

## Repeater power supply - MACX MCR-EX-SL-RPSSI-2I - 2865366

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Measuring transducer power supply and input isolating amplifier, HART-transparent. Transfers supplied or active 0/4-20 mA signals from the Ex area galv. isolated to two loads in the safe area. Galvanic 4-way isolation, SIL 2 according to IEC 61508, screw connection

### Product description

Repeater power supply and input isolating amplifier for the operation of intrinsically safe (Ex-i) 2-wire measuring transducers, 4-wire measuring transducers, and mA current sources installed in Ex areas.

- 0/4 ... 20 mA, [Ex ia] IIC input (powered or not powered)
- Two electrically isolated 0/4 ... 20 mA (active) outputs
- Bidirectional transmission of digital HART communication signals (both outputs)
- Plug-in screw or spring-cage connection method, with integrated sockets for HART communicators
- 4-way electrical isolation
- Energy can be supplied via DIN rail connector
- Up to SIL 2 according to EN 61508
- Installation in zone 2, protection type "n" (EN 60079-15) permitted

### Product Features

- ✓ 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
- ✓ Two electrically isolated 0/4 ... 20 mA (active) outputs
- ✓ 4-way electrical isolation
- ✓ Plug-in screw or spring-cage connection technology (Push-in technology), with integrated sockets for HART communicators
- ✓ 0/4 ... 20 mA input, [Ex ia] IIC (powered or not powered)
- ✓ Bidirectional transmission of digital HART communication signals (both outputs)



### Key commercial data

Packing unit	1 pc
Weight per Piece (excluding packing)	160.0 GRM
Custom tariff number	85437090
Country of origin	Germany

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## 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	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
Maximum altitude	≤ 2000 m
Permissible humidity (operation)	10 % ... 95 % (non-condensing)
Noise immunity	EN 61000-6-2
	When being exposed to interference, there may be minimal deviations.
Degree of protection	IP20

### Input data

Signal input	Repeater power supply operation
Current input signal	4 mA ... 20 mA
Transmitter supply voltage	> 16 V (at 20 mA)
	> 15.1 V (at 23 mA)
Voltage drop	< 3.9 V (in input isolating amplifier operation)
Signal input	Signal conditioner operation
Current input signal	0 mA ... 20 mA
	4 mA ... 20 mA
Voltage drop	approx. 3.9 V

### Output data

Signal output	Repeater power supply operation
Current output signal	4 mA ... 20 mA (active)
Load/output load current output	< 450 Ω (at 20 mA)
	< 380 Ω (at 23 mA)
Output ripple	< 20 mV <sub>rms</sub>
Output behavior in the event of an error	0 mA (Cable break in the input)
	≥ 23 mA (Cable short-circuit in the input)
Signal output	Signal conditioner operation
Current output signal	0 mA ... 20 mA (active)
	4 mA ... 20 mA (active)

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## Technical data

### Output data

Load/output load current output	< 450 Ω (at 20 mA)
	< 380 Ω (at 23 mA)
Output ripple	< 20 mV <sub>rms</sub>
Output behavior in the event of an error	0 mA (Cable break in the input)
	0 mA (Cable short-circuit in the input)

### Power supply

Supply voltage range	19.2 V DC ... 30 V DC (24 V DC (-20% ... +25%))
Max. current consumption	< 75 mA (24 V DC/ 20 mA)
Power consumption	< 1.45 W (24 V DC/ 20 mA)

### Connection data

Conductor cross section solid min.	0.2 mm <sup>2</sup>
Conductor cross section solid max.	2.5 mm <sup>2</sup>
Conductor cross section stranded min.	0.2 mm <sup>2</sup>
Conductor cross section stranded max.	2.5 mm <sup>2</sup>
Conductor cross section AWG/kcmil min.	24
Conductor cross section AWG/kcmil max	14
Stripping length	7 mm
Screw thread	M3
Connection method	Screw connection
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

### General

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%)	< 1.3 ms (for 4 mA ... 20 mA step)
Status display	Green LED (PWR supply voltage)
Inflammability class according to UL 94	V0
Housing material	PA 66-FR
Color	green
Designation	Input/output/power supply
Electrical isolation	300 V <sub>rms</sub> (Rated insulation voltage (surge voltage category II; pollution degree 2, safe isolation as per EN 61010-1))
	2.5 kV (50 Hz, 1 min., test voltage)
Designation	Input/output
Electrical isolation	375 V (Peak value in accordance with EN 60079-11)

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### Technical data

#### General

Designation	Input/power supply
Electrical isolation	375 V (Peak value in accordance with EN 60079-11)
Designation	Output 1/output 2
Electrical isolation	1.5 kV AC (50 Hz, 1 min., test voltage)
Conformance	CE-compliant, additionally EN 61326
ATEX	# II (1) G [Ex ia Ga] IIC/IIB
	# II (1) D [Ex ia Da] IIIC
	# II 3 (1) G Ex nA [ia Ga] IIC/IIB T4 Gc
IECEX	[Ex ia Ga] IIC/IIB
	[Ex ia Da] IIIC
	Ex nA [ia Ga] IIC/IIB T4 Gc
Functional Safety (SIL)	SIL 2 according to EN 61508

#### Data communication (bypass)

HART function	Yes
Protocols supported	HART

#### Safety data

Operation	Repeater power supply operation
Max. output voltage $U_o$	25.2 V
Max. output current $I_o$	93 mA
Max. output power $P_o$	587 mW
Group	IIC
Max. external inductivity $L_o$	2 mH
Max. external capacity $C_o$	107 nF
Group	IIB
Max. external inductivity $L_o$	4 mH
Max. external capacity $C_o$	820 nF
Safety-related maximum voltage $U_m$	253 V AC (125 V DC)
Operation	Signal conditioner operation
Input voltage $U_i$	$\leq 30$ V
Input current $I_i$	$\leq 150$ mA
Max. internal inductance $L_i$	negligible
Max. internal capacitance $C_i$	negligible

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## Classifications

### eCl@ss

eCl@ss 4.0	27210120
eCl@ss 4.1	27210120
eCl@ss 5.0	27210120
eCl@ss 5.1	27210120
eCl@ss 6.0	27210120
eCl@ss 7.0	27210120
eCl@ss 8.0	27210120

### ETIM

ETIM 2.0	EC001485
ETIM 3.0	EC001485
ETIM 4.0	EC001485
ETIM 5.0	EC002653

### UNSPSC

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

## Approvals

### Approvals

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#### Approvals

Functional Safety / UL Listed / cUL Listed / cUL Listed / cULus Listed / cULus Listed / cULus Listed / null / null / null / null

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#### Ex Approvals

IECEx / ATEX

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#### Approvals submitted

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### Approval details

Functional Safety
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## Approvals

UL Listed 


cUL Listed 

cUL Listed 

cULus Listed 

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## Drawings

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Block diagram

