

**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. 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 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:**

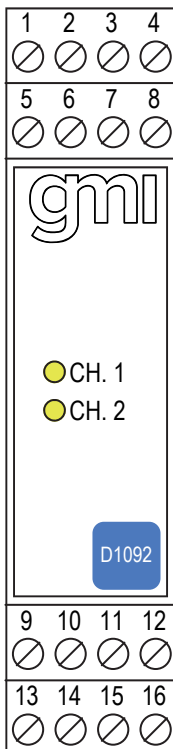
Relay status (yellow).

**EMC:**

Fully compliant with CE marking applicable requirements.



**Front Panel and Features:**



- SIL 3 according to IEC 61508:2010 Ed. 2 for Tproof = 14 / 20 years ( $\leq 10\%$  /  $> 10\%$  of total SIF) with NE Load.
- SIL 3 according to IEC 61508:2010 Ed.2 for Tproof = 9 / 20 years ( $\leq 10\%$  /  $> 10\%$  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.
- 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 for maritime applications.
- 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.

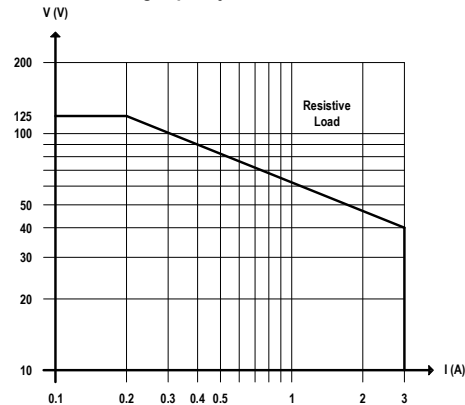
**Ordering Information:**

Model:	D1092	
1 channel		S
2 channels		D

DIN-Rail accessories:  
DIN rail stopper MOR016

**Technical Data:**

**Input:** 24 Vdc nom (20.4 to 27.6 Vdc) reverse polarity protected, ripple within voltage limits  $\leq 5$  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).  
**Contact inrush current:** 5 A at 30 Vdc, 250 Vac.  
**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 nAC IIC T4 Gc

**IECEX:** Ex nAC 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:** 2Ex nAnCIIC T4 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,

C-IT.MH04.B.00306 conforms to GOST R IEC 60079-0, GOST R IEC 60079-15.

CLJ 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.

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 mm<sup>2</sup>.

**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.

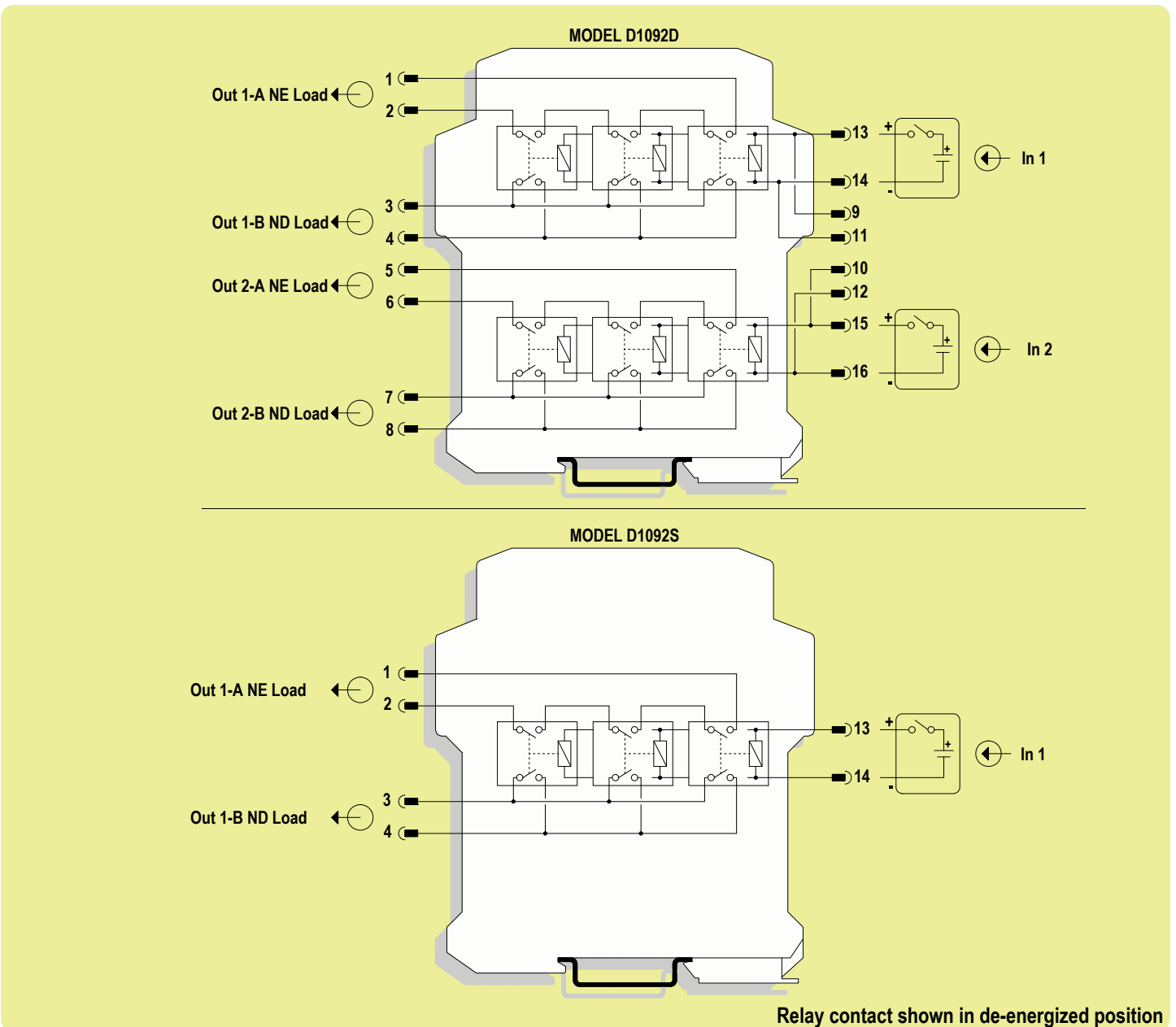
**Dimensions:** Width 22.5 mm, Depth 99 mm, Height 114.5 mm.

**Image:**



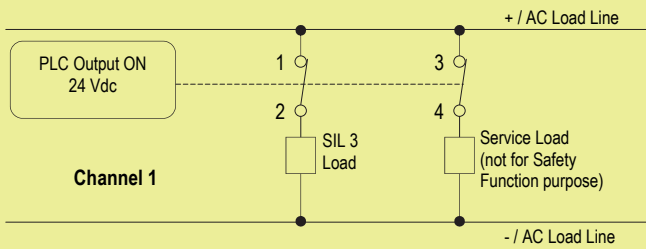
**Function Diagram:**

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



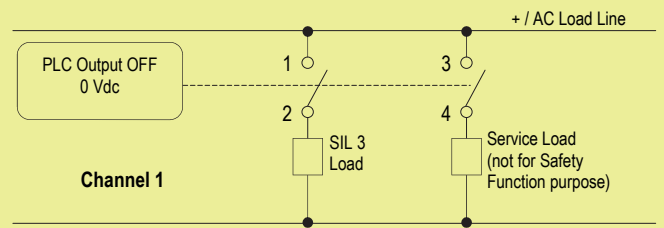
Application for D1092S - Normally Energized relay condition for NE Load

Normal state operation for D1092S



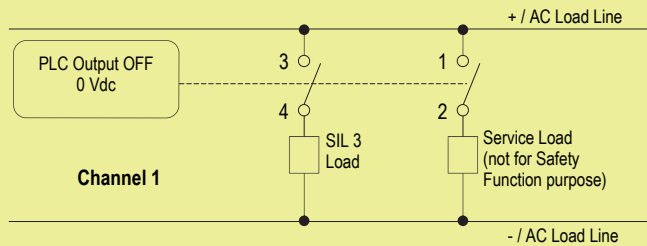
**Contacts 1-2:** in normal operation the relay is energized, contact is closed, SIL 3 load is energized.  
**Contacts 3-4:** in normal operation the relay is energized, contact is closed, Service load (not for Safety Function purpose) is energized.

De-energized to trip operation for D1092S

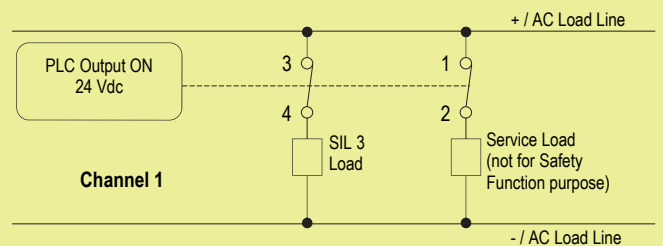


**Contacts 1-2:** the SIL 3 Safety Function is met when the relay is de-energized, contact is open, SIL 3 load is de-energized.  
**Contacts 3-4:** opening of this contact can be used to monitor contacts 1-2. Service load (not for Safety Function purpose) is de-energized.

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



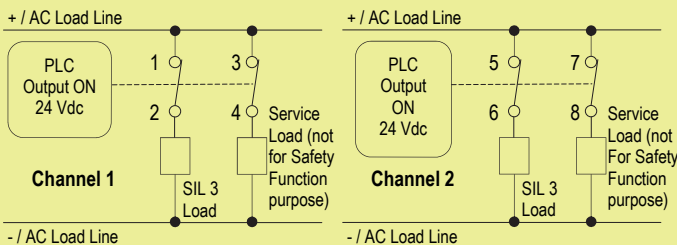
**Contacts 1-2:** in normal operation the relay is de-energized, contact is open, Service Load load (not for Safety Function purpose) is de-energized.  
**Contacts 3-4:** in normal operation the relay is de-energized, contact is open, SIL 3 load is de-energized.



**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.

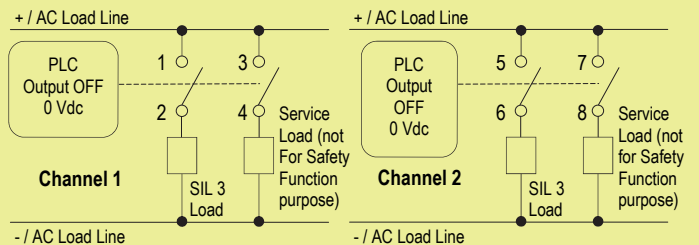
Application for D1092D - Normally Energized relay condition for NE Load

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.

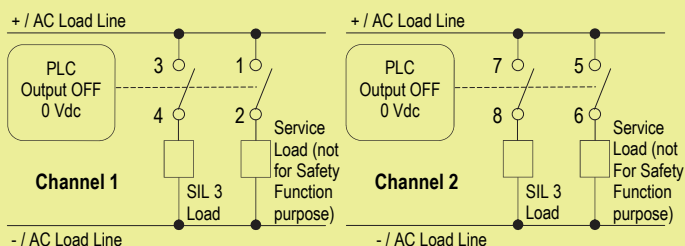
De-energized to trip operation D1092D



**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.

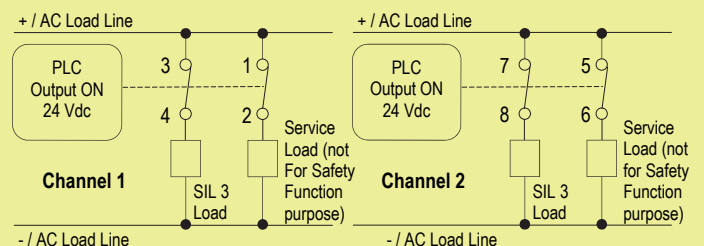
Application for D1092D - Normally De-energized relay condition for ND Load

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.