

# > AQ RANGE

## Weatherproof Quarter-turn Actuators

### Failsafe Super Capacitor Option on AQ Logic

Designed for failsafe applications, this AQ is equipped with a supercapacitor that activates when the actuator is powered off.

In such instances, the supercapacitor serves as a backup, ensuring the actuator is either opened or closed based on the predetermined failsafe settings.

It enables at least one stroke to be performed at maximum torque in the event of a loss of power to the device, up to 800Nm.



- + Ultra compact failsafe with all features of a smart actuator
- + Complete charging time in less than 10 min
- + Fail safe close or open can be selected
- + Can be used at high and low temperatures, from -40°C to +60°C.
- + Wide range of power supplies.
- + Double sealing as standard, and provides the option of using a bus continuity card with the AQ

#### POWER SUPPLY

- 1x115/220/230V AC 50/60Hz
- 3x380-415V AC 50Hz
- 3x440-480V AC 60Hz
- 24V DC (up to AQ80)
- 120-370V DC

On-Off class A as standard

#### OPERATING TIMES

- |                 |                 |
|-----------------|-----------------|
| • AQ05 : 8 sec  | • AQ30 : 36 sec |
| • AQ10 : 12 sec | • AQ50 : 37 sec |
| • AQ15 : 14 sec | • AQ80 : 39 sec |
| • AQ25 : 19 sec |                 |

#### OPTIONS

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Low temp. -40°C</li> <li>• Class B (Analog Positioner input + output signals)</li> <li>• Class III (Analog Positioner input + output signals)</li> <li>• 4 additional signaling relays</li> <li>• Varistor</li> </ul> | <ul style="list-style-type: none"> <li>• Profibus DPV1</li> <li>• Modbus RTU</li> <li>• Stainless steel name plate</li> <li>• Padlockable HMI protection</li> </ul> |
|--|---|

## AQ LOGIC Product specifications

<b>GENERAL</b>	<b>Description</b>	<p>All AQ actuators include motor with thermal protection, gear case, emergency handwheel, position sensor, torque sensor (for torque&gt;150Nm), output drive with removable socket and anti-condensation heater.</p> <p>AQ LOGIC models also include:</p> <ul style="list-style-type: none"> <li>• integrated controls</li> <li>• built-in motor reversing starters</li> <li>• local commands with large LCD display</li> </ul>
	<b>Torque range</b>	<ul style="list-style-type: none"> <li>• Direct: 50 to 800 N.m</li> </ul>
	<b>Duty classification</b>	<p>Adapted to process requirements:</p> <ul style="list-style-type: none"> <li>• On-Off: Class A actuators complying with ISO22153</li> <li>• Inching/Positioning: Class B actuators complying with SO22153</li> <li>• Modulating: Class III actuators with higher duty performance and specification of additional performance criteria compared to ISO22153</li> <li>• Class C basic design requirements</li> </ul>
<b>ENCLOSURE PROTECTION</b>	<b>Casing</b>	<ul style="list-style-type: none"> <li>• Aluminium die casting</li> <li>• Cover fastened by captive and stainless screws</li> </ul>
	<b>External Protection</b>	<ul style="list-style-type: none"> <li>• Type: Epoxy powder coating as standard</li> <li>• Protection: C4 according to ISO 12944</li> <li>• C5 protection option</li> <li>• For colors and finishes, please consult us</li> </ul>
	<b>Weatherproofness</b>	<ul style="list-style-type: none"> <li>• IP68</li> <li>• NEMA 4X as standard</li> <li>• Relative humidity: 0 to 95%</li> </ul>
	<b>Ambient temperature range</b>	<ul style="list-style-type: none"> <li>• -20...+60°C / -4 ... +140°F</li> <li>• -40°C (-40°F) as an option</li> </ul> <p>Other temperatures, please consult us</p>
	<b>Vibration resistance</b>	<p>1g (9.8 m/s.) at 10-500 Hz. (Contact our sales teams for higher vibration levels)</p>

## AQ LOGIC Product specifications

<b>MOTOR</b>	<b>Motor technology</b>	DC motors without thermal protection
	<b>Motor duty rating</b>	<ul style="list-style-type: none"> <li>• On/Off operation (complying with EN15714-2 Class A) and Inching/ Positioning (complying with EN15714-2 Class B): S4-30% motor duty rating. Up to 360 starts per hour at peak of operation. S4-50% as an option.</li> <li>• BC Modulating Class III (complying with EN15714-2 Class C): S4-50% motor duty rating. Up to 1 200 starts per hour at peak of operation. (Voltage <math>\pm 10\%</math>, frequency <math>\pm 2\%</math>)</li> </ul>
<b>MECHANICAL SPECIFICATIONS</b>	<b>Gear design</b>	The gear are mechanically self-locking
	<b>Manual Emergency operation</b>	<ul style="list-style-type: none"> <li>• Manual override handwheel</li> <li>• Automatic declutch</li> </ul>
	<b>Output flange</b>	Actuator flanges comply with ISO 5211
	<b>Lubrication</b>	The actuators are lubricated for the product lifetime and do not require any special service.
<b>ELECTRICAL SPECIFICATIONS</b>	<b>Power supply</b>	<p>The actuators can operate on a wide variety of power supplies:</p> <ul style="list-style-type: none"> <li>• 3-phase, single-phase or DC</li> <li>• 50 or 60 Hz ...</li> </ul>
	<b>Terminal Compartment</b>	Screw-type terminals for controls and power supply. Internal earth grounding post
	<b>Fuse protection</b>	<ul style="list-style-type: none"> <li>• Primary: 0,5A-500V</li> <li>• Secondary: Two automatic resettable fuses</li> </ul>
	<b>Conduit entries</b>	3 x M20 + 2 x M16 (or 3 x 3/4" NPT + 2 x 1/2" NPT)
<b>POSITION &amp; TORQUE SENSORS</b>	<b>Travel limit systems</b>	<ul style="list-style-type: none"> <li>• Position: reading on the output shaft</li> <li>• Position sensor: Absolute encoder (Hall effect sensor)</li> </ul>
	<b>Torque limiting system</b>	<ul style="list-style-type: none"> <li>• Torque limitation available from AQ25</li> <li>• Absolute encoder sensor (Hall effect sensor)</li> <li>• The torque limiting system is calibrated in factory. It remains adjustable via LOGIC (non intrusive setting)</li> <li>• Non intrusive setting: Adjustable torque from 40 to 100% of rated torque</li> </ul>

## AQ LOGIC Product specifications

<b>POSITION &amp; TORQUE SENSORS</b>	<b>Analog transmitter (option)</b>	In current: maximum acceptable load of 600 Ohms (24VDC), must be supplied (12 to 32VDC) 2-wire or 3-wire connection
<b>CONTROLS</b>	<b>Remote command</b>	<p>Maintained or pulse command (minimum pulse duration: 100ms)</p> <ul style="list-style-type: none"> <li>• Command by dry contacts</li> <li>• Command by voltage from 10 to 250 VDC</li> <li>• Isolated by opto-couplers</li> </ul>
	<b>Visual position indication</b>	Mechanical position indicator
	<b>Local command description</b>	<ul style="list-style-type: none"> <li>• 2 buttons + 1 padlockable selector</li> <li>• A large LCD screen to display the position, the torque and alarms and to perform the settings</li> <li>• Green/Red: Configurable LED for CLOSED/OPEN</li> </ul>
	<b>Power circuit</b>	Motor reversing starters
	<b>Auxilliary power supply</b>	With external 24VDC supply
	<b>Signaling relay</b>	<ul style="list-style-type: none"> <li>• 3 latching relays</li> <li>- Contact configuration: normally open or normally closed</li> <li>- Minimum current 10mA at 5V</li> <li>- Maximum current 5A at 250V or 5A at 30VDC (resistive load)</li> </ul> <p>Relay 1: Valve open / Relay 2: Valve closed / Relay 3: Configurable relay</p> <ul style="list-style-type: none"> <li>• Additional 4 relays board as an option</li> </ul>
	<b>Fault relay</b>	<ul style="list-style-type: none"> <li>• SPDT non-latching relay, in fault position when not supplied.</li> <li>• Minimum current 10mA at 5V</li> <li>• Maximum current 5A at 250VAC or 5A at 30VDC (resistive load)</li> </ul>
	<b>Inching/positioning &amp; modulating control (option)</b>	<p>LOGIC Analog Positioner: Signal configurations (with integrated analogue output):</p> <ul style="list-style-type: none"> <li>• Standard input signal: 4-20 mA - output signal: 4-20mA</li> <li>• Input signal: 0-20 mA - output signal: 0-20 mA</li> <li>• Input signal: 0-10 V - output signal: 0-20 mA</li> </ul> <p>Analogue Input:</p> <ul style="list-style-type: none"> <li>- in current: impedance of 260 Ohms</li> <li>- In voltage: impedance of 10 kOhms</li> </ul> <p>Analogue Output:</p> <ul style="list-style-type: none"> <li>- In current: maximum acceptable load of 600 Ohms (24VDC), must be supplied (12 to 32VDC) 2-wire or 3-wire connection</li> </ul>
	<b>Timer</b>	<p>This function enables an increase in the operating time of the actuator, i.e. to avoid water-hammer effect in a pipe. Travel time can be programmed independently in both opening and closing directions.</p> <p>Maximum timer operating time : 9 min</p>

# AQ LOGIC Product specifications

<b>SETTINGS</b>	<b>Settings</b>	<p>Non-Intrusive settings All actuator settings and parameters are stored in a non-volatile EEPROM memory. Protection by password. Configurable via Local control; Bluetooth available as standard (to keep a high level of security, Bluetooth range is limited to 10m. With BC App, communication is encrypted and access is restricted with password.)</p>
	<b>Local settings</b>	<p>The LOGIC can be fully set via its local display and selectors. Does not require any specific setting tool. Optionnal padlockable protection against sandy winds &amp; vandalism.</p>
	<b>Application for mobile device Remote command</b>	<p>BERNARD CONTROLS mobile application is available as standard, with its bluetooth secured communication interface, and allows the user to:</p> <ul style="list-style-type: none"> <li>• Assistance to commissioning on valve</li> <li>• Simply set every parameters of the actuator (non-intrusive setting)</li> <li>• Command the actuator (open/close/stop) as a local controls</li> <li>• Check at a glance an overview of the feedbacks information which are displayed on a large color screen of the mobile</li> <li>• Assistance to curative maintenance with a simple and efficient troubleshooting</li> <li>• Access to BERNARD CONTROLS contact information according to the area concerned</li> <li>• Access to the documentation relative to the selected and scanned actuator</li> <li>• Customize the actuator display</li> <li>• Log the Systems Alarms and Warnings</li> <li>• Duplicate one actuator configuration to another actuator</li> <li>• Check the actuator life operation</li> <li>• Select the suitable language among 14 available languages</li> <li>• Identify the actuator operated valve by its valve tag and location process</li> <li>• Track the last user connexions for traceability and safety reasons</li> </ul>
<b>FIELDBUS</b>	<b>Available Fieldbus protocols (option)</b>	<ul style="list-style-type: none"> <li>• PROFIBUS-DPV1</li> <li>• MODBUS RTU</li> </ul>
<b>CONFORMITY TO EC DIRECTIVES</b>	<b>Compliance with EC Directives</b>	<p>AQ actuators comply with:</p> <ul style="list-style-type: none"> <li>• directive 2004/108/EC Electromagnetic compatibility</li> <li>• directive 2006/95/EC Low voltage</li> <li>• the following harmonised standards: EN 61000-6-4: Generic emissions standard for industrial environments; EN 61000-6-2: Generic immunity standard for industrial environments; EN 60034-1: Rotating electrical machines; EN 60529: Degrees of protection provided by enclosures (IP ratings code)</li> </ul>
<b>OPTIONS</b>	<b>Options LOGIC</b>	<ul style="list-style-type: none"> <li>• Low temperature : -40C</li> <li>• Analog Positioner</li> <li>• 4 additionnal signaling relays</li> <li>• Profi bus DPV1</li> <li>• Modbus RTU</li> <li>• Stainless steel name plate</li> <li>• Varistor</li> <li>• Padlockable HMI protection against sandy winds and vandalism</li> </ul>

# AQ LOGIC Product Selection

AQ0050   DE   035   S   A   0   0   0   E   0   M

**Connection Type**

M=Metric  
I=Imperial NPT

**Output Flange**

0 =Standard Flange  
A=Optional F05  
B=Optional F10  
C=Optional F12  
D=Optional F14  
E=Optional F16  
F=Optional F20  
G=Optional F25

**Certification**

E=EC Standard  
L=EC Low Temperature  
C=CSA(Low Temperature)  
R=EAC (Low Temperature)

**Fieldbus Options**

0 =Without; P=Profibus DP single;  
M= Modbus RTU

**LOGIC Options**

0=Without 1=RS4  
2= Failsafe 3=Failsafe + RS4

**Analog Signals Options**

0=Without; 1=Analog Transmitter (Output Signal);  
2=Analog Positioner ; 3= POT

**Duty & Modulating Classification**

A=Class A; B=Class B; C=Class III

**Control Type**

S=SWITCH, P=SWITCH Prewired, L=LOGIC

**Operating time (sec)**

**Voltage**

DE=Direct Current 24V ; FB=1Ph 220-230V 50/60Hz ; FC=1Ph 115-120V 50/60Hz ;  
TA=3Ph 380-415V 50Hz ; UJ=3Ph 440-480V 60Hz

**Actuator Type**

#### CORPORATE HEADQUARTERS

4 rue d'Arsonval - CS 70091 / 95505 Gonesse CEDEX France / Tel. : +33 (0)1 34 07 71 00

#### AMERICAS

##### NORTH AMERICA

Bernard Controls United States -  
Katy (Houston)  
inquiry.usa@bernardcontrols.com  
Tel. +1 281 578 66 66

##### SOUTH AMERICA

Bernard Controls Latin America  
inquiry.southamerica@bernardcontrols.com  
Tel. +1 281 578 66 66

#### ASIA

##### CHINA

Bernard Controls China  
Bernard Controls China Nuclear -  
Beijing  
inquiry.china@bernardcontrols.com  
Tel. +86 (0) 10 6789 2861

##### KOREA

Bernard Controls Korea -  
Seoul  
inquiry.korea@bernardcontrols.com  
Tel. +82 (0)2 553 6957

##### SINGAPORE

Bernard Controls Singapore  
Singapore  
inquiry.singapore@bernardcontrols.com  
Tel. +65 65 654 227

#### EUROPE

##### BELGIUM

Bernard Controls Benelux -  
Nivelles (Brussels)  
inquiry.belgium@bernardcontrols.com  
inquiry.holland@bernardcontrols.com  
Tel. +32 (0)2 343 41 22

##### FRANCE

Bernard Controls France &  
Bernard Controls Nuclear France  
Gonesse (Paris)  
inquiry.france@bernardcontrols.com  
Tel. +33 (0)1 34 07 71 00

##### GERMANY

Bernard Controls DEUFRA -  
Troisdorf (Köln)  
inquiry.germany@bernardcontrols.com  
Tel. +49 2241 9834 0

##### ITALY

Bernard Controls Italia -  
Rho (Milano)  
inquiry.italy@bernardcontrols.com  
Tel. +39 02 931 85 233

##### SPAIN

Bernard Controls Spain -  
Madrid  
inquiry.spain@bernardcontrols.com  
Tel. +34 91 30 41 139

#### UNITED KINGDOM

Bernard Controls United Kingdom  
inquiry.uk@bernardcontrols.com  
Tel. +44 (0)7435 266310

#### INDIA, MIDDLE EAST & AFRICA

##### AFRICA

Bernard Controls Africa  
Abidjan - Ivory Coast  
inquiry.africa@bernardcontrols.com  
Tel. + 225 21 34 07 82

##### INDIA

Bernard Controls India  
inquiry.india@bernardcontrols.com  
Tel. +971 4 880 0660

##### MIDDLE-EAST

Bernard Controls Middle East  
Dubai - U.A.E.  
inquiry.middleeast@bernardcontrols.com  
Tel. +971 4 880 0660

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