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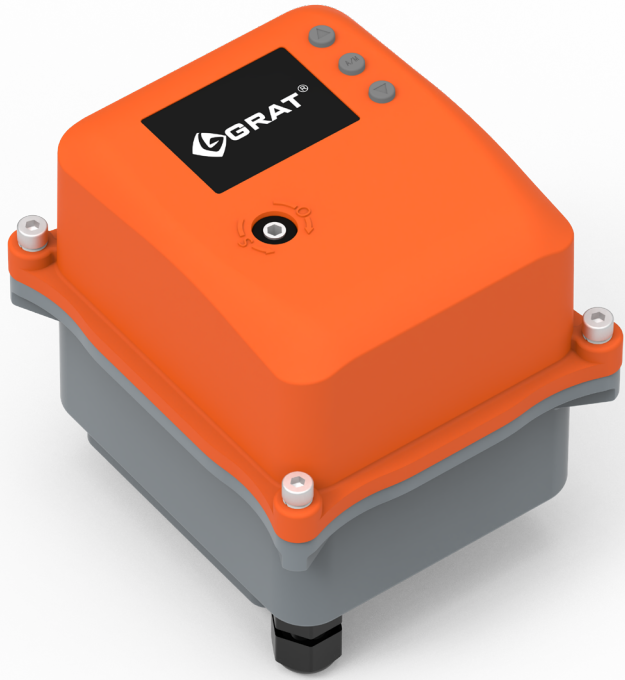


WA-50

IoT Mini Electric Actuator

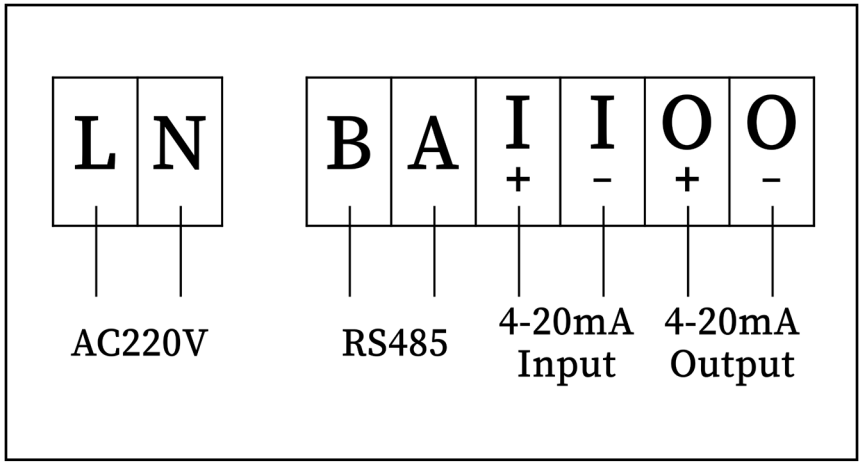
Instruction Manual

- Please read this instruction manual carefully before installation and use.
- Retain this manual for future reference.
- Ensure proper use of the product by thoroughly understanding the contents of this manual.

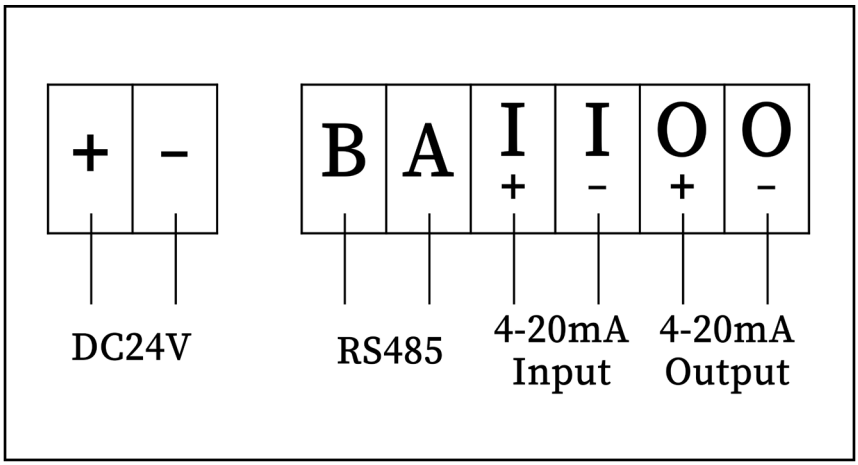
Content

Operation & Debugging

Electrical Wiring Diagram

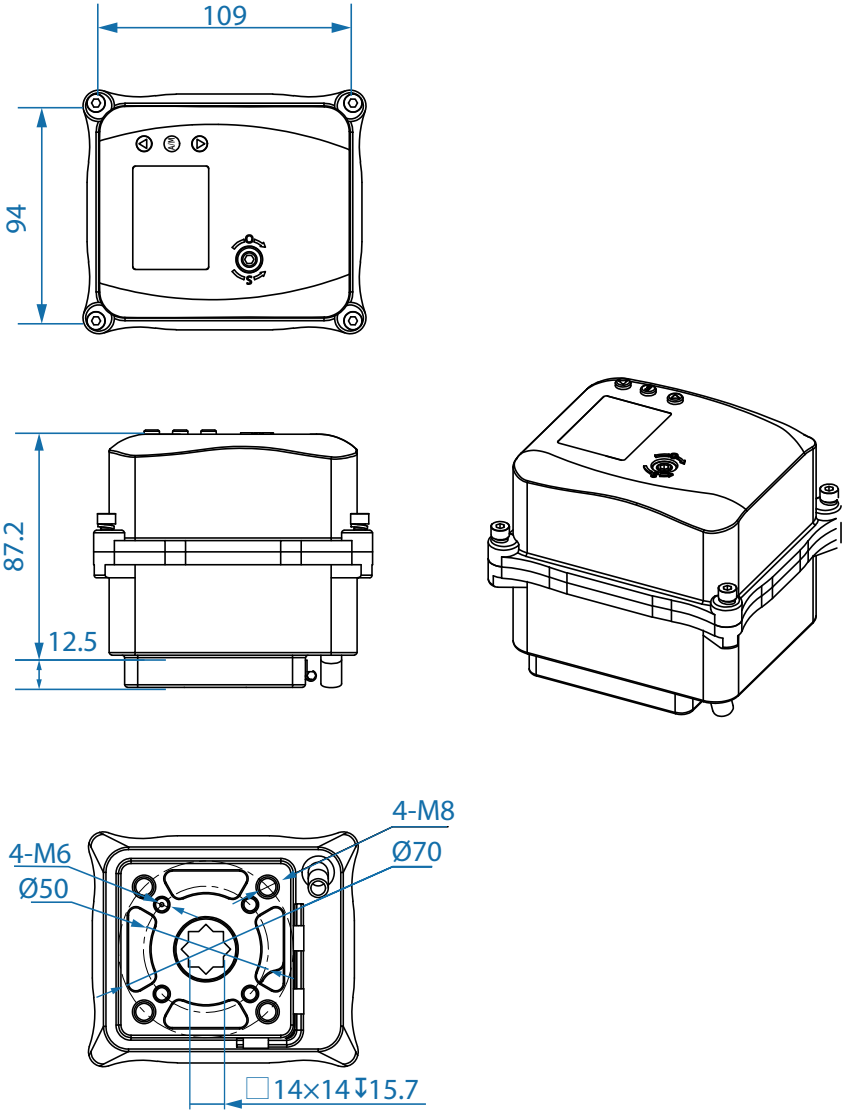


AC 220V



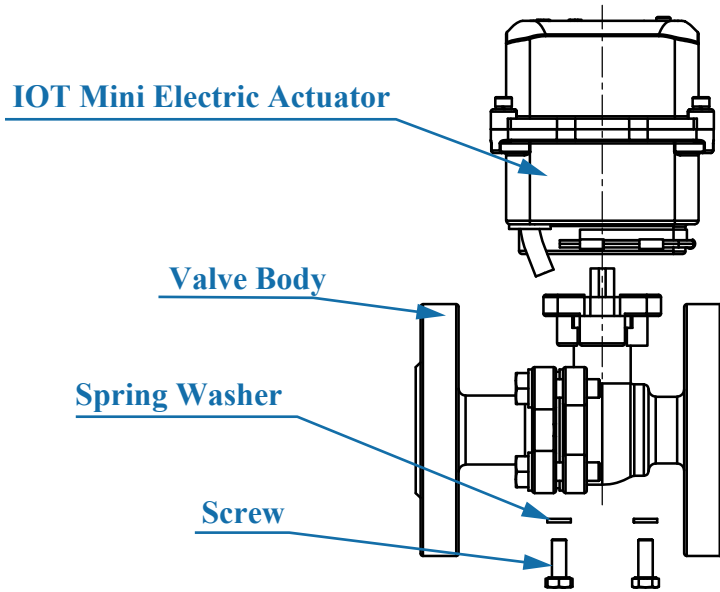
DC 24V

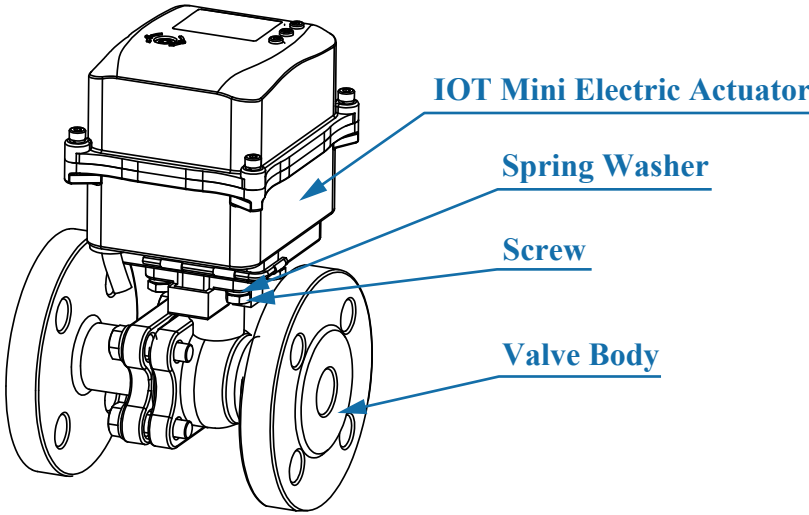
Dimensional Drawing (regulating type)



Note: Octagonal.opt.□9×9,□11×11,□11×11

Valve Body Assembly Drawing



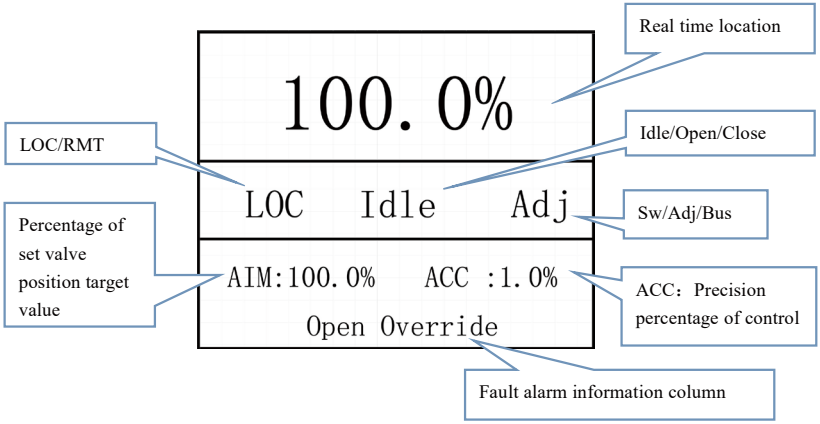


Technical Specifications

- Rated voltage: AC220V/DC24V
- Rated torque: 50N·m
- rated power:10W
- Compatible valves: DN32, DN40 and smaller ball valves
- Speed control: PWM stepless speed regulation; ensures stable operation
- Adjustable range: 30%-100%
- Control mode: Modulating (encoder);
- Communication protocol: Modbus-compatible;
- Control accuracy: ±0.5%;
- Drive motor: High-performance brushless motor with built-in overload protection;
- Stroke time: 15s-25s (0-90°);
- Position display: Real-time OLED with Chinese interface for status and parameter monitoring;
- Manual override: Hex key operation;
- Housing material: Upper enclosure - integrated ABS housing + TPE buttons + PC lens; Lower enclosure - die-cast aluminum;
- Output shaft: Recessed octagonal (14×14mm);

The WA-50 IoT Mini Electric Actuator is our latest ultra-compact electric actuator designed for 90° angular displacement valves (e.g., butterfly valves, ball valves, damper valves), providing open/close and modulating control. It is suitable for industrial automation systems in food processing, environmental protection, papermaking, chemical, and power industries.

Interface Description



Operation Instructions

1.The【△】key functions as "UP," and the【▽】key functions as "Down."

2.The【Set key】operates as follows:

A short press (0.3 seconds) switches between Local and Remote modes.

A long press (3 seconds) enters the main menu.

3.Simultaneously pressing the【△】and【▽】keys is equivalent to a "return" action.

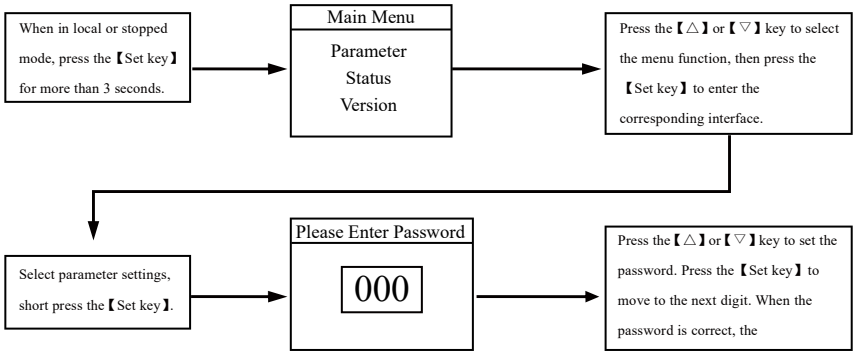
4.When setting parameters or stroke values, any return action will navigate back to the previous menu.

5.In the setting interface:

Use the【△】and【▽】keys to select a menu option.

Press the【Set key】to confirm and enter the selected option.

6.Enter the password input interface.



Basic Parameter Settings

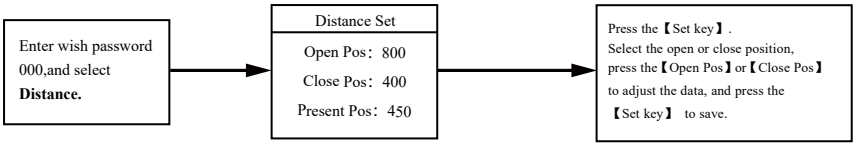
Basic Set（1/2）
Distance>>
Close Dir: CW_DIR
Dead Time: 1s
Locked time: 2s

Basic Set（2/2）
Fb Current>>
Ctr Current>>
Remote Mode: Hold
Bus Set>>

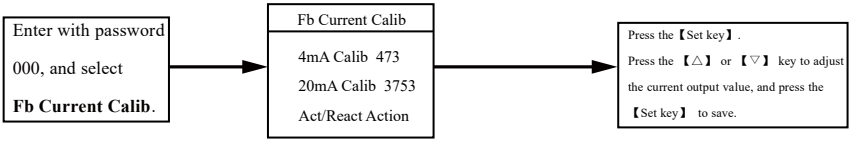
Stroke Setting Procedure (Direction Verification First)

Minimum switch position interval: 200

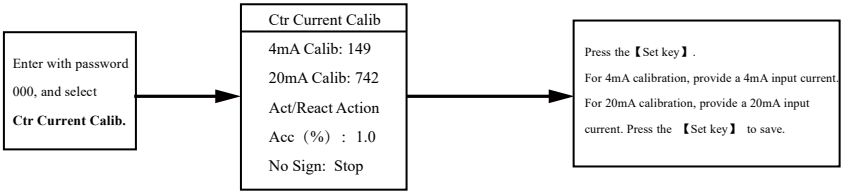
The following parameters can be configured in the Basic Settings menu: "Close Valve Direction","Deadband Time", "Stall Time","Feedback Current","Remote Mode" (On/Off type),"Control Current" (Modulating type),"Bus Configuration" (Bus communication type).



Output Current Calibration



Input Current Calibration

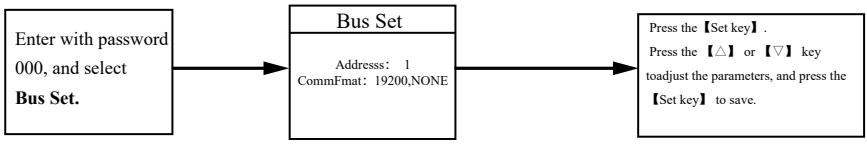


In this interface, you can configure "Accuracy" and "Signal Loss Mode" settings:

① Control accuracy can be increased when the stroke is long and inertia is small; conversely, it should be decreased (the value becomes larger) when stroke is short and inertia is big;

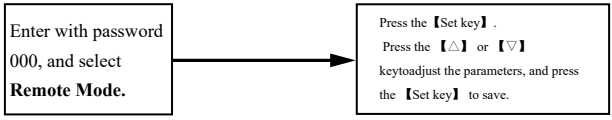
② Signal Loss Mode refers to: In modulating control mode, when no external 4~20mA signal is detected, the system will enter signal loss mode. The controller will drive the actuator to move to the pre-selected position (original position, fully closed, fully open, or preset opening position).

Bus Settings (Bus Set)



Note: The address range is 1~250, with a total of 6 communication formats.

Remote Signal (Remote Mode) Selection (When set to Switch Type (SW))

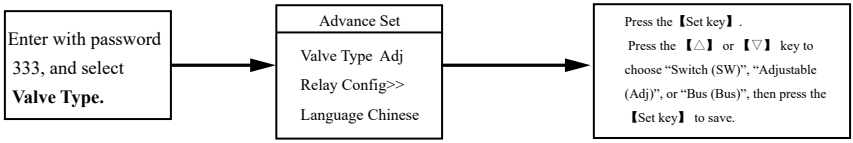


Note: The Remote Mode options are as follows: Jog (Moment), Hold (Hold), Open on Signal (Open), Close on Signal (Close).

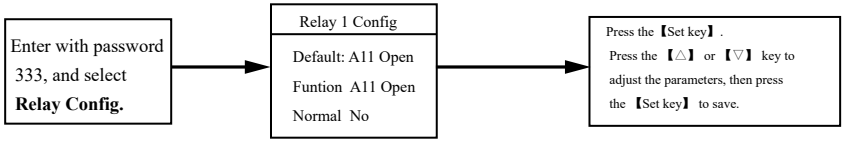
Advanced Settings（Password:333）

In the advanced settings, you can configure the following parameters: "Valve Type", "ESD Settings", "Relay Configuration", "Reset Parameters", and "Language Selection". Among these, the valve type and language selection can be adjusted as needed.

Valve Type Setting (Valve Type)



Relay Configuration Setting (Relay Config)



Language Selection (Language)

The system supports bilingual display options:

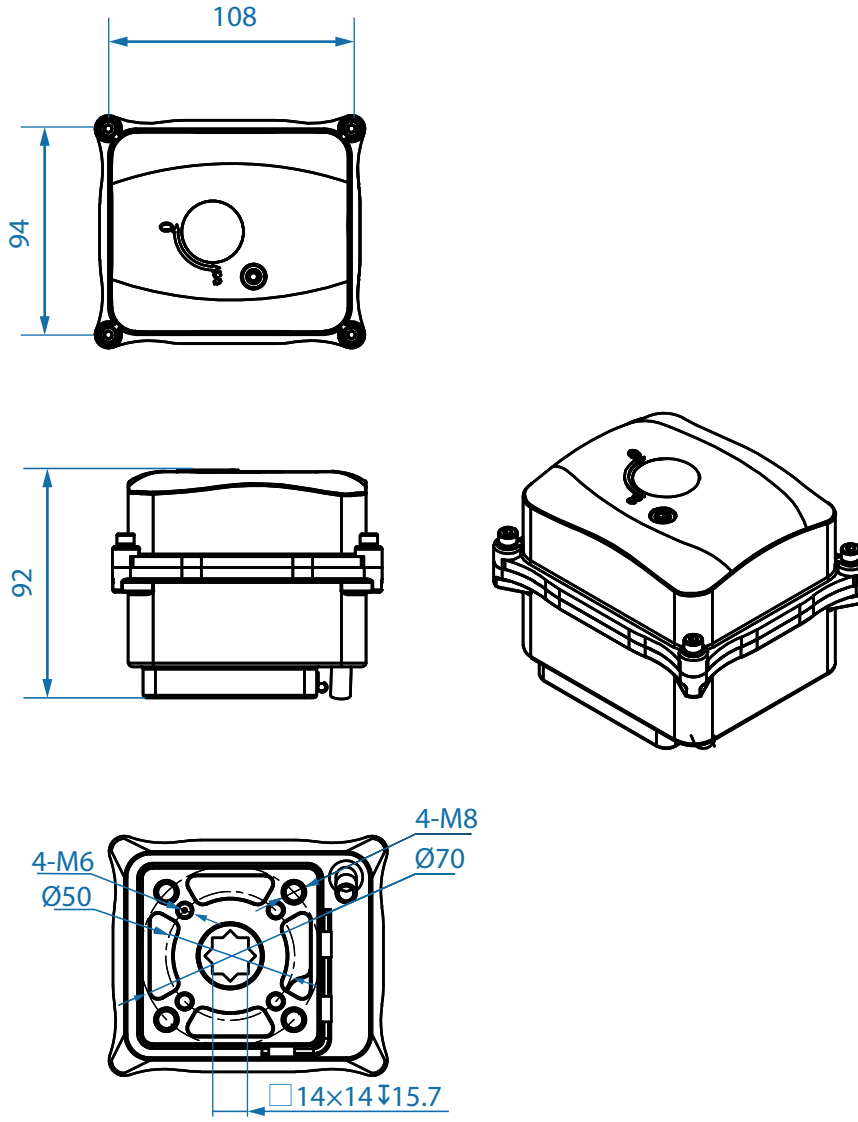
Chinese (中文) / English (英文)

Troubleshooting for Common Issues

Fault Phenomenon	Solution
Motor Stall Display	1. Motor lockup 2. Motor reverse rotation 3. Encoder failure
Command Conflict Display	1. Simultaneous remote open and remote close signal inputs
Valve Position Overflow or Underflow Display	1. Encoder reading exceeds 2.5 turns of the output shaft 2. Stroke not set
Display Does Not Show When Powered On	1. Power not connected or voltage too low 2. Loose internal wiring in the module 3. Circuit damage
No Action on Site or Remote Control When Powered On	1. Fault protection 2. Motor failure or seized 3. Circuit damage
Works on Site but Remote Control Does Not Work	1. Abnormal remote control signal 2. Not in remote mode 3. Circuit damage
No Action on Site but Remote Control Works	1. Not in local mode 2. Operation button not pressed properly 3. Circuit damage
Can Open but Cannot Close, or Can Close but Cannot Open	1. Motor failure, lockup, or incorrect wiring 2.Circuit damage
No Control Signal but Actuator Moves on Power On	1. Control signal is present or loss of signal action 2. Set to two-wire control 3. Circuit damage
Moves to Limit but Cannot Move Further in the Middle Position	1. Motor failure or open circuit in wiring 2.Circuit damage
Movement Direction Reversed	1. Valve position calibration reversed 2. Forward/reverse action set incorrectly 3.Signal reversed
No Output Current or Intermittent Output	1. Incorrect wiring or poor connection 2. Encoder failure 3. Circuit damage
Feedback Current Too High, Too Low, or Constant	1. Encoder failure or poor engagement with drive gears 2. Calibration error 3.Circuit damage
Normal Action but Valve Position Display Does Not Change	1. Encoder failure 2. Circuit damage
Actuator Motor Keeps Running After Valve Reaches Position	1. Stroke setting error 2. Encoder malfunction 3.Circuit damage
Loss of Signal Display	1.4-20mA signal source abnormal 2. Wiring error or loose connection 3. Circuit damage

Note: When the device reports a fault, the customer can simultaneously press and hold the【△】and【▽】keys to exit the fault state.

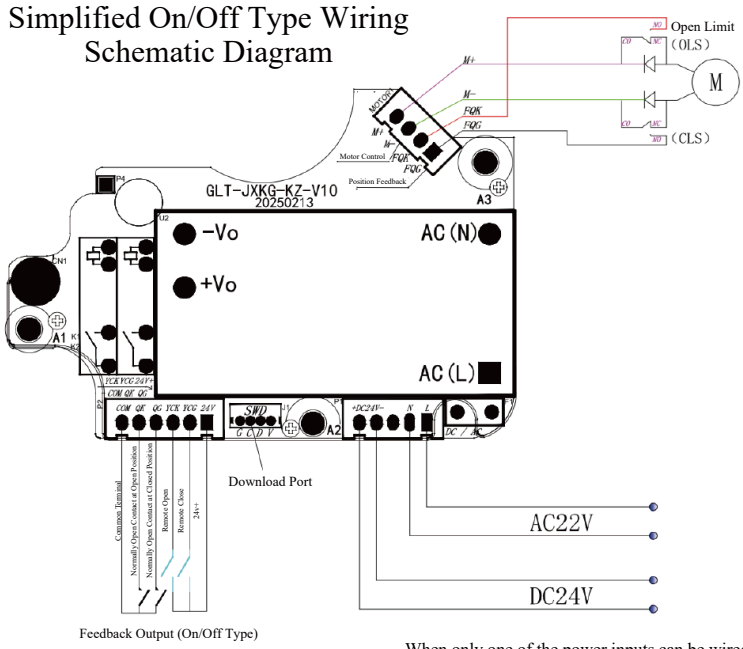
Dimensional Drawing (On/Off Type)



Wiring Table

Module Tag Number	Tag Number	Signal Definition	Signal Type	Module Tag Number	Tag Number	Signal Definition	Signal Type
P1 Power Input	1	AC220V-L	AC220V Input	P2 Signal Interface	1	24V	(Switch Type)Common Terminal 24v+
	2	AC220V-N			2	YCG	(Switch Type)Remote Close
	3	NC			3	YCK	(Switch Type)Remote Open
	4	DC24V-	DC24V Input		4	QG	Normally Open Contact at Closed Position
	5	DC24V+			5	QK	Normally Open Contact at Open Position
MOTOR1 Motor Control and Feedback Cable	1	FQG	Position Feedback Cable		6	COM	Common Terminal
	2	FQK					
	3	M-	Motor Control Cable				
	4	M+					

Wiring Schematic Diagram



Feedback Output (On/Off Type)

When only one of the power inputs can be wired, please note the wiring method for high-voltage electricity: connecting AC220V to the DC24V port will damage the controller.

Operation Instructions

Electrical Wiring and Functional Testing Procedure (Per Schematic Diagram):

1.Primary AC220V power supply verification

2.Momentary contact between COM & YCK terminals to initiate motor rotation toward full open position - verify end-of-travel limit switch engagement

3.YCG terminals to initiate motor rotation toward full closed position - verify end-of-travel limit switch engagement

4.Repeat test sequence (steps 2-3) using secondary DC24V power input to complete validation protocol

Critical Operational Notice:

1.Feedback circuit activation requires maintained control signal continuity

2.Example: YCK contact must remain closed to sustain full open position indication relay status

3.Premature control signal interruption will cause position feedback signal dropout

Operation & Debugging

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