

Characteristics:

General Description:

The PSD1001C is a single channel DIN Rail Power Supply to drive measuring, process control equipments in IIB Group Hazardous Area; it provides isolation between input and output. Typical applications is to drive high power devices, transmitters or other equipments with 13.5 V, 100 mA supply capability.

Function:

1 channel I.S. IIB Group power supply to operate Hazardous Area loads providing isolation (input/output).

Signalling LED:

Power supply indication (green).

EMC:

Fully compliant with CE marking applicable requirements.

Technical Data:

Supply:

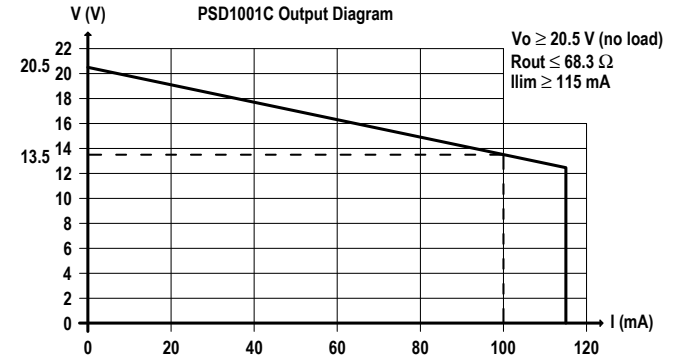
24 Vdc nom (21.5 to 30 Vdc) reverse polarity protected, ripple within voltage limits ≤ 5 Vpp.
Current consumption @ 24 V: 110 mA with 80 mA nominal load, 130 mA with 100 mA load and 150 mA with short circuit output.
Power dissipation: 1.8 W with 24 V supply voltage and 100 mA nominal load.
Max. power consumption: at 30 V supply voltage and short circuit output, 3.9 W.

Isolation (Test Voltage):

I.S. Out/Supply 1.5 KV.

Output:

100 mA at 13.5 V (20.5 V no load, 68.3 Ω series resistance).



Short circuit current: ≥ 115 mA.

Compatibility:

CE CE mark compliant, conforms to 94/9/EC Atex Directive and to 2004/108/CE EMC Directive.

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:



II (1) G [Ex ia Ga] IIB, II (1) D [Ex ia Da] IIIC, I (M1) [Ex ia Ma] I, II 3G Ex nA II [IIB] T4, [Ex ia Ga] IIB, [Ex ia Da] IIIC, [Ex ia Ma] I associated electrical apparatus. Uo/Voc = 23.6 V, Io/Isc = 352.8 mA, Po/Po = 1674 mW at terminals 13/15-14/16. Um = 250 Vrms, -20 °C \leq Ta \leq 60 °C.

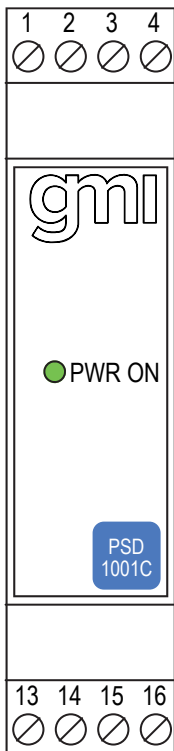
Approvals:

DMT 01 ATEX E 042 X conforms to EN60079-0, EN60079-11, EN60079-26, EN61241-0, EN61241-11, IECEx BVS 07.0027X conforms to IEC60079-0, IEC60079-11, IEC60079-26, IEC61241-0, IEC61241-11, IMQ 09 ATEX 013 X conforms to EN60079-0, EN60079-15, UL & C-UL E222308 conforms to UL913 (Div.1), UL 60079-0 (General, All Zones), UL60079-11 (Intrinsic Safety "i" Zones 0 & 1), UL60079-15 ("n" Zone 2), UL 1604 (Div.2) for UL and CSA-C22.2 No.157-92 (Div.1), CSA-E60079-0 (General, All Zones), CSA-E60079-11 (Intrinsic Safety "i" Zones 0 & 1), CSA-C22.2 No. 213-M1987 (Div. 2) and CSA-E60079-15 ("n" Zone 2) for C-UL, refer to control drawing ISM0145 for complete UL and C-UL safety and installation instructions, 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, Russia according to GOST 12.2.007.0-75, R 51330.0-99, R 51330.10-99 [Exia] IIB X, Ukraine according to GOST 12.2.007.0,22782.0,22782.5 Exia IIB X, 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 and KR Type Approval Certificate for marine applications.

Mounting:

T35 DIN Rail according to EN50022.
Weight: about 110 g.
Connection: by polarized plug-in disconnect screw terminal blocks to accommodate 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.

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.
- High output capability Power Supply for Hazardous Area equipment.
- 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, Russian and Ukrainian Certifications.
- Type Approval Certificate DNV and KR for marine applications.
- High Reliability, SMD components.
- 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:	PSD1001C
Power Bus enclosure	/B

Parameters Table:

Safety Description	Maximum External Parameters			
	Group Cenelec	Co/Ca (μF)	Lo/La (mH)	Lo/Ro ($\mu\text{H}/\Omega$)
Terminals 13/15-14/16				
$U_0/V_{oc} = 23.6 \text{ V}$				
$I_0/I_{sc} = 352.8 \text{ mA}$	IIB	0.97	1.1	68.6
$P_0/P_o = 1674 \text{ mW}$	IIA	3.50	2.2	137.2

NOTE for USA and Canada:

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 IIB,
HAZARDOUS LOCATIONS CLASS I, DIVISION 1, GROUPS C, D,
CLASS II, DIVISION 1, GROUPS E, F, G, CLASS III, DIVISION 1,
CLASS I, ZONE 0, GROUP IIB

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

