

C Series
Single Channel Switch Input
Relay Output Isolated Safety Barrier

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→ Introductions

This isolated safety barrier converts switch or proximity detector signals (dry contact or NAMUR) from a hazardous area into relay signals to a safe area. DIN rail power supply function can be selected in ordering. Operation mode, the second output function (as a relay output or a fault output) and the input circuit fault detection function can be set with the DIP switch on the front side.

The input, output, and power supply are galvanically isolated from each other. This modularization apparatus was designed with various kinds of advantages, for instance, high reliability and fast response, etc. It can be interfaced with all kinds of device and DCS, PLC and other systems.

→ 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 (1, 2):

Input signal: Dry contact or NAMUR
Switching point: Input signal > 2.1 mA, signal "1"
Input signal < 1.2 mA, signal "0"

Input resistance: 1 kΩ
Short-circuit current: Approx. 8.5 mA
Open-circuit voltage: Approx. 8.5 V

LFD function:

Input current ≤ 80 μA: Line breakage, output relay de-energized
Input current ≥ 6 mA: Short-circuit, output relay de-energized

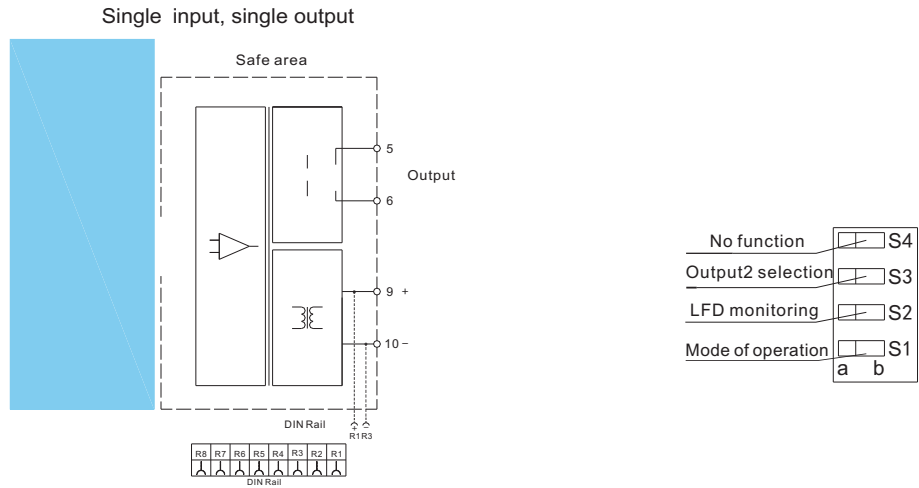
Output (5, 6; 7, 8):

Output signal: Relay contact
Load capacity: 2 A/250 V AC, 2 A/30 V DC
Response time: < 20 ms

Transmission characteristics:

Relay mechanical life: > 10⁵ switching cycles
Switch frequency: < 10 Hz
Electromagnetic compatibility: Accordance to IEC 61326-3-1
Electric strength (1 mA leakage current, 1 minute test time):
100 V AC (intrinsically safe side / non-intrinsically safe side)
500 V AC (non-intrinsically safe side / non-intrinsically safe side)

Model number	Single output	Double output	Power supply	
			Terminals	DIN rail
NPEXA-C511	■		■	
NPEXA-C511PB	■		■	■
NPEXA-C5111		■	■	
NPEXA-C5111PB		■	■	■



→ 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 to protect the intrinsically safe equipment in a hazardous area by limiting current and limiting voltage.

The apparatus can be used for dry contact or NAMUR signals into delay signal. The LED indicators show the status of the apparatus. Output2 can be switched by DIP switch S2, customer can choose whether to disable it. And the apparatus detects input signal to protect the system. Input current $\leq 80\mu A$ considers the input is "0"; $80\mu A < \text{input current} \leq 2.1\text{mA}$ considers the input is "1"; Input current $\geq 6\text{mA}$ considers the input circuit is short-circuited. In the case of input circuit short-circuit, the output relay de-energizes.

→ BUS Specific

BUS	Electrical
Current	
Voltage (UL)	
Operation temp	

→ 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 follows:

B. When installing on the rail, then rotate the safety barrier down the safety barrier onto the rail, and ensure that the BUS connector pins of the BUS socket are in close contact.

C. Pry the metal lock off the rail with the arrow shown, pull downward the safety barrier.

Vertically installation

→ Light indication

- PWR: Power indicator light shows green, it means work normally.
- OUT: Bi-color LED
 - Red LED flashing: Input short-circuit or linebreakage;
 - Yellow LED ON: The relay is energized;
 - Yellow LED OFF: The relay is de-energized.

→ 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.