



## **Magnetic Surface Temperature Sensor TEF**

Screw-in resistance temperature sensor (Radio)



D-EN-TEF-20191001

- Measuring range  $-50^{\circ}\text{C}$  to  $+400^{\circ}\text{C}$
- Range up to 100 m
- Supply: Lithium-ion battery



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#### Applications

For use in the whole range of industrial application where measuring point and evaluation has to be bridged by radio. With distance configuration and evaluation software the temperature sensor TEF is also suitable for demanding applications.

#### Characteristics

Input	RTD PT100 (maximum range: -50...+400 °C)
Output	Radio transceiver
Voltage supply	Lithium-ion-battery-pack
Accuracy	approx. 0,2% FS
Process connection	Clamping magnet
Electrical connection	without / M12x1, 4-pole (charge, supply)
Radio range	50 m / 100 m
Temperature range	-20...+45...+60 °C (ambient)
Configuration	Factory setting
Material	Stainless steel 1.4571 (medium contact)
Protection	At least IP65

#### Important instructions!

Technical changes and errors reserved.

Pictures can be similar.

The operating instructions belonging to this device must be observed! Download at [www.schmidt-messtechnik.com](http://www.schmidt-messtechnik.com).

Technical data		
Input	Sensor	RTD Pt100, 4-wire
	Maximum range	-50...+400 °C
	Ranges	0...50, ...100, ...150, ...200, ...250, ...300, ...400 °C / -50...400, ...100, ...200 °C / -40...60 °C / -30...60, ...70, ...150, ...170 °C / -10...40, ...200 °C / -20...20, ...60 °C

D-EN-TEF-20191001



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Technical data				
<b>Output</b>	Input / output	Radio signal		
	Radio range	Antenna internally	50 m (on clear visibility)	
		Antenna externally	100 m (on clear visibility)	
	External antenna	Connection plug	SMA plug (female), built-in, optional)	
	Frequency	SRD-Band 868 MHz		
Modulation	FSK			
<b>Performance</b>	Sensor	RTD PT100	Class A	
	RTD module	Name	MS-RTD	
		Resolution	16 Bit, 0,1 °C	
		Measuring rate	8 measurements / s	
		Filter / damping	0...1 s	
		Accuracy	0,15% FS	
		Temperature coefficient	50 ppm/K	
		Internal Bus	I <sup>2</sup> C	
	Connection	in SIM-Slot		
	Radio module	Name	MS-RDI, MS-RDE	
		RF output power	Up to 5 dBm (approx. 3,2 mW)	
		Transmission rate	19,2 kb/s	
		Signaling	2 LED (red, green), visible under lens on top	
		Internal bus	I <sup>2</sup> C	
Connection		in SIM-slot		
<b>Supply</b>	Accumulator	Voltage	3,6 V	
		Capacity	2600 mAh	
		Type	Lithium-ion battery pack	
		Operating time	1 measurement/minute: approx 6 months 6 measurements/minute: approx 50 days	
	Charging and external supply	Voltage	24 VDC	
		Current	1 A maximum	
		Charging time	Approx. 2 hours	

D-EN-TEF-20191001



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Technical data				
<b>Power management</b>	Optimization	In factory		
	Radio module	Power consumption	14...24 mA (TX-mode) 0,8...7,5 µA (sleep mode)	
	RTD module	Power consumption	7 mA maximum (active)	
<b>Environmental conditions</b>	Temperature	Operating range	-20...+60 °C 0...+45 °C (charging of Accumulator)	
		Medium	-50...+400 °C	
		Storing	-20...+50 °C	
	Humidity	max. 80% rH at 20 °C		
<b>Mechanics</b>	Dimensions	See page 5		
	Process connection	1/4" / 3/8" / 1/2" / 3/4" / 1" / 1/4NPT / 3/8NPT / 1/2NPT		
	Extension	100 mm, temperature medium: up to 200 °C (option) 200 mm, temperature medium: up to 400 °C (option)		
	Electrical connection	without	Accumulator to replace	
		Option	M12x1, 4-pole, without accumulator	
		Option	M12x1, 4-pole (permanent supply, accumulator parallel and charging)	
	ON/OFF switch	On top, switching with magnet		
	Material	Protecting tube	Stainless steel 1.4571 (Standard 6mm)	
		Extension	Stainless steel 1.4571	
		Process connection	Stainless steel 1.4571	
		Lens	PMMA	
		Screw cap	PA6.6 GF30	
	Weight	Approx. 400 g (50 mm, 1/2", M12x1)		
	Fitting position	Any		
System pressure	PN 25			
Protection of device	Ingress protection: at least IP 65 (electronics)			
Conformity	ETSI-directive, EMC directive: 2014/30/EU			

D-EN-TEF-20191001




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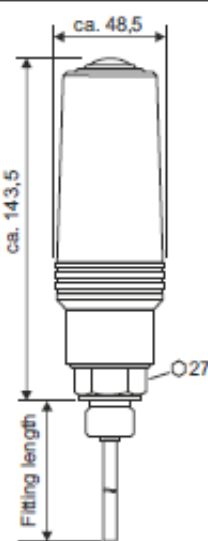
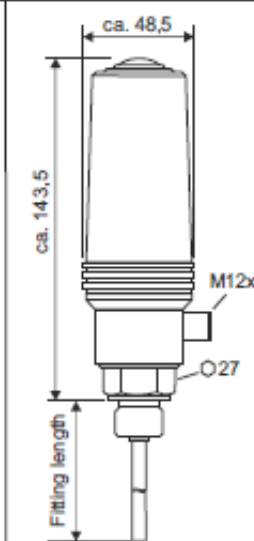
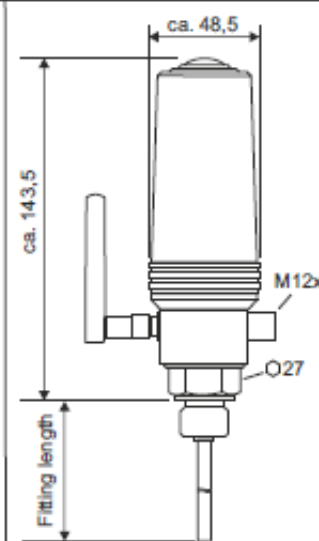
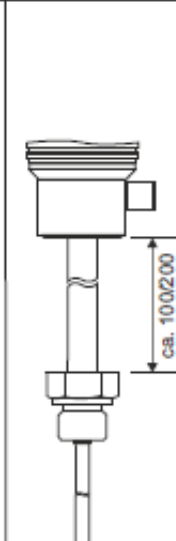
Technical data			
<b>Accessories</b>	USB transceiver	Name	USB-RC
		Connection	PC or notebook
		Use	Transmit-receive device Remote configuration and read out
		Range	100 m (free visibility)
		Frequency	SRD-band 868 MHz

### Electrical connection

Charging or permanent supply M12x1, 4-pole				
				
1 = +24 VDC 3 = -				

View: plug pins of male connector

### Dimensions (in mm)

Accumulator to replace	With plug M12x1 and internal antenna	With plug M12x1 and external antenna	Extension
			

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### Order code

		TEF C X X X X - X - X X X X X															
Input:	Pt100, 4-wire	1															
Sensor type:	Class A	1															
Range: <sup>1)</sup>	0...50 °C	1															
	0...100 °C	2															
	0...150 °C	3															
	0...200 °C	4															
	0...250 °C	5															
	0...300 °C	6															
	0...400 °C	7															
	-50...100 °C	8															
	-30...60 °C	9															
	-30...70 °C	A															
	-30...150 °C	B															
	-10...40 °C	C															
-20...20 °C	D																
-20...60 °C	E																
Protecting tube:	Ø6 mm	6															
	Ø6 mm with extension 100 mm	L															
	Ø6 mm with extension 200 mm	M															
Fitting length <sup>2)</sup>	50 mm	050															
	100 mm	100															
	200 mm	200															
	250 mm	250															
	400 mm	400															
	600 mm	600															
	1000 mm	A00															
Process connection:	1/4"	1															
	3/8"	2															
	1/2"	3															
	3/4"	4															
	1"	5															
	1/4NPT	7															
	3/8" NPT	8															
	1/2" NPT	9															
	Electrical connection:	without (accumulator to replace)	0														
M12x1, 4-pole, without accumulator		1															
M12x1, 4-pole (perm. supply, accumulator parallel and charging)		2															
Antenna:	Internally, 868 MHz	1															
	Externally, 868 MHz	2															
Configuration:	Factory setting <sup>3)</sup>	1															
	Customized (please specify)	2															
Custom model:	No	0															
	Yes (please specify)	1															

1) Other ranges: -30...170 °C = F / -10...200 °C = G / -40...60 °C = H / -50...200 °C = I / -50...400 °C = J  
 2) Other length see in price list (every 5 mm)  
 3) RTD Pt100, 4-wire, set range: -50...250 °C

D-EN-TEF-20191001