

# OPERATION MANUAL



## Industrial temperature transducer with digital I<sup>2</sup>C-interface

### Description



### Characteristics

- Industrial variant in stainless steel housing
- 3 variants for following ranges:  
–32...+96 °C, –32...+224 °C, –32...+480 °C
- Digital I<sup>2</sup>C-interface
- Calibrated and ready-to-use
- Operating voltage range 6...24 V DC
- Easy to install
- Ingress protection IP65

### Areas of application

- Industrial measuring technology
- Building automation
- Ventilating and air-conditioning systems
- Pneumatics
- Hydraulic systems
- Mechanical and plant engineering

### Technical data

Industrial temperature transducer	
Temperature measuring range	see table
Temperature sensor	Pt1000
Resolution	I <sup>2</sup> C-Bus: 14 bit
Operation temperature	–20...+90 °C (electronics)
Interfaces	I <sup>2</sup> C-Bus
Dimensions	56,5x20 mm, see dimensional drawing
Material housing	Stainless steel 1.4305
Pressure connection	1/4" external thread, adapter as accessory
Ingress protection	IP65
CE-conformance	2014/30/EU
EMV-noise emission	EN 61000-6-3:2011
EMV-noise withstanding	EN 61000-6-1:2007
Article	Art.-no.
See table on page 2	

### Features

The temperature probes TPTR-I2C with digital interface combine the proven and innovative Temperature sensor module with a high-quality stainless steel housing.

The temperature is one of the most commonly measured physical quantities. Conventional semiconductor sensors have a limited temperature range of –50...+150 °C. Even the popular platinum sensors with wide measuring range of –100...+500 °C are not ideal for industrial appliances, because their non-linear behaviour has to be corrected.

The TPTR-I2C combines the advantages of both worlds: The high-quality platinum sensor is interchangeable, guarantees a high measuring accuracy, drift-stability and environmental resistance as well as an excellent long-term stability. The ASIC provides the measured temperature value with the digital I<sup>2</sup>C interface with high resolution as calibrated and linearized value.

The transducer with high-quality probe housing made of stainless steel with 1/4" external thread is ideally suited for measuring temperature in diverse industrial applications, which are dependent on reliability, accuracy and easy handling.

Available as an accessory is the 2 m connection cable RJ12, art.-no. 0409 3000.

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### Delivery spectrum

Measuring range	Voltage output	Ordering number
-32...+95 9961 °C	I <sup>2</sup> C-Bus	TPTR-I2C-R1
-32...+223,992 °C	I <sup>2</sup> C-Bus	TPTR-I2C-R2
-32...+479,984 °C	I <sup>2</sup> C-Bus	TPTR-I2C-R3

### Assignment of the I<sup>2</sup>C-output registers

Ordering number	Byte 0,1 (MSB/LSB)	Byte 2,3	Byte 4,5
	Pt1000 temperature	T1 channel (Pt1000 temperature)	T2 channel
TPTR-I2C-R1	Not used	0x0000-0x7FFF -32...+95,9961 °C	Not used
TPTR-I2C-R2	Not used	0x0000-0x7FFF -32...+223,992 °C	Not used
TPTR-I2C-R3	Not used	0x0000-0x7FFF -32...+479,984 °C	Not used

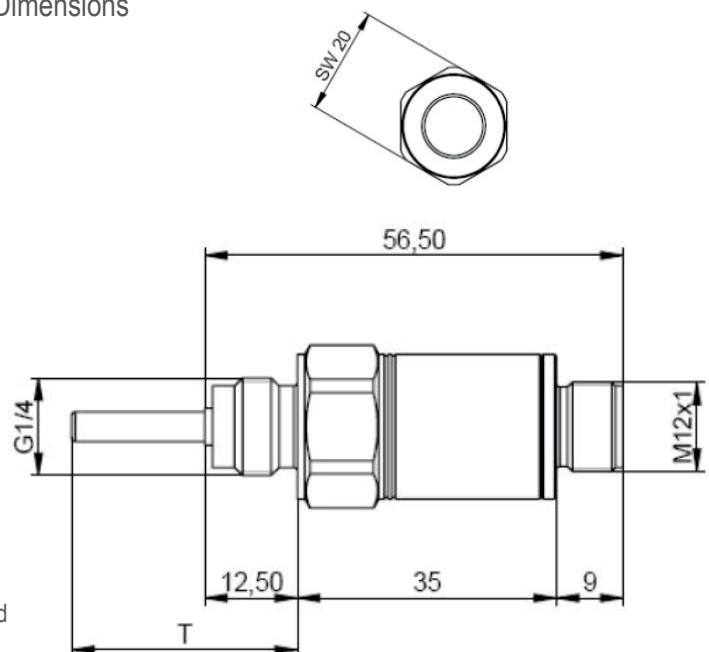
### Output scale Pt1000 temperature

Ordering number	Output	HEX range	Scale
TPTR-I2C-R1	I <sup>2</sup> C: 0x0000...0x7FFF	0x0000...0x7FFF	-32,00 ... 95,9961 °C
TPTR-I2C-R2	I <sup>2</sup> C: 0x0000...0x7FFF	0x0000...0x7FFF	-32,00 ... 223,992 °C
TPTR-I2C-R3	I <sup>2</sup> C: 0x0000...0x7FFF	0x0000...0x7FFF	-32,00 ... 479,984 °C

### Pin assignment



### Dimensions



Please note: The length of the stainless steel tube varies depending on the measuring range.

4-pole pin header		
1	VDD	Voltage supply 5...24 V DC
2	SDA	Serial data I <sup>2</sup> C
3	GND	Ground
4	SCL	Serial clock I <sup>2</sup> C

### Attention

Please avoid extreme mechanical and inappropriate exposure.

The device/product is not suitable for potential explosive areas and medical-technical applications.