

Модули реле безопасности ESR

Технические характеристики

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ESR series

Safety relay module

The ESR safety relay module meets the PLe safety requirements of EN/ISO 13849-1 and is suitable for monitoring various signals in industrial sites with high safety requirements, including scram button, safety door switch, safety light curtain signal and two-hand button; can provide 2 normally open 1 normally closed /3 normally open 1 normal close output, can choose to monitor manual reset and automatic reset.

Features of product:

- Designed in accordance with EN/ISO 13849-1 (Category 4, PLe)
- Relay output :2 or 3 normally open contacts, 1 normally closed auxiliary contact.
- Manual reset and automatic reset options.
- The internal circuit has cross fault monitoring.
- Self-check function redundant circuit design.
- Input overvoltage and overcurrent protection.
- Power supply anti-reverse connection protection design.
- Indicator display with visualized status is easy for the diagnosis of operational status.
- Detachable terminal for easy maintenance.
- Standard 35mm width guide mounting design.



Technical data

Standard level

Reference standard	EN/ISO 13849-1
Safety level	EN/ISO 13849-1 category 4

Electric parameter

Power supply	DC24V±10%
Power consumption	<3W
Response time	<20ms
Suction buffer time	<50ms
Power-on restart time	<1s
Protective circuit	Input power overvoltage and overcurrent protection Anti reverse-connection protection
Safety input	Double NPN normally closed input (ESRN model), double PNP normally closed input (ESRP model), double-channel safety door or emergency stop button (ESRS model)
Input synchronously	S1 is always before S2
Safety output	2 circuit normally open dry contact, 1 circuit normally closed dry contact 3 circuit normally open dry contact, 1 circuit normally closed dry contact
Contact rating	AC15: 5A/250V DC13: 6A/24V
Electric lifespan	≥10,000 times
Mechanical lifespan	≥10 millions times

Environment

Vibration resistance	Frequency 10Hz~55Hz, amplitude 0.35±0.05mm, 20 times each at X, Y, Z direction
Shock resistance	Acceleration 10g, pulse duration 16ms, 1000 times each at X, Y, Z direction
Operational temperature	-10~+55℃
Storage temperature	-40~+85℃
Protection level	Housing protection/ terminal protection: IP40/IP20

Installation/ structure

Installation	35mm DIN navigation
Traverse size	0.2~2.5mm ²
size (mm)	117×100.6×22.5

Explanation of safety relay model (for example: ESR□-2A1B-□)

ESR



Product series

ESR series safety relay

□



Input type

N: double channel NPN type input
P: double channel PNP type input
S: double channel safety door,
emergency stop button input

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RY



Output type

2A1B: 2 groups normally open contact,
1 group normally closed contact
3A1B: 3 groups normally open contact,
1 group normally closed contact

—

E



English

ESR(N/P)-2A1B-E

- Power: power indicator, lights when normally power on.
- CH1: Channel 1 indicates that relay 1 is lit when operated and extinguished when released.
- CH2: Channel 2 indicates that relay 2 is lit when operated and extinguished when released.
- V+/V-: power input terminal.
- VCC/GND: power output terminal.
- Pe: protective ground terminal.
- S1: light curtain has the input of signal 1 terminal.
- S2: light curtain has the input of signal 2 terminal.
- S33/S34: connect S33, S34 choose automatic reset.
- S33/S35: connect S33, S35 choose manual reset.
- 13/14, 23/24: two circuits safety output (NO) terminal.
- 31/32: one circuit auxiliary output (NC) terminal.



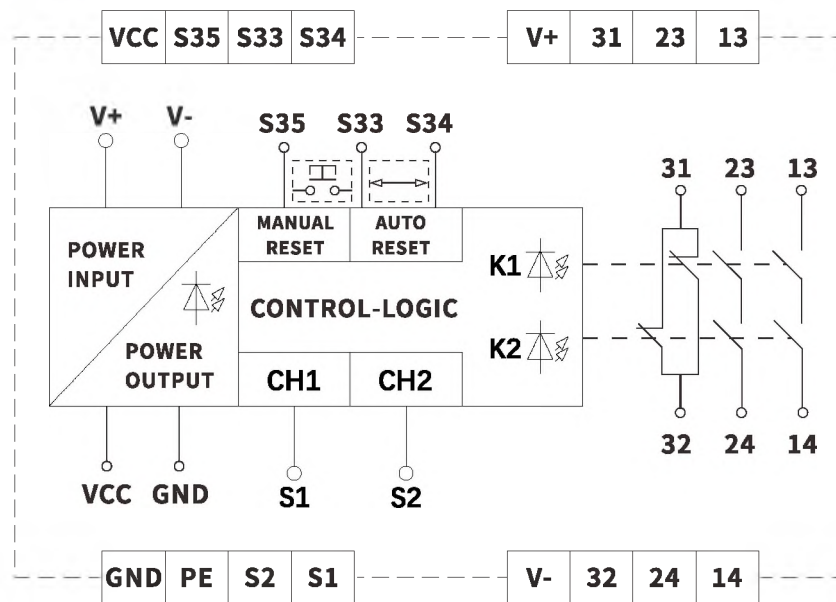
ESR(P/N/S)-3A1B-E

- Power: power indicator, lights when normally power on.
- CH1: Channel 1 indicates that relay 1 is lit when operated and extinguished when released.
- CH2: Channel 2 indicates that relay 2 is lit when operated and extinguished when released.
- A1/A2: power input terminal.
- S1: light curtain output signal 1 terminal.
- S2: light curtain output signal 2 terminal.
- S11/S12: safety door or emergency stop supervision in put signal 1 terminal.
- S21/S22: safety door or emergency stop supervision in put signal 2 terminal.
- S34/S35: choose automatic reset or supervised manual reset
- 13/14, 23/24, 33/34: 3 circuits safety output (NO) terminal.
- 41/42: one circuit auxiliary output (NC) terminal.



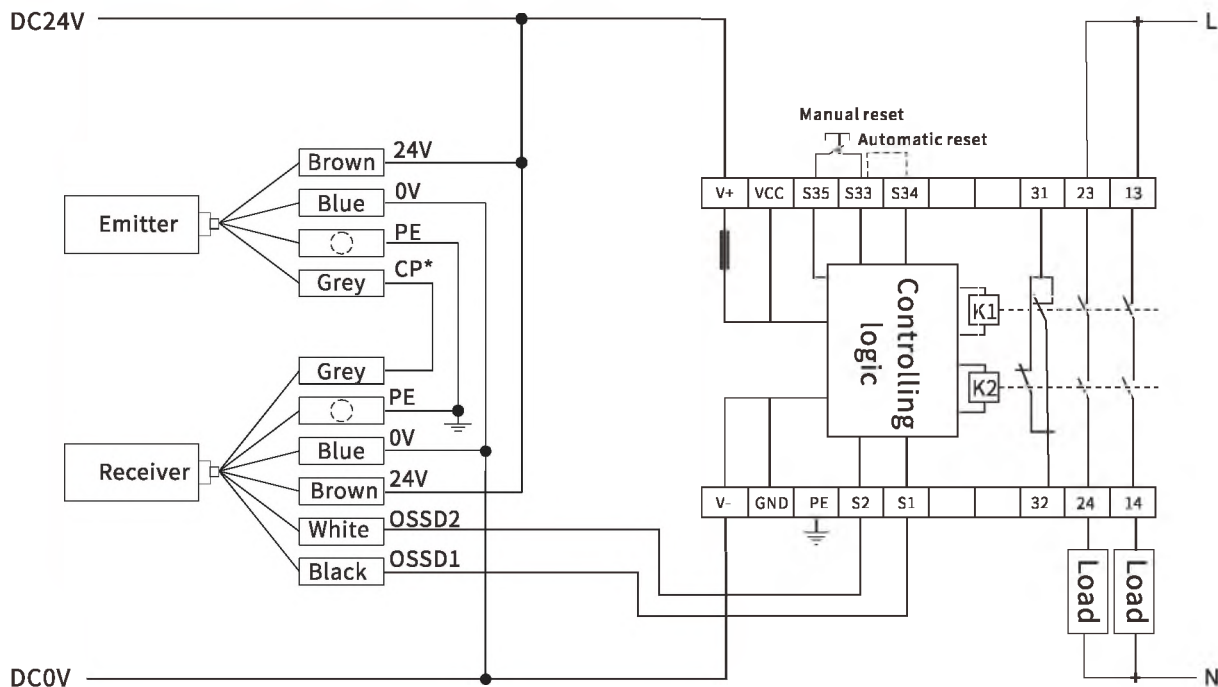
Block Diagram of Function

ESR(N/P)-2A1B



Wiring diagram

ESR-2A1B used for safety light curtain manual reset/ automatic reset wiring diagram

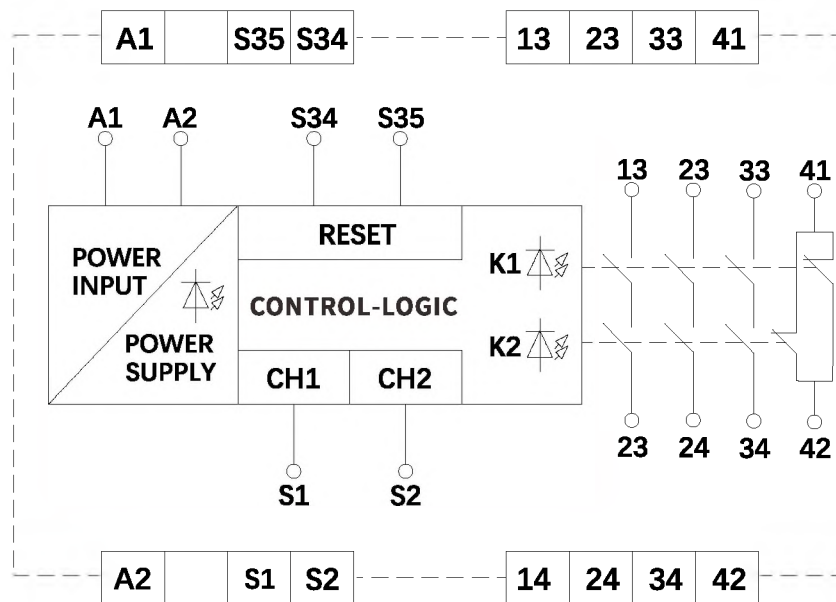


*In optical synchronization mode, no CP line or CP is connected in a specific mode.

*Manual reset/ automatic reset (select one from two)

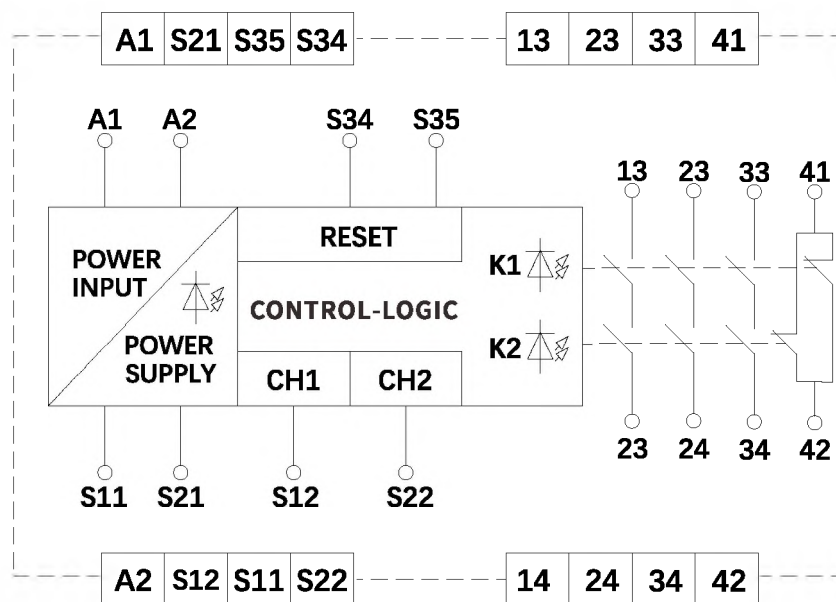
Block Diagram of Function

ESR(N/P)-3A1B

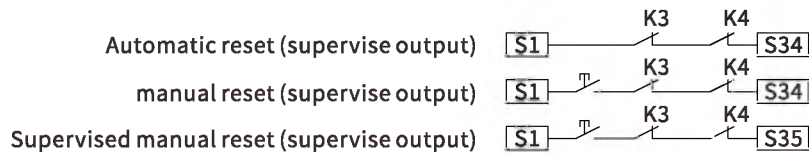
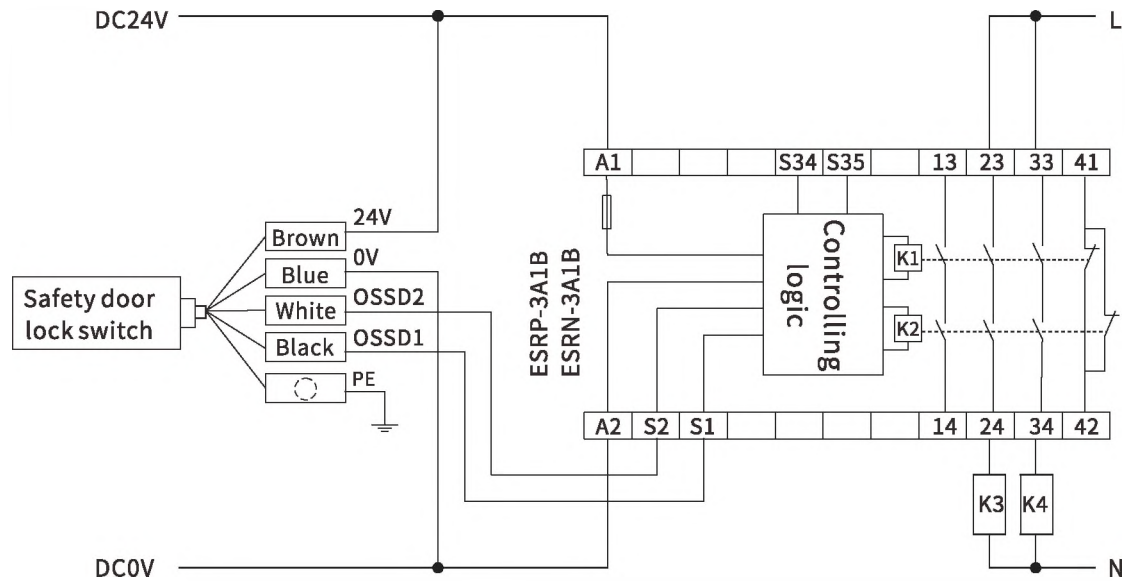


Block Diagram of Function

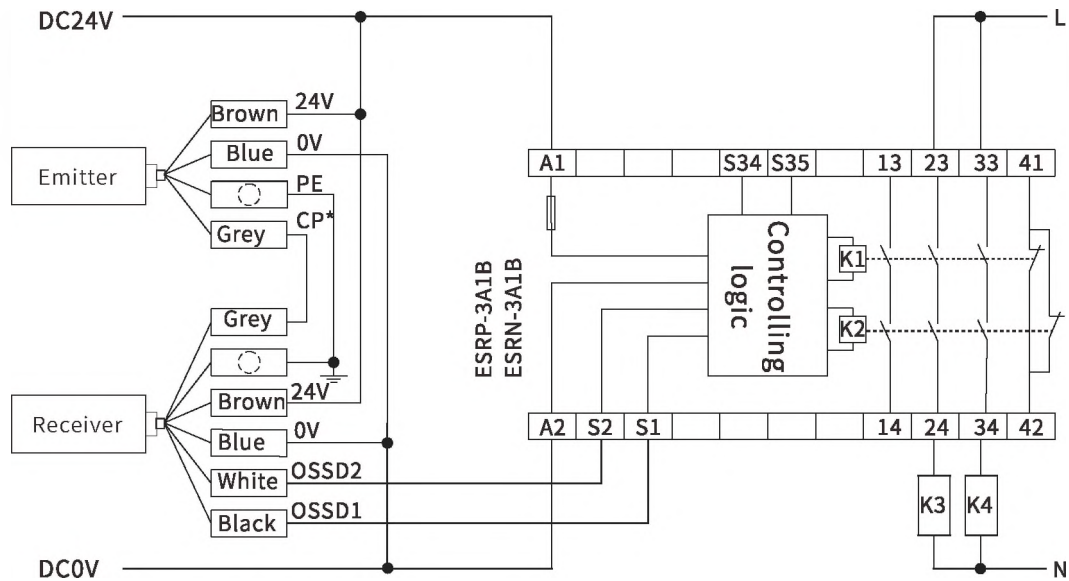
ESRS-3A1B



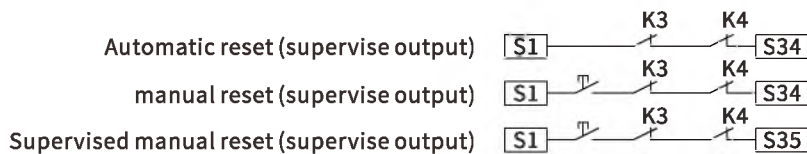
Safety relay ESR(N/P)-3A1B used for safety door lock switch (NPN/PNP type output)



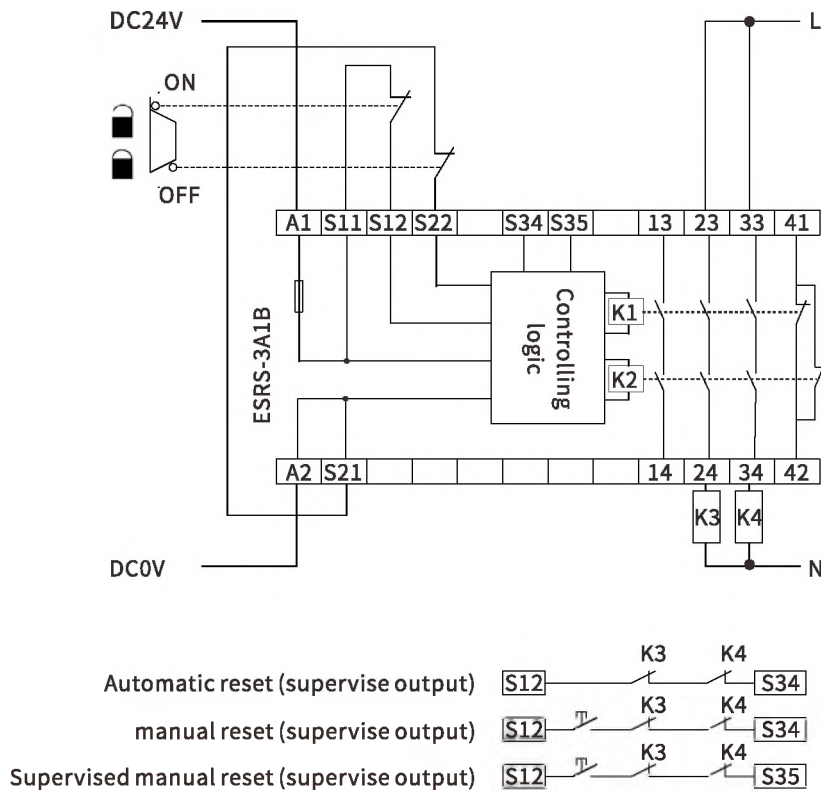
Safety relay ESR(N/P)-3A1B used for safety light curtain (NPN/PNP type output)



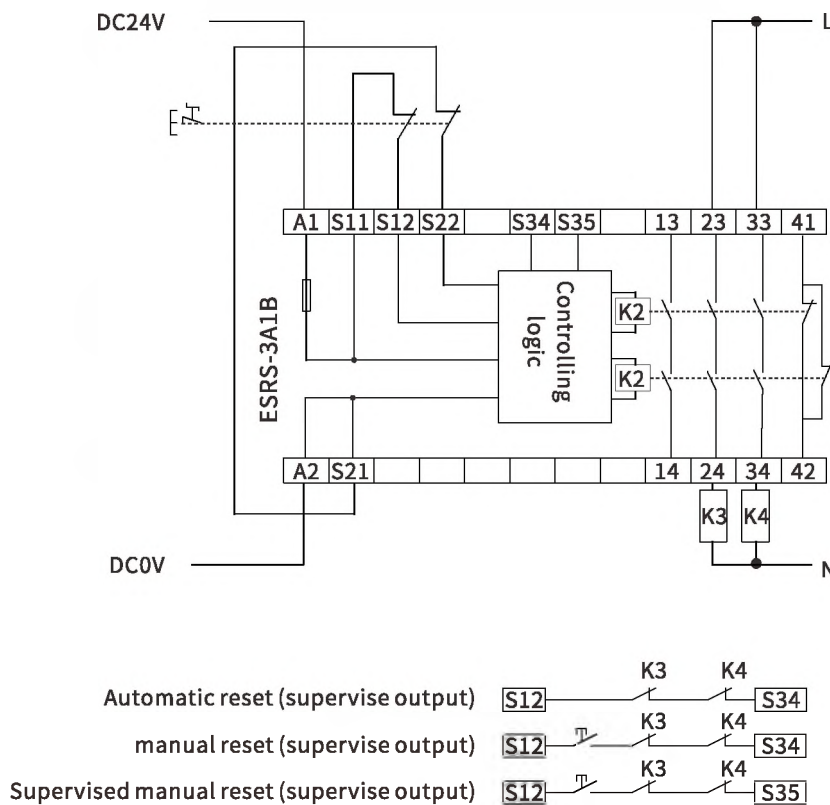
*In optical synchronization mode, no CP line or CP is connected in a specific mode.



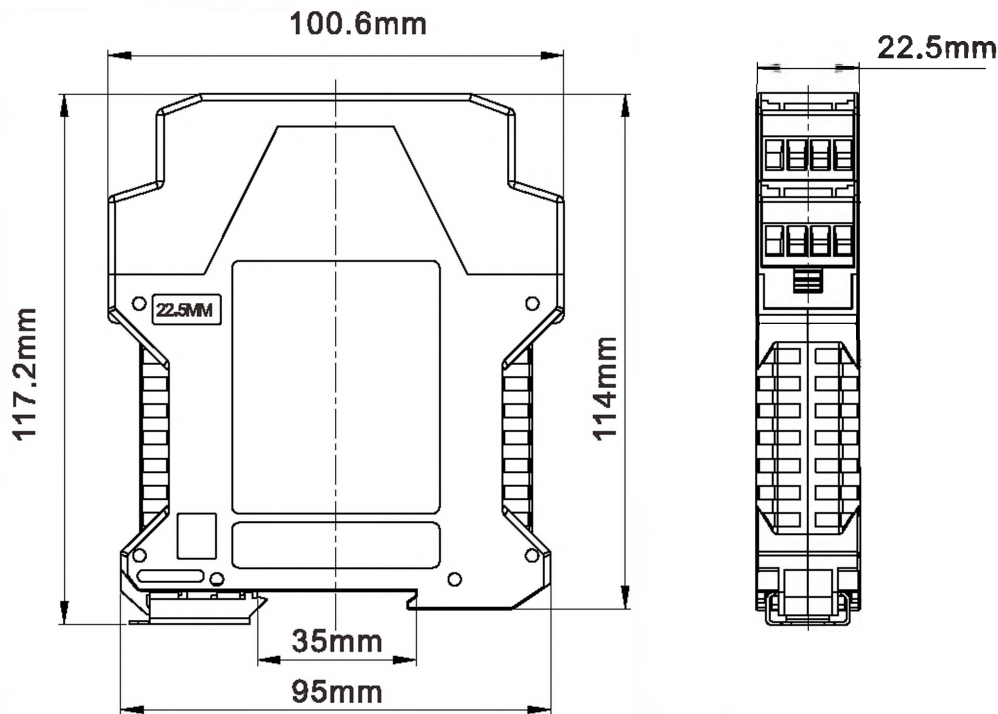
Safety relay ESRS-3A1B used for double channel safety door



Safety relay ESRS-3A1B used for emergency stop button



Product size



Suggestion for installation & Disassemble

- ◆ Cut off the power of the machine to ensure that there is no dangerous voltage inside the machine, except for lighting and spare sockets;
- ◆ The product adopts 35mm DIN rail to install and fix.
- ◆ Connect the cables according to the wiring drawing of the safety relay.
- ◆ Before powering on, check whether the cable connection is correct and whether the relay is fastened to the mounting rail.
- ◆ The power supply of the machine must be cut off before disassembling the safety module.
- ◆ Loosen the locking screw or remove the terminal.





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