

## NPEXA-C722 Isolated Safety Barrier

### → Introductions

This isolated safety barrier converts the RS232 digital signals from a hazardous area into RS232 digital signals to a safe area by isolation, and also provides transmitters with power in the hazardous area.

The input, output, and power supply are galvanically isolated from each other.

### → Parameters

**Explosive-proof grade:** [Ex ia Ga] IIC

#### Power supply:

Connection type: Terminals (14+, 15-)

Rated voltage: 18 V DC ~ 60 V DC

#### Input (1, 2, 3):

Input signal: RS232 digital signal

Control mode: half-duplex

#### Distribution (5, 6):

Distribution setting: Refer to rotary switch setting

Voltage tolerance:  $\pm 10\%$

#### Output (7, 8, 9): RS232 digital signal

#### Transmission characteristics:

Transmission delay:  $\leq 5 \mu s$

Transmission rate:  $\leq 56 \text{ kbps}$

**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)

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

**Insulation resistance:**  $\geq 100 \text{ M}\Omega$  (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:

$U_o$ : 18.4 V  $I_o$ : 13 mA  $P_o$ : 60 mW  $C_o$ : 0.2  $\mu F$   $L_o$ : 70 mH

Terminals 5, 6:

$U_o$ : 23.1 V  $I_o$ : 187 mA  $P_o$ : 1080 mW  $C_o$ : 0.07  $\mu F$

$L_o$ : 0.4 mH

#### Ambient conditions:

Operation temperature:  $-20^\circ\text{C} \sim +60^\circ\text{C}$

Relative humidity: 10% RH ~ 90% RH (40  $^\circ\text{C}$ )

Atmosphere pressure: 80 kPa ~ 106 kPa

Storage temperature:  $-40^\circ\text{C} \sim +80^\circ\text{C}$

#### Power dissipation:

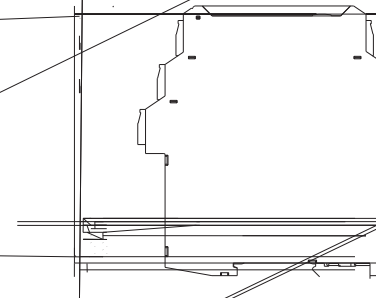
$\leq 2 \text{ W}$  (Distribution: 8 V/9 V/12 V, 50 mA)

$\leq 3.5 \text{ W}$  (Distribution: 5 V/6 V, 100 mA)

### → Wiring diagram

### → Dimension

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



### → Rotary switch setting

- The transmission cable in the figure is recommended to use the shielded twisted pair.

### → Power ON/OFF characteristics

- When power ON or power OFF, the bus dose not generate error.

### → Safe state

- When the Communication bus port is fault, e.g. open-circuit or short-circuits, the DUT lead to a safe state.

### → 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 RS232 digital signals from a hazardous area into RS232 digital signals to a safe area by isolation, and also provides transmitters with power in

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the hazardous area.

shown, pull downward the springs, and rotate the safety barrier.

→ 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:

- C. Remove the safety barrier as arrow shows.
- As far as possible to mount it vertically, In order to dissipation the heat of the apparatus.

→ 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; i

A. Snap metal lock onto mounting rail, then rotate the safety barrier, as figure A, press down the safety barrier onto mounting rail.

Vertically installation

→ Light indication

- **PWR**: Power indicator light shows green, it means work normally.
- **TX (yellow)**: The indicator flashes while data sending and turns on when sending data fails. Otherwise, the indicator turns off when normal.
- **RX (green)**: The indicator flashes while data receiving and turns on when receiving data fails. Otherwise,the indicator turns off when normal.

B. Pry the metal lock off the rail with screwdriver as arrow