

## Repeater power supply - PI-EX-RPSS - 2865243


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Ex i analog input: Repeater power supply, HART. Feeds intrinsically safe 2-conductor measuring transducers installed in an Ex area and transmits the 4-20 mA signal to a load in a safe area. Galvanic 3-way isolation (input / output / supply).



### Key Commercial Data

Packing unit	1 pc
GTIN	 4 046356 164290
GTIN	4046356164290

### Technical data

#### Note

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

Width	12.4 mm
Height	145 mm
Depth	147 mm

#### Ambient conditions

Ambient temperature (operation)	-20 °C ... 60 °C
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Permissible humidity (operation)	10 % ... 95 % (non-condensing)

#### Input data

Signal input	Intrinsically safe
Current input signal	4 mA ... 20 mA
Transmitter supply voltage	> 16 V (at 20 mA)
	> 15.3 V (at 22.5 mA)

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## Technical data

### Output data

Signal output	Current output
Current output signal	4 mA ... 20 mA (active)
	4 mA ... 20 mA (14 ... 26 V ext. source voltage)
Load/output load current output	< 600 Ω (at 20 mA)
	< 525 Ω (at 22.5 mA)
Output ripple	< 20 mV <sub>rms</sub>
Output behavior in the event of an error	0 mA (Cable break in the input)
	≥ 24 mA (Cable short-circuit in the input)

### Power supply

Supply voltage range	19.2 V DC ... 30 V DC
Max. current consumption	< 60 mA (at 24 V DC)
Power dissipation	< 1.1 W (at 24 V DC / 20 mA)

### 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%)	< 600 μs (for 4 mA ... 20 mA step)
Status display	Green LED (supply voltage, PWR)
Flammability rating according to UL 94	V0
Degree of pollution	2
Overvoltage category	II
Housing material	PBT and polyamide PA non-reinforced
Color	green
Designation	Input/output/power supply
Electrical isolation	300 V <sub>rms</sub> (Rated insulation voltage (overvoltage category II; degree of pollution 2, safe isolation as per EN 61010-1))
	2.5 kV (50 Hz, 1 min., test voltage)
Designation	Input/output
Electrical isolation	375 V (Peak value in accordance with EN 60079-11)
Designation	Input/power supply
Electrical isolation	375 V (Peak value in accordance with EN 60079-11)
Conformance	CE-compliant, additionally EN 61326
ATEX	# II (1) G [Ex ia] IIC
	# II (1) D [Ex iaD]
	# II 3 (1) G Ex nA [ia] IIC T4
Functional Safety (SIL)	SIL 2 according to IEC 61508
SIL	2

### Data communication (bypass)

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## Technical data

### Data communication (bypass)

HART function	Yes
Protocols supported	HART

### Safety characteristic data

Integrity requirement	IEC 61508 - Low demand
Designation	Repeater power supply operation
Equipment type	Type A
Safety Integrity Level (SIL)	2
Safe Failure Fraction (SFF)	90.9 %
$\lambda_{SU}$	$1.51 \times 10^{-7}$ (151 FIT)
$\lambda_{SD}$	0
$\lambda_{DU}$	$4.1 \times 10^{-8}$ (41 FIT)
$\lambda_{DD}$	$2.63 \times 10^{-7}$ (263 FIT)
Probability of a hazardous failure on demand (PFD <sub>AVG</sub> )	$1.96 \times 10^{-4}$ (1 year)
	$3.74 \times 10^{-4}$ (2 years)
	$9.07 \times 10^{-4}$ (5 years)
Diagnostic coverage (DC)	DC <sub>S</sub> = 0%, DC <sub>D</sub> = 86%
Integrity requirement	IEC 61508 - Low demand
Designation	Input isolating amplifier (4 ... 20 mA)
Equipment type	Type A
Safety Integrity Level (SIL)	2
Safe Failure Fraction (SFF)	91.2 %
$\lambda_{SU}$	$1.52 \times 10^{-7}$ (152 FIT)
$\lambda_{SD}$	0
$\lambda_{DU}$	$3.8 \times 10^{-8}$ (38 FIT)
$\lambda_{DD}$	$2.44 \times 10^{-7}$ (244 FIT)
Probability of a hazardous failure on demand (PFD <sub>AVG</sub> )	$1.81 \times 10^{-4}$ (1 year)
	$3.46 \times 10^{-4}$ (2 years)
	$8.41 \times 10^{-4}$ (5 years)
Diagnostic coverage (DC)	DC <sub>S</sub> = 0%, DC <sub>D</sub> = 86%

### Safety data

Max. output voltage U <sub>o</sub>	25.2 V
Max. output current I <sub>o</sub>	93 mA
Max. output power P <sub>o</sub>	590 mW
Group	IIB
Max. external inductivity L <sub>o</sub>	4 mH
Max. external capacity C <sub>o</sub>	820 nF
Group	IIC
Max. external inductivity L <sub>o</sub>	2 mH

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## Technical data

### Safety data

Max. external capacity $C_o$	107 nF
Safety-related maximum voltage $U_m$	253 V AC

### Standards and Regulations

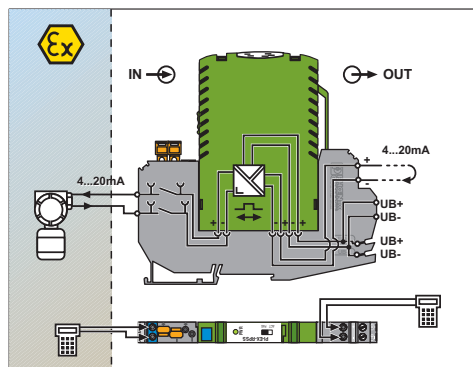
Flammability rating according to UL 94	V0
Conformance	CE-compliant, additionally EN 61326
ATEX	# II (1) G [Ex ia] IIC
	# II (1) D [Ex iaD]
	# II 3 (1) G Ex nA [ia] IIC T4
Group	IIB
	IIC

### Environmental Product Compliance

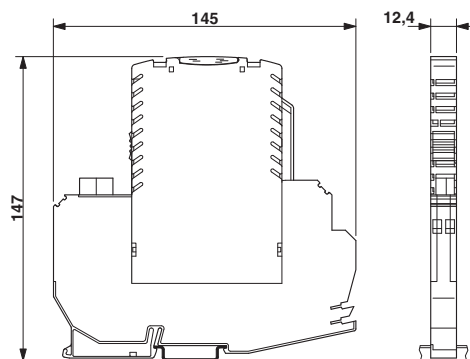
China RoHS	Environmentally Friendly Use Period = 50
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

## Drawings

Block diagram



Dimensional drawing



## Approvals

### Approvals

Approvals

Functional Safety

Ex Approvals

ATEX / EAC Ex

## Repeater power supply - PI-EX-RPSS - 2865243

### Approvals

#### Approval details

Functional Safety	09-06-52 R010 V1R0
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