

Output signal conditioner - MACX MCR-SL-IDS-I-SP - 2924223

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Output signal conditioner, HART. Isolates and transmits 0/4-20 mA signals to a load (I/P converters, control valves, displays). Electrical 3-way isolation, wire break recognition, SIL 2 in accordance with IEC 61508, Push-in connection.

Your advantages

- ✓ Power supply possible via DIN rail connector
- ✓ Up to SIL 2 according to EN 61508
- ✓ Installation in zone 2, protection type "n" (EN 60079-15) permitted
- ✓ Line fault detection (LFD)
- ✓ 0/4 ... 20 mA output
- ✓ 0/4 ... 20 mA input
- ✓ Plug-in screw or spring-cage connection technology (Push-in technology), with integrated sockets for HART communicators
- ✓ 3-way electrical isolation
- ✓ Bidirectional transmission of digital HART communication signals



Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 449533
GTIN	4046356449533

Technical data

Note

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

Width	12.5 mm
Height	116 mm
Depth	114.5 mm

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Technical data

Ambient conditions

Ambient temperature (operation)	-20 °C ... 60 °C (Any mounting position)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Maximum altitude	≤ 2000 m
Permissible humidity (operation)	10 % ... 95 % (non-condensing)
Noise immunity	EN 61000-6-2

Input data

Current input signal	0 mA ... 20 mA
	4 mA ... 20 mA
Input voltage limitation	5.4 V (at 20 mA)
Input impedance	> 100 kΩ (If there is a line fault)

Output data

Signal output	Current output
Current output signal	0 mA ... 20 mA
	4 mA ... 20 mA
Transmission Behavior	1:1 to input signal
Load/output load current output	< 800 Ω (20 mA)
	< 730 Ω (22.5 mA)
Output ripple	< 20 mV _{rms}

Power supply

Nominal supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC (24 V DC -20%...+25%)
Max. current consumption	< 46 mA (24 V DC / 20 mA)
Power dissipation	< 1.1 W (24 V DC / 20 mA)

Connection data

Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	1.5 mm ²
Conductor cross section flexible min.	0.2 mm ²
Conductor cross section flexible max.	1.5 mm ²
Conductor cross section AWG min.	24
Conductor cross section AWG max.	16
Stripping length	8 mm
Connection method	Push-in connection

General

No. of channels	1
Maximum transmission error	< 0.1 % (of final value)
Transmission error, typical	< 0.05 % (of final value)
Maximum temperature coefficient	< 0.01 %/K
Step response (10-90%)	< 140 μs (for 4 mA ... 20 mA step)

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Technical data

General

Status display	Green LED (supply voltage)
Flammability rating according to UL 94	V0
Degree of pollution	2
Overvoltage category	II
Electromagnetic compatibility	Conformance with EMC directive
Interference emission	EN 61000-6-4
Housing material	PA 6.6-FR
Color	gray
Designation	Input/output/power supply
Electrical isolation	1.5 kV (50 Hz, 1 min., test voltage)
Conformance	CE-compliant, additionally EN 61326-1
ATEX	# II 3 G Ex nA IIC T4 Gc X
UL, USA/Canada	UL 508 Listed
	UL 61010 Listed
	Class I, Div. 2, Groups A, B, C, D T4
	Class I, Zone 2, Group IIC T4
GL	C, EMC1
SIL	2

Data communication (bypass)

HART function	Yes
Protocols supported	HART

Safety characteristic data

Integrity requirement	IEC 61508 - Low demand
Equipment type	Type A
Safety Integrity Level (SIL)	2
Safe Failure Fraction (SFF)	94.68 %
λ_{SU}	4.965×10^{-7} (496.5 FIT)
λ_{SD}	0
λ_{DU}	2.79×10^{-8} (27.9 FIT)
λ_{DD}	0
Probability of a hazardous failure on demand (PFD _{AVG})	1.22×10^{-4} (1 year)
	6.1×10^{-4} (5 years)
	12.2×10^{-4} (10 years)
Diagnostic coverage (DC)	DC _S =0 %, DC _D =0 %
Integrity requirement	IEC 61508 - High demand
Equipment type	Type A
Safety Integrity Level (SIL)	2
Safe Failure Fraction (SFF)	94.68 %
λ_{SU}	4.965×10^{-7} (496.5 FIT)

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Technical data

Safety characteristic data

λ_{SD}	0
λ_{DU}	2.79×10^{-8} (27.9 FIT)
λ_{DD}	0
Probability of a hazardous failure per hour (PFH _D)	$2,79 \times 10^{-8}$
Diagnostic coverage (DC)	DC _S =0 %, DC _D =0 %

EMC data

Designation	Electromagnetic RF field
Standards/regulations	EN 61000-4-3

Standards and Regulations

Electromagnetic compatibility	Conformance with EMC directive
Noise emission	EN 61000-6-4
Designation	Electromagnetic RF field
Standards/regulations	EN 61000-4-3
Flammability rating according to UL 94	V0
Conformance	CE-compliant, additionally EN 61326-1
ATEX	# II 3 G Ex nA IIC T4 Gc X
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	Class I, Div. 2, Groups A, B, C, D T4
	Class I, Zone 2, Group IIC T4
GL	C, EMC1

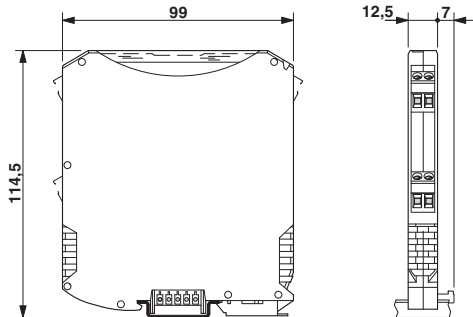
Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

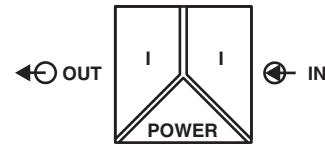
Drawings

Output signal conditioner - MACX MCR-SL-IDS-I-SP - 2924223

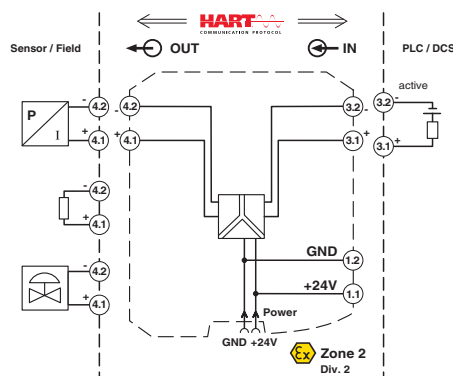
Dimensional drawing



Pictogram



Block diagram



Approvals

Approvals

Approvals

DNV GL / UL Listed / cUL Listed / Functional Safety / cULus Listed

Ex Approvals


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


Approval details

DNV GL		https://approvalfinder.dnvgl.com/	TAA0000AG
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Approvals

UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 330267
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cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 330267
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Functional Safety			BVS Pb 05/08
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cULus Listed			
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