

MINI MCR-2-U-I4 - Signal conditioner



2902029

<https://www.phoenixcontact.com/us/products/2902029>

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3-way signal conditioner with plug-in connection technology for the electrical isolation of analog signals. Input signal: 0 V ... 10 V, output signal: 4 mA ... 20 mA, screw connection technology

Product description

Standard signal 3-way signal conditioner with plug-in connection technology for the electrical isolation, conversion, amplification, and filtering of standard signals. The measuring transducer supports fault monitoring and NFC communication.

Commercial data

| | |
|--------------------------------------|--------------------|
| Item number | 2902029 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | C404 |
| Product key | CK1411 |
| Catalog page | Page 76 (C-5-2019) |
| GTIN | 4046356649704 |
| Weight per piece (including packing) | 115 g |
| Weight per piece (excluding packing) | 97 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 | Signal conditioner |
| Product family | MINI Analog Pro |
| No. of channels | 1 |
| Type | Signal conditioner |

Insulation characteristics: GB Standard

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

Electrical properties

| | |
|---|--|
| No. of channels | 1 |
| Electrical isolation | 3-way isolation |
| Electrical isolation between input and output | yes |
| Limit frequency (3 dB) | ≈  Hz |
| Protective circuit | Transient protection |
| Step response (10-90%) | ≈  ms |
| Maximum temperature coefficient | 0.01 %/K |
| Temperature coefficient, typical | 0.01 %/K |
| Maximum transmission error | 0.05 % (of final value) |

Electrical isolation Input/output/power supply

| | |
|--------------------------|---|
| Rated insulation voltage | 300 V _{rms} |
| Test voltage | 3 kV AC (50 Hz, 60 s) |
| Insulation | Reinforced insulation according to IEC/EN 61010-1 |

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) |
| Typical current consumption | 25 mA (24 V DC) 54 mA (12 V DC) |
| Power consumption | ≤ 800 mW (9.6 V DC) |

Input data


Signal: Voltage

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| | |
|-----------------------------------|--|
| Number of inputs | 1 |
| Configurable/programmable | no |
| Voltage input signal | 0 V ... 10 V |
| Input resistance of voltage input | ≈  MΩ |

Output data

Signal: Current

| | |
|---------------------------------|-------------------------------|
| Number of outputs | 1 |
| Configurable/programmable | no |
| Non-load voltage | < 17 V |
| Current output signal | 4 mA ... 20 mA |
| Max. current output signal | 22 mA |
| Load/output load current output | ≤ 600 Ω (20 mA) |
| Ripple | < 20 mV _{PP} (600 Ω) |

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

Ex data

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

Signaling

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

Dimensions

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

Material specifications

| | |
|--|-------------|
| 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 |
| Housing material | PBT |

Environmental and real-life conditions

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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 19 ATEX E 047 X |

UKCA Ex (UKEX)

| | |
|----------------|--------------------------|
| Identification | Ⓜ II 3 G Ex ec IIC T4 Gc |
| Certificate | PxCIF21UKEX2902000X |

IECEX

| | |
|----------------|--------------------|
| Identification | Ex ec IIC T4 Gc |
| Certificate | IECEX BVS 19.0041X |

CCC / China-Ex

| | |
|----------------|-----------------|
| Identification | Ex nA IIC T4 Gc |
|----------------|-----------------|

UL, USA/Canada

| | |
|----------------|---------------------------------------|
| Identification | UL 508 Listed |
| | Class I, Div. 2, Groups A, B, C, D T6 |
| | Class I, Zone 2, Group IIC T6 |

Shipbuilding approval

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

EAC Ex

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

DNV GL 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

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| | |
|-------------------------------|--|
| Noise immunity | EN 61000-6-2 |
| Note | When being exposed to interference, there may be minimal deviations. |
| Electromagnetic compatibility | Conformance with EMC directive |
| Noise emission | 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 |

Fast transients (burst)

| | |
|-----------------------|-------------------------|
| Designation | Fast transients (burst) |
| Standards/regulations | EN 61000-4-4 |

Surge current load (surge)

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

Conducted interference

| | |
|-----------------------|-------------------------|
| Designation | Conducted interferences |
| Standards/regulations | EN 61000-4-6 |

Standards and regulations

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

GB Standard

| | |
|-----------------------|-----------|
| Standards/regulations | GB 3836.1 |
| | GB 3836.8 |

Mounting

| | |
|-----------------------|---|
| Mounting type | DIN rail mounting |
| Assembly instructions | 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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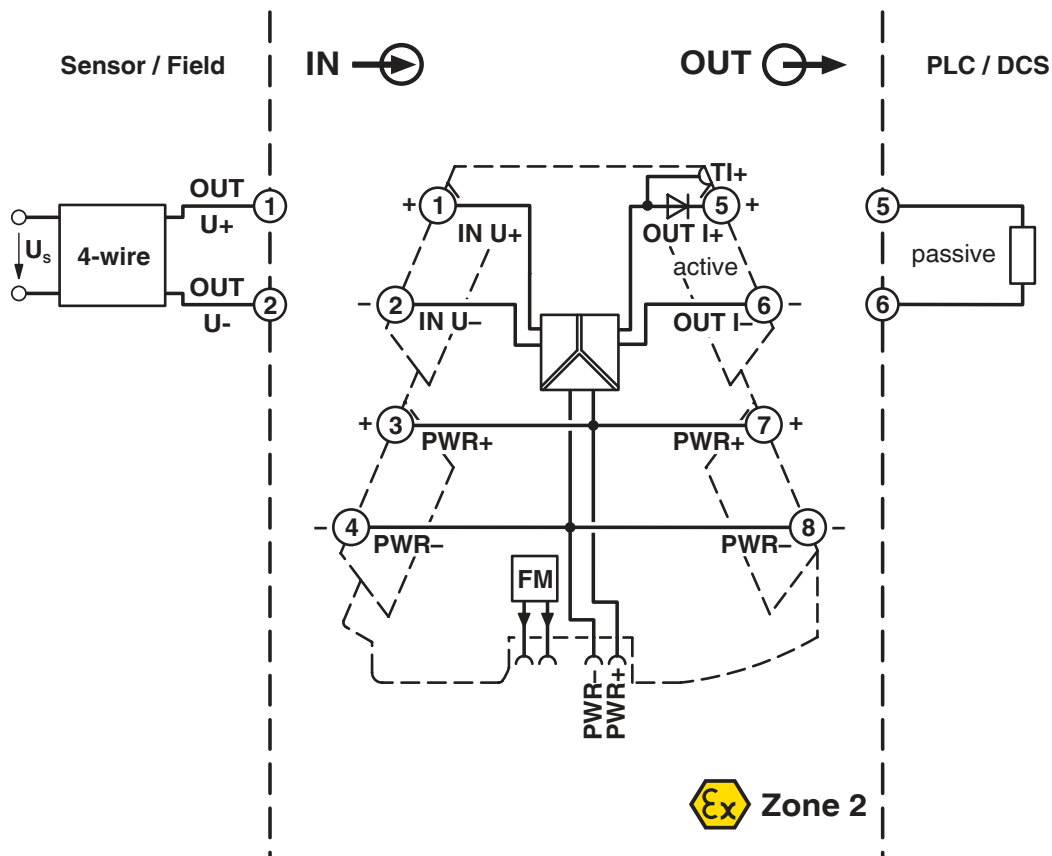


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Drawings

Block diagram



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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2902029>



DNV GL

Approval ID: TAA00002UA



UL Listed

Approval ID: FILE E 238705



CCC

Approval ID: 2021322310003859



cUL Listed

Approval ID: FILE E 238705



IECEx

Approval ID: IECEx BVS 19.0041X



cUL Listed

Approval ID: FILE E 196811



UL Listed

Approval ID: FILE E 196811



ATEX

Approval ID: BVS 19 ATEX E 047 X

cULus Listed

cULus Listed

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Classifications

ECLASS

| | |
|-------------|----------|
| ECLASS-11.0 | 27210120 |
| ECLASS-12.0 | 27210120 |
| ECLASS-13.0 | 27210120 |

ETIM

| | |
|----------|----------|
| ETIM 8.0 | EC002653 |
|----------|----------|

UNSPSC

| | |
|-------------|----------|
| UNSPSC 21.0 | 39121000 |
|-------------|----------|

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Environmental product compliance

| | |
|------------|--|
| REACH SVHC | Lead 7439-92-1 |
| China RoHS | Environmentally Friendly Use Period = 50 years |
| | For information on hazardous substances, refer to the manufacturer's declaration available under "Downloads" |

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Accessories

ME 6,2 TBUS-2 1,5/5-ST-3,81 GY - DIN rail bus connectors

2695439

<https://www.phoenixcontact.com/us/products/2695439>



DIN rail connector (TBUS), 5-pos., for bridging the supply voltage, can be snapped onto NS 35/... DIN rail in accordance with EN 60715

ME 6,2 TBUS-2 1,5/5-ST-3,81 GN - DIN rail bus connectors

2869728

<https://www.phoenixcontact.com/us/products/2869728>



DIN rail connector for DIN rail mounting. Universal for TBUS housing. Gold-plated contacts, 5-pos.

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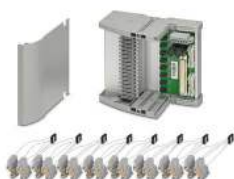
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TC-D37SUB-AIO16-MP-PS-UNI - Module carrier

2906640

<https://www.phoenixcontact.com/us/products/2906640>



Universal Termination Carrier for connecting 16 MINI Analog Pro signal conditioners to digital or analog I/O cards, via D-SUB connector, 37-pos. (1:1 connection), with HART multiplexer connection

TC-D37SUB-ADIO16-MP-P-UNI - Module carrier

2906639

<https://www.phoenixcontact.com/us/products/2906639>



Universal Termination Carrier for connecting 16 MINI Analog Pro signal conditioners to digital or analog I/O cards, via D-SUB connector, 37-pos. (1:1 connection)

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MINI MCR-2-V8-FLK 16 - System adapter

2901993

<https://www.phoenixcontact.com/us/products/2901993>



Eight MINI Analog Pro signal conditioners and measuring transducers can be connected to a controller with minimal cabling effort and without any errors using system adapters and system cabling.

MINI MCR-2-V8-MOD-RTU - Communication module

2905634

<https://www.phoenixcontact.com/us/products/2905634>



Eight MINI Analog Pro signal conditioners and measuring transducers are quickly and easily integrated into a Modbus/RTU network via a communication adapter.

MINI MCR-2-U-I4 - Signal conditioner

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MINI MCR-2-V8-MOD-TCP - Communication module

2905635

<https://www.phoenixcontact.com/us/products/2905635>



Eight MINI Analog Pro signal conditioners and measuring transducers are quickly and easily integrated into a Modbus/TCP network via a communication adapter.

MINI MCR-2-V8-PB-DP - Communication module

2905636

<https://www.phoenixcontact.com/us/products/2905636>



Eight MINI Analog Pro signal conditioners and measuring transducers are quickly and easily integrated into a PROFIBUS DP network via a communication adapter.

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MINI MCR-2-V8-PN - Communication module

2905637

<https://www.phoenixcontact.com/us/products/2905637>



Eight MINI Analog Pro signal conditioners and measuring transducers can be quickly and easily integrated into a PROFINET network via a communication adapter.

FASTCON PRO-SET - Connector set

2906227

<https://www.phoenixcontact.com/us/products/2906227>



FASTCON Pro plug set consisting of four plugs with screw connection, one for each position on the module. Suitable for all MINI Analog Pro modules.

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FASTCON PRO-SET-PT - Connector set

2906228

<https://www.phoenixcontact.com/us/products/2906228>



FASTCON Pro plug set consisting of four plugs with push-in connection, one for each position on the module. Suitable for all MINI Analog Pro modules.

UCT-EM (30X5) - Marker for end clamp

0801505

<https://www.phoenixcontact.com/us/products/0801505>



Marker for end clamp, Sheet, white, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: snapped, lettering field size: 30 x 5 mm, Number of individual labels: 24

MINI MCR-2-U-I4 - Signal conditioner

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UCT-EM (30X5) CUS - Marker for end clamp

0801589

<https://www.phoenixcontact.com/us/products/0801589>



Marker for end clamp, can be ordered: by sheet, white, labeled according to customer specifications, mounting type: snapped into marker carrier, lettering field size: 30 x 5 mm, Number of individual labels: 24

SK 5,0 WH:REEL - Marker strip

0805221

<https://www.phoenixcontact.com/us/products/0805221>



Marker strip, Roll, white, unlabeled, can be labeled with: THERMOMARK E.300 (D)/600 (D), THERMOMARK ROLL 2.0, THERMOMARK ROLL, THERMOMARK ROLL X1, THERMOMARK ROLLMASTER 300/600, THERMOMARK X1.2, mounting type: adhesive, lettering field size: continuous x 5 mm, Number of individual labels: 90000

MINI MCR-2-U-I4 - Signal conditioner



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UC-EMLP (15X5) - Plastic label

0819301

<https://www.phoenixcontact.com/us/products/0819301>



Plastic label, Sheet, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 10

UC-EMLP (15X5) YE - Plastic label

0822615

<https://www.phoenixcontact.com/us/products/0822615>



Plastic label, Sheet, yellow, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 10

MINI MCR-2-U-I4 - Signal conditioner



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UC-EMLP (15X5) CUS - Plastic label

0824550

<https://www.phoenixcontact.com/us/products/0824550>

Plastic label, can be ordered: by sheet, white, labeled according to customer specifications, mounting type: adhesive, lettering field size: 15 x 5 mm



UC-EMLP (15X5) YE CUS - Plastic label

0824551

<https://www.phoenixcontact.com/us/products/0824551>

Plastic label, can be ordered: by sheet, yellow, labeled according to customer specifications, mounting type: adhesive, lettering field size: 15 x 5 mm



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UC-EMLP (15X5) SR - Plastic label

0828095

<https://www.phoenixcontact.com/us/products/0828095>



Plastic label, Sheet, silver, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 10

UC-EMLP (15X5) SR CUS - Plastic label

0828099

<https://www.phoenixcontact.com/us/products/0828099>



Plastic label, can be ordered: by sheet, silver, labeled according to customer specifications, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 10

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US-EMLP (15X5) - Plastic label

0828790

<https://www.phoenixcontact.com/us/products/0828790>



Plastic label, Card, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 189

US-EMLP (15X5) YE - Plastic label

0828873

<https://www.phoenixcontact.com/us/products/0828873>



Plastic label, Card, yellow, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 189

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US-EMLP (15X5) SR - Plastic label

0828874

<https://www.phoenixcontact.com/us/products/0828874>



Plastic label, Card, silver, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 189

US-EMLP (15X5) CUS - Plastic label

0830076

<https://www.phoenixcontact.com/us/products/0830076>



Plastic label, can be ordered: by card, white, labeled according to customer specifications, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 189

MINI MCR-2-U-I4 - Signal conditioner



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US-EMLP (15X5) YE CUS - Plastic label

0830077

<https://www.phoenixcontact.com/us/products/0830077>

Plastic label, can be ordered: by card, yellow, labeled according to customer specifications, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 189



US-EMLP (15X5) SR CUS - Plastic label

0830078

<https://www.phoenixcontact.com/us/products/0830078>

Plastic label, can be ordered: by card, silver, labeled according to customer specifications, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 189



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UCT-EM (30X5) YE - Marker for end clamp

0830340

<https://www.phoenixcontact.com/us/products/0830340>



Marker for end clamp, Sheet, yellow, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: snapped, lettering field size: 30 x 5 mm, Number of individual labels: 24

UCT-EM (30X5) YE CUS - Marker for end clamp

0830348

<https://www.phoenixcontact.com/us/products/0830348>



Marker for end clamp, can be ordered: by sheet, yellow, labeled according to customer specifications, mounting type: snapped into marker carrier, lettering field size: 30 x 5 mm, Number of individual labels: 24

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MINI MCR-2-PTB - Power terminal block

2902066

<https://www.phoenixcontact.com/us/products/2902066>



Power terminal with plug-in connection technology for delivering the supply voltage to the DIN rail connector. Monitoring of the supply voltages in combination with the fault monitoring module. Screw connection technology

MINI MCR-2-PTB-PT - Power terminal block

2902067

<https://www.phoenixcontact.com/us/products/2902067>



Power terminal with plug-in connection technology for delivering the supply voltage to the DIN rail connector. Monitoring of the supply voltages in combination with the fault monitoring module. Push-in connection technology

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QUINT4-SYS-PS/1AC/24DC/2.5/SC - Power supply unit

2904614

<https://www.phoenixcontact.com/us/products/2904614>



Primary-switched power supply, QUINT POWER, screw connection, DIN rail mounting, supply of devices possible via the TBUS DIN rail connector, protective coating, input: single-phase, output: 24 V DC/2.5 A

MINI MCR-2-FM-RC - Monitoring module

2904504

<https://www.phoenixcontact.com/us/products/2904504>



Fault monitoring module with plug-in connection technology for evaluating and reporting group errors from the FM system and for monitoring the supply voltages. Error message via N/C contact. Screw connection technology, standard configuration

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MINI MCR-2-FM-RC-PT - Monitoring module

2904508

<https://www.phoenixcontact.com/us/products/2904508>



Fault monitoring module with plug-in connection technology for evaluating and reporting group errors from the FM system and for monitoring the supply voltages. Error message via N/C contact. Push-in connection technology, standard configuration

SZS 0,6X3,5 - Screwdriver

1205053

<https://www.phoenixcontact.com/us/products/1205053>



Actuation tool, for ST terminal blocks, insulated, also suitable for use as a bladed screwdriver, size: 0.6 x 3.5 x 100 mm, 2-component grip, with non-slip grip

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