

## C Series Double Channel 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 by isolation, and also provides transmitters with power in the hazardous area. It allows transmission of HART communication signals. DIN rail power supply function can be selected in ordering.

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:

Connection type: Terminals (14+, 15-) or DIN rail connector  
Rated voltage: 18V DC ~ 60V DC (Recommended: 24V DC)

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

Input signal: 0(4) ~ 20 mA, 0 ~ 10 mA

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

**Input resistance:** Approx. 75 Ω

**Over current/voltage protection:** Yes

#### Available voltage:

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

#### Output (7, 8, 9; 10, 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: ≤ 500 Ω; 0 ~ 10 mA: ≤ 1 kΩ

0(1) ~ 5 V: ≥ 1 MΩ; 0 ~ 10 V: ≥ 2 MΩ

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

**Max. output current:** ≤ 32 mA

#### Transmission characteristics:

Accuracy: ± 0.1% F.S. (25 °C ± 2 °C)

**Min. controllable current:** 10 μA

**Temperature drift:** < 30 ppm/°C

**Response time:** ≤ 2 ms

**Settling time:** ≤ 20 ms

**Electromagnetic compatibility:** Accordance to IEC 61326-3-1

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

≥ 3000 V AC (Intrinsically safe side /Non-intrinsically safe side)

≥ 1500 V AC (Power supply /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):

$U_m$ : 250 V

Terminals 1, 2; Terminals 4, 5:

$U_o$ : 5 V  $C_o$ : 70 μF

Terminals 2, 3; Terminals 5, 6:

$U_o$ : 28 V  $I_o$ : 93 mA  $P_o$ : 651 mW  $C_o$ : 0.058 μF  $L_o$ : 2.8 mH

### Ambient conditions:

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

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

Atmosphere pressure: 80 k Pa ~ 106 k Pa

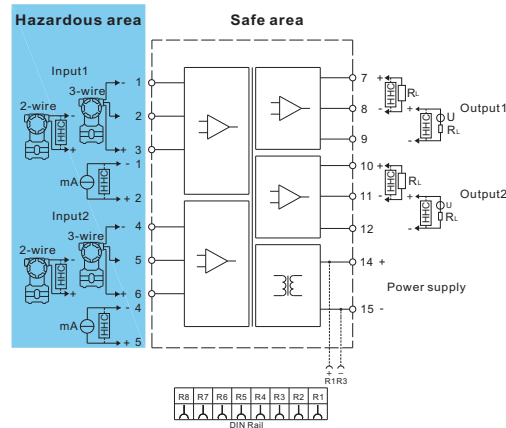
Storage temperature: -40 °C ~ +80 °C

**Dimension:** 17.8 mm × 110 mm × 117 mm

**Protection degree:** IP 20

**Power dissipation:** 2.5 W (24 V DC, double output)

### → Wiring diagram



**NPEXA-CM3D11 etc.**

○ 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.

○ Before purchasing products, please contact us to confirm the selection.

○ 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.

○ DIN rail power supply function is selectable at ordering.

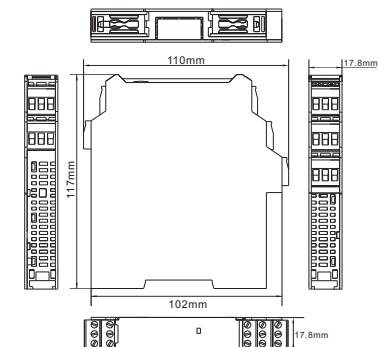
### → Output mode of the input fault

○ When the input line breakage, the output value is 0 mA.

○ When the input upscale, the output value is limited to 32 mA, when the input downscale, the output follows the input.

### → Dimension

Width × Height × Depth: 17.8 mm × 110 mm × 117 mm

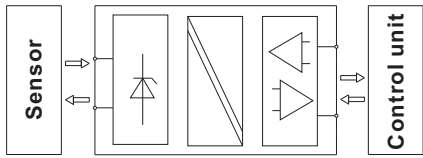


### → Applications

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.

If parameters of the connected field device need to be set a handheld HART communicator connected to field cable is necessary.

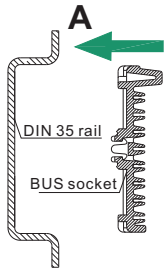


→ BUS Specification

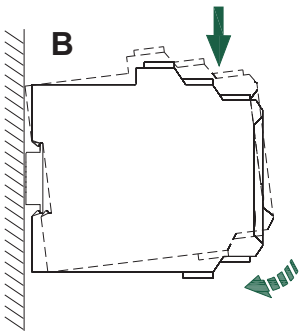
| BUS                   | Electrical Characteristics |
|-----------------------|----------------------------|
| Current               | Max. 8 A                   |
| Voltage (UL/IEC)      | 1.6 kV                     |
| Operation temperature | -40 °C ~ +105 °C           |

→ Installation

- The apparatus can be installed on the DIN 35 mm standard rail which is corresponding to DIN IEC 60715. The must be snapped onto the rail, and never slanted or tipped to the side.
- Installation and disassembly steps are shown in following figures:

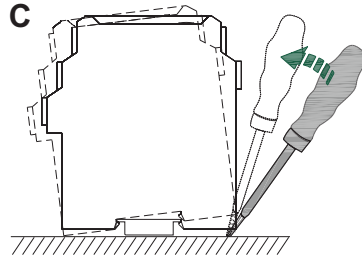


A. Snap the BUS socket on the DIN 35 rail, as figure A;

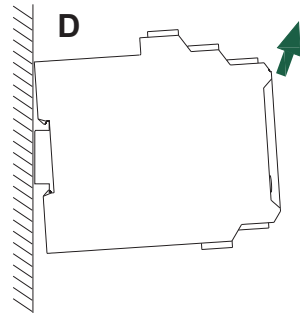


B. Snap lock onto mounting rail, then rotate the device, as figure B, press down the device onto mounting rail, make

sure that the BUS connector pins of device and BUS socket are in close contact.

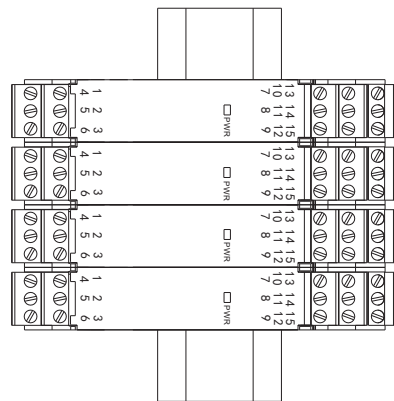


C. Pry the lock off the rail with screwdriver as arrow shown, pull downward the lock, and rotate the device.

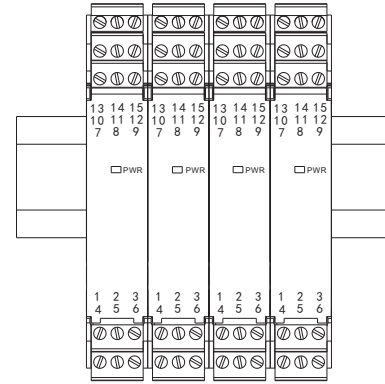


D. Remove the device as arrow shows.

- Low heat dissipation allows vertical or horizontal mounting without spacing. Normal operation is guaranteed over the full temperature range of the system in any mounting direction and without restriction.



Vertically installation



Horizontally 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 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 may only be operated, maintained and decommissioned by competent according with the instruction manual, and it must be installed, connected and adjusted in non-hazardous area.
- 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.