

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

package_quantity	1
GTIN	4046356160384

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

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

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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 % (no condensation)
Noise immunity	EN 61000-6-2
Noise immunity	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)
Transmitter supply voltage	> 15.1 V (at 23 mA)
Voltage drop	< 3.9 V (in input isolating amplifier operation)
Signal input	Isolating amplifier operation
Current input signal	0 mA ... 20 mA
Current input signal	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)
Load/output load current output	< 380 Ω (at 23 mA)
Output ripple	< 20 mV _{rms}
Output behavior in the event of an error	0 mA (Cable break in the input)
Output behavior in the event of an error	≥ 23 mA (Cable short-circuit in the input)
Signal output	Isolating amplifier operation
Current output signal	0 mA ... 20 mA (active)
Current output signal	4 mA ... 20 mA (active)
Load/output load current output	< 450 Ω (at 20 mA)
Load/output load current output	< 380 Ω (at 23 mA)
Output ripple	< 20 mV _{rms}
Output behavior in the event of an error	0 mA (Cable break in the input)
Output behavior in the event of an error	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 ²
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Repeater power supply - MACX MCR-EX-SL-RPSSI-2I - 2865366

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Connection data

Conductor cross section solid max.	2.5 mm ²
Conductor cross section stranded min.	0.2 mm ²
Conductor cross section stranded max.	2.5 mm ²
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
Name	Input/output/power supply
Electrical isolation	300 V _{rms} (Rated insulation voltage (surge voltage category II; pollution degree 2, safe isolation as per EN 61010-1))
Electrical isolation	2.5 kV (50 Hz, 1 min., test voltage)
Name	Input/output
Electrical isolation	375 V (Peak value in accordance with EN 60079-11)
Name	Input/power supply
Electrical isolation	375 V (Peak value in accordance with EN 60079-11)
Name	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
ATEX	# II (1) D [Ex ia Da] IIIC
ATEX	# II 3 (1) G Ex nA [ia Ga] IIC/IIB T4 Gc
IECEX	[Ex ia Ga] IIC/IIB
IECEX	[Ex ia Da] IIIC
IECEX	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

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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
Gas group	IIC
Max. external inductivity L_o	2 mH
Max. external capacity C_o	107 nF
Gas 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	Isolating amplifier operation
Input voltage U_i	≤ 30 V
Input current I_i	≤ 150 mA
Max. internal inductance L_i	(negligible)
Max. internal capacitance C_i	(negligible)

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

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

approvals

Functional Safety /

Approval details

Functional Safety

Drawings

Block diagram

