PSR-MC37-3NO-1NC-24DC-SC - Safety relays

2702411

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Safety relay for emergency switching off and safety doors as well as for elevator applications up to SIL 3, Cat. 4, PL e, 1 or 2-channel operation, automatic or manual start, cross-circuit detection, 3 enabling current paths, U_S = 24 V DC, plug-in screw terminal block

Your advantages

- Low housing width of only 22.5mm
- 3 enabling current paths, 1 signaling current path, 1 digital signal output
- Cross-circuit detection
- Automatic and manual activation
- Up to Cat. 4/PL e in accordance with EN ISO 13849-1, SIL 3 in accordance with EN□IEC 62061
- Suitable for elevator applications in accordance with EN 81-20

Commercial data

Item number	2702411
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA181
Catalog page	Page 222 (C-6-2019)
GTIN	4055626276960
Weight per piece (including packing)	228 g
Weight per piece (excluding packing)	183.88 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
Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3

Times

Typical response time	< 100 ms (automatic start)
Typ. starting time with U_s	< 100 ms (when controlled via A1)
Typical release time	< 20 ms (when controlled via A1 or S12)
Restart time	< 1 s (Boot time)
Recovery time	< 500 ms

Electrical properties

Maximum power dissipation for nominal condition	16.65 W (at U_S = 30 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 AC
	250 V AC
Rated surge voltage/insulation	Basic insulation 4 kV between all current paths
	Basic insulation 4 kV between all current paths and housing

Supply

Designation	A1/A2
Rated control circuit supply voltage U_S	19.2 V DC ... 30 V DC
Rated control circuit supply voltage U_S	24 V DC -20 % / +25 %
Rated control supply current I_S	typ. 70 mA
Power consumption at U_S	typ. 1.68 W
Inrush current	2 A (Δt = 300 µs at U_s)
Protective circuit	Surge protection; Suppressor diode
	Protection against polarity reversal for rated control circuit supply voltage

Input data

Digital: Sensor circuit (S12, S22)

Description of the input	safety-related sensor inputs
Input voltage range "0" signal	0 V DC ... 5 V DC (for safe Off; at S12 and S22)
Input current range "0" signal	0 mA ... 2 mA (for safe Off; at S12 and S22)

Inrush current	< 5 mA (Δt = 500 µs, for Us/Ix at S12)
	> -5 mA (Δt = 500 µs, for Us/Ix at S22)
Filter time	max. 3 ms (at S12, S22; test pulse width; blanking pulses/dark test)
	1 s (at S12, S22; test pulse rate; blanking pulses/dark test)
	Where test pulse width ≤ 1 ms: test pulse rate = 5 x test pulse width
	max. 1 ms (at S12, S22; test pulse width; switch-on pulses/light test)
	100 ms (at S12, S22; test pulse rate; switch-on pulses/light test)
	Unless switch-on pulses/light tests are safety-related, they should be disabled.
Max. permissible overall conductor resistance	150 Ω
Current consumption	< 4 mA (with U_s/I_x to S12/S22)

Digital: Start circuit (S35)

Description of the input	non-safety-related
Number of inputs	1
Input voltage range "1" signal	19.2 V DC ... 30 V DC
Inrush current	< 10 mA (Δt = 500 µs)
Max. permissible overall conductor resistance	150 Ω
Protective circuit	Suppressor diode
Current consumption	< 0.5 mA

Output data

Relay: Enabling current path (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	0.5 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 (N/O contact)

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 (Δt = 100 ms)
Limiting continuous current	1 A
Sq. Total current	1 A^2
Switching frequency	0.5 Hz
Mechanical service life	10x 10^6 cycles
Output fuse	1 A gL/gG

Signal: Y32

Output description	non-safety-related
Number of outputs	1 (digital)
Voltage	23 V DC (U_s - 1 V)
Current	max. 100 mA
Maximum inrush current	1 A (Δt = 5 ms at U_s)
Short-circuit protection	Yes

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 (5 A DC13; 5 A AC15; 8760 switching cycles/year)

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 ... 60 °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 for Δt = 11 ms (continuous shock: 10g for Δt = 16 ms)
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	DIN EN 60664-1:2008

Mounting

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

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

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"

Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com