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

2908064

https://www.phoenixcontact.com/us/products/2908064

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Output signal conditioner, HART-transparent. Isolates and transmits 0/4 mA ... 20 mA signals to a load in the safe area. 3-way electrical isolation, line fault detection (can be switched off via DIP switch), SIL 2 (SC3) in accordance with IEC 61508, Push-in connection.

Commercial data

Item number	2908064
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C402
Product key	DK1112
GTIN	4055626275314
Weight per piece (including packing)	168.7 g
Weight per piece (excluding packing)	160 g
Customs tariff number	85437090
Country of origin	DE

Technical data

Product properties

Product type	Output signal conditioner
Product family	MACX Analog
No. of channels	1
Configuration	DIP switches

System properties

Functionality

Configuration	DIP switches

Electrical properties

Electrical isolation	3-way isolation
Electrical isolation between input and output	yes
Signal transmission behavior	In = Out
Step response (10-90%)	< 140 µs (for 4 mA ... 20 mA step)
Maximum temperature coefficient	0.01 %/K
Temperature coefficient, typical	≤ 0.005 %/K
Maximum transmission error	0.1 % (of final value 20 mA)
Transmission error, typical	≤ 0.05 % (of final value 20 mA)

Electrical isolation

Overvoltage category	II
Pollution degree	2

Electrical isolation Input/output IEC/EN 61010-1

Standards/regulations	IEC/EN 61010-1
Rated insulation voltage	300 V_{rms}
Test voltage	2.5 kV AC (50 Hz, 60 s)
Insulation	Safe isolation

Electrical isolation Input/power supply IEC/EN 61010-1

Standards/regulations	IEC/EN 61010-1
Rated insulation voltage	50 V_{rms}
Test voltage	1.5 kV AC (50 Hz, 60 s)
Insulation	Basic insulation

Electrical isolation Output/supply IEC/EN 61010-1

Standards/regulations	IEC/EN 61010-1
Rated insulation voltage	300 V_{rms}
Test voltage	2.5 kV AC (50 Hz, 60 s)
Insulation	Safe isolation

Supply

Nominal supply voltage	24 V DC -20 % ... +25 %
Supply voltage range	19.2 V DC ... 30 V DC
Max. current consumption	< 45 mA (24 V DC / 20 mA)
Power dissipation	< 0.8 W (24 V DC / 20 mA)
Power consumption	≤ 1.1 W (24 V DC / 20 mA)

Input data

Signal: Current

Current input signal	0 mA ... 20 mA (Function (short-circuit detection off))
	0.2 mA ... 20 mA (Function (short-circuit detection on))
	4 mA ... 20 mA (Safety)
	0 mA ... 24 mA (Underload/overload range)
Input current	≤ 30 mA
Input impedance	> 1 MΩ (If there is a line fault)
Line fault detection	> 0.2 mA (Response threshold of input current)
Voltage drop	< 2.4 V (at 20 mA)

Output data

Signal: Current

Number of outputs	1
Current output signal	0 mA ... 20 mA (Function (short-circuit detection off))
	0.2 mA ... 20 mA (Function (short-circuit detection on))
	4 mA ... 20 mA (Safety)
	0 mA ... 24 mA (Underload/overload range)
Load	100 Ω ... 700 Ω (20 mA (short-circuit detection on))
	100 Ω ... 650 Ω (20.5 mA (short-circuit detection on))
	100 Ω ... 500 Ω (24 mA (short-circuit detection on))
	0 Ω ... 700 Ω (20 mA (short-circuit detection off))
	0 Ω ... 650 Ω (20.5 mA (short-circuit detection off))
	0 Ω ... 500 Ω (24 mA (short-circuit detection off))
Output ripple	< 20 mV_{rms}
Open-circuit voltage	≤ 27 V
Line fault detection	> 10 kΩ (Line break)
	< 50 Ω (Short circuit)

Connection data

Connection method	Push-in connection
Stripping length	10 mm
Conductor cross-section rigid	0.2 mm² ... 2.5 mm²
Conductor cross-section flexible	0.2 mm² ... 2.5 mm²
Conductor cross-section flexible (2 conductors with same cross section)	0.25 mm² ... 0.34 mm² (TWIN ferrule without plastic sleeve)
	0.5 mm² ... 1.5 mm² (TWIN ferrule with plastic sleeve)
	24 ... 14

Conductor cross-section AWG	24 ... 22 (TWIN ferrule without plastic sleeve)
	20 ... 16 (TWIN ferrule with plastic sleeve)

Ex data

Ex installation (EPL)	Gc
	Div. 2

Interfaces

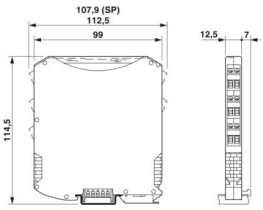
Data communication (bypass)

HART function	HART transparency
Protocols supported	HART

Signaling

Status display	Green LED (supply voltage)

Dimensions

Dimensional drawing	
Width	12.5 mm
Height	107.9 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

Color	gray (RAL 7042)
Flammability rating according to UL 94 (Housing)	V0 (Housing)
Housing material	PA 6.6-FR

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 70 °C (Any mounting position)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	5 % ... 95 % (non-condensing)

Altitude range (≤ 2000 m (Ex))

Description	Ex applications

Altitude	≤ 2000 m (The technical data refers to altitudes ≤2000 m above mean sea level. For altitudes >2000 m above mean sea level, refer to the data sheet.)
Ambient temperature (operation)	-40 °C ... 70 °C
Rated insulation voltage	320 V (Power supply, input / output)

Altitude range (≤ 3000 m (Ex))

Description	Ex applications
Height range	> 2000 m ... 3000 m
Ambient temperature (operation)	-40 °C ... 60 °C
Rated insulation voltage	190 V (Power supply, input / output)

Altitude range (≤ 4000 m (Ex))

Description	Ex applications
Height range	> 3000 m ... 4000 m
Ambient temperature (operation)	-40 °C ... 55 °C
Rated insulation voltage	63 V (Power supply, input / output)

Altitude range (≤ 5000 m (Ex))

Description	Ex applications
Height range	> 4000 m ... 5000 m
Ambient temperature (operation)	-40 °C ... 45 °C
Rated insulation voltage	63 V (Power supply, input / output)

Altitude range (≤ 2000 m)

Description	Non-Ex applications (EN 61010-1)
Altitude	≤ 2000 m (The technical data refers to altitudes ≤2000 m above mean sea level. For altitudes >2000 m above mean sea level, refer to the data sheet.)
Ambient temperature (operation)	-40 °C ... 70 °C
Rated insulation voltage	300 V (Power supply, input / output)

Altitude range (≤ 3000 m)

Description	Non-Ex applications (EN 61010-1)
Height range	> 2000 m ... 3000 m
Ambient temperature (operation)	-40 °C ... 60 °C
Rated insulation voltage	150 V (Power supply, input / output)

Altitude range (≤ 4000 m)

Description	Non-Ex applications (EN 61010-1)
Height range	> 3000 m ... 4000 m
Ambient temperature (operation)	-40 °C ... 55 °C
Rated insulation voltage	150 V (Power supply, input / output)

Altitude range (≤ 5000 m)

Description	Non-Ex applications (EN 61010-1)
Height range	> 4000 m ... 5000 m
Ambient temperature (operation)	-40 °C ... 45 °C

Rated insulation voltage	150 V (Power supply, input / output)

Approvals

CE

Certificate	CE-compliant
Note	and EN 61326

ATEX

Identification	II 3 G Ex ec IIC T4 Gc
Certificate	BVS 20 ATEX E 003 X

UKCA Ex (UKEX)

Identification	II 3 G Ex ec IIC T4 Gc
Certificate	PxCIF21UKEx2908065X

IECEx

Identification	Ex ec IIC T4 Gc
Certificate	IECEx BVS 20.0003X

CCC / China-Ex

Identification	Ex ec IIC T4 Gc
Certificate	2021122304114079

UL, USA/Canada

Identification	UL 61010 Listed
	Class I, Div. 2, Groups A, B, C, D T4
	Class I, Zone 2, Group IIC T4

Shipbuilding approval

Certificate	DNV GL TAA00000AG

Safety Integrity Level (SIL, IEC 61508)

Identification	2

Systematic Capability

Identification	3

INMETRO

Identification	Ex ec IIC T4 Gc
Certificate	DNV 21.0092 X

EAC

Identification	2Ex e IIC T4 Gc X
Certificate	RU C-DE.HB49.B.00145/21

Shipbuilding data

Temperature	B
Humidity	B
Vibration	A

EMC	B
Enclosure	Required protection according to the Rules shall be provided upon installation on board

EMC data

Electromagnetic compatibility	Conformance with EMC directive
Noise immunity	EN 61000-6-2
Note	When being exposed to interference, there may be minimal deviations.

Noise emission

Standards/regulations	EN 61000-6-4

Standards and regulations

Electrical isolation	3-way isolation

GB Standard

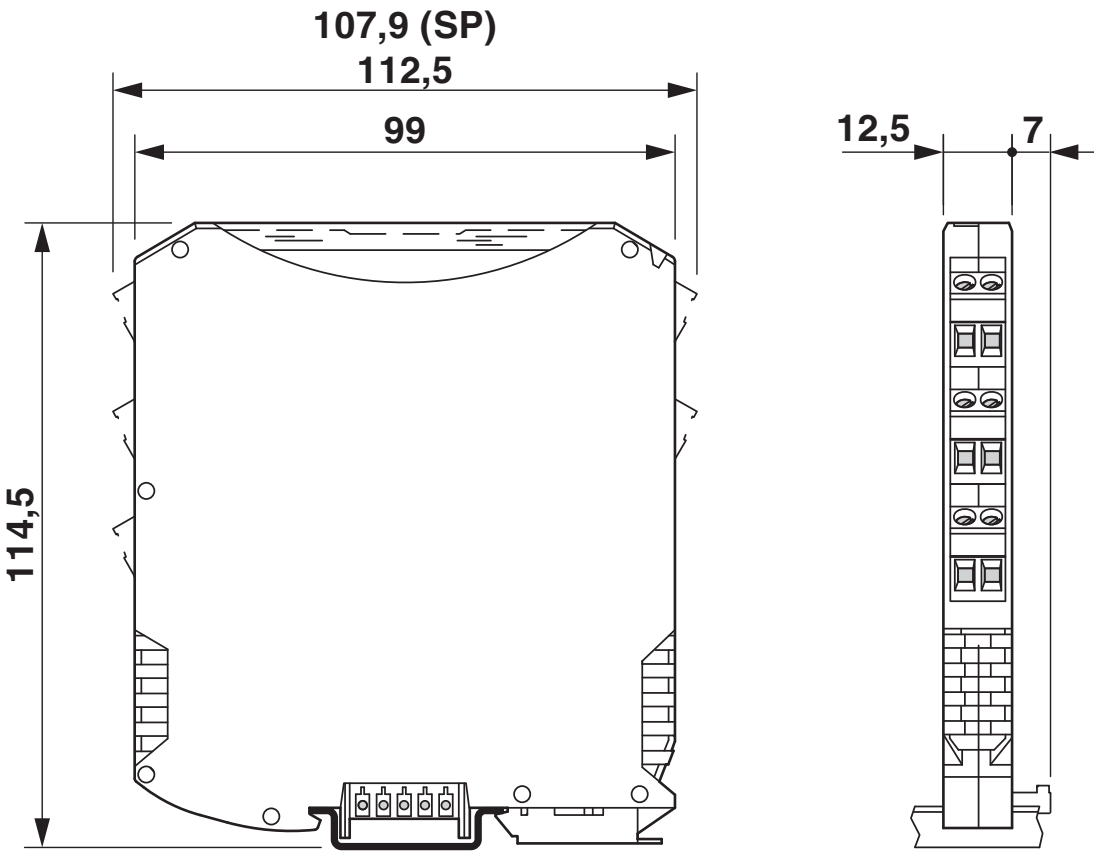
Standards/regulations	GB/T 3836.1
	GB/T 3836.3

Mounting

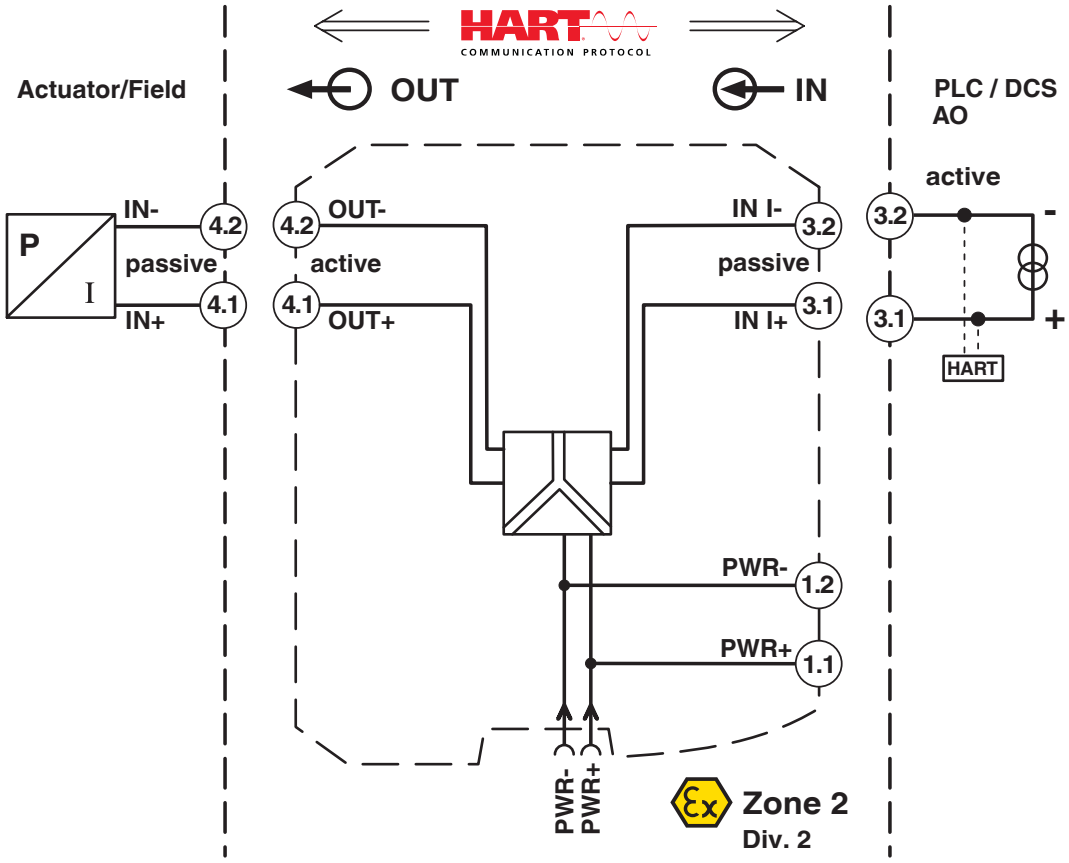
Mounting type	DIN rail mounting

Drawings

Dimensional drawing



Block diagram



Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2908064

DNV GL
Approval ID: TAA00000AG

UL Listed
Approval ID: E330267

cUL Listed
Approval ID: FILE E 330267

Functional Safety
Approval ID: ZP/C002/20

DNV
Approval ID: TAA00000AG

cULus Listed
Approval ID: E330267

DNV
Approval ID: TAA000020C

IECEx
Approval ID: IECEx BVS 20.0003X

cUL Listed
Approval ID: E199827

UL Listed
Approval ID: E199827

ATEX
Approval ID: BVS 20 ATEX E 003 X

INMETRO
Approval ID: DNV 21.0092 X

CCC
Approval ID: 2021122304114079

Classifications

ECLASS

ECLASS-13.0	27210120
ECLASS-15.0	27210120

ETIM

ETIM 10.0	EC002653

UNSPSC

UNSPSC 21.0	39121000

Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	6(c), 7(a), 7(a)-I, 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	6e1978d5-0e87-4fa6-9c19-d142c28d8eaf

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