

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



2700524

<https://www.phoenixcontact.com/us/products/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, $U_S = 24 \dots 230 \text{ V AC/DC}$, 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

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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 $I_L^2 = 72 \text{ A}^2$)
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 ($\Delta t = 50 \mu\text{s}$ 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
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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
Concurrency	∞
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 ($\Delta t = 330$ 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)

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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
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Conductor connection

Connection method	Screw 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 ... 12
Stripping length	7 mm
Screw thread	M3

Signaling

Status display	3 x green LED
Operating voltage display	1 x green LED

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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
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Safety data: EN ISO 13849

Category	4
Performance level (PL)	e

Safety data: IEC 61508 - High demand

Safety Integrity Level (SIL)	3
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Safety data: IEC 61508 - Low demand

Safety Integrity Level (SIL)	3
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Safety data: EN IEC 62061

Safety Integrity Level (SIL)	3
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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
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Standards and regulations

Air clearances and creepage distances between the power circuits

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Standards/regulations	EN 60947-1
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Mounting

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

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Classifications

ECLASS

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

ETIM

ETIM 9.0	EC001449
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UNSPSC

UNSPSC 21.0	39122200
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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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