

Invest in Confidence



AQ Logic Start-Up guide RANGE

Start Up Guide

SUG_17004 EN - Ind. B Art : 5100549



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SAFETY 1

This device complies with current applicable safety standards.

Installation, maintenance, and use of this unit require a skilled and trained staff.

Please carefully read this whole document before mounting and starting-up the actuator.

DELIVERY, STORAGE AND MAINTENANCE 2

2.1 Delivery

AQ actuators are delivered in a cardboard box of a size equivalent to the actuator and sit in a cardboard wedge.

2.1.1 Check identification sticker

Information on the nameplate sticker on the side of the actuator should match those on your order.

QR Code on this sticker can be used to identify the actuator.

2.2 Storage

Actuators should be stored under a shelter, in a clean and dry place and at a stable ambient temperature.

- Avoid placing the actuator directly on the floor
- Check that plugs of cable entries are correctly tightened. Check that cover screws are correctly tightened to ensure weatherproof sealing of the cover

AQ actuator includes electrical components and lubricated gear stages. Even with a weatherproof enclosure, oxidation, seizing and other alterations may occur if actuator is not correctly stored.

Heating resistor should be connected to power supply especially if the storage place is wet.



What to check after storage

- 1. Visually check the electrical equipment.
- 2. Manually operate buttons, selectors, etc., to ensure their proper mechanical functionality.
- 3. Manually operate the actuator for a few travels.

What to check on pre-installed actuators

If you expect a long period between actuator mounting and electrical wiring:

1. Visually check that cable entries and cover are tightly closed.

2.3 Maintenance

All AQ actuators feature lifetime lubrication and therefore require no specific maintenance, if they were correctly commissioned and used in conditions foreseen by design.



ACTUATOR INSTALLATION 3

Fastening actuator on the valve 3.1

Actuator should be secured directly to the valve using proper bolts or via a proper interface.

After assembly, the actuator can operate in any position.

> You can modify your display orientation to keep normal reading orientation.

→ To set display orientation, see §5.6.



However:

- do not handle the actuator by handwheel to avoid damage on actuator gearing
- cable glands must not be oriented upwards (loss of water tightness)

Opening the control compartment 3.2

You need to open the control compartment and remove the cover in order to wire the actuator.

If closing direction is not standard (clockwise), and it is not already done, change the orientation of the position indicator cap.



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When opening, unplug the control panel cable from the main board in order to avoid to damage it.

How to remove the cover

- 1. With 10mm angled socket flat wrench or blade screwdriver, unscrew the 4 screws from the housing.
- 2. Raise the cover along its axis.
- When cover plug is accessible, unplug it from the mainboard
- Remove the cover completely.





3.2.1 Changing closing direction indication

As a standard, AQ actuator is configured to close clockwise. If the actuator must close counter-clockwise, you can change the orientation of the position indicator cap.

This change requires to have the actuator software set accordingly.

→ To proceed to this setting, see §5.2.



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Standard indicator orientation for clockwise closing

Reverse indicator orientation for counter-clockwise closing

How to change cap orientation

- 1. Disassemble the cover then the cap.
- 2. Turn the cap 90° .
- 3. Reassemble the cap then the cover.





3.3 **Electrical wiring**

Ensure wires are not supplied with electric power before wiring is finished and the control compartment is closed.

ļ If you need to open control compartment, previously cut off power supply to the actuator.

3.3.1 Components



- 3 4-Relay board (option)
- 4 AI/AO board (option)
- 5 Power supply board

- 7 Capacitor (single phase only)
- 8 Motor
- 9 Control terminal block
- 10 Power terminal block

Control panel board is attached on the actuator cover.



3.3.2 Connection and preliminary tests

First install cable glands, then connect wires on the terminal blocks.

How to install cable glands

For each cable entry used

- 1. Remove plug from the cable entry with 19mm (M16 entry) or 23mm (M20 entry) open-end wrench.
- 2. Separate sealing nut from its cable gland.
- 3. Screw and tighten cable gland in the cable entry.
- 4. Thread the sealing nut on the cable and pass the cable through the cable gland.



Unused entries must be kept closed by their plug.

Terminal blocks

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Terminal blocks are located on a side of the electronic assembly screw-type and consist of terminals. There are 2 main blocks: 1st is to connect power supply, 2nd to connect command and signaling.

Control terminals are 1-35 & 2-36

Power terminals (3Ph/1Ph)

- 3Ph: L1, L2, L3 with phase discriminator
- 1Ph: L (Live), N (Neutral)

Both thermal protector and torque limit device must be integrated into your control system in order to prevent potential damage to the actuator or valve.



Internal ground terminal

The ground terminal is a metal tab with a fixation hole located under the terminal board at its bottom left (see following picture).

How to wire actuator

The wiring must be done according to the wiring diagram of your actuator.

Using a 3×0.5mm flat blade screwdriver and a 4 mm Allen kev

- 5. Connect power supply on terminals marked L1, L2 & L3 (3Ph) or L, N (1Ph) according to your supply type
- 6. At the same time, connect ground cable on ground terminal.



- 7. Connect control and signaling wires on uneven (marked 1 to 35) and even (marked 2 to 36) upper terminals.
- 8. Tighten sealing nut on the cable gland when you have completed wiring.



3.3.3 Power supply board

Power supply board supplies actuator with electrical power.

Power characteristics are factory set according to your order.

Fuse

The fuse is located at the upper left angle of the board (see picture).

Its characteristics are the following:

Fuse current	500 mA	Fuse size (mm) (inches)	6.3×32 ¼''×1-¼''
Voltage rating VAC	500 V	Blow characteristic	Fast acting
Breaking current capa	acity current A	۲C	1 kA

3.3.4 Relays

AQ Logic is equipped with a Default relay and customizable relays

Fault relay

AQ Logic is equipped with a Fault relay which triggers system alarms. This list of alarms cannot be modified.

→ See list of Fault relay Alarms in Appendix III.

Customizable relays

AQ Logic actuator is equipped with 3 customizable relays, to which you can add a 4-Relays board as an option.

Function of each relay can be set.

➔ To see possible settings and set relays, see §5.8.





3.3.5 Positioner board (OPTION)

Positioner board is assembled on the main board.

You can select either **mA** or **V** using the small switch at the base of the board according to your input signal.



3.3.6 Heating resistor

Each actuator includes a heating resistor.

As soon as the actuator is installed in the field, it is recommended to supply the resistor to prevent condensation.

• Immediately put the cover back in place after start-up while ensuring its seal is clean. Never leave actuator electrical components without their protection cover.



- In case of water intrusion:
 - dry electrical components before putting back the cover.
- check electrical insulation.

3.4 Closing the control compartment

• To close the control compartment, see \$3.2 and follow the steps in the opposite order.



Make sure to re-plug the cover on the mainboard, otherwise control panel (see §4.1) will not work.



4 ACTUATOR CONTROLS

4.1 Control panel



AQ Logic control panel consists of a screen, 2 control knobs, 1 control selector and 2 configurable LEDs.

Screen	Screen displays operating status or Logic menu
Control selector	 Control selector allows to choose the control mode: Local: actuator is controlled using this Control panel or Smartphone via Bluetooth® Remote: actuator is controlled remotely OFF: controls are deactivated
	Your actuator is set on Local at startup. You can lock the control mode with an optional padlock at the bottom of the control panel.
Knobs	Knobs are used for operation (upper mention) or menu navigation (lower mention). Once operated, these knobs return to center position.
LEDs	LEDs indicate actuator status (CLOSED \mathbf{I} or OPEN \mathbf{I}). Default colors are red for CLOSED and green for OPEN, and can be set (see §5.7), according to your country. One will blinking during operation according to travel direction, and both at Bluetooth® connection.



Local

Remote

OFF

OFF

4.2 Control modes

AQ logic can be controlled locally or remotely.

Mode is set using **Control selector** on the control panel. It can be locked using a padlock located at the bottom of control panel.

Modes are:

- Local mode with control panel or Smartphone via Bluetooth® connection
- Remote mode
- Forced local mode when in Remote mode using the Application

→ This mode requires first to be authorized, see §5.11

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The 3 modes allow to read settings, but they can be modified in Local mode only.

4.3 Local control with Control panel

4.3.1 Operation



Knobs use



Operation screen indicates...

- Top: actuator id and status icons
 - : warning / 这: alarm
 - Bluetooth® activated
 - Bluetooth® activated with device connected
 - Local control inhibited
- **Center:** current position of the valve, either CLOSED, current percentage between 0 and 100% depending on the travel direction, or OPEN
- **Bottom (from AQ25):** torque level with a torque gauge and an arrow marker to indicate torque limit set





4.3.2 Settings



Menu screen has 2 main sections...

• Alarms and warnings



Messages are of 2 types identified by icon $\underline{\Lambda}$ for warnings or icon $\boldsymbol{\bigotimes}$ for alarms.

 \rightarrow See complete list in appendix III.

• Settings that allows you to check or change the settings of the actuator: valve tag, password, torque limits, Bluetooth[®], etc.

→ See Alarms and Settings menu in appendix II.







4.4 Local control with Smartphone application

Using the Bluetooth® connection of your actuator, you can operate it with Bernard Control smartphone application (BC App).

- Bluetooth[®] is active on the actuator at delivery.
- Using the Local control with BC App requires to have Bluetooth® activated on your smartphone

You need first to download the application, install it on your phone, then connect to your actuator by entering an access code.

➔ See Appendix I for preliminary steps.

4.4.1 Operation screen



Before operation



During operation

Status screen indicates...

- Top:
 - 1. access to main menu
 - 2 alternately valve tag and mainboard reference, or control mode
 - 3. warnings or alarms if any
- Center: current position of the valve, either CLOSED, opening percentage between 0 and 100%, or OPEN.

You got the following commands to operate the valve:

<> defines target position on the dial with a swipe

- decreases / + increases the opening target with one or several taps

 \mathbf{I} closes / $\mathbf{\Xi}$ opens the value

Bottom (from AQ25): torgue level with a torque gauge



4.4.2 Main menu

You can access the main menu anytime by tapping on **E**.



From main menu, you can access...

- Actuator
 - Operation
 - Diagnostic & status -
 - Actuator settings
 - Quit -
- Account data
- Assistance info

4.4.3 Settings screen

From the main menu, you can access the settings.



Menu screen has 2 main sections...

- Top: access to main menu, then valve • tag and mainboard reference
- Settings list: •
 - Valve identification -
 - Commissioning of valve -
 - Inputs / Outputs / Bus -
 - Actuator local settings -
 - Access code definition -
 - Reset to factory data -



4.5 Remote controls

The AQ Logic remote control system can be operated using an external or an internal voltage supply.

The input circuits are fully opto-isolated. The self-hold pulse command system requires 4 connecting wires on the client terminal strip: Common, STOP, OPEN and CLOSE. If the STOP push-button is not used, do not connect the STOP wire, OPEN (or CLOSE) contact must be maintained to operate the actuator.



These commands are self-holding (pulse commands) as a standard. To remove self-holding, remove wire to terminal 7.

4.5.1 Single switch control

The actuator can be controlled via a single external switch.



➔ The actuator has to be configured for the priority type required (open or close). See to open (see §5.8)



4.5.2 Auxiliary remote controls





4.6 Analog Input / Output (OPTION)

4.6.1 Analog signal types

Some actuator configurations can perform control functions in response to a control signal.

Possible signals	Input impedance (ohms)		
4-20 mA 0-20 mA 4-12 mA	160	 Positioner board switch setting (see \$3.3.5): for signals in mA, the 	
12-20 mA	160	 switch must be on mA for signals in V, the 	
0-10V	11000	switch must be on V	

4.6.2 Positioner configuration

To use this function, Positioner mode has to be activated:

- using Logic menu see §5.9.1
- using Auxiliary Commands set with Proportional/ON-OFF see §5.8.1

The input signal is automatically calibrated on the stroke of the actuator (0 - 100%), so there is no need to adjust the operating range of the actuator.

The input signal is isolated from the ON/OFF commands and from the remote position signal.

The actuator can still be operated in ON/OFF mode with the Open, Close and Stop commands or using Proportional control. One of the auxiliary commands must be used to select between these 2 control modes.

In the standard configuration, Auxiliary Command is set on Proportional/ON-OFF to allow the control mode to be selected remotely:

- Proportional = Analog control
- ON/OFF = ON/OFF control. •

➡ For Analog Input/Output settings (e.g. Deadband), see §5.8.



COMMISSIONNING 5

This section describes the commissioning with the Control panel, except otherwise mentioned.

You can set the same settings with App from the menu Settings > Commissioning of Actuator on valve.





In order to modify the actuator settings, control mode must be set to Local mode.

Accessing the actuator menu 5.1

To be able to set the actuator software or check the warnings or alarms, you need to access the actuator menu, either with Control panel or BC App depending on which Local control you use.

> It is your responsibility to set the security of the Local Commands (Control Panel or Smartphone Application) for your process:



- The default position of the Control selector button should be on Remote
- The Access Code of the actuator should have been changed
- The remote command "Local Command Inhibition" (from DCS) should be active



To enter the actuator menu, you need first to enter the access code.

If you are the end-user:

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At the first on-site start, we strongly advise you to modify the default **Bluetooth**[®] access codes. To proceed to these changes, please follow the 2 following procedures.

Initial access codes are 0000 to check settings or 9000 to modify them.

How to enter the access code with Control panel

1. Hold the left knob on the right, and turn left then right the right knob. Menu access screen appears.

17C00145.001
ACCESS CODE?
0000
T
ОК

- 2. Enter the access code
 - a. Set the digit value with \checkmark and \uparrow .
 - b. Validate with **OK** when value is right.
 - c. Set the following digit.

If you validate a wrong value, choose ESC and reset it.

d. Once you have set all digits, validate with **OK**.

17C00145.001	*
ACCESS COD)E?
900	0
<u> </u>	<u> </u>
ОК	

The actuator menu appears





How to reset the access codes

- 1. If the actuator is ON for more than 10 minutes, switch it OFF then switch it ON.
- When on the operation display, Hold both left knob and right knob during 10s. Reset password screen appears.

Reset p	assword
Do you wa chan	
NO	YES

3. Select YES then validate with OK.

Access codes are now reset to 0000 and 9000. You can now set again your own access codes.



How to change the Bluetooth® access codes with Control panel



ESC.



How to change the Bluetooth® Access codes with BC App

- 1. Go to Main Menu
- 2. Select Settings > Actuator passwords and security.
- 3. The Actuator passwords & security menu appears.



Select the Password you want to change. 4.



- Enter your new password and confirm it. 5.
- Tap on **OK** to validate. 6.



5.2 Set closing rotation direction

Default setting for closing direction is clockwise. According to your needs, you may have to change your closing direction.

How to change closing direction

1. Enter the menu, then go to Settings > Actuator commissioning > Set closing rotation direction.

Clockwise			
0	Counter-clockwise		
	SAVE		

- Choose the closing rotation direction required, Clockwise or 2. **Counter-clockwise** with $\mathbf{\downarrow}$ or $\mathbf{\uparrow}$ then confirm with **OK**.
- 3. Go to SAVE with $\mathbf{\downarrow}$ or $\mathbf{\uparrow}$ then validate with OK.

Set closing and opening on torque or position 5.3

This section allows you to define the way you want to stop actuator travel in both directions. You can choose either Position or Torque.

How to set opening and closing type of end of travel

1. Enter the menu, then go to Settings > Actuator commissioning > Choose to close on torque or position.



- 2. Select your option with $\mathbf{\downarrow}$ or $\mathbf{\uparrow}$ then confirm with **OK**.
- 3. Select Save then validate with OK.



5.4 Set torque limits

This setting allows to set torque limits at main steps of the travel: at the beginning (**Break**), during the travel (**Run**) and at the end of the travel (**End**).

Limits are:

• In closing direction:

Break to Close (**BTC**), Run to Close (**RTC**), End to Close (**ETC**), Tight zone

• In opening direction: Break to Open (**BTO**), Run to Open (**RTO**), End to Open (**ETO**), Tight zone



In order to ensure unsitting, Break value should be upper to Tight zone one.



How to set torque limits

- 1. Enter the menu, then go to **Settings** > **Commissioning**
- 2. Select Set torque limits and validate with OK.



3. Select closing or opening direction and validate with **OK**. Torque limits screen appears.

Torque limits in closir	ng direc.
Break to Close (BTC	;)
80%	÷
Run to Close (RTC)	
50%	¢
End to Close (ETC)	
100%	\$
Opening & closing z	one
20%	\$
Save	

4. Select the limit to modify with \clubsuit or \clubsuit then validate with OK.

The torque limits setting screen appears.

Break	to C	lose (B	FC)
40% to 100% or no limit			
	Ω	ິດີ	0⁄
	0		/0
▼			
🗌 No I	imit		
Continue			



- 5. To set Break limits
 - To set **No limit**, use $\mathbf{\downarrow}$ or $\mathbf{\uparrow}$ on 1st digit,

Break to Close (BTC)
40% to 100% or no limit
%
No limit
Continue

then ESC.

 To set another value, validate 1st digit with OK then set 2nd & 3rd with ↓ or ↑ then validate each with OK.



When 3^{rd} digit is validated with **OK**, go to **Continue** with \clubsuit and validate with **OK**.

You get back to the list of torque limit settings.

6. To set Run, End limits and Tight zone



Set each digit value with \clubsuit or \clubsuit then validate with OK. Validate Continue with OK.

7. When you set all limits required, select **Save** and validate with **OK**.



Setting open and closed positions 5.5

5.5.1 Setting end positions

AQ Logic features position sensor. To set end positions, you have first to record OPEN and CLOSED positions one after the other, depending on the first one set.

Mechanical stops must not be used as travel limits. (0)

How to set CLOSED and OPEN positions

1. Enter the menu, then go to **Settings** > **Commissioning** > **Set** closed position (depending on your needs). The setting screen appears.

Set closed position
Use the actuator BUTTON to go to CLOSED position (0%)
Save

- 2. Close your valve using the closing knob $\overline{\bullet}$.
- 3. When the valve is closed, validate Save with OK. The confirmation window appears.

Set closed position		
Please, confi is in CLOSI 0% to save	ED position	
Cancel	Confirm	

If you reach the closing mechanical stops before valve is closed:

- a. Slightly untighten the actuator from its flange until it can turn on its flange.
- b. Turn the actuator in closing direction to wedge it at the maximum against the screws flange
- c. Re-tighten the screws and resume step 3.

If your valve still cannot reach closed position, reset the closing mechanical stop (see \$0) and resume this procedure.



4.	Validate Confirm with OK. The setting screen for the opposite setting a	appears.
	Set open position	
	Use the actuator BUTTON to go to OPEN position (100%)	
	Save	
5.	Open your valve using the opening knob $\overline{\bullet}$. An indication of stroke angle appears. You can validate with OK at any moment.	
	Tou can validate with on at any moment.	Calibration error
	If the Stroke set is too small, the opposite error screen appears.	Stroke Error, try again?
	Validate Try again with OK and continue to	
	open your valve.	
	When you reach the correct position, validate	e Save with OK.
	Use the actuator BUTTON to go to OPEN position (100%)	
	Stroke 21.7°	
	Save	
	The open position confirmation screen appea	rs.
	Please, confirm the Valve is in OPEN position 100% to save this setting	
	Cancel Confirm	
	If you reach the opening mechanical stop bef open, reset the opening mechanical stop.	ore valve is
6.	Validate Confirm with OK .	

Closing and opening positions are set.

Once end positions are set, proceed to an operation in each direction to check the settings. The actuator must stop with position set in the software and not on mechanical stops.



5.5.2 Setting mechanical stops

The actuator is factory-set for a 90° travel.

Mechanical stops (1: counterclockwise - 2: clockwise) mechanically block rotation to protect the valve in case of overtravel in case of handwheel operation. They are factory-set.

They can be set on the actuator or on the gearbox if a gearbox is fitted on the actuator.



These screws are located on the lower part of the actuator.

How to adjust mechanical stops for both directions

Clockwise mechanical stop setting

- 1. Untighten the nut corresponding to clockwise mechanical stop and turn the mechanical stop 2 turns back.
- 2. Drive the actuator to clockwise travel limit position.
- 3. Get the clockwise mechanical stop in contact with output sleeve then turn it back of 1 turn.
- 4. Retighten nut to keep mechanical stop in position.

Counter-clockwise mechanical stop settings

- 5. Untighten the nut corresponding to counter-clockwise mechanical stop and turn the mechanical stop 2 turns back.
- 6. Drive the actuator to the counter-clockwise travel limit position.
- 7. Redo settings steps 3 & 4 for counter-clockwise direction.

Perform complete electrical valve opening and closing operations. The motor must stop on the positions set in the software and not on the mechanical stops.



5.6 Set display orientation

Your display orientation can be modified according to the physical orientation of your actuator.

How to change orientation of your display

1. Enter the menu, then go to **Settings** > **Buttons & Display**. The following screen appears.

Buttons and disp	lay
Language [English]	
Units [Metric]	
Screen orientation [0°]	

2. Select Screen orientation then validate with OK. The following screen appears.

Scre	en orientation
⊙ 0°	
O 90°	
O 180°	
O 270°	
	Save

- 3. Select rotation angle matching your actuator orientation, and validate with **OK**, then go to **Save** and validate it.
- Angle values are counter-clockwise.

The confirmation screen appears.

Screen o	rientation
Do you wa chan	
NO	YES

4. Select YES then validate with OK. The display turns accordingly.



5.7 Set LEDs configuration

Your LEDs configuration can be adjusted according to the standard of your country.

How to set LEDs configuration

1. Enter the menu, then go to Settings > Buttons & Display.

The Buttons & Display screen appears. Go down in the menu to LED color.



2. Validate with OK. The LED color screen appears.



- 3. Select corresponding setting then validate with OK.
- 4. Go to Save and validate it. The confirmation screen appears.

Screen o	rientation
	ant to save nges?
NO	YES

5. Select YES and validate.



5.8 Set Remote commands inputs

5.8.1 Set Auxiliary Remote commands

To set Auxiliary Remote commands, go to Settings > Digital inputs -Remote Commands.

The following settings are available:

Auxiliary remote command 1

O Not assigned
O Local / Remote
O Local + Remote / Remote
O Local command inhibition
O Opening inhibition
O Closing inhibition
O Proportional / On-Off
Continue


5.8.2 Set Priority for remote commands

Priority allows to reverse the direction of travel when an operation is in progress without having to stop actuator.

How to set priority for remote command

Enter the menu then go to Settings > Remote commands. 1. The **Remote Commands** screen appears.



3. Select the priority action in the list then validate it with **OK**.



Go down to Save and validate with OK. 4. The confirmation screen appears.

Pric	ority
Do you wa chan	
NO	YES

Select YES and validate. 5.



5.9 Set Analog Input / Output (OPTION)

To set analog input/ouput, go to **Settings** > **Analog input/output** and set the different options necessary.

Analog input/output

Position Activation
[Disable]

Input Signal Type [4-20mA, 20mA = Valve Open]

Positionner feedback signal [4-20mA, 20mA = Valve Open, 2 wires connection]

Deadband [5.00%]

Position on Loss of Setpoint [Open]

5.9.1 Activate positioner

If present, the actuator can operate as a positioner using a proportional command, such as a 4-20 mA analogue signal.

How to activate positioner

- 1. From Analog Input/Output menu, enter Positioner Activation.
- 2. The Positioner Activation screen appears.

	Positioner Activation
0	Enable
0	Disable
	Save

- 3. Select Enable then validate with **OK**.
- Go to Save then validate with OK.
 The Positioner Activation confirmation screen appears.
- 5. Select **YES** then validate with **OK**. You go back to **Analog Input/Output** menu.



5.9.2 Set Input signal

How to set Input Signal

 From Analog Input/Output menu, enter Input Signal Type. The Input Signal type screen appears.

Input Signal type	
Signal Type	
4-20 mA	¢
Signal Direction	
20 mA = Valve Open	¢
Save	

- 2. For Signal Type and Signal Direction settings:
 - a. Select the setting to adjust and validate with OK.

The corresponding setting screen appears.



- b. Select the desired value and validate with OK.
- c. Continue button is highlighted, validate with OK.
- d. The display goes back to Input signal type screen.
- 3. Go to **Save** then validate with **OK**. The **Input Signal Type** confirmation screen appears.
- 4. Select YES then validate with OK. You go back to Analog Input/Output menu.



5.9.3 Set Positioner feedback signal

How to set Positioner Feedback signal

1. From Analog Input/Output menu, enter Positioner feedback signal.

The Positioner feedback signal screen appears.

r feedback s	signal
signal type	
	¢
signal direct	ion
alve Open	¢
signal wiring	3
nnection	÷
0	
	signal type signal direct alve Open signal wiring

2. For Feedback Signal Type, Feedback Signal Direction and Feedback Signal Wiring settings:

a. Select the setting to adjust and validate with OK.

The corresponding setting screen appears.



- b. Select the desired value and validate with OK.
- c. **Continue** button is highlighted, validate with **OK**. The display goes back to **Input signal type** screen.
- Go to Save then validate with OK.
 The Input Signal Type confirmation screen appears.
- Select YES then validate with OK.
 You go back to Analog Input/Output menu.

The 0-10V signal can be obtained using a 0-20mA combined with a 500 ohm (or 499 ohm 1%) resistor. The power supply will be 15 to 32V.





English

5.9.4 Set Deadband

The deadband value is the maximum allowable difference between the signal and the actuator position when no action occurs. This setting is made at the factory, but it is possible to adjust it.

- If the deadband is too narrow, the actuator could hunt, moving • back and forth around the expected position without stabilizing;
- If the deadband is too wide, positioning operations are less precise.

Default deadband is 1%.

How to set Deadband

1. From Analog Input/Output menu, enter Deadband.

The **Input Signal type** screen appears.

Deadband
0.80% deadband min
5 .00%
Save

- 2. For each digit
 - a. Select the digit to adjust.
 - b. Adjust the digit with ↓ or ↑.
 c. Validate with OK.

When the last digit is validated, Save is highlighted.

- 3. Validate with **OK**. The **Deadband** confirmation screen appears.
- 4. Select YES then validate with OK. You go back to Analog Input/Output menu.



5.9.5 Fail-Safe position

When a 4-20 mA input signal is used, it is possible to set up a failsafe position for use if the control signal is lost.



This function cannot be used with 0-20 mA signals, as the system cannot discern a lost signal and a 0 mA value.

This function is active in the standard configuration, and the actuator remains in position if the signal is lost.

How to set Position on Loss of Setpoint

1. From Analog Input/Output menu, enter Deadband.

The Input Signal type screen appears.

int

- 2. For each digit
 - a. Select the digit to adjust.
 - b. Adjust the digit with ↓ or ↑.
 c. Validate with OK.

When the last digit is validated, **Save** is highlighted.

3. Validate with **OK**.

The **Deadband** confirmation screen appears.

4. Select YES then validate with OK.

You go back to Analog Input/Output menu.



5.10 Set Relays configuration

Available relays can be configured for specific functions.

How to set relays configuration





 Select an option in the list For standard relays, options available are:

Relay 1	Rela	ay 3
 Valve open 	Information	Faults
Relay 2 • Valve closed	 Valve open Valve closed Torque limiter opening direction Torque limiter closing direction Actuator is opening Actuator is closing Actuator is running Intermediate position indication OFF mode Local mode Remote mode 	 Stopped in intermediate position Motor thermal overload Jammed valve Phase loss Power on Handwheel action Relay operated by Fieldbus

- 7. You can select several option by navigating to the option then ticking it with **OK**.
- 8. Go to **Save** and validate it. The confirmation screen appears.



9. Select YES and validate.



5.11 Setting Forced local mode in Remote mode

You need 2 steps to be able to use Forced local mode:

- 1. Allowing switch to Local mode with Local control
- 2. Switch to Local mode with App

5.11.1 Allowing / Inhibit switch to Local control

How to allow or inhibit switch to Local control

- 1. Enter the menu with Access code to Read and Write
- 2. Go to Settings > Actuator's access codes >

The Actuator's access codes screen appears. Go down in the menu to Switch Local/Remote Mode.

Actuator's access codes
Access code to Read only
Access code to Read and & Write
Switch Local/Remote Mode
Bluetooth activation

3. Validate with OK. The Switch Local/Remote Mode screen appears.



4. To allow switch to Local control, select Switch to Local mode allowed else select Switch to Local mode inhibited, then validate with **OK**.



5. Go to **Save** and validate it. The confirmation screen appears.



6. Select YES and validate.

5.11.2Switching to Local control with App

You can only proceed to this operation if **Control selector** is on **Remote** on the actuator and actuator set on **Switch to local mode allowed**.

How to switch to Local control with App

1. Ensure you are on **Operate** screen.



If the switch is inhibited, an Info button replaces the Edit button.



2. Tap on Edit. The App asks for confirmation.



3. Tap on Switch to Local Mode. Remote mode becomes Local mode.



You can now operate your actuator as if it is set on Local mode.



(i) To get back to **Remote mode**, simply tap again on the **Edit** button.



6 OPERATION

6.1 Emergency handwheel operation

AQ actuators feature a handwheel for emergency operation.

To avoid potentially harmful turning protruding parts during electrical operation, AQ handwheels feature a foldable handle: you can fold it during electrical operation and unfold it if you need to operate the actuator manually.

6.2 Local control operation

To use:

- Local control mode with Control panel • → see §4.3
- Local control mode with Smartphone •

→ see §4.4

Forced Local control mode from Remote mode, with • Smartphone:

→ see §5.11 - how to allow modes switch then switch modes, and §4.4 to use Local mode with Smartphone



APPENDIX

I. Starting with BC App

Installing the application

- (and An Internet connection is required on your smartphone.
 - Go to your app store and search for "Bernard Controls". 1.



Once retrieved, download and install BC App. 2. Once installed, start the App. Log in or follow free account creation screen sequence if it is your first start.





English

Connecting to your actuator

Once account is confirmed, your smartphone is ready to connect to your actuators. Connection to actuators is achieved with Bluetooth®.

- Start the App and log in your account. 1.
- Once logged, App will start to scan for actuators nearby. 2.
- 3. If the desired actuator is found, select it. If not, retry or scan the actuator QR code on the sticker (see § 2.1.1) or enter its serial number.



Check that you are connected to the correct actuator (the 2 4. LEDs in front of the actuator should blink and the Bluetooth icon on the screen has between +), then enter Access code.





II. Alarm and Settings menu tree (options not detailed)

Level 1		Level 2	Level 3
Alarm & Warnin	igs		
Settings		Valve tags	Valve tag Location and process
		Actuator commissioning	Set closing direction Closing & Opening Type Set torque limits Set closed position Set open position
		Remote commands	Auxiliary remote commands 1 Auxiliary remote commands 2 Remote stop
		Remote feedbacks	Signaling relay 1 Signaling relay 2 Signaling relay 3
		Analog input/output	
	Ļ	Profibus	
OPTIONAL	NO	Modbus	
	PTI	Devicenet	
	0	Hart	
	Foundation fieldbus		
		Buttons and display	Language Units Screen orientation LED Color LED in intermediate position Button mode
	Actuator's Passwords	Password to Read only Password to Read & Write Bluetooth Local/Remote security Bluetooth activation	
		Factory data	Actuator type Mechanical features Motor features Electrical features Firmware



III. Alarms and warnings list

System alarms (Fault Relay)	Warnings	
Locked motor in open direction	Overtravel	
Locked motor in close direction	Activity memory fault	
Torque sensor fault	Excessive number of starts	
Position sensor fault	Auxiliary power supply fault for	
Abnormal rotation direction in	external circuits	
Opening	Local Button fault	
Abnormal rotation direction in	Selector Off activated	
Closing	Selector Local activated	
Configuration memory fault	Position fault (<-10% and >110%)	
Lost phase (3-phase motor)	Auxiliary command 2 internal	
Thermal overload	error	
Valve jammed	Actuator hunting action detected	
Lost signal 4-20mA	Handwheel action	
Communication fault between main board and HMI		
Communication Fieldbus fault		
Loss of main power		
Communication between the Main board and the Fieldbus board		



NOTES



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