



Make Industrial Control
More Efficient

KST[®]
www.kst-en.com

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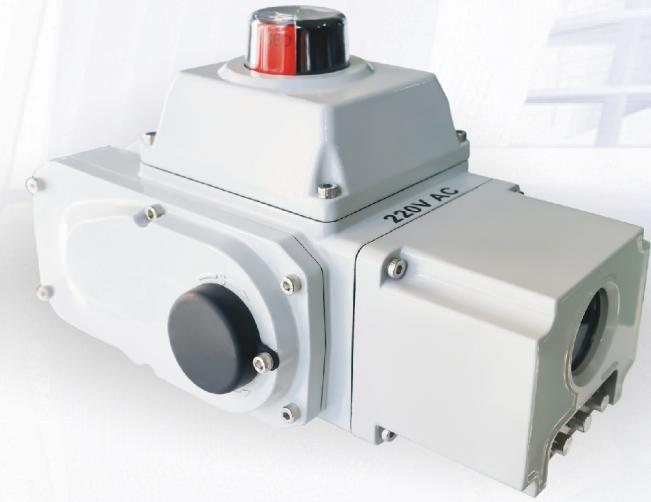
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► Smart Type Electric Actuator

• Supporting Angular stroke valve & Protection grade IP67



KST Official Website



KST Group Scene



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KANGSAITE AUTOMATION GROUP CO., LTD.



Group Introduction

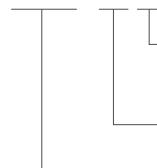
Kangsaite Automation Group Co., Ltd. (KST) was founded in 1997, is a high-tech automatic Beijing KST Fluid Control Technology Co., Ltd. specializes in providing system engineering control valves group enterprise integrating R&D, and manufacturing. The group comprises six services for projects in the petroleum, natural gas, coal chemical industry, and business divisions: Casting, aluminum die-casting, automatic control valves, sanitary valves, environmental protection, and other related areas. The company has established R&D actuators and general valves. It also has a strong R&D center with a technical and talent team. organization with Beijing University of Aeronautics and researchers. Additionally, KST has several subsidiaries, including Beijing KST Fluid Control Technology Co., Ltd. Shanghai KST Fluid Equipment Technology Co., Ltd. focuses on developing and, Ltd. and Shanghai KST Fluid Equipment Technology Co., Ltd, which have different product selling products and supporting engineering projects in the fields of medicine, and after focuses and unique features. Sale services both domestically and internationally. KST has production bases in Wenzhou has a comprehensive free trade zone, the storage of goods safe and assured, Xuancheng, Anhui, and Wenzhou, Zhejiang, with a total area of nearly 50,000 square there is a special person responsible for management, to ensure the safety of goods. At the meters of production plants. It has multiple standard production lines for rough and same time, the warehouse management staff of the bonded area will also conduct regular precise processing, assembly, and other manufacturing processes. KST has over 300 spot checks on the goods to solve the problems in time and let the guests rest assured.



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Model Designation

KST-10 A

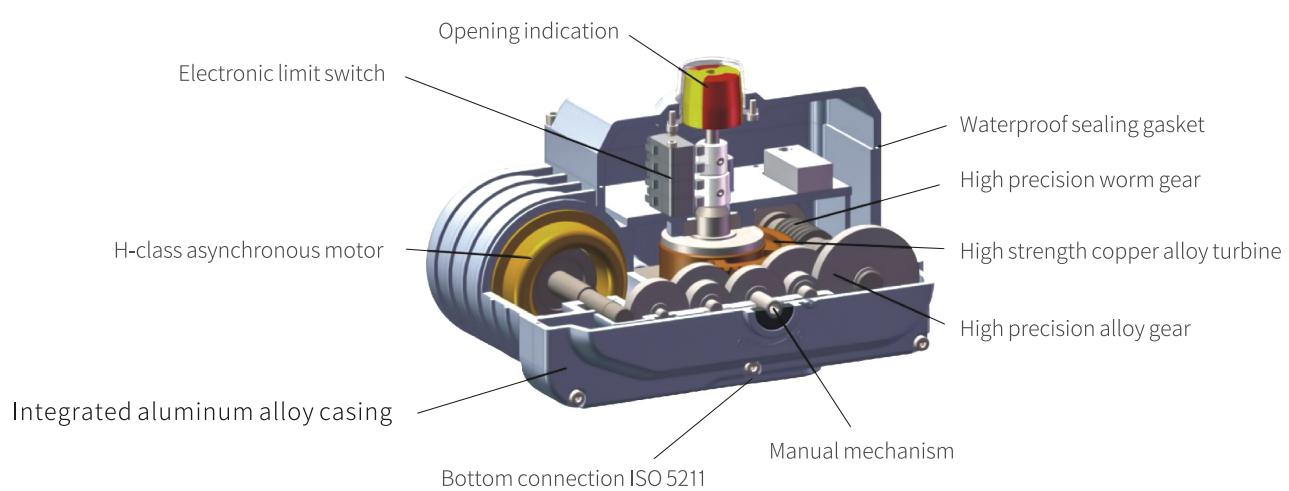


A: Modulating type, BS: Passive switch, R: Opening signal type
 ZK: Intelligence ON/OFF type, ZT: Intelligence modulating type
 Output torque of actuator $\div 10$ (05/10/20/40/60/100)
 Series of KST Smart type electric actuator

Description

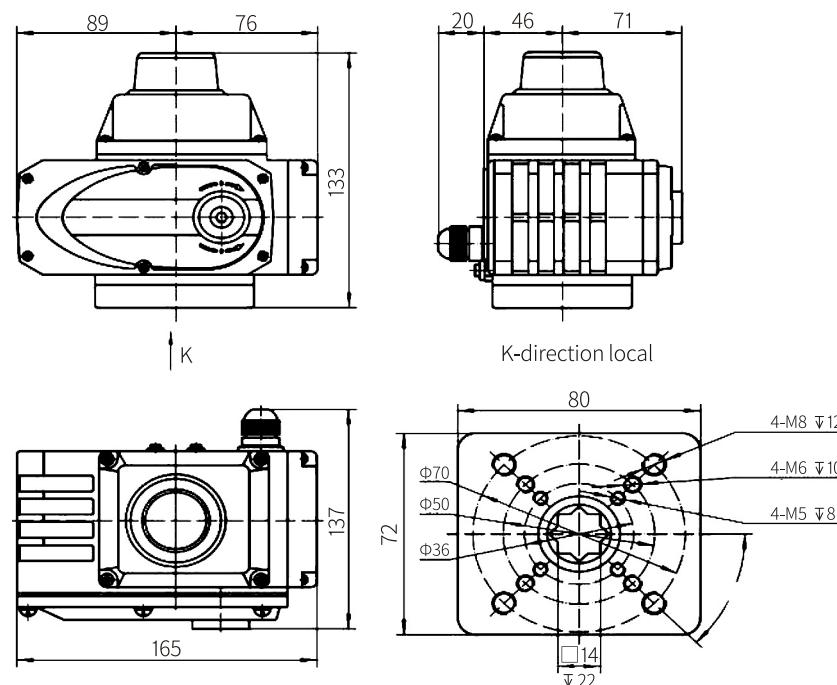
- Execution standard: JB/T 8219-2016 (Ordinary and Intelligent Electric actuators for Industrial Process Control Systems);
- Function types: Opening signal type R, passive ON/OFF type BS, regulating type A, non-invasive intelligent type, 2T, 2K;
- Exquisite and durable: ① The box is made of integral aluminum alloy die-casting, with exquisite appearance and compact structure;
 ② H-class asynchronous motor, with stable performance and strong power;
 ③ High precision alloy gears, multiple heat treatment processes, good wear resistance;
 ④ High strength copper alloy worm gear, with high strength and good wear resistance;
 ⑤ Integrated design of output shaft, eliminating adapter clearance, high precision, and good strength.
- Rich configuration: Can use AC220V, AC 380V AC power supply, DC 24V, DC 220V DC power supply, special voltage can be customized;
- Easy to use: No refueling, no inspection, waterproof and rust proof, can be installed at any angle;
- Protection device: All products in the series are equipped with electronic and mechanical dual limit devices to prevent overtravel;
- Adopting a worm gear structure with self-locking function, it is safe and reliable;
- Control mode: Switching signal, 4-20mA current signal, 0-10VDC voltage signal can be selected as the control signal to Series of KST Smart type electric actuator meet various on-site control requirements;
- Torque range: 50~1000N.m;
- Multiple speeds: Full travel time of 9 seconds, 13 seconds, 15 seconds, 30 seconds, 50 seconds, 100 seconds (set before leaving the factory);
- Intelligent CNC: The intelligent control module is highly integrated into the electric device body and can be externally connected to a locator when needed. Digital setting, digital tuning, highly accurate, self diagnosis, multifunctional for one machine.

Structure Diagram



Dimensions and Performance Parameters

KST-05



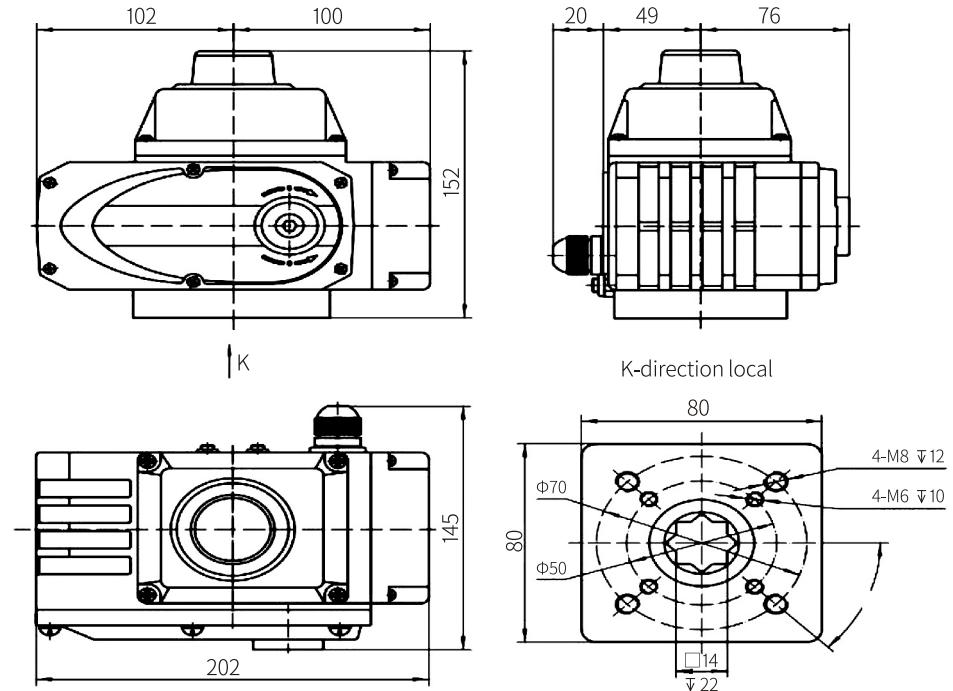
K-direction local

KST-05 Performance Parameter

Model	KST-05				
Power Supply	DC24V	AC24V	AC110V	AC220V	AC380V
Output Torque	15Nm		10S: 20Nm	20S: 50Nm	
90° Action Time	8S		28S		
Range of Rotation Angle	0~90°				
Power	12W		10W		
Rated Current	1.00A	2.20A	0.36A	0.20A	0.15A
Overall Weight	2.3kg		2.7kg		
Insulation Resistance	DC 24V/AC24V: 100MΩ/250VAC AC110/AC220V/AC380V: 100MΩ/500VAC				
Voltage Resistance Level	DC 24V: 500VAC(1min), AC110/220V: 1500VAC(1min), AC380V: 1800VAC(1min)				
Protection Grade	IP67				
Installation Position	360° installation at any angle				
Electrical Interface	M18×1.5 one waterproof cable connector, one power cord, and one signal cord each				
Ambient Temperature	-25°C~60°C				
Circuit Control	B, S, BS, R, A, ZT, ZK(type)				
Optional Feature	Damp Heater				

Dimensions and Performance Parameters

KST-10

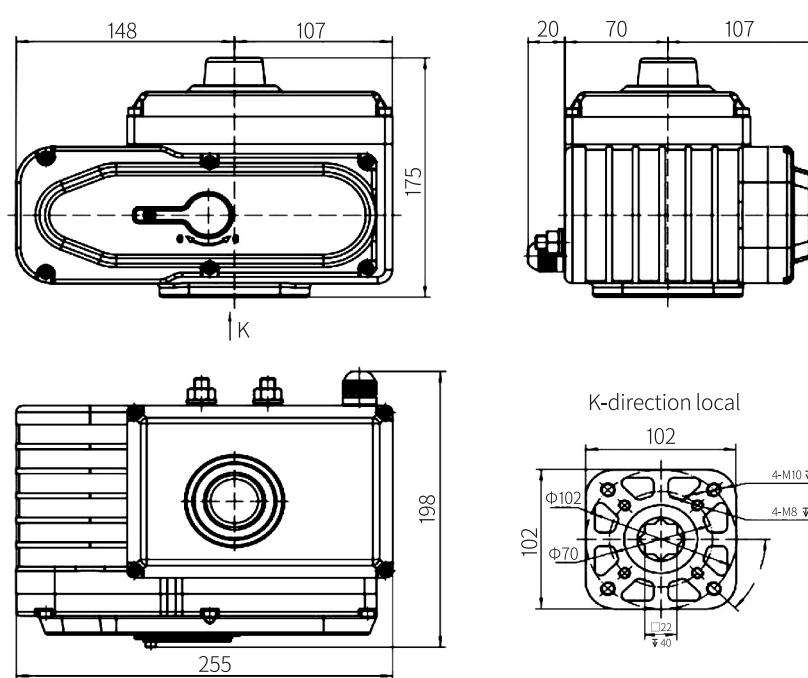


KST-10 Performance Parameter

Model	KST-10					
Power Supply	DC24V	AC24V	AC110V	AC220V	AC380V	
Output Torque	55Nm	15S: 70Nm 30S: 100Nm				
90°Action Time	13S	28S				
Range of Rotation Angle	0~90°					
Power	25W					
Rated Current	1.30A	3.00A	0.60A	0.30A	0.20A	
Overall Weight	3.4kg	3.7kg				
Insulation Resistance	DC 24V/AC24V: 100MΩ/250VAC AC110/AC220V/AC380V: 100MΩ/500VAC					
Voltage Resistance Level	DC 24V: 500VAC(1min), AC110/220V: 1500VAC(1min), AC380V: 1800VAC(1min)					
Protection Grade	IP67					
Installation Position	360° installation at any angle					
Electrical Interface	M18×1.5 one waterproof cable connector, one power cord, and one signal cord each					
Ambient Temperature	-25°C~60°C					
Circuit Control	B, S, BS, R, A, ZT, ZK(type)					
Optional Feature	Damp Heater					

Dimensions and Performance Parameters

KST-20/40/60



KST-20 Performance Parameter

Model	KST-20					
Power Supply	DC24V	AC24V	AC110V	AC220V	AC380V	
Output Torque	200Nm					
90°Action Time	17.5S	35S				
Range of Rotation Angle	0~90°					
Power	90W	50W				
Rated Current	2.50A	7.00A	1.10A	0.53A	0.33A	
Overall Weight	9.0kg	9.8kg				
Insulation Resistance	DC 24V/AC24V: 100MΩ/250VAC AC110/AC220V/AC380V: 100MΩ/500VAC					
Voltage Resistance Level	DC 24V: 500VAC(1min), AC110/220V: 1500VAC(1min), AC380V: 1800VAC(1min)					
Protection Grade	IP67					
Installation Position	360° installation at any angle					
Electrical Interface	M18×1.5 one waterproof cable connector, one power cord, and one signal cord each					
Ambient Temperature	-25°C~60°C					
Circuit Control	B, S, BS, R, A, ZT, ZK(type)					
Optional Feature	Damp Heater					

KST-40 Performance Parameter

Model	KST-40								
Power Supply	DC24V	AC24V	AC110V	AC220V	AC380V				
Output Torque	400Nm								
90°Action Time	20S	55S							
Range of Rotation Angle	0~90°								
Power	120W	90W							
Rated Current	2.00A	7.50A	1.20A	0.55A	0.35A				
Overall Weight	9.0kg	9.8kg							
Insulation Resistance	DC 24V/AC24V: 100MΩ/250VAC AC110/AC220V/AC380V: 100MΩ/500VAC								
Voltage Resistance Level	DC 24V: 500VAC(1min), AC110/220V: 1500VAC(1min), AC380V: 1800VAC(1min)								
Protection Grade	IP67								
Installation Position	360° installation at any angle								
Electrical Interface	M18×1.5 one waterproof cable connector, one power cord, and one signal cord each								
Ambient Temperature	-25°C~60°C								
Circuit Control	B, S, BS, R, A, ZT, ZK(type)								
Optional Feature	Damp Heater								

KST-60 Performance Parameter

Model	KST-60								
Power Supply	DC24V	AC24V	AC110V	AC220V	AC380V				
Output Torque	500Nm	600Nm							
90°Action Time	30S	55S							
Range of Rotation Angle	0~90°								
Power	130W	90W							
Rated Current	3.50A	9.00A	1.80A	0.90A	0.38A				
Overall Weight	9.2kg	10kg							
Insulation Resistance	DC 24V/AC24V: 100MΩ/250VAC AC110/AC220V/AC380V: 100MΩ/500VAC								
Voltage Resistance Level	DC 24V: 500VAC(1min), AC110/220V: 1500VAC(1min), AC380V: 1800VAC(1min)								
Protection Grade	IP67								
Installation Position	360° installation at any angle								
Electrical Interface	M18×1.5 one waterproof cable connector, one power cord, and one signal cord each								
Ambient Temperature	-25°C~60°C								
Circuit Control	B, S, BS, R, A, ZT, ZK(type)								
Optional Feature	Damp Heater								

KST-100 Performance Parameter

Model	KST-100								
Power Supply	DC24V	AC24V	AC110V	AC220V	AC380V				
Output Torque	800Nm	1000Nm							
90°Action Time	30S	55S							
Range of Rotation Angle	0~90°								
Power	130W	100W							
Rated Current	3.50A	9.50A	1.90A	1.20A	0.45A				
Overall Weight	9.2kg	10kg							
Insulation Resistance	DC 24V/AC24V: 100MΩ/250VAC AC110/AC220V/AC380V: 100MΩ/500VAC								
Voltage Resistance Level	DC 24V: 500VAC(1min), AC110/220V: 1500VAC(1min), AC380V: 1800VAC(1min)								
Protection Grade	IP67								
Installation Position	360° installation at any angle								
Electrical Interface	M18×1.5 one waterproof cable connector, one power cord, and one signal cord each								
Ambient Temperature	-25°C~60°C								
Circuit Control	B, S, BS, R, A, ZT, ZK(type)								
Optional Feature	Damp Heater								

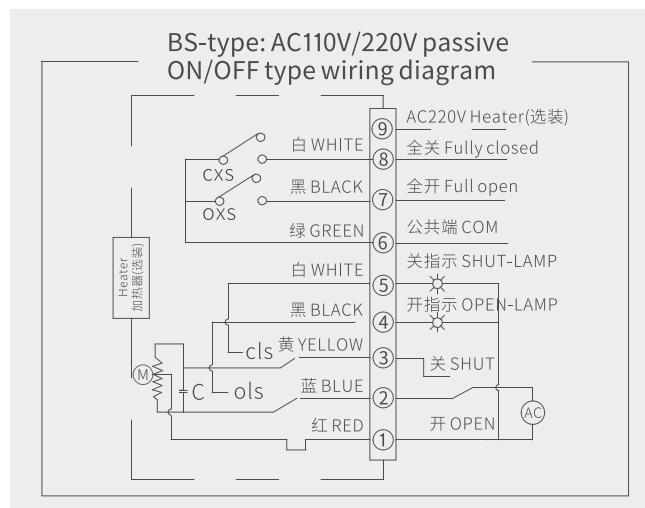
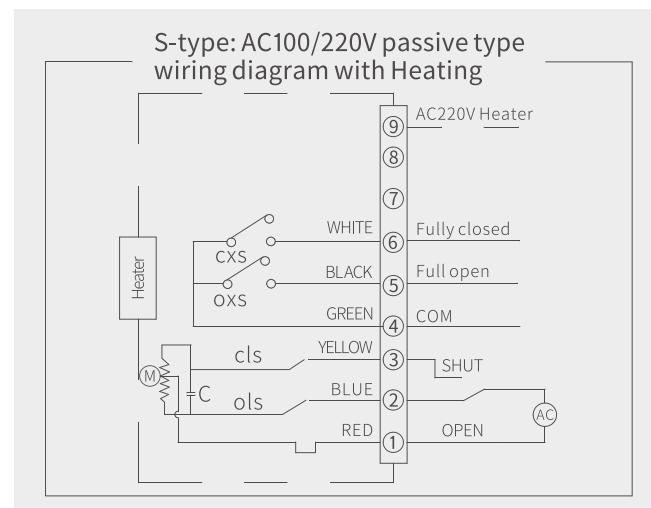
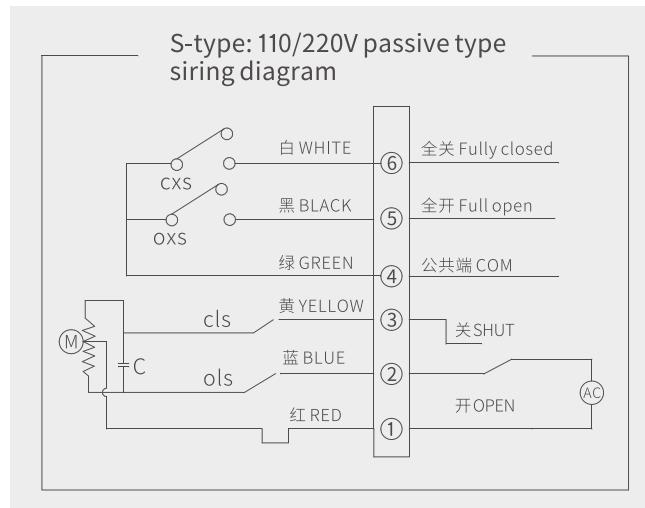
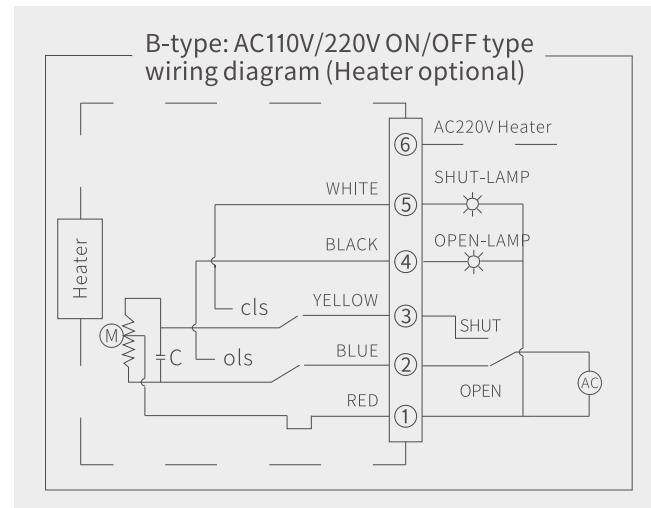
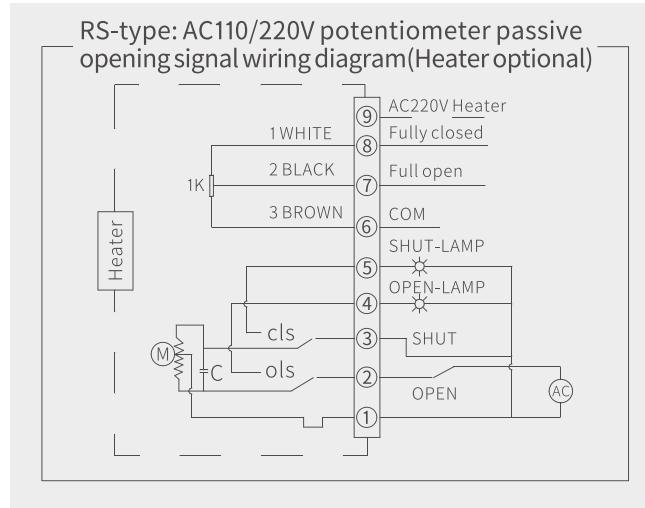
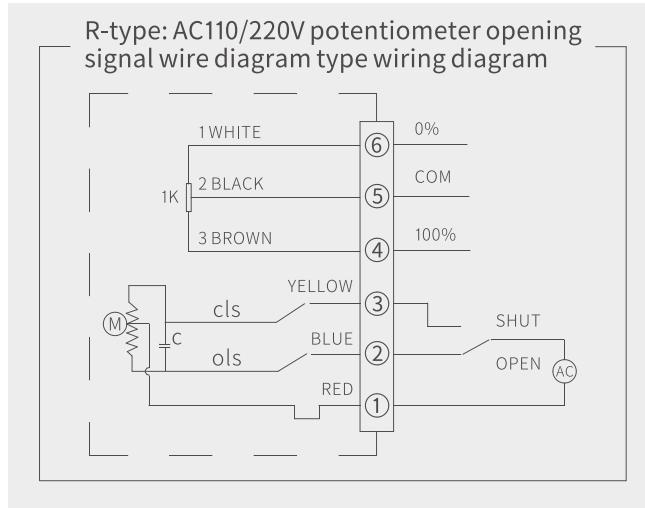
Modulate Type

Modulate series performance parameters

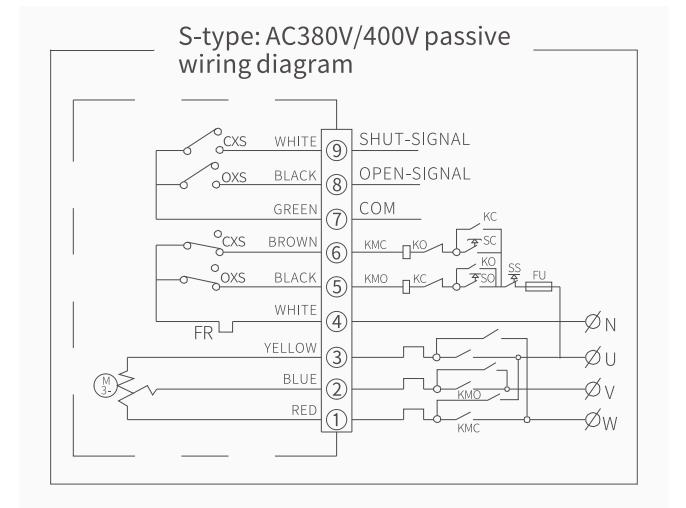
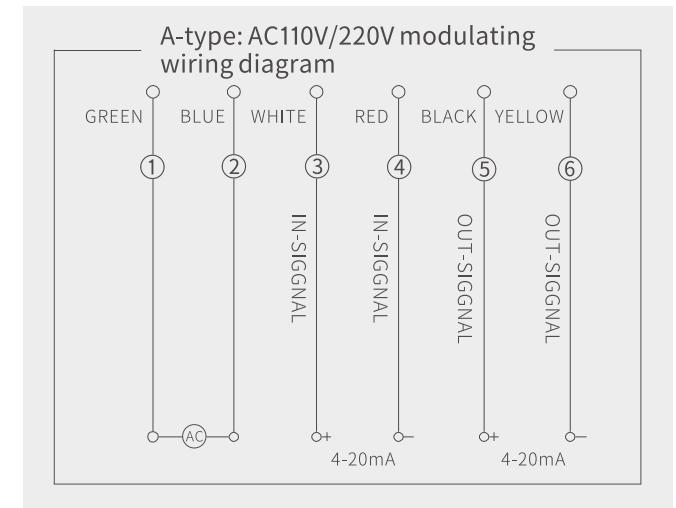
Model	KST-05A	KST-10A	KST-20A	KST-40A	KST-60A	KST-100A
Power Supply	DC 24V、AC 24V、AC 110V、AC 220V、AC 380V; 50/60Hz					
Motor Power	DC: 10W AC: 10W	DC: 25W AC: 25W	DC: 90W AC: 50W	DC: 120W AC: 60W	DC: 130W AC: 90W	DC: 130W AC: 100W
Rated Current	DC 24V: 1.00A AC 24V: 2.20A AC 110V: 0.36A AC 220V: 0.20A AC 380V: 0.15A	DC 24V: 1.30A AC 24V: 3.00A AC 110V: 0.60A AC 220V: 0.30A AC 380V: 0.20A	DC 24V: 2.50A AC 24V: 7.00A AC 110V: 1.10A AC 220V: 0.53A AC 380V: 0.33A	DC 24V: 2.00A AC 24V: 5.70A AC 110V: 1.20A AC 220V: 0.55A AC 380V: 0.35A	DC 24V: 3.50A AC 24V: 9.00A AC 110V: 1.80A AC 220V: 0.90A AC 380V: 0.38A	DC 24V: 3.50A AC 24V: 9.50A AC 110V: 1.90A AC 220V: 1.20A AC 380V: 0.45A
Output Torque	50Nm	100Nm	200Nm	400Nm	600Nm	1000Nm
Action Time	DC: 8S AC: 28S	DC: 13S AC: 28S	DC: 17S AC: 35S	DC: 20S AC: 55S	DC: 20S AC: 55S	DC: 30S AC: 55S
Range of Rotation Angle	0~90°					
Input Signal	4~20mA.DC、0~10V.DC(Other options can be selected before leaving the factory)					
Output Signal	4~20mA.DC、0~10V.DC(Other options can be selected before leaving the factory)					
Accuracy Level	1%					
Weight	3.0kg	4.0kg	10.5kg	10.5kg	10.8kg	10.8kg
Voltage Resistance Level	DC: 24V: 500VAC (1min) AC110/220: 150VAC(1min) AC380V: 1800VAC(1min)					
Insulation Resistance	DC 24V/AC 24V: 100MΩ/250VAC DC 110/AC 220V/AC 380V: 100MΩ/500VAC					
Protection Grade	IP67					
Ambient Temperature	-25°C~60°C(Other temperatures can be customized)					
Installation Position	Any angle					
Cabinet Material	Aluminum alloy die-casting parts					
Optional Feature	Damp Heater					

Wire Diagram

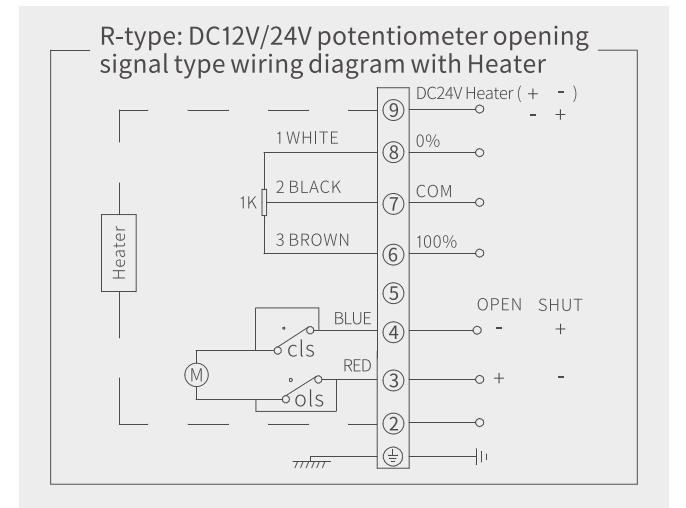
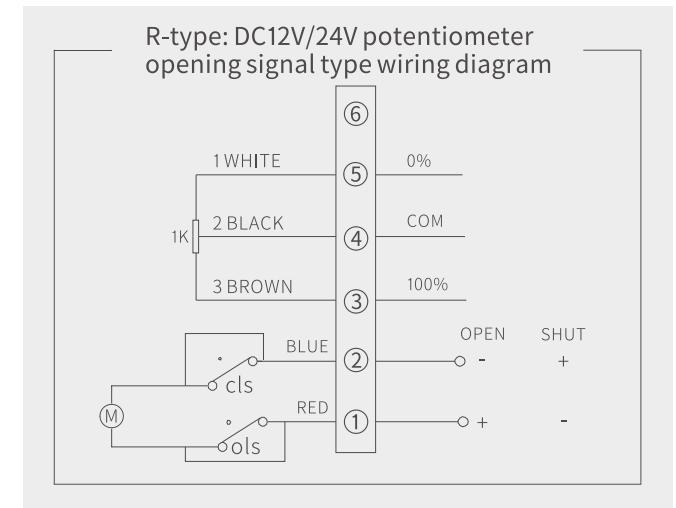
VAC220



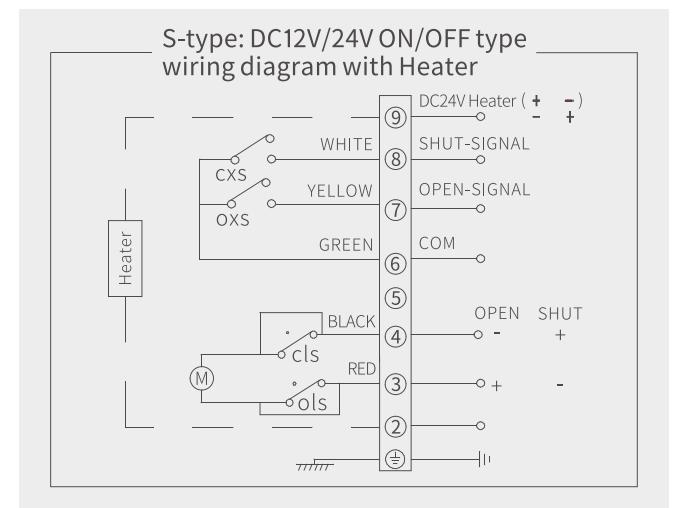
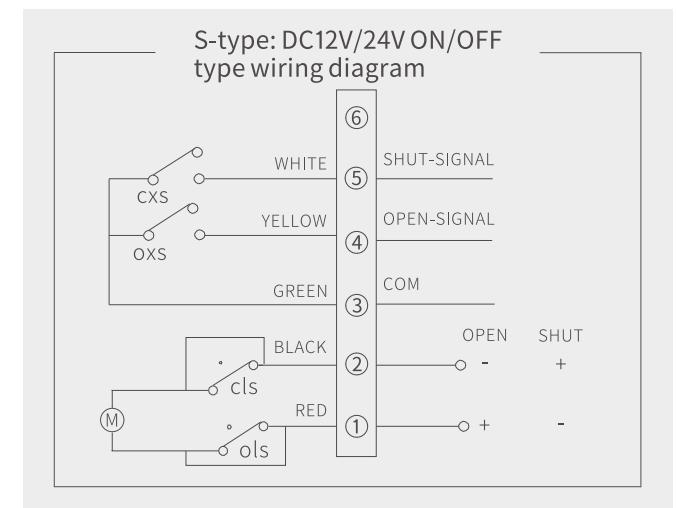
VAC 380

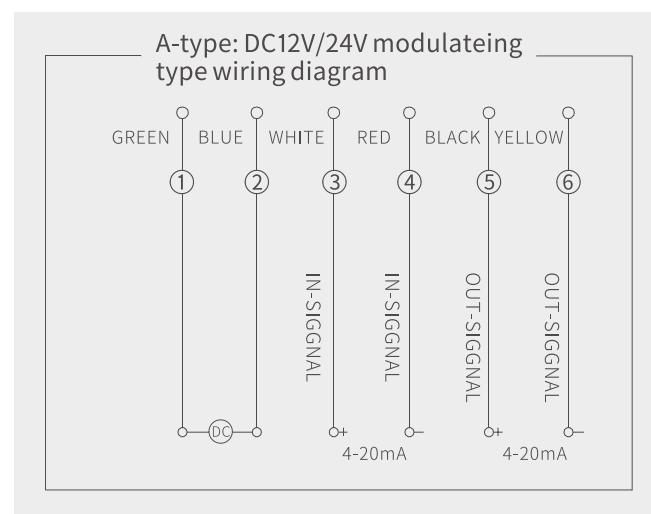


DC



S-type: DC12V/24V ON/OFF
type wiring diagram





Installation and Commissioning

Indoor installation precautions:

- It is a non explosion proof product and should not be installed indoors with explosive gases;
- When installed in areas with water and material splashes, please install a protective cover to cover the entire machine;
- Please reserve space for incoming lines and manual operations.

Outdoor installation precautions:

- Please install a protective cover to cover the entire machine and avoid direct sunlight from rainwater;
- Please reserve space for incoming lines and manual operations.
- Note: Direct outdoor sunlight can cause high temperatures, which can accelerate the aging of components and even lead to failure.
- Rainwater can also accelerate the aging of rubber pads, and in case of improper waterproof operation, it can instantly damage the product.

Environmental temperature and fluid temperature conditions:

- The ambient temperature should be within the range of -30 °C to 60 °C;
- Note: When used in environments below zero degrees or with large temperature differences, models with dehumidification heaters that prevent condensation should be used.
- When the fluid temperature is high, high-temperature connectors and joints should be used to install the drive device on the valve.

Wiring and wiring connections:

Incoming line lock, conventional PG1118 * 1.5 inner diameter 8, can choose G1/2 inner diameter 10;

- According to the size of the incoming line lock, please use a cable with a diameter of 8-10mm to ensure the safety and reliability of the connection;
- Thread the cable through the wire lock and secure the wire end to the terminal block;
- Tighten the outer cover of the cable lock to secure the cable.

Selection of fuses and circuit breakers:

In order to better protect electric actuators, eliminate circuit short circuits, and reduce accident injuries, a circuit breaker can be added to the power input terminal of each electric actuator, and suitable fuses can be selected according to the table below.

Type	Voltage	AC380V	AC220V	AC110V	AC24V	DC24V
Type	Fuse					
KST-05		2A	2A	3A	5A	5A
KST-10		2A	3A	5A	7A	7A
KST-20/40/60		3A/4A	5A/7A	7A/10A	10A/11A	15A
KST-100/200		5A	7A	10A	20A	

Attention: Do not connect the power lines of two or more electric devices in parallel;
Cannot use the same contact to control multiple electric devices, otherwise, it will cause loss of control and motor overheating.

Adjustment of position switch and limit position switch (Figure 2)

- Manually move the valve to the fully closed position.
- Loosen the fixing screw of the travel stop block, rotate the lower travel stop block to activate the travel switch. When the travel switch is activated, it will make two "click" sounds, and then fix the screw. The method for adjusting the fully open position is the same as above.

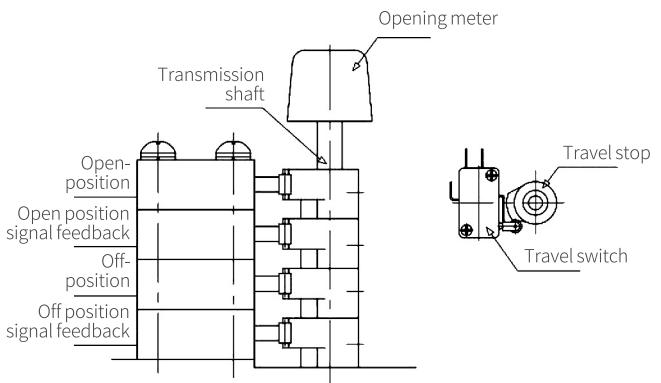


Figure 2

Adjustment of mechanical limit (Figure 4)

- Rotate the handle to the fully open position.
- Loosen the lock nut, rotate the adjusting screw to make contact with the mechanical stopper, and then rotate the screw half a turn in the opposite direction to lock the nut.
- The same method can be used to adjust the mechanical stopper in the fully closed position.

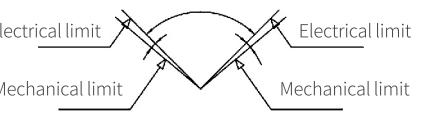
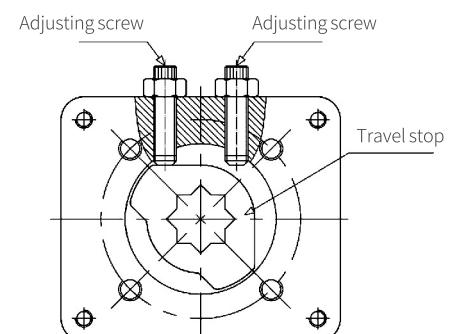


Figure 4

Adjustment of potentiometer [Opening type (R), adjustment type (A)] (Figure 5)

- The resistance values of the potentiometer are 1KΩ, 5KΩ;
- Rotate the valve to the fully closed position with the handle;
- Loosen the screw of the opening gear, rotate the opening gear, and adjust the potentiometer.

Use a multimeter to measure the resistance value between the 4-5 terminal blocks, making the resistance value between the 4-5 terminal blocks 90~100 Ω. Tighten the opening gear fixing screw (If it is an adjustable seven wire connector, please measure the

resistance values of the corresponding RV and RS sockets)

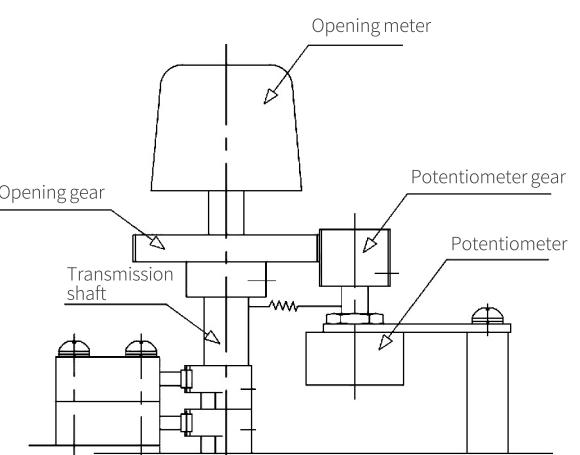
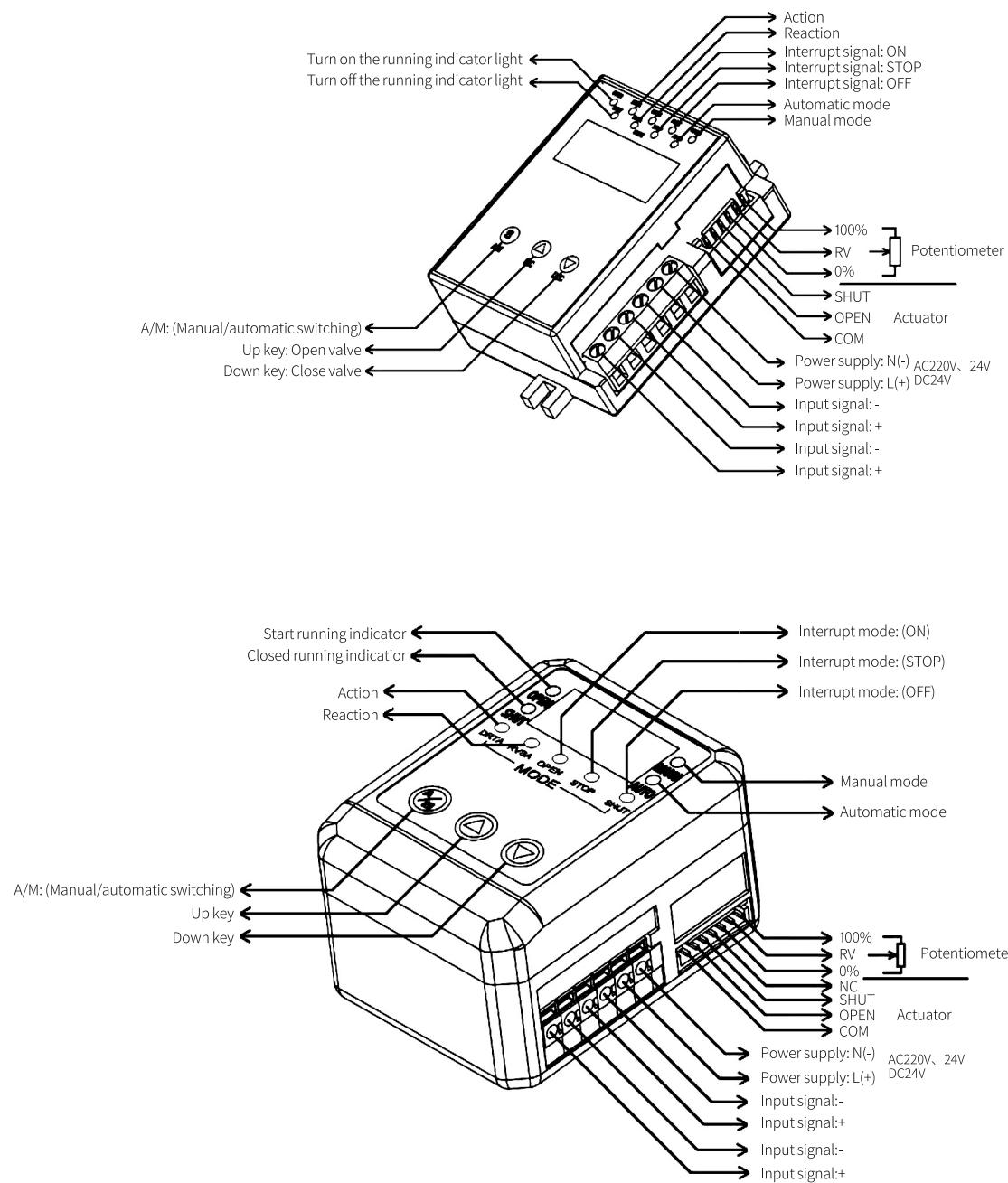


Figure 5

Operation method of built-in controller (Model)



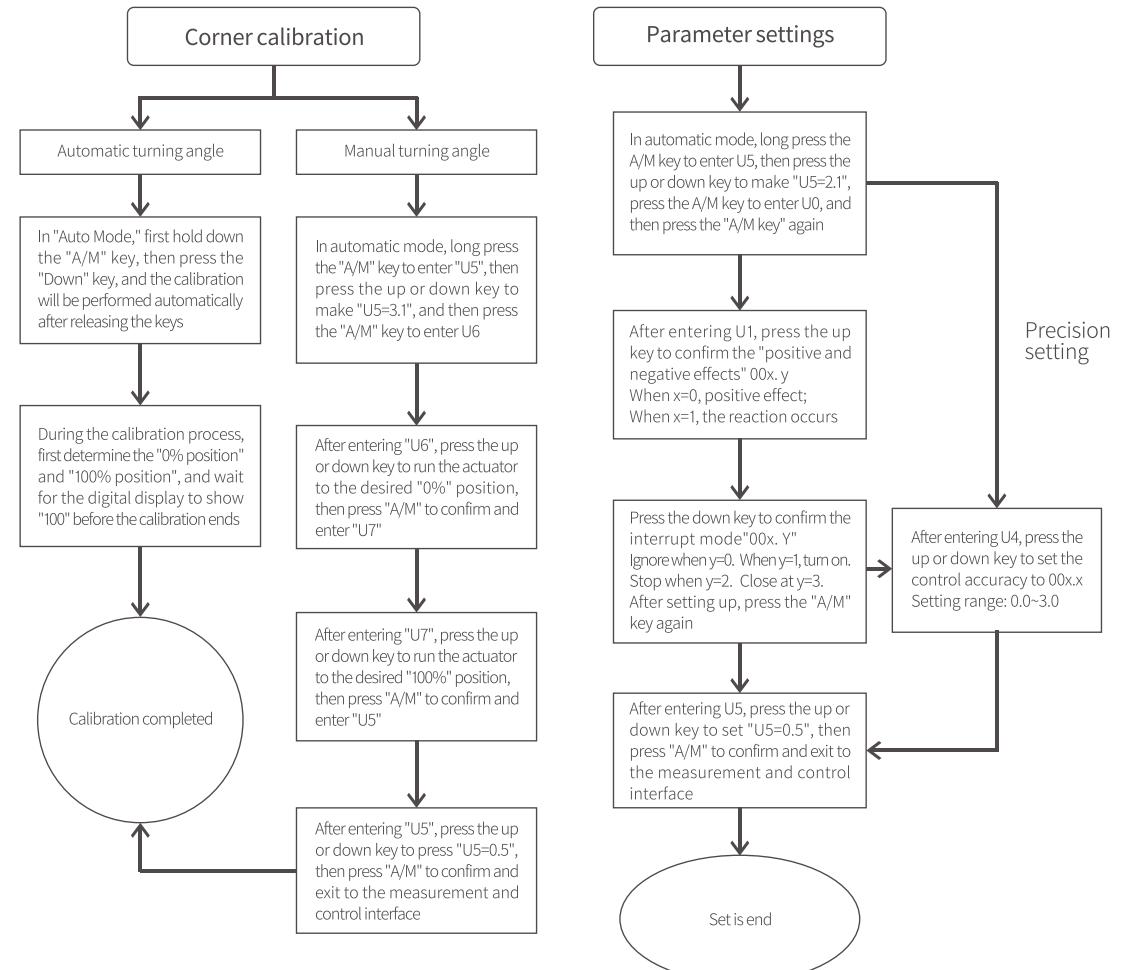
Warning:

1. Please check if the wiring is correct before powering on;
2. Please pay attention to the wiring of the power supply. If it is connected incorrectly, it is not covered by the warranty
3. The input signal power range is DC4~20mA/<30mA, DC0~10V<15V.



Method to restore factory settings:

In automatic mode, long press the AM key to enter U5, set U5 to 12.1, press the A/M key to restore the factory calibrated data, and then perform actuator angle calibration again.



Use and Maintenance



Manual operation is prohibited when powered on

This product has undergone comprehensive debugging and inspection by quality control personnel before leaving the factory. When installing and connecting the product and valve, there may be reasons such as valve couplings that prevent the valve from fully closing or opening, requiring re-adjustment. The following steps should be followed when making adjustments:

• Correctly install and connect the actuator and valve;

• Manual trial operation

Remove the electrical cover, connect the handle shaft rubber plug, insert the attached door corner handle into the hexagonal hole, and turn it clockwise. The valve opening should decrease;

When the valve is in the fully closed position, observe whether the limit travel switch for the closing direction is actuated (A "click" sound will be emitted when the switch is actuated), and then turn the handle approximately half a turn to check whether the mechanical stopper touches the adjustment screw;

Turn the handle counterclockwise to increase the valve opening. Similarly, check the limit travel switch and mechanical stopper for the opening direction. After manual operation, install the air cap and plug the rubber plug;

• Electric trial operation

Remove the wiring cover and connect the wires correctly according to the circuit diagram on the cover;

During the power-on test run, pay attention to observe whether the actuator and valve are working normally.

• Maintenance

Given the compact structure of this product, we specifically use molybdenum-based grease with long lifespan and good pressure resistance to achieve oil-free operation;

When the electric valve does not operate for a long time or operates rarely, please regularly check the drive actuator for any abnormalities.

Faults and Countermeasures

Fault conditions	Source	Solution
The motor does not rotate	Low supply voltage or not connected to power supply	Check the power supply voltage
	Input signal disconnected or insufficient value	Check the input signal
	Wire breakage or separation from terminal block	Replace the wires and terminal block
	Temperature protector action	Reduce the temperature of the surrounding environment
		Reduce usage frequency
		Overload
	The limit switch has already activated at the middle opening	Adjust the travel stop block
	The capacitor used for motor phase input is damaged	Replace the capacitor
	Motor short line	Replace the motor
	Control box malfunction	Replace the control box
The input signal does not match the opening signal	There is interference signal in the signal source	Check input signal
	Interference generated in the voltage divider	Replace the potentiometer
	Loose gear of voltage divider or loose opening gear	Check and tighten the screws of the gear
No opening signal	The input signal is incorrect	Check input signal
	Poor zero adjustment and magnification adjustment	Reset zero adjustments and magnification
	The position of the potentiometer gear has changed	Adjust the gear of potentiometer
The opening signal keeps changing	The opening signal line is disconnected or has poor contact	Check wiring

Operating Instructions of Noninvasive Intelligent Electric Actuator

I. Remote Control Function Description (Optional)

Remote control rendering	Remote control operation	Button operation	Functional definition	Tips
		Simultaneously press and hold the "open valve" and "close valve" buttons	Return	Return to the previous menu
		Press the settings button for 3 seconds to enter the settings. Set interface, short press the settings button. Perform confirmation or switch function	Setting	1. Long press for 3 seconds to enter settings 2. Short press has confirmation and shift functions 3. Switch between remote or on-site functions on the main
		Open valve	Open valve	Open valve
		Close valve	Close valve	Close valve
		Open valve	Add	Function selection (add)
		Close valve	Reduced	Function selection (reduced)

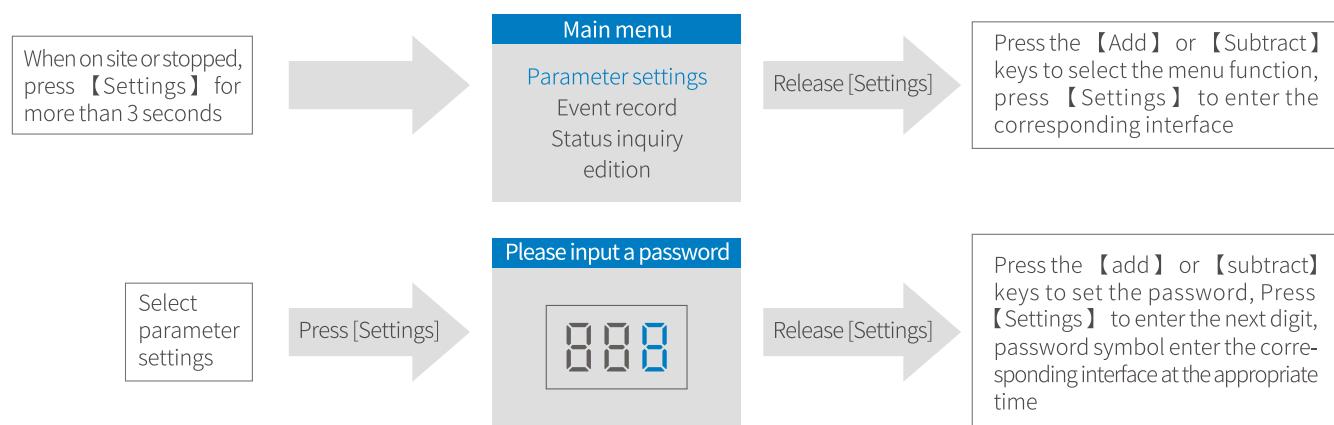
Special reminder: When using, align with the display window. When the remote control distance is significantly reduced, please replace the battery!

II. Panel Introduction

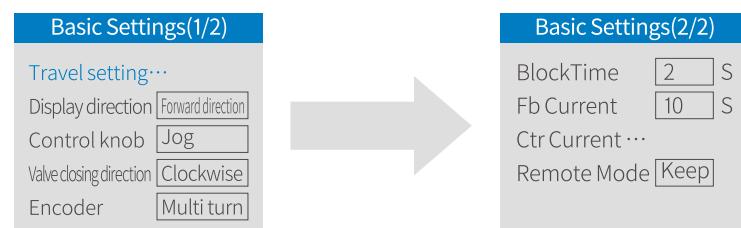


III. Operating Instructions

1. When stopping/on-site, press 【Settings】 for 3 seconds to enter the main menu;
2. If there is a return operation when setting parameters or travel, return to the higher-level screen.
3. Press the 【Add】 and 【Subtract】 keys to select the menu in the settings interface, and press 【Settings】 to confirm and enter.
4. Enter the password input interface (the following is the remote control operation process).

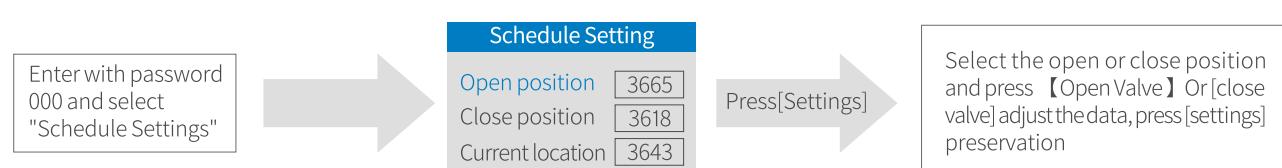


IV. Basic parameter settings (Password 000)

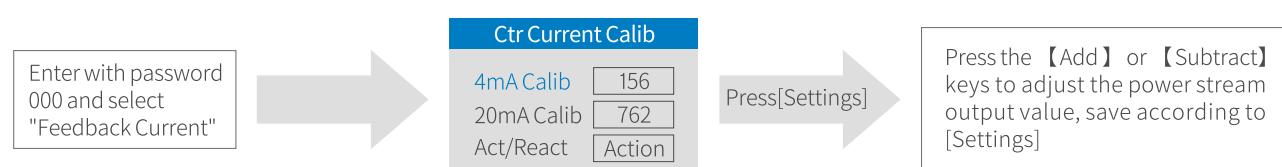


ON/OFF type display remote control mode, modulating type display feedback current, bus type display bus settings

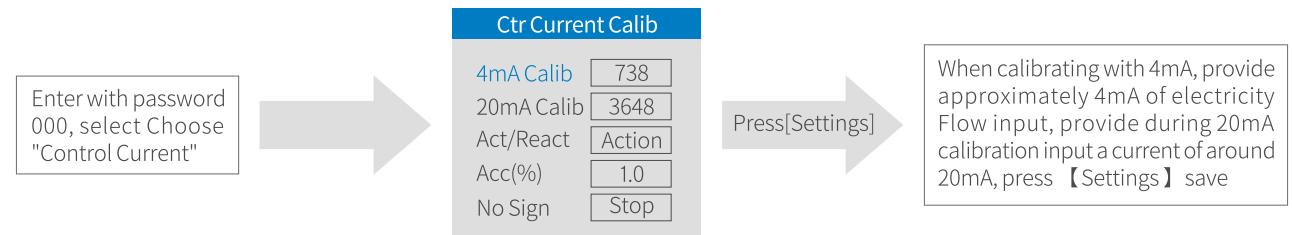
· Travel setting (First confirm that the steering and torque wiring of the electric actuator are correct)



· Fine tuning of output current



· Input current fine adjustment (Adjustable type needs to be set)



Similarly, on this interface, you can set the "accuracy" and "lost signal mode". If the stroke is long or the inertia is small, the control accuracy can be increased. Otherwise, the control accuracy should be lowered (the value should increase).

· Bus set



Note: The address range is 1250, with a total of 6 communication formats.

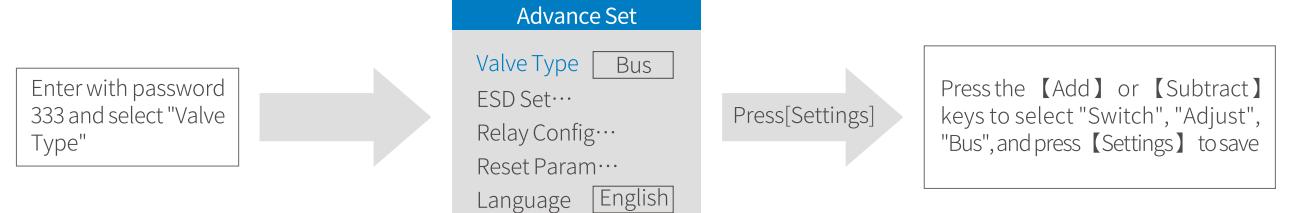
· Remote control signal selection (when set to ON/OFF type)



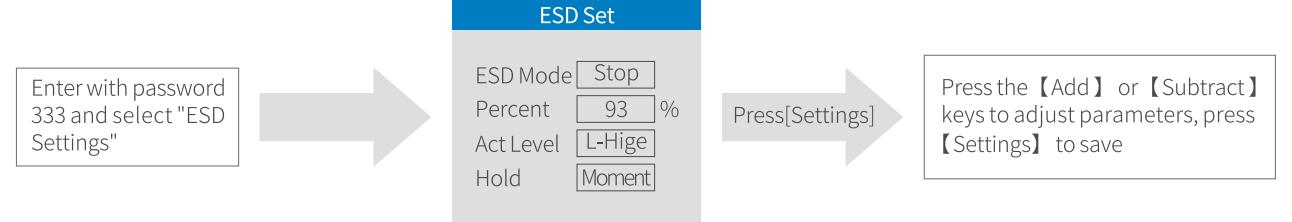
V. Advanced Settings (Password 333)

You can set "valve type", "ESD settings", "relay configuration", "reset parameters", "language selection", "partial stroke" and other settings in the advanced settings. The valve type and language selection can be set according to your needs.

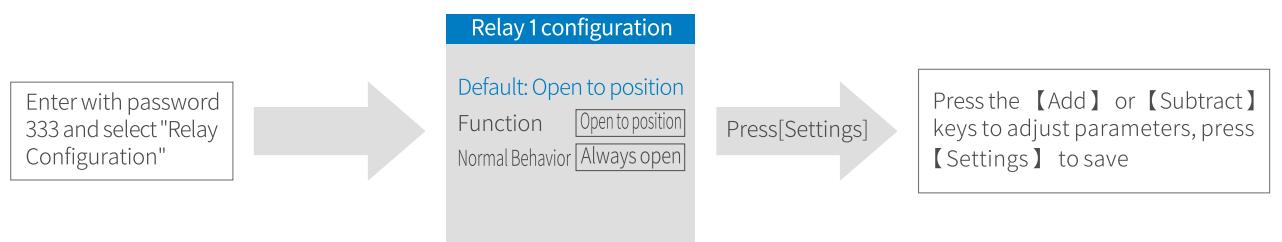
· Valve type set



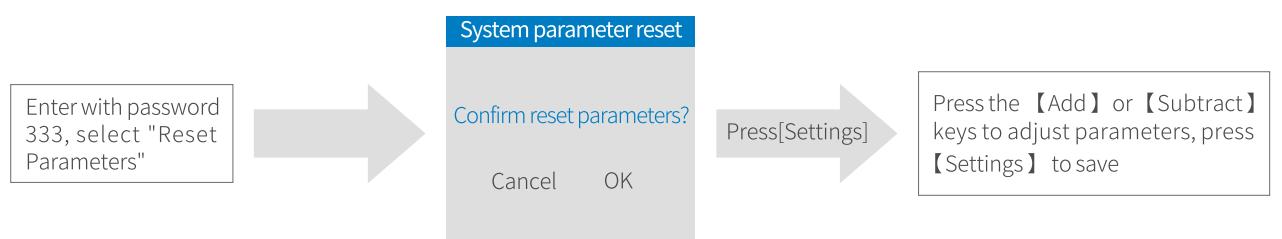
· ESD set



• Relay Configuration



• Reset Parameters

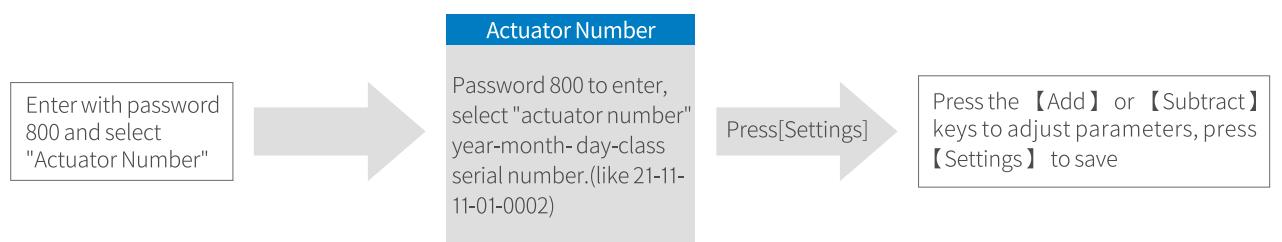


Note: If reset, the relay will return to its default function, the event record will be cleared, and other parameters will remain unchanged.

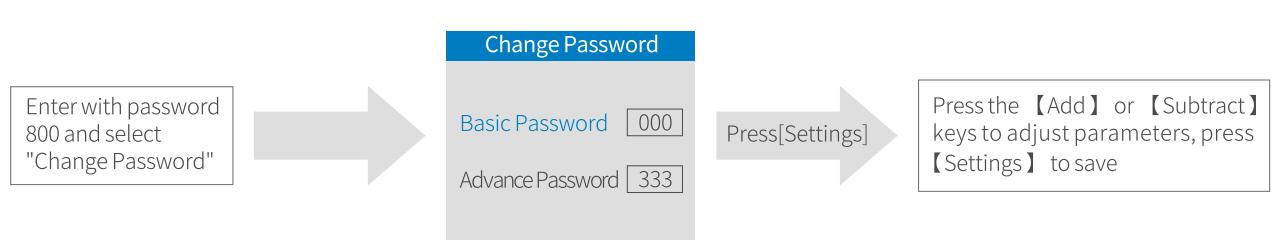
VI. Manufacturer settings (startup password 800)

You can set the "company screen", "actuator number", "password modification" and other settings in the manufacturer settings. The actuator manufacturer can adjust the settings based on whether a startup screen and actuator number are needed.

• Actuator Number



• Change Password

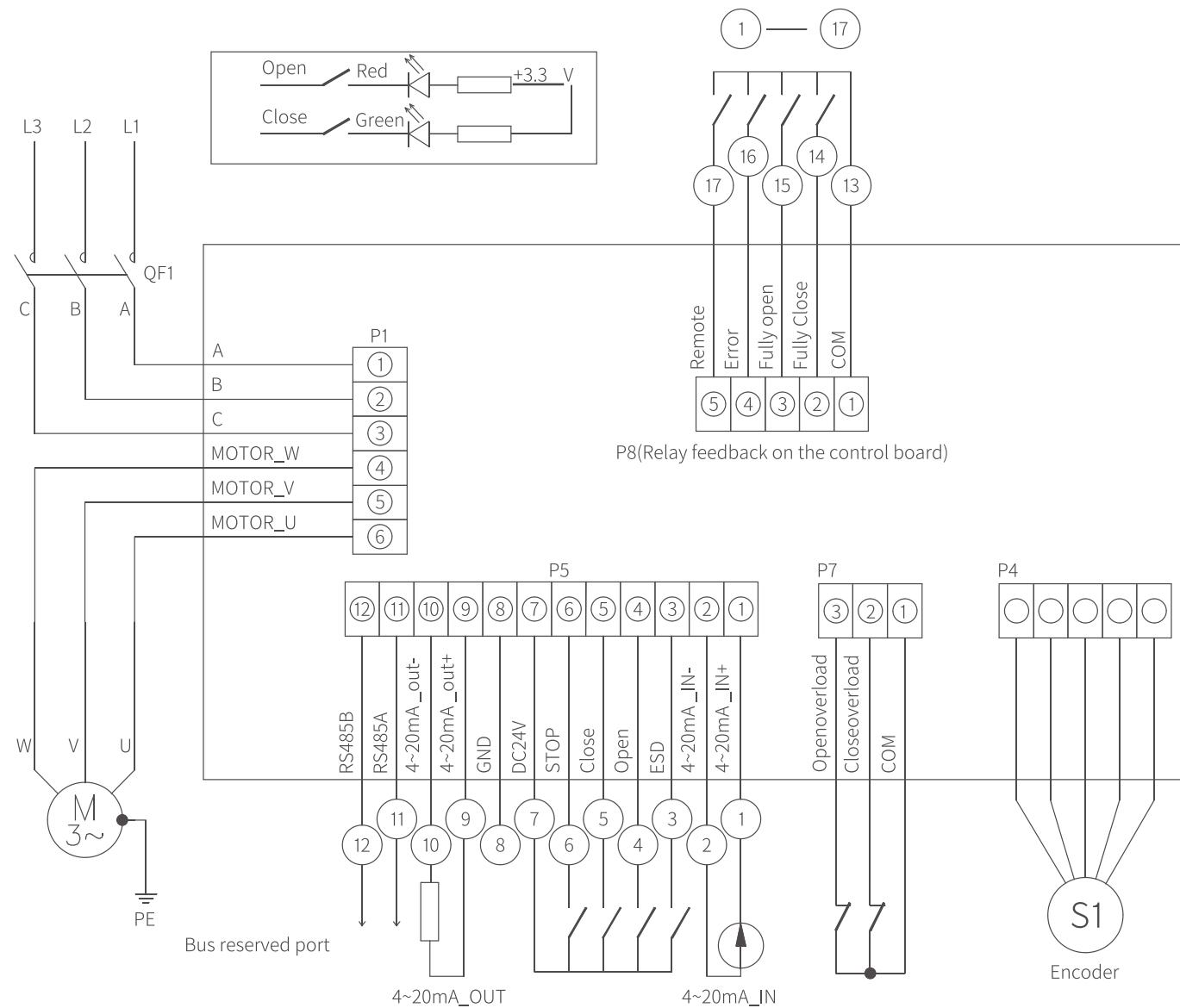


Tips: The password set cannot be the same as the startup password "800" set by the manufacturer, and the password set by the manufacturer cannot be changed.

VII. Common problem handling methods

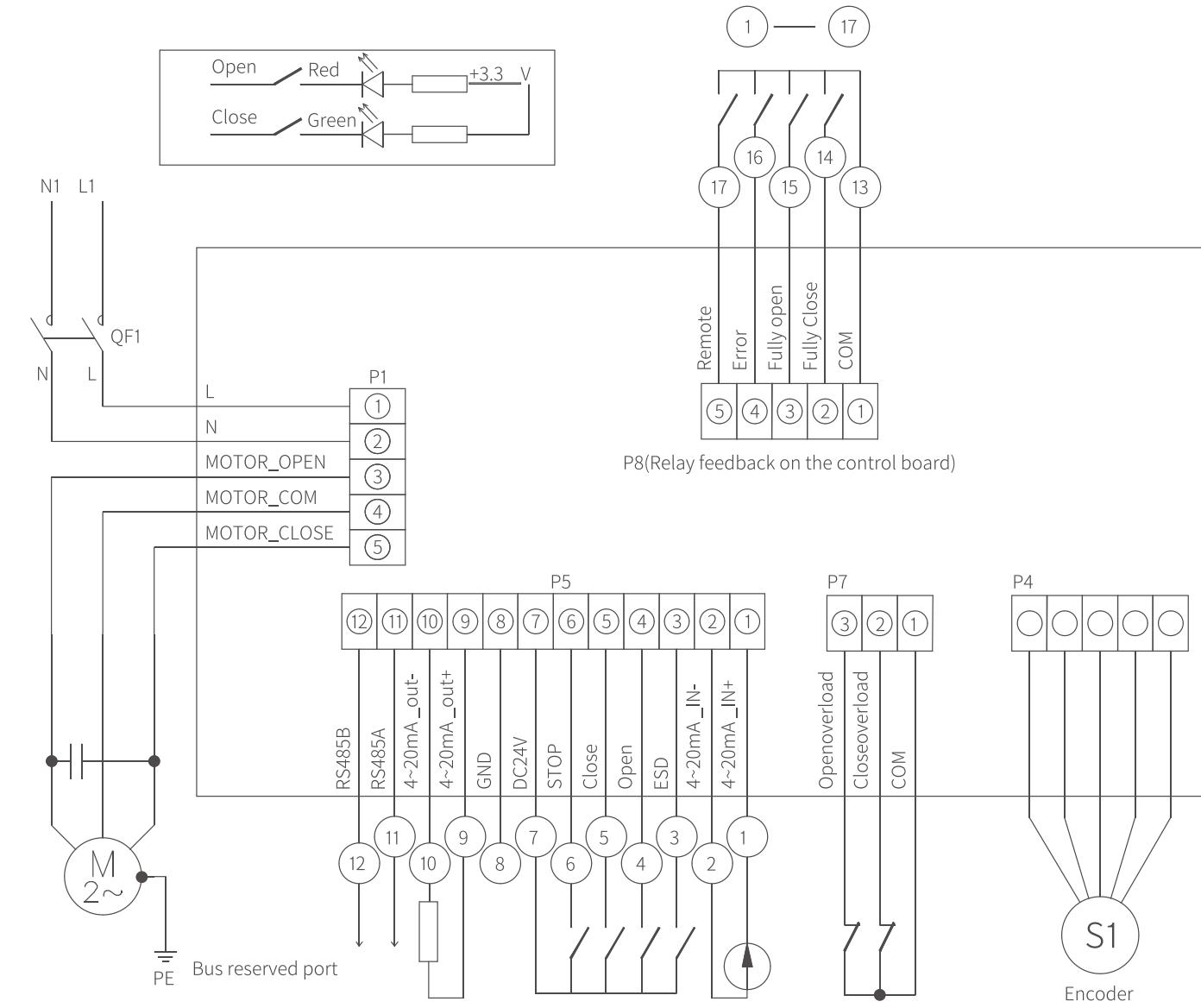
Fault phenomenon	Processing method
Display motor stall	1. Motor stalling 2. Motor reversal 3. Encoder failure
Display phase sequence detection fault	1. Power connection error 2. Phase loss
Display command conflicts	1. Simultaneously remote on/off signal input
Display valve position overflow or valve position overflow	1. The encoder reading value exceeds the output shaft by 2.5 turns. 2. The stroke is not set
The power on display screen and indicator lights are not showing	1. The power supply is not connected or the voltage is too low. 2. The connecting wires inside the module are loose. 3. The circuit is damaged
Both on-site and remote control remain inactive when powered on	1. Fault protection 2. Motor failure or jamming 3. Circuit failure
The on-site work is normal and the remote control is not functioning	1. Abnormal remote control signal given 2. Not in remote control 3. Circuit failure
No action on site, but remote control works normally	1. Not on site 2. Operation button not pressed in place 3. Circuit failure
Can it be turned on or off, or can it be turned off or on	1. Incorrect or open circuit connection of torque wire 2. Motor failure or stalling or incorrect wiring 3. Circuit failure
Action upon power on without control signal	1. Control signal actual presence or loss of signal action 2. Set as two-wire control 3. Circuit failure
The middle position can move to the limit without moving	1. The torque switch wiring is reversed. 2. The motor is damaged or the wiring is open. 3. The circuit is damaged
Reverse idirection of action	1. Reverse motor wiring 2. Reverse valve position calibration 3. Reverse positive and negative action settings 4. Reverse signal
No output current or sometimes no	1. Incorrect wiring or poor contact 2. Potentiometer or encoder malfunction 3. Circuit malfunction
Feedback current is either too high or too low, or remains unchanged	1. Encoder malfunction or poor meshing with transmission gear 2. Calibration error 3. Circuit failure
Remote control has no response	1. Low battery voltage or incorrect installation 2. Remote control not aligned with display window 3. Remote control faulty
Display fault and "Input phase loss" flashing	1. Input power is missing phase or the terminals are not tightened. 2. The circuit board is damaged
Display "Fault" and "Phase loss" flashing	1. Output phase loss 2. Motor failure 3. Motor wire not connected properly 4. Circuit board failure
Display "Fault" and flash "Overheating"	1. Motor overheating, stalling, or failure 2. Motor temperature sensor failure 3. Circuit failure
Display "Fault" and flash "Overload on" or "Overload off"	1. The actuator is selected to be small, and the starting torque is insufficient. 2. The torque line is not connected properly. 3. The stroke setting is incorrect. 4. The rotor is blocked or the motor is damaged. 5. The circuit is damaged
Normal operation but unchanged valve position display	1. The potentiometer or encoder is damaged. 2. The potentiometer or encoder wire is loose. 3. The circuit is damaged
After the valve is in place, the electric motor does not stop	1. Travel setting error 2. Potentiometer or encoder abnormality 3. Circuit failure
Display lost message	1. 4-20mA signal source abnormality 2. Wiring error or looseness 3. Circuit failure

Appendix I : Schematic Diagram (AC 380V)



Square three-phase wiring diagram

Appendix II: Schematic Diagram (AC 220V)



Square single-phase wiring diagram