

Characteristics:

General Description:

The single and dual channel Switch/Proximity Detector Repeater, D6030S and D6030D module is a unit suitable for applications requiring SIL 2 level (according to IEC 61508:2010 Ed. 2) in safety related systems for high risk industries. The unit can be configured for switch or proximity detector (EN60947-5-6, NAMUR), NO or NC and for NE or ND SPST (D6030D) or SPDT (D6030S) relay output contact. Each channel enables a load to be controlled by a switch, or a proximity detector. Fault detection circuit (DIP switch configurable) is available for both proximity sensor and switch equipped with end of line resistors. In case of fault, when enabled it de-energizes the corresponding output relay and turns the fault LED on; when disabled the corresponding output relay repeats the input line open or closed status as configured.

D6030D is programmable via dip switches as single input and two independent outputs. Out 2 can be programmed for output duplicating Out 1 or Fault detection Out. In case of duplication, relay actuation can be independently configured for each output. In case of fault output, relay actuation can be programmed as normally energized or normally de-energized.

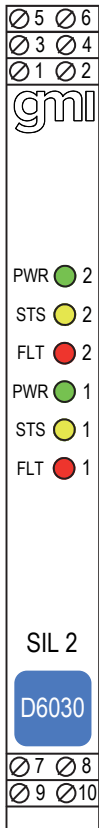
Mounting on standard DIN-Rail, with or without Power Bus, in Safe Area.

Functional Safety Management Certification:

G.M. International is certified by TÜV 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
- 2 fully independent channels.
- NO/NC switch/proximity Detector Input, NE/ND relay actuation mode.
- Field open and short circuit detection.
- Three port isolation, Input/Output/Supply.
- EMC Compatibility to EN61000-6-2, EN61000-6-4, EN61326-1, EN61326-3-1 for safety system.
- In-field programmability by DIP Switch.
- TÜV Functional Safety Certification.
- High Density, two channels per unit.
- Simplified installation using standard DIN-Rail and plug-in terminal blocks, with or without Power Bus.

Technical Data:

Supply:

24 Vdc nom (18 to 30 Vdc) reverse polarity protected, ripple within voltage limits $\leq 5 V_{pp}$, 2 A time lag fuse internally protected.

Current consumption @ 24 V: 35 mA for 2 channels D6030D, 18 mA for 1 channel D6030S with short circuit input and relay energized, typical.
Power dissipation: 0.85 W for 2 channels D6030D, 0.45 W for 1 channel D6030S with 24 V supply voltage, short circuit input and relay energized, typical.

Isolation (Test Voltage):

I.S. In/Out 2.5 KV; I.S. In/Supply 2.5 KV; I.S. In/ I.S In 500 V; Out/Supply 2.5 KV; Out/Out 2.5 KV.

Input switching current levels:

ON ≥ 2.1 mA (1.9 to 6.2 mA range), OFF ≤ 1.2 mA (0.4 to 1.3 mA range), 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 single channel unit D6030S or de-energize channel relay with D6030D used as dual channel unit or actuate the fault relay out with D6030D used as fault signaling unit).

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

Output:

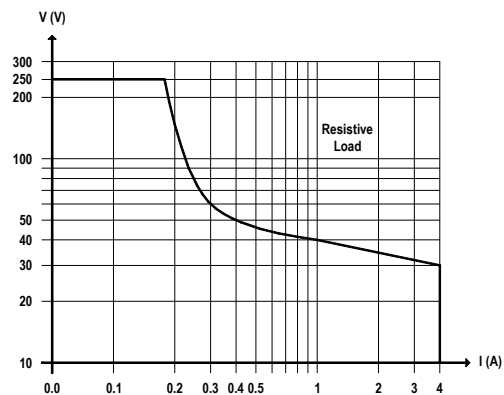
voltage free SPST (D6030D) or SPDT (D6030S) relay contact.

Contact material: Ag Alloy (Cd free), gold plated.

Contact rating: 4 A 250 Vac 1000 VA, 4 A 250 Vdc 120 W (resistive load).

Min switching current 1 mA.

DC Load breaking capacity:



Mechanical / Electrical life: $5 * 10^6 / 3 * 10^4$ operation, typical.

Operate / Release time: 8 / 4 ms typical.

Bounce time NO / NC contact: 3 / 8 ms typical.

Frequency response: 10 Hz maximum.

Compatibility:

CE mark compliant, conforms to Directives: 2004/108/CE EMC, 2006/95/EC LVD, 2011/65/EU RoHS.

Environmental conditions:

Operating: temperature limits - 40 to + 70 °C, relative humidity 95 %, up to 55 °C.

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

Approvals:



TÜV Certificate conforms to IEC61508:2010 Ed. 2 (Pending).

TÜV Certificate No. C-IS-236198-09, SIL 3 Functional Safety Certificate conforms to IEC61508:2010 Ed.2, for Management of Functional Safety.

Mounting:

T35 DIN-Rail according to EN50022, with or without Power Bus.

Weight: about 145 g D6030D, 120 g D6030S.

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

Protection class: IP 20.

Dimensions: Width 12.5 mm, Depth 123 mm, Height 120 mm.

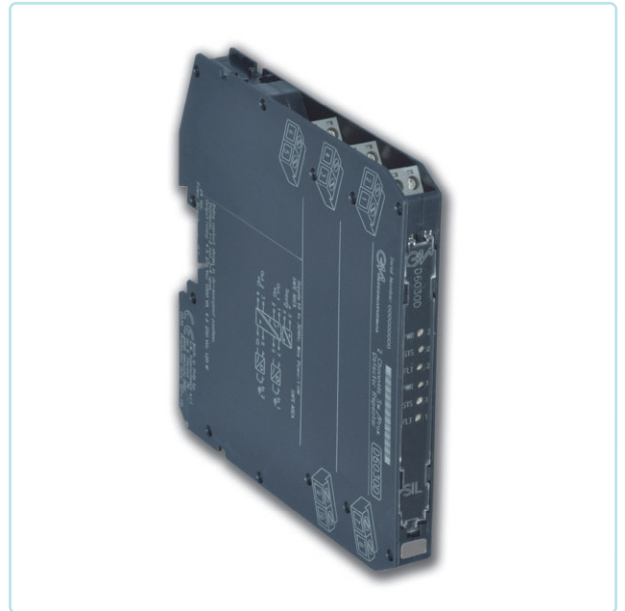
Ordering Information:

Model:	D6030	
1 channel		S
2 channels		D

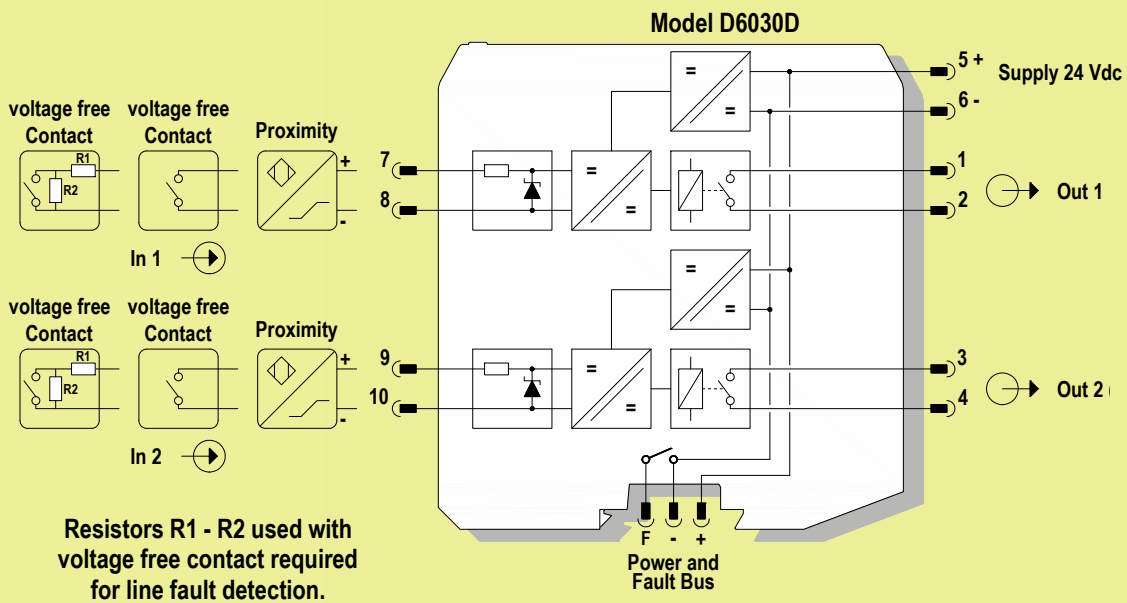
Power Bus and DIN-Rail accessories:

Connector JDFT049 Cover and fix MCHP196
Terminal block male MOR017 Terminal block female MOR022

Image:

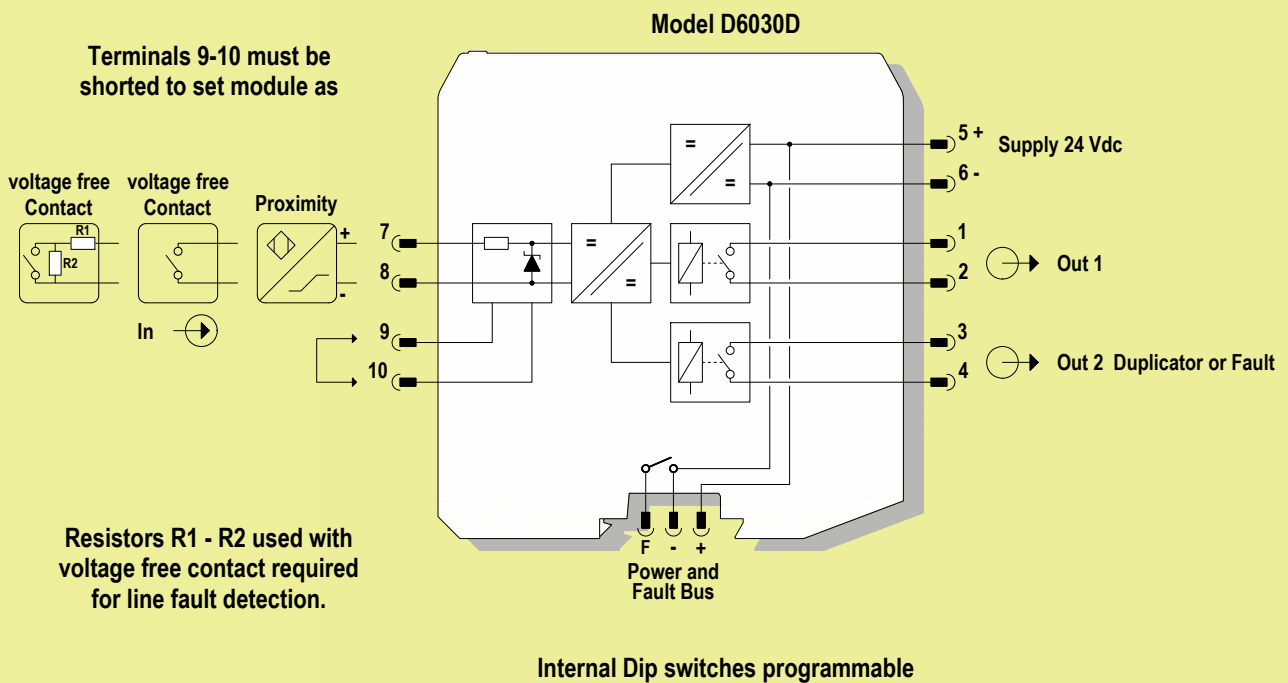


Function Diagram:



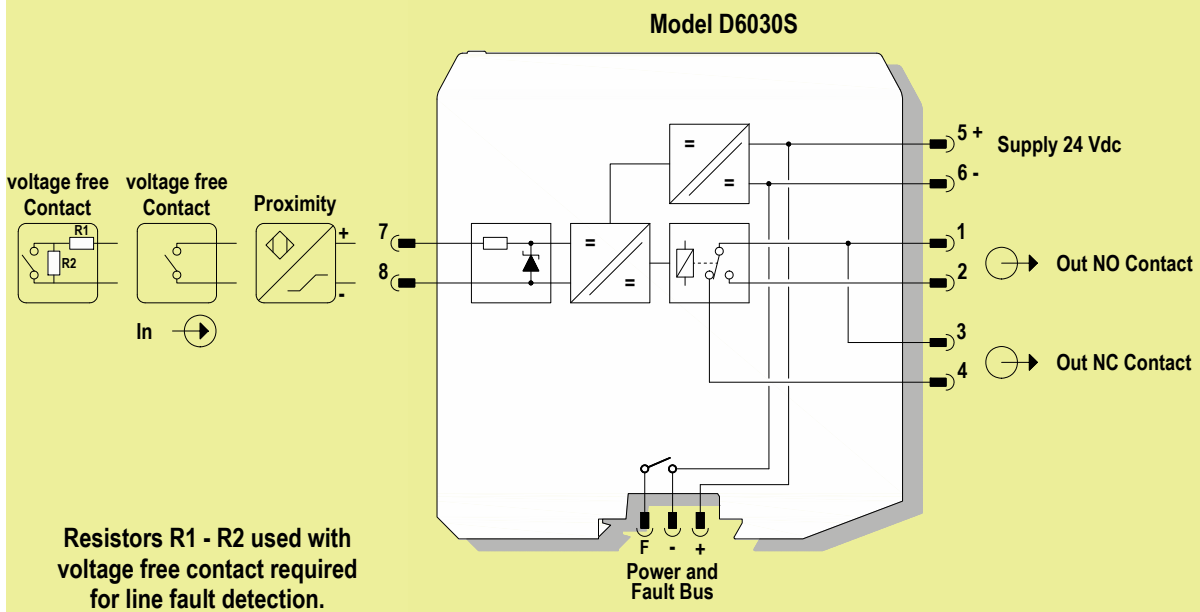
Relay contact shown in de-energized position.
Terminals 1-2 and 3-4 open.

Function Diagram:



Relay contact shown in de-energized position.
Terminals 1-2 and 3-4 open.

Function Diagram:



**Relay contact shown in de-energized position.
Terminals 1-2 open, terminals 3-4 close.**