

D5294

SIL3 Relay Out Module for 5 A NE/ND Loads with LFD

The D5294 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. A wide compatibility towards different DCS/PLC is guaranteed: driving pulse testing is permitted by a dedicated internal circuit, which prevents contact and LED flickering. 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. Diagnostic parameters are programmable and can also be monitored/configured through Modbus.

FEATURES

- SIL 3 / SC 3 for NE/ND loads with NE/ND driver
- SIL 2 / SC 3 for FAULT OUTPUTS
- Installation in Zone 2/Div. 2
- Up to 5 A functional / 6 A inrush current
- Load disconnection on both supply lines available
- High process availability to avoid spurious trips
- Compatible with DCS/PLC pulse testing
- Line and Load short/open circuit detection
- Load voltage monitoring
- Earth leakage monitoring
- Internal coil integrity monitoring
- Field fault mirroring to the PLC DO
- Modbus RTU RS-485 for monitor & configuration
- Service contact available
- Input/Output/Supply isolation

ORDERING INFORMATION

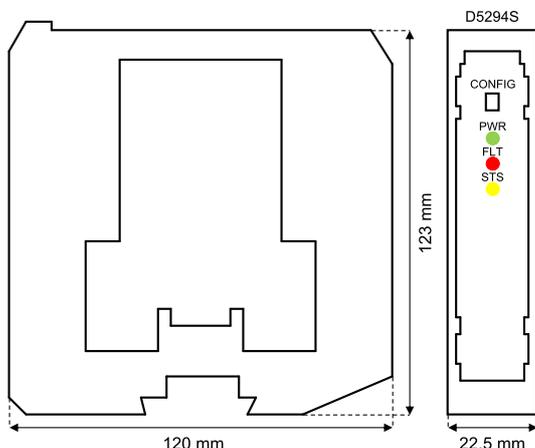
Ordering codes

D5294S: 1 channel

Accessories

Bus Connector JDFT050, Bus Mounting Kit OPT5096.
Programmable USB serial line Kit PPC5092 + SWC5090.

OVERALL DIMENSIONS



TECHNICAL DATA

Supply

24 Vdc nom (18 to 30 Vdc), reverse polarity protected.
Current consumption: 45 mA @ 24 Vdc (no fault), typical.
Power dissipation: 1.1 W @ 24 Vdc (no fault), typical.

Input

24 Vdc nom (21.6 to 27.6 Vdc), reverse polarity protected. Relay coils are internally protected with suppressor diodes.
Current consumption: 40 mA @ 24 Vdc (no fault), typical.
Power dissipation: 1.0 W @ 24 Vdc (no fault), typical.

Output

Voltage free 2+2 SPST relay contact (2 paralleled contacts in series) at terminals 13-15 and 14-16, 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 * 10⁶ / 3 * 10⁴ operation, typical.
Operate / release time: 30 ms / 30 ms, typical.

Fault

Load & line short/open circuit, supply voltage and earth leakage monitor.
Diagnostics equivalent source: when the load is off, the diagnostic circuit forces a sensing signal: 5.5 V open circuit, 10 mA short circuit, typical.
Line + load resistance: programmable up to 50 kΩ.
Load current: programmable up to 5 A.
Load supply voltage: programmable up to 250 Vdc/Vac.
Load earth leakage: programmable up to 3 MΩ.
Fault signalling: voltage free DPST contact.
Fault 1 rating: 0.5 A 30 Vac 15 VA, 0.5 A 50 Vdc 25 W (resistive load).
Fault 2 rating: 3 A 250 Vac 750 VA, 3 A 125 Vdc 120 W (resistive load).
Response time: 4 s, typical.

Modbus interface

Modbus RTU RS-485 up to 115.2 kbps for monitor/configuration/control.

Isolation

Output/Input 2.5 kV; Output/Supply 2.5 kV; Output/Fault Outputs 2.5 kV; Output/RS485 Modbus 2.5 kV; Input/Supply 500 V; Input/Fault Output 1 500 V; Input/Fault Output 2 2.5 kV; Input/RS485 Modbus 500 V; Supply/Fault Output 1 500 V; Supply/Fault Output 2 2.5 kV; Supply/RS485 Modbus 500 V.

Environmental conditions

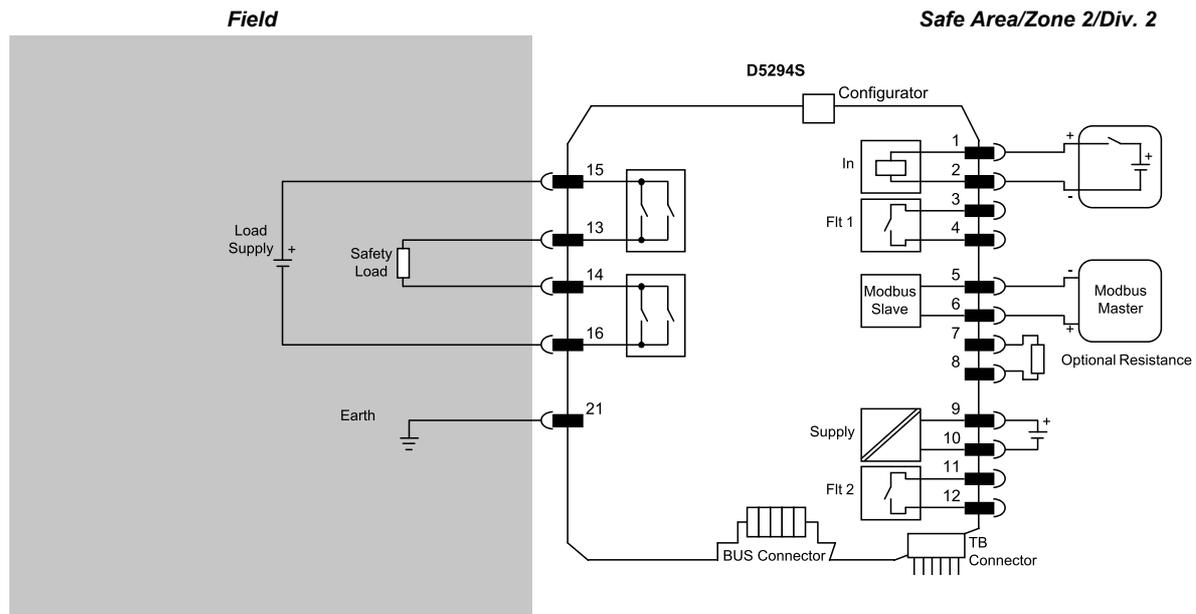
Operating temperature: temperature limits -40 to +70 °C.
Storage temperature: temperature limits -45 to +80 °C.

Mounting

DIN-Rail 35 mm, with or without Power Bus or on custom Term. Board.
Weight: about 195 g.
Connection: by polarized plug-in disconnect screw terminal blocks to accommodate terminations up to 2.5 mm² (13 AWG).
Dimensions: Width 22.5 mm, Depth 123 mm, Height 120 mm.

FUNCTION DIAGRAM

Additional installation diagrams may be found in Instruction Manual.



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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