



Shenzhen Southern Machinery Sales and Service Co.,Ltd

Add :Rm 1806,Block 3, Jinyun COFCO, Qianjin 2 Road,Xixiang,Baoan District, Shenzhen City, China
TEL: 0755-83203237; FAX:0755-23240492 website:www.smthelp.com

Fully automatic unloader machine

User's Manual



Please read the instructions carefully before user operation

Preface

First of all, we sincerely thank you for choosing the SMT peripheral automation equipment produced by our company. This company specialized production: conveyor, automatic feeding detection machine, vacuum suction machine, stacked on the machine, parallel transfer, angle conveyor, turning machine, machine, double buffer for the same reflow furnace system, a series of automated production equipment. According to the customer's requirements, we can develop and design a series of automation equipment, in order to meet the customer's high efficiency, energy saving, downsizing and other production needs. This manual describes the use of methods and equipment maintenance and precautions, in front of the machine, please carefully read this manual, and it will be properly preserved, wrong operation may cause the device does not operate normally or damaged parts. Due to man-made equipment failure or parts damage, will not apply to the company's exemption free warranty service range. Without permission of the company, please do not disassemble or replace the equipment parts, nor applicable to the company's free warranty warranty service range. As to the improvement and partial renewal of the product, we will not make further instructions. If you have any doubts, please contact our company for consultation.

一、 Equipment technical parameters

Equipment type: S-ULD460

Description: PCB in SMD in the production line of the receiving board with this equipment

PCB Maximum specification ((mm)) : 50*50~535*460

Working height(mm): 900±20(std)

PCB board time: 6. 0 sec

Step selection: 10. 20. 30. 40mm selectable

Power Supply: AC 220V±10V, 50/60HZ

Machine outline size: 1350(L)*1490 (W) *1250 (H)

weight(KG): 300

Compressed air supply pressure: 4 — 6 bar

Compressed air flow: Max 10 litres/minute

Circuit board thickness: Minimum0.4mm deep

Power: maximum 300 volt ampere

Box number: the stop 1 (or specified)

Direction: left to right or right to left

二、 General precautions

1. 1.operator obligations

- 1) please read the instructions and the instructions of the attached machine in detail, and operate the equipment according to the instructions.
- 2) comply with the safety standards of the equipment, and ensure compliance with the regulations.
- 3) please use protective equipment and clothing in accordance with the provisions of.
- 4) do not touch electrical equipment with wet hands.
- 5) in operation, please ensure safety if you want to tidy up the equipment perimeter.
- 6) any part of the body must not enter the equipment during the operation.
- 7) in case of abnormal operation, please stop immediately and handle or contact the company according to the exception handling method.
- 8) every day after the job, please clean the equipment surrounding.
- 9) after daily operation, when you want to leave the equipment, please control the power supply and main control valve in accordance with the correct method.
- 10) prohibit the transformation of the very stop loop and action confirmation.
- 11) prohibit the transformation is the stop button, and confirm the safety shield off the safety switch, photoelectric tube, safety etc..
- 12) prohibit the occurrence of safety switch pull out or safety protection function cancellation.
- 13) Regular maintenance and confirm whether the stop action is normal or not. But at this point, you must put other people can not be near the signs notice placed in a clear position, inform the device is currently very stop or automatic safety device is being tested. However, the need for security and adjustment and the licensee are not subject to this restriction.

2. regular maintenance and confirmation of very safe test and protection action is normal. But at this point, you need to put other people not close to the signs notice placed in a clear position, inform the device, the current automatic safety device is being tested.

3. Condition change restrictions

- 1) Set the conditions for this device (voltage, current, pressure, speed and other equipment on the nameplate, marking that display settings), if want to change, must be responsible for the leader's permission, set the condition of change must be recorded before and after the change of value.
- 14) the quality determination of the workpiece must be carried out according to the sampling period stipulated by the detailed management document of the project. If there

is an abnormality, the responsible person or leader should be reported immediately, and comply with the instructions.

- 15) Safety confirmation during overhaul.
- 16) The following steps shall be taken to ensure safety during overhaul and repair.
- 17) Stop the equipment and confirm that the facility stops in safe position.
- 18) When entering the equipment, please confirm the status of the safety agencies, if necessary, you can set up special personnel custody or pull the safety switch lock and safety pin, and carry it with you.
- 19) The main power box switch, motor switch and other power supply must be cut off, the locking device must be locked and so on.
- 20) Using specified components.
- 21) Fuses and other over-current protectors and repair parts and so on, please use the specified product.
- 22) To correctly operate the equipment and correct safety operation, please pay attention to the nameplate posted on this equipment. This nameplate is very important. Please don't damage it or tear it off. If the nameplate is damaged or missing, please be sure to contact the responsible person or leader.

三、 Function and operation instructions

(一)、 Preparation before starting

1、 Horizontal position:

(1) All cup adjustment must be balanced and stressed simultaneously to avoid vibration during mechanical operation.

(2) After adjusting the level, the cup foot screw should be fixed tightly.

2、 Gas source:

(1) The air supply in 4-6kg/cm², pressure regulating valve to adjust the 4kg/cm² 气.

(2) Gas source must be clean, waterless and dry.

3、 Installation position:

Do not put on mechanical installation of dust, oil mist, conductive dust, corrosive gas, flammable gas, moisture, shock, high temperature and outdoor environments.

4、 Working group:

(1) please check whether the power supply meets the requirements after power supply, whether the power switch is normal, and the power can be switched on normally.

(2) check whether the emergency stop switch and the protection device are normal after power on.

(3) the moving part is mainly responsible for the constant speed motor and the cylinder, each part, position detection by travel switch or induction electric eye.

(4) do not make the cylinder speed run too fast, smooth and supple as well.

(5) the position sensor to adjust good position.

(6) the position of each sensor can be input from PLC to detect the indicator lamp.

(7) each output condition is detected from the PLC output point indicator.

(8) its running program has been controlled by internal programming, and customers can not change it.

(二) Operation button function description

1、 emergency button: may at any time terminate any emergency operation, after the opening of the.

2、 automatic: machine into automatic operation.

3、 reset: when abnormal alarm processing.

- 4、 Stop: stop everything.
- 5、 manual: machine into manual operation
- 6、 manual operation time:
 - (1) return button: when the lift is in the upper limit, Magazine discharges. When the elevator is in the lower limit, the Magazine enters the lifting platform.
 - (2) push plate button: when the long drop table is not in the upper and lower limit, the push plate button is effective.
 - (3) clamping button: clamping cylinder moves.
 - (4) rising button: the lifting platform rises. When Magazine is in the elevator, it needs to be clamped first, then it can rise and descend.
 - (5) drop button: the landing gear is descending. When the Magazine is in the elevator, it needs to be clamped first, then it can rise and descend.
 - (6) selection: lifting cell number, optional range of 1 to 4 grid.
 - (7) code: machine running state.

(三) the indication of the three color lamp:

Green light: that the machine is in automatic operation, normal operation.

Yellow light: in manual state, can operate manual function.

Red light: abnormal operation or emergency button press, red light, and buzzer sound. (四)

(四) Matters needing attention before starting:

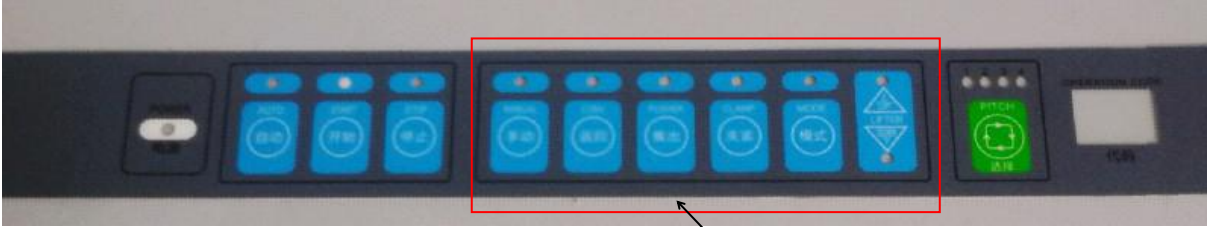
- 1、 Has the emergency button been restored.
- 2、 Check if the air pressure is normal (5~6Kg/cm²)
3. Make sure that no PCB stays between the line and between the line and the transmitter to open the power.
4. Confirm whether the track chain is open before and after, and whether the width adjustment is consistent.
- 5, the track is installed correctly and induction electric eye is normal.
- 6, check the width of the PCB block is appropriate.

四、 Conversion of new model operation procedure

- 1, according to manual operation, first select the spacing between the PCB board.
2. Adjust the Magazine to the PCB width of the new model so that PCB can easily insert Magazine.
- 3, and then put a PCB full of Magazine on the lower belt,
- 4, press the box, let Magazine into the lift, and then press the clamping key, and then click the rising key
- 5, Magazine will automatically rise to the position of the first board
- 6, the use of hand, the push rod is adjusted to just in the center line of PCB
- 7, a guide plate block adjustment to just the width of protection in PCB plate by electric eye complete induction.
- 8, according to the push plate can launch Magazine PCB key test.
- 9, press the exit key, press the automatic operation to make the machine enter the automatic mode, the machine is ready, waiting for the board signal.

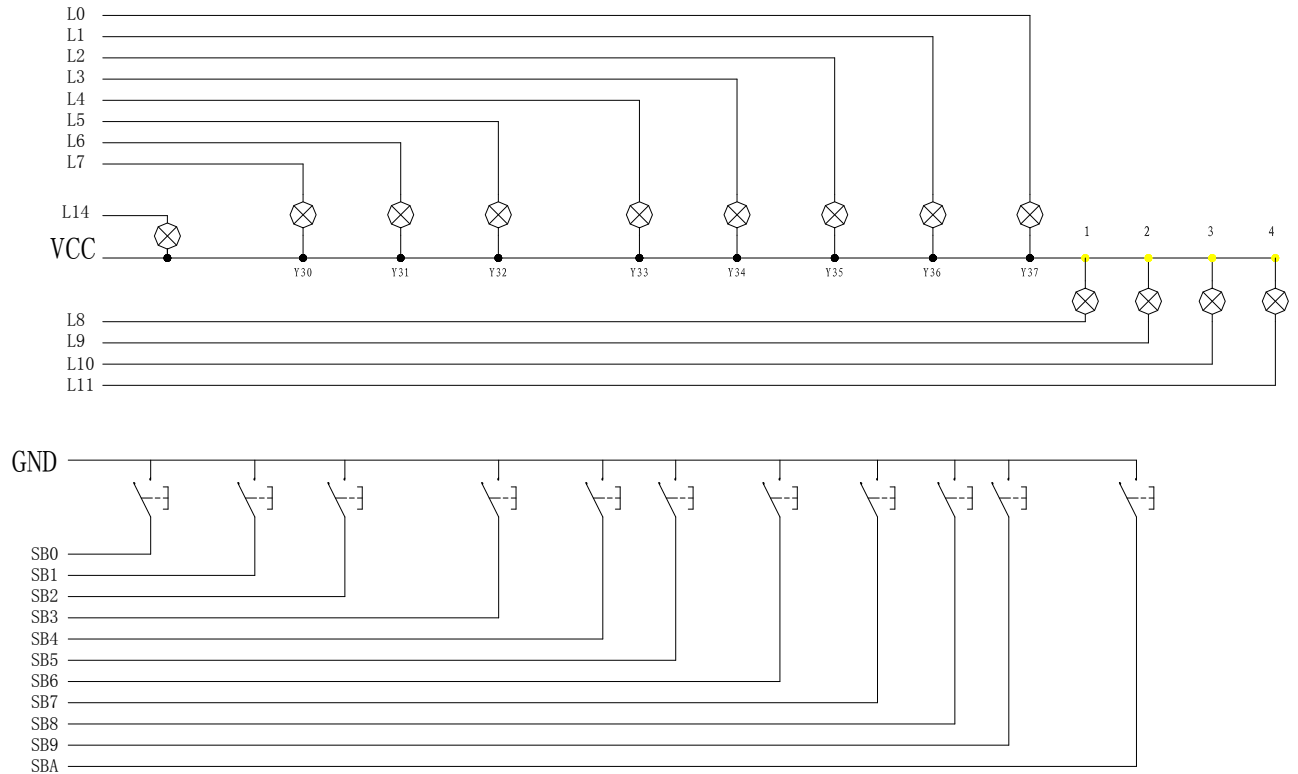
五、Machine operation

(一) Schematic diagram of operation panel



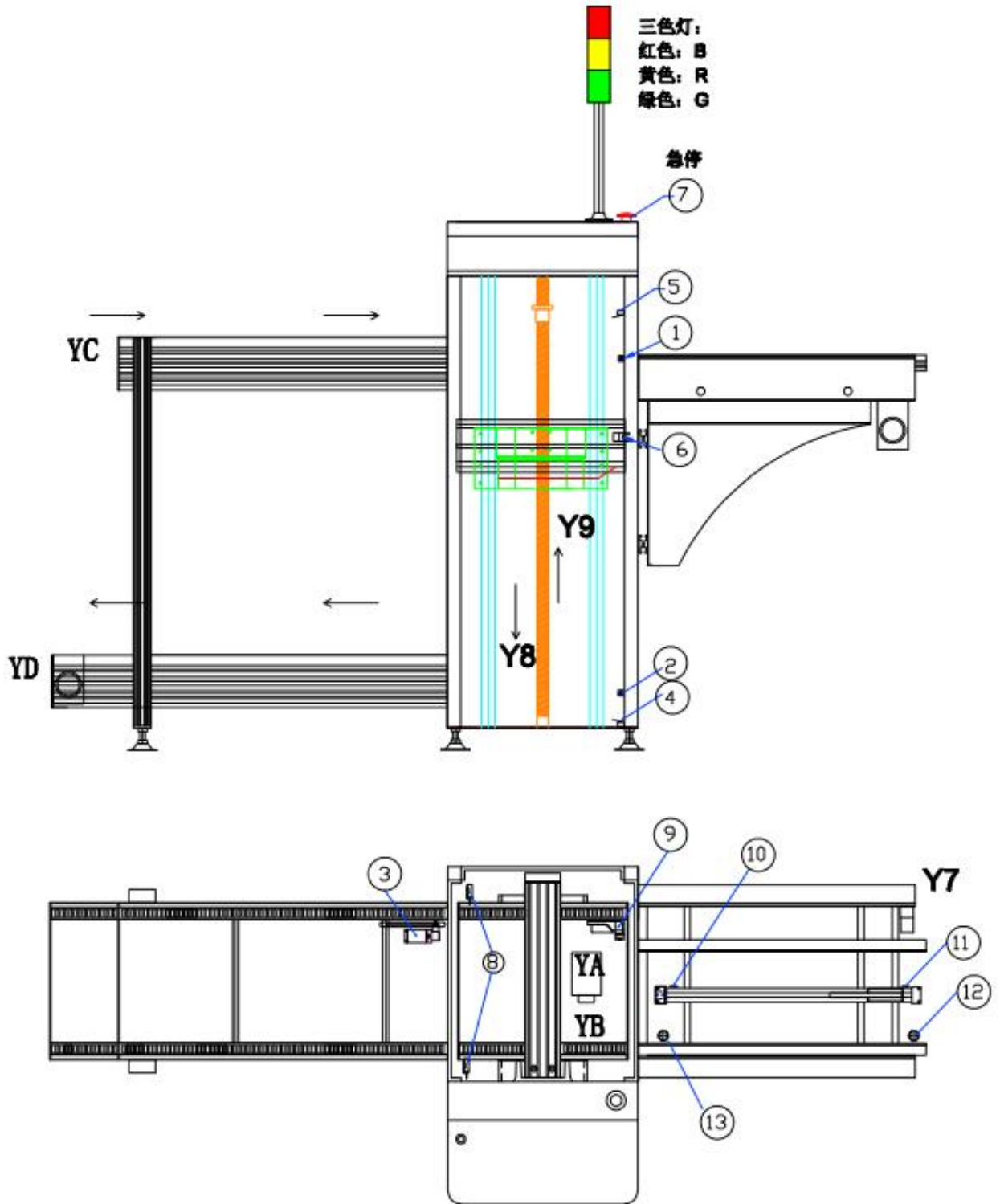
Manual click valid

(二) Schematic diagram of operation panel circuit



六、 Electrical circuit diagram

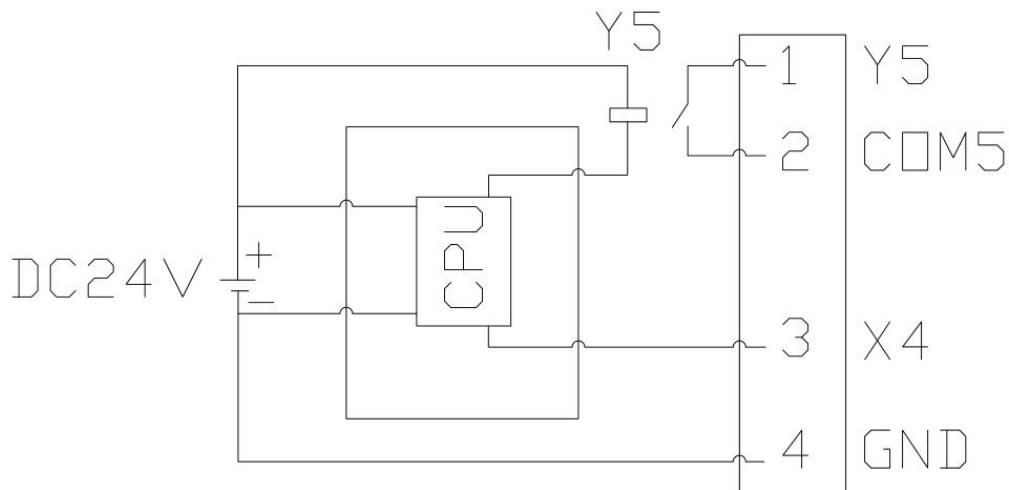
(一)、 Sensor distribution diagram



(二) Wiring diagram

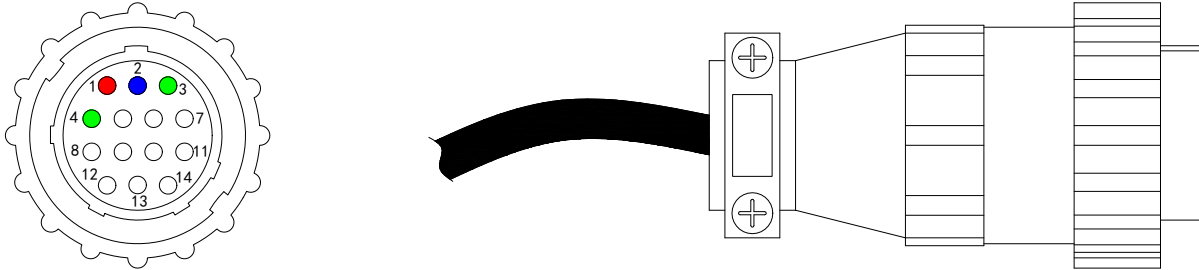
Serial number	Explain	
1	Upper limit inductor	X1
2	Lower limit inductor	X2
3	Outlet sensor for hopper	XC
4	Down protection inductor	XB
5	Top protection inductor	XA
6	Spacing inductor	X0
7	Emergency stop	XE
8	Detecting MG carry inductor	XF
9	The material box enters the elevator place sensor	X5
10	Cylinder push out inductor	X9
11	Cylinder retraction sensor	X8
12	PCB inlet sensor of receiver	X6
13	Receiver PCB outlet inductor	X7

(三) Signal line specification

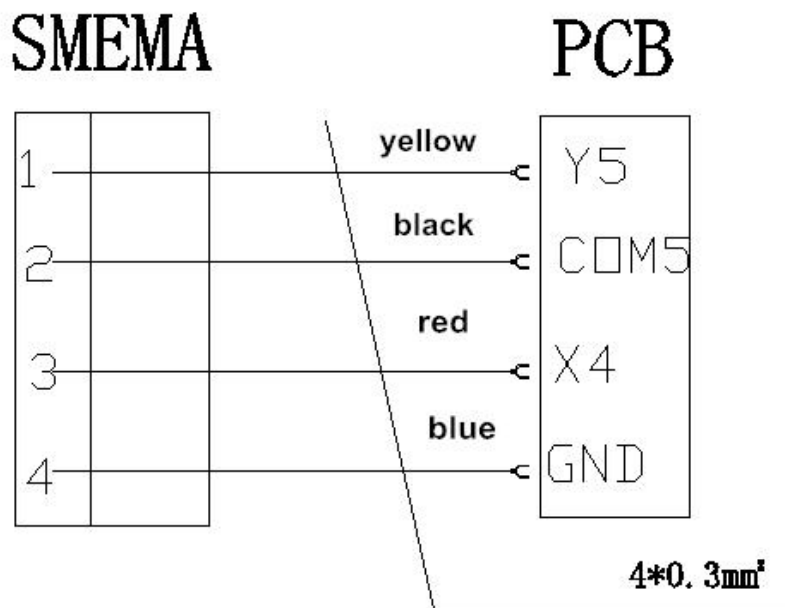


(四) Signal connection

Signal plug for connection with rear engineering machine

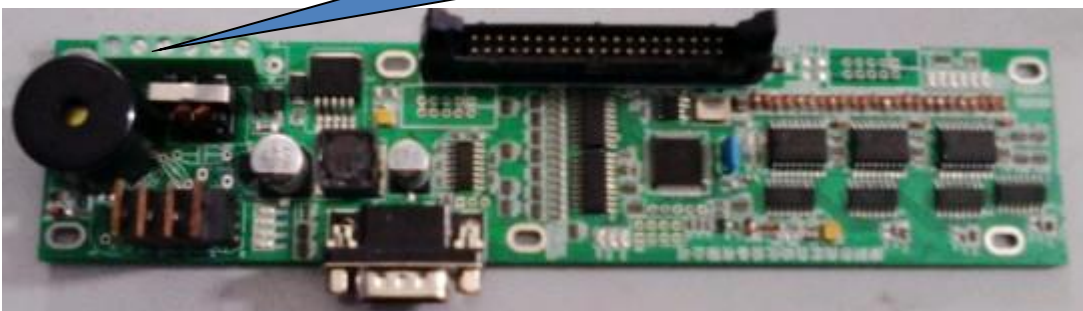


Signal connection with the next unit

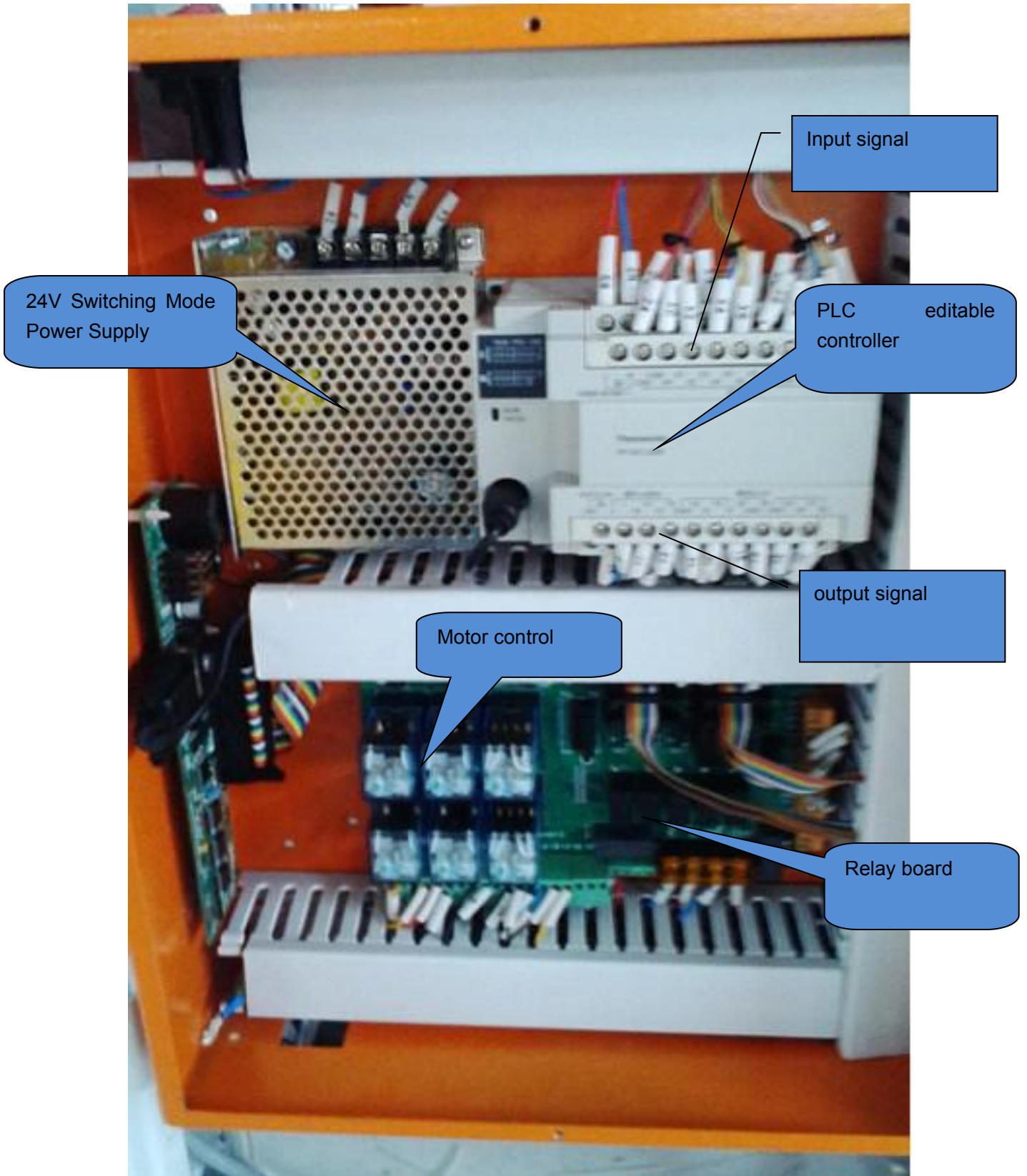


(五) Control panel conversion diagram

Three color light output interface



(六) Distribution diagram of electric box



七、 Display code query table

Code	Internal triggering	Explain
00	R3E R222	Standby (no tricolor light)
33	R308	The device is now running manually (three color indicator Huang Dengliang)
22	R309	The device is now running automatically (the green light of the tricolor indicator)
70	XE	Stop and start, (three color light red light)
71	T4	The lower limit is induced to
72	T56	The upper limit position is sensed
73	T5	Push rod cylinder push plate complete export protection inductor induction
74	T0	Timeout for radio sensing
75	T1	Out of box induction timeout alarm
76	T10	Push board timeout alarm
77	T52	Rising super time police, X0 did not feel
78	R1A	Out of box timeout
79	T7	The cylinder is not at origin
80	R85	The inductor is protected when the hand rises
81	R86	The inductor is sensed when manually rising

八、 Fault and elimination

fault	Causes and Solutions
The total power light doesn't work	Please check that the plug is inserted correctly on the 220V/AC socket. And make sure the socket has electricity
The low voltage power supply lamp doesn't work	Please check whether the emergency stop is open and whether the internal low voltage insurance is normal
No action of the cylinder	Check whether the gas supply and pressure are reached, whether the total gas switch is opened, whether the work light of the solenoid valve is turned on or not, and check whether the protective sensors are normal
Alarm after pushing board	Check whether the signal connection of the lower computer is normal or not. When the PCB board is sent out, the signal of the lower computer should stop sending the board signal
The lifting platform does not rise and fall	Please check whether meet the rise and fall of the cylinder condition, origin whether feel safe to shoot is sensed, out of the box is sensitive to induction
When the frame enters, the motor keeps turning and the lifting platform does not rise	Please check whether the push plate cylinder completely return to X8 without induction, and the launch of PCB protection is no magic eye induction X4 without induction, feeder protection XF electric eye sensor
Three color lights are not bright	Please check if the inner bulb is abnormal and loose

九、Maintenance

(一) Weekly maintenance projects

- 1、 check whether the chain conveyor chain is too loose, keep clean
- 2、 Keep the linear bearing and the optical axis clean of the lifting platform
- 3、 with no cloth or paper wipe dirty oil, then add the lubricating oil to the ball screw
- 4、 Test all automatic and manual functions
- 5、 test whether the transmission of PCB is smooth
- 6、 Lift the elevator to the highest position, turn off the power supply, check whether the lifting platform has declined
- 7、 check whether the action of the cylinder is smooth
- 8、 Check whether the chain track is worn or not
- 9、 check the photoelectric sensor, the magnetic sensor is normal work

(二) Maintenance cleaning project

1	Equipment shell	Ensure the appearance of the shell, no dust	Every day / time
2	Width adjustment optical axis	WD-40 can be used to prevent embroidery oil clean, no debris	Every day / time
3	Clean conveyor chain	There is no electronic component, paper tape and other sundries	Every day / time

(三) Oiling project

1	All ball nuts	Lubricating grease (using grease gun)	Times / month
2	Rotary bearing	Lubricating grease (jet lubrication)	Times / month
3	All guide bar, wire rod	Grease (hand pouring lubrication)	Times / month
3	PCB conveyor chain	Lubricating grease (jet lubrication)	Times / six months

(四) Adjustment project

1	PCB conveyor belt (chain)	The inner track bearing is adjusted when it is slack	Every quarter / time
---	---------------------------	--	----------------------

2	Track width	Is it consistent?	Every quarter / time
---	-------------	-------------------	----------------------

十、 Safety precautions

1. aspects of personal safety

- 1) Before starting the equipment, it is necessary to determine whether the on-site personnel are in safe position. Maintenance is not allowed in the operation of the equipment.
- 2) Equipment maintenance, should first determine the power switch, gas supply and other power switch is closed, before it can be maintained.
- 3) During the operation of the equipment, the operator should not touch or touch the parts of the equipment so as to avoid danger.

2. aspects of equipment safety

- 4) The equipment is fully automatic electronic control system, all control components, PLC instruction contact, or mechanical input and output type equipment prohibited unauthorized change.
- 5) The equipment is an irreversible device, power components, motor operation, maintenance and care, please pay attention to power wiring and direction of operation.
- 6) The manual switch and the automatic switch knob of each electromagnetic valve are used in the forced switch of each electric box of the equipment. Unauthorized use of the equipment without the permission of the person in charge of the equipment is strictly prohibited.
- 7) In case of mechanical failure, the equipment should be shut down immediately and notify the relevant personnel to repair.



Pay attention

Please hang the indicator board before maintenance