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D1030

Switch/Proximity Detector Repeater Relay Output DIN-Rail Models D1030S, D1030D

Characteristics:

General Description:
The Switch/Proximity Detector Repeater type D1030 is a DIN Rail unit with one or two independent channels. The unit can be configured for contact or proximity detector, NO or NC and for NE or ND SPDT relay output contact.
Each channel enables a Safe Area load to be controlled by a switch, or a proximity detector, located in Hazardous Area.
D1030D dual channel type has two 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).
D1030S single channel type has one input channel and two output relays; the unit has two DIP switch configurable operating modes:
Mode A) input channel actuates in parallel the two output relays (DPDT contact). 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).

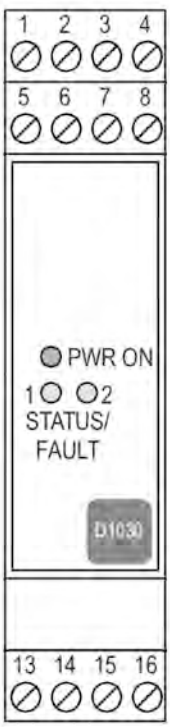
Function:
1 or 2 channels I.S. switch repeater for contact or EN60947-5-6 proximity.
Provides 3 port isolation (input/output/supply).

Signalling LEDs:
Power supply indication (green), output status (yellow), line fault (red).

Field Configurability:
NO/NC input for contact/proximitor, NE/ND relay operation and fault detection enable/disable.

EMC:
Fully compliant with CE marking applicable requirements.

Front Panel and Features:



- Input from Zone 0 (Zone 20), Division 1, installation in Zone 2, Division 2.
- NO/NC contact/proximity Detector Input.
- Two SPDT Relay Output Signals.
- SPDT Relay Output for fault detection on single channel version.
- Three port isolation, Input/Output/Supply.
- EMC Compatibility to EN61000-6-2, EN61000-6-4.
- In-field programmability by DIP Switch.
- 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.
- High Density, two 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:	D1030	
1 channel		S
2 channels		D
Power Bus enclosure		/B

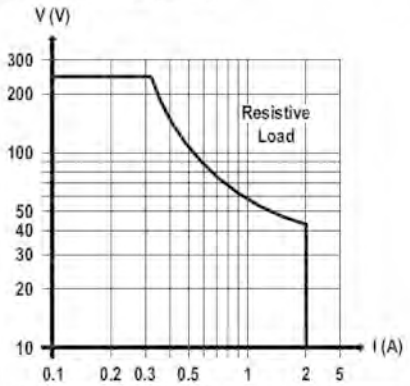
Technical Data:

Supply: 24 Vdc nom (20 to 30 Vdc) reverse polarity protected, ripple within voltage limits ≤ 5 Vpp.
Current consumption @ 24 V: 60 mA for 2 channels D1030D, 55 mA for 1 channel D1030S with input closed and relays energized.
Power dissipation: 1.4 W for 2 channels D1030D, 1.3 W for 1 channel D1030S with 24 V supply voltage, input closed and relays energized.
Max. power consumption: at 30 V supply voltage, short circuit input and relays energized, 1.8 W for 2 channels D1030D, 1.7 W for 1 channel D1030S.

Isolation (Test Voltage):
I.S. In/Out 1.5 KV; I.S. In/Supply 1.5 KV; Out/Supply 1.5 KV; Out/Out 1.5 KV.

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 dual channel unit D1030D or actuate fault relay with single channel unit D1030S).
Input equivalent source: 8 V 1 KΩ typical (8 V no load, 8 mA short circuit).

Output: voltage free SPDT relay contact.
Contact material: AgCdO.
Contact rating: 2 A 250 Vac 500 VA, 2 A 250 Vdc 80 W (resistive load).
DC Load breaking capacity:



Mechanical / Electrical life: 30 * 10^6 / 1 * 10^5 operation, typical.
Operate / Release time: 7 / 3 ms typical.
Bounce time NO / NC contact: 3 / 5 ms.
Response time: 20 ms.
Frequency response: 10 Hz maximum.

Compatibility:
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] IIC, II (1) D [Ex ia Da] IIIC, I (M1) [Ex ia Ma] I, II 3G Ex nA IIC T4, [Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I associated electrical apparatus.
Uo/Voc = 10.7 V, Io/Isc = 15 mA, Po/Po = 39 mW at terminals 13-14, 15-16.
Um = 250 Vrms, -20 °C ≤ Ta ≤ 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,
GM International CRR028 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) 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, refer to control drawing ISM0128 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] IIC X,
Ukraine according to GOST 12.2.007.0,22782.0,22782.5 Exia IIC X,
DNV and KR Type Approval Certificate for marine applications.

Mounting: T35 DIN Rail according to EN50022.
Weight: about 135 g D1030D, 130 g D1030S.
Connection: by polarized plug-in disconnect screw terminal blocks to accomodate terminations up to 2.5 mm^2.
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 (µF)	Lo/La (mH)	Lo/Ro (µH/Ω)
Terminals 13-14, 15-16				
Uo/Voc = 10.7 V	IIC	2.23	172	930
Io/Isc = 15 mA	IIB	15.60	689	3720
Po/Po = 39 mW	IIA	69.00	1379	7440

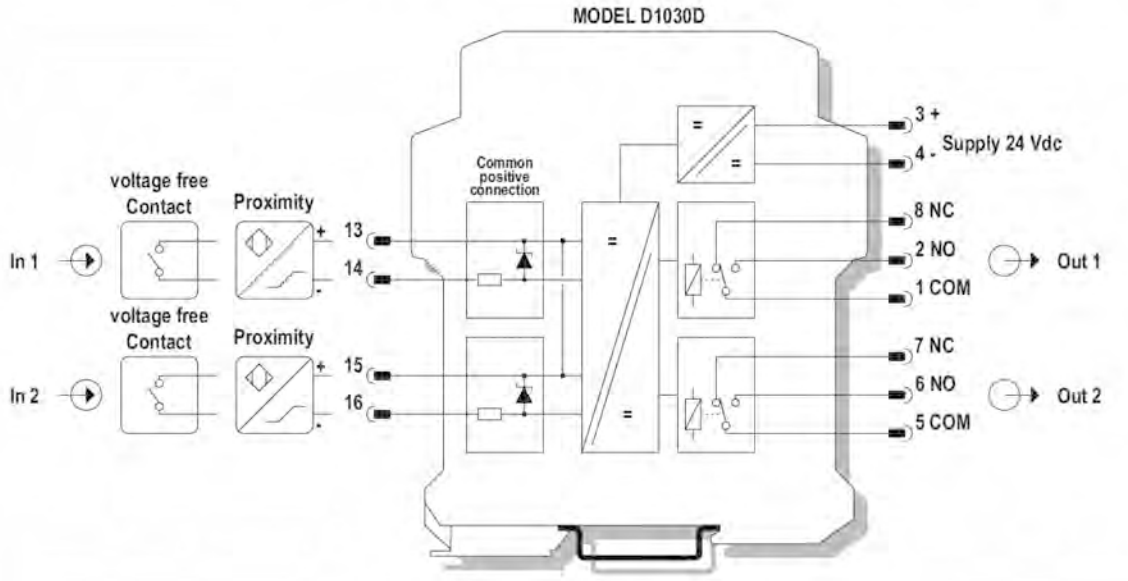
NOTE for USA and Canada:
IIC equal to Gas Groups A, B, C, D, E, F and G
IIB equal to Gas Groups C, D, E, F and G
IIA equal to Gas Groups D, E, F and G

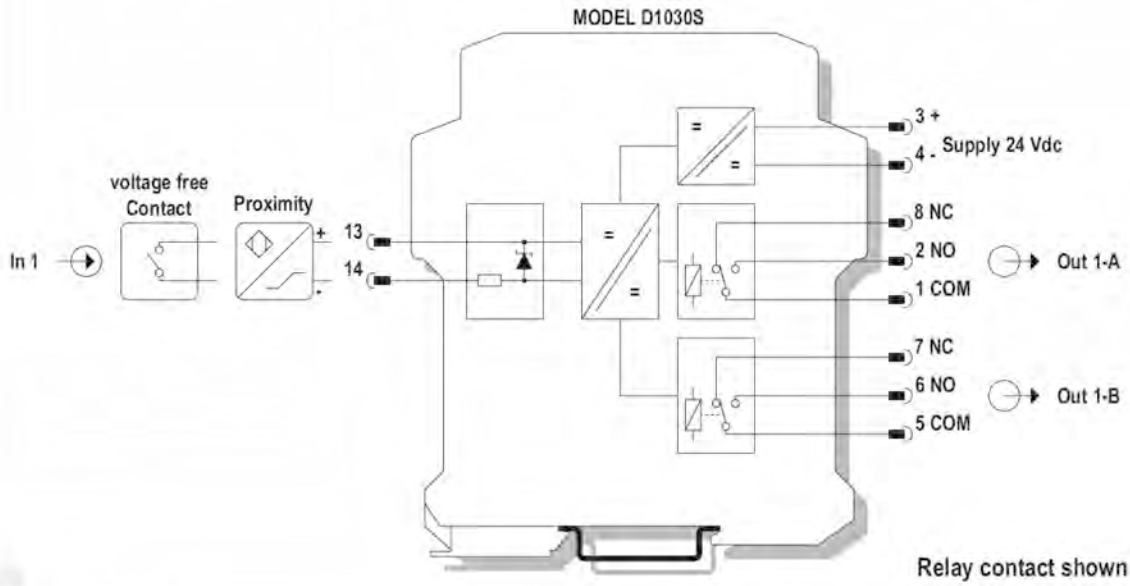
Image:

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





Relay contact shown in de-energized position