

TCM SENSOR T BATT 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	4,5 V DC (3 × LR20)
Communication	GSM 850, 900 (2 W) GSM 1800, 1900 (1 W)
Operating temperature	From -5 °C to +50 °C
Storage temperature	From -25 °C to +70 °C
Measurement range	From -55 °C to +125 °C
Sensors	up to 5
Bus cable length	up to 60 m
Measurement resolution	0,1 °C
Measurement accuracy	±0,5 °C from -10 °C to 85 °C
Humidity	<75% RH, no condensation
Environmental class	2
Enclosure protection class	IP54
Dimensions	105 × 176 × 83 mm
Weight without battery	430 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

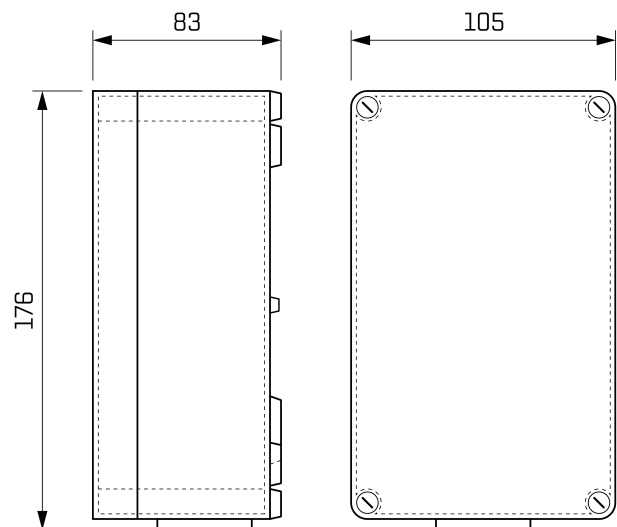
Before commissioning the TCM SENSOR T device, make sure that it has no visible signs of damage and that the installation has been carried out in accordance with the recommendations of this manual.

2.1 Installation

The TCM SENSOR T device needs to be installed with a multi-gate grommet from the bottom of a device. In case of poor or none GSM coverage inside the installation room, additional antenna has to be used (sold separately) and installed in a place with coverage. For wall mounting use 4 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.

Caution!

After the installation of the device on the wall, mounting holes need to be covered with plugs delivered with the device. Failure to take such action deprives the device of its guaranteed enclosure protection class IP.



Rys. 1: TCM SENSOR T dimensions in millimeters

Notes on safety

- Before commissioning 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 consciousness or even death.

Notes on safety

- 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.

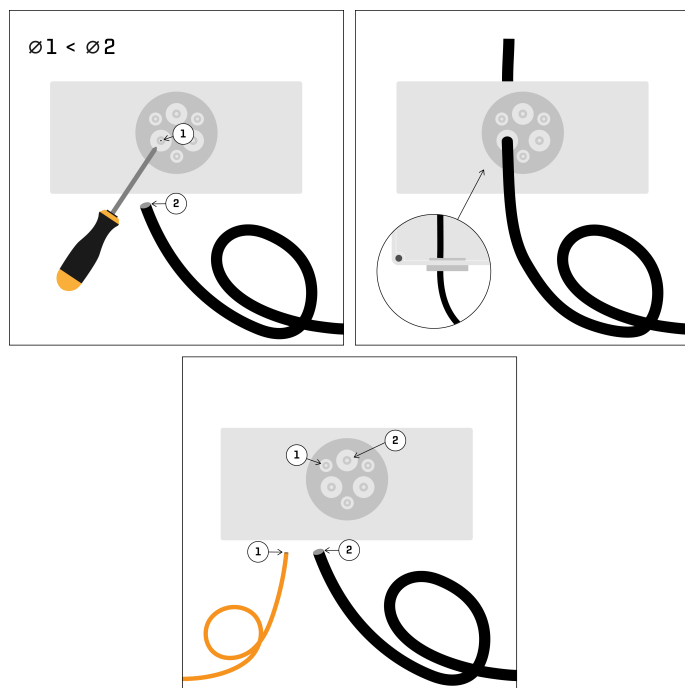
2.2 Connection of the TCM SENSOR T

2.2.1 Electrical connection

Caution!

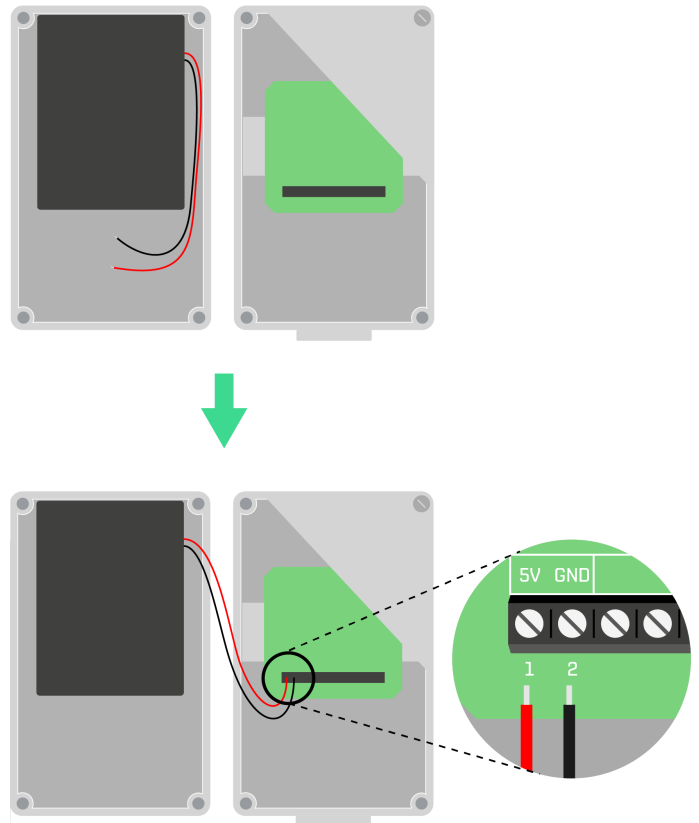
The connection of the unit must be carried out by an authorised persons. Any installation must be carried out with the power off. All cables connected to the device has to be certified in accordance with IEC 60332 standard.

When installing consider diameter of a cable led through a grommet and choose corresponding grommet to a size of cable. Put only one cable per grommet. Do not cut hole in grommet cap, instead just pinch a puncture and lead a cable through. Puncture should be smaller than diameter of a cable. The correct way of leading cable through is present on a figure 2.



Rys. 2: Leading a cable into device housing

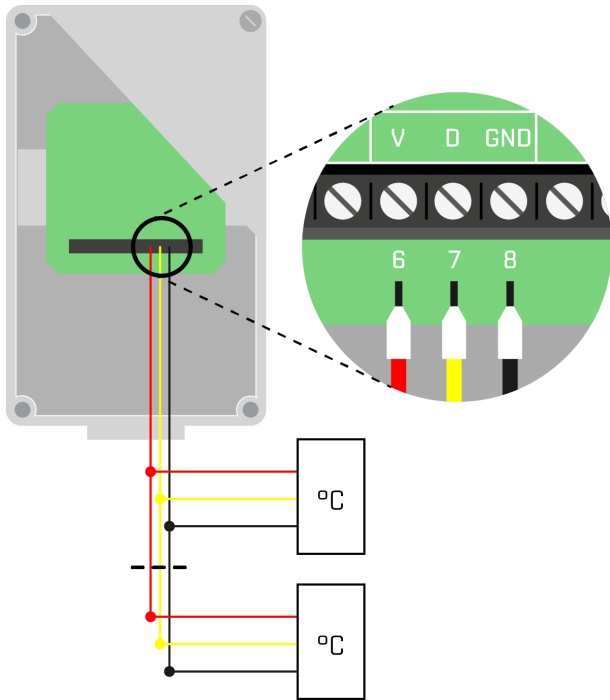
Out of the box, the case of a R20 battery is not connected to the PCB. After installation connect cables in accordance with scheme presented on a figure 3 and put batteries to the case places on a device enclosure. Battery change and type of battery is described later in this user manual.



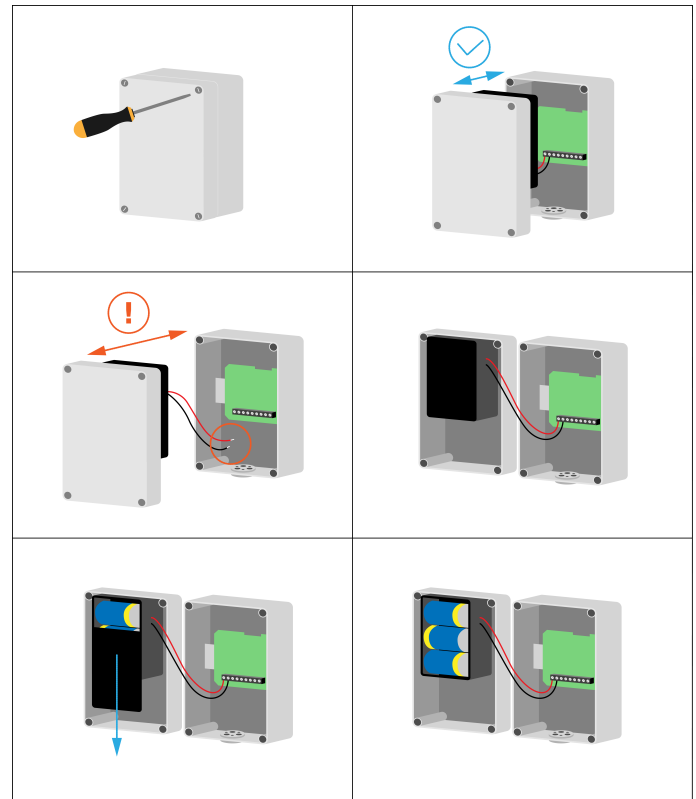
Rys. 3: Supply connection to the TCM SENSOR T

2.2.2 Connect 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 mm². 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: Connect of temperature sensors



Rys. 5: Battery replacement

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.

2.3.2 Battery

For TCM SENSOR T device use only battery LR20 Industrial PRO made by VARTA and for replacement use only LR20 Industrial PRO by VARTA. New battery should be transported 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.

Caution!

When removing the lid of a device ensure not to pull out the battery connectors between the device board and the battery case.

Caution!

Battery replacement must only be carried out by qualified and authorised persons after reading this operating manual. Using wrong type of a battery may result in explosion or fire.

Caution!

Do not expose battery to high temperature, fire, mechanical stress, ie. crushing, cutting, low air pressure. Otherwise it can cause battery leakage of flammable gas or fluid.

2.4 Symbols



Rys. 6: 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 us.

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