

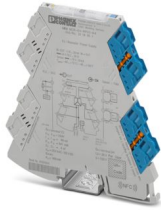
MINI MCR-EX-RPSS-I-I - Repeater power supply



2908803

<https://www.phoenixcontact.com/us/products/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.. open-circuit voltage: 15 V DC, Standard configuration, 3-way isolation, 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	3-way isolation
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 (24 V DC, -20 % ... +25 %)
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)

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	> 15.75 V (21 mA)
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	≤ 450 Ω (20 mA)
	≤ 420 Ω (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	≤ 450 Ω (20 mA)
	≤ 420 Ω (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

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Max. internal inductance L_i	negligible
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 (≤ 2000 m)
	125 V DC (≤ 2000 m)
	121 V AC (> 2000 m ... 3000 m)
	110 V DC (> 2000 m ... 3000 m)
	33 V AC/DC (> 3000 m ... 4000 m)
	33 V AC/DC (> 4000 m ... 5000 m)
I/A/I (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o	10 mH / 2.48 μ F
I/B/III (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o	4 mH / 730 nF
I/C (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o	2 mH / 92 nF
I/A/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
I/B/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
I/C (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 (≤ 2000 m)
	125 V DC (≤ 2000 m)
	121 V AC (> 2000 m ... 3000 m)
	110 V DC (> 2000 m ... 3000 m)
	33 V AC/DC (> 3000 m ... 4000 m)
	33 V AC/DC (> 4000 m ... 5000 m)
I/A/I (simple circuit): Max. external inductivity L_o / Max. external capacitance C_o	10 mH / 2.48 μ F
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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

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Altitude range (IEC/EN 60079-11)

Height range	> 2000 m ... 3000 m
Ambient temperature (operation)	-40 °C ... 63 °C
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
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
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	⊕ II (1) G [Ex ia Ga] IIC
	⊕ II (1) D [Ex ia Da] IIIC
	⊕ II 3 (1) G Ex ec [ia Ga] IIC T4 Gc
	⊕ 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

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Certificate	IECEX BVS 23.0003X
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CCC / China-Ex

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

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
Class I, Zone 20, [AEx ia Da] IIIC, [Ex ia Da] IIIC X	
Certificate	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
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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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Standards and regulations

Electrical isolation	3-way isolation
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Mounting

Mounting type	DIN rail mounting
Mounting position	any

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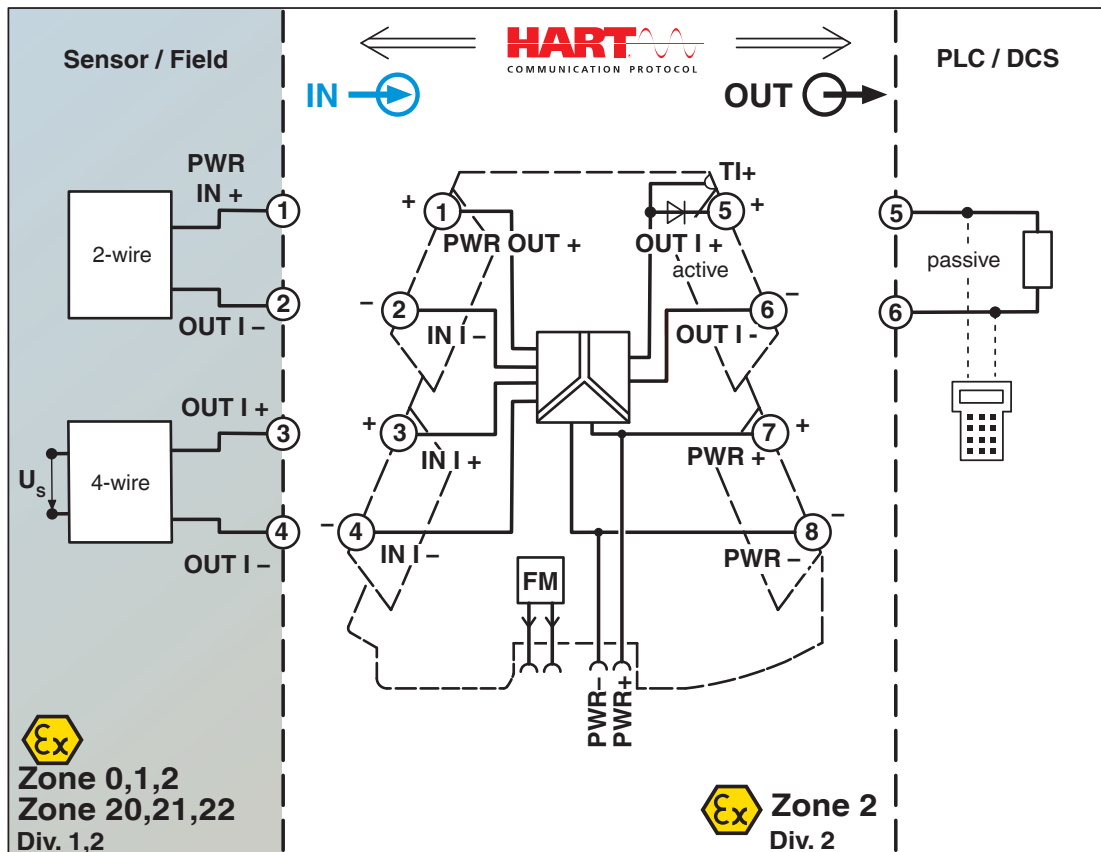


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Drawings

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



cULus Listed

Approval ID: E238705



IECEX

Approval ID: IECEX BVS 23.0003X



ATEX

Approval ID: BVS 23 ATEX E 006 X



CCC

Approval ID: 2023122303117249



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 10.0	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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