

MACX MCR-SL-RPSSI-I-UP-SP - Repeater power supply



2924210

<https://www.phoenixcontact.com/us/products/2924210>

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Repeater power supply for supplying 2- and 4-conductor transmitters with HART transparency and wide-range power supply, SIL 2 (1oo1)/SIL 3 (1oo2), Push-in connection

Your advantages

- 250 Ω resistor that can be activated via DIP switches to increase HART impedance for low-resistance systems
- Up to SIL 2 in accordance with EN 61508
- Installation in zone 2, protection type "n" (EN 60079-15) permitted
- Wide-range power supply of 19.2 ... 253 V AC/DC
- 3-way electrical isolation
- Plug-in screw or spring-cage connection technology (Push-in technology), with integrated sockets for HART communicators
- Input: 0/4 mA ... 20 mA (powered or not powered)
- Bidirectional transmission of digital HART communication signals
- 0/4 ... 20 mA output (active or passive), 0/1 ... 5 V, can be selected via DIP switches

Commercial data

Item number	2924210
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C402
Product key	DK1111
GTIN	4046356449502
Weight per piece (including packing)	176.1 g
Weight per piece (excluding packing)	144.5 g
Customs tariff number	85437090
Country of origin	DE

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2924210

<https://www.phoenixcontact.com/us/products/2924210>

Technical data

Product properties

Product type	Repeater power supply
Product family	MACX Analog
Application	Analog IN
No. of channels	1
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%)	< 600 μ s (for 4 mA ... 20 mA step)
Maximum temperature coefficient	< 0.01 %/K
Maximum transmission error	< 0.1 % (of final value)
Transmission error, typical	< 0.05 % (of final value)

Electrical isolation

Test voltage	2.5 kV AC (50 Hz, 60 s)
Overvoltage category	II
Pollution degree	2

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

Standards/regulations	IEC/EN 61010-1
Rated insulation voltage	300 V _{rms}
Insulation	Safe isolation

Supply

Designation	Repeater power supply operation
Nominal supply voltage range	24 V AC/DC ... 230 V AC/DC -20 % ... +10 % (50/60 Hz)
Supply voltage range	19.2 V AC/DC ... 253 V AC/DC (50/60 Hz)
Max. current consumption	< 75 mA (24 V DC / 20 mA)
Power dissipation	< 1.6 W (24 V DC / 20 mA)
Power consumption	< 1.9 W

Supply

Designation	Signal conditioner operation
Nominal supply voltage range	24 V AC/DC ... 230 V AC/DC -20 % ... +10 % (50/60 Hz)
Supply voltage range	19.2 V AC/DC ... 253 V AC/DC (50/60 Hz)
Max. current consumption	< 45 mA (24 V DC / 20 mA)
Power dissipation	< 1.1 W (24 V DC / 20 mA)
Power consumption	< 1.1 W

Input data

MACX MCR-SL-RPSSI-I-UP-SP - Repeater power supply



2924210

<https://www.phoenixcontact.com/us/products/2924210>

Signal: Repeater power supply operation

Description of the input	Active current input
Number of inputs	1
Current input signal	4 mA ... 20 mA
Transmitter supply voltage	> 16 V (20 mA)
	> 15.3 V (22.5 mA)

Signal: Signal conditioner operation

Description of the input	Passive current input
Current input signal	0 mA ... 20 mA
	4 mA ... 20 mA
Voltage drop	< 3.5 V (in input isolating amplifier operation)

Output data

Signal: Repeater power supply operation

Output description	Current output (active and passive)
Number of outputs	1
Voltage output signal	1 V ... 5 V (internal resistance, 250 Ω , 0.1%)
	Configurable via DIP switches
Current output signal	4 mA ... 20 mA (active)
	4 mA ... 20 mA (14 ... 26 V ext. source voltage)
Load/output load current output	< 600 Ω (20 mA)
	< 525 Ω (22.5 mA)
Output ripple	< 20 mV _{rms}
Output behavior in the event of an error	0 mA (Cable break in the input)
	$\geq$ 22.5 mA (Cable short-circuit in the input)

Signal: Signal conditioner operation

Output description	Current output (active and passive)
Voltage output signal	0 V ... 5 V (internal resistance, 250 Ω , 0.1%)
	1 V ... 5 V (internal resistance, 250 Ω , 0.1%)
Current output signal	0 mA ... 20 mA (active)
	4 mA ... 20 mA (active)
	0 mA ... 20 mA (14 ... 26 V ext. source voltage)
	4 mA ... 20 mA (14 ... 26 V ext. source voltage)
Load/output load current output	< 600 Ω (20 mA)
	< 525 Ω (22.5 mA)
Output ripple	< 20 mV _{rms}
Output behavior in the event of an error	0 mA (Cable break in the input)
	0 mA (Cable short-circuit in the input)

Connection data

Connection method	Push-in connection
Stripping length	10 mm

MACX MCR-SL-RPSSI-I-UP-SP - Repeater power supply



2924210

<https://www.phoenixcontact.com/us/products/2924210>

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)
Conductor cross-section AWG	24 ... 14
	24 ... 22 (TWIN ferrule without plastic sleeve)
	20 ... 16 (TWIN ferrule with plastic sleeve)

Ex data

Ex installation (EPL)	Gc
	Div. 2

Interfaces

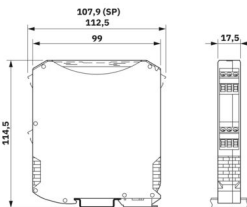
Data communication (bypass)

HART function	Yes
Protocols supported	HART-transparent

Signaling

Status display	Green LED (supply voltage)
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Dimensions

Dimensional drawing	
Width	17.5 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 (not assessed by UL)
Ambient temperature (operation)	-40 °C ... 60 °C (Any mounting position)
	-40 °C ... 70 °C (Derating)

MACX MCR-SL-RPSSI-I-UP-SP - Repeater power supply



2924210

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Ambient temperature (storage/transport)	-40 °C ... 80 °C
Permissible humidity (operation)	10 % ... 95 % (non-condensing)

Altitude range (≤ 2000 m)

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 ... 60 °C -40 °C ... 70 °C (Derating)
Rated insulation voltage	375 V _{PP} (Power supply, input / output)

Altitude range (≤ 3000 m)

Height range	> 2000 m ... 3000 m
Ambient temperature (operation)	-40 °C ... 54 °C -40 °C ... 63 °C (Derating)
Rated insulation voltage	190 V AC (Power supply, input / output) 110 V DC (Power supply, input / output)

Altitude range (≤ 4000 m)

Height range	> 3000 m ... 4000 m
Ambient temperature (operation)	-40 °C ... 48 °C -40 °C ... 56 °C (Derating)
Rated insulation voltage	60 V AC/DC (Power supply, input / output)

Altitude range (≤ 5000 m)

Height range	> 4000 m ... 5000 m
Ambient temperature (operation)	-40 °C ... 42 °C -40 °C ... 49 °C (Derating)
Rated insulation voltage	60 V AC/DC (Power supply, input / output)

Approvals

CE

Certificate	CE-compliant
Note	and EN 61326-1

ATEX

Identification	Ⓔ II 3 G Ex ec IIC T4 Gc X
Certificate	PxCIF08ATEX2865968X

UKCA Ex (UKEX)

Identification	Ⓔ II 3 G Ex nA IIC T4 Gc
Certificate	PxCIF21UKEX2865968X

IECEx

Identification	Ex ec IIC T4 Gc
Certificate	IECEx BVS 08.0035X

UL, USA/Canada

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2924210

<https://www.phoenixcontact.com/us/products/2924210>

Identification	UL 508 Listed
	UL 61010 Listed
	Class I, Div. 2, Groups A, B, C, D T4
	Class I, Zone 2, Group IIC T4

Safety Integrity Level (SIL / SILCL, IEC 61508)

Identification	2
Certificate	ZP/C031/20

Systematic Capability (SC / SILCL)

Identification	3
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EMC data

Electromagnetic compatibility	Conformance with EMC directive
Noise immunity	EN 61000-6-2

Noise emission

Standards/regulations	EN 61000-6-4
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Standards and regulations

Electrical isolation	3-way isolation
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Mounting

Mounting type	DIN rail mounting
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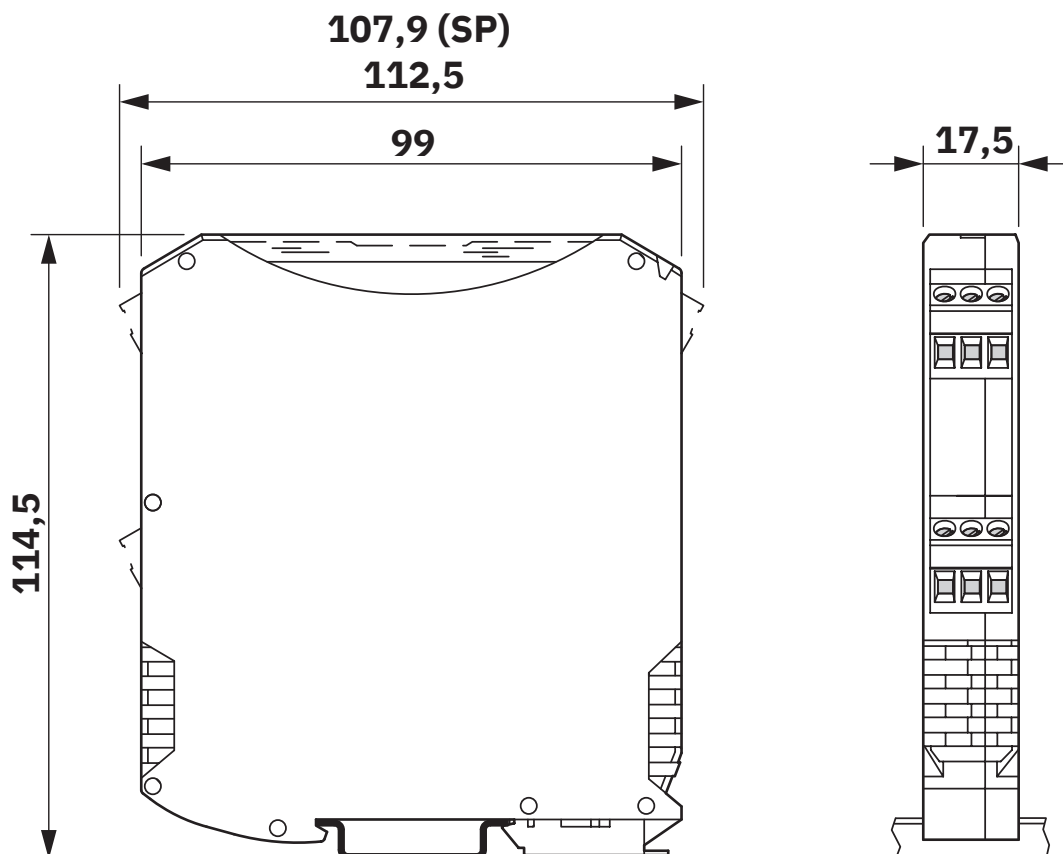
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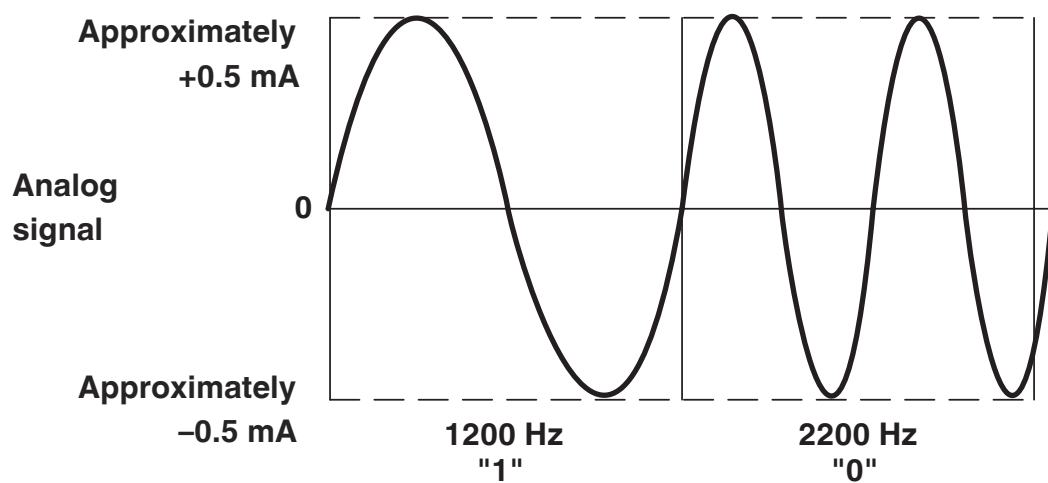
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Drawings

Dimensional drawing



Diagram



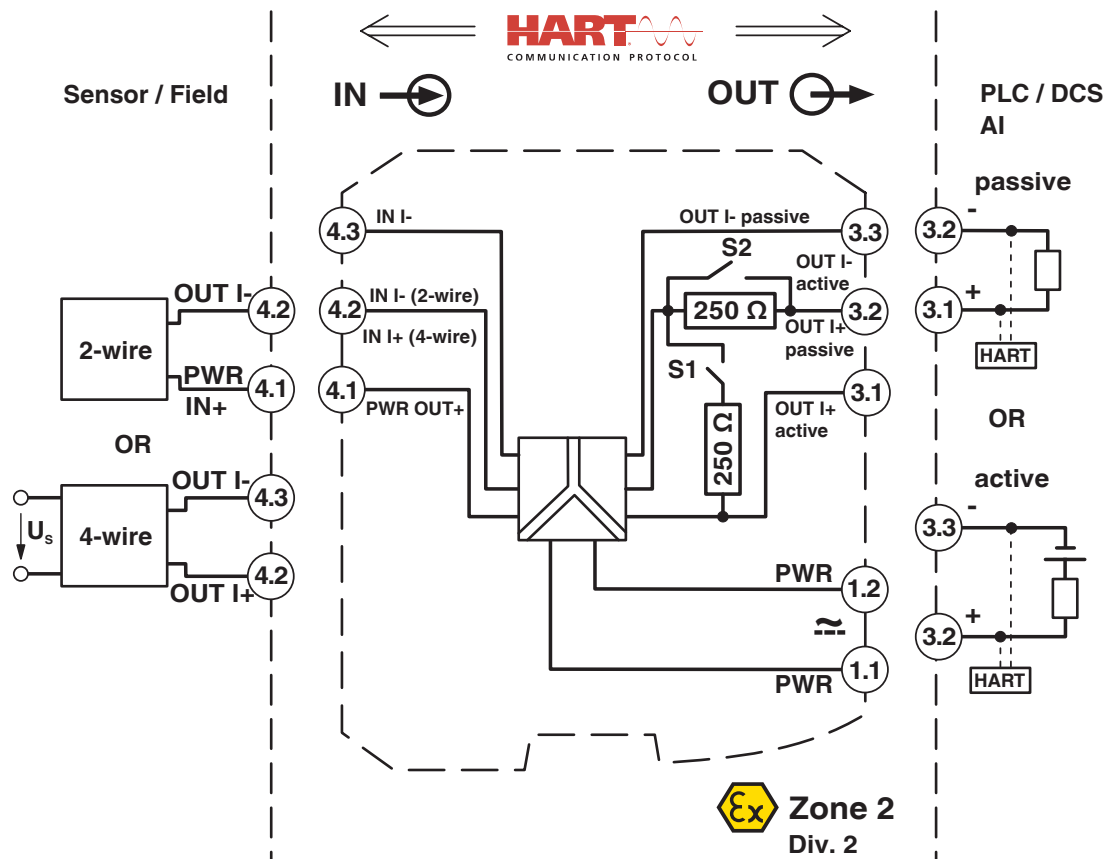
Signal transmission analog and digital at the same time

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Block diagram



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2924210

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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2924210>



UL Listed

Approval ID: E330267



cUL Listed

Approval ID: E330267

Functional Safety

Approval ID: BVS PB 09/08



EAC Ex

Approval ID: TP012 103.01 00078



cUL Listed

Approval ID: E199827



UL Listed

Approval ID: FILE E 199827



IECEx

Approval ID: IECEx BVS 08.0035X

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Classifications

ECLASS

ECLASS-13.0	27210120
ECLASS-15.0	27210120

ETIM

ETIM 9.0	EC002653
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UNSPSC

UNSPSC 21.0	39121000
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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	c7ab9d4b-0920-4f27-b5f1-a18540c1f140

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