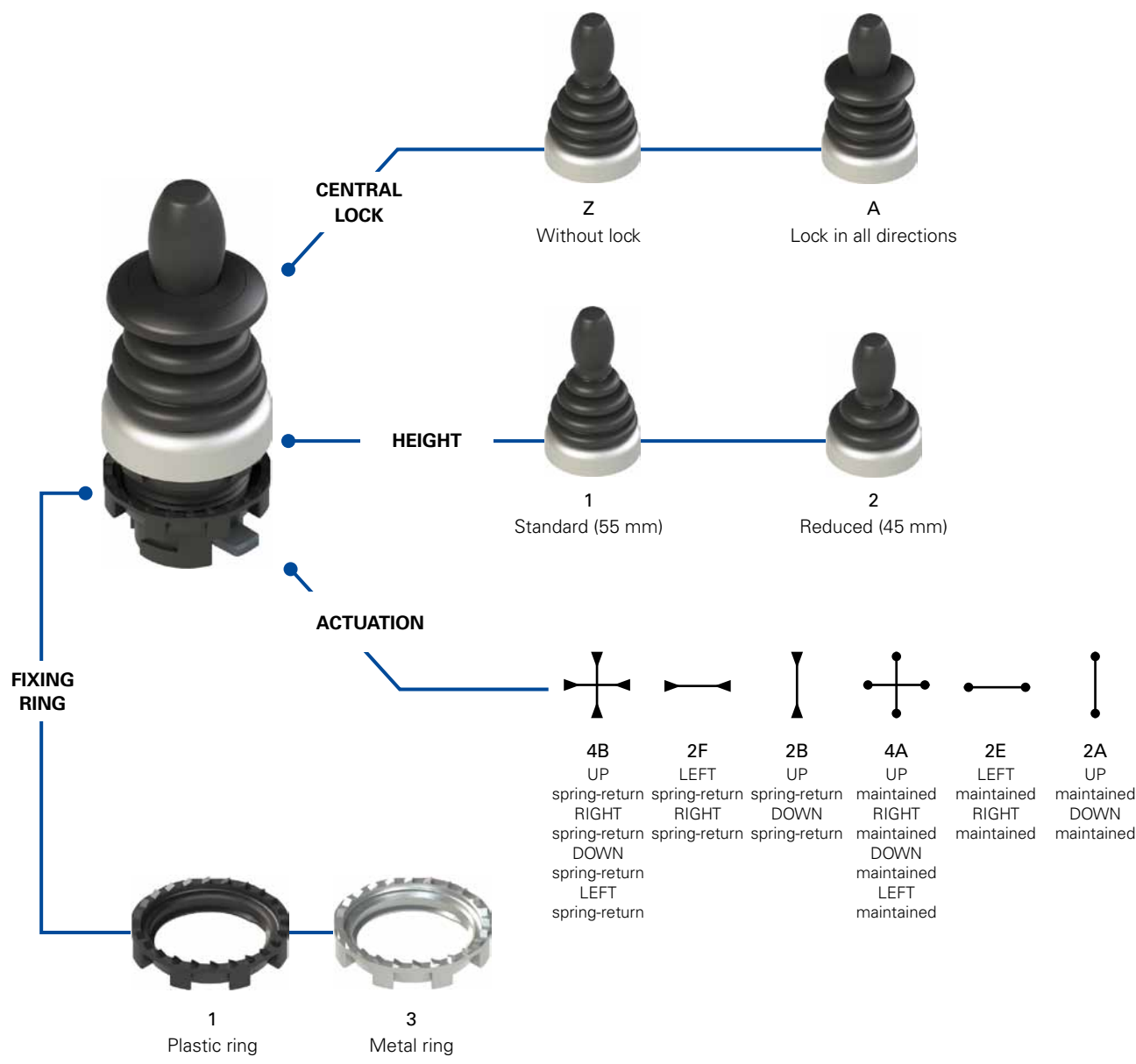


Selection diagram



Code structure

Attention! The feasibility of a code number does not mean the effective availability of a product. Please contact our sales office.

E2 1MA14BZ91

| Fixing ring and shaped ring | | Lock | |
|-----------------------------|-------------------------------------|------|------------------------|
| 1 | Plastic ring (standard) | Z | Without lock |
| 2 | Plastic fixing ring and shaped ring | A | Lock in all directions |
| 3 | Metal ring | | |
| 4 | Metal fixing ring and shaped ring | | |

| Joystick height | | Actuation | |
|-----------------|------------------|-----------|---|
| 1 | Standard (55 mm) | 4B | UP spring-return, RIGHT spring-return, DOWN spring-return, LEFT spring-return |
| 2 | Reduced (45 mm) | 2F | LEFT spring-return, RIGHT spring-return |
| | | 2B | UP spring-return, DOWN spring-return |
| | | 4A | UP maintained, RIGHT maintained, DOWN maintained, LEFT maintained |
| | | 2E | LEFT maintained, RIGHT maintained |
| | | 2A | UP maintained, DOWN maintained |



Main features

- Protection degrees IP67 and IP69K
- 2 possible heights: standard (55 mm) and reduced (45 mm)
- Versions with central lock
- Versions with spring-return or maintained actuation
- Two-step actuation

Quality marks:



UL approval: E131787
EAC approval: RU C-IT DM94.B.01024

Technical data


General data

| | |
|---------------------------------------|--|
| Protection degree: | IP67 acc. to EN 60529 IP69K acc. to ISO 20653 |
| Ambient temperature: | -40°C ... +80°C |
| Mechanical endurance: | 1 million operating cycles 500,000 unblocking operating cycles |
| Max. actuation frequency: | 3600 operating cycles/hour |
| Actuating force: | 0.17 Nm (spring-return actuation) 0.3 Nm (maintained actuation) |
| Maximum travel: | 35° |
| Tightening torque of the fixing ring: | 2 ... 2.5 Nm |
| Utilization requirements: | See page 139 |

In compliance with standards:

IEC 60947-1, IEC 60947-5-1, IEC 60204-1, EN 60947-1, EN 60947-5-1, EN 60204-1, UL 508, CSA 22-2 No. 14

⚠ Installation for safety applications:

Use only contact blocks marked with the symbol . The safety circuit must always be connected to **NC contacts** (normally closed contacts: .1-.2)

Compliance with the requirements of:

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

Positive contact opening in conformity with standards:

IEC 60947-5-1, EN 60947-5-1.

Features approved by UL

For Use on a Flat Surface of a Type 1, 4X, 12 and 13
Tightening torque 2.0 Nm

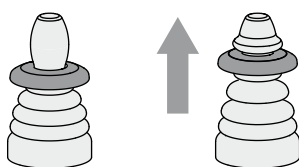
General data

Protection degrees IP67 and IP69K

IP69K
IP67

The elastic hood of the Pizzato joystick is made in a single seamless piece that completely encloses the lever, in this way without leaving the minimum aperture or junction. This particular solution (patent pending) is present in all the versions of the joystick, including the versions with reduced height and central lock and is the most effective method for ensuring protection from all possible infiltrations of dirt and water. These devices can therefore be used in all environments where the maximum protection of the housing is required and pass both the IP67 immersion test according to EN 60529 and test IP69K according to ISO 20653 with jets of water at 100 bar and temperature 80°C.

Central lock



To prevent accidental operation, the E2 MA series joystick can be ordered in versions with central lock. In these versions the lever remains fixed in the central position and can be steered in the

various directions only after being unlocked by simply pulling the release disk. The pulling release movement avoids unwanted unlocking actions.

Easy configuration of the contacts

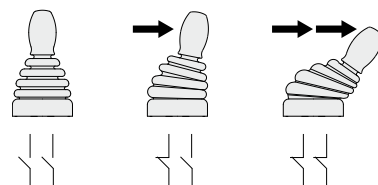
The joystick is paired with a mounting adapter with four slots, thus allowing to associate different types of contact blocks to every single direction of actuation. Single or double contact blocks, even on two levels, can be used.

There are therefore no constraints on the type of contact block, the users can freely install the standard contact block in the configuration they prefer.



Two-step actuation

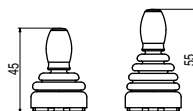
Two-step actuation in every direction is possible by connecting in series to the normal NO contact blocks additional NO contact blocks provided with early make contacts. This option can be used for example to control two-speed actuations in the same direction.



Maintained or spring-return actuation

Versions with 2 or 4 directions are available, and the single directions can have a maintained actuation, in which the lever remains in the tilted position, or spring-return actuation, in which the lever automatically returns to the central position.

Two compact forms



With the standard height version (55 mm), there is also a reduced height (45 mm) version, ideal for all situations where a low height is required. Even so, the reduced height version of the joystick does not dispense with any of the standard version options, such as the possibility of being provided with central lock.

Labels for the joystick









The joystick can be paired with specific circular and rectangular labels. This accessory, available in black or grey colour, is the ideal complement for the joystick at both the functional and aesthetic level, creating an assembly of original and elegant design. The labels specify with clear indications the functions performed by the joystick, and can be customised with symbols or written text. The laser-engraved markings are indelible. The application of the label does not alter the IP protection degree of the device.

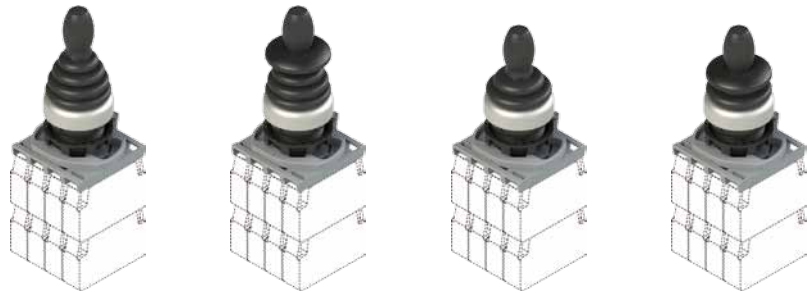
Selection table

| Functions | | Standard height (55 mm) without lock | Standard height (55 mm) with lock | Reduced height (45 mm) without lock | Reduced height (45 mm) with lock |
|--|--|---|--------------------------------------|--|-------------------------------------|
| | | Satin chrome bezel | Satin chrome bezel | Satin chrome bezel | Satin chrome bezel |
|  | UP spring-return, RIGHT spring-return, DOWN spring-return, LEFT spring-return | E2 1MA14BZ91 | E2 1MA14BA91 | E2 1MA24BZ91 | E2 1MA24BA91 |
|  | LEFT spring-return, RIGHT spring-return | E2 1MA12FZ91 | E2 1MA12FA91 | E2 1MA22FZ91 | E2 1MA22FA91 |
|  | UP spring-return, DOWN spring-return | E2 1MA12BZ91 | E2 1MA12BA91 | E2 1MA22BZ91 | E2 1MA22BA91 |
|  | UP maintained, RIGHT maintained, DOWN maintained, LEFT maintained | E2 1MA14AZ91 | E2 1MA14AA91 | E2 1MA24AZ91 | E2 1MA24AA91 |
|  | LEFT maintained, RIGHT maintained | E2 1MA12EZ91 | E2 1MA12EA91 | E2 1MA22EZ91 | E2 1MA22EA91 |
|  | UP maintained, DOWN maintained | E2 1MA12AZ91 | E2 1MA12AA91 | E2 1MA22AZ91 | E2 1MA22AA91 |

Selection table for complete units

| Functions | | Contacts | | | | Standard height (55 mm) without lock | Standard height (55 mm) with lock | Reduced height (45 mm) without lock | Reduced height (45 mm) with lock |
|---|--|----------|--------|--------|--------|---|---|---|---|
| | | pos. 3 | pos. 2 | pos. 4 | pos. 1 | Satin chrome bezel | Satin chrome bezel | Satin chrome bezel | Satin chrome bezel |
|  | UP spring-return, RIGHT spring-return, DOWN spring-return, LEFT spring-return | 1NO | 1NO | 1NO | 1NO | E2 AC-DXBC2602 E2 1MA14BZ91 + E2 1BAC21 + 4x E2 CP10G2V1 | E2 AC-DXBC2604 E2 1MA14BA91 + E2 1BAC21 + 4x E2 CP10G2V1 | E2 AC-DXBC2603 E2 1MA24BZ91 + E2 1BAC21 + 4x E2 CP10G2V1 | E2 AC-DXBC2605 E2 1MA24BA91 + E2 1BAC21 + 4x E2 CP10G2V1 |
|  | LEFT spring-return, RIGHT spring-return | 1NO | | | 1NO | E2 AC-DXBC2601 E2 1MA12FZ91 + E2 1BAC21 + 2x E2 CP10G2V1 | E2 AC-DXBC2613 E2 1MA12FA91 + E2 1BAC21 + 2x E2 CP10G2V1 | E2 AC-DXBC2618 E2 1MA22FZ91 + E2 1BAC21 + 2x E2 CP10G2V1 | E2 AC-DXBC2622 E2 1MA22FA91 + E2 1BAC21 + 2x E2 CP10G2V1 |
|  | UP spring-return, DOWN spring-return | | 1NO | 1NO | | E2 AC-DXBC2600 E2 1MA12BZ91 + E2 1BAC21 + 2x E2 CP10G2V1 | E2 AC-DXBC2611 E2 1MA12BA91 + E2 1BAC21 + 2x E2 CP10G2V1 | E2 AC-DXBC2616 E2 1MA22BZ91 + E2 1BAC21 + 2x E2 CP10G2V1 | E2 AC-DXBC2620 E2 1MA22BA91 + E2 1BAC21 + 2x E2 CP10G2V1 |
|  | UP maintained, RIGHT maintained, DOWN maintained, LEFT maintained | 1NO | 1NO | 1NO | 1NO | E2 AC-DXBC2608 E2 1MA14AZ91 + E2 1BAC21 + 4x E2 CP10G2V1 | E2 AC-DXBC2614 E2 1MA14AA91 + E2 1BAC21 + 4x E2 CP10G2V1 | E2 AC-DXBC2609 E2 1MA24AZ91 + E2 1BAC21 + 4x E2 CP10G2V1 | E2 AC-DXBC2623 E2 1MA24AA91 + E2 1BAC21 + 4x E2 CP10G2V1 |
|  | LEFT maintained, RIGHT maintained | 1NO | | | 1NO | E2 AC-DXBC2607 E2 1MA12EZ91 + E2 1BAC21 + 2x E2 CP10G2V1 | E2 AC-DXBC2612 E2 1MA12EA91 + E2 1BAC21 + 2x E2 CP10G2V1 | E2 AC-DXBC2617 E2 1MA22EZ91 + E2 1BAC21 + 2x E2 CP10G2V1 | E2 AC-DXBC2621 E2 1MA22EA91 + E2 1BAC21 + 2x E2 CP10G2V1 |
|  | UP maintained, DOWN maintained | | 1NO | 1NO | | E2 AC-DXBC2606 E2 1MA12AZ91 + E2 1BAC21 + 2x E2 CP10G2V1 | E2 AC-DXBC2610 E2 1MA12AA91 + E2 1BAC21 + 2x E2 CP10G2V1 | E2 AC-DXBC2615 E2 1MA22AZ91 + E2 1BAC21 + 2x E2 CP10G2V1 | E2 AC-DXBC2619 E2 1MA22AA91 + E2 1BAC21 + 2x E2 CP10G2V1 |

Selection table for complete units with two-step actuation



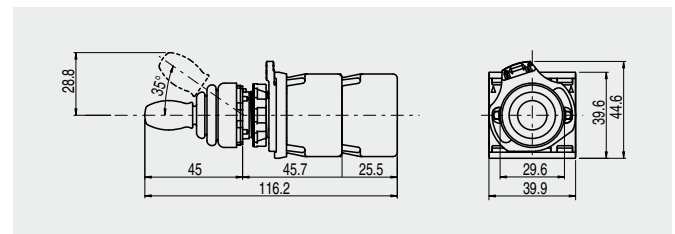
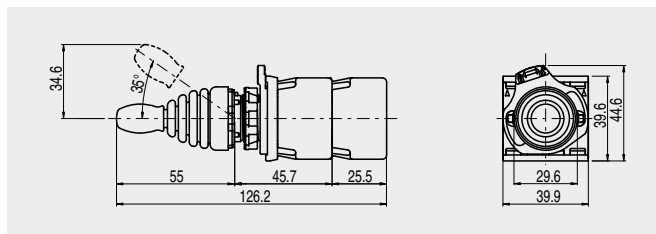
| Functions | | Contacts | | | | Standard height (55 mm) without lock | Standard height (55 mm) with lock | Reduced height (45 mm) without lock | Reduced height (45 mm) with lock |
|---|--|--------------|--------------|--------------|--------------|--|--|--|--|
| | | pos. 3 | pos. 2 | pos. 4 | pos. 1 | Satin chrome bezel | Satin chrome bezel | Satin chrome bezel | Satin chrome bezel |
|  | UP spring-return, RIGHT spring-return, DOWN spring-return, LEFT spring-return | 1NO + 1NO | 1NO + 1NO | 1NO + 1NO | 1NO + 1NO | E2 AC-DXBC2626 E2 1MA14BZ91 + E2 1BAC21 + 4x E2 CP10G2V1 + 4x E2 CP10L2V1 | E2 AC-DXBC2629 E2 1MA14BA91 + E2 1BAC21 + 4x E2 CP10G2V1 + 4x E2 CP10L2V1 | E2 AC-DXBC2632 E2 1MA24BZ91 + E2 1BAC21 + 4x E2 CP10G2V1 + 4x E2 CP10L2V1 | E2 AC-DXBC2635 E2 1MA24BA91 + E2 1BAC21 + 4x E2 CP10G2V1 + 4x E2 CP10L2V1 |
|  | LEFT spring-return, RIGHT spring-return | 1NO + 1NO | | | 1NO + 1NO | E2 AC-DXBC2625 E2 1MA12FZ91 + E2 1BAC21 + 2x E2 CP10G2V1 + 2x E2 CP10L2V1 | E2 AC-DXBC2628 E2 1MA12FA91 + E2 1BAC21 + 2x E2 CP10G2V1 + 2x E2 CP10L2V1 | E2 AC-DXBC2631 E2 1MA22FZ91 + E2 1BAC21 + 2x E2 CP10G2V1 + 2x E2 CP10L2V1 | E2 AC-DXBC2634 E2 1MA22FA91 + E2 1BAC21 + 2x E2 CP10G2V1 + 2x E2 CP10L2V1 |
|  | UP spring-return, DOWN spring-return | | 1NO + 1NO | 1NO + 1NO | | E2 AC-DXBC2624 E2 1MA12BZ91 + E2 1BAC21 + 2x E2 CP10G2V1 + 2x E2 CP10L2V1 | E2 AC-DXBC2627 E2 1MA12BA91 + E2 1BAC21 + 2x E2 CP10G2V1 + 2x E2 CP10L2V1 | E2 AC-DXBC2630 E2 1MA22BZ91 + E2 1BAC21 + 2x E2 CP10G2V1 + 2x E2 CP10L2V1 | E2 AC-DXBC2633 E2 1MA22BA91 + E2 1BAC21 + 2x E2 CP10G2V1 + 2x E2 CP10L2V1 |

Legend:

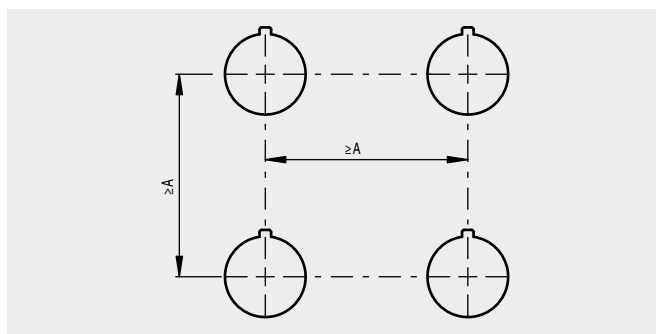
- maintained actuation
- ▶ spring-return actuation

Dimensions

All measures in the drawings are in mm



Minimum distances for installation



Standard height joystick

A=70 mm

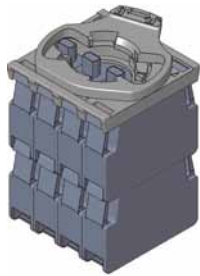
Reduced height joystick

A=60 mm

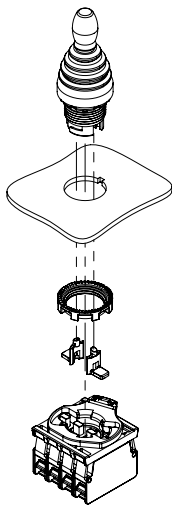
Maximum number of contact blocks

4-slot mounting adapter

Joystick E2 •MA••••••••



maximum number:
8 contact blocks
2 levels



The assembly of the 2 lateral actuators, supplied with the joystick, must be done after the fixing of the joystick.



Contact block

Mounting adapter

Packs of 10 pcs.



| Article | Description |
|-----------|--|
| E2 1BAC21 | 4-slot mounting adapter for contact blocks E2 CP•••••• |

Shaped ring

Packs of 50 pcs.



| Article | Description |
|--|-------------------------------|
| VE GP12H1A | Shaped ring for single device |
| Not applicable in presence of circular and rectangular label, adapters from Ø 22 to Ø 30 mm or protection guards | |

Fixing ring

Packs of 20 pcs.



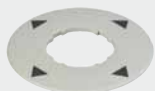



| Article | Description |
|-----------|-------------------|
| VE GF720A | Metal fixing ring |

Accessories

➔ More ACCESSORIES on page 135


Labels with shaped hole

Suitable for devices E2 •MA••••••.
Can be turned in 90° steps.
Upon request with different engravings or inscriptions in other languages.
It does not alter the IP67 / IP69K protection degree of the associated device.

| | Article | Description |
|---|--------------|---|
|  | VE TF32A9133 | Label with shaped hole, circular, Ø 60 mm, grey, inscription: ▲ ▶ ▼ ◀ |
|  | VE TF12A1233 | Label with shaped hole, circular, Ø 60 mm, black, inscription: ▲ ▶ ▼ ◀ |
|  | VE TF32G9134 | Label with shaped hole, rectangular, 30x60 mm, grey, inscription: ▲ ▼ |
|  | VE TF12G1234 | Label with shaped hole, rectangular, 30x60 mm, black, inscription: ▲ ▼ |

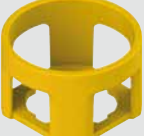
| | Article | Description |
|---|--------------|---|
|  | VE TF32A9130 | Label with shaped hole, circular, Ø 60 mm, grey, inscription: UP ▲ R ▶ DOWN ▼ L ◀ |
|  | VE TF12A1230 | Label with shaped hole, circular, Ø 60 mm, black, inscription: UP ▲ R ▶ DOWN ▼ L ◀ |
|  | VE TF32G9131 | Label with shaped hole, rectangular, 30x60 mm, grey, inscription: UP ▲ DOWN ▼ |
|  | VE TF12G1231 | Label with shaped hole, rectangular, 30x60 mm, black, inscription: UP ▲ DOWN ▼ |
|  | VE TF32G9132 | Label with shaped hole, rectangular, 30x60 mm, grey, inscription: R ▶ L ◀ |
|  | VE TF12G1232 | Label with shaped hole, rectangular, 30x60 mm, black, inscription: R ▶ L ◀ |

Windowed protection guard

| | Article | Description |
|---|------------|---|
|  | VE GP32A5A | Cylindrical yellow protection guard with 4 windows Ø 40x20 mm Suitable for reduced height joystick |

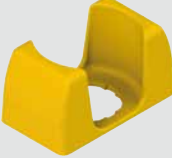
It does not alter the IP protection degree of the associated device.

Cylindrical protection guard

| | Article | Description |
|---|------------|---|
|  | VE GP32B5A | Cylindrical yellow protection guard Ø 43x27 mm Suitable for standard height joystick |

It does not alter the IP protection degree of the associated device.

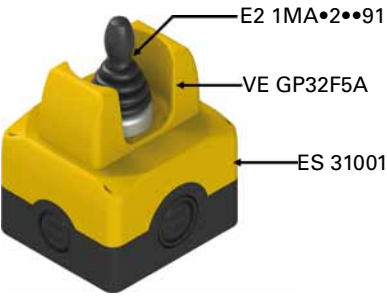
Open protection guard

| | Article | Description |
|---|------------|--|
|  | VE GP32F5A | Rectangular open yellow protection guard 66x38 mm, 35 mm high, complete with 4 screws (for panels of thickness from 1 to 3.5 mm) Suitable for the two-direction, standard and reduced height joystick |

It does not alter the IP protection degree of the associated device.

→ The 2D and 3D files are available at www.pizzato.com

Application examples of guards



Items with code on **green** background are stock items