

# MACX MCR-SL-IDS-I - Output signal conditioner



2865971

<https://www.phoenixcontact.com/us/products/2865971>

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Output signal conditioner, HART. Isolates and transmits 0/4 - 20 mA signals to a load (I/P converters, regulating valves, displays). Open-circuit detection, SIL 2 in accordance with IEC 61508, screw connection. Replacement item: 2908063 MACX MCR-IDS-I-I.

## 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
- Line fault detection (LFD)
- 3-way electrical isolation
- Plug-in screw or spring-cage connection technology (Push-in technology), with integrated sockets for HART communicators
- Bidirectional transmission of digital HART communication signals
- Input: 0/4 mA ... 20 mA
- Output: 0/4 mA ... 20 mA

## Commercial data

|                                      |                                |
|--------------------------------------|--------------------------------|
| Item number                          | 2865971                        |
| Packing unit                         | 1 pc                           |
| Note                                 | Made to order (non-returnable) |
| Sales key                            | C402                           |
| Product key                          | DK1112                         |
| GTIN                                 | 4046356449540                  |
| Weight per piece (including packing) | 175.2 g                        |
| Weight per piece (excluding packing) | 140.9 g                        |
| Customs tariff number                | 85437090                       |
| Country of origin                    | DE                             |

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## Technical data

### Product properties

|                 |                           |
|-----------------|---------------------------|
| Product type    | Output signal conditioner |
| Application     | Analog OUT                |
| No. of channels | 1                         |

### Insulation characteristics

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

### Electrical properties

|   |   |
|---|---|
| Electrical isolation between input and output | yes                                     |
| Signal transmission behavior                  | In = Out                                |
| Step response (10-90%)                        | < 140 $\mu$ s (for 4 mA ... 20 mA step) |
| Maximum temperature coefficient               | < 0.01 %/K                              |
| Maximum transmission error                    | < 0.1 % (of final value)                |
| Transmission error, typical                   | < 0.05 % (of final value)               |

### Electrical isolation Input/output/power supply

|                          |                         |
|--------------------------|-------------------------|
| Rated insulation voltage | 300 V <sub>rms</sub>    |
| Test voltage             | 1.5 kV AC (50 Hz, 60 s) |

### Supply

|                          |  |
|--------------------------|--|
| Nominal supply voltage   | 24 V DC  |
| Supply voltage range     | 19.2 V DC ... 30 V DC (24 V DC, -20 % ... +25 %) |
| Max. current consumption | < 46 mA (24 V DC / 20 mA)                        |
| Power dissipation        | < 1.1 W (24 V DC / 20 mA)                        |

## Input data

### Signal: Current

|                      |   |
|----------------------|---|
| Number of inputs     | 1   |
| Current input signal | 0 mA ... 20 mA<br>4 mA ... 20 mA            |
| Input impedance      | > 100 k $\Omega$ (If there is a line fault) |
| Voltage drop         | 5.4 V (20 mA)                               |

## Output data

### Signal: Current

|                                 |                                  |
|---------------------------------|----------------------------------|
| Output description              | Current output                   |
| Number of outputs               | 1                                |
| Current output signal           | 0 mA ... 20 mA<br>4 mA ... 20 mA |
| Load/output load current output | < 800 $\Omega$ (20 mA)           |

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|               |                          |
|---------------|--------------------------|
|               | < 730 $\Omega$ (22.5 mA) |
| Output ripple | < 20 mV <sub>rms</sub>   |

## Connection data

|                                  |   |
|----------------------------------|---|
| Connection method                | Screw connection                            |
| Stripping length                 | 7 mm  |
| Screw thread                     | M3  |
| Conductor cross-section rigid    | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
| Conductor cross-section flexible | 0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> |
| Conductor cross-section AWG      | 24 ... 14                                   |
| Tightening torque                | 0.5 Nm ... 0.6 Nm                           |

## Interfaces

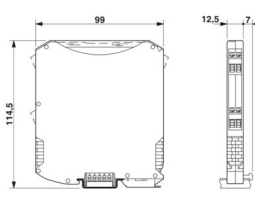
Data communication (bypass)

|                     |      |
|---------------------|------|
| HART function       | Yes  |
| Protocols supported | HART |

## Signaling

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

## Dimensions

|                     |  |
|---------------------|--|
| Dimensional drawing |  |
| Width               | 12.5 mm  |
| Height              | 112.5 mm   |
| Depth               | 114.5 mm   |

## Material specifications

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

## Characteristics

Safety data: IEC 61508 - High demand

|                              |   |
|------------------------------|---|
| Safety Integrity Level (SIL) | 2 |
|------------------------------|---|

Safety data: IEC 61508 - Low demand

|                              |   |
|------------------------------|---|
| Safety Integrity Level (SIL) | 2 |
|------------------------------|---|

## Environmental and real-life conditions

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## Ambient conditions

|   |  |
|---|--|
| Degree of protection                    | IP20 (not assessed by UL)                |
| Ambient temperature (operation)         | -20 °C ... 60 °C (Any mounting position) |
| Ambient temperature (storage/transport) | -40 °C ... 85 °C                         |
| Altitude                                | ≤ 2000 m                                 |
| Permissible humidity (operation)        | 10 % ... 95 % (non-condensing)           |

## Approvals

### CE

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

### ATEX

|                |                            |
|----------------|----------------------------|
| Identification | ⊕ II 3 G Ex nA IIC T4 Gc X |
|----------------|----------------------------|

### UL, USA/Canada

|                |                                       |
|----------------|---------------------------------------|
| Identification | UL 508 Listed                         |
|                | UL 61010 Listed                       |
|                | Class I, Div. 2, Groups A, B, C, D T4 |
|                | Class I, Zone 2, Group IIC T4         |

### Shipbuilding approval

|                |                   |
|----------------|-------------------|
| Identification | C, EMC1           |
| Certificate    | DNV GL TAA00000AG |

### Safety Integrity Level (SIL, IEC 61508)

|                |   |
|----------------|---|
| Identification | 2 |
|----------------|---|

### Shipbuilding data

|             |   |
|-------------|---|
| Temperature | B   |
| Humidity    | B   |
| Vibration   | A   |
| EMC         | B   |
| 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                   |

### Noise emission

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

### Electromagnetic HF field

|                       |                          |
|-----------------------|--------------------------|
| Designation           | Electromagnetic RF field |
| Standards/regulations | EN 61000-4-3             |

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## Mounting

Mounting type

DIN rail mounting

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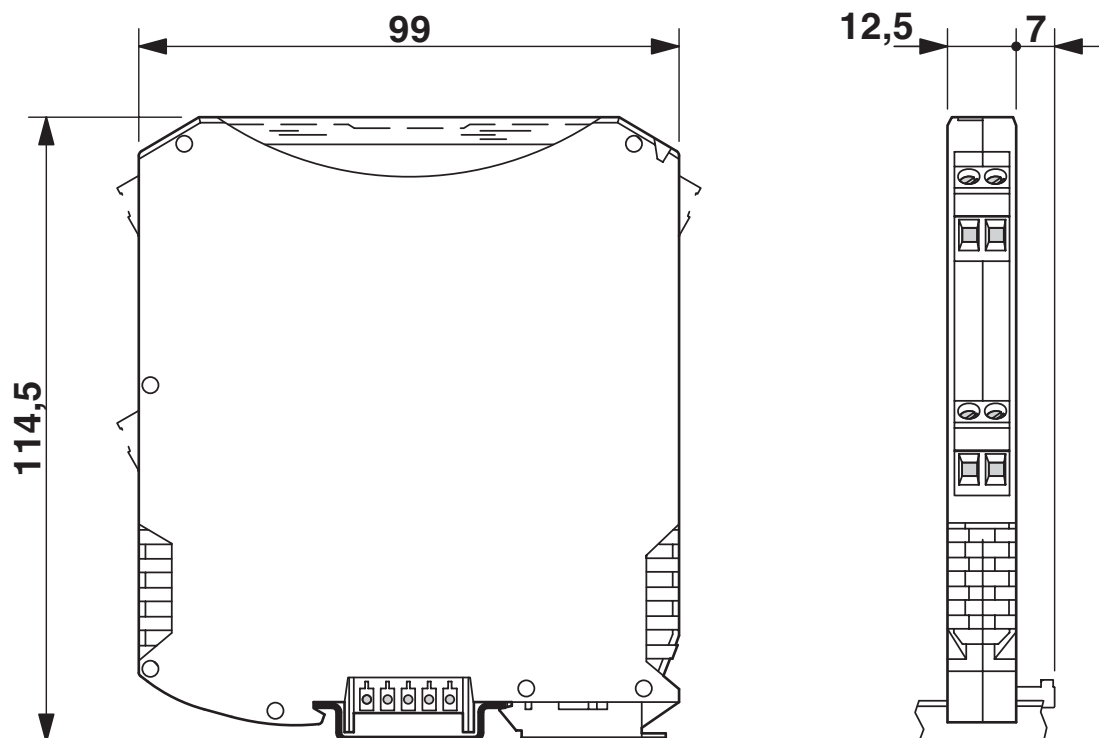
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## Drawings

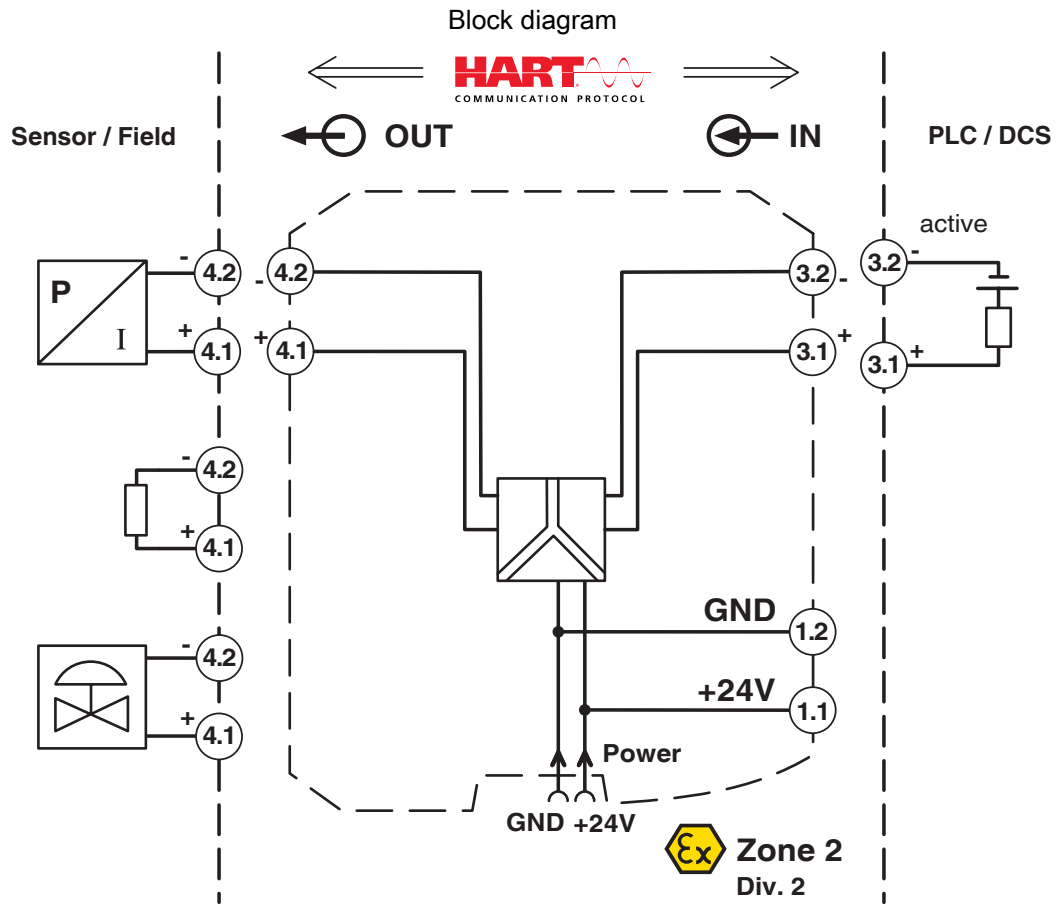
Dimensional drawing



# MACX MCR-SL-IDS1-I - Output signal conditioner

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## Classifications

### 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.) | No substance above 0.1 wt% |
|-------------------------------------|----------------------------|

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