

## Characteristics:

### General Description:

The Switch/Proximity Detector Repeater type D1032 is a DIN Rail unit with two or four independent and isolated 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 input channels and actuates the corresponding output relay. Two actuation modes can be independently DIP switch configured on each input channel: NO input/NE relay or NO input/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 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 input/NE relay or NO input/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 Power Bus enclosure.

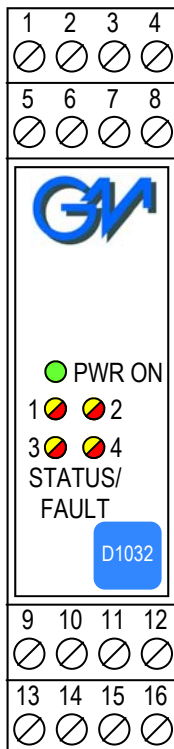
**Signalling LEDs:** Power supply indication (green), output status (yellow), line fault (red).  
**Field Configurability:** NO/NC input for contact/proximitors, NE/ND relay operation and fault detection enable/disable.

**EMC:** Fully compliant with CE marking applicable requirements.

**Functional Safety Management Certification:**  
 G.M. International is certified by TUV to conform to IEC61508:2010 part 1 clauses 5-6 for safety related systems up to and included SIL3.



## Front Panel and Features:



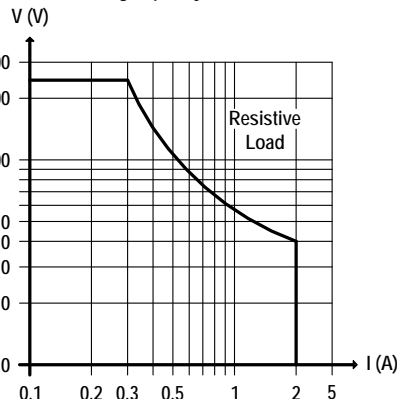
- SIL 2 according to IEC 61508:2010 Ed.2 for Tproof = 3 / 10 years ( $\leq 10\%$  /  $> 10\%$  of total SIF).
- PFDavg (1 year) 2.55 E-04, SFF 71.24 %.
- SIL 3 Systematic capability.
- Input from Zone 0 (Zone 20), Division 1, installation in Zone 2, Division 2.
- NO/NC contact/proximity Detector Input.
- Four voltage free SPST Relay contact Output Signals.
- Relay Output for fault detection on dual channel version.
- Line fault detection with common signalling available when using Power Bus enclosure.
- Three port isolation, Input/Output/Supply.
- EMC Compatibility to EN61000-6-2, EN61000-6-4, EN61326-1.
- In-field programmability by DIP Switch.
- ATEX, IECEx, UL & C-UL, FM & FM-C, INMETRO, EAC-EX, UKR TR n. 898, TÜV Certifications.
- TÜV Functional Safety Certification.
- 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:	D1032	
2 channels	D	
4 channels	Q	
Power Bus enclosure		/B
Power Bus and DIN-Rail accessories:		
DIN rail anchor MCHP065	DIN rail stopper MOR016	
Terminal block male MOR017	Terminal block female MOR022	

## Technical Data:

**Supply:** 24 Vdc nom (20 to 30 Vdc) reverse polarity protected, ripple within voltage limits  $\leq 5$  Vpp.  
**Current consumption @ 24 V:** 75 mA for 4 channels D1032Q, 60 mA for 2 channels D1032D with input closed and relays energized.  
**Power dissipation:** 1.8 W for 4 channels D1032Q, 1.4 W for 2 channels D1032D with 24 V supply voltage, input closed and relays energized.  
**Max. power consumption:** at 30 V supply voltage, short circuit input and relays energized, 2.4 W for 4 channels D1032Q, 2.0 W for 2 channels D1032D.  
**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 1.5 KV; Out 1-3/Out 2-4 1.5 KV.  
**Input switching current levels:**  
 ON  $\geq 2.1$  mA, OFF  $\leq 1.2$  mA, switch current  $\approx 1.65$  mA  $\pm 0.2$  mA hysteresis.  
**Fault current levels:** open fault  $\leq 0.2$  mA, short fault  $\geq 6.8$  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 $\Omega$  typical (8 V no load, 8 mA short circuit).  
**Output:** voltage free SPST relay contact.  
**Contact material:** AgNi90/10.  
**Contact rating:** 2 A 250 Vac 500 VA, 2 A 250 Vdc 80 W (resistive load).  
**DC Load breaking capacity:**



**Mechanical / Electrical life:** 15 \* 10<sup>6</sup> / 1 \* 10<sup>5</sup> operation, typical.  
**Operate / Release time:** 5 / 2 ms typical.  
**Bounce time NO / NC contact:** 1 / 5 ms.  
**Response time:** 20 ms.  
**Frequency response:** 10 Hz maximum.

### 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] IIIC, I (M1) [Ex ia Ma] I, II 3G Ex nAC IIC T4 Gc  
**IECEx / INMETRO:** [Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I, Ex nAC IIC T4 Gc  
**UL:** AIS / I, II, III / 1 / ABCDEFG, [AEx ia] IIC  
**C-UL:** AIS / I, II, III / 1 / ABCDEFG, [Ex ia] IIC  
**FM:** NI / I / 2 / ABCD / T4, NI / I / 2 / IIC / T4, AIS / I, II, III / 1 / ABCDEFG, AEx [ia] IIC  
**FMC:** NI / I / 2 / ABCD / T4, NI / I / 2 / IIC / T4, AIS / I, II, III / 1 / ABCDEFG, Ex [ia] IIC  
**EAC-EX:** 2Ex nA nC [ia Ga] IIC T4 X, [Ex ia Da] IIIC X, [Ex ia Ma] I X.  
**UKR TR n. 898:** 2ExnAnCialICT4 X, Exial X associated apparatus and non-sparking electrical equipment.  
 Uo/Voc = 9.6 V, Io/Isc = 10 mA, Po/Po = 24 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.  
 IECEx BVS 07.0027X conforms to IEC60079-0, IEC60079-11, IEC60079-26.  
 IMQ 09 ATEX 013 X conforms to EN60079-0, EN60079-15.  
 IECEx IMQ 13.0011X conforms to IEC60079-0, IEC60079-15.  
 INMETRO DNV 13.0108 X conforms to ABNT NBR IEC60079-0, ABNT NBR IEC60079-11, ABNT NBR IEC60079-15, ABNT NBR IEC60079-26.  
 UL & C-UL E222308 conforms to UL913, UL 60079-0, UL60079-11 for UL and CSA-C22.2 No.157-92, CSA-E60079-0, CSA-E60079-11 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.  
 C-IT.MH04.B.00306 conforms to GOST R IEC 60079-0, GOST R IEC 60079-11, GOST R IEC 60079-15.  
 CLJ 16.0034 X conforms to DCTV 7113, GOCT 22782.5-78, DCTV IEC 60079-15.  
 TÜV Certificate No. C-IS-236198-03, SIL 2 conforms to IEC61508:2010 Ed.2.  
 TÜV Certificate No. C-IS-236198-09, SIL 3 Functional Safety Certificate conforms to IEC61508:2010 Ed.2, for Management of Functional Safety.  
 DNV No.A-13778 and KR No.MIL20769-EL001 Certificates for maritime applications.

### Mounting:

T35 DIN Rail according to EN50022.  
**Weight:** about 185 g D1032Q, 165 g D1032D.  
**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.

## 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 = 9.6 V	IIC	3.5	379	1530
Io/Isc = 10 mA	IIB	25	1500	6150
Po/Po = 24 mW	IIA	209	3000	12310
	I	99	4900	20200
	IIIC	25	1500	6150

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

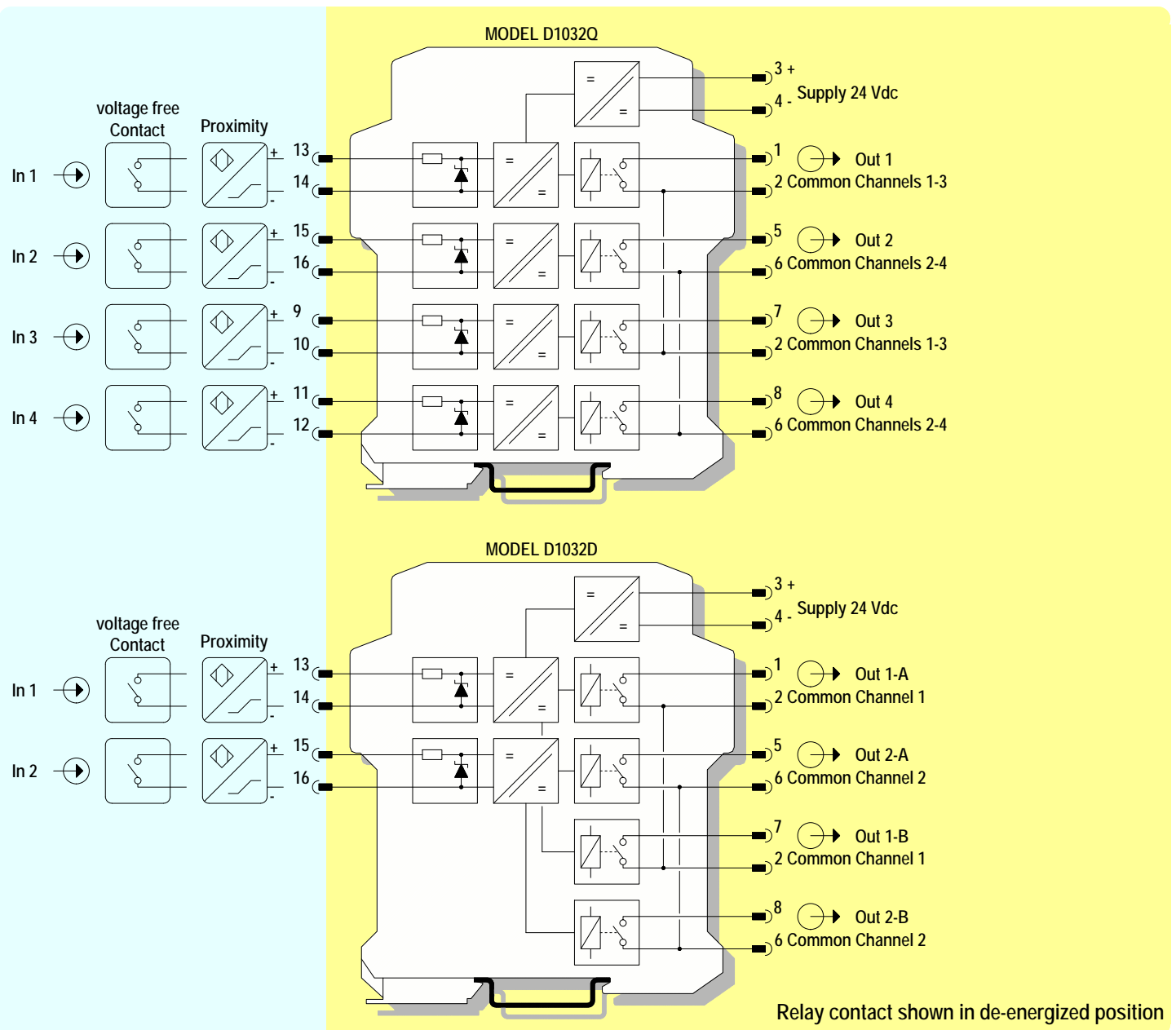
## Image:



## 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



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