

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

package_quantity	1
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 % (no condensation)
Degree of protection	IP20

Input data

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

Output data

Signal output	Current output
Current output signal	4 mA ... 20 mA (active)
Current output signal	4 mA ... 20 mA (14 ... 26 V ext. source voltage)

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Output data

Load/output load current output	< 600 Ω (at 20 mA)
Load/output load current output	< 525 Ω (at 22.5 mA)
Output ripple	< 20 mV _{rms}
Output behavior in the event of an error	0 mA (Cable break in the input)
Output behavior in the event of an error	≥ 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 consumption	< 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)
Inflammability class according to UL 94	V0
Pollution degree	2
Surge voltage category	II
Housing material	PBT and polyamide PA non-reinforced
Color	green
Name	Input/output/power supply
Electrical isolation	300 V _{rms} (Rated insulation voltage (surge voltage category II; pollution degree 2, safe isolation as per EN 61010-1))
Electrical isolation	2.5 kV (50 Hz, 1 min., test voltage)
Name	Input/output
Electrical isolation	375 V (Peak value in accordance with EN 60079-11)
Name	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
ATEX	# II (1) D [Ex iaD]
ATEX	# II 3 (1) G Ex nA [ia] IIC T4
Functional safety (SIL)	SIL 2 according to EN 61508

Data communication (bypass)

HART function	Yes
Protocols supported	HART

Safety characteristic data

Integrity requirement	IEC 61508 - Low demand
Designation	Repeater power supply operation

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Safety characteristic data

Equipment type	Type A
Safety Integrity Level (SIL)	Up to 2
Safe Failure Fraction (SFF)	90.9 %
λ_{SU}	1.51×10^{-7} (151 FIT)
λ_{SD}	0
λ_{DU}	4.1×10^{-8} (41 FIT)
λ_{DD}	2.63×10^{-7} (263 FIT)
Probability of a hazardous failure on demand (PFD _{AVG})	1.96×10^{-4} (1 year)
Probability of a hazardous failure on demand (PFD _{AVG})	3.74×10^{-4} (2 years)
Probability of a hazardous failure on demand (PFD _{AVG})	9.07×10^{-4} (5 years)
Diagnostic coverage (DC)	(DC _S = 0%, DC _D = 86%)
Integrity requirement	IEC 61508 - Low demand
Designation	Input isolating amplifier (4 ... 20 mA)
Equipment type	Type A
Safety Integrity Level (SIL)	Up to 2
Safe Failure Fraction (SFF)	91.2 %
λ_{SU}	1.52×10^{-7} (152 FIT)
λ_{SD}	0
λ_{DU}	3.8×10^{-8} (38 FIT)
λ_{DD}	2.44×10^{-7} (244 FIT)
Probability of a hazardous failure on demand (PFD _{AVG})	1.81×10^{-4} (1 year)
Probability of a hazardous failure on demand (PFD _{AVG})	3.46×10^{-4} (2 years)
Probability of a hazardous failure on demand (PFD _{AVG})	8.41×10^{-4} (5 years)
Diagnostic coverage (DC)	(DC _S = 0%, DC _D = 86%)

Safety data

Max. output voltage U _o	25.2 V
Max. output current I _o	93 mA
Max. output power P _o	590 mW
Gas group	IIB
Max. external inductivity L _o	4 mH
Max. external capacity C _o	820 nF
Gas group	IIC
Max. external inductivity L _o	2 mH
Max. external capacity C _o	107 nF
Safety-related maximum voltage U _m	253 V AC

classifications

eCl@ss

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classifications

eCl@ss

eCl@ss 4.0	27210121
eCl@ss 4.1	27210121
eCl@ss 5.0	27210121
eCl@ss 5.1	27210121
eCl@ss 6.0	27210121
eCl@ss 7.0	27210121
eCl@ss 8.0	27210121

ETIM

ETIM 2.0	EC001431
ETIM 3.0	EC001596
ETIM 4.0	EC001596
ETIM 5.0	EC001596

UNSPSC

UNSPSC 6.01	30211506
UNSPSC 7.0901	39121008
UNSPSC 11	39121008
UNSPSC 12.01	39121008
UNSPSC 13.2	39121008

approvals

ATEX / Functional Safety /

Approval details

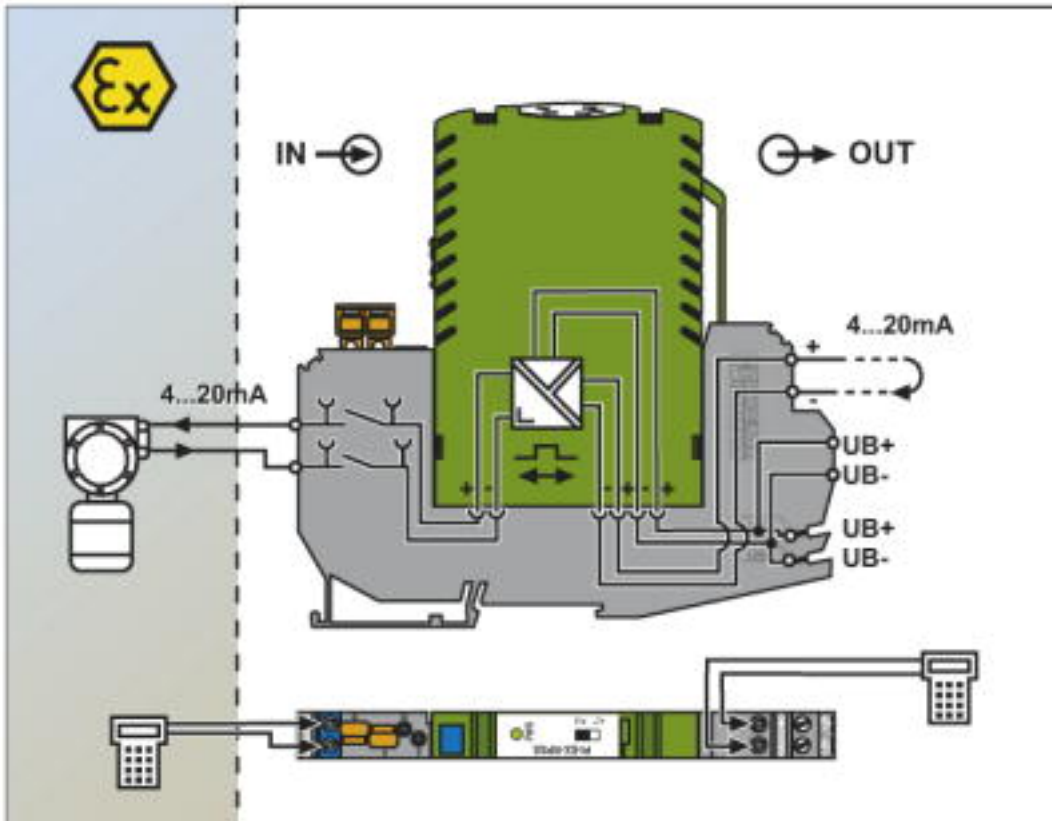


Functional Safety

Drawings

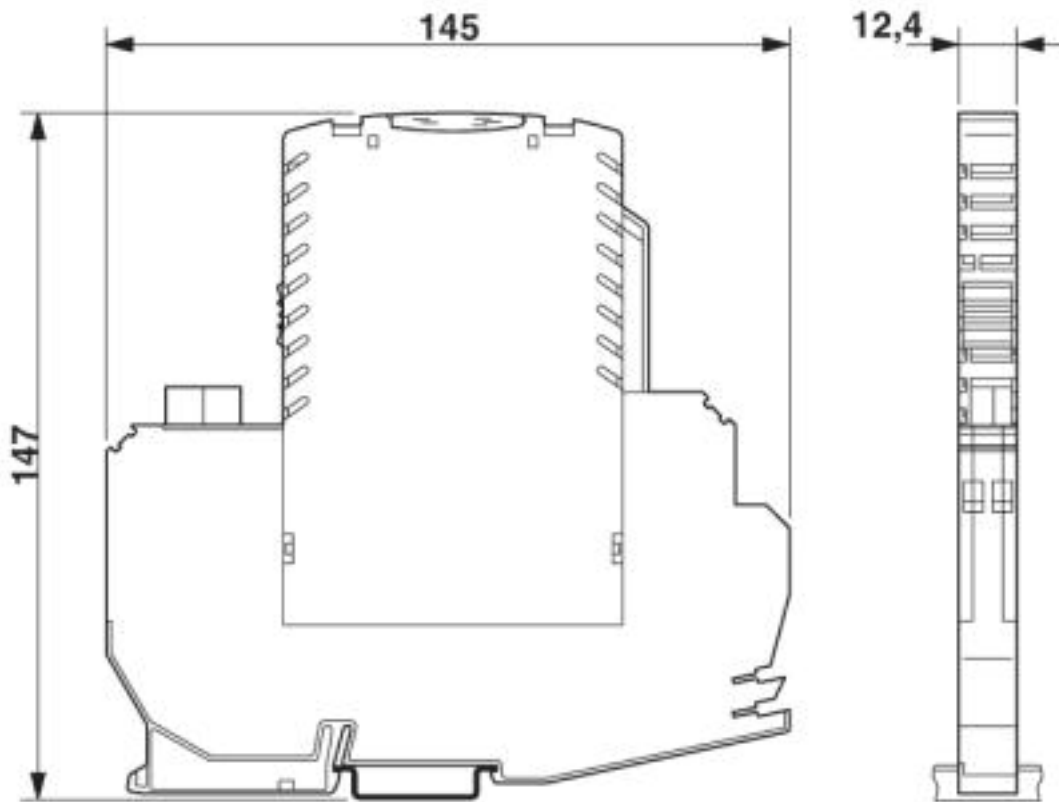
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Block diagram



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Dimensioned drawing



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