

Safety relays - PSR-SCP- 24UC/ESL4/3X1/1X2/B - 2981059

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Safety relay for emergency stop and safety door and light grid monitoring up to SIL 3 or Cat. 4, PL e according to EN ISO 13849, single or two-channel operation, 3 enabling current paths, nominal input voltage of 24 V AC/DC, plug-in screw terminal blocks

Product Features

- Manually monitored and automatic activation
- Up to Cat. 4/PL e according to ISO 13849-1, SILCL 3 according to IEC 62061, SIL 3 according to IEC 61508
- Three enabling and one signaling current path
- Single and two-channel control



Key commercial data

package_quantity	1
GTIN	4017918927202

Technical data

Note

Utilization restriction	EMC: class A product, see manufacturer's declaration in the download area
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Dimensions

Width	22.5 mm
Height	99 mm
Depth	114.5 mm

Ambient conditions

Ambient temperature (operation)	-20 °C ... 55 °C
Ambient temperature (storage/transport)	-40 °C ... 70 °C
Max. permissible relative humidity (operation)	75 %
Max. permissible humidity (storage/transport)	75 %

Input data

Nominal input voltage U_N	24 V AC/DC
Input voltage range in reference to U_N	0.85 ... 1.1
Typical input current at U_N	150 mA AC
Typical input current at U_N	70 mA DC

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Input data

Voltage at input/start and feedback circuit	approx. 24 V DC
Typical response time	25 ms (manual start)
Typical response time	100 ms (automatic start)
Typical release time	10 ms
Concurrence input 1/2	Infinite
Recovery time	1 s
Status display	Green LED

Output data

Contact type	3 enabling current paths
Contact type	1 signaling current path
Contact material	AgSnO ₂ , + 0.2 µm Au
Minimum switching voltage	15 V AC/DC
Maximum switching voltage	250 V AC/DC
Limiting continuous current	6 A
Inrush current, minimum	25 mA
Maximum inrush current	6 A
Sq. Total current	$72 \text{ A}^2 (I_{TH}^2 = I_1^2 + I_2^2 + I_3^2)$
Interrupting rating (ohmic load) max.	144 W (24 V DC, τ = 0 ms)
Interrupting rating (ohmic load) max.	288 W (48 V DC, τ = 0 ms)
Interrupting rating (ohmic load) max.	77 W (110 V DC, τ = 0 ms)
Interrupting rating (ohmic load) max.	88 W (220 V DC, τ = 0 ms)
Interrupting rating (ohmic load) max.	1500 VA (250 V AC, τ = 0 ms)
Maximum interrupting rating (inductive load)	48 W (24 V DC, τ = 40 ms)
Maximum interrupting rating (inductive load)	40 W (48 V DC, τ = 40 ms)
Maximum interrupting rating (inductive load)	35 W (110 V DC, τ = 40 ms)
Maximum interrupting rating (inductive load)	33 W (220 V DC, τ = 40 ms)
Switching capacity min.	0.4 W
Output fuse	10 A gL/gG NEOZED (N/O contact)

General

Relay type	Electromechanically forcibly guided, dust-proof relay.
Mechanical service life	Approx. 10 ⁷ cycles
Mounting type	DIN rail mounting
Degree of protection	IP20
Min. degree of protection of inst. location	IP54
Mounting position	any
Category according to EN 13849-1	4
Stop category	0
Designation	Air and creepage distances between the power circuits
Standards/regulations	DIN EN 50178/VDE 0160

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General

Rated surge voltage / insulation	4 kV / basic insulation (safe isolation, reinforced insulation, and 6 kV between A1-A2/logic/enabling and signaling current paths)
Rated insulation voltage	250 V
Pollution degree	2
Surge voltage category	III

Connection data

Conductor cross section solid min.	0.2 mm ²
Conductor cross section solid max.	2.5 mm ²
Conductor cross section stranded min.	0.2 mm ²
Conductor cross section stranded max.	2.5 mm ²
Conductor cross section AWG/kcmil min.	24
Conductor cross section AWG/kcmil max	12
Stripping length	7 mm
Screw thread	M3
Connection method	Screw connection

Safety-related characteristic data

Stop category	0
Designation	IEC 61508 - High demand
Safety Integrity Level (SIL)	3
SFF_{Single-channel}	100 %
SFF_{Two-channel}	96.11 %
Mean time to a hazardous failure (MTTF_d)	205243 Years
Probability of a hazardous failure per hour (PFH_D)	5.56 x 10 ⁻¹⁰
Diagnostic coverage (DC)	91.1 %
Proof test interval	240 Months
Note	The details apply assuming the following calculation basis:dop: 365.25 days (assumption)hop: 24 hours (assumption)tcycle: 3600 seconds (assumption)B10d for AC-15 6A: 300 000 (manufacturer's value)Data only applies if the safety function is demanded at least once a year. Only applies if signal contact is left in position!
Designation	IEC 61508 - Low demand
Safety Integrity Level (SIL)	3
SFF_{Single-channel}	100 %
SFF_{Two-channel}	80.35 %
Mean time to a hazardous failure (MTTF_d)	17913 Years
Probability of a hazardous failure on demand (PFD_{AVG})	1,50 x 10 ⁻⁴
Diagnostic coverage (DC)	0 %
Proof test interval	75 Months
Designation	EN ISO 13849
Performance level (PL)	e
Category	4

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Technical data

Safety-related characteristic data

Diagnostic coverage (DC_{avg})	~ 97 %
CCF	Passed
T_{10d}	34 Years
Note	The details apply assuming the following calculation basis:dop: 365.25 days (assumption)hop: 24 hours (assumption)tcycle: 3600 seconds (assumption)B10d for AC-15 6A: 300 000 (manufacturer's value)Data only applies if the safety function is demanded at least once a year. Only applies if signal contact is left in position!
Designation	EN 62061
Safety Integrity Level Claim Limit (SIL CL)	3
PFH_d	5,56 x 10 ⁻¹⁰
Note	The details apply assuming the following calculation basis:dop: 365.25 days (assumption)hop: 24 hours (assumption)tcycle: 3600 seconds (assumption)B10d for AC-15 6A: 300 000 (manufacturer's value)Data only applies if the safety function is demanded at least once a year. Only applies if signal contact is left in position!

classifications

eCl@ss

eCl@ss 4.0	27371102
eCl@ss 4.1	27371102
eCl@ss 5.0	27371901
eCl@ss 5.1	27371901
eCl@ss 6.0	27371819
eCl@ss 7.0	27371819
eCl@ss 8.0	27371819

ETIM

ETIM 2.0	EC001449
ETIM 3.0	EC001449
ETIM 4.0	EC001449
ETIM 5.0	EC001449

UNSPSC

UNSPSC 6.01	30211901
UNSPSC 7.0901	39121501
UNSPSC 11	39121501
UNSPSC 12.01	39121501
UNSPSC 13.2	39121501

approvals

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

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Approval details

UL Listed 

GOST 

cUL Listed 

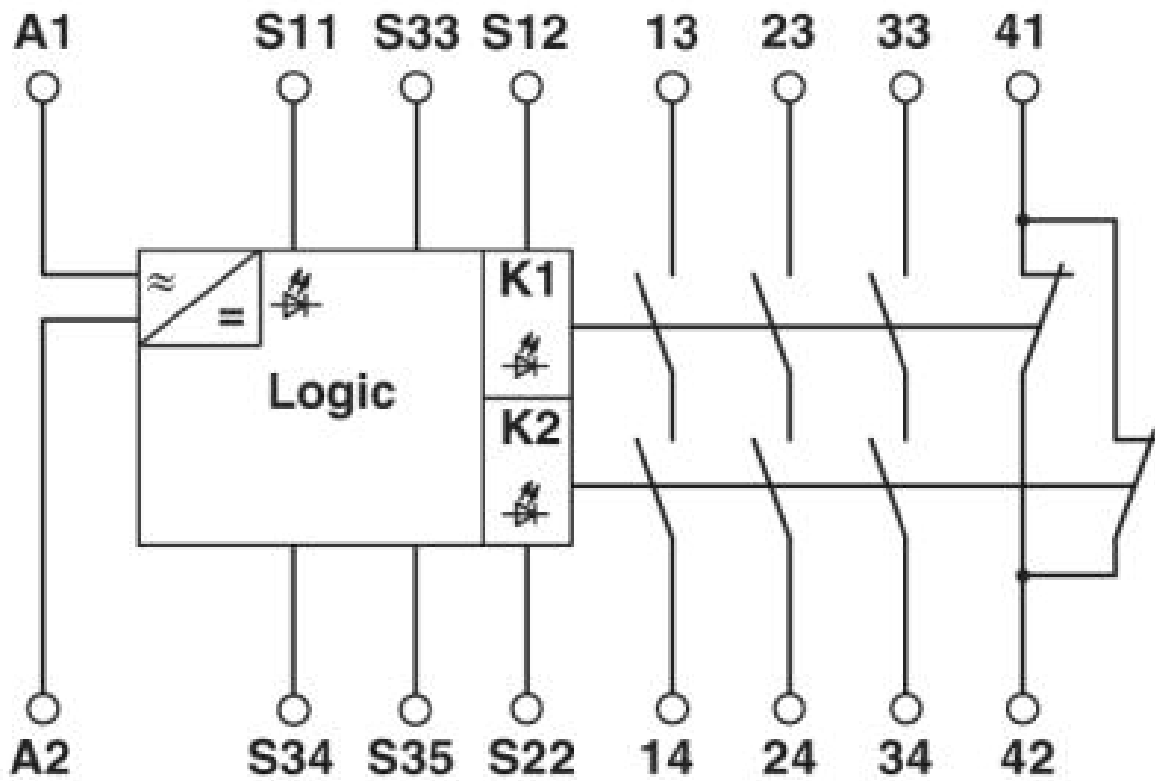
Functional Safety

cULus Listed 

Drawings

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Circuit diagram



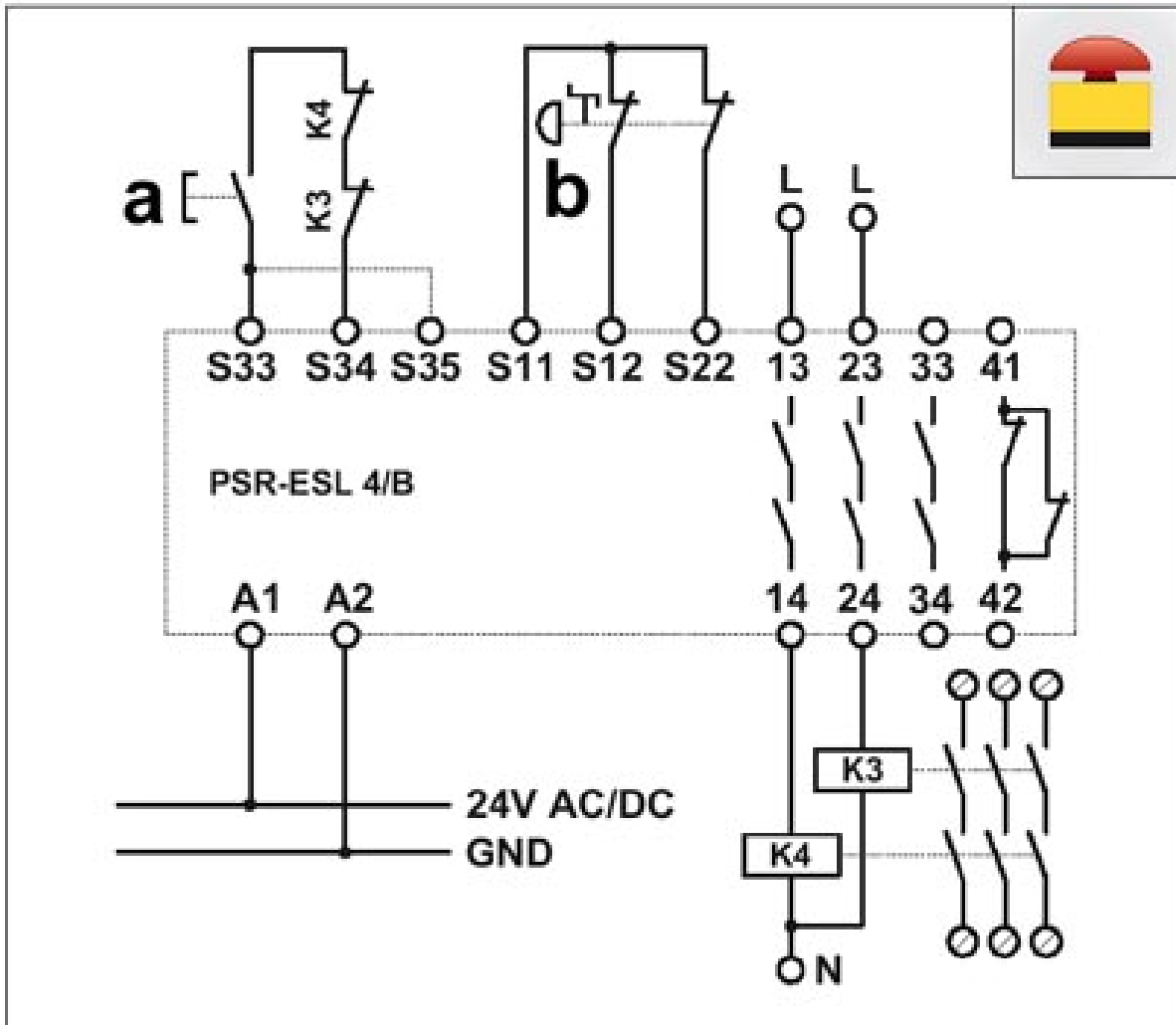
1 = logics

Circuit diagram

a = RESET
 b = light barrier
 Two-channel light barrier monitoring with cross-circuiting monitoring and manual activation (automatic activation: Bridge on S33/S35), suitable up to safety category 4.

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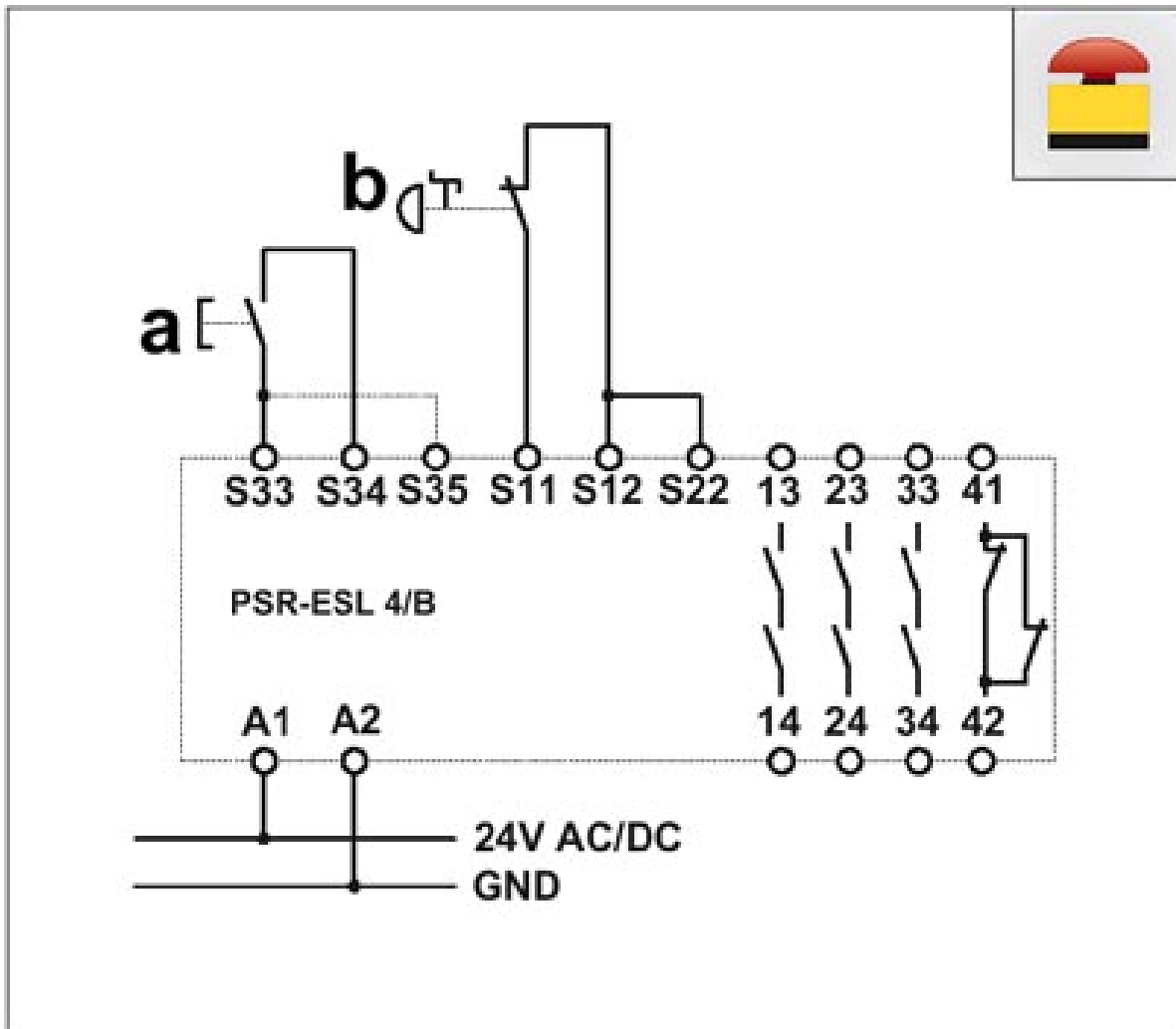
Circuit diagram



a = RESET
 b = Emergency stop
 Two-channel emergency-stop circuit with manual activation and monitored contact expansion (automatic activation: Bridge on S33/S35), suitable up to safety category 3.

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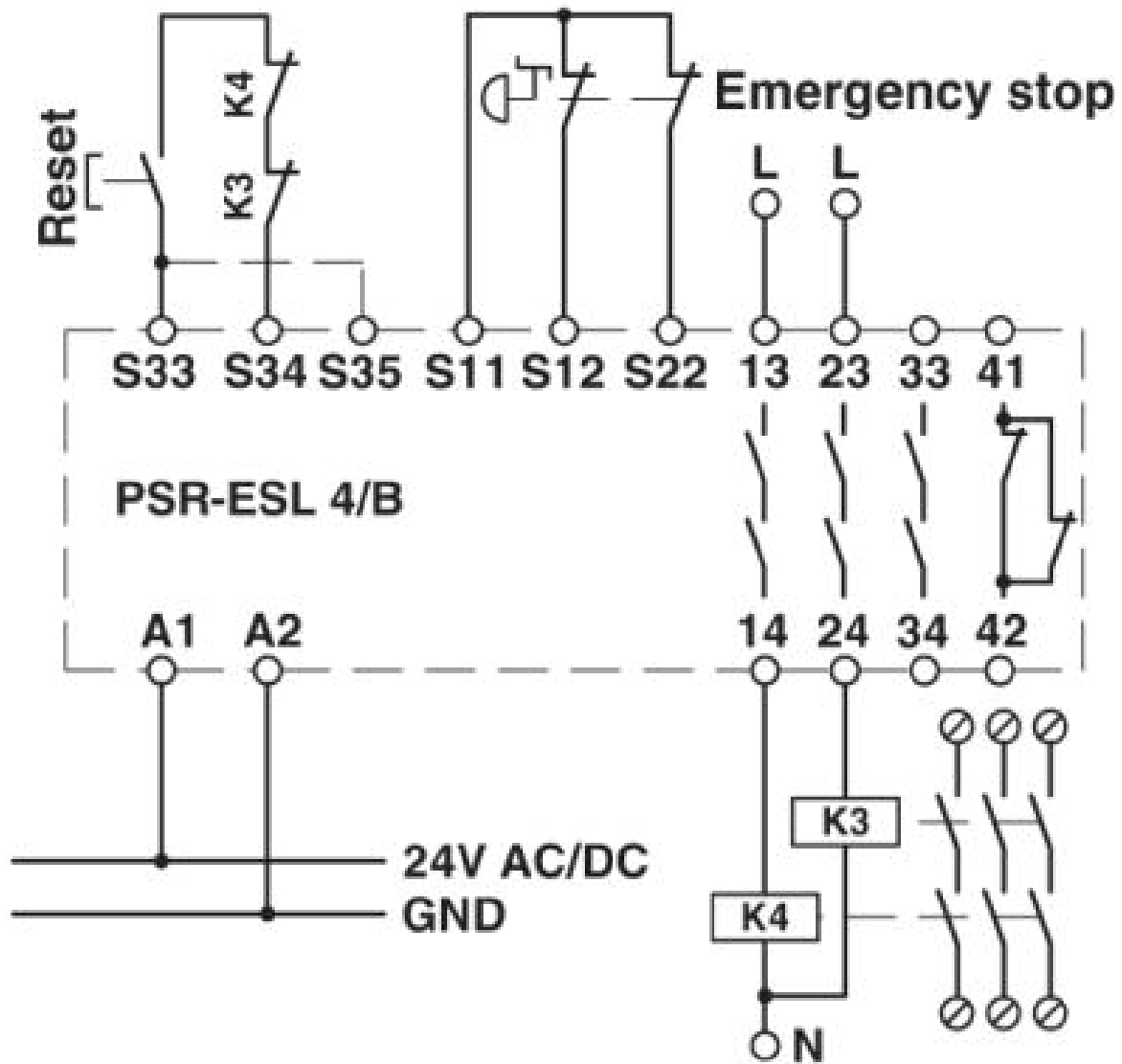
Circuit diagram



a = RESET
b = Emergency stop
One-channel emergency-stop circuit with manual activation (automatic activation: Bridge on S33/S35), suitable up to safety category 2.

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Circuit diagram



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Circuit diagram

