

## 1 INFORMATION ON THIS DOCUMENT

### 1.1 Function

These operating instructions provide information on installation, connection and safe use for the following articles: **ES \*\*\*\*\***, **EA \*\*\*\*\***.

### 1.2 Target audience

The operations described in these operating instructions must be carried out by qualified personnel only, who are fully capable of understanding them, and with the technical qualifications required for operating the machines and plants in which the safety devices are to be installed.


### 1.3 Application field

These operating instructions apply exclusively to the products listed in paragraph Function, and their accessories.

### 1.4 Original instructions

The English language version is the original set of instructions for the device. Versions provided in other languages are translations of the original instructions.

## 2 SYMBOLS USED

 Attention: Any failure to observe this warning note can cause damage or malfunction, including possible loss of the safety function.

## 3 DESCRIPTION

### 3.1 Device description

The control stations described in this manual are devices designed and manufactured for use on industrial machines.

### 3.2 Intended use of the device

- The device described in this manual is designed to be applied on industrial machines.
- The direct sale of this device to the public is prohibited. Installation and use must be carried out by qualified personnel only.
- The use of the device for purposes other than those specified in this manual is prohibited.
- Any use other than as expressly specified in this manual shall be considered unintended by the manufacturer.
- Also considered unintended use:
  - a) use of the device after having made structural, technical or electrical modifications to it.
  - b) using the product in a field of application other than as described in paragraph TECHNICAL DATA.

## 4 WIRING DIAGRAM OF CONTACT BLOCK


 For the connection of the contact block refer to the wiring diagram marked on it.

## 5 INSTALLATION INSTRUCTIONS

- Do not stress the device with bending and torsion.
- Do not modify the device for any reason.
- Do not exceed the tightening torques specified in the present manual.
- Before installation, make sure the device is not damaged in any part.
- Before installation, ensure that the connection cables are not powered.
- Avoid excessive bending of connection cables in order to prevent any short circuits or power failures.
- Do not paint or varnish the device.
- Do not drill the device.
- Do not use the device as a support or rest for other structures, such as raceways, sliding guides or similar.
- The fitting surface of the device must always be smooth and clean.
- Should the installer be unable to fully understand the documents, the product must not be installed and the necessary assistance may be requested from the manufacturer (see paragraph SUPPORT).
- Always attach the following instructions to the manual of the machine in which the device is installed.
- These operating instructions must be kept available for consultation at any time and for the whole period of use of the device.


## 6 INSTRUCTIONS FOR PROPER USE

### 6.1 Do not use in the following environments

-  Attention: Do not use in environments where dust and dirt may in any way penetrate and deposit. In particular where metal dust, concrete or chemicals are spread.
- In environments where continual changes in temperature cause the formation of condensation inside the device.
  - In environments where the application causes the device to be subjected to strong impacts or vibrations.
  - In environments containing explosive or inflammable gases or dusts.
  - In environments where ice can form on the device.
  - In environments containing strongly aggressive chemicals, where the products used coming into contact with the device may impair its physical or functional integrity.
  - Prior to installation, the installer must always ensure that the device is suitable for use under the ambient conditions on site.

## 6.2 Maintenance and functional tests

 Attention: Do not try to repair the device. In case of any malfunction or failure, replace the entire device.


 Attention: In case of damages or wear it is necessary to change the whole device. Correct operation cannot be guaranteed when the device is deformed or damaged.

- The device installer is responsible for establishing the sequence of functional tests to which the device is to be subjected before the machine is started up and during maintenance intervals.

- Perform the following sequence of checks before the machine is commissioned and at least once a year (or after a prolonged shutdown):

- 1) Check that the housing is undamaged and in good condition. If the housing is damaged, replace the entire device.
- 2) Check that all the devices are working.
- 3) Check that the electrical cables are firmly lodged inside the terminals and connectors.

## 6.3 Wiring

 Attention: Check that the supply voltage is correct before powering the device.

- Keep the charge within the values specified in the electrical operation categories.
- Only connect and disconnect the device when the power is off.
- Do not open the device cover on service.
- At the end of the wiring, check that no contaminating element has been introduced inside the device.
- Before closing the device cover verify the correct positioning of the gaskets.
- Verify that the electrical cables, wire-end sleeves, cable numbering systems and any other parts do not obstruct the cover from closing correctly or if pressed between them do not damage or compress internal parts.
- During and after the installation do not pull the electrical cables connected to the device. If traction is applied to the cables (not supported by an appropriate cable gland) internal parts of the device may be damaged.

## 6.4 Limits of use

- Use the device following the instructions, complying with its operation limits and the standards in force.
- The devices have specific application limits (min. and max. ambient temperature, mechanical endurance, IP protection degree, etc.). These limitations are met by the device only if considered individually and not as combined with each other.
- The manufacturer's liability is to be excluded in the following cases:
  - 1) Use not conforming to the intended purpose;
  - 2) Failure to adhere to these instructions or regulations in force;
  - 3) Fitting operations not carried out by qualified and authorized personnel;
  - 4) Omission of functional tests.
- For the cases listed below, before proceeding with the installation contact our technical assistance service (see paragraph SUPPORT):
  - a) In nuclear power stations, trains, airplanes, cars, incinerators, medical devices or any application where the safety of two or more persons depend on the correct operation of the device;
  - b) Applications not contemplated in this instruction manual.

## 7 MARKINGS

The device is provided with a marking label. Marking includes:

- Producer trademark
- Product code

## 8 TECHNICAL DATA

### 8.1 Housing

Self-extinguishing shock-proof polycarbonate with double insulation, UV-resistant and glass fibre reinforced, high shock resistance.

Screws material:	Stainless steel
Protection degree:	ES series housings: IP67 acc. to EN 60529 IP69K acc. to ISO 20653 (with cable gland of equal or higher protection degree)
	EA series housings: IP65 acc. to EN 60529 (with cable gland of equal or higher protection degree)
Conduit entries:	ES series housings: Housing with 1 hole: 4x knock-out side entries: 2x M20 - 1/2 NPT, 2x M20 - 1/2 NPT - M25 2x M16 knock-out base entries Housings with 2-3-4-6 holes: 4x knock-out side entries: 4x M20 - 1/2 NPT - M25 2x M20 knock-out base entries
	EA series housings: 2x M20 - M25 - 1/2 NPT knock-out side entries 2x M20 - M25 - 1/2 NPT knock-out base entries

Device installation: Suitable for the installation of Ø 22 mm control and signalling devices.  
Ø 22 mm hole acc. to EN 60947-5-1.

### 8.2 General data

Ambient temperature: -40°C ... +80°C  
Tightening torque of the cover screws: 1 ... 1.4 Nm

### 8.3 Compliance with standards

For articles with integrated electrical parts:  
EN 60947-1, EN 60947-5-1, EN 60204-1, EN IEC 63000, EN ISO 13851

### 8.4 Compliance with the requirements of:

For articles with integrated electrical parts:

Low Voltage Directive 2014/35/EU  
EMC Directive 2014/30/EU

For all products:  
RoHS Directive 2011/65/EU

## 9 UL REQUIREMENTS


For contact block series E2 C provided with clamping screw terminals and contact configuration 01 or 10 and LED holder series E2 L provided with clamping screw terminals: use 60 or 75 °C copper (Cu) conductor and wire size range 14-20 AWG, stranded or solid. The terminal tightening torque of 7.1 Lb In (0.8 Nm).

For contact block series E2 C provided with clamping screw terminals and contact configuration 11 or 02 or 20 or 01S: use 60 or 75 °C copper (Cu) conductor and wire size range 16-22 AWG, stranded or solid. The terminal tightening torque of 7.1 Lb In (0.8 Nm).

For contact block series E2 C (only for contact configuration 01 or 10) and LED holder series E2 L, provided with screw less type terminals: use 60 or 75 °C copper (Cu) conductor and wire size range 16-24 AWG, stranded<sup>(1)</sup>. Recommended stripping length: 8 mm.

<sup>(1)</sup> These terminals are suitable also for stranded conductors prepared with ZMLF ferrules.

The following prescription must be observed when used in conjunction with the device described below:

- Series E2 xRJ45 and E2 xUSB are suitable for use on flat surface; enclosure type 1, 4, 4X, only with the port cover in close position.
- The hub is to be connected to the conduit before the hub is connected to the enclosure.
- The tightening torque value of cover screws: Torque 1-1.4 Nm.
- The enclosed control box series ES and EA can be provided empty (without actuators and contact blocks) or equipped with actuators and contact blocks.
- The housings can be supplied empty or complete and ready for installation and, depending on the configuration, can accommodate up to 6 (ES series housings) or 7 (EA series housings) devices.
- Empty version of enclosed control stations ES and EA are already provided of holes for actuators.
- Enclosed control stations ES and EA cannot be provided of mushroom actuators equipped with red head and yellow background.
- Enclosed control stations ES and EA provided with yellow cover are not suitable for use with mushroom actuator with red head.
- The enclosed control stations ES and EA are suitable for conduit connection only.
- The maximum number of contact block for each hole of the enclosed control stations ES and EA is 4.
- The illuminated disk VE DL series as polymeric component assembled to enclosed control stations ES and EA covers a hole of 5.5 mm diameter.
- The illuminated disk VE DL series yellow version is not suitable for use with mushroom actuator with red head.
- The illuminated disk VE DL series cannot be marked with words like "emergency", "emergency stop" or similar/equivalent.
- The illuminated disk VE DL series cannot be marked with symbol like  or similar/equivalent.

### 9.1 Electrical data approved by UL

LED holder (series E2 L):	12-30 Vac/dc, 5-20 mA 120 Vac, 20 mA max 230 Vac, 20 mA max 120 Vac/dc, 2.5 mA 230 Vac/dc, 2.5 mA
RJ45 socket (series E2 xRJ45):	Ratings: 30 Vac, 1.5 A (supplied by class 2 or limited energy external power supply source)
USB socket (series E2 xUSB):	Ratings: 1.8 A (supplied by class 2 or limited energy external power supply source)
Pilot light (series E6 xIL):	E6 xIL1 – 12-30 Vac/dc, 5-15 mA E6 xIL3 – 102-138 Vac, 20 mA max E6 xIL4 – 195-264 Vac, 20 mA max E6 xIL7 – 102-138 Vac/dc, 2.5 mA E6 xIL8 – 195-264 Vac/dc, 2.5 mA Pollution degree 2 and overvoltage category 3
Potentiometer (series E6 xDM):	Ratings: 30 Vac, 31 mA (supplied by class 2 or limited energy external power supply source)

## 10 SPECIAL VERSIONS ON REQUEST

Special versions of the device are available on request.  
The special versions may differ substantially from the indications in these operating instructions.

The installer must ensure that he has received written information from the support service regarding installation and use of the special version requested.

## 11 DISPOSAL



At the end of service life product must be disposed of properly, according to the rules in force in the country in which the disposal takes place.

## 12 SUPPORT

The device can be used for safeguarding people's physical safety, therefore in case of any doubt concerning installation or operation methods, always contact our technical support service:

Pizzato Elettrica Srl  
Via Torino, 1 - 36063 Marostica (VI) - ITALY  
Telephone +39.0424.470.930  
E-mail tech@pizzato.com  
www.pizzato.com

Our support service provides assistance in Italian and English.

## 13 EC CONFORMITY DECLARATION

I, the undersigned, as a representative of the following manufacturer:  
Pizzato Elettrica Srl - Via Torino, 1 - 36063 Marostica (VI) - ITALY  
hereby declare that the product is in conformity with whatever prescribed by the 2006/42/EC Machine Directive. The complete version of the present conformity declaration is available on our website [www.pizzato.com](http://www.pizzato.com)  
Marco Pizzato

### DISCLAIMER:

Subject to modifications without prior notice and errors excepted. The data given in this sheet are accurately checked and refer to typical mass production values. The device descriptions and its applications, the fields of application, the external control details, as well as information on installation and operation, are provided to the best of our knowledge. This does not in any way mean that the characteristics described may entail legal liabilities extending beyond the "General Terms of Sale", as stated in the Pizzato Elettrica general catalogue. Customers/users are not absolved from the obligation to read and understand our information and recommendations and pertinent technical standards, before using the products for their own purposes. Taking into account the great variety of applications and possible connections of the device, the examples and diagrams given in the present manual are to be considered as merely descriptive; the user is deemed responsible for checking that the specific application of the device complies with current standards. This document is a translation of the original instructions. In case of discrepancy between the present sheet and the original copy, the Italian version shall prevail. All rights to the contents of this publication are reserved in accordance with current legislation on the protection of intellectual property. The reproduction, publication, distribution and modification, total or partial, of all or part of the original material contained therein (including, but not limited to, texts, images, graphics), whether on paper or in electronic form, are expressly prohibited without written permission from Pizzato Elettrica Srl.  
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