

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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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)
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 _{rms} (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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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 %
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 capacity C _o	820 nF
Group	IIC
Max. external inductivity L _o	2 mH

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Safety data

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

Standards and Regulations

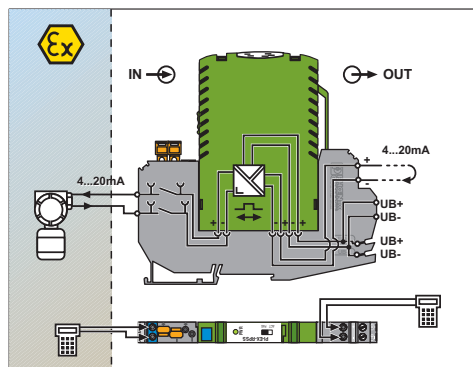
Flammability rating according to UL 94	V0
Conformance	CE-compliant, additionally EN 61326
ATEX	# II (1) G [Ex ia] IIC
	# II (1) D [Ex iaD]
	# II 3 (1) G Ex nA [ia] IIC T4
Group	IIB
	IIC

Environmental Product Compliance

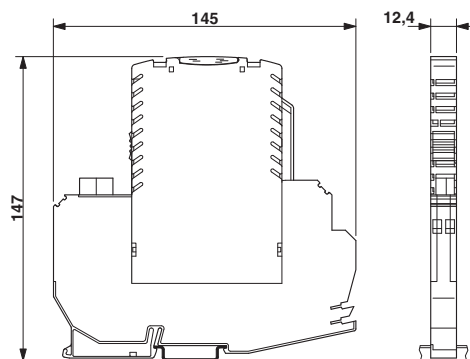
China RoHS	Environmentally Friendly Use Period = 50
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

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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