# D5096-106

## SIL3 Relay Low-V Module for 5 A NE/ND Loads with LFD

The D5096-106 is a relay module suitable for switching safety related circuits, up to SIL 3 level, for high risk industries. It provides isolation between input and output contacts. It makes available 2+2 NO relay contacts connected in parallel and then in series to avoid spurious trip and to increase process availability. High process availability SIL 3 Safety Function for both Normally Energized (NE) and Normally De-energized (ND) / F&G loads is available. Load can be isolated from supply on both polarities. This model is specifically designed to reach high functional safety at input voltage. Line and load short/open circuit detection and load voltage monitoring are provided, both when the load is off and when the load is on. The fault in the field is directly mirrored to the PLC DO and it is also reported by opening the fault output.

## FEATURES

- SIL 3 / SC 3 for NE/ND loads with NE/ND driver
- Installation in Zone 2/Div. 2
- Up to 5 A functional / 6 A inrush current
- Low input voltage
- Load disconnection on both supply lines available
- High process availability to avoid spurious trips
- Compatible with DCS/PLC pulse testing
- Line & Load short/open circuit detection
- Load voltage monitoring
- Field fault mirroring to the PLC DO
- Service contact available
- Input/Output/Supply isolation

## ORDERING INFORMATION

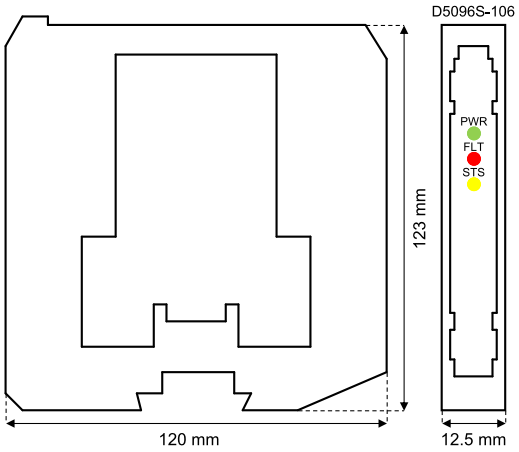
### Ordering codes

D5096S-106: 1 channel

### 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:** 15 mA @ 24 Vdc, typical.
**Power dissipation:** 0.35 W @ 24 Vdc, typical.

### Input

24 Vdc nom (20 to 28.8 Vdc), reverse polarity protected. Relay coils are internally protected with suppressor diodes.
**Current consumption:** 45 mA @ 24 Vdc, typical.
**Power dissipation:** 1.1 W @ 24 Vdc, typical.

### Output

Voltage free 2+2 SPST relay contact (2 paralleled contacts in series) at terminals 7-11 and 8-12, close when relay energized, open in de-energized condition.
**Contact material:** Ag Alloy (Cd free), gold plated.
**Contact rating:** 5 A 250 Vac 1250 VA, 5 A 250 Vdc 140 W (resistive load).
**Contact min. switching current:** 1 mA.
**Contact inrush current:** 6 A @ 24 Vdc, 250 Vac.
**DC and AC load breaking capacity:** refer to Instruction Manual.
**Contact current derating:** refer to Instruction Manual.
**Mechanical / electrical life: :** $5 * 10^6$ / $3 * 10^4$ operation, typical.
**Operate / release time:** 30 ms / 30 ms, typical.

### Fault

Load & line short/open circuit, supply voltage monitoring.
**Line/load off ok:** 25 Ω ≤ resistance ≤ 19 kΩ, typical.
**Line/load off fault:** resistance ≤ 15 Ω or ≥ 21 kΩ, typical.
**Line/load on ok:** 15 mA rms ≤ current ≤ 5 A rms, typical.
**Line/load on fault:** current ≤ 5 mA rms or ≥ 6 A rms, typical.
**Load supply voltage ok:** ≥ 20 Vdc/Vac, typical.
**Load supply voltage fault:** ≤ 5 Vdc/Vac, typical.
**Fault signalling:** voltage free NE SPST optocoupled open-collector transistor (output de-energized in fault condition).
**Fault rating:** 100 mA @ 35 Vdc.
**Fault output voltage drop:** < 1 V.
**Response time:** 0.5 s, typical.

### Isolation

Out/In 1.5 kV; Out/Supply 1.5 kV; Out/Fault Out 1.5 kV; In/Supply 500 V; In/Fault Out 500 V; Supply/Fault Out 500 V.

### Environmental conditions

**Operating temperature:** temperature limits –40 to +70 °C.
**Storage temperature:** temperature limits -45 to +80 °C.

### Mounting

DIN-Rail 35 mm, with or without Power Bus or on custom Term. Board.
**Weight:** about 125 g.
**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.



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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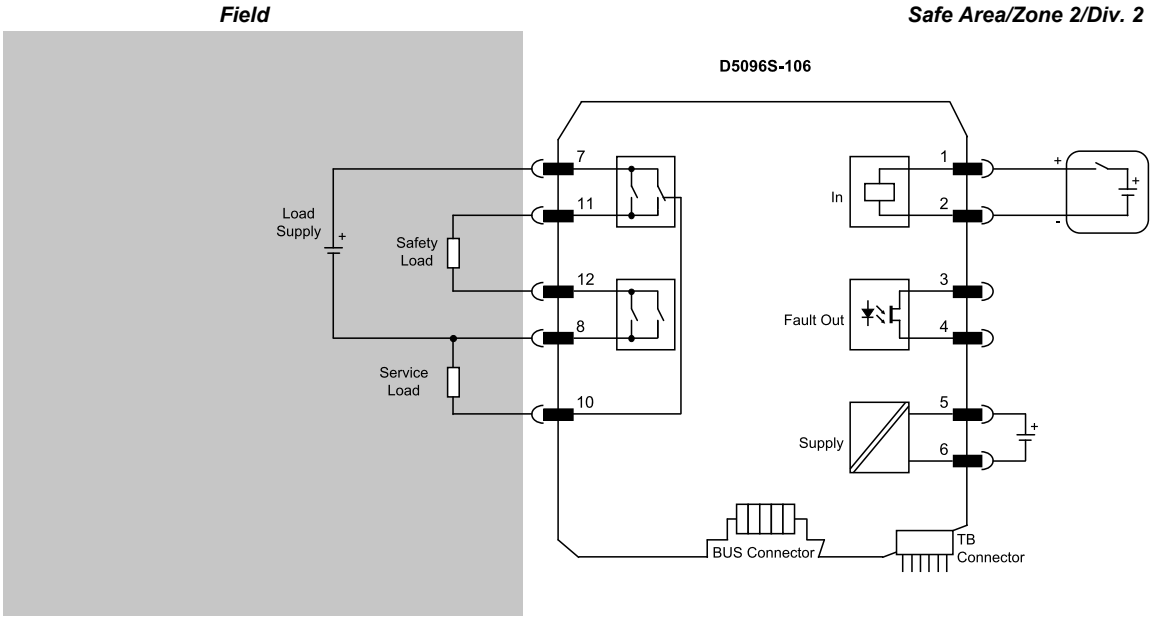
## FUNCTION DIAGRAM

Additional installation diagrams may be found in Instruction Manual.



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