C Series
Resistance Input, Resistance Output Isolated Safety Barrier

Nanjing New Power Electric Co., Ltd.

➔ Introductions

This isolated safety barrier converts the resistance signals to 1:1 resistance signals.

The input, output, and power supply are galvanically isolated from each other. It can be interfaced with all kinds of device, such as DCS, PLC and other systems.

➔ Parameters

Power supply:

Connection type: Terminals (14+, 15-) or DIN rail connector

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

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

Input signal: 2/3-wire resistance signal

Signal range: 18 Ω ~ 400 Ω

Line resistance: ≤ 20 Ω per line

Output (7, 8, 9; 10, 11, 12):

Output signal: 1:1 input resistance signal

Output drive current: 0.1 ~ 10 mA

Transmission characteristics:

Output drive current	Accuracy
0.5 ~ 10 mA	± 0.1% F.S. or < 0.2 Ω (Choose the maximum value)

NOTE: The transmission accuracy of resistance decreases with the decrease of drive current.

Response time: ≤ 0.5 s

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 China National Quality Supervision and Test Centre for Explosion Protected Electrical Products (CQST):

U_m: 250 V

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

U_o: 8.7 V I_o: 33 mA P_o: 72 mW C_o: 5.0 μF L_o: 3.0 mH

Ambient conditions:

Operation temperature: −20 ℃ ~ +60 ℃

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

Atmosphere pressure: 80 kPa ~ 106 kPa

Storage temperature: −40 ℃ ~ +80 ℃

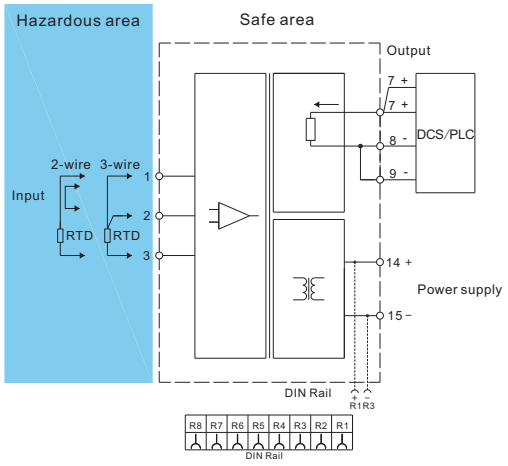
Power dissipation: 0.4 W

➔ Support model type

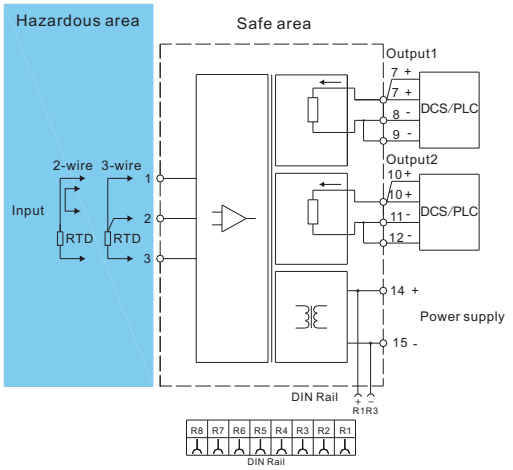
Model number		Output1	Output2	Power supply	
		1:1resistance signal	1:1resistance signal	Terminals	DIN rail
Single input, single output	NPEXA-C27	■		■	
	NPEXA-C27PB	■		■	■
Single input, double output	NPEXA-C277	■	■	■	
	NPEXA-C277PB	■	■	■	■
Double input, double output	NPEXA-C2D77	■	■	■	
	NPEXA-C2D77PB	■	■	■	■

➔ Wiring diagram

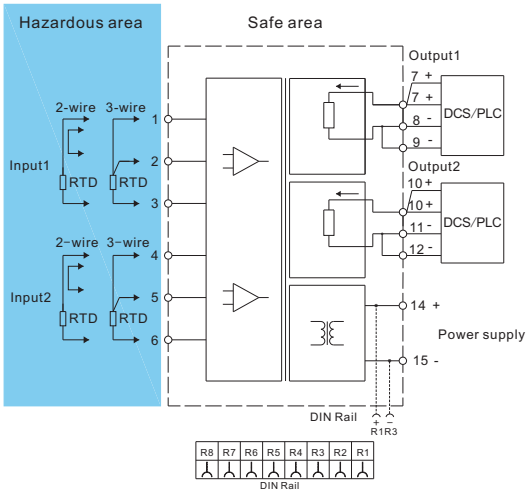
Single input, single output



Single input, double output

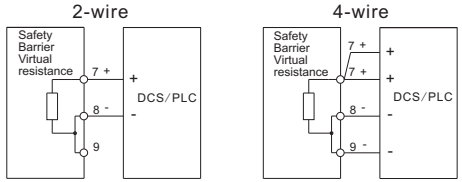


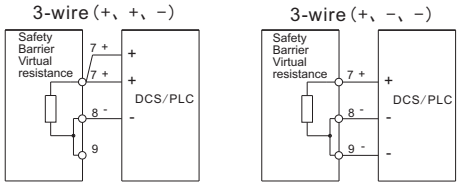
Double input, double output



➔ Connection of output port and equipment

NOTE: It is necessary to match the positive and negative polarity of the output terminal of the repeater with the polarity of the equipment.

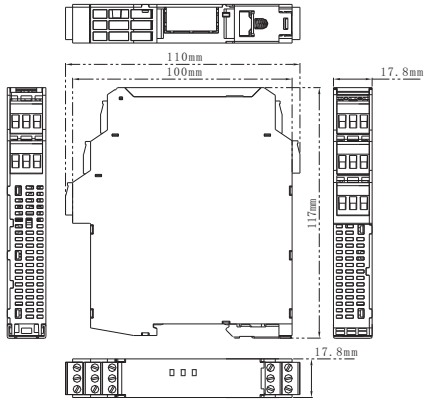




- Follow mode: Whatever input fault status (except breakage, approx. 16 Ω at breakage), the output follows the input within measuring range. And the maximum value would not exceed 430 Ω.
- DIN rail power supply function is selectable at ordering.

➔ Dimension

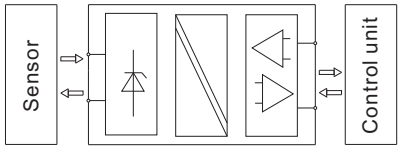
Width × Height × Depth: 17.8 mm × 110 mm × 117 mm



➔ 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 resistance signals to 1:1 resistance signals, and then transmit the output signal to the connected process control system.

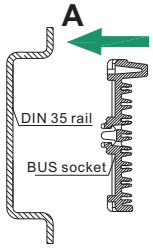


➔ BUS Specification

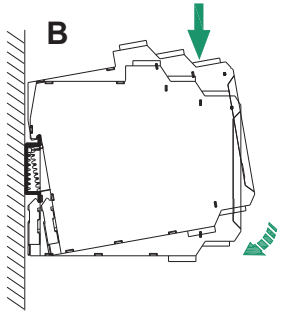
BUS	Electrical Characteristics
Current	Max. 8 A
Voltage (UL/IEC)	1.6 kV
Operation temperature	−40 ℃ ~ +105 ℃

➔ Installation

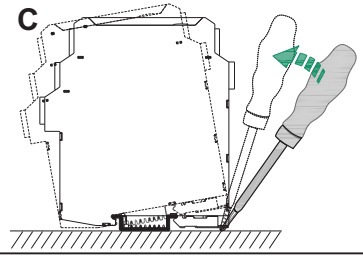
- The apparatus can be installed on the DIN 35 mm standard rail which is corresponding to DIN IEC 60715. The must be snapped onto the rail, and never slanted or tipped to the side.
- Installation and disassembly steps are shown in following figures:



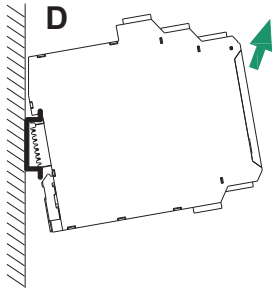
A. Snap the BUS socket on the DIN 35 rail, as figure A;



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.

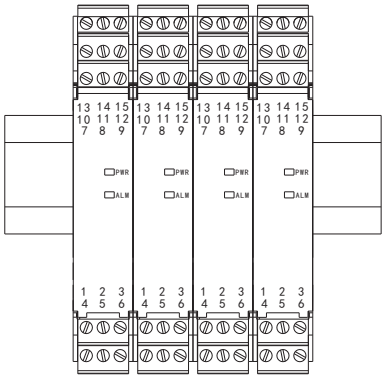


C. Pry the metal lock off the rail with screwdriver as arrow shown, pull downward the springs, and rotate the safety barrier.

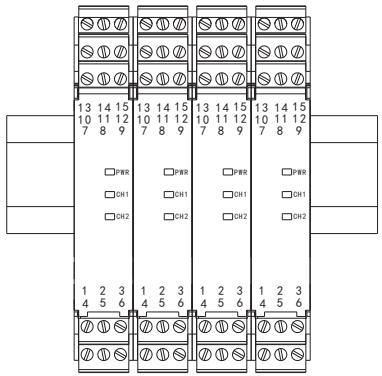


D. Remove the safety barrier as arrow shows.

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



Single channel vertically installation



Double channel vertically installation

➔ Light indication

- **PWR**: Power indicator light shows green, it means work normally.
- **ALM**: (Single channel) Input signal state indicator (red), it is off during normal operation, remain bright when input over-range at 400 Ω ~ 430 Ω. It is glitter when input line breakage or the input value exceed 430 Ω.
- **CH1, CH2**: (Double channel) Input signal state indicator (red), it is off during normal operation, remain bright when input over-range at 400 Ω ~ 430Ω. It is glitter when input line breakage or the input value exceed 430 Ω.

➔ 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.