

Isolation amplifier - MACX MCR-EX-SL-NAM-YO - 2905723

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Ex i NAMUR signal conditioners. For operating Ex i proximity sensors and switches in hazardous areas. Passive transistor output (resistive, Yokogawa-compatible), line fault transparency, up to SIL 2 according to IEC 61508; screw connection.

Your advantages

- ✔ Signal input: intrinsically safe [Ex ia]; for NAMUR proximity sensors (EN 60947-5-6) or switch contacts
- ✔ Signal output with resistive behavior (transistor), compatible with Yokogawa ProSafe DI card SDV 144
- ✔ Signal output with line fault transparency, line fault indication directly via the signal output
- ✔ Up to 5 kHz switching frequency
- ✔ Direction of operation can be selected
- ✔ Line fault detection (LFD) can be enabled and disabled
- ✔ SIL 2 according to IEC 61508/EN 61508
- ✔ 3-way electrical isolation
- ✔ Power supply and error indication possible via DIN rail connector
- ✔ Plug-in connection terminals, screw connection technology
- ✔ Installation in zone 2 permitted
- ✔ Housing width: 12.5 mm



Key Commercial Data

Packing unit	1 pc
GTIN	
GTIN	4046356992169
Custom tariff number	85437090
Country of origin	Germany

Isolation amplifier - MACX MCR-EX-SL-NAM-YO - 2905723

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	112.5 mm
Depth	114.5 mm

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 % (non-condensing)
Degree of protection	IP20 (not assessed by UL)
Noise immunity	EN 61000-6-2

Input data

Non-load voltage	~ 8 V DC
Switching points (attenuated)	< 1.2 mA (blocking)
Switching points (unattenuated)	> 2.1 mA (conductive)
Signal input	Intrinsically safe
Available input sources	NAMUR proximity sensors (EN 60947-5-6)
Switching hysteresis	< 0.2 mA
Line fault detection	Break 0.05 mA < IIN < 0.35 mA
	Short circuit 100 Ω < RSensor < 360 Ω

Output data

Switching output	Resistive (transistor, passive) compatible with Yokogawa ProSafe DI - SDV144
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Power supply

Nominal supply voltage	24 V DC
Supply voltage range	9.6 V DC ... 30 V DC (12 V DC ... 24 V DC (-20 % ... +25 %))
Power dissipation	< 0.6 W
Power consumption	< 600 mW

Connection data

Connection method	Screw connection
Stripping length	7 mm
Screw thread	M3
Conductor cross section solid	0.2 mm ² ... 2.5 mm ²

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Connection data

Conductor cross section flexible	0.2 mm ² ... 2.5 mm ²
Conductor cross section AWG	24 ... 14
Torque	0.5 Nm ... 0.6 Nm

Connection data 2

Connection name	Test socket
Max. diameter	2.3 mm

General

No. of channels	1
Status display	Green LED (supply voltage) LED yellow (switching state) Red LED (line errors)
Degree of pollution	2
Overvoltage category	II
Electromagnetic compatibility	Conformance with EMC directive
Interference emission	EN 61000-6-4
Housing material	PA 6.6-FR
Color	gray
Designation	Input/output
Electrical isolation	375 V (Peak value in accordance with IEC/EN 60079-11)
Designation	Input/output/supply, DIN rail connector
Rated insulation voltage	300 V _{rms}
Test voltage	2.5 kV AC (50 Hz, 1 min.)
Insulation	Safe isolation in accordance with IEC/EN 61010-1
Designation	Input/supply, DIN rail connector
Electrical isolation	375 V (Peak value in accordance with IEC/EN 60079-11)

Safety characteristic data

Safety Integrity Level (SIL)	2
	2

Safety data

Max. internal inductance L _i	negligible
Max. internal capacitance C _i	negligible
Max. output voltage U _o	9.6 V
Max. output current I _o	10 mA
Max. output power P _o	25 mW
Group	IIC

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Technical data

Safety data

Max. external inductivity L_o	300 mH
Max. external capacitance C_o	3.6 μ F
Additional text	simple circuit
Group	IIC
Max. external inductivity L_o	100 mH
Max. external capacitance C_o	510 nF
Additional text	mixed circuit
Group	IIC
Max. external inductivity L_o	50 mH
Max. external capacitance C_o	580 nF
Additional text	mixed circuit
Group	IIC
Max. external inductivity L_o	5 mH
Max. external capacitance C_o	600 nF
Additional text	mixed circuit
Group	IIC
Max. external inductivity L_o	1 mH
Max. external capacitance C_o	600 nF
Additional text	mixed circuit
Group	IIC
Max. external inductivity L_o	10 μ H
Max. external capacitance C_o	600 nF
Additional text	mixed circuit
Group	IIB/IIIC
Max. external inductivity L_o	1000 mH
Max. external capacitance C_o	26 μ F
Additional text	simple circuit
Group	IIB/IIA/IIIC
Max. external inductivity L_o	100 mH
Max. external capacitance C_o	1 μ F
Additional text	mixed circuit
Group	IIB/IIA/IIIC
Max. external inductivity L_o	5 mH
Max. external capacitance C_o	1 μ F
Additional text	mixed circuit
Group	IIB/IIA/IIIC

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Technical data

Safety data

Max. external inductivity L_o	1 mH
Max. external capacitance C_o	1 μ F
Additional text	mixed circuit
Group	IIB/IIA/IIIC
Max. external inductivity L_o	10 μ H
Max. external capacitance C_o	1 μ F
Additional text	mixed circuit
Safety-related maximum voltage U_m	253 V AC/DC

Standards and Regulations

Electromagnetic compatibility	Conformance with EMC directive
Noise emission	EN 61000-6-4
Designation	GB Standard
Standards/regulations	GB 3626.20
	GB 3836.1
	GB 3836.4
	GB 3836.8
	GB 12476.1
	GB 12476.4
Conformance	CE-compliant, additionally EN 61326
ATEX	# II (1) G [Ex ia Ga] IIC
	# II (1) D [Ex ia Da] IIIC
	# II 3G Ex nA IIC T4 Gc X
IECEX	[Ex ia Ga] IIC
	[Ex ia Da] IIIC
	Ex nA IIC T4 Gc
UL, USA/Canada	UL 61010 Listed
Group	IIC
	IIC
	IIC
	IIC
	IIC
	IIC

Conformance/approvals

Designation	CE
Identification	CE-compliant
Additional text	and EN 61326

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Conformance/approvals

Designation	ATEX
Identification	# II (1) G [Ex ia Ga] IIC
	# II (1) D [Ex ia Da] IIIC
	# II 3G Ex nA IIC T4 Gc X
Certificate	IBExU 12 ATEX 1169
Designation	IECEX
Identification	[Ex ia Ga] IIC
	[Ex ia Da] IIIC
	Ex nA IIC T4 Gc
Certificate	IECEX IBE 12.0018X
Designation	CCC / China-Ex
Identification	[Ex ia Ga] IIC
	[Ex iaD]
	Ex nA [ia Ga] IIC T4 Gc
Certificate	NEPSI GYJ20.1314X
Designation	UL, USA/Canada
Identification	UL 61010 Listed
Certificate	#, C.D.-No 83104549
Designation	Safety Integrity Level (SIL, IEC 61508)
Identification	2
Designation	EAC Ex
Identification	# [Ex ia Ga] IIC
	# [Ex ia Da] IIIC
Certificate	RU C-DE.AB72.B.00093/19
Designation	INMETRO
Identification	[Ex ia Ga] IIC
	[Ex ia Da] IIIC
	Ex nA IIC T4 Gc
Certificate	DNV 18.0144 X

Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

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Classifications

eCl@ss

eCl@ss 10.0.1	27210121
eCl@ss 11.0	27210121
eCl@ss 4.0	27210100
eCl@ss 4.1	27210100
eCl@ss 5.0	27210100
eCl@ss 5.1	27210100
eCl@ss 6.0	27210100
eCl@ss 7.0	27210121
eCl@ss 9.0	27210121

ETIM

ETIM 2.0	EC001485
ETIM 3.0	EC001485
ETIM 4.0	EC001485
ETIM 6.0	EC001485
ETIM 7.0	EC001485

UNSPSC

UNSPSC 13.2	39121008
UNSPSC 18.0	39121008
UNSPSC 19.0	39121008
UNSPSC 20.0	39121008
UNSPSC 21.0	39121008

Approvals

Approvals

Approvals

Functional Safety / CCC

Ex Approvals

IECEX / ATEX / EAC Ex / ATEX / INMETRO

Approval details

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Approvals

Functional Safety	12/06-054 R016 V2R0
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CCC		2020322 316001584
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