

NTM2 Series Temperature Transmit Module



→ Introductions

This temperature transmit module deliver the field thermocouple or thermal resistance signals by digital linearization, convert to 4 ~ 20 mA current signals.

→ Parameters

Explosive-proof grade: Ex ia IIC T4/T6 Ga

T4: -40 °C ~ +60 °C

T6: -40 °C ~ +50 °C

Power supply:

Rated voltage: 12 V DC ~ 28 V DC (loop powered)

Input:

TC: K, E, S, B, J, T, R, N, WRe3 - WRe25, WRe5 - WRe26

2/3/4-wire RTD: Pt100, Cu100, Cu50, BA1, BA2

The input signal needs to be determined when ordering and can also be programmed.

Output: 4 ~ 20 mA

Load resistance:

$R_L \leq [(U-12)/0.022] \Omega$ U: Loop power supply

Transmission characteristics (25 °C ± 2 °C):

Input	Range	Accuracy
K/E/J/N/T	< 300 °C	± 0.3 °C
	≥ 300 °C	± 0.1% F.S.
S/B/R/WRe-series	< 500 °C	± 0.5 °C
	≥ 500 °C	± 0.1 % F.S.
Pt100/Cu100 Cu50/BA1/BA2	< 100 °C	± 0.1 °C
	≥ 100 °C	± 0.1 % F.S.

Response time: ≤ 1 s

Temperature drift: 50 ppm/°C

Cold junction compensation accuracy: ± 1 °C (Preheated for 10 minutes)

Cold junction compensation range: -40 °C ~ +85 °C

Electromagnetic compatibility: Accordance to IEC 61326-3-1

Dielectric strength (1 mA leakage current, 1 minute test time):

≥ 1500 V AC (Input /Output)

Insulation resistance: ≥ 100 MΩ (Input /Output)

Ambient conditions:

Operation temperature: -40 °C ~ +85 °C

Relative humidity: 10% RH ~ 90% RH (40 °C)

Atmosphere pressure: 80 kPa ~ 106 kPa

Storage temperature: -40 °C ~ +85 °C

Parameters certified by National Supervision and Inspection Center for Explosion Protection and Safety of Instrumentation (NEPSI):

Terminals 3, 4, 5, 6:

U_i: 5.9 V; I_i: 24 mA; P_i: 36 mW; C_i: 40 μF; L_i: 40 mH

Terminals 1, 2:

U_i: 28 V; I_i: 93 mA; P_i: 670 mW; C_i: 0 μF; L_i: 0 mH

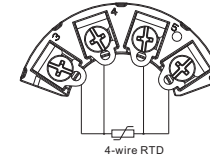
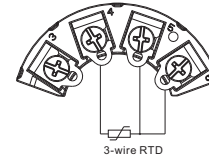
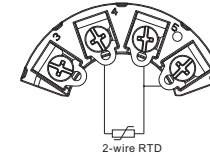
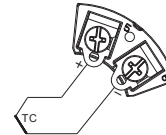
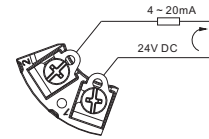
→ Model rules

NTM2 X 0. Ex

The input signal^{note}

Number	Input signal
0	Thermocouple or thermal resistance
1	Thermocouple
2	Thermal resistance

→ Wiring diagram

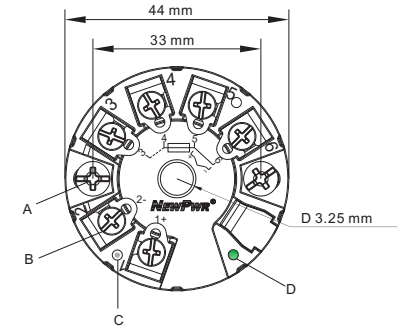
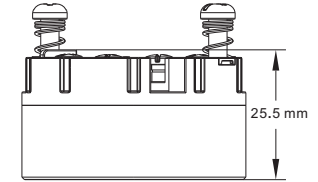


- Terminals 5 and 6 must be shorted when 2-wire RTD inputs.
- 3-wire input, wire resistance should be as same as possible, otherwise it will increase the error of measurement.
- TC input, the compensating wire should be connected directly to the input terminals of the temperature transmit module.

→ Output state

- When input short circuit, the input value is 0 V/mA; when input breakage, the output value is 3.8 mA; When input over-range, the output current follows the input within measuring range, the maximum output value would not exceed 22 mA, the minimum output value would not less than 3.8 mA.

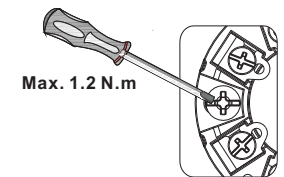
→ Dimension



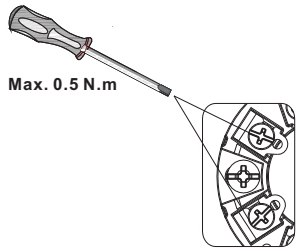
- A. M4-screw
- B. M3-screw
- C. Test Pin
- D. Power indicator

- **Power indicator:** Power indicator light shows green, it means work normally.
- **Test Pin:** It can test loop current between terminals 2 and Test Pin when the power supply is on.

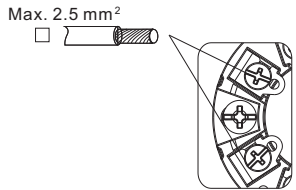
NOTE:



- Maximum torque of the M4-screw 1.2 N.m.



○ Maximum torque of the M3-screw 0.5 N.m.



○ Wire size 0.2 mm² ~ 2.5mm².

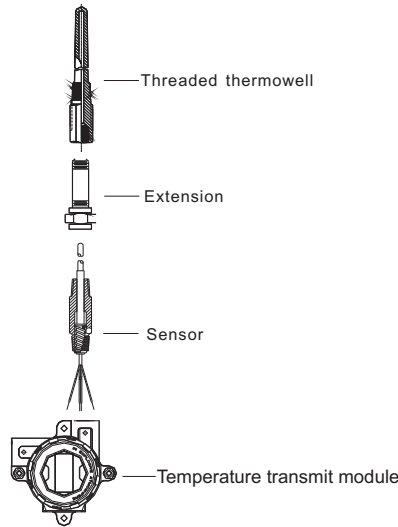
→ **configuration**

There are two ways to programming or calibration to choose for this product:

1. About The Site Handheld Programmer: Chinese menu, large liquid-crystal screen make the function programming more completed and the measurements calibrating more convenient, having a friendly human-machine interface.
2. Figuration software: Matching with special protocol converter make it more flexible. Besides, it is relatively more affordable.
3. For this product uses the special structure of the digital and take the ambient temperature compensation, zero auto-calibration and other advanced technology, it can ensure the accuracy within prescribed limits all the year round, without frequent calibration.

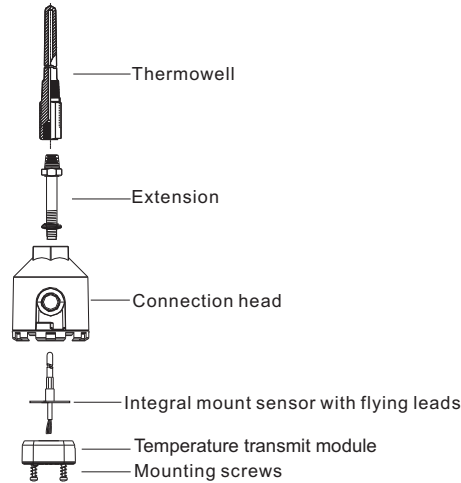
→ **Installation**

Head mount temperature transmit module:



1. Attach the thermowell to the pipe wall. Install and tighten thermowells before applying process pressure.
2. Attach extension nipples and adapters to the thermowell. Seal the nipple and adapter threads with tape.
3. Screw the sensor into the thermowell. Install drain seals if required for severe environments or to satisfy code requirements.
4. Pull the sensor wiring leads through the universal head and temperature transmit module. Mount the temperature transmit module in the universal head by threading the transmitter mounting screws into the universal head mounting holes.
5. Mount the transmitter-sensor assembly into the thermowell.
6. Install conduit for field wiring to the conduit entry of the universal head. Seal conduit threads with silicone tape.
7. Pull the field wiring leads through the conduit into the universal head. Attach the sensor and power leads to the temperature transmit module.
8. Install and tighten the connection head cover. Enclosure covers must be fully engaged.

Installation steps of junction box:



1. Attach the thermowell to the pipe. Install and tighten the thermowells before applying process pressure.
2. Assemble the transmitter to the sensor. Push the temperature transmit module mounting screws through the sensor mounting plate.
3. Wire the sensor to the temperature transmit module.
4. Insert the transmitter-sensor assembly into the connection head. Thread the temperature transmit module mounting screw into the connection head mounting holes. Assemble the extension to the connection head. Insert the assembly into the thermowell.
5. Slip the shielded cable through the cable gland.
6. Insert the shielded cable leads into the connection head through the cable entry. Connect and tighten the cable gland.
7. Install and tighten the connection head cover. Enclosure covers must be fully engaged.

→ **Attention**

- The devices degree of protection is IP 20 and must be protected from undesirable ambient conditions (waterproofing, small foreign objects). It is suitable for installation in the control room or high density field cabinet, DIN 35 mm installation is convenient for installation and displacement.

- The devices were designed for use in pollution degree 2 and overvoltage category III as per IEC/EN 60664-1. If used in areas with higher pollution degree, the devices need to be protected accordingly.
- Installation position shall not be affected by strong mechanical vibration; impact and electromagnetic induction from signal terminal and power supply, should conform to the requirements on electromagnetic interference resistance of products in Class 3 industrial field atmosphere stipulated in IEC 61000-4; the atmosphere shall be free from gases that are corrosive to metal and plastic components.
- The apparatus must be installed, connected and adjusted by qualified personnel in non-hazardous area according with the instruction manual.
- The operator must strictly comply with the relevant local safety standards and guidelines.

→ **Supplementary instructions**

- Our company reserves the right to change the product information without prior notification to the user. If the contents of the description are different from website or sample, this description shall prevail.