Safety relays - PSR-SCP- 24UC/ESAM4/8X1/1X2 - 2963912

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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, 8 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, SILCL3 according to IEC 62061
- Manually monitored and automatic activation in a single device
- Single and two-channel control
- 8 enabling current paths, 1 signaling current path

Key commercial data

package_quantity	1
GTIN	4017918899707

Technical data

Note

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

Dimensions

Width	45 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	210 mA AC
Typical input current at U_N	120 mA DC

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Input data

Voltage at input/start and feedback circuit	approx. 24 V DC
Typical response time	60 ms (man. start)
Typical response time	250 ms (Auto-start)
Typical release time	20 ms
Concurrence input 1/2	Infinite
Recovery time	1 s
Status display	Green LED
Max. permissible overall conductor resistance	approx. 11 Ω (Input and start circuits at U_N)

Output data

Contact type	8 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	50 A^2 ($I_{TH}^2 = I_1^2 + I_2^2 + ... + I_8^2$)
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.	110 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)	42 W (24 V DC, τ = 40 ms)
Maximum interrupting rating (inductive load)	42 W (48 V DC, τ = 40 ms)
Maximum interrupting rating (inductive load)	42 W (110 V DC, τ = 40 ms)
Maximum interrupting rating (inductive load)	42 W (220 V DC, τ = 40 ms)
Switching capacity min.	0.4 W
Output fuse	6 A fast blow
Output fuse	C6 (24 V AC/DC) automatic device

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	4 kV / Basic insulation, (safe isolation, reinforced insulation and 6 kV between input circuit and enabling current paths (63/64, 73/74, 83/84) and between 63/64, 73/74, 83/84 between each other.)
Rated insulation voltage	250 V
Pollution degree	2
Surge voltage category	III

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
$SFF_{Single-channel}$	100 %
$SFF_{Two-channel}$	89.99 %
Mean time to a hazardous failure ($MTTF_d$)	274185 Years
Probability of a hazardous failure per hour (PFH_D)	4.16×10^{-10}
Diagnostic coverage (DC)	78.38 %
Proof test interval	243 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: 1 000 000 (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 %
$SFF_{Two-channel}$	78.79 %
Mean time to a hazardous failure ($MTTF_d$)	18925 Years
Probability of a hazardous failure on demand (PFD_{AVG})	$1{,}48 \times 10^{-8}$
Diagnostic coverage (DC)	0 %
Proof test interval	77 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})	99 %
CCF	Passed
T_{10d}	114 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: 1 000 000 (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	$4{,}16 \times 10^{-10}$
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: 1 000 000 (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 / cULus Listed /

Approval details

UL Listed

GOST

cUL Listed

cULus Listed

Drawings

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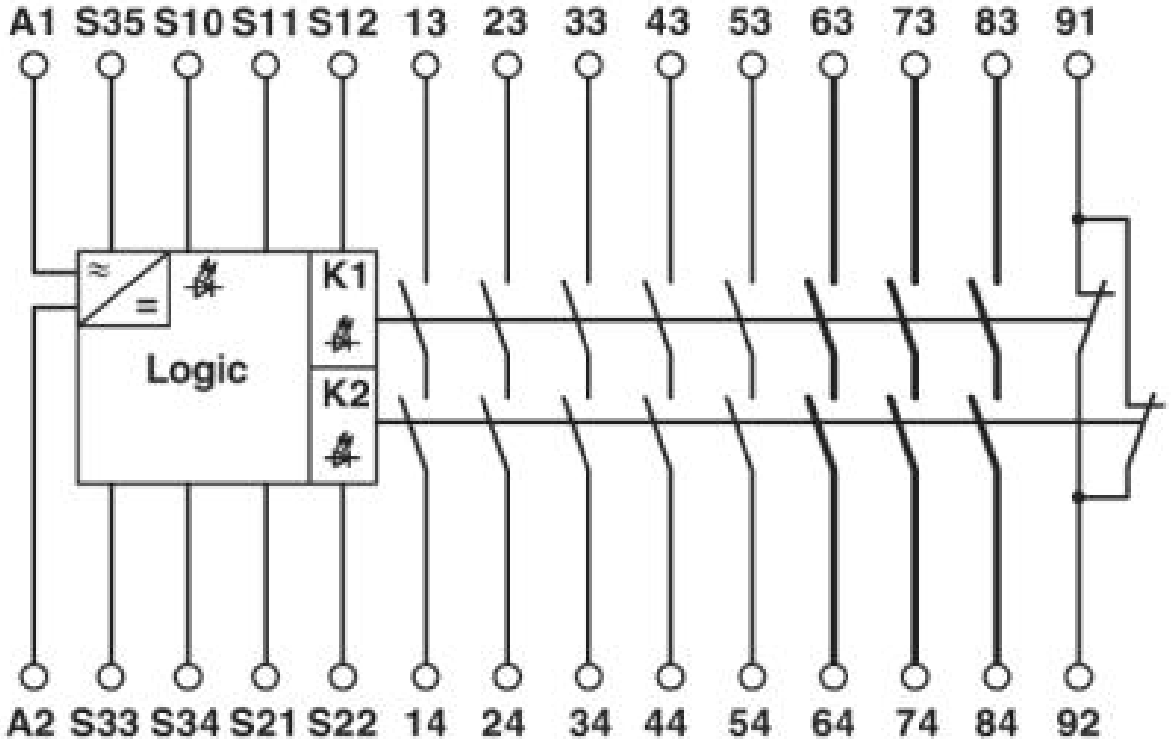
Circuit diagram



1 = logics

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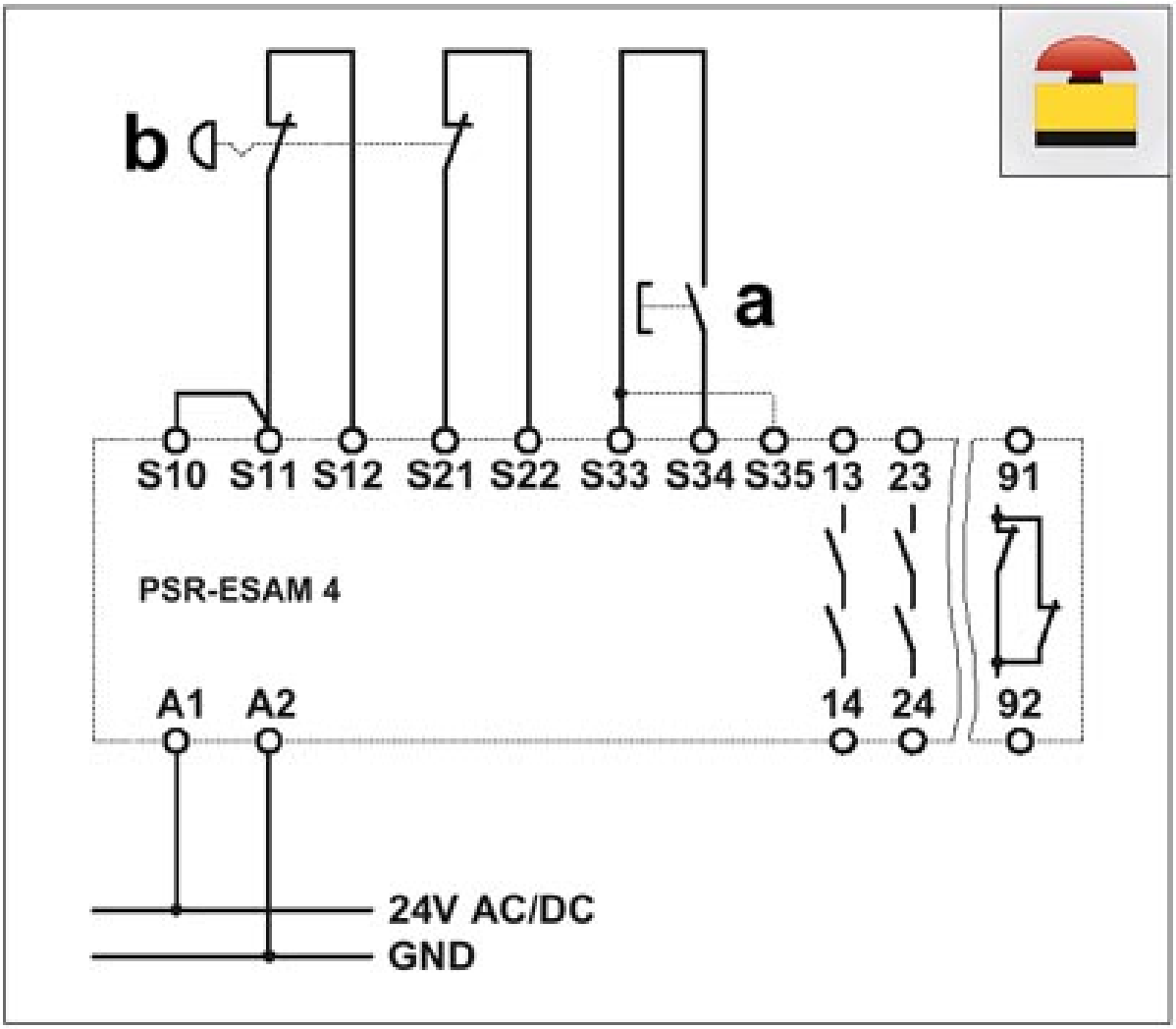
Circuit diagram



a = RESETb = Emergency stopTwo-channel emergency stop circuit with cross-circuiting detection and monitored reset button, suitable up to safety category 4.

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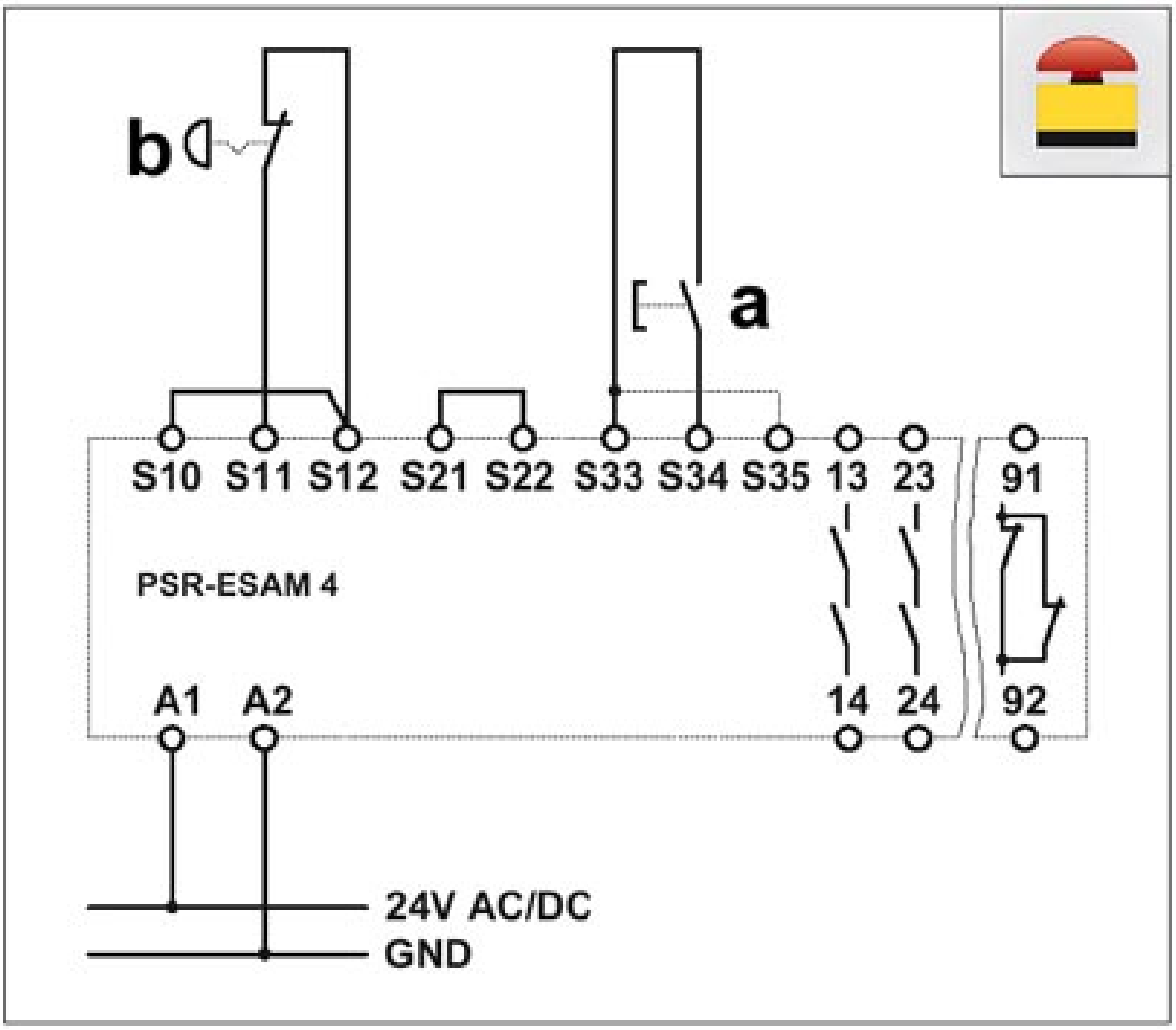
Circuit diagram



a = RESETb = Emergency stopTwo-channel emergency stop circuit
with monitored reset button (bridge on S33/S35: Automatic activation),
suitable up to safety category 2.

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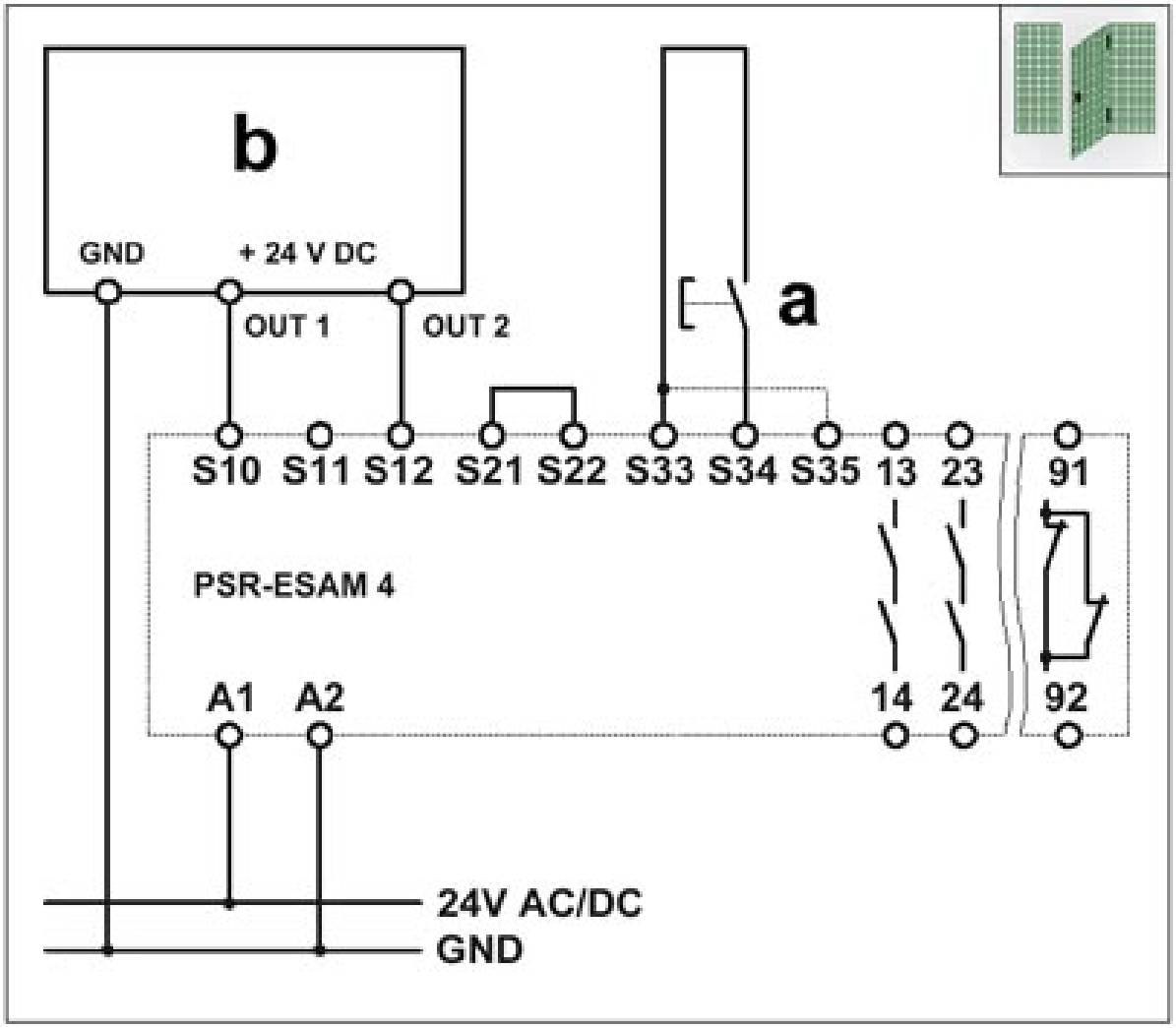
Circuit diagram



a = RESETb = semiconductor inputTwo-channel limit switch monitoring with semiconductor output and monitored reset button (automatic activation: Bridge S33/S35), suitable up to safety category 4 depending on the limit switch.

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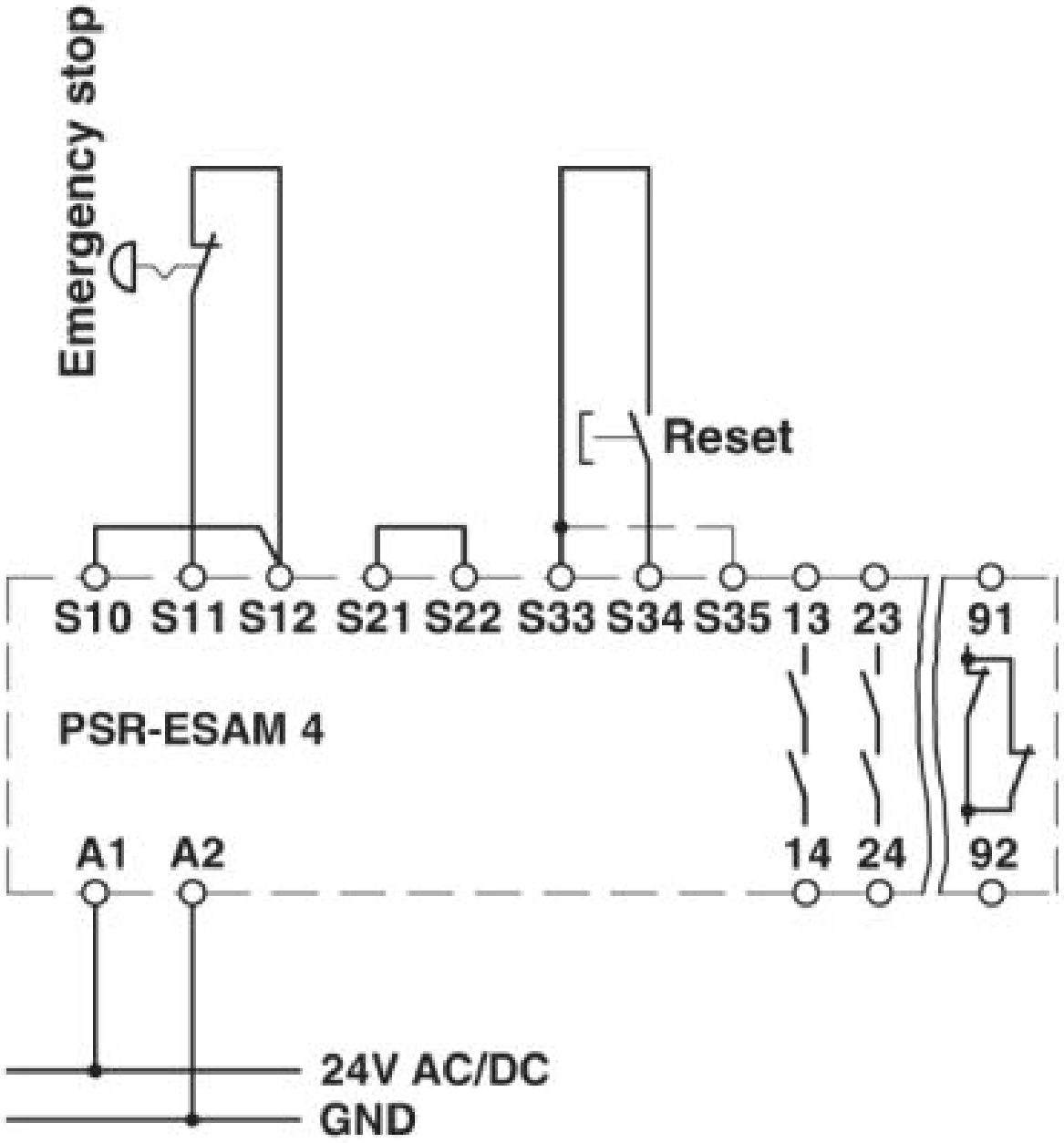
Circuit diagram



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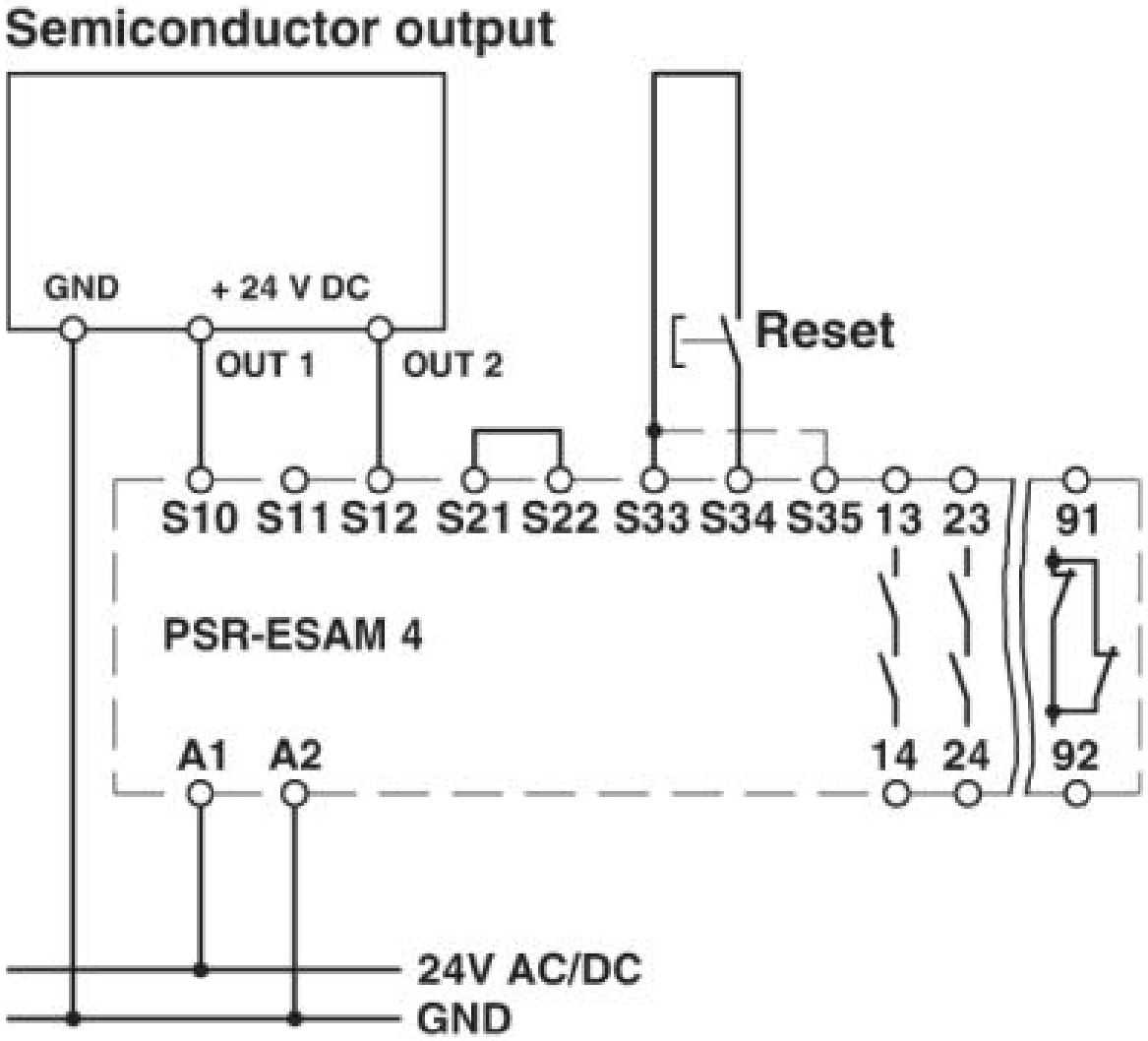
Circuit diagram



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