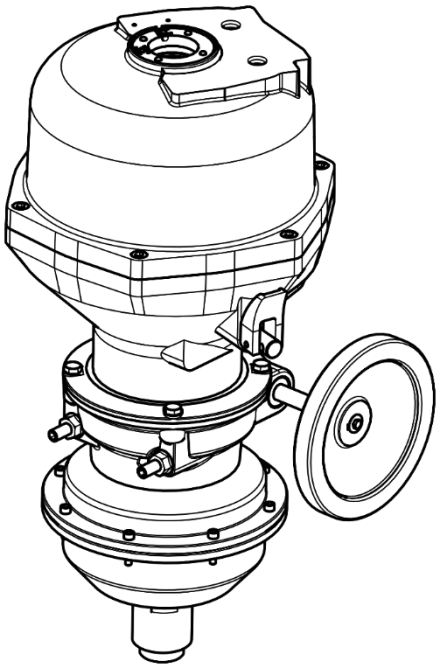
BERNARD® CONTROLS

Invest in Confidence



FQ EXPLOSION-PROOF

C SP® US

Start Up Guide

SUG_17001 ind. B
Art. 5100449 5100449

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READ THESE INSTRUCTIONS CAREFULLY BEFORE USE

The following documents should also be checked:

a) National Electrical Code (NEC500) for the USA and Canadian Electrical Code (CEC500)

b) Decrees, ministerial orders, laws, directives, standards, procedures and any other document relative to the area where the actuator has to be installed.

Bernard Controls S.A. or Bernard Controls Inc. cannot be judged responsible for the non-respect of these rules.

Our equipment complies with the CSA and ANSI/UL Standard and are therefore CSA marked with indicators ‘’C” and ‘’US”. They have been designed to be used in explosive atmospheres:

- **class I, group B, C, D or C, D in presence of vapor, fog or gas**
- **class II, group E, F, G for dust**

Please check the compatibility between the indications written on the identification plate and the explosive atmosphere type, the ambient and the admissible surface temperature of the installation area.

The actuator installation and maintenance must be carried out by qualified, trained and certified personnel.

These instructions come as a complement to our standard instructions for start-up, maintenance and storage.

1. MARKING

Please find below details of the nameplate.

Name and address of the manufacturer	BERNARD CONTROLS 4 rue d'Arsonval 95505 GONESSE FRANCE
Actuator type	FQ xx
Serial number	Serial n°XXXXXXXX.YYY
Certificate number	CSA n°1061444
Gas marking	Class I: C, D div 1,2 T4, T5 or T6
Dust marking	Class II: E, F & G T4, T5 or T6

2. START-UP

To avoid any risk of explosion, the actuator electric control and power supply must be switched off before opening the cover.

Be careful not to damage the joint surfaces of the cover either at the opening and closing of the cover.

A motor thermal protection switch is connected to the terminal strip (refer to actuator electric diagram).

It is mandatory to integrate this thermal protection into the motor control circuit in order to switch off the motor power supply in case of overheating conditions.

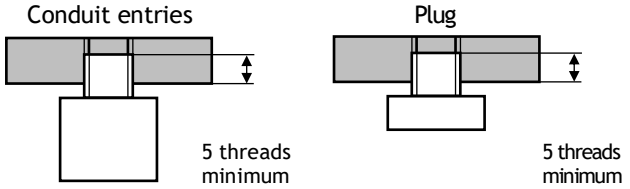
If the actuator is driven by an INTEGRAL+, POSIGAM+ or INTELLI+ electronics, the thermal protection has already been connected to the control board at our factory.

If the thermal protection is bypassed (e.g. by configuration in the case of ESD function) the explosion-proof protection is not assured.

When closing the cover, check the joints cleanliness. Be careful not to damage the joints when repositioning the cover onto the actuator body. Tighten each cover screw.
Screws of explosion-proof actuator body must be of a minimum 8.8 quality grade unless otherwise stated.

Ensure that the conduit entries comply with the explosion-proof equipment standards and with the explosion-proof classification.

If one of the conduit entry is not used, seal it with a certified and suitable metal plug for the type of protection specified.



A connection to the earth has to be wired using the actuator external grounding plug. Internal and external groundings have to be connected.

Remove all plastic plugs of unused conduit entries and replace by a certified metal plug. Plastic plug is not explosion-proof and is used only for shipping.

3. OPERATION

! Do not open the cover when the actuator is under power.

Never leave the cover open, in order to avoid any risk of water inlet.

Respect the actuator duty cycle indicated on the identification plate. For example, for a 30% duty and a 40s operating time, the minimum time between two operations is 93s. In case of over-heating, the thermal protection will disrupt the motor power supply in order to limit the actuator body temperature elevation.

! INTELLI+ version: never use the Intellisoft infrared communication kit in an explosive area. This module is not explosion-proof. In explosive areas, set-up the actuator only by using the local control buttons or Bluetooth® if this option is available in your actuator.

In case of use in explosive dust atmosphere, check that cover tightness o-rings are intact and make sure not to damage the seals while closing the cover.

4. MAINTENANCE

Regularly check that the actuator explosion-proof enclosure has not been degraded by a mechanical shock or any other type of aggression.

Do not bring any modification of any kind to the actuator.

The actuator mechanical parts are greased and do not need any specific maintenance. In case of a disassembly/re-assembly operation, make sure that all moving parts are correctly greased in order to prevent any electric spark.

Although a thermal protection is built in the motor, it is important to check that there is no risk of bearings jamming. Bearings change frequency: 10,000h of operation.

Any repair has to be performed by persons specially trained and authorized to work on explosion-proof devices.

5. INSTALLATION AREA

This actuator is an explosion-proof equipment and can be used in the following areas:

Actuator type	FQ	FQ
Protection class	Class I Group B, C, D	Class II Group E, F, G
Division	1 or 2	1 or 2
Atmosphere	Gas	Dust

Divisions

This actuator is designed for division 1 or 2:

- **Division 1**: the explosive atmosphere is likely to occur during periodic maintenance or during normal operation.
- **Division 2**: the explosive atmosphere is not likely to occur in normal operation but in case of accidental rupture or abnormal operation.

! This device has not been designed to be operated in an area where explosive atmosphere occurs frequently or during long periods (IEC 79-10-zone 0).

Groups

This actuator has been designed for the surface industries group B, C or D.

Group	Typical gas
D	Propane
C	Ethylene
B	Hydrogen

For other gases, please consult a notified body (e.g. CSA).

Temperature

The temperature class corresponds to the actuator maximum surface temperature.

Class	Max surface temperature
T4	275°F (135°C)
T5	212°F (100°C)
T6	185°F (85°C)

Check group and temperature class on the actuator tag.

6. ELECTRICAL AND TEMPERATURE PARAMETERS

The power supply voltage and frequency are indicated on the identification tag and (or) on the electric wiring diagram.

The minimum ambient temperature is -40°F (-40°C) and the maximum +140°F (60°C) unless another information is mentioned on the identification tag.

7. SPECIAL OPERATION CONDITIONS INCLUDING UNCORRECT PRACTICES

Duty cycle

Motors are designed for an intermittent operation; it means that they should be stopped for a sufficient period of time after each operation in order to enable it to cool down (see §3 operation).
If the operating time is too high, the motor temperature will raise and will eventually activate the thermal protection. This event must remain exceptional and everything must be carried out to avoid to activate the thermal protection during normal operation.

Covers opening

Removing the covers is authorized only when the actuator power supply is switched off. It is important not to degrade the explosion-proof protections (surfaces, cable entries, joints,...). Use the notches or bosses in order to keep seals and cover integrity.

NOTES

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