

SINTEK

PT Multi Turn Electric Actuator

Installation and Operation Instructions



To make flow control easier and safer

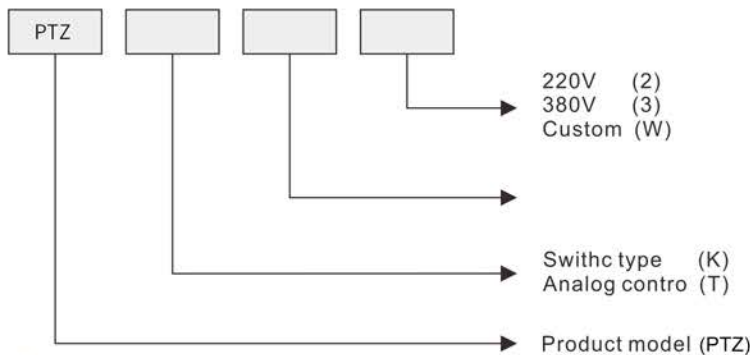
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1 Overview

It is "non-invasive" intelligent control, humanized design, using the advanced DSP system, Chinese LCD display, infrared remote control, self diagnosis of fault alarm. Shell with overall flame-proof type, magnetic button switch, combined with a number of independent research and development of independent innovation of technology, has complete advanced function, the stability of the reliable and cost-effective advantages, mode is simple, convenient installation, easy setting, long-life, suitable for electric actuator with vendors

2 Model representation



3 Product features

- > Chinese menu, easy to understand;
- > Non-invasive infrared remote control setting;
- > Adopt intelligent integrated control;
- > Phase sequence automatic recognition and phase change;
- > The function of the torque protection and interface display in the trip;
- > The various states and information that the system prompts the executor to work;
- > Using the non-contact hall effect pulse counting encoding system, high precision and durable use;
- > Overload, lack of phase, overheat, abnormal power supply, automatic motor speed system diagnosis, prompt and protection;
- > Ac contactor output control;
- > Input signal: dc4-20ma;
- > Output: dc4-20ma;
- > Modbus RTU(optional)
- > Maximum output power of the 11 kw;
- > With open valves, valve interlocking, two line control emergency stop (ESD), and other powerful remote control;
- > Ac contactor output control;

4 Key technical paramet

- > Input signal: (1) analog signal: 4-20ma, clearance: 0.9;
- > 250VAC5A,30DC5A,(2) control of the switch on the contact point, and output contact capacity: 250VAC5A, 30DC5A;
- > Alternative fieldbus control technology, power supply: single-phase 110V / 220V, three-phase 380V / 440V, 50/0hz;
- > valve bit feedback: 4-20ma
- > Load capacity, 750 euros;
- > Basic error: 1%, adjustable dead zones: 0.1 9.9%, the default setting is "0.5%";
- > The use of environmental conditions: temperature < 95%, relative elevation < 200m, no corrosive gas in the air medium surrounding air;

5 Operating mode

5.1 the electric operation, at the bottom of the display window of actuator control room has two knobs, black for choosing knob, it has three operating position, distance, stop, in situ; Red is the operation knob, which operates in two directions, turning off the valve clockwise and turning the valve in counterclockwise rotation.

5.1.1 inching operation, actuator operation mode is set to move, the rotary actuator operating knob, hold still didn't stop running to limit target;

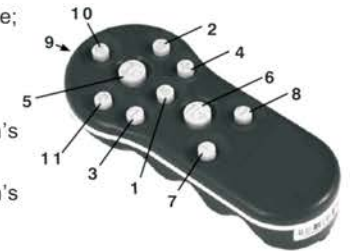
5.1.2 the scene to keep operating, actuator operation mode is set to stay, the rotary actuator operating knob, actuators will run limit target to stop running, will choose the knob screw to the stop position, act

5.1.3 field stop, when choosing a knob in stop position, actuators will ban all electric operation (except for ESD beyond stop)

5.2 remote control, will choose the knob in the remote place, the actuators are only receive standard control signal, open, close, stop

5.3 remote control

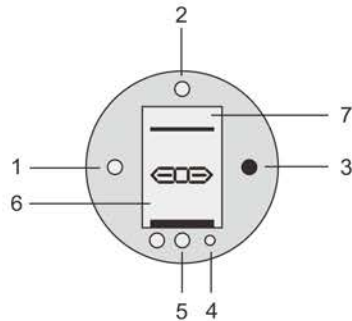
- ⏴ Key down to display the next feature or display menu;
- ⏵ Key Display previous function up
- ⏪ Key The key returns the first level display state;
- ⏩ Key Display next function across
- ⏴⏵ Key Enter displayed value or option setting
- ⏴⏵ Key Increase/change displayed function's value or option setting
- ⏵⏴ Key Decrease/change displayed function's value or option setting
- ⏴⏵ Key Stop actuator
- ⏴⏵ Key Close the valve key
- ⏵⏴ Key Open the valve key



6 System function, Parameter Settings

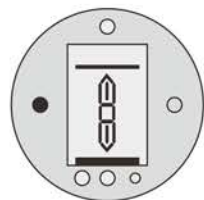
6.1 system display

6.1.1 The display valve position indicator and the composition of the display unit.

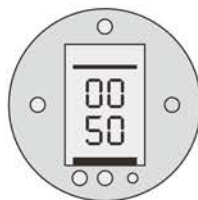


1. The green light, the valve position indicates the full position;
2. Yellow lamp, position in the position of valve position,
3. Red light, valve position indicating full open position.
4. The infrared remote indicator lamp
5. Infrared remote receiver,
6. Valve position display area,;
7. Status display area

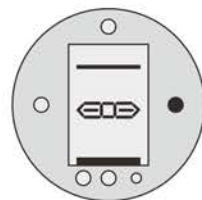
After turning on the power supply, LCD backlight and tips welcome to use the light is bright, displayed after 5 seconds, valve position display area can see current position of the valve, the corresponding indicator light will be lighted, status display area shows the current actuator actual working condition



Actuator has reached the set closed limit position

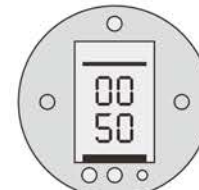


Actuator positioned at 50% Yellow lights

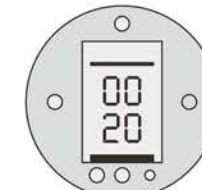


Actuator has reached the set open limit position

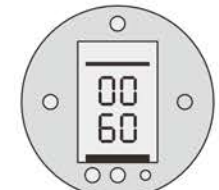
6.1.2 normal running status indicator



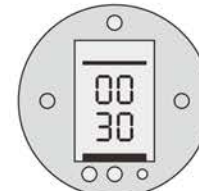
The knob stops and stops



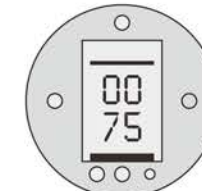
Knob position, Close the valve position and the current valve position is 20%



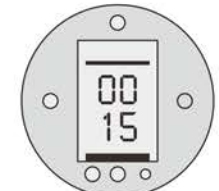
Knob position, open the valve position and the current valve position is 60%



The valve is closed by remote operation and the current valve is 30%



The valve is opened by remote operation and the current valve is 75%



Local manual state

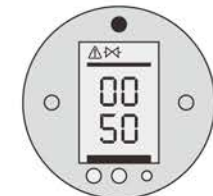
6.1.3 Alarm status indication

Closing valve 7 seconds alarm

Open valve 7 seconds alarm



In the off valve operation control system valve position signal is broken (7 seconds not detected) caused by the valve position signal loss, the alarm display, electric operation is prohibited, when the actuator reverse operation re-detection To the effective signal, the alarm is released



In the open valve operation control valve position signal is broken (7 seconds not detected) caused by the valve position signal loss, the alarm display, electric operation is prohibited, when the actuator reverse operation re-detection To the effective signal, the alarm is released

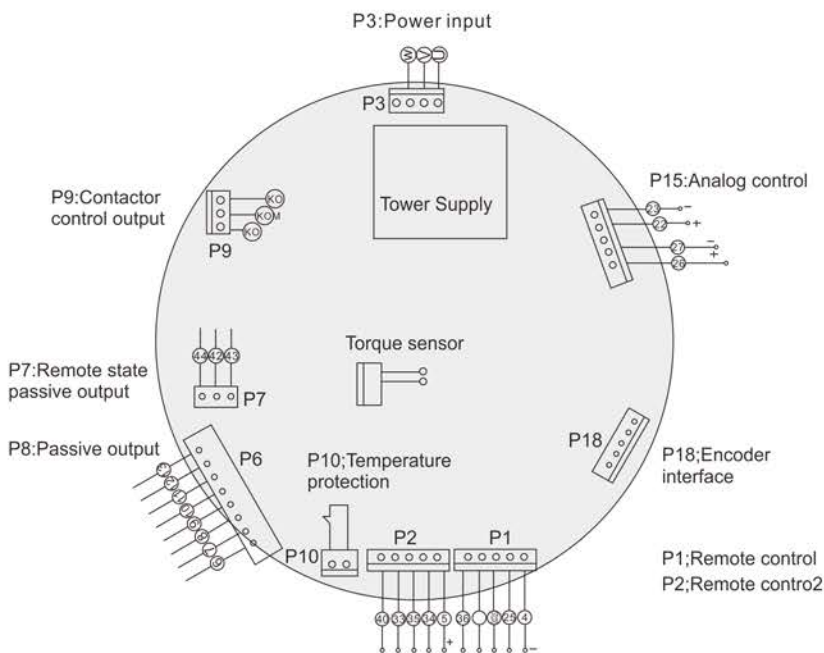


Torque alarm

Torque alarm:When the actuator is running, if torque value exceeds the maximum torque setting in the running direction, the torque trip protection is carried out. In this direction, the electric operation is prohibited and the actuator is in the opposite direction Operation, Eliminate Alarm Indication: If you need to change the torque setting, you can enter the menu to make changes, and the torque protection is automatically released

7 System internal wiring

7.1 internal terminal diagram



Electric actuator alarm



Electric actuator alarm:the actuator detected a fault, the alarm can be used to enter the parameters of the remote control to see the query (see parameter view), the emergence of the alarm investigation, the implementation of the normal detection.Alarm cancellation actuator alarm is full. Power supply is missing. Motor overheating.System internal power failure

7.1 System Tip



The motor line is reversed

The motor line is reversed;refers to the motor running direction and valve position is inconsistent, the motor line can be any two-phase change can be divided by the fault, this situation, please turn the hand wheel to see if the valve with the valve

Control system alarm



Emergency alarm ESD

Emergency alarm ESD:the implementation of the agency will be preset according to the preservation, full open,fully closed positioning control operation, the emergency signal to eliminate when the elimination

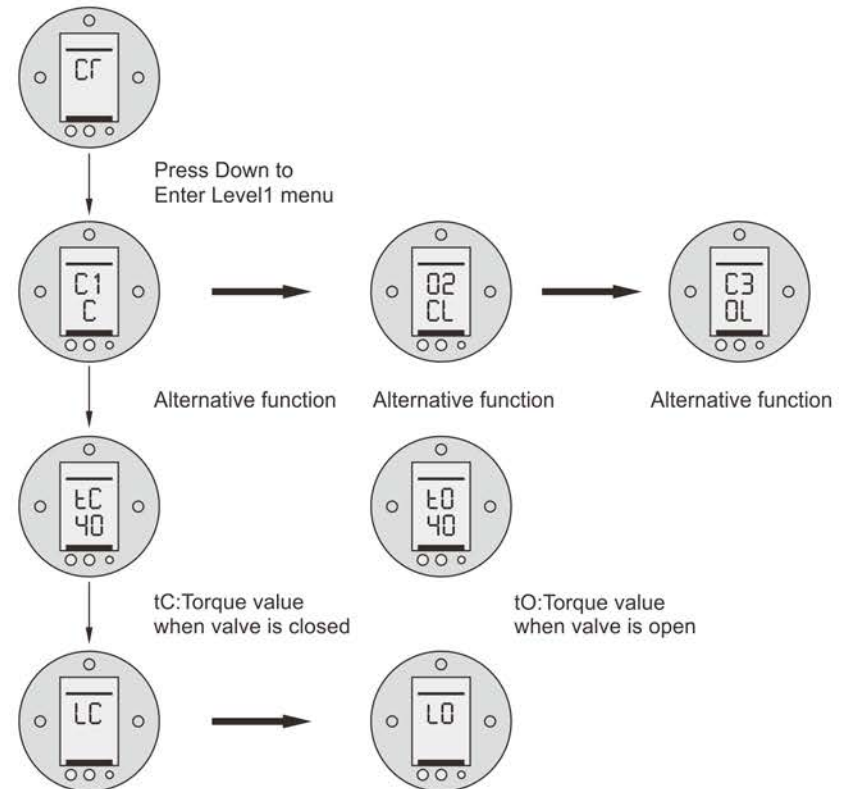
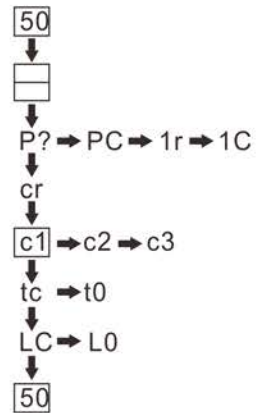
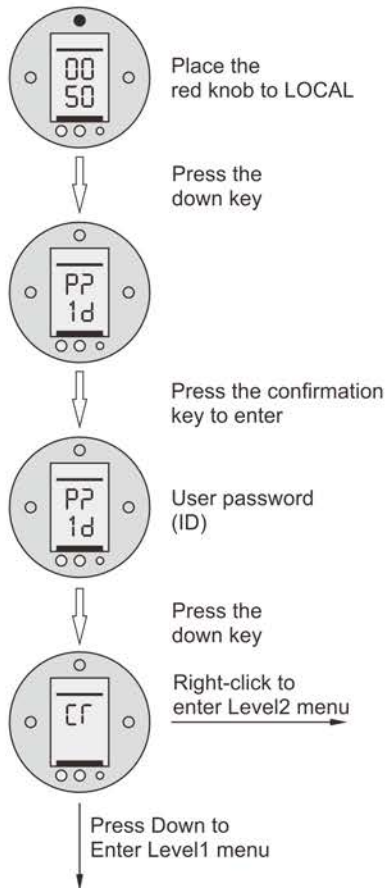


Remote break signal alarm

Remote break signal alarm:when the remote input control signal is lost, the display remote disconnect actuator will be based on pre-set to maintain, full open, all-optical positioning control operation, once the signal reply to disconnection display to eliminate

7.1 Function parameter setting

7.2.1 Operation diagram: The primary menu



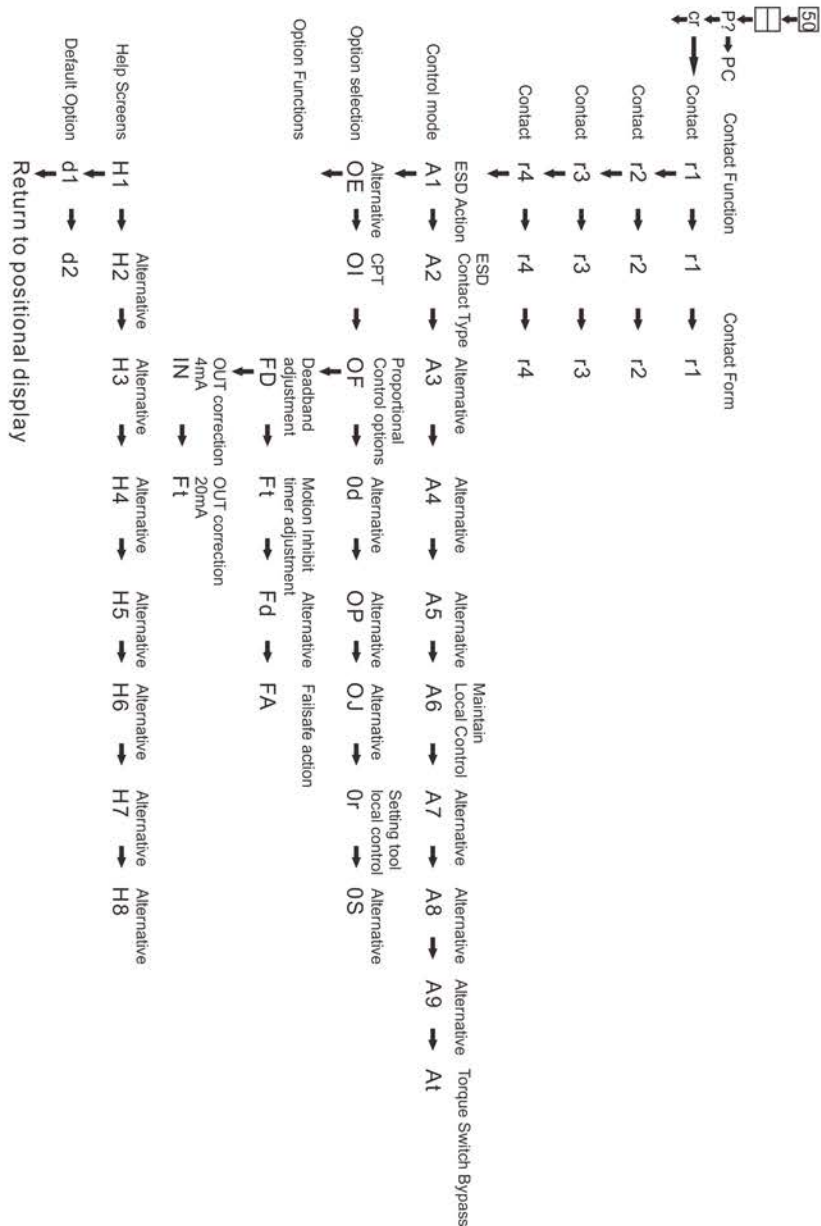
Closing limit setting Move valve manually to the closed position. Allow for overrun by winding actuator output open by 1/2 to 1 turn.
Press the confirmation key to save

Opening limit setting Move valve manually to the open position. Allow for overrun by winding actuator output closed by 1/2 to 1 turn
Press the confirmation key to save

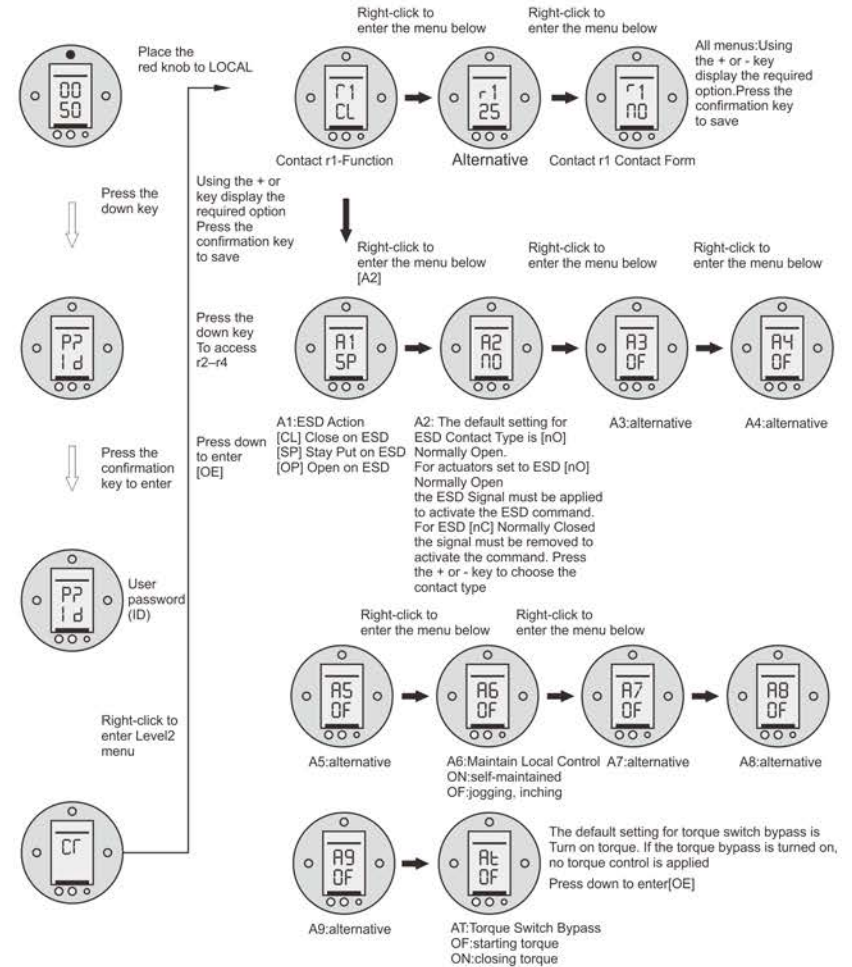
PRESS THE KEY
PRESS KEY EXITS

PRESS THE KEY
PRESS KEY EXITS

7.2.2 operation diagram, menu two



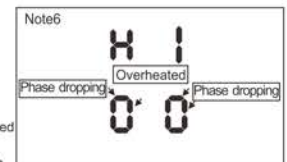
7.2.3 Level2 menu



Indication contacts [r1], [r2], [r3] and [r4] may each be set to trip for any one of the following functions:

Code Function (as displayed)	Code Function (as displayed)
CL: Closed Limit	T1: Torque Trip Mid
OP: Open Limit	DC: Closing
PO: Position % Open	DO: opening
TC: Torque Trip Close	D?: Moving
TO: Torque Trip open	ST: Motor Stalled
TT: Torque Trip	BA: NO such function
	LS: Stop Selected
	OI: NO such function
	C1: NO such function
	LL: NO such function
	TO: Torque Trip open
	LP: Lost Phase
	LO: Local Selected
	RE: Remote Selected
	?: NO such function
	RR: Motor Running
	UA: Valve Alarm
	ES: ESD Active
	HT: Thermostat Tripped
	CA: Control Alarm
	RP: NO such function

Similarly, r2, r3, r4 can be set



7.2.4 Level2 menu

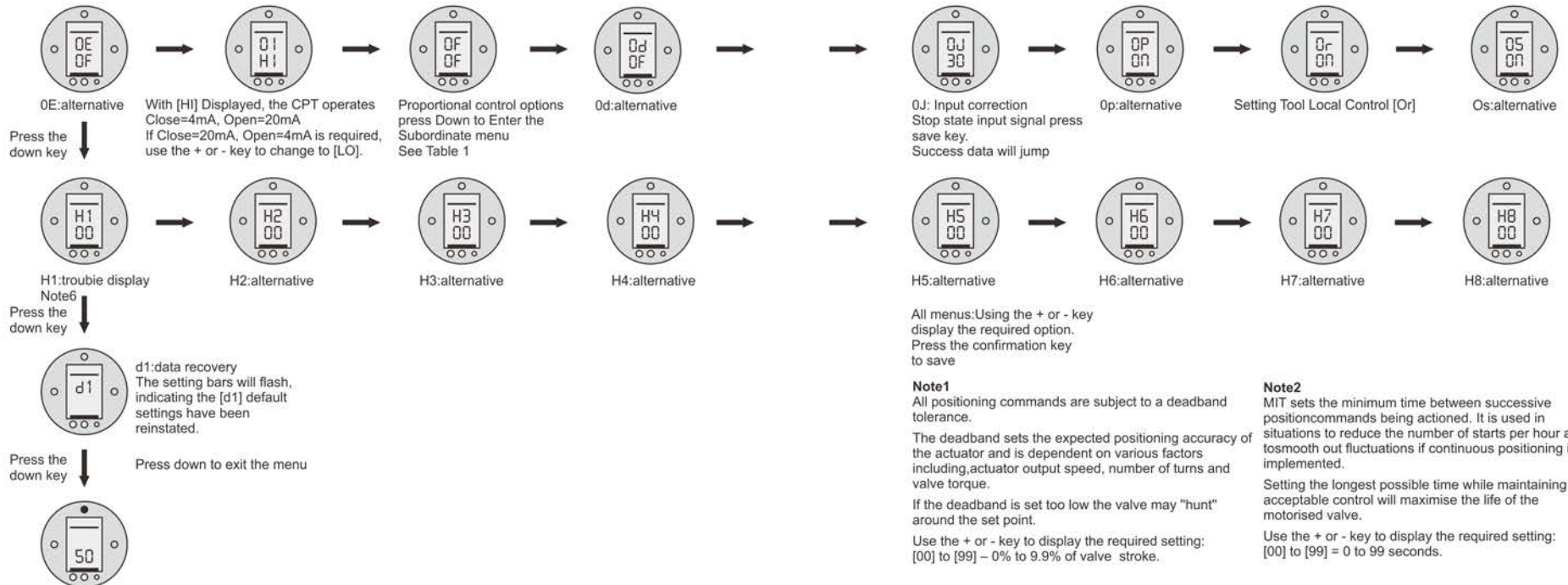


Table 1

Deadband Adjustment Note1	Motion Inhibit Timer Adjustment Note2	alternative	Failsafe Action Note3
OUT correction 4mA Note4	OUT correction 20mA Note5		

Note3: Use the + or - key to display the required setting:
[Lo] Go to Low SP position.
[SP] Stay put
[HI] Go to High SP position

Note 4: The actuator output lower limit full signal value, if the standard and the lower limit of the standard full signal error, you can press the +,-key to adjust the value, press the - key to confirm, press the- key to return

Note 5: The actuator output upper limit full signal value, if the standard and the upper limit full signal value error, you can press the + - key to adjust the value, press the - key to confirm, press the- key to return

8 Actuator control and wiring

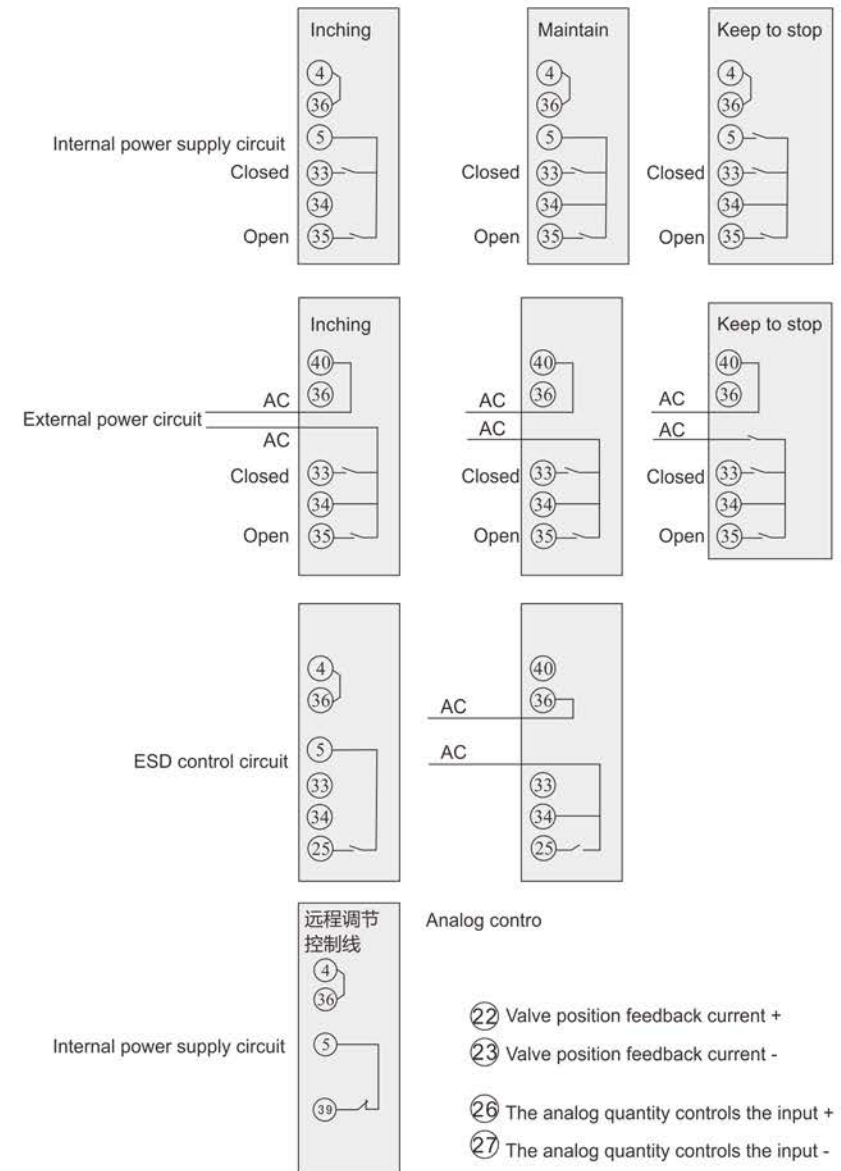
8.1 Actuator terminal wiring definition

Intelligent actuator terminal definition Intelligent electric actuator wiring is consistent with the function of the implementing agency, the customer according to the requirements of the automatic control system with the characteristics of the implementing agencies to connect, the implementing agencies have the function of the corresponding terminals are as follows:

①	} 380v power supply	②	} 380v power supply	②4	} ESD Emergency Protection Signal
②		③		②5	
③		④		②6	
(E)	Power cord	⑤	} Internal 24V DC power supply -	②7	} The analog quantity controls the input -
④	Internal 24V DC power supply -	⑥		②8	
⑤	Internal 24V DC power supply -	⑦		②9	
⑥	} Ifully Closed NC	⑧	} Ifully Open NC	③0	} Remote shutdown valve
⑦		③1			
⑧	} Ifully Open NC	⑩	} Status indication 1: Integrated fault	③2	} Remote maintenance
⑨		③3		Remote opening valve	
⑩	} Status indication 2: Over Torque	⑪	} Status indication 2: Over Torque	③4	} Remote open, Remote close, Remote stop 24VDC Common port-Vc
⑫		③5			
⑬	} Status indication 2: Over Torque	⑭	} Status indication 2: Over Torque	③6	} Analog contro: ON/OFF
⑮		③7			
⑯	} Status indication 2: Over Torque	⑰	} Status indication 2: Over Torque	③8	} Remote high voltage power supply(-)
⑱		③9			
⑲	} Status indication 2: Over Torque	⑳	} Status indication 2: Over Torque	④0	} Remote state relay
⑳		④1			
㉑	} Status indication 2: Over Torque	㉒	} Status indication 2: Over Torque	④2	} The remote:NO
㉓		④3			
㉔	} Status indication 2: Over Torque	㉕	} Status indication 2: Over Torque	④4	} The remote:NC
㉖		④5			
㉗	} Status indication 2: Over Torque	㉘	} Status indication 2: Over Torque	④6	} Modbus RTU(A-)
㉙		④7			
㉚	} Status indication 2: Over Torque	㉛	} Status indication 2: Over Torque	④8	} Modbus RTU(B+)
㉜		④9			

AC380V:1, 2, 3. AC220V:1, 2

8.1 Typical wiring diagram of the actuator



9 Common faults and troubleshooting methods

Symptom (alarm display)	Failure analysis	To deal with opinions
Electricity is not working	No display The detection shows whether the alarm message selection knob is placed in the stop bit	Check the external power supply for the alarm information to select the selection button placed in the field or remote state
On / off valve 7 seconds alarm	Operation of the actuator detects that the valve position has not changed abnormally	Manual rotation Check valve position sensor rotation is normal
Turn on / off torque	Actuator start or run the process, detects that the current torque exceeds the specified value	Manual rotation of the valve is stuck; torque protection value is set too small, the implementing agency selection is not correct
Remote disconnection	The remote input signal is not normal	In the parameter view to see whether the input signal is normal
Actuator alarm	Motor overheat power input missing phase system internal fault	In the parameter view to see whether the input signal is normal
The motor phase is reversed	The motor is running in the same direction as the valve position	Manually turn the hand wheel check, run the way is normal

10 Complete set of products

- Product manual 1;
- 2.Product inspection report 1;
- 3.Valve position sensor 1 set;
- 4. Battery 1 set;
- 5. Remote control 3 sets / only

11 Transportation and storage, installation

As the intelligent module is precision products in the transport pay attention to light, light release. Squeeze, strong collision, in order to avoid the impact, pressure. Drop damage to the quality of the produc should be stored in a non-corrosive gas and dry and ventilated environment, the battery can not be stored for a long time, the battery is valid for 3 years

The module wiring should be in good contact with the actuator as a whole