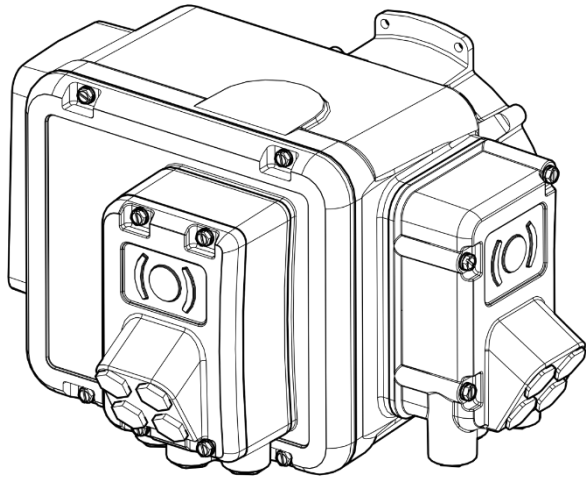


**BERNARD®
CONTROLS**

Invest in Confidence



BT Separated box



Start Up Guide

SUG_18010_EN - Ind. A
Art : 5100659

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1 SAFETY

This device complies with current applicable safety standards.

Installation, maintenance, and use of this unit require a skilled and trained staff.

Please carefully read this whole document before mounting and starting-up the actuator.

2 PACKAGING, STORAGE AND MAINTENANCE

2.1 Packaging

BT actuators packaging is comprised of a dual-layer carton strapped on a pallet. For certain non-EU countries or on request, the pallets are heat treated to standard NIMP 15 and IPPC-stamped.

This packaging is identical for shipping by road, air or sea, unless otherwise provided in the contract.

2.2 Storage

Actuators should be stored under a shelter, in a clean and dry place and at a stable ambient temperature.



- Avoid placing the actuator directly on the floor
- Check that plugs of cable entries are correctly tightened.
- Check that cover screws are correctly tightened to ensure weatherproof sealing of the cover

BT actuator includes electrical components and lubricated gear stages. Even with a weatherproof enclosure, oxidation, seizing and other alterations may occur if actuator is not correctly stored.



Heating resistor should be connected to power supply especially if the storage place is wet.

What to check after storage

1. Visually check the electrical equipment.
2. Manually operate buttons, selectors, etc., to ensure their proper mechanical functionality.
3. Manually operate the actuator for a few travels.

What to check on pre-installed actuators

If you expect a long period between actuator mounting and electrical wiring:

1. Put desiccant pouches in the actuator or replace the existing ones.
2. Visually check that cable entries and cover are tightly closed.

2.3 Maintenance

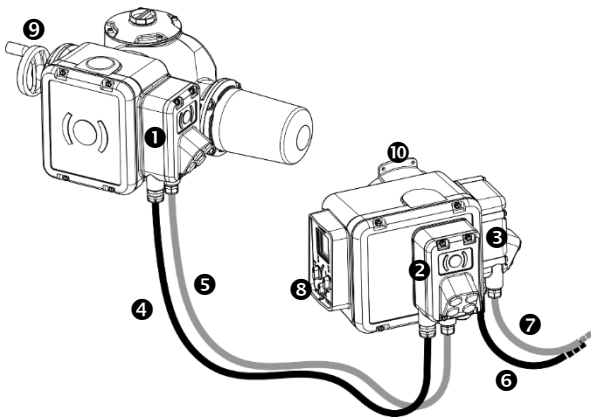
All BT actuators feature lifetime lubrication and therefore require no specific maintenance, if they were correctly commissioned and used in conditions foreseen by design.

3 INSTALLATION PREPARATION

3.1 Actuator & separated box configuration

Separated box (2) is wired to the actuator (1) through their respective connection compartments.

Connector (3) connects the whole to power supply and control.



- 10 - Box flange
- 9 - Handwheel
- 8 - Control panel
- 7 - Control cable
- 6 - Power cable
- 5 - Control link
- 4 - Power link
- 3 - Connector
- 2 - Separated box connection compartment
- 1 - Actuator connection compartment

Configuration shown here is an example for illustration purpose only.

3.2 Pre-requisites

Documents

- Actuator start-up guide and the present guide
- Wiring diagram of your actuator

Equipment

- No. 10 socket-end wrench
- 1.5×10 max flat blade screwdriver (optional)
- 2 adjustable wrenches
- 2.5mm Allen key
- Stripping pliers
- Crimping pliers for 6.35mm crimp receptacle lugs

How to install the actuator and the separated box

1. Install the actuator on the valve flange and the separated box on its support (not supplied).
2. Wire the actuator connection compartment (1) according to the wiring diagram supplied.
3. Connect the separated box to the actuator by wiring the separated box connection compartment (2).
4. Wire the connector (3) to your power supply and controls.
5. Fit the connector on the separated box.

4 MECHANICAL INSTALLATION

4.1 Fastening the actuator on the valve

Actuator (1) should be secured directly on the valve using proper bolts or via a proper interface. After assembly, the actuator can operate in any position.



However:

- do not handle the actuator by handwheel (9) to avoid damage on actuator gearing.
- cable glands must not be oriented upwards (loss of water tightness).
- It is recommended not to position motor downwards.

4.2 Fastening the box on its support

Box has a flange (10) to be fastened on a support with 4 M6 screws.

5 WIRING



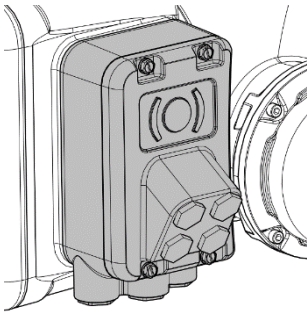
Do not supply wires with electric power until wiring is finished and connection compartment is closed or connector plugged on the actuator.

If you need to open connection compartment or connector after wiring, previously cut off power supply to the actuator.

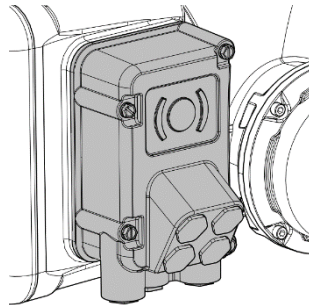
5.1 Opening connection compartment or connector

Two types of connections are available on your actuator:

- A connection compartment with direct wiring on the actuator
- A connector first wired then plugged on the actuator



Connection compartment



Connector

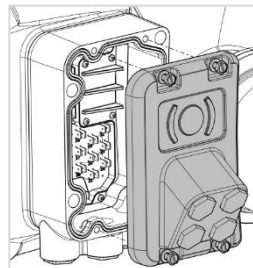
Both feature 3 cable entries (2×M20, 1×M25) on their bottom and 4 M20 cable entries on their front.

5.1.1 Accessing connections in connection compartment

In order to access connections, you need to open connection compartment.

How to open connection compartment

1. Using a 10mm open end wrench or 10×1.5mm flat blade screwdriver, unscrew the 4 Hex head screws fastening cover on the housing.
2. Remove the cover.

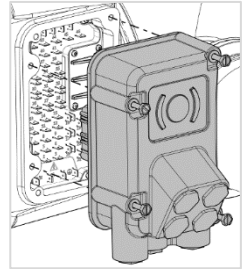


5.1.2 Accessing connections in connector

As the wiring is done inside the connector, you have first to remove the connector, then open it.

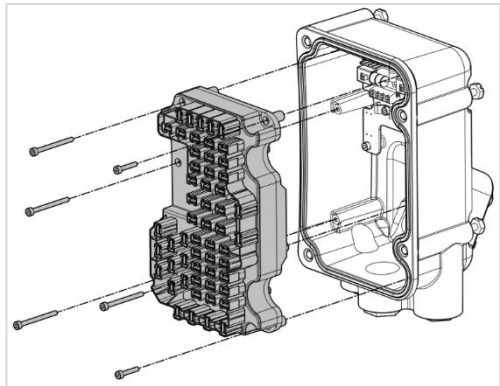
How to remove connector

1. Using a 10mm open end wrench or 10×1.5mm flat blade screwdriver, unscrew the 4 Hex head screws fastening cover on the housing.
2. Pull the connector out of the housing.



How to open connector

1. Using the 2.5mm Allen key, unscrew the 6 screws fixing the terminal plate on the connector body.
2. Remove the terminal plate.



5.2 Installing cable glands

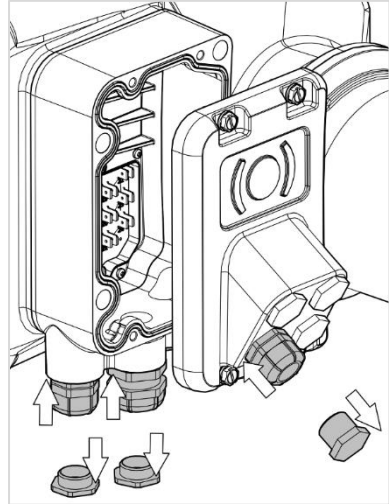


Procedure is the same for connection compartment and connector.

How to install cable glands

For each cable entry used

1. Remove plug from the cable entry (M20 entry for control or M25 entry for power) with the adjustable wrench.
2. Separate sealing nut from its cable gland.
3. Screw and tighten cable gland in the cable entry.
4. Thread the sealing nut on the cable and pass the cable through the cable gland.



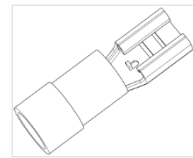
Unused entries must be kept closed by their plugs as they are part of the components allowing actuator IP68 protection setting.

5.3 Wiring power and control

Crimping the wires

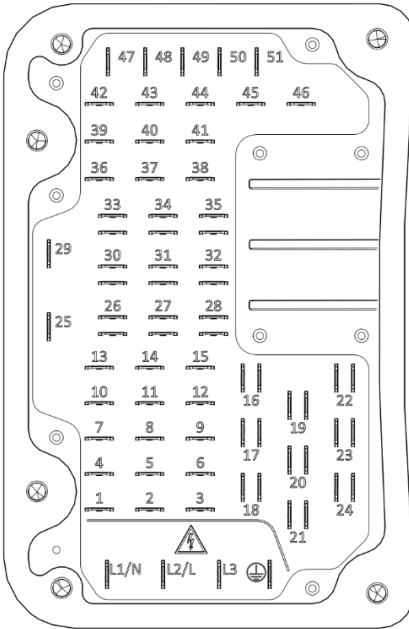
Terminal plate is fitted with tab terminals, compatible with 6.35mm crimp receptacle lugs with insulated funnel.

These lugs allow wire section between 1.5 and 2.5mm².



- ➔ Once cables are installed in the cable glands, crimp end of every wire to be connected with a lug.

Identifying terminals on the terminal plate



Control terminals

They are numbered from 1 to 51.

16 to 24, 26 to 28 and 30 to 35 have 2 tabs in order to create shunts between terminals if needed.

Power terminals (3Ph/1Ph)

- **3Ph:** L1, L2, L3 with phase correction
- **1Ph:** L (Live), N (Neutral)

How to wire in connection compartment or connector



The wiring must be done according to the wiring diagram of your actuator.

1. Make sure that power supply voltage matches information on the label on the side of the actuator.
2. Open the connection compartment or connector
3. Connect power supply on terminals marked L1, L2 & L3 (3Ph) or L, N (1Ph) according to your supply type.
4. Connect necessary control and signaling wires on terminals 1 to 51 according to the wiring diagram of the actuator.

When the wiring is finished

5. Tighten sealing nuts on the cable glands, ensuring whole cable glands are correctly tightened.

5.4 Closing connection compartment or connector



Check that cover seal is clean and well inserted in its groove.

How to close connection compartment or connector

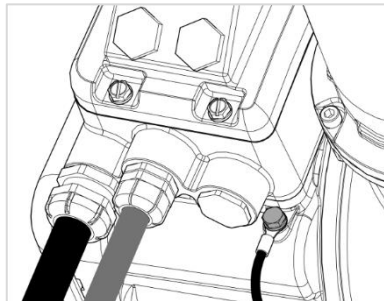
1. Put back the cover on connection compartment or plug back the connector on the actuator
2. With the 10mm angled socket wrench or flat blade screwdriver, tighten the cover on the housing with its 4 screws.

5.5 Wiring the external ground terminal

The external ground terminal is located at the bottom right of the actuator connection compartment / connector, in the housing.

How to plug external ground terminal

1. Crimp the end of the earth cable with a 6mm stud hole tubular lug.
2. Thread the spring lock washer then the lug on the 6 mm screw.
3. Screw this assembly in the tapered hole with a 10mm eye wrench or open-end wrench.



6 LOGIC SETTINGS



For Logic settings, please refer to the BT Start-Up Guide.

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