



Temperature Transmitter TEA

Screw-in Resistance Temperature Sensor HART



D-EN-TEA-20191023

- 4-20 mA output (HART)
- 2 configurable limit contacts
- Display: 7-digits, can be mirrored by 180°



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Characteristics	
Input	RTD PT100 (max. range -50...+250 °C)
Output	4-20 mA current loop HART (2-wire)
Voltage supply	Out of current loop (12...40 VDC)
Accuracy	See technical details
Process connection	Several options
Electrical connection	Several plugs
Temperature range	-20...+80 °C (ambient)
Limit value contacts	2 electronically (NPN / PNP)
Adjustment	Keys / software
Material	Stainless steel 1.4571 (medium contact)
Protection	At least IP65

Applications

For use in climating, ventilating and heating installations and the whole range of industrial application. With it's two configurable limit value contacts, the integrated display and the numerous electrical connections, the temperature sensor is also suitable for applications with higher requirements.

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.



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Technical data			
Input	Sensor	RTD PT100	-50...200 °C (minimum range: 50°C), 4-wire
Output	Current signal	4...20 mA with superimposed communication signal (HART), 2-wire current loop	
	Current range	3,8...20,5 mA	
	Signal on error	3,6 mA (sensor short circuit, underflow) 21 mA (sensor break, sensor open circuit, overflow)	
Performance	Sensor	RTD PT100	Class A / class B / class AA (B 1/3 DIN)
	Measuring amplifier	Accuracy	±0,3% of range
		Resolution	16 Bit
		Filter setting	0...99 s
		Transmission behaviour	Temperature linear
		Measuring rate	10 measurements/s
		Configuration	Keys on display / Via software (HART communication)
		Turn-on delay time	<5 s
		Response time	20 ms
	Indicator / limit values	Resolution	-9999...9999 digits
		Error of measurement	±0,2% of range, +/- 1 digit
		Temperature drift	100 ppm/K
		Features, operation	According to VDMA 24574-1 up to 24574-4
Programmable features	Measuring amplifier	Measuring range start (LRV) / Measuring range end (URV) / Adjustment, simulation of output current / Filter function Linear output signal / HART address / 2-point calibration	
	Display	range of indication / time of indication / decimal point / units / stabilisation of zero point / locking of programming / calibration points / TAG number	
	Limit value contacts	limit value 1 and 2 / hysteresis 1 and 2 / delay times 1 and 2	



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Technical data			
Indication	Display	7- segment, 8,5 mm, red, 4 digits, representation mirror-inverted 180° possible	
	Head of display	Rotatable approx. 330°	
	Memory	minimum / maximum values	
	Indication	- Measuring values – unit measurement – control menu	
	Decimal point	automatically or manually, dependent on measuring range / unit	
	Representation	xxxx / xxx.x / xx.xx / x.xxx	
Limit contacts	Electronically	2x PNP or NPN (30 VDC, 200 mA) Option: 2x PNP or NPN (30 VDC, 1000 mA)	
	Indication	1 LED for each limit value	
	Voltage across	<1 V	
	Settings	With 3 keys (TouchM-Technology)	
	Setting range	Switch point and hysteresis: any value within measuring range	
	Switching delay	0,0...999,9 s	
	Failsafe function	adjustable	
	Galvanical insulation	Switching outputs are separated from measuring amplifier	
Supply	Voltage	HART current loop: 12...40 VDC	
	Load	$R = (U_B - 12 \text{ V}) / 21 \text{ mA}$	
	Reverse battery protection	available (no function, no damage)	
Environmental conditions	Temperature	Operating range	-20...+80 °C
		Please note: Temperatures over +85 ° C can destroy the electronics.	
		Medium	-50...+250 °C
		Storing	-40...+100 °C
	Condensation	uncritical	
Mechanics	Dimensions	See page 6	
	Process connection	1/4" / 3/8" / 1/2" / 3/4" / 1" / 1/4NPT / 3/8NPT / 1/2NPT	
	Extension	100 mm (option)	
	connection	See page 6	



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Technical data			
Mechanics	Material	Protecting tube	Stainless steel 1.4571 (standard 6x0,5 mm)
		Extension	Stainless steel 1.4571
		Process connection	Stainless steel.4571
		Body	PBT GF30
		Head of display	polycarbonate (Makrolon)
	Weight	Approx. 150 g (70 mm, 1/2", M12)	
	Fitting position	Any	
	System pressure	PN 25	
	Protection of device	Ingress protection	At least IP65 (electronics)
		PCB	potted

Connection M12x1 (Example)

Assignment plug M12x1, 8-pole				
Current loop 4...20 mA HART + 1 - 3	Electronical limit value contacts 2 4 5	Shielding 8		



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Electrical connection

M12x1	Super Seal	Deutsch	Deutsch	Bayonet	Valve	MIL	Cable
							
4-, 5-, 8-pole	3-pole	3-pole	4-pole	4-pole	4-pole	6-pole	6-pole

Connection	M12 4-pole	M12 5-pole	M12 8-pole	Bayonet 4-pole	Deutsch 4-pole	Deutsch 3-pole	Super Seal 3-pole	Valve 4-pole	MIL 6-pole	Cable 6-pole
Limit value (LV)										
1 electronical LV	X	X	X	X	X			X	X	X
2 electronical LV	X	X						X	X	

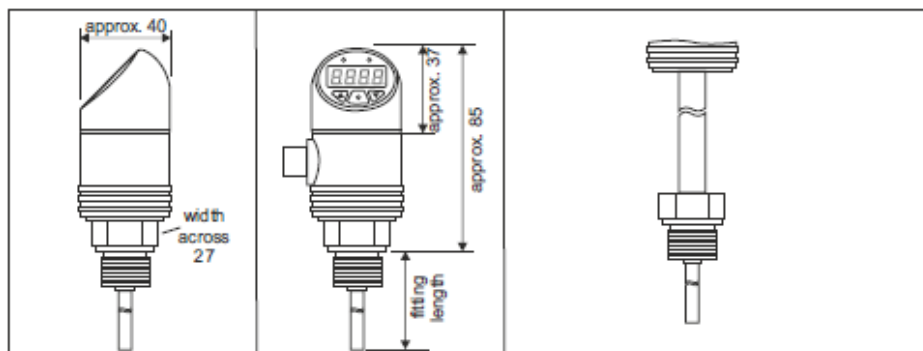
HART Communication

HART tool is a graphical user interface for this series with menu-driven program for configuration. It can be used for putting into operation, configuration, analysis of signals, data backup and documentation of the device. Operating systems: Windows 2000, Windows XP, Windows 7, 8.1 and 10. Connection via HART interface (modem) with USB interface of a PC or hand-held HART communicator.

Settings:

- Adjustment of output current
- Simulation of output current
- Filter function
- Limits of measuring range
- Linear output signal
- HART address
- 2-point calibration

Please note: When using communication via HART modem, a communication resistance of 250 Ω has to be taken into account.





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Ordering code

TEA		X	X	X	X	X	X	-	X	X	X
Input:	RTD Pt100, 4-wire	0									
Sensor type:	Class A	0									
	Class B	1									
	Klasse AA (B 1/3 DIN)	3									
Thermowell:	Ø6x0,5 mm	0									
	Other well (please specify)	1									
	Ø6x0,5 mm with extension 100 mm	2									
	Other well with extension 100 mm (please specify)	3									
Fitting length:	50 mm	0									
	100 mm	1									
	200 mm	2									
	250 mm	3									
	400 mm	4									
	600 mm	5									
	1000 mm	6									
	Other length (please specify)	7									
Process connection:	1/4"	0									
	3/8"	1									
	1/2"	2									
	3/4"	3									
	1"	4									
	1/4NPT	5									
	3/8" NPT	6									
	1/2" NPT	7									
Limit value contacts:	2x PNP, 30 VDC, 200 mA (standard)	0									
	1x PNP, 30 VDC, 200 mA	1									
	Without	2									
	2x NPN, 30 VDC, 200 mA	3									
	1x NPN, 30 VDC, 200 mA	4									
	2x PNP, 30 VDC, 1000 mA	5									
	1x PNP, 30 VDC, 1000 mA	6									
	2x NPN, 30 VDC, 1000 mA	7									
	1x NPN, 30 VDC, 1000 mA	8									
Electrical connection:	M12, 4-pole	0									
	M12, 5-pole	1									
	M12, 8-pole	2									
	Deutsch DT04, 3-pole	3									
	Deutsch DT04, 4-pole	4									
	Super Seal 1.5, 3-pole	5									
	Bayonet (DIN), 4-pole	6									
	Valve plug, 4-pole	7									
	Cable, 6-pole	8									
	MIL, 6-pole	9									
Configuration:	Factory setting ¹⁾	0									
	Customized (please specify) ²⁾	1									
Other:	Special model	0									

- 1) Normal measuring range: -50...200 °C (LRV...URV) / Damping: 0 s, RTD PT100, 4-wire / limit values: 40% - 80%
 2) All settings possible according to Technical data can be selected. For values not selected factory settings will be chosen.

Accessories

Interface HART, USB, software

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