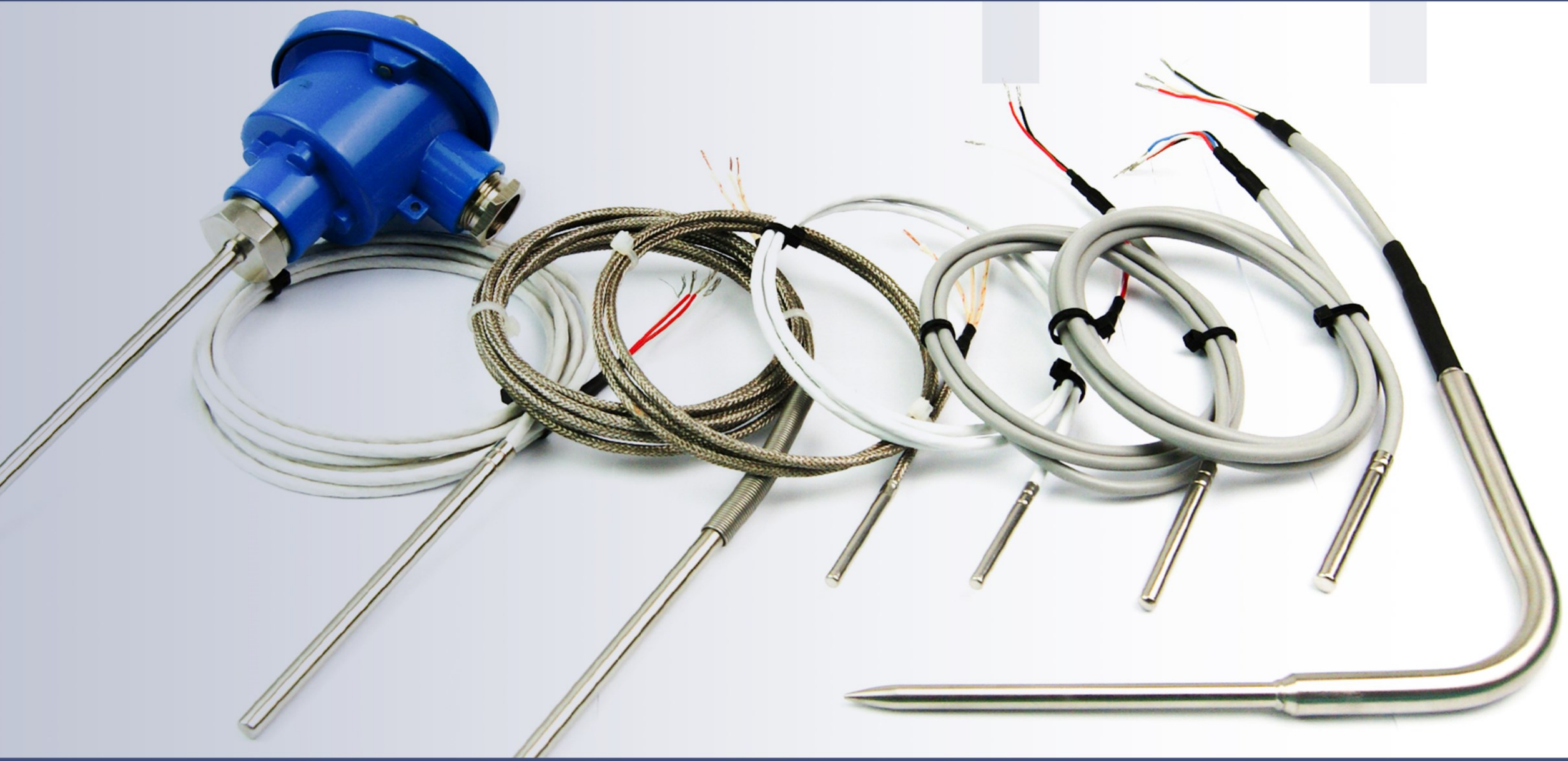
EuroSensors

RTDs (Resistance Temperature Detectors)



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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

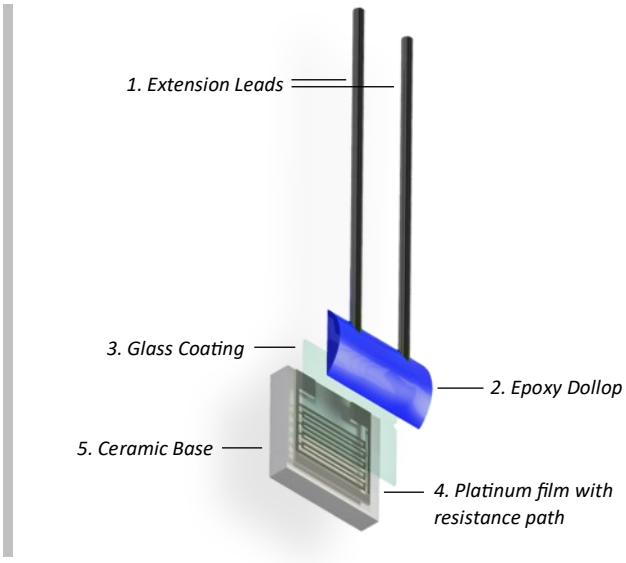
RTDs can operate in a temperature range of -200 to 850°C, making them suitable for many industrial applications.

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.

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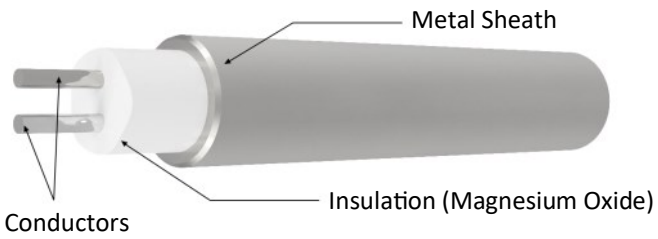
Mineral insulated RTDs - Technical information

What is a mineral insulated probe ?

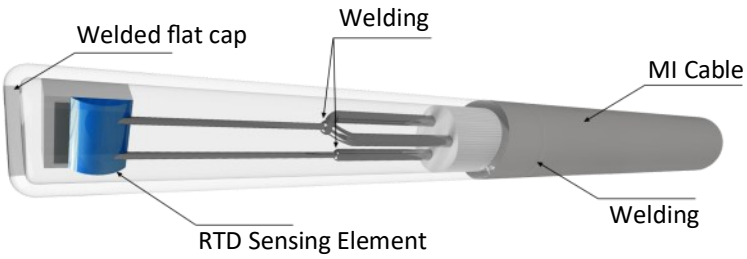
Mineral insulated probes are made from mineral insulated cable. It has a metallic sheath and on the inside, the conductors are insulated with densely packed magnesium oxide (MgO).



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)**

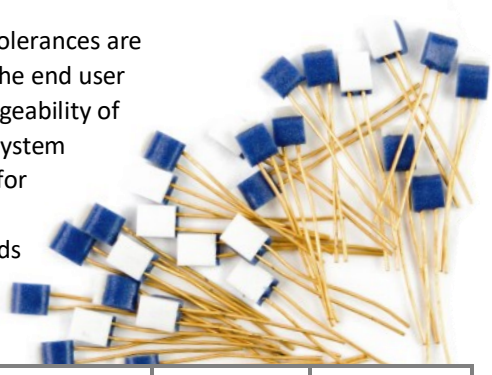
16% Chrome 10% Nickel 2-3% Molybdenum (Reduced carbon content). Reduced carbon content which improves corrosion resistance at low temperatures and better weldability.

Understanding the naming of Pt100, Pt500 and Pt1000 sensors

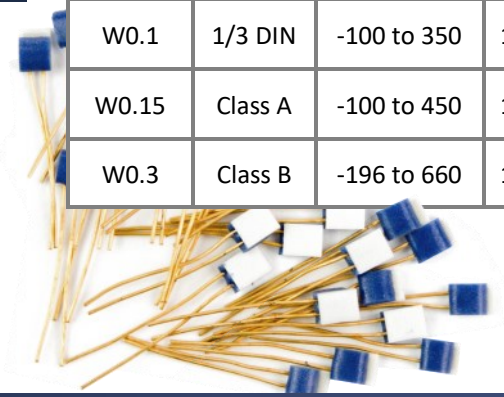
First of all, "Pt" is the chemical symbol for platinum because platinum is the basic material for making the measuring element. The naming conventions of P100, PT500, and PT1000 sensors are closely tied to the nominal resistance values they exhibit at 0°C.
P100 sensor has a nominal resistance of 100 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 ºC
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



Mineral insulated RTDs - Technical information

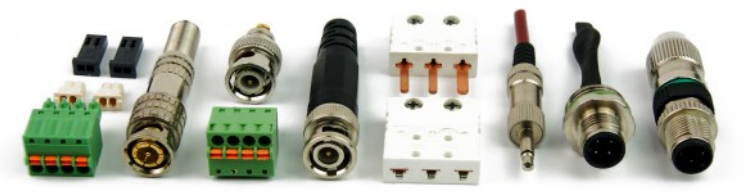
RTDs accessories

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.

Terminal heads

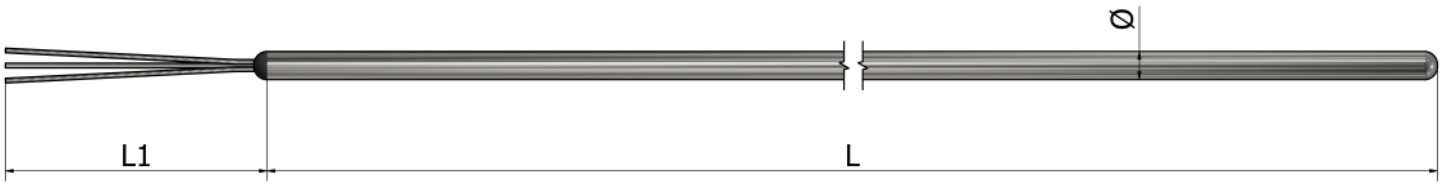
Many alternative types of terminal head are available to meet the requirements of various applications. Variations exist in size, material, accommodation, resistance to media, resistance to fire or even explosion and in other parameters. Common types are shown below but there are many special variants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



Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

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:
☐ AISI304L ☐ AISI316L ☐ Other:

8. Stripping length L1 (mm):

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

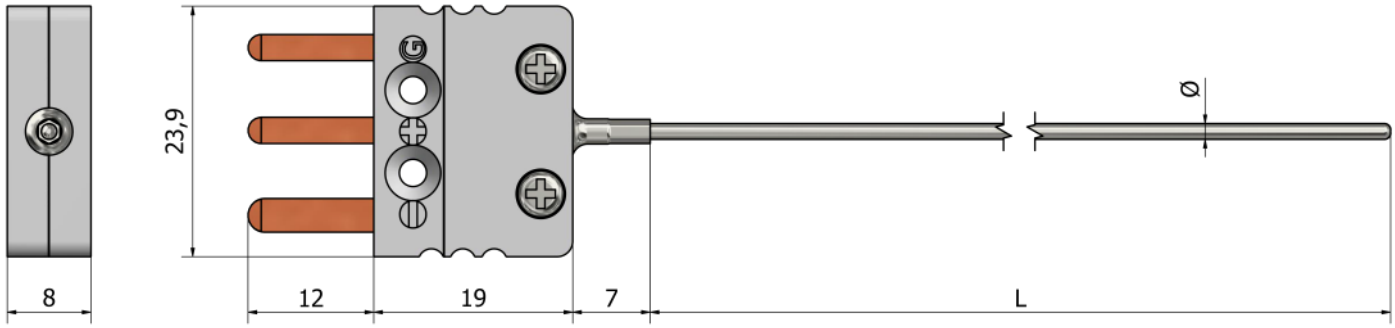
Quantity:

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.

PM10 – Mineral insulated RTDs
Miniature connector termination



Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*

☐ 2 ☐ 3

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:

☐ AISI304L ☐ AISI316L ☐ Other:

7. Miniature connector 200°C:

☐ Plug ☐ Socket

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

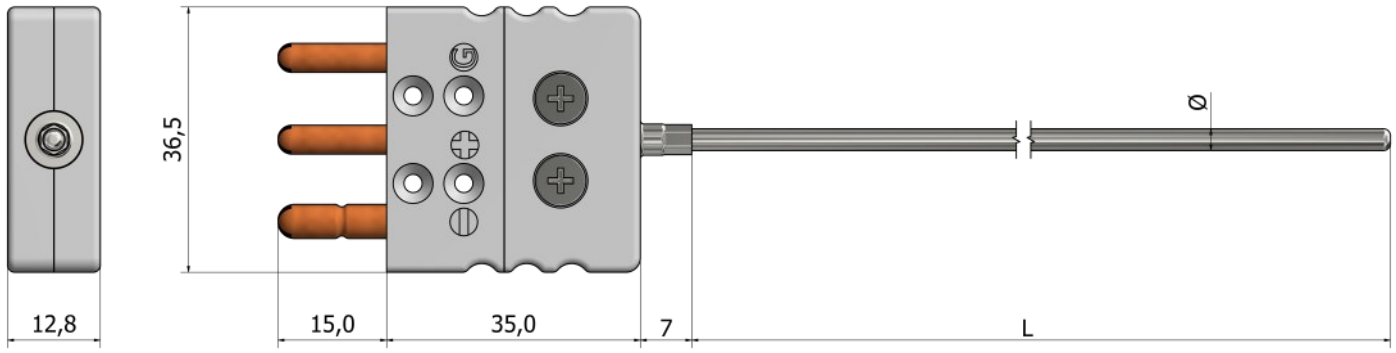
Quantity:

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.

PM12 – Mineral insulated RTDs
Standard connector termination



Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*

☐ 2 ☐ 3

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:

☐ AISI304L ☐ AISI316L ☐ Other:

7. Standard connector 200°C:

☐ Plug ☐ Socket

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

PM14 – Mineral insulated RTDs
LEMO connector

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*
☐ 2 ☐ 3 ☐ 4

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:
☐ AISI304L ☐ AISI316L ☐ Other:

7. LEMO connector type:
☐ Plug ☐ Socket

8. LEMO connector size: *(sheath from Ø mm to Ø mm)*
☐ S1 (1,5 mm to 3 mm) ☐ S2 (4,5 mm to 6 mm)
☐ Other:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

PM20 – Mineral insulated RTDs
Cable prolongation

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

5. Sheath length L (mm):

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:
☐ AISI304L ☐ AISI316L ☐ Other:

8. Cable prolongation:
☐ PVC (105°C) ☐ Silicone (180°C) ☐ Teflon (260°C)
☐ Fiberglass (400°C) ☐ Other:

9. Cable length LC (mm):

10. Crimp protection:
☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

PM21 – Mineral insulated RTDs
Cable prolongation with connector

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*
☐ 2 ☐ 3

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:
☐ AISI304L ☐ AISI316L ☐ Other:

7. Cable prolongation:
☐ PVC (105°C) ☐ Silicone (180°C) ☐ Teflon (260°C)
☐ Fiberglass (400°C) ☐ Other:

8. Cable length LC (mm):

9. Crimp protection:
☐ Spring ☐ Heat shrink sleeve ☐ Without

10. Connector:
☐ Miniature Plug ☐ Miniature Socket ☐ Standard Plug ☐ Standard Socket
☐ Other:

11. Option:
☐ Cable clamp ☐ Custom ID label ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

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PM30 – Mineral insulated RTDs
Reduced tip

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

5. Sheath length L (mm):

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:

5. Sheath length L1 (mm):

6. Sheath diameter Ø1: *(requirement Ø1 > Ø)*
☐ 6 mm ☐ Other:

7. Sheath material:
☐ AISI304L ☐ AISI316L ☐ Other:

8. Cable prolongation:
☐ PVC (105°C) ☐ Silicone (180°C) ☐ Teflon (260°C)
☐ Fiberglass (400°C) ☐ Other:

9. Cable length LC (mm):

10. Crimp protection:
☐ Spring ☐ Heat shrink sleeve ☐ Without

11. Connector:
☐ Miniature Plug ☐ Miniature Socket ☐ Standard Plug ☐ Standard Socket
☐ Without ☐ Other:

12. Option:
☐ Cable clamp ☐ Custom ID label ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

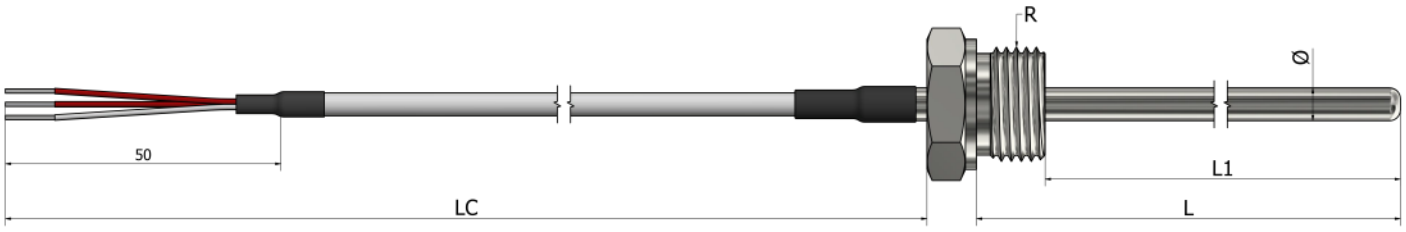
Quantity:

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.

PM40 – Mineral insulated RTDs
Cable prolongation with fixed threaded fitting



*Thread material **Stainless steel (304 / 304L / 316 / 316L)***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

5. Sheath length L or L1(mm):

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:
☐ AISI304L ☐ AISI316L ☐ Other:

8. Cable prolongation:
☐ PVC (105°C) ☐ Silicone (180°C) ☐ Teflon (260°C)
☐ Fiberglass (400°C) ☐ Other:

9. Cable length LC (mm):

10. Crimp protection:
☐ Spring ☐ Heat shrink sleeve ☐ Without

11. Connector:
☐ Miniature Plug ☐ Miniature Socket ☐ Standard Plug ☐ Standard Socket
☐ Without ☐ Other:

12. Option:
☐ Cable clamp ☐ Custom ID label ☐ Without

13. Thread:
☐ 1/2'' BSPP ☐ 1/4'' BSPP ☐ 1/4'' BSPT ☐ M10
☐ 1/2'' NPT ☐ Other:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

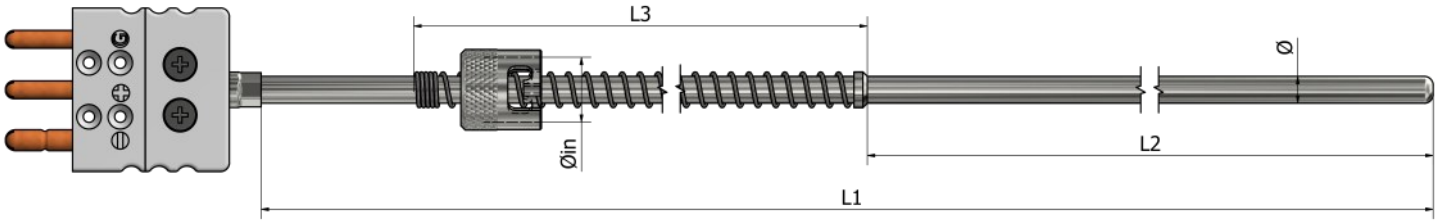
Quantity:

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.

PM53 – Mineral insulated RTDs
Bayonet



Bayonet cap* ***Nickel-plated brass*

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*

☐ 2 ☐ 3

4. Sheath lengths L1, L2, L3 (mm):

L1 _____ L2 _____ L3 _____

5. Sheath diameter Ø:

☐ 3 mm ☐ 4,5 mm ☐ 6 mm

☐ Other:

6. Sheath material:

☐ AISI304L ☐ AISI316L ☐ Other:

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

☐ 10,3 mm (3 mm) ☐ 12,4 mm (4,5 mm) ☐ 14,5 mm (6 mm)

☐ Other:

8. Connector:

☐ Miniature Plug ☐ Miniature Socket ☐ Standard Plug ☐ Standard Socket

☐ Without ☐ Other:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

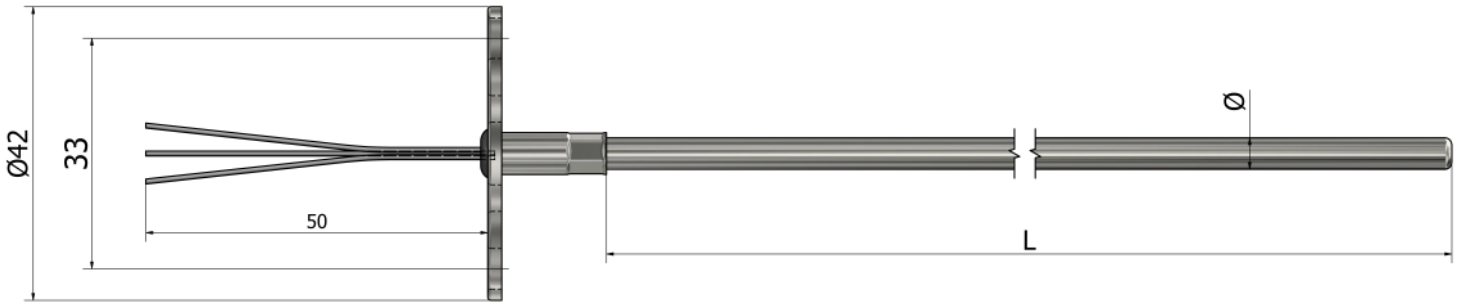
Quantity:

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.

PM60 – Mineral insulated RTDs
Disk plate insert



*Disc plate material **Stainless steel 304L***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

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:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

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

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

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:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

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

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*
☐ 2 ☐ 3 ☐ 4

4. Sheath length L (mm):

5. Sheath diameter Ø:
☐ 1,5 mm ☐ 3 mm ☐ 4,5 mm ☐ 6 mm ☐ 8 mm
☐ Other:

6. Sheath material:
☐ AISI304L ☐ AISI316L ☐ Other:

7. Transmitter (°C):
Specify temperature range

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

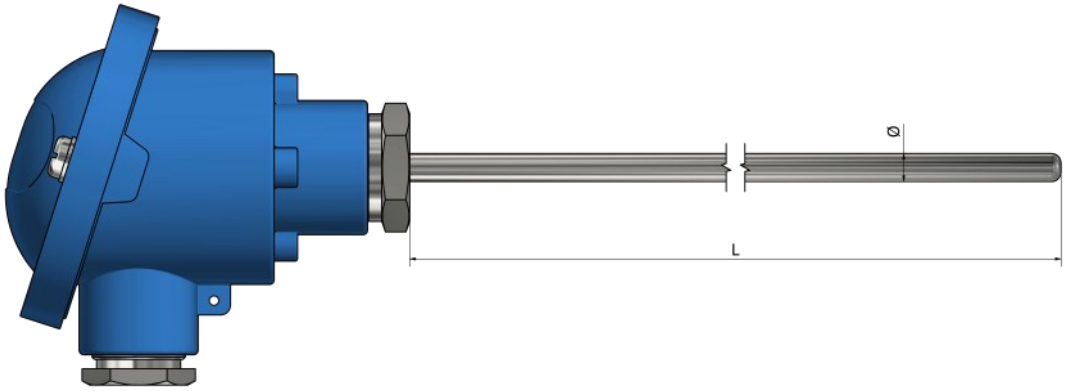
Quantity:

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.

PM70 – Mineral insulated RTDs
Connection head



Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

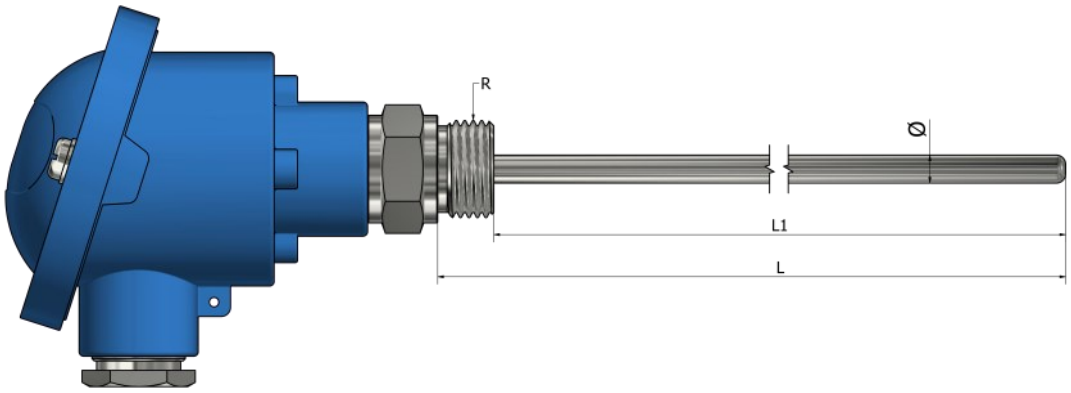
Note:

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.

EuroSensors

PM71 – Mineral insulated RTDs
Connection head with fixed threaded fitting



*Thread material **Stainless steel (304 / 304L / 316 / 316L)***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

5. Sheath length L or L1 (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

10. Thread:
☐ 1/2'' BSPP ☐ 1/4'' BSPP ☐ 1/4'' BSPT ☐ M10
☐ 1/2'' NPT ☐ Other:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

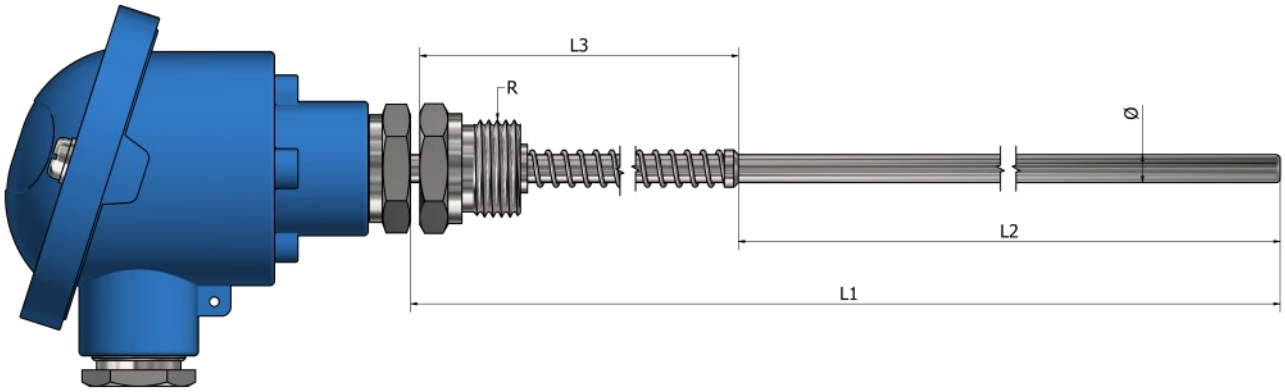
Quantity:

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.

PM73 – Mineral insulated RTDs
Connection head (spring loaded)



*Thread material **Stainless steel (304 / 304L / 316 / 316L)***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

5. Sheath lengths L1, L2, L3 (mm):
L1 _____ L2 _____ L3 _____

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

10. Thread:
☐ 1/2'' BSPP ☐ 1/4'' BSPP ☐ 1/4'' BSPT ☐ M10
☐ 1/2'' NPT ☐ Other:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

EuroSensors

Wired RTDs

Contents

Wired 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 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 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 ºC
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

Types of RTDs cables

For additional information about RTD cables see ***"Accessories - Cables".***

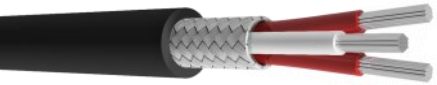
Fiberglass

Description: fiberglass/fiberglass/braid
Operating T°: -60°C / 400°C
Cross section shape: round

Teflon braided

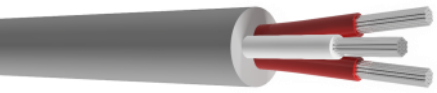
Description: teflon/braid/teflon
Operating T°: -190°C / +260°C
Cross section shape: round

PVC braided



Description: PVC/braid/PVC
Operating T°: -30°C / +105°C
Cross section shape: round

Silicone

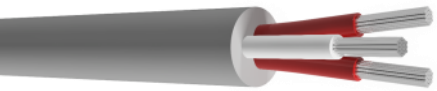


Description: silicone/silicone
Operating T°: -60°C / +180°C
Cross section shape: round

Teflon

Description: teflon/teflon
Operating T°: -190°C / +260°C
Cross section shape: round

Teflon/Silicone



Description: teflon/silicone
Operating T°: -60°C / +180°C
Cross section shape: round

PVC

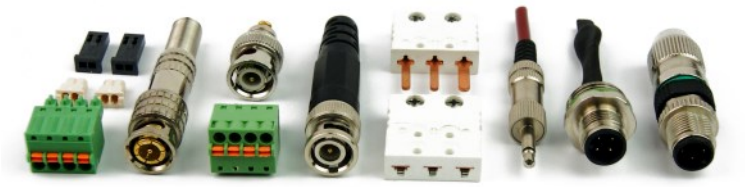
Description: PVC/PVC
Operating T°: -30°C / +105°C
Cross section shape: round

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 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.

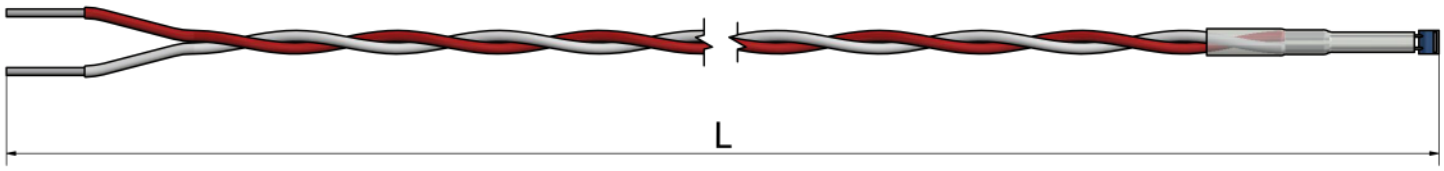


Global cable insulation characteristics

	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:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*

☐ 2 ☐ 3 ☐ 4

4. Wire and cable size:

☐ 7 x 0,2 (0,22 mm²)

☐ Other:

5. Cable length L (mm):

6. Insulation material:

☐ Fiberglass ☐ Teflon heat shrink sleeve ☐ Other:

7. Insulation method:

☐ To the measuring element

☐ Over the measuring element

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

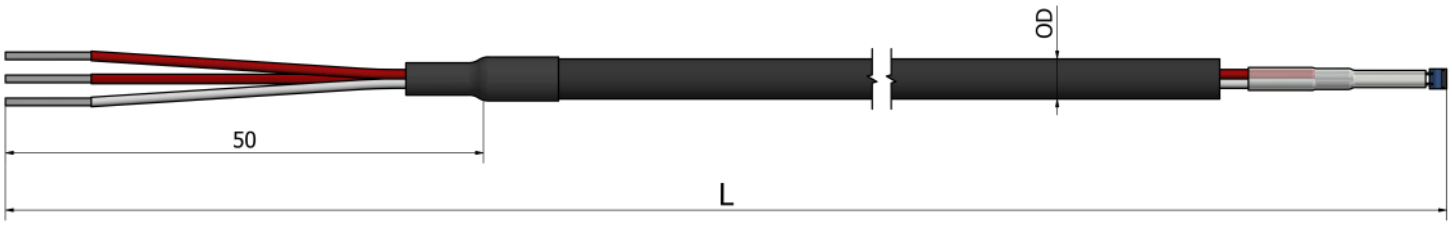
Note:

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.

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

-30°C / +105°C
Short term +135°C



Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*

☐ 2 ☐ 3 ☐ 4

4. Wire and cable size:

☐ 7 x 0,2 (0,22 mm²) OD ≈ Ø4,2mm

☐ Other:

5. Cable length L (mm):

6. Insulation material:

☐ Fiberglass ☐ Polyolefin heat shrink sleeve ☐ Other:

7. Insulation method:

☐ To the measuring element

☐ Over the measuring element

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

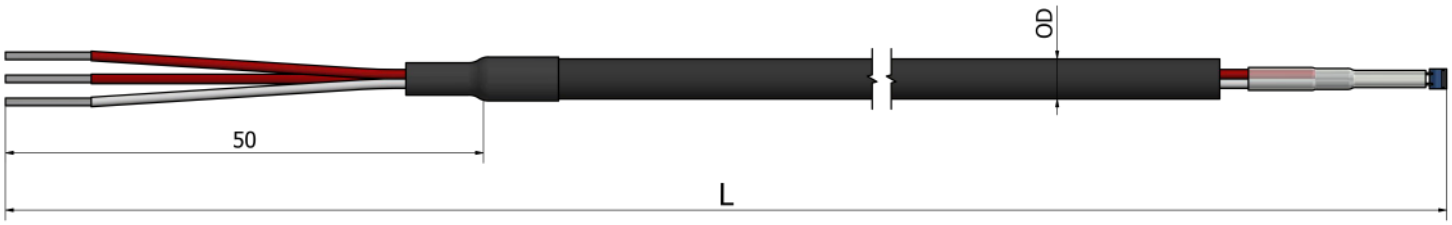
Note:

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.

PC35 – Wired RTDs
PVC (pvc/pvc)

-30°C / +105°C
Short term +135°C



Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*

☐ 2 ☐ 3 ☐ 4

4. Wire and cable size:

☐ 7 x 0,2 (0,22 mm²)
OD ≈ Ø3,4mm

☐ 21 x 0,2 (0,60 mm²)
OD ≈ Ø4,9mm

☐ Other:

5. Cable length L (mm):

6. Insulation material:

☐ Fiberglass ☐ Polyolefin heat shrink sleeve ☐ Other:

7. Insulation method:

☐ To the measuring element

☐ Over the measuring element

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

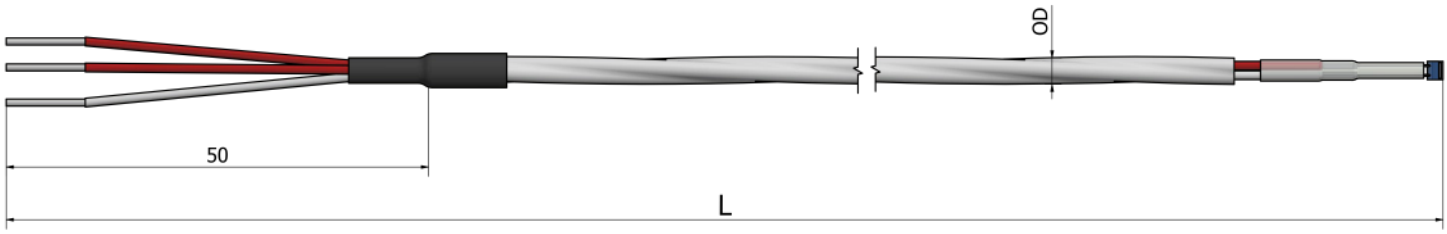
Note:

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.

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

-190°C / +260°C
Short term +280°C



Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*

☐ 2 ☐ 3 ☐ 4

4. Wire and cable size:

☐ 7 x 0,2 (0,22 mm²)
OD ≈ Ø3,4mm

☐ 7 x 0,1 (0,05 mm²)
OD ≈ Ø2,6mm

☐ Other:

5. Cable length L (mm):

6. Insulation material:

☐ Fiberglass ☐ Teflon heat shrink sleeve ☐ Other:

7. Insulation method:

☐ To the measuring element

☐ Over the measuring element

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

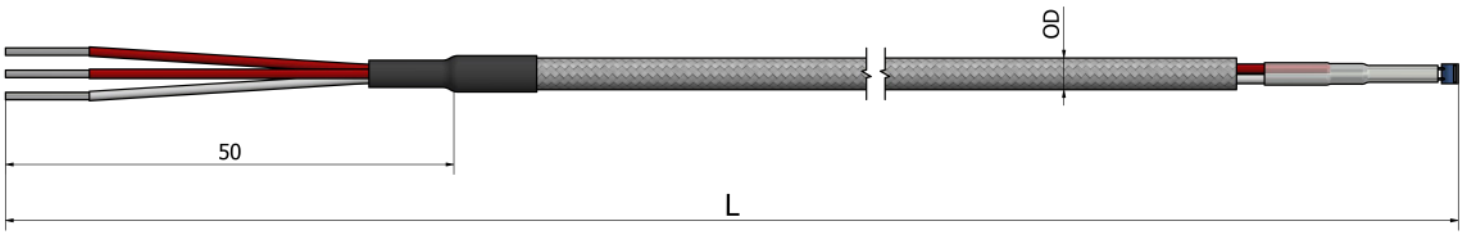
Note:

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.

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

-60°C / +400°C
Short term +600°C



Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*

☐ 2 ☐ 3 ☐ 4

4. Wire and cable size:

☐ 7 x 0,2 (0,22 mm²) OD ≈ Ø3,0mm

☐ Other:

5. Cable length L (mm):

6. Insulation material:

☐ Fiberglass ☐ Other:

7. Insulation method:

☐ To the measuring element

☐ Over the measuring element

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

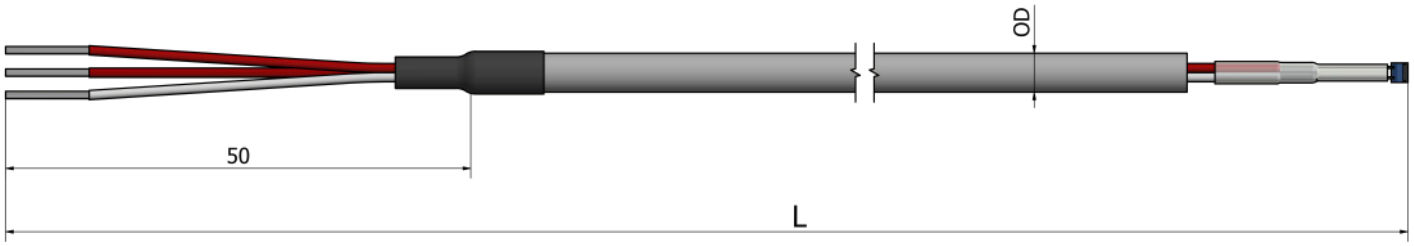
Note:

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.

PC60 – Wired RTDs
Silicone (silicone/silicone)

-60°C / +180°C
Short term +230°C



Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*

☐ 2 ☐ 3 ☐ 4

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 shrink sleeve ☐ Other:

7. Insulation method:

☐ To the measuring element

☐ Over the measuring element

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

EuroSensors

RTDs with protection tube

Contents

EuroSensors

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.

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

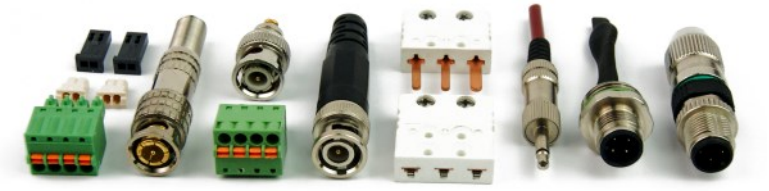
First of all, "Pt" is the chemical symbol for platinum because platinum is the basic material for making the measuring element. The naming conventions of P100, PT500, and PT1000 sensors are closely tied to the nominal resistance values they exhibit at 0°C. P100 sensor has a nominal resistance of 100 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.

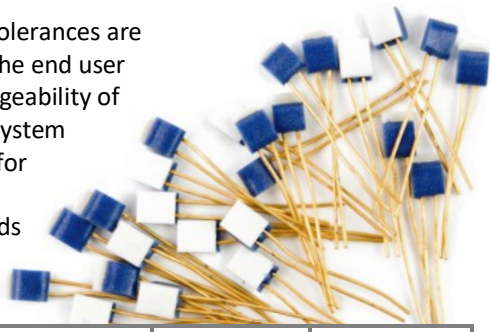
RTD connectors

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

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.

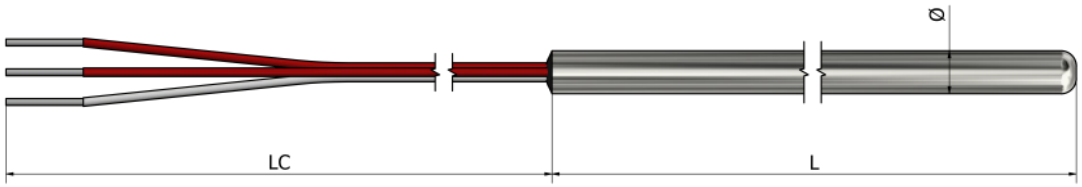


IEC Standard	DIN4370	Temperature Range ºC	Tolerance Ω at 0ºC	Tolerance ºC
W0.03	1/10 DIN	-100 to 350	100±0.012 Ω	±0.03 °C
/	1/5 DIN	-100 to 350	100±0.024 Ω	±0.06 °C
W0.1	1/3 DIN	-100 to 350	100±0.04 Ω	±0.10 °C
W0.15	Class A	-100 to 450	100±0.06 Ω	±0.15 °C
W0.3	Class B	-196 to 660	100±0.12 Ω	±0.30 °C

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

PT00 – RTDs with protection tube
Free leads



Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

5. Tube dimensions (mm): *(material **Stainless steel 316L**)*

L _____ Ø _____

6. Free leads length LC (mm):

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

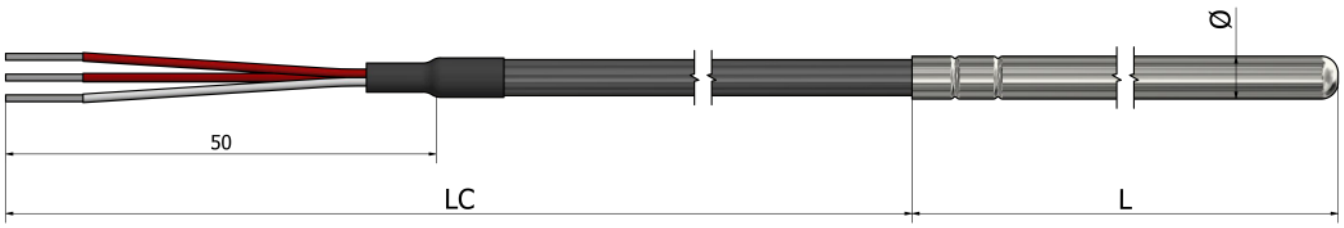
Quantity:

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.

PT10 – RTDs with protection tube
Standard tube



Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

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) ☐ Teflon (260°C)
☐ Fiberglass (400°C) ☐ Other:

7. Cable length LC (mm):

8. Crimp protection:
☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

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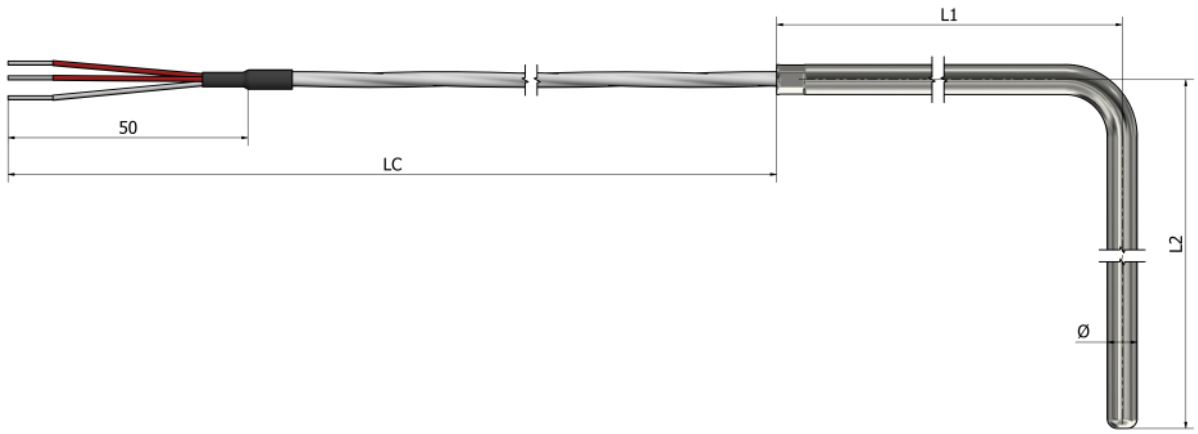
PT12 – RTDs with protection tube
Standard tube (90° bend)



Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

5. Tube dimensions (mm): *(material **Stainless steel 316L**)*

L1 _____ L2 _____ Ø _____

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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

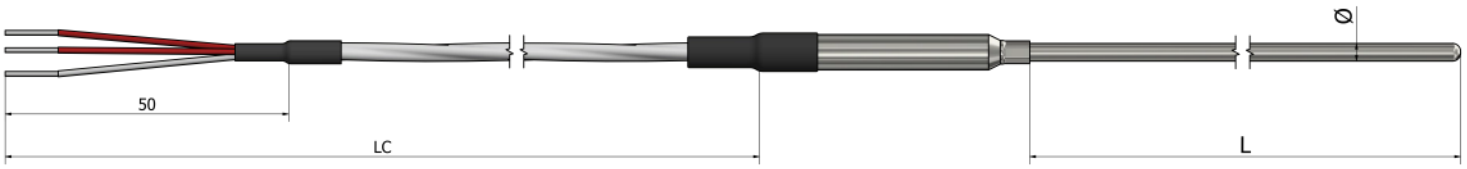
Quantity:

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.

PT20 – RTDs with protection tube
Pot seal



Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

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. Crimp protection:

☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

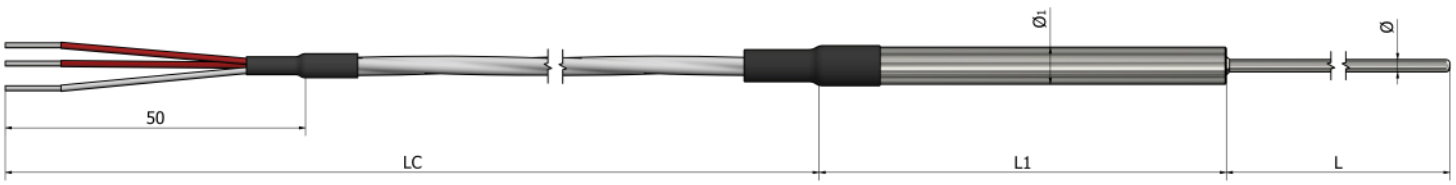
Quantity:

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.

PT21 – RTDs with protection tube
Pot seal with reduced tip



Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

5. Tube dimensions L and Ø (mm): *(material **Stainless steel 316L**)*

L _____ Ø _____

6. Tube dimensions L1 and Ø1 (mm): *(material **Stainless steel 316L**)*

L1 _____ Ø1 _____

7. Cable prolongation:

☐ PVC (105°C) ☐ Silicone (180°C) ☐ Teflon (260°C)

☐ Fiberglass (400°C) ☐ Other:

8. Cable length LC (mm):

9. Crimp protection:

☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

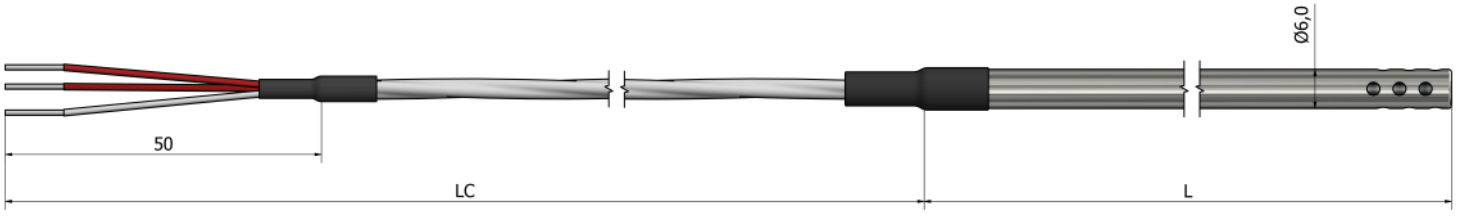
Quantity:

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.

PT25 – RTDs with protection tube
Open air



*Tube material **Stainless steel 316L***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

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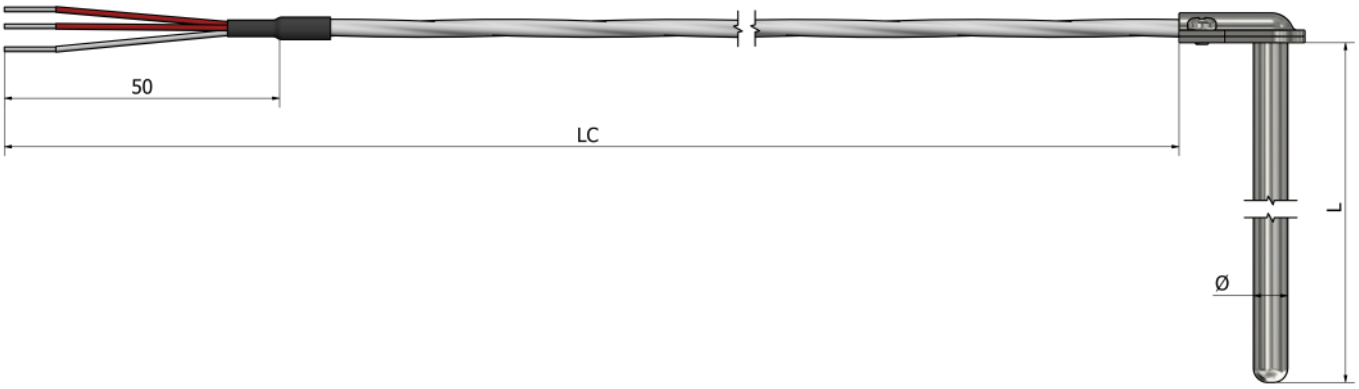
PT30 – RTDs with protection tube
Plug-in (clamp)



Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

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. Crimp protection:

☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

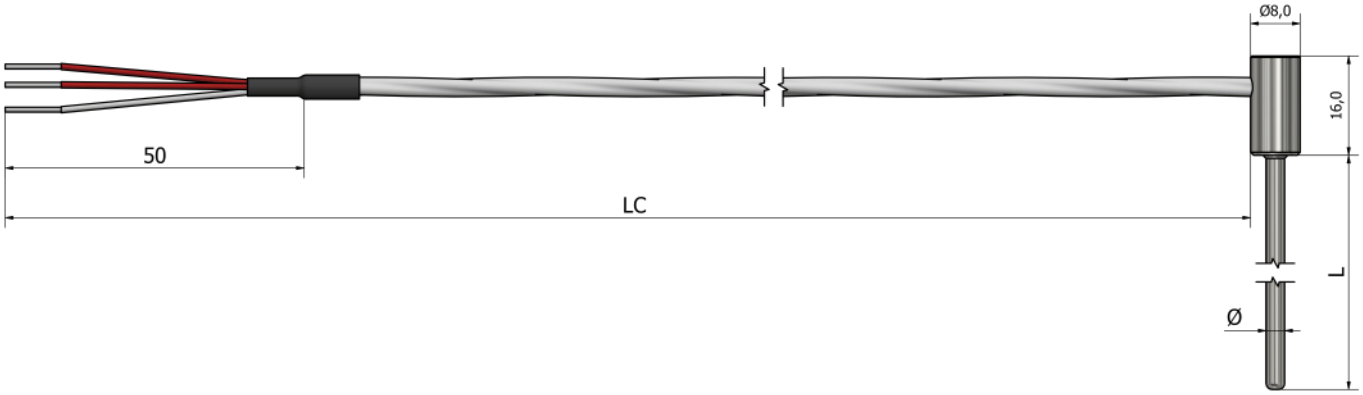
Quantity:

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.

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



Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

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. Crimp protection:

☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

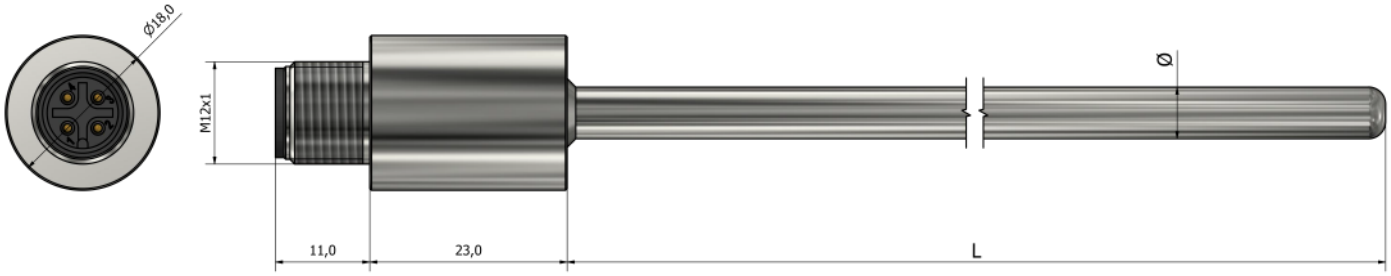
Quantity:

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.

PT40 – RTDs with protection tube
Integrated M12 connector



Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

5. Tube dimensions (mm): *(material **Stainless steel 316L**)*

L _____ Ø _____

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

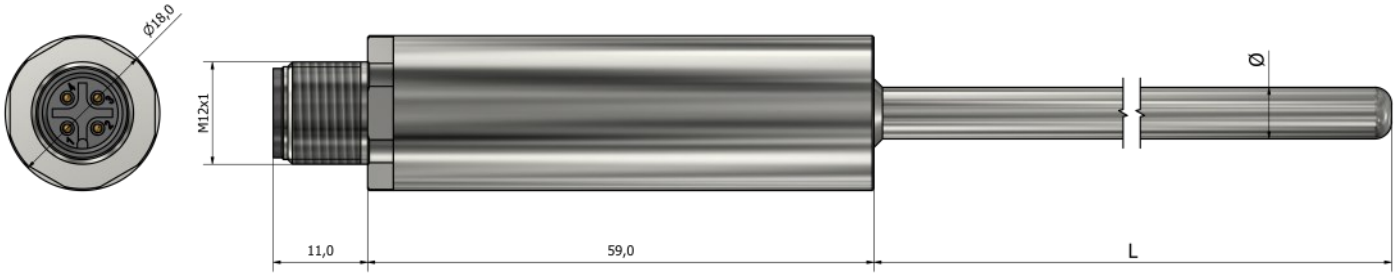
Quantity:

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.

PT41 – RTDs with protection tube
Integrated M12 connector with transmitter



Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

5. Tube dimensions (mm): *(material **Stainless steel 316L**)*

L _____ Ø _____

6. Transmitter (°C):
Specify temperature range

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

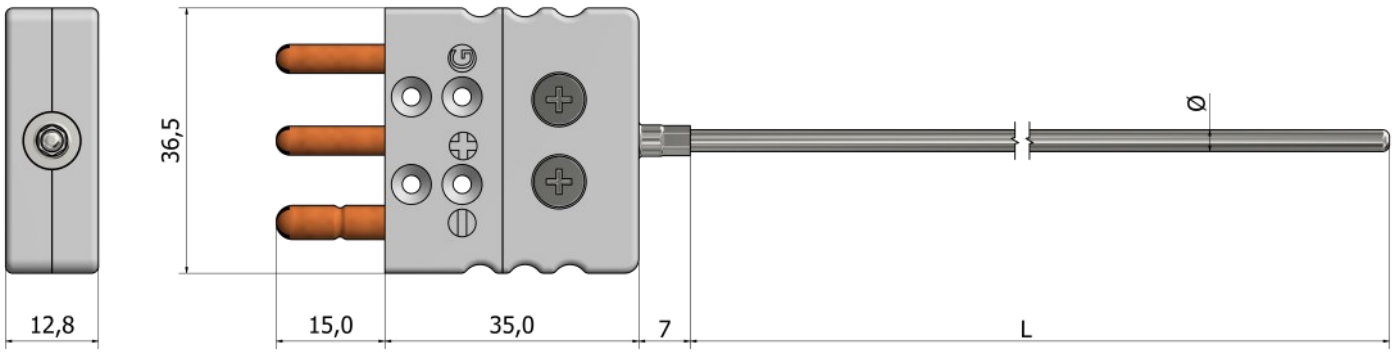
Quantity:

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.

PT45 – RTDs with protection tube
RTD connector



Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*

☐ 2 ☐ 3

4. Tube dimensions (mm): *(material **Stainless steel 316L**)*

L _____ Ø _____

5. Connector:

☐ Miniature Plug ☐ Miniature Socket ☐ Standard Plug ☐ Standard Socket

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

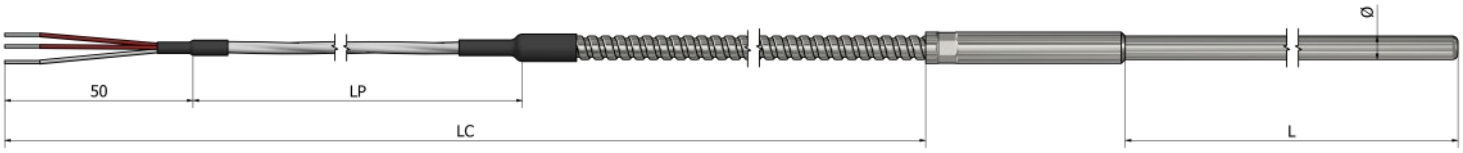
Quantity:

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.

PT50 – RTDs with protection tube
Armored cable prolongation



Armored cable material* ***Stainless steel 304*

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

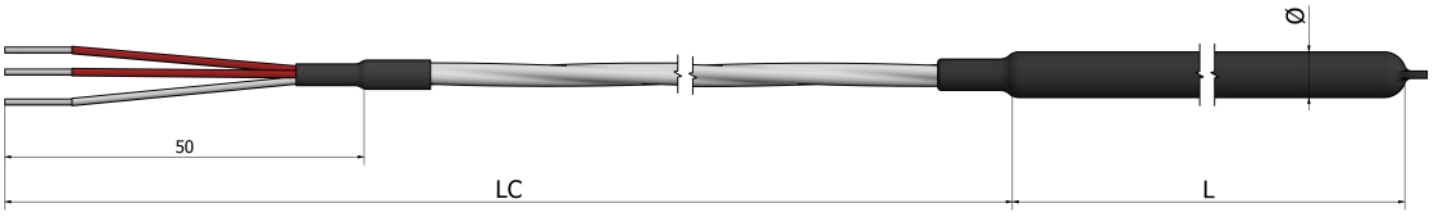
Quantity:

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.

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



Protection material **PTFE*

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

5. Tube dimensions (mm): *(material **SS 316L** with **PTFE** protection)*

L _____ Ø _____

6. Cable prolongation:

☐ PVC (105°C) ☐ Silicone (180°C) ☐ Teflon (260°C)

☐ Fiberglass (400°C) ☐ Other:

7. Cable length LC (mm):

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

EuroSensors

Penetration RTDs

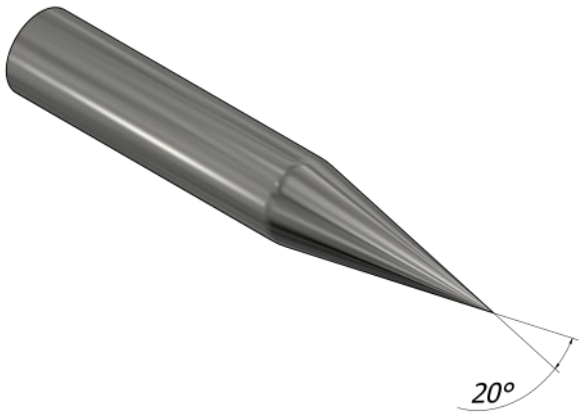
Contents

EuroSensors

Penetration RTDs - Technical information

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.

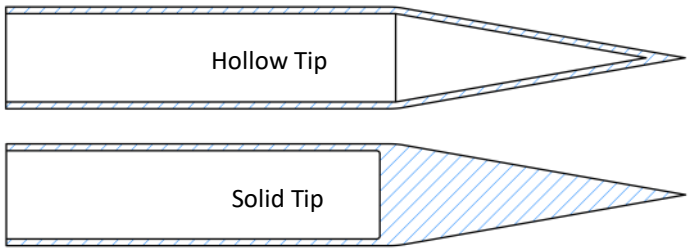
Environmental research: Environmental scientists utilize penetration probes to measure soil temperature accurately, helping them understand the impact of temperature variations on ecosystems.

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.

Penetration RTDs - 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

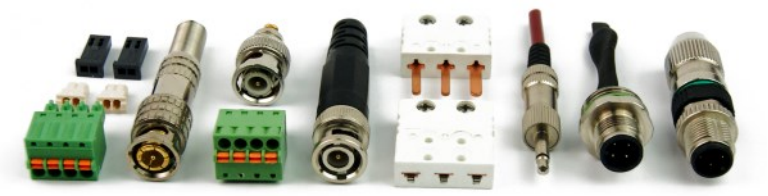
First of all, "Pt" is the chemical symbol for platinum because platinum is the basic material for making the measuring element. The naming conventions of P100, PT500, and PT1000 sensors are closely tied to the nominal resistance values they exhibit at 0°C. P100 sensor has a nominal resistance of 100 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

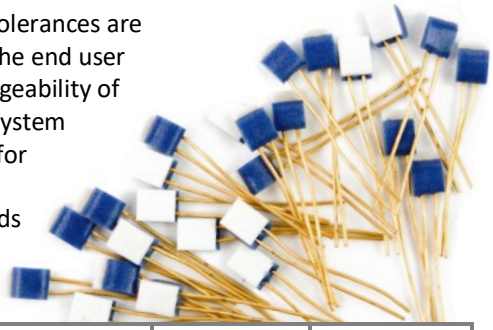
Due to the lack of standardization in RTD connectors, our company takes pride in its ability to produce a wide range of RTD connectors. We understand that different industries and applications have unique requirements when it comes to temperature measurement, and that includes the connectors used. With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



Pt-s classes

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.

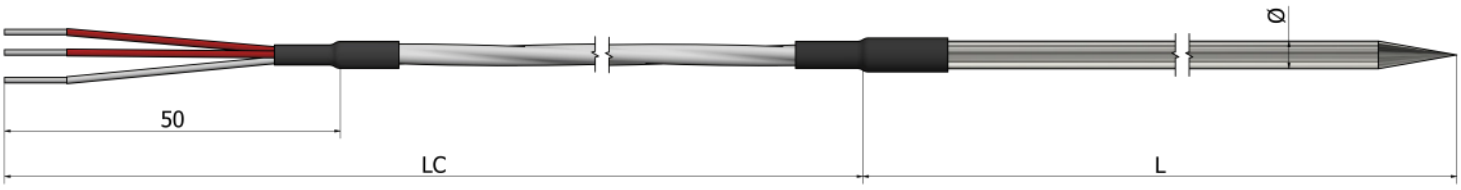


IEC Standard	DIN4370	Temperature Range ºC	Tolerance Ω at 0ºC	Tolerance ºC
W0.03	1/10 DIN	-100 to 350	100±0.012 Ω	±0.03 °C
/	1/5 DIN	-100 to 350	100±0.024 Ω	±0.06 °C
W0.1	1/3 DIN	-100 to 350	100±0.04 Ω	±0.10 °C
W0.15	Class A	-100 to 450	100±0.06 Ω	±0.15 °C
W0.3	Class B	-196 to 660	100±0.12 Ω	±0.30 °C

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



Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

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 length LC (mm):

9. Crimp protection:
☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

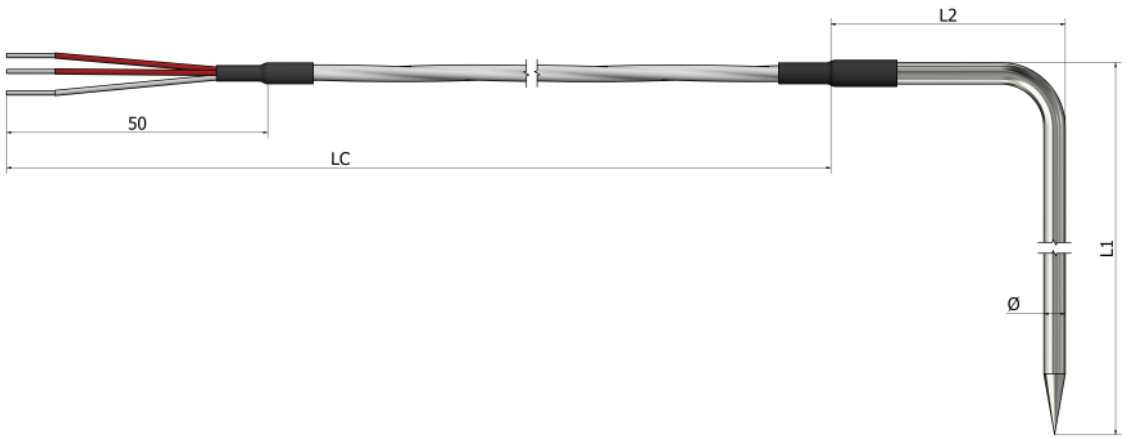
Quantity:

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.

PP02 – Penetration RTDs
Standard (90° bend)



Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

5. Needle diameter Ø: *(material **Stainless steel 316L**)*

☐ Ø3 mm ☐ Ø4 mm ☐ Ø5 mm

☐ Ø6 mm ☐ Other:

6. Needle lengths L (mm):

L1 _____ L2 _____

7. Cable prolongation:

☐ PVC (105°C) ☐ Silicone (180°C) ☐ Teflon (260°C)

☐ Fiberglass (400°C) ☐ Other:

8. Cable length LC (mm):

9. Crimp protection:

☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

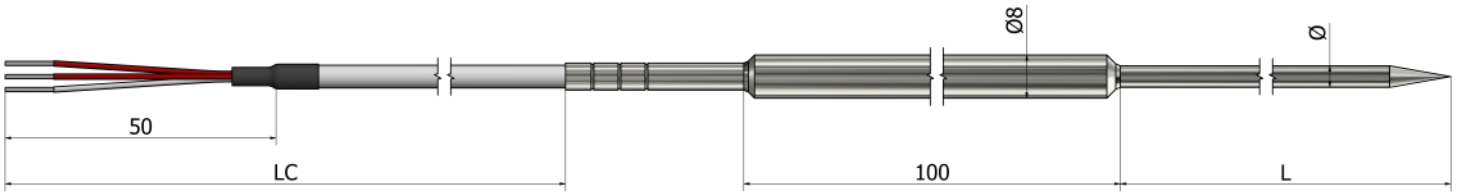
Quantity:

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.

PP11 – Penetration RTDs
Metal handle



*Handle material ***Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

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 length LC (mm):

9. Crimp protection:

☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

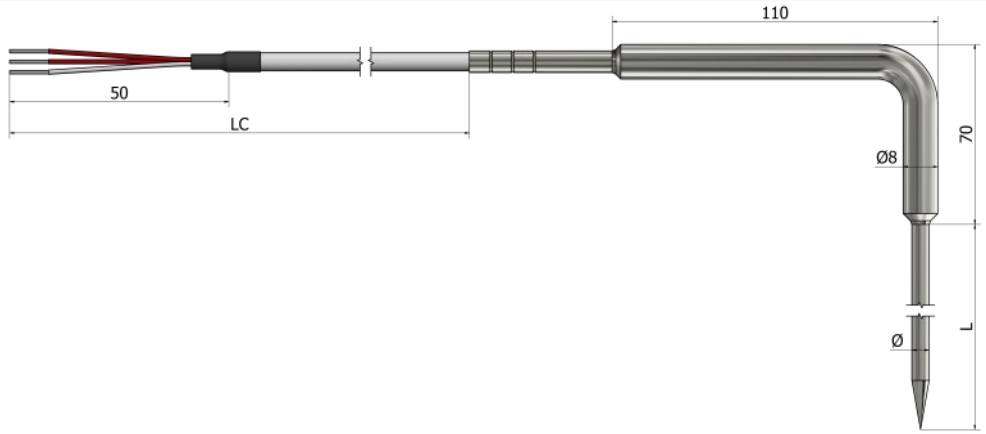
Quantity:

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.

PP12 – Penetration RTDs
Metal handle (90° bend)



*Handle material ***Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

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 length LC (mm):

9. Crimp protection:

☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

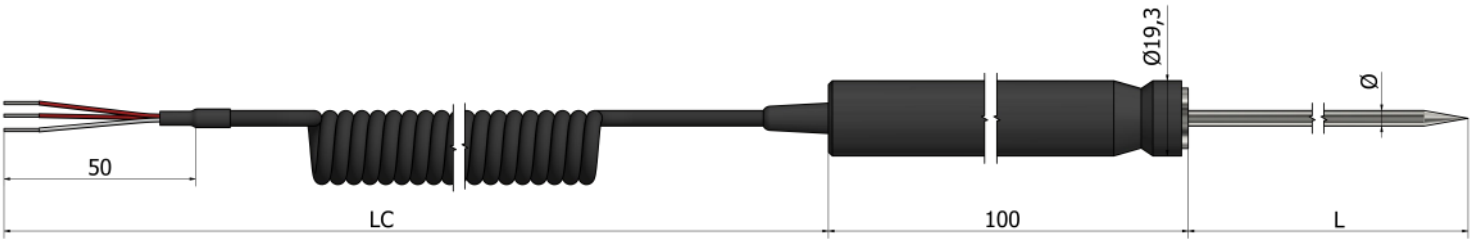
Quantity:

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.

PP13 – Penetration RTDs
Plastic handle



*Handle material **Plastic***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

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) ☐ Curly polyurethane (105°C)

☐ Other:

8. Cable length LC (mm):

9. Crimp protection:

☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

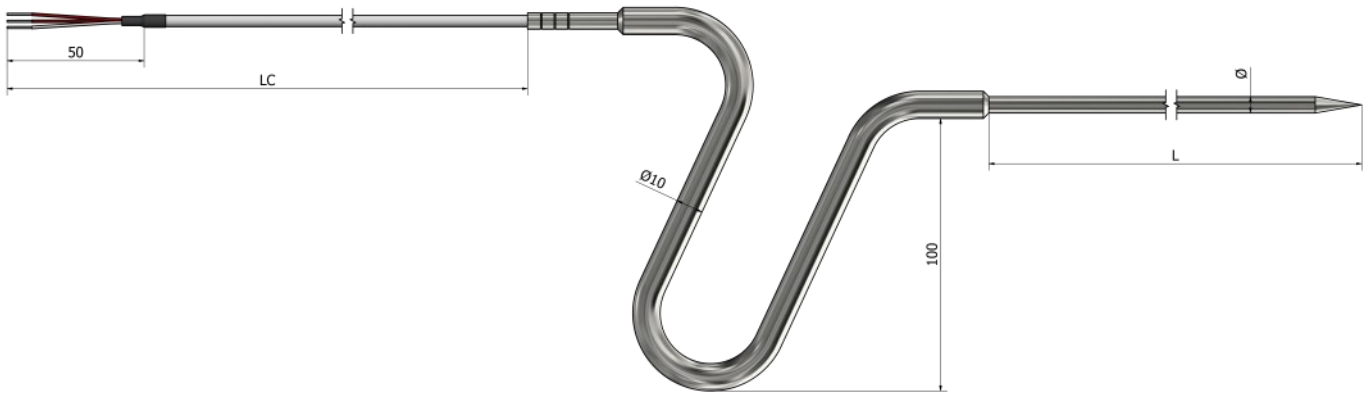
Quantity:

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.

PP20 – Penetration RTDs
Ergonomic handle



*Handle material ***Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

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 length LC (mm):

9. Crimp protection:

☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

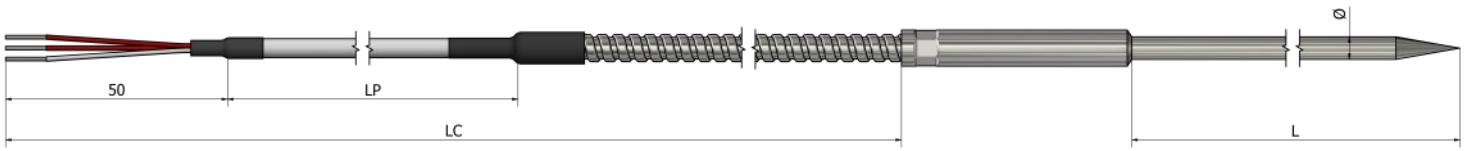
Quantity:

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.

PP31 – Penetration RTDs
Armored cable prolongation



*Handle material ***Stainless steel 316L***
*Armored cable material ***Stainless steel 304***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

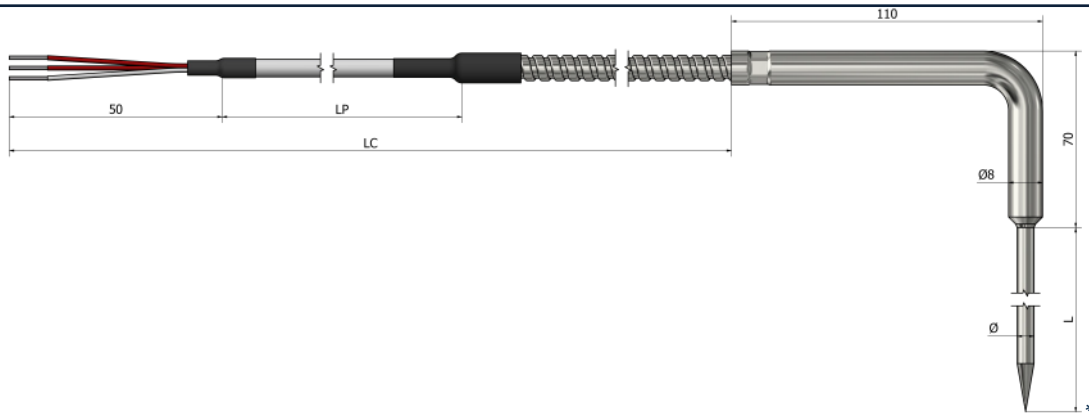
Quantity:

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.

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



*Handle material **Stainless steel 316L***
*Armored cable material **Stainless steel 304***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

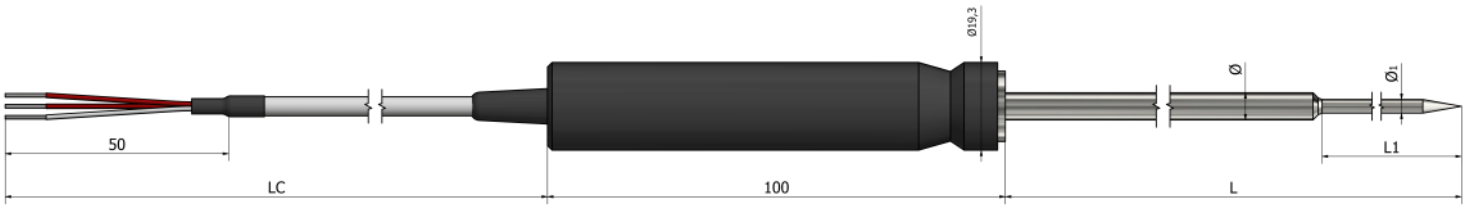
Quantity:

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.

PP40 – Penetration RTDs
Reduced tip



*Handle material ***Plastic***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

5. Needle tip diameter Ø1: *(material **Stainless steel 316L**)*
☐ Ø3 mm ☐ Ø4 mm ☐ Ø5 mm
☐ Ø6 mm ☐ Other:

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):

10. Crimp protection:
☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

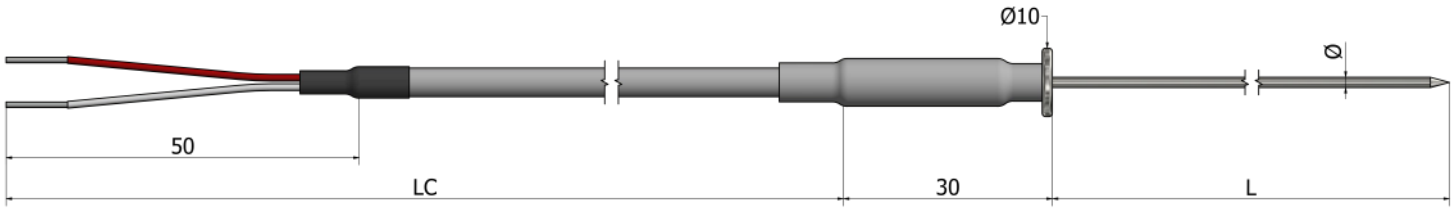
Quantity:

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.

PP41 – Penetration RTDs
Miniature



*Handle material ***Stainless steel 316L with rubber cover***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

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) ☐ Teflon (260°C)

☐ Fiberglass (400°C) ☐ Other:

8. Cable length LC (mm):

9. Crimp protection:

☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

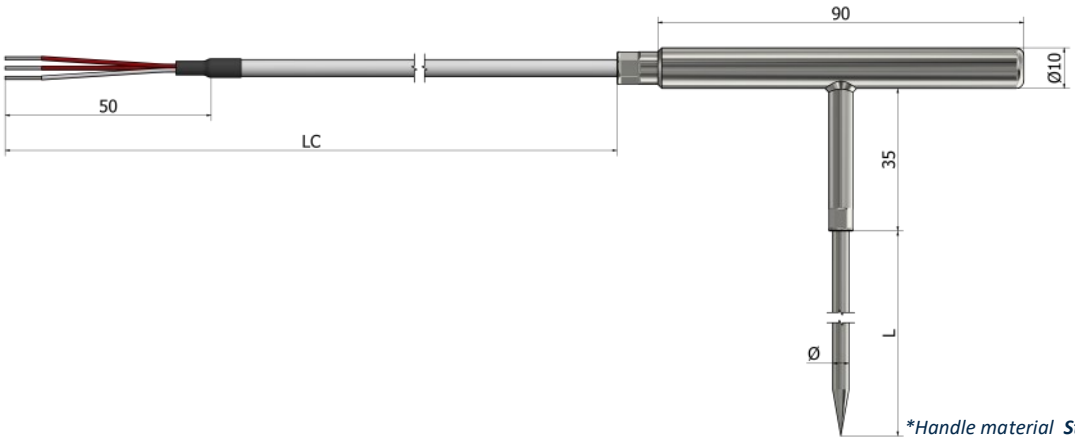
Quantity:

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.

PP50 – Penetration RTDs
T shape



*Handle material ***Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

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 length LC (mm):

9. Crimp protection:

☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

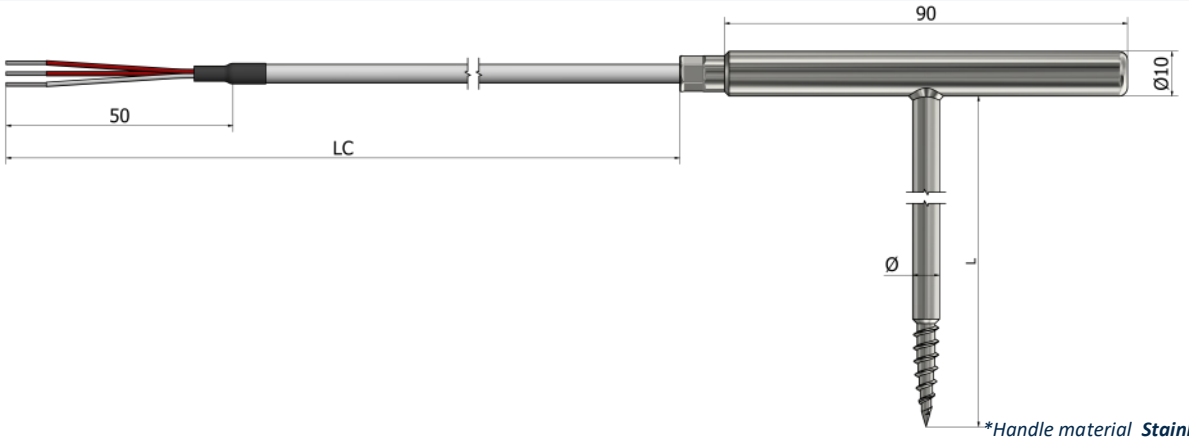
Quantity:

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.

PP51 – Penetration RTDs
T shape with thread



*Handle material ***Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

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 length LC (mm):

9. Crimp protection:

☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

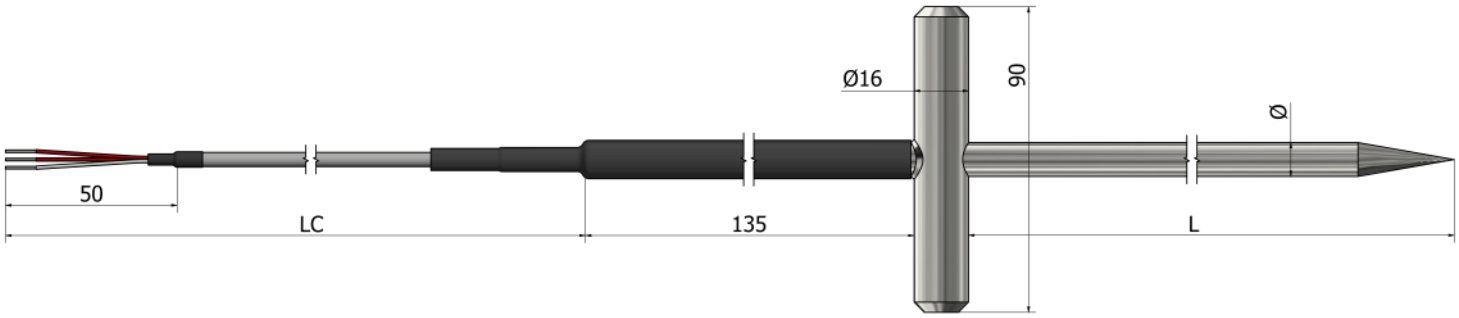
Quantity:

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.

PP60 – Penetration RTDs
T shape for compost



*Handle material ***Stainless steel 316L with rubber***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

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 length LC (mm):

9. Crimp protection:

☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

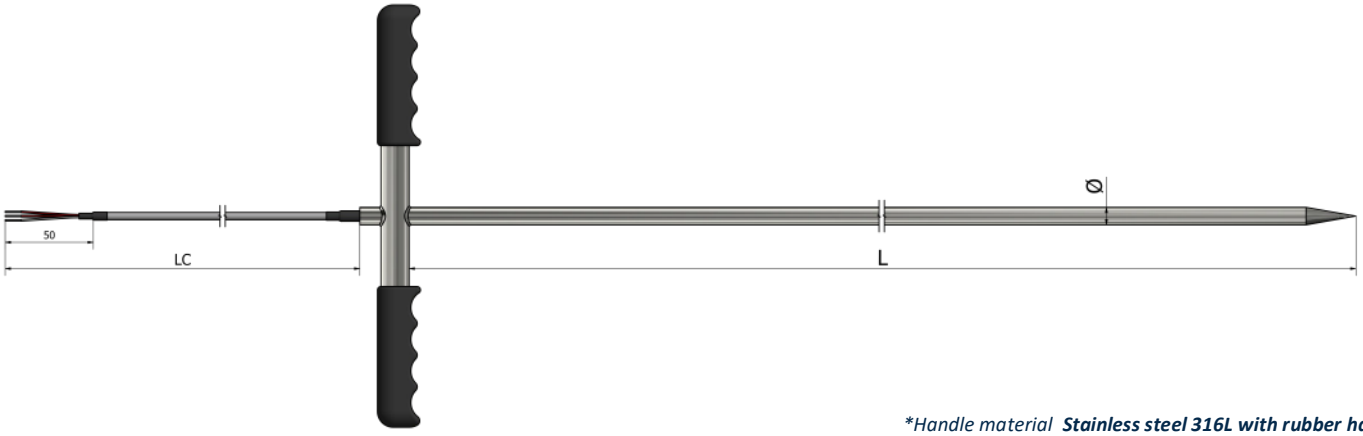
Quantity:

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.

PP61 – Penetration RTDs
Robust T shape for compost



*Handle material ***Stainless steel 316L with rubber hand***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

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 length LC (mm):

9. Crimp protection:

☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

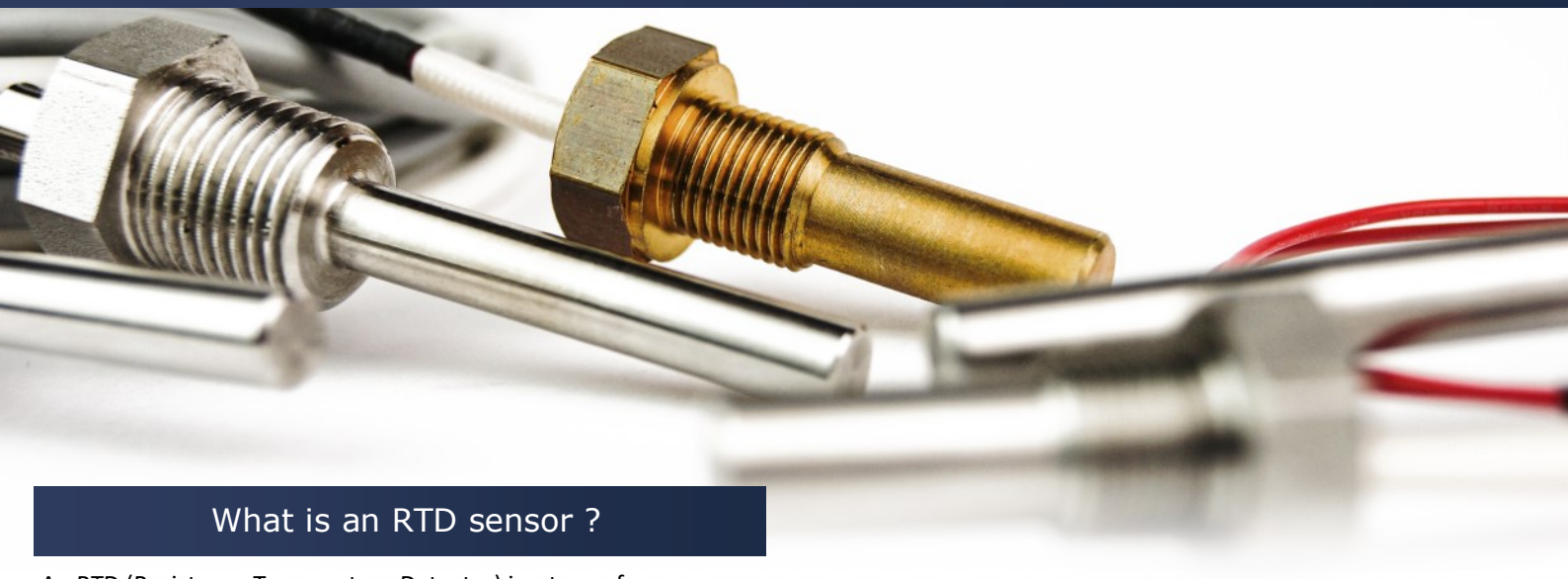
EuroSensors

RTDs with thread connection

Contents

EuroSensors

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

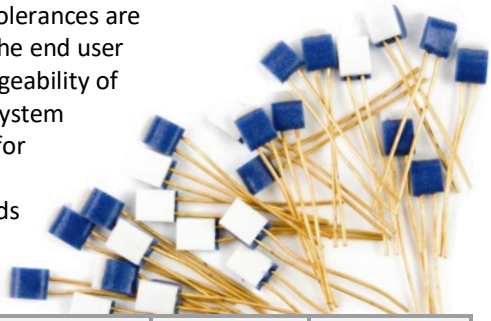
The cable has certain resistance which adds to the RTD resistance. Thus, the total resistance is the sum of the RTD resistance and the lead wire resistance. This causes more voltage drop across the RTD measurement system and as a result causes inaccuracy in measurement. This is the reason why we use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

RTDs with thread connection - Technical information

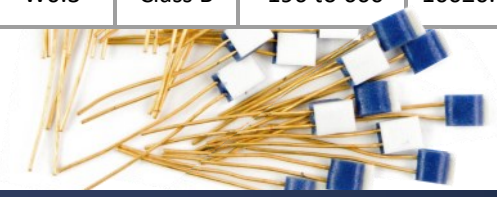
Pt-s classes

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 ºC	Tolerance Ω at 0ºC	Tolerance ºC
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.

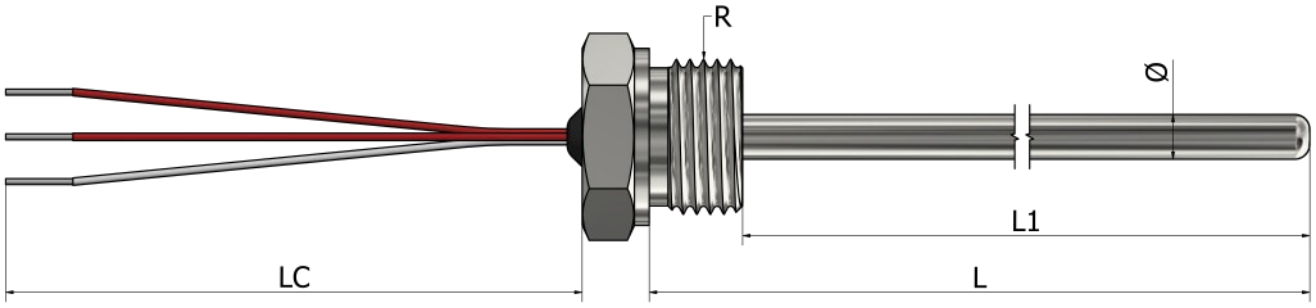
RTDs accessories

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)



*Tube material **Stainless steel 316L***
*Thread material **Stainless steel (304 / 304L / 316 / 316L)***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

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:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

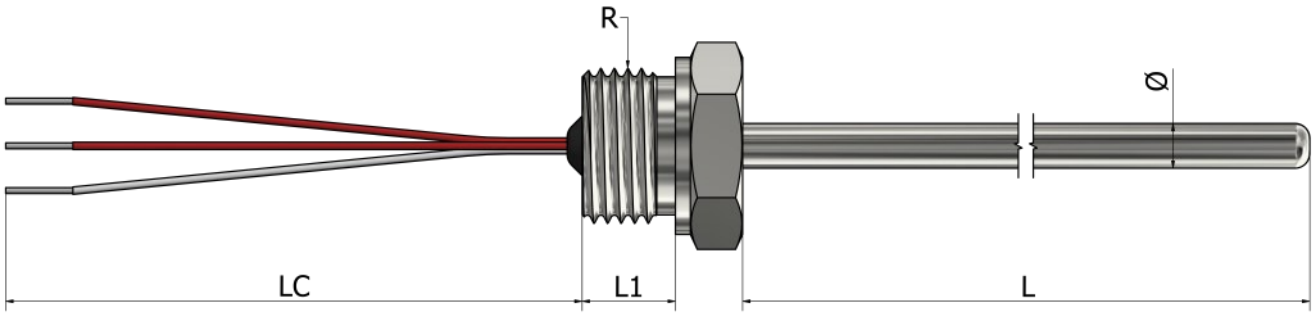
Quantity:

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.

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



*Tube material **Stainless steel 316L***
*Thread material **Stainless steel (304 / 304L / 316 / 316L)***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

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:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

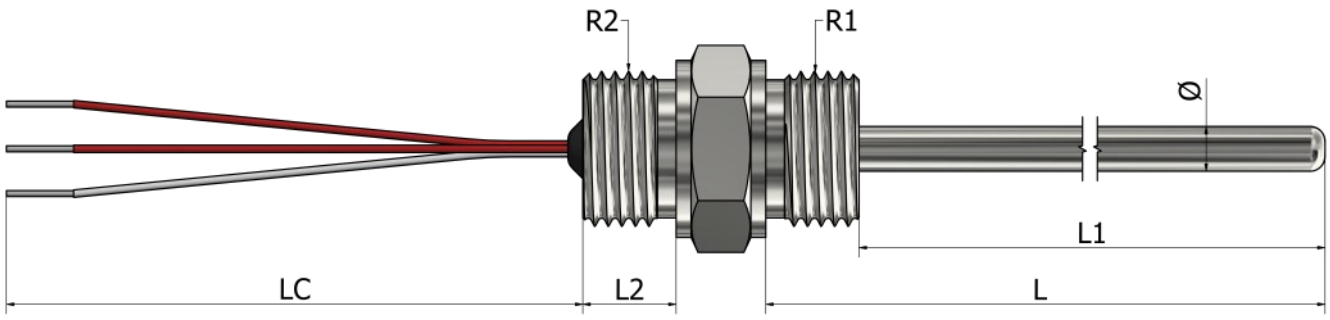
Quantity:

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.

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



*Tube material **Stainless steel 316L***
*Thread material **Stainless steel (304 / 304L / 316 / 316L)***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

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 ☐ 1/4'' BSPT ☐ M10
☐ 1/2'' NPT ☐ Other:

9. Thread length L2 (mm):

10. Thread R2:
☐ 1/2'' BSPP ☐ 1/4'' BSPP ☐ 1/4'' BSPT ☐ M10
☐ 1/2'' NPT ☐ Other:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

PR10 – RTDs with thread connection
Fixed thread with cable prolongation

*Tube material **Stainless steel 316L***
*Thread material **Stainless steel (304 / 304L / 316 / 316L)***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

5. Length L or L1 (mm):

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:
☐ Spring ☐ Heat shrink sleeve ☐ Without

10. Thread:
☐ 1/2'' BSPP ☐ 1/4'' BSPP ☐ 1/4'' BSPT ☐ M10
☐ 1/2'' NPT ☐ Other:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

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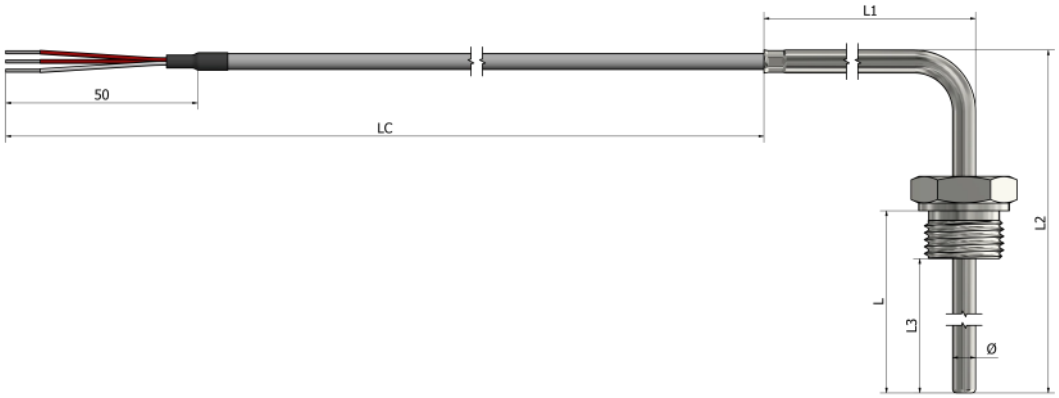
PR13 – RTDs with thread connection
Fixed thread (90° bend) (type 1)



*Tube material **Stainless steel 316L*** *Thread material **Stainless steel (304 / 304L / 316 / 316L)***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

5. Lengths (mm):
L1 _____ L2 _____

6. Length L or L3 (mm):

7. Diameter Ø (mm):

8. Cable prolongation:
☐ PVC (105°C) ☐ Silicone (180°C) ☐ Teflon (260°C)
☐ Fiberglass (400°C) ☐ Other:

9. Cable length LC (mm):

10. Crimp protection:
☐ Spring ☐ Heat shrink sleeve ☐ Without

11. Thread:
☐ 1/2'' BSPP ☐ 1/4'' BSPP ☐ 1/4'' BSPT ☐ M10
☐ 1/2'' NPT ☐ Other:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

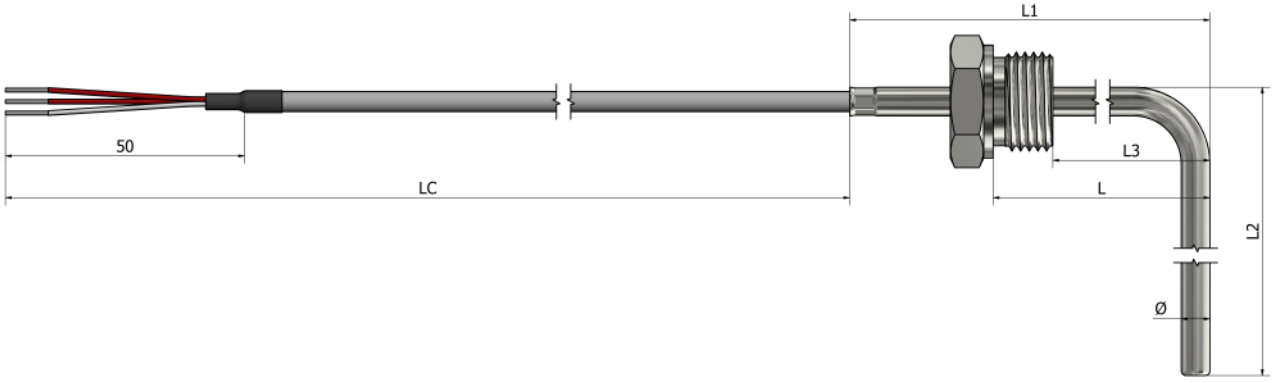
Note:

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.

EuroSensors

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



*Tube material **Stainless steel 316L*** *Thread material **Stainless steel (304 / 304L / 316 / 316L)***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

5. Lengths (mm):
L1 _____ L2 _____

6. Length L or L3 (mm):

7. Diameter Ø (mm):

8. Cable prolongation:
☐ PVC (105°C) ☐ Silicone (180°C) ☐ Teflon (260°C)
☐ Fiberglass (400°C) ☐ Other:

9. Cable length LC (mm):

10. Crimp protection:
☐ Spring ☐ Heat shrink sleeve ☐ Without

11. Thread:
☐ 1/2'' BSPP ☐ 1/4'' BSPP ☐ 1/4'' BSPT ☐ M10
☐ 1/2'' NPT ☐ Other:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

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

*Tube material **Stainless steel 316L*** *Thread material **Stainless steel (304 / 304L / 316 / 316L)***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

5. Length L or L1 (mm):

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:
☐ Spring ☐ Heat shrink sleeve ☐ Without

10. Thread:
☐ 1/2'' BSPP ☐ 1/4'' BSPP ☐ 1/4'' BSPT ☐ M10
☐ 1/2'' NPT ☐ Other:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

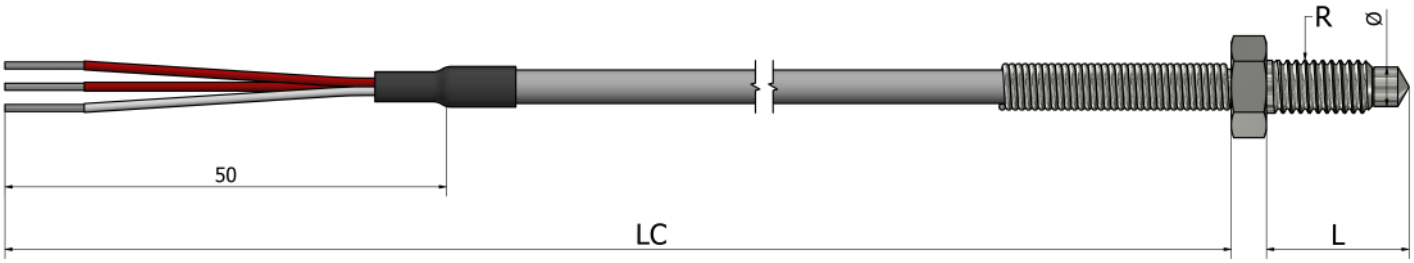
Quantity:

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.

PR20 – RTDs with thread connection
Nozzle



*Nozzle and thread material **Stainless steel (304 / 304L / 316 / 316L)***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

5. Length L (mm):

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:
☐ Spring ☐ Heat shrink sleeve ☐ Without

10. Thread:
☐ 1/2'' BSPP ☐ 1/4'' BSPP ☐ 1/4'' BSPT ☐ M10
☐ 1/2'' NPT ☐ Other:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

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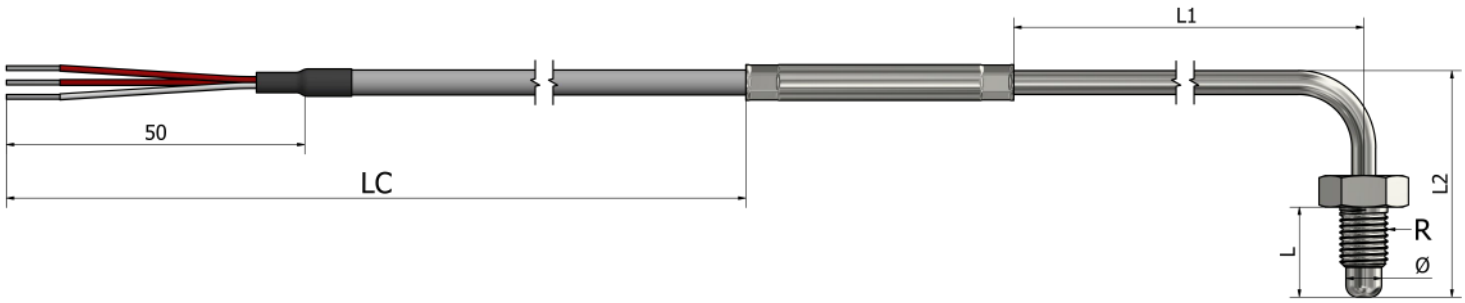
PR21 – RTDs with thread connection
Nozzle (90° bend)



*Tube material **Stainless steel 316L** *Nozzle and thread material **Stainless steel (304 / 304L / 316 / 316L)***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

5. Lengths (mm):
L1 _____ L2 _____

6. Length L (mm):

7. Diameter Ø (mm):

8. Cable prolongation:
☐ PVC (105°C) ☐ Silicone (180°C) ☐ Teflon (260°C)
☐ Fiberglass (400°C) ☐ Other:

9. Cable length LC (mm):

10. Crimp protection:
☐ Spring ☐ Heat shrink sleeve ☐ Without

11. Thread:
☐ 1/2'' BSPP ☐ 1/4'' BSPP ☐ 1/4'' BSPT ☐ M10
☐ 1/2'' NPT ☐ Other:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

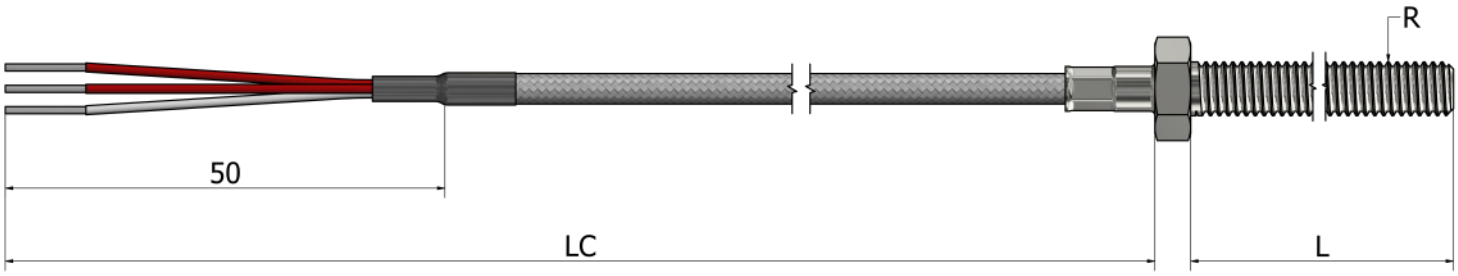
Quantity:

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.

PR22 – RTDs with thread connection
Bolt



*Bolt material **Stainless steel (304 / 304L / 316 / 316L)***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

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 ☐ 1/4'' BSPT ☐ M10
☐ 1/2'' NPT ☐ Other:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

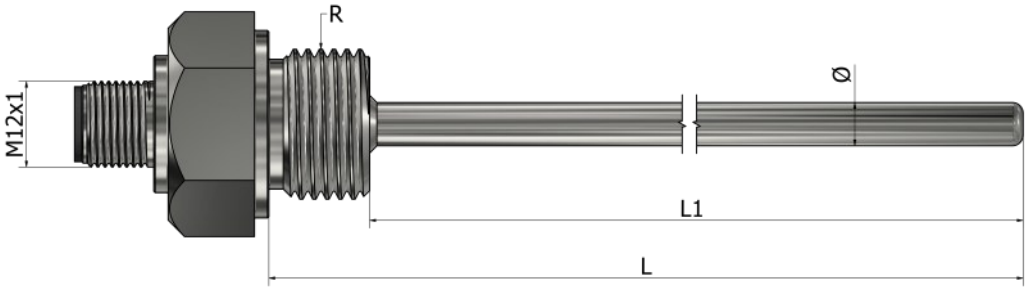
Quantity:

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.

PR30 – RTDs with thread connection
Integrated M12 connector



*Tube material **Stainless steel 316L***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

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:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

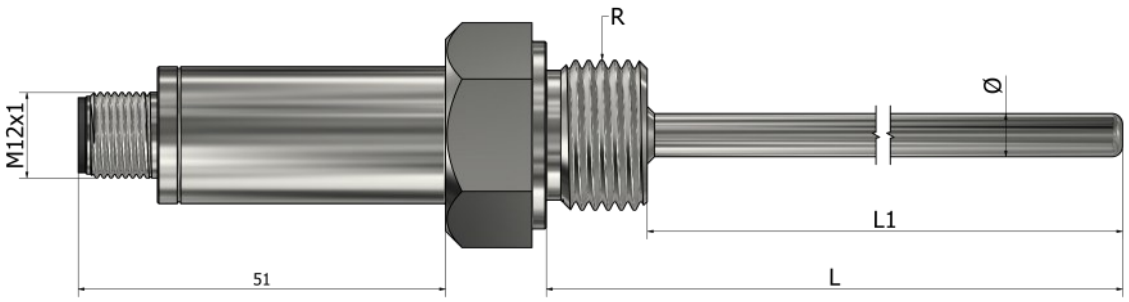
Quantity:

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.

PR31 – RTDs with thread connection
Integrated M12 connector with transmitter



*Tube material **Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

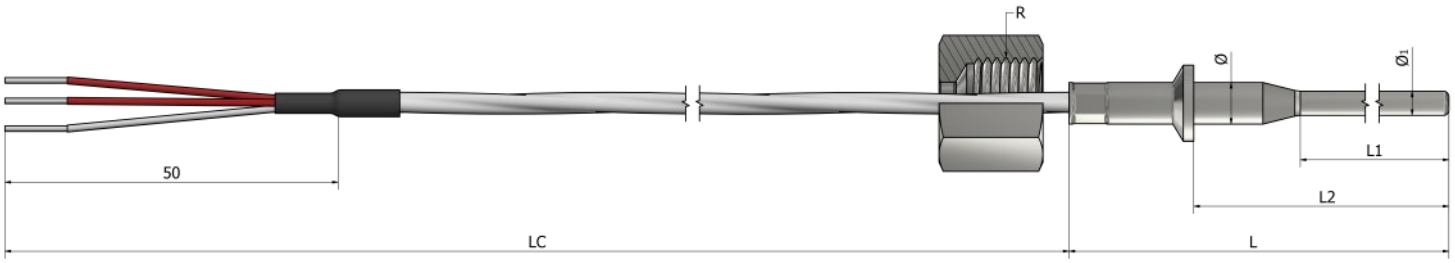
Quantity:

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.

PR40 – RTDs with thread connection
Screw-on fixed thread



*Tube material **Stainless steel 316L*** *Thread material **Stainless steel (304 / 304L / 316 / 316L)***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

5. Lengths (mm):
L _____ L1 _____ L2 _____

6. Diameters (mm):
Ø _____ Ø1 _____

7. Cable prolongation:
☐ PVC (105°C) ☐ Silicone (180°C) ☐ Teflon (260°C)
☐ Fiberglass (400°C) ☐ Other:

8. Cable length LC (mm):

9. Crimp protection:
☐ Spring ☐ Heat shrink sleeve ☐ Without

10. Thread:
☐ 1/2'' BSPP ☐ 1/4'' BSPP ☐ 1/4'' BSPT ☐ M10
☐ 1/2'' NPT ☐ Other:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

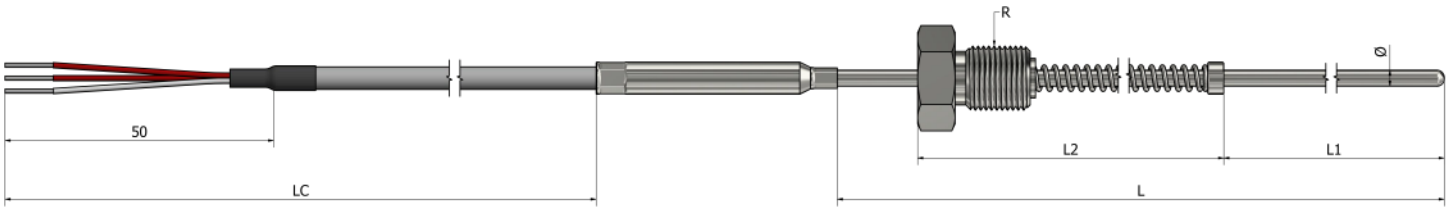
Quantity:

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.

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



*Tube material **Stainless steel 316L*** *Thread material **Stainless steel (304 / 304L / 316 / 316L)***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

5. Lengths (mm):
L _____ L1 _____ L2 _____

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:
☐ Spring ☐ Heat shrink sleeve ☐ Without

10. Thread:
☐ 1/2'' BSPP ☐ 1/4'' BSPP ☐ 1/4'' BSPT ☐ M10
☐ 1/2'' NPT ☐ Other:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

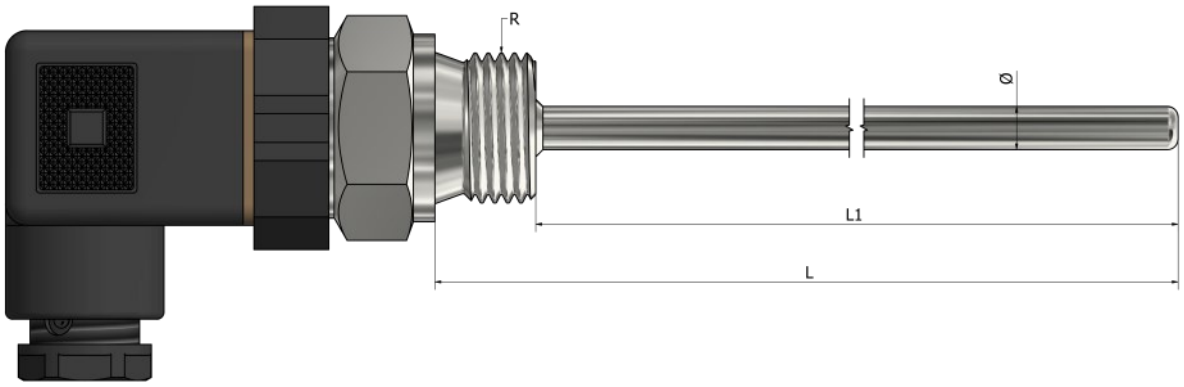
Quantity:

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.

PR60 – RTDs with thread connection
DIN43650 connector



*Tube material **Stainless steel 316L*** *Thread material **Stainless steel (304 / 304L / 316 / 316L)***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

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:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

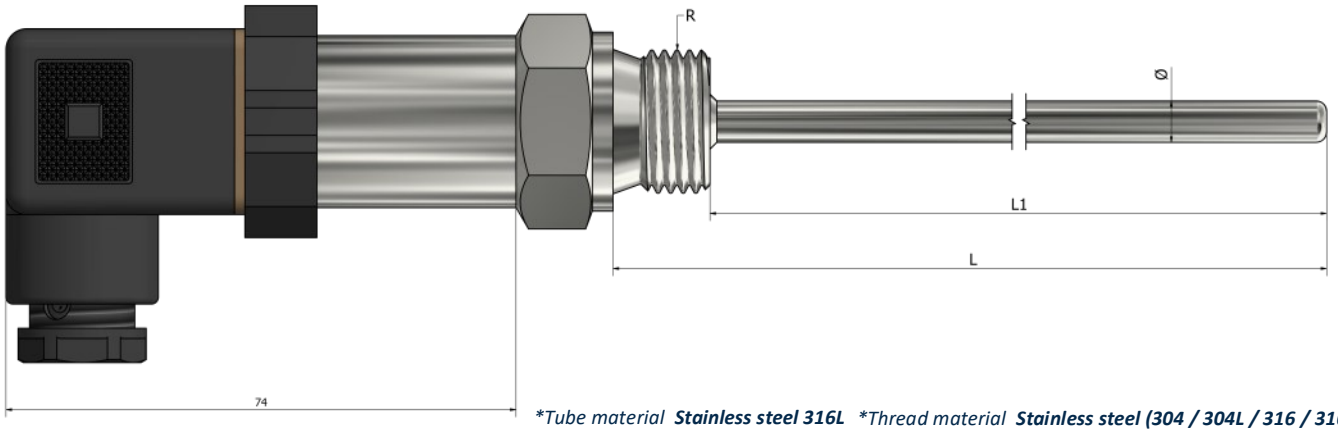
Quantity:

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.

PR61 – RTDs with thread connection
DIN43650 connector with transmitter



*Tube material **Stainless steel 316L** *Thread material **Stainless steel (304 / 304L / 316 / 316L)**

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

EuroSensors

RTDs with terminal head

Contents

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.

What are terminal heads ?

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

RTDs with terminal head - Technical information

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.

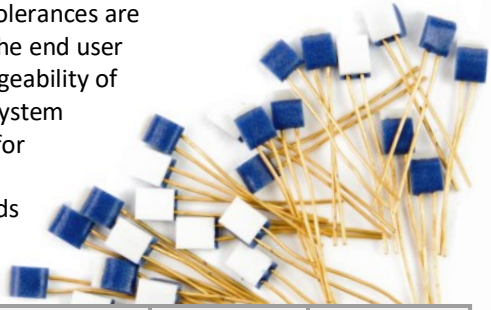
What is a PT probe ?

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 Standard	DIN4370	Temperature Range ºC	Tolerance Ω at 0ºC	Tolerance ºC
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.

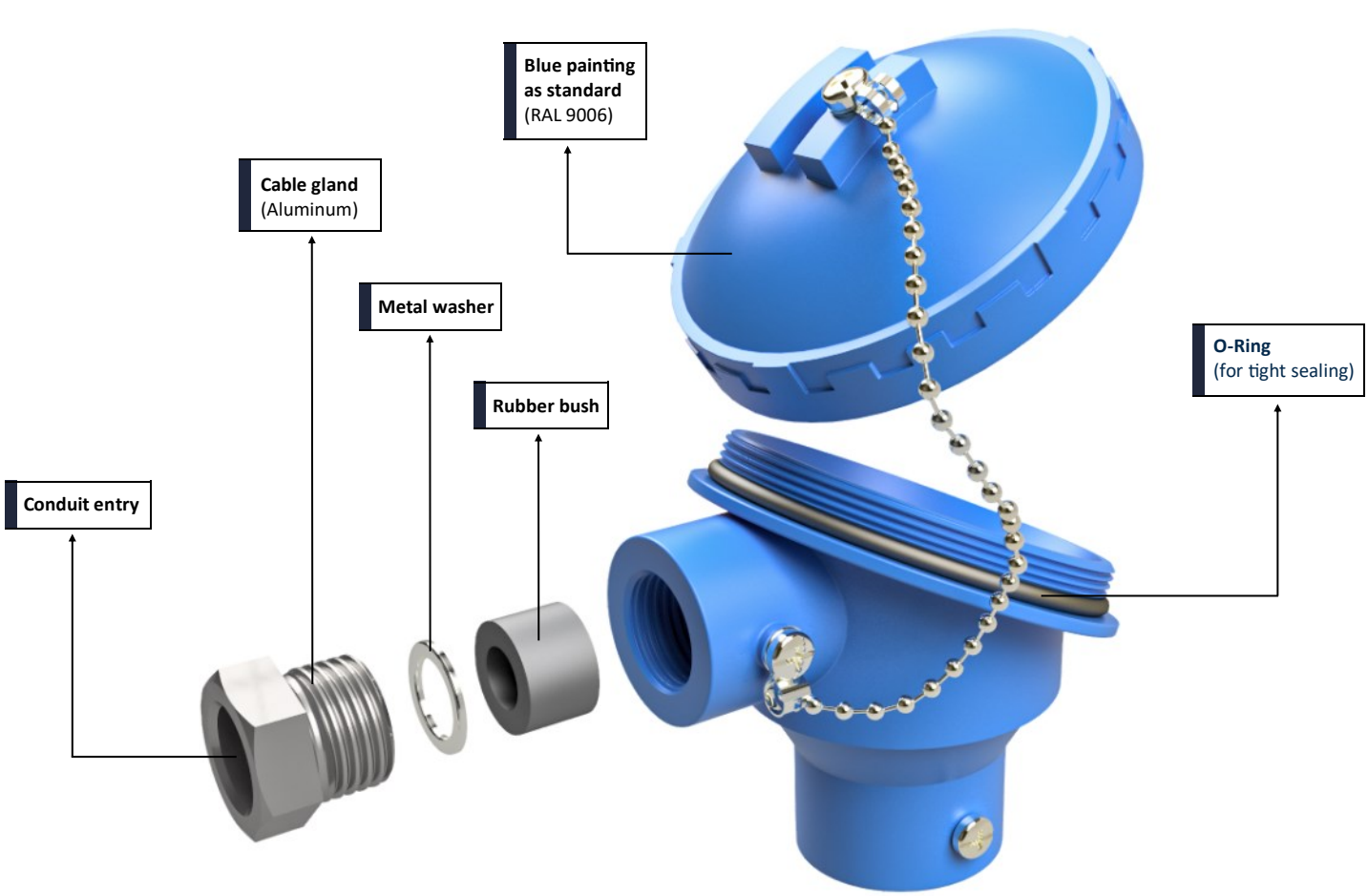
Whether you require a standard PT100 sensor or a higher resistance variant like PT500 or PT1000, these RTD sensors provide reliable and accurate temperature measurements in a wide range of industries and applications.

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).

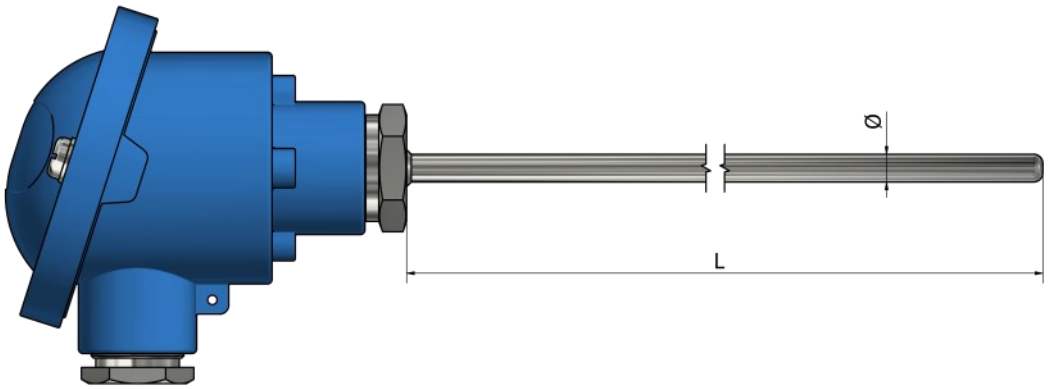
What is a temperature transmitter ?

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”.***

PH00 – RTDs with terminal head
Standard



*Tube material **Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

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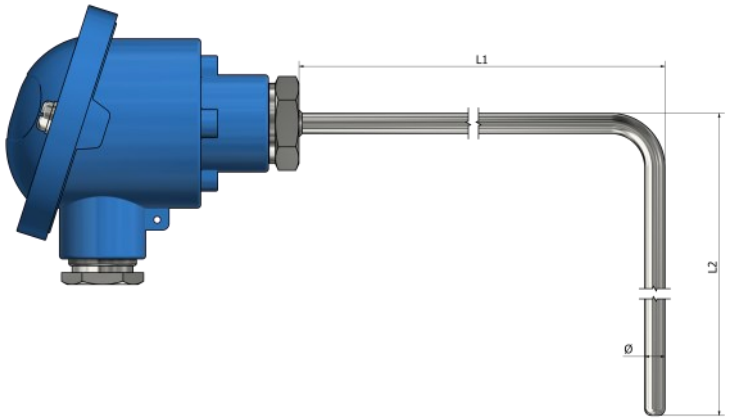
PH01 – RTDs with terminal head
Standard (90° bend)



*Tube material **Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

5. Lengths L1 and L2 (mm):

L1 _____ L2 _____

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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

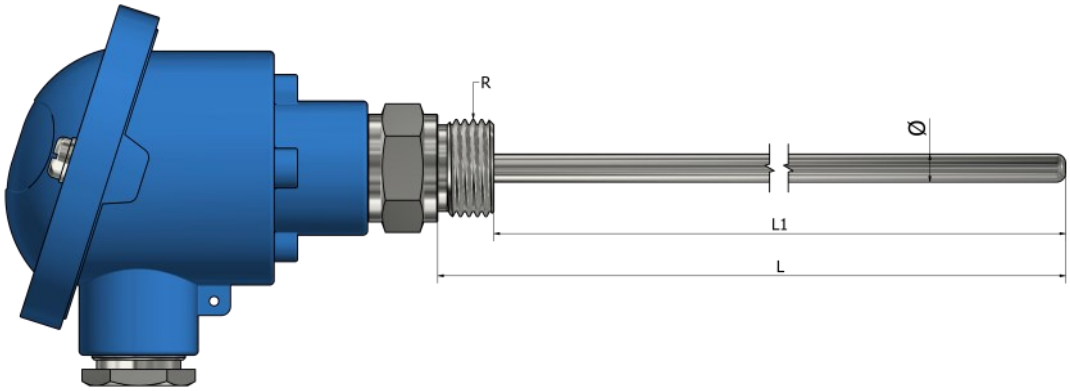
Quantity:

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.

PH10 – RTDs with terminal head
Standard with fixed thread



Tube and thread material* ***Stainless steel 316L*

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

5. Length L or L1 (mm):
L _____ L1 _____

6. Diameter Ø (mm):

7. Thread:
☐ 1/2'' BSPP ☐ 1/4'' BSPP ☐ 1/4'' BSPT ☐ M10
☐ 1/2'' NPT ☐ 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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

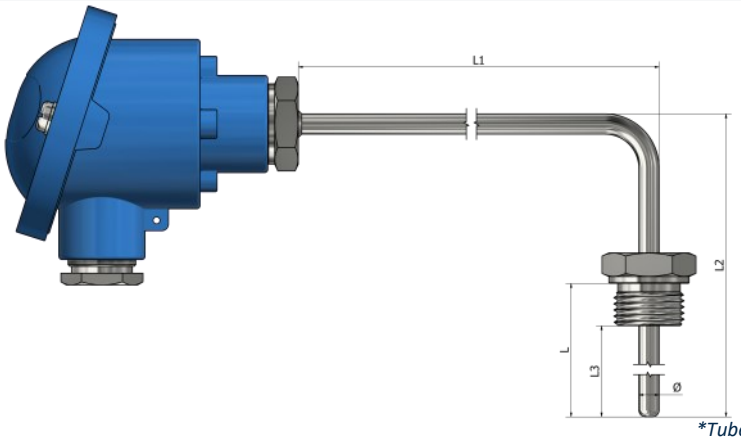
Quantity:

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.

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



*Tube and thread material **Stainless steel 316L***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

5. Lengths L1 and L2 (mm):
L1 _____ L2 _____

6. Length L or L3 (mm):
L _____ L3 _____

7. Diameter Ø (mm):

8. Thread:
☐ 1/2'' BSPP ☐ 1/4'' BSPP ☐ 1/4'' BSPT ☐ M10
☐ 1/2'' NPT ☐ Other:

9. Connection head: *(see the part "Accessories")*
☐ Type B ☐ Type DAN ☐ Type M ☐ Type N
☐ Type Ex ☐ Type NS ☐ Other:

10. Mounting:
☐ Wires ☐ Terminal block ☐ Transmitter (°C):
Specify temperature range

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

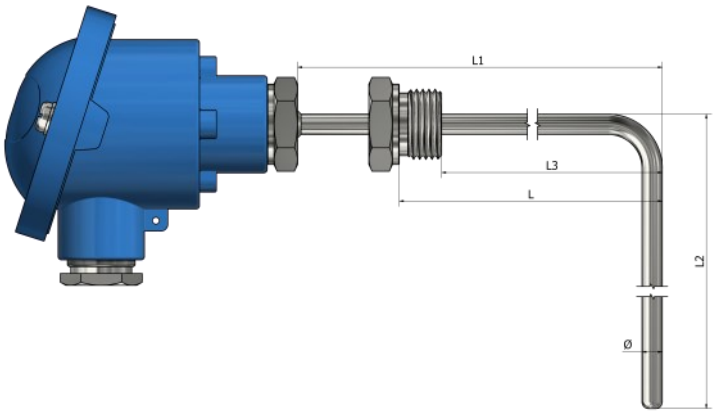
Quantity:

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.

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



*Tube and thread material **Stainless steel 316L***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

5. Lengths L1 and L2 (mm):
L1 _____ L2 _____

6. Length L or L3 (mm):
L _____ L3 _____

7. Diameter Ø (mm):

8. Thread:
☐ 1/2'' BSPP ☐ 1/4'' BSPP ☐ 1/4'' BSPT ☐ M10
☐ 1/2'' NPT ☐ Other:

9. Connection head: *(see the part "Accessories")*
☐ Type B ☐ Type DAN ☐ Type M ☐ Type N
☐ Type Ex ☐ Type NS ☐ Other:

10. Mounting:
☐ Wires ☐ Terminal block ☐ Transmitter (°C):
Specify temperature range

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

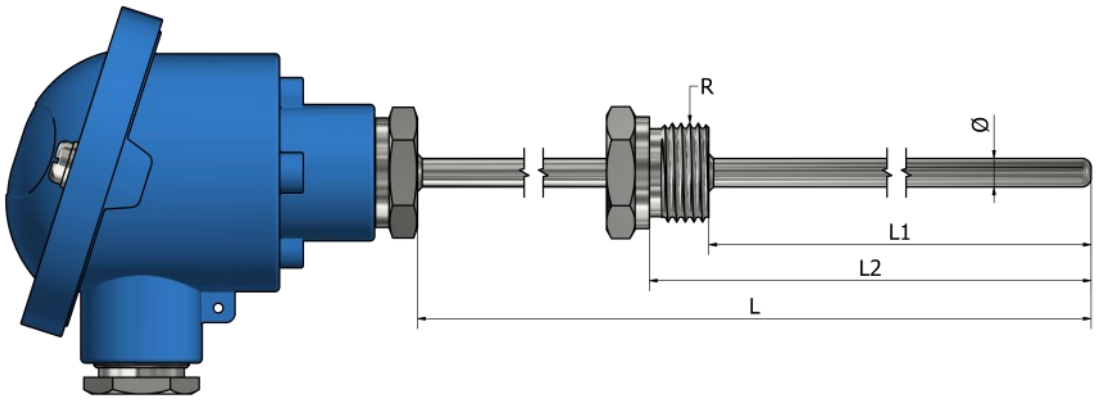
Quantity:

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.

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



Tube and thread material* ***Stainless steel 316L*

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

5. Lengths L and L1 or L2 (mm):
L _____ L1 _____ L2 _____

6. Diameter Ø (mm):

7. Thread:
☐ 1/2'' BSPP ☐ 1/4'' BSPP ☐ 1/4'' BSPT ☐ M10
☐ 1/2'' NPT ☐ 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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

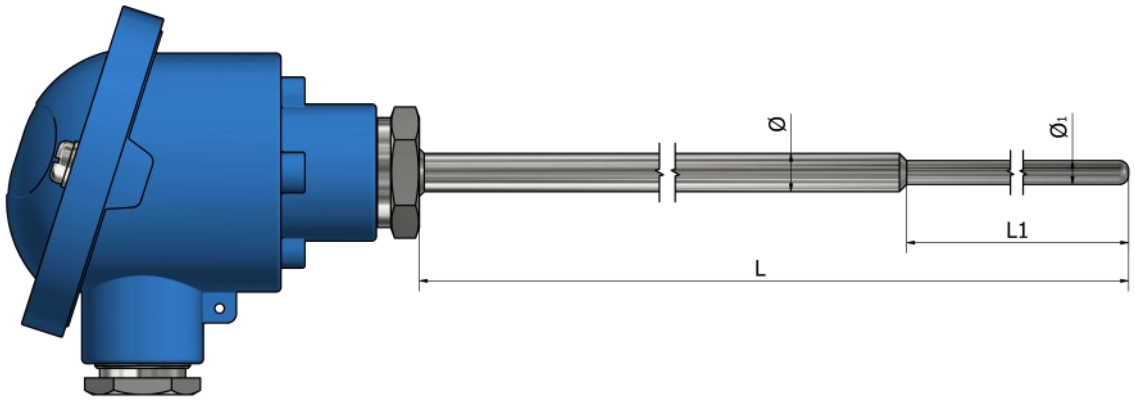
Quantity:

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.

PH20 – RTDs with terminal head
Reduced tip



*Tube material **Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

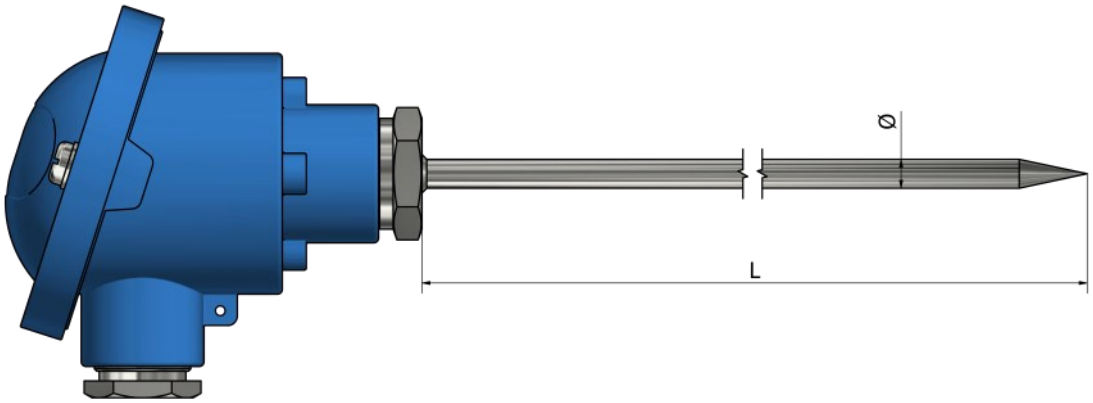
Quantity:

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.

PH21 – RTDs with terminal head
Pointed tip



*Tube material **Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

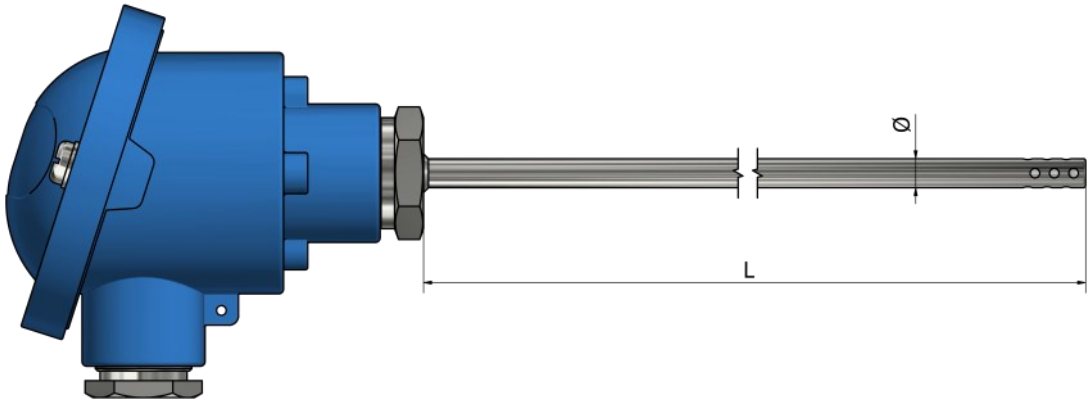
Quantity:

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.

PH22 – RTDs with terminal head
Open air



*Tube material **Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

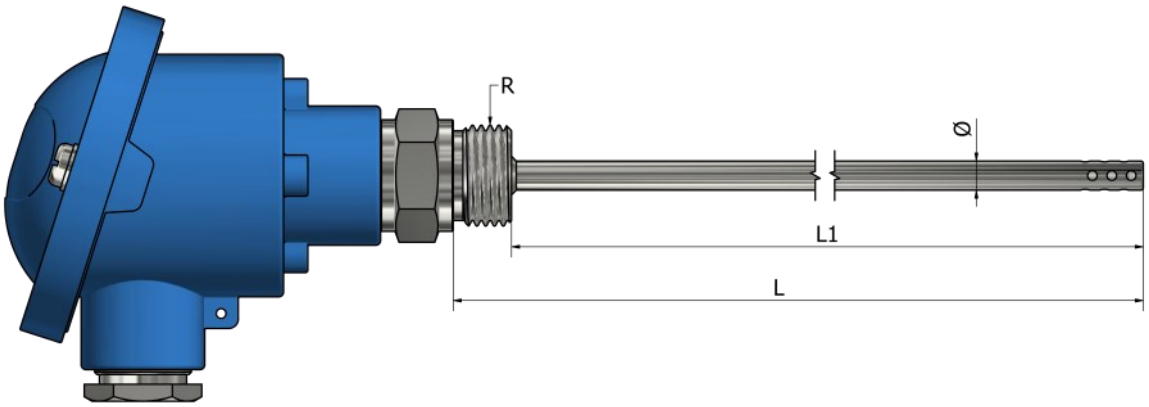
Quantity:

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.

PH23 – RTDs with terminal head
Open air with fixed thread



Tube and thread material* ***Stainless steel 316L*

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

5. Length L or L1 (mm):

L _____ L1 _____

6. Diameter Ø (mm):

7. Thread:

☐ 1/2" BSPP ☐ 1/4" BSPP ☐ 1/4" BSPT ☐ M10

☐ 1/2" NPT ☐ 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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

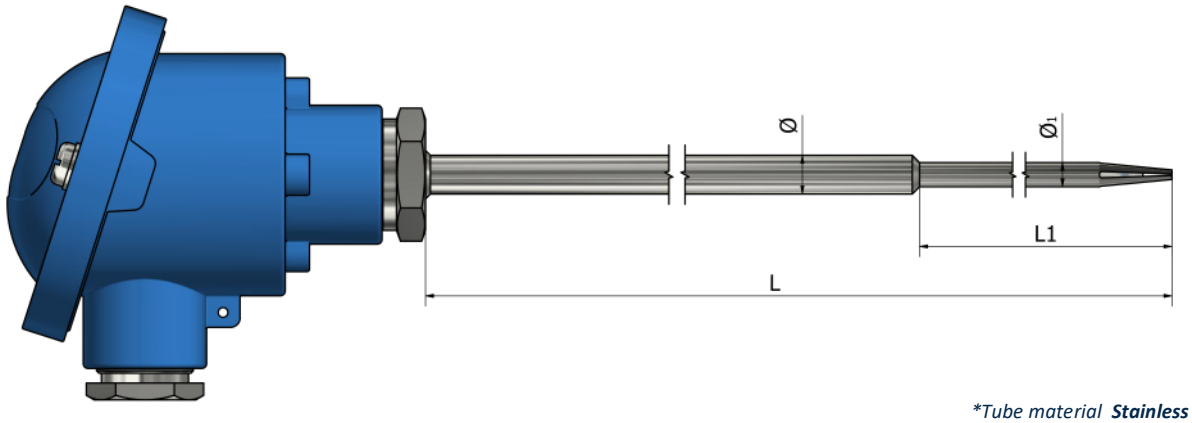
Quantity:

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.

PH24 – RTDs with terminal head
Open air with reduced tip



*Tube material **Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

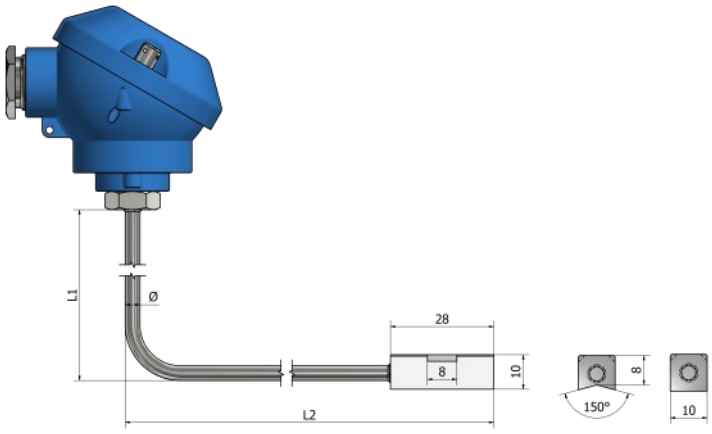
Quantity:

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.

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



*Tube material **Stainless steel 316L***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

5. Lengths L1 and L2 (mm):
L1 _____ L2 _____

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

9. Contact block material:
☐ Brass ☐ Aluminum ☐ Other:

10. Contact block shape:


☐ V-shape


☐ Flat

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

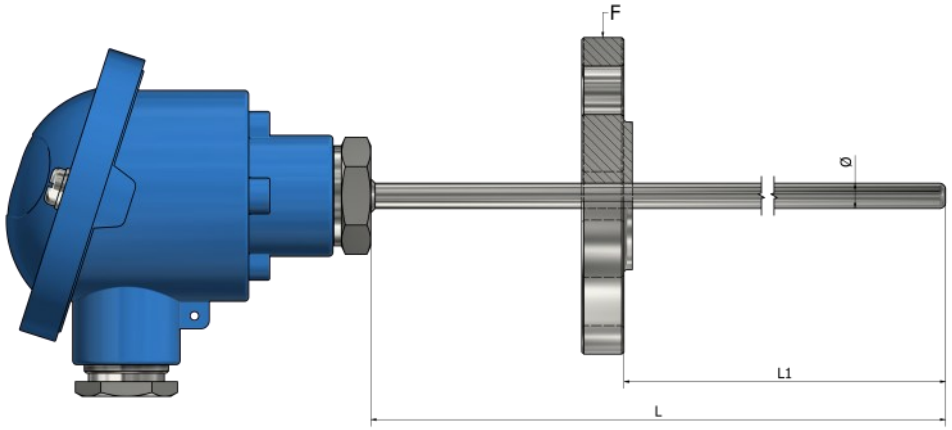
Quantity:

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.

PH30 – RTDs with terminal head
Flange sanitary mounting



*Tube material **Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

5. Dimensions L and L1 (mm):

L _____ L1 _____

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

9. Flange sanitary mounting:

☐ DIN2527 (DN10 – PN6) ☐ Other:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

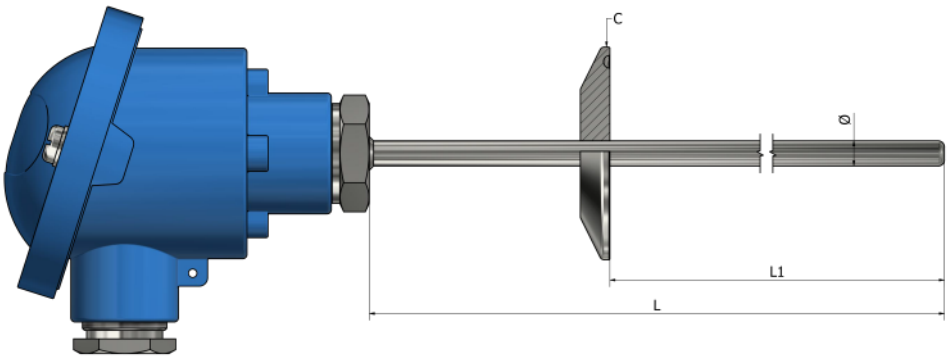
Note:

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.

EuroSensors

PH31 – RTDs with terminal head
Tri-clamp sanitary mounting



*Tube material **Stainless steel 316L***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

5. Dimensions L and L1 (mm):
L _____ L1 _____

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

9. Tri-clamp sanitary mounting:
☐ DIN32676 / ISO 2852 (DN25) ☐ Other:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

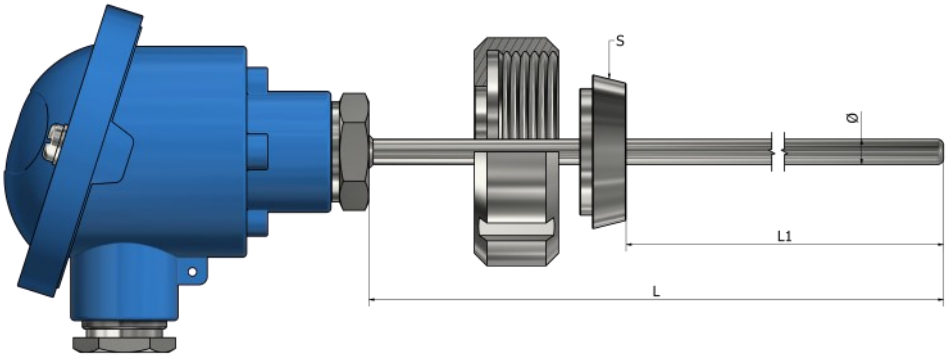
Quantity:

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.

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



*Tube material **Stainless steel 316L***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

5. Dimensions L and L1 (mm):
L _____ L1 _____

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

9. Disc DIN 11851 sanitary mounting:
☐ DIN 11851 (DN20) ☐ Other:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

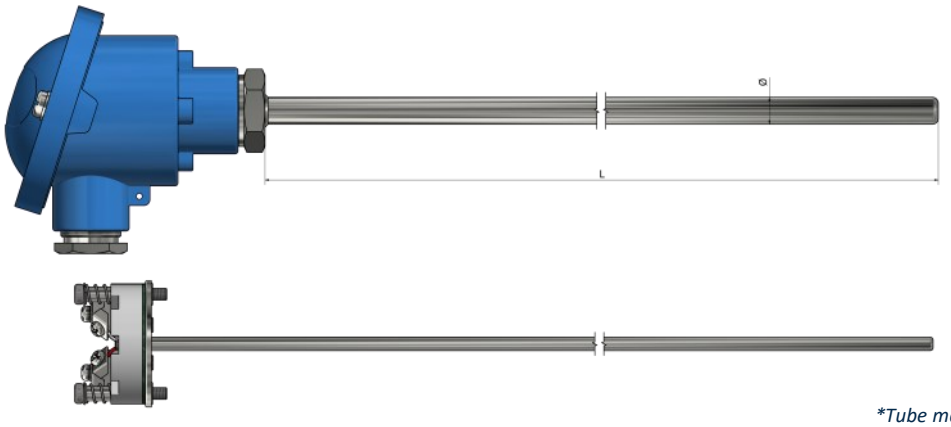
Note:

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.

EuroSensors

PH40 – RTDs with terminal head
Exchangeable insert



*Tube material **Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

5. Length L (mm):

6. Diameter Ø (mm):

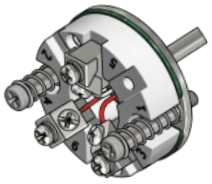
7. Connection head: *(see the part "Accessories")*

☐ Type B ☐ Type DAN ☐ Type M ☐ Type N

☐ Type Ex ☐ Type NS ☐ Other:

8. Type of exchangeable insert:

☐ Wires



☐ Terminal block

☐ Transmitter (°C):

T _____
Specify temperature range

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

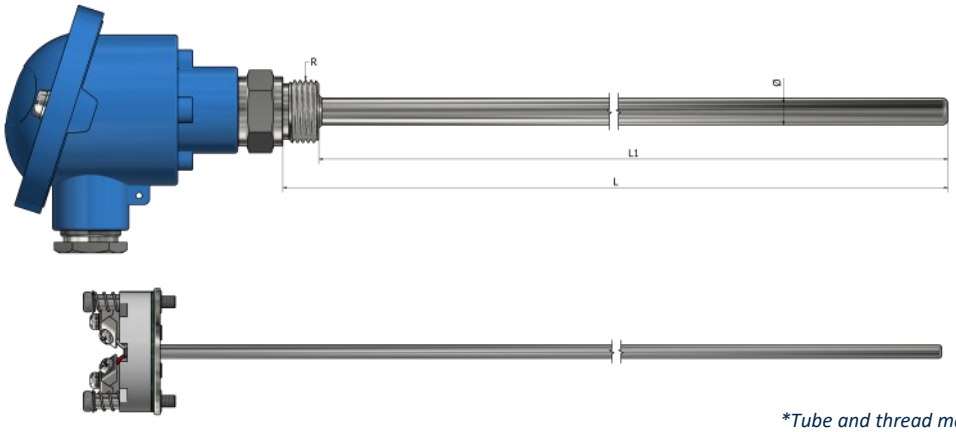
Quantity:

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.

PH41 – RTDs with terminal head
Exchangeable insert with fixed thread



Tube and thread material* ***Stainless steel 316L*

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

5. Length L or L1 (mm):

L _____ L1 _____

6. Diameter Ø (mm):

7. Connection head: *(see the part "Accessories")*

☐ Type B ☐ Type DAN ☐ Type M ☐ Type N

☐ Type Ex ☐ Type NS ☐ Other:

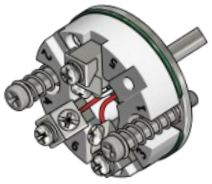
8. Thread:

☐ 1/2'' BSPP ☐ 1/4'' BSPP ☐ 1/4'' BSPT ☐ M10

☐ 1/2'' NPT ☐ Other:

9. Type of exchangeable insert:

☐ Wires



☐ Terminal block

☐ Transmitter (°C):

T _____
Specify temperature range

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

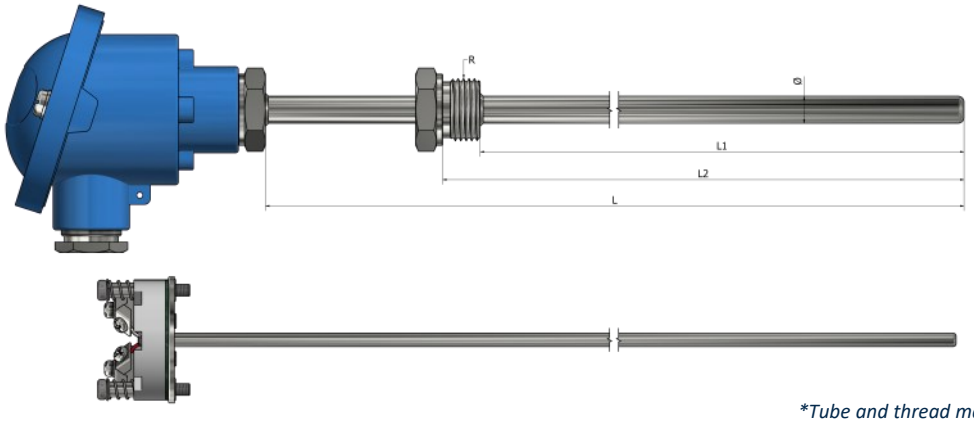
Note:

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.

EuroSensors

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



Tube and thread material* ***Stainless steel 316L*

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

5. Lengths L and L1 or L2 (mm):

L _____ L1 _____ L2 _____

6. Diameter Ø (mm):

7. Connection head: *(see the part "Accessories")*

☐ Type B ☐ Type DAN ☐ Type M ☐ Type N

☐ Type Ex ☐ Type NS ☐ Other:

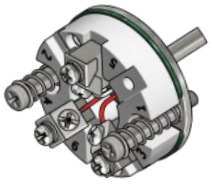
8. Thread:

☐ 1/2'' BSPP ☐ 1/4'' BSPP ☐ 1/4'' BSPT ☐ M10

☐ 1/2'' NPT ☐ Other:

9. Type of exchangeable insert:

☐ Wires



☐ Terminal block

☐ Transmitter (°C):

T _____
Specify temperature range

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

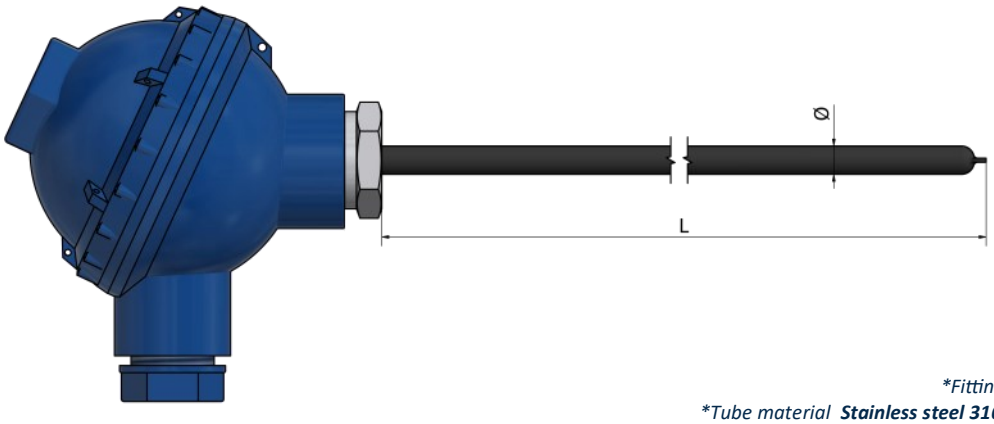
Quantity:

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.

PH50 – RTDs with terminal head
For aggressive environments



Fitting material* ***PTFE* *(260°C)*
Tube material* ***Stainless steel 316L* *with* ***PTFE*** *protection*

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

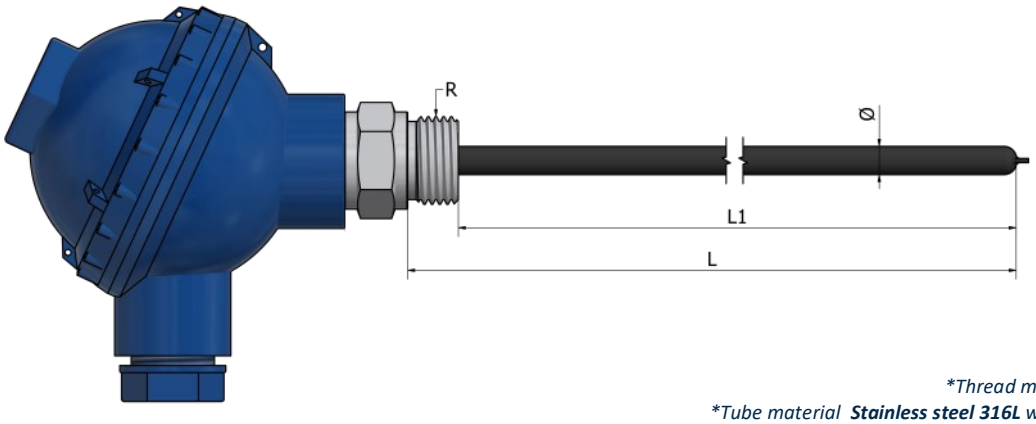
Note:

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.

EuroSensors

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



*Thread material **PTFE** (260°C)*
*Tube material **Stainless steel 316L** with **PTFE** protection*

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

5. Length L or L1 (mm):
L _____ L1 _____

6. Diameter Ø (mm):

7. Thread:
☐ 1/2" BSPP ☐ 1/4" BSPP ☐ 1/4" BSPT ☐ M10
☐ 1/2" NPT ☐ 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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

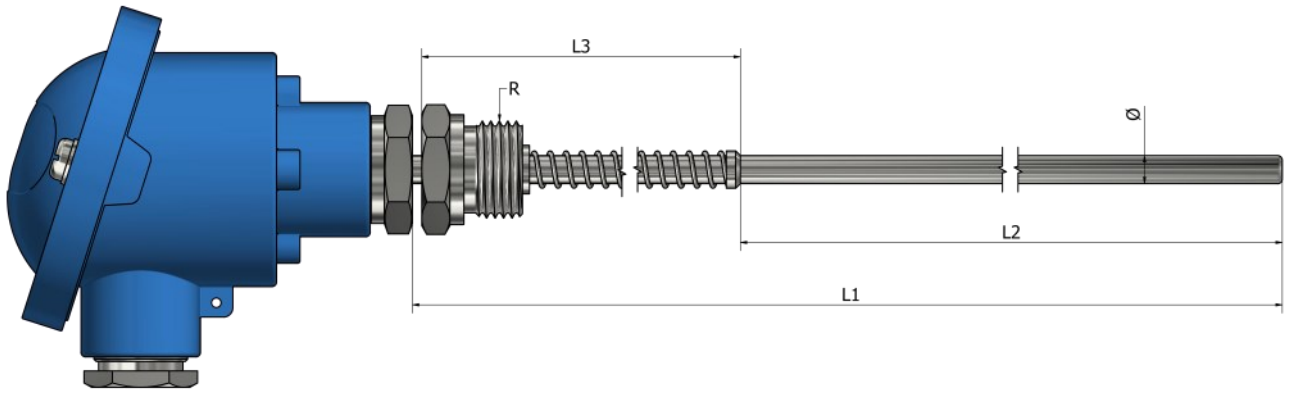
Quantity:

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.

PH60 – RTDs with terminal head
Spring loaded



Tube and thread material* ***Stainless steel 316L*

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

5. Lengths L1, L2, L3 (mm):
L1 _____ L2 _____ L3 _____

6. Diameter Ø (mm):

7. Thread:
☐ 1/2'' BSPP ☐ 1/4'' BSPP ☐ 1/4'' BSPT ☐ M10
☐ 1/2'' NPT ☐ 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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

PI00 – RTDs with terminal head
Disc plate insert

*Tube material **Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

5. Sheath length L (mm):

6. Diameter Ø (mm):

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

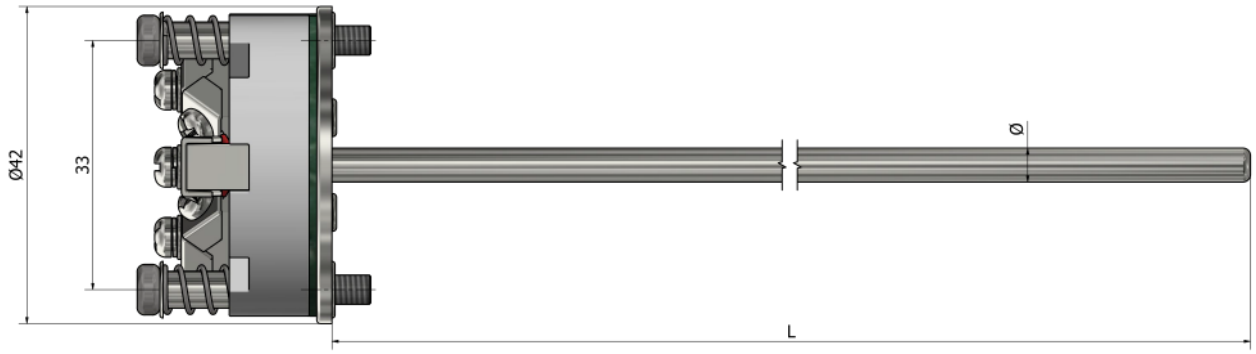
Quantity:

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.

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



*Tube material **Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

5. Sheath length L (mm):

6. Diameter Ø (mm):

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

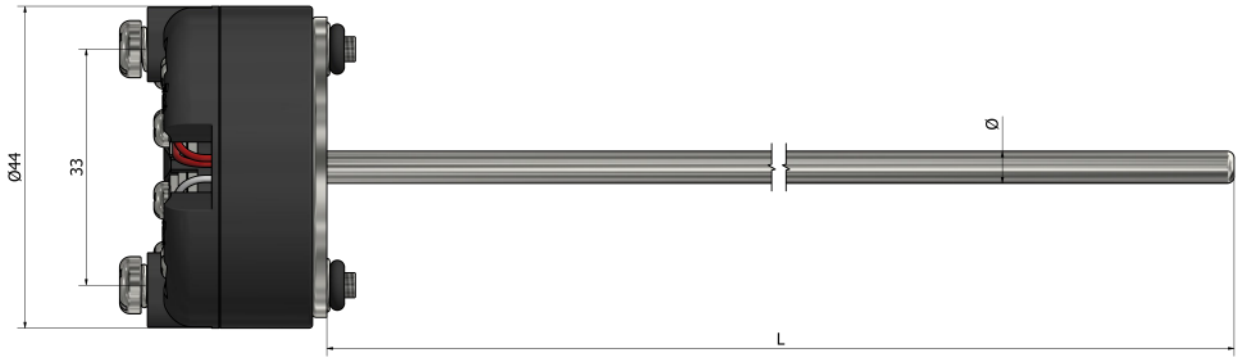
Quantity:

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.

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



*Tube material **Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

5. Sheath length L (mm):

6. Diameter Ø (mm):

7. Transmitter (°C):
Specify temperature range

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

EuroSensors

Surface RTDs

Contents

Surface RTDs - Technical information

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.

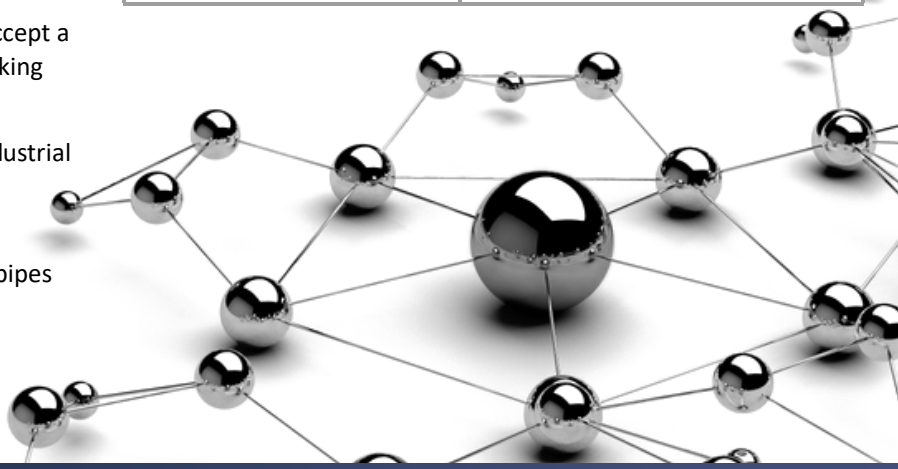
Weld pad RTDs which need not require the more rugged industrial construction can be tig welded or soldered and held with a number of clamping devices.

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
Aluminum	≈ 205
Copper	≈ 385
Silver	≈ 406



EuroSensors

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.

Differences between Pt-s and thermistors

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.

EuroSensors

Surface RTDs - 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.

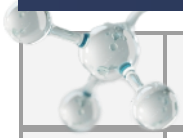
Understanding the naming of Pt100, PT500 and PT1000 sensors

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 Ωat 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.

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

Pt-s classes

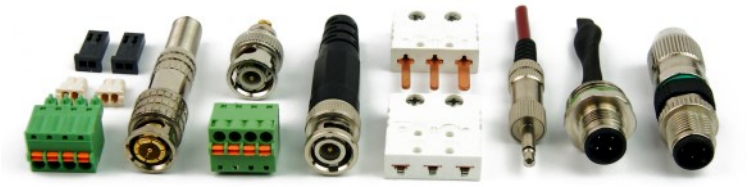
Tolerances of Pt-s sensors can be tailored to customer specifics and thus manufactured to different tolerances. The higher the tolerance the smaller the margin of error relative to lower tolerances.

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 ºC
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

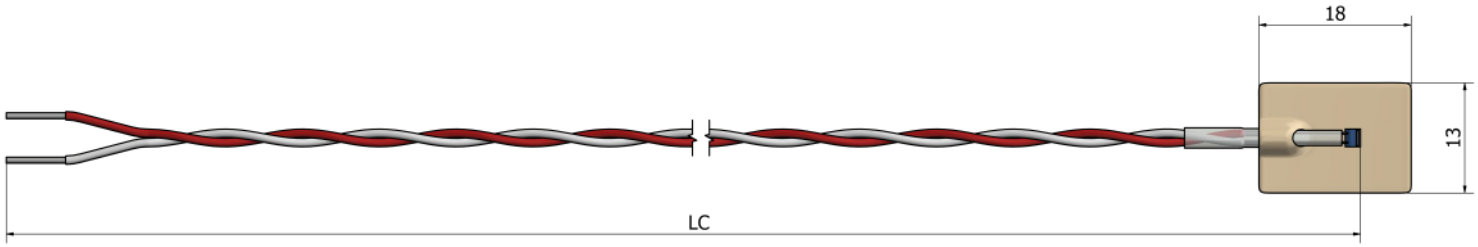
RTD connectors

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).

PS00 – Surface RTDs
Adhesive tape



*Adhesive tape material **Fiberglass/PTFE***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*

☐ 2 ☐ 3 ☐ 4

4. Cable prolongation:

☐ Teflon (260°C) ☐ Other:

5. Cable length LC (mm):

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

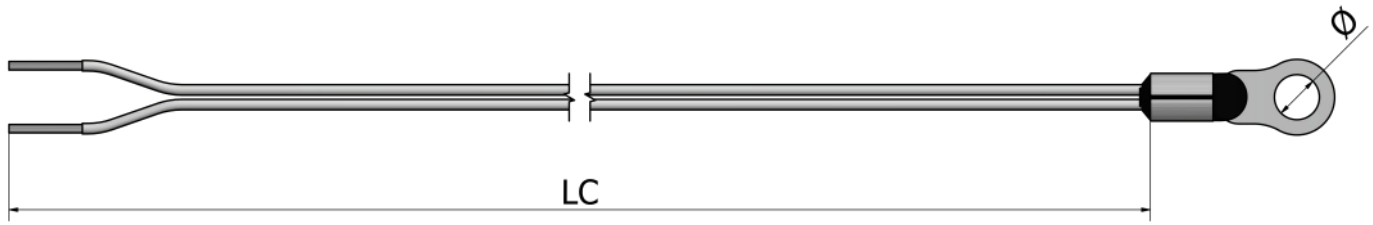
Quantity:

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.

PS01 – Surface RTDs
Washer mount



*Washer mount material **Tinned copper***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*

☐ 2 ☐ 3 ☐ 4

4. Cable prolongation:

☐ Teflon (260°C) ☐ Other:

5. Cable length LC (mm):

6. Hole size Ø (mm):

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

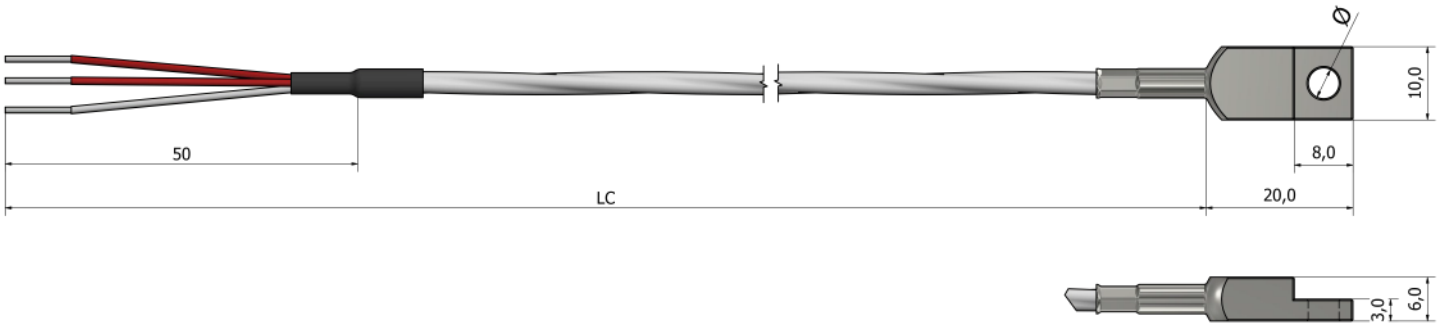
Quantity:

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.

PS02 – Surface RTDs
Reinforced washer mount



*Washer mount material **Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*

☐ 2 ☐ 3 ☐ 4

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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

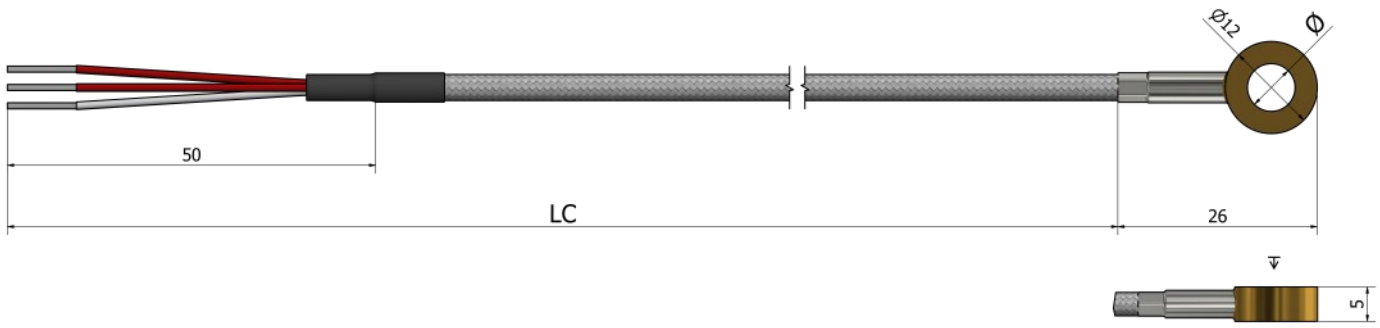
Quantity:

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.

PS03 – Surface RTDs
Ring mount



Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*
☐ 2 ☐ 3 ☐ 4

4. Cable prolongation:
☐ PVC (105°C) ☐ Silicone (180°C) ☐ Teflon (260°C)
☐ Fiberglass (400°C) ☐ Other:

5. Cable length LC (mm):

6. Ring material:
☐ Brass ☐ AISI 316L ☐ Other:

7. Ring size:
☐ M5 ☐ M6 ☐ Other:

8. Crimp protection:
☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

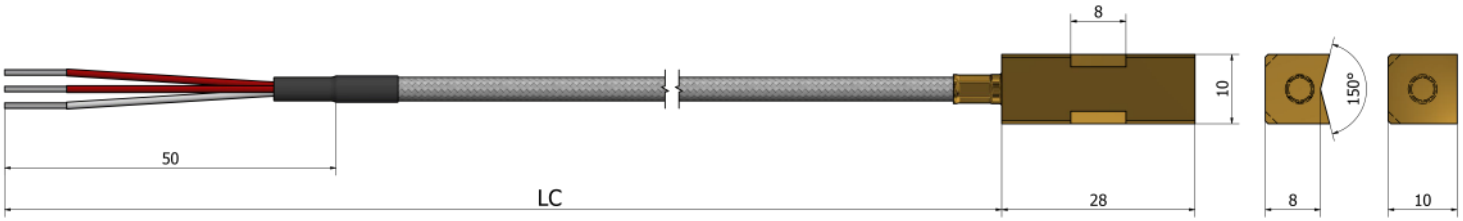
Quantity:

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.

PS05 – Surface RTDs
Contact block



*Contact block material **Brass or aluminum***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*

☐ 2 ☐ 3 ☐ 4

4. Cable prolongation:

☐ PVC (105°C) ☐ Silicone (180°C) ☐ Teflon (260°C)

☐ Fiberglass (400°C) ☐ Other:

5. Cable length LC (mm):

6. Contact block material:

☐ Brass ☐ Aluminum ☐ Other:

7. Contact block shape:

☐ V-shape

☐ Flat

8. Crimp protection:

☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

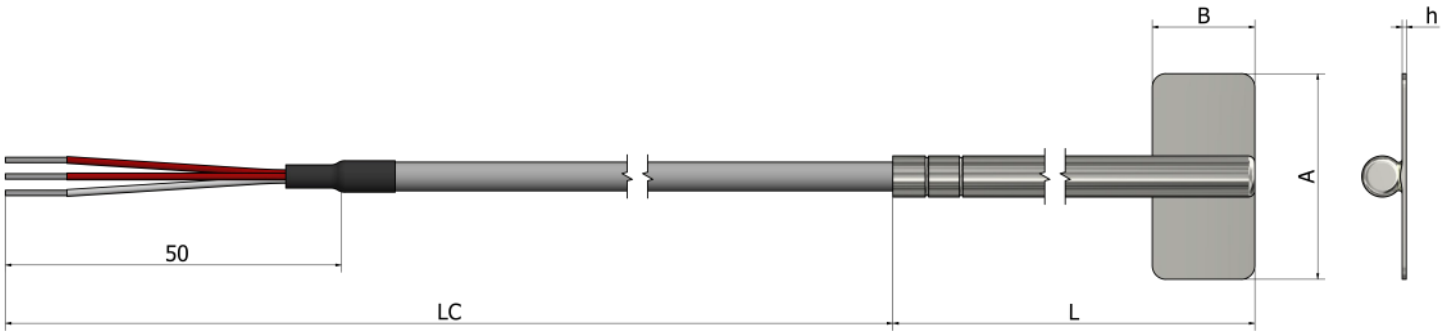
Quantity:

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.

PS10 – Surface RTDs
Weld pad



Weld pad and tube material* ***Stainless steel 316L*

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*
☐ 2 ☐ 3 ☐ 4

4. Cable prolongation:
☐ PVC (105°C) ☐ Silicone (180°C) ☐ Teflon (260°C)
☐ Fiberglass (400°C) ☐ Other:

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:

10. Crimp protection:
☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

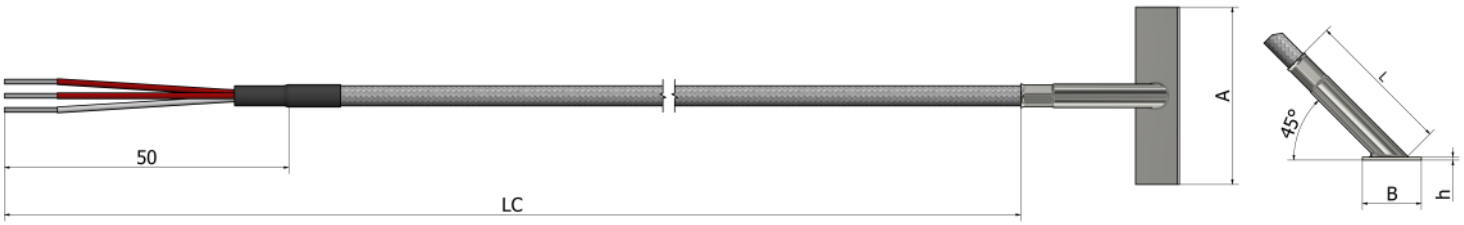
Note:

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.

EuroSensors

PS11 – Surface RTDs
Weld pad (45° angle)



Weld pad and tube material* ***Stainless steel 316L*

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*
☐ 2 ☐ 3 ☐ 4

4. Cable prolongation:
☐ PVC (105°C) ☐ Silicone (180°C) ☐ Teflon (260°C)
☐ Fiberglass (400°C) ☐ Other:

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:

8. Crimp protection:
☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

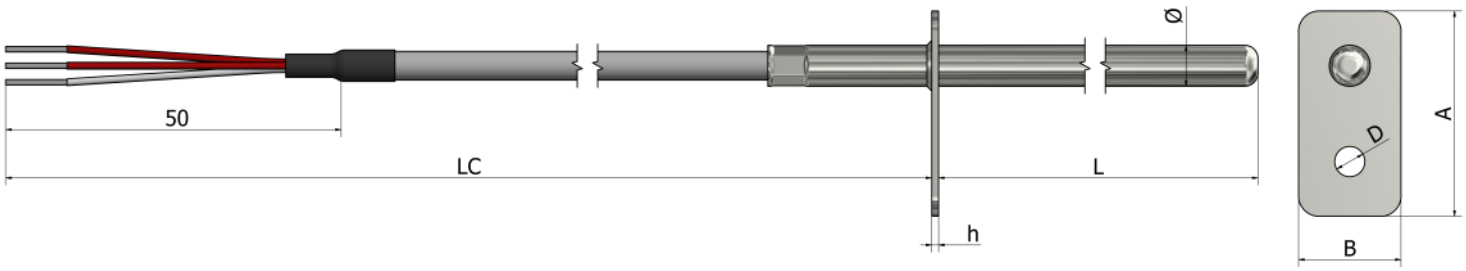
Quantity:

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.

PS12 – Surface RTDs
Weld pad (plug-in)



Weld pad and tube material* ***Stainless steel 316L*

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*
☐ 2 ☐ 3 ☐ 4

4. Cable prolongation:
☐ PVC (105°C) ☐ Silicone (180°C) ☐ Teflon (260°C)
☐ Fiberglass (400°C) ☐ Other:

5. Cable length LC (mm):

6. Pad material: ☐ AISI 316L ☐ Other:

7. Pad dimensions A x B (mm):
☐ 15 x 10 ☐ 25 x 10 ☐ 30 x 10
☐ Other:

8. Pad thickness h (mm): ☐ 0,5 ☐ Other:

9. Hole size Ø D (mm):

10. Insertion diameter Ø (mm):
☐ 4 ☐ 5 ☐ 6 ☐ Other:

11. Insertion depth L (mm):

12. Crimp protection:
☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

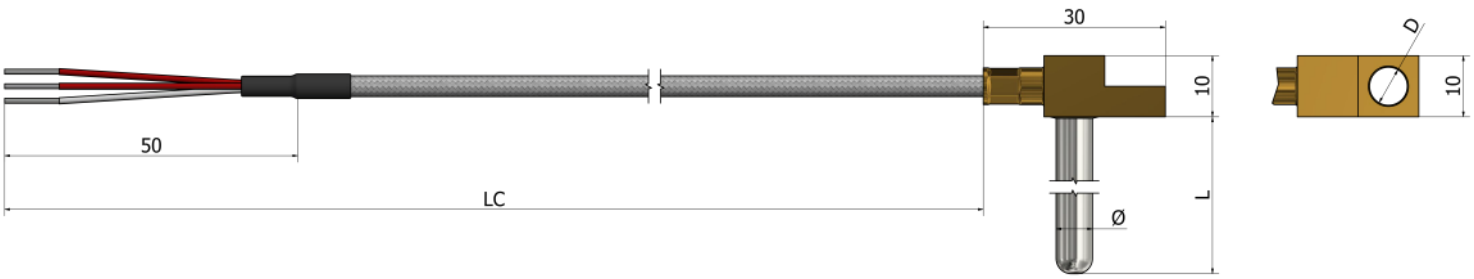
Quantity:

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.

PS20 – Surface RTDs
Angle / plug-in



*Mounting block material **Brass** *Tube material **Stainless steel 316L***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*
☐ 2 ☐ 3 ☐ 4

4. Cable prolongation:
☐ PVC (105°C) ☐ Silicone (180°C) ☐ Teflon (260°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:
☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

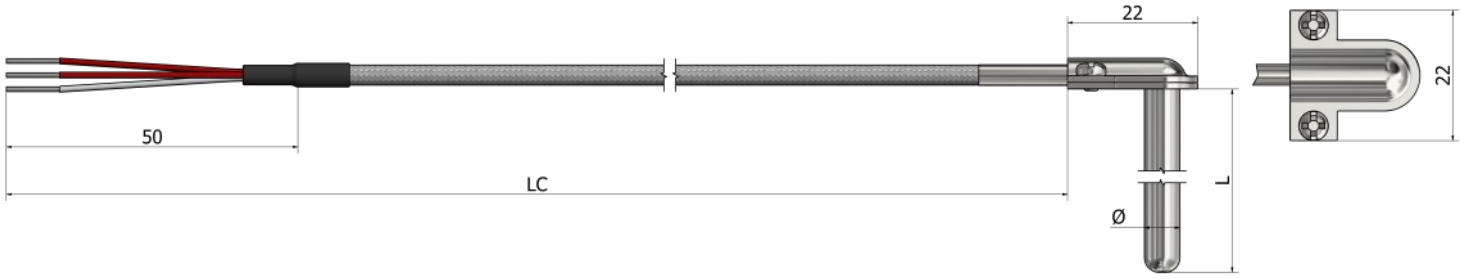
Quantity:

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.

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



*Clamp material **Stainless steel 316L** *Tube material **Stainless steel 316L**

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*
☐ 2 ☐ 3 ☐ 4

4. Cable prolongation:
☐ PVC (105°C) ☐ Silicone (180°C) ☐ Teflon (260°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:
☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

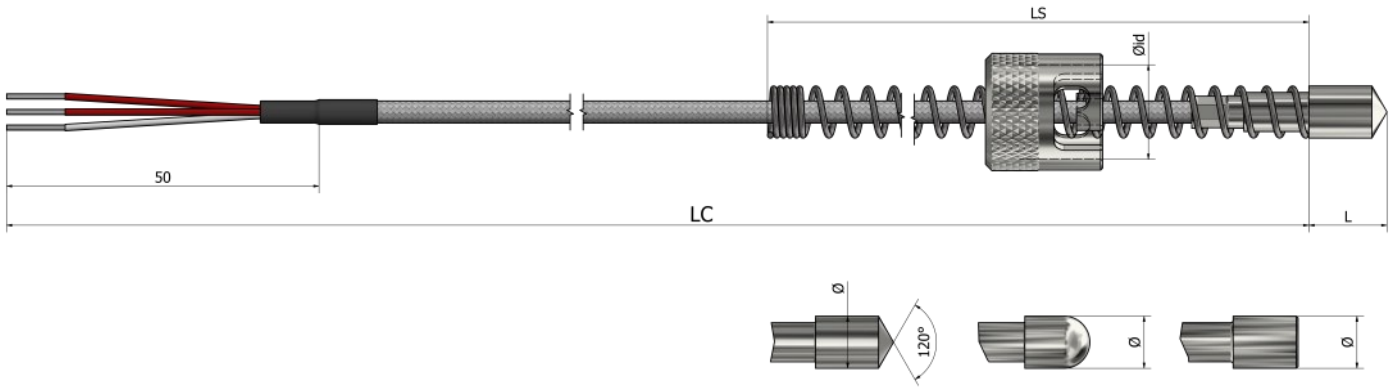
Quantity:

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.

PS30 – Surface RTDs
Bayonet



Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*
☐ 2 ☐ 3 ☐ 4

4. Cable prolongation:
☐ Fiberglass (400°C) ☐ Other:

5. Cable length LC (mm):

6. Dimensions Ø x L (mm):
☐ 5 x 12 ☐ 6 x 10 ☐ 8 x 10 ☐ Other:

7. Sheath tip: *(material **Stainless steel 316L**)*

☐ Round ☐ Conical ☐ Flat

8. Bayonet cap Øid (mm): *(material **Nickel-plated brass**)*
☐ 10,5 ☐ 12,5 ☐ 14,5 ☐ Other:

9. Spring length LS (mm):

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

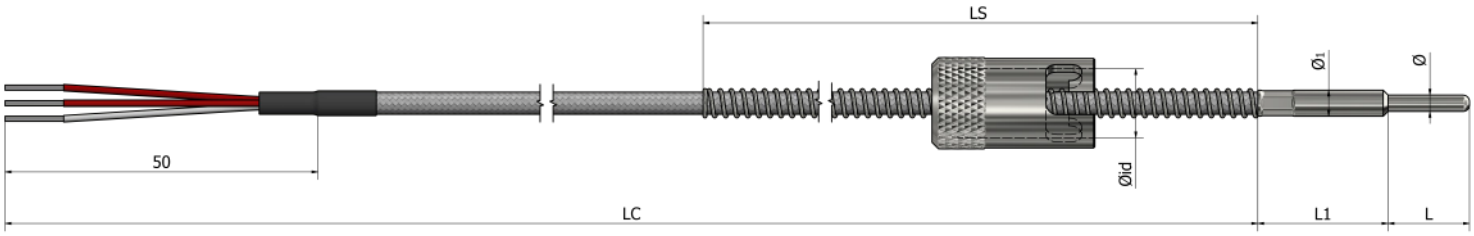
Quantity:

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.

PS31 – Surface RTDs
Bayonet with reduced tip



Tube and tip material* ***Stainless steel 316L*

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*

☐ 2 ☐ 3 ☐ 4

4. Cable prolongation:

☐ Fiberglass (400°C) ☐ Other:

5. Cable length LC (mm):

6. Dimensions L and Ø (mm):

L _____ Ø _____

7. Dimensions L1 and Ø1 (mm):

L1_____ Ø1 _____

8. Bayonet cap Øid (mm): *(material* ***Nickel-plated brass****)*

☐ 10,5 ☐ 12,5 ☐ 14,5 ☐ Other:

9. Spring length LS (mm):

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

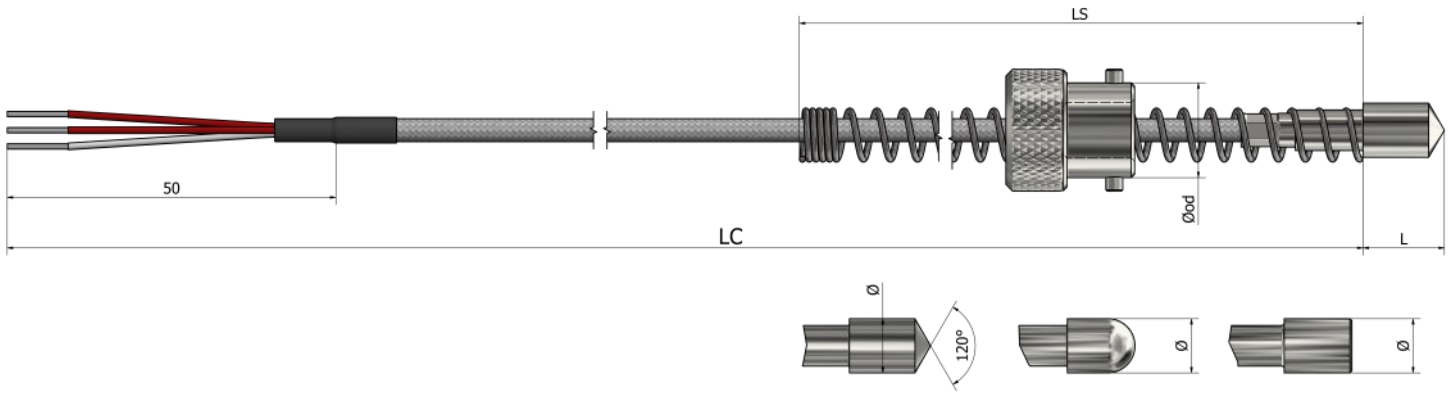
Quantity:

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.

PS33 – Surface RTDs
Bayonet (reverse)



Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*
☐ 2 ☐ 3 ☐ 4

4. Cable prolongation:
☐ Fiberglass (400°C) ☐ Other:

5. Cable length LC (mm):

6. Dimensions Ø x L (mm):
☐ 5 x 12 ☐ 6 x 10 ☐ 8 x 10 ☐ Other:

7. Sheath tip: *(material **Stainless steel 316L**)*

☐ Round ☐ Conical ☐ Flat

8. Bayonet adapter Ød (mm): *(material **Nickel-plated brass**)*
☐ 10,5 ☐ 12,5 ☐ 14,5 ☐ Other:

9. Spring length LS (mm):

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

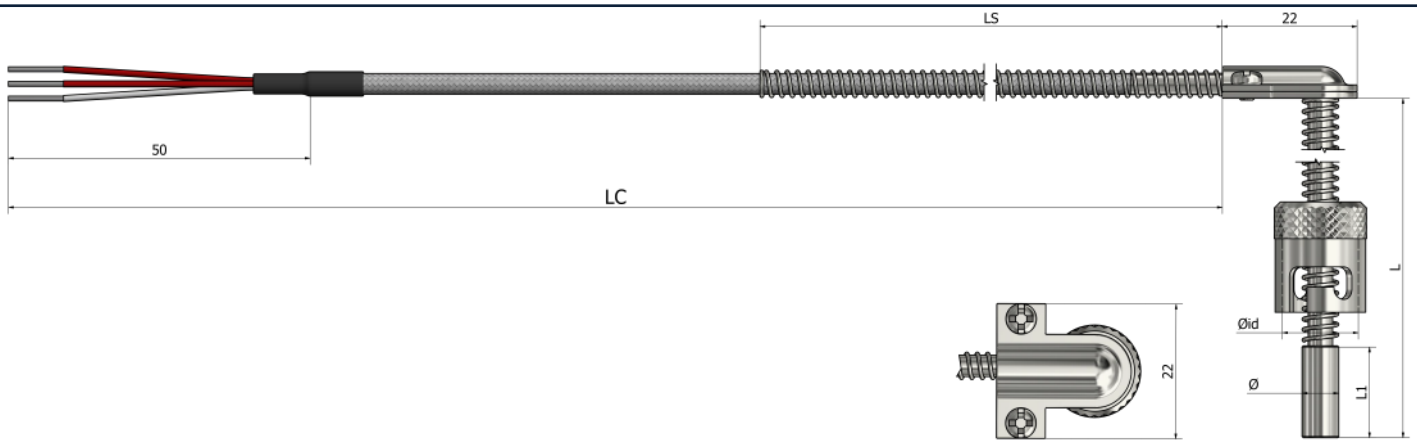
Quantity:

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.

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



Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*
☐ 2 ☐ 3 ☐ 4

4. Cable prolongation:
☐ Fiberglass (400°C) ☐ Other:

5. Cable length LC (mm):

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

9. Bayonet cap Øid (mm): *(material **Nickel-plated brass**)*
☐ 10,5 ☐ 12,5 ☐ 14,5 ☐ Other:

10. Spring length LS (mm):

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

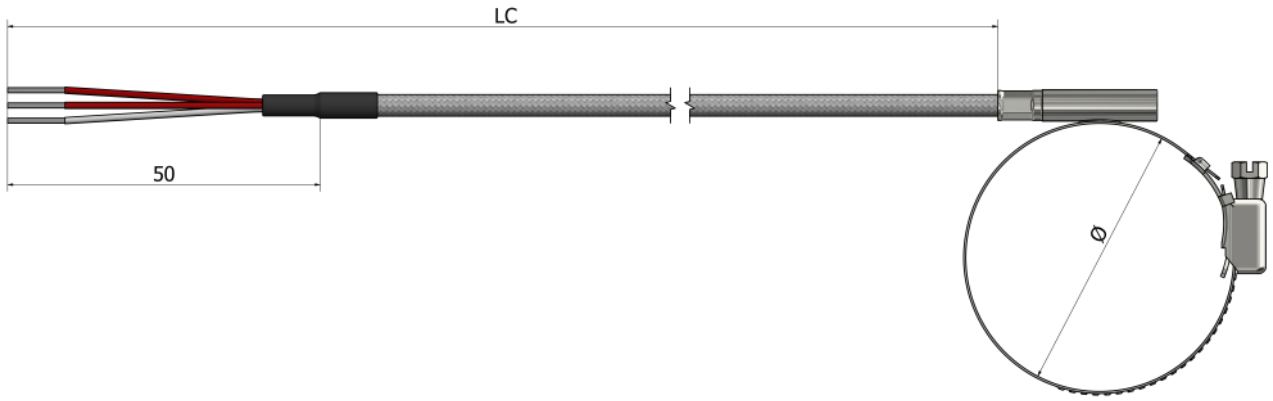
Quantity:

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.

PS41 – Surface RTDs
Pipe-Clamp (type 1)



*Tube and clamp material **Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*

☐ 2 ☐ 3 ☐ 4

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. Clamp direction:

☐ V1

☐ V2

8. Crimp protection:

☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

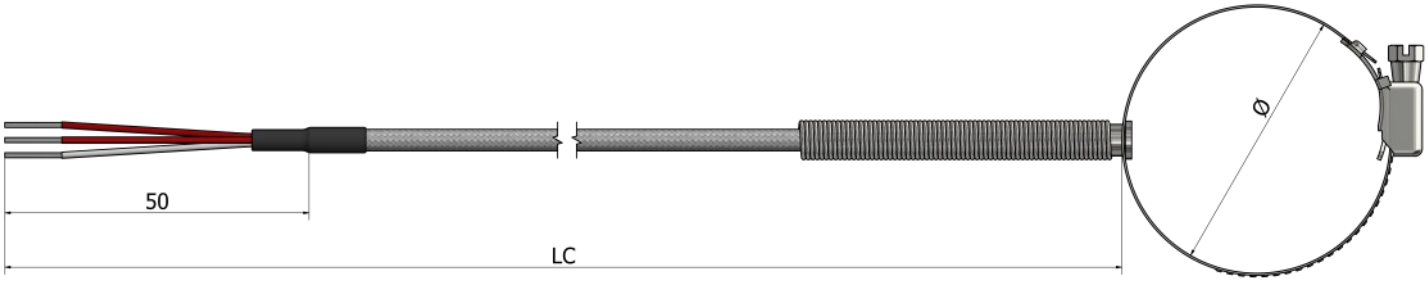
Quantity:

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.

PS42 – Surface RTDs
Pipe-Clamp (type 2)



*Tube and clamp material **Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*

☐ 2 ☐ 3 ☐ 4

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:

☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

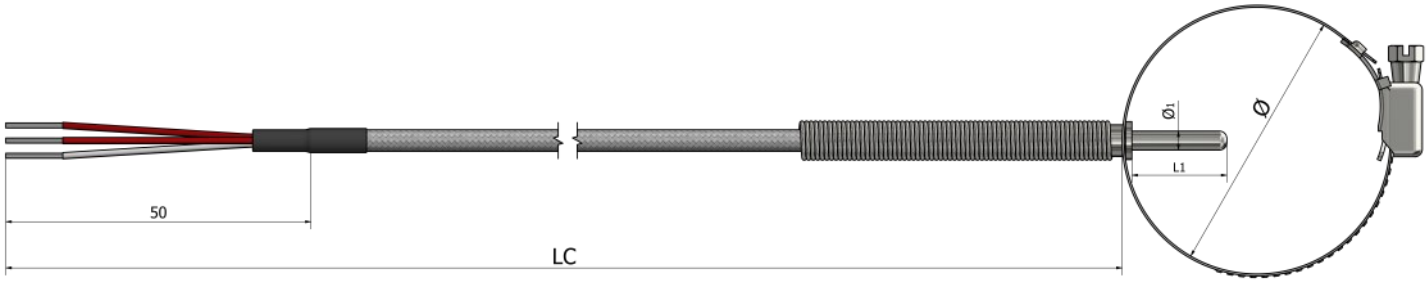
Quantity:

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.

PS43 – Surface RTDs
Pipe-Clamp (type 3)



*Clamp material **Stainless steel 316L** *Tube material **Stainless steel 316L**

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*
☐ 2 ☐ 3 ☐ 4

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):
☐ 4 ☐ 5 ☐ 6 ☐ Other:

8. Insertion depth L1 (mm):

9. Crimp protection:
☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

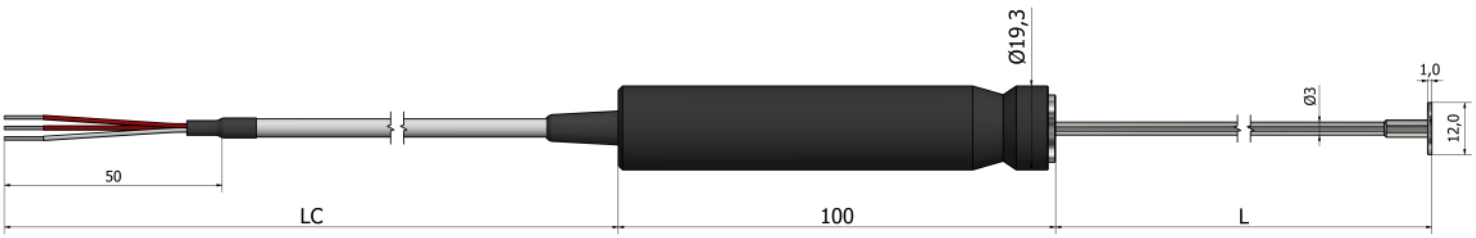
Quantity:

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.

PS50 – Surface RTDs
Handheld



*Handle material **Plastic** *Tube material **Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*

☐ 2 ☐ 3 ☐ 4

4. Cable prolongation:

☐ PVC (105°C) ☐ Silicone (180°C) ☐ Teflon (260°C)

☐ Fiberglass (400°C) ☐ Other:

5. Cable length LC (mm):

6. Length L (mm):

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

PS60 – Surface RTDs
Spring loaded magnet

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*

☐ 2 ☐ 3 ☐ 4

4. Cable prolongation:

☐ PVC (105°C) ☐ Silicone (180°C) ☐ Teflon (260°C)

☐ Fiberglass (400°C) ☐ Other:

5. Cable length LC (mm):

6. Crimp protection:

☐ Spring ☐ Heat shrink sleeve ☐ Without

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

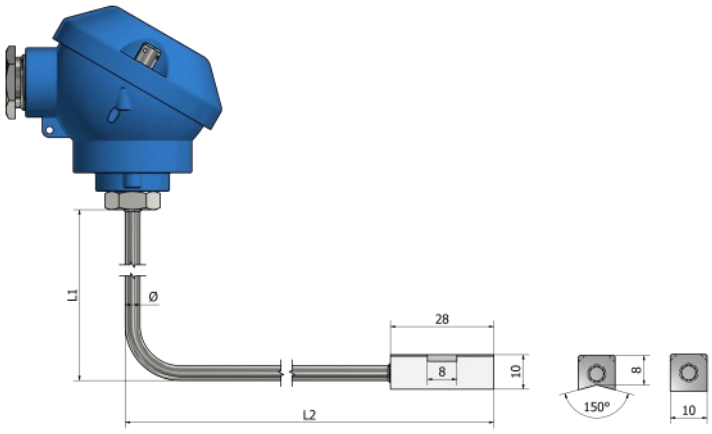
Quantity:

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.

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



*Tube material **Stainless steel 316L***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*
☐ 2 ☐ 3 ☐ 4

4. Lengths L1 and L2 (mm):
L1 _____ L2 _____

5. Diameter Ø (mm):

6. Connection head: *(see the part "Accessories")*
☐ Type B ☐ Type DAN ☐ Type M ☐ Type N
☐ Type Ex ☐ Type NS ☐ Other:

7. Mounting:
☐ Wires ☐ Terminal block ☐ Transmitter (°C):
Specify temperature range

8. Contact block material:
☐ Brass ☐ Aluminum ☐ Other:

9. Contact block shape:

☐ V-shape ☐ Flat

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

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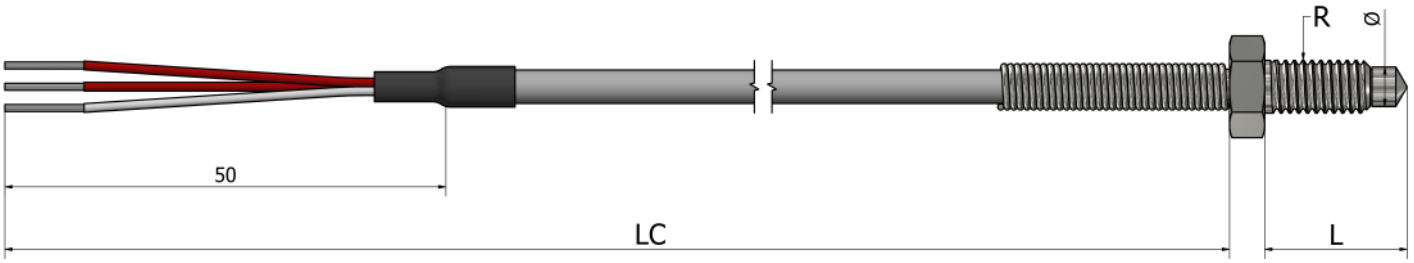
PR20 – Surface RTDs
Nozzle



*Nozzle and thread material **Stainless steel (304 / 304L / 316 / 316L)***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*
☐ 2 ☐ 3 ☐ 4

4. Length L (mm):

5. Diameter Ø (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 ☐ 1/4'' BSPT ☐ M10
☐ 1/2'' NPT ☐ Other:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

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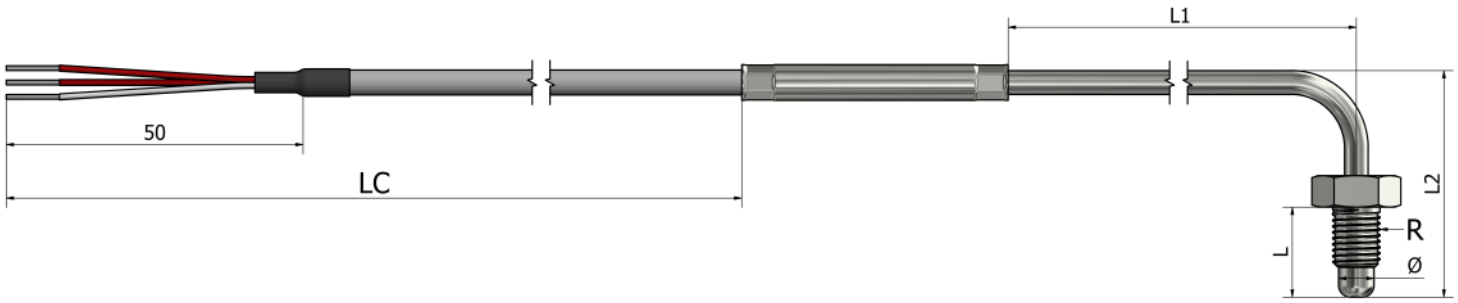
PR21 – Surface RTDs
Nozzle (90° bend)



*Tube material **Stainless steel 316L*** *Nozzle and thread material **Stainless steel (304 / 304L / 316 / 316L)***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*
☐ 2 ☐ 3 ☐ 4

4. Lengths (mm):
L1 _____ L2 _____

5. Length L (mm):

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:
☐ Spring ☐ Heat shrink sleeve ☐ Without

10. Thread:
☐ 1/2'' BSPP ☐ 1/4'' BSPP ☐ 1/4'' BSPT ☐ M10
☐ 1/2'' NPT ☐ Other:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

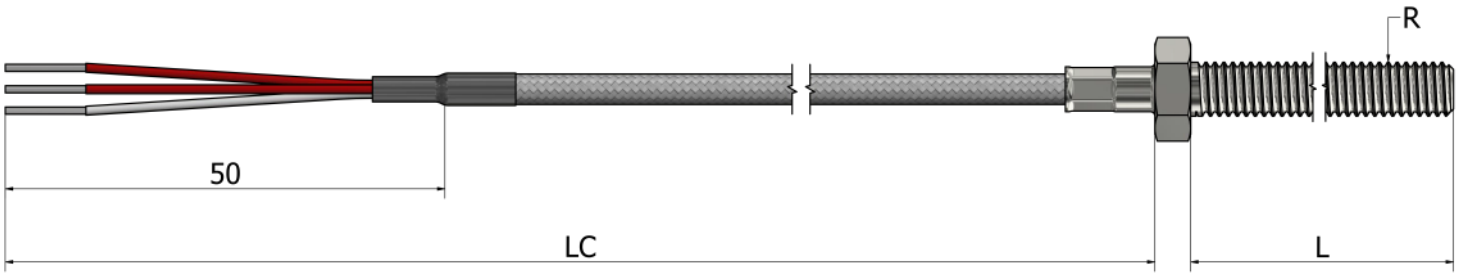
Quantity:

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.

PR22 – Surface RTDs
Bolt



*Bolt material **Stainless steel (304 / 304L / 316 / 316L)***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*
☐ 2 ☐ 3 ☐ 4

4. Length L (mm):

5. Cable prolongation:
☐ PVC (105°C) ☐ Silicone (180°C) ☐ Teflon (260°C)
☐ Fiberglass (400°C) ☐ Other:

6. Cable length LC (mm):

7. Crimp protection:
☐ Spring ☐ Heat shrink sleeve ☐ Without

8. Thread:
☐ 1/2'' BSPP ☐ 1/4'' BSPP ☐ 1/4'' BSPT ☐ M10
☐ 1/2'' NPT ☐ Other:

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

EuroSensors

Ambient RTDs

Contents

EuroSensors

Ambient 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.

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.

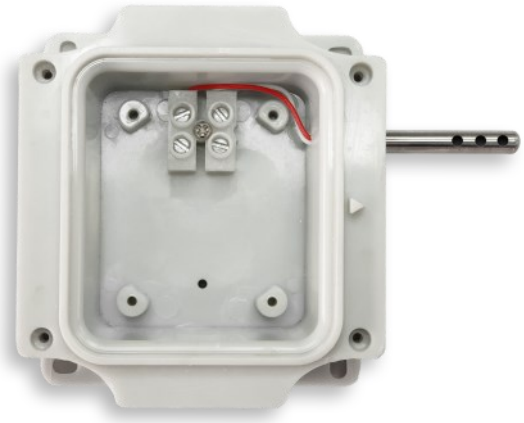
Application areas:

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

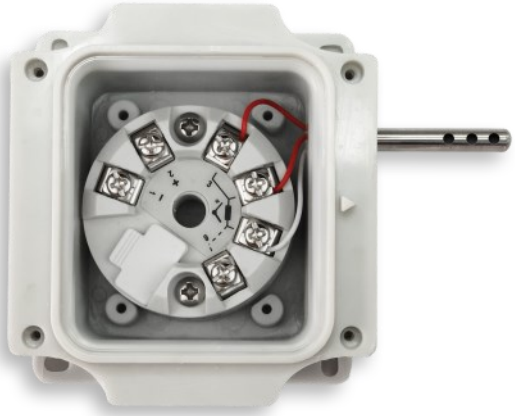
Inside housing

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

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

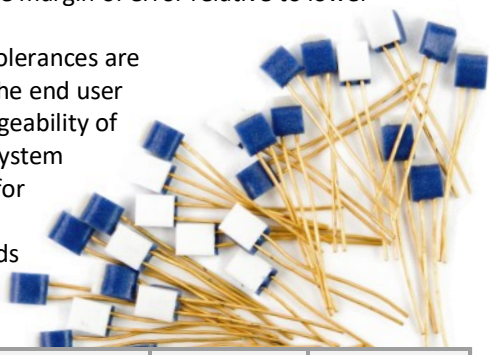
RTDs can operate in a temperature range of -200 to +850°C, making them suitable for many industrial applications.

Low ohmic resistance

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

Pt-s classes

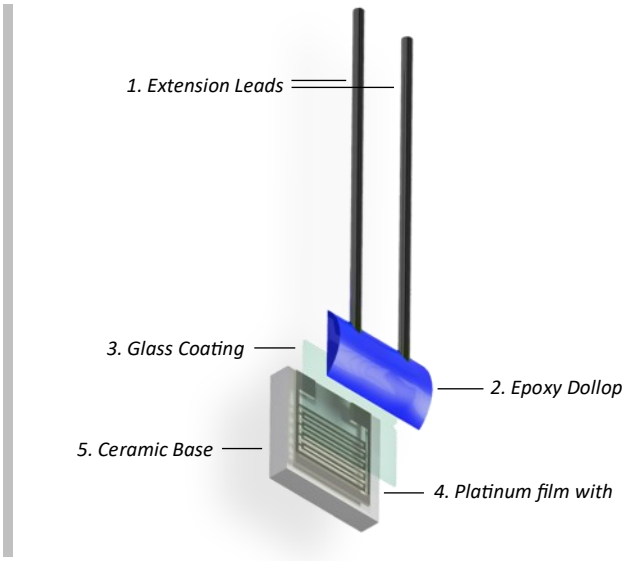
Tolerances of Pt-s sensors can be tailored to customer specifics and thus manufactured to different tolerances. The higher the tolerance the smaller the margin of error relative to lower tolerances.
A system where these tolerances are classified is helpful for the end user and helps the interchangeability 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 ºC
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.

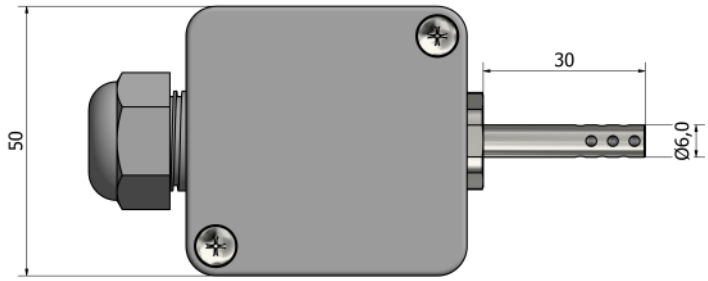
The naming conventions of P100, PT500, and PT1000 sensors are closely tied to the nominal resistance values they exhibit at 0°C. P100 sensor has a nominal resistance of 100 Ω at 0°C, Pt500 sensor has a nominal resistance of 500 Ω at 0°C and Pt1000 sensor has a nominal resistance of 1000 Ω at 0°C. Understanding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

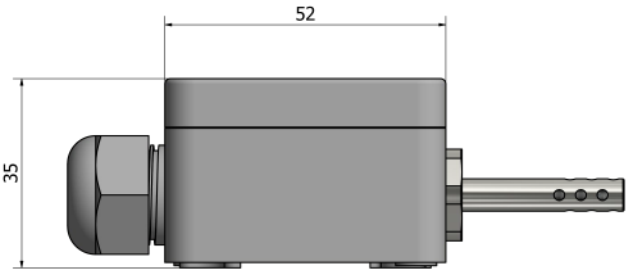
Whether you require a standard PT100 sensor or a higher resistance variant like PT500 or PT1000, these RTD sensors provide reliable and accurate temperature measurements in a wide range of industries and applications.

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





*Tube material **Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*

☐ 2 ☐ 3 ☐ 4

4. Termination:

☐ Serial terminals ☐ Transmitter (°C):
Specify temperature range

5. Tube type:

☐ Standard tube

☐ Perforated tube

☐ Standard tube with perforated protection

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

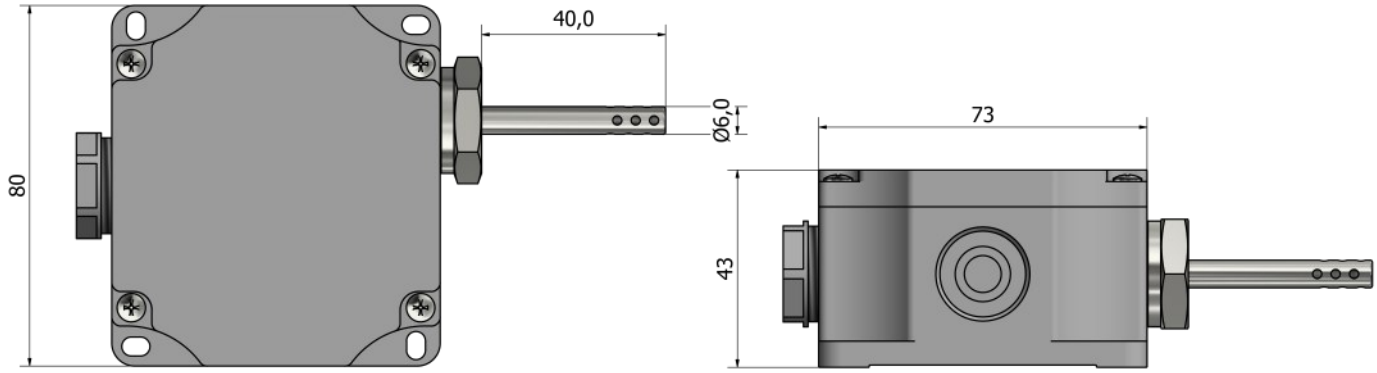
Quantity:

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.

PA02 – Ambient RTDs
Standard plastic housing



*Tube material **Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*

☐ 2 ☐ 3 ☐ 4

4. Termination:

☐ Serial terminals ☐ Transmitter (°C):
Specify temperature range

5. Tube type:

☐ Standard tube

☐ Perforated tube

☐ Standard tube with perforated protection

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

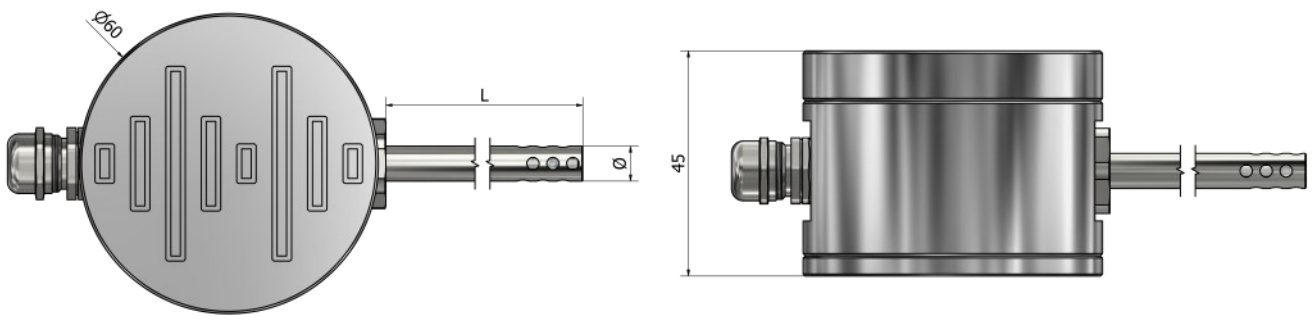
Quantity:

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.

PA11 – Ambient RTDs
Round aluminum housing



*Tube material **Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*

☐ 2 ☐ 3 ☐ 4

4. Termination:

☐ Serial terminals ☐ Transmitter (°C):
Specify temperature range

5. Tube type:

☐ Standard tube

☐ Perforated tube

☐ Standard tube with perforated protection

6. Housing surface:

☐ Black anodized aluminum

☐ Silver anodized aluminum

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

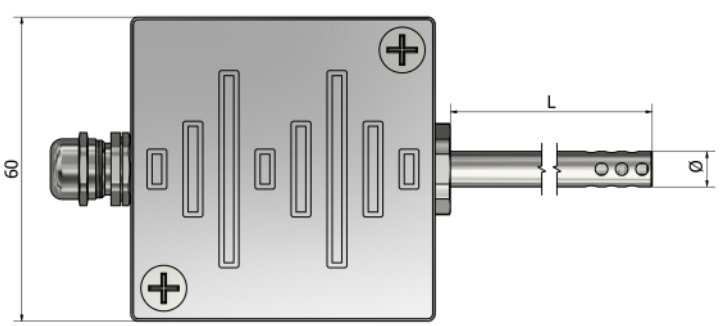
Quantity:

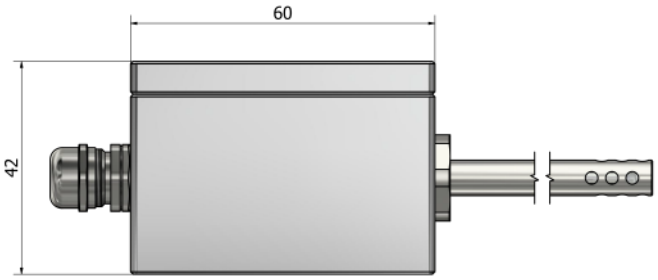
Note:

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.

PA12 – Ambient RTDs
Square aluminum housing





*Tube material **Stainless steel 316L***

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Wiring configuration: *(number of wires)*

☐ 2 ☐ 3 ☐ 4

4. Termination:

☐ Serial terminals ☐ Transmitter (°C):
Specify temperature range

5. Tube type:

☐ Standard tube

☐ Perforated tube

☐ Standard tube with perforated protection

6. Housing surface:

☐ Black anodized aluminum

☐ Silver anodized aluminum

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

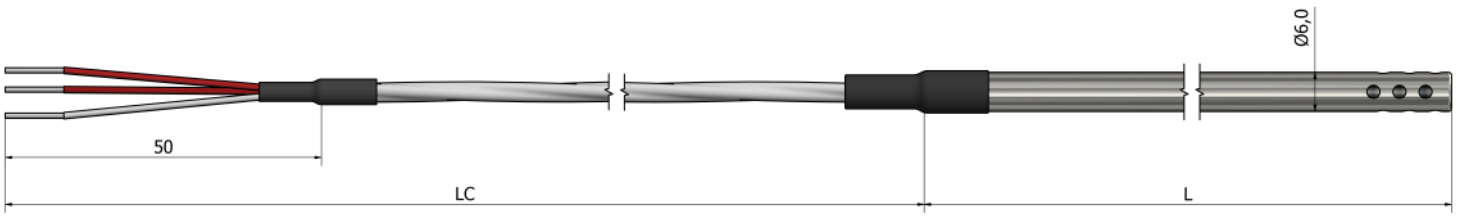
Quantity:

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.

PT25 – Ambient RTDs
Open air (protection tube)



*Tube material **Stainless steel 316L***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

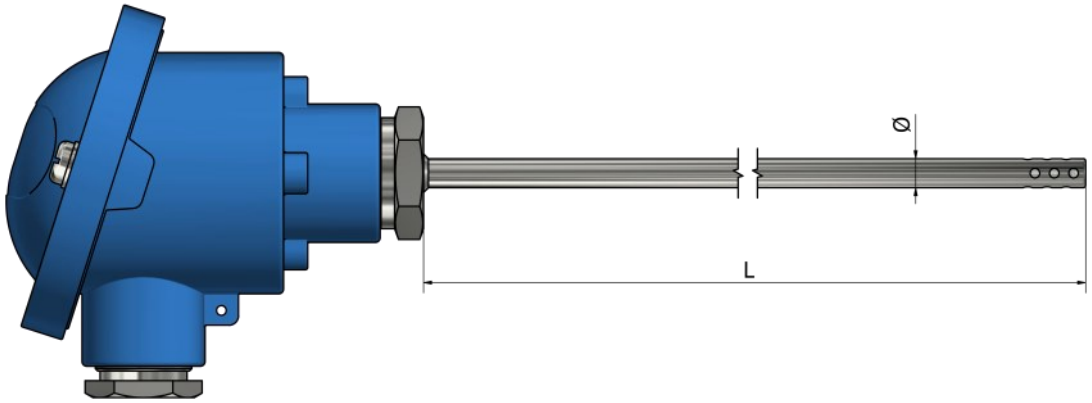
Quantity:

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.

PH22 – Ambient RTDs
Open air (terminal head)



*Tube material **Stainless steel 316L***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.

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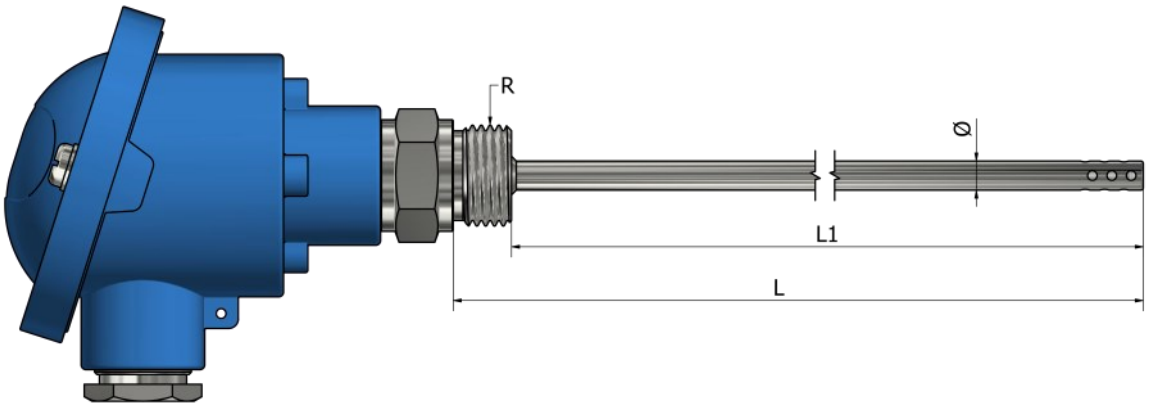
PH23 – Ambient RTDs
Open air with fixed thread



Tube and thread material* ***Stainless steel 316L*

Ordering information

1. Element type:

☐ Pt 100 ☐ Pt 500 ☐ Pt 1000

☐ Other:

2. Element class:

☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*

☐ 2 ☐ 3 ☐ 4

5. Length L or L1 (mm):

L _____ L1 _____

6. Diameter Ø (mm):

7. Thread:

☐ 1/2" BSPP ☐ 1/4" BSPP ☐ 1/4" BSPT ☐ M10

☐ 1/2" NPT ☐ 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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

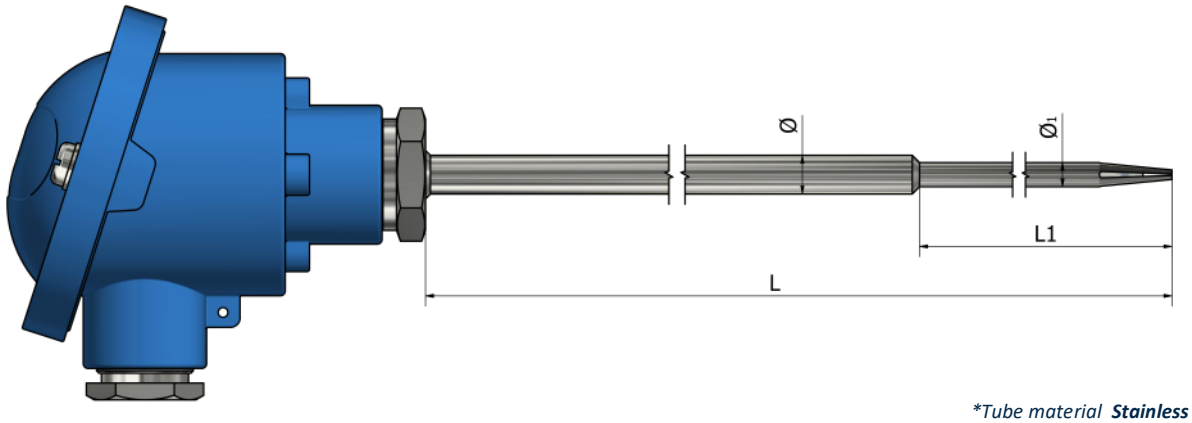
Quantity:

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.

PH24 – Ambient RTDs
Open air with reduced tip



*Tube material **Stainless steel 316L***

Ordering information

1. Element type:
☐ Pt 100 ☐ Pt 500 ☐ Pt 1000
☐ Other:

2. Element class:
☐ A ☐ B ☐ Other:

3. Number of sensor elements: ☐ x 1 ☐ x 2

4. Wiring configuration: *(number of wires per element)*
☐ 2 ☐ 3 ☐ 4

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

Additional:

Application:

Operating temperature (min/max):

Type of environment:

Accessories:
See the part "Accessories"

Quantity:

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.