



NPEXA-KM31

Current Input Isolated Safety Barrier

→ Introductions

This isolated safety barrier converts transmitter current signals from hazardous area into safe area. It allows transmission of HART communication signals. It can also be used with 2-wire current sources.

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

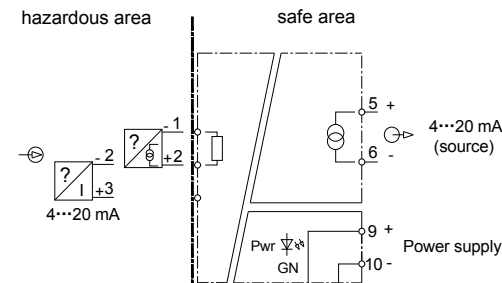
This apparatus was designed to be analogue circuits with various kinds of advantages, for instance, high accuracy, high reliability and quick step response etc. It can be interfaced with all kinds of instruments and DCS, PLC and other equipment.

→ Parameters

Explosive-proof grade:		
Power supply	Terminals (9+, 10-) or DIN rail connector	
Connection type	20 V DC ~ 30 V DC	
Rated operational voltage		
Input		
Signal type	4 mA ~ 20 mA	
Connected device	2-wire/3-wire transmitter 2-wire current source	
Input resistance	approx. 75 Ω	
Available voltage	≥ 16 V at 20 mA output (terminals 2-, 3+)	
Over-current/voltage protection	yes	
Output		
Signal type	4 mA ~ 20 mA	
Load resistance	≤ 350 Ω	
Maximum output current	≤ 32 mA	
Transmission characteristics		
Accuracy	±0.1% F.S. (20 °C ± 2 °C)	
Min. controllable current	10 μA	
Temperature drift	< 30 ppm/°C	
Response time	≤ 2 ms	
Settling time	≤ 20 ms	
Stability	0.03% F.S.	
Repeatability	0.02% F.S.	
Electromagnetic compatibility	Accordingance to IEC 61326-3-1	
Electrical isolation		
Dielectric strength	≥ 2500 V AC (intrinsically safe side / non-intrinsically safe side, 1 mA leakage current, 1 minute)	
Insulation coordination	≥ 100 MΩ (Input/Output/Power supply)	
Explosive-proof number	TUV 15 ATEX 7628 X EU IECEX TUR16.0004X IECEX	
U _m	250 V	
Certified Ex parameters	Terminals 1, 2	Terminals 2, 3
U ₀	5 V	28 V
I ₀	0.8 mA	93 mA
P ₀	1 mW	651 mW
C ₀	99.9 μF	0.083 μF
L ₀	1 H	4.2 mH

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
Dimension	12.8 mm × 100 mm × 117 mm
Protection degree	IP 20
Power dissipation	≤ 1.3 W (24 V DC, full-load output)

→ Wiring diagram



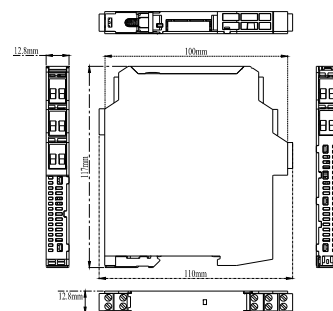
- Handheld HART communicator (HHC) can not be used in both hazardous area and safe area at the same time;
- Handheld HART communicator used in hazardous area must be authorized by explosion-proof certification body.
- DIN rail power supply function is selectable at ordering.

→ Output mode of the input fault

- If the input circuit is shorted or broken, the apparatus output value would be at 0 mA;
- If the input signal is over range, the apparatus output value would be at approx. 32 mA.

→ Dimension

Width × height × depth: 12.8 mm × 100 mm × 117 mm

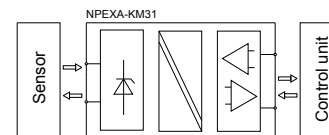


→ Applications

This apparatus is used for transmitting signals between field devices and a process control system/control system. It is suitable for the connection of field devices used in potentially explosive atmospheres to protect intrinsically safe circuits of

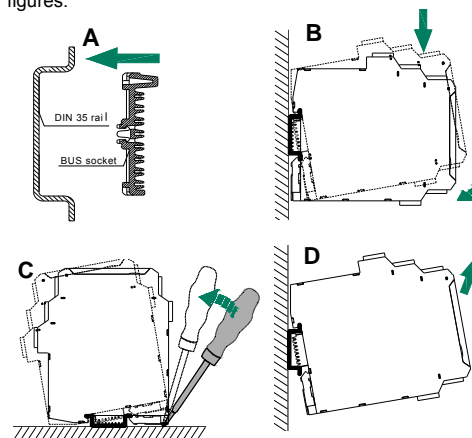
hazardous area by current and voltage limitation, and established an electromagnetic separation between the potentially explosive atmospheres and the safe areas in a system. The apparatus can convert the current signal into a current / voltage signal, and then transmit the output signal to the connected process control system.

If parameters of connected field device need to be set, a handheld HART communicator connected to field cable is necessary.

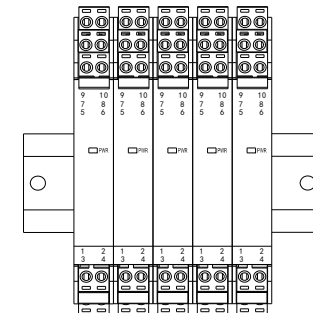


→ Installation

- 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:



- Snap the BUS socket on the DIN 35 rail, as figure A;
 - 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;
 - Pry the metal lock off the rail with screwdriver as arrow shown, pull downward the springs, and rotate the safety barrier;
 - Remove the safety barrier as arrow shows.
- In order to facilitate the heat of the apparatus, please mounted it vertically if possible.



Vertically installation

→ Light indication

- **PWR**: green power indicator, it remains on at the presence of the supply voltage.

→ Attention

- The current Input Isolated Safety Barriers was constructed in protection degree IP 20 and must therefore be protected from undesirable ambient conditions (water, small foreign objects). It is suitable for installed in control room or high density field cabinet, 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, and 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.
- If faults cannot be eliminated, the apparatus must be taken out of operation and protected from being placed in service again inadvertently. Devices must only be repaired directly by the manufacturer. Tampering with the apparatus is dangerous and therefore forbidden.
- The operator must strictly comply with the relevant local safety standards and guidelines.

→ Supplements

- If there is any content difference between the specification and the website or sample, the instructions shall prevail. We reserve the rights to change or update the product information without prior noticing the users.