

Safety relays - PSR-MC37-3NO-1NC-24DC-SC - 2702411

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

Your advantages

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



Key Commercial Data

Packing unit	1 pc
GTIN	 4 055626 276960
GTIN	4055626276960

Technical data

Dimensions

Width	22.5 mm
Height	112.2 mm
Depth	114.5 mm

Ambient conditions

Ambient temperature (operation)	-40 °C ... 60 °C (observe derating)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Max. permissible relative humidity (operation)	75 % (on average, 85% infrequently, non-condensing)
Max. permissible humidity (storage/transport)	75 % (on average, 85% infrequently, non-condensing)
Maximum altitude	≤ 2000 m (Above sea level)

Power supply

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Technical data

Power supply

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

Digital inputs

Input name	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 ($\Delta t = 500 \mu s$, for U_s/I_x at S12)
	> -5 mA ($\Delta t = 500 \mu s$, for U_s/I_x at S22)
Current consumption	< 4 mA (with U_s/I_x to S12/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
Input name	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 ($\Delta t = 500 \mu s$)
Current consumption	< 0.5 mA
Max. permissible overall conductor resistance	150 Ω
Protective circuit/component	Suppressor diode

Relay outputs: enabling current path

Output name	Enabling current path
	13/14, 23/24, 33/34
Output description	safety-related N/O contacts
Number of outputs	3 (undelayed)
Contact type	3 enabling current paths

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Technical data

Relay outputs: enabling current path

Contact material	AgSnO ₂
Switching voltage	min. 5 V AC/DC
	max. 250 V AC/DC (Observe the load curve)
Limiting continuous current	6 A (observe derating)
Inrush current	min. 10 mA
	max. 6 A
Sq. Total current	72 A ² (observe derating)
Switching capacity	min. 50 mW
Switching frequency	0.5 Hz
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)
Mechanical service life	10x 10 ⁶ cycles
Switching capacity according to IEC 60947-5-1	5 A (24 V (DC13))
	5 A (250 V (AC15))
Output fuse	6 A gL/gG (N/O contact)

Relay outputs: return current/signaling current path

Output name	Signaling current path
Output description	non-safety-related N/C contact
Number of outputs	1 (undelayed)
Contact type	1 signaling current path
Contact material	AgSnO ₂
Switching voltage	min. 5 V AC/DC
	max. 250 V AC/DC
Limiting continuous current	1 A
Inrush current	min. 10 mA
	max. 6 A (Δt = 100 ms)
Sq. Total current	1 A ²
Switching capacity	min. 50 mW
Switching frequency	0.5 Hz
Mechanical service life	10x 10 ⁶ cycles
Output fuse	1 A gL/gG

Alarm outputs

Designation	Y32
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Technical data

Alarm outputs

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 ($\Delta t = 5 \text{ ms at } U_s$)
Short-circuit protection	Yes

Times

Typical pickup time at US	< 100 ms (when controlled via A1)
Typical response time at US	< 100 ms (automatic start)
Typical release time at US	< 20 ms (when controlled via A1 or S12)
Restart time	< 1 s (Boot time)
Recovery time	< 500 ms

General

Relay type	Electromechanical relay with force-guided contacts in accordance with IEC/EN 61810-3
Nominal operating mode	100% operating factor
Net weight	183.88 g
Mounting position	vertical or horizontal
Mounting type	DIN rail mounting
Assembly instructions	See derating curve
Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Housing color	yellow
Operating voltage display	1 x green LED
Status display	3 x green LED

Connection data

Connection method	Screw connection
pluggable	Yes
Conductor cross section solid	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

Safety-related characteristic data

Stop category	0
Designation	IEC 61508 - High demand
Safety Integrity Level (SIL)	3
Designation	IEC 61508 - Low demand
Safety Integrity Level (SIL)	3

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Technical data

Safety-related characteristic data

Designation	EN ISO 13849
Performance level (PL)	e (5 A DC13; 5 A AC15; 8760 switching cycles/year)
Category	4
Designation	EN 62061
Safety Integrity Level Claim Limit (SIL CL)	3

Standards and Regulations

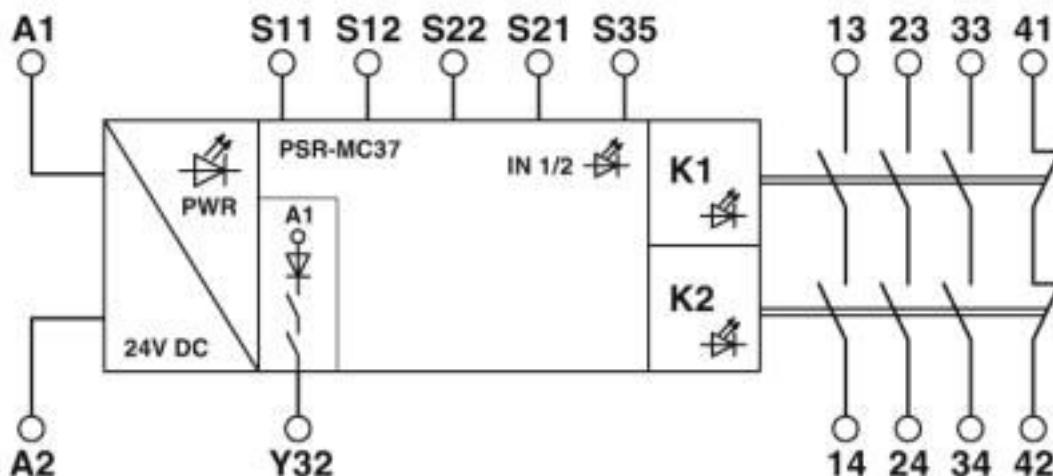
Designation	Air clearances and creepage distances between the power circuits
Standards/regulations	DIN EN 60664-1:2008
Rated insulation voltage	250 V AC
	250 V AC
Rated surge voltage/insulation	Basic insulation 4 kV between all current paths
	Basic insulation 4 kV between all current paths and housing
Degree of pollution	2
Overvoltage category	II
Shock	15g for $\Delta t = 11$ ms (continuous shock: 10g for $\Delta t = 16$ ms)
Vibration (operation)	10 Hz ... 150 Hz, 2g
Conformance	CE-compliant

Environmental Product Compliance

REACH SVHC	Lead 7439-92-1
China RoHS	Environmentally Friendly Use Period = 50 years
	For details about hazardous substances go to tab "Downloads", Category "Manufacturer's declaration"

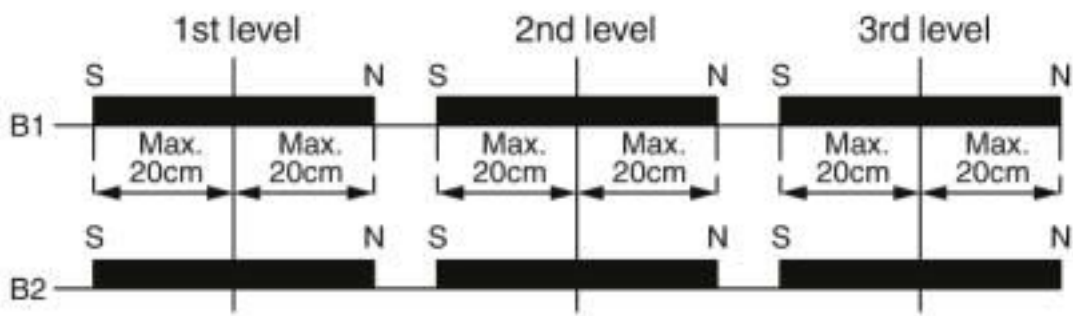
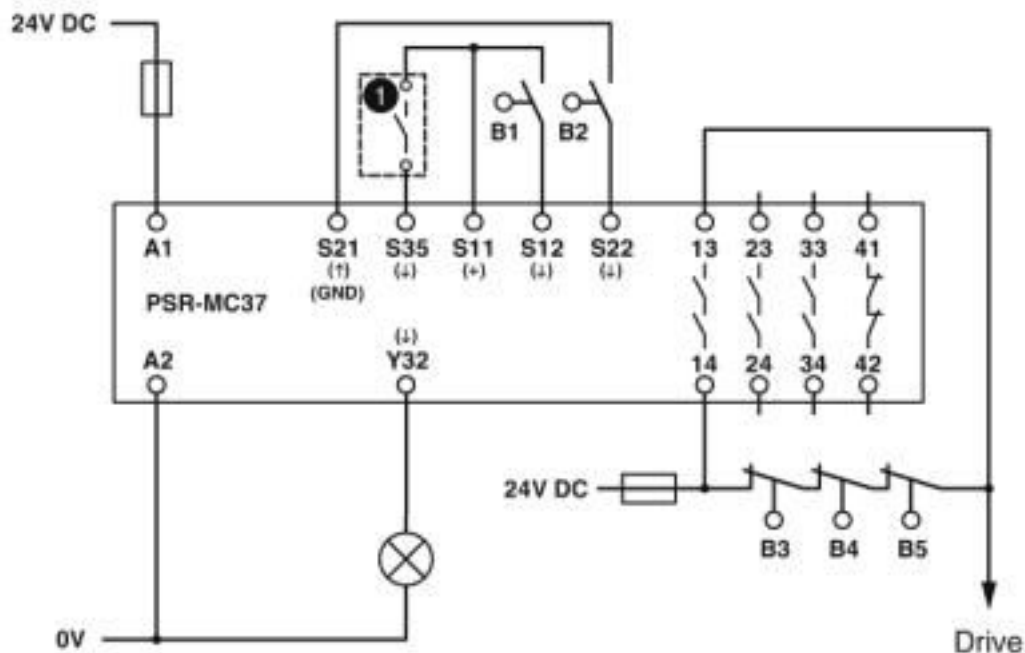
Drawings

Block diagram



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Circuit diagram



Classifications

eCl@ss

eCl@ss 10.0.1	27371819
eCl@ss 4.0	40020600
eCl@ss 4.1	40020600
eCl@ss 5.0	27371900
eCl@ss 5.1	27371900
eCl@ss 6.0	27371800
eCl@ss 7.0	27371819
eCl@ss 8.0	27371819
eCl@ss 9.0	27371819

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Classifications

ETIM

ETIM 3.0	EC001449
ETIM 4.0	EC001449
ETIM 5.0	EC001449
ETIM 6.0	EC001449
ETIM 7.0	EC001449

UNSPSC

UNSPSC 13.2	39121501
UNSPSC 18.0	39122205
UNSPSC 19.0	39122205
UNSPSC 20.0	39122205
UNSPSC 21.0	39122205

Approvals

Approvals

Approvals

Functional Safety / UL Listed / cUL Listed / Functional Safety / Functional Safety / cULus Listed

Ex Approvals

Approval details

Functional Safety		44-205-15124305
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UL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 140324
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cUL Listed		http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.htm	FILE E 140324
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Functional Safety		44-208-15124305
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Approvals

Functional Safety		44-786-161627
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cULus Listed		
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