Safety relays - PSR-SCP- 24DC/ESP4/2X1/1X2 - 2981020

Safety relay for SIL 3 high and low-demand applications, also approved according to EN 50156, Germanischer Lloyd, and EN ISO 13849, emergency stop and safety door monitoring, single-channel, 2 enabling current paths, 1 alarm contact, plug-in screw terminal blocks, width: 22.5 mm

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-channel control
- Safe isolation
- With inrush current reduction, therefore suitable for coupling to failsafe controllers (PSR-ESP4)

Key commercial data

package_quantity	1
GTIN	4017918911065

Technical data

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 DC
Input voltage range in reference to U_N	0.85 ... 1.1
Typical input current at U_N	50 mA DC
Typical inrush current	< 1 A
Voltage at input/start and feedback circuit	24 V DC
Typical response time	60 ms (Automatic/manual start)
Typical release time	20 ms

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Technical data

Input data

Recovery time	approx. 1 s
Status display	Green LED

Output data

Contact type	2 enabling current paths
Contact type	1 signaling current path (type B according to EN 50205)
Contact material	$AgSnO_2$, gold-flashed
Minimum switching voltage	10 V
Maximum switching voltage	250 V AC/DC
Limiting continuous current	6 A (N/O contact/N/C contact, high demand)
Limiting continuous current	4 A (N/O contact/N/C contact, low demand)
Inrush current, minimum	10 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.	200 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.	70 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)	42 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.	0.2 W
Output fuse	6 A gL/gG NEOZED (High demand)
Output fuse	4 A gL/gG NEOZED (Low demand)

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	On horizontal and vertical DIN rail
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
Rated surge voltage / insulation	6 kV / Safe isolation, increased insulation
Rated insulation voltage	250 V
Pollution degree	2
Surge voltage category	III

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Technical data

General

Housing material	Polyamide PA non-reinforced

Connection data

Conductor cross section solid min.	0.2 mm²
Conductor cross section solid max.	2.5 mm²
Conductor cross section stranded min.	0.2 mm²
Conductor cross section stranded max.	2.5 mm²
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
Probability of a hazardous failure per hour (PFH_D)	$1{,}16 \times 10^{-10}$
Proof test interval	240 Months
Duration of use	240 Months
Designation	IEC 61508 - Low demand
Safety Integrity Level (SIL)	3
Probability of a hazardous failure on demand (PFD_{AVG})	$1{,}24 \times 10^{-4}$
Proof test interval	72 Months
Duration of use	240 Months
Designation	EN ISO 13849
Performance level (PL)	e
Category	4
Mean time to a hazardous failure ($MTTF_d$)	269 Years
Diagnostic coverage (DC_{avg})	99 %
T_{10d}	20 Years
Duration of use	240 Months
Designation	EN 62061
Safety Integrity Level Claim Limit (SIL CL)	3
Duration of use	240 Months

classifications

eCl@ss

eCl@ss 4.0	27371102
eCl@ss 4.1	27371102
eCl@ss 5.0	27371901

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classifications

eCl@ss

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 / GL / Functional Safety / cULus Listed /

Approval details

UL Listed

GOST

cUL Listed

GL

Functional Safety

cULus Listed

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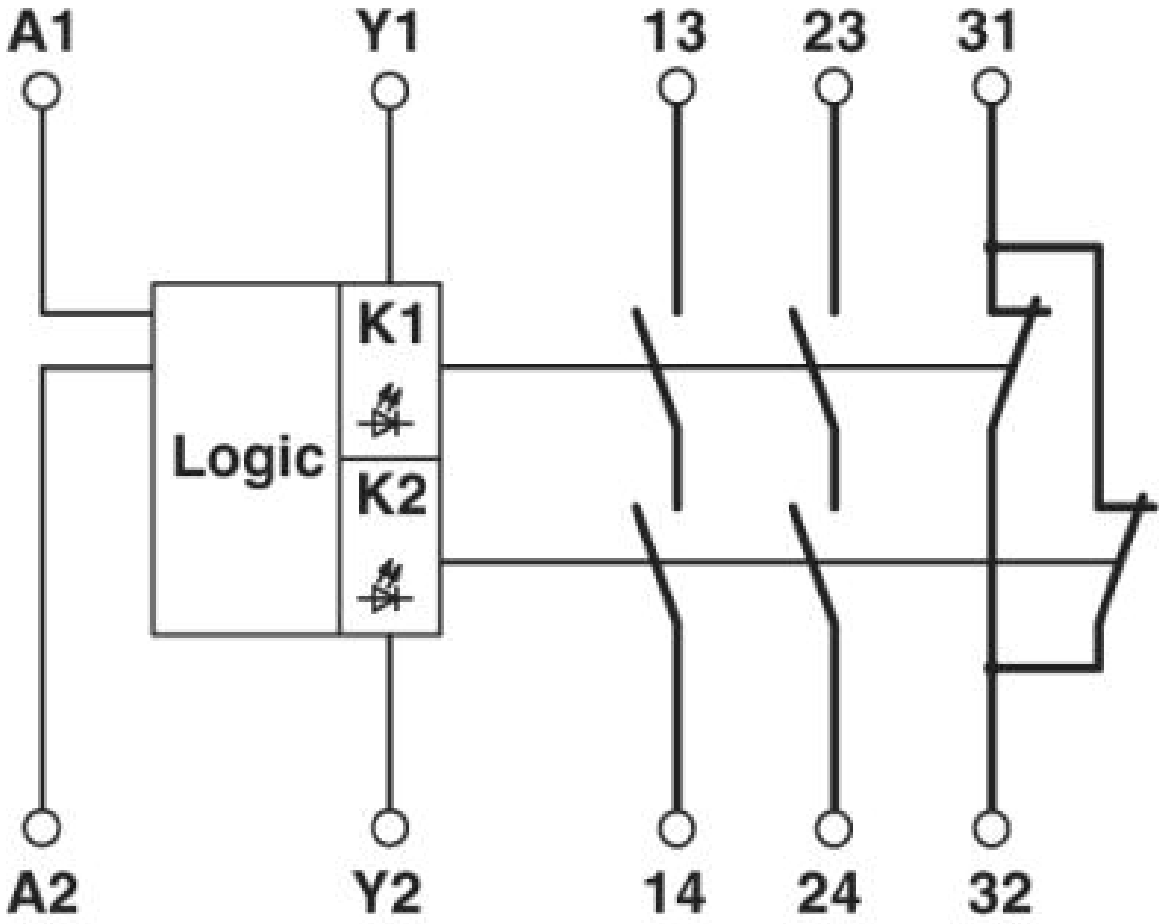
Drawings

Circuit diagram



1 = logics

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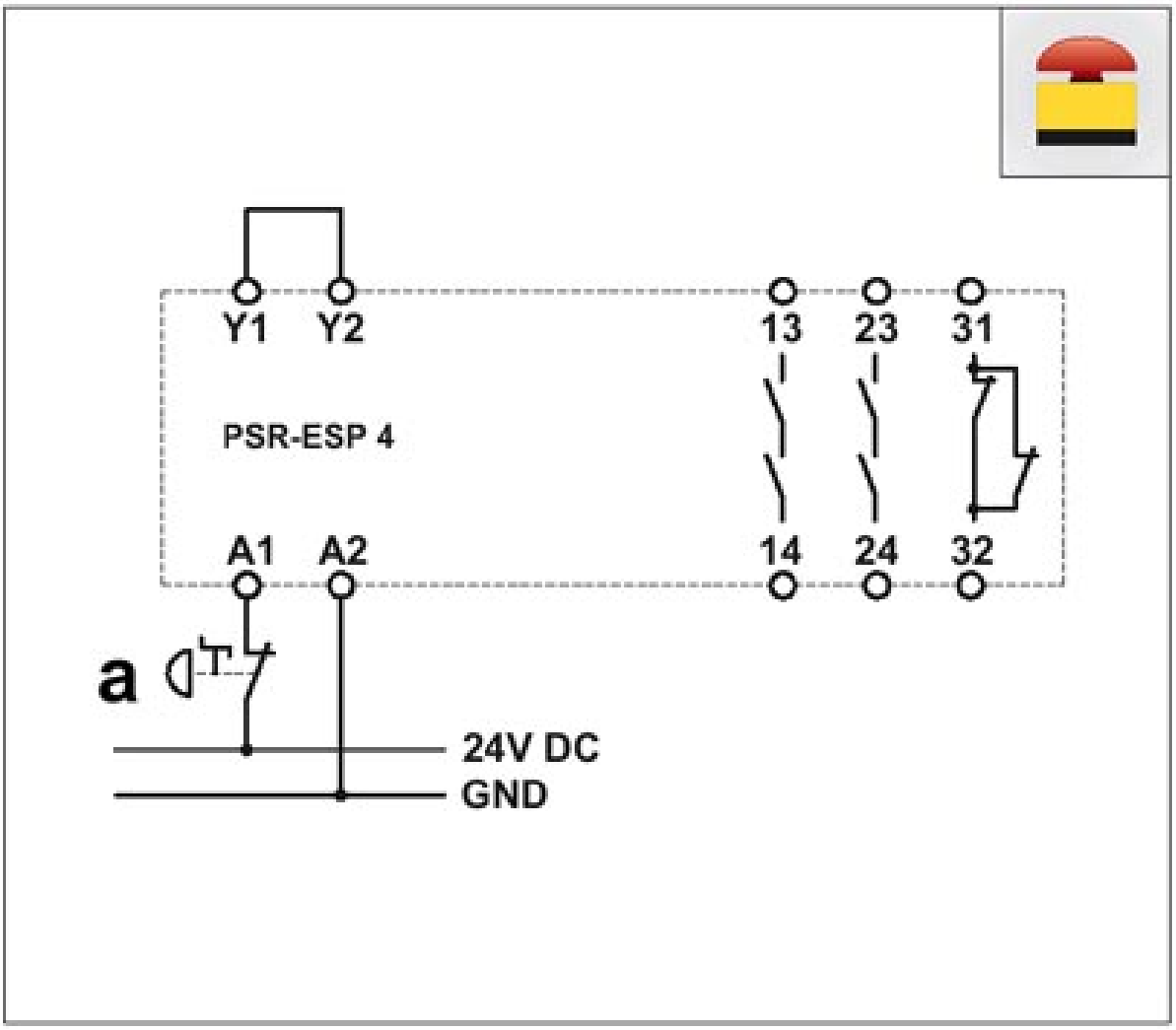
Circuit diagram



One-channel emergency stop circuit with automatic activation, suitable up to safety category 2.

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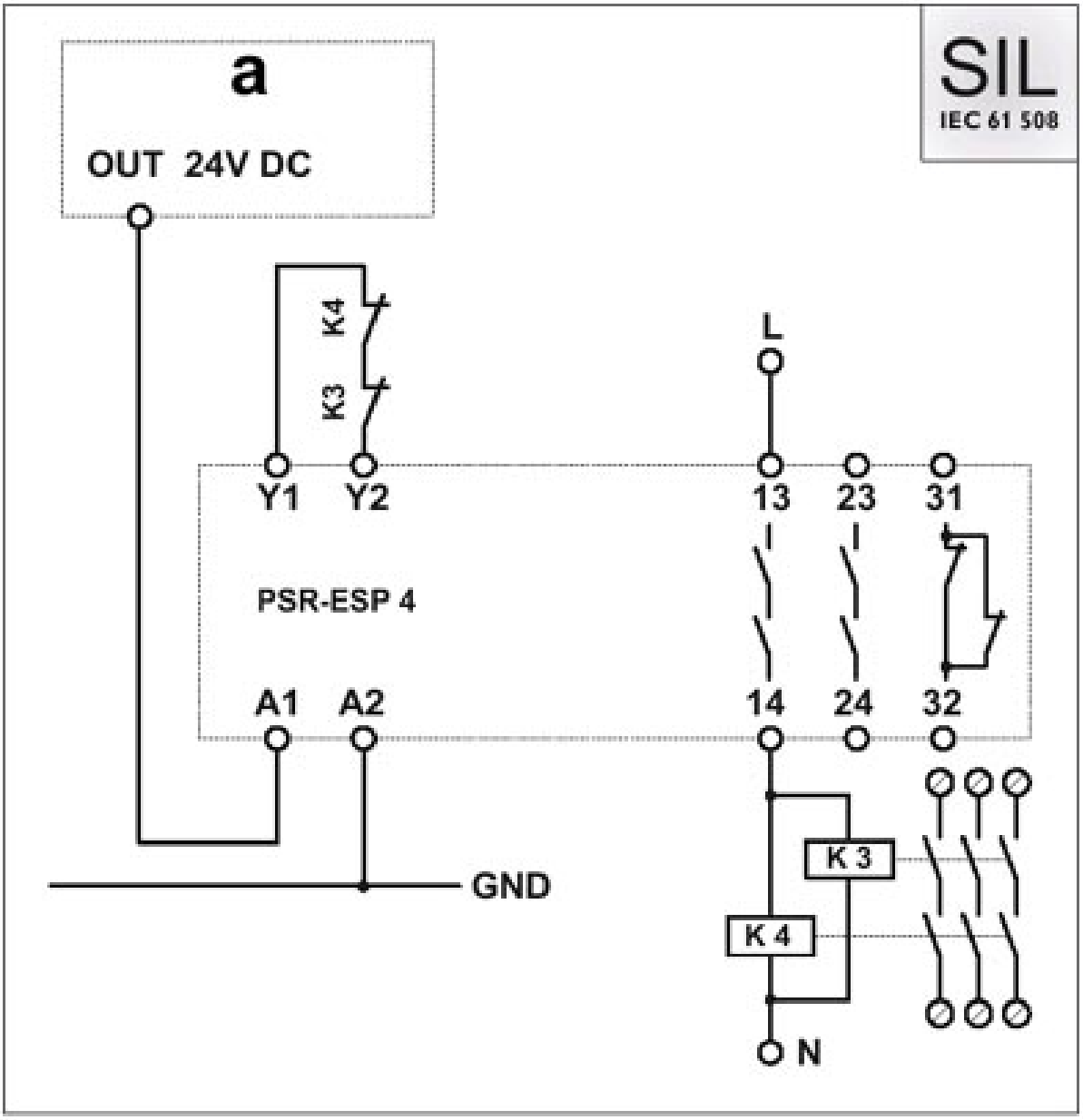
Circuit diagram



One-channel evaluation of a safety controller with automatic activation,
suitable up to SIL 3.

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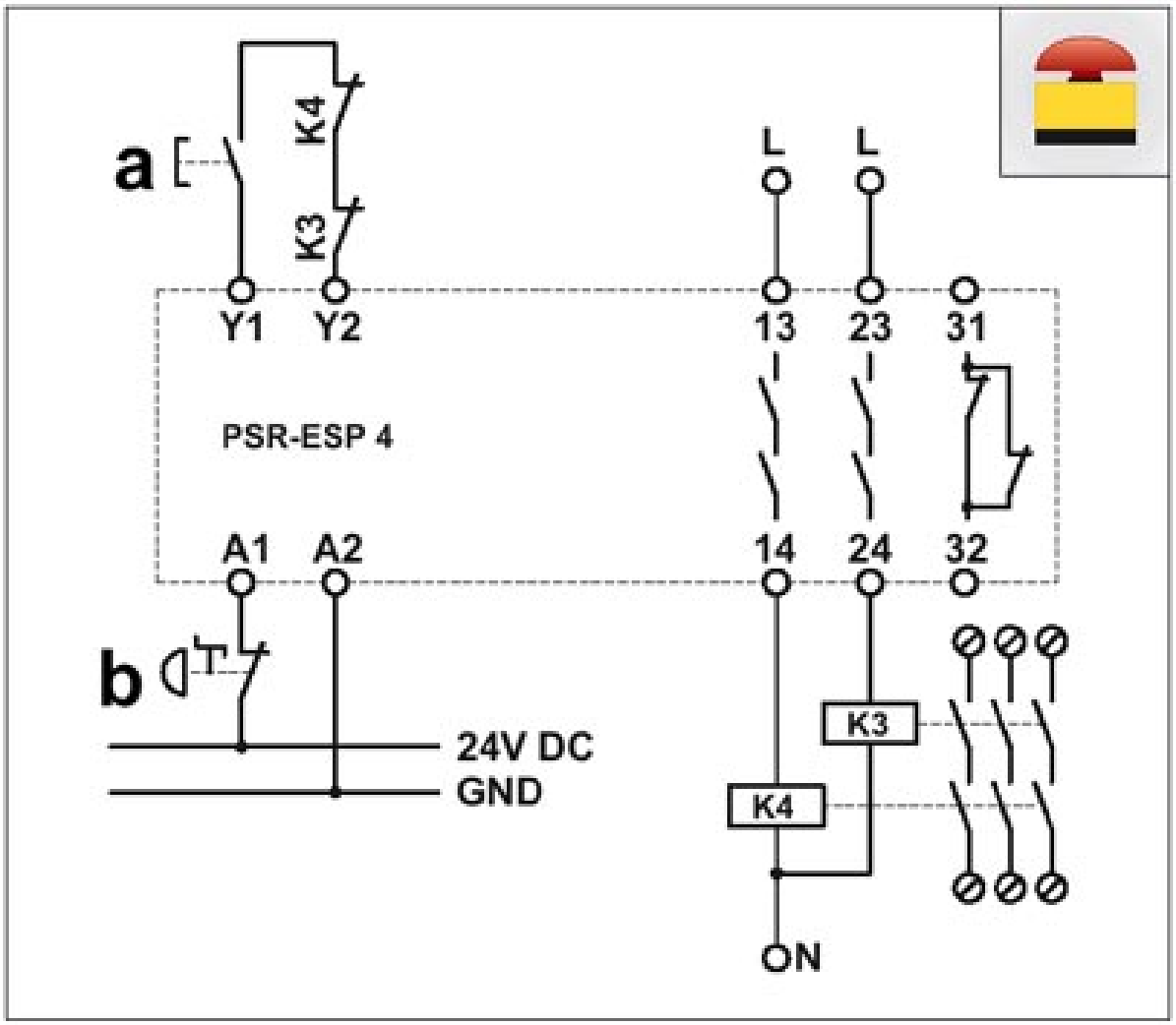
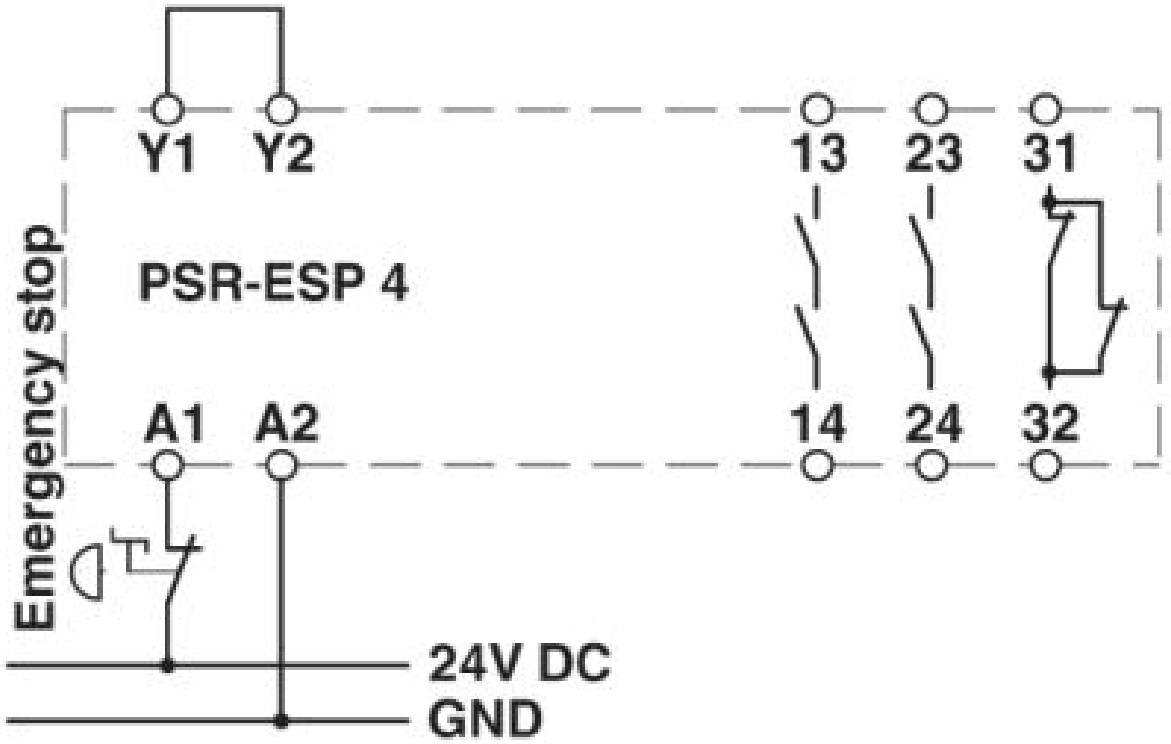
Circuit diagram



One-channel emergency stop circuit with manual activation and monitored contact expansion, suitable up to safety category 2.

Safety relays - PSR-SCP- 24DC/ESP4/2X1/1X2 - 2981020

Circuit diagram



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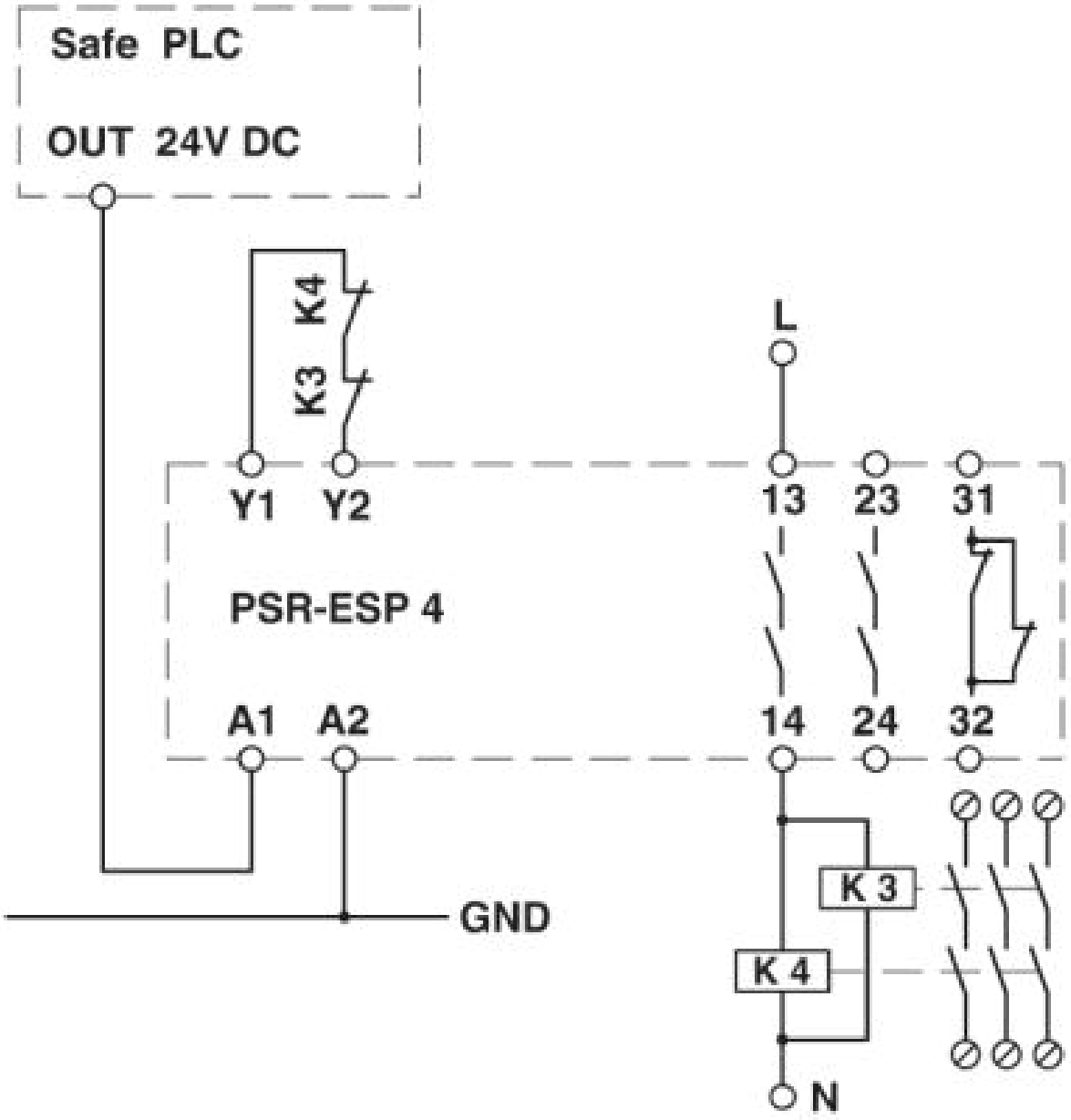
Circuit diagram



Safety relays - PSR-SCP- 24DC/ESP4/2X1/1X2 - 2981020

Circuit diagram