Electric Actuator

The Guide Book of Electric Actuator for

Product Introduction Valve electric appliance owns characteristics of special design, beautiful appearance, strong function, operation endurance exceeding ten times of standard of same kind of product, it may be called to be endurable as diamond. The rotation valve electric appliance series product has a completely, mew appraisal from customers with its supper performance and peerless advantage……

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Product Introduction

Valve electric appliance owns characteristics of special design, beautiful appearance, strong function, operation endurance exceeding ten times of standard of same kind of product, it may be called to be endurable as diamond. The rotation valve electric appliance series product has a completely, mew appraisal from customers with its supper performance and peerless advantage.

♦Powerful function: intelligently, proportionally type, switch type it has all kinds of signal output type you wish for;

♦Small volume: the volume is just about thirty five percent of product of same kind;

♦Be portable: its weight is just about thirty percent if product, if same kind;

♦Beautiful appearance: outer casting is pressure-cast with Al alloy, fine and evenly, reducing electromagnetic disturbance;

♦Wear-resistance: the worm-wheel output axle, integration avoids the stitch closure in connection place of key , the transmission precision high, forged with special copper alloy ,with features of high strength and supper wear-resistance;

♦Safety guarantee: has passed AC 1500Vpressure-withstand test, F grade of insulated electric machine, which guarantees the operation safety;

♦Easily forming complete set: adopting single-phase power, simplifying wire connection from outside: it also can be 380V DC power;

♦Using simply: don't need add-oil, point-check, and owns performance of waterproof and antirust, could be installed at any angle;

♦Protection appliance: double position-limiting, over-hot protection (optionally):

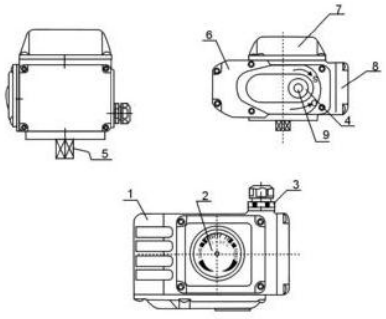
♦Many kind of speed: whole stroke time has many kinds as 9s, 13s, 15s, 30s, 50s, 100s (before dispatching from the factory in order to establish)

♦Antirust anticorrosion: complete-machine support, both coupling and screw are made of stainless steel:

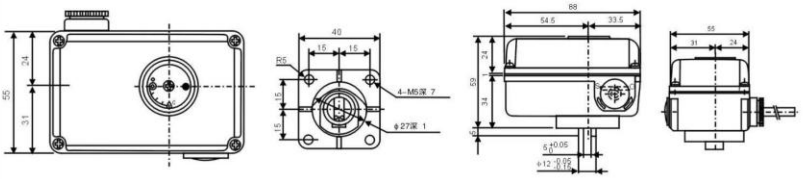
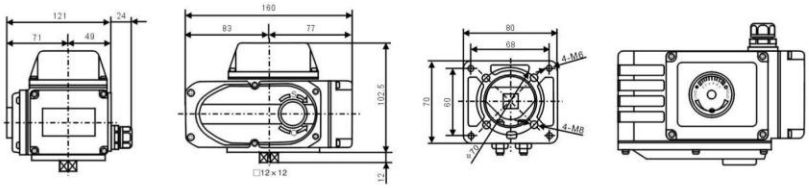
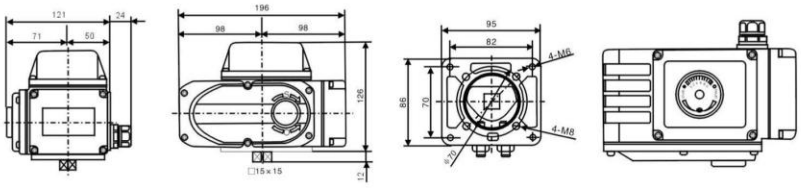
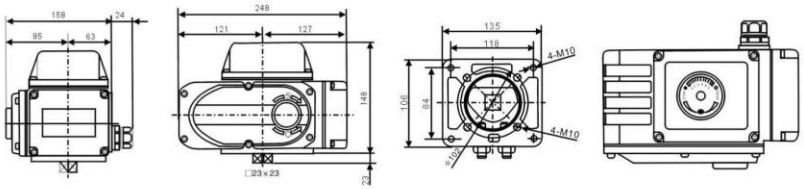
♦Intelligently numerically-control: the function of intelligently controlling module height is integrated into electric appliance body, the externally-connected localizer is not required. Numerically setting, numerically regulating, highly accurate, self-diagnosis.

Appearance and name of every part..

1	Case body
2	Opening gauge
3	Wire-in wire lock
4	Handle axle, rubber stopper
5	Output axle
6	Deceleration cover
7	Electric cover
8	Wring cover
9	Handle-axle hole



Overall Dimension

 **KST–02**	
 **KST–05**	
 **KST–10**	
 **KST–20/40/60**	

KST-02 Performance parameter

Model	KST-02
Power Supply(V)	AC55-260
outp toque(Nm)	20
Motion Scope(*)	0-90
Motion Time(s)	7 (second)
Rated Current (mA)	200
Drive Motor (W)	4.6
Protection Device	Thermistor motor protection had bilateral mechanical limit
Opening Detection	Wide-open, full closed position to identify components: a. Wide-open: red(LED) b. full closed: green (LED)
Output Signal	Wide-open, full closed output signals(NPN transistor, common emitter, the collector current) (connection capacity:DV50V,20mA)
Environment	Temperature:25c + 55c Humidity: 10-105RH
Output Shaft	SUS303 : 12 Ditch 5, Depth:5
Handle Shaft	Hexagonal holes Diaganal:4mm(with lid)
Waterproof	JIS C0920 Grade 6 (quite lp65)
Install direction	360-degree o mnl-directional
Distribution Cable	0.3x6 (Core Cable) 30 cm
Body Material	Alloy die casting
Color of Coating	Gray and white
Weight(kg)	0.5

KST-05 Performance parameter

Model	KST-05		
Power Supply(V)	DC24	AC110	AC220
output toque(Nm)	50	50	50
Motion Time(s)	20/60	20/60	20/60
Scope of rotary angle(*)	0~360	0~360	0~360
Motor Power(W)	6	6	6
Rated current(A)	1.28	0.24	0.16
Machine Weight(kg)	2.0	2.0	2.0
Insulation Resistance(MΩ)	DC24V:100/250VDC AC110/220V/380V:100/500VDC		
Voltage Resistance Rating	DC24V:500VAC,AC110/220V:1500VAC,AC380V:1800VAC(1Minute)		
Protection Level	IP68		
Installation Position	Rotary degree:360’		
Electriad connection	Each one or G1/2 water-proof cable connectors. Erectile Power Lines.signal Lines		
Environment temperature	-30C~+60C		
Circuit control	B,S,R,H,A,K,D,T		
Optional function	♦Over torque protectors ♦Dehumidify heater		

KST-10 Performance parameter

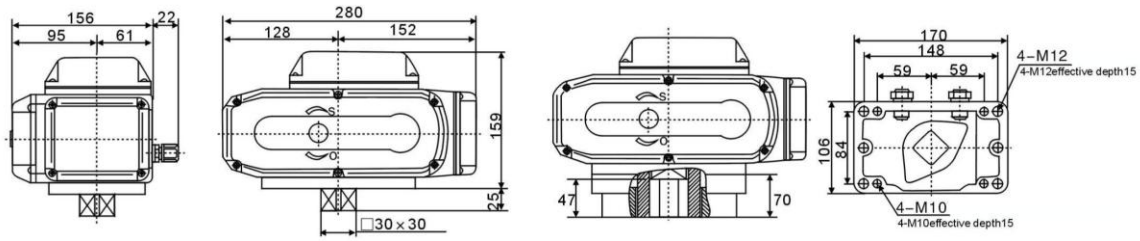
Model	KST-10		
Power Supply(V)	DC24	AC110	AC220
output toque(Nm)	100	100	100
Motion Time(s)	30/60	30/60	30/60
Scope of rotary angle(*)	0~360	0~360	0~360
Motor Power(W)	15	15	15
Rated current(A)	2.03	0.57	0.35
Machine Weight(kg)	3.0	3.0	3.0
Insulation Resistance(MΩ)	DC24V:100/250VDC AC110/220V/380V:100/500VDC		
Voltage Resistance Rating	DC24V:500VAC,AC110/220V:1500VAC,AC380V:1800VAC(1Minute)		
Protection Level	IP68		
Installation Position	Rotary degree:360’		
Electriad connection	Each one or G1/2 water-proof cable connectors. Electric Power Lines. signal Lines		
Environment temperature	-30C~+60C		
Circuit control	B,S,R,H,A,K,D,T		
Optional function	♦Over torque protectors ♦Dehumidify heater		

KST-20/40/60 Performance parameter

Model	KST-20				KST-40				KST-60			
Power Supply(V)	DC24	AC110	AC220	AC380	DC24	AC110	AC220	AC380	DC24	AC110	AC220	AC380
output toque(Nm)	200				400				600			
Motion Time(s)	30/60				30/60				45			
Scope of rotary angle(*)	0~90				0~90				0~90			
Motor Power(W)	35	40	40	40	70	90	90	90	70	90	90	90
Rated current(A)	3.578	0.65	0.37	0.15	5.13	1.12	0.57	0.29	6.04	1.18	0.60	0.29
Machine Weight(kg)	8.0				8.5				9.0			
Insulation Resistance(MΩ)	DC24V:100/250VDC AC110/220V/380V:100/500VDC											
Voltage Resistance Rating	DC24V:500VAC,AC110/220V:1500VAC,AC380V:1800VAC(1Minute)											
Protection Level	IP68											
Installation Position	Rotary degree:360’											
Electriad connection	Each one or G1/2 water-proof cable connectors. Electrle Power Lines. signal Lines											
Environment temperature	-30C~+60C											
Circuit control	B,S,R,H,A,K,D,T											
Optional function	♦Over torque protectors ♦Dehumidify heater											

KST-100/200 series appearance drawing and performance data

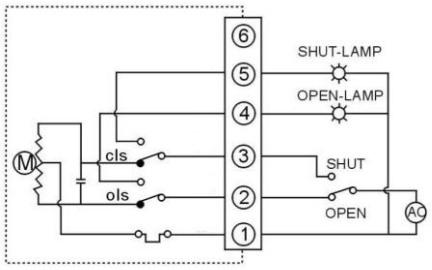
Model / Performance power	KST-100				KST-200			
	AC24	AC110	AC220	AC380	Ac24	AC110	AC220	AC380
Motor Power(W)	100				200			
Rated current(A)	9	2.2	1	0.48	9	2.2	1.2	0.48
output toque(Nm)	800/1000				2000			
Motion Time(s)	30/50				100			
Circuit control	B,S,R,H,A,K,D,T							
Scope of rotary angle(*)	0~90							
Machine Weight(kg)	11.2				11.8			
Voltage Resistance Rating	AC110V/AC220V:1500VAC, SAC380V:1800VAC(Minute)							
Insulation Resistance(MΩ)	100MΩ/500VDC							
Protection class	IP-68							
Surrounding temperature	-30C~60C (The custom-made according to the other temperature)							
Installation angle	Rotary degree:360’							
Case material	Aluminum die-casting components							
Optional function	♦Overload protection function, heating and dehydrating device							



Modulating type series appearance drawing and performance data

Model / Power / Performance	KST-05A	KST-10A	KST-20A	KST-40A	KST-60A	KST-100A	KST-200A
	DC24V-AC24V-AC110V-AC220V						
Motor Power	6w	15w	40w	90w	90w	100w	100w
Rated current	0.16A	0.35A	0.37A	0.57A	0.60A	1.0A	1.2A
Output torque	50Nm	100Nm	200Nm	400Nm	600Nm	1000Nm	200Nm
Action time	30S	30S	30S	30S	45S	50S	100S
Rotary angle	0-360”		0-90”				
Input signal	4-20mA.DC,1-5V.DC,0-1V.DC (Others would be set before sale)						
Output signal	4-20mA.DC (Others would be set before sale)						
Precision grade	1%						
Weight	2.0kg	3.0kg	8.0kg	8.5kg	9.0kg	11.2kg	11.8kg
Voltage-with standing valve	1500VAC/1min						
Insulated resistance	Dc24v:100M0/300VDC			100M0/500VDC			
Protection class	IP-68						
Surrounding temperature	-30C-60C (The custom-made according to the other temperature)						
Installation angle	Any angle						
Case material	Aluminium die-casting components						
Optional function	Overload protection unction, heating and dehydrating device						

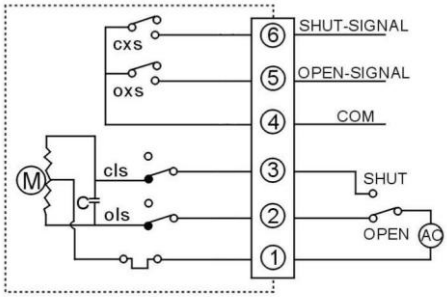
Power and product wiring drawing



The opening or closing is realized by switching *lose* the circuit outputting a group of full open or close active signals.

Wiring Instruction:

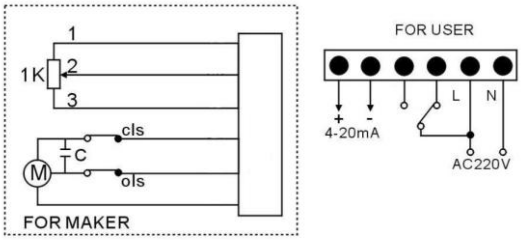
1. Terminal 1 connect with null line
2. “Open” operation when terminal 2 contacted with phase line.
3. “Lose” operation when terminal3 contacted with phase line
4. Open lamp in terminal 4 on when “Open” operation.
5. Shut lamp in terminal 5 on when “close” operation



The opening or closing is realized by switching *lose* the circuit outputting a group of full open or close active signals.

Wiring Instruction:

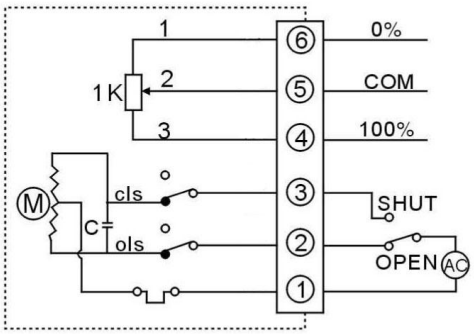
1. Terminal 1 connect with null line
2. “Open” operation when terminal 2 contacted with phase line.
3. “close” operation when terminal3 contacted with phase line
4. Terminal 4 is the passive contact common end.
5. Open lamp in terminal 4 on when “Open” operation.
6. Shut lamp in terminal 5 on when “close” operation



The opening or closing is realized by switching *lose* the circuit outputting a group of full open or close active signals.

Wiring Instruction:

1. Power input end “N” connect null line “L” connect phase line.
2. Valve open when “L” connect whit “open”
3. Valve close when “L” connect whit “shut”
4. “+” of input terminal connect whit the positive pole of output signal. “_” onnect whit passive pole of output signal.

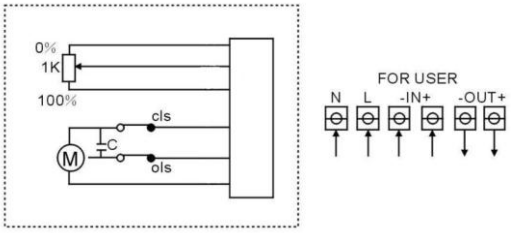


The opening or closing is realized by switching *lose* the circuit outputting a group of full open or close active signals.

Wiring Instruction:

1. Terminal 1 connect whit null line. Terminal 5 is the potentiometer woring arm.
2. “Open” operation when terminal 2 contacted with phase line. “lose” operation when terminal 3 contacted with phase line.
3. Terminal 4 is the potentiometer low terminal. When open operation. The resistance valve between terminal 4 and 5 will increase whit opening degree.
4. Terminal 6 is the potentiometer high terminal. When close operation. The resist an cevalue between terminal 4 and 5 will Increase whit the closing closing degree.

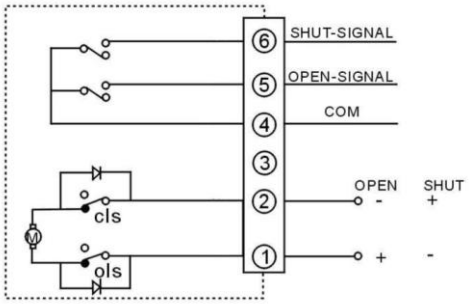
Power and product wiring drawing



The opening or closing degree is realized by the standard signal through extemal computer or industry meter. Maen whife output the relative standard signals

Wiring Instruction:

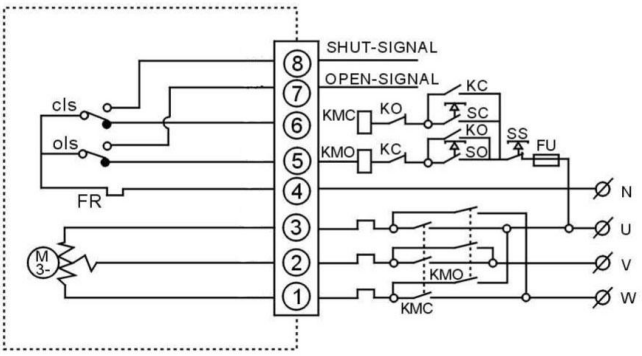
1. Power input end “N” connect null line, ”L” connect phase line
2. The “+” of “N” connect with the positive pole of input signal, “-“ connect whit negative pole of input signal
3. The “+” of “OUT’ connect with the positive pole of input signal, “-“ connect whit negative pole of input signal



According to the single conductivity of diode, the opening or closing operation can be realized bye means of the exchanging of the positive polarity and the negative polarity and the negative polarity of DC power supply and output a group of full open or close passive signals.

Wiring Instruction:

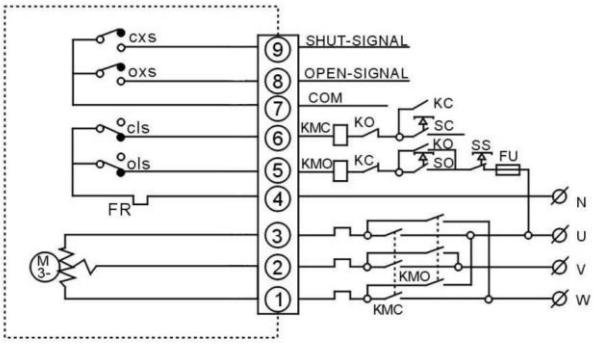
1. “open” operate when terminal 1 connect whit power positive pole, terminal 2 connect whit power negative pole
2. “lose” perate when terminal 1 connect whit power negative, terminal 2 connect whit power positive pole
3. Terminal 4 is the passive contact common end
4. Open lamp in terminal 5 on when “open” operation.
5. Shul lamp in terminal 6 on when “lose” operation



The opening or closing operation is realized by switching “open” or “close” the circuit “outputting” a group of full open or close passive signals

Wiring Instruction:

1. Terminal 1,2,3 connected whit 3-phase power . by menas of the external phase reversing circuit, running normally or reversibly of moter
2. Terminal 4 is the common point of external control circuit.
3. Terminal 5 is “open” operation control.
4. Terminal 6 is “close” operation control.
5. Terminal 7 is passive contact common point.
6. Terminal 8 be full open signal when “open” run position.
7. Terminal 9 be full close signal when “close” run position.



The opening or closing operation is realized by switching "open" or "close" the circuit "outputting" a group of full open or close passive signals

Wiring Instruction:

1. Terminal 1,2,3 connected whit 3-phase power . by means of the external phase reversing circuit, running normally or reversibly of motor
2. Terminal 4 is the common point of external control circuit.
3. Terminal 5 is "open" operation control.
4. Terminal 6 is "close" operation control.
5. Terminal 7 is passive contact common point.
6. Terminal 8 be full open signal when "open" run position.
7. Terminal 9 be full close signal when "close" run position.

Power, Voltage

♦Please choose power volt according to product, nameplate or wiring coil, the possible volt listed as following: AC380±10% 50/60HZ; AC220V±10% 50/60HZ; DC24V

•Notes: when choosing AC380V, the power, wiring should take notice of sequence of phase line and ascertain that the stroke switch should correctly control on and off of valve, or else, the actuator would be damaged

Selection of fuse, breaking switch:

In order to protect the actuator and avoid circuit, please use face or breaking switch. The capacity of fuse and breaking switch sefer to follow form..

Voltage / Fuse / Mode	**AC380V**	**AC220V**	**AC110V**	**AC24V**	**DC24V**
KST-05	2A	2A	3A	5A	5A
KST-10	2A	3A	5A	7A	7A
KST-20/40	3A/5A	5A/7A	7A/10A	10A/11A	15A
KST-100/200	5A	7A	10A	20A	

Can’t connect the power lines of two or several electronic devices in parallel:

Can’t control several electronic devices with the same joint, Other wise will cause out of control and over heatedly with the electrical machinery.

Installation

Noted items of indoor installation

♦The common product can, I be installation in the room full of explosive air unless explosion-proof product;

♦If installation at certain place having water or splashed material, operator is supposed cover additionally for covering complete

♦Operator should save necessary space needed by manual wire-in operation in advance.

Noted items of out door installation

♦Please installing protection cover above complete-machine additionally in order to avoid rain or sunshine;

♦Please save necessary space needed by manual wire-in operation in advance.

Notes: The shining of sunshine outdoor would lead to high-temperature which accelerates ageing of components, even losing effectiveness; the rain would accelerate aging of rubber-pad, moreover, the product will be damaged if falling in water proof conduction.

Surrounding temperature, fluid temperature condition

♦ Surrounding temperature should range from -25ºC to 60ºC.

Note: when using Below 0, or in the environment of biggish difference in temperature, operator should use certain heating-dehumidification device with performance of anti-dewing.

♦ When the fluid, temperature is high, operator should use high-temperature type connection frame and connector to install driving appliance onto valve.

Wring cable and wiring connection

♦ KST-05, PG9 wire-in line lock, Please useΦ4~Φ8 cable according to dimension of wire-in line lock so as to guarantee safety and reliability of wire.

♦ KST-10, PG11 wire-in line lock, Please useΦ4~Φ8 cable according to dimension of wire-in line lock so as to guarantee safety and reliability of wire.

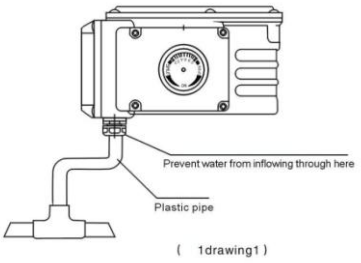
♦ KST-20/50/100/200, PG13.5 wire-in line lock, Please useΦ4~Φ12 cable according to dimension of wire-in line lock so as to guarantee safety and reliability of wire.

♦ Please useΦ4~Φ12 cable according to dimension of wire-in line lock so as to guarantee safety and reliability of wiring;

♦ passing cable through line-lock, and fasten thread-end onto terminal stand;

♦Tightening outer shell of wire-lock for fastening cable.

Wiring line-pipe



(1drawing1)

♦ when using line-pipe, operator should adopt waterproof measure:

♦ as drawing 1,operator should make sure that the electric appliance of this valve is higher than line pipe, in order to prevent water from infollowing electric appliance along line which reads to damaging of machine.

The connection drawing between electric execution structure valve, outline dimension drawing of electric butterfly valve.

Connection wit valve (drawing 2)

♦ Manually rotate valve and ascertain that there is on abnormal phenomena, then rotate valve to wholly-closed position.

♦ Lightly fasten the support onto valve with screw.

♦ Slip the coupling over valve-bar of valve.

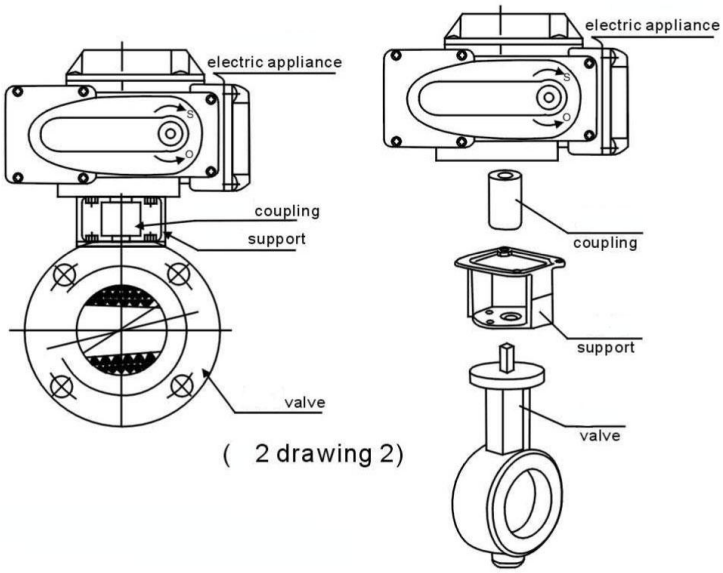
♦ Rotate electric appliance to wholly-closed position.

♦Insert output axle of electric appliance into coupling.

♦ Lightly fasten electric appliance support with screw.

♦Manually wholly-stroke rotate electric appliance to guarantee non-eccentric, no-blocked etc.

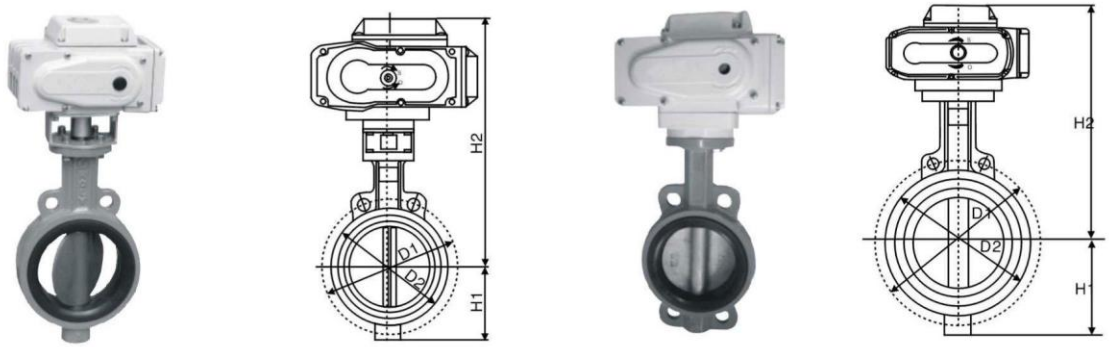
♦Tighten every screw on support.



Outline dimension drawing of electric butterfly valve

Nominal dimension		Electric appliance model	D1		D2			H1	Standard No bracket	
MM Metric	IN British		1.0MPa	1.0MPa	A model	Lt model			H2	H2
						1.0MPa	1.0MPa			
DN50	2”	05	125		94	157		66	282	256
DN65	2.5”	05	145		112	177		73	294	268
DN80	3”	05	160		121	192		91	307	729
DN100	4”	10	180		153	212		102	345	327
DN125	5”	10	210		182	242		117	364	346
DN150	6”	20	240		209	280		131	418	406
DN200	8”	20	295		262	335		164	448	436
DN250	10”	50	350	355	319	390	405	195	508	496
Dn300	12”	100	400	410	373	445	458	236	577	549
DN350	14”	100	460	470	408	500	518	283	580	558
DN400	16”	200	515	525	488	565	580	320	659	649
DN450	18”	200	565	585	541	615	640	337	681	671
DN500	20”	200	620	650	589	668	710	377	739	709
DN600	24”	200	725	770	727	780	836	425	821	811

Outline dimension drawing of electric butterfly valve



The regulation of switch type product

The regulation of electric position-limiting

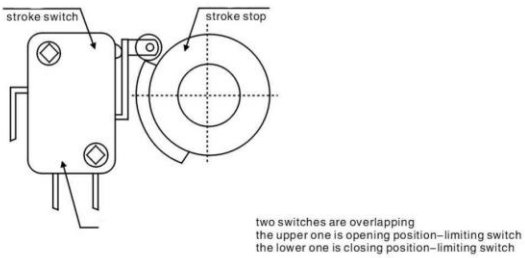
The manual operation is forbidden while contacting

Means that the manual operation is forbidden in electric shock Before regulating electric position-limiting, operator should loosen regulation screw limited mechanically firstly, operator can't re-fix mechanical position-limiting again until the electric, limiting has been regulated in order to avoid mechanically-blocking.

♦ Loosen screw stoke stop, and use screw-driver to knock lightly stroke stop, which could regulate angle of stroke stop and change open-close angle of electric position-limiting. It would product "crack" noise during operating of stroke switch. At last, tighten screw of stroke stop to greatest degree.

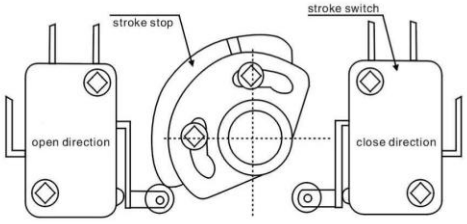
Regulating the Electric Valve Actuator which rotation angle from 0~90º, can not regulate and magnify the angle indiscretion.

KST–5/KST–10
The layout drawing of KST–5/KST–10 stroke stop and stroke switch (drawing 3)



3 drawing 3

KST–20/50/100/200
The layout drawing of KST–20/50/100/200 stroke stop and stroke switch (drawing 4)



4 drawing 4

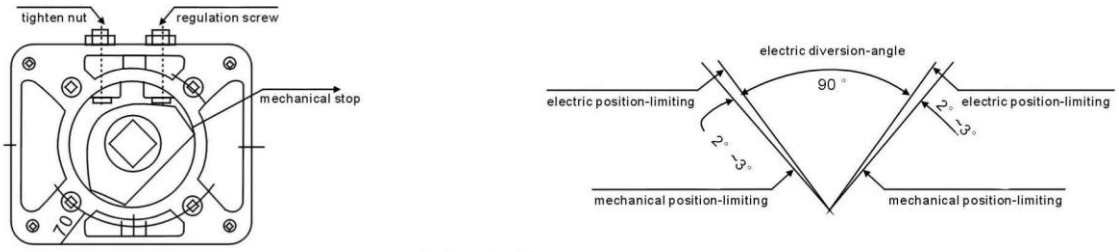
Regulation of mechanical position-limiting (drawing 5)

♦ Rotate it to the wholly-open position with handle.

♦ Loosen tighten-nut and rotate regulation screw in order to touch the mechanical link-stopper, then, rotate screw or semi-circle in anticlockwise direction for tightening nut.

♦ Using same method, operator could regulate mechanical link-stopper at wholly-closed position.

·Notes: the mechanical position-limiting should lag behind the electric limiting, or else, it would lead to heating of electric machine.



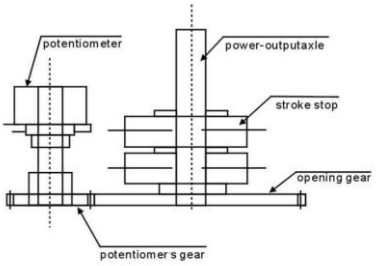
5 drawing 5

Potentiometer, regulation (opening type R, regulate type a) (drawing 6)

♦ The resistance valve of potentiometer is 1KΩ, 5KΩ;

♦ Using handle to rotate valve to wholly-closed position:

♦ Loosen screw of opening-gear and rotate opening gear for regulating potentiometer.



6 drawing 6

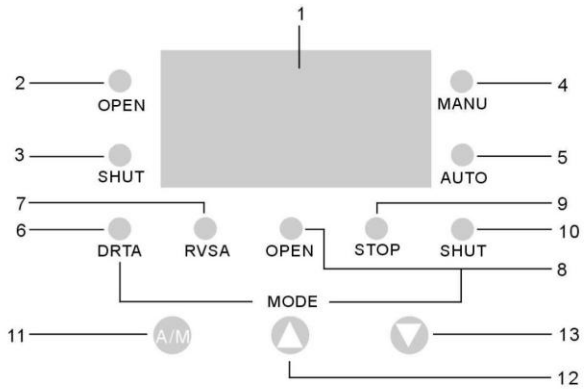
Using universal-meter to measure resistance valve between 4 and 5 wiring terminals, And make the resistance valve achieve 10Ω , tighten opening gear, fixing screw.(if the seven-line connector of regulate type are connected, please measure the resistance between RV and RS jacks.)

· Notes: operator also could loosen potentiometer for regulation. However, in case of being fixed, operator should take notice of the stitch closure between gears of potentiometer and opening, which can't be too large or small, or it would directly affect the complete-set precision of execution device.

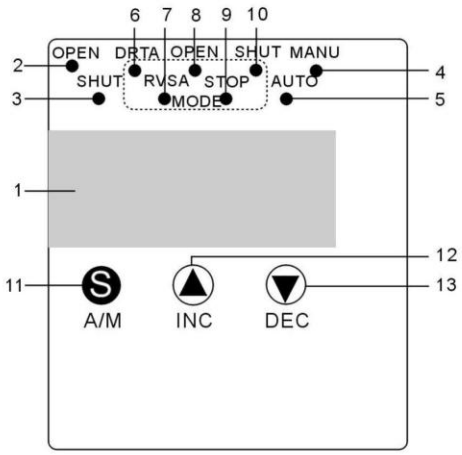
The regulation of adjusting type product

Regulation of execution machinery

♦ Before regulating intelligent localizer, operator should understand the regulation method and regulate electric position-limiting, potentiometer and mechanical limiting of execution structure in the light of wholly-open, wholly-closed of valve.



ZXQ2004



ZXQ2004c

Localizer panel

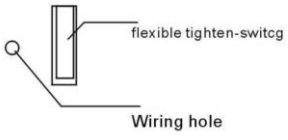
Data display	1	LED form	Show actual opening valve, setting opening valve of valve, temperature inside localizer, cover and it's setting data by means of pressing key for changing
State indication	2	OPEN	Output control "open" relay shutting
	3	SHUL	Output control "closed" relay shutting
	4	MANU	Manual state
	5	AUTO	Automation state
Mode Indication	6	DRTA	Obverse-action mode, input signal, corresponding output state as following: 4mA-full(wholly opened normally); 20mA-zwor(wholly-closed normally)
	7	RVSA	Reverse-action mode, Input signal, corresponding output stated as following: 4mA-zero(wholly closed normally); 20mA-full(wholly-opened normally)

Mode Indication	8	OPEN	Input signal, suspending state being “open” operator open the execution device to the greatest opening, limit
	9	STOP	Input signal, suspending state being “stop” operator should stop execution device, operation under present state.
	10	SHUT	Input signal, suspending state being “shut” operator open the execution device to the smallest opening, limit
Key	11	A/M	Manual/auto switching key, input revisal and switching key for data
	12	△	Numerical increasing key, This key can be used for converted-shoeing valve’s setting opening valve under auto state too, it is at “on” state under manual state
	13	▽	Numerical reducing key, This key can be used for converted-showing intemal temperature of localizer under auto state too, it is at “off” state under manual state

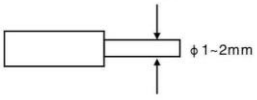
Wiring introduction

ZXQ2004 intelligent localizer can be connected with electric execution device through one seven-line connector:

There is one wiring row tightened by six-line flexible pressure on localizer (as drawing 7), of which the N, L lines connected with mid-line and phase-line of 220VAC single-phase circuit, two 4~20mA (or 1~5V) IN terminals connected with control current (voltage), two 4~20mA terminals outputting feedback current signal can be connected with ammeter so as to display actual valve’s opening, while, it also can be not



7 drawing7



8 drawing8

connected. The connection line could take Φ1-2mm single-core, many-core or insulated line (shell insulation-skin) as line-core, operator is suggested to twist tightly and plate tin onto line-core in case of using many-core in case of using many-core line, which would simplify connection, During wiring, operator could insert single-core line or many-core line (after tin plating) into hole, and supposed to continue to insert for4~5mm fur-the after touching flexible resistance. Provided the line soft, operator can put the line into hole and use “_” shape screw driver to press the flexible locking switch on corresponding hole after touching resistance, than inserting line in wards for4~5mm and loosen flexible tighten switch, After the

line is tightened, it is difficult to be drawn out under normal case. However, provided user wants to draw out line, he should press down flexible tighten switch on corresponding hole by "_" shape screw driver.

The setting operation method of intelligent localizer

Connecting the lines between given signal source, output signal measure meter (no-connected is allowed) and power supply according to wiring drawing.

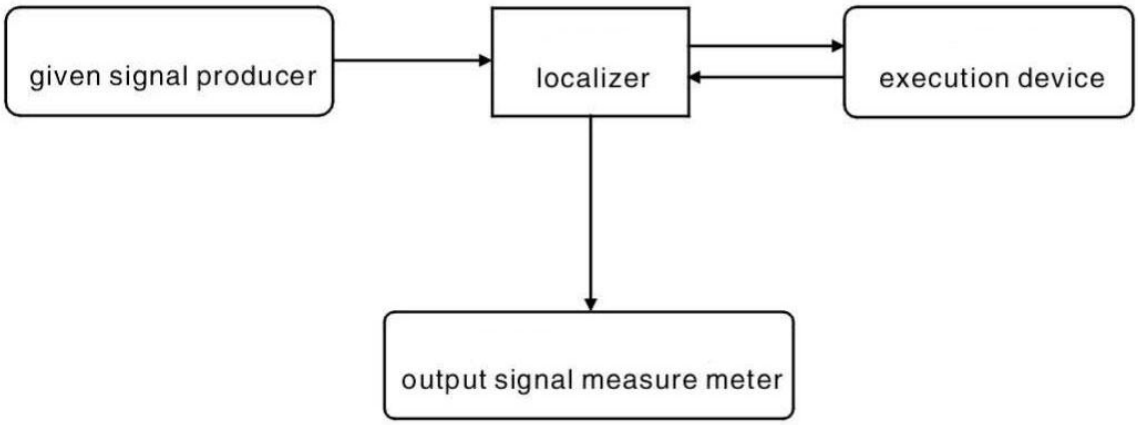
♦ When electrifying, the actual opening valve of valve would be displayed, and the localizer is at auto-test state at this time.

♦ Pressing A/M key for converting to manual state, separately pressing∆ and keys is corresponding to manually "open" and "shut" operation of execution device.

♦ Under auto state, pressing ∆can look into valve's setting opening valve, and the varying trend and stability of input signal could be displayed at this time.

♦ Under auto state, pressing ∇can look into internal temperature of localizer's casing the localizer would stop open-shut controlling to execution device if temperature exceeds 70:

♦ Under auto state, pressing A/M key and lasting for 4S, it would enter the setting data of following form, the data valve could be revised by means of pressing ∆and∇ keys, the specific stating please drawing.



Setting operation method of intelligent localizer

Data	Showed valve	Meaning	Ex-factory valve
U0	00x.0	X=1 the electronic driving is allowed, x=0 the electronic driving is not allowed	1
	000.x	X=0 changing location precision is not allowed, while, changing readjusting time is allowed X=1,2,3 changing readjusting time is not allowed, and the location precision can be changed	0
U1	00x.0	Setting positive and negative action, x=0 is positive, x=1 is negative	1
	000.x	Suspend-signal mode, x=0(neglection) x=1(open) x=2(stop) x=3(shut)	2
U2	xxx.x	The control output lower-limit limiting valve is o≤U2<100, during process of manual operation and calibrating zero, full positive it is not limit by this data	0.0
U3	xxx.x	The control output upper-limiting valve is 0<U2<U3≤100, during process of manual operation and calibrating zero, full positive it is not limit by this data	100.0
U4	00x.x	The precision is adjustable, equals x, x/100	0.4
U5	xxx.x	Operation cipher,(U5=003.1is opening calibrating of entering execution device)	
U6	xxx.x	Execution device, zero confirmation, please pressing △▽key, when touching given zero position, please press A/M key for zero-position confirmation, then enter U7	
U7	xxx.x	Execution device, zero confirmation, please pressing △▽key, when touching given full position, please press A/M key for full-position confirmation, then enter U7	
Notes: other data are reserved by manufacturer, if customers need, please refer to appendix			

⁎The execution device is calibrating before ex-factory, user just needs to connect power supply, signal powal and output signal measure meter (no-connection is allowed), then coule be put into work without re-calibrating again.

♦Calibrating position-position and full-position of execution device, this calibrating has mo influence on inputting, out-putting signal for localizer, after the execution device is readjusted again, operator must conduct calibrating for rotation angle of execution device, then the localizer can work normally. Calibrating has two methods as following;

The lst method (manually calibrating) (according to operating process):

♦Enter into U5 equal 003. 1 the pressing A/M key again and enter into U6 data (calibrating zero-position), press ∆and∇ key, correspondingly, the execution device will operate in “open” and “close” direction, and the actual opening valve of displayed will increase and decrease in responses. When touch the expected zero-position (commonly at wholly-close position), please press down A/M key for zero-position confirmation and enter into U7 data.

♦Enter into U7 data (calibrating full-position), like the operation above, pressing ∆and∇ key until expected full-position (commonly at wholly-open position) and press A/M key For full position conformation, A the actuator will return the site of 90% automatically, then return to U5

♦Revising U5 and revise U5 to be oo5.1

The 2nd method (auto calibrating)

♦Revising U5 and revise U5 to be oo3.1, then pressing ∇key at the sane time of pressing A/M key, that is start auto calibrating, this time, localizer would calibrate zero-position firstly and full-position secondly, the localizer would be at manual state after being calibrated. ⋆ Enter into data U5 again and revise U5 to be 000.5 (defaulting), then press A/M key and the ca-librating result would be stored.

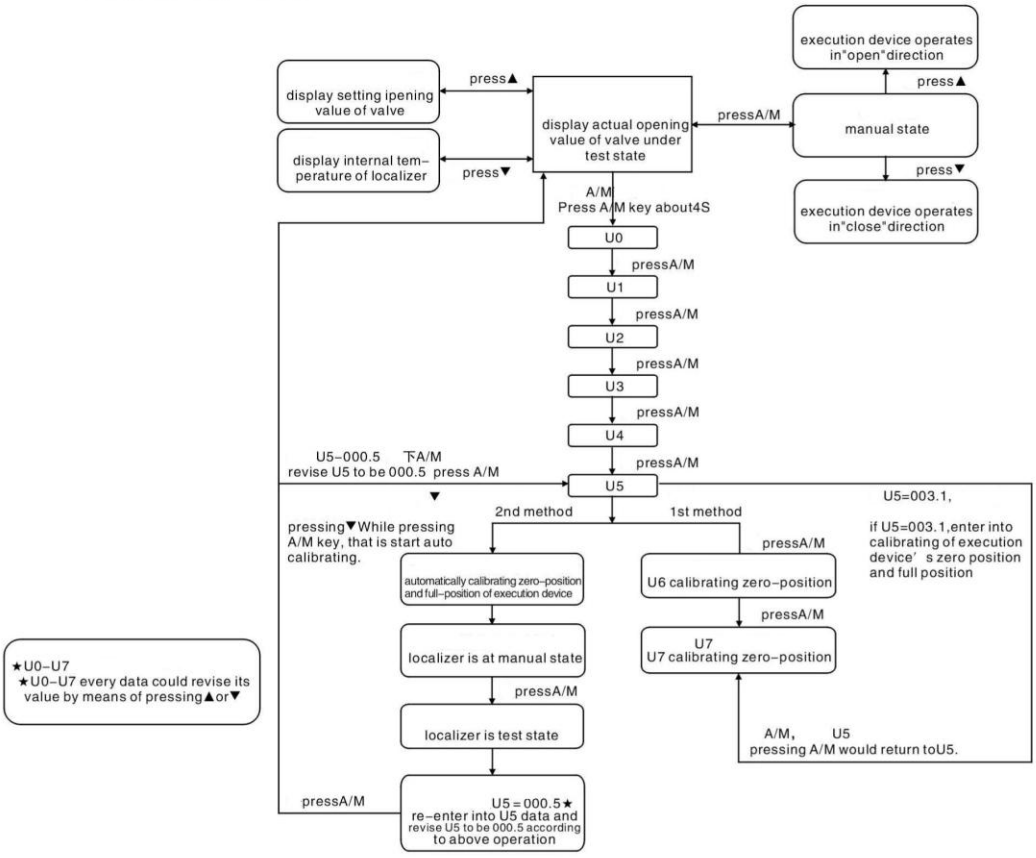
♦Euring test process of localizer, the execution device would oscillate and produce heat because of input-signal quality or external electromagnetic interruption etc. for preventing execution derive form oscillating, operator could Change U0(000.X);

1. Setting x=0 the location precision would retain setting precision during oscillating process of execution device, however, interrupting work of execution device etc;

2. X=1,2,3 the readjusting time would keep invariant (about 2 seconds) during oscillating process of execution device, but the precision of execution device would decrease, this achieve the work demand under the most proper precision.

⁎ if the is 10S leisure in process of revising data, it would return to test state automatically.

Operation process

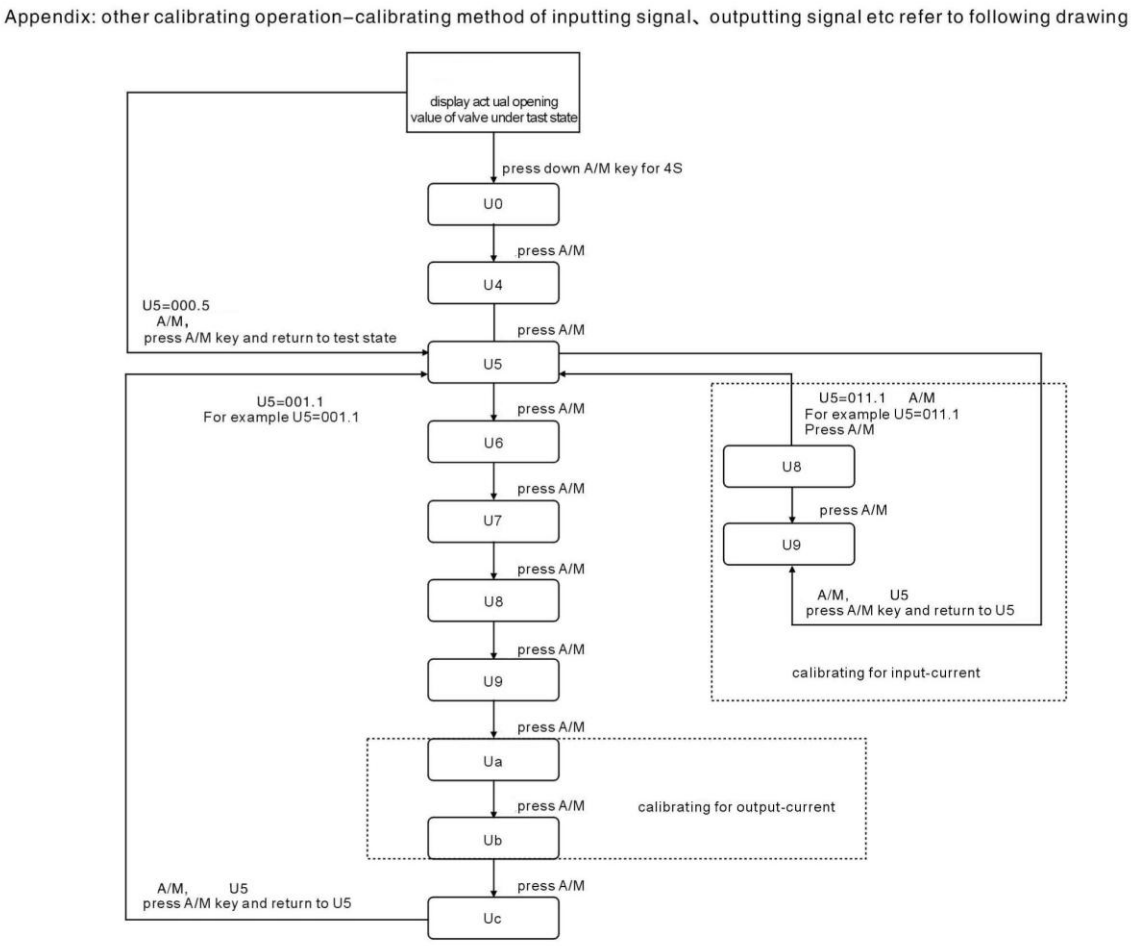


Setting operation method of intelligent localizer

Wrong code list

Wrong code	Meanings
E-01	The controlling signal disrupt or below 0.3mA
E-03	The signal feed back line or open-close line between localizer and execution device are connected contrarily
E-05	Execution device produces obvious oscillation, maybe because the input signal or feedback signal are unable, precision being too high etc.
E-06	Blocking phenomenon occurred during execution device, operation in “open” direction
E-07	Blocking phenomenon occurred during execution device, operation in “open” direction
E-08	The temperature inside localizer’s casing exceeds 70ºC

Appendix: other calibrating operation-calibrating method of inputting signal, outputting signal etc rater to following drawing



The introduction of up grading edition for ZXQ2004 model

1. Adding to simple automatically calibrating method. Under automatic state, pressing A/M key and∇ key, then disentangling then at the same time, starting the automatic calibrating.

2. According to the calibrating method form the introduction book, after calibrating the full position (U7), pressing confirm key (A/M), it will not return U5immediately, however, the electric valve will go to 10% position of calibrating measurement, then return U5

3. The model adds to the function which can make the valve work all the time. When the electric valve does not work (in 10% of the measurement), the model will stop controlling output, then it will check the valve again in one minute. If the malfunction does not eliminate, it will check the valve again, three times in total. If the malfunction does not eliminate again, the model will stop checking, indicate the malfunction code, as far as the malfunction is eliminated.

You can make the model get right by pressing panel key or electrifying again.

(This operation in not required after ex-factory aenerally, if required, please use it under engineer's instruction)

♦ Under normal test state of localizer, pressing A/M key for 4S would enter into setting data state; the "U0" data valve will be displayed, operator also could select "U5" data by A/M. Pressing ∆,∇ key could change numerical valve of "U5" to be 011.1. (Numerical meaning refers to following form)

♦ Entering into "U8" data for calibrating zero position of inputting current; when calibrating, the signal of inputting zero position (is 4mA commonly), then pressing A/M key for confirmation, and enter into "U9" data

data	Display	Meanings
U5	0xx.x	Enter into cipher calibrating, U5=011.1. enter input-current calibrating : U5=001.1,enter into output-current calibrating : U5=003.1 , enter into zero, full position calibrating of execution device
U6	xxx.x	Execution device, zero-position confirmation data
U7	xxx.x	Execution device, full- position confirmation data
U8	xxx.x	Input-current zero- position confirmation data
U9	xxx.x	Input-current full- position confirmation data
Ua	xxx.x	Calibrating output-current zero-position data
Ub	xxx.x	Calibrating output-current full-position data
Uc	xxx.x	Revise temperature inside casing

♦"U9" data is calibrating input-current full measuring range: when calibrating, please input full measuring range signal (is 20mA generally) and press A/M key for confirmation, then enter into "U5" data;

♦ The signal must be inputted stably in above operation;

♦Change U5 to be 001.0, then press A/M key for entering into U6data;

♦Skip data U5, U6, U7, U8 for entering into Ua:

♦"Ua" is calibrating output-current zero position: when calibrating, pressing∆,∇ key so as to set the calibrated output to be 4mA or other numerical valve, which is corresponding, to the zero position outputting signal valve of execution device, then pressing A/M key for confirming and enter into "Ub" data;

♦"Ua" is calibrating output-current full measure range: pressing∆,∇ key so as to set calibrated output to be 20mA or other numerical valve, which is corresponding, to the full

position outputting- signal valve of execution device, then pressing A/M key for confirming and enter into “Uc” data;

♦”Uc” data is calibrating temperature inside casing, pressing∆,∇ key for regulation:

♦Pressing A/M key for confirmation, then return to “5” numerical valve to set U5 to be 000.5. then pressing A/M key for confirmation and return to test state.

Use and maintenance

The manual operation is banned during electrification

This product has pass completely-test and checkout conducted by quality-test workers before ex-factory. In the process of installation, connection between product and valve, the valve maybe can’t be wholly opened and closed because of valve’s coupling problem etc, in this case, the readjusting is required, it’s process stated specifically as followings:

♦ Firstly, installing and connecting correctly the execution device and valve;

♦ Manually test-run

Unload electric cover and handle-exle rubber stopper, then inserting enclosed hexagonal handle into hexagonal hould and rotating it in clockwise direction, the valve’s opening valve would be reduced;

When valve at wholly-closed position, please observe whether the limit stoke switch in “close”

direction works or not (it will produce crack sound when working), then rotate handle for semi-circle so as to check whether the mechanical stop touches regulation screw or not;

Rotating handle in anticlodkwise direction and the valve’s opening valve would increase, then like the operation above stated, operator should check the limit stroke switch and mechanical stop. After manually test-run, operator should install the electric cover and rubber stopper.

♦ Electric test-run

Unload wiring cover and doing wiring correctly according to circuit drawing on cover;

Electrifying for test-rim, operator should tate notice of working circumstance of execution device and valve.

Failure and countermeasure

Failure state	Cause	Countermeasure
Electric-machine doesn't rotate	The power-supply's voltage is low or no power-supply	Checking of power-supply volt
	Input signal is broken or the value is not enough	Checking of input signal
	Line-breakage or departing form terminal-stand	Connecting wrie well, change terminal stand for new one
	Temperature protector works	Reduce surrounding temperature
		Reduce use frequency
		Load is too heavy
	Limit switch has worked at the Time of middle-opening	Regulating stroke stop
	The electric capacity used for electric machine's enter-phase is damaged	Change electric-capacity
	Electric-machine, line-breakage	Change motor
	Control box damaged	Change control box
The opening is changed without stop	There is interruption signal in signal source	Check input signal
	The interruption is produced form divisor	Change potentiometer
	The gear of divisor or opening are loosened	Check screw of tightening gear
The input signal doesn't conform with opening	Input signal is wrong	Check input signal
	The regulation of zeroing multiplying-power has problem	Readjust multiplying-power zero position
	Position-changing of potentiometer's gear	Readjusting of potentiometer's gear
No opening signal	Opening signal line is broken or connection has problem	Check wiring