

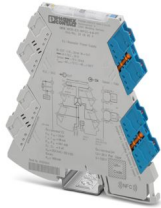
# MINI MCR-EX-RPSS-I-I-PT - Repeater power supply



2908804

<https://www.phoenixcontact.com/us/products/2908804>

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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, Push-in connection

## Commercial data

Item number	2908804
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	C430
Product key	DK1221
GTIN	4055626362984
Weight per piece (including packing)	120.833 g
Weight per piece (excluding packing)	120.833 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 <sub>rms</sub>
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 <sub>rms</sub>

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

Standards/regulations	IEC/EN 60079-7
Rated insulation voltage	251 V <sub>rms</sub>

#### 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	Push-in connection
Stripping length	10 mm
Conductor cross-section rigid	0.2 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> (with ferrule)
	0.14 mm <sup>2</sup> ... 2.5 mm <sup>2</sup> (without ferrule)
Conductor cross-section flexible	0.14 mm <sup>2</sup> ... 2.5 mm <sup>2</sup>
Conductor cross-section AWG	24 ... 12 (flexible)

## 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
Max. internal capacitance $C_i$	4 nF

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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 ( $\leq 2000$ m)
	125 V DC ( $\leq 2000$ 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)
IIA/I (simple circuit): Max. external inductivity $L_o$ / Max. external capacitance $C_o$	10 mH / 2.48 $\mu$ 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 $\mu$ H / 656 nF, 200 $\mu$ H / 836 nF, 100 $\mu$ 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 $\mu$ H / 466 nF, 200 $\mu$ H / 616 nF, 100 $\mu$ 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 $\mu$ H / 69 nF, 200 $\mu$ 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 ( $\leq 2000$ m)
	125 V DC ( $\leq 2000$ m)
	121 V AC ( $> 2000$ m ... 3000 m)
	110 V DC ( $> 2000$ m ... 3000 m)
	33 V AC/DC ( $> 3000$ m ... 4000 m)
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## Interfaces

Connection method	S-PORT
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## 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 <sub>rms</sub> (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 <sub>rms</sub> (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 <sub>rms</sub> (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

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Rated insulation voltage	150 V <sub>rms</sub> (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 <sub>rms</sub> (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 <sub>rms</sub> (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 <sub>rms</sub> (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 <sub>rms</sub> (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 <sub>rms</sub> (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
Certificate	IECEX BVS 23.0003X

### CCC / China-Ex

	[Ex ia Ga] IIC
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Identification	[Ex ia Da] IIC
	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
Low Voltage Directive	Conformance with Low Voltage Directive
Noise immunity	EN 61000-6-2
Noise immunity	EN 61326-3-2

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## 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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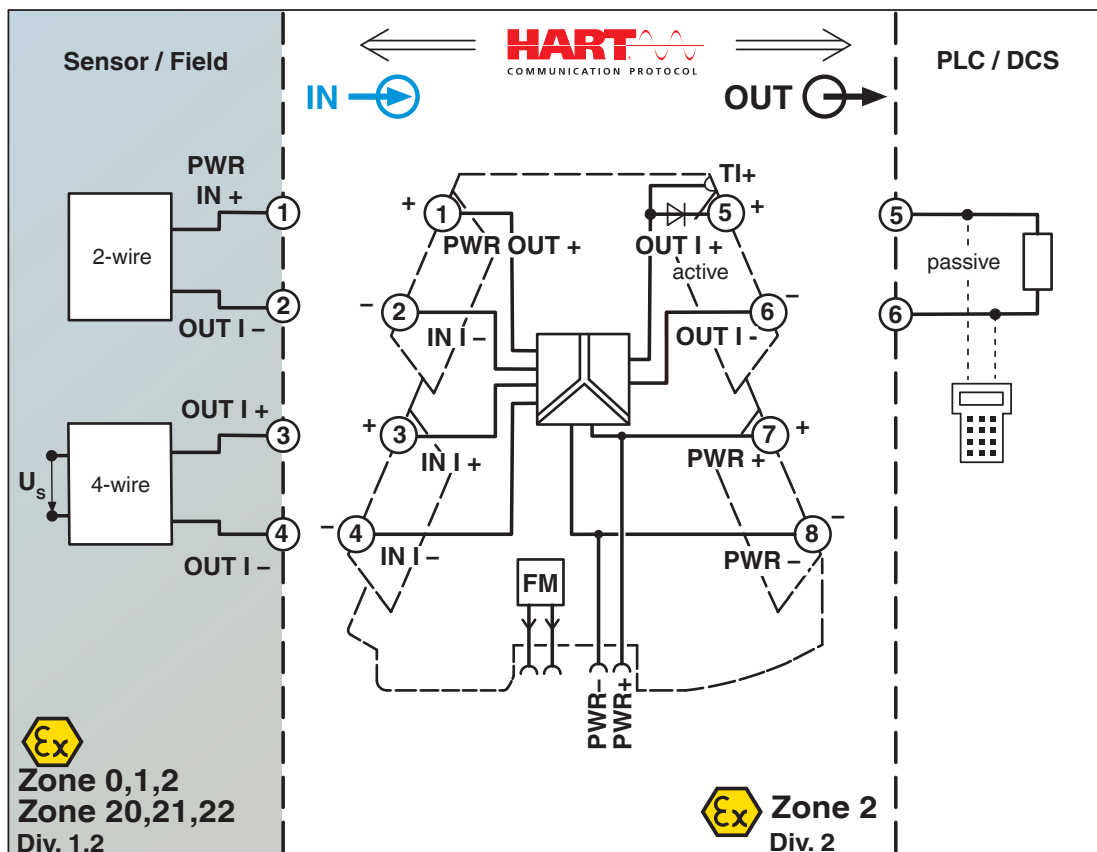


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## Drawings

Block diagram



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## Approvals

To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/2908804>



### 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	2682cf28-0881-4668-9dac-7437f6e9aa0b

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