

C Series Double Channel TC Isolated Safety Barrier



→ Introductions

This isolated safety barrier converts the thermocouple signals from a hazardous area into current or voltage signals to a safe area. DIN rail power supply function can be selected in ordering.

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; [Ex ia Da] IIIC

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): TC

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.

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

Sink mode: 4 ~ 20 mA; 20 ~ 4 mA

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

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

Note: 4~20mA Outputs can be configured NAMUR NE 43.

Output ripple: $\leq 5 \text{ mV}_{\text{rms}}$ (Load resistance: 250 Ω)

Load resistance:

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

0(4) ~ 20 mA, 20 ~ 4 mA: $\leq 550 \Omega$; 0 ~ 10 mA: $\leq 1.1 \text{ k}\Omega$

0(1) ~ 5 V: $\geq 1 \text{ M}\Omega$; 0 ~ 10 V: $\geq 2 \text{ M}\Omega$

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

Transmission characteristics (25 °C $\pm$ 2 °C):

Response time: $\leq 0.5 \text{ s}$

Temperature drift: 30 ppm/°C

Cold junction compensation accuracy: $\pm 1 \text{ }^\circ\text{C}$

Cold junction compensation range: -20 °C ~ +60 °C

Electromagnetic compatibility: Accordance to IEC 61326-3-1

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

$\geq 3000\text{V AC}$ (Intrinsically safe side / Non-intrinsically safe side)

$\geq 1500\text{V AC}$ (Power supply / Non-intrinsically safe side)

Insulation resistance: $\geq 100 \text{ M}\Omega$ (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; 4, 5:

U_o : 8.7 V; I_o : 33 mA; P_o : 72 mW

IIC: C_o : 5 μF ; L_o : 28mH

IIIC(IIB): C_o : 49 μF ; L_o : 84mH

Ambient conditions:

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

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

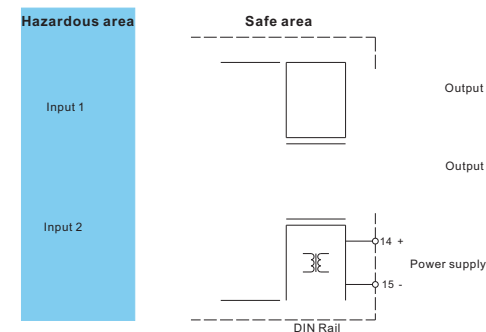
Atmosphere pressure: 80 kPa ~ 106 kPa

Storage temperature: -40 °C ~ +80 °C

Power dissipation:

1.2 W (24V DC, double output)

→ Wiring diagram



NPEXA-C1D11 etc.

○ When the thermocouple input, compensation conductor should be directly connected to the CJC terminals, do not connect other material lead, otherwise will cause measurement error. The figure of CJC as follows:

○ The following table shows the values of the current output during a overrange alarm mode, take 4~20mA output as an example. Default following mode.

○ 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 thermocouple signals into current or voltage signals, and then transmit the output signal to the connected process control system.

→ BUS Specification

BUS	Electrical
Current	Max.
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:

