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

1009831

https://www.phoenixcontact.com/us/products/1009831

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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 V DC, pluggable screw terminal block

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	1009831
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA181
Catalog page	Page 223 (C-6-2019)
GTIN	4055626482705
Weight per piece (including packing)	212.33 g
Weight per piece (excluding packing)	169.38 g
Customs tariff number	85371098
Country of origin	DE

Technical data

Notes

Note on application

Note on application	Only for industrial use

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

Data management status

Article revision	00

Times

Typical response time	200 ms (automatic start)
	30 ms (manual, monitored 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 A²)
Nominal operating mode	100% operating factor

Air clearances and creepage distances between the power circuits

Rated insulation voltage	250 V
	250 V
Rated surge voltage/insulation	Safe isolation, reinforced insulation 6 kV between input circuit and enabling current path (13/14) and enabling current path (23/24) Basic insulation 4 kV between all current paths and housing

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 (Δt = 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
Inrush current	< 40 mA (typ. with U_S at S10)
	< 300 mA (typ. with U_S at S12, Δt = 150 ms)
	< 3 mA (typ. with U_S at S13)
	> -300 mA (typically with U_S at S22, Δt = 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 (typ. with U_S at S12)
	3 mA (typ. with U_S at S13)
	-35 mA (typically with U_S at S22, Δt = 150 ms)

Digital: Start circuit (Y1, S34, S35)

Description of the input	non-safety-related
Number of inputs	3
Input voltage range "1" signal	20.4 V DC ... 26.4 V DC
Inrush current	< 60 mA (typ. with U_S at Y1, Δt = 150 ms)
	< 270 mA (typ. with U_S at S34, Δt = 15 ms)
	< 80 mA (typ. with U_S at S35, Δt = 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 (typ. with U_S at Y1)
	typ. 34 µA (typ. 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)
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 (Δt = 1 ms at U_s)
Protective circuit	Suppressor diode

Connection data

Connection technology

pluggable	yes

Conductor connection

Connection method	Screw connection
Conductor cross section rigid	0.2 mm² ... 2.5 mm²
Conductor cross section flexible	0.2 mm² ... 2.5 mm²
Conductor cross-section AWG	24 ... 12
Stripping length	7 mm
Screw thread	M3
Tightening torque	0.5 Nm ... 0.6 Nm

Signaling

Status display	4 x LED (green)
Operating voltage display	1 x green LED

Dimensions

Width	22.5 mm
Height	112.2 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

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

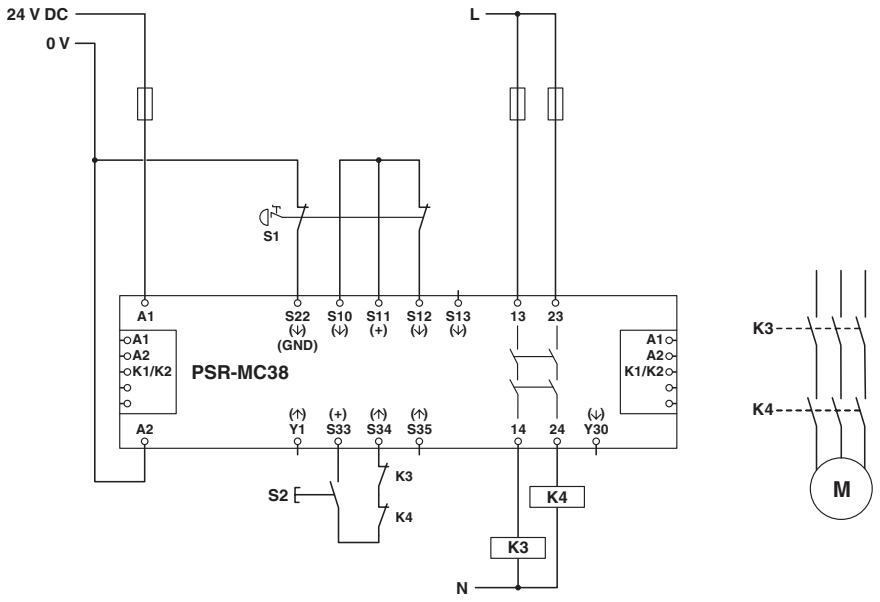
Mounting

Mounting type	DIN rail mounting

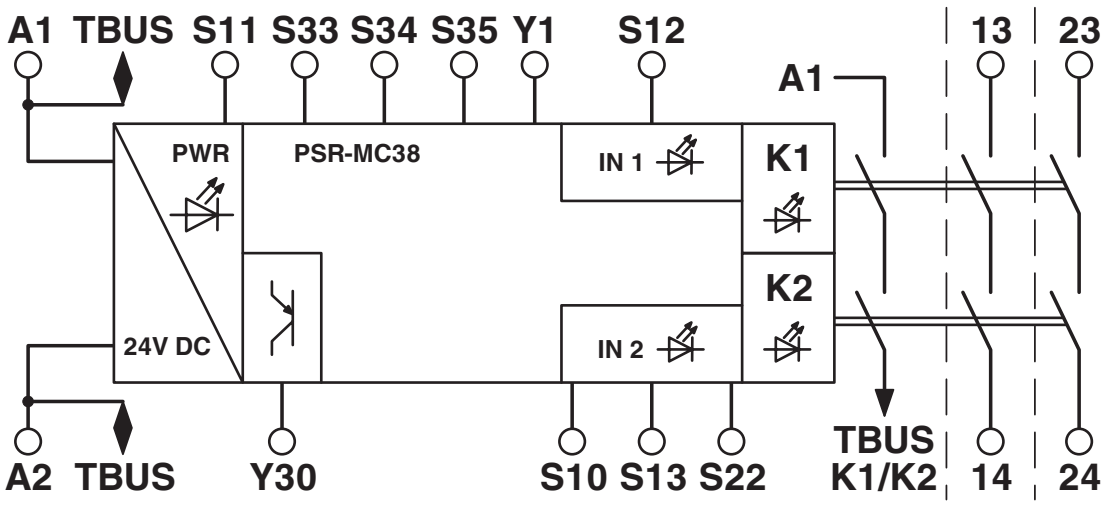
Assembly note	See derating curve
Mounting position	vertical or horizontal

Drawings

Circuit diagram



Block diagram



Block diagram

Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/1009831

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

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

Functional Safety
Approval ID: 968/FSP 1741.01/22

Functional Safety
Approval ID: 968/FSP 1741.01/22

cULus Listed
Approval ID: E140324

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Approval ID: E140324

Classifications

ECLASS

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

ETIM

ETIM 9.0	EC001449

UNSPSC

UNSPSC 21.0	39122200

Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I

China RoHS

Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.

EU REACH SVHC

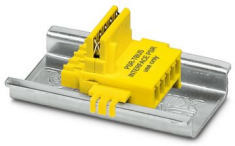
REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	4d970b5f-c2f8-453e-aee7-b21159620cd5

Accessories

PSR-TBUS - DIN rail bus connectors

2890425

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

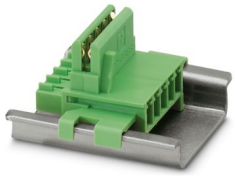


DIN rail connector for safety switching devices, for supplying/controlling/monitoring (depending on the module)

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.

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.

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

2908699

https://www.phoenixcontact.com/us/products/2908699

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.

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

2909569

https://www.phoenixcontact.com/us/products/2909569

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.

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.

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.

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)

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 mm^2 ... 6.0 mm^2, lateral entry, trapezoidal crimp

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