

Characteristics:

General Description:

The quadruple channel DIN Rail Repeater Power Supply D1012Q provides a fully floating dc supply for energizing conventional 2 wires 4-20 mA transmitters located in Hazardous Area, and repeats the current in Safe Area to drive a load.

Function:

4 channels I.S. analog input for 2 wires loop powered transmitters, provides isolation between input versus output and supply, and current (source mode) output signal.

On demand it is possible to supply the following combination of input/output:

2 independent input // 2+2 independent groups of output or 1 input // 4 outputs.

Signalling LED:

Power supply indication (green).

EMC:

Fully compliant with CE marking applicable requirements.

Technical Data:

Supply:

24 Vdc nom (20 to 30 Vdc) reverse polarity protected, ripple within voltage limits ≤ 5 Vpp.

Current consumption @ 24 V: 160 mA with 20 mA output typical.

Power dissipation: 2.3 W for 4 channels with 24 V supply voltage and 20 mA output typical.

Max. power consumption: at 30 V supply voltage, 4.0 W for 4 channels.

Isolation (Test Voltage):

I.S. In/Out 1.5 KV; I.S. In/Supply 1.5 KV.

Input:

4 to 20 mA (2 wire Tx current limited at ≈ 22 mA).

Transmitter line voltage:

14.0 V typical at 20 mA with max. 30 mVrms ripple.

Output:

4 to 20 mA, on max. 300 Ω load source mode, current limited at 20.6 mA.

Response time: 500 ms (10 to 90 % step change).

Output ripple: ≤ 30 mVrms.

Performance:

Ref. Conditions 24 V supply, 250 Ω load, 23 ± 1 °C ambient temperature.

Calibration accuracy: $\leq \pm 0.1$ % of full scale.

Linearity error: $\leq \pm 0.05$ % of full scale.

Supply voltage influence: $\leq \pm 0.05$ % of full scale for a min to max supply change.

Load influence: $\leq \pm 0.05$ % of full scale for a 0 to 100 % load resistance change.

Temperature influence: $\leq \pm 0.01$ % on zero and span for a 1 °C change.

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 95 %.

Storage: temperature limits -45 to +80 °C.

Safety Description:



ATEX: II (1)G [Ex ia Ga] IIC, II (1)D [Ex ia Da] IIC, I (M1) [Ex ia Ma] I; II 3G Ex ec IIC T4 Gc

IECEx: [Ex ia Ga] IIC, [Ex ia Da] IIC, [Ex ia Ma] I; Ex ec IIC T4 Gc

Uo/Voc = 21.5 V, Io/Isc = 93 mA, Po/Po = 496 mW

at terminals 13-14, 15-16, 9-10, 11-12.

Um = 250 Vrms, -20 °C $\leq$ Ta $\leq$ 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.

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,

DNV No. TAA00002BM and KR No.MIL20769-EL001 Cert. for maritime applications.

Mounting:

EN/IEC60715 TH 35 DIN-Rail.

Weight: about 140 g.

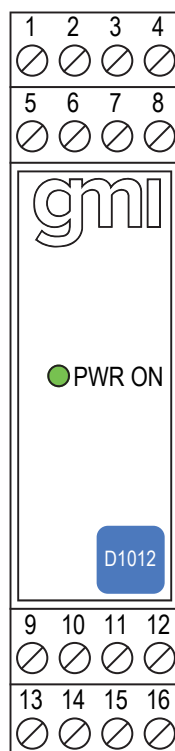
Connection: by polarized plug-in disconnect screw terminal blocks to accommodate terminations up to 2.5 mm².

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:



- Input from Zone 0 (Zone 20), Division 1, installation in Zone 2, Division 2.
- Quadruple channels for 2 wires Transmitters.
- 4-20 mA Input, Output Signal.
- Input and Output short circuit proof.
- High Accuracy.
- EMC Compatibility to EN61000-6-2, EN61000-6-4.
- ATEX, IECEx, 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: D1012Q

Parameters Table:

Safety Description	Maximum External Parameters			
	Group Cenelec	Co/Ca (μ F)	Lo/La (mH)	Lo/Ro (μ H/ Ω)
Terminals 13-14, 15-16				
9-10, 11-12				
Uo/Voc = 21.5 V	IIC	0.176	4.1	71.7
Io/Isc = 93 mA	IIB	1.200	16.4	287.0
Po/Po = 496 mW	IIA	4.500	32.8	574.0

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

