

PSR-MC38-2NO-1DO-24DC-PI - Safety relays



1009832

<https://www.phoenixcontact.com/us/products/1009832>

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Safety relay for emergency stop, safety doors and light grids up to SIL 3, Cat. 4, PL e, 1- or 2-channel operation, automatic or manual, monitored start, 2 enabling current paths, 1 signal output, TBUS interface, $U_S = 24 \text{ V DC}$, pluggable push-in terminal

Your advantages

- Up to Cat. 4/PL e in accordance with ISO 13849-1, SIL 3 in accordance with EN IEC 62061, SIL 3 in accordance with IEC 61508
- 1- and 2-channel control
- 2 enabling current paths, 1 digital signal output
- For emergency stop and safety door monitoring, plus evaluation of light grids
- TBUS interface for connecting CONTACTRON hybrid motor starters and MINI POWER power supplies

Commercial data

| | |
|--------------------------------------|---------------------|
| Item number | 1009832 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Sales key | DN01 |
| Product key | DNA181 |
| Catalog page | Page 223 (C-6-2019) |
| GTIN | 4055626482712 |
| Weight per piece (including packing) | 201.9 g |
| Weight per piece (excluding packing) | 169.38 g |
| Customs tariff number | 85371098 |
| Country of origin | DE |

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Technical data

Product properties

| | |
|----------------|--|
| Product type | Safety relays |
| Product family | PSRmini |
| Application | Emergency stop |
| | Safety door |
| | Light grid |
| | Solenoid switch |
| | Transponder |
| Relay type | Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3 |

Times

| | |
|-------------------------------|--|
| Typical response time | 30 ms (manual, monitored start) |
| | 200 ms (automatic start) |
| Typ. starting time with U_S | 200 ms (when controlled via A1) |
| Typical release time | 25 ms (when actuation is via the sensor circuit) |
| | 60 ms (when controlled via A1) |
| Restart time | < 1 s (Boot time) |
| Recovery time | < 500 ms |

Electrical properties

| | |
|---|--|
| Maximum power dissipation for nominal condition | 16.6 W (at $U_S = 26.4$ V, $I_L^2 = 72$ A ²) |
| Nominal operating mode | 100% operating factor |

Air clearances and creepage distances between the power circuits

| | |
|--------------------------|-------|
| Rated insulation voltage | 250 V |
| | 250 V |

Supply

| | |
|--|---|
| Designation | A1/A2 |
| Rated control circuit supply voltage U_S | 20.4 V DC ... 26.4 V DC |
| Rated control circuit supply voltage U_S | 24 V DC -15 % / +10 % (provide external protection) |
| Rated control supply current I_S | typ. 75 mA |
| Power consumption at U_S | typ. 1.8 W |
| Inrush current | < 4 A ($\Delta t = 3$ ms at U_S) |
| Filter time | 20 ms (at A1 in the event of voltage dips at U_S) |
| Protective circuit | Serial protection against polarity reversal; Suppressor diode |

Input data

Digital: Sensor circuit (S10, S12, S13, S22)

| | |
|--------------------------------|------------------------------|
| Description of the input | safety-related sensor inputs |
| Number of inputs | 4 |
| Input voltage range "1" signal | 20.4 V DC ... 26.4 V DC |

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| | |
|---|--|
| Inrush current | < 40 mA (typ. with U_S at S10) |
| | < 300 mA (typ. with U_S at S12, $\Delta t = 150$ ms) |
| | < 3 mA (Typically with U_S at S13) |
| | > -300 mA (Typically with U_S at S22, $\Delta t = 150$ ms) |
| Filter time | 2 ms (At S10, S12, S13; test pulse width of low test pulses) |
| | 1 s (At S10, S12, S13; test pulse rate of low test pulses) |
| | No brightness test pulses / high test pulses permitted. |
| Concurrence | ∞ |
| Max. permissible overall conductor resistance | 50 Ω |
| Protective circuit | Suppressor diode |
| Current consumption | 40 mA (typ. with U_S at S10) |
| | 45 mA (Typically with U_S at S12) |
| | 3 mA (Typically with U_S at S13) |
| | -35 mA (Typically with U_S at S22, $\Delta t = 150$ ms) |

Digital: Start circuit (Y1, S34, S35)

| | |
|---|--|
| Description of the input | non-safety-related |
| Input voltage range "1" signal | 20.4 V DC ... 26.4 V DC |
| Inrush current | < 60 mA (Typically with U_S at Y1, $\Delta t = 150$ ms) |
| | < 270 mA (Typically with U_S at S34, $\Delta t = 15$ ms) |
| | < 80 mA (Typically with U_S at S35, $\Delta t = 25$ ms) |
| Filter time | No darkness test pulses / low test pulses permitted. No brightness test pulses / high test pulses permitted. |
| Max. permissible overall conductor resistance | 50 Ω |
| Protective circuit | Suppressor diode |
| Current consumption | typ. 10 mA (Typically with U_S at Y1) |
| | typ. 34 μ A (Typically with U_S at S35) |

Output data

Relay: Enabling current path (13/14, 23/24)

| | |
|---|---|
| Output description | safety-related N/O contacts |
| | 2 NO contacts each in series, without delay, floating |
| Number of outputs | 2 (undelayed) |
| Contact switching type | 2 enabling current paths |
| Contact material | AgSnO ₂ |
| Switching voltage | min. 10 V AC/DC |
| | max. 250 V AC/DC (Observe the load curve) |
| Switching capacity | min. 100 mW |
| Inrush current | min. 10 mA |
| | max. 6 A |
| Switching capacity in accordance with IEC 60947-5-1 | 5 A (24 V (DC13)) |
| | 5 A (250 V (AC15)) |
| Limiting continuous current | 6 A |
| Sq. Total current | 72 A ² (observe derating) |

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| | |
|-------------------------|---|
| Switching frequency | max. 0.5 Hz |
| Mechanical service life | 10x 10 ⁶ cycles |
| Output fuse | 10 A gL/gG |
| | 4 A gL/gG (for low-demand applications) |

Signal: Y30

| | |
|------------------------|---------------------------------------|
| Output description | PNP |
| | non-safety-related |
| Number of outputs | 1 |
| Voltage | approx. 23.9 V DC ($U_s - 0.1$ V) |
| Current | max. 100 mA |
| Maximum inrush current | 500 mA ($\Delta t = 1$ ms at U_s) |
| Protective circuit | Suppressor diode |

Connection data

Connection technology

| | |
|-----------|-----|
| pluggable | yes |
|-----------|-----|

Conductor connection

| | |
|----------------------------------|---|
| Connection method | Push-in connection |
| Conductor cross section rigid | 0.2 mm ² ... 2.5 mm ² |
| Conductor cross section flexible | 0.2 mm ² ... 2.5 mm ² |
| Conductor cross-section AWG | 24 ... 14 |
| Stripping length | 10 mm |

Signaling

| | |
|---------------------------|----------------|
| Status display | 4 x green LEDs |
| Operating voltage display | 1 x green LED |

Dimensions

| | |
|--------|----------|
| Width | 22.5 mm |
| Height | 117.5 mm |
| Depth | 114.5 mm |

Material specifications

| | |
|------------------|-------------------|
| Color (Housing) | yellow (RAL 1018) |
| Housing material | Polyamide |

Characteristics

Safety data

| | |
|---------------|---|
| Stop category | 0 |
|---------------|---|

Safety data: EN ISO 13849

| | |
|------------------------|--|
| Category | 4 (5 A DC13; 5 A AC15; 8760 switching cycles/year) |
| Performance level (PL) | e |

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Safety data: IEC 61508 - High demand

| | |
|------------------------------|---|
| Safety Integrity Level (SIL) | 3 |
|------------------------------|---|

Safety data: IEC 61508 - Low demand

| | |
|------------------------------|---|
| Safety Integrity Level (SIL) | 3 |
|------------------------------|---|

Safety data: EN IEC 62061

| | |
|------------------------------|---|
| Safety Integrity Level (SIL) | 3 |
|------------------------------|---|

Environmental and real-life conditions

Ambient conditions

| | |
|--|---|
| Degree of protection | IP20 |
| Min. degree of protection of inst. location | IP54 |
| Ambient temperature (operation) | -20 °C ... 55 °C (observe derating) |
| Ambient temperature (storage/transport) | -40 °C ... 70 °C |
| Maximum altitude | ≤ 2000 m (Above sea level) |
| Max. permissible humidity (storage/transport) | 75 % (on average, 85% infrequently, non-condensing) |
| Max. permissible relative humidity (operation) | 75 % (on average, 85% infrequently, non-condensing) |
| Shock | 15g |
| Vibration (operation) | 10 Hz ... 150 Hz, 2g |

Approvals

CE

| | |
|----------------|--------------|
| Identification | CE-compliant |
|----------------|--------------|

Standards and regulations

Air clearances and creepage distances between the power circuits

| | |
|-----------------------|-------------|
| Standards/regulations | IEC 60664-1 |
|-----------------------|-------------|

Mounting

| | |
|-----------------------|------------------------|
| Mounting type | DIN rail mounting |
| Assembly instructions | See derating curve |
| Mounting position | vertical or horizontal |

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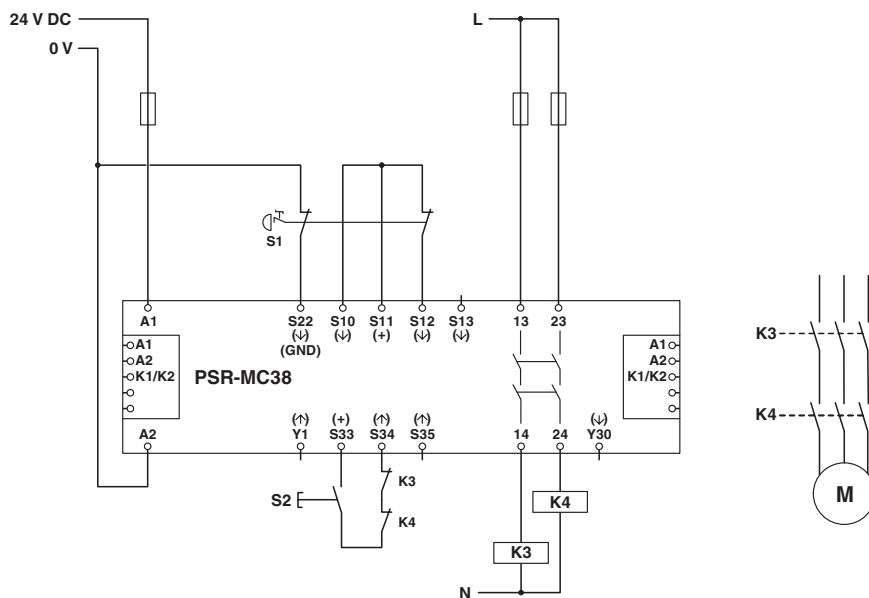


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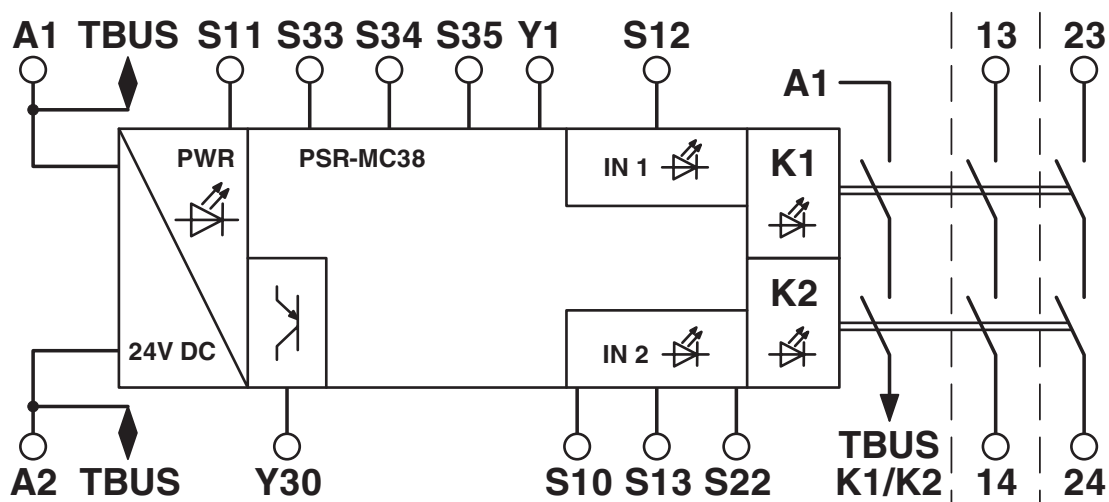
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Drawings

Circuit diagram



Block diagram




Block diagram


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Approvals


To download certificates, visit the product detail page: <https://www.phoenixcontact.com/us/products/1009832>


 **UL Listed**
Approval ID: FILE E 140324


 **cUL Listed**
Approval ID: FILE E 140324


 **Functional Safety**
Approval ID: 01/205/5651.01/22

 **Functional Safety**
Approval ID: 01/205/5651.01/22

 **cUL Listed**
Approval ID: FILE E 140324

 **UL Listed**
Approval ID: FILE E 140324

 **Functional Safety**
Approval ID: 968/FSP 1741.01/22

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Classifications

ECLASS

| | |
|-------------|----------|
| ECLASS-11.0 | 27371819 |
| ECLASS-12.0 | 27371819 |
| ECLASS-13.0 | 27371819 |

ETIM

| | |
|----------|----------|
| ETIM 9.0 | EC001449 |
|----------|----------|

UNSPSC

| | |
|-------------|----------|
| UNSPSC 21.0 | 39122200 |
|-------------|----------|

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Environmental product compliance

REACH SVHC

Lead 7439-92-1

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Accessories

PSR-TBUS - DIN rail bus connectors

2890425

<https://www.phoenixcontact.com/us/products/2890425>

DIN rail connector for safety switching devices, for supplying/controlling/monitoring (depending on the module)

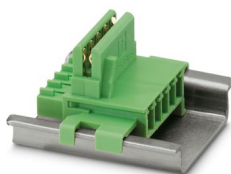


ME 17,5 TBUS 1,5/ 5-ST-3,81 GN - DIN rail bus connectors

2709561

<https://www.phoenixcontact.com/us/products/2709561>

DIN rail connector for DIN rail mounting. Universal for TBUS housing. Gold-plated contacts, 5-pos.



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ELR H5-IES-PT- 24DC/500AC-3-P - Hybrid motor starter

2909556

<https://www.phoenixcontact.com/us/products/2909556>



Hybrid motor starter as an alternative to a conventional reversing contactor. Reverses 3~ AC motors up to 3 A, provides motor protection, ATEX, and emergency stop up to SIL 3. Group shut-down, supply, and relay extension possible via DIN rail connector.

ELR H5-IES-PT- 24DC/500AC-9-P - Hybrid motor starter

2909554

<https://www.phoenixcontact.com/us/products/2909554>



Hybrid motor starter as an alternative to a conventional reversing contactor. Reverses 3~ AC motors up to 9 A, provides motor protection, ATEX, and emergency stop up to SIL 3. Group shut-down, supply, and relay extension possible via DIN rail connector.

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ELR H5-IS-SC- 24DC/500AC-3-P - Hybrid motor starter

2908699

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Hybrid motor starter as an alternative to a conventional reversing contactor. Reverses 3~ AC motors up to 3 A, provides motor protection and emergency stop up to SIL 3/PL e. Group shut-down, supply, and relay extension possible via DIN rail connector.

ELR H5-IS-SC- 24DC/500AC-9-P - Hybrid motor starter

2908697

<https://www.phoenixcontact.com/us/products/2908697>



Hybrid motor starter as an alternative to a conventional reversing contactor. Reverses 3~ AC motors up to 9 A, provides motor protection and emergency stop up to SIL 3 / PL e. Group shut-down, supply, and relay extension possible via DIN rail connector.

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ELR H5-IS-PT- 24DC/500AC-3-P - Hybrid motor starter

2909569

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Hybrid motor starter as an alternative to a conventional reversing contactor. Reverses 3~ AC motors up to 3 A, provides motor protection and emergency stop up to SIL 3/PL e. Group shut-down, supply, and relay extension possible via DIN rail connector.

ELR H5-IS-PT- 24DC/500AC-9-P - Hybrid motor starter

2909567

<https://www.phoenixcontact.com/us/products/2909567>



Hybrid motor starter as an alternative to a conventional reversing contactor. Reverses 3~ AC motors up to 9 A, provides motor protection and emergency stop up to SIL 3/PL e. Group shut-down, supply, and relay extension possible via DIN rail connector.

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ELR H3-IS-SC- 24DC/500AC-3-P - Hybrid motor starter

2908700

<https://www.phoenixcontact.com/us/products/2908700>



Hybrid motor starter as an alternative to a conventional protective circuit. Starts 3~ AC motors up to 3 A, provides motor protection and emergency stop up to SIL 3/PL e. Group shut-down, supply, and relay extension possible via DIN rail connector.

ELR H3-IS-SC- 24DC/500AC-9-P - Hybrid motor starter

2908698

<https://www.phoenixcontact.com/us/products/2908698>



Hybrid motor starter as an alternative to a conventional protective circuit. Starts 3~ AC motors up to 9 A, provides motor protection and emergency stop up to SIL 3/PL e. Group shut-down, supply, and relay extension possible via DIN rail connector.

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ELR H3-IS-PT- 24DC/500AC-3-P - Hybrid motor starter

2909570

<https://www.phoenixcontact.com/us/products/2909570>



Hybrid motor starter as an alternative to a conventional protective circuit. Starts 3~ AC motors up to 3 A, provides motor protection and emergency stop up to SIL 3/PL e. Group shut-down, supply, and relay extension possible via DIN rail connector.

ELR H3-IS-PT- 24DC/500AC-9-P - Hybrid motor starter

2909568

<https://www.phoenixcontact.com/us/products/2909568>



Hybrid motor starter as an alternative to a conventional protective circuit. Starts 3~ AC motors up to 9 A, provides motor protection and emergency stop up to SIL 3/PL e. Group shut-down, supply, and relay extension possible via DIN rail connector.

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ELR-TBUS-22,5-P - DIN rail bus connectors

2203861

<https://www.phoenixcontact.com/us/products/2203861>

Special DIN rail connector only suitable for ELR H...-P and EM-...-P.



PSR-TBUS - 1PCS - DIN rail bus connectors

1326060

<https://www.phoenixcontact.com/us/products/1326060>

DIN rail connector for safety switching devices, for supplying/controlling/monitoring (depending on the module)



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CRIMPFOX 6 - Crimping pliers

1212034

<https://www.phoenixcontact.com/us/products/1212034>



Crimping pliers, for ferrules without insulating collar according to DIN 46228 Part 1 and ferrules with insulating collar according to DIN 46228 Part 4, 0.25 mm² ... 6.0 mm², lateral entry, trapezoidal crimp

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