

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 IEC61508:2010 Ed. 2, 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:

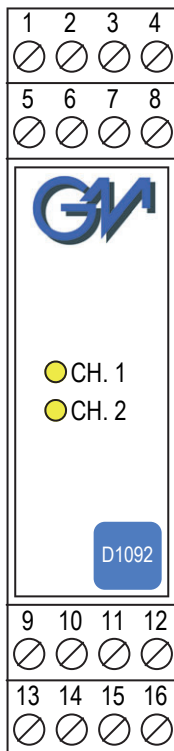
Fully compliant with CE marking applicable requirements.

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 = 14 / 20 years (10 / 20 % of total SIF) with NE Load.
- SIL 3 according to IEC 61508:2010 Ed.2 for Tproof = 9 / 19 years (10 / 20 % of total SIF) with ND Load.
- PFDavg (1 year) 7.02 E-06, SFF 99.03 % with NE Load.
- PFDavg (1 year) 1.03 E-05, SFF 97.61 % with ND Load.
- SIL 3 Systematic capability.
- 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, EN61326-1.
- ATEX, IECEx, FM & FM-C, GOST, Certifications.
- TUV Certification for SIL.
- TUV Functional Safety Certification.
- 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).

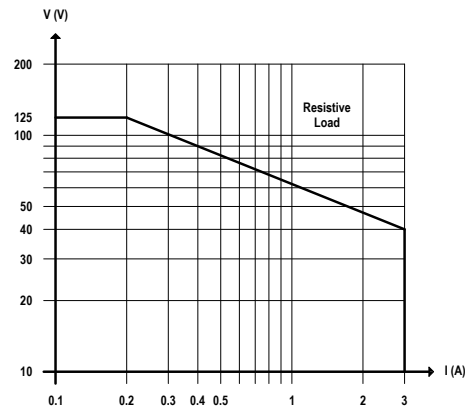
Isolation (Test Voltage): Input/Output 2.5 KV; Input/Input 500 V; Output/Output 2.5 KV; Output A/Output B 1.5 KV.

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 Directives: 94/9/EC Atex, 2004/108/CE EMC, 2006/95/EC LVD, 2011/65/EU RoHS

Environmental conditions:

Operating: temperature limits -20 to $+60$ °C, relative humidity max 95 %.

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

Safety Description:



IMQ ATEX: II 3G Ex nAC IIC T4 Gc **IMQ IECEx:** Ex nA IIC T4 Gc

FM: NI / I / 2 / ABCD / T4, NI / I / 2 / IIC / T4

FM-C: NI / I / 2 / ABCD / T4, NI / I / 2 / IIC / T4

GOST R: 2ExnACIIC T4 X. **GOST:** 2ExnACIIT4 X

non-incendive electrical apparatus.

-20 °C \leq Ta \leq 60 °C.

Approvals:

IMQ 09 ATEX 013 X conforms to EN60079-0, EN60079-15, IECEx IMQ 13.0011X conforms to IEC60079-0, IEC60079-15
 FM & FM-C No. 3024643, 3029921C, conforms to Class 3600, 3611, 3810, ANSI/ISA 12.12.02, ANSI/ISA 60079-0, C22.2 No.142, C22.2 No.213, E60079-0, E60079-15, GOST R 12.2.007.0-75, R 51330.0-99, R 51330.10-99, GOST 12.2.007.0,22782.0,22782.5
 TÜV Certificate No. C-IS-236198-03, SIL 2 / 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-13778 Certificates for maritime applications.

Mounting: T35 DIN Rail according to EN50022.

Weight: about 145 g D1092D, 110 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.

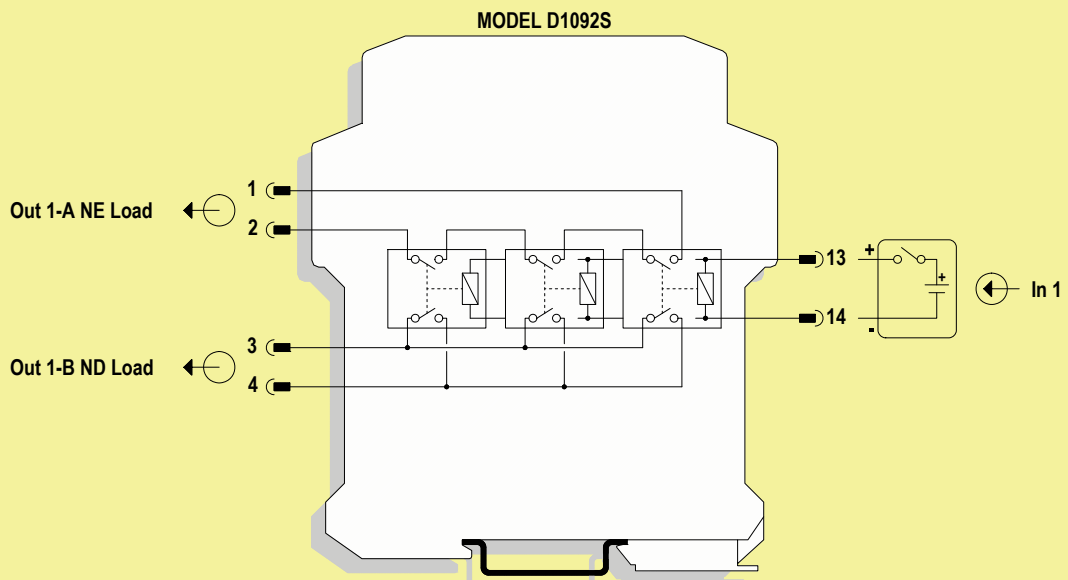
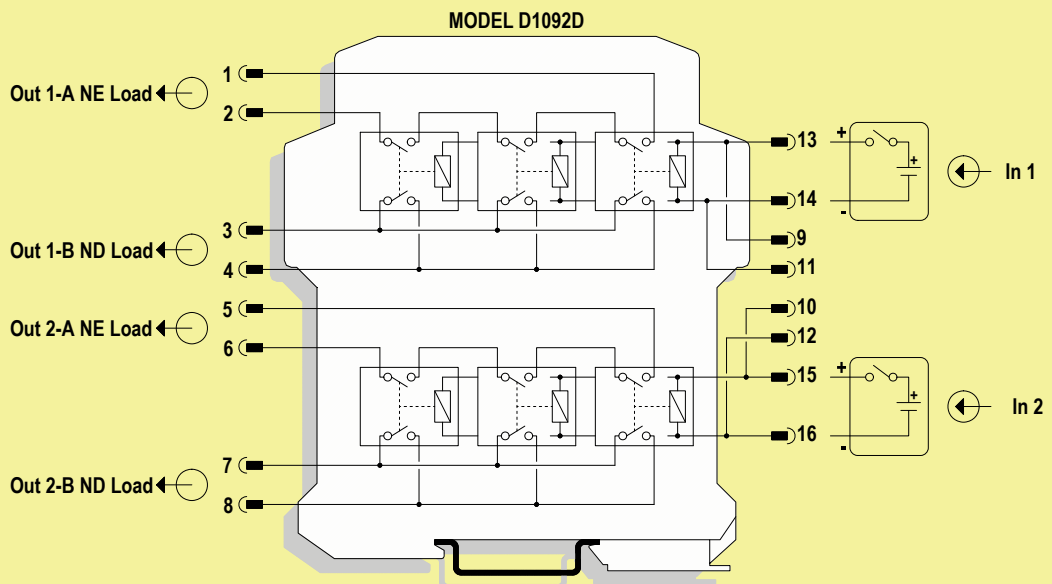
Dimensions: Width 22.5 mm, Depth 99 mm, Height 114.5 mm.

Image:



Function Diagram:

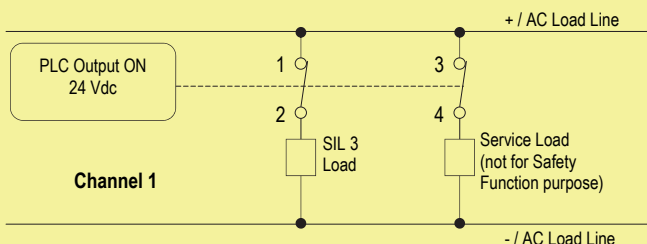
SAFE AREA, ZONE 2 GROUP IIC T4,
NON HAZARDOUS LOCATIONS, CLASS I, DIVISION 2, GROUPS A, B, C, D T-Code T4, CLASS I, ZONE 2, GROUP IIC T4



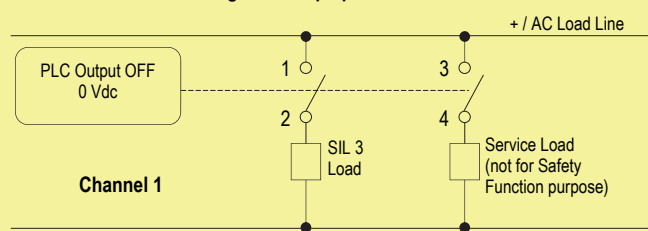
Relay contact shown in de-energized position

Application for D1092S - Normally Energized relay condition for NE Load

Normal state operation for D1092S



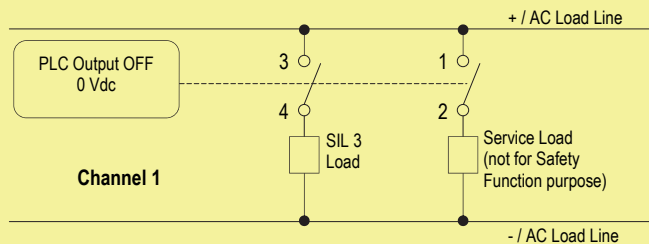
De-energized to trip operation for D1092S



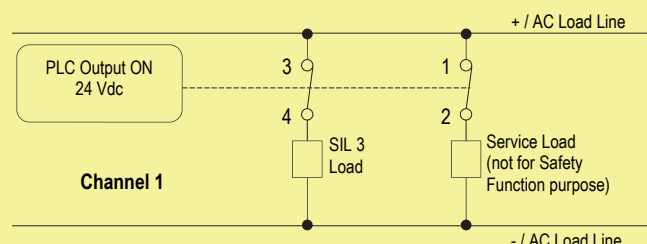
Contacts 1-2: in normal operation the relay is energized, contact is closed, SIL 3 load is energized.
Contacts 3-4: in normal operation the relay is energized, contact is closed, Service load (not for Safety Function purpose) is energized.

Contacts 1-2: the SIL 3 Safety Function is met when the relay is de-energized, contact is open, SIL 3 load is de-energized.
Contacts 3-4: opening of this contact can be used to monitor contacts 1-2. Service load (not for Safety Function purpose) is de-energized.

Application for D1092S - Normally De-energized relay condition for ND Load



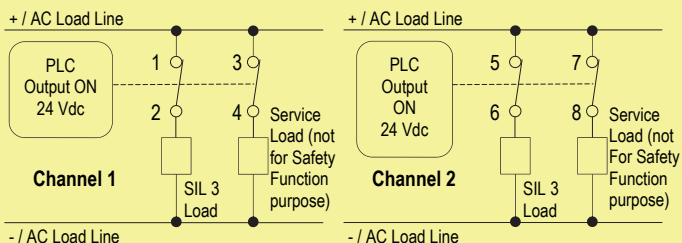
Contacts 1-2: in normal operation the relay is de-energized, contact is open, Service Load load (not for Safety Function purpose) is de-energized.
Contacts 3-4: in normal operation the relay is de-energized, contact is open, SIL 3 load is de-energized.



Contacts 1-2: closing of this contact can be used to monitor contacts 3 - 4. Service load (not for Safety Function purpose) is energized.
Contacts 3-4: the SIL 3 Safety Function is met when the relay is energized, contact is closed, SIL 3 load is energized.

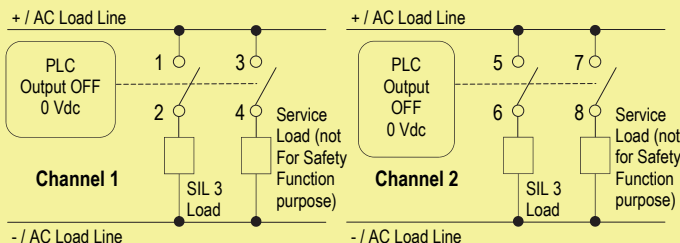
Application for D1092D - Normally Energized relay condition for NE Load

Normal state operation for D1092D



Contacts 1-2 and 5-6: in normal operation the relay is energized, contacts are closed, SIL 3 loads are energized.
Contacts 3-4 and 7-8: in normal operation the relay is energized, contacts are closed, Service loads (not for Safety Function purpose) are energized.

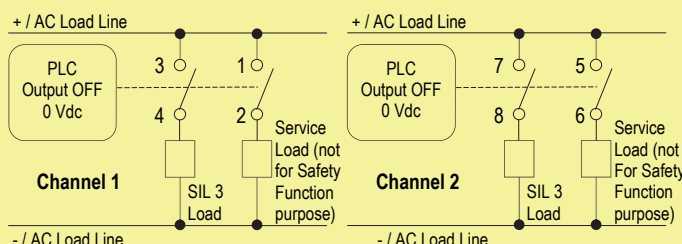
De-energized to trip operation D1092D



Contacts 1-2 and 5-6: the SIL 3 Safety Function is met when the relay is de-energized, contacts are open, SIL 3 loads are de-energized.
Contacts 3-4 and 7-8: opening of these contacts can be used to monitor contacts 1-2 and 5-6. Service loads (not for Safety Function purpose) are de-energized.

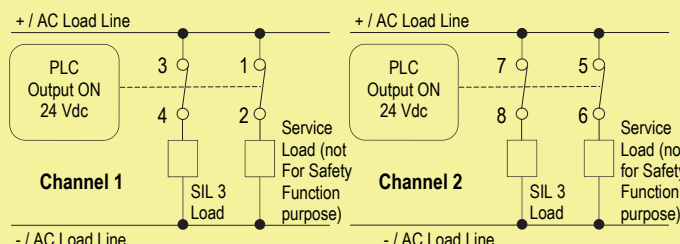
Application for D1092D - Normally De-energized relay condition for ND Load

Normal state operation for D1092D



Contacts 1-2 and 5-6: in normal operation the relay is de-energized, contacts are open, Service Load loads (not for Safety Function purpose) are de-energized.
Contacts 3-4 and 7-8: in normal operation the relay is de-energized, contacts are open, SIL 3 loads are de-energized.

Energized to trip operation D1092D



Contacts 1-2 and 5-6: closing of these contacts can be used to monitor contacts 3 - 4 and 7-8. Service loads (not for Safety Function purpose) are energized.
Contacts 3-4 and 7-8: the SIL 3 Safety Function is met when the relay is energized, contacts are closed, SIL 3 loads are energized.