C Series
Single Channel
Current Output Isolated Safety Barrier

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➔ Introductions

This isolated safety barrier converts the current signals from a safe area into current or voltage signals to a hazardous area. DIN rail power supply function can be selected in ordering. It allows transmission of HART communication signals. It is used to control field apparatus such as electrical convertor or valve positioner in hazardous areas.

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. The LFD function of output short-circuit/line-break can be closed by the DIP switch on the front side.

➔ Parameters

Explosive-proof grade: [Ex ia Ga] IIC

Power supply:

Connection type: Terminals (9+, 10-) or DIN rail connector

Rated voltage: 18 V DC ~ 60 V DC (Recommended voltage: 24 V DC)

Input (5, 6):

Input signal: 0(4) ~ 20 mA

Input voltage drop: ≤ 1.2 V

Over current/voltage protection: yes

Output (1, 2):

Output current: 0(4) ~ 20 mA

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

Load resistance:

4 ~ 20 mA: 80 Ω ≤ R_L ≤ 800 Ω

0 ~ 20 mA: R_L ≤ 800 Ω

0(1) ~ 5 V: R_L ≥ 1 MΩ

0 ~ 10 V: R_L ≥ 2 MΩ

Max. output current: ≤ 32 mA

Transmission characteristics:

Accuracy: ± 0.1% F.S. (25 ℃ ± 2 ℃)

Min. controllable current: 10 μA

Response time: ≤ 2 ms

Settling time: ≤ 20 ms

Temperature drift: 30 ppm/℃

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 (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):

U_m: 250 V

Terminals 1, 2:

U_o: 27.3 V I_o: 92 mA P_o: 628 mW C_o: 0.058 μF L_o: 2.8 mH

Ambient conditions:

Operation temperature: −20 ℃ ~ +60 ℃

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

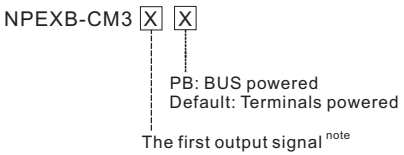
Atmosphere pressure: 80 kPa ~ 106 kPa

Storage temperature: −40 ℃ ~ +80 ℃

Power dissipation:

1.0 W (24 V DC, single output)

➔ Model rules



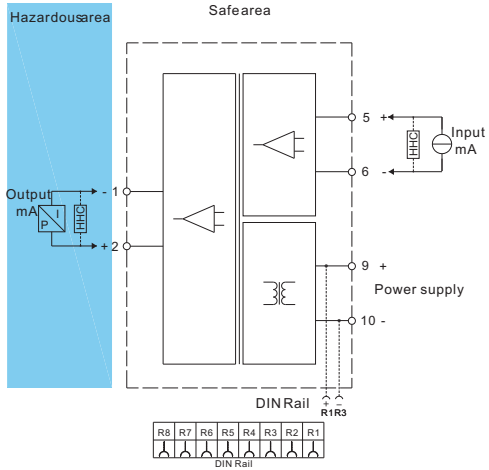
NOTE : Output signal

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

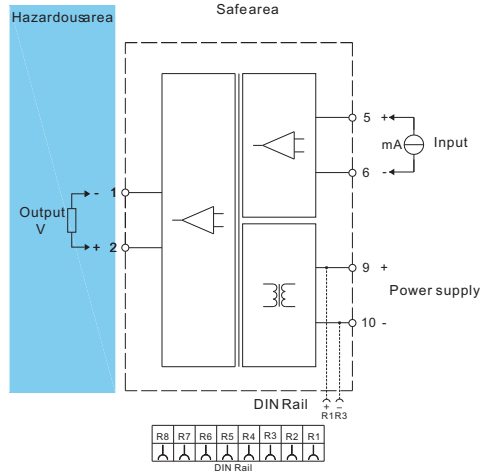
- ❍ When the current input signal is 4 ~ 20 mA, the output signal only can select 4 ~ 20 mA or 1 ~ 5 V.
- ❍ When the current input signal is 0 ~ 20 mA or 0 ~ 10 mA, the output signal only can select 0 ~ 20 mA or 0 ~ 10 V or 0 ~ 5 V or 0 ~ 10 mA.
- ❍ Before purchasing products, please contact us to confirm the selection.

➔ Wiring diagram

Current input, current output



Current input, voltage 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.
- ❍ DIN rail power supply function is selectable at ordering.

➔ LFD

- When the output load resistance was detected less than 80 Ω, the output is in the fault of short circuit.
- When the output load resistance was detected more than 6000 Ω, the output is in the fault of line breakage.
- When the output is in the fault，the input current value is limited to within 1mA and the output current value is limited to 3mA.

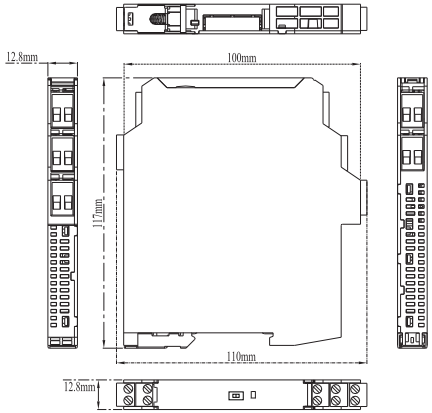
➔ DIP switch settings

Position	Function
ON	The LFD function of output short-circuit/line-break on
OFF	The LFD function of output short-circuit/line-break off

- The LFD function of output short-circuit/line-break is fault on.
- The position of DIP switch has been preset correctly before delivery, please do not change it without necessary.

➔ Dimension

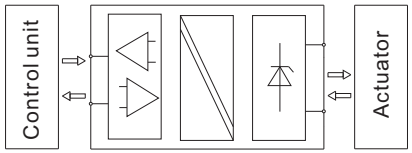
Width × Height × Depth: 12.8 mm × 110 mm × 117 mm



➔ 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.

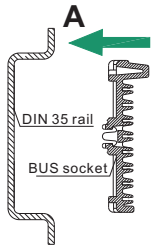


➔ BUS Specification

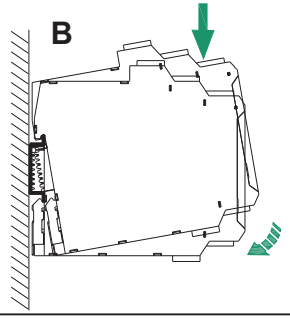
BUS	Electrical Characteristics
Current	Max. 8 A
Voltage (UL/IEC)	1.6 kV
Operation temperature	−40 ℃ ~ +105 ℃

➔ Installation

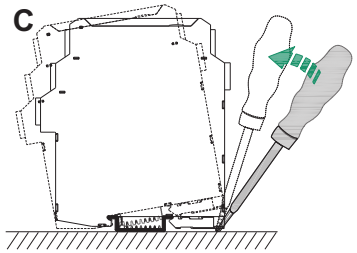
- The apparatus can be installed on the DIN 35 mm standard rail which is corresponding to DIN IEC 60715. The must be snapped onto the rail, and never slanted or tipped to the side.
- Installation and disassembly steps are shown in following figures:



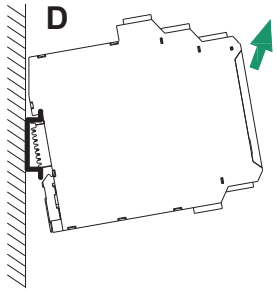
A. Snap the BUS socket on the DIN 35 rail, as figure A;



B. Snap metal lock onto mounting rail, then rotate the safety barrier, as figure B, press down the safety barrier onto mounting rail, make sure that the BUS connector pins of safety barrier and BUS socket are in close contact.

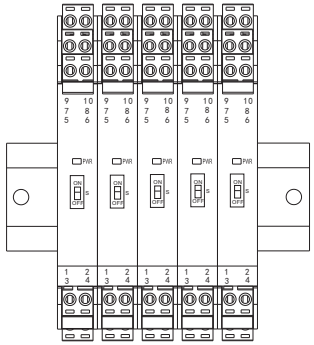


C. Pry the metal lock off the rail with screwdriver as arrow shown, pull downward the springs, and rotate the safety barrier.



D. Remove the safety barrier as arrow shows.

- As far as possible to mount it vertically, In order to dissipation the heat of the apparatus.



Vertically 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 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.