

NEWPWR
优倍电气

GB The national standards drafting unit

 SINOPEC framework agreement unit

 CNOOC supplier

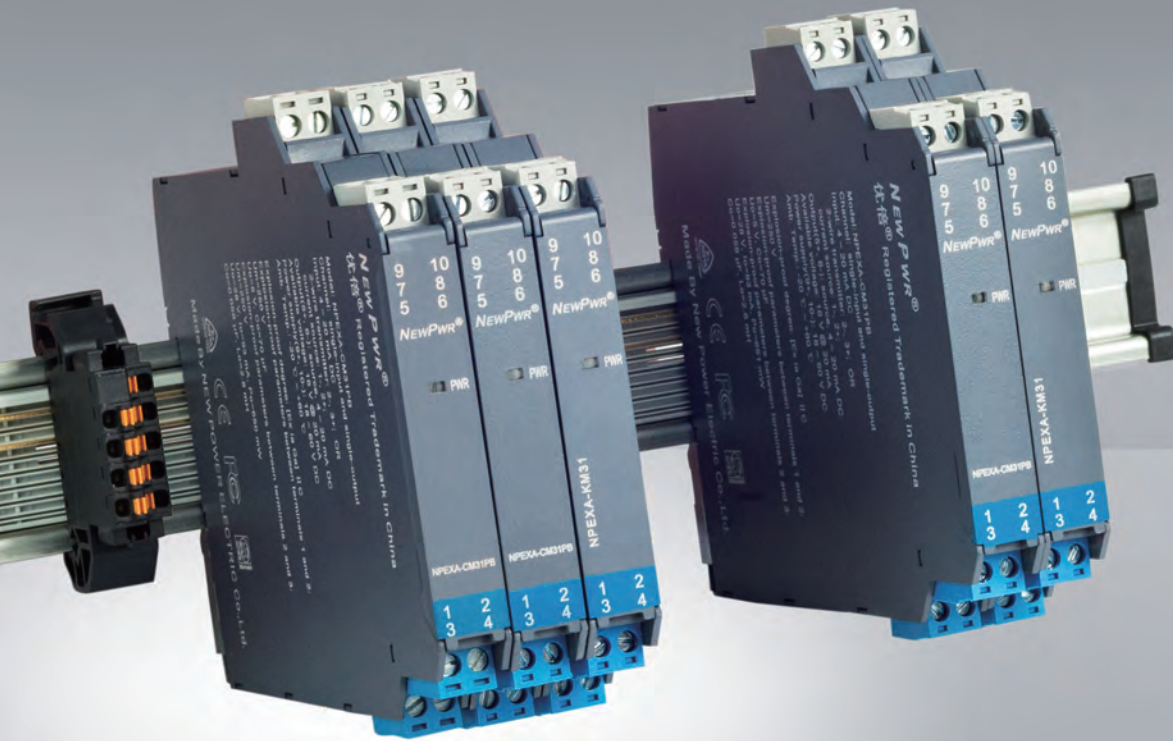
 EnergyAhead shortlisted unit

PRODUCT CATALOGUE & TECHNICAL BROCHURE

INDUSTRIAL INSTRUMENT VOLUME

C series isolated safety barrier

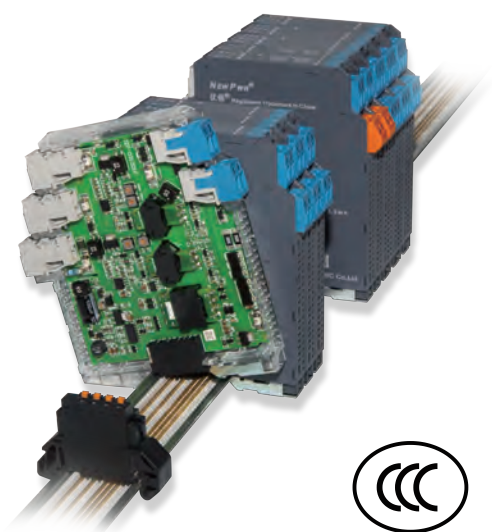
English Version
Ver. 2022.9



NEWPWR
优倍电气

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The latest technology Functional safety isolated safety barrier



Core technology

- Programmable smart input
- Proprietary - Special magnetic material
- Proprietary - voltage baffle technology
- Proprietary - cold terminal compensation
- Proprietary - EMC device
- Proprietary - safety fuse

Product types

- Input type :
 - Thermocouple, thermal resistance
 - Current, transmitter
 - Switching
 - Voltage, millivolt
 - Resistance (potentiometer)
 - Frequency
 - Vibration and strain bridge
 - Digital communication
- Output type :
 - Current
 - Voltage, millivolt
 - Resistance
 - Relay
 - Sink/source
 - Communication
- Connection mode :
 - Terminal, rail
- Display mode :
 - LED or LCD



NEWPWR 优倍电气

- Intrinsic Safety barrier National Standard Editor in chief
- SINOPEC Intrinsic Safety Barriers Framework Agreement Unit
- Integration of industrialization and informatization unit of MIIT
- Standardization demonstration intelligent factory of MIIT
- Jiangsu Province Surge Protective Device Engineering and Technology Research Center



About NewPwr

Nanjing New Power Electric Co.,Ltd. was founded in 2002, is the high-tech enterprise in Jiangsu Province. Our company is specialized in R&D, manufacturing intrinsic safety barrier, surge protective device etc, and is a member of the national industrial process measurement and automation Standardization Technical Committee (TC124), national industrial explosion-proof electrical equipment standardization technical committee (TC9). The company has more than 160 employees, 33000 square meters of two industrial parks. It is one of the main suppliers of technology and market in the field of industrial explosion-proof instrumentation in China, and enjoys a high reputation.

The company is the executive director unit of Chinese Instrument Association, the integration of industrialization and informatization unit of the MIIT, the standardization demonstration intelligent factory of MIIT, is the Jiangsu Province and Nanjing first demonstration of intelligent workshop. Due to the outstanding achievements of the company in recent years, since 2016, it has been awarded by Jiangsu provincial government as one of the "100 outstanding enterprise in Jiangsu Province", "50 outstanding Jiangsu Manufacturing Contributions Outstanding Enterprises", and "Jiangsu Science and Technology Little Giant Enterprise" honor.



Catalogue

C series isolated safety barrier

RTD, TC

| | |
|-----------------------------------------|----|
| NPEXA-C01H (1-channel, Output: 4~20mA) | 06 |
| NPEXA-C011H (1-channel, Output: 4~20mA) | 06 |
| NPEXA-C0D11 (2-channel, Output: 4~20mA) | 07 |
| NPEXA-K01 (1-channel, Output: 4~20mA) | 08 |

TC

| | |
|------------------------------------------------------|----|
| NPEXA-C11H (1-channel, Output: 4~20mA) | 09 |
| NPEXA-C111H (1-channel, Output: 4~20mA) | 09 |
| NPEXA-C1D11 (2-channel, Output: 4~20mA) | 10 |
| NPEXA-CM17 (1-channel, Output: 1:1mV) | 11 |
| NPEXA-CM177 (1-channel, Output: 1:1mV) | 11 |
| NPEXA-C171H (1-channel, Output: 1:1mV, 4~20mA) | 12 |
| NPEXA-C11L (1-channel, Output: 4~20mA, loop powered) | 13 |
| NPEXA-C11A2 (1-channel, Output: 4~20mA, relay) | 14 |

RTD

| | |
|--------------------------------------------------------|----|
| NPEXA-C21 (1-channel, Output: 4~20mA) | 15 |
| NPEXA-C211 (1-channel, Output: 4~20mA) | 15 |
| NPEXA-C2D11 (2-channel, Output: 4~20mA) | 16 |
| NPEXA-C27 (1-channel, Output: 1:1 resistance) | 17 |
| NPEXA-C277 (1-channel, Output: 1:1 resistance) | 17 |
| NPEXA-C271 (1-channel, Output: 1:1 resistance, 4~20mA) | 18 |
| NPEXA-C21T1 (1-channel, Output: 4~20mA, RS-485) | 19 |
| NPEXA-C21L (1-channel, Output: 4~20mA, loop powered) | 20 |
| NPEXA-C21A2 (1-channel, Output: 4~20mA, relay) | 21 |

AI

| | |
|---------------------------------------------------------|----|
| NPEXA-CM31 (1-channel, Output: 4~20mA, HART) | 22 |
| NPEXA-CM311 (1-channel, Output: 4~20mA, HART) | 22 |
| NPEXA-CM3D11 (2-channel, Output: 4~20mA, HART) | 23 |
| NPEXA-CM31S (1-channel, Output: 4~20mA, HART) | 24 |
| NPEXA-CM31S1S (1-channel, Output: 4~20mA, HART) | 24 |
| NPEXA-C31T1 (1-channel, Output: 4~20mA, RS-485) | 25 |
| NPEXA-CM31L (1-channel, Output: 4~20mA, loop powered) | 26 |
| NPEXA-CM3D11L (2-channel, Output: 4~20mA, loop powered) | 26 |

Note: When selecting DIN rail power supply products, PB should be after the cooresponding model.

For example, NPEXA-CM31PB

| | |
|------------------------------------------------------|----|
| NPEXA-C31A2 (1-channel, Output: 4~20mA, relay) | 27 |
| NPEXA-KM31 (1-channel, Output: 4~20mA, HART) | 28 |

AO

| | |
|---------------------------------------------------------------|----|
| NPEXB-CM31 (1-channel, Output: 4~20mA, HART) | 29 |
| NPEXB-CM3D11 (2-channel, Output: 4~20mA, HART) | 30 |
| NPEXB-CM31L (1-channel, Output: 4~20mA, loop powered) | 31 |
| NPEXB-CM3D11L (2-channel, Output: 4~20mA, loop powered) | 31 |
| NPEXB-KM31 (1-channel, Output: 4~20mA, HART) | 32 |

AI (Voltage)

| | |
|-----------------------------------------------|----|
| NPEXA-C41 (1-channel, Output: 4~20mA) | 33 |
| NPEXA-C411 (1-channel, Output: 4~20mA) | 33 |
| NPEXA-C4D11 (1-channel, Output: 4~20mA) | 34 |

DI

| | |
|----------------------------------------------------|----|
| NPEXA-C511 (1-channel, Output: relay) | 35 |
| NPEXA-C5111 (1-channel, Output: relay) | 35 |
| NPEXA-C5D111 (2-channel, Output: relay) | 36 |
| NPEXA-C5F11 (4-channel, Output: relay) | 37 |
| NPEXA-K51 (1-channel, Output: relay) | 38 |
| NPEXA-K511 (1-channel, Output: relay) | 38 |
| NPEXA-K5D11 (2-channel, Output: relay) | 39 |
| NPEXA-C512 (1-channel, Output: transistor) | 40 |
| NPEXA-C5122 (1-channel, Output: transistor) | 40 |
| NPEXA-C5D122 (2-channel, Output: transistor) | 41 |

DO

| | |
|------------------------------------------------------------|----|
| NPEXB-C511 (1-channel, Output: 35mA) | 42 |
| NPEXB-C5D11 (2-channel, Output: 35mA) | 42 |
| NPEXB-C511L (1-channel, Output: 35mA, loop powered) | 43 |
| NPEXB-C5D11L (2-channel, Output: 35mA, loop powered) | 43 |
| NPEXB-C512 (1-channel, Output: 45mA) | 44 |
| NPEXB-C5D12 (2-channel, Output: 45mA) | 44 |
| NPEXB-C512L (1-channel, Output: 45mA, loop powered) | 45 |
| NPEXB-C5D12L (2-channel, Output: 45mA, loop powered) | 45 |
| NPEXB-C513 (1-channel, Output: 60mA) | 46 |
| NPEXB-C5D13 (2-channel, Output: 60mA) | 46 |
| NPEXB-C513L (1-channel, Output: 60mA, loop powered) | 47 |
| NPEXB-C5D13L (2-channel, Output: 60mA, loop powered) | 47 |
| NPEXB-K512L (1-channel, Output: 45mA, loop powered) | 48 |

Note: When selecting DIN rail power supply products, PB should be after the cooresponding model.
For example, NPEXA-CM31PB

Frequency

| | |
|----------------------------------------------|----|
| NPEXA-C61P1 (1-channel, Output: 4~20mA) | 49 |
| NPEXA-C611P1 (1-channel, Output: 4~20mA) | 49 |
| NPEXA-C61P2 (1-channel, Output: 4~20mA) | 50 |
| NPEXA-C611P2 (1-channel, Output: 4~20mA) | 50 |
| NPEXA-C67P1 (1-channel, Output: transistor) | 51 |
| NPEXA-C677P1 (1-channel, Output: transistor) | 51 |
| NPEXA-C67P2 (1-channel, Output: transistor) | 52 |
| NPEXA-C677P2 (1-channel, Output: transistor) | 52 |

RS485/RS232/RS422/CAN

| | |
|--------------------------------------------------------|----|
| NPEXA-C711Z (Input: RS-485, Output: RS-485, 9V/140mA) | 53 |
| NPEXA-C711C (Input: RS-485, Output: RS-485, 24V/100mA) | 54 |
| NPEXA-C711 (Input: RS-485, Output: RS-485) | 55 |
| NPEXA-C712 (Input: RS-485, Output: RS-232) | 56 |
| NPEXA-C713 (Input: RS-485, Output: RS-422) | 57 |
| NPEXA-C721 (Input: RS-232, Output: RS-485) | 58 |
| NPEXA-C722 (Input: RS-232, Output: RS-232) | 59 |
| NPEXA-C723 (Input: RS-232, Output: RS-422) | 60 |
| NPEXA-C731 (Input: RS-422, Output: RS-485) | 61 |
| NPEXA-C732 (Input: RS-422, Output: RS-232) | 62 |
| NPEXA-C733 (Input: RS-422, Output: RS-422) | 63 |
| NPEXA-C744 (Input: CAN, Output: CAN) | 64 |
| NPEXA-C744Z (Input: CAN, Output: CAN, 9V/140mA) | 65 |

Potentiometer

| | |
|----------------------------------------|----|
| NPEXA-C91 (1-channel, Output: 4~20mA) | 66 |
| NPEXA-C911 (1-channel, Output: 4~20mA) | 66 |

| | |
|----------|----|
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|----------|----|

Note: When selecting DIN rail power supply products, PB should be after the cooresponding model.

Certificate



Product Safety
Functional
Safety

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ID 060000000

No.: 968/FSP 1171.01/20

| | | | |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Product tested | Isolated Barriers for safety-related applications | Certificate holder | Nanjing New Power Electric Co., Ltd. Liuhe Economic Development Zone Nanjing, Jiangsu Province 211500 P.R. China |
| Type designation | NPEXA-KM31, NPEXB-KM31 | | |
| Codes and standards | IEC 61508 Parts 1-7:2010 IEC 61298 Parts 1-3:2008 | IEC 61326-3-1:2017 | |
| Intended application | <p>NPEXA-KM31, NPEXB-KM31 are intended to be used in safety-related applications and have the safety function of repeating 4-20 mA current within the accuracy of $\pm 2\%$. In case of a failure the output current is:</p> <ul style="list-style-type: none"> - NPEXA-KM31: < 3.6mA or > 21.5 mA - NPEXB-KM31: < 3.6mA <p>The barriers comply with the requirements of IEC 61508:</p> <ul style="list-style-type: none"> - NPEXA-KM31: IEC 61508 SC 3, SIL 3 - NPEXB-KM31: IEC 61508 SC 3, SIL 2 | | |
| Specific requirements | The instructions of Safety Manual shall be considered. | | |
| Valid until | 2025-11-30 | | |

The issue of this certificate is based upon an examination, whose results are documented in Report No. 968/FSP 1171.01/20 dated 2020-11-30.
This certificate is valid only for products which are identical with the product tested.

TÜV Rheinland Industrie Service GmbH
Bereich Automation
Funktionale Sicherheit
Am Grauen Stein, 51105 Köln

Köln, 2020-11-30

Certification Body Safety & Security for Automation & Grid

Dipl.-Ing. Thomas Steffens

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TÜV Rheinland Industrie Service GmbH, Am Grauen Stein, 51105 Köln / Germany
Tel.: +49 221 806-1750, Fax: +49 221 806-1539, E-Mail: industrie-service@de.tuv.com

www.fs-products.com
www.tuv.com





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: | Current Input Isolated Safety barrier type NPEXA-KM31 | | |
| Optional accessory: | | | |
| 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](http://www.iecex.com).

Certificate issued by:

TUV Rheinland Industrie Service GmbH
Am Grauen Stein
51105 Cologne
Germany



(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:

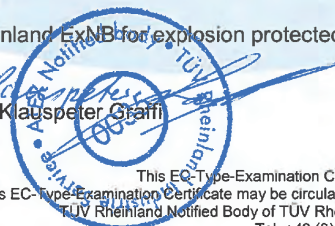


II (1) G [Ex ia Ga] IIC

TÜV Rheinland ExNB for explosion protected equipment

Cologne, 2016-04-19

Dipl.-Ing. Klauspeter Graf



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

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中国国家强制性产品认证证书

  **SITIiAS**
Worldwide Access

证书编号: 202032231600020

认证委托人名称: 南京优倍电气技术有限公司
 认证委托人地址: 南京市江宁区金鑫中路19号(江宁开发区)
 生产者名称: 南京优倍电气技术有限公司
 生产者地址: 南京市江宁区金鑫中路19号(江宁开发区)
 生产企业名称: 南京优倍电气技术有限公司
 生产企业地址: 南京市江宁区金鑫中路19号(江宁开发区)

产品名称: 隔离式安全栅
 系列、规格、型号: NPEXA-C01, NPEXA-C011, NPEXA-C0D11, NPEXA-C11, NPEXA-C11PB, NPEXA-C111, NPEXA-C111PB, NPEXA-C177, NPEXA-C1D11, NPEXA-C1D11PB, NPEXA-C21, NPEXA-C21PB, NPEXA-C211, NPEXA-C211PB, NPEXA-C2D11, NPEXA-C2D11PB, NPEXA-C91, NPEXA-C911, NPEXA-C11T1, NPEXA-C21T1, NPEXA-C31T1
 标准: GB 3836.1-2010, GB 3836.4-2010

认证模式: 型式试验+初始工厂检查+获证后监督
 上述产品符合 CNCA-C23-01:2019 《强制性产品认证实施规则 防爆电气》的要求, 特发此证。产品相关信息详见附件。

发证日期: 2022年01月25日 有效期至: 2025年02月04日
 首次发证日期: 2020年02月05日

证书有效期内本证书的有效性依据发证机构的定期监督获得保持。
 本证书的相关信息可通过国家认监委网站 www.cnca.gov.cn 查询

批准: 

上海仪器仪表自控系统检验测试所有限公司

http://www.sitiias.com.cn 中国·上海·漕宝路103号200233 电话: +86 21 64510844

S 0005904

中国国家强制性产品认证证书

  **SITIiAS**
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证书编号: 202032231600021

认证委托人名称: 南京优倍电气技术有限公司
 认证委托人地址: 南京市江宁区金鑫中路19号(江宁开发区)
 生产者名称: 南京优倍电气技术有限公司
 生产者地址: 南京市江宁区金鑫中路19号(江宁开发区)
 生产企业名称: 南京优倍电气技术有限公司
 生产企业地址: 南京市江宁区金鑫中路19号(江宁开发区)

产品名称: 隔离式安全栅
 系列、规格、型号: 见附件
 标准: GB 3836.1-2010, GB 3836.4-2010

认证模式: 型式试验+初始工厂检查+获证后监督
 上述产品符合 CNCA-C23-01:2019 《强制性产品认证实施规则 防爆电气》的要求, 特发此证。产品相关信息详见附件。

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中国国家强制性产品认证证书

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证书编号: 202032231600022

认证委托人名称: 南京优倍电气技术有限公司
 认证委托人地址: 南京市江宁区金鑫中路19号(江宁开发区)
 生产者名称: 南京优倍电气技术有限公司
 生产者地址: 南京市江宁区金鑫中路19号(江宁开发区)
 生产企业名称: 南京优倍电气技术有限公司
 生产企业地址: 南京市江宁区金鑫中路19号(江宁开发区)

产品名称: 隔离式安全栅
 系列、规格、型号: NPEXB-OM31, NPEXB-OM32, NPEXB-OM31W, NPEXB-OM31PB, NPEXB-OM32PB
 标准: GB 3836.1-2010, GB 3836.4-2010

认证模式: 型式试验+初始工厂检查+获证后监督
 上述产品符合 CNCA-C23-01:2019 《强制性产品认证实施规则 防爆电气》的要求, 特发此证。产品相关信息详见附件。

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中国国家强制性产品认证证书

  **SITIiAS**
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证书编号: 202032231600023

认证委托人名称: 南京优倍电气技术有限公司
 认证委托人地址: 南京市江宁区金鑫中路19号(江宁开发区)
 生产者名称: 南京优倍电气技术有限公司
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 生产企业名称: 南京优倍电气技术有限公司
 生产企业地址: 南京市江宁区金鑫中路19号(江宁开发区)

产品名称: 隔离式安全栅
 系列、规格、型号: NPEXA-O511, NPEXA-O5111, NPEXA-O5D111
 标准: GB 3836.1-2010, GB 3836.4-2010

认证模式: 型式试验+初始工厂检查+获证后监督
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CHINA CLASSIFICATION SOCIETY

证书编号/Certificate No.
JS19PTB00305

型式认可证书
CERTIFICATE OF TYPE APPROVAL

兹证明本证书所述制造厂具备按照下列标准的要求生产本证书所列产品的能力和条件。
This is to certify that the manufacturer stated in the certificate meets the requirements of the standards listed below and is available with the ability and conditions to produce the products described in the certificate.

制造厂/Manufacturer

南京优倍电气有限公司
Nanjing New Power Electric Co., Ltd.

地址/Address

南京六合经济开发区
Luhe Economic Development Zone, Nanjing City

产品名称/Product

隔离式安全栅
Isolated Barrier
安全栅
Barrier

认可标准/Approval Standard

1. 中国船级社《钢质海船入级规范》(2018)及其修改通报第4篇第1章
Chapter 1, Part Four of China Classification Society Rules for Classification of Sea-Going Steel Ships 2018 and its Amendments

用于/Intended for

船舶与海上设施/Ships and Offshore Installations

产品明细/Product Description

安全栅/Barrier (M0001)

| 名称/Name | 属性(值)/Value | 单位/Unit |
|------------------------------|--------------------------|---------|
| 型号/Type | 详见附页 See additional page | |
| 额定电压/Rated Voltage | 详见附页 See additional page | |
| 防爆标志/Explosion-Proof Marking | 详见附页 See additional page | |

证书有效期至/This Certificate is valid until 2024年03月19日/ Mar. 19, 2024

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UTN:P020-51995088

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Nº 18209750

TC & RTD Isolated Safety Barrier



NPEXA-C01H NPEXA-C011H

Single input, single output
Single input, double output

Input: TC, RTD
Output: 4 ~ 20 mA

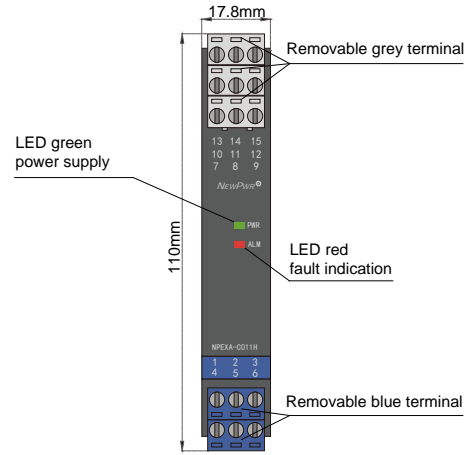
Temperature input safety barrier, it converts the thermocouple or thermal resistance signals from a hazardous area into current signals to a safe area by isolation. It has external cold junction compensation terminals. It needs an independent power supply. The input, output, and power supply are galvanically isolated from each other. A self-test feature is also available on this device. You can use PC or handheld programmer to modify parameters.

Parameters

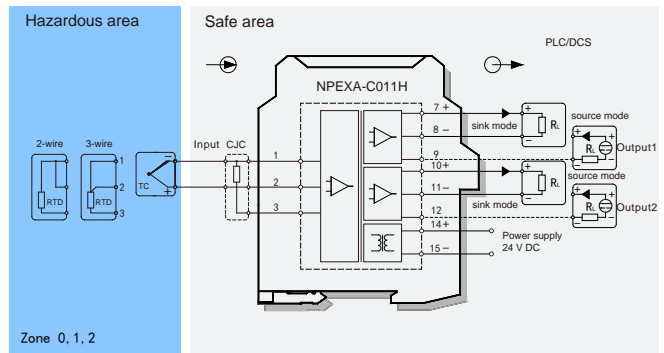
| | |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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: | source: $R_L \leq 550\Omega$ sink: $R_L < [(U-3)/0.02]\Omega$; U: Loop power supply |
| Compensation accuracy: | 1°C (Temperature compensation range: -20°C ~ +60°C) |
| Temperature drift: | 30ppm/°C |
| Response time: | ≤ 500ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply /non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 17.8mm (W) × 110mm (H) × 117mm (D) |
| Output states: | Whatever input fault status (except breakage), the output follows the input within measuring range. And the maximum 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 minimum output value may be 0mA, the maximum output value would not exceed 22mA) |

Range and Conversion accuracy list

| Type | Range | Min.span/Accuracy | |
|-------|------------------|-------------------|---------------------|
| K | -200°C ~ +1372°C | < 300°C, ±0.3°C | ≥ 300°C, ±0.1% F.S. |
| E | -100°C ~ +1000°C | < 300°C, ±0.3°C | ≥ 300°C, ±0.1% F.S. |
| J | -100°C ~ +1200°C | < 300°C, ±0.3°C | ≥ 300°C, ±0.1% F.S. |
| N | -200°C ~ +1300°C | < 300°C, ±0.3°C | ≥ 300°C, ±0.1% F.S. |
| S | -50°C ~ +1768°C | < 500°C, ±0.5°C | ≥ 500°C, ±0.1% F.S. |
| R | -50°C ~ +1768°C | < 500°C, ±0.5°C | ≥ 500°C, ±0.1% F.S. |
| T | -20°C ~ +400°C | < 300°C, ±0.3°C | ≥ 300°C, ±0.1% F.S. |
| B | +400°C ~ +1820°C | < 500°C, ±0.5°C | ≥ 500°C, ±0.1% F.S. |
| PT100 | -200°C ~ +850°C | < 100°C, ±0.1°C | ≥ 100°C, ±0.1% F.S. |
| Cu50 | -50°C ~ +150°C | < 100°C, ±0.1°C | ≥ 100°C, ±0.1% F.S. |
| Cu100 | -50°C ~ +150°C | < 100°C, ±0.1°C | ≥ 100°C, ±0.1% F.S. |



Wiring diagram



Explosive-proof parameters

China National Quality Supervision and Test Centre for Explosion Protected Electrical Products(CQST)
Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2, 3):

Uo=8.7V, Io=33mA, Po=72mW

II C : Co=3.58μF, Lo=21mH

II B : Co=35μF, Lo=63mH

II A : Co=700μF, Lo=168mH

Model rules

NPEXA-C0 H
 PB : BUS powered
 Default: Terminals powered
 The second output signal^{note1}
 Default: null
 The first output signal^{note1}

note1 : output signal

| Number | Output signal |
|--------|---------------|
| 1 | 4~20mA |
| 2 | 1~5V |
| 3 | 0~10mA |
| 4 | 0~5V |
| 5 | 0~10V |
| 6 | 0~20mA |

NPEXA-C0D11

double input, double output

Input: TC, RTD
Output: 4 ~ 20 mA

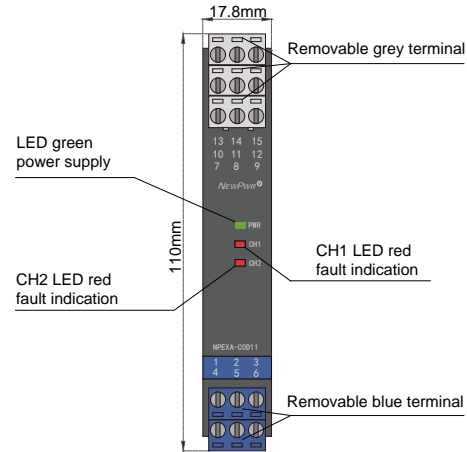
Temperature input safety barrier, it converts the thermocouple or thermal resistance signals from a hazardous area into current signals to a safe area by isolation. It has external cold junction compensation terminals. It needs an independent power supply. The input, output, and power supply are galvanically isolated from each other. A self-test feature is also available on this device. You can use PC or handheld programmer to modify parameters.

Parameters

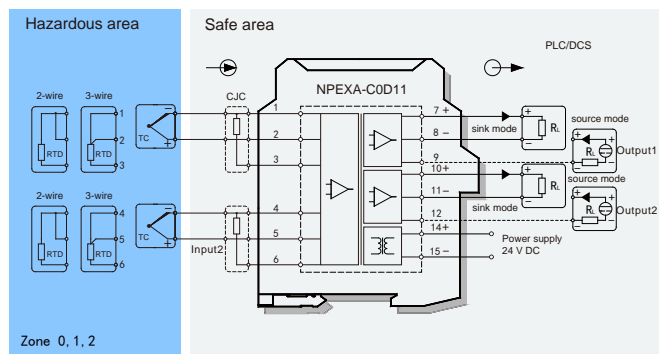
| | |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60V DC (Reverse power protection) |
| Power dissipation: | 1.2W |
| 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: | source: $R_L \leq 550\Omega$ sink: $R_L < [(U-3)/0.02]\Omega$; U: Loop power supply |
| Compensation accuracy: | 1°C (Temperature compensation range: -20°C ~ +60°C) |
| Temperature drift: | 30ppm/°C |
| Response time: | ≤ 500ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply /non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 17.8mm (W) × 110mm (H) × 117mm (D) |
| Output states: | Whatever input fault status (except breakage), the output follows the input within measuring range. And the maximum 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 minimum output value may be 0mA, the maximum output value would not exceed 22mA) |

Range and Conversion accuracy list

| Type | Range | Min.span/Accuracy | |
|-------|------------------|-------------------|---------------------|
| K | -200°C ~ +1372°C | < 300°C, ±0.3°C | ≥ 300°C, ±0.1% F.S. |
| E | -100°C ~ +1000°C | < 300°C, ±0.3°C | ≥ 300°C, ±0.1% F.S. |
| J | -100°C ~ +1200°C | < 300°C, ±0.3°C | ≥ 300°C, ±0.1% F.S. |
| N | -200°C ~ +1300°C | < 300°C, ±0.3°C | ≥ 300°C, ±0.1% F.S. |
| S | -50°C ~ +1768°C | < 500°C, ±0.5°C | ≥ 500°C, ±0.1% F.S. |
| R | -50°C ~ +1768°C | < 500°C, ±0.5°C | ≥ 500°C, ±0.1% F.S. |
| T | -20°C ~ +400°C | < 300°C, ±0.3°C | ≥ 300°C, ±0.1% F.S. |
| B | +400°C ~ +1820°C | < 500°C, ±0.5°C | ≥ 500°C, ±0.1% F.S. |
| PT100 | -200°C ~ +850°C | < 100°C, ±0.1°C | ≥ 100°C, ±0.1% F.S. |
| Cu50 | -50°C ~ +150°C | < 100°C, ±0.1°C | ≥ 100°C, ±0.1% F.S. |
| Cu100 | -50°C ~ +150°C | < 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)

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

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

$U_0=8.7V$, $I_0=33mA$, $P_0=72mW$

II C : $C_0=5\mu F$, $L_0=28mH$

II B : $C_0=35\mu F$, $L_0=84mH$

II A : $C_0=700\mu F$, $L_0=224mH$

Model rules

NPEXA-C0D

PB : BUS powered
Default: Terminals powered

The second output signal^[note1]

The first output signal^[note1]

note1 : output signal

| Number | Output signal |
|--------|---------------|
| 1 | 4~20mA |
| 2 | 1~5V |
| 3 | 0~10mA |
| 4 | 0~5V |
| 5 | 0~10V |
| 6 | 0~20mA |

TC & RTD Isolated Safety Barrier



NPEXA-K01

Single input, single output

Input: TC, RTD
Output: 4 ~ 20 mA

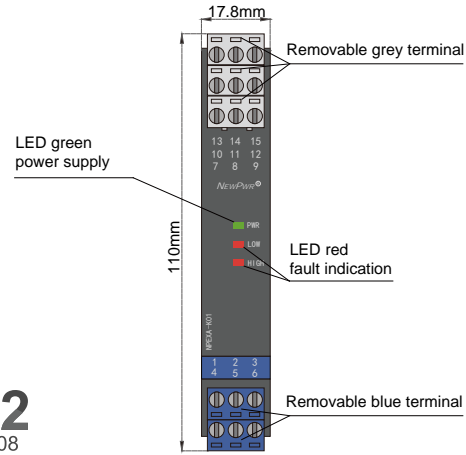
Temperature input safety barrier, it converts the thermocouple or thermal resistance signals from a hazardous area into current signals to a safe area by isolation. It has external cold junction compensation terminals. It needs an independent power supply. The input, output, and power supply are galvanically isolated from each other.

Parameters

- Power supply: 20V DC ~ 30V DC (Reverse power protection)
- Power dissipation: ≤ 1.1W
- Input signal: K, E, S, B, J, T, R, N, etc
Pt100, Cu100, Cu50, etc
- Line resistance: ≤ 20 Ω per line (RTD)
- Output signal: 4 ~ 20mA
- Load resistance: RL ≤ 500Ω
- Compensation accuracy: 1°C (Temperature compensation range: -20°C ~ +60°C)
- Temperature drift: 30ppm/°C
- Response time: ≤ 800ms
- Electromagnetic compatibility: IEC 61326-3-1
- Dielectric strength: ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side)
≥ 1500V AC (Power supply /non-intrinsically safe side)
- Insulation resistance: ≥ 100MΩ (Input /Output/Power supply)
- Operation temperature: -20°C ~ +60°C
- Storage temperature: -40°C ~ +80°C
- Dimension: 17.8mm (W) × 110mm (H) × 117mm (D)
- Safe state: Output signal < 3.6mA or > 21.5mA

Range and Conversion accuracy list

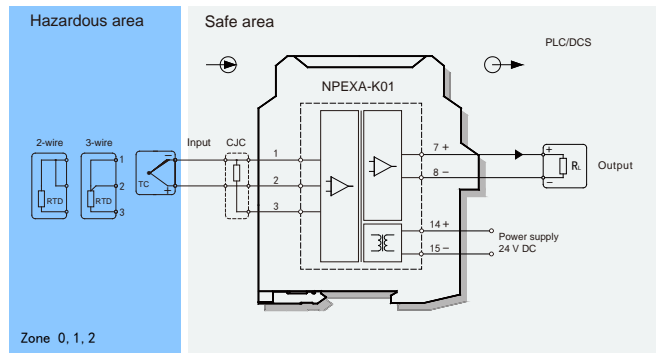
| Type | Range | Min.span/Accuracy | |
|-------|------------------|-------------------|---------------------|
| K | -200°C ~ +1372°C | < 300°C, ±0.3°C | ≥ 300°C, ±0.1% F.S. |
| E | -100°C ~ +1000°C | < 300°C, ±0.3°C | ≥ 300°C, ±0.1% F.S. |
| J | -100°C ~ +1200°C | < 300°C, ±0.3°C | ≥ 300°C, ±0.1% F.S. |
| N | -200°C ~ +1300°C | < 300°C, ±0.3°C | ≥ 300°C, ±0.1% F.S. |
| S | -50°C ~ +1768°C | < 500°C, ±0.5°C | ≥ 500°C, ±0.1% F.S. |
| R | -50°C ~ +1768°C | < 500°C, ±0.5°C | ≥ 500°C, ±0.1% F.S. |
| T | -20°C ~ +400°C | < 300°C, ±0.3°C | ≥ 300°C, ±0.1% F.S. |
| B | +400°C ~ +1820°C | < 500°C, ±0.5°C | ≥ 500°C, ±0.1% F.S. |
| PT100 | -200°C ~ +850°C | < 100°C, ±0.1°C | ≥ 100°C, ±0.1% F.S. |
| Cu50 | -50°C ~ +150°C | < 100°C, ±0.1°C | ≥ 100°C, ±0.1% F.S. |
| Cu100 | -50°C ~ +150°C | < 100°C, ±0.1°C | ≥ 100°C, ±0.1% F.S. |



SIL2
IEC 61508



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)
- Explosive-proof grade: [Ex ia Ga] II C
- Um: 250V
- Certified parameters (Terminals 1, 2, 3):
Uo=7.3V, Io=16mA, Po=30mW
- II C : Co=7μF, Lo=97mH
- II B : Co=149μF, Lo=291mH
- II A : Co=700μF, Lo=776mH

NPEXA-C11H Single input, single output
NPEXA-C111H Single input, double output
 Input: TC
 Output: 4 ~ 20 mA

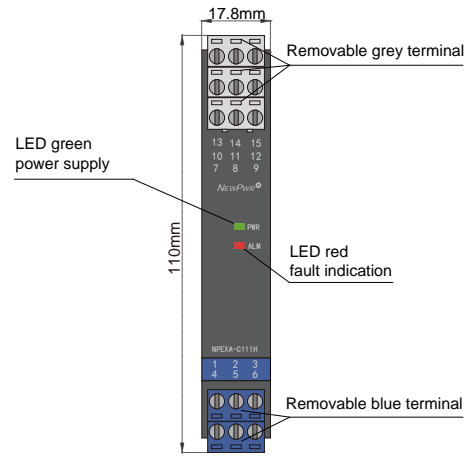
Temperature input safety barrier, it converts the thermocouple signals from a hazardous area into current signals to a safe area by isolation. It has external cold junction compensation terminals. It needs an independent power supply. The input, output, and power supply are galvanically isolated from each other. A self-test feature is also available on this device. You can use PC or handheld programmer to modify parameters.

Parameters

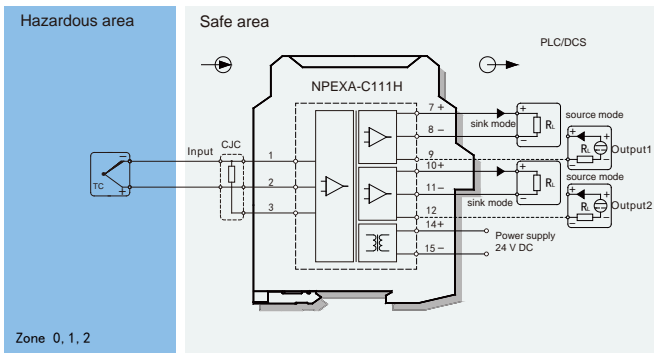
- Power supply: 18V DC ~ 60V DC (Reverse power protection)
- Power dissipation: 0.8W (single output)
1.2W (double output)
- Input signal: K, E, S, B, J, T, R, N, etc
- Output signal: 4 ~ 20mA (sink/source)
- Load resistance: source: $R_L \leq 550\Omega$ sink: $R_L < [(U-3)/0.02]\Omega$;
U: Loop power supply
- Compensation accuracy: 1°C (Temperature compensation range: -20°C ~ +60°C)
- Temperature drift: 30ppm/°C
- Response time: $\leq 500\text{ms}$
- Electromagnetic compatibility: IEC 61326-3-1
- Dielectric strength: $\geq 3000\text{V AC}$ (intrinsically safe side / non-intrinsically safe side)
 $\geq 1500\text{V AC}$ (Power supply /non-intrinsically safe side)
- Insulation resistance: $\geq 100\text{M}\Omega$ (Input /Output/Power supply)
- Operation temperature: -20°C ~ +60°C
- Storage temperature: -40°C ~ +80°C
- Dimension: 17.8mm (W) x 110mm (H) x 117mm (D)
- Output states: Whatever input fault status (except breakage), the output follows the input within measuring range. And the maximum value would not exceed the 110% of the upper limit of the measuring range (e.g. When the output signal type is 0 ~ 20 mA, the minimum output value may be 0mA, the maximum output value would not exceed 22mA)

Range and Conversion accuracy list

| Type | Range | Min.span/Accuracy | |
|------|------------------|----------------------------------|---------------------------------------------|
| K | -200°C ~ +1372°C | < 300°C, $\pm 0.3^\circ\text{C}$ | $\geq 300^\circ\text{C}$, $\pm 0.1\%$ F.S. |
| E | -100°C ~ +1000°C | < 300°C, $\pm 0.3^\circ\text{C}$ | $\geq 300^\circ\text{C}$, $\pm 0.1\%$ F.S. |
| J | -100°C ~ +1200°C | < 300°C, $\pm 0.3^\circ\text{C}$ | $\geq 300^\circ\text{C}$, $\pm 0.1\%$ F.S. |
| N | -200°C ~ +1300°C | < 300°C, $\pm 0.3^\circ\text{C}$ | $\geq 300^\circ\text{C}$, $\pm 0.1\%$ F.S. |
| S | -50°C ~ +1768°C | < 500°C, $\pm 0.5^\circ\text{C}$ | $\geq 500^\circ\text{C}$, $\pm 0.1\%$ F.S. |
| R | -50°C ~ +1768°C | < 500°C, $\pm 0.5^\circ\text{C}$ | $\geq 500^\circ\text{C}$, $\pm 0.1\%$ F.S. |
| T | -20°C ~ +400°C | < 300°C, $\pm 0.3^\circ\text{C}$ | $\geq 300^\circ\text{C}$, $\pm 0.1\%$ F.S. |
| B | +400°C ~ +1820°C | < 500°C, $\pm 0.5^\circ\text{C}$ | $\geq 500^\circ\text{C}$, $\pm 0.1\%$ F.S. |



Wiring diagram



Explosive-proof parameters

China National Quality Supervision and Test Centre for Explosion Protected Electrical Products(CQST)
 Explosive-proof grade: [Ex ia Ga] II C
 Um: 250V
 Certified parameters (Terminals 1, 2):
 Uo=8.7V, Io=33mA, Po=72mW
 II C : Co=3.58μF, Lo=21mH
 II B : Co=35μF, Lo=63mH
 II A : Co=700μF, Lo=168mH

Model rules

NPEXA-C1 H
 PB : BUS powered
 Default: Terminals powered
 The second output signal^{note1}
 Default: null
 The first output signal^{note1}

note1 : output signal

| Number | Output signal |
|--------|---------------|
| 1 | 4~20mA |
| 2 | 1~5V |
| 3 | 0~10mA |
| 4 | 0~5V |
| 5 | 0~10V |
| 6 | 0~20mA |

TC Isolated Safety Barrier

NPEXA-C1D11

double input, double output

Input: TC

Output: 4 ~ 20 mA



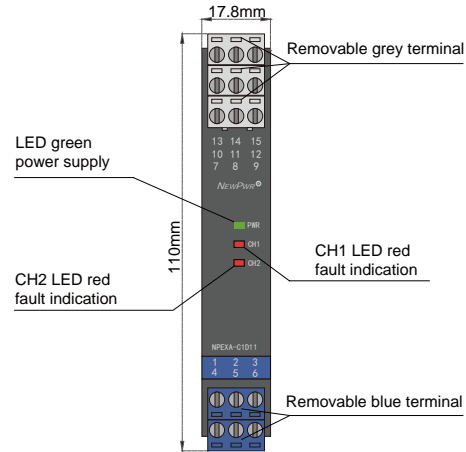
Temperature input safety barrier, it converts the thermocouple signals from a hazardous area into current signals to a safe area by isolation. It has external cold junction compensation terminals. It needs an independent power supply. The input, output, and power supply are galvanically isolated from each other. A self-test feature is also available on this device. You can use PC or handheld programmer to modify parameters.

Parameters

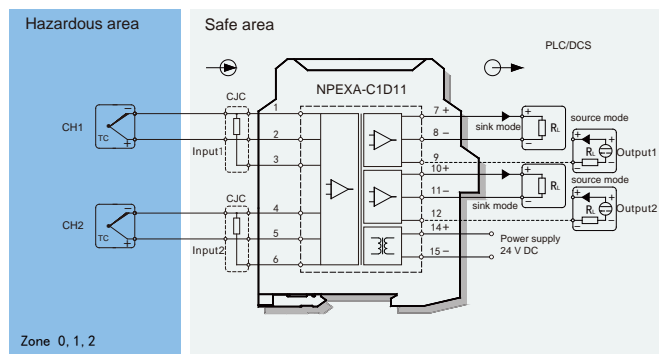
- Power supply: 18V DC ~ 60V DC (Reverse power protection)
- Power dissipation: 1.2W
- Input signal: K, E, S, B, J, T, R, N, etc
- Output signal: 4 ~ 20mA (sink/source)
- Load resistance: source: $R_L \leq 550\Omega$ sink: $R_L < [(U-3)/0.02]\Omega$;
U: Loop power supply
- Compensation accuracy: 1°C (Temperature compensation range: -20°C ~ +60°C)
- Temperature drift: 30ppm/°C
- Response time: $\leq 500ms$
- Electromagnetic compatibility: IEC 61326-3-1
- Dielectric strength: $\geq 3000V$ AC (intrinsically safe side / non-intrinsically safe side)
 $\geq 1500V$ AC (Power supply /non-intrinsically safe side)
- Insulation resistance: $\geq 100M\Omega$ (Input /Output/Power supply)
- Operation temperature: -20°C ~ +60°C
- Storage temperature: -40°C ~ +80°C
- Dimension: 17.8mm (W) × 110mm (H) × 117mm (D)
- Output states: Whatever input fault status (except breakage), the output follows the input within measuring range. And the maximum value would not exceed the 110% of the upper limit of the measuring range (e.g. When the output signal type is 0 ~ 20 mA, the minimum output value may be 0mA, the maximum output value would not exceed 22mA)

Range and Conversion accuracy list

| Type | Range | Min.span/Accuracy | |
|------|------------------|----------------------------|---------------------------------------|
| K | -200°C ~ +1372°C | < 300°C, $\pm 0.3^\circ C$ | $\geq 300^\circ C$, $\pm 0.1\%$ F.S. |
| E | -100°C ~ +1000°C | < 300°C, $\pm 0.3^\circ C$ | $\geq 300^\circ C$, $\pm 0.1\%$ F.S. |
| J | -100°C ~ +1200°C | < 300°C, $\pm 0.3^\circ C$ | $\geq 300^\circ C$, $\pm 0.1\%$ F.S. |
| N | -200°C ~ +1300°C | < 300°C, $\pm 0.3^\circ C$ | $\geq 300^\circ C$, $\pm 0.1\%$ F.S. |
| S | -50°C ~ +1768°C | < 500°C, $\pm 0.5^\circ C$ | $\geq 500^\circ C$, $\pm 0.1\%$ F.S. |
| R | -50°C ~ +1768°C | < 500°C, $\pm 0.5^\circ C$ | $\geq 500^\circ C$, $\pm 0.1\%$ F.S. |
| T | -20°C ~ +400°C | < 300°C, $\pm 0.3^\circ C$ | $\geq 300^\circ C$, $\pm 0.1\%$ F.S. |
| B | +400°C ~ +1820°C | < 500°C, $\pm 0.5^\circ C$ | $\geq 500^\circ C$, $\pm 0.1\%$ F.S. |



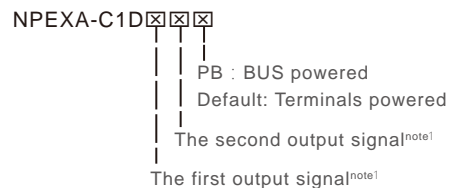
Wiring diagram



Explosive-proof parameters

- National Supervision and Inspection Center for Explosion Protection and Safety of Instrumentation (NEPSI)
- Explosive-proof grade: [Ex ia Ga] II C
- Um: 250V
- Certified parameters (Terminals 1, 2; 4, 5):
 $U_o=8.7V$, $I_o=33mA$, $P_o=72mW$
 II C : $C_o=5\mu F$, $L_o=28mH$
 II B : $C_o=35\mu F$, $L_o=84mH$
 II A : $C_o=700\mu F$, $L_o=224mH$

Model rules



note1 : output signal

| Number | Output signal |
|--------|---------------|
| 1 | 4~20mA |
| 2 | 1~5V |
| 3 | 0~10mA |
| 4 | 0~5V |
| 5 | 0~10V |
| 6 | 0~20mA |

NPEXA-CM17

Single input, single output

NPEXA-CM177

Single input, double output

Input: Millivolt

Output: 1:1 mV

Millivolt input safety barrier, it converts the Millivolt signals from a hazardous area into 1:1mV signals to a safe area by isolation. The input, output, and power supply are galvanically isolated from each other. It has the function of setting over range output when the input is disconnected.

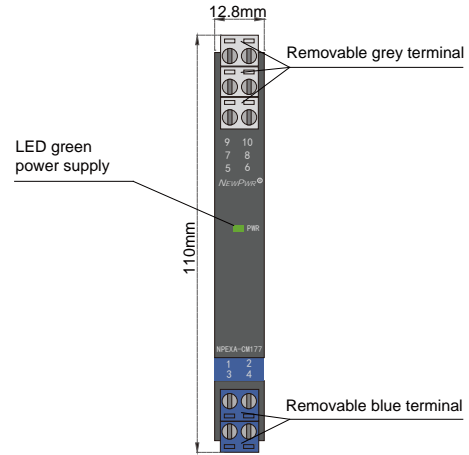
Parameters

| | |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 32V DC (Reverse power protection) |
| Power dissipation: | 0.4W (single output) 0.8W (double output) |
| Input signal: | -100mV ~ 100mV |
| Input resistance: | ≥ 20MΩ |
| Output signal: | 1:1 mV |
| Output resistance: | 55Ω |
| Compensation accuracy: | 0.05%F.S. |
| Temperature drift: | 0.005%F.S./°C |
| Response time: | ≤ 2ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply / non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) |

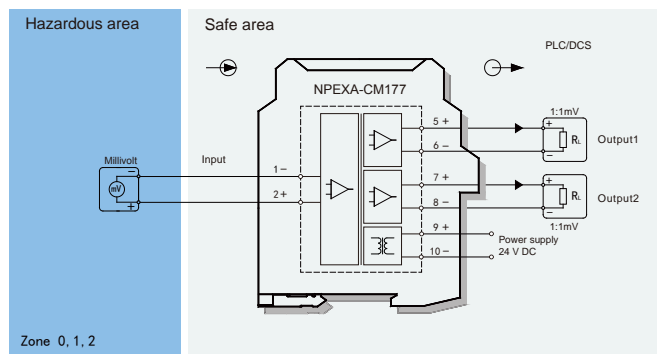
DIP switch settings

S1 and S2 cannot be set to ON at the same time

| DIP Switch | | Output |
|------------|-----|------------------------------|
| S1 | S2 | (Input is disconnected) |
| ON | OFF | < -100mV |
| OFF | ON | > 100mV |
| OFF | OFF | The output follows the input |



Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2):

Uo=5V, Io=15.3mA, Po=19.1mW

II C : Co=70μF, Lo=92mH

II B : Co=70μF, Lo=276mH

II A : Co=700μF, Lo=736mH

TC Isolated Safety Barrier

NPEXA-C171H

Single input, double output

Input: TC

Output: 1:1 mV, 4 ~ 20 mA



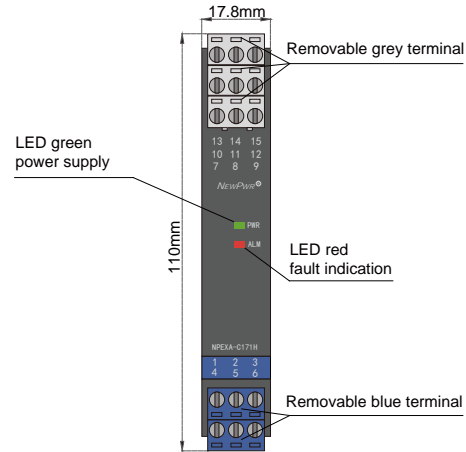
Temperature input safety barrier, it converts the thermocouple signals from a hazardous area into 1:1mV and current signals to a safe area by isolation. It has external cold junction compensation terminals. It needs an independent power supply. The input, output, and power supply are galvanically isolated from each other. You can use PC or handheld programmer to modify parameters.

Parameters

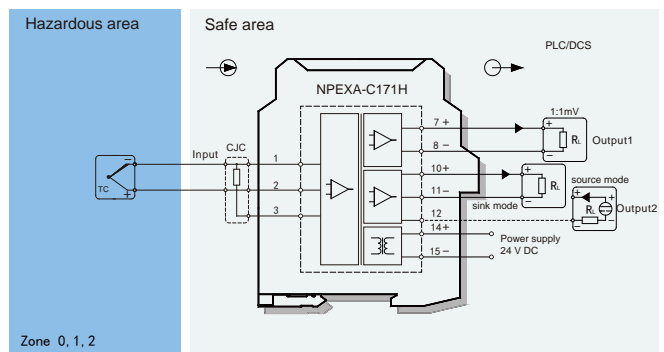
- Power supply: 18V DC ~ 60V DC (Reverse power protection)
- Power dissipation: 1.2W
- Input signal: 0mV ~ 100mV
- Output signal: Output1: 1:1 mV
Output2: 4 ~ 20mA (sink/source)
- Load resistance: Output1: $R_L \geq 10k\Omega$
Output2: $R_L \leq 550\Omega$ (source)
 $R_L < [(U-3)/0.02]\Omega$ (sink); U: Loop power supply
- Temperature drift: 30ppm/°C
- Response time: $\leq 500ms$
- Electromagnetic compatibility: Accordance to IEC 61326-3-1
- Dielectric strength: $\geq 3000V$ AC (intrinsically safe side / non-intrinsically safe side)
 $\geq 1500V$ AC (Power supply /non-intrinsically safe side)
- Insulation resistance: $\geq 100M\Omega$ (Input /Output/Power supply)
- Operation temperature: -20°C ~ +60°C
- Storage temperature: -40°C ~ +80°C
- Dimension: 17.8mm (W) × 110mm (H) × 117mm (D)
- Output states : Whatever input fault status (except breakage), the output follows the input within measuring range. And the maximum 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 minimum output value may be 0mA, the maximum output value would not exceed 22mA)

Range and Conversion accuracy list

| Type | Range | Min.span/Accuracy | |
|------|------------------|----------------------------|---------------------------------------|
| K | -200°C ~ +1372°C | < 300°C, $\pm 0.3^\circ C$ | $\geq 300^\circ C$, $\pm 0.1\%$ F.S. |
| E | -100°C ~ +1000°C | < 300°C, $\pm 0.3^\circ C$ | $\geq 300^\circ C$, $\pm 0.1\%$ F.S. |
| J | -100°C ~ +1200°C | < 300°C, $\pm 0.3^\circ C$ | $\geq 300^\circ C$, $\pm 0.1\%$ F.S. |
| N | -200°C ~ +1300°C | < 300°C, $\pm 0.3^\circ C$ | $\geq 300^\circ C$, $\pm 0.1\%$ F.S. |
| S | -50°C ~ +1768°C | < 500°C, $\pm 0.5^\circ C$ | $\geq 500^\circ C$, $\pm 0.1\%$ F.S. |
| R | -50°C ~ +1768°C | < 500°C, $\pm 0.5^\circ C$ | $\geq 500^\circ C$, $\pm 0.1\%$ F.S. |
| T | -20°C ~ +400°C | < 300°C, $\pm 0.3^\circ C$ | $\geq 300^\circ C$, $\pm 0.1\%$ F.S. |
| B | +400°C ~ +1820°C | < 500°C, $\pm 0.5^\circ C$ | $\geq 500^\circ C$, $\pm 0.1\%$ F.S. |



Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2):

$U_o=8.7V$, $I_o=33mA$, $P_o=72mW$

II C : $C_o=3.58\mu F$, $L_o=21mH$

II B : $C_o=35\mu F$, $L_o=63mH$

II A : $C_o=700\mu F$, $L_o=168mH$

Model rules

NPEXA-C17 H

PB : BUS powered
Default: Terminals powered

The first output signal^{note1}

note1 : output signal

| Number | Output signal |
|--------|---------------|
| 1 | 4~20mA |
| 2 | 1~5V |
| 3 | 0~10mA |
| 4 | 0~5V |
| 5 | 0~10V |
| 6 | 0~20mA |

NPEXA-C11L

Single input, single output

Input: TC

Output: 4 ~ 20 mA

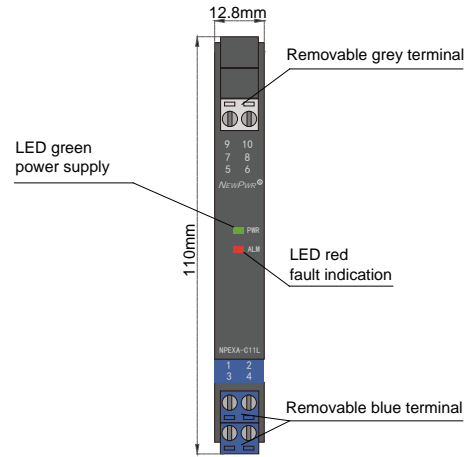
Temperature input safety barrier, it converts the thermocouple signals from a hazardous area into current signals to a safe area by isolation. It has loop powered. You can use PC or handheld programmer to modify parameters.

Parameters

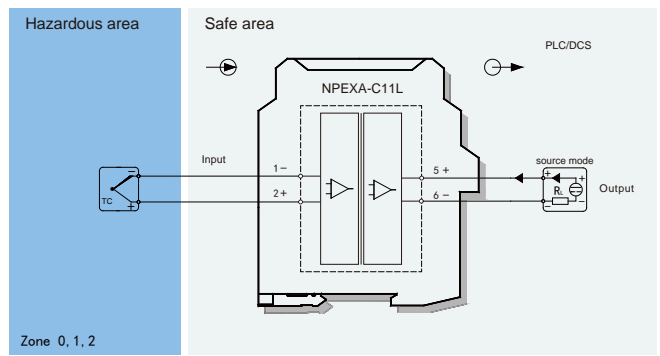
| | |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Loop Powered: | 12V DC ~ 30V DC (Reverse power protection) |
| Input signal: | K, E, S, B, J, T, R, N, etc |
| Output signal: | 4 ~ 20mA |
| Load resistance: | $R_L < [(U-12)/0.02]\Omega$; U is loop powered voltage |
| Compensation accuracy: | 1°C (Temperature compensation range: -20°C ~ +60°C) |
| Temperature drift: | 30ppm/°C |
| Response time: | ≤ 500ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) |
| Output states: | Whatever input fault status (except breakage, the output is 3.5mA), the output follows the input within measuring range. And the maximum value would not exceed 22mA, the maximum output value would not less than 3.5mA |

Range and Conversion accuracy list

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2,):

Uo=5.0V, Io=2.5mA, Po=3.2mW

II C : Co=90μF, Lo=100mH

II B : Co=700μF, Lo=320mH

II A : Co=700μF, Lo=800mH

TC Isolated Safety Barrier

NPEXA-C11A2

Single input, three output

Input: TC
Output: 4 ~ 20 mA , relay



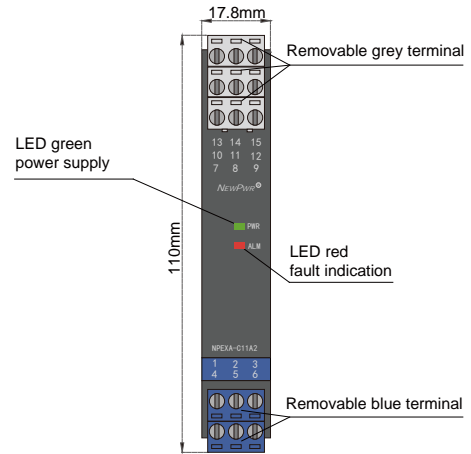
Temperature input safety barrier, it converts the thermocouple signals from a hazardous area into current signals to a safe area by isolation, two relay alarm output. It has external cold junction compensation terminals. It needs an independent power supply. The input, output, and power supply are galvanically isolated from each other. A self-test feature is also available on this device. You can use PC or handheld programmer to modify parameters.

Parameters

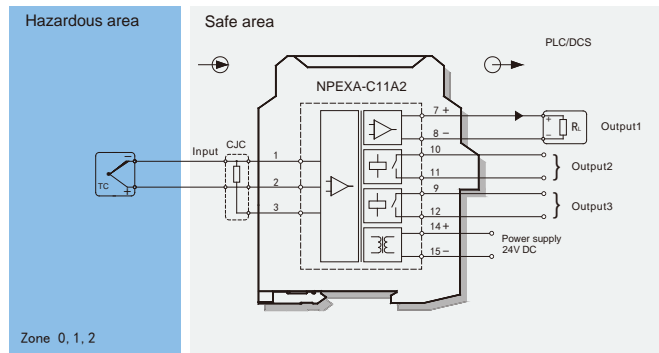
- Power supply: 18V DC ~ 60V DC (Reverse power protection)
- Power dissipation: 1.5W
- Input signal: K, E, S, B, J, T, R, N, etc
- Output signal: Output1: 4 ~ 20mA
Output2, Output3: relay contact (alarm value, hysteresis and delay time can be set)
- Load resistance: $R_L \leq 550\Omega$
- Load capacity: 250VAC/2A, 30VDC/2A
- Compensation accuracy: 1°C (Temperature compensation range: -20°C ~ +60°C)
- Temperature drift: 30ppm/°C
- Response time: $\leq 500\text{ms}$
- Electromagnetic compatibility: IEC 61326-3-1
- Dielectric strength: $\geq 3000\text{V AC}$ (intrinsically safe side / non-intrinsically safe side)
 $\geq 1500\text{V AC}$ (Power supply /non-intrinsically safe side)
- Insulation resistance: $\geq 100\text{M}\Omega$ (Input /Output/Power supply)
- Operation temperature: -20°C ~ +60°C
- Storage temperature: -40°C ~ +80°C
- Dimension: 17.8mm (W) × 110mm (H) × 117mm (D)
- Output states: Whatever input fault status (except breakage), the output follows the input within measuring range. And the maximum 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 minimum output value may be 0mA, the maximum output value would not exceed 22mA)

Range and Conversion accuracy list

| Type | Range | Min.span/Accuracy | |
|------|------------------|----------------------------------|---------------------------------------------|
| K | -200°C ~ +1372°C | < 300°C, $\pm 0.3^\circ\text{C}$ | $\geq 300^\circ\text{C}$, $\pm 0.1\%$ F.S. |
| E | -100°C ~ +1000°C | < 300°C, $\pm 0.3^\circ\text{C}$ | $\geq 300^\circ\text{C}$, $\pm 0.1\%$ F.S. |
| J | -100°C ~ +1200°C | < 300°C, $\pm 0.3^\circ\text{C}$ | $\geq 300^\circ\text{C}$, $\pm 0.1\%$ F.S. |
| N | -200°C ~ +1300°C | < 300°C, $\pm 0.3^\circ\text{C}$ | $\geq 300^\circ\text{C}$, $\pm 0.1\%$ F.S. |
| S | -50°C ~ +1768°C | < 500°C, $\pm 0.5^\circ\text{C}$ | $\geq 500^\circ\text{C}$, $\pm 0.1\%$ F.S. |
| R | -50°C ~ +1768°C | < 500°C, $\pm 0.5^\circ\text{C}$ | $\geq 500^\circ\text{C}$, $\pm 0.1\%$ F.S. |
| T | -20°C ~ +400°C | < 300°C, $\pm 0.3^\circ\text{C}$ | $\geq 300^\circ\text{C}$, $\pm 0.1\%$ F.S. |
| B | +400°C ~ +1820°C | < 500°C, $\pm 0.5^\circ\text{C}$ | $\geq 500^\circ\text{C}$, $\pm 0.1\%$ F.S. |



Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2):

$U_o=10.5\text{V}$, $I_o=1\text{mA}$, $P_o=3\text{mW}$

II C : $C_o=1.61\mu\text{F}$, $L_o=700\text{mH}$

II B : $C_o=11.7\mu\text{F}$, $L_o=700\text{mH}$

II A : $C_o=52\mu\text{F}$, $L_o=700\text{mH}$

Model rules

NPEXA-C1 A2

PB : BUS powered
Default: Terminals powered

The first output signal^{note1}

note1 : output signal

| Number | Output signal |
|--------|---------------|
| 1 | 4~20mA |
| 2 | 1~5V |
| 3 | 0~10mA |
| 4 | 0~5V |
| 5 | 0~10V |
| 6 | 0~20mA |

NPEXA-C21

Single input, single output

NPEXA-C211

Single input, double output

Input: RTD

Output: 4 ~ 20 mA

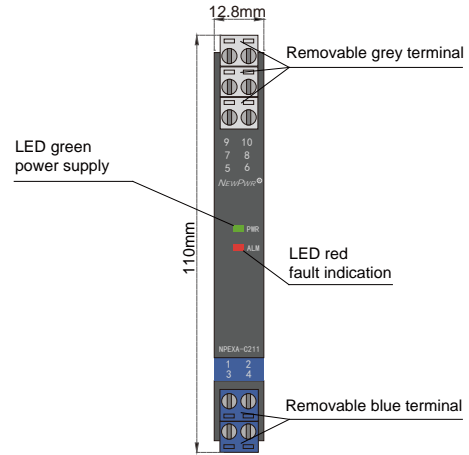
Temperature input safety barrier, it converts the thermal resistance signals from a hazardous area into current signals to a safe area by isolation. It needs an independent power supply. The input, output, and power supply are galvanically isolated from each other. A self-test feature is also available on this device. You can use PC or handheld programmer to modify parameters.

Parameters

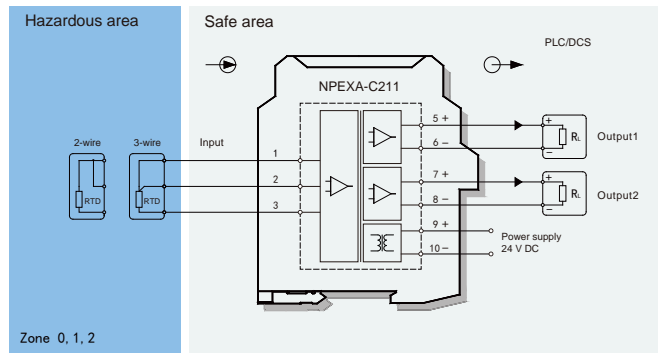
| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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: | RL ≤ 550Ω |
| Temperature drift: | 30ppm/°C |
| Response time: | ≤ 500ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply / non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) |
| Output states: | Whatever input fault status (except breakage), the output follows the input within measuring range. And the maximum 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 minimum output value may be 0mA, the maximum output value would not exceed 22mA) |

Range and Conversion accuracy list

| Type | Range | Min.span/Accuracy | |
|-------|-----------------|-------------------|---------------------|
| PT100 | -200°C ~ +850°C | < 100°C, ±0.1°C | ≥ 100°C, ±0.1% F.S. |
| Cu50 | -50°C ~ +150°C | < 100°C, ±0.1°C | ≥ 100°C, ±0.1% F.S. |
| Cu100 | -50°C ~ +150°C | < 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)
Explosive-proof grade: [Ex ia Ga] II C
Um: 250V
Certified parameters (Terminals 1, 2, 3):
Uo=8.7V, Io=33mA, Po=72mW
II C : Co=5μF, Lo=28mH
II B : Co=35μF, Lo=84mH
II A : Co=700μF, Lo=224mH

Model rules

NPEXA-C2
 PB : BUS powered
 Default: Terminals powered
 The second output signal^[note1]
 Default: null
 The first output signal^[note1]

note1 : output signal

| Number | Output signal |
|--------|---------------|
| 1 | 4~20mA |
| 2 | 1~5V |
| 3 | 0~10mA |
| 4 | 0~5V |
| 5 | 0~10V |
| 6 | 0~20mA |

RTD Isolated Safety Barrier

NPEXA-C2D11

double input, double output

Input: RTD

Output: 4 ~ 20 mA



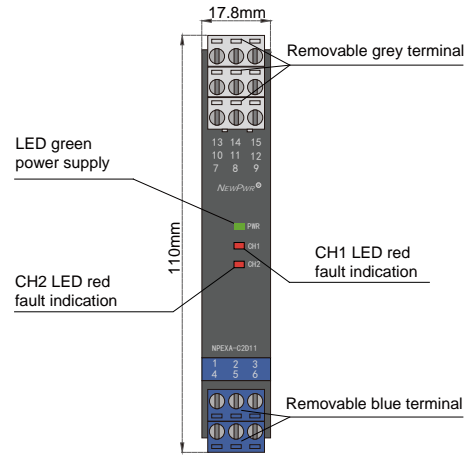
Temperature input safety barrier, it converts the thermal resistance signals from a hazardous area into current signals to a safe area by isolation. It needs an independent power supply. The input, output, and power supply are galvanically isolated from each other. A self-test feature is also available on this device. You can use PC or handheld programmer to modify parameters.

Parameters

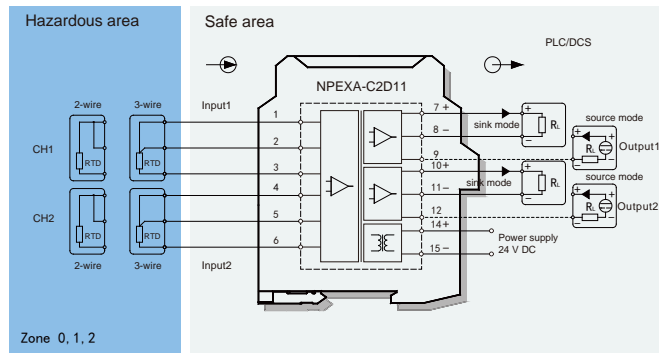
- Power supply: 18V DC ~ 60V DC (Reverse power protection)
- Power dissipation: 1.2W
- Input signal: Pt100, Cu100, Cu50, BA1, BA2, etc
- Line resistance: $\leq 20\Omega$ per line (RTD)
- Output signal: 4 ~ 20mA (sink/source)
- Load resistance: source: $R_L \leq 550\Omega$ sink: $R_L < [(U-3)/0.02]\Omega$;
U: Loop power supply
- Temperature drift: 30ppm/ $^{\circ}\text{C}$
- Response time: $\leq 500\text{ms}$
- Electromagnetic compatibility: IEC 61326-3-1
- Dielectric strength: $\geq 3000\text{V AC}$ (intrinsically safe side / non-intrinsically safe side)
 $\geq 1500\text{V AC}$ (Power supply /non-intrinsically safe side)
- Insulation resistance: $\geq 100\text{M}\Omega$ (Input /Output/Power supply)
- Operation temperature: $-20^{\circ}\text{C} \sim +60^{\circ}\text{C}$
- Storage temperature: $-40^{\circ}\text{C} \sim +80^{\circ}\text{C}$
- Dimension: 17.8mm (W) \times 110mm (H) \times 117mm (D)
- Output states: Whatever input fault status (except breakage), the output follows the input within measuring range. And the maximum 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 minimum output value may be 0mA, the maximum output value would not exceed 22mA)

Range and Conversion accuracy list

| Type | Range | Min.span/Accuracy | |
|-------|--------------------------------------------------|--------------------------------------------------|----------------------------------------------------|
| PT100 | $-200^{\circ}\text{C} \sim +850^{\circ}\text{C}$ | $< 100^{\circ}\text{C}, \pm 0.1^{\circ}\text{C}$ | $\geq 100^{\circ}\text{C}, \pm 0.1\% \text{ F.S.}$ |
| Cu50 | $-50^{\circ}\text{C} \sim +150^{\circ}\text{C}$ | $< 100^{\circ}\text{C}, \pm 0.1^{\circ}\text{C}$ | $\geq 100^{\circ}\text{C}, \pm 0.1\% \text{ F.S.}$ |
| Cu100 | $-50^{\circ}\text{C} \sim +150^{\circ}\text{C}$ | $< 100^{\circ}\text{C}, \pm 0.1^{\circ}\text{C}$ | $\geq 100^{\circ}\text{C}, \pm 0.1\% \text{ F.S.}$ |



Wiring diagram



Explosive-proof parameters

- National Supervision and Inspection Center for Explosion Protection and Safety of Instrumentation (NEPSI)
- Explosive-proof grade: [Ex ia Ga] II C
- Um: 250V
- Certified parameters (Terminals 1, 2, 3; 4, 5, 6):
 $U_o=8.7\text{V}$, $I_o=33\text{mA}$, $P_o=72\text{mW}$
- II C : $C_o=5\mu\text{F}$, $L_o=28\text{mH}$
- II B : $C_o=35\mu\text{F}$, $L_o=84\text{mH}$
- II A : $C_o=700\mu\text{F}$, $L_o=224\text{mH}$

Model rules

NPEXA-C2D

- PB : BUS powered
- Default: Terminals powered
- The second output signal^{note1}
- The first output signal^{note1}

note1 : output signal

| Number | Output signal |
|--------|---------------|
| 1 | 4~20mA |
| 2 | 1~5V |
| 3 | 0~10mA |
| 4 | 0~5V |
| 5 | 0~10V |
| 6 | 0~20mA |

NPEXA-C27

Single input, single output

NPEXA-C277

Single input, double output

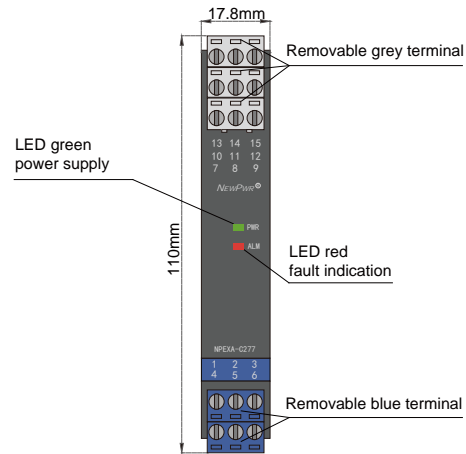
Input: Resistance

Output: 1:1 Resistance

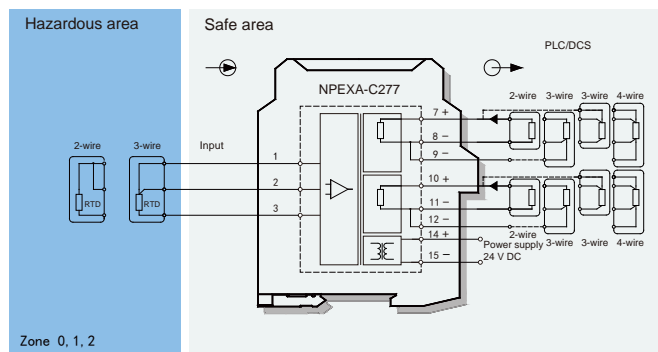
Resistance input safety barrier, it converts the resistance signals from a hazardous area into 1:1 resistance signals to a safe area by isolation. The input, output, and power supply are galvanically isolated from each other.

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 0.5mA ~ 10mA ± 0.1%F.S. or < 0.2Ω (select max) |
| Temperature drift: | 30ppm/°C |
| Response time: | ≤ 500ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply / non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 17.8mm (W) × 110mm (H) × 117mm (D) |
| Output states: | Whatever input fault status (except breakage, breakage output about 16Ω), the output follows the input within measuring range. the maximum output value would not exceed 430Ω) |



Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 3; 2, 3):

Uo=8.7V, Io=33mA, Po=72mW

II C : Co=5μF, Lo=3mH

II B : Co=35μF, Lo=9mH

II A : Co=700μF, Lo=24mH

RTD Isolated Safety Barrier

NPEXA-C271

Single input, double output

Input: RTD

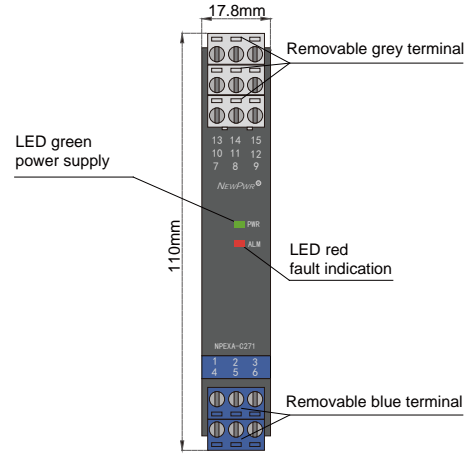
Output: 1:1 Resistance, 4~20mA



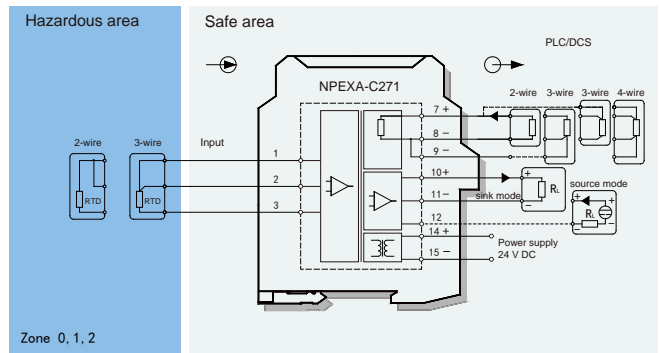
Temperature input safety barrier, it converts the thermal resistance signals from a hazardous area into 1:1 resistance and current signals to a safe area by isolation. It needs an independent power supply. The input, output, and power supply are galvanically isolated from each other. You can use PC or handheld programmer to modify parameters.

Parameters

- Power supply: 18V DC ~ 60V DC (Reverse power protection)
- Power dissipation: 1 W
- Input signal: 18Ω ~ 400Ω
- Line resistance: ≤ 20Ω per line (RTD)
- Output signal: Output1: 1:1 resistance
Output2: 4 ~ 20mA (sink/source)
- Load resistance: source: $R_L \leq 550\Omega$ sink: $R_L < [(U-3)/0.02]\Omega$;
U: Loop power supply
- Exciting current: 0.1mA ~ 10mA
- Conversion accuracy: (25°C±2°C)
- Output1: excitation current accuracy
0.5mA ~ 10mA ± 0.1% F.S. or < 0.2Ω (select max)
- Output2: range accuracy
 - < 100°C ±0.1°C
 - ≥ 100°C ±0.1% F.S.
- Temperature drift: 30ppm/°C
- Response time: ≤ 500ms
- Electromagnetic compatibility: IEC 61326-3-1
- Dielectric strength: ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side)
≥ 1500V AC (Power supply / non-intrinsically safe side)
- Insulation resistance: ≥ 100MΩ (Input /Output/Power supply)
- Operation temperature: -20°C ~ +60°C
- Storage temperature: -40°C ~ +80°C
- Dimension: 17.8mm (W) × 110mm (H) × 117mm (D)
- Output states: Whatever input fault status (except breakage, breakage output about 16Ω, breakage output2 about 0V/mA), the output follows the input within measuring range. And output1 the maximum value would not exceed the upper limit 430Ω, output2 the maximum 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 minimum output value may be 0mA, the maximum output value would not exceed 22mA)



Wiring diagram



Explosive-proof parameters

China National Quality Supervision and Test Centre for Explosion Protected Electrical Products(CQST)
Explosive-proof grade: [Ex ia Ga] II C
Um: 250V
Certified parameters (Terminals 1, 2, 3):
 $U_o=8.7V$, $I_o=33mA$, $P_o=72mW$
 II C : $C_o=3.9\mu F$, $L_o=22mH$
 II B : $C_o=35\mu F$, $L_o=66mH$
 II A : $C_o=700\mu F$, $L_o=176mH$

Model rules

NPEXA-C271
 PB : BUS powered
 Default: Terminals powered
 The second output signal^{note1}

note1 : output signal

| Number | Output signal |
|--------|---------------|
| 1 | 4~20mA |
| 2 | 1~5V |
| 3 | 0~10mA |
| 4 | 0~5V |
| 5 | 0~10V |
| 6 | 0~20mA |

NPEXA-C21T1

Single input, double output

Input: RTD
Output: 4~20mA, RS485

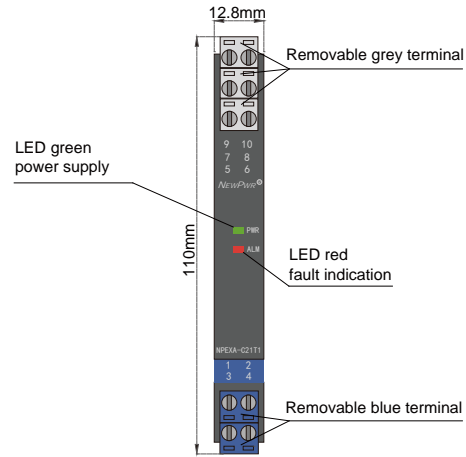
Temperature input safety barrier, it converts the resistance signals from a hazardous area into current and RS485 signals to a safe area by isolation. It needs an independent power supply. The input, output, and power supply are galvanically isolated from each other. You can use PC or handheld programmer to modify parameters.

Parameters

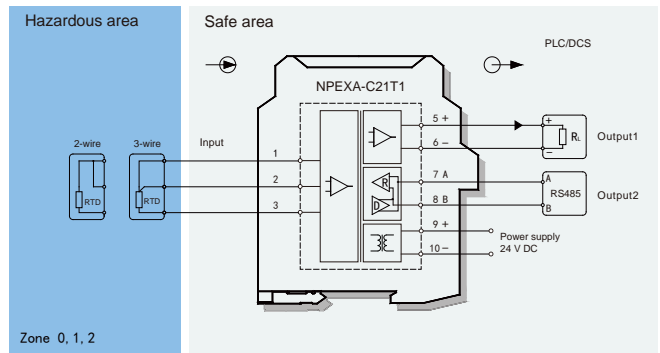
| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60V DC (Reverse power protection) |
| Power dissipation: | 0.9W |
| Input signal: | Pt100, Cu100, Cu50, BA1, BA2, etc |
| Line resistance: | ≤ 20Ω per line (RTD) |
| Output signal: | Output1: 4 ~ 20mA Output2: RS485 |
| Load resistance: | RL ≤ 550Ω |
| Communication parameters: | MODBUS-RTU, distance ≤ 1000m |
| Baud rate: | ≤ 19.2kbps |
| Temperature drift: | 40ppm/°C |
| Response time: | ≤ 500ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply /non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) |
| Output states: | Whatever input fault status (except breakage), the output follows the input within measuring range. And the maximum 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 minimum output value may be 0mA, the maximum output value would not exceed 22mA) |

Range and Conversion accuracy list

| Type | Range | Min.span/Accuracy | |
|-------|-----------------|-------------------|---------------------|
| PT100 | -200°C ~ +850°C | < 100°C, ±0.1°C | ≥ 100°C, ±0.1% F.S. |
| Cu50 | -50°C ~ +150°C | < 100°C, ±0.1°C | ≥ 100°C, ±0.1% F.S. |
| Cu100 | -50°C ~ +150°C | < 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)
Explosive-proof grade: [Ex ia Ga] II C
Um: 250V
Certified parameters (Terminals 1, 2, 3):
Uo=8.7V, Io=33mA, Po=72mW
II C : Co=5μF, Lo=28mH
II B : Co=35μF, Lo=84mH
II A : Co=700μF, Lo=224mH

Model rules

NPEXA-C2 T1
PB : BUS powered
Default: Terminals powered
The first output signal^{note1}

note1 : output signal

| Number | Output signal |
|--------|---------------|
| 1 | 4~20mA |
| 2 | 1~5V |
| 3 | 0~10mA |
| 4 | 0~5V |
| 5 | 0~10V |
| 6 | 0~20mA |

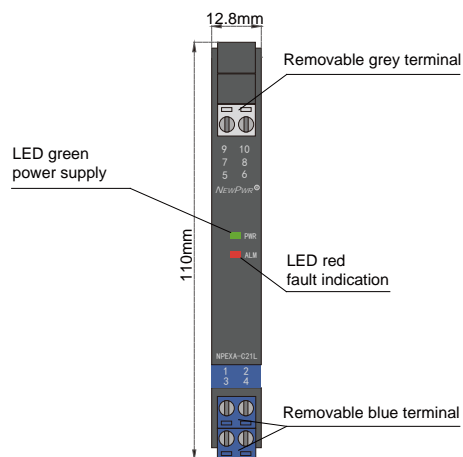
RTD (loop powered)

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. You can use PC or handheld programmer to modify parameters.



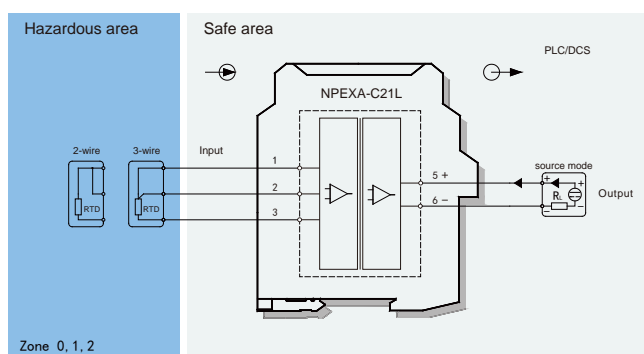
Parameters

| | |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Loop Powered: | 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: | $R_L < [(U-12)/0.02]\Omega$; U is loop powered voltage |
| Temperature drift: | 30ppm/°C |
| Response time: | ≤ 500ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) |
| Output states: | Whatever input fault status (except breakage, the output is 3.5mA), the output follows the input within measuring range. And the maximum value would not exceed 22mA, the maximum output value would not less than 3.5mA |

Range and Conversion accuracy list

| Type | Range | Min.span/Accuracy | |
|-------|-----------------|-------------------|---------------------|
| PT100 | -200°C ~ +850°C | < 100°C, ±0.1°C | ≥ 100°C, ±0.1% F.S. |
| Cu50 | -50°C ~ +150°C | < 100°C, ±0.1°C | ≥ 100°C, ±0.1% F.S. |
| Cu100 | -50°C ~ +150°C | < 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)

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2, 3):

Uo=6.2V, Io=22mA, Po=35mW

II C : Co=30μF, Lo=40mH

II B : Co=700μF, Lo=120mH

II A : Co=700μF, Lo=320mH

NPEXA-C21A2

Single input, three output

Input: RTD

Output: 4 ~ 20 mA , relay

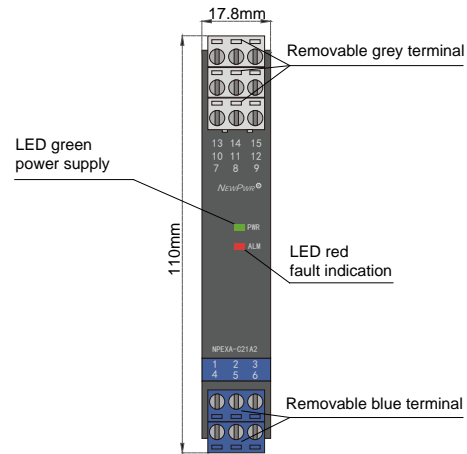
Temperature input safety barrier, it converts the resistance signals from a hazardous area into current signals to a safe area by isolation, two relay alarm output. It needs an independent power supply. The input, output, and power supply are galvanically isolated from each other. A self-test feature is also available on this device. You can use PC or handheld programmer to modify parameters.

Parameters

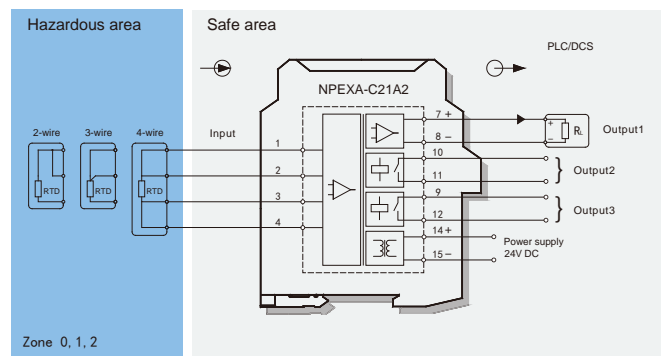
| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60V DC (Reverse power protection) |
| Power dissipation: | 1.5W |
| Input signal: | Pt100, Cu100, Cu50, BA1, BA2, etc |
| Line resistance: | ≤ 20Ω per line (RTD) |
| Output signal: | Output1: 4 ~ 20mA Output2, Output3: relay contact (alarm value, hysteresis and delay time can be set) |
| Load resistance: | $R_L \leq 550\Omega$ |
| Load capacity: | 250VAC/2A, 30VDC/2A |
| Temperature drift: | 30ppm/°C |
| Response time: | ≤ 1s |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply /non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 17.8mm (W) × 110mm (H) × 117mm (D) |
| Output states: | Whatever input fault status (except breakage), the output follows the input within measuring range. And the maximum 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 minimum output value may be 0mA, the maximum output value would not exceed 22mA) |

Range and Conversion accuracy list

| Type | Range | Min.span/Accuracy | |
|-------|-----------------|-------------------|---------------------|
| PT100 | -200°C ~ +850°C | < 100°C, ±0.1°C | ≥ 100°C, ±0.1% F.S. |
| Cu50 | -50°C ~ +150°C | < 100°C, ±0.1°C | ≥ 100°C, ±0.1% F.S. |
| Cu100 | -50°C ~ +150°C | < 100°C, ±0.1°C | ≥ 100°C, ±0.1% F.S. |



Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2, 3, 4):

$U_o=10.5V$, $I_o=38mA$, $P_o=100mW$

II C : $C_o=0.65\mu F$, $L_o=14mH$

II B : $C_o=11.7\mu F$, $L_o=42mH$

II A : $C_o=52\mu F$, $L_o=112mH$

Model rules

NPEXA-C2 A2

PB : BUS powered
Default: Terminals powered

The first output signal^{note1}

note1 : output signal

| Number | Output signal |
|--------|---------------|
| 1 | 4~20mA |
| 2 | 1~5V |
| 3 | 0~10mA |
| 4 | 0~5V |
| 5 | 0~10V |
| 6 | 0~20mA |

AI Isolated Safety Barrier

NPEXA-CM31

Single input, single output

NPEXA-CM311

Single input, double output

Input: 4 ~ 20 mA

Output: 4 ~ 20 mA

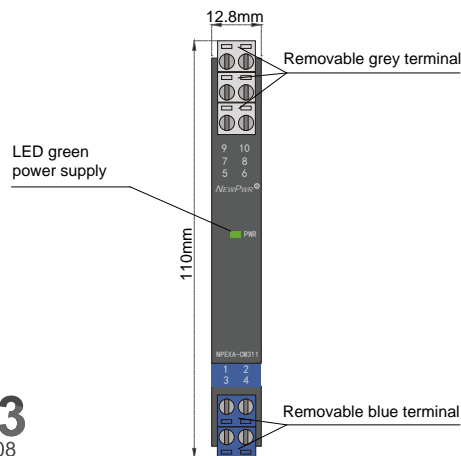
This isolated safety barrier detects loop current and converts it from a hazardous area into current or voltage signals to a safe area by isolation, and also provides transmitters with power in the hazardous area. It allows transmission of HART communication signals. The input, output, and power supply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



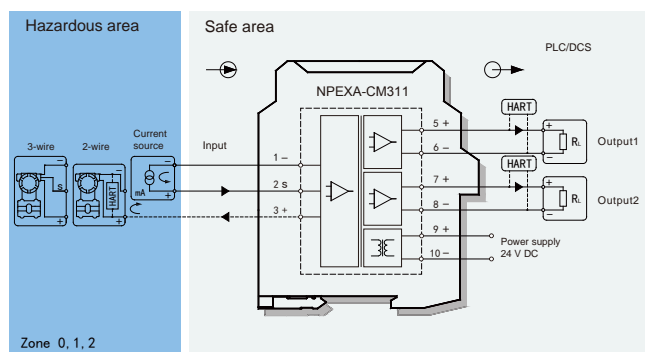
Parameters

| | |
|--------------------------------|------------------------------------------------------------------------------------------|
| 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 at 20mA |
| Output signal: | 4 ~ 20mA, HART |
| Load resistance: | $R_L \leq 550\Omega$ |
| Accuracy: | 0.1%F.S. |
| Temperature drift: | 30ppm/°C |
| Response time: | ≤ 2ms |
| Electromagnetic compatibility: | IEC 61326-3-1 ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) |
| Dielectric strength: | non-intrinsically safe side ≥ 1500V AC (Power supply /non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) |
| Safe state: | The output signal is less than 3.6mA or greater than 21.5mA |

SIL3
IEC 61508



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)
Explosive-proof grade: [Ex ia Ga] II C
Um: 250V
Certified parameters (Terminals 1, 2):
Uo=5V
II C: Co=70μF
II B: Co=700μF
II A: Co=700μF
Certified parameters (Terminals 2, 3):
Uo=28V, Io=93mA, Po=651mW
II C: Co=0.058μF, Lo=2.8mH
II B: Co=0.45μF, Lo=8.4mH
II A: Co=1.50μF, Lo=22.4mH

Other ordering information

| Type | Input | Output1 | Output2 | 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 |

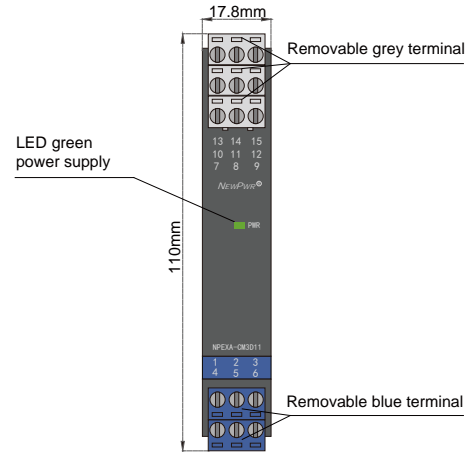
NPEXA-CM3D11

double input, double output

Input: 4 ~ 20 mA

Output: 4 ~ 20 mA

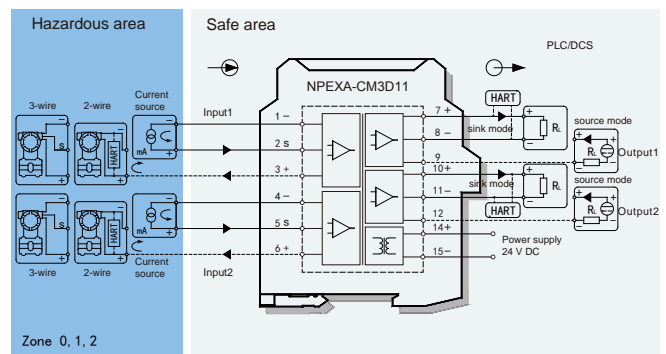
This isolated safety barrier detects loop current and converts it from a hazardous area into current or voltage signals to a safe area by isolation, and also provides transmitters with power in the hazardous area. It allows transmission of HART communication signals. The input, output, and power supply 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 ≤ 26V voltage: ≥ 15.5V at 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: | 30ppm/°C |
| Response time: | ≤ 2ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / ≥ 1500V AC (Power supply /non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 17.8mm (W) × 110mm (H) × 117mm (D) |

Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um=250V

Certified parameters (Terminals 1, 2;4, 5):

Uo=5V

II C: Co=70μF

II B: Co=700μF

II A: Co=700μF

Certified parameters (Terminals 2, 3;5, 6):

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

II C: Co=0.058μF, Lo=2.8mH

II B: Co=0.45μF, Lo=8.4mH

II A: Co=1.50μF, Lo=22.4mH

Other ordering information

| Type | Input | Output1 | Output2 | 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 ~ 20 mA

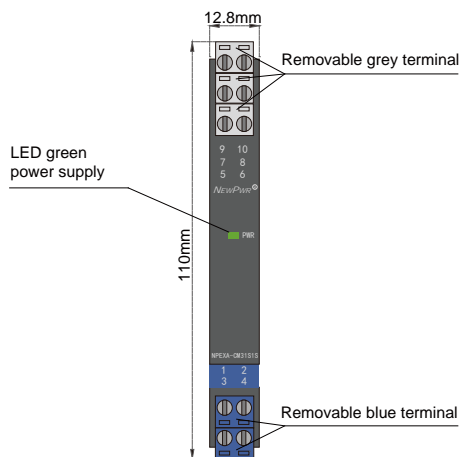
Output: 4 ~ 20 mA (sink mode)

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 also provides transmitters 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.

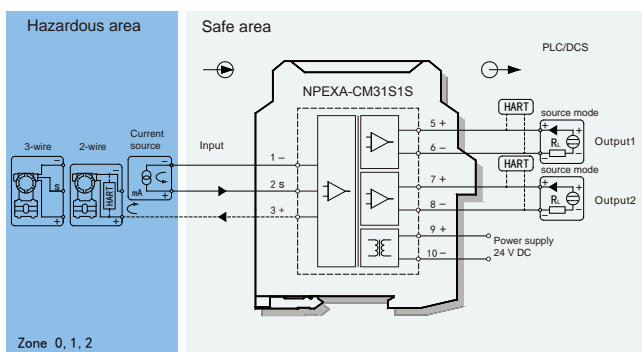


Parameters

| | |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| 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. 75Ω |
| Available voltage: | open-circuit voltage ≤ 26V voltage: ≥ 16V at 20mA |
| Output signal: | 4 ~ 20mA (Sink), HART |
| Load resistance: | $R_L < [(U-3)/0.02]\Omega$; U: Loop power supply |
| Accuracy: | 0.1%F.S. |
| Temperature drift: | 30ppm/°C |
| Response time: | ≤ 2ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply /non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) |



Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2):

Uo=5V

II C: Co=70μF

II B: Co=700μF

II A: Co=700μF

Certified parameters (Terminals 2, 3):

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

II C: Co=0.058μF, Lo=2.8mH

II B: Co=0.45μF, Lo=8.4mH

II A: Co=1.50μF, Lo=22.4mH

NPEXA-C31T1

Single input, double output

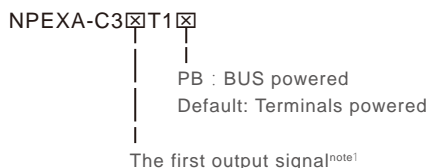
Input: 4 ~ 20 mA
Output: 4 ~ 20 mA, RS485

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 needs an independent power supply. The input, output, and power supply are galvanically isolated from each other. You can use PC or handheld programmer to modify parameters.

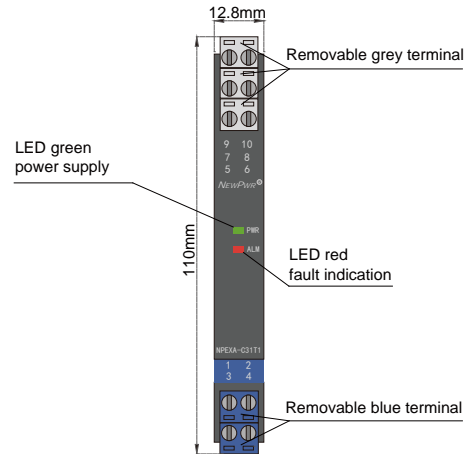
Parameters

| | |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 at 20mA |
| Output signal: | Output1: 4 ~ 20mA Output2: RS485 |
| Load resistance: | $R_L \leq 550\Omega$ |
| Communication parameters: | MODBUS-RTU, distance ≤ 1000m |
| Baud rate: | ≤ 19.2kbps |
| Accuracy: | 0.1%F.S. |
| Temperature drift: | 30ppm/°C |
| Response time: | ≤ 500ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply / non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) |
| Output states: | Whatever input fault status (except breakage or short circuit, the output is 0V/mA), the output follows the input within measuring range. And the maximum 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 minimum output value may be 0mA, the maximum output value would not exceed 22mA) |

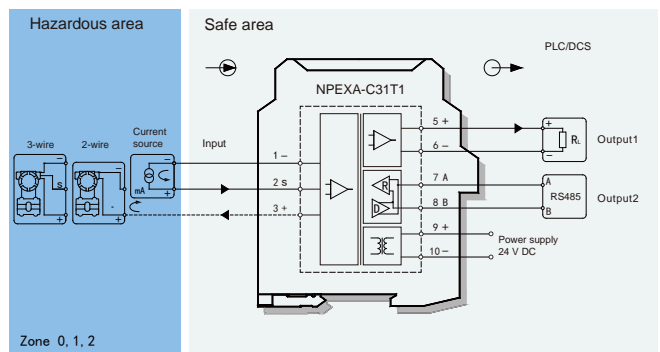
Model rules



note1 : output signal



Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2):

Uo=8.7V

II C: Co=5μF

II B: Co=35μF

II A: Co=700μF

Certified parameters (Terminals 1, 3):

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

II C: Co=0.07μF, Lo=4.2mH

II B: Co=0.63μF, Lo=12.6mH

II A: Co=2.13μF, Lo=33.6mH

| Number | Output signal |
|--------|---------------|
| 1 | 4~20mA |
| 2 | 1~5V |
| 3 | 0~10mA |
| 4 | 0~5V |
| 5 | 0~10V |
| 6 | 0~20mA |

AI (loop powered)

NPEXA-CM31L

Single input, single output

NPEXA-CM3D11L

double input, double output

Input: 4 ~ 20 mA

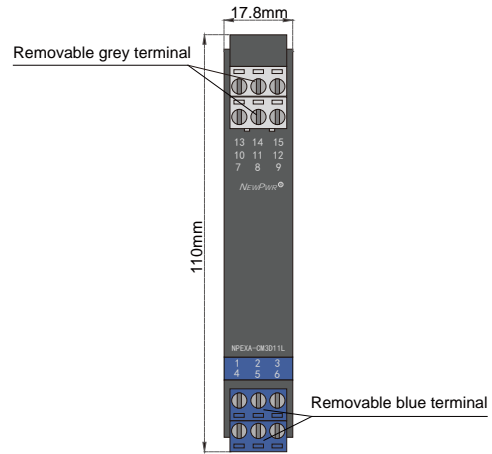
Output: 4 ~ 20 mA

This isolated safety barrier detects 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 are galvanically isolated from each other.

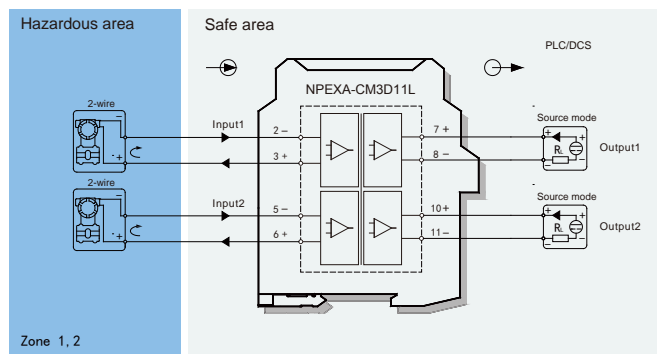


Parameters

| | |
|--------------------------------|---------------------------------------------------------------------------------------------------|
| Loop Powered: | 18 V DC ~ 30 V DC (Reverse power protection) |
| Input signal: | 4 ~ 20mA |
| Available voltage: | (U-6-R _{LxI})V, U ≤ 24V; (18-R _{LxI})V, U > 24V; U is loop powered voltage |
| Output signal: | 4 ~ 20 mA |
| Accuracy: | 0.4%F.S. |
| Temperature drift: | 0.01%F.S./°C |
| Response time: | ≤ 2ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 2500V AC (intrinsically safe side / non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 17.8mm (W) × 110mm (H) × 117mm (D) |



Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ib Gb] II C

Um: 250V

Certified parameters (Terminals 2, 3;5, 6):

U₀=23.1V, I₀=30.4mA, P₀=702.3mW

II C: Co=0.098μF, Lo=19.2mH

II B: Co=0.71μF, Lo=57.6mH

II A: Co=2.5μF, Lo=153.6mH

NPEXA-C31A2

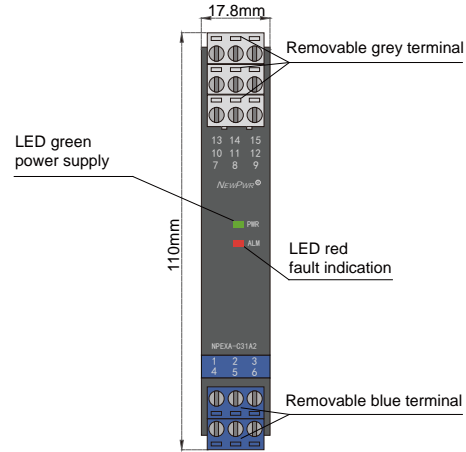
Single input, three output

Input: 4 ~ 20 mA
Output: 4 ~ 20 mA , relay

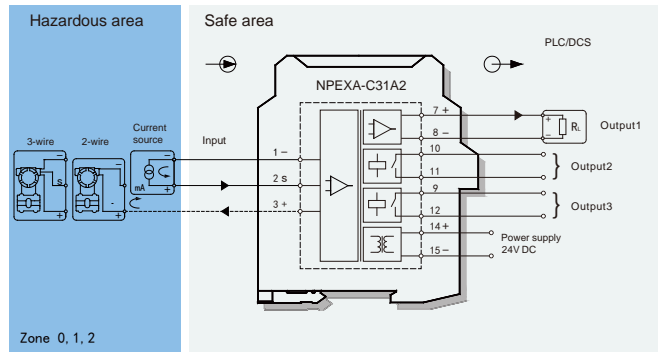
This isolated safety barrier detects loop current and converts it from a hazardous area into current/voltage signals to a safe area by isolation, two relay alarm output. It needs an independent power supply. The input, output, and power supply are galvanically isolated from each other. You can use PC or handheld programmer to modify parameters.

Parameters

| | |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60V DC (Reverse power protection) |
| Power dissipation: | 1.8W |
| Input signal: | 4 ~ 20mA |
| Input resistance: | approx. 100Ω |
| Available voltage: | open-circuit voltage ≤ 26V voltage: ≥ 16V at 20mA |
| Output signal: | Output1: 4 ~ 20mA Output2, Output3: relay contact (alarm value, hysteresis and delay time can be set) |
| Load resistance: | $R_L \leq 550\Omega$ |
| Load capacity: | 250VAC/2A, 30VDC/2A |
| Accuracy: | 0.1%F.S. |
| Temperature drift: | 30ppm/°C |
| Response time: | ≤ 500ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply /non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 17.8mm (W) × 110mm (H) × 117mm (D) |
| Output states: | Whatever input fault status (except breakage or short circuit, the output is 0V/mA), the output follows the input within measuring range. And the maximum 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 minimum output value may be 0mA, the maximum output value would not exceed 22mA) |



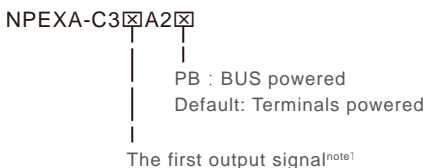
Wiring diagram



Explosive-proof parameters

China National Quality Supervision and Test Centre for Explosion Protected Electrical Products(CQST)
Explosive-proof grade: [Ex ia Ga] II C
Um: 250V
Certified parameters (Terminals 1, 2):
Uo=10.5V
II C: Co=1.61μF
II B: Co=11.7μF
II A: Co=52μF
Certified parameters (Terminals 1, 3):
Uo=28V, Io=93mA, Po=651mW
II C: Co=0.04μF, Lo=2.8mH
II B: Co=0.45μF, Lo=8.4mH
II A: Co=1.5μF, Lo=22.4mH

Model rules



note1 : output signal

| Number | Output signal |
|--------|---------------|
| 1 | 4~20mA |
| 2 | 1~5V |
| 3 | 0~10mA |
| 4 | 0~5V |
| 5 | 0~10V |
| 6 | 0~20mA |

AI Isolated Safety Barrier

NPEXA-KM31

Single input, single output

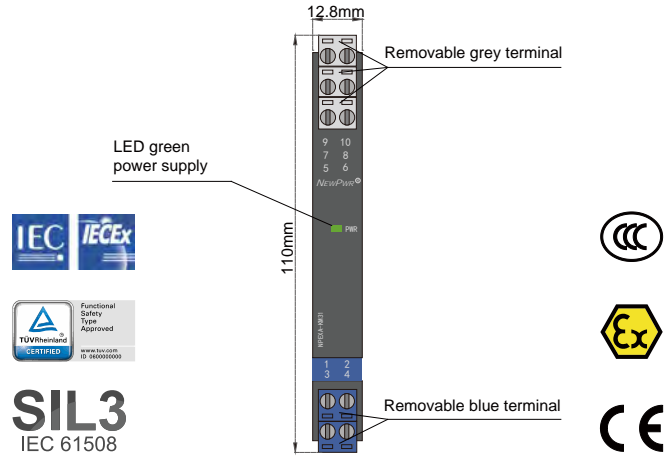
Input: 4 ~ 20 mA
Output: 4 ~ 20 mA

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 also provides transmitters 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.

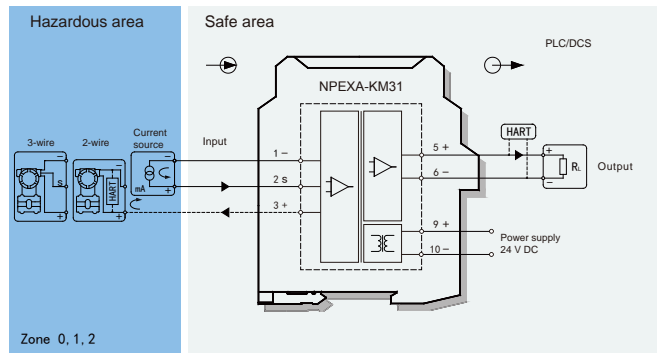


Parameters

| | |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 20V DC ~ 30V DC (Reverse power protection) |
| Power dissipation: | ≤ 1.2W |
| Input signal: | 4 ~ 20 mA, HART |
| Input resistance: | ≤ 75Ω |
| Available voltage: | open-circuit voltage ≤ 26V voltage: ≥ 16V at 20mA |
| Output signal: | 4 ~ 20mA, HART |
| Load resistance: | RL ≤ 550Ω |
| Accuracy: | 0.1%F.S. |
| Temperature drift: | ≤ 30ppm/°C |
| Response time: | ≤ 2ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply / non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) |
| Safe state: | 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) : SIL3, SC3 according to IEC 61508
Ex marking : EU: II (1) G [Ex ia Ga] II C
IECEX: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2):

Uo=5V, Io=0.8mA, Po=1mW

II C: Co=99.9μF, Lo=1H

II B: Co=999μF, Lo=1H

II A: Co=999μF, Lo=1H

Certified parameters (Terminals 2, 3):

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

II C: Co=0.083μF, Lo=4.2mH

II B: Co=0.65μF, Lo=12.6mH

II A: Co=2.15μF, Lo=33.6mH

NPEXB-CM31

single input, single output

Input: 4 ~ 20 mA

Output: 4 ~ 20 mA

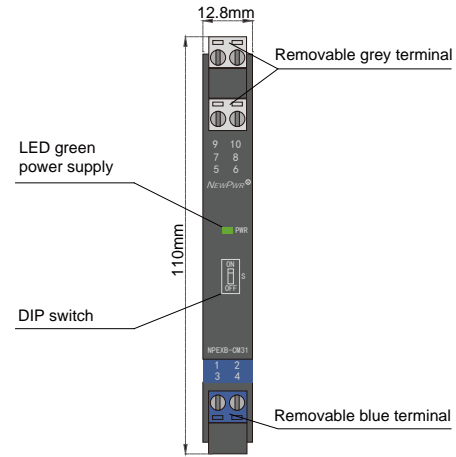
Accepts 4~20mA signal from safe area to drive executive mechanisms in hazardous area, It allows transmission of HART communication signals. The input, output, and power supply are galvanically isolated from each other. The LFD function of output short-circuit/ line-break can be closed by the DIP switch on the front side.

Parameters

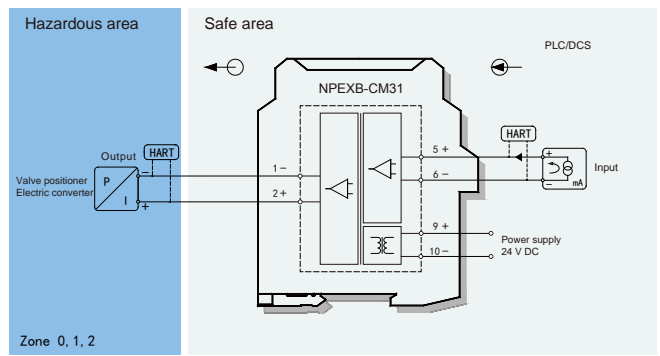
| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60V DC (Reverse power protection) |
| Power dissipation: | 1W |
| Input signal: | 4 ~ 20mA, HART |
| Output signal: | 4 ~ 20mA, HART |
| Load resistance: | 80Ω ~ 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: | 30ppm/°C |
| Response time: | ≤ 2ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) |

DIP switch settings

| Switch | State | ON | OFF |
|--------|-------|--------|---------|
| S | | LFD on | LFD off |



Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2):

Uo=27.3V, Io=92mA, Po=628mW

II C: Co=0.058μF, Lo=2.8mH

II B: Co=0.65μF, Lo=8.4mH

II A: Co=2.25μF, Lo=22.4mH

AO Isolated Safety Barrier

NPEXB-CM3D11

double input, double output

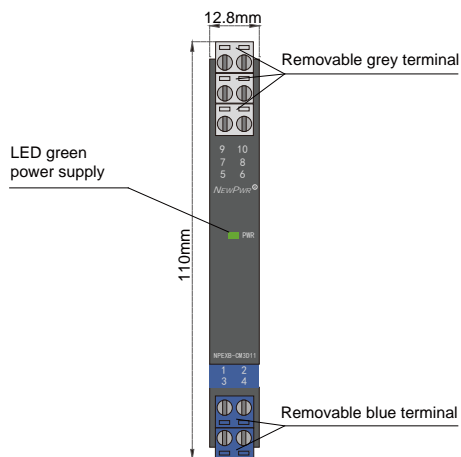
Input: 4 ~ 20 mA

Output: 4 ~ 20 mA

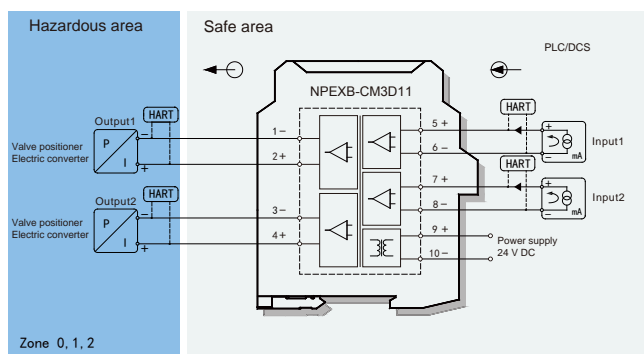
Accepts 4~20mA signal from safe area to drive executive mechanisms in hazardous area. It allows transmission of HART communication signals. The input, output, and power supply are galvanically isolated from each other.

Parameters

| | |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60V DC (Reverse power protection) |
| Power dissipation: | 2.2W |
| Input signal: | 4 ~ 20mA, HART |
| Output signal: | 4 ~ 20mA, HART |
| Load resistance: | $R_L \leq 800\Omega$ |
| Input voltage drop: | $\leq 1.2V$ |
| Accuracy: | 0.1%F.S. |
| Temperature drift: | 30ppm/°C |
| Response time: | $\leq 2ms$ |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | $\geq 3000V$ AC (intrinsically safe side / non-intrinsically safe side) $\geq 1500V$ AC (Power supply/non-intrinsically safe side) |
| Insulation resistance: | $\geq 100M\Omega$ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) |



Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2;3, 4):

Uo=27.3V, Io=92mA, Po=628mW

II C: Co=0.058μF, Lo=2.8mH

II B: Co=0.65μF, Lo=8.4mH

II A: Co=2.25μF, Lo=22.4mH

NPEXB-CM31L

Single input, single output

NPEXB-CM3D11L

double input, double output

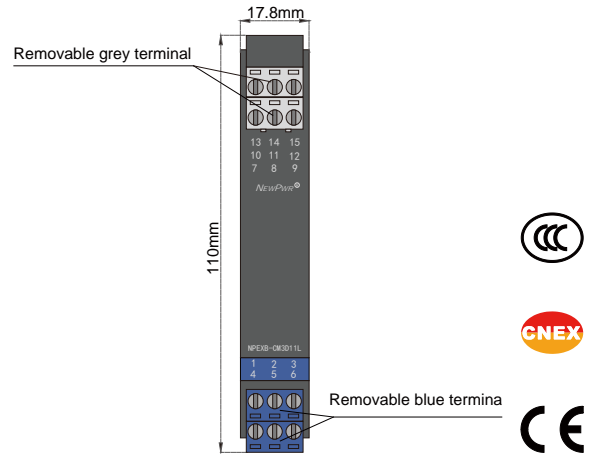
Input: 4 ~ 20 mA

Output: 4 ~ 20 mA

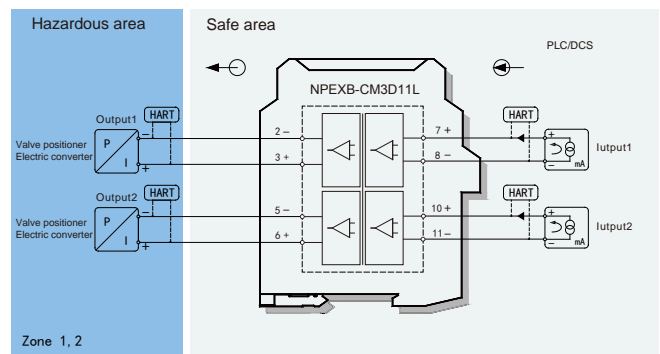
Accepts 4~20mA signal from safe area to drive executive mechanisms in hazardous area, It allows transmission of HART communication signals. It needs loop power supply. The input, output are galvanically isolated from each other.

Parameters

| | |
|--------------------------------|--------------------------------------------------------------------|
| Loop Powered: | 18V DC ~ 30V 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: | 0.2%F.S. |
| Temperature drift: | 0.01%F.S./°C |
| Response time: | ≤ 2ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 2500V AC (intrinsically safe side / non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 17.8mm (W) × 110mm (H) × 117mm (D) |



Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ib Gb] II C

Um: 250V

Certified parameters (Terminals 2, 3;5, 6):

$U_o=23.1V$, $I_o=30.4mA$, $P_o=702.3mW$

II C: $C_o=0.098\mu F$, $L_o=19.2mH$

II B: $C_o=0.71\mu F$, $L_o=57.6mH$

II A: $C_o=2.5\mu F$, $L_o=153.6mH$

AO Isolated Safety Barrier

NPEXB-KM31

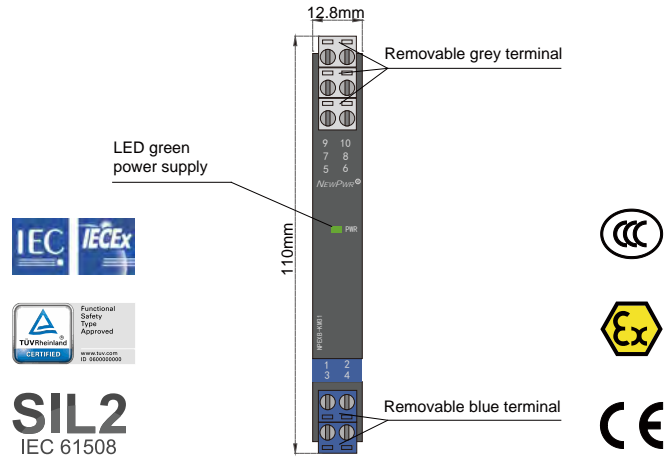
Single input, single output

Input: 4 ~ 20 mA
Output: 4 ~ 20 mA

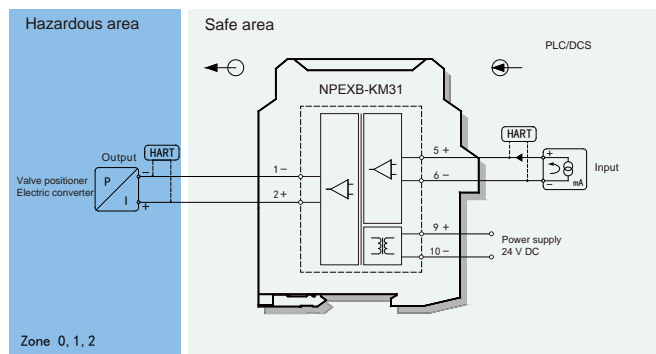
Accepts 4~20mA signal from safe area to drive executive mechanisms in hazardous area. It allows transmission of HART communication signals. The input, output, and power supply are galvanically isolated from each other. The function of LFD by detecting the output load resistance.

Parameters

| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 20V DC ~ 30V DC (Reverse power protection) |
| Power dissipation: | 1.0W |
| Input signal: | 4 ~ 20mA, HART |
| Output signal: | 4 ~ 20mA, HART |
| Load resistance: | 80 ~ 800 Ω |
| 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: | 30ppm/°C |
| Response time: | ≤ 2ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) |
| Safe state: | 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] II C
IECEX: [Ex ia Ga] II C
Um: 250V
Certified parameters (Terminals 1, 2):
Uo=25.2V, Io=93mA, Po=586mW
II C: Co=0.107μF, Lo=4.2mH
II B: Co=0.82μF, Lo=12.6mH
II A: Co=2.9μF, Lo=33.6mH

NPEXA-C41

Single input, single output

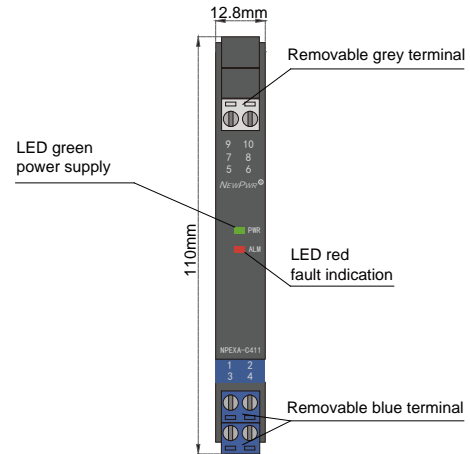
NPEXA-C411

Single input, double output

Input: 1 ~ 5 V

Output: 4 ~ 20 mA

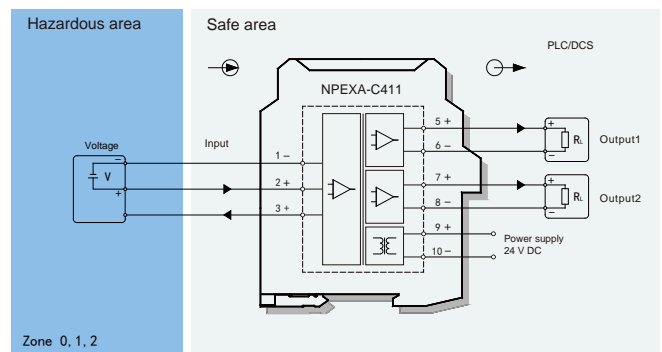
This isolated safety barrier detects loop voltage and converts it from a hazardous area into current signals to a safe area by isolation, and also provides transmitters with power in the hazardous area. The input, output, and power supply are galvanically isolated from each other.



Parameters

| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60V DC (Reverse power protection) |
| Power dissipation: | 1.5W (24V, single output) 2W (24V, double output) |
| Input signal: | 1 ~ 5V |
| Input resistance: | ≥ 1MΩ |
| Available voltage: | open-circuit voltage ≤ 26V voltage: ≥ 16V at 20mA |
| Output signal: | 4 ~ 20mA |
| Load resistance: | RL ≤ 500Ω |
| Accuracy: | 0.1%F.S. |
| Temperature drift: | 30ppm/°C |
| Response time: | ≤ 500ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) |
| Output states: | Whatever input fault status (except breakage or short circuit, the output is 0 V/mA), the output follows the input within measuring range. And the maximum value would not exceed the 110% of the upper limit of the measuring range (e.g. When the output signal type is 0 ~ 20 mA, the minimum output value may be 0 mA, the maximum output value would not exceed 22 mA) |

Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2):

Uo=8.7V, Io=1mA, Po=3mW

II C: Co=5μF, Lo=700mH

II B: Co=35μF, Lo=700mH

II A: Co=700μF, Lo=700mH

Certified parameters (Terminals 1, 3):

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

II C: Co=0.05μF, Lo=2.8mH

II B: Co=0.45μF, Lo=8.4mH

II A: Co=1.5μF, Lo=22.4mH

Model rules

NPEXA-C4

PB : BUS powered
Default: Terminals powered

The second output signal^{note1}
Default: null

The first output signal^{note1}

note1 : output signal

| Number | Output signal |
|--------|---------------|
| 1 | 4~20mA |
| 2 | 1~5V |
| 3 | 0~10mA |
| 4 | 0~5V |
| 5 | 0~10V |
| 6 | 0~20mA |

Voltage Isolated Safety Barrier

NPEXA-C4D11

double input, double output

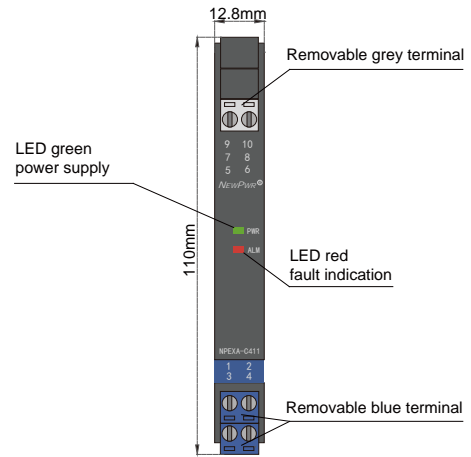
Input: 1 ~ 5 V

Output: 4 ~ 20 mA

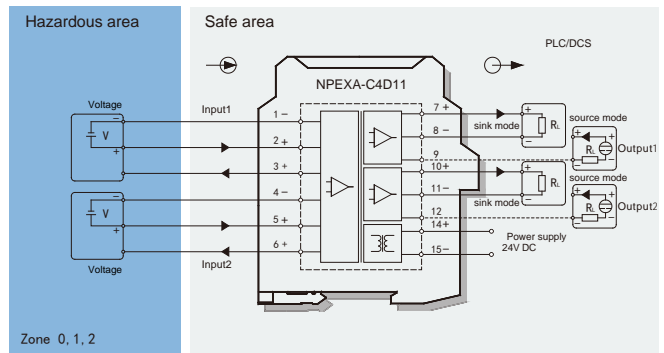
This isolated safety barrier detects loop voltage and converts it from a hazardous area into current signals to a safe area by isolation, and also provides transmitters with power in the hazardous area. The input, output, and power supply are galvanically isolated from each other.

Parameters

| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60V DC (Reverse power protection) |
| Power dissipation: | 3W |
| Input signal: | 1 ~ 5V |
| Input resistance: | ≥ 1MΩ |
| Available voltage: | open-circuit voltage ≤ 26V voltage: ≥ 16V at 20mA |
| Output signal: | 4 ~ 20mA (sink/source) |
| Load resistance: | source: $R_L \leq 550\Omega$ sink: $R_L < [(U-3)/0.022]\Omega$; U: Loop power supply |
| Accuracy: | 0.1%F.S. |
| Temperature drift: | 30ppm/°C |
| Response time: | ≤ 500ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 17.8mm (W) × 110mm (H) × 117mm (D) |
| Output states: | Whatever input fault status (except breakage or short circuit, the output is 0 V/mA), the output follows the input within measuring range. And the maximum value would not exceed the 110% of the upper limit of the measuring range (e.g. When the output signal type is 0 ~ 20 mA, the minimum output value may be 0 mA, the maximum output value would not exceed 22 mA) |



Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2; 4, 5):

Uo=8.7V, Io=1mA, Po=3mW

II C: Co=5μF, Lo=700mH

II B: Co=35μF, Lo=700mH

II A: Co=700μF, Lo=700mH

Certified parameters (Terminals 1, 3; 4, 6):

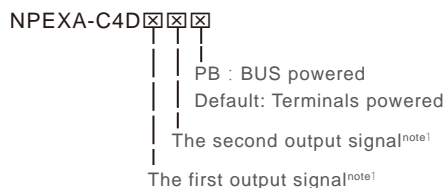
Uo=28V, Io=93mA, Po=651mW

II C: Co=0.05μF, Lo=2.8mH

II B: Co=0.45μF, Lo=8.4mH

II A: Co=1.5μF, Lo=22.4mH

Model rules



note1 : output signal

| Number | Output signal |
|--------|---------------|
| 1 | 4~20mA |
| 2 | 1~5V |
| 3 | 0~10mA |
| 4 | 0~5V |
| 5 | 0~10V |
| 6 | 0~20mA |

NPEXA-C511

Single input, single output

NPEXA-C5111

Single input, double output

Input: dry contact or proximity switch

Output: relay

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

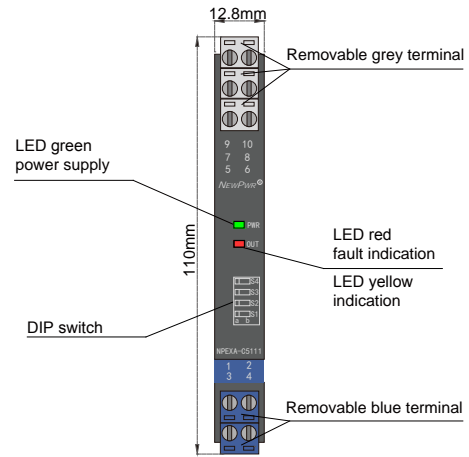
Parameters

| | |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60V DC (Reverse power protection) |
| Power dissipation: | 1W |
| Input signal: | Dry contact or NAMUR |
| Switching trigger point: | Input signal > 2.1mA, signal "1", the yellow LED is always bright Input signal < 1.2mA, signal "0", the yellow LED goes out |
| Open-circuit voltage: | Approx.8.5V |
| Short-circuit current: | Approx.8.5mA |
| Output signal: | Relay contact |
| Load capacity: | 250VAC/2A, 30VDC/2A |
| LFD function: | When input current $\leq 80\mu\text{A}$, considers the input line breakdown, the output relay de-energized. If input current $\geq 6\text{mA}$, considers the input circuit short-circuit, 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: | $\geq 3000\text{V AC}$ (intrinsically safe side / non-intrinsically safe side) $\geq 1500\text{V AC}$ (Power supply/non-intrinsically safe side) |
| Insulation resistance: | $\geq 100\text{M}\Omega$ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) |

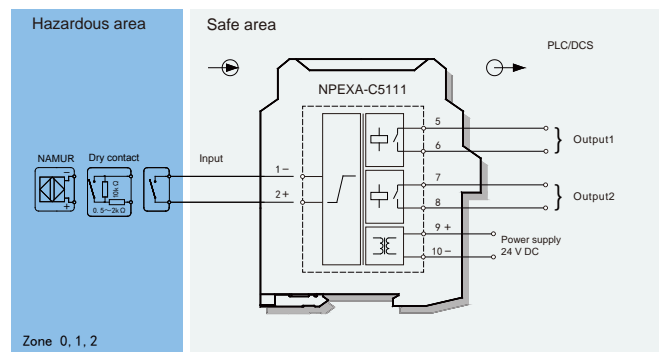
DIP switch settings

NPEXA-C511/NPEXA-C5111(NPEXA-C511 can set S1、S2)

| Switch | State | a | b |
|--------|-------|---------------------|---------------------|
| S1 | | output1 normal mode | inverted mode |
| S2 | | LFD on | LFD off |
| S3 | | output2 normal mode | fault signal output |



Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2):

Uo=10.5V, Io=11.3mA, Po=29.7mW

II C: Co=0.97μF, Lo=100mH

II B: Co=11μF, Lo=300mH

II A: Co=52μF, Lo=700mH

DI Isolated Safety Barrier

NPEXA-C5D111

double input, double output

Input: dry contact or proximity switch

Output: relay

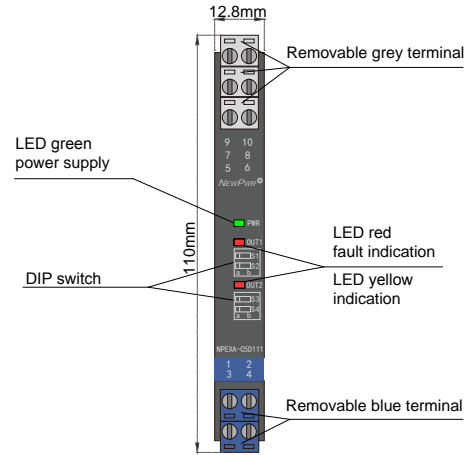
This type of isolated safety barrier transmits digital signals (dry contact or proximity switch) from hazardous area to safe area. The normal output state and line fault detection function can be set with the DIP switch on the front side. The input, output, and power supply are galvanically isolated from each other.

Parameters

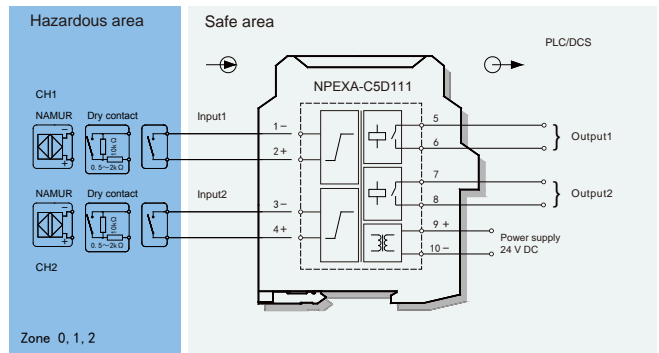
| | |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60V DC (Reverse power protection) |
| Power dissipation: | 1W |
| Input signal: | Dry contact or NAMUR |
| Switching trigger point: | Input signal > 2.1mA, signal "1", the yellow LED is always bright Input signal < 1.2mA, signal "0", the yellow LED goes out |
| Open-circuit voltage: | Approx. 8.5V |
| Short-circuit current: | Approx. 8.5mA |
| Output signal: | Relay contact |
| Load capacity: | 250VAC/2A, 30VDC/2A |
| LFD function: | When input current $\leq 80\mu\text{A}$, considers the input line breakdown, the output relay de-energized. If input current $\geq 6\text{mA}$, considers the input circuit short-circuit, 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: | $\geq 3000\text{V AC}$ (intrinsically safe side / non-intrinsically safe side) $\geq 1500\text{V AC}$ (Power supply/non-intrinsically safe side) |
| Insulation resistance: | $\geq 100\text{M}\Omega$ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (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)

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2; 3, 4):

Uo=10.5V, Io=11.3mA, Po=29.7mW

II C: Co=0.97μF, Lo=100mH

II B: Co=11μF, Lo=300mH

II A: Co=52μF, Lo=700mH

NPEXA-C5F11

four input, four output

Input: dry contact or proximity switch

Output: relay

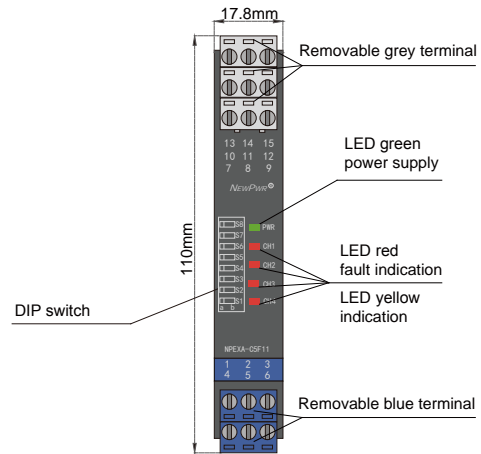
This type of isolated safety barrier transmits digital signals (dry contact or proximity switch) from hazardous area to safe area. The input, output, and power supply are galvanically isolated from each other.

Parameters

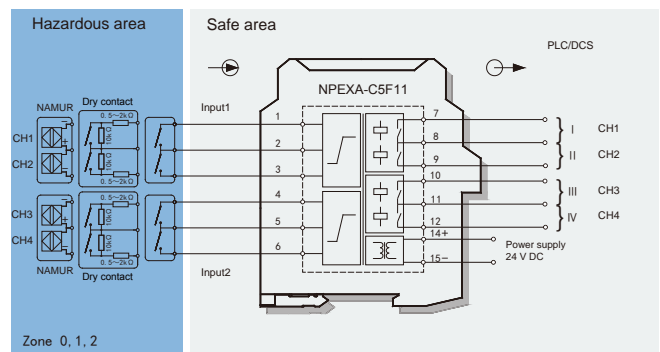
| | |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60V DC (Reverse power protection) |
| Power dissipation: | 2W |
| Input signal: | Dry contact or NAMUR |
| Switching trigger point: | Input signal > 2.1mA, signal "1", the yellow LED is always bright Input signal < 1.2mA, signal "0", the yellow LED goes out |
| Open-circuit voltage: | Approx.8V |
| Short-circuit current: | Approx.8mA |
| Output signal: | Relay contact |
| Load capacity: | 125VAC/0.5A, 24VDC/1A |
| LFD function: | When input current $\leq 80\mu\text{A}$, considers the input line breakdown, the output relay de-energized. If input current $\geq 6\text{mA}$, considers the input circuit short-circuit, 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: | $\geq 3000\text{V AC}$ (intrinsically safe side / non-intrinsically safe side) $\geq 1500\text{V AC}$ (Power supply/non-intrinsically safe side) |
| Insulation resistance: | $\geq 100\text{M}\Omega$ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 17.8mm (W) × 110mm (H) × 117mm (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 |
| S5 | | output3 normal mode | output3 inverted mode |
| S6 | | output3 LFD on | output3 LFD off |
| S7 | | output4 normal mode | output4 inverted mode |
| S8 | | output4 LFD on | output4 LFD off |



Wiring diagram



Explosive-proof parameters

China National Quality Supervision and Test Centre for Explosion Protected Electrical Products (CQST)
 Explosive-proof grade: [Ex ia Ga] II C
 Um: 250V
 Certified parameters (Terminals 1, 2; 3; 4; 5; 6):
 Uo=10.5V, Io=11.3mA, Po=29.7mW
 II C: Co=1.6μF, Lo=195mH
 II B: Co=11.7μF, Lo=585mH
 II A: Co=52.5μF, Lo=1000mH

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.

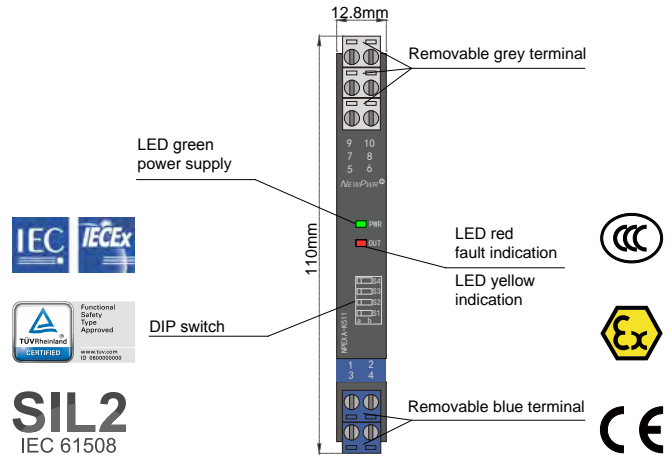
Parameters

| | |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 20V DC ~ 30V DC (Reverse power protection) |
| Power dissipation: | 1W |
| Input signal: | Dry contact or NAMUR |
| Switching trigger point: | Input signal > 2.1mA, signal "1", the yellow LED is always bright Input signal < 1.2mA, signal "0", the yellow LED goes out |
| Open-circuit voltage: | Approx. 9.2V |
| Short-circuit current: | Approx. 9mA |
| output signal: | Relay contact |
| Load capacity: | 250VAC/2A, 30VDC/2A |
| LFD function: | When input current $\leq 80\mu\text{A}$, considers the input line breakdown, the apparatus enters into safe function state, the output relay de-energized. If input current $\geq 6\text{mA}$, considers 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: | $\geq 3000\text{V AC}$ (intrinsically safe side / non-intrinsically safe side) $\geq 1500\text{V AC}$ (Power supply/non-intrinsically safe side) |
| Insulation resistance: | $\geq 100\text{M}\Omega$ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) |
| Safe state: | de-energized |

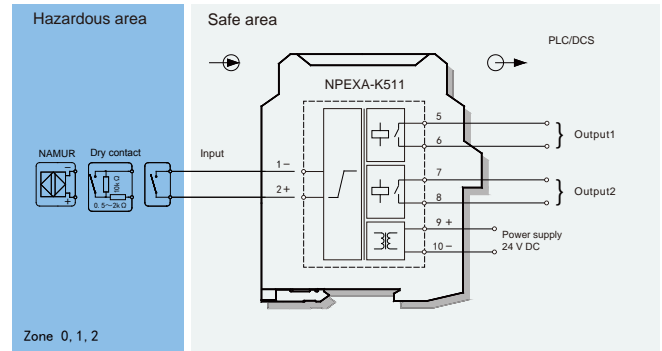
DIP switch settings

NPEXA-K51/NPEXA-K511(NPEXA-K51 can set S1、S2)

| Switch | State | a | b |
|--------|-------|---------------------|---------------------|
| S1 | | output1 normal mode | inverted mode |
| S2 | | LFD on | LFD off |
| S3 | | output2 normal mode | fault signal output |



Wiring diagram



Explosive-proof parameters

Germany TÜV(TÜV Rheinland)

Functional safety level(SIL): SIL2, SC3 according to IEC 61508

Ex marking : EU: $\text{Ex II (1) G [Ex ia Ga] II C}$

IECEx: [Ex ia Ga] II C

Um: 250V

NPEXA-K51 Certified parameters (Terminals 1, 2):

$U_o=10.5\text{V}$, $I_o=11.3\text{mA}$, $P_o=29.7\text{mW}$

II C: $C_o=0.644\mu\text{F}$, $L_o=78.8\text{mH}$

II B: $C_o=11\mu\text{F}$, $L_o=236\text{mH}$

II A: $C_o=52\mu\text{F}$, $L_o=630\text{mH}$

NPEXA-K511 Certified parameters (Terminals 1, 2):

$U_o=10.5\text{V}$, $I_o=11.3\text{mA}$, $P_o=29.7\text{mW}$

II C: $C_o=0.644\mu\text{F}$, $L_o=35.255\text{mH}$

II B: $C_o=11\mu\text{F}$, $L_o=105\text{mH}$

II A: $C_o=52\mu\text{F}$, $L_o=282\text{mH}$

NPEXA-K5D11

double input, double output

Input: dry contact or proximity switch

Output: relay

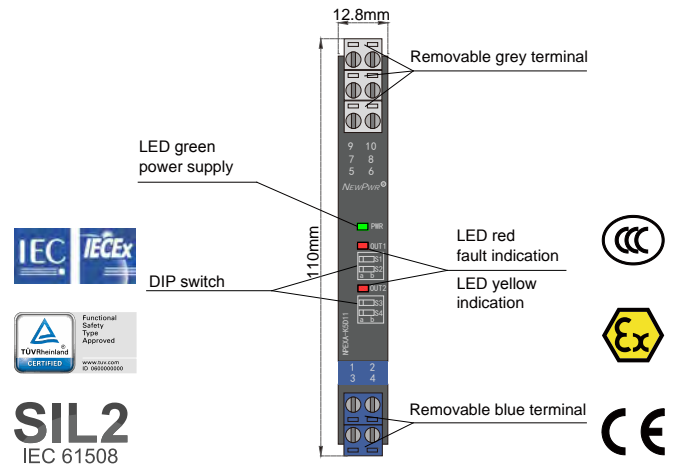
This type of isolated safety barrier transmits digital signals (dry contact or proximity switch) from hazardous area to safe area. The normal output state and line fault detection function can be set with the DIP switch on the front side. The input, output, and power supply are galvanically isolated from each other.

Parameters

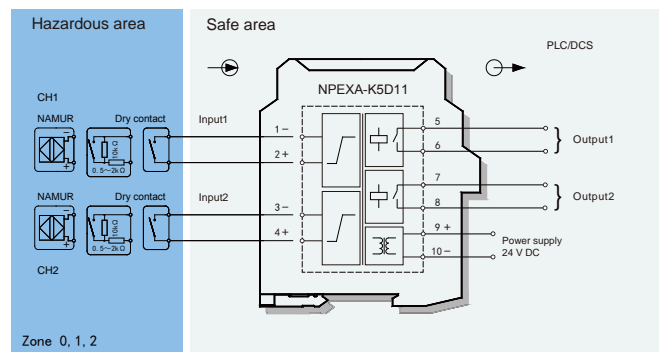
| | |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 20V DC ~ 30V DC (Reverse power protection) |
| Power dissipation: | 1W |
| Input signal: | Dry contact or NAMUR |
| Switching trigger point: | Input signal > 2.1mA, signal "1", the yellow LED is always bright Input signal < 1.2mA, signal "0", the yellow LED goes out |
| Open-circuit voltage: | Approx. 9.2V |
| Short-circuit current: | Approx. 9mA |
| output signal: | Relay contact |
| Load capacity: | 250VAC/2A, 30VDC/2A |
| LFD function: | When input current $\leq 80\mu\text{A}$, considers the input line breakdown, the apparatus enters into safe function state, the output relay de-energized. If input current $\geq 6\text{mA}$, considers 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: | $\geq 3000\text{V AC}$ (intrinsically safe side / non-intrinsically safe side) $\geq 1500\text{V AC}$ (Power supply/non-intrinsically safe side) |
| Insulation resistance: | $\geq 100\text{M}\Omega$ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) |
| Safe state: | de-energized |

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

Germany TÜV(TÜV Rheinland)

Functional safety level(SIL): SIL2, SC3 according to IEC 61508

Ex marking : EU: $\text{Ex II (1) G [Ex ia Ga] II C}$

IECEX: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2; 3, 4):

$U_o=10.5\text{V}$, $I_o=11.3\text{mA}$, $P_o=29.7\text{mW}$

II C: $C_o=0.644\mu\text{F}$, $L_o=78.8\text{mH}$

II B: $C_o=11\mu\text{F}$, $L_o=236\text{mH}$

II A: $C_o=52\mu\text{F}$, $L_o=630\text{mH}$

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 function can be set with the DIP switch on the front side. The input, output, and power supply are galvanically isolated from each other.

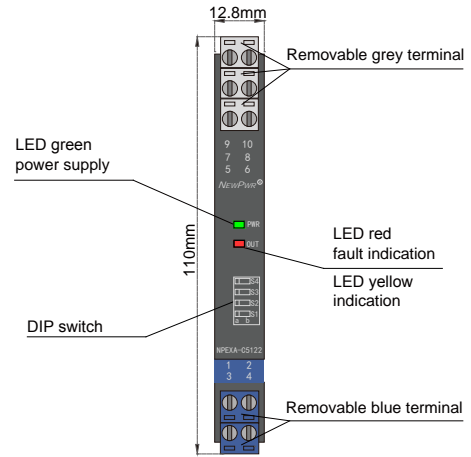
Parameters

- Power supply: 18V DC ~ 60V DC (Reverse power protection)
- Power dissipation: 1W
- Input signal: Dry contact or NAMUR
- Switching trigger point: Input signal > 2.1mA, signal "1", the yellow LED is always bright
 Input signal < 1.2mA, signal "0", the yellow LED goes out
- Open-circuit voltage: Approx.8.5V
- Short-circuit current: Approx.8.5mA
- Output signal: Output signal Transistor
- Sink current: ≤ 40mA
- External voltage: < 40V DC
- LFD function: When input current ≤ 80μA, considers the input line breakdown, the output transistor de-energized. If input current ≥ 6mA, considers the input circuit short-circuit, the output transistor de-energized, the indicator red flashing
- Switching frequency: < 5kHz
- Electromagnetic compatibility: IEC 61326-3-1
- Dielectric strength: ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side)
 ≥ 1500V AC (Power supply/non-intrinsically safe side)
- Insulation resistance: ≥ 100MΩ (Input /Output/Power supply)
- Operation temperature: -20°C ~ +60°C
- Storage temperature: -40°C ~ +80°C
- Dimension: 12.8mm (W) × 110mm (H) × 117mm (D)

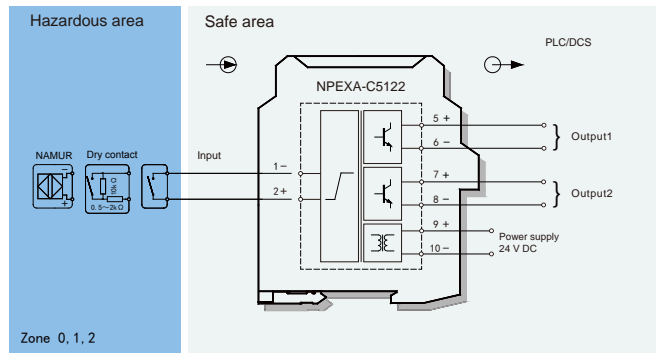
DIP switch settings

NPEXA-C512/NPEXA-C5122(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 | fault signal output |



Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2):

Uo=10.5V, Io=11.3mA, Po=29.7mW

II C: Co=0.97μF, Lo=100mH

II B: Co=11μF, Lo=300mH

II A: Co=52μF, Lo=700mH

NPEXA-C5D122

double input, double output

Input: dry contact or proximity switch

Output: transistor

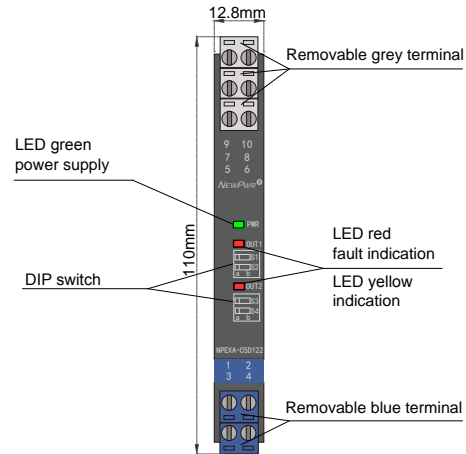
This type of isolated safety barrier transmits digital signals (dry contact or proximity switch) from hazardous area to safe area. The normal output state and line fault detection function can be set with the DIP switch on the front side. The input, output, and power supply are galvanically isolated from each other.

Parameters

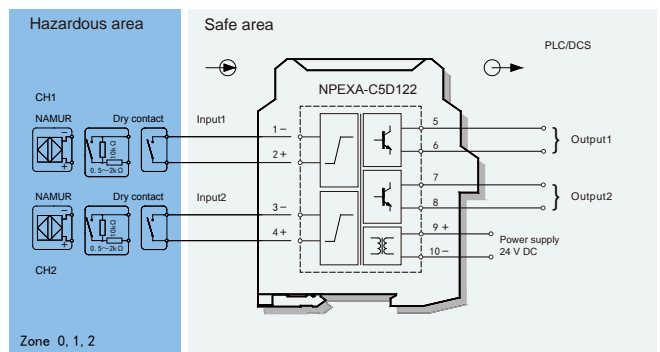
| | |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60V DC (Reverse power protection) |
| Power dissipation: | 1W |
| Input signal: | Dry contact or NAMUR |
| Switching trigger point: | Input signal > 2.1mA, signal "1", the yellow LED is always bright Input signal < 1.2mA, signal "0", the yellow LED goes out |
| Open-circuit voltage: | Approx.8.5V |
| Short-circuit current: | Approx.8.5mA |
| Output signal: | Output signal Transistor |
| Sink current: | ≤ 40mA |
| External voltage: | < 40V DC |
| LFD function: | When input current ≤ 80μA, considers the input line breakdown, the output transistor de-energized. If input current ≥ 6mA, considers the input circuit short-circuit, the output transistor de-energized, the indicator red flashing |
| Switching frequency: | < 5kHz |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (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)

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2; 3, 4):

Uo=10.5V, Io=11.3mA, Po=29.7mW

II C: Co=0.97μF, Lo=100mH

II B: Co=11μF, Lo=300mH

II A: Co=52μF, Lo=700mH

DO Isolated Safety Barrier

NPEXB-C511

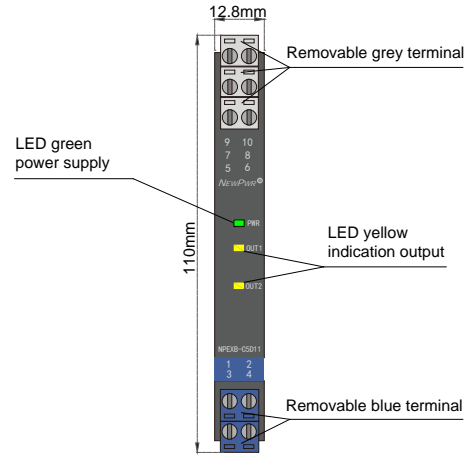
Single input, single output

NPEXB-C5D11

double input, double output

Input: dry contact
Output: 35mA

By switch signal controlling, transfers the digital signals (dry contact) from safe area into current signals to hazardous area, and drives field device like intrinsically safe valves, audible alarms, etc. The input, output, and power supply are galvanically isolated from each other.

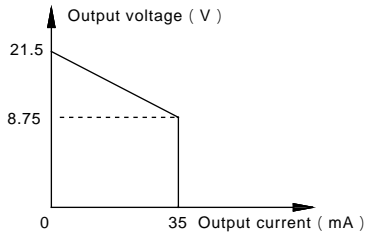
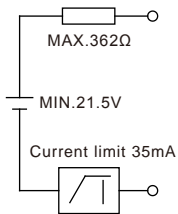


Parameters

- Power supply: 18V DC ~ 60V DC (Reverse power protection)
- Power dissipation: $\leq 1.2W$ (24V, single output)
 $\leq 2.4W$ (24V, double output)
- Input signal: dry contact
- Output voltage: $> 8.75V$ DC
- Open-circuit voltage: 21.5V DC
- Output current: $\leq 35mA$

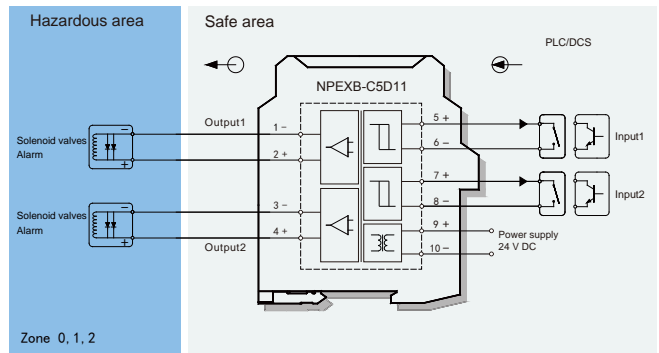
Output equivalent circuit

Output characteristics diagram



- Response time: $< 20ms$
- Electromagnetic compatibility: IEC 61326-3-1
- Dielectric strength: $\geq 3000V$ AC (intrinsically safe side / non-intrinsically safe side)
 $\geq 1500V$ AC (Power supply/non-intrinsically safe side)
- Insulation resistance: $\geq 100M\Omega$ (Input /Output/Power supply)
- Operation temperature: $-20^{\circ}C \sim +60^{\circ}C$
- Storage temperature: $-40^{\circ}C \sim +80^{\circ}C$
- Dimension: 12.8mm (W) \times 110mm (H) \times 117mm (D)

Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2; 3, 4):

Uo=25.2V, Io=72mA, Po=454mW

II C: Co=0.107 μ F, Lo=6mH

II B: Co=0.82 μ F, Lo=18mH

II A: Co=2.9 μ F, Lo=48mH

NPEXB-C511L

Single input, single output

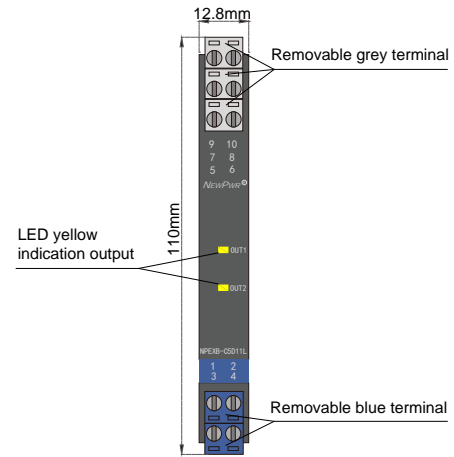
NPEXB-C5D11L

double input, double output

Input: wet contact

Output: 35mA

By switch signal controlling, transfers the digital signals (wet contact) from safe area into current signals to hazardous area, and drives field device like intrinsically safe valves, audible alarms, etc. The input, output are galvanically isolated from each other.

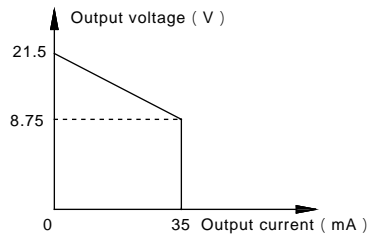
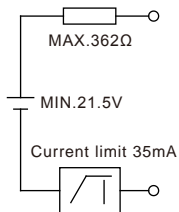


Parameters

| | |
|-----------------------|------------------------------------------------------------|
| Loop Powered: | 20V DC ~ 30V DC (Reverse power protection) |
| Power dissipation: | ≤ 1.2W (24V, single output) ≤ 2.4W (24V, double output) |
| Input signal: | wet contact |
| Output voltage: | > 8.75V DC |
| Open-circuit voltage: | 21.5V DC |
| Output current: | ≤ 35mA |

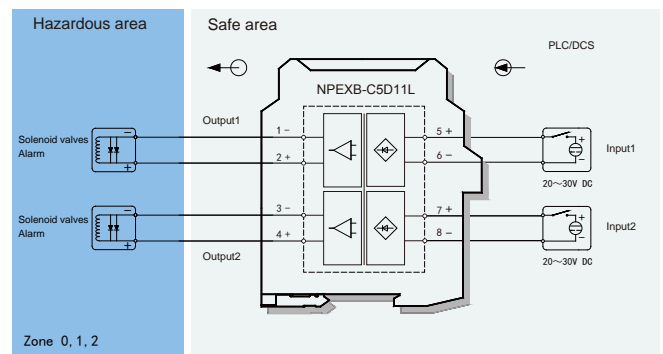
Output equivalent circuit

Output characteristics diagram



| | |
|--------------------------------|--------------------------------------------------------------------|
| Response time: | < 20ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) |

Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2;3,4):

Uo=25.2V, Io=72mA, Po=454mW

II C: Co=0.107μF, Lo=6mH

II B: Co=0.82μF, Lo=18mH

II A: Co=2.9μF, Lo=48mH

DO Isolated Safety Barrier

NPEXB-C512

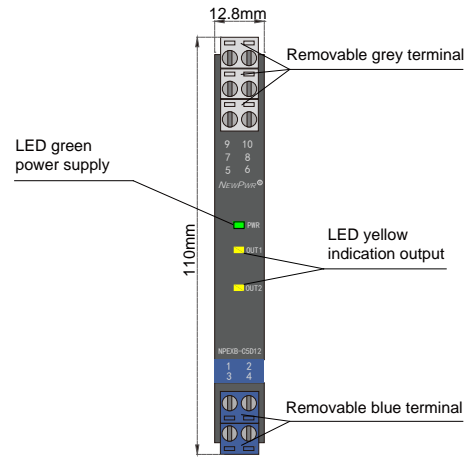
Single input, single output

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 device like intrinsically safe valves, audible alarms, etc. The input, output, and power supply are galvanically isolated from each other.

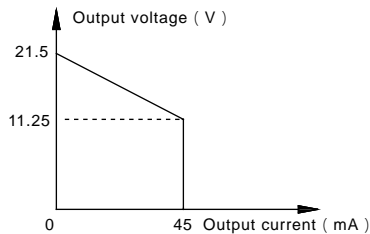
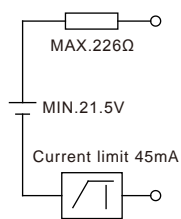


Parameters

- Power supply: 18V DC ~ 60V DC (Reverse power protection)
- Power dissipation: $\leq 1.4W$ (24V, single output)
 $\leq 2.8W$ (24V, double output)
- Input signal: dry contact
- Output voltage: $> 11.25V$ DC
- Open-circuit voltage: 21.5V DC
- Output current: $\leq 45mA$

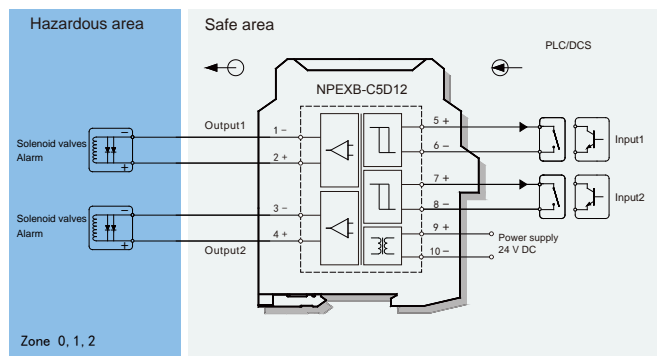
Output equivalent circuit

Output characteristics diagram



- Response time: $< 20ms$
- Electromagnetic compatibility: IEC 61326-3-1
- Dielectric strength: $\geq 3000V$ AC (intrinsically safe side / non-intrinsically safe side)
 $\geq 1500V$ AC (Power supply/non-intrinsically safe side)
- Insulation resistance: $\geq 100M\Omega$ (Input /Output/Power supply)
- Operation temperature: $-20^{\circ}C \sim +60^{\circ}C$
- Storage temperature: $-40^{\circ}C \sim +80^{\circ}C$
- Dimension: 12.8mm (W) \times 110mm (H) \times 117mm (D)

Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2; 3, 4):

Uo=25.2V, Io=117mA, Po=738mW

II C: Co=0.107 μ F, Lo=1.5mH

II B: Co=0.82 μ F, Lo=4.5mH

II A: Co=2.9 μ F, Lo=12mH

NPEXB-C512L

Single input, single output

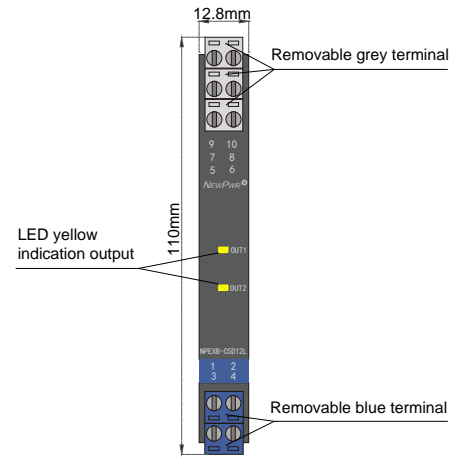
NPEXB-C5D12L

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 device like intrinsically safe valves, audible alarms, etc. The input, output are galvanically isolated from each other.

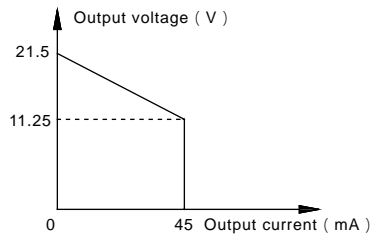
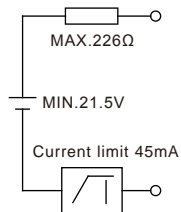


Parameters

| | |
|-----------------------|------------------------------------------------------------|
| Loop Powered: | 20V DC ~ 30V DC (Reverse power protection) |
| Power dissipation: | ≤ 1.4W (24V, single output) ≤ 2.8W (24V, double output) |
| Input signal: | wet contact |
| Output voltage: | > 11.25V DC |
| Open-circuit voltage: | 21.5V DC |
| Output current: | ≤ 45mA |

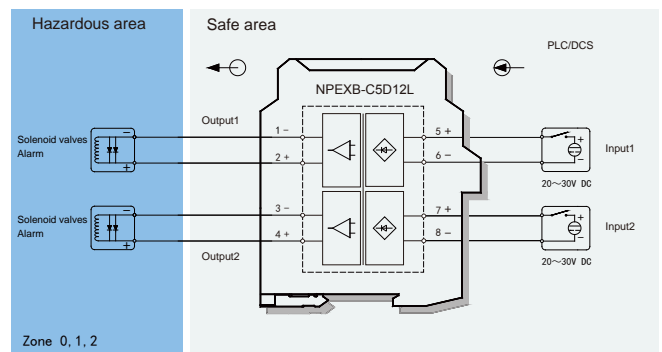
Output equivalent circuit

Output characteristics diagram



| | |
|--------------------------------|--------------------------------------------------------------------|
| Response time: | < 20ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) |

Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2; 3,4):

Uo=25.2V, Io=117mA, Po=738mW

II C: Co=0.107μF, Lo=1.5mH

II B: Co=0.82μF, Lo=4.5mH

II A: Co=2.9μF, Lo=12mH

DO Isolated Safety Barrier

NPEXB-C513

Single input, single output

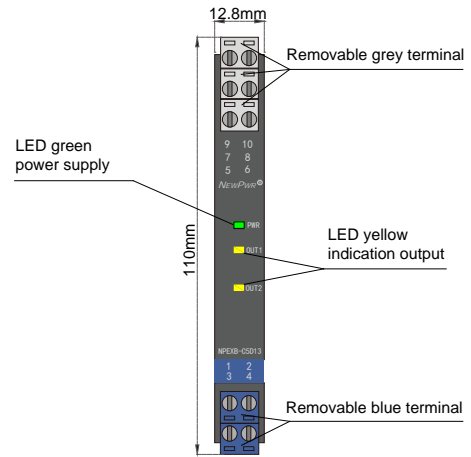
NPEXB-C5D13

double input, double output

Input: dry contact

Output: 60mA

By switch signal controlling, transfers the digital signals (dry contact) from safe area into current signals to hazardous area, and drives field device like intrinsically safe valves, audible alarms, etc. The input, output, and power supply are galvanically isolated from each other.

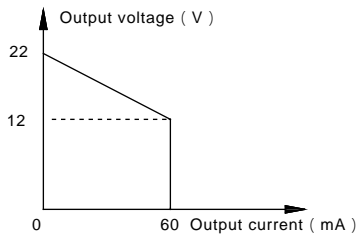
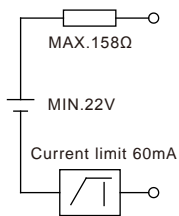


Parameters

| | |
|-----------------------|------------------------------------------------------------|
| Power supply: | 20V DC ~ 60V DC (Reverse power protection) |
| Power dissipation: | ≤ 1.8W (24V, single output) ≤ 3.6W (24V, double output) |
| Input signal: | dry contact |
| Output voltage: | > 12V DC |
| Open-circuit voltage: | 22V DC |
| Output current: | ≤ 60mA |

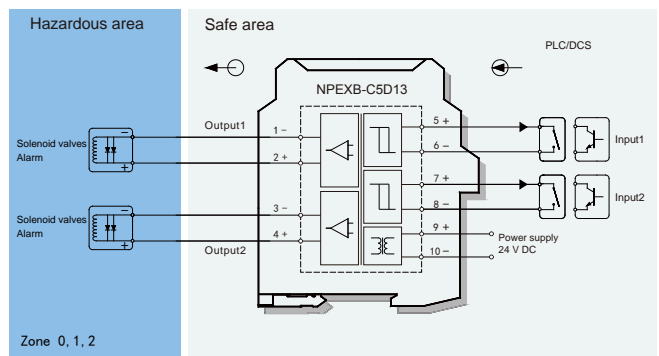
Output equivalent circuit

Output characteristics diagram



| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Response time: | < 20ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) |

Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II B

Um: 250V

Certified parameters (Terminals 1, 2; 3, 4):

Uo=25.2V, Io=170mA, Po=1080mW

II B: Co=0.82μF, Lo=4mH

II A: Co=2.9μF, Lo=10.6mH

NPEXB-C513L

Single input, single output

NPEXB-C5D13L

double input, double output

Input: wet contact

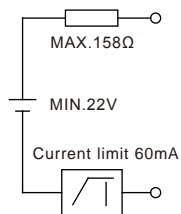
Output: 60mA

By switch signal controlling, transfers the digital signals (wet contact) from safe area into current signals to hazardous area, and drives field device like intrinsically safe valves, audible alarms, etc. The input, output are galvanically isolated from each other.

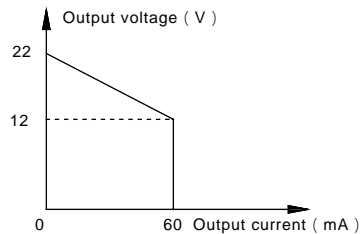
Parameters

| | |
|-----------------------|------------------------------------------------------------|
| Loop Powered: | 20V DC ~ 30V DC (Reverse power protection) |
| Power dissipation: | ≤ 1.8W (24V, single output) ≤ 3.6W (24V, double output) |
| Input signal: | wet contact |
| Output voltage: | > 12V DC |
| Open-circuit voltage: | 22V DC |
| Output current: | ≤ 60mA |

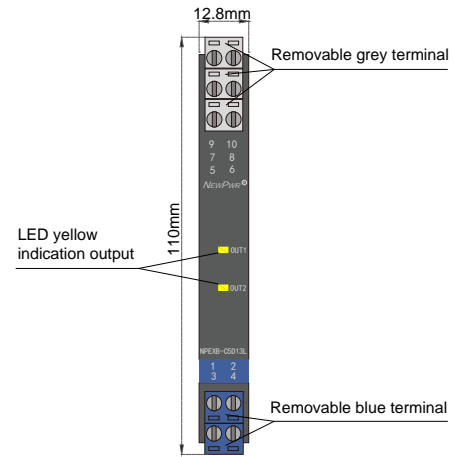
Output equivalent circuit



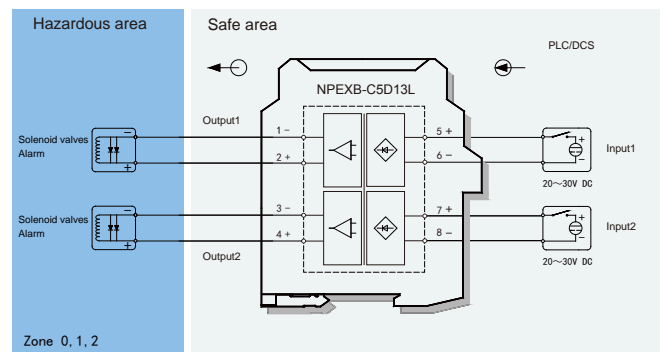
Output characteristics diagram



| | |
|--------------------------------|--------------------------------------------------------------------|
| Response time: | < 20ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) |



Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II B

Um: 250V

Certified parameters (Terminals 1, 2; 3,4):

Uo=25.2V, Io=170mA, Po=1080mW

II B: Co=0.82μF, Lo=4mH

II A: Co=2.9μF, Lo=10.6mH

DO Isolated Safety Barrier

NPEXB-K512L

Single input, single output

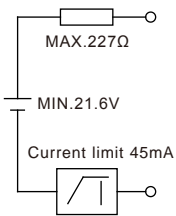
Input: wet contact
Output: 45mA

By switch signal controlling, transfers the digital signals (wet contact) from safe area into current signals to hazardous area, and drives field device like intrinsically safe valves, audible alarms, etc. The input, output are galvanically isolated from each other.

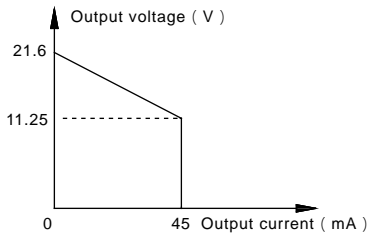
Parameters

- Loop Powered: 20V DC ~ 30V DC (Reverse power protection)
- Power dissipation: 1.4W
- Input signal: wet contact
- Output voltage: > 11.25V DC
- Open-circuit voltage: 21.6V DC
- Output current: ≤ 45mA

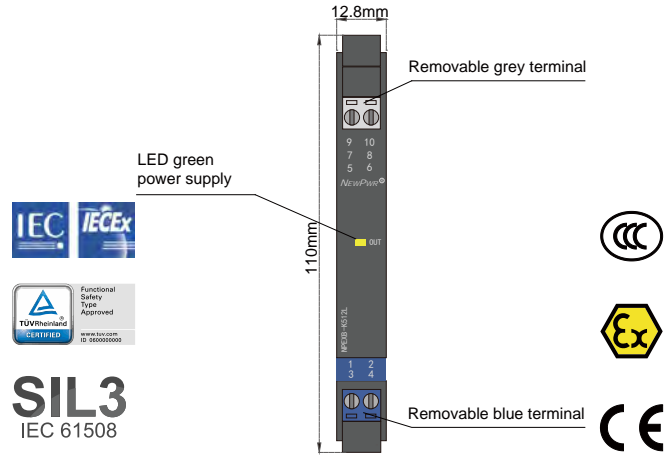
Output equivalent circuit



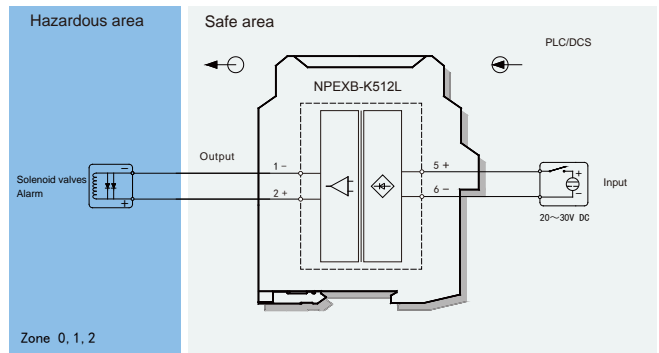
Output characteristics diagram



- Response time: < 20ms
- Electromagnetic compatibility: IEC 61326-3-1
- Dielectric strength: ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side)
- Insulation resistance: ≥ 100MΩ (Input /Output)
- Operation temperature: -20°C ~ +60°C
- Storage temperature: -40°C ~ +80°C
- Dimension: 12.8mm (W) × 110mm (H) × 117mm (D)
- Safe state: de-energized



Wiring diagram



Explosive-proof parameters

- Germany TÜV(TÜV Rheinland)
- Functional safety level(SIL) : SIL3, SC3 according to IEC 61508
- Ex marking : EU: $\text{Ex II (1) G [Ex ia Ga] II C}$
IECEx: [Ex ia Ga] II C
- Um: 250V
- Certified parameters (Terminals 1, 2):
Uo=25.2V, Io=116mA, Po=731mW
- II C: Co=0.107μF, Lo=2.6mH
- II B: Co=0.82μF, Lo=7.8mH
- II A: Co=2.9μF, Lo=20.8mH

NPEXA-C61P1

Single input, single output

NPEXA-C611P1

Single input, double output

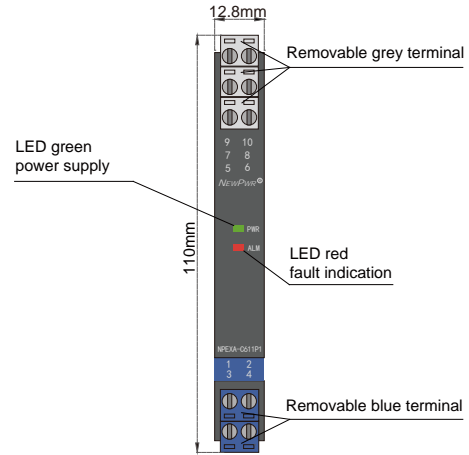
Input: frequency

Output: 4 ~ 20 mA

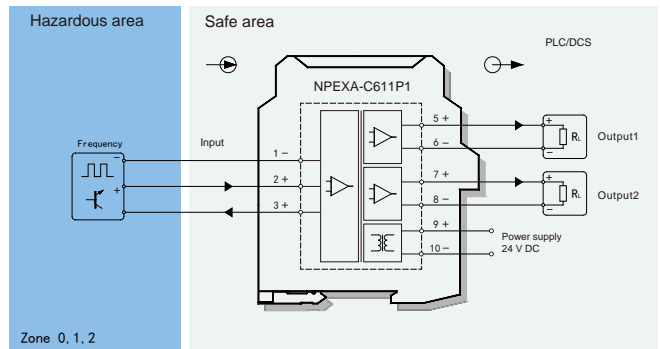
This isolated safety barrier converts the frequency signals from a hazardous area into current or voltage signals to a safe area by isolation. The input, output, and power supply are galvanically isolated from each other. You can use PC or handheld programmer to modify parameters.

Parameters

| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60V DC (Reverse power protection) |
| Power dissipation: | 0.8W (single output) |
| Input signal: | 1.3W (double output) |
| Input resistance: | frequency |
| Frequency range: | 0.1Hz ~ 100kHz |
| Pulse width: | ≥ 5μs |
| Input impedance: | ≥ 10kΩ |
| Switching trigger point: | Low level: 0V ~ 2V, High level: 4V ~ 30V |
| Distribution voltage: | ≥ 9V, when loaded with 20mA |
| Output signal: | 4 ~ 20mA |
| Load resistance: | $R_L \leq 550\Omega$ |
| Accuracy: | 0.1%F.S. |
| Temperature drift: | 30ppm/°C |
| Response time: | ≤ 500ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) |
| Fault states: | Input signal state indicator (red), it is remain bright when input over-range. it is flicker when input breakage. |



Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2):

$U_o=8.7V$, $I_o=1mA$, $P_o=3mW$

II C: $C_o=5\mu F$, $L_o=1000mH$

II B: $C_o=35\mu F$, $L_o=1000mH$

II A: $C_o=700\mu F$, $L_o=1000mH$

Certified parameters (Terminals 1, 3):

$U_o=15.8V$, $I_o=107mA$, $P_o=423mW$

II C: $C_o=0.478\mu F$, $L_o=1.8mH$

II B: $C_o=2.88\mu F$, $L_o=5.4mH$

II A: $C_o=11.6\mu F$, $L_o=14.4mH$

Model rules

NPEXA-C6□□P1□

PB : BUS powered
Default: Terminals powered

The second output signal^{note1}
Default: null

The first output signal^{note1}

note1 : output signal

| Number | Output signal |
|--------|---------------|
| 1 | 4~20mA |
| 2 | 1~5V |
| 3 | 0~10mA |
| 4 | 0~5V |
| 5 | 0~10V |
| 6 | 0~20mA |

Frequency Isolated Safety Barrier

NPEXA-C61P2

Single input, single output

NPEXA-C611P2

Single input, double output

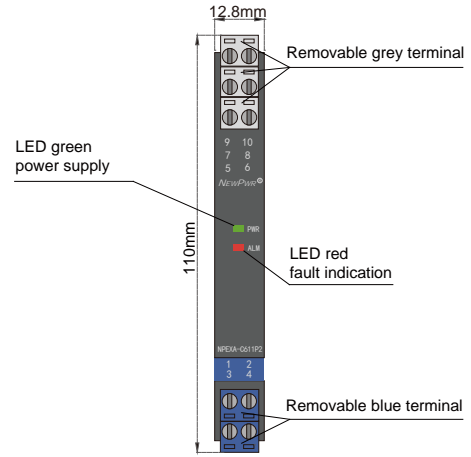
Input: frequency

Output: 4 ~ 20 mA

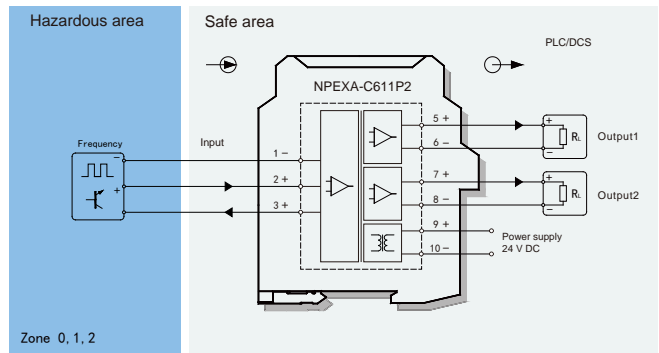
This isolated safety barrier converts the frequency signals from a hazardous area into current or voltage signals to a safe area by isolation. The input, output, and power supply are galvanically isolated from each other. You can use PC or handheld programmer to modify parameters.

Parameters

| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60V DC (Reverse power protection) |
| Power dissipation: | 0.8W (single output) |
| Input signal: | 1.3W (double output) |
| Input resistance: | frequency |
| Frequency range: | 0.1Hz ~ 100kHz |
| Pulse width: | ≥ 5μs |
| Input impedance: | ≥ 10kΩ |
| Switching trigger point: | Low level: 0V ~ 2V, High level: 4V ~ 30V |
| Distribution voltage: | ≥ 16 V, when loaded with 20 mA |
| Output signal: | 4 ~ 20mA |
| Load resistance: | $R_L \leq 550\Omega$ |
| Accuracy: | 0.1%F.S. |
| Temperature drift: | 30ppm/°C |
| Response time: | ≤ 500ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) |
| Fault states: | Input signal state indicator (red), it is remain bright when input over-range. it is flicker when input breakage. |



Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2):

Uo=8.7V, Io=1mA, Po=3mW

II C: Co=5μF, Lo=1000mH

II B: Co=35μF, Lo=1000mH

II A: Co=700μF, Lo=1000mH

Certified parameters (Terminals 1, 3):

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

II C: Co=0.08μF, Lo=4.2mH

II B: Co=0.68μF, Lo=12.6mH

II A: Co=2.27μF, Lo=33.6mH

Model rules

NPEXA-C6 P2

PB : BUS powered
Default: Terminals powered

The second output signal^{note1}
Default: null

The first output signal^{note1}

note1 : output signal

| Number | Output signal |
|--------|---------------|
| 1 | 4~20mA |
| 2 | 1~5V |
| 3 | 0~10mA |
| 4 | 0~5V |
| 5 | 0~10V |
| 6 | 0~20mA |

NPEXA-C67P1

Single input, single output

NPEXA-C677P1

Single input, double output

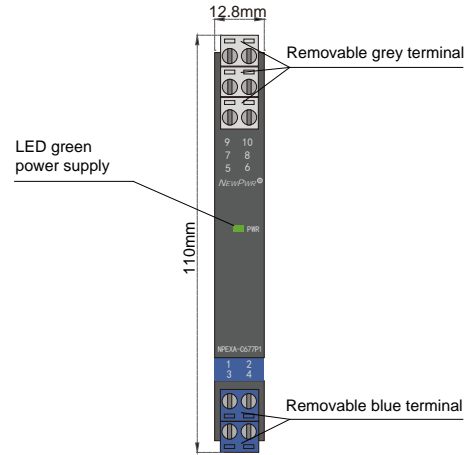
Input: frequency

Output: 1:1

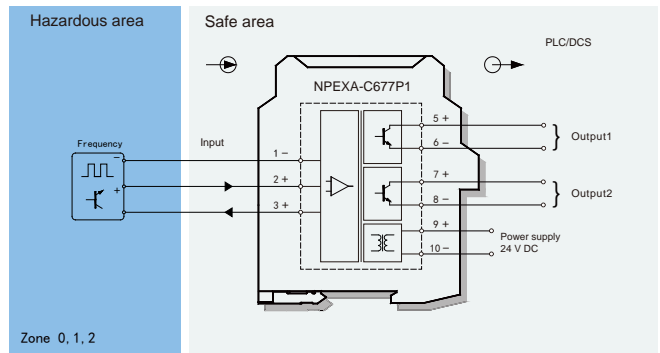
This isolated safety barrier converts the frequency signals from a hazardous area to a safe area by isolation. The input, output, and power supply are galvanically isolated from each other.

Parameters

| | | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60V DC (Reverse power protection) | |
| Power dissipation: | 0.8W (single output) | |
| Input signal: | 1.3W (double output) | |
| Frequency range: | frequency | |
| Pulse width: | 0.1Hz ~ 100kHz | |
| Switching trigger point: | ≥ 5μs | |
| Distribution voltage: | Low level: 0V ~ 2V, High level: 4V ~ 30V ≥ 9V, when loaded with 20mA | |
| Output signal: | Open collector | High level: $V_{CC} (\leq 30V)$ Low level: ≤ 2V drive current: ≤ 10mA |
| | Emitter follower | High level: $V_{CC}-2V$ Low level: ≤ 0.5V drive current: ≤ 10mA |
| | Logic level | High level: $9V \leq V_H \leq 12V$ Low level: $V_L \leq 2V$ Load resistance: ≥ 1kΩ |
| Electromagnetic compatibility: | IEC 61326-3-1 | |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) | |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) | |
| Operation temperature: | -20°C ~ +60°C | |
| Storage temperature: | -40°C ~ +80°C | |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) | |



Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2):

$U_o=8.7V$, $I_o=1mA$, $P_o=3mW$

II C: $C_o=5\mu F$, $L_o=1000mH$

II B: $C_o=35\mu F$, $L_o=1000mH$

II A: $C_o=700\mu F$, $L_o=1000mH$

Certified parameters (Terminals 1, 3):

$U_o=15.8V$, $I_o=107mA$, $P_o=423mW$

II C: $C_o=0.478\mu F$, $L_o=1.8mH$

II B: $C_o=2.88\mu F$, $L_o=5.4mH$

II A: $C_o=11.6\mu F$, $L_o=14.4mH$

Frequency Isolated Safety Barrier

NPEXA-C67P2

Single input, single output

NPEXA-C677P2

Single input, double output

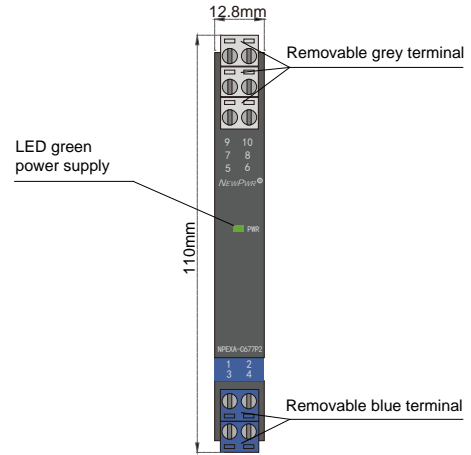
Input: frequency

Output: 1:1

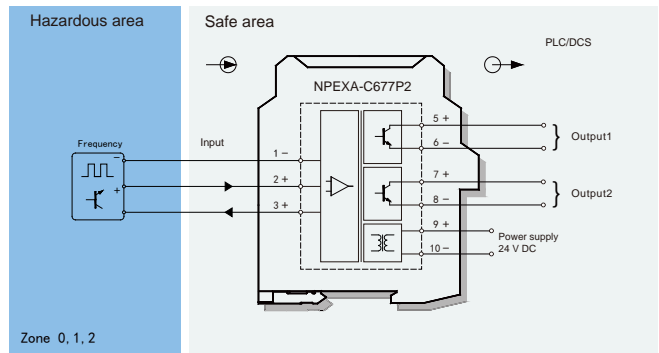
This isolated safety barrier converts the frequency signals from a hazardous area to a safe area by isolation. The input, output, and power supply are galvanically isolated from each other.

Parameters

| | | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60V DC (Reverse power protection) | |
| Power dissipation: | 0.8W (single output) | |
| Input signal: | 1.3W (double output) | |
| Frequency range: | frequency | |
| Pulse width: | 0.1Hz ~ 100kHz | |
| Switching trigger point: | ≥ 5μs | |
| Distribution voltage: | Low level: 0V ~ 2V, High level: 4V ~ 30V ≥ 16V, when loaded with 20mA | |
| Output signal: | Open collector | High level: $V_{cc} (\leq 30V)$ Low level: ≤ 2V drive current: ≤ 10mA |
| | Emitter follower | High level: $V_{cc}-2V$ Low level: ≤ 0.5V drive current: ≤ 10mA |
| | Logic level | High level: $18V \leq V_H \leq 24V$ Low level: $V_L \leq 2V$ Load resistance: ≥ 2kΩ |
| Electromagnetic compatibility: | IEC 61326-3-1 | |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) | |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) | |
| Operation temperature: | -20°C ~ +60°C | |
| Storage temperature: | -40°C ~ +80°C | |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) | |



Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250 V

Certified parameters (Terminals 1, 2):

Uo=8.7V, Io=1mA, Po=3mW

II C: Co=5μF, Lo=1000mH

II B: Co=35μF, Lo=1000mH

II A: Co=700μF, Lo=1000mH

Certified parameters (Terminals 1, 3):

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

II C: Co=0.08μF, Lo=4.2mH

II B: Co=0.68μF, Lo=12.6mH

II A: Co=2.27μF, Lo=33.6mH

NPEXA-C711Z

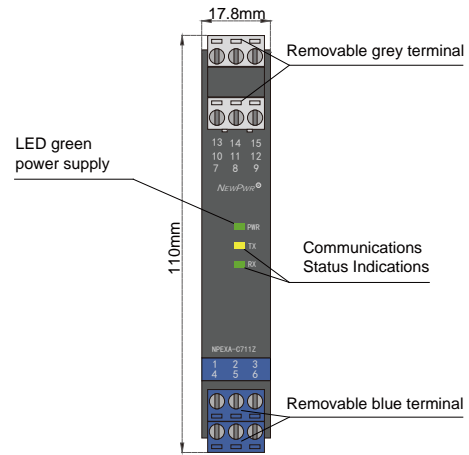
Single input, single output

Input: RS-485
Output: RS-485

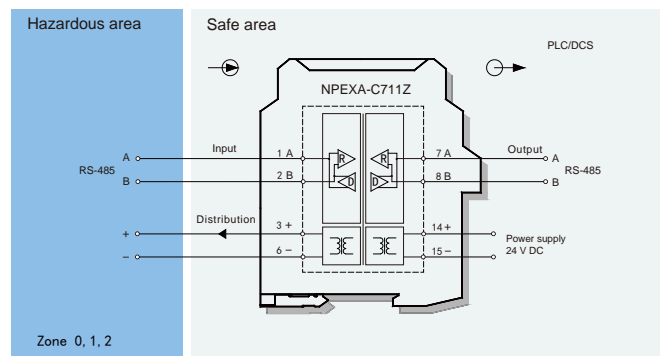
This isolated safety barrier converts the RS-485 digital signals from a hazardous area into RS-485 digital signals to a safe area, and also provides power to the transmitter. The input, output, and power supply are galvanically isolated from each other.

Parameters

| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60 V DC (Reverse power protection) |
| Power dissipation: | ≤ 4.5W |
| Input signal: | RS-485 |
| Control mode: | half-duplex |
| Output signal: | RS-485 |
| Transmission delay: | ≤ 5μs |
| Transmission rate: | ≤ 56kbps |
| Distribution voltage: | 9V DC±10%, 140mA |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 17.8mm (W) × 110mm (H) × 117mm (D) |



Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2):

Uo=7.6V, Io=77mA, Po=147mW

II C: Co=7μF, Lo=6mH

II B: Co=112μF, Lo=18mH

II A: Co=700μF, Lo=48mH

Certified parameters (Terminals 3, 6):

Uo=17.1V, Io=508mA, Po=2172mW

II C: Co=0.25μF, Lo=0.063mH

II B: Co=1.5μF, Lo=0.189mH

II A: Co=6.1μF, Lo=0.504mH

Digital Isolated Safety Barrier

NPEXA-C711C

Single input, single output

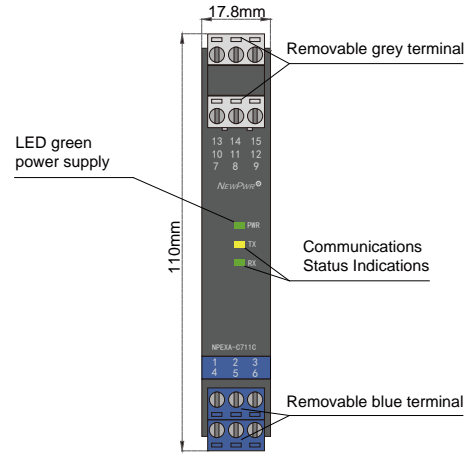
Input: RS-485

Output: RS-485

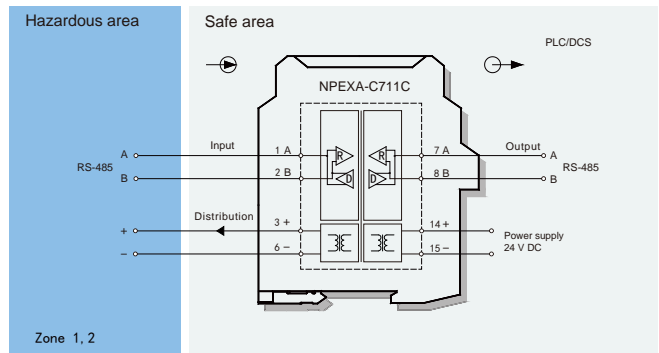
This isolated safety barrier converts the RS-485 digital signals from a hazardous area into RS-485 digital signals to a safe area, and also provides power to the transmitter. The input, output, and power supply are galvanically isolated from each other.

Parameters

| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60 V DC (Reverse power protection) |
| Power dissipation: | ≤ 4W |
| Input signal: | RS-485 |
| Control mode: | half-duplex |
| Output signal: | RS-485 |
| Transmission delay: | ≤ 5μs |
| Transmission rate: | ≤ 56kbps |
| Distribution voltage: | 24V DC±10%, 100mA |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 17.8mm (W) × 110mm (H) × 117mm (D) |



Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ib Gb] II B

Um: 250V

Certified parameters (Terminals 1, 2):

Uo=7.6V, Io=77mA, Po=147mW

II B: Co=112μF, Lo=12mH

II A: Co=700μF, Lo=32mH

Certified parameters (Terminals 3, 6):

Uo=27.3V, Io=121.2mA, Po=3309mW

II B: Co=0.47μF, Lo=3.78mH

II A: Co=1.59μF, Lo=10mH

NPEXA-C711

Single input, single output

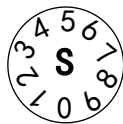
Input: RS-485
Output: RS-485

This isolated safety barrier converts the RS-485 digital signals from a hazardous area into RS-485 digital signals to a safe area, and also provides power to the transmitter. The input, output, and power supply are galvanically isolated from each other.

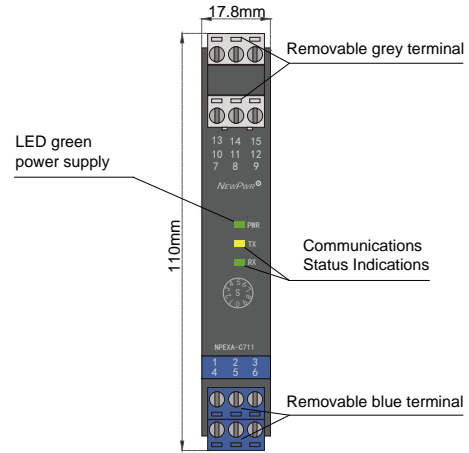
Parameters

| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60 V 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: | ≤ 56kbps |
| Distribution voltage: | Refer to rotary switch setting |
| Voltage tolerance: | ±10% |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 17.8mm (W) × 110mm (H) × 117mm (D) |

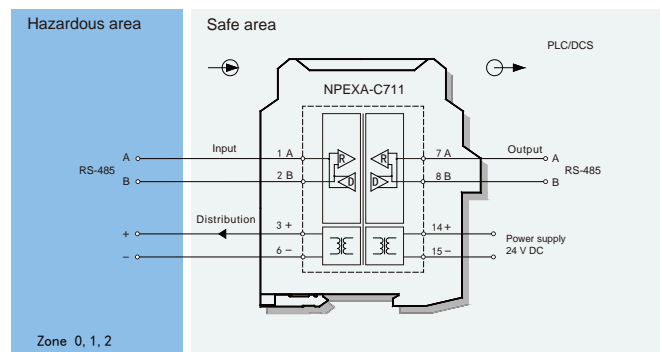
Rotary switch setting



| 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 and Test Centre for Explosion Protected Electrical Products (CQST)

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2):

Uo=7.6V, Io=77mA, Po=147mW

II C: Co=7μF, Lo=6mH

II B: Co=112μF, Lo=18mH

II A: Co=700μF, Lo=48mH

Certified parameters (Terminals 3, 6):

Uo=23.1V, Io=187mA, Po=1080mW

II C: Co=0.1μF, Lo=0.34mH

II B: Co=0.6μF, Lo=1.02mH

II A: Co=2.5μF, Lo=2.72mH

Digital Isolated Safety Barrier

NPEXA-C712

Single input, single output

Input: RS-485

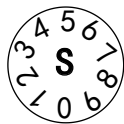
Output: RS-232

This isolated safety barrier converts the RS-485 digital signals from a hazardous area into RS-232 digital signals to a safe area, and also provides power to the transmitter. The input, output, and power supply are galvanically isolated from each other.

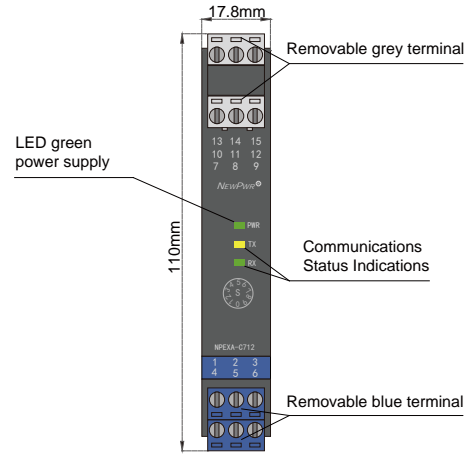
Parameters

| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60 V 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-232 |
| Transmission delay: | ≤ 5μs |
| Transmission rate: | ≤ 56kbps |
| Distribution voltage: | Refer to rotary switch setting |
| Voltage tolerance: | ±10% |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 17.8mm (W) × 110mm (H) × 117mm (D) |

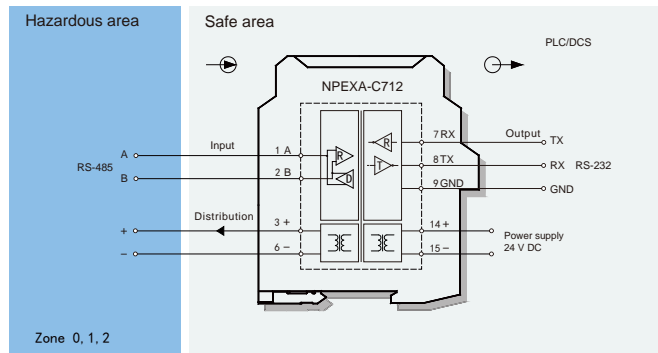
Rotary switch setting



| 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 and Test Centre for Explosion Protected Electrical Products(CQST)

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2):

Uo=7.6V, Io=77mA, Po=147mW

II C: Co=7μF, Lo=6mH

II B: Co=112μF, Lo=18mH

II A: Co=700μF, Lo=48mH

Certified parameters (Terminals 3, 6):

Uo=23.1V, Io=187mA, Po=1080mW

II C: Co=0.1μF, Lo=0.34mH

II B: Co=0.6μF, Lo=1.02mH

II A: Co=2.5μF, Lo=2.72mH

NPEXA-C713

Single input, single output

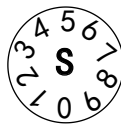
Input: RS-485
Output: RS-422

This isolated safety barrier converts the RS-485 digital signals from a hazardous area into RS-422 digital signals to a safe area, and also provides power to the transmitter. The input, output, and power supply are galvanically isolated from each other.

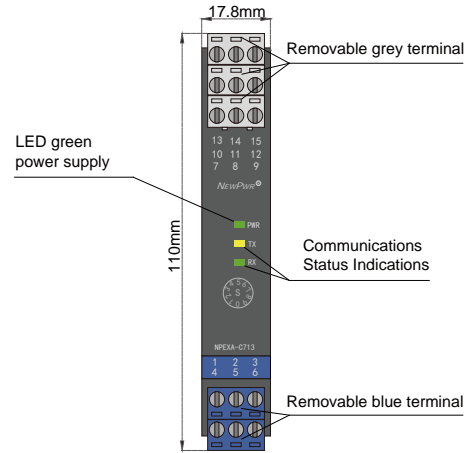
Parameters

| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60 V 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-422 |
| Transmission delay: | ≤ 5μs |
| Transmission rate: | ≤ 56kbps |
| Distribution voltage: | Refer to rotary switch setting |
| Voltage tolerance: | ±10% |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 17.8mm (W) × 110mm (H) × 117mm (D) |

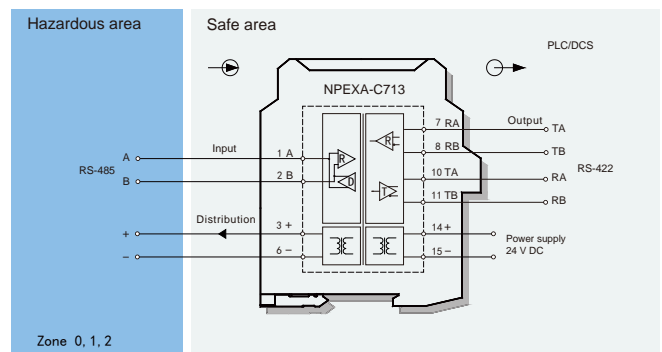
Rotary switch setting



| 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 and Test Centre for Explosion Protected Electrical Products (CQST)

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2):

Uo=7.6V, Io=77mA, Po=147mW

II C: Co=7μF, Lo=6mH

II B: Co=112μF, Lo=18mH

II A: Co=700μF, Lo=48mH

Certified parameters (Terminals 3, 6):

Uo=23.1V, Io=187mA, Po=1080mW

II C: Co=0.1μF, Lo=0.34mH

II B: Co=0.6μF, Lo=1.02mH

II A: Co=2.5μF, Lo=2.72mH

Digital Isolated Safety Barrier

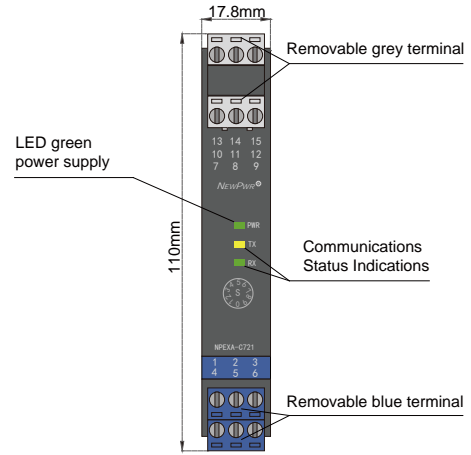
NPEXA-C721

Single input, single output

Input: RS-232

Output: RS-485

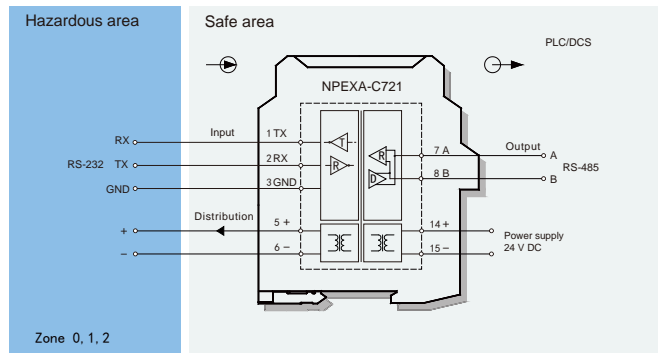
This isolated safety barrier converts the RS-232 digital signals from a hazardous area into RS-485 digital signals to a safe area, and also provides power to the transmitter. The input, output, and power supply are galvanically isolated from each other.



Parameters

| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60 V DC (Reverse power protection) |
| Power dissipation: | ≤ 2W (Distribution: 8V/9V/12V, 50mA) ≤ 3.5W (Distribution: 5V/ 6V, 100mA) |
| Input signal: | RS-232 |
| Control mode: | full-duplex |
| Output signal: | RS-485 |
| Transmission delay: | ≤ 5μs |
| Transmission rate: | ≤ 56kbps |
| Distribution voltage: | Refer to rotary switch setting |
| Voltage tolerance: | ±10% |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 17.8mm (W) × 110mm (H) × 117mm (D) |

Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 3; 2, 3):

Uo=18.4V, Io=13mA, Po=60mW

II C: Co=0.2μF, Lo=70mH

II B: Co=1.1μF, Lo=210mH

II A: Co=4.9μF, Lo=560mH

Certified parameters (Terminals 5, 6):

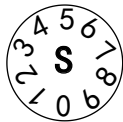
Uo=23.1V, Io=187mA, Po=1080mW

II C: Co=0.07μF, Lo=0.4mH

II B: Co=0.6μF, Lo=1.2mH

II A: Co=2.5μF, Lo=3.2mH

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 |

NPEXA-C722

Single input, single output

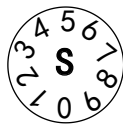
Input: RS-232
Output: RS-232

This isolated safety barrier converts the RS-232 digital signals from a hazardous area into RS-232 digital signals to a safe area, and also provides power to the transmitter. The input, output, and power supply are galvanically isolated from each other.

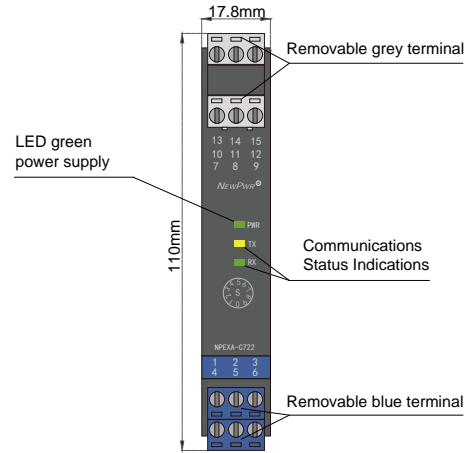
Parameters

| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60 V DC (Reverse power protection) |
| Power dissipation: | ≤ 2W (Distribution: 8V/9V/12V, 50mA) ≤ 3.5W (Distribution: 5V/ 6V, 100mA) |
| Input signal: | RS-232 |
| Control mode: | full-duplex |
| Output signal: | RS-232 |
| Transmission delay: | ≤ 5μs |
| Transmission rate: | ≤ 56kbps |
| Distribution voltage: | Refer to rotary switch setting |
| Voltage tolerance: | ±10% |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 17.8mm (W) × 110mm (H) × 117mm (D) |

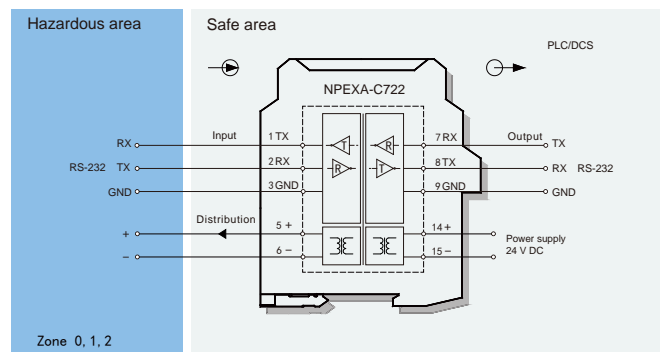
Rotary switch setting



| 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 and Test Centre for Explosion Protected Electrical Products (CQST)

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 3; 2, 3):

Uo=18.4V, Io=13mA, Po=60mW

II C: Co=0.2μF, Lo=70mH

II B: Co=1.1μF, Lo=210mH

II A: Co=4.9μF, Lo=560mH

Certified parameters (Terminals 5, 6):

Uo=23.1V, Io=187mA, Po=1080mW

II C: Co=0.07μF, Lo=0.4mH

II B: Co=0.6μF, Lo=1.2mH

II A: Co=2.5μF, Lo=3.2mH

Digital Isolated Safety Barrier

NPEXA-C723

Single input, single output

Input: RS-232

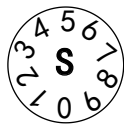
Output: RS-422

This isolated safety barrier converts the RS-232 digital signals from a hazardous area into RS-422 digital signals to a safe area, and also provides power to the transmitter. The input, output, and power supply are galvanically isolated from each other.

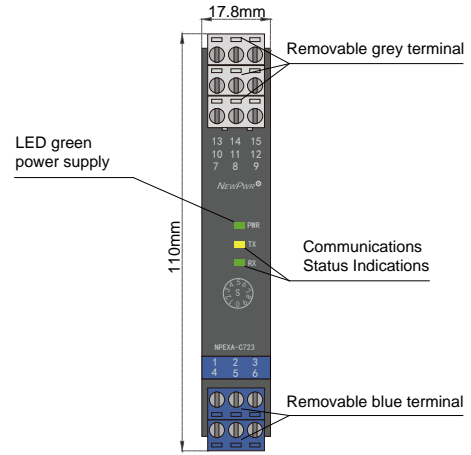
Parameters

| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60 V DC (Reverse power protection) |
| Power dissipation: | ≤ 2W (Distribution: 8V/9V/12V, 50mA) ≤ 3.5W (Distribution: 5V/ 6V, 100mA) |
| Input signal: | RS-232 |
| Control mode: | full-duplex |
| Output signal: | RS-422 |
| Transmission delay: | ≤ 5μs |
| Transmission rate: | ≤ 56kbps |
| Distribution voltage: | Refer to rotary switch setting |
| Voltage tolerance: | ±10% |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 17.8mm (W) × 110mm (H) × 117mm (D) |

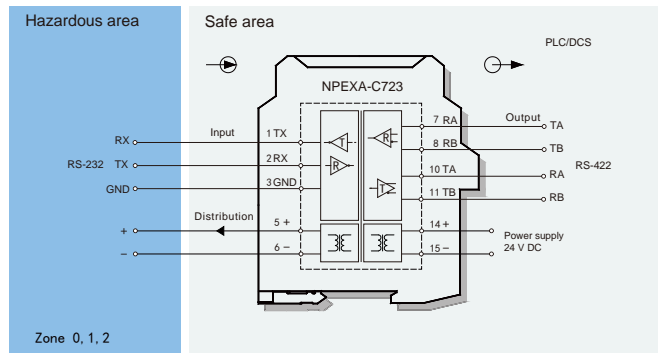
Rotary switch setting



| 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 and Test Centre for Explosion Protected Electrical Products(CQST)

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 3; 2, 3):

Uo=18.4V, Io=13mA, Po=60mW

II C: Co=0.2μF, Lo=70mH

II B: Co=1.1μF, Lo=210mH

II A: Co=4.9μF, Lo=560mH

Certified parameters (Terminals 5, 6):

Uo=23.1V, Io=187mA, Po=1080mW

II C: Co=0.07μF, Lo=0.4mH

II B: Co=0.6μF, Lo=1.2mH

II A: Co=2.5μF, Lo=3.2mH

NPEXA-C731

Single input, single output

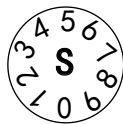
Input: RS-422
Output: RS-485

This isolated safety barrier converts the RS-422 digital signals from a hazardous area into RS-485 digital signals to a safe area, and also provides power to the transmitter. The input, output, and power supply are galvanically isolated from each other.

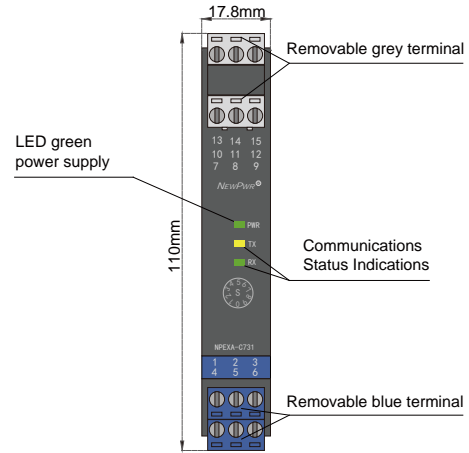
Parameters

| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60 V DC (Reverse power protection) |
| Power dissipation: | ≤ 2W (Distribution: 8V/9V/12V, 50mA) ≤ 3.5W (Distribution: 5V/ 6V, 100mA) |
| Input signal: | RS-422 |
| Control mode: | full-duplex |
| Output signal: | RS-485 |
| Transmission delay: | ≤ 5μs |
| Transmission rate: | ≤ 56kbps |
| Distribution voltage: | Refer to rotary switch setting |
| Voltage tolerance: | ±10% |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 17.8mm (W) × 110mm (H) × 117mm (D) |

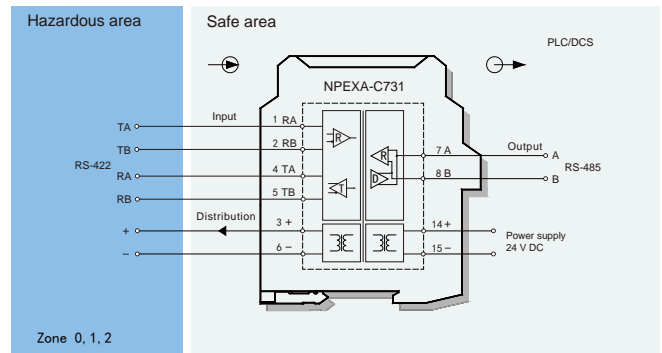
Rotary switch setting



| 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 and Test Centre for Explosion Protected Electrical Products (CQST)

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2; 4, 5):

Uo=7.6V, Io=77mA, Po=147mW

II C: Co=7μF, Lo=6mH

II B: Co=112μF, Lo=18mH

II A: Co=700μF, Lo=48mH

Certified parameters (Terminals 3, 6):

Uo=23.1V, Io=187mA, Po=1080mW

II C: Co=0.1μF, Lo=0.34mH

II B: Co=0.6μF, Lo=1.02mH

II A: Co=2.5μF, Lo=2.72mH

Digital Isolated Safety Barrier

NPEXA-C732

Single input, single output

Input: RS-422

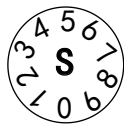
Output: RS-232

This isolated safety barrier converts the RS-422 digital signals from a hazardous area into RS-232 digital signals to a safe area, and also provides power to the transmitter. The input, output, and power supply are galvanically isolated from each other.

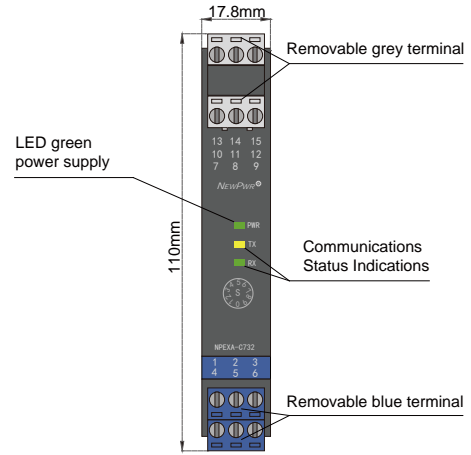
Parameters

| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60 V DC (Reverse power protection) |
| Power dissipation: | ≤ 2W (Distribution: 8V/9V/12V, 50mA) ≤ 3.5W (Distribution: 5V/ 6V, 100mA) |
| Input signal: | RS-422 |
| Control mode: | full-duplex |
| Output signal: | RS-232 |
| Transmission delay: | ≤ 5μs |
| Transmission rate: | ≤ 56kbps |
| Distribution voltage: | Refer to rotary switch setting |
| Voltage tolerance: | ±10% |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 17.8mm (W) × 110mm (H) × 117mm (D) |

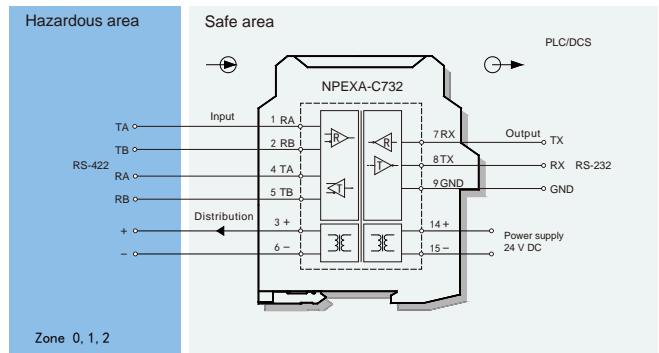
Rotary switch setting



| 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 and Test Centre for Explosion Protected Electrical Products(CQST)

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2; 4, 5):

Uo=7.6V, Io=77mA, Po=147mW

II C: Co=7μF, Lo=6mH

II B: Co=112μF, Lo=18mH

II A: Co=700μF, Lo=48mH

Certified parameters (Terminals 3, 6):

Uo=23.1V, Io=187mA, Po=1080mW

II C: Co=0.1μF, Lo=0.34mH

II B: Co=0.6μF, Lo=1.02mH

II A: Co=2.5μF, Lo=2.72mH

NPEXA-C733

Single input, single output

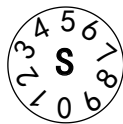
Input: RS-422
Output: RS-422

This isolated safety barrier converts the RS-422 digital signals from a hazardous area into RS-422 digital signals to a safe area, and also provides power to the transmitter. The input, output, and power supply are galvanically isolated from each other.

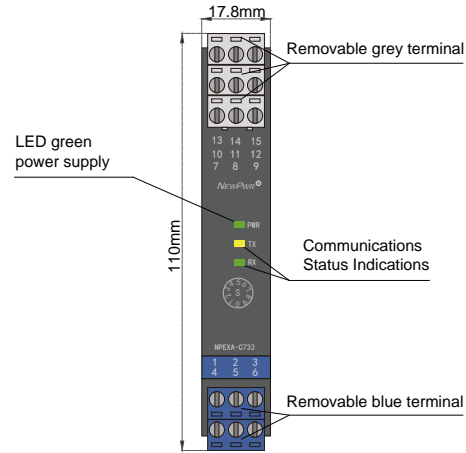
Parameters

| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60 V DC (Reverse power protection) |
| Power dissipation: | ≤ 2W (Distribution: 8V/9V/12V, 50mA) ≤ 3.5W (Distribution: 5V/ 6V, 100mA) |
| Input signal: | RS-422 |
| Control mode: | full-duplex |
| Output signal: | RS-422 |
| Transmission delay: | ≤ 5μs |
| Transmission rate: | ≤ 56kbps |
| Distribution voltage: | Refer to rotary switch setting |
| Voltage tolerance: | ±10% |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 17.8mm (W) × 110mm (H) × 117mm (D) |

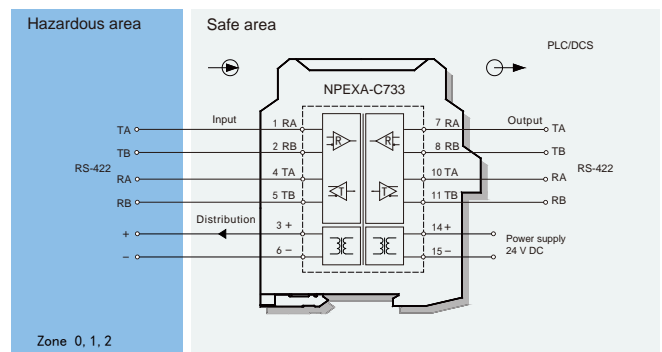
Rotary switch setting



| 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 and Test Centre for Explosion Protected Electrical Products (CQST)

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2; 4, 5):

Uo=7.6V, Io=77mA, Po=147mW

II C: Co=7μF, Lo=6mH

II B: Co=112μF, Lo=18mH

II A: Co=700μF, Lo=48mH

Certified parameters (Terminals 3, 6):

Uo=23.1V, Io=187mA, Po=1080mW

II C: Co=0.1μF, Lo=0.34mH

II B: Co=0.6μF, Lo=1.02mH

II A: Co=2.5μF, Lo=2.72mH

Digital Isolated Safety Barrier

NPEXA-C744

Single input, single output

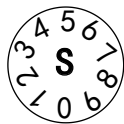
Input: CAN
Output: CAN

This isolated safety barrier converts the CAN digital signals from a hazardous area into CAN digital signals to a safe area, and also provides power to the transmitter. The input, output, and power supply are galvanically isolated from each other.

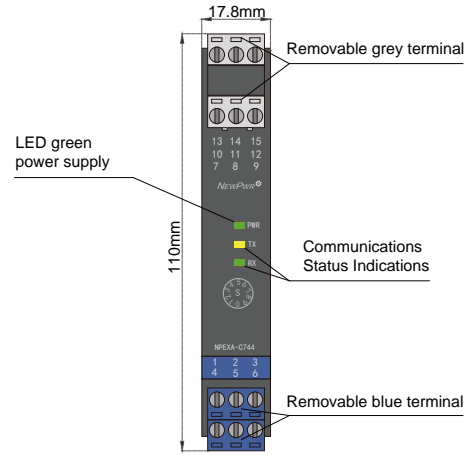
Parameters

| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60 V DC (Reverse power protection) |
| Power dissipation: | ≤ 2W (Distribution: 8V/9V/12V, 50mA) ≤ 4W (Distribution: 5V/ 6V, 100mA) |
| Input signal: | CAN |
| Control mode: | half-duplex |
| Output signal: | CAN |
| Transmission delay: | ≤ 2μs |
| Transmission rate: | ≤ 300kbps |
| Drive nodes: | ≤ 10 |
| Distribution voltage: | Refer to rotary switch setting |
| Voltage tolerance: | ±10% |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 17.8mm (W) × 110mm (H) × 117mm (D) |

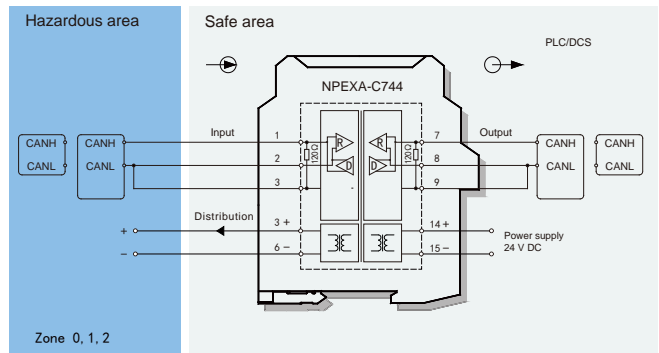
Rotary switch setting



| 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 and Test Centre for Explosion Protected Electrical Products(CQST)

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2, 3):

Uo=6.6V, Io=66.7mA, Po=110.1mW

II C: Co=15.4μF, Lo=5.5mH

II B: Co=350μF, Lo=16.5mH

II A: Co=700μF, Lo=44mH

Certified parameters (Terminals 5, 6):

Uo=23.1V, Io=187mA, Po=1080mW

II C: Co=0.07μF, Lo=0.4mH

II B: Co=0.7μF, Lo=1.2mH

II A: Co=2.5μF, Lo=3.6mH

NPEXA-C744Z

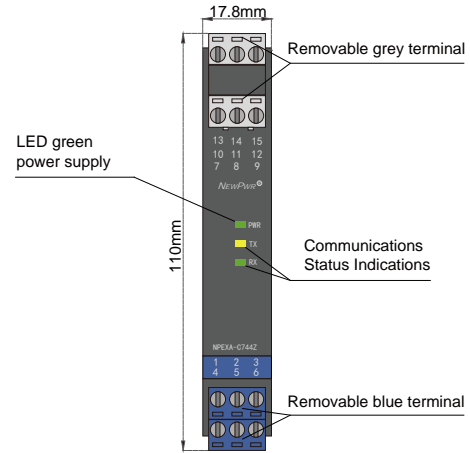
Single input, single output

Input: CAN
Output: CAN

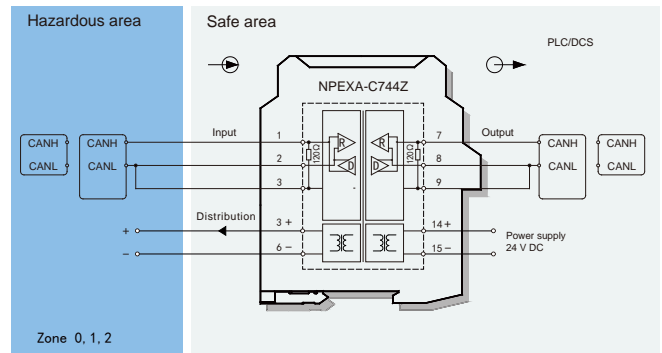
This isolated safety barrier converts the CAN digital signals from a hazardous area into CAN digital signals to a safe area, and also provides power to the transmitter. The input, output, and power supply are galvanically isolated from each other.

Parameters

| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60 V DC (Reverse power protection) |
| Power dissipation: | ≤ 2W |
| Input signal: | CAN |
| Control mode: | half-duplex |
| Output signal: | CAN |
| Transmission delay: | ≤ 2μs |
| Transmission rate: | ≤ 300kbps |
| Drive nodes: | ≤ 10 |
| Distribution voltage: | 9V DC±10%, 140mA |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 17.8mm (W) × 110mm (H) × 117mm (D) |



Wiring diagram



Explosive-proof parameters

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

Explosive-proof grade: [Ex ia Ga] II C

Um: 250V

Certified parameters (Terminals 1, 2, 3):

Uo=6.6V, Io=66.7mA, Po=110.1mW

II C: Co=15.4μF, Lo=5.5mH

II B: Co=350μF, Lo=16.5mH

II A: Co=700μF, Lo=44mH

Certified parameters (Terminals 5, 6):

Uo=17V, Io=460mA, Po=1955mW

II C: Co=0.26μF, Lo=117.6μH

II B: Co=1.54μF, Lo=352μH

II A: Co=6.3μF, Lo=940μH

Potentiometer Isolated Safety Barrier

NPEXA-C91

Single input, single output

NPEXA-C911

Single input, double output

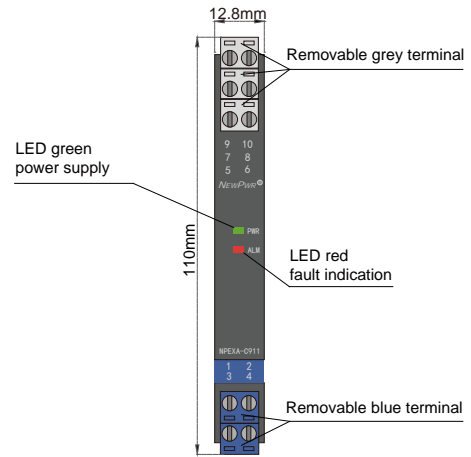
Input: potentiometer

Output: 4 ~ 20 mA

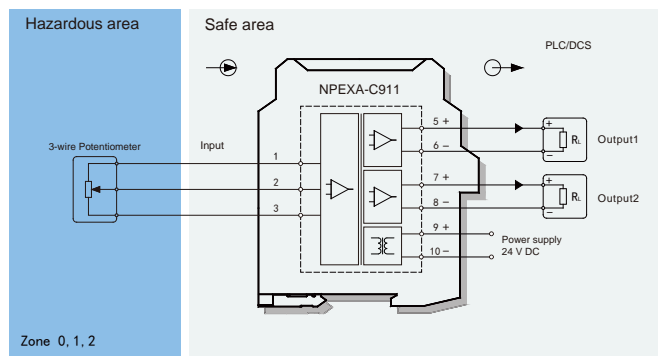
This isolated safety barrier converts the 3-wire potentiometer signals from a hazardous area into current or voltage signals to a safe area. It needs an independent power supply. The input, output, and power supply are galvanically isolated from each other. A self-test feature is also available on this device. You can use PC or handheld programmer to modify parameters.

Parameters

| | |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power supply: | 18V DC ~ 60V DC (Reverse power protection) |
| Power dissipation: | 0.8W (single output) 1.2W (double output) |
| Input signal: | 3-wire potentiometer: 0 Ω ~ 10 kΩ |
| Output signal: | 4 ~ 20mA |
| Load resistance: | RL ≤ 550Ω |
| Accuracy: | 0.1%F.S. |
| Temperature drift: | 30ppm/°C |
| Response time: | ≤ 500ms |
| Electromagnetic compatibility: | IEC 61326-3-1 |
| Dielectric strength: | ≥ 3000V AC (intrinsically safe side / non-intrinsically safe side) ≥ 1500V AC (Power supply/non-intrinsically safe side) |
| Insulation resistance: | ≥ 100MΩ (Input /Output/Power supply) |
| Operation temperature: | -20°C ~ +60°C |
| Storage temperature: | -40°C ~ +80°C |
| Dimension: | 12.8mm (W) × 110mm (H) × 117mm (D) |
| Output states: | Whatever input fault status (except breakage), the output follows the input within measuring range. And the maximum 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 minimum output value may be 0mA, the maximum output value would not exceed 22mA) |



Wiring diagram



Explosive-proof parameters

National Supervision and Inspection Center for Explosion Protection and Safety of Instrumentation (NEPSI)
Explosive-proof grade: [Ex ia Ga] II C
Um: 250V
Certified parameters (Terminals 1, 2, 3):
Uo=8.7V, Io=33mA, Po=72mW
II C : Co=5μF, Lo=28mH
II B : Co=35μF, Lo=84mH
II A : Co=700μF, Lo=224mH

Model rules

NPEXA-C911 [X] [X] [X]
PB : BUS powered
Default: Terminals powered
The second output signal^{note1}
Default: null
The first output signal^{note1}

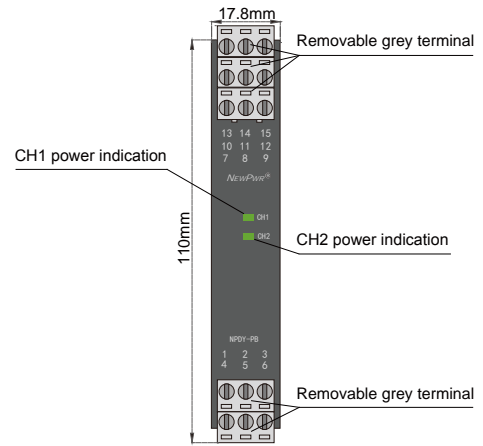
note1 : output signal

| Number | Output signal |
|--------|---------------|
| 1 | 4~20mA |
| 2 | 1~5V |
| 3 | 0~10mA |
| 4 | 0~5V |
| 5 | 0~10V |
| 6 | 0~20mA |

NPDY-PB

The Redundant Feed Module

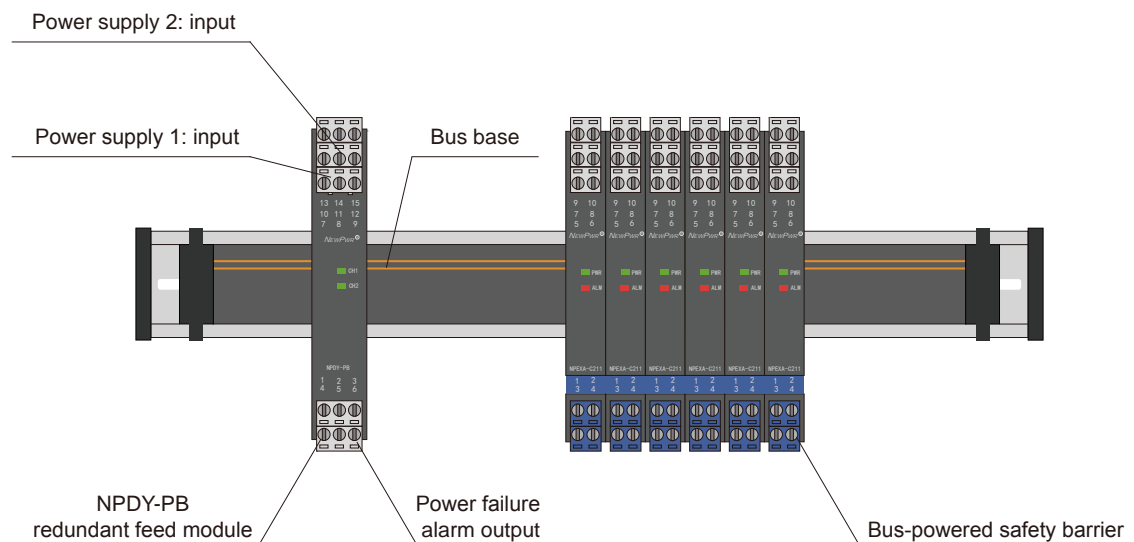
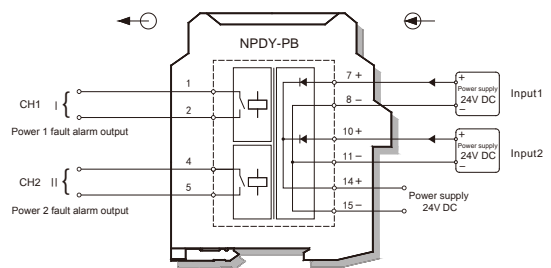
The redundant feed module supplies power to the BUS base through the snap connection of the BUS connector. It can be connected to two power sources to achieve power redundancy and has two relay fault alarm outputs.

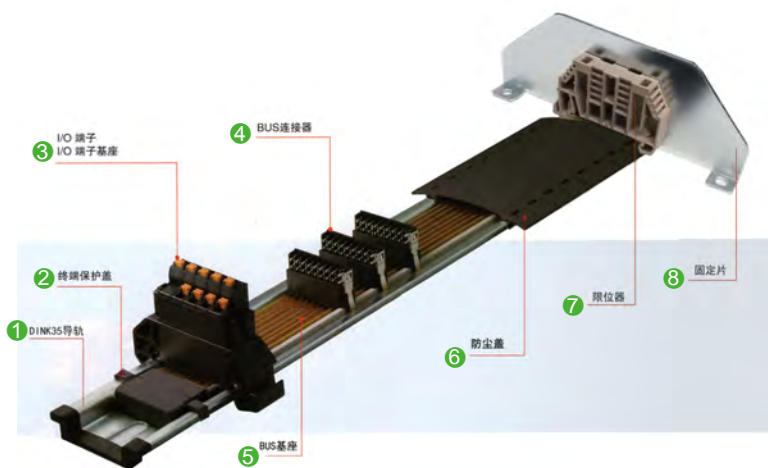


Parameters

- Input Voltage: 20V DC ~ 35V DC (Reverse power protection)
- Internal pressure drop: $\leq 1.5V$
- Internal loss: $\leq 1W$
- Voltage output: U-1.5V, U means power supply voltage
- Current output: $\leq 4A$
- Fault output: relay contact
- Contact rating: 250VAC/2A or 30VDC/2A
- Response time: $\leq 20ms$
- Protection method: Built-in 5A fuse
- Output method: BUS connector
- Status indication: Power supply is normal: LED ON
Power supply failure: LED OFF
- Electromagnetic compatibility: IEC 61326-3-1
- Operating temperature: $-20^{\circ}C \sim +60^{\circ}C$
- Storage temperature: $-40^{\circ}C \sim +80^{\circ}C$
- Dimension: 17.8mm (W) \times 110mm (H) \times 117mm (D)

Wiring diagram

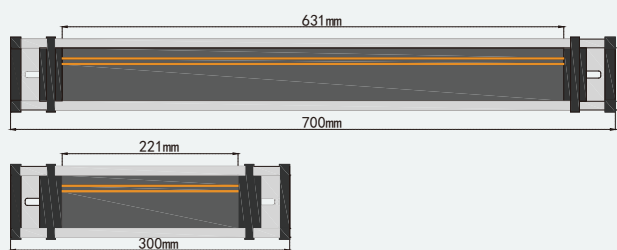




Bus-powered accessory:

- ① 35mm standard rail
- ② Terminal protection cover
- ③ I/O terminal base and terminal
- ④ Bus connector (Bus instrument standard accessories)
- ⑤ Bus base
- ⑥ Dust cover
- ⑦ Limiter
- ⑧ Fixed piece

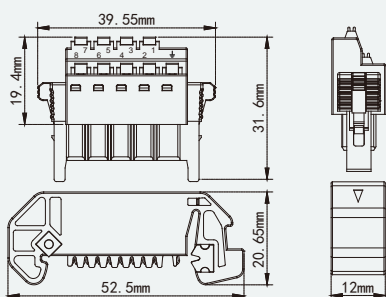
Dimension



Bus rail power supply

| Model | NPPB-DIN300 | NPPB-DIN700 |
|---------------------------|-------------|-------------|
| Rated voltage | 24V DC | 24V DC |
| Rated current | 5 A | 5 A |
| Rail length | 300mm | 700mm |
| Installation length | 221mm | 631mm |
| Terminal protection cover | 2 | 2 |
| Bus base | 1 | 1 |

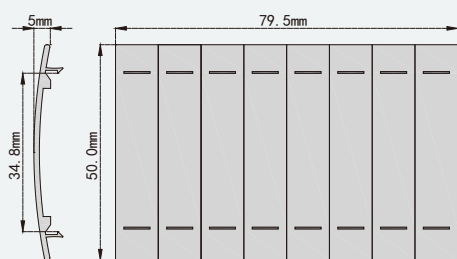
Dimension



I/O terminal base

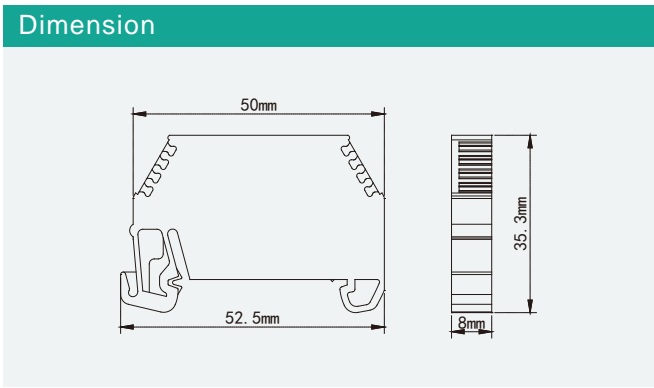
| Model | NPPB-BS210 |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power supply | 1+, 3- |
| Description | Connect the rail BUS base, external power is introduced through the terminal block of the base. If a redundant power module is selected, this terminal can be left unselected. |

Dimension



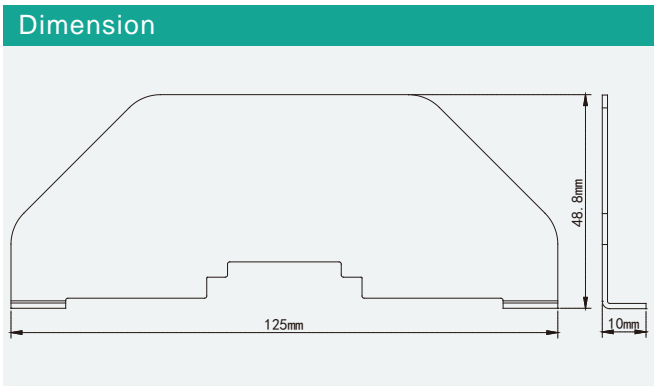
Dust cover

| Model | NPPB-BSC028 |
|-------------|--------------------------------------------------------------|
| Description | Protect the exposed bus and split the combination as needed. |



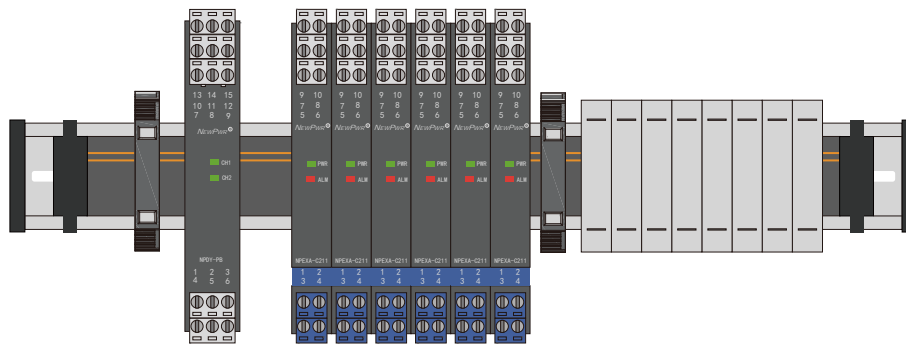
Limiter

| | |
|-------------|-------------------------------------|
| Model | NPPB-SS5 |
| Description | For fixed position, standard 2 sets |



Fixed piece

| | |
|-------------|-----------------------------------------------------------------------------------|
| Model | NPPB-TS35B |
| Description | Material: metal iron, used for rail load-bearing reinforcement, standard 2 pieces |



Select redundant power supply module installation