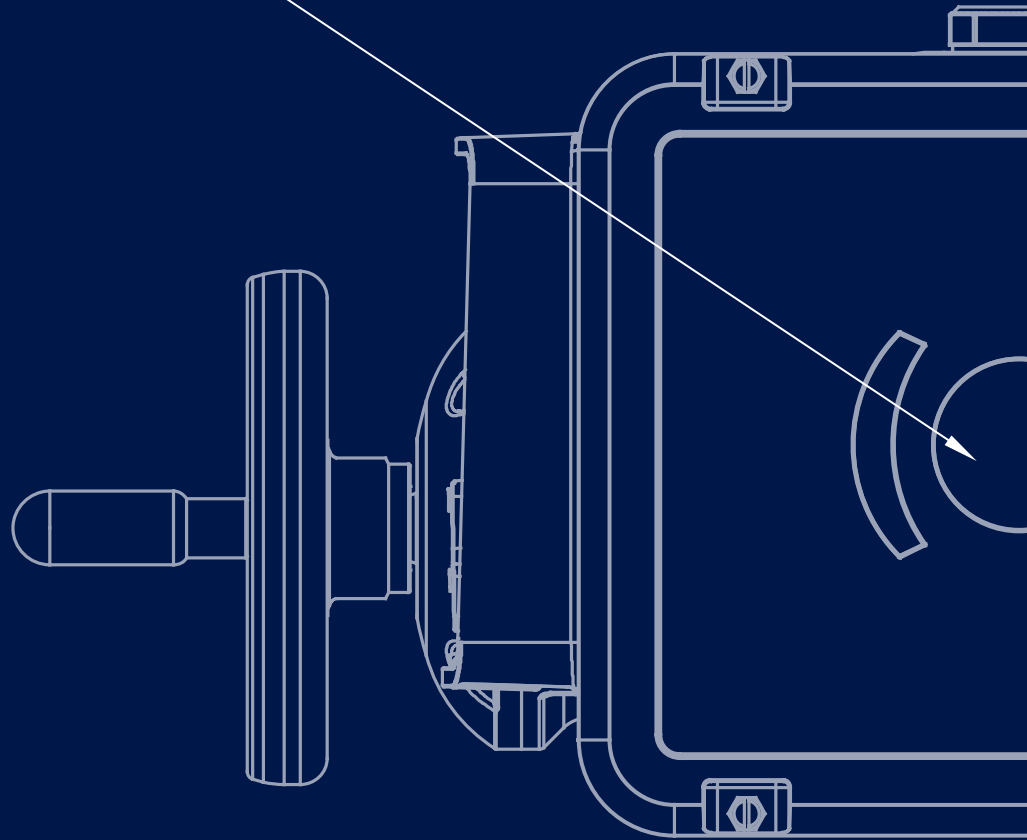




BERNARD®  
CONTROLS



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

Weatherproof  
Multi-turn Actuators  
BT RANGE



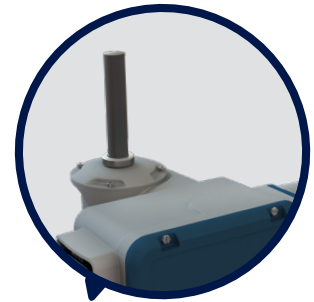
# > BT range

## The complete solution for multi-turn electric actuation

### 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



#### Declutch-free handwheel

- > with motor priority
- > with foldable handle
- > optional dual speed and motorization



#### User-friendly local commands

through 2 buttons + 1 padlockable selector

#### New mobile application BC App

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

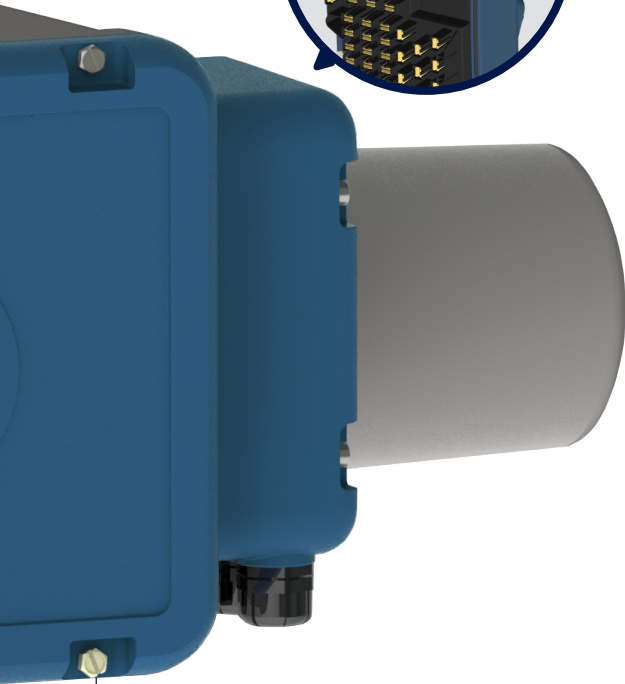
- > Set up & Operate your actuator using your mobile phone
- > Get access to clear descriptions of alarms, troubleshooting functions, documentation, Bernard Controls Assistance
- > Upload & change the full actuator configuration in one step
- > Even complex settings are made easier



# Product benefits

## 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



## Heavy duty design

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

## 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...

### • 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
- > Declutch-free manual override for quick intervention on site
- > 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...

# 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
- + Padlockable HMI protection
- + Handwheel : dual speed and motorization (BT25 & BT50)



#### 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
- + Padlockable HMI protection
- + Handwheel : dual speed and motorization (BT25 & BT50)



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Product specifications - BT INTELLI+® .....	9

# BT LOGIC

## PRODUCT SPECIFICATIONS

<b>GENERAL</b>	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"> <li>• integrated controls</li> <li>• built-in motor reversing starters</li> <li>• local commands with large LCD display</li> </ul> <p>Wide range of number of turns: 4 à 2450</p>
	Torque range	<ul style="list-style-type: none"> <li>• BT3 = 12 to 30 Nm</li> <li>• BT6L = 24 to 60 Nm</li> <li>• BT6 = 24 to 60 Nm</li> <li>• BT14 = 56 to 140 Nm</li> <li>• BT25 = 100 to 250 Nm</li> <li>• BT50 = 200 to 500 Nm</li> </ul>
	Duty Classification	<p>Adapted to process requirements:</p> <ul style="list-style-type: none"> <li>• On-Off: Class A+ actuators complying with EN15714-2 (Class A with improved endurance)</li> <li>• Inching/Positioning: Class B+ actuators complying with EN15714-2 and with improved endurance</li> <li>• Modulating: Class III+ actuators with higher duty performance and specification of additional performance criteria compared to EN15714-2 Class C basic design requirements</li> </ul>
<b>ENCLOSURE - PROTECTION</b>	Casing	<ul style="list-style-type: none"> <li>• Aluminium casting</li> <li>• Cover fastened by captive and stainless screws</li> </ul>
	External Protection	<ul style="list-style-type: none"> <li>• Type: Powder coating</li> <li>• Protection: tested to C4 environments acc. to ISO 12944</li> <li>• Durability (M) : 10 years</li> <li>• Option: highly corrosive conditions: up to C5</li> <li>• Color: Grey &amp; Blue - Other colors and finishes, please consult us</li> </ul>
	Weatherproofness	<p>IP68 NEMA 4X Relative humidity: 0 to 95%.</p>
	Ambient temperature range	<ul style="list-style-type: none"> <li>• -20...+70°C / -4 ... +158°F</li> <li>• -40°C (-40°F)</li> </ul>
	Vibration resistance	<p>1g (9.8 m/s<sup>2</sup>) at 10-200 Hz. (Contact our sales teams for higher vibration levels)</p>
<b>MOTOR</b>	Motor technology	<ul style="list-style-type: none"> <li>• 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.</li> <li>• TENV DC motors with 2-wire connection available on request for some references</li> </ul>
	Motor duty rating	<ul style="list-style-type: none"> <li>• On/Off operation (Class A+): S4-30% and S2-15min (as a standard), S2-30min (on option)</li> <li>• Inching/Positioning (Class B+): S4-30% motor duty rating. Up to 360 starts per hour at peak of operation. S4-50% as option.</li> <li>• BC Modulating (Class III+): S4-50% motor duty rating. Up to 1 200 starts per hour at peak of operation.</li> </ul> <p>(Voltage ±10%, frequency ±2%)</p>
<b>MECHANICAL SPECIFICATIONS</b>	Gear design	<ul style="list-style-type: none"> <li>• Reduction by planetary gear and largely sized worm &amp; wheel</li> <li>• The gears are mechanically self-locking (except BT25-BT50 127/180rpm)</li> </ul>
	Manual emergency operation	<p>Handwheel does not rotate during motor operation.</p> <ul style="list-style-type: none"> <li>• Automatic switch between manual and electrical. Priority to electric drive.</li> <li>• Manual control gear ratios: Standard ratio = between 11 and 55 depending on the model</li> </ul> <p>BT3 = ratio 30:1 BT3 = ratio 55:1 (speed 7 &amp; 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 &gt; 96rpm) BT50 = ratio 29:1 (speed ≤ 96rpm) BT50 = ratio 11:1 (speed &gt; 96rpm) BT25 &amp; BT50 = ratio 1:1 and 3:1 with dual speed option</p> <ul style="list-style-type: none"> <li>• Maximum rim force to apply conform to EN 12570</li> </ul>

# 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 oil 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"> <li>• single-phase or 3-phase, DC</li> <li>• up to 600 V</li> <li>• 50 or 60 Hz</li> </ul>
	Bluetooth	Bluetooth (BLE 4.1) in standard
	Terminal compartment	<ul style="list-style-type: none"> <li>• All control elements are directly connected to Quick connect terminals</li> <li>• Internal and external earth ground rod.</li> <li>- up to 6mm<sup>2</sup></li> <li>• Quick connector (on option)</li> </ul>
	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"> <li>• 1 x M25 + 2x M20 or 3 x 3/4" NPT</li> <li>• on option : 4 x M20 or 4 x 1/2" NPT additional</li> </ul> With connector : <ul style="list-style-type: none"> <li>• 1 x M25 + 6x M20 or 3 x 3/4" NPT + 4 x 1/2"NPT</li> </ul>
POSITION & TORQUE SENSORS	Travel limit systems	<ul style="list-style-type: none"> <li>• Position: movement reading on the output shaft</li> <li>• Position sensor: Absolute encoder (Hall effect sensor)</li> </ul>
	Torque limiting system	<ul style="list-style-type: none"> <li>• Direct mechanical torque measurement</li> <li>• Self maintained torque information</li> <li>• Absolute encoder sensor (Hall effect sensor)</li> <li>• The torque limiting system is calibrated at the factory. It remains ajustable via LOGIC</li> <li>• Non intrusive setting: ajustable torque from 40 to 100% of max torque</li> </ul>
CONTROLS	Control	<ul style="list-style-type: none"> <li>• Isolated by opto-couplers</li> <li>• by Voltage: 10V to 60V; 90V to 250 VDC/AC (Current: 10mA at 24V)</li> <li>• by dry contacts (using actuator isolated 24 VDC supply)</li> <li>• Minimum pulse duration: 100ms</li> <li>• Time of rotational direction's change: 200ms</li> </ul>
	Visual position indication	A LCD screen to display the position, the torque and alarms.
	Controls location	As standard, the LOGIC control is integrated into the actuator.
	Local command description	<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>
	Double sealing protection	The control compartment of the actuator is fully isolated 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"> <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> <li>Relay 1: Valve open</li> <li>Relay 2: Valve closed</li> <li>Relay 3: Configurable relay</li> <li>• Additional 4 relays board as an option</li> </ul>
	Fault relay	<ul style="list-style-type: none"> <li>• Fault relay are pre-programmed (not configurable)</li> <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>

# 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"> <li>• Standard input signal: 4-20 mA</li> <li>Position output signal: 4-20mA</li> <li>• Torque output signal: 4-20mA</li> </ul> <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 &amp; output signal (direct/reverse)</p> <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/24V, external supply 12-32VDC</li> </ul>
	Analog Transmitter (option)	<p>Position &amp; 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"> <li>- in current: maximum acceptable load of 600 Ohms/24V, external supply 12-32VDC</li> </ul>
SETTINGS	Settings	<p>Non-Intrusive settings :</p> <ul style="list-style-type: none"> <li>- Adjustable via Local control</li> <li>- Via BC application on mobile devices with secured Bluetooth connection (to keep a high level of security, Bluetooth range is limited to 10m).</li> </ul> <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 &amp; 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"> <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 control</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>• Duplicate one actuator configuration to another actuator</li> <li>• Check the actuator life operation</li> <li>• Select 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 connections for traceability and safety reasons</li> </ul>



# BT LOGIC

## PRODUCT SPECIFICATIONS

FIELDBUS	Profibus DPV1 (option)	<ul style="list-style-type: none"> <li>• PROFIBUS-DPV1 - RS 485</li> <li>• Baud rate: 9.6 kbit/s up to 1.5 Mbit/s (autodetection)</li> <li>• Communication protocol: PROFIBUS DPV1 slave-cyclic &amp; acyclic</li> <li>• Type of connection: single line</li> <li>• Cable specification: Profibus certified cable only</li> <li>• Line connection without repeater                             <ul style="list-style-type: none"> <li>- Actuators per line: 31 max.</li> <li>- Line length: 1.2 km max. (0.75 mi)</li> </ul> </li> <li>• Line connection with repeaters                             <ul style="list-style-type: none"> <li>- Number of repeaters per line: 9 max</li> <li>- 30 actuators and 1 Km max. per segment</li> <li>- Number of actuators per line with repeater: 120 maximum</li> <li>- Line length with 9 repeaters: 10.2 km max. (6.2 mi)</li> </ul> </li> <li>• Scan speed (30 units &amp; 1.2 km): 0.1s (at a baud rate of 93.75 Kbit/s)</li> <li>• Power supply: internal and isolated.</li> <li>24VDC emergency power supply to refresh Open/Close position information in case of loss of electric supply</li> <li>• Technical approval: operability approved by PNO (Profibus Nutzer Organisation)</li> </ul>
	Modbus (option)	<ul style="list-style-type: none"> <li>• MODBUS RTU - RS 485</li> <li>• Transmission medium: 1 shielded pair cable</li> <li>• Functions: Half Duplex, asynchronous mode, multidrop</li> <li>• Baud rate: 1.2k to 115 Kbit/s</li> <li>• Format: 8 data bits, 1 stop bit, parity configurable</li> <li>• Communication protocol: Modbus (slave)</li> <li>• Modbus address: configurable by the actuator menu</li> <li>• Modbus loop (option operated with Master Station)</li> </ul>
COMFORMITY TO EC DIRECTIVES	Compliance with EC Directives	<p>BT 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; 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)</li> </ul>
OPTIONS	Options LOGIC	<ul style="list-style-type: none"> <li>• Low temp. -40°</li> <li>• Class B+</li> <li>• Class III+</li> <li>• Analog Positioner</li> <li>• Position &amp; Torque Transmitter</li> <li>• 4 additional signaling relays</li> <li>• Profibus DPV1 Single</li> <li>• Modbus RTU Single</li> <li>• Quick connector</li> <li>• C5 Protection</li> <li>• Padlockable HMI protection against sandy winds and vandalism</li> <li>• Dual speed and motorization option for BT25 &amp; BT50</li> </ul>

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# 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"> <li>• integrated controls</li> <li>• built-in motor reversing starters</li> <li>• local commands with large LCD display</li> </ul> <p>Wide range of number of turns: 3 à 2450</p> <p>INTELLI+® specificities:</p> <ul style="list-style-type: none"> <li>• NAMUR NE 107 signaling</li> <li>• Emergency Shut Down command</li> <li>• Partial Stroke Test</li> <li>• Speed control (timer)</li> <li>• Limitation of overtorque applied to valve seat</li> <li>• Optimised positioning precision by Intelli+ self-learning algorithm</li> <li>• Events log (last 50 alarms, ...)</li> <li>• 15 days log of environmental parameters:               <ul style="list-style-type: none"> <li>- Temperature</li> <li>- Humidity</li> <li>- Actuator activity</li> </ul> </li> <li>• Log of the last 50 valve torque curves</li> <li>• Log of the vibrations / shocks &gt;2g</li> <li>• Overview of actuator lifetime temperature and vibration conditions and operation</li> </ul>
	Torque range	<ul style="list-style-type: none"> <li>• BT3 = 12 to 30 Nm</li> <li>• BT6L = 24 to 60 Nm</li> <li>• BT6 = 24 to 60 Nm</li> <li>• BT14 = 56 to 140 Nm</li> <li>• BT25 = 100 to 250 Nm</li> <li>• BT50 = 200 to 500 Nm</li> </ul>
	Duty Classification	<p>Adapted to process requirements:</p> <ul style="list-style-type: none"> <li>• On-Off: Class A+ actuators complying with EN15714-2 (Class A with improved endurance)</li> <li>• Inching/Positioning: Class B+ actuators complying with EN15714-2 and with improved endurance</li> <li>• Modulating: Class III+ actuators with higher duty performance and specification of additional performance criteria compared to EN15714-2 Class C basic design requirements</li> </ul>
ENCLOSURE - PROTECTION	Casing	<ul style="list-style-type: none"> <li>• Aluminium casting</li> <li>• Cover fastened by captive and stainless screws</li> </ul>
	External Protection	<ul style="list-style-type: none"> <li>• Type: Powder coating</li> <li>• Protection: tested to C4 environments acc. to ISO 12944</li> <li>• Durability (M) : 10 years</li> <li>• Option: highly corrosive conditions: up to C5</li> <li>• Color: Grey &amp; Blue</li> </ul> <p>Other colors and finishes, please consult us</p>
	Weatherproofness	<p>IP68 NEMA 4X Relative humidity: 0 to 95%.</p>
	Ambient temperature range	<ul style="list-style-type: none"> <li>• -20...+70°C / -4 ... +158°F</li> <li>• -40°C (-40°F) as an option</li> </ul>
	Vibration resistance	<p>1g (9.8 m/s<sup>2</sup>) at 10-200 Hz. (Contact our sales teams for higher vibration levels)</p>
MOTOR	Motor technology	<ul style="list-style-type: none"> <li>• 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.</li> <li>• TENV DC motors with 2-wire connection available on request for some references</li> </ul>
	Motor duty rating	<ul style="list-style-type: none"> <li>• On/Off operation (Class A+): S4-30% and S2-15min (as a standard), S2-30min (on option)</li> <li>• Inching/Positioning (Class B+): S4-30% motor duty rating. Up to 360 starts per hour at peak of operation. S4-50% as option.</li> <li>• BC Modulating (Class III+): S4-50% motor duty rating. Up to 1 200 starts per hour at peak of operation.</li> </ul> <p>(Voltage ±10%, frequency ±2%)</p>

# BT INTELLI+®

## PRODUCT SPECIFICATIONS

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

<b>CONTROLS</b>	<b>Double sealing protection</b>	The control compartment of the actuator is fully isolated from the wiring compartment
	<b>Power circuit</b>	Motor reversing starters (electromechanical controls for On-Off Class A+ / Inching-Positioning Class B+ / Modulating Class III+) On request: solid state relays
	<b>Auxiliary power supply</b>	24VDC in standard
	<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> <li>- Configurable relays</li> <li>• Additional 4 relays board as an option</li> <li>All configurable relays</li> </ul>
	<b>Fault relay</b>	<ul style="list-style-type: none"> <li>• Fault relay configurable</li> <li>• SPDT nonlatching 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>Proportional control (option)</b>	INTELLI+® Analog Positioner : Signal configurations (with integrated analog output): <ul style="list-style-type: none"> <li>• Standard input signal: 4-20 mA</li> <li>Position output signal: 4-20mA</li> <li>• Torque output signal: 4-20mA</li> </ul> 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"> <li>- in current: impedance of 260 Ohms</li> <li>- in voltage: impedance of 10 kOhms:</li> </ul> Analogue Output: <ul style="list-style-type: none"> <li>- in current: maximum acceptable load of 600 Ohms/24V, external supply 12-32VDC</li> </ul>
	<b>Analog Transmitter (option)</b>	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"> <li>- in current: maximum acceptable load of 600 Ohms/24V, external supply 12-32VDC</li> </ul>
<b>SETTINGS</b>	<b>Settings</b>	Non-Intrusive settings : <ul style="list-style-type: none"> <li>- Adjustable via Local control</li> <li>- Via BC application on mobile devices with secured Bluetooth connection (to keep a high level of security, Bluetooth range is limited).</li> </ul> All actuator settings and parameters are stored in a non-volatile EEPROM memory. Protection by password.
	<b>Local settings</b>	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"> <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 control</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 System Alarms and Warnings following NAMUR NE 107 codification</li> <li>• Duplicate one actuator configuration to another actuator</li> <li>• Check the actuator life operation</li> <li>• Select 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 connections with date/time for traceability and safety reasons</li> </ul>
FIELDBUS	Profibus DPV1 (option)	<ul style="list-style-type: none"> <li>• PROFIBUS-DPV1 - RS 485</li> <li>• Baud rate: 9.6 kbit/s up to 1.5 Mbit/s (autodetection)</li> <li>• Communication protocol: PROFIBUS DPV1 slave-cyclic &amp; acyclic</li> <li>• Type of connection: single line or redundant line (redundant option)</li> <li>• Cable specification: Profibus certified cable only</li> <li>• Line connection without repeater <ul style="list-style-type: none"> <li>- Actuators per line: 31 max.</li> <li>- Line length: 1.2 km max. (0.75 mi)</li> </ul> </li> <li>• Line connection with repeaters <ul style="list-style-type: none"> <li>- Number of repeaters per line: 9 max</li> <li>- 30 actuators and 1 Km max. per segment</li> <li>- Number of actuators per line with repeater: 124 maximum</li> <li>- Line length with 9 repeaters: 10.2 km max. (6.2 mi)</li> </ul> </li> <li>• Scan speed (30 units &amp; 1.2 km): 0.1s (at a baud rate of 93.75 Kbit/s)</li> <li>• Power supply: internal and isolated via INTELLI+®. 24VDC emergency power supply to refresh Open/Close position information in case of loss of electric supply</li> <li>• Technical approval: operability approved by PNO (Profibus Nutzer Organisation)</li> <li>• Redundancy available as an option</li> <li>• Bus continuity : keep bus continuity in case of actuator removal (option)</li> </ul>
	Modbus Redundant (option)	<ul style="list-style-type: none"> <li>• MODBUS RTU - RS 485 Redundant</li> <li>• Transmission medium: 1 shielded pair cable</li> <li>• Functions: Half Duplex, asynchronous mode, multidrop</li> <li>• Baud rate: 1.2k to 115 Kbit/s</li> <li>• Format: 8 data bits, 1 stop bit, parity configurable</li> <li>• Communication protocol: Modbus (slave)</li> <li>• Modbus address: configurable by the actuator menu</li> <li>• Modbus loop</li> </ul>
	HART (option)	<ul style="list-style-type: none"> <li>• Interface: HART, 4-20mA current, FSK modulation</li> <li>• Transfer speed: 1.2 kbit/s</li> <li>• Protocol: HART 7.4</li> <li>• Impedance: 250 Ohms</li> <li>• Power consumption: Internal by Intelli+ transformer, External power supply for 4-20mA loop only</li> <li>• Actuator configuration: Available through EDD file</li> <li>• Connection line: Point-to-Point or Multi-drop</li> <li>• Technical approval: approved by Hart Communication Foundation</li> </ul>
	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"> <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; 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)</li> </ul>

# BT INTELLI+®

## PRODUCT SPECIFICATIONS

OPTIONS	INTELLI+® Options	<ul style="list-style-type: none"> <li>• Low temp. -40°</li> <li>• Class B+</li> <li>• Class III+</li> <li>• Position &amp; Torque Transmitter (current loop)</li> <li>• Analog Positioner</li> <li>• Fieldbus interface (Single or Redundant)</li> <li>• 4 additional signaling relays</li> <li>• Quick connector</li> <li>• Separated control box</li> <li>• C5 Protection</li> <li>• Padlockable HMI protection against sandy winds and vandalism</li> <li>• Dual speed and motorization option for BT25 &amp; BT50</li> </ul>
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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

////////// ACCESS TECHNICAL DATA

Scan the QR Code to access technical data such as motor data, dimentional drawings, wiring diagrams...



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