EPIC® SENSORS T-M-303 / W-M-303 or T-M-302 / W-M-302

Mineral insulated thermocouple or resistance sensor with cable

Features

- according to DIN 43721
- temperature range *) -200...+1200 °C
- Pt100 or thermocouple as sensing element
- AISI 316L or INCONEL 600 as standard delivery material, other materials on request
- Pt100 accuracy class A as standard delivery
- thermocouple accuracy class 1 as standard delivery
- MI cable structured sensor element
- bendable
- vibration proof
- ATEX and IECEx compatible Ex e and 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

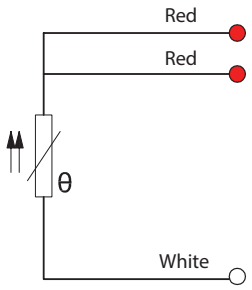
*) **Materials**	AISI 316L, max. temperature +550 °C, temporarily +600 °C, INCONEL 600, max. temperature +1100 °C, temporarily +1200 °C Other materials on request (Note. max. safe temperature +100 °C for the sealant tube in cable to sensor element transition)
Wire materials	FEP wire insulation/no jacket, max. +205 °C
Cable materials	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**	-200...+550 °C, depending on sensor element and cable material (Note. max. safe temperature +100 °C for the sealant tube in cable to sensor element transition)
*) **Temperature range thermocouple**	-200...+1200 °C, depending on thermocouple type and other sensor materials (Note. maximum 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
IP rating	IP67, higher IP rating on request

EPIC® SENSORS T-M-303 / W-M-303 or T-M-302 / W-M-302

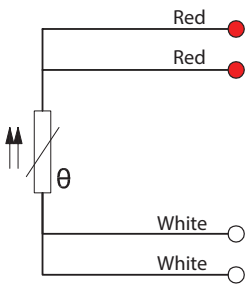
Mineral insulated thermocouple or resistance sensor with cable

Pt100 connections

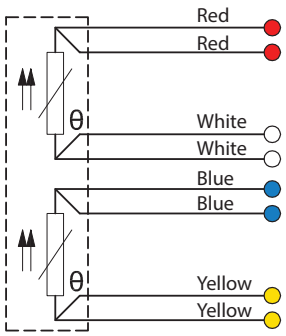
1x Pt100, Class A, 3-wire,
connection acc. to standards EN 60751



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

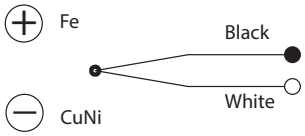


2x Pt100, Class A, 4-wire,
connection acc. to standards EN 60751

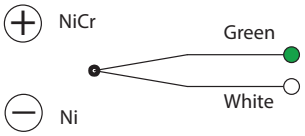


Thermoelement connections

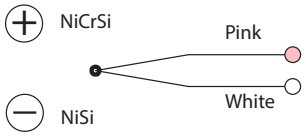
Thermocouple, Type J, Class 1,
Acc. to standard EN 60584-1



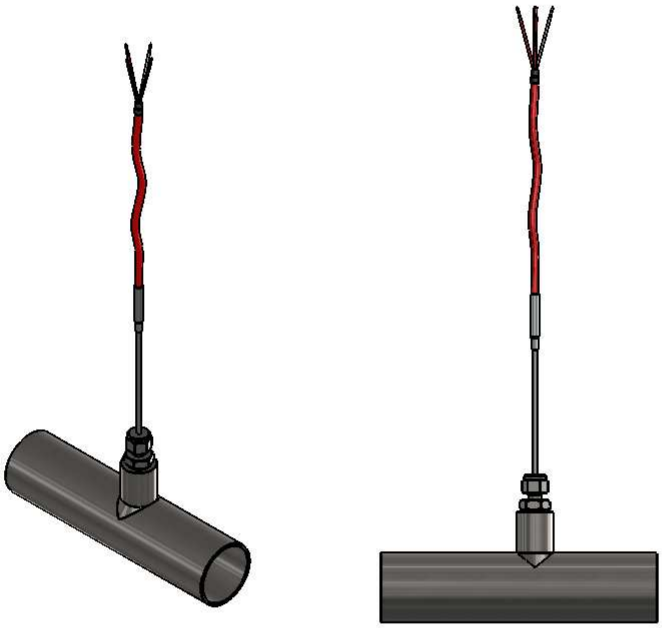
Thermocouple, Type K, Class 1,
Acc. to standard EN 60584-1



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



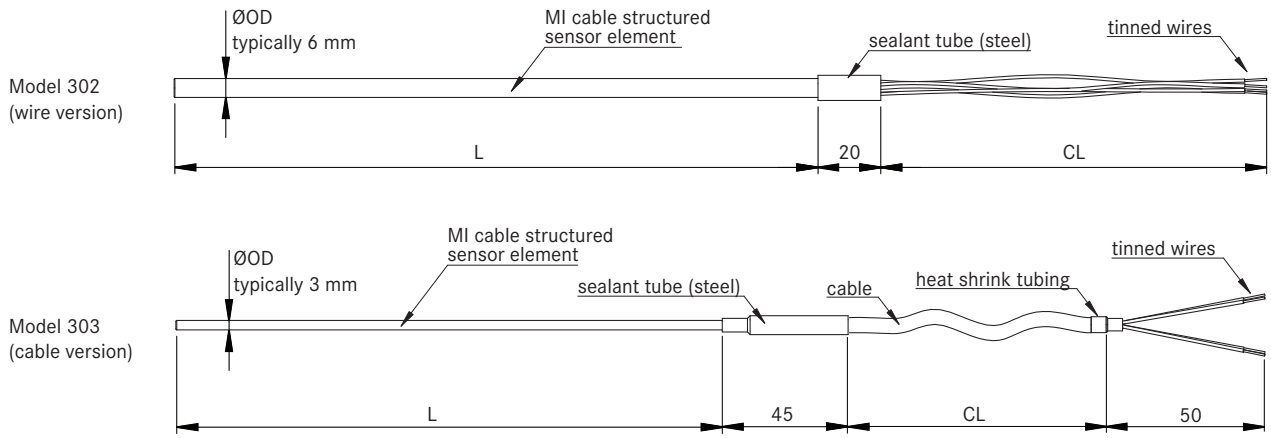
Installation examples



EPIC® SENSORS T-M-303 / W-M-303 or T-M-302 / W-M-302

Mineral insulated thermocouple or resistance sensor with cable

Drawing



Product code key

Example code: T — M — 303 — 3 / 1000 — 3000 / SIL — K — 1 — X

W	= Pt100 resistance thermometer
2xW	= 2 x Pt100 resistance thermometer
T	= thermocouple
2xT	= 2 x thermocouple
M	= mineral insulated sensor (constant in code)
302	= sensor with wires
303	= sensor with cable
1.5, 3, 4.5, 6	= outer diameter of sensor element (ØOD) [mm] (other diameters on request)
1000	= MI cable length, L [mm]
3000	= cable or wire 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)
EX	= Ex e certified sensor
EXI	= Ex i certified sensor
X	= additional details on the text line