

Repeater power supply - MACX MCR-EX-SL-RPSSI-2I-SP - 2924236

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Ex i measuring transducer power supply and input signal conditioner, HART-transparent. Transfers supplied or active 0/4...20 mA electrical isolation signals from the Ex area to two loads in the safe area. 4-way electrical isolation, Push-in connection, SIL, PL.

Your advantages

- ✓ 0/4 mA ... 20 mA input, intrinsically safe, [Ex ia], powered and not powered
- ✓ Measuring transducer supply voltage > 16 V
- ✓ Two electrically isolated 0/4 mA ... 20 mA (active) outputs
- ✓ Bidirectional HART transmission (both outputs)
- ✓ Error indication according to NAMUR NE 43
- ✓ SIL 2 according to IEC 61508/EN 61508
- ✓ Safe electrical isolation between input, outputs, and supply
- ✓ Power supply possible via DIN rail connector
- ✓ Installation in zone 2 permitted
- ✓ Plug-in connection terminals, push-in connection technology
- ✓ Housing width: 12.5 mm
- ✓ Minimal power dissipation
- ✓ High transmission accuracy



Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 463676
GTIN	4046356463676

Technical data

Note

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

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Technical data

Dimensions

Width	12.5 mm
Height	116 mm
Depth	113.7 mm
	114.5 mm (Snapped onto DIN rail NS 35/7,5 in accordance with EN 60715)

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 When being exposed to interference, there may be minimal deviations.

Input data

Signal input	Repeater power supply operation
Current input signal	4 mA ... 20 mA
Transmitter supply voltage	> 16 V (20 mA)
	> 15.1 V (23 mA)
Underload/overload signal range	0 mA ... 24 mA (Extended transmission range for diagnostics)
Polarization and surge protection	Yes
Signal input	Signal conditioner operation
Current input signal	0 A ... 20 mA
	4 mA ... 20 mA
Voltage drop	approx. 3.9 V (in input isolating amplifier operation)
Underload/overload signal range	0 mA ... 24 mA (Extended transmission range for diagnostics)

Output data

Signal output	Repeater power supply operation
Current output signal	4 mA ... 20 mA (Output 1 and output 2 active)
Load/output load current output	< 450 Ω (20 mA)
	< 380 Ω (23 mA)
Output ripple	< 20 mV _{rms}
Output behavior in the event of an error	0 mA (Cable break in the input)
	≥ 23 mA (Cable short-circuit in the input)
Signal output	Signal conditioner operation
Current output signal	0 mA ... 20 mA (active)
	4 mA ... 20 mA (active)
Load/output load current output	< 450 Ω (20 mA)
	< 380 Ω (23 mA)
Output ripple	< 20 mV _{rms}
Output behavior in the event of an error	0 mA (Cable break in the input)

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Output data

	0 mA (Cable short-circuit in the input)
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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	< 75 mA (24 V DC / 20 mA)
Power dissipation	< 1.45 W (24 V DC / 20 mA)
Nominal supply voltage range	19.2 V DC ... 30 V DC (24 V DC -20%...+25%)
Max. current consumption	< 46 mA (24 V DC / 20 mA)
Power dissipation	< 1.2 W (24 V DC / 20 mA)

Connection data

Connection method	Push-in connection
Stripping length	8 mm
Conductor cross section solid	0.2 mm ² ... 1.5 mm ²
Conductor cross section flexible	0.2 mm ² ... 1.5 mm ²
Conductor cross section AWG	24 ... 16

General

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
Step response (10-90%)	1.3 ms (for jump 4 mA ... 20 mA, typical)
Status display	Green LED (PWR supply voltage)
Electromagnetic compatibility	Conformance with EMC directive
Interference emission	EN 61000-6-4
Housing material	PA 6.6-FR
Color	gray
Designation	Input/output/power supply
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
Overvoltage category	II
Degree of pollution	2
Designation	Input/output
Electrical isolation	375 V (Peak value in accordance with IEC/EN 60079-11)
Designation	Input/power supply
Electrical isolation	375 V (Peak value in accordance with IEC/EN 60079-11)
Designation	Output 1/output 2
Test voltage	1.5 kV AC (50 Hz, 1 min.)

Data communication (bypass)

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Technical data

Data communication (bypass)

HART function	Yes
Protocols supported	HART

Safety data

Operation	Repeater power supply operation
Max. output voltage U_o	25.2 V
Max. output current I_o	93 mA
Max. output power P_o	587 mW
Group	IIC
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	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

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Technical data

Safety data

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
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 (125 V DC)
Operation	Signal conditioner operation
Input voltage U_i	≤ 30 V
Input current I_i	≤ 150 mA
Max. internal inductance L_i	negligible
Max. internal capacitance C_i	negligible
Safety-related maximum voltage U_m	253 V AC (125 V 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
Group	IIC
	IIC
	IIC
	IIC
	IIC
	IIC

Conformance/approvals

Designation	CE
Certificate	CE-compliant
Additional text	and EN 61326

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Technical data

Conformance/approvals

Designation	ATEX
Identification	# II (1) G [Ex ia Ga] IIC
	# II (1) D [Ex ia Da] IIIC
	# II 3 (1) G Ex nA [ia Ga] IIC T4 Gc
Certificate	BVS 10 ATEX E 143 X
Designation	IECEX
Identification	[Ex ia Ga] IIC
	[Ex ia Da] IIIC
	Ex nA [ia Ga] IIC T4 Gc
Certificate	IECEX BVS 10.0097X
Designation	CCC / China-Ex
Identification	[Ex ia Ga] IIC
	[Ex iaD]
	Ex nA [ia Ga] IIC T4 Gc
Certificate	NEPSI GYJ20.1308X
Designation	UL, USA/Canada
Identification	IS for Class I,II,III, Division 1 and Zone 0
	Installation in Class I, Division 2 and Zone 2
Certificate	#, C.D.-No 83104549
Designation	UL, USA/Canada
Identification	Class I Div 2; IS for Class I, II, III Div 1
Certificate	#, C.D.-No 83104549
Designation	Shipbuilding approval
Certificate	DNV GL TAA000020C
Designation	Safety Integrity Level (SIL, IEC 61508)
Identification	2
Designation	Performance Level (ISO 13849)
Identification	d
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 [ia Ga] IIC T4 Gc
Certificate	DNV 18.0139 X
Temperature	B
Humidity	B
Vibration	A

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Technical data

Conformance/approvals

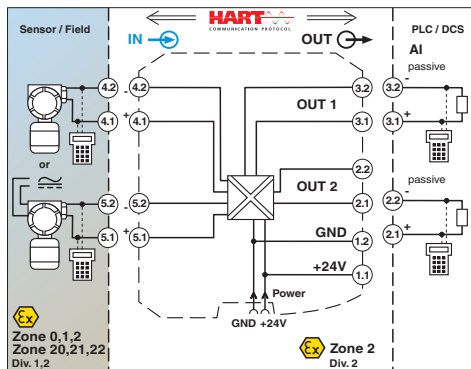
EMC	A
Enclosure	Required protection according to the Rules shall be provided upon installation on board

Environmental Product Compliance

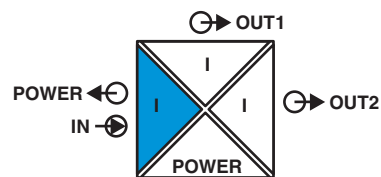
REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

Drawings

Block diagram



Pictogram



Classifications

eCl@ss

eCl@ss 10.0.1	27210120
eCl@ss 11.0	27210120
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	27210120
eCl@ss 9.0	27210120

ETIM

ETIM 4.0	EC002653
ETIM 6.0	EC002653
ETIM 7.0	EC002653

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Classifications

UNSPSC

UNSPSC 6.01	30211506
UNSPSC 7.0901	39121008
UNSPSC 11	39121008
UNSPSC 12.01	39121008
UNSPSC 13.2	39121008
UNSPSC 18.0	39121008
UNSPSC 19.0	39121008
UNSPSC 20.0	39121008
UNSPSC 21.0	39121008

Approvals

Approvals

Approvals

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

Ex Approvals

IECEX / UL Listed / cUL Listed / EAC Ex / ATEX / INMETRO / cULus Listed

Approval details

UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 330267
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cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 330267
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Functional Safety			BVS PB 13-10-04
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DNV GL		https://approvalfinder.dnvgl.com/	TAA000020C
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CCC			2020322 316001579
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Approvals

cULus Listed



Accessories

Accessories

Device marking

Plastic label - UC-EMLP (11X9) - 0819291



Plastic label, Sheet, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 10

Plastic label - UC-EMLP (11X9) YE - 0822602



Plastic label, Sheet, yellow, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 10

Plastic label - UC-EMLP (11X9) SR - 0828094



Plastic label, Sheet, silver, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, BLUEMARK CLED, PLOTMARK, CMS-P1-PLOTTER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 10

Plastic label - US-EMLP (11X9) - 0828789



Plastic label, Card, white, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 135

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Accessories

Plastic label - US-EMLP (11X9) YE - 0828871



Plastic label, Card, yellow, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 135

Plastic label - US-EMLP (11X9) SR - 0828872



Plastic label, Card, silver, unlabeled, can be labeled with: BLUEMARK ID COLOR, BLUEMARK ID, THERMOMARK PRIME, THERMOMARK CARD 2.0, THERMOMARK CARD, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 135

Device marker - LS-EMLP (11X9) WH - 0831678



Device marker, Sheet, white, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 255

Device marker - LS-EMLP (11X9) SR - 0831705



Device marker, Sheet, silver, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 255

Device marker - LS-EMLP (11X9) YE - 0831732



Device marker, Sheet, yellow, unlabeled, can be labeled with: TOPMARK NEO, TOPMARK LASER, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 255

DIN rail connector

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Accessories

DIN rail bus connectors - ME 6,2 TBUS-2 1,5/5-ST-3,81 GY - 2695439



DIN rail connector (TBUS), 5-pos., for bridging the supply voltage, can be snapped onto NS 35/... DIN rails according to EN 60715

Insulating sleeve

Insulating sleeve - MPS-IH WH - 0201663

Insulating sleeve, color: white



Insulating sleeve - MPS-IH RD - 0201676

Insulating sleeve, color: red



Insulating sleeve - MPS-IH BU - 0201689

Insulating sleeve, color: blue



Insulating sleeve - MPS-IH YE - 0201692

Insulating sleeve, color: yellow



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Accessories

Insulating sleeve - MPS-IH GN - 0201702

Insulating sleeve, color: green



Insulating sleeve - MPS-IH GY - 0201728

Insulating sleeve, color: gray



Insulating sleeve - MPS-IH BK - 0201731

Insulating sleeve, color: black



Labeled device marker

Plastic label - UC-EMLP (11X9) CUS - 0824547



Plastic label, can be ordered: by sheet, white, labeled according to customer specifications, mounting type: adhesive, lettering field size: 11 x 9 mm

Plastic label - UC-EMLP (11X9) YE CUS - 0824548



Plastic label, can be ordered: by sheet, yellow, labeled according to customer specifications, mounting type: adhesive, lettering field size: 11 x 9 mm

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Accessories

Plastic label - UC-EMLP (11X9) SR CUS - 0828098



Plastic label, can be ordered: by sheet, silver, labeled according to customer specifications, mounting type: adhesive, lettering field size: 11 x 9 mm, Number of individual labels: 10

Module carrier

Module carrier - TC-2D37SUB-ADIO32-2EX-P-UNI - 2904684



Universal Termination Carrier for connecting 16 two-channel MACX Analog Ex i signal conditioners to digital or analog I/O cards, via two D-SUB connectors, 37-pos. (1:1 connection)

Power module

Power and error message module - MACX MCR-PTB - 2865625



Power and fault signaling module with screw connection, including corresponding ME 17,5 TBUS 1,5/ 5-ST-3,81 GY DIN rail connector

Power and error message module - MACX MCR-PTB-SP - 2924184



Power and fault signaling module with Push-in connection, including corresponding ME 17,5 TBUS 1,5/ 5-ST-3,81 GY DIN rail connector

Programming cable

Cable adapter - GW HART USB MODEM - 1003824



USB HART modem cable for communication between a PC and HART devices, cable length: 1m.

Test plug terminal block

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Accessories

Test plugs - MPS-MT - 0201744



Test plugs, with solder connection up to 1 mm² conductor cross section, color: gray

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