

MINI MCR-EX-RPSS-I-I - Repeater power supply



2908803

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Ex i-Repeater power supply and input signal conditioner transmits supplied or active 0 mA/4 mA ... 20 mA signals from the Ex area to a load in the safe area.. HART-transparent, open-circuit voltage: 15 V DC, Standard configuration, Line fault detection, Safety Integrity Level (SIL, IEC 61508): 3, Screw connection

Commercial data

Item number	2908803
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C430
Product key	DK1221
GTIN	4055626362977
Weight per piece (including packing)	128 g
Weight per piece (excluding packing)	118.5 g
Customs tariff number	85437090
Country of origin	DE

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Technical data

Product properties

Product type	Repeater power supply
Product family	MINI Analog Pro
Application	Analog IN

Electrical properties

Electrical isolation between input and output	yes
Line monitoring	Line fault detection
Signal transmission behavior	In = Out
Step response (10-90%)	≤ 10 ms
Maximum temperature coefficient	≤ 0.01 %/K
Maximum transmission error	≤ 0.1 %
Reverse polarity protection	yes

Electrical isolation

Overvoltage category	II (≤ 5000 m)
Pollution degree	2 (≤ 5000 m)

Electrical isolation Input/output/power supply IEC/EN 61010-1

Standards/regulations	IEC/EN 61010-1
Rated insulation voltage	300 V _{rms}
Test voltage	2.5 kV AC (50 Hz, 60 s)
Insulation	Double/reinforced insulation

Electrical isolation Input/output, power supply IEC/EN 60079-11

Standards/regulations	IEC/EN 60079-11
Rated insulation voltage	253 V _{rms}

Electrical isolation Input/output/power supply IEC/EN 60079-7

Standards/regulations	IEC/EN 60079-7
Rated insulation voltage	251 V _{rms}

Supply

Nominal supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC
Power consumption	≤ 1.4 W

Input data

Signal: Repeater power supply operation

Description of the input	Active current input, intrinsically safe
Current input signal	4 mA ... 20 mA
Transmitter supply voltage	> 16 V (20 mA) > 15.75 V (21 mA)

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2908803

<https://www.phoenixcontact.com/us/products/2908803>

Signal: Signal conditioner operation

Description of the input	Passive current input, intrinsically safe
Current input signal	4 mA ... 20 mA
	0 mA ... 20 mA
Voltage drop	< 4 V DC (20 mA)

Output data

Signal: Repeater power supply operation

Output description	Current output
Number of outputs	1
Current output signal	4 mA ... 20 mA
Load/output load current output	$\leq 450 \Omega$ (20 mA)
	$\leq 420 \Omega$ (21 mA)
Open-circuit voltage	≤ 15 V DC
Short-circuit-proof	yes

Signal: Signal conditioner operation

Output description	Current output
Number of outputs	1
Current output signal	4 mA ... 20 mA
	0 mA ... 20 mA
Load/output load current output	$\leq 450 \Omega$ (20 mA)
	$\leq 420 \Omega$ (21 mA)

Connection data

Connection method	Screw connection
Stripping length	10 mm
Screw thread	M3
Conductor cross-section rigid	0.2 mm ² ... 1.5 mm ² (with ferrule)
	0.14 mm ² ... 2.5 mm ² (without ferrule)
Conductor cross-section flexible	0.14 mm ² ... 2.5 mm ²
Conductor cross-section AWG	24 ... 12 (flexible)
Tightening torque	0.5 Nm ... 0.6 Nm

Ex data

Ex installation (EPL)	Gc
	Div. 2
Ex i circuits (EPL)	Ga
	Da
	Ma
	Div. 1

Safety data: Repeater power supply operation

Max. internal inductance L_i	negligible
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2908803

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Max. internal capacitance C_i	4 nF
Max. output voltage U_o	26.4 V
Max. output current I_o	98 mA
Max. output power P_o	647 mW
Safety-related maximum voltage U_m	253 V AC
	125 V DC
IIA/I (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o	10 mH / 2.48 μ F
IIB/III (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o	4 mH / 730 nF
IIC (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o	2 mH / 92 nF
IIA/I (mixed circuit): Max. external inductivity L_o / Max. external capacitance C_o	10 mH / 496 nF, 1 mH / 556 nF, 500 μ H / 656 nF, 200 μ H / 836 nF, 100 μ H / 996 nF
IIB/III (mixed circuit): Max. external inductivity L_o / Max. external capacitance C_o	4 mH / 306 nF, 1 mH / 386 nF, 500 μ H / 466 nF, 200 μ H / 616 nF, 100 μ H / 736 nF
IIC (mixed circuit): Max. external inductivity L_o / Max. external capacitance C_o	1.4 mH / 45 nF, 1 mH / 52 nF, 500 μ H / 69 nF, 200 μ H / 92 nF

Safety data: 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	4 nF
Safety-related maximum voltage U_m	253 V AC
	125 V DC
IIA/I (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o	10 mH / 2.48 μ F
IIB/III (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o	4 mH / 730 nF
IIC (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o	2 mH / 92 nF
IIA/I (mixed circuit): Max. external inductivity L_o / Max. external capacitance C_o	10 mH / 496 nF, 1 mH / 556 nF, 500 μ H / 656 nF, 200 μ H / 836 nF, 100 μ H / 996 nF
IIB/III (mixed circuit): Max. external inductivity L_o / Max. external capacitance C_o	4 mH / 306 nF, 1 mH / 386 nF, 500 μ H / 466 nF, 200 μ H / 616 nF, 100 μ H / 736 nF
IIC (mixed circuit): Max. external inductivity L_o / Max. external capacitance C_o	1.4 mH / 45 nF, 1 mH / 52 nF, 500 μ H / 69 nF, 200 μ H / 92 nF

Interfaces

Connection method	S-PORT
Data communication (bypass)	
Protocols supported	HART-transparent
Limit frequency (3 dB)	≥ 1.75 kHz

Signaling

Status display	Green LED (supply voltage)
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Dimensions

Width	6.2 mm
Height	109.81 mm
Depth	119.2 mm

Material specifications

Color	gray (RAL 7042)
Housing material	PBT

Environmental and real-life conditions

Ambient conditions

Ambient temperature (operation)	-40 °C ... 70 °C (Any mounting position)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	5 % ... 95 % (at 25 °C, non-condensing)
Shock (operation)	15g (DIN EN 60068-2-27)
Vibration (operation)	5g (DIN EN 60068-2-6)

Altitude range (IEC/EN 61010-1)

Height range	> 2000 m ... 3000 m
Ambient temperature (operation)	-40 °C ... 63 °C
Rated insulation voltage	300 V _{rms} (Input/output/power supply)
Insulation	Double/reinforced insulation

Altitude range (IEC/EN 61010-1)

Height range	> 3000 m ... 4000 m
Ambient temperature (operation)	-40 °C ... 56 °C
Rated insulation voltage	300 V _{rms} (Input/output/power supply)
Insulation	Double/reinforced insulation

Altitude range (IEC/EN 61010-1)

Height range	> 4000 m ... 5000 m
Ambient temperature (operation)	-40 °C ... 49 °C
Rated insulation voltage	150 V _{rms} (Input/output/power supply)
Insulation	Double/reinforced insulation

Altitude range (IEC/EN 60079-11)

Height range	> 2000 m ... 3000 m
Ambient temperature (operation)	-40 °C ... 63 °C
Safety-related maximum voltage U _m	121 V AC 110 V DC
Rated insulation voltage	150 V _{rms} (Input/output, power supply)

Altitude range (IEC/EN 60079-11)

Height range	> 3000 m ... 4000 m
Ambient temperature (operation)	-40 °C ... 56 °C

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Safety-related maximum voltage U_m	33 V AC/DC
Rated insulation voltage	60 V _{rms} (Input/output, power supply)

Altitude range (IEC/EN 60079-11)

Height range	> 4000 m ... 5000 m
Ambient temperature (operation)	-40 °C ... 49 °C
Safety-related maximum voltage U_m	33 V AC/DC
Rated insulation voltage	60 V _{rms} (Input/output, power supply)

Altitude range (IEC/EN 60079-7)

Height range	> 2000 m ... 3000 m
Ambient temperature (operation)	-40 °C ... 63 °C
Rated insulation voltage	162 V _{rms} (Input/output/power supply)

Altitude range (IEC/EN 60079-7)

Height range	> 3000 m ... 4000 m
Ambient temperature (operation)	-40 °C ... 56 °C
Rated insulation voltage	60 V _{rms} (Input/output/power supply)

Altitude range (IEC/EN 60079-7)

Height range	> 4000 m ... 5000 m
Ambient temperature (operation)	-40 °C ... 49 °C
Rated insulation voltage	60 V _{rms} (Input/output/power supply)

Approvals

CE

Certificate	CE-compliant
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ATEX

Identification	Ex II (1) G [Ex ia Ga] IIC
	Ex II (1) D [Ex ia Da] IIIC
	Ex II 3 (1) G Ex ec [ia Ga] IIC T4 Gc
	Ex I (M1) [Ex ia Ma] I
Certificate	BVS 23 ATEX 006 X

IECEx

Identification	[Ex ia Ga] IIC
	[Ex ia Da] IIIC
	Ex ec [ia Ga] IIC T4 Gc
	[Ex ia Ma] I
Certificate	IECEx BVS 23.0003X

CCC / China-Ex

Identification	[Ex ia Ga] IIC
	[Ex ia Da] IIIC
	Ex ec [ia Ga] IIC T4 Gc
Certificate	2023122310117250

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2908803

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UL, USA/Canada

Identification	UL 61010-2-201 Listed
	Class I, Div. 1, Groups A, B, C, D
	Class II, Div. 1, Groups E, F, G
	Class III, Div. 1
	Class I, Zone 0, 1, 2, Groups IIC, IIB, IIA
	Class I, Div. 2, Groups A, B, C, D T4
	Class I, Zone 2
	AEx ec [ia Ga] IIC T4 Gc; AEx ec [ia IIIC Da] IIC T4 Gc
	Ex ec [ia Ga] IIC T4 Gc X; Ex ec [ia IIIC Da] IIC T4 Gc X
	Class I, Zone 0, [AEx ia Ga] IIC, [Ex ia Ga] IIC X
Certificate	Class I, Zone 20, [AEx ia Da] IIIC, [Ex ia Da] IIIC X
	UL C.D.-No 097285872

Shipbuilding approval

Certificate	DNV TAA00003FZ
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Safety Integrity Level (SIL, IEC 61508)

Identification	3
Note	single-channel

INMETRO

Identification	[Ex ia Ma] I
	[Ex ia Ga] IIC
	[Ex ia Da] IIIC
	Ex ec [ia Ga] IIC T4 Gc
Certificate	DNV 23.0186 X

Shipbuilding data

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

EMC data

Electromagnetic compatibility	Tested in accordance with the following standards and regulations: EN 61326-1 For industrial use, NAMUR NE 21
Low Voltage Directive	Conformance with Low Voltage Directive
Noise immunity	EN 61000-6-2
Noise immunity	EN 61326-3-2

Noise emission

Standards/regulations	EN 61000-6-4
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Mounting

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Mounting type	DIN rail mounting
Mounting position	any

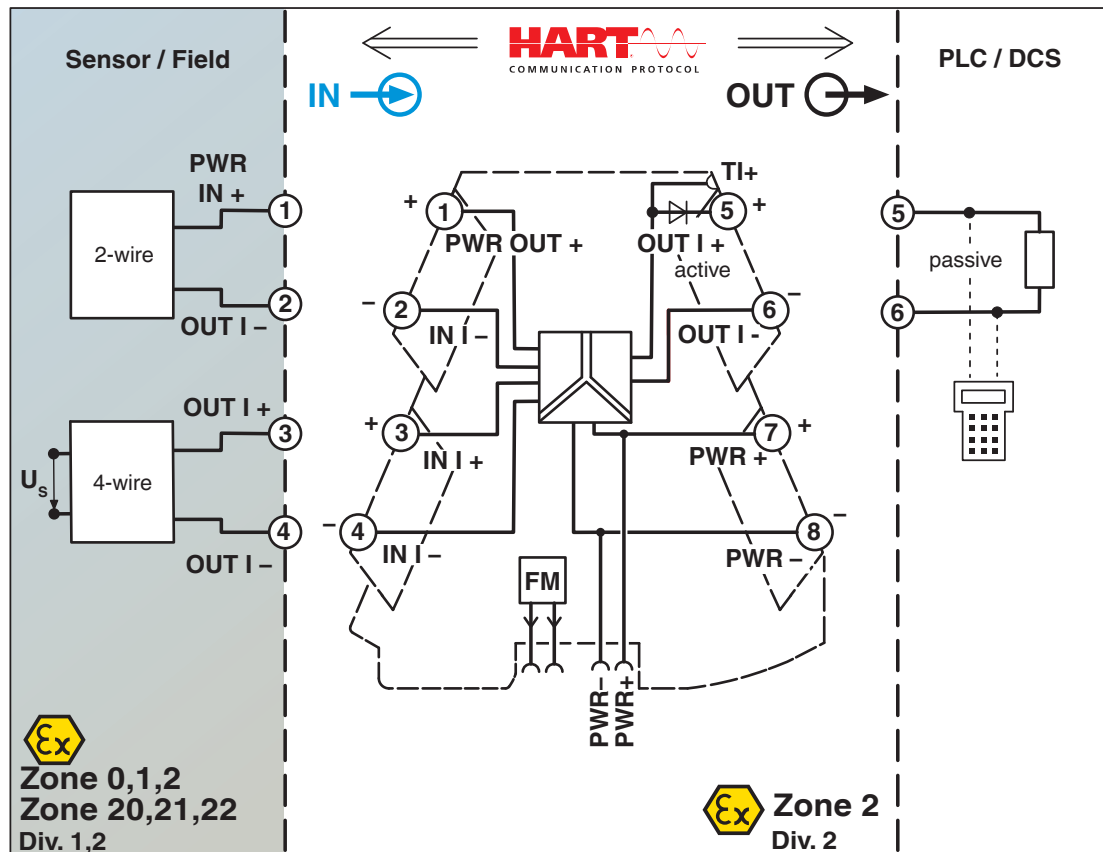
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Drawings

Block diagram



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Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2908803>



Functional Safety

Approval ID: 1435.IM.131623/19



cULus Listed

Approval ID: E238705

DNV

Approval ID: TAA00003FZ



ATEX

Approval ID: BVS 23 ATEX E 006 X



IECEx

Approval ID: IECEx BVS 23.0003X



ATEX

Approval ID: BVS 23 ATEX E 006 X



CCC

Approval ID: 2023122303117249EN



cULus Listed

Approval ID: E196811



cULus Listed

Approval ID: E196811

INMETRO

Approval ID: DNV 23.0186 X

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Classifications

ECLASS

ECLASS-13.0	27210120
ECLASS-15.0	27210120
ECLASS-15.0 ASSET	27250101

ETIM

ETIM 9.0	EC002653
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UNSPSC

UNSPSC 21.0	39121008
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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)
SCIP	8556a039-e5e2-453e-befe-1c2cb65d5a2a

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