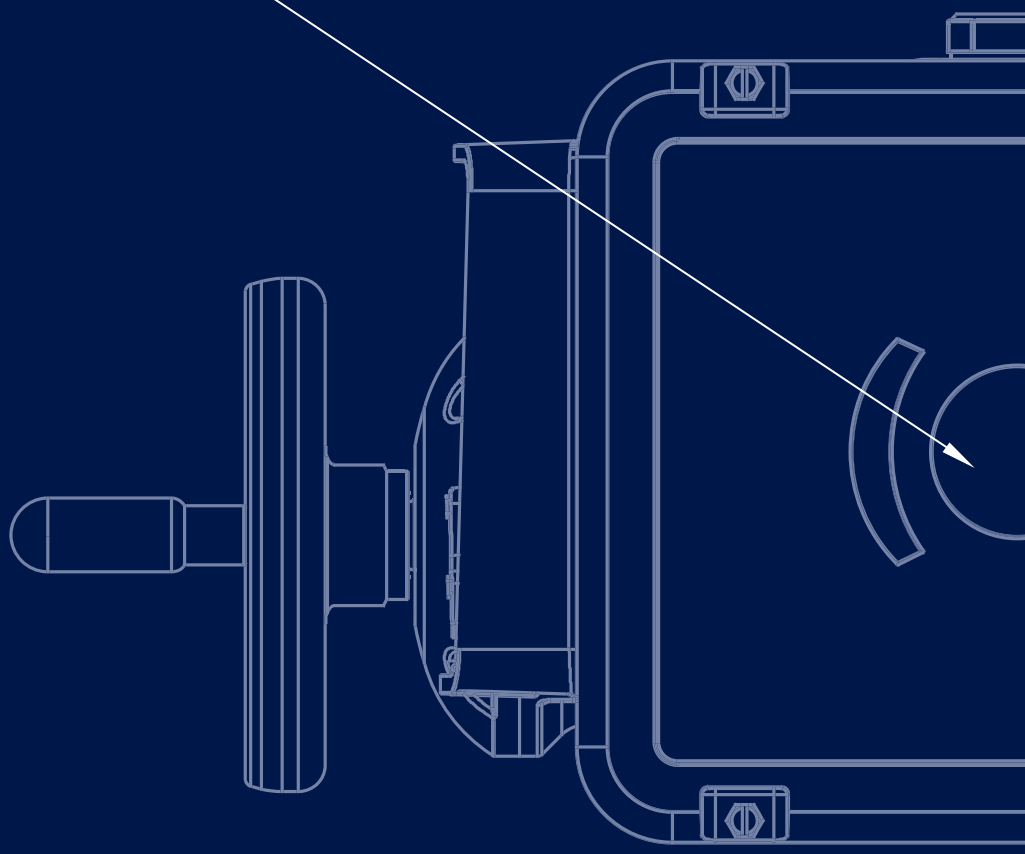




**BERNARD[®]
CONTROLS**



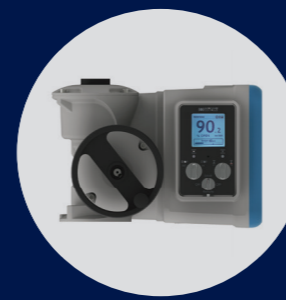
//////// Invest in Confidence //////////////////////////////////////

New

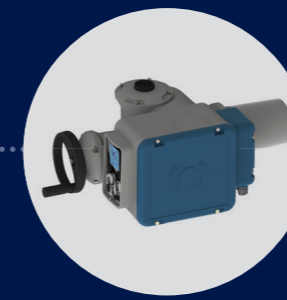
Weatherproof
Multi-turn Actuators
BT RANGE

> BT range

The complete solution for multi-turn electric actuation



BT3 - BT6L - BT6 - BT14 - BT25 - BT50
LOGIC version



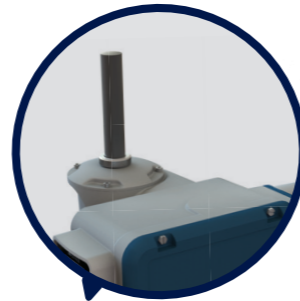
BT3 - BT6L - BT6 - BT14 - BT25 - BT50
INTELLI+ version



Product overview

Wide Stem Acceptance

- > suitable for rising stem thanks to a removable screw cap
- > easy & watertight fixation of the stem cover



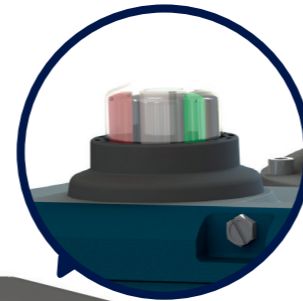
Large LCD display

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



Mechanical position indicator

- > As an option on LOGIC & INTELLI+ versions
- > Easy & quick customization of color indication & orientation from the outside



Product benefits

MODULARITY DEDICATED TO PERFORMANCE

Innovative, reliable & unique design

- > Fully new and unique design for Multi-turn actuation based on market requirements and BC design experience and methodology
- > Product architecture, torque range and speed range adapted to customers' requirements
- > Heavy duty design: IP68, double-sealing protection, powder coating (up to C5-M).
- > Innovative features: new camblock system unaffected by vibration, adjustable torque sensor, new design with internal modularity for compact solution, modular position sensor up to 5000 turns....

Enhanced performance for the most-demanding conditions

- > From 30Nm (adjustable to 12Nm) to 500Nm (direct) and more with gearboxes
- > Wide range of speed up to 180rpm to address all types of applications
- > Wide stem acceptance with an easy to install and watertight stem cover
- > Self-locking at all speed without any additional component*
- > High resolution modulating Class III+ (Duty Performance and Endurance Higher Level than Standard EN15714-2)
- > S4 Motor Service Duty on all models

Easy to install & maintain

- > Easy commissioning: non-intrusive setting for LOGIC and INTELLI+ versions, quick connector option, configurable relays on electronic

versions...

- > Large LCD display on electronic versions for user-friendly commissioning and local commands. Easily orientable (4-way direction) in few clicks
- > Dec clutch-free manual override for quick intervention on site with double ratio as an option
- > Mechanical position indicator: check the position of your valve at a glance even in case of power cut
- > BC APP: Bernard Controls new mobile application for setting, operating, troubleshooting and easy access to documentation
- > Fieldbus available as an option, including common market standard protocols : Profibus (DPV1, Simple or Redundant), Modbus (Simple or Redundant)...

INTELLI+ advanced control solution

- > User-friendly and intuitive controls with LCD display that gives a clear status of the actuator and of the control system
- > Advanced monitoring and diagnostic functions of INTELLI+ Integrated Control: Emergency Shut Down (ESD), Partial Stroke Test (PST), programmable timer, alarm customization, programmable signaling relays, operation monitoring...

Dec clutch-free handwheel

- > with motor priority
- > with foldable handle
- > with double ratio as an option



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



User-friendly local commands

through 2 buttons + 1 padlockable selector

Heavy duty design

Full aluminium enclosure protected by durable powder coating Grey & Azure Blue

User-friendly wiring system

- > New terminal plate: easy wiring with identified function per pin whatever the options of your product
- > Quick connector option for easy maintenance



> BT RANGE

Weatherproof Multi-turn Actuators

Range Overview

A new range of multi-turn electric actuators made up of 6 models with or without integrated controls



BT LOGIC

BT3-BT6L-BT6-BT14-BT25-BT50

- 1x110 VAC 50Hz
- 1x115/120 VAC 60Hz
- 1x220/230 VAC 50/60Hz
- 3x200/220 VAC 50/60Hz
- 3x230 VAC 50/60Hz
- 3x240 VAC 50Hz
- 3x360 VAC 60Hz
- 3x380/400 VAC 50/60Hz
- 3x415/550 VAC 50Hz
- 3x440 VAC 50/60Hz
- 3x460/480 VAC 60Hz
- 3x575/660 VAC 60Hz
- 3x600 VAC 50/60Hz
- Other voltages on request

On-Off Class A+ as standard

> OPTIONS

- + Low temp. -40°
- + Class B+
- + Class III+
- + Analog Positioner
- + Position & Torque Transmitter
- + 4 additional signaling relays
- + Profibus DPV1 Single
- + Modbus RTU Single
- + Quick connector
- + C5 Protection
- + Mechanical position indicator
- Handwheel Selective ratio +



BT INTELLI+®

BT3-BT6L-BT6-BT14-BT25-BT50

- 1x110 VAC 50Hz
- 1x115/120 VAC 60Hz
- 1x220/230 VAC 50/60Hz
- 3x200/220 VAC 50/60Hz
- 3x230 VAC 50/60Hz
- 3x240 VAC 50Hz
- 3x360 VAC 60Hz
- 3x380/400 VAC 50/60Hz
- 3x415/550 VAC 50Hz
- 3x440 VAC 50/60Hz
- 3x460/480 VAC 60Hz
- 3x575/660 VAC 60Hz
- 3x600 VAC 50/60Hz
- Other voltages on request

On-Off Class A+ as standard

> OPTIONS

- + Low temp. -40°
- + Class B+
- + Class III+
- + Analog Positioner
- + Position & Torque Transmitter
- + 4 additional signaling relays
- + Profibus DPV1 Single or Redundant
- + Modbus RTU Redundant
- + Quick connector
- + C5 Protection
- + Mechanical position indicator
- + Handwheel Selective ratio



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Product specifications - BT INTELLI+®	12

BT LOGIC

PRODUCT SPECIFICATIONS

GENERAL	Description	<p>All BT actuators include motor with thermal protection, gear case, emergency handwheel, position sensor, torque sensor and anti condensation heater.</p> <p>BT LOGIC models also include:</p> <ul style="list-style-type: none"> • integrated controls • built-in motor reversing starters • local commands with large LCD display <p>Wide range of number of turns: 4 à 2500 Up to 5000 turns (on request)</p>
	Torque range	<ul style="list-style-type: none"> • BT3 = 12 to 30 Nm • BT6L = 24 to 60 Nm • BT6 = 24 to 60 Nm • BT14 = 56 to 140 Nm • BT25 = 100 to 250 Nm • BT50 = 200 to 500 Nm
	Duty Classification	<p>Adapted to process requirements:</p> <ul style="list-style-type: none"> • On-Off: Class A+ actuators complying with EN15714-2 (Class A with improved endurance) • Inching/Positioning: Class B+ actuators complying with EN15714-2 and with improved endurance • Modulating: Class III+ actuators with higher duty performance and specification of additional performance criteria compared to EN15714-2 Class C basic design requirements
ENCLOSURE - PROTECTION	Casing	<ul style="list-style-type: none"> • Aluminium casting • Cover fastened by captive and stainless screws
	External Protection	<ul style="list-style-type: none"> • Type: Powder coating • Protection: tested to C4 environments acc. to ISO 12944 • Durability (M) : 10 years • Option: highly corrosive conditions: up to C5 • Color: Grey & Blue - Other colors and finishes, please consult us
	Weatherproofness	<p>IP68 NEMA 4X <i>Relative humidity: 0 to 95%.</i></p>
	Ambient temperature range	<ul style="list-style-type: none"> • -20...+70°C / -4 ... +158°F • -40°C (-40°F)
	Vibration resistance	<p>1g (9.8 m/s²) at 10-200 Hz. (Contact our sales teams for higher vibration levels)</p>
MOTOR	Motor technology	<ul style="list-style-type: none"> • TENV design (Totally-enclosed, not ventilated) 3-phase or single-phase asynchronous motor, Class F insulation and Class B temperature rise; integrated thermal overload protection. • TENV DC motors with 2-wire connection available on request for some references
	Motor duty rating	<ul style="list-style-type: none"> • On/Off operation (Class A+): S4-30% and S2-15min (as a standard), S2-30min (on option) • Inching/Positioning (Class B+): S4-30% motor duty rating. Up to 360 starts per hour at peak of operation. S4-50% as option. • BC Modulating (Class III+): S4-50% motor duty rating. Up to 1 200 starts per hour at peak of operation. <p><i>(Voltage ±10%, frequency ±2%)</i></p>
MECHANICAL SPECIFICATIONS	Gear design	<ul style="list-style-type: none"> • Reduction by planetary gear and largely sized worm & wheel • The gears are mechanically self-locking (except BT25-BT50 127/180rpm)
	Manual emergency operation	<p>Handwheel does not rotate during motor operation.</p> <ul style="list-style-type: none"> • Automatic switch between manual and electrical. Priority to electric drive. • Manual control gear ratios: Standard ratio = between 11 and 55 depending on the model BT3 = ratio 30:1 BT3 = ratio 55:1 (speed 7 & 10 rpm) BT6L = ratio 30:1 BT6 = ratio 27:1 BT14 = ratio 27:1 BT25 = ratio 29:1 (speed ≤ 96rpm) BT25 = ratio 11:1 (speed > 96rpm) BT50 = ratio 29:1 (speed ≤ 96rpm) BT50 = ratio 11:1 (speed > 96rpm) <ul style="list-style-type: none"> • Option: Handwheel Selective ratio dividing the above ratio by 3,75 • Maximum rim force to apply conform to EN 12570

BT LOGIC

PRODUCT SPECIFICATIONS

MECHANICAL SPECIFICATIONS	Output flange	Actuator flanges comply with ISO 5210 (see corresponding output flange spreadsheet p.18)
	Lubrication	The actuators are lubricated for the product lifetime and do not require any periodic maintenance.
ELECTRICAL SPECIFICATIONS	Power supply	Actuators can operate on a wide variety of power supplies (see detail on technical handbook): <ul style="list-style-type: none"> • single-phase or 3-phase, DC • up to 600 V • 50 or 60 Hz
	Bluetooth	Bluetooth (BLE 4.1) in standard
	Terminal compartment	<ul style="list-style-type: none"> • All control elements are directly connected to Quick connect terminals • Internal and external earth ground rod. - up to 6mm² • Quick connector (on option)
	Fuse protection	FU1: transformer primary fuse 6,3 x 32mm - 0,5A-500V + 2 automatic resettable fuses FU2 - FU3: 50mA - 500mA
	Conduit entries	Without connector : <ul style="list-style-type: none"> • 1 x M25 + 2x M20 or 3 x 3/4" NPT • on option : 4 x M20 or 4 x 1/2" NPT additional With connector : <ul style="list-style-type: none"> • 1 x M25 + 6x M20 or 3 x 3/4" NPT + 4 x 1/2" NPT
POSITION & TORQUE SENSORS	Travel limit systems	<ul style="list-style-type: none"> • Position: movement reading on the output shaft • Position sensor: Absolute encoder (Hall effect sensor)
	Torque limiting system	<ul style="list-style-type: none"> • Direct mechanical torque measurement • Self maintained torque information • Absolute encoder sensor (Hall effect sensor) • The torque limiting system is calibrated at the factory. It remains ajustable via LOGIC • Non intrusive setting: ajustable torque from 40 to 100% of max torque
CONTROLS	Control	<ul style="list-style-type: none"> • Isolated by opto-couplers • by Voltage: 10V to 60V; 90V to 250 VDC/AC (Current: 10mA at 24V) • by dry contacts (using actuator isolated 24 VDC supply) • Minimum pulse duration: 100ms • Time of rotational direction's change: 200ms
	Visual position indication	A LCD screen to display the position, the torque and alarms. Mechanical position indicator (option)
	Controls location	As standard, the LOGIC control is integrated into the actuator.
	Local command description	<ul style="list-style-type: none"> • 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
	Double sealing protection	The control compartment of the actuator is fully isolated (IP54) from the wiring compartment
	Power circuit	Motor reversing starters (electromechanical controls for On-Off Class A+ / Inching-Positioning Class B+ / Modulating Class III+) On request: solid state relays
	Auxiliary power supply	24VDC in standard
	Signaling relay	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Fault relay are pre-programmed (not configurable) • 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)

BT LOGIC

PRODUCT SPECIFICATIONS

CONTROLS	Proportional control (option)	<p>LOGIC Analog Positioner :</p> <p>Signal configurations (with integrated analog output):</p> <ul style="list-style-type: none"> • Standard input signal: 4-20 mA <p>Position output signal: 4-20mA</p> <ul style="list-style-type: none"> • Torque output signal: 4-20mA <p>Other input signal (configurable): 0-20mA, 4-12mA, 12-20mA, 0-10V</p> <p>Other Position output signal (configurable): 2 wires: 4-20mA; 4-12mA; 12-20mA 3/4 wires: 0-20mA; 4-20mA; 4-12mA; 12-20mA</p> <p>Configurable input & output signal (direct/reverse)</p> <p>Analogue Input:</p> <ul style="list-style-type: none"> - in current: impedance of 260 Ohms - in voltage: impedance of 10 kOhms <p>Analogue Output:</p> <ul style="list-style-type: none"> - in current: maximum acceptable load of 600 Ohms/24V, external supply 12-32VDC
	Analog Transmitter (option)	<p>Position & Torque transmitter</p> <p>Position output signal: 4-20mA</p> <p>Torque output signal: 4-20mA</p> <p>Other Position output signal (configurable): 2 wires: 4-20mA; 4-12mA; 12-20mA 3/4 wires: 0-20mA; 4-20mA; 4-12mA; 12-20mA</p> <p>Configurable signal (direct/reverse)</p> <p>Analogue Output:</p> <ul style="list-style-type: none"> - in current: maximum acceptable load of 600 Ohms/24V, external supply 12-32VDC
SETTINGS	Settings	<p>Non-Intrusive settings :</p> <ul style="list-style-type: none"> - Adjustable via Local control - Via BC application on mobile devices with secured Bluetooth connection (to keep a high level of security, Bluetooth range is limited to 10m). <p>All actuator settings and parameters are stored in a non-volatile EEPROM memory. Protection by password.</p>
	Local settings	<p>The LOGIC can be fully set via its local display and selectors</p> <p>Does not require any specific setting tool</p> <p>Local/Off/Remote selector is padlockable</p> <p>Optionnal padlockable protection against sandy winds & vandalism.</p>
	Application for mobile device	<p>BERNARD CONTROLS new mobile application is available as standard, with its bluetooth secured communication interface, and allows the user to:</p> <ul style="list-style-type: none"> • Assistance to commissioning on valve • Simply set every parameters of the actuator (non-intrusive setting) • Command the actuator (open/close/stop) as a local control • 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 • Duplicate one actuator configuration to another actuator • Check the actuator life operation • Select suitable language among 14 available languages • Identify the actuator operated valve by its valve tag and location process • Track the last user connections for traceability and safety reasons

BT LOGIC

PRODUCT SPECIFICATIONS

FIELDBUS	Profibus DPV1 (option)	<ul style="list-style-type: none"> • PROFIBUS-DPV1 - RS 485 • Baud rate: 9.6 kbit/s up to 1.5 Mbit/s (autodetection) • Communication protocol: PROFIBUS DPV1 slave-cyclic & acyclic • Type of connection: single line • Cable specification: Profibus certified cable only • Line connection without repeater <ul style="list-style-type: none"> - Actuators per line: 31 max. - Line length: 1.2 km max. (0.75 mi) • Line connection with repeaters <ul style="list-style-type: none"> - Number of repeaters per line: 9 max - 30 actuators and 1 Km max. per segment - Number of actuators per line with repeater: 120 maximum - Line length with 9 repeaters: 10.2 km max. (6.2 mi) • Scan speed (30 units & 1.2 km): 0.1s (at a baud rate of 93.75 Kbit/s) • Power supply: internal and isolated. 24VDC emergency power supply to refresh Open/Close position information in case of loss of electric supply • Technical approval: operability approved by PNO (Profibus Nutzer Organisation)
	Modbus (option)	<ul style="list-style-type: none"> • MODBUS RTU - RS 485 • Transmission medium: 1 shielded pair cable • Functions: Half Duplex, asynchronous mode, multidrop • Baud rate: 1.2k to 115 Kbit/s • Format: 8 data bits, 1 stop bit, parity configurable • Communication protocol: Modbus (slave) • Modbus address: configurable by the actuator menu • Modbus loop (option operated with Master Station)
COMFORMITY TO EC DIRECTIVES	Compliance with EC Directives	<p>BT actuators comply with:</p> <ul style="list-style-type: none"> • 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; EN61000-6-2: Generic immunity standard for industrial environments; EN 60034-1: Rotating electrical machines; EN 60529: Degrees of protection provided by enclosures (IP ratings code)
OPTIONS	Options LOGIC	<ul style="list-style-type: none"> • Low temp. -40° • Class B+ • Class III+ • Padlockable protection against sandy winds and vandalism • Analog Positioner • Position & Torque Transmitter • 4 additional signaling relays • Profibus DPV1 Single • Modbus RTU Single • Quick connector • C5 Protection • Mechanical position indicator • Handwheel Selective ratio



BT INTELLI+®

PRODUCT SPECIFICATIONS

GENERAL	Description	<p>All BT actuators include motor with thermal protection, gear case, emergency handwheel, position sensor, torque sensor and anti-condensation heater.</p> <p>BT INTELLI+® models also include:</p> <ul style="list-style-type: none"> • integrated controls • built-in motor reversing starters • local commands with large LCD display <p>Wide range of number of turns: 3 à 2500 Up to 5000 turns (on request)</p> <p>INTELLI+® specificities:</p> <ul style="list-style-type: none"> • NAMUR PE 107 signaling • Emergency Shut Down command • Partial Stroke Test • Speed control (timer) • Signal continuity (battery option) • Limitation of overtorque applied to valve seat • Optimised positioning precision by Intelli+ self-learning algorithm • Events log (last 50 alarms, ...) • 15 days log of environmental parameters: <ul style="list-style-type: none"> - Temperature - Humidity - Actuator activity • Log of the last 50 valve torque curves • Log of the vibrations / shocks >2g • Overview of actuator lifetime temperature and vibration conditions and operation
	Torque range	<ul style="list-style-type: none"> • BT3 = 12 to 30 Nm • BT6L = 24 to 60 Nm • BT6 = 24 to 60 Nm • BT14 = 56 to 140 Nm • BT25 = 100 to 250 Nm • BT50 = 200 to 500 Nm
	Duty Classification	<p>Adapted to process requirements:</p> <ul style="list-style-type: none"> • On-Off: Class A+ actuators complying with EN15714-2 (Class A with improved endurance) • Inching/Positioning: Class B+ actuators complying with EN15714-2 and with improved endurance • Modulating: Class III+ actuators with higher duty performance and specification of additional performance criteria compared to EN15714-2 Class C basic design requirements
ENCLOSURE - PROTECTION	Casing	<ul style="list-style-type: none"> • Aluminium casting • Cover fastened by captive and stainless screws
	External Protection	<ul style="list-style-type: none"> • Type: Powder coating • Protection: tested to C4 environments acc. to ISO 12944 • Durability (M) : 10 years • Option: highly corrosive conditions: up to C5 • Color: Grey & Blue <p>Other colors and finishes, please consult us</p>
	Weatherproofness	<p>IP68 NEMA 4X <i>Relative humidity: 0 to 95%.</i></p>
	Ambient temperature range	<ul style="list-style-type: none"> • -20...+70°C / -4 ... +158°F • -40°C (-40°F) as an option
	Vibration resistance	<p>1g (9.8 m/s²) at 10-200 Hz. (Contact our sales teams for higher vibration levels)</p>
MOTOR	Motor technology	<ul style="list-style-type: none"> • TENV design (Totally-enclosed, not ventilated) 3-phase or single-phase asynchronous motor, Class F insulation and Class B temperature rise; integrated thermal overload protection. • TENV DC motors with 2-wire connection available on request for some references
	Motor duty rating	<ul style="list-style-type: none"> • On/Off operation (Class A+): S4-30% and S2-15min (as a standard), S2-30min (on option) • Inching/Positioning (Class B+): S4-30% motor duty rating. Up to 360 starts per hour at peak of operation. S4-50% as option. • BC Modulating (Class III+): S4-50% motor duty rating. Up to 1 200 starts per hour at peak of operation. <p><i>(Voltage ±10%, frequency ±2%)</i></p>

BT INTELLI+®

PRODUCT SPECIFICATIONS

MECHANICAL SPECIFICATIONS	Gear design	<ul style="list-style-type: none"> Reduction by planetary gear and largely sized worm & wheel The gears are mechanically self-locking (except BT25-BT50 127/180rpm)
	Manual emergency operation	<p>Handwheel does not rotate during motor operation.</p> <ul style="list-style-type: none"> Automatic switch between manual and electrical. Priority to electric drive. Manual control gear ratios: Standard ratio = between 11 and 55 depending on the model BT3 = ratio 30:1 BT3 = ratio 55:1 (speed 7 & 10 rpm) BT6L = ratio 30:1 BT6 = ratio 27:1 BT14 = ratio 27:1 BT25 = ratio 29:1 (speed ≤ 96rpm) BT25 = ratio 11:1 (speed > 96rpm) BT50 = ratio 29:1 (speed ≤ 96rpm) BT50 = ratio 11:1 (speed > 96rpm) Option: Handwheel Selective ratio dividing the above ratio by 3,75 Maximum rim force to apply conform to EN 12570
	Output flange	Actuator flanges comply with ISO 5210 (see corresponding output flange spreadsheet p.18)
	Lubrication	The actuators are lubricated for the product lifetime and do not require any periodic maintenance.
ELECTRICAL SPECIFICATIONS	Power supply	Actuators can operate on a wide variety of power supplies (see detail on technical handbook): <ul style="list-style-type: none"> single-phase or 3-phase, DC up to 600 V 50 or 60 Hz
	Bluetooth	Bluetooth (BLE 4.1) in standard
	Terminal compartment	<ul style="list-style-type: none"> All control elements are directly connected to Quick connect terminals Internal and external earth ground rod. - up to 6mm² Quick connector (on option)
	Fuse protection	FU1: transformer primary fuse 6,3 x 32mm - 0,5A-500V + 2 automatic resettable fuses FU2 - FU3: 50mA - 500mA
	Conduit entries	Without connector : <ul style="list-style-type: none"> 1 x M25 + 2x M20 or 3 x 3/4" NPT on option : 4 x M20 or 4 x 1/2" NPT additional With connector : <ul style="list-style-type: none"> 1 x M25 + 6x M20 or 3 x 3/4" NPT + 4 x 1/2" NPT
POSITION & TORQUE SENSORS	Travel limit systems	<ul style="list-style-type: none"> Position: movement reading on the output shaft Position sensor: Absolute encoder (Hall effect sensor)
	Torque limiting system	<ul style="list-style-type: none"> Direct mechanical torque measurement Self maintained torque information Absolute encoder sensor (Hall effect sensor) The torque limiting system is calibrated in factory. It remains ajustable via INTELLI+® (non intrusive setting) Non intrusive setting: ajustable torque from 40 to 100% of max torque
CONTROLS	Control	<ul style="list-style-type: none"> Isolated by opto-couplers by Voltage: 10V to 60V; 90V to 250 VDC/AC (Current: 10mA at 24V) by dry contacts (using actuator isolated 24 VDC supply) Minimum pulse duration: 100ms Time of rotational direction's change: 200ms
	Visual position indication	A LCD screen to display the position, the torque and alarms. Mechanical position indicator (option)
	Local command description	<ul style="list-style-type: none"> 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
	Controls location	As standard, the INTELLI+® control is integrated into the actuator. On option, controls can be mounted in a separated box (max distance between actuator and controls 50m).

BT INTELLI+®

PRODUCT SPECIFICATIONS

CONTROLS	Double sealing protection	The control compartment of the actuator is fully isolated (IP54) from the wiring compartment
	Power circuit	Motor reversing starters (electromechanical controls for On-Off Class A+ / Inching-Positioning Class B+ / Modulating Class III+) On request: solid state relays
	Auxiliary power supply	24VDC in standard
	Signaling relay	<ul style="list-style-type: none"> • 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) - Configurable relays • Additional 4 relays board as an option All configurable relays
	Fault relay	<ul style="list-style-type: none"> • Fault relay configurable • SPDT nonlatching relay, in fault position when not supplied • Minimum current 10mA at 5V • Maximum current 5A at 250VAC or 5A at 30VDC (resistive load)
	Proportional control (option)	INTELLI+® Analog Positioner : Signal configurations (with integrated analog output): <ul style="list-style-type: none"> • Standard input signal: 4-20 mA Position output signal: 4-20mA • Torque output signal: 4-20mA Other input signal (configurable): 0-20mA, 4-12mA, 12-20mA, 0-10V Other Position output signal (configurable): 2 wires: 4-20mA; 4-12mA; 12-20mA 3/4 wires: 0-20mA; 4-20mA; 4-12mA; 12-20mA Configurable input & output signal (direct/reverse) Analogue Input: <ul style="list-style-type: none"> - in current: impedance of 260 Ohms - in voltage: impedance of 10 kOhms: Analogue Output: <ul style="list-style-type: none"> - in current: maximum acceptable load of 600 Ohms/24V, external supply 12-32VDC
	Analog Transmitter (option)	Position & Torque transmitter Position output signal: 4-20mA Torque output signal: 4-20mA Other Position output signal (configurable): 2 wires: 4-20mA; 4-12mA; 12-20mA 3/4 wires: 0-20mA; 4-20mA; 4-12mA; 12-20mA Configurable signal (direct/reverse) Analogue Output: <ul style="list-style-type: none"> - in current: maximum acceptable load of 600 Ohms/24V, external supply 12-32VDC
	Signaling continuity (option)	Allows to use the display and update the open and closed position information (through the signaling relays or via Fieldbus or via analog Transmitter option) in case of lack of power supply via battery option
SETTINGS	Settings	Non-Intrusive settings : <ul style="list-style-type: none"> - Adjustable via Local control - Via BC application on mobile devices with secured Bluetooth connection (to keep a high level of security, Bluetooth range is limited). All actuator settings and parameters are stored in a non-volatile EEPROM memory. Protection by password.
	Local settings	The INTELLI+® can be fully set via its local display and selectors Does not require any specific setting tool Local/Off/Remote selector is padlockable Optional padlockable protection against sandy winds & vandalism.

BT INTELLI+®

PRODUCT SPECIFICATIONS

SETTINGS	Application for mobile device	<p>BERNARD CONTROLS new mobile application is available as standard, with its bluetooth secured communication interface, and allows the user to:</p> <ul style="list-style-type: none"> • Assistance to commissioning on valve • Simply set every parameters of the actuator (non-intrusive setting) • Command the actuator (open/close/stop) as a local control • 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 System Alarms and Warnings following NAMUR NE 107 codification • Duplicate one actuator configuration to another actuator • Check the actuator life operation • Select suitable language among 14 available languages • Identify the actuator operated valve by its valve tag and location process • Track the last user connections with date/time for traceability and safety reasons
FIELDBUS	Profibus DPV1 (option)	<ul style="list-style-type: none"> • PROFIBUS-DPV1 - RS 485 • Baud rate: 9.6 kbit/s up to 1.5 Mbit/s (autodetection) • Communication protocol: PROFIBUS DPV1 slave-cyclic & acyclic • Type of connection: single line or redundant line (redundant option) • Cable specification: Profibus certified cable only • Line connection without repeater <ul style="list-style-type: none"> - Actuators per line: 31 max. - Line length: 1.2 km max. (0.75 mi) • Line connection with repeaters <ul style="list-style-type: none"> - Number of repeaters per line: 9 max - 30 actuators and 1 Km max. per segment - Number of actuators per line with repeater: 124 maximum - Line length with 9 repeaters: 10.2 km max. (6.2 mi) • Scan speed (30 units & 1.2 km): 0.1s (at a baud rate of 93.75 Kbit/s) • Power supply: internal and isolated via INTELLI+®. 24VDC emergency power supply to refresh Open/Close position information in case of loss of electric supply • Technical approval: operability approved by PNO (Profibus Nutzer Organisation) • Redundancy available as an option • Bus continuity : keep bus continuity in case of actuator removal (option)
	Modbus Redundant (option)	<ul style="list-style-type: none"> • MODBUS RTU - RS 485 Redundant • Transmission medium: 1 shielded pair cable • Functions: Half Duplex, asynchronous mode, multidrop • Baud rate: 1.2k to 115 Kbit/s • Format: 8 data bits, 1 stop bit, parity configurable • Communication protocol: Modbus (slave) • Modbus address: configurable by the actuator menu • Modbus loop (option operated with Master Station)
	HART (option)	<ul style="list-style-type: none"> • Interface: HART, 4-20mA current, FSK modulation • Transfer speed: 1.2 kbit/s • Protocol: HART 7.4 • Impedance: 250 Ohms • Power consumption: Internal by Intelli+ transformer, External power supply for 4-20mA loop only • Actuator configuration: Available through EDD file • Connection line: Point-to-Point or Multi-drop • Technical approval: approved by Hart Communication Foundation
	Other Fielbus (option)	Other fieldbus on request
COMFORMITY TO EC DIRECTIVES	Compliance with EC Directives	<p>BT actuators comply with:</p> <ul style="list-style-type: none"> • 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; EN61000-6-2: Generic immunity standard for industrial environments; EN 60034-1: Rotating electrical machines; EN 60529: Degrees of protection provided by enclosures (IP ratings code)

BT INTELLI+®

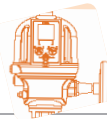
PRODUCT SPECIFICATIONS

OPTIONS	INTELLI+® Options	<ul style="list-style-type: none"> • Low temp. -40° • Class B+ • Class III+ • Padlockable protection against sandy winds and vandalism • Position & Torque Transmitter (current loop) • Analog Positioner • Fieldbus interface (Single or Redundant) • Battery for signalling continuity • 4 additional signaling relays • Quick connector • Separated control box • Handwheel Selective ratio • C5 Protection • Mechanical position indicator
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Output flanges

	C / B3 / B4 COUPLINGS INTERFACES DE TYPES C/B3/B4	A / B1 / B2 COUPLINGS INTERFACES DE TYPES A/B1/B2
BT3 / BT6L	F10	F07 and F10 / F07 et F10 (F05 on request)
BT6 / BT14	F10 standard / F14 option	F10 and F14 / F10 et F14
BT25 / BT50	F14 standard / F16 option	F14 standard / F16 option



The only application that allows not only to set up your actuator in a few clicks, but 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)**



WEATHERPROOF RANGES

NEW

Quarter-turn AQL RANGE

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

ULTRA COMPACT

On-Off **A** Inching Positioning **B**

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



NEW

Quarter-turn AQ RANGE

- 50 to 10,000 Nm (up to 800 Nm direct mount) Up to 1,000,000 Nm on request
- Type of Controls: > **Electromechanical SWITCH** > **Smart LOGIC (v2)**
- BC Duty & Modulating Classification

COMPACT & SMART

On-Off **A** Inching Positioning **B** Modulating **III**

- Environment: > IP68 / C4 (High paint protection option C5)
- > T: -20°C ...+70°C (Low T° option -40°C)



NEW

Multi-turn AT RANGE

- 30 to 500 Nm (direct mount) | Up to 32,000 Nm on request
- 10 to 127 rpm (direct mount)
- Type of Controls: > **Electromechanical SWITCH** > **Smart LOGIC (v2)**
- Wiring: > Screw Type Terminal
- BC Duty & Modulating Classification

COMPACT & SMART

On-Off **A** Inching Positioning **B** Modulating **III**

- Environment: > IP68 / C4 (High paint protection option C5)
- > T: -20°C ...+70°C (Low T° option -40°C)
- Linear applications



FLEXIBLE & MODULAR

EXPLOSIONPROOF RANGES

NEW

Quarter-turn AQXL RANGE

- 40 Nm and 70 Nm
- Compliance with international explosionproof standards: ATEX, IEC-Ex, NEMA 7...
- Type of Controls: > **Electromechanical SWITCH**
- BC Duty & Modulating Classification

ULTRA COMPACT

On-Off **A** Inching Positioning **B**

- Environment: IP68 / C4 (C5 on request) / T: -20°C ...+60°C
- Linear applications



WEATHERPROOF RANGES

LABEL



The dedicated solutions

NEW

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**

COMPACT & COMPLETE

- > New terminal plate with pins for easy wiring
- > Quick Connector

Advanced BC Duty & Modulating Classification

On-Off **A+** Inching Positioning **B+** Modulating **III+**

- Environment: > IP68 / C4 (High paint protection option C5)
- > T: -20°C ...+70°C Low T° (Low T° option -40°C)
- Linear applications



FLEXIBLE & MODULAR

SPECIAL REQUESTS

Quarter-turn SQ 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 ... > SIL2
- Wiring: Double-sealing with INTELLI+

Multi-turn ST RANGE

- 60 to 2,200 Nm (direct mount) | up to 20,000 Nm on request
- 10 to 120 rpm (direct mount) | High speed: up to 190 rpm (direct & <300Nm)
- With type of Controls: > **Smart INTELLI+®(v2)** With Fieldbus Redundant ... > SIL2



CUSTOMIZED DESIGN & PROJECTS:

At any time and anywhere on the globe, BERNARD 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 labs, calculation tools and training center.



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 explosionproof standards: ATEX, INMETRO, IEC-Ex, EAC-Ex, NEMA 7 & 9...
- Type of Controls: > **Electromechanical SWITCH** > **Hardwired** > **Smart INTELLI+® (v2)** > **SIL2**



BC Duty & Modulating Classification

On-Off **A+** Inching Positioning **B+** Modulating **III**

- Environment: IP68 / 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

Quarter-turn Failsafe Actuators FQ RANGE

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

BC Duty & Modulating Classification

On-Off **A** Inching Positioning **B** Modulating **III**

- Environment: IP67 / C3 / T: -20°C ...+70°C (low T° option -40°C)

Failsafe Actuators FQX RANGE

- Explosionproof versions ATEX-NEMA



Quarter-turn & Linear Failsafe FSeX RANGE

The complete combination of modern electrics and power of hydraulics

BC Duty & Modulating Classification

On-Off **A** Inching Positioning **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



NEW GENERATION OF SMART CONTROLS

NEW

LOGIC (v2)

The main functions you expect from modern integrated controls

NEW

INTELLI+® (v3)

Advanced control solution for your critical applications!



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