

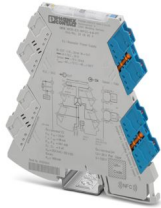
MINI MCR-EX-RPSS-I-I-PT - Repeater power supply



2908804

<https://www.phoenixcontact.com/us/products/2908804>

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Ex i-Repeater power supply and input signal conditioner transmits supplied or active 0 mA/4 mA ... 20 mA signals from the Ex area to a load in the safe area.. open-circuit voltage: 15 V DC, Standard configuration, 3-way isolation, Line fault detection, Safety Integrity Level (SIL, IEC 61508): 3, Push-in connection

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 2908804 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | C430 |
| Product key | DK1221 |
| GTIN | 4055626362984 |
| Weight per piece (including packing) | 120.833 g |
| Weight per piece (excluding packing) | 120.833 g |
| Customs tariff number | 85437090 |
| Country of origin | DE |

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Technical data

Product properties

| | |
|----------------|-----------------------|
| Product type | Repeater power supply |
| Product family | MINI Analog Pro |
| Application | Analog IN |

Electrical properties

| | |
|---|----------------------|
| Electrical isolation | 3-way isolation |
| Electrical isolation between input and output | yes |
| Line monitoring | Line fault detection |
| Signal transmission behavior | In = Out |
| Step response (10-90%) | ≤ 10 ms |
| Maximum temperature coefficient | ≤ 0.01 %/K |
| Maximum transmission error | ≤ 0.1 % |
| Reverse polarity protection | yes |

Electrical isolation

| | |
|----------------------|---------------|
| Overvoltage category | II (≤ 5000 m) |
| Pollution degree | 2 (≤ 5000 m) |

Electrical isolation Input/output/power supply IEC/EN 61010-1

| | |
|--------------------------|------------------------------|
| Standards/regulations | IEC/EN 61010-1 |
| Rated insulation voltage | 300 V _{rms} |
| Test voltage | 2.5 kV AC (50 Hz, 60 s) |
| Insulation | Double/reinforced insulation |

Electrical isolation Input/output, power supply IEC/EN 60079-11

| | |
|--------------------------|----------------------|
| Standards/regulations | IEC/EN 60079-11 |
| Rated insulation voltage | 253 V _{rms} |

Electrical isolation Input/output/power supply IEC/EN 60079-7

| | |
|--------------------------|----------------------|
| Standards/regulations | IEC/EN 60079-7 |
| Rated insulation voltage | 251 V _{rms} |

Supply

| | |
|------------------------|--|
| Nominal supply voltage | 24 V DC |
| Supply voltage range | 19.2 V DC ... 30 V DC (24 V DC, -20 % ... +25 %) |
| Power consumption | ≤ 1.4 W |

Input data

Signal: Repeater power supply operation

| | |
|----------------------------|--|
| Description of the input | Active current input, intrinsically safe |
| Current input signal | 4 mA ... 20 mA |
| Transmitter supply voltage | > 16 V (20 mA) |

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2908804

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| | |
|--------------------------------------|---|
| | > 15.75 V (21 mA) |
| Signal: Signal conditioner operation | |
| Description of the input | Passive current input, intrinsically safe |
| Current input signal | 4 mA ... 20 mA |
| | 0 mA ... 20 mA |
| Voltage drop | < 4 V DC (20 mA) |

Output data

Signal: Repeater power supply operation

| | |
|---------------------------------|-----------------|
| Output description | Current output |
| Number of outputs | 1 |
| Current output signal | 4 mA ... 20 mA |
| Load/output load current output | ≤ 450 Ω (20 mA) |
| | ≤ 420 Ω (21 mA) |
| Open-circuit voltage | ≤ 15 V DC |
| Short-circuit-proof | yes |

Signal: Signal conditioner operation

| | |
|---------------------------------|-----------------|
| Output description | Current output |
| Number of outputs | 1 |
| Current output signal | 4 mA ... 20 mA |
| | 0 mA ... 20 mA |
| Load/output load current output | ≤ 450 Ω (20 mA) |
| | ≤ 420 Ω (21 mA) |

Connection data

| | |
|----------------------------------|--|
| Connection method | Push-in connection |
| Stripping length | 10 mm |
| Conductor cross-section rigid | 0.2 mm ² ... 2.5 mm ² (with ferrule) |
| | 0.14 mm ² ... 2.5 mm ² (without ferrule) |
| Conductor cross-section flexible | 0.14 mm ² ... 2.5 mm ² |
| Conductor cross-section AWG | 24 ... 12 (flexible) |

Ex data

| | |
|-----------------------|----------|
| Ex installation (EPL) | Gc |
| | Div. 2 |
| Ex i circuits (EPL) | [Ga] |
| | [Da] |
| | [Ma] |
| | [Div. 1] |

Safety data: Repeater power supply operation

| | |
|---------------------------------|------------|
| Max. internal inductance L_i | negligible |
| Max. internal capacitance C_i | 4 nF |

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| | |
|---|---|
| Max. output voltage U_o | 26.4 V |
| Max. output current I_o | 98 mA |
| Max. output power P_o | 647 mW |
| Safety-related maximum voltage U_m | 253 V AC (≤ 2000 m) |
| | 125 V DC (≤ 2000 m) |
| | 121 V AC (> 2000 m ... 3000 m) |
| | 110 V DC (> 2000 m ... 3000 m) |
| | 33 V AC/DC (> 3000 m ... 4000 m) |
| | 33 V AC/DC (> 4000 m ... 5000 m) |
| IIA/I (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o | 10 mH / 2.48 μ F |
| IIB/III (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o | 4 mH / 730 nF |
| IIC (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o | 2 mH / 92 nF |
| IIA/I (mixed circuit): Max. external inductivity L_o / Max. external capacitance C_o | 10 mH / 496 nF, 1 mH / 556 nF, 500 μ H / 656 nF, 200 μ H / 836 nF, 100 μ H / 996 nF |
| IIB/III (mixed circuit): Max. external inductivity L_o / Max. external capacitance C_o | 4 mH / 306 nF, 1 mH / 386 nF, 500 μ H / 466 nF, 200 μ H / 616 nF, 100 μ H / 736 nF |
| IIC (mixed circuit): Max. external inductivity L_o / Max. external capacitance C_o | 1.4 mH / 45 nF, 1 mH / 52 nF, 500 μ H / 69 nF, 200 μ H / 92 nF |

Safety data: Signal conditioner operation

| | |
|---|---|
| Input voltage U_i | 30 V |
| Input current I_i | 150 mA |
| Max. internal inductance L_i | negligible |
| Max. internal capacitance C_i | 4 nF |
| Safety-related maximum voltage U_m | 253 V AC (≤ 2000 m) |
| | 125 V DC (≤ 2000 m) |
| | 121 V AC (> 2000 m ... 3000 m) |
| | 110 V DC (> 2000 m ... 3000 m) |
| | 33 V AC/DC (> 3000 m ... 4000 m) |
| | 33 V AC/DC (> 4000 m ... 5000 m) |
| IIA/I (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o | 10 mH / 2.48 μ F |
| IIB/III (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o | 4 mH / 730 nF |
| IIC (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o | 2 mH / 92 nF |
| IIA/I (mixed circuit): Max. external inductivity L_o / Max. external capacitance C_o | 10 mH / 496 nF, 1 mH / 556 nF, 500 μ H / 656 nF, 200 μ H / 836 nF, 100 μ H / 996 nF |
| IIB/III (mixed circuit): Max. external inductivity L_o / Max. external capacitance C_o | 4 mH / 306 nF, 1 mH / 386 nF, 500 μ H / 466 nF, 200 μ H / 616 nF, 100 μ H / 736 nF |
| IIC (mixed circuit): Max. external inductivity L_o / Max. external capacitance C_o | 1.4 mH / 45 nF, 1 mH / 52 nF, 500 μ H / 69 nF, 200 μ H / 92 nF |

Interfaces

| | |
|-------------------|--------|
| Connection method | S-PORT |
|-------------------|--------|

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2908804

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Data communication (bypass)

| | |
|------------------------|------------------|
| Protocols supported | HART-transparent |
| Limit frequency (3 dB) | ≥ 1.75 kHz |

Signaling

| | |
|----------------|----------------------------|
| Status display | Green LED (supply voltage) |
|----------------|----------------------------|

Dimensions

| | |
|--------|-----------|
| Width | 6.2 mm |
| Height | 109.81 mm |
| Depth | 119.2 mm |

Material specifications

| | |
|------------------|-----------------|
| Color | gray (RAL 7042) |
| Housing material | PBT |

Environmental and real-life conditions

Ambient conditions

| | |
|---|--|
| Ambient temperature (operation) | -40 °C ... 70 °C (Any mounting position) |
| Ambient temperature (storage/transport) | -40 °C ... 85 °C |
| Permissible humidity (operation) | 5 % ... 95 % (at 25 °C, non-condensing) |
| Shock (operation) | 15g (DIN EN 60068-2-27) |
| Vibration (operation) | 5g (DIN EN 60068-2-6) |

Altitude range (IEC/EN 61010-1)

| | |
|---------------------------------|--|
| Height range | > 2000 m ... 3000 m |
| Ambient temperature (operation) | -40 °C ... 63 °C |
| Rated insulation voltage | 300 V _{rms} (Input/output/power supply) |
| Insulation | Double/reinforced insulation |

Altitude range (IEC/EN 61010-1)

| | |
|---------------------------------|--|
| Height range | > 3000 m ... 4000 m |
| Ambient temperature (operation) | -40 °C ... 56 °C |
| Rated insulation voltage | 300 V _{rms} (Input/output/power supply) |
| Insulation | Double/reinforced insulation |

Altitude range (IEC/EN 61010-1)

| | |
|---------------------------------|--|
| Height range | > 4000 m ... 5000 m |
| Ambient temperature (operation) | -40 °C ... 49 °C |
| Rated insulation voltage | 150 V _{rms} (Input/output/power supply) |
| Insulation | Double/reinforced insulation |

Altitude range (IEC/EN 60079-11)

| | |
|---------------------------------|---------------------|
| Height range | > 2000 m ... 3000 m |
| Ambient temperature (operation) | -40 °C ... 63 °C |

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2908804

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| | |
|----------------------------------|---|
| Rated insulation voltage | 150 V _{rms} (Input/output, power supply) |
| Altitude range (IEC/EN 60079-11) | |
| Height range | > 3000 m ... 4000 m |
| Ambient temperature (operation) | -40 °C ... 56 °C |
| Rated insulation voltage | 60 V _{rms} (Input/output, power supply) |
| Altitude range (IEC/EN 60079-11) | |
| Height range | > 4000 m ... 5000 m |
| Ambient temperature (operation) | -40 °C ... 49 °C |
| Rated insulation voltage | 60 V _{rms} (Input/output, power supply) |
| Altitude range (IEC/EN 60079-7) | |
| Height range | > 2000 m ... 3000 m |
| Ambient temperature (operation) | -40 °C ... 63 °C |
| Rated insulation voltage | 162 V _{rms} (Input/output/power supply) |
| Altitude range (IEC/EN 60079-7) | |
| Height range | > 3000 m ... 4000 m |
| Ambient temperature (operation) | -40 °C ... 56 °C |
| Rated insulation voltage | 60 V _{rms} (Input/output/power supply) |
| Altitude range (IEC/EN 60079-7) | |
| Height range | > 4000 m ... 5000 m |
| Ambient temperature (operation) | -40 °C ... 49 °C |
| Rated insulation voltage | 60 V _{rms} (Input/output/power supply) |

Approvals

CE

| | |
|-------------|--------------|
| Certificate | CE-compliant |
|-------------|--------------|

ATEX

| | |
|----------------|--------------------------------------|
| Identification | ⊕ II (1) G [Ex ia Ga] IIC |
| | ⊕ II (1) D [Ex ia Da] IIIC |
| | ⊕ II 3 (1) G Ex ec [ia Ga] IIC T4 Gc |
| | ⊕ I (M1) [Ex ia Ma] I |
| Certificate | BVS 23 ATEX 006 X |

IECEX

| | |
|----------------|-------------------------|
| Identification | [Ex ia Ga] IIC |
| | [Ex ia Da] IIIC |
| | Ex ec [ia Ga] IIC T4 Gc |
| | [Ex ia Ma] I |
| Certificate | IECEX BVS 23.0003X |

CCC / China-Ex

| | |
|--|----------------|
| | [Ex ia Ga] IIC |
|--|----------------|

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| | |
|----------------|-------------------------|
| Identification | [Ex ia Da] IIC |
| | Ex ec [ia Ga] IIC T4 Gc |
| Certificate | 2023122310117250 |

UL, USA/Canada

| | |
|---|---|
| Identification | UL 61010-2-201 Listed |
| | Class I, Div. 1, Groups A, B, C, D |
| | Class II, Div. 1, Groups E, F, G |
| | Class III, Div. 1 |
| | Class I, Zone 0, 1, 2, Groups IIC, IIB, IIA |
| | Class I, Div. 2, Groups A, B, C, D T4 |
| | Class I, Zone 2 |
| | AEx ec [ia Ga] IIC T4 Gc; AEx ec [ia IIIC Da] IIC T4 Gc |
| | Ex ec [ia Ga] IIC T4 Gc X; Ex ec [ia IIIC Da] IIC T4 Gc X |
| | Class I, Zone 0, [AEx ia Ga] IIC, [Ex ia Ga] IIC X |
| Class I, Zone 20, [AEx ia Da] IIIC, [Ex ia Da] IIIC X | |
| Certificate | UL, C.D.-No 097285872 |

Shipbuilding approval

| | |
|-------------|----------------|
| Certificate | DNV TAA00003FZ |
|-------------|----------------|

Safety Integrity Level (SIL, IEC 61508)

| | |
|----------------|----------------|
| Identification | 3 |
| Note | single-channel |

INMETRO

| | |
|----------------|-------------------------|
| Identification | [Ex ia Ma] I |
| | [Ex ia Ga] IIC |
| | [Ex ia Da] IIIC |
| | Ex ec [ia Ga] IIC T4 Gc |
| Certificate | DNV 23.0186 X |

Shipbuilding data

| | |
|-------------|---|
| Temperature | B |
| Humidity | B |
| Vibration | A |
| EMC | A |
| Enclosure | Required protection according to the Rules shall be provided upon installation on board |

EMC data

| | |
|-------------------------------|---|
| Electromagnetic compatibility | Tested in accordance with the following standards and regulations: EN 61326-1 For industrial use, NAMUR NE 21 |
| Low Voltage Directive | Conformance with Low Voltage Directive |
| Noise immunity | EN 61000-6-2 |
| Noise immunity | EN 61326-3-2 |

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Noise emission

| | |
|-----------------------|--------------|
| Standards/regulations | EN 61000-6-4 |
|-----------------------|--------------|

Standards and regulations

| | |
|----------------------|-----------------|
| Electrical isolation | 3-way isolation |
|----------------------|-----------------|

Mounting

| | |
|-------------------|-------------------|
| Mounting type | DIN rail mounting |
| Mounting position | any |

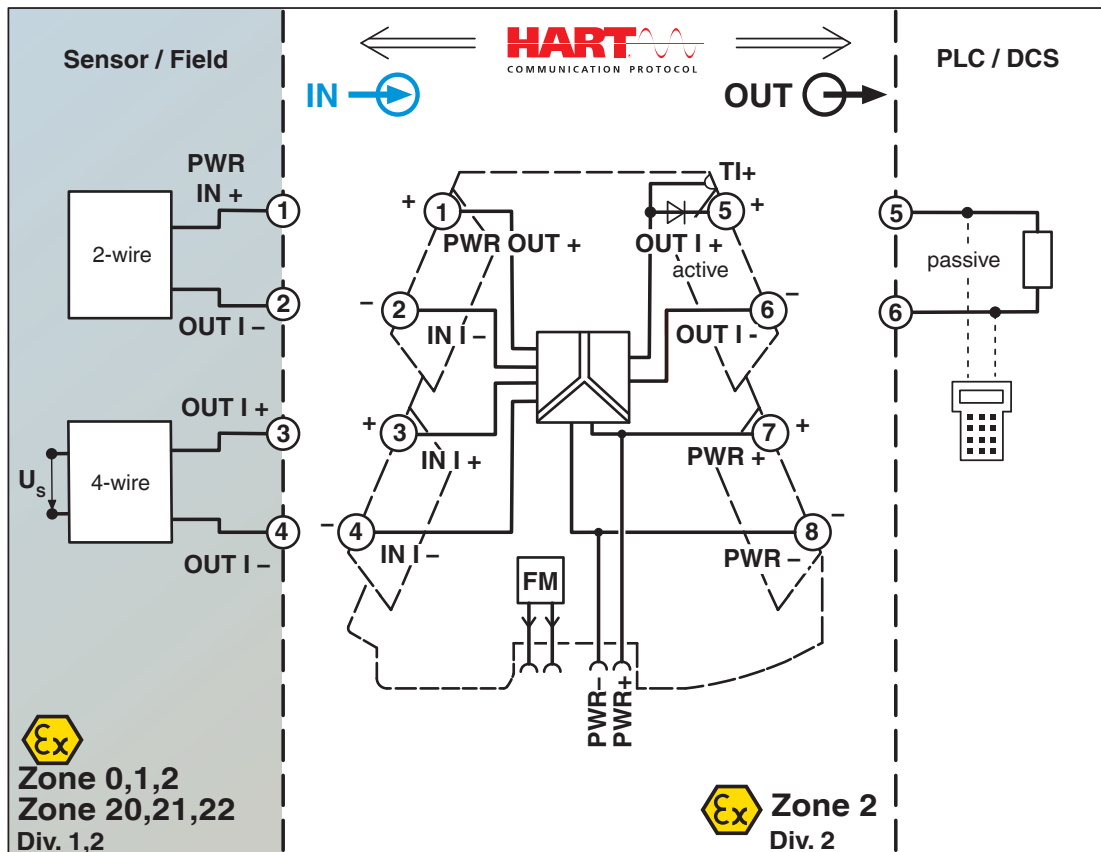
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Drawings

Block diagram



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Approvals


To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2908804>


 **Functional Safety**
Approval ID: 1435.IM.131623/19


 **cULus Listed**
Approval ID: E238705

DNV
Approval ID: TAA00003FZ

 **cULus Listed**
Approval ID: E238705

 **IECEX**
Approval ID: IECEX BVS 23.0003X

 **ATEX**
Approval ID: BVS 23 ATEX E 006 X

 **CCC**
Approval ID: 2023122303117249

 **cULus Listed**
Approval ID: E196811

 **cULus Listed**
Approval ID: E196811

INMETRO
Approval ID: DNV 23.0186 X

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Classifications

ECLASS

| | |
|-------------------|----------|
| ECLASS-13.0 | 27210120 |
| ECLASS-15.0 | 27210120 |
| ECLASS-15.0 ASSET | 27250101 |

ETIM

| | |
|-----------|----------|
| ETIM 10.0 | EC002653 |
|-----------|----------|

UNSPSC

| | |
|-------------|----------|
| UNSPSC 21.0 | 39121008 |
|-------------|----------|

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Environmental product compliance

EU RoHS

| | |
|---|--------------|
| Fulfills EU RoHS substance requirements | Yes |
| Exemption | 7(a), 7(c)-I |

China RoHS

| | |
|--|---|
| Environment friendly use period (EFUP) | EFUP-50 |
| | An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required. |

EU REACH SVHC

| | |
|-------------------------------------|--------------------------------------|
| REACH candidate substance (CAS No.) | Lead(CAS: 7439-92-1) |
| SCIP | 2682cf28-0881-4668-9dac-7437f6e9aa0b |

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