X1-IS-DO-01

I.S. SIL3 Digital Output Driver

The Digital Output Driver X1-IS-DO-01 module is suitable for energizing safety related circuits, up to SIL 3 level, for high risk industries. It can drive solenoid valves, visual or audible alarms to alert a plant operator, or other actuators 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. On the field side, the three most widespread Intrinsic Safety valve family parameters are supported. On the system side, a wide compatibility range towards different DCS/PLC is guaranteed: driving pulse testing is permitted by a dedicated internal circuit, which prevents spurious activations and LED flickering, while offering an acceptable resistance to the DO Card. To ease maintenance operations, field devices can be disconnected through a two-position insertion/extraction mechanism. This product requires a dedicated Termination Board.

FEATURES

- SIL 3 / SC 3 (pending)
- Input from Zone 0 / Division 1
- Installation in Zone 2 / Division 2
- Loop disconnection to ease maintenance operations
- Mechanical polarization key to prevent destructive mismatches
- Short-circuit proof
- Three different IS valve family parameters supported
- Compatible with DCS/PLC pulse testing
- Three port isolation, Input/Output/Supply

GATEWAY

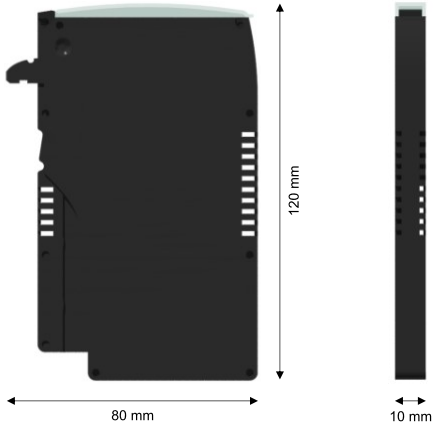
X1 Series Gateway family X1-GW makes optional features available. See Instruction Manual for the specific functions available in this model.

ORDERING INFORMATION

Ordering codes

X1-IS-DO-01-S: 1 channel

OVERALL DIMENSIONS



TECHNICAL DATA

General

Power dissipation: 1.25 W @ 24 Vdc with 40 mA Field Out C (maximum dissipation), 24 Vdc System In, typical.

System Supply

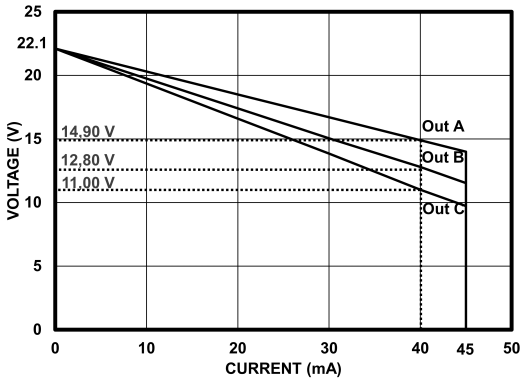
24 Vdc nom (18 to 28.8 Vdc).
Current consumption: 59 mA, @ 24 Vdc with 40 mA Field Out, typical.

System In

24 Vdc nom (18 to 28.8 Vdc).
Current consumption: 11 mA @ 24 Vdc, typical.
Input impedance: 2.2 kΩ, typical.

Field Out

Three different output characteristics, Out A, Out B and Out C.
Max working current: 40 mA (up to 60 °C for any output). Out A: linear derating from 40 mA (60 °C) down to 35 mA (70 °C). Out B/C: linear derating from 40 mA (60 °C) down to 30 mA (70 °C).
Short circuit current: 45 mA, typical.
Response time: 50 ms.
Output typical characteristics:



Isolation

Field Out/System In 2.5 kV; Field Out/System Supply 2.5 kV; System In/System Supply 500 V.

Environmental conditions

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

Safety description

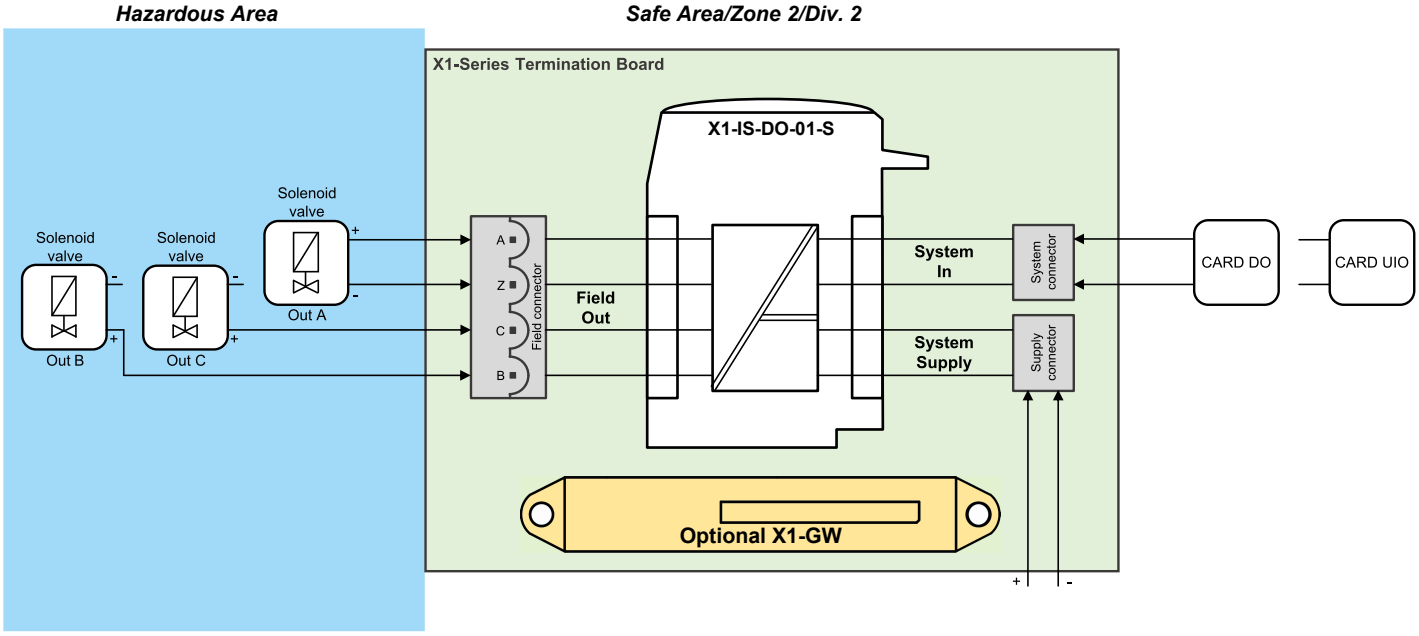
Associated apparatus and non-sparking electrical equipment.
Uo = 25.3 V, Io = 143 mA, Po = 905 mW at terminals A-Z (Out A).
Uo = 25.3 V, Io = 110 mA, Po = 696 mW at terminals B-Z (Out B).
Uo = 25.3 V, Io = 94 mA, Po = 595 mW at terminals C-Z (Out C).
Um = 250 Vrms or Vdc, -40 °C ≤ Ta ≤ 70 °C.

Mounting

On custom Termination Board.
Weight: about 55 g.
Dimensions: Width 10 mm, Depth 80 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.

FUNCTION DIAGRAM



*Additional installation diagrams may be found in Instruction Manual.

FSM SIL 3

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