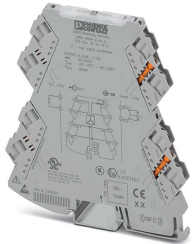


## Signal conditioner - MINI MCR-2-I4-U - 2902002

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



### Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 651844
GTIN	4046356651844
Weight per Piece (excluding packing)	103.400 g
Custom tariff number	85437090
Country of origin	Germany

### Technical data

#### Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
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#### Dimensions

Width	6.2 mm
Height	109.81 mm
Depth	119.2 mm

#### Ambient conditions

# Signal conditioner - MINI MCR-2-I4-U - 2902002

## Technical data

### Ambient conditions

Ambient temperature (operation)	-40 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Maximum altitude	≤ 2000 m
Permissible humidity (operation)	5 % ... 95 % (non-condensing)
Degree of protection	IP20 (not assessed by UL)
Noise immunity	EN 61000-6-2 When being exposed to interference, there may be minimal deviations.

### Input data

Number of inputs	1
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

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

### Power supply

Nominal supply voltage	24 V DC
Supply voltage range	9.6 V DC ... 30 V DC (The DIN rail bus connector (ME 6,2 TBUS-2 1,5/5-ST-3,81 GN, Order No. 2869728) can be used to bridge the supply voltage. It can be snapped onto a 35 mm DIN rail according to EN 60715))
Typical current consumption	25 mA (24 V DC)
	54 mA (12 V DC)
Power consumption	≤ 200 mW (at 9.6 V DC)

### Connection data

Connection method	Screw connection
Stripping length	10 mm
Screw thread	M3
Conductor cross section solid	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)

# Signal conditioner - MINI MCR-2-I4-U - 2902002

## Technical data

### Connection data

Torque	0.5 Nm ... 0.6 Nm
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### General

No. of channels	1
Maximum transmission error	0.1 % (of final value)
Maximum temperature coefficient	0.01 %/K
Temperature coefficient, typical	0.01 %/K
Limit frequency (3 dB)	approx. 30 Hz
Step response (10-90%)	approx. 10 ms
Protective circuit	Transient protection
Electrical isolation	Reinforced insulation in accordance with IEC 61010-1
Overvoltage category	II
Degree of pollution	2
Rated insulation voltage	300 V (effective)
Test voltage, input/output/supply	3 kV (50 Hz, 1 min.)
Electromagnetic compatibility	Conformance with EMC directive
Noise emission	EN 61000-6-4
Noise immunity	EN 61000-6-2 When being exposed to interference, there may be minimal deviations.
Color	gray
Housing material	PBT
Mounting position	any
Assembly instructions	The T connector can be used to bridge the supply voltage. It can be snapped onto a 35 mm DIN rail according to EN 60715.
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

### EMC data

Designation	Electromagnetic RF field
Standards/regulations	EN 61000-4-3
Designation	Fast transients (burst)
Standards/regulations	EN 61000-4-4
Designation	Conducted interferences
Standards/regulations	EN 61000-4-6

### Standards and Regulations

Electromagnetic compatibility	Conformance with EMC directive
Noise emission	EN 61000-6-4
Standards/regulations	EN 61000-4-2

## Signal conditioner - MINI MCR-2-I4-U - 2902002

### Technical data

#### Standards and Regulations

Designation	Electromagnetic RF field
Standards/regulations	EN 61000-4-3
	EN 61000-4-4
	EN 61000-4-5
Designation	Conducted interferences
Standards/regulations	EN 61000-4-6
Designation	GB Standard
Standards/regulations	GB 3836.1
	GB 3836.8
Electrical isolation	Reinforced insulation in accordance with IEC 61010-1

#### Conformance/approvals

Designation	CE
Certificate	CE-compliant
Designation	ATEX
Identification	# II 3 G Ex ec IIC T4 Gc
Certificate	BVS 19 ATEX E 047 X
Designation	IECEX
Identification	Ex ec IIC T4 Gc
Certificate	IECEX BVS 19.0041X
Designation	CCC / China-Ex
Identification	Ex nA IIC T4 Gc
Designation	UL, USA / Canada
Identification	UL 508 Listed
	Class I, Div. 2, Groups A, B, C, D T6
	Class I, Zone 2, Group IIC T6
Designation	Shipbuilding approval
Certificate	DNV GL TAA00002UA
Temperature	B
Humidity	B
Vibration	A
EMC	A
Enclosure	Required protection according to the Rules shall be provided upon installation on board

#### Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years

# Signal conditioner - MINI MCR-2-I4-U - 2902002

## Technical data

## Environmental Product Compliance

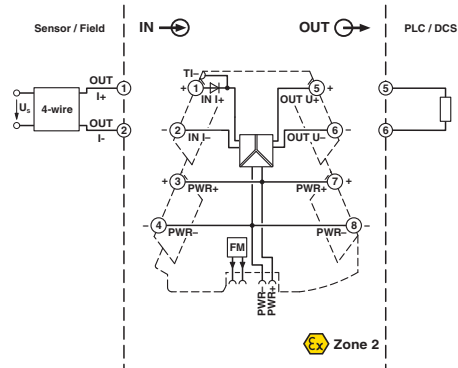
For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

## Drawings

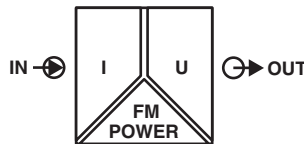
### Pictogram



### Block diagram



### Pictogram



## Classifications

eCl@ss

eCl@ss 10.0.1	27210120
eCl@ss 11.0	27210120
eCl@ss 4.0	27210100
eCl@ss 4.1	27210100
eCl@ss 5.0	27210100

# Signal conditioner - MINI MCR-2-I4-U - 2902002

## Classifications

### eCl@ss

eCl@ss 5.1	27210100
eCl@ss 6.0	27210100
eCl@ss 7.0	27210120
eCl@ss 9.0	27210120

### ETIM

ETIM 4.0	EC002653
ETIM 6.0	EC002653
ETIM 7.0	EC002653

### UNSPSC

UNSPSC 6.01	30211502
UNSPSC 7.0901	39121004
UNSPSC 11	39121004
UNSPSC 12.01	39121004
UNSPSC 13.2	39121008
UNSPSC 18.0	39121008
UNSPSC 19.0	39121008
UNSPSC 20.0	39121008
UNSPSC 21.0	39121008

## Approvals

### Approvals

#### Approvals

UL Listed / cUL Listed / DNV GL / CCC / cULus Listed

#### Ex Approvals

UL Listed / cUL Listed / EAC Ex / IECEx / ATEX / ATEX / cULus Listed

### Approval details

UL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 238705
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# Signal conditioner - MINI MCR-2-I4-U - 2902002

## Approvals

cUL Listed		<a href="http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm">http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm</a>	FILE E 238705
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DNV GL		<a href="https://approvalfinder.dnvgl.com/">https://approvalfinder.dnvgl.com/</a>	TAA00002UA
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CCC			2021322310003859
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cULus Listed			
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## Accessories

### Accessories

#### Device marking

##### Marker for end clamp - UCT-EM (30X5) - 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 into marker carrier, lettering field size: 30 x 5 mm, Number of individual labels: 24

##### Plastic label - UC-EMLP (15X5) - 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

## Signal conditioner - MINI MCR-2-I4-U - 2902002

### Accessories

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

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

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#### Plastic label - US-EMLP (15X5) - 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

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#### Plastic label - US-EMLP (15X5) YE - 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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#### Plastic label - US-EMLP (15X5) SR - 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

## Signal conditioner - MINI MCR-2-I4-U - 2902002

### Accessories

Marker for end clamp - UCT-EM (30X5) YE - 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 into marker carrier, lettering field size: 30 x 5 mm, Number of individual labels: 24

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### DIN rail connector

DIN rail bus connectors - ME 6,2 TBUS-2 1,5/5-ST-3,81 GY - 2695439



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

DIN rail bus connectors - ME 6,2 TBUS-2 1,5/5-ST-3,81 GN - 2869728



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

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### Evaluation unit

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

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

## Signal conditioner - MINI MCR-2-I4-U - 2902002

### Accessories

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#### Labeled device marker

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

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Plastic label - UC-EMLP (15X5) CUS - 0824550



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

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

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## Signal conditioner - MINI MCR-2-I4-U - 2902002

### Accessories

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

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#### Plastic label - US-EMLP (15X5) SR CUS - 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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#### Marker for end clamp - UCT-EM (30X5) YE CUS - 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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### Power module

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

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

## Signal conditioner - MINI MCR-2-I4-U - 2902002

### Accessories

#### Power supply

Power supply unit - MINI-SYS-PS-100-240AC/24DC/1.5 - 2866983



Please use the following item in new systems: 2904614  
Primary-switched MINI POWER power supply for DIN rail mounting, input: 1-phase, output: 24 V DC/1.5 A

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#### Terminal marking

Marker strip - SK 5,0 WH:REEL - 0805221



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