

# MACX MCR-EX-AP-IDS-2I-2I-LP - Output signal conditioner



1291963

<https://www.phoenixcontact.com/us/products/1291963>

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Ex i-Output isolator isolates and transmits 0 mA / 4 mA ... 20 mA signals with intrinsic safety in potentially explosive areas. Suitable for fire and gas detectors. number of channels: 2, open-circuit voltage: 25 V, Standard configuration, Loop-powered, 4-way isolation, Safety Integrity Level (SIL, IEC 61508): 3, Screw connection

## Commercial data

Item number	1291963
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C430
Product key	DK121W
GTIN	4063151522995
Weight per piece (including packing)	197.4 g
Weight per piece (excluding packing)	160 g
Customs tariff number	85437090
Country of origin	DE

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## Technical data

### Notes

Note on application	Accuracy, typically specified as a percentage of the measuring span (20 mA) at $U_N$ , 23°C
Notes on operation	Installation conditions influence the ambient temperature. Please refer to the operating instructions.

### Product properties

Product type	Output signal conditioner
Product family	MACX Analog
No. of channels	2

### Electrical properties

Electrical isolation	4-way isolation
Electrical isolation between input and output	yes
Linearity error	$\leq 0.25\%$ (at load = 0 $\Omega$ )
Signal transmission behavior	In = Out
Temperature coefficient, typical	$\leq 0.1\%$ (10 K)
Reverse polarity protection	yes

#### Electrical isolation Input/output IEC/EN 60079-11

Standards/regulations	IEC/EN 60079-11
Rated insulation voltage	375 V <sub>PP</sub>

#### Electrical isolation Output 1/output 2

Test voltage	350 V (50 Hz, 60 s)
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#### Electrical isolation Input 1 / input 2

Test voltage	500 V (50 Hz, 60 s)
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### Supply

Supply voltage range	loop-powered, no external supply necessary
Power dissipation	$\leq 0.2$ W (at 20 mA, per channel)
	$\leq 0.6$ W (at 40 mA, per channel)

### Input data

#### Signal: Current

Number of inputs	2
Current input signal	0 mA ... 20 mA
	4 mA ... 20 mA (with HART)
	0 mA ... 40 mA (Function area)
Voltage drop	1 V (constant)

### Output data

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## Signal: Current

Output description	intrinsically safe
Number of outputs	2
Current output signal	0 mA ... 20 mA
	4 mA ... 20 mA (with HART)
	0 mA ... 40 mA (Function area)
Load/output load current output	$\leq 800 \Omega$ (20 mA)
Open-circuit voltage	25 V
Line fault detection	0 mA (Line break)
	$\leq 1$ mA (Input current behavior)

## Connection data

Connection method	Screw connection
Stripping length	7 mm
Screw thread	M3
Conductor cross-section rigid	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross-section flexible	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross-section AWG	24 ... 14
Tightening torque	0.5 Nm ... 0.6 Nm

## Ex data

Ex installation (EPL)	Gc
Ex i circuits (EPL)	[Ga]
	[Da]
	[Ma]

## Safety data

Max. internal inductance $L_i$	negligible
Max. internal capacitance $C_i$	negligible
Max. output voltage $U_o$	25 V
Max. output current $I_o$	99 mA
Max. output power $P_o$	613 mW
Safety-related maximum voltage $U_m$	253 V AC
IIA (simple circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	28 mH / 2.97 $\mu$ F
IIB (simple circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	11 mH / 840 nF
IIC (simple circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	2.5 mH / 110 nF
I (simple circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	46 mH / 4.87 $\mu$ F

## Interfaces

### Data communication (bypass)

Protocols supported	HART-transparent
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## Dimensions

Dimensional drawing	
Width	17.5 mm
Height	112.5 mm
Depth	113.7 mm
Depth NS 35/7,5	114.5 mm (Snapped onto DIN rail NS 35/7,5 in accordance with EN 60715)

## Material specifications

Flammability rating according to UL 94	V0
Housing material	PA 6.6

## Environmental and real-life conditions

### Ambient conditions

Degree of protection	IP20 (Terminal blocks) IP30 (Housing)
Ambient temperature (operation)	-20 °C ... 70 °C (Stand-alone device: any mounting position) -20 °C ... 70 °C (Group assembly: vertical DIN rail without circulating air) -20 °C ... 70 °C (Group assembly: vertical DIN rail with circulating air) -20 °C ... 70 °C (Group assembly: horizontal DIN rail without circulating air) -20 °C ... 70 °C (Group assembly: horizontal DIN rail with circulating air)
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Altitude	≤ 2000 m
Permissible humidity (operation)	≤ 95 % (non-condensing)

## Approvals

### ATEX

Identification	⊕ II (1) G [Ex ia Ga] IIC
	⊕ II (1) D [Ex ia Da] IIIC
	⊕ II 3 (1) G Ex nA [ia Ga] IIC T4 Gc
	⊕ I (M1) [Ex ia Ma] I

### IECEX

Identification	[Ex ia Ga] IIC
	[Ex ia Da] IIIC

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	Ex nA [ia Ga] IIC T4 Gc
	[Ex ia Ma] I

## Safety Integrity Level (SIL, IEC 61508)

Identification	3
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## EMC data

Electromagnetic compatibility	Tested in accordance with the following standards and regulations: EN 61326-1 For industrial use, NAMUR NE 21
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## Standards and regulations

Electrical isolation	4-way isolation
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## Mounting

Mounting type	NS 35/15, NS 35/7,5
Mounting position	vertical, horizontal

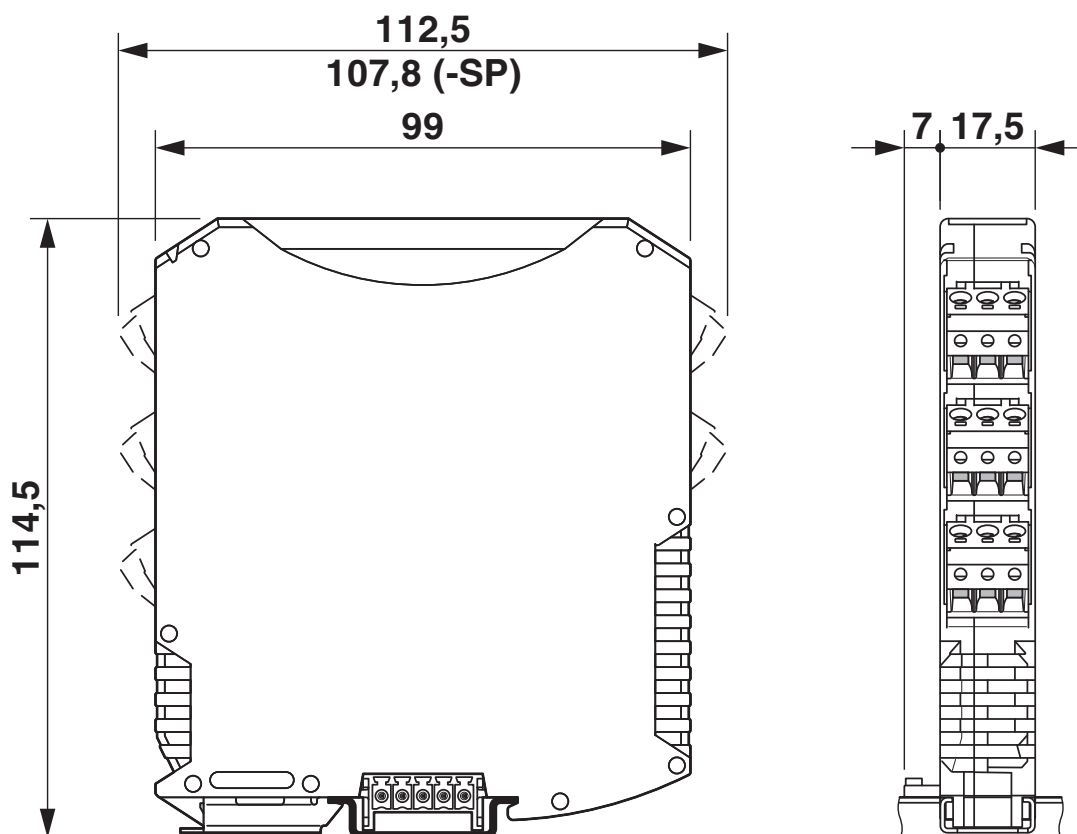
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## Drawings

Dimensional drawing



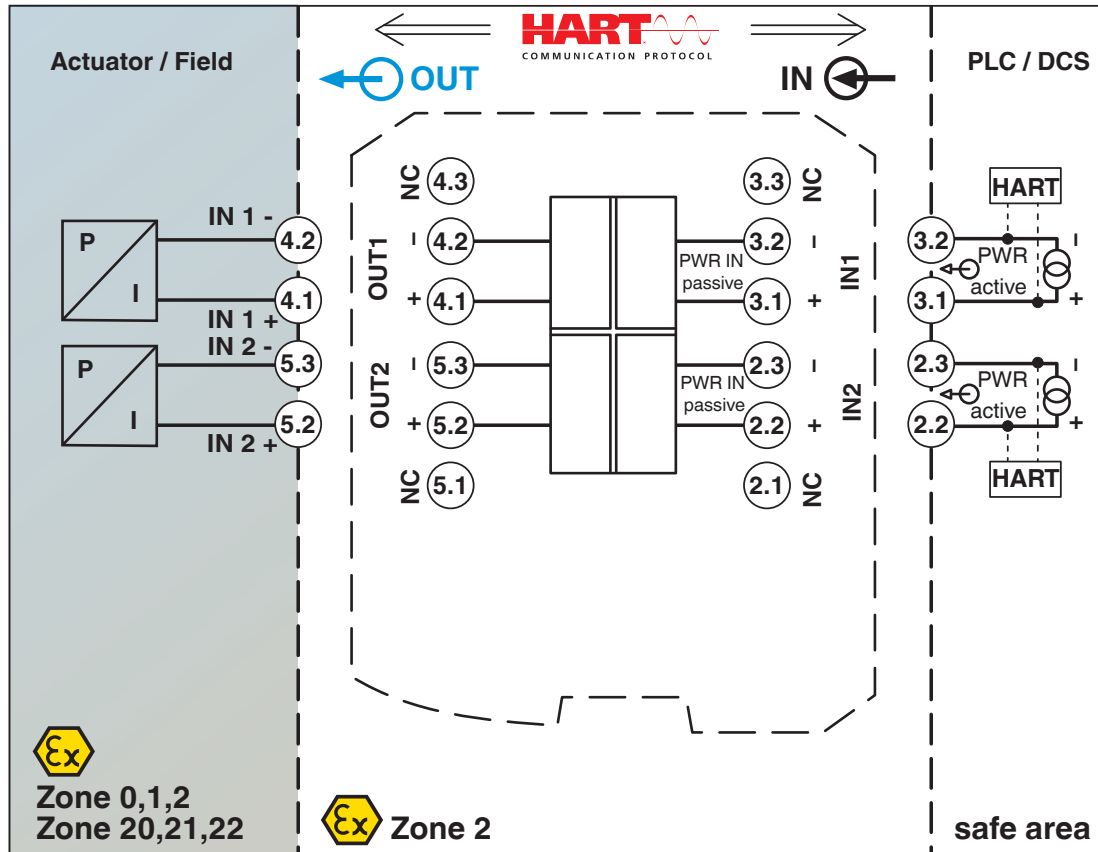
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Block diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1291963>

### Functional Safety

Approval ID: 22/05-248 R031 V1R0



### IECEX

Approval ID: IECEx BVS 21.0034X



### ATEX

Approval ID: BVS 21 ATEX E 032X

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## Classifications

### ECLASS

ECLASS-13.0	27210120
ECLASS-15.0	27210120

### ETIM

ETIM 10.0	EC002653
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## Environmental product compliance

### EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	6(c), 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	51b6c522-60a7-4551-a805-93431c2cde3f

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