

MINI MCR-2-POT-UI - Resistance/potiposition transducer



2902016

<https://www.phoenixcontact.com/us/products/2902016>

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Configurable potiposition transducer with plug-in connection technology for connecting potentiometers from 0 Ω ... 100 Ω to 0 k Ω ... 100 k Ω . Configurable via DIP switch or software. Screw connection technology, standard configuration

Product description

Configurable, 3-way isolated potentiometer measuring transducer with plug-in connection technology. The measured values are converted into a linear and freely adjustable current or voltage signal. You can configure the device using one of the free software solutions. Default settings can also be made directly on the device by simply using the DIP switches (see configuration table). If it is not possible to fully utilize the potentiometer range, you can specify the upper and lower potentiometer values in the software. The measuring transducer supports fault monitoring and NFC communication.

Commercial data

| | |
|--------------------------------------|---------------|
| Item number | 2902016 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | C404 |
| Product key | DK1129 |
| GTIN | 4046356649551 |
| Weight per piece (including packing) | 122 g |
| Weight per piece (excluding packing) | 110 g |
| Customs tariff number | 85437090 |
| Country of origin | DE |

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Technical data

Notes

Utilization restriction

| | |
|----------|---|
| EMC note | EMC: class A product, see manufacturer's declaration in the download area |
|----------|---|

Product properties

| | |
|-----------------|-------------------------|
| Product type | Potiposition transducer |
| Product family | MINI Analog Pro |
| No. of channels | 1 |
| Configuration | DIP switches |
| | Software |
| | App |

System properties

Functionality

| | |
|---------------|--------------|
| Configuration | DIP switches |
| | Software |
| | App |

Electrical properties

| | |
|----------------------------------|-------------------------------|
| Electrical isolation | 3-way isolation |
| Protective circuit | Transient protection |
| Step response (0–99%) | < 60 ms |
| Maximum temperature coefficient | 0.01 %/K |
| Temperature coefficient, typical | 0.01 %/K |
| Maximum transmission error | < 0.1 % (R < 240 Ω = < 0,2 %) |

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 | 3 kV AC (50 Hz, 60 s) |
| Insulation | Reinforced insulation |

Supply

| | |
|------------------------|--|
| Nominal supply voltage | 24 V DC |
| Supply voltage range | 9.6 V DC ... 30 V DC (The DIN rail connector (ME 6,2 TBUS-2 1,5/5-ST-3,81 GN, item no. 2869728) can be used to bridge the supply voltage. It can be snapped onto a 35 mm DIN rail in accordance with EN 60715) |

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| | |
|-----------------------------|---|
| Typical current consumption | 33 mA (24 V DC) |
| | 68 mA (12 V DC) |
| Power consumption | ≤ 850 mW (at $I_{OUT} = 20$ mA, 9.6 V DC, 600 Ω load) |


Input data

Signal: Resistance

| | |
|-------------------------|----------------------|
| Number of inputs | 1 |
| Available input sources | 3-wire potentiometer |
| Resistance range | 0 Ω ... 100 Ω |
| | 0 Ω ... 100 kΩ |

Output data

Signal: Voltage/current

| | |
|---|---|
| Number of outputs | 1 |
| Voltage output signal | 1 V ... 5 V (via DIP switch) |
| | 10 V ... 0 V (via DIP switch) |
| | 0 V ... 5 V (via DIP switch) |
| | 0 V ... 10 V (via DIP switch) |
| | 0 V ... 10.5 V (can be set via software) |
| Max. voltage output signal | ≈  V |
| Open-circuit voltage | < 17.5 V |
| Current output signal | 0 mA ... 20 mA (via DIP switch) |
| | 4 mA ... 20 mA (via DIP switch) |
| | 20 mA ... 0 mA (via DIP switch) |
| | 20 mA ... 4 mA (via DIP switch) |
| | 0 mA ... 21 mA (can be set via software) |
| Max. current output signal | 24.6 mA |
| Short-circuit current | < 31.5 mA |
| Load/output load voltage output | ≥ 10 kΩ |
| Load/output load current output | ≤ 600 Ω (20 mA) |
| Ripple | < 20 mV _{PP} |
| | < 20 mV _{PP} (10 kΩ) |
| Resolution, outputs (voltage) | 1 mV |
| Resolution, outputs (current) | 2 μA |
| Behavior in the event of a sensor error | configurable |

Connection data

| | |
|----------------------------------|--|
| Connection method | Screw connection |
| Stripping length | 10 mm |
| Screw thread | M3 |
| Conductor cross-section rigid | 0.2 mm ² ... 1.5 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 |

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| | |
|-----------------------------|----------------------|
| Conductor cross-section AWG | 24 ... 12 (flexible) |
| Tightening torque | 0.5 Nm ... 0.6 Nm |

Ex data

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

Interfaces

Data: IFS interface

| | |
|-------------------|------------------|
| Connection method | Micro USB type B |
|-------------------|------------------|

Signaling

| | |
|---------------------------|-----------|
| Operating voltage display | Green LED |
| Error indication | Red LED |

Dimensions

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

Material specifications

| | |
|--|-----------------|
| Color | gray (RAL 7042) |
| Housing material | PBT |
| Fire protection for rail vehicles (DIN EN 45545-2) R22 | HL 1 - HL 2 |
| Fire protection for rail vehicles (DIN EN 45545-2) R23 | HL 1 - HL 2 |
| Fire protection for rail vehicles (DIN EN 45545-2) R24 | HL 1 - HL 2 |

Environmental and real-life conditions

Ambient conditions

| | |
|---|-------------------------------|
| Degree of protection | IP20 (not assessed by UL) |
| Ambient temperature (operation) | -40 °C ... 70 °C |
| Ambient temperature (storage/transport) | -40 °C ... 85 °C |
| Altitude | ≤ 2000 m |
| Permissible humidity (operation) | 5 % ... 95 % (non-condensing) |

Approvals

CE

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

ATEX

| | |
|----------------|--------------------------|
| Identification | ⊕ II 3 G Ex ec IIC T4 Gc |
| Certificate | BVS 20 ATEX E 024 X |

IECEX

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| | |
|----------------|--------------------|
| Identification | Ex ec IIC T4 Gc |
| Certificate | IECEX BVS 20.0017X |

UL, USA/Canada

| | |
|----------------|---------------------------------------|
| Identification | UL 508 Listed |
| | Class I, Div. 2, Groups A, B, C, D T5 |
| | Class I, Zone 2, Group IIC T5 |

Shipbuilding approval

| | |
|-------------|-------------------|
| Certificate | DNV GL TAA00002UA |
|-------------|-------------------|

EAC Ex

| | |
|----------------|---------------------------------|
| Identification | Ex ec IIC T4 Gc |
| Certificate | BY/112 02.01 TP012 103.01 00079 |

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

Electrostatic discharge

| | |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-2 |
|-----------------------|--------------|

Electrostatic discharge

| | |
|----------|---|
| Comments | Safety measures must be taken to prevent electrostatic discharge. |
|----------|---|

Electromagnetic HF field

| | |
|--|--------------------------|
| Designation | Electromagnetic RF field |
| Standards/regulations | EN 61000-4-3 |
| Typical deviation from the measuring range final value | 0.2 % |

Fast transients (burst)

| | |
|--|-------------------------|
| Designation | Fast transients (burst) |
| Standards/regulations | EN 61000-4-4 |
| Typical deviation from the measuring range final value | 0.4 % |

Surge current load (surge)

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| | |
|-----------------------|--------------|
| Standards/regulations | EN 61000-4-5 |
|-----------------------|--------------|

Conducted interference

| | |
|--|-------------------------|
| Designation | Conducted interferences |
| Standards/regulations | EN 61000-4-6 |
| Typical deviation from the measuring range final value | 0.2 % |

Standards and regulations

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

Mounting

| | |
|-------------------|---|
| Mounting type | DIN rail mounting |
| Assembly note | The DIN rail connector can be used for bridging the supply voltage. It can be snapped onto a 35 mm EN 60715 DIN rail. |
| Mounting position | any |

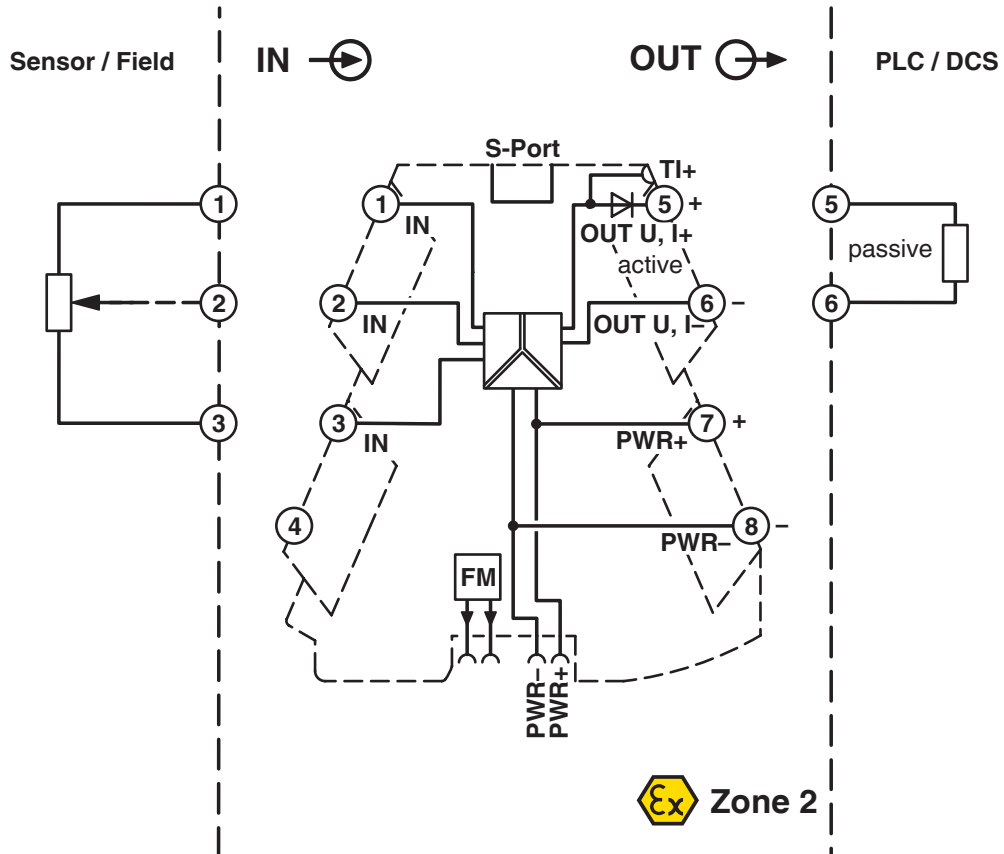
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Drawings

Block diagram



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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2902016>



UL Listed

Approval ID: FILE E 238705



cUL Listed

Approval ID: FILE E 238705

DNV

Approval ID: TAA00002UA



IECEx

Approval ID: IECEx_BVS_20.0017X



cUL Listed

Approval ID: E196811



UL Listed

Approval ID: E196811



ATEX

Approval ID: BVS 20 ATEX E 024 X



EAC Ex

Approval ID: TP012 103.01 00079

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Classifications

ECLASS

| | |
|-------------|----------|
| ECLASS-13.0 | 27210120 |
| ECLASS-15.0 | 27210120 |

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 | 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 | c50d67ba-01a9-4c56-a3ef-aa7d1e4b7254 |

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