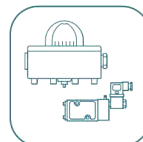
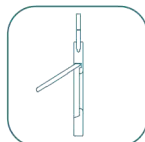
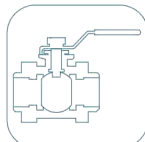
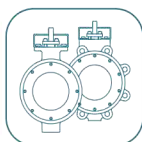


Spring Return Electric Actuator



Introduction and features

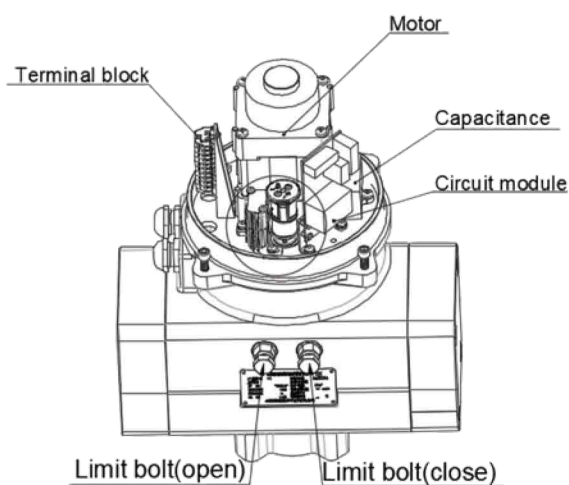
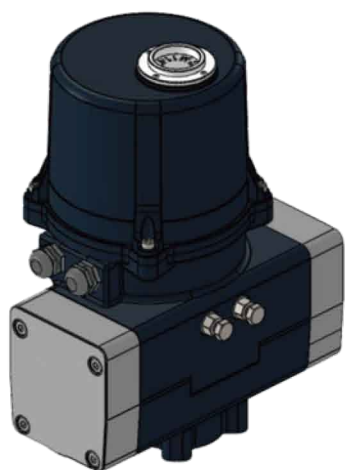
Introduction

Fig. 550S spring return electric actuator is a rugged, compact electric quarter-turn actuator designed for on-off and modulating control of valves and dampers. It can automatically return to the fully open or fully closed position of the valve after a power outage, according to the factory settings. Fig. 550S offers a high-quality, reliable solution for valve automation that is also cost-effective.

Fig.550S spring return electric actuator has the following advantages:

- Quarter-turn electric actuator.
- Compact design to meet space requirements.
- Wide range of sizes and thrust outputs.
- For ON/OFF or Modulating control.

Features



Shell	Made of aluminum alloy, anodized and coated with polyester powder.
Protection grade	IP67.
Motor	Totally enclosed cage induction motor; low rotational inertia; insulation class F; built-in overheat protection.
Handwheel & endless screw	After a power failure, the handwheel can be used for manual control. Internal endless screw design requires no clutch, making it light and easy to control.
Mounting platform	ISO5211 design, high versatility, the transmission shaft adopts a spline shaft design.
Limit configuration	Mechanical limiter + Electrical limiter.
Limiter	Power cut-off + passive feedback (Vmax 250V, Imax 5A).
Pointer dial	For valve position indication, it will rotate with the valve.
Heater	Used to balance temperature differences and prevent condensation, ensuring that the internal electrical components work normally (optional).
Temperature resistance	ON/OFF type: -20℃ to +60℃ (-4°F to 140°F); Modulating type: -20℃ to +55℃ (-4°F to 131°F).
Humidity resistance	Maximum relative humidity: 90% (non-condensing).
Seismic capacity	XYZ 10g, 0.2~34 Hz, 30 mins.

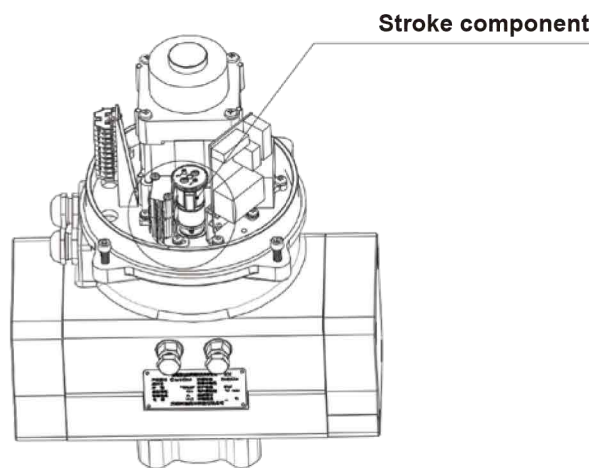
Fig.550S specifications. ON/OFF type

Fig.550S - specifications

Model	Torque [Nm]	Power [W]	Start time [sec]	Spring return time [sec]	Electric Current		
					DC24V	AC110V 50/60Hz	AC220V 50/60Hz
550S-1	20	10W	12	5	1.8A	0.9A	0.5A
550S-2	38	18W	8	3	2.5A	1.2A	0.6A
550S-3	55	40W	10	8	3.5A	1.6A	0.7A
	70	60W	10	8	5A	1.8A	0.7A
550S-4	140	90W	8	7	8.5A	4.2A	2.2A
	210	120W	8	7	9.5A	4.5A	3.2A
550S-5	300	200W	33	13	21A	5.5A	3.2A

ON/OFF type

Fig.550S ON/OFF electric actuator uses several sets of travel switches to cut off power and output analog control signals after the product reaches its position.



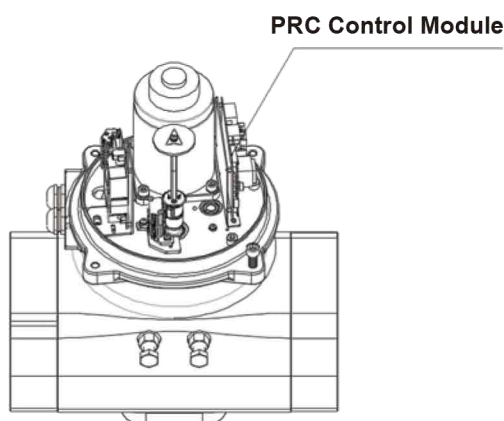
After stroke calibration, only power is needed to the corresponding function's wiring port to open the valve. Once the valve is fully opened, the product will output a set of passive contact feedback signals. After the power is turned off, the product will automatically return to the fully closed position of the valve. At this time, another set of passive contact feedback signals will be output, indicating that the valve has been completely closed.

Modulating type

Fig.550S modulating electric actuators integrate a multi-functional servo amplifier and a position signal transmitter into the standard actuator to provide modulating control. All operations, such as calibration, sensitivity setting, and automatic/manual switching, are controlled by four buttons on the PRC Control Module, making it quick and easy to install and set up. LEDs on the panel indicate actuator status.

RPC control module

The PRC Control Module is installed in the actuator enclosure and receives the 4~20mA control signal from the control system or other control device. An integral potentiometer acts as the electronic valve positioner input to the PRC Control Module.

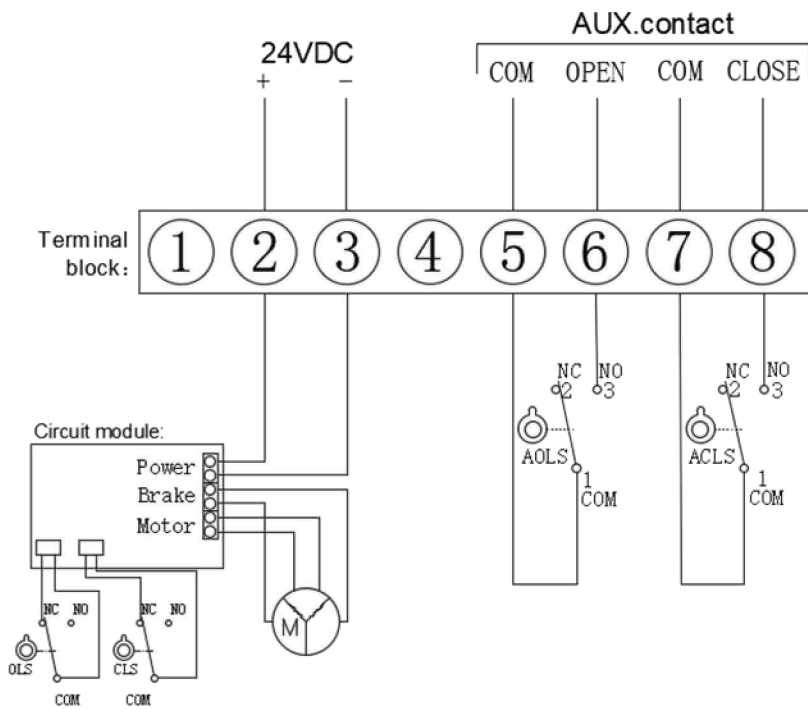


Specifications

- Input Signal: 4~20mA.DC, 0~10mA.DC
- Input Impedance: 250Ω (4~20mA) or 500Ω (0~10mA)
- Valve Position Sensor: Single-turn absolute value encoder
- Valve Transmitting Output Signal: 4~20mA.DC or 01~0mA.DC
- Intrinsic Error: $\leq \pm 0.2\%$
- Motor Blocking Protection Time: 1~25.4s (default 6.4s)
- Consumption Power: $\leq 3\text{VA}$
- Actuator Operating Sensitivity: 0.1%~12.5%
- Insulation Strength: Power frequency 1500V, 1 min
- Insulation Resistance: Above 50MΩ
- Power Voltage: 220VAC/120VAC, 50/60Hz $\pm 10\%$ or 24VDC
- Signal loss, feedback loss, motor stalling failure protection function
- Instantaneous reverse rotation protection function with adjustable time delay
- Failure code warning function
- One-key calibration function
- Passive feedback output function for full close position and full open position

Wiring diagram - ON/OFF type

ON/OFF wiring diagram - 24VDC



Terminal block:

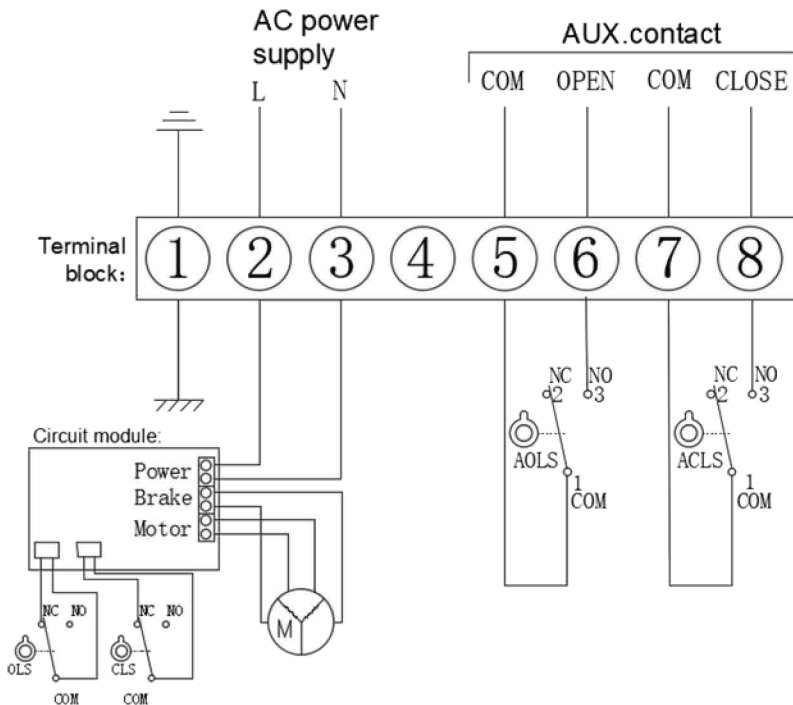
(Please Pay attention to the positive and negative poles)

- ①: Empty
- ②-③: Connect this port with 24VDC to open the valve
- ⑤-⑥: This port will connect when the valve position reaches full Close
- ⑦-⑧: This port will connect when the valve position reaches full Open
- ⑤ and ⑦ can be short circuited

Component description:

OLS: Open Limit Switch
 CLS: Close Limit Switch
 AOLS: Auxiliary Open Limit Switch
 ACLS: Auxiliary Close Limit switch
 M: Motor

ON/OFF wiring diagram - 110VAC/220VAC



Terminal block:

(Please Pay attention to the positive and negative poles)

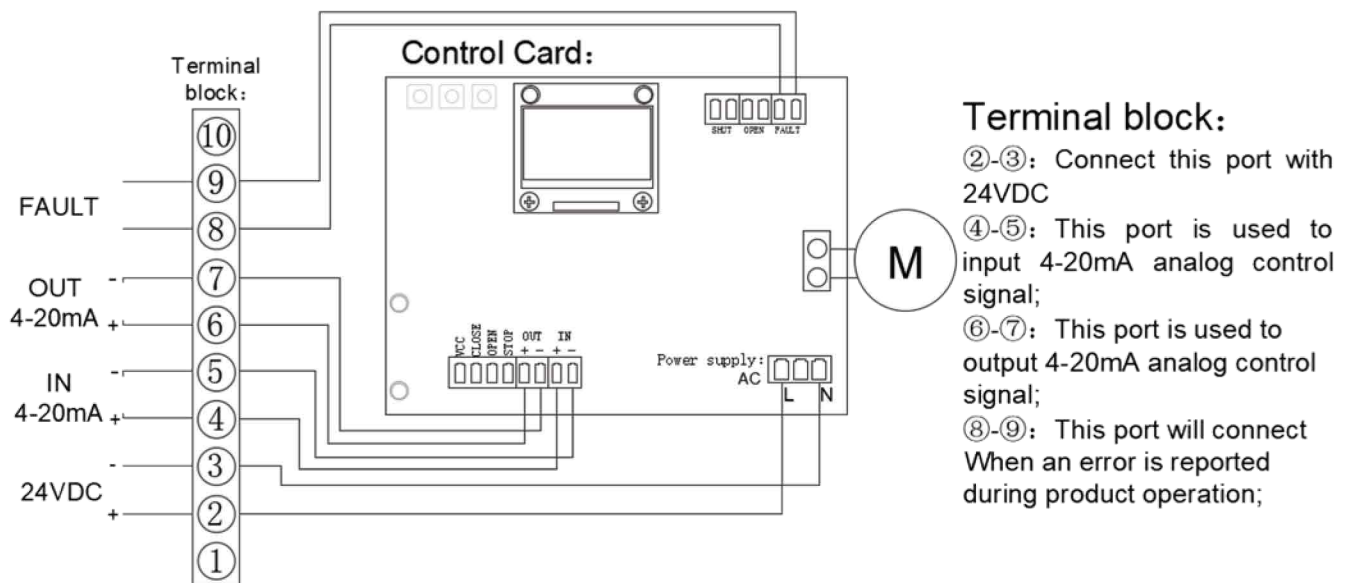
- ①: GND
- ②-③: Connect this port with AC power supply to open the valve
- ⑤-⑥: This port will connect when the valve position reaches full Close;
- ⑦-⑧: This port will connect when the valve position reaches full Open;
- ⑤ and ⑦ can be short circuited

Component description:

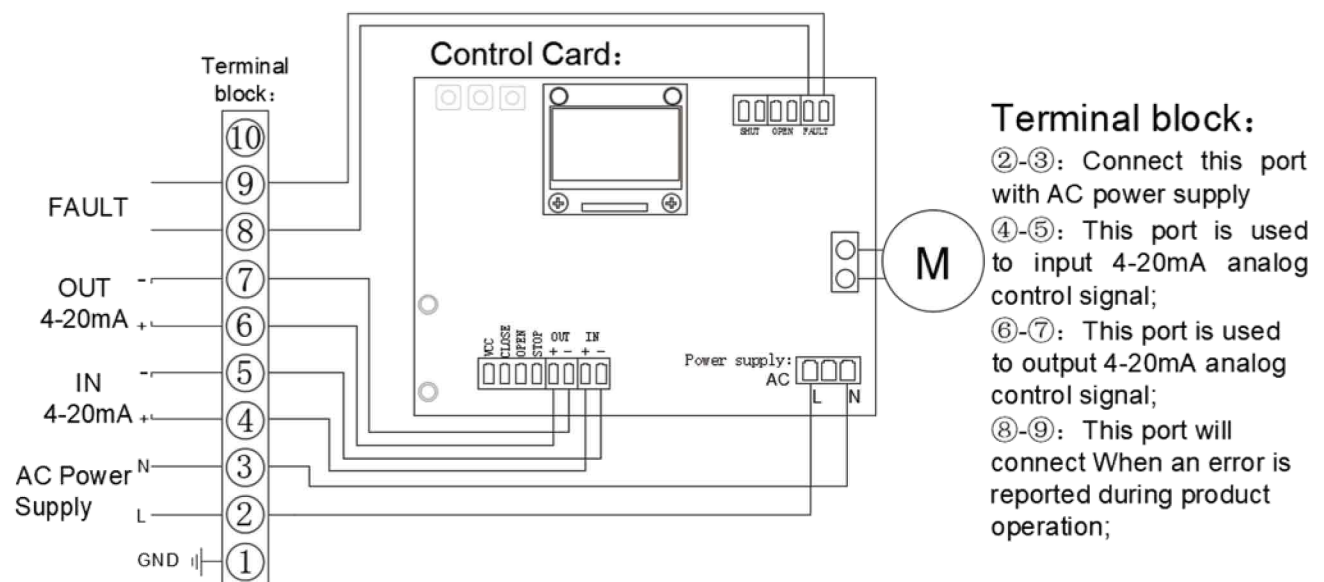
OLS: Open Limit Switch
 CLS: Close Limit Switch
 AOLS: Auxiliary Open Limit Switch
 ACLS: Auxiliary Close Limit switch
 M: Motor

Wiring diagram - Modulating type

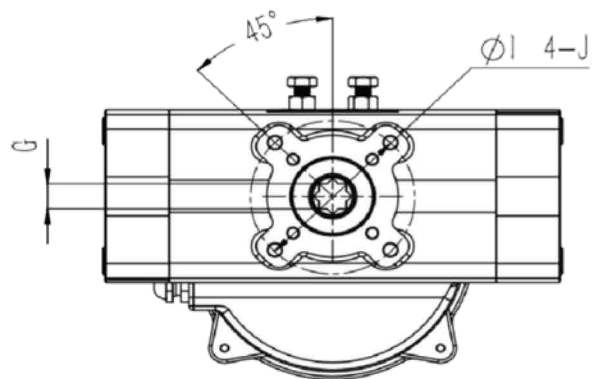
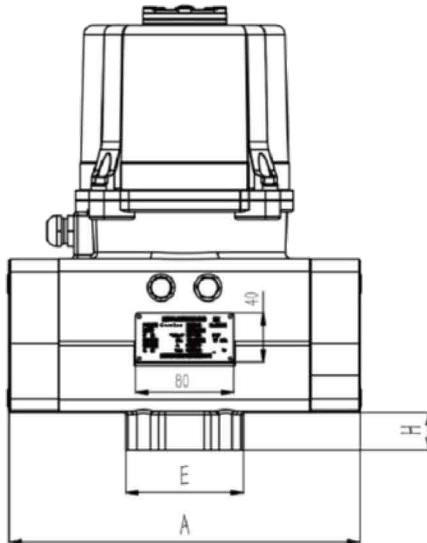
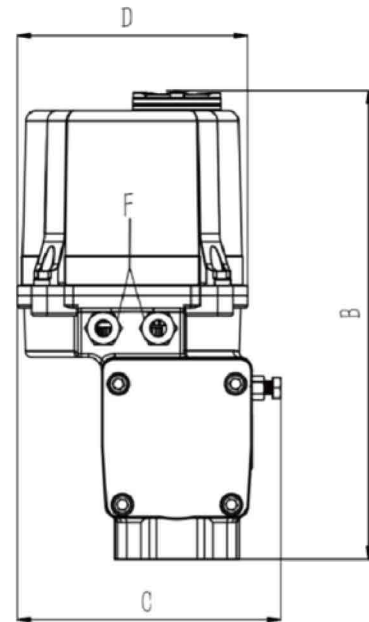
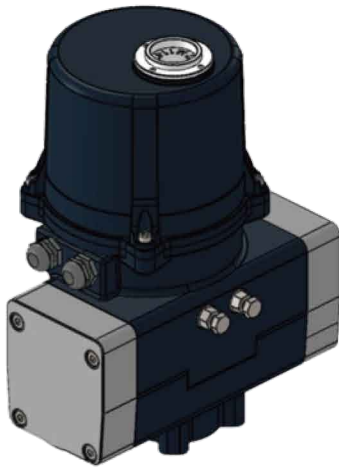
Modulating wiring diagram - 24VDC



Modulating wiring diagram - 110VAC/220VAC



Dimensions



Model	A	B	C	D	E	G	H	F	ΦI	J
550S-1	189	230	125	118	75	14	16	M20*1.5	F03	M5*0.8*10
550S-2	229	303	162	145	75	14	17		F05/F07	M6*1.0*15
										M8*1.25*16
550S-3	285	380	202	177	96	17	32		F07/F10	M8*1.25*16
										M10*1.5*20
550S-4	391	439	202	206	120	22	20		F10	M10*1.5*20
550S-5	406	506	312	260	130	27	23	F10/F12	M10*1.5*20	
									M12*1.75*20	

Installation Guide

1. Installation Site

- Indoor Installation Precautions:
 - The product does not support explosion-proof functions.
 - Inform in advance if installation is planned in a flooded environment or outdoors.
 - Reserve space for wiring, manual operation, and maintenance during installation.
- Outdoor Installation Precautions:
 - To mitigate issues from rain and direct sunlight, install a protective cover, or use configurations rated IP67 or higher.
 - Ensure there is adequate space for wiring, manual operation, and maintenance.

2. Ambient Temperature:

- The product operates within a temperature range of -20 °C to +70 °C.
- Install a dehumidification heater if ambient temperature falls below 0 °C.

3. Fluid Temperature Conditions:

- Heat from the fluid may increase the body temperature when used with valves.
- Special treatment is needed for supports connected to the valves under high temperature conditions.
 - Standard Supports:** Suitable for fluid temperatures up to +65 °C.
 - Medium Temperature Supports:** Suitable for fluid temperatures between +100 °C and +180 °C.
 - High-Temperature Supports:** Suitable for fluid temperatures above +180 °C.

Additional Notes:

- Users may design and manufacture custom brackets based on the functional requirements of the drive bushing. Brackets can be circular, square, or other shaped shaft outputs.
- Ensure that holes are concentric with the outer circle during processing.

Model Configuration

550S — T — K — V — B
Model No torque Control Power Options
 method Supply

Control method (K):

O : Open/Close

M1 : 4 - 20 mA input/output

M2 : 0 - 5V mA input/output

M3 : 2 - 10 V input/output

Power Supply (V):

D: AC 220 V(50 / 60 hz)

E: AC 110 V(50 / 60 hz)

F: DC 24 V

G: DC 12 V

Options (B):

X: Heater

Recommended for high humidity and low temperature working environment