

MACX MCR-SL-RPSSI-2I - Repeater power supply



2924825

<https://www.phoenixcontact.com/us/products/2924825>

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Measuring transducer repeater power supply and input signal conditioner transmits supplied or active 0 mA/4 mA ... 20 mA electrically isolated signals from the field to two loads. number of channels: 1, HART transparency, Standard configuration, 3-way isolation, Safety Integrity Level (SIL, IEC 61508): 2, Performance Level (ISO 13849): d / KAT 2, Systematic Capability: 3, Screw connection

Your advantages

- Power supply possible via DIN rail connector
- Up to SIL 2 in accordance with EN 61508
- Installation in zone 2, protection type "n" (EN 60079-15) permitted
- Two electrically isolated 0/4 mA ... 20 mA (active) outputs
- Bidirectional transmission of digital HART communication signals (both outputs)
- Plug-in screw or spring-cage connection technology (Push-in technology), with integrated sockets for HART communicators
- Input: 0/4 mA ... 20 mA (powered or not powered)
- 4-way electrical isolation

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 2924825 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | C402 |
| Product key | DK1111 |
| GTIN | 4046356572040 |
| Weight per piece (including packing) | 246.7 g |
| Weight per piece (excluding packing) | 158 g |
| Customs tariff number | 85437090 |
| Country of origin | DE |

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Technical data

Product properties

| | |
|-----------------|-----------------------|
| Product type | Repeater power supply |
| Product family | MACX Analog |
| No. of channels | 1 |

Electrical properties

| | |
|---|---|
| Electrical isolation | 3-way isolation |
| Electrical isolation between input and output | yes |
| Maximum power dissipation for nominal condition | 1.45 W (24 V DC / 20 mA) |
| Signal transmission behavior | In = Out |
| Step response (10-90%) | 1.3 ms (for jump 4 mA ... 20 mA, typical) |
| Maximum temperature coefficient | < 0.01 %/K |
| Maximum transmission error | < 0.1 % (of final value 20 mA) |
| Transmission error, typical | < 0.05 % (of final value 20 mA) |

Electrical isolation

| | |
|----------------------|----|
| Overvoltage category | II |
| Pollution degree | 2 |

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 | Safe isolation |

Electrical isolation Output 1/output 2

| | |
|--------------|-------------------------|
| Test voltage | 1.5 kV AC (50 Hz, 60 s) |
|--------------|-------------------------|

Supply

| | |
|--------------------------|---------------------------------|
| Designation | Repeater power supply operation |
| Nominal supply voltage | 24 V DC -20 % ... +25 % |
| Supply voltage range | 19.2 V DC ... 30 V DC |
| Max. current consumption | < 75 mA (24 V DC / 20 mA) |
| Power dissipation | < 1.45 W (24 V DC / 20 mA) |
| Power consumption | ≤ 1.8 W |

Supply

| | |
|--------------------------|------------------------------|
| Designation | Signal conditioner operation |
| Nominal supply voltage | 24 V DC -20 % ... +25 % |
| Supply voltage range | 19.2 V DC ... 30 V DC |
| Max. current consumption | < 46 mA (24 V DC / 20 mA) |
| Power dissipation | < 1.2 W (24 V DC / 20 mA) |

Input data

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Signal: Repeater power supply operation

| | |
|---------------------------------|--|
| Description of the input | Repeater power supply operation |
| Number of inputs | 1 |
| Current input signal | 4 mA ... 20 mA |
| Transmitter supply voltage | > 21.5 V (20 mA) > 21 V (23 mA) |
| Underload/overload signal range | 0 mA ... 24 mA (Extended transmission range for diagnostics) |

Signal: Signal conditioner operation

| | |
|---------------------------------|--|
| Description of the input | Signal conditioner operation |
| Current input signal | 0 mA ... 20 mA 4 mA ... 20 mA |
| Voltage drop | < 3.9 V (in input isolating amplifier operation) |
| Underload/overload signal range | 0 mA ... 24 mA (Extended transmission range for diagnostics) |

Output data

Signal: Repeater power supply operation

| | |
|--|---|
| Output description | Repeater power supply operation |
| Number of outputs | 2 |
| Current output signal | 4 mA ... 20 mA (active) 0 mA ... 20 mA |
| Load/output load current output | < 450 Ω (20 mA) < 380 Ω (23 mA) |
| Output ripple | < 20 mV _{rms} |
| Output behavior in the event of an error | 0 mA (Cable break in the input) ≥ 23 mA (Cable short-circuit in the input) |
| Underload/overload signal range | 0 mA ... 24 mA (Extended transmission range for diagnostics) |

Signal: Signal conditioner operation

| | |
|--|--|
| Output description | Signal conditioner operation |
| Current output signal | 0 mA ... 20 mA (active) 4 mA ... 20 mA (active) |
| Load/output load current output | < 450 Ω (20 mA) < 380 Ω (23 mA) |
| Output ripple | < 20 mV _{rms} |
| Output behavior in the event of an error | 0 mA (Cable break in the input) 0 mA (Cable short-circuit in the input) |
| Underload/overload signal range | 0 mA ... 24 mA (Extended transmission range for diagnostics) |

Connection data

| | |
|-------------------------------|---|
| Connection method | Screw connection |
| Stripping length | 7 mm |
| Screw thread | M3 |
| Conductor cross-section rigid | 0.2 mm ² ... 2.5 mm ² |

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| | |
|----------------------------------|---|
| Conductor cross-section flexible | 0.2 mm ² ... 2.5 mm ² |
| Conductor cross-section AWG | 24 ... 14 |
| Tightening torque | 0.5 Nm ... 0.6 Nm |

Test socket

| | |
|---------------|--------|
| Max. diameter | 2.3 mm |
|---------------|--------|

Ex data

| | |
|-----------------------|--------|
| Ex installation (EPL) | Gc |
| | Div. 2 |

Interfaces

Data communication (bypass)

| | |
|---------------------|-------------------|
| HART function | HART transparency |
| Protocols supported | HART |

Signaling

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

Dimensions

| | |
|---------------------|--|
| Dimensional drawing | |
| Width | 12.5 mm |
| Height | 112.5 mm |
| Depth | 113.7 mm |
| Depth NS 35/7,5 | 114.5 mm (Snapped onto DIN rail NS 35/7,5 in accordance with EN 60715) |

Material specifications

| | |
|--|-----------------|
| Color | gray (RAL 7042) |
| Flammability rating according to UL 94 (Housing) | V0 (Housing) |
| Housing material | PA 6.6-FR |

Environmental and real-life conditions

Ambient conditions

| | |
|---|--|
| Degree of protection | IP20 (not assessed by UL) |
| Ambient temperature (operation) | -40 °C ... 60 °C (Any mounting position) |
| | -40 °C ... 70 °C (Derating) |
| Ambient temperature (storage/transport) | -40 °C ... 80 °C |
| Permissible humidity (operation) | 10 % ... 95 % (non-condensing) |

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Altitude range (≤ 2000 m)

| | |
|---------------------------------|--|
| Altitude | ≤ 2000 m (The technical data refers to altitudes ≤2000 m above mean sea level. For altitudes >2000 m above mean sea level, refer to the data sheet.) |
| Ambient temperature (operation) | -40 °C ... 60 °C -40 °C ... 70 °C (Derating) |
| Rated insulation voltage | 375 V _{PP} (Power supply, input / output) |

Altitude range (≤ 3000 m)

| | |
|---------------------------------|--|
| Height range | > 2000 m ... 3000 m |
| Ambient temperature (operation) | -40 °C ... 54 °C -40 °C ... 63 °C (Derating) |
| Rated insulation voltage | 190 V AC (Power supply, input / output) 110 V DC (Power supply, input / output) |

Altitude range (≤ 4000 m)

| | |
|---------------------------------|---|
| Height range | > 3000 m ... 4000 m |
| Ambient temperature (operation) | -40 °C ... 48 °C -40 °C ... 56 °C (Derating) |
| Rated insulation voltage | 60 V AC/DC (Power supply, input / output) |

Altitude range (≤ 5000 m)

| | |
|---------------------------------|---|
| Height range | > 4000 m ... 5000 m |
| Ambient temperature (operation) | -40 °C ... 42 °C -40 °C ... 49 °C (Derating) |
| Rated insulation voltage | 60 V AC/DC (Power supply, input / output) |

Approvals

CE

| | |
|-------------|----------------|
| Certificate | CE-compliant |
| Note | and EN 61326-1 |

ATEX

| | |
|----------------|----------------------------|
| Identification | ⊕ II 3 G Ex ec IIC T4 Gc X |
| Certificate | PxCCIF11ATEX2924825 |

IECEX

| | |
|----------------|--------------------|
| Identification | Ex ec IIC T4 Gc |
| Certificate | IECEX BVS 10.0097X |

CCC / China-Ex

| | |
|----------------|------------------|
| Identification | Ex ec IIC T4 Gc |
| Certificate | 2022122316115971 |

UL, USA/Canada

| | |
|----------------|----------------------------------|
| Identification | UL 508 Listed UL 61010 Listed |
|----------------|----------------------------------|

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| | |
|--|--|
| | Class I, Div. 2, Groups A, B, C, D T4 |
| | Class I, Zone 2, Groups IIC, IIB, IIA T4 |

Shipbuilding approval

| | |
|-------------|-------------------|
| Certificate | DNV GL TAA000020C |
|-------------|-------------------|

Safety Integrity Level (SIL, IEC 61508)

| | |
|----------------|------------------------|
| Identification | 2 |
| Certificate | IN-AT-AS-MRL-23-00432A |

Systematic Capability

| | |
|----------------|---|
| Identification | 3 |
|----------------|---|

Performance Level (ISO 13849)

| | |
|----------------|-----------|
| Identification | d / KAT 2 |
|----------------|-----------|

INMETRO

| | |
|----------------|-----------------|
| Identification | Ex ec IIC T4 Gc |
| Certificate | DNV 18.0139 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 | Conformance with EMC directive |
| Noise immunity | EN 61000-6-2 |
| Note | When being exposed to interference, there may be minimal deviations. |

Noise emission

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

Electromagnetic HF field

| | |
|--|--------------------------|
| Designation | Electromagnetic RF field |
| Standards/regulations | EN 61000-4-3 |
| Typical deviation from the measuring range final value | 3 % |

Fast transients (burst)

| | |
|--|-------------------------|
| Designation | Fast transients (burst) |
| Standards/regulations | EN 61000-4-4 |
| Typical deviation from the measuring range final value | 3 % |

Conducted interference

| | |
|-------------|-------------------------|
| Designation | Conducted interferences |
|-------------|-------------------------|

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| | |
|--|--------------|
| Standards/regulations | EN 61000-4-6 |
| Typical deviation from the measuring range final value | 3 % |

Standards and regulations

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

Mounting

| | |
|---------------|-------------------|
| Mounting type | DIN rail mounting |
|---------------|-------------------|

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Drawings

Dimensional drawing



Diagram



Signal transmission analog and digital at the same time

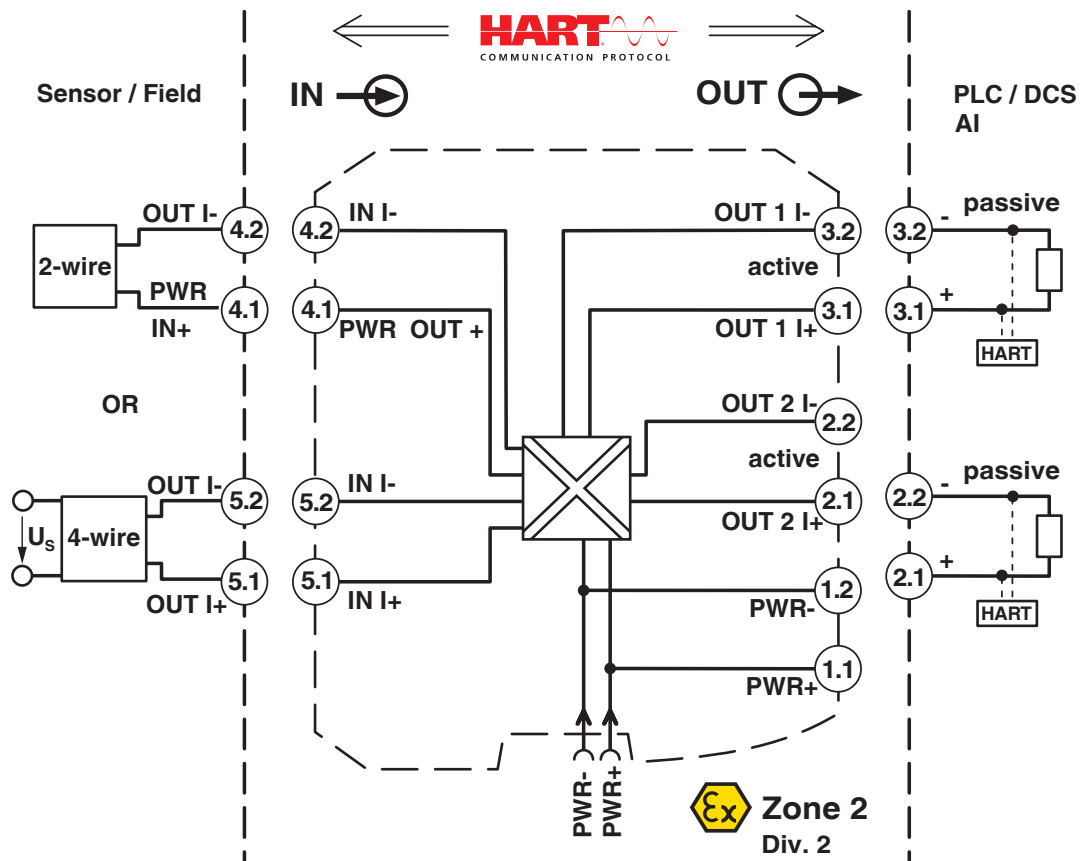
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Block diagram



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Approvals


To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2924825>


 **UL Listed**
Approval ID: E330267


 **cUL Listed**
Approval ID: E330267


Functional Safety
Approval ID: BVS PB 13-10-04


DNV
Approval ID: TAA000020C

 **EAC Ex**
Approval ID: TP012 103.01 00078

 **cUL Listed**
Approval ID: FILE E 199827

 **UL Listed**
Approval ID: FILE E 199827

 **IECEx**
Approval ID: IECEx BVS 10.0097X

 **CCC**
Approval ID: 2022122316115971

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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 | 39121000 |
|-------------|----------|

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Environmental product compliance

EU RoHS

| | |
|---|--------------------|
| Fulfills EU RoHS substance requirements | Yes |
| Exemption | 6(c), 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) |
| | 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol(CAS: 79-94-7) |
| SCIP | e52542fc-7ef2-4e2c-99e7-db22788ba62c |

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