

PT100 TEMPERATURE HEAD TRANSMITTER THP101



The TekOn Electronics In Head Temperature Transmitters are specifically designed to meet the most rigorous requirements of operation in the industrial process environments. Due to their reduced dimensions they can be installed in the DIN Form B sensor connection head in place of traditional terminal blocks.

The operating parameters like the sensor type, connection method, measuring range, output signal range or fault value can be configured using the THP101 user friendly free software "TekOn Configurator".

Dimensions 45Ø x 23 mm

Weight: Approx. 50g

Material: Nylon 66

Protection Index: IP40

KEY FEATURES

PT100 SENSOR INPUT

2, 3 AND 4 WIRES

4 TO 20 MA ANALOG OUTPUT

INSTALLATION IN THE CONNECTION HEAD TYPE DIN B

CONTINUOUS OPERATING STATUS MONITORING

HIGH PRECISION AND ACCURACY

WIDE MEASUREMENT RANGE

NAMUR NE 43 FAULT DETECTION

CONFIGURABLE OVER PC TEKON CONFIGURATOR SOFTWARE

DS_INHD_THP101_E01B

TECHNICAL SPECIFICATIONS

**INPUT
RESISTANCE THERMOMETER (RTD)**

Measured variable	Temperature
Sensor type	PT100
Connection	1 Resistance thermometer (RTD) in 2-wire, 3-wire or 4-wire system
Units	°C
Sensor current	600uA (2 or 4 wires); 300uA (3 wires)
Response time	<500 ms
Open-circuit monitoring	Always active (cannot be disabled)
Short-circuit monitoring	Always active (cannot be disabled)
Measuring range	Configurable (see "Measurement Accuracy" table)
Minimum measure span	50°C
Characteristic curve	Temperature-linear

OUTPUT

Output signal	4 to 20 mA
Power supply (Uaux)	9 to 30 V DC
Max. load	(Uaux-9)/0,022 A
Overrange	3 to 22 mA
Error signal (e.g. following sensor fault) [conforming to NE 43]	Software configurable ≤ 3,6 mA or ≥21 mA
Sample cycle	<1 s
Protection	Against reversed polarity - Surge protection

MEASUREMENT ACCURACY

Reference conditions	
Power supply	24V DC ± 1%
Ambient temperature	23°C
Warm-up time	>5min
Input span	[0; 100]°C
Accuracy [according to IEC 61298-2]	
Inaccuracy	-0,093% ; 0,317%
Max. error	0,292%
Hysteresis	-0,051%
Non-repeatability	0,054%
Basic accuracy	< +/- 0,4°C in full span [-200; 850]°C
Influence of ambient temperature	< 0,3 uA / °C
EMC - immunity influence	< +/- 0,55% of span

POWER SUPPLY

Power Supply	12 to 24 V DC ±1%
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OPERATING ENVIRONMENT

Ambient temperature range	-20 to 80°C
Storage temperature range	-20 to 80°C
Relative humidity	≤95%, without condensation

CASING

Material	Nylon 66
Weight	Approx. 50g
Dimensions	See “Dimensional drawings”
Cross section	2.5 mm ²
Protection type	IP40

CERTIFICATIONS AND APPROVALS

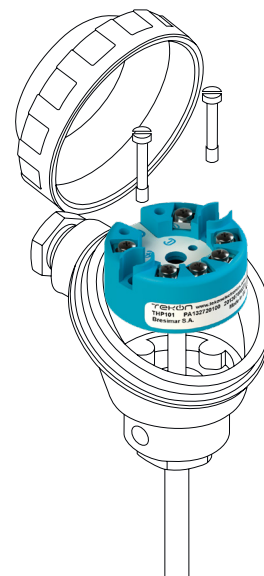
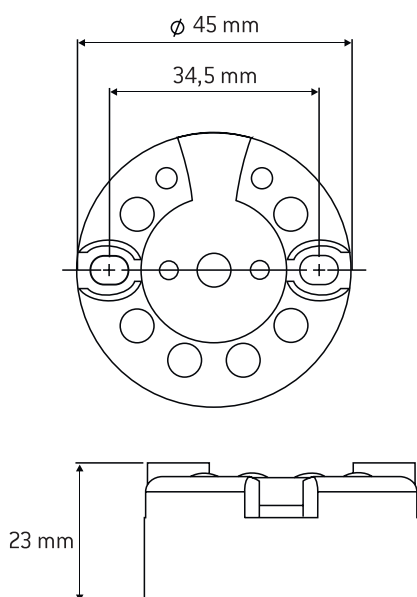
EN 61326	Electrical equipment for measurement, control and laboratory use. EMC requirements.
IEC 61000-4-2	Electrostatic discharge immunity test
IEC 61000-4-3	Radiated, radio-frequency, electromagnetic field immunity test
IEC 61000-4-4	Electrical fast transient/burst/immunity test
IEC061000-4-5	Surge immunity test

FACTORY DEFAULT SETTINGS

Sensor	PT100 with 3-wire circuit
Measuring range	0°C to 100°C
Fault current	NAMUR NE 43
Sensor offset	0°C
Sampling	0,2 s

TECHNICAL DRAWINGS AND INFORMATION

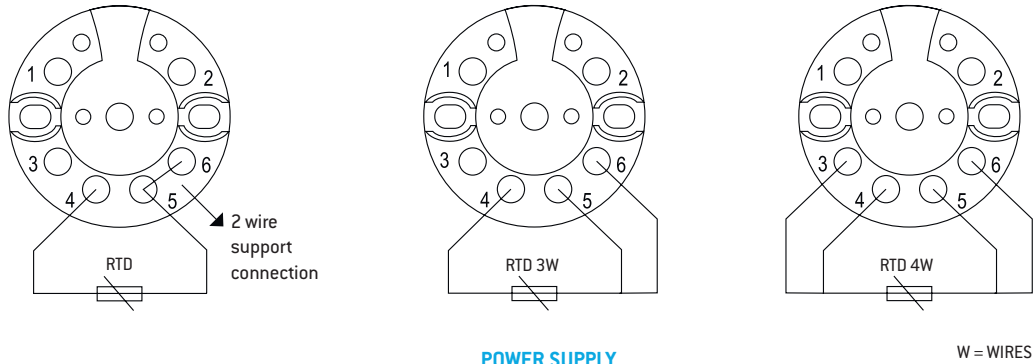
DIMENSIONAL DRAWINGS & INSTALLATION DIAGRAM



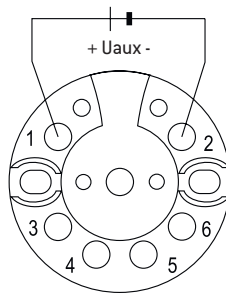
TECHNICAL DRAWINGS AND INFORMATION

ELECTRICAL CONNECTIONS

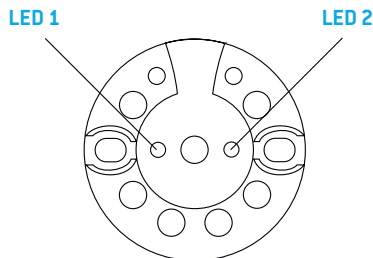
RESISTANCE THERMOMETER



POWER SUPPLY



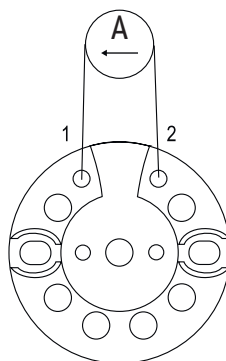
STATUS LED



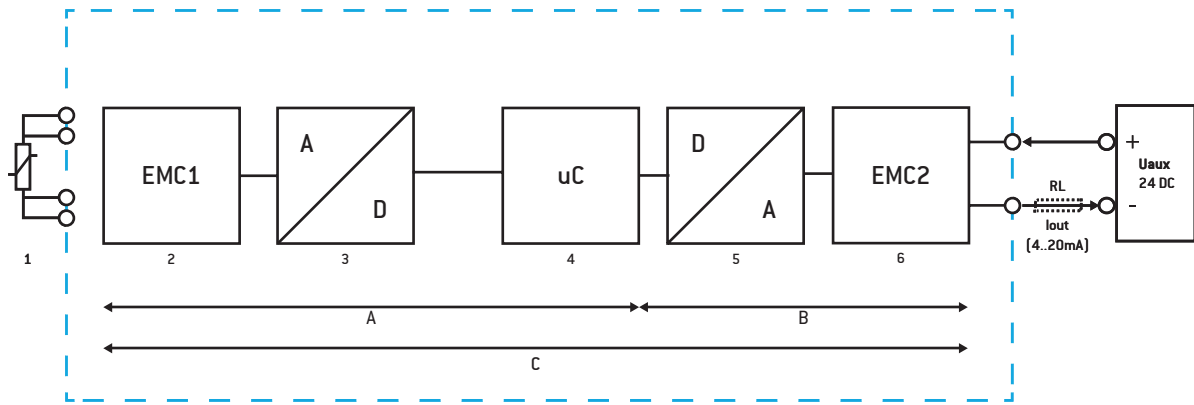
LED 1 (RED)	LED 2 (BLUE)	
OFF	ON	NORMAL MODE
BLINK	ON	SENSOR ERROR
OFF	BLINK	CONFIGURATION MODE

TEST POINTS

The test points may be used to measure the transmitter current consumption. Please connect the test probes of multimeter with the DC current measurement option to the test points according to the following image.



BLOCK DIAGRAM



- 1 - Sensor (RTD, PT100)
- 2 - Sensor input protection module
- 3 - Analog-Digital converter (16 Bits)
- 4 - Microcontroller
- 5 - Digital-Analog converter (16 bits)
- 6 - Output protection module

- RL - Loop load
- Uaux - Power supply
- Iout - Output current
- A - Digital measure accuracy
- B - Digital / Analog conversion accuracy
- C - Total measure accuracy

RELATED PRODUCTS



SARC2 - USB CONFIGURATOR

REF.: PA132720310

Connection between a PC USB port and THP101 temperature head transmitter. USB powered for easy off-process configuration

REVISION HISTORY

VERSION

E01B	In "Measurement Accuracy" table, the "Accuracy", "Basic accuracy" and "Influence of ambiente temperature" information was added. "Housing" table renamed to "Casing". "Factory Settings" renamed to "Factory Default Settings".
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