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Temperature transmitter TCH-3120 -Pt100 Instruction Manual



Version 13.12



CE

1. Safety rules

- read the Instruction Manual before using the transmitter
- check the connections before power on
- ensure environmental conditions according to specification

2. Description

TCH temperature transmitter with 0-10V output works with resistive temperature sensors (RTD) Pt100 according to EN 60751.

It converts resistance of RTD temperature sensor to standard voltage signal 0...10V.

The output signal is a linear function of a sensor temperature.

The transmitter has a plastic enclosure suitable for mounting in type BA connection head or another with mounting holes space of 33mm.

3. Specification

ordering code	measuring range (°C)
TCH-3110-Pt100	-50 ... 50
TCH-3115-Pt100	0 ... 50
TCH-3120-Pt100	0 ... 100
TCH-3125-Pt100	0 ... 150
TCH-3130-Pt100	0 ... 200
TCH-3135-Pt100	0 ... 300
TCH-3140-Pt100	0 ... 400
TCH-3145-Pt100	0 ... 500
TCH-3150-Pt100	0 ... 600
TCH-3155-Pt100	0 ... 700
TCH-3160-Pt100	0 ... 800
TCH-3100-Pt100	other according to customer's requirements

Input:

- temperature sensor Pt100 acc. to EN 60751
- sensor connection 2- or 3-wire

Accuracy (for ambient temperature $23^{\circ}\text{C}\pm 5^{\circ}\text{C}$): $\pm 0,15\%$ of measuring range

- temperature drift $\pm 0,02\%$ of measuring range/ $^{\circ}\text{C}$

Sensor bias current ca. 1mA

Wire resistance max. 25Ω (one wire)

Minimum range value (URV-LRV) 30°C

Time constant 30 ms

Output:

Range 0-10V

Sensor failure indication:

- Pt100 shorted 0V

- Pt100 opened 12±1V

Power supply (Vs) 12...36VDC / 25mA

Maximum load $R_o > 10k\Omega$

Output signal limit 12±1V

Protection against reverse polarity

General:

Ambient temperature: -20°C...+70°C

Housing Ø43 x 29 (70g)

- mounting 2 screws M4, 33mm space

- case material self-extinguishing Noryl

- filling silicone rubber

Case ingress protection IP40 (terminals ... IP00)

Relative humidity: 0 - 90% RH without condensation

Electromagnetic compatibility (EMC): industrial environment

- resistance acc. to EN 61000-6-2:2002(U)

- emissivity acc. to EN 61000-6-4:2002(U)

4. Installation and connection

- the sensor connections should be inserted through the central hole

- the transmitter should be mounted in a sensor head with two screws M4

- the terminals of the transmitter should be connected accordingly to in the case of 3-wire RTD sensor. In the case of 2-wire RTD sensor, terminals 1 and 2 should be shorted.

- the power supply voltage should be stabilized and correctly connected to the terminals "+" and "-"

- output voltage signal is at the terminal "OUT" and the minus terminal of the power supply "-" (GND).

Transmitter adjustment

The transmitter is calibrated for lower and upper range values: T_{min} and T_{max} .

You can fine the transmitter via multi-turn potentiometer knobs **ZERO** and **SPAN** (see figure).

