

H Series Current Input Isolated Safety Barrier



→ Introductions

This isolated safety barrier detects loop current and converts it from a hazardous area into current or voltage signals to a safe area, and also provides transmitters with power in the hazardous area. It allows transmission of HART communication signals.

The input, output, and power supply are galvanically isolated from each other. The main advantages of the isolated safety barrier are fast response, low dissipation and temperature stability.

→ Parameters

Explosive-proof grade: [Ex ia Ga] IIC

Power supply (13, 14):

Connection type: Backplane connector

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

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

Input signal: 0(4) ~ 20 mA; 0 ~ 10 mA (Please see the product label for details)

Input resistance: Approx. 75 Ω

Available voltage:

Open-circuit voltage ≤ 26 V, voltage: ≥ 15.5 V at 20 mA

Output (8, 9; 11, 12):

Sink mode: 4 ~ 20 mA

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

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

Load resistance:

Sink mode: $R_L \leq [(U-3)/0.02] \Omega$ U: Loop power supply

0(4) ~ 20 mA: ≤ 450 Ω; 0 ~ 10 mA: ≤ 900 Ω

0(1) ~ 5 V: ≥ 1 MΩ; 0 ~ 10 V: ≥ 2 MΩ

Transmission characteristics:

Accuracy: ± 0.1% F.S. (25 °C ± 2 °C)

Response time: ≤ 2 ms

Temperature drift: 0.005%F.S./°C

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, 3; 4, 6:

U_o: 5 V C_o: 70 μF

Terminals 2, 3; 5, 6:

U_o: 28 V I_o: 93 mA P_o: 651 mW C_o: 0.08 μF L_o: 4 mH

Ambient conditions:

Operation temperature: -20 °C ~ +60 °C

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

Atmosphere pressure: 80 kPa ~ 106 kPa

Storage temperature: -40 °C ~ +80 °C

Power dissipation:

1.3 W (24 V DC, single input, single output; full-load)

1.8 W (24 V DC, single input, double output; full-load)

2.5 W (24 V DC, double input, double output; full-load)

Degree of protection: IP 20

→ Model rules

NPEXA-HM3 D X X

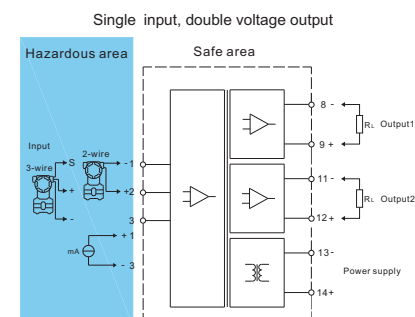
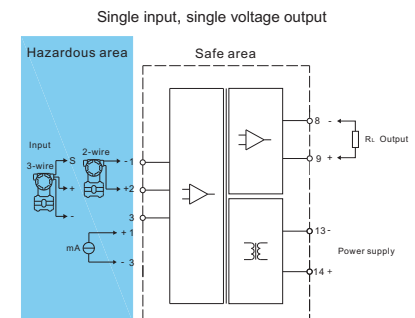
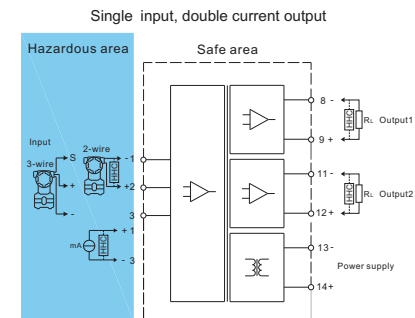
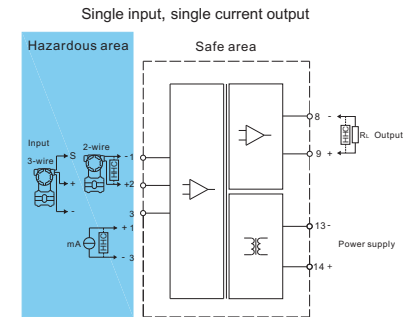
The second output signal ^{note}
Default: null
The first output signal ^{note}
Double channel
Default: Single channel

NOTE : Output signal

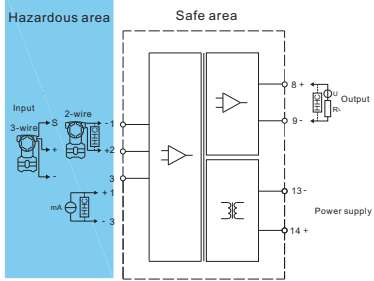
Number	Output signal
1	4 mA ~ 20 mA
2	1 V ~ 5 V
3	0 mA ~ 10 mA
4	0 V ~ 5 V
5	0 V ~ 10 V
6	0 mA ~ 20 mA
1S	Sink mode 4 mA ~ 20 mA output
X	User customized signal type

- When the current input signal is 4 ~ 20 mA, the output signal only can select 4 ~ 20 mA or 1 ~ 5 V.
- When the current input signal is 0 ~ 20 mA or 0 ~ 10 mA, the output signal only can select 0 ~ 20 mA or 0 ~ 10 V or 0 ~ 5 V or 0 ~ 10 mA.

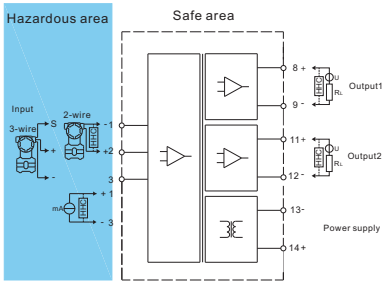
→ Wiring diagram



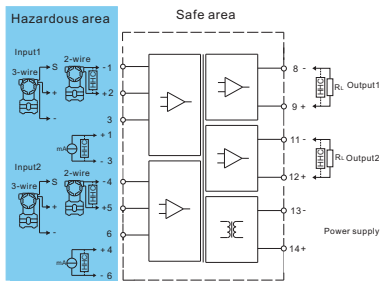
Single input, single sink mode current output



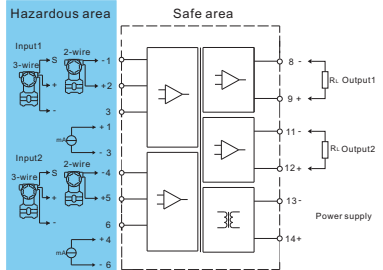
Single input, double sink mode current output



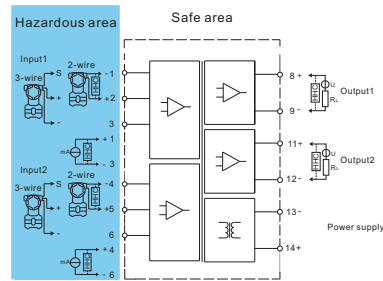
Double input, double current output



Double input, double voltage output



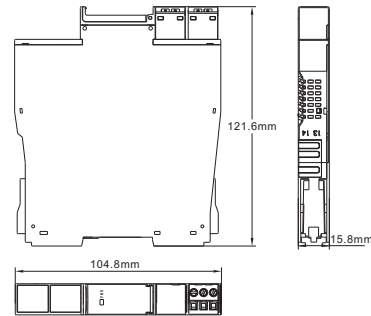
Double input, double sink mode current output



- Handheld HART communicator (HHC) can not be used in both the hazardous area and safe area at the same time.
- Handheld HART communicator used in a hazardous area must be authorized by explosion-proof certification body.

→ Dimension

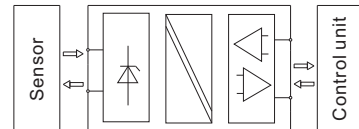
Width × Height × Depth: 15.8 mm × 121.6 mm × 104.8 mm



→ Applications

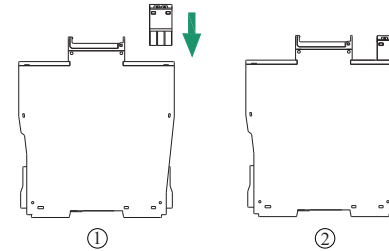
This apparatus is used for transmitting signals between field devices and process control system. It can be used to connect field equipment which is installed in potentially explosive gas environment, and protect the intrinsically safe equipment in a hazardous area by limiting current and limiting voltage.

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



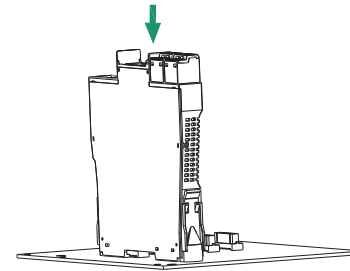
→ Connection

- 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.



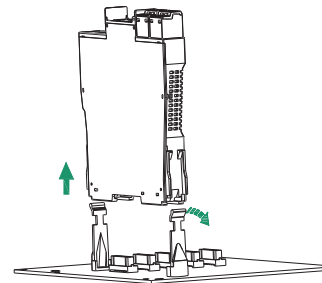
→ Installation

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

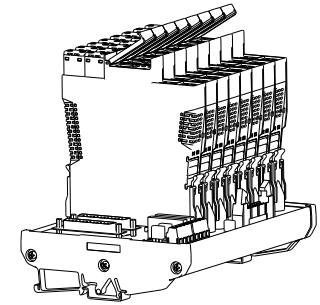


Install the apparatus, make the both sides of the apparatus aim at the slot of the backplans, press down the apparatus onto the backplans as the direction of the arrow.

- 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.

→ 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 conform 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.