



TEMP-WM and TEMP-DM Transmitter

INSTRUCTION MANUAL - V1.0x E



CE Mark

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

1 PRESENTATION

The **TEMP-WM** and **TEMP-DM** transmitter series incorporate the best high accuracy and great stability temperature sensors. They convert the measured values into linear 4 to 20 mA signals and optional 0 to 10 Vdc output can also be offered under request.

The microprocessor based circuit enables full configuration of output range when used with the TxConfig PC interface and the *Windows®* based software.

2 INSTALLATION

3.1 MECHANICAL INSTALLATION

The **TEMP-DM** (Duct Mount) model transmitter should be installed with a flange. This flange is first screwed onto the duct wall and the transmitter probe is then inserted into the flange central hole and locked. **Fig. 1** below shows flange dimensions and holes. Available in stainless steel or polyamide 6.6.

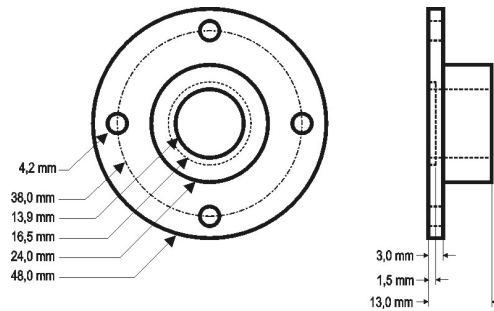


Fig. 1 – Mounting flange for **TEMP-DM**

The probe is made in stainless steel, with standard lengths of 150 mm or 250 mm.

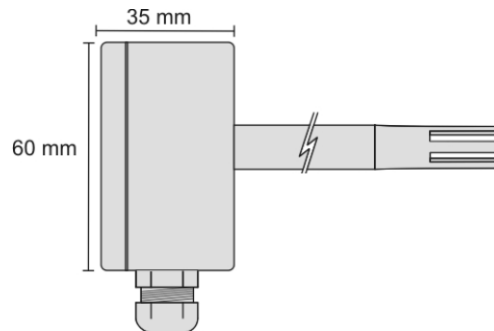


Fig. 2 - Model **TEMP-DM** dimensions

The model **TEMP-WM** (Wall Mount) was designed to be mounted directly onto a wall. With the cover off, the user can access the 2 fixing points and the signal connector, as shown in **Fig. 3**. **The transmitter sensor capsule must be placed faced down in order to assure the specified accuracy and protection level.**

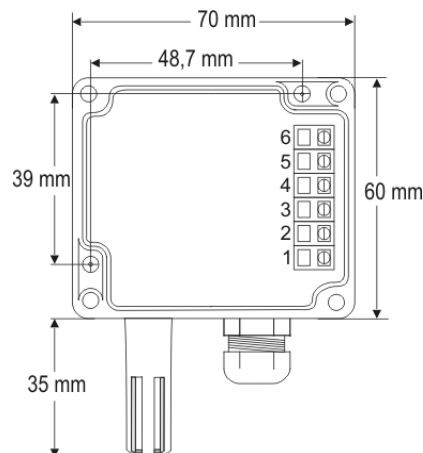
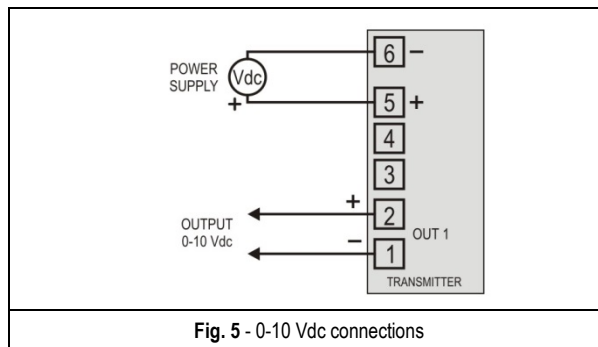
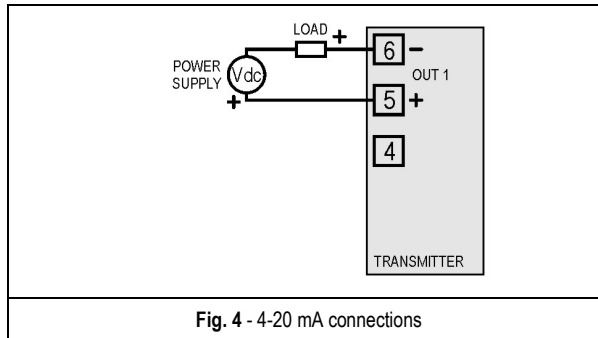


Fig. 3 - **TEMP-WM** fixing holes and housing dimensions

3.2 ELECTRICAL INSTALLATION

The transmitter can be ordered as **4-20 mA** current output or **0-10 Vdc** voltage output. The output signal is defined on purchase and cannot be later changed.

Figures below show the required electrical connections.



LOAD represents the output signal measurement equipment (controller, register, etc).

The connection wires go inside the transmitter through to the cable gland mounted in the transmitter case.

INSTALLATION RECOMMENDATIONS

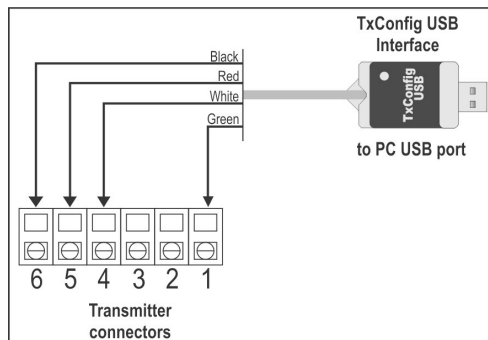
- Conductors of small electrical signals must be distant from activation or high-tension/current conductors, preferably passing through grounded conduits.
- A specific electrical power supply network should be provided for instruments use only.
- In controlling and monitoring applications, possible consequences of any system failure must be considered in advance.
- RC filters (47 R and 100 nF, serial) in inductor charges (contactors, solenoids, etc.) are recommended.

3 CONFIGURATION

If the default configuration or the ordered configuration satisfies the application, then no further configuration is necessary and the transmitter is ready to be used. If a new setting is desired, this can be accomplished by the **TxConfig** and sent to the transmitter through the **TxConfig USB** interface.

The TxConfig interface and software compose the **Transmitter Configuration Kit**, which can be purchased separately. The latest release of this software can be downloaded from our web site. To install, run the **Tx_setup.exe** and follow the instructions.

The **TxConfig USB** interface connects the transmitter to the PC, as shown in **Fig. 6**.



Once the connection is accomplished, the **TxConfig** software shows the configuration options of the transmitter model attached. Access the *Help* for usage instructions.

The **TxConfig** screen is shown in **Fig. 7**.

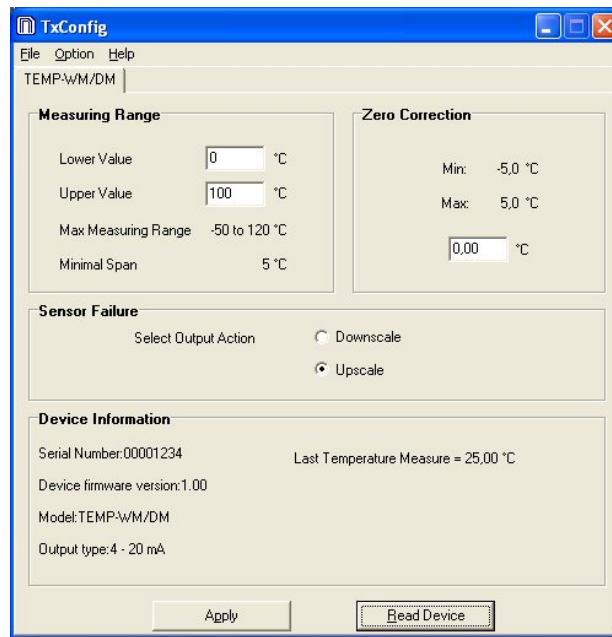


Fig. 7 – Main window of TxConfig software

The fields in the screen mean:

1. **Measuring Range:** Defines the output scale for the input sensor. Program here the measurement **Lower Value** and the **Upper Value**.
When the lower limit is defined with a value higher than the **High Limit** the output current operates from 20 to 4 mA.
The values configured in these fields can not be beyond the sensor measuring range. The minimal span value has to be observed as well.
2. **Sensor Failure:** Establishes the transmitter output behavior (upscale or down-scale) in the presence of a sensor fail. When Minimum is selected, the output current is < 4 mA (down-scale), typically used for refrigeration. When Maximum is selected, the output current is > mA (up-scale), typically used in heating systems.
3. **Zero Correction:** Allows for small sensor corrections.
4. **Apply:** Transmitter identification data. These information must be informed when the user contact us.
5. **Read Device:** Brings to the screen the current transmitter parameters configuration.
6. **Send Configuration:** Sends a new configuration to the transmitter.

Note: The factory default configuration is (unless otherwise specified or ordered):

- Temperature span: 0 a 100 °C;
- 0 °C of zero correction;
- Upscale when sensor fails.

Serial port configuration errors may occur when other software are sharing the same serial port. Close all serial port applications prior to using the TxConfig software.

4 SPECIFICATIONS

Temperature Measurement	Total accuracy: 0.5 °C @ 25 °C (1.6 °C for the entire measurement range); Measuring Range: Configurable between -50 and 120 °C, (see Operating limits); Factory setting: 0 and 100 °C.
Operating Limits	TEMP-WM model: Electronic circuit: -20 to +65 °C TEMP-DM model: Electronic circuit: -20 to +65 °C Sensor and Probe: -40 to +100 °C Note: For temperatures above 65 °C or below -20 °C, a maximum of 50 % of the probe length (TEMP-DM) should be exposed to this temperature, to avoid conducting extreme temperatures to the electronic module.
Response Time	Up to 30 seconds in slow moving air.
Power supply	<ul style="list-style-type: none"> • 4-20 mA model: 12 Vdc to 30 Vdc • 0-10 V model: 18 to 30 Vdc / 15 mA max.
Outputs	<ul style="list-style-type: none"> • 4-20 mA or 20-4 mA current, 2-wire – loop power supply; • 0-10 Vdc voltage.
Output Load (RL)	<ul style="list-style-type: none"> • 4-20 mA model: $RL \text{ (Ohms max.)} = (Vdc - 12) / 0.02$ let Vdc = Loop power supply (12 to 30 Vdc) • 0-10 Vdc model: 2 mA max.
Output Resolution	<ul style="list-style-type: none"> • 4-20 mA model: 0.006 mA • 0-10 Vdc model: 0.003 V
Protection	Electronic circuit case: IP65; Sensor capsule: IP40.
Cables Entrance	Compress fitting PG7.
Internal protection against reverse polarity of the supply voltage	Yes
Sensor, output and power supply electrically isolated	No

Table 1 - Technical Specifications

IMPORTANT

An identification label, on the transmitter body, shows the characteristics of this model.

No accuracy improvement results from narrowing the range for the 4-20 mA output. For example, the specified accuracy will be achieved for a transmitter configured to a -50 to 100 °C or to a 20 to 40 °C range.

Shall any error occur in the measures taken by the sensor, they can be corrected with the TxConfig software. The TxConfig interface can be connected to the transmitter even connected to the process and under operation. See **Fig. 7** and **Zero Correction** field in the main screen of the TxConfig software.

It is possible that some temporary oscillations occur on the transmitter output when it is powered on and some changes are applied on its configuration.

5 WARRANTY

Warranty conditions are available on our web site www.novusautomation.com/warranty.