

Characteristics:

General Description:

The single and dual channel DIN Rail Relay Output, D1092S-069 and D1092D-069 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. Isolation is provided between input and output contacts, and between the two channels of D1092D-069. Compatibility with specific DO cards with pulse testing needs to be verified. This relay module is not suitable for low-current consumption applications (system-to-system signalling, driving LEDs, etc.).

Function:

1 or 2 totally independent and isolated relays for safety related circuits.

D1092S-069:

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

D1092D-069:

SIL 3 Safety Function NE relay (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 contacts).

SIL 3 Safety Function for NE relay (de-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 de-energized (closed contacts).

Signalling LEDs:

Relay status (yellow).

EMC:

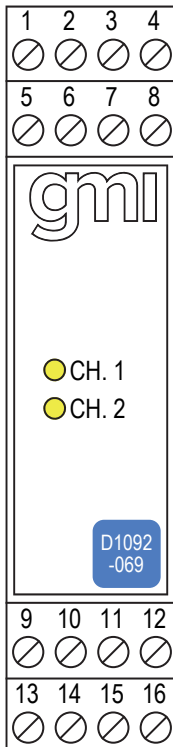
Fully compliant with CE marking applicable requirements.

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 $T_{proof} = 14 / 20$ years ($\leq 10\%$ / $> 10\%$ of total SIF) for NE Relay (1 SPST NO or NC contact).
- PFDavg (1 year) 7.02 E-06, SFF 98.99 %.
- SIL 3 Systematic capability.
- Installation in Zone 2, Division 2.
- 2 fully independent channels.
- 1 SPST NO contact and 1 SPST NC contact for each channel.
- 5 A inrush current at 30 Vdc / 250 Vac.
- Input/Output isolation.
- EMC Compatibility to EN61000-6-2, EN61000-6-4, EN61326-1.
- ATEX, IECEx, FM & FM-C, EAC-EX, UKR TR n. 898, TÜV Certifications.
- Type Approval Certificate DNV and KR for maritime applications.
- TÜV Certification for SIL.
- TÜV 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-069
2 channels	D-069

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-069 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-069 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-069 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 SPST NO + SPST NC relay contact.

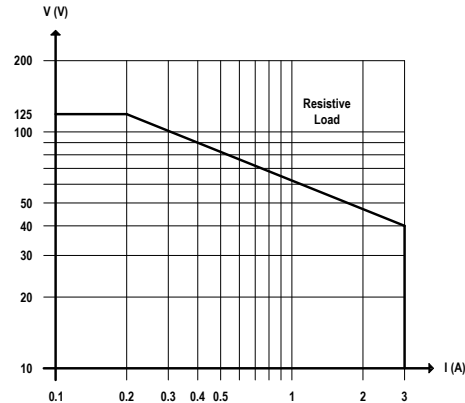
Contact material: Ag Alloy (Cd free).

Contact rating: 3 A 250 Vac 750 VA, 3 A 125 Vdc 120 W (resistive load).

Contact inrush current: 5 A at 30 Vdc, 250 Vac.

Contact min. switching current: 10 mA.

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 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 -20 to +60 °C, relative humidity max 95 %.

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

Safety Description:



ATEX: II 3G Ex ec nC IIC T4 Gc

IECEx: Ex ec nC 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

EAC-EX: 2Ex nA nC IIC T4 Gc X

UKR TR n. 898: 2ExAnCIIC T4 X

non-incendive electrical apparatus.

-20 °C \leq Ta \leq 60 °C.

Approvals:

IMQ 09 ATEX 013 X conforms to EN60079-0, EN60079-7, EN60079-15.

IECEx IMQ 13.0011X conforms to IEC60079-0, IEC60079-7, 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,

EA3C RU C-IT.HA67.B.00113/20 conforms to GOST 31610.0, GOST 31610.15

CL 16.0034 X conforms to DCTY 7113, DCTY IEC 60079-15.

TÜV Certificate No. C-IS-236198-03, SIL 3 conforms to IEC61508:2010 Ed.2.

SIL 3 Functional Safety TÜV Certificate conforms to IEC61508:2010 Ed.2,

for Management of Functional Safety.

DNV No. TAA00002BM and KR No.MIL20769-EL001 Cert. for maritime applications.

Mounting: EN/IEC60715 TH 35 DIN-Rail.

Weight: about 145 g D1092D-069, 110 g D1092S-069.

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.

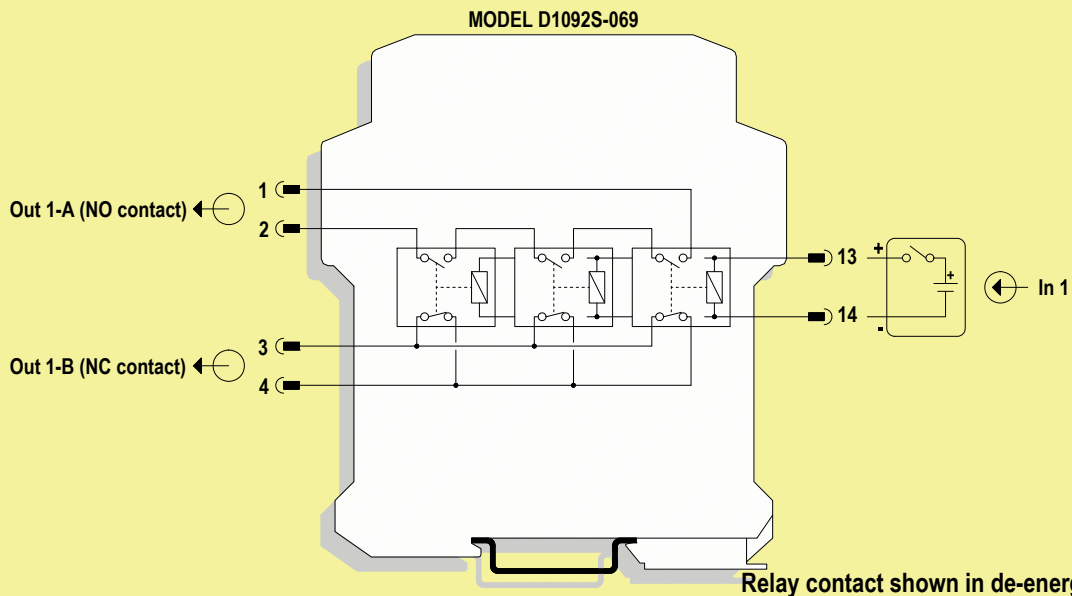
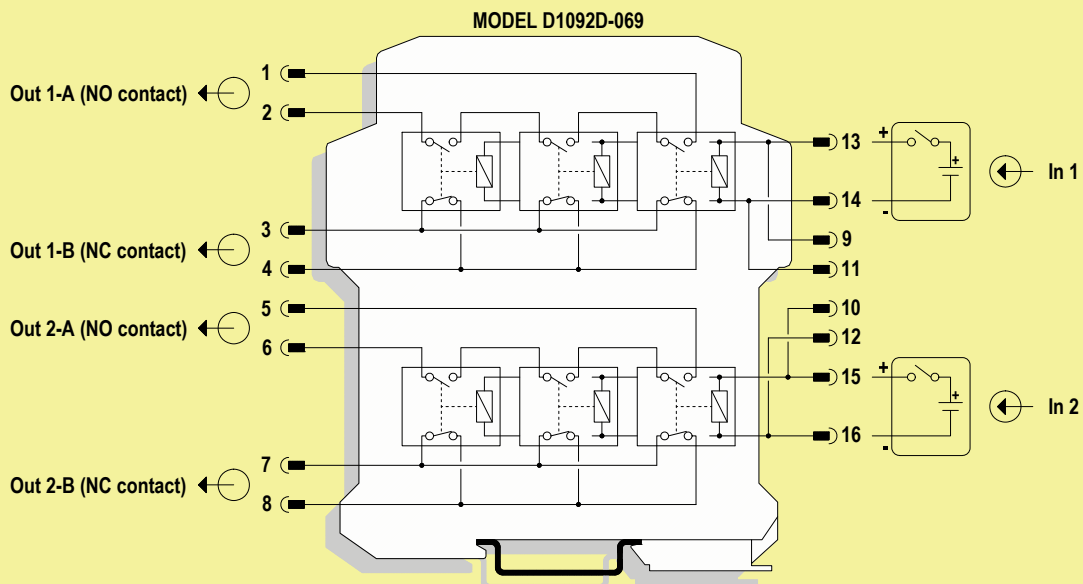
Dimensions: Width 22.5 mm, Depth 99 mm, Height 114.5 mm.

Image:



Function Diagram:

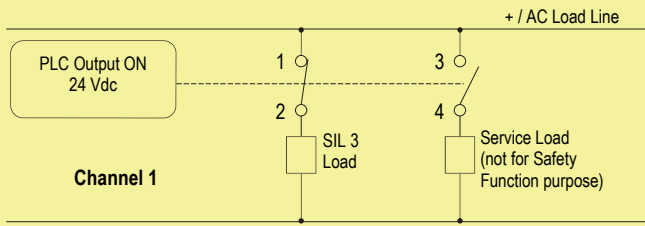
SAFE AREA, ZONE 2 GROUP IIC T4,
NON HAZARDOUS LOCATIONS, CLASS I, DIVISION 2, GROUPS A, B, C, D T-Code T4, CLASS I, ZONE 2, GROUP IIC T4



Relay contact shown in de-energized position

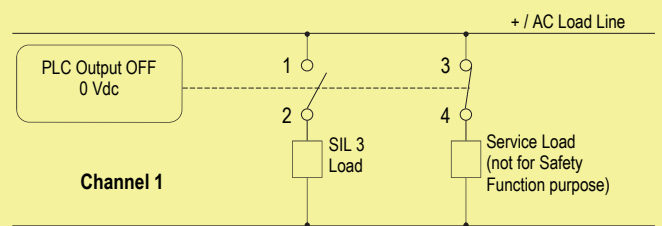
Application for D1092S-069 - Normally Energized (NE) relay condition for SPST NO output contacts

Normal state operation for D1092S-069



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 open, Service load (not for Safety Function purpose) is de-energized.

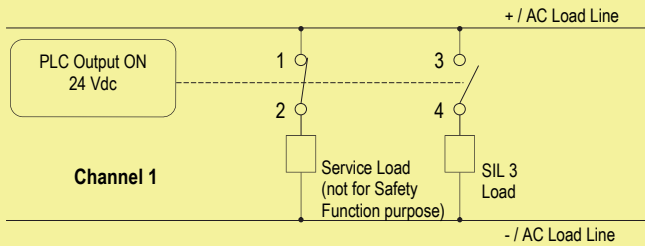
De-energized to trip operation for D1092S-069



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: closing of this contact can be used to monitor contacts 1-2. Service load (not for Safety Function purpose) is energized.

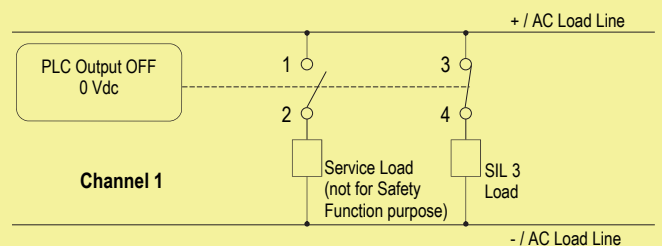
Application for D1092S-069 - Normally Energized (NE) relay condition for SPST NC output contacts

Normal state operation for D1092S-069



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

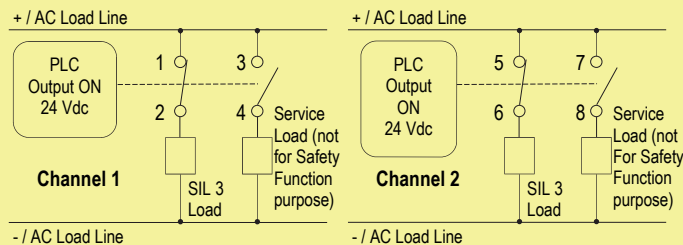
De-energized to trip operation for D1092S-069



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

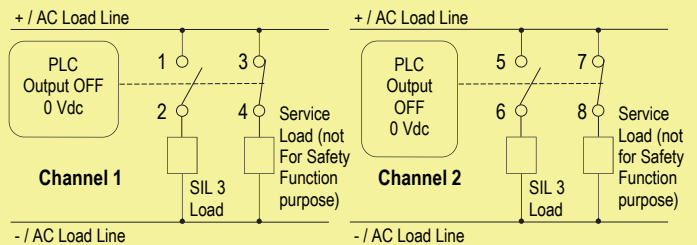
Application for D1092D-069 - Normally Energized (NE) relay condition for SPST NO output contacts

Normal state operation for D1092D-069



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 open, Service loads (not for Safety Function purpose) are de-energized.

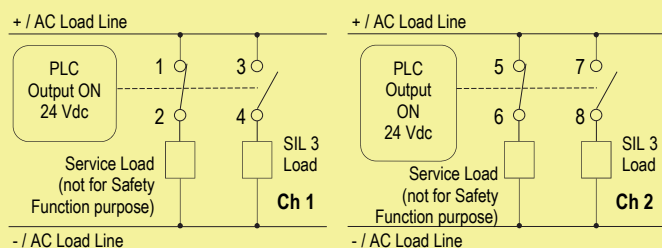
De-energized to trip operation D1092D-069



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: closing of these contacts can be used to monitor contacts 1-2 and 5-6. Service loads (not for Safety Function purpose) are energized.

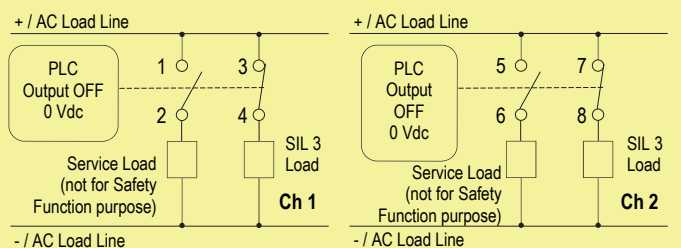
Application for D1092D-069 - Normally Energized (NE) relay condition for SPST NC output contacts

Normal state operation for D1092D-069



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

De-energized to trip operation D1092D-069



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 de-energized.
Contacts 3-4 and 7-8: the SIL 3 Safety Function is met when the relay is de-energized, contacts are closed, SIL 3 loads are energized.