

iTHERM ModuLine TM411

Hygienic modular thermometer

Metric RTD thermometer with or without thermowell for hygienic applications



Benefits:

- Optimum process control: Fast sensor response times with iTHERM QuickSens technology (t90: 1.5 s)
- Up to 75% faster and safer recalibrations with iTHERM QuickNeck – tool-free quick-release for instant insert removal
- High sensor availability under rough conditions: Vibration resistant RTD technology iTHERM StrongSens (> 60g)
- Easy product selection, configuration and maintenance
- Increase productivity and product safety in sanitary applications with highly accurate and reliable measurements
- Thermowells, hygienic process connections and housings expertly manufactured from high-grade materials treated for low surface roughness

More information and current pricing:

www.endress.com/TM411

Specs at a glance

- **Accuracy** class A acc. to IEC 60751 class AA acc. to IEC 60751
- **Response time** depending on configuration iTHERM QuickSens: t90 = 1,5 s iTHERM StrongSens: t90 = 9,5 s
- **Max. process pressure (static)** at 20 °C: 40 bar (580 psi)
- **Operating temperature range** PT100: -200 °C ... 600 °C (-328 °F ... 1.112 °F) iTHERM StrongSens: -50 °C ... 500 °C (-58 °F ... 932 °F) iTHERM QuickSens: -50 °C ... 200 °C (-58 °F ... 392 °F)

Field of application: The modular sanitary thermometer iTHERM TM411 with digital display delivers highly accurate, reliable and fast temperature measurements in process lines, vessels, tanks, fermenters and more. The high-performance device is designed for the strictly regulated food and life sciences industries. Configure your hygienic instruments from a selection of thin film RTDs with QuickSens or

StrongSens technology or 2x Pt100 wire wound temperature sensors, smart transmitters and hygienic process connections.

Features and specifications

Thermometer

Measuring principle

Resistance Temperature Detector

Characteristic / Application

metric style
modular temperature assembly
hygienic/aseptic design (3-A[®], EHEDG, ASME BPE, FDA)
hygienic process connections
with neck
suitable for hazardous areas
incl. protection tube
iTHERM QuickSens for fastest response time
iTHERM StrongSens for most robust design
iTHERM QuickNeck for easy and cost saving recalibration

Thermowell / protection tube

without
incl. thermowell
incl. Tee-/elbow thermowell

Insert / probe

mineral insulated (MI), flexible
pipe version, isolated wires, not flexible

Outer diameter protection tube / Insert

6,0 mm (0,24")
9,0 mm (0,35")
12,7 mm (0,5")

Material protection tube/ thermowell

1.4435 delta-ferrit < 1%
316L

Thermometer

Process connection

compression fitting
weld in adapter
clamp connections acc. to ISO2852
screwed pipe joint acc. to DIN 11851
aseptic screwed pipe joint acc. to DIN 11864-1
metallic sealing system
thread acc. to ISO 228 for liquid adaptor
APV Inline
Varivent
Ingold
SMS 1147
Neumo Biocontrol
T- and elbow thermowell

Tip shape

straight
reduced
tapered

Surface roughness Ra

0,76 µm (29,92 µin)
0,38 µm (14,96 µin)
0,38 µm (14,96 µin) electropolished

Operating temperature range

PT100:
-200 °C ... 600 °C
(-328 °F ... 1.112 °F)
iTHERM StrongSens:
-50 °C ... 500 °C
(-58 °F ... 932 °F)
iTHERM QuickSens:
-50 °C ... 200 °C
(-58 °F ... 392 °F)

Max. process pressure (static)

at 20 °C: 40 bar (580 psi)

Thermometer

Accuracy

class A acc. to IEC 60751
class AA acc. to IEC 60751

Response time

depending on configuration
iTHERM QuickSens: $t_{90} = 1,5 \text{ s}$
iTHERM StrongSens: $t_{90} = 9,5 \text{ s}$

Integration head transmitter

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

Ex - approvals

ATEX
ATEX IECEx
FM
CSA
CRN
JPN
EAC
NEPSI
UKCA

Certification

SIL (transmitter only)

More information www.endress.com/TM411