TOSILON AUTOMATION – NEWPWR

Explosion Proof Protection

PRODUCT CATALOGUE

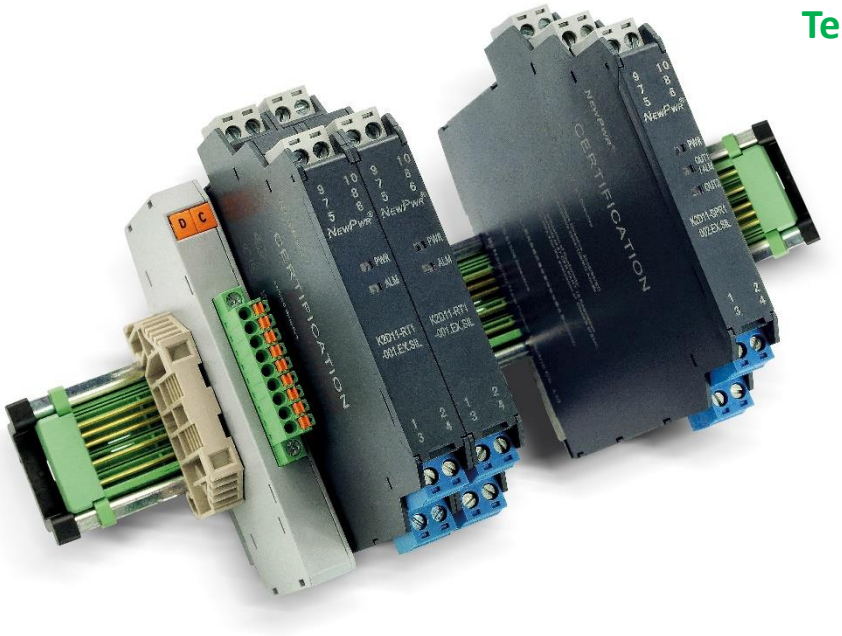
&TECHNICAL BROCHURE

English Version – VER. 201810

Intrinsic Safety Barriers

Temperature Transmitters

Isolator, etc.



GB The National Standards Drafting Unit

SINOPEC Framework Agreement Unit

CNOOC Supplier

China Classification Society Certification

Xi'an Tosilon Automation Co., Ltd

www.tosilon.com

Tosilon Automation

Your Global Partner for Engineering

Leading the Advanced Technology in Ex-Proof Explosion-Proof Protection

Functional Safety Type - Isolated Barriers

SIL IEC61508

Core Technology

- **Programmable Smart Input**
- **Proprietary-Special Magnetic Material**
- **Proprietary-Cold Terminal Compensation**
- **Proprietary-EMC Device**
- **Proprietary-Safety Fuse**

Core Technology

- **Input Type**
  - Thermocouple, Thermal Resistance
  - Current, Transmitter
  - Switch
  - Voltage, Millivolt
  - Resistance (Potentiometer)
  - Frequency
  - Vibration & Strain Bridge
  - Digital Communication
- **Output Type**
  - Current
  - Voltage, Millivolt
  - Resistance
  - Relay
  - Sink / Source
  - Communication
- **Connection Mode**
  - Terminal, Rail, Backplanes
- **Display Mode**
  - LED, LCD

TÜVRheinland · IECEx · Ex · CE · FC · HART COMMUNICATION PROTOCOL · Ex NEPSI · CCS CHINA CLASSIFICATION SOCIETY 中國船級社

TOSILON AUTOMATION – NEWPWR

- Intrinsic Safety Barriers National Standard Editorial Unit
- SINOPEC Intrinsic Safety Barriers Framework Agreement Unit
- Through the Integration of the Ministry of Industry & Information Technology

The factory located in Nanjing Luhe Economic and Technology Development Zone, covering an area of 20 acres, with more than 160 employees including about 50 R&D technical engineers, 2 committee members of national standard committee. The company introduces advanced product line and advanced equipment from USA, Germany, England, etc. and has built a complete production management and quality control system.

The International Certificates we have acquired include SIL, ATEX, IECEx, CCS, CE, FCC, etc.

As tier one supplier of Sinopec, CNOOC, and designated supplier of China National Chemical Corporation, we keep long-term supply for our country's major equipment such as military, aerospace and so on. We have formed a huge sales network all over the country. The total sales in 2018 have exceeded 460,000 units and we have become one of the largest scale companies in the field of industrial instrument in China.

Catalogue

C Series Isolated Safety Barriers

RTD, TC

- NPEXA-C01 / NPEXA-C01PB (1-Channel, Output: 4~20mA)
- NPEXA-C011 / NPEXA-C011PB (1-Channel, Output: 4~20mA)
- NPEXA-C0D11 / NPEXA-C0D11PB (2-Channel, Output: 4~20mA)
- NPEXA-C0T1 / NPEXA-C0T1PB (1-Channel, Output: 4~20mA, RS-485)
- NPEXA-C01L (1-Channel, Output: 4~20mA, Loop Powered)
- NPEXA-K01 (1-Channel, Output: 4~20mA)

TC

- NPEXA-C11 / NPEXA-C11PB (1-Channel, Output: 4~20mA)
- NPEXA-C111 / NPEXA-C111PB (1-Channel, Output: 4~20mA)
- NPEXA-C1D11 / NPEXA-C1D11PB (2-Channel, Output: 4~20mA)
- NPEXA-C17 / NPEXA-C17PB (1-Channel, Output: 1:1mV)
- NPEXA-C177 / NPEXA-C177PB (1-Channel, Output: 1:1mV)
- NPEXA-C171 (1-Channel, Output: 1:1mV, 4~20mA)
- NPEXA-C11T1 / NPEXA-C11T1PB (1-Channel, Output: 4~20mA, RS-485)
- NPEXA-C11L (1-Channel, Output: 4~20mA, Loop Powered)

RTD

- NPEXA-C21 / NPEXA-C21PB (1-Channel, Output: 4~20mA)
- NPEXA-C211 / NPEXA-C211PB (1-Channel, Output: 4~20mA)
- NPEXA-C2D11 / NPEXA-C2D11PB (2-Channel, Output: 4~20mA)
- NPEXA-C27 / NPEXA-C27PB (1-Channel, Output: 1:1 Resistance)
- NPEXA-C277 / NPEXA-C277PB (1-Channel, Output: 1:1 Resistance)
- NPEXA-C271 / NPEXA-C271PB (1-Channel, Output: 1:1 Resistance, 4~20mA)
- NPEXA-C21T1 / NPEXA-C21T1PB (1-Channel, Output: 4~20mA, RS-485)
- NPEXA-C21L (1-Channel, Output: 4~20mA, Loop Powered)

AI

- NPEXA-CM31 / NPEXA-CM31PB (1-Channel, Output: 4~20mA, HART)
- NPEXA-CM311 / NPEXA-CM311PB (1-Channel, Output: 4~20mA, HART)
- NPEXA-CM3D11 / NPEXA-CM3D11PB (2-Channel, Output: 4~20mA, HART)
- NPEXA-CM31S1S / NPEXA-CM31S1SPB (1-Channel, Output: 4~20mA, HART)
- NPEXA-C31T1 / NPEXA-C31T1PB (1-Channel, Output: 4~20mA, RS-485)
- NPEXA-CM31L (1-Channel, Output: 4~20mA, Loop Powered)
- NPEXA-KM31 (1-Channel, Output: 4~20mA)

AO

- NPEXB-KM31 (1-Channel, Output: 4~20mA)
- NPEXB-CM3D11 / NPEXB-CM3D11PB (2-Channel, Output: 4~20mA, HART)
- NPEXB-CM31L (1-Channel, Output: 4~20mA, Loop Powered)

Catalogue

AI (Voltage)

NPEXA-CM41 / NPEXA-CM41PB (1-Channel, Output: 4~20mA)

NPEXA-CM411 / NPEXA-CM411PB (1-Channel, Output: 4~20mA)

DI

NPEXA-K51 (1-Channel, Output: Relay)

NPEXA-K511 (1-Channel, Output: Relay)

NPEXA-K5D11 (2-Channel, Output: Relay)

NPEXA-C512 / NPEXA-C512PB (1-Channel, Output: Transistor)

NPEXA-C5122 / NPEXA-C5122PB (1-Channel, Output: Transistor)

NPEXA-C5D122 / NPEXA-C5D122PB (2-Channel, Output: Transistor)

DO

NPEXB-C512 / NPEXB-C512PB (1-Channel, Output: 45mA)

NPEXB-C5D12 / NPEXB-C5D12PB (2-Channel, Output: 45mA)

NPEXB-C512L (1-Channel, Output: 45mA, Loop Powered)

NPEXB-C5D12L (2-Channel, Output: 45mA, Loop Powered)

NPEXB-K512L (1-Channel, Output: 45mA, Loop Powered)

Frequency

NPEXA-C61P1 / NPEXA-C61P1PB (1-Channel, Output: 4~20mA)

NPEXA-C611P1 / NPEXA-C611P1PB (1-Channel, Output: 4~20mA)

NPEXA-C61P2 / NPEXA-C61P2PB (1-Channel, Output: 4~20mA)

NPEXA-C611P2 / NPEXA-C611P2PB (1-Channel, Output: 4~20mA)

NPEXA-C67P1 / NPEXA-C67P1PB (1-Channel, Output: Transistor)

NPEXA-C677P1 / NPEXA-C677P1PB (1-Channel, Output: Transistor)

NPEXA-C67P2 / NPEXA-C67P2PB (1-Channel, Output: Transistor)

NPEXA-C677P2 / NPEXA-C677P2PB (1-Channel, Output: Transistor)

RS-485

NPEXA-C711 (Input: RS-485, Output: RS-485)

Note

When selecting DIN Rail Power Supply Product, PB should be mentioned after the corresponding model.

For example: NPEXA-CM31PB

Certificate

Quality Assurance Notification

Directive 2014/34/EU

Certificate Registr. No. **01 220 1609002**

The Certification Body for Explosion Protection
of TÜV Rheinland Industrie Service GmbH
certifies:

Certificate Holder: **Nanjing New Power Electric Co. Ltd.**
New Power Industrial Park Luhe
Economic Development Zone
Nanjing, P.R. China

Scope: Production, final inspection and testing of isolated safety barrier
Types of protection: ia

An audit was performed, Report No. 1609002. Proof has been furnished that the requirements according to Directive 2014/34/EU are fulfilled.

The due date for all future audits is 6th January

Validity: The certificate is valid from 2019-01-29 until 2022-01-06
First certification 2017

ATEX Notified body 0035

Wuppertal, 2019-01-29

TÜV Rheinland Industrie Service GmbH
Am Grauen Stein, D-51105 Cologne
Dipl.-Ing. Andreas Maschke

www.tuv.com

TÜVRheinland®
Precisely Right.

IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx TUR 16.0004X	Issue No: 0	Certificate history: Issue No. 0 (2016-07-14)
Status:	**Current**	Page 1 of 3	
Date of Issue:	**2016-07-14**		
Applicant:	**Nanjing New Power Electric Co., Ltd.** New Power Industrial Park, Nanjing, Jiangsu Province 211500 **China**		
Equipment: *Optional accessory:*	**Current Input Isolated Safety barrier type NPEXA-KM31**		
Type of Protection:	**Ex i - Intrinsic Safety**		
Marking:	[Ex ia Ga] IIC		

Approved for issue on behalf of the IECEx Certification Body: Klauspeter Graffi

Position: Head of Certification Body

Signature:
(for printed version)

Date: 2016-07-14

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

TUV Rheinland Industrie Service GmbH
Am Grauen Stein
51105 Cologne
Germany

TÜVRheinland

(1) EU TYPE-EXAMINATION CERTIFICATE

(2) Equipment and Protective Systems intended for use in Potentially Explosive Atmosphere - **Directive 14/34/EU**

(3) EC Type-Examination Certificate Number

TÜV 15 ATEX 7628 X Issue: 00

(4) Equipment: **Current Input Isolated Safety barrier type NPEXA-KM31**

(5) Manufacturer: **Nanjing New Power Electric Co.,Ltd.**
(6) Address: **New Power Industrial Park, Luhe Economic Development Zone, Nanjing, Jiangsu Province 211500, China**

(7) This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) The TÜV Rheinland Zertifizierungsstelle for ex-protected products of TÜV Rheinland Industrie Service GmbH, Notified Body No. 0035 in accordance with Article 21 of the Council Directive 14/34/EU of
26th February 2014, certifies this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmosphere, given in Annex II to the Directive.

The examination and test results are recorded in the confidential report GC / Ex 7628.00 / 15
Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule of this certificate, has been assessed by reference to:

EN 60079-0: 2012 **EN 60079-11: 2012**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This Type-Examination Certificate relates only to the design and specification for construction of the equipment or protective system. It does not cover the process for actual manufacture or supply of the equipment or protective system, for which further requirements of the directive are applicable.

II (1) G [Ex ia Ga] IIC

TÜV Rheinland ExNB for explosion protected equipment Cologne, 2016-07-14

Dipl.-Ing. Klauspeter Graffi

This EU Type-Examination Certificate without signature and stamp shall not be valid.
This Type-examination Certificate may be circulated only without alteration. Extracts or alterations are subject to approval by the TÜV Rheinland Industrie Service GmbH TÜV Rheinland Group Am Grauen Stein 51105 Köln
Tel. +49 (0) 221 806-0 Fax. + 49 (0) 221 806 114

IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx TUR 16.0005X	Issue No: 0	Certificate history: Issue No. 0 (2016-07-14)
Status:	**Current**	Page 1 of 3	
Date of Issue:	**2016-07-14**		
Applicant:	**Nanjing New Power Electric Co., Ltd.** New Power Industrial Park, Nanjing, Jiangsu Province 211500 **China**		
Equipment: *Optional accessory:*	**Current Output Isolated Safety barrier type NPEXB-KM31**		
Type of Protection:	**Ex i - Intrinsic Safety**		
Marking:	[Ex ia Ga] IIC		

Approved for issue on behalf of the IECEx Certification Body: Klauspeter Graffi

Position: Head of Certification Body

Signature:
(for printed version)

Date: 2016-07-14

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

TUV Rheinland Industrie Service GmbH
Am Grauen Stein
51105 Cologne
Germany

TÜVRheinland®

(1) EU TYPE-EXAMINATION CERTIFICATE

(2) Equipment and Protective Systems intended for use in Potentially Explosive Atmosphere - **Directive 14/34/EU**

(3) EC Type-Examination Certificate Number

TÜV 15 ATEX 7629 X Issue: 00

(4) Equipment: **Current Output Isolated Safety barrier type NPEXB-KM31**

(5) Manufacturer: **Nanjing New Power Electric Co.,Ltd.**
(6) Address: **New Power Industrial Park, Luhe Economic Development Zone, Nanjing, Jiangsu Province 211500, China**

(7) This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) The TÜV Rheinland Zertifizierungsstelle for ex-protected products of TÜV Rheinland Industrie Service GmbH, Notified Body No. 0035 in accordance with Article 21 of the Council Directive 14/34/EU of
26th February 2014, certifies this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmosphere, given in Annex II to the Directive.

The examination and test results are recorded in the confidential report GC / Ex 7629.00 / 15
Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule of this certificate, has been assessed by reference to:

EN 60079-0: 2012 **EN 60079-11: 2012**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This Type-Examination Certificate relates only to the design and specification for construction of the equipment or protective system. It does not cover the process for actual manufacture or supply of the equipment or protective system, for which further requirements of the directive are applicable.

II (1) G [Ex ia Ga] IIC

TÜV Rheinland ExNB for explosion protected equipment Cologne, 2016-07-14

Dipl.-Ing. Klauspeter Graffi

This EU Type-Examination Certificate without signature and stamp shall not be valid.
This Type-examination Certificate may be circulated only without alteration. Extracts or alterations are subject to approval by the TÜV Rheinland Industrie Service GmbH TÜV Rheinland Group Am Grauen Stein 51105 Köln
Tel. +49 (0) 221 806-0 Fax. + 49 (0) 221 806 114

(1) EU TYPE-EXAMINATION CERTIFICATE

(2) Equipment and Protective Systems intended for use in Potentially Explosive Atmosphere - **Directive 14/34/EU**

(3) EC Type-Examination Certificate Number

TÜV 16 ATEX 7982 Issue: 00

(4) Equipment: **Switch input isolated safety barrier**
K series (NPEXA-K51, NPEXA-K511, NPEXA-K5D11)

(5) Manufacturer: **Nanjing New Power Electric Co.,Ltd.**
(6) Address: **New Power Industrial Park, Luhe Economic Development Zone, Nanjing, Jiangsu Province 211500, China**

(7) This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) The TÜV Rheinland Zertifizierungsstelle for ex-protected products of TÜV Rheinland Industrie Service GmbH, Notified Body No. 0035 in accordance with Article 21 of the Council Directive 14/34/EU of
26th February 2014, certifies this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmosphere, given in Annex II to the Directive.

The examination and test results are recorded in the confidential report GC / Ex 7982.00 / 16
Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule of this certificate, has been assessed by reference to:

EN 60079-0:2012 + A11:2013 **EN 60079-11: 2012**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This Type-Examination Certificate relates only to the design and specification for construction of the equipment or protective system. It does not cover the process for actual manufacture or supply of the equipment or protective system, for which further requirements of the directive are applicable.

II (1) G [Ex ia Ga] IIC (-20°C ≤ Ta ≤ +60°C)

TÜV Rheinland ExNB for explosion protected equipment Cologne, 2017-06-20

Dipl.-Ing. Klauspeter Graff

This EU Type-Examination Certificate without signature and stamp shall not be valid.
This Type-examination Certificate may be circulated only without alteration. Extracts or alterations are subject to approval by the
TÜV Rheinland Industrie Service GmbH TÜV Rheinland Group Am Grauen Stein 51105 Köln
Tel. +49 (0) 221 806-0 Fax. + 49 (0) 221 806 114

(1) EU TYPE-EXAMINATION CERTIFICATE

(2) Equipment and Protective Systems intended for use in Potentially Explosive Atmosphere - **Directive 2014/34/EU**

(3) EC Type-Examination Certificate Number

TÜV 16 ATEX 7981 Issue: 00

(4) Equipment: **Digital output isolated safety barrier K series (NPEXB-K511L, NPEXB-K512L)**

(5) Manufacturer: **Nanjing New Power Electric Co.,Ltd.**

(6) Address: **New Power Industrial Park, Luhe Economic Development Zone, Nanjing, Jiangsu Province 211500, China**

(7) This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) The TÜV Rheinland Zertifizierungsstelle for ex-protected products of TÜV Rheinland Industrie Service GmbH, Notified Body No. 0035 in accordance with Article 21 of the Council Directive 2014/34/EU of 26th February 2014, certifies this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmosphere, given in Annex II to the Directive.

The examination and test results are recorded in the confidential report GC / Ex 7981.00 / 16 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule of this certificate, has been assessed by reference to:

EN 60079-0:2012 + A11:2013 **EN 60079-11: 2012**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This Type-Examination Certificate relates only to the design and specification for construction of the equipment or protective system. It does not cover the process for actual manufacture or supply of the equipment or protective system, for which further requirements of the directive are applicable.

II (1) G [Ex ia Ga] IIC (-20°C ≤ Ta ≤ +60°C)

TÜV Rheinland ExNB for explosion protected equipment Cologne, 2017-06-26

Dipl.-Ing. Andreas Maschke

ATEX Notified Body • TÜV Rheinland Industrie Service • 0035

This EU Type-Examination Certificate without signature and stamp shall not be valid.
This Type-examination Certificate may be circulated only without alteration. Extracts or alterations are subject to approval by the TÜV Rheinland Industrie Service GmbH TÜV Rheinland Group Am Grauen Stein 51105 Köln
Tel. +49 (0) 221 806-0 Fax. + 49 (0) 221 806 114

www.tuv.com

DAkkS Deutsche Akkreditierungsstelle D-ZE-11052-03-00

TÜVRheinland® Precisely Right.

IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx TUR 16.0059	Issue No: 0	Certificate history: Issue No. 0 (2017-06-26)
Status:	Current	Page 1 of 4	
Date of Issue:	2017-06-26		

Applicant: **Nanjing New Power Electric CO., LTD.**
New Power Industrial Park, Luhe Economic Development Zone, Nanjing, Jiangsu Province 211500
China

Equipment: **K-series Digital output isolated safety barrier**
Optional accessory:

Type of Protection: **[Ex ia Ga] IIC**

Marking:
[Ex ia Ga] IIC

Approved for issue on behalf of the IECEx Certification Body: Andreas Maschke

Position: Deputy Head of Certification Body

Signature: (for printed version)

Date: 2017-06-26

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

TUV Rheinland Industrie Service GmbH
Am Grauen Stein
51105 Cologne
Germany

TÜVRheinland

(1) EC TYPE-EXAMINATION CERTIFICATE

(2) Equipment and Protective Systems intended for use in Potentially Explosive Atmosphere - **Directive 94/9/EC**

(3) EC Type-Examination Certificate Number

TÜV 15 ATEX 7594 X

(4) **Equipment:** **K-type RTD Input Isolated Safety Barrier / NPEXA-KM21**

(5) **Manufacturer:** **Nanjing New Power Electric Co.,Ltd.**
(6) **Address:** **New Power Industrial Park, Luhe Economic Development Zone, Nanjing, Jiangsu Province 211500, China**

(7) This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) The TÜV Rheinland Zertifizierungsstelle for ex-protected products of TÜV Rheinland Industrie Service GmbH, Notified Body No. 0035 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmosphere, given in Annex II to the Directive.

The examination and test results are recorded in the confidential report GC / Ex 7594.00 / 15.

(9) Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule of this certificate, has been assessed by reference to:

EN 60079-0: 2012 **EN 60079-11: 2012**

except the requirements, which are listed under item (18).

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-Type-Examination Certificate relates only to the design and specification for construction of the equipment or protective system. It does not cover the process for actual manufacture or supply of the equipment or protective system, for which further requirements of the directive are applicable.

(12) The marking of the equipment shall include the following:

II (1) G [Ex ia Ga] IIC

TÜV Rheinland ExNB for explosion protected equipment Cologne, 2016-04-19

Dipl.-Ing. Klauspeter Graffi

This EC-Type-Examination Certificate without signature and stamp shall not be valid.
This EC-Type-Examination Certificate may be circulated only without alteration. Extracts or alterations are subject to approval by the TÜV Rheinland Notified Body of TÜV Rheinland Industrie Service GmbH, Am Grauen Stein 51105 Köln
Tel. +49 (0) 221 806-0 Fax. + 49 (0) 221 806 114

www.tuv.com

DAkkS Deutsche Akkreditierungsstelle D-ZE-11052-03-00

TÜVRheinland®
Precisely Right.

(1) EU TYPE-EXAMINATION CERTIFICATE

(2) Equipment and Protective Systems intended for use in Potentially Explosive Atmosphere - **Directive 14/34/EU**

(3) EC Type-Examination Certificate Number

TÜV 16 ATEX 7982 Issue: 00

(4) Equipment: **Switch input isolated safety barrier**
K series (NPEXA-K51, NPEXA-K511, NPEXA-K5D11)

(5) Manufacturer: **Nanjing New Power Electric Co.,Ltd.**
(6) Address: **New Power Industrial Park, Luhe Economic Development Zone, Nanjing, Jiangsu Province 211500, China**

(7) This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) The TÜV Rheinland Zertifizierungsstelle for ex-protected products of TÜV Rheinland Industrie Service GmbH, Notified Body No. 0035 in accordance with Article 21 of the Council Directive 14/34/EU of
26th February 2014, certifies this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmosphere, given in Annex II to the Directive.

The examination and test results are recorded in the confidential report GC / Ex 7982.00 / 16
Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule of this certificate, has been assessed by reference to:

EN 60079-0:2012 + A11:2013 **EN 60079-11: 2012**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This Type-Examination Certificate relates only to the design and specification for construction of the equipment or protective system. It does not cover the process for actual manufacture or supply of the equipment or protective system, for which further requirements of the directive are applicable.

II (1) G [Ex ia Ga] IIC (-20°C ≤ Ta ≤ +60°C)

TÜV Rheinland ExNB for explosion protected equipment Cologne, 2017-06-20

Dipl.-Ing. Klauspeter Graff

This EU Type-Examination Certificate without signature and stamp shall not be valid.
This Type-examination Certificate may be circulated only without alteration. Extracts or alterations are subject to approval by the TÜV Rheinland Industrie Service GmbH TÜV Rheinland Group Am Grauen Stein 51105 Köln
Tel. +49 (0) 221 806-0 Fax. + 49 (0) 221 806 114

www.tuv.com

DAkkS Deutsche Akkreditierungsstelle D-ZE-11052-03-00

TÜVRheinland® Precisely Right.

FCC VERIFICATION OF CONFORMITY

BST09070590810C-3

We herewith confirm the following designated product:

NP SERIES MODULE INSTRUMENTS
MODEL NO.: NPEX, NPPD, NPWD, NPGL
(Product Identification)

has been tested and found in compliance with the requirements of 47 CFR PART 15 regulation & ANSI C63.4 for the evaluation of Class B of electromagnetic compatibility. It is only valid in connection with the test report number: BST09070590810R-3.

This device complies with Part 15 of the FCC rules,operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

(Identification of regulations/standards)

This declaration is the responsibility of the manufacturer/importer

NANJING NEW POWER ELECTRIC CO.,LTD.
Daxinggong Mansion 5F, No.147 East Zhongshan Road, Nanjing, China
(Name /Address)

MANUFACTURER / IMPORTER

(Name)

(Date)

TEST LABORATORY

This is the results of test that was carried out by Shenzhen BST. from the submitted type samples of the product is in conformity with the specification of the respective standards.
The certificate holder has the right to fix the FCC-mark on the product complying with the required rules.

Christina
Manager
Jul. 10, 2009

BST TECHNOLOGY CO.,LTD. APPROVED

Shenzhen BST Technology Co.,Ltd.
3F,Weames Technology Building,No. 10 Kefa Road,Science Park,Nanshan District,Shenzhen,Guangdong,China
http://www.bst-lab.com

Reference List

- Intrinsic Safety Barriers National Standard Editorial Unit
- SINOPEC Intrinsic Safety Barriers Framework Agreement Unit
- Through the Integration of the Ministry of Industry & Information Technology

Project Name	Product Name	Model & Technical Performance		Quantity	Date
The co-generation project of Yangzi Petrochemical - Thermal Power Plant	Signal Isolator	NPPD-CM11D	4~20mA input, 4~20mA output	★★★★	March, 2012
	Temperature Transmitter	NPWE-C11D	TC / RTD input, 4~20mA output		
Ash Free Dispersing Device Yangzi Petrochecmical Plant	Intrinsic Safety Barriers	NPEXA-CM31	4~20mA input, 4~20mA output	★★★	March, 2013
	Intrinsic Safety Barriers	NPEXB-CM31	4~20mA input, 4~20mA output, AO		
The Particle Project of the Yangzi Petrochemical Plastic Factory	Intrinsic Safety Barriers	NPEXA-CM311	4~20mA input, Two 4~20mA output	★★★	Apr, 2013
	Intrinsic Safety Barriers	NPEXB-CM31	4~20mA input, 4~20mA output, AO		
	Intrinsic Safety Barriers	NPEXB-CM31	4~20mA input, 4~20mA output, AO		
Expansion Project of Yangzi Petrochemical Aromatics Plant	Intrinsic Safety Barriers	NPEXA-CM31	4~20mA input, 4~20mA output	★★	June, 2013
	Intrinsic Safety Barriers	NPEXA-C5D11	Relay input, Relay output, dual channel		
Residue Hydro-treating Project of the Yangzi Petrochemical Refinery	Intrinsic Safety Barriers	NPEXA-CM31	4~20mA input, 4~20mA output	★★★	Sep, 2013
	Intrinsic Safety Barriers	NPEXA-C11	TC input, 4~20mA output		
	Intrinsic Safety Barriers	NPEXA-C21	RTD input, 4~20mA output		
Yangzi Fine Chemical Carbone Nine Deep Processing Project	Intrinsic Safety Barriers	NPEXA-CM31	4~20mA input, 4~20mA output	★★★★	June, 2014
	Intrinsic Safety Barriers	NPEXB-CM31	4~20mA input, 4~20mA output, AO		
	Intrinsic Safety Barriers	NPEXA-C11	TC input, 4~20mA output		
	Intrinsic Safety Barriers	NPEXA-C21	RTD input, 4~20mA output		
Water Cycle Project of Yangzi Petrochemical Aromatics Plant	Intrinsic Safety Barriers	NPEXA-CM31	4~20mA input, 4~20mA output	★★	Nov, 2014
Transformation of SIS System of Yangzi Petrochemical & Logistics Department	Intrinsic Safety Barriers	NPEXA-CM31	4~20mA input, 4~20mA output	★★	Apr, 2015
Jinling Petrochemical Alkylation Project	Intrinsic Safety Barriers	NPEXA-CM31	4~20mA input, 4~20mA output	★★	June, 2014
1000 tons Polythene Project of Sinopec Yizheng Chemical Fiber	Intrinsic Safety Barriers	NPEXA-C11	TC input, 4~20mA output	★★★	May, 2012
	Intrinsic Safety Barriers	NPEXA-C21	RTD input, 4~20mA output		
	Intrinsic Safety Barriers	NPEXA-CM31	4~20mA input, 4~20mA output		
	Intrinsic Safety Barriers	NPEXB-CM31	4~20mA input, 4~20mA output, AO		
Relocation & Transformation of Sinopec Yizheng Chemical Fiber Polyester Staple Fiber Production Line	Intrinsic Safety Barriers	NPEXA-C11	TC input, 4~20mA output	★★★	Nov, 2012
	Intrinsic Safety Barriers	NPEXA-C21	RTD input, 4~20mA output		
	Intrinsic Safety Barriers	NPEXA-CM31	4~20mA input, 4~20mA output		
Small Project of Sinopec Changline Refining& Chemical Modification	Surge Protective Device	NPFL-3MSD241	4~20mA input, 4~20mA output	★★	June, 2012
No.2 Gas Division Maintenance Project of Sinopec Wuhan Branch	Intrinsic Safety Barriers	NPEXA-CM31	4~20mA input, 4~20mA output	★★	Sep, 2012
	Intrinsic Safety Barriers	NPEXA-C11	TC input, 4~20mA output		
	Intrinsic Safety Barriers	NPEXA-C21	RTD input, 4~20mA output		
Sinopec Tahe Refining & Chemical Heavy Oil Upgrading Project	Intrinsic Safety Barriers	NPEXA-C21	RTD input, 4~20mA output	★★	Dec, 2012
	Intrinsic Safety Barriers	NPEXA-CM311	4~20mA input, Two 4~20mA output		
200k Tons Ethylene Glycol Project of Sinopec Hubei Chemical Fertilizer Plant	Intrinsic Safety Barriers	NPEXA-C21	RTD input, 4~20mA output	★★★	Feb, 2013
	Intrinsic Safety Barriers	NPEXB-CM31	4~20mA input, 4~20mA output, AO		
	Intrinsic Safety Barriers	NPEXA-CM311	4~20mA input, Two 4~20mA output		
5 Transformation of Sinopec Puyang Zhongyuan Oil Field	Intrinsic Safety Barriers	NPEXA-C11	TC input, 4~20mA output	★★★	Apr, 2014
	Intrinsic Safety Barriers	NPEXA-C21	RTD input, 4~20mA output		
	Intrinsic Safety Barriers	NPEXA-C511	Relay Input, Relay Output		
	Intrinsic Safety Barriers	NPEXA-CM311	4~20mA input, Two 4~20mA output		
Metrology & Dispatching Transformation of Sinopec Shengli Oilfield	Intrinsic Safety Barriers	NPEXA-C511	Relay Input, Relay Output	★★★	Aug, 2014
	Intrinsic Safety Barriers	NPEXA-CM31	4~20mA input, 4~20mA output		

Project Name	Product Name	Model & Technical Performance		Quantity	Date
Sinopec Shengli Oilfield Linpan a First Station to Linyi Oil Station Pipeline	Intrinsic Safety Barriers	NPEXA-C511	Relay Input, Relay Output	★★★★	Jan, 2016
	Intrinsic Safety Barriers	NPEXA-C711	RS485 Input, RS485 Output		
	Signal Isolators	NPPD-CM11D	4~20mA input, 4~20mA output		
	Intrinsic Safety Barriers	NPEXA-CM31	4~20mA input, 4~20mA output		
100k Ton/Year Propylene & Associated Aromatic Hydrocarbon, 3m Ton/Year Fuel Oil Pretreatment & 600k Ton / Year Aromatics Hydrogenation in Henan Feng Li Petrochemical	Intrinsic Safety Barriers	NPEXB-CM31	4~20mA input, 4~20mA output, AO	★★★★★	June, 2015
	Signal Isolators	NPGL-CM11D	4~20mA input, 4~20mA output		
	Intrinsic Safety Barriers	NPEXA-CM311	4~20mA input, Two 4~20mA output		
	Intrinsic Safety Barriers	NPEXA-C111	TC input, Two 4~20mA output		
	Intrinsic Safety Barriers	NPEXA-CM31H	4~20mA input, 4~20mA output, via HART		
	Intrinsic Safety Barriers	NPEXA-C11	TC input, 4~20mA output		
2m Ton / Year Heavy Oil Catalytic Cracking Unit of Hualian Petrochemical Company, Dongying	Intrinsic Safety Barriers	NPEXA-CM31	4~20mA input, 4~20mA output	★★★★★	June, 2015
	Intrinsic Safety Barriers	NPEXB-CM31	4~20mA input, 4~20mA output, AO		
	Intrinsic Safety Barriers	NPEXA-C11	TC input, 4~20mA output		
	Intrinsic Safety Barriers	NPEXA-C21	RTD input, 4~20mA output		
1 Million 600 Thousand Ton / Year Heavy Oil Catalytic Cracking Project in Hebei Shallow Sea, 50k Ton / Year MTBE & Desulphurization Unit	Intrinsic Safety Barriers	NPEXA-CM31	4~20mA input, 4~20mA output	★★★★	July, 2015
	Intrinsic Safety Barriers	NPEXB-CM31	4~20mA input, 4~20mA output, AO		
	Intrinsic Safety Barriers	NPEXA-C11	TC input, 4~20mA output		
120k Ton Olefin Project of Dongming Petrochemical Group, Shandong	Intrinsic Safety Barriers	NPEXA-CM31H	4~20mA input, 4~20mA output, via HART	★★★★★	July, 2016
	Intrinsic Safety Barriers	NPEXB-CM31H	4~20mA input, 4~20mA output, via HART, AO		
	Intrinsic Safety Barriers	NPEXA-C21	RTD input, 4~20mA output		
	Intrinsic Safety Barriers	NPEXA-C11	TC input, 4~20mA output		
	Intrinsic Safety Barriers	NPEXA-CM311H	4~20mA input, Two 4~20mA output, via HART		
	Signal Isolators	NPGL-C11D	4~20mA input, 4~20mA Output		
Comprehensive Utilization of 1 Million 800k Ton / Year of Shandong Shida Shenghua Inferior Oil & Ancillary Works	Intrinsic Safety Barriers	NPEXA-CM31	4~20mA input, 4~20mA output	★★★★★	May, 2017
	Intrinsic Safety Barriers	NPEXA-C21	RTD input, 4~20mA output		
	Intrinsic Safety Barriers	NPEXB-CM31	4~20mA input, 4~20mA output, AO		
	Intrinsic Safety Barriers	NPEXA-C11	TC input, 4~20mA output		

★★	-	Less than 500 pieces
★★★	-	500~1000 pieces
★★★★	-	1000~2000 pieces
★★★★★	-	more than 2000 pieces

Note:

This Reference List is only part of the typical performance of the petroleum & petrochemical industry. Over the past 3 years, we have more than 80 projects in the petroleum and petrochemical industry been purchased by owners or third parties such as Yokogawa, Siemens, Supcon, Hollysys System Integrators.

PERFORMANCE

Over the past 3 years, the total volume of Intrinsic Safety Barriers, Signal Isolators and Surge Protective Device supplied to the oil & petrochemical industry exceed 150,000.00 units

TC & RTD Isolated Safety Barrier

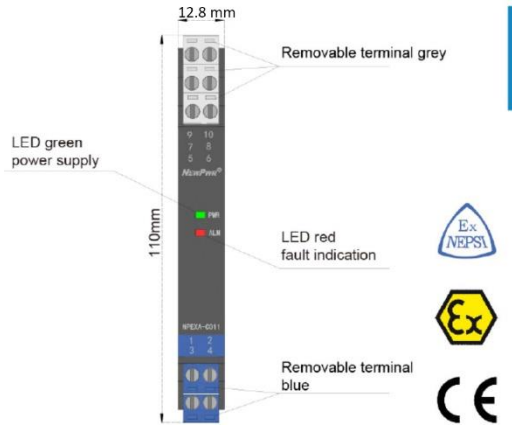
NPEXA-C01 — Single Input, Single Output

NPEXA-C011 — Single Input, Double Output

Input: TC, RTD

Output: 4~20mA

Temperature Input Safety Barrier, it converts the thermocouple or thermal resistance signals from a hazardous area into current signals to a safe area by isolation. It has external cold junction compensation terminals. It needs an independent power supply. The input, output and power supply are galvanically isolated from each other. A self-test feature is also available on this device. The PC or Handheld Programmer could be adopted for parameters-modification.



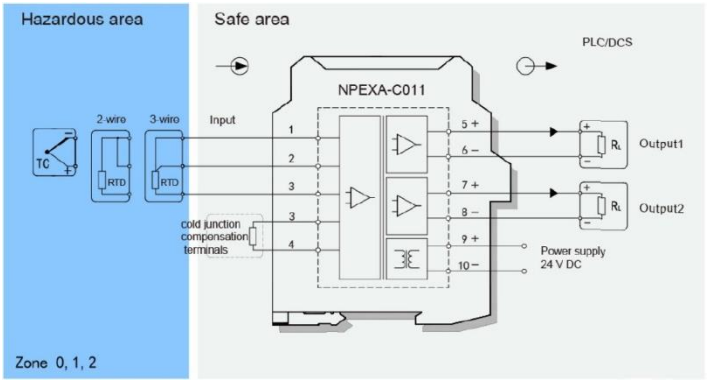
Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)
Power Dissipation	0.8W (Single Output); 1.2W (Double Output)
Input Signal	K, E, S, B, J, T, R, N, etc.; Pt100, Cu100, Cu50, BA1, BA2, etc.
Line Resistance	≤20Ω per line (RTD)
Output Signal	4~20mA
Load Resistance	R_L≤550Ω
Compensation Accuracy	1 ºC (Temp. Compensation Range: -20~60 ºC)
Temperature Drift	30 ppm/ºC
Response Time	≤500ms
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side) ≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 ºC
Storage Temperature	-40~80 ºC
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)
Output States	Whatever input fault status (except breakage), the output follows the input within measuring range. The Max. Value would not exceed the 110% of the upper limit of the measuring range (e.g. when the output signal type is 0~20mA, the Min. Output Value may be 0mA, the Max. Output Value would not exceed 22mA)

Range & Conversion Accuracy List

Type	Range (Deg. C)	Min. Span / Accuracy	
K	-200~1372	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
E	-100~1000	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
J	-100~1200	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
N	-200~1300	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
S	-50~1768	<500 ºC, ±0.5 ºC	≥500 ºC, ±0.1 F.S
R	-50~1768	<500 ºC, ±0.5 ºC	≥500 ºC, ±0.1 F.S
T	-20~400	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
B	400~1820	<500 ºC, ±0.5 ºC	≥500 ºC, ±0.1 F.S
Pt100	-200~850	<300 ºC, ±0.1 ºC	≥100 ºC, ±0.1 F.S
Cu50	-50~150	<100 ºC, ±0.1 ºC	≥100 ºC, ±0.1 F.S
Cu100	-50~150	<100 ºC, ±0.1 ºC	≥100 ºC, ±0.1 F.S

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2, 3)

Uo=8.7 V		Io=33 mA	Po=72 mW
IIC	Co= 5 µF	Lo=28 mH	
IIB	Co= 35 µF	Lo=84 mH	
IIA	Co= 700 µF	Lo=224 mH	

Model Codes

NPEXA-C0	**X**	**X**	**X**	
			PB	**BUS Powered (Default: Terminals Powered)**
		The Second Output Signal note 1		
	The First Output Signal note 1			

Note 1: Output Signal

Number	Output Signal
1	4~20 mA
2	1~5 V
3	0~10 mA
4	0~5 V
5	0~10 V
6	0~20 mA

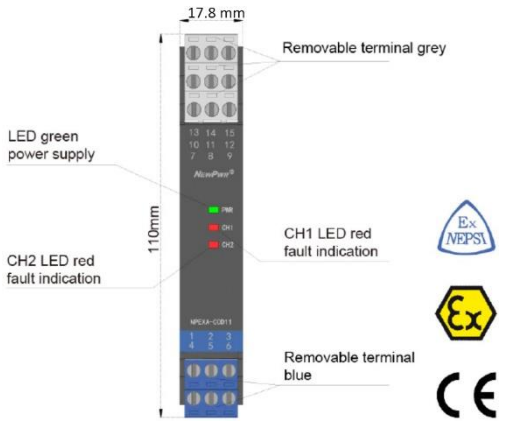
TC & RTD Isolated Safety Barrier

NPEXA-C0D11

Input: TC, RTD

Output: 4~20mA

Double Input, Double Output



Temperature Input Safety Barrier, it converts the thermocouple or thermal resistance signals from a hazardous area into current signals to a safe area by isolation. It has external cold junction compensation terminals. It needs an independent power supply. The input, output and power supply are galvanically isolated from each other. A self-test feature is also available on this device. The PC or Handheld Programmer could be adopted for parameters-modification.

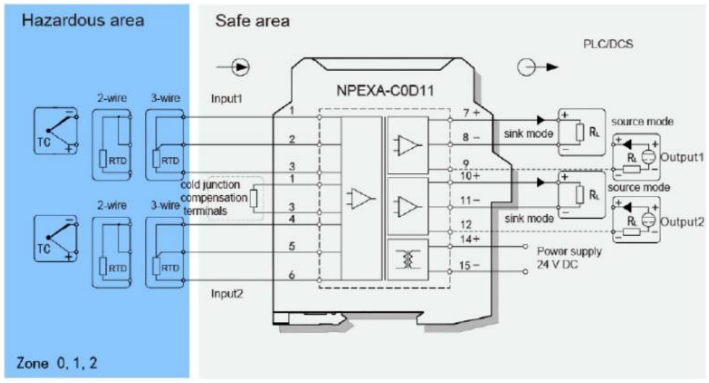
Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)
Power Dissipation	0.8W (Single Output); 1.2W (Double Output)
Input Signal	K, E, S, B, J, T, R, N, etc.; Pt100, Cu100, Cu50, BA1, BA2, etc.
Line Resistance	≤20Ω per line (RTD)
Output Signal	4~20mA (Sink / Source)
Load Resistance	R_L≤550Ω Sink Model: R_L <[(U-3)/0.02]Ω U: Loop Power Supply
Compensation Accuracy	1 °C (Temp. Compensation Range: -20~60 °C)
Temperature Drift	30 ppm/°C
Response Time	≤500ms
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side) ≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 °C
Storage Temperature	-40~80 °C
Dimension (mm)	17.8 (W) * 110 (H) * 117 (D)
Output States	Whatever input fault status (except breakage), the output follows the input within measuring range. The Max. Value would not exceed the 110% of the upper limit of the measuring range (e.g. when the output signal type is 0~20mA, the Min. Output Value may be 0mA, the Max. Output Value would not exceed 22mA)

Range & Conversion Accuracy List

Type	Range (Deg. C)	Min. Span / Accuracy	
K	-200~1372	<300 °C, ±0.3 °C	≥300 °C, ±0.1 F.S
E	-100~1000	<300 °C, ±0.3 °C	≥300 °C, ±0.1 F.S
J	-100~1200	<300 °C, ±0.3 °C	≥300 °C, ±0.1 F.S
N	-200~1300	<300 °C, ±0.3 °C	≥300 °C, ±0.1 F.S
S	-50~1768	<500 °C, ±0.5 °C	≥500 °C, ±0.1 F.S
R	-50~1768	<500 °C, ±0.5 °C	≥500 °C, ±0.1 F.S
T	-20~400	<300 °C, ±0.3 °C	≥300 °C, ±0.1 F.S
B	400~1820	<500 °C, ±0.5 °C	≥500 °C, ±0.1 F.S
Pt100	-200~850	<300 °C, ±0.1 °C	≥100 °C, ±0.1 F.S
Cu50	-50~150	<100 °C, ±0.1 °C	≥100 °C, ±0.1 F.S
Cu100	-50~150	<100 °C, ±0.1 °C	≥100 °C, ±0.1 F.S

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2, 3; 4, 5, 6)

Uo=8.7 V		Io=33 mA	Po=72 mW
IIC	Co= 5 μF	Lo=28 mH	
IIB	Co= 35 μF	Lo=84 mH	
IIA	Co= 700 μF	Lo=224 mH	

Model Codes

NPEXA-C0D **X** **X** **X**

- **PB** **BUS Powered (Default: Terminals Powered)**
- **The Second Output Signal** note 1
- **The First Output Signal** note 1

Note 1: Output Signal

Number	Output Signal
1	4~20 mA
2	1~5 V
3	0~10 mA
4	0~5 V
5	0~10 V
6	0~20 mA

TC & RTD Isolated Safety Barrier

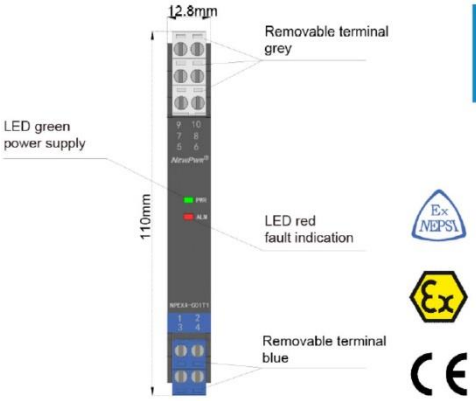
NPEXA-C01T1

Single Input, Double Output

Input: TC, RTD

Output: 4~20mA, RS-485

Temperature Input Safety Barrier, it converts the thermocouple or thermal resistance signals from a hazardous area into current and RS-485 signals to a safe area by isolation. It has external cold junction compensation terminals. It needs an independent power supply. The input, output and power supply are galvanically isolated from each other. The PC or Handheld Programmer could be adopted for parameters-modification.



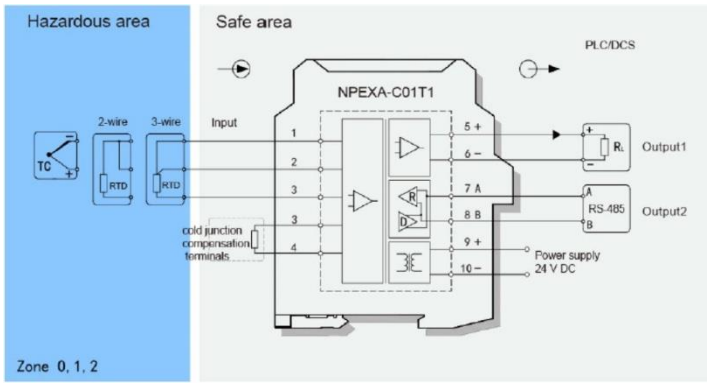
Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)
Power Dissipation	0.9W (Single Output)
Input Signal	K, E, S, B, J, T, R, N, etc.; Pt100, Cu100, Cu50, BA1, BA2, etc.
Line Resistance	≤20Ω per line (RTD)
Output Signal	4~20mA (Output 1), RS-485 (Output 2)
Load Resistance	R_L≤550Ω
Communication Parameters	MODBUS RTU, Distance≤ 1000m
Communication Bandwidth	≤ 19.2 kbps
Compensation Accuracy	1 ºC (Temp. Compensation Range: -20~60 ºC)
Temperature Drift	40 ppm/ºC
Response Time	≤500ms
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side) ≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 ºC
Storage Temperature	-40~80 ºC
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)
Output States	Whatever input fault status (except breakage), the output follows the input within measuring range. The Max. Value would not exceed the 110% of the upper limit of the measuring range (e.g. when the output signal type is 0~20mA, the Min. Output Value may be 0mA, the Max. Output Value would not exceed 22mA)

Range & Conversion Accuracy List

Type	Range (Deg. C)	Min. Span / Accuracy	
K	-200~1372	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
E	-100~1000	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
J	-100~1200	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
N	-200~1300	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
S	-50~1768	<500 ºC, ±0.5 ºC	≥500 ºC, ±0.1 F.S
R	-50~1768	<500 ºC, ±0.5 ºC	≥500 ºC, ±0.1 F.S
T	-20~400	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
B	400~1820	<500 ºC, ±0.5 ºC	≥500 ºC, ±0.1 F.S
Pt100	-200~850	<300 ºC, ±0.1 ºC	≥100 ºC, ±0.1 F.S
Cu50	-50~150	<100 ºC, ±0.1 ºC	≥100 ºC, ±0.1 F.S
Cu100	-50~150	<100 ºC, ±0.1 ºC	≥100 ºC, ±0.1 F.S

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2, 3)

Uo=8.7 V		Io=33 mA	Po=72 mW
IIC	Co= 5 μF	Lo=28 mH	
IIB	Co= 35 μF	Lo=84 mH	
IIA	Co= 700 μF	Lo=224 mH	

Model Codes

NPEXA-C0	X	T1	X
			PB BUS Powered (Default: Terminals Powered)
	The First Output Signal note 1		

Note 1: Output Signal

Number	Output Signal
1	4~20 mA
2	1~5 V
3	0~10 mA
4	0~5 V
5	0~10 V
6	0~20 mA

TC & RTD (Loop Powered)

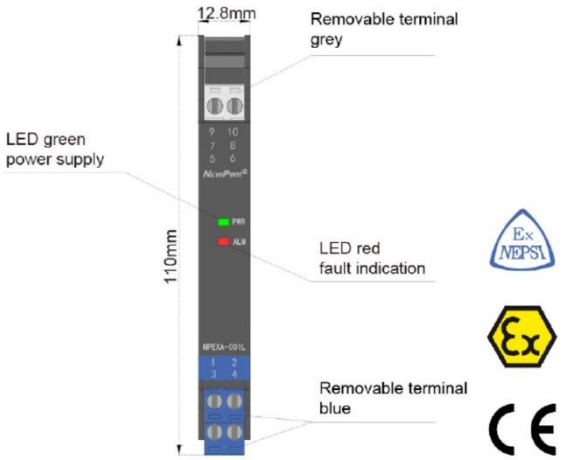
NPEXA-C01L

Input: TC, RTD

Output: 4~20mA

Single Input, Single Output

Temperature Input Safety Barrier, it converts the thermocouple or thermal resistance signals from a hazardous area into current signals to a safe area by isolation. It has external cold junction compensation terminals and loop powered. The PC or Handheld Programmer could be adopted for parameters-modification.



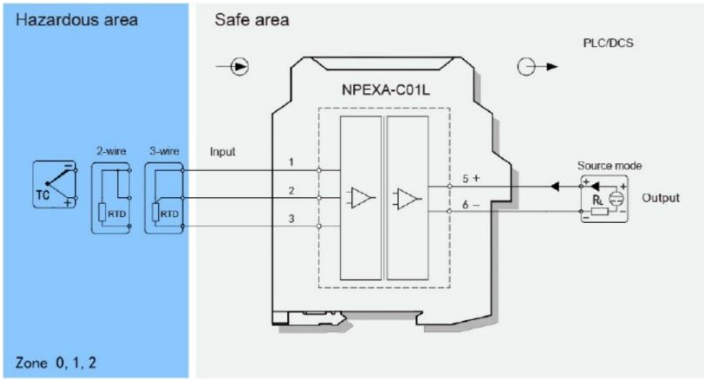
Parameters

Loop Powered	12V DC~30V DC (Reverse Power Protection)
Input Signal	K, E, S, B, J, T, R, N, etc.; Pt100, Cu100, Cu50, BA1, BA2, etc.
Line Resistance	≤20Ω per line (RTD)
Output Signal	4~20mA
Load Resistance	$R_L \leq [(U-12)/0.02]\Omega$; U is loop powered voltage
Compensation Accuracy	1 °C (Temp. Compensation Range: -20~60 °C)
Temperature Drift	30 ppm/°C
Response Time	≤500ms
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 °C
Storage Temperature	-40~80 °C
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)
Output States	Whatever input fault status (except breakage, the output is 3.5mA), the output follows the input within measuring range. The Max. Value would not exceed 22mA, the Max. Output Value would not less than 3.5mA

Range & Conversion Accuracy List

Type	Range (Deg. C)	Min. Span / Accuracy	
K	-200~1372	<300 °C, ±0.3 °C	≥300 °C, ±0.1 F.S
E	-100~1000	<300 °C, ±0.3 °C	≥300 °C, ±0.1 F.S
J	-100~1200	<300 °C, ±0.3 °C	≥300 °C, ±0.1 F.S
N	-200~1300	<300 °C, ±0.3 °C	≥300 °C, ±0.1 F.S
S	-50~1768	<500 °C, ±0.5 °C	≥500 °C, ±0.1 F.S
R	-50~1768	<500 °C, ±0.5 °C	≥500 °C, ±0.1 F.S
T	-20~400	<300 °C, ±0.3 °C	≥300 °C, ±0.1 F.S
B	400~1820	<500 °C, ±0.5 °C	≥500 °C, ±0.1 F.S
Pt100	-200~850	<300 °C, ±0.1 °C	≥100 °C, ±0.1 F.S
Cu50	-50~150	<100 °C, ±0.1 °C	≥100 °C, ±0.1 F.S
Cu100	-50~150	<100 °C, ±0.1 °C	≥100 °C, ±0.1 F.S

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2, 3)

Uo=6.2 V		Io=22 mA	Po=35 mW
IIC	Co= 30 μF	Lo=40 mH	
IIB	Co= 700 μF	Lo=120 mH	
IIA	Co= 700 μF	Lo=320 mH	

TC & RTD Isolated Safety Barrier

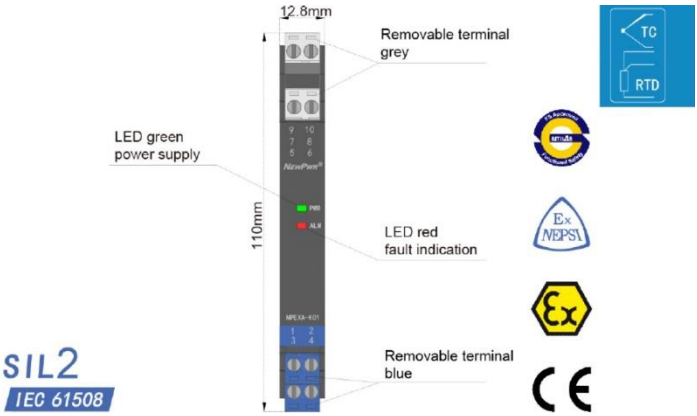
NPEXA-K01

Single Input, Single Output

Input: TC, RTD

Output: 4~20mA

Temperature Input Safety Barrier, it converts the thermocouple or thermal resistance signals from a hazardous area into current signals to a safe area by isolation. It has external cold junction compensation terminals. It needs an independent power supply. The input, output and power supply are galvanically isolated from each other. The PC or Handheld Programmer could be adopted for parameters-modification.



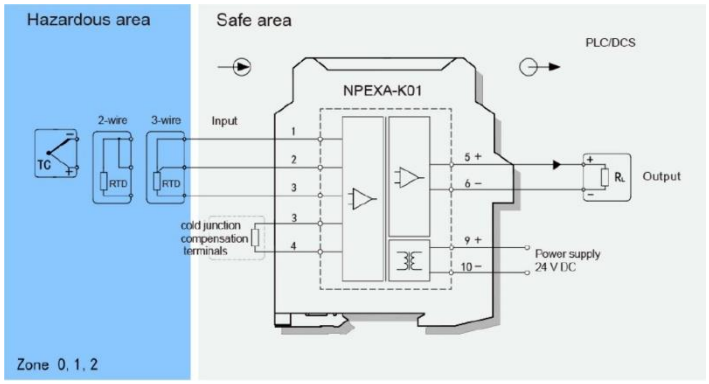
Parameters

Power Supply	20V DC~30V DC (Reverse Power Protection)
Power Dissipation	0.7W
Input Signal	K, E, S, B, J, T, R, N, etc.; Pt100, Cu100, Cu50, BA1, BA2, etc.
Line Resistance	≤20Ω per line (RTD)
Output Signal	4~20mA
Load Resistance	R_L≤550Ω
Compensation Accuracy	1 ºC (Temp. Compensation Range: -20~60 ºC)
Temperature Drift	30 ppm/ºC
Response Time	≤500ms
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side) ≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 ºC
Storage Temperature	-40~80 ºC
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)
Output States	<3.6mA or >21.5mA

Range & Conversion Accuracy List

Type	Range (Deg. C)	Min. Span / Accuracy	
K	-200~1372	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
E	-100~1000	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
J	-100~1200	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
N	-200~1300	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
S	-50~1768	<500 ºC, ±0.5 ºC	≥500 ºC, ±0.1 F.S
R	-50~1768	<500 ºC, ±0.5 ºC	≥500 ºC, ±0.1 F.S
T	-20~400	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
B	400~1820	<500 ºC, ±0.5 ºC	≥500 ºC, ±0.1 F.S
Pt100	-200~850	<300 ºC, ±0.1 ºC	≥100 ºC, ±0.1 F.S
Cu50	-50~150	<100 ºC, ±0.1 ºC	≥100 ºC, ±0.1 F.S
Cu100	-50~150	<100 ºC, ±0.1 ºC	≥100 ºC, ±0.1 F.S

Wiring Diagram



Explosive-Proof Parameters

Functional Safety Level (SIL): SIL2, SC2 according to IEC 61508

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2, 3)

Uo=4.9 V		Io=25.4 mA	Po=31.3 mW
IIC	Co= 69.9 μF	Lo=69.9 mH	
IIB	Co= 700 μF	Lo=210 mH	
IIA	Co= 700 μF	Lo=560 mH	

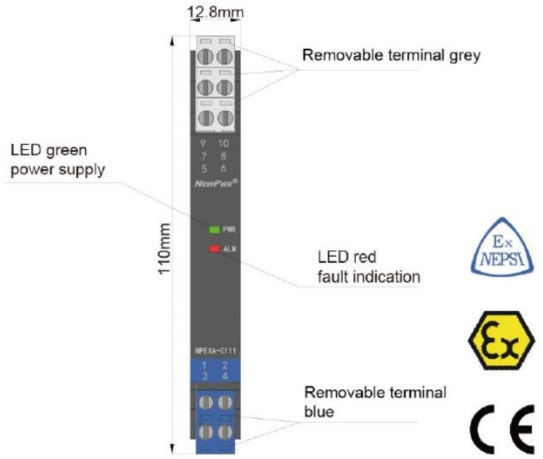
TC Isolated Safety Barrier

NPEXA-C11 — Single Input, Single Output
NPEXA-C111 — Single Input, Double Output

Input: TC

Output: 4~20mA

Temperature Input Safety Barrier, it converts the thermocouple signals from a hazardous area into current signals to a safe area by isolation. It has external cold junction compensation terminals. It needs an independent power supply. The input, output and power supply are galvanically isolated from each other. A self-test feature is also available on this device. The PC or Handheld Programmer could be adopted for parameters-modification.



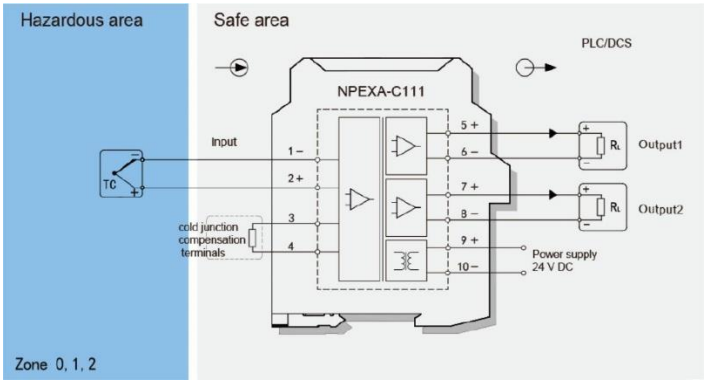
Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)
Power Dissipation	0.8W (Single Output); 1.2W (Double Output)
Input Signal	K, E, S, B, J, T, R, N, etc.
Output Signal	4~20mA
Load Resistance	R_L≤550Ω
Compensation Accuracy	1 ºC (Temp. Compensation Range: -20~60 ºC)
Temperature Drift	30 ppm/ºC
Response Time	≤500ms
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side) ≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 ºC
Storage Temperature	-40~80 ºC
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)
Output States	Whatever input fault status (except breakage), the output follows the input within measuring range. The Max. Value would not exceed the 110% of the upper limit of the measuring range (e.g. when the output signal type is 0~20mA, the Min. Output Value may be 0mA, the Max. Output Value would not exceed 22mA)

Range & Conversion Accuracy List

Type	Range (Deg. C)	Min. Span / Accuracy	
K	-200~1372	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
E	-100~1000	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
J	-100~1200	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
N	-200~1300	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
S	-50~1768	<500 ºC, ±0.5 ºC	≥500 ºC, ±0.1 F.S
R	-50~1768	<500 ºC, ±0.5 ºC	≥500 ºC, ±0.1 F.S
T	-20~400	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
B	400~1820	<500 ºC, ±0.5 ºC	≥500 ºC, ±0.1 F.S

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2)

Uo=8.7 V		Io=33 mA	Po=72 mW
IIC	Co= 5 µF	Lo=28 mH	
IIB	Co= 35 µF	Lo=84 mH	
IIA	Co= 700 µF	Lo=224 mH	

Model Codes

NPEXA-C1	**X**	**X**	**X**	
			PB	**BUS Powered (Default: Terminals Powered)**
		The Second Output Signal note 1		
	The First Output Signal note 1			

Note 1: Output Signal

Number	Output Signal
1	4~20 mA
2	1~5 V
3	0~10 mA
4	0~5 V
5	0~10 V
6	0~20 mA

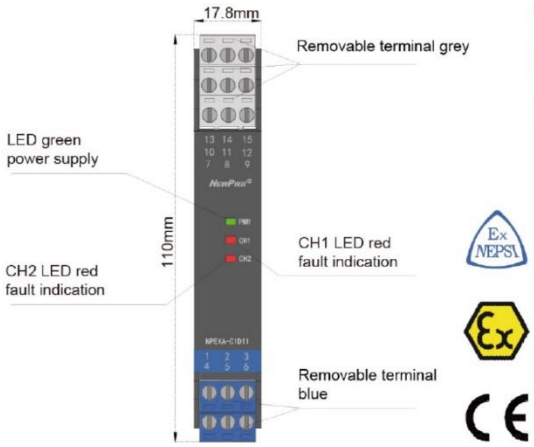
TC Isolated Safety Barrier

NPEXA-C1D11

Double Input, Double Output

Input: TC

Output: 4~20mA



Temperature Input Safety Barrier, it converts the thermocouple signals from a hazardous area into current signals to a safe area by isolation. It has external cold junction compensation terminals. It needs an independent power supply. The input, output and power supply are galvanically isolated from each other. A self-test feature is also available on this device. The PC or Handheld Programmer could be adopted for parameters-modification.

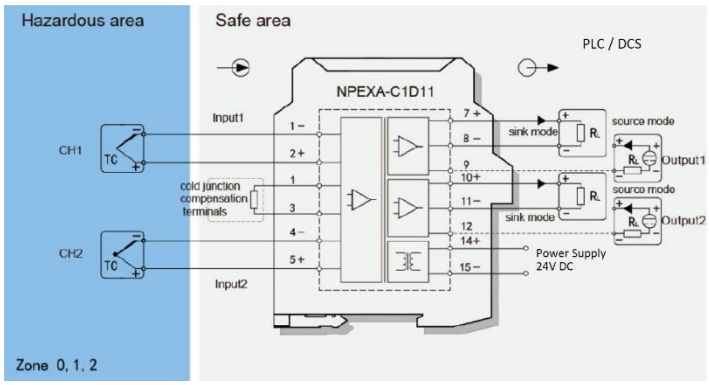
Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)	
Power Dissipation	1.2W (Double Output)	
Input Signal	K, E, S, B, J, T, R, N, etc.	
Output Signal	4~20mA (Sink / Source)	
Load Resistance	Source	$R_L \leq 550\Omega$
	Sink Mode	$R_L < [(U-3)/0.02]\Omega$
	U	Loop Power Supply
Compensation Accuracy	1 ºC (Temp. Compensation Range: -20~60 ºC)	
Temperature Drift	30 ppm/ºC	
Response Time	≤500ms	
Electromagnetic Compatibility	IEC 61326-3-1	
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side)	
	≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)	
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)	
Operation Temperature	-20~60 ºC	
Storage Temperature	-40~80 ºC	
Dimension (mm)	17.8 (W) * 110 (H) * 117 (D)	
Output States	Whatever input fault status (except breakage), the output follows the input within measuring range. The Max. Value would not exceed the 110% of the upper limit of the measuring range (e.g. when the output signal type is 0~20mA, the Min. Output Value may be 0mA, the Max. Output Value would not exceed 22mA)	

Range & Conversion Accuracy List

Type	Range (Deg. C)	Min. Span / Accuracy	
K	-200~1372	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
E	-100~1000	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
J	-100~1200	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
N	-200~1300	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
S	-50~1768	<500 ºC, ±0.5 ºC	≥500 ºC, ±0.1 F.S
R	-50~1768	<500 ºC, ±0.5 ºC	≥500 ºC, ±0.1 F.S
T	-20~400	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
B	400~1820	<500 ºC, ±0.5 ºC	≥500 ºC, ±0.1 F.S

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2; 4, 5)

Uo=8.7 V		Io=33 mA	Po=72 mW
IIC	Co= 5 µF	Lo=28 mH	
IIB	Co= 35 µF	Lo=84 mH	
IIA	Co= 700 µF	Lo=224 mH	

Model Codes

NPEXA-C1D	**X**	**X**	**X**	
			PB	**BUS Powered (Default: Terminals Powered)**
		The Second Output Signal note 1		
	The First Output Signal note 1			

Note 1: Output Signal

Number	Output Signal
1	4~20 mA
2	1~5 V
3	0~10 mA
4	0~5 V
5	0~10 V
6	0~20 mA

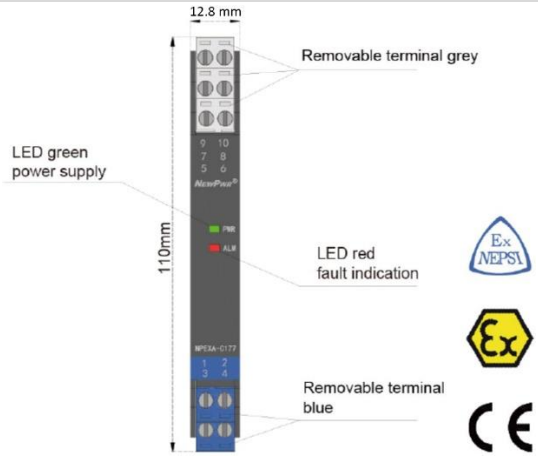
TC Isolated Safety Barrier

NPEXA-C17 — Single Input, Single Output
NPEXA-C177 — Single Input, Double Output

Input: TC

Output: 1:1 mV

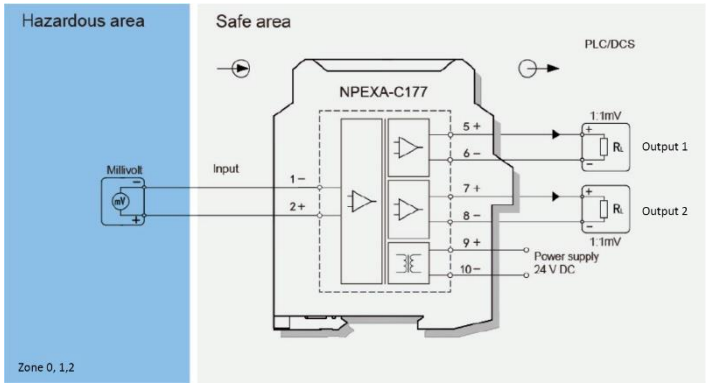
Millivolt Input Safety Barrier, it converts the Millivolt signals from a hazardous area into 1:1 mV signals to a safety area by isolation. The input, output and power supply are galvanically isolated from each other.



Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)
Power Dissipation	0.8W (Single Output); 1.2W (Double Output)
Input Signal	0 mV~100 mV
Output Signal	1:1 mV
Load Resistance	≥ 10kΩ
Compensation Accuracy	± 0.1% F.S
Temperature Drift	30 ppm/°C
Response Time	≤500ms
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side) ≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 °C
Storage Temperature	-40~80 °C
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)
Output States	Whatever input fault status (except breakage), the output follows the input within measuring range. The Max. Value would not exceed the 110% of the upper limit of the measuring range (e.g. when the output signal type is 0~20mA, the Min. Output Value may be 0mA, the Max. Output Value would not exceed 22mA)

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2)

Uo=8.7 V		Io=33 mA	Po=72 mW
IIC	Co= 5 µF	Lo=28 mH	
IIB	Co= 35 µF	Lo=84 mH	
IIA	Co= 700 µF	Lo=224 mH	

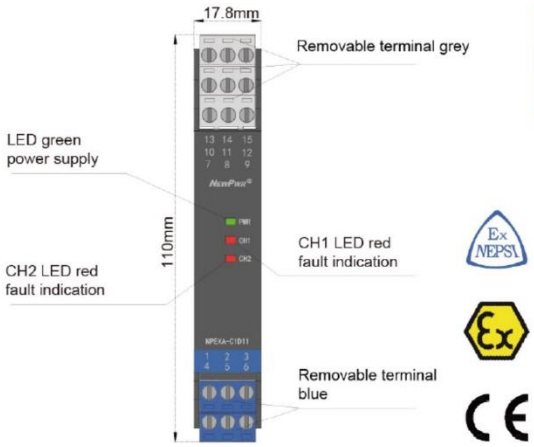
TC Isolated Safety Barrier

NPEXA-C171

Single Input, Double Output

Input: TC

Output: 1:1 mA; 4~20mA

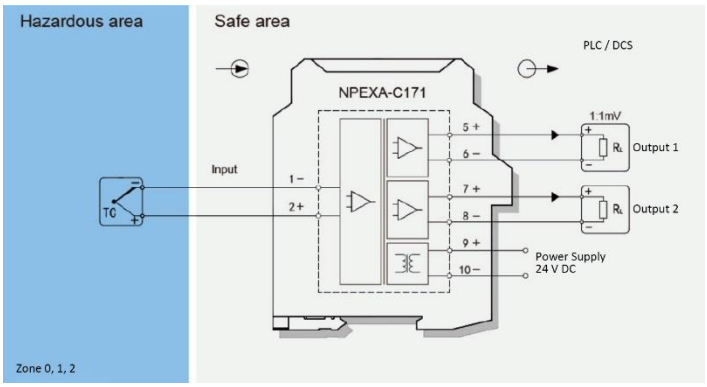


Millivolt Input Safety Barrier, it converts the Millivolt signals from a hazardous area into 1:1 mV signals to a safety area by isolation. It has external cold junction compensation terminals. It needs an independent power supply. The input, output and power supply are galvanically isolated from each other. The PC or Handheld Programmer could be adopted for parameters-modification.

Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)
Power Dissipation	1.2W
Input Signal	0 mA~ 100 mV
Output Signal	1:1 mV (Output 1) 4~20 mA (Output 2)
Load Resistance	Output 1 R_L≥10kΩ Output 2 R_L≤550Ω
Temperature Drift	30 ppm/°C
Response Time	≤500ms
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side) ≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 °C
Storage Temperature	-40~80 °C
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)
Output States	Whatever input fault status (except breakage), the output follows the input within measuring range. The Max. Value would not exceed the 110% of the upper limit of the measuring range (e.g. when the output signal type is 0~20mA, the Min. Output Value may be 0mA, the Max. Output Value would not exceed 22mA)

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2)

Uo=8.7 V		Io=33 mA	Po=72 mW
IIC	Co= 5 μF	Lo=28 mH	
IIB	Co= 35 μF	Lo=84 mH	
IIA	Co= 700 μF	Lo=224 mH	

Model Codes

NPEXA-C17	**X**	**X**	
		PB	**BUS Powered (Default: Terminals Powered)**
	The First Output Signal note 1		

Note 1: Output Signal

Number	Output Signal
1	4~20 mA
2	1~5 V
3	0~10 mA
4	0~5 V
5	0~10 V
6	0~20 mA

TC Isolated Safety Barrier

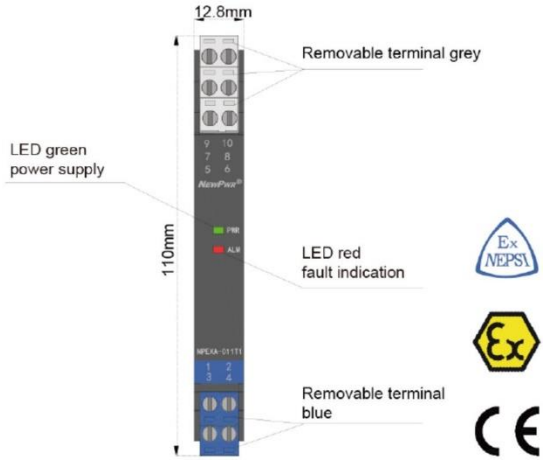
NPEXA-C11T1

Single Input, Double Output

Input: TC

Output: 4~20mA, RS485

Temperature Input Safety Barrier, it converts the thermocouple signals from a hazardous area into current and RS485 signals to a safe area by isolation. It has external cold junction compensation terminals. It needs an independent power supply. The input, output and power supply are galvanically isolated from each other. The PC or Handheld Programmer could be adopted for parameters-modification.



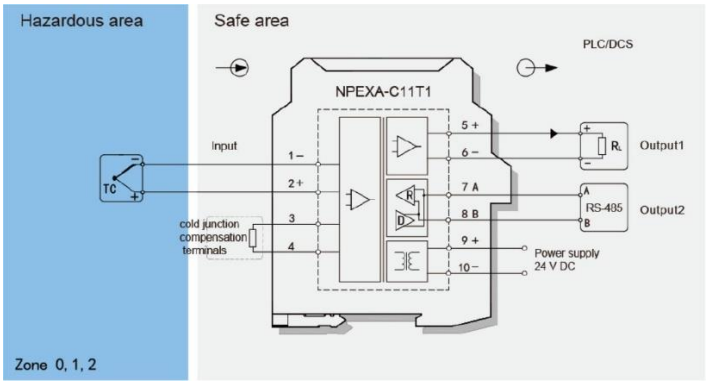
Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)
Power Dissipation	0.9W
Input Signal	K, E, S, B, J, T, R, N, etc.
Output Signal	4~20mA (Output 1) RS485 (Output 2)
Load Resistance	$R_L \leq 550\Omega$
Communication Parameters	Modbus RTU, Distance≤ 1000m
Communication Bandwidth	≤ 19.2 kbps
Compensation Accuracy	1 ºC (Temp. Compensation Range: -20~60 ºC)
Temperature Drift	40 ppm/ºC
Response Time	≤500ms
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side) ≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 ºC
Storage Temperature	-40~80 ºC
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)
Output States	Whatever input fault status (except breakage), the output follows the input within measuring range. The Max. Value would not exceed the 110% of the upper limit of the measuring range (e.g. when the output signal type is 0~20mA, the Min. Output Value may be 0mA, the Max. Output Value would not exceed 22mA)

Range & Conversion Accuracy List

Type	Range (Deg. C)	Min. Span / Accuracy	
K	-200~1372	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
E	-100~1000	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
J	-100~1200	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
N	-200~1300	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
S	-50~1768	<500 ºC, ±0.5 ºC	≥500 ºC, ±0.1 F.S
R	-50~1768	<500 ºC, ±0.5 ºC	≥500 ºC, ±0.1 F.S
T	-20~400	<300 ºC, ±0.3 ºC	≥300 ºC, ±0.1 F.S
B	400~1820	<500 ºC, ±0.5 ºC	≥500 ºC, ±0.1 F.S

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2)

Uo=8.7 V		Io=33 mA	Po=72 mW
IIC	Co= 5 μF	Lo=28 mH	
IIB	Co= 35 μF	Lo=84 mH	
IIA	Co= 700 μF	Lo=224 mH	

Model Codes

NPEXA-C1	**X**	**T1**	**X**	
				BUS Powered (Default: Terminals Powered)
	The First Output Signal note 1			

Note 1: Output Signal

Number	Output Signal
1	4~20 mA
2	1~5 V
3	0~10 mA
4	0~5 V
5	0~10 V
6	0~20 mA

TC Loop Powered

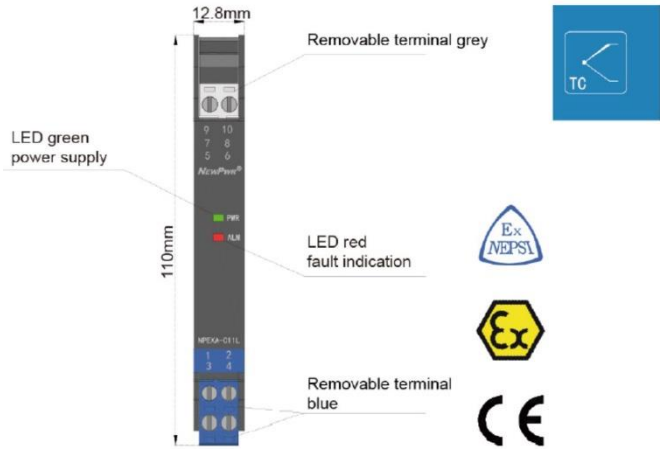
NPEXA-C11L

Single Input, Single Output

Input: TC

Output: 4~20mA

Temperature Input Safety Barrier, it converts the thermocouple signals from a hazardous area into current signals to a safety area by isolation. It has external cold junction compensation terminals and loop powered. The PC or Handheld Programmer could be adopted for parameters-modification.



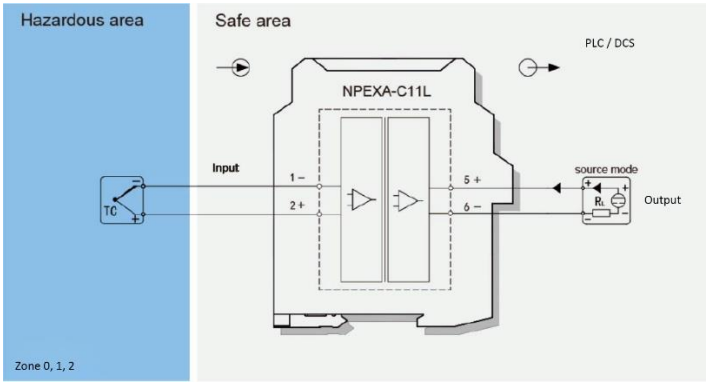
Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)	
Input Signal	K, E, S, B, J, T, R, N, etc.	
Output Signal	4~20 mA	
Load Resistance	Output 1	R_L< [(U-12)/0.02]Ω
	U	Loop Powered Voltage
Temperature Drift	30 ppm/°C	
Response Time	≤500ms	
Electromagnetic Compatibility	IEC 61326-3-1	
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side)	
	≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)	
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)	
Operation Temperature	-20~60 °C	
Storage Temperature	-40~80 °C	
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)	
Output States	Whatever input fault status (except breakage, the output is 3.5 mA), the output follows the input within measuring range. The Max. Value would not exceed 22mA, the Max. Output value would not less than 3.5 m	

Range & Conversion Accuracy List

Type	Range (Deg. C)	Min. Span / Accuracy	
K	-200~1372	<300 °C, ±0.3 °C	≥300 °C, ±0.1 F.S
E	-100~1000	<300 °C, ±0.3 °C	≥300 °C, ±0.1 F.S
J	-100~1200	<300 °C, ±0.3 °C	≥300 °C, ±0.1 F.S
N	-200~1300	<300 °C, ±0.3 °C	≥300 °C, ±0.1 F.S
S	-50~1768	<500 °C, ±0.5 °C	≥500 °C, ±0.1 F.S
R	-50~1768	<500 °C, ±0.5 °C	≥500 °C, ±0.1 F.S
T	-20~400	<300 °C, ±0.3 °C	≥300 °C, ±0.1 F.S
B	400~1820	<500 °C, ±0.5 °C	≥500 °C, ±0.1 F.S

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2)

Uo=5.0 V		Io=2.5 mA	Po=3.2 mW
IIC	Co= 90 μF	Lo=100 mH	
IIB	Co= 700 μF	Lo=210 mH	
IIA	Co= 700 μF	Lo=800 mH	

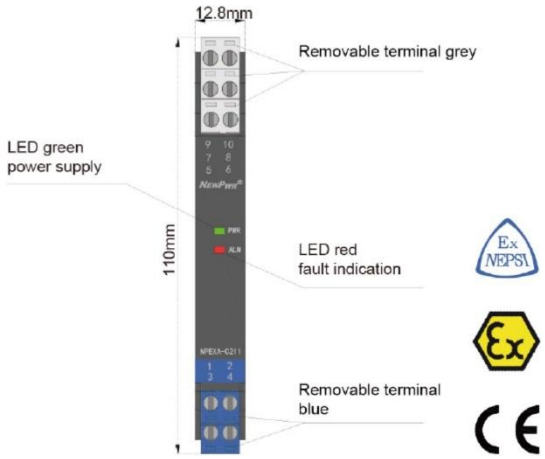
RTD Isolated Safety Barrier

NPEXA-C21 — Single Input, Single Output
NPEXA-C211 — Single Input, Double Output

Input: RTD

Output: 4~20mA

Temperature Input Safety Barrier, it converts the thermal resistance signal from a hazardous area into current signal to a safe area by isolation. It needs an independent power supply. The input, output and power supply are galvanically isolated from each other. A self-test feature is also available on this device. The PC or Handheld Programmer could be adopted for parameters-modification.



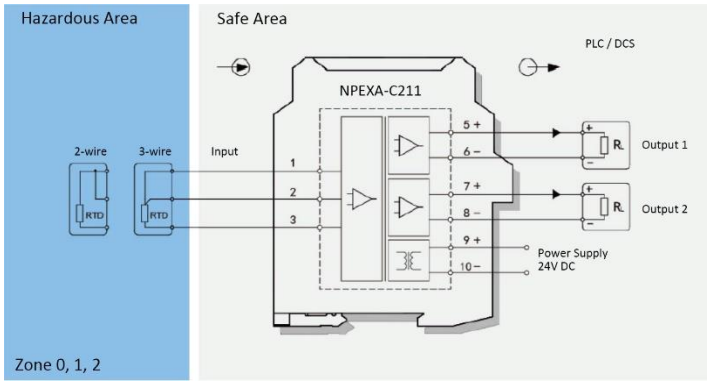
Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)
Power Dissipation	0.8W (Single Output); 1.2W (Double Output)
Input Signal	Pt100, Cu100, Cu50, BA1, BA2, etc.
Line Resistance	≤20Ω per line (RTD)
Output Signal	4~20mA
Load Resistance	R_L≤ 550Ω
Temperature Drift	30 ppm/°C
Response Time	≤500 ms
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side) ≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 °C
Storage Temperature	-40~80 °C
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)
Output States	Whatever input fault status (except breakage), the output follows the input within measuring range. The Max. Value would not exceed the 110% of the upper limit of the measuring range (e.g. when the output signal type is 0~20mA, the Min. Output Value may be 0mA, the Max. Output Value would not exceed 22mA)

Range & Conversion Accuracy List

Type	Range (Deg. C)	Min. Span / Accuracy	
Pt100	-200~850	<300 °C, ±0.1 °C	≥100 °C, ±0.1 F.S
Cu50	-50~150	<100 °C, ±0.1 °C	≥100 °C, ±0.1 F.S
Cu100	-50~150	<100 °C, ±0.1 °C	≥100 °C, ±0.1 F.S

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2, 3)

Uo=8.7 V		Io=33 mA	Po=72 mW
IIC	Co= 5 μF	Lo=28 mH	
IIB	Co= 35 μF	Lo=84 mH	
IIA	Co= 700 μF	Lo=224 mH	

Model Codes

NPEXA-C2 **X** **X** **X**

- **BUS Powered (Default: Terminals Powered)**
- **The Second Output Signal** note 1
- **The First Output Signal** note 1

Note 1: Output Signal

Number	Output Signal
1	4~20 mA
2	1~5 V
3	0~10 mA
4	0~5 V
5	0~10 V
6	0~20 mA

RTD Isolated Safety Barrier

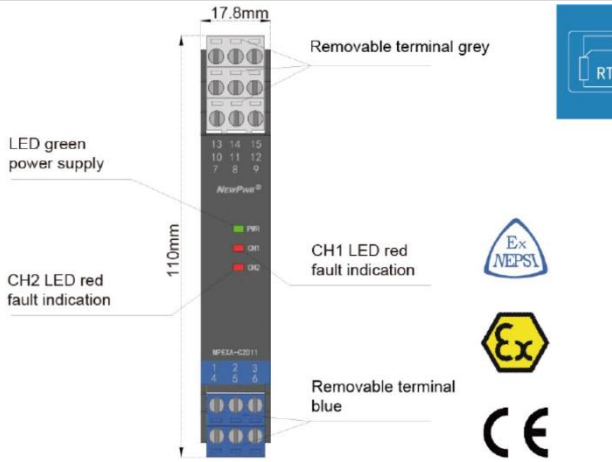
NPEXA-C2D11

Double Input, Double Output

Input: RTD

Output: 4~20mA

Temperature Input Safety Barrier, it converts the thermal resistance signal from a hazardous area into current signal to a safe area by isolation. It needs an independent power supply. The input, output and power supply are galvanically isolated from each other. A self-test feature is also available on this device. The PC or Handheld Programmer could be adopted for parameters-modification.



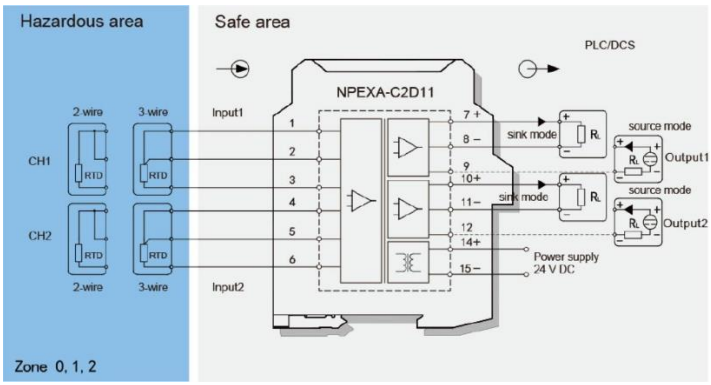
Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)	
Power Dissipation	1.2W	
Input Signal	Pt100, Cu100, Cu50, BA1, BA2, etc.	
Line Resistance	≤20Ω per line (RTD)	
Output Signal	4~20 mA (Sink / Source)	
Load Resistance	Source Mode	R_L≤ 550Ω
	Sink Mode	R_L< [(U-3)/0.02]Ω
	U	Loop Power Supply
Temperature Drift	30 ppm/°C	
Response Time	≤500ms	
Electromagnetic Compatibility	IEC 61326-3-1	
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side)	
	≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)	
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)	
Operation Temperature	-20~60 °C	
Storage Temperature	-40~80 °C	
Dimension (mm)	17.8 (W) * 110 (H) * 117 (D)	
Output States	Whatever input fault status (except breakage), the output follows the input within measuring range. The Max. Value would not exceed the 110% of the upper limit of the measuring range (e.g. when the output signal type is 0~20mA, the Min. Output Value may be 0mA, the Max. Output Value would not exceed 22mA)	

Range & Conversion Accuracy List

Type	Range (Deg. C)	Min. Span / Accuracy	
Pt100	-200~850	<300 °C, ±0.1 °C	≥100 °C, ±0.1 F.S
Cu50	-50~150	<100 °C, ±0.1 °C	≥100 °C, ±0.1 F.S
Cu100	-50~150	<100 °C, ±0.1 °C	≥100 °C, ±0.1 F.S

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2, 3)

Uo=8.7 V		Io=33 mA	Po=72 mW
IIC	Co= 5 μF	Lo=28 mH	
IIB	Co= 35 μF	Lo=84 mH	
IIA	Co= 700 μF	Lo=224 mH	

Model Codes

NPEXA-C2D	**X**	**X**	**X**	
				BUS Powered (Default: Terminals Powered)
				The Second Output Signal note 1
				The First Output Signal note 1

Note 1: Output Signal

Number	Output Signal
1	4~20 mA
2	1~5 V
3	0~10 mA
4	0~5 V
5	0~10 V
6	0~20 mA

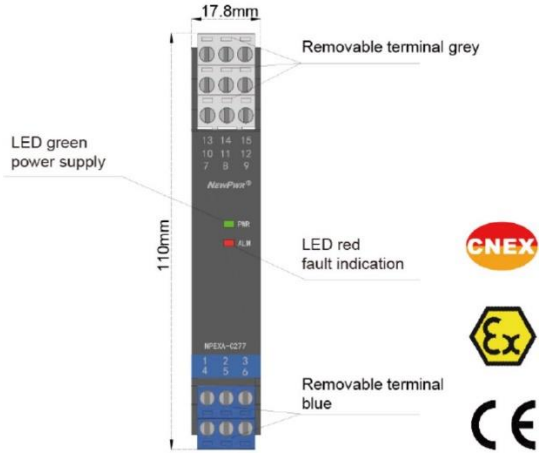
RTD Isolated Safety Barrier

NPEXA-C27 — Single Input, Single Output
NPEXA-C277 — Single Input, Double Output

Input: RTD

Output: 1:1 Resistance

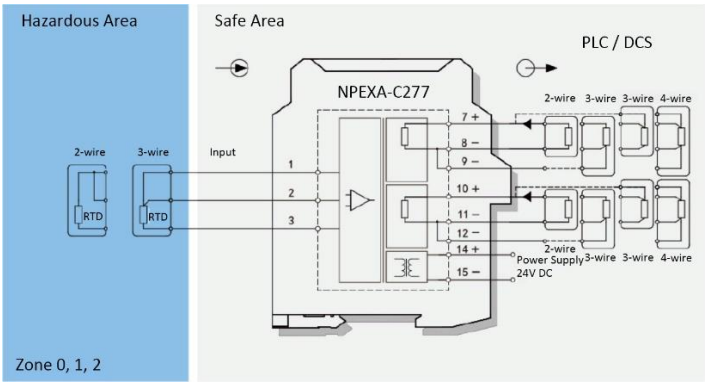
Millivolt Input Safety Barrier, it converts the resistance signal from a hazardous area into 1:1 resistance signal to a safe area by isolation. The input, output and power supply are galvanically isolated from each other.



Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)
Power Dissipation	0.4W
Input Signal	18Ω~400Ω
Line Resistance	≤20Ω per line (RTD)
Output Signal	1:1 Resistance
Exciting Current	0.1mA~10mA
Conversion Accuracy	Excitation Current Accuracy ±0.1% F.S (0.5mA~10mA) or <0.2Ω; *select Max.* 0.1mA~0.5mA Max. Value 1.5Ω
Temperature Drift	30 ppm/°C
Response Time	≤500 ms
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side) ≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 °C
Storage Temperature	-40~80 °C
Dimension (mm)	17.8 (W) * 110 (H) * 117 (D)
Output States	Whatever input fault status (except breakage, breakage output about 16Ω), the output follows the input within measuring range. The Max. Output Value would not exceed 430Ω

Wiring Diagram



Explosive-Proof Parameters

China National Quality Supervision & Test Centre for Explosion Protected Electrical Products(CQST)

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2, 3)

Uo=8.7 V		Io=33 mA	Po=72 mW
IIC	Co= 5 μF	Lo=28 mH	
IIB	Co= 35 μF	Lo=84 mH	
IIA	Co= 700 μF	Lo=224 mH	

RTD Isolated Safety Barrier

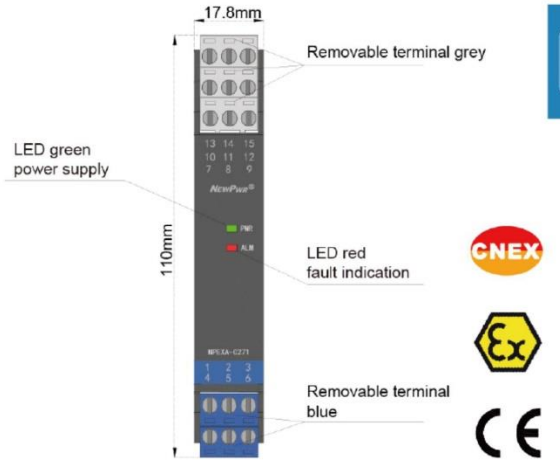
NPEXA-C271

Single Input, Double Output

Input: RTD

Output: 1:1 Resistance, 4~20mA

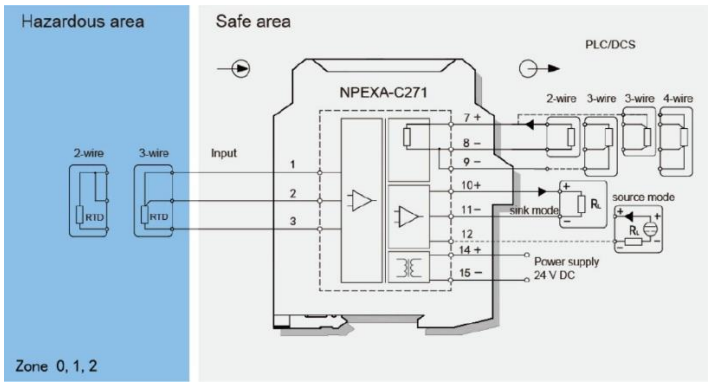
Resistance Input Safety Barrier, it converts the resistance signals from a hazardous area into 1:1 resistance and current signals to a safe area by isolation. It needs an independent power supply. The input, output and power supply are galvanically isolated from each other. The PC or Handheld Programmer could be adopted for parameters-modification.



Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)		
Power Dissipation	1.0 W		
Input Signal	18Ω~400Ω		
Line Resistance	≤20Ω per line (RTD)		
Output Signal	Output 1	1:1 Resistance	
	Output 2	4~20mA (sink / source)	
Load Resistance	Source Mode	R_L≤ 550Ω Sink Mode	R_L< [(U-3)/0.02]Ω
	U	Loop Power Supply	
Exciting Current	0.1mA~10mA		
Conversion Accuracy	25 ºC ±2ºC		
Output 1	Excitation Current Acc.	0.5mA~10mA ±0.1% F.S or <0.2Ω (select Max.) 0.~mA~0.5mA Max. Value 1.5Ω	
Output 2	Range Accuracy	<100 ºC ±0.1 oC ≥100 ºC ±0.1% F.S	
Temperature Drift	30 ppm/ºC		
Response Time	≤500ms		
Electromagnetic Compatibility	IEC 61326-3-1		
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side)		
	≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)		
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)		
Operation Temperature	-20~60 ºC		
Storage Temperature	-40~80 ºC		
Dimension (mm)	17.8 (W) * 110 (H) * 117 (D)		
Output States	Whatever input fault status (except breakage, breakage output1 about 16Ω, breakage output2 about 0V/mA), the output follows the input within measuring range. Output1 the Max. Value would not exceed the upper limit of 430Ω, output2 the Max. Value would not exceed the 110% of the upper limit of the measuring range (e.g. when the output signal type is 0~20mA, the Min. Output Value may be 0mA, the Max. Output Value would not exceed 22mA)		

Wiring Diagram



Explosive-Proof Parameters

China National Quality Supervision & Test Centre for Explosion Protected Electrical Products(CQST)

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2, 3)

Uo=8.7 V		Io=33 mA	Po=72 mW
IIC	Co= 5 µF	Lo=28 mH	
IIB	Co= 35 µF	Lo=84 mH	
IIA	Co= 700 µF	Lo=224 mH	

Model Codes

NPEXA-C27	**X**	**X**
		BUS Powered (Default: Terminals Powered)
	The Second Output Signal note 1	

Note 1: Output Signal

Number	Output Signal
1	4~20 mA
2	1~5 V
3	0~10 mA
4	0~5 V
5	0~10 V
6	0~20 mA

RTD Isolated Safety Barrier

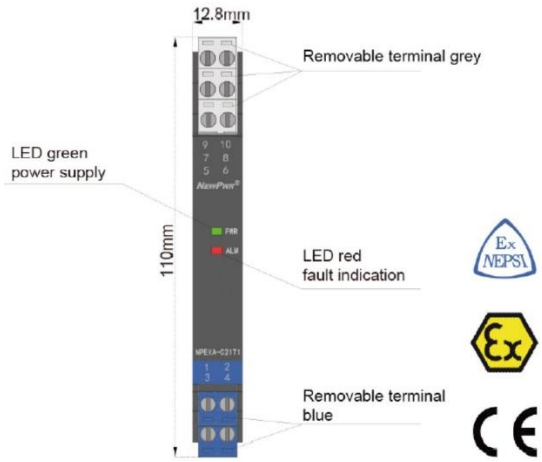
NPEXA-C21T1

Single Input, Double Output

Input: RTD

Output: 4~20mA, RS-485

Temperature Input Safety Barrier, it converts the resistance signals from a hazardous area into current and RS-485 signals to a safe area by isolation. It needs an independent power supply. The input, output and power supply are galvanically isolated from each other. The PC or Handheld Programmer could be adopted for parameters-modification.



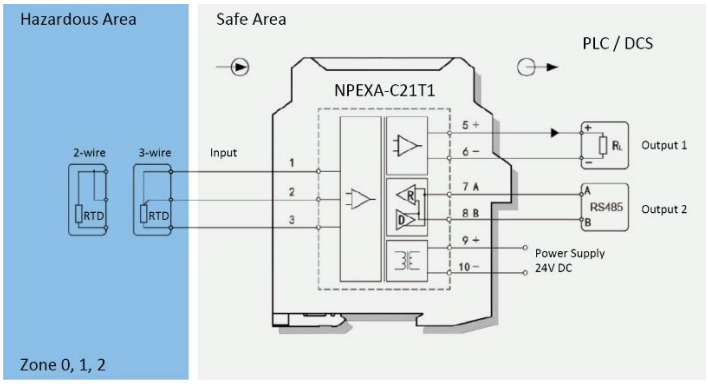
Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)	
Power Dissipation	0.9 W	
Input Signal	Pt100, Cu100, Cu50, BA1, BA2, etc.	
Line Resistance	≤20Ω per line (RTD)	
Output Signal	Output 1	4~20mA
	Output 2	RS-485
Load Resistance	R_L≤ 550Ω	
Communication Parameters	Modbus RTU, Distance≤ 1000m	
Communication Bandwidth	≤ 19.2 kbps	
Temperature Drift	40 ppm/°C	
Response Time	≤500 ms	
Electromagnetic Compatibility	IEC 61326-3-1	
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side)	
	≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)	
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)	
Operation Temperature	-20~60 °C	
Storage Temperature	-40~80 °C	
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)	
Output States	Whatever input fault status (except breakage), the output follows the input within measuring range. The Max. Value would not exceed the 110% of the upper limit of the measuring range (e.g. when the output signal type is 0~20mA, the Min. Output Value may be 0mA, the Max. Output Value would not exceed 22mA)	

Range & Conversion Accuracy List

Type	Range (Deg. C)	Min. Span / Accuracy	
Pt100	-200~850	<300 °C, ±0.1 °C	≥100 °C, ±0.1 F.S
Cu50	-50~150	<100 °C, ±0.1 °C	≥100 °C, ±0.1 F.S
Cu100	-50~150	<100 °C, ±0.1 °C	≥100 °C, ±0.1 F.S

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2, 3)

Uo=8.7 V		Io=33 mA	Po=72 mW
IIC	Co= 5 μF	Lo=28 mH	
IIB	Co= 35 μF	Lo=84 mH	
IIA	Co= 700 μF	Lo=224 mH	

Model Codes

NPEXA-C2	**X**	**T1**	**X**	
				BUS Powered (Default: Terminals Powered)
	The First Output Signal note 1			

Note 1: Output Signal

Number	Output Signal
1	4~20 mA
2	1~5 V
3	0~10 mA
4	0~5 V
5	0~10 V
6	0~20 mA

RTD Loop Powered

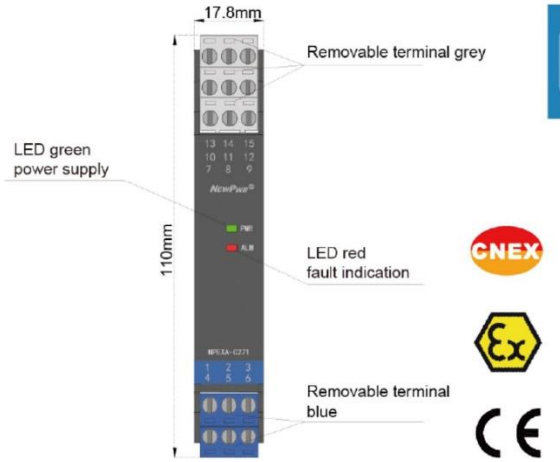
NPEXA-C21L

Single Input, Single Output

Input: RTD

Output: 4~20mA

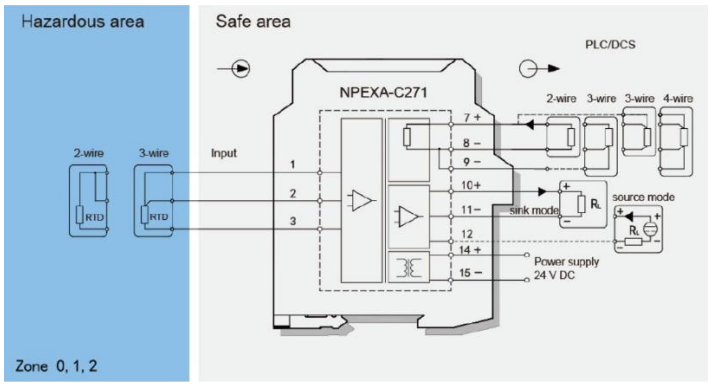
Temperature Input Safety Barrier, it converts the resistance signals from a hazardous area into current signals to a safe area by isolation. It has loop powered. The PC or Handheld Programmer could be adopted for parameters-modification.



Parameters

Power Supply	12V DC~30V DC (Reverse Power Protection)	
Input Signal	Pt100, Cu100, Cu50, BA1, BA2, etc.	
Line Resistance	≤20Ω per line (RTD)	
Output Signal	4~20mA	
Load Resistance	R_L< [(U-12)/0.02]Ω U Loop Power Supply	
Exciting Current	0.1mA~10mA	
Conversion Accuracy	25 ºC ±2ºC	
Output 1	Excitation Current Acc.	0.5mA~10mA ±0.1% F.S or <0.2Ω (select Max.) 0.~mA~0.5mA Max. Value 1.5Ω
Output 2	Range Accuracy	<100 ºC ±0.1 oC ≥100 ºC ±0.1% F.S
Temperature Drift	30 ppm/ºC	
Response Time	≤500ms	
Electromagnetic Compatibility	IEC 61326-3-1	
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side) ≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)	
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)	
Operation Temperature	-20~60 ºC	
Storage Temperature	-40~80 ºC	
Dimension (mm)	17.8 (W) * 110 (H) * 117 (D)	
Output States	Whatever input fault status (except breakage, breakage output1 about 16Ω, breakage output2 about 0V/mA), the output follows the input within measuring range. Output1 the Max. Value would not exceed the upper limit of 430Ω, output2 the Max. Value would not exceed the 110% of the upper limit of the measuring range (e.g. when the output signal type is 0~20mA, the Min. Output Value may be 0mA, the Max. Output Value would not exceed 22mA)	

Wiring Diagram



Explosive-Proof Parameters

China National Quality Supervision & Test Centre for Explosion Protected Electrical Products(CQST)

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2, 3)

Uo=8.7 V		Io=33 mA	Po=72 mW
IIC	Co= 5 μF	Lo=28 mH	
IIB	Co= 35 μF	Lo=84 mH	
IIA	Co= 700 μF	Lo=224 mH	

Model Codes

NPEXA-C27	**X**	**X**
		BUS Powered (Default: Terminals Powered)
	The Second Output Signal note 1	

Note 1: Output Signal

Number	Output Signal
1	4~20 mA
2	1~5 V
3	0~10 mA
4	0~5 V
5	0~10 V
6	0~20 mA

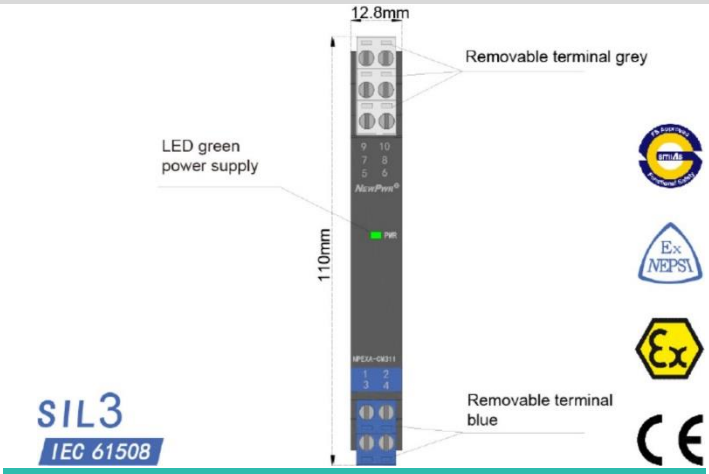
AI Isolated Safety Barrier

NPEXA-CM31 — Single Input, Single Output
NPEXA-CM311 — Single Input, Double Output

Input: 4~20mA

Output: 4~20mA

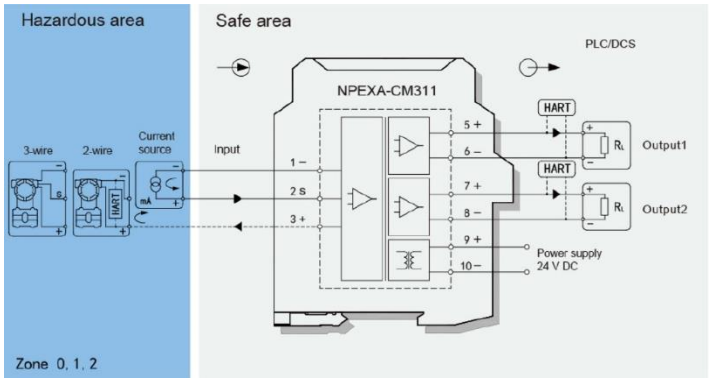
This Isolated Safety Barrier detects loop current and converts it from a hazardous area into current or voltage signals to a safe area by isolation and provides transmitter with power in the hazardous area. It allows transmission of HART communication signals. The input, output and power supply are galvanically isolated from each other.



Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)	
Power Dissipation	0.8W (24V, Single Output); 1.2W (24V, Double Output)	
Input Signal	4~20mA, HART	
Input Resistance	Approx. 75Ω	
Available Voltage	Open-Circuit Voltage	≤ 26V
	Voltage	≥ 16V @ 20mA
Output Signal	4~20mA, HART	
Load Resistance	R_L≤ 550Ω	
Accuracy	0.1% F.S	
Temperature Drift	30 ppm/°C	
Response Time	≤2 ms	
Electromagnetic Compatibility	IEC 61326-3-1	
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side)	
	≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)	
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)	
Operation Temperature	-20~60 °C	
Storage Temperature	-40~80 °C	
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)	
Output States	The output signal is less than 3.6mA or greater than 21.5 mA	

Wiring Diagram



Explosive-Proof Parameters

Functional Safety Level (SIL): SIL3, SC3 according to IEC 61508

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2)

Uo=5 V

IIC	Co= 70 μF
IIB	Co= 700 μF
IIA	Co= 700 μF

Certified Parameters (Terminals 2, 3)

Uo=28 V		Io=93 mA	Po=651 mW
IIC	Co= 0.058 μF	Lo=2.8 mH	
IIB	Co= 0.45 μF	Lo=8.4 mH	
IIA	Co= 1.50 μF	Lo=22.4 mH	

Other Ordering Information

Type	Input	Output 1	Output 2	Power Supply
NPEXA-CM32	4~20mA	1~5V	------	Terminal
NPEXA-CM35	0~20mA	0~10V	------	Terminal
NPEXA-CM312	4~20mA	4~20mA	1~5V	Terminal
NPEXA-CM322	4~20mA	1~5V	1~5V	Terminal
NPEXA-CM355	0~20mA	0~10V	0~10V	Terminal

AI Isolated Safety Barrier

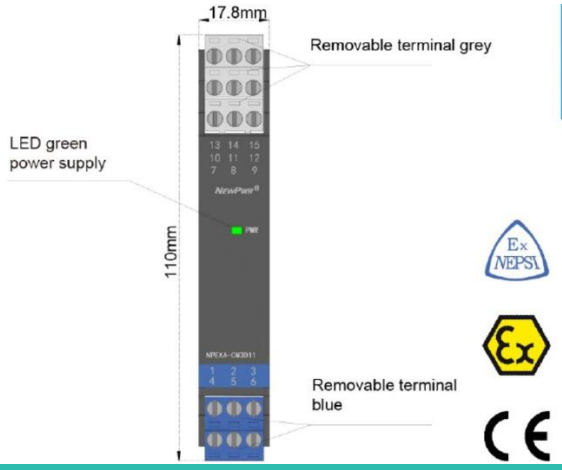
NPEXA-CM3D11

Double Input, Double Output

Input: 4~20mA

Output: 4~20mA

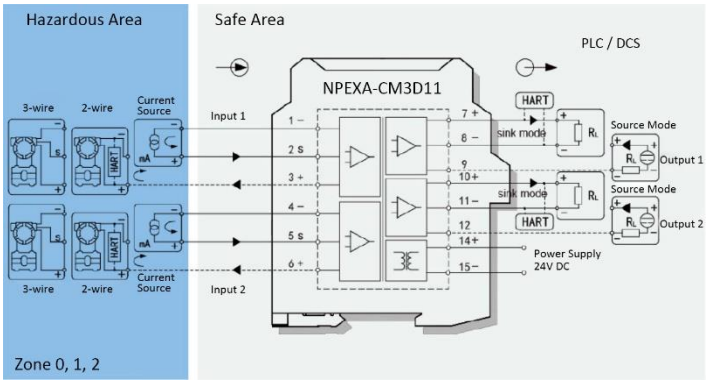
This Isolated Safety Barrier detects loop current and converts it from a hazardous area into current or voltage signals to a safe area by isolation and provides transmitter with power in the hazardous area. It allows transmission of HART communication signals. The input, output and power supply are galvanically isolated from each other.



Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)	
Power Dissipation	2.5W	
Input Signal	4~20mA, HART	
Input Resistance	Approx. 75Ω	
Available Voltage	Open-Circuit Voltage	≤ 25V
	Voltage	≥ 15V @ 20mA
Output Signal	4~20mA (Sink / Source), HART	
Load Resistance	Source	$R_L \leq 550\Omega$
	Sink	$R_L < [(U-3)/0.02]\Omega$
	U	Loop Power Supply
Accuracy	0.1% F.S	
Temperature Drift	30 ppm/°C	
Response Time	≤2 ms	
Electromagnetic Compatibility	IEC 61326-3-1	
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side)	
	≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)	
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)	
Operation Temperature	-20~60 °C	
Storage Temperature	-40~80 °C	
Dimension (mm)	17.8 (W) * 110 (H) * 117 (D)	

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2; 4, 5)

Uo=5 V

IIC	Co= 70 μF	
IIB	Co= 700 μF	
IIA	Co= 700 μF	

Certified Parameters (Terminals 2, 3; 5, 6)

Uo=28 V		Io=93 mA	Po=651 mW
IIC	Co= 0.058 μF	Lo=2.8 mH	
IIB	Co= 0.45 μF	Lo=8.4 mH	
IIA	Co= 1.50 μF	Lo=22.4 mH	

Other Ordering Information

Type	Input	Output 1	Output 2	Power Supply
NPEXA-CM3D22	4~20mA	1~5V	1~5V	Terminal
NPEXA-CM3D55	0~20mA	0~10V	0~10V	Terminal

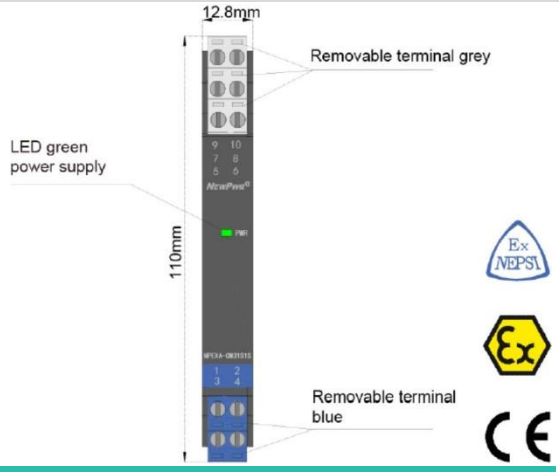
AI Isolated Safety Barrier (Sink)

NPEXA-CM31S — Single Input, Single Output
NPEXA-CM31S1S — Single Input, Double Output

Input: 4~20mA

Output: 4~20mA (Sink Mode)

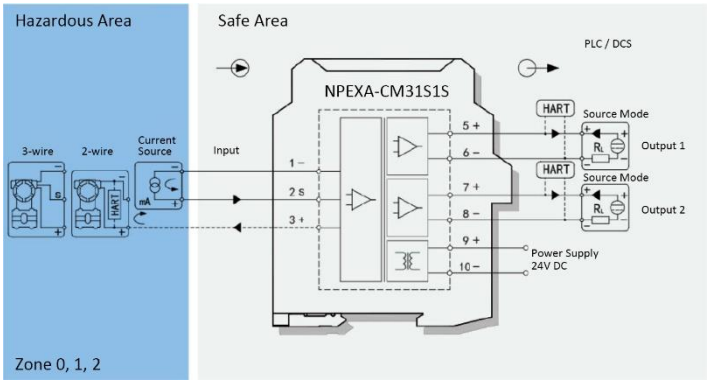
This Isolated Safety Barrier detects loop current and converts it from a hazardous area into current (sink) signals to a safe area by isolation and provides transmitter with power in the hazardous area. It allows transmission of HART communication signals. The input, output and power supply are galvanically isolated from each other.



Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)	
Power Dissipation	0.9W (24V, Single Output); 1.0W (24V, Double Output)	
Input Signal	4~20mA, HART	
Input Resistance	Approx. 100Ω	
Available Voltage	Open-Circuit Voltage	≤ 26V
	Voltage	≥ 16V @ 20mA
Output Signal	4~20mA (Sink), HART	
Load Resistance	$R_L<[(U-3)/0.02]Ω$	
	U: Loop Power Supply	
Accuracy	0.1% F.S	
Temperature Drift	30 ppm/°C	
Response Time	≤2 ms	
Electromagnetic Compatibility	IEC 61326-3-1	
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side)	
	≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)	
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)	
Operation Temperature	-20~60 °C	
Storage Temperature	-40~80 °C	
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)	

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2)

Uo=5 V

IIC	Co= 70 μF	
IIB	Co= 700 μF	
IIA	Co= 700 μF	

Certified Parameters (Terminals 2, 3)

Uo=28 V		Io=93 mA	Po=651 mW
IIC	Co= 0.058 μF	Lo=2.8 mH	
IIB	Co= 0.45 μF	Lo=8.4 mH	
IIA	Co= 1.50 μF	Lo=22.4 mH	

AI Isolated Safety Barrier

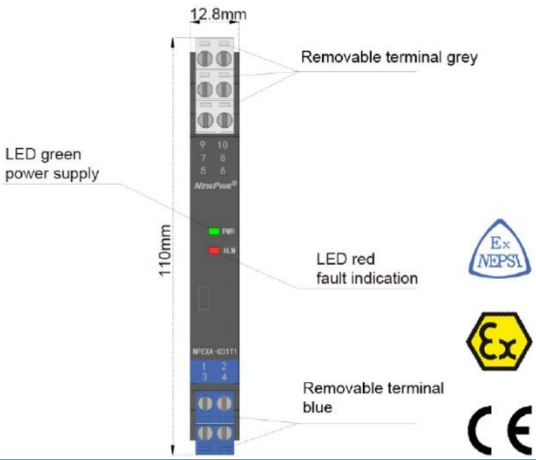
NPEXA-C31T1

Single Input, Double Output

Input: 4~20mA

Output: 4~20mA, RS-485

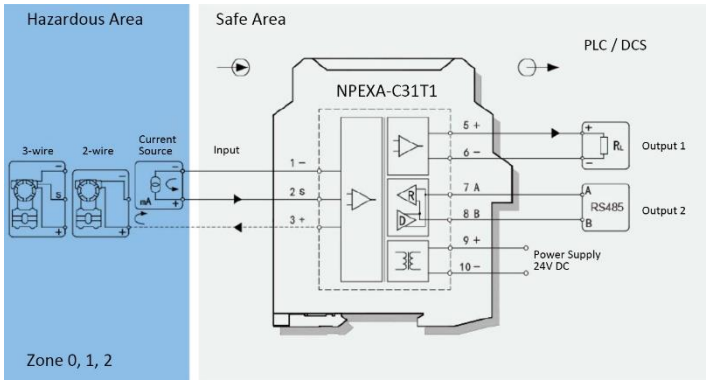
This Isolated Safety Barrier detects loop current and converts it from a hazardous area into current / voltage and RS485 signals to a safe area by isolation. It need an independent power supply. The input, output and power supply are galvanically isolated from each other. The PC or Handheld Programmer could be adopted for parameters-modification.



Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)	
Power Dissipation	1.7W	
Input Signal	4~20mA	
Input Resistance	Approx. 100Ω	
Available Voltage	Open-Circuit Voltage	≤ 26V
	Voltage	≥ 16V @ 20mA
Output Signal	Output 1	4~20mA
	Output 2	RS485
Load Resistance	R_L≤ 550Ω	
Communication Parameters	Modbus RTU, Distance≤1000m	
Communication Bandwidth	≤ 19.2 kbps	
Accuracy	0.1% F.S	
Temperature Drift	30 ppm/°C	
Response Time	≤500 ms	
Electromagnetic Compatibility	IEC 61326-3-1	
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side)	
	≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)	
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)	
Operation Temperature	-20~60 °C	
Storage Temperature	-40~80 °C	
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)	
Output States	Whatever input fault status (except breakage or short circuit, the output is 0V/mA), the output follows the input within the measuring range. The Max. Value would not exceed 110% of the upper limit of the measuring range (e.g. When the output signal type is 0~20mA, the Min. Output Value may be 0mA, the Max. Output Value would not exceed 22mA)	

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2)

Uo=8.7 V

IIC	Co= 5 μF
IIB	Co= 35 μF
IIA	Co= 700 μF

Certified Parameters (Terminals 1, 3)

Uo=28 V Io=93 mA Po=651 mW

IIC	Co= 0.07 μF	Lo=4.2 mH
IIB	Co= 0.63 μF	Lo=12.6 mH
IIA	Co= 2.13 μF	Lo=33.6 mH

Model Codes

NPEXA-C3 **X** **T1** **X**

PB: BUS Powered (Default: Terminals Powered)

The First Output Signal note 1

Number	Output Signal		
1	4~20 mA	4	0~5 V
2	1~5 V	5	0~10 V
3	0~10 mA	6	0~20 mA

Note 1: Output Signal

AI Loop Powered

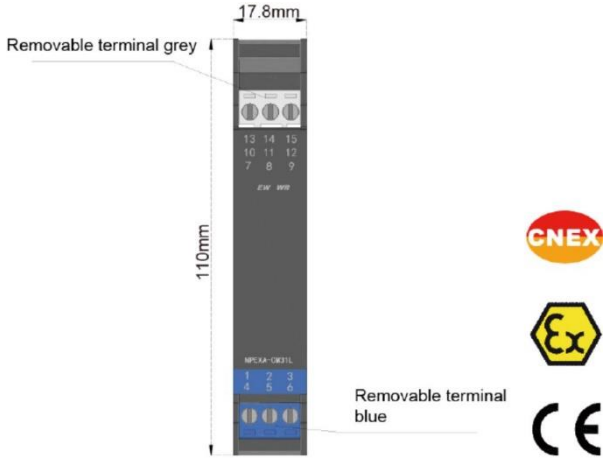
NPEXA-CM31L

Single Input, Single Output

Input: 4~20mA

Output: 4~20mA

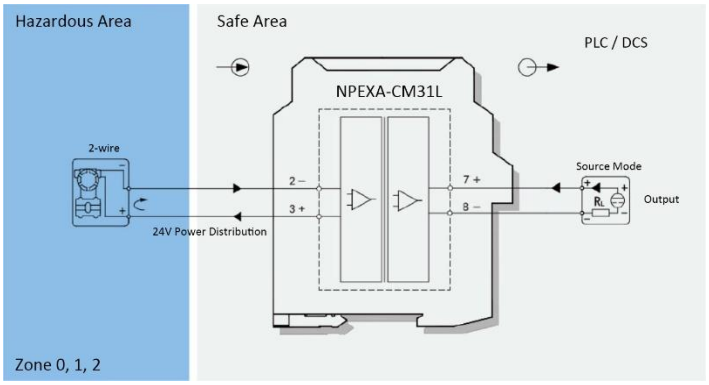
This Isolated Safety Barrier detects loop current and converts it from a hazardous area into current or voltage signals to a safe area by isolation. It needs loop power supply. The input, output and power supply are galvanically isolated from each other.



Parameters

Loop Powered	12V DC~28V DC (Reverse Power Protection)
Input Signal	4~20mA
Available Voltage	(U-6-R_L*0.02) V U is loop powered voltage
Output Signal	4~20mA
Accuracy	0.3% F.S
Temperature Drift	<100 ppm/°C
Response Time	≤0.2 ms
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥2500VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 °C
Storage Temperature	-40~80 °C
Dimension (mm)	17.8 (W) * 110 (H) * 117 (D)

Wiring Diagram



Explosive-Proof Parameters

China National Quality Supervision & Test Centre for Explosion Protected Electrical Products (CQST)

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 2, 3)

Uo=28 V		Io=93 mA	Po=650 mW
IIC	Co= 0.058 μF	Lo=2.8 mH	
IIB	Co= 0.45 μF	Lo=8.4 mH	
IIA	Co= 1.50 μF	Lo=22.4 mH	

AI Isolated Safety Barrier

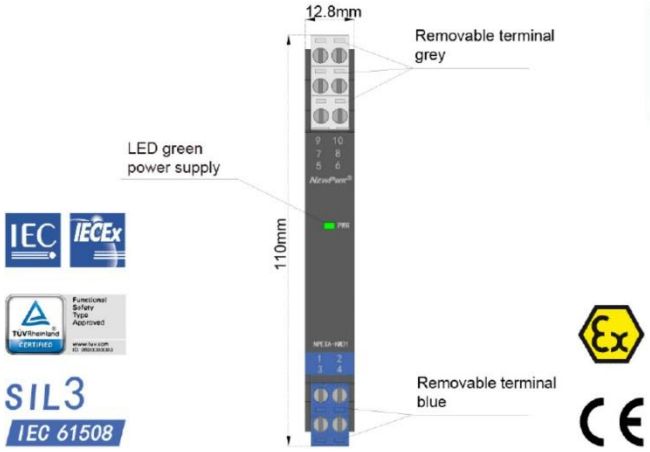
NPEXA-KM31

Single Input, Single Output

Input: 4~20mA

Output: 4~20mA

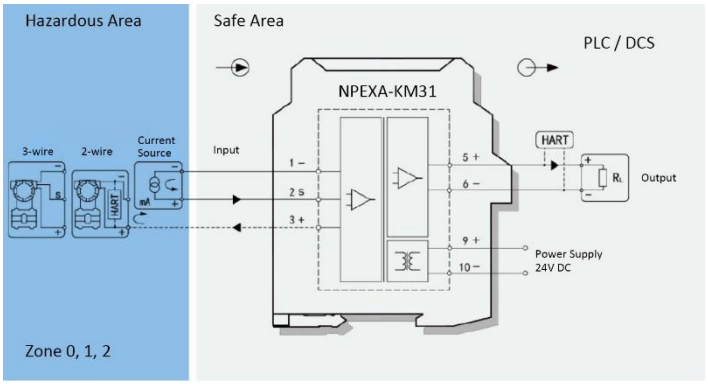
This Isolated Safety Barrier detects loop current and converts it from a hazardous area into current or voltage signals to a safe area by isolation and provides transmitter with power in the hazardous area. It allows transmission of HART communication signals. The input, output and power supply are galvanically isolated from each other.



Parameters

Power Supply	20V DC~30V DC (Reverse Power Protection)	
Power Dissipation	≤ 1.2W	
Input Signal	4~20mA, HART	
Input Resistance	≤ 120Ω	
Available Voltage	Open-Circuit Voltage	≤ 26V
	Voltage	≥ 16V @ 20mA
Output Signal	4~20mA, HART	
Load Resistance	R_L≤ 350Ω	
Accuracy	0.1% F.S	
Temperature Drift	50 ppm/°C	
Response Time	≤ 20 ms	
Electromagnetic Compatibility	IEC 61326-3-1	
Dielectric Strength	≥2500VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side)	
	≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)	
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)	
Operation Temperature	-20~60 °C	
Storage Temperature	-40~80 °C	
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)	
Output States	The output signal is less than 3.6 mA or greater than 21.5 mA	

Wiring Diagram



Explosive-Proof Parameters

Germany TÜV (TÜV Rheinland)

Functional Safety Level (SIL): SIL3, SC3 according to IEC 61508

Ex-Marking

EU: Ⓔx II (1) G [Ex ia Ga] IIC

IECEx: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2)

Uo=5 V		Io=0.8 mA	Po=1 mW
IIC	Co= 99.9 µF	Lo=1 H	
IIB	Co= 999 µF	Lo=1 H	
IIA	Co= 999 µF	Lo=1 H	

Certified Parameters (Terminals 2, 3)

Uo=28 V		Io=93 mA	Po=651 mW
IIC	Co= 0.083 µF	Lo=4.2 mH	
IIB	Co= 0.65 µF	Lo=12.6 mH	
IIA	Co= 2.15 µF	Lo=33.6 mH	

AO Isolated Safety Barrier

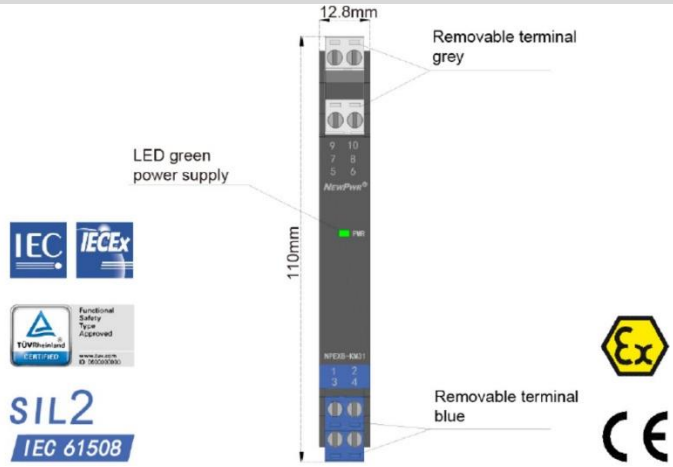
NPEXB-KM31

Single Input, Single Output

Input: 4~20mA

Output: 4~20mA

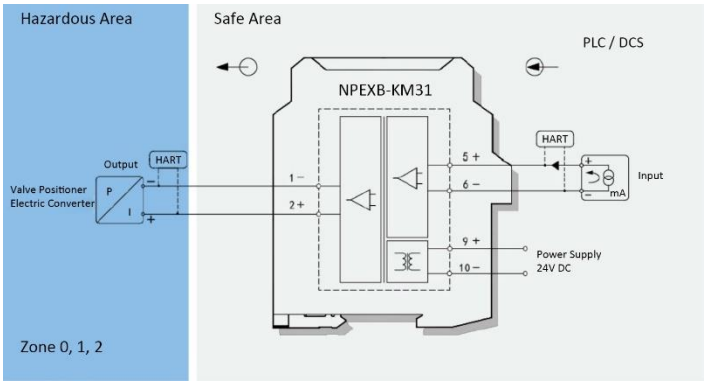
It accepts 4~20mA signal from safe area to drive executive mechanisms in hazardous area, and allows the transmission of HART communication signals. The input, output and power supply are galvanically isolated from each other. The function of LFD is by detecting the output load resistance.



Parameters

Power Supply	20V DC~30V DC (Reverse Power Protection)
Power Dissipation	1.1 W
Input Signal	4~20mA, HART
Output Signal	4~20mA, HART
Load Resistance	80~800Ω
Input Voltage Drop	≤ 1.2V
Line Failure State	When the output load resistance was detected less than 80Ω, the output is in the fault of short circuit. When the output load resistance was detected more than 6000Ω, the output is in the fault of line breakage. If the output is in the fault, the input current value is limited to within 1mA and the output current value is limited to 3mA
Accuracy	0.1% F.S
Temperature Drift	50 ppm/°C
Response Time	≤120 ms
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥2500VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side) ≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 °C
Storage Temperature	-40~80 °C
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)
Safe States	The output signal is less than 3.6mA or greater than 21.5mA

Wiring Diagram



Explosive-Proof Parameters

Germany TÜV (TÜV Rheinland)

Functional Safety Level (SIL): SIL2, SC3 according to IEC 61508

Ex-Marking

EU: Ex II (1) G [Ex ia Ga] IIC

IECEx: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2)

Uo=25.2 V		Io=93 mA	Po=586 mW
IIC	Co= 0.107 μF	Lo=4.2 H	
IIB	Co= 0.82 μF	Lo=12.6 H	
IIA	Co= 2.9 μF	Lo=33.6 H	

AO Isolated Safety Barrier

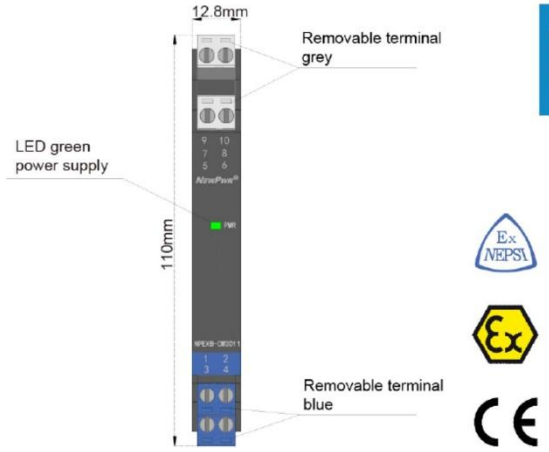
NPEXB-CM3D11

Double Input, Double Output

Input: 4~20mA

Output: 4~20mA

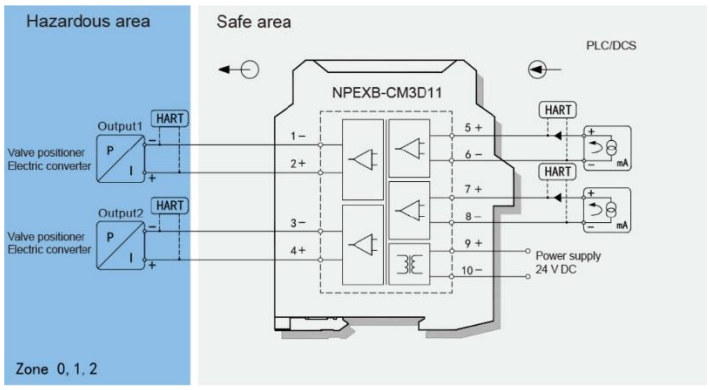
It accepts 4~20mA signal from safe area to drive executive mechanisms in hazardous area, and allows the transmission of HART communication signals. The input, output and power supply are galvanically isolated from each other.



Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)
Power Dissipation	2.2 W
Input Signal	4~20mA, HART
Output Signal	4~20mA, HART
Load Resistance	RL≤ 800Ω
Input Voltage Drop	≤ 1.2V
Accuracy	0.1% F.S
Temperature Drift	30 ppm/°C
Response Time	≤2 ms
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥2500VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side) ≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 °C
Storage Temperature	-40~80 °C
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2, 3, 4)

Uo=27.3 V		Io=92 mA	Po=628 mW
IIC	Co= 0.043 μF	Lo=4.7 mH	
IIB	Co= 0.63 μF	Lo=14.1 mH	
IIA	Co= 2.23 μF	Lo=37.6 mH	

AO Loop Powered

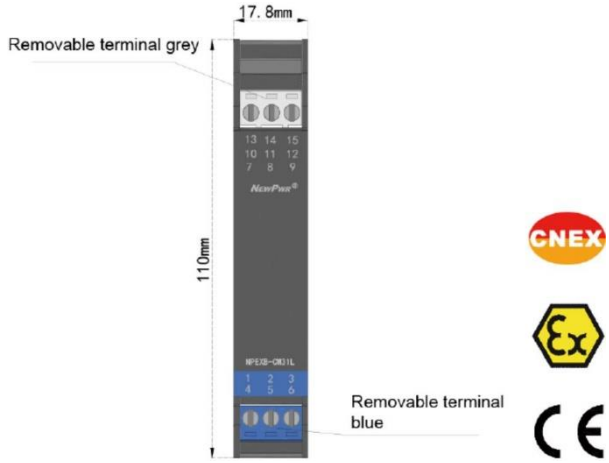
NPEXB-CM31L

Single Input, Single Output

Input: 4~20mA

Output: 4~20mA

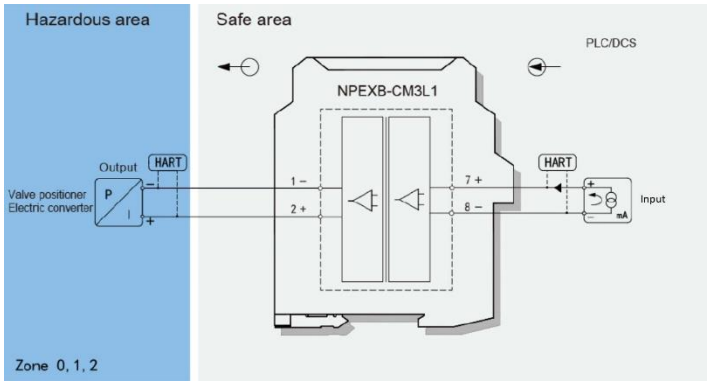
It accepts 4~20mA signal from safe area to drive executive mechanisms in hazardous area, and allows the transmission of HART communication signals. It needs loop power supply. The input and output are galvanically isolated from each other.



Parameters

Power Supply	8V DC~28V DC (Reverse Power Protection)
Input Signal	4~20mA, HART
Output Signal	4~20mA, HART
Load Resistance	$R_L \leq [(U-8)/0.02]\Omega$ U is loop powered voltage
Accuracy	0.1% F.S
Temperature Drift	100 ppm/°C
Response Time	≤0.2 ms
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥2500VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 °C
Storage Temperature	-40~80 °C
Dimension (mm)	17.8 (W) * 110 (H) * 117 (D)

Wiring Diagram



Explosive-Proof Parameters

China National Quality Supervision & Test Centre for Explosion Protected Electrical Products (CQST)

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2)

Uo=25.2 V		Io=85 mA	Po=536 mW
IIC	Co= 0.074 μF	Lo=3.4 mH	
IIB	Co= 0.57 μF	Lo=10.2 mH	
IIA	Co= 2.03 μF	Lo=27.2 mH	

Voltage Isolated Safety Barrier

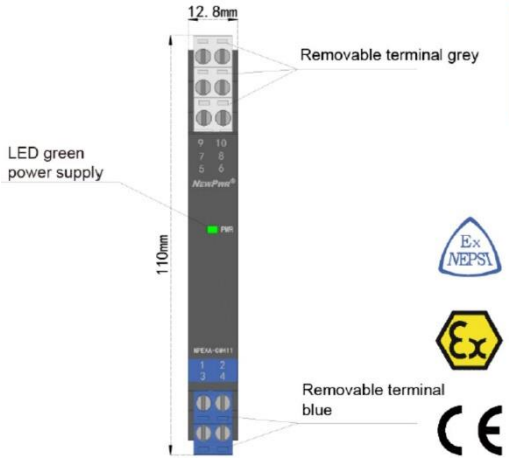
NPEXA-CM41 Single Input, Single Output

NPEXA-CM411 Single Input, Double Output

Input: 1~5V

Output: 4~20mA

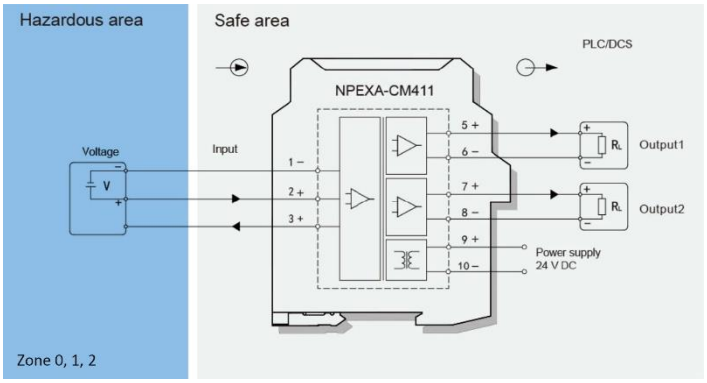
This isolated safety barrier detects loop voltage and converts it from a hazardous area into current signals to a safe area by isolation, and also provides transmitters with power in the hazardous area. The input, output and power supply are galvanically isolated from each other.



Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)	
Power Dissipation	1.3 W (24V, Single Output); 1.8 W (24V, Double Output)	
Input Signal	1~5 V	
Input Resistance	≥1 MΩ	
Available Voltage	Open-Circuit Voltage	≤ 26V
	Voltage	≥ 16V @ 20mA
Output Signal	4~20mA	
Load Resistance	RL≤ 500Ω	
Accuracy	0.1% F.S	
Temperature Drift	30 ppm/°C	
Response Time	≤2 ms	
Electromagnetic Compatibility	IEC 61326-3-1	
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side)	
	≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)	
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)	
Operation Temperature	-20~60 °C	
Storage Temperature	-40~80 °C	
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)	

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2)

IIC	Co= 70 μF	
IIB	Co= 700 μF	
IIA	Co= 700 μF	

Certified Parameters (Terminals 2,3)

Uo=28 V		Io=93 mA	Po=651 mW
IIC	Co= 0.058 μF	Lo= 2.8 mH	
IIB	Co= 0.45 μF	Lo= 8.4 mH	
IIA	Co= 1.50 μF	Lo= 22.4 mH	

Other Ordering Information

Type	Input	Output 1	Output 2	Power Supply
NPEXA-CM42	1~5V	1~5V	------	Terminal
NPEXA-CM45	0~5V	0~10V	------	Terminal
NPEXA-CM412	1~5V	4~20mA	1~5V	Terminal
NPEXA-CM422	1~5V	1~5V	1~5V	Terminal
NPEXA-CM455	0~10V	0~10V	0~10V	Terminal

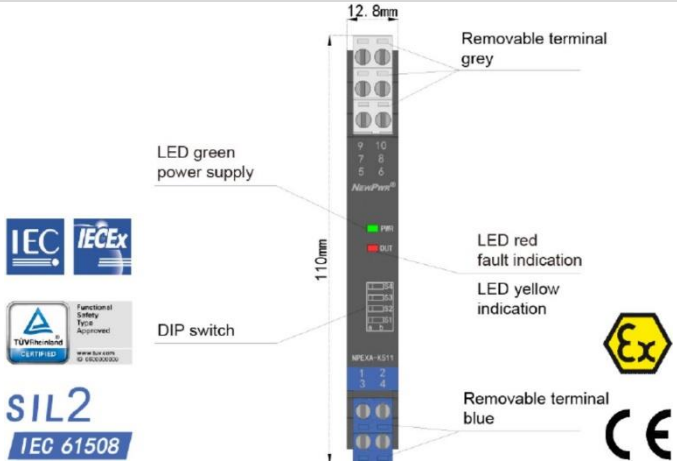
DI Isolated Safety Barrier

NPEXA-K51 — Single Input, Single Output
NPEXA-K511 — Single Input, Double Output

Input: Dry Contact or Proximity Switch

Output: Relay

This type of isolated safety barrier transmits digital signals (dry contact or proximity switch) from hazardous area to safe area. The normal output state and line 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.



Parameters

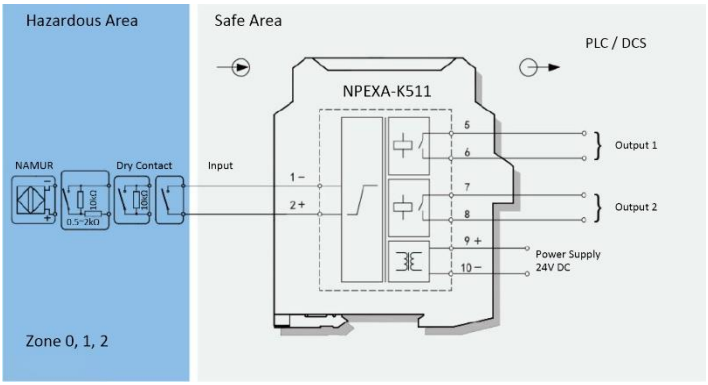
Power Supply	20V DC~30V DC (Reverse Power Protection)
Power Dissipation	1 W
Input Signal	Dry Contact or NAMUR
Switching Trigger Point	Input Signal>2.1 mA, Signal "1", the yellow LED is always bright Input Signal<1.2 mA, Signal "0", the yellow LED goes out
Open-Circuit Voltage	Approx. 9.2V
Short-Circuit Current	Approx. 9mA
Output Signal	Relay Contact
Local Capacity	250VAC/2A, 30VDC/2A
LED Function	When input current≤80μA, consider the input line breakdown, the apparatus enters into safe function state, the output relay de-energized If input current≥6mA, consider the input circuit short-circuit, the apparatus enters into safe function state, the output relay de-energized. The indicator red flashing.
Relay Mechanical Life	>100000 Switching Cycles
Switch Frequency	<10Hz
Energized / De-Energized Delay	<20ms
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥2500VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side) ≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 ºC
Storage Temperature	-40~80 ºC
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)
Safe State	Power Off

DIP Switch Settings

NPEXA-C512 / NPEXA (NPEXA-C512 can set S1, S2)

Switch State	a	b
S1	Output1 Normal Mode	Inverted Mode
S2	LFD ON	LFD OFF
S3	Output2 Normal Mode	LFD ON

Wiring Diagram



Explosive-Proof Parameters

Germany TÜV (TÜV Rheinland)

Functional Safety Level (SIL): SIL2, SC3 according to IEC 61508

Ex-Marking

EU: Ex II (1) G [Ex ia Ga] IIC

IECEx: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2)

Uo=10.5 V		Io=11.3 mA	Po=29.7 mW
IIC	Co= 0.644 μF	Lo=35.255 mH	
IIB	Co= 11 μF	Lo=105 mH	
IIA	Co= 52 μF	Lo=282 mH	

DI Isolated Safety Barrier

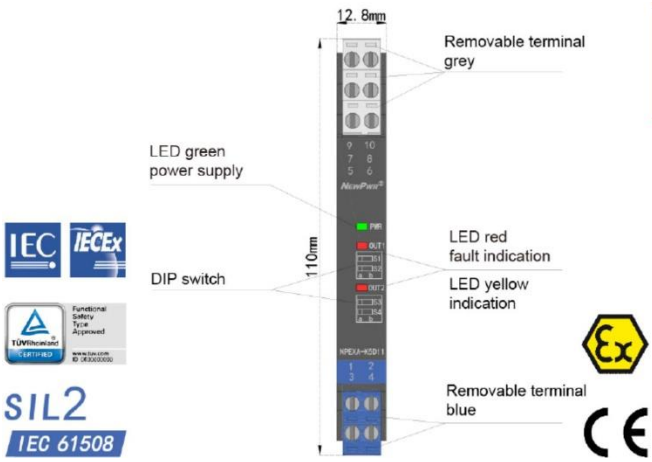
NPEXA-K5D11

Double Input, Double Output

Input: Dry Contact or Proximity Switch

Output: Relay

This type of isolated safety barrier transmits digital signals (dry contact or proximity switch) from hazardous area to safe area. The normal output state and line 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.



Parameters

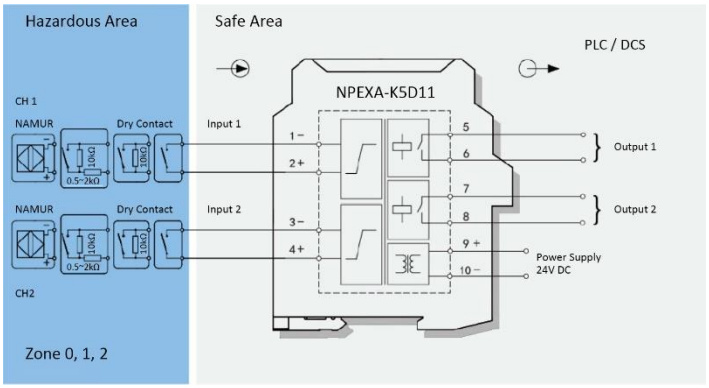
Power Supply	20V DC~30V DC (Reverse Power Protection)
Power Dissipation	1 W
Input Signal	Dry Contact or NAMUR
Switching Trigger Point	Input Signal>2.1 mA, Signal "1", the yellow LED is always bright Input Signal<1.2 mA, Signal "0", the yellow LED goes out
Open-Circuit Voltage	Approx. 9.2V
Short-Circuit Current	Approx. 9mA
Output Signal	Relay Contact
Local Capacity	250VAC/2A, 30VDC/2A
LED Function	When input current≤80μA, consider the input line breakdown, the apparatus enters into safe function state, the output relay de-energized If input current≥6mA, consider the input circuit short-circuit, the apparatus enters into safe function state, the output relay de-energized. The indicator red flashing.
Relay Mechanical Life	>100000 Switching Cycles
Switch Frequency	<10Hz
Energized / De-Energized Delay	<20ms
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥2500VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side) ≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 ºC
Storage Temperature	-40~80 ºC
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)
Safe State	Power Off

DIP Switch Settings

NPEXA-C512 / NPEXA (NPEXA-C512 can set S1, S2)

Switch State	a	b
S1	Output1 Normal Mode	Output1 Inverted Mode
S2	Output1 LFD ON	Output1 LFD OFF
S3	Output2 Normal Mode	Output2 Inverted Mode
S4	Output2 LFD ON	Output2 LFD OFF

Wiring Diagram



Explosive-Proof Parameters

Germany TÜV (TÜV Rheinland)

Functional Safety Level (SIL): SIL2, SC3 according to IEC 61508

Ex-Marking

EU: II (1) G [Ex ia Ga] IIC

IECEx: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2; 3, 4)

Uo=10.5 V		Io=11.3 mA	Po=29.7 mW
IIC	Co= 0.644 μF	Lo=78.8 mH	
IIB	Co= 11 μF	Lo=236 mH	
IIA	Co= 52 μF	Lo=630 mH	

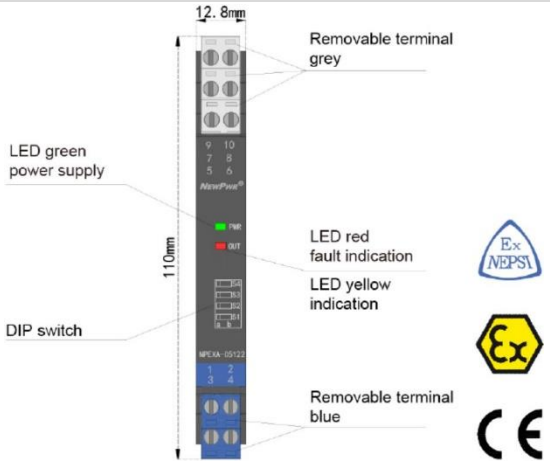
DI Isolated Safety Barrier

NPEXA-C512 — Single Input, Single Output
NPEXA-C5122 — Single Input, Double Output

Input: Dry Contact or Proximity Switch

Output: Transistor

This isolated safety barrier converts switch or proximity detector signals (dry contact or NAMUR) from a hazardous area into transistor signals to a safe area by isolation. Operation mode, the second output function (as a transistor output or a fault output) and the input circuit fault detection can be set with the DIP switch on the front side. The input, output and power supply are galvanically isolated from each other.



Parameters

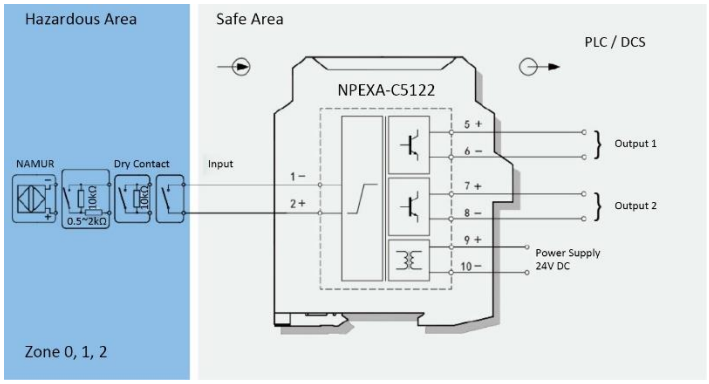
Power Supply	18V DC~60V DC (Reverse Power Protection)
Power Dissipation	1 W
Input Signal	Dry Contact or NAMUR
Switching Trigger Point	Input Signal>2.1 mA, Signal "1", the yellow LED is always bright Input Signal<1.2 mA, Signal "0", the yellow LED goes out
Open-Circuit Voltage	Approx. 8.5V
Short-Circuit Current	Approx. 8.5mA
Output Signal	Transistor
Sink Current	≤40mA
External Voltage	<40V DC
LED Function	When input current≤80μA, consider the input line breakdown, the apparatus enters into safe function state, the output transistor de-energized; If input current≥6mA, consider the input circuit short-circuit, the apparatus enters into safe function state, the output transistor de-energized. The indicator red flashing.
Switch Frequency	<5kHz
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥2500VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side) ≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 ºC
Storage Temperature	-40~80 ºC
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)

DIP Switch Settings

NPEXA-C512 / NPEXA (NPEXA-C512 can set S1, S2)

Switch State	a	b
S1	Output1 Normal Mode	Inverted Mode
S2	LFD ON	LFD OFF
S3	Output2 Normal Mode	LFD ON

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2)

Uo=10.5 V		Io=11.3 mA	Po=29.7 mW
IIC	Co= 0.97 μF	Lo= 100 mH	
IIB	Co= 11 μF	Lo= 300 mH	
IIA	Co= 52 μF	Lo= 700 mH	

DI Isolated Safety Barrier

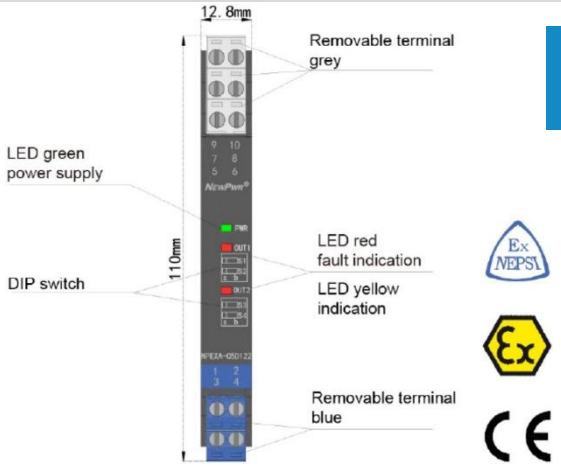
NPEXA-C5D122

Double Input, Double Output

Input: Dry Contact or Proximity Switch

Output: Transistor

This type of isolated safety barrier transmits digital signals (dry contact or proximity switch) from hazardous area to safe area. The normal output state and line 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.



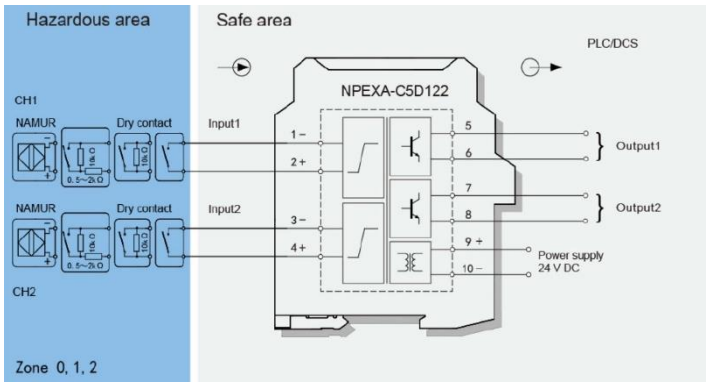
Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)
Power Dissipation	1 W
Input Signal	Dry Contact or NAMUR
Switching Trigger Point	Input Signal>2.1 mA, Signal "1", the yellow LED is always bright Input Signal<1.2 mA, Signal "0", the yellow LED goes out
Open-Circuit Voltage	Approx. 8.5V
Short-Circuit Current	Approx. 8.5mA
Output Signal	Transistor
Sink Current	≤40mA
External Voltage	<40V DC
LED Function	When input current≤80μA, consider the input line breakdown, the apparatus enters into safe function state, the output transistor de-energized; If input current≥6mA, consider the input circuit short-circuit, the apparatus enters into safe function state, the output transistor de-energized. The indicator red flashing.
Switch Frequency	<5kHz
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥2500VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side) ≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 ºC
Storage Temperature	-40~80 ºC
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)

DIP Switch Settings

Switch State	a	b
S1	Output1 Normal Mode	Output1 Inverted Mode
S2	Output1 LFD ON	Output1 LFD OFF
S3	Output2 Normal Mode	Output2 Inverted Mode
S4	Output2 LFD ON	Output2 LFD OFF

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2; 3, 4)

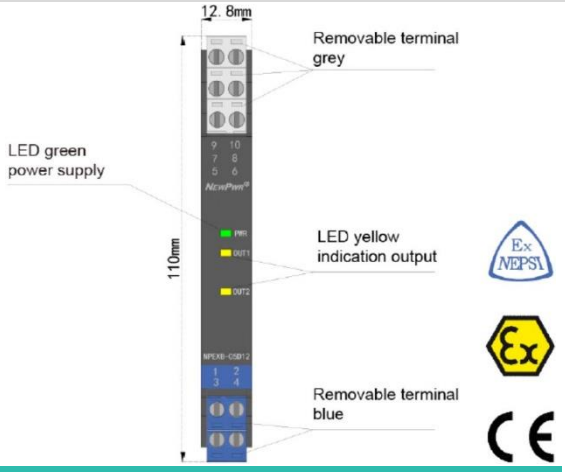
Uo=10.5 V		Io=11.3 mA	Po=29.7 mW
IIC	Co= 0.97 μF	Lo= 100 mH	
IIB	Co= 11 μF	Lo= 300 mH	
IIA	Co= 52 μF	Lo= 700 mH	

DO Isolated Safety Barrier

NPEXB-C512 — Single Input, Single Output
NPEXB-C5D12 — Double Input, Double Output

Input: Dry Contact

Output: 45mA



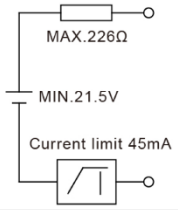
By switch signal controlling, transfers the digital signals (dry contact) from safe area into current signals to hazardous area, and drives field devices like intrinsically safe valves, audible alarms, etc.

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

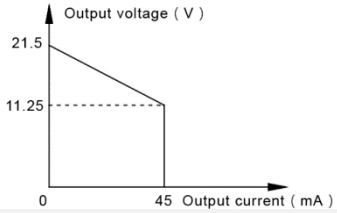
Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)
Power Dissipation	≤1.4 W (24V, Single Output); ≤2.8 W (24V, Double Output)
Input Signal	Dry Contact
Output Voltage	> 11.25V DC
Open-Circuit Voltage	21.5 V DC
Open-Current	≤ 45mA

Output Equivalent Circuit

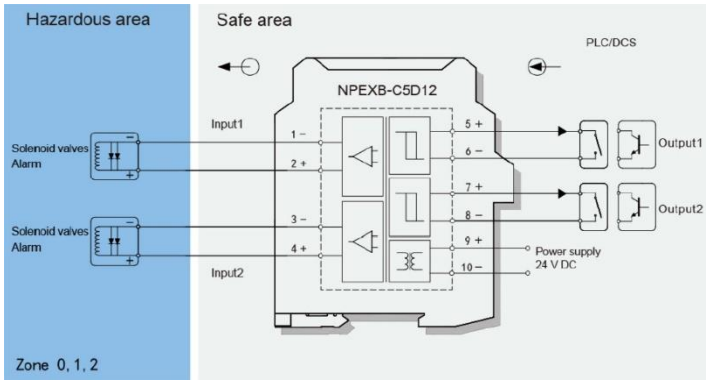


Output Characteristics Diagram



Response Time	< 20ms
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side)
	≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 ºC
Storage Temperature	-40~80 ºC
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2; 3, 4)

Uo=25.2 V		Io=117 mA	Po=738 mW
IIC	Co= 0.107 μF	Lo= 1.5 mH	
IIB	Co= 0.82 μF	Lo= 4.5 mH	
IIA	Co= 2.9 μF	Lo= 12 mH	

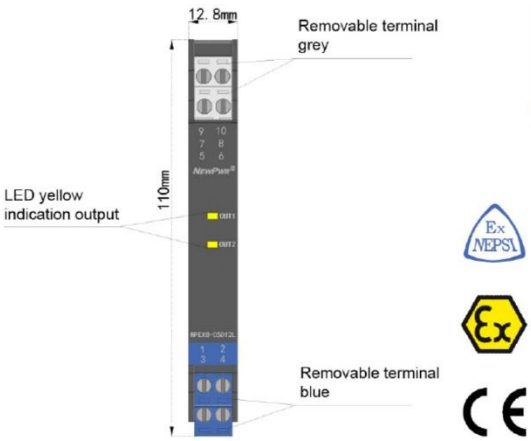
DO Loop Powered

NPEXB-C512L Single Input, Single Output

NPEXB-C5D12L Double Input, Double Output

Input: Wet Contact

Output: 45mA



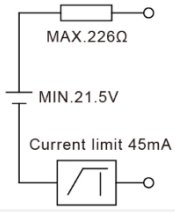
By switch signal controlling, transfers the digital signals (wet contact) from safe area into current signals to hazardous area, and drives field devices like intrinsically safe valves, audible alarms, etc.

The input and output are galvanically isolated from each other.

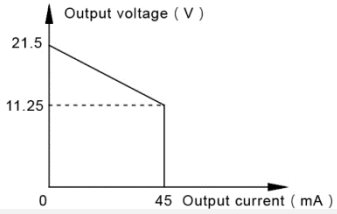
Parameters

Power Supply	12V DC~30V DC (Reverse Power Protection)
Power Dissipation	≤1.4 W (24V, Single Output); ≤2.8 W (24V, Double Output)
Input Signal	Wet Contact
Output Voltage	> 11.25V DC
Open-Circuit Voltage	21.5 V DC
Open-Current	≤ 45mA

Output Equivalent Circuit

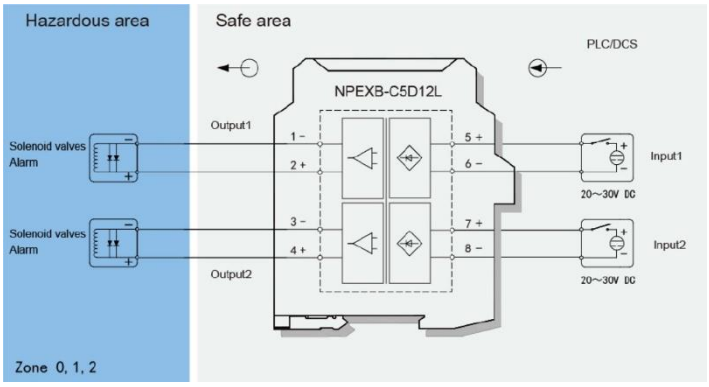


Output Characteristics Diagram



Response Time	< 20ms
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side)
	≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 ºC
Storage Temperature	-40~80 ºC
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2; 3, 4)

Uo=25.2 V		Io=117 mA	Po=738 mW
IIC	Co= 0.107 μF	Lo= 1.5 mH	
IIB	Co= 0.82 μF	Lo= 4.5 mH	
IIA	Co= 2.9 μF	Lo= 12 mH	

DO Loop Powered

NPEXB-K512L

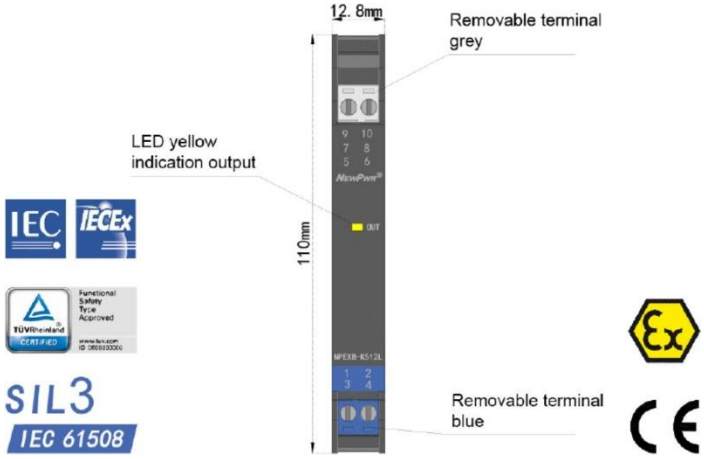
Single Input, Single Output

Input: Wet Contact

Output: 45mA

By switch signal controlling, transfers the digital signals (wet contact) from safe area into current signals to hazardous area, and drives field devices like intrinsically safe valves, audible alarms, etc.

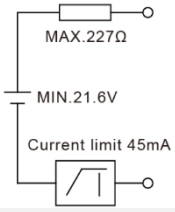
The input and output are galvanically isolated from each other.



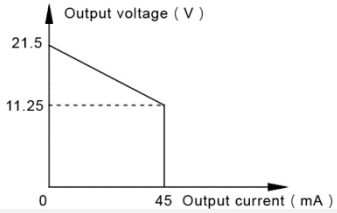
Parameters

Power Supply	12V DC~30V DC (Reverse Power Protection)
Power Dissipation	≤1.4 W
Input Signal	Wet Contact
Output Voltage	> 11.25V DC
Open-Circuit Voltage	21.6 V DC
Open-Current	≤ 45mA

Output Equivalent Circuit

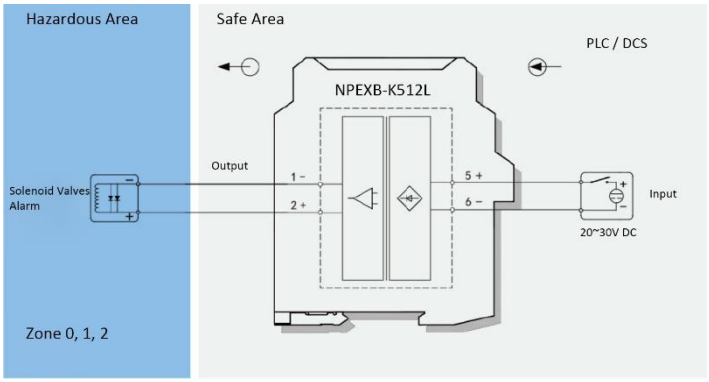


Output Characteristics Diagram



Response Time	< 20ms
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥2500VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 ºC
Storage Temperature	-40~80 ºC
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)
Safe States	Power OFF

Wiring Diagram



Explosive-Proof Parameters

Germany TÜV (TÜV Rheinland)

Functional Safety Level (SIL): SIL3, SC3 according to IEC 61508

Ex-Marking

EU: Ex II (1) G [Ex ia Ga] IIC

IECEx: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2)

Uo=25.2 V		Io=116 mA	Po=731 mW
IIC	Co= 0.107 µF	Lo=2.6 mH	
IIB	Co= 0.82 µF	Lo=7.8 mH	
IIA	Co= 2.9 µF	Lo=20.8 mH	

Frequency Isolated Safety Barrier

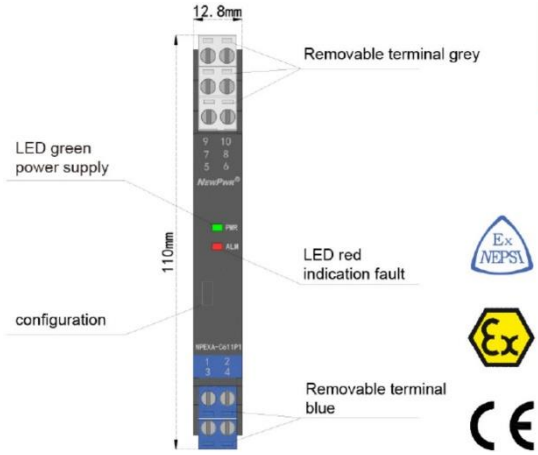
NPEXA-C61P1 Single Input, Single Output

NPEXA-C611P1 Single Input, Double Output

Input: Frequency

Output: 4~20 mA

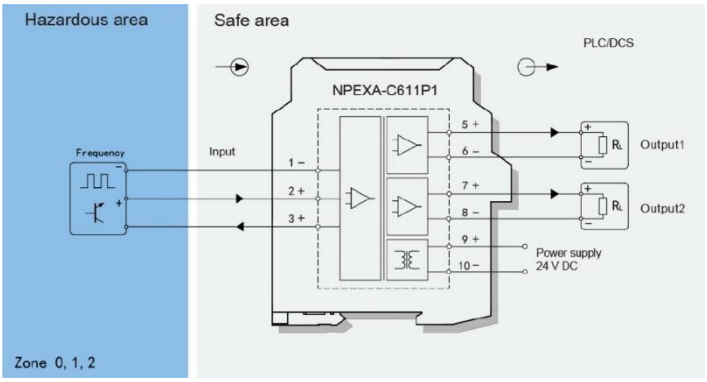
This Isolated Safety Barrier converts the frequency signals from a hazardous area into current or voltage signals to a safe area by isolation. The input, output and power supply are galvanically isolated from each other. The PC or Handheld Programmer could be adopted for parameters-modification.



Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)
Power Dissipation	0.8 W (Single Output); 1.3 W (Double Output)
Input Signal	Frequency
Frequency Range	0.1Hz~100kHz
Pulse Width	≥ 5μs
Input Impedance	≥ 3kΩ
Switching Trigger Point	Low Level: 0V~2V; High Level: 4V~30V
Distribution Voltage	≥ 9V, when loaded with 20mA
Output Signal	4~20mA
Load Resistance	R_L≤550Ω
Accuracy	0.1% F.S
Temperature Drift	30 ppm/°C
Response Time	≤ 500ms
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side) ≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 °C
Storage Temperature	-40~80 °C
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)
Fault States	Input signal state indicator (red), it remains bright when input over-range. It flickers when input breakage.

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2)

Uo=8.7 V		Io=1 mA	Po=3 mW
IIC	Co= 5 μF	Lo= 1000 mH	
IIB	Co= 35 μF	Lo= 1000 mH	
IIA	Co= 700 μF	Lo= 1000 mH	

Certified Parameters (Terminals 1, 3)

Uo=15.8 V		Io=107 mA	Po=423 mW
IIC	Co= 0.478 μF	Lo= 1.8 mH	
IIB	Co= 2.88 μF	Lo= 5.4 mH	
IIA	Co= 11.6 μF	Lo= 14.4 mH	

Model Codes

NPEXA-C6	X	X	P1	X
				PB: BUS Powered (Default: Terminals Powered)
		The Second Output Signal note 1		
	The First Output Signal note 1			

Number	Output Signal	Number	Output Signal
1	4~20 mA	4	0~5 V
2	1~5 V	5	0~10 V
3	0~10 mA	6	0~20 mA

Note 1: Output Signal

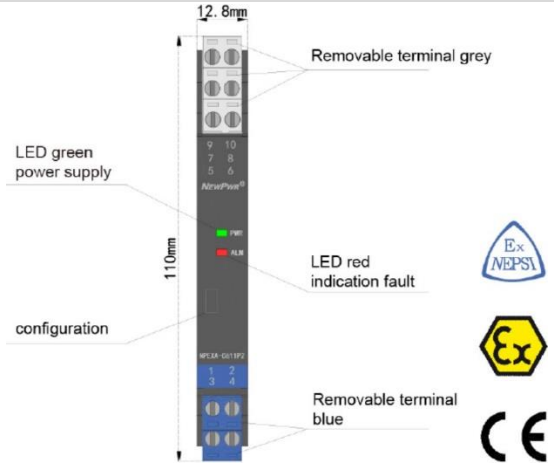
Frequency Isolated Safety Barrier

NPEXA-C61P2 — Single Input, Single Output
NPEXA-C611P2 — Single Input, Double Output

Input: Frequency

Output: 4~20 mA

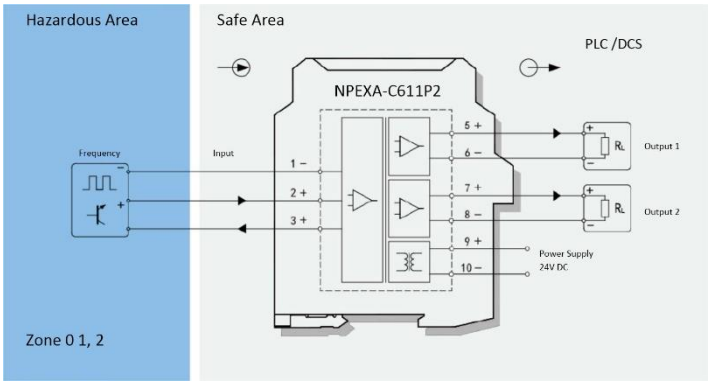
This Isolated Safety Barrier converts the frequency signals from a hazardous area into current or voltage signals to a safe area by isolation. The input, output and power supply are galvanically isolated from each other. The PC or Handheld Programmer could be adopted for parameters-modification.



Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)
Power Dissipation	0.8 W (Single Output); 1.3 W (Double Output)
Input Signal	Frequency
Frequency Range	0.1Hz~100kHz
Pulse Width	≥ 5μs
Input Impedance	≥ 3kΩ
Switching Trigger Point	Low Level: 0V~2V; High Level: 4V~30V
Distribution Voltage	≥ 16V, when loaded with 20mA
Output Signal	4~20mA
Load Resistance	R_L≤550Ω
Accuracy	0.1% F.S
Temperature Drift	30 ppm/°C
Response Time	≤ 500ms
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side) ≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 °C
Storage Temperature	-40~80 °C
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)
Fault States	Input signal state indicator (red), it remains bright when input over-range. It flickers when input breakage.

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2)

Uo=8.7 V		Io=1 mA	Po=3 mW
IIC	Co= 5 μF	Lo= 1000 mH	
IIB	Co= 35 μF	Lo= 1000 mH	
IIA	Co= 700 μF	Lo= 1000 mH	

Certified Parameters (Terminals 1, 3)

Uo=28 V		Io=93 mA	Po=651 mW
IIC	Co= 0.08 μF	Lo= 4.2 mH	
IIB	Co= 0.68 μF	Lo= 12.6 mH	
IIA	Co= 2.27 μF	Lo= 33.6 mH	

Model Codes

NPEXA-C6	X	X	P2	X
				PB: BUS Powered (Default: Terminals Powered)
		The Second Output Signal note 1		
	The First Output Signal note 1			

Number	Output Signal	Number	Output Signal
1	4~20 mA	4	0~5 V
2	1~5 V	5	0~10 V
3	0~10 mA	6	0~20 mA

Note 1: Output Signal

Frequency Isolated Safety Barrier

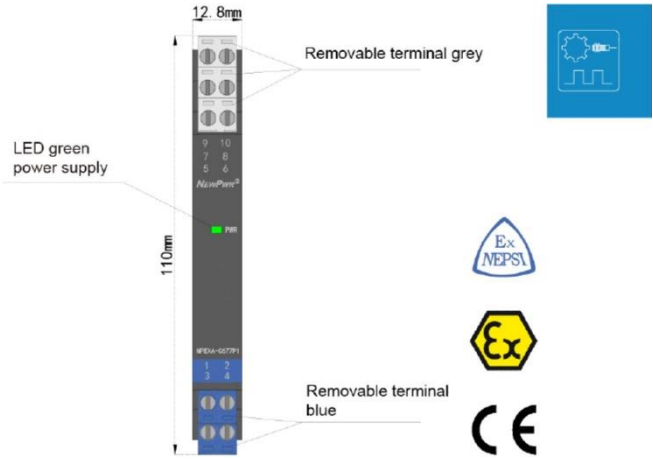
NPEXA-C67P1 Single Input, Single Output

NPEXA-C677P1 Single Input, Double Output

Input: Frequency

Output: 1:1

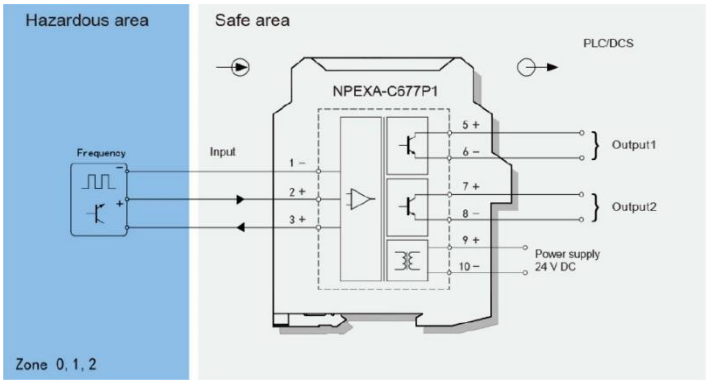
This Isolated Safety Barrier converts the frequency signals from a hazardous area to a safe area by isolation. The input, output and power supply are galvanically isolated from each other.



Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)	
Power Dissipation	0.9 W (Single Output); 1.8 W (Double Output)	
Input Signal	Frequency	
Frequency Range	0.1Hz~100kHz	
Pulse Width	≥ 5μs	
Switching Trigger Point	Low Level: 0V~2V; High Level: 4V~30V	
Distribution Voltage	≥ 9V, when loaded with 20mA	
Output Signal	Open Collector	High Level: Vcc (≤ 30V) Low Level: ≤ 2V Drive Current: ≤ 10mA
	Emitter Follower	High Level: Vcc-2V Low Level: ≤ 0.5V Drive Current: ≤ 10mA
	Logic Level	High Level: 9V ≤ VH ≤ 12V Low Level: VL≤ 2V Load Resistance: ≥ 1kΩ
Electromagnetic Compatibility	IEC 61326-3-1	
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side) ≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)	
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)	
Operation Temperature	-20~60 ºC	
Storage Temperature	-40~80 ºC	
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)	

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2)

Uo=8.7 V		Io=1 mA	Po=3 mW
IIC	Co= 5.9 μF	Lo= 1000 mH	
IIB	Co= 35 μF	Lo= 1000 mH	
IIA	Co= 700 μF	Lo= 1000 mH	

Certified Parameters (Terminals 1, 3)

Uo=15.8 V		Io=107 mA	Po=423 mW
IIC	Co= 0.478 μF	Lo= 3 mH	
IIB	Co= 2.88 μF	Lo= 9 mH	
IIA	Co= 11.6 μF	Lo= 24 mH	

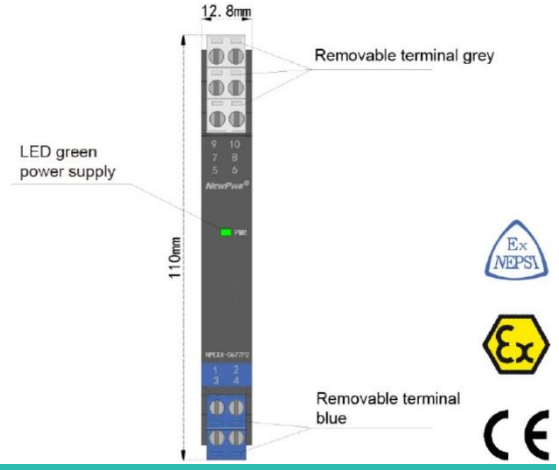
Frequency Isolated Safety Barrier

NPEXA-C67P2 — Single Input, Single Output
NPEXA-C677P2 — Single Input, Double Output

Input: Frequency

Output: 1:1

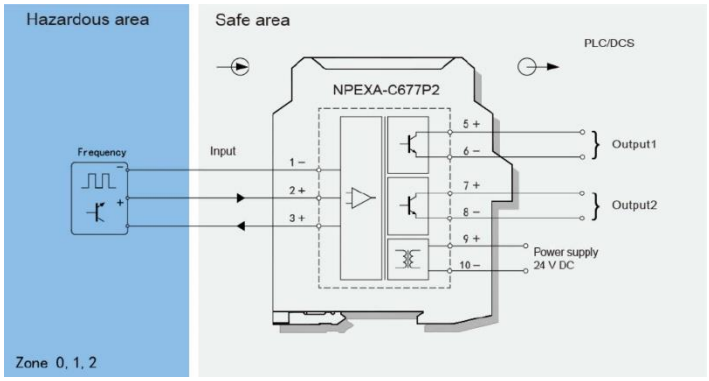
This Isolated Safety Barrier converts the frequency signals from a hazardous area to a safe area by isolation. The input, output and power supply are galvanically isolated from each other.



Parameters

Power Supply	18V DC~60V DC (Reverse Power Protection)	
Power Dissipation	0.9 W (Single Output); 1.8 W (Double Output)	
Input Signal	Frequency	
Frequency Range	0.1Hz~100kHz	
Pulse Width	≥ 5μs	
Switching Trigger Point	Low Level: 0V~2V; High Level: 4V~30V	
Distribution Voltage	≥ 16V, when loaded with 20mA	
Output Signal	Open Collector	High Level: Vcc (≤ 30V) Low Level: ≤ 2V Drive Current: ≤ 10mA
	Emitter Follower	High Level: Vcc-2V Low Level: ≤ 0.5V Drive Current: ≤ 10mA
	Logic Level	High Level: 18V ≤ VH ≤ 24V Low Level: VL≤ 2V Load Resistance: ≥ 2kΩ
Electromagnetic Compatibility	IEC 61326-3-1	
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side) ≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)	
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)	
Operation Temperature	-20~60 ºC	
Storage Temperature	-40~80 ºC	
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)	

Wiring Diagram



Explosive-Proof Parameters

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

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2)

Uo=8.7 V		Io=1 mA	Po=3 mW
IIC	Co= 5.9 μF	Lo= 1000 mH	
IIB	Co= 35 μF	Lo= 1000 mH	
IIA	Co= 700 μF	Lo= 1000 mH	

Certified Parameters (Terminals 1, 3)

Uo=28 V		Io=93 mA	Po=651 mW
IIC	Co= 0.08 μF	Lo= 4 mH	
IIB	Co= 0.68 μF	Lo= 12 mH	
IIA	Co= 2.27 μF	Lo= 32 mH	

RS485 Isolated Safety Barrier

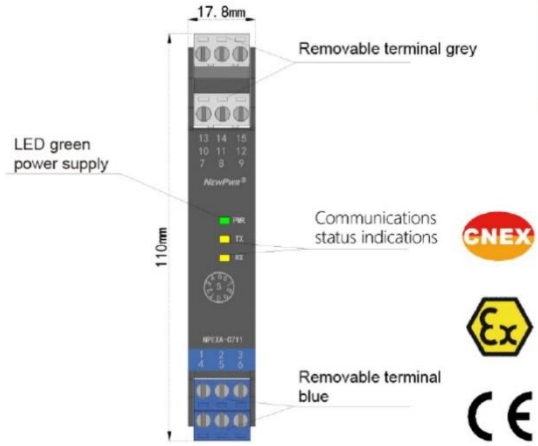
NPEXA-C711

Single Input, Single Output

Input: RS-485

Output: RS-485

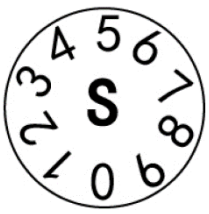
This type of isolated safety barrier transmits RS-485 signals from a hazardous area to safe area, and provides isolated power supply for field devices. The input, output and power supply are galvanically isolated from each other.



Parameters

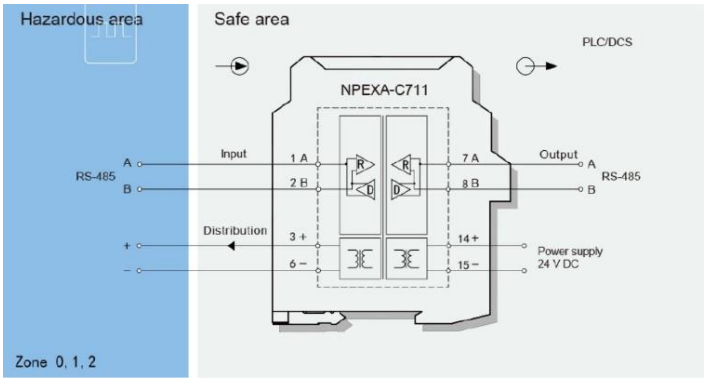
Power Supply	18V DC~60V DC (Reverse Power Protection)
Power Dissipation	≤ 2W (Distribution: 8V / 9V / 12V, 50mA) ≤ 3.5W (Distribution: 5V / 6V, 100mA)
Input Signal	RS-485
Control Mode	Half-Duplex
Output Signal	RS-485
Transmission Delay	≤ 5μs
Transmission Rate	≤ 56 kbps
Distribution Voltage	Refer to Rotary Switch Setting
Voltage Tolerance	±10%
Electromagnetic Compatibility	IEC 61326-3-1
Dielectric Strength	≥3000VAC (Intrinsically Safe Side / Non-Intrinsically Safe Side) ≥1500VAC (Non-Intrinsically Safe Side / Non-Intrinsically Safe Side)
Insulation Resistance	≥100MΩ (Input / Output / Power Supply)
Operation Temperature	-20~60 ºC
Storage Temperature	-40~80 ºC
Dimension (mm)	12.8 (W) * 110 (H) * 117 (D)

Rotary Switch Setting



Rotary Switch	Distribution
S0	5V DC, 100mA
S1	6V DC, 100mA
S2	8V DC, 50mA
S4	9V DC, 50mA
S8	12V DC, 50mA

Wiring Diagram



Explosive-Proof Parameters

China National Quality Supervision & Test Centre for Explosion Protected Electrical Products (CQST)

Ex-Proof Grade: [Ex ia Ga] IIC

Um: 250V

Certified Parameters (Terminals 1, 2)

Uo=7.6 V		Io=77 mA	Po=147 mW
IIC	Co= 7 μF	Lo=9 mH	
IIB	Co= 112 μF	Lo=27 mH	
IIA	Co= 700 μF	Lo=72 mH	

Certified Parameters (Terminals 3, 6)

Uo=23.1 V		Io=187 V	Po=1080 mW
IIC	Co= 0.07 μF	Lo=1.6 mH	
IIB	Co= 0.6 μF	Lo=4.8 mH	
IIA	Co= 2.5 μF	Lo=12.8 mH	

TOSILON AUTOMATION - NEWPWR

Focus security & stability on Industrial Measurement and Control Signals

Xi’an Tosilon Automation Co., Ltd

Address - No.299, Daqing Rd, Lianhu District, Xi'an Shaanxi, China

Tel. - +86-29-8823 8550

E-mail - info@tosilon.com

Website - www.tosilon.com