SIL 3 Digital Output Driver, NE Loads
Bus Powered, DIN-Rail
Model D1049S

Characteristics:

General Description:
The single channel DIN-Rail Bus Powered Digital Output Isolator, D1049S, is suitable for driving solenoid valves, visual or audible alarms to alert a plant operator, or other process control devices in Hazardous Area from a driving signal in Safe Area.

The Safety PLC or DCS driving signal controls the field device through the D1049S, which provides isolation and is capable of monitoring the conditions of the line.

Short and open circuit diagnostic monitoring, dip-switch selectable, operates irrespective of the output condition and provides LED indication and NC transistor output signaling.

When fault is detected output is de-energized until normal condition is restored.

An override input, dip-switch selectable, is provided to permit a safety system to override the control signal. When enabled, a low input voltage always de-energizes the field device regardless of the input signal.

Three basic output circuits are selectable, with different safety parameters, to interface the majority of devices on the market. The selection among the three output characteristics is obtained by connecting the field device to a different terminal block.

Function:
1 channel I.S. digital output to operate Hazardous Area normally energized loads from contacts, logic levels or driven logics in Safe Area.

It provides 3 port isolation (input/output/supply).

Signalling LEDs:
Power supply indication (green), outputs status (yellow), fault condition (red).

Field Configurability:
Line Fault Detection enable or disable and Override Control Input enable or disable.

EMC:
Compliant with CE Marking applicable requirements.

Functional Safety Management certification:
G.M. International is certified by TUV to conform to IEC61508:2010 part 1 clauses 5-6 for safety related systems up to and included SIL3.

Front Panel and Features:

- SIL 3 according to IEC 61508:2010 Ed. 2 for
  - Tproof = 12 / 20 yrs (≤10% / >10 % of total SILF).
  - PFDavg (1 year) 8.32 E-06, SFF 98.90 %.
- SIL 3 Systematic capability.
- Output to Zone 0 (Zone 20), Division 1, installation in Zone 2, Division 2.
- Bus powered for NE loads.
- Short and open circuit line diagnostic monitoring with LED, transistor output.
- Output short circuit proof and current limited.
- Three port isolation, Input/Output/Supply.
- EMC Compatibility to EN61000-6-2, EN61000-6-4, EN61326-1.
- In-field programmability by DIP Switch.
- ATEX, IECEx, FM & CC, INMETRO, EAC-EX, UKTR T R. 898, TUV Certifications.
- TÜV Functional Safety Certification.
- Type Approval Certificate DNV for marine applications.
- High Reliability, SMD components.
- Simplified installation using standard DIN-Rail and plug-in terminal blocks.
- 250 Vrms (Um) max. voltage allowed to the instruments associated with the barrier.

Technical Data:

Supply: 24 Vdc nom (20 to 30 Vdc) reverse polarity protected.

ripple within voltage limits ≤ 5 Vpp, 2 A time lag fuse internally protected.

Current consumption @ 24 V: 65 mA with 45 mA output typical in normal operation.

Power dissipation: 1.1 W with 24 V supply, output energized at 45 mA nominal load.

Max. power consumption: at 30 V supply voltage, 1.8 W.

Isolation (Test Voltage):
I.S. Out 1.5 KV; I.S. Out/Supply 1.5 KV; I.S. Out/Fault 1.5 KV; I.S. Out/Override 1.5 KV; I.S. Out/Fault 500 V; I.S. Out/Fault 500 V; I.S. Out/Override 500 V; I.S. Out/Fault 500 V; I.S. Out/Override 500 V.

Control Input: switch contact, logic level reverse polarity protected.

Trip voltage levels:
- Off status ≤ 5.0 V, On status ≥ 20.0 V (maximum 30 V).
- Current consumption @ 24 V: ≤ 5 mA.

Override range: 24 Vdc nom (20 to 30 Vdc) to disable (field device controlled by input, 0 V to 5 Vdc to de-energizes field device, reverse polarity protected.

Current consumption @ 24 V: ≤ 2 mA.

Output:
- 45 mA at 13.0 V (210 V no load, 236 V series resistance) at terminals 13-16 Out A.
- 45 mA at 10.2 V (210 V no load, 236 V series resistance) at terminals 14-16 Out B.
- 45 mA at 8.5 V (210 V no load, 275 V series resistance) at terminals 15-16 Out C.

Front Panel and Features:

1 2 3 4
5 6 7 8
9 10 11 12
13 14 15 16

Ordering Information:

Model: D1049S
Power Bus enclosure /B

Power Bus and DIN-Rail accessories:
DIN rail anchor MOHPRX05
DIN rail stopper MOR016
Terminal block male MOR017
Terminal block female MOR022

G.M. International DTS0247-9 Page 1/2

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### Parameters Table:

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<thead>
<tr>
<th>Safety Description</th>
<th>Maximum External Parameters</th>
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<td>Group Cenelec</td>
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<td>Terminals 13-16</td>
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**NOTE for USA and Canada:**
- IIC equal to Gas Groups A, B, C, D, E, F and G
- IIB equal to Gas Groups C, D, E, F and G
- II A equal to Gas Groups D, E, F and G

### Function Diagram:

**HAZARDOUS AREA ZONE 0 (ZONE 20) GROUP IIC, HAZARDOUS LOCATIONS CLASS I, DIVISION 1, GROUPS A, B, C, D, CLASS II, DIVISION 1, GROUPS E, F, G, CLASS III, DIVISION 1, CLASS I, ZONE 0, GROUP IIC**

**SAFE AREA, ZONE 2 GROUP IIC T4, NON HAZARDOUS LOCATIONS, CLASS I, DIVISION 2, GROUPS A, B, C, D T-Code T4, CLASS I, ZONE 2, GROUP IIC T4**

**MODEL D1049S**

Use only one output at a time (Out A or Out B or Out C)