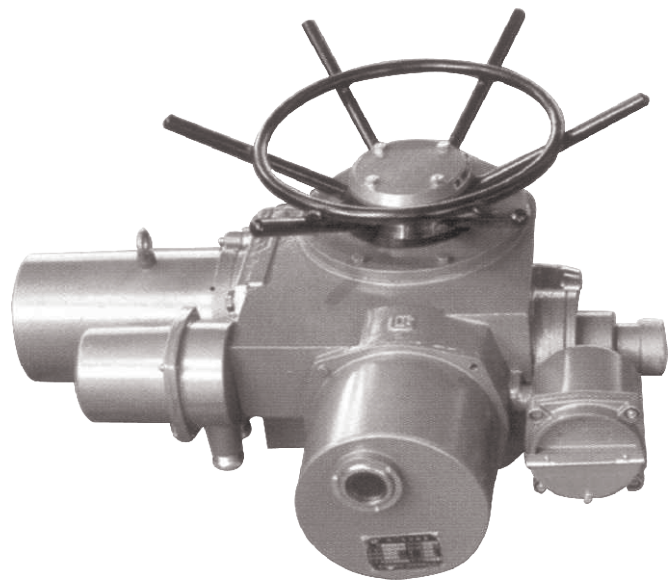


INSTRUCTION MANUAL

MULTI-TURN VALVE ELECTRIC ACTUATOR INSTRUCTION MANUAL



Before using the product, please read the manual carefully

◆ Unnecessary loss and accident could be avoided when you use the product appropriately! Please abide by the stipulations of the manual, as the accidental loss and accident are caused by inadvertence and negligence!

◆ Before the installation, place the electric actuator in the clean and dry room; if it's placed outside, it must be kept some height from the ground, and protected with moisture-proof and rain-proof measures.

◆ The intensity of the bolts connected with the valve should be no less than grade 8.8.

◆ After the installation and reassembly, during the first electrical operation, the valve must be placed in the middle to check the opening and closing direction and debug by turns according to the debugging requirement. It is brought into use only after each component is checked well.

◆ During the manual operation, push (or pull) the manual-electric switch handle according to the directions of arrow. If the switch handle can't be pushed to right position, you should push the handle at the same time turn the hand wheel, after it's switched over to the right position, the manual operation is ready. The turning direction of the hand wheel should be the same as that of output axis. Generally turn clockwise is to close the valve, and turn anticlockwise is to open the valve; during the electric operation, switch over the handle will make it automatic reset. Do not turn back the handle forcibly; otherwise it will damage the electric actuator.

◆ The sheath or cap of the valve handle should be turned tightly. During the repair or maintenance, the top should be covered to prevent the dust, sandstone or other exotic from entering the inner part to cause damage to the valve handle and valve stem nut.

◆ Do not open the sealing parts of the electric tank cover, motor, etc outside during the overcast and rainy days.

◆ The opening window should not be collided with the hard objects.

◆ Do not dismantle the tank cover connected with the electric parts and debug the electric actuator with power during the explosion surroundings. Before open the electric tank case, the power must be cut off.

◆ During the installation and dismantling for debugging, do not damage the sealing surface, the sealing element and the explosion proof surface of the explosion proof electric actuator. During the reassembly, cover and fasten the sealing parts tightly and make sure that the inlet and outlet between the electric tank cover and cable are sealed well to prevent the entering of rain and moisture to make the electric apparatus invalid and make the elements rust.

◆ This electric actuator applies the valve individual motor and it is short time duty system, so its continuous working period should not exceed the time stipulated on the name plate.

◆ When the valve is not used often, the periodic inspection and running should be undertaken. It's suggested that this should be undertaken once per month and the time should be within 10 minutes.

◆ When you have particular requirement on the surroundings, specification, performance parameter, connection dimension and circuit, etc for the electric actuator, our company could supply the product according to the technical agreement and commercial contracts, but we only provide the relevant electric schematic diagram.

1. General Instruction

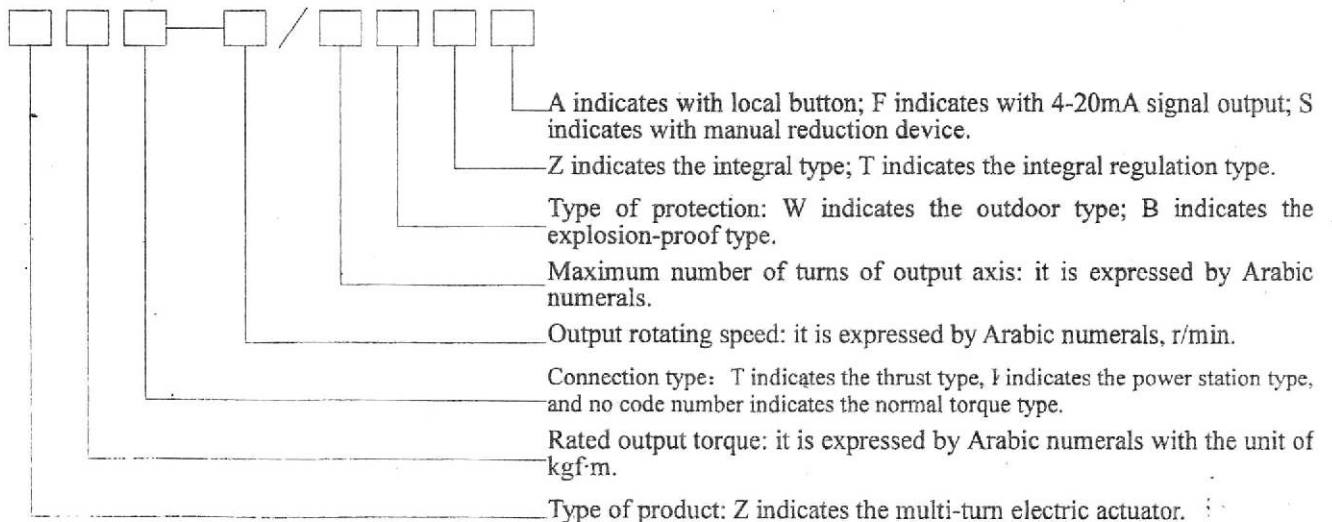
Multi-turn valve electric actuator, known by the name of Z-type, which is used for opening, closing or adjusting the valves, is an essential actuating device which can be used for remote control, centralized control and self control to the valves, with the features of comprehensive function, reliable performance, advanced control system, small volume, light weight, convenient application and maintenance and so on. It can be applicable to the valves, whose open-close parts will move in a straight line, such as gate valve, stop valve, diaphragm valve, anchor gate, water gate valve and so on.

The actuator can be used in the industries like electric power, metallurgy, petroleum, chemical engineering, paper-making, sewage disposal and so on.

There are many types for multi-turn electric actuator: outdoor type, explosion-proof type, integral type, integral-regulation type, integral explosion-proof type, integral-regulation explosion-proof type and so on. It can be divided into torque type and thrust type according to the connection type.

The performance of the product shall conform to the specification in JB/T8528-1997 *Technical Condition for Common Valve's Electrical Devices*. The performance of the explosion-proof product shall conform to the specifications in GB3836.1-2000 *The Electrical Equipment used in Explosive Gas Atmosphere: the first part: General Requirements*, GB3836.2-2000 *The Electrical Equipment used in Explosive Gas Atmosphere: the second part: Explosion-proof type "d"*, and JB/T8529-1997 *Technical Condition for Explosion-proof Valve's Electrical Devices*. And it has passed the verification of National Quality Supervision & Testing Centre for Explosion-proof Electrical Products, and has got the Conformity Certificate of Protection of the whole series. And we have got the manufacturing license of industrial products approved by General Administration of Quality Supervision, Inspection and Quarantine.

2. Presentation of Model



Sample of Model:

- 30I-18/50W: Indicate that the electric actuator is multi-turn; the output torque is $300\text{N} \cdot \text{m}$ ($30\text{kgf} \cdot \text{m}$); Power station interface; the output rotating speed is $18\text{r}/\text{min}$, and the maximum number of turns is 50; outdoor type.
- Z45T-24/120BS: Indicate that the electric actuator is multi-turn equipped with manual double reduction device; the output torque is $450\text{N} \cdot \text{m}$ ($45\text{kgf} \cdot \text{m}$); Thrust interface; the output rotating speed is $24\text{r}/\text{min}$, and the maximum number of turns is 120; explosion-proof type.
- Z120-24/80T: Indicate that the electric actuator is multi-turn; the output torque is $1200\text{N} \cdot \text{m}$ ($120\text{kgf} \cdot \text{m}$); The output rotating speed is $24\text{r}/\text{min}$, and the maximum number of turns is 80; integral-regulation type.

3. Operating Environment and Major Technical Parameters

3.1 Power supply: general: single-phase 220V, three-phase 380V (50Hz), long distance DC24V
Special: single-phase 110V, three-phase 415V, 660V, (50Hz, 60Hz)

3.2 Operating environment:

3.2.1 Ambient temperature: -20~+60°C (special order -60~+80°C)

3.2.2 Relative humidity: 95% (when 25°C)*

3.2.3.1 The outdoor type can be used in the places without inflammable/explosive and corrosive medium;

3.2.3.2 There are two types of explosion-proof products: d I can be applicable to non-excavating working area for coal mine, and d IIBT4, which is applicable to the environment with II A, II B grade T1~T4 explosive gas mixture, can be used in the factory. (For details refer to GB3836.1)

3.2.4 Degree of protection: the outdoor type and explosion-proof type is IP55、IP65、IP67.

3.3 Working time: 10 minutes for short time (special order can reach to 15-60 minutes)

3.4 Refer to Table 1 for the model and major performance parameter.

Table 1

Model & Spec.	Torque (N·m)	Thrust (KN)	Maximum diameter of valve stem (mm)	Manual ratio	Output rotation speed (r/min)	Motor power (KW)	Current (A)	Referential weight (Kg)
Z5	50	20	28	1:1	12/36	0.12/0.18	0.57/0.83	28
Z10	100	40	28	1:1	18/36	0.25/0.37	1.03/1.38	45
Z15	150	40	28	1:1	18/36	0.37/0.55	1.38/2.2	46
Z20	200	100	40	1:1	18/36	0.37/0.75	1.38/2.62	56
Z30	300	100	40	1:1	18/36	0.55/1.1	2.2/4	58
Z45	450	150	48	1:1/20:1	24/36	1.1/1.5	4/4.12	110
Z60	600	150	48	1:1/20:1	24/36	1.5/2.2	4.12/5.25	112
Z90	900	200	60	1:1/25:1	24/36	2.2/3	5.25/7.9	140
Z120	1200	200	60	1:1/25:1	24/36	3/4	7.9/8.87	142
Z180	1800	325	70	22.5:1	18/36	4/7.5	8.87/15.6	250
Z250	2500	325	70	22.5:1	18/36	5.5/10	12.05/20.5	255
Z350	3500	700	80	20:1	18/24	7.5/10	15.6/20.5	330
Z500	5000	700	80	20:1	18/24	10/15	20.5/26.6	350

Note: If user requires, we could provide the products with other rotation speed: 12/18/24/30/36/42/48/60(r/min)

Normally, we provide the products with treble counters. If the number of turns is large, give clear indication of it when placing an order, we can provide the products with quadruple counters.

4. Outline and connection dimension

4.1 Outline and outline dimension (refer to Figure 1 and Table 2)

Table 2 Outline Dimension

Model	H	H1	L1	L2	L3	F	F1	F2	F3	F4	ΦD
Z5	271	96	158	226	249	158	259	-	310	-	316
Z10/Z15	282	113	150	238	287	150	236	313	332	354	300
Z20/Z30	316	130	200	238	295	200	255	317	349	374	400
Z45/Z60	415	195	277	277	394	230	275	391	369	394	460
Z90/Z120	453	195	281	281	412	278	310	426	404	429	556
Z180/Z250	585	250	320	320	474	295	360	476	455	476	320
Z350/Z500	717	280	399	399	1076	433	417	442	417	542	565

Note: 1) L1 is outdoor type / explosion-proof type; L2 is integral type / integral explosion-proof type; L3 is integral explosion-proof type / integral regulation explosion-proof type.
2) F1 is outdoor type; F2 is explosion-proof type; F3 is integral type; F4 is integral explosion-proof type / integral regulation explosion-proof type.

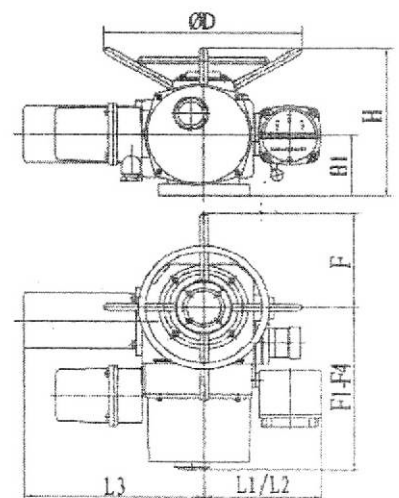
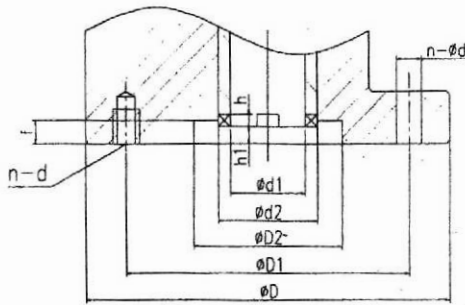
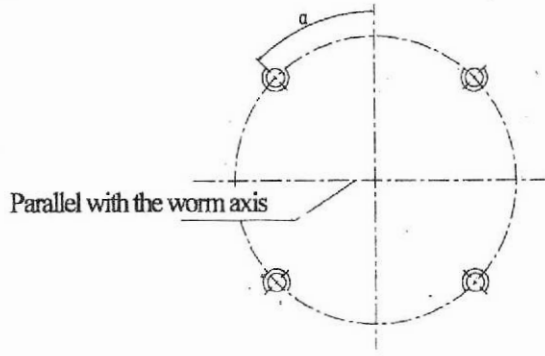
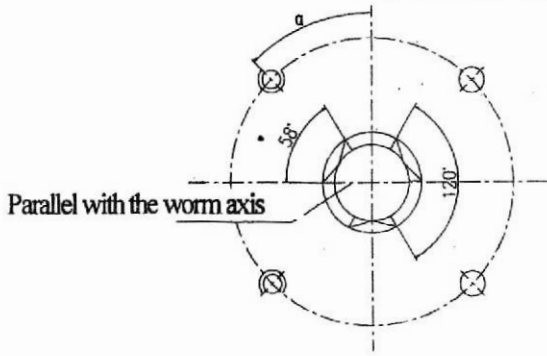
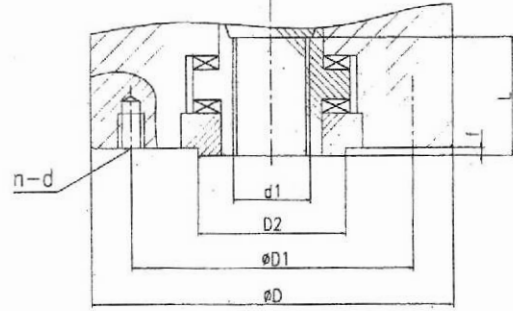


Figure 1 Outline Drawing

4.2 The structural schematic drawing and dimension of the connection with the valves



Refer to Figure 2 and Table 3 for Connection dimension of the torque type



Refer to Figure 3 and Table 3 for Connection dimension of the thrust type

Table 3 Connection Dimension

Model	Torque type JB2920											Thrust type GB12222																
	Flange No	D	D1	D2 (H9)	h1	f	h	d1	d2	d	n	α	Flange No	D	D1	D2 (F8)	f	d1 max	d	L	n	α						
Z5/10/15	2	145	120	90	4	4	8	30	45	M10	4	45°	F10	125	102	70	3	T28	M10	40	4	45°						
	2I	115	95	75			6	26	39	M8			F14	175	140	100	4	T36	M16	55								
Z20/30	3	185	160	125			2	5	10	42			58	M12	5	22.5°	F16	210	165	130			5	T44	M20	70	8	22.5°
	3I	145	120	90					8	30			45	M10			F25	300	254	200				T60	M16	90		
Z45/60	4	225	195	150	3	6	12	50	72	φ18	6	22.5°	F30	350	298	230	6	T70	M20	110	8	22.5°						
Z90/120	5	275	235	180			14	62	82	φ22			5	22.5°	F35	415		356	260	5			T80	M30	150			
	5I	230	195	150	12	50	72	φ18	8	22.5°	F35	415			356	260	5	T80	M30		150							
Z180/250	7	330	285	220	3	6	16	72					98	φ26						6		22.5°	F35	415	356	260	5	T80
Z350/500	8	380	340	280			20	83	118	φ22	8	22.5°	F35	415	356	260	5	T80	M30		150							

5. Structure

Z type electric actuator is consisted of motor, speed reducer, torque controller, motion controller, opening position indicator, manual-electric shifter, hand wheel and electric parts. The conventional type is sealing with ground surfaces; the outdoor type applies the round rabbet and o-seal ring seal; The explosion-proof type has the same sealing structure as the outdoor type, is added by the explosion-proof surface, and applies explosion-proof type connecting box and three phase motor used for the outdoors, anti corrosion, explosion-proof type electric valve of the YBDF series. The transmission principal is shown on Figure 4.

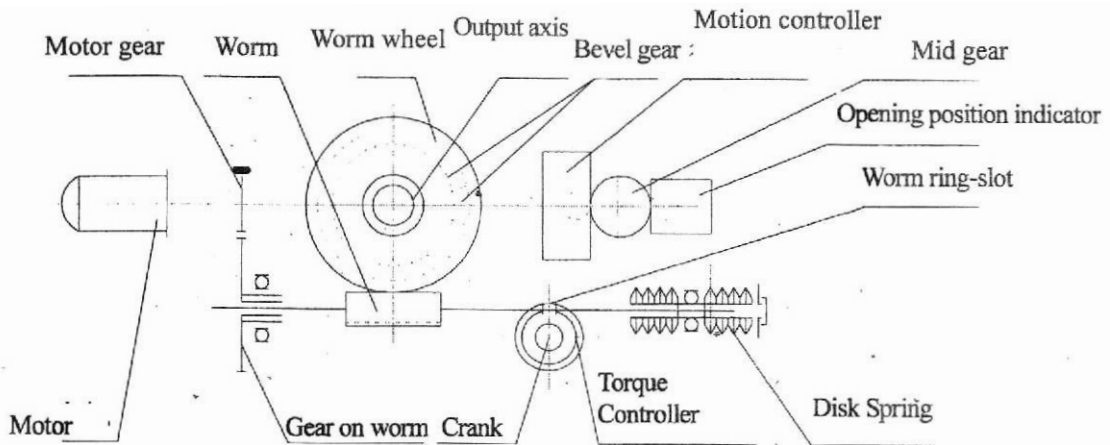


Figure 4

5.1 Motor: The outdoor type applies the YDF type, the explosion-proof type applies the three phase asynchronous motor dedicated for the YBDF type valve.

5.2 Speed reducer: it is consisted of one pair of spur gear and worm gear. The motive power of motor is transmitted to the output axis through the speed reducer.

5.3 Torque controller:

The torque controller is divided into the outdoor type and explosion-proof type. Refer to Figure 5 for the structure.

5.3.1 The outdoor type series: When the output axis is subject to some torque, besides the rotation, the worm also generates the axial displacement and drives the crank. During the crank movement, it drives the axis and cam to compress the sensitive switch to cut off the motor power and stop the motor rotation. In this way, the output torque of the electric actuator is controlled to protect the electric valve.

5.3.2 The explosion-proof type: When the output axis is subject to a certain torque, besides the rotation, the worm also generated the axial displacement and drives the crank to make the block generate the angular displacement, to compress the cam to uplift the bracket. When the torque on the output axis increases to the setting torque, the bracket is uplifted until the sensitive switch moves to cut off the motor power and stop the motor rotation. In this way, the output torque of the electric actuator is controlled to protect the electric valve.

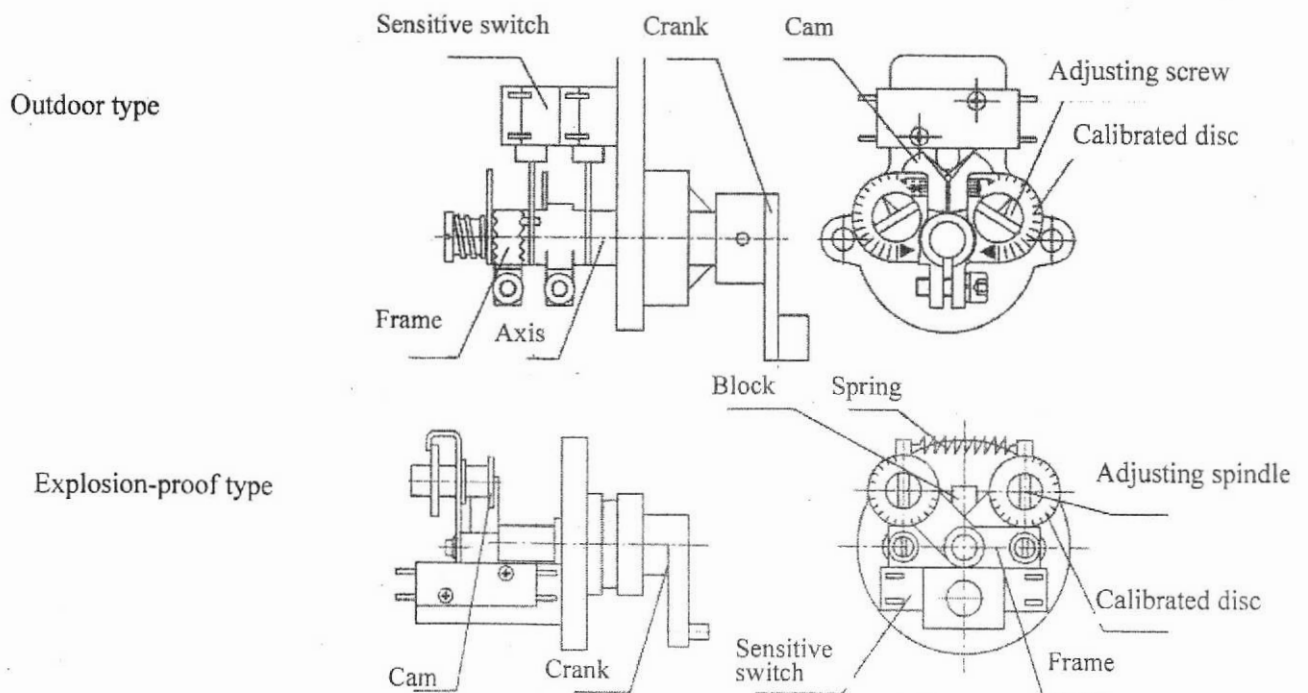


Figure 5

5.4 Motion controller:

It applies the principal of decimal counter with high control accuracy. It is the complete line of general purpose part, and we can refer to Figure 6 for its structure. The following is the operating principal of the motion controller: one pair of big and small bevel bears inside the reduction gearbox will drive the driving pinion ($Z=8$), and then drive the motion controller to work. If the motion controller has been regulated according to the open position and close position of valve, and when the controller turns to the preset position (number of turns) along with the output axis, the cam will turn 90° to drive the sensitive switch to actuate, which can cut the motor power supply, and stop the motor, and so achieve the control to the travel (number of turns) of electric actuator.

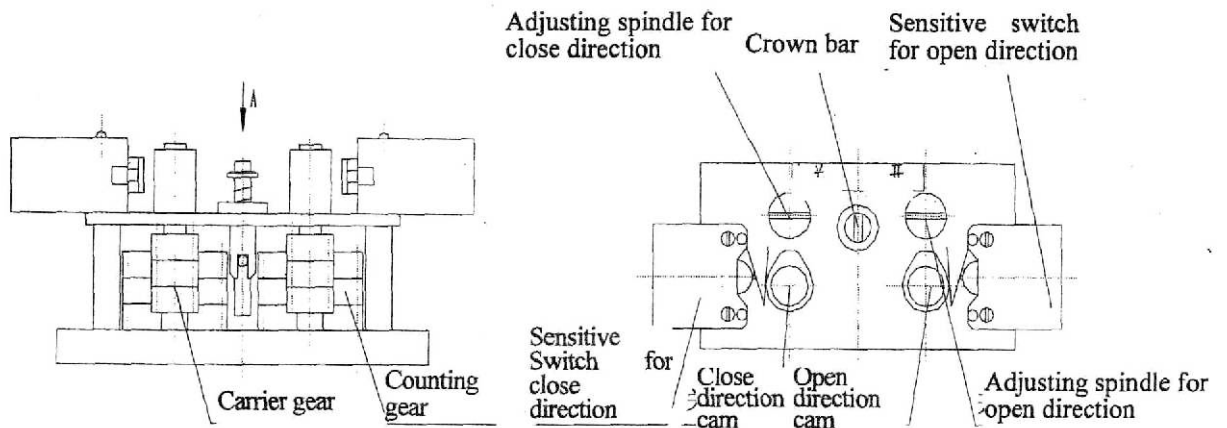


Figure 6

5.5 Opening position indicator:

It is the complete line of general purpose part, and we can refer to Figure 7 for its structure. Input gear is driven by the units order gear of counter, and after speed reduction, the indicator disc will rotate together with the opening and closing process of the valve to indicate the opening or closing of the valve. The axis of the potentiometer and indicator disc turns synchronously for the remote transmitting opening indication, and move the aligning gear for number of turning can change the number of turning. Inside the opening indicator, there are a sensitive switch and cam, and when the electric actuator runs, the rotating cam will make the sensitive switch actuate periodically with the frequency of working once or twice when output axis rotates one circle, which can be used for flashing signal etc.

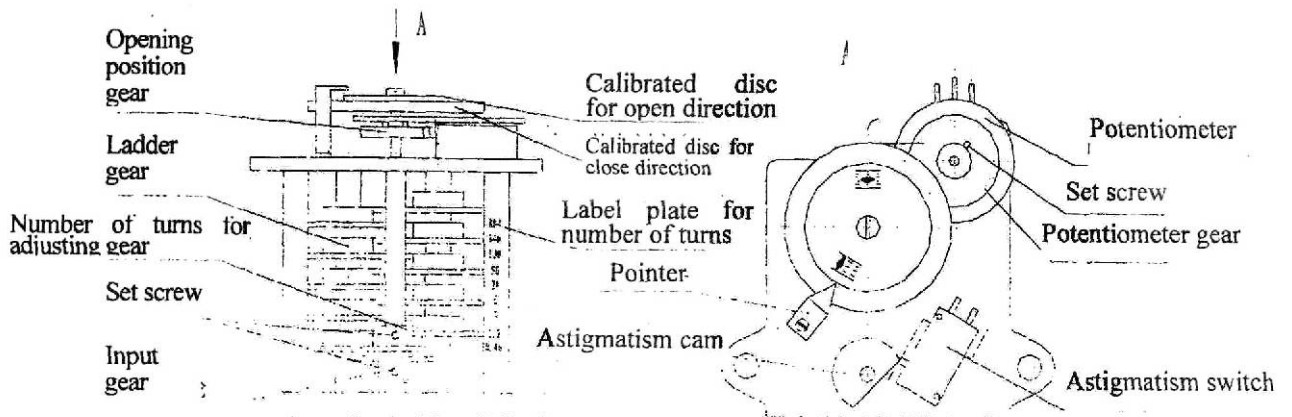


Figure 7

5.6 Manual-Electric shifter:

It is the semi automatic switch with its structure referring to the Figure 8, which consists of handle, cam, frame, upright rod, middle clutch, compressed spring and so on. When operating with handle, first push the switch handle to the position of manual operation, the cam will turn together with the handle axis, which will make the frame supporting on the cam surface be uplifted, and at the same time, the middle clutch, which is on the frame, and can make axial movement on the output axis, will be uplifted too, and compress the compressed spring. When the handle is pushed to certain position, the middle clutch will disengage with worm wheel, whereas it will engage with hand wheel, and then the acting force on the hand wheel will be transmitted to the output axis through the middle clutch, which turns into the manual operation state. When the frame is uplifted to a certain height, under the action of torsion spring, the upright rod fixed to the frame will stand erect on the end face of the worm wheel to support the frame in order to make the middle clutch not fall down. After pushed to the manual operation position, the handle can be released, and then carry on the operation with hand wheel. When the motor drives the turning of the worm wheel, the upright rod will come to the ground, and the middle clutch will move towards the direction of worm wheel rapidly, and engage with worm wheel, at the same time disengage with the hand wheel, which turns into the electric state. (When using manual switching, if you can not switch to the manual position, please switch over the handle and at the same time turn the hand wheel.)

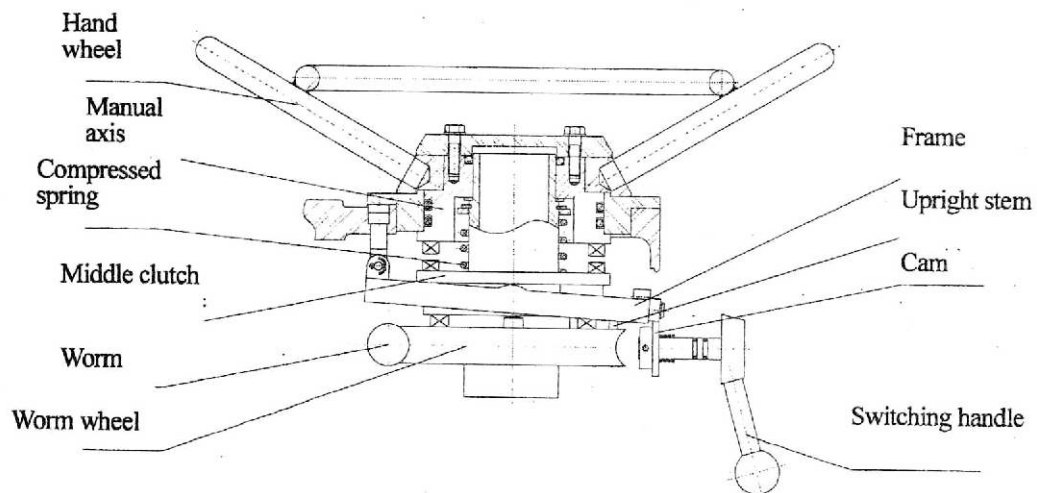


Figure 8

5.7 Integral type and integral adjusting type:

Integral electric actuator is produced on the basis of normal and common electric actuator. Its electric components are mounted on a turnover plate, so as to adjust the torque controller, motion controller and opening position indicator. There are three buttons on the button box, the middle button is for local/remote control switching, the left button is for closing valve locally, and the right button is for opening valve locally. Closing the cover of button box can start the remote control, and opening the cover can start local operation

Refer to Figure 9 for the structure of electric control section.

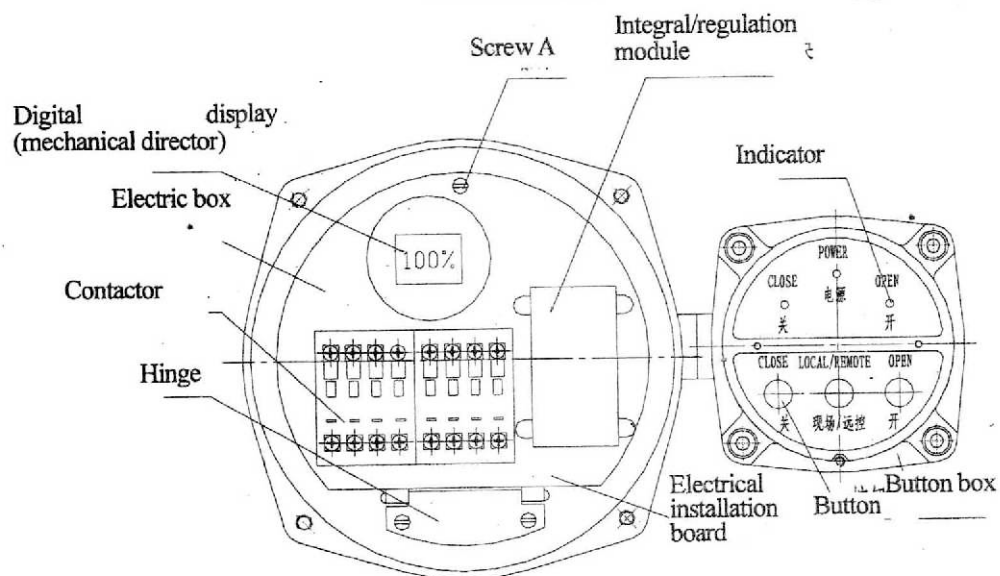


Figure 9

5.8 The schematic diagram of electric control

5.8.1 Refer to the Figure 10 for the schematic diagram of electric control of outdoor type and explosion-proof type.

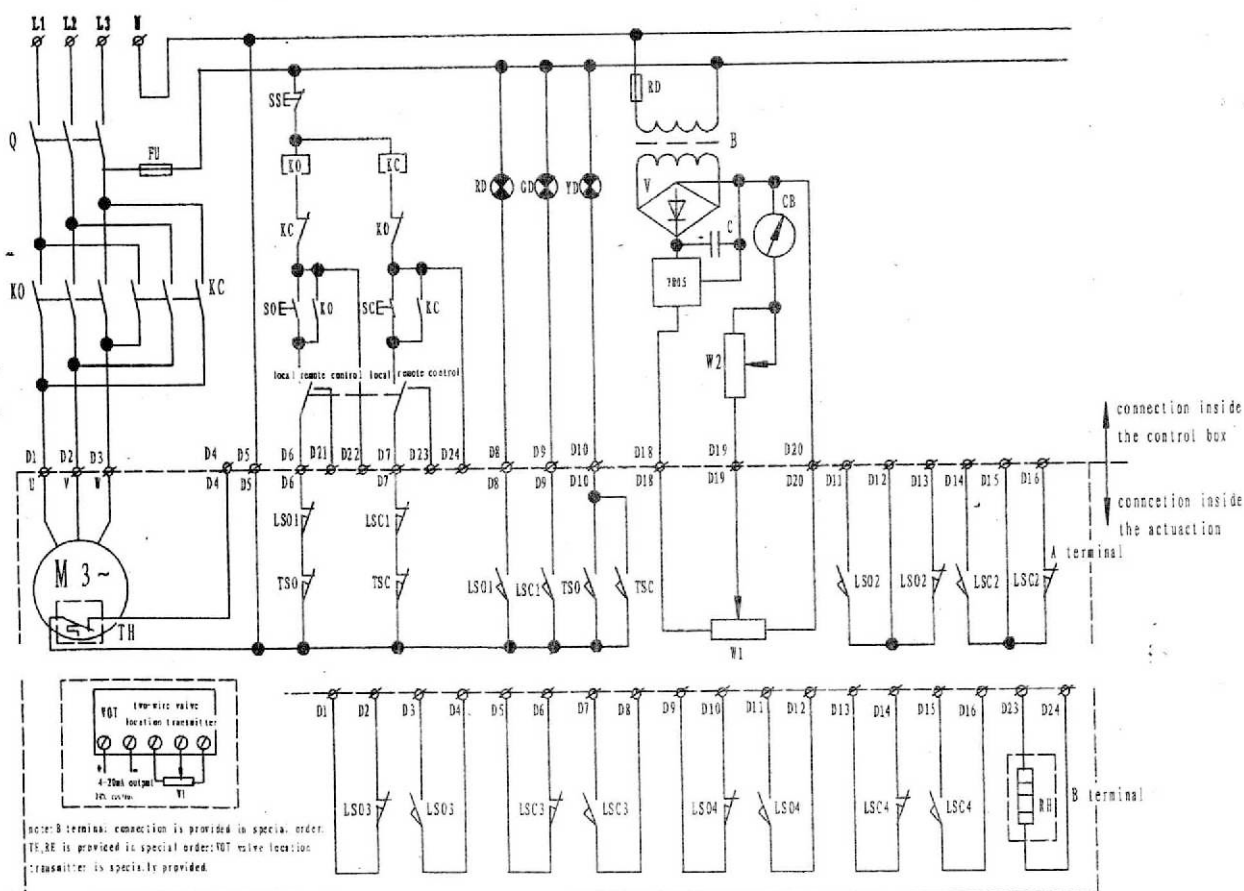


Figure 10

5.8.2 Refer to the Figure 11 for the schematic diagram of electric control of integral type and integral explosion-proof type.

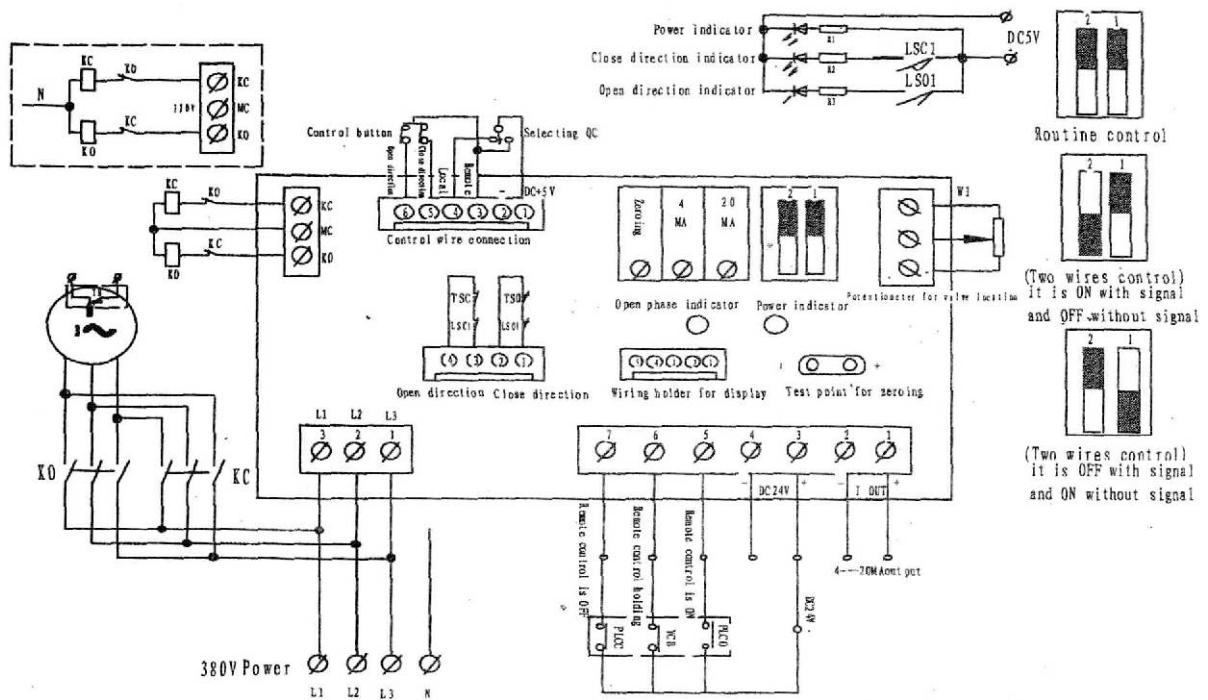


Figure 11

5.8.3 Refer to the Figure 12 for the schematic diagram of electric control of integral adjusting type and explosion-proof integral adjusting type.

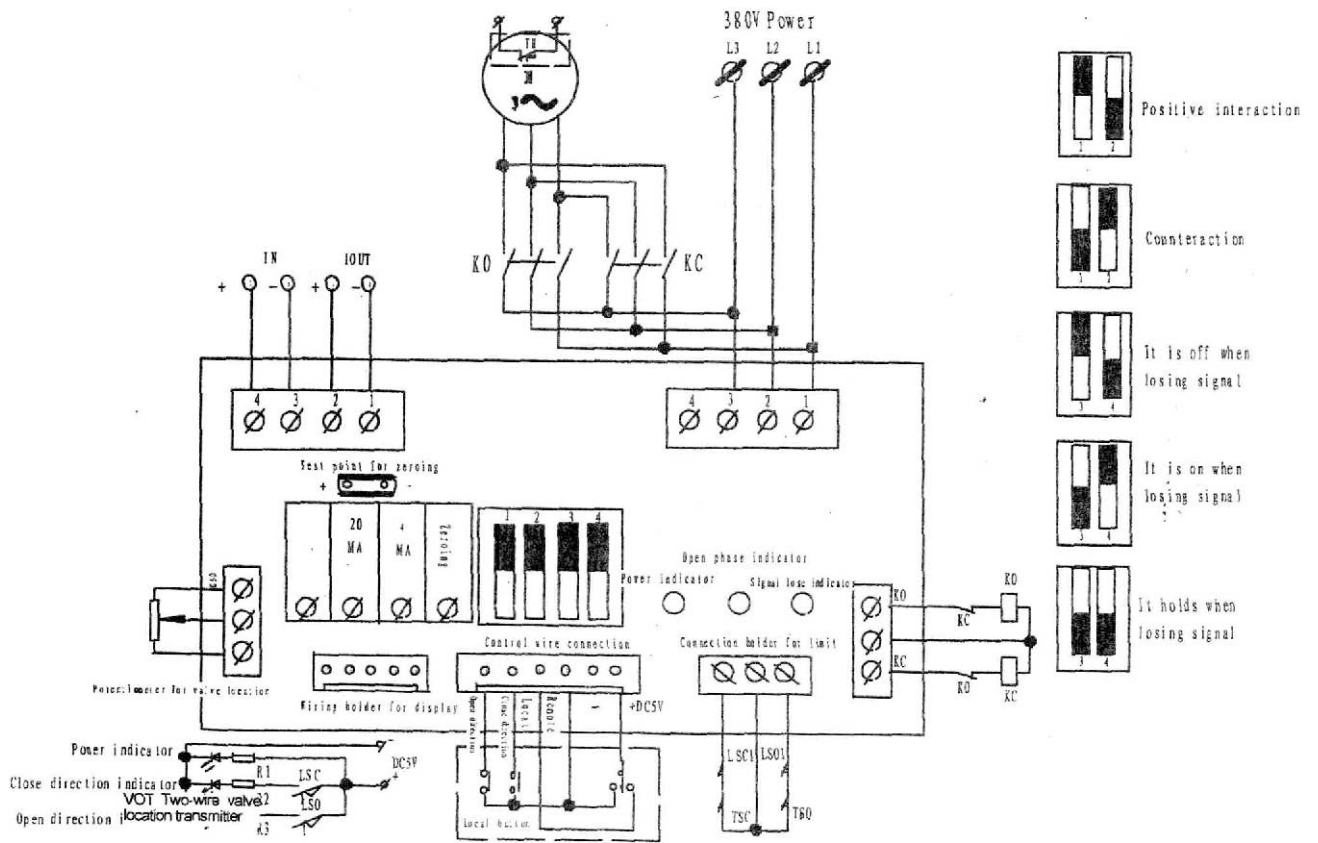


Figure 12

5.9 Wire connection

5.9.1 Refer to the Figure 13 for the connection diagram of outdoor electric actuator.

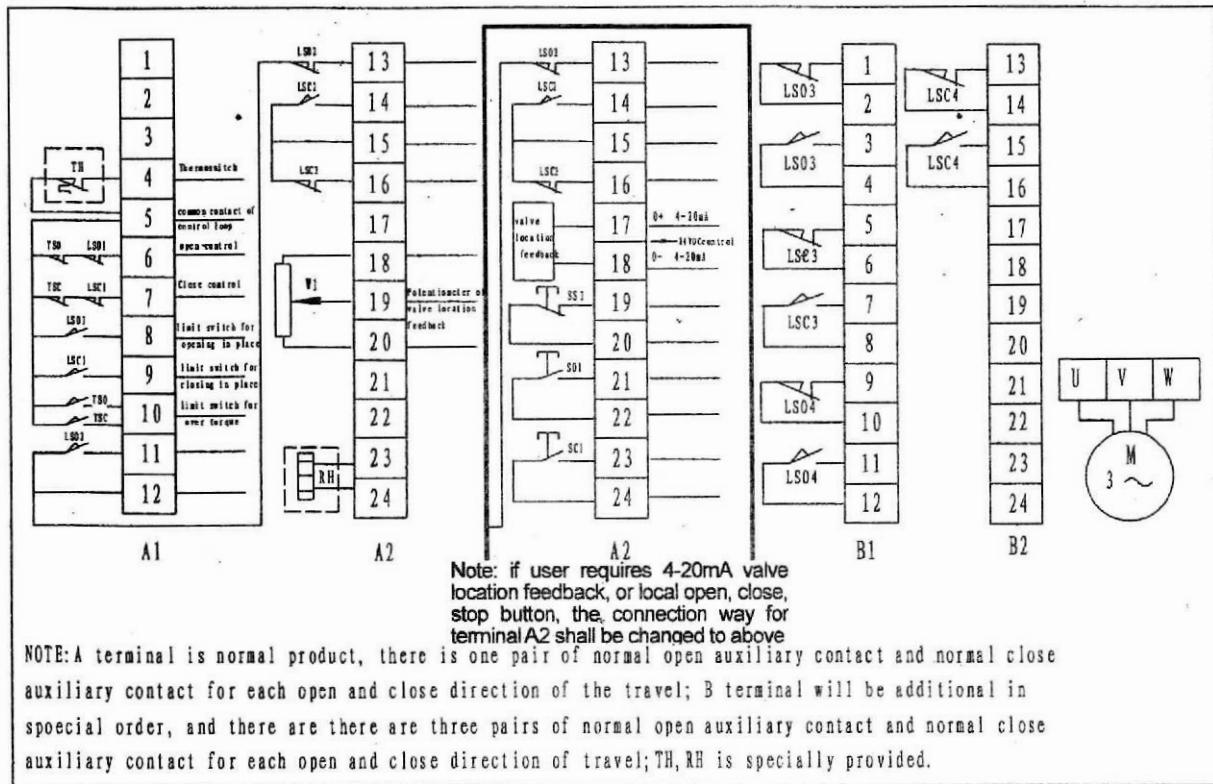


Figure 13

5.9.2 Refer to the Figure 14 for the connection diagram of explosion-proof type electric actuator.

The wiring for terminal shall be reliable, and shall refer to the wiring way indicated in Figure 15, and shall use the elbow to clamp the wire. The electric clearance among the current carrying parts with different electric potential inside the connection box shall conform to the following requirements:

When the voltage is 220V, the electric clearance shall not be less than 6mm, and when the voltage is 380V, it shall not be less than 8mm. Inside the connection box, there are two introducing devices, one is for introducing the power cable of motor, and the other is for introducing the control cable. The used power cable must be equipped with ground wire which shall be connected to the earth terminal on the patch board. Refer to the Figure 16 and Table 4 for the diameter and specification of service cable. After finishing the wiring connection, we shall fix the pinch off seal ring with the Shore hardness of 45~ 55 degree and we shall replace the damaged and aged seal ring in time.

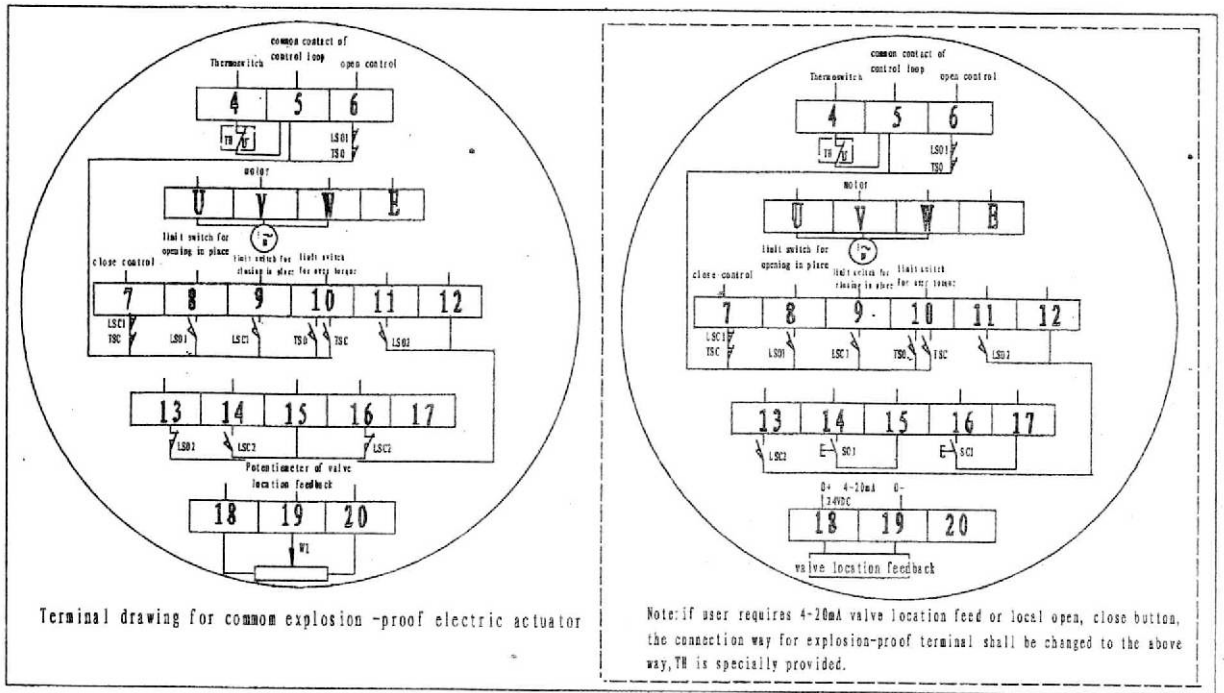


Figure 14

Note: if the number of terminals is not enough, please raise it when placing an order.

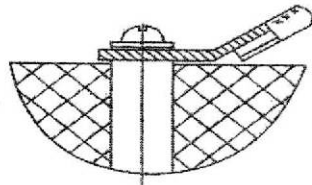


Figure 15 Terminal connection way

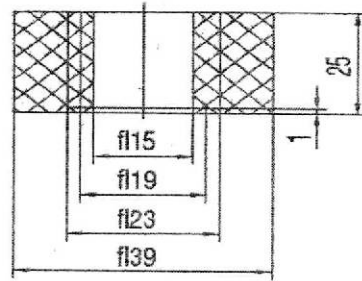


Figure 16 seal ring

Table 4 the diameter of the cable

The bore diameter of concentricity slot of seal ring (mm)	Φ15	Φ19	Φ23
The nominal diameter of permissible service cable (mm)	Φ15±1	Φ19±1	Φ23±1

5.9.3 Refer to Figure 17,18,19,20 for the terminal connection diagram of Integral type, integral explosion-proof type, integral regulation type, integral regulation explosion-proof type separately.

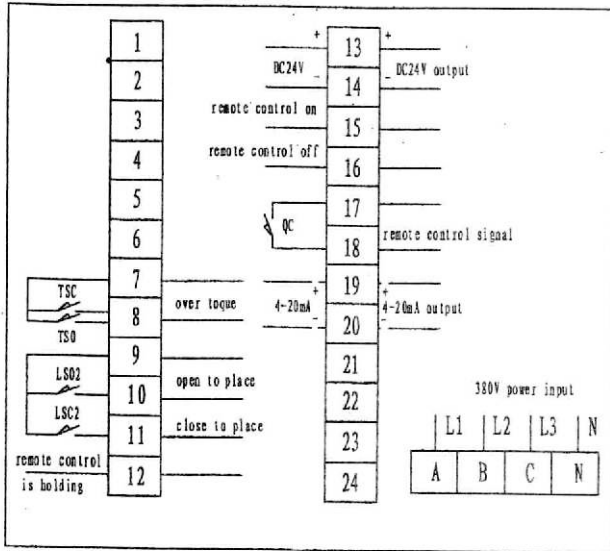


Figure 17 Terminal drawing for integral switching type electric actuator

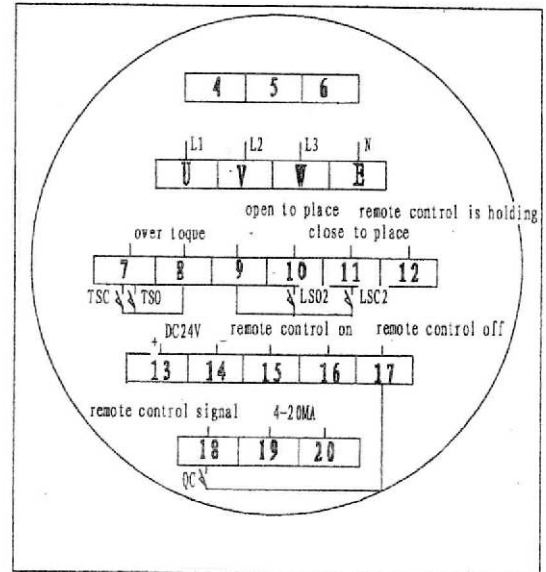


Figure 18 Terminal drawing for integral explosion-proof switching type electric actuator

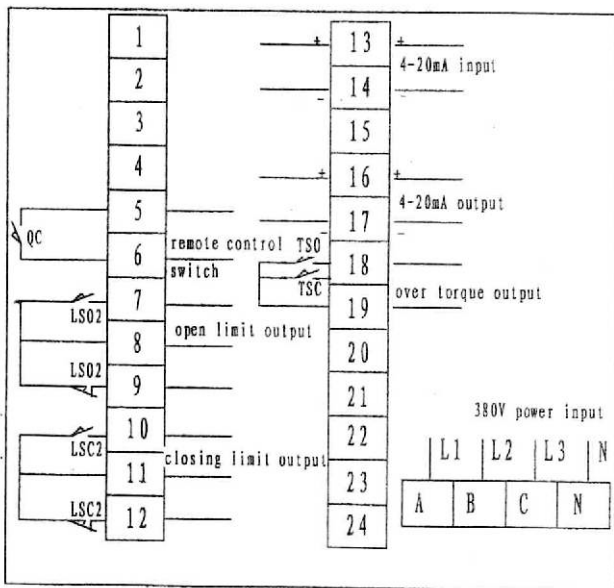


Figure 19 Terminal drawing for integral regulation explosion-proof switching type electric actuator

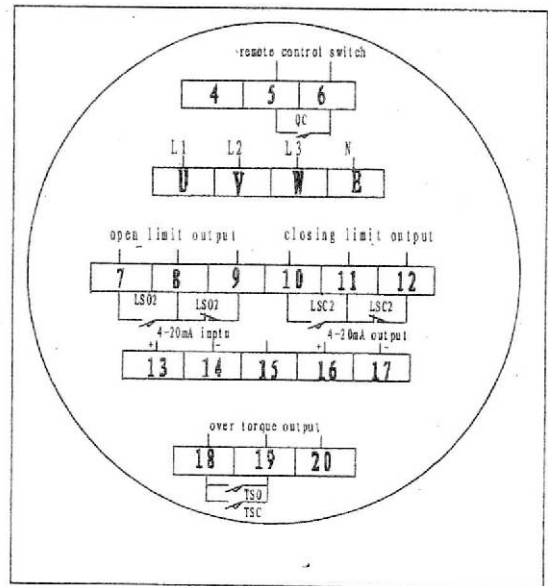


Figure 20 Terminal drawing for integral regulation explosion-proof switching type electric actuator

6. Adjustment After assembling the electric actuator and valve, the torque controller, motion controller, and opening position indicator must be adjusted separately, and then it can be used.

Before adjusting, we must check that if the potentiometer in the opening position indicator has been disengaged (loose the set screw of gear on the potentiometer axis) in order to prevent the damage; we shall check the turning direction of motor and check if the control wiring is correct in order to make sure that the motor will not be out of control.

The torque controller, motion controller and opening position indicator of the Z-type electric actuator are the same, so the adjusting way is same.

6.1 The adjustment for torque controller (refer to Figure 5)

Before delivery, the torque has been adjusted according to the requirements of users, so normally additional adjustment is not required. If the user wants to change the setting value, he can rotate the adjusting axis of the cam to the relative scale, first adjust the closing position, and then adjust the opening position.

6.2 the adjustment for motion controller (Refer to Figure 6)

6.2.1 The adjustment for the complete closing position

- a) close the valve manually;
- b) force down the crown bar with screwdriver, turn 90° , and seize up it, in order to make the driving pinion (eight-gear) disengage with the unit pinion of counter completely;
- c) Turn adjusting axis for closing position according to the arrow of closing until the closing position cam actuates;
- d) Turn the crown bar to the original position to make the driving pinion (eight-gear) engage with the unit pinion at the both sides of the counter accurately, and at this point, you must rotate the closing position adjusting axis with screwdriver to ensure its accurate engagement.

6.2.2 The adjustment for the fully opening position

- a) Open the valve to the required position manually;
- b) force down the crown bar with screwdriver, turn 90° , and seize up it, in order to make the driving pinion (eight-gear) disengage with the unit pinion of counter completely;
- c) Turn adjusting axis for opening position according to the arrow of opening until the opening position cam works;
- d) Turn the crown bar to the original position to make the driving pinion (eight-gear) engage with the unit pinion at the both sides of the counter accurately, and at this point, you must rotate the opening position adjusting axis with screwdriver to ensure its accurate engagement.

6.3 The adjustment of opening position indicator (refer to Figure 7)

After having adjusted the torque and travel, adjust the onsite opening position indicator and supervisory control potentiometer with the methods as follows:

- a) Move the number of turns to adjust the gear to the required position of number of turns;
- b) Hitch the potentiometer gear, screw down the fixing nut of potentiometer, and make sure that the set screw of potentiometer gear is loose;
- c) Close the valve manually or electrically, and observe the turning direction of the potentiometer gear in the face of the indicator disc;
- d) Turn closing indicator disc to make the sign for closing position aim at the pointer;
- e) According to the observed turning direction of the potentiometer gear, turn the potentiometer axis to make it approach the terminal position, and then screw down the set screw;

- f) Operate the valve to the fully opening position electrically or manually, keep the closing position calibrated disc stationary, and turn the opening indicator disc to make the sign for opening position aim at the pointer;

Operate the valve electrically to check the flashing light, the red light will flash during the process of opening valve, and the red light will be on when the valve is completely opened; the green light will flash during the process of closing valve, and the green light will be on when the valve is completely closed.

6.4 Adjustment for the integral type, integral explosion-proof type, integral regulation type and integral regulation explosion-proof type electric actuator.

6.4.1 The adjustment for torque controller, motion controller and opening position indicator.

Open the cover of electrical box, loose the screw A (refer to the Figure 9) on the electrical installation plate, and turn the electrical installation plate with the angle of 90, and then adjust the torque controller, motion controller, and opening position indicator. Refer to 6.1、 6.2、 6.3 for the adjusting method. The support of the integral opening position meter is equipped with an adjusting potentiometer which is used for adjusting the opening meter.

6.4.2 Local/remote control operation

Integral and integral regulation electric actuator is equipped with a button box, which can provide two control modes: local control and remote control for the users.

- (1) Local control: open the cover of button box, and then can carry out the on-site control with the opening and closing button inside the button box. The on-site opening and closing are self keeping. The green light will be on when the valve is fully closed, and the red light will be on when the valve is fully opened. The on-site operation will stop if the cover is closed.
- (2) Remote control: it starts the remote control if the cover of button box is closed.

6.4.3 Module debugging method

6.4.3.1 Debugging method for adjusting module

- a. First adjust the electric valve to the middle position through the hand wheel of the actuator;
- b. Turn on the power of AC380, the power indicator will be on; if the power supply loses phase, the phase fault indicator will be on;
- c. It will be effective if the positive interaction and counteraction of the DIP switch can not dial at the same time.
- d. During the positive interaction, the method is the position feed back signal conditioning. Adjust the electric actuator to the fully closing position, and judge the rotating direction of the potentiometer inside the electric fitting, (the rotating direction of the potentiometer is when opening the valve, the voltage of GND to the sliding contact of the potentiometer shall increase, otherwise exchange the two wires at the external of the sliding contact of the potentiometer), engage the two gears, close the actuator, adjust the

“zeroing” potentiometer to make the voltage of the two test points be less than 2mV, adjust the “4mA” potentiometer to make the position feed back signal be 4mA, and then put the electric actuator to the complete opening position, adjust the “20mA” potentiometer to make the feedback signal be 20mA. If you find that when you rotate the above potentiometer clockwise, the output signal will reduce, please exchange the wires at the both sides of the potentiometer for valve location.

- e. If turn clockwise the potentiometer of “zeroing”, “4mA”, “20mA”, the output signal will increase, on the contrary, it will decrease.
- f. In order to ensure the positioning accuracy of the electric actuator during the automatic control, you must adjust the sensitivity. If the sensitivity is low, the positioning accuracy is high, but it will cause oscillation easily; if the sensitivity is high, it will not easily cause oscillation, but the positioning accuracy is low. Adjusting the “sensitivity” potentiometer can avoid the above two situations and can get the optimum setting value which will not cause oscillation.
- g. If the input control signal loses, the indicator for signal losing will be on.
- h. If one position between opening valve and closing valve is locked, it can be unlocked if move to the other position for 3 seconds.

6.4.3.2 The debug method of one-piece module

- a. First adjust the electric valve to the middle position through the hand wheel of the actuator;
- b. Turn on the power of AC380, the power indicator will be on; if the power supply loses phase, the phase fault indicator will be on;
- c. During the conventional control is position feedback signal adjusting. Adjust the electric actuator to the fully closing position, and judge the rotating direction of the potentiometer inside the electric fitting, wear the two gears, adjust the “zeroing” potentiometer to make the voltage between the two test points approach to zero ($\leq 2\text{mV}$), and then adjust the “4mA” potentiometer to make the output signal be 4mA; Adjust the electric actuator to the fully opening position; adjust the “20mA” potentiometer to make the output signal be 20mA.
- d. If turn clockwise the potentiometers of “zeroing”, “4mA”, “20mA”, the output signal will increase, on the contrary, it will decrease. If turn clockwise the above potentiometers, the output signal will decrease, please exchange the two wires outside of the sliding contact of the potentiometer for valve location.

6.4.4 Scaling for the digital display

- a. After finishing the above the debugging, close the electric actuator, and then the output current is 4mA. First, press the scaling button RESET at the back of the digital display, and then press scaling button 0% for memory, at this time, the L displayed in the digital display is flashing;
- b. Open the electric actuator, and then the output current is 20mA. First, press the scaling button RESET at the back of the digital display, and then press scaling button 100% for memory, at this time, the H displayed in the digital display is flashing, then the scaling finishes.

7. Installation and dismantling

7.1 principle requirements for the mounted form of this electric actuator, but it is suggested that the electric machine shall be in level position, and the cover of electrical box shall be in level position or in upright position, which will be of great advantage to the lubricating, debugging, maintenance and manual operation;

7.2 when installing, ensure the space that the maintenance people required for dismantling each parts.

7.3 The axial clearance for installing the jaw connected with the valve shall not be less than 1~2mm ;

7.4 When it is used for rising stem valve, you shall check if the extending length of the valve stem can conform to the length of the sheath of the valve stem;

7.5 during installation, dismantling, and debugging, do not damage the sealing surface, sealing member and the explosion-proof surface of explosion-proof electric actuator, and spread the rust preventive oil on the explosion-proof surface.

7.6 When requiring dismantling it, first turn the hand wheel for several turns manually, and this shall be carried out at when the valve is opened a little.

8. Trouble and trouble shooting

No.	Trouble	Cause	Trouble shooting
1	the motor can not start	1.The power line disconnects. 2.control circuit is faulty 3.the motion controller and torque controller break down	1.check the power line 2.remove the line fault 3.Remove the fault of motion controller or torque controller.
2	the turning direction of output axis can not meet the specification	the phase sequence of power supply has been connected wrongly	Exchange any two power lines.
3	the motor is overheating	1.the continuous operating time is too long 2.The motor can not match the electric actuator. 3.one phase conductors disconnects	1.stop running, and make the motor cool down 2.check the matching situation 3.check the power line
4	the motor stops when running	1.the overload torque controller of electric actuator actuates 2.the valve is faulty	1.increase the setting torque 2.check the valve
5	When the valve is in place, the motor can not stop running or the light is off.	1.the motion controller and torque controller are faulty 2.The motion controller has been adjusted improperly.	1.check the motion or torque controller 2.readjust the motion controller
6	no signal of valve location in distant place	1.remote-transmitting potentiometer is faulty 2.the set screw for gear of the potentiometer looses	1.check and replace the potentiometer 2.screw down the set screw for gear of the potentiometer

9. Notice for order

9.1 Give clear indication of model number according to the expression measure of model number; the torque required by opening and closing must be provided, if not, we will follow the specification of our company.

9.2 If there is explosion gas in the environment, please give an indication in advance, and shall conform to the regulations for the explosion-proof sign in this manual.