

User manual

TEMPERATURE TRANSMITTER

SPT-85-G

- Input type: Pt100, Pt1000, PTC, TC K/S/J/T/R/B, 0-20 mA, 4-20 mA, 0-10 V, 0-100 mV
- Output type: 4-20 mA / 20-4 mA
- Programmable
- In-head mounting



Read the user's manual carefully before starting to use the unit or software.
Producer reserves the right to implement changes without prior notice.

1. BASIC REQUIREMENTS AND USER SAFETY



- The manufacturer is not responsible for any damages caused by inappropriate installation, not maintaining the proper technical condition and using the unit against its destination.
- Installation should be conducted by qualified personnel. During installation all available safety requirements should be considered. The fitter is responsible for executing the installation according to this manual, local safety and EMC regulations.
- The unit must be properly set-up, according to the application. Incorrect configuration can cause defective operation, which can lead to unit damage or an accident.
- The unit uses dangerous voltage that can cause a lethal accident. The unit must be switched off and disconnected from the power supply prior to starting installation of troubleshooting (in the case of malfunction).
- Do not attempt to disassemble, repair or modify the unit yourself. The unit has no user serviceable parts. Units, in which a defect was stated must be disconnected and submitted for repairs at an authorized service centre.
- In order to minimize fire or electric shock hazard, the unit must be protected against atmospheric precipitation and excessive humidity.

2. GENERAL CHARACTERISTICS

Programmable temperature transmitters series **SPT-85-G** are designed to work with RTD and TC sensors, potentiometers and thermistors. Cooperate with temperature sensors by changing the measured value into the linear output signal 4 - 20 mA. Transducers can be mounted in a standard, "B" type head of temperature sensor.

This transmitter allows the user to:

- select sensor and input signal type (4 RTD types, 6 thermocouples and 3 linear signals);
- select and adjust input range;
- perform offset correction and device calibration;
- select output reaction on sensor break;
- adjust the digital filter.

Thanks to its large capabilities and low price, **SPT-85-G** can be very useful in different industrial applications requiring temperature conversion before following measurement and control.

3. TECHNICAL DATA

| | |
|--|---|
| Input signal: Pt 100 (w=1.385), 3-wire | -100 ... +850°C |
| Pt 1000 (w=1.385), 3-wire | -100 ... +600°C |
| PTC, 3-wire | -50 ... +150°C (1k Ω , 2k Ω at 25 °C) |
| thermocouple „T” (Cu-CuNi) | -40 ... +400°C |
| thermocouple „J” (Fe-CuNi) | -20 ... +1000°C |
| thermocouple „K” (NiCr-Ni) | -20 ... +1300°C |
| thermocouple „R” (PtRh13-Pt) | 0 ... +1700°C |
| thermocouple „S” (PtRh10-Pt) | 0 ... +1700°C |
| thermocouple „B” (PtRh30-PtRh6) | 200 ... +1800°C |
| linear voltage | 0-100 mV DC |
| custom linear (AUX) | 0-10 V DC (option: 0-20 mA, 4-20 mA) |

Minimum range width: 50°C (for RTD/PTC); 100°C (for TC)

Power supply: 8-32 VDC \pm 10%

Maximum line load: 750 Ω at 24 VDC / 20 mA

Output: 2-wire, 4-20 mA, programmable

Resolution: 4 μ A (12-bit)

Accuracy: \pm 0,1%

Measurement error: 0,3 % from span

Temperature drift: \pm 0,01% from span for 1°C

Digital filter: programmable

Digital peak filter: programmable

Sensor break reaction: < 3,8 or > 20,2 mA, programmable

Communication interface: RS-232

Programmability: with configuration software "TraCon" (option)

Operating temperature: -20 to +85°C

Operating humidity: 0 to 90% RH, non-condensing

Protection class: IP 20

Dimensions: \varnothing 44 x 23 mm

Weight: 40 g

EMC: EN 50081-1, EN 50082-2, 89/336/EEC

4. DIMENSIONS

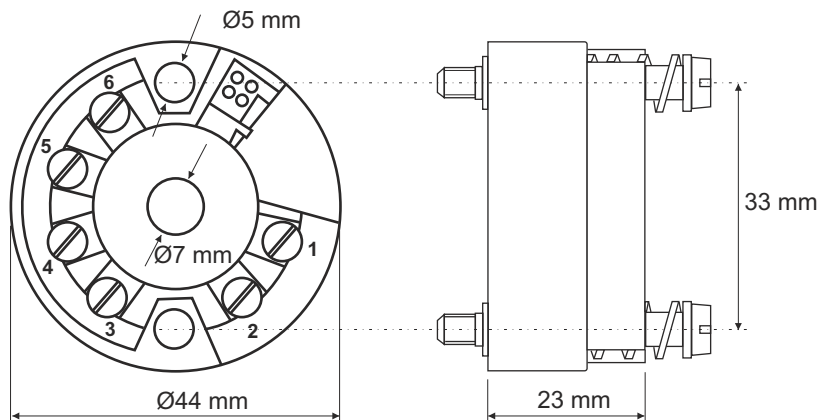


Fig. 4: Transmitter's dimensions

5. MOUNTING AND WIRING

Transmitters **SPT-85-G** for in-head mounting are designed to be incorporated inside temperature protective heads with 33 mm distance between centers of the female threaded openings. Install the transmitter into the temperature probe head using two M4 screws with appropriate length. To ensure vibration proof, use special screws with springs.

To connect sensor or signal to the transmitter's universal input, use terminals 3, 4, 5, and/or 6 in accordance with the wiring diagram (Fig. 5). In order to minimize measuring errors, make sure the connecting screws are tightened enough.

Current output 4-20 mA is assigned to connectors 1 (+) and 2 (-).



For two-wire RTD measurement circuits, you need to connect pins 5 and 6.

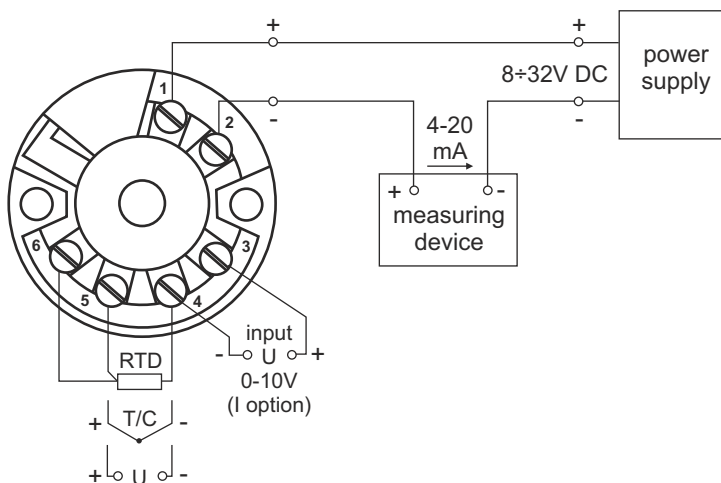


Fig. 5: Sensors connection

6. CONFIGURATION OF MEASURING RANGES



Make sure that the version of the used configuration software supports your device. To avoid the problems with transmitter supply via the RS interface, during calibration the transmitter should be powered from the current loop.

Configuration of all transmitter parameters can be done with the help of specialized configuration computer software „TraCon“. The latest version can be downloaded from web page: www.simex.pl.

SPT-USB/85G or SPT-RS232/85G cables are used to connect the transmitter **SPT-85-G** with the PC computer, during the programming process. After connection turn the transmitter power on. Run the configuration software and follow its suggestions or help instructions.

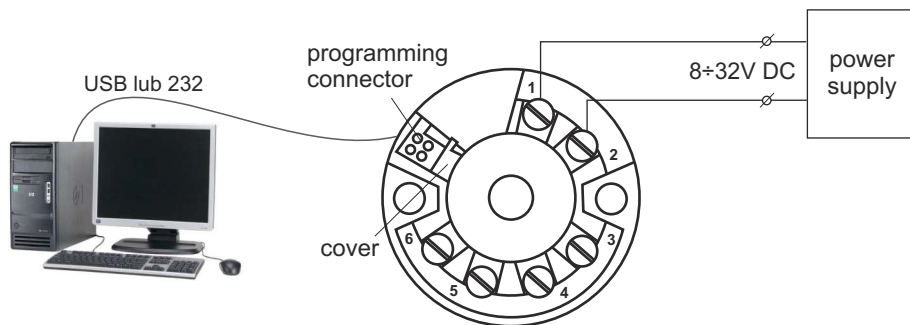
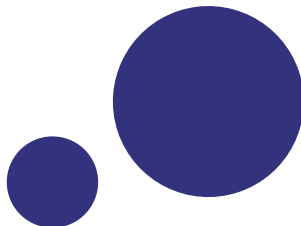


Fig. 6: Programming connector

7. DATA TRANSMISSION

1. Connect a proper sensor to the transmitter input (see p. 5: "Mounting and Wiring")
2. Wire the output loop (see p. 5: "Mounting and Wiring")
3. Connect the transmitter to the PC through a SPT-RS232/85G or SPT-USB/85G cable
3. Start „Data-acquisition“ section in the menu of "TraCon" software
4. Follow the software instructions.



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