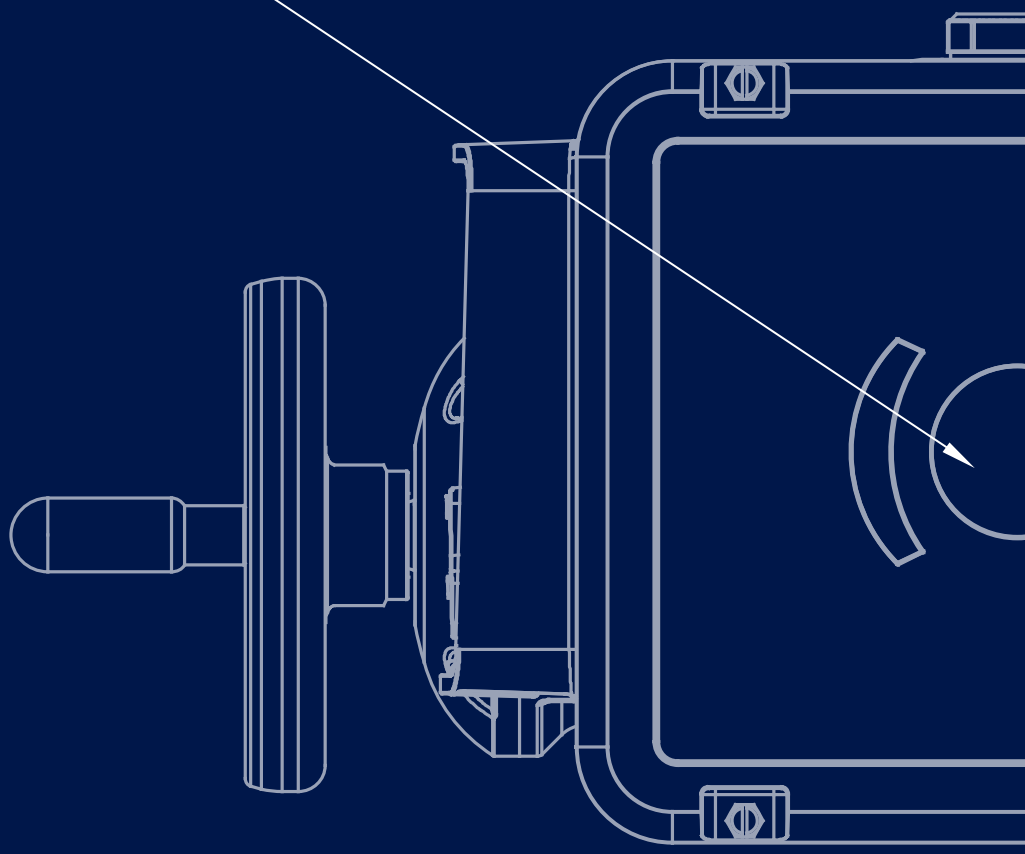




**BERNARD®
CONTROLS**



//////// Invest in Confidence //////////////////////////////////////

New

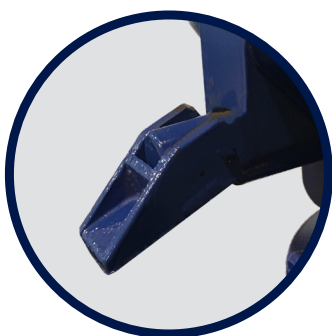
Failsafe
Electric actuators
FQ range

> FQ Range

The complete solution for failsafe electric actuators

Product overview

**Lockable
handwheel clutch**



Handwheel





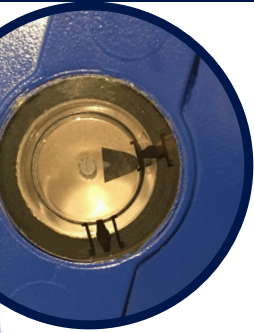
FQ04 - FQ08



FQ12 - FQ18



FQ12 - FQ18



Mechanical position indicator

- > Standard
- > Check the position of your valve at a glance

Product benefits

FAST SPRING RETURN ELECTRIC ACTUATORS : YOUR INSTALLATION IS UNDER CONTROL

Application fields

All applications where the loss of power supply requires automatically to put the driven device in a safety position. All applications where the risks are such, that driving the device to its safety position must be possible at any time even in the absence of power supply.

Dashpot

For shock free operation

Cable entries

Spring

With solenoid brake

• Special mechanical design

- > Specially designed to fail safe applications and with self-locking gears
- > Fast and **shock-free** operation of the valve during emergency closing/opening, **several speeds** available

• Easy to use, maintenance free

- > No periodic maintenance required
- > Trouble free operation for years (FQ system is not battery technology based)
- > Spring efficiency guaranteed over the full 90° travel
- > **Travel limit switches easy to set** with a simple screw driver and **unaffected by mechanical vibrations effects**
- > Easy access to electrical connections via a **terminal strip**

• Top level of reliability

- > No need for external power supply: the FQ works with an **automatic spring-return**
- > **No resetting of the spring** required after emergency operation: failsafe function is continuously available
- > **Full electrical priority** even in case of manual operation: a lever for manual operation stops the failsafe function of the actuator but not the actuator operation
- > Manual operation can be inhibited with padlock

• Modular design adaptable to specific applications

- > **Explosion proof** versions according to international standards (ATEX, NEMA)
- > **Low temperature version:** up to -40°C
- > **Separated control box** available for advanced integrated control functions and fieldbus communication
- > Suitable for **Modulating applications** (BC Class III complying with EN15714-2 Class C)

> FQ RANGE

Failsafe Electric Actuators

Range Overview

For all quarter-turn applications, spring return FQ range actuators ensure automatic opening or closing even without any power supply.



What is Failsafe ?

The activation of an emergency signal triggers the immediate opening or closing of the backup device, without the need of any external power source and using a full mechanical spring return.

Content

Range overview - FQ 6

PRODUCT SPECIFICATIONS

GENERAL	Torque range	Quarter-turn, direct mounting from 40 to 500Nm
	Actuator Duty Class	On-Off (Class A), Inching/Positioning (Class B), Modulating (Class C)
ENCLOSURE - PROTECTION	Casing	Cast aluminium
	Weatherproof	IP67
	Programming	FQ range is generally proposed with switch control (camblock + end-of-travel switches). INTEGRAL+ & POSIGAM+ (See INTEGRAL+ catalogue) advanced controls are also possible with separated control box. Maximum distance between control box and actuator: 50m
	Explosion proof ATEX (option)	ATEX Directive 94/9/EC - CENELEC EN 50014, EN 50018 As standard: EEx d IIC T4 (option T5 or T6) - Ex II 2 G Certificate : LCIE 02 ATEX 6209
	Ambient temperature operating range	Weatherproof models: -20°C to 70°C (-40°C as an option) EEx d IIC T4 : -20°C to 60°C (-40°C as an option) EEx d IIC T5 : -20°C to 60°C (-40°C as an option) EEx d IIC T6 : -20°C to 50°C (-40°C as an option)
	Explosion proof C.S.A. (Canada & USA) (option)	NEMA 7 - NEMA 9 certified C22-2, FM3600, FM3611 and FM3615 standards Class I Group C, D div 1&2 (option Group B) Class II Group E, F, G div 1&2 Certificate : 1061444
	External corrosion protection	<ul style="list-style-type: none"> • Paint system : - Polyurethane paint Ral5002 complying with ISO 12944 (C3) - Protection for highly corrosive conditions as an option • All cover fasteners captive and stainless.
MOTOR	Motor technology	TENV type (Totally Enclosed Non Ventilated). Class F insulation. Integrated thermal overload protection.
	Motor duty rating	S4 motor service (Intermittent periodic duty with startings) acc. to IEC 34-1 <ul style="list-style-type: none"> • S4 - 30% for On-Off Class A - up to 360 starts per hour. • S4 - 30% for Inching/Positioning Class B - up to 360 starts per hour. • S4 - 50% for Modulating Class III - up to 1,200 starts per hour.
MECHANICAL SPECIFICATIONS	Gearing	Self-locking
	Manual override	Function available on FQ12, FQ18, FQ30 and FQ50. Handwheel does not rotate during motor operation. Padlockable clutch lever.
	Spring return	CW as standard, CCW on request (non reversible device) Fast spring return in option
	Output flange	d Flange comply with ISO 5211 (with optional socket/flange for FQ04 to FQ18)
	Output drive	Direct output drive on FQ04 to FQ18 (Removable socket as an option). Removable socket on FQ30 and FQ50.
	Vibration Resistance	1g (9.8 m/s ²) at 10-500 Hz For higher vibration resistance, please contact us.
	Lubrication	Actuators are lubricated for product lifetime and do not require any specific periodic maintenance

PRODUCT SPECIFICATIONS

ELECTRICAL SPECIFICATIONS	Power supply	Actuators are available for a wide range of power supplies: <ul style="list-style-type: none"> • Single-phase, three-phase or DC voltages • 50 or 60 Hz • Specific voltages on request
	Solenoid brake	The solenoid rated power is 21 W. This solenoid is normally under permanent power supply. Need separated power supply. Nominal voltage: <ul style="list-style-type: none"> • 230V AC for 230V or 400V AC actuators • 115V AC for 115V or 460V AC actuators • 24V DC for 24V DC actuators Other possible voltages on request
	Position sensors	<ul style="list-style-type: none"> • Movement read directly on the main shaft (direct mechanical link) • Adjustable camblock with 2 SPDT end-of-travel switches • 2 extra position switches as an option • Independent position transmitter (TAM or potentiometer) as an option
	Conduit entries	Weatherproof design : <ul style="list-style-type: none"> - 2xM20 - 3xM20 (as an option) Explosionproof design : <ul style="list-style-type: none"> - 2x 3/4" NPT - 3x 3/4" NPT (as an option)
ADDITIONAL OPTIONS	Fieldbus interface (option)	Profibus DP (single or redundant) <ul style="list-style-type: none"> • PROFIBUS-DP slave - RS 485 • Baudrate: autodetection • Total number of master and slave modules on the same line: 31 max. up to 99 with repeaters • PROFIBUS operability approved by PNO (Profibus Nutzer Organisation) • External power supply backup
	Additional options	<ul style="list-style-type: none"> • LED indication board (closed, open, power on) • Additional 3 relays board • Additional position transmitter isolated from the other output signals

PRODUCT SPECIFICATIONS

ADVANCED CONTROLS (OPTION)	Models	<p>Two versions according to operating modes: INTEGRAL+ for On-Off which includes :</p> <ul style="list-style-type: none"> • Terminal compartment • Power contactors • Logic control • Configuration panel • Signalling relays • Local control selectors <p>POSIGAM+ for Class III positioning :</p> <ul style="list-style-type: none"> • All INTEGRAL+ features • Positioner board • Position feedback
	Enclosure protection	<p>Separated FPi box (weatherproof design)</p> <ul style="list-style-type: none"> • Standard: IP67 / NEMA 4 <p>Separated FPx box (explosionproof design)</p> <ul style="list-style-type: none"> • Standard: IP67 / EEx d IIC T6 - NEMA 7 / 9
	On-off control	<ul style="list-style-type: none"> • Isolated by opto-couplers • Voltage: 10 to 250 V DC/AC • Current: 10 mA at 24V • Dry contacts (uses INTEGRAL+ auxiliary DC supply) • Minimum pulse duration: 100ms • Time of rotational direction change: 50ms or 200ms
	Positioning control	<ul style="list-style-type: none"> • Standard : Input signal 4-20 mA - Output signal 4-20 mA • On request : Input signal 0-20 mA - Output signal 0-20 mA • On request : Input signal 0-10 V - Output signal 0-20 mA
	Cable entries	<p>Weatherproof design (with separated FPi control box option)</p> <ul style="list-style-type: none"> - 3xM20 - 2xM20 + 2xM25 (en option) - 3xM20 + 4xM16(With single or redundant fieldbus option) <p>Explosionproof design (with separated FPx control box option)</p> <ul style="list-style-type: none"> - 2x 3/4" NPT + 1x1" NPT
	Signal relay	<ul style="list-style-type: none"> • 4 relays: 4 datas can be freely selected among a total of 16 available datas (250VAC-5A max.) • 1 fault relay
	EU conformity	<p>INTEGRAL+ / POSIGAM+ controls complying with:</p> <ul style="list-style-type: none"> • The 2004/108/EC electromagnetic compatibility • The 2006/95/EC low voltage • The following harmonized standards: Generic emission standard-Industrial environment EN 61000-6-4 <p>Generic immunity standard - Industrial environment EN 61000-6-2.</p> <p>Degrees of protection provided by enclosures (IP code) EN 60529</p>
	Vibration resistance	1g (9.8 m/s ²) à 10-500 Hz

Nos Solutions



NOUVEAUX SERVOMOTEURS AQ, AQL, AQXL, AT & BT



NOUVELLE APPLICATION MOBILE BC APP

La seule application qui permet non seulement de configurer votre servomoteur en quelques clics, mais également d'améliorer la fiabilité de votre process grâce à des données et fonctions clés pour vos opérations de maintenance préventive. Compatible avec nos nouveaux contrôles : LOGIC (v2) & INTELLI+® (v3)



GAMMES ETANCHES



The essentials

Quart de tour GAMME AQL

- de 15 à 70 Nm (direct)
- Types de Contrôles : > Électromécanique SWITCH
- Classification Fonction et Régulation BC

Tout ou Rien **A** Positionnement **B**



- Environnement:
- > IP 68 / C4 (Option peinture haute protection C5)

Quart de tour GAMME AQ

- de 50 à 10 000 Nm (jusqu'à 800Nm direct) jusqu'à 1 000 000 Nm sur demande
- Types de Contrôles : > Électromécanique SWITCH > Smart LOGIC (v2)

Tout ou Rien **A** Positionnement **B** Régulation **III**



- Classification Fonction et Régulation BC
- Environnement:
- > IP 68 / C4 (Option peinture haute protection C5)
- > T: -20°C ...+70°C (Option basse T° -40°C)

Multi-tours GAMME AT

- de 30 à 500 Nm (direct) & jusqu'à 32 000 Nm sur demande
- de 10 à 127 tr/min (direct)
- Types de Contrôles : > Électromécanique SWITCH > Smart LOGIC (v2)

Tout ou Rien **A** Positionnement **B** Régulation **III**



- Environnement: > IP68 / C4 (Option peinture haute protection C5) > T: -20°C ...+70°C (Option basse T° -40°C)



GAMMES ANTIDÉFLAGRANTES

Quart de tour GAMME AQXL

- 40 Nm et 70 Nm
 - Conformité aux normes antidéflagrantes internationales: ATEX, IEC-Ex, NEMA 7...
 - Types de Contrôles : > Électromécanique SWITCH
 - Classification Fonction et Régulation BC
- Tout ou Rien **A** Positionnement **B**
- Environnement: IP 68 / C4 (C5 sur demande) / T: -20°C ...+60°C
 - Applications linéaires



GAMMES ETANCHES



The dedicated solutions

Multi-tours GAMME BT

- de 30 à 500 Nm (direct) & jusqu'à 32 000 Nm sur demande
- de 10 à 127 tr/min (direct) & vitesse rapide: jusqu'à 180 tr/min (direct)
- Types de Contrôles : > Smart INTELLI+®(v3)
- Raccordement: **Double étanchéité en standard**

- > Nouvelle plaque à bornes avec broches pour un raccordement rapide
- > Quick Connector

Classification Fonction et Régulation avancée

Tout ou Rien **A+** Positionnement **B+** Régulation **III+**

- Environnement: > IP 68 / C4 (Option peinture haute protection C5) > T: -20°C ...+70°C Basse T° (Option basse T° -40°C)



DEMANDES SPÉCIALES

Quart de Tour GAMME SQ

- de 45 à 10,000 Nm (jusqu'à 800 Nm direct) | jusqu'à 1,000,000 Nm sur demande
- Avec types de Contrôles: > Smart INTELLI+®(v2) avec bus de terrain redondant... > SIL2
- Raccordement: Double étanchéité avec INTELLI+



Multi-tours GAMME ST

- de 60 à 2,200 Nm (direct) | jusqu'à 20,000 Nm sur demande
- de 10 à 120 tr/min (direct) | vitesse rapide: jusqu'à 190 tr/min (direct & <300Nm)
- Avec types de Contrôles: > Smart INTELLI+®(v2) avec bus de terrain redondant... > SIL2



DESIGN SUR MESURE & PROJETS:

À chaque instant à travers le monde, les équipes BERNARD CONTROLS sont dédiées à votre accompagnement. De la conception à l'installation, la mise en service, la maintenance et la formation, nos experts vous aident à définir et à mettre en place la solution la plus adaptée à vos besoins spécifiques, grâce à nos équipes locales de R&D, nos laboratoires de tests, nos outils de calcul et notre centre de formation.



GAMMES ANTIDÉFLAGRANTES

Quart de Tour & Multi-tours GAMMES SQX & STX

- SQX: de 80 à 800 Nm (direct) & jusqu'à 1,000,000 Nm sur demande
- STX: de 25 à 2,200 Nm (direct) & jusqu'à 20,000 Nm sur demande
- Conformité aux normes antidéflagrantes internationales: ATEX, INMETRO, IEC-Ex, EAC-Ex, NEMA 7 & 9...
- Types de Contrôles: > Électromécanique SWITCH

- > Hardwired
- > Smart INTELLI+® (v2)
- > SIL2

- Classification Fonction et Régulation BC

Tout ou Rien **A+** Positionnement **B+** Régulation **III+**

- Environnement: IP 68 / C3 jusqu'à C5-M / T: -20°C ...+70°C (basse T° option: -60°C)
- Special configurations: Corrosion protection, Fire proofing, Extreme temperatures



GAMMES À SÉCURITÉ POSITIVE

Quart de Tour GAMME FQ

Technologie fiable avec retour par ressort : Mise en sécurité de la vanne rapide et sans choc

- Classification Fonction et Régulation BC

Tout ou Rien **A+** Positionnement **B+** Régulation **III+**

- Environnement: IP 67 / C3 / T: -20°C ...+70°C (basse T° option -40°C)

Actionneurs GAMME FOX

- Versions antidéflagrantes ATEX-NEMA



Quart de Tour & Linéaire GAMME FSeX

L'alliance de la modernité de l'électrique et de la puissance de l'hydraulique

- Classification Fonction et Régulation BC

Tout ou Rien **A+** Positionnement **B+** Régulation **III+**

- Environnement: IP 67 / C4 / T: -20°C ...+60°C
- ATEX-NEMA, SIL3



Servomoteurs qualifiés nucléaire

- SQN & ST & SN & SD servomoteurs qualifiés
- Gamme complète de solutions qualifiées : Quart de Tour - Multi-tours - Linéaire pour applications dans îlot nucléaire ou en dehors de l'enceinte de confinement ; servomoteurs à sécurité positive



NOUVELLE GÉNÉRATION DE CONTRÔLES SMART



LOGIC (v2)

Les principales fonctions attendues d'un contrôle intégré moderne



INTELLI+® (v3)

Une solution de contrôle avancée pour vos applications critiques !



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