EPIC® SENSORS T-RO / W-RO

Pipe surface temperature sensor

Features

- temperature range *) -200...+550 °C
- fitting for pipes or other cylindrical shapes
- on request, the fitting can be welded on the sensor element at the factory
- fitting can be supplied as separate item
- Pt100 or thermocouple as sensing element
- Pt100 accuracy class A as standard delivery
- thermocouple accuracy class 1 as standard delivery
- AISI 316L as standard delivery material, other materials on request
- MI cable structured sensor element
- bendable
- vibration proof
- tailored solutions according to customer specific needs
- ATEX and IECEx compatible Ex i versions available
- 3D step models available on request.



Typical applications

- energy and power plant technology
- process industry
- chemical industry
- machinery and vessel construction
- manufacturing industry.

Technical data

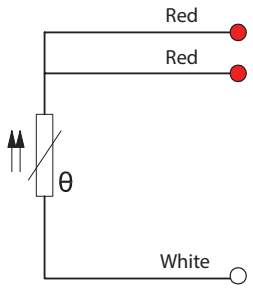
*) **Materials**	AISI 316L, max. temperature +550 °C, temporarily +600 °C, other materials on request (Note. max. safe temperature +100 °C for the sealant tube in cable to sensor element transition)
Fittings available for pipe sizes	0...1000 mm, other sizes on request
Cable material	SIL = silicone, max. +180 °C FEP = fluoropolymer, max. +205 °C GGD = glass silk cable/metal braid jacket, max. +350 °C FDF = FEP wire insulation/braid shield/FEP jacket, max.+205 °C SDS = silicone wire insulation/braid shield/silicone jacket, only available as 2 wire cable, max. +180 °C TDT = fluoropolymer wire insulation/braid shield/fluoropolymer jacket, max. +205 °C FDS = FEP wire insulation/braid shield/silicone jacket, max. +180 °C FS = FEP wire insulation/silicone jacket, max. +180 °C (Note. max. safe temperature +100 °C for the sealant tube in cable to sensor element transition)
Tolerances Pt100 (IEC 60751)	AA tolerance ±0.1 + 0.0017 x t, operating temperature -50...+250 °C A tolerance ±0.15 + 0.002 x t, operating temperature -100...+450 °C B tolerance ±0.3 + 0.005 x t, operating temperature -196...+600 °C B 1/3 DIN, 0.1 °C +0.5%, B1/10 DIN 0.03 °C +0.5%, operating temperature -196...+250 °C
Tolerances thermocouple (IEC 60584)	Type J tolerance class 1 = -40...375 °C±1.5 °C, 375...750 °C ±0.004 x t Type K and N tolerance class 1 = -40...375 °C ±1.5 °C, 375...1000 °C ±0.004 x t
*) **Temperature range Pt100**	Model W-RO: -200...+350 °C, depending on materials and sensor element length, Model W-RO-M: -200...+550 °C, depending on materials and MI element length. (Note. max. safe temperature +100 °C for the sealant tube in cable to sensor element transition)
*) **Temperature range thermocouple**	Model T-RO: -200...+350 °C, depending on thermocouple type, materials and sensor element length, Model T-RO-M: -200...+550 °C, depending on thermocouple type, materials and MI element length. (Note. max. safe temperature +100 °C for the sealant tube in cable to sensor element transition)
Approvals	ATEX, IECEx
Quality certificate	ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018 issued by DNV

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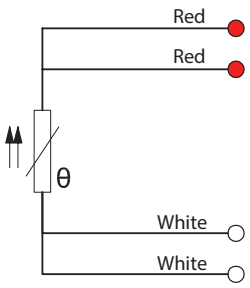
Pipe surface temperature sensor

Pt100 connections

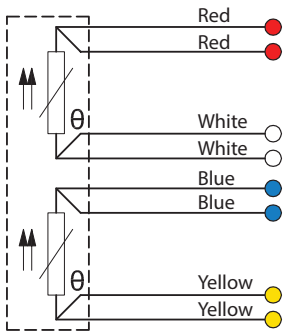
1x Pt100, Class A, 3-wire,
connection acc. to standards EN 60751



1x Pt100, Class A, 4-wire,
connection acc. to standards EN 60751

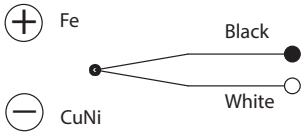


2x Pt100, Class A, 4-wire,
connection acc. to standards EN 60751

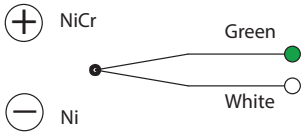


Thermoelement connections

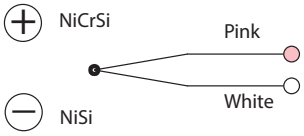
Thermocouple, Type J, Class 1,
Acc. to standard EN 60584-1



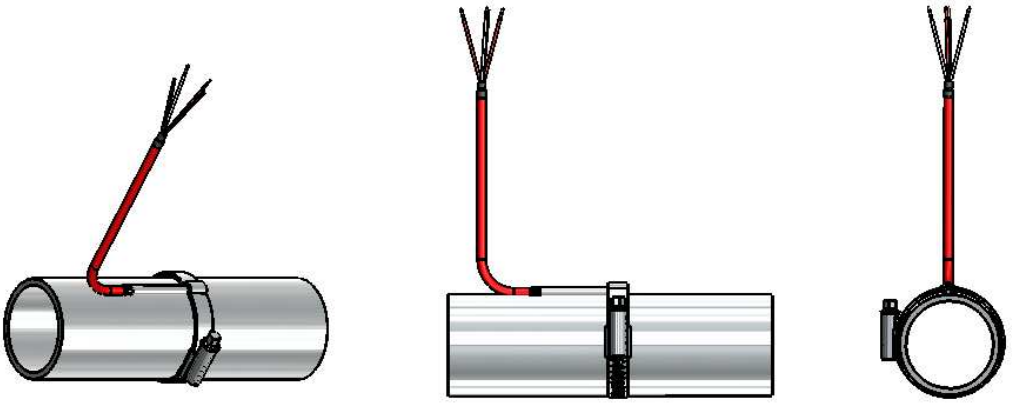
Thermocouple, Type K, Class 1,
Acc. to standard EN 60584-1



Thermocouple, Type N, Class 1,
Acc. to standard EN 60584-1



Installation examples

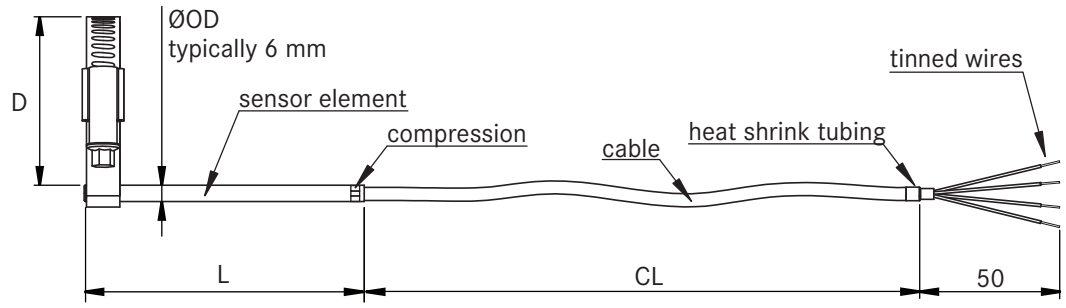


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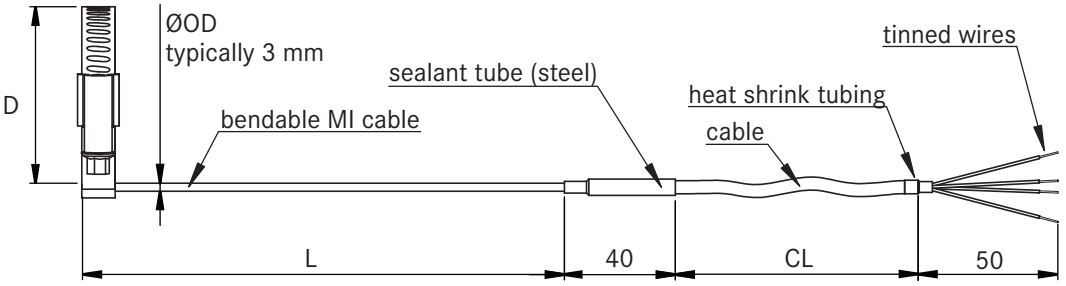
Pipe surface temperature sensor

Drawing

Model W-RO



Model W-RO-M



Product code key

Example code: W — RO — M — 3 / 500 — 5000 / SIL — 4 — A — D=25 — X

W	= Pt100 resistance thermometer
2xW	= 2 x Pt100 resistance thermometer
T	= thermocouple
2xT	= 2 x thermocouple
RO	= sensor with pipe fitting (constant in code)
empty	= non-bendable sensor element
M	= bendable MI cable as sensor element
3, 6, 8	= outer diameter of sensor element (ØOD) [mm]
500	= immersion length, L [mm]
5000	= cable length, CL [mm]
SIL, FEP, GGD, FDF, TDT, SDS, FDS, FS,	= cable material (for more information, look technical data on first page of the datasheet)
4,3,2	= Pt100 wire count
K,N,J	= thermocouple type
A,B	= Pt100 accuracy class, (class A as standard delivery)
1,2,3	= thermocouple accuracy class, (class 1 as standard delivery)
D=25	= inner diameter of pipe fitting [mm] (= external diameter of process pipe)
EXI	= Ex i certified sensor
X	= additional details on the text line