

# D5038

## I.S. SIL3 Line-Fault Transp. Switch/Prox. Repeater

The Switch/Proximity Detector Repeater D5038 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 the output in Safe Area. The output port can assume two different impedance values (RL or RH) or it can open completely. The module output repeats the input state according to the following correspondence: low input state -> RL, high input state -> RH. Alternatively, the output can be configured to invert the input state. In both cases, the output opens if any fault (open or short circuit) occurs at the corresponding input.

### FEATURES

- SIL 3 / SC 3
- Input from Zone 0/Div. 1
- Installation in Zone 2/Div. 2
- Field open and short circuit detection
- Field fault universal mirroring to PLC DI
- Line monitoring transparency
- In-field programmability by DIP Switch
- Three port isolation, Input/Output/Supply
- High Density, two channels per unit

### ORDERING INFORMATION

#### Ordering codes

D5038xy

x: S → 1 channel; D → 2 channels; X → duplicator

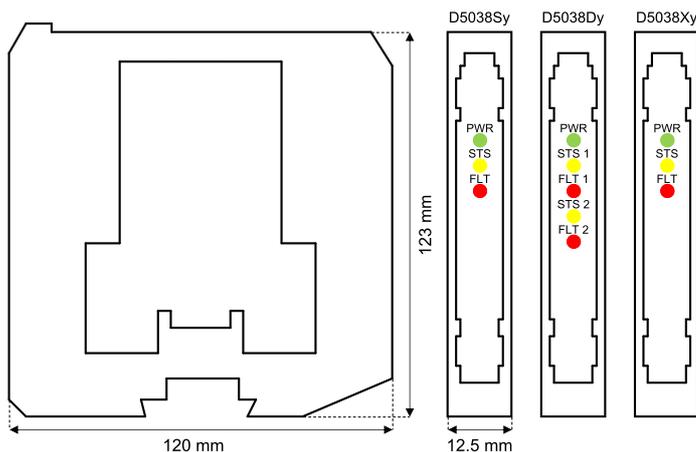
y: A → RL = 2.2 kΩ, RH = 14.3 kΩ; B → RL = 476 Ω, RH = 1.38 kΩ

C → RL = 5 kΩ, RH = 15 kΩ; D → RL = 0 Ω, RH = 33.2 kΩ

#### Accessories

Bus Connector JDFT049, Bus Mounting Kit OPT5096.

### OVERALL DIMENSIONS



### TECHNICAL DATA

#### Supply

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

**Current consumption:** 30 mA (D5038D), 25 mA (D5038X), 15 mA (D5038S), @ 24 Vdc, typical.

**Power dissipation:** 1.0 W (D5038D), 1.0 W (D5038X), 0.4 W (D5038S), @ 24 Vdc, typical.

#### Input

**Input switching current levels:** ON  $\geq$  2.1 mA, OFF  $\leq$  1.2 mA.

**Open fault:** current  $\leq$  0.05 mA.

**Short fault:** resistance  $\leq$  100 Ω.

**No fault:** current  $\geq$  0.35 mA and resistance  $\geq$  360 Ω.

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

#### Output

Voltage free SPST solid-state relays, with series (RL) and parallel (RH-RL) resistances,  $\pm$ 5% tolerance.

**Fault impedance:** > 1 MΩ.

**Max voltage:** 30 Vdc.

**Max current:** 15 mA.

**Response time:** 500 μs.

**Frequency response:** 1 kHz maximum.

#### Isolation

I.S. In/Out 1.5 kV; I.S. In/Supply 1.5 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 °C.

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

#### Safety description

Associated apparatus and non-sparking electrical equipment.

U<sub>o</sub> = 10.5 V, I<sub>o</sub> = 22 mA, P<sub>o</sub> = 56 mW at terminals 7-8, 9-10.

U<sub>m</sub> = 250 Vrms or Vdc, -40 °C  $\leq$  T<sub>a</sub>  $\leq$  70 °C.

#### Mounting

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

**Weight:** about 135 g (D5038D and D5038X), 120 g (D5038S).

**Connection:** by polarized plug-in disconnect screw terminal blocks to accommodate terminations up to 2.5 mm<sup>2</sup> (13 AWG).

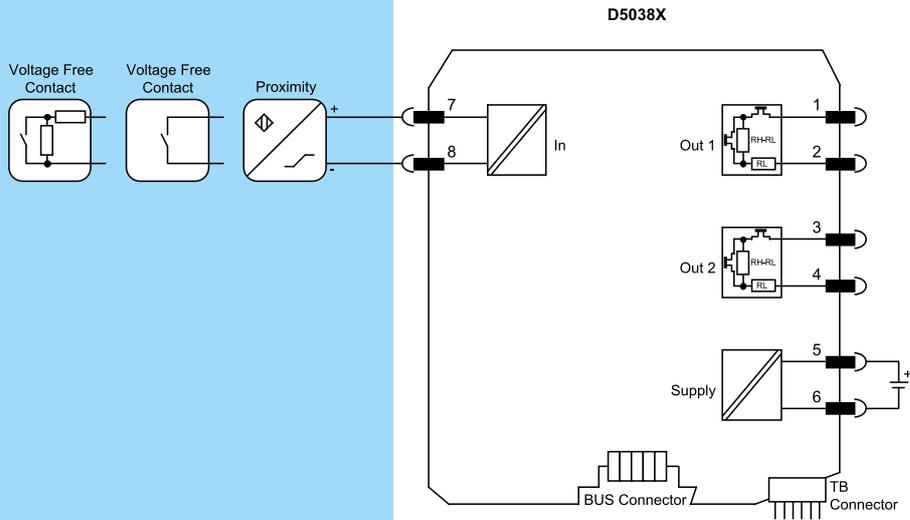
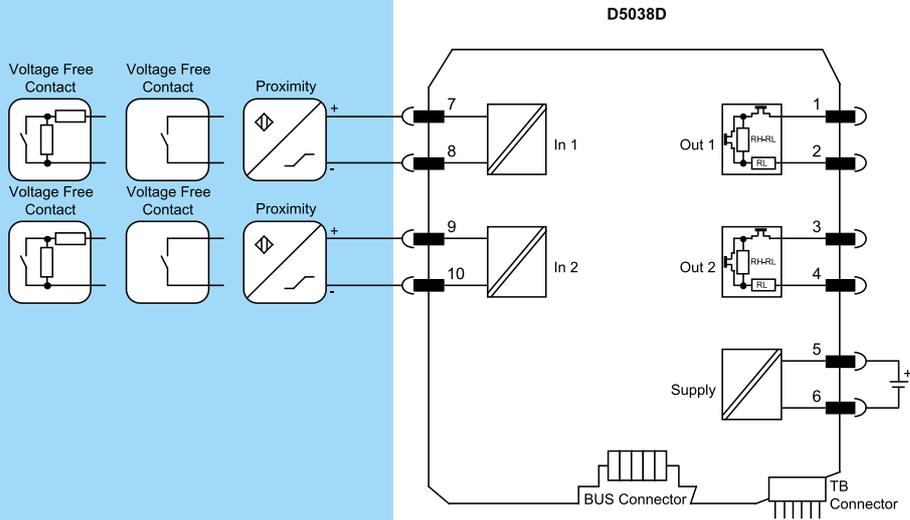
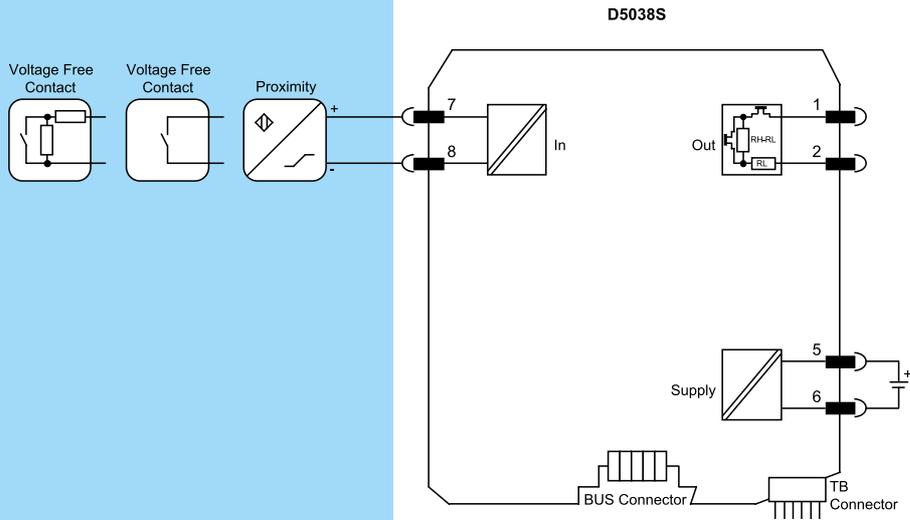
**Dimensions:** Width 12.5 mm, Depth 123 mm, Height 120 mm.

# FUNCTION DIAGRAM

Additional installation diagrams may be found in Instruction Manual.

## Hazardous Area

## Safe Area/Zone 2/Div. 2



Functional Safety Management Certification: GM International is certified to conform to IEC61508:2010 part 1 clauses 5-6 for safety related systems up to and included SIL3. In addition, GM International products have been granted I.S. certificates from the most credited Notified Bodies in the world.

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