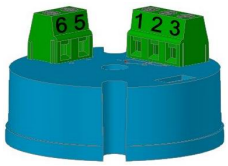
NEW-FLOW ISO 9001 REGISTERED

Golden Mountain Enterprise Co., Ltd.

Microprocessor Based Programmable Isolated Transmitter

Model NT-IB

Installation and Operation Manual



NT-IB

NEW-FLOW NT-IB is a 2-wire loop-powered isolated signal transmitter. Microprocessor based designed make it flexible to accept various input signals including mV, V, mA, PT100 and 9 different thermocouples. The measuring unit and range are also configurable with a user-friendly software NEW-FLOW NT-IB via PC.

Features

•Head mount type NT-IB
•PC programmable for various input signals, measuring range
•Configurable without external Loop Power Connected.
•Input:
Resistance thermometer (Pt100)
Thermocouple (J,K,T,E,B,R,S,N,C)
• Output:
2-wire loop-power technology, 4 to 20 mA analogue output.
• High accuracy in total ambient temperature range.
• Fault signal on sensor break presettable.

Specification

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
- **Measuring range :** User programmable. Maximum range refer to 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)	±1C
Thermocouple T	-270 to 400°C (-454 to 752°F)	±1°C
Thermocouple E	-50 to 700°C (-58 to 1292°F)	±1°C
Thermocouple B	0 to 1750°C (32 to 3182°F)	±2°C (Note1)
Thermocouple R	-50 to 1750°C (-58 to 3182°F)	±2°C
Thermocouple S	-50 to 1750°C (-58 to 3182°F)	±2°C
Thermocouple N	-50 to 1300°C (-58 to 2372°F)	±2°C
Thermocouple C	-50 to 1800°C (-58 to 3272°F)	±2°C
Pt100	-200 to 600°C (-328 to 1112°F)	±0.2°C
mV	-60mVto 60mV	±0.02mV
Voltage (Note2,3)	-10 to 10Vdc	±2mV
Current (Note2,3)	0 to 24mAdc	±2μA

Note 1 : Accuracy is not guaranteed between 0 and 400°C (0 and 752°F) for type B, R and S.

Note 2 : An internal jumper in NT-IB should be set. See Table 2 in detail.

Note 3 : Not selectable for NT-IB, Please contact supplier for special request.

Table 1 Input Signal

Output signal : Analogue 4 to 20 mA, 20 to 4 mA.
Output resolution : 0.6uA.
Output response time: < 200mS.
Load : Max. (VPower supply - 10 V) / 0.020
Power supply :12 to 36 V, internal protection against polarity inversion.
Galvanic isolation : 3.75 KV 1min. between input and output
Input current required ≤ 3.5 mA
Current limit ≤ 23 mA
Operating temperature : -40 to 85°C
Humidity : 0 to 90% RH
Electromagnetic compatibility (EMC): En 50081-2, En 50082-2
Dimension : shown in Figure 1.
Housing material : ABS plastic. UL 94V0
Weight :NT-IB:19g.

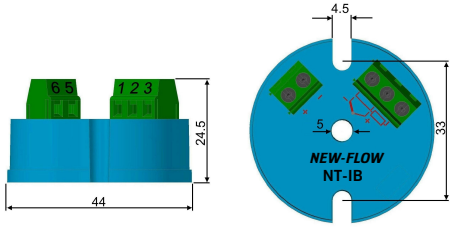


Figure 1. Dimension in mm

Electrical connection

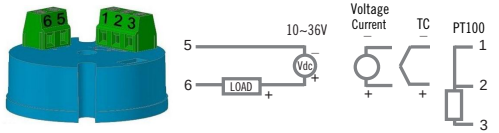


Figure 2. Terminal connections

Wiring Specification :
Srew tightening torque : 4.3 lb-in.
Wire range : 12~30 AWG.
Wire strip length : 7mm.

Wiring Precaution :

1. Always keep signal wires away from power or contactor wires.
2. The power supply of NT-IB should not be shared with contactors, electrical motor and other inductive devices.

The various input signals of NT-IB are divided into groups.
TC/RTD/mV : Thermocouple type (J, K, T, E, B, R, S, N, C), Pt100 and voltage input in the range of –60mVdc ~ 60mVdc.

Note : Special request of 0~24mA and -10~10Vdc input for IST-H, Please contact your supplier.

Operation

All input signals and the output current are calibrated within the specified accuracy at factory. However, a recalibration is implemented to provide fine adjustments to the input and output signal in the field. This is accomplished by NEW-FLOW NT-IB software.

Configuration

The NT-IB transmitter can be configuration using a PC with NEW-FLOW NT-IB software and **interface cable**.

• **Interface cable** consist of interface converter and USB plug. It can be purchased separately from NT-IB supplier.

During configuration the transmitter can work alone with or without connecting to a power source. The configuration connection is shown in Figure 3.

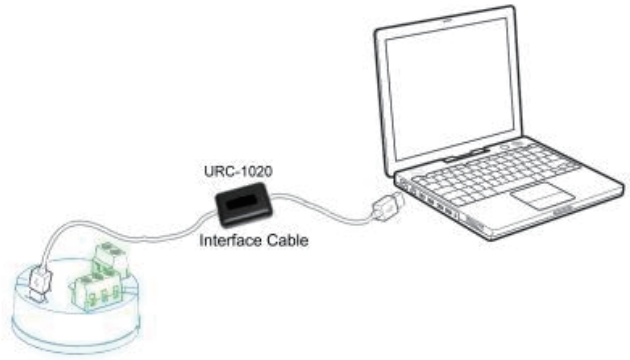


Figure 3. Configuration connection

Figure 4 show the configuration screen of NEW-FLOW **NT-IB** . 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 measurement. 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 NT-IB converting input signals into an scalable 4 to 20 mA analogue output signal.
4. **Output direction :** Defines the scalable analogue output signal to be 4 to 20mA or 20 to 4 mA.
5. **Fault signal on sensor break :** Defines the output signal to be upscale (>20mA) or downscale (<4mA) on sensor break.
6. **Offset Correction :** Allows to eliminate the offset error of measuring value.
7. **4~20mA Output Signal Calibration :** Zero and Span adjustment of output signal. A power source shoule be connected as Figure 4.
8. **Measuring value :** Read the measuring value from transmitter continually.
9. **Device information :** Indicate the device model, firmware version, series number and communication status.
10. **Error Message :** 3.75mA
    Over range: 3.75mA、Element fail: 3.75mA.

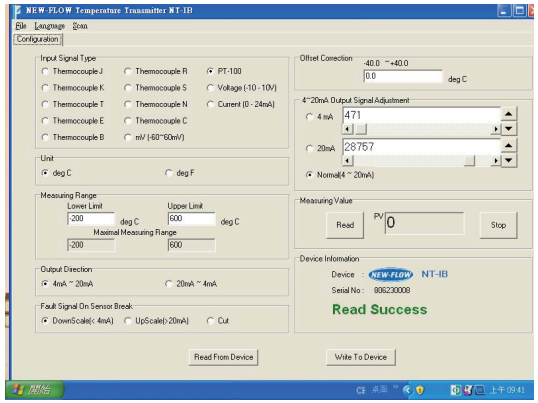


Figure 4. Configuration screen