

# Power/input isolating amplifier - MACX MCR-EX-SL-RPSSI-I-UP-SP - 2924029

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Ex-i repeater power supply and input isolating amplifier, HART Sends fed or active 0/4-20 mA signals from the Ex area to a load (active or passive) to the safe area. Electrical 3-way isolation; SIL 2, wide range power supply.

The illustration shows the versions with screw connection

## Product Features

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



## Key commercial data

package_quantity	1
GTIN	4046356338172

## Technical data

Note:

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

Width	17.5 mm
Height	99 mm
Depth	114.5 mm

### Ambient conditions

Ambient temperature (operation)	-20 °C ... 60 °C (Any mounting position)
Ambient temperature (storage/transport)	-40 °C ... 80 °C

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## Technical data

### Ambient conditions

Maximum altitude	≤ 2000 m
Permissible humidity (operation)	10 % ... 95 % (no condensation)
Degree of protection	IP20

### Input data

Current input signal	0 mA ... 20 mA
Current input signal	4 mA ... 20 mA
Transmitter supply voltage	> 16 V (at 20 mA)
Voltage drop	< 3.5 V (in input isolating amplifier operation)

### Output data

Signal output	Current output
Voltage output signal	0 V ... 5 V (internal resistance, 250 Ω, 0.1%)
Current output signal	0 mA ... 20 mA (active)
Current output signal	4 mA ... 20 mA (active)
Current output signal	0 mA ... 20 mA (14 ... 26 V ext. source voltage)
Current output signal	4 mA ... 20 mA (14 ... 26 V ext. source voltage)
Transmission Behavior	1:1 to input signal
Load/output load current output	< 600 Ω (I output)
Output ripple	< 20 mV <sub>rms</sub>

### Power supply

Supply voltage range	24 V ... 230 V AC/DC (-20%/+10%, 50/60 Hz)
Max. current consumption	< 80 mA (at 24 V DC)
Power consumption	< 1.6 W

### Connection data

Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	1.5 mm <sup>2</sup>
Conductor cross section stranded min.	0.2 mm <sup>2</sup>
Conductor cross section stranded max.	1.5 mm <sup>2</sup>
Conductor cross section AWG/kcmil min.	24
Conductor cross section AWG/kcmil max	16
Stripping length	8 mm
Connection method	Spring-cage conn.

### 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%)	< 600 μs (for 4 mA ... 20 mA step)
Status display	Green LED (supply voltage)

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## Technical data

### General

<b>Inflammability class according to UL 94</b>	V0
<b>Pollution degree</b>	2
<b>Surge voltage category</b>	II
<b>Housing material</b>	PA 66-FR
<b>Color</b>	green
<b>Name</b>	Input/output/power supply
<b>Electrical isolation</b>	300 V <sub>rms</sub> (Rated insulation voltage (surge voltage category II; pollution degree 2, safe isolation as per EN 61010-1))
<b>Electrical isolation</b>	2.5 kV (50 Hz, 1 min., test voltage)
<b>Name</b>	Input/output
<b>Electrical isolation</b>	375 V (Peak value in accordance with EN 60079-11)
<b>Name</b>	Input/power supply
<b>Electrical isolation</b>	375 V (Peak value in accordance with EN 60079-11)
<b>Conformance</b>	CE-compliant, additionally EN 61326
<b>ATEX</b>	# II (1) G [Ex ia Ga] IIC/IIB
<b>ATEX</b>	# II (1) D [Ex ia Da] IIIC
<b>ATEX</b>	# II 3(1) G Ex nA [ia Ga] IIC/IIB T4 Gc
<b>IECEX</b>	[Ex ia Ga] IIC/IIB
<b>IECEX</b>	[Ex ia Da] IIIC
<b>IECEX</b>	Ex nA [ia Ga] IIC/IIB T4 Gc
<b>UL, USA / Canada</b>	Class I Div 2; IS for Class I, II, III Div 1
<b>Functional safety (SIL)</b>	SIL 2 according to EN 61508

### Data communication (bypass)

<b>HART function</b>	Yes
<b>Protocols supported</b>	HART

### Safety data

<b>Max. output voltage U<sub>o</sub></b>	25.2 V
<b>Max. output current I<sub>o</sub></b>	93 mA
<b>Max. output power P<sub>o</sub></b>	587 mW
<b>Gas group</b>	IIC
<b>Max. external inductivity L<sub>o</sub></b>	2 mH
<b>Max. external capacity C<sub>o</sub></b>	107 nF
<b>Safety-related maximum voltage U<sub>m</sub></b>	253 V AC (125 V DC)

## classifications

### eCl@ss

<b>eCl@ss 4.0</b>	27210121
<b>eCl@ss 4.1</b>	27210121

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## classifications

### eCl@ss

eCl@ss 5.0	27210121
eCl@ss 5.1	27210121
eCl@ss 6.0	27210121
eCl@ss 7.0	27210121
eCl@ss 8.0	27210121

### ETIM

ETIM 2.0	EC001431
ETIM 3.0	EC001596
ETIM 4.0	EC001596
ETIM 5.0	EC001596

### UNSPSC

UNSPSC 6.01	30211506
UNSPSC 7.0901	39121008
UNSPSC 11	39121008
UNSPSC 12.01	39121008
UNSPSC 13.2	39121008

## approvals

IECEX / UL Listed / cUL Listed / ATEX / cULus Listed / UL Listed / cUL Listed / Functional Safety / cULus Listed / GL /

### Approval details

IECEX

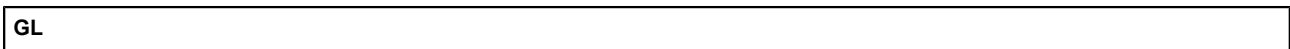
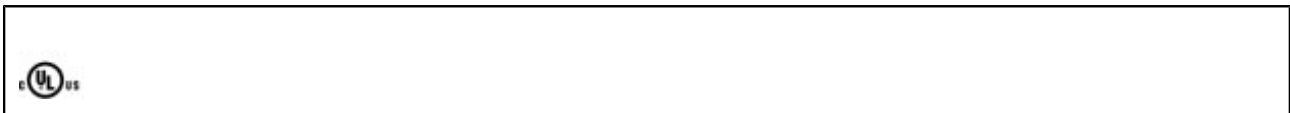
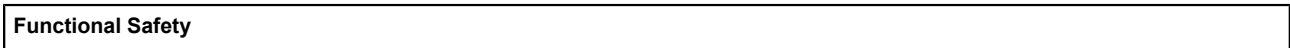
UL Listed

cUL Listed

ATEX

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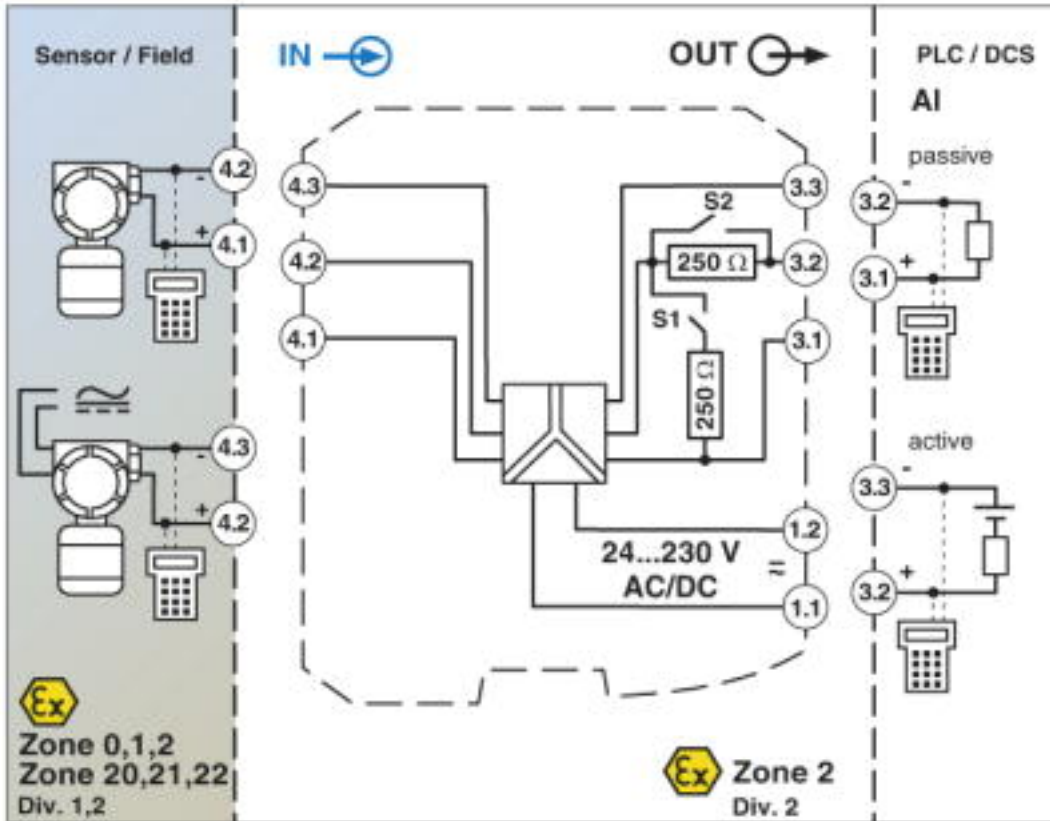
approvals



Drawings

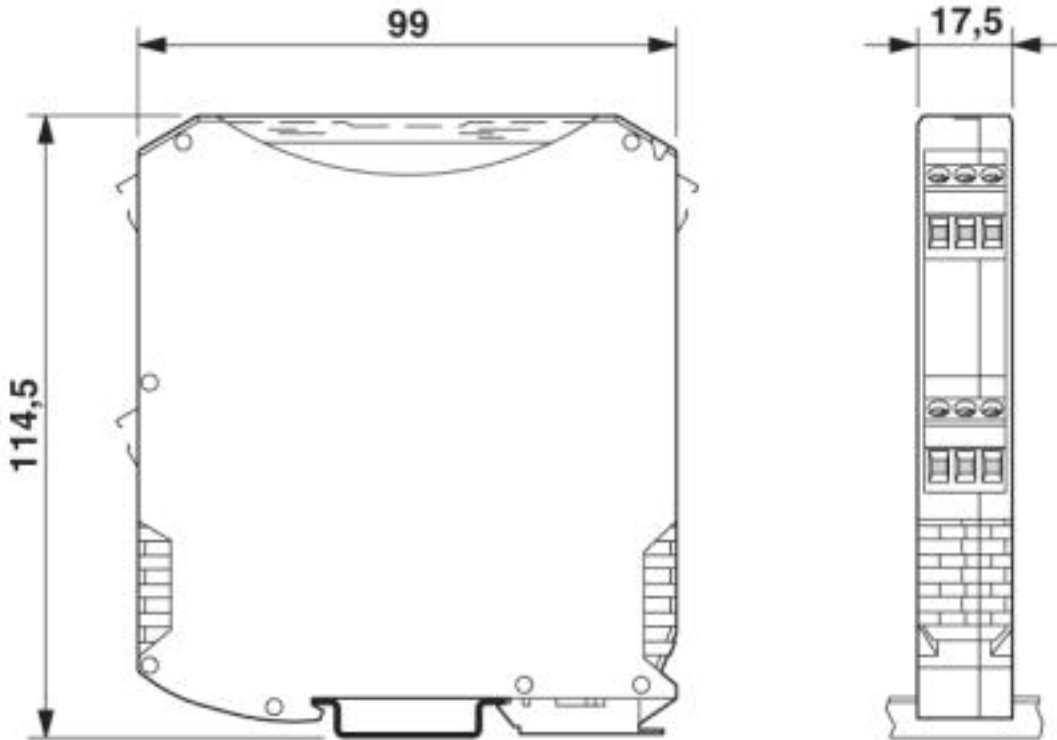
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Block diagram



# Power/input isolating amplifier - MACX MCR-EX-SL-RPSSI-I-UP-SP - 2924029

Dimensioned drawing



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