length L (mm):	
7. Cable prolongation: PVC (105°C) Silicone (180°C) Teflon (260°C) Fiberglass (400°C) Other:	
8. Cable length LC (mm):	
9. Crimp protection:	

How to order?

alahe

PP31 – Penetration RTDs Armored cable prolongation

alalle

50 LP LC	
Ordering information	*Handle material Stainless steel 3 3 *Armored cable material Stainless steel 3
1. Element type: Pt 100 Pt 500 Other:	Additional: Application: Operating temperature (min/max):
2. Element class:	Type of environment: Accessories: See the part "Accessories"
3. Number of sensor elements: □ × 1 □ × 2 4. Wiring configuration: (number of wires per element) □ 2 □ 3 □ 4	Quantity: Note:
5. Needle diameter Ø: (material Stainless steel 316L) Ø3 mm Ø4 mm Ø6 mm Other:	
6. Needle length L (mm):]
7. Cable prolongation: PVC (105°C) Silicone (180°C) Teflon (260°C) Fiberglass (400°C) Other: Silicone (180°C)	
8. Cable lengths (mm): LC	
9. Crimp protection: Spring Heat shrink sleeve Without	
How to order?	- ગોગ

PP32 – Penetration RTDs Armored cable prolongation (90° bend)

alalle

	*Armored cable material Stainless steel 304
Ordering information 1. Element type: Pt 100 Pt 500 Pt 1000 Other:	Additional: Application: Operating temperature (min/max):
2. Element class:	Type of environment: Accessories: See the part "Accessories" Quantity:
3. Number of sensor elements: x 1 x 2 4. Wiring configuration: (number of wires per element) 2 3 4	Note:
 5. Needle diameter Ø: (material Stainless steel 316L) Ø3 mm Ø4 mm Ø5 mm Ø6 mm Other: 	
6. Needle length L (mm): 7. Cable prolongation: PVC (105°C) Silicone (180°C) Teflon (260°C) Fiberglass (400°C) Other:	
8. Cable lengths (mm): LC LP 9. Crimp protection:	
□ Spring □ Heat shrink sleeve □ Without How to order?	սիփո

personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.

PP40 – Penetration RTDs Reduced tip

alalle

	100 *Handle material Plastic
Ordering information	
1. Element type:	10. Crimp protection: Spring Heat shrink sleeve Without
2. Element class:	Application: Operating temperature (min/max):
	Type of environment:
3. Number of sensor elements: x1 x2	Accessories: See the part "Accessories"
4. Wiring configuration: (number of wires per element)	Quantity:
5. Needle tip diameter Ø1: (material Stainless steel 316L) Ø3 mm Ø4 mm Ø6 mm Other:	Note:
6. Needle diameter Ø (mm):	
7. Needle lengths (mm): L L1	
8. Cable prolongation: PVC (105°C) Silicone (180°C) Teflon (260°C) Fiberglass (400°C) Other:	
9. Cable length LC (mm):	

How to order?

alahe

PP41 – Penetration RTDs Miniature

alalle

50 LC	
Ordering information	*Handle material Stainless steel 316L with rubber cover
1. Element type: Pt 100 Pt 500 Other:	Additional: Application: Operating temperature (min/max):
2. Element class:	Type of environment: Accessories: See the part "Accessories"
3. Number of sensor elements: $\square \times 1$ $\square \times 2$	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
 5. Needle diameter Ø: (material Stainless steel 316L) Ø1,5 mm Ø2 mm Other: 	
6. Needle length L (mm):	
7. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	
8. Cable length LC (mm):	
9. Crimp protection:	

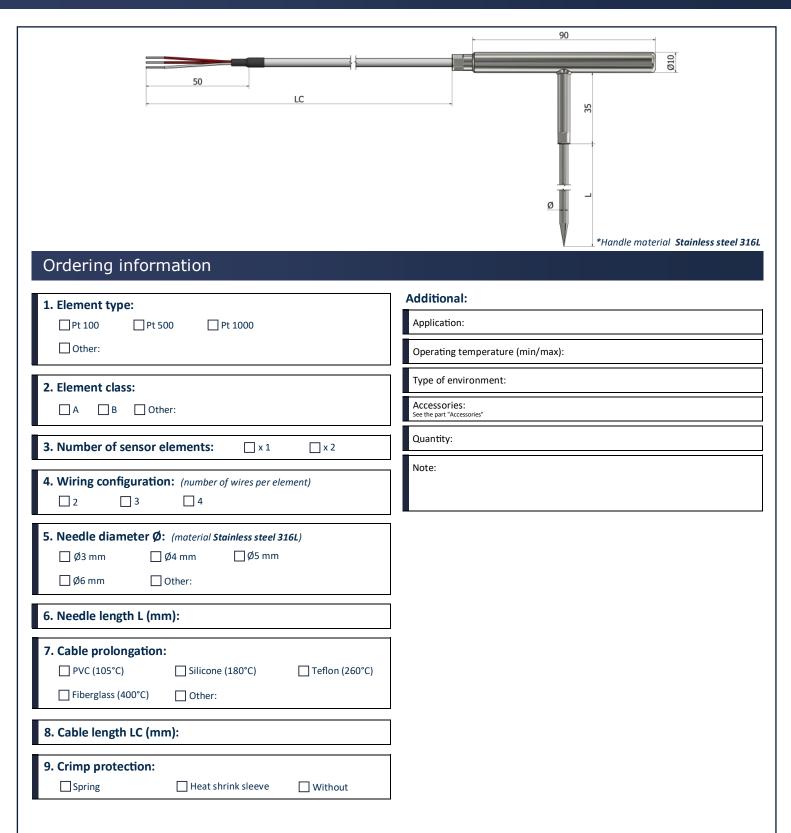
How to order?

alahe

EuroSensors بالاال

PP50 – Penetration RTDs T shape

սիսի։

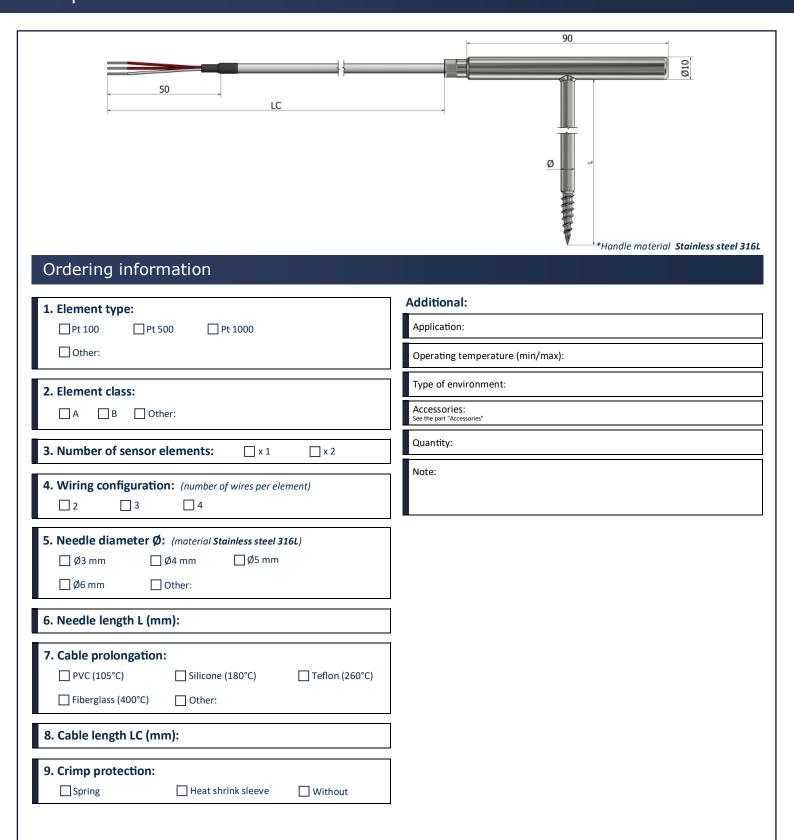


How to order?

alale.

PP51 – Penetration RTDs T shape with thread

սիսի։



How to order?

alale.

PP60 – Penetration RTDs T shape for compost

alalle

50 LC	Ø16 B 135 L *Handle material Steinless steel 316L with rubber
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	Additional: Application: Operating temperature (min/max):
2. Element class:	Type of environment: Accessories: See the part "Accessories"
3. Number of sensor elements: $\ \ x1$ $\ \ x2$	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
 5. Needle diameter Ø: (material Stainless steel 316L) ☐ Ø3 mm ☐ Ø4 mm ☐ Ø5 mm ☐ Ø6 mm ☐ Other: 	
6. Needle length L (mm):	
7. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	
8. Cable length LC (mm):	
9. Crimp protection: Spring Heat shrink sleeve Without	

How to order?

alahe

PP61 – Penetration RTDs Robust T shape for compost

alalle

	Handle material Stainless steel 316L with rubber hand
Ordering information	
1. Element type:	Additional:
□ Pt 100 □ Pt 500 □ Pt 1000 □ Other:	Application:
	Operating temperature (min/max):
2. Element class:	Type of environment: Accessories:
A B Other:	See the part "Accessories"
3. Number of sensor elements: x 1 x 2	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
5. Needle diameter Ø: (material Stainless steel 316L) Ø3 mm Ø4 mm Ø6 mm Other:	
6. Needle length L (mm):	
7. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	
8. Cable length LC (mm):	
9. Crimp protection:	

How to order?

alahe

Contents

Technical Information

PR01 - Fixed thread with free leads (T
PR02 - Fixed thread with free leads (T
PR03 - Fixed thread with free leads (T
PR10 - Fixed thread with cable prolon
PR13 - Fixed thread (90° bend) (Type 2
PR14 - Fixed thread (90° bend) (Type 2
PR15 - Fixed thread with 90° cable pro
PR20 - Nozzle
PR21 - Nozzle (90° bend)
PR22 - Bolt
PR30 - Integrated M12 connector
PR31 - Integrated M12 connector with
PR40 - Screw-on fixed thread
PR50 - Thread connection (Spring load
PR60 - DIN43650 connector
PR61 - DIN43650 connector with tran

EuroSensors بالاا

RTDs with thread connection



ype 1) 74 ype 2) 75 ype 3) 76 gation 77 1) 78 2) 79 olongation 80 81 82 82 83 84 84		
<pre>/pe 3)</pre>		
gation		
1)		
2)		
, olongation		
81 82 83 84		
82 83 84		
83 84		
n transmitter		
	85	
	86	
led)		
	88	
smitter		7

RTDs with thread connection - Technical information

What is an RTD sensor ?

An RTD (Resistance Temperature Detector) is a type of sensor used to measure temperature. RTDs are used for accurate, stable and reliable temperature measurements in generally high temperature ranges.

RTDs advantages

RTDs have several advantages over other types of temperature sensors:

High precision

RTDs have high temperature sensitivity, typically in the range of 0.1 to 0.2% per °C, allowing for accurate temperature measurement.

Long term stability

RTDs have long-term stability and longer life than thermistors, making them more reliable for long-term applications.

Wide operating temperature range

RTDs can operate in a temperature range of -200 to +850°C, making them suitable for many industrial applications.

Low ohmic resistance

RTDs have a low ohmic resistance compared to thermistors, which makes them easier to use with electronic circuits.

How does an RTD work ?

An RTD is a sensor that measures temperature using the variation of the electrical resistance of a conductive material. RTDs are usually made from platinum, gold or nickel. The operating principle of RTDs is based on Ohm's law of electrical resistance, which establishes a relationship between the electrical resistance of a conductor and its temperature.

According to this law, the electrical resistance of a conductor generally increases when its temperature increases.

What is a PT probe ?

A PT (Platinum Resistance Thermometer) is a type of temperature sensor that uses a temperature deflection resistor (RTD) to measure temperature. It is based on the principle that the electrical resistance of a conductive material increases when its temperature increases.

Understanding the naming of Pt100, PT500 and PT1000 sensors

First of all, "Pt" is the chemical symbol for platinum because platinum is the basic material for making the measuring element.

The naming conventions of P100, PT500, and PT1000 sensors are closely tied to the nominal resistance values they exhibit at 0°C. P100 sensor has a nominal resistance of 100 Ω at 0°C, Pt500 sensor has a nominal resistance of 500 Ω at 0°C and Pt1000 sensor has a nominal resistance of 1000 Ω at 0°C. Understanding the meaning behind these designations allows us to discern their specific characteristics and applications.

Whether you require a standard PT100 sensor or a higher resistance variant like PT500 or PT1000, these RTD sensors provide reliable and accurate temperature measurements in a wide range of industries and applications.

Pt-s wiring configurations

The cable has certain resistance which adds to the RTD resistance. Thus, the total resistance is the sum of the RTD resistance and the lead wire resistance. This causes more voltage drop across the RTD measurement system and as a result causes inaccuracy in measurement. This is the reason why we use 2 wire, 3 wire, and 4 wire RTD configurations.

EuroSensors بالاال

RTDs with thread connection - Technical information

Pt-s classes

Tolerances of Pt-s sensors can be tailored to customer specifics and thus manufactured to different tolerances. The higher the tolerance the smaller the margin of error relative to lower tolerances.

A system where these tolerances are classified is helpful for the end user and helps the interchangeability of these sensors. The IEC system is seen as the standard for the industry although there are other standards and other tolerance classes.

IEC Standard	DIN4370	Temperature Range ^o C	Tolerance Ω at 0ºC	Tolerance [©] C
W0.03	1/10 DIN	-100 to 350	100±0.012 Ω	±0.03 °C
/	1/5 DIN	-100 to 350	100±0.024 Ω	±0.06 °C
W0.1	1/3 DIN	-100 to 350	100±0.04 Ω	±0.10 °C
W0.15	Class A	-100 to 450	100±0.06 Ω	±0.15 °C
W0.3	Class B	-196 to 660	100±0.12 Ω	±0.30 °C



Global cable insulation characteristics

	PVC	Silicone	Teflon	Fiberglass
Abrasion resistance	Very good	Fair	Good	Fair
Chemical resistance	Very good	Poor	Excellent	Good
Moisture resistance	Good	Good	Excellent	Poor
Fire resistance	Good	Good	Excellent	Excellent

RTD connectors

Due to the lack of standardization in RTD connectors, our company takes pride in its ability to produce a wide range of RTD connectors. We understand that different industries and applications have unique requirements when it comes to temperature measurement, and that includes the connectors used. With our expertise and advanced manufacturing capabilities, we have the flexibility to design and produce various types of RTD connectors.



RTDs accessories

Temperature sensor accessories are equipment used to improve the performance of temperature measuring devices. It is important to choose quality sensor accessories to ensure optimal performance and long-term reliability.

Our accessories are made of strong and resistant materials to guarantee maximum durability.

Eurosensors offers a wide selection of temperature sensor accessories to meet your specific needs.

Accessories include: thermocouple cables for reliable and accurate data transmission, compression fittings for easy installation, thermowells to protect sensors from mechanical damage, terminal heads for easy access to sensors, transmitters for networked data transmission, and ceramic terminal blocks for electrical isolation.

Additional accessories

For more detailed information see "Accessories".



PR01 – RTDs with thread connection Fixed thread with free leads (type 1)

սիսի։

LC	R Image: Constraint of the state of the stat
Ordering information	
1. Element type:	Additional:
□ Pt 100 □ Pt 500 □ Pt 1000	Application:
Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
5. Length L or L1 (mm):	
6. Diameter Ø (mm):	
7. Free leads length LC (mm):	
8. Thread:	
□ 1/2" BSPP □ 1/4" BSPP □ 1/4" BSPT □ M10	
□ 1/2" NPT □ Other:	

How to order?

alale.

PR02 – RTDs with thread connection Fixed thread with free leads (type 2)

սիսի։

Ordering information	*Tube material Stainless steel 316 *Thread material Stainless steel (304 / 304L / 316 / 316L
1. Element type:	Additional:
☐ Pt 100	Operating temperature (min/max):
2. Flamout alaas	Type of environment:
2. Element class:	Accessories: See the part "Accessories"
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Quantity:
4. Wiring configuration: (number of wires per element) 2 3 4	Note:
5. Length L (mm):]
6. Diameter Ø (mm):	
7. Free leads length LC (mm):	
8. Thread length L1 (mm):	
9. Thread: □ 1/2" BSPP □ 1/4" BSPP □ 1/4" BSPT □ M10 □ 1/2" NPT □ Other:	
How to order?	- վոխ

PR03 – RTDs with thread connection Fixed thread with free leads (type 3)

սիսիս

R2 LC LC Urdering information	Image: Right of the second
1. Element type: Pt 100 Pt 500 Pt 1000	Additional: Application:
Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
5. Diameter Ø (mm):	
6. Free leads length LC (mm):	
7. Length L or L1 (mm):	
8. Thread R1: 1/2" BSPP 1/4" BSPP 1/2" NPT Other:	
9. Thread length L2 (mm):	
10. Thread R2: 1/2" BSPP 1/2" NPT Other:	

How to order?

alale.

PR10 – RTDs with thread connection Fixed thread with cable prolongation

սիսիս

50 LC Ordering information	*Tube material Stainless steel 316L *Thread material Stainless steel (304 / 304L / 316 / 316L)
1. Element type: Pt 100 Pt 500 Other:	10. Thread: 1/2" BSPP 1/4" BSPP 1/2" NPT Other:
2. Element class:	Additional: Application:
3. Number of sensor elements:	Operating temperature (min/max): Type of environment:
4. Wiring configuration: (number of wires per element)	Accessories: See the part "Accessories"
5. Length L or L1 (mm):	Quantity:
6. Diameter Ø (mm):	Note:
7. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	•
8. Cable length LC (mm):]
9. Crimp protection: Spring Heat shrink sleeve Without	

How to order?

alale.

EuroSensors بالااب

PR13 – RTDs with thread connection Fixed thread (90° bend) (type 1)

սիսիս

50 LC		
*Tube matern	al Stainless steel 316L *Thread material Stainless steel (304 / 3	304L / 316 / 316
I. Element type: Pt 100 Pt 500 Pt 1000 Other: Other: Pt 1000	11. Thread: 1/2" BSPP 1/4" BSPP 1/2" NPT Other:	☐ M10
2. Element class:	Additional: Application:	
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Operating temperature (min/max): Type of environment:	
4. Wiring configuration: (number of wires per element) 2 3	Accessories: See the part "Accessories"	
5. Lengths (mm): L1	Note:	
6. Length L or L3 (mm):		
7. Diameter Ø (mm):		
8. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:		
9. Cable length LC (mm):		
10. Crimp protection: Spring Heat shrink sleeve Without		
How to order?		սիի

PR14 – RTDs with thread connection Fixed thread (90° bend) (type 2)

սիսիս

50 LC *Tube materia	ial Stainless steel 316L *Thread material Stainless steel (304 / 304L / 316 / 31
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	11. Thread: 1/2" BSPP 1/2" NPT Other:
2. Element class:	Additional: Application:
3. Number of sensor elements: x1 x2	Operating temperature (min/max): Type of environment:
4. Wiring configuration: (number of wires per element)	Accessories: See the part "Accessories"
5. Lengths (mm): L1 L2	Quantity: Note:
6. Length L or L3 (mm):	
7. Diameter Ø (mm):]
8. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	
9. Cable length LC (mm):]
10. Crimp protection: Spring Heat shrink sleeve Without	
How to order?	սիս

PR15 – RTDs with thread connection Fixed thread with 90° cable prolongation

սիդի

50 LC	
	al Stainless steel 316L *Thread material Stainless steel (304 / 304L / 316 / 316L)
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	10. Thread: 1/2" BSPP 1/4" BSPP 1/2" NPT Other:
2. Element class:	Additional:
A B Other:	Application:
	Operating temperature (min/max):
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Type of environment:
 4. Wiring configuration: (number of wires per element) 2 3 4 	Accessories: See the part "Accessories"
5. Length L or L1 (mm):	Quantity:
6. Diameter Ø (mm):	Note:
7. Cable prolongation: PVC (105°C) Silicone (180°C)	
Fiberglass (400°C)	
8. Cable length LC (mm):	
9. Crimp protection:	

How to order?

alale.

PR20 – RTDs with thread connection Nozzle

սիդիւ

50 LC	
	*Nozzle and thread material Stainless steel (304 / 304L / 316 / 316
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	10. Thread: 1/2" BSPP 1/4" BSPP 1/2" NPT Other:
2. Element class:	Additional: Application:
3. Number of sensor elements: x 1 x 2	Operating temperature (min/max):
4. Wiring configuration: (number of wires per element)	Type of environment: Accessories: See the part "Accessories"
5. Length L (mm):	Quantity:
6. Diameter Ø (mm):	⊥ Note:
7. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	
8. Cable length LC (mm):]
9. Crimp protection: Spring Heat shrink sleeve Without	

How to order?

alahe

PR21 – RTDs with thread connection Nozzle (90° bend)

սիսիս

50 LC					R
Ordering information	*Tube material Stainle	ess steel 316L *Nozzle a	nd thread material St	tainless steel (304 / 3	04L / 316 / 31
1. Element type:		11. Thread: 1/2" BSPP 1/2" NPT	☐ 1/4" BSPP ☐ Other:	☐ 1/4" BSPT	☐ M10
2. Element class:		Additional: Application:			
3. Number of sensor elements:	x 2	Operating temperatu			
4. Wiring configuration: (number of wires per of a large state) and the second state of a large state of a l	element)	Accessories: See the part "Accessories"			
5. Lengths (mm):		Quantity:			
6. Length L (mm):					
7. Diameter Ø (mm):					
8. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	Teflon (260°C)				
9. Cable length LC (mm):					
10. Crimp protection: Spring Heat shrink sleeve	Without				
How to order?					փ

PR22 – RTDs with thread connection Bolt

R 50 LC L *Bolt material Stainless steel (304 / 304L / 316 / 316L) Ordering information Additional: 1. Element type: Application: Pt 100 Pt 500 Pt 1000 Other: Operating temperature (min/max): Type of environment: 2. Element class: Accessories: See the part "Access В ΠA Other: Quantity: 3. Number of sensor elements: 🗌 x 1 🗌 x 2 Note: 4. Wiring configuration: (number of wires per element) 2 3 4 5. Length L (mm): 6. Cable prolongation: PVC (105°C) Silicone (180°C) Teflon (260°C) Fiberglass (400°C) Other: 7. Cable length LC (mm): 8. Crimp protection: Spring Heat shrink sleeve Without 9. Thread: 1/2" BSPP 1/4" BSPP **M10** 1/4" BSPT 1/2" NPT Other:

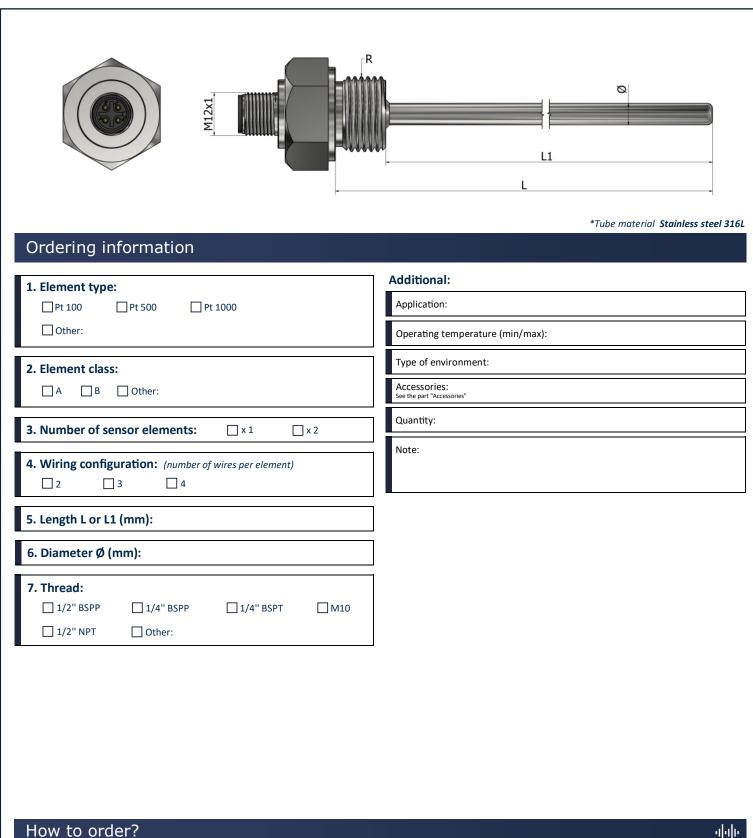
How to order?

alale.

u u u

PR30 – RTDs with thread connection Integrated M12 connector

սիսիս



a a la la

PR31 – RTDs with thread connection Integrated M12 connector with transmitter

սիսի։

	Image: stail stai
Ordering information	
1. Element type:	Additional:
□ Pt 100 □ Pt 500 □ Pt 1000	Application:
Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
5. Length L or L1 (mm):	
6. Diameter Ø (mm):	
7. Thread: 1/2" BSPP 1/4" BSPP 1/2" NPT Other: 8. Transmitter (°C): Specify temperature range	

How to order?

alale

PR40 – RTDs with thread connection Screw-on fixed thread

փփ

50 LC *Tube mater	ial Stainless steel 316L *Thread material Stainless steel (304 / 304L / 316 / 316L)
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	10. Thread: 1/2" BSPP 1/4" BSPP 1/2" NPT Other:
2. Element class:	Additional: Application:
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Operating temperature (min/max): Type of environment:
4. Wiring configuration: (number of wires per element)	Accessories: See the part "Accessories"
5. Lengths (mm): L L1	Quantity: Note:
6. Diameters (mm): ø ø_1	
7. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	
8. Cable length LC (mm):]
9. Crimp protection: Spring Heat shrink sleeve Without	

How to order?

alale.

PR50 – RTDs with thread connection Thread connection (spring loaded)

սիդի

50 LC *Tube materi Ordering information	ial Stainless steel 316L *Thread material Stainless steel (304 / 304L / 316 / 316L)
1. Element type: Pt 100 Pt 500 Other:	10. Thread: 1/2" BSPP 1/4" BSPP 1/2" NPT Other:
2. Element class:	Additional: Application: Operating temperature (min/max):
3. Number of sensor elements: x 1 x 2 4. Wiring configuration: (number of wires per element) 2 3 4	Type of environment: Accessories: See the part "Accessories"
5. Lengths (mm): L L1 L2	Quantity: Note:
6. Diameter Ø (mm): 7. Cable prolongation: □ PVC (105°C) □ Silicone (180°C) □ Teflon (260°C) □ Fiberglass (400°C) □ Other: 8. Cable length LC (mm): 9. Crimp protection: □ Heat shrink sleeve □ Without	

How to order?

alale

PR60 – RTDs with thread connection DIN43650 connector

alalle

A B Other: 2. Element class: A B Other: 3. Number of sensor elements: ×1 ×2 4. Wiring configuration: (number of wires per element) Quantity: 2. Elength L or L1 (mm): 6. Diameter Ø (mm): 7. Thread: 1/2" NPT 1/2" NPT Other:			
1. Element type: Application: Pt 100 Pt 500 Other: Operating temperature (min/max): 2. Element class: Type of environment: A B Other: 3. Number of sensor elements: x1 2 3 4 4. Wiring configuration: (number of wires per element) Quantity: 2 3 4 5. Length L or L1 (mm): Note: 6. Diameter Ø (mm): M10	(304 / 304L / 316 / 316	ial Stainless steel 316L *Thread material Stainless steel (304 / 304L	
Image: Control of the control of th			1. Element type:
2. Element class:			
2. Element class: A B Other: Accessories: Accessories: See the par "Accessories" 3. Number of sensor elements: ×1 ×2 Quantity: Quantity: 4. Wiring configuration: (number of wires per element) Quantity: Note: Note: 5. Length L or L1 (mm): 6. Diameter Ø (mm): M10 M10			U Other:
Image: Section part in the section of the section			
3. Number of sensor elements: x1 x2 4. Wiring configuration: (number of wires per element) 2 3 4 5. Length L or L1 (mm):		See the part "Accessories"	∐ A
4. Wiring configuration: (number of wires per element) □ 2 3 □ 5. Length L or L1 (mm):]	3. Number of sensor elements:
6. Diameter Ø (mm): 7. Thread: □ 1/2" BSPP □ 1/4" BSPP □ 1/2" BSPP □ 1/4" BSPT] Note:	<u>2</u> 3 4
7. Thread: 1/2" BSPP 1/4" BSPP 1/4" BSPT			5. Length L or L1 (mm):
□ 1/2" BSPP □ 1/4" BSPP □ 1/4" BSPT □ M10]	6. Diameter Ø (mm):
			☐ 1/2" BSPP ☐ 1/4" BSPP ☐ 1/4" BSPT ☐ M10
How to order?	վո		How to order?

PR61 – RTDs with thread connection DIN43650 connector with transmitter

սիսի։

Ordering information	erial Stainless steel 316L *Thread material Stainless steel (304 / 304L / 316 / 316L)
	Additional
1. Element type:	Additional:
□ Pt 100 □ Pt 500 □ Pt 1000	Application:
Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
$\square A \square B \square Other:$	Accessories:
	See the part "Accessories"
3. Number of sensor elements: x1 x2	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
5. Length L or L1 (mm):	
6. Diameter Ø (mm):	
7. Thread:	
□ 1/2" BSPP □ 1/4" BSPP □ 1/4" BSPT □ M10	
□ 1/2" NPT □ Other:	
8. Transmitter (°C): Specify temperature range	
speery temperature range	

How to order?

alale

I I EuroSensors

RTDs with terminal head

Contents

Technical Information PH01 - Standard (90° bend) PH10 - Standard with fixed thread . . PH11 - Standard with fixed thread (90 PH12 - Standard with fixed thread (90 PH13 - Standard with fixed thread (Of PH23 - Open air with fixed thread . . PH24 - Open air with reduced tip . . . PH25 - Contact block (Surface mount) **PH30** - Flange sanitary mounting . . . PH31 - Tri-clamp sanitary mounting . PH32 - Disc DIN11851 (Screw-on) sani PH40 - Exchangeable insert PH41 - Exchangeable insert with fixed PH42 - Exchangeable insert with fixed PH50 - For aggressive environments. PH51 - For aggressive environments w PI01 - Insert with terminal block (Spri PIO2 - Insert with transmitter block (S

	92
	95
	96
	97
° bend) (Type 1)	98
° bend) (Type 2)	99
fset)	100
	101
	102
	103
	104
	105
	106
	107
	108
tary mounting	109
	110
thread	111
thread (Offset)	112
	113
/ith fixed thread	114
	115
	116
ng loaded)	117
pring loaded)	118

RTDs with terminal head - Technical information



What is an RTD sensor ?

An RTD (Resistance Temperature Detector) is a type of sensor used to measure temperature.

RTDs are used for accurate, stable and reliable temperature measurements in generally high temperature ranges.

How does an RTD work ?

An RTD is a sensor that measures temperature using the variation of the electrical resistance of a conductive material. RTDs are usually made from platinum, gold or nickel. The operating principle of RTDs is based on Ohm's law of electrical resistance, which establishes a relationship between the electrical resistance of a conductor and its temperature.

According to this law, the electrical resistance of a conductor generally increases when its temperature increases.

Types of terminal heads

Many alternative types of terminal head are available to meet the requirements of various applications. Variations exist in size, material, accommodation, resistance to media, resistance to fire or even explosion and in other parameters.

Common types are shown below but there are many special variants available to meet particular requirements.

Terminal heads are a type of cold end termination which are common on industrial type temperature sensors. A temperature sensor will be encased in a ceramic or metal sheath which will be terminated at the cold end with a terminal head. Inside the head, terminal blocks or temperature transmitters are placed to carry the sensor signal to instrumentation.

These are protected from the external environment as terminal heads often provide good ingress protection (IP) and temperature protection. Most commonly terminal heads are made from aluminum but can be stainless steel, cast iron or plastic depending on the application. There are many standardized designs of head, the most common being KNE, ALA and BUZ.

Inside terminal head



111

RTDs with terminal head - Technical information

որհր

RTDs advantages

RTDs have several advantages over other types of temperature sensors:

High precision

RTDs have high temperature sensitivity, typically in the range of 0.1 to 0.2% per °C, allowing for accurate temperature measurement.

Long term stability

RTDs have long-term stability and longer life than thermistors, making them more reliable for long-term applications.

Wide operating temperature range

RTDs can operate in a temperature range of -200 to +850°C, making them suitable for many industrial applications.

Low ohmic resistance

RTDs have a low ohmic resistance compared to thermistors, which makes them easier to use with electronic circuits.

What is a PT probe ?

A PT (Platinum Resistance Thermometer) is a type of temperature sensor that uses a temperature deflection resistor (RTD) to measure temperature. It is based on the principle that the electrical resistance of a conductive material increases when its temperature increases.

Pt-s classes

Tolerances of Pt-s sensors can be tailored to customer specifics and thus manufactured to different tolerances. The higher the tolerance the smaller the margin of error relative to lower tolerances.

A system where these tolerances are classified is helpful for the end user and helps the interchangeability of these sensors. The IEC system is seen as the standard for the industry although there are other standards and other tolerance classes.

IEC	DIN4370	Temperature	Tolerance	Tolerance ^o C	
Standard	DIN4370	Range ^o C	Ω at 0ºC	Tolerance -C	
W0.03	1/10 DIN	-100 to 350	100±0.012 Ω	±0.03 °C	
/	1/5 DIN	-100 to 350	100±0.024 Ω	±0.06 °C	
W0.1	1/3 DIN	-100 to 350	100±0.04 Ω	±0.10 °C	
W0.15	Class A	-100 to 450	100±0.06 Ω	±0.15 °C	
W0.3	Class B	-196 to 660	100±0.12 Ω	±0.30 °C	

Understanding the naming of Pt100, PT500 and PT1000 sensors

First of all, "Pt" is the chemical symbol for platinum because platinum is the basic material for making the measuring element. The naming conventions of P100, PT500, and PT1000 sensors are closely tied to the nominal resistance values they exhibit at 0°C. P100 sensor has a nominal resistance of 100 Ω at 0°C, Pt500 sensor has a nominal resistance of 500 Ω at 0°C and Pt1000 sensor has a nominal resistance of 1000 Ω at 0°C. Understanding the meaning behind these designations allows us to discern their specific characteristics and applications.

Whether you require a standard PT100 sensor or a higher resistance variant like PT500 or PT1000, these RTD sensors provide reliable and accurate temperature measurements in a wide range of industries and applications.

Pt-s wiring configurations

The cable has certain resistance which adds to the RTD resistance. Thus, the total resistance is the sum of the RTD resistance and the lead wire resistance. This causes more voltage drop across the RTD measurement system and as a result causes inaccuracy in measurement. This is the reason why we use 2 wire, 3 wire, and 4 wire RTD configurations.

RTDs with terminal head - Technical information

Terminal head component breakdown



What is a terminal block ?

Terminal block located in a "head" allow for the connection of extension wires. Various materials are used for screw or solder terminations including copper, plated brass and, for the best performance in the case of thermocouples, thermoelement alloys. The various head styles cater for a wide variety of probe diameters and cable entries.

Terminal blocks provide a secure and organized way to terminate multiple wires. The wires are inserted into a clamping mechanism

that holds them in place, making it easier to manage and connect different wires within a circuit. Terminal blocks provide a convenient and secure way to connect thermocouple wires to the measuring instrument or control system when using thermocouples. Terminal blocks are available in 2, 3, 4, and 6 poles with center hole (spring loading).



What is a temperature transmitter ?

A temperature transmitter is a device that converts the signal produced by a temperature sensor into a standard instrumentation signal representing a process variable temperature being measured and controlled. The most common transmitter instrumentation output signal is 4 to 20 mA. The signal from the temperature transmitter is sent to a controller that determines what action is required and generates an appropriate output signal.

Controllers are either a PLC or a DCS in process control today.

More on temperature transmitters and terminal blocks. See in the part *"Accessories".*



8 chemin des Grandes Combes 69360 Ternay, France +33 472 669 234 contact@eurosensors.eu www.eurosensors.eu

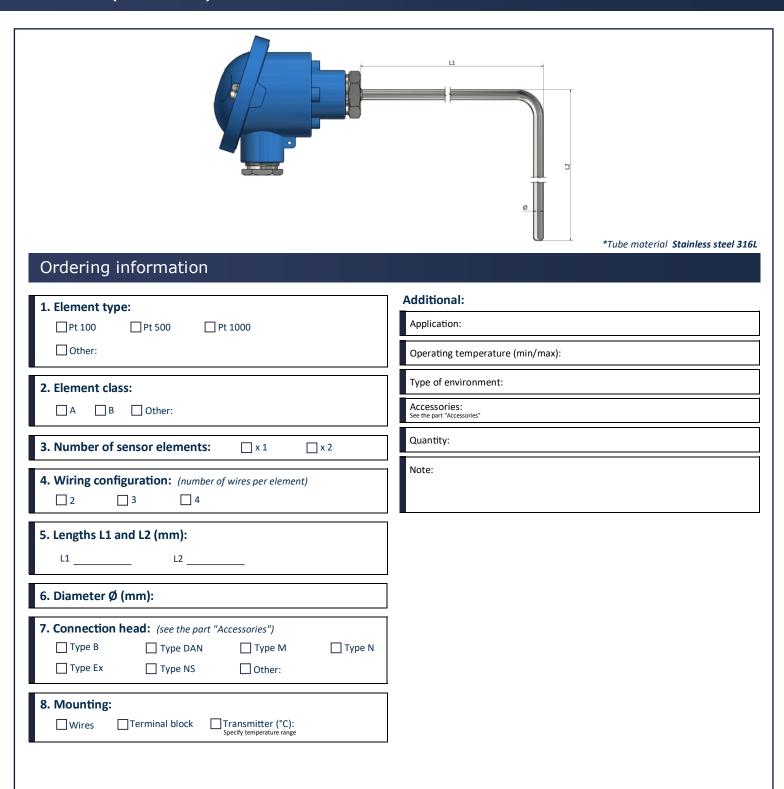
PH00 – RTDs with terminal head Standard

սիսի։

	Tube material Stainless steel 316
Ordering information 1. Element type: Pt 100 Pt 500 Other:	Additional: Application: Operating temperature (min/max):
2. Element class:	Type of environment: Accessories: See the part "Accessories"
 3. Number of sensor elements: X1 X2 4. Wiring configuration: (number of wires per element) 2 3 4 5. Length L (mm): 	Quantity: Note:
6. Diameter Ø (mm): 7. Connection head: (see the part "Accessories") Type B Type DAN Type Ex Type NS Other:	
8. Mounting: Wires Terminal block Transmitter (°C): Specify temperature range	
How to order?	ւլիդի

PH01 – RTDs with terminal head Standard (90° bend)

փի



How to order?

alale.

PH10 – RTDs with terminal head Standard with fixed thread

փի

	L1 L *Tube and thread material Stainless steel 316L
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	8. Connection head: (see the part "Accessories") Type B Type DAN Type M Type Ex Type NS Other:
2. Element class:	9. Mounting: Wires Terminal block Transmitter (°C): Specify temperature range
3. Number of sensor elements: $\ \ x1$ $\ \ x2$	Additional: Application:
4. Wiring configuration: (number of wires per element)	Operating temperature (min/max):
5. Length L or L1 (mm):	Type of environment:
	Accessories: See the part "Accessories"
6. Diameter Ø (mm):	Quantity: Note:
7. Thread: 1/2" BSPP 1/2" NPT Other:	Note.

How to order?

Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.

alahe

PH11 – RTDs with terminal head Standard with fixed thread (90° bend) (type 1)

փի

Tube and thread material Stainly	
Ordering information 1. Element type: Pt 100 Pt 500 Other:	9. Connection head: (see the part "Accessories") Type B Type DAN Type Ex Type NS Other:
2. Element class:	10. Mounting: Wires Terminal block Transmitter (°C): Specify temperature range
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Additional:
4. Wiring configuration: (number of wires per element)	Operating temperature (min/max):
5. Lengths L1 and L2 (mm):	Type of environment: Accessories: See the part "Accessories"
6. Length L or L3 (mm):	Quantity: Note:
7. Diameter Ø (mm):	
8. Thread: 1/2" BSPP 1/2" NPT Other:	
How to order?	

PH12 – RTDs with terminal head Standard with fixed thread (90° bend) (type 2)

սիսի։

	Tube and thread material Stainless steel 316L
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	9. Connection head: (see the part "Accessories") Type B Type DAN Type Ex Type NS Other:
2. Element class:	10. Mounting: Wires Terminal block Transmitter (°C): Specify temperature range
3. Number of sensor elements:	Additional:
4. Wiring configuration: (number of wires per element)	Operating temperature (min/max):
5. Lengths L1 and L2 (mm):	Type of environment: Accessories: See the part "Accessories"
6. Length L or L3 (mm): L	Quantity: Note:
7. Diameter Ø (mm):]
8. Thread: 1/2" BSPP 1/4" BSPP 1/2" NPT Other:	
How to order?	փփ
Choose the desired characteristics of your sensor by marking the ch personal notes, special requirements or any important data. For ad	neckboxes and by filling up the text. You can provide sketches, images, Iditional questions and assistance, feel free to contact us.

PH13 – RTDs with terminal head Standard with fixed thread (offset)

սիր

	Tube and thread material Stainless steel 316
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	8. Connection head: (see the part "Accessories") Type B Type DAN Type M Type N Type Ex Type NS Other:
2. Element class:	9. Mounting: Wires Terminal block Transmitter (°C): Specify temperature range
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Additional:
4. Wiring configuration: (number of wires per element)	Operating temperature (min/max):
5. Lengths L and L1 or L2 (mm): L	Type of environment: Accessories: See the part "Accessories"
6. Diameter Ø (mm):	Quantity: Note:
7. Thread: 1/2" BSPP 1/2" NPT Other:	
How to order?	սիսի։

PH20 – RTDs with terminal head Reduced tip

փի

	*Tube material Stainless steel 316L
Ordering information	
1. Element type:	Additional:
□ Pt 100 □ Pt 500 □ Pt 1000	Application:
Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Quantity:
4. Wiring configuration: (number of wires per element) 2 3	Note:
5. Dimensions L and Ø (mm):	
L Ø	
6. Dimensions L1 and Ø1 (mm):	
L1 Ø1	
7. Connection head: (see the part "Accessories")	
□ Type B □ Type DAN □ Type M □ Type N □ Type Ex □ Type NS □ Other:	
8. Mounting: Wires Terminal block Transmitter (°C): Specify temperature range	

How to order?

alahe

PH21 – RTDs with terminal head Pointed tip

սիր

	*Tube material Stainless steel 316
Ordering information	
1. Element type:	Additional: Application:
□ Pt 100 □ Pt 500 □ Pt 1000 □ Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Number of sensor elements: $\Box \times 1 \qquad \Box \times 2$	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
5. Length L (mm):	
6. Diameter Ø (mm):	
7. Connection head: (see the part "Accessories") Type B Type DAN Type M Type N Type Ex Type NS Other:	
8. Mounting: Wires Terminal block Transmitter (°C): Specify temperature range	
How to order?	ղիլ

PH22 – RTDs with terminal head Open air

սիսիս

Ordering information	*Tube material Stainless steel 31 0
1. Element type:	Additional: Application:
□ Pt 100 □ Pt 500 □ Pt 1000 □ Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
$\square A \square B \square Other:$	Accessories: See the part "Accessories"
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
5. Length L (mm):	
6. Diameter Ø (mm):	
7. Connection head: (see the part "Accessories") Type B Type DAN Type M Type N Type Ex Type NS Other:	
8. Mounting: Wires Terminal block Transmitter (°C): Specify temperature range	
How to order?	ւլիվո

PH23 – RTDs with terminal head Open air with fixed thread

փի

	L1 L1 *Tube and thread material Stainless steel 316
Ordering information	
1. Element type:	Additional: Application:
Other:	Operating temperature (min/max):
	Type of environment:
2. Element class:	Accessories: See the part "Accessories"
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Quantity:
4. Wiring configuration: (number of wires per element) 2 3 4	Note:
5. Length L or L1 (mm):	
6. Diameter Ø (mm):	
7. Thread: 1/2" BSPP 1/4" BSPP 1/2" NPT Other:	
8. Connection head: (see the part "Accessories") Type B Type DAN Type M Type Ex Type NS Other:	
9. Mounting: Wires Terminal block Transmitter (°C): Specify temperature range	
How to order?	ոիդի

PH24 – RTDs with terminal head Open air with reduced tip

փփ

Ordering information	Tube material Stainless steel 316L
ordering mornation	
1. Element type:	Additional:
□ Pt 100 □ Pt 500 □ Pt 1000	Application:
Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Quantity:
4. Wiring configuration: (number of wires per element) 2 3	Note:
5. Dimensions L and Ø (mm):	
L Ø	
6. Dimensions L1 and Ø1 (mm):	
L1 Ø1	
7. Connection head: (see the part "Accessories")	
□ Type B □ Type DAN □ Type M □ Type N	
Type Ex Type NS Other:	
8. Mounting:	
Wires Terminal block Transmitter (°C):	
•	

How to order?

alahe

PH25 – RTDs with terminal head Contact block (surface mount)

alahi

	28 8 9 10 *Tube material Stainless steel 316L
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	9. Contact block material: Brass Aluminum Other: 10. Contact block shape:
2. Element class:	0
3. Number of sensor elements:	V-shape Flat
4. Wiring configuration: (number of wires per element) 2 3 4	Additional: Application:
5. Lengths L1 and L2 (mm):	Operating temperature (min/max):
L1 L2	Type of environment:
6. Diameter Ø (mm):	Accessories: See the part "Accessories"
7. Connection head: (see the part "Accessories") Type B Type DAN Type Ex Type NS Other:	Quantity: Note:
8. Mounting: Wires Terminal block Transmitter (°C): Specify temperature range	
How to order?	ւլիվո

1.11.

PH30 – RTDs with terminal head Flange sanitary mounting

փի

	Tube material Stainless steel 316L
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	9. Flange sanitary mounting: DIN2527 (DN10 - PN6) Other: Additional:
2. Element class:	Application:
A B Other:	Operating temperature (min/max):
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Type of environment:
4. Wiring configuration: (number of wires per element)	Accessories: See the part "Accessories"
	Quantity:
5. Dimensions L and L1 (mm): L L	Note:
6. Diameter Ø (mm):	
7. Connection head: (see the part "Accessories") Type B Type DAN Type M Type N Type Ex Type NS Other:	
8. Mounting: Wires Terminal block Transmitter (°C): Specify temperature range	

How to order?

alahe

PH31 – RTDs with terminal head Tri-clamp sanitary mounting

փի

	Tube material Stainless steel 316L
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	9. Tri-clamp sanitary mounting: DIN32676 / ISO 2852 (DN25) Other: Additional:
2. Element class:	Application:
A B Other:	Operating temperature (min/max):
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Type of environment:
4. Wiring configuration: (number of wires per element)	Accessories: See the part "Accessories"
	Quantity:
Land L1 (mm): L	Note:
6. Diameter Ø (mm):	
7. Connection head: (see the part "Accessories") Type B Type DAN Type Ex Type NS Other:	
8. Mounting: Wires Terminal block Transmitter (°C): Specify temperature range	

How to order?

Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.

alahe

PH32 - RTDs with terminal head Disc DIN11851 (screw-on) sanitary mounting

alahi

	Tube material Stainless steel 31
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	9. Disc DIN 11851 sanitary mounting: DIN 11851 (DN20) Other: Additional:
2. Element class:	Application:
A B Other:	Operating temperature (min/max):
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Type of environment: Accessories:
4. Wiring configuration: (number of wires per element)	See the part "Accessories" Quantity:
L L1	Note:
6. Diameter Ø (mm):	
7. Connection head: (see the part "Accessories") Type B Type DAN Type Ex Type NS	
8. Mounting: Wires Terminal block Transmitter (°C): Specify temperature range	

PH40 – RTDs with terminal head Exchangeable insert

սիսի։

	Tube material Stainless steel 316
Ordering information 1. Element type: Pt 100 Pt 500 Pt 1000 Other:	8. Type of exchangeable insert:
2. Element class: A B Other: 3. Number of sensor elements: x 1 x 2	Wires Terminal block Transmitter (°C): T
 4. Wiring configuration: (number of wires per element) 2 3 4 5. Length L (mm): 	Additional: Application:
6. Diameter Ø (mm):	Operating temperature (min/max): Type of environment:
	Accessories:
7. Connection head: (see the part "Accessories") Type B Type DAN Type M Type N	See the part "Accessories" Quantity:
Type Ex Type NS Other:	Note:
How to order? Choose the desired characteristics of your sensor by marking the chapersonal notes, special requirements or any important data. For add	اباراب eckboxes and by filling up the text. You can provide sketches, images, litional questions and assistance, feel free to contact us

PH41 – RTDs with terminal head Exchangeable insert with fixed thread

փի

	*Tube and thread material Stainless steel 316L
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	9. Type of exchangeable insert:
2. Element class:	
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Wires Terminal block Transmitter (°C):
4. Wiring configuration: (number of wires per element)	Specify temperature range Additional:
	Application:
5. Length L or L1 (mm):	Operating temperature (min/max):
L L1	Type of environment:
6. Diameter Ø (mm):	Accessories: See the part "Accessories"
7. Connection head: (see the part "Accessories")	Quantity:
Type B Type DAN Type M Type I Type Ex Type NS Other:	Note:
8. Thread: 1/2" BSPP 1/2" NPT Other:	

How to order?

alale

PH42 – RTDs with terminal head Exchangeable insert with fixed thread (offset)

փի

	Lu Lu Lu Lu Lu Lu Lu Lu Lu Lu Lu Lu Lu L
Ordering information	0. Turne of evolution and the interval
1. Element type: ☐ Pt 100	9. Type of exchangeable insert:
2. Element class:	
3. Number of sensor elements:	Wires Terminal block Transmitter (°C): T
4. Wiring configuration: (number of wires per element)	Additional:
5. Lengths L and L1 or L2 (mm):	Operating temperature (min/max):
L L1 L2	Type of environment:
6. Diameter Ø (mm):	Accessories: See the part "Accessories"
7. Connection head: (see the part "Accessories")	Quantity:
Type B Type DAN Type M Type N Type Ex Type NS Other:	Note:
8. Thread: 1/2" BSPP 1/2" NPT Other:	

How to order?

alale

PH50 – RTDs with terminal head For aggressive environments

սիսիս

Ordering information I. Element type: Pt 100 Pt 500 Other:	*Fitting material PTFE (260° *Tube material Stainless steel 316L with PTFE protection Additional: Application: Operating temperature (min/max):
 2. Element class: A B Other: 3. Number of sensor elements: X1 X2 4. Wiring configuration: (number of wires per element) 2 3 4 	Type of environment: Accessories: See the part "Accessories" Quantity: Note:
 5. Length L (mm): 6. Diameter Ø (mm): 7. Connection head: (see the part "Accessories") 	
Type B Type DAN Type M Type N Type Ex Type NS Other: 8. Mounting: Wires Terminal block Transmitter (°C): Specify temperature range	
How to order?	ااب neckboxes and by filling up the text. You can provide sketches, images,

PH51 – RTDs with terminal head For aggressive environments with fixed thread

փփ

Ordering information 1. Element type:	*Thread material PTFE (260°C) *Tube material Stainless steel 316L with PTFE protection Additional:
□ Pt 100 □ Pt 500 □ Pt 1000	Application:
Other:	Operating temperature (min/max):
2. Element class:	Type of environment: Accessories:
3. Number of sensor elements: $\square \times 1 $ $\square \times 2$	See the part "Accessories" Quantity:
4. Wiring configuration: (number of wires per element) 2 3 4	Note:
Length L or L1 (mm): L L1	
6. Diameter Ø (mm):	
7. Thread: 1/2" BSPP 1/2" NPT Other:	
8. Connection head: (see the part "Accessories") Type B Type DAN Type Ex Type NS Other:	
9. Mounting: Wires Terminal block Transmitter (°C): Specify temperature range	
How to order? Choose the desired characteristics of your sensor by marking the ch	$ \cdot _{1}$

8 chemin des Grandes Combes 69360 Ternay, France +33 472 669 234

personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.

8 chemin des Grandes Combes 69360 Ternay, France +33 472 669 234

PH60 – RTDs with terminal head

Spring loaded

	L1 *Tube and thread material Stainless steel 316L
Ordering information	
1. Element type:	8. Connection head: (see the part "Accessories")
□ Pt 100 □ Pt 500 □ Pt 1000	Type B Type DAN Type M Type N Type N Type NC Output
Other:	Type Ex Type NS Other:
2. Element class:	9. Mounting: Wires Terminal block Transmitter (°C): Specify temperature range
3. Number of sensor elements: $\Box \times 1 \qquad \Box \times 2$	Additional:
	Application:
4. Wiring configuration: (number of wires per element)	Operating temperature (min/max):
□ 2 □ 3 □ 4	Type of environment:
5. Lengths L1, L2, L3 (mm):	Accessories:
L1 L2 L3	See the part "Accessories"
C. Dispussion & (num)	Quantity:
6. Diameter Ø (mm):	Note:
7. Thread:	
□ 1/2" BSPP □ 1/4" BSPP □ 1/4" BSPT □ M10	
□ 1/2" NPT □ Other:	

How to order?

Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.

alahe

чч

יו|י|וי EuroSensors

.

PI00 – RTDs with terminal head Disc plate insert

- I-I-I-

	*Tube material Stainless steel 31
Ordering information	
1. Element type:	Additional: Application:
□ Pt 100 □ Pt 500 □ Pt 1000 □ Other:	Operating temperature (min/max):
	Type of environment:
2. Element class:	Accessories: See the part "Accessories"
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Quantity:
4. Wiring configuration: (number of wires per element) 2 3	Note:
5. Sheath length L (mm):	
6. Diameter Ø (mm):	
How to order?	નન

PI01 – RTDs with terminal head Insert with terminal block (spring loaded)

փի

	*Tube material Stainless steel 316L
Ordering information	
1. Element type:	Additional:
□ Pt 100 □ Pt 500 □ Pt 1000	Application:
Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
5. Sheath length L (mm):	
6. Diameter Ø (mm):	7

How to order?

alale.

PI02 – RTDs with terminal head Insert with transmitter block (spring loaded)

փփ

	*Tube material Stainless steel 316L
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	Additional: Application: Operating temperature (min/max):
2. Element class:	Type of environment: Accessories: See the part "Accessories"
3. Number of sensor elements: x1 x2	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
5. Sheath length L (mm):	
6. Diameter Ø (mm):	
7. Transmitter (°C): Specify temperature range	

How to order?

alale.

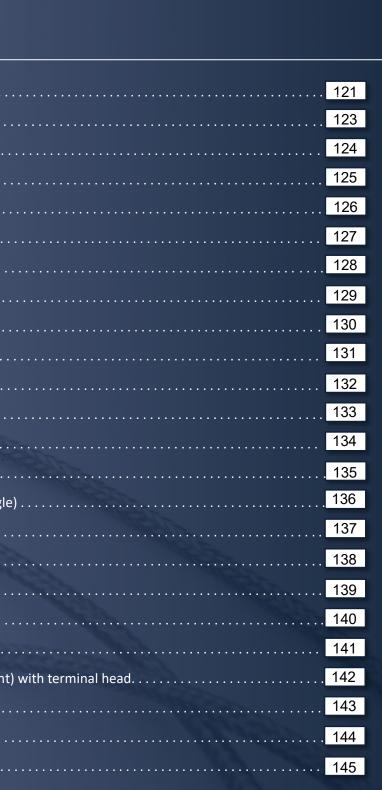


III EuroSensors

Surface RTDs

Contents

Technical Information
PS00 - Adhesive tape
PS01 - Washer mount
PS02 - Reinforced washer mount
PS03 - Ring mount
PS05 - Contact block
PS10 - Weld pad
PS11 - Weld pad (45° angle)
PS12 - Weld pad (Plug-in)
PS20 - Angle / Plug-in
PS21 - Angle / Plug-in (Clamp)
PS30 - Bayonet
PS31 - Bayonet with reduced tip
PS33 - Bayonet (Reverse)
PS34 - Bayonet with clamp (90° ang
PS41 - Pipe-Clamp (Type 1)
PS42 - Pipe-Clamp (Type 2)
PS43 - Pipe-Clamp (Type 3)
PS50 - Handheld
PS60 - Spring loaded magnet
PH25 - Contact block (Surface mou
PR20 - Nozzle
PR21 - Nozzle (90° bend)
PR22 - Bolt



Surface RTDs - Technical information

alale

What are the characteristics of surface RTDs ?

Surface RTD probes detect surface temperature. The most important issue in surface temperature measurement is to keep measurement errors as small as possible. This is achieved by an appropriate design of the measuring head, so that only very little heat is extracted from the measuring point and the measurement error is negligible.

The perfectly adapted geometry increases the contact surface. At the same time, the low thermal mass of the measuring head ensures that comparatively fast response times can be achieved when measuring the surface temperature.

Different types of surface RTDs

Attaching a RTD to a surface for an accurate reading can be difficult. The sensor must respond quickly to avoid heat dissipation and remain attached under vibration or other stress.

We offer a number of constructions to suit every surface application.

Washer and ring RTDs can be attached to a stud welded to the surface or to an existing bolt on a section of machinery.

Bayonets are simply inserted through a drilled opening to a desired depth of a surface. The opening is then tapped to accept a number of mounting adapters. These adapters feature a locking pin allowing the RTDs cap to be installed with a twist.

Weld pad RTDs which need not require the more rugged industrial construction can be tig welded or soldered and held with a number of clamping devices.

Pipe-clamp RTD is ideal for temperature measurements on pipes in laboratories and industrial applications.

Magnet RTDs are ideal for a temporary measurement to a magnetic surface or magnetic surface which doesn't allow any alteration.

Material conductivity

Material	Thermal conductivity W/(m.K)	
Air	≈ 0,25	
Stainless steel	≈ 14	
Brass	≈ 109	k
Aluminum	≈ 205	1
Copper	≈ 385	
Silver	≈ 406	9

Surface RTDs - Technical information



What is an RTD sensor ?

An RTD (Resistance Temperature Detector) is a type of sensor used to measure temperature. RTDs are used for accurate, stable and reliable temperature measurements in generally high temperature ranges.

RTDs advantages

RTDs have several advantages over other types of temperature sensors:

High precision

RTDs have high temperature sensitivity, typically in the range of 0.1 to 0.2% per °C, allowing for accurate temperature measurement.

Long term stability

RTDs have long-term stability and longer life than thermistors, making them more reliable for long-term applications.

Wide operating temperature range

RTDs can operate in a temperature range of -200 to +850°C, making them suitable for many industrial applications.

Low ohmic resistance

RTDs have a low ohmic resistance compared to thermistors, which makes them easier to use with electronic circuits.

How does an RTD work ?

An RTD (variable temperature resistor) is a sensor that measures temperature using the variation of the electrical resistance of a conductive material. RTDs are usually made from platinum, gold or nickel. The operating principle of RTDs is based on Ohm's law of electrical resistance, which establishes a relationship between the electrical resistance of a conductor and its temperature. According to this law, the electrical resistance of a conductor generally increases when its temperature increases. There are several differences between Pt and thermistors, these differences make them more suitable for different applications.

Construction material

The main difference between thermistors and Pt-s is the material they are made of. Thermistors are typically composed of mixed metal oxides, while Pt-s are made of pure metal such as nickel or platinum. The material difference leads to different properties in temperature measurement. Thermistors are more accurate than Pt-s, even in the wiring of the associated devices.

• Wire length

Thermistors have higher resistance values at lower temperatures which gives them higher resolution. Because the wire increases resistance, using very long wires can alter the reading and can cause inaccuracies. Because they have high inherent resistances, thermistors can be used with very long wire strands, while Pt-s are only recommended up to 3m without further measures. This can make a difference when selecting which temperature is best for your application depending on the required wire length.

Temperature range

A thermistor is better for lower temperatures whereas Pt-s are more suitable for higher temperatures. Thermistors can only be used in a temperature range up to +250°C, while Pt-s can be used up to +600°C.

Type of application

Thermistors are typically used in more commonplace devices such as freezers, air conditioners or water heaters. This is because of their high resolution in lower temperature ranges. Because of this, thermistors are also well suited for use in medical devices. Pt-s mainly used in industrial applications where higher temperatures can occur.

What are Pt-s and Thermistors ?

Thermistors and Pt-s are both types of temperature sensors that measure temperature by measuring electrical resistance. They are both widely used for temperature measurement in various industries and applications.

Surface RTDs - Technical information

սիսիս

What is a PT probe ?

A PT (Platinum Resistance Thermometer) is a type of temperature sensor that uses a temperature deflection resistor (RTD) to measure temperature. It is based on the principle that the electrical resistance of a conductive material increases when its temperature increases.

Understanding the naming of Pt100, PT500 and PT1000 sensors

First of all, "Pt" is the chemical symbol for platinum because platinum is the basic material for making the measuring element. The naming conventions of P100, PT500, and PT1000 sensors are closely tied to the nominal resistance values they exhibit at 0°C. P100 sensor has a nominal resistance of 100 Ω at 0°C, Pt500 sensor has a nominal resistance of 500 Ω at 0°C and Pt1000 sensor has a nominal resistance of 1000 Ω at 0°C. Understanding the meaning behind these designations allows us to discern their specific characteristics and applications. Whether you require a standard PT100 sensor or a higher resistance variant like PT500 or PT1000, these RTD sensors provide reliable and accurate temperature measurements in a

wide range of industries and applications.

Pt-s wiring configurations

The cable has certain resistance which adds to the RTD resistance. Thus, the total resistance is the sum of the RTD resistance and the lead wire resistance. This causes more voltage drop across the RTD measurement system and as a result causes inaccuracy in measurement. This is the reason why we use 2 wire, 3 wire, and 4 wire RTD configurations.

Jahren -				
0	PVC	Silicone	Teflon	Fiberglass
Abrasion resistance	Very good	Fair	Good	Fair
Chemical resistance	Very good	Poor	Excellent	Good
Moisture resistance	Good	Good Excellent P		Poor
Fire resistance	Good	Good	Excellent	Excellent

Global cable insulation characteristics

Pt-s classes

Tolerances of Pt-s sensors can be tailored to customer specifics and thus manufactured to different tolerances. The higher the tolerance the smaller the margin of error relative to lower tolerances.

A system where these tolerances are classified is helpful for the end user and helps the interchangeability of these sensors. The IEC system is seen as the standard for the industry although there are other standards and other tolerance classes.

IEC Standard	DIN4370	Temperature Range ºC	Tolerance Ω at 0ºC	Tolerance ^o C
W0.03	1/10 DIN	-100 to 350	100±0.012 Ω	±0.03 °C
/	1/5 DIN	-100 to 350	100±0.024 Ω	±0.06 °C
W0.1	1/3 DIN	-100 to 350	100±0.04 Ω	±0.10 °C
W0.15	Class A	-100 to 450	100±0.06 Ω	±0.15 °C
W0.3	Class B	-196 to 660	100±0.12 Ω	±0.30 °C

RTD connectors

Due to the lack of standardization in RTD connectors, our company takes pride in its ability to produce a wide range of RTD connectors. We understand that different industries and applications have unique requirements when it comes to temperature measurement, and that includes the connectors used. With our expertise and advanced manufacturing capabilities, we have the flexibility to design and produce various types of RTD connectors.



RTD standard connectors plugs and sockets are available in two sizes (miniature and standard).

8 chemin des Grandes Combes 69360 Ternay, France +33 472 669 234

PS00 – Surface RTDs Adhesive tape

	*Adhesive tape material Fiberglass/PTFE
Ordering information	
1. Element type:	Additional:
□ Pt 100 □ Pt 500 □ Pt 1000 □ Other:	Application:
	Operating temperature (min/max): Type of environment:
2. Element class:	Accessories:
	See the part "Accessories" Quantity:
3. Wiring configuration: (number of wires)	Note:
4. Cable prolongation: Teflon (260°C) Other:	
5. Cable length LC (mm):	
How to order?	- titi-
	g the checkboxes and by filling up the text. You can provide sketches, images, For additional questions and assistance, feel free to contact us.

PS01 – Surface RTDs Washer mount



Otering information 		
1. Element type:	Ordering information	*Washer mount material Tinned cop
□ Other: ○ Operating temperature (min/max): 2. Element class: □ Operating temperature (min/max): □ A □ Other: 3. Wiring configuration: (number of wires) □ A □ 2 □ 3 □ 4 4. Cable prolongation: □ Other: 5. Cable length LC (mm): □ Other:	1. Element type:	
2. Element class:		
2. Element class:	U Other:	
Image: A is in the origination: 3. Wiring configuration: 2 3 4 A. Cable prolongation: Teflon (260°C) Other: 5. Cable length LC (mm): See the part "Accessories" Quantity: Note:		
3. Wing configuration: (number of wires) 2 3 4 A. Cable prolongation: Note:	A B Other:	See the part "Accessories"
4. Cable prolongation: □ Teflon (260°C) □ Other: 5. Cable length LC (mm):		
Teflon (260°C) Other: 5. Cable length LC (mm):		Note:
6. Hole size Ø (mm):	5. Cable length LC (mm):	
	6. Hole size Ø (mm):	

personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.

PS02 – Surface RTDs Reinforced washer mount

50 LC	
Ordering information	*Washer mount material Stainless steel 316L
1 Elementhyne:	Additional:
1. Element type:	Application:
Other:	Operating temperature (min/max):
_	
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Wiring configuration: (number of wires)	Quantity:
	Note:
4. Cable prolongation: PVC (105°C) Silicone (180°C) Teflon (260°C)	
□ Fiberglass (400°C) □ Other:	
5. Cable length LC (mm):	
6. Hole diameter Ø (mm):	
7. Crimp protection:	
Spring Heat shrink sleeve Without	
	•

How to order?

Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.

alahe

PS03 – Surface RTDs Ring mount

50 LC Ordering information	
	Additional:
1. Element type: □ Pt 100 □ Pt 500 □ Pt 1000	Application:
Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Wiring configuration: (number of wires)	Quantity:
	Note:
4. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	
5. Cable length LC (mm):	
6. Ring material:	
7. Ring size: M5 M6 Other:	
8. Crimp protection:	

How to order?

alahe

PS05 – Surface RTDs Contact block

սիսի։

50 LC	*Contact block material Brass or aluminum
Ordering information 1. Element type: Pt 100 Pt 500 Pt 1000 Other:	8. Crimp protection: Spring Heat shrink sleeve Without Additional:
2. Element class:	Application: Operating temperature (min/max):
3. Wiring configuration: (number of wires)	Type of environment: Accessories: See the part "Accessories"
4. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	Quantity: Note:
5. Cable length LC (mm):	
6. Contact block material:	
7. Contact block shape:	
How to order? Choose the desired characteristics of your sensor by marking the ch personal notes, special requirements or any important data. For ad	الالله neckboxes and by filling up the text. You can provide sketches, images, ditional questions and assistance, feel free to contact us.



PS10 – Surface RTDs Weld pad

alalle

50 LC Ordering information	*Weld pad and tube material Stainless steel 316L
1. Element type: Pt 100 Pt 500 Other:	10. Crimp protection: Spring Heat shrink sleeve Without
2. Element class:	Application: Operating temperature (min/max):
3. Wiring configuration: (number of wires)	Type of environment: Accessories: See the part "Accessories"
4. Cable prolongation: PVC (105°C) Silicone (180°C) Teflon (260°C) Fiberglass (400°C) Other:	Quantity: Note:
5. Cable length LC (mm):	
6. Tube length L (mm):	
7. Pad material: AISI 316L Other:	
 8. Pad dimensions A x B (mm): 15 x 10 25 x 10 30 x 10 Other: 	
9. Pad thickness h (mm): 0,5 Other:	

How to order?

alahe



PS11 – Surface RTDs Weld pad (45° angle)

սիսիս

50 LC	
Ordering information	*Weld pad and tube material Stainless steel 316L
1. Element type: Pt 100 Pt 500 Other:	8. Crimp protection: Spring Heat shrink sleeve Without Additional:
2. Element class:	Application: Operating temperature (min/max):
3. Wiring configuration: (number of wires)	Type of environment: Accessories: See the part "Accessories"
4. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	Quantity: Note:
5. Cable length LC (mm):	
6. Tube length L (mm):	
7. Pad material: AISI 316L Other:	
8. Pad dimensions A x B (mm): 15 x 10 25 x 10 30 x 10 Other:	
9. Pad thickness h (mm): 0,5 Other:	

How to order?

alahe

PS12 – Surface RTDs Weld pad (plug-in)

սիսիս

50 LC	
Ordering information	*Weld pad and tube material Stainless steel 316L
I. Element type: Pt 100 Pt 500 Pt 1000 Other: Other: Pt 1000	10. Insertion diameter Ø (mm): 4 5 6 Other: 11. Insertion depth L (mm):
2. Element class:	11. Insertion depth L (IIIII). 12. Crimp protection: Spring Heat shrink sleeve Without
3. Wiring configuration: (number of wires)	Additional: Application:
4. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	Operating temperature (min/max): Type of environment: Accessories: See the part "Accessories"
5. Cable length LC (mm):	Quantity:
6. Pad material: AISI 316L Other:	Note:
7. Pad dimensions A x B (mm): 15 x 10 25 x 10 0 ther:	
8. Pad thickness h (mm): 0,5 Other:	
9. Hole size Ø D (mm):	

How to order?

alahe

PS20 – Surface RTDs Angle / plug-in

սիսիս

50 LC	30 30 9 9 9 9 9 9 9 9 9 9 9 9 9
Ordering information	*Mounting block material Brass *Tube material Stainless steel 316L
I. Element type: Pt 100 Pt 500 Pt 1000 Other: Other: Pt 1000	Additional: Application: Operating temperature (min/max):
2. Element class:	Type of environment: Accessories: See the part "Accessories"
3. Wiring configuration: (number of wires)	Quantity: Note:
4. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	
5. Cable length LC (mm):	
6. Hole size Ø D (mm):	
7. Insertion diameter Ø (mm): □ 4 □ 5 □ 6 □ Other:	
8. Insertion depth L (mm):	
9. Crimp protection:	

How to order?

alahe



PS21 – Surface RTDs Angle / plug-in (clamp)

ululu

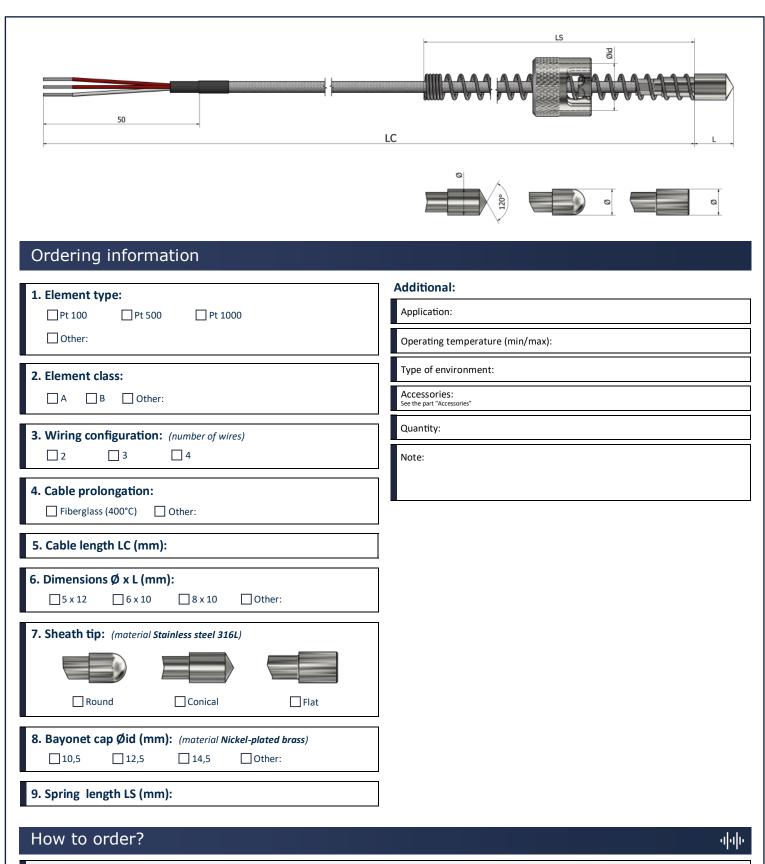
50 LC	22 22 22 22 22 22 22 22 22 22
Ordering information 1. Element type:	Additional:
□ Pt 100 □ Pt 500 □ Pt 1000 □ Other:	Application: Operating temperature (min/max):
2. Element class:	Type of environment: Accessories:
3. Wiring configuration: (number of wires)	See the part "Accessories" Quantity: Note:
4. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	
 5. Cable length LC (mm): 6. Insertion diameter Ø (mm): 4 5 6 Other: 	
7. Insertion depth L (mm):]
8. Crimp protection:	

How to order?

alahe

PS30 – Surface RTDs Bayonet

սիսի։



PS31 – Surface RTDs Bayonet with reduced tip

սիսիս

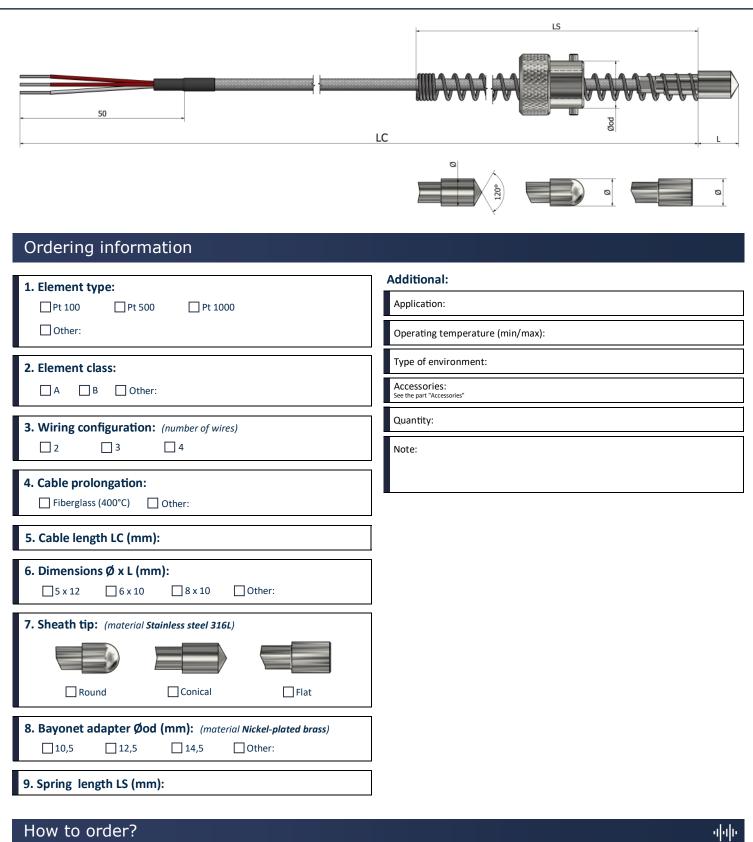
50 LC	^{LS}
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	Additional: Application: Operating temperature (min/max):
2. Element class:	Type of environment: Accessories: See the part "Accessories"
3. Wiring configuration: (number of wires)	Quantity: Note:
4. Cable prolongation:	
5. Cable length LC (mm):	
6. Dimensions L and Ø (mm):	
7. Dimensions L1 and Ø1 (mm): L1 Ø1	
8. Bayonet cap Øid (mm): (material Nickel-plated brass)	
9. Spring length LS (mm):	

How to order?

alahe

PS33 – Surface RTDs Bayonet (reverse)

սիսիս



PS34 – Surface RTDs Bayonet with clamp (90° angle)

սիսի։

	LS
50	
LC	
Ordering information	
1. Element type:	9. Bayonet cap Øid (mm): (material Nickel-plated brass)
□ Pt 100 □ Pt 500 □ Pt 1000	10,5 12,5 14,5 Other:
Other:	10. Spring length LS (mm):
2. Element class:	Additional:
A B Other:	Application:
2 Wining configuration: (a strait stat)	Operating temperature (min/max):
3. Wiring configuration: (number of wires)	Type of environment:
4. Cable prolongation:	Accessories: See the part "Accessories"
Fiberglass (400°C) Other:	Quantity:
5. Cable length LC (mm):	Note:
6. Cable length L (mm):	
7. Dimensions Ø x L1 (mm):	
□ 5 x 12 □ 6 x 10 □ 8 x 10 □ Other:	
8. Sheath tip: (material Stainless steel 316L)	
Round Conical Flat	
How to order?	վվե

PS41 – Surface RTDs Pipe-Clamp (type 1)

սիսի։

- LC	
50	
Ordering information	*Tube and clamp material Stainless steel 316L
1. Element type: Pt 100 Pt 500 Other:	8. Crimp protection: Spring Heat shrink sleeve Without Additional:
2. Element class:	Application:
A B Other:	Operating temperature (min/max):
3. Wiring configuration: (number of wires)	Type of environment:
	Accessories: See the part "Accessories"
4. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	Quantity: Note:
5. Cable length LC (mm):	
6. Clamp size Ø (mm):	
7. Clamp direction:	
How to order?	ղիր

1.1.

PS42 – Surface RTDs Pipe-Clamp (type 2)

ululu

50 LC	Tube and clamp material Stainless steel 316L
Ordering information 1. Element type: Pt 100 Pt 500 Pt 1000 Other:	Additional: Application: Operating temperature (min/max):
2. Element class:	Type of environment: Accessories: See the part "Accessories"
3. Wiring configuration: (number of wires)	Quantity: Note:
4. Cable prolongation: PVC (105°C) Silicone (180°C) Teflon (260°C) Fiberglass (400°C) Other:	
5. Cable length LC (mm):	
6. Clamp size Ø (mm):]
7. Crimp protection:	

How to order?

alahe

PS43 – Surface RTDs Pipe-Clamp (type 3)

սիսիս

50 LC	*Clamp material Stainless steel 316L *Tube material Stainless steel 316L
Ordering information	
1. Element type:	Additional:
□ Pt 100 □ Pt 500 □ Pt 1000	Application:
Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Wiring configuration: (number of wires)	Quantity:
	Note:
4. Cable prolongation:	
□ PVC (105°C) □ Silicone (180°C) □ Teflon (260°C) □ Fiberglass (400°C) □ Other:	
5. Cable length LC (mm):	
6. Clamp size Ø (mm):	
7. Insertion diameter Ø1 (mm):	
8. Insertion depth L1 (mm):	
9. Crimp protection: Spring Heat shrink sleeve Without	

How to order?

alahe

PS50 – Surface RTDs Handheld

սիսի։

50 LC	
Ordering information	*Handle material Plastic *Tube material Stainless steel 31 0
1. Element type: Pt 100 Pt 500 Pt 1000	Additional:
☐ Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Wiring configuration: (number of wires) 2 3 4 4. Cable prolongation: □ PVC (105°C) □ Silicone (180°C) □ Teflon (260°C)	Quantity: Note:
☐ Fiberglass (400°C) ☐ Other:	
5. Cable length LC (mm):]
6. Length L (mm):	
How to order?	
How to order?	ղի

PS60 – Surface RTDs Spring loaded magnet

սիսիս

50	
Ordering information 1. Element type: Pt 100 Pt 500 Pt 1000 Other:	Additional: Application: Operating temperature (min/max):
 2. Element class: A B Other: 3. Wiring configuration: (number of wires) 	Type of environment: Accessories: See the part "Accessories" Quantity:
□ 2 □ 3 □ 4 4. Cable prolongation: □ □ PVC (105°C) □ Silicone (180°C) □ Teflon (260°C)	Note:
Fiberglass (400°C) Other: C Crime protoction:	
6. Crimp protection:	

How to order?

rt. You can provide sketches, images

Choose the desired characteristics of your sensor by marking the checkboxes and by filling up the text. You can provide sketches, images, personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.

alale

PH25 – Surface RTDs

Contact block (surface mount) with terminal head

սիսիս

	28 8 9 150° 10 *Tube material Stainless steel 316L
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	 8. Contact block material: Brass Aluminum Other: 9. Contact block shape:
2. Element class:	
3. Wiring configuration: (number of wires)	V-shape Additional:
4. Lengths L1 and L2 (mm):	Application:
L1 L2	Operating temperature (min/max):
5. Diameter Ø (mm):	Type of environment:
	Accessories:
6. Connection head: (see the part "Accessories") Type B Type DAN Type M Type N	See the part "Accessories" Quantity:
Type Ex Type NS Other:	Note:
7. Mounting: Wires Terminal block Transmitter (°C): Specify temperature range	Note:
Wires Terminal block Transmitter (°C):	J E



50 LC Ordering information	*Nozzle and thread material Stainless steel (304 / 304L / 316 / 316L)
	Additional:
1. Element type: Pt 100 Pt 500 Pt 1000	Application:
☐ Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Wiring configuration: (number of wires)	Quantity:
	Note:
4. Length L (mm):	
5. Diameter Ø (mm):	
6. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	
7. Cable length LC (mm):	
8. Crimp protection:	
9. Thread: □ 1/2" BSPP □ 1/4" BSPP □ 1/4" BSPT □ M10 □ 1/2" NPT □ Other:	

How to order?

alahe

PR21 – Surface RTDs Nozzle (90° bend)

սիսիս

50 LC	
*Tube material Stainles Ordering information	s steel 316L *Nozzle and thread material Stainless steel (304 / 304L / 316 / 316L)
I. Element type: Pt 100 Pt 500 Pt 1000 Other: Other: Pt 1000	10. Thread: 1/2" BSPP 1/4" BSPP 1/2" NPT Other:
2. Element class:	Additional: Application:
3. Wiring configuration: (number of wires)	Operating temperature (min/max): Type of environment:
4. Lengths (mm):	Accessories: See the part "Accessories" Quantity:
5. Length L (mm):	Note:
6. Diameter Ø (mm):	
7. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	
8. Cable length LC (mm):	
9. Crimp protection: Spring Heat shrink sleeve Without	

How to order?

alahe



PR22 – Surface RTDs Bolt

a a la la

50 LC Ordering information	*Bolt material Stainless steel (304 / 304L / 316 / 316L)
I. Element type: Pt 100 Pt 500 Pt 1000 Other: Other: Pt 1000	Additional: Application: Operating temperature (min/max):
2. Element class:	Type of environment: Accessories: See the part "Accessories"
3. Wiring configuration: (number of wires)	Quantity: Note:
4. Length L (mm):	
5. Cable prolongation: PVC (105°C) Silicone (180°C) Fiberglass (400°C) Other:	
6. Cable length LC (mm):	
7. Crimp protection:	
8. Thread: 1/2" BSPP 1/2" NPT Other:	

How to order?

alahe

Ambient RTDs

Contents

6-6-6

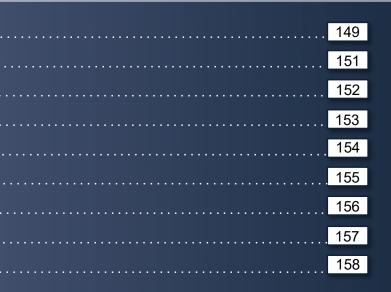
1

C_C

cccc

Technical Information
PA01 - Miniature plastic housing
PA02 - Standard plastic housing .
PA11 - Round aluminum housing
PA12 - Square aluminum housing
PT25 - Open air (Protection tube)
PH22 - Open air (Terminal head).
PH23 - Open air with fixed thread
PH24 - Open air with reduced tip





Ambient RTDs - Technical information

որեր



What is an RTD sensor ?

An RTD (Resistance Temperature Detector) is a type of sensor used to measure temperature.

RTDs are used for accurate, stable and reliable temperature measurements in generally high temperature ranges.

How does an RTD work ?

An RTD is a sensor that measures temperature using the variation of the electrical resistance of a conductive material. RTDs are usually made from platinum, gold or nickel. The operating principle of RTDs is based on Ohm's law of electrical resistance, which establishes a relationship between the electrical resistance of a conductor and its temperature.

According to this law, the electrical resistance of a conductor generally increases when its temperature increases.

What are the characteristics of ambient RTDs ?

Our ambient RTDs are designed for ambient temperature measurement inside and outside residential, office and industrial spaces.

There is a possibility of assembling a programmable temperature transmitter with a 4...20 mA output signal into the housing. The protection tube with perforation allows for quick and precise temperature measurement, thanks to direct contact of

the sensing element with ambient temperature.

Application areas:

- Ambient temperature measurement in rooms and outside
- Warehouses and cold stores
- Offices
- Air-conditioning and ventilation installations

Inside housing

We have four types of housing for ambient sensors. Made of plastic or aluminum and in many different sizes. Inside the ambient temperature sensor can be a programmable temperature transmitter or serial terminals.

Serial terminals



Transmitter



Ambient RTDs - Technical information

սիսիս

RTDs advantages

RTDs have several advantages over other types of temperature sensors:

High precision

RTDs have high temperature sensitivity, typically in the range of 0.1 to 0.2% per °C, allowing for accurate temperature measurement.

Long term stability

RTDs have long-term stability and longer life than thermistors, making them more reliable for long-term applications.

Wide operating temperature range

RTDs can operate in a temperature range of -200 to +850°C, making them suitable for many industrial applications.

Low ohmic resistance

RTDs have a low ohmic resistance compared to thermistors, which makes them easier to use with electronic circuits.

Pt-s classes

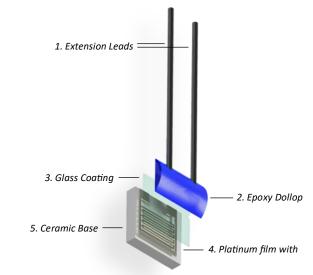
Tolerances of Pt-s sensors can be tailored to customer specifics and thus manufactured to different tolerances. The higher the tolerance the smaller the margin of error relative to lower tolerances.

A system where these tolerances are classified is helpful for the end user and helps the interchangeability of these sensors. The IEC system is seen as the standard for the industry although there are other standards and other tolerance classes.

IEC Standard	DIN4370	Temperature Range ºC	Tolerance Ω at 0ºC	Tolerance ^o C
W0.03	1/10 DIN	-100 to 350	100±0.012 Ω	±0.03 °C
/	1/5 DIN	-100 to 350	100±0.024 Ω	±0.06 °C
W0.1	1/3 DIN	-100 to 350	100±0.04 Ω	±0.10 °C
W0.15	Class A	-100 to 450	100±0.06 Ω	±0.15 °C
W0.3	Class B	-196 to 660	100±0.12 Ω	±0.30 °C

What is a PT probe ?

A PT (Platinum Resistance Thermometer) is a type of temperature sensor that uses a temperature deflection resistor (RTD) to measure temperature.



It is based on the principle that the electrical resistance of a conductive material increases when its temperature increases.

Understanding the naming of Pt100, PT500 and PT1000 sensors

First of all, "Pt" is the chemical symbol for platinum because platinum is the basic material for making the measuring element.

The naming conventions of P100, PT500, and PT1000 sensors are closely tied to the nominal resistance values they exhibit at 0°C. P100 sensor has a nominal resistance of 100 Ω at 0°C, Pt500 sensor has a nominal resistance of 500 Ω at 0°C and Pt1000 sensor has a nominal resistance of 1000 Ω at 0°C. Understanding the meaning behind these designations allows us to discern their specific characteristics and applications.

Whether you require a standard PT100 sensor or a higher resistance variant like PT500 or PT1000, these RTD sensors provide reliable and accurate temperature measurements in a wide range of industries and applications.

Pt-s wiring configurations

The cable has certain resistance which adds to the RTD resistance. Thus, the total resistance is the sum of the RTD resistance and the lead wire resistance. This causes more voltage drop across the RTD measurement system and as a result causes inaccuracy in measurement. This is the reason why we use 2 wire, 3 wire, and 4 wire RTD configurations.

PA01 – Ambient RTDs Miniature plastic housing

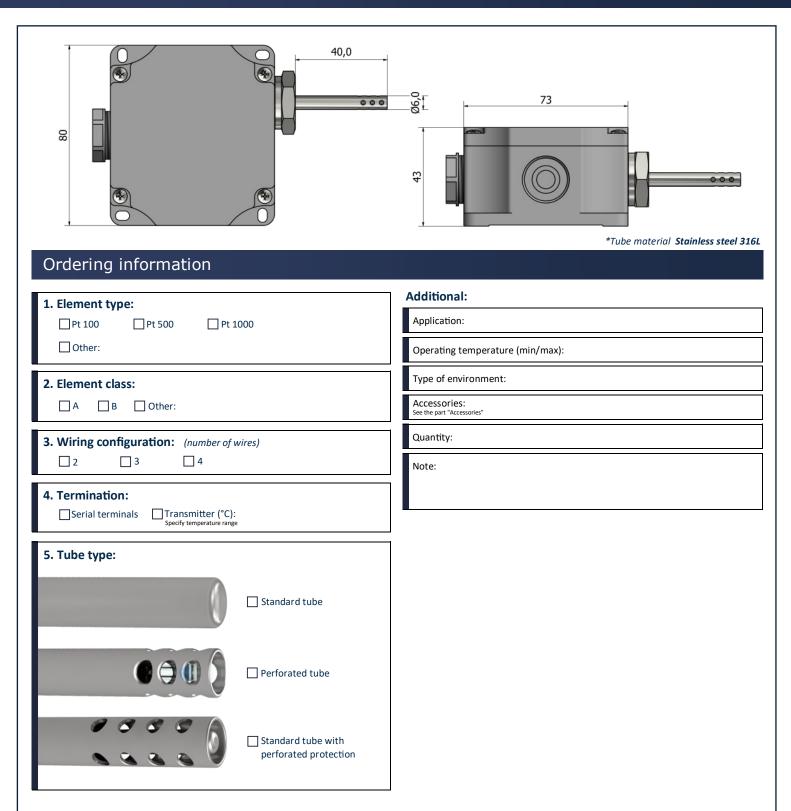
	52 6 6 6 6 6 6 6 6 6 6
Ordering information	
1. Element type: Pt 100 Pt 500 Other:	Additional: Application: Operating temperature (min/max):
2. Element class:	Type of environment: Accessories: See the part "Accessories"
3. Wiring configuration: (number of wires)	Quantity: Note:
4. Termination: Serial terminals Transmitter (°C): Specify temperature range	
5. Tube type:	
Standard tube	
Perforated tube	
Standard tube with perforated protection	

500

How to order?

	1	
I	ı١	ŀ

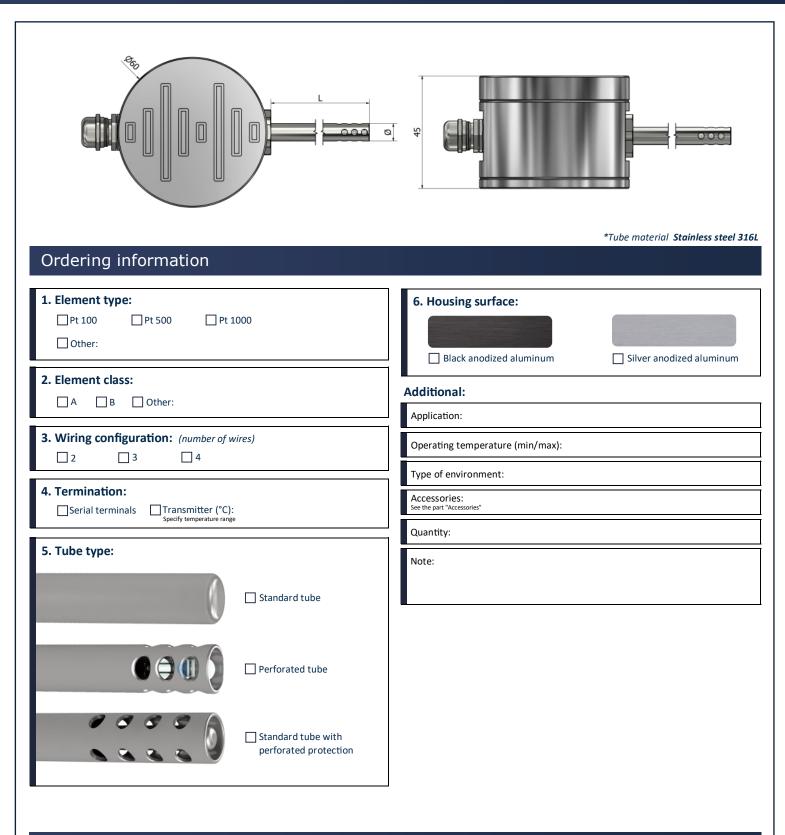
PA02 – Ambient RTDs Standard plastic housing



How to order?

alale.

PA11 – Ambient RTDs Round aluminum housing



How to order?

alahi

PA12 – Ambient RTDs Square aluminum housing

alalie

	The material Stainless steel 316L
Ordering information	
1. Element type: □ Pt 100 □ Pt 500 □ Pt 1000 □ Other:	6. Housing surface:
2. Element class:	Additional: Application:
3. Wiring configuration: (number of wires)	Operating temperature (min/max):
4. Termination: Serial terminals Transmitter (°C): Specify temperature range	Type of environment: Accessories: See the part "Accessories"
5. Tube type:	Quantity: Note:
Standard tube	
Perforated tube	
Standard tube with perforated protection	

500

How to order?

alahe

PT25 – Ambient RTDs Open air (protection tube)

alalie

50 LC	
Ordering information	*Tube material Stainless steel 316L
1. Element type:	Additional:
□ Pt 100 □ Pt 500 □ Pt 1000	Application:
Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
5. Tube length L (mm):	
6. Cable prolongation:	
□ PVC (105°C) □ Silicone (180°C) □ Teflon (260°C)	
☐ Fiberglass (400°C) ☐ Other:	
7. Cable length LC (mm):	
8. Crimp protection:	
Spring Heat shrink sleeve Without	

5.5.6

How to order?

alahe

PH22 – Ambient RTDs Open air (terminal head)

alahe

	*Tube material Stainless steel 316 L
Ordering information	
1. Element type:	Additional:
□ Pt 100 □ Pt 500 □ Pt 1000	Application:
Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Number of sensor elements: $\Box \times 1 \qquad \Box \times 2$	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
5. Length L (mm):	
6. Diameter Ø (mm):	
7. Connection head: (see the part "Accessories") Type B Type DAN Type M Type N Type Ex Type NS Other:	
8. Mounting: Wires Terminal block Transmitter (°C): Specify temperature range	
How to order?	վոխ

00

personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.

PH23 – Ambient RTDs Open air with fixed thread

սիդիւ

	L1 L *Tube and thread material Stainless steel 316L
Ordering information	
1. Element type:	Additional:
□ Pt 100 □ Pt 500 □ Pt 1000	Application:
Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Number of sensor elements: $\Box \times 1$ $\Box \times 2$	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
5. Length L or L1 (mm): L L	
6. Diameter Ø (mm):	
7. Thread: 1/2" BSPP 1/2" NPT Other:	
8. Connection head: (see the part "Accessories") Type B Type DAN Type Ex Type NS Other:	
9. Mounting: Wires Terminal block Transmitter (°C): Specify temperature range	
How to order?	վվա

50

personal notes, special requirements or any important data. For additional questions and assistance, feel free to contact us.

PH24 – Ambient RTDs Open air with reduced tip

alalie

	Tube material Stainless steel 316L
Ordering information	
1. Element type:	Additional:
□ Pt 100 □ Pt 500 □ Pt 1000	Application:
Other:	Operating temperature (min/max):
2. Element class:	Type of environment:
A B Other:	Accessories: See the part "Accessories"
3. Number of sensor elements:	Quantity:
4. Wiring configuration: (number of wires per element)	Note:
5. Dimensions L and Ø (mm):	
L Ø	
6. Dimensions L1 and Ø1 (mm):	
L1 Ø1	
7. Connection head: (see the part "Accessories")	
Type B Type DAN Type M Type N Type Symptotic Type N	
Type Ex Type NS Other:	
8. Mounting:	
Wires Terminal block Transmitter (°C): Specify temperature range	

500

How to order?

alahe