

D5048

I.S. SIL3 Loop-Powered Digital Output Driver

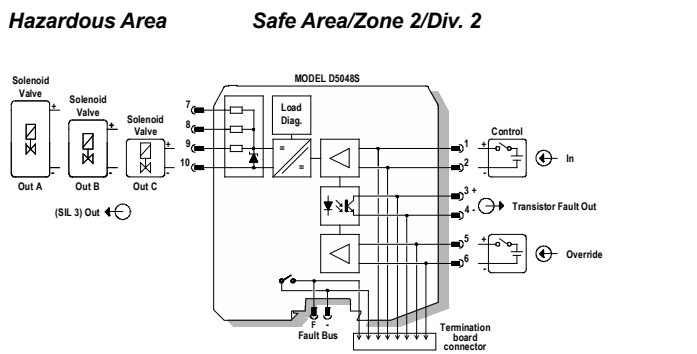
The Loop-Powered Digital Output Driver D5048 is a module suitable for applications requiring SIL 3 level in safety related systems for high risk industries. It can drive solenoid valves, visual or audible alarms to alert a plant operator, or other process control devices in Hazardous Area from control signals located in Safe Area. They can also be used as switchable supplies to power measuring or process control equipments. Line and load open/short circuit detection is provided, 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. If required, the override input can switch off the output regardless of the input status. For each channel three basic output circuits are selectable, with different safety parameters, to interface the majority of devices on the market.

FEATURES

- SIL 3 / SC 3
- Output to Zone 0/Div. 1
- Installation in Zone 2/Div. 2
- Loop powered for NE loads
- Line & Load short/open circuit detection
- Output short circuit proof
- In-field programmability by DIP Switch
- Three port isolation, Input/Output/Fault

FUNCTION DIAGRAM

Additional installation diagrams may be found in Instruction Manual.



TECHNICAL DATA

Input

Loop powered control signal.

Voltage range: 24 Vdc nom (20 to 30 Vdc), reverse polarity protected.

Current consumption: 65 mA @ 24 Vdc with 45 mA output, typical, ≤ 10 mA when fault circuit enabled and fault condition detected.

Power dissipation: 1.1 W @ 24 Vdc with 45 mA output, typical.

Override input

Override control signal de-energizes output when enabled by dip-switch.

Voltage range: 0 V ≤ OFF ≤ 5 V, 20 V ≤ ON ≤ 30 V, reverse polarity protected.

Current consumption: 15 mA @ 24 Vdc, typical.

Output

45 mA @ 13.0 V (21.0 V no load, 174 Ω series resistance) at terminals 7-10 Out A. 45 mA @ 10.2 V (21.0 V no load, 236 Ω series resistance) at terminals 8-10 Out B. 45 mA @ 8.5 V (21.0 V no load, 275 Ω series resistance) at terminals 9-10 Out C.

Short circuit current: ≥ 50 mA, 55 mA typical.

Output diagram : refer to Instruction Manual.

Response time: ≤ 75 ms.

Fault

Field device and wiring open circuit or short circuit detection dip-switch selectable. When fault is detected, output is de-energized until normal condition is restored.

Short output: load resistance ≤ 50 Ω (≈ 2 mA forcing to detect fault).

Open output: load resistance > 10 kΩ.

Fault signalling: voltage free NE SPST optocoupled open-collector transistor (output de-energized in fault condition).

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

Leakage current: ≤ 50 µA @ 35 Vdc.

Response time: ≤ 75 ms.

Isolation

I.S. Out/In 2.5kV; I.S. Out/Fault 2.5kV; I.S. Out/Override 2.5kV; In/Fault 500 V; In/Override 500 V; Fault/Override 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_o = 24.8 V, I_o = 147 mA, P_o = 907 mW at terminals 7-10 Out A.

U_o = 24.8 V, I_o = 108 mA, P_o = 667 mW at terminals 8-10 Out B.

U_o = 24.8 V, I_o = 93 mA, P_o = 571 mW at terminals 9-10 Out C.

U_m = 250 Vrms or Vdc, -40 °C ≤ T_a ≤ 70 °C.

Mounting

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

Weight: about 130 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.

ORDERING INFORMATION

D5048S: 1 channel

Accessories

Bus Connector JDFT049, Bus Mounting Kit OPT5096.