H Series
TC & RTD Isolated Safety Barrier

Nanjing New Power Electric Co., Ltd.

➔ Introductions

This isolated safety barrier converts the thermocouple/ thermal resistance signals from a hazardous area into current or voltage signals to a safe area.

The input, output, and power supply are galvanically isolated from each other. Calibrate the apparatus or modify parameters by using a handheld programmer.

➔ Parameters

Explosive-proof grade: [Ex ia Ga] IIC

Power supply (13, 14):

Rated voltage: 18 V DC ~ 32 V DC (Recommended voltage: 24 V DC)

Input (1, 2, 3; 4, 5, 6):

TC: K, E, S, B, J, T, R, N, WRe3 - WRe25, WRe5 - WRe26, 2/3-wire RTD: Pt100, Cu100, Cu50, BA1, BA2

The input signal needs to be determined when ordering and can also be programmed. Other signal types is required special customization, please see the productlabel for details.

Line resistance: ≤ 20 Ω per line

Output (8, 9; 11, 12):

Output current: 0(4) ~ 20 mA; 0 ~ 10 mA

Output voltage: 0(1) ~ 5 V; 0 ~ 10 V

Other signal types is required special customization, please see the productlabel for details.

Load resistance:

0(4) ~ 20 mA: ≤ 500 Ω; 0 ~ 10 mA: ≤ 1 kΩ

0(1) ~ 5 V: ≥ 1 MΩ; 0 ~ 10 V: ≥ 2 MΩ

Other load resistance is required special customization, please see the productlabel for details.

Transmission characteristics (25 ℃ ± 2 ℃, not contain cold junction compensation):

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

Response time: ≤ 1 s

Temperature drift: 0.01%F.S./℃

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

Cold junction compensation range: -20 ℃ ~ +60 ℃

Electromagnetic compatibility: According to IEC 61326-3-1

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

≥ 2500 V AC (intrinsically safe side / non-intrinsically safe side)

≥ 500 V AC (non-intrinsically safe side /non-intrinsically safe side)

Insulation resistance: ≥ 100 MΩ (Input /Output/Power supply)

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

Um: 250 V

Terminals 1, 2, 3; 4, 5, 6:

U_o: 7.3 V I_o: 27 mA P_o: 50 mW C_o: 12 μF L_o: 28mH

Ambient conditions:

Operation temperature: −20 ℃ ~ +60 ℃

Relative humidity: 10% RH ~ 90% RH (40 ℃)

Atmosphere pressure: 80 kPa ~ 106 kPa

Storage temperature: −40 ℃ ~ +80 ℃

Power dissipation:

1.0 W (24 V DC, single input, single output)

1.5 W (24 V DC, single input, double output; double input, double output)

Degree of protection: IP 20

➔ Model rules

NPEXA-H0 D [X] [X]

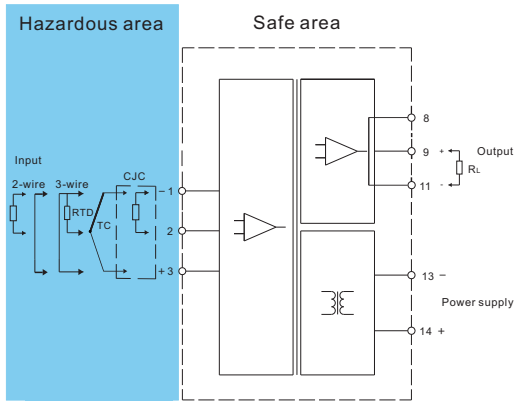
- The second output signal [note] / Default: null
- The first output signal [note]
- Double channel / Default: Single channel

NOTE : Output signal

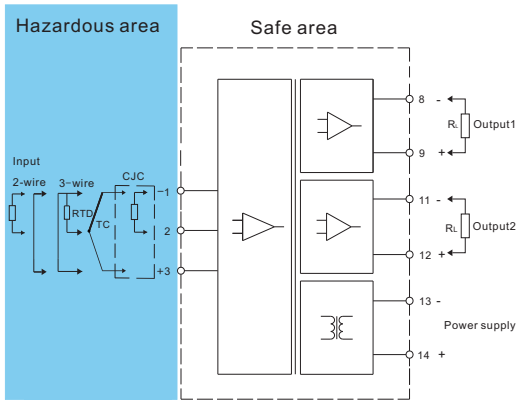
Number	Output signal
1	4 mA ~ 20 mA
2	1 V ~ 5 V
3	0 mA ~ 10 mA
4	0 V ~ 5 V
5	0 V ~ 10 V
6	0 mA ~ 20 mA
X	User customized signal type

➔ Wiring diagram

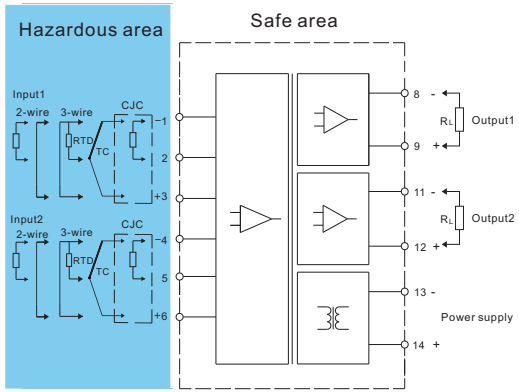
Single input, single output



Single input, double output



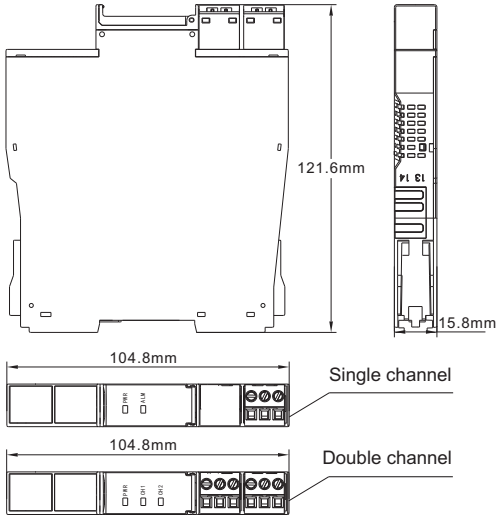
Double input, double output



- Follow mode: Whatever input fault status (except breakage, the output value is 0 V/mA), the output follows the input within measuring range. And the maximum value would not exceed the 110% of the upper limit of the measuring range (e.g. When the output signal type is 0 ~ 20 mA, the minimum output value may be 0 mA, the maximum output value would not exceed 22 mA).
- When the thermocouple input, compensation conductor should be directly connected to the input terminals, do not connect other material lead, otherwise will cause measurement error.

➔ Dimension

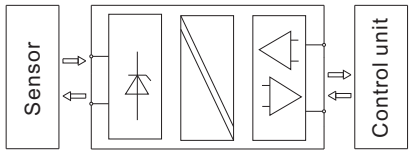
Width × Height × Depth: 15.8 mm × 121.6 mm × 104.8 mm



➔ Applications

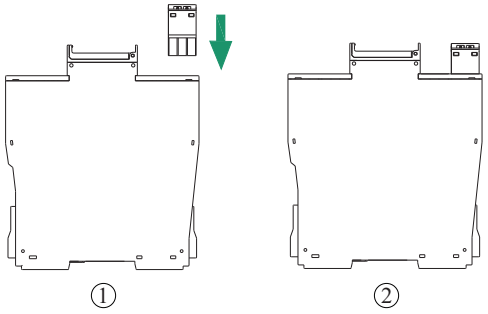
This apparatus is used for transmitting signals between field devices and process control system. It can be used to connect field equipment which is installed in potentially explosive gas environment, and protect the intrinsically safe equipment in a hazardous area by limiting current and limiting voltage.

The apparatus can convert the thermocouple/thermal resistance signals into current or voltage signals, and then transmit the output signal to the connected process control system.



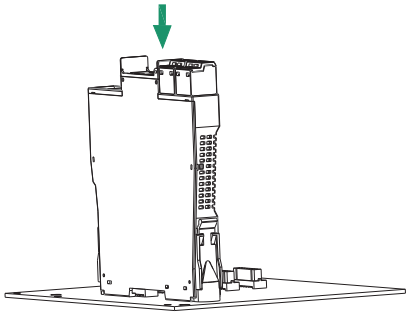
➔ Connection

- Through plug-in connectors, the apparatus can be used to connect equipment which is installed in the hazardous area. The main apparatus is directly snapped onto the backplane.



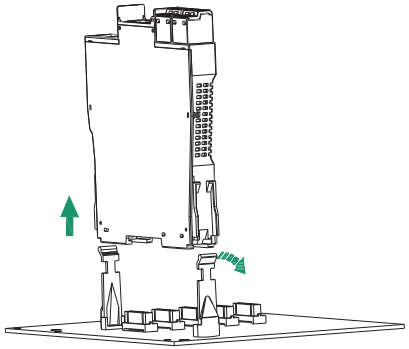
➔ Installation

- The apparatus can be snapped onto the backplane, and it can be hot-plugged without any tools.
- Installation steps are as follows:

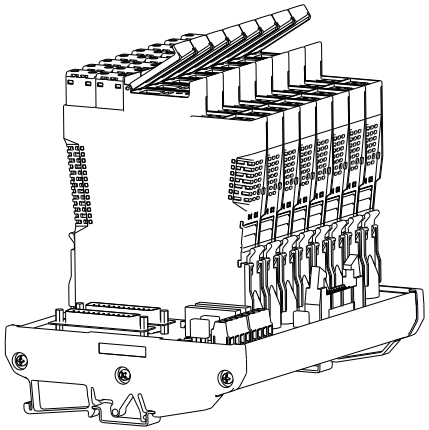


Install the apparatus, make the both sides of the apparatus aim at the slot of the backplans, press down the apparatus onto the backplans as the direction of the arrow.

- Removing steps are as follows:



Pull the slot of the backplans outward, and remove the apparatus as arrow shows .



Installation

➔ Light indication

- **PWR**: Power indicator light shows green, it means work normally.
- **ALM**: (**CH1, Ch2 Double channel**)

  Input signal state indicator (red), it is off during normal operation;

  It is remain bright when input over-range;

  RTD: It is glitter when input line breakage or short circuit (except for linear resistance short circuit);

  TC: It is glitter when input line breakage.

➔ Attention

- Isolated Safety Barriers 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 conformity with 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.