

Isolation amplifier - MACX MCR-SL-NAM-2RO - 2865010

Please be informed that the data shown in this PDF Document is generated from our Online Catalog. Please find the complete data in the user's documentation. Our General Terms of Use for Downloads are valid (<http://phoenixcontact.com/download>)




Why buy this product

- ✓ Power supply and error indication possible via DIN rail connector
- ✓ Installation in zone 2, protection type "n" (EN 60079-15) permitted
- ✓ Up to SIL 2 according to EN 61508
- ✓ Line fault detection (LFD), can be activated/deactivated, error indicated by red flashing LED with de-excitation of output relay
- ✓ Input for NAMUR proximity sensors (EN 60947-5-6), floating contacts or contacts with resistance circuit
- ✓ 4-way electrical isolation
- ✓ Direction of operation can be selected (operating or closed circuit current behavior)
- ✓ 2 relay signal outputs (N/O contact); output 2 can also be used as an error signaling output
- ✓ LED indicators for supply voltage, switching state, and malfunction according to NAMUR NE 44



Key Commercial Data

Packing unit	1 STK
GTIN	 4 046356 491686
GTIN	4046356491686

Technical data

Note

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

Dimensions

Width	12.5 mm
Height	112.5 mm
Depth	114.5 mm

Isolation amplifier - MACX MCR-SL-NAM-2RO - 2865010

Technical data

Ambient conditions

Ambient temperature (operation)	-20 °C ... 60 °C (Any mounting position)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Maximum altitude	≤ 2000 m
Permissible humidity (operation)	10 % ... 95 % (non-condensing)
Noise immunity	EN 61000-6-2 EN 61326

Input data

Non-load voltage	~ 8 V DC
Switching points (attenuated)	< 1.2 mA (blocking)
Switching points (unattenuated)	> 2.1 mA (conductive)

Output data

Switching output	Relay output
Contact type	2 N/O contacts
Contact material	AgSnO ₂ , hard gold-plated
Maximum switching voltage	250 V AC (2 A)
	120 V DC (0.2 A)
	30 V DC (2 A)
Maximum switching capacity	500 VA
Mechanical service life	10 ⁷ cycles

Power supply

Nominal supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC (24 V DC -20%...+25%)
Max. current consumption	30 mA (24 V DC)
Power consumption	< 950 mW
	< 950 mW

Connection data

Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	2.5 mm ²
Conductor cross section flexible min.	0.2 mm ²
Conductor cross section flexible max.	2.5 mm ²
Conductor cross section AWG min.	24
Conductor cross section AWG 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

No. of channels	1
-----------------	---

Isolation amplifier - MACX MCR-SL-NAM-2RO - 2865010

Technical data

General

Status display	Green LED (supply voltage)
	LED yellow (switching state)
	Red LED (line errors)
Flammability rating according to UL 94	V0
Degree of pollution	2
Overvoltage category	III
Electromagnetic compatibility	Conformance with EMC directive
Interference emission	EN 61000-6-4
Housing material	PA 66-FR
Color	green
Electrical isolation	300 V _{rms} (Rated insulation voltage (overvoltage category II; degree of pollution 2, safe isolation as per EN 61010-1))
Designation	Output 1/output 2/input, power supply, T connector
Electrical isolation	300 V _{rms} (Rated insulation voltage (overvoltage category III; degree of pollution 2, safe isolation as per EN 61010-1))
Designation	Output 1/output 2/input/power supply, DIN rail connector
Electrical isolation	2.5 kV (50 Hz, 1 min., test voltage)
Conformance	CE-compliant, additionally EN 61326-1
ATEX	# II 3 G Ex nA nC IIC T4 Gc X
UL, USA/Canada	UL 508 Listed
	UL 61010 Listed
	Class I, Div. 2, Groups A, B, C, D T4
	Class I, Zone 2, Group IIC T4
GL	C, EMC1

Safety characteristic data

Integrity requirement	IEC 61508 - Low demand
Designation	Non-inverted operation
Equipment type	Type A
Safety Integrity Level (SIL)	2
Safe Failure Fraction (SFF)	78 %
λ_{SU}	2.49×10^{-7} (249 FIT)
λ_{SD}	6×10^{-9} (6 FIT)
λ_{DU}	6.4×10^{-8} (64 FIT)
λ_{DD}	7×10^{-9} (7 FIT)
Probability of a hazardous failure on demand (PFD _{AVG})	3.09×10^{-4} (1 year)
	6.17×10^{-4} (2 years)
	1.54×10^{-3} (5 years)
Diagnostic coverage (DC)	DC _S = 2.4 %, DC _D = 9 %
Integrity requirement	IEC 61508 - Low demand
Designation	Inverted operation

Isolation amplifier - MACX MCR-SL-NAM-2RO - 2865010

Technical data

Safety characteristic data

Equipment type	Type A
Safety Integrity Level (SIL)	2
Safe Failure Fraction (SFF)	78 %
λ_{SU}	2.48×10^{-7} (248 FIT)
λ_{SD}	1×10^{-9} (1 FIT)
λ_{DU}	6.2×10^{-8} (62 FIT)
λ_{DD}	6×10^{-9} (6 FIT)
Probability of a hazardous failure on demand (PFD _{AVG})	3.01×10^{-4} (1 year)
	6.02×10^{-4} (2 years)
	1.5×10^{-3} (5 years)
Diagnostic coverage (DC)	DC _S = 0.4 %, DC _D = 8 %
Safety Integrity Level (SIL)	1

Standards and Regulations

Electromagnetic compatibility	Conformance with EMC directive
Noise emission	EN 61000-6-4
Flammability rating according to UL 94	V0
Conformance	CE-compliant, additionally EN 61326-1
ATEX	# II 3 G Ex nA nC IIC T4 Gc X
UL, USA/Canada	UL 508 Listed
	UL 61010 Listed
	Class I, Div. 2, Groups A, B, C, D T4
	Class I, Zone 2, Group IIC T4
GL	C, EMC1

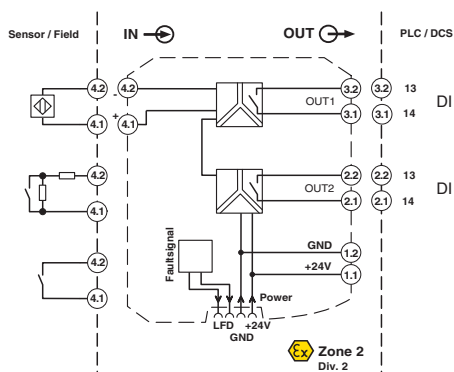
Environmental Product Compliance

China RoHS	Environmentally Friendly Use Period = 50
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

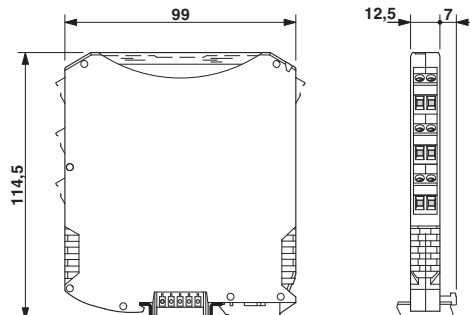
Drawings

Isolation amplifier - MACX MCR-SL-NAM-2RO - 2865010

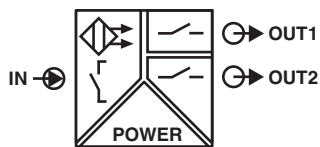
Block diagram



Dimensional drawing



Pictogram



Approvals

Approvals

Approvals

Functional Safety / UL Listed / cUL Listed / DNV GL / cULus Listed

Ex Approvals


UL Listed / cUL Listed / ATEX / cULus Listed

Approval details


Functional Safety		07-06-39 R005 V2R2	
UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 330267

Isolation amplifier - MACX MCR-SL-NAM-2RO - 2865010

Approvals

cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 330267
------------	---	---	---------------

DNV GL	http://exchange.dnv.com/tari/	TAA00000AG
--------	---	------------

cULus Listed	
--------------	---

Phoenix Contact 2017 © - all rights reserved
<http://www.phoenixcontact.com>

PHOENIX CONTACT GmbH & Co. KG
Flachsmarktstr. 8
32825 Blomberg
Germany
Tel. +49 5235 300
Fax +49 5235 3 41200
<http://www.phoenixcontact.com>