

# MINI MCR-2-I-I - Signal conditioner



2901998

<https://www.phoenixcontact.com/pc/products/2901998>

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3-way signal conditioner with plug-in connection technology for the electrical isolation of analog signals. Input signal: 0(4) mA ... 20 mA, output signal: 0(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 current signals. The measuring transducer supports fault monitoring and NFC communication.

## Commercial Data

Item number	2901998
Packing unit	1 pc
Minimum order quantity	1 pc
Product Key	CK1411
Catalog Page	Page 76 (C-5-2019)
GTIN	4046356649490
Weight per Piece (including packing)	114 g
Weight per Piece (excluding packing)	94.7 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
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### 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)	<input type="checkbox"/> 30 Hz
Protective circuit	Transient protection
Signal transmission behavior	In = Out
Step response (10-90%)	<input type="checkbox"/> 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 <sub>rms</sub>
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 (at 9.6 V DC)

### Input data

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Signal: Current

Number of inputs	1
Configurable/programmable	no
Current input signal	0 mA ... 20 mA 4 mA ... 20 mA
Input resistance current input	approx. 63 $\Omega$ (+0.7 V for test diode)

## Output data

Signal: Current

Number of outputs	1
Configurable/programmable	no
Non-load voltage	< 17 V
Current output signal	0 mA ... 20 mA 4 mA ... 20 mA
Max. current output signal	22 mA
Load/output load current output	$\leq$ 600 $\Omega$ (at 20 mA)
Ripple	< 20 mV <sub>PP</sub> (at 600 $\Omega$ )

## Connection data

Connection method	Screw connection
Stripping length	10 mm
Screw thread	M3
Conductor cross section rigid	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> (with ferrule) 0.14 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> (without ferrule)
Conductor cross section flexible	0.14 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross section AWG	24 ... 12 (flexible)
Tightening torque	0.5 Nm ... 0.6 Nm

## Ex data

Ex installation (EPL)	Gc Div. 2
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## Signaling

Status display	Green LED (supply voltage)
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## 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

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Housing material	PBT
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## 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)

## Approval data

### CE

Certificate	CE-compliant
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### ATEX

Identification	<input type="checkbox"/> II 3 G Ex ec IIC T4 Gc
Certificate	BVS 19 ATEX E 047 X

### UKCA Ex (UKEX)

Identification	<input type="checkbox"/> 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
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### 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
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### EAC Ex

Identification	<input type="checkbox"/> 2Ex 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

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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
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## Electrostatic discharge

Comments	Safety measures must be taken to prevent electrostatic discharge.
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## 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
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## Conducted interference

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

## Standards and regulations

Electrical isolation	3-way isolation
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## 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

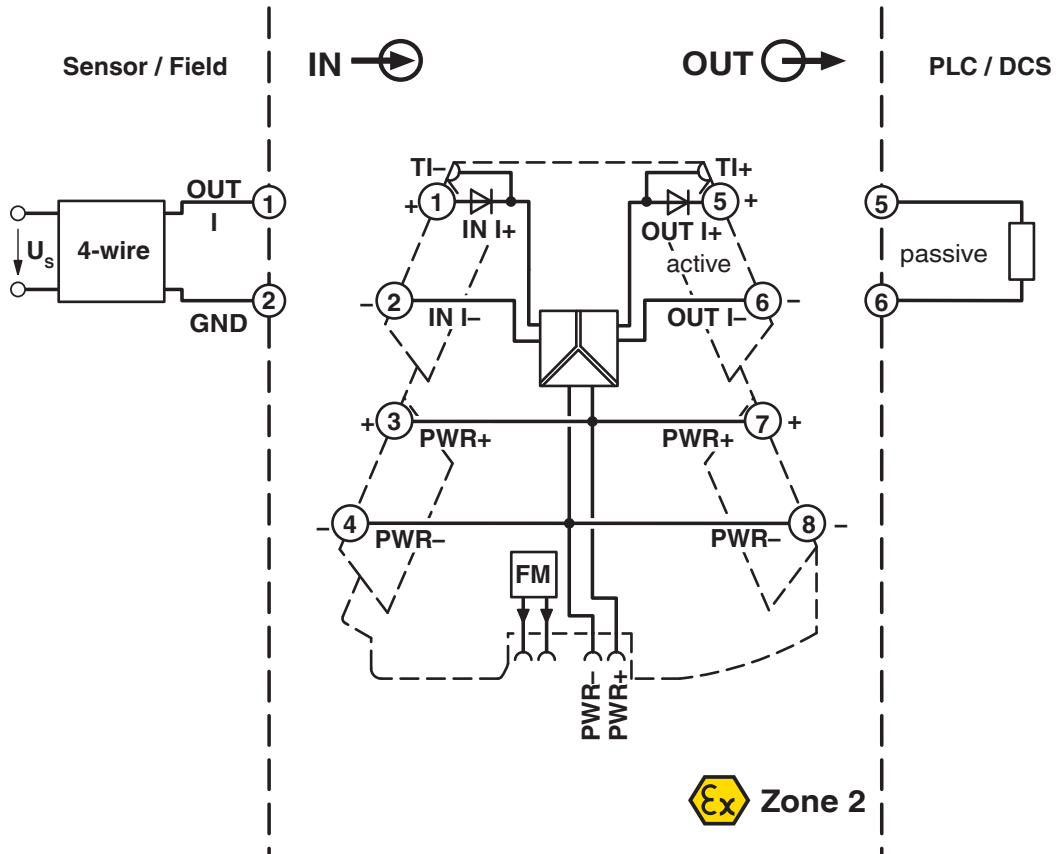
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## Drawings

Block diagram



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## Approvals



**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



**ATEX**

Approval ID: 2902037\_Ex-n

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## Classifications

### ECLASS

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

### ETIM

ETIM 8.0	EC002653
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### 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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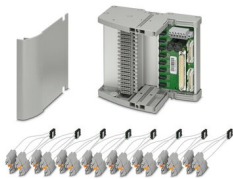


## Accessories

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

2906640

<https://www.phoenixcontact.com/pc/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/pc/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)