

Characteristics:

General Description:

The single and dual channel 24 to 220 Vac/Vdc Loop Powered Switch Repeater D5093S and D5093D modules are units suitable for applications requiring SIL 3 level (according to IEC 61508:2010 Ed.2) in safety related systems for high risk industries. Each channel is able to reflect the presence of a 24 to 220 Vac/Vdc input signal to the output by closing an optically coupled NO open-drain transistor (solid-state relay, MOSFET output).

The presence of the 24 to 220 Vac/Vdc input signal is also indicated by a yellow LED on the front panel.

The input switching voltage levels are selected, according to the applied input signal, by means of an internal dip-switch (overload protected).

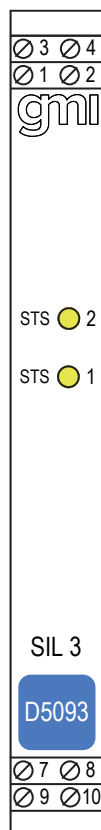
Mounting on standard DIN-Rail or on customized Termination Boards, in Safe Area / Non Hazardous Location or in Zone 2.

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 = 6 / 20 years ($\leq 10\%$ / $> 10\%$ of total SIF)
- PFDavg (1 year) 1.54 E-05, SFF 96.53 %.
- Systematic capability SIL 3.
- 2 fully independent channels (only for D5093D).
- Installation in Zone 2 / Safe Area.
- Input/Output and Channel/Channel isolation.
- EMC Compatibility to EN61000-6-2, EN61000-6-4, EN61326-1, EN61326-3-1 for safety system.
- ATEX, IECEx, UL & C-UL, UKR TR n. 898, TÜV Certifications.
- TÜV Functional Safety Certification
- Type Approval Certificate DNV and KR for maritime applications.
- High Density, two channels per unit (D5093D).
- Simplified installation using standard DIN-Rail and plug-in terminal blocks, or on customized Termination Boards.

Technical Data:

Loop Input:

loop powered control signal.

Loop Supply: 24 to 220 Vac/Vdc nominal (18 to 250 Vac/Vdc), 50 mA fuse internally protected.

Current consumption: 3 mA/channel @ 250 Vac/Vdc nominal input.

Power consumption: 0.75 W per channel with 250 Vac/Vdc input signal.

Isolation (Test Voltage):

In/Out 2.5 KV; In/In 2.5 KV; Out /Out 500 V.

Input switching voltage levels:

ON ≥ 22 Vac/Vdc, OFF ≤ 17 Vac/Vdc for 24 Vac/Vdc typical input

ON ≥ 40 Vac/Vdc, OFF ≤ 30 Vac/Vdc for 48 Vac/Vdc typical input

ON ≥ 50 Vac/Vdc, OFF ≤ 40 Vac/Vdc for 60 Vac/Vdc typical input

ON ≥ 100 Vac/Vdc, OFF ≤ 80 Vac/Vdc for 120 Vac/Vdc typical input

ON ≥ 200 Vac/Vdc, OFF ≤ 165 Vac/Vdc for 220 Vac/Vdc typical input

threshold level selection by means of internal dip-switch (overload protected).

Output:

voltage free SPST optocoupled open-drain transistor (solid-state relay, MOSFET output).

Open-drain rating: 50 mA at 35 Vdc (≤ 1 Vdc voltage drop).

Leakage current: $\leq 10 \mu\text{A}$ at 35 Vdc.

Response time: ≤ 75 ms.

Frequency response: 10 Hz maximum.

Compatibility:

CE mark compliant, conforms to Directive:

2014/34/EU ATEX, 2014/30/EU EMC, 2014/35/EU LVD, 2011/65/EU RoHS.

Environmental conditions:

Operating: temperature limits -40 to $+70$ °C, relative humidity 95 %, up to 55 °C.

Storage: temperature limits -45 to $+80$ °C.

Safety Description:



ATEX: II 3G Ex nA IIC T4 Gc

IECEx: Ex nA IIC T4 Gc

UKR TR n. 898: 2ExnAIICT4 X.

Approvals:

BVS 10 ATEX E 114 X conforms to EN60079-15, EN60079-0

IECEx BVS 10.0072X conforms to IEC60079-15, IEC60079-0

UL & C-UL E477485 conforms to ANSI/UL508

CL 16.0036 X conforms to DCTY 7113, DCTY IEC 60079-15.

TÜV Certificate No. C-IS-224248-01 SIL 3 conforms to IEC61508:2010 Ed. 2.

TÜV Certificate No. C-IS-236198-09, SIL 3 Functional Safety Certificate conforms to IEC61508:2010 Ed.2, for Management of Functional Safety.

DNV No.A-13625 and KR No.MIL20769-EL002 for maritime applications.

Mounting:

T35 DIN-Rail according to EN50022, or on customized Termination Board.

Weight: about 115 g D5093D, 105 g D5093S.

Connection: by polarized plug-in disconnect screw terminal blocks to accommodate terminations up to 2.5 mm².

Location: installation in Safe Area/Non Hazardous Locations or Zone 2, Group IIC T4.

Protection class: IP 20.

Dimensions: Width 12.5 mm, Depth 123 mm, Height 120 mm.

Ordering Information:

Model:	D5093	
1 channel		S
2 channels		D

Image:



Function Diagram:

SAFE AREA, ZONE 2 GROUP IIC T4,
NON HAZARDOUS LOCATIONS

