



# TXMINI-DIN43650-MP BUILT-IN TEMPERATURE TRANSMITTER

OPERATING MANUAL – V1.0x

## INTRODUCTION

The **TxMini-DIN43650-MP Built-in Temperature Transmitter** is a 4-20 mA type with 2-wires temperature transmitter with a built-in Pt100.

Its configuration is performed by the **TxConfig-DIN43650** interface. The configuration does not require that the transmitter be powered.

The output current is linearized according to the selected input sensor and adjusted to the configured range.

## SPECIFICATIONS

### Sensor Input:

**Pt100:** Type 3-wire, Excitation 0.8 mA,  $\alpha = 0.00385$ , according IEC 60751 (ITS-90).

**Switch-on delay:** < 2.5 s. The accuracy is only guaranteed after 15 minutes.

**Calibration error:** < 0.12 % (RTD).

**Reference terms:** Environment: 25 °C; voltage: 24 Vdc, load: 250 Ω; settling time: 15 minutes.

**Temperature Effect:**  $\pm 1.5$  °C over the entire range

**Response time:** Typical 1.6 s

**Maximum permitted voltage at sensor input terminals:** 3 V

**RTD current:** 800  $\mu$ A

**RTD cable resistance effect:** 0.005 °C / Ω

**Maximum allowable cable resistance for RTD:** 25 Ω

**Power supply influence:** 0.006 % / V typical (percentage of the full measure range).

**Output:** 4-20 mA or 20-4 mA current, 2-wired; linear in relation to the temperature measurement by the selected sensor.

**Output Resolution:** 2  $\mu$ A.

**Power supply:** 8 to 35 Vdc, transmitter voltage;

**Maximum load (RL):**  $RL (max.) = (Vdc - 8) / 0.02 [\Omega]$   
Where: Vdc = Power supply voltage (8-35 Vdc)

**Operating Temperature:** -40 to 85 °C (-40 to 185 °F) (Electronic)

**Humidity:** 0 to 90 % RH

**No electrical isolation between input and output.**

**Internal protection against polarity inversion.**

**Type of thread in the process:** 1/2" BSP

**Connection Wire Cross Section:** 0.14 a 1.5 mm<sup>2</sup>

Sensor Type	Measurement Range	Minimum Measurement Range
Pt100	0 to 100 °C (32 to 212 °F)	40 °C (104 °F)

Table 1 – Measurement Range

## CONFIGURATION

The factory setting of the transmitter is for Pt100 input with range 0 to 100 °C (32 to 212 °F) and output for maximum current in case of error. When the transmitter is used with this configuration, no further intervention is required. Its installation can be performed immediately. When it is necessary to change the configuration, it must be performed through the **TxConfig II** software.

The **TxConfig-DIN43650** interface and **TxConfig II** software composes the Transmitter Configuration Kit, which can be purchased from the manufacturer or its authorized representatives.

The configuration software can be downloaded from the manufacturer's website. To install it, you must run the file **TxConfigIISetup.exe** and follow the installer instructions.



The communication interface TxConfig-DIN43650 is not electrically isolated from the transmitter's input.

## SOFTWARE CONFIGURATION

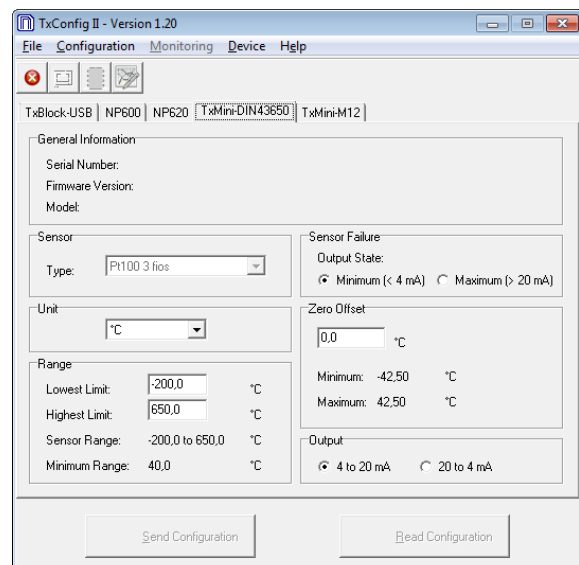


Figure 1 – TxConfig II software main screen

The fields of this screen have the following purposes:

- General Information:** Displays the data that identifies the transmitter. For eventual consulting, this information should be presented to the manufacturer.
- Sensor:** Allows you to select the sensor to be used.
- Measuring Range:** Allows you to define the transmitter measurement range.

**Lower Range Limit:** Desired temperature for 4 mA current.

**Upper Range Limit:** Desired temperature for 20 mA current.

### Sensor Range

The values chosen cannot exceed the **Sensor Range** shown in this field.

### Minimum Range

It is not possible to establish a range with span smaller than the value of **Minimum Range** indicated below in this same field.

- Sensor Failure:** Allows you to define the output behavior when the transmitter indicates that there has been a failure:
  - Minimum:** Output current goes to < 3.8 mA (down-scale). Typically used for refrigeration.
  - Maximum:** Output current goes to > 20.5 mA (up-scale). Typically used for heating.
- Zero Correction:** Allows you to correct small deviations displayed at the transmitter output, such as when the sensor is replaced.
- Send Configuration:** Allows you to send the new configuration. Once sent, the configuration will be immediately adopted by the transmitter.
- Read Configuration:** Allows you to read the configuration present in the connected transmitter. The screen shows the current configuration, which may be changed by the user.

### FACTORY SETTING

- Sensor: Pt100 3-wire, range 0 to 100 °C;
- Sensor failure: upscale (maximum).
- 0 °C zero correction.
- Unit: °C;
- Output: 4 to 20 mA.

### MECHANICAL INSTALLATION

The TxMini-DIN43650-MP was designed to be installed in tubes and other small places. Excessive vibration, humidity and temperature, electromagnetic interference, high voltage and other interferences can permanently damage the transmitter or cause an error in the measured value.

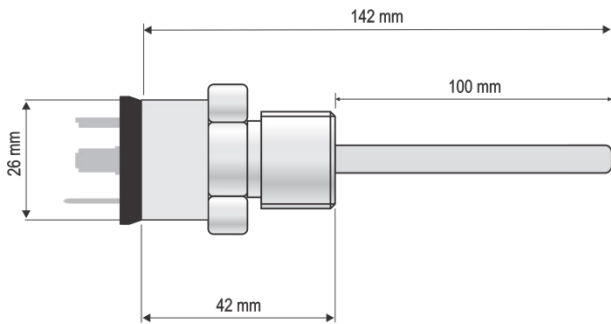


Figure 2 – Transmitter dimensions

### ELECTRICAL INSTALLATION

- Polyamide enclosure;
- Section of the cable used: 0.14 to 1.5 mm<sup>2</sup>;
- DIN43650 female connector included.

### RECOMMENDATIONS FOR INSTALLATION

- Input signal conductors must go through the plant system separately from output and power supply connectors. If possible, in grounded conduits.
- The instruments must be powered from the instrumentation power supply circuit.
- In control and monitoring applications, it is essential to consider what can happen when any part of the system fails.
- It is recommended the use of suppressors in contact coils, solenoids and any inductive load.

### POWER AND COMMUNICATION CONNECTION

Terminal 3 is used to communicate with the transmitter (**TxConfig-DIN43650** interface must be used).

Terminal 4 can be connected to cable shield, if needed.

3	1	LOOP +
2   ○   1	2	LOOP -
4	3	COMM
	4	SHIELD

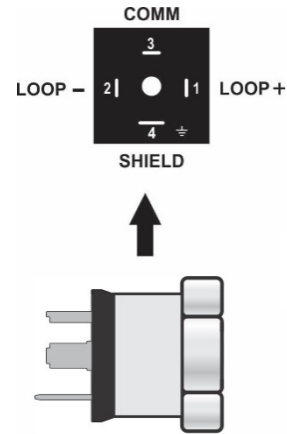


Figure 3 – 4-20 mA output

### OPERATION

The sensor offset can be adjusted through the **TxConfig II** software. The USB cable may be connected to the transmitter without causing any measurement errors.

**Note:** When performing calibrations on the transmitter, you must observe whether the Pt100 excitation current required by the calibrator used is compatible with the Pt100 excitation current used in the transmitter: 0.8 mA.

### WARRANTY

Warranty conditions are on our website [www.novusautomation.com/warranty](http://www.novusautomation.com/warranty).

EDM Ltd.

โทรศัพท์ : 02 966 1590 มือถือ : 086 316 7625

Email : [contact@edm.co.th](mailto:contact@edm.co.th) LINE : EDM9824