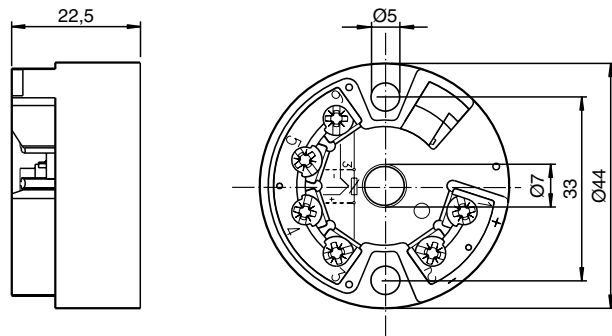


Temperature head transmitter



Dimensions



HUT



Features

- 2-, 3- and 4-wire technology, 4 mA ... 20 mA analog output
- High accuracy in total ambient temperature range
- Universally PC programmable for various signals
- Fault signal on sensor break or short circuit, presettable to NAMUR NE43
- Online configuration during measurement using SETUP connector
- Customer specific linearization
- EMC acc. to NAMUR NE 21

Function

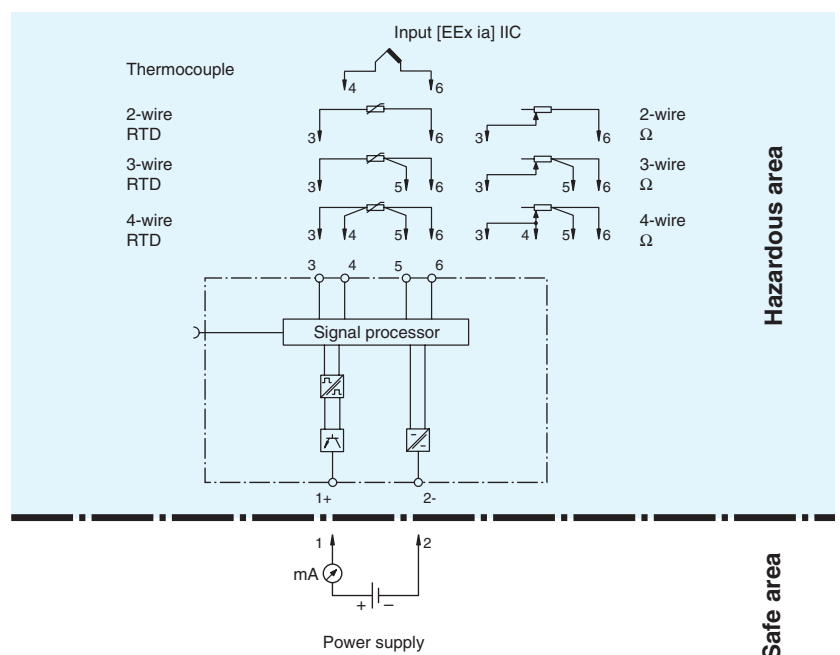
The temperature head transmitter linearises the signal from resistance thermometers and thermocouples and provides a 4 mA ... 20 mA current output. The input circuit is galvanically isolated from the output circuit.

The device is intrinsically safe in accordance with EEx ia IIC. The temperature head transmitter may be configured in situ with a programming socket to operate over the desired temperature range with a Pt100, Pt500, Pt1000, Ni100, Ni500, Ni1000 or with a thermocouple type B, C, D, E, J, K, L, N, R, S, T or U.

Setting up of the transmitter is done using the TXU10L configuration kit.

The transmitter is polarity protected and will not be damaged by connecting the power supply with the wrong polarity. The maximum load in the output loop depends on the supply voltage.

Electrical connection



Technical data

Temperature head transmitter HUT

Supply	
Connection	terminals 1, 2
Rated voltage	8 ... 35 V DC 8 ... 30 V DC for hazardous area
Input	
Sensor types	resistance thermometer (RTD): - Pt100, Pt500, Pt1000 acc. to IEC 751 and Ni100, Ni500, Ni1000 acc. to DIN 43760 resistance transmitter (Ω) thermocouple (TC): - B (PtRh30-PtRh6), C (W5Re-W26Re), D (W3Re-W25Re), E (NiCr-CuNi), J (Fe-CuNi), K (NiCr-Ni), L (Fe-CuNi), N (NiCrSi-NiSi), R (PtRh13-Pt), S (PtRh10-Pt), T (Cu-CuNi), U (Cu-CuNi), MoRe5-MoRe41 acc. to IEC 584, part 1 voltage transmitter (mV)
Connection	resistance thermometer (RTD): - 2-wire connection: terminals 3, 6 - 3-wire connection: terminals 3, 5, 6 - 4-wire connection: terminals 3, 4, 5, 6 resistance transmitter (Ω): - 2-wire connection: terminals 3, 6 - 3-wire connection: terminals 3, 5, 6 - 4-wire connection: terminals 3, 4, 5, 6 thermocouple (TC): terminals 4, 6
Cold junction compensation	internal (Pt100) or external (0 ... 80 °C (273 ... 353 K)), accuracy ± 1 K
Line resistance	resistance thermometer (RTD): $\leq 11 \Omega$ per lead
Current	resistance thermometer (RTD): sensor current ≤ 0.6 mA thermocouple (TC): sensor current 30 mA
Output	
Connection	terminals 1, 2
Current limit	≤ 25 mA
Load	$(V_s - 8)/0.025$ A
Switch-on delay t_{on}	4 s , during power up $I_a = 3.8$ mA
Output signal	4 ... 20 mA, 20 ... 4 mA temperature linear, resistance linear, voltage linear
Residual ripple	$U_{pp} \leq 5$ V at $U_b \geq 13$ V, $f_{max} = 1$ kHz
Response time	1 s
Self current consumption	≤ 3.5 mA
Signal on alarm	measuring range undercut: linear drop to 3.8 mA exceeding measuring range: linear rise to 20.5 mA sensor breakage, sensor short circuit: ≤ 3.6 mA oder ≥ 21.0 mA can be set up
Electrical isolation	
Input/output	safe electrical isolation acc. to EN 50020, 3.75 kV AC
Performance characteristics	
Reference operating conditions	calibration temperature 23 °C (296 K) ± 5 K
Maximum measured error	resistance thermometer (RTD): 0.2 ... 0.5 K or 0.08 ... 0.2 % resistance transmitter (Ω): ± 0.1 ... 1.5 Ω or 0.08 ... 0.12 % thermocouple (TC): typ. 0.5 ... 2.0 K or 0.08 % voltage transmitter: $\pm 20 \mu$ V or 0.08 %
Operating conditions	
Ambient conditions	
Ambient temperature	-40 ... 85 °C (233 ... 358 K) , for hazardous area see certificate
Storage temperature	-40 ... 100 °C (233 ... 373 K)
Vibration resistance	4 g/2 ... 150 Hz
Relative humidity	moisture condensation allowable
Mechanical specifications	
Protection degree	IP00/IP66 installed
Connection	connection terminals for cables up to max. 1.75 mm ² , secure screws
Material	housing: PC potting: PUR
Mass	approx. 40 g
Dimensions	Ø44 x 22,5 mm (1.7 x 0.9 in)
Mechanical construction	
Construction type	connection head acc. to DIN 43729 form B, field housing
Indication and operation	
Configuration	via PC operating software, configuration set TXU 10L interface: PC interface connection cable TTL-/RS 232 with plug
Certificates and approvals	
Ex approval	ZELM 07 ATEX 0352 X , for additional certificates see www.pepperl-fuchs.com
Type of protection	Ⓔ II 1G Ex ia IIC T6/T5/T4
General information	
Directive conformity	

Release date 2009-09-07 13:02 Date of issue 2009-09-07 T42713_ENG.xml

Directive 2004/108/EC (EMC)	emitted interference and interference immunity to EN 61326-1:2006 and EN 61326-2-3:2006
Directive 94/9/EC (ATEX)	EN 60079-0:2006, EN 60079-11:2007, EN 60079-26:2007
Conformity	
Electromagnetic compatibility	NE 21
Protection degree	EN 60529
Climate class	EN 60654, class C
Vibration resistance	EN 60068-2-6
Supplementary documentation	technical information TI0700 operating instructions KA1410 safety information SI0850 (ZELM 07 ATEX 0352 X)
Supplementary information	EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity and instructions have to be observed where applicable. For information see www.pepperl-fuchs.com .

Installation instructions

- When used with a RTD, the transmitter may be configured to provide 2-, 3- or 4-wire connection. When used with a thermocouple, the transmitter may be configured to provide cold junction compensation or it can operate in external cold junction thermostat (Reference temperature 0 °C (273 K)).
- The programming via PC must be done in safe area and must not be done in the hazardous area.
- Adjustment/calibration: For the configuration, the configuration set TXU10L is required and is executed by means of a PC via adapter to the programming socket.

Accessories

TXU10L, configuration set consisting of interface cable, software and system manual.
Necessary for parameterisation without transmitter power supply.

Type code/model number

