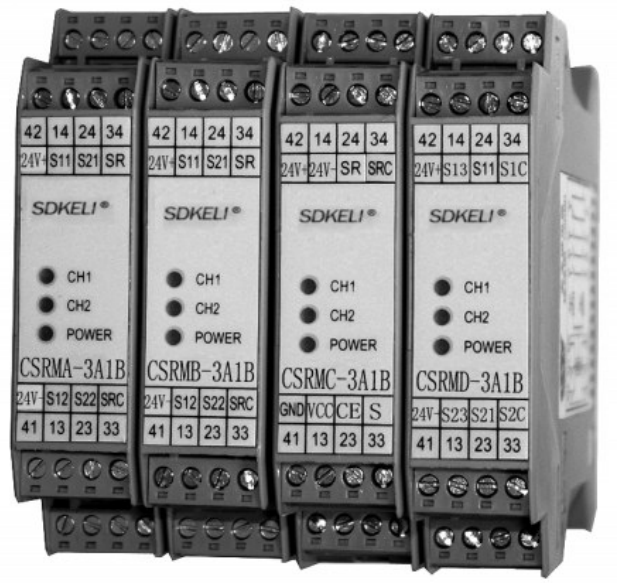
SDKELI®

CSRM Series Safety Relay Module

Operation Manual

(2018.10)



CE

TÜVRheinland® CERTIFIED

Management System ISO 9001:2015

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Ⅰ Standards and directives

(1) CSRM series safety relay module (hereinafter referred to as CSRM) complies with the following legislations and standards:

ISO 13849–1 (PLe)

Machinery Directive 2006/42/EC

EMC Directive 2004/108/EC

(2) CSRM received the following approvals:

EMC Competent Body Certificate (Power supply for test: MW RS–35–24)

(3) CSRM is designed according to the following standards:

EN/IEC 61496–1 (Type 4 ESPE)

Ⅱ User instructions

Read this manual thoroughly and confirm the

product from the appearance before installing, operating and maintaining CSRM. Please contact us if you have any questions or comments.

➢ Quality Assurance

The quality guarantee period of CSRM is 12 months.

KELI makes no warranty or representation, express or implied, regarding non– infringement, merchantability, or fitness for particular purpose of the products. Any buyer or user acknowledges that the buyer or user alone has determined that the products will suitably meet the requirements of their intended use. KELI disclaims all other warranty, express or implied.

➢ Limitations of Liability

KELI shall not be responsible for special, indirect, or consequential damages, loss of profits or commercial loss in any way connected with the products, whether such claim is based on contract, warranty, negligence, or strict liability.

In no event shall responsibility of KELI for any damages, losses and risks caused by the operations not according to this manual.

In no event shall KELI be responsible for warranty, repair, or other claims regarding the products unless KELI's analysis confirms that the products were properly handled, stored, installed, and maintained and not subject to contamination, abuse, misuse, or inappropriate modification or repair.

➢ Change in Specifications

Product specifications and accessories may be changed at any time based on improvements and other reasons.

It is our practice to change model numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the product may be changed without any notice. When in doubt, please contact us.

➢ Errors and Omissions

The information in this document has been carefully checked and is believed to be accurate; however, no guarantee is that there are no errors or omissions. If there is problem has been found, please ask us for timely correction.

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This document shall not be copied for sales or promotions without permission.

This document is protected by copyright and is intended solely for use in conjunction with CSRM. Please notify us before copying or reproducing this document in any manner, for any other purpose. If copying or transmitting this document to another, please copy or transmit it in its entirety.

Ⅲ Precautions on safety

The following special information may appear at any place in the manual, as a warning of potential risk or promotion of special attention to information about clarifying or simplifying certain procedures.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

! WARNING

WARNING indicates an actual or potential risk or health hazard. They are designed to help you to prevent accidents.

Read carefully and follow the warnings!

! CAUTION

CAUTION indicates the key information which, if not avoided, can result in expected legal dispute, or equipment damage.

Read carefully and follow the cautions!

Ⅳ Precautions for safe use

Make sure to observe the following precautions that are necessary for ensuring safe use of the product.

- Thoroughly read this manual and understand the installation procedures, operation check procedures, and maintenance procedures before using the product.
- CSRM should only be installed, checked, and maintained by a qualified person.
- A qualified person is defined as "a person or persons who, by possession of a recognized degree or certificate of professional training, or who, by extensive knowledge, training and experience, has

successfully demonstrated the ability to solve problems relating to the subject matter and work".

- OSSDs must satisfy the following conditions:

  Not short-circuited outside;

  The OSSDs should not be used with a current that is higher than the rating.
- Do not drop the product.
- Dispose of the product in accordance with the relevant rules and regulations of the country or area where the product is used.
- Users should establish rules or regulations for safe operation and perform strictly.

Section1 Product Description

1.1. System components

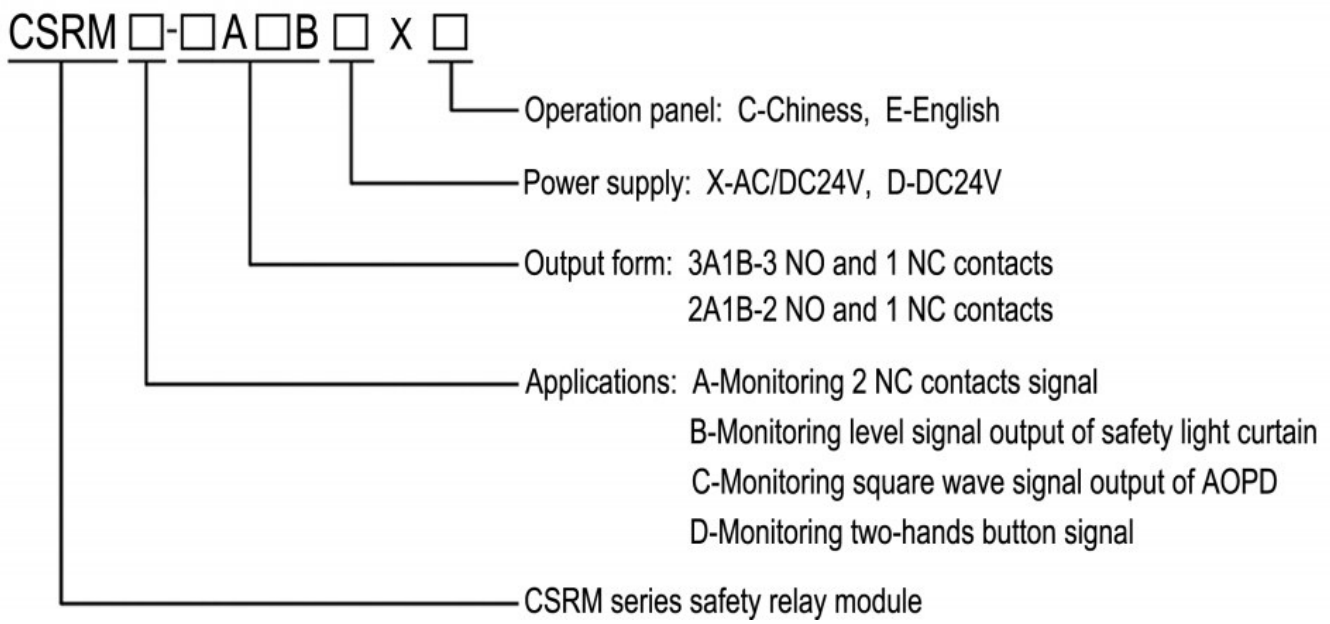
CSRM fulfills the safety requirements of EN/ISO 13849–1 Cat.4. Applies to monitoring the signals of industry field with high safety requirements, including emergency stop signals, safety gate signals, safety light curtain signals, safety light curtain signal with pulse output and two–hands button signal.

The modules can supply two kinds of outputs: 3NO/ 1NC (3A1B) and 2 NO/1NC (2A1B).

Except for CSRMD module, all other modules can supply two working patterns: auto– reset and manual–reset, and the 2A1B modules can monitor the reset button. The CSRMB–2A1B and CSRMC–2A1B module can supply Muting function, Be sure to use

other means to ensure the safety of the system with Muting condition. Except for CSRMD–3A1B, all other modules can supply EDM function.

1.2. Specifications

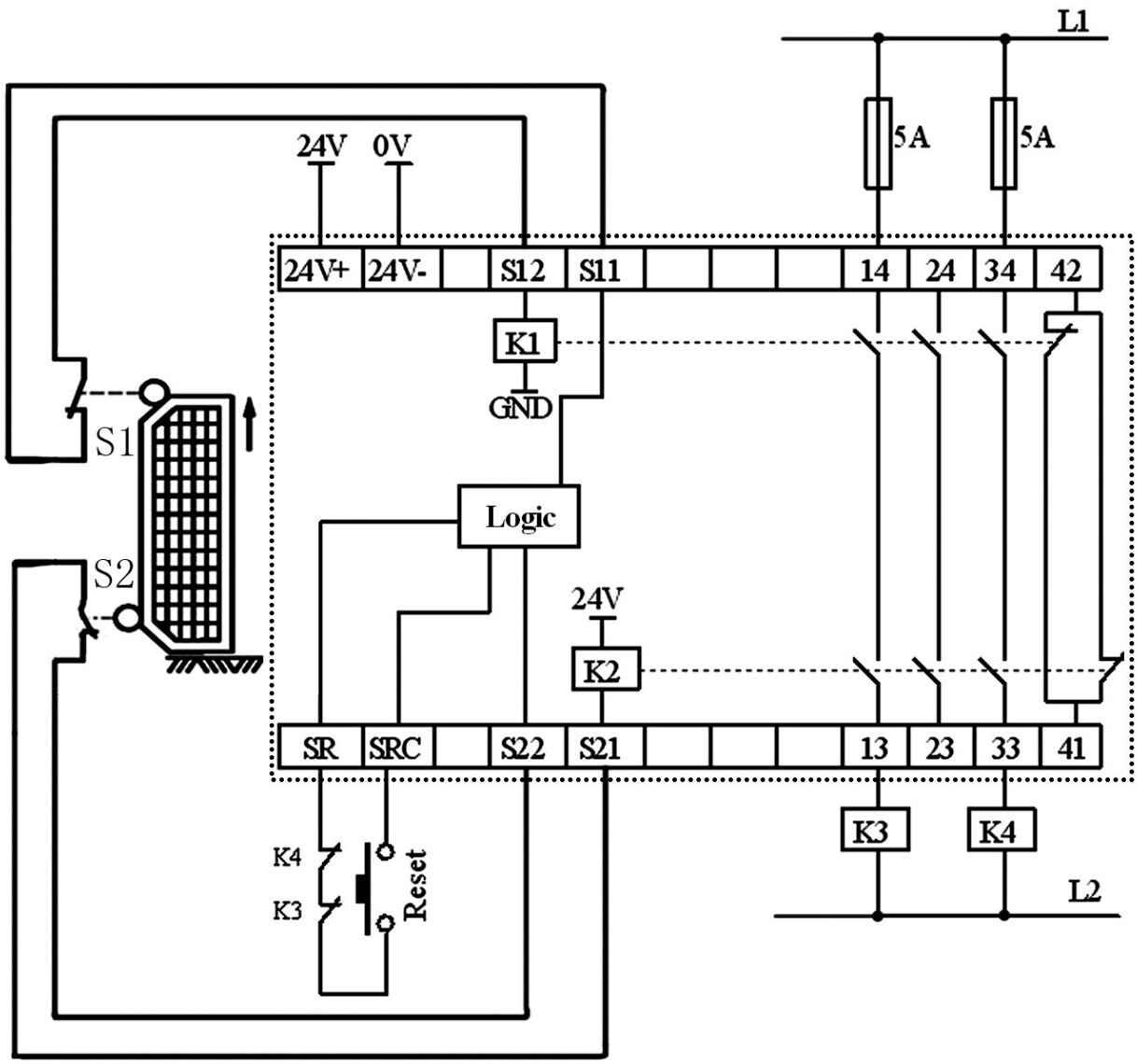


Note: The power supply of 3A1B and B module is DC24V, and the others could be AC/ DC24V

1.3. Applications

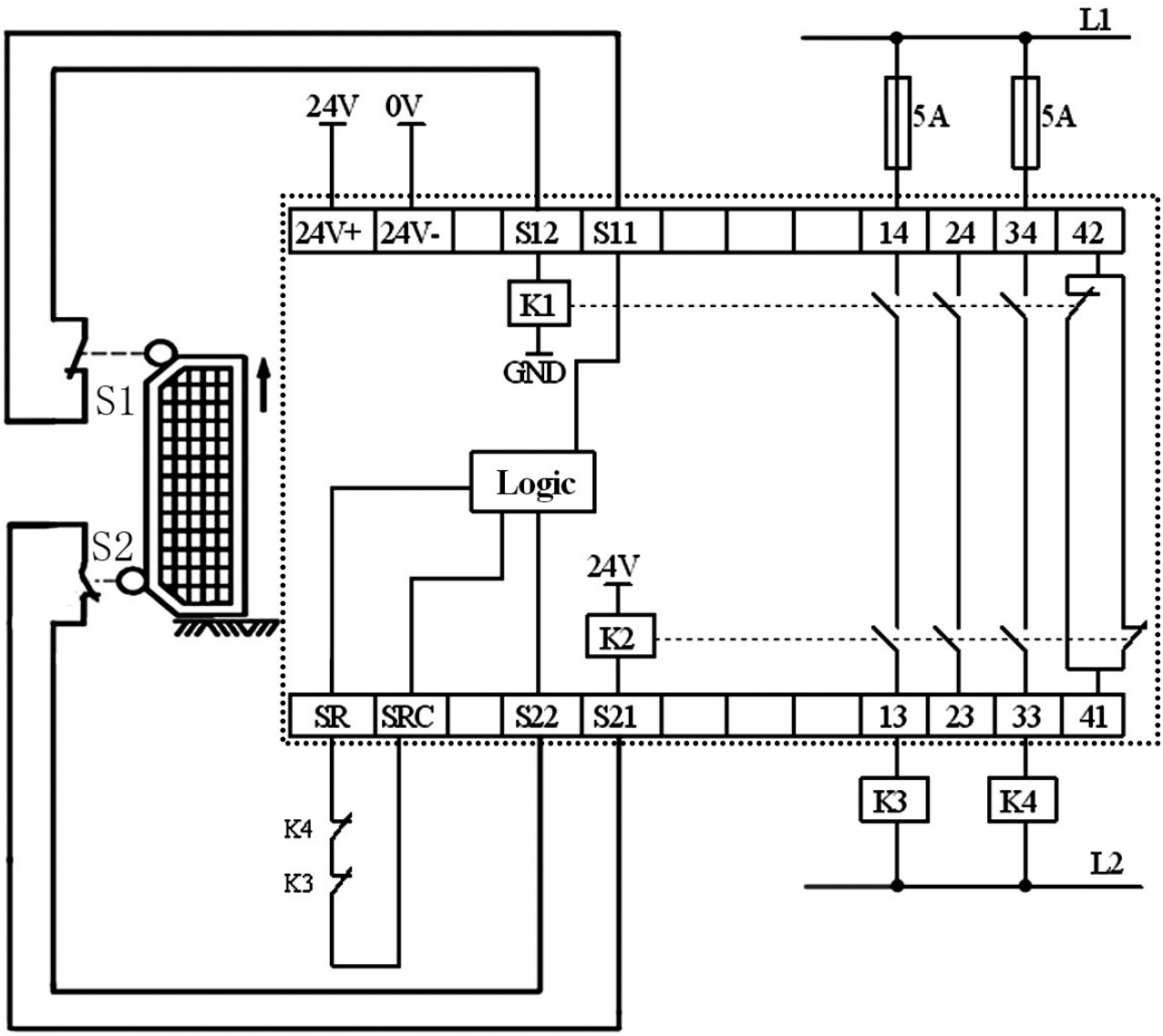
1.3.1. CSRMA: monitoring 2 NC contacts signal

CSRMA module is appropriate for 2–channel NC switches, such as emergency stop buttons, safety gate switches etc., with monitored short– circuit between them. When they are short–circuit, the power will be cut down. If all of the lights are OFF, please check whether the two input signals are short circuit. The module can also monitor short– circuit and open–circuit respectively and locks out while the switches are inconformity with each other. The typical wiring is shown in Fig.1 to Fig.8.



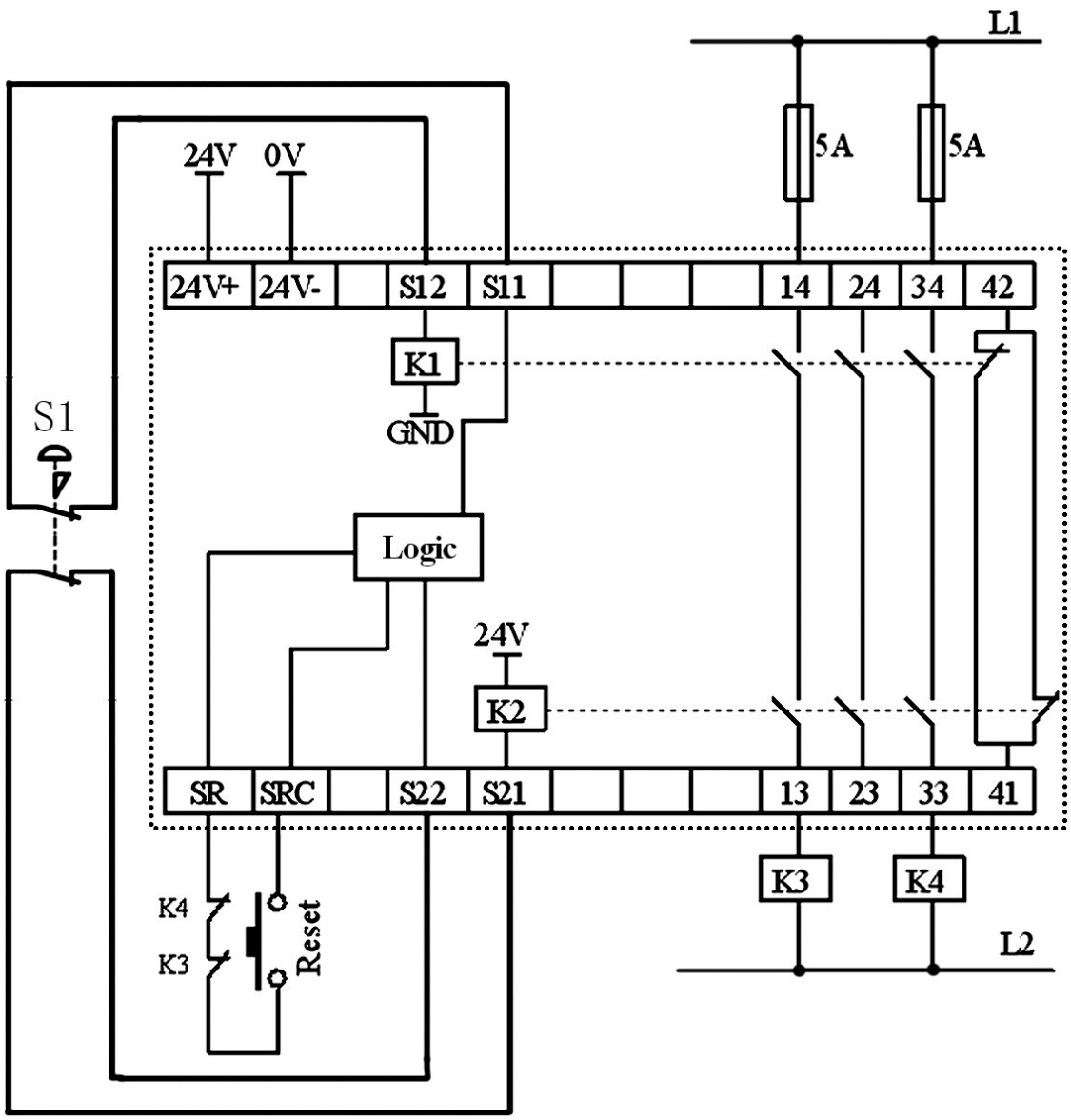
Note: 1. K3 and K4 indicate loads, including but not being limited to relay
2. Overcurrent protection device must be connected to the control loop and the voltage should be not less than the load voltage

Fig.1 Safety gate switch input, manual–reset of 3A1B



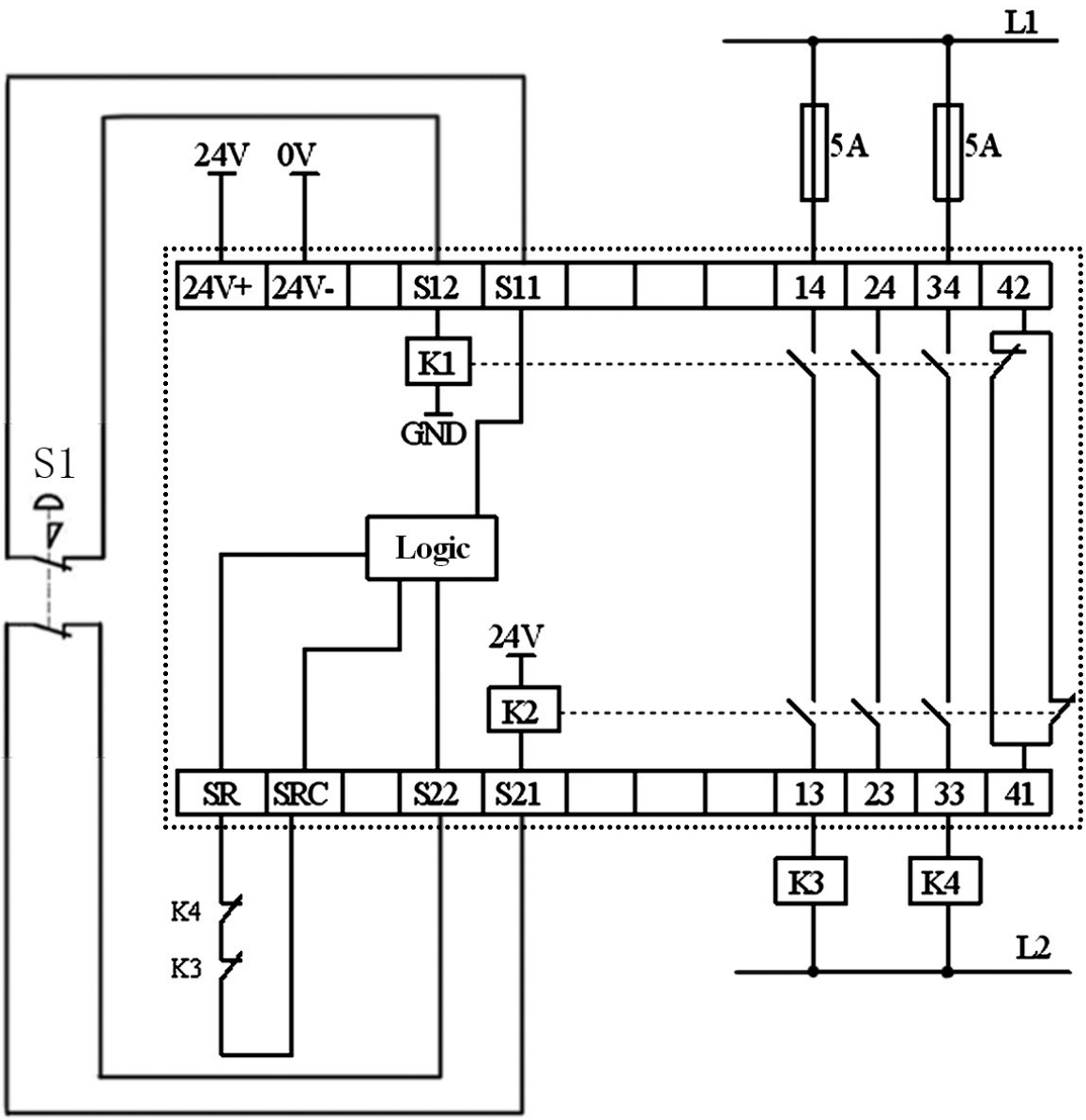
Note: 1. K3 and K4 indicate loads, including but not being limited to relay
2. Overcurrent protection device must be connected to the control loop and the voltage should be not less than the load voltage

Fig.2 Safety gate switch input, auto-reset of 3A1B



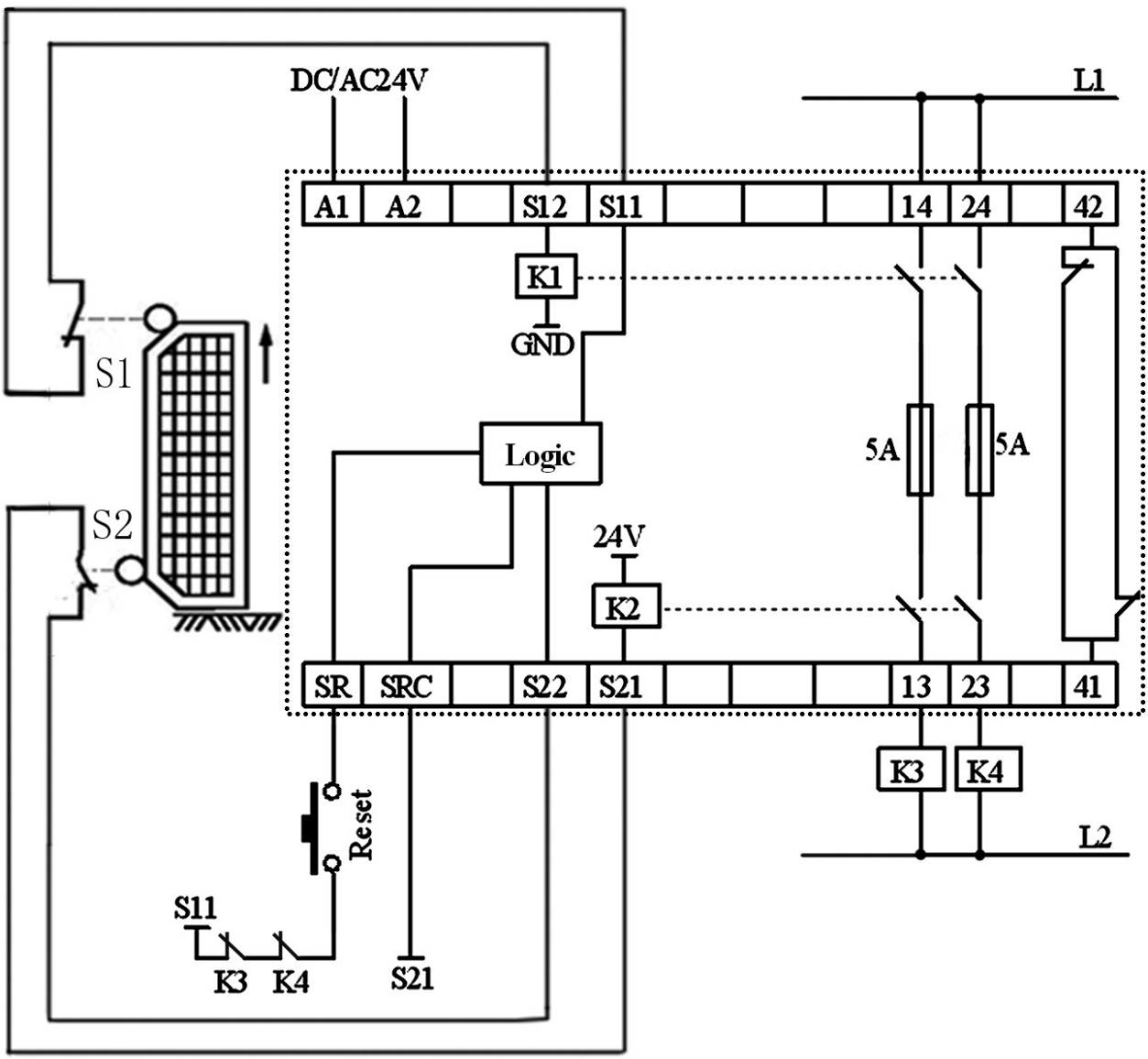
Note: 1. K3 and K4 indicate loads, including but not being limited to relay
2. Overcurrent protection device must be connected to the control loop and the voltage should be not less than the load voltage

Fig.3 Emergency stop button input, manual–reset of 3A1B



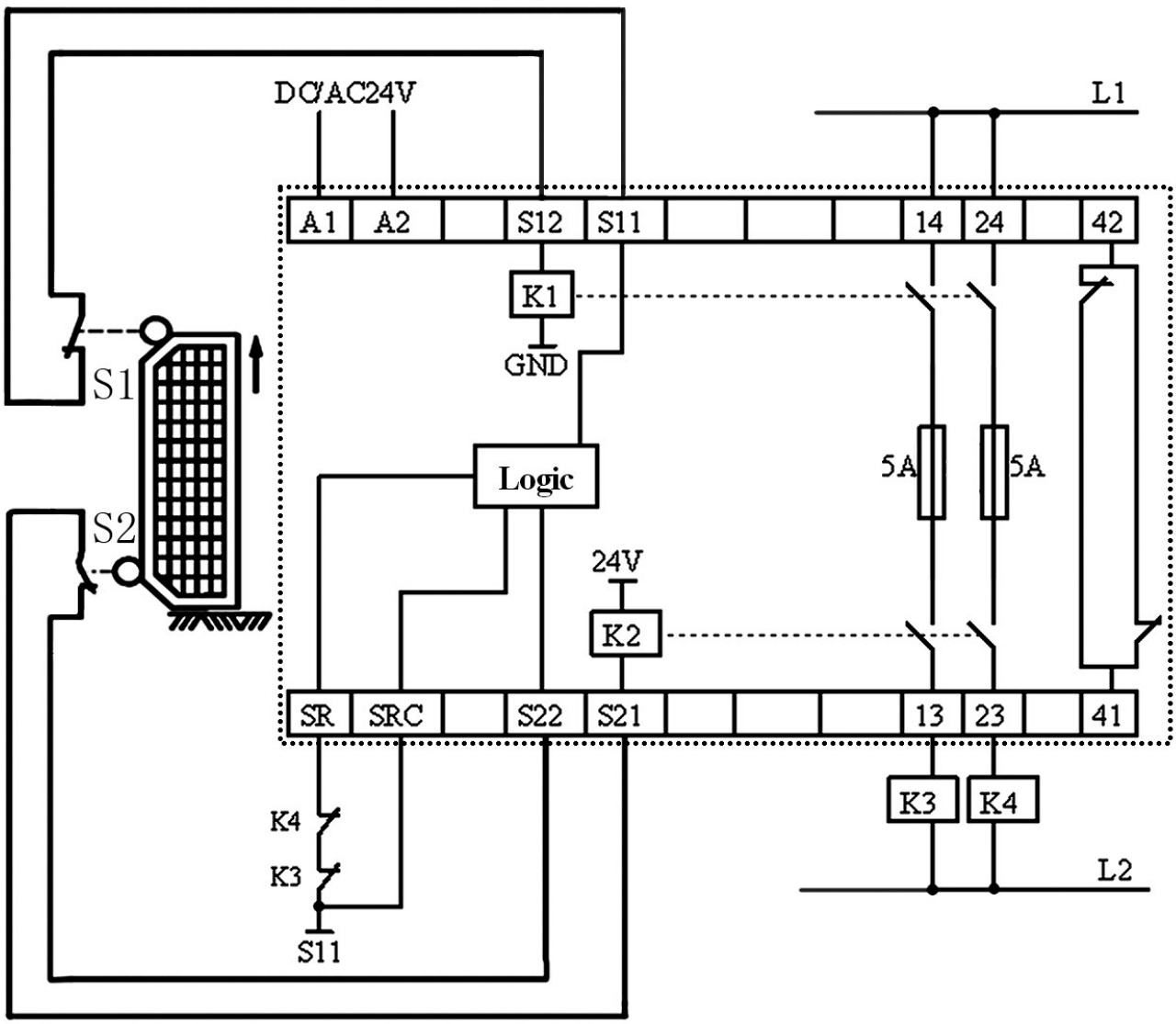
Note: 1. K3 and K4 indicate loads, including but not being limited to relay
2. Overcurrent protection device must be connected to the control loop and the voltage should be not less than the load voltage

Fig.4 Emergency stop button input, auto-reset of 3A1B



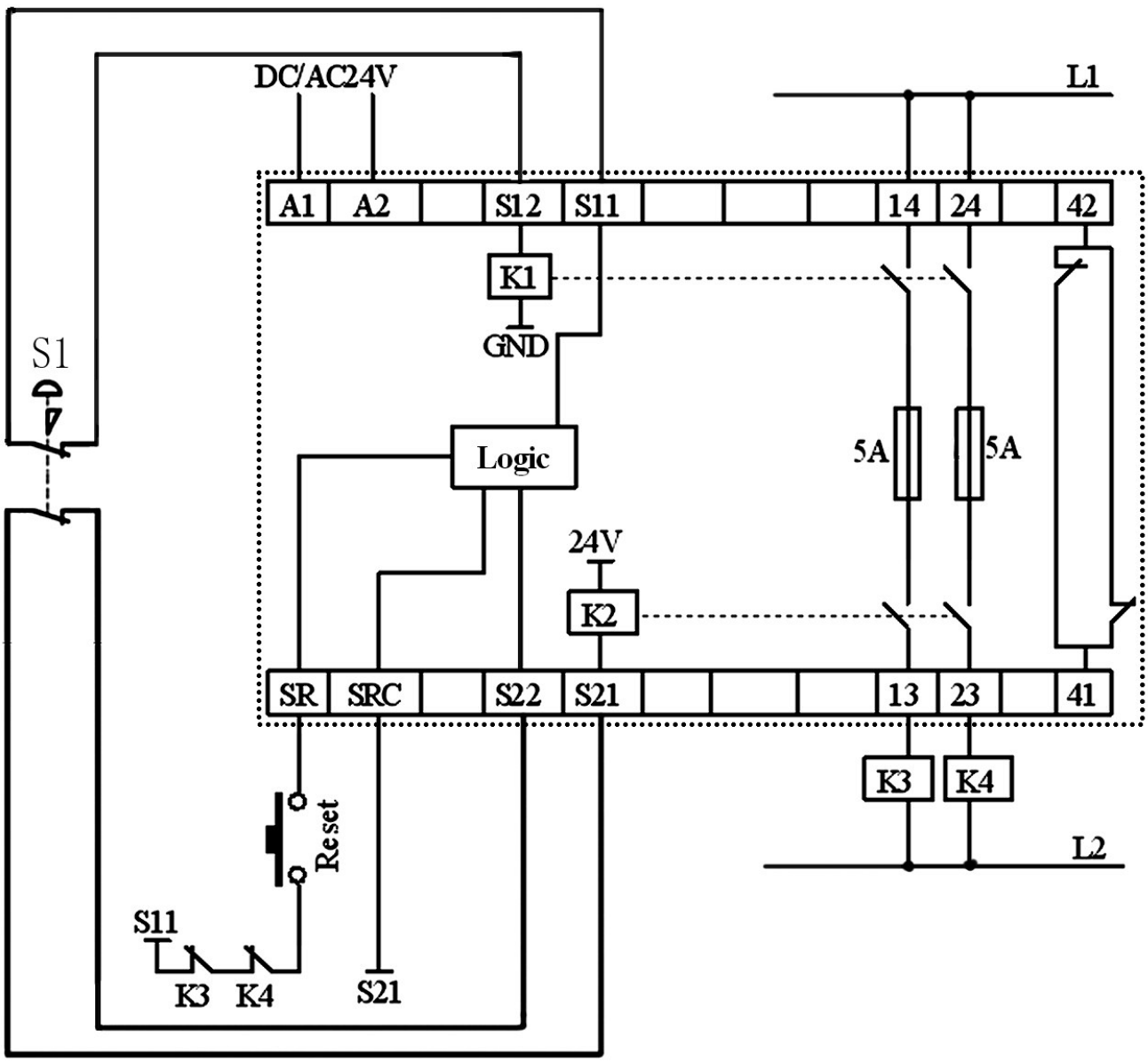
Note: K3 and K4 indicate loads, including but not being limited to relay

Fig.5 Safety gate switch input, manual–reset of 2A1B



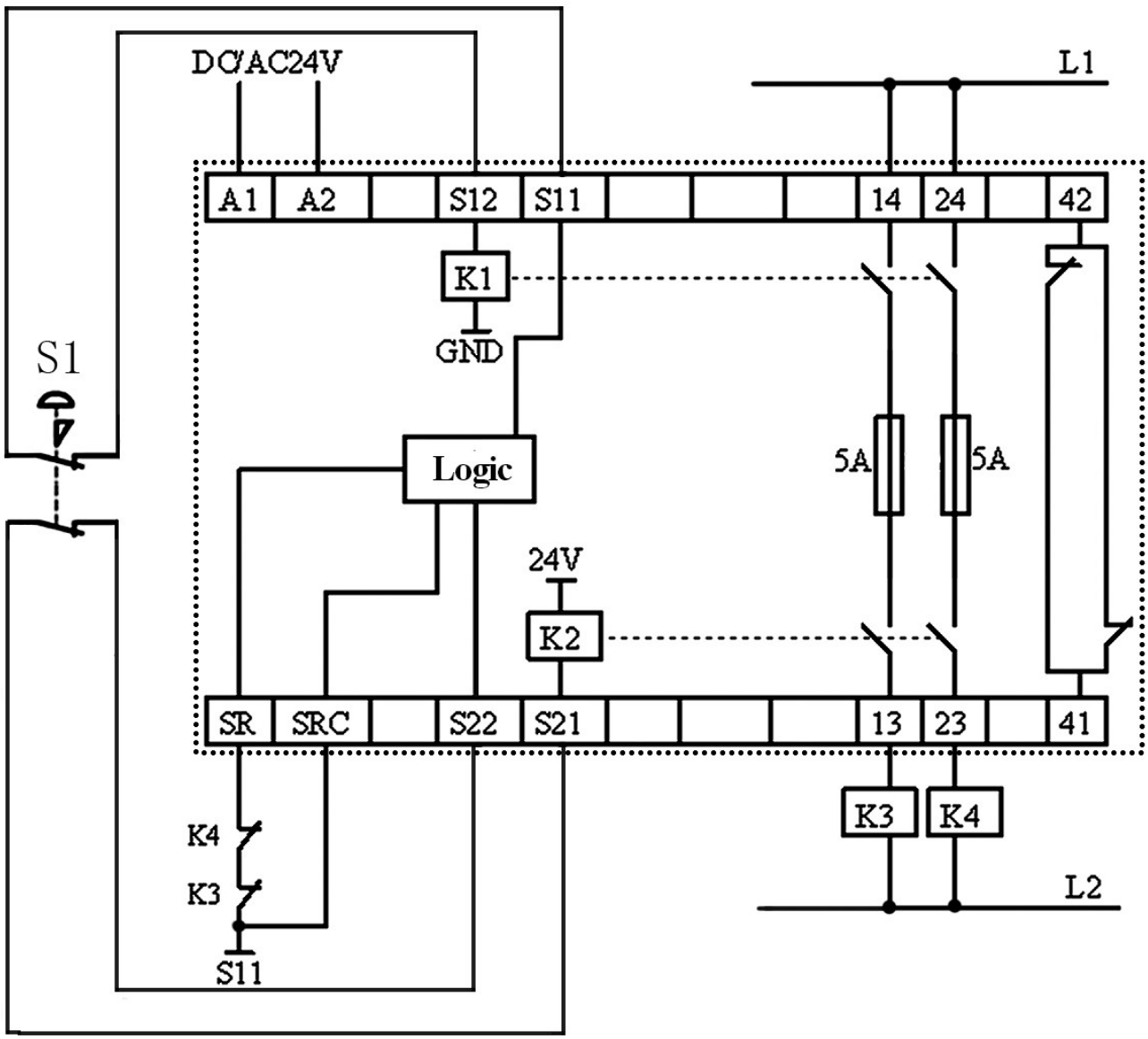
Note: K3 and K4 indicate loads, including but not being limited to relay

Fig.6 Safety gate switch input, auto-reset of 2A1B



Note: K3 and K4 indicate loads, including but not being limited to relay

Fig.7 Emergency stop button input, manual-reset of 2A1B

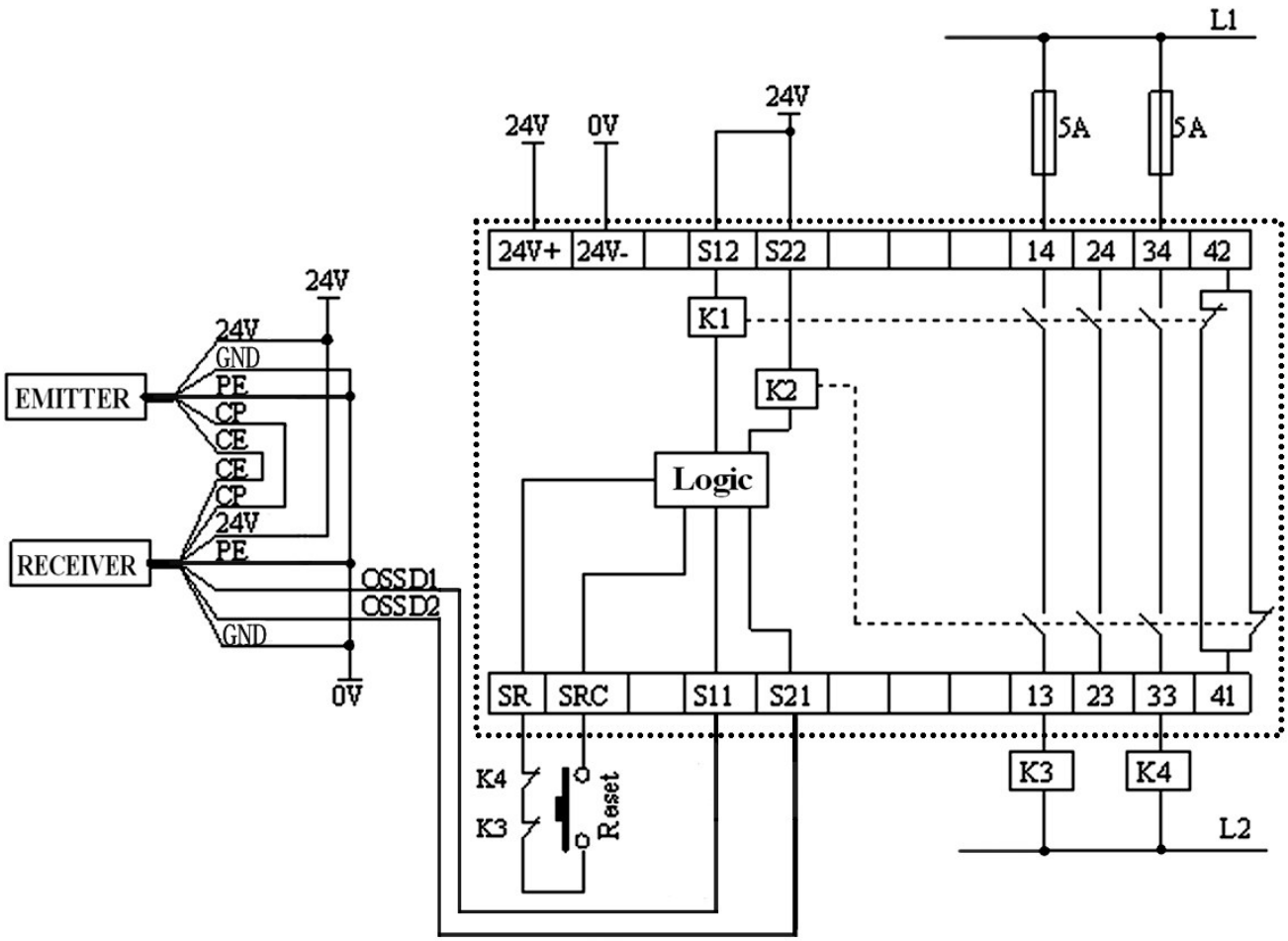


Note: K3 and K4 indicate loads, including but not being limited to relay

Fig.8 Emergency stop button input, auto-reset of 2A1B

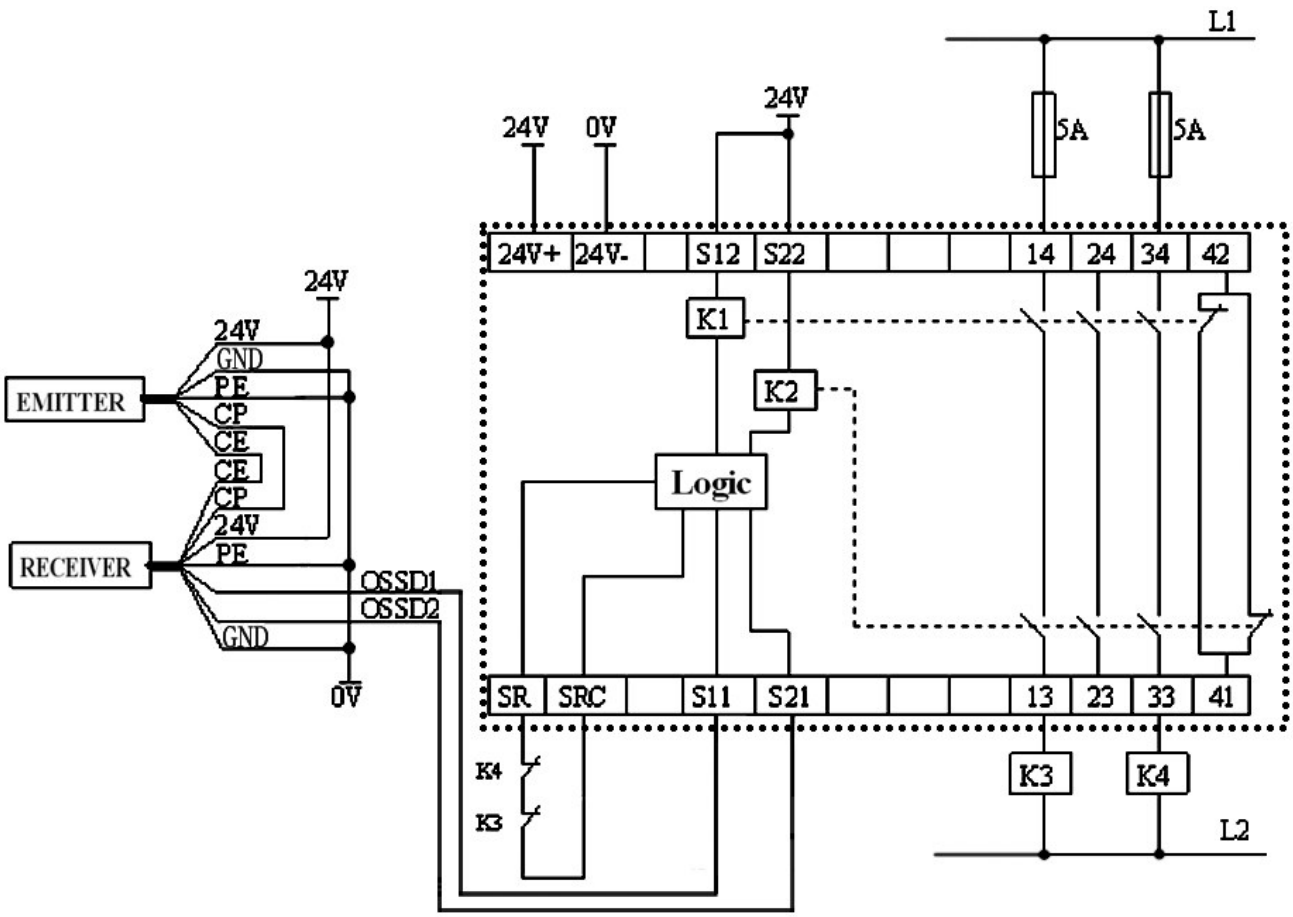
1.3.2. CSRMB–monitoring level signal

CSRMB module is appropriate for 2– channel PNP signals or NPN signals, such as optoelectronic switch, safety light curtain etc., and also appropriate for 2–channel NC switch signal while with the peripheral circuits. The module works with two loops, and self–tested by full circuit and locks out while the two signals is inconformity with each other. The typical wiring is shown in Fig.9 to Fig.16. When used with the safety light curtain, ensure that the PE line of transmission cable is well grounded. The PE line can also be connected to the machine housing when the machine housing is well grounded.



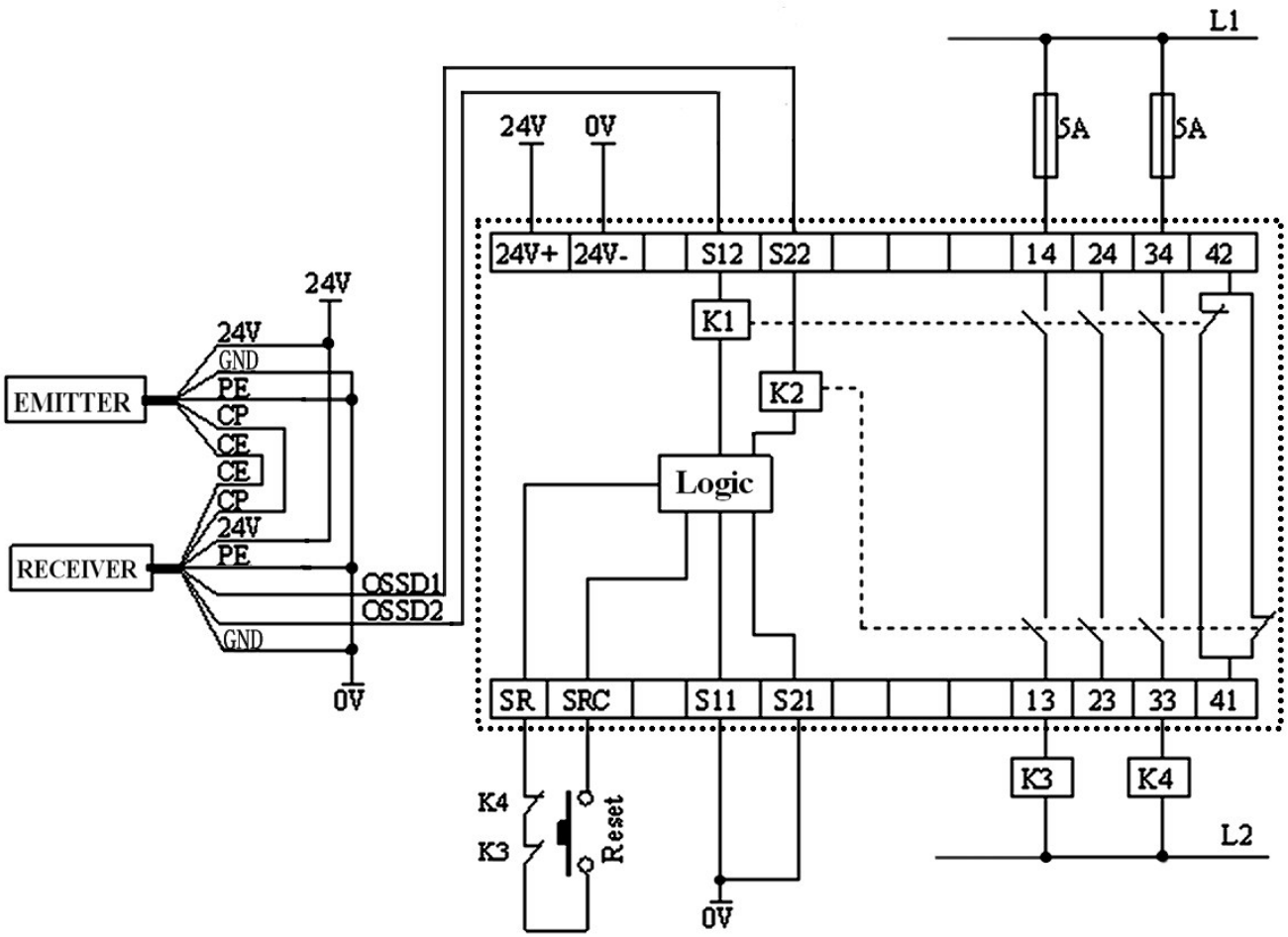
Note: 1. K3 and K4 indicate loads, including but not being limited to relay
2. Overcurrent protection device must be connected to the control loop and the voltage should be not less than the load voltage
3. This digram is showed by KS06G light curtain, see wiring digram in the operation manual for other light curtains

Fig.9 NPN signal input, manual–reset of 3A1B



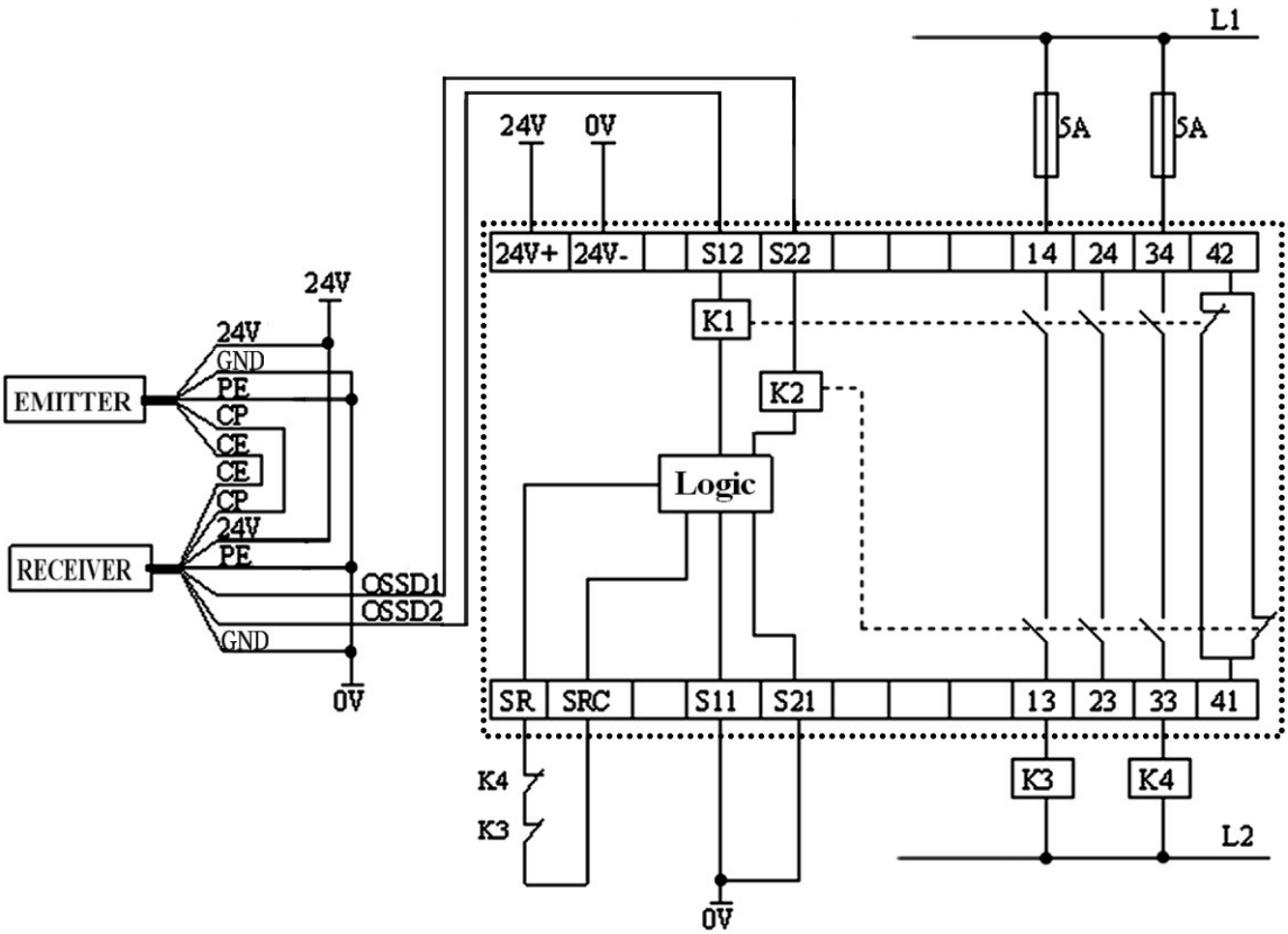
Note: 1. K3 and K4 indicate loads, including but not being limited to relay
2. Overcurrent protection device must be connected to the control loop and the voltage should be not less than the load voltage
3. This digram is showed by KS06G light curtain, see wiring digram in the operation manual for other light curtains

Fig.10 NPN signal input, auto-reset of 3A1B



Note: 1. K3 and K4 indicate loads, including but not being limited to relay
2. Overcurrent protection device must be connected to the control loop and the voltage should be not less than the load voltage
3. This digram is showed by KS06G light curtain, see wiring digram in the operation manual for other light curtains

Fig.11 PNP signal input, manual–reset of 3A1B

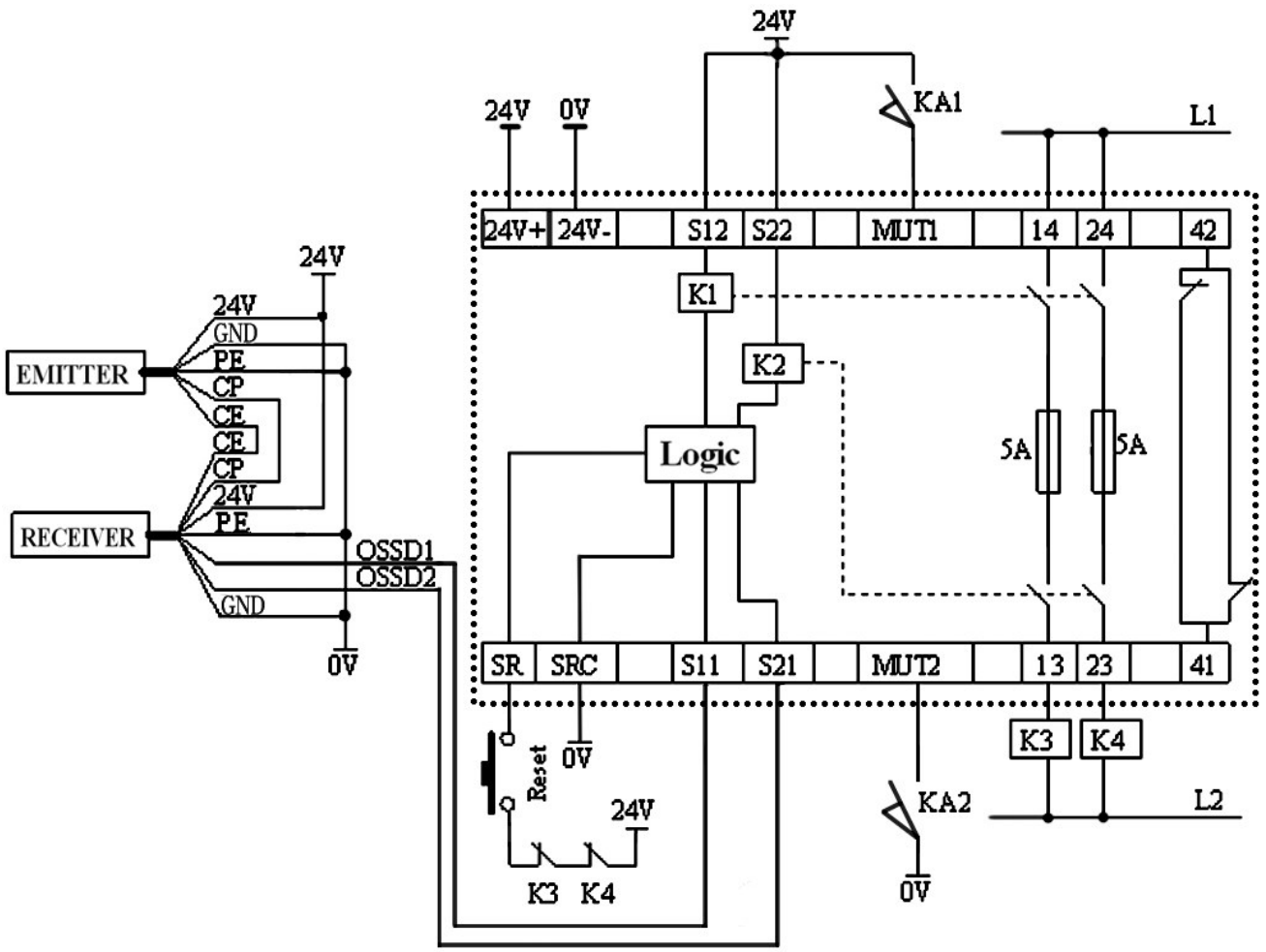


Note: 1. K3 and K4 indicate loads, including but not being limited to relay

2. Overcurrent protection device must be connected to the control loop and the voltage should be not less than the load voltage

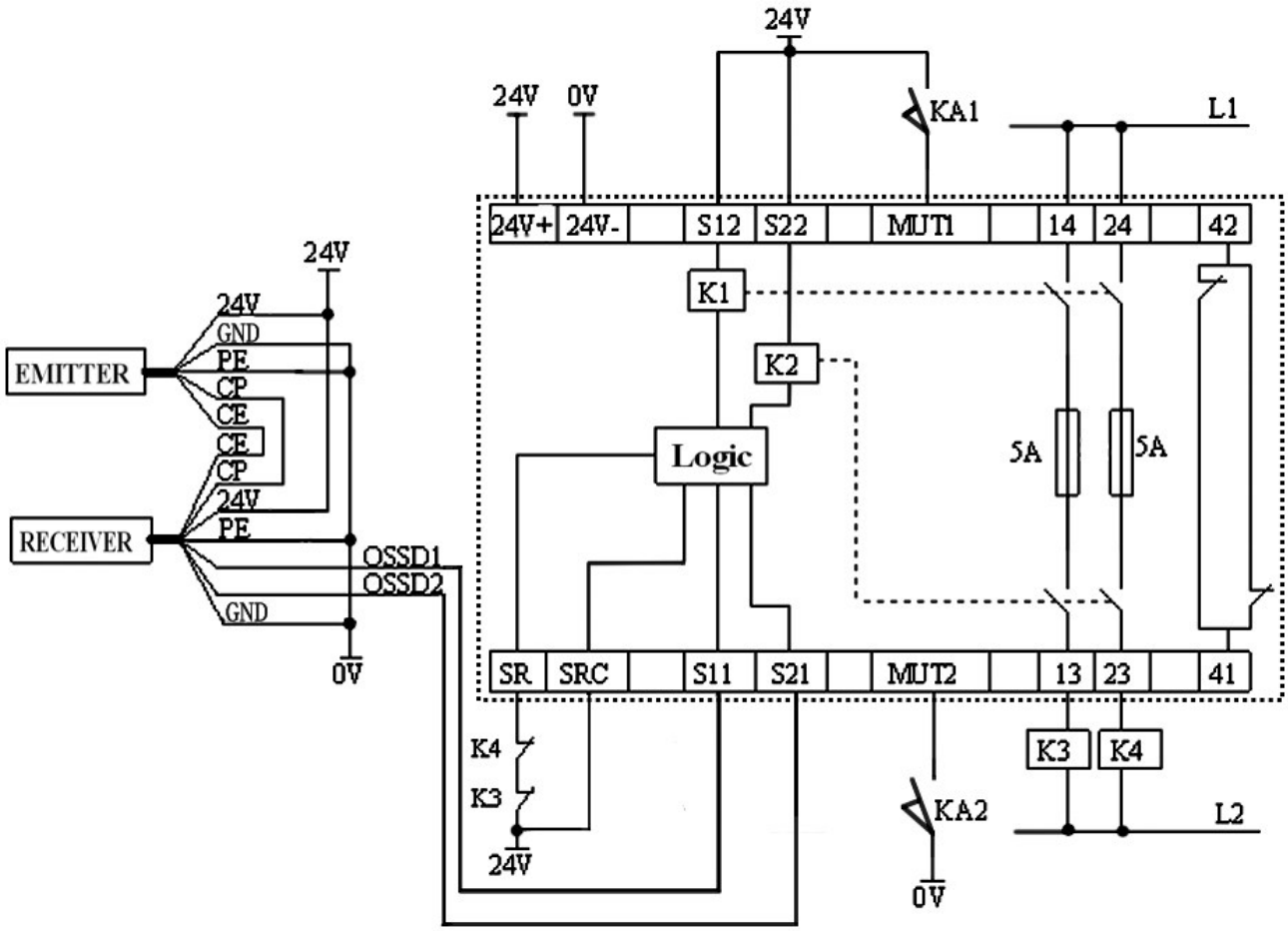
3. This digram is showed by KS06G light curtain, see wiring digram in the operation manual for other light curtains

Fig.12 PNP signal input, auto-reset of 3A1B



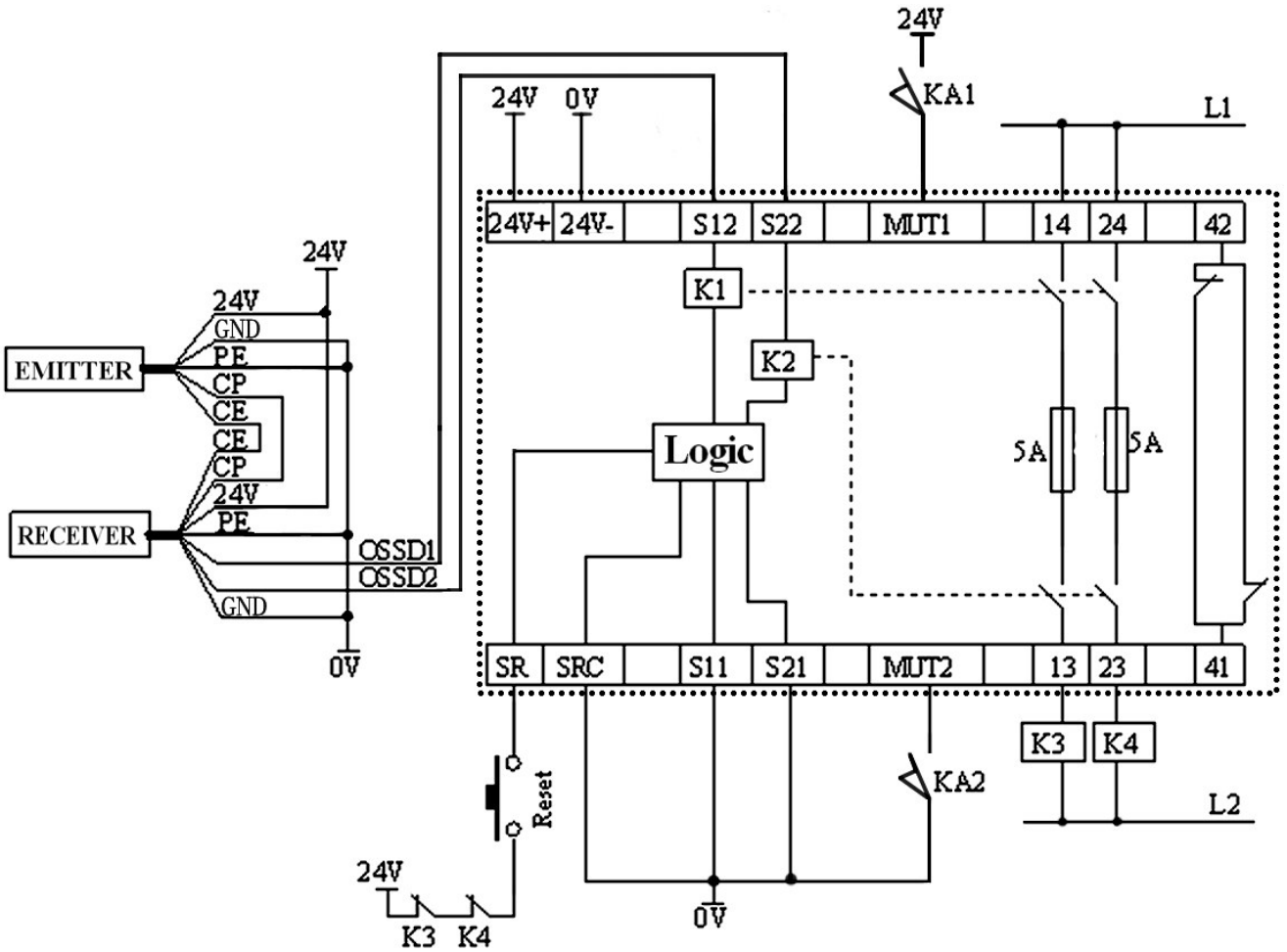
Note: 1. K3 and K4 indicate loads, including but not being limited to relay
2. KA1 and KA2 indicate position switch, the muting function starts when KA1 and KA2 are closed
3. This digram is showed by KS06G light curtain, see wiring digram in the operation manual for other light curtains

Fig.13 NPN signal input, manual–reset of 2A1B



Note: 1. K3 and K4 indicate loads, including but not being limited to relay
2. KA1 and KA2 indicate position switch, the muting function starts when KA1 and KA2 are closed
3. This digram is showed by KS06G light curtain, see wiring digram in the operation manual for other light curtains

Fig.14 NPN signal input, auto-reset of 2A1B

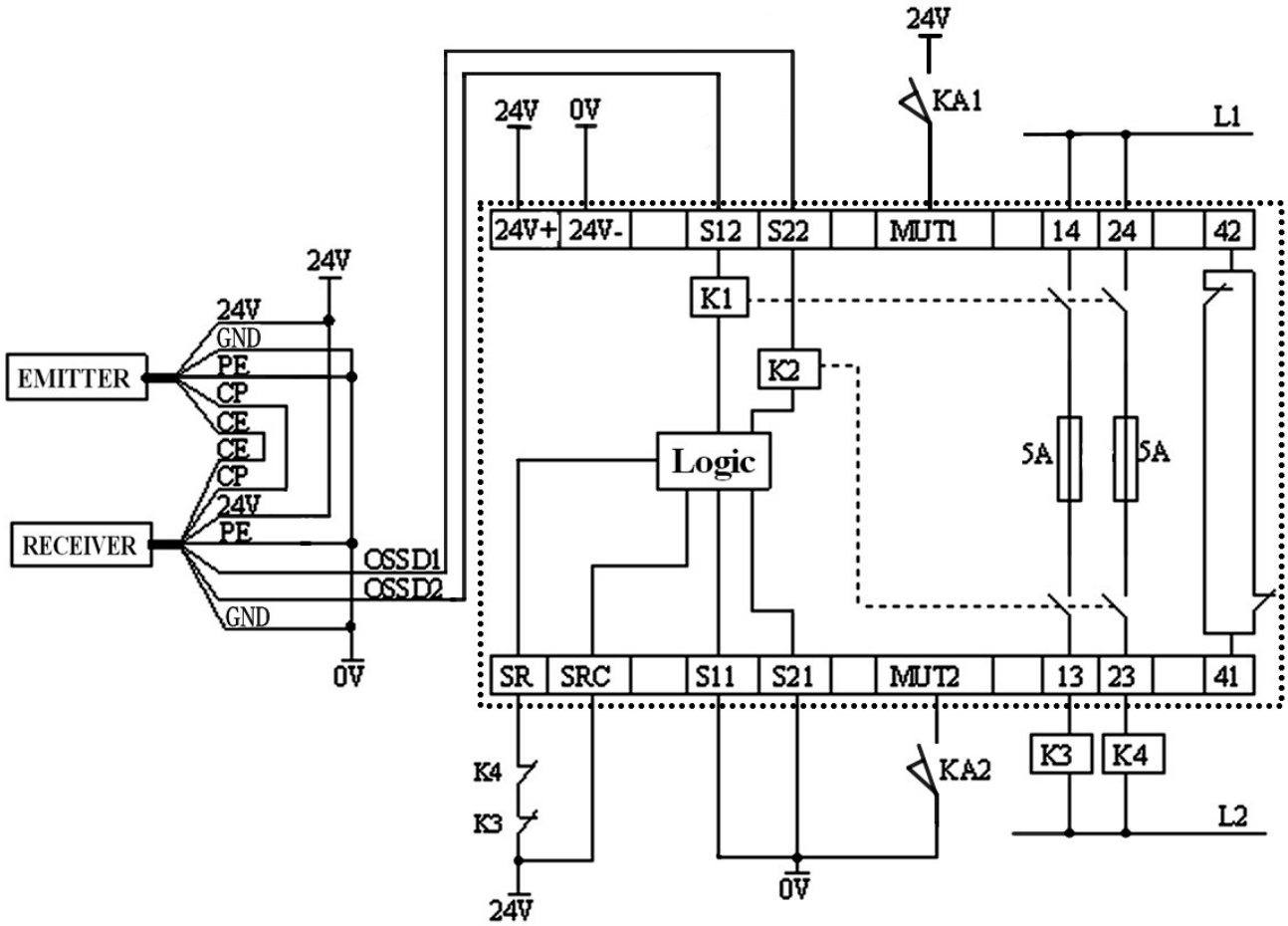


Note: 1. K3 and K4 indicate loads, including but not being limited to relay

2. KA1 and KA2 indicate position switch, the muting function starts when KA1 and KA2 are closed

3. This digram is showed by KS06G light curtain, see wiring digram in the operation manual for other light curtains

Fig.15 PNP signal input, manual–reset of 2A1B

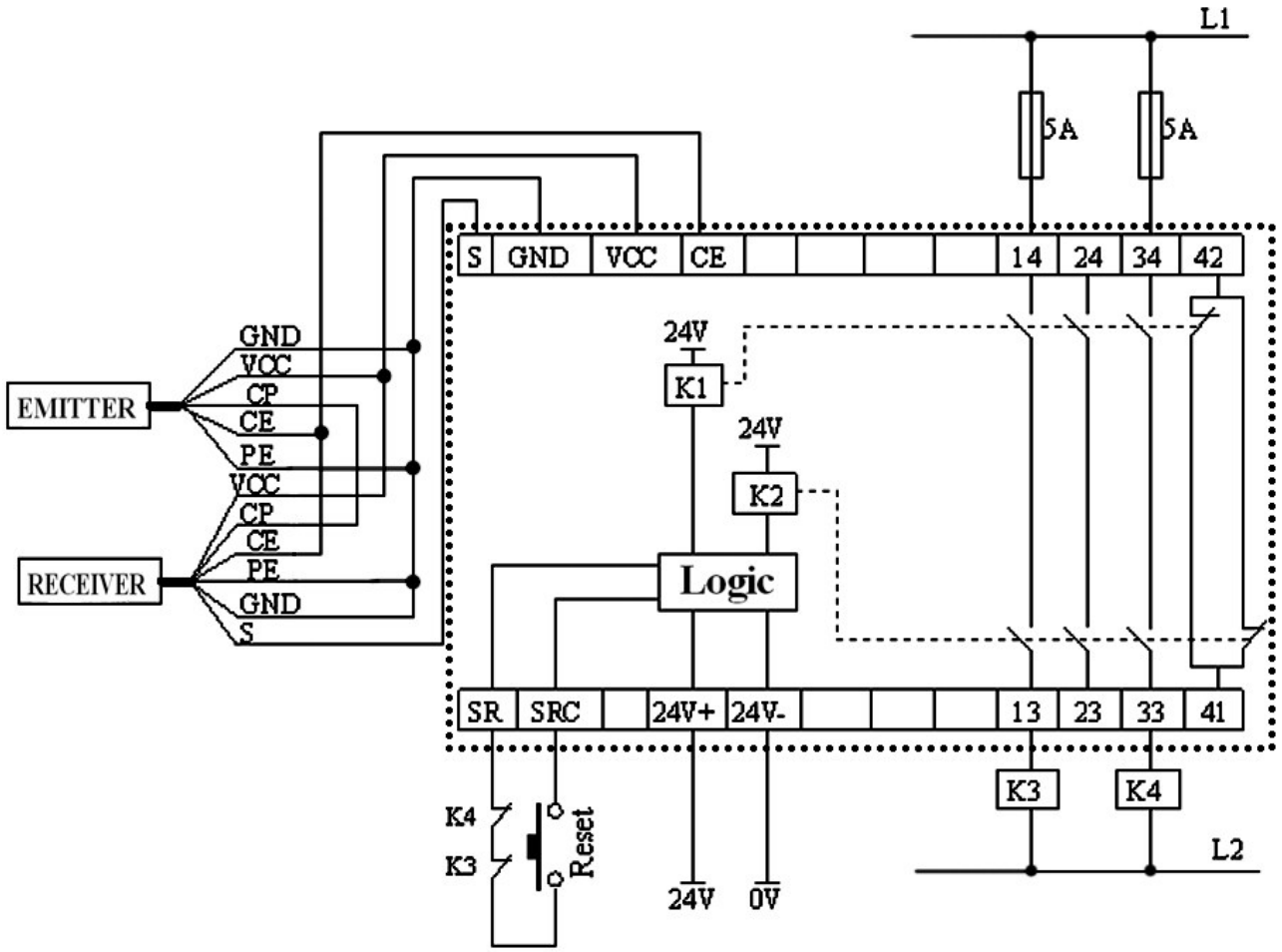


Note: 1. K3 and K4 indicate loads, including but not being limited to relay
2. KA1 and KA2 indicate position switch, the muting function starts when KA1 and KA2 are closed
3. This digram is showed by KS06G light curtain, see wiring digram in the operation manual for other light curtains

Fig.16 PNP signal input, auto–reset of 2A1B

1.3.3. CSRMC–monitoring square wave signal

CSRMC module is appropriate for monitoring square wave signal output of AOPD . It applies to all series of AOPD of KELI: KS02H AOPDs, LDKS–ⅢH AOPDs and KS06 AOPDs. While the above AOPDs work with safety relay modules, will not matched with controllers. Using details about AOPDs refer to the corresponding operation manual. CSRMC module applies narrow wave band filter with the center frequency of 4KHz, to avoid false triggering by other interference signals effectively. The typical wiring with KS06 AOPD is shown in Fig.17 to Fig.20. Ensure that the PE line of transmission cable of the AOPD is well grounded. The PE line can also be connected to the machine housing when the machine housing is well grounded.

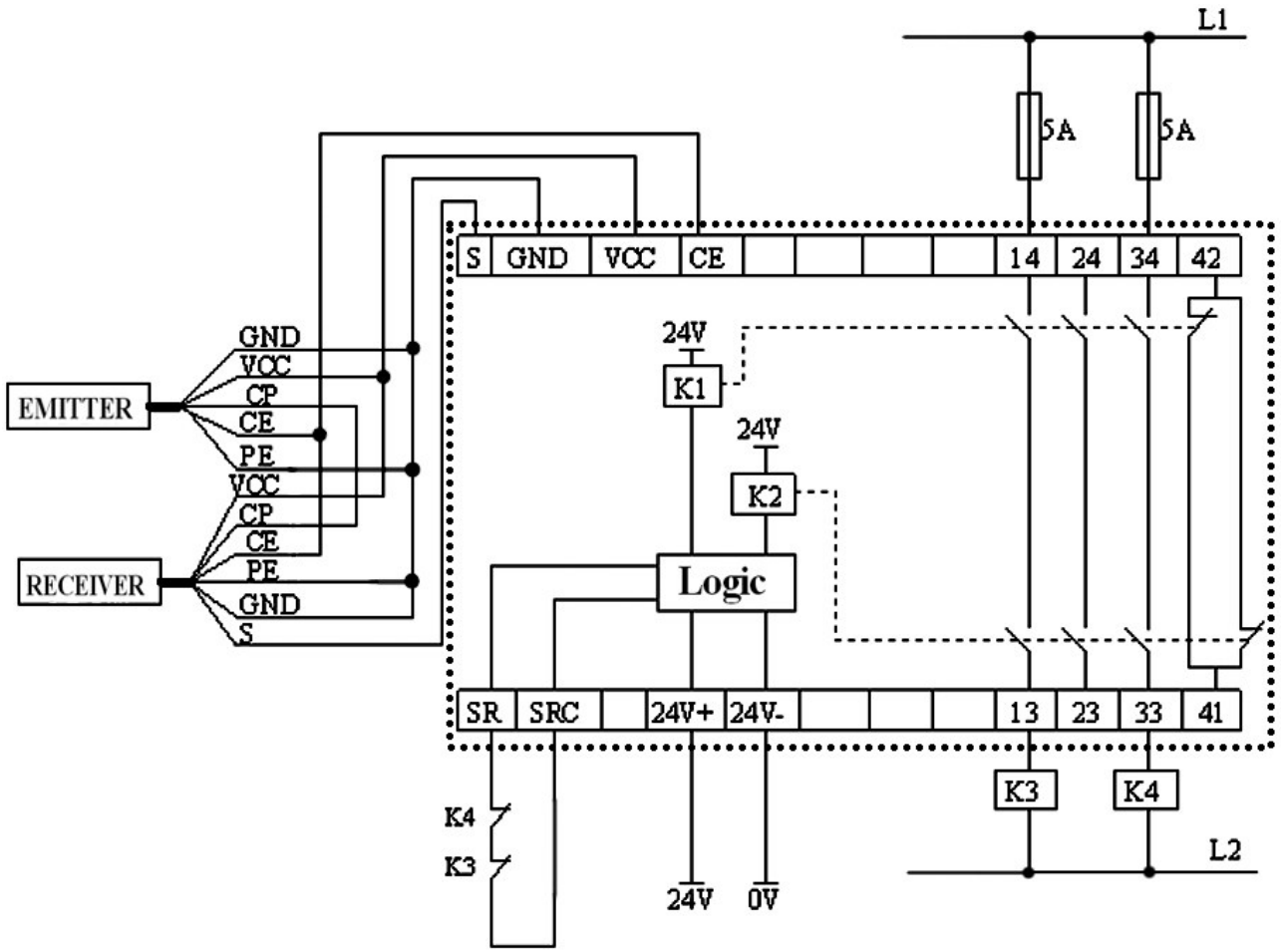


Note: 1. K3 and K4 indicate loads, including but not being limited to relay

2. Overcurrent protection device must be connected to the control loop and the voltage should be not less than the load voltage

3. This digram is showed by KS06 light curtain, see wiring digram in the operation manual for other light curtains

Fig.17 Monitoring of KS06 AOPD, manual–reset of 3A1B

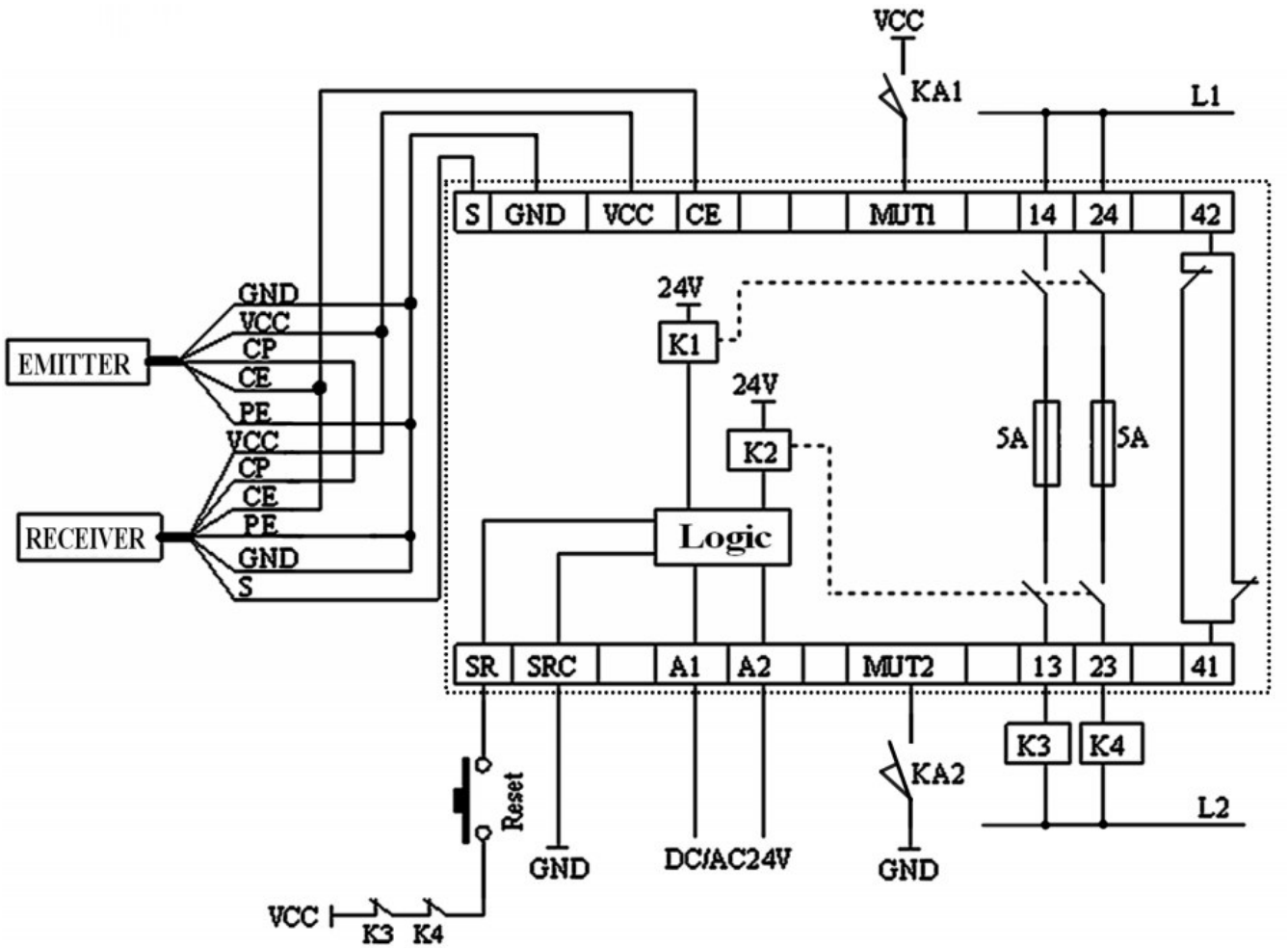


Note: 1. K3 and K4 indicate loads, including but not being limited to relay

2. Overcurrent protection device must be connected to the control loop and the voltage should be not less than the load voltage

3. This digram is showed by KS06 light curtain, see wiring digram in the operation manual for other light curtains

Fig.18 Monitoring of KS06 AOPD, auto-reset of 3A1B

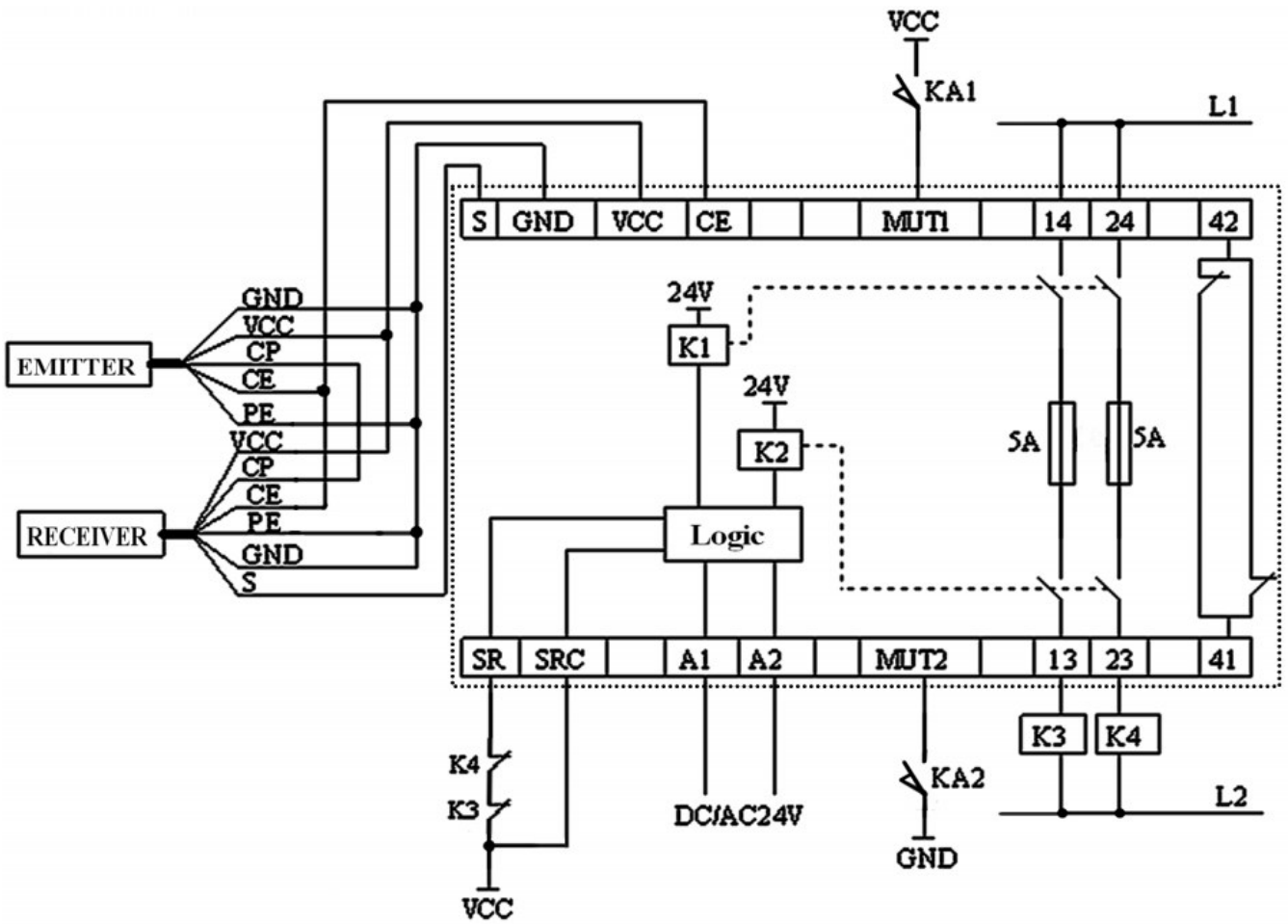


Note: 1. K3 and K4 indicate loads, including but not being limited to relay

2. KA1 and KA2 indicate position switch, the muting function starts when KA1 and KA2 are closed

3. This digram is showed by KS06 light curtain, see wiring digram in the operation manual for other light curtains

Fig.19 Monitoring of KS06 AOPD, manual-reset of 2A1B

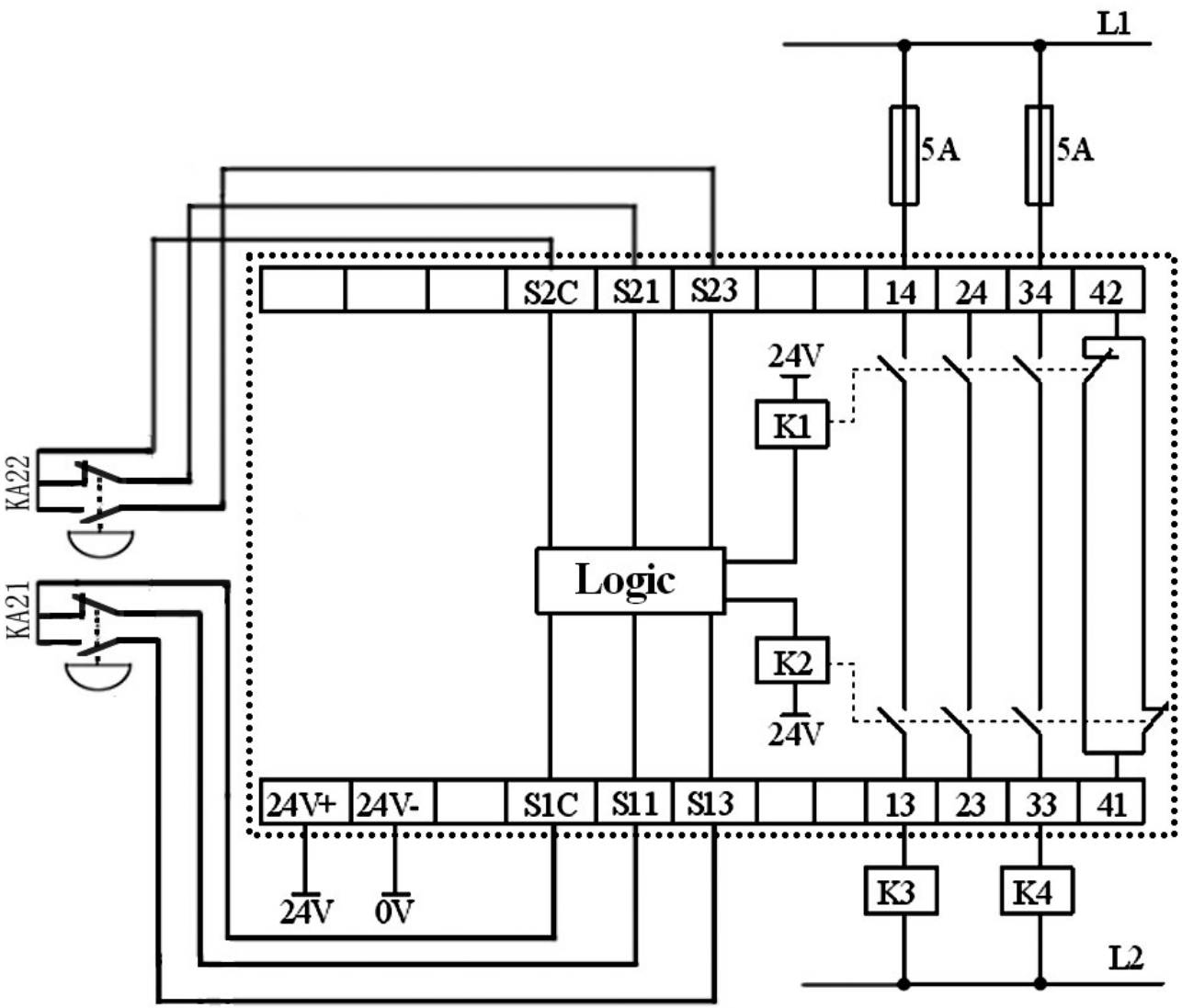


Note: 1. K3 and K4 indicate loads, including but not being limited to relay
2. KA1 and KA2 indicate position switch, the muting function starts when KA1 and KA2 are closed
3. This digram is showed by KS06 light curtain, see wiring digram in the operation manual for other light curtains

Fig.20 Monitoring of KS06 AOPD, auto-reset of 2A1B

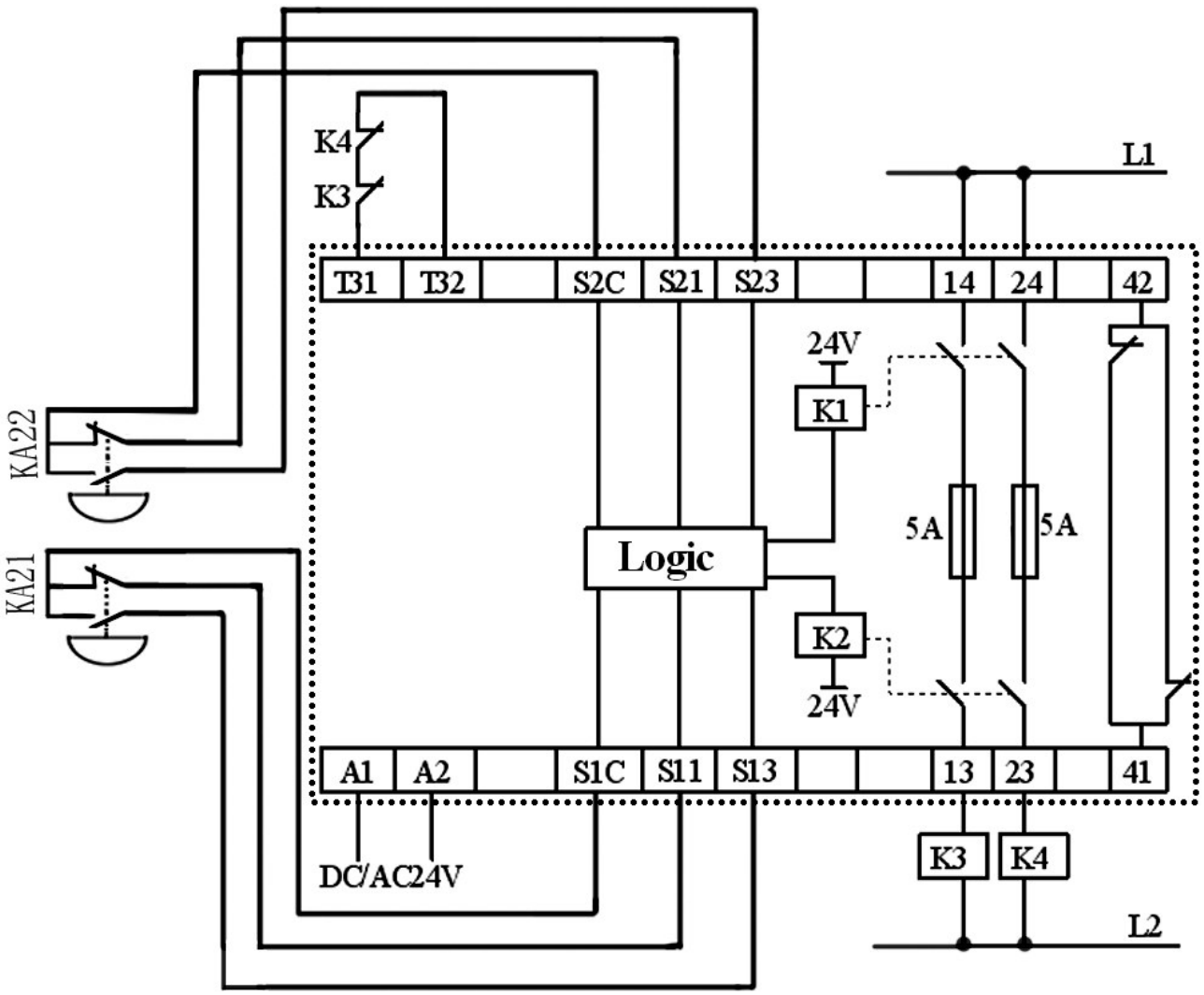
1.3.4. CSRMD–monitoring two–hands button signal

CSRMD module is appropriate for two– hands button signal, while both of the buttons be pressed, the control output closes. The consistency of the signals can be detected. While the triggering time difference exceeds 0.5s, it is considered as invalid triggering. The module works with two loops, and self– tested by full circuit. It locks out while the two signals is inconformity with each other. The typical wiring is shown in Fig.21 and Fig.22.



Note: 1. K3 and K4 indicate loads, including but not being limited to relay
2. Overcurrent protection device must be connected to the control loop and the voltage should be not less than the load voltage

Fig.21 Two-hands button signal input of 3A1B



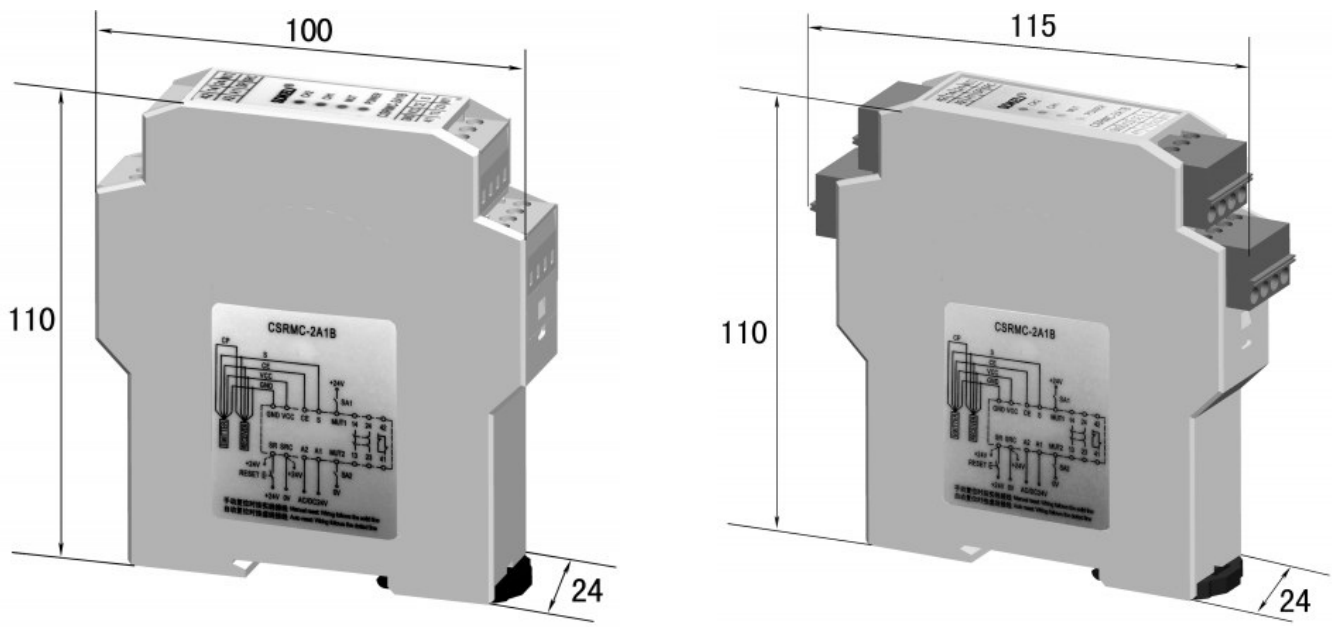
Note: K3 and K4 indicate loads, including but not being limited to relay

Fig.22 Two-hands button signal input of 2A1B

1.4. Appearance

1.4.1. Dimensions

The dimension of CSRM is shown in Fig.23. We can offer two kinds of terminals, locking screw insertion type wiring terminal as in Fig.a and non locking screw seal plug terminal as in Fig.b. The product using locking screw insertion type wiring terminal as standard, non locking screw seal plug terminal is much expensive, if have the need of productions with non locking screw seal plug terminal, please contact our salesman when ordering, and describe it in the contract.



a) Using locking screw insertion type wiring terminal

b) Using non locking screw seal plug terminal

Fig.23 The dimension of CSRM

1.4.2. Details of the panel

Details of the panel are shown in Fig.24.

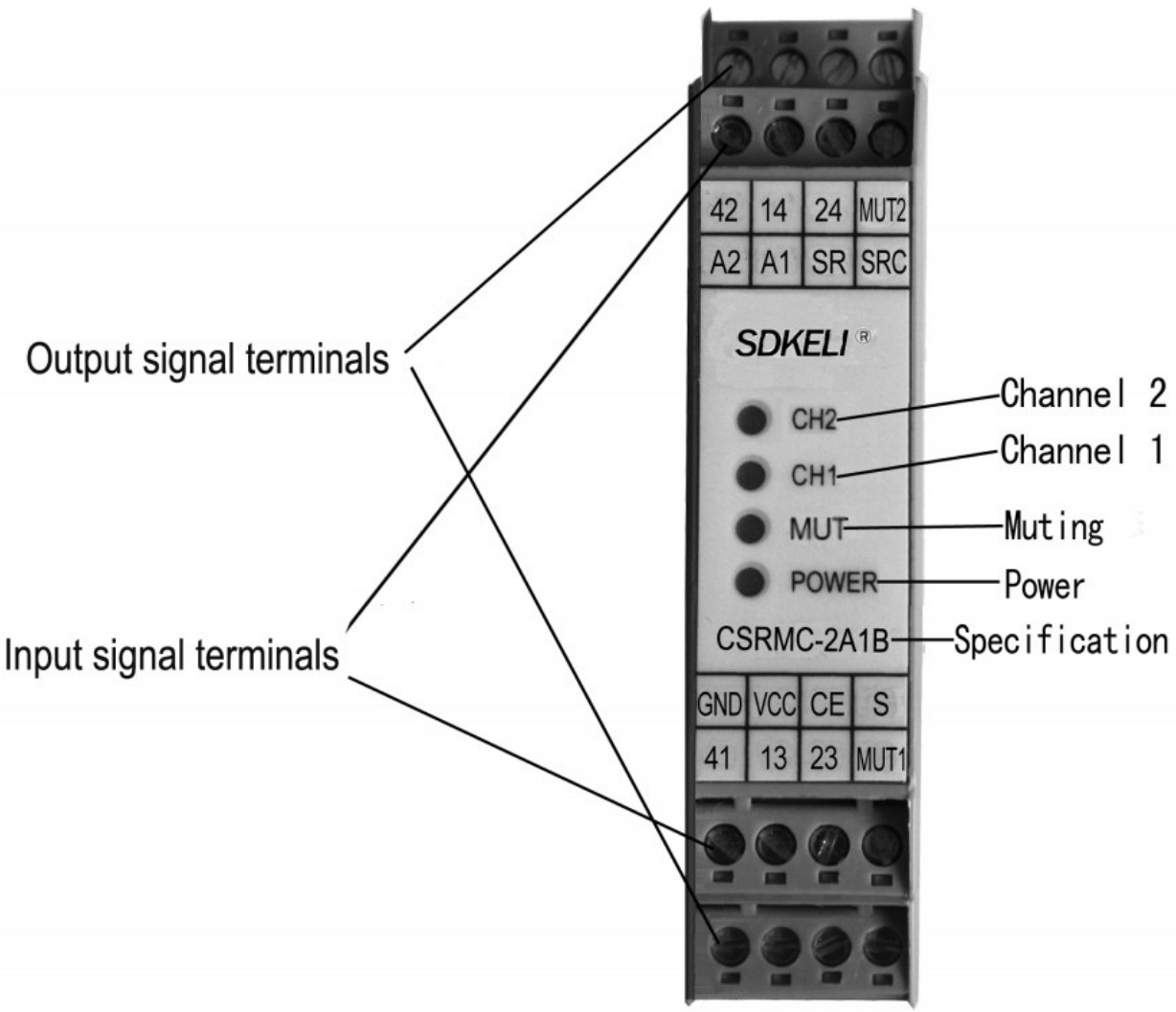


Fig.24 Details of the panel of CSRM

Note : CH1: Status indicator of channel 1.

CH2: Status indicator of channel 2.

MUT: Status indicator of Muting function (Only CSRMB–2A1B and CSRMC–2A1B have this function)

POWER: Power indicator.

1.5. Technical parameters

Executed standards	ISO 13849–1 (PLe) 2004/108/EC (EMC Directive) 2006/42/EC (Machinery Directive)	
Related standards	EN/IEC 61496–1 (Type 4 ESPE)	
Ambient temperature	Operation	–10 to 55℃ (non–condensing)
	Storage	–40 to 70℃
Ambient humidity	Operation	35% to 85%RH
	Storage	35% to 95%RH
Enclosure rating	IP50 (IEC60529)	
Vibration resistance	IEC 61496–1: 10 to 55Hz frequency range, 1 octave/min. sweep rate, 0.35mm ± 0.05 amplitude, 20 sweeps per axis	

Shock resistance	IEC61496–1: 10g, 16 ms duration, 1000 bumps for each axis (applies to all 3 axes)
Rated voltage	AC20.4V to 26.4V or DC24V ± 10% (3A1B and B modules can only use DC power)
Power consumption	≤3W (the power of light curtain is provided by the module when use type C module and the total power consumption is no more than 10W)
Response time	≤10ms
Reset time	≤30ms
Contact Configuration (Safety output)	3PST–NO
	DPST–NO
Contact Configuration (Auxiliary output)	SPST–NC

Load capacity	AC15：5A/250V
	DC13：5A/24V
Startup waiting time	＜1s
Test function	Self–test
Protection circuit	Overvoltage and overcurrent protection
Indicators	Power: Yellow. Turns on while the power is on
	MUT: Red. Turns on while the Muting signal is on
	CH1: Green. Turns on while the relay of channel1 is closed
	CH2: Green. Turns on while the relay of channel2 is closed

Dielectric strength	AC1500V, no arcing and flashover in 60s
Function	EDM (CSRMD–3A1B don't have this function)
	Monitor of the Reset Button (Only 2A1Bs have this function)
	Muting (Only CSRMB– 2A1B and CS-RMC–2A1B have this function)
Durability	Mechanical: 10,000,000 operations min
	Electrical: 1,000,000 operations min
Dimensions (mm)	110×100×24 (110×115×24 when use non locking screw seal plug terminal)

Section2 Function Introduction

2.1. Self–test

CSRM has the function of self–test and complies with security requirements of EN/ISO 13849–1 PLe.

2.2. EDM

All of the CSRM except CSRMD–3A1B have this function, to realize the monitoring of control machine is dangerous the relay (or contactor) fault condition, such as contact adhesion.

2.3. Reset

All of the CSRM except CSRMD can realize two kinds of working mode, auto–reset and manual–reset. The 2A1Bs can detect the reset button, it must be disconnected before starting the next reset.

2.4. Muting

CSRMB–2A1B and CSRMC–2A1B have this

function. Use one high and one low input signal, only when the two input signals are correct and the module is in safety status can start the muting function.

⚠ WARNING

Ensure the security of the system by other means when in Muting state!

The realized function of each type of CSRM is as follows:

Function / Product	Self-test	EDM	Reset	Muting
CSRMA-2A1B	√	√	√	
CSRMA-3A1B	√	√	√	
CSRMB-2A1B	√	√	√	√
CSRMB-3A1B	√	√	√	
CSRMC-2A1B	√	√	√	√
CSRMC-3A1B	√	√	√	
CSRMD-2A1B	√	√		
CSRMD-3A1B	√			

Section3 Installation, Wiring

Please read the warnings carefully before installing, to avoid faulty installation which may cause personal injury.

3.1. Installation requirements

⚠ WARNING

- **Make sure that the machine is OFF while installing, failure to do so may resulting in serious injury.**
- **Do not use CSRM in environments where flammable or explosive gases are present. Doing so may cause an explosion.**

3.2. Installation

CSRM is directly fixed onto the control unit by 35mm guide rail inside the control unit of machine tool, see Fig.25.

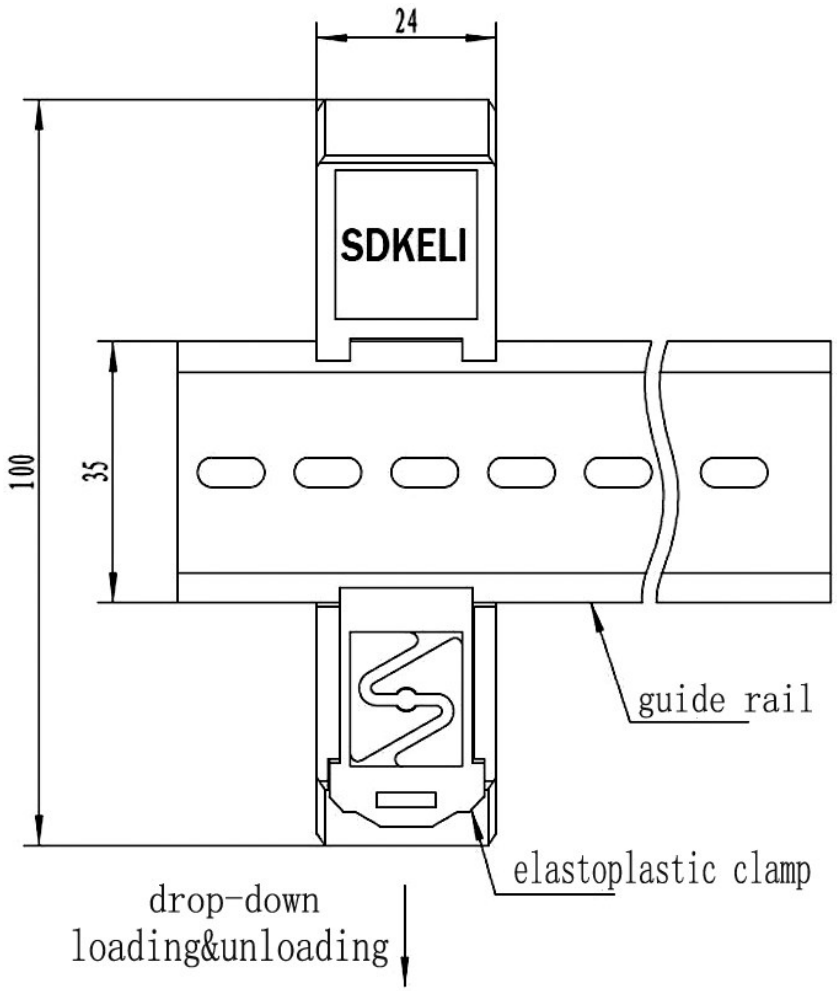


Fig.25 Installation of CSRM

3.3. Wiring

3.3.1. Warning

⚠ WARNING

- **Wiring must be carried out when all power of the machine which CSRM is connected to is switched off.**
- **All contacts of CSRM cannot be connected to voltage that higher than rated voltage.**
- **The power supply of CSRM should not be higher than its rated voltage.**
- **Properly perform the wiring after confirming the signal names of all the terminals.**
- **Be sure not connect two cables to the same terminal lead.**

CAUTION

Hot plugging for the connectors of CSRM is forbidden!

3.3.2. Wiring instructions

According to different applications, different type of CSRM separately connects according with the requirements of 1.3 in Fig.1 to Fig.22.

3.3.3. Power supply

WARNING

For CSRM, the power supply must satisfy all of the following conditions.

In order to ensure CSRM fulfills this manual, the power supply must fulfill the following requirements:

- Must be within the rated power voltage.
- Must comply with EMC directives (industrial environment).
- Double or reinforced insulation must be applied between the primary and secondary circuits.
- Output holding time must be 20ms or longer.
- The output current is greater than 1A, with automatic recovery of overcurrent protection characteristics.
- The power supply must have overvoltage and overcurrent protection function.
- Must comply with laws and regulations, regarding

EMC and electrical equipment safety, of the country or region where CSRM is used. For example, the power supply must comply with the EMC Directive and the Low Voltage Directive in EU.

➢ Overcurrent protection is carried out by internal PTC of the CSRM, the user must add 1A fuse in the power circuit.

Section4 Check and Debugging

⚠ WARNING

Make sure to test the operation of CSRM after installation to verify that it operates as intended. Make sure to stop the machine until the test is complete. Unintended function settings may cause a person to go undetected, resulting in serious injury.

After installation, the highest level administrator must use the following checklist to verify the operation, placing a check mark in each of the boxes.

4.1. Installation condition check

☐ The machine itself does not prevent the operation of safety functions such as stopping.

☐ It can't be used in flammable or explosive atmosphere.

4.2. Wiring check before power is turned on

☐ Power supply unit must be dedicated to CSRM. It must have tolerance against total rated current of devices if it is connected to multiple devices.

☐ The power supply unit conforms to the EMC Directive, Low– voltage Directive, and output holding specifications.

☐ The power supply polarity is not connected in reverse when use DC power.

☐ The NC–output 41/42 is not used as safety output.

☐ Neither connectors, terminals can be loose.

☐ Cables must not be bent, cracked, nor damaged. The cables in the connector end should be loose, to avoid to damage the connectors.

4.3. Function check

☐ The hazardous parts stop when the power of CSRM is turned OFF.

Model	Test content	result
CSRMA–2A1B	Stop: The output get OFF– state when any of the input signal is OFF	
	EDM: The module is locked to a safe state when the monitoring input signal is disconnected	
	Monitor of the reset button: Short the reset button, the state of the module cannot reset after change	
CSRMA–3A1B	Stop: The output get OFF– state when any of the input signal is OFF	
	EDM: The module is locked to a safe state when the monitoring input signal is disconnected	

CSRMB–2A1B	Stop: The output get OFF– state when any of the input signal is OFF	
	EDM: The module is locked to a safe state when the monitoring input signal is disconnected	
	Monitor of the reset button: Short the reset button, the state of the module cannot reset after change	
	Muting: Start the Muting signal at ON–state, and the module will lock to ON–state; cut off the Muting signal and the input signal at the same time, the output of the module goes to OFF	
CSRMB–3A1B	Stop: The output get OFF– state when any of the input signal is OFF	
	EDM: The module is locked to a safe state when the monitoring input signal is disconnected	

CSRMC–2A1B	Stop: The output get OFF– state when any of the input signal is OFF	
	EDM: The module is locked to a safe state when the monitoring input signal is disconnected	
	Monitor of the reset button: Short the reset button, the state of the module cannot reset after change	
	Muting: Start the Muting signal at ON–state, and the module will lock to ON–state; cut off the Muting signal and the input signal at the same time, the output of the module goes to OFF	
CSRMC–3A1B	Stop: The output get OFF– state when any of the input signal is OFF	
	EDM: The module is locked to a safe state when the monitoring input signal is disconnected	

CSRMD–2A1B	Stop: The output get OFF– state when any of the input signal is OFF	
	EDM: The module is locked to a safe state when the monitoring input signal is disconnected	
	Monitor of action consistence: It cannot trigger the module when the triggering time difference exceeds 0.5s	
CSRMD–3A1B	Stop: The output get OFF– state when any of the input signal is OFF	
	Monitor of action consistence: It cannot trigger the module when the triggering time difference exceeds 0.5s	

Section5 Maintenance

WARNING

- **Perform daily and 6– month inspection for CSRM. Otherwise, the system may fail to work properly, resulting in serious injury.**
- **Do not try to disassemble, repair, or modify this product. Doing so may cause the safety functions to stop working properly.**

CAUTION

Hot plugging for the connectors of CSRM is forbidden!

To ensure safety, keep a record of the inspection results. When the user is a different person from those who installed or designed the system, he/she must be properly trained for maintenance.

5.1. Inspection for the guarded machine

☐ The hazardous parts stop when the power of the CSRM is turned OFF.

☐ The machine itself does not prevent the operation of safety functions such as stopping.

5.2. Items to inspect every 6 months or when machine settings are changed

☐ The outputs of CSRM and the machine are properly wired.

☐ The cables must not be bent, cracked, nor damaged.

- ☐ The contacts of the relay are intact, without fouling or atomization.
- ☐ CSRM is fixed firmly without loosening.
- ☐ The changing of machine setting affects the safety of the control system.

Section6 Troubleshooting

⚠ WARNING

Do not try to disassemble, repair, or modify this product. Otherwise may cause the safety functions to stop working properly.

Phenomenon	Cause	Solution
All of the indicators are off	No power supply	Check the power supply
	The connection is at fault or open circuit	Check the wiring and connectors
	The internal device is at fault	Replace the module

The POWER is on but CH1 and CH2 are off	The connection is at fault or open circuit	Check the wiring and connectors
	Supply voltage drops below the specified value or lack of supply current	Replace the power supply
	The reset button is at fault	Replace the reset button
	Serious electromagnetic interference	Check the EMC level of the environment, eliminate the interference source
	The external device failure when use EDM function	Replace the external device

The POWER is on but CH1 and CH2 are off	Electric failure of guarded machine	Check and repair electric circuit of guarded machine
	The internal device is at fault	Replace the module
The conversion of indicator is normal, the machine does not work	The electric circuit of guarded machine connected with the outputs open circuit or wrong connected	Check and repair the electric circuit of guarded machine connected with the outputs
	The fuse is broken	Replace the fuse
	Electric failure of guarded machine	Check and repair electric circuit of guarded machine

Only one of CH1 and CH2 is on, the other one is off	The connection is at fault or open circuit	Check the wiring and connectors
	One of the input signal is at fault	Check the input signals
	The internal device is at fault	Replace the module
The conversion of indicator is normal; the machine can't stop immediately when shading the light curtain.	The wiring is error, the outputs short circuit outside	Check the wiring and connectors
	The braking of guarded machine is at fault	Check the guarded machine
	The clutch of guarded machine is at fault	Check the guarded machine

Section7 Version

Version	Date	Modification
V1.0	2014–01	
V1.1	2015–07	
V1.2	2018–01	
V1.3	2018–10	