

D5031

I.S. SIL3 Switch/Proximity Transistor-Out Repeater

The Switch/Proximity Detector Repeater D5031 is a module suitable for applications requiring SIL 3 level in safety related systems for high risk industries. The unit can be configured for switches or proximity detectors, located in Hazardous Area, and repeats the input state to an open-collector transistor in Safe Area. The selectable fault detection circuit is available for proximity sensors or switches equipped with end of line resistors. In the double-channel model, the second output can be configured to repeat the second input, to duplicate the first input or to report the first input fault. If needed, the output can also be inverted.

FEATURES

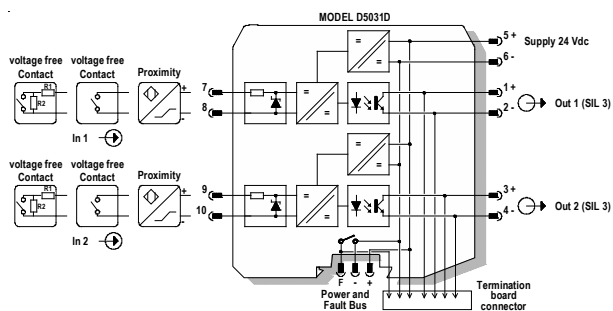
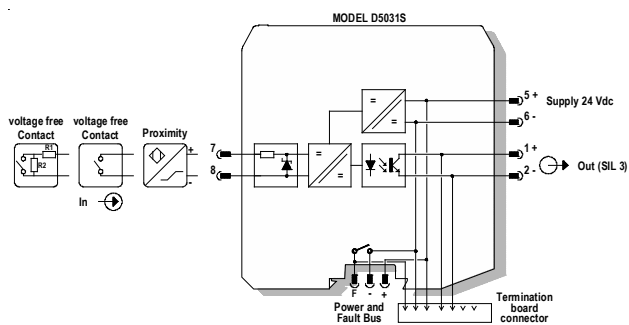
- SIL 3 / SC 3
- Input from Zone 0/Div. 1
- Installation in Zone 2/Div. 2
- 2 fully independent channels
- High frequency transistor output
- Field open and short circuit detection
- In-field programmability by DIP Switch
- Three port isolation, Input/Output/Supply
- High Density, two channels per unit

FUNCTION DIAGRAM

Additional installation diagrams may be found in Instruction Manual.

Hazardous Area

Safe Area/Zone 2/Div. 2



TECHNICAL DATA

Supply

24 Vdc nom (18 to 30 Vdc), reverse polarity protected.

Current consumption: 22 mA (D5031D), 12 mA (D5031S), @ 24 Vdc with short circuit input and transistor closed, typical.

Power dissipation: 0.53 W (D5031D), 0.30 W (D5031S), @ 24 Vdc with short circuit input and transistor closed, typical.

Input

Input switching current levels: ON ≥ 2.1 mA, OFF ≤ 1.2 mA.

Fault current levels: open fault ≤ 0.2 mA, short fault ≥ 6.8 mA.

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

Output

Voltage free SPST optocoupled open-collector transistor.

Open-collector/drain rating: 100 mA @ 35 Vdc (≤ 1.5 V voltage drop).

Leakage current: ≤ 50 μ A @ 35 Vdc.

Response time: ≤ 100 μ s.

Frequency response: 5 kHz maximum.

Isolation

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.

Environmental conditions

Operating temperature: temperature limits -40 to $+70$ $^{\circ}$ C.

Storage temperature: temperature limits -45 to $+80$ $^{\circ}$ C.

Safety description

Associated apparatus and non-sparking electrical equipment.

$U_o = 10.5$ V, $I_o = 22$ mA, $P_o = 56$ mW at terminals 7-8, 9-10.

$U_m = 250$ Vrms or Vdc, -40 $^{\circ}$ C $\leq T_a \leq 70$ $^{\circ}$ C.

Mounting

DIN-Rail 35 mm, with or without Power Bus or on custom Term. Board.

Weight: about 130 g (D5031D), 110 g (D5031S).

Connection: by polarized plug-in disconnect screw terminal blocks to accommodate terminations up to 2.5 mm² (13 AWG).

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

ORDERING INFORMATION

D5031S: 1 channel

D5031D: 2 channels

Accessories

Bus Connector JDFT049, Bus Mounting Kit OPT5096.