PSR-MC32-3NO-1NC-24-230UC-SC - Safety relays

2700524

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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, 3 enabling current paths, 1 signaling current path, U_S = 24 ... 230 V AC/DC, plug-in screw terminal block

Your advantages

- Up to Cat. 4/PL e in accordance with EN ISO 13849-1, SIL 3 in accordance with EN□IEC 62061
- 1 or 2-channel control
- 3 enabling current paths, 1 signaling current path
- Manually monitored and automatic activation in a single device
- Cross-circuit detection

Commercial data

Item number	2700524
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA181
Catalog page	Page 221 (C-6-2019)
GTIN	4046356912693
Weight per piece (including packing)	243.8 g
Weight per piece (excluding packing)	243.8 g
Customs tariff number	85371098
Country of origin	DE

Technical data

Product properties

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

Times

Typical response time	< 150 ms (automatic start)
	< 100 ms (manual, monitored start)
Typ. starting time with U_s	< 200 ms (when controlled via A1)
Typical release time	< 20 ms (when actuation is via the sensor circuit)
Restart time	< 1 s
Recovery time	< 500 ms

Electrical properties

Maximum power dissipation for nominal condition	17.3 W (at 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 AC
Rated surge voltage/insulation	Basic insulation 4 kV between enabling current path (23/24) and enabling current path (33/34) and signaling current path (41/42)
	Basic insulation 4 kV between all current paths and housing
	Safe isolation, reinforced insulation 6 kV between all other circuits

Supply

Designation	A1/A2
Rated control circuit supply voltage U_S	24 V AC/DC ... 230 V AC/DC -15 % / +10 %
Rated control supply current I_S	typ. 103 mA (24 V DC)
	typ. 47 mA (48 V DC)
	typ. 38 mA (110 V AC)
	typ. 21 mA (230 V AC)
Power consumption at U_S	2.7 W (with DC)
	2.9 W (with AC)
Apparent power	typ. 5 VA (at U_S)
Inrush current	< 80 A (Δt = 50 µs at U_s)
Filter time	2 ms (at A1 in the event of voltage dips at U_s)

Protective circuit	U_S: surge protection; 275 V varistor / 411 V 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 "0" signal	0 V DC ... 5 V DC (for safe Off; at S10/S12/S13)
Input current range "0" signal	0 mA ... 2 mA (for safe Off; at S10/S12/S13)
Inrush current	< 5 mA (with U_s/I_x at S10/S12/S13)
	> -5 mA (with U_s/I_x to S22)
Filter time	max. 1.5 ms (to S10-S12; test pulse width; at 24 V DC)
	7.5 ms (to S10-S12; test pulse rate; at 24 V DC)
	Test pulse rate = 5 x Test pulse width
Concurrence	∞
Max. permissible overall conductor resistance	150 Ω
Protective circuit	Inputs: protection against polarity reversal, surge protection; 38.6 V suppressor diode
Current consumption	< 5 mA (with U_s/I_x at S10/S12/S13)
	> -5 mA (with U_s/I_x to S22)

Digital: Start circuit (S34, S35)

Description of the input	non-safety-related
Number of inputs	2
Inrush current	< 10 mA (Δt = 330 ms)
Max. permissible overall conductor resistance	150 Ω
Protective circuit	Suppressor diode
Voltage at input/start and feedback circuit	24 V DC -20 % / +25 %
Current consumption	typ. 2.5 mA (S34)
	typ. 1 mA (S35)

Output data

Relay: Enabling current paths (13/14, 23/24, 33/34)

Output description	safety-related N/O contacts
Number of outputs	3 (undelayed)
Contact switching type	3 enabling current paths
Contact material	$AgSnO_2$
Switching voltage	min. 5 V AC/DC
	max. 250 V AC/DC (Observe the load curve)
Switching capacity	min. 50 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 (observe derating)

Sq. Total current	72 A^2 (observe derating)
Switching frequency	max. 1 Hz
Mechanical service life	10x 10^6 cycles
Interrupting rating (ohmic load) max.	1500 VA (250 V AC, τ = 0 ms)
	For additional values, see load curve
Maximum interrupting rating (inductive load)	48 W (24 V DC, τ = 40 ms)
	40 W (48 V DC, τ = 40 ms)
	36 W (60 V DC, τ = 40 ms)
	35 W (110 V DC, τ = 40 ms)
	33 W (220 V DC, τ = 40 ms)
	1500 VA (250 V AC, τ = 40 ms)
Output fuse	6 A gL/gG
	4 A gL/gG (for low-demand applications)

Relay: Signaling current path (41/42)

Output description	non-safety-related N/C contact
Number of outputs	1 (undelayed)
Contact switching type	1 signaling current path
Contact material	$AgSnO_2$
Switching voltage	min. 5 V AC/DC
	max. 250 V AC/DC
Switching capacity	min. 50 mW
Inrush current	min. 10 mA
	max. 6 A
Limiting continuous current	6 A
Switching frequency	1 Hz
Mechanical service life	10x 10^6 cycles
Output fuse	6 A gL/gG
	4 A gL/gG (for low-demand applications)

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

Signaling

Status display	3 x green LED
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
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)	-40 °C ... 55 °C (observe derating)
Ambient temperature (storage/transport)	-40 °C ... 85 °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

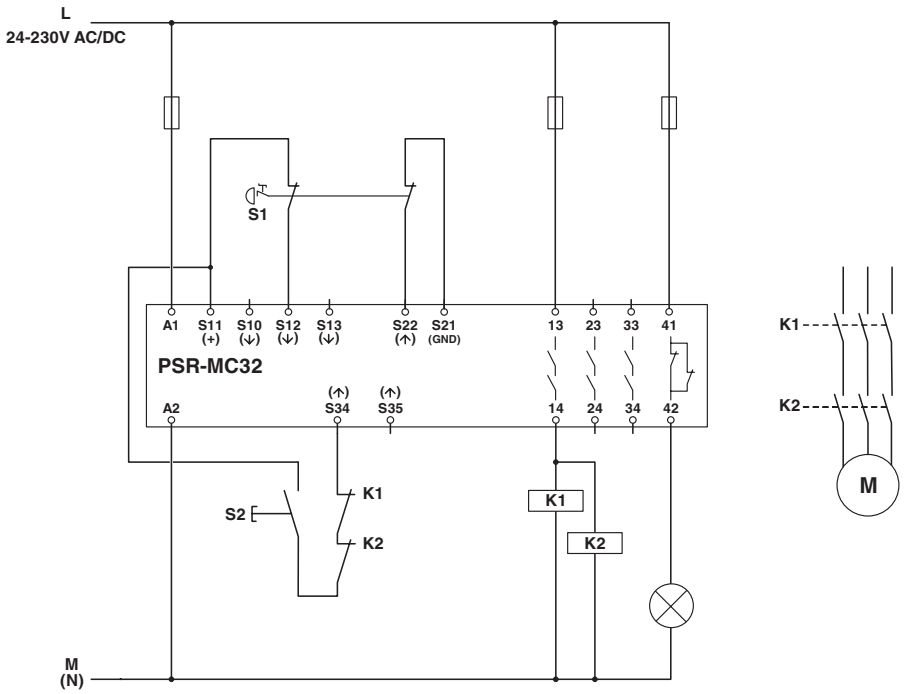
Standards/regulations	EN 60947-1

Mounting

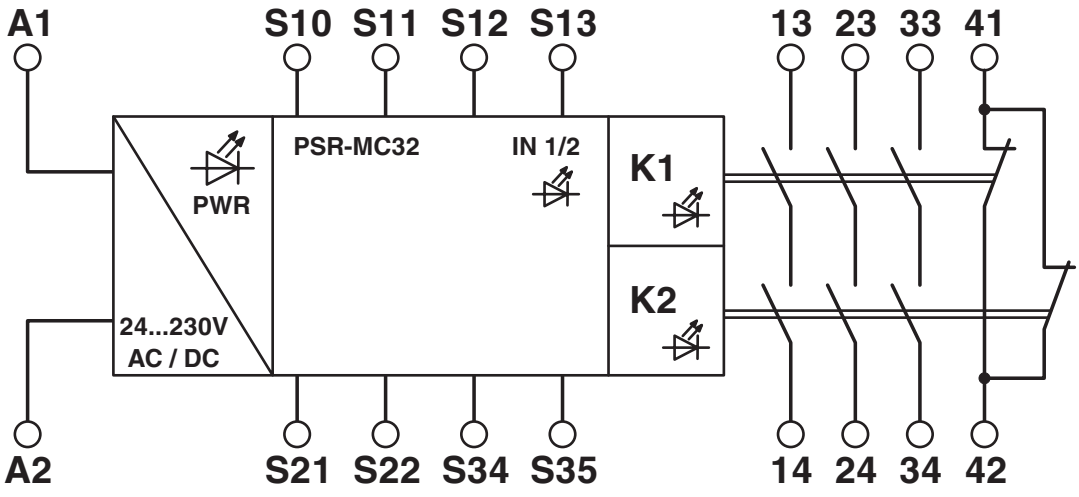
Mounting type	DIN rail mounting
Assembly instructions	See derating curve
Mounting position	vertical or horizontal

Drawings

Circuit diagram



Block diagram



Block diagram

Approvals

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UL Listed
Approval ID: FILE E 140324

cUL Listed
Approval ID: FILE E 140324

Functional Safety
Approval ID: 44-205-15124310

Functional Safety
Approval ID: 44-780-15124310

cULus Listed

Classifications

ECLASS

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

ETIM

ETIM 9.0	EC001449

UNSPSC

UNSPSC 21.0	39122200

Environmental product compliance

REACh SVHC	Lead 7439-92-1

China RoHS	Environmentally Friendly Use Period = 50 years
	For information on hazardous substances, refer to the manufacturer’s declaration available under “Downloads”

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