



INSTRUCTION MANUAL
NTQ Series Electric Actuator
(Weather-Proof Enclosure)

ELECTRIC ACTUATOR

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Summary

General Description

- NTQ series actuators are the new generation product of our company and can be used for driving and controlling the butterfly valves ,ball valves,plug valves(part-turn valves with 90°movement). The actuators can be either remotely control or locally control.They are widely used in the fields such as oil,chemistry, power generation,water treatment,paper making.
- The protection class is IP 67,and the explosion proof class is dIIBT6 (with letters of “Ex”)

Mechanical Characteristic

- Housing:**Hard anodized casting Aluminum and external epoxy powder coated against severe industrial environment.
- Gearing:**Precisely machined double worm gear low noise, high output torque.
- Self locking:**Provided by double worm gearing to keep position of valve unchanged against reverse torque from valve.
- Motor:**Specially designed induction motor to generate high starting torque and high efficiency equipped with thermal protector to prevent damage from over heating,Insulation class F
- External mechanical stopper:**Prevents over run of travel angle when limit switch fails.
- Torque switches:**Protect actuator from damage caused by overload from the driven valve over the whole travel,1 each for open / close
- Limit switches:**Directly engaged with driving shaft to set accurate position of valve,supplying a dry contact signal.
- Terminal:**Spring loaded push type terminal for tight wiring connection under severe vibration.
- Space Heater:**Anti-condensation
- Manual override:**Auto / Manual switchable lever and handwheel engagement for emergency manual operation,Drive force automatically resorted by motor start, unless lever padlocked to prevent this occurring.
- Handwheel:**Manual operated,turn ON/OFF valve directly when power off.

Electrical characteristics for local control

- Reversing electric contactors,Phase Detector,Overheat,Overload.
- DC24V Voltage or contact for remote control.
- Convenient and flexible in wiring.
- Exchanged freely between remote control and ON-OFF control.
- Impenetrable design to improve the sealing of actuator for local button box.
- Five pieces passive contact signal indicate the working situation of actuators, conveniently monitor for DCS system
- Setting monitoring relay,supplying Comprehensive fault signal for DCS system.
- For select switch,can use common padlock locking according to requirments to preventing the false operation

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Working environment and main technical Parameters

●Working environment

- Supply Power
3PH: AC380V、AC415V、AC440V; $\pm 10\%$ 50/60Hz;
1PH: AC110V、AC220V、AC24V; $\pm 10\%$ 50/60Hz;
DC: DC24V($\pm 10\%$)。
- Basic error:2.5%
- Outdoor protection class:IP67 (std.),IP68(optional)
- Temperature: -20~60℃.
- Height above sea level: $\leq 1000\text{m}$
- Humidity: $\leq 90\%$ (25℃)
- No corrosion media at working environment.
- Non explosion-proof products can't be used at mixed explosive gas environment

Technical Parameters

Item Parameter	NTQ1		NTQ2			NTQ3		NTQ4		NTQ4JS			
	-6	-10	-16	-20	-24	-35	-50	-80	-110	-200	-250	-400	-600
Output Torque (N.m)	60	100	160	200	240	350	500	800	1100	2000	2500	4000	6000
Working time (S)	21	26	28	28	28	32	32	36	36	110	110	180	180
Motor Power (W)	20	20	40	40	45	60	90	120	180	120	180	120	180
Rated Current (A)													
AC220V	0.45	0.5	0.6	0.6	0.7	0.9	1.3	1.5	2.2	1.5	2.2	1.5	2.2
AC110V	-	1.0	1.45	1.5	1.6	1.8	3.2	3.9	4.2	3.9	4.2	3.9	4.2
AC440V	-	0.26	0.30	0.35	0.39	0.42	0.86	1.2	1.6	1.2	1.6	1.2	1.6
AC415V	-	0.24	0.28	0.32	0.37	0.40	0.81	1.15	1.55	1.15	1.55	1.15	1.55
AC380V	-	0.22	0.25	0.3	0.35	0.38	0.8	1.1	1.5	1.1	1.5	1.1	1.5
AC/DC 24V	-	1.7	2.0	2.2	2.8	4.0	6.9	9.8	12.5	9.8	12.5	9.8	12.5
circle number of handwheel	8.5	10	12			13		14.5		46		73	
Weight (Kg)	8		14			18	19	24	26	50	52	200	202

Note: With local control,total weight may increase 4kgs.



Main structure and functions

- Motor: 220V single phase motor or 380V, three Phase .
- Speed reducer: it is composed of two class of worm and worm gear.
- Travel control and position direction: from the output shaft to lead out the cam shaft to make 90° rotation, and the limit cam can also make 90° rotation to control the travel. The position indicating plate is co-axial with the cam shaft to make 90° rotation and indicate the valve position. And also can provide potentiometer for remote electric signal output which is not provided normally (The user should specify when order)
- Torque control unit: to control torque of the actuator. It is composed of cams of both close and open and microswitch. (NTQ1 don't have this part)
- Manual override: It is semi-automation with the priority of electric operation. Pull the handle and then turn the handwheel to realize manual operation. In electrically operated, switching the handle will return to electric position automatically and realize electric operation.

Main structure Diagram of electric actuator:

NTQ series actuator is composed of motor, speed reducer, travel controller, torque controller, position indicator, handwheel, mechanical position limiter. Chart 1 is below

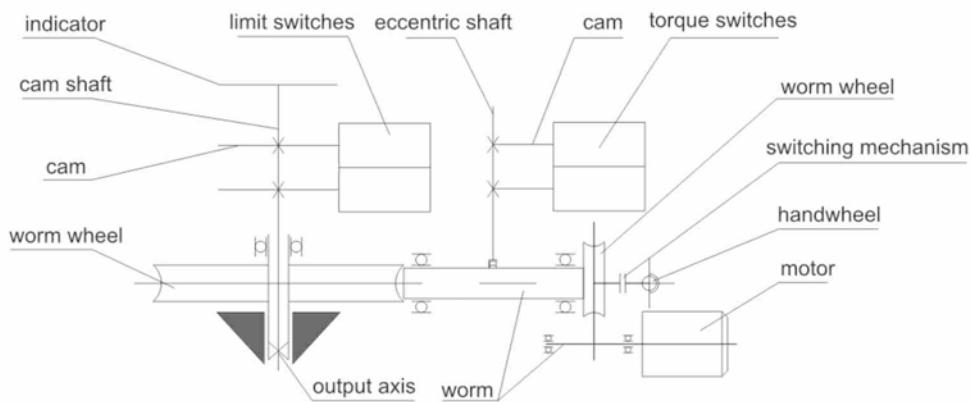
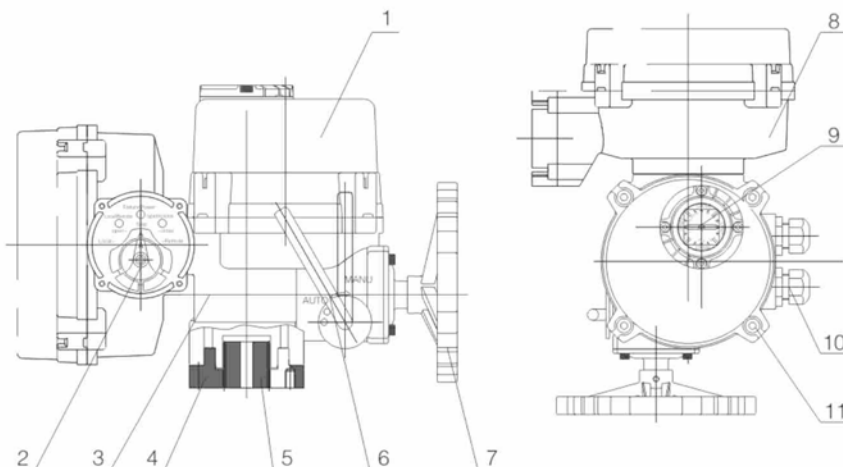


Chart 1

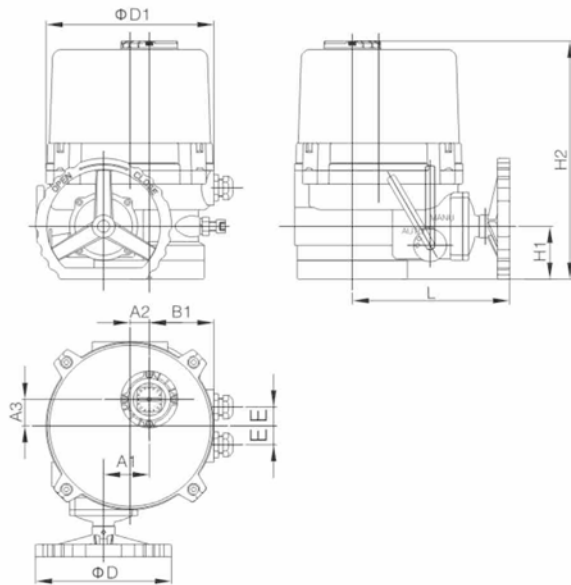
Outline dimensions and valve connection size



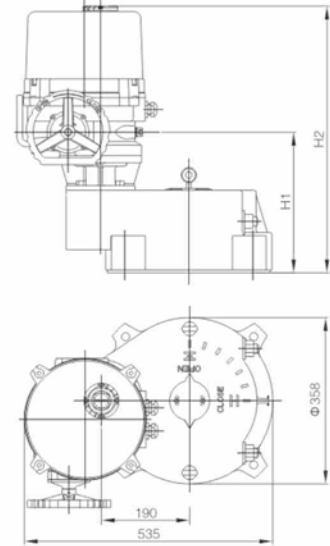
NO.	Name
1	top cover
2	switch box
3	body
4	connection flange
5	adaptor
6	manual override
7	handwheel
8	local control box
9	indicator
10	G ^{3/4} Wire lock
11	Nut M8/NTQ1-3 M10/NTQ4

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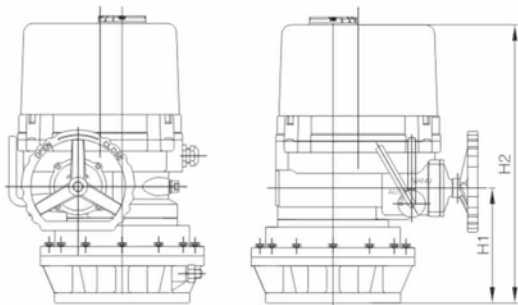
Outline dimension



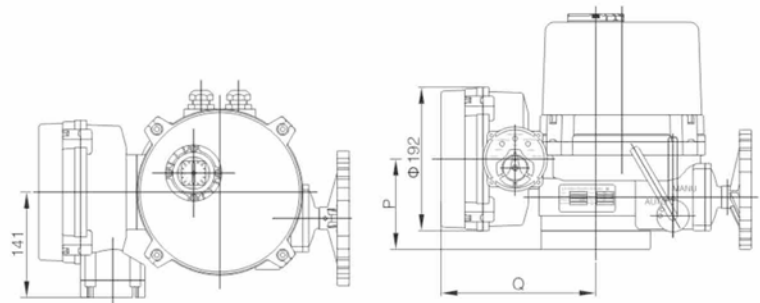
NTQ1-NTQ4 Outline dimension



NTQ4JS-400/600 Outline dimension



NTQ4JS-200/250 Outline dimension



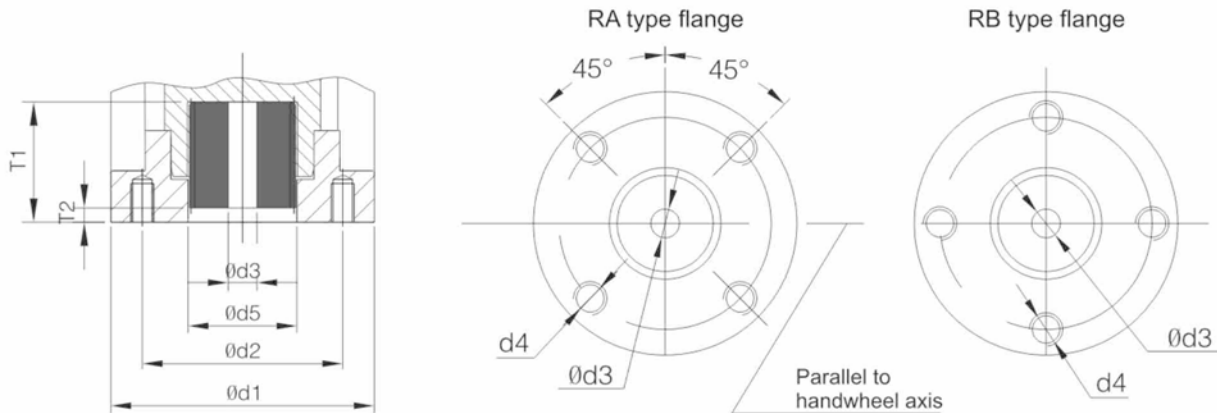
with Local control outline dimension

Item	A1	A2	A3	B1	D	D1	E	H1	H2	L	P	Q
NTQ1	41	12	31	67	100	157	23	55	223	167	96	179
NTQ2	57.5	23.5	27	80.5	180	206	25	67	261	197	112	207
NTQ3	60.5	25.5	35	85.5		222		70	315	208	121	207
NTQ4								81	352	230	132	222
NTQ4JS-200/250	70	35	40	96		262		185	456	230	236	222
NTQ4JS-400/600								303	574	/	/	/

★NTQ4 with a speed reducer becomes to NTQ4JS



Flange structure and connection size of valve

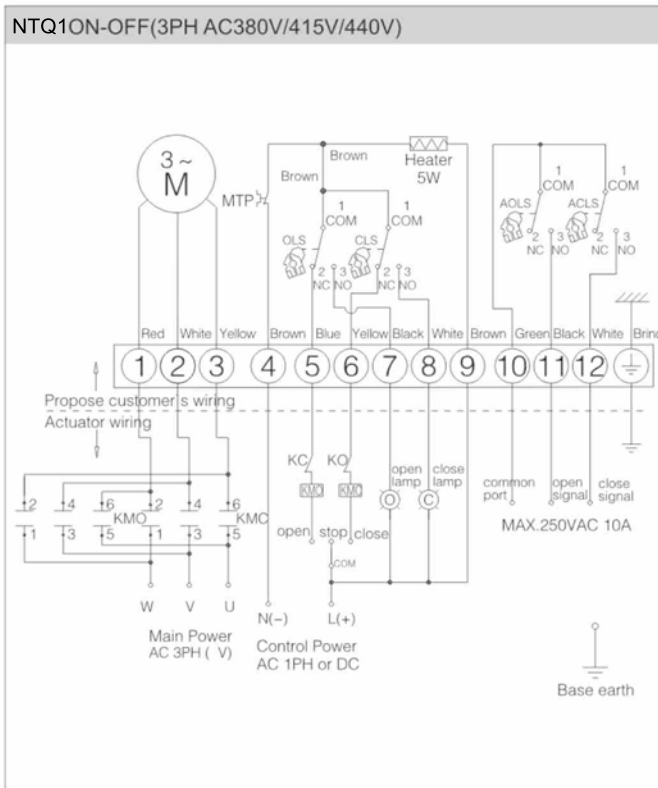
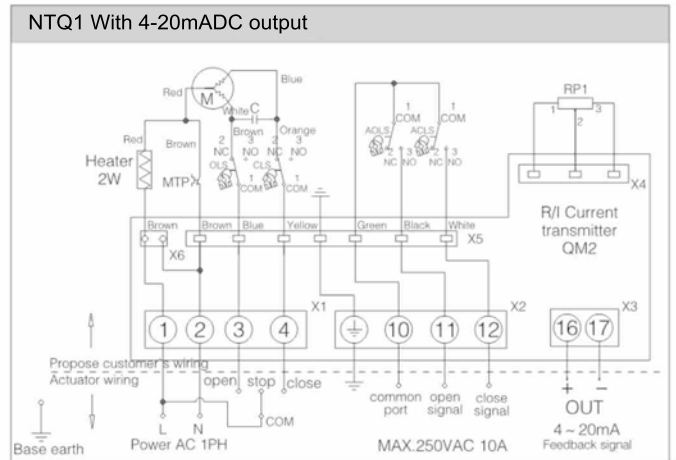
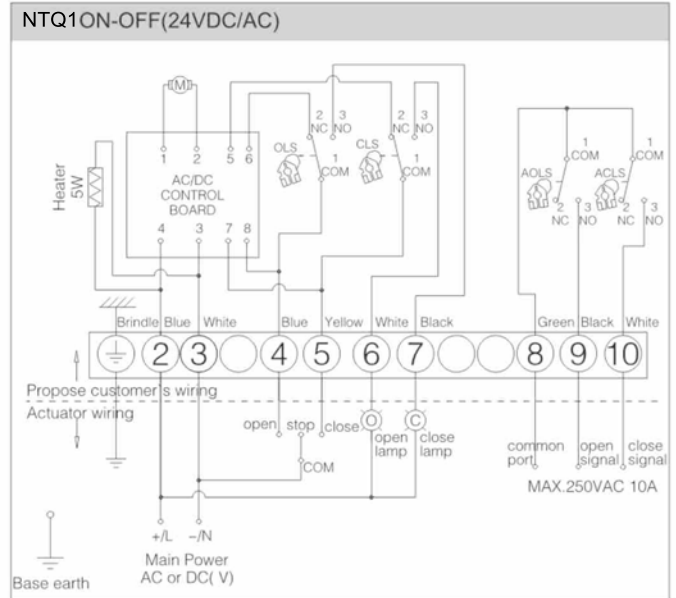
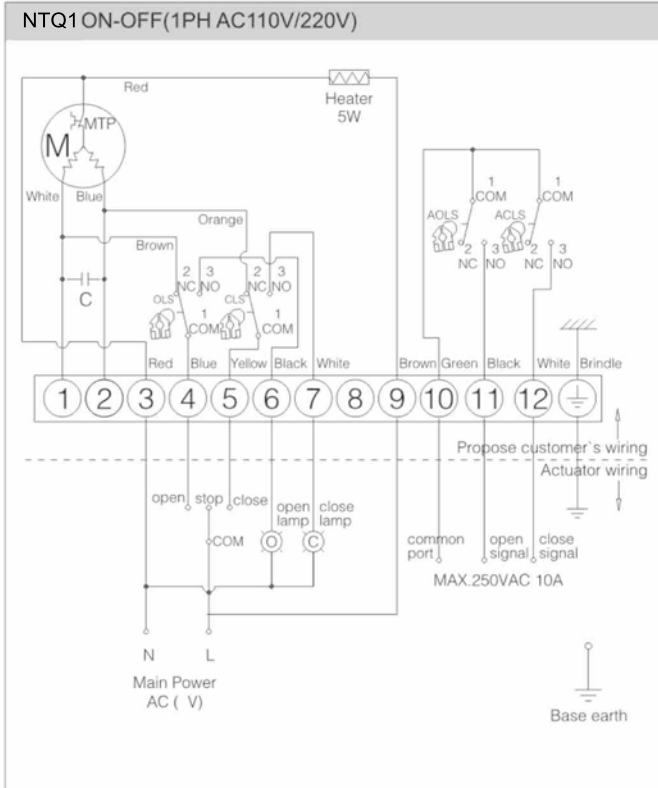


Code Item	Flange type	d1	d2		d3		d5	T1	T2	d4		
			Standard dimensions	ex-factory dimensions	ex-factory dimensions	Max. permission						
NTQ1	RA	F05	Φ50	Φ50	Φ8	Φ22 □20	Φ39	42	3	4-M6 depth 12		
		F07	Φ70	Φ70						4-M8 depth 12		
	RB	2°	Φ57.15	/						4-M6 depth 12		
		3°								4-M6 depth 12		
NTQ2	RA	F07	Φ70	Φ70	Φ10	Φ32 □25	Φ48.5	49	3	4-M8 depth 15		
		F10	Φ102	Φ102						4-M10 depth 15		
	RB	4°	Φ69.85	/						4-M10 depth 15		
		5°								4-M10 depth 15		
		6°								4-M10 depth 15		
		4-M10 depth 15										
NTQ3	RA	F10	Φ102	Φ102	Φ10	Φ32 □25	Φ48.5	51	5	4-M10 depth 15		
		F12	Φ125	Φ125						4-M12 depth 15		
	RB	8°	Φ88.9	/						4-M12 depth 15		
		10°								4-M12 depth 15		
NTQ4	RA	F12	Φ125	Φ140	0	Φ42 □38	Φ90	62	7	4-M12 depth 18		
		F14	Φ140							4-M16 depth 25		
	RB	12°	Φ107.95	/						4-M12 depth 20		
		14°								4-M12 depth 20		
NTQ4JS- 200/250	RA	F14	Φ140	Φ165	0	Φ60 □50	Φ118	75	7	4-M16 depth 25		
		F16	Φ165							4-M20 depth 25		
	RB	16°	Φ158.75	/						4-M18 depth 25		
		20°								4-M18 depth 25		
NTQ4JS- 400/600	RA	F16	Φ165	Φ254 Φ298	Φ25	Φ60/□50	Φ118	118	8	4-M20 depth 25		
		F25	Φ254		Φ30					Φ70 □60	Φ150	8-M16 depth 30
		F30	Φ298		Φ30					Φ70 □60	Φ150	8-M20 depth 35

Note: We can make the dimensions of d2 and d3 according to clients requirements.

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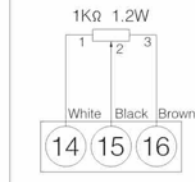
Wiring drawing of NTQ1 ON-OFF type



The working state of the limit switch and torque switch

ON-OFF	Full Close	Middle Position	Full Open
CLS 1-2	—	—	—
CLS 1-3	—	—	—
OLS 1-2	—	—	—
OLS 1-3	—	—	—
ACLS 1-3	—	—	—
AOLS 1-3	—	—	—

R type:
(with precision potentiometer)

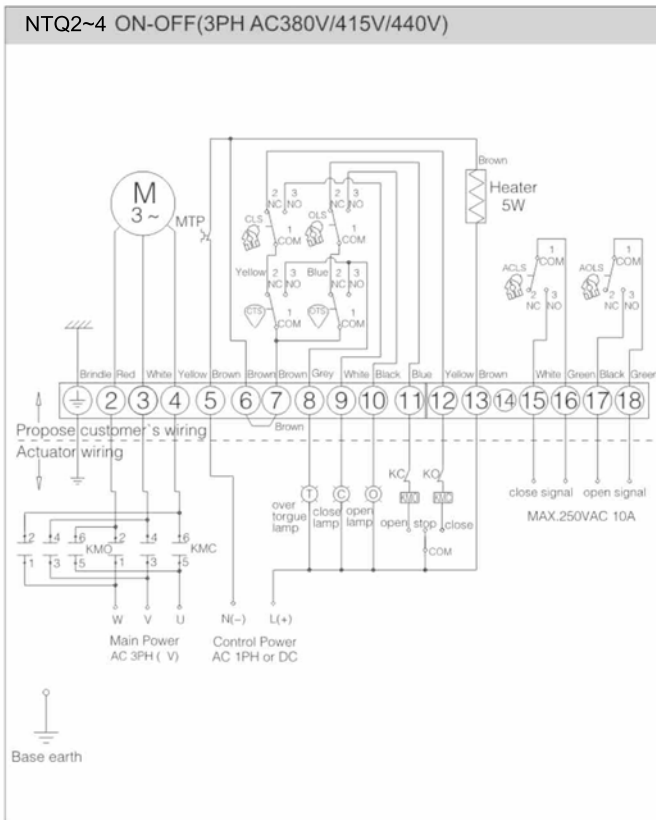
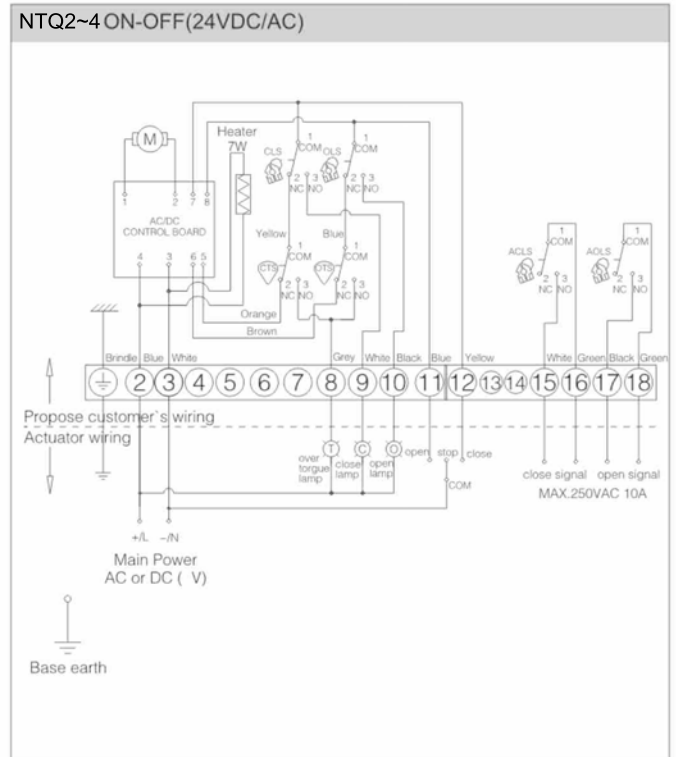
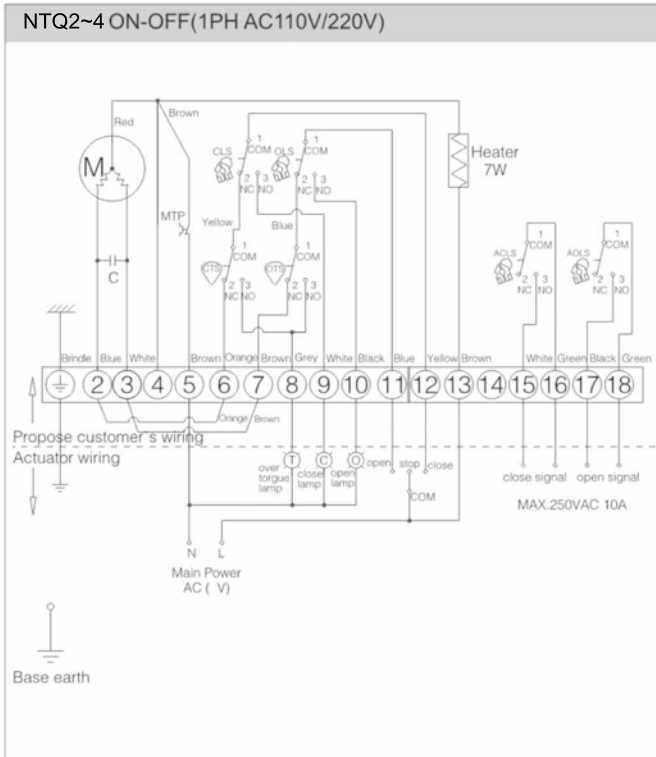


- AOLS: Aux.Open Limit Switch
- ACLS: Aux.Close Limit Switch
- O: Open lamp
- C: Close lamp
- CLS: Closing limit switch
- OLS: Opening limit switch
- KMC: Closing contactor coils
- KMO: Opening contactor coils
- MTP: Motor Thermal Protector
- M: Motor

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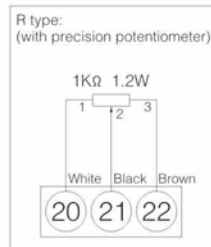
Wiring drawing of NTQ2~4 ON-OFF type



The working state of the limit switch and torque switch

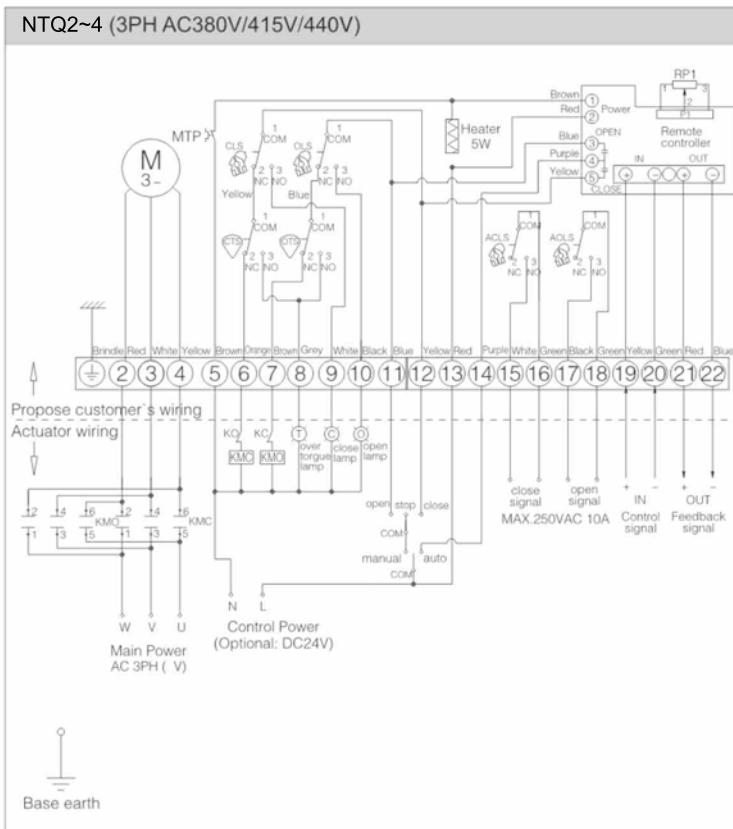
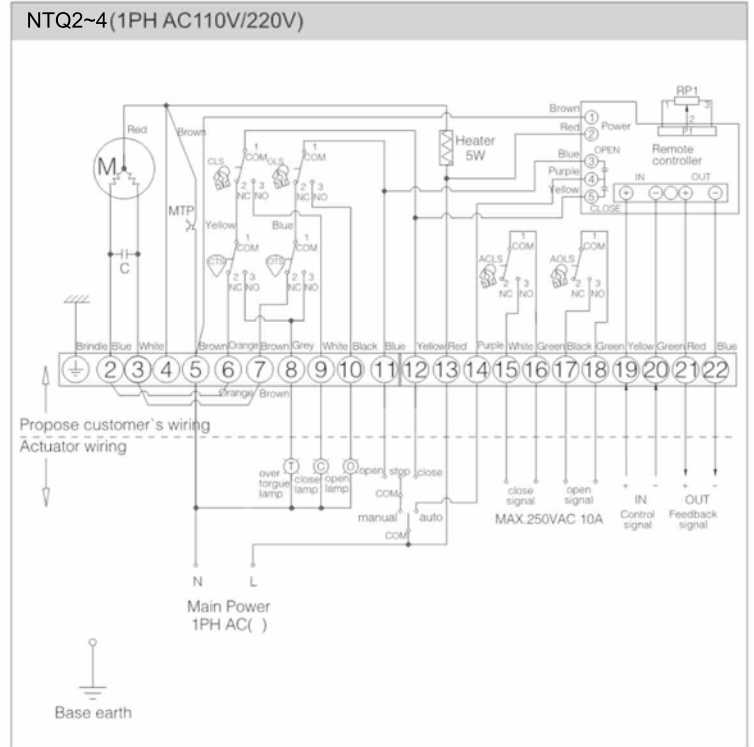
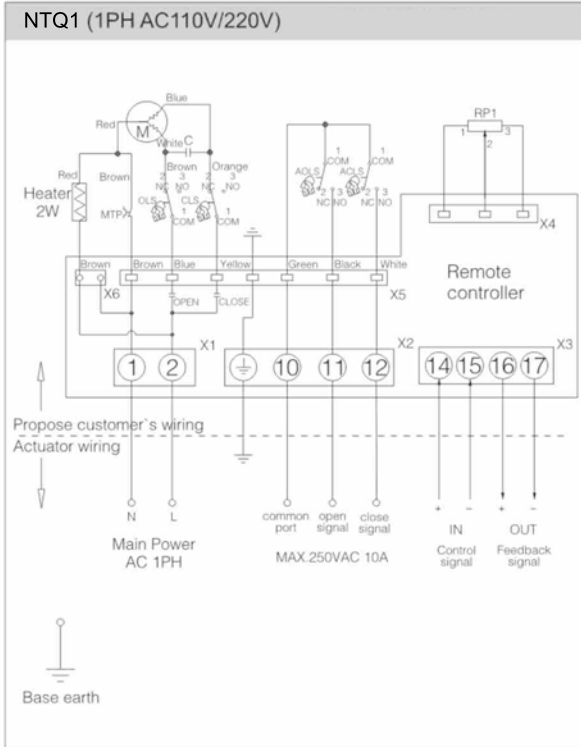
ON-OFF	Full Close	Middle Position	Full Open
CLS 1-2			
CLS 1-3			
OLS 1-2			
OLS 1-3			
ACLS 1-2			
ACLS 1-3			
AOLS 1-2			
AOLS 1-3			
CTS 1-3	Closing torque switch interrupts control when mechanical overload occurs during closing cycle		
OTS 1-3	Opening torque switch interrupts control when mechanical overload occurs during opening cycle		

- AOLS: Aux.Open Limit Switch
- ACLS: Aux.Close Limit Switch
- O: Open lamp
- C: Close lamp
- T: Over torque lamp
- CLS: Closing limit switch
- OLS: Opening limit switch
- CTS: closing torque switch
- OTS: opening torque switch
- KMC: Closing contactor coils
- KMO: Opening contactor coils
- MTP: Motor Thermal Protector
- M: Motor



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wiring drawing for modulating control type



The working state of the limit switch and torque switch

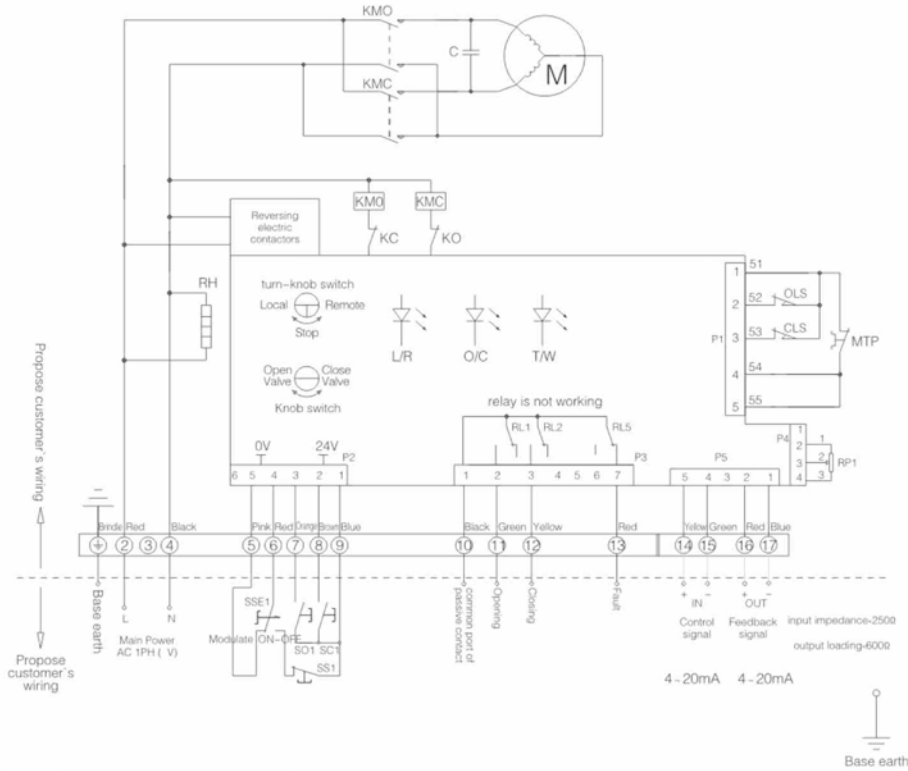
ON-OFF	Full Close	Middle Position	Full Open
CLS 1-2	—	—	—
CLS 1-3	—	—	—
OLS 1-2	—	—	—
OLS 1-3	—	—	—
ACLs 1-2	—	—	—
ACLs 1-3	—	—	—
AOLS 1-2	—	—	—
AOLS 1-3	—	—	—
CTS 1-3	Closing torque switch interrupts control when mechanical overload occurs during closing cycle		
OTS 1-3	Opening torque switch interrupts control when mechanical overload occurs during opening cycle		

- AOLS: Aux.Open Limit Switch
- ACLs: Aux.Close Limit Switch
- O: Open lamp
- C: Close lamp
- T: Over torque lamp
- CLS: Closing limit switch
- OLS: Opening limit switch
- CTS: closing torque switch
- OTS: opening torque switch
- RP1: potentiometer feedback、1KΩ
- KMC: Closing contactor coils
- KMO: Opening contactor coils
- MTP: Motor Thermal Protector
- M: Motor



Wiring drawing for local control unit

NTQ1 With Local Control unit (1PH AC110V/220V)



The working state of the limit switch

ON-OFF	Full Close	Middle Position	Full Open
OLS			
CLS			

Illustration:

1. This chart means the electric actuator is in middle position.

L/R: Local/Remote working lamp.

O/C: Valve open/valve close lamp.

T/W: Failure/Power lamp.

RP1: potentiometer feedback, 1KΩ

RH: Heater

OLS: Opening limit switch

CLS: Closing limit switch

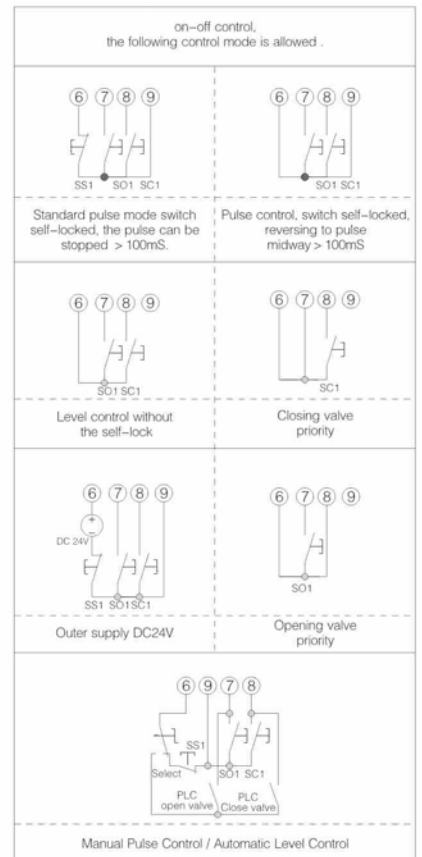
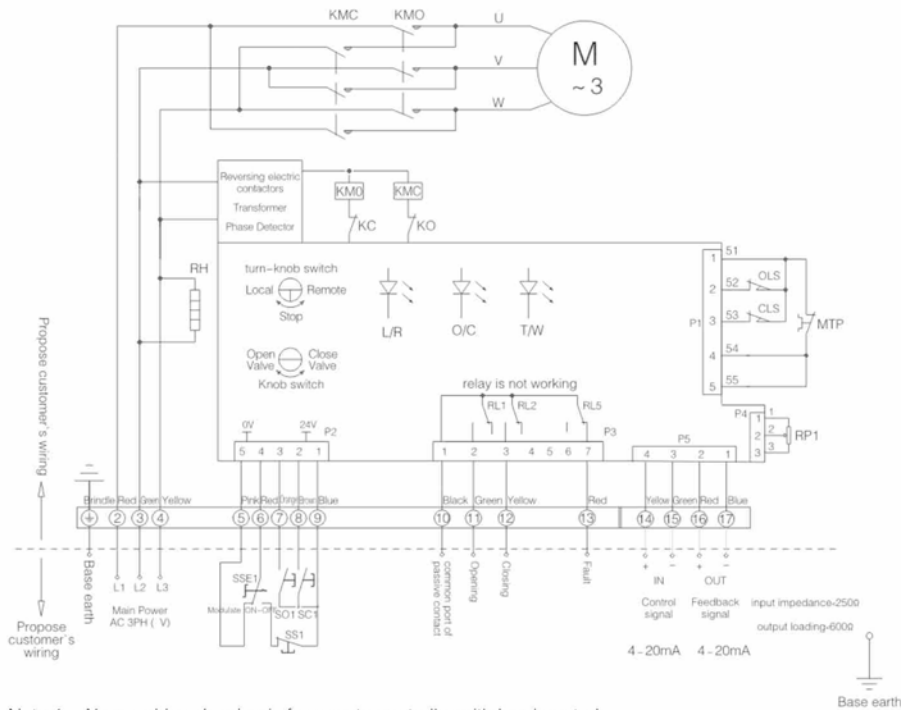
KMC: Closing contactor coils

KMO: Opening contactor coils

M: Motor

MTP: Motor Thermal Protector

NTQ1 With Local Control unit (3PH AC380V/415V/440V)

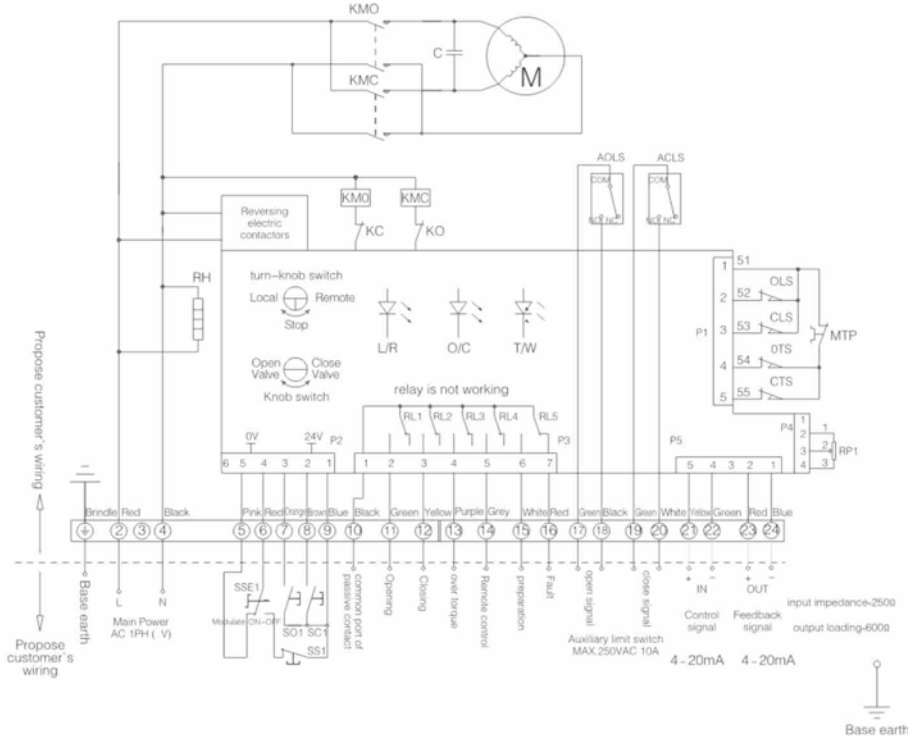


Note: 1. Above wiring drawing is for remote controller with local control..

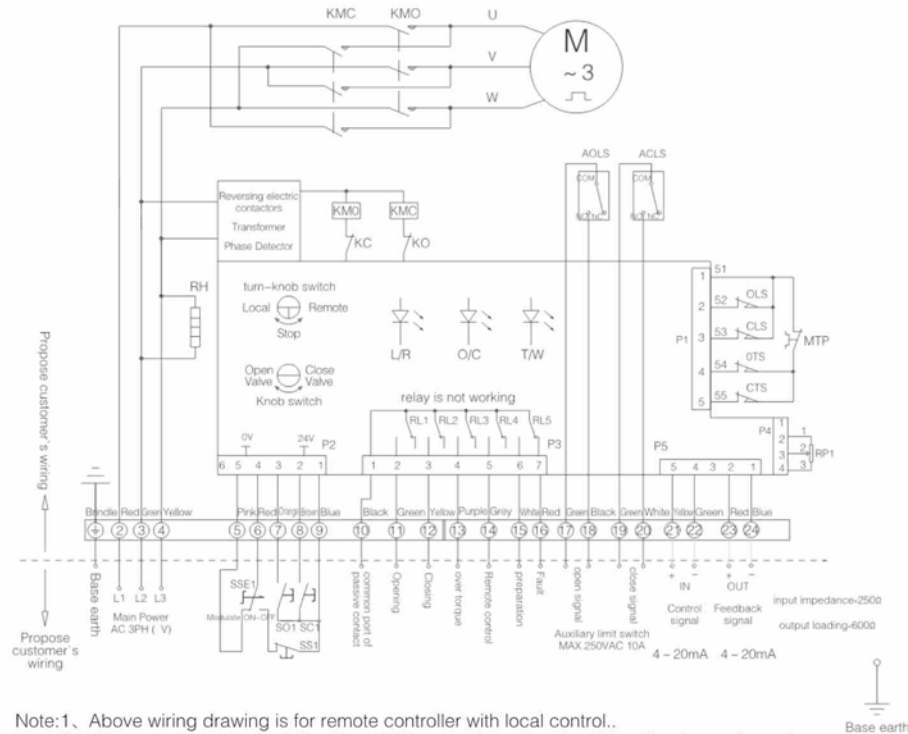
2. When electric actuator is for ON-OFF type with local control, it is without remote control function also without potentiometer feedback and input/output signals for modulating.

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NTQ2-4 With Local Control Unit (1PH AC110V/220V)



NTQ2-4 With Local Control Unit (3PH AC380V/415V/440V)



Note: 1. Above wiring drawing is for remote controller with local control.
 2. When electric actuator is for ON-OFF type with local control, it is without remote control function also without potentiometer feedback and input/output signals for modulating.

The working state of the limit switch and torque switch

ON-OFF	Full Close	Middle Position	Full Open
OLS			
CLS			
AOLS			
ACLS			
CTS	Closing torque switch interrupts control when mechanical overload occurs during closing cycle		
OTS	Opening torque switch interrupts control when mechanical overload occurs during opening cycle		

Illustration:

1. This chart means the electric actuator is in middle position.

L/R: Local/Remote working lamp.

O/C: Valve open/valve close lamp.

T/W: Failure/Power lamp.

RP1: potentiometer feedback, 1KΩ

RH: Heater

OLS: Opening limit switch

CLS: Closing limit switch

CTS: closing torque switch

OTS: opening torque switch

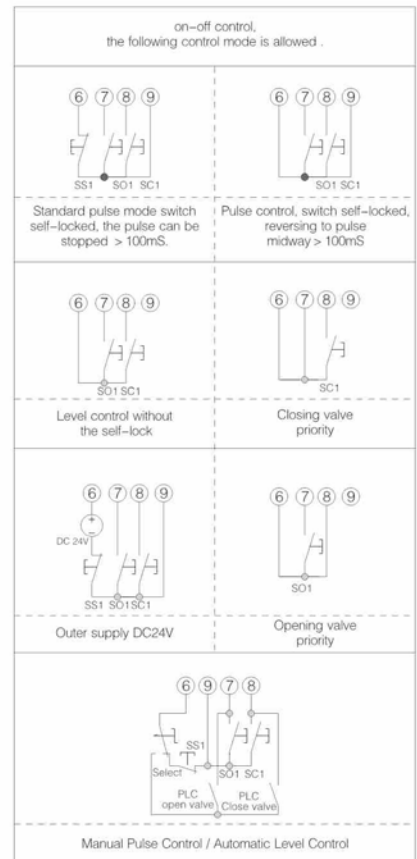
AOLS: Aux.Open Limit Switch

ACLS: Aux.Close Limit Switch

KMC: Closing contactor coils

M: Motor

MTP: Motor Thermal Protector





Wiring drawing

●Remove the box cover:

Use "L" spanner, loose the four hex screws of the box (Please just release them), then remove the box cover from the box, You can find the wiring diagram , the wiring diagram for ON-OFF type is inside of the box cover.

●Wiring:

In accordance with the schematic, power cables and control cables come through the entry connector and connect with the terminal block, do not forget to connect the base earth (one is in the wiring cavity; the othe is in the outer wall of the cover), cable jacket should be ensured that the sealing rubber plug in the cable connector hole, tighten the jacket, lock cable, and make sure the supply voltage must be consistent with the technical data on the nameplate !

After the wiring, box cover screws must be tightened to ensure a good seal.

●Cable connector seal:

In any work environment, even though the product are not used, the inside tube of the cable connector block must be sealed ,these valve actuators are subjected to inspection before shipment ,and if not timely installed, the device should be stored in a dry place, don't remove the tube block before you complete the wiring to prevent corrosion damage.

Notes for ON-OFF type wiring:

- Please don't contact actuators more than two sets in a parallel circuit. Aslo can't use the same connection point to contact them above two sets,otherwise,the actuator will be out of control ,or the motor will overheat.
- When use the 3PH Power,In order to avoid the actuators get out of control,you have to ensure the actuators stop at the middle postion of the Stroke angle before operation.

Push the "ON "(or "OFF")button,the actuators should begin to "open"(or "close"), Conversely,if it begin to "close"(or "open"),please cut off the power, also please change any two input phase lines.

Connection of electric actuator and valve

●Adaptor (Chart 3)

a.toothed adaptor

- Use the "L" spanner to unscrew the two screws of the adaptor,
- Make the adaptor according to the valve stem.
- put the processed adaptor into the output shaft according to the direction of the keyway.

b.cylindrical adaptor.

- Use the "L" spanner to unscrew the two screws of the adaptor, and then Screw in the next screw hole,then remove the adaptor.
- Make the adaptor according to the valve stem.
- put the processed adaptor into the output shaft according to the direction of the keyway,then tighten the two screws.

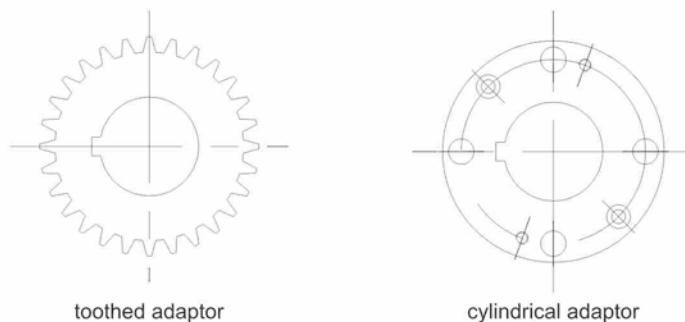


Chart 3

●Flange connection

Flange connection should be consistent with the structure of electric devices, to ensure the correct connection between the electrical actuator and the valve through the adaptor.

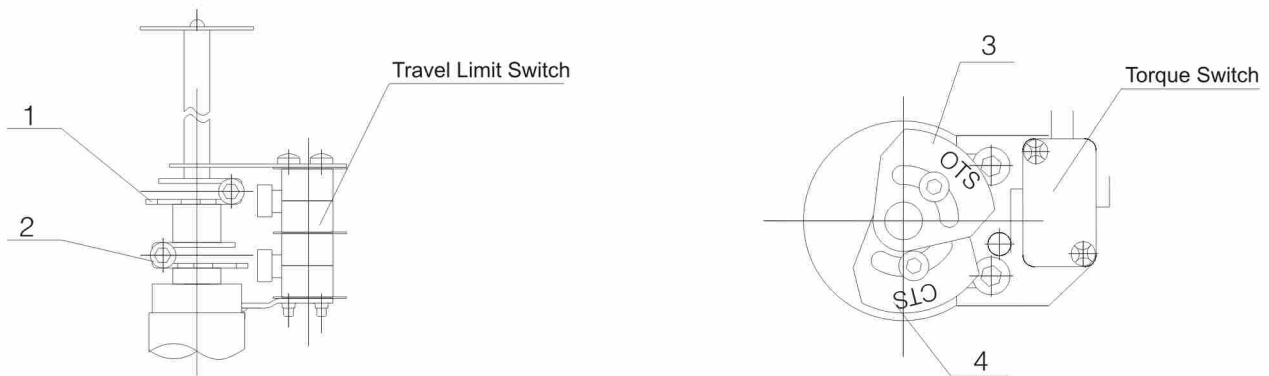
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Adjustment

● Setting of the travel limit switch

After above operation, please ready to make the following adjustments:

- Pull the manual override to the manual position, turn the hand wheel clockwise to make sure the valve of the fully closed position.
- Use "L" spanner, loosen the screws on the CLS CAM (see below figure) .
- Adjust the CAM, let it contact with the lower limit switch, then tighten the screws.
- Power on, press the "ON" button, run to the opposite direction first, and then run to the "OFF" direction to check the valve "OFF" direction, repeat several times until meet the requirements. Conversely, fully open position adjustment as normal. Valve position can be adjusted several times in order to reach the same opening and closing of the valve .



No 1. The upper OLS CAM – used to the open direction travel limit switch.

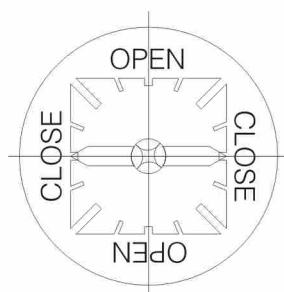
No 2. The lower CLS CAM – used to the close direction travel limit switch.

No 3. The upper OTS CAM – used to the open direction over torque switch

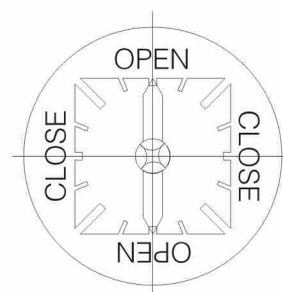
No 4. The lower CTS CAM – used to the close direction over torque switch.

● Valve Position Indication

"OPEN" and "CLOSE" position of the indicator



valve closed position



valve open position



●Mechanical Limit Bolt

- Two mechanical limit screws on the device have been tested and tightened when the factory ,if no special requirements, users do not have to loose them.
- In case of having to adjust limit screws, please confirm the valve position by the screws first, when dextrorotation is closed, the right is closed limit screw and the left is open limit screw (when the opening window upward, face the limit screw adjustment).
- After adjusting valve limit position,please tighten up the screws of fan-shaped switch first, then return back 0.5~1 circle to protect the limit switch and overtorque. Finally, tighten up limit screw, by now, the limit adjustment is completed.

●Open -Close testing

You should check action of ON-OFF,OFF-ON for valve,at the same time,you also have to check the indicator and ON/OFF lamp after you finish the setting of ON-OFF position and mechanical limit.

●Torque switch

Normally, due to the setting reaches rated torque before leaving factory, there is no need to re-set or adjust the torque switch,. Please operate by professional if necessary.

The actuators of NTQ2-NTQ4 type has two torque switches respectively for on/off switch. You can use 3mm subtense L type of hexagonal wrench to loose screws on cam, then turn the cam to change torques.

Warning: must use special precise instrument for setting torque switch to protect electric actuators and valves. Quality will not be guaranteed if you must re-set and adjust over torque control unit randomly.

Manual -Override

The electric actuator has hand wheel which can be operated manually in case of emergency

Manual operation:

The manual position (motor is not started)will be locked itself after moving manual-override to the direction of handle wheel(if it is not successful ,please turn the hand wheel within small angle). On-off is controlled by rolling hand wheel, clockwise direction is to shut.

Note:

The design of the Manual-override is automatic resetting. When motor works , Manual-override will change to Auto position automatically

Do not change to Auto position manually when Manual-override stays at Manual ,otherwise, will damage the actuator.

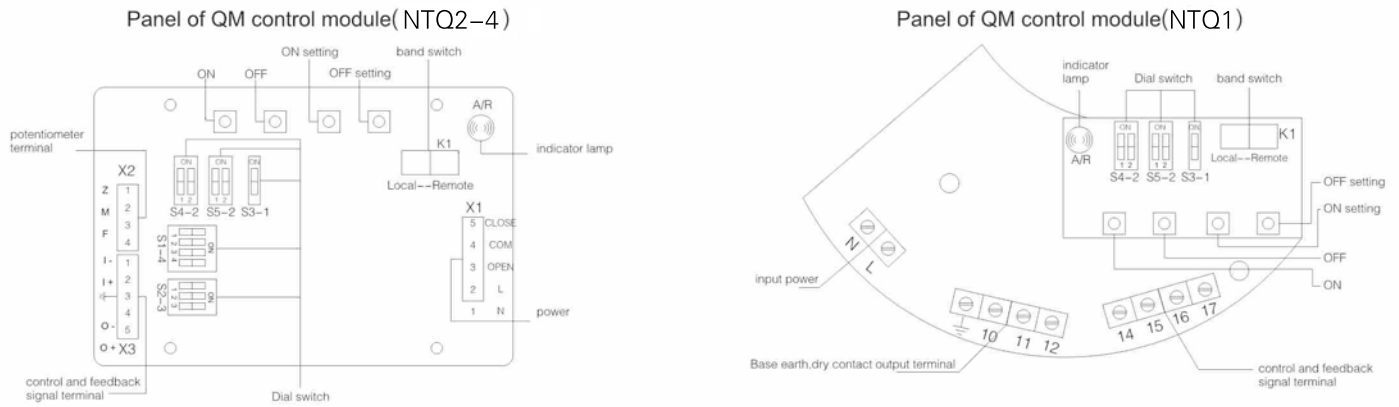
Operation instructions of modulating control

●main technical Parameters of QM control module

- Protection function for failure of inputting control signal judged
- With local control function.
- The center position of potentiometer identify, failure alarm function
- Available set of dead zone and action according to practical usage
- Free to choose input/output signal:4-20mA or 0-10v(DiP switch)
- Input resistance :150 Ω (current) \geq 400k Ω (Voltage)
- Load resistance for current output: \leq 750 Ω
- Lag :not more than 0.5s

ELECTRIC ACTUATOR

● Panel of QM control module

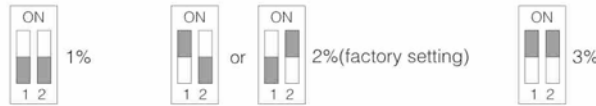


● Operation instruction of QM control module

1. state and meaning of dip switch(it only can be confirmed when dip switch is under "Local "state)

1) setting of dead zone

It is controlled by dial switch S4-2,including three statuses:1%,2%,3%.the corresponding relationship between switch state and dead zone data is as following



2) treatment of valve position when control signal is failed

treat actuators as signal failure when control signal is less than 2.5mA or more than 21.5mA,voltage signal more than 11V. which are conducted by dip switch S5-2.the corresponding relationship with valve position is as follows



3) set of automatically control of positive and negative action



4) choice of input control signal(S1-4) (NTQ1type is not available for this function, we set it before leaving factory)

it is conducted by dip switch S1-4,including two modes :voltage mode, current mode





5) choice of feedback output signal (S2-3) (NTQ1 type is not available for this function, we set it before leaving factory)

It is conducted by dial switch S2-3, including two statuses: voltage mode and current mode the corresponding relationship is as following



●setting of operation method

- 1)operation of QM series control modules divided into two working states:local and remote control that can be changed by band switch K1
- 2)When switch K1 is in position "remote",electric actuator can control input analog signals by remote
- 3)When bank switch is in position of "Local",the indicator lamp turns to green,electric actuator can be operated with following action:

1.manually operate electric actuator

Press the "ON" button on plate , the actuator runs to valve for "Open ", leave the button ,the actuator stops the action. If press "OFF"button, actuator runs to valve for "Close ", leave the button, stops action.

Note: when actuators work , its indicator lamp should be green. But if the lamp is off in another position ,it indicates that potentiometer is in the middle position. Above situation is normal,which is used to reinstall potentiometer.

2.Full ON/OFF position setting for electric actuator

1)Full ON position setting

Press "ON"key on control panel,adjust the actuator to full open position of valve,then press "ON setting" key and keep for five minutes ,when lamp turns to red,let the key go, lamp changes to green. The setting of full Open is done

2)Full OFF position setting

Press "OFF"key on control panel,adjust the actuator to full close position of valve,then press "off setting" key and keep for five minutes ,when lamp turns to red,let the key go, lamp changes to green. The setting of full close is done

3.Adjustment for control signal and feedback signal

QM control panel has been set the standard signal before leaving factory,the client don't need to setting it again.If you must set it,please do it as follows:

Adjustment of control signals

Setting of control signal is adopted by automatically linearization processing,only needs to collect full signal. The steps of adjusting control signals is as follows

A.insert signal source at the control signal terminal, especially notice positive and negative polarity..

Insert full signal of 20mA or 10V at the position of dial switch S1-4

B.put dial section switch "K" in position of "Local"

C.press "ON setting"key within 2 seconds first,and then press "OFF setting"simultaneously , after release the two buttons,lamp turns to red.it means that the setting of control signal is processing.press "OFF" button for 5 seconds,when lamp turns to green, release, setting is done.

Adjustment of feedback signals

If needed ,pls follow steps as below:

A.insert current or voltage display instrument at feedback output signal terminal in the position of dial switch "S1-4"

B.Put dial section switch at the position of "Local"

C. press "OFF setting"key within 2 seconds first,and then press "ON setting"simultaneously , after release the two buttons,lamp turns to red.it means that the adjusting of 4Ma/0VDC signal of feedback output is processing.

D.observe display instrument.press "ON setting" to increase output signal,press "OFF setting" to decrease output signal.After setting output signal to needed 4Ma/0VDC,and then hold on "OFF"Key . Pressing the key lasts two seconds till lamp turns to red,releasing the key means exit action of 4Ma/0VDC adjustment,,then enter into20Ma/10VDC adjustment, which has same operation with 4Ma/0VDC,adjustment Press "OFF"key to make the lamp turn to green after setting output to needed 20Ma/10VDC, which means adjustment is done.

ELECTRIC ACTUATOR

● The trouble shooting of QM control modules

Situation	fault	reason	countermeasures
Local	indicator lamp does not light	Power is not inputted or control modules' failure	Input power or change control modules
	No feedback of ON/OFF switch	motor overheat motor damaged	Cool or change motor
		Limit switch or torque switch is broken	Check switch cam, valve or electric actuator if they are locked, and change switches
Remote	indicator lamp stays as red all the time	Failure of control signal / input signal mode incorrect / control signal adjustment incorrect	Check input signal, positive and negative wiring or correct control signal
	indicator lamp flashes with red	Failure of feedback signal (reference to control signal data)	Resetting "full ON/OFF" position of electric actuators
		Potentiometer is in dead zone	Adjusting the angle of electric actuators and resetting position of full ON/OFF
		Wiring of Potentiometer is broken	Check potentiometer wiring or change new potentiometer

operation instruction of Local control

● Picture on the right is a operation panel of local control box : black button is a turn- knob switch, you can turn it to operate "local""stop""remote", the red one is knob switch, you can turn it to operate "Open valve" and "Close valve".

● when connect power source, the electric actuator primarily enter into self diagnostic condition,, then it enters into working condition after almost 3 seconds

△ the electric actuator will stop working and it will not be conducted by remote signal or knob switch operation when turn- knob switch is at the position of "stop"

△ indicator lamp of "Local/Remote" turns red when switch turn- knob is at "Local" position

The electric actuator runs to open condition and valve open/ Valve close lamp flashes with red light when rotate knob switch counter-clockwise.

The electric actuator runs to close condition and valve open/valve close lamp flashes with green light when rotate knob switch clockwise.

The related indicator lamp lights all the time when open valve/close valve is at its correct position. The electric actuator stops working , at the mean time , Terminal Block of "opening " or "closing" is connected with " common port of passive contact"

NOTE: The knob switch will be back to stop position automatically and electric actuator will stop working if do not turn it.

△ Indicator lamp of "Local/Remote" turns green when turn- knob switch is at the "Remote" position Connect the terminal "Remote" with "common port of passive contact. the external input circuit of electric actuator includes all circuits controlling in current automatic control system. Depends on needs, Users can connect the terminal "6.7.8.9" refer to wiring drawing.

It is ok for remote monitoring type so long as you connect "5.6" terminals and input analog control signal

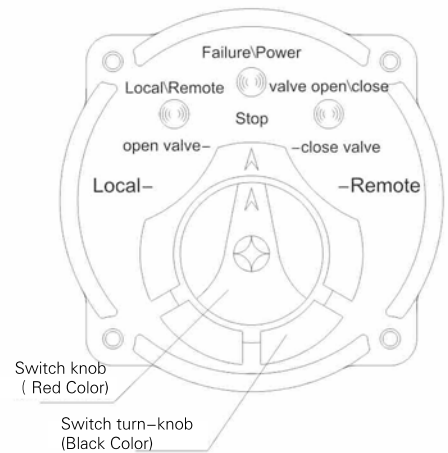
The electric actuator stops working and lamp of "Failure/Power" flashes with red light if control signal is less than 2mA.

The electric actuator stops working and lamp of "Failure/Power" goes off with red light if motor is overheat.

● valve jam cause the over torque, The electric actuator stops working to protect itself, and then the terminal "overtorque" is connected, warning signal is outputted. At the mean time, indicator lamp of "Failure/Power" turns red, lamp of relevant direction flashes (flash rate is less than that in normal condition)

● Inside of local control actuator has been installed supervisory relay, which is stimulated under normal working condition (terminal "Read" is connected). The electric actuator stops working, terminal "ready" disconnected, and terminal "Fault" connected when turn- knob switch is at "stop" position, ipower is off, iloss of phase, imotor is overheat.

NOTE: Full ON/OFF position of these series of actuators is subject to limit switch. No need to setting.





Checking and maintenance of fault

●mechanical failure

- 1)After pull the manual override, drive valve with hand wheel to check if it is reliable and sensitive for the manual override
- 2)inspect whether action and instruction of indicator windows is right or not
- 3)removing valve for repairing is needed if you can not drive it with handle wheel. If valve can be drive by handle wheel, you should check electrical parts
- 4)handle wheel runs smoothly without any interference, but valve stem has no reaction, then you should inspect whether adaptor is reliable or not.

●Electrical fault (inspect external controller firstly, and then check electric actuator)

- 1)inspect main power,control power, relay,fuse,and all indicator lamps ,switches if they are normal
- 2)Inspect motor power, change a new one if there is problem with it
- 3)If the microswitch is failed,it can be solved by changing related components

●Maintenance

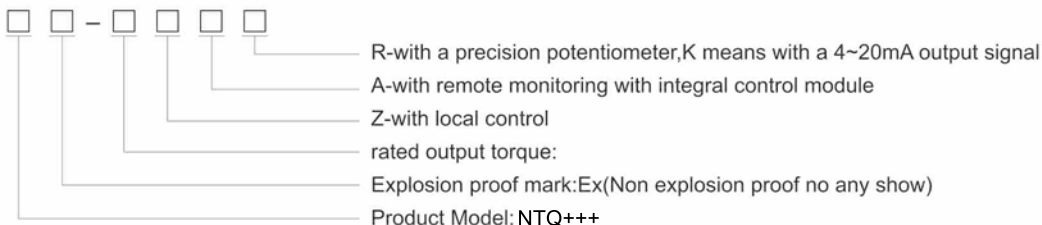
Suggestion of twice regular maintenance a year or periodical inspection

ordering information and type specification

●Please state following content when order

- torque for valve(N.M),working time(S)
- surrounding of product
- voltage and power
- request for electrical control
- connection size,type for valve
- any other special function

●Model representation



Special warning

- In order to keep performance of protection class, users must operate in accordance with "instruction manual" and the "special warnings". Users take responsibility for incorrect operation and operation without referring to "instruction manual" and "special warnings" causing protection class failure
- All related parts with enclosure protection have been through strict tested to guarantee its good sealing before delivery. Users need to ensure following events if open electric actuator for adjustment,maintenance,other conditions:
 - 1.the electric actuator loose intrinsic protection function when adjusted or operated. Users must protect it away from rain,snow,hail,tidal air,dust.
 - 2.Users should ensure there is no negative factor like water,dust,serious tidal air left inside of the opening position,causing protection performance degradation after operation done
 - 3.After operation done , over the cap to make sure all screws tightened.users also need ensure rubber seal rings is perfect as original shape
 - 4.Users should ensure tighten nut to make sure of good sealing after cable's path through electrical connection. Teflon seal is needed between electrical connection and casting thread. Tightened joint wrapped outside should be sealed with cable
 - 5.Users should ensure there is no negative influence of seal when you open and re-install indicator window or local buttons.