

MACX MCR-EX-SL-RPSSI-I-SP

Order No.: 2924016

The illustration shows the versions with screw connection




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Ex-i repeater power supply and input isolation 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 in accordance with IEC 61508.



Commercial data

GTIN (EAN)	 4 046356 338066
sales group	H720
Pack	1 pcs.
Customs tariff	85437090
Catalog page information	Page 440 (IF-2011)

Product notes

WEEE/RoHS-compliant since:
06/23/2008



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Technical data

Input data

Current input signal	0 mA ... 20 mA
	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
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)
Transmission Behavior	1:1 to input signal
Load/output load current output	< 600 Ω
Output ripple	< 20 mV _{rms}
Power supply	
Nominal supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC
Max. current consumption	< 60 mA (at 24 V DC)
Power consumption	< 1.1 W (at 24 V DC / 20 mA)
Connection data	
Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	1.5 mm ²
Conductor cross section stranded min.	0.2 mm ²
Conductor cross section stranded max.	1.5 mm ²
Conductor cross section AWG/kcmil min.	24
Conductor cross section AWG/kcmil max	16
Stripping length	8 mm
Connection method	Spring-cage conn.
General data	
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
Ambient temperature (operation)	-20 °C ... 60 °C (Any mounting position)
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Permissible humidity (operation)	10 % ... 95 % (no condensation)
Step response (10-90%)	< 600 μs (for 4 mA ... 20 mA step)

Status display	Green LED (supply voltage)
Width	12.5 mm
Height	99 mm
Depth	114.5 mm
Inflammability class acc. to UL 94	V0
Pollution degree	2
Surge voltage category	II
Housing material	PA 66-FR
Degree of protection	IP20
Color	green
Electrical isolation input / output / supply	2.5 kV (50 Hz, 1 min., test voltage)
Electrical isolation input / output	375 V (Peak value in accordance with EN 60079-11)
Electrical isolation input / supply	375 V (Peak value in accordance with EN 60079-11)
Conformance	CE-compliant, additionally EN 61326
ATEX	Ex II (1)G [Ex ia] IIC/IIB Ex II (1) D [Ex iaD] Ex II 3 (1)G Ex nA [ia] IIC/IIB T4
IECEX	[Ex ia] IIC/IIB; [Ex iaD]; Ex nA [ia] IIC/IIB T4
UL, USA / Canada	Class I Div 2; IS for Class I, II, III Div 1
Functional safety (SIL)	SIL 2 according to EN 61508

Data communication (bypass)

HART function	Yes
Protocols supported	HART

Safety characteristic data

Integrity requirement	for IEC 61508 - Low demand
Equipment type	Type A
Safety Integrity Level (SIL)	Up to 2
Safe Failure Fraction (SFF)	90.7 %
λ_{SU}	4.867×10^{-7} (486.7 FIT)
λ_{SD}	0
λ_{DU}	5×10^{-8} (50 FIT)
λ_{DD}	0

Probability of a hazardous failure on demand (PFD _{AVG})	2.19 x 10 ⁻⁴ (1 year)
	8.76 x 10 ⁻⁴ (years)
	1.1 x 10 ⁻³ (5 years)
Diagnostic coverage (DC)	(DC _S = 0%, DC _D = 0%)
Integrity requirement	for IEC 61508 - High demand
Equipment type	Type A
Safety Integrity Level (SIL)	Up to 2
Safe Failure Fraction (SFF)	90.7 %
λ _{SU}	4.867 x 10 ⁻⁷ (486.7 FIT)
λ _{DU}	5 x 10 ⁻⁸ (50 FIT)
λ _{DD}	0
Probability of a hazardous failure per hour (PFH _D)	4,99 x 10 ⁻⁸
Diagnostic coverage (DC)	(DC _S = 0%, DC _D = 0%)

Safety data

Max. voltage U _o	25.2 V
Max. current I _o	93 mA
Max. power P _o	587 mW
Gas group	II C
Max. external inductivity L _o	2 mH
Max. external capacity C _o	107 nF
Safety-related maximum voltage U _m	253 V AC (125 V DC)
Max. voltage U _i	30 V
Max. current I _i	130 mA
Max. inductance L _i	Negligible
Max. capacitance C _i	Negligible

Certificates / Approvals



Certification

CUL Listed, UL Listed

Certification Ex:

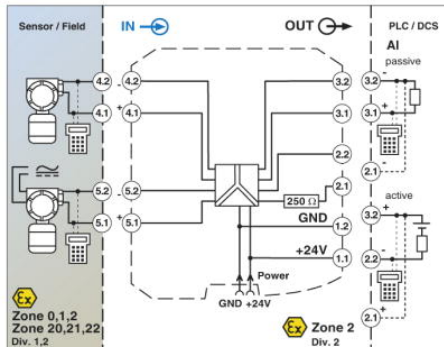
CUL-EX LIS, IECEx, UL-EX LIS

Certifications applied for:

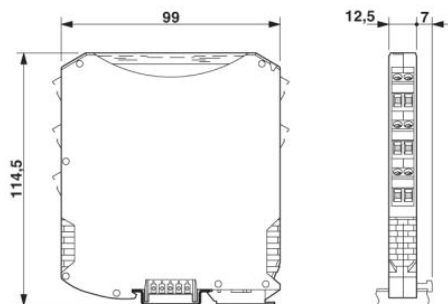
GL

Diagrams/Drawings

Block diagram



Dimensioned drawing



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