simex

DIMELCO

La solution à votre mesure

TEMPERATURE SENSORS

RTD sensors
thermocouples
connection heads
compensating cable
and many more...



Measure, **Control** and Log Data

/ Process

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4 ELECTRIC HEATERS

1 RESISTANCE TEMPERATURE SENSORS

Resistive sensors react to varying temperatures by changing the resistance of the built-in resistor.

THERMORESISTORS



These changes are characteristic for each thermoresistor and expressed through the temperature coefficient of resistance (TCR). TCR specifies the relative change in resistance caused by the temperature change of 1°C. We mark it with the α symbol. Knowing the resistance R_T of the thermoresistor in the initial temperature T_P, we can determine its resistance R in any other temperature.

$$R = R_T \cdot (1 + \alpha (T - T_P))$$

Thermoresistors are made of metals characterized by the following properties:

- as high as possible temperature resistance coefficient,
- as high as possible resistance, that will allow making resistors with small size,
- as high as possible melting point,
- constant physical properties,
- corrosion resistance,
- repeatability of the properties of elements with identical shapes,
- continuous temperature-resistance relation with no hysteresis.

Platinum (Pt) is a metal that suitably meets the above-mentioned criteria. It is used in the production of ceramic and thin-film thermoresistor.

THERMISTORS



Thermistors are another type of resistance temperature sensor made by sintering semiconducting and binding materials. The most commonly used materials are nickel, cobalt, manganese, iron, vanadium, and titanium oxides. When selecting thermistor materials, you should primarily pay attention to their resistivity. This value ranges from $10^{-4} \div 10^{12}\ \Omega \cdot m$. Temperature dependence between the temperature and resistance for the thermistor is calculated based on the following formula:

$$R_T = A \cdot \exp(\frac{B}{T})$$

where:
A - coefficient corresponding to the resistance for temperature approaching infinity,
B - material constant

There are two main types of thermistors: NTC (Negative Temperature Coefficient) and PTC (Positive Temperature Coefficient). NTC thermistors lower their resistance as temperature rises, while PTC thermistors operate oppositely by increasing resistance with rising temperature. The temperature coefficient of the thermistor α_T is described by the formula:

$$\alpha_T = \frac{1}{R_T} \cdot \frac{d \cdot R_T}{d \cdot T}$$

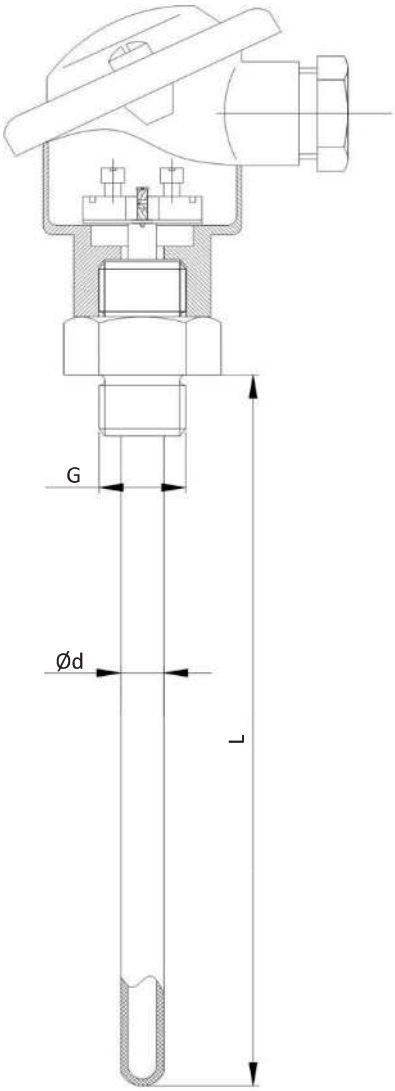
At room temperature (25°C), this coefficient for NTC thermistors ranges from -2,5 %/K to -6 %/K



SCR100

- temperature range -50 ÷ 200°C
- operating temperature of connection heads max. 150°C
- stainless steel sheath
- optional: sensor with a replaceable measuring insert
- possibility of mounting a 4...20 mA or 0...10 V temperature transmitter
- connection head DANW with local display

The resistance thermometer **SCR100** consists of an optional exchangeable measuring insert, outer protective tube (thermowell) and aluminum connection head, where mounting a temperature transmitter with 4...20 mA or 0...10V output signal is possible. The measuring insert represents the replaceable element of the complete sensor, which reduces time and costs of maintenance of the measuring apparatus installed in the object.



Application areas:
- machine construction, tanks or containers,
- fine chemical industry,
- light energy industry,
- general industrial services.

TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 200°C
Connection head	B, NA or other, operating temperature -40 ÷ 150°C
Class	A, B or 1/3 B
Sheath	material: stainless steel 1.4541 or other nominal length: 100 mm, 160 mm or other diameter: 4 ÷ 15 mm
Process connection	G1/2", M20x1,5 or other

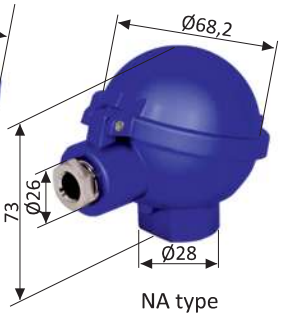
RESISTOR TOLERANCE ACC. TO PN-EN 60751

Class	Tolerance [°C]
1/3B	t = 0,10 + 0,002 x |t|
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

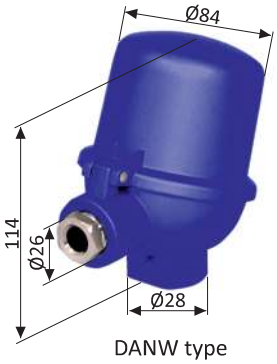
CONNECTION HEAD TYPES



B type



NA type



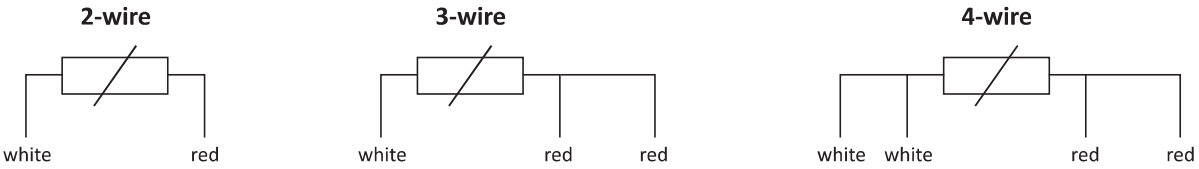
DANW type



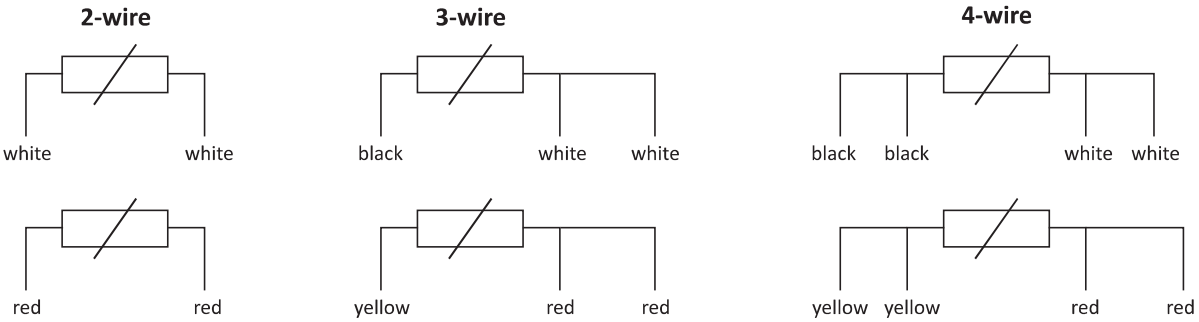
DAN type

ELECTRICAL CONNECTION

1 x Pt 100



2 x Pt 100



ORDERING

SCR100-X-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP1 : without ceramic block
PP2 : with RTD/TC transmitter, 4...20mA
PP3 : with other transmitter (on request)

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

connection head:
B
NA
other, please specify

sheath length (L):
100 mm
160 mm
other, please specify [mm]

measuring insert:
BW : non-replaceable
W : replaceable

sensor measuring range, output type or temperature transmitter settings:
please specify

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B
1/3B

process connection:
G1/2"
M20x1,5
other, please specify

sheath diameter (Ød):
4 mm
6 mm
9 mm
other, please specify

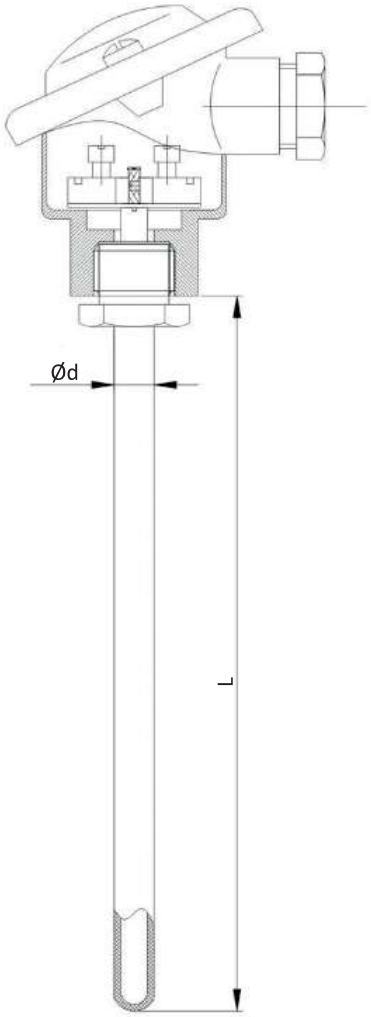
Ordering example:
SCR100-1-Pt100-B-100-W-9-M20x1,5-B-2-250
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, measuring insert replaceable, B head type, process connection M20x1,5, sheath diameter 9 mm and length 100 mm, sensor measuring range 250°C.



SCR101

- temperature range -50 ÷ 550°C
- operating temperature of connection heads max. 150°C
- stainless steel sheath
- optional: sensor with a replaceable measuring insert
- possibility of mounting a 4...20 mA or 0...10 V temperature transmitter
- connection head DANW with local display

The resistance thermometer **SCR101** consists of an optional exchangeable measuring insert, outer protective tube (thermowell) and aluminum connection head, with mounting a temperature transmitter with 4...20 mA or 0...10V output signal is possible. The measuring insert represents the replaceable element of the complete sensor, which reduces the time and costs of maintenance of the measuring apparatus installed in the object. Compression fittings allow simple adaptation to the required insertion length at the installation point.



Application areas:
- machine construction, tanks or containers,
- fine chemical industry,
- light energy industry,
- food industry,
- general industrial services.

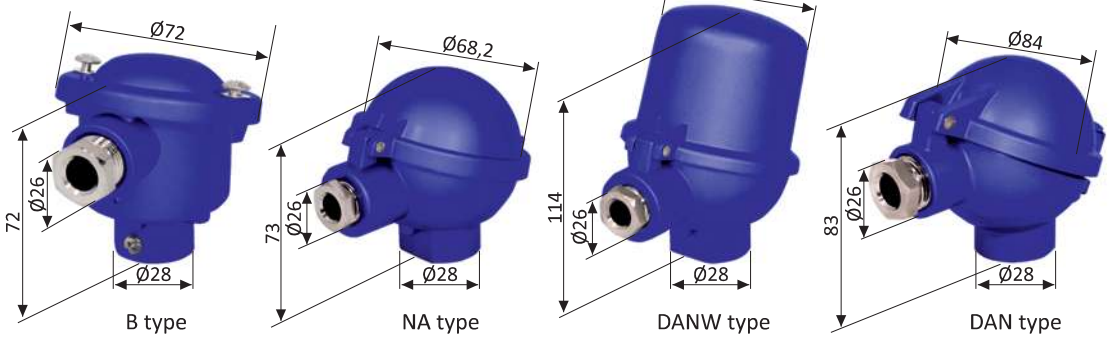
TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 550°C
Connection head	B, NA or other, operating temperature -40 ÷ 150°C
Class	A, B or 1/3 B
Sheath	material: stainless steel 1.4541 or other nominal length: 100 mm, 160 mm or other diameter: 4 ÷ 15 mm

RESISTOR TOLERANCE ACC. TO PN-EN 60751

Class	Tolerance [°C]
1/3B	t = 0,10 + 0,002 x |t|
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

CONNECTION HEAD TYPES



OPTIONAL ACCESORIES



S type flange
(stainless steel)

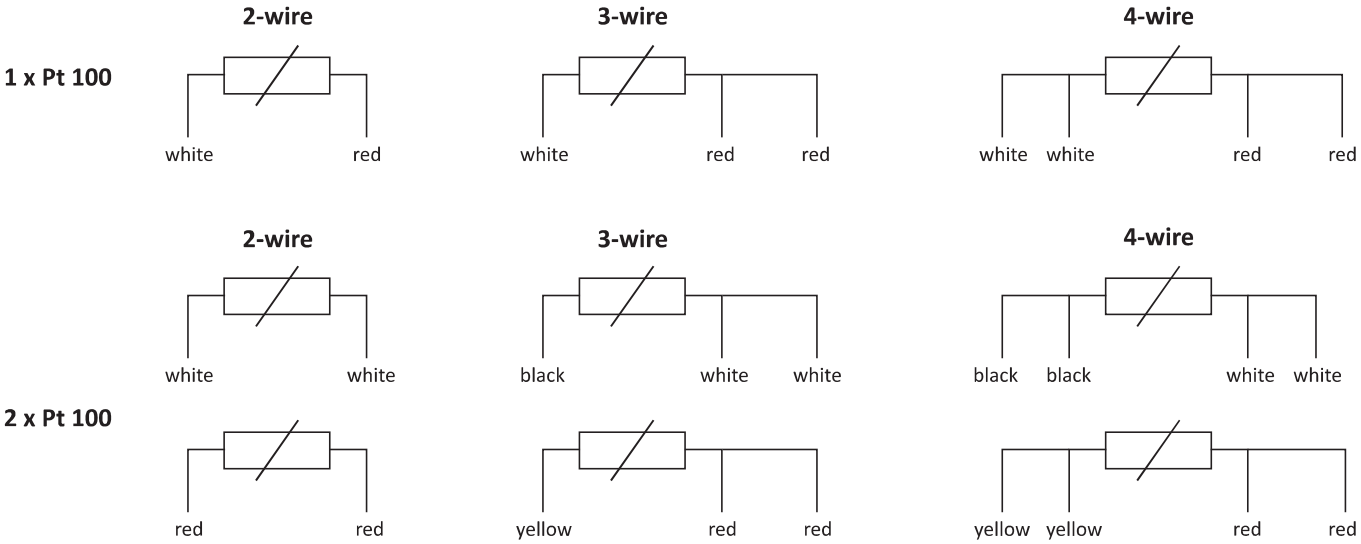


T type flange
(PTFE)



Threaded holder (fitting)
with a compression ferrule
(brass or stainless steel)

ELECTRICAL CONNECTION



ORDERING

SCR101-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP1 : without ceramic block
PP2 : with RTD/TC transmitter, 4...20mA
PP3 : with other transmitter (on request)

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

connection head:
B
NA
other, please specify

sheath length (L):
100 mm
160 mm
other, please specify [mm]

sensor measuring range, output type or temperature transmitter settings:
please specify

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B
1/3B

sheath diameter (Ød):
4 mm
6 mm
9 mm
other, please specify

measuring insert:
BW : non-replaceable
W : replaceable

Ordering example:
SCR101-1-Pt100-B-100-BW-6-B-2-150
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, non-replaceable measuring insert, B head type, sheath diameter 9 mm and length 100 mm, sensor measuring range 150°C.



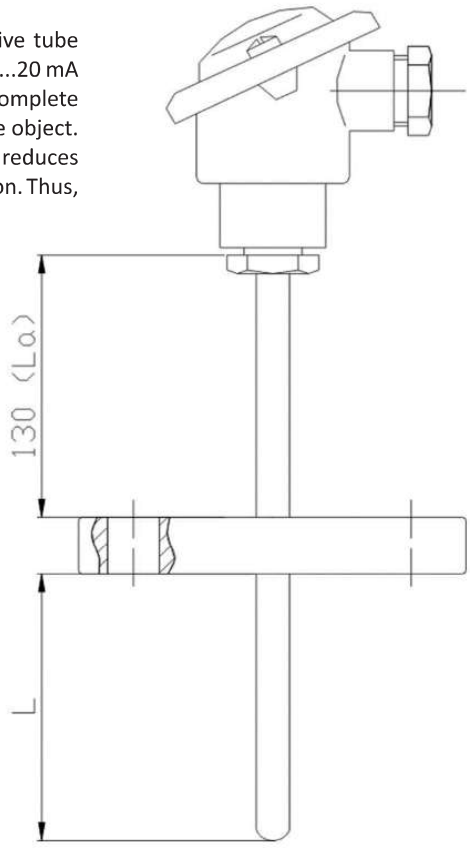
SCR102

- temperature range -50 ÷ 550°C
- operating temperature of connection heads max. 150°C
- stainless steel sheath
- mounting flange
- possibility of mounting a 4...20 mA or 0...10 V temperature transmitter
- connection head DANW with local display

The resistance thermometer **SCR102** consists of an exchangeable measuring insert, outer protective tube (thermowell) with neck, and aluminum connection head. Mounting a temperature transmitter with 4...20 mA or 0...10V output signal is possible. The measuring insert represents the replaceable element of the complete sensor, which reduces the time and costs of maintenance of the measuring apparatus installed in the object. Spring fixation of the measuring insert provides perfect pressure to the bottom of the protecting tube, reduces the time of reaction of temperature changes, and increases the accuracy. It also reduces natural vibration. Thus, mechanical and electrical defects can be avoided.

Application areas:

- fine chemical industry,
- light energy industry,
- general industrial services.



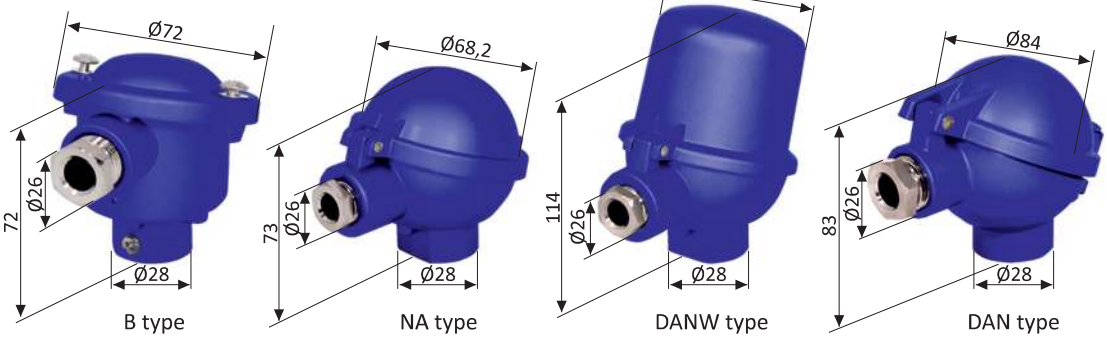
TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 550°C
Connection head	B, NA or other, operating temperature -40 ÷ 150°C
Class	A, B or 1/3 B
Sheath	material: stainless steel 1.4541 or other nominal length: 130 mm (standard) or other diameter: 4 ÷ 15 mm flange DN20, DN25 or other

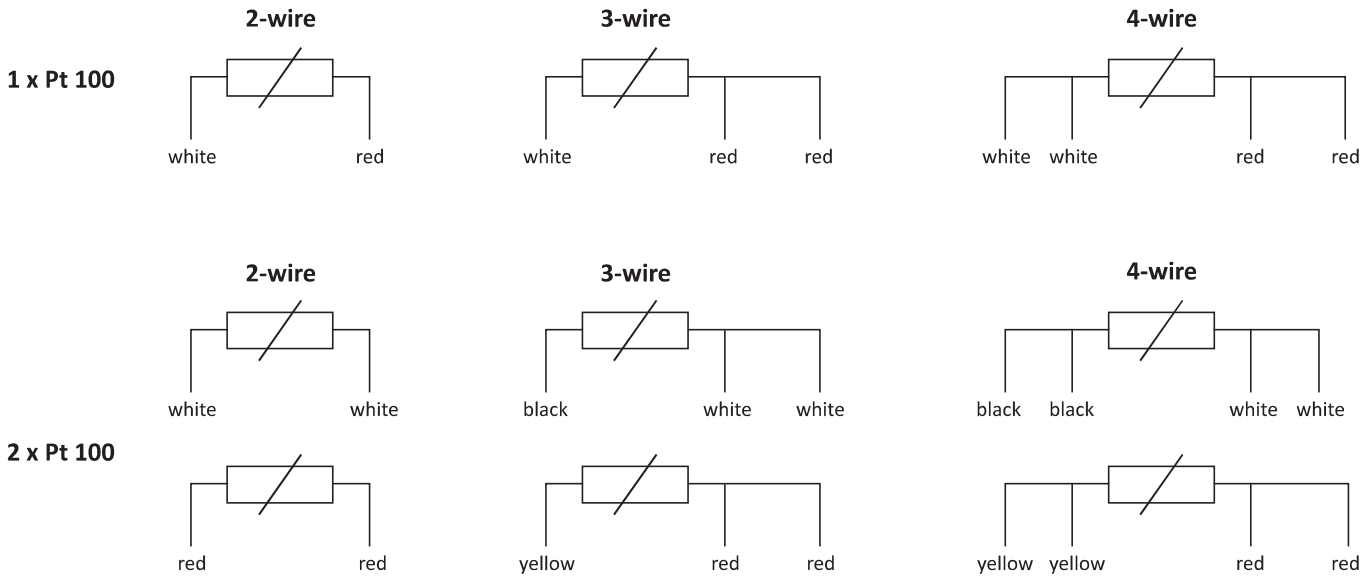
RESISTOR TOLERANCE ACC. TO PN-EN 60751

Class	Tolerance [°C]
1/3B	t = 0,10 + 0,002 x |t|
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

CONNECTION HEAD TYPES



ELECTRICAL CONNECTION



ORDERING

SCR102-X-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP1 : without ceramic block
PP2 : with RTD/TC transmitter, 4...20mA
PP3 : with other transmitter (on request)

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

connection head:
B
NA
other, please specify

sheath length (L):
100 mm
160 mm
other, please specify [mm]

length La [mm]:
S : 130 mm (standard)
other, please specify

sensor measuring range, output type or temperature transmitter settings:
please specify

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B
1/3B

flange:
DN20(PN100)
DN25(PN100)
other, please specify

sheath diameter (Ød):
6 mm
9 mm
12 mm
other, please specify

Ordering example:
SCR102-1-Pt100-B-100-S-9-DN20(PN100)-B-2-150
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, B head type, sheath diameter 9 mm and length 100 mm, process connection flange DN20 (PN100), sensor measuring range 150°C.



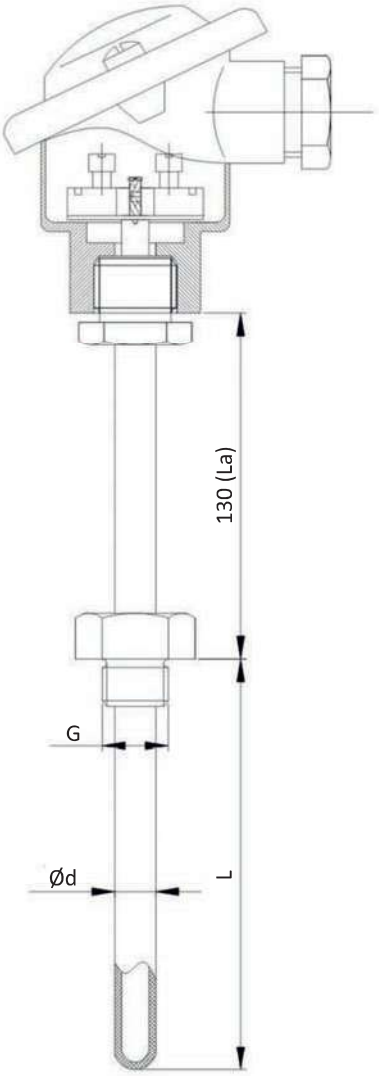
SCR103

- temperature range -50 ÷ 550°C
- operating temperature of connection heads max. 150°C
- stainless steel sheath
- threaded process connection
- optional: sensor with a replaceable measuring insert
- possibility of mounting a 4...20 mA or 0...10 V temperature transmitter
- connection head DANW with local display

The resistance thermometer **SCR103** consists of an exchangeable measuring insert, outer protective tube (thermowell) with neck, and aluminum connection head. Mounting a temperature transmitter with 4...20 mA or 0...10V output signal is possible. The measuring insert represents the replaceable element of the complete sensor, which reduces the time and costs of maintenance of the measuring apparatus installed in the object. Spring fixation of the measuring insert provides perfect pressure to the bottom of the protecting tube, reduces the time of reaction of temperature changes, and increases the accuracy. It also reduces natural vibration. Thus, mechanical and electrical defects can be avoided.

Application areas:

- fine chemical industry,
- light energy industry,
- general industrial services.



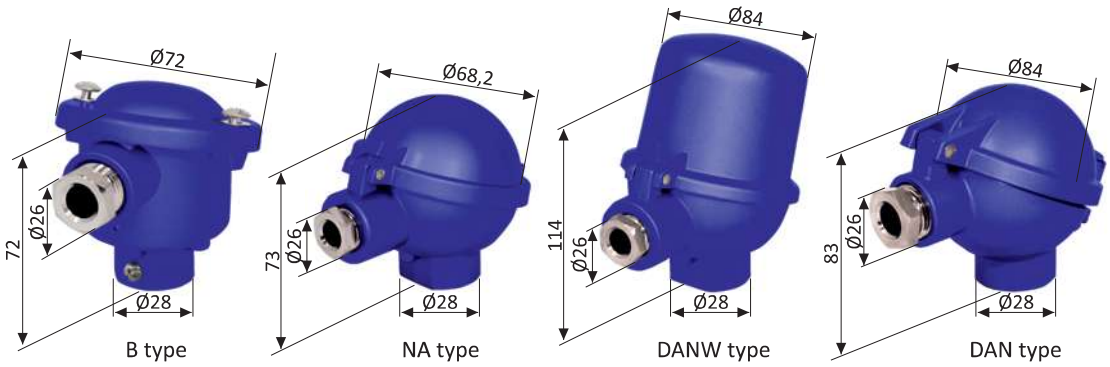
TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 550°C
Connection head	B, NA or other, operating temperature -40 ÷ 150°C
Class	A, B or 1/3 B
Sheath	material: stainless steel 1.4541 or other nominal length: 130 mm (standard) or other diameter: 4 ÷ 15 mm
Process connection	G1/2", M20x1,5 or other

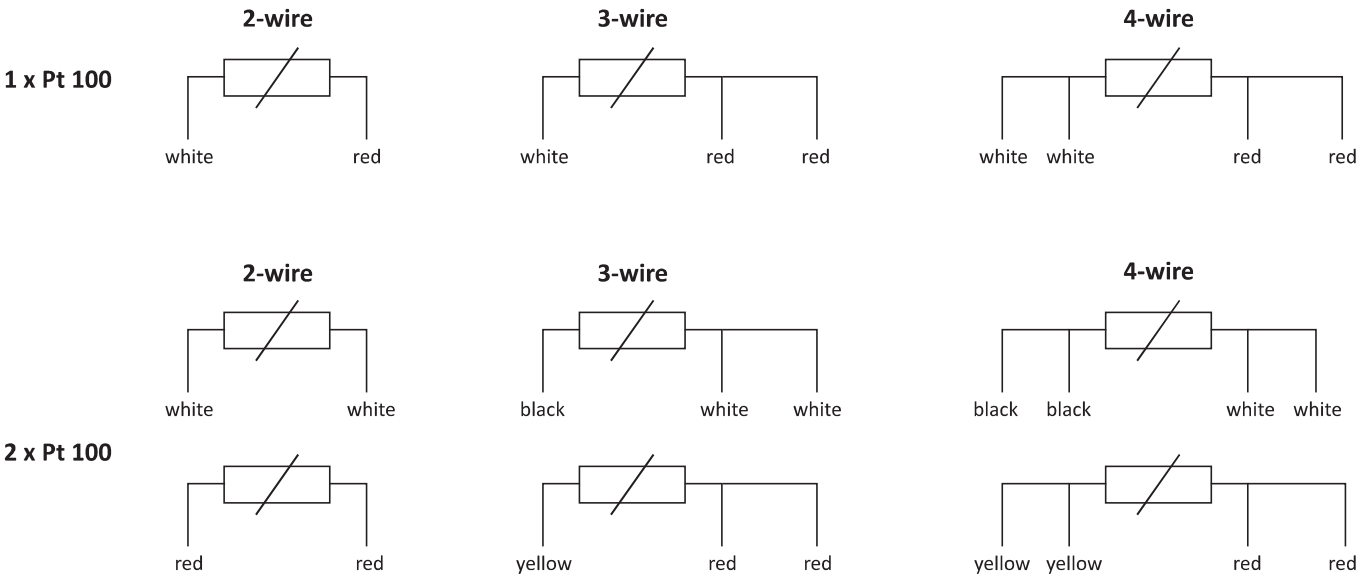
RESISTOR TOLERANCE ACC. TO PN-EN 60751

Class	Tolerance [°C]
1/3B	t = 0,10 + 0,002 x |t|
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

CONNECTION HEAD TYPES



ELECTRICAL CONNECTION



ORDERING

SCR103-X-X-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP1 : without ceramic block
PP2 : with RTD/TC transmitter, 4...20mA
PP3 : with other transmitter (on request)

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

connection head:
B
NA
other, please specify

sheath length (L):
100 mm
160 mm
other, please specify [mm]

length La [mm]:
S : 130 mm (standard)
other, please specify

sensor measuring range, output type or temperature transmitter settings:
please specify

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B
1/3B

process connection:
G1/2"
M20x1,5
other, please specify

sheath diameter (Ød):
4 mm
6 mm
9 mm
other, please specify

measuring insert:
BW : non-replaceable
W : replaceable

Ordering example:
SCR103-1-Pt100-B-100-S-W-6-M20x1,5-B-2-250
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, measuring insert replaceable, B head type, process connection M20x1,5, sheath diameter 6 mm and length 100 mm, sensor measuring range 250°C.



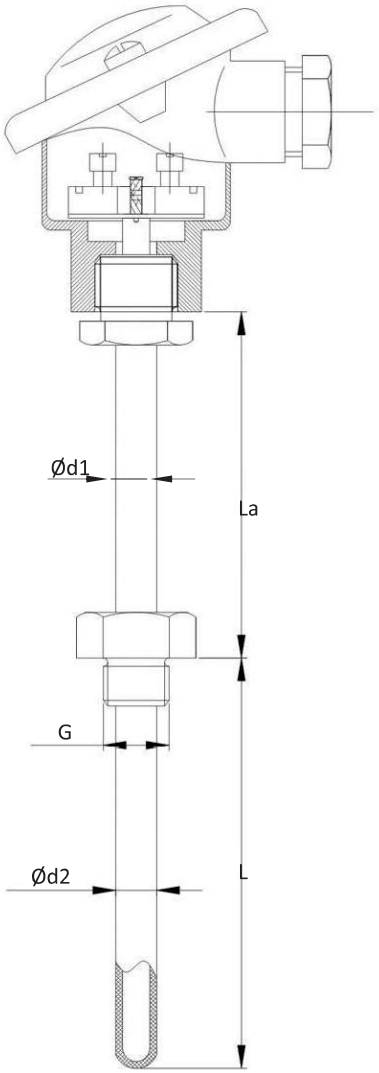
SCR104

- temperature range -50 ÷ 550°C
- operating temperature of connection heads max. 150°C
- stainless steel sheath
- threaded process connection
- optional: sensor with a replaceable measuring insert
- possibility of mounting a 4...20 mA or 0...10 V temperature transmitter
- connection head DANW with local display

The resistance thermometer **SCR104** consists of an exchangeable measuring insert, outer protective tube (thermowell) with neck, and aluminum connection head. Mounting a temperature transmitter with 4...20 mA or 0...10V output signal is possible. The measuring insert represents the replaceable element of the complete sensor, which reduces the time and costs of maintenance of the measuring apparatus installed in the object. Spring fixation of the measuring insert provides perfect pressure to the bottom of the protecting tube, reduces the time of reaction of temperature changes, and increases the accuracy. It also reduces natural vibration. Thus, mechanical and electrical defects can be avoided.

Application areas:

- fine chemical industry,
- light energy industry,
- general industrial services.



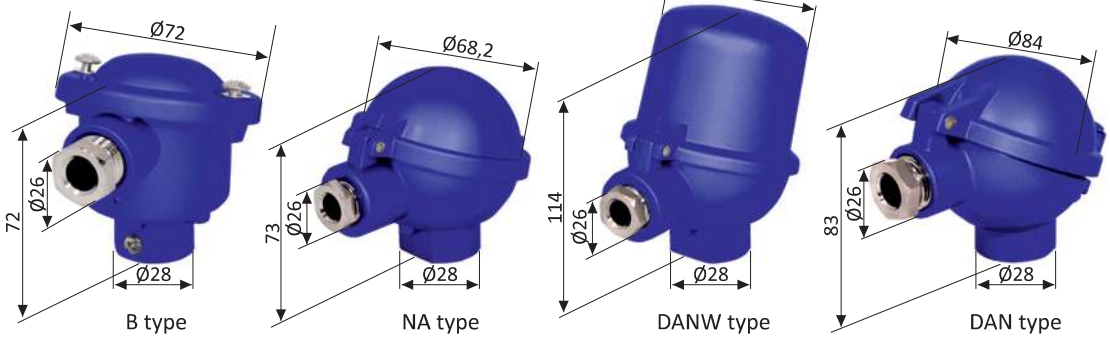
TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 550°C
Connection head	B, NA or other, operating temperature -40 ÷ 150°C
Class	A, B or 1/3 B
Sheath	material: stainless steel 1.4541 or other nominal length: 130 mm (standard) or other diameter: 4 ÷ 22 mm
Process connection	G1/2", M20x1,5, 1/2 NPT or other

RESISTOR TOLERANCE ACC. TO PN-EN 60751

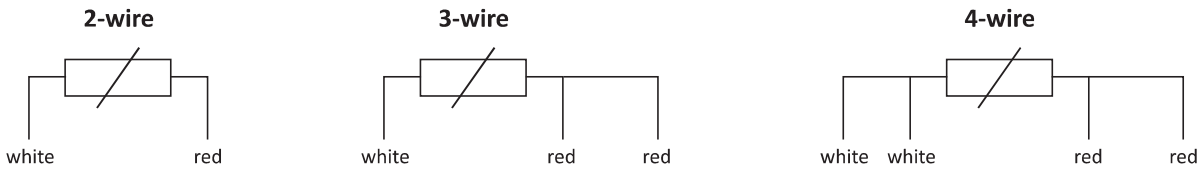
Class	Tolerance [°C]
1/3B	t = 0,10 + 0,002 x |t|
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

CONNECTION HEAD TYPES

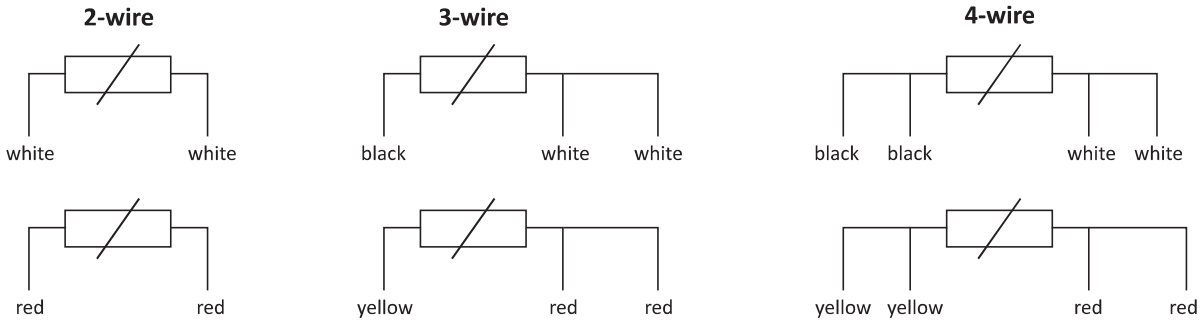


ELECTRICAL CONNECTION

1 x Pt 100



2 x Pt 100



ORDERING

SCR104-X-X-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP1 : without ceramic block
PP2 : with RTD/TC transmitter, 4...20mA
PP3 : with other transmitter (on request)

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

connection head:
B
NA
other, please specify

sheath length (L):
100 mm
160 mm
other, please specify [mm]

length La [mm]:
S : 130 mm (standard)
other, please specify

sensor measuring range, output type or temperature transmitter settings:
please specify

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B
1/3B

process connection:
G1/2"
M20x1,5
other, please specify

sheath diameter (Ød1/Ød2):
4/6 : Ø 4/6 mm
6/8 : Ø 6/8 mm
7/9 : Ø 7/9 mm
other, please specify

measuring insert:
BW : non-replaceable
W : replaceable

Ordering example:
SCR104-1-Pt100-B-100-S-W-6/8-G1/2”-B-2-250
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, measuring insert replaceable, B connection head, process connection G1/2”, sheath diameter d1=6 mm and length 100 mm, sheath diameter d2=8 mm and length 130 mm, sensor measuring range 250°C.

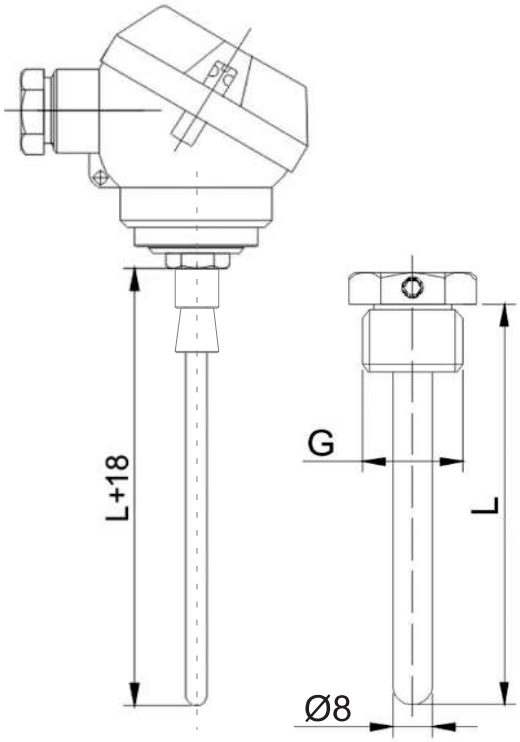


SCR105

- temperature range -50 ÷ 200°C
- MA type connection head
- operating temperature of connection heads max. 100°C
- stainless steel sheath
- outer thermowell with process connection

Resistance thermometer **SCR105** consists of a non-exchangeable measuring insert, outer protective tube with threaded process connection (thermowell), and aluminum connection head. Miniature connection head MA type reduces the size of complete sensor construction to make possible installation in confined areas.

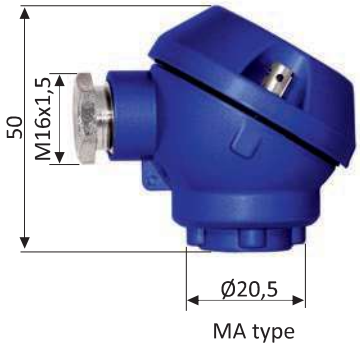
Application areas:
- fine chemical industry,
- light energy industry,
- general industrial services.



TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 200°C
Connection head	MA, aluminum, operating temperature -40 ÷ 100°C
Class	A, B or 1/3 B
Sheath	material: stainless steel 1.4541 or other nominal length: 100 mm (standard) or other diameter: 8 mm
Process connection	G1/2", M20x1,5 or other

CONNECTION HEAD



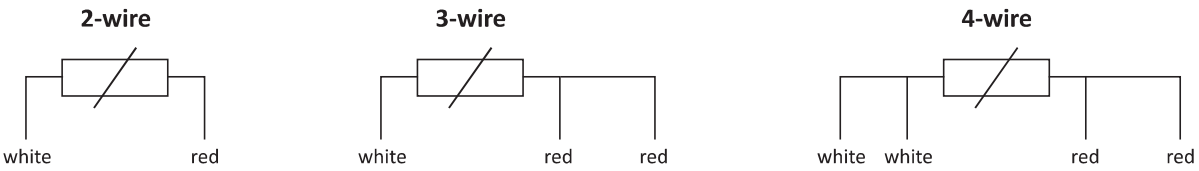
MA type

RESISTOR TOLERANCE ACC. TO PN-EN 60751

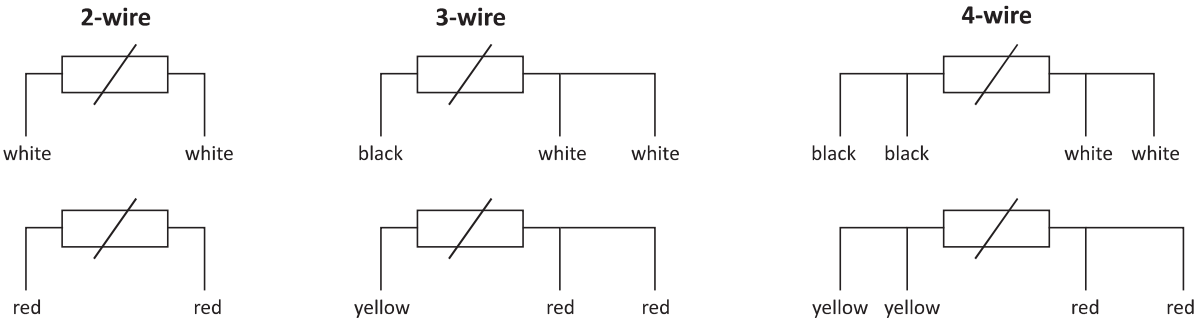
Class	Tolerance [°C]
1/3B	t = 0,10 + 0,002 x |t|
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

ELECTRICAL CONNECTION

1 x Pt 100



2 x Pt 100



ORDERING

SCR105-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

sheath length (L):
100 mm
other, please specify [mm]

sensor measuring range:
please specify

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B
1/3B

process connection:
G1/2"
M20x1,5
other, please specify

Ordering example:
SCR105-1-Pt100-100-G1/2"-B-2-170
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, process connection G1/2", sheath length 100 mm, sensor measuring range 170°C.

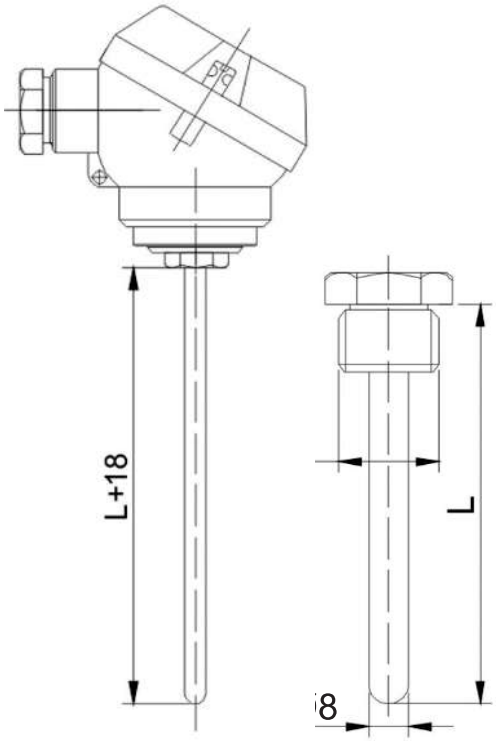


SCR106

- temperature range -50 ÷ 200°C
- MA type connection head
- operating temperature of connection heads max. 100°C
- stainless steel sheath
- outer thermowell with process connection

Resistance thermometer **SCR106** consists of a non-exchangeable measuring insert, outer protective tube with threaded process connection (thermowell), and aluminum connection head. Miniature connection head MA type reduces the size of complete sensor construction to make possible installation in confined areas.

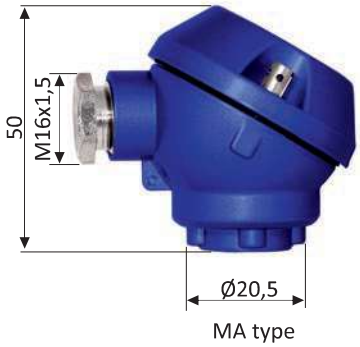
Application areas:
- fine chemical industry,
- light energy industry,
- general industrial services.



TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 200°C
Connection head	MA, aluminum, operating temperature -40 ÷ 100°C
Class	A, B or 1/3 B
Sheath	material: stainless steel 1.4541 or other nominal length: 100 mm (standard) or other diameter: 8 mm
Process connection	G1/2", M20x1,5 or other

CONNECTION HEAD



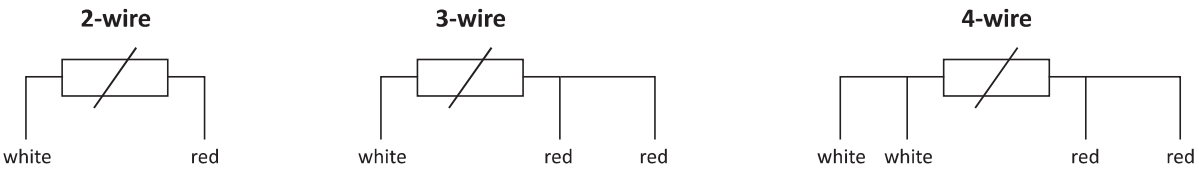
MA type

RESISTOR TOLERANCE ACC. TO PN-EN 60751

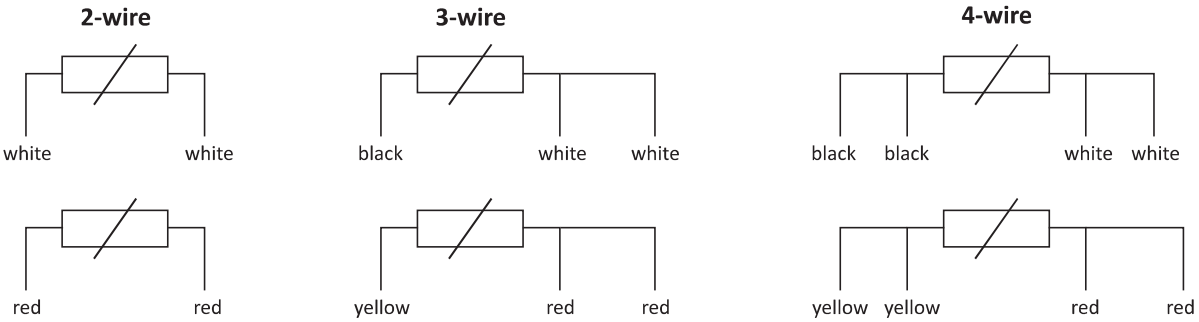
Class	Tolerance [°C]
1/3B	t = 0,10 + 0,002 x |t|
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

ELECTRICAL CONNECTION

1 x Pt 100



2 x Pt 100



ORDERING

SCR106-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

sheath length (L):
100 mm
other, please specify [mm]

sensor measuring range:
please specify

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B
1/3B

process connection:
G1/2"
M20x1,5
other, please specify

Ordering example:
SCR106-1-Pt100-100-G1/2"-B-2-100
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, process connection G1/2”, sheath length 100 mm, sensor measuring range 100°C.

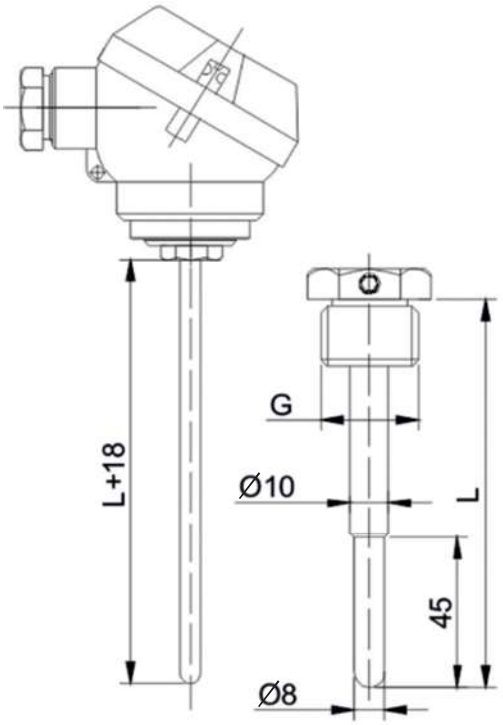


SCR107

- temperature range -50 ÷ 200°C
- MA type connection head
- operating temperature of connection heads max. 100°C
- stainless steel sheath
- outer thermowell with process connection

Resistance thermometer **SCR107** consists of a non-exchangeable measuring insert, outer protective tube with threaded process connection (thermowell), and aluminum connection head. Miniature connection head MA type reduces the size of complete sensor construction to make possible installation in confined areas.

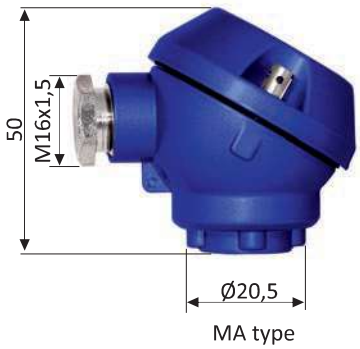
Application areas:
- fine chemical industry,
- light energy industry,
- general industrial services.



TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 200°C
Connection head	MA, aluminum, operating temperature -40 ÷ 100°C
Class	A, B or 1/3 B
Sheath	material: stainless steel 1.4541 or other nominal length: 100 mm (standard) or other diameter: 8 / 10 mm
Process connection	G1/2", M20x1,5 or other

CONNECTION HEAD

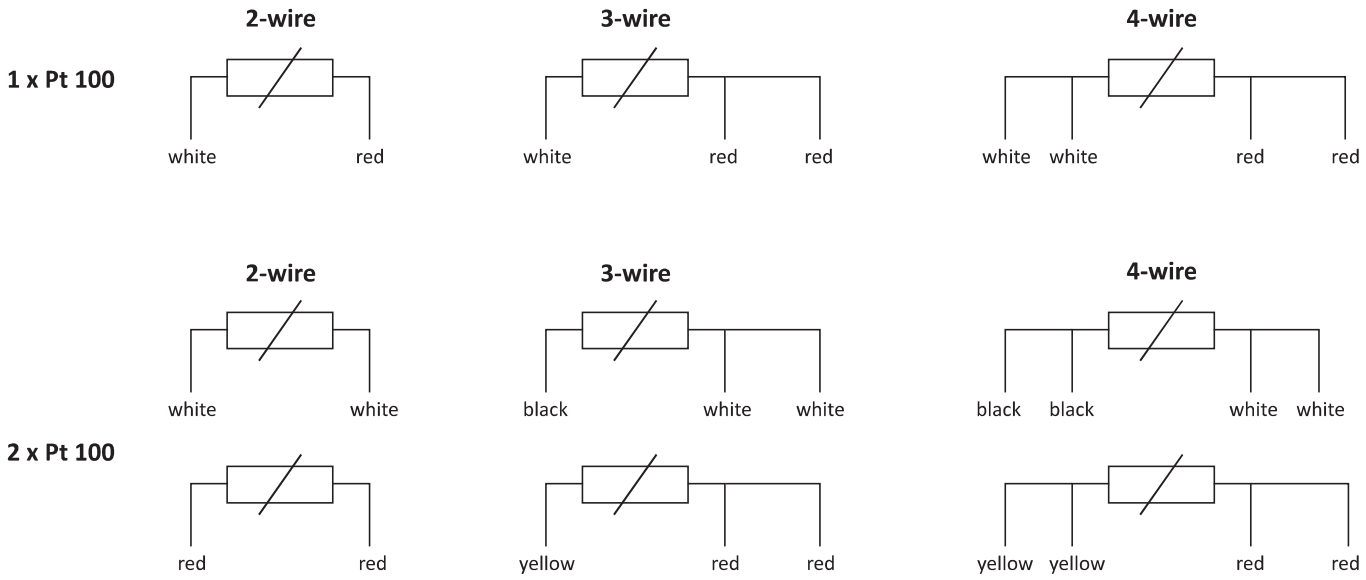


MA type

RESISTOR TOLERANCE ACC. TO PN-EN 60751

Class	Tolerance [°C]
1/3B	t = 0,10 + 0,002 x |t|
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

ELECTRICAL CONNECTION



ORDERING

SCR107-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

sheath length (L):
100 mm
other, please specify [mm]

sensor measuring range:
please specify

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B
1/3B

process connection:
G1/2"
M20x1,5
other, please specify

Ordering example:
SCR107-1-Pt100-100-G1/2"-B-2-150
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, process connection G1/2”, sheath length 100 mm, sensor measuring range 150°C.



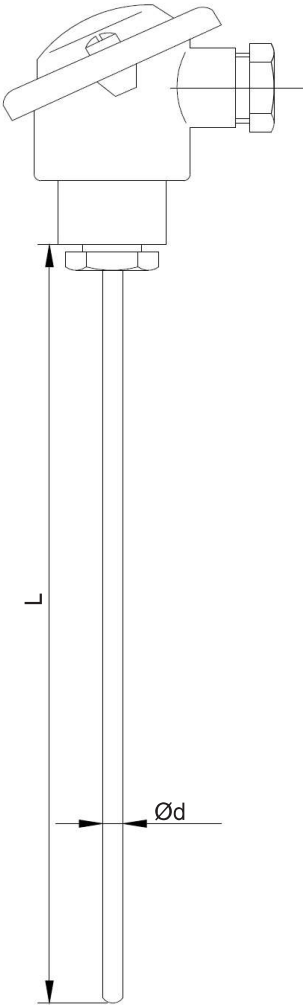
SCR108

- mineral insulated resistance sensor
- connection head
- short response time for temperature change
- small dimensions for operation in hard-to-reach places
- resistance to vibrations and the possibility of bending
- thermowell made of acid-resistant steel

Resistance thermometers **SCR108** are made of metal-sheathed cables with internal wires (Cu or Ni). They are insulated from each other, with the outer sheath with magnesium oxide (MgO) powder. It provides the sensor with high vibration resistance, flexibility, as well as temperature resistance, and good electrical insulation. These sensors are designed for direct temperature measuring in places with difficult access. There are also used in every application, where it is required to use flexible and small diameter probe, with high resistance to shock, vibration, and short response time to temperature changes. Due to tight pressing of the insulating layer (MgO) and the appropriate structure of the inner wires and the sheath, the sensors can be bent with a minimal the radius of curvature of three times the outer diameter of the sheath.

Application areas:

- general machinery and equipment design,
- measuring temperature of liquids, gases and solid bodies,
- all branches of industry,
- measurement laboratories.



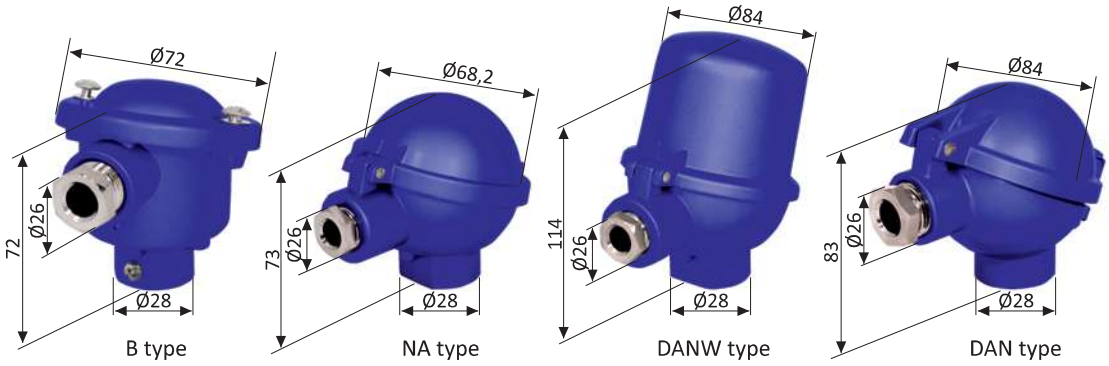
TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 550°C
Connection head	B, NA, MA, DAN or other, operating temperature -40 ÷ 150°C
Class	A or B
Thermowell	material: stainless steel 1.4541 or other any nominal length (specified when ordering) diameter: 1,5 ÷ 8 mm

RESISTOR TOLERANCE ACC. TO PN-EN 60751

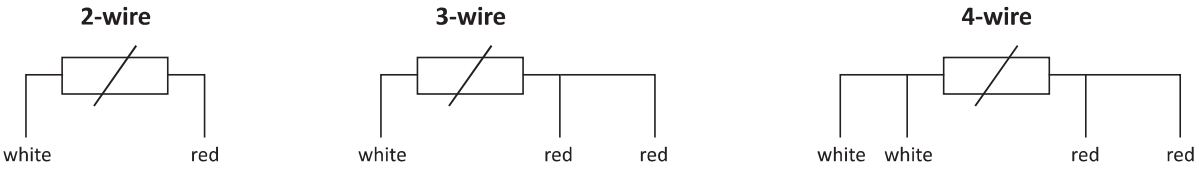
Class	Tolerance [°C]
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

CONNECTION HEAD TYPES

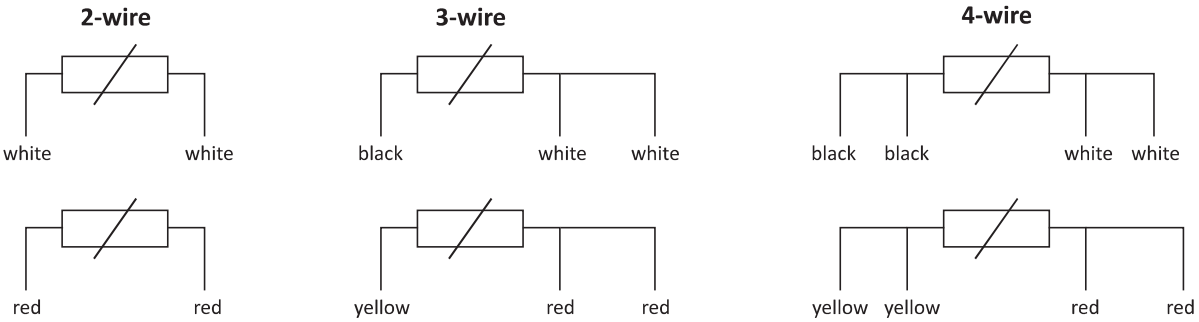


ELECTRICAL CONNECTION

1 x Pt 100



2 x Pt 100



ORDERING

SCR108-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP1 : without ceramic block
PP2 : with RTD/TC transmitter, 4...20mA
PP3 : with other transmitter (on request)

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

thermowell diameter (d):
3 : 3 mm
6 : 6 mm
other, please specify

thermowell length (L):
please specify [mm]

sensor measuring range, output type or temperature transmitter settings:
please specify

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B

connection head:
MA
NA
DAN
B
other, please specify

Ordering example:
SCR108-1-Pt100-3-500-B-B-2-150
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, B head type, sheath diameter 3 mm, sheath length 500 mm, sensor measuring range 150°C.

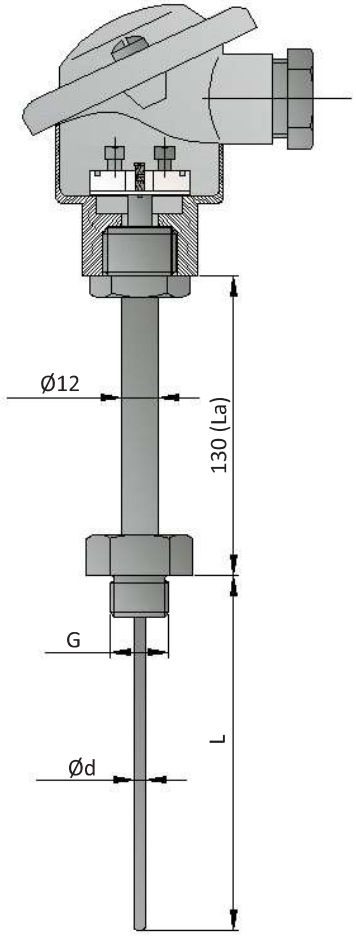


SCR120

- temperature range -40 ÷ 550°C
- operating temperature of connection heads max. 150°C
- mounting in additional sheath
- sensor with a replaceable measuring insert
- measuring insert sheath AISI316 (1.4401)
- spring-loaded insert ensures an excellent connection with the thermowell
- possibility of mounting a 4...20 mA or 0...10 V temperature transmitter
- connection head DANW with local display

The resistance thermometer **SCR120** consists of an exchangeable measuring insert, a spacer with a mounting stub and an aluminum connection head in which it is possible to install a programmable temperature transmitter with a 4-20 mA output signal. The measuring insert is a replaceable element of the complete sensor, which significantly reduces the time and costs of servicing the measuring equipment on site. The spring-loaded mounting of the measuring insert ensures its perfect pressure to the bottom of the protective pipe installed on the facility, which shortens the response time to temperature changes and increases measurement accuracy and reduces natural vibrations, which translates into avoiding mechanical and electrical damage. The immersion length, process connection thread, spacer length and sensor head can be selected depending on the application needs/requirements.

Application areas:
- installations of technological processes in all industries,
- mechanical engineering,
- heating, air conditioning and ventilation installations.



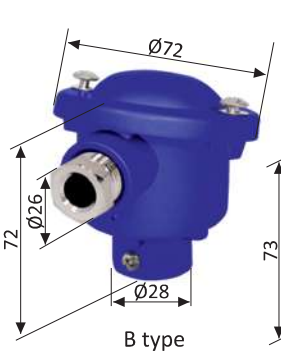
TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-40 ÷ 550°C
Connection head	B, NA, MA, DAN or other, operating temperature -40 ÷ 150°C
Class	A or B
Measuring insert	mineral insulated or tube material: stainless steel AISI316 (1.4401) any nominal length (specified when ordering) diameter: 3 ... 8 mm or other
Process connection	G1/2; M20x1,5 or other according to order

RESISTOR TOLERANCE ACC. TO PN-EN 60751

Class	Tolerance [°C]
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

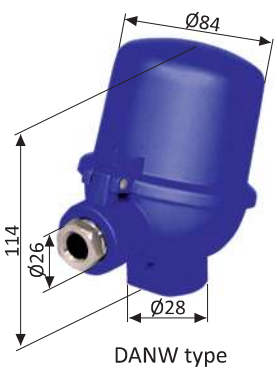
CONNECTION HEAD TYPES



B type



NA type

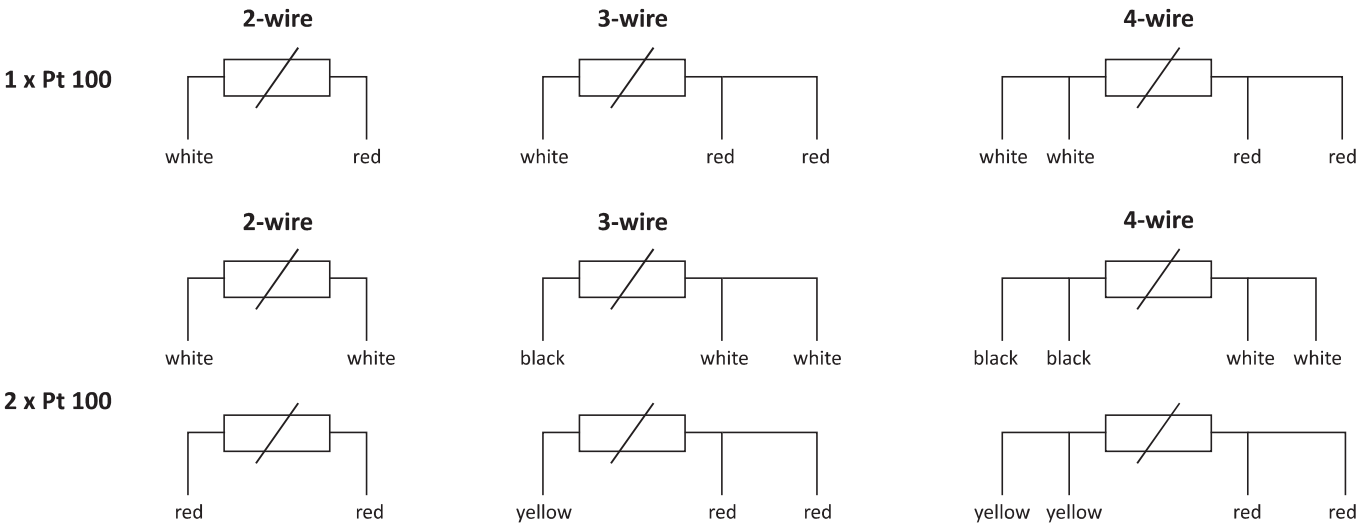


DANW type



DAN type

ELECTRICAL CONNECTION



ORDERING

SCR120-X-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP1 : without ceramic block
PP2 : with RTD/TC transmitter, 4...20mA
PP3 : with other transmitter (on request)

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

connection head:
B
NA
other, please specify

transitional sheath length (La):
S : 130 mm (standard)
other, please specify

insert diameter (Ød):
3 : 3 mm
4,5 : 4,5 mm
6 : 6 mm
8 : 8 mm
other, please specify

sensor measuring range, output type or temperature transmitter settings:
please specify

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B

process connection:
G1/2"
M20x1,5
other, please specify

measuring insert:
P : mineral insulated
Z : tube

proper sheath length (L):
100 mm
200 mm
other, please specify [mm]

Ordering example:
SCR120-1-Pt100-B-S-6-100-P-M20x1,5-A-2-500
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, with mineral insulated measuring insert diameter 6 mm and length 100 mm, B head type, process connection M20x1,5 mm, sensor measuring range 500°C.

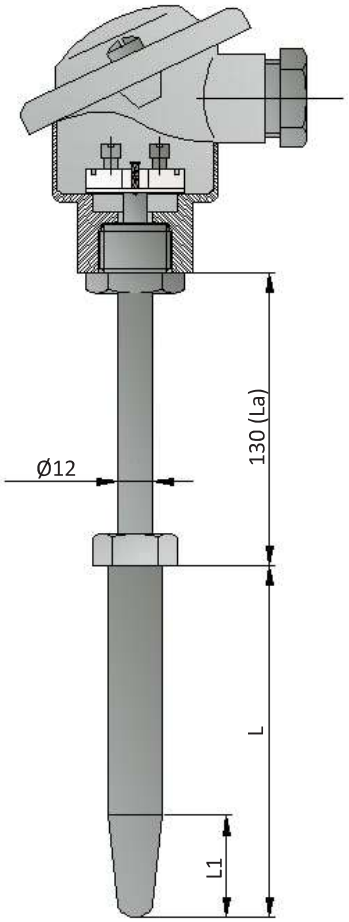


SCR121

- temperature range -50 ÷ 550°C
- operating temperature of connection heads max. 150°C
- stainless steel sheath
- drilled pressure sheath
- sensor with a replaceable measuring insert
- possibility of mounting a 4...20 mA or 0...10 V temperature transmitter
- connection head DANW with local display

The resistance thermometer **SCR121** consists of an exchangeable measuring insert, outer protective tube (thermowell), drilled pressure sheath, and aluminum connection head. Intended for measuring the temperature of pipelines, tanks, boilers in difficult conditions. Mounting a temperature transmitter with 4...20 mA or 0...10V output signal is possible. The measuring insert represents the replaceable element of the complete sensor, which reduces the time and costs of maintenance of the measuring apparatus installed in the object. Spring fixation of the measuring insert provides perfect pressure to the bottom of the protecting tube, reduces the time of reaction of temperature changes, and increases the accuracy. It also reduces natural vibration. Thus, mechanical and electrical defects can be avoided.

Application areas:
- technological installations in various industries,
- temperature measurement of pipelines, tanks, boilers,
- measurement of all media (gases, liquids, solids).



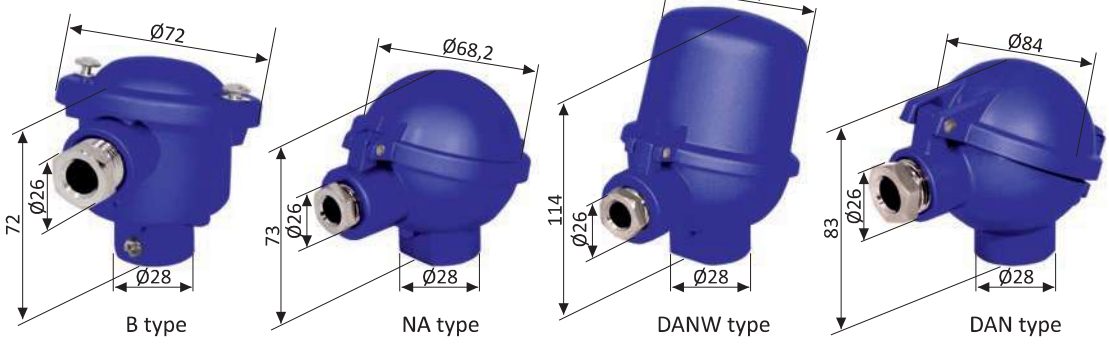
TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 550°C
Connection head	B, NA or other, operating temperature -40 ÷ 150°C
Class	A or B
Sheath	material: stainless steel 1.4541 or other nominal length: 130 mm (standard) or other diameter: 18, 24 or 26 mm

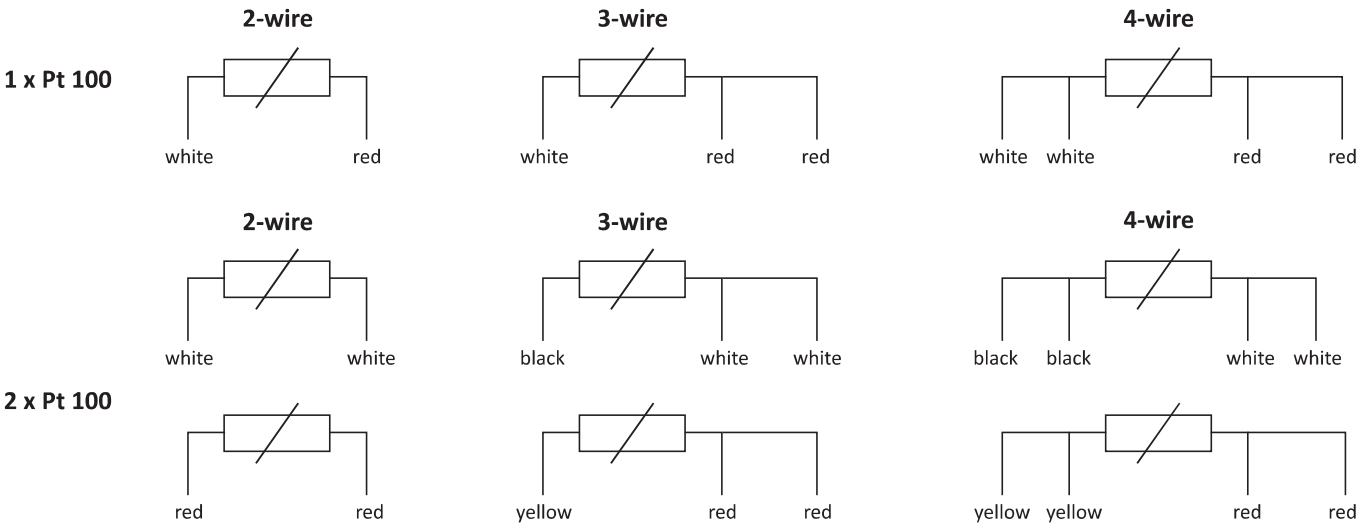
RESISTOR TOLERANCE ACC. TO PN-EN 60751

Class	Tolerance [°C]
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

CONNECTION HEAD TYPES



ELECTRICAL CONNECTION



ORDERING

SCR121-X-X-X-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP1 : without ceramic block
PP2 : with RTD/TC transmitter, 4...20mA
PP3 : with other transmitter (on request)

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

connection head:
B
NA
other, please specify

transitional sheath length (La):
S : 130 mm (standard)
other, please specify

sheath diameter (Ød):
18 : 18H7
24 : 24H7
26 : 26H7

proper sheath length (L):
100 mm
200 mm
other, please specify [mm]

sheath cone length (L1):
50 : 50 mm
85 : 85 mm
other, please specify

sheath material:
1.7335 : 1.7335/A182 F11
1.7380 : 1.7380/A182 F22
1.4903 : 1.4903/A182 F91
1.4541 : 1.4541/SS321

insert diameter:
3 : 3 mm
6 : 6 mm
other, please specify

accuracy class:
A
B

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

sensor measuring range, output type or temperature transmitter settings:
please specify

Ordering example:
SCR121-1-Pt100-B-S-18-100-50-1.4541-3-B-2-(-10-500)
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, with replaceable measuring insert diameter 3 mm, B head type, pressure sheath diameter 18 mm, length 100 mm, stainless steel 1.4541 sheath, sheath cone 50 mm, sensor measuring range -10 to 500°C.

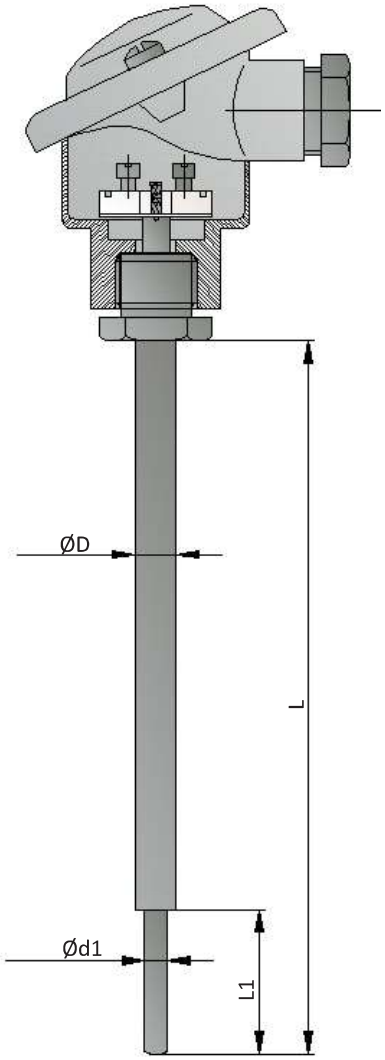


SCR122

- temperature range -50 ÷ 550°C with replaceable measuring insert
  -50 ÷ 450°C without replaceable measuring insert
- operating temperature of connection heads max. 150°C
- stainless steel stepped sheath
- possibility of mounting a 4...20 mA or 0...10 V temperature transmitter
- connection head DANW with local display

The resistance thermometer **SCR122** is intended for measuring the temperature of pipelines, tanks, machines and devices in various industrial installations. The sensor consists of an aluminum connection head and a stepped sheath of a selected diameter, which results in increased measurement dynamics. The sensor is made with a replaceable measuring insert, which makes it possible to regenerate the element without having to dismantle the entire cover.

Application areas:
- industrial and technological installations in various industries,
- temperature measurement of pipelines, tanks, boilers,
- measurement of all media (gases, liquids, solids).



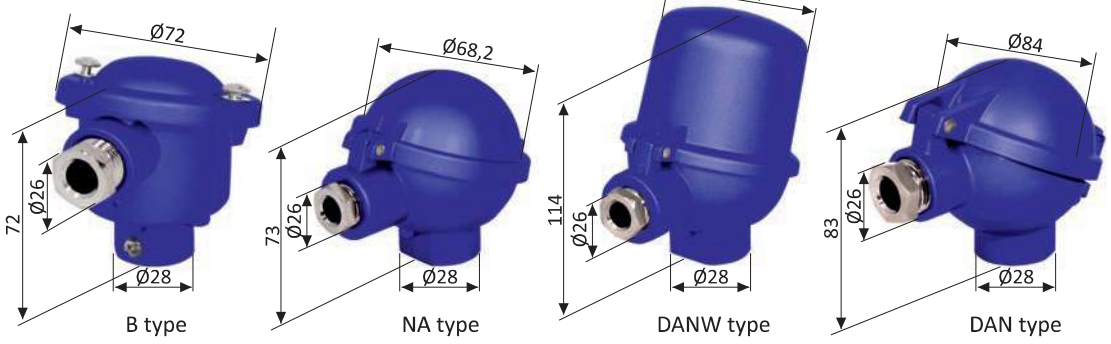
TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 550°C (with replaceable measuring insert); -50 ÷ 450°C (without replaceable measuring insert)
Connection head	B, NA, MA, DAN or other, operating temperature -40 ÷ 150°C
Class	A or B
Sheath	material: stainless steel 1.4541 nominal length: 100 mm or other (specified when ordering) diameter: 6, 8 mm or other

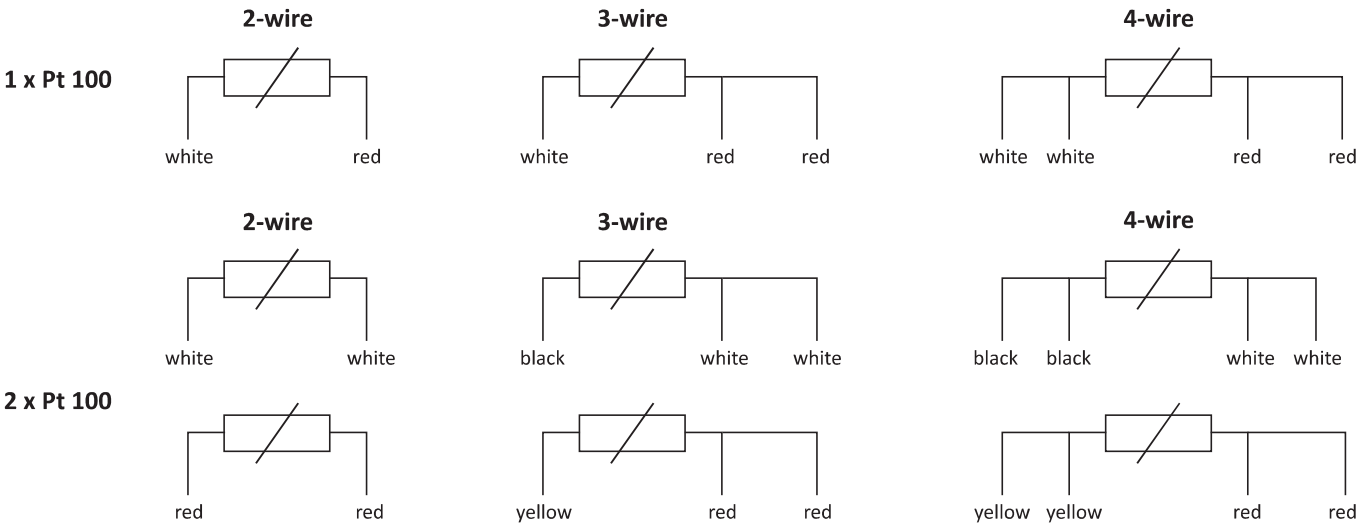
RESISTOR TOLERANCE ACC. TO PN-EN 60751

Class	Tolerance [°C]
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

CONNECTION HEAD TYPES



ELECTRICAL CONNECTION



ORDERING

SCR122-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP1 : without ceramic block
PP2 : with RTD/TC transmitter, 4...20mA
PP3 : with other transmitter (on request)

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

connection head:
B
NA
other, please specify

total length of sheath (L):
100 : 100 mm
200 : 200 mm
other, please specify

length of stepped sheath (L1):
20 : 20 mm
30 : 30 mm
other, please specify

sensor measuring range, output type or temperature transmitter settings:
please specify

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B

construction:
BW : without replaceable measuring insert
W : with replaceable measuring insert

sheath diameter (ØD/Ød1):
6/4 : Ø 6/4 mm
8/6 : Ø 8/6 mm
other, please specify

Ordering example:
SCR122-1-Pt500-B-100-30-8/6-W-B-2-(-10-500)
Single RTD temperature sensor, 1xPt500, B tolerance class, 2-wire, with replaceable measuring insert, B head type, pressure sheath diameter 8 mm, length 100 mm, stepped part with a length of 30 mm and a diameter of 6 mm, sensor measuring range -10 to 500°C.

SCR200



- **temperature range -50 ÷ 400°C (depending on the cable used)**
- **stainless steel sheath**
- **minimum sheath length: 15 mm**
- **any maximum sheath length**
- **thermowell spring protection against excessive cable bending**

Resistance thermometers **SCR200** are designed for fitting directly into a drilled hole or process. Consist of a thermometric resistor, protection tube made out of stainless steel, and connection cable.

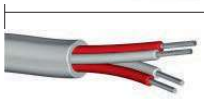
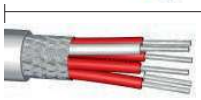
Application areas:
- fine chemical industry,
- light energy industry,
- general industrial services.



TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 400°C (depending on the cable used)
Class	A, B or 1/3 B
Sheath	material: stainless steel nominal length: 50 mm (standard) or other diameter: 4 mm, 5 mm, 6 mm or other
Cable	type according to the table, standard length 1500 mm or other according to order

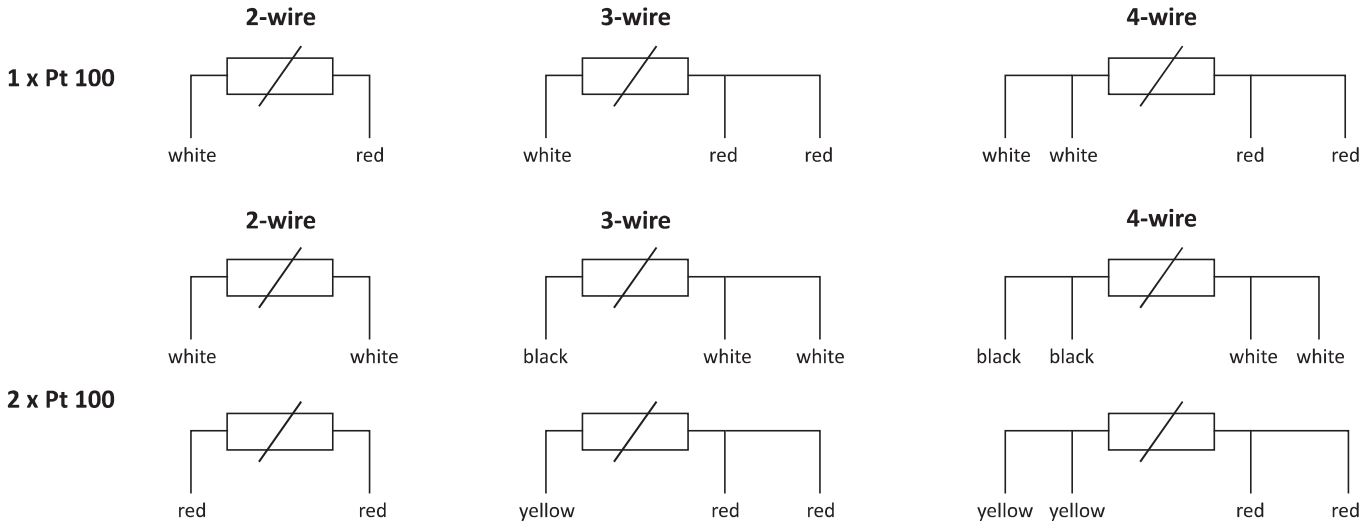
CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	400°C max.	WS
	PVC	105°C max.	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	250°C max.	SS
	Teflon - teflon	260°C max.	TT

RESISTOR TOLERANCE ACC. TO PN-EN 60751

Class	Tolerance [°C]
1/3B	t = 0,10 + 0,002 x |t|
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

ELECTRICAL CONNECTION



ORDERING

SCR200-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

sheath diameter (Ød):
4 mm
5 mm
6 mm
other, please specify

sheath length (L):
50 mm (standard)
100 mm
other, please specify [mm]

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B
1/3B

connection cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass / stainless steel (400°C max.)

Ordering example:
SCR200-1-Pt100-6-50-WS-1500-B-2
Single RTD temperature sensor 1xPt100, B tolerance class, 2-wire, thermowell diameter 6 mm and length 50 mm, double fibreglass insulation, cable length 1500 mm.

SCR201



- **temperature range -50 ÷ 400°C (depending on the cable used)**
- **stainless steel sheath**
- **minimum sheath length: 15 mm, minimum sheath diameter: 3 mm**
- **any maximum sheath length**
- **thermowell spring protection against excessive cable bending**

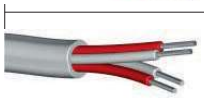
Resistance thermometers **SCR201** are designed for fitting directly into a drilled hole or process. Consist of a thermometric resistor, a protection tube made out of stainless steel, and a connection cable. Insertion length, thermowell diameter, process connection thread, number of sensors, accuracy, cable length, and insulation can be selected individually for the respective application.

Application areas:
- fine chemical industry,
- light energy industry,
- general industrial services.

TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 400°C (depending on the cable used)
Class	A, B or 1/3 B
Sheath	material: stainless steel nominal length (min. 15 mm): 50 mm (standard) or other diameter (min. 3 mm): 4 mm, 5 mm, 6 mm or other
Cable	type according to the table, standard length 1500 mm or other according to order
Process connection	G1/2; M10x1; M14x1,5 or other according to order

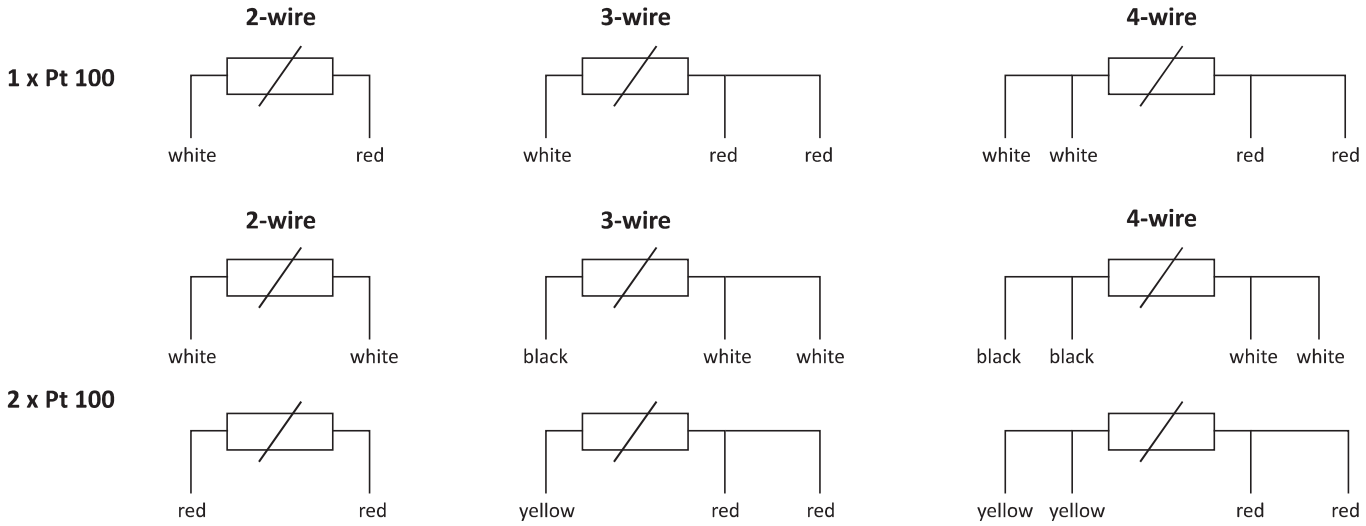
CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	400°C max.	WS
	PVC	105°C max.	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	250°C max.	SS
	Teflon - teflon	260°C max.	TT

RESISTOR TOLERANCE ACC. TO PN-EN 60751

Class	Tolerance [°C]
1/3B	t = 0,10 + 0,002 x |t|
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

ELECTRICAL CONNECTION



ORDERING

SCR201-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

sheath diameter (Ød):
4 mm
5 mm
other, please specify

sheath length (L):
50 mm (standard)
100 mm
other, please specify [mm]

process connection:
G1/2"
M10x1
M14x1,5
other, please specify

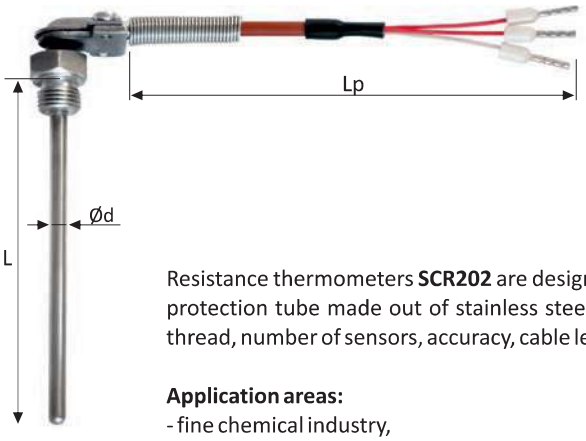
measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B
1/3B

connection cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass / stainless steel (400°C max.)

Ordering example:
SCR201-1-Pt100-5-50-M14x1,5-WS-1500-B-2
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, process connection M14x1,5 mm, thermowell diameter 5 mm and length 50 mm, double fibreglass insulation, cable length 1500 mm.



SCR202

- **temperature range -50 ÷ 400°C (depending on the cable used)**
- **mounting by threaded process connection**
- **stainless steel sheath**
- **minimum sheath length: 15 mm, minimum sheath diameter: 3 mm**
- **thermowell spring protection against excessive cable bending**

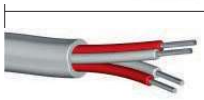
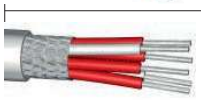
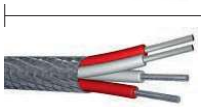
Resistance thermometers **SCR202** are designed for fitting directly into a drilled hole or process. Consist of a thermometric resistor, a protection tube made out of stainless steel, and a connection cable. Insertion length, thermowell diameter, process connection thread, number of sensors, accuracy, cable length, and insulation can be selected individually for the respective application.

Application areas:
- fine chemical industry,
- light energy industry,
- general industrial services.

TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 400°C (depending on the cable used)
Class	A, B or 1/3 B
Sheath	material: stainless steel nominal length (min. 15 mm): 50 mm (standard), 100 mm or other diameter (min. 3 mm): 4 mm, 5 mm or other
Cable	type according to the table, standard length 1500 mm or other according to order
Process connection	G1/2; M10x1; M14x1,5 or other according to order

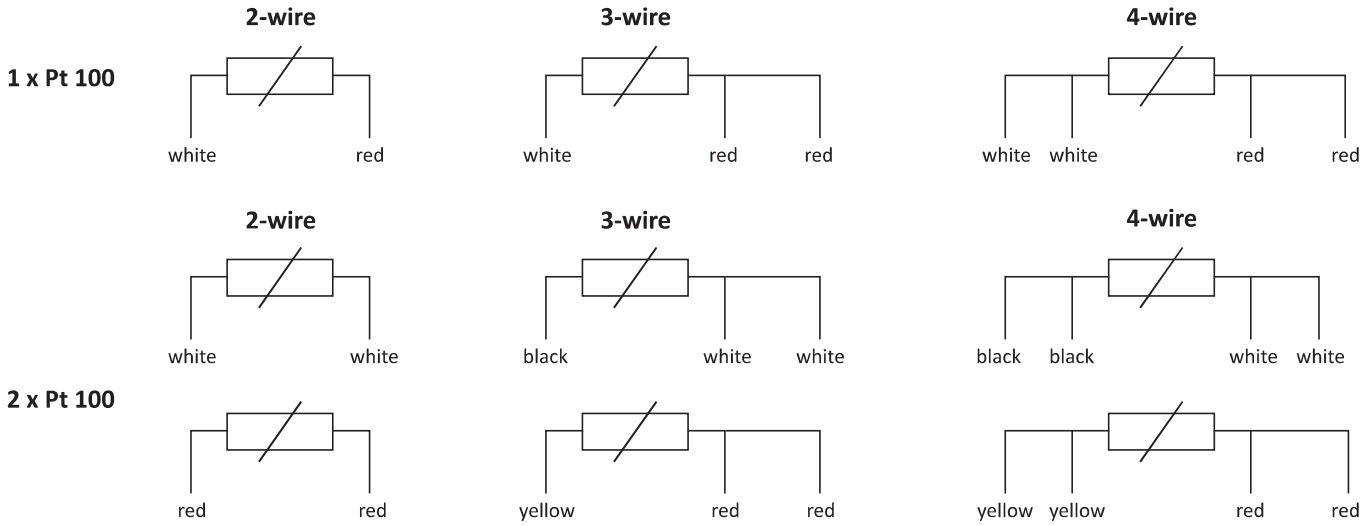
CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	400°C max.	WS
	PVC	105°C max.	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	250°C max.	SS
	Teflon - teflon	260°C max.	TT

RESISTOR TOLERANCE ACC. TO PN-EN 60751

Class	Tolerance [°C]
1/3B	t = 0,10 + 0,002 x |t|
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

ELECTRICAL CONNECTION



ORDERING

SCR202-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

sheath diameter (Ød):
4 mm
5 mm
other, please specify

sheath length (L):
50 mm (standard)
100 mm
other, please specify [mm]

process connection:
G1/2"
M10x1
M14x1,5
other, please specify

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B
1/3B

connection cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass / stainless steel (400°C max.)

Ordering example:
SCR202-1-Pt100-4-100-M14x1,5-WS-1500-B-2
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, process connection M14x1,5 mm, thermowell diameter 4 mm and length 100 mm, double fibreglass insulation, cable length 1500 mm.

SCR203



- temperature range -50 ÷ 400°C (depending on the cable used)
- mounting by a drilled hole in thermwell
- stainless steel sheath
- thermowell spring protection against excessive cable bending

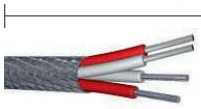
Resistance thermometers **SCR203** are designed for fitting directly into a drilled hole or process. Consist of a thermometric resistor, a protection tube made out of stainless steel, and a connection cable. Insertion length, thermowell diameter, process connection thread, number of sensors, accuracy, cable length, and insulation can be selected individually for the respective application.

Application areas:
- fine chemical industry,
- light energy industry,
- general industrial services.

TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 400°C (depending on the cable used)
Class	A, B or 1/3 B
Sheath	material: stainless steel diameter: 4 mm, 6 mm or 8 mm
Cable	type according to the table, standard length 1500 mm or other according to order
Mounting hole	3,2 mm; 4,2 mm or 5,2 mm (depends on sheath diameter)

CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	400°C max.	WS
	PVC	105°C max.	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	250°C max.	SS
	Teflon - teflon	260°C max.	TT

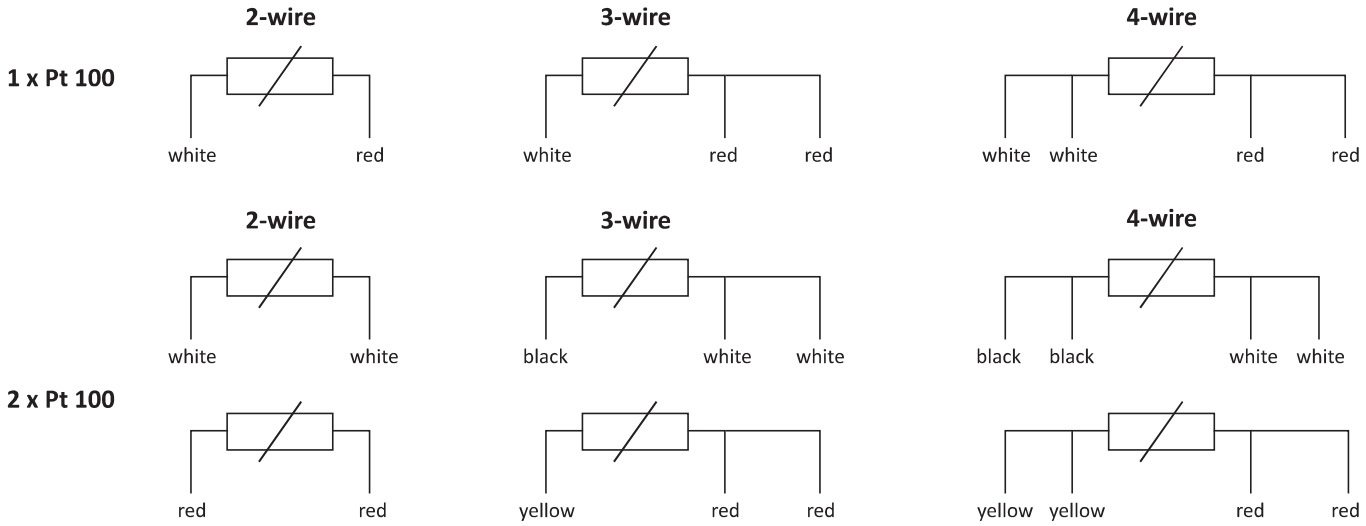


Sheath diameter	Mounting hole diameter (d1)	Width (d)
Ø 4 mm	Ø 3,2 mm	6 mm
Ø 6 mm	Ø 4,2 mm	8 mm
Ø 8 mm	Ø 5,2 mm	10 mm

RESISTOR TOLERANCE ACC. TO PN-EN 60751

Class	Tolerance [°C]
1/3B	t = 0,10 + 0,002 x |t|
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

ELECTRICAL CONNECTION



ORDERING

SCR203-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

mounting hole diameter (Ød1):
Ø**3,2** mm
Ø**4,2** mm
other, please specify

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass / stainless steel (400°C max.)

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B
1/3B

connection cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

Ordering example:
SCR203-1-Pt100-3,2-WS-1500-B-2
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, mounting hole diameter 3,2 mm, double fibreglass insulation, cable length 1500 mm.

SCR204



- **temperature range -50 ÷ 400°C (depending on the cable used)**
- **mounting by threaded process connection**
- **standard diameter and length process connection with table**
- **stainless steel sheath**
- **thermowell spring protection against excessive cable bending**

Resistance thermometers **SCR204** are designed for screw-fitting directly into a process or machine parts. Consist of a thermometric resistor, threaded process connection made out of stainless steel, and connection cable. Process connection thread, number of sensors, accuracy, cable length, and insulation can be selected individually for the respective application.

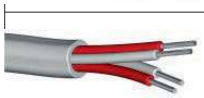
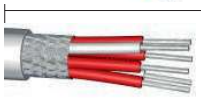
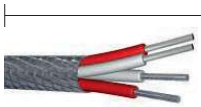
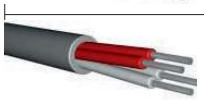
Application areas:
- fine chemical industry,
- light energy industry,
- general industrial services.



TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 400°C (depending on the cable used)
Class	A, B or 1/3 B
Sheath	material: stainless steel
Cable	type according to the table, standard length 1500 mm or other according to order
Process connection	G1/2; M10x1; M20x1,5 or other according to order

CONNECTION CABLES

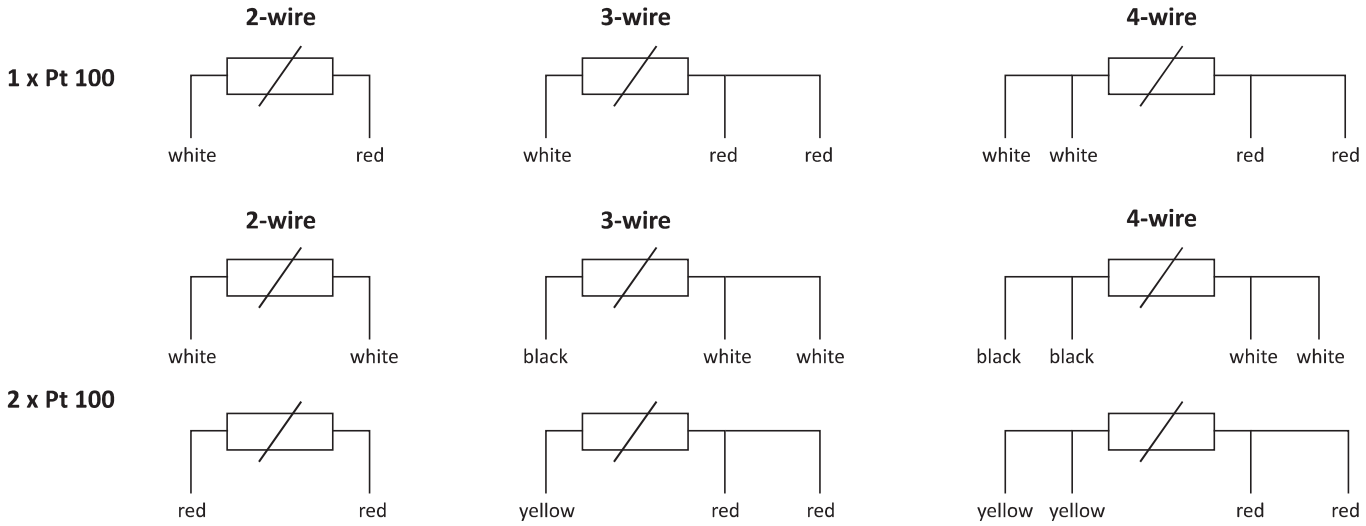
Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	400°C max.	WS
	PVC	105°C max.	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	250°C max.	SS
	Teflon - teflon	260°C max.	TT

Thread (G)	Length (L1)
M8x1	10 mm
M10x1	10 mm
M12x1	10 mm
M16x1,5	15 mm
M20x1,5	20 mm
G1/8"	10 mm
G1/4"	12 mm
G1/2"	20 mm
1/8 NPT	11 mm
1/4 NPT	14 mm
1/2 NPT	18 mm

RESISTOR TOLERANCE ACC. TO PN-EN 60751

Class	Tolerance [°C]
1/3B	t = 0,10 + 0,002 x |t|
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

ELECTRICAL CONNECTION



ORDERING

SCR204-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

process connection:
G1/2"
M10x1
M20x1,5
other, please specify

process connection length (L1):
standard (according to the table)
other, please specify [mm]

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B
1/3B

connection cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass / stainless steel (400°C max.)

Ordering example:
SCR204-1-Pt100-M10x1-10-WS-1500-B-2
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, threaded thermowell connection M10x1 with standard length 10 mm, double fibreglass insulation, cable length 1500 mm.

SCR205



- temperature range -50 ÷ 400°C (depending on the cable used)
- mounting through the hole Ø4,5 mm in the thermowell
- sheath made of aluminum, brass or stainless steel
- thermowell spring protection against excessive cable bending

Resistance thermometers **SCR205** are designed for assembling directly onto machine parts or other construction elements. Consist of a thermoresistor, protection tube made out of stainless steel, aluminum, or brass, and connection cable.

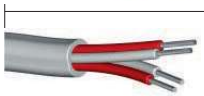
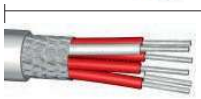
Application areas:
- fine chemical industry,
- light energy industry,
- general industrial services.



TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 400°C (depending on the cable used)
Class	A, B or 1/3 B
Sheath	material: aluminum, brass or stainless steel length: 50 mm (standard) or other according to order
Cable	type according to the table, standard length 1500 mm or other according to order

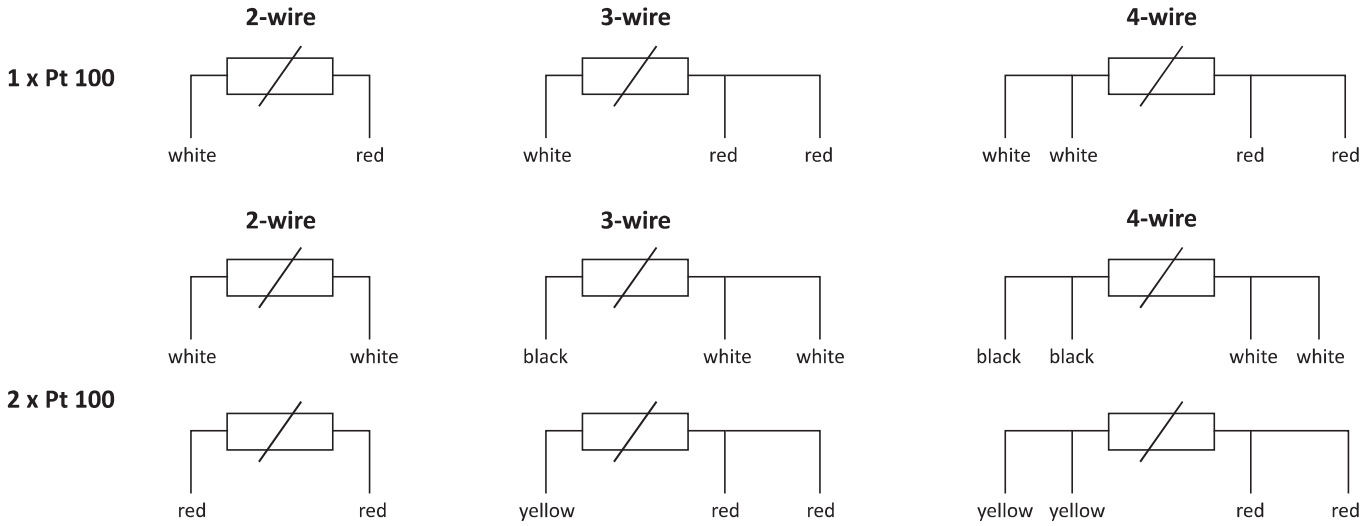
CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	400°C max.	WS
	PVC	105°C max.	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	250°C max.	SS
	Teflon - teflon	260°C max.	TT

RESISTOR TOLERANCE ACC. TO PN-EN 60751

Class	Tolerance [°C]
1/3B	t = 0,10 + 0,002 x |t|
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

ELECTRICAL CONNECTION



ORDERING

SCR205-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

sheath material:
A : aluminum (standard)
S : stainless steel
M : brass

sheath length (L):
50 mm (standard)
other, please specify [mm]

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B
1/3B

connection cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass / stainless steel (400°C max.)

Ordering example:
SCR205-1-Pt100-A-50-WS-1500-B-2
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, aluminum thermowell with standard length 50 mm, double fibreglass insulation, connection cable length 1500 mm.

SCR206



- temperature range -50 ÷ 400°C (depending on the cable used)
- mounting using a Ø4 mm pin placed in a M4 hole
- stainless steel or brass sheath
- thermowell spring protection against excessive cable bending

Resistance thermometers **SCR206** are designed for assembling directly onto machine parts or other construction elements. The sensor consists of a stainless steel or brass sheath and a temperature-resistant cable. The thermowell ends with an additional spring to prevent the cable from breaking.

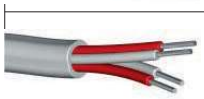
Application areas:
- fine chemical industry,
- light energy industry,
- general industrial services.



TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 400°C (depending on the cable used)
Class	A, B or 1/3 B
Sheath	material: brass or stainless steel
Cable	type according to the table, standard length 1500 mm or other according to order

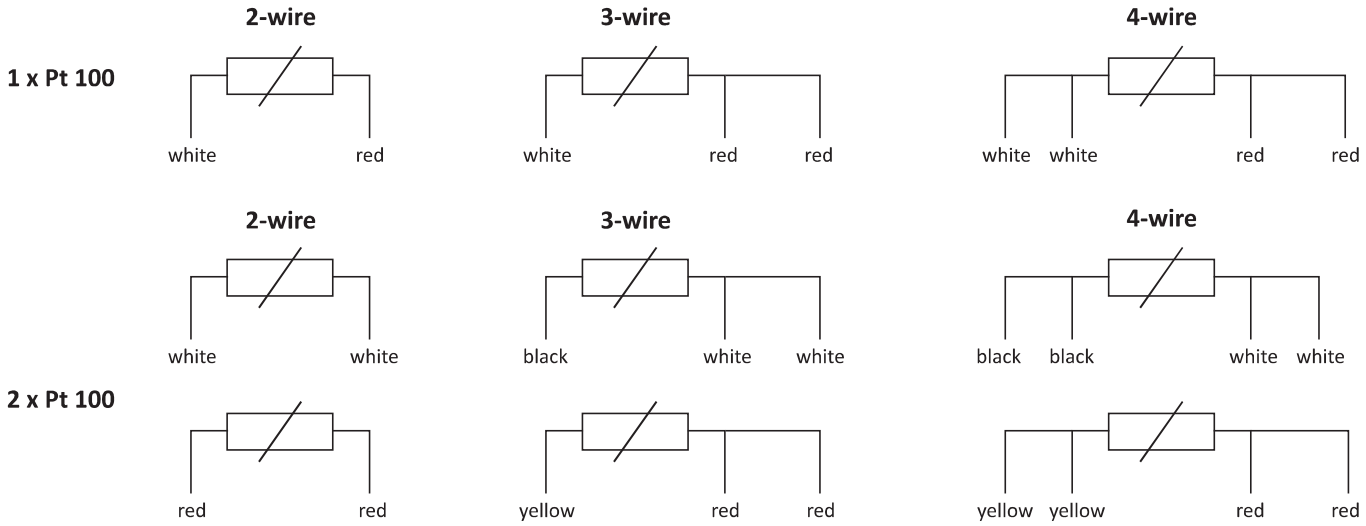
CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	400°C max.	WS
	PVC	105°C max.	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	250°C max.	SS
	Teflon - teflon	260°C max.	TT

RESISTOR TOLERANCE ACC. TO PN-EN 60751

Class	Tolerance [°C]
1/3B	t = 0,10 + 0,002 x |t|
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

ELECTRICAL CONNECTION



ORDERING

SCR206-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

sheath material:
S : stainless steel
M : brass

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass / stainless steel (400°C max.)

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B
1/3B

connection cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

Ordering example:
SCR206-1-Pt100-M-WS-1500-B-2
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, brass thermowell, double fibreglass insulation, connection cable length 1500 mm.

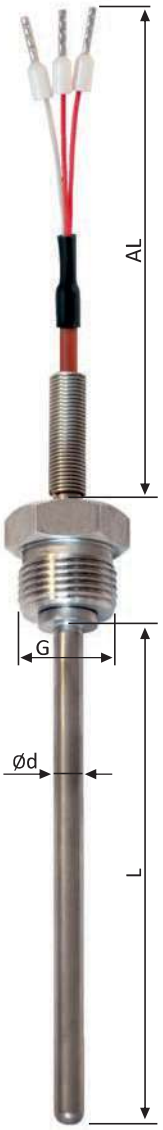
SCR207



- **temperature range -50 ÷ 400°C (depending on the cable used)**
- **mounting by threaded process connection**
- **stainless steel sheath**
- **minimum sheath length: 15 mm, minimum sheath diameter: 3 mm**
- **thermowell spring protection against excessive cable bending**

Resistance thermometers **SCR207** are designed for general temperature measurement in a wide range of applications. For installation in measuring sockets of machines, tanks, etc. The sensor consists of a stainless sheath with a specified diameter and length, a thread enabling installation and a connecting cable. The movable threaded connector allows easy installation of the sensor. The thermowell ends with an additional spring to prevent the cable from breaking.

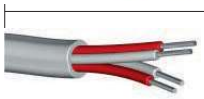
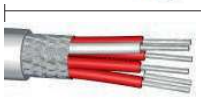
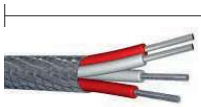
Application areas:
- fine chemical industry,
- light energy industry,
- general industrial services.



TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 400°C (depending on the cable used)
Class	A, B or 1/3 B
Sheath	material: stainless steel nominal length (min. 15 mm): 50 mm (standard), 100 mm or other diameter (min. 3 mm): 4 mm, 5 mm or other
Cable	type according to the table, standard length 1500 mm or other according to order
Process connection	G1/2; M12x1; M14x1,5 or other according to order

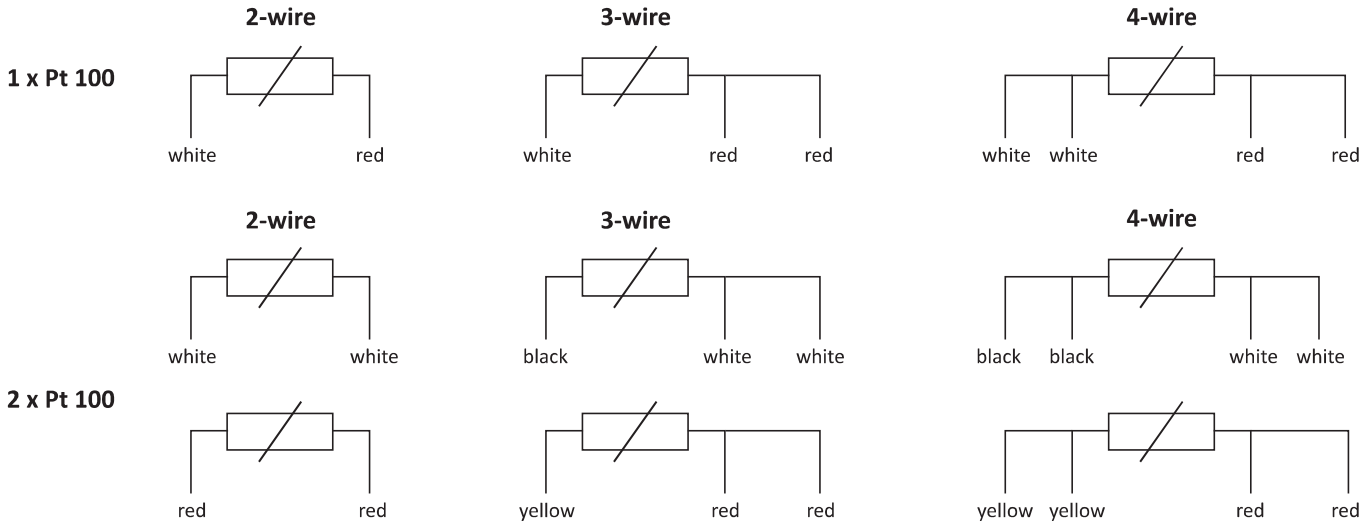
CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	400°C max.	WS
	PVC	105°C max.	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	250°C max.	SS
	Teflon - teflon	260°C max.	TT

RESISTOR TOLERANCE ACC. TO PN-EN 60751

Class	Tolerance [°C]
1/3B	t = 0,10 + 0,002 x |t|
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

ELECTRICAL CONNECTION



ORDERING

SCR207-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

sheath diameter (Ød):
4 mm
5 mm
other, please specify

sheath length (L):
50 mm (standard)
100 mm
other, please specify [mm]

process connection:
M12x1 (standard)
G1/2"
M14x1,5
other, please specify

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B
1/3B

connection cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass / stainless steel (400°C max.)

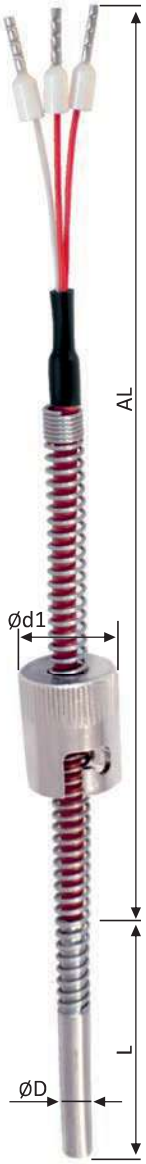
Ordering example:
SCR207-1-Pt100-6-50-M14x1,5-WS-1500-B-2
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, process connection M14x1,5, thermowell diameter 6 mm, length 50 mm, double fibreglass insulation, connection cable length 1500 mm.

SCR208



- temperature range -50 ÷ 400°C (depending on the cable used)
- mounting using a threaded bayonet of any length
- stainless steel sheath
- adjustable spring force of sensor
- different types of sheath ends

Resistance thermometers **SCR208** are designed for screw-fitting directly into the machine body or parts. The adjustable spring force of the sensor mounting provides optimum measurement conditions in the environment where vibrations appear. SCR208 sensor consists of a thermometric resistor, protection tube made out of stainless steel, connection cable, adjustable bayonet cap with spring. The sensor can be additionally equipped with a bayonet adaptor.



Application areas:
- plastic industry,
- movable and replaceable machine parts.

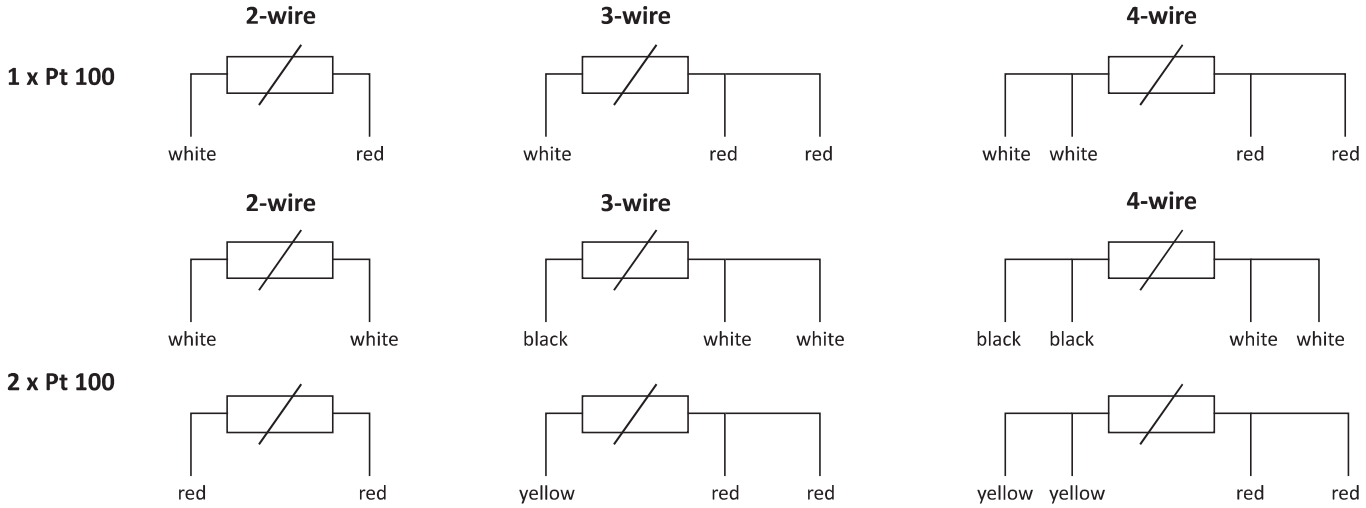
TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 400°C (depending on the cable used)
Class	A, B or 1/3 B
Sheath	material: stainless steel nominal length: 10 mm (standard) or other diameter: 5 mm, 6 mm, 8 mm or other
Cable	type according to the table, standard length 1500 mm or other according to order
Process connection	G1/2; M10x1; M14x1,5; M20x1,5 or other according to order
Measuring end	flat, spherical or cone

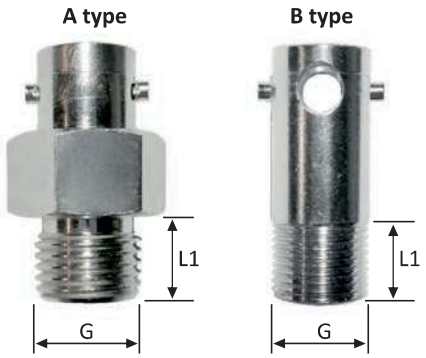
CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	400°C max.	WS
	PVC	105°C max.	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	250°C max.	SS
	Teflon - teflon	260°C max.	TT

ELECTRICAL CONNECTION

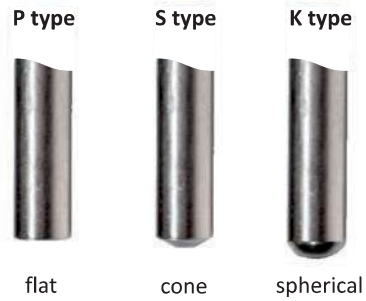


BAYONET TYPES



Thread (G)	Length (L1)
M20x1,5	15 mm
G1/2"	15 mm
M14x1,5	10 mm
M10x1	8 mm

COVER END TYPES



ORDERING

SCR208-X-X-X-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

sheath diameter (Ød):
4 mm
5 mm
8 mm
other, please specify

sheath length (L):
10 mm (standard)
other, please specify [mm]

type of cover end:
P : flat
K : spherical
S : cone

bayonet type:
A
B

process connection:
M12x1 (standard)
G1/2"
M14x1,5
other, please specify

bayonet diameter Ød1:
12,5 : 12,5 mm (standard)
14,5 : 14,5 mm
16,5 : 16,5 mm

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B
1/3B

connection cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass / stainless steel (400°C max.)

Ordering example:
SCR208-1-Pt100-6-10-S-A-M14x1,5-WS-1500-B-2-12,5
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, sheath length 10 mm, connection cable length 1500 mm, double fibreglass insulation, threaded bayonet adaptor connection M14x1,5 mm, bayonet cap diameter Ø12,5 mm.

SCR209



- **temperature range -50 ÷ 400°C (depending on the cable used)**
- **mounting by the hose-clip directly onto pipelines**
- **brass sheath with a specially contoured shape**

Resistance thermometers **SCR209** are designed for assembling directly onto pipelines or other cylindrical elements. Hose-clip (in complete with sensor) allows mounting sensors on a pipeline system. SCR209 consists of a thermometric resistor, protection tube made out of brass, hose-clip and connection cable.

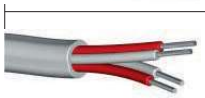
Application areas:
- temperature measurement of pipelines and other cylindrical elements,
- general industrial services.



TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 400°C (depending on the cable used)
Class	A, B or 1/3 B
Thermowell	material: brass
Cable	type according to the table, standard length 1500 mm or other according to order

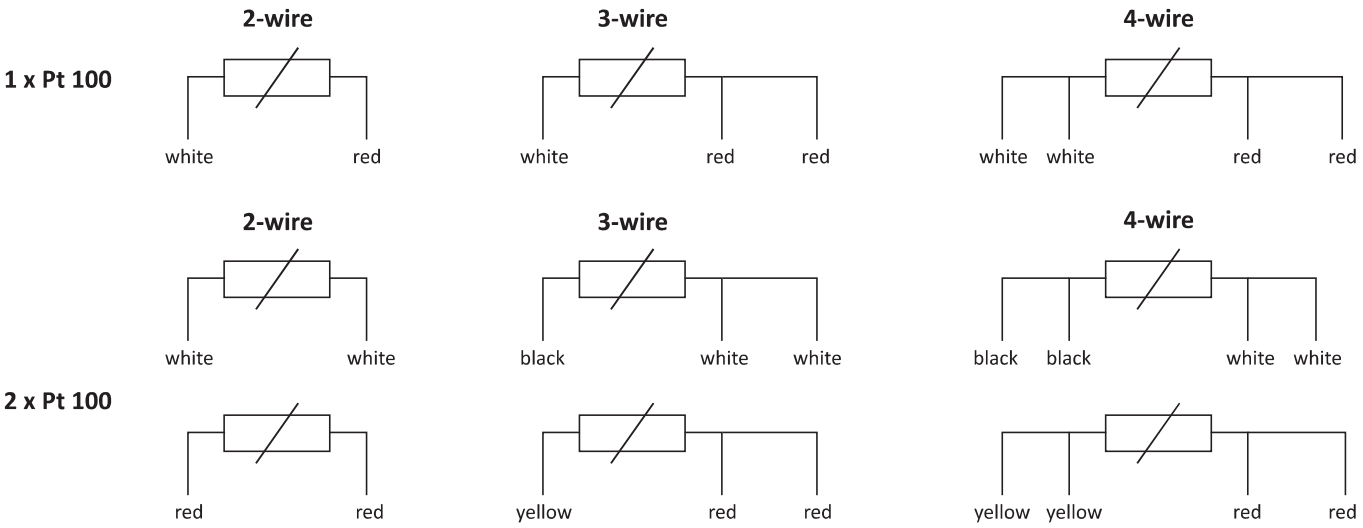
CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	400°C max.	WS
	PVC	105°C max.	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	250°C max.	SS
	Teflon - teflon	260°C max.	TT

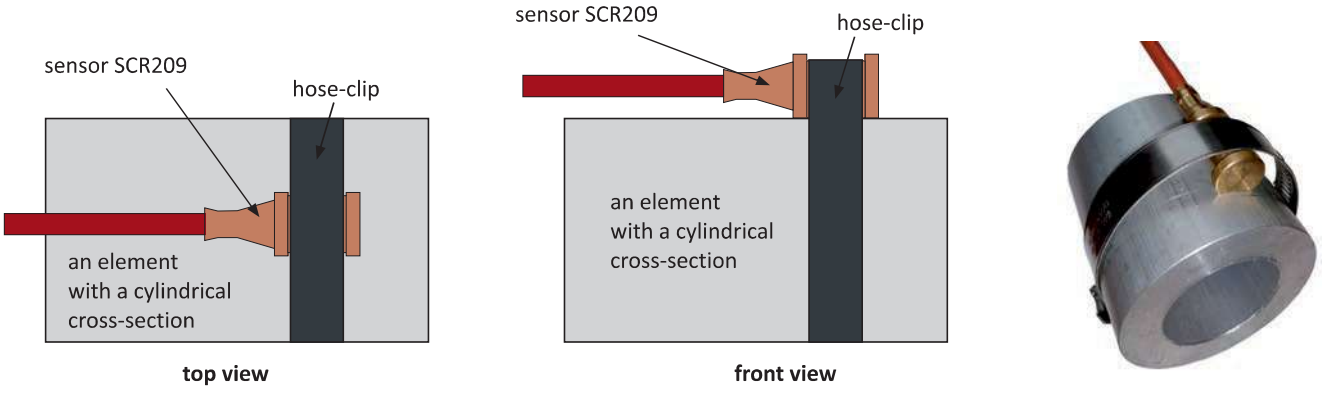
RESISTOR TOLERANCE ACC. TO PN-EN 60751

Class	Tolerance [°C]
1/3B	t = 0,10 + 0,002 x |t|
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

ELECTRICAL CONNECTION



MOUNTING



ORDERING

SCR209-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass / stainless steel (400°C max.)

measuring element diameter:
22 mm
other, please specify

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B
1/3B

connection cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

Ordering example:
SCR209-1-Pt100-TT-1500-B-2-22
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, teflon insulation, hose-clip match to Ø22 mm, connection cable length 1500 mm.

SCR210



- **temperature range -10 ÷ 300°C (depending on the cable used)**
- **mounting using a magnet and a pressure spring**
- **various magnetic surfaces**

Resistance thermometers **SCR210** are designed to measure the temperature of flat magnetic surfaces. The sensor consists of a neodymium magnet of a specific shape and a connection cable. Thanks to the special structure and the use of a pressure spring, the measuring element adheres tightly to the measured surface, which ensures measurement accuracy and dynamics.

Application areas:
- temperature measurement of ferrous material,
- general industrial services.



TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-10 ÷ 300°C (depending on the cable used)
Class	A, B or 1/3 B
Cable	type: single cond teflon or single cond fibreglass, standard length 1500 mm or other according to order

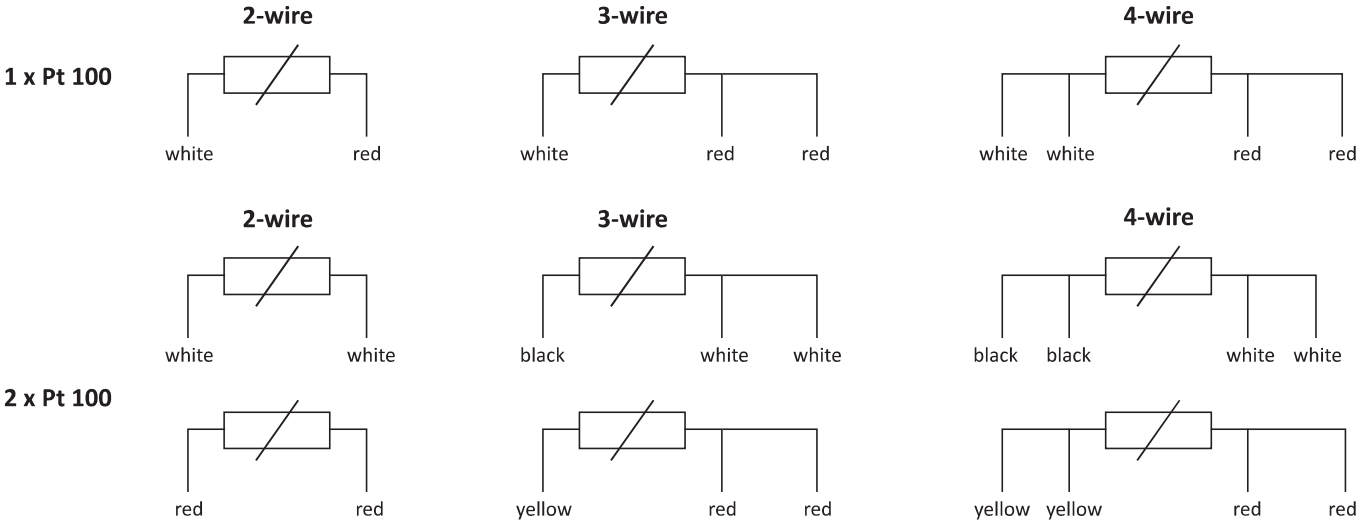
MAGNETIC SURFACE

Magnetic surface	Diameter D	Diameter D1	Length L	Adhesion force
M1	Ø 13 mm	Ø 4,2 mm	10 mm	7 [N]
M2	Ø 19 mm	Ø 5,4 mm	13 mm	19 [N]
M3	Ø 25 mm	Ø 5,4 mm	16 mm	29 [N]
M4	Ø 32 mm	Ø 7 mm	25 mm	66 [N]

RESISTOR TOLERANCE ACC. TO PN-EN 60751

Class	Tolerance [°C]
1/3B	t = 0,10 + 0,002 x |t|
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

ELECTRICAL CONNECTION



ORDERING

SCR210-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

magnetic surface (with table):
M1
M2
M3
M4

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B
1/3B

connection cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
T : single cond teflon (260°C max.)
WS1 : single cond fibreglass (400°C max.)

Ordering example:
SCR210-1-Pt100-M1-T-1500-B-2
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, magnet type M1, single conductors in teflon insulation, connection cable length 1500 mm.

SCR211



- **temperature range -50 ÷ 400°C (depending on the cable used)**
- **stainless steel sheath**
- **any length of the sheath, minimum sheath diameter: 3 mm**
- **stainless steel grooved handle**
- **spring protection against excessive cable bending**
- **sensor connection standard or mini plug**

Resistance thermometers **SCR211** are industrial standard sensors with high accuracy and stability. They are intended for industrial and laboratory applications. Thanks to their design of tight thermowell with a stainless steel handle, they can be used in a dry environment as well as in wet baths. Lead wire can be with the insulated bare ends ready for being assembled to a connector or directly to a measuring device.

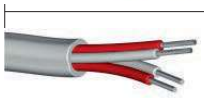
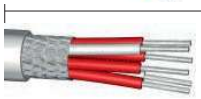
Application areas:
- food industry, warehouses,
- general industrial services.

TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 400°C (depending on the cable used)
Process connection	standard or mini plug
Class	A or B
Thermowell	material: stainless steel length: 100 mm (standard) or other diameter (min. 3 mm): 3,5 mm, 4 mm or other
Cable	type with table, standard length 1500 mm or other according to order



CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	400°C max.	WS
	PVC	105°C max.	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	250°C max.	SS
	Teflon - teflon	260°C max.	TT

OPTIONAL EQUIPMENT



„mini"plug

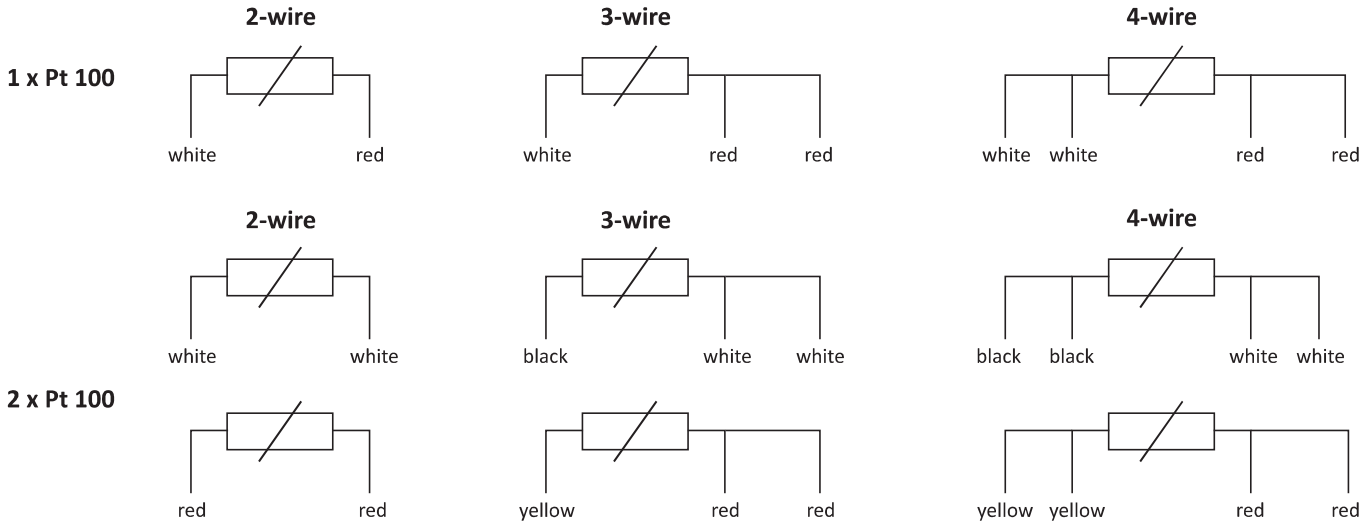


„standard" plug

RESISTOR TOLERANCE ACC. TO PN-EN 60751

Class	Tolerance [°C]
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

ELECTRICAL CONNECTION



ORDERING

SCR211-X-X-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

sheath diameter (Ød):
3,5 mm
4 mm
other, please specify

sheath length (L):
100 mm (standard)
other, please specify [mm]

cable design:
P : straight
S : twisted (PVC-105°C)

sensor measuring range or temperature transmitter settings:
please specify

process connection:
WS : standard plug
WM : mini plug
- : no process connection

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B
1/3B

connection cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass / stainless steel (400°C max.)

Ordering example:
SCR211-1-Pt100-4-100-P-TT-1500-B-2-100
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, sheath diameter 4 mm and length 100 mm, teflon insulation, sensor measuring range 100°C.

SCR212



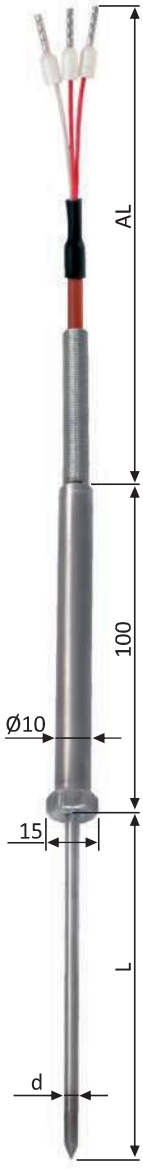
- **temperature range -50 ÷ 400°C (depending on the cable used)**
- **stainless steel sheath**
- **any length of the sheath, minimum sheath diameter: 3 mm**
- **stainless steel smooth handle**
- **spring protection against excessive cable bending**
- **sensor connection standard or mini plug**

Resistance thermometers **SCR212** are industrial standard sensors with high accuracy and stability. They are intended for industrial and laboratory applications. Thanks to their design of tight thermowell with a stainless steel handle, they can be used in a dry environment as well as in wet baths. Lead wire can be with the insulated bare ends ready for being assembled to a connector or directly to a measuring device.

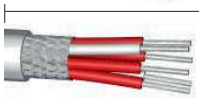
Application areas:
- food industry, warehouses,
- general industrial services.

TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 400°C (depending on the cable used)
Process connection	standard or mini plug
Class	A or B
Thermowell	material: stainless steel length: 100 mm (standard) or other diameter (min. 3 mm): 3,5 mm, 4 mm or other
Cable	type with table, standard length 1500 mm or other according to order



CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	400°C max.	WS
	PVC	105°C max.	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	250°C max.	SS
	Teflon - teflon	260°C max.	TT

OPTIONAL EQUIPMENT



„mini"plug

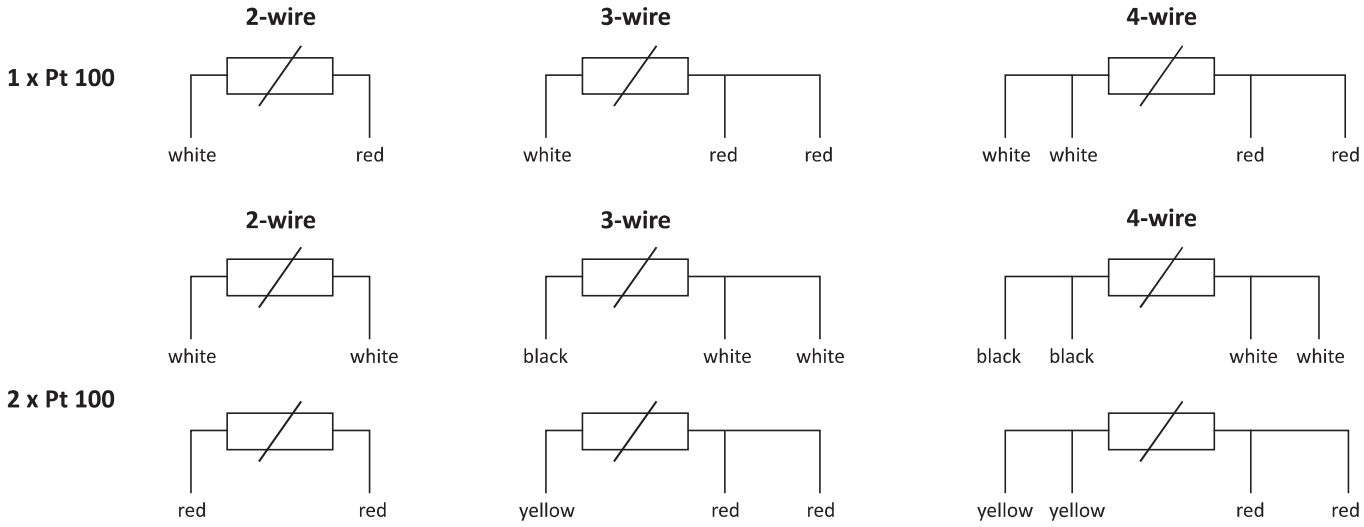


„standard" plug

RESISTOR TOLERANCE ACC. TO PN-EN 60751

Class	Tolerance [°C]
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

ELECTRICAL CONNECTION



ORDERING

SCR212-X-X-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

sheath diameter (Ød):
3,5 mm
4 mm
other, please specify

sheath length (L):
100 mm (standard)
other, please specify [mm]

cable design:
P : straight
S : twisted (PVC-105°C)

sensor measuring range or temperature transmitter settings:
please specify

process connection:
WS : standard plug
WM : mini plug
- : no process connection

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B
1/3B

connection cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass / stainless steel (400°C max.)

Ordering example:
SCR212-1-Pt100-4-100-P-TT-1500-B-2-150
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, sheath diameter 4 mm and length 100 mm, teflon insulation, sensor measuring range 150°C.

SCR300



with „mini" plug or socket

- **mineral insulated resistance sensor**
- **different types of sensor connections**
- **accurate measurement and short reaction time to temperature changes**
- **small dimensions enable working in hard-to-reach places**
- **resistance to vibrations and the possibility of bending**
- **sheath made of acid-resistant steel**

Resistance thermometers **SCR300** are made of metal-sheathed cables with internal wires (Cu or Ni). They are insulated from each other, with the outer sheath with magnesium oxide (MgO) powder. It provides the sensor with high vibration resistance, flexibility, as well as temperature resistance, and good electrical insulation. These sensors are designed for direct temperature measuring in places with difficult access. There are also used in every application, where it is required to use flexible and small diameter probe, with high resistance to shock, vibration, and short response time to temperature changes. Due to tight pressing of the insulating layer (MgO) and the appropriate structure of the inner wires and the sheath, the sensors can be bent with a minimal the radius of curvature of three times the outer diameter of the sheath.

Application areas:

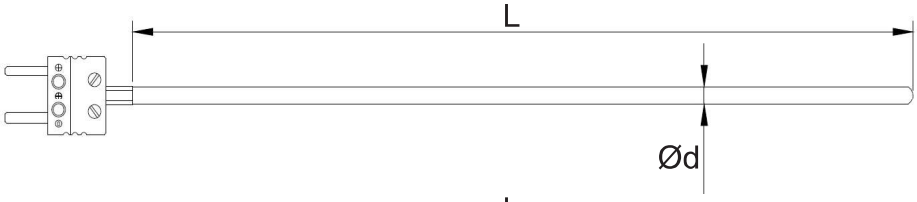
- general machinery and equipment design,
- measuring temperature of liquids, gases and solid bodies,
- all branches of industry,
- measurement laboratories.

TECHNICAL DATA

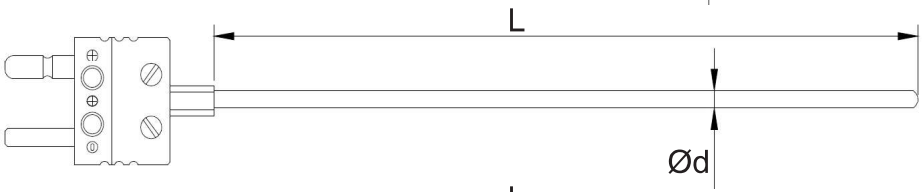
Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 400°C (depending on the cable used)
Process connection	standard / mini / Lemo plug or socket
Class	A or B
Thermowell	material: stainless steel length: any diameter: 1,5 ÷ 8 mm
Cable	type with table, standard length 1500 mm or other according to order

CONSTRUCTION

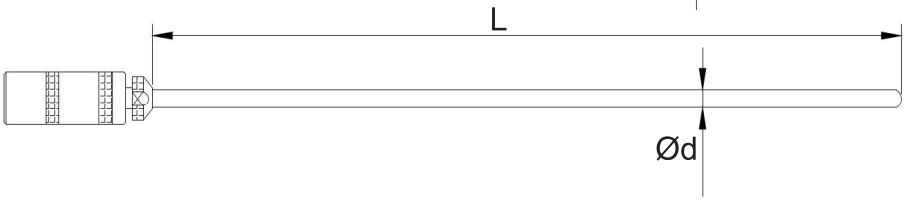
A: with MINI plug or socket



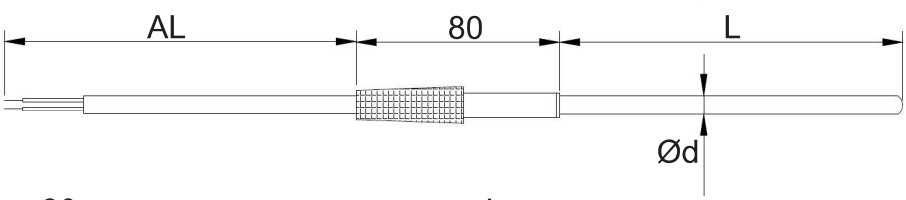
B: with STANDARD plug or socket



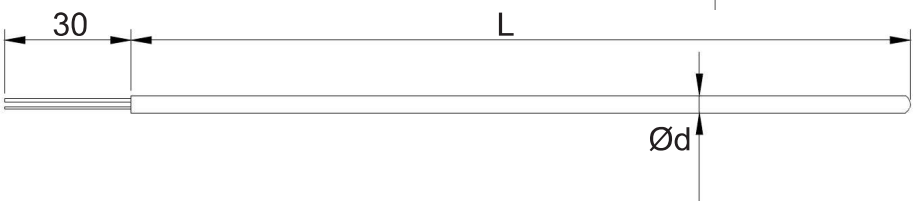
C: with LEMO type plug or socket



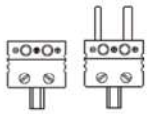
D: with pot seal and compensating cable



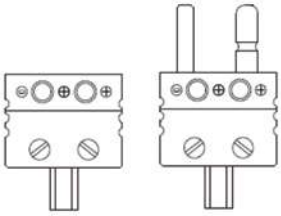
E: with free isolated wires



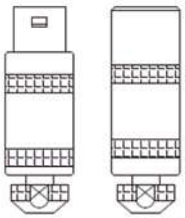
CONNECTION



MINI plug or socket

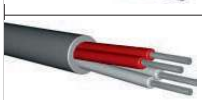


STANDARD plug or socket



LEMO type plug or socket

CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	400°C max.	WS
	PVC	105°C max.	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	250°C max.	SS
	Teflon - teflon	260°C max.	TT

ORDERING

SCR300-X-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

construction:
A : MINI plug or socket
B : STANDARD plug or socket
C : LEMO type plug or socket
D : with pot seal and compensating cable
E : with free isolated wires

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

sheath diameter (Ød):
3 mm
6 mm
other, please specify

sheath length (L):
please specify [mm]

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

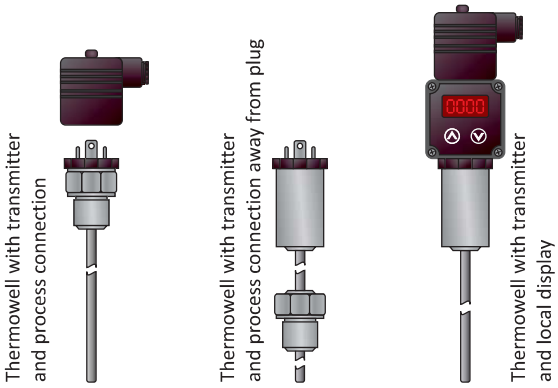
accuracy class:
A
B

connection type:
G : socket
W : plug

connection cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass / stainless steel (400°C max.)

Ordering example:
SCR300-1-B-Pt100-6-500-TT-1500-W-A-2
Single mineral insulated RTD temperature sensor, 1xPt100, A tolerance class, 2-wire, thermowell diameter 6 mm, length 500 mm, teflon insulation, connection cable length 1500 mm, standard size plug.



SCR400

- **sensor with GDM plug and display**
- **temperature range -50 ÷ 550°C (depending on construction)**
- **stainless steel sheath**
- **possibility of mounting a 4...20 mA or 0...10 V temperature transmitter**
- **local LED display optionally**

Resistance thermometer **SCR400** consists of a non-replaceable measuring insert, a welded protection tube with process connection, and a Hirschmann brand GDM type socket. The measuring transmitter is installed into the top part of the casing. The sensor with a built-in 4...20 mA transmitter can be equipped with a local LED display. The immersion length of the sensor, process connection, length of the thermowell, shape, and material of the sheath can be selected depending on the requirements of the application.

Application areas:
- equipment/tank design,
- technological process installations in all branches of industry,
- machine design,
- heating systems, air conditioning and ventilation.

TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-50 ÷ 100°C (thermowell with proccess connection); -50 ÷ 550°C (thermowell with process connection away from plug and without process connection)
Process connection	G1/2", M20x1,5
Class	A or B
Thermowell	material: stainless steel 1.4541 length: any diameter: 4 ÷ 15 mm

ORDERING

SCR400-X-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP : with transmitter
L : with transmitter and local display

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

construction:
P : without process connection
GB : with process connection
GN : with process connection away from plug

shift (only for GN construction):
- : standard L=145 mm
other, please specify

sheath diameter (ØD):
4 mm
5 mm
6 mm
other, please specify

output signal or temperature transmitter settings:
please specify

measuring circuit (sensor without transmitter):
2 : 2-wire
3 : 3-wire
4 : 4-wire

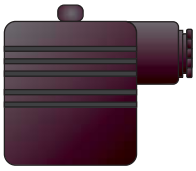
accuracy class:
A
B

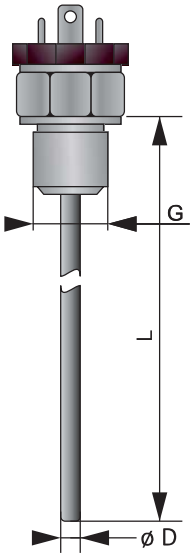
process connection (for GB and GN):
M20x1,5
G1/2"
other, please specify

sheath length (L):
100 mm (standard)
other, please specify

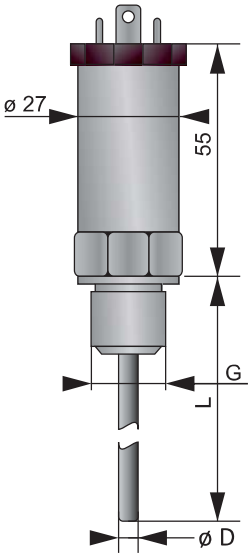
Ordering example:
SCR400-PP-Pt100-GB-6-100-G1/2"-A-4..20mA-(0-100)
RTD temperature sensor with 4..20 mAtransmitter, 1xPt100, A tolerance class, thermowell diameter 6 mm, length 100 mm, construction with process connection G1/2", temperature range 0-100°C.

CONSTRUCTION

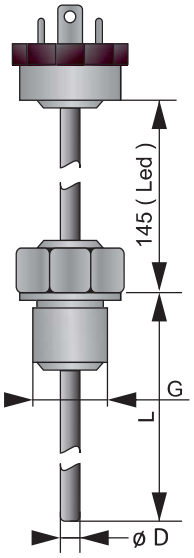




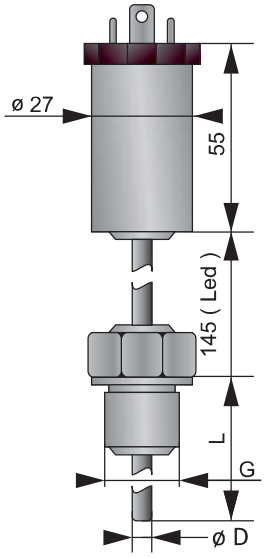
Without transmitter,
with process connection



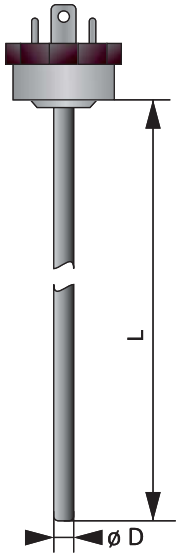
With transmitter
and process connection



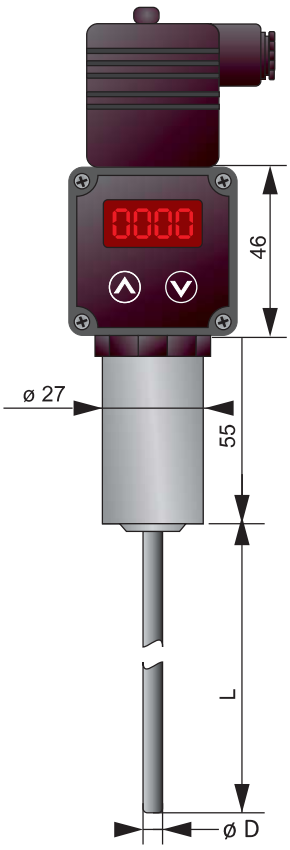
Without transmitter,
with process connection
away from plug



With transmitter,
with process connection
away from plug



Without process connection
and transmitter



Without process connection,
with transmitter
and local display

SCR500

- **temperature range -50 ÷ 200°C**
- **possibility of mounting a 4...20 mA or 0...10 V temperature transmitter**
- **stainless steel sheath with or without perforation, small diameter**
- **connection via terminal connector strip**
- **IP 65 protection degree**



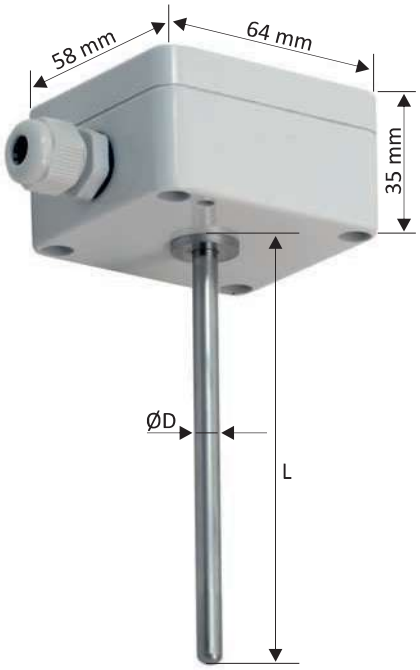
sheath
with perforation



sheath
without perforation

Resistance thermometers **SCR500** are designed for ambient temperature measurement. 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 thermometric resistor with ambient temperature.

Application areas:
- ambient temperature measurement in rooms and outside,
- warehouses and cold stores,
- offices,
- air-conditioning and ventilation installations.



TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range **Case measuring range**	-50 ÷ 200°C -20 ÷ 80°C (ABS); -40 ÷ 80°C (aluminum); -40 ÷ 120°C (policarbonate)
Class	A or B
Thermowell	4 x 30, with or without perforation, stainless steel 1.4541
Case dimensions (WxHxD)	64 x 58 x 35 mm (ABS, aluminum or policarbonate) 82 x 80 x 55 mm (sensor with transmitter 4...20 mA or 0...10V)

ORDERING

SCR500-X-X-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP : with transmitter

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

sheath diameter (ØD):
4 mm
5 mm
6 mm
other, please specify

sheath length (L):
100 mm (standard)
other, please specify

case material:
PW : policarbonate
ABS : ABS
AL : aluminum

sensor mounting:
BG : without process connection
UG : with process connection

process connection
M10x1
M20x1,5
G1/2"
other, please specify

accuracy class:
A
B

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

sheath type:
Z : without perforation
P : with perforation

output signal and temperature transmitter settings:
please specify

Ordering example:
SCR500-PP-Pt100-4-100-PW-UG-M10x1-B-2-Z-(0-80)
RTD temperature sensor with transmitter, 1xPt100, B tolerance class, 2-wire, policarbonate case. Sheath without perforation, diameter 4 mm and length 100 mm, sensor mounting with process connection M10x1. Temperature range 0-80°C



SCR501

- **temperature range -50 ÷ 200°C**
- **possibility of mounting a 4...20 mA or 0...10 V temperature transmitter**
- **stainless steel sheath with or without perforation, small diameter**
- **connection via terminal connector strip**
- **IP 65 protection degree**

Resistance thermometers **SCR501** 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 thermometric resistor with ambient temperature.

Application areas:
- ambient temperature measurement in rooms and outside,
- warehouses and cold stores,
- offices,
- air-conditioning and ventilation installations.

TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range **Case measuring range**	-50 ÷ 200°C -20 ÷ 80°C (ABS); -40 ÷ 80°C (aluminum); -40 ÷ 120°C (policarbonate)
Class	A or B
Thermowell	4 x 30, with or without perforation, stainless steel 1.4541
Case dimensions (WxHxD)	64 x 58 x 35 mm (ABS, aluminum or policarbonate) 82 x 80 x 55 mm (sensor with transmitter 4...20 mA or 0...10V)

ORDERING

SCR501-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP : with transmitter

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

sheath diameter (ØD):
5 mm
6 mm
8 mm
other, please specify

sheath length (L):
50 mm (standard)
other, please specify

output signal and temperature transmitter settings:
please specify

sheath type:
Z : without perforation
P : with perforation

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

accuracy class:
A
B

case material:
PW : policarbonate
ABS : ABS
AL : aluminum

Ordering example:
SCR501-1-Pt100-6-50-PW-B-2-Z-(0-80)
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire, policarbonate case. Sheath without perforation, diameter 6 mm and length 50 mm. Temperature range 0-80°C

SCR502



- **temperature range -40 ÷ 80°C**
- **possibility of mounting a 4...20 mA or 0...10 V temperature transmitter**
- **stainless steel sheath with or without perforation, small diameter**
- **connection via terminal connector strip**
- **IP 65 protection degree**

Resistance thermometers **SCR502** are designed for ambient temperature measurement inside residential, office and industrial spaces. There is possibility of assembling programmable temperature transmitter with 4...20 mA or 0...10V output signal into housing. The housing with perforation ensures quick and accurate measurement. The interesting appearance of the sensor allows for installation in residential houses, ensuring appropriate aesthetics.

Application areas:
- ambient temperature measurement in rooms,
- warehouses and cold stores,
- offices,
- air-conditioning and ventilation installations.

TECHNICAL DATA

Sensing element	Pt100, Pt500 or Pt1000 (2-, 3- or 4-wire) or other
Measuring range	-40 ÷ 80°C
Class	A or B
Thermowell	4 x 30, with or without perforation, stainless steel 1.4541
Case dimensions (WxHxD)	67 x 67 x 23 mm

ORDERING

SCR502-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP : with transmitter

sensing element:
Pt 100
Pt 500
Pt 1000
other, please specify

accuracy class:
A
B

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

sheath type:
Z : without perforation
P : with perforation

output signal and temperature transmitter settings:
please specify

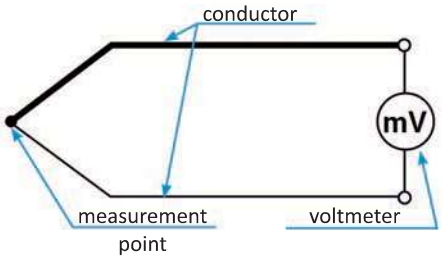
Przykład zamówienia:
SCR502-1-Pt100-B-2-Z-(0-80)
Single RTD temperature sensor, 1xPt100, B tolerance class, 2-wire. Sheath without perforation, temperature range 0-80°C

2 THERMOELECTRIC TEMPERATURE SENSORS

Thermocouples are two conductors (thermocouple wires) made of different metals. Joined at one end, thermocouples constitute a part of the system that uses the thermoelectric effect for temperature measurement (the Seebeck effect).
The thermoelectric effect results in the creation of the thermo-electromotive force, due to the temperature difference between the two junctions: hot (joined thermocouple ends), which is under influence of the measured temperature, and cold (not joined, loose thermocouple ends), which is in the known (usually 0°C) temperature:

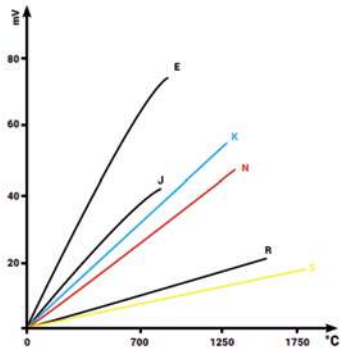
$$E_{12} = -\frac{1}{e}A_1 - A_2 + \frac{K_B T}{e}\ln\frac{n_1}{n_2}$$

A_1, A_2 : electron output operation of individual metals
E=1,602·10^{-19} C : electron charge
T : absolute temperature of metal contact
n_1, n_2 : number of free electrons



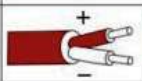
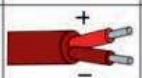
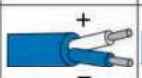
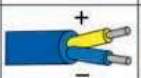
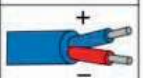
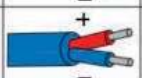
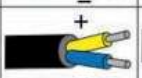
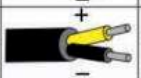
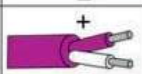
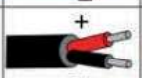
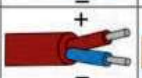
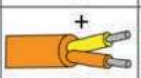
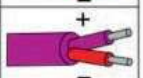
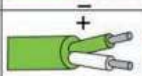
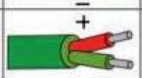
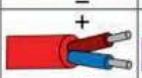
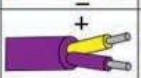
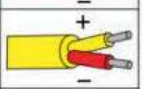
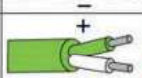
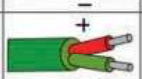
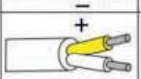
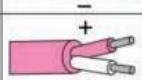
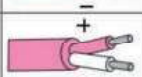
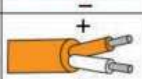
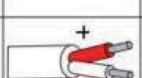
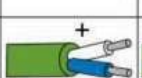
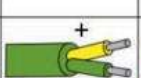
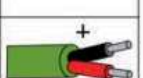
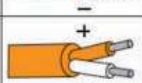
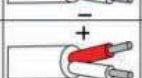
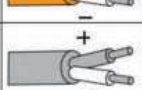
THERMOCOUPLES TYPES

From the multiplicity of possible wire pairings (over 300 combinations of material pairings for temperature measurement are known) some are used for industrial temperature measurement. The materials suitable for temperature measurement can be represented and arranged according to the thermoelectric voltage they generate. Below are the characteristics of the thermocouples and a table showing the ranges of each type.



Type	Element		C [µV/°C]⁸	Range [µV/°C]⁸
	+	-		
J	iron	constantan	52,7	-210 ÷ 1200
K	chrome-nickel	aluminum-nickel	41,0	-270 ÷ 1350
R, S	platinum-rod	platinum	6,5	0 ÷ 1750
T	copper	constantan	42,8	-210 ÷ 400
C	wolfram 5% ren	wolfram 26% ren	14,5	-210 ÷ 1200

CONNECTION DIAGRAM FOR THERMOELECTRIC SENSORS

Type	Compensation	Thermoelectric	EU IEC 584-3	D DIN 43714	GB BS 1843	F NF C 42-324	USA ANSI/MC 96-1
T		TX					
J		JX					
E		EX					
K		KX					
	KCA						
N		NX					
	NC						
R	RCA/RCB						
S	SCA/SCB						
B	BC						

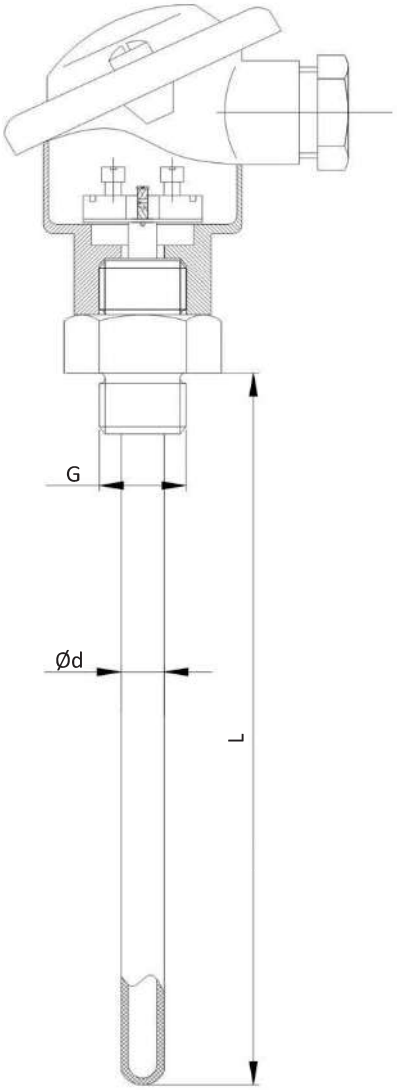


SCT100

- temperature range -40 ÷ 1200°C depending on thermocouple
- operating temperature of connection heads max. 150°C
- stainless steel sheath
- optional: sensor with a replaceable measuring insert
- possibility of mounting a 4...20 mA or 0...10 V temperature transmitter
- connection head DANW with local display

The thermocouple **SCT100** consists of an optional exchangeable measuring insert, outer protective tube (thermowell), and aluminum connection. Mounting a temperature transmitter with 4...20 mA or 0...10V output signal is possible. The measuring insert represents the replaceable element of the complete sensor, which reduces the time and costs of maintenance of the measuring apparatus installed in the object.

Application areas:
- machine construction, tanks or containers,
- fine chemical industry,
- light energy industry,
- general industrial services.



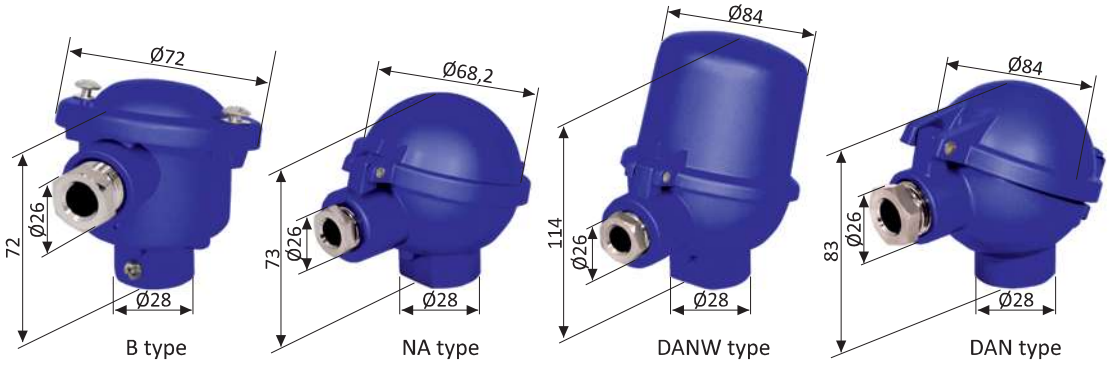
TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 1200°C (depending on thermocouple and material)
Connection head	B, NA or other, operating temperature -40 ÷ 150°C
Class	1 or 2
Sheath	material: stainless steel 1.4541 or other nominal length: 100 mm, 160 mm or other diameter: 4 ÷ 15 mm
Process connection	G1/2", M20x1,5 or other

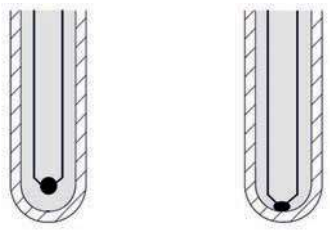
THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) K (NiCr-Ni) N (NiCrSi-NiSi)	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|

CONNECTION HEAD TYPES



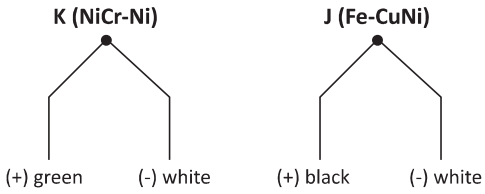
TYPES OF MEASURING HOT JUNCTION



SO
junction isolated from the sheath

SU
junction grounded

ELECTRICAL CONNECTION



ORDERING

SCT100-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP1 : without ceramic block
PP2 : with RTD/TC transmitter, 4...20mA
PP3 : with other transmitter (on request)

sensing element:
J
K
N
other, please specify

connection head:
B
NA
other, please specify

sheath length (L):
100 mm
160 mm
other, please specify [mm]

measuring insert:
BW : non-replaceable
W : replaceable

sensor measuring range, output type or temperature transmitter settings:
please specify

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded

process connection:
G1/2"
M20x1,5
other, please specify

sheath diameter (Ød):
4 mm
6 mm
9 mm
other, please specify

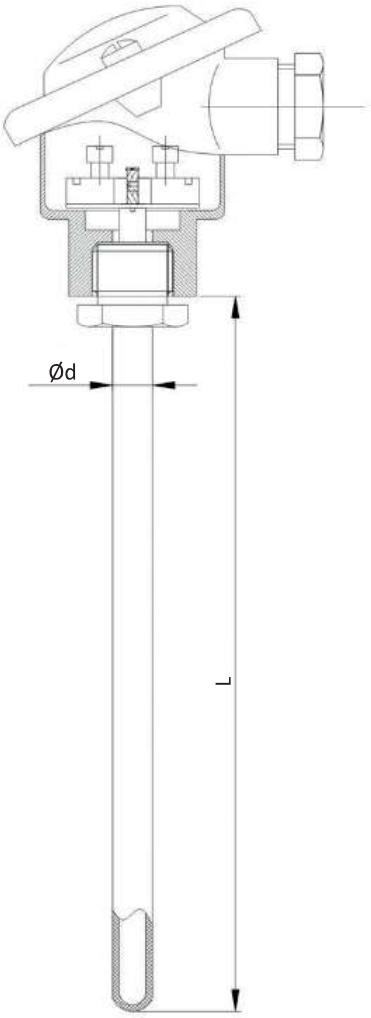
Ordering example:
SCT100-1-J-B-100-W-9-M20x1,5-SO-1-250
Single TC temperature sensor, J thermocouple, 1 tolerance class, measuring insert replaceable, B head type, process connection M20x1,5, sheath diameter 9 mm and length 100 mm, hot junction isolated from the sheath, sensor measuring range 250°C.



SCT101

- temperature range -40 ÷ 1200°C depending on thermocouple
- operating temperature of connection heads max. 150°C
- stainless steel sheath
- optional: sensor with a replaceable measuring insert
- possibility of mounting a 4...20 mA or 0...10 V temperature transmitter
- connection head DANW with local display

The thermocouple **SCT101** consists of an optional exchangeable measuring insert, outer protective tube (thermowell) and aluminum connection head. Mounting a temperature transmitter with 4...20 mA or 0...10V output signal is possible. The measuring insert represents the replaceable element of the complete sensor, which reduces the time and costs of maintenance of the measuring apparatus installed in the object. Compression fittings allow simple adaptation to the required insertion length at the installation point.



Application areas:
- machine construction, tanks or containers,
- fine chemical industry,
- light energy industry,
- food industry,
- general industrial services.

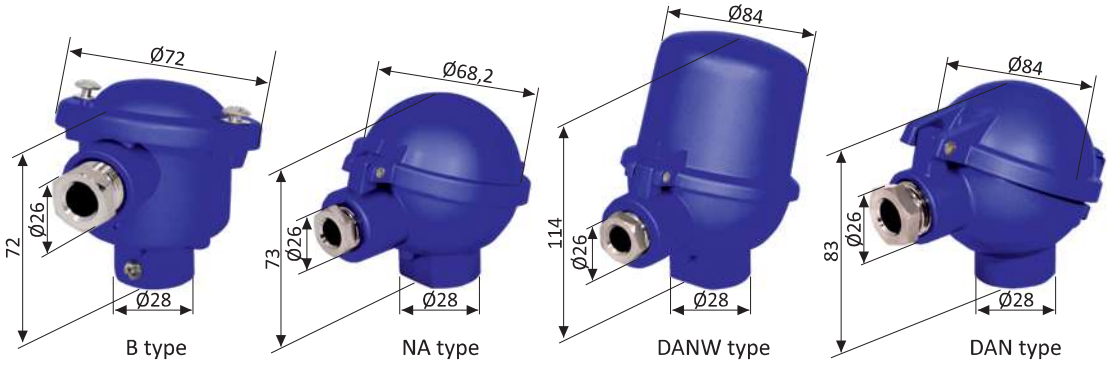
TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 1200°C (depending on thermocouple and material)
Connection head	B, NA or other, operating temperature -40 ÷ 150°C
Class	1 or 2
Sheath	material: stainless steel 1.4541 or other nominal length: 100 mm, 160 mm or other diameter: 4 ÷ 15 mm

THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) K (NiCr-Ni) N (NiCrSi-NiSi)	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|

CONNECTION HEAD TYPES



OPTIONAL ACCESORIES



S type flange
(stainless steel)

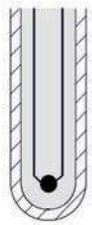


T type flange
(PTFE)



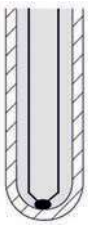
Threaded holder (fitting)
with a compression ferrule
(brass or stainless steel)

TYPES OF MEASURING HOT JUNCTION



SO

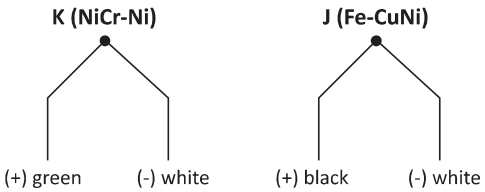
junction isolated
from the sheath



SU

junction
grounded

ELECTRICAL CONNECTION



ORDERING

SCT101-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP1 : without ceramic block
PP2 : with RTD/TC transmitter, 4...20mA
PP3 : with other transmitter (on request)

sensing element:
J
K
N
other, please specify

connection head:
B
NA
other, please specify

sheath length (L):
100 mm
160 mm
other, please specify [mm]

sensor measuring range, output type or temperature transmitter settings:
please specify

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded

sheath diameter (Ød):
4 mm
6 mm
9 mm
other, please specify

measuring insert:
BW : non-replaceable
W : replaceable

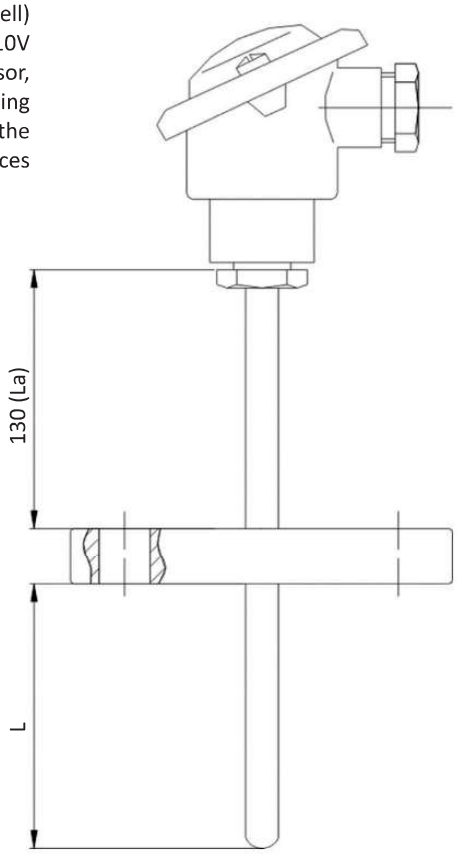
Ordering example:
SCT101-1-K-B-100-BW-6-SO-2-250
Single TC temperature sensor, K thermocouple, 2 tolerance class, non-replaceable measuring insert, B head type, sheath diameter 9 mm and length 100 mm, hot junction isolated from the sheath, sensor measuring range 250°C.



SCT102

- temperature range -40 ÷ 1200°C depending on thermocouple
- operating temperature of connection heads max. 150°C
- stainless steel sheath
- mounting flange
- possibility of mounting a 4...20 mA or 0...10 V temperature transmitter
- connection head DANW with local display

The thermocouple **SCT102** consists of an exchangeable measuring insert, outer protective tube (thermowell) with neck and aluminum connection head. Mounting a temperature transmitter with 4...20 mA or 0...10V output signal is possible. The measuring insert represents the replaceable element of the complete sensor, which reduces the time and costs of maintenance of the measuring apparatus installed in the object. Spring fixation of the measuring insert provides perfect pressure to the bottom of the protecting tube, reduces the time of reaction to changes of temperature and increases the accuracy of measurement as well as reduces natural vibration thus mechanical, and electrical defects can be avoided.



Application areas:
- fine chemical industry,
- light energy industry,
- general industrial services.

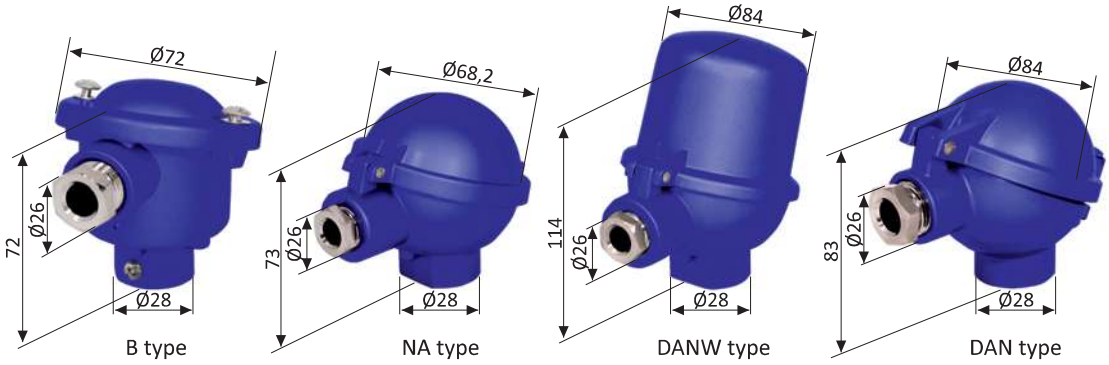
TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 1200°C (depending on thermocouple and material)
Connection head	B, NA or other, operating temperature -40 ÷ 150°C
Class	1 or 2
Sheath	material: stainless steel 1.4541 or other proper sheath length (L): 100 mm, 160 mm or other transitional sheath length (La): 130 mm (standard) diameter: 4 ÷ 15 mm

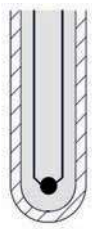
THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) K (NiCr-Ni) N (NiCrSi-NiSi)	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|

CONNECTION HEAD TYPES

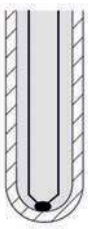


TYPES OF MEASURING HOT JUNCTION



SO

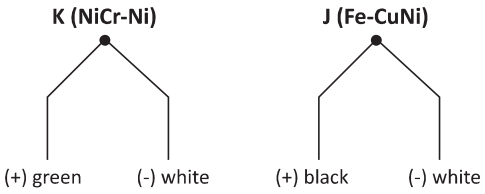
junction isolated from the sheath



SU

junction grounded

ELECTRICAL CONNECTION



ORDERING

SCT102-X-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP1 : without ceramic block
PP2 : with RTD/TC transmitter, 4...20mA
PP3 : with other transmitter (on request)

sensing element:
J
K
N
other, please specify

connection head:
B
NA
other, please specify

proper sheath length (L):
100 mm
160 mm
other, please specify [mm]

transitional sheath length (La):
S : 130 mm (standard)
other, please specify

sensor measuring range, output type or temperature transmitter settings:
please specify

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded

flange:
DN20 (PN100)
DN25 (PN100)
other, please specify

sheath diameter (Ød):
6 mm
9 mm
12 mm
other, please specify

Ordering example:
SCT102-1-K-NA-100-S-9-DN20(PN100)-SU-2-150
Single TC temperature sensor, K thermocouple, 2 tolerance class, with NA head type and DN20 PN100 mounting flange, sheath diameter 9 mm and length 100 mm, hot junction grounded, sensor measuring range 150°C.



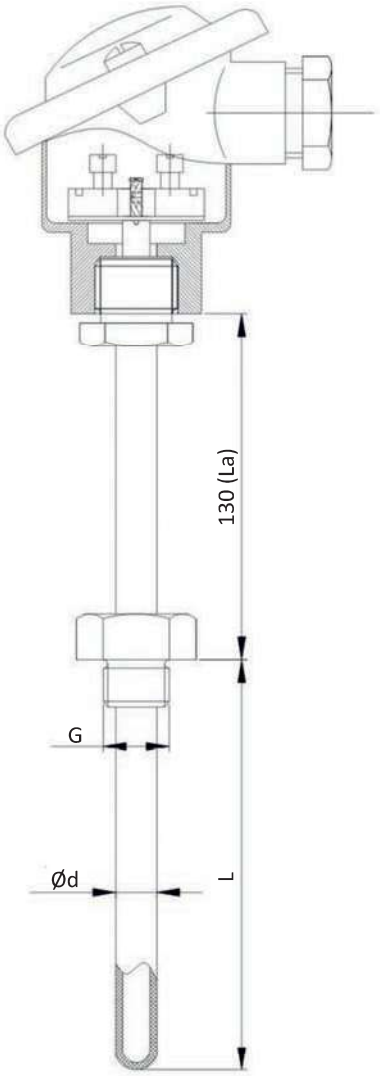
SCT103

- temperature range -40 ÷ 1200°C depending on thermocouple
- operating temperature of connection heads max. 150°C
- stainless steel sheath
- threaded process connection
- optional: sensor with a replaceable measuring insert
- possibility of mounting a 4...20 mA or 0...10 V temperature transmitter
- connection head DANW with local display

The thermocouple **SCT103** consists of an exchangeable measuring insert, outer protective tube (thermowell) with neck and aluminum connection head. Mounting a temperature transmitter with 4...20 mA or 0...10V output signal is possible. The measuring insert represents the replaceable element of the complete sensor, which reduces the time and costs of maintenance of the measuring apparatus installed in the object. Spring fixation of the measuring insert provides perfect pressure to the bottom of the protecting tube, reduces the time of reaction to changes of temperature and increases the accuracy of measurement as well as reduces natural vibration thus mechanical, and electrical defects can be avoided.

Application areas:

- fine chemical industry,
- light energy industry,
- general industrial services.



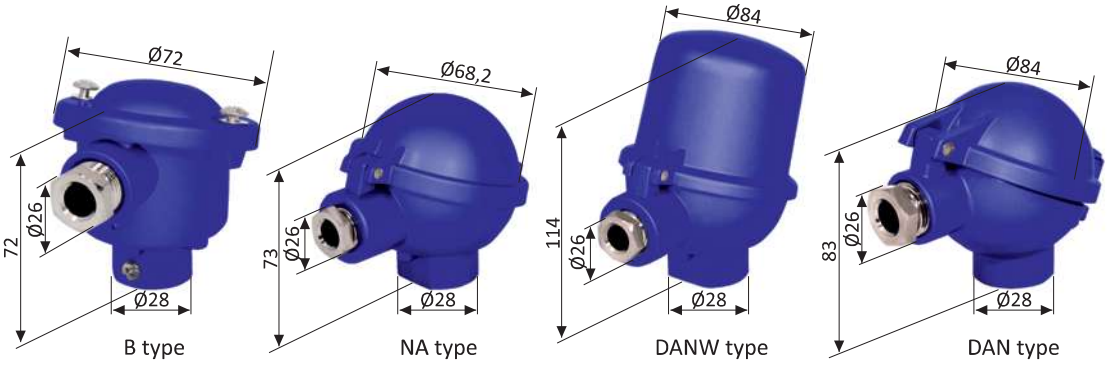
TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 1200°C (depending on thermocouple and material)
Connection head	B, NA or other, operating temperature -40 ÷ 150°C
Class	1 or 2
Sheath	material: stainless steel 1.4541 or other proper sheath length (L): 100 mm, 160 mm or other transitional sheath length (La): 130 mm (standard) diameter: 4 ÷ 15 mm
Process connection	G1/2", M20x1,5 or other

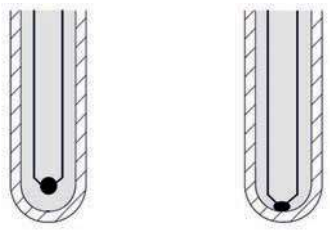
THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) K (NiCr-Ni) N (NiCrSi-NiSi)	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|

CONNECTION HEAD TYPES



TYPES OF MEASURING HOT JUNCTION



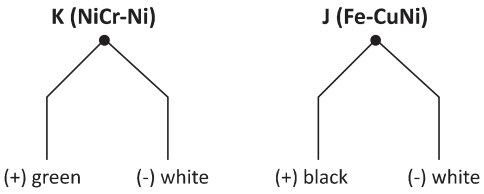
SO

junction isolated from the sheath

SU

junction grounded

ELECTRICAL CONNECTION



ORDERING

SCT103-X-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP1 : without ceramic block
PP2 : with RTD/TC transmitter, 4...20mA
PP3 : with other transmitter (on request)

sensing element:
J
K
N
other, please specify

connection head:
B
NA
other, please specify

proper sheath length (L):
100 mm
160 mm
other, please specify [mm]

transitional sheath length (La):
S : 130 mm (standard)
other, please specify

sensor measuring range, output type or temperature transmitter settings:
please specify

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded

process connection:
G1/2"
M20x1,5
other, please specify

sheath diameter (Ød):
4 mm
6 mm
9 mm
other, please specify

measuring insert:
BW : non-replaceable
W : replaceable

Ordering example:
SCT103-1-K-B-100-S-W-9-G1/2"-SO-2-250
Single TC temperature sensor, K thermocouple, 2 tolerance class, measuring insert replaceable, B head type, process connection G1/2", sheath diameter 9 mm and length 100 mm, hot junction isolated from the sheath, sensor measuring range 250°C.



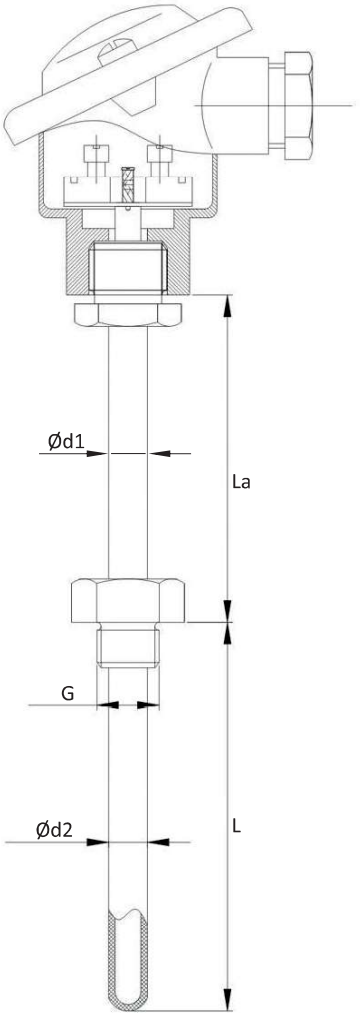
SCT104

- temperature range -40 ÷ 1200°C depending on thermocouple
- operating temperature of connection heads max. 150°C
- stainless steel sheath
- threaded process connection
- optional: sensor with a replaceable measuring insert
- possibility of mounting a 4...20 mA or 0...10 V temperature transmitter
- connection head DANW with local display

The thermocouple **SCT104** consists of an exchangeable measuring insert, outer protective tube (thermowell) with neck and aluminum connection head. Mounting a temperature transmitter with 4...20 mA or 0...10V the output signal is possible. The measuring insert represents the replaceable element of the complete sensor, which reduces the time and costs of maintenance of the measuring apparatus installed in the object. Spring fixation of the measuring insert provides perfect pressure to the bottom of the protecting tube, reduces the time of reaction to changes of temperature and increases the accuracy of measurement as well as reduces natural vibration thus mechanical, and electrical defects can be avoided.

Application areas:

- fine chemical industry,
- light energy industry,
- general industrial services.



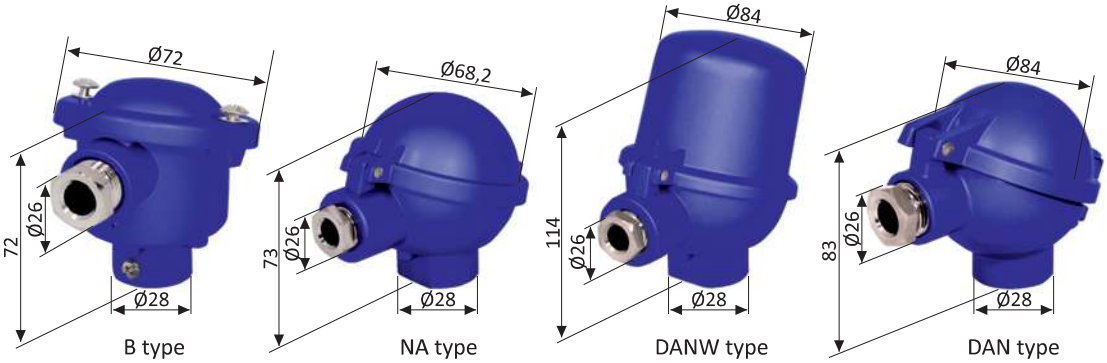
TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 1200°C (depending on thermocouple and material)
Connection head	B, NA or other, operating temperature -40 ÷ 150°C
Class	1 or 2
Sheath	material: stainless steel 1.4541 or other proper sheath length (L): 100 mm, 160 mm or other transitional sheath length (La): 130 mm (standard) diameter: 4 ÷ 22 mm
Process connection	G1/2", M20x1,5, 1/2 NPT or other

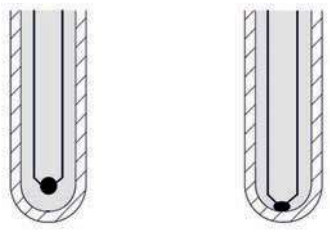
THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) K (NiCr-Ni) N (NiCrSi-NiSi)	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|

CONNECTION HEAD TYPES



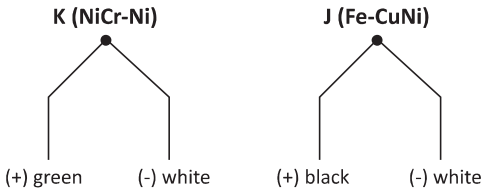
TYPES OF MEASURING HOT JUNCTION



SO
junction isolated from the sheath

SU
junction grounded

ELECTRICAL CONNECTION



ORDERING

SCT104-X-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP1 : without ceramic block
PP2 : with RTD/TC transmitter, 4...20mA
PP3 : with other transmitter (on request)

sensing element:
J
K
N
other, please specify

connection head:
B
NA
other, please specify

proper sheath length (L):
100 mm
160 mm
other, please specify [mm]

transitional sheath length (La):
S : 130 mm (standard)
other, please specify

sensor measuring range, output type or temperature transmitter settings:
please specify

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded

process connection:
G1/2"
M20x1,5
other, please specify

sheath diameter (Ød2/Ød1):
4/6 : Ø4 mm/Ø6 mm
6/8 : Ø6 mm/Ø8 mm
7/9 : Ø7 mm/Ø9 mm
other, please specify

measuring insert:
BW : non-replaceable
W : replaceable

Ordering example:
SCT104-1-J-MA-1-100-S-W-6/8-G1/2”-SO-2-250
Single TC temperature sensor, J thermocouple, 2 tolerance class, measuring insert replaceable, MA head type, process connection G1/2", proper sheath diameter 6 mm and length 100 mm, transitional sheath diameter 8 mm and length 130 mm, hot junction isolated from the sheath, sensor measuring range 250°C.

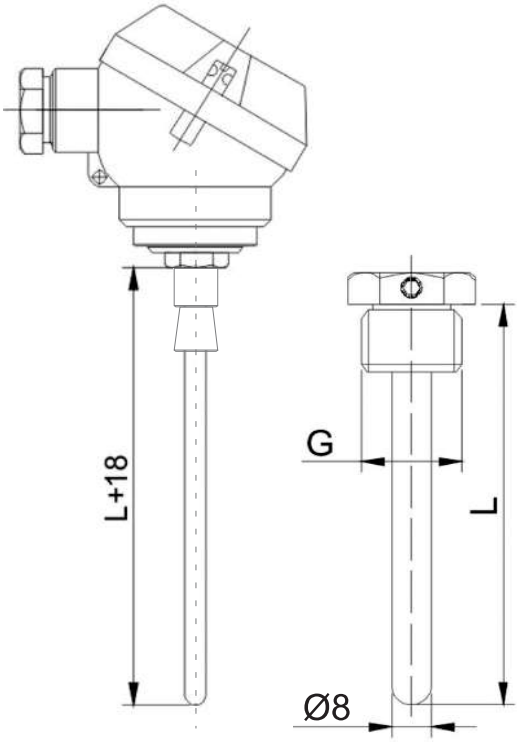


SCT105

- temperature range -40 ÷ 1200°C depending on thermocouple
- MA type connection head
- operating temperature of connection heads max. 100°C
- stainless steel sheath
- outer thermowell with process connection

The thermocouple **SCT105** consists of a non-exchangeable measuring insert, outer protective tube with threaded process connection (thermowell), and aluminum connection head. Miniature connection head MA type reduces the size of complete sensor construction to make possible installation in confined areas.

Application areas:
- fine chemical industry,
- light energy industry,
- general industrial services.



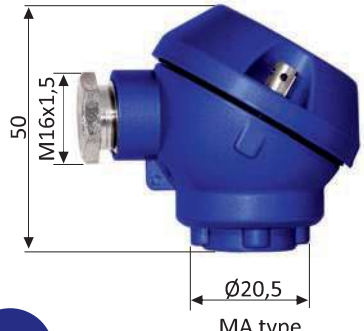
TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 1200°C (depending on thermocouple and material)
Connection head	MA type, aluminum, operating temperature -40 ÷ 100°C
Class	1 or 2
Sheath	material: stainless steel 1.4541 or other nominal length: 100 mm (standard) diameter: 8 mm
Process connection	G1/2", M20x1,5 or other

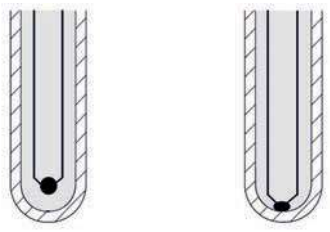
THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) **K (NiCr-Ni)** **N (NiCrSi-NiSi)**	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) **S (PtRh10-Pt)**	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0.003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|

CONNECTION HEAD



TYPES OF MEASURING HOT JUNCTION



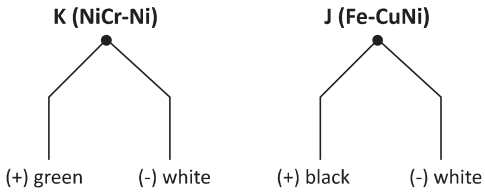
SO

junction isolated from the sheath

SU

junction grounded

ELECTRICAL CONNECTION



ORDERING

SCT105-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
J
K
N
other, please specify

sheath length (L):
100 mm
other, please specify [mm]

sensor measuring range:
please specify

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded

process connection:
G1/2"
M20x1,5
other, please specify

Ordering example:
SCT105-1-K-100-G1/2"-SO-2-100
Single TC temperature sensor, K thermocouple, 2 tolerance class, process connection G1/2", sheath length 100 mm, hot junction isolated from the sheath, sensor measuring range 100°C.

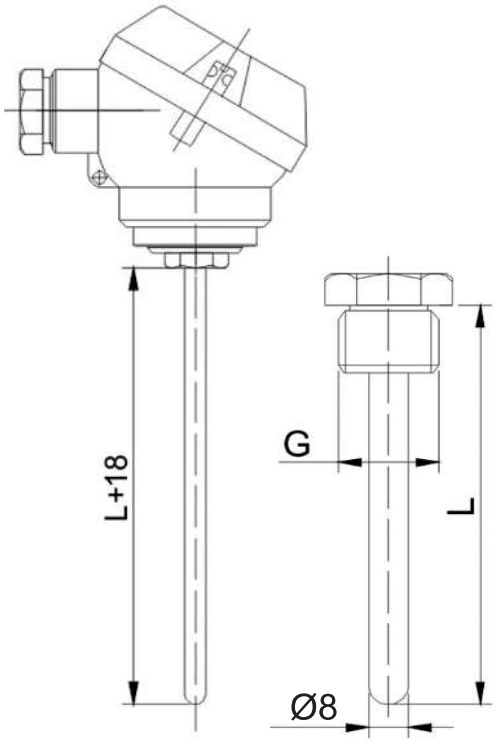


SCT106

- temperature range -40 ÷ 1200°C depending on thermocouple
- MA type connection head
- operating temperature of connection heads max. 100°C
- stainless steel sheath
- outer thermowell with process connection

The thermocouple **SCT106** consists of a non-exchangeable measuring insert, outer protective tube with threaded process connection (thermowell), and aluminum connection head. Miniature connection head MA type reduces the size of complete sensor construction to make possible installation in confined areas.

Application areas:
- fine chemical industry,
- light energy industry,
- general industrial services.



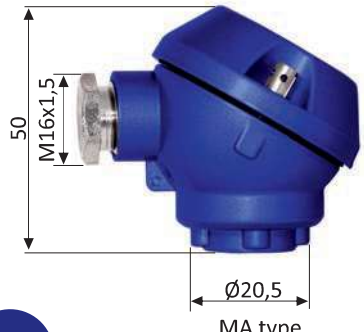
TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 1200°C (depending on thermocouple and material)
Connection head	MA type, aluminum, operating temperature -40 ÷ 100°C
Class	1 or 2
Sheath	material: stainless steel 1.4541 or other nominal length: 100 mm (standard) diameter: 8 mm
Process connection	G1/2", M20x1,5 or other

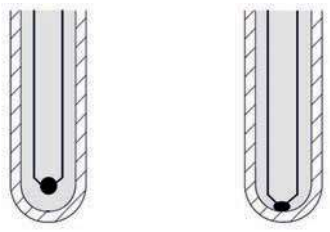
THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) **K (NiCr-Ni)** **N (NiCrSi-NiSi)**	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) **S (PtRh10-Pt)**	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0.003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|

CONNECTION HEAD



TYPES OF MEASURING HOT JUNCTION



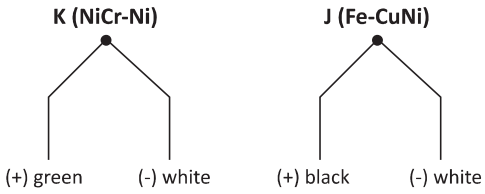
SO

junction isolated from the sheath

SU

junction grounded

ELECTRICAL CONNECTION



ORDERING

SCT106-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
J
K
N
other, please specify

sheath length (L):
100 mm
other, please specify [mm]

sensor measuring range:
please specify

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded

process connection:
G1/2"
M20x1,5
other, please specify

Ordering example:
SCT106-1-K-100-G1/2"-SO-2-100
Single TC temperature sensor, K thermocouple, 2 tolerance class, process connection G1/2", sheath length 100 mm, hot junction isolated from the sheath, sensor measuring range 100°C.

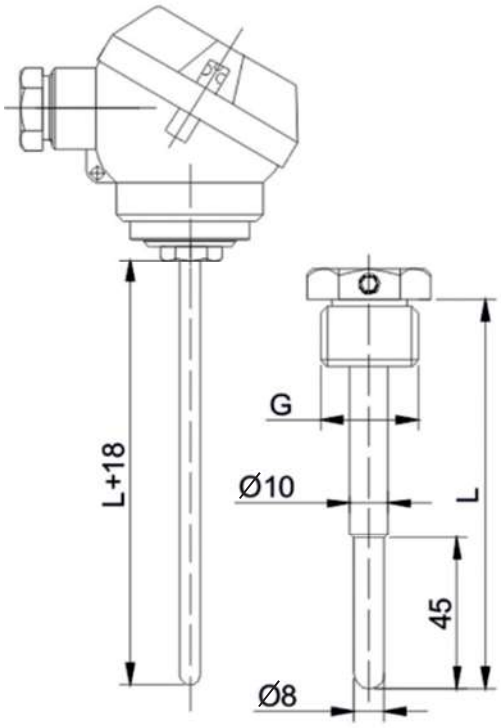


SCT107

- temperature range -40 ÷ 1200°C depending on thermocouple
- MA type connection head
- operating temperature of connection heads max. 100°C
- stainless steel sheath
- outer thermowell with process connection

The thermocouple **SCT107** consists of a non-exchangeable measuring insert, outer protective tube with threaded process connection (thermowell), and aluminum connection head. Miniature connection head MA type reduces the size of complete sensor construction to make possible installation in confined areas.

Application areas:
- fine chemical industry,
- light energy industry,
- general industrial services.



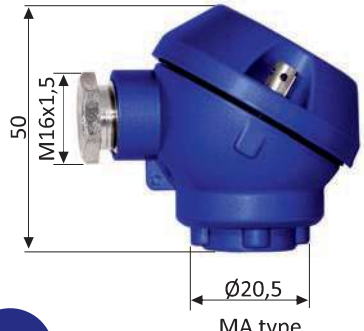
TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 1200°C (depending on thermocouple and material)
Connection head	MA type, aluminum, operating temperature -40 ÷ 100°C
Class	1 or 2
Sheath	material: stainless steel 1.4541 or other nominal length: 100 mm (standard) diameter: 8 / 10 mm
Process connection	G1/2", M20x1,5 or other

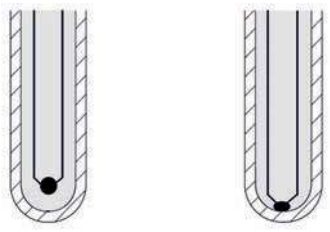
THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) K (NiCr-Ni) N (NiCrSi-NiSi)	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) S (PtRh10-Pt)	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0.003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|

CONNECTION HEAD



TYPES OF MEASURING HOT JUNCTION



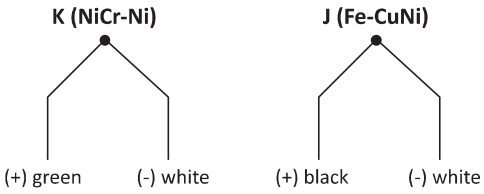
SO

junction isolated from the sheath

SU

junction grounded

ELECTRICAL CONNECTION



ORDERING

SCT107-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
J
K
N
other, please specify

sheath length (L):
100 mm
other, please specify [mm]

sensor measuring range:
please specify

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded

process connection:
G1/2"
M20x1,5
other, please specify

Ordering example:
SCT107-1-K-100-G1/2"-SO-2-150
Single TC temperature sensor, K thermocouple, 2 tolerance class, process connection G1/2", sheath length 100 mm, hot junction isolated from the sheath, sensor measuring range 150°C.



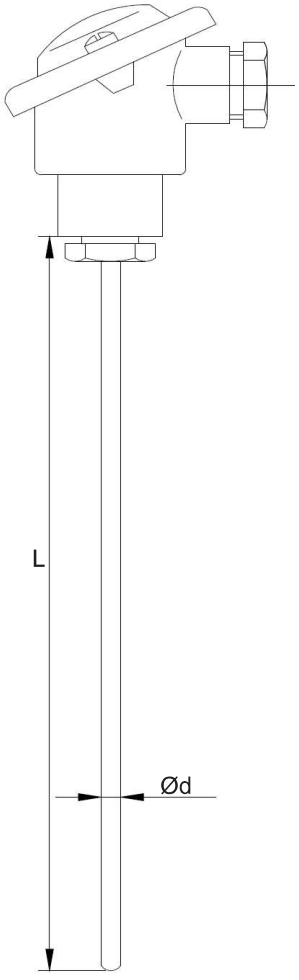
SCT108

- mineral insulated thermoelectric sensor
- temperature range -40 ÷ 1200°C depending on thermocouple
- connection head
- short response time for temperature change
- small dimensions for operation in hard-to-reach places
- resistance to vibrations and the possibility of bending
- thermowell made of nickel alloy (Inconel 600)

The mineral insulated thermocouple **SCT108** contains the flexible part of the probe. The probe consists of a stainless steel outer sheath, in which the inner conductors are insulated with compressed into a highly compacted ceramic mass. The outer sheath is made of stainless steel or Ni alloy. The inner conductors are welded together at the measuring end of the sheathed cable to form the 'thermocouple' junction. In designs, where the measuring element is not insulated, the sheath is also welded with the thermocouple junction. Connector cables are connected to the other end of the sheathed cable and hermetically sealed with a sealing compound. The connector wires are the basis of the electrical interface with cable, a connector, or a terminal block. Due to their flexibility and the small diameters in which they are available, sheathed thermocouples can be used in locations that are not easily accessible.

Application areas:

- general machinery and equipment design,
- measuring temperature of liquids, gases and solid bodies,
- all branches of industry,
- measurement laboratories.



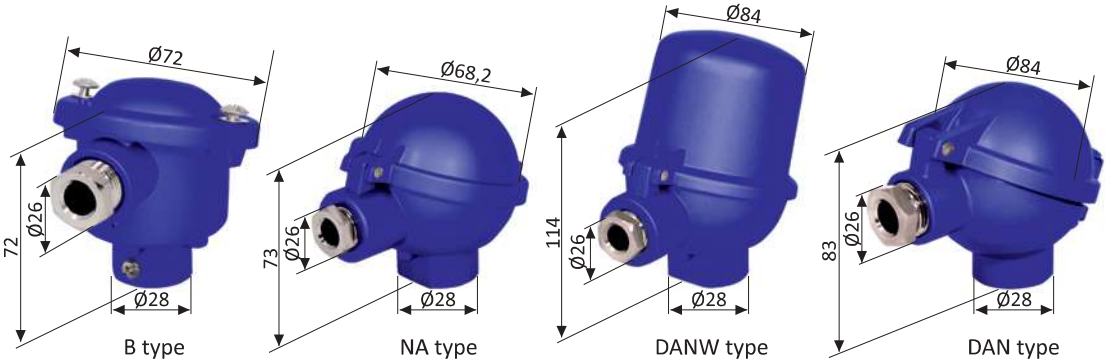
TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 1200°C (depending on thermocouple and material)
Connection head	B, NA, MA, DAN or other, operating temperature -40 ÷ 150°C
Class	1 or 2
Sheath	material: nickel alloy 2.4816 (Inconel 600) or other any nominal length (specified when ordering) diameter: 3 mm, 4,5 mm, 6 mm
Measuring junction	isolated, grounded or exposed

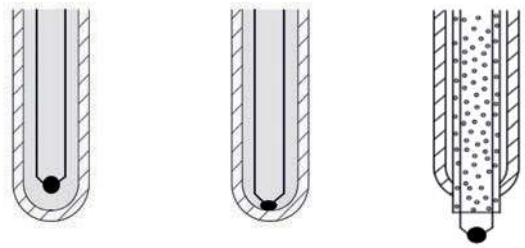
THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) K (NiCr-Ni) N (NiCrSi-NiSi)	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|

CONNECTION HEAD TYPES



TYPES OF MEASURING HOT JUNCTION

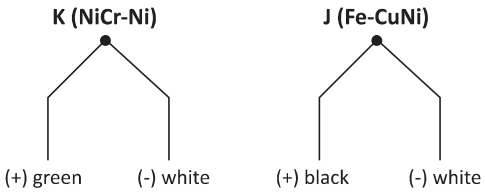


SO
junction isolated from the sheath

SU
junction grounded

SZ
exposed junction

ELECTRICAL CONNECTION



ORDERING

SCT108-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP1 : without ceramic block
PP2 : with RTD/TC transmitter, 4...20mA
PP3 : with other transmitter (on request)

sensing element:
J
K
N
other, please specify

thermowell diameter (Ød):
3 : 3 mm
4,5 : 4,5 mm
6 : 6 mm

thermowell length (L):
please specify [mm]

sensor measuring range, output type or temperature transmitter settings:
please specify

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded
SSO : junction isolated from itself and from the sheath (for double sensor)
SZ : junction exposed

connection head:
MA
NA
DAN
B
other, please specify

Ordering example:
SCT108-1-K-3-500-B-SO-2-800
Mineral insulated single TC temperature sensor, K thermocouple, 2 tolerance class, sheath diameter 3 mm, length 500 mm, connection head B type, sensor measuring range 800°C.



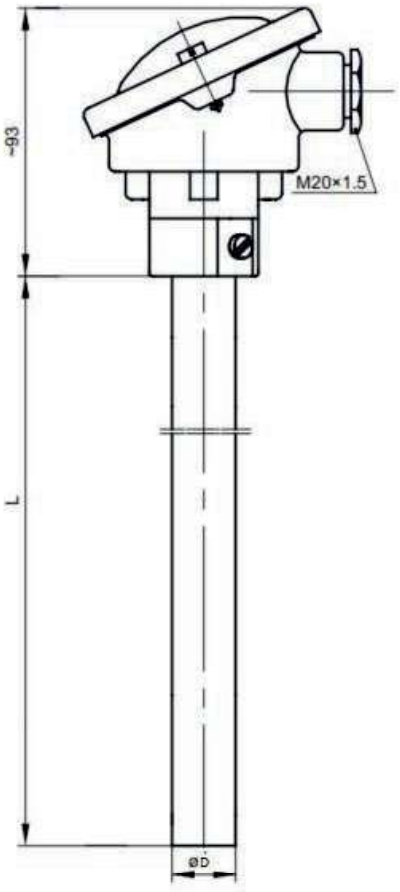
SCT109

- temperature range -40 ÷ 1200°C depending on thermocouple
- connection head
- operating temperature of connection heads max. 150°C
- acid-resistant steel sheath
- inner thermowell made of C610 (60% Al_2O_3), C799 (99,7% Al_2O_3)
- possibility of mounting a 4...20 mA or 0...10 V temperature transmitter

The thermocouple **SCT109** consists of a replaceable insert, an outer protective tube (thermowell) made of heat-resistant steel, additional protection tube made of ceramics and an aluminium connection head where a programmable temperature transmitter with a 4...20 mA output signal can be installed. Immersion length, compression fitting size (optional), material of the protective tube and connection head can be selected depending on the requirements of the application.

Application areas:

- general machinery and equipment design,
- measuring temperature of liquids, gases and solid bodies,
- all branches of industry.



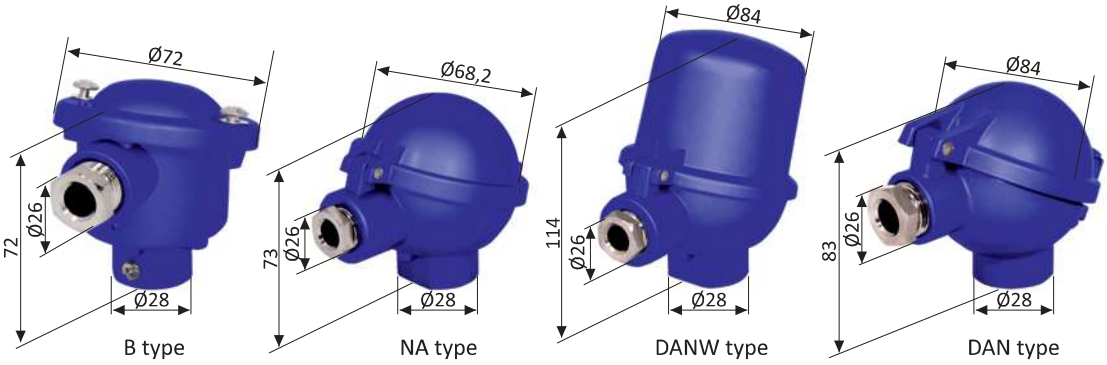
TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 1200°C (depending on thermocouple and material)
Connection head	B, NA, MA, DAN or other, operating temperature -40 ÷ 150°C
Class	1 or 2
Sheath	material: heat-resistant steel H25N2OS2 (1.4841 / AISI314) or other any nominal length (specified when ordering) diameter: from 15 to 26 mm

THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) **K (NiCr-Ni)** **N (NiCrSi-NiSi)**	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) **S (PtRh10-Pt)**	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0.003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|

CONNECTION HEAD TYPES



THERMOWELL MATERIAL - PROPERTIES

Material	Properties	Application
1.4404 AISI 316L	As a result of the addition of molybdenum, this material has higher corrosion resistance in non-oxidizing acids such as ethanolic acid, tartaric acid, phosphoric acid, sulphuric acid and others. Increased pitting resistance.	Sulphite, pulp, textile, dyeing, fatty acid, soap and pharmaceutical industries.
1.4841 AISI 314	Excellent resistance to corrosion, also at high temperatures. Also suitable in atmospheres containing carbon and sulphur. Resistant to oxidation in air up to 1000°C (interrupted service) or 1150°C (continuous service). Well suited with high thermal cycling. Recommended for long-term continuoususe in the temperature range from 425°C to 850°C.	Boilers and blast furnaces, cement and brick kilns, glass production, crude oil and petrochemical industries, furnace construction and power stations.
1.479 AISI 446	Extremely good resistance to reducing, sulphurous atmospheres. Very good resistance to oxidation and air. Good resistance to corrosion caused by incinerator slag and copper, lead and tin smelts.	Petrochemical industry, metallurgy, power technology, recuperators, heat treatment kilns, vortex firing installations, waste incinerators.
2.4816 Inconel 600	Good general resistance to corrosion, resistant to tension crack corrosion. Excellent resistance to oxidation. Not recommended with gases containing CO_2 and sulphur above 550°C and sodium above 750°C. In air, resistant up to 1100°C	PWR, nuclear power, furnace construction, plastics industry, heat treatment, paper and food processing industries, boilers, aircraft engines.
Kanthal AF	Good heat resistance, very good resistance in sulfur contact. Not recommended for work in nitrogen gases. In air resistant up to 1350°C.	Industrial furnaces, metallurgy industry, heat treatment

ACCESSORIES

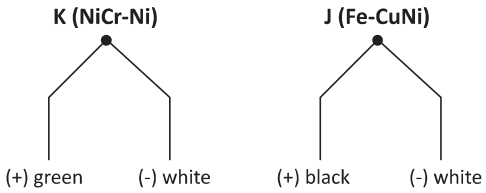


Mounting bracket
SUZ11



Mounting bracket
SUZ21

ELECTRICAL CONNECTION



ORDERING

SCT109-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP1 : without ceramic block
PP2 : with RTD/TC transmitter, 4...20mA
PP3 : with other transmitter (on request)

sensing element:
K
N
S
other, please specify

connection head:
B
NA
other, please specify

thermocouple wire diameter:
2 : 2 mm
3 : 3 mm
other, please specify

sensor measuring range, output type or temperature transmitter settings:
please specify

accuracy class:
class **1**
class **2**

thermowell length (L):
please specify [mm]

thermowell diameter (ØD):
please specify [mm]

thermowell material:
1.4404: acid-resistant steel
1.4841: heat-resistant steel
2.4816: nickel alloy INCONEL®600
Kanthal AF: FeCrAl alloy

ceramic inner isolation:
- : no isolator
C610
C799

Ordering example:
SCT109-1-K-B-3-1.4404-20-300-2-700
Single TC temperature sensor, K thermocouple, B type connection head, 2 tolerance class. Thermocouple with a wire diameter of 3 mm, without inner isolation, of steel 1.4404, sheath diameter 20 mm, length 300 mm, sensor measuring range 700°C.

SCT110

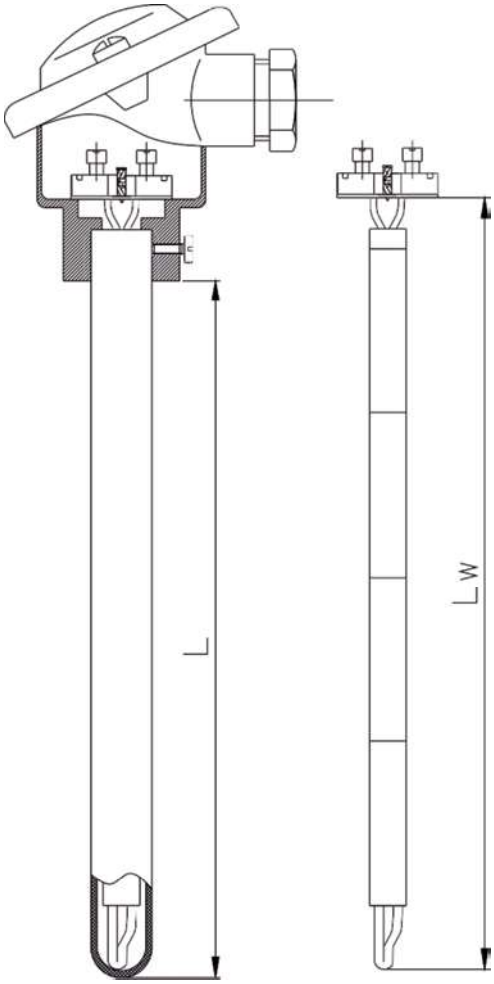


- **temperature range -50 ÷ 1200°C depending on thermocouple**
- **connection head**
- **operating temperature of connection heads max. 150°C**
- **sensor with a replaceable measuring insert**
- **acid-resistant steel sheath**
- **possibility of mounting a 4...20 mA temperature transmitter**

The thermocouple **SCT110** consists of a replaceable insert, an outer protective tube (thermowell) made of heat-resistant steel and an aluminium connection head where a programmable temperature transmitter with a 4...20 mA output signal can be installed. The measuring insert allows you to replace a faulty sensor without having to dismantle the entire measuring assembly. Immersion depth adjustment using the sliding **SUZ** handle with mounting thread.

Application:

- steel and metallurgical industry
- waste processing
- metallurgical furnaces
- other industries



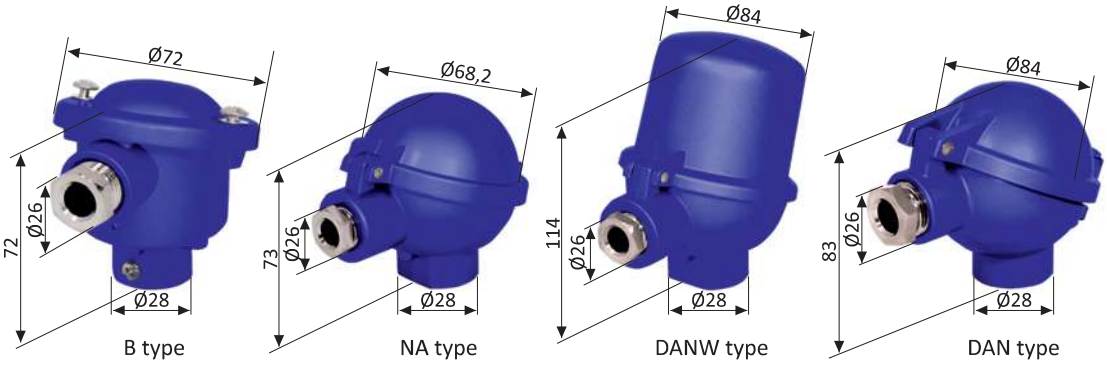
TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-50 ÷ 1200°C (depending on thermocouple and material)
Connection head	B, NA, MA, DAN or other, operating temperature -40 ÷ 150°C
Class	1 or 2
Sheath	material: heat-resistant steel 1.4401 or other any nominal length (specified when ordering)

THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Wires diameter	Class 1		Class 2	
		Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) K (NiCr-Ni) N (NiCrSi-NiSi)	Ø2 Ø3 Ø3	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|

CONNECTION HEAD TYPES



ACCESSORIES

SUZ - MOUNTING BRACKETS

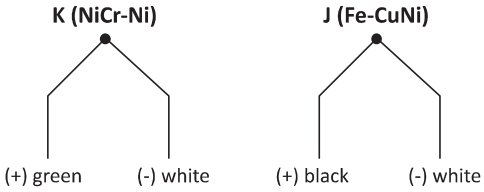


Mounting bracket
SUZ11



Mounting bracket
SUZ21

ELECTRICAL CONNECTION



ORDERING

SCT110-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP1 : without ceramic block
PP2 : with RTD/TC transmitter, 4...20mA
PP3 : with other transmitter (on request)

sensing element:
J
K
N
other, please specify

connection head:
B
NA
other, please specify

thermowell diameter (ØD):
please specify [mm]

sensor measuring range, output type or temperature transmitter settings:
please specify

accuracy class:
class **1**
class **2**

process connection:
M20x1,5
M24x1,5
other, please specify

thermowell material:
1.4401 : heat-resistant steel
1.4571 : acid-resistant steel
other, please specify

thermowell length (L):
please specify [mm]

Ordering example:
SCT110-1-K-DAN-20-1000-1.4401-M20x1,5-2-(0-1200)
Single TC temperature sensor, K thermocouple, DAN type connection head, 2 tolerance class. Thermocouple with a steel 1.4401 sheath, diameter 20 mm, length 1000 mm. Sensor with process connection M20x1,5 and measurement range 0...1200°C.



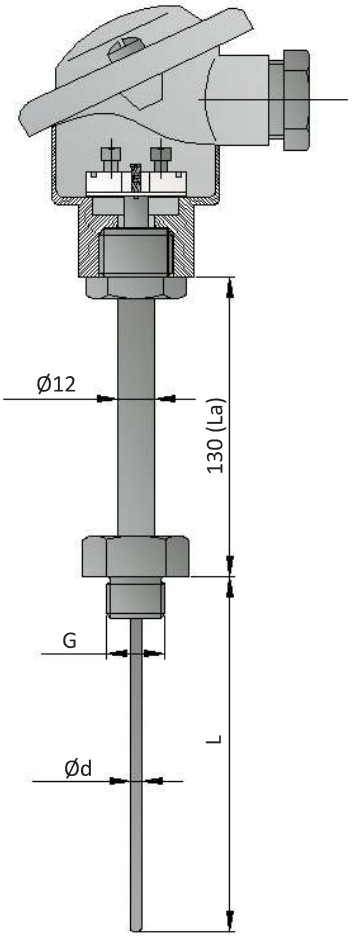
SCT120

- temperature range -40 ÷ 800°C depending on thermocouple
- operating temperature of connection heads max. 150°C
- for mounting in additional protection tube
- stainless steel AISI316 (1.4401) insert cover
- spring-loaded insert ensures an excellent connection with the thermowell
- possibility of mounting a 4...20 mA or 0...10 V temperature transmitter
- connection head DANW with local display

The thermocouple **SCT120** is used for temperature measurement of liquid and gaseous media. The temperature sensor design (replaceable measuring insert) is suitable for various industrial applications. Replacement of the measuring insert does not cause the technological installation damage. Spring-loaded insert ensures an excellent connection with the bottom of the sensor thermowell.

Application areas:

- installations of technological processes in all industries,
- mechanical engineering,
- heating, air conditioning and ventilation installations.



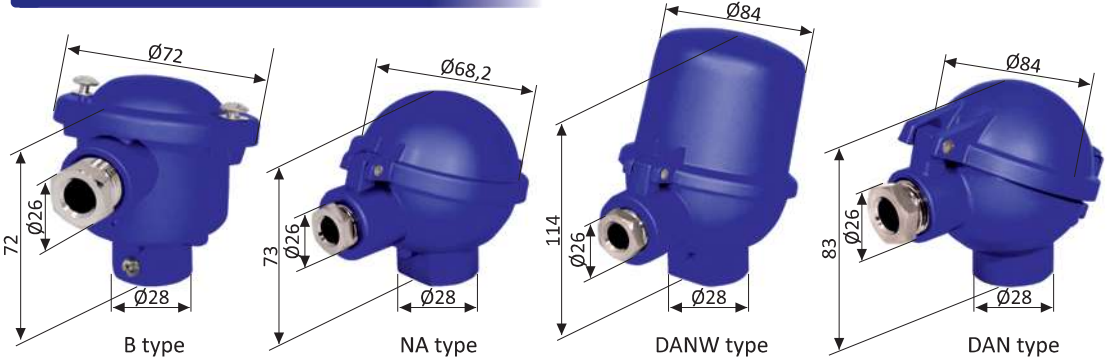
TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 800°C (depending on thermocouple and material)
Connection head	B, NA, MA, DAN or other, operating temperature -40 ÷ 150°C
Class	1 or 2
Insert	mineral insulated or tube sheath material: stainless steel AISI316 (1.4401) any nominal length (specified when ordering) diameter: from 3 to 8 mm or other
Process connection	G1/2", M20x1,5 or other

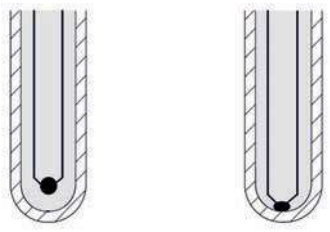
THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) **K (NiCr-Ni)** **N (NiCrSi-NiSi)**	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) **S (PtRh10-Pt)**	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0.003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|

CONNECTION HEAD TYPES



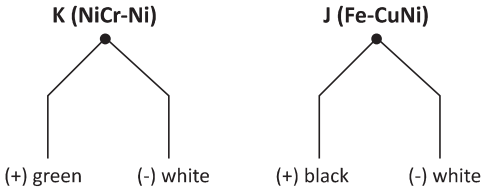
TYPES OF MEASURING HOT JUNCTION



SO
junction isolated from the sheath

SU
junction grounded

ELECTRICAL CONNECTION



ORDERING

SCT120-X-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP1 : without ceramic block
PP2 : with RTD/TC transmitter, 4...20mA
PP3 : with other transmitter (on request)

sensing element:
J
K
N
other, please specify

connection head:
B
NA
other, please specify

transitional sheath length (La):
S : 130 mm (standard)
other, please specify

insert diameter (Ød):
3 : 3 mm
4,5 : 4,5 mm
6 : 6 mm
8 : 8 mm
other, please specify

sensor measuring range, output type or temperature transmitter settings:
please specify

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded

process connection:
M20x1,5
G1/2”
other, please specify

insert construction:
P : mineral insulated
Z : normal

proper sheath length (L):
100 mm
200 mm
other, please specify [mm]

Ordering example:
SCT120-1-K-B-S-6-100-P-M20x1,5-SO-2-600
Single TC temperature sensor, K thermocouple, 2 tolerance class, with mineral insulated measuring insert diameter 6 mm, length 100 mm, B head type, hot junction isolated from the sheath. Sensor with process connection M20x1,5 and temperature range 600°C.



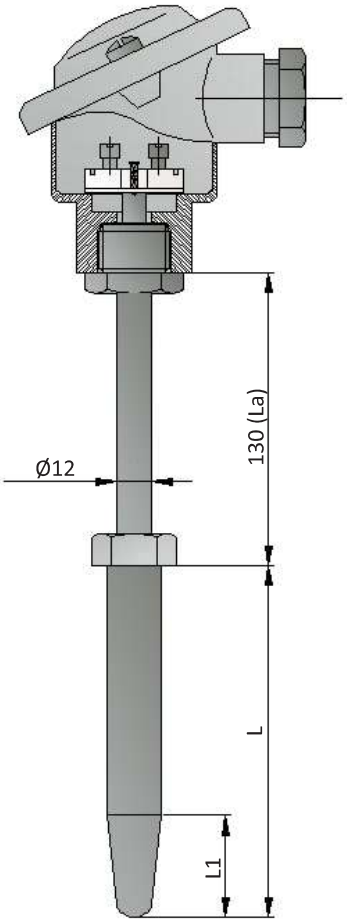
SCT121

- temperature range -40 ÷ 1200°C depending on thermocouple
- operating temperature of connection heads max. 150°C
- stainless steel sheath
- drilled pressure sheath
- sensor with a replaceable measuring insert
- possibility of mounting a 4...20 mA or 0...10 V temperature transmitter
- connection head DANW with local display

The thermocouple **SCT121** consists of an exchangeable measuring insert, outer protective tube (thermowell), drilled pressure sheath, and aluminum connection head. Intended for measuring the temperature of pipelines, tanks, boilers in difficult conditions. Mounting a temperature transmitter with 4...20 mA or 0...10V output signal is possible. The measuring insert represents the replaceable element of the complete sensor, which reduces the time and costs of maintenance of the measuring apparatus installed in the object. Spring fixation of the measuring insert provides perfect pressure to the bottom of the protecting tube, reduces the time of reaction of temperature changes, and increases the accuracy. It also reduces natural vibration. Thus, mechanical and electrical defects can be avoided.

Application areas:

- technological installations in various industries,
- temperature measurement of pipelines, tanks, boilers,
- measurement of all media (gases, liquids, solids).



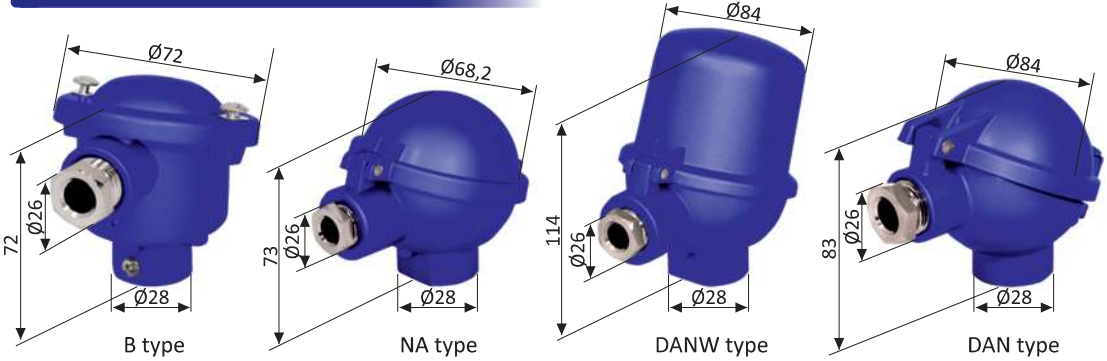
TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 1200°C (depending on thermocouple and material)
Connection head	B, NA, MA, DAN or other, operating temperature -40 ÷ 150°C
Class	1 or 2
Sheath	material: heat-resistant steel H25N2OS2 (1.4841 / AISI314) or other any nominal length (specified when ordering) diameter: from 15 to 26 mm

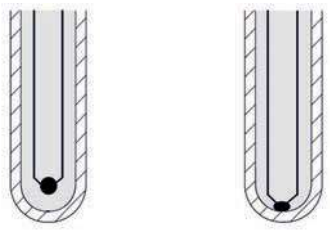
THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) **K (NiCr-Ni)** **N (NiCrSi-NiSi)**	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) **S (PtRh10-Pt)**	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0.003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|

CONNECTION HEAD TYPES



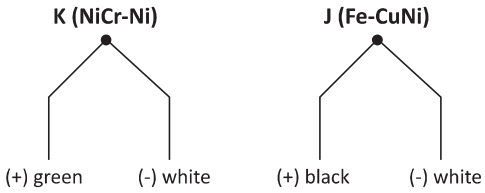
TYPES OF MEASURING HOT JUNCTION



SO
junction isolated from the sheath

SU
junction grounded

ELECTRICAL CONNECTION



ORDERING

SCT121-X-X-X-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP1 : without ceramic block
PP2 : with RTD/TC transmitter, 4...20mA
PP3 : with other transmitter (on request)

sensing element:
J
K
N
other, please specify

connection head:
B
NA
other, please specify

transitional sheath length (La):
S : 130 mm (standard)
other, please specify

pressure sheath diameter (Ød):
18 : 18H7
24 : 24H7
26 : 26H7

pressure sheath length (L):
100 mm
200 mm
other, please specify [mm]

length of the sheath cone (L1):
50 : 50 mm
85 : 85 mm
other, please specify

sheath material:
1.7335 : 1.7335/A182 F11
1.7380 : 1.7380/A182 F22
1.4903 : 1.4903/A182 F91
1.4541 : 1.4541/SS321

insert diameter:
3 : 3 mm
6 : 6 mm
other, please specify

junction type:
SO : junction isolated from the sheath
SU : junction grounded

accuracy class:
class **1**
class **2**

sensor measuring range, output type or temperature transmitter settings:
please specify

Ordering example:
SCT121-1-K-B-S-18-140-30-1.4541-6-SO-2-(-10-900)
Single TC temperature sensor, K thermocouple, 2 tolerance class, with replaceable measuring insert diameter 6 mm, B head type, pressure sheath diameter 18 mm, length 140 mm, sheath from stainless steel 1.4541, sheath cone 30 mm, hot junction isolated from the sheath, sensor measuring range -10 to 900°C.



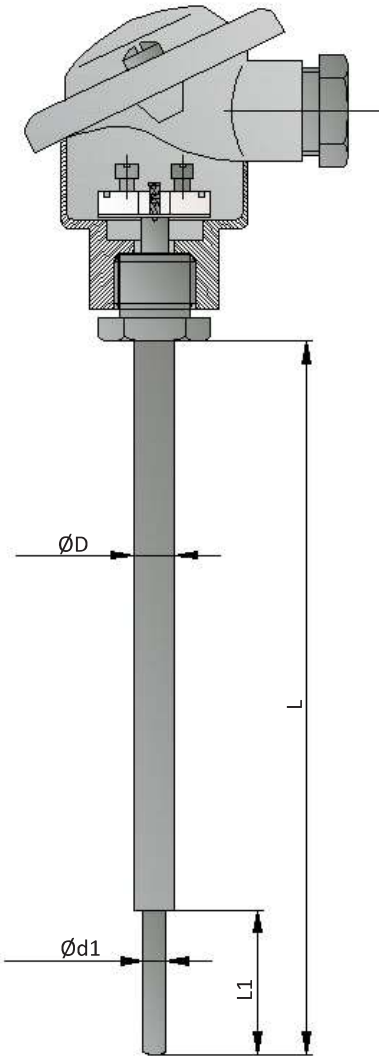
SCT122

- temperature range depending on thermocouple:
  -40 ÷ 1100°C with a replaceable measuring insert
  -40 ÷ 450°C without replaceable measuring insert
- operating temperature of connection heads max. 150°C
- stainless steel stepped sheath
- possibility of mounting a 4...20 mA or 0...10 V temperature transmitter
- connection head DANW with local display

The thermocouple **SCT122** is intended for measuring the temperature of pipelines, tanks, machines and devices in various industrial installations. The sensor consists of an aluminum connection head and a stepped sheath of a selected diameter, which results in increased measurement dynamics. Replacement of the measuring insert does not cause the technological installation damage.

Application areas:

- industrial and technological installations in various industries,
- temperature measurement of pipelines, tanks, boilers,
- measurement of all media (gases, liquids, solids).



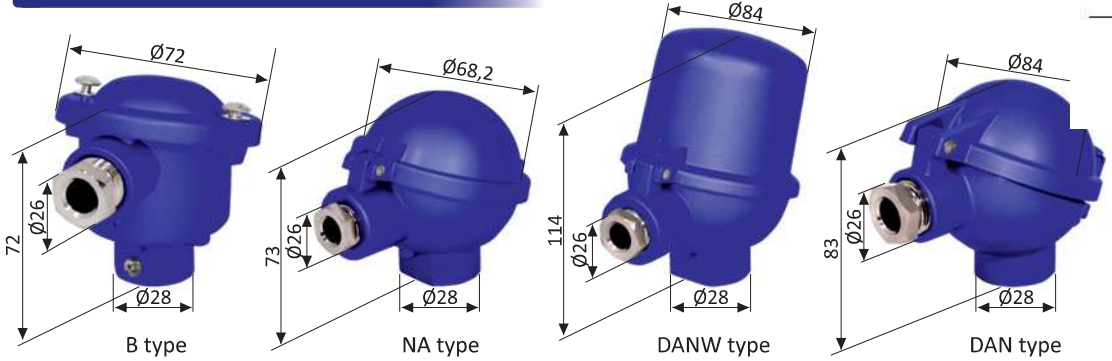
TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	depending on thermocouple and material: -40 ÷ 1100°C (with a replaceable measuring insert); -40 ÷ 450°C (without replaceable measuring insert)
Connection head	B, NA, MA, DAN or other, operating temperature -40 ÷ 150°C
Class	1 or 2
Sheath	material: stainless steel 1.4571 nominal length: 100 mm (or other, specified when ordering) diameter: 6, 8 mm or other

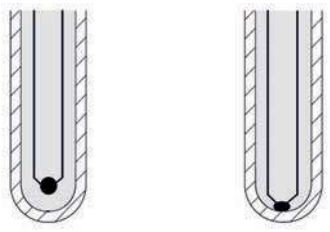
THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) **K (NiCr-Ni)** **N (NiCrSi-NiSi)**	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) **S (PtRh10-Pt)**	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0.003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|

CONNECTION HEAD TYPES



TYPES OF MEASURING HOT JUNCTION



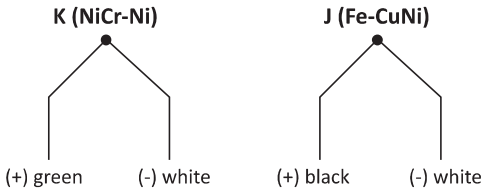
SO

junction isolated from the sheath

SU

junction grounded

ELECTRICAL CONNECTION



ORDERING

SCT122-X-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP1 : without ceramic block
PP2 : with RTD/TC transmitter, 4...20mA
PP3 : with other transmitter (on request)

sensing element:
J
K
N
other, please specify

connection head:
B
NA
other, please specify

total length of sheath (L):
100 : 100 mm
200 : 200 mm
other, please specify

sensor measuring range, output type or temperature transmitter settings:
please specify

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded

construction:
BW : without replaceable measuring insert
W : with a replaceable measuring insert

sheath diameter (ØD/Ød1):
6/4 : Ø6 mm/Ø4 mm
8/6 : Ø8 mm/Ø6 mm
other, please specify

length of stepped sheath (L1):
20 : 20 mm
30 : 30 mm
other, please specify

Ordering example:
SCT122-1-N-NA-100-20-8/6-BW-SO-2-(-10-400)
Single TC temperature sensor, K thermocouple, 2 tolerance class, without replaceable measuring insert, hot junction isolated from the sheath, NA head type, pressure sheath diameter 8 mm, length 100 mm, stepped part with a length of 20 mm and a diameter of 6 mm, sensor measuring range -10°C ... 400°C.

SCT200



- **temperature range -40 ÷ 400°C (depending on the cable used)**
- **stainless steel sheath**
- **minimum sheath length: 15 mm**
- **any maximum sheath length**
- **thermowell spring protection against excessive cable bending**

The thermocouples **SCT200** are designed for fitting directly into a drilled hole or process. Consist of a thermocouple element, a protection tube made out of stainless steel, and a connection cable.

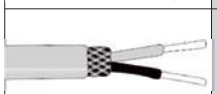
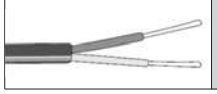
Application areas:
- fine chemical industry,
- light energy industry,
- general industrial services.



TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 400°C (depending on the cable used)
Class	1 or 2
Sheath	material: stainless steel nominal length (min. 15 mm): 50 mm (standard), 100 mm or other diameter: 4 mm, 5 mm, 6 mm or other
Cable	type according to the table, standard length 1500 mm or other according to order

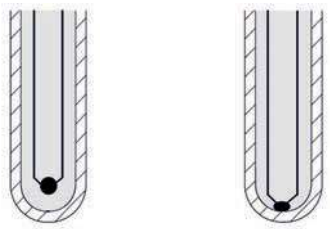
CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	-40 ÷ 400°C	WS
	PVC	-10°C ÷ 105°C	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	-30°C ÷ 250°C	SS
	Teflon - teflon	-40°C ÷ 260°C	TT

THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) K (NiCr-Ni) N (NiCrSi-NiSi)	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) S (PtRh10-Pt)	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0.003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|

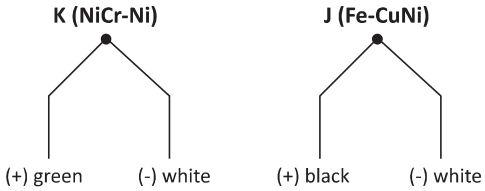
TYPES OF MEASURING HOT JUNCTION



SO
junction isolated
from the sheath

SU
junction
grounded

ELECTRICAL CONNECTION



ORDERING

SCT200-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
J
K
N
other, please specify

sheath diameter (Ød):
4 mm
5 mm
6 mm
other, please specify

sheath length (L):
50 mm (standard)
100 mm
other, please specify [mm]

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded

connecting cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass /
stainless steel (400°C max.)

Ordering example:
SCT200-1-J-6-50-WS-1500-SO-2
Single TC temperature sensor, J thermocouple, 2 tolerance class, thermowell diameter 6 mm and length 50 mm, double fibreglass insulation, cable length 1500 mm, hot junction isolated from the sheath.

SCT201



- **temperature range -40 ÷ 400°C (depending on the cable used)**
- **stainless steel sheath**
- **minimum sheath length: 15 mm, minimum sheath diameter: 3 mm**
- **any maximum sheath length**
- **thermowell spring protection against excessive cable bending**

The thermocouples **SCT201** are designed for fitting directly into a drilled hole or process. Consist of a thermocouple element, a protection tube made out of stainless steel, and a connection cable. Sensor insertion length, thermowell diameter, process connection thread, number of sensors, accuracy, cable length, and insulation can be selected individually for the respective application.

Application areas:
- fine chemical industry,
- light energy industry,
- general industrial services.



TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 400°C (depending on the cable used)
Class	1 or 2
Sheath	material: stainless steel nominal length (min. 15 mm): 50 mm (standard), 100 mm or other diameter (min. 3 mm): 4 mm, 5 mm, 6 mm or other
Cable	type according to the table, standard length 1500 mm or other according to order
Process connection	G1/2; M10x1; M14x1,5 or other according to order

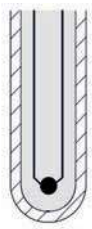
CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	-40 ÷ 400°C	WS
	PVC	-10°C ÷ 105°C	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	-30°C ÷ 250°C	SS
	Teflon - teflon	-40°C ÷ 260°C	TT

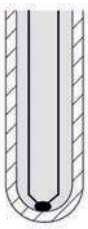
THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) K (NiCr-Ni) N (NiCrSi-NiSi)	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) S (PtRh10-Pt)	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0.003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|

TYPES OF MEASURING HOT JUNCTION

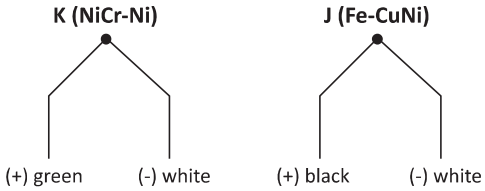


SO
junction isolated
from the sheath



SU
junction
grounded

ELECTRICAL CONNECTION



ORDERING

SCT201-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
J
K
N
other, please specify

sheath diameter (Ød):
4 mm
5 mm
other, please specify

sheath length (L):
50 mm (standard)
100 mm
other, please specify [mm]

process connection:
G1/2"
M10x1
M14x1,5
other, please specify

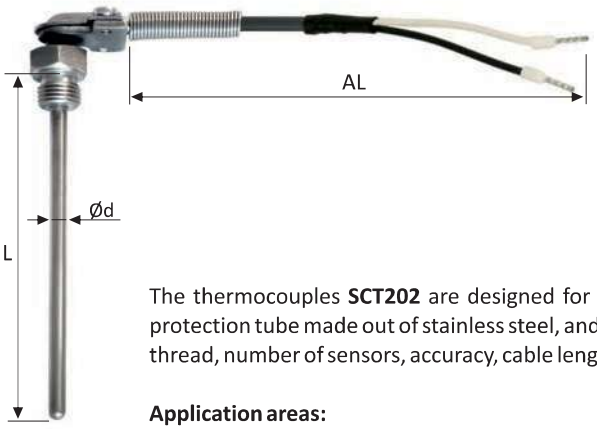
accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded

connecting cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass /
stainless steel (400°C max.)

Ordering example:
SCT201-1-K-6-100-M14x1,5-TT-1500-SO-2
Single TC temperature sensor, K thermocouple, 2 tolerance class, thermowell diameter 6 mm and length 100 mm, teflon insulation, process connection M14x1,5 mm, cable length 1500 mm, hot junction isolated from the sheath.



SCT202

- **temperature range -40 ÷ 400°C (depending on the cable used)**
- **mounting by threaded process connection**
- **stainless steel sheath**
- **minimum sheath length: 15 mm, minimum sheath diameter: 3 mm**
- **thermowell spring protection against excessive cable bending**

The thermocouples **SCT202** are designed for fitting directly into a drilled hole or process. Consist of a thermocouple element, a protection tube made out of stainless steel, and a connection cable. Sensor insertion length, thermowell diameter, process connection thread, number of sensors, accuracy, cable length, and insulation can be selected individually for the respective application.

Application areas:
- fine chemical industry,
- light energy industry,
- general industrial services.

TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 400°C (depending on the cable used)
Class	1 or 2
Sheath	material: stainless steel nominal length (min. 15 mm): 50 mm (standard), 100 mm or other diameter (min. 3 mm): 4 mm, 5 mm, 6 mm or other
Cable	type according to the table, standard length 1500 mm or other according to order
Process connection	G1/2; M10x1; M14x1,5 or other according to order

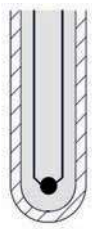
CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	-40 ÷ 400°C	WS
	PVC	-10°C ÷ 105°C	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	-30°C ÷ 250°C	SS
	Teflon - teflon	-40°C ÷ 260°C	TT

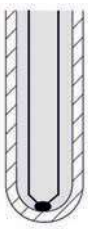
THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) K (NiCr-Ni) N (NiCrSi-NiSi)	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) S (PtRh10-Pt)	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0.003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|

TYPES OF MEASURING HOT JUNCTION

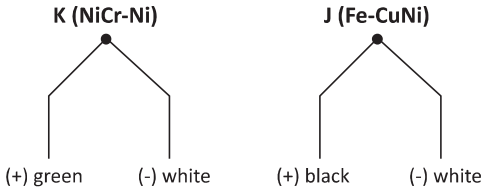


SO
junction isolated
from the sheath



SU
junction
grounded

ELECTRICAL CONNECTION



ORDERING

SCT202-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
J
K
N
other, please specify

sheath diameter (Ød):
4 mm
5 mm
other, please specify

sheath length (L):
50 mm (standard)
100 mm
other, please specify [mm]

process connection:
G1/2"
M10x1
M14x1,5
other, please specify

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded

connecting cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass /
stainless steel (400°C max.)

Ordering example:
SCT202-1-K-4-100-M14x1,5-WS-1500-SO-2
Single TC temperature sensor, K thermocouple, 2 tolerance class, thermowell diameter 4 mm and length 100 mm, double fibreglass insulation, process connection M14x1,5 mm, cable length 1500 mm, hot junction isolated from the sheath.

SCT203



- temperature range -40 ÷ 400°C (depending on the cable used)
- mounting by an assembly screw hole in thermowell
- stainless steel sheath
- thermowell spring protection against excessive cable bending

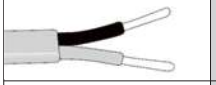
The thermocouples **SCT203** are designed for fitting directly into a drilled hole or process. Consist of a thermocouple element, a protection tube made out of stainless steel, and a connection cable. Sensor insertion length, thermowell diameter, process connection thread, number of sensors, accuracy, cable length, and insulation can be selected individually for the respective application.

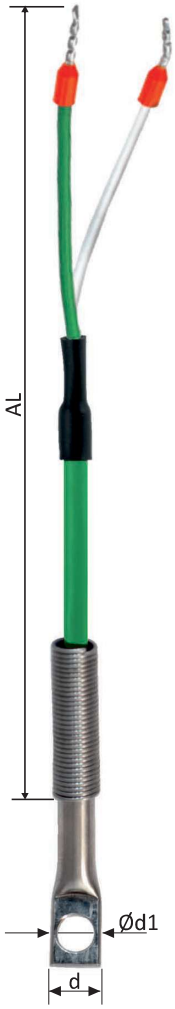
Application areas:
- fine chemical industry,
- light energy industry,
- general industrial services.

TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 400°C (depending on the cable used)
Class	1 or 2
Sheath	material: stainless steel nominal length (min. 15 mm): 50 mm (standard), 100 mm or other diameter (min. 3 mm): 4 mm, 6 mm, 8 mm or other
Cable	type according to the table, standard length 1500 mm or other according to order
Process connection	G1/2; M10x1; M14x1,5 or other according to order

CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	-40 ÷ 400°C	WS
	PVC	-10°C ÷ 105°C	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	-30°C ÷ 250°C	SS
	Teflon - teflon	-40°C ÷ 260°C	TT

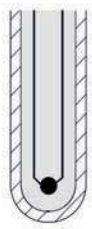


Sheath diameter	Mounting hole diameter (d1)	Width (d)
Ø 4 mm	Ø 3,2 mm	6 mm
Ø 6 mm	Ø 4,2 mm	8 mm
Ø 8 mm	Ø 5,2 mm	10 mm

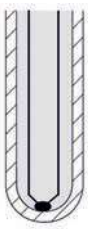
THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) K (NiCr-Ni) N (NiCrSi-NiSi)	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) S (PtRh10-Pt)	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0.003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|

TYPES OF MEASURING HOT JUNCTION

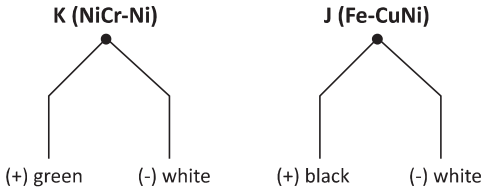


SO
junction isolated
from the sheath



SU
junction
grounded

ELECTRICAL CONNECTION



ORDERING

SCT203-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
J
K
N
other, please specify

mounting hole diameter (Ød1):
Ø**3,2** mm
Ø**4,2** mm
other, please specify

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded

connecting cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass /
stainless steel (400°C max.)

Ordering example:
SCT203-1-K-3,2-WS-1500-SO-2
Single TC temperature sensor, K thermocouple, 2 tolerance class, mounting hole diameter 3,2 mm, double fibreglass insulation, cable length 1500 mm, hot junction isolated from the sheath.

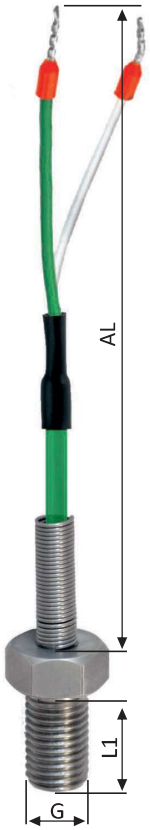
SCT204



- temperature range -40 ÷ 400°C (depending on the cable used)
- mounting by threaded process connection
- stainless steel sheath
- standard diameter and length process connection
- thermowell spring protection against excessive cable bending

The thermocouples **SCT204** are designed for fitting directly into a drilled hole or process. Consists of a thermocouple element, a protection tube made out of stainless steel, and a connection cable. Sensor insertion length, thermowell diameter, process connection thread, number of sensors, accuracy, cable length, and insulation can be selected individually for the respective application.

Application areas:
- fine chemical industry,
- light energy industry,
- general industrial services.



TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 400°C (depending on the cable used)
Class	1 or 2
Sheath	material: stainless steel nominal length (min. 15 mm): 50 mm (standard), 100 mm or other diameter (min. 3 mm): 4 mm, 6 mm, 8 mm or other
Cable	type according to the table, standard length 1500 mm or other according to order
Process connection	G1/2; M10x1; M14x1,5 or other according to order

CONNECTION CABLES

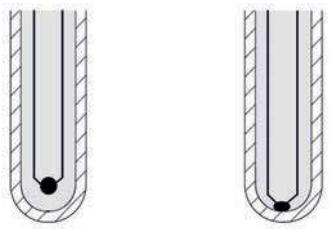
Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	-40 ÷ 400°C	WS
	PVC	-10°C ÷ 105°C	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	-30°C ÷ 250°C	SS
	Teflon - teflon	-40°C ÷ 260°C	TT

Thread (G)	Length (L1)
M8x1	10 mm
M10x1	10 mm
M12x1	10 mm
M16x1,5	15 mm
M20x1,5	20 mm
G1/8"	10 mm
G1/4"	12 mm
G1/2"	20 mm
1/8 NPT	11 mm
1/4 NPT	14 mm
1/2 NPT	18 mm

THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) K (NiCr-Ni) N (NiCrSi-NiSi)	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) S (PtRh10-Pt)	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0.003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|

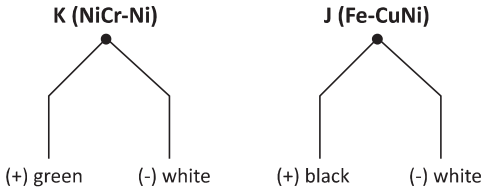
TYPES OF MEASURING HOT JUNCTION



SO
junction isolated
from the sheath

SU
junction
grounded

ELECTRICAL CONNECTION



ORDERING

SCT204-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
J
K
N
other, please specify

process connection:
G1/2"
M10x1
M20x1,5
other, please specify

process connection length (L1):
standard (according to the table)
other, please specify [mm]

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded

connecting cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass /
stainless steel (400°C max.)

Ordering example:
SCT204-1-K-M10x1-10-WS-1500-SO-2
Single TC temperature sensor, K thermocouple, 2 tolerance class, threaded thermowell connection M10x1 with standard length 10 mm, double fibreglass insulation, cable length 1500 mm, hot junction isolated from the sheath.

SCT205



- temperature range -40 ÷ 400°C (depending on the cable used)
- mounting through the hole Ø4,5 mm in the thermowell
- sheath made of aluminum, brass or stainless steel
- thermowell spring protection against excessive cable bending

The thermocouples **SCT205** are designed for assembling directly onto machine parts or other construction elements. Consist of a thermocouple sensor, protection tube, made out of stainless steel, aluminum or brass, and connection cable.

Application areas:
- fine chemical industry,
- light energy industry,
- general industrial services.



TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 400°C (depending on the cable used)
Class	1 or 2
Sheath	material: aluminum, brass or stainless steel length: 50 mm (standard) or other according to order
Cable	type according to the table, standard length 1500 mm or other according to order

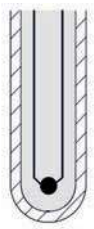
CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	-40 ÷ 400°C	WS
	PVC	-10°C ÷ 105°C	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	-30°C ÷ 250°C	SS
	Teflon - teflon	-40°C ÷ 260°C	TT

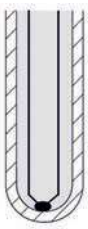
THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) K (NiCr-Ni) N (NiCrSi-NiSi)	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) S (PtRh10-Pt)	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0.003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|

TYPES OF MEASURING HOT JUNCTION

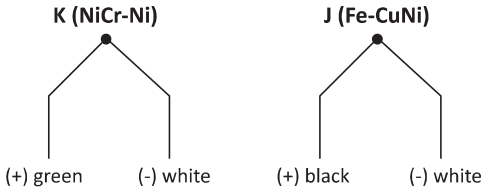


SO
junction isolated
from the sheath



SU
junction
grounded

ELECTRICAL CONNECTION



ORDERING

SCT205-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
J
K
N
other, please specify

sheath material:
A : aluminum (standard)
S : stainless steel
M : brass

sheath length (L):
50 mm (standard)
other, please specify [mm]

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded

connecting cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass /
stainless steel (400°C max.)

Ordering example:
SCT205-1-J-A-50-WS-1500-SO-2
Single TC temperature sensor, K thermocouple, 2 tolerance class, aluminum thermowell with standard length 50 mm, double fibreglass insulation, connection cable length 1500 mm, hot junction isolated from the sheath.

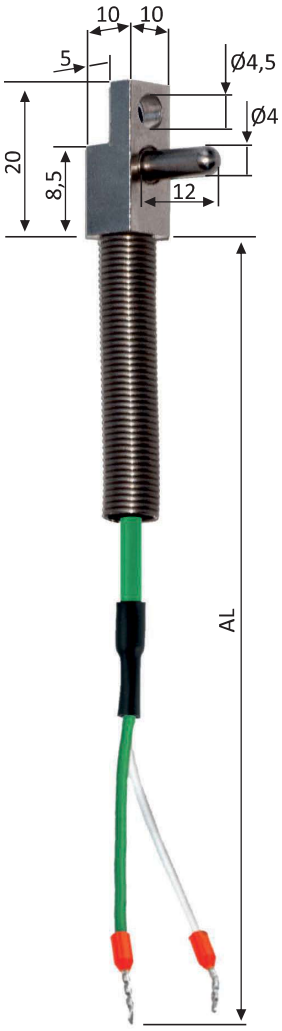
SCT206



- temperature range -40 ÷ 400°C (depending on the cable used)
- mounting using a Ø4 mm pin placed in a M4 hole
- stainless steel or brass sheath
- thermowell spring protection against excessive cable bending

The thermocouples **SCT206** are designed for assembling directly onto machine parts or other construction elements. Consist of a thermocouple sensor, protection tube, made out of stainless steel or brass, and connection cable.

Application areas:
- fine chemical industry,
- light energy industry,
- general industrial services.



TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 400°C (depending on the cable used)
Class	1 or 2
Sheath	material: brass or stainless steel
Cable	type according to the table, standard length 1500 mm or other according to order

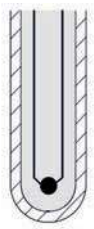
CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	-40 ÷ 400°C	WS
	PVC	-10°C ÷ 105°C	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	-30°C ÷ 250°C	SS
	Teflon - teflon	-40°C ÷ 260°C	TT

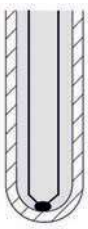
THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) K (NiCr-Ni) N (NiCrSi-NiSi)	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) S (PtRh10-Pt)	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0.003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|

TYPES OF MEASURING HOT JUNCTION

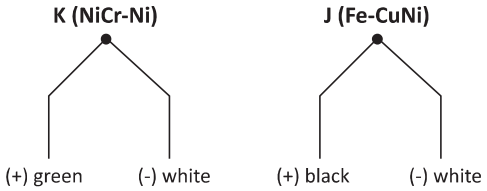


SO
junction isolated
from the sheath



SU
junction
grounded

ELECTRICAL CONNECTION



ORDERING

SCT206-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
J
K
N
other, please specify

sheath material:
S : stainless steel
M : brass

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded

connecting cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass / stainless steel (400°C max.)

Ordering example:
SCT206-1-J-M-WS-1500-SO-2
Single TC temperature sensor, K thermocouple, 2 tolerance class, brass thermowell, double fibreglass insulation, connection cable length 1500 mm, hot junction isolated from the sheath.

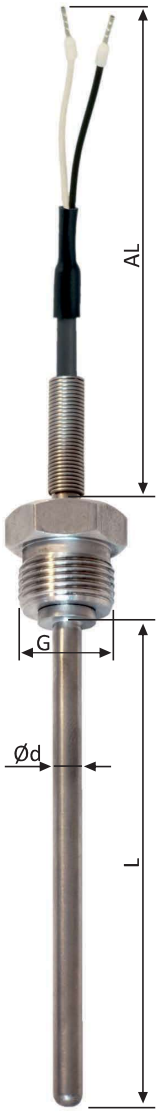
SCT207



- temperature range -40 ÷ 400°C (depending on the cable used)
- mounting by threaded process connection
- stainless steel sheath
- minimum sheath length: 15 mm, minimum sheath diameter: 3 mm
- thermowell spring protection against excessive cable bending

The thermocouples **SCT207** are designed for assembling directly onto machine parts or other construction elements. Consist of a thermocouple sensor, protection tube, made out of stainless steel and connection cable.

Application areas:
- fine chemical industry,
- light energy industry,
- general industrial services.



TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 400°C (depending on the cable used)
Class	1 or 2
Sheath	material: stainless steel nominal length (min. 15 mm): 50 mm (standard), 100 mm or other diameter (min. 3 mm): 4 mm, 5 mm, 6 mm or other
Cable	type according to the table, standard length 1500 mm or other according to order
Process connection	G1/2; M12x1; M14x1,5 or other according to order

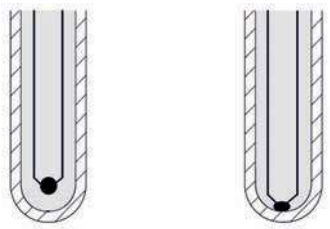
CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	-40 ÷ 400°C	WS
	PVC	-10°C ÷ 105°C	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	-30°C ÷ 250°C	SS
	Teflon - teflon	-40°C ÷ 260°C	TT

THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) K (NiCr-Ni) N (NiCrSi-NiSi)	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) S (PtRh10-Pt)	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0.003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|

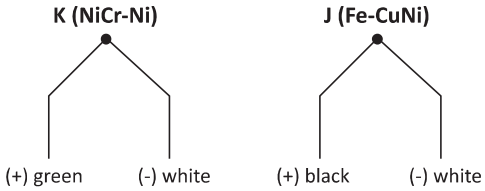
TYPES OF MEASURING HOT JUNCTION



SO
junction isolated
from the sheath

SU
junction
grounded

ELECTRICAL CONNECTION



ORDERING

SCT207-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
J
K
N
other, please specify

sheath diameter (Ød):
4 mm
5 mm
other, please specify

sheath length (L):
50 mm (standard)
100 mm
other, please specify [mm]

process connection:
M12x1 (standard)
G1/2"
M14x1,5
other, please specify

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded

connecting cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass / stainless steel (400°C max.)

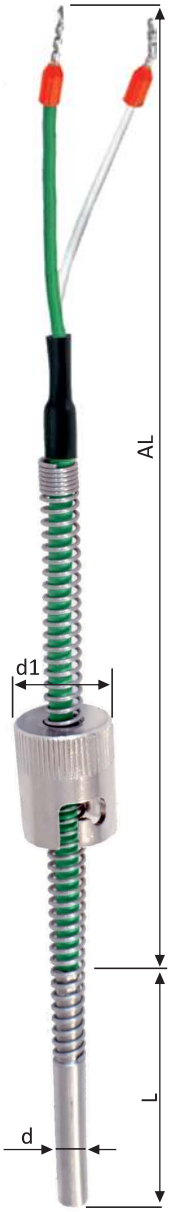
Ordering example:
SCT207-1-K-6-50-M14x1,5-WS-1500-SO-2
Single TC temperature sensor, K thermocouple, 2 tolerance class, process connection M14x1,5, thermowell diameter 6 mm, length 50 mm, double fibreglass insulation, connection cable length 1500 mm, hot junction isolated from the sheath.

SCT208



- temperature range -40 ÷ 400°C (depending on the cable used)
- mounting using a threaded bayonet of any length
- stainless steel sheath
- adjustable spring force of sensor
- different types of sheath ends

The thermocouples **SCT208** are designed for screw-fitting directly into the machine body or parts. The adjustable spring force of the sensor mounting provides optimum measurement conditions in the environment where vibrations appear. SCT208 sensor consists of a thermocouple element, protection tube made out of stainless steel, connection cable, adjustable bayonet cap with spring. The sensor can be additionally equipped with a bayonet adaptor.

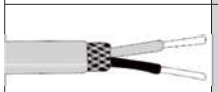
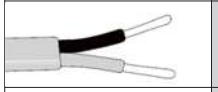


Application areas:
- plastic industry,
- movable and replaceable machine parts.

TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 400°C (depending on the cable used)
Class	1 or 2
Sheath	material: stainless steel nominal length: 10 mm (standard) or other diameter: 5 mm, 6 mm, 8 mm or other
Cable	type according to the table, standard length 1500 mm or other according to order
Process connection	G1/2; M10x1; M14x1,5; M20x1,5 or other according to order
Measuring end	flat, spherical or cone

CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	-40 ÷ 400°C	WS
	PVC	-10°C ÷ 105°C	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	-30°C ÷ 250°C	SS
	Teflon - teflon	-40°C ÷ 260°C	TT

THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) K (NiCr-Ni) N (NiCrSi-NiSi)	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) S (PtRh10-Pt)	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0.003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|

BAYONET TYPES

A type

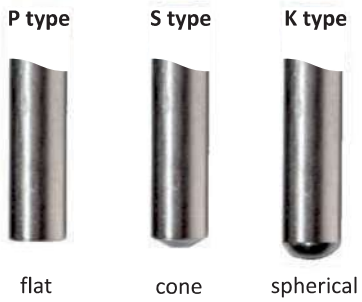


B type



Thread (G)	Length (L1)
M20x1,5	15 mm
G1/2"	15 mm
M14x1,5	10 mm
M10x1	8 mm

COVER END TYPES



ORDERING

SCT208-X-X-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
J
K
N
other, please specify

sheath diameter (Ød):
4 mm
5 mm
8 mm
other, please specify

sheath length (L):
10 mm (standard)
other, please specify [mm]

type of cover end:
P : flat
K : spherical
S : cone

bayonet type:
A
B

bayonet diameter Ød1:
12,5 : 12,5 mm (standard)
14,5 : 14,5 mm
16,5 : 16,5 mm

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded

connecting cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass / stainless steel (400°C max.)

process connection:
M12x1 (standard)
G1/2"
M14x1,5
other, please specify

Ordering example:
SCT208-1-J-6-10-S-A-M14x1,5-WS-1500-SO-2-12,5
Single TC temperature sensor, K thermocouple, 2 tolerance class, sheath diameter 6 mm, length 10 mm, connection cable length 1500 mm, double fibreglass insulation, threaded bayonet A type with process connection M14x1,5 mm, bayonet cap diameter Ø12,5 mm, hot junction isolated from the sheath.

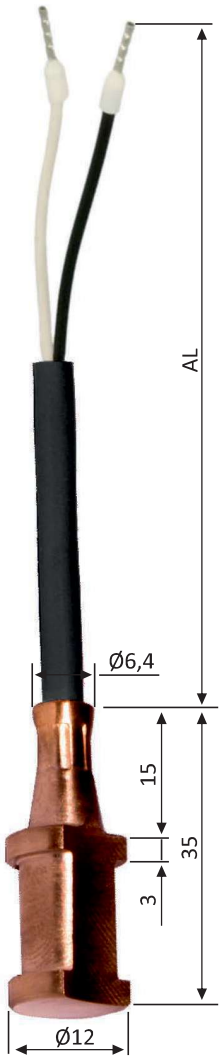
SCT209



- temperature range -40 ÷ 400°C (depending on the cable used)
- mounting by the hose-clip directly onto pipelines
- brass sheath with a specially contoured shape

The thermocouples **SCT209** are designed for assembling directly onto pipelines or other cylindrical elements. Hose-clip allows mounting sensors on a pipeline system. SCT209 consists of a thermometric resistor, protection tube made out of brass, hose-clip and connection cable.

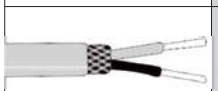
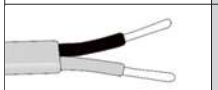
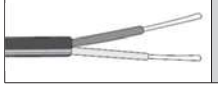
Application areas:
- temperature measurement of pipelines and other cylindrical elements,
- general industrial services.



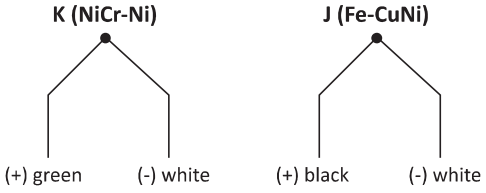
TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 400°C (depending on the cable used)
Class	1 or 2
Sheath	material: brass
Cable	type according to the table, standard length 1500 mm or other according to order

CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	-40 ÷ 400°C	WS
	PVC	-10°C ÷ 105°C	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	-30°C ÷ 250°C	SS
	Teflon - teflon	-40°C ÷ 260°C	TT

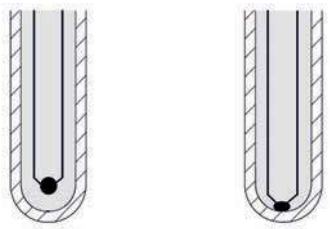
ELECTRICAL CONNECTION



THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) K (NiCr-Ni) N (NiCrSi-NiSi)	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) S (PtRh10-Pt)	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0.003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|

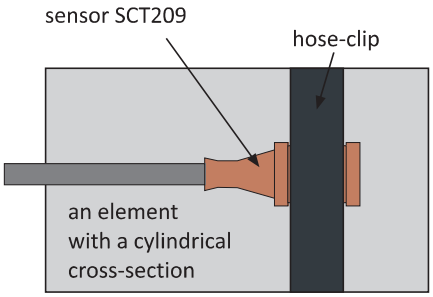
TYPES OF MEASURING HOT JUNCTION



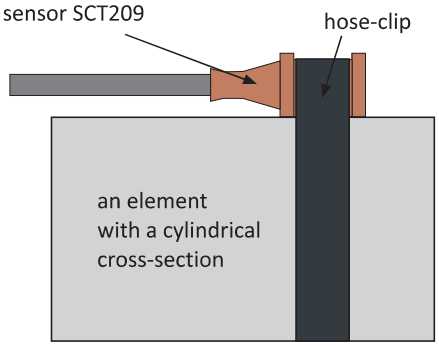
SO
junction isolated from the sheath

SU
junction grounded

MOUNTING



top view



front view



ORDERING

SCT209-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
J
K
N
other, please specify

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass / stainless steel (400°C max.)

measuring element diameter:
22 mm
other, please specify

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded

connecting cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

Ordering example:
SCT209-1-K-TS-1500-SU-2-22
Single TC temperature sensor, K thermocouple, 2 tolerance class, teflon insulation, hose-clip match to Ø22 mm, connection cable length 1500 mm, junction grounded.

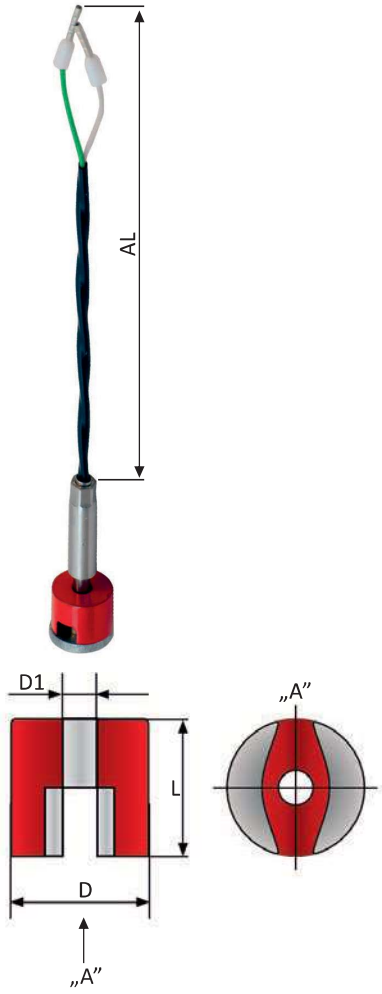
SCT210



- temperature range -10 ÷ 300°C (depending on the cable used)
- mounting using a magnet and a pressure spring
- various magnetic surfaces
- thermowell spring protection against excessive cable bending

The thermocouples **SCT210** are designed to measure the temperature of flat magnetic surfaces. The sensor consists of a neodymium magnet of a specific shape and a connection cable. Thanks to the special structure and the use of a pressure spring, the measuring element adheres tightly to the measured surface, which ensures measurement accuracy and dynamics.

Application areas:
- temperature measurement of ferrous material,
- general industrial services.



TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-10 ÷ 300°C (depending on the cable used)
Class	1 or 2
Cable	type: single cond teflon or single cond fibreglass, standard length 1500 mm or other according to order

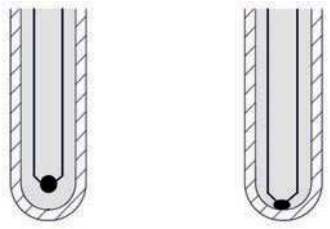
MAGNETIC SURFACE

Magnetic surface	Diameter D	Diameter D1	Length L	Adhesion force
M1	Ø 13 mm	Ø 4,2 mm	10 mm	7 [N]
M2	Ø 19 mm	Ø 5,4 mm	13 mm	19 [N]
M3	Ø 25 mm	Ø 5,4 mm	16 mm	29 [N]
M4	Ø 32 mm	Ø 7 mm	25 mm	66 [N]

THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) **K (NiCr-Ni)** **N (NiCrSi-NiSi)**	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) **S (PtRh10-Pt)**	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0.003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|

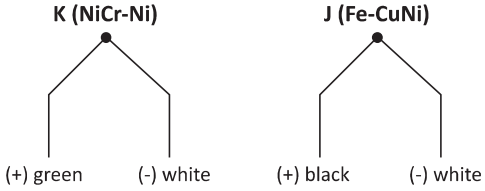
TYPES OF MEASURING HOT JUNCTION



SO
junction isolated
from the sheath

SU
junction
grounded

ELECTRICAL CONNECTION



ORDERING

SCT210-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
J
K
N
other, please specify

magnetic surface (with table):
M1
M2
M3
M4

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded

connecting cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
T : single cond teflon (260°C max.)
WS1 : single cond fibreglass (400°C max.)
other, please specify

Ordering example:
SCT210-1-K-M1-T-1500-SO-2
Single TC temperature sensor, K thermocouple, 2 tolerance class, magnet type M1, single conductors in teflon insulation, connection cable length 1500 mm, hot junction isolated from the sheath.

SCT211



- temperature range -40 ÷ 400°C (depending on the cable used)
- stainless steel sheath
- minimum sheath diameter: 3 mm
- any length of the sheath
- stainless steel grooved handle
- spring protection against excessive cable bending
- sensor connection standard or mini plug

The thermocouples **SCT211** are industrial standard sensors with high accuracy and stability. They are intended for industrial and laboratory applications. Thanks to their design of tight thermowell with a stainless steel handle, they can be used in a dry environment as well as in wet baths. Lead wire can be with the insulated bare ends ready for being assembled to a connector or directly to a measuring device.

Application areas:
- food industry, warehouses,
- general industrial services.



TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 400°C (depending on the cable used)
Process connection	standard or mini plug
Class	1 or 2
Sheath	material: stainless steel 1.4541 or other nominal length: 100 mm (standard) diameter: 3,5 or 4 mm
Cable	type with table, standard length 1500 mm or other according to order

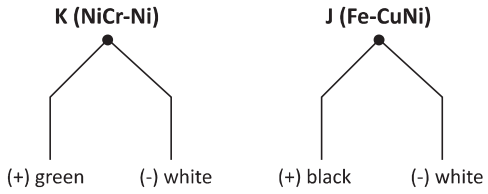
CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	-40 ÷ 400°C	WS
	PVC	-10°C ÷ 105°C	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	-30°C ÷ 250°C	SS
	Teflon - teflon	-40°C ÷ 260°C	TT

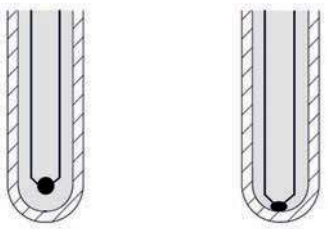
THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) K (NiCr-Ni) N (NiCrSi-NiSi)	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) S (PtRh10-Pt)	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0.003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|

ELECTRICAL CONNECTION



TYPES OF MEASURING HOT JUNCTION



SO
junction isolated from the sheath

SU
junction grounded

OPTIONAL EQUIPMENT



„mini"plug

„standard" plug

ORDERING

SCT211-X-X-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
J
K
N
other, please specify

sheath diameter (Ød):
3,5 mm
4 mm
other, please specify

sheath length (L):
100 mm (standard)
other, please specify [mm]

cable design:
P : straight
S : twisted (PVC-105°C)

sensor measuring range or temperature transmitter settings:
please specify

process connection:
WS : standard plug
WM : mini plug
- : no process connection

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded

connecting cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass / stainless steel (400°C max.)

Ordering example:
SCT211-1-K-4-100-P-WS-1500-SO-2-WM-150
Single TC temperature sensor, K thermocouple, 2 tolerance class, sheath diameter 4 mm and length 100 mm, straight connection cable, length 1500 mm with fibreglass insulation and „mini" plug, hot junction isolated from the sheath, sensor measuring range 150°C.

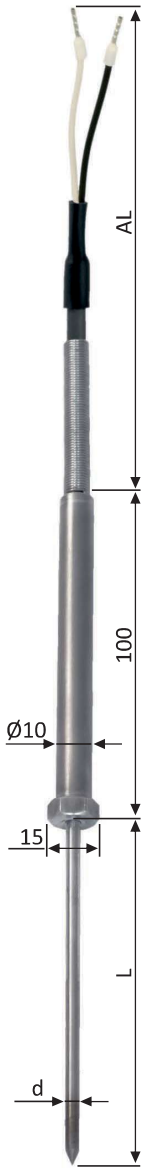
SCT212



- temperature range -40 ÷ 400°C (depending on the cable used)
- stainless steel sheath
- minimum sheath diameter: 3 mm
- any length of the sheath
- stainless steel smooth handle
- spring protection against excessive cable bending
- sensor connection standard or mini plug

The thermocouples **SCT212** are industrial standard sensors with high accuracy and stability. They are intended for industrial and laboratory applications. Thanks to their design of tight thermowell with a stainless steel handle, they can be used in a dry environment as well as in wet baths. Lead wire can be with the insulated bare ends ready for being assembled to a connector or directly to a measuring device.

Application areas:
- food industry, warehouses,
- general industrial services.



TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 400°C (depending on the cable used)
Process connection	standard or mini plug
Class	1 or 2
Sheath	material: stainless steel 1.4541 or other nominal length: 100 mm (standard) diameter: 3,5 or 4 mm
Cable	type with table, standard length 1500 mm or other according to order

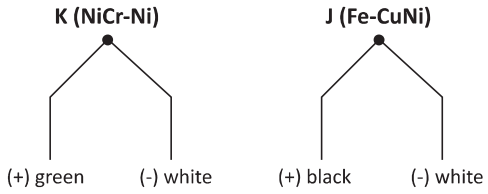
CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	-40 ÷ 400°C	WS
	PVC	-10°C ÷ 105°C	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	-30°C ÷ 250°C	SS
	Teflon - teflon	-40°C ÷ 260°C	TT

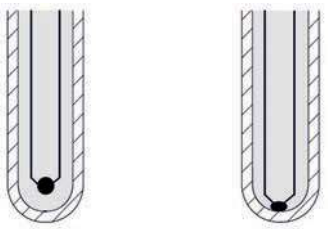
THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) K (NiCr-Ni) N (NiCrSi-NiSi)	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) S (PtRh10-Pt)	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0.003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|

ELECTRICAL CONNECTION



TYPES OF MEASURING HOT JUNCTION



SO
junction isolated from the sheath

SU
junction grounded

OPTIONAL EQUIPMENT



„mini"plug

„standard" plug

ORDERING

SCT212-X-X-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
J
K
N
other, please specify

sheath diameter (Ød):
3,5 mm
4 mm
other, please specify

sheath length (L):
100 mm (standard)
other, please specify [mm]

cable design:
P : straight
S : twisted (PVC-105°C)

sensor measuring range or temperature transmitter settings:
please specify

process connection:
WS : standard plug
WM : mini plug
- : no process connection

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded

connecting cable length (AL):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass / stainless steel (400°C max.)

Ordering example:
SCT212-1-K-4-100-P-WS-1500-SO-2-WM-150
Single TC temperature sensor, K thermocouple, 2 tolerance class, sheath diameter 4 mm and length 100 mm, straight connection cable, length 1500 mm with double fibreglass insulation and „mini" plug, hot junction isolated from the sheath, sensor measuring range 150°C.

SCT300



with „mini" plug or socket

- **mineral insulated thermoelectric sensor**
- **different types of sensor connections**
- **accurate measurement and short reaction time to temperature changes**
- **small dimensions enable working in hard-to-reach places**
- **resistance to vibrations and the possibility of bending**
- **thermowell made of nickel alloy (Inconel 600)**

The mineral insulated thermocouple **SCT300** contains the flexible part of the probe. The probe consists of a stainless steel outer sheath, in which the inner conductors are insulated with compressed into a highly compacted ceramic mass. The outer sheath is made of stainless steel or Ni alloy. The inner conductors are welded together at the measuring end of the sheathed cable to form the 'thermocouple' junction. In designs, where the measuring element is not insulated, the sheath is also welded with the thermocouple junction. Connector cables are connected to the other end of the sheathed cable and hermetically sealed with a sealing compound. The connector wires are the basis of the electrical interface with cable, a connector, or a terminal block. Due to their flexibility and the small diameters in which they are available, sheathed thermocouples can be used in locations that are not easily accessible.

Application areas:

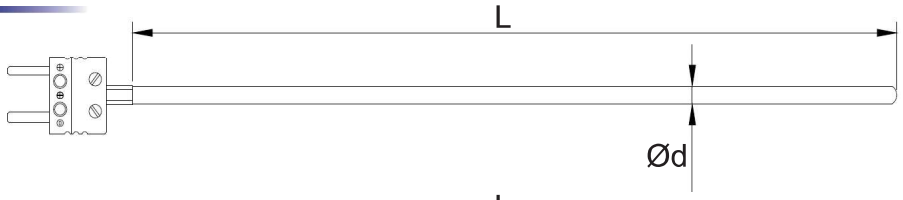
- general machinery and equipment design,
- measuring temperature of liquids, gases and solid bodies, measurement laboratories.

TECHNICAL DATA

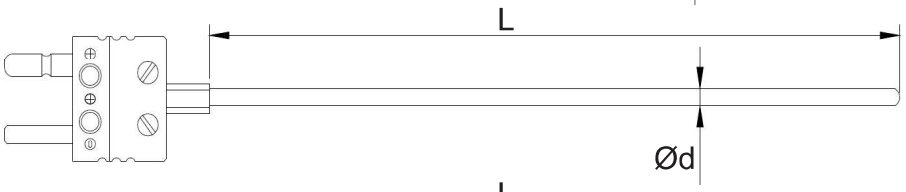
Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 1200°C
Process connection	standard / mini / Lemo plug or socket
Class	1 or 2
Sheath	material: 2.4816 alloy (Inconel 600) or other any nominal length according to order diameter: 3 mm, 4,5 mm, 6 mm
Cable	double isolation: teflon, silicon or fibreglass, standard length 1500 mm or other according to order
Junction	isolated from the sheath, grounded or exposed

CONSTRUCTIONS

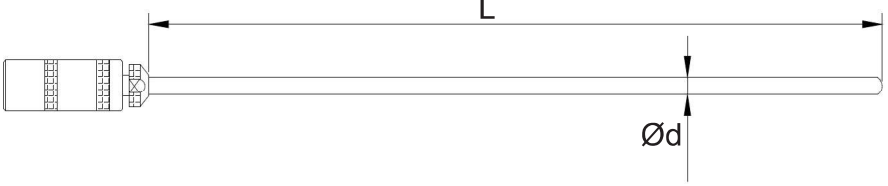
A: with MINI plug or socket



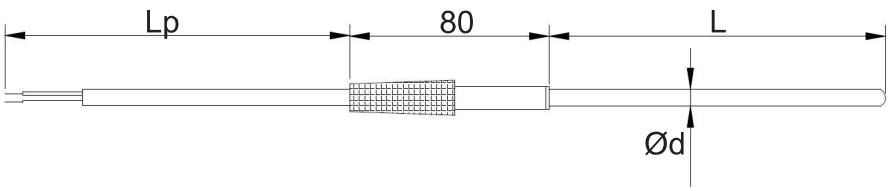
B: with STANDARD plug or socket



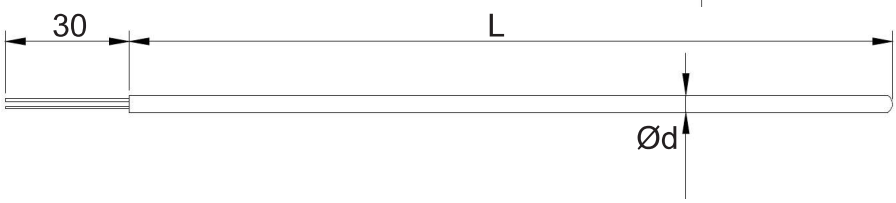
C: with LEMO type plug or socket



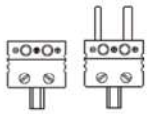
D: with pot seal and compensating cable



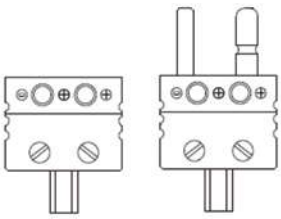
E: with free isolated wires



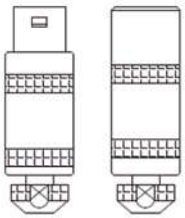
CONNECTION



MINI plug or socket

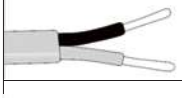


STANDARD plug or socket



LEMO type plug or socket

CONNECTION CABLES

Diagram	Insulation design	Temperature range	Code
	Double fibreglass - stainless steel	-40 ÷ 400°C	WS
	PVC	-10°C ÷ 105°C	PVC
	Teflon - stainless steel - teflon	260°C max.	TOT
	Teflon - stainless steel	260°C max.	TO
	Silicon - stainless steel - silicon	180°C max.	SOS
	Silicon - silicon	-30°C ÷ 250°C	SS
	Teflon - teflon	-40°C ÷ 260°C	TT

ORDERING

SCT300-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

construction:
A : MINI plug or socket
B : STANDARD plug or socket
C : LEMO type plug or socket
D : with pot seal and compensating cable
E : with free isolated wires

sensing element:
J
K
other, please specify

sheath diameter (Ød):
3 mm
6 mm
other, please specify

sheath length (L):
please specify [mm]

accuracy class:
class **1**
class **2**

junction type:
SO : junction isolated from the sheath
SU : junction grounded
SSO : junction isolated from itself and from the sheath (for double sensor)
SZ : junction exposed

connection type:
G : socket
W : plug

connecting cable length (only for D construction type):
1500 : 1,5 linear meter
other, please specify [mm]

insulation types of connection cable:
PVC : PVC / PVC (105°C max.)
TT : teflon / teflon (260°C max.)
SS : silicon / silicon (250°C max.)
WS : double fibreglass / stainless steel (400°C max.)

Ordering example:
SCT300-1-D-K-3-500-TT-1500-W-SO-2
Single TC temperature sensor, K thermocouple, 2 tolerance class, thermowell diameter 3 mm, length 500 mm, teflon insulation, sensor with pot seal and compensating cable with length 1500 mm, hot junction isolated from the sheath.



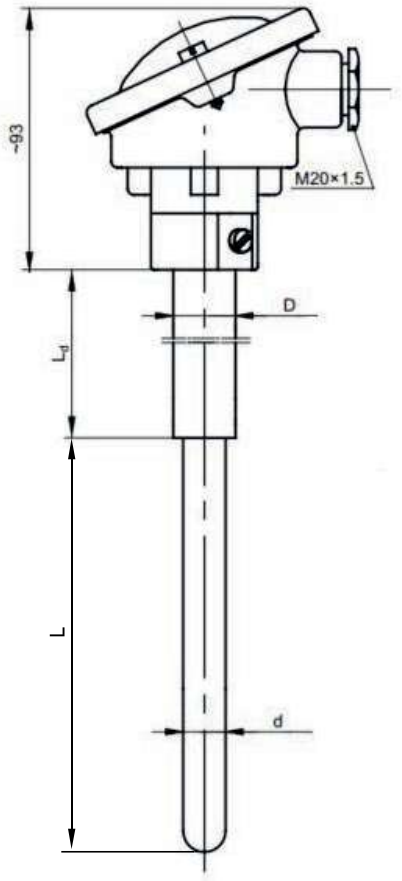
SCT600

- thermoelectric sensor with ceramic protection tube
- temperature range max. 1800°C (depending on thermocouple used)
- operating temperature of connection heads max. 150°C
- possibility of mounting a 4...20 mA or 0...10 V temperature transmitter
- tube made of C610, C799 or C530
- mounting by threaded fittings and flanges

Thermocouple **SCT600** with a ceramic protection tube is designed for industrial furnaces, the glass industry, etc. The sensor consists of a replaceable insert, a ceramic protective tube (thermowell) and an aluminum connection head, where a programmable temperature transmitter with 4...20 mA output signal can be installed. Sensors with the ceramic protective tube can be mounted with a flanged mounting bracket or threaded compression fitting. Sensor immersion length, compression fitting size (optional), the material of the protection tube, and connection head can be selected depending on the requirements of the application.

Application areas:

- glass and ceramics industry,
- heat-treating furnaces,
- boiler houses,
- air and gas ducts.



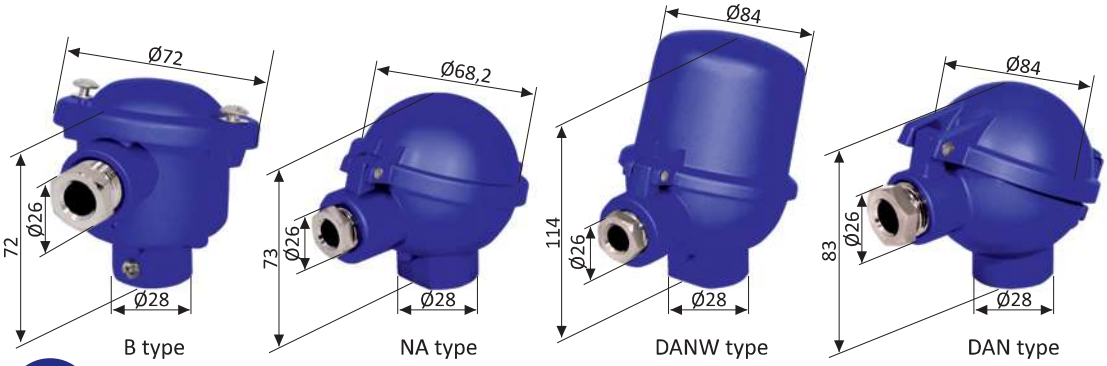
TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 1200°C (TC K, N), 0 ÷ 1600°C (TC S, R), 600 ÷ 1700°C (TC B)
Connection head	B, NA, MA, DAN or other, operating temperature -40 ÷ 150°C
Class	1 or 2
Sheath	material: C530, C610, C799 nominal length: any (acc. to order) diameter: 10 mm, 15 mm, 24 mm or other
Process connection	flange, welding adapter

THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
K (NiCr-Ni) **N (NiCrSi-NiSi)**	-40 ÷ 1000°C -40 ÷ 1000°C	± 1.5°C ± 0.0040°C x |t|	-40 ÷ 1200°C -40 ÷ 1200°C	± 2.5°C ± 0.0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) **S (PtRh10-Pt)**	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0.003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|

CONNECTION HEAD TYPES



CERAMIC PROTECTION TUBE - FEATURES

Material	Operation temperature	Advantages	Disadvantages	Application
C530 (73-75% Al_2O_3)	max. 1600°C	resistant to temperature shock	low resistance to mechanical load	electric furnaces up to 1300°C or others
C610 (60% Al_2O_3)	max. 1500°C	gas-tight, average thermal shock resistance, high flame resistance	low resistance to mechanical load, low Al_2O_3 content	gas-tight furnaces, diffusion furnaces
C799 (99,7% Al_2O_3)	max. 1800°C	gas-proof, acid resistant, steam resistant, very high flame resistance	low resistance to mechanical load, low resistance to temperature shock	gas-tight furnaces up to 1800°C (liquid glass tanks), chemical industry, manufacturing of concrete

ACCESSORIES

Mounting bracket
SUZ11



Mounting bracket
SUZ21



ORDERING

SCT600-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP : with transmitter

sensing element:
K
N
R
other, please specify

diameter of platinum wire (for S, R, B):
0,35 : 0,35 mm
0,5 : 0,5 mm

connection head:
NA
B
other, please specify

handle sheath diameter (ØD):
22 : 22 mm
32 : 32 mm
other, please specify

handle sheath length (Ld):
150 : 150 mm (standard)
other, please specify [mm]

ceramic thermowell diameter (Ød):
10 : 10 mm
15 : 15 mm
24 : 24 mm

ceramic thermowell length (L):
500 : 500 mm
1000 : 1000 mm
other, please specify [mm]

ceramic thermowell material:
C530
C610
C799
other, please specify

accuracy class:
class **1**
class **2**

Ordering example:
SCT600-1-K-B-22-150-15-500-C799-2
Single TC temperature sensor, K thermocouple, 2 tolerance class, B head type, ceramic protection tube made of C799, 15 mm diameter, 500 mm length, handle sheath diameter 22 mm and length 150 mm.



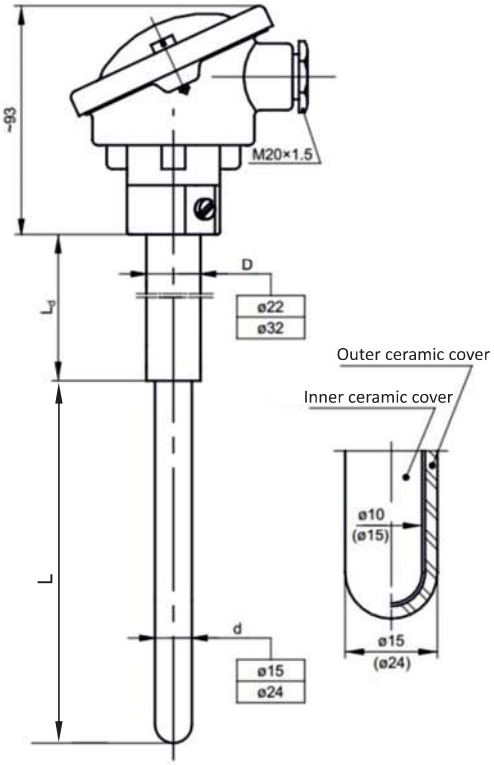
SCT601

- thermoelectric sensor with double ceramic protection tube
- temperature range max. 1800°C (depending on thermocouple used)
- operating temperature of connection heads max. 150°C
- possibility of mounting a 4...20 mA or 0...10 V temperature transmitter
- tube made of C610, C799 or C530
- mounting by threaded fittings and flanges

Thermocouple **SCT601** with a ceramic protection tube is designed for industrial furnaces, the glass industry, etc. The sensor consists of a replaceable insert, a ceramic protective tube (thermowell) and an aluminum connection head, where a programmable temperature transmitter with 4...20 mA output signal can be installed. Sensors with the ceramic protective tube can be mounted with a flanged mounting bracket or threaded compression fitting. Sensor immersion length, compression fitting size (optional), the material of the protection tube, and connection head can be selected depending on the requirements of the application.

Application areas:

- glass and ceramics industry,
- heat-treating furnaces,
- boiler houses,
- air and gas ducts.



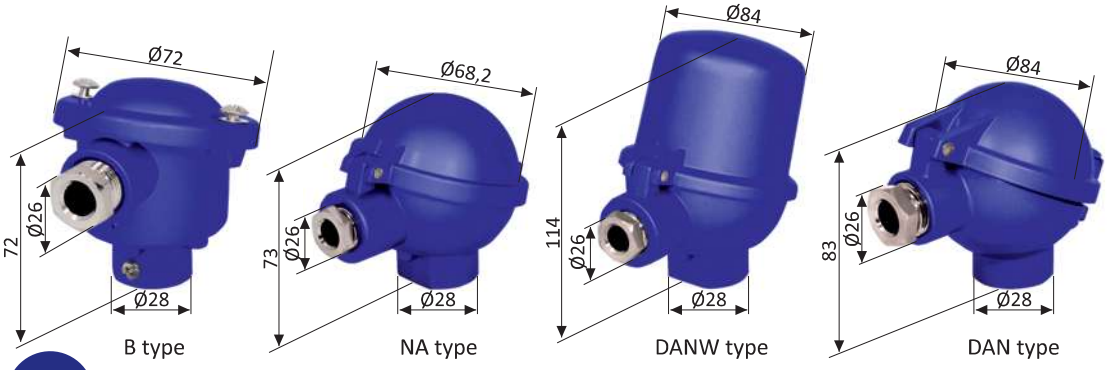
TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 1200°C (TC K, N), 0 ÷ 1600°C (TC S, R), 600 ÷ 1700°C (TC B)
Connection head	B, NA, MA, DAN or other, operating temperature -40 ÷ 150°C
Class	1 or 2
Sheath	material: C530, C610, C799 nominal length: any (acc. to order) diameter: double (outer 15 or 24 mm / inner 10 or 15 mm)
Process connection	flange, welding adapter

THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
K (NiCr-Ni) **N (NiCrSi-NiSi)**	-40 ÷ 1000°C -40 ÷ 1000°C	± 1.5°C ± 0.0040°C x |t|	-40 ÷ 1200°C -40 ÷ 1200°C	± 2.5°C ± 0.0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) **S (PtRh10-Pt)**	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0,003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|

CONNECTION HEAD TYPES



CERAMIC PROTECTION TUBE - FEATURES

Material	Operation temperature	Advantages	Disadvantages	Application
C530 (73-75% Al_2O_3)	max. 1600°C	resistant to temperature shock	low resistance to mechanical load	electric furnaces up to 1300°C or others
C610 (60% Al_2O_3)	max. 1500°C	gas-tight, average thermal shock resistance, high flame resistance	low resistance to mechanical load, low Al_2O_3 content	gas-tight furnaces, diffusion furnaces
C799 (99,7% Al_2O_3)	max. 1800°C	gas-proof, acid resistant, steam resistant, very high flame resistance	low resistance to mechanical load, low resistance to temperature shock	gas-tight furnaces up to 1800°C (liquid glass tanks), chemical industry, manufacturing of concrete

ACCESSORIES

Mounting bracket
SUZ11



Mounting bracket
SUZ21



ORDERING

SCT601-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP : with transmitter

sensing element:
K
N
R
other, please specify

diameter of platinum wire (for S, R, B):
0,35 : 0,35 mm
0,5 : 0,5 mm

connection head:
NA
B
other, please specify

handle sheath diameter (ØD):
22 : 22 mm
32 : 32 mm
other, please specify

handle sheath length (Ld):
150 : 150 mm (standard)
other, please specify [mm]

accuracy class:
class **1**
class **2**

ceramic thermowell material:
C530
C610
C799
other, please specify

ceramic thermowell length (L):
500 : 500 mm
1000 : 1000 mm
other, please specify [mm]

ceramic thermowell diameter (Ød):
15/10 : 15 mm outer / 10 mm inner
24/15 : 24 mm outer /15 mm inner
other, please specify [mm]

Ordering example:
SCT601-1-K-B-22-150-15/10-500-C799-2
Single TC temperature sensor, K thermocouple, 2 tolerance class, B head type, ceramic protection tube made of C799, 15 mm outer, 10 mm inner diameter, 500 mm length, handle sheath diameter 22 mm and length 150 mm.



SCT602

- thermoelectric sensor with platinium thimble and ceramic protection tube
- temperature range max. 1700°C (depending on thermocouple used)
- operating temperature of connection heads max. 150°C
- possibility of mounting a 4...20 mA or 0...10 V temperature transmitter
- tube made of C799
- mounting by threaded fittings and flanges

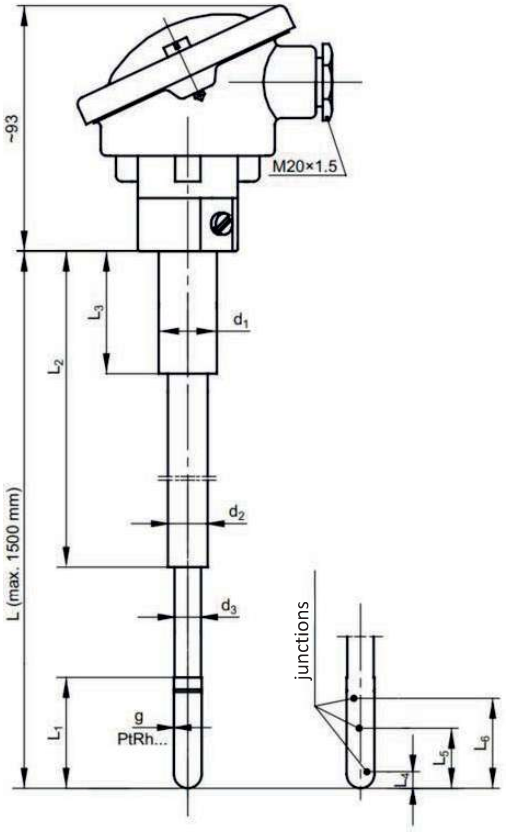
Thermocouple **SCT602** with a ceramic protection tube is designed for industrial furnaces, the glass industry, etc. The sensor consists of a replaceable insert, a ceramic protective tube (thermowell) and an aluminum connection head, where a programmable temperature transmitter with 4-20 mA output signal can be installed. Sensors with the ceramic protective tube can be mounted with a flanged mounting bracket or threaded compression fitting. Sensor immersion length, compression fitting size (optional), the material of the protection tube, and connection head can be selected depending on the requirements of the application.

Application areas:

- glass and ceramics industry.

TECHNICAL DATA

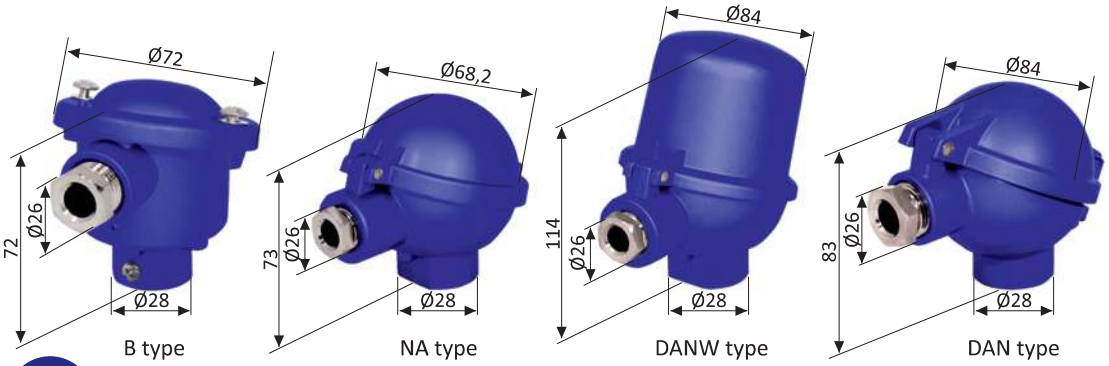
Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	0 ÷ 1600°C (TC S, R), 600 ÷ 1700°C (TC B)
Connection head	B, NA, MA, DAN or other, operating temperature -40 ÷ 150°C
Class	1 or 2
Sheath material	ceramic C799
Thimble	material: Pt, PtRh10, PtRh20 wall thickness: 0,3 mm; 0,4 mm; 0,5 mm
Process connection	flange, welding adapter



THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
K (NiCr-Ni) **N (NiCrSi-NiSi)**	-40 ÷ 1000°C -40 ÷ 1000°C	± 1.5°C ± 0.0040°C x |t|	-40 ÷ 1200°C -40 ÷ 1200°C	± 2.5°C ± 0.0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) **S (PtRh10-Pt)**	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0,003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|

CONNECTION HEAD TYPES



CERAMIC PROTECTION TUBE - FEATURES

Material	Operation temperature	Advantages	Disadvantages	Application
C530 (73-75% Al_2O_3)	max. 1600°C	resistant to temperature shock	low resistance to mechanical load	electric furnaces up to 1300°C or others
C610 (60% Al_2O_3)	max. 1500°C	gas-tight, average thermal shock resistance, high flame resistance	low resistance to mechanical load, low Al_2O_3 content	gas-tight furnaces, diffusion furnaces
C799 (99,7% Al_2O_3)	max. 1800°C	gas-proof, acid resistant, steam resistant, very high flame resistance	low resistance to mechanical load, low resistance to temperature shock	gas-tight furnaces up to 1800°C (liquid glass tanks), chemical industry, manufacturing of concrete

ACCESSORIES

Mounting bracket
SUZ11



Mounting bracket
SUZ21



ORDERING

SCT602-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
3 : triple
PP : with transmitter

sensing element:
R
S
B
other, please specify

diameter of platinum wire:
0,5 : 0,5 mm

connection head:
NA
B
other, please specify

handle sheath diameter (ØD):
22 : 22 mm
32 : 32 mm
other, please specify

handle sheath length (Ld):
150 : 150 mm (standard)
other, please specify [mm]

ceramic thermowell diameter (Ød):
15/10 : 15 mm outer / 10 mm inner
24/15 : 24 mm outer /15 mm inner
other, please specify [mm]

accuracy class:
class **1**
class **2**

junction position (acc. to requirements) (for double and triple sensor):
L4 : please specify in mm
L5 : please specify in mm
L6 : please specify in mm

thimble wall thickness:
0,3 : 0,3 mm
0,4 : 0,4 mm
0,5 : 0,5 mm

thimble diameter (Ød3):
10 : 10 mm
other, please specify [mm]

thimble length (L1):
50 : 50 mm
other, please specify [mm]

ceramic thermowell material:
C799
other, please specify

ceramic thermowell length (L2):
500 : 500 mm
1000 : 1000 mm
other, please specify [mm]

Ordering example:
SCT602-1-R-0,5-B-22-150-15/10-500-C799-50-10-0,3-2
Single TC temperature sensor, R thermocouple, 2 tolerance class, B head type, ceramic protection tube made of C799, 15 mm outer, 10 mm inner diameter, 500 mm length, handle sheath diameter 22 mm and length 150 mm, thimble diameter 10 mm, length 50 mm, wall thickness 0,3 mm.



SCT603

- thermoelectric sensor with double protection tube
- temperature range -200...+1600°C (depending on thermocouple used)
- operating temperature of connection heads max. 150°C
- thermowell material: 1.4841
- tube made of C610 or C799
- possibility of mounting a 4...20 mA or 0...10 V temperature transmitter
- mounting by threaded fittings and DN flanges
- connection head DANW with local display

The thermocouple **SCT603** is intended for measuring the temperature of pipelines, tanks and boilers. The sensor is designed to work in difficult conditions (gases, vapors) and high temperatures up to 1600°C. The sensor consists of an aluminum connection head, a steel transition cover and a ceramic cover. The sensor is made with a replaceable measuring insert, which makes it possible to regenerate the element without having to dismantle the entire cover.

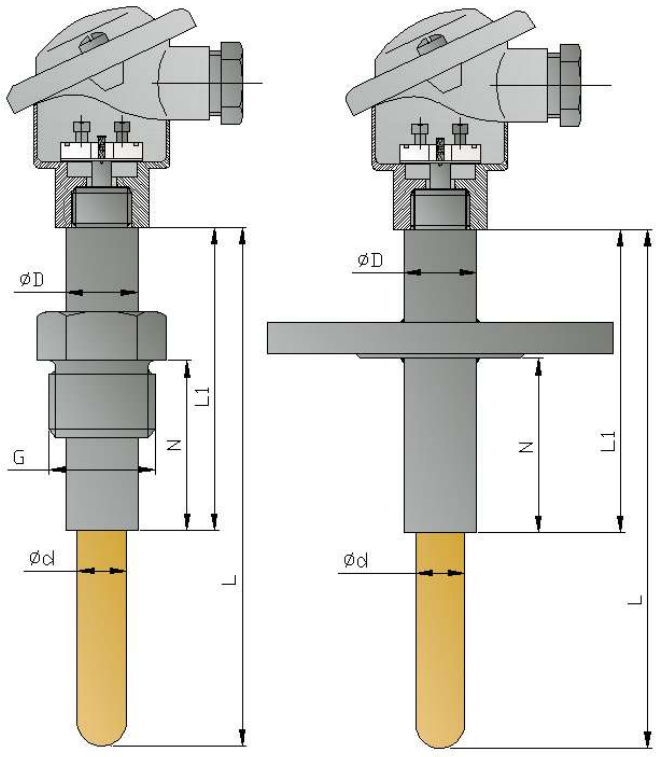
Application areas:

- temperature measurement in thermal processing: furnaces, boilers, furnaces,
- industrial installations.

TECHNICAL DATA

Sensing element	J, K, N, R, S, B thermocouple or other (single, double)
Measuring range	-40 ÷ 1200°C (TC K, N), 0 ÷ 1600°C (TC S, R), 600 ÷ 1700°C (TC B)
Connection head	B, NA, MA, DAN or other, operating temperature -40 ÷ 150°C
Class	1 or 2
Sheath	material: C610 (60% Al_2O_3) or C799 (99,7% Al_2O_3) nominal length: any (acc. to order) diameter: single 15 or 20 mm; double (outer 20 mm / inner 15 mm)
Transitional sheath	material: heat-resistant steel 1.4841 diameter: 15 or 22 mm (standard)
Process connection	G1 or flange

DIMENSIONS



CERAMIC PROTECTION TUBE - FEATURES

Material	Operation temperature	Advantages	Disadvantages	Application
C610 (60% Al_2O_3)	max. 1500°C	gas-tight, average thermal shock resistance, high flame resistance	low resistance to mechanical load, low Al_2O_3 content	gas-tight furnaces, diffusion furnaces
C799 (99,7% Al_2O_3)	max. 1800°C	gas-proof, acid resistant, steam resistant, very high flame resistance	low resistance to mechanical load, low resistance to temperature shock	gas-tight furnaces up to 1800°C (liquid glass tanks), chemical industry, manufacturing of concrete

ORDERING

SCT603-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double
PP : with transmitter

sensing element:
K
S
B
other, please specify

connection head:
NA
B
other, please specify

ratio (L1/N):
150/50 : 150 mm / 50 mm
other, please specify [mm]

process connection:
G1 : G1" thread
DN200PN16 : DN200 PN16 flange
other, please specify

transition sheath diameter (ØD):
15 : 15 mm
22 : 22 mm (standard)
other, please specify

total sheath length (L):
500 : 500 mm
1000 : 1000 mm
other, please specify [mm]

ceramic thermowell:
1 : single
2 : double

throat material (only for special versions):
- : 1.4841 steel (standard)
other, please specify

sensor measuring range or temp. transmitter settings:
please specify

accuracy class:
class **1**
class **2**

wire diameter (applies to platinum thermocouples):
0,35 : 0,35 mm
0,5 : 0,5 mm

insert construction:
P : mineral insulated
- : ceramic tube

ceramic thermowell material:
C610 : 60% Al_2O_3
C799 : 99,7% Al_2O_3

ceramic thermowell length (L-L1):
350 : 350 mm
500 : 500 mm
1000 : 1000 mm
other, please specify [mm]

ceramic thermowell diameter (Ød) (single) or Ødz/Ødw (double):
15 : 15 mm
20 : 20 mm
20/15 : 20 mm outer / 15 mm inner
other, please specify [mm]

Ordering example:
SCT603-1-K-B-150/50-G1-22-500-2-20/15-350-C799-2-1200
Single TC temperature sensor, K thermocouple, 2 tolerance class, B head type, ceramic protection tube made of C799, 20 mm outer, 15 mm inner diameter, 350 mm length, transition sheath diameter 22 mm, total sheath length 500 mm, process connection G1". Sensor measuring range 1200°C.

TEMPERATURE SENSORS ACCESSORIES

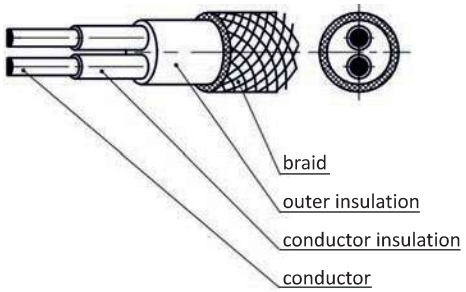
- Compensation cables
- Plugs and sockets
- Fittings and brackets
- Protection tubes
- Measuring inserts

COMPENSATION AND THERMOCOUPLE CABLES



- **insulation resistance: min 10 MΩ x km**
- **range of execution: up to 25 pairs**
- **voltage testing: 1000V**

Compensation and extension (thermocouple) cables are the elements of measuring installation connecting thermocouple sensor with measuring devices such as a controller, indicator, or temperature recorder. Extension cables are made of the same materials as thermocouples, whereas compensation cables are made of substitute materials with properties similar to thermocouples. The cable insulation is selected according to ambient conditions and operating temperature.



CABLE STRUCTURE AND COLOURS ACC. TO EU IEC 584-3

Type	Compensation cable	Extension cable	Composition		Insulation colour	
			Conductor +	Conductor -	Conductor +	Conductor -
T		TX	Cu	CuNi	Brown	White
J		JX	Fe	CuNi	Black	White
E		EX	NiCr	CuNi	Violet	White
K		KX	NiCr	NiAl	Green	White
K	KCA		Fe	410 Alloy	Green	White
N		NX	Nicrosil	Nisil	Pink	White
R	RCA		Cu	11 Alloy	Orange	White
S	SCA		Cu	11 Alloy	Orange	White
B	BC		Cu	Cu	Grey	White

ORDERING

SP88X-X-X-X-X-XxX

thermocouple type:
TX : TC T, extension cable
JX : TC J, extension cable
KX : TC K, extension cable
EX : TC E, extension cable
NX : TC N, extension cable
KCA : TC K, compensation cable
RCA : TC R, compensation cable
SCA : TC S, compensation cable
BC : TC B, compensation cable

conductor insulation:
Yc : PVC (-20 ÷ 105°C)
Si : silicon (-50 ÷ 200°C)
F : teflon (-50 ÷ 260°C)
WS : fiberglass (-50 ÷ 400°C)

conductor type:
D : solid wire
L : standed wire

conductor cross section:
0,22 : 0,22 mm^2
0,50 : 0,50 mm^2
0.70 : 0,70 mm^2
1,00 : 1,00 mm^2
1,50 : 1,50 mm^2

number of conductors:
2 : 2 conductors
3 : 3 conductors
4 : 4 conductors
5 : 5 conductors

braid:
- : none
ek : zinc-plated copper wire
u : steel wire

outer insulation:
Yc : PVC (-20 ÷ 105°C)
Si : silicon (-50 ÷ 200°C)
F : teflon (-50 ÷ 260°C)
WS : fiberglass (-50 ÷ 400°C)

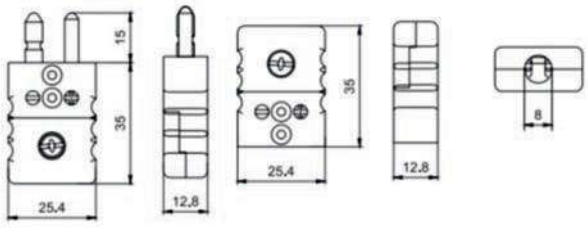
Ordering example:
SP88KX-Si-L-u-2x0,22

SZS99 - STANDARD PLUG AND SOCKET CONNECTORS FOR TEMPERATURE SENSORS

Plugs and sockets are elements of measuring systems used to connect temperature sensors to measuring devices such as controllers, indicators, and recorders. The variety of types allows to apply them to the majority of thermocouples and resistance thermometers under various environmental conditions and operating temperatures. Solid pins ensure a reliable connection.

1. SZS99 Standard plug / socket (200°C max.)

Temperature range	200°C max.
Lead wire diameter	8 mm max.
Conductor cross-section	from Ø0.2 mm to Ø2 mm
Casing colour	acc. to IEC-584: J: black, K: green, N: pink, T: brown, R and S: orange




coupler


plug

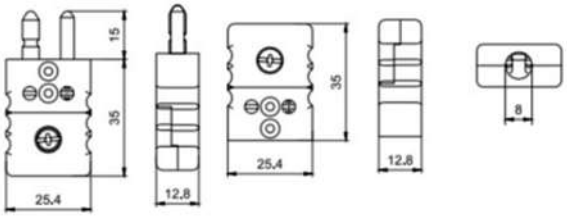
ORDERING

SZS99-X-X

sensing element:	connector type:
J : TC J (Fe-CuNi)	**W** : plug
K : TC K (Ni-CrNi)	**G** : coupler
N : TC N (NiCrSi-NiSi)	**WG** : set
T : TC T (Cu-CuNi)	
R : TC R (PtRh13%-Pt)	
S : TC S (PtRh10%-Pt)	
Pt100 : Cu type (for resistance sensors)	
other, please specify	

2. SZS99HT Standard high-temperature plug / socket (350°C max.)

Temperature range	350°C max.
Lead wire diameter	8 mm max.
Conductor cross-section	from Ø0.2 mm to Ø2 mm
Casing colour	brown




high-temperature coupler


high-temperature plug

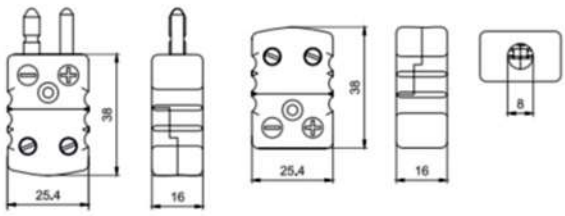
ORDERING

SZS99HT-X-X

sensing element:	connector type:
J : TC J (Fe-CuNi)	**W** : plug
K : TC K (Ni-CrNi)	**G** : coupler
N : TC N (NiCrSi-NiSi)	**WG** : set
T : TC T (Cu-CuNi)	
R : TC R (PtRh13%-Pt)	
S : TC S (PtRh10%-Pt)	
Pt100 : Cu type (for resistance sensors)	
other, please specify	

3. SZS99C Standard ceramic plug / socket (650°C max.)

Temperature range	650°C max.
Lead wire diameter	8 mm max.
Conductor cross-section	from Ø0.2 mm to Ø2 mm
Casing colour	white




ceramic coupler


ceramic plug

ORDERING

SZS99C-X-X

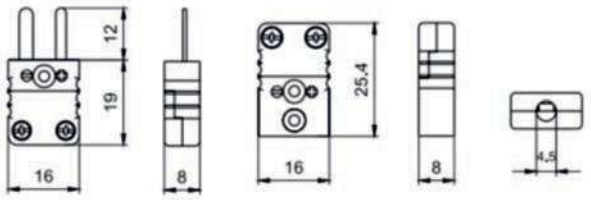
sensing element:	connector type:
J : TC J (Fe-CuNi)	**W** : plug
K : TC K (Ni-CrNi)	**G** : coupler
N : TC N (NiCrSi-NiSi)	**WG** : set
T : TC T (Cu-CuNi)	
R : TC R (PtRh13%-Pt)	
S : TC S (PtRh10%-Pt)	
other, please specify	

SZM99 - MINIATURE PLUG AND SOCKET CONNECTORS FOR TEMPERATURE SENSORS

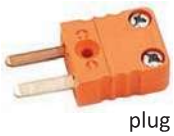
Plugs and sockets are elements of measuring systems used to connect temperature sensors to measuring devices such as controllers, indicators, and recorders. The variety of types allows to apply them to the majority of thermocouples and resistance thermometers under various environmental conditions and operating temperatures. Solid pins ensure a reliable connection.

1. SZM99 Miniature plug / socket (200°C max.)

Temperature range	200°C max.
Lead wire diameter	4.5 mm max.
Conductor cross-section	from Ø0.002 mm to Ø0.6 mm
Casing colour	acc. to IEC-584: J: black, K: green, N: pink, T: brown, R and S: orange




coupler


plug

ORDERING

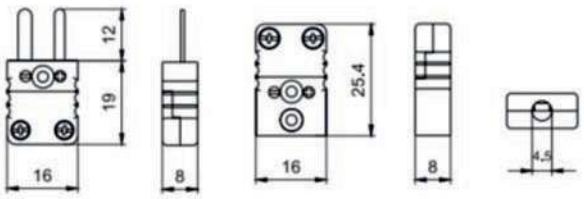
SZM99-X-X

sensing element:
J : TC J (Fe-CuNi)
K : TC K (Ni-CrNi)
N : TC N (NiCrSi-NiSi)
T : TC T (Cu-CuNi)
R : TC R (PtRh13%-Pt)
S : TC S (PtRh10%-Pt)
Pt100 : Cu type (for resistance sensors)
other, please specify

connector type:
W : plug
G : coupler
WG : set

2. SZM99HT Miniature high-temperature plug / socket (350°C max.)

Temperature range	350°C max.
Lead wire diameter	4.5 mm max.
Conductor cross-section	from Ø0.002 mm to Ø0.6 mm
Casing colour	brown




high-temperature coupler


high-temperature plug

ORDERING

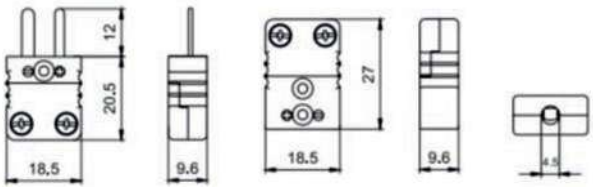
SZM99HT-X-X

sensing element:
J : TC J (Fe-CuNi)
K : TC K (Ni-CrNi)
N : TC N (NiCrSi-NiSi)
T : TC T (Cu-CuNi)
R : TC R (PtRh13%-Pt)
S : TC S (PtRh10%-Pt)
Pt100 : Cu type (for resistance sensors)
other, please specify

connector type:
W : plug
G : coupler
WG : set

3. SZM99C Miniature ceramic plug / socket (650°C max.)

Temperature range	650°C max.
Lead wire diameter	4.5 mm max.
Conductor cross-section	from Ø0.002 mm to Ø0.6 mm
Casing colour	white




ceramic coupler


ceramic plug

ORDERING

SZM99C-X-X

sensing element:
J : TC J (Fe-CuNi)
K : TC K (Ni-CrNi)
N : TC N (NiCrSi-NiSi)
T : TC T (Cu-CuNi)
R : TC R (PtRh13%-Pt)
S : TC S (PtRh10%-Pt)
other, please specify

connector type:
W : plug
G : coupler
WG : set

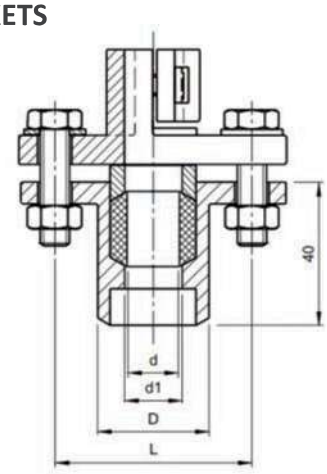
FASTENERS FOR FASTENING THE TEMPERATURE SENSORS

Compression fittings and mounting brackets are used as accessories for temperature sensors without threaded fittings and flanges. They are used for sensor mounting in a place of measurement, they allow immersion length adjustment since they can be mounted anywhere along the sheath. Compression fittings assure an excellent seal up to 0,1 MPa.

SUZ - MOUNTING BRACKETS

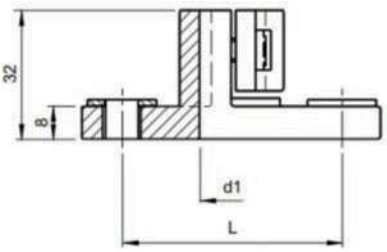
SUZ11





SUZ21





ORDERING

SUZX-X-X

bracket type:
11 : counter flange
21 : stop flange

sheath diameter:
15 : Ø 15 mm
22 : Ø 22 mm
32 : Ø 32 mm

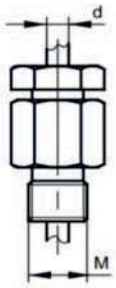
seal:
T : teflon
SC : ceramic rope

Bracket type	d [mm]	d1 [mm]	D [mm]	L [mm]
SUZ11-15	Ø15	16	35	55
SUZ21-15	Ø15	16	-	55
SUZ11-22	Ø22	23	40	70
SUZ21-22	Ø22	23	-	70
SUZ11-32	Ø32	33	50	70
SUZ21-32	Ø32	33	-	70

SUG - COMPRESSION FITTINGS

SUG-1

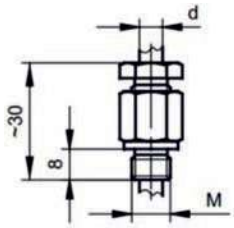




Fitting type	Thread	d [mm]
SUG-1-6	M16x1,5	Ø6
SUG-1-8	M16x1,5	Ø8
SUG-1-12	M20x1,5	Ø12
SUG-1-15	M24x2	Ø15
SUG-1-20	M30x2	Ø20

SUG-3

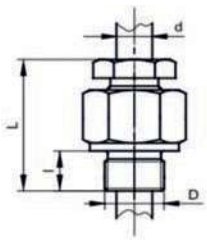




Fitting type	Thread	d [mm]
SUG-3-1	M8x1	Ø1
SUG-3-1,5	M8x1	Ø1,5
SUG-3-2	M8x1	Ø2
SUG-3-3	M10x1	Ø3
SUG-3-45	M10x1	Ø4,5
SUG-3-6	M10x1	Ø6
SUG-3-8	M12x1	Ø8

SUG-8





Fitting type	Thread	d [mm]	L [mm]	l [mm]	SW
SUG-8-6	M20x1,5 G1/2	Ø6	50	15	30
SUG-8-8		Ø8			
SUG-8-10		Ø10			
SUG-8-12		Ø12			
SUG-8-14	M27x2 G3/4	Ø14	55	20	36
SUG-8-15		Ø15			

ORDERING

SUGX-X

version:
1 : material: zinc-coated steel A10, seal: ceramic rope
3 : material: stainless steel 1.4541, seal: stainless steel ring 1.4541
8 : material: stainless steel 1.4541, seal: stainless steel ring 1.4541, teflon

sheath diameter:
6 : Ø 6 mm
8 : Ø 8 mm
other, acc. to the tables

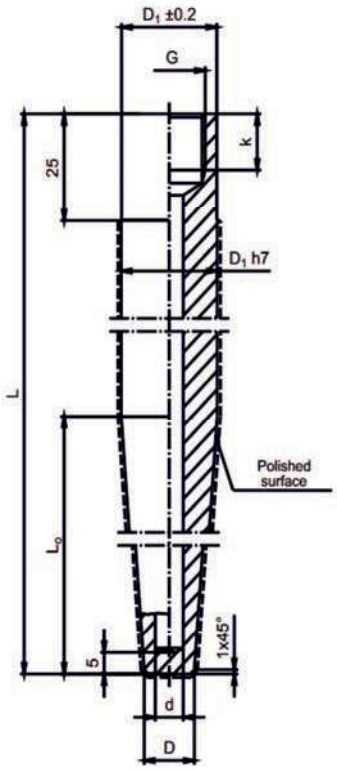
THERMOWELLS, CERAMIC TUBES AND INSULATION RODS FOR THERMOCOUPLES

SOW - DRILLED THERMOWELLS

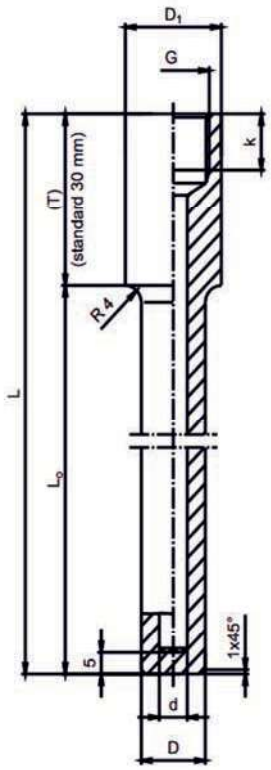
Drilled thermowells are used as security elements to protect temperature sensors in harsh applications where high pressure occurs.
The whole element is made of one piece of the material with deep drilling over the entire length. They are used in heavy industry, food, chemical, and power industry.



SOW1
polished thermowell



SOW2
straight thermowell



Bore diameter d	Min. thermowell diameter D	Max. thermowell length L
Ø3,5	Ø10	400
Ø7	Ø12	700
Ø9	Ø15	600
Ø12	Ø18	700
Ø12	-	1400
Ø14	Ø20	600

Thread type G	Thread length k	Min. diameter of lagging extension D_1
M14x1,5	13	Ø18
M18x1,5	15	Ø24
M20x1,5	15	Ø26
G1/2	15	Ø26
M27x2	20	Ø32
G3/4	20	Ø32

TECHNICAL DATA

Max. temperature	depends on material and dimension
Bore diameter	from 3.5 mm to 14 mm
Thread	M14x1,5; M18x1,5; M20x1,5; M27x2; G1/2; G3/4
Material	1.4404, 1.4541, 1.4571, 1.7335

ORDERING

SOWX-X-X-X-X-X-X-X-X

thermowell type:
1 : polished
2 : straight

thermowell diameter D:
15 mm
other, please specify

weaning diameter D_1:
24 mm
other, please specify

bore diameter d:
7 mm
other, please specify

material:
A : 1.4541 steel
B : 1.4571 steel
C : 1.4404 steel
D : 1.7335 steel
other, please specify

length L_o:
100 mm
other, please specify

total length L:
300 mm
other, please specify

thread length k:
acc. to the table

thread type G:
M18x1,5
other, acc. to the table

SOWG - THREADED DRILLED THERMOWELLS

Drilled thermowells are used as security elements to protect temperature sensors in harsh applications where high pressure occurs.
The whole element is made of one piece of the material with deep drilling over the entire length. They are used in heavy industry, food, chemical, and power industry. The thermowell is screwed in a place of measurement via the threaded connector.

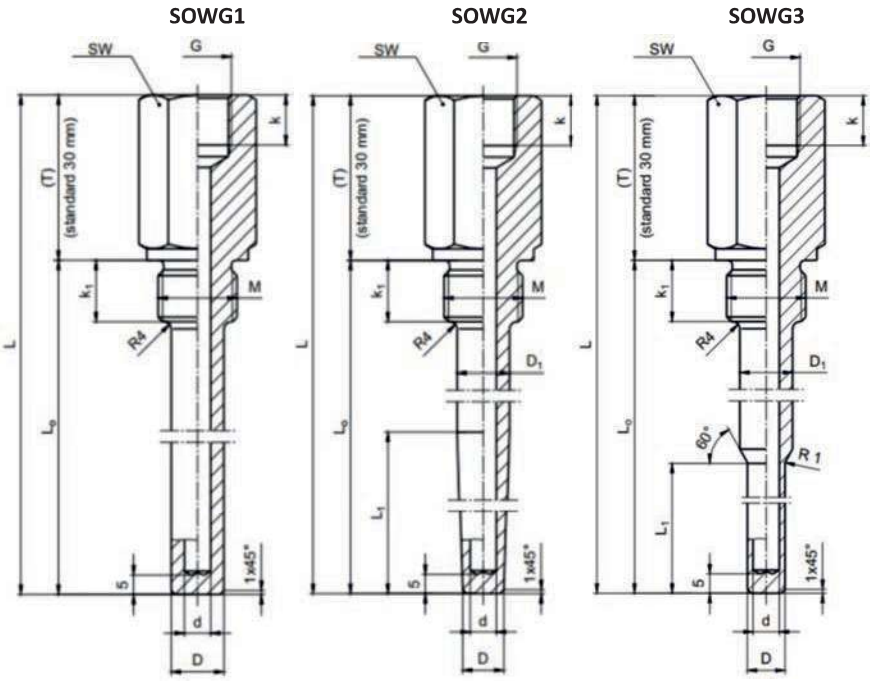


SOWG1
straight thermowell



SOWG2
tapered thermowell

SOWG3
stepped thermowell



TECHNICAL DATA

Max. temperature	depends on material and dimension
Bore diameter	from 3.5 mm to 14 mm
Thread	M20x1,5; M27x2; G1/2; G3/4, 1/2 NPT, 3/4 NPT
Material	1.4404, 1.4541, 1.4571, 1.7335

Bore diameter d	Min. thermowell diameter D	Max. thermowell length L
Ø3,5	Ø10	400
Ø7	Ø12	700
Ø9	Ø15	600
Ø12	Ø18	700
Ø12	-	1400
Ø14	Ø20	600

ORDERING

SOWGX-X-X-X-X-X-X-X-X-X-X-X-X

thermowell type:
1 : straight
2 : tapered
3 : stepped

thread type M:
M20x1,5
other, acc. to the table

thread length k_1:
acc. to the table

thermowell diameter D:
15 mm
other, please specify

thermowell diameter D_1*:
24 mm
other, please specify

bore diameter d:
7 mm
other, please specify

material:
A : 1.4541
B : 1.4571
C : 1.4404
D : 1.7335
other, please specify

length L_1*:
100 mm
other, please specify

length L_9:
100 mm
other, please specify

total length L:
300 mm
other, please specify

thread length k:
acc. to the table

thread type G:
M20x1,5
other, acc. to the table

Thread type M	Thread length k_1	Hexagon dimensions SW	Thread type G	Thread length k
M20x1,5	14	27	M20x1,5 G1/2 1/2 NPT	15
G1/2	14	27		
1/2 NPT	20	27		
M27x2	16	32		
G3/4	16	32		
3/4 NPT	20	27		
G1	18	41		

** does not apply to the straight thermowell*

CERAMIC SYALON THERMOWELL



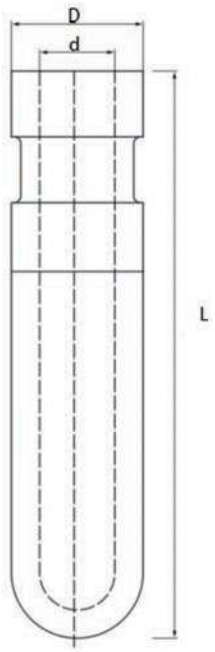
SOCS

- made of special ceramic - syalon
- very long time working in liquid aluminum
- thermal shock resistance
- very high wear resistance
- low coefficient of thermal expansion (no need for preheating)

Syalon **SOCS** is a silicon nitride alloy with unique properties such as high strength, low weight, excellent thermal shock resistance. It is also corrosion and erosion-resistant. Moreover, syalon thermowell is vacuum-tight and is high electrical resistant. It exhibits high mechanical strength at extremely high temperatures (above 1000°C in the air). These properties combined with very high wear resistance make syalon thermowell an excellent application choice for molten aluminum, zinc, tin, and lead.

TECHNICAL DATA

Max. operating temperature	1400°C
Density	> 3.2 g/cm^3
HRA hardness	> 92
Porosity	0 %
Thermal conductivity	22 W/MxK
Flexural strength	930 MPa



ORDERING

SOCS-X-X

outer diameter D:
16 mm
22 mm
28 mm
30 mm
45 mm

length L:
specify in mm

DIMENSIONS

Outer diameter D [mm]	Inner diameter d [mm]	Max. length L [mm]
Ø16	Ø8	900
Ø22	Ø12	1000
Ø28	Ø16	1400
Ø30	Ø18	1400
Ø45	Ø25	1400

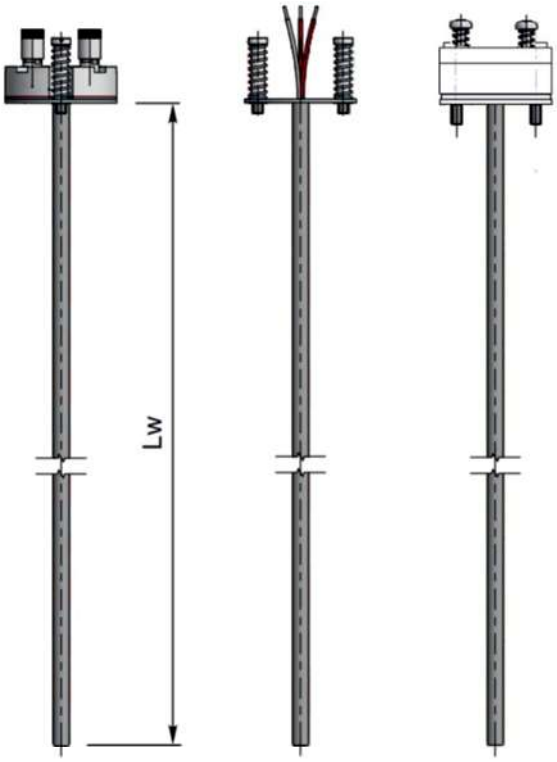
MEASURING INSERTS FOR TEMPERATURE SENSORS



SWP1

- measuring insert for resistance thermometers
- MgO isolator
- measuring range -50 ÷ 550°C
- metal sheath made of stainless steel
- resistance to vibrations
- short reaction time to temperature changes
- possibility of mounting a 4...20 mA or 0...10 V temperature transmitter

The measuring inserts **SWP1** for resistance thermometers are designed for installation in a protection thermowell. Operation without thermowell is only recommended in certain applications. These measuring inserts are made from flexible, mineral-insulated sheathed cable. The sensor is fitted in a rigid tube on the end of the measuring insert. Apart from being flexible, this model has outstanding vibration resistance.



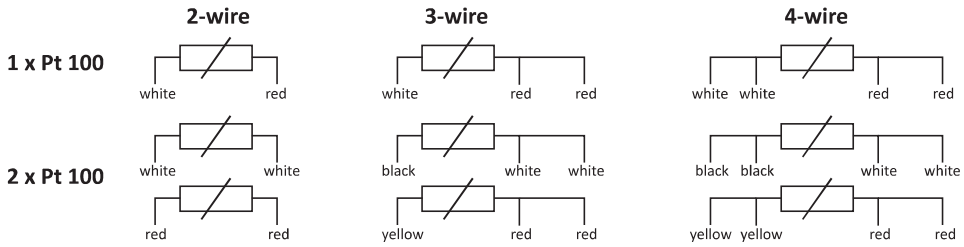
TECHNICAL DATA

Sensing element	Pt 100
Measurement range	-50 ÷ 550°C
Class	A or B
Material	stainless steel

RESISTOR TOLERANCE ACC. TO PN-EN 60751

Class	Tolerance [°C]
A	t = 0,15 + 0,002 x |t|
B	t = 0,30 + 0,005 x |t|

ELECTRICAL CONNECTION



ORDERING

SWP1-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

construction:
A : with ceramic block
B : without ceramic block
PP : with transmitter

insert diameter:
3 mm
4.5 mm
6 mm
8 mm
other, please specify

insert length L_w:
100 mm
150 mm
240 mm
other, please specify

accuracy class:
A
B

measuring circuit:
2 : 2-wire
3 : 3-wire
4 : 4-wire

sensor measuring range or temperature transmitter settings:
please specify

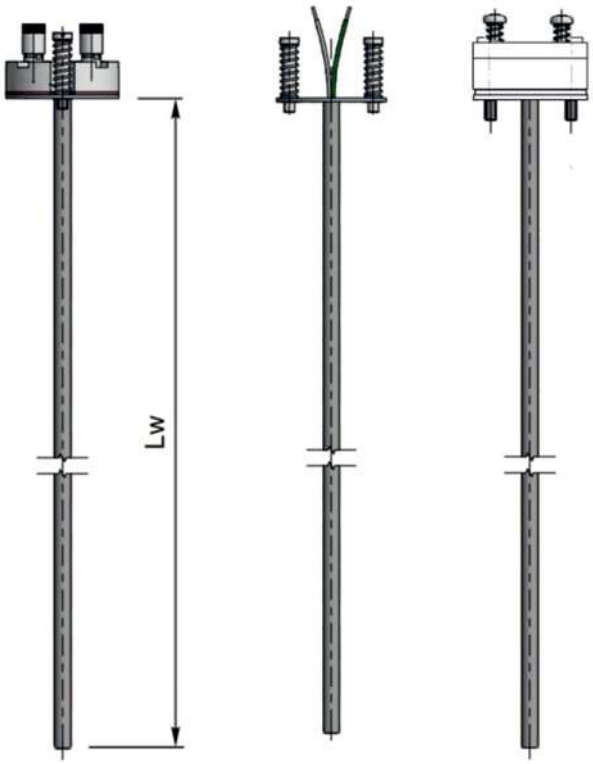
MEASURING INSERTS FOR TEMPERATURE SENSORS



SWP2

- measuring insert for thermocouples
- MgO isolator
- measuring range -40 ÷ 1200°C depending on thermocouple
- metal sheath made of Incotel 600 alloy
- resistance to corrosion and vibrations
- short reaction time to temperature changes
- possibility of mounting a 4...20 mA or 0...10 V temperature transmitter

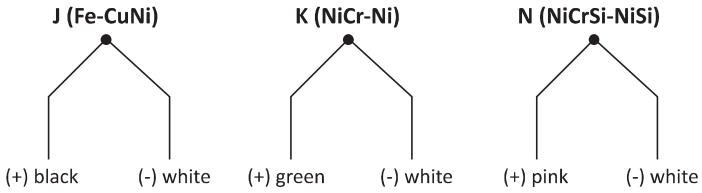
The measuring insert **SWP2** for thermocouple thermometers is made of metal sheathed cable with internal wires insulated from each other and from the outer sheath with magnesium oxide (MgO) powder. This provides the sensor with high vibration resistance, flexibility as well as resistance to temperature and electrical insulation.



TECHNICAL DATA

Sensing element	J, K, N thermocouple (single, double)
Measuring range	-40 ÷ 1200°C (depending on thermocouple)
Class	1 or 2
Material	Inconel 600

ELECTRICAL CONNECTION



THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	I Class		II Class	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) K (NiCr-Ni) N (NiCrSi-NiSi)	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|

ORDERING

SWP2-X-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
J
K
N

construction:
A : with ceramic block
B : without ceramic block
PP : with transmitter

insert diameter:
3 mm
4.5 mm
8 mm
other, please specify

insert length L_w:
100 mm
150 mm
240 mm
other, please specify

junction type:
SO : junction isolated from the sheath
SU : junction grounded

accuracy class:
class **1**
class **2**

sensor measuring range or temperature transmitter settings:
please specify

MEASURING INSERTS FOR TEMPERATURE SENSORS



SWP3

- measuring insert for thermocouples
- ceramic isolator
- measuring range **+1800°C depending on thermocouple**
- sheath made of C610 (60% Al_2O_3)
- long-term measurement of high temperatures
- short reaction time to temperature changes

Measuring insert **SWP3**, in a ceramic cover (C610), for thermocouple thermometers, is made of internal thermocouple wires insulated from each other with ceramic insulation. This provides the sensor with high temperature resistance as well as electrical insulation.

TECHNICAL DATA

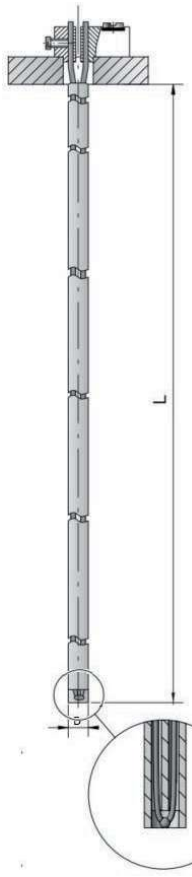
Sensing element	J, K, N, R, S, B thermocouple (single, double)
Measuring range	0 ÷ 1200°C thermocouples of common metals 0 ÷ 1800°C thermocouples of precious metals
Class	1 or 2
Material	mullite 610 ceramics

CERAMIC ISOLATOR DIMENSIONS

Wire diameter	thermocouple type / isolator dimensions				
	K	**N**	**J**	**R/S**	**B**
0.35 mm	-	-	-	Ø3.5 mm; Ø8.5 mm	-
0.50 mm	-	-	-	Ø8.5 mm	Ø8.5 mm
2.00 mm	Ø9x50 mm 12x8x100 mm Ø16x100 mm	Ø9x50 mm 12x8x100 mm Ø16x100 mm	Ø9x50 mm -	-	-
3.00 mm				-	-

THERMOCOUPLES TOLERANCE ACC. TO PN-EN 60584

Thermocouple	Class 1		Class 2	
	Temperature range	Tolerance	Temperature range	Tolerance
J (Fe-CuNi) **K (NiCr-Ni)** **N (NiCrSi-NiSi)**	-40 ÷ 750°C -40 ÷ 1000°C -40 ÷ 1000°C	± 1,5°C ± 0,0040°C x |t|	-40 ÷ 750°C -40 ÷ 1200°C -40 ÷ 1200°C	± 2,5°C ± 0,0075°C x |t|
B (PtRh30-PtRh6)	-	-	600 ÷ 1700°C	± 0.0025°C x |t|
R (PtRh13-Pt) **S (PtRh10-Pt)**	0 ÷ 1100°C 1100 ÷ 1600°C	± 1.0°C ± [1+0,003(t-1100)]°C	0 ÷ 600°C 600 ÷ 1600°C	± 1.5°C ± 0.0025°C x |t|



of precious metals



of common metals

ORDERING

SWP3-X-X-X-X-X-X

temperature sensor:
1 : single
2 : double

sensing element:
K
R
B
other, please specify

construction:
A : with ceramic block
B : without ceramic block

thermocouple wire diameter:
0.35 mm
0.5 mm
2 mm
3 mm
other, please specify

accuracy class:
class **1**
class **2**

insert length L_w:
100 mm
150 mm
240 mm
other, please specify

ceramic isolator dimensions:
3.5 : Ø3,5 mm
8.5 : Ø8,5 mm
9x50 : Ø9x50 mm
12x8x100 : 12x8x100 mm
16:100 : Ø16x100 mm
other, please specify

ELECTRIC HEATERS

- Cartridge heaters
- Tubular heaters
- Band heaters
- Ceramic heaters
- Heating units
- Infrared radiators

Cartridge heaters



- surface loading: up to 62W/cm²
- temperature range: up to 870°C
- power supply: from 12V to 480V
- hermetic system
- diameters tolerated in accuracy class H7: from 5 up to 70 mm
- possibility of using a temperature sensor
- sheath: carbon steel, brass, Cr-Ni steel

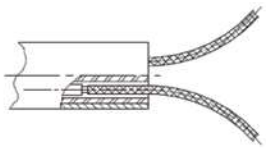
Cartridge heaters are modern, highly proficient heating elements with a special construction enabling significant heat emission from a small surface. Relatively small size and single-sided connection enable the heater installation within a small space. The cartridge heaters are primarily used for warming solid bodies. Most frequently, the heaters are inserted within metal elements, however they are equally suitable for warming fluids (water, oil, emulsion) or even gases.

Application:
- plastic industry: hot runner molds, mouthpieces and injection molding nozzles, stamps for embossing, sealing in packaging machines,
- footwear industry: vulcanizing presses, mold heaters, extruder
- foundry: core and die heaters, vacuum furnaces,
- medical and laboratory technology: distilling devices, oil heaters, solder baths, inhalation devices and sterilization,
- wood industry: punches for burning, lacquer and paint atomizers,
- general machine construction,
- automotive industry.

TECHNICAL DATA

Parameters	GP / GPT	GPN	GPF
Heater diameter	metric [mm]: ø6,5; 8; 10; 12,5; 16; 20 inch: ¼, ⅜, ½, ⅝, ¾ custom [mm]: ø6 up to ø50		metric [mm]: ø6,5; 8; 10; 12,5; 16; 20 inch: ¼, ⅜, ½, ⅝, ¾; 1
Diameter tolerance	-0,02 / -0,08 mm	+0,2 mm	-0,02 / -0,08 mm
Range of length	20 ÷ 1000 mm		up to 2300 mm
Length tolerance	±1,5%		±2% (min. 2,4 mm)
Supply voltage	12V ÷ 380V		12V ÷ 480V
Surface loading	35 W/cm²	5 W/cm²	up to 62 W/cm²
Operating temperature	up to 500°C (on the sheath)		up to 870°C (on the sheath)
Power	50 ÷ 3000 W		5000 W
Power tolerance	+5% / -10%		
Sheath material	Cr-Ni steel (AISI-321)		Incoloy 800

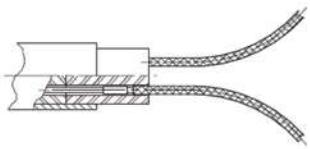
TERMINATION TYPES



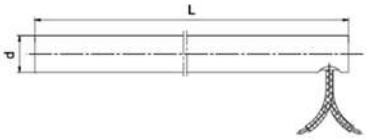
A type: straight, inner contact



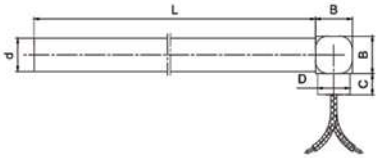
B type: straight, outer contact



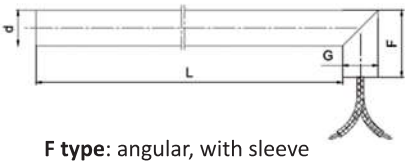
C type: straight, contact in ceramic block



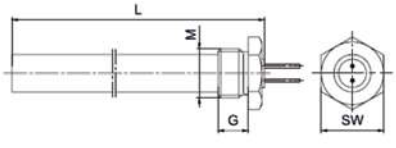
D type: angular, cables routed directly from the side of the heater



E type: angular, corner heater connected with ankle



F type: angular, with sleeve



G type: with threaded sleeve (x-thread)



Tubular heaters

- max. operating temperature: up to 800°C
- power supply: from 12V to 380V
- heater diameters: from 6 to 13 mm
- high-quality and stable electrical parameters
- long lifetime and stability
- high allowable surface temperatures of sheath
- sheath: carbon steel, brass, Cr-Ni steel
- various termination types: cable, screw, threaded fastener

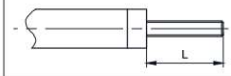
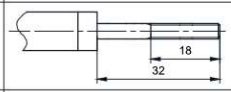
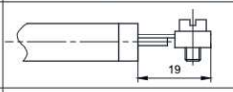
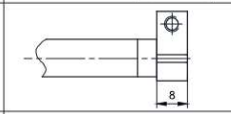
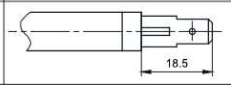
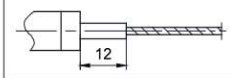
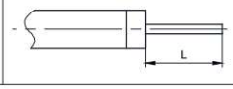
Tubular heaters are designed to work in air or liquid. Due to the possibility of any shape of the heating element, they are suitable for many applications. It is possible to build individual elements into very powerful heating units. The selection of materials for heating elements depends on the working conditions, i.e. working temperature, surface load, working environment. They are the most popular method of electric heating in the industry.

Features:
- high and stable quality of electric parameters resulting from the central position of the heating coil,
- long life and stability of heater operating resulting from the use of homogeneous and dense insulation consisting of the highest quality magnesium oxide (MgO) as well as the use of the highest quality resistance wires,
- high surface loading and high allowable surface temperature of the tube resulting from the application of the highest quality stainless steel tubes.

TECHNICAL DATA

Parameters	GR
Heater diameter	metric: Ø6,4 mm, Ø6,9 mm, Ø8 mm, Ø8,5 mm, Ø10 mm, Ø10,2 mm, Ø13 mm
Diameter tolerance	±0,1 mm
Range of length	200 ÷ 3600 mm
Supply voltage	12V ÷ 380V
Sheath material	alloy steel (AISI 321, AISI 316, Incoloy 800), carbon steel, copper, brass, aluminum
Surface loading	up to 25 W/cm², depends on environment and tube material
Operating temperature	max. 800°C (Incoloy 800), max. 650°C (AISI-321), max. 600°C (chromium steel), max. 350°C (carbon steel), max. 300°C (aluminum), max. 250°C (copper, brass)

TERMINATION TYPES

Sign	Drawing	Description
A		threaded mandrel M4
B		threaded terminal M4
C		threaded terminal M4
D		threaded terminal M4
E		straight termination 6.3
F		sleeve and steel or copper stranded wire
G		mandrels (sealed heating elements)

ORDERING

GR-X-X-X/X-X

- **diameter [mm]**
- **length [mm]**
- **power [W]**
- **voltage [V]**
- **termination types:**
  - **A** : threaded mandrel M4
  - **B** : threaded terminal M4
  - **C** : threaded terminal M4
  - **D** : threaded terminal M4
  - **E** : straight termination 6.3
  - **F** : sleeve and steel or copper stranded wire
  - **G** : mandrels (sealed heating elements)



Ordering sample:
GR-20-500-300-230-A
Tubular heater GR type, dimension 20 mm, length 500 mm, power 300W, voltage 230V, A termination type



Band heaters

- power supply: from 220V to 3x400V
- heater diameters: from 25 to 1500 mm
- micanite or ceramic insulated design
- additional adiabatic sheath
- possibility to use inner J, K, T thermocouple
- sheath: carbon steel, brass, Cr-Ni steel
- termination type: cable, block, screw

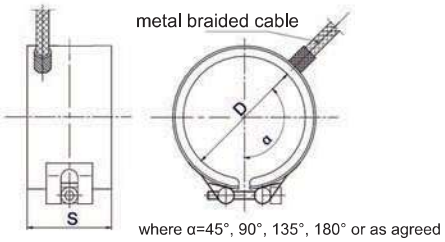
Band heaters are designed with micanite or ceramic insulation sheathed with brass or stainless steel plate. Ceramic band heaters are chracterised by the excellent insulation properties and the long-lasting period of operation.

Application:
- industrial pipes,
- nozzles,
- film blowing machines,
- packing machines, injection moulding machine, excruders.

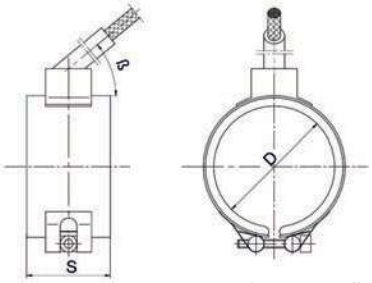
TECHNICAL DATA

Parameters	GM	GC
Isolation	micanite	ceramic
Heater diameter	25 ÷ 1000 mm	50 ÷ 1500 mm
Width	25 ÷ 1000 mm	40 ÷ 1000 mm
Thickness	3,5 ÷ 4 mm	12 ÷ 32 mm
Supply voltage	24V, 48V, 220V, 230V, 380V, 3x380V, 400V, 3x400V, other	
Surface loading	4,5 W/cm²	7 W/cm²
Housing material	Cr-Ni steel (AISI 321), brass	Cr-Ni steel (AISI 321)
Operating temperature	max. 450°C, allowable 500°C during good heat dissipation	max. 550°C, allowable 600°C during good heat dissipation

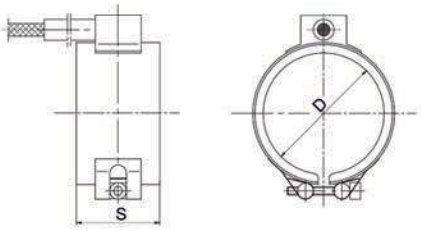
TERMINATION TYPES



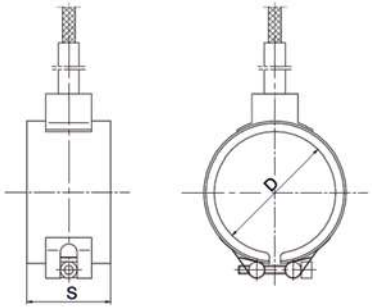
A type: directly from the heater in overbraid



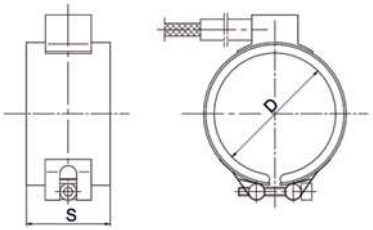
B type: axial (angle 3...70°)



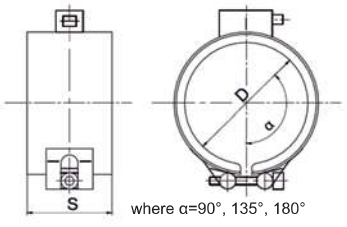
C type: axial flat



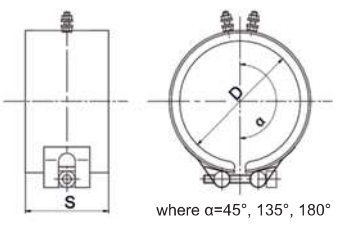
D type: radial



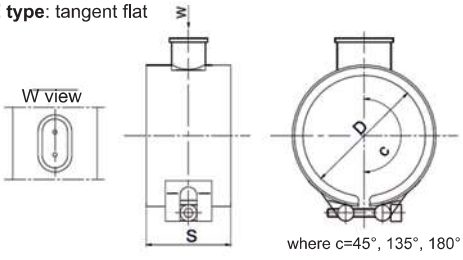
E type: tangent flat



F type: with block

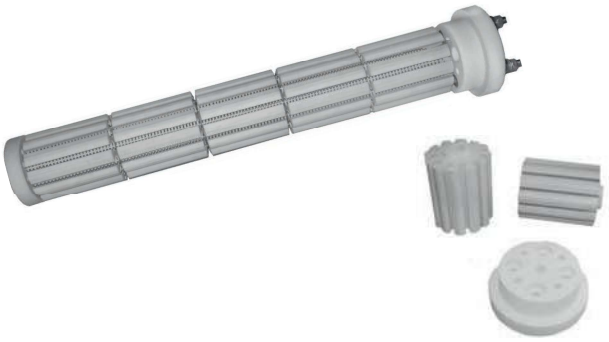


G type: screw: M5



H type: plug

Ceramic heaters



- power supply: 230 V; 380 V; 3x380 V, 400 V
- length: 100 ÷ 4000 mm
- power: 100...10000 W
- modular design
- designed for work in a steel sheath
- used of the occurrence of temperature radiation
- kanthal resistance wire material
- high efficiency, long service life

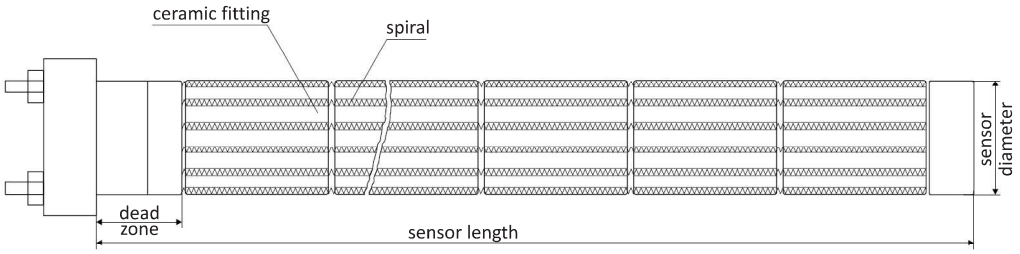
Ceramic heaters suitable for overhead operation as heating cartridges with a diameter of ø32, 40, 50 mm. Through the phenomenon of temperature radiation, they heat the surrounding media. Their modular design, which consists of ceramic fittings, provides even heating of the entire surface and due to the material used - chamotte - high temperature resistance of 800°C. We use kanthal resistance wire for the construction of the radiator, which ensures a very long service life and high heat output of the entire radiator. The whole is stabilized by a stainless steel pin passing through the axis of the heater.

Application:
- tiled stoves, accumulative,
- bakeries,
- galvanizing plant,
- rubber and plastic processing.

TECHNICAL DATA

Parameters	CEG
Power	100 ÷ 10000 W
Dead zone	100 mm
Heater diameter	Ø16 mm, Ø32 mm, Ø36 mm, Ø45mm, Ø50 mm, other
Supply voltage	230V, 380V, 3x380V, 400V
Range of length	100 ÷ 4000 mm
Surface loading	7 W/cm²
Operating temperature	up to 800°C

DESIGN



ORDERING

CEG-X-X-X-X

- diameter [mm]
- length [mm]
- voltage [V]
- power [W]

Ordering sample:
CEG-50-450-800-400
Ceramic heater CEG type, diameter 50 mm, length 450 mm, power 800W, supply voltage 400V



Heating units ZGP

- mineral insulated construction
- ceramic insert
- power 200 ÷ 6000 W
- high efficiency
- mounting with: flange, thread or handle
- insert replacement without disassembly
- degree of head protection: IP66
- the radiator can be extended with a thermostat

Heating units **ZGP** consist of tubular elements welded or brazed into a threaded screw plug which can then be inserted into a threaded opening in a tank wall or through a mating full or half coupling. Degree of head protecion is IP66. Connection terminals and protective clamp are located under head cover. In the cover there is a gland through which the power cable is inserted.

Application:
- oil, water and gas heating.

TECHNICAL DATA

Power	200 ÷ 6000 W
Supply voltage	230 ÷ 500V
Range of length	100 ÷ 3000 mm
Heater diameter	Ø16 mm, Ø20 mm, Ø35 mm, Ø40 mm, Ø50 mm, other
Avaible threads	G½, G1½, M42x2, flange, other
Connection head	metal cover
Material	1.4301, 1.4404, 1.4571 steel
Protection degree	IP 66
Dead zone	100 mm
Operating temperature	up to 200°C

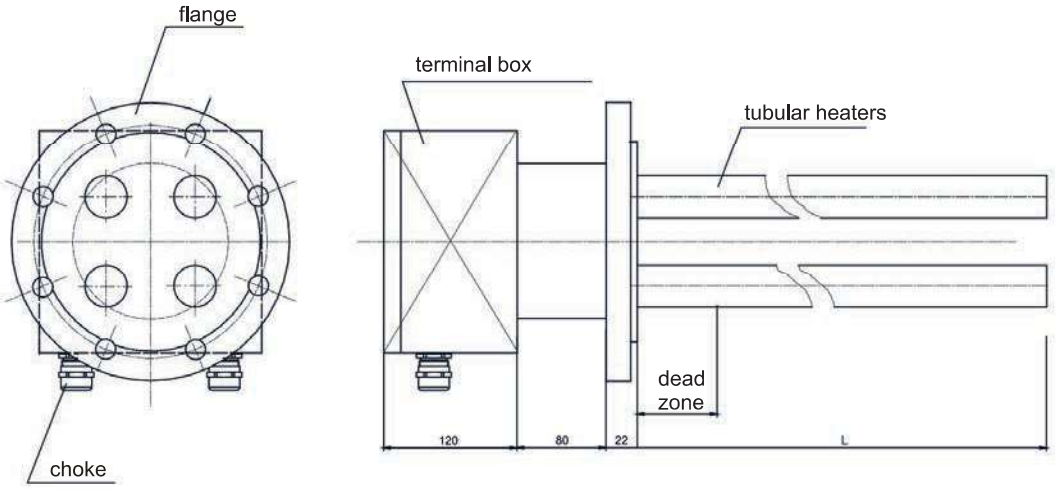
ORDERING

ZGP-X-X-X/X-X

- **diameter [mm]**
- **length [mm]**
- **power [W]**
- **voltage [V]**
- **connection type:**
  - **G** : threaded
  - **K** : flange

Ordering sample:
ZGP-4x50-1400-6000W/400V-G
Heating unit **ZGP** type, consists of 4 heaters diameter 50 mm, length 1400 mm, power 4 x 6 kW, supply voltage 400V, threaded connection type.

DESIGN



Heating units ZGR



- compact housing
- high efficiency
- power 1,5 ÷ 40 kW
- mounting with: flange or thread
- use of tubular heating element packages
- degree of head protection: IP66
- the radiator can be extended with a thermostat

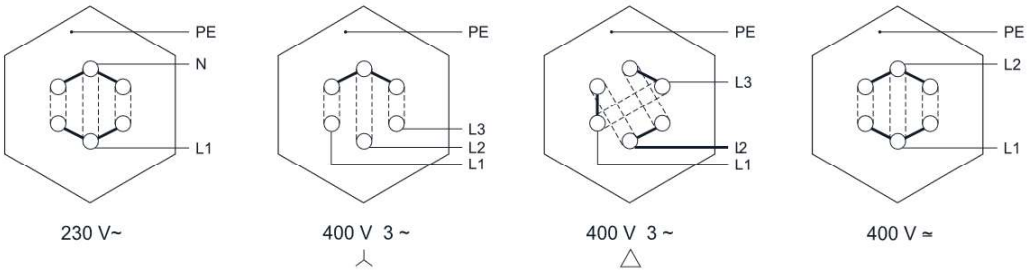
Immersion heating units **ZGR** type are used for direct heating of a variety of liquids. The compact design makes it possible to put a relatively large power in a single body. The ZGR type heater consists of a package of tubular heating elements soldered into a threaded spigot or flange. An expanded version of the radiator with a thermostat allows you to set the desired temperature of the heated medium without the need for an additional control system.

Application:
- hot watter installations
- oil pre-heaitng
- flow heaters
- air heaters
- pressure tanks

TECHNICAL DATA

Power	1,5 ÷ 40 kW
Supply voltage	230V, 400V, 3x400V, other
Range of length	250 ÷ 4750 mm
Heater diameter	Ø6,5 mm, Ø8,5 mm, Ø10 mm, Ø16 mm, other
Connection head	steel, stainless steel, brass
Material	steel: 1.4301, 1.4404, 1.4541, 1.4571, 1.4828, 1.4876, 2.4858, copper
Protection degree	IP 66
Dead zone	100 mm

CONNECTION DIAGRAM



ORDERING

ZGR-X-X-X/X-X

- **diameter [mm]**
- **length [mm]**
- **power [W]**
- **voltage [V]**
- **connection type:**
  G : threaded
  K : flange

Ordering sample:
ZGR-6x10-1695-6600W/400V-G
Heating unit **ZGR** type, consists of 6 heaters diameter 10 mm, length 1695 mm, power 6 x 6,6 kW, supply voltage 400V, threaded connection type.

Heating / cooling units ZGH



- **compact design**
- **power 100 ÷ 10000 W**
- **replaceable heating inserts**
- **brass / steel heat sinks**
- **built-in fan improving thermodynamic properties of heater**
- **used in plasticizing plastics**

Heating / cooling units **ZGH** type are heaters used to plasticize plastics. The construction of the extruder is based on ceramic heating inserts equipped with brass / steel heat sinks, the whole is closed in a steel housing. A fan is mounted to the unit, which regulates the temperature through the appropriate hot air outlet system. All parameters: voltage, power, set dimensions are agreed individually with the customer.

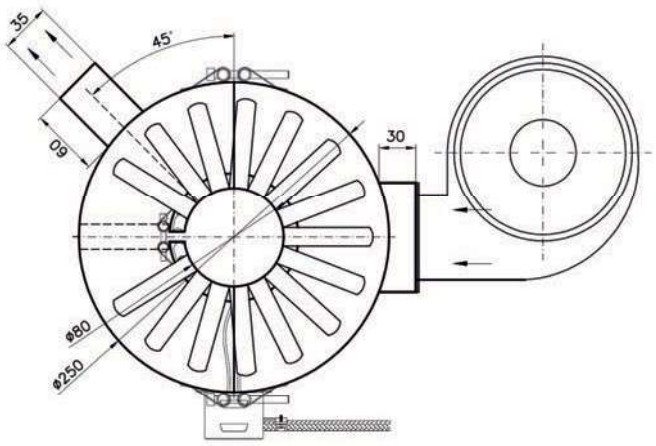
Application:
- extruder cylinders.

TECHNICAL DATA

Power	100 ÷ 10000 W
Supply voltage	230 V, 380 V, 3x380 V, 400 V
Range of length	100 ÷ 4000 mm
Heater diameter	Ø16 mm, Ø32 mm, Ø36 mm, Ø45 mm, Ø50 mm, other
Surface loading	7 W/cm²



DIMENSIONS



ORDERING

ZGH-X-X-X/X-X

- **diameter [mm]**
- **length [mm]**
- **power [W]**
- **types of current leads:**
  - **A** : with block
  - **B** : screw M5
  - **C** : wire
- **voltage [V]**

Ordering sample:
ZGH-50-300-3000W/400V-A
Heating / cooling units ZGH type, diameter 50 mm, length 300 mm, power 3 kW, supply voltage 400V, current leads with block.



Infrared radiators
FSR, HTS, SHTS, QP-1/QP-2

- refractory ceramics with enamel coating ceramic
- quartz tubes with resistance wire
- KANTHAL spiral material
- use of the phenomenon of temperature radiation
- achievement of max. power 30s after switching on
- high corrosion tolerance
- possibility of installing an additional sensor
- low temperature interia

Ceramic **infrared radiators** are made of highly flameproof ceramics with ceramic enamel coatings and heating coils from resistance wire inside. Infrared radiators use the electromagnetic radiation phenomena to transfer heat to the objects with lower temperatures. Depending on the heater power, the electromagnetic wave of the heater ranges from 2 µm to 10 µm length.
QP heaters emit electromagnetic radiation with wave lengths ranging from 1,3 µm to 3 µm. Full emissivity is achieved after 30 seconds. Made of quartz glass tubes with a resistance wire coils inside, the QP heaters are stainless steel sheathed.

Application:
- plastic industry
- food industry
- paper and textile industry
- medical technology
- surface technology

TECHNICAL DATA

Type	Power [W]								
QP-1 / QP-2	100	150	200	250	300	400	500	650	1000
QP-½	50	75	100	125	150	200	250	325	500
QP-¼	25	38	50	63	75	100	125	163	250

Type	FSR				FSR/2				FSR/4			
Dimensions [mm]	245x60				122x60				60x60			
Power of element [W]	250	400	650	1000	125	200	325	500	60	100	200	250
Operating temperature [°C]	400	500	620	730	400	500	620	730	400	500	620	730
Max. operating temperature [°C]	550	600	700	750	550	600	700	750	550	600	700	750
Max. surface loading [W/cm^2]	1,6	2,56	4,16	6,4	1,6	2,56	4,16	6,4	1,6	2,56	4,16	6,4

Type	HTS, HTS/1					HTS/2					HTS/4				
Dimensions [mm]	122x122, 245x60					122x60					60x60				
Power of element [W]	250	400	600	800	1000	125	200	300	400	500	60	100	150	200	250
Operating temperature [°C]	450	570	700	810	900	450	570	700	810	900	450	570	700	810	900
Max. operating temperature [°C]	700	750	800	850	900	700	750	800	850	900	700	750	800	850	900
Max. surface loading [W/cm^2]	1,6	2,56	3,84	5,12	6,4	1,6	2,56	3,84	5,12	6,4	1,6	2,56	3,84	5,12	6,4

ORDERING

X/X-X

type:
FSR : standard 750°C
HTS : isolated 900°C
SHTS : with increased load capacity up to 77 kW/m2
QP : quartz heater

dimensions:
122 x 122 mm
1 : 245 x 60 mm
2 : 122 x 60 mm
4 : 60 x 60 mm

power [W]

Ordering sample:
FSR/2-200W
Ceramic infrared standard radiator, lenght 122 mm, width 60 mm, power 200 W





Infrared radiators IOT

- ceramic infrared screw radiator
- E27 bulb thread
- ceramic hollow casting
- power max. 250W
- electromagnetic radiation with wave lengths from 13 µm to 10 µm
- operating voltage 230V
- UR/UL certificate for many variants

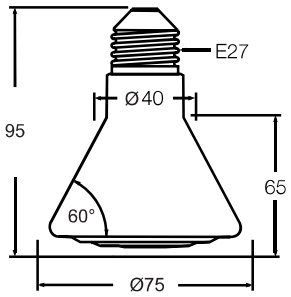
Screw-in elements of the **IOT** series are ceramic infrared elements with an E27 screw base. The emitters of the IOT series are so-called "dark emitters" that do not emit any visible light and, due to this property, the robustness, especially in the heaters' socket area as well as the simple temperature control options (e.g. with standard dimmers), have been used successfully for millions of times, for decades. They are used e.g. in animal breeding or terrariums and are perceived by animals (self-warm and cold-blooded), especially during the night, as a non-disturbing source of warmth.
The standardized E27 thread enables simple and safe installation, as the elements can be screwed into porcelain sockets or metal sockets with a porcelain insert like lightbulbs.
IOT infrared elements are suitable because of their simple connection options for both individual operation and for setting up groups of heaters. The possible uses are diverse and, in addition to animal breeding and terraristics, particularly extend to the areas of medical and gastronomy technology.
The standard IOT emitters are available in two power levels of 60 W and 100 W (IOT/75) or 150 W and 250 W (IOT/90).

TECHNICAL DATA

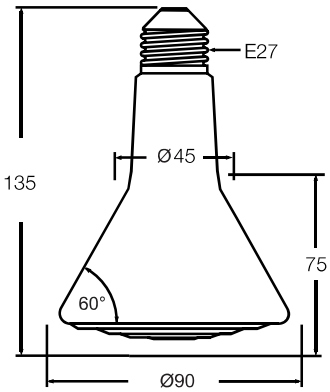
Type	IOT/75		IOT/90	
Power [W]	60	100	150	250
Dimensions [mm]	Ø75 mm		Ø90 mm	
Operating temperature [°C]	up to 310	up to 410	up to 410	up to 530
Max. operating temperature [°C]	530			
Max. surface loading [kW/cm²]	8,6	14,4	15,0	25,0
Wavelength range [µm]	3...10			

DIMENSIONS

IOT/75



IOT/90



ORDERING

IOT/X-X

power [W]

dimensions:
75 : Ø75 mm
90 : Ø90 mm

Ordering sample:
IOT/75-100W
Ceramic infrared bulb radiator, diameter 75 mm, power 100 W

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