# TEXMATE

## TT-2D2MM
## TT-2D2MC
### Microprocessor Based Programmable Isolated Dual Independent Channels Universal Signal Transmitter

CE

**TT-2D2MM** and **TT-2D2MC** are the DIN rail mount user programmable Isolated dual independent channel universal signal converters. It accepts various input signals including mV, V, mA, PT100 and 9 different thermocouples. The measuring unit and range are also configurable with a user-friendly TT Configurator software.

## General Features

- Two independent input channels for various inputt signals and measuring range.
- Easy configuration without external power connected.
- Dual channel Input:
    - Resistance thermometer (Pt100)
    - Thermocouple (J, K, T, E, B, R, S, N, C)
    - Voltage/Current transmitter (mV/V/mA)
- Dual analog output: 0/4 to 20mA or optional 0~10V.
- RS485 comm. (TT-2D2MC): Modbus RTU protocol.
- Fault signal on sensor break presettable.
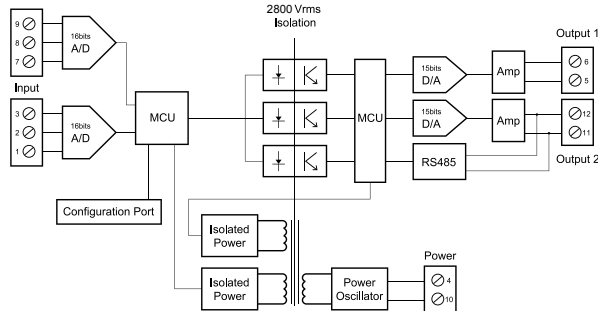


## Specifications

**Input signal:** User programmable. refer to table 1.
- **Thermocouple (T/C):** Industry standard thermocouple types, J, K, T, E, B, R, S, N, C (ITS-90).
- **Pt100:** Excitation 180uA. 2 or 3 wire connection (ITS-90 α=0.00385).
- **Voltage:** -60mVdc to 60mVdc or -10Vdc to 10Vdc.
- **Current:** 0mA to 24mA

**Measuring range:** User programmable. Max. range see table 1.
**Measuring accuracy:** Refer to Table 1. The accuracy is tested under the operating condition of 24°C±3°C.
**Input sampling rate:** 200mS.

| Input signal | Maximum Range | Accuracy |
|---|---|---|
| Thermocouple J | -50 to 1000°C (-58 to 1832°F) | ±1°C |
| Thermocouple K | -50 to 1370°C (-58 to 2498°F) | |
| Thermocouple T | -270 to 400°C (-454 to 752°F) | |
| Thermocouple E | -50 to 700°C (-58 to 1292°F) | |
| Thermocouple B | 0 to 1750°C (32 to 3182°F) | ±2°C ① |
| Thermocouple R | -50 to 1750°C (-58 to 3182°F) | ±2°C |
| Thermocouple S | | |
| Thermocouple N | -50 to 1300°C (-58 to 2372°F) | |
| Thermocouple C | -50 to 1800°C (-58 to 3272°F) | |
| Pt100* | -200 to 600°C (-328 to 1112°F) | ±0.2°C |
| mV | -60.00 mV to 60.00 mV | ±0.01mV |
| Voltage ② | -10.000 to 10.000 Vdc | ±1mV |
| Current ② | 0.000 to 24.000 mAdc | ±3µA |

**\* Factory setting**          **Table 1**

① Accuracy is not guaranteed between 0 and 400°C (0 and 752°F) for type B, R and S.
② Rang set by an internal DIP switch, see Table 2.

**Output signal:**
TT-2D2MM: Two analog output, 0/4~20mA or optional 0~10Vdc
TT-2D2MC: One alalog output, 0/4~20mA or optional 0~10Vdc and one RS485

**Output resolution:** 0.6uA.
**Output response time:** <200mS.
**Load:** Max. (VPower supply - 10 V) / 0.020
**Power supply:** 18 to 36 V, internal protection against polarity inversion.
**Communication : Modbus** RS485 RTU protocol, 4800~38400 bps
**Common mode rejection ratio:** >80dB.
**Galvanic isolation:** 2 KV 1min. between input and output
**Operating temperature:** 0 to 55°C
**Humidity:** 0 to 90% RH
**Electromagnetic compatibility (EMC):** En 50081-2, En 50082-2
**Housing material:** ABS plastic. UL 94V0
**Weight:** 85g

**CASE DIMENSIONS**



87mm (3.43")    83 mm (3.27")    75 mm (2.95")    18.5 mm (0.73")

**Figure 1**
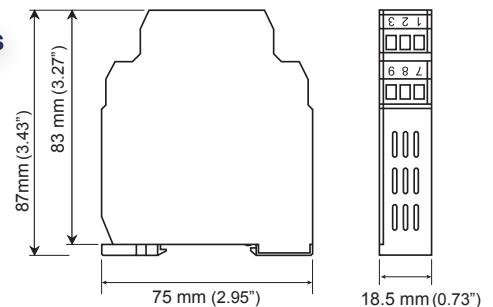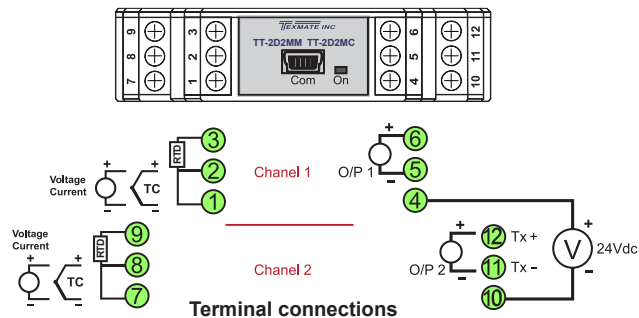
## Terminal Connection



**Terminal connections**

### Wiring Specification :

Screw tightening torque : 4.3 lb-in,

Wire range : 12~30 AWG.

Wire strip length : 6~7mm

### Wiring Precaution :

1. Always keep signal wires away from power or contactor wires.
2. Transmitter's power supply should not be shared with contactors, electrical motor and other inductive devices.

The various input signals are divided into three groups.

**1. TC/RTD/mV :** Thermocouple type (J, K, T, E, B, R, S, N, C), Pt100 and voltage input in the range of -60mVdc~60mVdc.

**2. Current :** 0~24 mA.

**3. Voltage :** -10~10Vdc.

For the three different groups of input signal type, The SW1 and SW2 should be set according to the Table 2 for each channel separately. Open the cover o change the DIP switch setting.

|  | 1 | 2 | 3 |
|---|---|---|---|
| TC/RTD/mV* | OFF | OFF | ON |
| 0~24mA | ON | OFF | ON |
| -10V~10V | OFF | ON | OFF |

*Factory setting

**Table 2.**

**Internal DIP switch setting**



**Internal DIP switch**

## Installation



**Mounting**

**Removing**
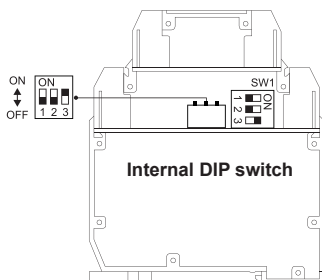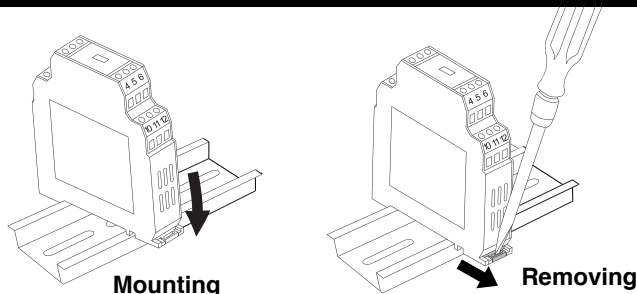
## Communication

All the input signals and output current are calibrated within the specified accuracy at factory. Further Custom input and output signal adjustment can be recalibrated with **TT Configurator** software.

## Configuration

The transmitter is user configurable with the user-frendly **TT Configurator** software and URC-1020 interface cable. The latest version can be download free from **www.texmate.com.**

The URC-1020 Interface cable consist of interface converter and USB plug. It can be purchased separately. During configuration the transmitter can work alone with or without connecting to a power source.
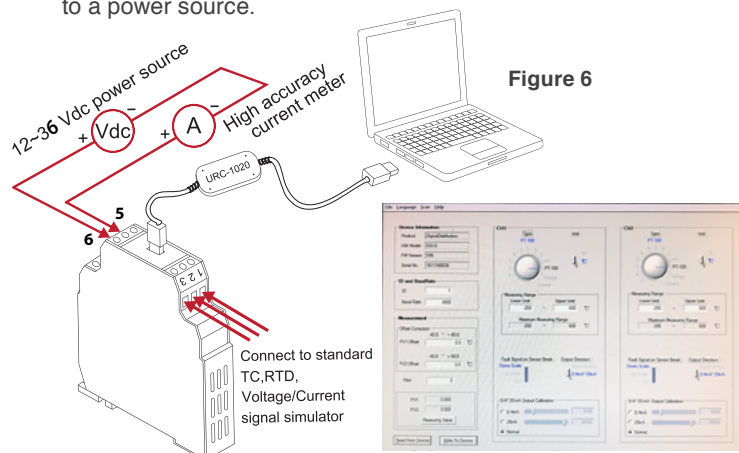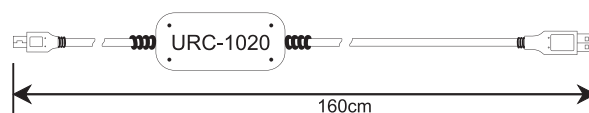


**Figure 6**

Connect to standard TC,RTD, Voltage/Current signal simulator

**Figure 5**

### The Configurable parameters are :

**1. Input signal type:** Various input signal type can be selected among the available options.

**2. Unit:** Select the unit (°C or °F) of temperature. For linear input (voltage or current), it doesn't effect the measurement.

**3. Measuring range:** Defines the lowest and highest value of measuring range. Within the range, the transmitter will convert input signals into an scalable analogue output signal.

**4. Output direction:** Defines the scalable analogue output signal to be 4 to 20mA or 20 to 4mA.

**5. Fault signal on sensor break:** Defines the output signal to be
   (1) Downscale (<4mA).
   (2) upscale (>20mA).
   (3) Cut-off. Limit the output signal within the output range when the input is out of measuring range.

**6. Offset Correction:** Allows to eliminate the offset error of measuring value.

**7. ID & Baud Rate:** Set device ID and communication baud rate.

**8. 0/4~20mA Output Signal Calibration:** Zero and Span adjustment of output signal. A power source shoule be connected as Figure 6.

**9. Measuring value:** Read the measuring value of channel 1 (PV1), channel 2 (PV2) continually.

**10. Device information:** Indicate the device model, firmware version, series number and communication status. Figure 5.

## Acceessary



160cm

**URC-1020 Interface cable**