





Jen.

Weatherproof Quarter-turn Actuators

AQ RANGE

>AQ range The essentials

for quarter-turn electric actuation



AQ150 - AQ280 - AQ430 - AQ610 - AQ830 - AQ1000 LOGIC version

AQ150 - AQ280 - AQ430 - AQ610 - AQ830 - AQ1000 **SWITCH** version



Mechanical position indicator on all models

(e) BERNARD

Check the position of your valve at a glance

New camblock system

On SWITCH VERSION Easy set up of the travel limitation system with a standard screwdriver

Position signaling by 2 LEDs

(green / red configurable LEDs for open / closed)

Heavy duty design

Full aluminium enclosure protected by durable powder coating!

Cable entries

up to 5 cable entries



New mobile application BC App

"Set up your actuator and more in a few clicks!"

- > Set up & Operate your actuator using your mobile phone
- > Get access to clear descriptions of alarms. troubleshooting functions, documentation, Bernard Controls Assistance
- > Upload & change the full actuator configuration in one step
- > Even complex settings are made easier





Large LCD display

Easily orientable in a few clicks on the BC App or through local commands



local commands

through 2 buttons &

Declutch-free handwheel > with motor priority

> with foldable handle

Product benefits

Compact & optimized design

- > Super compact design (including integrated controls)
- > Product architecture & torque range adapted to customers' requirements: 14 models from 50 to 10000 Nm
- > Multi-voltage (AC/DC) : suitable whatever your location on the
- > Optimized logistics: short deliveru time

Reliable design

- > BERNARD CONTROLS design methodology built-up on the nuclear market highly demanding requirements
- > 80+ years of continuous experience and BC inventor of the compact quarter-turn electric actuator
- > Heavy duty design: full aluminium enclosure protected by durable powder coating, IP68, low temperature option
- > 100% of delivered products are tested with automatic process before delivery
- > S4 Motor Service Duty on all models
- > Suitable for modulating applications (BC Class III complying with EN15714-2 Class C)

Easy to use

- > Easy commissioning: pre-wired version (1-phase only), set up of travel limitation system with a standard screwdriver...
- > Large LCD display on LOGIC version for user-friendly commissioning and local command. Easily orientable (4way direction) in few clicks
- > Declutch-free manual override: essential for quick intervention on site
- > BC APP: Bernard Controls new mobile application for setting, operating, troubleshooting and easy access to documentation

• The main functions of SMART control with the new LOGIC control (v2)

- > Turn-key, time & cost-saving solution
- > User-friendly & intuitive
- > Non-intrusive setting for enhanced safety and reliability
- > Compatible with common fieldbus protocols: Modbus RTU, Profibus DPV1.
- > Bluetooth communication (as standard) to communicate with Bernard Controls' BC App



Flange

with removable socket

according to ISO 5211



> AQ RANGE

Weatherproof Quarter-turn Actuators





AQ SWITCH

AQ5-AQ10-AQ15-AQ25-AQ30-AQ50 - AQ80 AQ100 - AQ150-AQ280-AQ430-AQ610-AQ830-AQ1000

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



AQ LOGIC

AQ5-AQ10-AQ15-AQ25-AQ30-AQ50-AQ80-AQ100 AQ150-AQ280-AQ430-AQ610-AQ830-AQ1000

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

On-Off Class A as standard

> OPTIONS

- + Low temp. -40°
- + Position potentiometer (1000 Ω)
- > Class B (POT)
- > Class B (TAM)
- + Analog Positioner (input + output signals) (1-phase only)
 - > Class B and Class III
- + Stainless steel name plate
- + Varistor

On-Off Class A as standard

> OPTIONS

- + Low temp. -40°
- + Class B (Analog Positioner (input + output signals)
- + Class III (Analog Positioner (input + output signals)
- + 4 additional signaling relays
- + Profibus DPV1
- + Modbus RTU
- + Stainless steel name plate
- + Varistor



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	PRODUCT	SPECIFICATIONS	
	Description	All AQ actuators include motor with thermal protection, gear case, emergency handwheel, travel limit switches, torque switches (for torque >150Nm), output drive with removable socket and anti-condensation heater.	
GENERAL	Torque range	Direct: 50 to 1000 N.m Up to 10 000 N.m with Gearbox	
	Duty Classification	Adapted to process requirements: • On-Off: Class A actuators complying with EN15714-2 • Inching/Positioning: Class B actuators complying with EN15714-2	
	Casing	Aluminium die castingCover fastened by captive and stainless screws	
	External Protection	 Type: Epoxy powder coating as standard Protection: C4 according to ISO 12944 For colors and finishes, please consult us 	
ENCLOSURE - PROTECTION	Weatherproofness	IP68 NEMA 4X as standard Relative humidity: 0 to 95%.	
	Ambient temperature range	• -20+70°C / -4 +158°F • -40°C (-40°F) as an option Other temperatures, please consult us	
	Vibration resistance	1g (9.8 m/s²) at 10-200 Hz. (Contact our sales teams for higher vibration levels)	
MOTOR	Motor technology	3-phase or single-phase asynchronous motor, Class F insulation with integral thermal overload protection. DC motors	
	Motor duty rating	 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. 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 ±10%, frequency ±2%) 	
	Gear design	Actuator is mechanically self-locking	
MECHANICAL	Manual emergency operation	Manual override handwheel Automatic declutch	
SPECIFICATIONS	Output flange	Actuator flanges comply with ISO 5211	
	Lubrication	The actuators are lubricated for the product lifetime and do not require any special service.	
	Power supply	The actuators can operate on a wide variety of power supplies: • 3-phase, single-phase or DC (except AQ150 to AQ1000) • 50 or 60 Hz	
ELECTRICAL SPECIFICATIONS	Prewired (option)	Prewired available as an option for AQ5 to AQ80 : single- phase 230V 50/60Hz, single-phase 115-120V 50/60Hz and DC.	
SFECII ICITIONS	Terminal compartment	Screw-type terminals for controls and power supply. Internal earth grounding post.	
	Conduit entries	2 x M20 as standard (or 2 x 3/4")	
	Travel limit systems	Limit switches actuated by adjustable camblock SPDT switches as standard (Open and Close) + 2 auxiliary switches (for signaling)	
POSITION & TORQUE SENSORS	Torque limiting system	Torque limitation available from AQ25 The torque limiting system is calibrated at the factory Suitches as standard (1 in opening and 1 in closing); SPDT; 250VAC-5Amax (resistive load) Adjustable torque from 40 to 100% of max torque (intrusive setting)	
	Analog Transmitter (option)	ANALOG TRANSMITTER OPTION: 2 wires for 4-20mA Analog Transmitter POT 1000Ω	



AQ SWITCH PRODUCT SPECIFICATIONS			
	Visual position indication	Mechanical position indicator	
CONTROLS	Inching/Positioning control	 ANALOG POSITIONER OPTION: (1-phase only) Input (setpoint) and output (feedback) signals are fully isolated from each other Input signal: 4-20 mA - output signal: 4-20mA (4=closed; 20=open) 	
SETTINGS	Actuator on valve settings	Easy and quick setting of position and torque camblocks with a standard screwdriver	
	Application for mobile device	BERNARD CONTROLS new mobile application is available as standard BERNARD CONTROLS mobile interface allows the user to: • Access to the documentation relative to the selected actuator (ente Serial number) or scan the QR code on the nameplate of the actuator • Access to BERNARD CONTROLS contact information according to the concerned	
CONFORMITY TO EC DIRECTIVES	Compliance with EC Directives	RQ actuators comply with: • directive 2004/108/EC Electromagnetic compatibility • directive 2006/95/EC Low voltage • 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)	

2/2



		LOGIC
	PRODUĆT S	PECIFICATIONS
	Description	All AQ actuators include motor with thermal protection, gear case, emergency handwheel, position sensor, torque sensor (for torque>150Nm output drive with removable socket and anti-condensation heater. AQ LOGIC models also include: integrated controls built-in motor reversing starters local commands with large LCD display
GENERAL	Torque range	Direct: 50 to 1000 N.m Up to 10 000 N.m with Gearbox
	Duty Classification	Adapted to process requirements: On-Off: Class A actuators complying with EN15714-2 Inching/Positioning: Class B actuators complying with EN15714-2 Modulating: Class III actuators with higheR duty performance and specification of additional performance criteria compared to EN15714-2 Class C basic design requirements
	Casing	Aluminium die casting Cover fastened by captive and stainless screws
	External Protection	 Type: Epoxy powder coating as standard Protection: C4 according to ISO 12944 For colors and finishes, please consult us
ENCLOSURE - PROTECTION	Weatherproofness	IP68 NEMA 4X as standard Hygrométrie: 0 to 95%.
	Ambient temperature range	• -20+70°C / -4 +158°F • -40°C (-40°F) as an option Other temperatures, please consult us
	Vibration resistance	1g (9.8 m/s²) at 10-200 Hz. Contact our sales teams for higher vibration levels
MOTOR	Motor technology	3-phase or single-phase asynchronous motor, Class F insulation with integral thermal overload protection DC motors
	Motor duty rating	 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. 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 ±10%, frequency ±2%)
	Gear design	The gear are mechanically self-locking
MECHANICAL	Manual emergency operation	Manual override handwheel Automatic declutch
SPECIFICATIONS	Output flange	Actuator flanges comply with ISO 5211.
	Lubrication	The actuators are lubricated for the product lifetime and do not require any special service.
ELECTRICAL SPECIFICATIONS	Power supply	The actuators can operate on a wide variety of power supplies: • 3-phase , single-phase or DC (except AQ80 to AQ1000) • 50 or 60 Hz
	Terminal compartment	Screw-type terminals for controls and power supply. Internal earth grounding post
	Fuse protection	Primary: 0,5A-500V Secondary: Two automatic resettable fuses
	Conduit entries	3 x M20 + 2 x M16 (or 3 x 3/4" NPT + 2 x 1/2" NPT)
	Travel limit systems	 Position: reading on the output shaft Position sensor: Absolute encoder (Hall effect sensor)
POSITION & TORQUE SENSORS	Torque limiting system	 Torque limitation available from AQ25 Absolute encoder sensor (Hall effect sensor) The torque limiting system is calibrated in factory. It remains adjustable via LOGIC (non intrusive setting) Non intrusive setting: Adjustable torque from 40 to 100% of rated torque



AQ LOGIC PRODUCT SPECIFICATIONS				
POSITION & TORQUE SENSORS	Analog Transmitter (option)	In current: maximum acceptable load of 600 Ohms (24VDC), must be supplied (12 to 32VDC) 2-wire or 3-wire connection		
	Remote Command	Maintained or pulse command (minimum pulse duration: 100ms) Command by dry contacts Command by voltage from 10 to 250 VDC Isolated by opto-couplers		
	Visual position indication	Mechanical position indicator		
	Local command description	 2 buttons + 1 padlockable selector A large LCD screen to display the position, the torque and alarms and to perform the settings Green/Red: Configurable LED for CLOSED/OPEN 		
	Power circuit	Motor reversing starters		
	Auxiliary power supply	With external 24VDC supply		
CONTROLS	Signaling relay	3 latching relays Contact configuration: normally open or normally closed Minimum current 10mA at 5V Maximum current 5A at 250V or 5A at 30VDC (resistive load) Relay 1: Valve open Relay 2: Valve closed Relay 3: Configurable relay Additional 4 relays board as an option		
	Fault relay	 SPDT non-latching relay, in fault position when not supplied. Minimum current 10mA at 5V Maximum current 5A at 250VAC or 5A at 30VDC (resistive load) 		
	Inching/Positioning & Modulating control (option)	LOGIC Analog Positioner: Signal configurations (with integrated analogue output): • Standard input signal: 4-20 mA - output signal: 4-20mA • Input signal: 0-20 mA - output signal: 0-20 mA • Input signal: 0-10 V - output signal: 0-20 mA Analogue Input: - in current: impedance of 260 Ohms - In voltage: impedance of 10 kOhms Analogue Output: - In current: maximum acceptable load of 600 Ohms (24VDC), must be supplied (12 to 32VDC) 2-wire or 3-wire connection		
	Timer	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.		
SETTINGS	Settings	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.)		
	Local settings	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 & vandalism.		
	Application for mobile device	New BERNARD CONTROLS mobile application is available as standard, with its bluetooth secured communication interface, and allows the user to: • Assistance to commissioning on valve • Simply set every parameters of the actuator (non-intrusive setting) • Command the actuator (open/close/stop) as a local controls • Check at a glance an overview of the feedbacks information which are displayed on a large color screen of the mobile • Assistance to curative maintenance with a simple and efficient troubleshooting • Access to BERNARD CONTROLS contact information according to the area concerned • Access to the documentation relative to the selected and scanned actuator • Customize the actuator display • Log the Systems Alarms and Warnings		



AQ LOGIC PRODUCT SPECIFICATIONS			
SETTINGS	Application for mobile device	 Duplicate one actuator configuration to another actuator Check the actuator life operation Select the suitable language among 14 available languages Identify the actuator operated valve by its valve tag and location process Track the last user connexions for traceability and safety reasons 	
FIELDBUS	Available Fieldbus protocols (option)	PROFIBUS-DPV1 MODBUS RTU	
CONFORMITY TO EC DIRECTIVES	Compliance with EC Directives	AQ actuators comply with: • directive 2004/108/EC Electromagnetic compatibility • directive 2006/95/EC Low voltage • 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)	

> Notes		

>Product selection

AQ0050 DE 035 S A 0 0 0

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

Analog Signals Options

0=Without; **1**=Analog Transmitter (Output Signal); **2**=Analog Positioner¹; **3**= POT

Duty & Modulating Classification

: A=Class A; B=Class B; 3=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



also to improve the reliability of your process thanks to key features and data for preventive maintenance. Compatible with our new controls: LOGIC (v2) & INTELLI+® (v3)

Solutions Overview



NEW RANGES OF ACTUATORS AO, AOL, AOXL, AT & BT



NEW MOBILE APPLICATION BC APP The only application that allows not only to set up your actuator in a few clicks, but

WEATHERPROOF RANGES



- 15 to 70 Nm (direct mount)
- Type of Controls: > Electromechanical SWITCH
- BC Duty & Modulating Classification









On-Off

- > IP68 / C4 (High paint protection option C5)
- > T: -20°C ...+60°C



Quarter-turn AO RANGE



- •50 to 10,000 Nm (up to 1000 Nm direct mount) Up to 1,000,000 Nm on request
- Type of Controls: > Electromechanical SWITCH > Smart LOGIC (v2)
- BC Duty & Modulating Classification

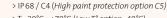


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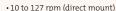


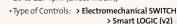
> T: -20°C ...+70°C (Low T° option -40°C) **Multi-turn AT RANGE**



ULTRA

• 30 to 500 Nm (direct mount) | Up to 32,000 Nm on request





> Screw Type Terminal

BC Duty & Modulating Classification



Inching B



• Environment: > IP 68 / C4 (High paint protection option C5)

> T: -20°C ...+70°C (Low T° option -40°C)





The essentials

EXPLOSION PROOF RANGES



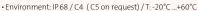


- Compliance with international explosion proof standards: ATEX, IEC-Ex,
- Type of Controls: > Electromechanical SWITCH
- BC Duty & Modulating Classification









· Linear applications

WEATHERPROOF RANGES



The dedicated solutions



Multi-turn BT RANGE

- · 30 to 500 Nm (direct mount) | Up to 32,000 Nm on request
- · 10 to 127 rpm (direct mount) & high speed: up to 180 rpm (direct)
- Type of Controls: > Smart INTELLI+@(v3)
- · Wiring: Double-sealing as standard
 - > New terminal plate with pins for easy wiring
 - > Ouick Connector







• Environment: > IP 68 / C4 (High paint protection option C5)

> T: -20°C ...+70°C Low T° (Low T° option -40°C)

Linear applications

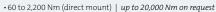
SPECIAL REOUESTS

Ouarter-turn SO RANGE

- 45 to 10,000 Nm (up to 800 Nm direct mount) | Up to 1,000,000 Nm on request
- With type of Controls: > Smart INTELLI+@(v2) With Fieldbus Redundant ...

· Wiring: Double-sealing with INTELLI+

Multi-turn ST RANGE



•10 to 120 rpm (direct mount) | High speed: up to 190 rpm (direct & <300Nm)

•With type of Controls: > Smart INTELLI+®(v2) With Fieldbus Redundant

EXPLOSIONPROOF RANGES

Quarter-turn & Multi-turn SQX & STX RANGES

- SQX: 80 to 800 Nm (direct) & up to 1,000,000 Nm on request
- STX: 25 to 2,200 Nm (direct) & up to 20,000 Nm on request
- Compliance with international explosion proof standards: ATEX, INMETRO, IEC-Ex, EAC-Ex, NEMA 7 & 9...
- Type of Controls:
- > Electromechanical SWITCH
- > Hardwired
- > Smart INTELLI+® (v2) > SIL2
- BC Duty & Modulating Classification



Inching Positioning

Modulating III

- Environment: IP 68 / C3 up to C5-M /T: -20°C ...+70°C (low T° option: -60°C)
- Special configurations: Corrosion protection, Fire proofing, Extreme temperatures

FAILSAFE RANGES

Ouarter-turn Failsafe Actuators FO RANGE

Fast and shock-free reliable spring-return technology during emergency operation

• BC Duty & Modulating Classification

Inching B Modulating III

• Environment: IP 67 / C3 / T: -20°C ...+70°C (low T° option -40°C)

Failsafe Actuators FQX RANGE

· Explosionproof versions ATEX-NEMA

Ouarter-turn & Linear Failsafe FSeX RANGE

The complete combination of modern electrics and power of hydraulics

· BC Duty & Modulating Classification

Inching B Modulating III

• Environment: IP67 / C4 / T: -20°C ...+60°C

• ATEX-NEMA, SIL3

NUCLEAR RANGES

Nuclear classified Actuators

- · SQN & ST & SN &SD Nuclear qualified electric actuators
- + Full range of other Qualified Solutions: Quarter-turn, Multi-turn and Linear for inside & outside containment applications: Failsafe actuators







CONTROLS teams are available for dedicated support. From the design stage to installation, commissioning, maintenance and training. our experts help you to define and implement the most appropriate solution to your specific needs thanks to our local R&D centers, test



ERATION OF SMART CONTROLS





The main functions you expect from modern integrated controls

Advanced control solution for your critical applications!



labs, calculation tools and training center.





