YUGE 禹格

上海禹格工业设备有限公司

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YG/YGM Smart
Multi-Turn Electric Actuator

ASSEMBLY AND OPERATION INSTRUCTIONS

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Introduction

Thank you for choosing the YG/YGM series of multi-turn electric actuators. Please read all instructions carefully prior to the installation and operation.

About the Manual

(1) This manual should be stored safely for future reference.
(2) Prior to working on this product, please ensure that all personnel have thoroughly read and understood these instructions.
(3) Copying any content of this manual without specific permission is strictly prohibited.
(4) The contents of these instructions are subject to change without notice.

Safety Instructions

(5) All personnel who work with this device must be familiar with the safety instructions and warnings provided in this manual and follow the guidelines for safe operation. Any consequences resulting from failure to observe these instructions will be at your own risk, and our company will not be held liable.
(6) If independent protective devices or safety circuits are to be installed on this product or the systems controlled by this product, please install them outside the product. Do NOT modify this product or install these circuits inside it.
(7) Please use our recommended spare parts or consumables if needed.

Disclaimers

(8) We do not make any warranties with respect to the product except as stated in the warranty otherwise provided.
(9) Our company shall not be liable for any loss caused by unforeseeable failures in the process of direct or indirect use of the product.

Overview

(10) The YG series multi-turn actuator is a new generation, fully intelligent electric valve actuator. It features a unique double-sealed structure and non-intrusive setting for all parameters using an infrared remote control. A range of unique technologies is in place to ensure the safety, reliability, and convenience of YG series actuators.
(11) This manual is intended to guide users through the basic operations, assembly, commissioning (including basic and advanced settings), and diagnostic to achieve better operation and maintenance of the device.

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1 Safety Instructions

Read the instructions carefully for proper installation, commissioning, and servicing. The equipment integrates advanced technologies to withstand harsh conditions and maintain long-term reliability. It also offers flexible functions to meet specific needs.

The actuator features double O-ring sealing, achieving IP68 enclosure protection of the device. The cable entries are sealed by temporary threaded plugs at the factory to protect the terminal compartment from moisture during transportation. If the actuator will not be installed immediately, it should be stored in a clean, dry area with minimal temperature fluctuations.

The actuator is fully tested at the factory. If properly installed, wired, commissioned, and sealed, it can operate reliably without faults for years.

Seal the cable entries per applicable local and international specifications during on-site installation and electrical connection. Replace all the temporary plugs and seal unused cable entries in compliance with relevant regulations.

Disconnect the device from the main power supply before removing any cover of the device. Use qualified personnel to install, operate, and maintain the product. Follow the instructions in the manual and observe applicable local and international regulations.

Do NOT open the cover of the terminal compartment except for the electrical connection. Parameters can be conveniently set through infrared remote control or two-wire control system. The manufacturer will not be held liable for any consequential damage if any cover is removed on-site.

Caution: Do NOT remove any cover in explosive environments.

The inspection and maintenance in explosion-hazardous places should comply with the applicable safety regulations of the country. It is strictly prohibited to make any changes to the structure or components of the actuator as it may invalidate the explosion-proof certification and other warranties. When the actuator is connected to AC power, do NOT touch the conductive parts of the actuator with conductive objects. Only perform maintenance and repair tasks when the device is powered off and moved to a safe area.

2 Transport, Storage, and Packaging

▲ 2.1.Transport

To transport to the place of installation, use sturdy packaging.

Danger

Suspended load! May cause death or serious injury.

- Do NOT stand below the suspended load.
- Attach ropes or hooks for the purpose of lifting only to housing and NOT to handwheel.
- To lift actuators mounted on valves: Attach ropes or hooks to the valve and NOT to the actuator.
- To lift actuators mounted to gearboxes: Attach ropes or hooks only to the gearbox and NOT to the actuator.
- To lift actuators mounted to controls: Attach ropes or hooks only to the actuator and NOT to the controls.

▲ 2.2.Storage

Caution

Danger of corrosion due to inappropriate storage!

- Store the actuator in a well-ventilated, dry room.
- Protect against floor dampness by storage on a shelf or on a wooden pallet.
- Cover the actuator to protect against dust and dirt.
- Apply suitable corrosion protection agents to uncoated surfaces.

Caution

Risk of damage to LCD due to excessively low temperatures!

- YUGE actuator controls may only be stored permanently down to –30 °C.

Caution

For long-term storage (more than 6 months), observe the following guidelines:

- Prior to storage: Apply long-term corrosion protection agent to uncoated surfaces, especially output drive parts and mounting surfaces.
- At an interval of approx. 6 months: Check for corrosion. If signs of corrosion show, apply new corrosion protection.

▲ 2.3.Packaging

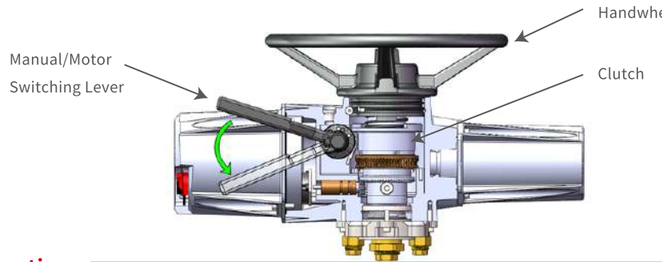
Our product is well-protected with special packaging suitable for transportation. We use environmentally friendly packaging materials that are easy to decompose and recycle, including wood, cardboard, paper, and PE film. To dispose of the packaging, we recommend that you take them to your local waste recycling center.

3 Operation

Note: In the following instructions, the mode control knob is referred to as the "red knob" and the local control knob is referred to as the "black knob".

▲ 3.1.Manual Operation

For manual operation, first push down the manual/motor switching lever so that it is in the manual position, and turn the handwheel to engage the clutch. Then release the lever, and it will automatically return to the initial position, while the handwheel will remain engaged. The handwheel will automatically declutch when the motor starts. If needed, the clutch can be locked in any state using a locking screw.



Caution

If the actuator cannot be switched in place by pushing down the lever, rotate the handwheel first and try again. Do NOT force the switch as it may damage the switching mechanism.

▲ 3.2.Motor Operation

The supply voltage must match the data on the name plates. No phase test is needed. Do NOT start the motor without preliminary inspection. At the very least, use the infrared remote control to complete the basic parameter setting before starting the motor operation.

3.2.1.Local/Stop/Remote Control Mode

Depending on the red knob position, the control switch performs different functions: LOCAL, REMOTE, and STOP. Each position can be locked in place with a locking screw.



LOCAL



STOP



REMOTE

3.2.2.Local Control

Set the red knob to the LOCAL position and use the infrared remote control or the black knob to issue commands.

The actuator can be operated by rotating the black knob. The black knob snaps back automatically into its neutral position, and when the black knob returns to its initial position, the command will be canceled.

If the actuator is not set to the self-hold mode (Hold), the actuator will stop operating when the command is canceled.

If the actuator is set to the Hold mode, even if the command is canceled, the actuator will continue to operate to the end position. Rotating the knob in the reverse direction will stop the actuator halfway. For example, when the actuator is operating the opening command, setting the black knob to the position CLOSE will stop the operation (if the close command is issued again, the actuator will perform the close operation), and vice versa.

Local control is also available via infrared remote control. Use the open and close buttons to issue commands.

3.2.3.Remote Control

The actuator can process the following signals:

Remote switch signals;

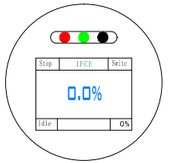
Remote analog signals;

Bus communication signals.

To perform remote control, set the red knob to the REMOTE position. In this mode, local control is disabled, but the actuator can still be stopped by turning the red knob to the STOP position.

3.2.4.Interface Panel

The interface panel on the actuator consists of three parts: two valve position status indicator lights at the top, an LCD in the center, and an infrared receiver located in the middle of the top. The LCD is equipped with a backlight that only illuminates when powered. The panel displays the status and configuration information of the actuator and receives infrared signals from the remote control, which offers great convenience for on-site commissioning, operation, and monitoring.



3.2.5.Valve Position Status Indicators

The red and green valve position status indicators are located at the top of the panel, red at the left and green at the right. The users are able to check the valve status through the lights from a distance.

Red indicator: Valve fully open.

Green Indicator: Valve fully closed.

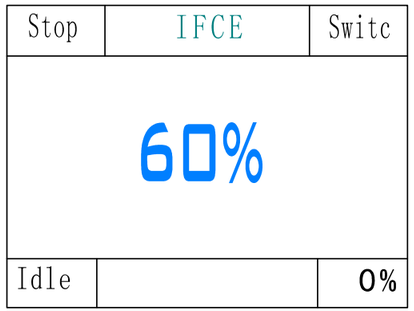
Note

The meaning of the red and green lights can be swapped upon users' requirements.Indicators only illuminate when the actuator is connected to the power supply.

If any fault occurs, the LCD will display an English fault prompt near the lower edge. Consult the instruction manual for diagnostic information.

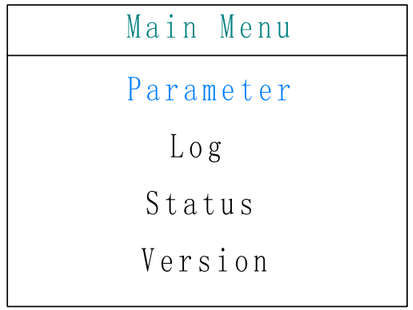
3.2.6.Initial Interface

The initial page of the display shows the valve position in % of the travel distance.



3.2.7.Parameter Settings

Users can access the parameter settings using the infrared remote control.



To set the parameters, select "Parameter" in the menu. Here users can set the parameters such as limit or torque seating.

“Status” is where the users check the current working status and operation information no matter in the LOCAL and REMOTE mode. The information improves the efficiency of maintenance and troubleshooting.

If any fault occurs, the display will show the alarm message near the lower edge of the LCD to guide maintenance. Fault information can also be output to the control room through either passive contact or bus communication (only available for bus-enabled actuators).

The S1-S4 status output relays utilize Omron magnetic latching relays with a contact capacity of 30V DC, 5A or 250V AC, 5A. Additional relay outputs can be added as an option.

4 Assembly

Before installing the actuator to the valve or gearbox, ensure that:

* The flange of the actuator’s coupling is compatible with the flange of the valve or gearbox and is perpendicular to the valve stem or gearbox input shaft;
* The drive shaft sleeve inside the coupling is compatible with the valve stem or gearbox input shaft;
* The connecting bolts match the thickness of the coupling and valve flange for a tight fit.

Securely fasten the valve or gearbox before mounting the actuator to prevent instability caused by a change in the center of gravity.

For heavy actuators, lifting equipment and straps may be required. The lifting must be carried out exclusively by experienced and qualified personnel, and particular attention should be paid to personnel and equipment safety when mounting the actuator from a non-standard angle.

When mounting the actuator, fully engage the input shaft of the valve or reducer with the drive shaft sleeve of the actuator, and firmly place the flange of the actuator’s coupling and the flange of the valve or reducer together.

The coupling flange of YG actuator complies with the ISO5210 standard. If the connection flange of the user's valve or gearbox does not comply with this standard, it should be specified in the order in advance.

Respect the total weight of the combination and the center of gravity when moving or lifting the assembled whole. Apply force primarily to the valve or reducer instead of the actuator.

Caution

Do NOT apply force to the handwheel when moving the actuator, as doing so may easily damage the handwheel.

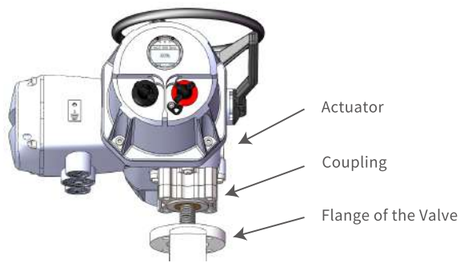
▲ 4.1.Mount Actuator to Output Drive with Screw

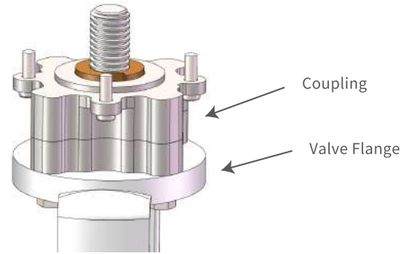
Method 1: Mount the actuator and the coupling as a whole to the valve.

Install the machined drive sleeve into the coupling as described above and tighten the set screws to fix the coupling and the actuator. Next, position the coupling of the actuator close to the top of the threaded stem to align the drive sleeve with the valve stem. Then, use the handwheel to rotate the output shaft and sleeve of the actuator in opening direction engage the sleeve and stem. Continue to turn the handwheel until the actuator is flush on the flange of the valve, then turn the handwheel two more rounds, and tighten the set bolts.

Method 2: Install the coupling to the valve first, then mount the actuator to the coupling.

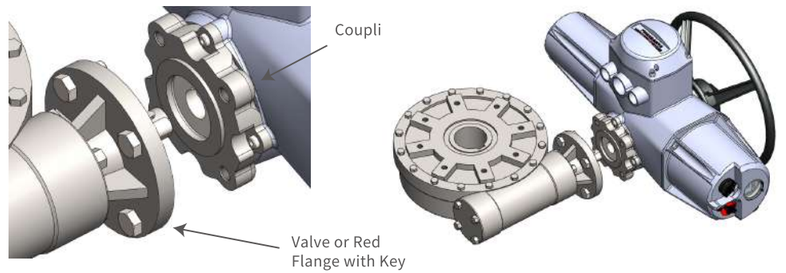
Install the machined drive sleeve to the coupling as described above and then remove the coupling from the actuator. Align the bore on the top of the drive sleeve with the threaded stem and rotate the sleeve in opening direction until the sleeve engages the stem. Continue to rotate the sleeve until the coupling is flush on the flange of the valve, then insert the set bolt without tightening them. Place the actuator onto the coupling, rotate the entire actuator until the actuator flange is flush with the flange plate on the coupling, align the fixing holes on the flange, and then fasten the bolts to secure the actuator onto the coupling. Rotate the handwheel two full turns in the open direction and tighten the bolts to fix the coupling and valve connection flange.





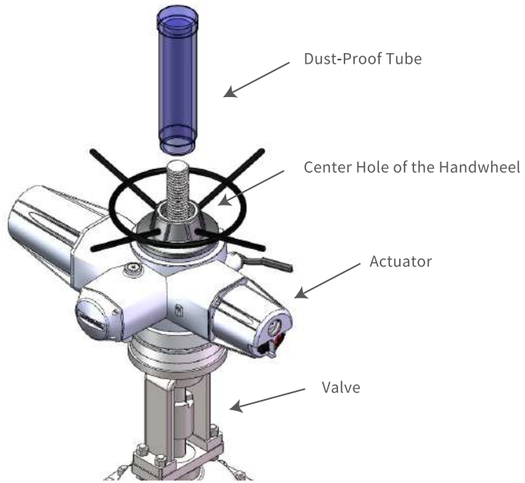
▲ 4.2.Mount Actuator to Output Drive with Key

Position the actuator coupling flange perpendicular to the input shaft of the valve or reducer, insert the valve or reducer input shaft into the actuator drive sleeve, and fully engage the keyways in the sleeve with the keys of the input shaft. Rotate the actuator to align the holes of the actuator coupling flange and the valve or reducer flange. Insert the bolts without tightening them. Turn the valve with the handwheel in opening direction to fully engage the keyways in the sleeve with the keys of the input shaft, and tighten the set bolts to fix the actuator coupling flange and the valve or reducer flange.



▲ 4.3.Handwheel Sealing

After mounting the actuator to the valve, ensure that the sealing plug (a longer cylindrical tube for a rising stem valve) in the center hole of the handwheel is sealed with PTFE tape and tightened to prevent corrosion.



5 Electrical Connection

Caution: Disconnect all power supplies before removing any protective cap!

▲ 5.1.Earth Connection

The earthing point with an M8 hole is cast adjacent to the terminal cover for external ground connection. The connection can be secured with bolts and nuts. An internal earth connection is also provided.

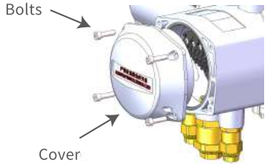




▲ 5.2.Remove Cover of Wiring Box

Loosen the four M8 socket head cap screws on the terminal box cover with a 6mm Allen wrench.





Caution

Do NOT pry open the cover with sharp tools such as a screwdriver, as this may damage the O-ring and result in sealing failure.

▲ 5.3.Cable Entries

To ensure safety in hazardous areas, use explosion-proof sealing glands and gaskets for cable entries. Remove the plastic plug and choose the correct type and size of the sealing glands and gaskets for the cables. Ensure that the threaded adapter and cable seal are tightened and completely waterproof. Unused cable entries should be sealed with threaded steel or copper blanking plugs.

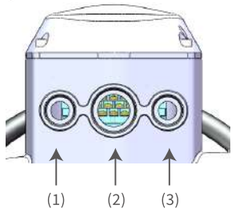
Note: The cable entries are internally threaded.

(1) 1″ NPT

(2) 1½″ NPT

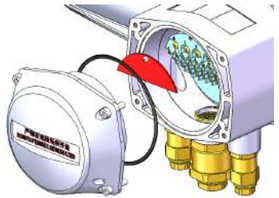
(3) 1″ NPT

(Please get in contact if cable glands are needed.)



▲ 5.4.Terminals Connection

Refer to the wiring diagram to identify the functions of terminals. Check that the supply voltage matches that marked on the actuator name plate. Remove the terminal isolation plate, connect the wires, and then reinstall the plate.



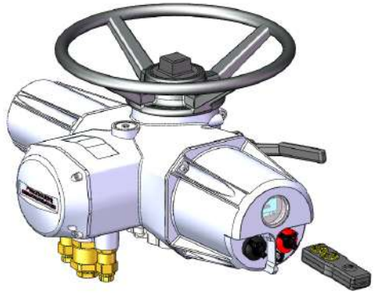
▲ 5.5.Reinstall Terminal Cover

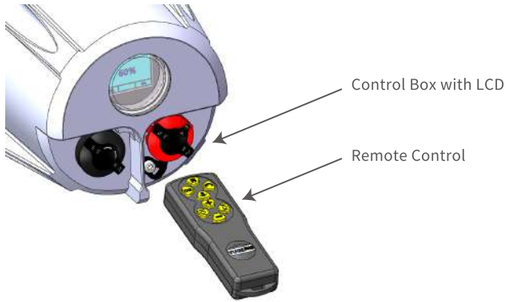
Ensure that the O-ring and the port are clean and lubricated before installation.

6 Commissioning Preparation

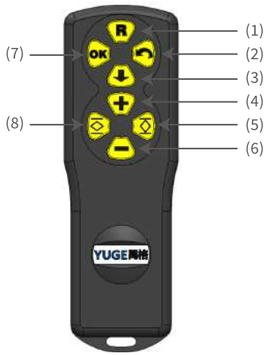
▲ 6.1.Infrared Remote Control

The infrared remote control is the most convenient tool for YG series actuators' on-site commissioning and operation. It allows users to browse and set various parameters and functions, including controls and protection, according to field requirements. A special encoding method is in place to enhance the anti-interference ability.





▲ 6.2.Buttons on Remote Control



(1) **R** Reset: Reset the control chip;

(2) Return: Return to the previous menu;

(3) Down: Select the next item on the same page;

(4) Plus: Increase the parameter value or move the menu down;

(5) Close the valve in "Hold" or "Moment" control mode (the red knob must be set to the LOCAL position);

(6) Minus: Decrease the parameter value or move the menu up;

(7) **OK** Confirm: Save the parameter setting or enter the corresponding status query;

(8) Open the valve in "Hold" or "Moment" control mode (the red knob must be set to the LOCAL position).

Note: Press and hold the plus or minus button to repeat the commands.
Other buttons require being pressed again to re-send the command.

▲ 6.3.Battery Installation

To replace the battery of the remote control, loosen the 6 screws and remove the rear cover.



Log in to the actuator:

After completing the installation and wiring, switch on the main power supply and set the red knob to the LOCAL or STOP position. Then the LCD will display the initial page, the valve position. Press and hold the confirmation button for 3 seconds, and the LCD will display the setting menu.

Caution

Do NOT enter the parameter setting menu during the operation of the actuator.

▲ 6.4.Status Query

Set the red knob in the LOCAL or STOP position, hold the confirmation button for 3 seconds to enter the initial menu, and select "Status" to check the working status of the actuator.

In query mode, the parameters cannot be edited. This mode is designed to provide supportive information on the running status for maintenance.

▲ 6.5.Notes about Indicator Lights and Value Input

The lights above the display always indicate the current valve position regardless of which page the LCD shows.

Setting parameters or functions may require either entering a value or selecting a value from options.

For value editing, press the ⊕ button or the ⊖ button to change the value shown on the screen, press the OK button after entering or selecting a new value, and the item will turn from red to blue, indicating successful modification.

7 Commissioning (Basic Settings)

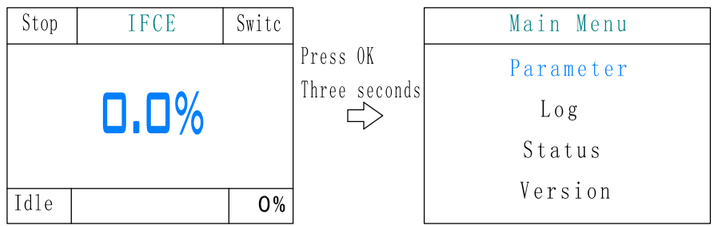
The basic functions must be correctly set up for the actuator to operate the valve properly. If the actuator is already assembled with the valve upon delivery, the manufacturer or supplier may have already completed the basic settings. Do NOT perform electric operation until the basic settings are completed.

The item selected is indicated in blue, and the editable items are in red. When an editable item is selected, it will turn from red to blue.

▲ 7.1.Access Basic Settings

After installation, switch on the power supply and set the red knob to the LOCAL or STOP position. Point the remote control at the display window, and press and hold the OK button for 3 seconds.

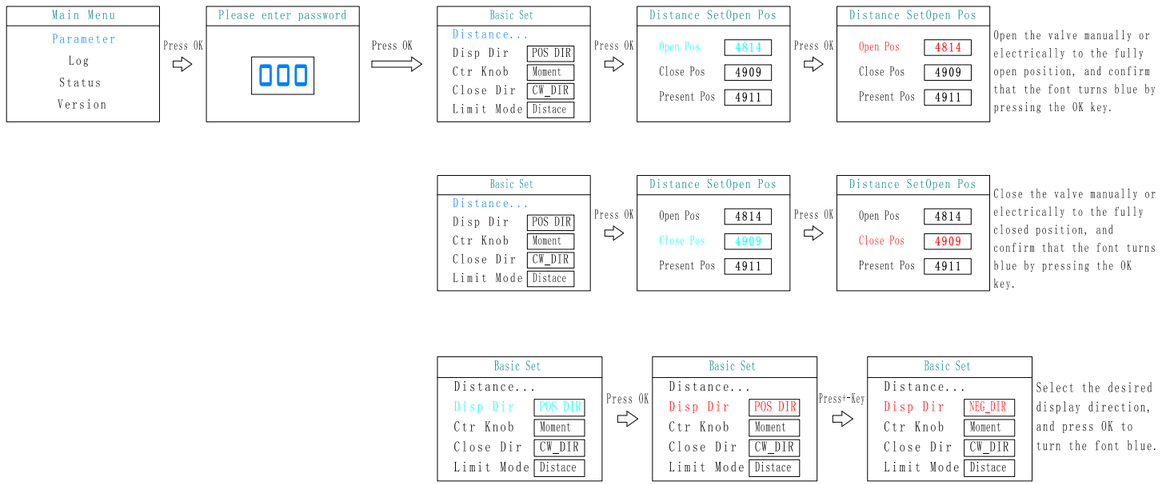
Now the LCD shows the initial menu. Select "Parameter ", press the OK button, and enter the password. The password for the basic settings is "000", and the advanced settings "333".

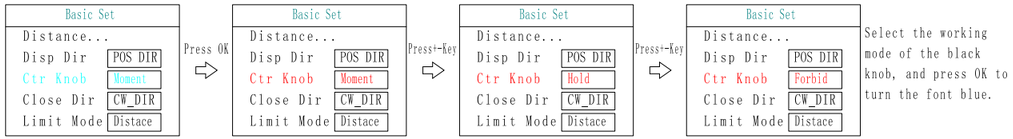


Caution

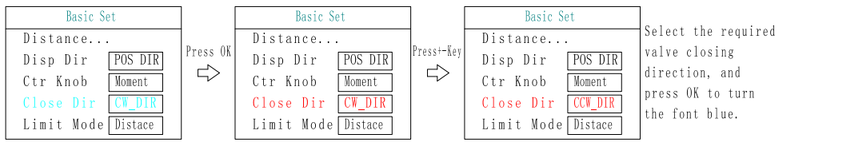
Perform electric operation tests and functional tests after completing the settings to ensure proper operation.

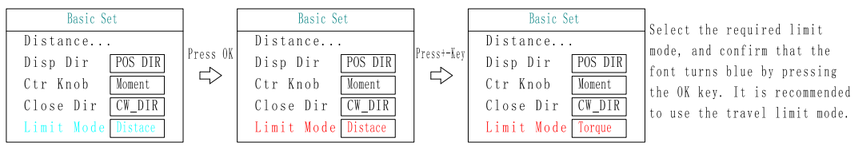
▲ 7.2.Basic Parameters



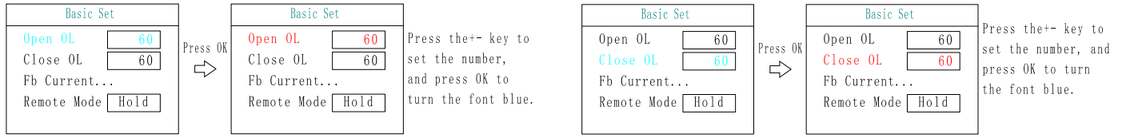


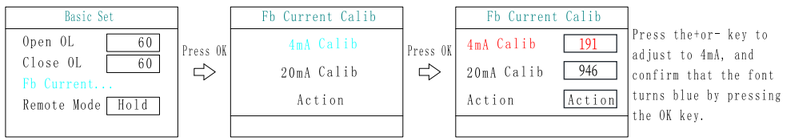
*The “Ctr Knob” setting, “Moment” and “Hold”, applies to both the black knob and the remote control. When “Forbid” is selected, all the commands from the black knob will be invalidated regardless of the position of the red knob.

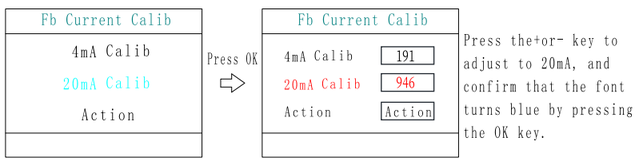




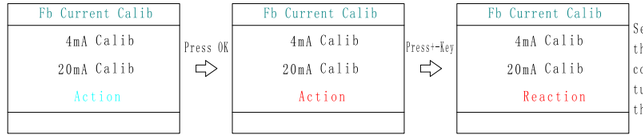
* Normally, “Distance” is chosen to protect the valve and actuator. If the “Torque” mode is needed, please apply a proper torque protection value or consult our technicians.





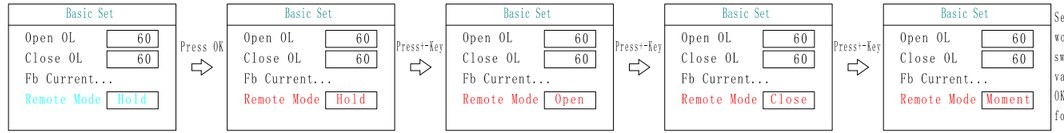


*Select “Fb Current Calib” for fine-tuning the 4-20mA current feedback when there is a deviation. If the 20mA current deviation is too large, select "20mA Calib” and "20mA Calib” will turn red. Press the minus button and monitor the current change. When the current reaches 20mA, press the OK button to confirm the calibration, and "20mA Calib” will turn blue.



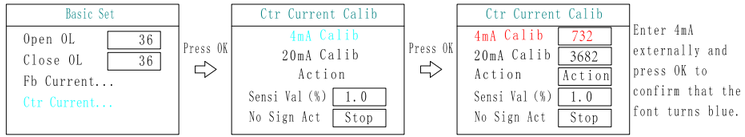
Select the action form of the feedback current, and confirm that the font turns blue by pressing the OK key.

* “Action” and “Reaction” refer to current reversal, that is, when “Reaction” is selected, 4mA corresponds to the valve position of 100% and 20mA corresponds to the valve position of 0%.

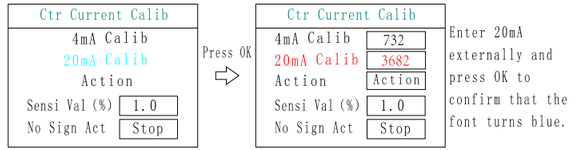


Select the working mode of switching value, and press OK to turn the font blue.

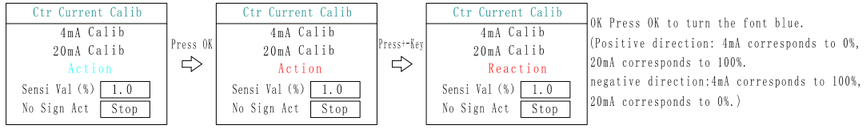
* "Remote Mode" can be edited only when "Valve Type" in advanced settings is set to "Switch".



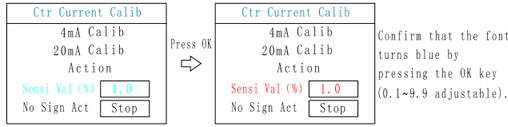
Enter 4mA externally and press OK to confirm that the font turns blue.



Enter 20mA externally and press OK to confirm that the font turns blue.

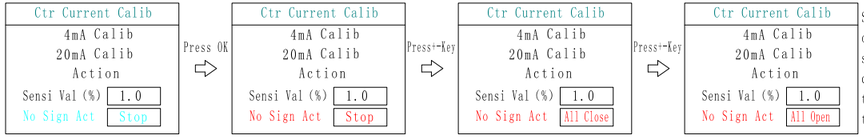


OK Press OK to turn the font blue.
(Positive direction: 4mA corresponds to 0%, 20mA corresponds to 100%.
negative direction:4mA corresponds to 100%, 20mA corresponds to 0%.)

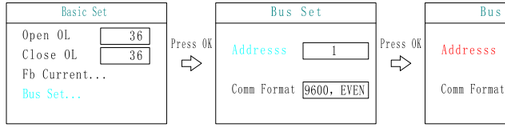


Confirm that the font turns blue by pressing the OK key (0.1~9.9 adjustable).

* "Ctr Current Calib" can be edited only when "Valve Type" in advanced settings is set to "Adjust". Accuracy adjustable from 0.1 to 9.9.

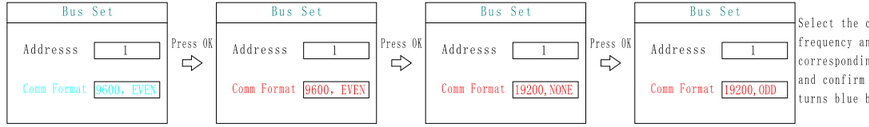


Select the operating mode of the actuator when the signal is lost, and confirm that the font turns blue by pressing the OK key.



Press+or- to select the corresponding address, and press OK to confirm that the font turns blue.

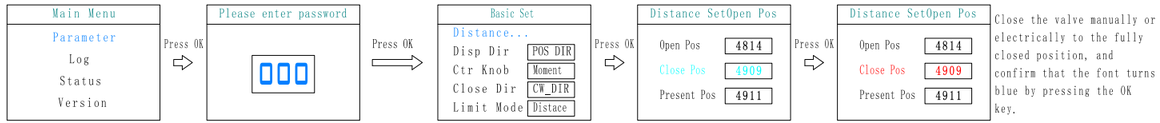
* “Bus Set...” can be edited only when "Valve Type" in advanced settings is set to "Bus".



Select the corresponding frequency and corresponding calibration, and confirm that the font turns blue by pressing OK.

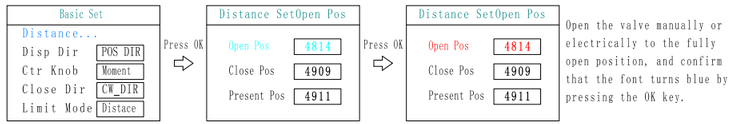
▲ 7.3.Valve Limit Settings

7.3.1.End Position: Closed



When "Close Pos 4909 " is selected and turns red, manually or electrically close the valve to the fully closed position, press the OK button to confirm the position, and "Close Pos 4909 " will turn blue, indicating a successful setting.

7.3.2.End Position: Open



When "Open Pos 4814 " is selected and turns red, manually or electrically open the valve to the fully open position, press the OK button to confirm the position, and "Open Pos 4814 " will turn blue, indicating a successful setting.

Caution

To check the closed end position, turn the handwheel for one circle in the opening direction,and the indicator light for the fully closed position should be off. Then rotate the handwheel in the closing direction for one circle, the indicator light for the fully closed position should be on.

Caution

To check the open end position, turn the handwheel for one circle in the closing direction, and the indicator light for the fully open position should be off. Then rotate the handwheel in the opening direction for one circle, then the indicator light for the fully open position should be on.

Caution

Do NOT perform electric operation until the basic settings are completed.

8 Commissioning (Advanced Settings)

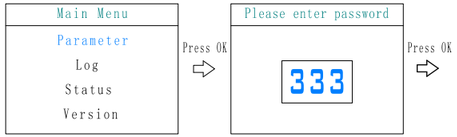
▲ 8.1.Access Advanced Settings

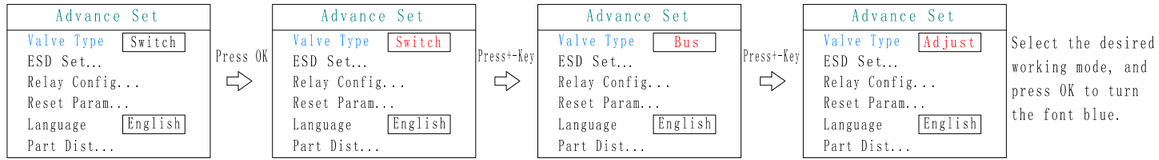
After completing the basic settings, users can proceed to the advanced settings if needed.

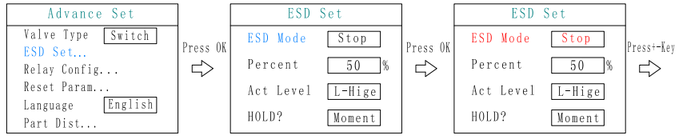
First, turn the red knob to the LOCAL or STOP position, and press and hold the confirmation button for 3 seconds to enter the initial menu. Next, select "Parameter " and press the OK button to enter the password page, where the screen shows "000". Set the first digit to "3" using the button "+" or "-", and when the first digit is set to "3", press OK to edit the second digit (now "300" is displayed on the screen). Also, use "+" or "-" to set the number to "3" and press OK to proceed to the third digit. Set the third digit in the same way, then "333" will be shown on the page, and press the OK button to access the advanced settings.

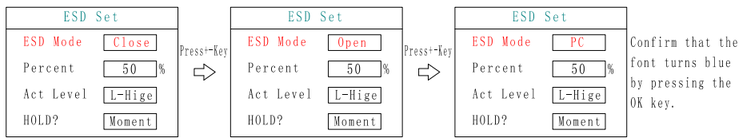
▲ 8.2.Advanced Parameters

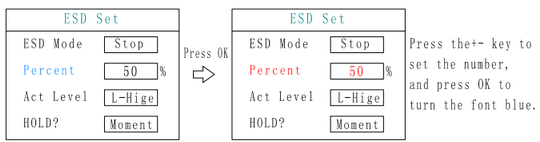
"Relay Config..." is where to set the state and trigger of the relays S1 - S4 in response to the feedback signals from the actuator. When "ESD Mode" is set to "PC", the item "Percent" can be edited. When "Percent" shows 20% for example, the contacts will open or close when the valve position is greater than or equal to 20% and close or open when it is less than 20%.



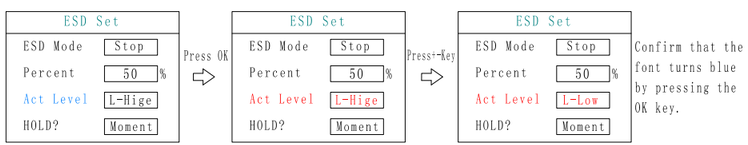


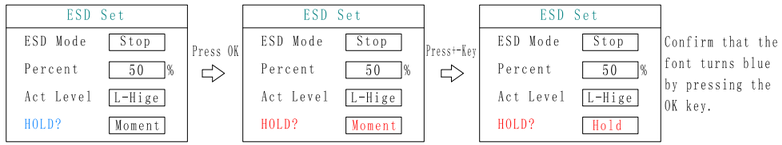


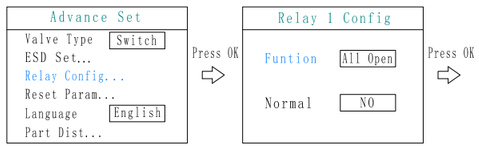


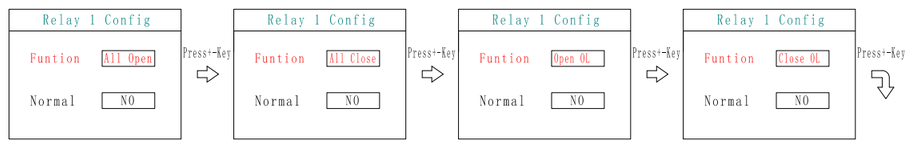


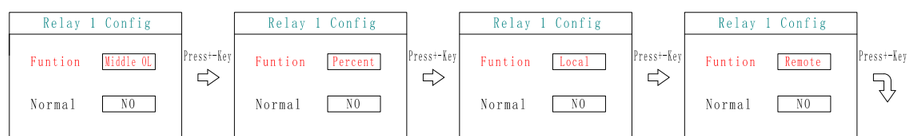
*This option is only effective when ESD mode is set to "PC".

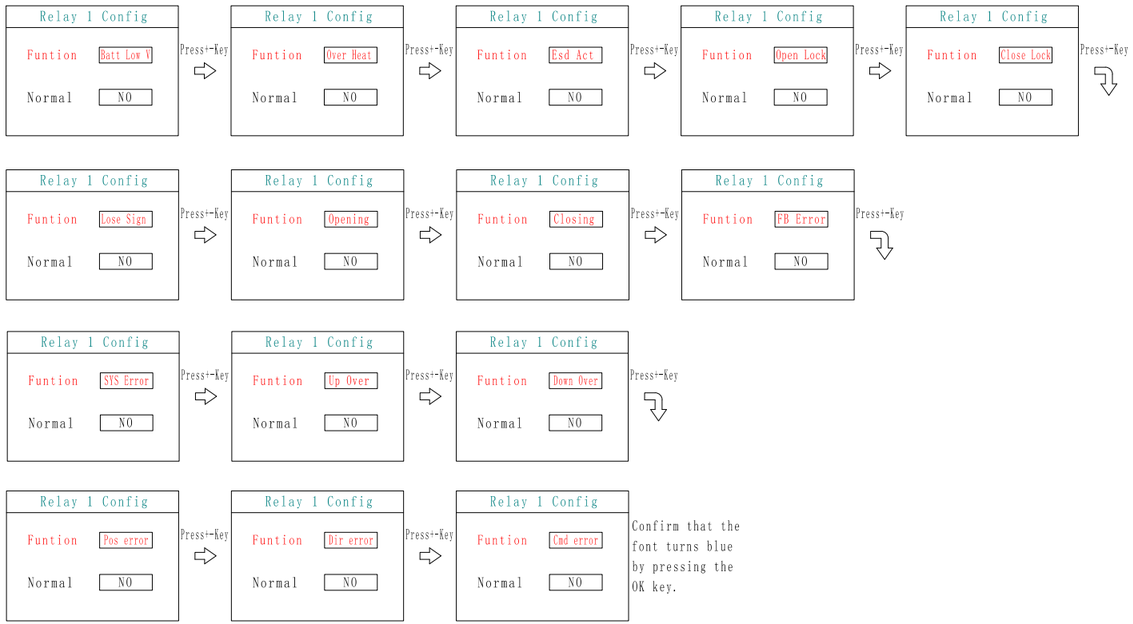


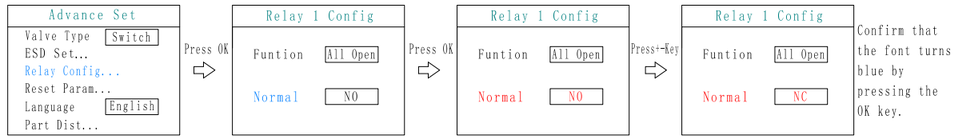


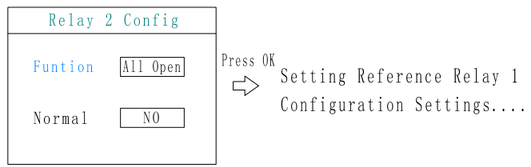


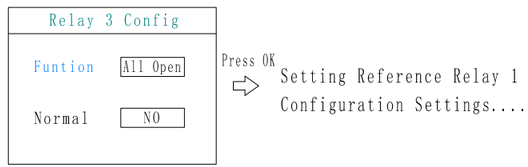




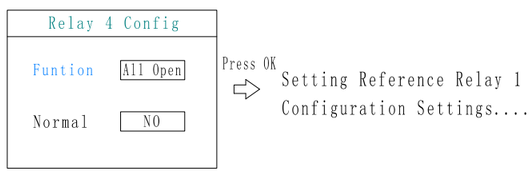


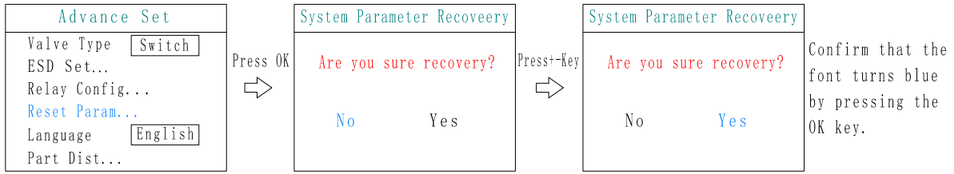




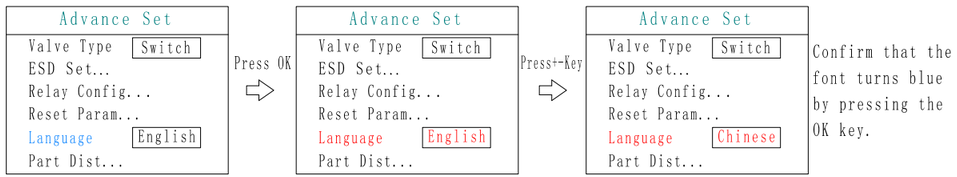


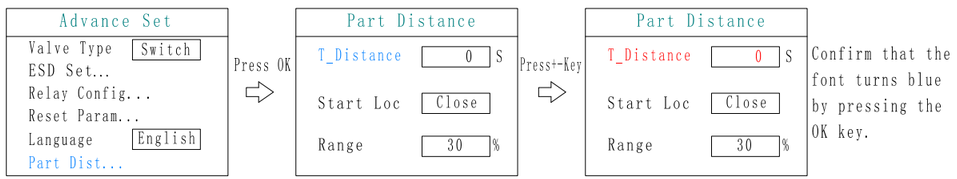
*There are two options for the "Normal" state of the relay, "NO" or "NC". When "NO" is selected, the normal state of the relay will change from normally open to normally closed if triggered. By default, the trigger for S1 is set to "All Open", S2 "All Close", S3 "Middle OL", and S4 "Percent (60%)".

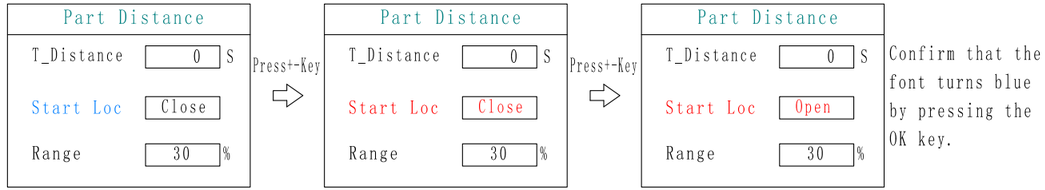


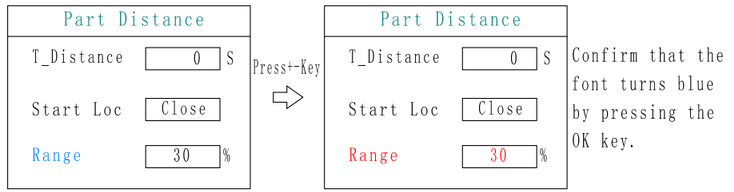


* This option only resets the relay configuration and event log.

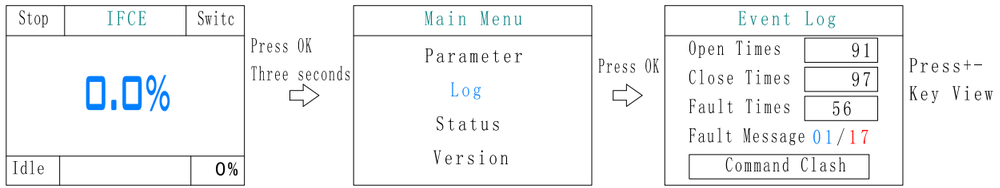




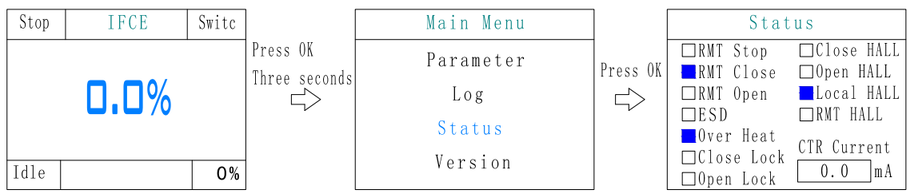




9 Event Log

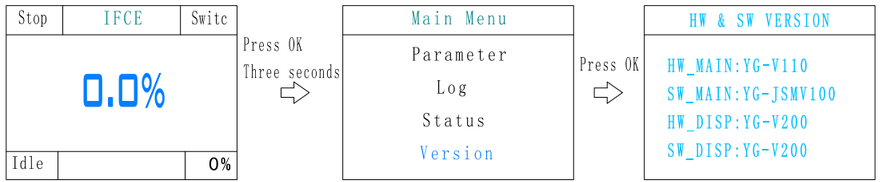


10 Status Query



*For query only. Status cannot be edited here.

11 Version Query

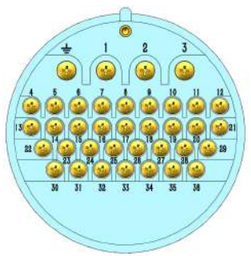


12 Terminals

Refer to the figure on the right for wiring. The terminal descriptions are detailed in the table below.

Note 1: The items with "*" in the following table are optional configurations.

Note 2: If the field bus control mode is selected, refer to the relevant bus instructions manual for external wiring.



No.	Name	Description	No.	Name	Description
1	Power supply	380V (or 220V) power input	19	Monitor relay NC contact	When mode control knob is in the REMOTE position
2	Power supply	380V (or 220V) power input	20	Monitor relay NO contact	When mode control knob is in the REMOTE position
3	Power supply	380V power input	21	Termination resistor A	Bus termination resistor A (reserved)
⏚	Connect housing	Earthing	22	Valve position feedback current (+)	Valve position feedback current output terminal
4	0V DC power supply	24V DC (unregulated) output "-"	23	Valve position feedback current (-)	Valve position feedback current feedback terminal
5	24V DC power supply	24V DC (unregulated) output "+"	24	Termination resistor B	Termination resistor B (reserved)
6	S1 relay terminal 1	S1 relay output contact 1	25	ESD	ESD signal input
7	S1 relay terminal 2	S1 relay output contact 2	26	Valve position control signal +	Current signal input for valve position control
8	S2 relay terminal 1	S2 relay output contact 1	27	Valve position control signal -	Current signal feedback for valve position control
9	S2 relay terminal 2	S2 relay output contact 2	28	Auxiliary control	Auxiliary control (part distance test)
10	S3 relay terminal 1	S3 relay output contact 1	29	Interlock open	Open the valve interlock
11	S3 relay terminal 2	S3 relay output contact 2	30	Interlock close	Close the valve interlock
12	S4 relay terminal 1	S4 relay output contact 1	31	Termination resistor a	Bus termination resistor a (reserved)
13	S4 relay terminal 2	S4 relay output contact 2	32	Termination resistor b	Termination resistor b (reserved)
14	MODBUS A or PROFIBUS-DP A*	MODBUS A port or PROFIBUS-DP A port (reserved)	33	Remote close	Remote close signal input
15	MODBUS B or PROFIBUS-DP B*	MODBUS B port or PROFIBUS-DP B port (reserved)	34	Stop/bus earthing (reserved)	Stop signal input/bus earthing (reserved)
16	MODBUS a*	Redundant MODBUS or PROFIBUS-DP a port (reserved)	35	Remote open	Remote open signal input
17	MODBUS b *	Redundant MODBUS or PROFIBUS-DP b port (reserved)	36	Remote high voltage common port	Remote turn on/off to stop/keep the signal input for the high voltage common port
18	Monitor relay common	Common terminal for monitor relay			

13 Controls

▲ 13.1.Local Control

Local control is available through the black knob when the red knob is set to the LOCAL position. The actuator can be operated in "Moment" or "Hold" mode.

▲ 13.2.Remote Binary Signal Control (Remote Manual Control)

The remote-control circuit can be powered by: internal 24V DC, external 24V-60V AC or DC, or external 120V-220V AC or DC.

See Figure 11-1 to Figure 11-9 for wiring. (The numbers in the figures represent the terminals.)

▲ 13.3.Fig. 11-1 and 11-2: Internal 24V

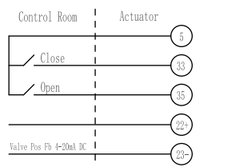


Fig. 11-1 Open and Close in the "Moment" or "Hold" Mode

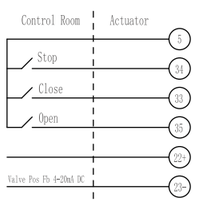


Fig. 11-2 Open, Close, and Stop

▲ 13.4.Fig. 11-3 and 11-4: External 24-60V DC

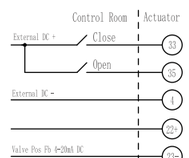


Fig. 11-3 Open and Close in the "Moment" or "Hold" Mode

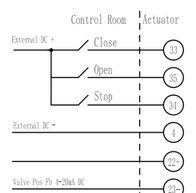


Fig. 11-4 Open, Close, and Stop in the "Hold" Mode

▲ 13.5.Fig. 11-5 and 11-6: External AC

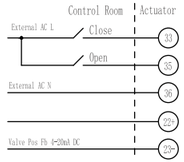


Fig. 11-5 Open and Close in the "Moment" or "Hold" Mode

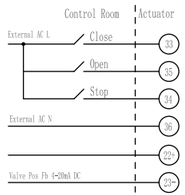


Fig. 11-6 Open, Close, and Stop in the "Hold" Mode

▲ 13.6.Fig. 11-7: Interlock Control



Fig. 11-7 Interlock Control

▲ 13.7.Fig. 11-8: Emergency Control

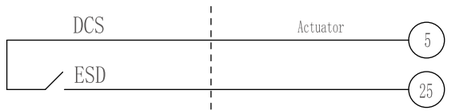


Fig. 11-8 Emergency Control

▲ 13.8.Fig.11-9: Analog Signal Control

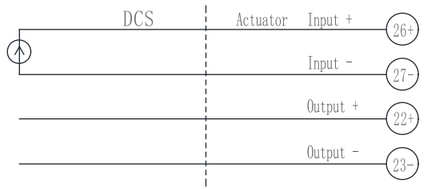


Fig. 11-9 Analog Signal Control

▲ 13.9.Two-Wire Control

When the "Remote Mode" is set to "Open", upon receiving a signal, the contact closes and the actuator performs the open operation, and when the contact opens, the actuator performs the close operation.

Conversely, when the "Remote Mode" is set to "Close", upon receiving a signal, the contact closes and the actuator performs the close operation, and when the contact opens, the actuator performs the open operation.

Refer to Figure 11-10 for external wiring for two-wire control.

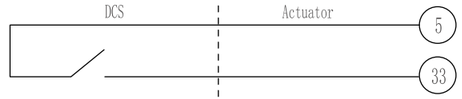


Fig. 11-10 Two-Wire Control

▲ 13.10.Auxiliary Control

Auxiliary control is a necessary function for emergency shut-down of the valve. It is designed to test the actuator during extended periods of valve ESD inactivity without disrupting the flow. In auxiliary control, the starting position can be set to either fully open or fully closed, and the stroke can be adjusted according to on-site needs. When the CPU receives the command to activate auxiliary control, the actuator moves in the set direction, stops when it reaches the set position, and remains in place for 3 seconds. After the 3-second pause, the actuator returns to the initial position.

Refer to Figure 11-11 for wiring.



Fig. 11-11 Auxiliary Control

▲ 13.11.Emergency Action Control

The signal is transmitted through terminal 25 on the junction, and the common port of the signal is 5. If the actuator is set to allow emergency action, when the emergency action signal triggers the emergency action function, the actuator will move to the pre-set safety position — fully closed, fully open, or any intermediate positions.

▲ 13.12.Analog Signal Control

The actuator can respond to DC analog current signals to automatically control the valve position proportionately.

The analog control mode of the YG series actuator is suitable only for systems with low variable speed (with a maximum start frequency of 60 times per hour) and is not suitable for proportional control in self-control circuits that require high-precision continuous adjustments, like the level control in water and sewage treatment plants. For applications that require frequent adjustment and high positioning accuracy, our YGM series actuators would be an ideal choice.

▲ 13.13.Action for Loss of Input Signal

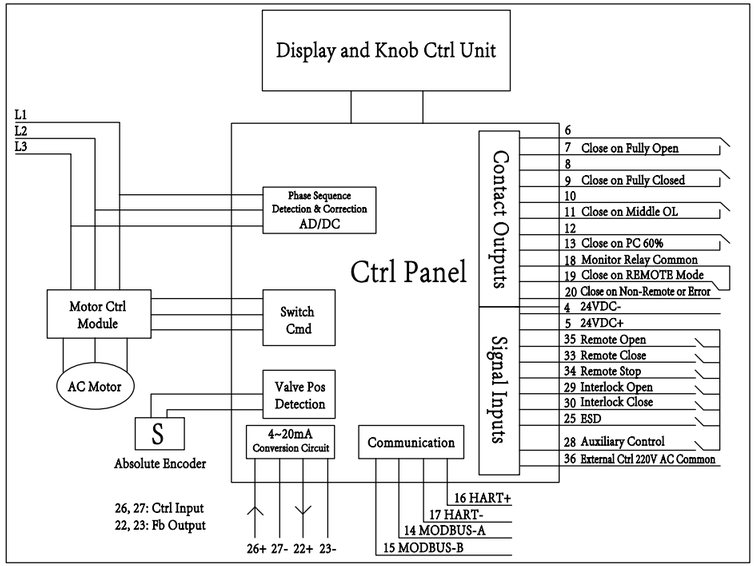
If the input signal falls below 50% of the low-end signal, the actuator will be deemed to have lost the signal. In the event of signal loss, the actuator can be set to maintain its original position, move to the valve position corresponding to the high-end signal, or move to the valve position corresponding to the low-end signal.

If the switching control circuit is to use an external power supply, refer to the design ideas of remote manual control with different power supplies in Figure 11-1 to Figure 11-9.

▲ 13.14.Valve Position Feedback Signal

The YG series actuator provides 4-20mA valve position feedback signals, output from terminals 22 (+) and 23 (-). The maximum allowable external load is 700Ω, with an accuracy of 1%.

14 Wiring Diagram



15 Maintenance

Each YG series actuator is fully tested before delivery to ensure high quality and durability. With proper installation, wiring, sealing, and maintenance, the device can promise long-term, trouble-free performance.

YG series actuator features a unique double-sealed structure with a non-intrusive housing, providing comprehensive protection for the internal components. The terminal cover should NOT be opened during routine inspections, as doing so could affect the reliability of the actuator. The electrical control unit is encapsulated by our quality control department and contains no on-site adjustable components, as a result, the cover of this unit should NOT be opened without good reason.

Isolate the power supply before any maintenance or inspection, except for battery replacement. Isolate the power supply before removing any cover, except for the battery seal.

Routine maintenance should include:

* Check the security of the set bolts and nuts connecting the actuator and the valve.
* Ensure the cleanliness and lubrication of the valve stem and drive shaft sleeve.
* Conduct scheduled operation if the valve is rarely electrically operated.

▲ **If the battery of the actuator is depleted during extended downtime periods, reconnect it to the power supply for recharging, or replace it with a dedicated rechargeable lithium battery (replace it only when the power supply is connected).**

▲ **The battery of the actuator serves to record the valve position changes and operate the LCD when the main power is disconnected.**

Warning

The battery is housed in a compartment for explosion-proof operation. Ensure that the compartment is free from damage. If the battery needs to be removed, the actuator must be isolated or disconnected. If the battery icon is empty after a power outage, the battery must be replaced. In hazardous areas, live-line work should be authorized or comply with local regulations before removing or replacing the battery. In non-hazardous areas, it is recommended to replace the battery with the main power connected. If the main power supply is down and the battery is exhausted, check the position limit and parameter settings of the actuator after replacing the battery.

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