

Characteristics:

General Description:

The single and dual channel DIN Rail Relay Output, D1092S and D1092D are relay modules suitable for the switching of safety related circuits, up to SIL 3 level according to IEC61508, for high risk industries. It provides isolation between input and output contacts. D1092S provides 1 SPST contact for normally energized loads and 1 SPST contact for normally de-energized loads. D1092D provides 2 SPST contact for normally energized loads and 2 SPST contact for normally de-energized loads. When the relay is energized, the contacts are closed. When the relay is de-energized, the contacts are open.

Function:

1 or 2 totally independent and isolated relay for safety related circuits, provides isolation between input and output.

D1092S:

SIL 3 Safety Function for NE load (de-energized in safe state) is available at Terminal Blocks 1-2; in this case, the safety function is met when the relay is de-energized (open contact). SIL 3 Safety Function for ND load (energized in safe state) is available at Terminal Blocks 3-4; in this case, the safety function is met when the relay is energized (closed contact).

D1092D:

SIL 3 Safety Function NE load (de-energized in safe state) is available at Terminal Blocks 1-2 and Terminal Blocks 5-6; in this case, the safety function is met when the relays are de-energized (open contact). SIL 3 Safety Function for ND load (energized in safe state) is available at Terminal Blocks 3-4 and Terminal Blocks 7-8; in this case the safety function is met when the relays are energized (closed contact).

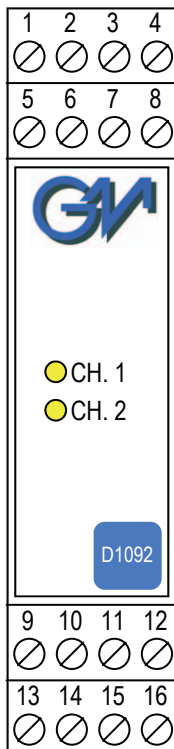
Signalling LEDs:

Relay status (yellow).

EMC:

Fully compliant with CE marking applicable requirements.

Front Panel and Features:



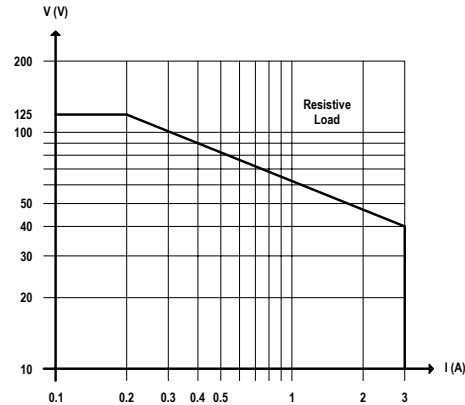
- SIL 3 according to IEC 61508 for Tproof = 10 / 20 years (10 / 20 % of total SIF) with NE Load.
- SIL 3 according to IEC 61508 for Tproof = 7 / 15 years (10 / 20 % of total SIF) with ND Load.
- PFDavg (1 year) 7.01 E-06, SFF 99.13 % with NE Load.
- PFDavg (1 year) 1.14 E-05, SFF 97.95 % with ND Load.
- Installation in Zone 2, Division 2.
- 2 fully independent channels.
- 1 SPST contact for NE load and 1 SPST contact for ND load for each channel.
- Input/Output isolation.
- EMC Compatibility to EN61000-6-2, EN61000-6-4.
- ATEX, FM & FM-C Certifications.
- TUV Certification for SIL.
- High Reliability, SMD components.
- High Density, two channels per unit.
- Simplified installation using standard DIN Rail and plug-in terminal blocks.

Ordering Information:

Model:	D1092	
1 channel		S
2 channels		D

Technical Data:

Input: 24 Vdc nom (20.4 to 27.6 Vdc) reverse polarity protected, ripple within voltage limits ≤ 5 Vpp.
Current consumption @ 24 V: 50 mA for each channel with relay energized, typical (100 mA for 2 channels D1092D when used as duplicator 1 input / 2 outputs).
Power dissipation: 1.2 W for each channel with 24 V input voltage and relay energized, typical (2.4 W for 2 channels D1092D when used as duplicator).
Max. power consumption: at 27.6 V input voltage and relay energized, 1.5 W for each channel (3.0 W for 2 channels D1092D when used as duplicator).
Isolation (Test Voltage): Input/Output 2.5 KV; Input/Input 500 V; Output/Output 2.5 KV; Output A/Output B 1.5 KV.
Output: voltage free DPST relay contact, normally open.
Contact material: Ag Alloy (Cd free).
Contact rating: 3 A 250 Vac 750 VA, 3 A 125 Vdc 120 W (resistive load).
DC Load breaking capacity:



Mechanical / Electrical life: $50 * 10^6 / 1 * 10^5$ operation, typical.

Operate / Release time: 5 / 3 ms typical.

Bounce time NO / NC contact: 3 ms.

Frequency response: 10 Hz maximum.

Compatibility:

CE CE mark compliant, conforms to 94/9/EC Atex Directive and to 2004/108/CE EMC Directive.

Environmental conditions:

Operating: temperature limits -20 to $+60$ °C, relative humidity max 90 % non condensing, up to 35 °C.

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

Safety Description:



II 3G Ex nAC IIC T4 non-incendive electrical apparatus. -20 °C \leq Ta \leq 60 °C.

Approvals: IMQ 09 ATEX 013 X conforms to EN60079-0, EN60079-15, FM & FM-C No. 3024643, 3029921C, conforms to Class 3600, 3611, 3810 and C22.2 No.142, C22.2 No.213, E60079-0, E60079-15.

TUV Certificate No. C-IS-183645-01, SIL 3 according to IEC 61508. Please refer to Functional Safety Manual for SIL applications.

Proof Test Interval: 10 years for SIL3 application with NE load or 7 years with ND load or 20 years for SIL3 application with NE load or 15 years with ND load (20 % of SIF).

Mounting:

T35 DIN Rail according to EN50022.

Weight: about 160 g D1092D, 125 g D1092S.

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

Location: Safe Area/Non Hazardous Locations or Zone 2, Group IIC T4, Class I, Division 2, Groups A, B, C, D Temperature Code T4 and Class I, Zone 2, Group IIC, IIB, IIA T4 installation.

Protection class: IP 20.

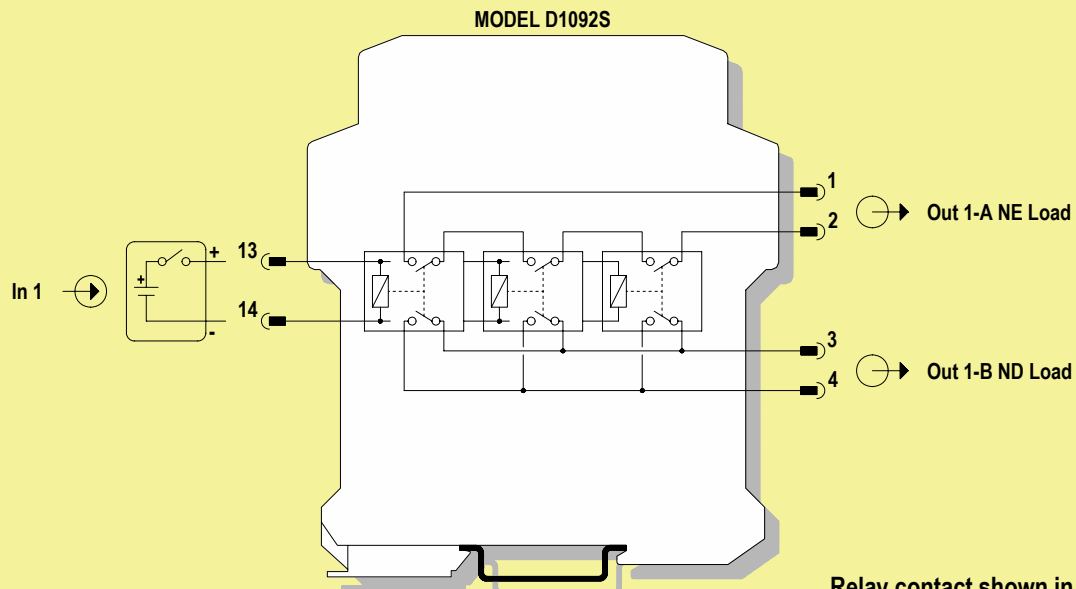
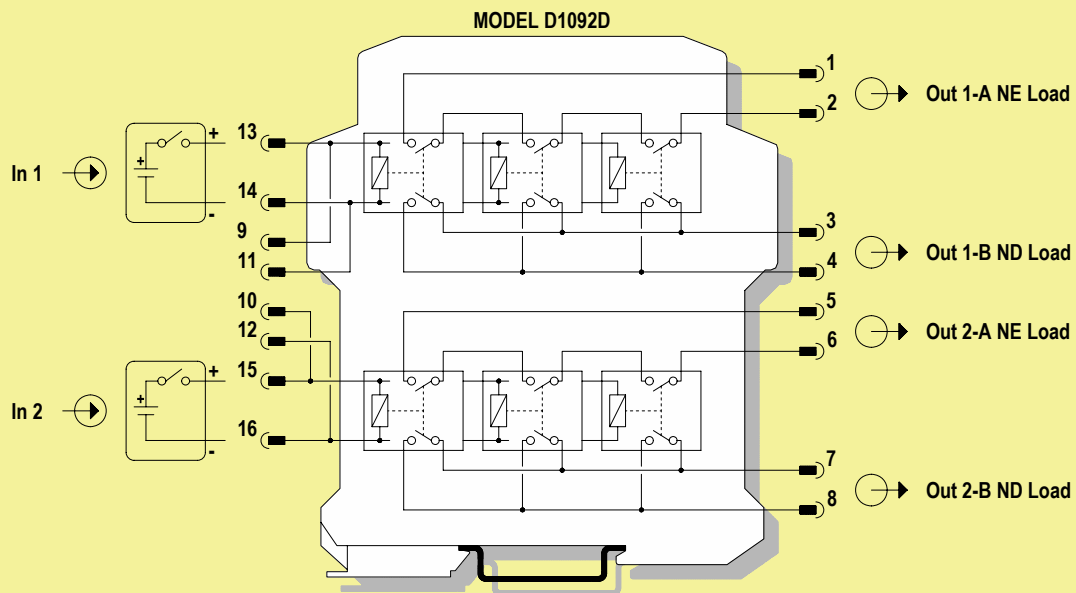
Dimensions: Width 22.5 mm, Depth 99 mm, Height 114.5 mm.

Image:



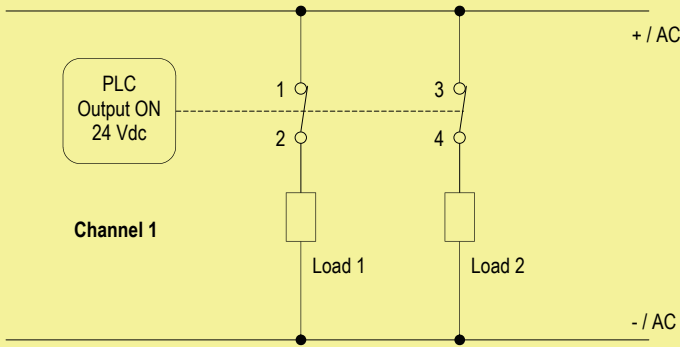
Function Diagram:

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



Relay contact shown in de-energized position

Application for D1092S - Normally Energized Condition (NE)

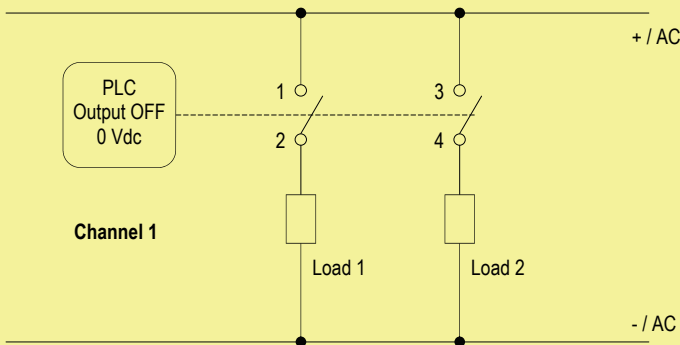


Channel 1

Contacts 1-2: SIL 3 Function is met when contacts are in open state.

Contacts 3-4: Opening of contacts can be used for monitoring Contacts 1-2. No SIL Function.

Application for D1092S - Normally De-Energized Condition (ND)

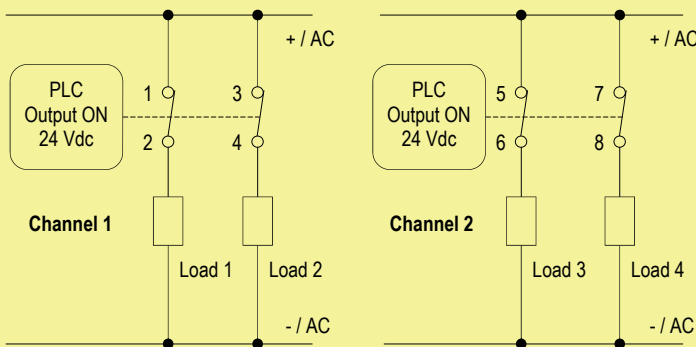


Channel 1

Contacts 1-2: Closing of contacts can be used for monitoring Contacts 3-4. No SIL Function.

Contacts 3-4: SIL 3 Function is met when contacts are in closed state.

Application for D1092D - Normally Energized Condition (NE) and two independent driving signals from PLC



Channel 1

Contacts 1-2: SIL 3 Function is met when contacts are in open state.

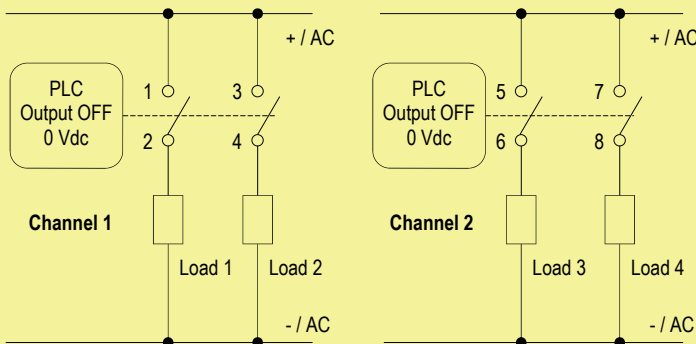
Contacts 3-4: Opening of contacts can be used for monitoring Contacts 1-2. No SIL Function.

Channel 2

Contacts 5-6: SIL 3 Function is met when contacts are in open state.

Contacts 7-8: Opening of contacts can be used for monitoring Contacts 5-6. No SIL Function.

Application for D1092D - Normally De-Energized Condition (ND) and two independent driving signals from PLC



Channel 1

Contacts 1-2: Closing of contacts can be used for monitoring Contacts 3-4. No SIL Function.

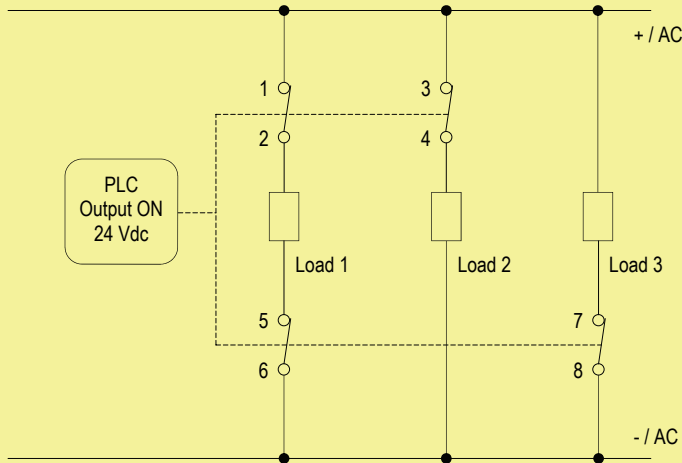
Contacts 3-4: SIL 3 Function is met when contacts are in closed state.

Channel 2

Contacts 5-6: Closing of contacts can be used for monitoring Contacts 7-8. No SIL Function.

Contacts 7-8: SIL 3 Function is met when contacts are in closed state.

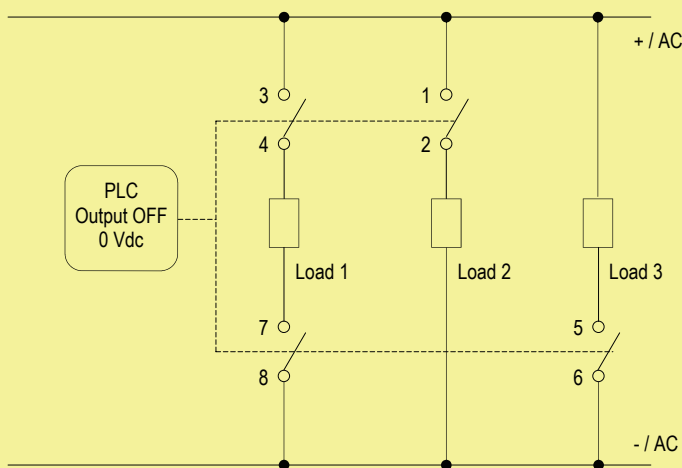
Application for D1092D - Normally Energized Condition (NE) and one common driving signal from PLC for the two relays



- Contacts 1-2:** SIL 3 Function is met when contacts are in open state.
- Contacts 3-4:** Opening of contacts can be used for monitoring Contacts 1-2. No SIL Function.
- Contacts 5-6:** SIL 3 Function is met when contacts are in open state.
- Contacts 7-8:** Opening of contacts can be used for monitoring Contacts 5-6. No SIL Function.

Note: Contacts 3-4 and 7-8 can be connected in series for common monitoring.

Application for D1092D - Normally De-Energized Condition (ND) and one common driving signal from PLC for the two relays



- Contacts 1-2:** Closing of contacts can be used for monitoring Contacts 3-4. No SIL Function.
- Contacts 3-4:** SIL 3 Function is met when contacts are in closed state.
- Contacts 5-6:** Closing of contacts can be used for monitoring Contacts 7-8. No SIL Function.
- Contacts 7-8:** SIL 3 Function is met when contacts are in closed state.

Note: Contacts 1-2 and 5-6 can be connected in series for common monitoring.