X1-IS-DI-02

I.S. SIL2 Switch/Proximity Transistor-Out Repeater

The Switch/Proximity Detector Repeater X1-IS-DI-02 is a module suitable for applications requiring SIL 2 level in safety related systems for high risk industries. The unit can be configured for switches or proximity detectors, located in Hazardous Area, and repeats the input state to an open-collector transistor in Safe Area. The selectable fault detection circuit is available for proximity sensors or switches equipped with end-of-line resistors. When selected, the fault drives the common line and may also force the output open, if required. Input to output function can be inverted. 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 2 / SC 2 (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
- High frequency transistor output
- Field open and short circuit detection (software programmable)
- Inverted output available (software programmable)
- Three port isolation, Input/Output/Supply

GATEWAY

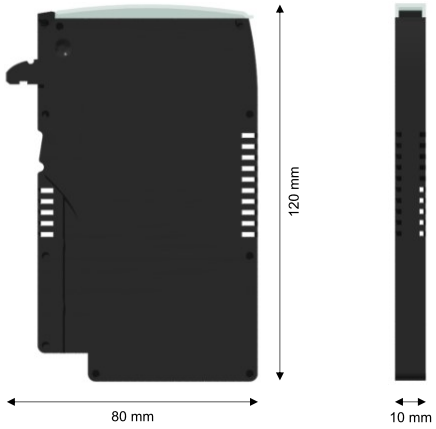
X1 Series Gateway family X1-GW makes available Identification, Internal Diagnostics, Configuration and Monitoring functions. See model Instruction Manual for available parameters, and X1-GW Instruction Manual for connectivity and operation.

ORDERING INFORMATION

Ordering codes

X1-IS-DI-02-S: 1 channel

OVERALL DIMENSIONS



TECHNICAL DATA

General

Power dissipation: 0.4 W @ 24 Vdc with short circuit input and 50 mA output current, typical.

System Supply

24 Vdc nom (18 to 28.8 Vdc).
Current consumption: 13 mA @ 24 Vdc with short circuit input and closed output, typical.

System Out

Voltage free SPST optocoupled open-collector transistor. System Out dependence on Field In and fault is programmable through software.
Max voltage: 35 Vdc.
Max current: 50 mA.
Max voltage drop: 1.5 V @ 50 mA.
Leakage current: ≤ 50 µA @ 35 Vdc.
Response time: ≤ 1 ms.
Frequency response: 500 Hz maximum.

Field In

Voltage source according to NAMUR standard.
Input equivalent source: 8 V/1 kΩ typical (8 V no load, 8 mA short).
Input switching current levels: ON ≥ 2.1 mA, OFF ≤ 1.2 mA.
No fault: input current ≥ 0.35 mA and input resistance ≥ 360 Ω.
Open fault: input current ≤ 0.05 mA.
Short fault: input resistance ≤ 100 Ω.

Fault

Field sensor fault is available on the common fault line, when input diagnostics is active.

Isolation

Field In/System Out 2.5 kV; Field In/System Supply 2.5 kV; System Out/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 = 10.5 V, Io = 11 mA, Po = 29 mW at terminals A-Z
Um = 250 Vrms or Vdc, -40 °C ≤ Ta ≤ 70 °C.

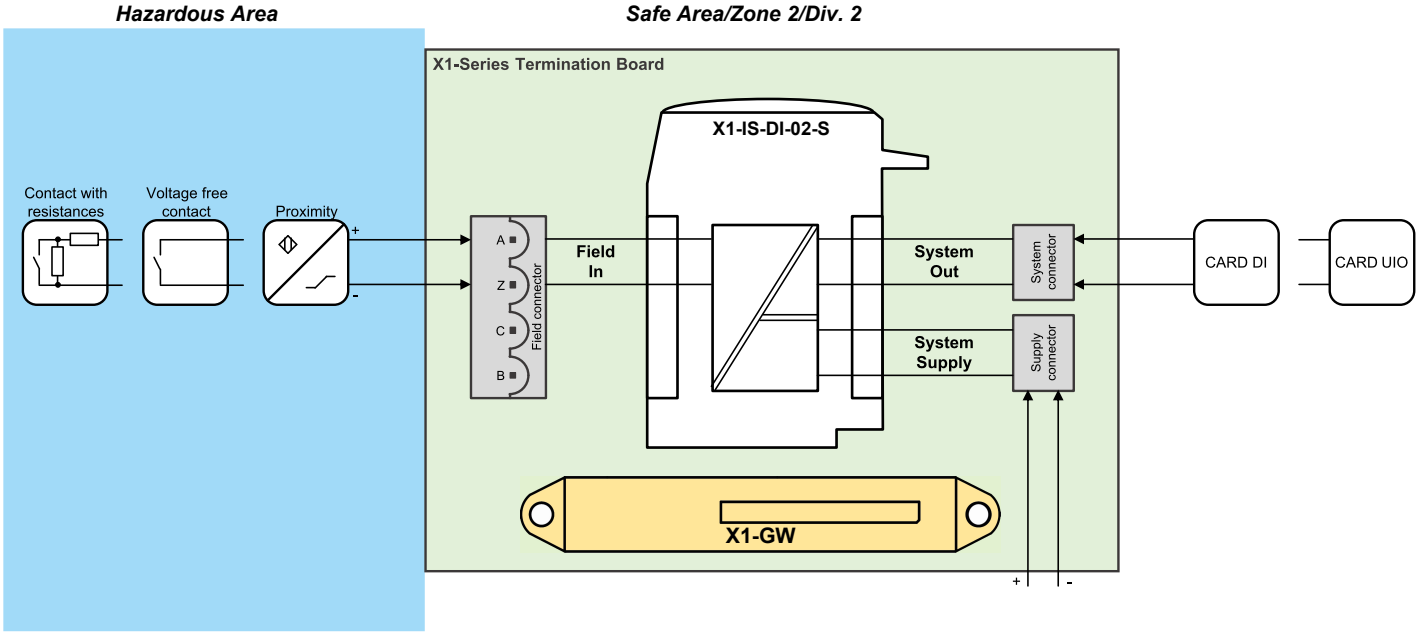
Mounting

On custom Termination Board.
Weight: about 55 g.
Dimensions: Width 10 mm, Depth 80 mm, Height 120 mm.

FSM SIL 3
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.

Data specified in this document are merely descriptive of the products and should be integrated with relevant technical specifications. Our products are in constant development and the information presented herein refers to the time of document issue. No statements concerning a certain condition or suitability for a certain application can be derived from our information. The information given does not release the user from the obligation of own judgment and verification. Terms & Conditions can be found at our website. For more information refer to istruction manual.

FUNCTION DIAGRAM



*Additional installation diagrams may be found in Instruction Manual.

FSM SIL 3

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