PSR-ME20-3NO-1NC-24DC-SC-SET35 - Safety relays

1301404

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Set comprised of 35 safety relays for emergency stops, safety doors, and light grids up to SIL 2, Cat. 3, PL d, 1- or 2-channel operation, automatic or manual, monitored start, 3 enabling current paths, 1 signaling current path, U_S = 24 V DC, plug-in screw terminal block

Your advantages

- Up to Cat. 3/PL d in acc. with EN ISO 13849-1, SIL 2 in acc. with EN IEC 62061, SIL 2 in acc. with IEC 61508
- 3 enabling current paths, 1 signaling current path
- 1- and 2-channel control
- Manually monitored and automatic activation

Commercial data

Item number	1301404
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN01
Product key	DNA121
GTIN	4063151547127
Weight per piece (including packing)	5,866 g
Weight per piece (excluding packing)	5,467.7 g
Customs tariff number	85371098
Country of origin	DE

Set consists of

PSR-ME20-3NO-1NC-24DC-SC - Safety relays

1301402

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Safety relay for emergency stops, safety doors, and light grids up to SIL 2, Cat. 3, PL d, 1- or 2-channel operation, automatic or manual, monitored start, 3 enabling current paths, 1 signaling current path, U_S = 24 V DC, plug-in screw terminal block

Technical data

Product properties

Product type	Safety relays
Product family	PSRclassic
Application	Emergency stop
	Safety door
	Light grid
Mechanical service life	approx. 10^7 cycles
Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3

Times

Typical response time	200 ms (automatic start)
	200 ms (manual, monitored start)
Typ. starting time with U_s	200 ms (when controlled via A1)
Typical release time	25 ms (on demand via the sensor circuit)
	60 ms (on demand via A1)
Restart time	< 1 s (Boot time)
Recovery time	< 500 ms (following demand of the safety function)

Electrical properties

Maximum power dissipation for nominal condition	16.6 W (U_S = 26.4 V, I_L^2 = 72 A², $P_{Total\ max}$ = 2.2 W + 14.4 W)
Nominal operating mode	100% operating factor

Air clearances and creepage distances between the power circuits

Rated insulation voltage	250 V
Rated surge voltage/insulation	Basic insulation 4 kV between all output current paths
	Basic insulation 4 kV between all output current paths/logic paths and housing
	Safe isolation, reinforced insulation 6 kV between 250 V load current paths and 24 V logic paths

Supply

Designation	A1/A2
Rated control circuit supply voltage U_S	24 V DC -15 % / +10 %
Rated control supply current I_S	typ. 70 mA (at U_S)
Power consumption at U_S	typ. 1.68 W
Inrush current	< 5.2 A (typically with U_S, Δt = 2 ms)
Filter time	5 ms (in the event of voltage dips at U_s)
Protective circuit	Serial protection against polarity reversal; Suppressor diode

Input data

General

Rated control supply current I_S	typ. 70 mA (at U_S)

Digital: Sensor circuit (S10, S12, S22)

Description of the input	safety-related sensor inputs
Number of inputs	3
Input voltage range "0" signal	0 V DC ... 5 V DC (S10, S12)
Input voltage range "1" signal	20.4 V ... 26.4 V
Input current range "0" signal	0 mA ... 2 mA
Inrush current	< 100 mA (typically with U_S at S10/S12)
	> -100 mA (typically with U_S at S22)
Filter time	1 ms (Test pulse width of low test pulses)
	1 s (Test pulse rate for low test pulse)
	No brightness test pulses / high test pulses permitted.
Concurrence	∞
Max. permissible overall conductor resistance	50 Ω
Protective circuit	Suppressor diode
Current consumption	38 mA (typically with U_S at S10/S12)
	-38 mA (typically with U_S at S22)

Digital: Start circuit (S34, S35)

Description of the input	non-safety-related
Number of inputs	2
Input voltage range "1" signal	20.4 V ... 26.4 V
Inrush current	< 7 mA (Typically with U_S at S34)
	< 8 mA (Typically with U_S at S35)
Filter time	No test pulses permitted
Max. permissible overall conductor resistance	50 Ω
Protective circuit	Suppressor diode
Current consumption	2 mA (Typically with U_S at S34)
	3 mA (Typically with U_S at S35)

Output data

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

Output description	2 N/O contacts each in series, safety-related, floating
Number of outputs	3
Contact switching type	3 enabling current paths
Contact material	$AgSnO_2$
Switching voltage	min. 10 V AC/DC
	max. 250 V AC
Switching capacity	min. 100 mW
Inrush current	min. 10 mA
	max. 6 A
Switching capacity in accordance with IEC 60947-5-1	5 A (AC15)
	6 A (DC13)
Limiting continuous current	6 A (Observe derating and load limit curve)

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)

Relay: Signaling current path (41/42)

Output description	2 N/C contacts parallel, non-safety-related, floating
Number of outputs	1
Contact switching type	2 NC parallel
Contact material	$AgSnO_2$
Switching voltage	min. 10 V AC/DC
	max. 250 V AC
Switching capacity	min. 100 mW
Inrush current	min. 10 mA
	max. 6 A
Switching capacity in accordance with IEC 60947-5-1	3 A (AC15)
	2 A (DC13)
Limiting continuous current	6 A
Sq. Total current	36 A^2
Switching frequency	max. 0.5 Hz
Mechanical service life	10x 10^6 cycles
Output fuse	6 A gL/gG

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	2 x green LEDs
Operating voltage display	1 x green LED

Dimensions

Width	22.5 mm
Height	112.2 mm
Depth	114.5 mm

Material specifications

Color (Housing)	traffic grey B (RAL 7043)
Housing material	PBT

Characteristics

Safety data

Stop category	0

Safety data: EN ISO 13849

Category	3
Performance level (PL)	d

Safety data: IEC 61508 - High demand

Safety Integrity Level (SIL)	2

Safety data: IEC 61508 - Low demand

Safety Integrity Level (SIL)	2

Safety data: EN IEC 62061

Safety Integrity Level (SIL)	2

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	DIN EN 60947-1

Mounting

Mounting type	DIN rail mounting
Assembly instructions	See derating curve

Mounting position	vertical or horizontal

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

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