PSD 1001

SIL 3 - SIL 2 Quad ch. Power Supply for Hazardous Area Equipment DIN-Rail Model PSD1001

Characteristics:

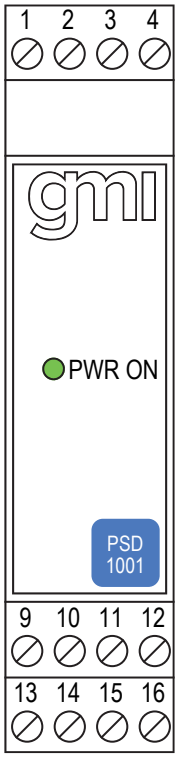
General Description:
The PSD1001 is a quad channel DIN Rail Power Supply to drive measuring, process control equipments in Hazardous Area;
it provides isolation between input and output.
Typical application is to drive 4-20 mA 2 wires transmitter with local indication (current is not repeated in Safe Area).
Output channels can be paralleled if more power is required.

Function:
I.S. power supply, 4 output parallelable channels to operate Hazardous Area loads providing isolation (input/output).

Signalling LED:
Power supply indication (green).

EMC:
Fully compliant with CE marking applicable requirements.

Front Panel and Features:



- SIL 3 according to IEC 61508, IEC 61511 in Loop Powered mode for Lifetime = 10 years.
- SIL 2 according to IEC 61508, IEC 61511 in Bus Powered mode for Tproof = 2 / 5 years (10 / 20 % of total SIF).
- PFDavg (1 year) 0.00 E-00, SFF 100 % (Loop Powered mode).
- PFDavg (1 year) 3.64 E-04, SFF 80.12 % (Bus Powered mode).
- Output to Zone 0 (Zone 20), Division 1, installation in Zone 2, Division 2.
- 4 channels Power Supply for Hazardous Area equipment.
- Flexible modular multiple output capability.
- Output short circuit proof and current limited.
- Isolation Input/Output.
- EMC Compatibility to EN61000-6-2, EN61000-6-4.
- ATEX, IECEx, UL & C-UL, FM & FM-C Certifications.
- Type Approval Certificate DNV and KR for maritime applications.
- High Reliability, SMD components.
- High Density, four channels per unit.
- Simplified installation using standard DIN Rail and plug-in terminal blocks.
- 250 Vrms (Um) max. voltage allowed to the instruments associated with the barrier.

Ordering Information:

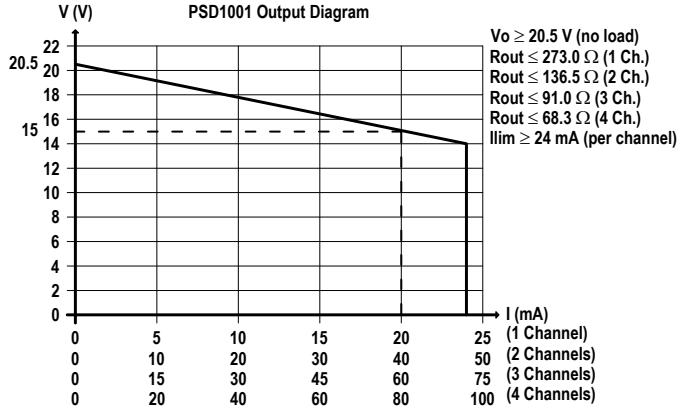
Model:	PSD1001	
Power Bus enclosure		/B

Technical Data:

Supply:
24 Vdc nom (21.5 to 30 Vdc) reverse polarity protected,
ripple within voltage limits ≤ 5 Vpp.
Current consumption @ 24 V: 110 mA with four channels at 20 mA nominal load, 140 mA with short circuit output.
Power dissipation: 1.4 W with 24 V supply voltage and four channels at 20 mA nominal load.
Max. power consumption: at 30 V supply voltage and short circuit output, 3.8 W.

Isolation (Test Voltage):
I.S. Out/Supply 1.5 KV.

Output:
20 mA at 15 V per channel (20.5 V no load, 273 Ω series resistance).



Short circuit current: ≥ 24 mA per channel (26 mA typical).

Compatibility:
CE mark compliant, conforms to Directive:
2014/34/EU ATEX, 2014/30/EU EMC, 2014/35/EU LVD, 2011/65/EU RoHS.

Environmental conditions:
Operating: temperature limits -20 to + 60 °C,
relative humidity max 90 % non condensing, up to 35 °C.
Storage: temperature limits - 45 to + 80 °C.

Safety Description:
ATEX: II (1)G [Ex ia Ga] IIC, II (1)D [Ex ia Da] IIIC, I (M1) [Ex ia Ma] I; II 3G Ex ec IIC T4 Gc
IECEx: [Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I; Ex ec IIC T4 Gc
Uo/Voc = 23.6 V, Io/Isc = 88.2 mA, Po/Po = 519 mW
at terminals 13-14, 15-16, 9-10, 11-12.
Um = 250 Vrms, -20 °C ≤ Ta ≤ 60 °C.
Approvals:
DMT 01 ATEX E 042 X conforms to EN60079-0, EN60079-11.
IECEx BVS 07.0027X conforms to IEC60079-0, IEC60079-11.
IMQ 09 ATEX 013 X conforms to EN60079-0, EN60079-7.
IECEx IMQ 13.0011X conforms to IEC60079-0, IEC60079-7.
UL & C-UL E222308 conforms to UL913, UL 60079-0, UL60079-11, UL60079-15, ANSI/ISA 12.12.01 for UL and CSA-C22.2 No.157-92, CSA-E60079-0, CSA-E60079-11, CSA-C22.2 No. 213 and CSA-E60079-15 for C-UL.
FM & FM-C No. 3024643, 3029921C, conforms to Class 3600, 3610, 3611, 3810 and C22.2 No.142, C22.2 No.157, C22.2 No.213, E60079-0, E60079-11, E60079-15, EXIDA Report No. GM04/10-26 R002, SIL 2 / SIL 3 according to IEC 61508, IEC 61511.
Please refer to Functional Safety Manual for SIL applications.
DNV No. TAA00002BM and KR No.MIL20769-EL001 Cert. for maritime applications.

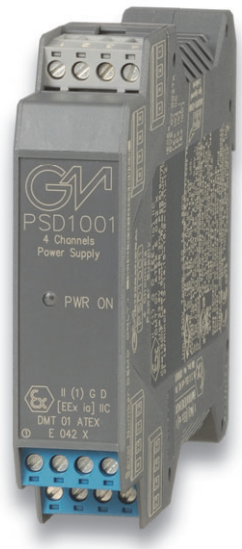
Mounting:
EN/IEC60715 TH 35 DIN-Rail.
Weight: about 120 g.
Connection: by polarized plug-in disconnect screw terminal blocks to accomodate terminations up to 2.5 mm².
Location: Safe Area/Non Hazardous Locations or Zone 2, Group IIC T4, Class I, Division 2, Groups A, B, C, D Temperature Code T4 and Class I, Zone 2, Group IIC, IIB, IIA T4 installation.
Protection class: IP 20.
Dimensions: Width 22.5 mm, Depth 99 mm, Height 114.5 mm.

Parameters Table:

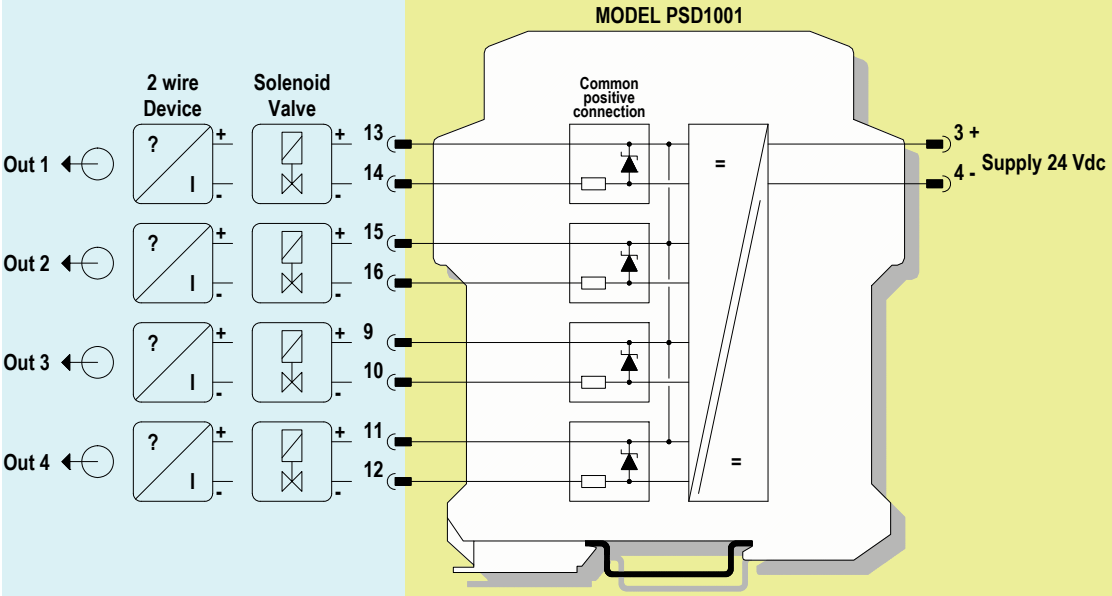
Safety Description	Maximum External Parameters			
	Group Cenelec	Co/Ca (µF)	Lo/La (mH)	Lo/Ro (µH/Ω)
Terminals 13-14, 15-16				
9-10, 11-12		Single channel		
Uo/Voc = 23.6 V	IIC	0.13	4.5	68.6
Io/Isc = 88.2 mA	IIB	0.97	18.2	274.4
Po/Po = 519 mW	IIA	3.50	36.5	548.9
		Dual channel in parallel		
Uo/Voc = 23.6 V	IIC	0.13	1.1	34.3
Io/Isc = 176.4 mA	IIB	0.97	4.5	137.2
Po/Po = 1038 mW	IIA	3.50	9.1	274.4
		Triple channel in parallel		
Uo/Voc = 23.6 V				
Io/Isc = 264.6 mA	IIB	0.97	2.0	91.4
Po/Po = 1556 mW	IIA	3.50	4.0	182.9
		Quad channel in parallel		
Uo/Voc = 23.6 V				
Io/Isc = 352.8 mA	IIB	0.97	1.1	68.6
Po/Po = 1674 mW	IIA	3.50	2.2	137.2

NOTE for USA and Canada:
IIC equal to Gas Groups A, B, C, D, E, F and G
IIB equal to Gas Groups C, D, E, F and G
IIA equal to Gas Groups D, E, F and G

Image:



Function Diagram:

HAZARDOUS AREA ZONE 0 (ZONE 20) GROUP IIC,
HAZARDOUS LOCATIONS CLASS I, DIVISION 1, GROUPS A, B, C, D,
CLASS II, DIVISION 1, GROUPS E, F, G, CLASS III, DIVISION 1,
CLASS I, ZONE 0, GROUP IIC

SAFE AREA, ZONE 2 GROUP IIC T4,
NON HAZARDOUS LOCATIONS, CLASS I, DIVISION 2,
GROUPS A, B, C, D T-Code T4, CLASS I, ZONE 2, GROUP IIC T4