GM INTERNATIONAL TECHNOLOGY FOR SAFETY

D6031

SIL 2 Switch/Proximity Detector Repeater Transistor Out, DIN-Rail & Term. Board Models D6031S, D6031D

Characteristics:

General Description:

The single and dual channel Switch/Proximity Detector Repeater, D6031S and D6031D 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 NO or NC optocoupled open collector transistor output.
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 transistor and turns the fault LED on; when disabled the corresponding output transistor repeats the input line open or closed status as configured.

D6031D 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, transistor driving can be independently configured for each output.
In case of fault output, transistor driving can be programmed as normally closed (NC) or normally open (NO).

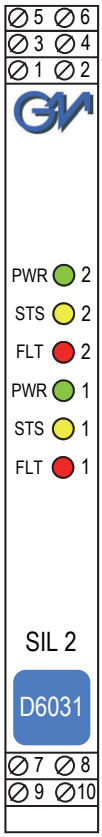
Mounting on standard DIN-Rail, with or without Power Bus, or on customized Termination Boards, in Safe Area.

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.

FSM SIL 3

Front Panel and Features:



- SIL 2 according to IEC 61508:2010 Ed. 2
- 2 fully independent channels.
- Input from Zone 0 (Zone 20) / Division 1, installation in Zone 2 / Division 2.
- NO/NC switch/proximity Detector Input, NO/NC transistor driving 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, or customized Termination Boards.

Ordering Information:

Model:	D6031	
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

Technical Data:

Supply:

24 Vdc nom (18 to 30 Vdc) reverse polarity protected,
ripple within voltage limits ≤ 5 Vpp, 2 A time lag fuse internally protected.
Current consumption @ 24 V: 22 mA for 2 channels D6031D,
12 mA for 1 channel D6031S with short circuit input and transistor closed, typical.
Power dissipation: 0.53 W for 2 channels D6031D, 0.30 W for 1 channel D6031S with 24 V supply voltage, short circuit input and transistor closed, 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 500 V; Out /Out 500 V.

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 transistor with single channel unit D6031S or de-energize channel transistor with D6031D used as dual channel unit or actuate the fault transistor out with D6031D used as fault signaling unit).
Input equivalent source: 8 V 1 KΩ typical (8 V no load, 8 mA short circuit).

Output:

voltage free SPST optocoupled open-collector transistor.
Open-collector rating: 100 mA at 35 Vdc (≤ 1.5 V voltage drop).
Leakage current: ≤ 50 µA at 35 Vdc.
Response time: ≤ 100 µs.
Frequency response: 5 KHz 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:

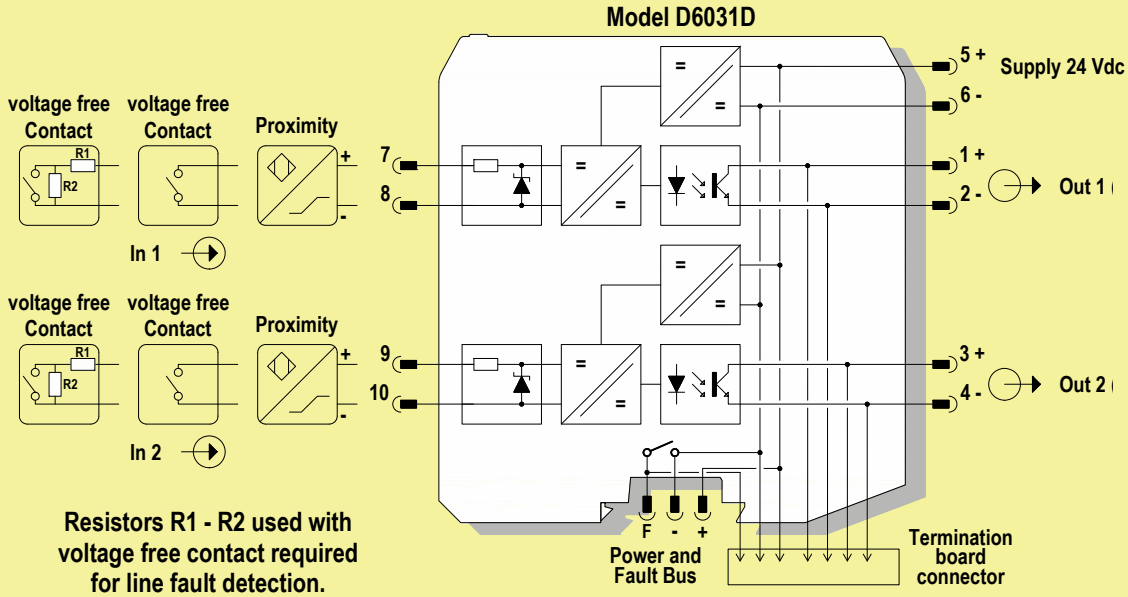
TUV Certificate conforms to IEC61508:2010 Ed. 2 (Pending).
TÜV Certificate No. C-IS-236198-09, SIL 3 Functional Safety Certificate conforms to IEC61508:2010 Ed.2, for Management of Functional Safety.

Mounting:

T35 DIN-Rail according to EN50022, with or without Power Bus or on customized Termination Board.
Weight: about 130 g D6011D, 110 g D6011S.
Connection: by polarized plug-in disconnect screw terminal blocks to accomodate terminations up to 2.5 mm².
Protection class: IP 20.
Dimensions: Width 12.5 mm, Depth 123 mm, Height 120 mm.

Image:

Function Diagram:



Resistors R1 - R2 used with voltage free contact required for line fault detection.

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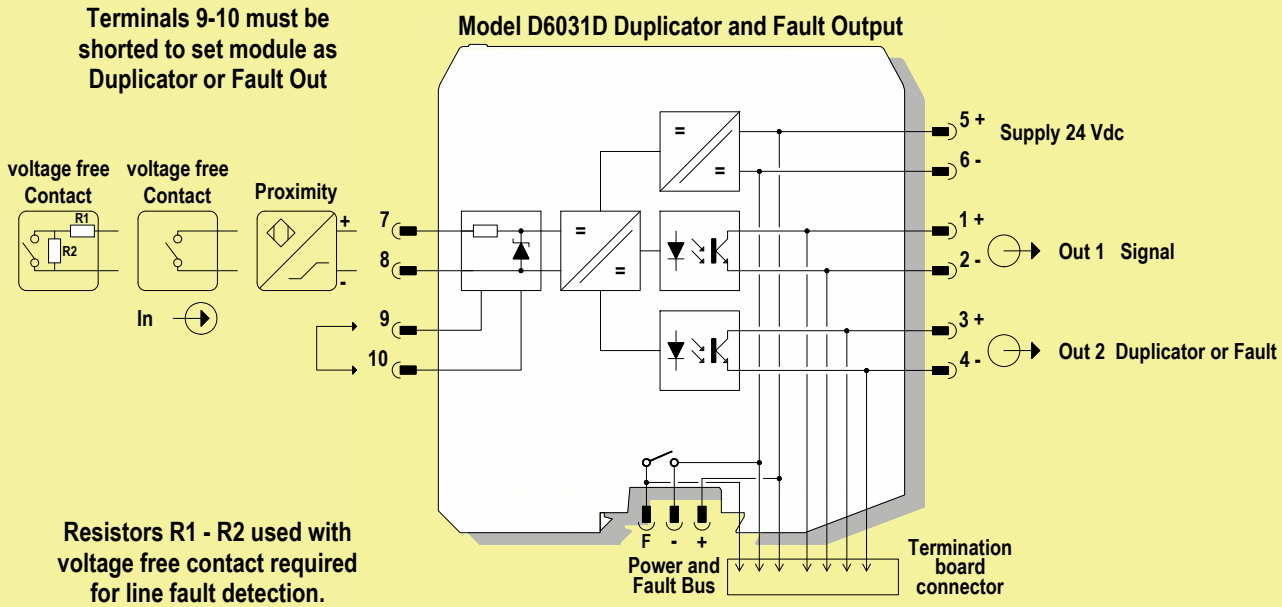
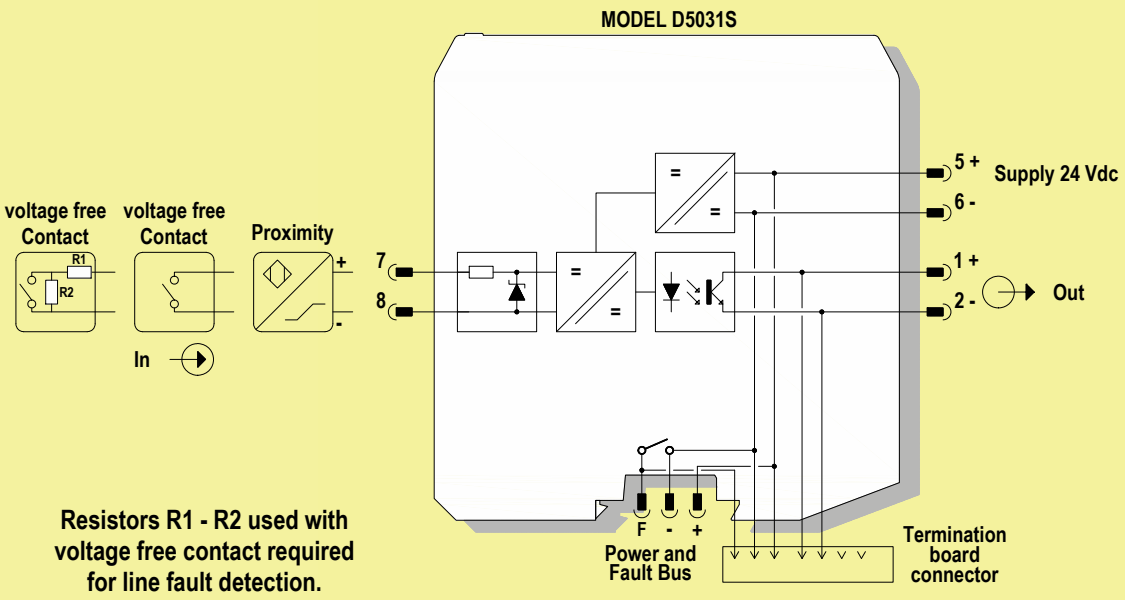


Internal Dip switches programmable

Function Diagram:



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