PSR-MC70-2NO-1DO-24DC-SP - Safety relays

2702095

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Safety relay for emergency stop, safety doors, light grid up to SIL 1, Cat. 1, PL e, 1- or 2-channel operation, cross-circuit detection, can be retriggered, fall back/on delay 0.2 s ... 60 s, 2 enabling current paths, U_S = 24 V DC, pluggable Push-in terminal block

Your advantages

- Depending on the application, up to cat. 4/PL e in accordance with ISO 13849-1, SIL CL 3 in accordance with EN IEC 62061
- Low housing width of just 12.5 mm
- 1- and 2-channel control
- 2 enabling current paths, 1 digital signal output
- Manually monitored and automatic activation in a single device
- Depending on the application, up to Cat. 3/PL e in accordance with ISO 13849-1, SIL 3 in accordance with EN□IEC 62061

Commercial data

Item number	2702095
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA181
Catalog page	Page 226 (C-6-2019)
GTIN	4046356952477
Weight per piece (including packing)	144.9 g
Weight per piece (excluding packing)	126.6 g
Customs tariff number	85371098
Country of origin	DE

Technical data

Notes

Utilization restriction

EMC note	EMC: class A product, see manufacturer's declaration in the download area

Product properties

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

Times

Typical response time	< 35 ms (automatic start)
	< 30 ms (manual, monitored start)
Typical release time	< 20 ms (when controlled via S12 (only for undelayed contact 13/14))
	< 5 ms (when interrupted via A1; applicative deactivation via A1/A2 is not permitted)
Delay time range	0.2 s ... 60 s ±5 % (can be set for 27/28)
Restart time	< 1 s (Boot time)

Electrical properties

Maximum power dissipation for nominal condition	3.58 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 and housing Safe isolation, reinforced insulation 6 kV: between (A1, A2, S11, S12, S21, S22, S34, M1) and enabling current path (13/14) between (A1, A2, S11, S12, S21, S22, S34, M1) and enabling current path (27/28) between enabling current paths

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. 50 mA
Power consumption at U_S	typ. 1.2 W

Inrush current	typ. 25 A (Δt = 10 µs at U_s)
Filter time	10 ms (For the logic. At A1 in the event of voltage dips 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
Number of inputs	2
Input voltage range "0" signal	0 V DC ... 5 V DC
Input current range "0" signal	0 mA ... 2 mA
Inrush current	< 11 mA (typically with U_S)
Filter time	max. 3 ms (Test pulse width of low test pulses)
	min. 21 ms (Test pulse rate for low test pulse)
	Test pulse rate = 7 x Test pulse width
Concurrence	∞
Limit frequency	min. 0 Hz
	max. 1 Hz
Max. permissible overall conductor resistance	150 Ω
Current consumption	< 4.1 mA (typically with U_S)

Digital: Start circuit (S34)

Description of the input	non-safety-related
Number of inputs	1
Inrush current	< 8.6 mA (typically with U_S)
Filter time	max. 3 ms (Test pulse width of low test pulses)
	min. 21 ms (Test pulse rate for low test pulse)
	Test pulse rate = 7 x Test pulse width
Max. permissible overall conductor resistance	150 Ω
Voltage at input/start and feedback circuit	24 V DC -20 % / +25 %
Current consumption	< 3.2 mA (typically with U_S)

Output data

Relay: Enabling current paths (13/14, 27/28)

Output description	safety-related N/O contacts
Number of outputs	1 (undelayed, single-channel)
	1 (delayed, single-channel)
Contact switching type	2 enabling current paths
Contact material	$AgSnO_2$
Switching voltage	min. 12 V AC/DC
	max. 250 V AC/DC
Switching capacity	min. 60 mW
Inrush current	min. 3 mA

	max. 6 A
Switching capacity in accordance with IEC 60947-5-1	2 A (AC15)
	4 A (DC13)
Limiting continuous current	max. 6 A
Sq. Total current	72 A^2 (observe derating)
Switching frequency	max. 0.1 Hz
Mechanical service life	10x 10^6 cycles
Output fuse	6 A gL/gG (N/O contact)
	4 A gL/gG (for low-demand applications)

Signal: M1

Output description	PNP
	non-safety-related
Number of outputs	1
Voltage	approx. 23 V DC (U_S - 1 V)
Current	max. 100 mA
Maximum inrush current	500 mA (Δt = 1 ms at U_s)
Short-circuit protection	Yes

Connection data

Connection technology

pluggable	yes

Conductor connection

Connection method	Push-in connection
Conductor cross section rigid	0.2 mm² ... 1.5 mm²
Conductor cross section flexible	0.2 mm² ... 1.5 mm²
Conductor cross section, flexible, with ferrule, with plastic sleeve	0.25 mm² ... 1.5 mm² (only together with CRIMPFOX 6)
Conductor cross section flexible, with ferrule without plastic sleeve	0.25 mm² ... 1.5 mm² (only together with CRIMPFOX 6)
Conductor cross-section AWG	24 ... 16
Stripping length	8 mm

Signaling

Status display	5 x bi-color LED

Dimensions

Width	12.5 mm
Height	116.6 mm
Depth	114.5 mm

Material specifications

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

Characteristics

Safety data

Stop category	1

Safety data: EN ISO 13849

Category	1 (up to Cat. 3 depending on the application)
Performance level (PL)	c (up to PL e depending on the application)

Safety data: IEC 61508 - High demand

Safety Integrity Level (SIL)	1 (up to SIL 3 depending on the application)

Safety data: EN IEC 62061

Safety Integrity Level (SIL)	1 (up to SIL 3 depending on the application)

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Ambient temperature (operation)	-35 °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
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 50178

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”

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