

# Keystone OM3 - EPI2

Local Interface Module



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**NOTE:**

The present IOM has to be considered integral part of the IOM for the basic Installation, Operation and Maintenance Manual for Keystone EPI2 electric actuator.

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# Section 1: Optional Module 3: Local Interface Module

## 1.1 Local Interface Functionality

The OM3 Local Interface module is supplied as an option on Keystone EPI2 actuators and fits all models. It is possible to receive the actuator already equipped with the OM3 if ordered together with the basic version. Alternatively, only for the water proof version, it is possible to order the OM3 as a separate kit to be installed afterwards on the basic actuator. The subsequent retrofitting of the OM3 on existing EPI2 is not allowed in the explosion-proof version. The OM3 is an optional module allowing local control with the following additional functionalities:

- Selection of Local/Remote actuator control through the selector (lockable in both positions).
- Open/Close command through the non intrusive pushbuttons.
- Actuator position indication by means of 2 LEDs.

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**NOTE:**

For decommissioning instructions, please refer to the relevant section in Installation, Operation and Maintenance Manual for Keystone EPI2 electric actuator.

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** WARNING**

EPI2 actuator must be electrically isolated before any disassembling and reassembling operations. Before any disassembling or reassembling operations, please follow in detail the relevant paragraph of the basic installation and operating manual (latest revision available).

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** WARNING**

The electronic parts of the EPI2 actuators and all optional modules can be damaged by a discharge of static electricity. Before you start, touch a grounded metal surface to discharge any static electricity.

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**⚠ WARNING**

EPI2 actuators can be operated through a Bluetooth™ PDA or PC with the following configuration:

- The commands are enabled by Bluetooth, only when the BT control is active. When operating with Bluetooth™, the controls via PDA or PC have priority on any other remote commands and allow full actuator operability from a distance also when the valve is not visible. Special attention must be paid under this condition to avoid any damages or injuries to people working close to the valve. Keystone will not accept any responsibility for damages or injuries caused by an improper use of your Bluetooth™ PDA or PC.

**⚠ WARNING**

It is assumed that the installation, configuration, commissioning, maintenance and repair works are carried out by qualified personnel and checked by responsible specialists.

**⚠ WARNING**

Repair work, other than operations outlined in this manual, is strictly reserved to qualified Emerson personnel or to personnel authorized by the company itself.

## 1.2 Manufacturer

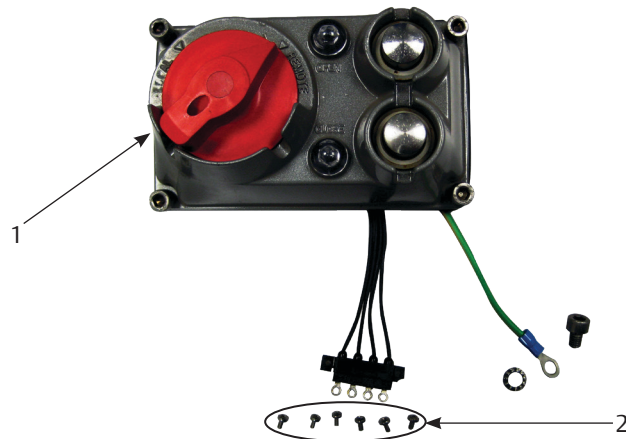
Manufacturer with respect to Machinery Directive 2006/42/EC: Biffi Italia as specified on the actuator label.

## Section 2: Assembling Procedure

To assemble the OM3 Local Interface module onto the EPI2 actuator, proceed as follows:

- Ensure that all the parts received with the OM3 are available, see Figure 1:

**Figure 1** OM3 kit for EPI2 actuator



**Table 1.**

Pos.	Q.ty	Description
1	1	Local Interface module
2	4	Screws for connecting connector

- Gather the right tools for the assembly: a 5 mm Allen key and a screwdriver as shown in Figure 2.

**Figure 2** Tools for installing OM3 kit

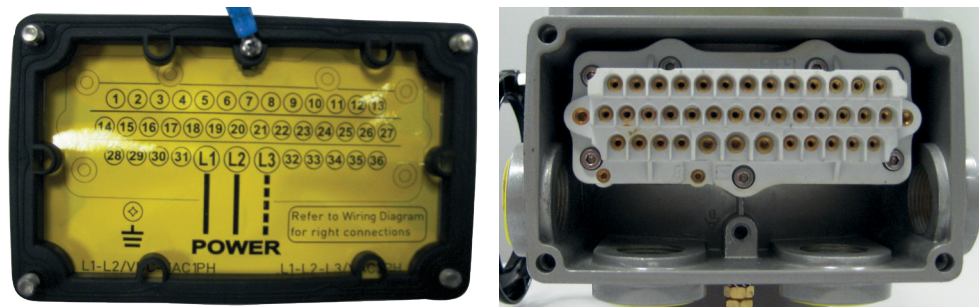


- With the Allen key loosen the 4 cover screws and remove the terminal board enclosure cover, see Figures 3. You will see the terminal board inside the actuator. Remove the ground cable from the cover in the enclosure. The position of the connections is shown on the yellow label that you will find inside the cover just removed, see Figure 4.

**Figure 3** Removing terminal board enclosure cover



**Figure 4** Electrical connections



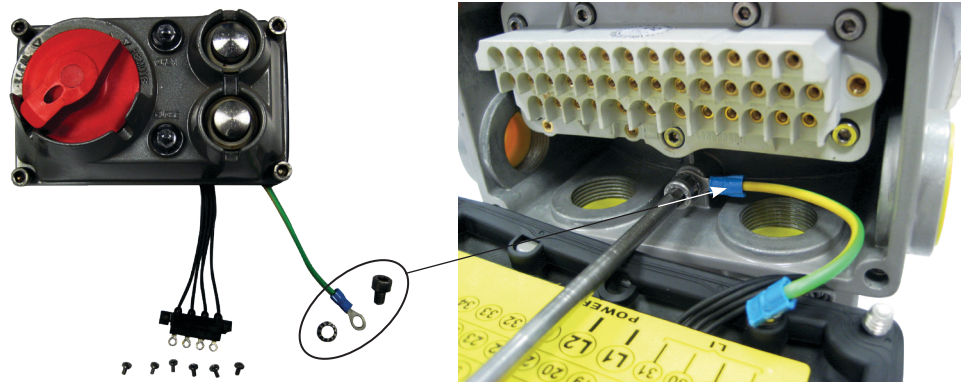
### **⚠ WARNING**

Pay attention not to damage the joint surfaces of the cover/enclosure.



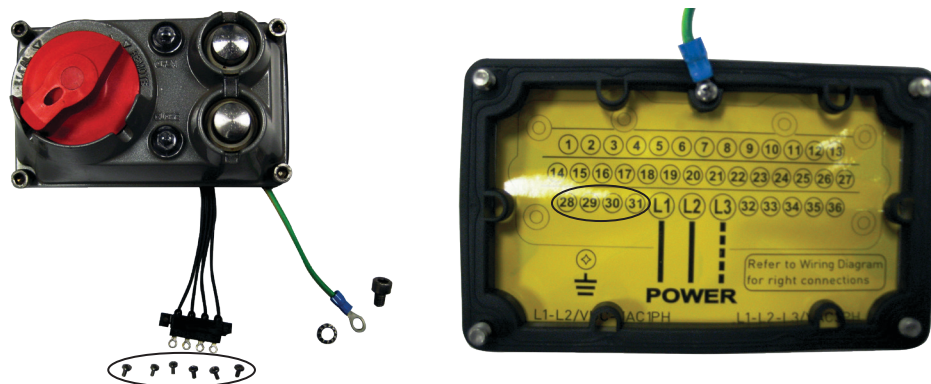
- Connect the Local Interface module to the ground stud by screwing the 'ground kit' (screw + toothed washer).

**Figure 5** Grounding the Local Interface

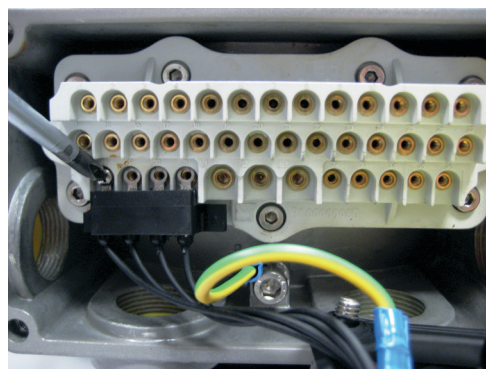


- Take the 4 screws for connecting the Local Interface black connector to the terminal board, in pos. 28-29-30-31 (see Figure 6 and wiring diagram) and connect it with the screwdriver shown in Figure 7.

**Figure 6** Position of the Local Interface connector on the terminal board

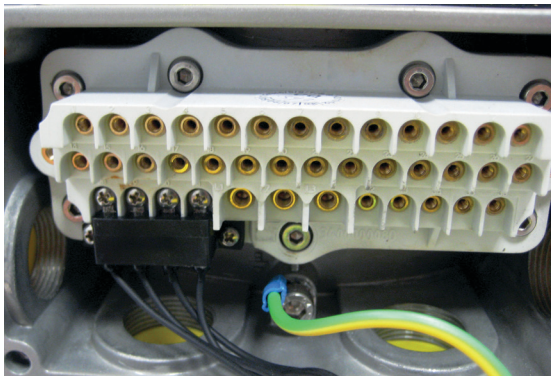


**Figure 7** Connecting the Local Interface connector

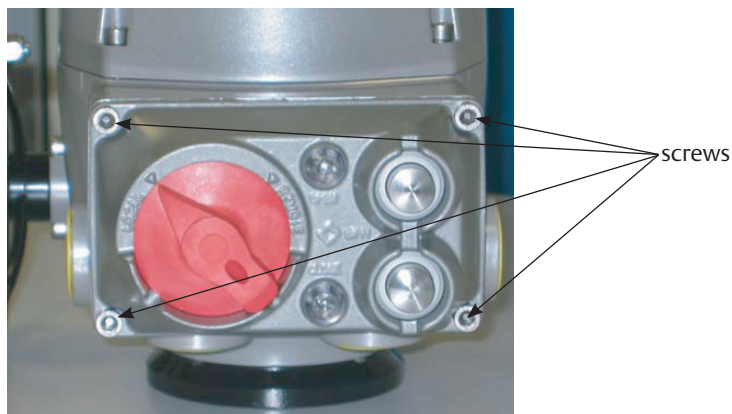


- Now the Local Interface is connected to the actuator, see Figure 8.
- Take the 4 screws removed from terminal board cover and use them to fix the Local Interface to the actuator, using the 5 mm Allen key, see Figure 9.

**Figure 8** OM3 kit connected to the EPI2 terminal board



**Figure 9** Fixing the local interface onto the EPI2 actuator



**NOTE:**

Please note that the design of the Local Interface black connector has been engineered to allow the installation in one way only. Due to the special design, it is not possible to reverse the connection of the 4 cables to the terminal board and it is not possible to make a wrong connection of the connector.

- The installation of the OM3 Local Interface module onto the EPI2 actuator is now complete.

## Section 3: Description Of OM3 Local Interface

Figure 10

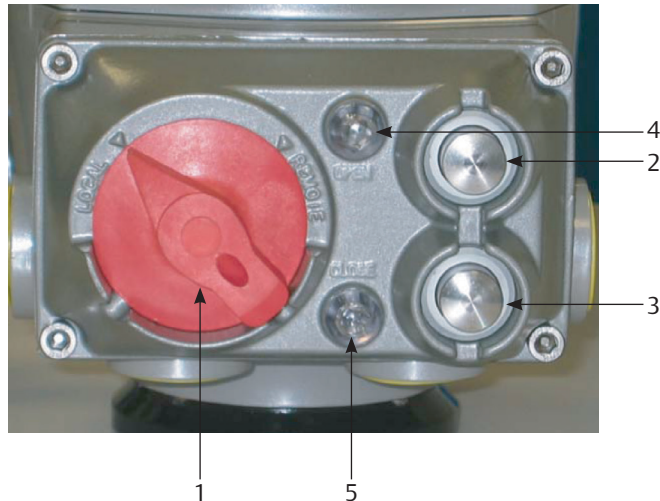


Table 2.

Pos.	Description
1	2-position lockable selector switch
2	OPEN push-button
3	CLOSE push-button
4	OPEN position and correct with maneuver indicating LED (default green color)
5	CLOSE position and correct with maneuver indicating LED (default red color)

### 3.1 Local Operator Interface

The following functions are available through the EPI2 Local Interface module (OM3):

- Selection of Local/Remote actuator control through the selector (lockable in both positions).
- Local actuator control: OPEN/CLOSE mcommand through the non-intrusive pushbuttons.
- Actuator position indication by means of 2 LEDs (green and red).

## 3.2 Description of the Local Interface

### 3.2.1 2-Position Selector

- Local: to enable the local control only.
- Remote: to enable the remote control and local control via Bluetooth with PC and PDA.

### 3.2.2 LEDs Indicating the Position of the EPI2 Actuator

The two LEDs indicate the actuator status according to the following logic:

**Table 3.**

Green LED	Red LED	Indication
ON	OFF	Actuator stopped in completely OPEN position
OFF	ON	Actuator stopped in completely CLOSED position
OFF	Flashing	Actuator running in CLOSING direction
Flashing	OFF	Actuator running in OPENING direction
ON	ON	Actuator stopped in INTERMEDIATE position

**NOTES:**

It is possible to invert LEDs color, so:

- red color for OPEN position and maneuver;
- green color for CLOSE position and maneuver.

To do this, see configuration section into Installation, Operation and Maintenance manual document.

It is also possible to invert LEDs color by means of Bluetooth optional connection (if present).

### 3.2.3 OPEN/CLOSE Pushbuttons

The two OPEN and CLOSE pushbuttons are push-to-run type only. Once the pushbuttons are released, the actuator stops.

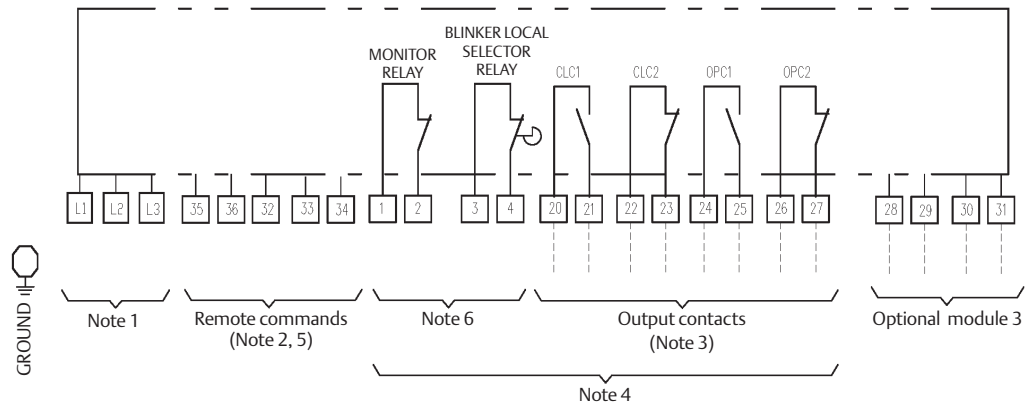
## Section 4: To Locally Operate the Actuator

Once you have made sure that the actuator basic configuration is as requested by your application, bring the 2-position selector to LOCAL and control the actuator by OPEN and CLOSE pushbuttons.

The actuator can be driven to the desired position by pressing and holding the OPEN or CLOSE pushbutton. When the pushbutton is released, the motor is de-energized and stops. Once you have reached the fully open or fully closed positions, the actuator will stop automatically.

# Section 5: OM3 Wiring Diagram

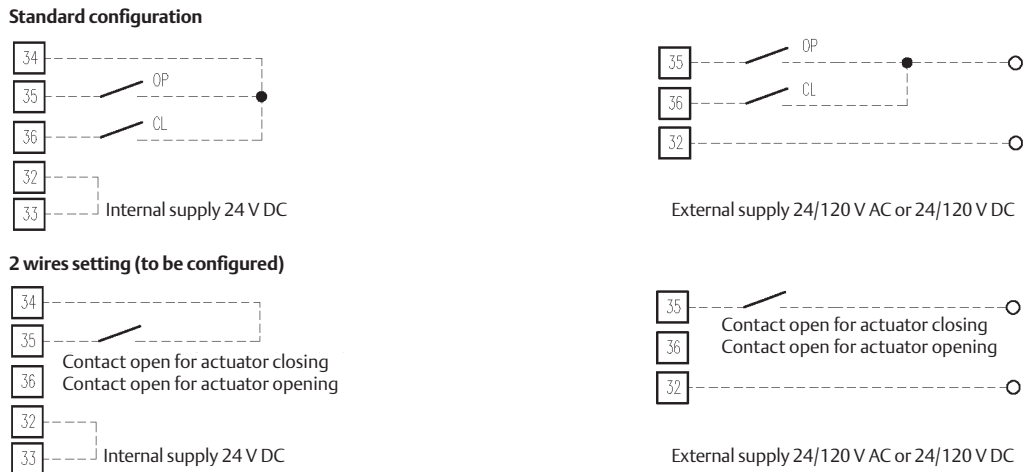
Figure 11



**NOTES:**

1. Power connection L1-L2 for V DC or V AC single phase motor supply from 24 V to 48 V or from 100 V to 240 V.  
Power connection L1-L2-L3 for 3-phase motor supply from 208 V to 575 V (check the actuator label for the correct voltage to be applied).
2. Remote command options:

Figure 12



3. Contacts shown in intermediate position CLC1-CLC2 end of travel signalling in CLOSING.  
Contacts shown in intermediate position OPC1-OPC2 end of travel signalling in OPENING.
4. Output contact rating: 240 V AC / 5 A - 30 V DC / 5 A - 120 V DC / 0.5 A.
5. Control command rating: 24 to 120 V AC or V DC.  
Control signal: minimum duration > 600 ms.  
Total current drawn for remote controls < 25 mA.
6. Blinker or local selector monitoring function (when OM3 is present) to be configured.

# Section 6: Identification

## 6.1 Water-, Dust-Proof Version

EPI2 actuators with OM3 are designed and manufactured according to EN 60529 standards.

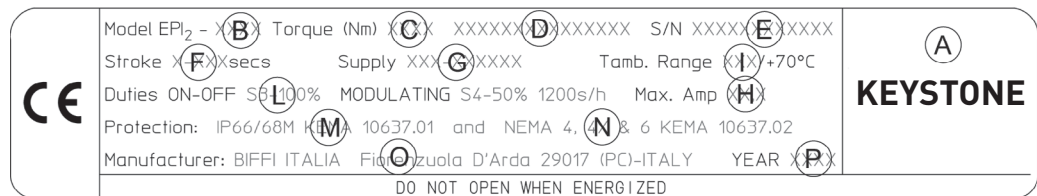
Specific types of protection are printed on the label, as follows:

- IP 66/68
- NEMA 4/4X/6 according to NEMA 250

## 6.2 Label for Application In Water-, Dust-Proof Areas

Marking description:

Figure 13



- A. Manufacturer logo
- B. Product model
- C. Nominal output torque value
- D. Product code
- E. Serial number
- F. Stroking time range
- G. Power supply data
- H. Max current absorption in ampere (at 24 V DC)
- I. Environmental data
- L. Actuator duties
- M. Weatherproof protection degree (EU and US)
- N. Weatherproof certificate reference (EU and US)
- O. Manufacturer details
- P. Year of construction

## 6.3 Explosion-Proof Version

The version of EPI2 with OM3 suitable for installation in hazardous areas is designed and manufactured according to EN 50014, 50018, 50019, EN 50281-1-1 standards. The driven valve or associated gear reducer will form part of a separate risk analysis according to Directive ATEX 94/9/EC and following the EN 13463 norms. EPI2 actuators have IP 66/68 protection degree in accordance with EN 60529.

### **⚠ WARNING**

Whenever EPI2 actuators must be installed in a hazardous area as defined by the applicable rules, it is mandatory to check whether the actuator nameplates indicate their suitability to a hazardous area, and the appropriate protection degree. Maintenance and repair works must be carried out by qualified personnel and checked by responsible specialists.

## 6.4 ATEX Label for Application in Hazardous Areas

Figure 14



- A. Manufacturer logo
- B. Product model
- C. Nominal output torque value
- D. Product code
- E. Serial number
- F. Stroking time range
- G. Power supply data
- H. Max current absorption in ampere (at 24 V DC)
- I. Environmental data
- L. Actuator duties
- M. Explosion-proof protection degree
- N. Weatherproof protection degree
- O. ATEX certificate reference
- P. Manufacturer details
- Q. Year of construction
- R. Notified body for ATEX quality assurance (Ineris)
- S. ATEX marking



# Section 7: Safety Instructions

## 7.1 Foreword

This section is an integration of the base manual when additional Local Control Panel is added to a base unit; when this combination is used, both manuals must be used.

## 7.2 General Safety Instructions

The devices to which these safety instructions apply are Electrical Actuators for industrial valves Series EPI2 equipped with optional module Local Control Panel identified by EPI2-OM3. The above Electrical Actuators are designed for use on industrial and control valves suitable to be installed on heavy industrial, chemical, petrochemical, plants, refinery and/or pipelines for hazardous fluids.

The Electrical Actuators EPI2 with OM3 are produced by Biffi Italia and identified by Product designation: EPI2-XXX/OM3. For the general Instructions relevant to the Installation, Operation and Configuration, Maintenance and Troubleshooting, the base Instruction and Operating Manual must be used.

The Electrical Actuators EPI2-OM3 are designed in accordance with the applicable International Rules and Specifications but in any case the following regulations must be observed:

- The general installation and safety regulations effective at site of installation.
- The proper use of personal protective devices (glasses, clothing, gloves).
- The proper use of tools, lifting and transport equipment.

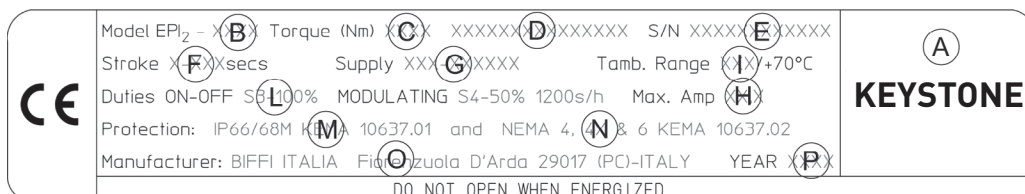
### **⚠ WARNING**

Before the installation in hazardous areas, as defined by the local rules, it is mandatory to check if the nameplate of the Electric Actuator specifies the appropriate degree of protection.

## 7.3 Check for Right Application

Before the installation, check for protection mode and for the ambient temperature range written on the appropriate label.

Figure 15



**⚠ WARNING**

Installation in ambient with the presence of explosive atmospheres not covered by the specified grade of protection specified in the label, or which could reach temperatures outside the range specified in the label, will invalidate the safety and the warranty.

## 7.4 Applicable Standards and Regulations

<b>EN ISO 12100-1</b>	Safety of machinery - Basic concepts, general principles for design Part 1-Basic terminology, methodology
<b>EN ISO 12100-2</b>	Safety of machinery - Basic concepts, general principles for design Part 2-Technical principles and specification
<b>IEC/EN 60204-1</b>	Electrical equipment of industrial machines: Part 1-General requirements
<b>2006/42/EC</b>	Machinery Directive
<b>2014/35/EU</b>	Low Voltage Directive
<b>2014/30/EU</b>	EMC Directive

## 7.5 Terms and Conditions

Biffi Italia guarantees each single product to be free from defects and to conform to current goods specifications. Except when differently specified, the warranty period in one year from the date of installation by the first user, or eighteen months from the date of shipment to the first user, whichever occurs first. No warranty is given for products which have been subject to improper storage, improper installation, misuse, or which have been modified or repaired by unauthorized personnel. Repair works due to improper use will be charged at standard rates.

## 7.6 Manufacturer's Liability

Biffi Italia declines all liability in the event of:

- Use of product in contravention of local safety at work legislation.
- Incorrect installation, disregard or incorrect application of the instructions provided on the product nameplate and in this Installation and Operation and Maintenance Manual.
- Modification of the product without Biffi's authorization.
- Work done on the product by unqualified or unsuitable personnel.

## Section 8: Installation

### 8.1 Working Conditions

The Electric Actuators EPI2 with OM3 are suitable for the following ambient temperatures from -40 °C to +65 °C (from -40 °F to +149 °F).

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**NOTE:**

Check the 'temperature ambient range' embossed on the nameplate, for the correct utilization with respect to the ambient temperature conditions.

---

### 8.2 Electrical Connections

Before applying electrical power to the actuator check that the electrical parameters (supply voltage and current) shown on the nameplate, are correct for this installation.

---

**NOTE:**

The installation and maintenance must be carried out in accordance to the applicable rules regarding the electrical installations in hazardous area (other than mines) classified as Zone 1 (gas): IEC 60079-10; IEC 60079-14; IEC 60079-17 and/or other national standards.

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### 8.3 Instructions for the Intrinsically-Safe Enclosures

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**NOTE:**

The installation and maintenance of Electric Actuators EPI2 with OM3 must be carried out in accordance to the applicable rules regarding the electrical installations in hazardous area (other than mines) classified as Zone 1 (gas): IEC 60079-10; IEC 60079-14; IEC 60079-17 and/or other national standards.

---

** WARNING**

Do not operate the Electric Actuator electrically when the Local Control Panel is removed from the terminal board enclosure. Operating the unit with the electrical enclosures not protected by their covers could cause personal injury.

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### 8.4 Installation in Ambient with Explosive Dusts

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**NOTE:**

The installation and maintenance must be carried out in accordance with IEC 61241-14.

---

Special attention must do to these following points:

- The cable glands must have a protection degree at minimum IP 66/68 (IEC 60529).
- Periodically verify the quantity of dust deposited on the enclosure and clean it in the case the quantity becoming more than 5 mm.

## Section 9: Special Maintenance

### **WARNING**

The maintenance and any repair works must be carried out by personnel specifically qualified and fully trained for works in hazardous areas.

### 9.1 Periodic Inspections

- A. Frequency of inspection may depend from the installation and working conditions; in general, at least one inspection every two years is recommended.
- B. Inspect the Electrical Actuator with particular attention to electrical enclosures conditions.

### **WARNING**

Any damage or breaking found on the enclosures, lack of screws fixing the covers or loosen screws must require an immediate maintenance action.

- C. Keep the external surface clean: if the Electrical Actuators are installed in a dusty environment the specification stated in IEC 61241-14 be followed ensuring in particular that the dust layer does not exceed 5 mm.
- D. Check the condition of cable connection and mounting bolts: any loose connection must be amended.

### 9.2 Repairs of Intrinsically-Safe Parts

### **WARNING**

In case the maintenance should require the replacement of any component which forms part of the Local Control Panel only an original spare provided by Biffi **MUST** be used. Direct repair or reconstruction of the above components are not permitted without the Biffi permission. Not performing this procedure will invalidate the product safety and contractual guarantee.

Original spare parts must be required to Biffi: to ensure that right spare is provided, serial number printed on the Electric Actuator label **MUST** be specified when spares are ordered.

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