TCM SENSOR T 5 V User Manual

1 Introduction

The TCM SENSOR T device allows, with the addition of Innovation Energy panel to remotely monitor up to 5 temperature sensors. The device includes a GSM SIM card with a telemetric module and a GSM antenna for data transmission. The device allows to connect up to 5 temperature sensors.

1.1 Technical parameters

PARAMETER	VALUE
Power consumption	<6 W
Voltage supply	5 V DC ±5%
Battery	CR2032
Communication	GSM 850, 900 (2 W) GSM 1800, 1900 (1 W)
Operating temperature	From -5 °C to +50 °C
Supply operating temperature	From 0 °C to 40 °C
Storage temperature	From -25 °C to +70 °C
Measurement range	From -55 °C to +125 °C
Sensors	up to 5
Bus max length	up to 60 m
Measrement resolution	0,1 °C
Measurement accuracy	±0,5 °C from -10 °C to 85 °C
Humidity	<75% RH, co condensation
Enviromental class	2
Enclosure protection class	IP54
Dimensions	120 × 98 × 46 mm
Weight	140 g
Altitude above sea level	<2000 m AMSL

1.2 Device description

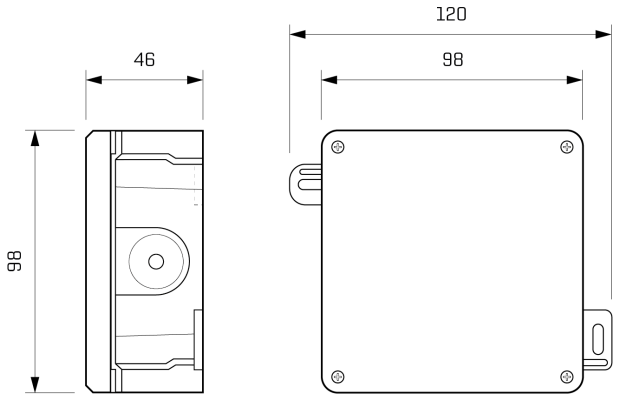
TCM SENSOR T is measuring temperature and provides values to Innovation Energy platform. Transmission occurs through a GSM network inside the private APN. For a temperature measurement, the device is using digital sensors. The device has a built-in mechanism that allows for automatic detection of connected sensors. It is possible to use from 1 to 5 sensors. Sensors are sold separately.

2 Installation and start-up

Before commissioning the TCM SENSOR T device, make sure that it has no visible signs of damage and that the installation has been carried out in accordance with the recommendations of this manual.

2.1 Installation

The TCM SENSOR T device needs to be installed in such a way that after installation cable connectors inside the case would be from the bottom of the device. In case of poor or none GSM coverage inside the installation room, additional anthena has to be used (sold separately) and installed in a place with coverage. For wall mounting use 2 screws/bolts with a minimum length of 45 mm, selected according to type of surface on which the unit will be mounted. On a figure 1 are presented the dimensions of the device.



Rys. 1: Dimensions of the device in milimeters

Notes on safety

- Before comissioning read carefully contents of this user manual.
- All connections and their changes should be performed with power supply disconnected on all inputs.
- Failure to follow the warnings and recommendations may result in electric shock, serious injury or fire.
- Ensure proper operating conditions in accordance with the technical requirements of the TCM SENSOR T. First of all, check the supply voltage, power and the ambient temperature.
- Incorrect connections of TCM SENSOR T may damage the device.
- A poorly fitted TCM SENSOR T may come loose from its mounting position and cause a risk of head injury, loss of conciousness or even death.
- Only qualified persons (after reading the manual) are allowed to connect TCM SENSOR T.
- Responsibility for proper installation lays on person installing the unit. It is required to consider all required norms and laws present in the country in which is device installed.
- Any attempt to make unauthorised changes to the unit or repairs by the user will invalidate the warranty.

Innovation Energy, Główna 26
83-021 Przejazdowo, Poland

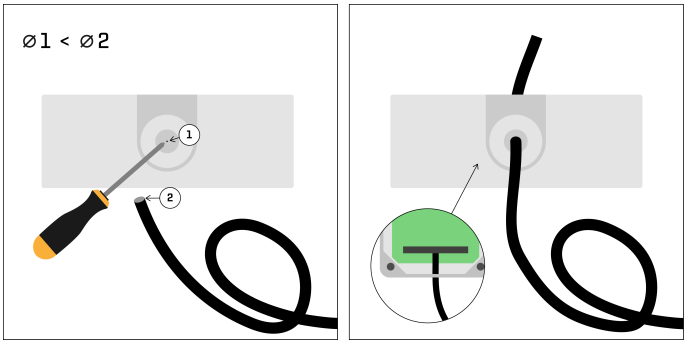
2.2 Connection of the TCM SENSOR T

2.2.1 Electrical connection

Uwaga!

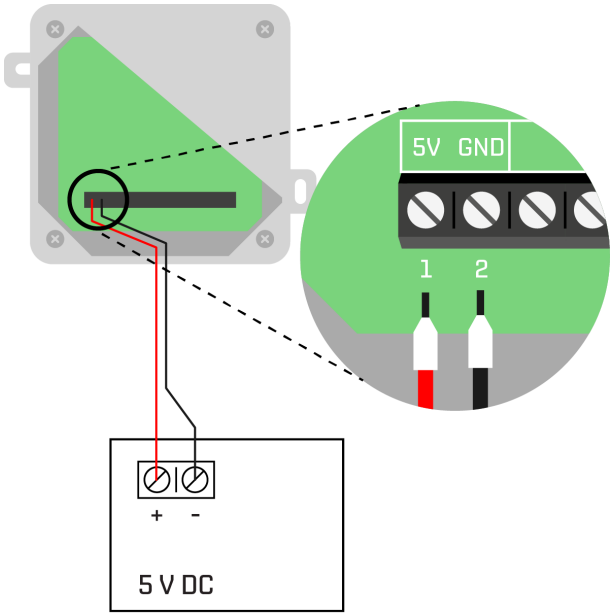
The connection of the unit must be carried out by an authorised persons. Any installation must be carried out with the power off. All cables connected to the device has to be certified in accordance with IEC 60332 standard.

When installing do not cut holes in grommet cap, instead just pinch a hole for leading cable through. Hole made in grommet have to be smaller than diameter of a cable. The correct way of leading cable through is presented on a figure 2.



Rys. 2: Leading a cable inside a case.

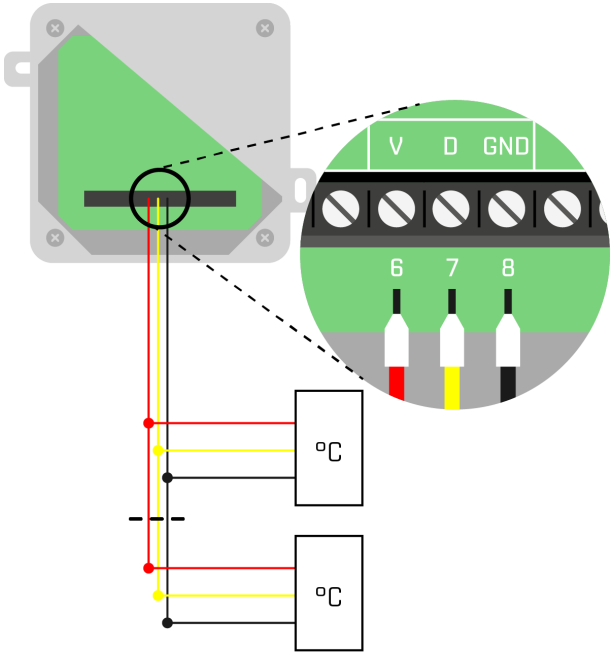
Power supply for use with the device needs to have a 5 V DC output with minimal current of 1.5 A. Supply needs to have built-in protection against short-circuiting. When installing make sure of the proper polarity of a supply connection. Figure 3 presents proper way of connecting a supply to the device.



Rys. 3: Supply connection to the TCM SENSOR T

2.2.2 Connection of temperature sensors

TCM SENSOR T measures temperature with the use of digital sensors. It is suggested to buy sensors from manufacturer of the TCM SENSOR T. Sensors have to be connected to inputs 3-5, 6-8 or 9-11 in accordance with markings on PCB. Exemplary connection to inputs 6-8 is shown on figure 4. TCM Sensor T allows connecting up to 5 sensors. Maximum cable length of a connection is 60 meters. This maximum length might be shortened in case of using wrong type of cable or electromagnetic interference. For connecting sensors with TCM SENSOR T use cable with cross-section of a 0,13 to 0,5 mm^2. Choosing right cable is determined by environment in which device operates. For typical environment with low electromagnetic interference it is advised to use twisted-pair CAT5 UTP cable (or better).



Rys. 4: Connection of temperature sensors

2.3 Other components

2.3.1 Built-in temperature sensor

There is a built-in temperature sensor on the board of the device. This additional temperature measurement is available on Innovation Energy panel. This sensor can be used to measure conditions surrounding TCM SENSOR T.

Innovation Energy, Główna 26
83-021 Przejazdowo, Poland

2.3.2 Battery

Caution!

Battery replacement must only be carried out by qualified and authorised persons after reading this operating manual. Before starting work, switch off the power supply to the unit. Then replace the battery. Using wrong type of battery may result in explosion or fire.

Caution!

Battery has not to be exposed to high temperature, fire, mechanical stress, ie. crushing, cutting, low air pressure. Otherwise it can cause battery leakage of flamable gas or fluid.

The unit contains a CR2032 battery made by VARTA company. No other mark of battery is recommended. New battery should be transportted only in original package. Used battery should be stored without possibility of short-circuiting. When replacing the battery, pay attention to the polarity marked on the battery holder.

2.4 Symbols

Rys. 5: Symbols used in TCM SENSOR T

Symbol	Meaning
1.	Access to cloud-stored data
2.	SIM card included
3.	GSM communication
4.	Data analysis
5.	Temperature measurement possible

Simplified declaration of conformity (EU)

The device that is mentioned in this manual is in compliance with Directive 2014/53/EU. Full declaration is available on site:

www.innovation-energy.co

Scan to find out more.

Technical issues? Call.

518 330 202

Innovation Energy, Główna 26
83-021 Przejazdowo, Poland