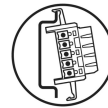


MACX MCR-EX-SL-IDS-I

Order No.: 2865405



Ex-i output isolating amplifier, HART Isolates and sends intrinsically safe 0/4-20 mA signals to a load (I/P converters, control valves, displays) in Ex areas. Electrical 3-way isolation, wire break recognition, SIL 2 in accordance with IEC 61508.



Commercial data

EAN	 4 046356 160421
Note	Made-to-order
Pack	1
Customs tariff	85438997
Product key	09721
Country of Origin	DE
Catalog page information	Page 443 (IF-2011)

Product notes

WEEE/RoHS-compliant since:
02/08/2006



Please note that the data given here has been taken from the online catalog. For comprehensive information and data, please refer to the user documentation at <http://www.download.phoenixcontact.com>. The General Terms and Conditions of Use apply to Internet downloads.

Technical data

Input data

Current input signal	0 mA ... 20 mA
	4 mA ... 20 mA
Input voltage limitation	5.4 V (at 20 mA)
Input impedance	> 100 kΩ (If there is a line fault)

Output data

Signal output	Current output
Current output signal	0 mA ... 20 mA
	4 mA ... 20 mA
Transmission Behavior	1:1 to input signal
Load/output load current output	< 800 Ω (at 20 mA)
Output ripple	< 20 mV _{rms}

Power supply

Supply voltage range	19.2 V DC ... 30 V DC
Max. current consumption	< 46 mA (at 24 V DC / 20 mA)
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.	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	8 mm
Screw thread	M3
Connection method	Screw connection
Tightening torque, min	0.5 Nm
Tightening torque max	0.6 Nm

General data

No. of channels	1
Maximum transmission error	< 0.1 % (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%)	< 140 μ s
Status display	Green LED (supply voltage)
Width	12.5 mm
Height	99 mm

Depth	114.5 mm
Inflammability class according 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	1.5 kV (50 Hz, 1 min., test voltage)
Electrical isolation input / output	375 V (Peak value in accordance with EN 60079-11)
Electrical isolation output / supply	375 V (Peak value in accordance with EN 60079-11)
Conformance	CE-compliant, additionally EN 61326
ATEX	II (1) GD [Ex ia] IIC Ex II 3 (1GD) G Ex nA [ia] IIC T4
IECEX	[Ex ia] IIC; Ex nA[ia] IIC 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)	94.68 %
λ_{SU}	4.965×10^{-7} (496.5 FIT)
λ_{SD}	0
λ_{DU}	2.79×10^{-8} (27.9 FIT)
λ_{DD}	0
Probability of a hazardous failure on demand (PFD _{AVG})	1.22×10^{-4} (1 year)
	6.1×10^{-4} (5 years)
	12.2×10^{-4} (10 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)	94.68 %
λ_{SU}	4.965×10^{-7} (496.5 FIT)
λ_{SD}	0
λ_{DU}	2.79×10^{-8} (27.9 FIT)
λ_{DD}	0
Probability of a hazardous failure per hour (PFH _D)	$2,79 \times 10^{-8}$
Diagnostic coverage (DC)	(DC _S = 0%, DC _D = 0%)

Safety data

Max. voltage U _o	27.7 V
Max. current I _o	92 mA
Max. power P _o	633 mW
Gas group	II C
Max. external inductivity L _o	2 mH
Max. external capacity C _o	85 nF
Safety-related maximum voltage U _m	253 V AC (125 V DC)

Certificates



Certification

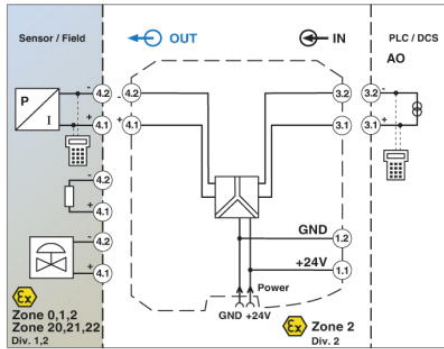
CUL Listed, GL, UL Listed

Certification Ex:

CUL-EX LIS, IECEX, UL-EX LIS

Drawings

Block diagram



Dimensioned drawing

