

## THP101 PT100 TEMPERATURE TRANSMITTER



### INTRODUCTION

The TekOn Electronics In Head 2-Wire 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.

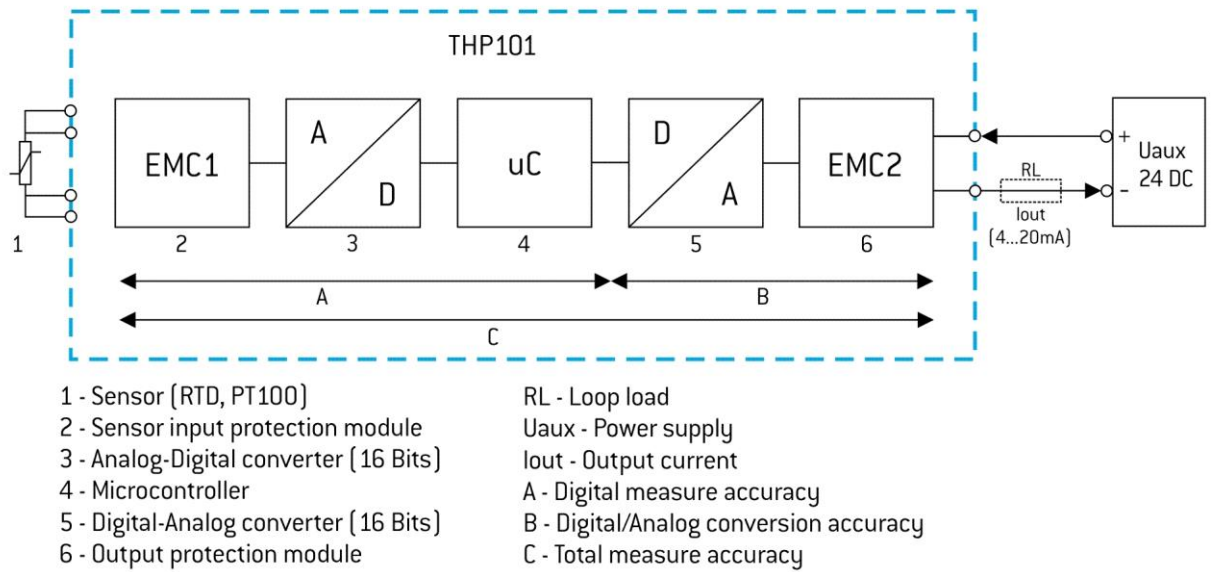
The THP101 is a temperature transmitter which accepts PT100 temperature sensors (Resistance thermometers: 2, 3 or 4-wire system), and generates a linear 4 to 20 mA current signal with high stability as output.

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

### KEY FEATURES

- PT100 sensor input
- Analogic output: 4 to 20 mA
- 2 status LEDs
- Test pads
- Installation in the connection head type DIN B
- Configurable over PC
- Fault detection and signalling according to NAMUR NE43 recommendation
- Continuous operating status monitoring and self-diagnostic
- High precision and accuracy in the whole range of operating temperatures
- Sensor cable resistance compensation
- Output signal compensation
- Wide measurement range

## BLOCK DIAGRAM



## TECHNICAL SPECIFICATIONS

### Input

#### Resistance thermometer (RTD)

Measured variable	Temperature
Sensor type	PT100
Units	°C or °F
Connection	1 Resistance thermometer (RTD) in 2-wire *, 3-wire or 4-wire system
Sensor current	<0.5 mA
Response time	<500 ms
Open-circuit monitoring	Always active (cannot be disabled)
Short-circuit monitoring	Always active (cannot be disabled)
Measuring range	Configurable (see table "Digital measuring errors")
Minimum measured span	50°C (90°F)
Characteristic curve	Temperature-linear

\* wire connection needed

### Output

Output signal	4 to 20 mA
Power supply (Uaux)	9 to 30 V DC
Max. load	(Uaux - 9)/0.022A
Over range	3 to 22 mA
Error signal (eg. Following sensor fault) (conforming to NE43)	Software configurable ≤3,6mA or ≤21mA
Sample cycle	<1s
Protection	Against reversed polarity – Surge protection

## Measuring accuracy (according to IEC 61298-2)

### Reference conditions:

Auxiliary power	24V DC $\pm$ 1%
Ambient temperature	23°C (73,4°F)
Warming-up time	>5min
Ideal Output 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%

## Ambient conditions

Ambient temperature range	-20 to 80°C (-4 a 176°F)
Storage temperature range	-20 to 80°C (-4 a 176°F)
Relative humidity	$\leq$ 95%, without condensation

## Casing

Material	Nylon 66
Weight	Approx. 50g
Dimensions	See "Dimensional drawings"
Cross-selection of cables	2.5mm <sup>2</sup>
Protection type	IP40

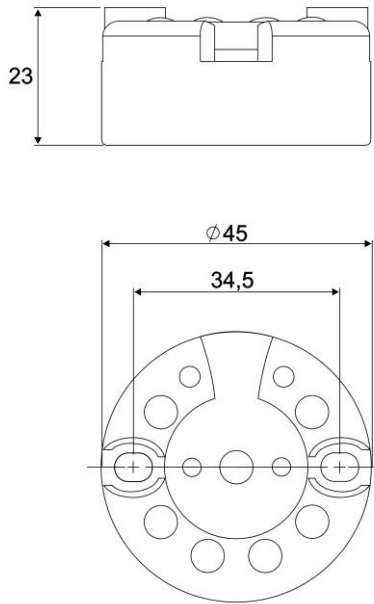
## Certificates and approvals

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/brust/immunity test
IEC61000-4-5	Surge immunity test

## Factory settings

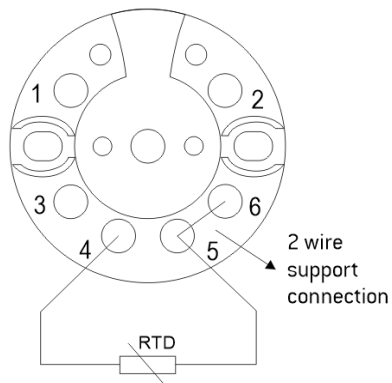
Sensor	PT100 with 3-wire circuit
Measuring range	0...100°C (32...212°F)
Fault current	NAMUR NE 43
Sensor offset	0°C (0°F)
Sampling	0.2s

## DIMENSIONAL DRAWINGS & INSTALLATION DIAGRAM

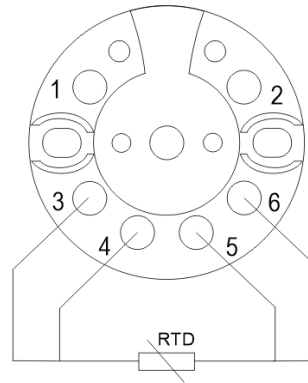


## ELECTRICAL CONNECTIONS

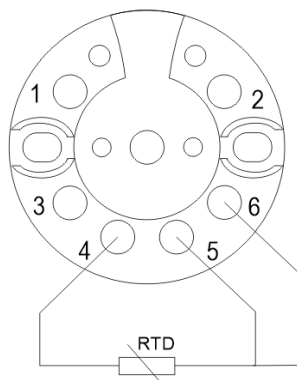
RESISTANCE THERMOMETER



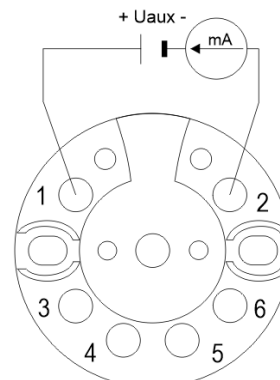
RESISTANCE THERMOMETER



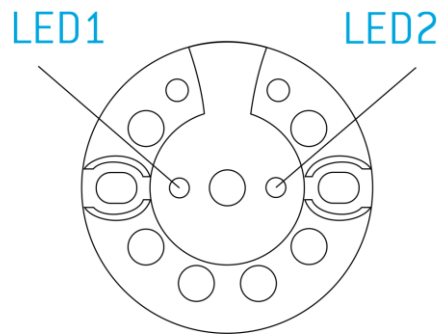
RESISTANCE THERMOMETER



POWER SUPPLY (U<sub>aux</sub>)



## STATUS LEDs

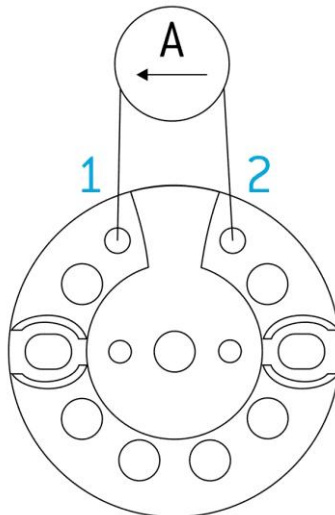


LED1 (RED)	LED2 (BLUE)	
OFF	ON	NORMAL MODE
BLINK	ON	SENSOR ERROR
OFF	BLINK	CONFIGURATION MODE

## 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:



## SELECTION AND ORDERING DATA

Partnumber	Partname
PA132720110	THP101 PT100 TEMP. TRANSMITTER
<b>Related Products</b>	
PA132720210	THT201 TC TEMP. TRANSMITTER
PA132720310	SARC 2 USB CONFIGURATOR
PA110020100	THU1102 Universal Temperature Transmitter
PA110030100	THUW1103 Universal Wireless Temperature Transmitter

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