

# Temperature Transmitter PMT50Ex-2 /-3


**PROFIBUS**

- **Signal conditioning – linearisation – output characteristic transformation**
- **Input for resistance and Potentiometer or RTD Pt100/Pt1000 and thermocouples**
- **Measuring range programmable**
- **Linearisation or transformation of output characteristic via 32 base-points programmable**
- **Automatic input fault detection**

## Characteristics

The programmable Temperature Transmitter PMT50 operates with RTD and thermocouple input signals. The device convert the signal to analog output 0/4..20 mA; 0/2..10 V DC. Optional a serial interface is available. The device offers a linearisation function for any sensor curves and a simulator function. The integrated transmitter supply 24 V DC max. 30 mA allows the feeding of 2-and 3-wire sensors. 4 alarm outputs for monitoring and controlling are available.

## Technical data

### Power supply

Supply voltage	: 230 V AC $\pm 10\%$ 115 V AC $\pm 10\%$ 24 V DC $\pm 15\%$ Um = 253 V AC or 125 V DC (terminals 11 and 13)
Power consumption	: < 5 VA
Operating temperature	: -10..+55 °C
CE-conformity	: ATEX-directive 2014/34/EU
Standards	: EN 60079-0:2006 EN60079-11:2007 EN 61241-0:2006 EN61241-11:2006
EMC-directive / standard	: 2014/30/EU / EN 61326-1:2013

### Explosion protection

Marking	: II (1) G [Ex ia] IIC/IIB bzw. II (1) D [Ex iaD]
Approval	: TÜV 08 ATEX 554329

### Device type 2

Input	: resistance 0..20 k $\Omega$ (terminals 35, 36, 37, 38)
Fault detection	: broken line
Accuracy	: < 0.2 %, $\pm 1$ Digit
Max. U <sub>0</sub> no load	: 1.4 V
Max. I <sub>0</sub> short circuit	: 2,5 mA
Max. output power P <sub>0</sub>	: 3 mW
Resistance	: 5600 $\Omega$

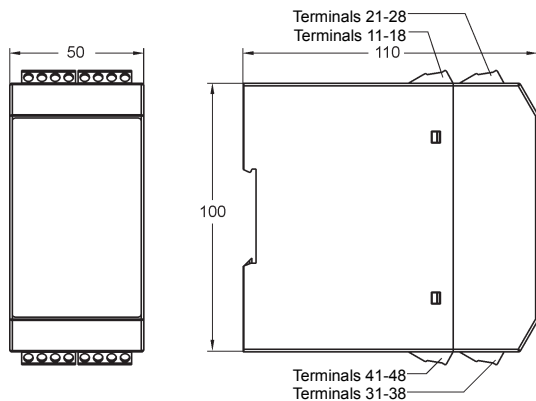
Characteristic curve	: trapezoidal
Internal inductivity	: 4 $\mu$ H
Internal capacity	: 135 nF
<b>Explosion protection</b>	<b>Ex ia/IIC</b> <b>ia/IIB</b>
Max. external inductivity	: 100 mH      100 mH
Max. external capacity	: 25 $\mu$ F      120 $\mu$ F
<b>Input</b>	: Potentiometer min. 1 k $\Omega$ ..max. 100 k $\Omega$ (terminals 45, 47, 48)
Accuracy	: < 0.2 %, $\pm 1$ Digit
Max. values U <sub>0</sub>	: 9.6 V
Max. I <sub>0</sub>	: 56 mA
Max. P <sub>0</sub>	: 200 mW
Resistance R	: 259 $\Omega$
Characteristic curve	: trapezoidal
Internal inductivity	: 4 $\mu$ H
Internal capacity	: negligible
<b>Explosion protection</b>	<b>Ex ia/IIC</b> <b>ia/IIB</b>
Max. external inductivity	: 5 mH      20 mH
Max. external capacity	: 0.48 $\mu$ F      2 $\mu$ F

### Device type 3

<b>Input</b>	: Pt100 (3-wire) -100.0..+600.0 °C Pt1000 (3-wire) -100.0..+300.0 °C thermocouple (TC) type J -100.0..+800.0 °C type K -150..+1200 °C type N -150..+1200 °C type S -50..+1600 °C (terminals 35, 36, 37; 45, 47)
Fault detection	: broken line (Pt100 / Pt1000,TC) or short circuit (only Pt100 / Pt1000)
Accuracy	: < 0.1 %, $\pm 1$ Digit
Max. voltage no load U <sub>0</sub>	: 1,4 V
Max. short circuit curr. I <sub>0</sub>	: 2.5 mA
Max. output power P <sub>0</sub>	: 3 mW
Resistance R	: 5600 $\Omega$
Characteristic curve	: trapezoidal
Internal inductivity	: 4 $\mu$ H
Internal capacity	: 135 nF
<b>Explosion protection</b>	<b>Ex ia/IIC</b> <b>ia/IIB</b>
Max. external inductivity	: 100 mH      100 mH
Max. external capacity	: 25 $\mu$ F      120 $\mu$ F
<b>Outputs</b>	
Alarm outputs	: relay SPDT < 250 V AC < 250 VA < 2 A cos Phi $\geq 0.3$ < 300 V DC < 40 W < 2 A (terminals 21, 22, 23; 25, 26, 27)
Analog output	: 0/4..20 mA burden $\leq 500 \Omega$ 0/2..10 V burden > 500 $\Omega$ , isolated output changes automatically (burden depending)
- Accuracy	: 0.2 %; TK 0.01 % / K (terminals 17, 18)
Fault function	: for broken line or short circuit detection → analog output (programmable) 0 mA, < 3.6 mA or > 21.5 mA → alarm relays min. or max. programmable
<b>Bus system</b>	
Modbus	: RS485, RTU or ASCII max. 38400 Baud
Profibus	: Profibus DP
Connection	: 9 pole D-SUB plug in the front
<b>Display</b>	: graphic-LCD-display, 128 x 64 Pixel with white LCD backlight

**Case** : Polyamide (PA) 6.6, UL94V-0  
TS35 acc. to DIN EN 60715  
**Weight** : approx. 450 g  
**Connection** : screw terminals 0.14..2.5 mm<sup>2</sup>  
AWG 26..AWG14  
**Protection class** : case IP30, terminals IP20 acc. to  
BGV A3

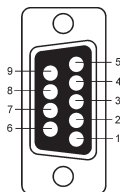
### Dimensions



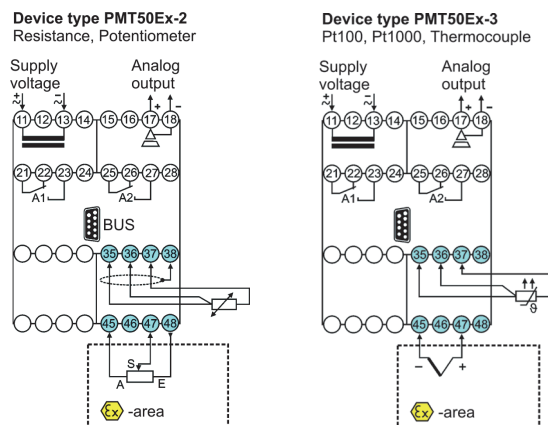
### Bus connection

Modbus		
PIN	Signal	EIA / TIA-485 Name
5	D1	B / B'
9	D0	A / A'
1	Common	C / C'
Profibus		
3	RxD / TxD-P	
5	DGND	
6	VP / +5V max. 10 mA	
8	RxD / TxD-N	

9 pol. D-Sub plug  
in the front



### Connection diagram



### Ordering code

PMT50Ex -  1.  2.  3.  4.  5.  6.

1. Device type/input	
2	Resistance in the range 0..20 kΩ Poti 1 kΩ..100 kΩ
3	RTD Pt100, 3-wire, -100.0..+600.0 °C RTD Pt1000, 3-wire, -100.0..+300.0 °C Thermocouple J (Fe-CuNi), -100.0..+800.0 °C K (NiCr-Ni), -150..+1200 °C N (NiCrSi-NiSi), -150..+1200 °C S (Pt10Rh-Pt), -50..+1600 °C
	Inputs intrinsically safe EX II (1) G [Ex ia] IIC/IIB EX II (1) D [Ex iaD]
2. Analog output	
AO	0/4..20 mA, 0/2..10 V DC isolated
3. Alarm outputs	
00	not installed
2R	2 relay outputs, A1, A2 SPDT
4. BUS configuration	
00	not installed
MB	Modbus RTU/ASCII, RS485
PB	Profibus DP
5. Supply voltage	
0	230 V AC, ± 10 % 50-60 Hz
1	115 V AC, ± 10 % 50-60 Hz
5	24 V DC, ± 15 %
6. Options	
00	without option