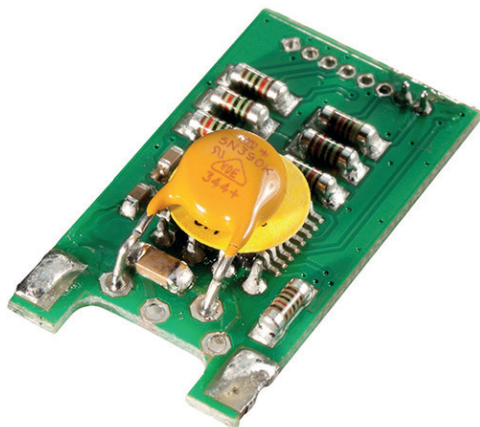


OPERATION MANUAL

Pt1000 sensor module with standard signal output

Description



Technical data

Sensor module Pt1000

Sensor element	Platinum resistance Pt1000 (not in scope of supply)
Measuring range	As per type (see table) -T1 -30...+70 °C -T2 0...160 °C -T3 0...300 °C -T4 customised
Resist. characteristics	DIN EN 60751
Accuracy of resistance characteristics	$\leq \pm 0.5 \% \text{ FS}$ (at 23 °C Nom. temperature and open board)
PT1000 measuring current	$< 0,3 \text{ mA}$
Output signal	4...20 mA, two-wire or 0...10 V, three-wire
Operating voltage	10...30 V DC
Temperature range for electronics	-20...+80 °C
Resolution	14 bit
Dimensions	27 x 15 x 5 mm
CE-conformance	2014/30/EU
EMV-noise emission	EN 61000-6-3:2011
EMV-noise withstanding	EN 61000-6-1:2007
Over voltage protection	Varistor and RC-Filter
Permissible load (only type -20MA)	$R_a[\Omega] \leq (U_v[V] - 10V) / 0,02 \text{ A}$
Connection	Soldered connection
Other scales of output signals are available on enquiry!	

Characteristic features

- Miniature sensor module for Pt1000
- Two versions with standard signal 0...10 V or 4...20 mA are available
- Versions with different measuring ranges of -30...+300 °C
- Resistance characteristics as per DIN EN 60751
- Precisely 3 point calibrated, no further adjustment necessary
- High precision and long term stability
- Innovative, digital ASIC-Technology

Typical areas of application

- Industrial instrumentation
- Machine manufacture
- Building automation
- Heating, ventilation and air-conditioning
- OEM products

Features

The module is an affordable, digital transducer in miniaturised construction for Pt1000 measuring resistors. The module converts the resistance characteristics of a Pt1000 sensor into an industrial standard signal of 0...10 V (3 wire connection) or 4...20 mA (two wire connection). With this, the operation of sensor is possible with control systems, for example, an SPS with voltage or current input.

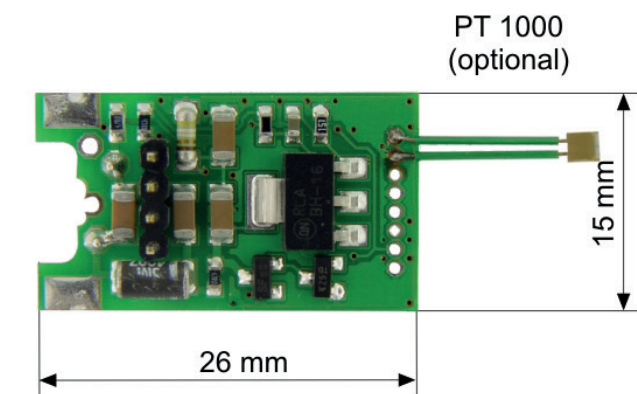
With the most modern digital ASIC technology, an outstanding measuring accuracy and long term stability is guaranteed in the application. The resistance curve of the sensor element is linearised over a second order polynomial in accordance with DIN EN 60751 and the measuring amplifier is temperature compensated.

The module is calibrated at three points at works as per the resistance characteristics; a further adjustment by customer is not necessary. The robust module is meant for continuous application in industrial environment and is protected against over voltage and transients with the help of a varistor.

Note: The scope of supply is without Pt1000 measuring resistor, please additionally include a suitable model with the order.

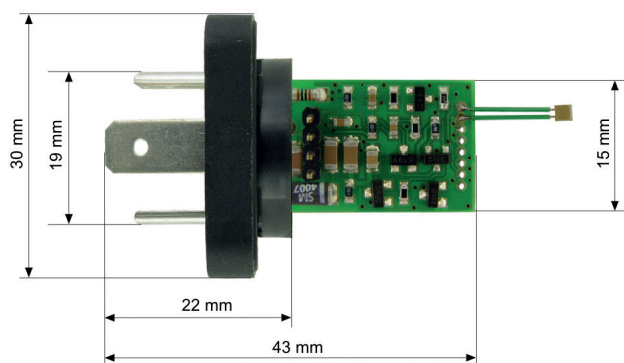
Pt1000 sensor module with standard signal output

Drawing - Module



Picture may differ from original product

Drawing - Module with plug



Picture may differ from original product

Connection of sensors

The Pt1000 sensor element is soldered at the two upper pins as shown above. The other pins are not allowed to be connected or short circuited. The connection must be done very carefully because of the very small pin spacing. Any type of Pt1000 sensors like thin film chip resistances, wire wound sensors or even MIMS resistance thermometers can be used as long as the resistance characteristics are as per DIN/IEC 60751. The connection lead to the sensor should be as short as possible, in order to avoid measuring error due to distortion in resistance characteristics.

Note: The sensor element is not in scope of supply (please include separately with order).

Calibration

The measuring probes are calibrated at works with reference to Pt1000 resistance characteristics (DIN EN 60751), hence full interchangeability of the sensor element is guaranteed corresponding to the accuracy class. Because of the high quality platinum resistance, the probes are long term stable and maintenance free. Hence, a re-calibration is not required.

Guarantee

On our high quality measuring products, you get a guarantee of 24 months. Mechanically damaged sensors or tampering into electronics makes the sensors devoid of guarantee claims. Calibration services are not covered in the guarantee.

Connection

Important hint: The OWI-connection of 20 mA module also should not be connected to any wire!

The connection of the module (type –10V/20MA) can be identified as per the picture in the next page. Wrong connection can lead to failure of the module! The connection of the module is done at the lateral soldering surfaces and pads as per the sketch. The dimensions and contact layout also enables direct soldering of industrial plugs as per DIN 43650. On demand, the module can be assembled into a housing or provided in moulded form. Suitable housings are also available on enquiry.

The model with voltage output requires operating voltage. In order to avoid measuring error due line resistance every single module has to be connected with three wires (VCC, OUT and GND) directly to the measuring input. The model with current output is supplied by the loop current and hence it is connected with two pin system.

The pin SHIELD is optional and can be used in application with shielded connection cable for connecting to the shielding.

OPERATION MANUAL

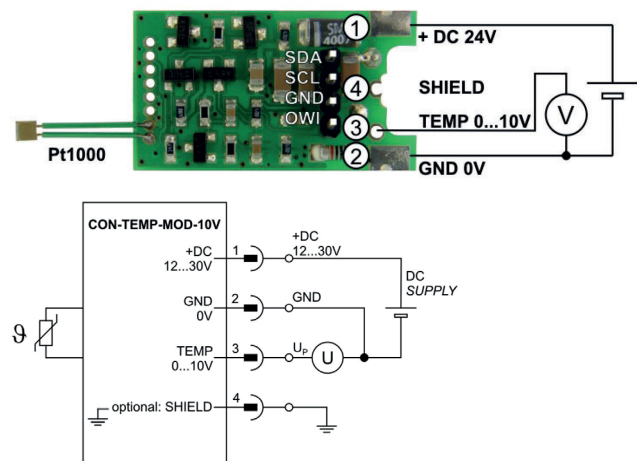
Pt1000 sensor module with standard signal output

Connection layouts

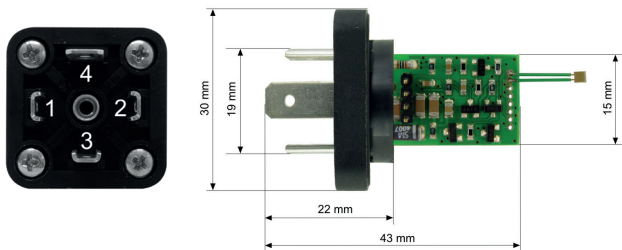
Voltage output

Temperature measurement 0...10 V, Type –10 V

Identification: See picture

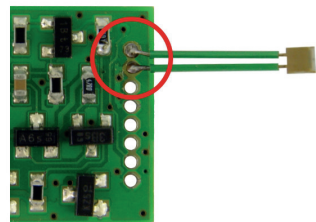


Pin	Function	Description
1	+DC 24 V	Operating voltage
2	GND 0 V	Reference potential
3	TEMP 0...10 V	Temperature signal 0...10 V
4	SHIELD	Shielding (optionally)



The measurement of the output signal should be done with separate signal ground, in order to avoid measuring error due to voltage drop at the supply ground.

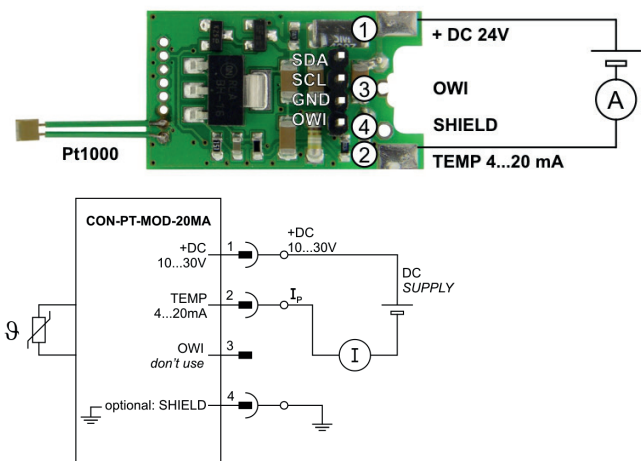
Sensor connection



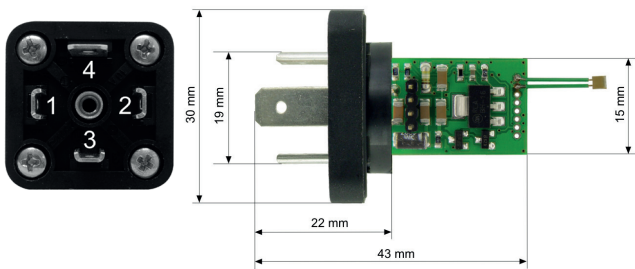
Current output

Temp. measurement 4...20 mA, Type –20MA

Identification: See picture

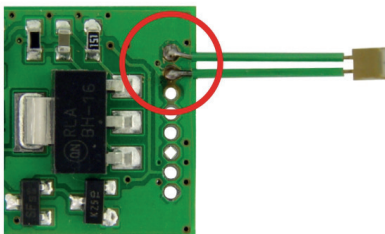


Pin	Function	Description
1	+DC 24 V	Operating voltage
2	TEMP 4...20 mA	Temp. signal 4...20 mA
3	OWI	dont use!
4	SHIELD	Shielding (optionally)



The shielding (SHIELD) is to be optionally covered. Connection through shielded cables is recommended.

Sensor connection



OPERATION MANUAL



Pt1000 sensor module with standard signal output

Ordering number format

PT-MOD	- 10V	- T1
Sensor module	- 10V with voltage output 0...10 V - 20mA with current output 4...20 mA	Output scaling - T1 -30...+70 °C - T2 0...160 °C - T3 0...300 °C - T4 customised
Optionen		
Other output scaling		
Sensor element		
Further OEM configurations such as modified plugs or molded housing are possible.		
Accessories		Article number
Industrial connector 4 pin type GSE 300 N4		0220 0418
Cable socket with central screw M 3 x 35 GDM 3016		0220 0425-40
Gasket typ GDM 3-16		0135 0051

Attention

Please avoid extreme mechanical and inappropriate exposure.

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

