MINI MCR-2-2I-2I-ILP-PT - Loop-powered isolators

2901997

https://www.phoenixcontact.com/us/products/2901997

PHŒNIX CONTACT

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2-channel input loop-powered 2-way isolator with plug-in connection technology for the electrical isolation of analog signals. Input signal = output signal: 0(4) mA ... 20 mA. Push-in connection technology.

Product description

Two-channel input-loop-powered 2-way isolator with plug-in connection technology for the electrical isolation and filtering of analog signals. The input-loop-powered isolator allows operation with active sensor technology with a supply voltage of 9.6 V DC ... 30 V DC. The device is powered via the current loop of the sensor. Input signal = output signal: 0(4) mA to 20 mA. The measuring transducer supports NFC communication.

Commercial data

Item number	2901997
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C404
Product key	CK1413
Catalog page	Page 80 (C-5-2019)
GTIN	4046356649483
Weight per piece (including packing)	113.7 g
Weight per piece (excluding packing)	106.8 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	2
Type	Signal conditioner

Insulation characteristics: GB Standard

Overvoltage category	II
Pollution degree	2

Electrical properties

Electrical isolation	2-way isolation
Electrical isolation between input and output	yes
Limit frequency (3 dB)	100 Hz
Signal transmission behavior	In = Out
Maximum temperature coefficient	≤ 0.002 %/K (of measured value / 100 Ω load)
Maximum transmission error	≤ 0.1 % (of final value)
Additional error, load-dependent	< 0.075 % (of measured value / 100 Ω load)

Electrical isolation Input/output

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

Supply voltage range	9.6 V DC ... 30 V DC (loop-powered, no external supply necessary)
Power consumption	600 mW

Input data

Signal: Current

Number of inputs	2
Configurable/programmable	no
Current input signal	0 mA ... 20 mA
	4 mA ... 20 mA
Response current	approx. 200 µA
Input voltage limitation	30 V

Voltage dissipation	3.1 V (I = 20 mA)

Output data

Signal: Current

Number of outputs	2
Configurable/programmable	no
Current output signal	0 mA ... 20 mA
	4 mA ... 20 mA
Load/output load current output	< 600 Ω (at I = 20 mA output signal)

Connection data

Connection method	Push-in connection
Stripping length	10 mm
Conductor cross section rigid	0.2 mm² ... 2.5 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)

Ex data

Ex installation (EPL)	Gc
	Div. 2

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
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 079 X

UKCA Ex (UKEX)	
Identification	⬡ II 3 G Ex ec IIC T4 Gc
Certificate	PxCIF21UKEX2901994X

IECEx	
Identification	Ex ec IIC T4 Gc
Certificate	IECEx BVS 19.0068X

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

EAC Ex	
Identification	EHC Ex 1 ⏄ Ex ec IIC T4 Gc
Certificate	BY/112 02.01 TP012 103.01 00079

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

Standards and regulations

Electrical isolation	2-way isolation

GB Standard	
Standards/regulations	GB 3836.1
	GB 3836.8

Mounting

Mounting type	DIN rail mounting
Mounting position	any

Drawings

Application drawing

$$U_V = 3{,}1 \text{ V} \rightarrow$$

I

U_S 4-wire U_E

I / I

R_B

MINI MCR-2-I-I-ILP

$U_S = \leq 30 \text{ V DC}$

$$U_s \geq U_E = 3{,}1 \text{ V} + 20 \text{ mA} \times R_B$$

Block diagram

Sensor / Field | **IN** ⟶ | **OUT** ⟶ | **PLC / DCS**

OUT I+ ①
U_s 4-wire PWR max 30VDC
OUT I- ②

OUT I+ ③
U_s 4-wire PWR max 30VDC
OUT I- ④

TI– + ① IN I1+
② IN I1–
TI– + ③ IN I2+
④ IN I2-

TI+ ⑤ + OUT I1+ active
⑥ OUT I1–
TI+ ⑦ + OUT I2+ active
⑧ OUT I2–

⑤ passive ⑥
⑦ passive ⑧

(Ex) **Zone 2**
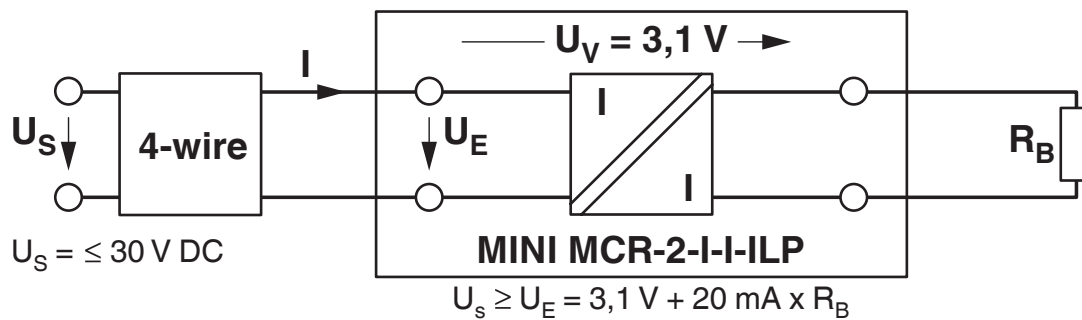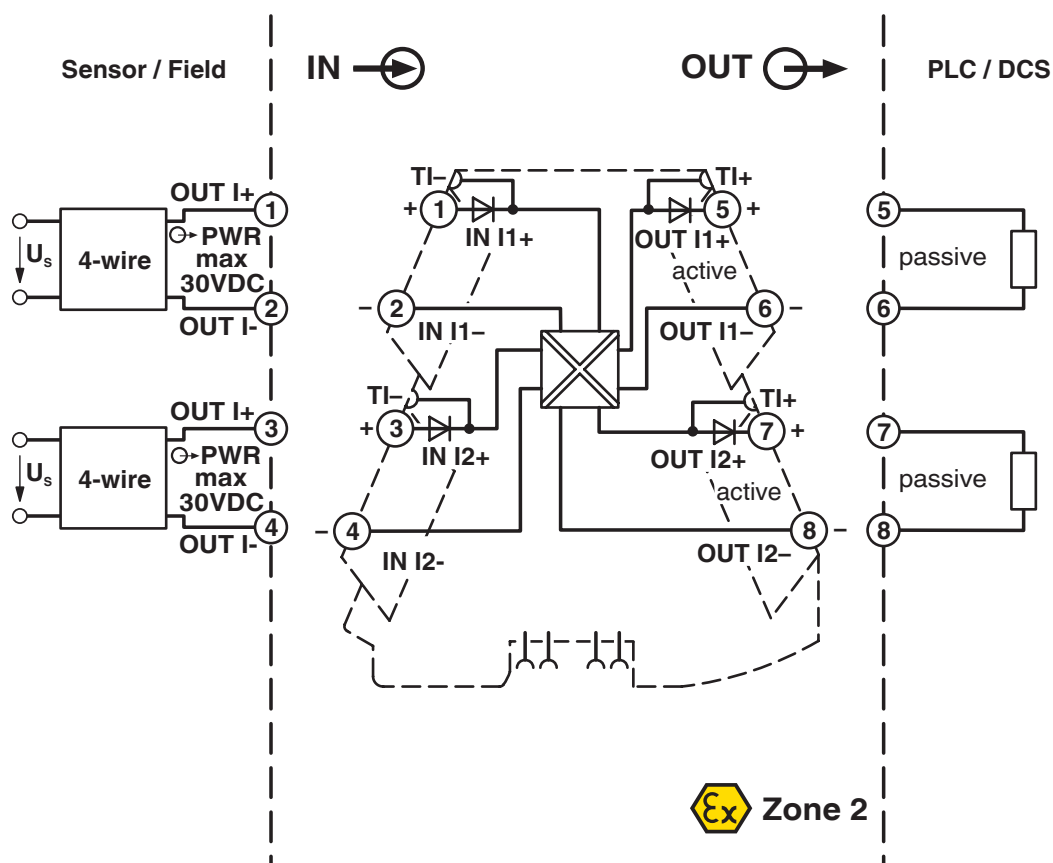
Approvals

💡 To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2901997

EAC
Approval ID: RU*DE.*08.B.01608/19

UL Listed
Approval ID: FILE E 238705

CCC
Approval ID: 2021122310114155

cUL Listed
Approval ID: FILE E 238705

IECEx
Approval ID: IECEx BVS 19.0068X

cUL Listed
Approval ID: FILE E 196811

UL Listed
Approval ID: FILE E 196811

ATEX
Approval ID: BVS 19 ATEX E 079 X

cULus Listed

cULus Listed

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	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	b9b64fc1-6304-4662-b523-606c2c982230

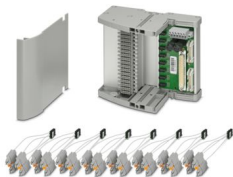# MINI MCR-2-2I-2I-ILP-PT - Loop-powered isolators

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Accessories

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.

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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.

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

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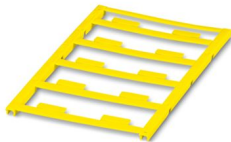
https://www.phoenixcontact.com/us/products/0819301

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

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2901997

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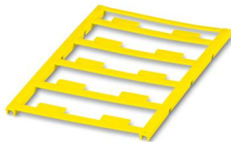
UC-EMLP (15X5) YE CUS - Plastic label

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

UC-EMLP (15X5) SR - Plastic label

0828095

https://www.phoenixcontact.com/us/products/0828095
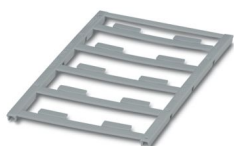
Plastic label, Sheet, silver, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 15 x 5 mm, Number of individual labels: 10

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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2901997

https://www.phoenixcontact.com/us/products/2901997

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-2-2I-2I-ILP-PT - Loop-powered isolators

2901997

https://www.phoenixcontact.com/us/products/2901997

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

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