C Series Single Channel Sink Output Isolated Safety Barrier

Nanjing New Power Electric Co., Ltd.

➔ Introductions

This isolated safety barrier detects loop current and converts it from a hazardous area into sink signal to a safe area, and also provides transmitters with power in the hazardous area. DIN rail power supply function can be selected in ordering. It allows transmission of HART communication signals.

The input, output, and power supply are galvanically isolated from each other. The main advantages of the isolated safety barrier are fast response, low dissipation and temperature stability.

➔ 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 :

Input signal: 0(4) ~ 20 mA, 0 ~ 10 mA; (Please see the product label for details)

Input resistance: approx. 75 Ω

Over current/voltage protection

Available voltage:

open-circuit voltage ≤ 26 V, voltage: ≥ 16 V at 20 mA

Output:

Sink mode: 4 ~ 20 mA

Load resistance:

Sink mode: R_L ≤ [(U-3)/0.02] Ω; U: Loop power supply

Max. output current: ≤32 mA

Transmission characteristics:

Accuracy: ± 0.1% F.S. (25 ℃ ± 2 ℃)

Degree of stability: 0.03% F.S.

Repeatability: 0.02% F.S.

Min. controllable current: 10μA

Response time: ≤ 2 ms

Settling time: ≤ 20 ms

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 National Supervision and Inspection Center for Explosion Protection and Safety of Instrumentation (NEPSI):

U_m: 250 V

Terminals 1, 2:

U_o: 5 V C_o: 70 μF

Terminals 2, 3:

U_o: 28 V I_o: 93 mA P_o: 651 mW C_o: 0.058 μF L_o: 2.8 mH

Ambient conditions:

Operation temperature: −20 ℃ ~ +60 ℃

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

Atmosphere pressure: 80 kPa ~ 106 kPa

Storage temperature: −40 ℃ ~ +80 ℃

Degree of protection: IP 20

Power dissipation:

0.9 W (24 V DC, single output)

1.0 W (24 V DC, double output)

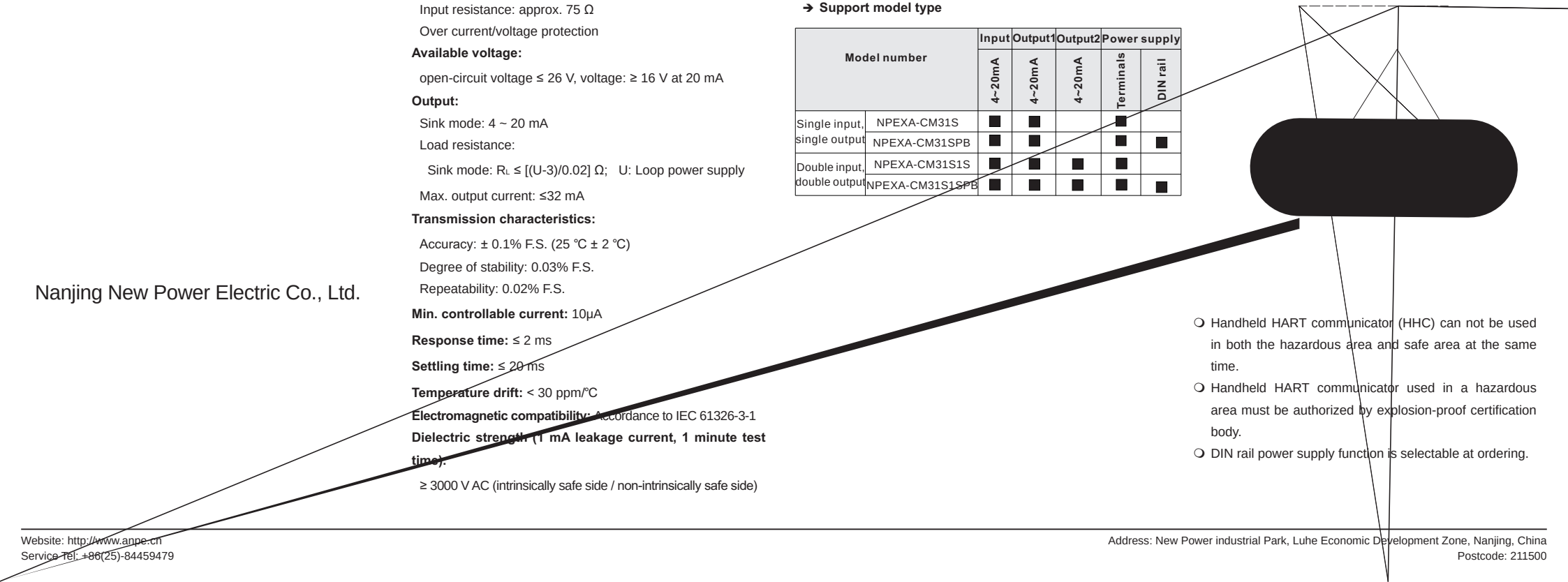
➔ Support model type

Model number		Input	Output1	Output2	Power supply	
		4~20mA	4~20mA	4~20mA	Terminals	DIN rail
Single input, single output	NPEXA-CM31S	■	■		■	
	NPEXA-CM31SPB	■	■		■	■
Double input, double output	NPEXA-CM31S1S	■	■	■	■	
	NPEXA-CM31S1SPB	■	■	■	■	■

➔ Wiring diagram

Single input, single output

Single input, double output



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

➔ Dimension

Width × Height × Depth: 12.8 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 current signals into current signals, and then transmit the output signal to the connected process control system.

➔ BUS Specification

aa BUS allation

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.

Vertically installation

➔ Light indication

- **PWR**: Power indicator light shows green, it means work normally.

➔ 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