

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
Weight per Piece (excluding packing)	100.000 g
Custom tariff number	85437090
Country of origin	Germany

Technical data

Dimensions

Width	12.4 mm
Height	79 mm
Depth	118.4 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

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Input data

Transmitter supply voltage	> 16 V (at 20 mA)
	> 15.3 V (at 22.5 mA)

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 _{rms}
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)
Degree of pollution	2
Overvoltage category	II
Housing material	PBT and polyamide PA non-reinforced
Color	green
Designation	Input/output/power supply
	Input/output
Electrical isolation	375 V (Peak value in accordance with IEC/EN 60079-11)
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Electrical isolation	375 V (Peak value in accordance with IEC/EN 60079-11)

Data communication (bypass)

HART function	Yes
Protocols supported	HART

Safety characteristic data

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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 %
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)
	3.74×10^{-4} (2 years)
	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)	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)
	3.46×10^{-4} (2 years)
	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
Group	IIB
Max. external inductivity L _o	4 mH
Max. external capacitance C _o	820 nF
Group	IIC
Max. external inductivity L _o	2 mH

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Safety data

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

Standards and Regulations

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

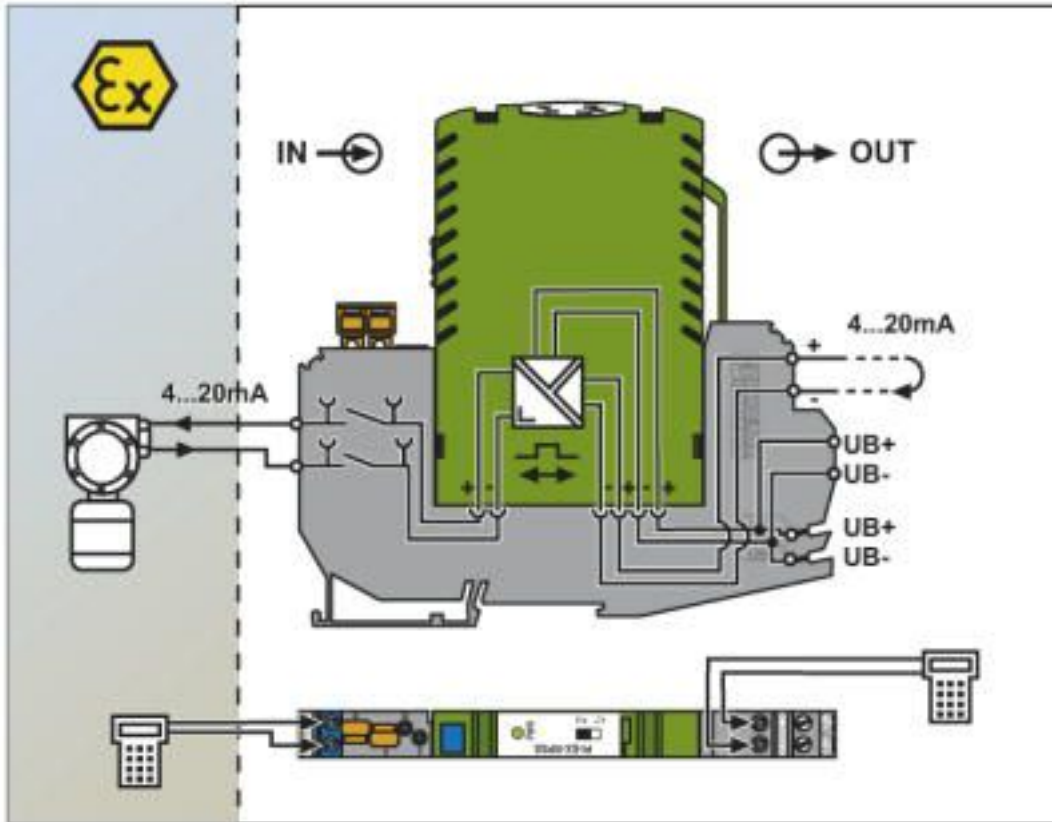
Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

Drawings

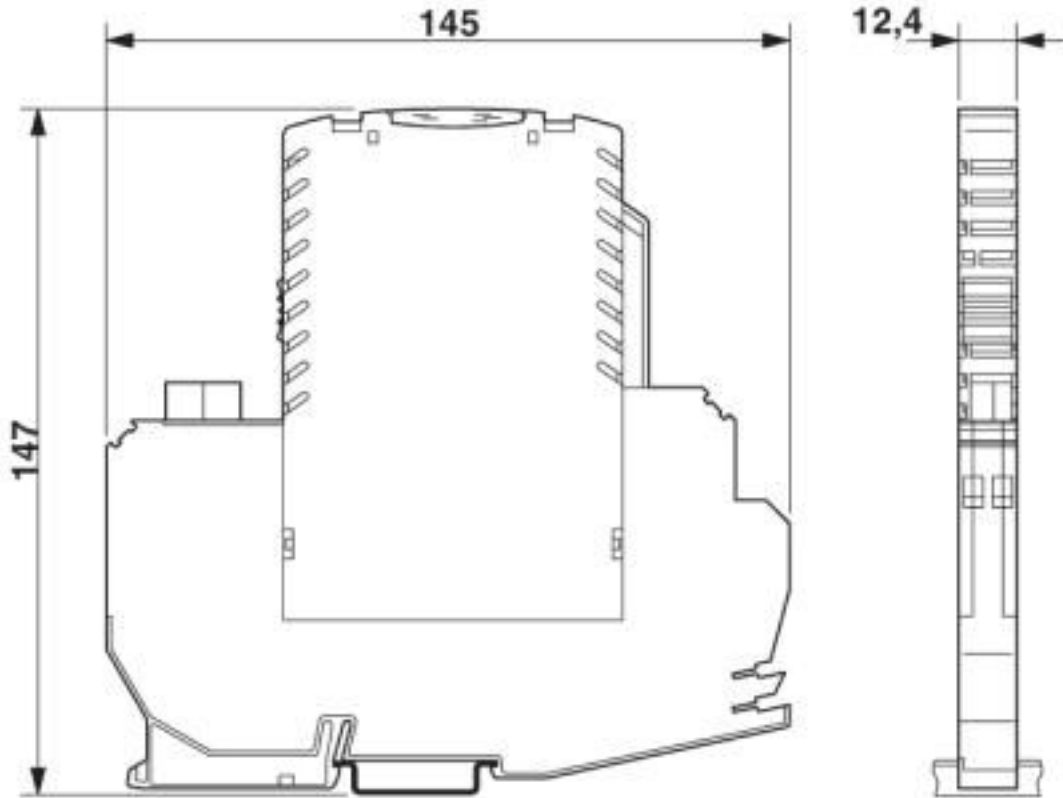
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Block diagram



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Dimensional drawing



Classifications

eCl@ss

eCl@ss 4.0	27210100
eCl@ss 4.1	27210100
eCl@ss 5.0	27210100
eCl@ss 5.1	27210100
eCl@ss 6.0	27210100
eCl@ss 7.0	27210120
eCl@ss 8.0	27210120
eCl@ss 9.0	27210120

ETIM

ETIM 4.0	EC002653
ETIM 5.0	EC002653
ETIM 6.0	EC002653
ETIM 7.0	EC002653

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Classifications

UNSPSC

UNSPSC 6.01	30211506
UNSPSC 7.0901	39121008
UNSPSC 11	39121008
UNSPSC 12.01	39121008
UNSPSC 13.2	39121008
UNSPSC 18.0	39121008
UNSPSC 19.0	39121008
UNSPSC 20.0	39121008
UNSPSC 21.0	39121008

Approvals

Approvals

Approvals

Functional Safety

Ex Approvals

ATEX / EAC Ex

Approval details

Functional Safety	09-06-52 R010 V1R0
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Accessories

Additional products

Basic terminal block - PI-EX-TB - 2835901



Ex base terminal block for intrinsically safe signals with knife disconnection and test connections

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Accessories

Surge protection device - TT-PI-EX-TB - 2858386



Intrinsically safe basic terminal block with isolating connector, test connections and surge protection, for mounting on NS 35/7.5

Basic terminal block - PI-EX-ES-1/3 - 2835325



Ex basic terminal block, with three terminal points to the field level (Ex area)
