

Safety relays - PSR-SCP- 24UC/ESA4/2X1/1X2 - 2963750

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Safety relay for emergency stop and safety door monitoring up to SIL 3 or Cat. 4, PL e according to EN ISO 13849, single or two-channel operation, 2 enabling current paths, nominal input voltage of 24 V AC/DC, plug-in screw terminal blocks

Product Features

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



Key commercial data

package_quantity	1
GTIN	4017918823634

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	140 mA AC
Typical input current at U_N	65 mA DC

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Input data

Voltage at input/start and feedback circuit	approx. 24 V DC
Typical response time	100 ms (automatic start)
Typical release time	45 ms (single-channel)
Typical release time	10 ms (two-channel)
Concurrency input 1/2	Infinite
Recovery time	1 s
Status display	Green LED
Max. permissible overall conductor resistance	approx. 50 Ω (Input and start circuits at U _N)

Output data

Contact type	2 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 (N/O contact)
Inrush current, minimum	25 mA
Maximum inrush current	6 A
Sq. Total current	72 A ² (I _{TH} ² = I ₁ ² + I ₂ 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)	35 W (220 V DC, τ = 40 ms)
Switching capacity min.	0.4 W
Output fuse	10 A gL/gG NEOZED (N/O contact)
Output fuse	6 A gL/gG NEOZED (N/C 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

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General

Standards/regulations	DIN EN 50178/VDE 0160
Rated surge voltage / insulation	6 kV / Safe isolation, increased insulation
Rated insulation voltage	250 V
Pollution degree	2
Surge voltage category	III
Housing material	Polyamide PA non-reinforced

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}	97.35 %
Mean time to a hazardous failure (MTTF _d)	225831 Years
Probability of a hazardous failure per hour (PFH _D)	5.05 x 10 ⁻¹⁰
Diagnostic coverage (DC)	94.04 %
Proof test interval	240 Months
Duration of use	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}	79.58 %
Mean time to a hazardous failure (MTTF _d)	19629 Years
Probability of a hazardous failure on demand (PFD _{AVG})	1,37 x 10 ⁻⁴
Diagnostic coverage (DC)	0 %
Proof test interval	66 Months
Designation	EN ISO 13849

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Technical data

Safety-related characteristic data

Performance level (PL)	e
Category	4
Diagnostic coverage (DC_{avg})	94.31 %
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	5,05 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	EC000196
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

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approvals

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

Approval details

UL Listed 

GOST 

cUL Listed 

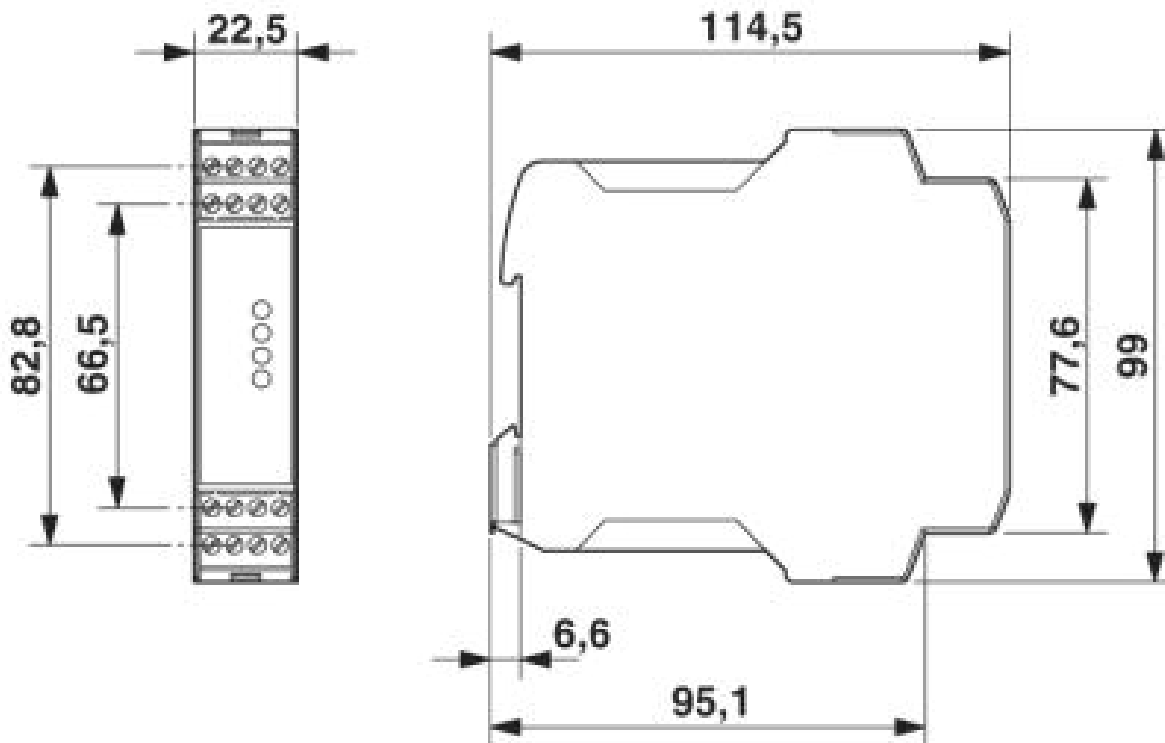
Functional Safety

cULus Listed 

Drawings

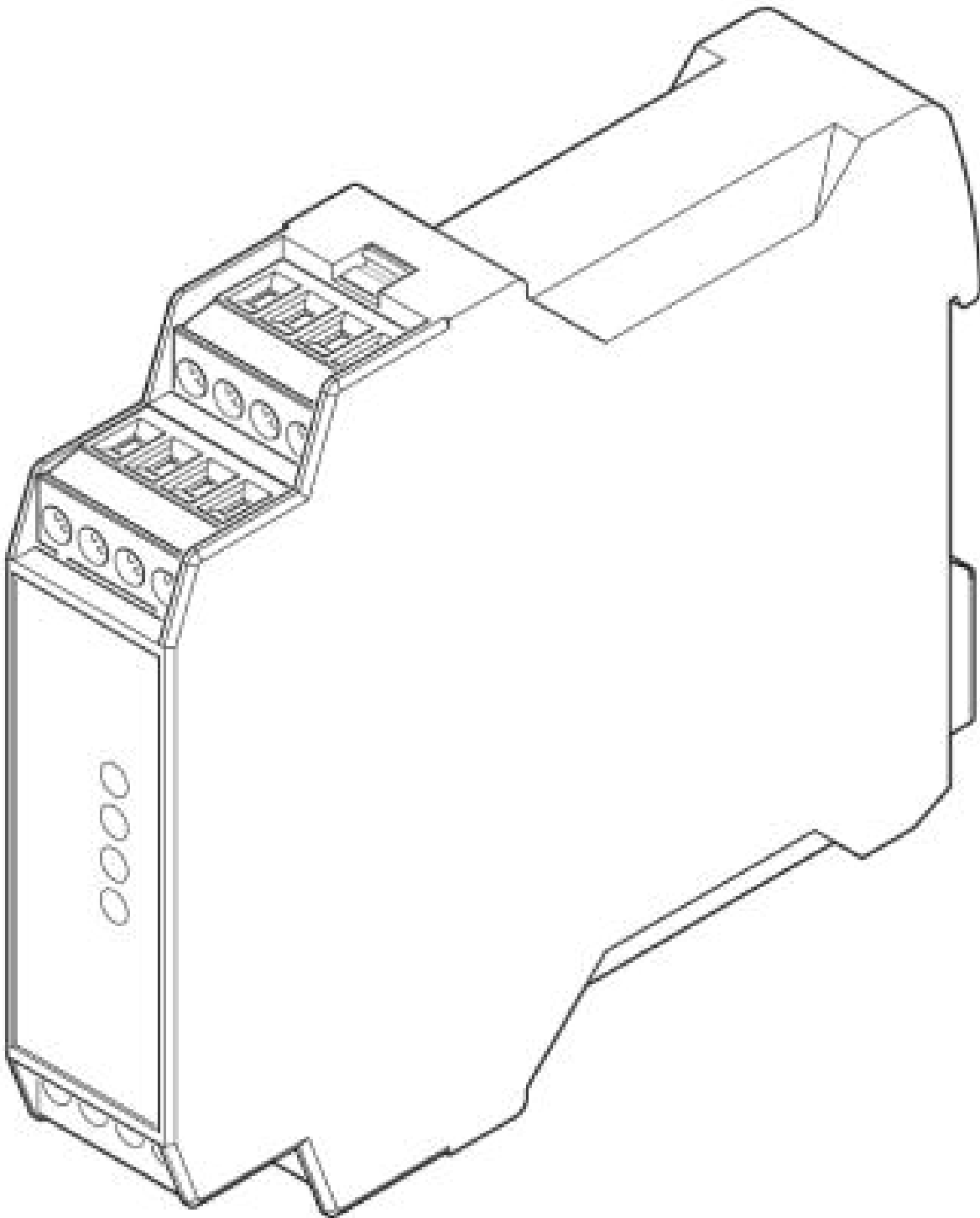
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Dimensioned drawing



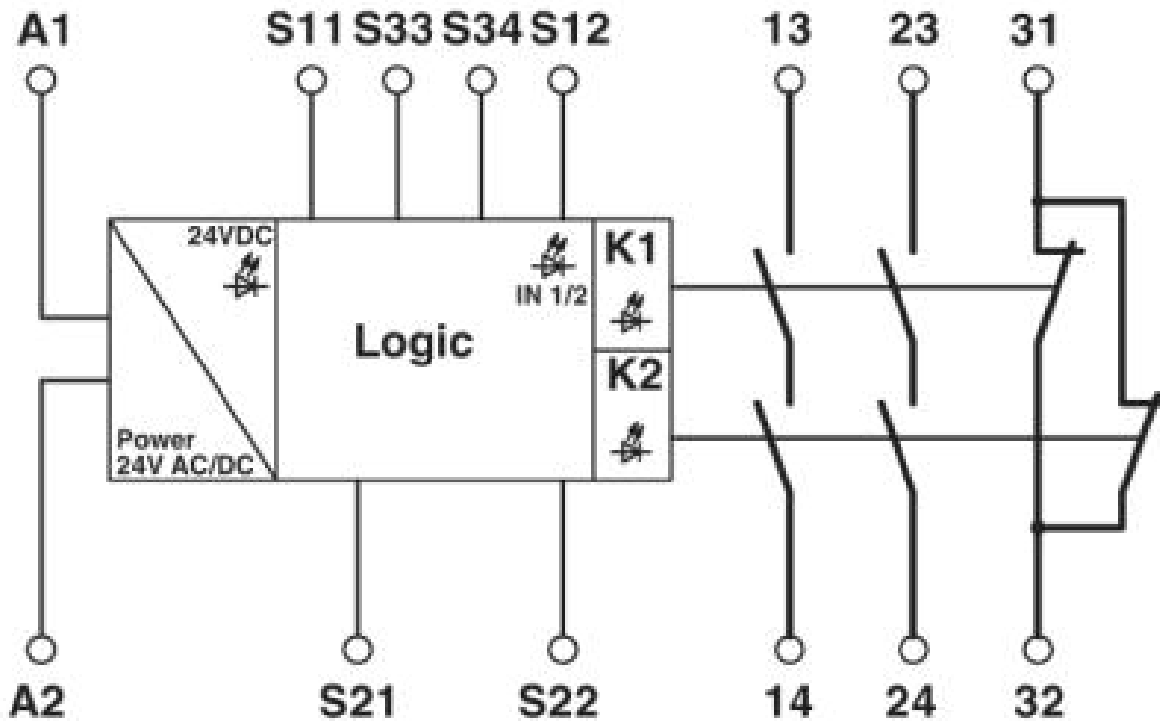
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Product drawing



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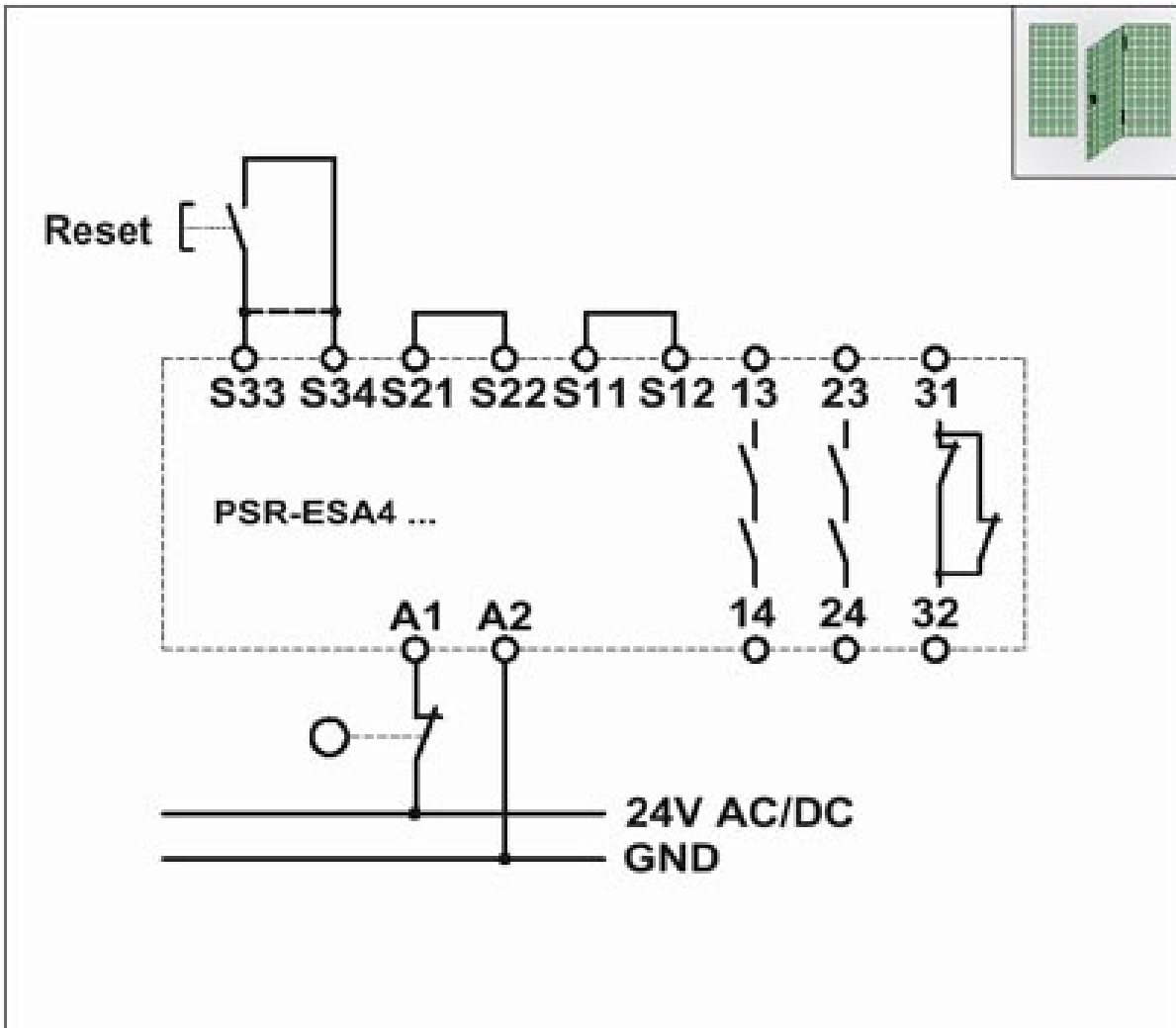
Circuit diagram



1 = logics

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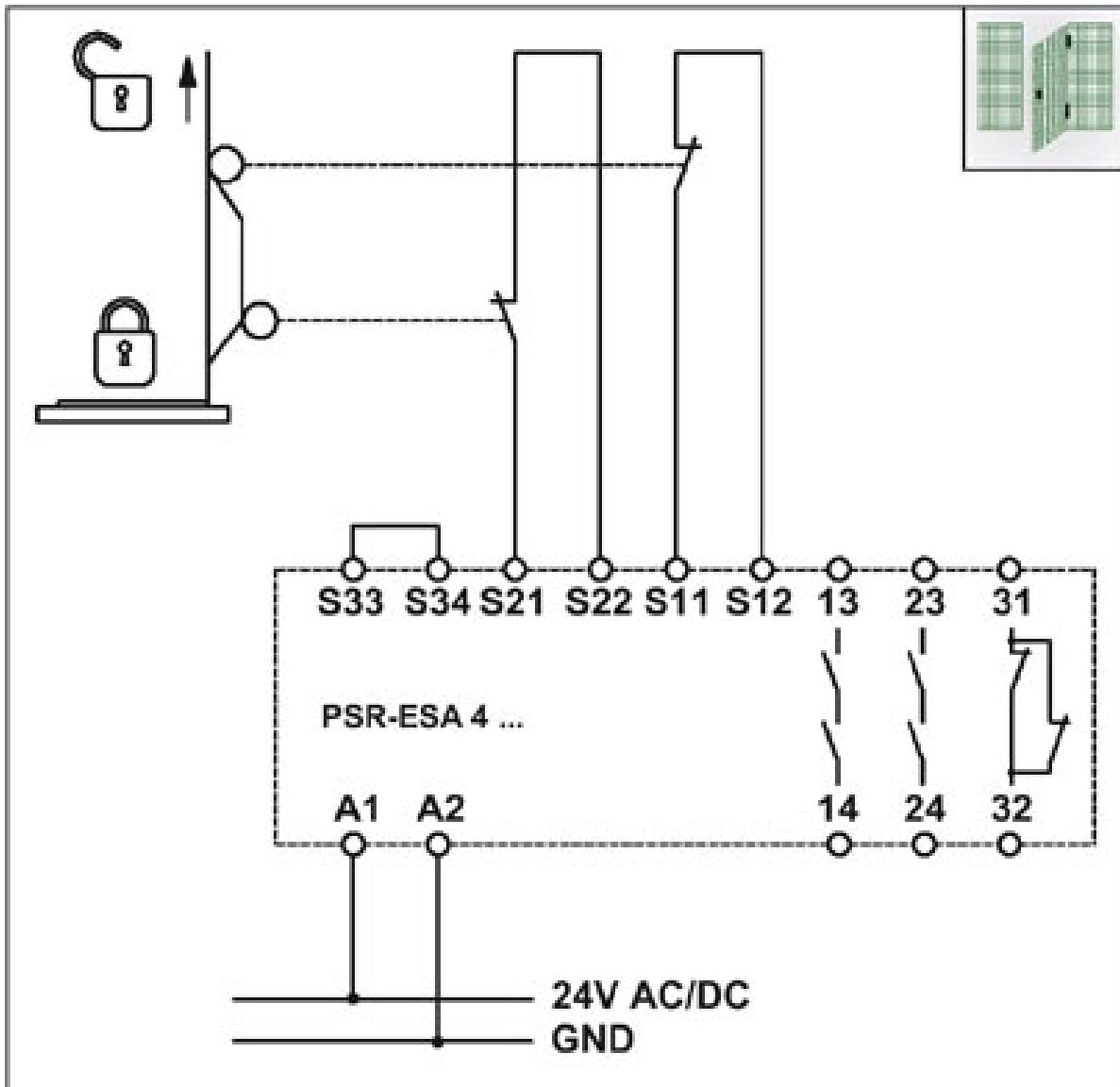
Circuit diagram



Single-channel protective door monitoring with automatic activation, suitable up to safety category 2 (EN 954-1)

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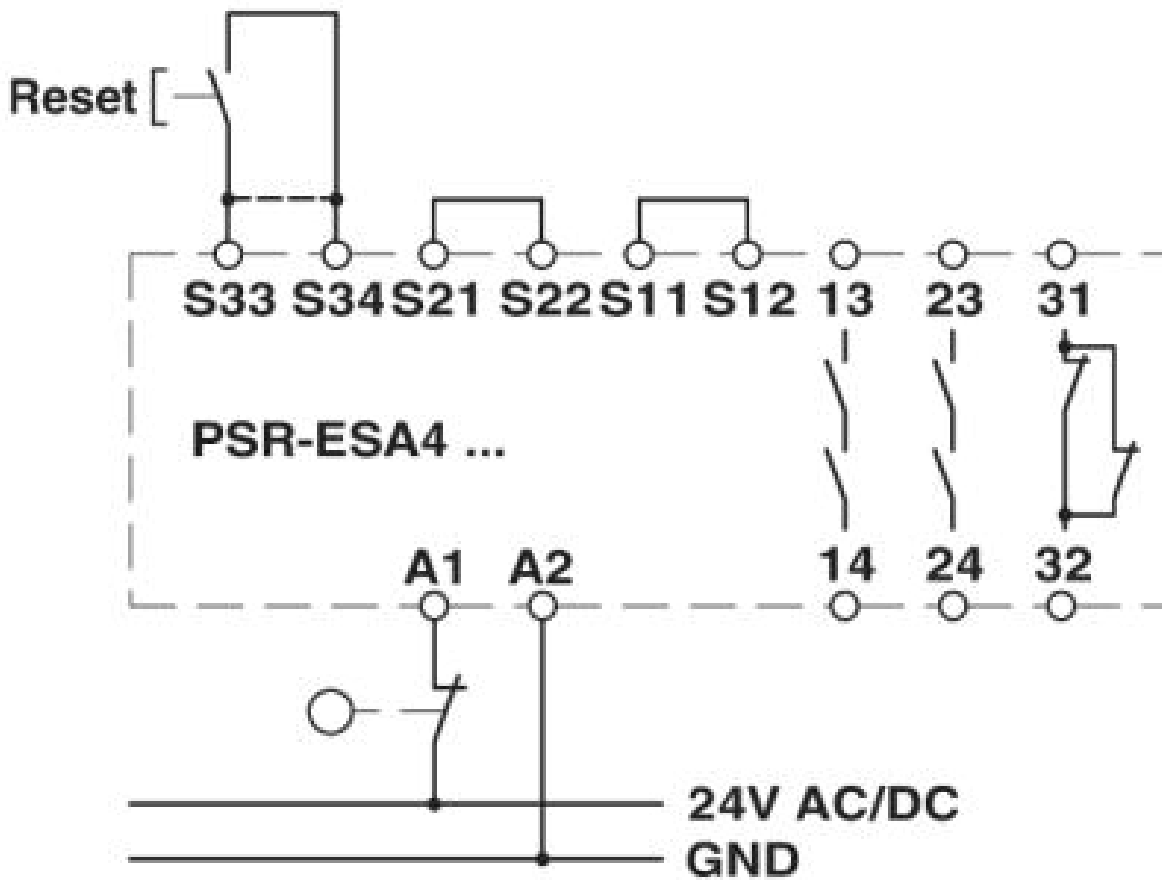
Circuit diagram



Two-channel safety door monitoring with cross monitoring and automatic activation, suitable up to safety category 4.

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Circuit diagram



Single-channel protective door monitoring with automatic activation, suitable up to safety category 2 (EN 954-1)

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