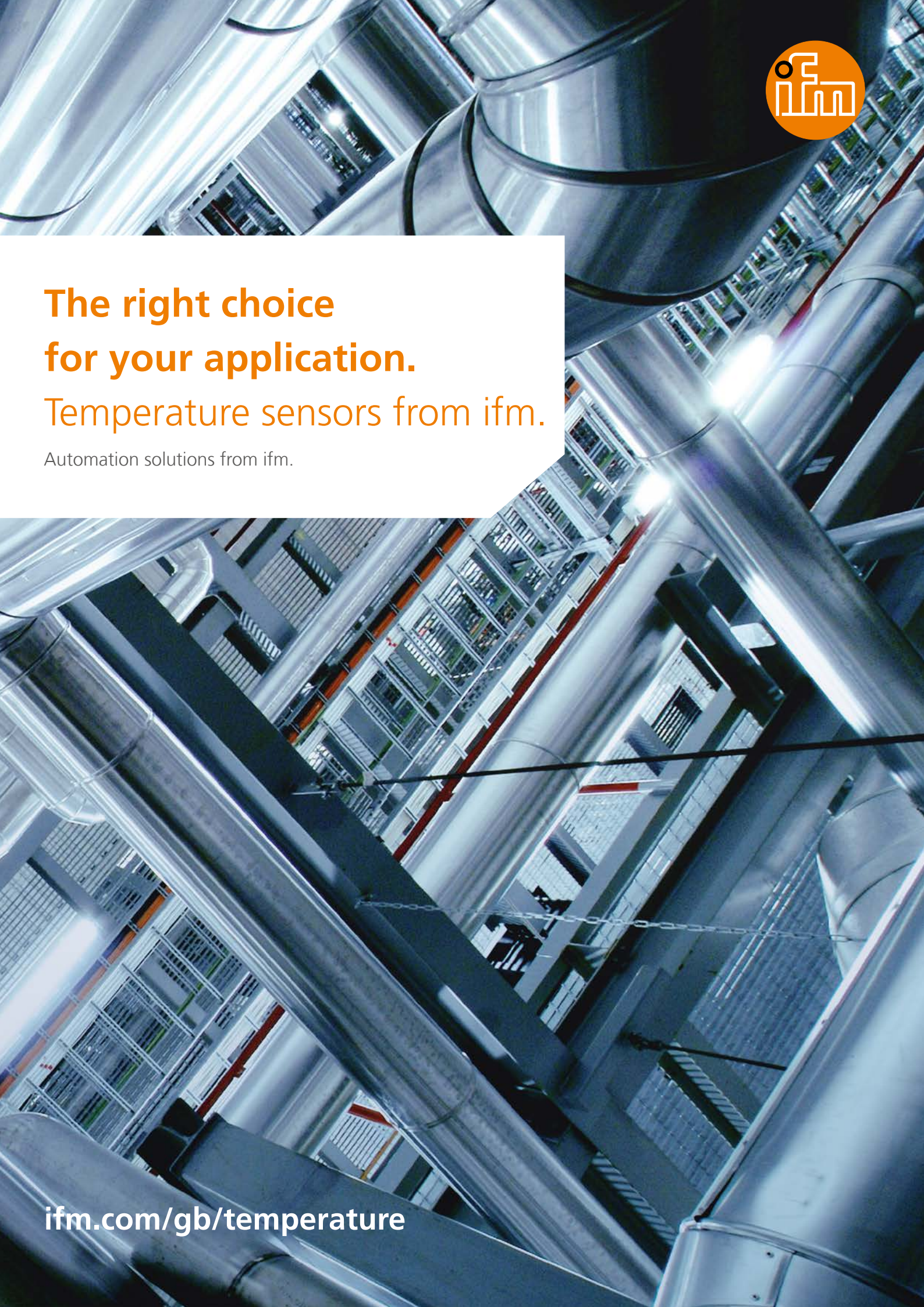


The right choice for your application.

Temperature sensors from ifm.

Automation solutions from ifm.

ifm.com/gb/temperature

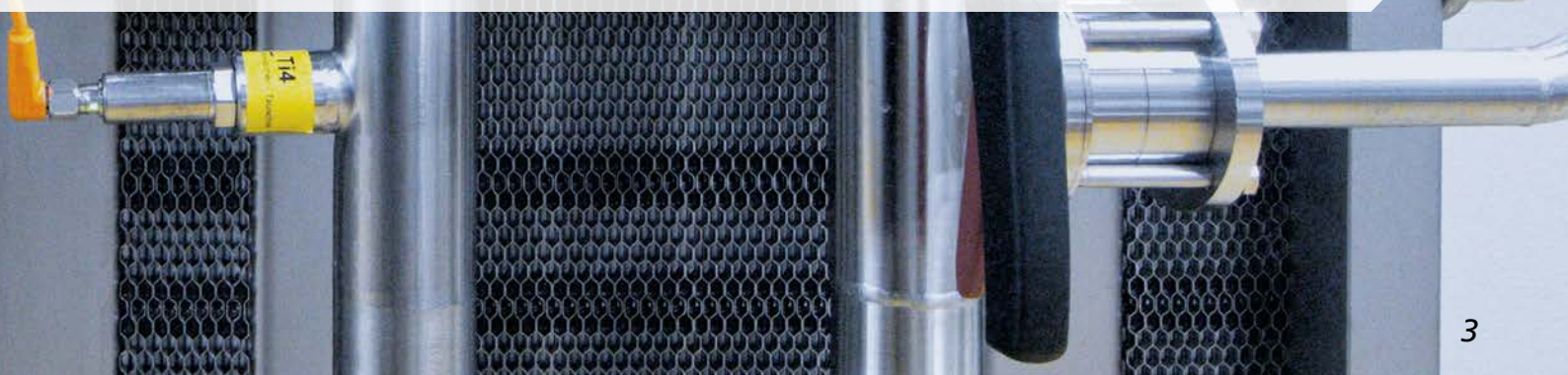
Systems for temperature monitoring. The optimum solution for every requirement.

Contents

Temperature sensors in contact with the medium

Without contact

Sensor type	Max. measuring range [°C]	Max installation depth [mm]	Display	One-piece design	Approvals	
TA	-50…150	150		√		4 – 9
TN	-50…150	150	√	√	UL	
TK	-20…140	250		√		
TV	-50…150	30		√		
TA / TU	-50…150	200	√		UL	10 –11
TM	-40…150	50		√		
TA	-50…200	350		√	EHEDG, 3A, FDA,	12 – 19
TD	-50…150	350	√	√	UL	
TCC	-25…160	450		√		
TA	-50…200	83		√	EHEDG, 3A, FDA, UL	14 – 15
TR					UL	
TP					UL	
TM	-40…150	250			EHEDG, 3A, FDA, UL	20 – 23
TS	-100…600	200			UL	
TT	-40…150	560			EHEDG, FDA, UL	
						24 – 27
TW	50…1350		√	√		28 – 29
TW (measurement)	-30…2500		√	√		
						30 – 31



The compact devices. Temperature sensors for industrial applications.

Communicative:
Temperature sensors with switching outputs or continuous transmission of measured values via IO-Link.

Convenient:
Switch point setting via setting ring (type TK) or via moneo software and IO-Link (type TV).

Precise:
High accuracy thanks to the adjustment of the PT element and the electronics.

Robust:
Pressure resistance up to 400 bar.

Flexible:
Different process connections and installation depths.

Type TK temperature sensor

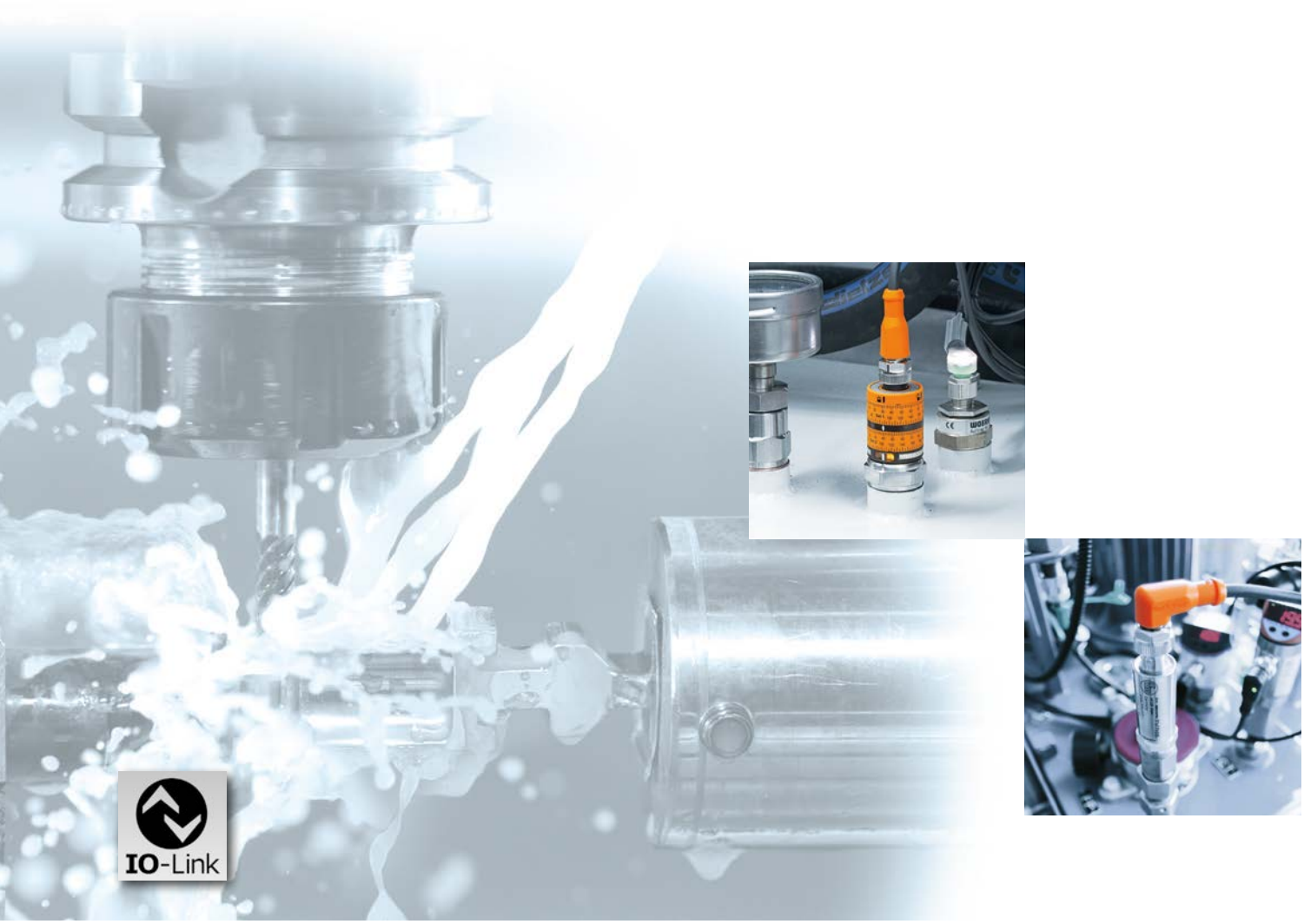
Easy adjustment of the switch points via two setting rings allowing optimum read-out.

Mechanical lock to prevent accidental adjustment.

T05 / T09: 1 / 3 s.

Accuracy [K]: ± 3.

Measuring range [°C]	Process connection	Installation depth [mm]	Order no.
Normally open / normally closed complementary			
-20...140	G 1/4	50	**TK6110**
2 x NO			
-20...140	G 1/4	50	**TK7110**
1 x NO / 1 x NC			
-20...140	G 1/2	250	**TK7460**



Type TV temperature sensor

Two solutions:
Continuous transmission of measured values via IO-Link and 2 switching outputs.

T05 / T09: 1 / 3 s.

Accuracy [K]: ± 0.3.

Measuring range [°C]	Process connection	Installation depth [mm]	Order no.
2 switching outputs			
-50...150	G 1/4	25	**TV7105**
	G 1/2	30	**TV7405**

Devices with NPT process connection and °F scaling at ifm.com

The compact devices. Temperature sensors for industrial applications.

Informative:
Temperature transmitter with current output, LED operating status indication and IO-Link.

Simple:
Preset measuring ranges configurable via moneo and IO-Link.

Precise:
High accuracy thanks to the adjustment of the PT element and the electronics.

Functional:
LED operating status indication signals voltage supply.

Robust:
Fully welded stainless steel housing for extreme installation conditions.

Type TA temperature transmitter

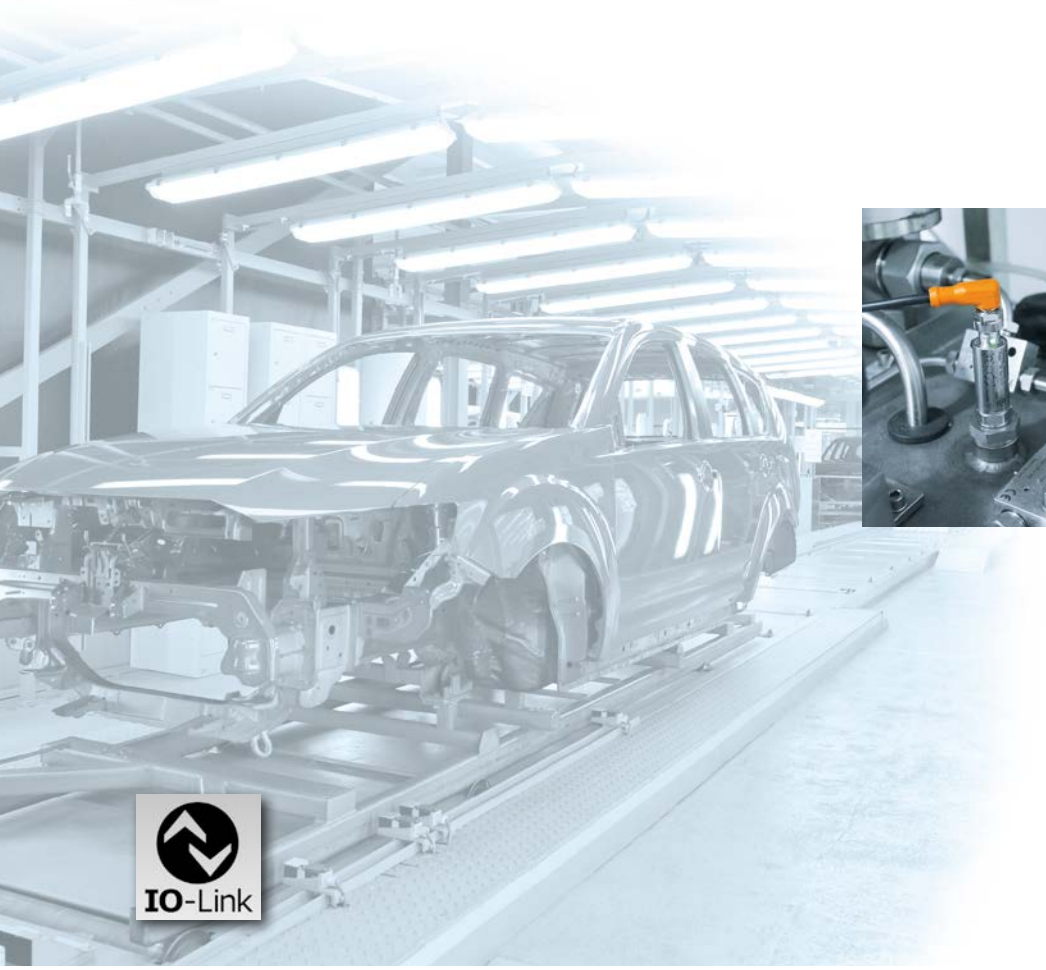
The stainless steel housing with a high protection rating is suited for applications in harsh industrial environments.

T05 / T09: 1 / 3 s.

Accuracy [K]:
± 0.3 + (± 0.1 % Ms).

Measuring range [°C]	Process connection	Installation depth [mm]	Factory setting [°C]	
			-50...150 Order no.	0...100 Order no.
Analogue output 4...20 mA				
-50...150	G 1/4	25	**TA2105**	
		50	**TA2115**	
		100	**TA2135**	
		150	**TA2145**	
	G 1/2	30	**TA2405**	
		50	**TA2415**	**TA2417**
		100	**TA2435**	**TA2437**
		150	**TA2445**	**TA2447**

Accessories
Process adapters, thermowells
See pages 22 – 25



Temperature sensors

Temperature is the physical variable most often measured in machines and installations.

In the food, beverage and pharmaceutical industries, temperature sensors are used to ensure that products are at the correct temperature. In machine tool and automotive applications, the temperature or temperature difference measured at drives, gears and motors plays an important role as an indicator of the machine condition. In the steel, metal and glass industries, temperature monitoring of cooling circuits serves to prevent overheating of plants.

A large selection of ifm temperature sensors is offered to suit different temperature ranges, installation depths, environmental conditions and media.

The compact devices. Temperature sensors for industrial applications.

Plug & play:
The one-piece design enables quick and flexible set-up.

Unmistakable:
Clear indication of acceptable ranges. Programmable red / green display.

Simple:
Setting via display and buttons on the device or via IO-Link.

Visible:
345° rotatability - for optimum readability.

Elaborate:
Fast access to the data sheet via QR code.

Type TN temperature sensor

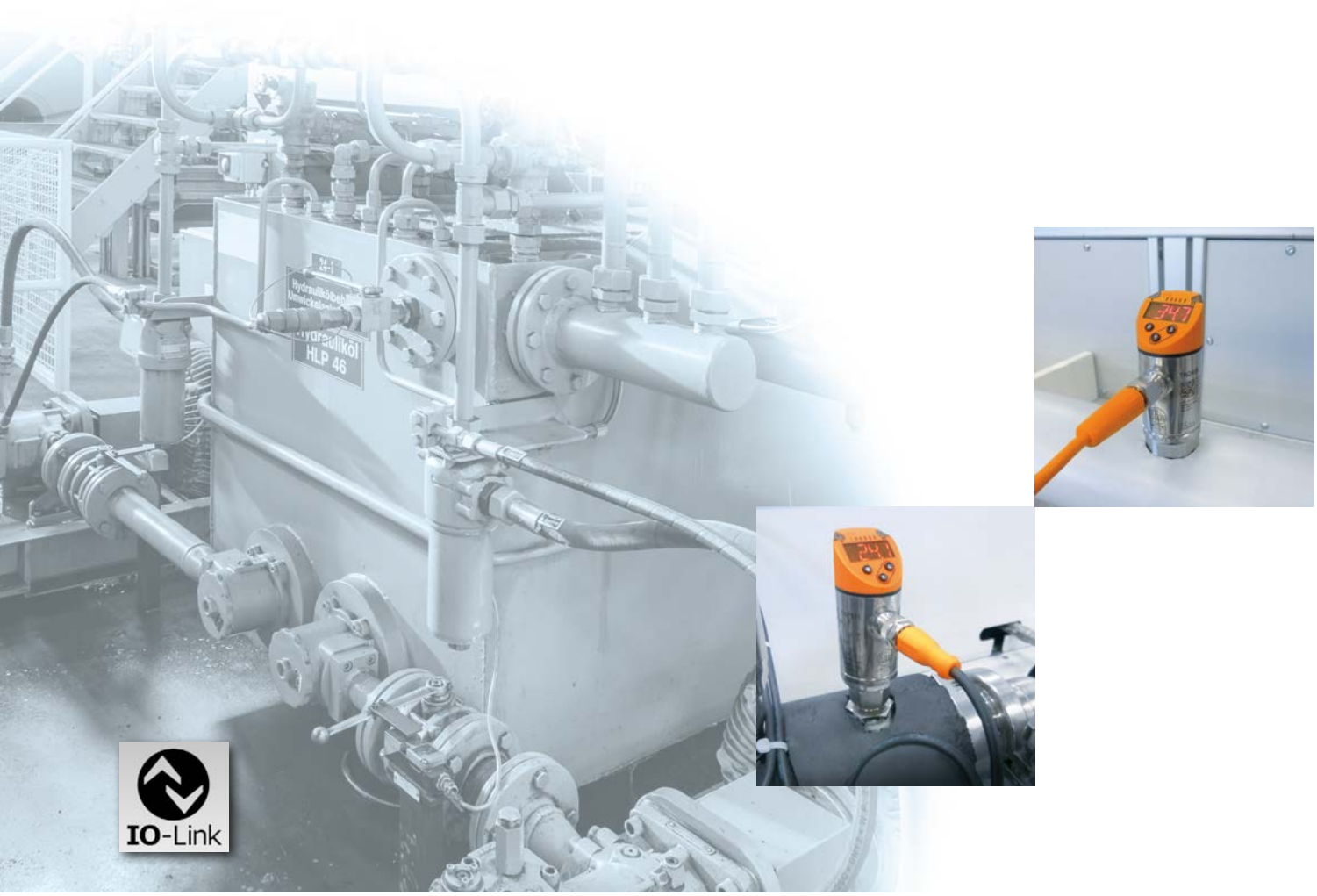
User-friendly setting with only 3 push-buttons and selectable colour display for easy handling.

T05 / T09: 1 / 3 s.

Accuracy [K]:
± 0.3 + (± 0.1 % Ms).

Measuring range [°C]	Process connection	Installation depth [mm]	Factory setting [°C] -40...150 Order no.
1 switching output and 1 analogue output 4...20 mA or 0...10 V			
-50...150	Internal thread M18 x 1.5	45	**TN2511**
2 switching outputs			
-50...150	Internal thread M18 x 1.5	45	**TN7511**

Accessories
Process adapters, thermowells
See pages 22 – 25



Measuring range [°C]	Process connection	Installation depth [mm]	Factory setting [°C] -50...150 Order no.
2 switching outputs or 1 switching and 1 analogue output 4...20 mA or 0...10 V			
-50...150	G 1/4	25	**TN2105**
		50	**TN2115**
	G 1/2	30	**TN2405**
		50	**TN2415**
		100	**TN2435**
		150	**TN2445**

Devices with NPT process connection and °F scaling at ifm.com

The compact devices. Temperature sensors for mobile applications.

Matching:
Temperature transmitters with current or voltage output or PT1000.

Versatile:
Connector versions M12, DEUTSCH and AMP selectable.

Economical:
Operating voltage from 8 V.

Robust:
Fully welded stainless steel housing and high pressure resistance of up to 400 bar.

Simple:
Plug and Play via preset measuring ranges.

Flexible:
Different process connections and installation depths.

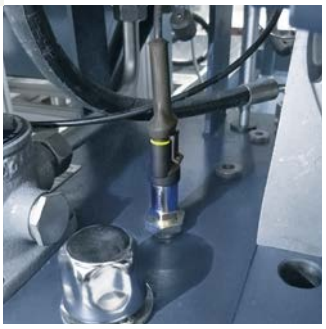
TA/TU-type temperature transmitters

Welded stainless steel housing perfectly adapted to mobile applications.

T05 / T09: 1 / 3 s.

Accuracy [K]:
± 0.3 + (± 0.1 % Ms).

Measuring range [°C]	Process connection	Installation depth [mm]	Connector	Order no.	Order no.
Analogue output				4...20 mA	0.5...4.5 V
		25	M12	**TA3105**	**TU3105**
		50	M12	**TA3115**	
		200	M12	**TA3155**	
-50...150	G 1/4	25	DEUTSCH	**TA4105**	**TU4105**
		50	DEUTSCH	**TA4115**	
		25	AMP	**TA5105**	**TU5105**
		50	AMP	**TA5115**	
0...100	SAE 6	25	DEUTSCH	/	**TU4707**



PT1000 with type TM process connection

Screw-in sensors without evaluation unit.

T05 / T09: 1 / 3 s.

Accuracy [K]: ± (0.15 + 0.002 x \|t\|).

Measuring range [°C]	Process connection	Installation depth [mm]	Connector	Order no.
PT1000				
-40...150	G 1/4	25	M12	**TM5101**
	G 1/2	50	M12	**TM5411**
	G 1/4	25	DEUTSCH	**TM6101**

Accessories
Process adapters, thermowells
See pages 22 – 25

The compact devices. Temperature sensors for hygienic applications.

Informative:
Temperature transmitter with current output, LED operating status indication and IO-Link.

Precise:
High accuracy thanks to temperature adjustment at three reference points.

Verified:
Free 3-point factory certificate available at www.factory-certificate.ifm

Extended:
Measuring range from -50 to 200 °C; preset measuring ranges configurable via IO-Link.

Flexible:
Adapter system for all common process connections such as Varivent, SMS or DIN11851 pipe fitting.

Type TA temperature transmitter

The stainless steel housing with a high protection rating is suited for applications in hygienic environments.

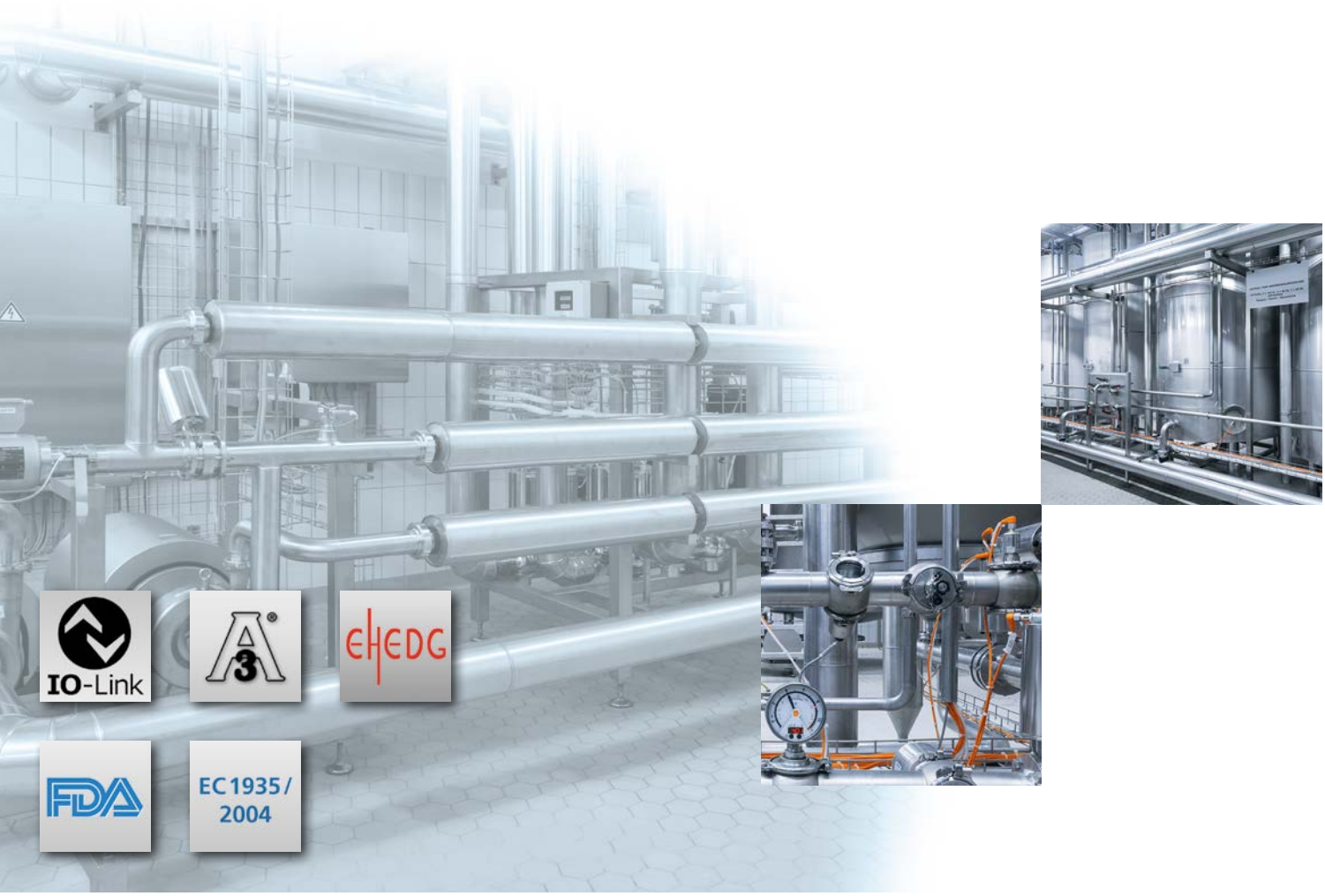
T05 / T09:
≤ 0.5 / ≤ 2 s.

Accuracy [K]:
± 0.3 + (± 0.1 % Ms).

Accessories
Process adapters, thermowells
See pages 22 – 25

Measuring range [°C]	Process connection	Installation depth [mm]	Factory setting [°C]		
			0...200 Order no.	0...100 Order no.	-10...150 Order no.
Analogue output 4...20 mA, probe Ø 6 mm					
-50...200	Ø 6 mm	50	**TA2212**		
		100	**TA2232**		
		150	**TA2242**	**TA2247**	**TA2241**
		250	**TA2262**		
		350	**TA2292**		
	G 1/2 with sealing cone	Flush mount		**TA3597**[1)]	
		30	**TA2502**		
		50	**TA2512**	**TA2517**	**TA2511**
		100	**TA2532**	**TA2537**	**TA2531**
		150	**TA2542**		
	Clamp 1/2 - 3/4"	25	**TA2002**		
		60	**TA2012**		
	Clamp 1 - 1.5"	30	**TA2802**		
		50	**TA2812**		
		100	**TA2832**		
		150	**TA2842**		

[1)] No IO-Link

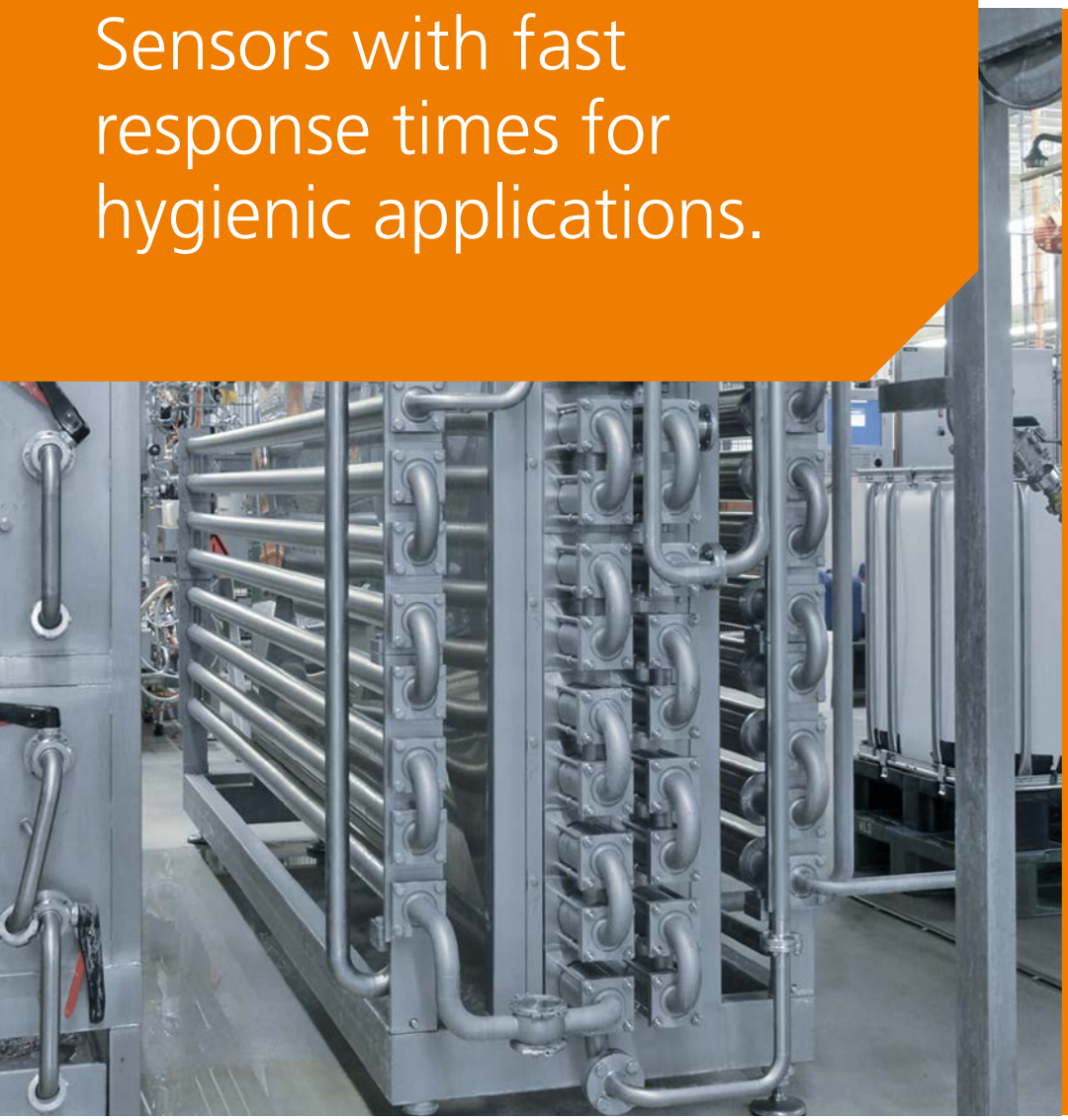


Did you know?

During calibration, the deviation of a measuring device from a reference device is determined and documented in a traceable manner. The regular calibration of a measuring device ensures the accuracy and reproducibility of the measurement data.

Learn more about temperature sensor calibration at ifm.com.

Sensors with fast response times for hygienic applications.



Performance:
Fast response times < 0.25 / < 1 s [T05/T09] allow precise temperature control.

Flexible:
Ideal for small nominal pipe diameters and confined installation spaces.

Hygienic:
Zero void adapters enable rapid and easy cleaning.

Verified:
Free 3-point factory certificate available online.

Type TA temperature transmitter

Due to the fast response time, the 3mm system ensures highest performance.

T05 / T09: < 0.25 / < 1 s.

Accuracy [K]: ± 0.3 + (± 0.1 % Ms).

Measuring range [°C]	Process connection	Installation depth [mm]	Factory setting [°C]		
			0...200 Order no.	0...100 Order no.	-10...150 Order no.
Analogue output 4...20 mA, probe Ø 3 mm					
-50...200	M12 x 1.5 with sealing cone	17	**TA1102**	**TA1107**	**TA1101**
-50...200	G 3/8[2)]	83	**TA1322**	**TA1327**	**TA1321**

[2)] Suitable for installation in thermowells

Measuring range [°C]	Process connection	Installation depth [mm]	Order no.
-50...200	G 1/8	15	**TA1602**
	G 1/8	25	**TA1612**

Accessories
Process adapters, thermowells
See pages 22 – 25

The compact devices. Temperature sensors for hygienic applications.

Informative:
Temperature transmitter with current output, display and IO-Link.

Robust:
Fully welded stainless steel housing protects against the ingress of moisture and prevents temperature drift.

Precise:
High accuracy thanks to temperature adjustment at three reference points.

Verified:
Free 3-point factory certificate available at www.factory-certificate.ifm

Flexible:
Further process connections available via a flexible adapter system.

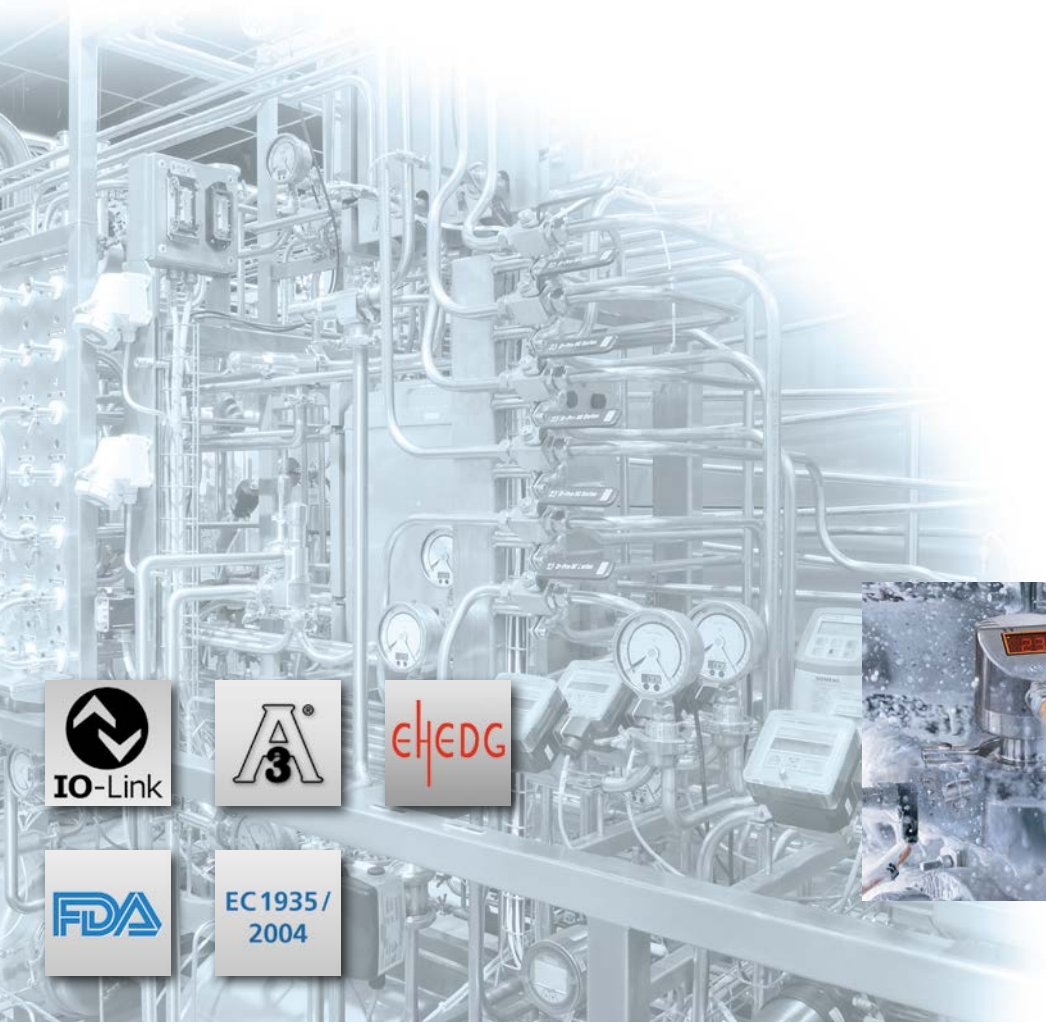
Temperature transmitter with type TD display

Compact design with a clearly visible 4-digit LED display.

T05 / T09: 1 / 3 s.

Accuracy [K]: ± 0.3 + (± 0.1 % Ms).

Measuring range [°C]	Process connection	Installation depth [mm]	Factory setting [°C]	
			-10...150 Order no.	0...100 Order no.
Analogue output 4...20 mA				
-50...150	Ø 6 mm	50	TD2211	TD2217
		100	TD2231	TD2237
		150	TD2241	TD2247
		200	TD2251	TD2257
		250	TD2261	TD2267
		300	TD2271	TD2277
		350	TD2291	TD2297
	G 1/2 with sealing cone	30	TD2501	TD2507
		50	TD2511	TD2517
		100	TD2531	TD2537
		150	TD2541	TD2547



Process connection	Installation depth [mm]	Factory setting [°C]	
		-10...150 Order no.	0...100 Order no.
Analogue output 4...20 mA			
Clamp 1 - 1.5"	30	**TD2801**	**TD2807**
	50	**TD2811**	**TD2817**
	100	**TD2831**	**TD2837**
	150	**TD2841**	**TD2847**
Clamp 2"	30	**TD2901**	**TD2907**
	50	**TD2911**	**TD2917**
	100	**TD2931**	**TD2937**
	150	**TD2941**	**TD2947**

Accessories
Process adapters, thermowells
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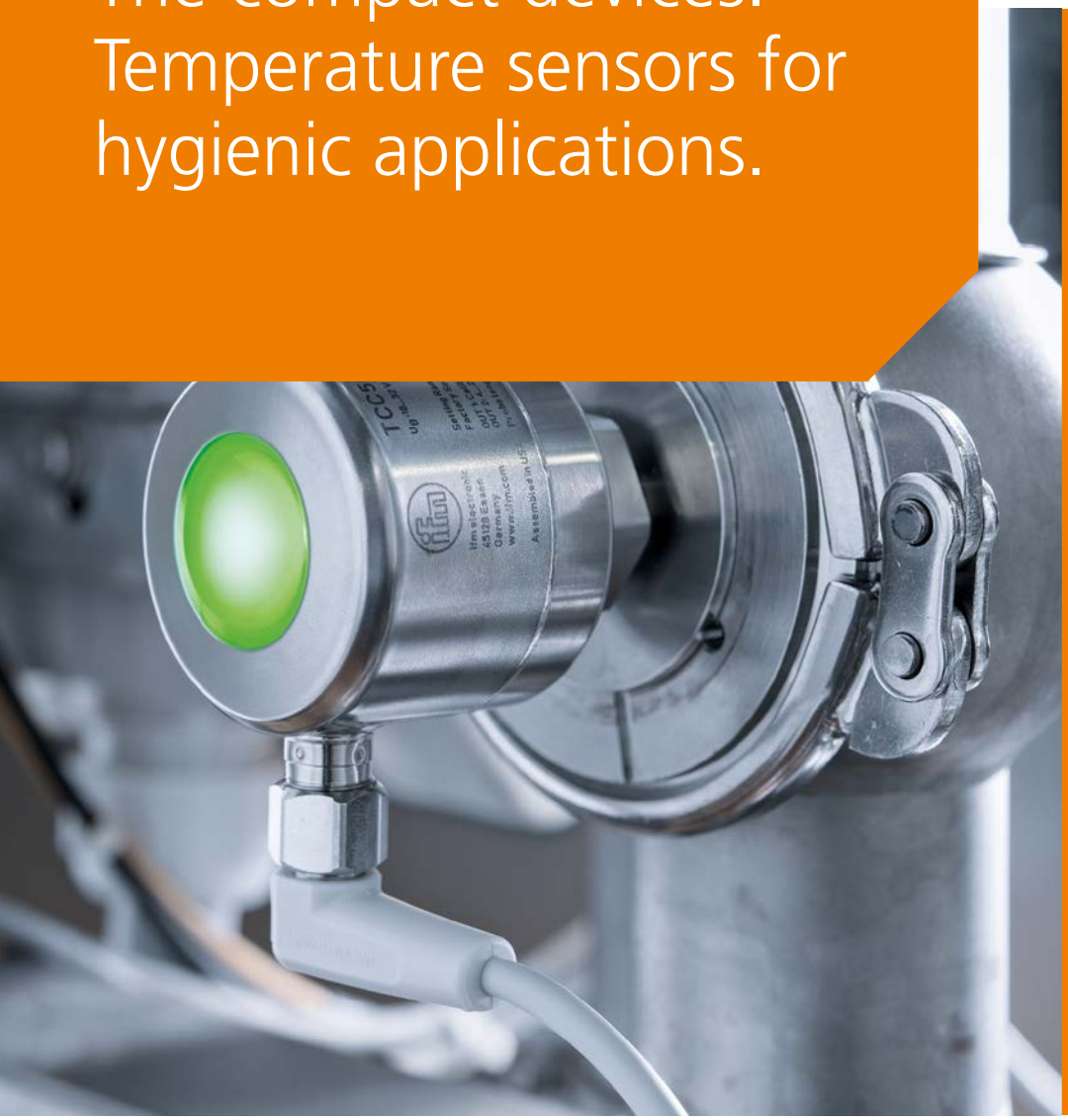
The compact devices. Temperature sensors for hygienic applications.



Unrivalled:
Integrated drift monitoring with two different resistance elements (PT and NTC: different characteristics for reliable drift detection).

Safe:
Permanent drift monitoring between the calibration intervals increases machine uptime and process safety.

Documented:
All process values (measuring element and reference element) can be logged via IO-Link (data logging).

Good to know:
Developed for standard as well as critical temperature processes (CCPs = critical control points).

Verified:
Free 3-point factory certificate available at www.factory-certificate.ifm

Self-monitoring type TCC temperature transmitter

The diagnostic function offers maximum safety for your temperature-sensitive processes.

T05 / T09: 1.5 / 4 s.

Accuracy [K]: +/-0.2.

Installation depth [mm]	Process connection			
	G 1/2 sealing cone Order no.	1 - 1.5" clamp Order no.	2" clamp Order no.	Ø 6 mm Order no.
Analogue output 4...20 mA				
30	**TCC501**			
50	**TCC511**	**TCC811**	**TCC911**	
100	**TCC531**	**TCC831**	**TCC931**	**TCC231**
150	**TCC541**			**TCC241**
250				**TCC261**
350				**TCC291**
450				**TCC281**
550				**TCC201**
1000	**TCC551**			

Learn more about the TCC:

Accessories
Process adapters, thermowells
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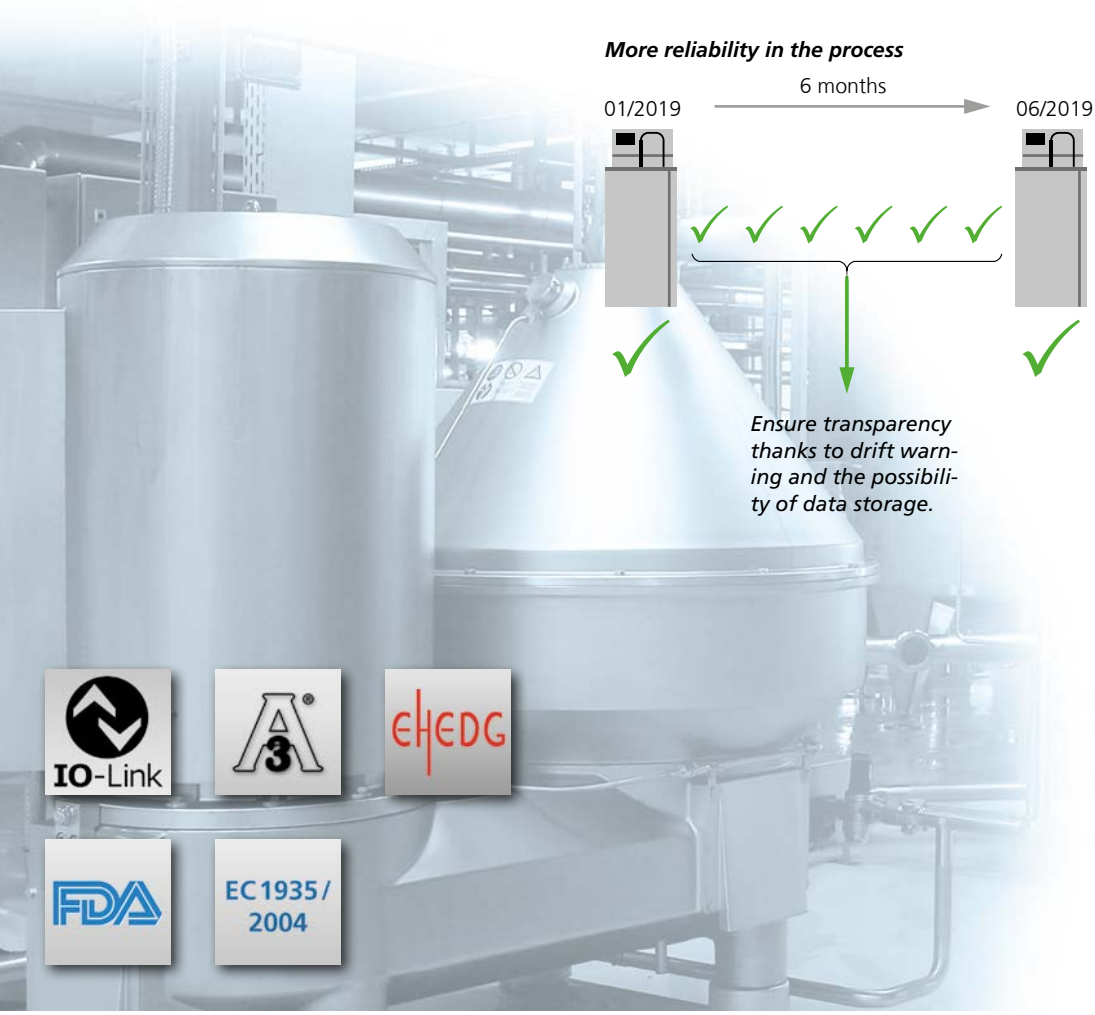
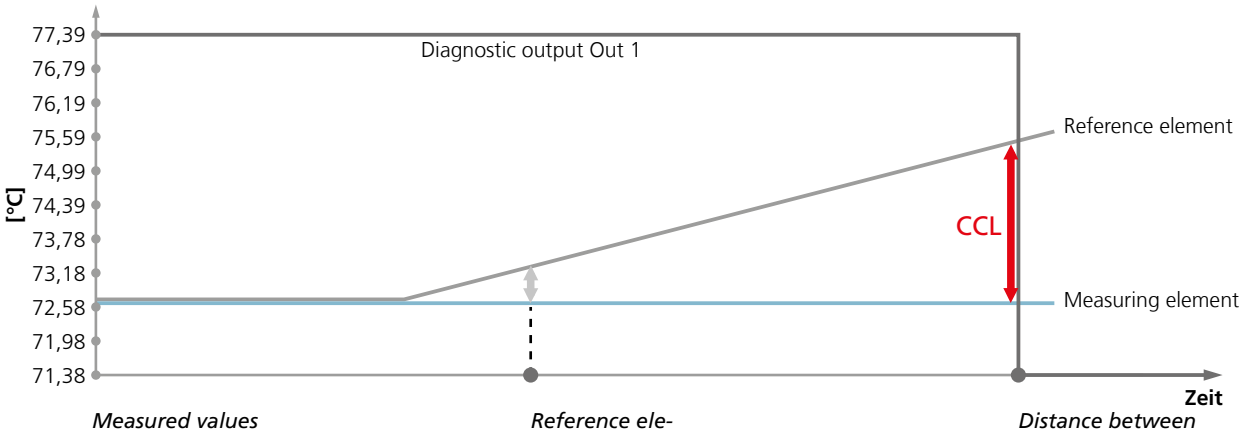


More reliability in the process

Ensure transparency thanks to drift warning and the possibility of data storage.

TCC immediately provides a warning / alarm message and ensures reliability in the process!

Example of function



Measured values stable.

Diagnostic output Out 1 has a high signal.

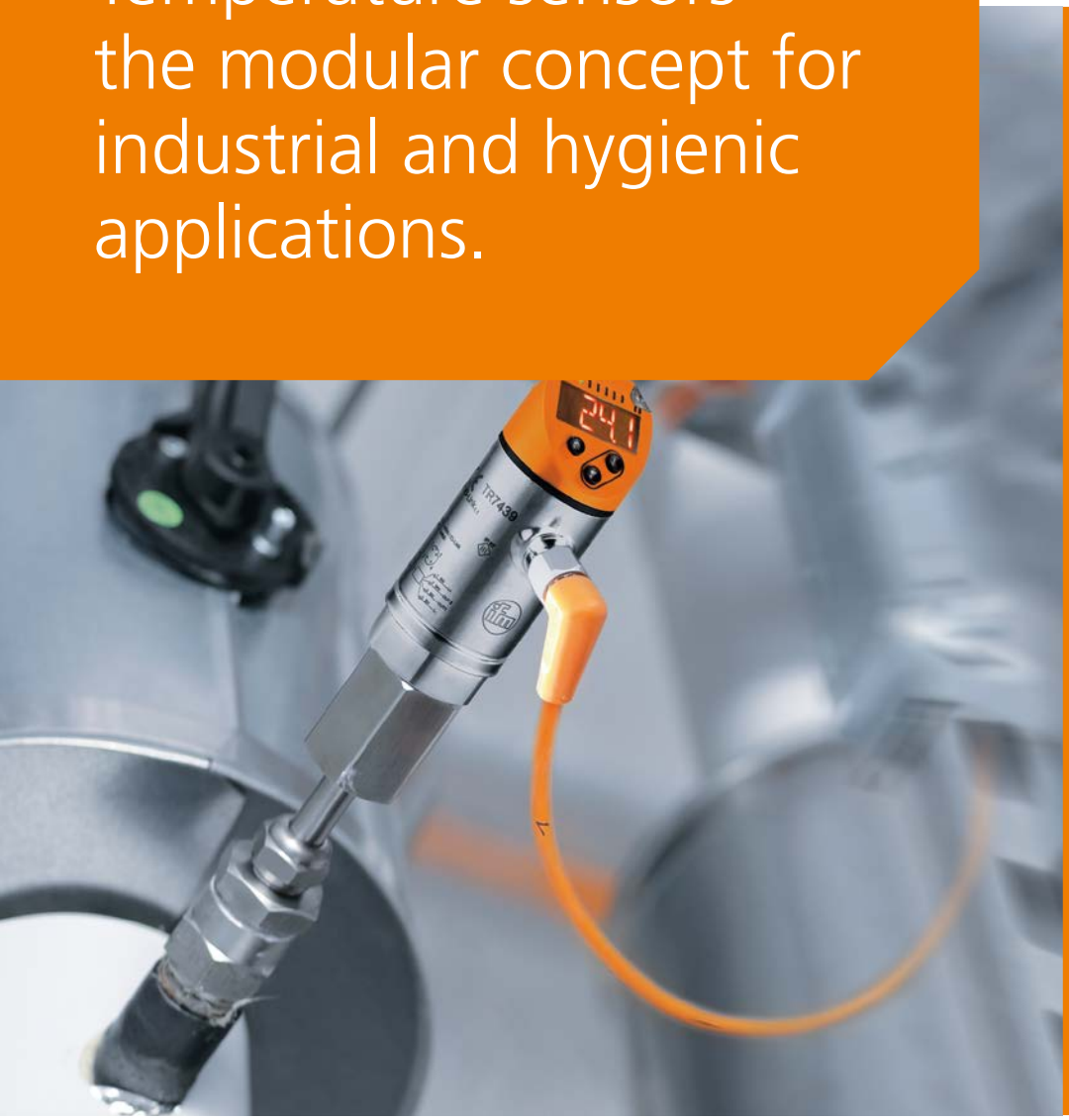
Reference element is below the defined warning threshold (CCL):

Diagnostic output Out 1 has a high signal.

Distance between reference and measuring element exceeds warning threshold (CCL).

Diagnostic output has a low signal.

Temperature sensors – the modular concept for industrial and hygienic applications.



Individual:
Configure your measurement system according to your requirements.

Matching:
Broad range of combination options.

Visual:
Evaluation units with or without colour display.

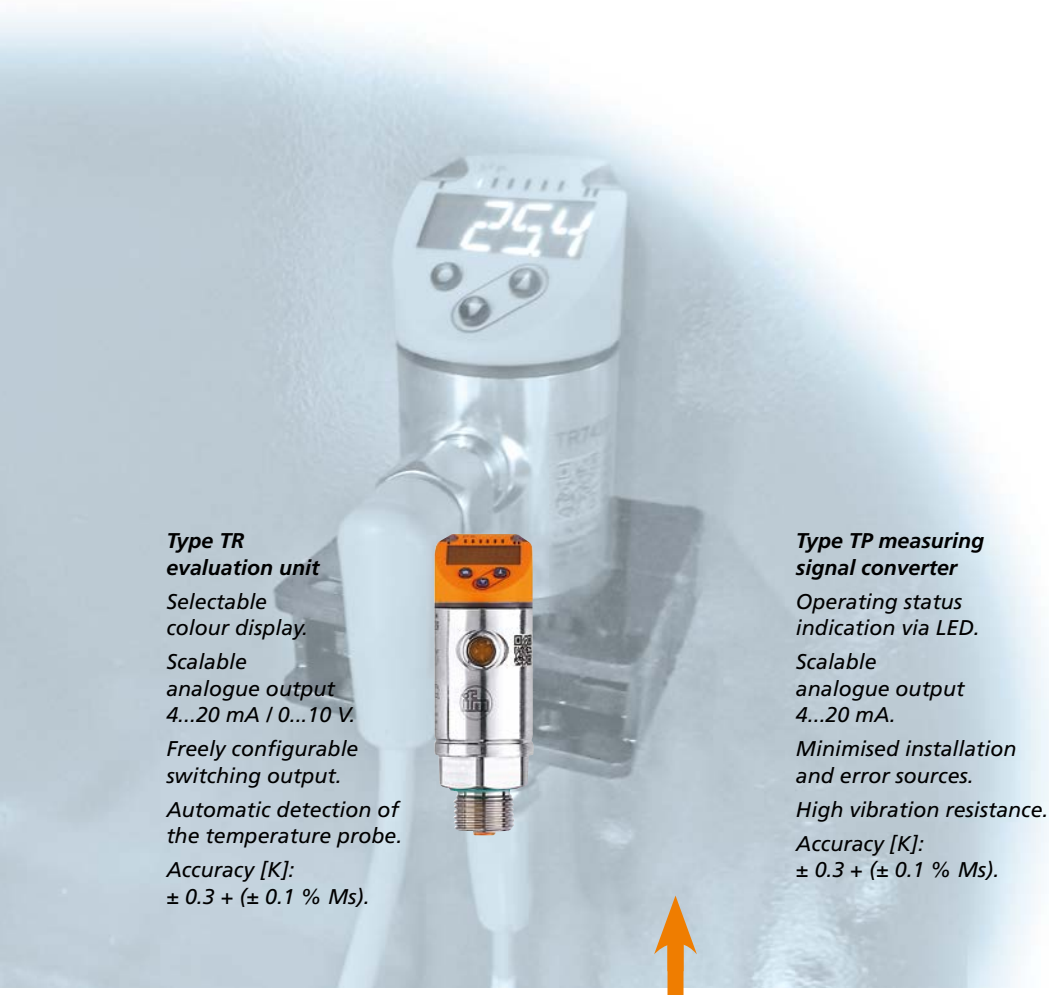
Flexible:
Different process connections and installation depths.

Far reaching:
Measuring ranges from -100 to 600 °C.

User-friendly:
Thermowells allow replacement of the sensors in the running process.

Want to find a suitable sensor online?
ifm.com

Accessories
Process adapters, thermowells
See pages 22 – 25



Type TR
evaluation unit

Selectable colour display.

Scalable analogue output 4...20 mA / 0...10 V.

Freely configurable switching output.

Automatic detection of the temperature probe.

Accuracy [K]: ± 0.3 + (± 0.1 % Ms).

Type TP measuring
signal converter

Operating status indication via LED.

Scalable analogue output 4...20 mA.

Minimised installation and error sources.

High vibration resistance.

Accuracy [K]: ± 0.3 + (± 0.1 % Ms).

Type TT
PT100 / PT1000
probe sensors

For industrial and hygienic applications.

Different installation lengths up to 560 mm.

Measuring probes Ø 6 und 10 mm.

Protection rating IP 67.

T05 / T09: 1 / 3 s.

Accuracy [K]: ± (0.15 + 0.002 x |t|).

Type TS
PT100 / PT1000
cable sensors

Measuring probes Ø 5, 6 and 10 mm.

Screw-in sensors in M5 and M6 sizes.

Bolt-on sensor for M6 and M10 screws.

Temperature probes for the ATEX zone.

Different cable materials.

Protection rating IP 67.

T05 / T09: 3 / 10 s.

Accuracy [K]: ± (0.15 + 0.002 x |t|).

Type TM
PT100 / PT1000 with
process connection

Industrial and hygienic process connections.

Different installation lengths up to 250 mm.

Measuring probe Ø 6 mm.

Accuracy class A.

Pressure resistance up to 160 bar.

High protection rating IP 68 / IP 69K.

T05 / T09: 1 / 3 s.

Accuracy [K]: ± (0.15 + 0.002 x |t|).

Temperature sensors – the modular concept for industrial and hygienic applications.

Type TR evaluation unit

Measuring range [°C]	1 switching
-100...600	
-100...600	

TR evaluation with E30017 mounting set on PT100 / PT1000 probe sensors type TT

Direct connection TR evaluation on PT100 / PT1000 cable sensors type TS

TR or TP evaluation with connection cable on PT100 / PT1000 sensors type TM, TT or TS

PT100 / PT1000 probe sensors type TT

Type TS cable sensors high temperature

Measuring range [°C]	Ø probe / installation depth [mm]	Order no.	Order no.
Applications		**Industry**	**Hygiene**
-40...150	6 / 50	**TT9281**	**TT9291**
	6 / 70	**TT7281**	
	6 / 100	**TT0281**	**TT0291**
	6 / 150	**TT1281**	**TT1291**
	6 / 200	**TT4281**	
	6 / 250	**TT2281**	**TT2291**
	6 / 300	**TT6281**	
	6 / 350	**TT3281**	**TT3291**
-40...150	10 / 160	**TT1081**	
	10 / 260	**TT2081**	
	10 / 360	**TT3081**	
	10 / 560	**TT5081**	
-40...150	6 / 160	**TT1250**[1)]	
	6 / 260	**TT2250**[1)]	
	6 / 360	**TT3250**[1)]	
-40...150	10 / 160	**TT1050**[1)]	
	10 / 260	**TT2050**[1)]	
	10 / 360	**TT3050**[1)]	
	10 / 560	**TT5050**[1)]	
Industrial applications			
-100...600	6 / 100	**TS2451**	
	6 / 150	**TS2452**	
	6 / 200	**TS2453**	
	6 / 250	**TS2454**	

[1)] PT1000 sensor element

PT100 / PT1000 cable sensors type TS

Still looking for more choice? For more articles see ifm.com

Factory setting [°C]	Process connection	Order no.
output and 1 analogue output 4...20 mA or 0...10 V		
-40...300	G 1/2	**TR2439**
2 switching outputs		
-40...300	G 1/2	**TR7439**

Type TP measured signal converter

Measuring range [°C]	Factory setting [°C]	Connection	Order no.
Analogue output 4...20 mA			
-50...300	-50...150	M12 connection	**TP3231**
	-50...300		**TP3232**
	0...100		**TP3237**
Analogue output 0...10 V			
-50...300	0...100	M12 connection	**TP9237**

Direct connection TP evaluation on PT100 / PT1000 probe sensors type TT, TS or TM

Process connection	Measuring range [°C]	Cable/ plug / length [m]	Order no.
Industrial applications			
Ø 5 mm ATEX	-20...80	Silicone / – / 3	**TS325A**
Ø 6 mm	-40...90	PUR / M12 / 2	**TS2289**
	-40...90	PUR / M12 / 2	**TS2269**[1]
	-40...90	PUR / M12 / 2,5	**TS9289**
	-40...90	PUR / M12 / 5	**TS5289**
	-50...250	PTFE / M12 / 0,15	**TS9256**[1]
	-50...250	PTFE / M12 / 2	**TS2256**
Ø 10 mm	-40...90	PUR / M12 / 2	**TS2089**
	-40...90	PUR / M12 / 2	**TS2069**[1]
	-40...90	PUR / M12 / 5	**TS5089**
	-50...250	PTFE / M12 / 2	**TS2056**
Bolt-on sensor 12 x 8.7 x 51 mm	-40...90	PUR / M12 / 2	**TS2229**
Bolt-on sensor 12.5 x 8.7 x 47 mm	-40...90	PUR / – / 2	**TS2239**
Bolt-on sensor ATEX 10 x 18 x 48 mm	-20...115	Silicone / – / 5	**TS502A**[1]
Bolt-on sensor ATEX 10 x 10 x 42 mm	-20...115	Silicone / – / 5	**TS522A**
M5 screw-in sensor	-40...90	PUR / M12 / 2	**TS2789**
	-40...90	PUR / M12 / 0,5	**TS9789**
	-30...180	Silicone / M12 / 2	**TS2759**
	-30...180	Silicone / – / 4	**TS4759**
	-30...180	Silicone / M12 / 10	**TS0759**
M6 screw-in sensor	-40...90	PUR / M12 / 2	**TS2689**
	-30...180	Silicone / M12 / 2	**TS2659**
M8 screw-in sensor	-20...115	Silicone / – / 2	**TS285A**

[1] PT1000 sensor element

PT100 with type TM process connection

Process connection	Measuring range [°C]	Installation depth [mm]	Order no.
Industrial applications			
G 1/4	-40...150	25	**TM4101**
	-40...150	25	**TM5101**[1]
G 1/2	-40...150	50	**TM4411**
	-40...150	50	**TM5411**[1]
	-40...150	100	**TM4431**
	-40...150	150	**TM4441**
	-40...150	250	**TM4461**
Internal thread M18 x 1.5	-40...125	60	**TM9950**
Hygienic applications			
G 1/2 with sealing cone	-50...140	Flush mount	**TM4599**
G 1/2 with sealing cone	-40...150	20	**TM4591**
	-40...150	30	**TM4501**
	-40...150	50	**TM4511**
	-40...150	100	**TM4531**
	-40...150	150	**TM4541**
Clamp 1 - 1.5"	-40...150	30	**TM4801**
	-40...150	50	**TM4811**
	-40...150	100	**TM4831**
	-40...150	150	**TM4841**
Clamp 2"	-40...150	30	**TM4901**
	-40...150	50	**TM4911**
	-40...150	100	**TM4931**
	-40...150	150	**TM4941**

[1] PT1000 sensor element

Accessories. Process adapters and thermowells for temperature sensors.

1 *Progressive ring fitting*

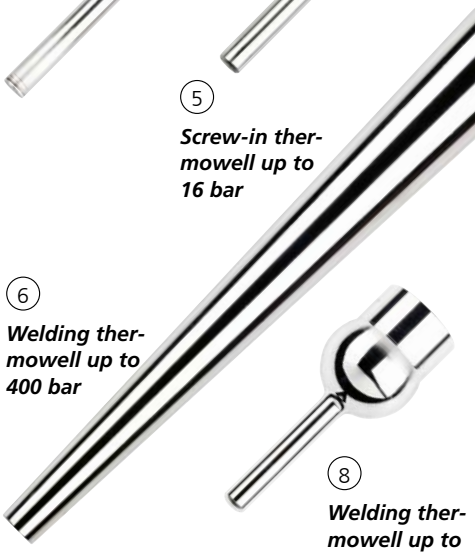
2 *Clamp fitting*

3 *Clamp adapter*

No.	Device connection	Process connection	Installation depth [mm]	Order no.	For sensor type			
Industrial applications								
4	G 1/4	G 1/4	27	**E37700**	TA2115	TN2115	TKx110	TT0281[1]
			74	**E37710**	TA2135			TT1281[1]
			124	**E37720**	TA2145			TT3281[1]
4	G 1/2	G 1/2	27	**E37600**	TA241x	TN2415	TM4411	TT0281[1]
			74	**E37610**	TA243x	TN2435	TM4431	TT1281[1]
			82	**E35010**				TT1081[4]
			124	**E37620**	TA244x	TN2445	TM4441	TT2281[1]
			174	**E37630**				TT2281[1]
			182	**E35020**				TT2081[4]
			224	**E37640**			TM4461	TT3281[1]
			274	**E37650**				TT3281[1]
			282	**E35030**				TT3081[4]
			482	**E35050**				TT5081[4]
5	Ø 6 mm	G 1/2	33	**E37603**	TA2212	TD221x		TT9281
			83	**E37613**	TA2232	TD223x	TCC231	TT0281
			128	**E37623**	TA2242	TD224x	TCC241	TT1281
			233	**E37643**		TD226x	TCC261	TT2281
			333	**E37663**		TD229x	TCC291	TT3281
Industrial applications / hygienic applications								
6	1/2 NPS[3]	Ø 38.1 mm	191	**E37430**		TD227x[1]		TT3281[1]
			267	**E37450**		TD229x[1]		TT3281[1]

4 *Screw-in thermowell up to 16 bar*

5 *Screw-in thermowell up to 16 bar*



6 *Welding thermowell up to 400 bar*

8 *Welding thermowell up to 300 bar*

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No.	Description	Device connection	Process connection	Order no.	For sensor type
Industrial applications					
①	Progressive ring fitting	Ø 6 mm	G 1/4	**E33431**	TA TD TT
			M12 x 1.0	**E33433**	TA TD TT
			G 1/2	**E30047**	TA TD TT
①	Progressive ring fitting	Ø 10 mm	G 1/2	**E30016**	TT
			1/2" NPT	**E30024**	TT
②	Clamping fitting	6 / 8 / 10 mm	G 1/2	**E30018**	TA TCC TD TS TT
			1/2" NPT	**E30025**	TA TCC TD TS TT
Hygienic applications					
③	Clamp adapter	Ø 6 mm	G 1/2 with sealing cone	**E30144**	TA TCC TD TT

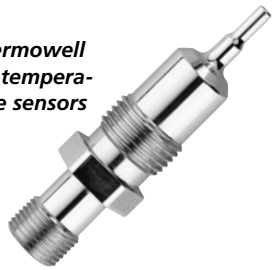
⑦ ***Screw-in thermowell up to 16 bar***

⑨ ***Clamp thermowell up to 25 bar***

No.	Device connection	Process connection	Installation depth [mm]	Order no.	For sensor type
Hygienic applications					
⑦	G 1/2 with sealing cone	G 1/2 with sealing cone	68	**E37511**	TA253x TD253x TM4531 TT1291[2)]
			118	**E37521**	TA2542 TD254x TM4541 TT2291[2)]
⑧	G 1/2 with sealing cone	Ø 34 mm	49	**E37411**	TA2512 TCC511 TD251x TM4511 TT0291[2)]
			99	**E37421**	TA253x TCC531 TD253x TM4531 TT1291[2)]
			149	**E37431**	TA2542 TCC541 TD254x TM4541 TT2291[2)]
⑨	1/2" NPS[3)]	Clamp 1 - 1.5"	64	**E37810**	TA243x TA2333 TD224x[1)] TM4431 TM4331 TT1291[1)]
			115	**E37820**	TA244x TA2343 TD225x[1)] TM4441 TM4341 TT2291[1)]
			191	**E37830**	TD227x[1)] TT3291[1)]
			267	**E37850**	TD229x[1)] TT3291[1)]
⑨	1/2" NPS[3)]	Clamp 2"	64	**E37910**	TA2435 TA2333 TD224x[1)] TM4431 TM4331 TT1291[1)]
			115	**E37920**	TA2445 TA2343 TD225x[1)] TM4441 TM4341 TT2291[1)]
			191	**E37930**	TD227x[1)] TT3291[1)]
			267	**E37950**	TD229x[1)] TT3291[1)]

In combination with [1)]adapter E30018 / E30047 / E33431, [2)]adapter E30144; [3)]suitable for G 1/2 and 1/2 "NPT
In combination with [4)]fitting E30016 / E30018

⑩ ***Thermowell for temperature sensors***



No.	Device connection	Process connection	Installation depth [mm]	Order no.
⑩	G 3/8"	G 1/2 with sealing cone	20	**E38505**
			30	**E38515**
		Clamp 1…1,5"	83	**E38825**
		Clamp 1/2…3/4"	83	**E38795**
		Welding adapter Ø 12 mm	83	**E38395**
		Welding adapter Ø 25 mm	83	**E38425**
		Ingold, Ø 12 mm	83	**E38826**

⑪

No.	Device connection	Process connection	Installation depth [mm]	Order no.
⑪	G 1/8"	Welding adapter Ø 18 mm	Tube wall thickness 1.25 mm	**E38827**
			Tube wall thickness 1.50 mm	**E38828**
			Tube wall thickness 2.00 mm	**E38829**
			Tube wall thickness 1.25 mm	**E38830**

Accessories.
Process adapters, connection cables and certificates for temperature sensors.

No.	Description	Device connection	Process connection	Order no.	For sensor type
	Stainless steel adapter	M18 x 1.5	G 1/2	**E30073**	TM TN
	Titanium adapter	M18 x 1.5	G 1/2	**E40114**	TM TN
(12)	Hastelloy adapter	M18 x 1.5	G 1/2	**E40175**	TM TN
	Brass adapter	M18 x 1.5	G 1/2	**E40097**	TM TN
	Plastic adapter	M18 x 1.5	Ø 23 mm	**E40138**	TM TN
(13)	Ball 24.7 mm	Ø 6 mm	Clamp adapter	**E30108**	TA TD TT
	Ball 25 mm	Ø 6 mm	Clamp adapter	**E30407**	TA TD TT

(12)

Adapter

(13)

Welding adapter

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Connection cable type EVC with M12 plug / socket (selection)

Connection cable type EVF with M12 socket (selection)

Plug / socket	Cable length [m]	Order no.
Industrial applications		
Straight / angled	1	**EVC017**
	5	**EVC019**
Angled / straight	1	**EVC027**
	5	**EVC029**
Angled / angled	1	**EVC032**
	5	**EVC034**
Straight / straight	1	**EVC012**
	5	**EVC014**
Hygienic applications		
Straight	5	**EVF001**
	10	**EVF002**
Angled	5	**EVF004**
	10	**EVF005**

(14)

Process adapters

No.	Description	Device connection	Process connection	Order no.	For sensor type
(14)	Metal-to-metal seal	G1 Aseptoflex Vario	Clamp 1 - 1.5"	**E33701**	
			DIN 11851 DN32	**E33711**	
			Varivent DN25	**E33721**	
			SMS DN40	**E33731**	
(14)	Sealing by O-ring	G1 Aseptoflex Vario	Clamp 1 - 1.5"	**E33201**	
			DIN 11851 DN32	**E33211**	
			Varivent DN25	**E33221**	
			DN/OD 33.7	**E33304**	
			DRD flange	**E33242**	
(14)	Metal-to-metal seal	G1/2 with sealing cone	Clamp 1 - 1.5"	**E33401**	TA TCC TD TM
			DIN 11851 DN25	**E43304**	TA TCC TD TM
			Varivent DN25	**E43306**	TA TCC TD TM
			SMS DN25	**E33430**	TA TCC TD TM
			G 3/4	**E43302**	TA TCC TD TM
			G1	**E43303**	TA TCC TD TM
(13)	Metal-to-metal seal	G1/2 with sealing cone	Ø 35	**E30055**	TA TCC TD TM TT[2)]
			Ø 45	**E30056**	TA TCC TD TM TT[2)]

In connection with: [2)]adapter E30144

Calibration and material certificates Description	Order no.
Declaration of compliance EN10204-2.1	**ZC0001**
Inspection certificate for material EN10204-3.1	**ZC0003[5)]**
3-point DAkkS calibration temperature sensors	**ZC0013**
5-point DAkkS calibration temperature sensors	**ZC0014**
n-point DAkkS calibration temperature sensors	**ZC0015**
3-point ISO calibration temperature sensors	**ZC0016**
5-point ISO calibration temperature sensors	**ZC0017**
n-point ISO calibration temperature sensors	**ZC0018**

[5)]Only available for selected article numbers

Infrared temperature sensors.

Without contact:
Exact temperature measurement even of objects that are difficult to access.

Far reaching:
For object temperatures of -30…2500 °C.

Informative:
Clearly visible display.

Targeted:
LED pilot light for alignment and control.

Precise:
Scratch-resistant precision lenses for minimum sensitivity to ambient light.

Type TW70xx temperature sensor

For the detection of objects (0...100%)

Measuring range [°C]	Wave length range [µm]	Order no.
Detecting system		
2 binary switching outputs		
50...500	8...14	**TW7000**[2]
250...1250	1...1.7	**TW7001**[2]
350...1350	1...1.7	**TW7011**[1][2]

[1] Sensor for fibre optics and measuring head
[2] No IO-Link

No.	Description	Order no.
1	Fibre optics 2 m	**E35061**
	Fibre optics 5 m	**E35062**
2	Measuring head	**E35060**

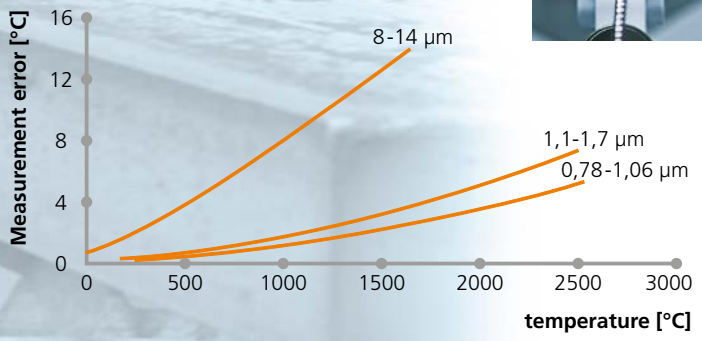
Type TW2xxx temperature sensor

For the measurement of objects (-30...2500 °C)

For more information, please refer to the operating instructions.

Selecting the optimum sensor

The optimum sensor is to be as short-wave as possible. The shorter the wavelength and the smaller the spectral range, the lower the impact of changes of the object's emission factor on the measurement.



Temperature measuring error depending on the temperature and the wave length at 1% change of the degree of emission

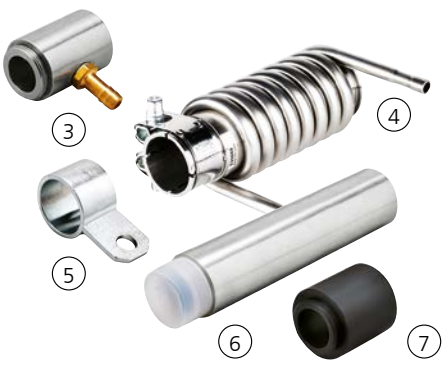
Measuring range [°C]	Wave length range [µm]	Order no. without LED pilot light	Order no. with LED pilot light
Measurement system			
Analogue output 4...20 mA and switching output			
-30...300	8...14	**TW2003**	
0...1000	8...14	**TW2000**	**TW2100**
250...1600	1...1.7	**TW2001**	**TW2101**
500...2500	0.78...1.06	**TW2002**	
300...1600	1...1.7	**TW2011**[3)]	

[3)] Sensor incl. fibre optics and measuring head

Accessories

Calibration certificates

No.	Description	Order no.
3	Air purge	**E35063**
4	Cooling jacket	**E35068**
5	Mounting bracket	**E35065**
6	Protective tube	**E35066**
7	Insulating tube	**E35067**
	Factory calibration sheet for infrared temperature sensors	**ZC0061**
	Recalibration for TW2xx infrared temperature sensor	**ZC0062**
	Recalibration for TW2002 infrared temperature sensor	**ZC0063**



Who says we can only do hardware?

moneo. The all-you-want software for industrial evolution.

One thing is clear: proper industrial digitisation begins with the sensor and extends into the IT structure. If you are already using IO-Link in your plant, you have taken the first important step towards more efficiency and less unplanned downtime. And you are ready for the second step. You are ready to get even more out of your plant with the help of simple and ingenious software.

Turning values into added value

With moneo, you can easily access the entire IO-Link network. And, thanks to the logical tree structure, you will have quick and efficient access to each individual sensor at any time. As soon as your IO-Link network is integrated into moneo, values will no longer be just separate pieces of information. moneo makes values useful and transforms them into added value. For example, you can continuously monitor the temperature of your production process and thus ensure the quality of your end product. The temperature can then be clearly displayed in the cockpit along with other relevant information. This gives you an overview of all the important values in your plant or process. If things become critical in your absence, for example because the temperature is outside the tolerances specified for the process or the vibration on a fan rotor is dangerously increasing, moneo will immediately alert and inform you by e-mail. This allows you to schedule maintenance in good time or optimise temperature regulation to keep things moving. In short: moneo will optimise your processes and ensure that they will be trouble-free.

A new kind of flexibility thanks to moneo

As you have seen, moneo leaves nothing to be desired. It is a great piece of software to begin with, but its actual extent will always depend on your specific requirements. You can, for example, simply begin with parameter setting and the cockpit function for one part of your plant and explore the possibilities of real-time maintenance later, when you are ready for the next step.

To put it in a nutshell: moneo offers the flexibility to simply grow with your requirements. The days of unmanageable, oversized and confusing software are over. It is time for simplicity, user-friendliness and ingenuity. It is time for moneo!

We love it when a plan comes together.

moneo|RTM: Temperature monitoring in a CIP plant

A CIP set is a process plant that undergoes cleaning in place (CIP). The temperature and duration of heating are decisive to achieve optimal cleaning results – comparable to the hot water cycle of a washing machine. The temperature sensors from ifm recording the temperature with the highest accuracy, you have a transparent view of your process at all times on the visualisation in moneo.

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