

MACX MCR-SL-NAM-2T - Isolation amplifier



2865023

<https://www.phoenixcontact.com/us/products/2865023>

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 documentation. Our general terms of use for downloads are valid.



NAMUR signal conditioner for operating proximity sensors and switches. The signals are transmitted to the control level via 2 transistor outputs (passive). Line fault detection, 3-way electrical isolation, SIL 2, screw connection.

Your advantages

- 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 in accordance with EN 61508
- Signal output 2 can also be used as an error signaling output
- 2 transistor signal outputs (passive); up to 5 kHz
- 4-way electrical isolation
- Direction of operation can be selected (operating or closed circuit current behavior)
- Input for NAMUR proximity sensors (EN 60947-5-6), floating contacts or contacts with resistance circuit
- LED indicators for supply voltage, switching state, and malfunction in accordance with NAMUR NE 44
- Line fault detection (LFD), can be activated/deactivated, error indicated by flashing red LED with disabling of transistor output

Commercial data

Item number	2865023
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C402
Product key	CK1141
Catalog page	Page 138 (C-5-2019)
GTIN	4046356491730
Weight per piece (including packing)	177.2 g
Weight per piece (excluding packing)	140 g
Customs tariff number	85365019
Country of origin	DE

MACX MCR-SL-NAM-2T - Isolation amplifier



2865023

<https://www.phoenixcontact.com/us/products/2865023>

Technical data

Notes

Utilization restriction

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

Product properties

Product type	Isolating switch transf.
Product family	MACX Analog
Application	Digital IN
No. of channels	1
Type	Signal conditioners with SIL functional safety
Configuration	DIP switches

Data management status

Article revision	10
------------------	----

Insulation characteristics: GB Standard

Overvoltage category	II
Pollution degree	2

System properties

Functionality

Configuration	DIP switches
---------------	--------------

Electrical properties

Electrical isolation	3-way isolation
Electrical isolation between input and output	yes

Electrical isolation Input/output

Electrical isolation	265 V (Peak value in accordance with IEC/EN 60079-7)
----------------------	--

Electrical isolation Input/supply, DIN rail connector

Electrical isolation	265 V (Peak value in accordance with IEC/EN 60079-7)
----------------------	--

Electrical isolation Input/output/supply, DIN rail connector

Rated insulation voltage	300 V _{rms}
Test voltage	2.5 kV AC (50 Hz, 60 s)
Insulation	Safe isolation in accordance with IEC/EN 61010-1

Electrical isolation Output 1/output 2

Rated insulation voltage	50 V _{rms}
Test voltage	1 kV AC (50 Hz, 60 s)
Insulation	Basic insulation in accordance with IEC/EN 61010-1

MACX MCR-SL-NAM-2T - Isolation amplifier



2865023

<https://www.phoenixcontact.com/us/products/2865023>

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	< 28 mA (24 V DC)
Power dissipation	≤ 800 mW
Power consumption	≤ 800 mW

Input data

Signal: NAMUR

Number of inputs	1
Available input sources	NAMUR proximity sensors (IEC/EN 60947-5-6)
	Floating switch contacts
	Switch contacts with resistance circuit
Switching threshold "0" signal current	< 1.2 mA (blocking)
Switching threshold "1" signal, current	> 2.1 mA (conductive)
Short-circuit current	8 mA
Switching hysteresis	< 0.2 mA
Line fault detection	< 0.05 mA ... 0.35 mA (Line break)
	< 100 Ω ... 360 Ω (Short circuit)
	Activated /deactivated via DIP switch
Non-load voltage	8 V DC

Output data

Switching: Transistor

Output description	passive
Minimum switching voltage	3 V DC
Maximum switching voltage	30 V DC
Drop (ΔU)	< 1.4 V
Max. switching current	50 mA (short-circuit-proof)
Min. switching current	5 mA (short-circuit-proof)
Switching frequency	≤ 5 kHz

Signal

Number of outputs	2
-------------------	---

Connection data

Connection method	Screw connection
Stripping length	7 mm
Screw thread	M3
Conductor cross section rigid	0.2 mm ² ... 2.5 mm ²
Conductor cross section flexible	0.2 mm ² ... 2.5 mm ²
Conductor cross section AWG	24 ... 14
Tightening torque	0.5 Nm ... 0.6 Nm

MACX MCR-SL-NAM-2T - Isolation amplifier



2865023
<https://www.phoenixcontact.com/us/products/2865023>

Test socket

Max. diameter	2 mm
---------------	------

Ex data

Ex installation (EPL)	Gc
	Div. 2

Interfaces

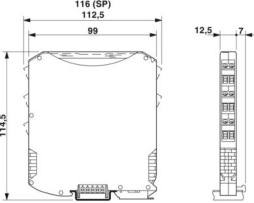
Data

No. of channels	0
-----------------	---

Signaling

Status display	Green LED (supply voltage)
	LED yellow (switching state)
	Red LED (line errors)

Dimensions

Dimensional drawing	
Width	12.5 mm
Height	112.5 mm
Depth	113.7 mm
Depth NS 35/7,5	114.5 mm (Snapped onto DIN rail NS 35/7,5 in accordance with EN 60715)

Material specifications

Color	gray (RAL 7042)
Flammability rating according to UL 94	V0 (Housing)
Housing material	PA 6.6-FR

Characteristics

Safety data

Safety Integrity Level (SIL)	2
------------------------------	---

Safety data

Safety Integrity Level (SIL)	2
------------------------------	---

Environmental and real-life conditions

Ambient conditions

MACX MCR-SL-NAM-2T - Isolation amplifier



2865023

<https://www.phoenixcontact.com/us/products/2865023>

Degree of protection	IP20 (not assessed by UL)
Ambient temperature (operation)	-40 °C ... 70 °C (Any mounting position)
	-40 °C ... 70 °C (Derating)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	10 % ... 95 % (non-condensing)

Altitude range (≤ 2000 m)

Altitude	≤ 2000 m (The technical data refers to altitudes ≤ 2000 m above mean sea level. For altitudes > 2000 m above mean sea level, refer to the data sheet.)
Ambient temperature (operation)	-40 °C ... 60 °C
	-40 °C ... 70 °C (Derating)
Rated insulation voltage	265 V AC/DC ($U_{\text{Isolation "ec"}}$: Supply, input / output)

Altitude range (≤ 3000 m)

Height range	> 2000 m ... 3000 m
Ambient temperature (operation)	-40 °C ... 54 °C
	-40 °C ... 63 °C (Derating)
Rated insulation voltage	190 V AC/DC ($U_{\text{Isolation "ec"}}$: Supply, input / output)

Altitude range (≤ 4000 m)

Height range	> 3000 m ... 4000 m
Ambient temperature (operation)	-40 °C ... 48 °C
	-40 °C ... 56 °C (Derating)
Rated insulation voltage	60 V AC/DC ($U_{\text{Isolation "ec"}}$: Supply, input / output)

Altitude range (≤ 5000 m)

Height range	> 4000 m ... 5000 m
Ambient temperature (operation)	-40 °C ... 42 °C
	-40 °C ... 49 °C (Derating)
Rated insulation voltage	60 V AC/DC ($U_{\text{Isolation "ec"}}$: Supply, input / output)

Approvals

CE

Certificate	CE-compliant
Note	and EN 61326-1

ATEX

Identification	Ⓔ II 3 G Ex ec IIC T4 Gc
Certificate	IBExU 08 ATEX 1100 X

UKCA Ex (UKEX)

Identification	Ⓔ II 3 G Ex ec IIC T4 Gc
Certificate	CML 22UKEX3527X

IECEX

Identification	Ex ec IIC T4 Gc
----------------	-----------------

MACX MCR-SL-NAM-2T - Isolation amplifier



2865023

<https://www.phoenixcontact.com/us/products/2865023>

Certificate	IECEX IBE 08.0005X
-------------	--------------------

CCC / China-Ex

Identification	Ex ec IIC T4 Gc
Certificate	2022122310115713

UL, USA/Canada

Identification	UL 508 Listed
	UL 61010 Listed
	Class I, Div. 2, Groups A, B, C, D T4
	Class I, Zone 2, Group IIC T4

Shipbuilding approval

Certificate	DNV GL TAA00000AG
-------------	-------------------

Safety Integrity Level (SIL, IEC 61508)

Identification	2
----------------	---

INMETRO

Identification	Ex ec IIC T4 Gc
Certificate	DNV 18.0141 X

EAC Ex

Identification	Ex nA IIC T4 Gc
Certificate	BY/112 02.01 TP012 103.01 00078

DNV GL data

Temperature	B
Humidity	B
Vibration	A
EMC	B
Enclosure	Required protection according to the Rules shall be provided upon installation on board

EMC data

Noise immunity	EN 61000-6-2
Electromagnetic compatibility	Conformance with EMC directive
Noise emission	EN 61000-6-4

Electromagnetic HF field

Designation	Electromagnetic RF field
Standards/regulations	EN 61000-4-3
Evaluation criterion	A

Fast transients (burst)

Designation	Fast transients (burst)
Standards/regulations	EN 61000-4-4
Evaluation criterion	A

2865023

<https://www.phoenixcontact.com/us/products/2865023>

Conducted interference	
Designation	Conducted interferences
Standards/regulations	EN 61000-4-6
Evaluation criterion	A

Standards and regulations

Electrical isolation	3-way isolation
----------------------	-----------------

GB Standard	
Standards/regulations	GB 3836.1
	GB 3836.3

Mounting

Mounting type	DIN rail mounting
---------------	-------------------

MACX MCR-SL-NAM-2T - Isolation amplifier

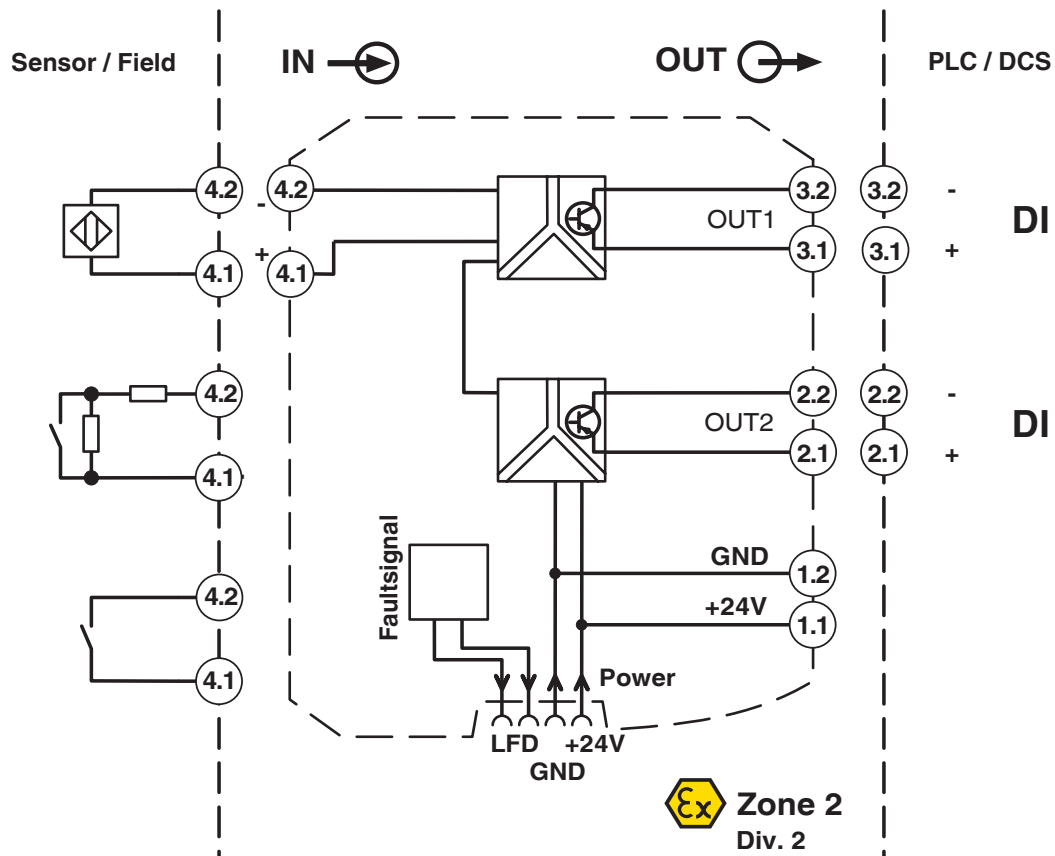


2865023

<https://www.phoenixcontact.com/us/products/2865023>

Drawings

Block diagram



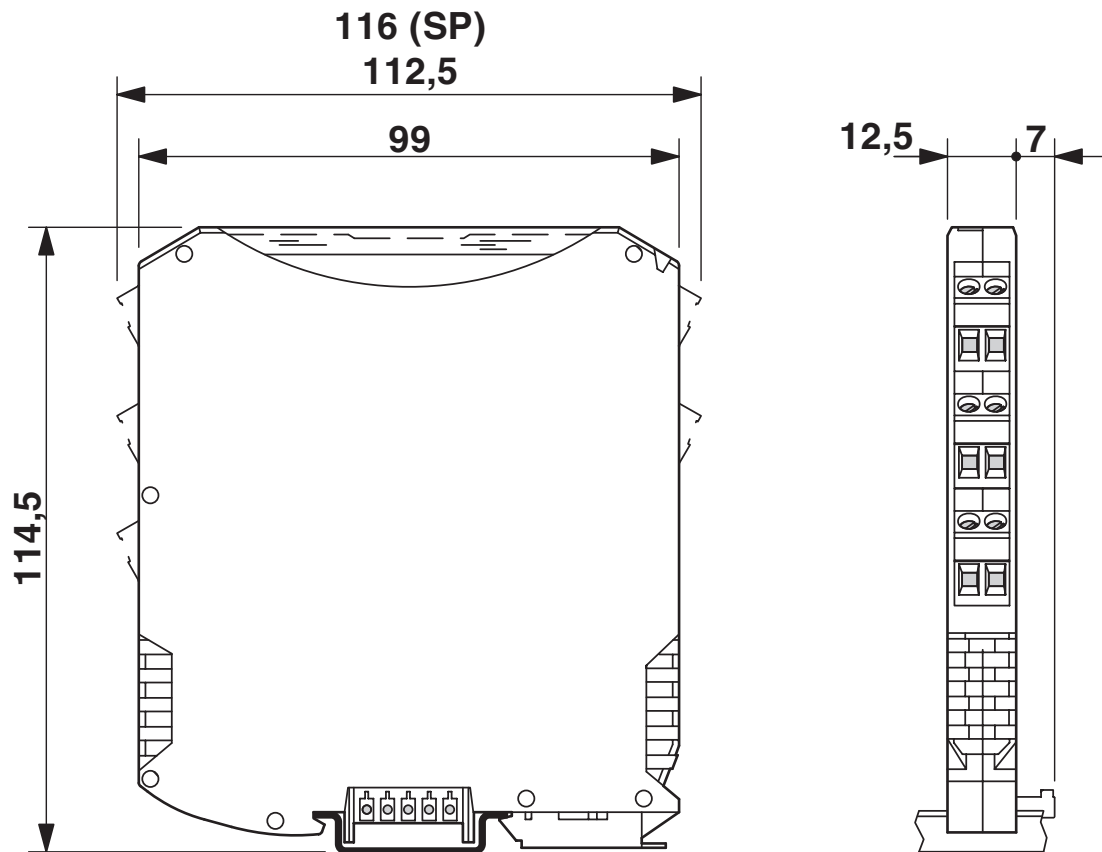
MACX MCR-SL-NAM-2T - Isolation amplifier

2865023

<https://www.phoenixcontact.com/us/products/2865023>



Dimensional drawing



MACX MCR-SL-NAM-2T - Isolation amplifier



2865023

<https://www.phoenixcontact.com/us/products/2865023>

Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2865023>



DNV GL

Approval ID: TAA00000AG



UL Listed

Approval ID: E330267



cUL Listed

Approval ID: E330267

Functional Safety

Approval ID: 07-06-39 R006 V1R2



CCC

Approval ID: 2022122310115713



EAC Ex

Approval ID: TP012 103.01 00078



cUL Listed

Approval ID: E199827



UL Listed

Approval ID: FILE E 199827

INMETRO

Approval ID: DNV 18.0141 X



IECEx

Approval ID: IECEx IBE 08.0005X



ATEX

Approval ID: IBExU 08 ATEX 1100

MACX MCR-SL-NAM-2T - Isolation amplifier



2865023

<https://www.phoenixcontact.com/us/products/2865023>

cULus Listed

cULus Listed

MACX MCR-SL-NAM-2T - Isolation amplifier



2865023

<https://www.phoenixcontact.com/us/products/2865023>

Classifications

ECLASS

ECLASS-11.0	27210121
ECLASS-12.0	27210121
ECLASS-13.0	27210121

ETIM

ETIM 9.0	EC001485
----------	----------

UNSPSC

UNSPSC 21.0	39121000
-------------	----------

MACX MCR-SL-NAM-2T - Isolation amplifier



2865023
<https://www.phoenixcontact.com/us/products/2865023>

Environmental product compliance

EU RoHS	
Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I
China RoHS	
Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.
EU REACH SVHC	
REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
	2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol(CAS: 79-94-7)
SCIP	8c8e2150-167a-486c-9f21-08fc6302b7f0

Phoenix Contact 2024 © - all rights reserved
<https://www.phoenixcontact.com>

Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com