iTHERM TMS02 MultiSens Flex Multipoint

Modular direct contact TC and RTD multipoint thermometer with secondary process barrier

Benefits:
- Infinite layouts of 3D sensors distribution for any desired process monitoring configuration
- High degree of customization thanks to a modular product design for easy installation, process integration and maintenance
- High degree of insert process compatibility as per standard IEC 60584, ASTM E230 and IEC 60751
- On-board electronic heat protection for highest product durability
- Compliance to different types of protection for use in hazardous locations for easy process integration
- Diagnostic chamber as secondary process barrier for additional safety, capable of pressure monitoring for predictive maintenance through advanced diagnostics

Specs at a glance
- **Accuracy** class 2 acc. to IEC 60584 ASTM E230 and ANSI MC 96.1 IEC/Class A IEC/Class AA
- **Response time** depending on configuration: TC: t50 = 2 s t90 = 5 s RTD: t50 = 0,8s t90 = 2s
- **Max. process pressure (static)** at 20 °C: 200 bar (2900 psi)
- **Operating temperature range** Type K: max. 1.150 °C (max. 2.102 °F) Type J: max. 720 °C (max. 1.328 °F) Type N: max. 1.100 °C (max. 2.012 °F) Pt100 WW; 3mm; 316L; -200...600oC Pt100 WW; 6mm; 316L; -200...600oC Pt100 TF; 3mm; 316L; -50...400oC Pt100 TF; 6mm; 316L; -50...400oC Pt100 StrongSens; 6mm; 316L; -50...500oC
- **Max. immersion length on request** up to 30.000,00 mm (1181")
Field of application: The iTHERM TMS02 MultiSens Flex can be customized for various applications: Bendable into a 3D layout, it provides a complete temperature profile using only a single process connection. The device is configurable with or without thermowells for optimal response times, mechanical strength or sensors replaceability. It is available with either TC/RTD technology or with our iTHERM StrongSens and features an advanced diagnostics chamber for additional safety.

Features and specifications

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<td><strong>Measuring principle</strong></td>
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<td>Resistance Temperature Detector</td>
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| Characteristic / Application |
| metric style |
| easy-to-use |
| suitable for hazardous areas |
| flanged process connection |
| light chemical processes |
| 3D sensors distributions |
| modular design |
| replaceable sensors during shutdown |
| diagnostic chamber |

| Thermowell / protection tube |
| without (for direct contact sensors type) |
| with (for replaceable sensors) |
| with (for increased mechanical protection) |
| Multi-thermowells, each one dedicated to a sensor |

| Insert / probe |
| mineral insulated (MI), flexible |
| mineral insulated (MI), flexible, with its own thermowell |
### Outer diameter protection tube / Insert
- 6.0 mm (0.24")
- 8.0 mm (0.31")
- 10.29 mm (1/8")

### Max. immersion length on request
- up to 30,000,00 mm (1181")

### Material protection tube/ thermowell
- 1.4401 (316)
- 1.4435 (316L)
- 1.4541 (321)
- 1.4550 (347)
- Alloy 600 (2.4816)

### Process connection
- flange:
- 2" ASME/ANSI B16.5 150
- ...600
- 3" ASME/ANSI B16.5 150
- ...600
- 4" ASME/ANSI B16.5 150
- ...600
- 6" ASME/ANSI B16.5 150
- ...600
- 8" ASME/ANSI B16.5 150
- ...600
- DN80 EN/DIN 1092.1 PN10
- ...PN100
- DN100 EN/DIN 1092.1 PN10
- ...PN100
- DN125 EN/DIN 1092.1 PN10
- ...PN100
- DN150 EN/DIN 1092.1 PN10
- ...PN100
- DN200 EN/DIN 1092.1 PN10
- ...PN100
Tip shape
straight
reinforced
easy-fix

Operating temperature range
Type K:
max. 1,150 °C
(max. 2,102 °F)
Type J:
max. 720 °C
(max. 1,328 °F)
Type N:
max. 1,100 °C
(max. 2,012 °F)
Pt100 WW; 3mm; 316L; -200...600°C
Pt100 WW; 6mm; 316L; -200...600°C
Pt100 TF; 3mm; 316L; -50...400°C
Pt100 TF; 6mm; 316L; -50...400°C
Pt100 StrongSens; 6mm; 316L; -50...500°C

Max. process pressure (static)
at 20 °C: 200 bar (2900 psi)

Accuracy
class 2 acc. to IEC 60584
ASTM E230 and ANSI MC 96.1
IEC/Class A
IEC/Class AA

Response time
depending on configuration:
TC:
t₅₀ = 2 s
t₉₀ = 5 s
RTD:
t₅₀ = 0,8s
t₉₀ = 2s
### Thermometer

**Integration head transmitter**

Yes (4 ... 20 mA; HART; PROFIBUS PA; FOUNDATION FIELDBUS)

**Ex - approvals**

- ATEX
- IECEX
- UL
- FM
- CSA
- NEPSI
- EAC
- UK CA
- CCC Ex ia IIC T1...T6 Ga

**Certification**

SIL (transmitter only)

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More information [www.endress.com/TMS02](http://www.endress.com/TMS02)