

SIL 2 Switch/Proximity Detector Repeater Relay Output DIN-Rail Models D1032D, D1032Q

Characteristics:

General Description:

The Switch/Proximity Detector Repeater type D1032 is a DIN Rail unit configurable with two or four independent channels. The unit can be configured for contact or proximity detector, NO or NC and for NE or ND relay output.

Each channel enables a Safe Area load to be controlled by a switch, or a proximity detector, located in Hazardous Area.

D1032Q quad channel type has four, independent and isolated, input channels and actuates the corresponding output relay. Two actuation modes can be independently DIP switch configured on each input channel:

NO In/NE relay or NO In/ND relay. Contact or proximity sensor and its connection line short or open circuit fault detection is also DIP switch configurable: fault detection can be enabled (in case of fault it de-energizes the corresponding output relay and turns the fault LED on) or disabled (in case of fault the corresponding output relay repeats the input line open or closed status as configured).

D1032D dual channel type has two, independent and isolated, input channels and four output relays; the unit has two DIP switch configurable operating modes:

Mode A) Input channel actuates in parallel the two output relays.

Relay actuation mode can be independently configured for each output in two modes: NO In/NE relay or NO In/ND relay.

Mode B) Input channel actuates output relay (A) configurable in two modes as in mode A above. Output relay B operates as a fault output (in case of input fault, relay B actuates and the fault LED turns on while relay A repeats the input line as configured). Actuation can be DIP switch configured in two modes: No input fault/Energized relay (it de-energizes in case of fault) or No input fault/De-energized relay (it energizes in case of fault).

Function:

2 or 4 channels I.S. switch repeater for contact or EN60947-5-6 Proximity Provides 3 port isolation (input/output/supply). Line-fault detection, common to all input signals, available when using enclosures with Power bus.

Signalling LEDs:

Power supply indication (green), Output status (yellow), Line fault (red).

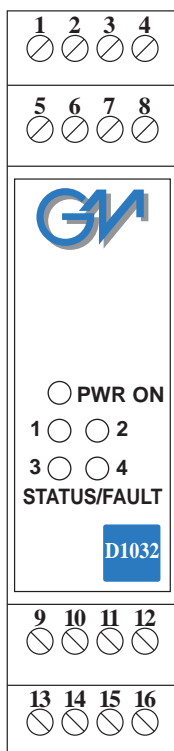
Field Configurability:

NO/NC input for Contact/Proximitior, NE/ND relay operation and Fault detection enable/disable.

EMC:

Fully compliant with CE marking applicable requirements.

Front Panel and Features:



- SIL 2 according to IEC 61508, IEC 61511 for $T_{proof} = 5$ years.
- NO/NC Contact/Proximity Detector Input.
- Four Voltage free SPST Relay Contact Output Signals.
- Relay Output for fault detection on 2 channels version.
- Common fault-line detection available when using Power bus enclosure.
- Three port isolation, Input/Output/Supply.
- EMC Compatibility to EN61000-6-2, EN61000-6-4.
- Field programmability by DIP Switch.
- ATEX, UL & C-UL, Russia and Ukraine Certifications.
- High Reliability, SMD components.
- High Density, four channels per unit.
- Simplified installation using standard DIN Rail plug-in terminal blocks.
- 250 Vrms (U_m) max. voltage applied to the instruments associated with barrier.

Technical Data:

Supply:

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

Current consumption @ 24 V: 75 mA for 4 channels D1032Q, 60 mA for 2 channels D1032D with relays energized.

Max. power consumption: 2.60 W for 4 channels, 2.20 W for 2 channels with 30 V supply voltage, short circuit input and relays energized.

Isolation (Test Voltage):

I.S. In/Out 1.5 KV; I.S. In/Supply 1.5 KV; I.S. In/I.S. In 500 V
Out/Supply 1500 V, Out 1-3/Out 2-4 1500 V.

Input switching current levels:

ON ≥ 2.1 mA, OFF ≤ 1.2 mA.

Switch current ≈ 1.65 mA ± 0.2 mA hysteresis.

Fault current levels: Open fault ≤ 0.2 mA, Short fault ≥ 6.8 mA (when enabled both faults de-energize channel relay with quad channel unit D1032Q or actuate fault relay with dual channel unit D1032D).

Input equivalent source: 8 V 1 K Ω typical (8 V no load 8 mA short circuit).

Output:

Voltage free SPST relay contact.

Contact rating: 2 A 250 V 100 VA or 2 A 250 V 80 W (resistive load).

Response time: 20 ms.

Frequency response: 10 Hz maximum.

Compatibility:

CE CE mark compliant, conforms to 94/9/EC Atex Directive and to 89/336/CEE EMC Directive.

Environmental conditions:

Operating: Temperature limits -20 to + 60 °C, relative humidity max 90 % non condensing, up to 35 °C.

Storage: Temperature limits - 40 to + 80 °C.

Safety Description:

Ex II (1) G D [EEx ia] IIC or I M2 [EEx ia] I associated electrical apparatus. $U_o/V_o = 9.6$ V, $I_o/I_{sc} = 10$ mA, $P_o/P_o = 24$ mW at terminals 13-14, 15-16, 9-10, 11-12.

$U_m = 250$ Vrms, -20 °C $\leq T_a \leq 60$ °C.

UL **US** **Approvals:** DMT 01 ATEX E 042 X conforms to EN50014, EN50020, UL & C-UL E222308 conforms to UL913 (Div.1), UL 60079-0 (General, All Zones), UL60079-11 (Intrinsic Safety "i" Zones 0 & 1), 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) for C-UL, TCCEXEE (Russia) Nr.665 according to GOST R 51330.0-99, 51330.10-99 [Exia]IIC X, TCCEXEE (Ukraine) Nr.665 according to GOST 12.2.007.0, 22782.0, 22782.5 ExiaIIC X, Gosgortekhnadzor of Russia Permit Nr. PPC 04-11284. EXIDA Report No. GM03/07-24 R001, SIL 2 according to IEC 61508, IEC 61511. Please refer to Functional Safety Manual for SIL applications..

Mounting:

T35 DIN Rail according to EN50022.

Weight: about 190 g D1032Q, 160 g D1032D.

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

Location: Safe Area / Non Hazardous Locations installation.

Protection class: IP 20.

Dimensions: Width 22.5 mm, Depth 99 mm, Height 114.5 mm.

Ordering Information:

Model:	D1032		
2 channels		D	
4 channels		Q	
Power Bus enclosure			/B

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				
Uo/Voc = 9.6 V	II C	3.60	330	1530
Io/Isc = 10 mA	II B	26.00	1420	6120
Po/Po = 24 mW	II A	210.00	2840	12240

NOTE for USA and Canada:

II C equal to Gas Groups A, B, C, D, E, F and G.
 II B equal to Gas Groups C, D, E, F and G.
 II A equal to Gas Groups D, E, F and G.



Function Diagram:

