

## 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  $\leq 5$  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  $\approx 22$  mA).

### Transmitter line voltage:

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

### Output:

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

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

**Output ripple:**  $\leq 30$  mVrms.

### Performance:

Ref. Conditions 24 V supply, 250  $\Omega$  load,  $23 \pm 1$  °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** 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 95 %.

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

### Safety Description:

II (1) G [Ex ia Ga] IIC, II (1) D [Ex ia Da] IIIC, I (M1) [Ex ia Ma] I, II 3G Ex nA II T4,



[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I associated electrical apparatus.

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, 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, 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] IIC X, DNV and KR Type Approval Certificate for marine applications.

### Mounting:

T35 DIN Rail according to EN50022.

**Weight:** about 140 g.

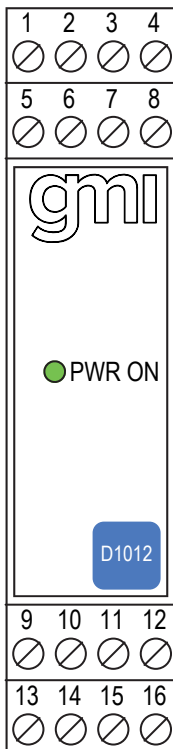
**Connection:** by polarized plug-in disconnect screw terminal blocks to accommodate terminations up to 2.5 mm<sup>2</sup>.

**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, Russian Certifications.
- Type Approval Certificate DNV and KR for marine 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 ( $\mu$ F)	Lo/La (mH)	Lo/Ro ( $\mu$ H/ $\Omega$ )
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

