MINI MCR-2-I4-U - Signal conditioner

2902002

https://www.phoenixcontact.com/us/products/2902002

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3-way signal conditioner with plug-in connection technology for the electrical isolation of analog signals. Input signal: 4 mA ... 20 mA, output signal: 0 V ... 10 V, 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	2902002
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C404
Product key	CK1411
Catalog page	Page 76 (C-5-2019)
GTIN	4046356651844
Weight per piece (including packing)	113 g
Weight per piece (excluding packing)	104.4 g
Customs tariff number	85437090
Country of origin	DE

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

Electrical isolation	3-way isolation
Electrical isolation between input and output	yes
Limit frequency (3 dB)	approx. 30 Hz
Protective circuit	Transient protection
Step response (10-90%)	approx. 10 ms
Maximum temperature coefficient	0.01 %/K
Temperature coefficient, typical	0.01 %/K
Maximum transmission error	0.1 % (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	≤ 200 mW (at 9.6 V DC)

Input data

Signal: Current

Number of inputs	1

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Configurable/programmable	no
Current input signal	4 mA ... 20 mA
Input resistance current input	approx. 63 Ω (+0.7 V for test diode)

Output data

Signal: Voltage

Number of outputs	1
Configurable/programmable	no
Voltage output signal	0 V ... 10 V
Max. voltage output signal	11 V
Short-circuit current	< 15 mA
Load/output load voltage output	≥ 10 kΩ
Ripple	< 20 mV_{PP} (at 10 kΩ)

Connection data

Connection method	Screw connection
Stripping length	10 mm
Screw thread	M3
Conductor cross section rigid	0.2 mm² ... 1.5 mm² (with ferrule)
	0.14 mm² ... 2.5 mm² (without ferrule)
Conductor cross section flexible	0.14 mm² ... 2.5 mm²
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

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	⟨Ex⟩ II 3 G Ex ec IIC T4 Gc
Certificate	BVS 19 ATEX E 047 X

UKCA Ex (UKEX)

Identification	⟨Ex⟩ 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	EHⒺx ⌐__⌐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

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

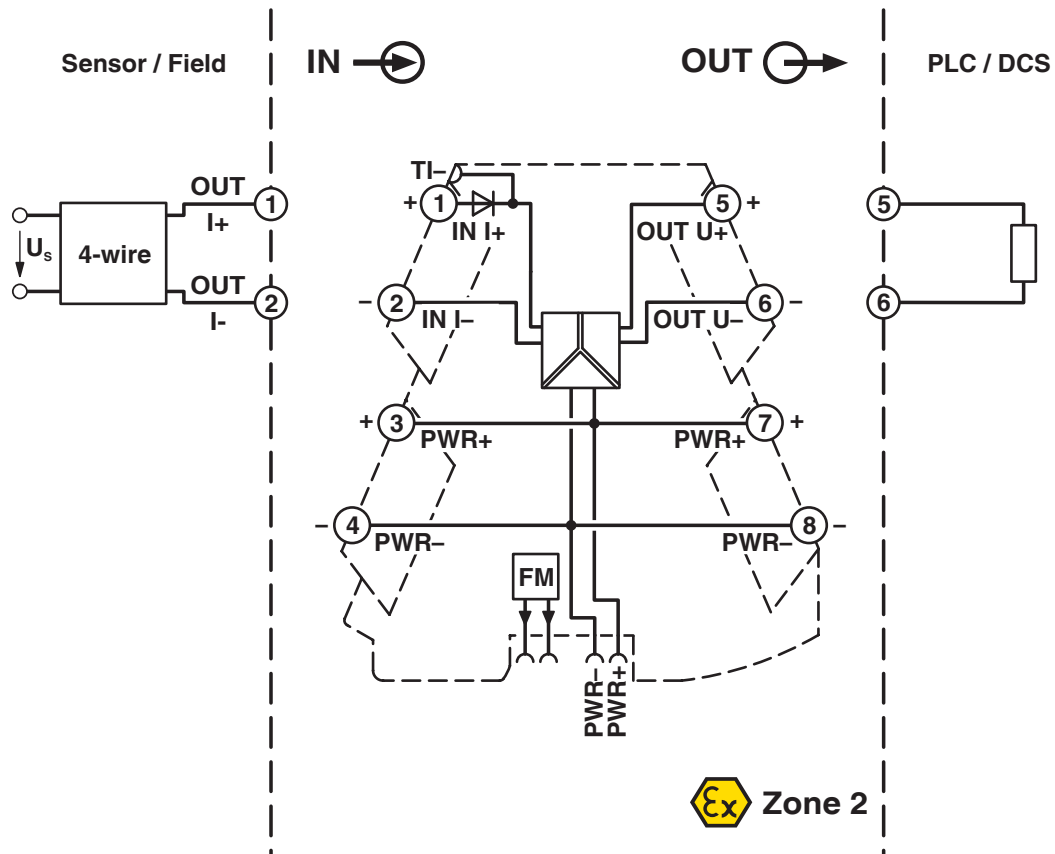|	
Mounting type	DIN rail mounting
Assembly note	The DIN rail connector can be used for bridging the supply voltage. It can be snapped onto a 35 mm EN 60715 DIN rail.
Mounting position	any

Drawings

Block diagram

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Approvals

💡 To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2902002

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 9.0	EC002653

UNSPSC

UNSPSC 21.0	39121000

Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	15, 15(a), 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

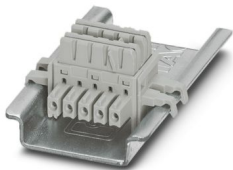|	
REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	73732c18-0e83-4e3c-9769-e8022af9b0cd

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Accessories

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

2695439

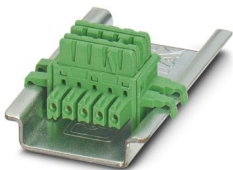https://www.phoenixcontact.com/us/products/2695439

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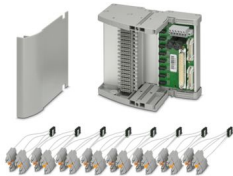
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TC-D37SUB-AIO16-MP-PS-UNI - Module carrier

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.

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

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https://www.phoenixcontact.com/us/products/2902002

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: 10

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UC-EMLP (15X5) - Plastic label

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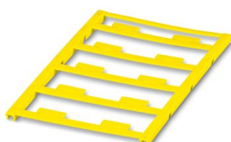
https://www.phoenixcontact.com/us/products/0819301

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-I4-U - Signal conditioner

2902002

https://www.phoenixcontact.com/us/products/2902002

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
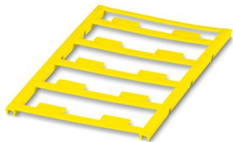
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https://www.phoenixcontact.com/us/products/2902002

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

MINI MCR-2-I4-U - Signal conditioner

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https://www.phoenixcontact.com/us/products/2902002

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-I4-U - Signal conditioner

2902002

https://www.phoenixcontact.com/us/products/2902002

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

MINI MCR-2-I4-U - Signal conditioner

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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

MINI MCR-2-I4-U - Signal conditioner

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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

MINI MCR-2-I4-U - Signal conditioner

2902002

https://www.phoenixcontact.com/us/products/2902002

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 block

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

MINI MCR-2-I4-U - Signal conditioner

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https://www.phoenixcontact.com/us/products/2902002

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

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