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# Temperature transmitter
# TCHM 2130
## Instruction manual


Version 14.12

## 1. Safety rules

-before using, read these instructions

- before turning on the power, make sure that the wires are connected correctly

- ensure operating conditions (power supply, humidity, temperature) according to specifications

## 2. Device characteristics

TCHM temperature transmitter with 4-20mA output is dedicated to work with thermo-resistive sensors (RTD) Pt100 according to PN-EN 60751. It converts sensor temperature changes from lower to upper range value into current changes from 4mA to 20mA in the transmitter's power supply circuit. It is powered directly from the current loop. It can work with 2-wire sensors. It is adapted for mounting in MAA or other type sensor head with 19mm mounting hole spacing, using two M2.5x12 screws. It has a central hole for relaying the sensor wires.

## 3. Technical data

| Version | measuring range (°C) |
|---|---|
| **TCHM-2110** | -50 ... 50 |
| **TCHM-2115** | 0 ... 50 |
| **TCHM-2120** | 0 ... 100 |
| **TCHM-2125** | 0 ... 150 |
| **TCHM-2130** | 0 ... 200 |
| **TCHM-2135** | 0 ... 300 |
| **TCHM-2140** | 0 ... 400 |
| **TCHM-2145** | 0 ... 500 |
| **TCHM-2150** | 0 ... 600 |
| **TCHM-2155** | 0 ... 700 |
| **TCHM-2160** | 0 ... 800 |
| **TCHM-2100** | according to customer requirements |

**Input:**

- temperature sensor ..... Pt100 according to PN EN 60751
- sensor connection ..... 2-wire

**Accuracy** (for ambient temperature of 23°C±5°C): ..... ±0,15% measuring range

- temperature drift ..... ±0,02% measuring range /°C

**Measurement current of the sensor** ..... 0,8mA

**Wire resistance** ..... max. 25Ω per wire

**Minimum measurement range** ..... 30°C

**Time constant** ..... 0,2 ms

**Output:**

**Range** ..... 4-20mA, 2-wire

**Sensor failure signaling:**

- shorted Pt100 ..... 2,2 ± 0,5mA
- open Pt100 ..... 27 ± 3mA

**Power supply (Vs)** ..... 10...36VDC / 30mA

**Maximum load** ..... Ro < (Uz-9)/0,022 Ω

**Output signal limit** ..... approx. 27mA

**Protection** ..... against reverse polarity

**General:**

**Operating temperature:** ..... -20°C...+70°C

**Housing** ..... Ø25 x 15mm (12g)

- mounting ..... 2 screws M2,5 with 19mm spacing
- body material (top and bottom wall) ..... epoxy-glass laminate
- filling and side walls ..... PU resin

**Protection** ..... IP40 (terminals ... IP00)

**Relative humidity:** ..... 0 - 90% RH non-condensing

**EMC Compatibility:** ..... industrial environment

- resistance ..... PN-EN 61000-6-2:2002(U)
- emissivity ..... PN-EN 61000-6-4:2002(U)

## 4. Assembly and installation

- mount the transmitter in the sensor head with two M2.5 screw
- connect the temperature sensor with two wires to the **Pt100** terminals,
- connect the copper wires of the power supply (current loop) to the two **LOOP** terminals,
- after proper installation, the transmitter is ready for operation,
- the transmitter does not require periodic maintenance.

## Transducer adjustment

The transmitter is calibrated for the temperature extremes of the measuring range. It is possible to correct the transmitter's characteristics by means of multi-turn **ZERO** and **SPAN** knobs (located under the terminals), accessible after removing the screws from the corresponding terminals (see figure), using a 1.2-1.5mm wide flathead screwdriver.