

Modular iTHERM Thermometers

with hygienic design for the
Food & Life Sciences industries

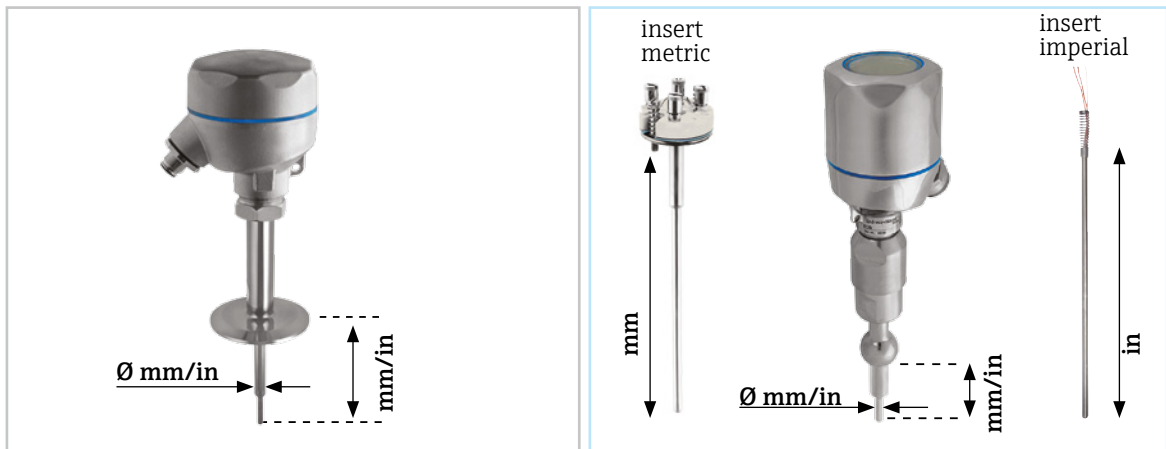
The optimal solution for every application

- iTHERM TM401/TM402:
High-quality basic technology at the best possible price
- iTHERM TM411/TM412:
Innovative advanced technology to meet highest requirements, optimized process control and best possible product quality
- Planning security due to suitable components for the entire measurement chain
- Metric and imperial design - suitable for your application



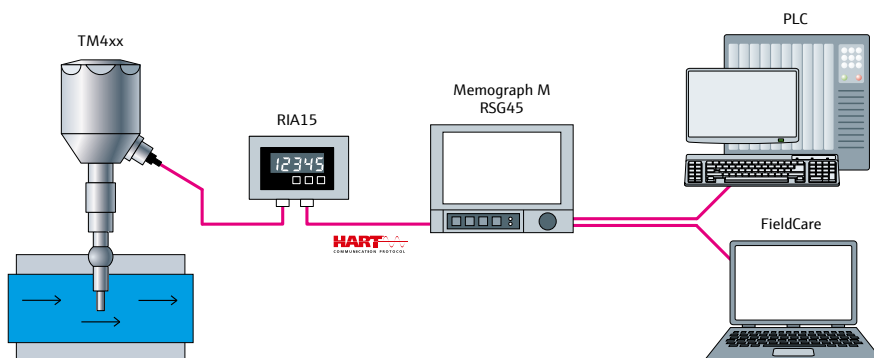
Endress+Hauser – Full basket supplier for each temperature measurement point

	BASIC TECHNOLOGY		ADVANCED TECHNOLOGY	
Device configuration	TM401 metric	TM402 imperial	TM411 metric	TM412 imperial
Insert	Not replaceable		Replaceable	
Transmitter	1-channel; no display		1- or 2-channel; plug-on display (optional)	
Ex-certificate	No		Yes	
Sensor	1x Pt100 standard thin film sensor		1x or 2x Pt100 standard thin film sensor 1x Pt100 iTHERM QuickSens 1x Pt100 iTHERM StrongSens 1x or 2x Pt100 wire wound	
Extension neck	Standard		Standard, optional iTHERM QuickNeck	



Thermometer models (examples) in basic and advanced technology, with and without replaceable insert.

Suitable components for the entire measurement chain:



Endress+Hauser offers a complete portfolio of optimally aligned components for the temperature measurement point – everything that is needed for a perfect integration of the measuring point into the complete plant. (application example)

Technical data

Type	iTHERM TM40x metric/imperial (basic technology)	iTHERM TM41x metric/imperial (advanced technology)
Measurement accuracy	Class A	Class A or AA
Response time	t ₉₀ : 7 s	t ₉₀ : 1.5 s
Protection class	IP69K	
Process temperature	-50 to +200 °C (-58 to +392 °F)	-200 to +600 °C (-328 to +1112 °F)
Mechanical construction		
Material, wetted parts	316L	<ul style="list-style-type: none"> 316L 1.4435+316L, delta-ferrite < 1%
Surface, wetted parts	<ul style="list-style-type: none"> 0.76 µm (30 µin) 0.38 µm (15 µin) 	<ul style="list-style-type: none"> 0.76 µm (30 µin) 0.38 µm (15 µin) - optionally electro-polished
Replaceable insert (thermowell)	No	Yes
Sensor	Standard thin film 1xPt100	<ul style="list-style-type: none"> Standard thin film (1x /2x Pt100) Wire wound - extended measuring range (1x/2x Pt100) iTHERM QuickSens - fastest response time (1x Pt100) iTHERM StrongSens - highest vibration resistance (1x Pt100)
Sensor connection	3-wire, 4-wire	
Extension neck	Yes	Yes, optional with iTHERM QuickNeck
Terminal head	<ul style="list-style-type: none"> Aluminum, low hinged cover Polypropylene, screwed cap Stainless steel, surface blasted iTHERM TA30R 	<ul style="list-style-type: none"> Aluminum, hinged cover: low/high/with display Polypropylene, screwed cover Polyamide, high hinged cover Stainless steel, surface blasted/polished iTHERM TA30R
Display	No	<ul style="list-style-type: none"> Head transmitter with plug-on display iTEMP TID10 (optional) TMT162 in field housing
Type of connection	Flying leads, ceramic block or 1-channel transmitter iTEMP (4 to 20 mA; HART®)	
		2-channel transmitter iTEMP (HART®, PROFIBUS® PA, FF)
Certificate/Conformity	EHEDG, 3-A, ASME BPE, FDA, TSE (Animal Fat Free Production), CRN	
Ex-approvals	No	Yes (ATEX, IEC, FM, CSA, NEPSI)
Calibrations	Factory calibration	<ul style="list-style-type: none"> Factory calibration Accredited according to IEC 17025 Sensor-Transmitter-Matching



Information partly depending on the configuration

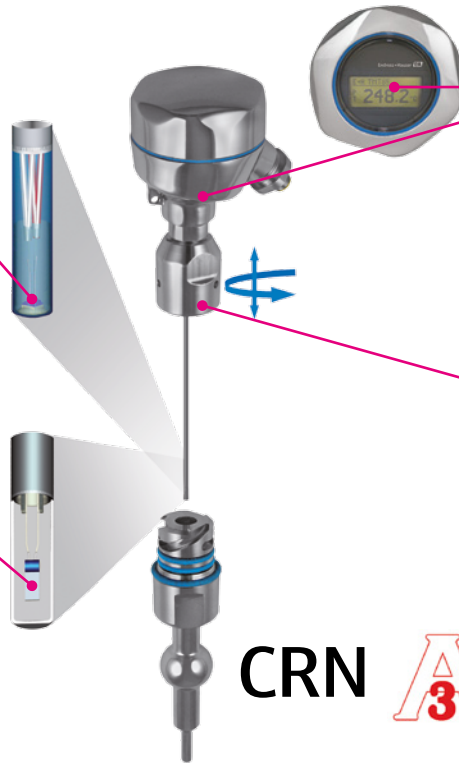
Innovative Temperature Measurement - E+H = °C

iTHERM QuickSens

Fastest response time (t_{90} : 1.5 s) for optimal process regulation

iTHERM StrongSens

Unsurpassed vibration stability (> 60g) for highest construction safety



iTHERM TA30R

New stainless steel terminal head: Safety and optimal protection by local process display and safety class IP69K

iTHERM QuickNeck

Cost and time savings due to tool-free and simple recalibration



Further documentation

- Competence brochure - Calibration of thermometers: CP004R
- Temperature Measurement - Thermometers and transmitters for the process industry: FA00006T
- System components - Solutions for the loop: FA00016K

Technical Information iTHERM hygienic, resistance thermometers:

- TM411, metric design: TI01038T
- TM412, imperial design: TI01348T
- TM401, metric design: TI01058T
- TM402, imperial design: TI01349T

Technical Information iTEMP temperature head transmitters:

- TMT180: TI088R
- TMT181: TI070R
- TMT182: TI078R
- TMT82: TI01010T
- TMT85: TI134R
- TMT84: TI138R

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