

Electric Actuator

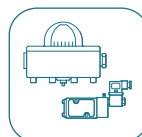
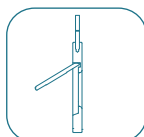
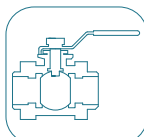
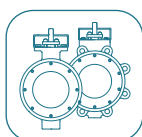
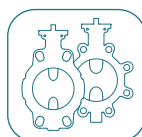


English

Fig.550



www.coreline.dk



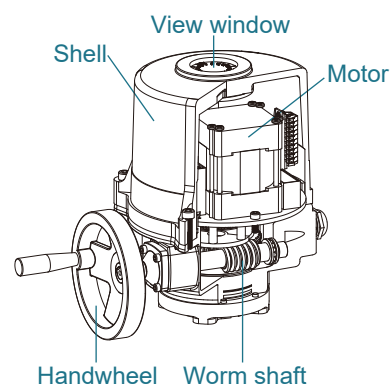
General information

Product description

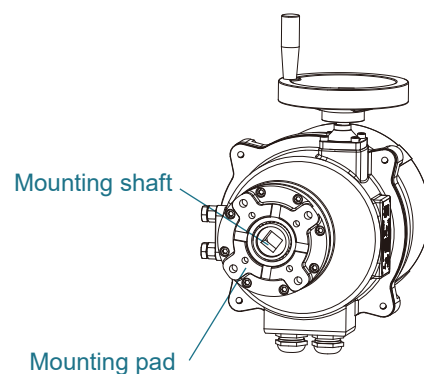
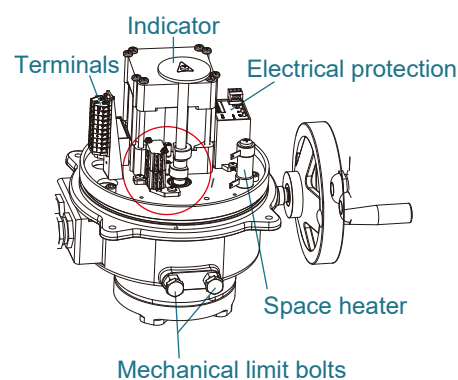
Fig.550 is a specially developed electrical actuators based on many years of experience in valve control applications. With compact design, high structural strength as well as large output torque (20Nm~5000Nm), Fig.550 electric actuators offer users very reliable working performance.

With the outstanding design of actuators and our good service team, Coreline expect to provide our customers a complete set of automatic valve control system, as well as effective mounting/adjusting and on-site service.

Design features



Housing	Hard anodized aluminum alloy with polyester powder coating.
Protection class	Weatherproof IP67; Exd IIC T6Gb(TBD)、Ex tb IIIC T80Db(TBD).
Motor	Whole sealing squirrel-cage type with compact size, large output torque, low rotational inertia, F-class insulation protection and built-in overheating protection.
Manual operation	Safe, reliable and labor-saving handwheel design. Declutch to operate by handwheel if without power, and reset automatically when power on.
Installation standard	ISO5211/DIN3337. Spline shape drive shaft design makes it easy for installation.
Limit switch	Mechanical limit + electronic limit. One for each of stroke control open and close position, one for each of passive feedback open and close position (Max. 250V 10A).
Position indicator	Continuous position mechanical indicator - convenient to observe.
Space heater	Is used for controlling temperature to avoid condensing internal of housing and keep dry.
Environment temp.	ON/OFF: -20°C~+70°C; Modulating: -20°C~+55°C
Environment humidity	Max. 90% RH
Anti-vibration	XY Z 10g. 0.2~34Hz, 30min



Different types

1. Fig.550 modulating type

Fig.550 normal modulating type has IN/OUT interface for receiving and feedback valve threshold analog quantity (4-20mA), with manual control inside which can be choosed by customers according to on-site requirements.

Fig.550 intelligent electrical actuator's control board is integration of multi-function servo amplifier and position signal transmitter. There are no adjustable components on the control panel. On-site debugging, sensitivity setting, manual automatic switching and other functions are all set through the four buttons on the control panel, making on-site installation and debugging quick and easy. The LED digital tubes and indicator lights on the panel display the current working status of the control panel, which can meet the different requirements of users.

1.1 RPC control moduel

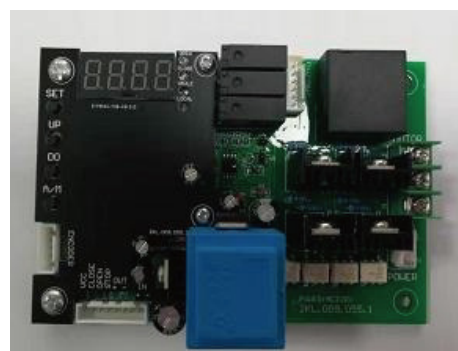
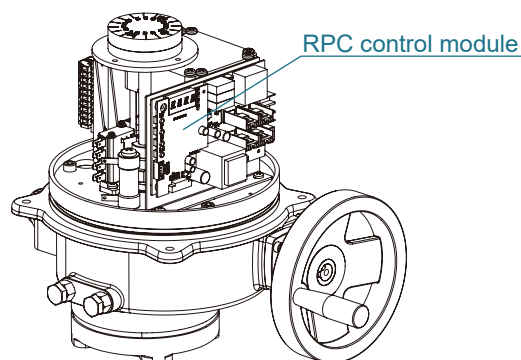
The control panel is installed interior electric actuator, directly receiving standard 4-20mA current control signal from DCS control system or other host computer control system.

Interior potentiometer signal works as valve position signal transmitter and makes comparison with control signal inside control panel chip. When signal difference exceeds control panel sensitivity value, control panel demands electric actuator motor move in the direction to narrow the signal difference by controlling alternating current contactor on the electric actuator until signal difference is less than control panel sensitivity value.

1.2 Main specifications

Input signal	4~20mA.DC, 0~10mA.DC
Input impedance	250Ω (4~20 mA), 500Ω (0~10mA)
Valve transmitting output signal	4~20mA.DC, 0~10mA.DC
Intrinsic error	≤±0.2%
Motor blocking protection time	1~25.4s (default 6.4s)
Power consumption	≤3VA
Action sensitivity	0.1% ~12.5%
Insulation strength	Working frequency 1500V, 1min
Insulation resistance	> 50MΩ
Power voltage	AC220V/AC110V, 50/60Hz±10%; DC24V

- ☐ Provide feature protection when there is signal disconnection, no feedback or motor rotating feareure.
- ☐ Instantaneous reverse rotation protection function:
Prior to implementing reverse action instruction, control panel stops rotation with certain time delay (delay time is adjustable as per requirement) to avoid unnecessary damage to electric motor, speed reducer or valve rod etc.
- ☐ Failure code warning function.
- ☐ One-key calibration function.
- ☐ Passive feedback output function for full close position and full open position.



Different types

2. Fig.550 intelligent type

Fig.550 intelligent electrical actuator's control board is integration of multi-function servo amplifier and position signal transmitter. There are no adjustable components on the control panel. On-site debugging, sensitivity setting, manual automatic switching and other functions are all set through the four buttons on the control panel, making on-site installation and debugging quick and easy. The LED digital tubes and indicator lights on the panel display the current working status of the control panel, which can meet the different requirements of users.

The control panel is installed in the external control box of the electric actuator, which can directly receive standard 4-20mA current control signal from DCS control system or other host computer control system. Interior potentiometer signal works as valve position signal transmitter and makes comparison with control signal inside control panel chip. When signal difference exceeds control panel sensitivity value, control panel demands electric actuator motor move in the direction to narrow the signal difference by controlling alternating current contactor on the electric actuator until signal difference is less than control panel sensitivity value.

2.1 Main specifications

Input signal	Two-position control mode. ① Analog quantity: 4~20mA.DC (Input impedance 150Ω); ② Switch quantity: inching mode.
Valve transmitting output signal	4~20mA.DC
Intrinsic error	≤±0.2%
Motor blocking protection time	1~25.4s (default 6.4s)
Power consumption	≤5VA
Action sensitivity	0.4% ~12.5%
Insulation strength	Working frequency 1500V, 1min
Insulation resistance	> 50MΩ
Power voltage	① AC380V/AC440V, 50/60Hz±10%; ② AC110V/AC220V, 50/60Hz±10%; ③ DC24V.



- Electronic or mechanical over-torque protection function. When electronic or mechanical over-torque failure occurs, retry function setting is available with parameters of retry times and retry control quantity.
- Failure protection functions of motor stalling, motor overheat protection etc.
- Three phase motor electrical braking function significantly improves positioning precision of actuators.
- Instantaneous Reverse Rotation Protection Function: When the actuator receives reverse action instruction in working process, prior to implementing reverse action instruction, the control panel stops rotation with certain time delay (delay time is adjustable as per requirement) to avoid unnecessary damage to electric motor, speed reducer or valve shaft etc.
- Failure code warning function.
- Factory data reset function.
- Relay contact alarm function of open position arriving, close position arriving, failure alarm, over-torque alarm, remote control, local status.
- Alarm function of signal disconnection and no feedback, and setting of maintaining current position, full open position, full close position or other required position is available.
- Free choices of two control modes for control panel on-spot debugging and function setting: hand-held infrared remote control or control through two buttons on the enclosure.
- When power supply is AC380V, automatic phase calibration protection function of three phase is available to ensure the actuator is always in correct rotation direction.

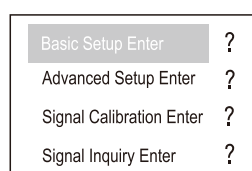
Different types

2.2 LCD

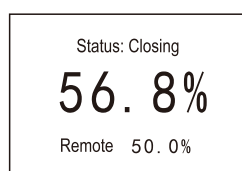
The actuator control panel is equipped with a 128*64 dot matrix graphic LCD. It can be divided to area I, II, and III as per the layout. Area I is valve position display area, presenting current valve position in the way of valve position opening degree percentage in real-time. Area II is control mode display area. Area III is operation status and alarm information presenting area (detailed displaying information please refer to alarm information in the remainder of the content). When entering working parameter setting menu, LCD will apply area I, II and III uniformly.

When the control panel of the actuator is powered on, self-checking on the instructions, the program area, the data area and A/D switching function in turn. LCD valve position display area presents current valve position opening degree percentage and the content of alarm area is deleted when all of the self-checking results are normal. The reminder of the abnormal failure will keep popping up and the control system cannot be operated and will wait for troubleshooting when any items is detected with negative results during self-checking process.

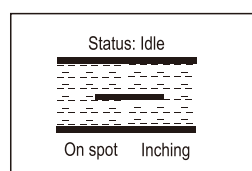
When the actuator control panel is initialized with power supply, area I presents the actual valve open degree in percentage. It presents in diagram (see picture below) when the valve is in full open or full close position. The lower right corner of area II, presents the signal transmitted from the host computer in percentage, when in analog quantity control mode. It presents the selected control mode of switch quantity (inching, two position, two position open valve, two position close valve) when in switch quantity control mode. The lower left corner of area II presents the current work mode of the actuator control panel (remote, idle and on spot).



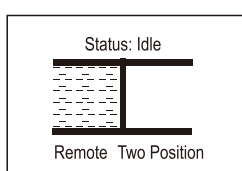
Main Menu Display



Valve Open Degree



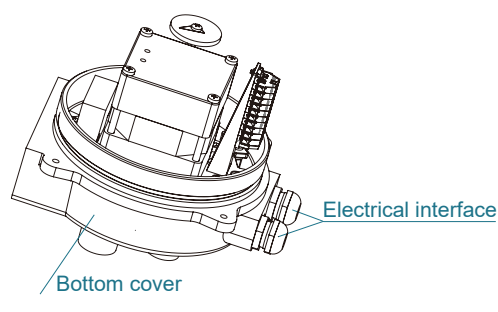
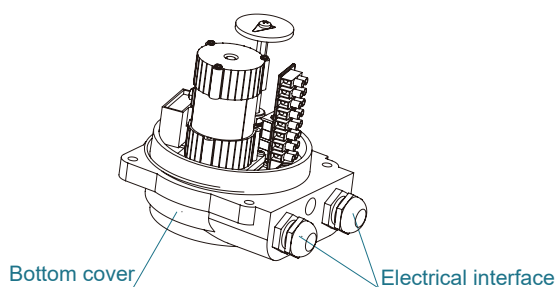
Close Position Arriving



Open Position Arriving

3. Quick-Start type (ON/OFF)

Fig.550 electric quick-start electric actuator is researched and developed according to current market demands. The series have quick opening and closing function, high reliability and high stability.



Technical specifications

550-S Technical specifications

Model No.	Torque [Nm]	Switch time [sec/90°]	Motor power [W]	Insulation grade	Rated current on 50Hz [A]					Weight [kg]	Manual override
					DC24V	AC110V	AC220V	AC380V	AC440V		
550-0S	20	10	8	E	0.2					1.2	Spanner
550-1S	35	12	10	E	1.2	0.4	0.3			2.8	
550-2S	100	8	40	F	3	0.65	0.33	0.26	0.21	8	
	200	8	60	F	4.2	0.89	0.45	0.27	0.21	8	
550-3S	350	8	90	F	6.8	1.7	0.8	0.9	0.7	13	
	500	8	120	F	8.5	2	1.1	0.9	0.7	13	

550-H Technical specifications

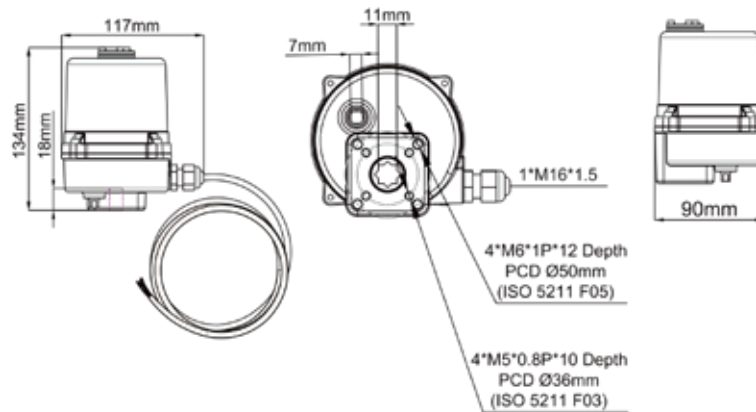
Model No.	Torque [Nm]	Switch time [sec/90°]	Motor power [W]	Insulation grade	Rated current on 50Hz [A]						Weight [kg]	Manual override
					DC24V	AC110V	AC220V	AC380V	AC400V	AC440V		
550-1H	50	10	18	F	1.6	0.8	0.4	0.2			3.2	Push handwheel
	70	15	18	F	1.6	0.8	0.4	0.2			3.2	
550-2H	100	8	40	F	3.5	0.73	0.33	0.26	0.32	0.21	11	
	200	8	60	F	4.2	0.84	0.45	0.27	0.35	0.21	11	

550 Technical specifications

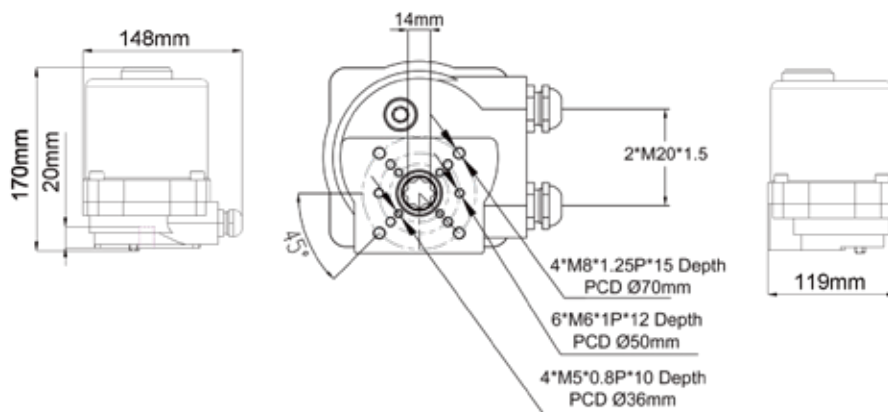
Model No.	Torque [Nm]	Switch time [sec/90°]	Motor power [W]	Insulation grade	Rated current [A]						Weight [kg]	Manual override
					DC24V	AC110V	AC220V	AC380V	AC400V	AC440V		
550-2	100	20	20	F	2.2	0.8	0.6	0.28		0.26	12	Clutchless handwheel
	200	30	20	F	2.3	0.8	0.6	0.28		0.26	12	
550-3	300	20	40	F	3	1.6	0.85	0.39	0.31	0.47	14	
	450	30	60	F	3.6	1.9	0.9	0.4	0.32	0.47	14	
550-4	500	40	90	F	8.5	1.8	0.95	0.46	0.4	0.54	22	
	800	48	90	F	8.5	1.8	0.95	0.48	0.41	0.54	22	
	1000	48	120	F	10.5	2	1.1	0.5	0.42	0.55	22	
550-5	1500	35	200	F		4.8	2.8	1.2	0.9	1.1	50	
	2300	48	200	F		4.8	2.8	1.2	0.93	1.1	50	
550-6	4000	81	200	F		4.8	2.8	1.2		1.5	78	
	5000	94	200	F		4.8	2.8	1.2		1.5	78	

Dimensions

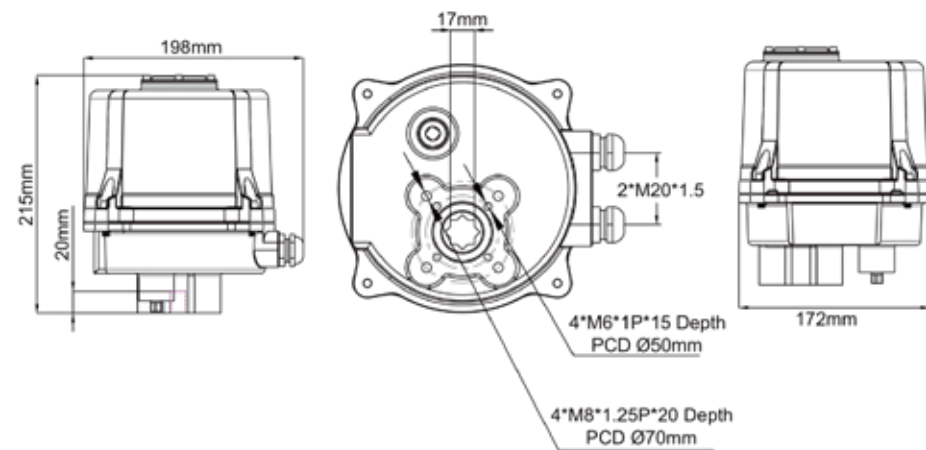
550-0S



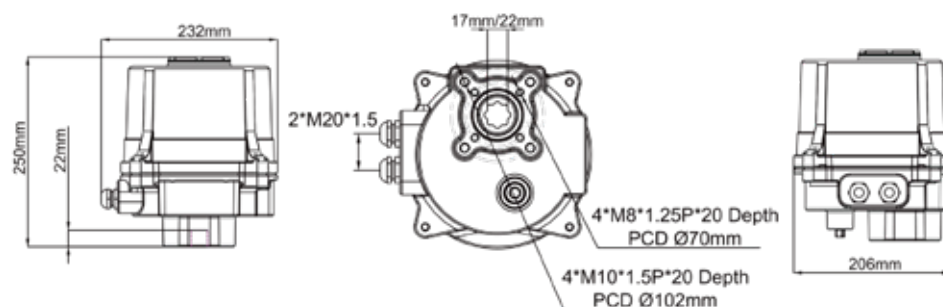
550-1S



550-2S

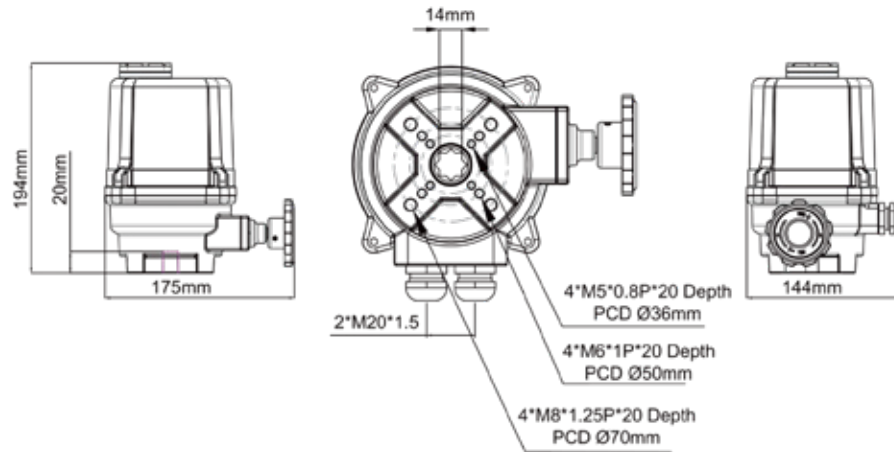


550-3S

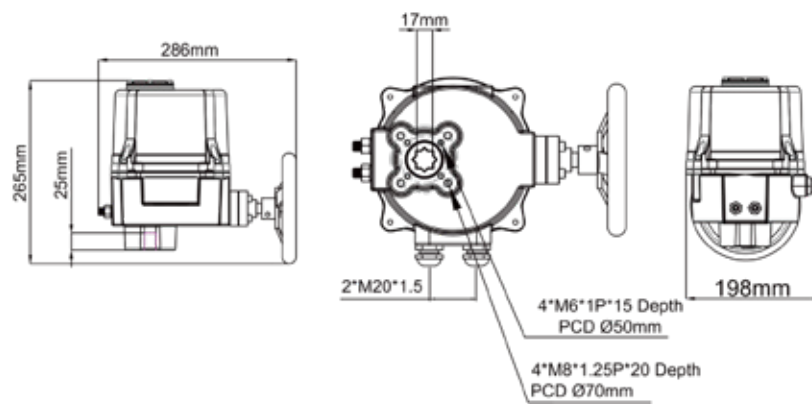


Dimensions

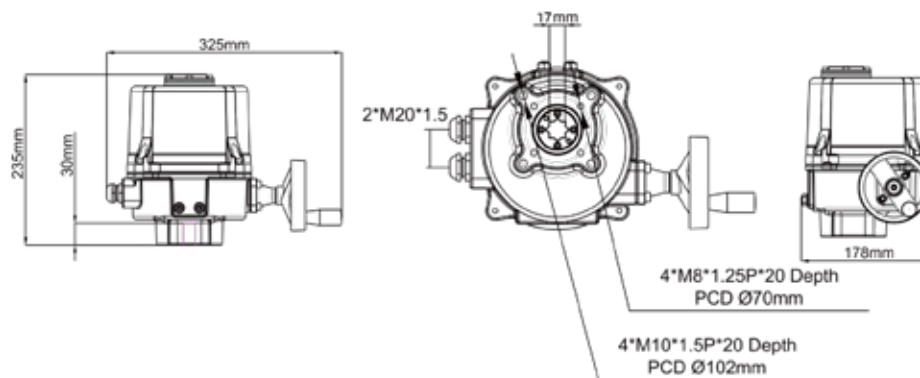
550-1H



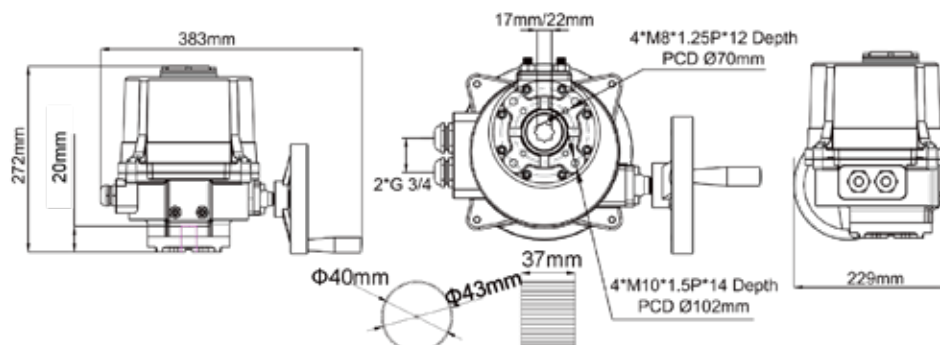
550-2H



550-2

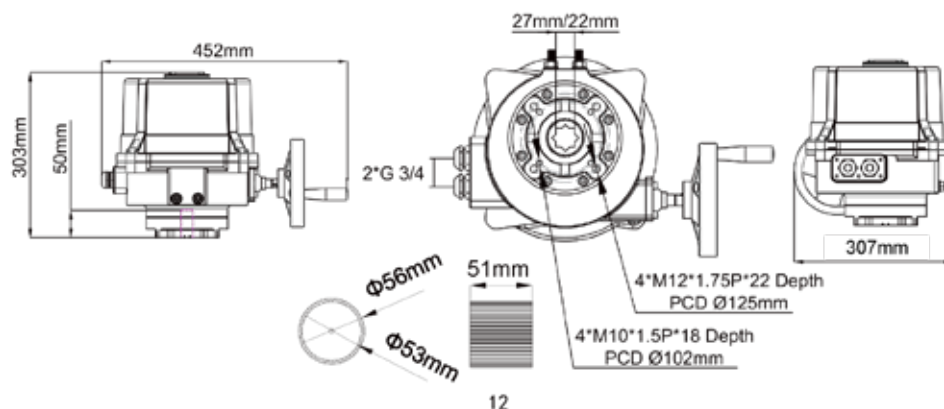


550-3

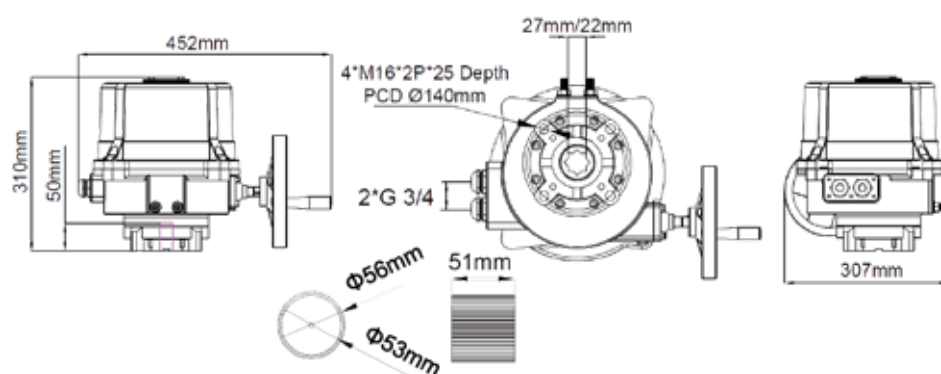


Dimensions

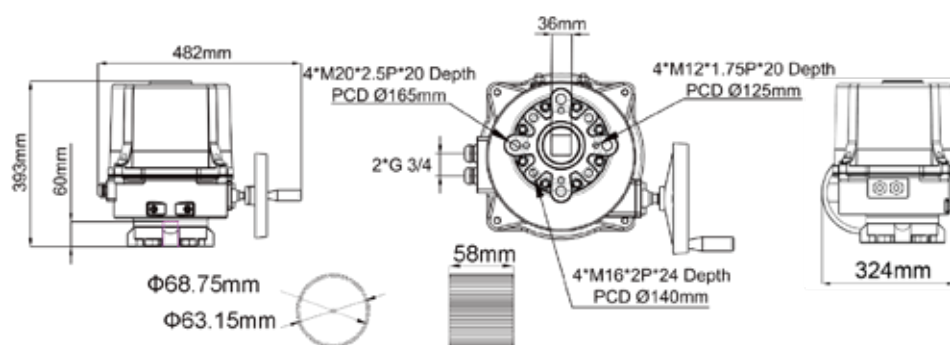
**550-4
F10+F12**



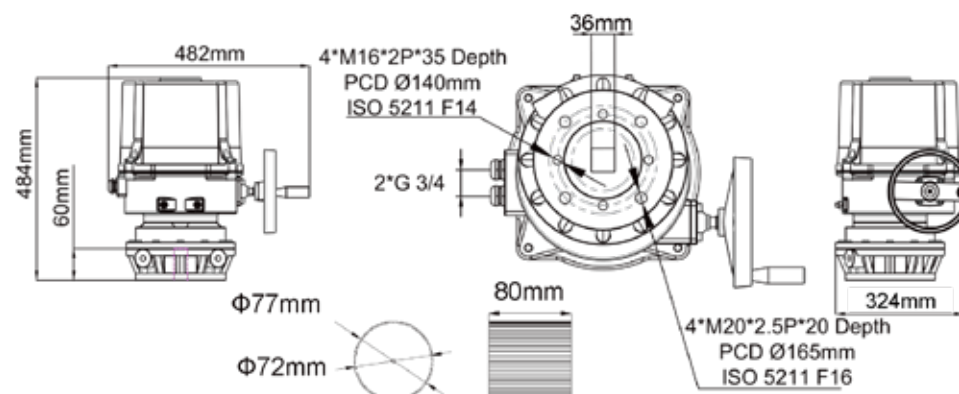
**550-4
F14**



550-5

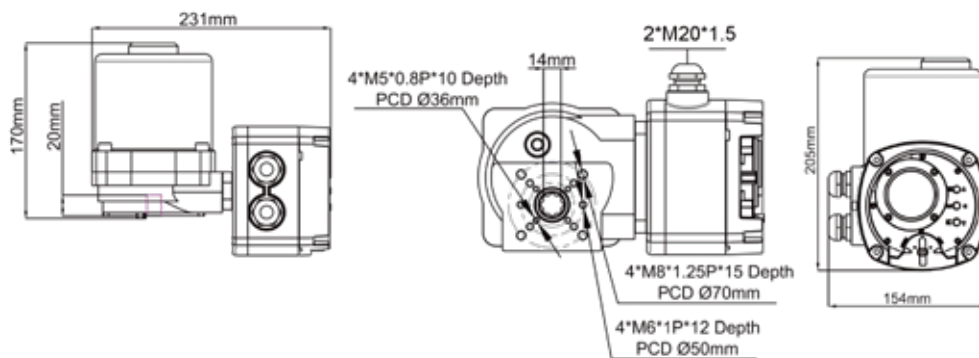


550-6

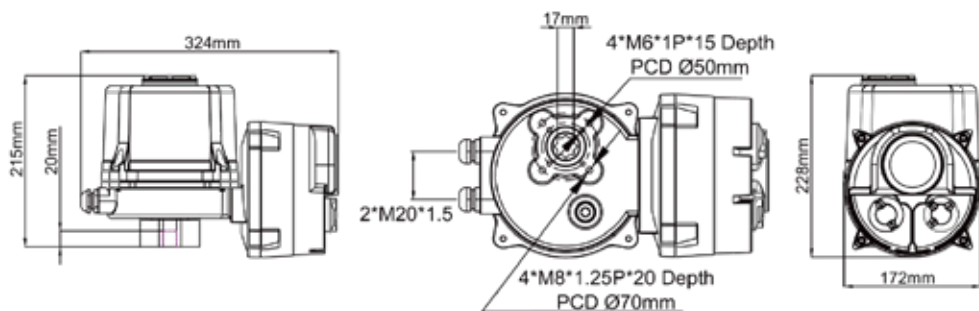


Dimensions

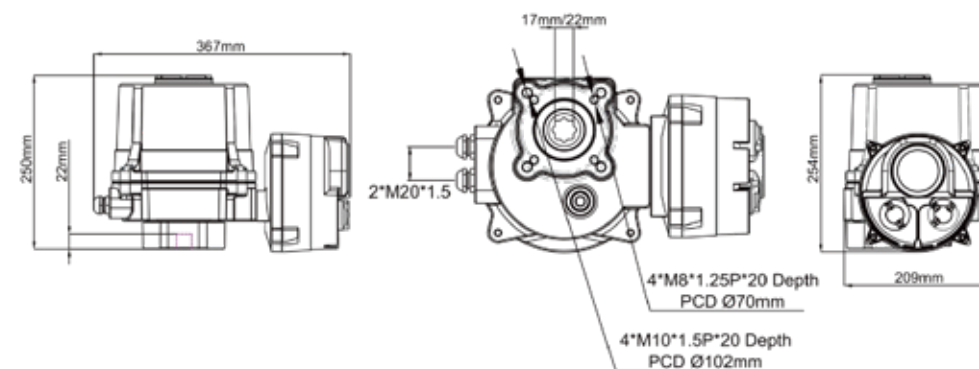
550-1S Intelligent type



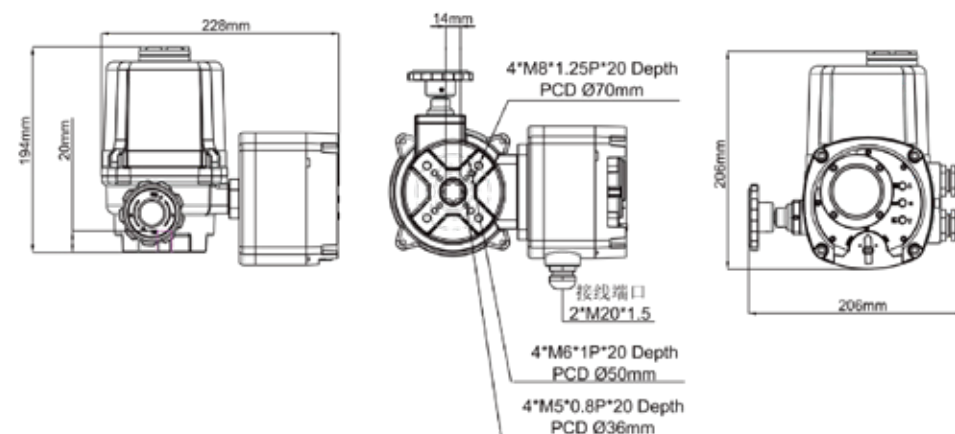
550-2S Intelligent type



550-3S Intelligent type

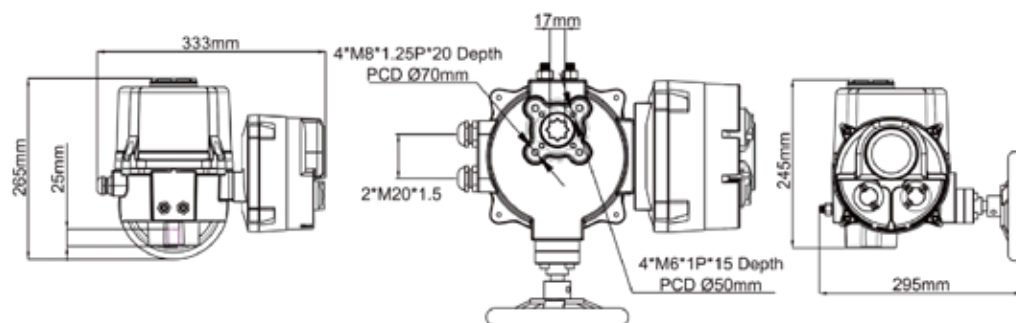


550-1H Intelligent type

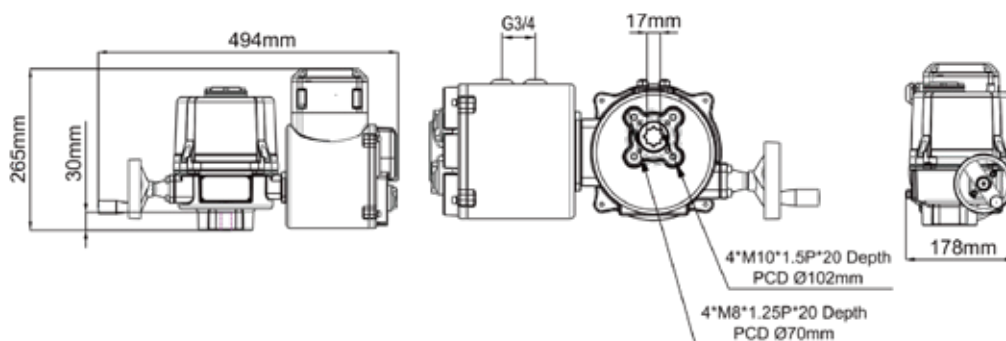


Dimensions

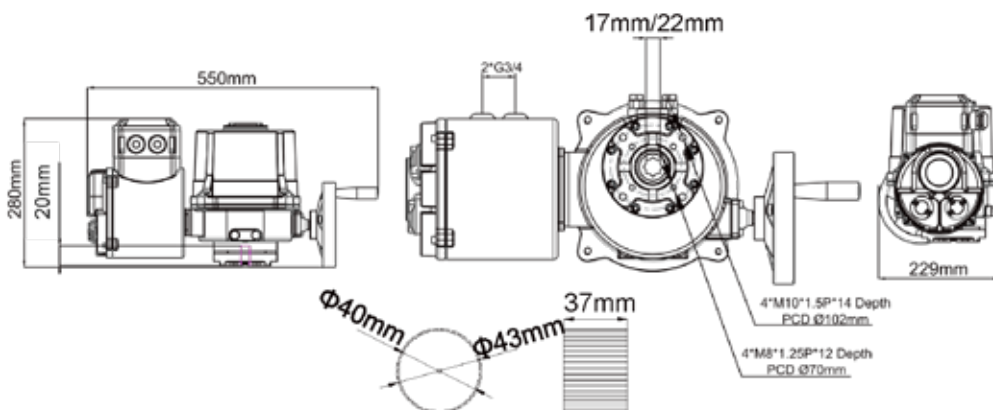
550-2H Intelligent type



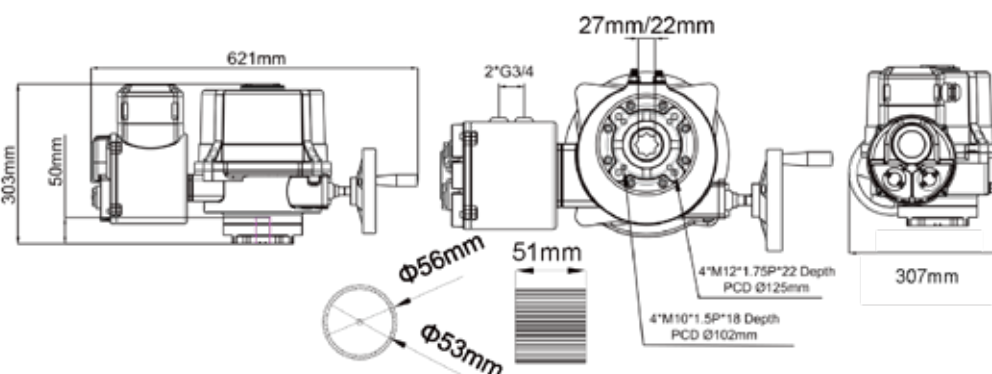
550-2 Intelligent type



550-3 Intelligent type

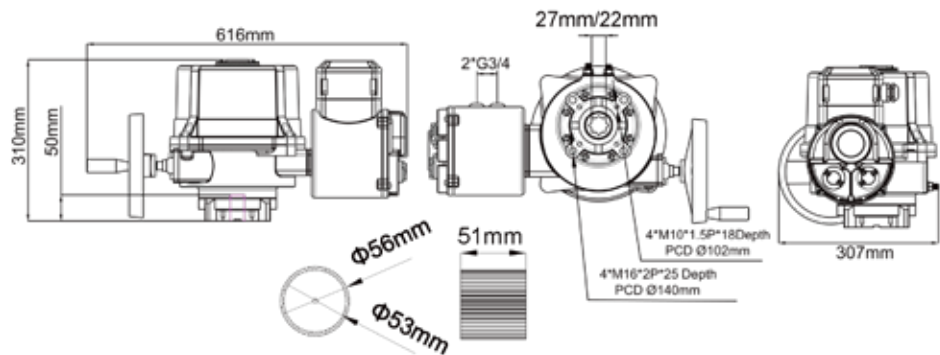


**550-4 Intelligent type
F10+F12**

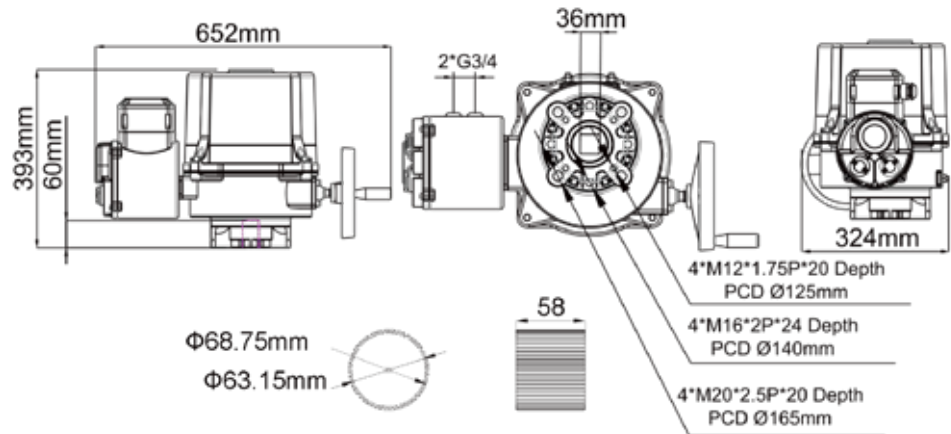


Dimensions

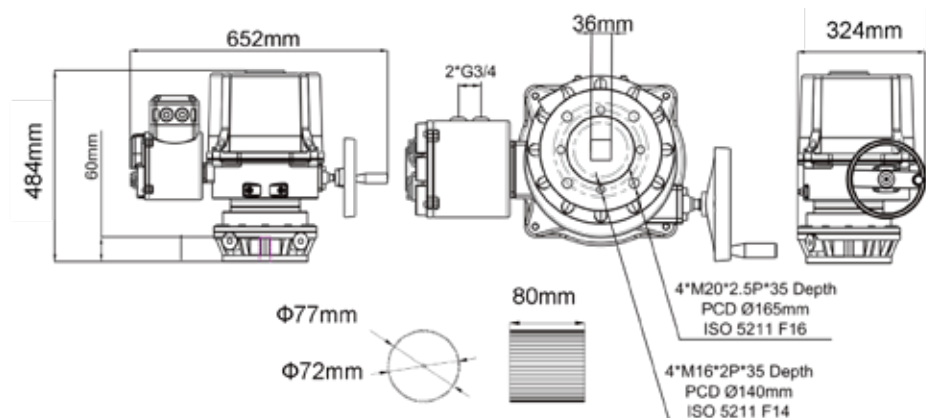
**550-4 Intelligent type
F14**



550-5 Intelligent type

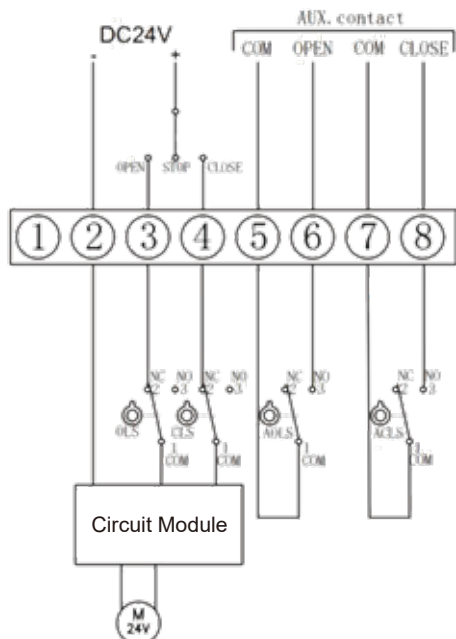


550-6 Intelligent type



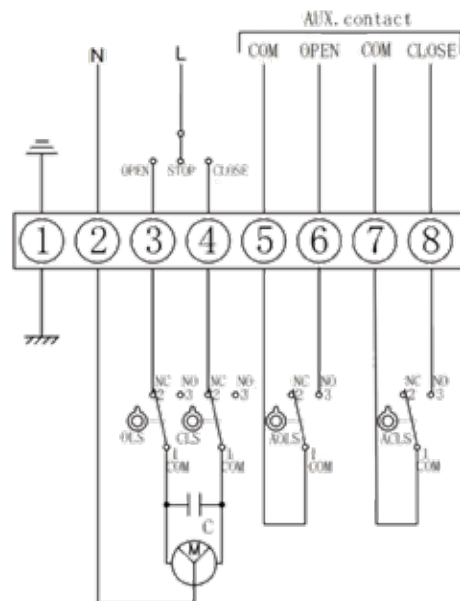
Wiring diagram - ON/OFF type

ON/OFF DC 24V



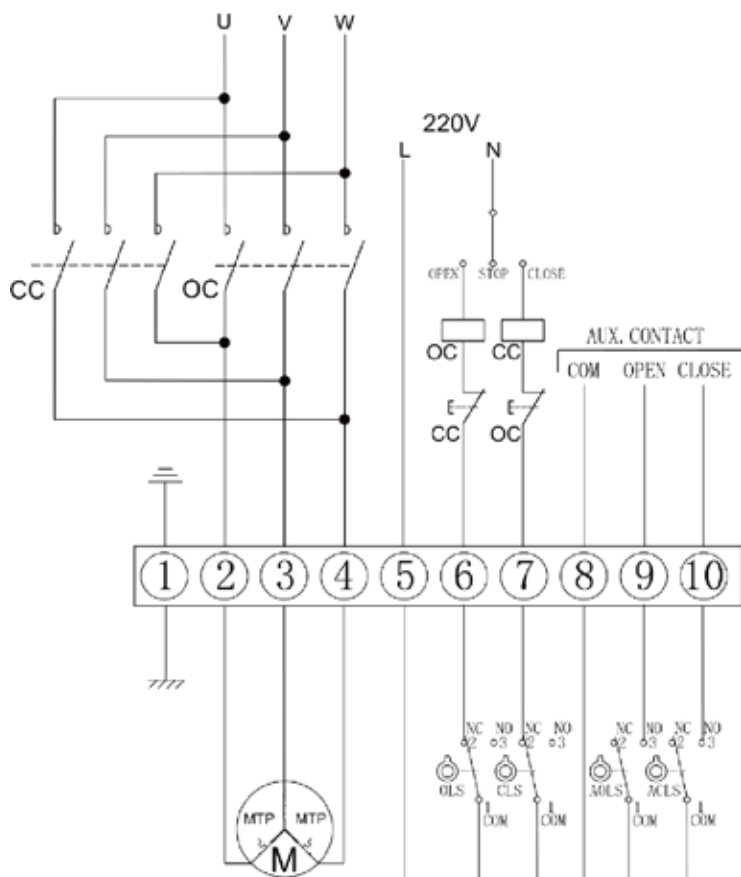
- 2-3: On position control (2 connected with cathode)
- 2-4: Off position control
- 5-6: Full Open signal feedback
- 7-8: Full Close signal feedback
- 5-7: COM is available for short connection

ON/OFF AC110V/AC220V



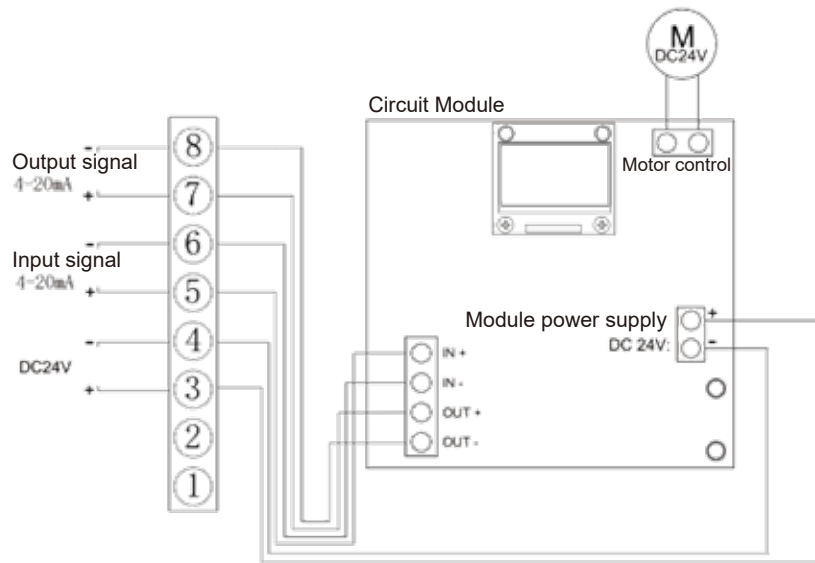
- 1: GND
- 2-3: On position control
- 2-4: Off position control
- 5-6: Full Open signal feedback
- 7-8: Full Close signal feedback
- 5-7: COM is available for short connection

ON/OFF AC380V/AC440V



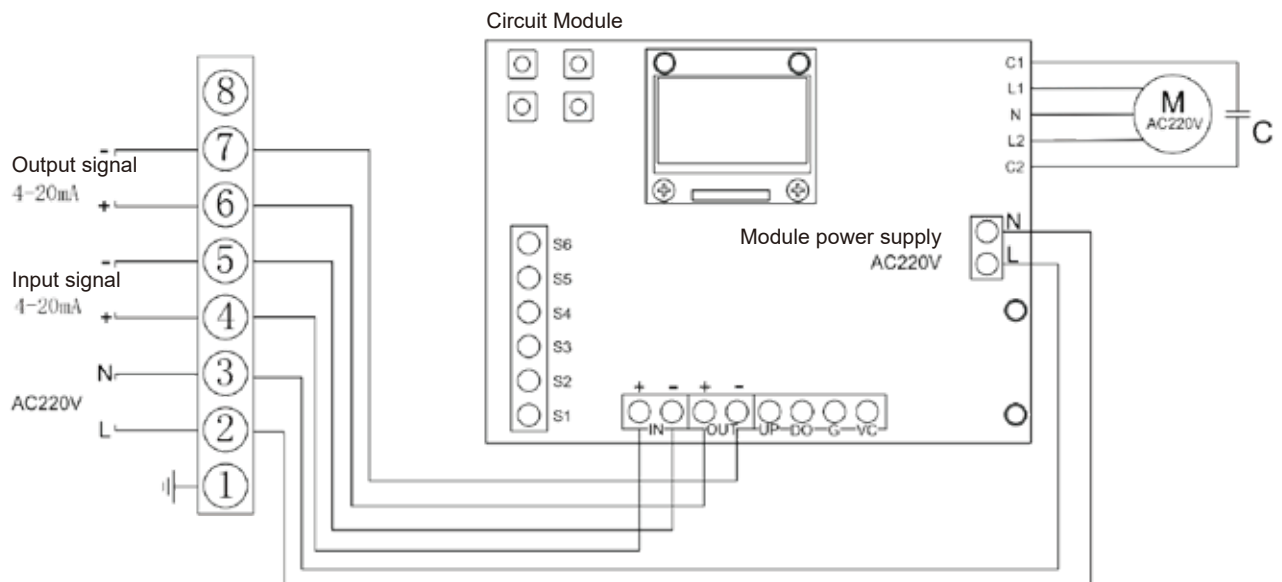
- 1: GND
- 2-3-4: Connection to power supply
- 5-6: On position control
- 5-7: Off position control
- 8-9: Full Open signal feedback
- 8-10: Full Close Signal Feedback
- OC: Alternating current contactor (open)
- CC: Alternating current contactor (close)

MODULATING DC24V



- 3-4: Connect to power supply 24V (3 is connected with anode, 4 is connected with cathode)
 5-6: 4-20mA signal input (5 is connected with anode, 6 is connected with cathode)
 7-8: 4-20mA signal output (7 is connected with anode, 8 is connected with cathode)

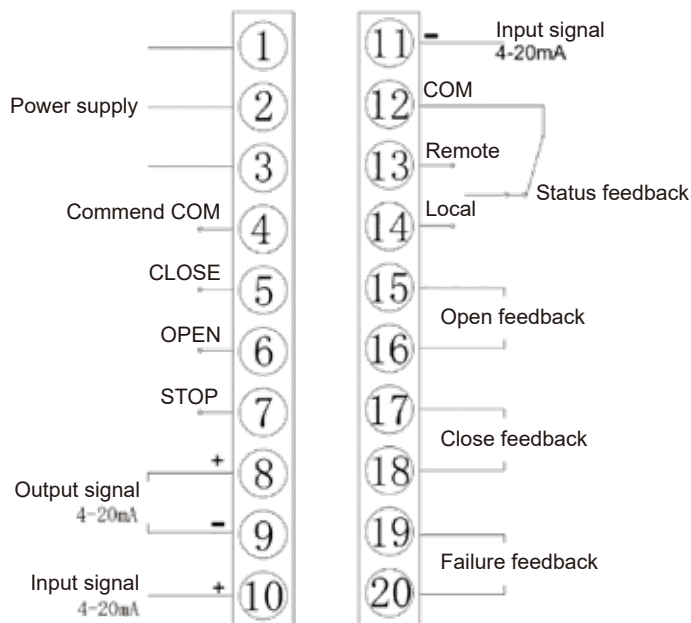
MODULATING AC220V



- 1: GND
 2-3: Connect to power supply 220V
 4-5: 4-20mA signal input (4 is connected with anode, 5 is connected with cathode)
 6-7: 4-20mA signal output (6 is connected with anode, 7 is connected with cathode)

Wiring diagram - Intelligent type

550-S/550-H Intelligent type



1-2-3: Power supply
AC380V/AC440V: 1 - (A); 2 - (B); 3 - (C).
AC110V/AC220V: 1 - (L); 3 - (N).
DC24V: 1 - (+); 2 - (-).

4-5: Valve close control

4-6: Valve open control

4-7: Valve stop

8-9: 4-20mA signal output (8 is connected with anode, 9 is connected with cathode)

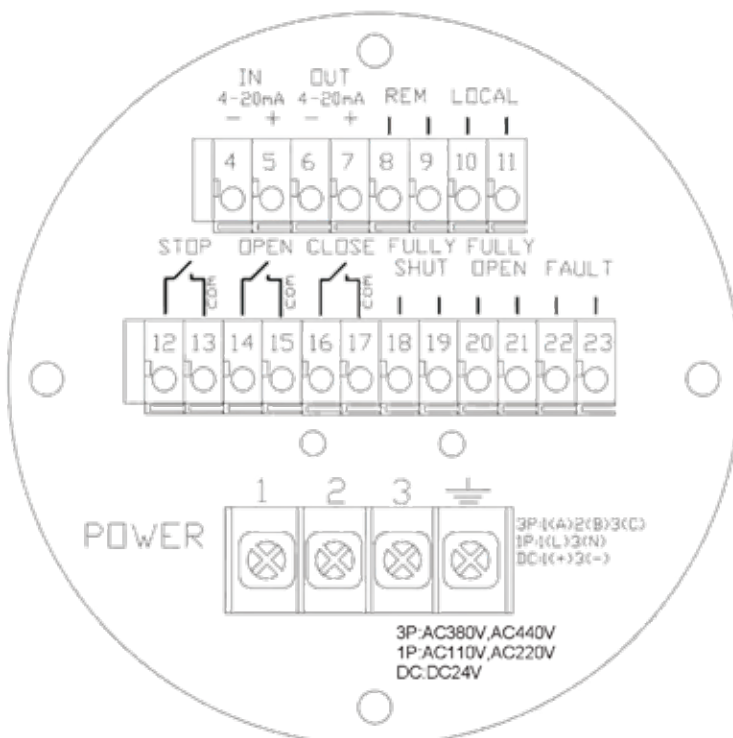
10-11: 4-20mA signal input (10 is connected with anode, 11 is connected with cathode)

15-16: Full open signal feedback

17-18: Full close signal feedback

19-20: Failure feedback

550 Intelligent type



1-2-3: Power supply
AC380V/AC440V: 1 - (A); 2 - (B); 3 - (C).
AC110V/AC220V: 1 - (L); 3 - (N).
DC24V: 1 - (+); 2 - (-).

4-5: 4-20mA signal input (4 is connected with cathode, 5 is connected with anode)

6-7: 4-20mA signal output (6 is connected with cathode, 7 is connected with anode)

12-13: Valve stop

14-15: Valve open control

16-17: Valve close control

18-19: Full close signal feedback

20-21: Full open signal feedback

22-23: Failure feedback

Application and order instruction

Environment

Indoor

For mounting in environment with explosive gas, explosion-proof actuator is required;
For mounting in submerged or outdoor environment, please contact Coreline in advance;
There should be enough space for wiring, manual operation and maintenance activities.

Outdoor

To avoid rainwater and direction sunlight, protective cover shall be installed; or use IP67 or above;
There should be enough space for wiring, manual operation and maintenance activities.

Ambient Temperature

ON/OFF type: -20 °C to +70 °C;
Modulating/Intelligent type: -20 °C to +70 °C;
When ambient temperature is below 0 °C, space heater is required.

Medium Temperature

When the medium temperature is over 65 °C, bracket and coupling should be used between the actuator and the valve - in case the high temperature transferring from the medium to the actuator which causes damage to the actuator.

Order instruction

550 - **T** - **K** - **V** - **B**
↓ ↓ ↓ ↓ ↓
Product Output Control Voltage Note
model Torque (NM) Mode

Control module: K

O: ON/OFF, dry contact feedback
M1: 4-20mA input/output
M2: 0-5V input/output
M3: 2-10V input/output
ICM: Intelligent integrated type

Voltage: V

D: AC220V(50/60Hz)
E: AC110V(50/60Hz)
F: DC24V
G: DC12V
H: AC380V(50/60Hz)
I: AC440V(50/60Hz)
J: AC400V(50Hz)

Note: B

X: Space heater (Optional, recommended to use for high humidity, low temperature applications).
A: 0-1KΩ or 0-5KΩ resistance output.
B: ON/OFF type with optional 4-20mA output signal.

Fig.550	T (N.M)	K					V							B
		O	M1	M2	M3	ICM	D	E	F	G	H	I	J	
5500S	20	—	•	•	•	—	—	—	•	—	—	—	—	X A B Custom color Special requirement etc.
5501S	35	•	•	•	•	•	•	•	•	•	—	—	—	
5502S	100	•	•	•	•	•	•	•	•	•	•	•	—	
	200	•	•	•	•	•	•	•	•	•	•	•	—	
5503S	350	•	•	•	•	•	•	•	•	—	•	•	—	
	500	•	•	•	•	•	•	•	•	—	•	•	—	
5501H	50	•	•	•	•	—	•	•	•	•	•	—	—	
	70	•	•	•	•	—	•	•	•	•	•	—	—	
5502H	100	•	•	•	•	•	•	•	•	•	•	•	•	
	200	•	•	•	•	•	•	•	•	•	•	•	•	
5502	100	•	•	•	•	•	•	•	•	•	•	•	—	
	200	•	•	•	•	•	•	•	•	•	•	•	—	
5503	300	•	•	•	•	•	•	•	•	•	•	•	•	
	450	•	•	•	•	•	•	•	•	•	•	•	•	
5504	500	•	•	•	•	•	•	•	•	—	•	•	•	
	800	•	•	•	•	•	•	•	•	—	•	•	•	
	1000	•	•	•	•	•	•	•	•	—	•	•	•	
5505	1500	•	•	•	•	•	•	•	—	—	•	•	•	
	2300	•	•	•	•	•	•	•	—	—	•	•	•	
5506	4000	•	•	•	•	•	•	•	—	—	•	•	—	
	5000	•	•	•	•	•	•	•	—	—	•	•	—	

Coreline

The contents of this catalogue are confidential and proprietary to Coreline, we reserve the right to change the specifications without any notice.

CORELINE VALVE CO., LTD.

Add: No.210 Xinyuan Road, Ehu Industrial Park, 214116 Wuxi, China

Phone: +86 510 88525336

Http: // www.coreline.dk

E-mail: mail@coreline.cn