

# Intrinsically Safe Temperature Sensor: iTHERM ModuLine TM131

Trend-setting, highly modular and intrinsically safe RTD or TC thermometer – for a wide range of industrial applications



## Benefits:

- Second process barrier with failure indication offering valuable health status information
- iTHERM QuickSens: fastest response times 1.5 s for optimum process control
- iTHERM StrongSens: unsurpassed vibration resistance (> 60g) for ultimate plant safety
- iTHERM QuickNeck: cost and time savings thanks to simple, tool-free recalibration
- Bluetooth® connectivity (optional)
- International certification: explosion protection according to ATEX, IECEx, CSA C/US and NEPSI

More information and current pricing:

[www.us.endress.com/TM131](http://www.us.endress.com/TM131)

## Specs at a glance

- **Accuracy** Class AA acc. to IEC 60751 Class A acc. to IEC 60751 Class B acc. to IEC 60751 Class special or standard acc. to ASTM E230 Class 1 or 2 acc. to IEC 60584-2
- **Response time** fastest response time with thermowell t90 starting at below 10 s depending on configuration
- **Max. process pressure (static)** depending on the configuration up to 100 bar
- **Operating temperature range** PT100 TF StrongSens: -50 °C ...500 °C (-58 °F ...932 °F) PT100 QuickSensTF: -50 °C ...200 °C (-58 °F ...392 °F) PT100 WW: -200 °C ...600 °C (-328 °F ...1.112 °F) PT100 TF: -50 °C ...400 °C (-58 °F ...752 °F) Thermoelement: Typ K up to 1.100 °C (2.012 °F) Typ J up to 800 °C (1.472 °F) Typ N up to 1.100 °C (2.012 °F)

- **Max. immersion length on request** up to 4.500,0 mm (177")

**Field of application:** Intrinsically safe temperature sensor (RTD or TC assembly) with manufactured thermowell for use with existing thermowell. An optional head transmitter with all common communication protocols – Bluetooth® technology inclusive – and special features like iTHERM QuickNeck for tool-free, easy recalibration, vibration-resistant and fast-response sensor and thermowell technology (**iTHERM StrongSens, QuickSens**) as well as hazardous area approvals ensure enhanced measurement accuracy and reliability.

## Features and specifications

### Thermometer

#### Measuring principle

Resistance Temperature Detector

#### Characteristic / Application

metric style

modular temperature assembly

universal range of application

suitable for hazardous areas

with neck or QuickNeck

incl. thermowell / protection tube (metal) or to be installed into thermowell

can be used with StrongSens, QuickSens insert

for fast response times

#### Thermowell / protection tube

welded protection tube or to be used with thermowell

#### Insert / probe

mineral insulated (MI), flexible

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**Thermometer****Outer diameter protection tube / Insert**

Thermowell:

9x1,25 mm

11x2 mm

12x2,5 mm

14x2 mm

16x3,5

1/4" SCH80

1/2" SCH80

1/2" SCH40

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**Max. immersion length on request**

up to 4.500,0 mm (177")

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**Material protection tube/ thermowell**

316 (1.4401)

316L (1.4404)

316Ti (1.4571)

Alloy 600 (2.4816)

Alloy C276 (2.4819)

Alloy 446 (1.4749)

Alloy 321 (1.4541)

Sheath PTFE

Sheath Tantal

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**Thermometer****Process connection**

Thread:

G3/8, G1/2", G3/4", G1"

NPT1/2", NPT3/4", NPT 1"

M14x1.5, M18x1.5, M20x1.5, M27x2, M33x2

R1/2", R3/4"

Cap-nut:

M20x1.5, G1/2", G3/4"

Compression fitting:

NPT1/2", G1/2", G1"

Flansche:

DN15 PN40 B1, C

DN25 PN20, PN40, PN100 B1, B2, C

DN40 PN40 B1

DN50 PN40 B1

ASME 1" 150 RF

ASME 1" 300 RF

ASME 1 1/2" 150 RF

ASME 2" 150 RF

ASME 2" 300 RF

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**Tip shape**

straight

reduced

tapered

optimized for quick response times

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**Surface roughness Ra**< 0.76  $\mu\text{m}$  (0.03  $\mu\text{in}$ )

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## Thermometer

### Operating temperature range

PT100 TF StrongSens:

-50 °C ...500 °C

(-58 °F ...932 °F)

PT100 QuickSensTF:

-50 °C ...200 °C

(-58 °F ...392 °F)

PT100 WW:

-200 °C ...600 °C

(-328 °F ...1.112 °F)

PT100 TF:

-50 °C ...400 °C

(-58 °F ...752 °F)

Thermoelement:

Typ K up to 1.100 °C (2.012 °F)

Typ J up to 800 °C (1.472 °F)

Typ N up to 1.100 °C (2.012 °F)

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### Max. process pressure (static)

depending on the configuration up to 100 bar

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### Accuracy

Class AA acc. to IEC 60751

Class A acc. to IEC 60751

Class B acc. to IEC 60751

Class special or standard acc. to ASTM E230

Class 1 or 2 acc. to IEC 60584-2

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### Response time

fastest response time with thermowell t90 starting at below 10 s  
depending on configuration

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### Integration head transmitter

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

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Thermometer

**Ex - approvals**

ATEX  
ATEX IECEX  
NEPSI  
IECEX  
EAC Ex  
CSA C/US  
INMETRO

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**Certification**

SIL, MID, DNV/GL

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