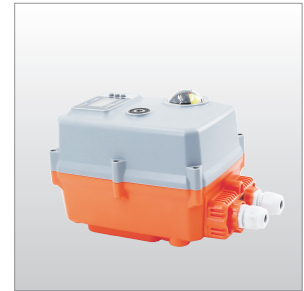


Product overview

- ⊙ Rated voltage: AC/DC95-265V,AC/DC24V
- ⊙ Rated torque: 80N.m[96N.m@Max]
- ⊙ Running time: **about 5s**
- ⊙ Install valves: 2way,3way ball valve and butterfly valve
- ⊙ Control signal: 4-20mA、0-20mA、0-5V、1-5V、0-10V、2-10V
- ⊙ Position feedback: 4-20mA、0-20mA、0-5V、1-5V、0-10V、2-10V
- ⊙ Alarm Output: -A (Relay Contact)
- ⊙ FailSafe:-KT
- ⊙ Position accuracy: $\pm 1\%$ (set by software)
- ⊙ High performance brushless motor,Overload/Overcurrent protection of internal motor
- ⊙ It can be used 20,000 times*1



Product features

- △ 1.3" OLED screen,no visual dead angle,highly bright,energy saving and eco-friendly,real time to show valve opening angle and external control command.Enter sleeping state automatically after about 5 minutes,while it could prompt location state and its control command at sleeping time.
- △ Original valve adjustment mode--free cover-opening and interactive:
 - step1:saving "anticlockwise full open position" by using the button to control valve;
 - step2:saving "clockwise full open position" by using the button to control valve;
 - step3:saving "clockwise full close position" by using the button to control valve;it makes valve adjustment easier.
 Thoroughly eliminate the complex and inconvenience caused by mechanical positioning.
- △ Adopt 16 High-performance microcontrollers,12 high-precision AD conversion,built-in unique algorithm, thoroughly eliminate mechanical hysteresis,greatly reduce valve position control error.
- △ Built-in motor control module,motor frequency speed control can realize accurate positioning.
- △ Adopt non contact positioning,control unit module design and potting processing,guarantee components reliability and greatly improve product service life;Interface use standard connectors,convenient for installment, adjustment and replacement.
- △ Menu can report real-time failure,including stuck or other reasons which lead actuator fail to realize valve on/off integrally,and output failure warning signal.
- △ Menu can realize valve control command exchange.
- △ Menu can switch freely between remote control and local setting,by pressing the button to adjust valve position locally,built in position limit and show limit status.
- △ Menu can set valve close position deviation to on or off direction,thoroughly eliminate the complex and inconvenience bring by "Normal On/Off mechanical positioning" to local valve adjustment.
- △ Menu can realize the control way 4-20mA、0-20mA、0-5V、1-5V、0-10V、2-10V ,it is very convenient to choose for customer.
- △ Menu can restore factory default setting.

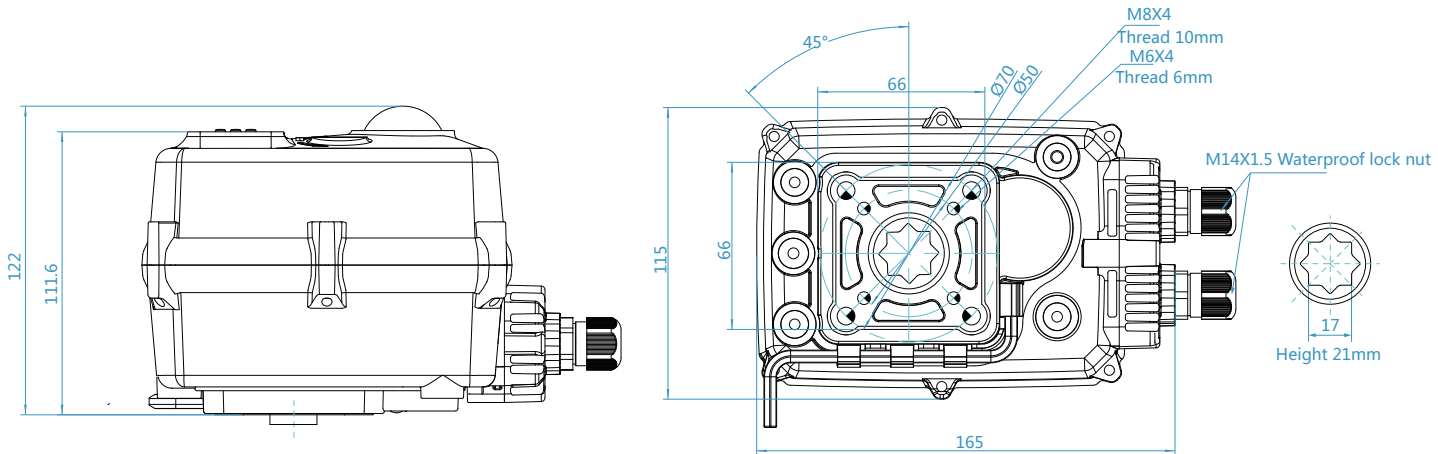
*1.Test condition:Rated load,test at under 25℃ working temperature and 50% humidity,lead the result from 2 times switching cycle,which will be influenced by different load and working environment.

Technical data

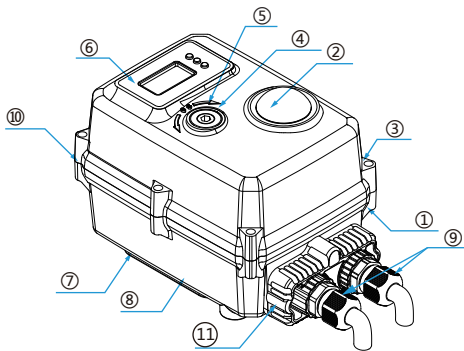
Electrical data	Rated voltage	AC/DC95-265V(50/60HZ)	AC/DC24V	
	Rated voltage range	AC95-265V/DC100-300V	AC18-26V/DC22-28V	
	Power consumption	18W@running 2.1W@keep	15W@running 2.1W@keep	
	Peak current	0.52A@5ms@AC230V	4.50A@5ms@DC24V	
		1.06A@5ms@AC110V		
	Fuse	2 A	10A	
	Connector	9P-5.08-500V x (0.5-1.5)mm ² / 10P-(0.3-0.5)mm ²		
Functional data	Rated torque	80Nm@rated voltage		
	Angle of rotation	90±2°		
	Max angle of rotation	330±5°		
	Manual operation	※ Matching hexagon wrench, using at no power		
	Running time	About 5s		
	Operating frequency	Not continuous running per≥1min		
	Sound power level	Max75dB(A)		
	Position indicator	Mechanical and screen		
	Working conditions	Electricity safety level	I Type (ground protection)	III Type (ground protection)
		Inflaming retarding level	1.6mmHB/UL94 test method	
Enclosure		IP67 As Per En60529/GB4208-2008 (all directions) F type can add dehumidifying heater		
Insulation resistance		100M Ω/1500VDC	100M Ω/500VDC	
Withstand voltage		1500VAC @ 1Min	500VAC @ 1Min	
Medium temperature		≤80°can install with actuator directly ※ >80° need to install bracket or heat radiation stand		
Working environment		※Indoor or outdoor; if exposed to the rain or sunshine, need to install protective device for the actuator		
Explosion-proof level		⚠Not explosion proof products, do not use in flammable and explosive environment.		
Ambient temp		-20 C — 60 C		
Non-operation temp		≤-40 C or ≥80 C		
Humidity		5-95%RH non-condensing		
Shock resistance		≤300m/s ²		
Vibration		※10 to 55 Hz, 1.5 mm double amplitude		
Installation notes		360°any angle, The need for manual operation or the wiring space		
Maintenance		Free maintenance		
Certification		CE		
Dimensions / weight		Dimensions (LXWXH)	See “Dimensions”	
		Connection standard	ISO5211 F05、 F07	
		Output axis specification	Female octagonal	
		Hole deepness	≤20mm(Female octagonal)	
	Weight	ABS material 2.2 kg		

Dimension 【Female octagonal】

Unit: mm



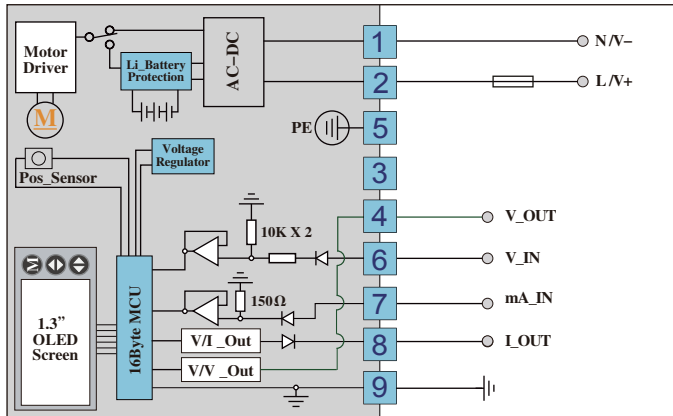
Main parts



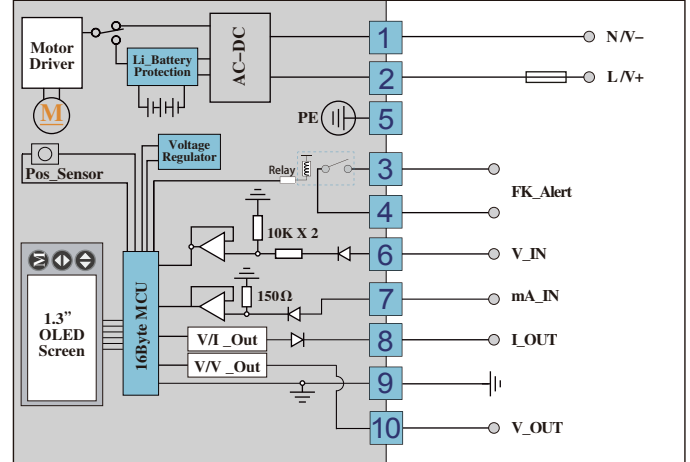
Parts	Material	Parts	Material
1 Actuator	ABS or Casting aluminum	8 Hexagon wrench	Tool steel
2 Indicator	TransparentAS	9 Waterproof cable connector	NiLon
3 Screwx4	304	10 seal part between up and down cover	NBR
4 Manual shaft	304	11 Terminal cover	ABS
5 Oil seal	NBR		
6 Label	PVC		
7 Wrench fixed	ABS		

Wiring diagrams_1

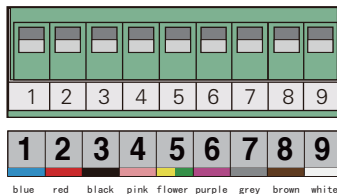
Without alarm signal output function



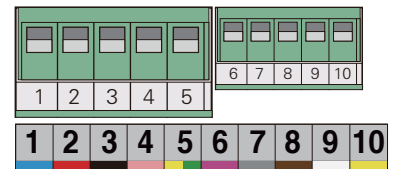
With alarm signal output function



9P-5.08 Terminal diagram



5P-5.08 Terminal 5P-3.81 Terminal



- Through menu can choose input way Voltage or Current,same can choose 0-5V,0-10V,2-10V,1-10V,or 0-20MA,4-20MA.
- Output for actuator without alarm signal function can choose both Voltage and Current, with alarm signal function ,customer must confirm that the output is Voltage or Current when place order.

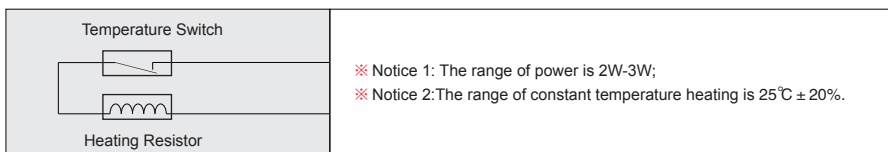
Without alarm signal output function-wiring instruction

- 1、[1][2] are power supply .
- 2、[4][6][7][8][9] are control and feedback .They are forbidden to connect the power supply directly, otherwise it will damage the control module.
- 3、Please confirm the vottage before using,otherwise it will damage the control module.。
- 4、[6] Input Vottage: 0-5V, 1-5V, 0-10V, 2-10V, input impedance refers to relevent wiring diagram
- 5、[7] Input Current: 0-10mA, 2-10mA, 0-20mA, 4-20mA, input impedance refers to relevent wiring diagram
- 6、[4] Output feedback vottage: 0-10V , through menu can set the vottage range.
- 7、[8] Output feedback current: 4-20V , through menu can set the current range.
- 8、RX:
 - △ $V_{out}=I_{out} \cdot R_x$
 - △ R_x is recommended to use LowTCR resistor.
 - △ $V_{out} \leq 8V$,so $R_x \leq 400 \Omega$ (recommended $V_{out}=5V$, $R_x=250 \Omega/0.25W$) 。
- 9、※For "4-20mA/1-5V/2-10V" control, from "user setting", user can set no control signal valve to full-open, full-close or keep.For other control(0-20mA,0-10V,0-5V),such setting is invalid.
- 10、Once actuator is struck or other working failures ,the screen will show alarm information although not alarm signal .
- 11、Loading capacity $\geq 10K \Omega$ when output is 0-10V ,the length of wire and resistor will affect the accuracy ,please use the littler wire resistor.

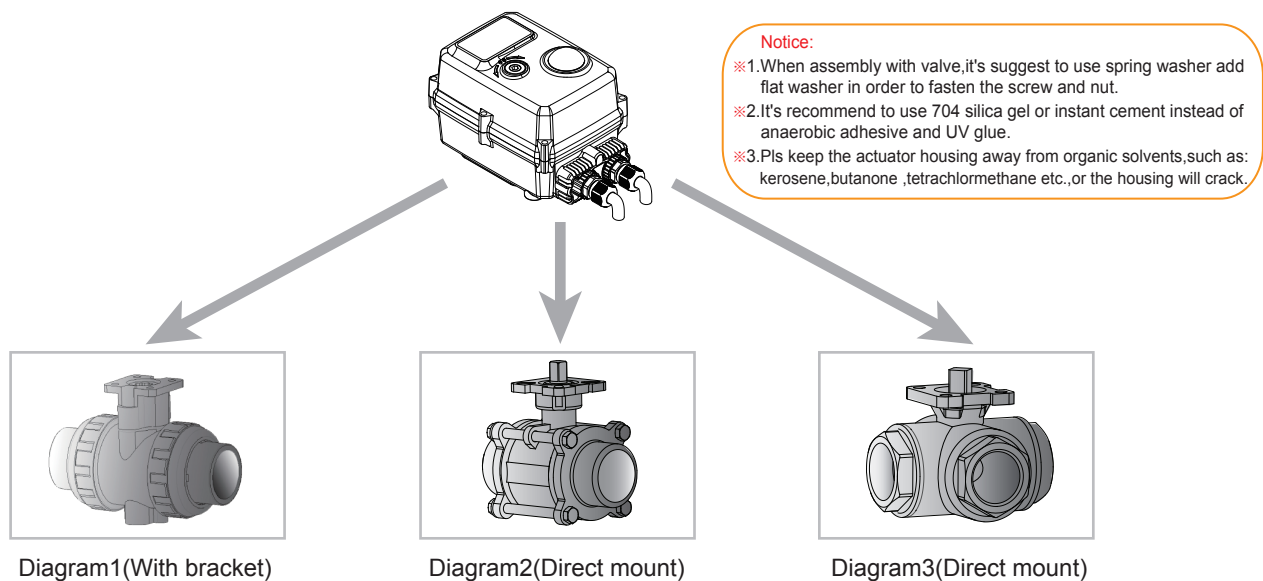
With alarm signal output function -wiring instruction

- 1、[1][2] are power supply, [3][4] are alarm signal output
- 2、[6][7][8][9][10] are control and feedback .They are forbidden to connect the power supply directly, otherwise it will damage the control module.
- 3、Please confirm the vottage before using,otherwise it will damage the control module.。
- 4、[6] Input Vottage: 0-5V, 1-5V, 0-10V, 2-10V, input impedance refers to relevent wiring diagram
- 5、[7] Input Current: 0-10mA, 2-10mA, 0-20mA, 4-20mA, input impedance refers to relevent wiring diagram
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- 9、※For "4-20mA/1-5V/2-10V" control, from "user setting", user can set no control signal valve to full-open, full-close or keep.For other control(0-20mA,0-10V,0-5V),such setting is invalid.
- 10、Once actuator is struck or other working failures ,the screen will show alarm information although not alarm signal .Notice the contactor loading capacity is :0.1A/DC24V,50mA/230V
- 11、Loading capacity $\geq 10K \Omega$ when output is 0-10V ,the length of wire and resistor will affect the accuracy ,please use the littler wire resistor.

Anti-condensation heater 【Accessory】



Mounting instructions



- Diagram1 UPVC plastic ball valve+bracket assembly
- Diagram2 3piece stainless steel ball valve assembly
- Diagram3 3piece stainless steel 3way ball valve assembly

Installed valve technical requirements

Valve type	Recommend install condition
wafer butterfly valve	actuator rate torque ≥ 2times valve max torque
flange butterfly valve	actuator rate torque ≥ 1.7times valve max torque
metal ball valve	actuator rate torque ≥ 1.7times valve max torque
plastic ball valve	actuator rate torque ≥ 1.5times valve max torque

- 1. If the ball valve is out of operation for a long time, and the torque value of first on or off is the max torque
- 2. When installing direct mount model valve, the hole deep ≤ 20mm. It requires cutting if the output shaft is longer than 20mm.
- 3. Pls pay attention to the following items if you install the bracket and coupling by yourself:
 - ※ The intensity of bracket should meet the using requirements: the bracket twisting extent ≤ 0.2mm in the process of on or off.
 - ※ The parallelism of bracket ≤ 0.5mm.
 - ※ When processing the shaft hole at both end of the coupling, it is necessary to ensure the accuracy and concentricity. The purpose is to make sure the mechanical hysteresis ≤ 10°, otherwise it will cause the actuator unable to work.
- 4. Screw should be installed spring washer、flat washer, and we suggest you daub some glue cement around the screw in case of screw loosening.
- 5. After installation, user should switch the valve on and off one time with handle device first. Modifying the valve after make sure it works well.

Common failures and processing methods

	Fault phenomenon	Fault cause	Processing methods
□1	Actuator no action	△1 power not connected △2 voltage below level or incorrect △3 overload protection of motor after 3s △4 terminal loose or poor contact △5 starting capacitance poor run	Connect power Check whether voltage is within the normal range Check whether valve gets stuck or torque value is too big Check and correctly connect terminal Contact the manufacturer to get repair
□2	No feedback signal	△1 line barrier of user acquisition signal △2 4-20mA deviation is too big △3 4-20mA transducing circuit damage	Connect user acquisition signal Adjust the reference value of PWM-4mA by the menu Contact the manufacturer to get repair
□3	Actuator not fully closed	△1 use feedback signal to control actuator △2 return difference increases due to abrasion between actuator and valve rod	Receive feedback signal doesn't mean actuator is fully closed, so don't cut power off 1 Adjust valve-off position to realize deviation by the menu 2 Contact the manufacturer to get repair
□4	Actuator interior water ingress	△1 OD of incoming line cablenon-standard △2 waterproof treatment of incomingline incomplete △3 actuator lens wearout △4 screws on connection cover/head cover /slide cover loose	Contact the manufacturer to get repair

Working environment

- Indoor and outdoor are both optional.
- Not explosion proof products, ⚠ do not use them in flammable and explosive environment.
- You need to install protective device for the actuator if it is exposed to the rain or sunshine.
- Please pay attention to the ambient temp.
- When installing, you need to consider the reserved space for wiring and repairing.
- When power on, ⚠ it is not allowed to dismantle actuator and valve.
- When power on, ⚠ it is not allowed to do wiring.
- ✖ Absolutely no falling down the ground, which will hit the device and lead to improper operation.
- ✖ Absolutely no standing on the device, which will cause device malfunction or personal accident.
- ✖ It is forbidden to do wiring project in rainy day or when there is water splash.

Safety notice

- In order to use the device safely for a long term, please pre-read the manual carefully to ensure correct use.
- Notice item: Please understand the product specification and using method clearly to prevent personal safety danger or device damage.
- In order to indicate damage and danger, here we classify them as "warning ⚠" and "notice ✖".
- Both of contents are very important, which should be obeyed strictly.
- "Warning ⚠": It will cause death or serious injury if not obeyed.
- "Notice ✖": It will cause slight injury or device damage if not obeyed.
- Subject to technical changes.

Actuator

Success comes from our persistent pursue of perfect details.
Excellence originates from our persistence of win-win philosophy.

PART 2

User Manual