

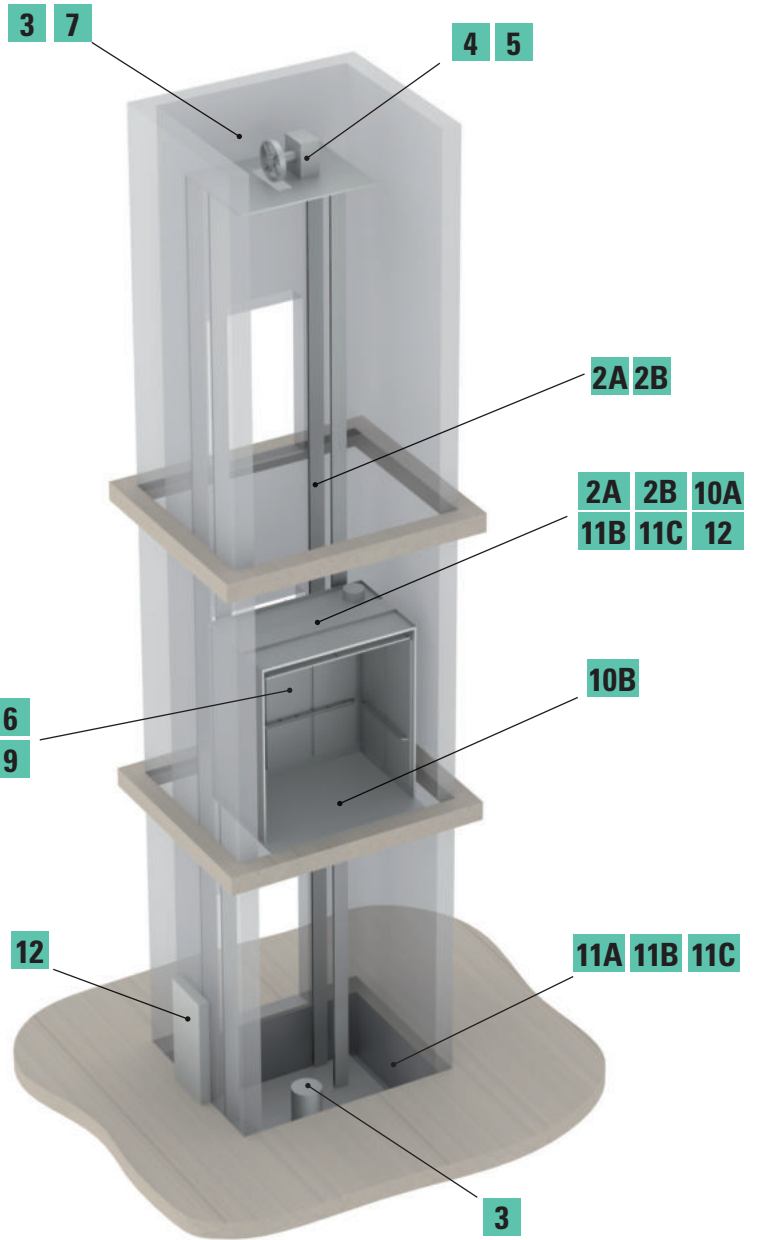


Profile

Pizzato Elettrica devices have been used for many years in the lift sector, for their proven reliability and quality to price ratio. Some of the products shown here have been the first choice of some of the most important multinational players; they are therefore used throughout the world. The range of position switches, traditionally used in the lift sector, is vast; for this reason, the following pages contain just some of the Pizzato Elettrica products available, chosen from those typically used in this sector. We, as a company, can however supply other switch types. For example, custom versions to better meet the demands of customers.

Pizzato Elettrica has also developed some series of products aimed specifically at the lift sector: for example, switches for speed limiters, devices to carry out floor levelling operations, or our control stations.

All of the products listed in this catalogue are produced entirely by Pizzato Elettrica - with the passion for quality that has always set our company apart.



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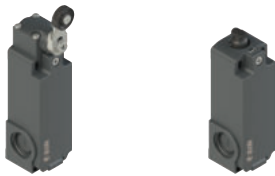
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3 Switches with manual reset

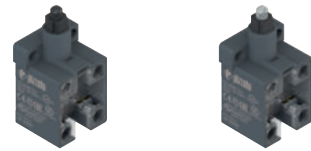
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MORE THAN 300 PROFESSIONALS WITH PASSION

It is people, with their professionalism and dedication that make a great company. This profound conviction has always guided Pizzato Elettrica in their choice of employees and partners.

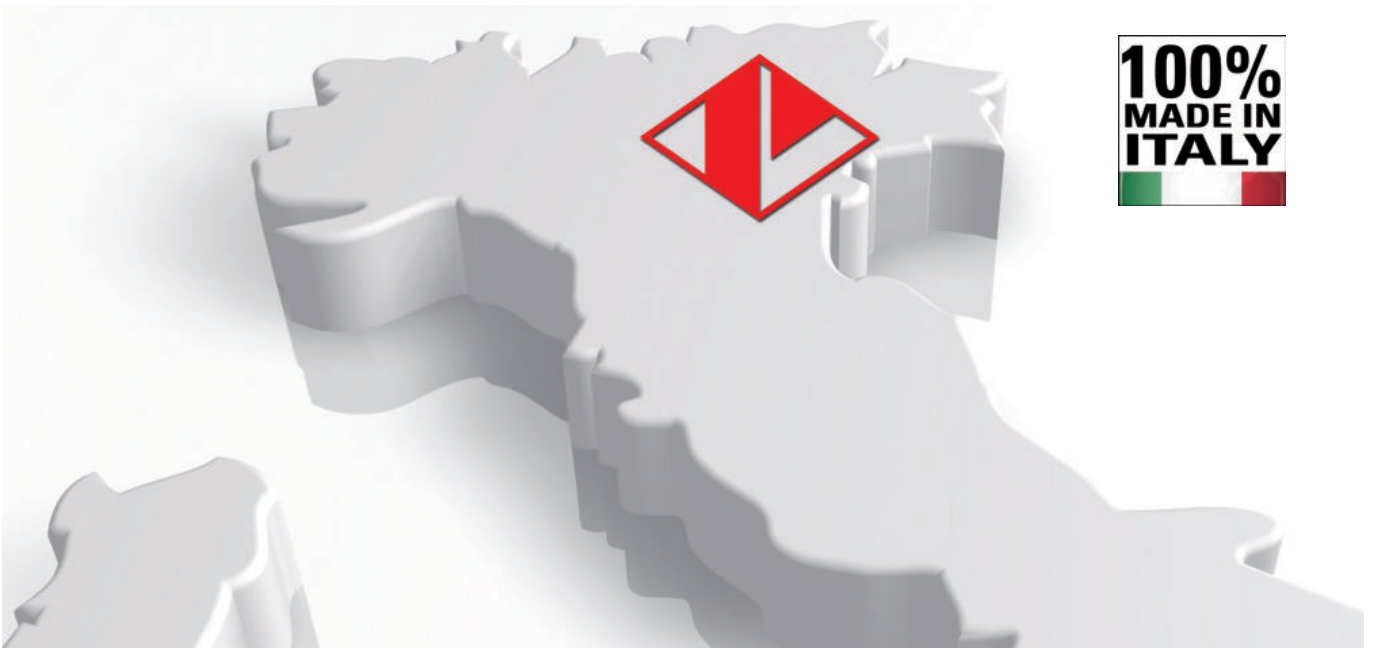
Today, Giuseppe and Marco Pizzato lead a tireless team providing the fastest and most efficient response to the demands of the market. This team has grown over the last 10 years and has achieved a considerable increase in sales in all the countries where Pizzato Elettrica is present.

The various strategic sectors of the business are headed by professionals with significant experience and expertise. Many of these people have developed over years with the company.



Others are experts in their specific field and have integrated personal experience with the Pizzato Elettrica ethos to extend the company's capability and knowledge.

From the design office to the technical assistance department, from managers to workers, every employee believes in the company and its future. Pizzato Elettrica employees all give the best of themselves secure in the knowledge they are the fundamental elements of a highly valuable enterprise.



100% MADE IN ITALY

Pizzato Elettrica is one of the leading European manufacturers of position switches, microswitches, safety devices, safety modules, foot switches, control and signalling devices, and devices for lifts. An entrepreneurial company such as Pizzato Elettrica bases its foundations on a solid and widely shared value system. The pillars that form the basis of the company's work have remained constant, and constitute the fundamental guiding principles for all company activities.

PASSION FOR QUALITY

Passion for product quality, orientation towards excellence, innovation, and continuous development, represent the key principles of Pizzato Elettrica's everyday work.

Anyone using Pizzato Elettrica's products does so in the certainty that these devices are of certified quality, since they are the result of a process that is scrupulously controlled at every stage of the production.

The company's goal is to offer the market safe, reliable, and innovative solutions.

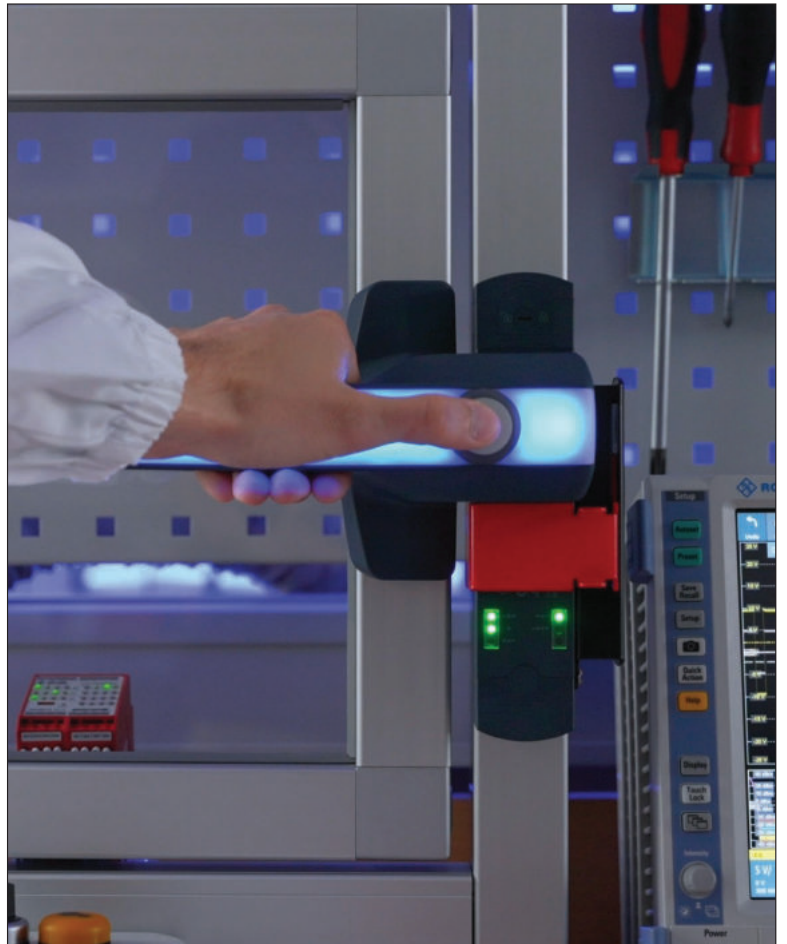
CARE FOR THE CUSTOMER

In order to be successful, a product must respond to the specific needs of those who will use it. Market developments must be carefully monitored in order to understand, in advance, which new applications will prove themselves truly useful. This is why Pizzato Elettrica has always cultivated close synergies with the companies that have chosen it

as a supplier, using this continuous dialogue to identify the potential developments of the own product range in order to make it highly flexible, complete and capable to respond to the most diverse needs.

100% MADE IN ITALY

All Pizzato Elettrica products are designed, developed, and tested entirely at the company plants in Marostica, in the province of Vicenza in Italy. The company is thus able to meet specific customer requirements at all times, by offering a comprehensive range of products and technologically advanced solutions.





1984: AN ENTREPRENEURIAL STORY BEGINS

- 1984** The company Pizzato di Pizzato B. & C. snc. manufacturer of position switches is founded.
- 1988** The company becomes a limited liability partnership, and is renamed Pizzato Elettrica, a brand shortly destined to become renowned and valued nationwide. The first company-owned plant (P1) geared towards mechanical processing was built.
- 1990** By the end of the decade, thanks to the development of quality products and the experience built on the Italian market, Pizzato Elettrica turns to the international market.
- 1995** Building of the second plant (P3) geared towards the moulding of plastic materials. Development of the position switch range continues in parallel. Start of significant years in terms of safety devices planning. The safety sector becomes a key sector to the company.
- 1998** Construction of the third plant (P4), housing the assembly department.
- 2002** Achievement of the ISO 9001:2000 certification. Launching of the first safety modules. The new factory headquarters and logistics centre (P5) is built and will remain the company's headquarters for many years. Continued expansion of the industrial safety and automation product range.
- 2007** Pizzato Elettrica faces its first generational change: Giuseppe and Marco Pizzato take over the company directorship.
- 2010** Extension of Pizzato Elettrica product portfolio, with the launch of the innovative EROUND line consisting of control and signalling devices. This product range accompanies position switches and safety devices, thus offering complete solutions to customers.
- 2012** Introduction of Gemnis Studio, the first software produced by Pizzato Elettrica. A graphic development environment for the creation, simulation, and debugging of programs that can be integrated in the Gemnis line modules.
- 2013** Foundation of first subsidiary of Pizzato Elettrica, Pizzato Deutschland GmbH, in Germany.
- 2014** A new production facility (P8) dedicated to switches and automatic machines is opened, spanning a surface area of 6000 m².
- 2016** The new NS series of safety switches with electromagnets and RFID technology is introduced, fruit of the company's experience, spanning more than thirty years in the field of industrial safety. To date it is the state of the art in its industry. Foundation of second subsidiary of Pizzato Elettrica, Pizzato France SARL, in France.
- 2017** The company continues to expand and achieves the quality certification based on the more recent version of standard ISO 9001 of 2015. In Spain, the third Pizzato Elettrica subsidiary is founded: Pizzato Iberica SL. The foundation stone is laid for the new factory (P6), which is to become the company's headquarters.
- 2018** The safety handle P-KUBE Krome is launched, a brand new product in the market, confirming that Pizzato Elettrica thrives on innovation in the sectors of automation and industrial safety. Foundation of fourth subsidiary of Pizzato Elettrica, Pizzato USA Inc, in the United States.
- 2019** The new factory (P6) is opened, a modern building of 28,000 m² realized with the most advanced Industry 4.0 technologies, where all offices and production divisions are transferred, allowing to further improve the flow of material and information. The logistics and shipment department is optimised with the introduction of a new completely automated warehouse.
- 2021** Pizzato Elettrica India Ltd. and Pizzato Korea Ltd., commercial branches of Pizzato Elettrica, are established in India and South Korea, respectively.
- 2022** Foundation of Pizzato Academy, Pizzato Elettrica's new training site for getting better acquainted with our products and following the constant regulatory developments in the sector.
- Today**, Giuseppe and Marco Pizzato lead a company in constant growth in terms of new product launches, number of employees, turnover, and new markets. Pizzato Elettrica is continuing its new product internationalisation and development process.



100 MILLION PARTS SOLD WORLDWIDE

Pizzato Elettrica's product catalogue contains more than 10,000 articles, with more than 1,500 special codes developed for devices personalised according to clients' specific needs. Pizzato Elettrica devices can be grouped, according to typology, into three main macro-categories.

POSITION SWITCHES

Pizzato Elettrica position switches are daily installed in every type of industrial machinery all over the world for applications in the sector of wood, metal, plastic, automotive, packaging, lifting, medicinal, naval, etc.

In order to be used in a such wide variety of sectors and countries, Pizzato Elettrica position switches are made to be assembled in a lot of configurations thanks to the various body shapes, dozens of contact blocks, hundreds of actuators and materials, forces, assembling versions.

Pizzato Elettrica can offer one of the widest product range of position switches in the world. Moreover, the use of high quality materials, high reliability technologies (e.g. twin bridge contact blocks) as well as the IP67 protection degree make this range of position switches one of the most technologically evolved.

SAFETY DEVICES

The company Pizzato Elettrica has been one of the first Italian companies developing dedicated items for this sector, creating and patenting dozens of innovative products, thus becoming one of the main European manufacturers of safety devices.

The vast range of products aimed specifically at the safety of machinery, fully designed and assembled at the Marostica (VI) company premises, includes not only more traditional safety switches with separate actuator (with or without locking mechanism) and hinge switches but also state-of-the-art anti-tampering devices with RFID technology, such as the ST series sensors, and NG and NS series locking devices.

The product range is complemented by safety handles for guards, with the innovative P-KUBE Krome model whose grip can be illuminated with multicolour signalling LEDs, as well as by the CS series safety modules, available in single function versions, or user-programmable with the use of the Gemnis Studio software; fully implemented by Pizzato Elettrica and distributed with a free

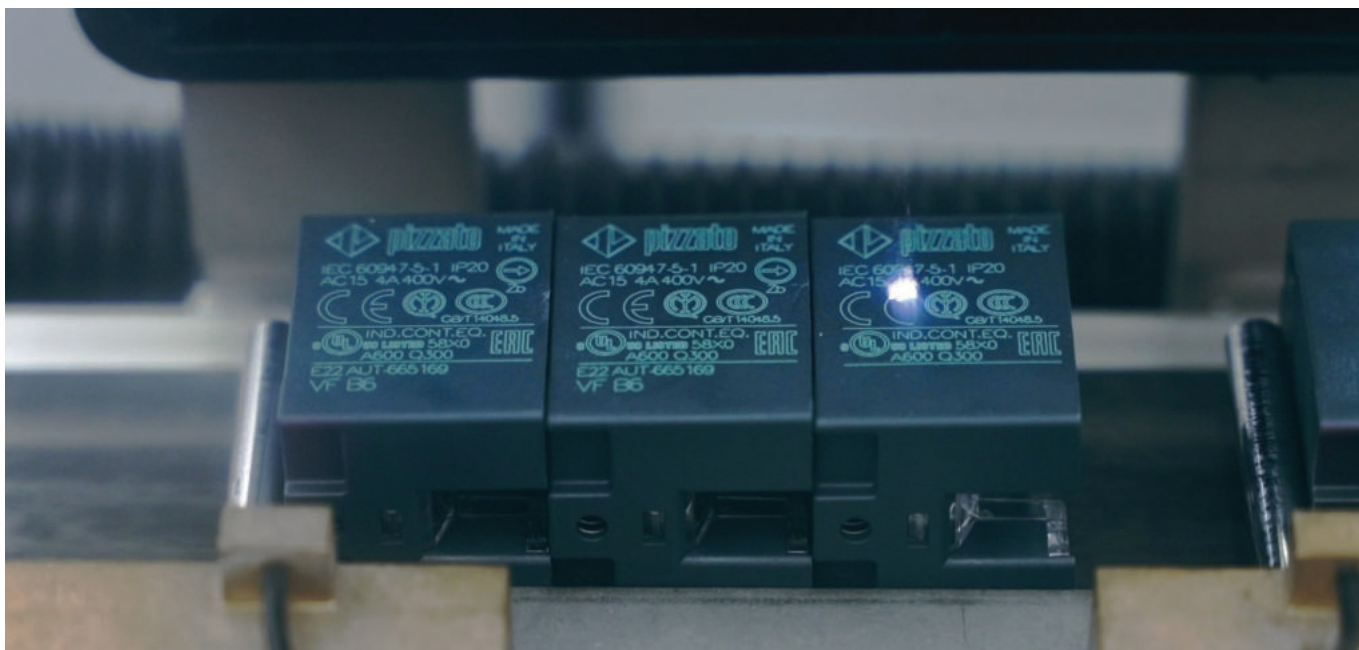
licence.

MAN-MACHINE INTERFACE

Pizzato Elettrica's control and signalling devices of the EROUND line are designed for the use in the human-machine interface sector. Thanks to the elegant design, the care for details and the elegance of the product combined with its maximum safety and reliability, this series is one of the most complete and cutting-edge on the market.

In order to satisfy its customers' needs and requests, Pizzato Elettrica offers a lot of accessories purposely designed not only to complete its wide range of products, but also to help device installation on machineries.





MILLIONS OF CERTIFIED PRODUCT CODES

A simple brand isn't enough: the company is aiming for the Pizzato Elettrica brand to be widely recognised as a synonym for absolute quality and certainty.

A result that has been reached and consolidated over the years, updating and expanding the series of certifications obtained from the most important Italian and international control organisations. Product quality is assessed by seven accredited external bodies: IMQ, UL, CCC, TÜV SÜD, EAC, BSI, BV. These bodies lay out high technical and qualitative standards for the company to achieve and maintain, verified yearly with several inspections: these are performed, without prior notice, by qualified inspectors, who extract samples of products and materials destined for sale from plants, or from the market directly, to subject them to apposite tests.

- **CE MARK.** All Pizzato Elettrica products bear the CE marking in conformity with the European Directives in force.
- **UKCA MARK.** All Pizzato Elettrica products bear the UKCA marking in conformity with the United Kingdom directives in force.
- **ISO 9001 CERTIFICATION.** The company's production system is compliant with the international ISO 9001 standard, in its most recent 2015 revision. The certification covers all of the company's plants and their production and managerial activities: entry checks,

technical, purchasing and commercial department activities, manufacturing operations assessments, final pre-shipping product tests and checks, equipment reviews and the management of the metrological lab.

The Pizzato Elettrica quality management system ensures that all sensitive company processes – from component design to implementation, from materials provisioning to verification of non-compliant products – are carried out according to the procedures laid down, with the aim of providing our customers with continuously improved and reliable products.

- **CERTIFICATION OF COMPANY QUALITY SYSTEMS.** Pizzato Elettrica has obtained the certificate of compliance with the UNI EN ISO 9000 regulations in force in Italy and abroad. It is issued by a recognised independent body that guarantees the quality and reliability of the service offered to clients worldwide.
- **CSQ, CISQ AND IQNET.** The CSQ system is part of the CISQ (Italian Certification of Quality Systems) federation, which consists of the primary certification bodies operating in Italy in the various product sectors. CISQ is the Italian representative body within IQNet, the biggest international Quality Systems and Company Management certification network, which is adhered to by 25 certification organs in as many countries.





GLOBAL SUBSIDIARIES

Pizzato Deutschland GmbH
Munich
Founding year: 2013
info@pizzato.com

Pizzato France Sarl
Villeurbanne - Lyon
Founding year: 2016
info@pizzato.com

Pizzato Iberica SL
Barcelona
Founding year: 2017
info@pizzato.com

Pizzato USA
East Syracuse, NY
Founding year: 2018
info@pizzatousa.com

Pizzato Elettrica India Ltd.
Pune
Founding year: 2021
info@pizzato.com

Pizzato Korea Ltd.
Seoul
Founding year: 2021
info@pizzato.com

The purpose of these subsidiaries is to coordinate and support the activities of representative agencies, or distributors, present in the various countries, managing marketing and sales activities, with further objectives of increasing brand visibility and penetration capacity of Pizzato Elettrica products in markets considered strategic.

Products from Pizzato Elettrica are currently used in over 80 countries: The commercial support network, which is made up of local professional and experienced representatives, combined with the productive capacity of the headquarters in Italy, are the basis for the formation of a group that, together with its partners, has all the necessary requirements to become one of the most important companies in the field of automation and industrial safety.

TECHNICAL AND SALES ASSISTANCE



TECHNICAL DEPARTMENT

The Pizzato Elettrica technical department provides direct technical and qualified assistance in Italian and English, helping in this way the customers to choose the suitable product for their own application explaining the characteristics and the correct installation.

Office hours: Monday to Friday
08:00 am - 12:30 pm / 02:00 pm - 05:30 pm CET

Telephone: +39.0424.470.930

E-mail: tech@pizzato.com

Spoken languages:  

SALES DEPARTMENT

Among the strengths in the company relationship with the commercial network, the direct assistance guaranteed in five languages: Italian, English, French, German and Spanish. A service that confirms Pizzato Elettrica quality and attention to the needs of customers from around the world.

Office hours: Monday to Friday
08:00 am - 12:30 pm / 02:00 pm - 05:30 pm CET

Telephone: +39.0424.470.930

E-mail: info@pizzato.com

Spoken languages:     





TRADE FAIRS AND EVENTS

TRADE FAIRS

Pizzato Elettrica regularly participate to many trade fairs in Italy and abroad, presenting in this way to the market the products, the latest news, etc.

EVENTS

Besides offering qualified technical assistance, Pizzato Elettrica presents itself as a dynamic partner who is attentive to the needs of its customers. For this reason, the company organises several meetings and training courses with particular attention to the regulatory aspect of machinery safety.



WEBSITE WWW.PIZZATO.COM

PRODUCT NEWS

Visit the website at www.pizzato.com to stay updated on all the news regarding product launches, to view the entire range of products created by Pizzato Elettrica, and to consult all the documentation provided.

SEARCH USING FILTERS

You can find the product you want by entering the relative item code, or use the filters provided to create the item most adapted to your particular requirements, by choosing the features it needs to offer.

BROWSABLE, DOWNLOADABLE CATALOGUE

Users can download the complete catalogue or alternatively browse it directly online, an extremely handy solution for those wishing to consult the range of products simply and rapidly.

HIGH RESOLUTION IMAGES

The information provided for each product is complete with high resolution images to offer visitors to the website a clear, accurate view of the items in close detail, also offering them the possibility to zoom in and out on the image.

USAGE INSTRUCTIONS

You can download product usage or installation instructions, in PDF format, to your computer.

2D AND 3D FILES

2D and 3D drawings are available for every item; in formats that are compatible with the widest variety of drawing programs.

CERTIFICATES AND EC DECLARATIONS OF CONFORMITY

The latest product type approval certificates, and EC declarations of conformity in accordance with applicable European product directives, are published on the website.

LARGE VIDEO SECTION

The large video section of the website is capable of showcasing the main characteristics, functions and use of the various products.

MULTILINGUAL TRANSLATIONS

The website's multilingual versions allow the clients of the global market to find all the information they need in one place.

WEBINARS

The webinars from Pizzato Elettrica go into detail in the area of machine safety with focus on the further development of standards. The speakers are experts with targeted specialisation and detailed knowledge of standards and directives in the industry.

CROSS-REFERENCE

It is possible to find a Pizzato Elettrica product as an alternative to others on the market in terms of functionality.



EL AN series control stations with visual and audible signalling functions

- The EL AN series control station for lifts is available in a 1-unit version with visual and audible signalling functions.
- The visual and audible signalling can be configured for continuous or pulsed operation using the internal terminal strips.
- The mounting is made even more flexible thanks to the flanged base and additional mounting points with a hole spacing of 100x70 mm.
- The control station has four M20 and two M25 side outputs.
- The transparent cover is equipped with LEDs that ensure uniform brilliancy both from the front and the side, making the light indicators visible from every angle.
- Minimum sound intensity of 55 dB at a distance of 1 metre, in accordance with the EN 81-20 standard.
- The buzzer is located inside the control station, keeping the protection degree of the housing unchanged.

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FG series safety switch for lift door locking, in accordance with EN 81

- Device for locking sliding or hinged doors, equipped with actuator input and auxiliary release with variable orientations.
- Entirely made of sturdy metal, with IP67 protection degree and three M20 conduit entries.
- Door locking resistant to a pulling force of 3000 N.
- With auxiliary key release with triangular key with spring return.

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UKCA declaration of conformity

- Following the withdrawal of the United Kingdom from the European Union, the UKCA mark (UK Conformity Assessment) for products that are placed on the market in Great Britain must be used instead of the European CE marking. For products that previously required a CE marking, the new UKCA mark for Great Britain (England, Scotland and Wales), in effect since 1 January 2021, is required.
- At the time of printing this catalogue, the British government specified 1 January 2025 as the date from which the UKCA mark will be mandatory for products that are placed on the market in Great Britain; the UKCA mark can also be used prior to this date.
- Pizzato Elettrica has already started to update the mark and will mark its own products with the newly required mark within the time frame specified in the last legislative changes.



EL AN series control stations with 72 x 80 mm cover

- The new covers offer the option of using two devices or electrical sockets within the compact housing of the 72 x 80 mm box.
- New cover configurations available.
- Same capacity for modularity and customization as larger boxes.

► 97



EL AD series control stations

- Larger dimensions, to enable use of a greater number of devices.
- Easy to configure, thanks to the wide selection of available covers.
- Simplified wiring, due to the sockets on the cover.
- Sturdy protection guards.
- Up to 6 lateral M20-M25-M16 knock-out conduit entries, and 4 bottom M20 knock-out entries.
- Knurled base for easy grip on control station.
- Versions with height reduced to 60 mm, suitable for cramped spaces in lift shaft.
- Standard contact block and device dimensions.
- Wall fixing hook.
- Built-in devices and electrical socket.

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Products compliant with standards EN 81-20 and EN 81-50

- International standards EN 81-20 and EN 81-50 set new, updated, technical and safety requirements in comparison to current standards. They are a significant development in terms of lift construction and installation.
- Pizzato Elettrica products intended for use in the lift industry are implemented in accordance with standards EN 81-20 and EN 81-50, in order to provide specific and up-to-date solutions to meet the demands of the market.
- All devices meet requirements laid down by the new standards for safety contacts.



Signalling boxes compliant with standards EN 81-20 and EN 81-50

- 12Vac/dc or 24Vac/dc signalling box, complete with luminous discs and buzzers.
- Signalling via luminous disc with flashing yellow light.
- Signalling via luminous disc with steady white light, with an intensity of 5 lux at a distance of 1 metre; as laid down in EN 81-20 paragraph 5.4.10.4.
- Buzzers with continuous or pulsed tone, with minimum 55dB sound intensity at a distance of 1 metre; as laid down in EN 81-20 paragraph 5.12.1.8.3(G).

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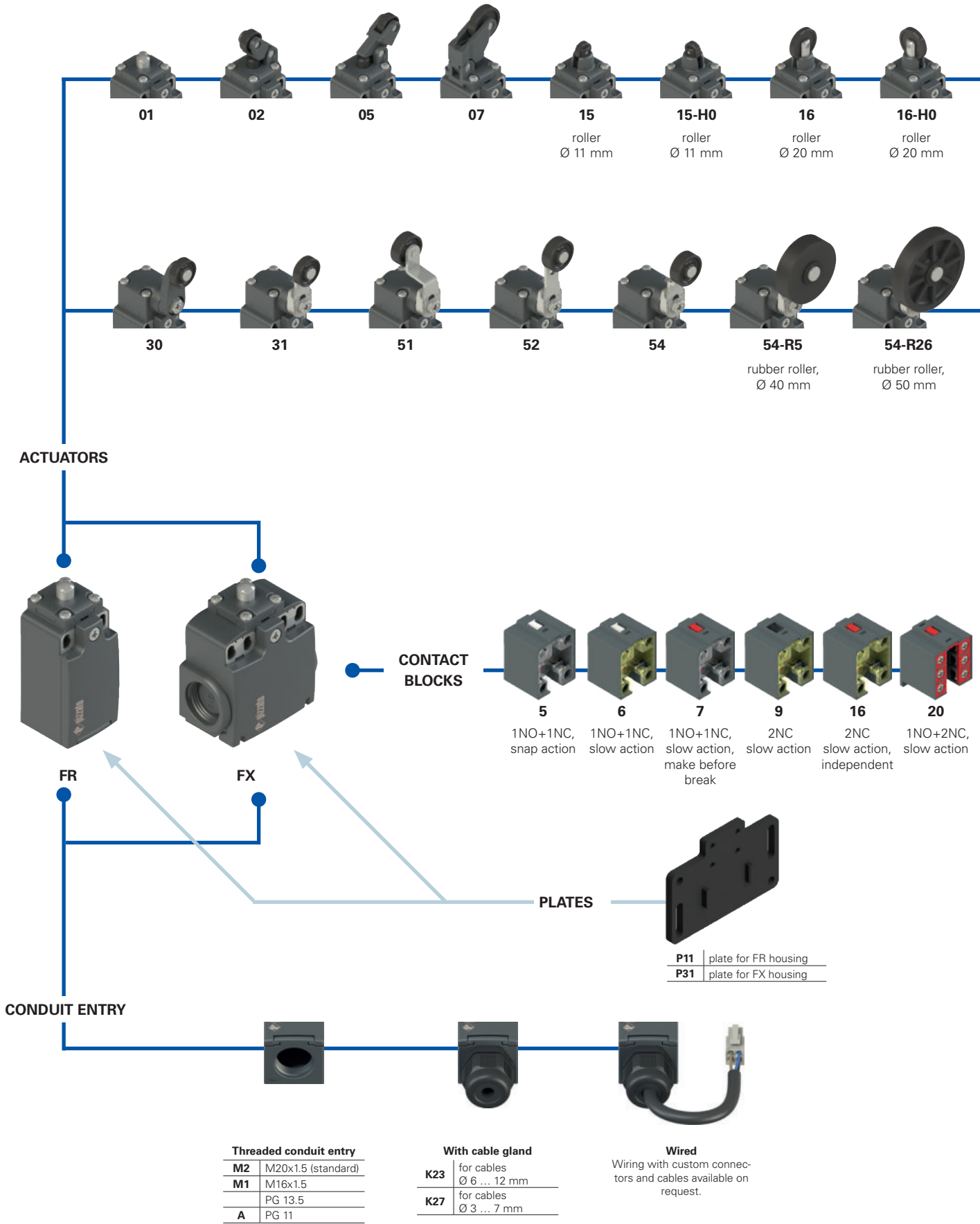


Padlockable protection for bypass device

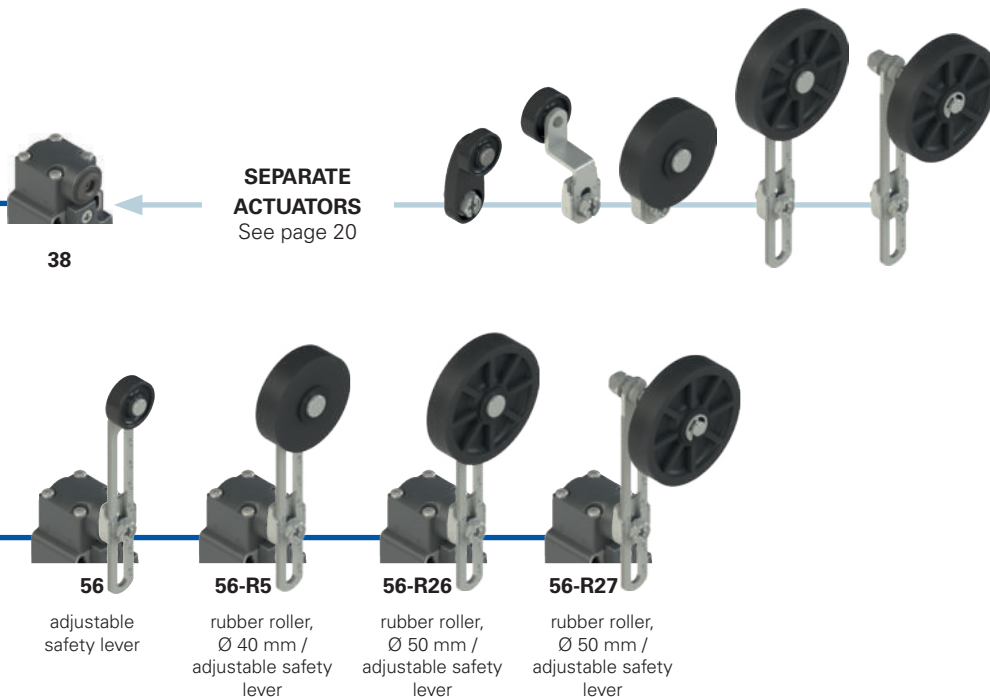
- Padlockable protection for bypass device, to allow maintenance of floor and cabin doors, and of door locking devices, as laid down in EN 81-20 paragraph 5.12.1.8.
- With padlockable, snap-on protection cover to prevent unintended use of the device.
- Ability to lock with padlocks.
- Padlockable protection for mounting on Pizzato EL series control stations, or on any electrical panel with compatible hole pattern.

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Selection diagram



● Product options
→ Sold separately as accessory



SEPARATE ACTUATORS
See page 20

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56

adjustable safety lever

56-R5

rubber roller, Ø 40 mm / adjustable safety lever

56-R26

rubber roller, Ø 50 mm / adjustable safety lever

56-R27

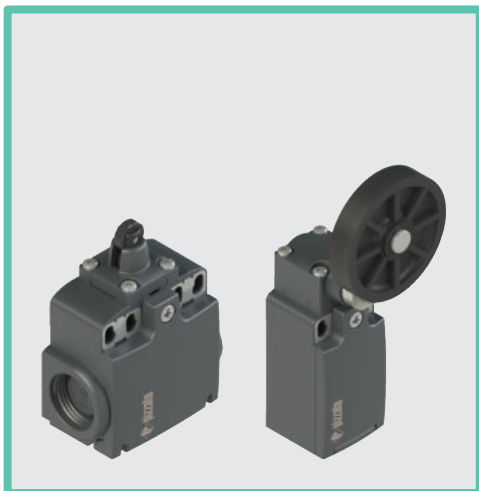
rubber roller, Ø 50 mm / adjustable safety lever

Code structure

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

article option options
FR 654-GM2K23P11R26T6

Housing		Ambient temperature	
FR	technopolymer, one conduit entry		-25°C ... +80°C (standard)
FX	technopolymer, two conduit entries	T6	-40°C ... +80°C
Contact block		Rollers	
5	1NO+1NC, snap action		standard roller
6	1NO+1NC, slow action	R5	rubber roller, Ø 40 mm
7	1NO+1NC, slow action, make before break	R26	rubber roller, Ø 50 mm
9	2NC, slow action	R27	rubber roller, protruding, Ø 50 mm
16	2NC, slow action, independent		
20	1NO+2NC, slow action		
Actuators		Fixing plates	
01	short plunger		without plate (standard)
02	roller lever	P11	with VF SFP1 plate for FR housing
05	angled lever with roller	P31	with VF SFP3 plate for FX housing
...	...		
Contact type		Threaded conduit entry	
	silver contacts (standard)	M2	M20x1.5 (standard)
G	silver contacts with 1 µm gold coating	M1	M16x1.5
G1	silver contacts, 2.5 µm gold coating (not for contact block 20)		PG 13.5
		A	PG 11
			Pre-installed cable glands
		K23	for cables Ø 6 ... 12 mm
		K27	for cables Ø 3 ... 7 mm



Main features

- Technopolymer housing, from one to two conduit entries
- Hinged cover, fixed with single captive screw
- Metal plates on mounting holes of the housing
- Protection degree IP67 and IP69K
- Wired versions
- Versions with gold-plated silver contacts

Quality marks:



IMQ approval:	EG610
UL approval:	E131787
CCC approval:	2021000305000101
EAC approval:	RU C-IT.YT03.B.00035/19

Technical data

Housing

Housing made of glass fibre reinforced technopolymer, self-extinguishing, shock-proof and with double insulation: 

FR series, one conduit entry:	M20x1.5 (standard)
FX series, two knock-out threaded conduit entries:	M20x1.5 (standard)
Protection degree:	IP67 acc. to EN 60529 with cable gland of equal or higher protection degree IP69K acc. to ISO 20653 with cable gland of equal or higher protection degree

General data

Ambient temperature:	-25°C ... +80°C (standard) -40°C ... +80°C (T6 option)
Max. operating frequency:	3600 operating cycles/hour
Mechanical endurance:	20 million operating cycles
Mounting position:	any
Safety parameter B _{10D} :	40,000,000 for NC contacts
Mechanical interlock, not coded:	type 1 acc. to EN ISO 14119
Tightening torques for installation:	see page 155
Wire cross-sections and wire stripping lengths:	see page 169

In compliance with standards:

IEC 60947-5-1, EN 60947-5-1, EN 60947-1, EN 50047, IEC 60204-1, EN 60204-1, EN ISO 14119, EN ISO 12100, IEC 60529, EN 60529, EN IEC 63000, EN 81-20, EN 81-50, UL 508, CSA 22.2 No.14

Approvals:

IEC 60947-5-1, UL 508, CSA 22.2 No.14, GB/T14048.5-2017.


Compliance with the requirements of:

Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU, Lift Directive 2014/33/EU, RoHS Directive 2011/65/EU.

Positive contact opening in conformity with standards:

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

Installation for safety applications:

Use only switches marked with the  symbol beside the product code. Always connect the safety circuit to the **NC contacts** (normally closed contacts: 11-12, 21-22 or 31-32) as stated in **standard EN 81-20 par. 5.11.2.2.1**. Actuate the switch **at least up to the positive opening travel** shown in the travel diagrams on page 156. Actuate the switch **at least with the positive opening force**, reported in brackets below each article, next to the actuating force value.

⚠ If not expressly indicated in this chapter, for correct installation and utilization of all articles see the instructions given on pages 153 to 162.

Electrical data		Utilization category
Thermal current (I _{th}):	10 A	Alternating current: AC15 (50÷60 Hz)
Rated insulation voltage (U _i):	500 Vac 600 Vdc	U _e (V) 250 400 500
	400 Vac 500 Vdc (contact block 20)	I _e (A) 6 4 1
Rated impulse withstand voltage (U _{imp}):	6 kV	Direct current: DC13
	4 kV (contact block 20)	U _e (V) 24 125 250
Conditional short circuit current:	1000 A acc. to EN 60947-5-1	I _e (A) 3 0.55 0.3
Protection against short circuits:	type aM fuse 10 A 500 V	
Pollution degree:	3	

Features approved by IMQ

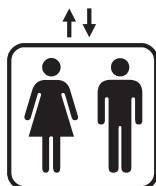
Rated insulation voltage (U _i):	500 Vac 400 Vac (for contact block 20)
Conventional free air thermal current (I _{th}):	10 A
Protection against short circuits:	type aM fuse 10 A 500 V
Rated impulse withstand voltage (U _{imp}):	6 kV 4 kV (for contact block 20)
Protection degree of the housing:	IP67
MV terminals (screw terminals)	
Pollution degree:	3
Utilization category:	AC15
Operating voltage (U _e):	400 Vac (50 Hz)
Operating current (I _e):	3 A
Forms of the contact element:	Zb, Y+Y, Y+Y+X
Positive opening contacts on contact blocks	5, 6, 7, 9, 16, 20
In compliance with standards:	EN 60947-1, EN 60947-5-1, fundamental requirements of the Low Voltage Directive 2014/35/EU

Please contact our technical department for the list of approved products.

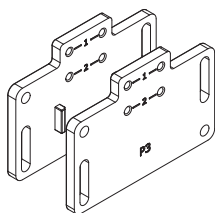
Features approved by UL

Electrical Ratings:	Q300 pilot duty (69 VA, 125-250 V dc) A600 pilot duty (720 VA, 120-600 V ac)
Environmental Ratings:	FR: Types 1, 4X FX: Types 1, 4X, 12, 13
For all contact blocks use 60 or 75°C copper (Cu) conductors, rigid or flexible, wire size 12, 14 AWG. Tightening torque for terminal screws of 7.1 lb in (0.8 Nm).	
The hub is to be connected to the conduit before the hub is connected to the enclosure.	

Please contact our technical department for the list of approved products.

Compliant with EN 81-20 and EN 81-50


- Safety contacts in compliance with EN 60947-5-1, annex K.
- Protection degree higher than IP4x.
- Mechanical service life > 10⁶ cycles.

Adapter plates


Fixing plate with large slotted holes for switching point adjustment. Developed for backwards compatibility with previous products. Each

plate is provided with two pairs of mounting holes, one for standard switches and one for switches with reset device. The actuator thus always has the same actuating point.

Protection degrees IP67 and IP69K

IP69K IP67

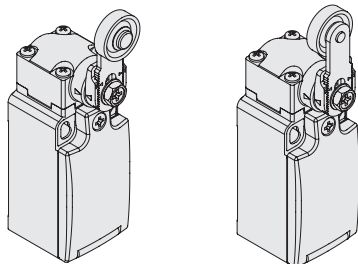
These devices are designed to be used under the toughest environmental conditions, and they pass the IP67 immersion test acc. to EN 60529. They

can therefore be used in all environments where the maximum degree of protection is required for the housing. All switches with actuator that do not have an external rubber hood also have a protection degree of IP69K in accordance with ISO 20653, and can be used on machinery subject to washing with water jets at 100 bar and 80°C.

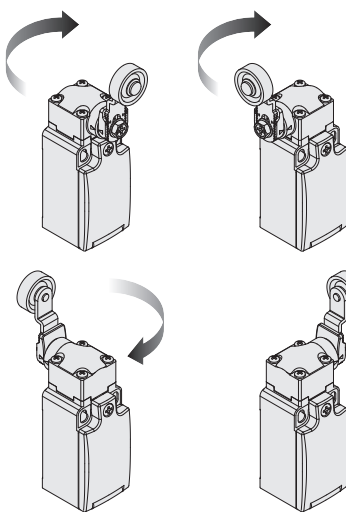
Reversible levers

For switches with swivelling lever, the lever can be fastened on straight or reverse side maintaining the positive coupling.

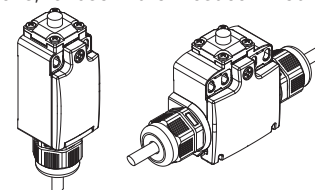
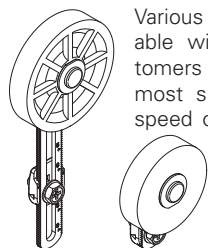
In this way two different working planes of the lever are possible.


Head with variable orientation

The head of all switches is adjustable in 90° steps.


Cable outlets

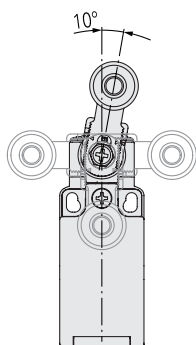
Switches available with cable outlets in various directions, for use in the most confined of spaces.


Rubber rollers


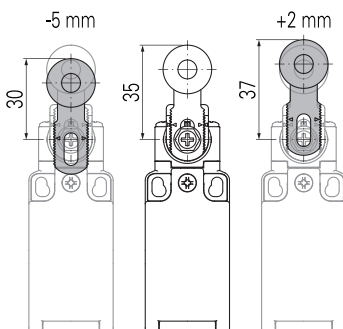
Various actuators are available with rubber rollers. Customers can therefore use the most suitable product for the speed of their particular lift, to reduce cabin noise to a minimum.

Metal fixing plates

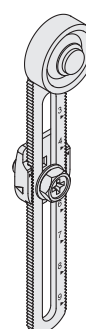
The technopolymer switches of the series FR, FK and FX are equipped with two robust metal plates on the mounting holes of the housings. This enables more reliable fixing of the switch without using washers under the screws. The fixing plates are made of thick zinc-plated steel; they are also available in stainless steel on request ("X" versions).

Adjustable levers


For switches with swivelling lever, the lever can be adjusted in 10° steps over the entire 360° range. The positive movement transmission is always guaranteed thanks to the particular geometrical coupling between the lever and the revolving shaft as prescribed for safety applications by the German standard BG-GS-ET-15.



The switches equipped with swivelling lever with roller enable adjustment of lever height, along the length of the actuator, with increments of 1 mm. This enables compensation for variability of the fixings or structural work and precise final adjustment.

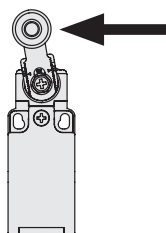
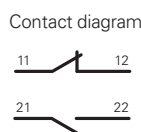
Adjustable safety lever


The adjustable lever code 56 (and variants) is provided with a notching that prevents the sliding also in case the fastening screw becomes loose.

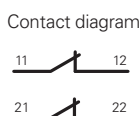
Operation of contact block 16 with independent contacts

The contact block 16 is provided with two NC contacts, **both with positive opening**, that can be independently switched depending on the lever turning direction.

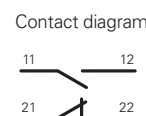
Lever turned to left



Lever not actuated



Lever turned to right


Extended temperature range

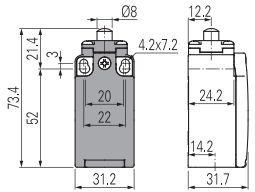
-40°C

These devices are also available in a special version suitable for an ambient operating temperature range from -40°C up to +80°C. They can therefore be used for applications in cold stores, sterilisers, and other equipment operated in very low-temperature environments. The special materials used to produce these versions retain their characteristics even under these conditions, thereby expanding the installation possibilities.

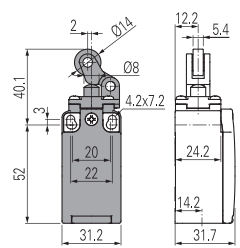
FR, FX series position switches

Contact type:

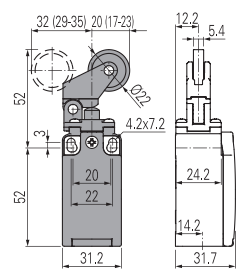
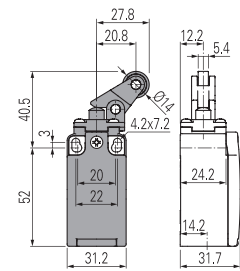
- R** = snap action
- L** = slow action
- LO** = slow action, make before break
- LI** = slow action, independent



With stainless steel roller on request



With stainless steel roller on request

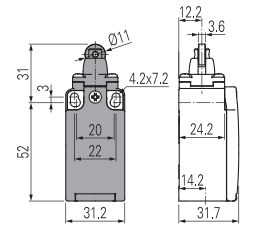


Contact block

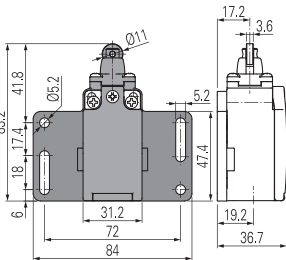
5	R	FR 501-M2	⊕	1NO+1NC	FR 502-M2	⊕	1NO+1NC	FR 505-M2	⊕	1NO+1NC	FR 507-M2	⊕	1NO+1NC
6	L	FR 601-M2	⊕	1NO+1NC	FR 602-M2	⊕	1NO+1NC	FR 605-M2	⊕	1NO+1NC	FR 607-M2	⊕	1NO+1NC
7	LO	FR 701-M2	⊕	1NO+1NC	FR 702-M2	⊕	1NO+1NC	FR 705-M2	⊕	1NO+1NC	FR 707-M2	⊕	1NO+1NC
9	L	FR 901-M2	⊕	2NC	FR 902-M2	⊕	2NC	FR 905-M2	⊕	2NC	FR 907-M2	⊕	2NC
16	LI	/		/	/		/	/		/	/		
20	L	FR 2001-M2	⊕	1NO+2NC	FR 2002-M2	⊕	1NO+2NC	FR 2005-M2	⊕	1NO+2NC	FR 2007-M2	⊕	1NO+2NC
Max. speed		page 155 - type 4		page 155 - type 3		page 155 - type 3		page 155 - type 3		page 155 - type 3			
Actuating force		8 N (25 N ⊕)		6 N (25 N ⊕)		6 N (25 N ⊕)		6 N (25 N ⊕)		4 N (25 N ⊕)			
Travel diagrams		page 156 - group 1a		page 156 - group 2a		page 156 - group 2a		page 156 - group 2a		page 156 - group 3a			

Contact type:

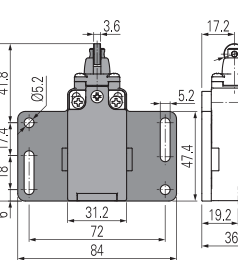
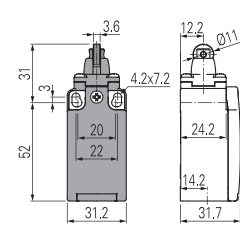
- R** = snap action
- L** = slow action
- LO** = slow action, make before break
- LI** = slow action, independent



With Ø 12 mm stainless steel roller on request



With Ø 12 mm stainless steel roller on request

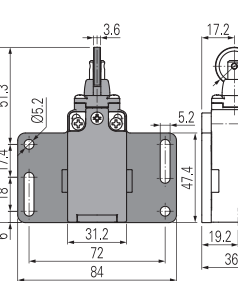
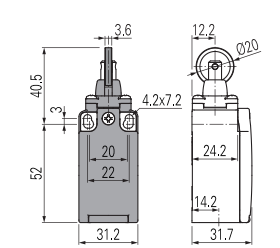
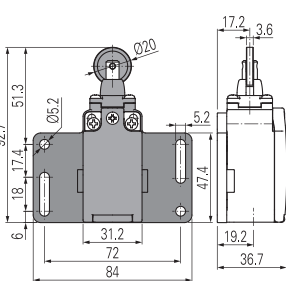
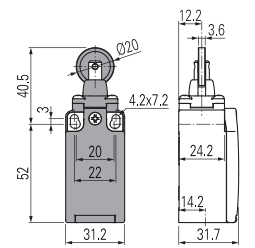


Contact block

5	R	FR 515-M2	⊕	1NO+1NC	FR 515-M2P11	⊕	1NO+1NC	FR 515-H0M2	⊕	1NO+1NC	FR 515-H0M2P11	⊕	1NO+1NC
6	L	FR 615-M2	⊕	1NO+1NC	FR 615-M2P11	⊕	1NO+1NC	FR 615-H0M2	⊕	1NO+1NC	FR 615-H0M2P11	⊕	1NO+1NC
7	LO	FR 715-M2	⊕	1NO+1NC	FR 715-M2P11	⊕	1NO+1NC	FR 715-H0M2	⊕	1NO+1NC	FR 715-H0M2P11	⊕	1NO+1NC
9	L	FR 915-M2	⊕	2NC	FR 915-M2P11	⊕	2NC	FR 915-H0M2	⊕	2NC	FR 915-H0M2P11	⊕	2NC
16	LI	/		/	/		/	/		/	/		
20	L	FR 2015-M2	⊕	1NO+2NC	FR 2015-M2P11	⊕	1NO+2NC	FR 2015-H0M2	⊕	1NO+2NC	FR 2015-H0M2P11	⊕	1NO+2NC
Max. speed		page 155 - type 2		page 155 - type 2		page 155 - type 2		page 155 - type 2		page 155 - type 2			
Actuating force		8 N (25 N ⊕)		8 N (25 N ⊕)		8 N (25 N ⊕)		8 N (25 N ⊕)		8 N (25 N ⊕)			
Travel diagrams		page 156 - group 1a		page 156 - group 1a		page 156 - group 1a		page 156 - group 1a		page 156 - group 1a			

Contact type:

- R** = snap action
- L** = slow action
- LO** = slow action, make before break
- LI** = slow action, independent



Contact block

5	R	FR 516-M2	⊕	1NO+1NC	FR 516-M2P11	⊕	1NO+1NC	FR 516-H0M2	⊕	1NO+1NC	FR 516-H0M2P11	⊕	1NO+1NC
6	L	FR 616-M2	⊕	1NO+1NC	FR 616-M2P11	⊕	1NO+1NC	FR 616-H0M2	⊕	1NO+1NC	FR 616-H0M2P11	⊕	1NO+1NC
7	LO	FR 716-M2	⊕	1NO+1NC	FR 716-M2P11	⊕	1NO+1NC	FR 716-H0M2	⊕	1NO+1NC	FR 716-H0M2P11	⊕	1NO+1NC
9	L	FR 916-M2	⊕	2NC	FR 916-M2P11	⊕	2NC	FR 916-H0M2	⊕	2NC	FR 916-H0M2P11	⊕	2NC
16	LI	/		/	/		/	/		/	/		
20	L	FR 2016-M2	⊕	1NO+2NC	FR 2016-M2P11	⊕	1NO+2NC	FR 2016-H0M2	⊕	1NO+2NC	FR 2016-H0M2P11	⊕	1NO+2NC
Max. speed		page 155 - type 2		page 155 - type 2		page 155 - type 2		page 155 - type 2		page 155 - type 2			
Actuating force		8 N (25 N ⊕)		8 N (25 N ⊕)		8 N (25 N ⊕)		8 N (25 N ⊕)		8 N (25 N ⊕)			
Travel diagrams		page 156 - group 1a		page 156 - group 1a		page 156 - group 1a		page 156 - group 1a		page 156 - group 1a			

All values in the drawings are in mm

Accessories See page 149

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



Contact type:

- R** = snap action
- L** = slow action
- LO** = slow action, make before break
- LI** = slow action, independent

	With Ø 12 mm stainless steel roller on request	With Ø 12 mm stainless steel roller on request	With Ø 12 mm stainless steel roller on request	With Ø 12 mm stainless steel roller on request
Contact block				
5	R FX 515-M2	R FX 515-M2P31	R FX 515-H0M2	R FX 515-H0M2P31
6	L FX 615-M2	L FX 615-M2P31	L FX 615-H0M2	L FX 615-H0M2P31
7	LO FX 715-M2	LO FX 715-M2P31	LO FX 715-H0M2	LO FX 715-H0M2P31
9	L FX 915-M2	L FX 915-M2P31	L FX 915-H0M2	L FX 915-H0M2P31
16	LI /	/	/	/
20	L FX 2015-M2	L FX 2015-M2P31	L FX 2015-H0M2	L FX 2015-H0M2P31
Max. speed	page 155 - type 2			
Actuating force	8 N (25 N)			
Travel diagrams	page 156 - group 1a			

Contact type:

- R** = snap action
- L** = slow action
- LO** = slow action, make before break
- LI** = slow action, independent

	With Ø 12 mm stainless steel roller on request	With Ø 12 mm stainless steel roller on request	With Ø 12 mm stainless steel roller on request	With Ø 12 mm stainless steel roller on request
Contact block				
5	R FX 516-M2	R FX 516-M2P31	R FX 516-H0M2	R FX 516-H0M2P31
6	L FX 616-M2	L FX 616-M2P31	L FX 616-H0M2	L FX 616-H0M2P31
7	LO FX 716-M2	LO FX 716-M2P31	LO FX 716-H0M2	LO FX 716-H0M2P31
9	L FX 916-M2	L FX 916-M2P31	L FX 916-H0M2	L FX 916-H0M2P31
16	LI /	/	/	/
20	L FX 2016-M2	L FX 2016-M2P31	L FX 2016-H0M2	L FX 2016-H0M2P31
Max. speed	page 155 - type 2			
Actuating force	8 N (25 N)			
Travel diagrams	page 156 - group 1a			

Contact type:

- R** = snap action
- L** = slow action
- LO** = slow action, make before break
- LI** = slow action, independent

	With Ø 20 mm stainless steel roller on request	Other rollers available. See page 20	Other rollers available. See page 20	Other rollers available. See page 20
Contact block				
5	R FR 530-M2	R FR 531-M2	R FR 551-M2	R FR 552-M2
6	L FR 630-M2	L FR 631-M2	L FR 651-M2	L FR 652-M2
7	LO FR 730-M2	LO FR 731-M2	LO FR 751-M2	LO FR 752-M2
9	L FR 930-M2	L FR 931-M2	L FR 951-M2	L FR 952-M2
16	LI FR 1630-M2	LI FR 1631-M2	LI FR 1651-M2	LI FR 1652-M2
20	L FR 2030-M2	L FR 2031-M2	L FR 2051-M2	L FR 2052-M2
Max. speed	page 155 - type 1			
Actuating force	0.06 Nm (0.25 Nm)			
Travel diagrams	page 156 - group 4a			

All values in the drawings are in mm

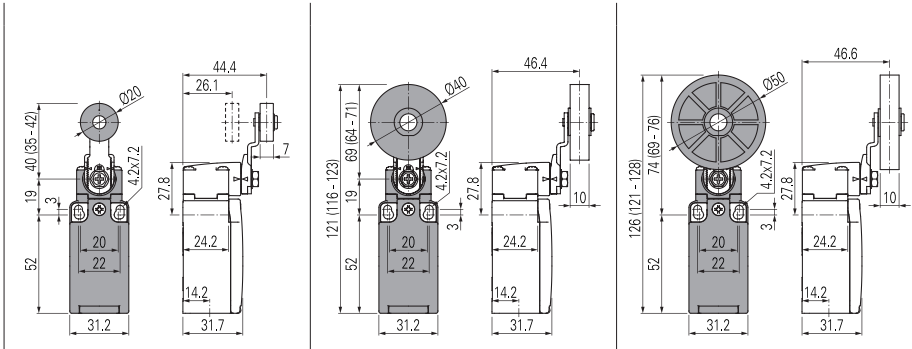
Accessories See page 149

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

FR, FX series position switches

Contact type:

- R** = snap action
- L** = slow action
- LO** = slow action, make before break
- LI** = slow action, independent

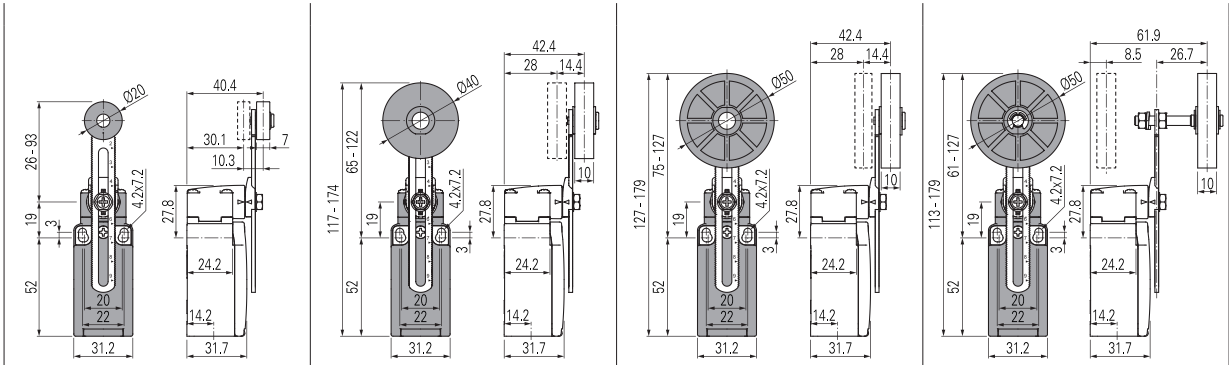


Contact block

5	R	FR 554-M2	⊕	1NO+1NC	FR 554-M2R5	⊕	1NO+1NC	FR 554-M2R26	⊕	1NO+1NC
6	L	FR 654-M2	⊕	1NO+1NC	FR 654-M2R5	⊕	1NO+1NC	FR 654-M2R26	⊕	1NO+1NC
7	LO	FR 754-M2	⊕	1NO+1NC	FR 754-M2R5	⊕	1NO+1NC	FR 754-M2R26	⊕	1NO+1NC
9	L	FR 954-M2	⊕	2NC	FR 954-M2R5	⊕	2NC	FR 954-M2R26	⊕	2NC
16	LI	FR 1654-M2	⊕	2NC	FR 1654-M2R5	⊕	2NC	FR 1654-M2R26	⊕	2NC
20	L	FR 2054-M2	⊕	1NO+2NC	FR 2054-M2R5	⊕	1NO+2NC	FR 2054-M2R26	⊕	1NO+2NC
Max. speed	page 155 - type 1		page 155 - type 1		page 155 - type 1		page 155 - type 1		page 155 - type 1	
Actuating force	0.06 Nm (0.25 Nm ⊕)		0.06 Nm (0.25 Nm ⊕)		0.06 Nm (0.25 Nm ⊕)		0.06 Nm (0.25 Nm ⊕)		0.06 Nm (0.25 Nm ⊕)	
Travel diagrams	page 156 - group 4a		page 156 - group 4a		page 156 - group 4a		page 156 - group 4a		page 156 - group 4a	

Contact type:

- R** = snap action
- L** = slow action
- LO** = slow action, make before break
- LI** = slow action, independent



Contact block

5	R	FR 556-M2	⊕	1NO+1NC	FR 556-M2R5	⊕	1NO+1NC	FR 556-M2R26	⊕	1NO+1NC	FR 556-M2R27	⊕	1NO+1NC
6	L	FR 656-M2	⊕	1NO+1NC	FR 656-M2R5	⊕	1NO+1NC	FR 656-M2R26	⊕	1NO+1NC	FR 656-M2R27	⊕	1NO+1NC
7	LO	FR 756-M2	⊕	1NO+1NC	FR 756-M2R5	⊕	1NO+1NC	FR 756-M2R26	⊕	1NO+1NC	FR 756-M2R27	⊕	1NO+1NC
9	L	FR 956-M2	⊕	2NC	FR 956-M2R5	⊕	2NC	FR 956-M2R26	⊕	2NC	FR 956-M2R27	⊕	2NC
16	LI	FR 1656-M2	⊕	2NC	FR 1656-M2R5	⊕	2NC	FR 1656-M2R26	⊕	2NC	FR 1656-M2R27	⊕	2NC
20	L	FR 2056-M2	⊕	1NO+2NC	FR 2056-M2R5	⊕	1NO+2NC	FR 2056-M2R26	⊕	1NO+2NC	FR 2056-M2R27	⊕	1NO+2NC
Max. speed	page 155 - type 1		page 155 - type 1		page 155 - type 1		page 155 - type 1		page 155 - type 1		page 155 - type 1		
Actuating force	0.06 Nm (0.25 Nm ⊕)		0.06 Nm (0.25 Nm ⊕)		0.06 Nm (0.25 Nm ⊕)		0.06 Nm (0.25 Nm ⊕)		0.06 Nm (0.25 Nm ⊕)		0.06 Nm (0.25 Nm ⊕)		
Travel diagrams	page 156 - group 4a		page 156 - group 4a		page 156 - group 4a		page 156 - group 4a		page 156 - group 4a		page 156 - group 4a		

(1) Positive opening only with actuator set to max.

All values in the drawings are in mm



Position switches with swivelling lever without actuator

Contact type:

- R** = snap action
- L** = slow action
- LO** = slow action, make before break
- LI** = slow action, independent

Contact block

5	R	FR 538-M2	➔	1NO+1NC	FR 538-M2P11	➔	1NO+1NC	FX 538-M2	➔	1NO+1NC	FX 538-M2P31	➔	1NO+1NC
6	L	FR 638-M2	➔	1NO+1NC	FR 638-M2P11	➔	1NO+1NC	FX 638-M2	➔	1NO+1NC	FX 638-M2P31	➔	1NO+1NC
7	LO	FR 738-M2	➔	1NO+1NC	FR 738-M2P11	➔	1NO+1NC	FX 738-M2	➔	1NO+1NC	FX 738-M2P31	➔	1NO+1NC
9	L	FR 938-M2	➔	2NC	FR 938-M2P11	➔	2NC	FX 938-M2	➔	2NC	FX 938-M2P31	➔	2NC
16	LI	FR 1638-M2	➔	2NC	FR 1638-M2P11	➔	2NC	FX 1638-M2	➔	2NC	FX 1638-M2P31	➔	2NC
20	L	FR 2038-M2	➔	1NO+2NC	FR 2038-M2P11	➔	1NO+2NC	FX 2038-M2	➔	1NO+2NC	FX 2038-M2P31	➔	1NO+2NC
Actuating force		0.06 Nm (0.25 Nm ➔)			0.06 Nm (0.25 Nm ➔)			0.06 Nm (0.25 Nm ➔)			0.06 Nm (0.25 Nm ➔)		
Travel diagrams		page 156 - group 4a			page 156 - group 4a			page 156 - group 4a			page 156 - group 4a		

IMPORTANT

For safety applications: join only switches and actuators marked with symbol ➔ next to the product code.

For more information about safety applications see details on page 153.

Special separate actuators

IMPORTANT: These separate actuators can be used only with items of the FR, FX series.

Rubber rollers, Ø 40 mm					
VN A00KB-R5 ➔ ⁽¹⁾	VN A00KE-R5 ➔ ⁽¹⁾	VN A00KF-R5 ➔	VN A00KG-R5 ➔ ⁽¹⁾	VN A00KH-R5 ➔ ⁽¹⁾	VN A00KP-R5 ➔

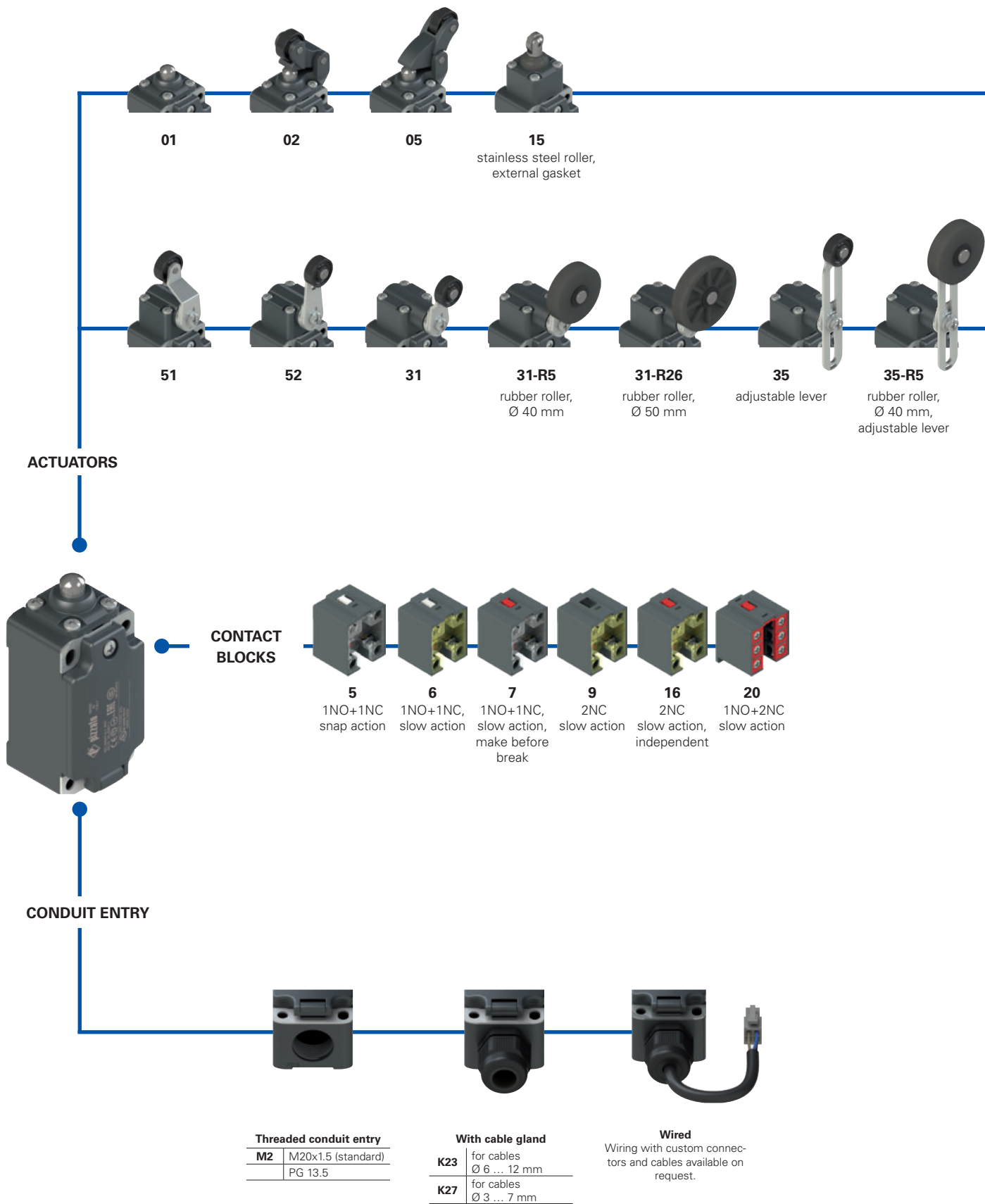
Rubber rollers, Ø 50 mm				
VN A00KE-R26 ➔ ⁽¹⁾	VN A00KF-R26 ➔ ⁽¹⁾	VN A00KG-R26 ➔ ⁽¹⁾	VN A00KH-R26 ➔ ⁽¹⁾	VN A00KP-R26 ➔

Protruding rubber rollers, Ø 50 mm
VN A00KP-R27 ➔

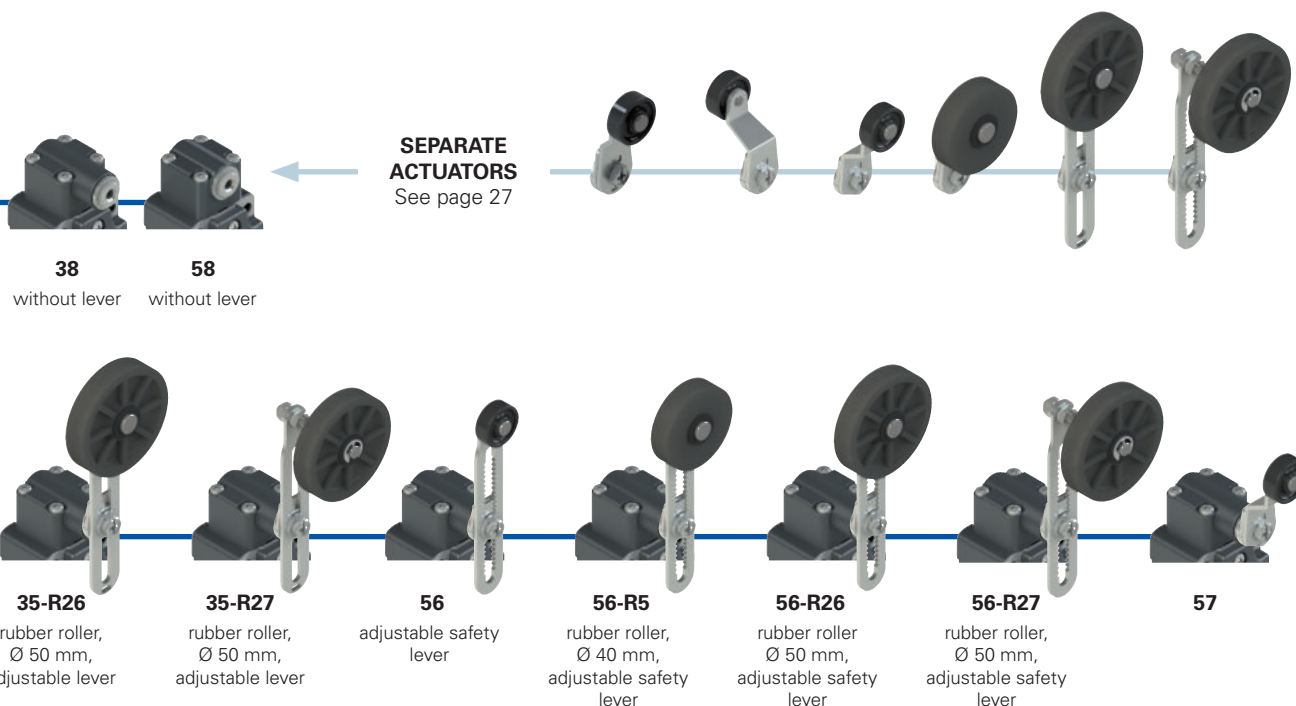
-⁽¹⁾ The actuator cannot be rotated to the inside because it will hit the switch head upon actuation.

Note: To check the correspondence with previous lever codes, please consult the table "Changed article codes" on page 171. Example: VF LE31-R5 -> VN A00KB-R5.

Selection diagram



● Product options
→ Sold separately as accessory


Code structure

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

article option options

FP 635-GM2K23R26T6

Housing		Ambient temperature	
FP	technopolymer, one conduit entry		-25°C ... +80°C (standard)
		T6	-40°C ... +80°C
Contact block		Rollers	
5	1NO+1NC, snap action		standard roller
6	1NO+1NC, slow action	R5	rubber roller, Ø 40 mm
7	1NO+1NC, slow action, make before break	R26	rubber roller, Ø 50 mm
9	2NC, slow action	R27	rubber roller, protruding, Ø 50 mm
16	2NC, slow action, independent		
20	1NO+2NC, slow action	Pre-installed cable glands	
Actuators		K23	for cables Ø 6 ... 12 mm
01	short plunger	K27	for cables Ø 3 ... 7 mm
02	roller lever		
05	angled lever with roller	Threaded conduit entry	
...	...	M2	M20x1.5 (standard)
			PG 13.5
Contact type			
	silver contacts (standard)		
G	silver contacts with 1 µm gold coating		
G1	silver contacts, 2.5 µm gold coating (not for contact block 20)		



Main features

- Technopolymer housing, one conduit entry
- Protection degree IP67
- Stainless steel fixing plates
- Wired versions
- Versions with gold-plated silver contacts

Quality marks:



IMQ approval:	EG605
UL approval:	E131787
CCC approval:	2021000305000099
EAC approval:	RU C-IT.YT03.B.00035/19

Technical data

Housing

Housing made of glass fibre reinforced technopolymer, self-extinguishing, shock-proof and with double insulation:

One threaded conduit entry:

M20x1.5 (standard)

Protection degree acc. to EN 60529:

IP67 with cable gland of equal or higher protection degree

General data

Ambient temperature: -25°C ... +80°C (standard)
-40°C ... +80°C (T6 option)

Max. operating frequency: 3600 operating cycles/hour

Mechanical endurance: 20 million operating cycles

Mounting position: any

Safety parameter B_{10D}: 40,000,000 for NC contacts

Mechanical interlock, not coded: type 1 acc. to EN ISO 14119

Tightening torques for installation: see page 157

Wire cross-sections and wire stripping lengths: see page 169

In compliance with standards:

IEC 60947-5-1, EN 60947-5-1, EN 60947-1, EN 50041, IEC 60204-1, EN 60204-1, EN ISO 14119, EN ISO 12100, IEC 60529, EN 60529, EN IEC 63000, EN 81-20, EN 81-50, UL 508, CSA 22.2 No.14

Approvals:

IEC 60947-5-1, UL 508, CSA 22.2 No.14, GB/T14048.5-2017.

Compliance with the requirements of:

Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU, Lift Directive 2014/33/EU, RoHS Directive 2011/65/EU.

Positive contact opening in conformity with standards:

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

Installation for safety applications:

Use only switches marked with the \ominus symbol beside the product code. Always connect the safety circuit to the **NC contacts** (normally closed contacts: 11-12, 21-22 or 31-32) as stated in **standard EN 81-20 par. 5.11.2.2.1**. Actuate the switch **at least up to the positive opening travel** shown in the travel diagrams on page 157. Actuate the switch **at least with the positive opening force**, reported in brackets below each article, next to the actuating force value.

⚠ If not expressly indicated in this chapter, for correct installation and utilization of all articles see the instructions given on pages 153 to 162.

Electrical data		Utilization category
Thermal current (I _{th}):	10 A	Alternating current: AC15 (50-60 Hz)
Rated insulation voltage (U):	500 Vac 600 Vdc	
Rated impulse withstand voltage (U _{imp}):	400 Vac 500 Vdc (contact block 20)	U _e (V) 250 400 500
	6 kV	I _e (A) 6 4 1
Conditional short circuit current:	4 kV (contact block 20)	Direct current: DC13
Protection against short circuits:	1000 A acc. to EN 60947-5-1	U _e (V) 24 125 250
Pollution degree:	type aM fuse 10 A 500 V	I _e (A) 3 0.55 0.3
	3	

Features approved by IMQ

Rated insulation voltage (U):	500 Vac 400 Vac (for contact block 20)
Conventional free air thermal current (I _{th}):	10 A
Protection against short circuits:	type aM fuse 10 A 500 V
Rated impulse withstand voltage (U _{imp}):	6 kV 4 kV (for contact block 20)
Protection degree of the housing:	IP67
MV terminals (screw terminals)	
Pollution degree:	3
Utilization category:	AC15
Operating voltage (U _e):	400 Vac (50 Hz)
Operating current (I _e):	3 A
Forms of the contact element:	Zb, Y+Y, Y+Y+X
Positive opening contacts on contact blocks	5, 6, 7, 9, 16, 20
In compliance with standards:	EN 60947-1, EN 60947-5-1, fundamental requirements of the Low Voltage Directive 2014/35/EU

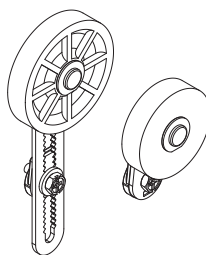
Please contact our technical department for the list of approved products.

Features approved by UL

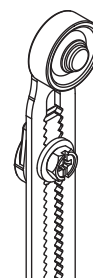
Electrical Ratings:	Q300 pilot duty (69 VA, 125-250 V dc) A600 pilot duty (720 VA, 120-600 V ac)
Environmental Ratings:	Types 1, 4X, 12, 13
For all contact blocks use 60 or 75°C copper (Cu) conductors, rigid or flexible, wire size 12, 14 AWG. Tightening torque for terminal screws of 7.1 lb in (0.8 Nm).	
The hub is to be connected to the conduit before the hub is connected to the enclosure.	
Please contact our technical department for the list of approved products.	

Compliant with EN 81-20 and EN 81-50


- Safety contacts in compliance with EN 60947-5-1, annex K.
- Protection degree higher than IP4x.
- Mechanical service life > 10⁶ cycles.

Rubber rollers


Actuators are available with rubber rollers of varying degrees of elasticity. Customers can therefore use the most suitable product for the speed of their particular lift, to reduce cabin noise to a minimum.

Adjustable safety lever


The adjustable lever code 56 (and variants) is provided with a notching that prevents the sliding also in case the fastening screw becomes loose.

Protection degree IP67

IP67

All switches of this series have protection degree IP67.

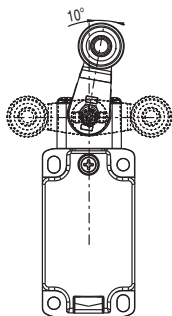
Extended temperature range

-40°C

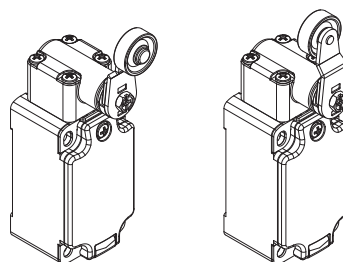
These devices are also available in a special version suitable for an ambient operating temperature range from -40°C up to +80°C. They can therefore be used for applications in cold stores, sterilisers, and other equipment operated in very low-temperature environments.

Adjustable levers

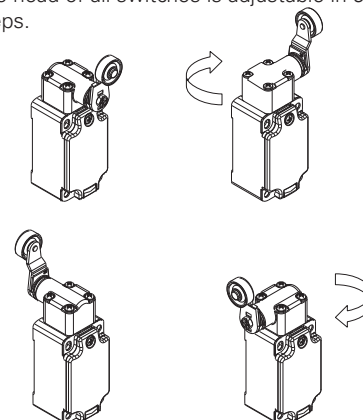
For switches with swivelling lever, the lever can be adjusted in 10° steps over the entire 360° range. The positive movement transmission is always guaranteed thanks to the particular geometrical coupling between the lever and the revolving shaft as prescribed for safety applications by the German standard BG-GS-ET-15.


Reversible levers

For switches with swivelling lever, the lever can be fastened on straight or reverse side maintaining the positive coupling. In this way two different working planes of the lever are possible.

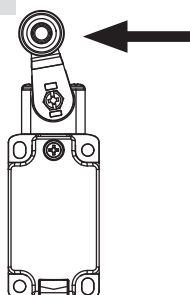
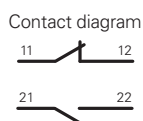

Head with variable orientation

The head of all switches is adjustable in 90° steps.

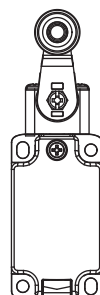
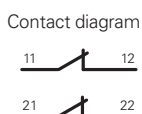

Operation of contact block 16 with independent contacts

The contact block 16 is provided with two NC contacts, **both with positive opening**, that can be independently switched depending on the lever turning direction.

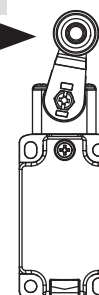
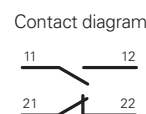
Lever turned to left



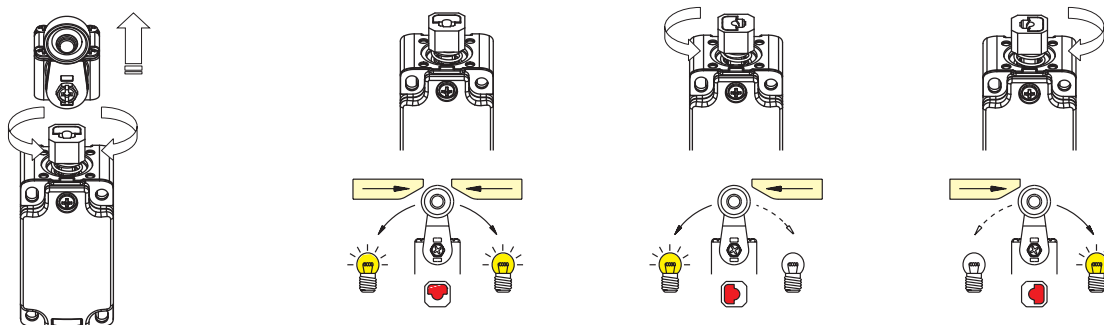
Lever not actuated



Lever turned to right

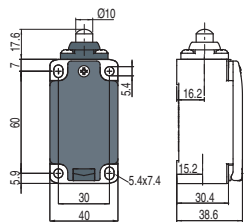

Unidirectional heads

For switches with swivelling lever, the unidirectional operation can be set by removing the four head screws and rotating the internal plunger (except contact block 16).

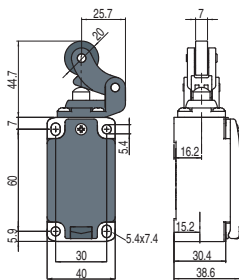


Contact type:

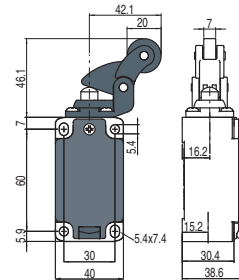
- R** = snap action
- L** = slow action
- LO** = slow action, make before break
- LI** = slow action, independent



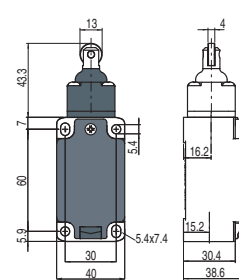
With stainless steel roller on request



With stainless steel roller on request



External gasket

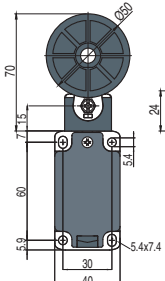
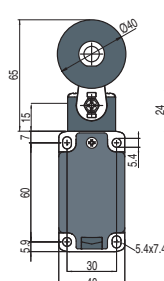
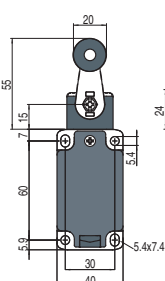


Contact block

5	R	FP 501-M2	⊕	1NO+1NC	FP 502-M2	⊕	1NO+1NC	FP 505-M2	⊕	1NO+1NC	FP 515-M2	⊕	1NO+1NC
6	L	FP 601-M2	⊕	1NO+1NC	FP 602-M2	⊕	1NO+1NC	FP 605-M2	⊕	1NO+1NC	FP 615-M2	⊕	1NO+1NC
7	LO	FP 701-M2	⊕	1NO+1NC	FP 702-M2	⊕	1NO+1NC	FP 705-M2	⊕	1NO+1NC	FP 715-M2	⊕	1NO+1NC
9	L	FP 901-M2	⊕	2NC	FP 902-M2	⊕	2NC	FP 905-M2	⊕	2NC	FP 915-M2	⊕	2NC
16	LI	/		/	/		/	/		/	/		/
20	L	FP 2001-M2	⊕	1NO+2NC	FP 2002-M2	⊕	1NO+2NC	FP 2005-M2	⊕	1NO+2NC	FP 2015-M2	⊕	1NO+2NC
Max. speed		page 157 - type 4		page 157 - type 3		page 157 - type 3		page 157 - type 3		page 157 - type 2			
Actuating force		8 N (25 N ⊕)		6 N (25 N ⊕)		6 N (25 N ⊕)		6 N (25 N ⊕)		11 N (25 N ⊕)			
Travel diagrams		page 157 - group 1b		page 157 - group 2b		page 157 - group 2b		page 157 - group 2b		page 157 - group 1b			

Contact type:

- R** = snap action
- L** = slow action
- LO** = slow action, make before break
- LI** = slow action, independent

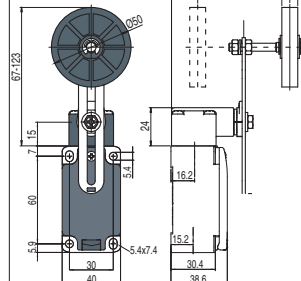
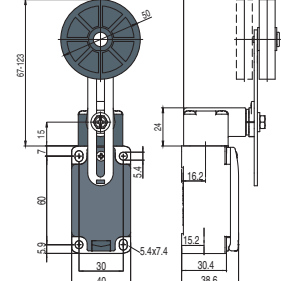
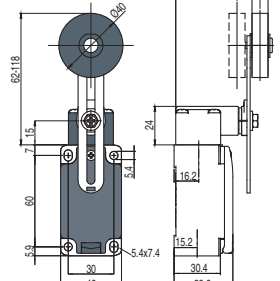
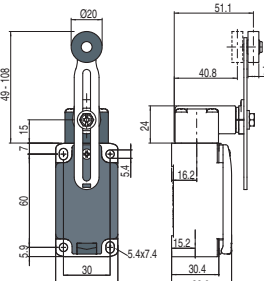


Contact block

5	R	FP 531-M2	⊕	1NO+1NC	FP 531-M2R5	⊕	1NO+1NC	FP 531-M2R26	⊕	1NO+1NC			
6	L	FP 631-M2	⊕	1NO+1NC	FP 631-M2R5	⊕	1NO+1NC	FP 631-M2R26	⊕	1NO+1NC			
7	LO	FP 731-M2	⊕	1NO+1NC	FP 731-M2R5	⊕	1NO+1NC	FP 731-M2R26	⊕	1NO+1NC			
9	L	FP 931-M2	⊕	2NC	FP 931-M2R5	⊕	2NC	FP 931-M2R26	⊕	2NC			
16	LI	FP 1631-M2	⊕	2NC	FP 1631-M2R5	⊕	2NC	FP 1631-M2R26	⊕	2NC			
20	L	FP 2031-M2	⊕	1NO+2NC	FP 2031-M2R5	⊕	1NO+2NC	FP 2031-M2R26	⊕	1NO+2NC			
Max. speed		page 157 - type 1		page 157 - type 1		page 157 - type 1		page 157 - type 1					
Actuating force		0.1 Nm (0.25 Nm ⊕)		0.1 Nm (0.25 Nm ⊕)		0.1 Nm (0.25 Nm ⊕)		0.1 Nm (0.25 Nm ⊕)					
Travel diagrams		page 157 - group 3b		page 157 - group 3b		page 157 - group 3b		page 157 - group 3b					

Contact type:

- R** = snap action
- L** = slow action
- LO** = slow action, make before break
- LI** = slow action, independent



Contact block

5	R	FP 535-M2	⊕	(1) 1NO+1NC	FP 535-M2R5	⊕	(1) 1NO+1NC	FP 535-M2R26	⊕	(1) 1NO+1NC	FP 535-M2R27	⊕	(1) 1NO+1NC
6	L	FP 635-M2	⊕	(1) 1NO+1NC	FP 635-M2R5	⊕	(1) 1NO+1NC	FP 635-M2R26	⊕	(1) 1NO+1NC	FP 635-M2R27	⊕	(1) 1NO+1NC
7	LO	FP 735-M2	⊕	(1) 1NO+1NC	FP 735-M2R5	⊕	(1) 1NO+1NC	FP 735-M2R26	⊕	(1) 1NO+1NC	FP 735-M2R27	⊕	(1) 1NO+1NC
9	L	FP 935-M2	⊕	(1) 2NC	FP 935-M2R5	⊕	(1) 2NC	FP 935-M2R26	⊕	(1) 2NC	FP 935-M2R27	⊕	(1) 2NC
16	LI	FP 1635-M2	⊕	(1) 2NC	FP 1635-M2R5	⊕	(1) 2NC	FP 1635-M2R26	⊕	(1) 2NC	FP 1635-M2R27	⊕	(1) 2NC
20	L	FP 2035-M2	⊕	(1) 1NO+2NC	FP 2035-M2R5	⊕	(1) 1NO+2NC	FP 2035-M2R26	⊕	(1) 1NO+2NC	FP 2035-M2R27	⊕	(1) 1NO+2NC
Max. speed		page 157 - type 1		page 157 - type 1		page 157 - type 1		page 157 - type 1		page 157 - type 1			
Actuating force		0.1 Nm (0.25 Nm ⊕)		0.1 Nm (0.25 Nm ⊕)		0.1 Nm (0.25 Nm ⊕)		0.1 Nm (0.25 Nm ⊕)		0.1 Nm (0.25 Nm ⊕)			
Travel diagrams		page 157 - group 3b		page 157 - group 3b		page 157 - group 3b		page 157 - group 3b		page 157 - group 3b			

All values in the drawings are in mm

Accessories See page 149

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



Contact type:

- R** = snap action
- L** = slow action
- LO** = slow action, make before break
- LI** = slow action, independent

Contact block	Other rollers available. See page 27	Other rollers available. See page 27	Other rollers available. See page 27
5 R	FP 551-M2	FP 552-M2	FP 557-M2
6 L	FP 651-M2	FP 652-M2	FP 657-M2
7 LO	FP 751-M2	FP 752-M2	FP 757-M2
9 L	FP 951-M2	FP 952-M2	FP 957-M2
16 LI	/	/	FP 1657-M2
20 L	FP 2051-M2	FP 2052-M2	FP 2057-M2
Max. speed	page 157 - type 1		page 157 - type 1
Actuating force	0.06 Nm (0.25 Nm \ominus)		0.06 Nm (0.25 Nm \ominus)
Travel diagrams	page 157 - group 3b		page 157 - group 3b

Contact type:

- R** = snap action
- L** = slow action
- LO** = slow action, make before break
- LI** = slow action, independent

Contact block				
5 R	FP 556-M2	FP 556-M2R5	FP 556-M2R26	FP 556-M2R27
6 L	FP 656-M2	FP 656-M2R5	FP 656-M2R26	FP 656-M2R27
7 LO	FP 756-M2	FP 756-M2R5	FP 756-M2R26	FP 756-M2R27
9 L	FP 956-M2	FP 956-M2R5	FP 956-M2R26	FP 956-M2R27
16 LI	FP 1656-M2	FP 1656-M2R5	FP 1656-M2R26	FP 1656-M2R27
20 L	FP 2056-M2	FP 2056-M2R5	FP 2056-M2R26	FP 2056-M2R27
Max. speed	page 157 - type 1		page 157 - type 1	page 157 - type 1
Actuating force	0.1 Nm (0.25 Nm \ominus)		0.1 Nm (0.25 Nm \ominus)	0.1 Nm (0.25 Nm \ominus)
Travel diagrams	page 157 - group 3b		page 157 - group 3b	page 157 - group 3b

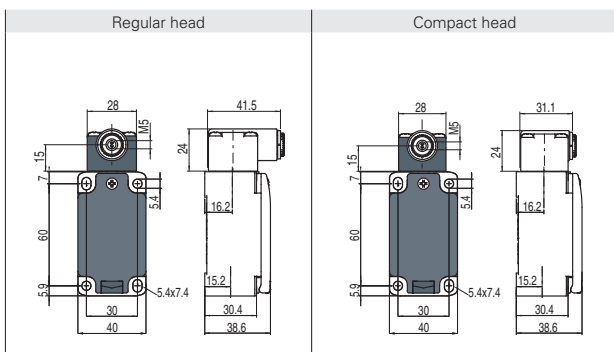
⁽¹⁾ Positive opening only with actuator set to max.

All values in the drawings are in mm

Position switches with swivelling lever without actuator

Contact type:

- R** = snap action
- L** = slow action
- LO** = slow action, make before break
- LI** = slow action, independent



IMPORTANT

For safety applications: join only switches and actuators marked with symbol ⊕ next to the product code. For more information about safety applications see details on page 153.

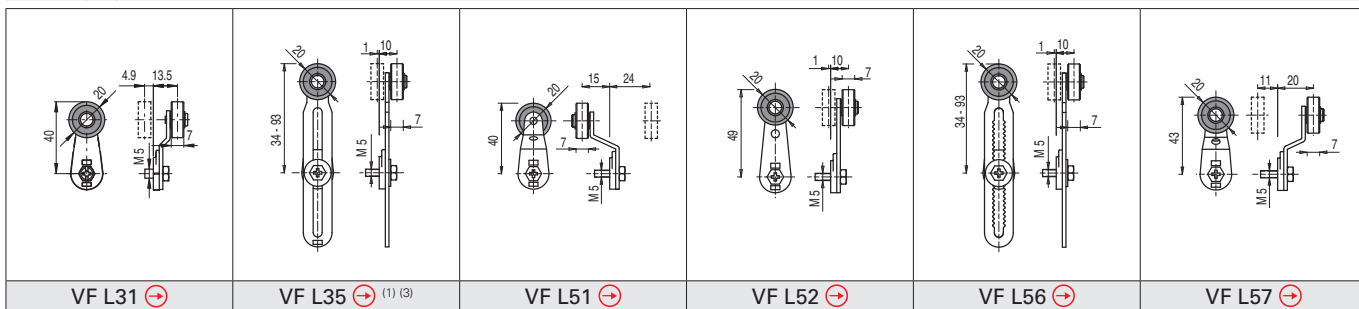
Contact block

5	R	FP 538-M2	⊕	1NO+1NC	FP 558-M2	⊕	1NO+1NC
6	L	FP 638-M2	⊕	1NO+1NC	FP 658-M2	⊕	1NO+1NC
7	LO	FP 738-M2	⊕	1NO+1NC	FP 758-M2	⊕	1NO+1NC
9	L	FP 938-M2	⊕	2NC	FP 958-M2	⊕	2NC
16	LI	FP 1638-M2	⊕	2NC	/		
20	L	FP 2038-M2	⊕	1NO+2NC	FP 2058-M2	⊕	1NO+2NC
Actuating force	0.1 Nm (0.25 Nm ⊕)				0.06 Nm (0.25 Nm ⊖)		
Travel diagrams	page 157 - group 3b				page 157 - group 3b		

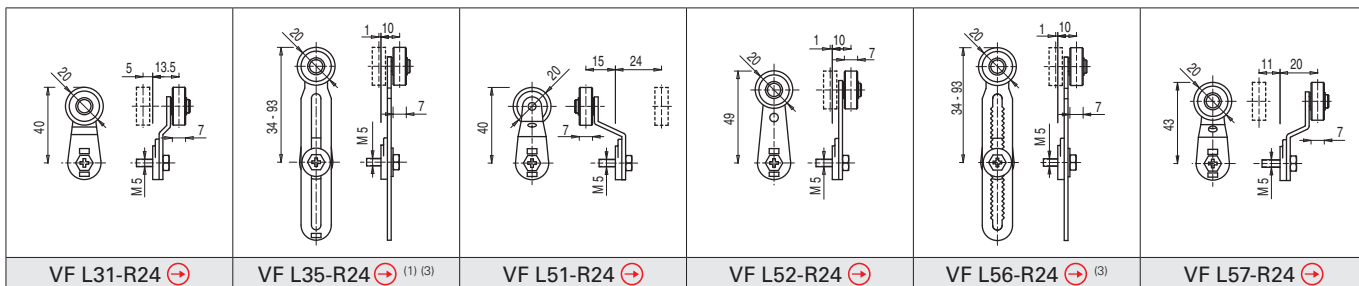
Separate actuators

IMPORTANT: These separate actuators can be used only with items of the FP series.

Technopolymer rollers, Ø 20 mm



Stainless steel rollers, Ø 20 mm





Special separate actuators

Technopolymer rollers, Ø 35 mm

VF L31-R25 (4)	VF L35-R25 (1) (3)	VF L51-R25 (4)	VF L52-R25 (3)	VF L56-R25 (3)	VF L57-R25 (4)

Rubber rollers, Ø 40 mm

VF L31-R5 (4)	VF L35-R5 (1) (3)	VF L51-R5 (4)	VF L52-R5 (3)	VF L56-R5 (3)	VF L57-R5 (4)

Rubber rollers, Ø 50 mm

VF L31-R26 (4)	VF L35-R26 (1) (3)	VF L51-R26 (4)	VF L52-R26 (4)	VF L56-R26 (3)	VF L57-R26 (4)

Protruding rubber rollers, Ø 50 mm

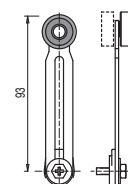
VF L35-R27 (1) (3)	VF L56-R27 (3)

- (1) Lever VF L35 can only be used in safety applications if adjusted to its max. length, as shown in the figure to the right.

If an adjustable lever is required for safety applications, use the VF L56 adjustable safety lever.

- (3) If installed with switch FP •58 (e.g. FP 558, FP 658...) the actuator may hit the housing of the switch upon actuation. This possible interference depends on the fixing position of actuator and switch head.

- (4) The actuator cannot be rotated to the inside because it will hit the switch head upon actuation.

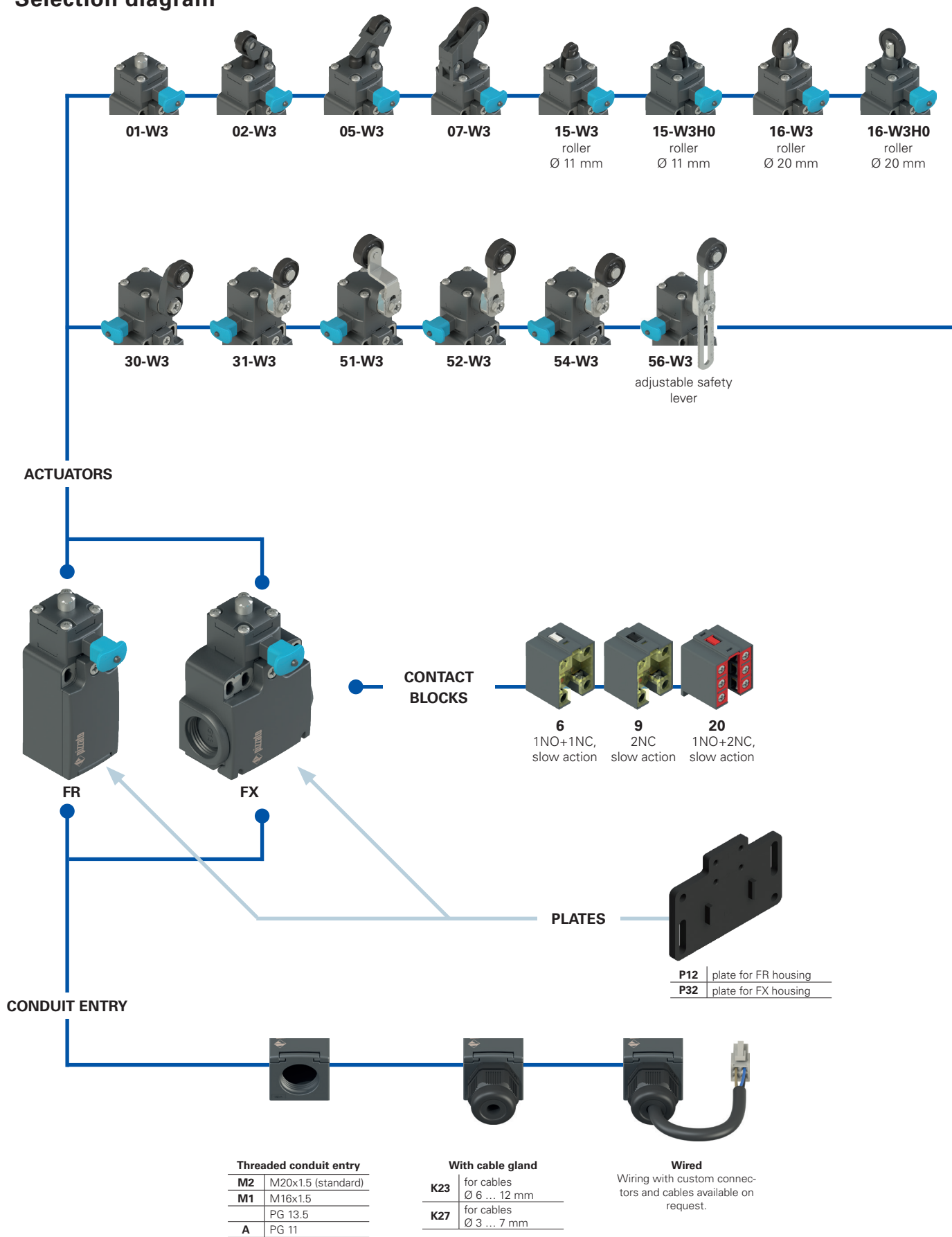


All values in the drawings are in mm

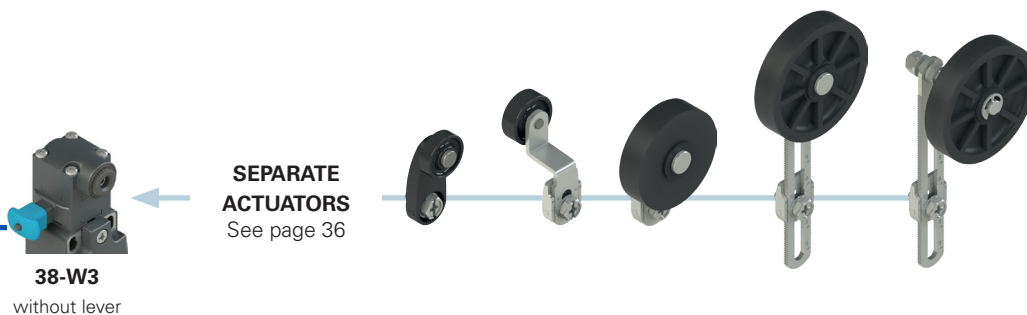
Accessories See page 149

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

Selection diagram



● Product options
➔ Sold separately as accessory



SEPARATE ACTUATORS
See page 36

38-W3

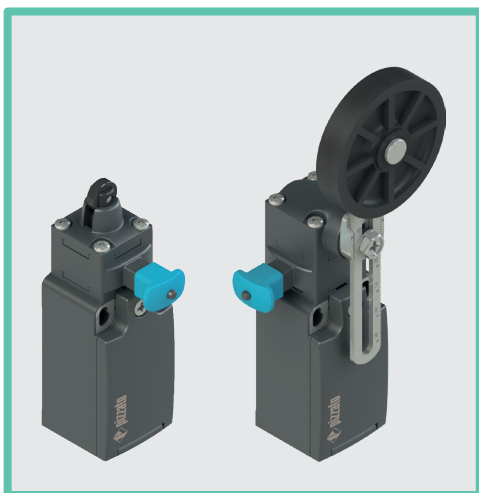
without lever

Code structure

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

article
option
options
FR 655-W3GM2K23P12R26T6

Housing		Ambient temperature	
FR	technopolymer, one conduit entry		-25°C ... +80°C (standard)
FX	technopolymer, two conduit entries	T6	-40°C ... +80°C
Contact block		Rollers	
6	1NO+1NC, slow action		standard roller
9	2NC, slow action	R5	rubber roller, Ø 40 mm
20	1NO+2NC, slow action	R26	rubber roller, Ø 50 mm
Actuators		R27	rubber roller, protruding, Ø 50 mm
01	short plunger	Fixing plates	
02	roller lever		without plate (standard)
05	angled lever with roller	P12	with VF SFP1 plate for FR housing
...	...	P32	with VF SFP3 plate for FX housing
Engagement reset		Pre-installed cable glands	
W3	simultaneous reset (standard)	K23	for cables Ø 6 ... 12 mm
W4	simultaneous reset with increased force	K27	for cables Ø 3 ... 7 mm
Contact type		Threaded conduit entry	
	silver contacts (standard)	M2	M20x1.5 (standard)
G	silver contacts with 1 µm gold coating	M1	M16x1.5
G1	silver contacts, 2.5 µm gold coating (not for contact block 20)		PG 13.5
		A	PG 11



Main features

- Technopolymer housing, from one to two conduit entries
- Hinged cover, fixed with single captive screw
- Metal plates on mounting holes of the housing
- Protection degree IP67 and IP69K
- Wired versions
- Versions with gold-plated silver contacts

Quality marks:



IMQ approval:	EG610
UL approval:	E131787
CCC approval:	2021000305000101
EAC approval:	RUC_IT.YT03.B.00035/19

Installation for safety applications:

Use only switches marked with the \ominus symbol beside the product code. Always connect the safety circuit to the **NC contacts** (normally closed contacts: 11-12, 21-22 or 31-32) as stated in **standard EN 81-20 par. 5.11.2.2.1**. Actuate the switch **at least up to the positive opening travel** shown in the travel diagrams on page 156. Actuate the switch **at least with the positive opening force**, reported in brackets below each article, next to the actuating force value.

⚠ If not expressly indicated in this chapter, for correct installation and utilization of all articles see the instructions given on pages 153 to 162.

Technical data

Housing

Housing made of glass fibre reinforced technopolymer, self-extinguishing, shock-proof and with double insulation: \square

FR series, one conduit entry:

M20x1.5 (standard)

FX series, two knock-out threaded conduit entries:

M20x1.5 (standard)

Protection degree:

IP67 acc. to EN 60529 with cable gland of equal or higher protection degree

IP69K acc. to ISO 20653 with cable gland of equal or higher protection degree

General data

Ambient temperature:

-25°C ... +80°C (standard)

-40°C ... +80°C (T6 option)

Max. operating frequency:

3600 operating cycles/hour

Mechanical endurance:

20 million operating cycles

Mounting position:

any

Safety parameter B_{10D} :

40,000,000 for NC contacts

Mechanical interlock, not coded:

type 1 acc. to EN ISO 14119

Tightening torques for installation:

see page 155

Wire cross-sections and

wire stripping lengths:

see page 169

In compliance with standards:

IEC 60947-5-1, EN 60947-5-1, EN 60947-1, EN 50047, IEC 60204-1, EN 60204-1, EN ISO 14119, EN ISO 12100, IEC 60529, EN 60529, EN IEC 63000, EN 81-20, EN 81-50, UL 508, CSA 22.2 No.14

Approvals:

IEC 60947-5-1, UL 508, CSA 22.2 No.14, GB/T14048.5-2017.

Compliance with the requirements of:

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

Lift Directive 2014/33/EU, RoHS Directive 2011/65/EU.

Positive contact opening in conformity with standards:

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

Electrical data

Thermal current (I_{th}):	10 A
Rated insulation voltage (U_i):	500 Vac 600 Vdc
	400 Vac 500 Vdc (contact block 20)
Rated impulse withstand voltage (U_{imp}):	6 kV
	4 kV (contact block 20)
Conditional short circuit current:	1000 A acc. to EN 60947-5-1
Protection against short circuits:	type aM fuse 10 A 500 V
Pollution degree:	3

Utilization category

Alternating current: AC15 (50÷60 Hz)			
U_e (V)	250	400	500
I_e (A)	6	4	1
Direct current: DC13			
U_e (V)	24	125	250
I_e (A)	3	0.55	0.3

Features approved by IMQ

Rated insulation voltage (U_i):	500 Vac
	400 Vac (for contact block 20)
Conventional free air thermal current (I_{th}):	10 A
Protection against short circuits:	type aM fuse 10 A 500 V
Rated impulse withstand voltage (U_{imp}):	6 kV
	4 kV (for contact block 20)
Protection degree of the housing:	IP67
MV terminals (screw terminals)	
Pollution degree:	3
Utilization category:	AC15
Operating voltage (U_e):	400 Vac (50 Hz)
Operating current (I_e):	3 A
Forms of the contact element: Zb, Y+Y, Y+Y+X	
Positive opening of contacts on contact blocks 6, 9, 20	
In compliance with standards: EN 60947-1, EN 60947-5-1, fundamental requirements of the Low Voltage Directive 2014/35/EU	

Please contact our technical department for the list of approved products.

Features approved by UL

Electrical Ratings:	Q300 pilot duty (69 VA, 125-250 V dc)
	A600 pilot duty (720 VA, 120-600 V ac)
Environmental Ratings:	FR: Types 1, 4X
	FX: Types 1, 4X, 12, 13

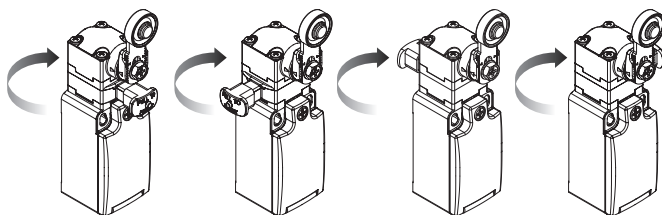
For all contact blocks use 60 or 75°C copper (Cu) conductors, rigid or flexible, wire size 12, 14 AWG. Tightening torque for terminal screws of 7.1 lb in (0.8 Nm).

The hub is to be connected to the conduit before the hub is connected to the enclosure.

Please contact our technical department for the list of approved products.

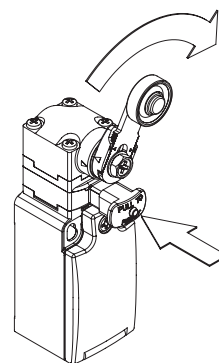
Orientation of reset device adjustable

The reset device can be turned independently of the above actuator, making positioning of the product incredibly flexible. Extracting the blue button resets the device – as laid down in the standards – to prevent unintentional reset.

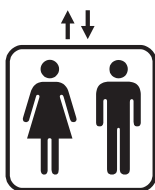


W3 simultaneous reset

Pizzato Elettrica has developed and patented an innovative reset device. This device ensures that, when the switch is activated, the electrical contacts trip and the reset system latches simultaneously. As a result, snap action contact blocks are no longer required, and furthermore, problems resulting from delays between the reset button latching and contacts opening are avoided.



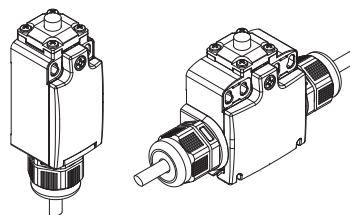
Compliant with EN 81-20 and EN 81-50



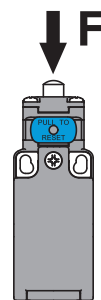
- Safety contacts in compliance with EN 60947-5-1, annex K.
- Protection degree higher than IP4x.
- Mechanical service life > 10⁶ cycles.

Cable outlets

Switches available with cable outlets in various directions, for use in the most confined of spaces.



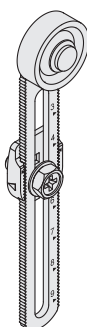
Increased actuating force



The switch can be delivered with increased actuating force (option W4). Ideal for vibration applications.

Actuators	Force
01, 14, 15, 16	7 N
02, 05	6 N
07	3.5 N
30 ... 56	0.08 Nm

Adjustable safety lever



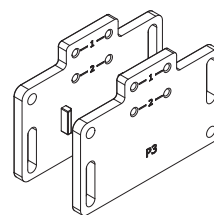
The adjustable lever code 56 (and variants) is provided with a notching that prevents the sliding also in case the fastening screw becomes loose.

Protection degrees IP67 and IP69K

IP69K
IP67

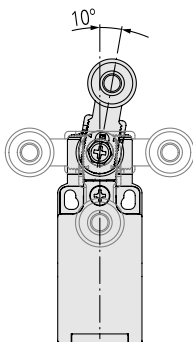
These devices are designed to be used under the toughest environmental conditions, and they pass the IP67 immersion test acc. to EN 60529. They can therefore be used in all environments where the maximum degree of protection is required for the housing. All switches with actuator that do not have an external rubber hood also have a protection degree of IP69K in accordance with ISO 20653, and can be used on machinery subject to washing with water jets at 100 bar and 80°C.

Adapter plates



Fixing plate with large slotted holes for switching point adjustment. Developed for backwards compatibility with previous products. Each plate is provided with two pairs of mounting holes, one for standard switches and one for switches with reset device. The actuator thus always has the same actuating point.

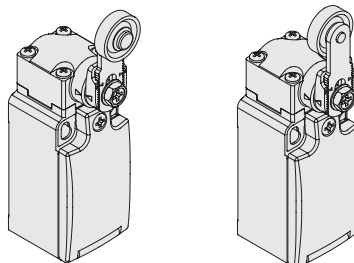
Adjustable levers



For switches with swivelling lever, the lever can be adjusted in 10° steps over the entire 360° range. The positive movement transmission is always guaranteed thanks to the particular geometrical coupling between the lever and the revolving shaft as prescribed for safety applications by the German standard BG-GS-ET-15.

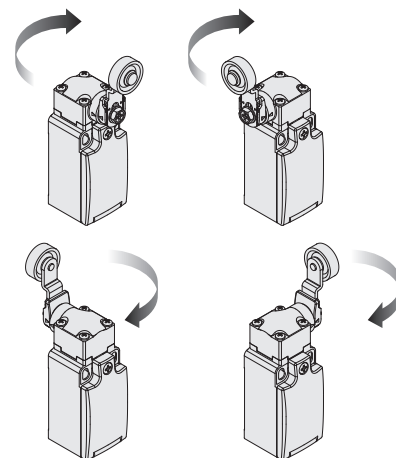
Reversible levers

For switches with swivelling lever, the lever can be fastened on straight or reverse side maintaining the positive coupling. In this way two different working planes of the lever are possible.



Head with variable orientation

The head of all switches is adjustable in 90° steps.



Extended temperature range

-40°C

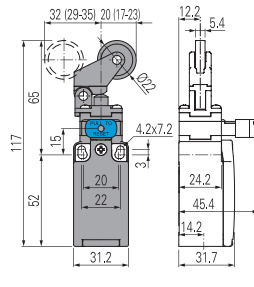
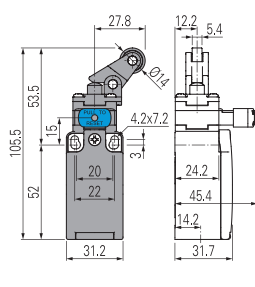
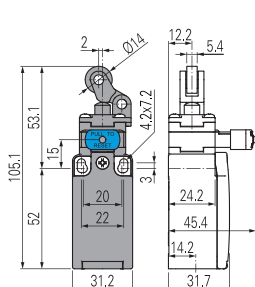
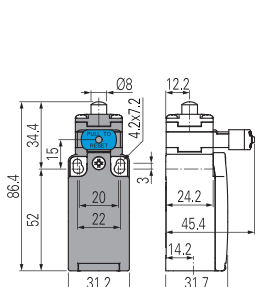
These devices are also available in a special version suitable for an ambient operating temperature range from -40°C up to +80°C.

They can therefore be used for applications in cold stores, sterilisers, and other equipment operated in very low-temperature environments. The special materials used to produce these versions retain their characteristics even under these conditions, thereby expanding the installation possibilities.

Switches with manual reset

Contact type:

L = slow action



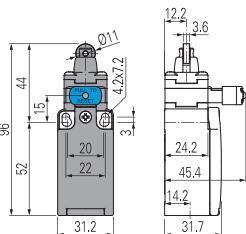
Contact block

6	L	FR 601-W3M2	⊕	1NO+1NC	FR 602-W3M2	⊕	1NO+1NC	FR 605-W3M2	⊕	1NO+1NC	FR 607-W3M2	⊕	1NO+1NC
9	L	FR 901-W3M2	⊕	2NC	FR 902-W3M2	⊕	2NC	FR 905-W3M2	⊕	2NC	FR 907-W3M2	⊕	2NC
20	L	FR 2001-W3M2	⊕	1NO+2NC	FR 2002-W3M2	⊕	1NO+2NC	FR 2005-W3M2	⊕	1NO+2NC	FR 2007-W3M2	⊕	1NO+2NC
Max. speed		page 155 - type 4		page 155 - type 3		page 155 - type 3		page 155 - type 3		page 155 - type 3		page 155 - type 3	
Actuating force		4.5 N (25 N ⊕)		4 N (25 N ⊕)		4 N (25 N ⊕)		4 N (25 N ⊕)		2.5 N (25 N ⊕)		2.5 N (25 N ⊕)	
Travel diagrams		page 156 - group 1c		page 156 - group 2c		page 156 - group 2c		page 156 - group 2c		page 156 - group 3c		page 156 - group 3c	

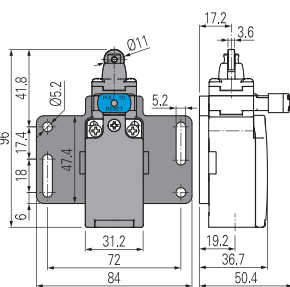
Contact type:

L = slow action

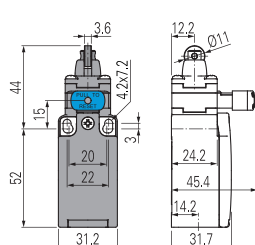
With Ø 12 mm stainless steel roller on request



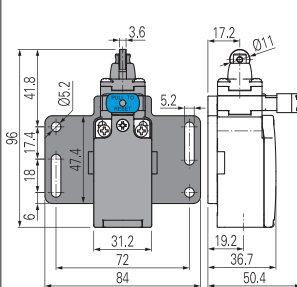
With Ø 12 mm stainless steel roller on request



With Ø 12 mm stainless steel roller on request



With Ø 12 mm stainless steel roller on request

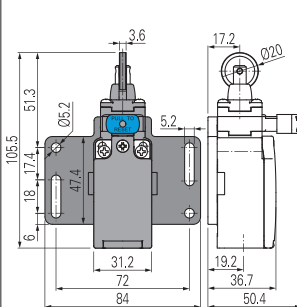
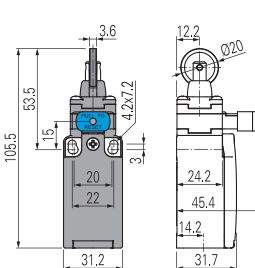
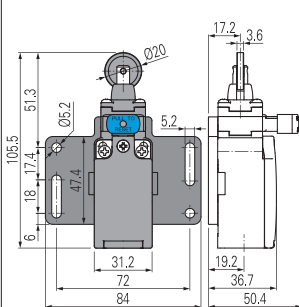
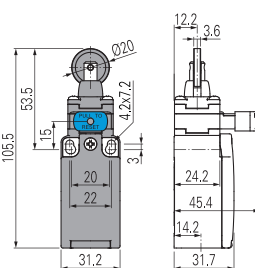


Contact block

6	L	FR 615-W3M2	⊕	1NO+1NC	FR 615-W3M2P12	⊕	1NO+1NC	FR 615-W3H0M2	⊕	1NO+1NC	FR 615-W3H0M2P12	⊕	1NO+1NC
9	L	FR 915-W3M2	⊕	2NC	FR 915-W3M2P12	⊕	2NC	FR 915-W3H0M2	⊕	2NC	FR 915-W3H0M2P12	⊕	2NC
20	L	FR 2015-W3M2	⊕	1NO+2NC	FR 2015-W3M2P12	⊕	1NO+2NC	FR 2015-W3H0M2	⊕	1NO+2NC	FR 2015-W3H0M2P12	⊕	1NO+2NC
Max. speed		page 155 - type 2		page 155 - type 2		page 155 - type 2		page 155 - type 2		page 155 - type 2		page 155 - type 2	
Actuating force		4.5 N (25 N ⊕)		4.5 N (25 N ⊕)		4.5 N (25 N ⊕)		4.5 N (25 N ⊕)		4.5 N (25 N ⊕)		4.5 N (25 N ⊕)	
Travel diagrams		page 156 - group 1c		page 156 - group 1c		page 156 - group 1c		page 156 - group 1c		page 156 - group 1c		page 156 - group 1c	

Contact type:

L = slow action



Contact block

6	L	FR 616-W3M2	⊕	1NO+1NC	FR 616-W3M2P12	⊕	1NO+1NC	FR 616-W3H0M2	⊕	1NO+1NC	FR 616-W3H0M2P12	⊕	1NO+1NC
9	L	FR 916-W3M2	⊕	2NC	FR 916-W3M2P12	⊕	2NC	FR 916-W3H0M2	⊕	2NC	FR 916-W3H0M2P12	⊕	2NC
20	L	FR 2016-W3M2	⊕	1NO+2NC	FR 2016-W3M2P12	⊕	1NO+2NC	FR 2016-W3H0M2	⊕	1NO+2NC	FR 2016-W3H0M2P12	⊕	1NO+2NC
Max. speed		page 155 - type 2		page 155 - type 2		page 155 - type 2		page 155 - type 2		page 155 - type 2		page 155 - type 2	
Actuating force		4.5 N (25 N ⊕)		4.5 N (25 N ⊕)		4.5 N (25 N ⊕)		4.5 N (25 N ⊕)		4.5 N (25 N ⊕)		4.5 N (25 N ⊕)	
Travel diagrams		page 156 - group 1c		page 156 - group 1c		page 156 - group 1c		page 156 - group 1c		page 156 - group 1c		page 156 - group 1c	

All values in the drawings are in mm

Accessories See page 149

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



Contact type:	With Ø 12 mm stainless steel roller on request	With Ø 12 mm stainless steel roller on request	With Ø 12 mm stainless steel roller on request	With Ø 12 mm stainless steel roller on request
L = slow action				
Contact block				
6 L	FX 615-W3M2 → 1NO+1NC	FX 615-W3M2P32 → 1NO+1NC	FX 615-W3H0M2 → 1NO+1NC	FX 615-W3H0M2P32 → 1NO+1NC
9 L	FX 915-W3M2 → 2NC	FX 915-W3M2P32 → 2NC	FX 915-W3H0M2 → 2NC	FX 915-W3H0M2P32 → 2NC
20 L	FX 2015-W3M2 → 1NO+2NC	FX 2015-W3M2P32 → 1NO+2NC	FX 2015-W3H0M2 → 1NO+2NC	FX 2015-W3H0M2P32 → 1NO+2NC
Max. speed	page 155 - type 2	page 155 - type 2	page 155 - type 2	page 155 - type 2
Actuating force	4.5 N (25 N →)	4.5 N (25 N →)	4.5 N (25 N →)	4.5 N (25 N →)
Travel diagrams	page 156 - group 1c	page 156 - group 1c	page 156 - group 1c	page 156 - group 1c

Contact type:				
L = slow action				
Contact block				
6 L	FX 616-W3M2 → 1NO+1NC	FX 616-W3M2P32 → 1NO+1NC	FX 616-W3H0M2 → 1NO+1NC	FX 616-W3H0M2P32 → 1NO+1NC
9 L	FX 916-W3M2 → 2NC	FX 916-W3M2P32 → 2NC	FX 916-W3H0M2 → 2NC	FX 916-W3H0M2P32 → 2NC
20 L	FX 2016-W3M2 → 1NO+2NC	FX 2016-W3M2P32 → 1NO+2NC	FX 2016-W3H0M2 → 1NO+2NC	FX 2016-W3H0M2P32 → 1NO+2NC
Max. speed	page 155 - type 2	page 155 - type 2	page 155 - type 2	page 155 - type 2
Actuating force	4.5 N (25 N →)	4.5 N (25 N →)	4.5 N (25 N →)	4.5 N (25 N →)
Travel diagrams	page 156 - group 1c	page 156 - group 1c	page 156 - group 1c	page 156 - group 1c

Contact type:	With Ø 20 mm stainless steel roller on request	Other rollers available. See page 36	Other rollers available. See page 36	Other rollers available. See page 36
L = slow action				
Contact block				
6 L	FR 630-W3M2 → 1NO+1NC	FR 631-W3M2 → 1NO+1NC	FR 651-W3M2 → 1NO+1NC	FR 652-W3M2 → 1NO+1NC
9 L	FR 930-W3M2 → 2NC	FR 931-W3M2 → 2NC	FR 951-W3M2 → 2NC	FR 952-W3M2 → 2NC
20 L	FR 2030-W3M2 → 1NO+2NC	FR 2031-W3M2 → 1NO+2NC	FR 2051-W3M2 → 1NO+2NC	FR 2052-W3M2 → 1NO+2NC
Max. speed	page 155 - type 1	page 155 - type 1	page 155 - type 1	page 155 - type 1
Actuating force	0.07 Nm (0.25 Nm →)	0.07 Nm (0.25 Nm →)	0.07 Nm (0.25 Nm →)	0.07 Nm (0.25 Nm →)
Travel diagrams	page 156 - group 4c	page 156 - group 4c	page 156 - group 4c	page 156 - group 4c

All values in the drawings are in mm

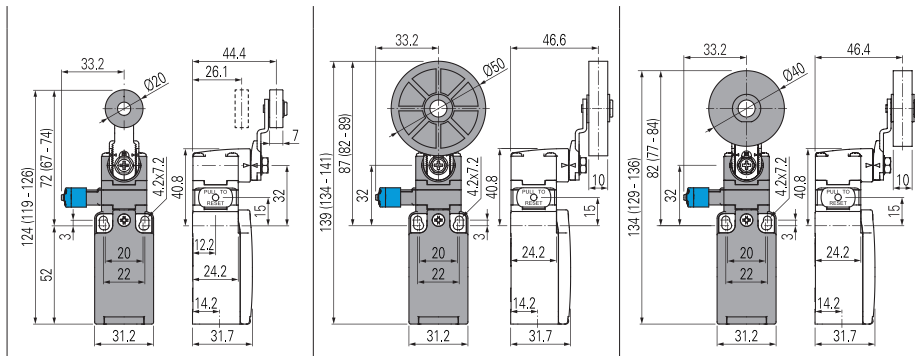
Accessories See page 149

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

Switches with manual reset

Contact type:

L = slow action

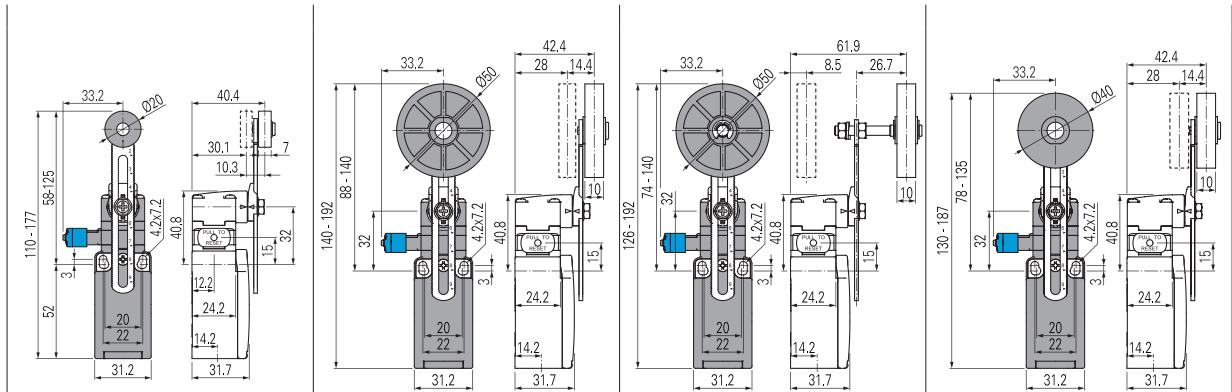


Contact block

6	L	FR 654-W3M2	⊕	1NO+1NC	FR 654-W3M2R26	⊕	1NO+1NC	FR 654-W3M2R5	⊕	1NO+1NC	
9	L	FR 954-W3M2	⊕	2NC	FR 954-W3M2R26	⊕	2NC	FR 954-W3M2R5	⊕	2NC	
20	L	FR 2054-W3M2	⊕	1NO+2NC	FR 2054-W3M2R26	⊕	1NO+2NC	FR 2054-W3M2R5	⊕	1NO+2NC	
Max. speed		page 155 - type 1		page 155 - type 1		page 155 - type 1		page 155 - type 1		page 155 - type 1	
Actuating force		0.07 Nm (0.25 Nm ⊕)		0.07 Nm (0.25 Nm ⊕)		0.07 Nm (0.25 Nm ⊕)		0.07 Nm (0.25 Nm ⊕)		0.07 Nm (0.25 Nm ⊕)	
Travel diagrams		page 156 - group 4c		page 156 - group 4c		page 156 - group 4c		page 156 - group 4c		page 156 - group 4c	

Contact type:

L = slow action



Contact block

6	L	FR 656-W3M2	⊕	1NO+1NC	FR 656-W3M2R26	⊕	1NO+1NC	FR 656-W3M2R27	⊕	1NO+1NC	FR 656-W3M2R5	⊕	1NO+1NC
9	L	FR 956-W3M2	⊕	2NC	FR 956-W3M2R26	⊕	2NC	FR 956-W3M2R27	⊕	2NC	FR 956-W3M2R5	⊕	2NC
20	L	FR 2056-W3M2	⊕	1NO+2NC	FR 2056-W3M2R26	⊕	1NO+2NC	FR 2056-W3M2R27	⊕	1NO+2NC	FR 2056-W3M2R5	⊕	1NO+2NC
Max. speed		page 155 - type 1		page 155 - type 1		page 155 - type 1		page 155 - type 1		page 155 - type 1		page 155 - type 1	
Actuating force		0.07 Nm (0.25 Nm ⊕)		0.07 Nm (0.25 Nm ⊕)		0.07 Nm (0.25 Nm ⊕)		0.07 Nm (0.25 Nm ⊕)		0.07 Nm (0.25 Nm ⊕)		0.07 Nm (0.25 Nm ⊕)	
Travel diagrams		page 156 - group 4c		page 156 - group 4c		page 156 - group 4c		page 156 - group 4c		page 156 - group 4c		page 156 - group 4c	

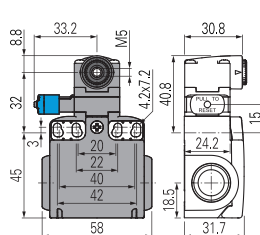
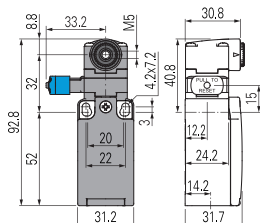
(1) Positive opening only with actuator set to max.

All values in the drawings are in mm

Position switches with reset device for swivelling lever, without actuator

Contact type:

= slow action



IMPORTANT

For safety applications: join only switches and actuators marked with symbol next to the product code. For more information about safety applications see details on page 153.

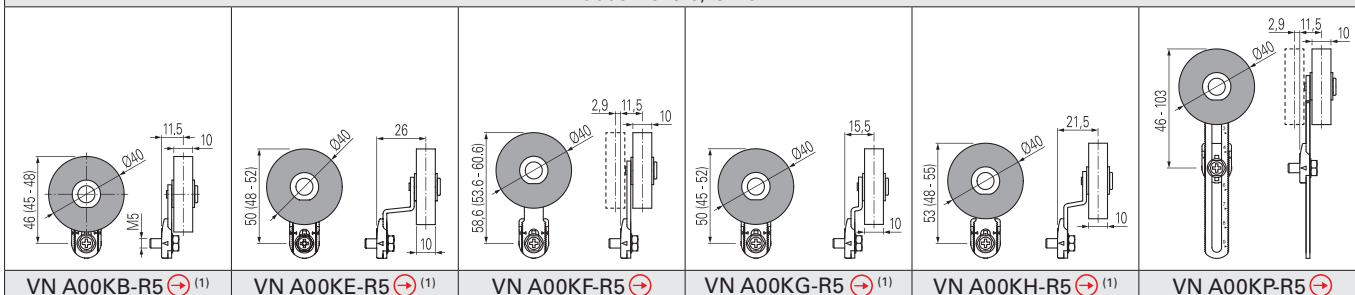
Contact block

6		FR 638-W3M2		1NO+1NC	FX 638-W3M2		1NO+1NC
9		FR 938-W3M2		2NC	FX 938-W3M2		2NC
20		FR 2038-W3M2		1NO+2NC	FX 2038-W3M2		1NO+2NC
Actuating force		0.07 Nm (0.25 Nm)		0.07 Nm (0.25 Nm)			
Travel diagrams		page 156 - group 4c		page 156 - group 4c			

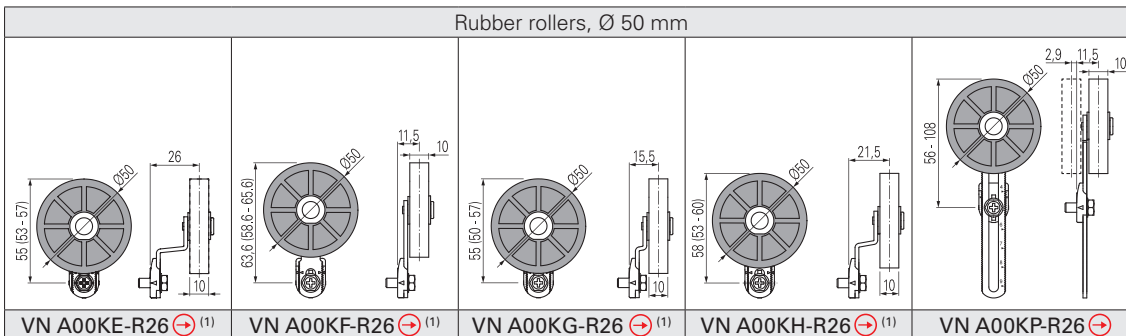
Special separate actuators

IMPORTANT: These separate actuators can be used only with items of the FR, FX series.

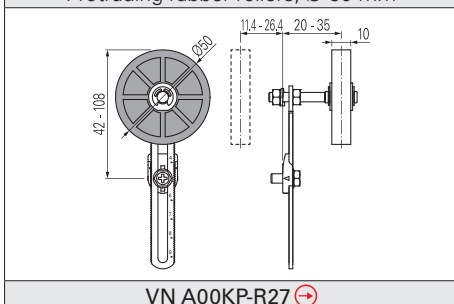
Rubber rollers, Ø 40 mm



Rubber rollers, Ø 50 mm



Protruding rubber rollers, Ø 50 mm



- ⁽¹⁾ The actuator cannot be rotated to the inside because it will hit the switch head upon actuation.

Note: To check the correspondence with previous lever codes, please consult the table "Changed article codes" on page 171. Example: VF LE31-R5 -> VN A00KB-R5.



Main features

Safety switches designed specifically for speed limiters requiring high sensitivity, with a low actuating force.

Operation: the switch button is pressed up to the switching point. The button then continues to the limit of travel automatically.

Quality marks:



IMQ approval:	EG610
UL approval:	E131787
CCC approval:	2021000305000101
EAC approval:	RU C-IT.YT03.B.00035/19

Technical data

Housing

Housing made of glass fibre reinforced technopolymer, self-extinguishing, shock-proof and with double insulation:

One threaded conduit entry:

M20x1.5 (standard)

Protection degree acc. to EN 60529:

IP67 with cable gland of equal or higher protection degree

General data

Ambient temperature: -25°C ... +80°C (standard)

-40°C ... +80°C (T6 option)

Max. operating frequency:

3600 operating cycles/hour

Mechanical endurance:

1 million operating cycles
(FR 5A3-M2 / FR 11A3-M2)
50,000 operating cycles
(FR 17A3-M2 / FR 19A3-M2)

Mounting position:

any

Safety parameter B_{10D} for NC contacts:

2,000,000 (FR 5A3-M2 / FR 11A3-M2)

100.000 (FR 17A3-M2 / FR 19A3-M2)

Mechanical interlock, not coded:

type 1 acc. to EN ISO 14119

Tightening torques for installation:

see page 155

Wire cross-sections and

wire stripping lengths:

see page 169

In compliance with standards:

IEC 60947-5-1, EN 60947-5-1, EN 60947-1, EN 50047, IEC 60204-1, EN 60204-1, EN ISO 14119, EN ISO 12100, IEC 60529, EN 60529, EN IEC 63000, EN 81-20, EN 81-50, UL 508, CSA 22.2 No.14

Approvals:

IEC 60947-5-1, UL 508, CSA 22.2 No.14, GB/T14048.5-2017.

Compliance with the requirements of:

Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU, Lift Directive 2014/33/EU, RoHS Directive 2011/65/EU.

Positive contact opening in conformity with standards:

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

Installation for safety applications:

Use only switches marked with the \ominus symbol beside the product code. Always connect the safety circuit to the **NC contacts** (normally closed contacts: 11-12, 21-22 or 31-32) as stated in **standard EN 81-20 par. 5.11.2.2.1**. Actuate the switch **at least up to the positive opening travel** shown in the travel diagrams on page 156. Actuate the switch **at least with the positive opening force**, reported in brackets below each article, next to the actuating force value.

⚠ If not expressly indicated in this chapter, for correct installation and utilization of all articles see the instructions given on pages 153 to 162.

Electrical data

Thermal current (I_{th}):	10 A
Rated insulation voltage (U_i):	500 Vac 600 Vdc
	400 Vac 500 Vdc (contact block 11)
Rated impulse withstand voltage (U_{imp}):	6 kV
Conditional short circuit current:	1000 A acc. to EN 60947-5-1
Protection against short circuits:	type aM fuse 10 A 500 V
Pollution degree:	3

Utilization category

Alternating current: AC15 (50-60 Hz)			
U_e (V)	250	400	500
I_e (A)	6	4	1
Direct current: DC13			
U_e (V)	24	125	250
I_e (A)	3	0.55	0.3

Features approved by IMQ

Rated insulation voltage (U_i):	500 Vac 400 Vac (for contact block 11)
Conventional free air thermal current (I_{th}):	10 A
Protection against short circuits:	type aM fuse 10 A 500 V
Rated impulse withstand voltage (U_{imp}):	6 kV
Protection degree of the housing:	IP67
MV terminals (screw terminals)	
Pollution degree:	3
Utilization category:	AC15
Operating voltage (U_e):	400 Vac (50 Hz)
Operating current (I_e):	3 A
Forms of the contact element:	Zb, Y+Y, Y+Y+X
Positive opening of contacts on contact blocks	5, 11, 17, 19
In compliance with standards:	EN 60947-1, EN 60947-5-1, fundamental requirements of the Low Voltage Directive 2014/35/EU

Please contact our technical department for the list of approved products.

Features approved by UL

Electrical Ratings:	Q300 pilot duty (69 VA, 125-250 V dc) A600 pilot duty (720 VA, 120-600 V ac)
Environmental Ratings:	Types 1, 4X
For all contact blocks use 60 or 75°C copper (Cu) conductors, rigid or flexible, wire size 12, 14 AWG. Tightening torque for terminal screws of 7.1 lb in (0.8 Nm).	
The hub is to be connected to the conduit before the hub is connected to the enclosure.	

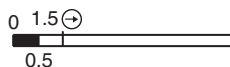
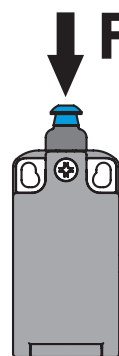
Please contact our technical department for the list of approved products.

Compliant with EN 81-20 and EN 81-50


- Safety contacts in compliance with EN 60947-5-1, annex K.
- Protection degree higher than IP4x.
- All switches meet requirements laid down by the new standards for safety contacts.

Contact blocks 17 and 19

Pizzato Elettrica has developed innovative and specific contact blocks, designed with a very short pre-travel distance and low actuating forces; as required by modern speed limiters.


Increased actuating force


On request, contact block 19 can be supplied with increased actuating force of 4 or 6 N; ideal for applications with high levels of vibrations.

Protection degree IP67

IP67

All switches of these series have protection degree IP67.

Code structure

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

article options options
FR 19A3-E26GM2K23P11T6

Housing

FR technopolymer, one conduit entry

Contact block

- 5** 1NO+1NC, snap action
- 11** 2NC, snap action
- 17** 1NC, snap action
- 19** 2NC, snap action

Actuators

A3 short plunger

Actuating force

- standard actuating force
- E26** actuating force 4 N (19 N ⊖) (only with contact block 19)
- E27** actuating force 6 N (21 N ⊖) (only with contact block 19)

Ambient temperature

- 25°C ... +80°C (standard)
- T6** -40°C ... +80°C

Fixing plates

- without plate (standard)
- P11** with VF SFP1 plate

Threaded conduit entry

- M2** M20x1.5 (standard)
- M1** M16x1.5
- PG 13.5
- A** PG 11

Pre-installed cable glands

- K23** for cables Ø 6 ... 12 mm
- K27** for cables Ø 3 ... 7 mm

Contact type

- silver contacts (standard)
- G** silver contacts with 1 µm gold coating
- G1** silver contacts with 2.5 µm gold coating

Dimensional drawings

Contact type:

R = snap action

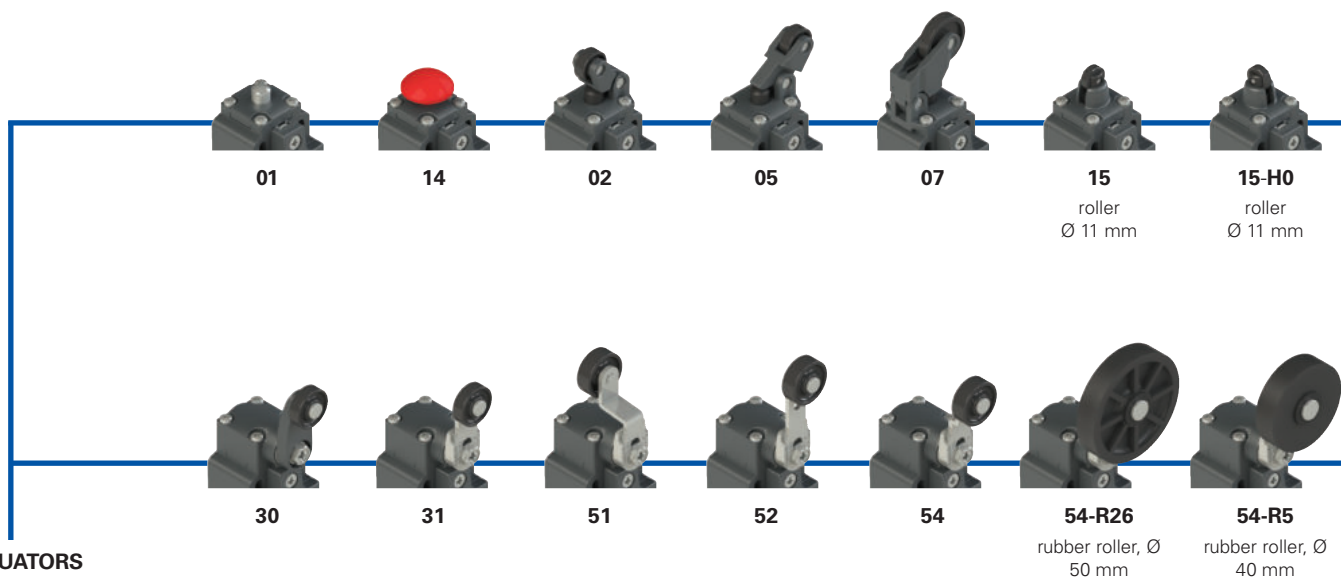
Contact block	5	11	17	19
Max. speed	0.5 m/s	0.5 m/s	0.5 m/s	0.5 m/s
Actuating force	3.5 N (25 N ⊖)	3.5 N (25 N ⊖)	1.5 N (25 N ⊖)	2 N (25 N ⊖)
Travel diagrams				

Legend

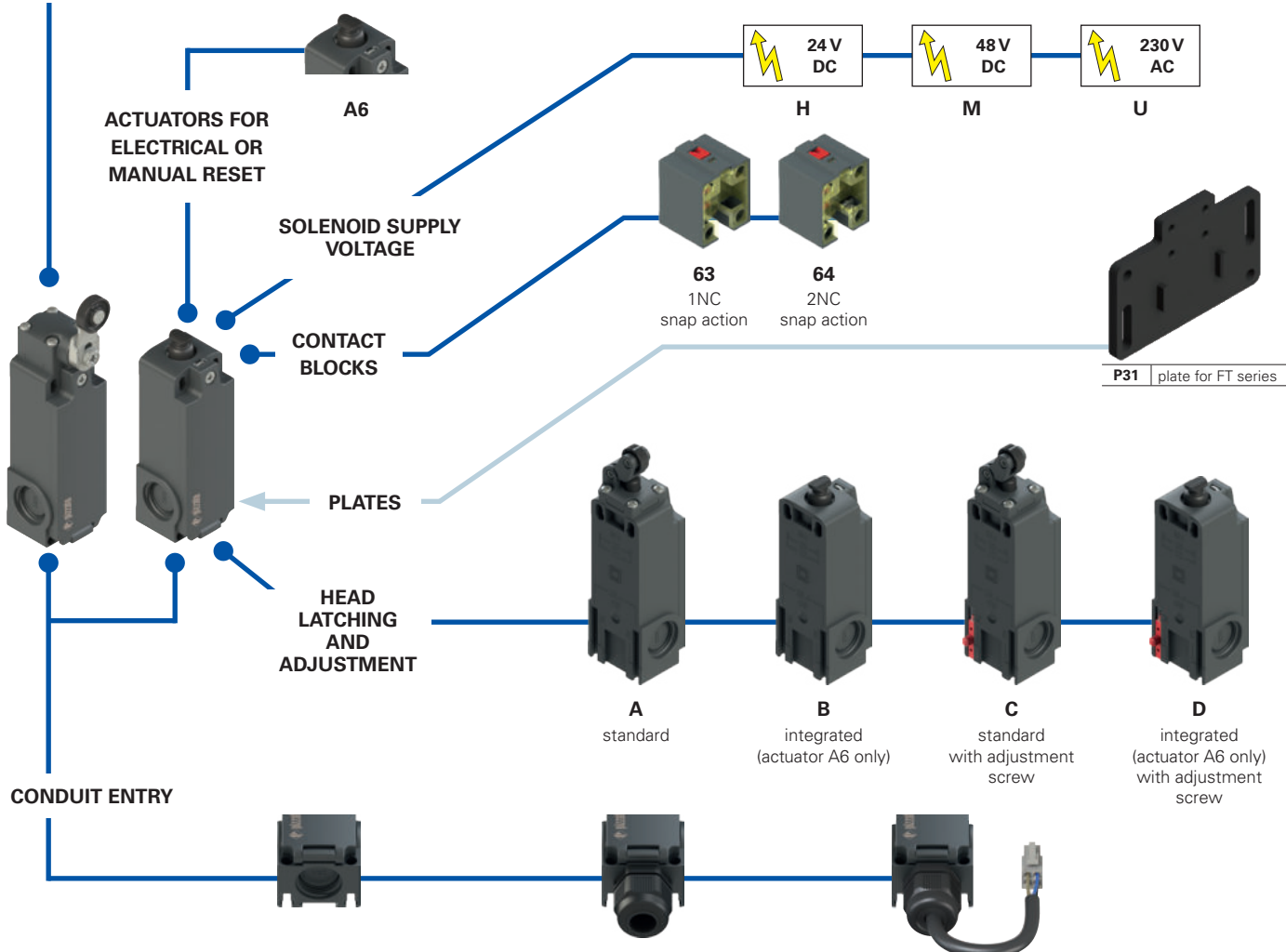
■ Closed contact | □ Open contact | ⊖ Positive opening travel

All values in the drawings are in mm

Selection diagram

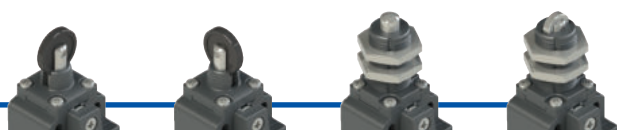


ACTUATORS FOR ELECTRICAL RESET



K23	for cables Ø 6 ... 12 mm on the bottom
K123	for cables Ø 6 ... 12 mm on the right
K223	for cables Ø 6 ... 12 mm on the left
K27	for cables Ø 3 ... 7 mm on the bottom
K127	for cables Ø 3 ... 7 mm on the right
K227	for cables Ø 3 ... 7 mm on the left

Wired
Wiring with custom connectors and cables available on request.

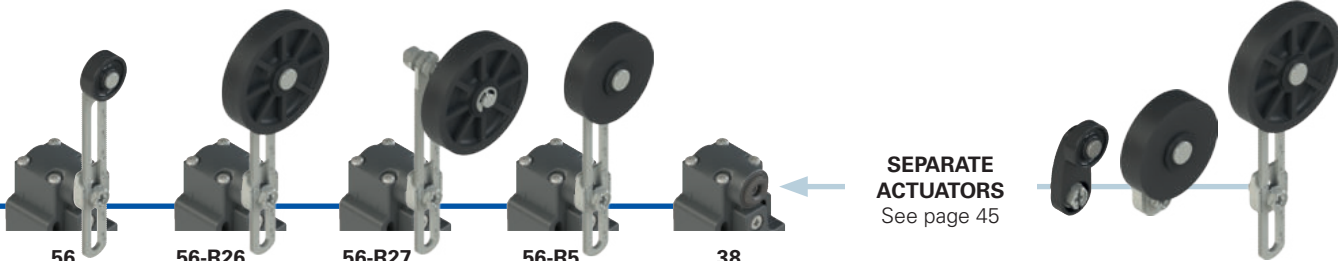


16
roller
Ø 20 mm

16-H0
roller
Ø 20 mm

12

13



56

56-R26

56-R27

56-R5

38

adjustable safety lever with rubber roller, Ø 50 mm

adjustable safety lever with rubber roller, Ø 50 mm, protruding

adjustable safety lever with rubber roller, Ø 40 mm

SEPARATE ACTUATORS
See page 45

Code structure

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

article options
FT 2A6454AH-E27GK23P31T9R26

Housing	
FT	technopolymer, three conduit entries

Head latching and adjustment	
A	standard
B	integrated (actuator A6 only)
C	standard with adjustment screw
D	integrated (actuator A6 only) with adjustment screw

Contact block	
63	1NC, snap action
64	2NC, snap action

Actuators	
A6	plunger with catch for manual reset
01	short plunger
02	roller lever
05	angled lever with roller
...	...

Solenoid supply voltage	
H	24 Vdc 4.2 A (100 W)
M	48 Vdc 2.1 A (100 W)
U	230 Vac 0.5 A (115 W)
K	48 Vdc 0.75 A (36 W) (only with reduced actuating force E28)
J	24 Vdc 1.5 A (36 W) (only with reduced actuating force E28)

Rollers	
	standard roller
R5	rubber roller, Ø 40 mm
R26	rubber roller, Ø 50 mm
R27	rubber roller, protruding, Ø 50 mm

Ambient temperature	
	-25°C ... +50°C (standard)
T9	-40°C ... +50°C

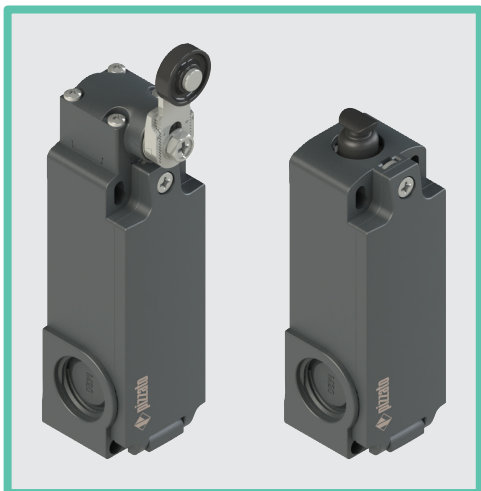
Fixing plates	
	without plate (standard)
P31	with VF SFP3 plate

Pre-installed cable glands	
K23	for cables Ø 6 ... 12 mm
K27	for cables Ø 3 ... 7 mm

For the complete list of possible combinations please contact our sales department.

Contact type	
	silver contacts (standard)
G	silver contacts with 1 µm gold coating
G1	silver contacts with 2.5 µm gold coating

Actuating force	
E27	standard actuating force
E26	reduced actuating force
E28	reduced actuating force



Main features

- Versions with different actuating forces
- Versions with system for adjustment of the switching point
- Technopolymer housing, three knock-out conduit entries
- Protection degree IP67


Quality marks:



UL approval: E131787
EAC approval: RU C-IT.YT03.B.00035/19

Technical data

Housing

Housing made of glass fibre reinforced technopolymer, self-extinguishing, shock-proof and with double insulation: 
Three knock-out threaded conduit entries: M20x1.5
Protection degree acc. to EN 60529: IP67 with cable gland of equal or higher protection degree

General data

Ambient temperature: -25°C ... +50°C
-40°C ... +50°C (T9 option)
Mechanical endurance: 50,000 operating cycles
Mounting position: any
Safety parameter B_{10D} : 100.000 for NC contacts
Mechanical interlock, not coded: type 1 acc. to EN ISO 14119
Tightening torques for installation: see page 155
Wire cross-sections and wire stripping lengths: see page 169

Solenoid

Operating voltage (U_e) and current (I_e):
24 Vdc $\pm 10\%$; 4.2 A (100 W)
24 Vdc $\pm 10\%$; 1.5 A (36 W)
48 Vdc $\pm 10\%$; 2.1 A (100 W)
48 Vdc $\pm 10\%$; 0.75 A (36 W)
230 Vac $\pm 10\%$; 0.5 A (115 W)
Power supply time: minimum 0.2 s, maximum 0.5 s
Time without power supply: minimum 30 s
Max. operating frequency: 118 operating cycles/hour

In compliance with standards:

EN 60947-5-1, IEC 60947-5-1, EN IEC 63000, EN 81-20, EN 81-50, UL 508, CSA 22.2 No. 14


Compliance with the requirements of:


Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU, Lift Directive 2014/33/EU, RoHS Directive 2011/65/EU.

Positive contact opening in conformity with standards:

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

Installation for safety applications:

Use only switches marked with the  symbol beside the product code. Always connect the safety circuit to the **NC contacts** (normally closed contacts: 11-12, 21-22 or 31-32) as stated in **standard EN 81-20 par. 5.11.2.2.1**. Actuate the switch **at least up to the positive opening travel** shown in the travel diagrams on page 156. Actuate the switch **at least with the positive opening force**, reported in brackets below each article, next to the actuating force value.

 **If not expressly indicated in this chapter, for correct installation and utilization of all articles see the instructions given on pages 153 to 162.**

Electrical data		Utilization category
Thermal current (I_{th}):	10 A	Alternating current: AC15 (50 ... 60 Hz)
Rated insulation voltage (U_i):	500 Vac 600 Vdc	U_e (V) 250 400 500
Rated impulse withstand voltage (U_{imp}):	6 kV	I_e (A) 6 4 1
Conditional short circuit current:	1000 A acc. to EN 60947-5-1	Direct current: DC13
Protection against short circuits:	type aM fuse 10 A 500 V	U_e (V) 24 125 250
Pollution degree:	3	I_e (A) 3 0.55 0.3

Features approved by UL

Electrical Ratings: Q300 pilot duty (69 VA, 125-250 V dc)
A600 pilot duty (720 VA, 120-600 V ac)

Environmental Ratings: Types 1, 4X, 12, 13

For all contact blocks use 60 or 75°C copper (Cu) conductors, rigid or flexible, wire size 12, 14 AWG. Tightening torque for terminal screws of 7.1 lb in (0.8 Nm).

The hub is to be connected to the conduit before the hub is connected to the enclosure.

Please contact our technical department for the list of approved products.

Introduction



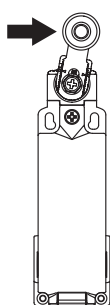
The FT series safety switches with reset retain their switching state when operated: their reset occurs electrically through the integrated solenoid. Thanks to this special feature, the switch can be remotely reset without having to go physically near it. Available with multiple actuators, they are able to adapt to a wide variety of applications, particularly in the area of lifts, speed limiters and, more generally, in the world of security. Some models may also be manually reset.

Compliant with EN 81-20 and EN 81-50



- Safety contacts in compliance with EN 60947-5-1, annex K.
- Protection degree higher than IP4x.
- All switches meet requirements laid down by the new standards for safety contacts.

Reduced actuating force (E26/E28)



FT series switches can be supplied with reduced actuating force on request:

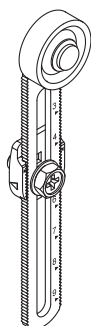
Actuator	Force
A6	3.5 N (25 N ⊖)
01, 12, 13, 14, 15, 16	5.5 N (25 N ⊖)
02, 05	3.6 N (25 N ⊖)
07	2.1 N (25 N ⊖)
30, 31, 38, 51, 52, 54, 56	0.06 Nm (0.25 Nm ⊖)

Protection degree IP67

All switches of these series have protection degree IP67.

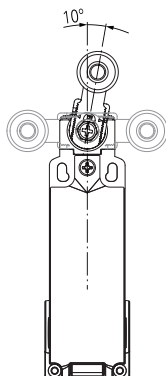
IP67

Adjustable safety lever



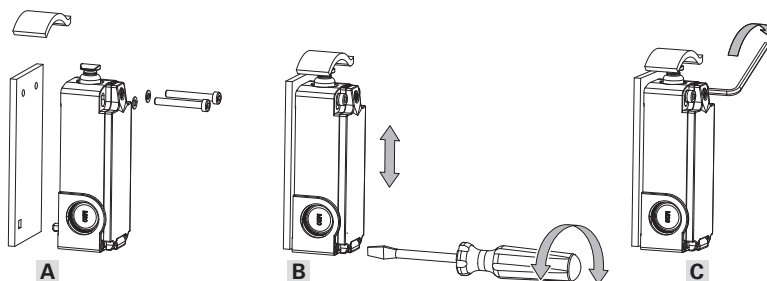
The adjustable lever code 56 (and variants) is provided with a notching that prevents the sliding also in case the fastening screw becomes loose.

Adjustable levers



For switches with swivelling lever, the lever can be adjusted in 10° steps over the entire 360° range. The positive movement transmission is always guaranteed thanks to the particular geometrical coupling between the lever and the revolving shaft as prescribed for safety applications by the German standard BG-GS-ET-15.

Versions with adjustment system (housings C, D, E, F)



Pizzato Elettrica introduces a new adjustment system, built into the switch, designed specifically for speed limiter applications.

This system allows very fine and sensitive adjustment of the switch position along the vertical axis.

Features:

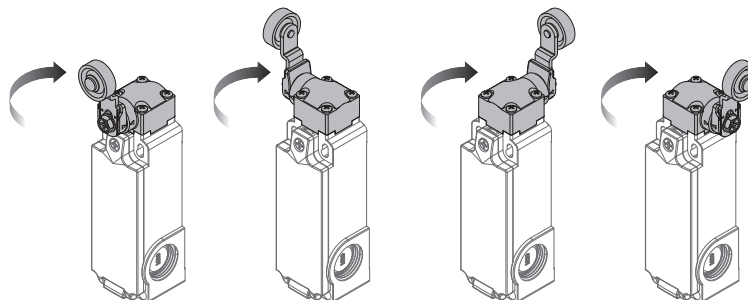
- easy to install and simple to operate;
- ability to carry out highly precise vertical adjustment;
- broad adjustment range (up to 4mm);
- captive elements.

Operation:

- Make a hole in the switch fixing plate, for insertion of the adjustment pin on the back of the switch itself. Insert switch to speed limiter, without obstructing the two fixing screws.
- Adjust the position of the switch, using the screw on the front.
- Finally, secure the switch body to the speed limiter.

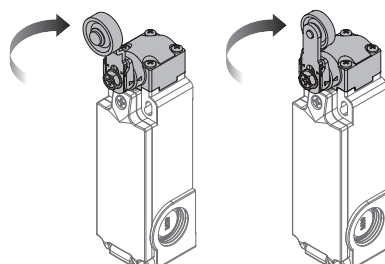
Head with variable orientation

The head of all switches is adjustable in 90° steps.



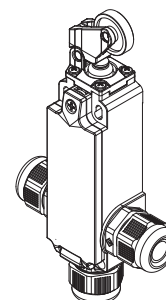
Reversible levers

For switches with swivelling lever, the lever can be fastened on straight or reverse side maintaining the positive coupling. In this way two different working planes of the lever are possible.



Cable outlets

Switches available with cable outlets in various directions, for use in the most confined of spaces.



FT series switches with electrical reset

Contact type:		External gasket		With stainless steel roller on request		With stainless steel roller on request		
R = snap action								
63	R	FT 2B63A6AH-E27	1NC	FT 2A6301AH-E27	1NC	FT 2A6302AH-E27	1NC	
64	R	FT 2B64A6AH-E27	2NC	FT 2A6401AH-E27	2NC	FT 2A6402AH-E27	2NC	
Max. speed	page 155 - type 4		page 155 - type 4		page 155 - type 3		page 155 - type 3	
Actuating force	5 N (25 N ⊕)		6 N (25 N ⊕)		5 N (25 N ⊕)		5 N (25 N ⊕)	
Travel diagrams	page 156 - group 1d		page 156 - group 2d		page 156 - group 3d		page 156 - group 3d	

Contact type:		With Ø 12 mm stainless steel roller on request		With Ø 12 mm stainless steel roller on request		With Ø 12 mm stainless steel roller on request		
R = snap action								
63	R	FT 2A6307AH-E27	1NC	FT 2A6312AH-E27	1NC	FT 2A6313AH-E27	1NC	
64	R	FT 2A6407AH-E27	2NC	FT 2A6412AH-E27	2NC	FT 2A6413AH-E27	2NC	
Max. speed	page 155 - type 3		page 155 - type 4		page 155 - type 2		page 155 - type 4	
Actuating force	3 N (25 N ⊕)		6 N (25 N ⊕)		6 N (25 N ⊕)		6 N (25 N ⊕)	
Travel diagrams	page 156 - group 4d		page 156 - group 2d		page 156 - group 2d		page 156 - group 2d	

Contact type:		With Ø 12 mm stainless steel roller on request		With Ø 12 mm stainless steel roller on request		With Ø 12 mm stainless steel roller on request		
R = snap action								
63	R	FT 2A6315AH-E27	1NC	FT 2A6315AH-E27H0	1NC	FT 2A6316AH-E27	1NC	
64	R	FT 2A6415AH-E27	2NC	FT 2A6415AH-E27H0	2NC	FT 2A6416AH-E27	2NC	
Max. speed	page 155 - type 2		page 155 - type 2		page 155 - type 2		page 155 - type 2	
Actuating force	6 N (25 N ⊕)		6 N (25 N ⊕)		6 N (25 N ⊕)		6 N (25 N ⊕)	
Travel diagrams	page 156 - group 2d		page 156 - group 2d		page 156 - group 2d		page 156 - group 2d	

All values in the drawings are in mm

Accessories See page 149

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



Contact type:	With $\varnothing 20$ mm stainless steel roller on request	Other rollers available. See page 45	Other rollers available. See page 45	Other rollers available. See page 45
R = snap action				
Contact block				
63 R	FT 2A6330AH-E27 \rightarrow 1NC	FT 2A6331AH-E27 \rightarrow 1NC	FT 2A6351AH-E27 \rightarrow 1NC	FT 2A6352AH-E27 \rightarrow 1NC
64 R	FT 2A6430AH-E27 \rightarrow 2NC	FT 2A6431AH-E27 \rightarrow 2NC	FT 2A6451AH-E27 \rightarrow 2NC	FT 2A6452AH-E27 \rightarrow 2NC
Max. speed	page 155 - type 1	page 155 - type 1	page 155 - type 1	page 155 - type 1
Actuating force	0.08 Nm (0.25 Nm \rightarrow)	0.08 Nm (0.25 Nm \rightarrow)	0.08 Nm (0.25 Nm \rightarrow)	0.08 Nm (0.25 Nm \rightarrow)
Travel diagrams	page 156 - group 5d	page 156 - group 5d	page 156 - group 5d	page 156 - group 5d

Contact type:						
R = snap action						
Contact block						
63 R	FT 2A6354AH-E27 \rightarrow 1NC	FT 2A6354AH-E27R26 \rightarrow 1NC	FT 2A6354AH-E27R5 \rightarrow 1NC			
64 R	FT 2A6454AH-E27 \rightarrow 2NC	FT 2A6454AH-E27R26 \rightarrow 2NC	FT 2A6454AH-E27R5 \rightarrow 2NC			
Max. speed	page 155 - type 1	page 155 - type 1	page 155 - type 1			
Actuating force	0.08 Nm (0.25 Nm \rightarrow)	0.08 Nm (0.25 Nm \rightarrow)	0.08 Nm (0.25 Nm \rightarrow)			
Travel diagrams	page 156 - group 5d	page 156 - group 5d	page 156 - group 5d			

Contact type:						
R = snap action						
Contact block						
63 R	FT 2A6356AH-E27 \rightarrow 1NC	FT 2A6356AH-E27R26 \rightarrow 1NC	FT 2A6356AH-E27R27 \rightarrow 1NC	FT 2A6356AH-E27R5 \rightarrow 1NC		
64 R	FT 2A6456AH-E27 \rightarrow 2NC	FT 2A6456AH-E27R26 \rightarrow 2NC	FT 2A6456AH-E27R27 \rightarrow 2NC	FT 2A6456AH-E27R5 \rightarrow 2NC		
Max. speed	page 155 - type 1	page 155 - type 1	page 155 - type 1	page 155 - type 1		
Actuating force	0.08 Nm (0.25 Nm \rightarrow)	0.08 Nm (0.25 Nm \rightarrow)	0.08 Nm (0.25 Nm \rightarrow)	0.08 Nm (0.25 Nm \rightarrow)		
Travel diagrams	page 156 - group 5d	page 156 - group 5d	page 156 - group 5d	page 156 - group 5d		

All values in the drawings are in mm

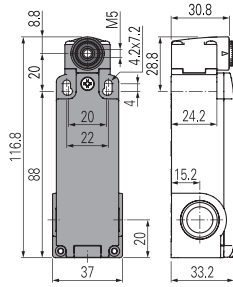
Accessories See page 149

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

Position switches with swivelling lever without actuator

Contact type:

R = snap action



IMPORTANT

For safety applications: join only switches and actuators marked with symbol ⊕ next to the product code.

For more information about safety applications see details on page 153.

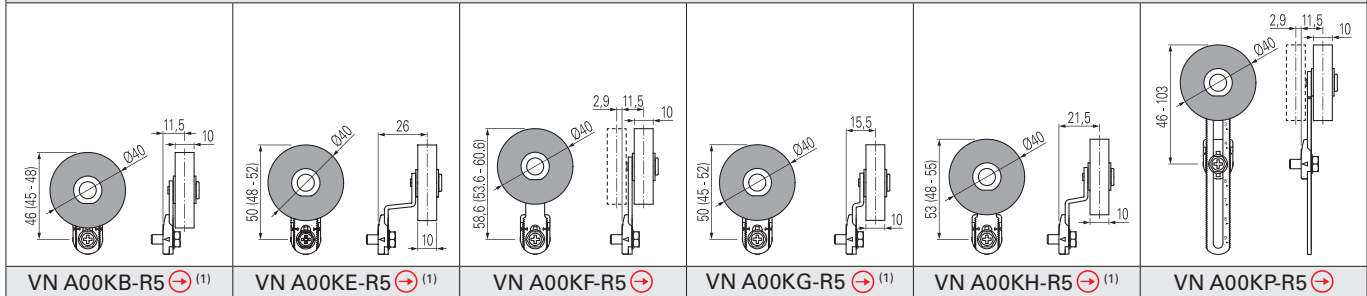
Contact block

63	R	FT 2A6338AH-E27	⊕	1NC
64	R	FT 2A6438AH-E27	⊕	2NC
Actuating force		0.08 Nm (0.25 Nm) ⊕		
Travel diagrams		page 156 - group 5d		

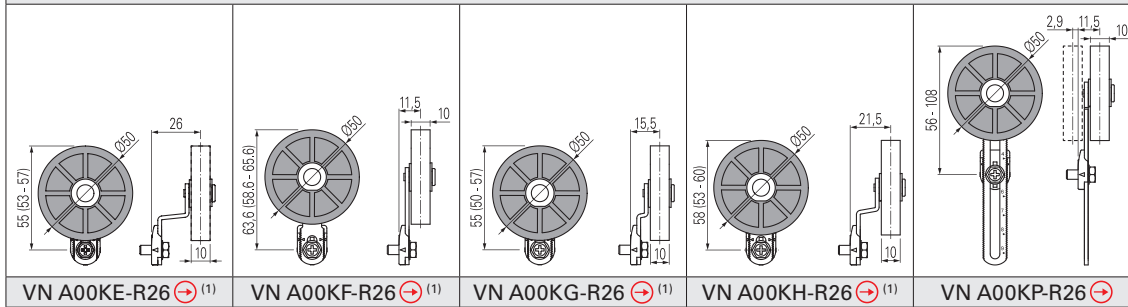
Special separate actuators

IMPORTANT: These separate actuators can be used only with items of the FR, FX series.

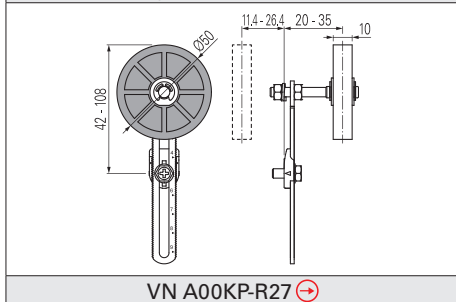
Rubber rollers, Ø 40 mm



Rubber rollers, Ø 50 mm



Protruding rubber rollers, Ø 50 mm



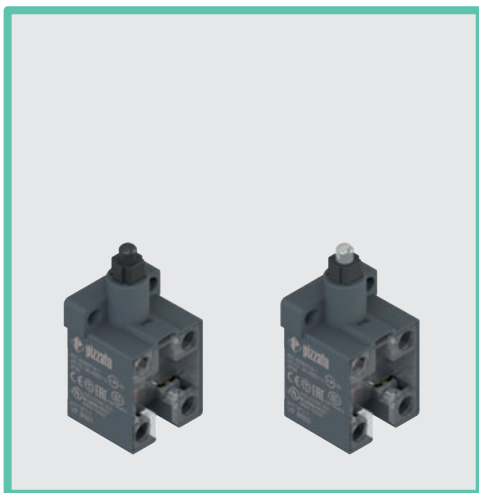
- (1) The actuator cannot be rotated to the inside because it will hit the switch head upon actuation.

Note: To check the correspondence with previous lever codes, please consult the table "Changed article codes" on page 171. Example: VF LE31-R5 -> VN A00KB-R5.

All values in the drawings are in mm

Accessories See page 149

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



Main features

- Technopolymer housing
- Protection degree IP20 (terminals), IP40 (contacts)
- 14 contact blocks available
- Actuators with plastic or metal plunger
- Contact block with positive opening ⊕

Quality marks:



IMQ approval:	CA02.06217
UL approval:	E131787
CCC approval:	2021000305000102
EAC approval:	RU C-IT.YT03.B.00035/19

Technical data

Housing

Housing made of glass fibre reinforced technopolymer, self-extinguishing and shock-proof
 Protection degree acc. to EN 60529: IP20 (terminals)
 IP40 (contacts)

General data

Ambient temperature:	-40°C ... +80°C
Safety parameter B _{10D} :	40,000,000 for NC contacts
Max. actuation frequency:	3600 operating cycles/hour
Mechanical endurance:	20 million operating cycles
Max. actuation speed:	0.5 m/s
Min. actuation speed:	1 mm/s (slow action) 0.01 mm/s (snap action)
Tightening torques for installation:	see page 155
Wire cross-sections and wire stripping lengths:	see page 169

In compliance with standards:

IEC 60947-5-1, EN 60947-5-1, EN 60947-1, IEC 60204-1, EN 60204-1, EN ISO 14119, EN ISO 12100, IEC 60529, EN 60529, EN IEC 63000, EN 81-20, EN 81-50, UL 508, CSA 22.2 No.14.

Approvals:

UL 508, CSA 22.2 No. 14, EN 60947-1, EN 60947-5-1

Compliance with the requirements of:

Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU, Lift Directive 2014/33/EU, RoHS Directive 2011/65/EU.

Positive contact opening in conformity with standards:

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

Installation for safety applications:

Use only switches marked with the ⊕ symbol beside the product code. Always connect the safety circuit to the **NC contacts** (normally closed contacts: 11-12, 21-22 or 31-32) as stated in **standard EN 81-20 par. 5.11.2.2.1**. Actuate the switch **at least up to the positive opening travel** reported in the travel diagrams. Actuate the switch **at least with the positive opening force**, reported in brackets below each article, next to the minimum force value.

⚠ **If not expressly indicated in this chapter, for correct installation and utilization of all articles see the instructions given on pages 153 to 162.**

Electrical data

Thermal current (I _{th}):	10 A
Rated insulation voltage (U _i):	500 Vac 600 Vdc
Rated impulse withstand voltage (U _{imp}):	6 kV
Conditional short circuit current:	1000 A acc. to EN 60947-5-1
Protection against short circuits:	type aM fuse 10 A 500 V
Pollution degree:	3

Utilization category

Alternating current: AC15 (50±60 Hz)			
U _e (V)	250	400	500
I _e (A)	6	4	1
Direct current: DC13			
U _e (V)	24	125	250
I _e (A)	3	0.55	0.3

Features approved by IMQ

Rated insulation voltage (U_i):
 500 Vac (for contact blocks [B] 5, 6, 7, 9, 10, 12, 13, 14, 15, 17, 18, 19, 66, 67)
 400 Vac (for contact blocks [B] 11, 37)
 Conventional free air thermal current (I_{th}): 10 A
 Protection against short circuits: type aM fuse 10 A 500 V
 Rated impulse withstand voltage (U_{imp}): 6 kV
 Protection degree of the housing: IP20
 MV terminals (screw terminals)
 Pollution degree: 3
 Utilization category: AC15
 Operating voltage (U_e): 400 Vac (50/60 Hz)
 Operating current (I_e): 4 A
 Forms of the contact element: Zb, Y+Y, X+X, Y, X
 Positive opening contacts on contact blocks [B] 5, 6, 7, 9, 11, 13, 14, 17, 18, 19, 37, 66
 In compliance with standards: EN 60947-1, EN 60947-5-1, fundamental requirements of the Low Voltage Directive 2014/35/EU.

Please contact our technical department for the list of approved products.

Features approved by UL

Electrical ratings: Q300 (69 VA, 125-250 Vdc)
 A600 (720 VA, 120-600 Vac)
 Housing features: open type.
 For all contact blocks use 60 or 75°C copper (Cu) conductors, rigid or flexible, wire size 12, 14 AWG.
 Tightening torque for terminal screws of 7.1 lb in (0.8 Nm).

Please contact our technical department for the list of approved products.

Description



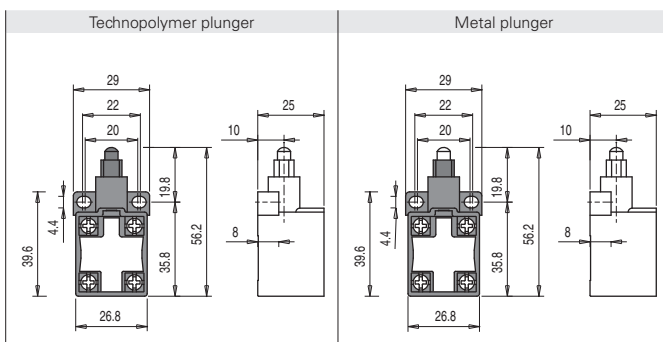
Contact block with captive screws, finger protection and self-lifting clamping screw plates. Provided with positive opening NC contacts for safety applications. Provided with twin bridge contacts, they are particularly suitable for high-reliability applications.

Dimensional drawings

All values in the drawings are in mm

Contact type:

- R** = snap action
- L** = slow action
- LO** = slow action, make before break
- LS** = slow action, shifted
- LV** = slow action, shifted and spaced
- LA** = slow action, close



Contact type	Article	Contacts	Article	Contacts	Travel diagram
R	VF B501	1NO+1NC	VF B502	1NO+1NC	
L	VF B601	1NO+1NC	VF B602	1NO+1NC	
LO	VF B701	1NO+1NC	VF B702	1NO+1NC	
L	VF B901	2NC	VF B902	2NC	
L	VF B1001	2NO	VF B1002	2NO	
R	VF B1101	2NC	VF B1102	2NC	
R	VF B1201	2NO	VF B1202	2NO	
LV	VF B1301	2NC	VF B1302	2NC	
LS	VF B1401	2NC	VF B1402	2NC	
LS	VF B1501	2NO	VF B1502	2NO	
LA	VF B1801	1NO+1NC	VF B1802	1NO+1NC	
L	VF B3701	1NO+1NC	VF B3702	1NO+1NC	
L	VF B6601	1NC	VF B6602	1NC	
L	VF B6701	1NO	VF B6702	1NO	
Max. speed	0.5 m/s		0.5 m/s		
Actuating force	8 N (20 N)		8 N (20 N)		

Legend

- Closed contact
- Open contact
- Pressing the switch
- Releasing the switch
- Positive opening travel acc. to IEC 60947-5-1
- Minimum 2 mm opening travel between contacts, in accordance with UNI EN 81-20

Code structure

article
options
VF B501-G

Contact block

5	1NO+1NC, snap action
6	1NO+1NC, slow action
7	1NO+1NC, slow action, make before break
9	2NC, slow action
10	2NO, slow action
11	2NC, snap action
12	2NO, snap action
...	...

Contact type

	silver contacts (standard)
G	silver contacts with 1 µm gold coating
G1	silver contacts with 2.5 µm gold coating

Actuators

01	with technopolymer plunger (standard)
02	with metal plunger

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



Main features

- Technopolymer housing, from one to two conduit entries
- Hinged cover, fixed with single captive screw
- Metal plates on mounting holes of the housing
- Protection degree IP67 and IP69K
- Versions with assembled M12 connector
- Compliant with EN 81

Quality marks:



IMQ approval:	EG610
UL approval:	E131787
CCC approval:	2021000305000101
EAC approval:	RU C-IT.YT03.B.00035/19

Technical data

Housing

Housing made of glass fibre reinforced technopolymer, self-extinguishing, shock-proof and with double insulation:

FR series, one conduit entry:

M20x1.5 (standard)

FX series, two knock-out threaded conduit entries:

M20x1.5 (standard)

Protection degree:

IP67 acc. to EN 60529 with cable gland of equal or higher protection degree

IP69K acc. to ISO 20653 with cable gland of equal or higher protection degree

General data

Ambient temperature: -25°C ... +80°C

Version for operation at ambient temperatures from -40°C ... +80°C on request

Max. operating frequency: 3600 operating cycles/hour

Mechanical endurance: 1 million operating cycles

Mounting position: any

Tightening torques for installation: see page 155

Wire cross-sections and

wire stripping lengths: see page 169

Electrical endurance

Load type: 20 single-tube neon lamps

36 W / 230 V (connected in parallel)

Frequency: 10 s ON / 10 s OFF

Maximum number of cycles: 100,000

In compliance with standards:

IEC 60947-5-1, EN 60947-5-1, EN 60947-1, EN 50047, IEC 60204-1, EN 60204-1, EN ISO 14119, EN ISO 12100, IEC 60529, EN 60529, EN IEC 63000, EN 81-20, EN 81-50, UL 508, CSA 22.2 No.14.

Approvals:

IEC 60947-5-1, UL 508, CSA 22.2 No.14, GB/T14048.5-2017.

Compliance with the requirements of:

Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU, Lift Directive 2014/33/EU, RoHS Directive 2011/65/EU.

⚠ If not expressly indicated in this chapter, for correct installation and utilization of all articles see the instructions given on pages 153 to 162.

Electrical data		Utilization category
Thermal current (I_{th}):	10 A	Alternating current: AC15 (50÷60 Hz)
Rated insulation voltage (U_i):	500 Vac 600 Vdc	U_e (V) 250 400 500
	400 Vac 500 Vdc (contact blocks 11, 12)	I_e (A) 6 4 1
Rated impulse withstand voltage (U_{imp}):	6 kV	Direct current: DC13
Conditional short circuit current:	1000 A acc. to EN 60947-5-1	U_e (V) 24 125 250
Protection against short circuits:	type aM fuse 10 A 500 V	I_e (A) 3 0.55 0.3
Pollution degree:	3	

Features approved by IMQ

Rated insulation voltage (U_i):	500 Vac 400 Vac (for contact blocks 11, 12)
Conventional free air thermal current (I_{th}):	10 A
Protection against short circuits:	type aM fuse 10 A 500 V
Rated impulse withstand voltage (U_{imp}):	6 kV
Protection degree of the housing:	IP67
MV terminals (screw terminals)	
Pollution degree:	3
Utilization category:	AC15
Operating voltage (U_e):	400 Vac (50 Hz)
Operating current (I_e):	3 A
Forms of the contact element:	Zb, Y+Y, X+X
In compliance with standards:	EN 60947-1, EN 60947-5-1, fundamental requirements of the Low Voltage Directive 2014/35/EU

Please contact our technical department for the list of approved products.

Features approved by UL

Electrical Ratings:	Q300 pilot duty (69 VA, 125-250 V dc) A600 pilot duty (720 VA, 120-600 V ac)
Environmental Ratings:	FR: Types 1, 4X FX: Types 1, 4X, 12, 13

For all contact blocks use 60 or 75°C copper (Cu) conductors, rigid or flexible, wire size 12, 14 AWG. Tightening torque for terminal screws of 7.1 lb in (0.8 Nm).

The hub is to be connected to the conduit before the hub is connected to the enclosure.

Please contact our technical department for the list of approved products.

Introduction

Standard EN 81-20, paragraph 5.2.1.5, details the requirement for switches to illuminate the lift shaft, close to each access point, and in machinery spaces.

The FR 573 switch has been designed specifically to operate the lights in the lift shaft, and, as a single unit with a single cabling, allows this requirement to be met without having to install light switches and cabling separately on each floor.

Installation:

The installation is extremely simple: the switch is fixed in the upper part of the lift shaft and it is operated by means of a rope that runs through the entire shaft.

The relevant indicators of the rope's function – placed at regular intervals on each floor – also act as convenient handles. In this way, an operator on the cabin roof, or at any position throughout the lift shaft, is able to actuate the switch by simply pulling the practical indicator device, or the rope itself.

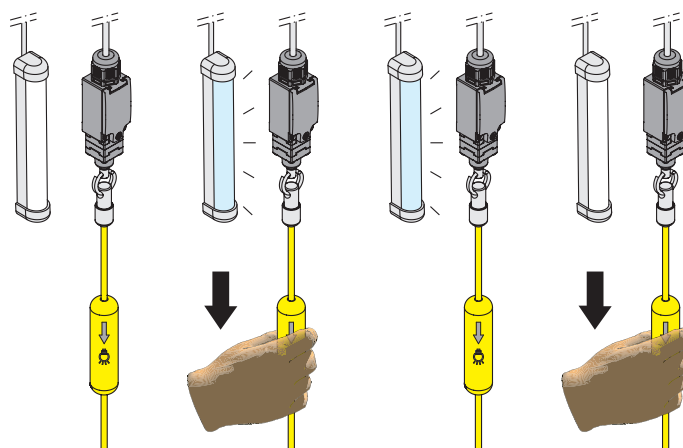
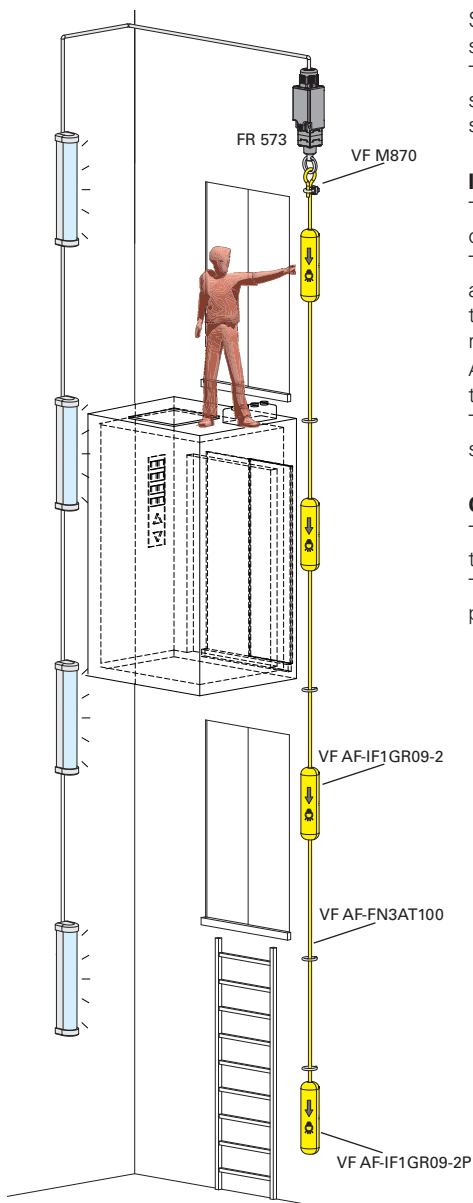
A special function indicator with weights is installed at the end of the rope, in order to keep it taut.

The maximum recommended rope length is 50 metres. For longer lengths, please contact our sales office.

Operation:

The FR 573 switch retains its position after actuation. This means that the first actuation closes the contacts, the next actuation opens them, and so on.

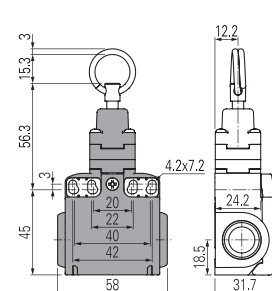
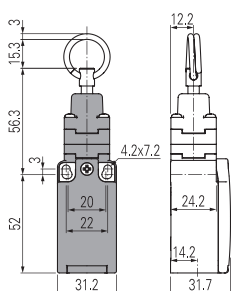
To switch on the light in the lift shaft it is sufficient to pull the rope. To switch the light off, simply pull the rope again.



Dimensional drawings

Contact type:

R = snap action



Contact block

5	R	FR 573-M2	1NO+1NC	FX 573-M2	1NO+1NC
11	R	FR 1173-M2	2NO	FX 1173-M2	2NO
12	R	FR 1273-M2	2NC	FX 1273-M2	2NC
Max. speed		0.5 m/s		0.5 m/s	
Actuating force		initial 20 N - final 40 N		initial 20 N - final 40 N	

All values in the drawings are in mm

Accessories

Article	Description
VF AF-IF1GR09-2P	End indicator with internal stabilising weight
VF AF-IF1GR09-2	Intermediate rope function indicators
	Rope function indicator. Tightening torque of fastening screws: 0.8 ... 1.0 Nm.
Article	Description
VF AF-FN3AT100	100 m rope
	Yellow/transparent rope coil, Ø 3 mm with brass-plated steel core and PVC coating.
Article	Description
VF M870	Rope end clamp

Accessories See page 149

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



Main features

- Technopolymer housing, from one to two conduit entries
- Hinged cover, fixed with single captive screw
- Metal plates on mounting holes of the housing
- Protection degree IP67 and IP69K
- Versions with assembled M12 connector
- Versions with gold-plated silver contacts

Quality marks:



IMQ approval:	EG610
UL approval:	E131787
CCC approval:	2021000305000101
EAC approval:	RU C-IT.YT03.B.00035/19

Technical data

Housing

Housing made of glass fibre reinforced technopolymer, self-extinguishing, shock-proof and with double insulation:

FR series, one conduit entry: M20x1.5 (standard)

FX series, two knock-out threaded conduit entries: M20x1.5 (standard)

Protection degree: IP67 acc. to EN 60529 with cable gland of equal or higher protection degree
IP69K acc. to ISO 20653 with cable gland of equal or higher protection degree

General data

Ambient temperature: -25°C ... +80°C

Version for operation at ambient temperatures from -40°C ... +80°C on request

Max. operating frequency: 3600 operating cycles/hour

Mechanical endurance: 20 million operating cycles

Mounting position: any

Tightening torques for installation: see page 155

Wire cross-sections and wire stripping lengths: see page 169

In compliance with standards:

IEC 60947-5-1, EN 60947-5-1, EN 60947-1, EN 50047, IEC 60204-1, EN 60204-1, EN ISO 14119, EN ISO 12100, IEC 60529, EN 60529, EN IEC 63000, EN 81-20, EN 81-50, UL 508, CSA 22.2 No.14.

Approvals:

IEC 60947-5-1, UL 508, CSA 22.2 No.14, GB/T14048.5-2017.

Compliance with the requirements of:

Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU, Lift Directive 2014/33/EU, RoHS Directive 2011/65/EU.

⚠ If not expressly indicated in this chapter, for correct installation and utilization of all articles see the instructions given on pages 153 to 162.

Electrical data

Thermal current (I_{th}):	10 A
Rated insulation voltage (U):	500 Vac 600 Vdc
Rated impulse withstand voltage (U_{imp}):	6 kV
Conditional short circuit current:	1000 A acc. to EN 60947-5-1
Protection against short circuits:	type aM fuse 10 A 500 V
Pollution degree:	3

Utilization category

Alternating current: AC15 (50-60 Hz)			
U_e (V)	250	400	500
I_e (A)	6	4	1
Direct current: DC13			
U_e (V)	24	125	250
I_e (A)	3	0.55	0.3

Features approved by IMQ

Rated insulation voltage (U):	500 Vac
Conventional free air thermal current (I_{th}):	10 A
Protection against short circuits:	type aM fuse 10 A 500 V
Rated impulse withstand voltage (U_{imp}):	6 kV
Protection degree of the housing:	IP67
MV terminals (screw terminals)	
Pollution degree:	3
Utilization category:	AC15
Operating voltage (U_o):	400 Vac (50 Hz)
Operating current (I_o):	3 A
Forms of the contact element:	Zb, Y+Y
In compliance with standards:	EN 60947-1, EN 60947-5-1, fundamental requirements of the Low Voltage Directive 2014/35/EU

Please contact our technical department for the list of approved products.

Features approved by UL

Electrical Ratings:	Q300 pilot duty (69 VA, 125-250 V dc) A600 pilot duty (720 VA, 120-600 V ac)
Environmental Ratings:	FR: Types 1, 4X FX: Types 1, 4X, 12, 13

For all contact blocks use 60 or 75°C copper (Cu) conductors, rigid or flexible, wire size 12, 14 AWG. Tightening torque for terminal screws of 7.1 lb in (0.8 Nm).

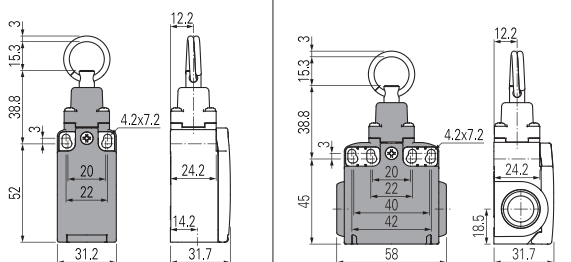
The hub is to be connected to the conduit before the hub is connected to the enclosure.

Please contact our technical department for the list of approved products.

Dimensional drawings

Contact type:

- R** = snap action
- L** = slow action



Contact block

5	R	FR 576-M2	1NO+1NC	FX 576-M2	1NO+1NC
9	L	FR 976-M2	2NO	FX 976-M2	2NO
Max. speed		0.5 m/s		0.5 m/s	
Actuating force		initial 20 N - final 40 N		initial 20 N - final 40 N	

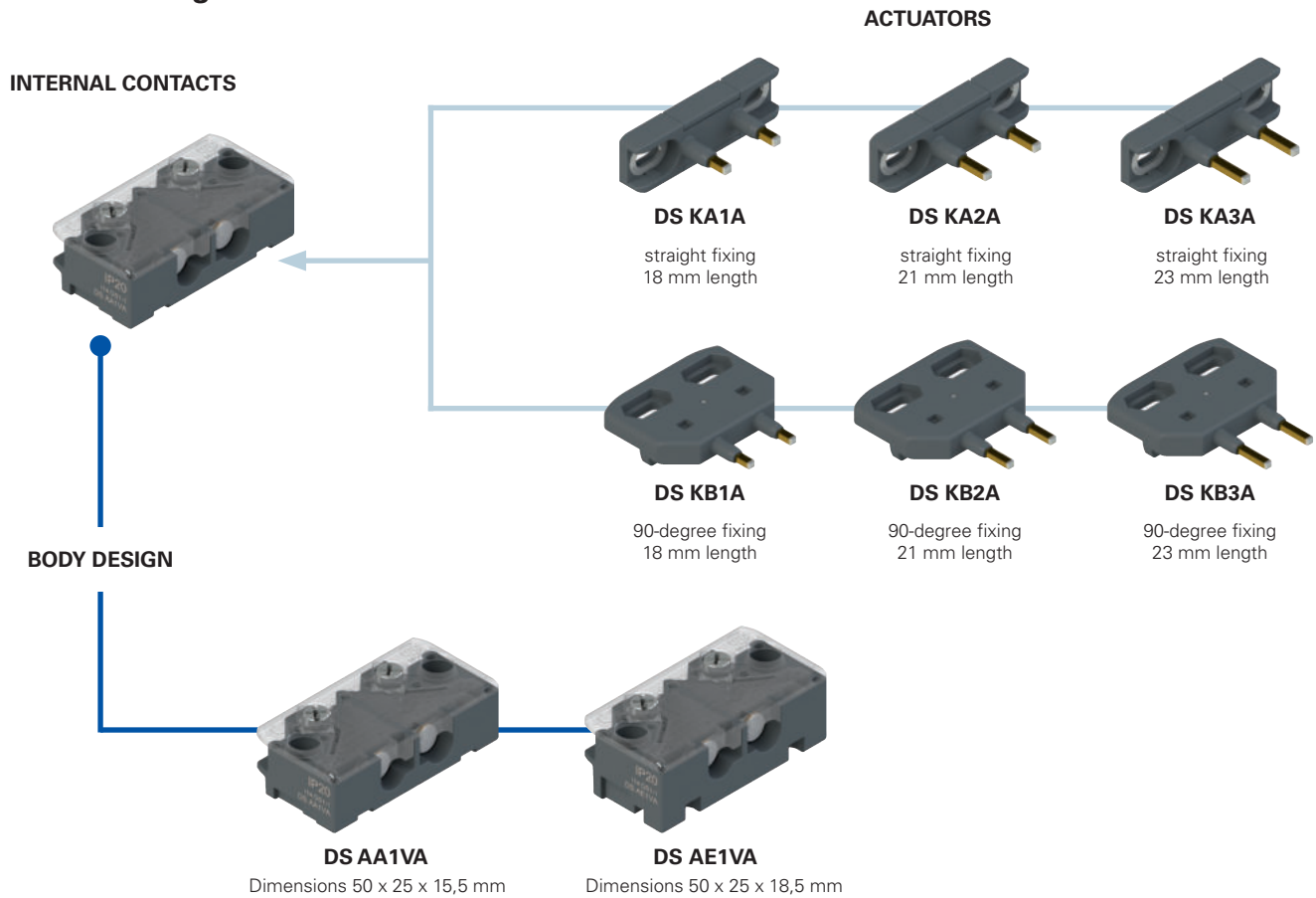
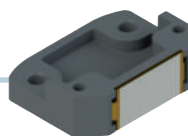
Accessories

Article	Description
VF AF-IF1GR09-2P	End indicator with internal stabilising weight
VF AF-IF1GR09-2	Intermediate rope function indicators
Rope function indicator.	
Tightening torque of fastening screws: 0.8 ... 1.0 Nm	

Article	Description
VF AF-FN3AT100	100 m rope
Yellow/transparent rope coil, Ø 3 mm with brass-plated steel core and PVC coating.	

Article	Description
VF M870	Rope end clamp

Selection diagram

**EXTERNAL CONTACTS****ACTUATOR**

DS KP5A
90-degree fixing
flat contact

BODY DESIGN

DS AA5VA
Dimensions 50 x 25 x 15,5 mm



DS AE5VA
Dimensions 50 x 25 x 18,5 mm

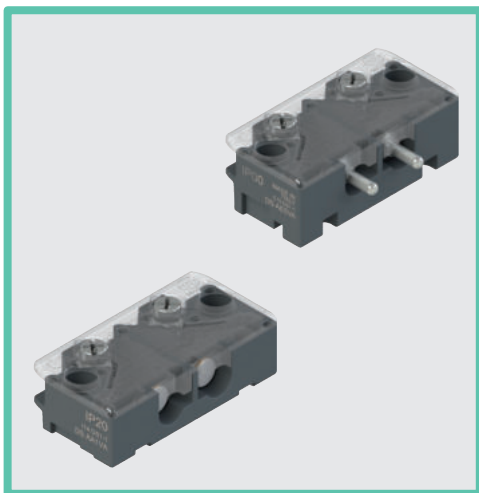
- Product options
- Sold separately as accessory

**Code structure for door contacts****Attention!** The feasibility of a code number does not mean the effective availability of a product. Please contact our sales office.**DS AA1VA**

Body design		Contact type	
A	Dimensions 50 x 25 x 15,5 mm mounting hole spacing 40 mm fixing with M4x10 screws	1	internal contacts
E	Dimensions 50 x 25 x 18,5 mm mounting hole spacing 40 mm fixing with M4x13 screws	5	external contacts

Code structure for actuator**Attention!** The feasibility of a code number does not mean the effective availability of a product. Please contact our sales office.**DS KA1A**

Body design		Contact type	
A	Mounting hole spacing 29 mm straight fixing	1	actuator for internal contacts, 18 mm length
B	Mounting hole spacing 20 mm 90-degree fixing	2	actuator for internal contacts, 21 mm length
P	Mounting hole spacing 30 mm 90-degree fixing, flat contact	3	actuator for internal contacts, 23 mm length
		5	actuator for external contacts, 12 x 20 mm



Main features

- Housing made of glass fibre reinforced technopolymer, self-extinguishing
- Self-cleaning contacts in solid silver
- Can be installed with cable side flush with wall
- Front actuation
- Protection degrees IP00 up to IP20
- Transparent cover or head

Quality marks:



UL approval:	E131787
CCC approval:	2021000305000104
EAC approval:	RU C-IT.YT03.B.00035/19
TÜV SÜD approval	EVOL 722228743

Technical data

Description

Double interruption positive opening safety switch. Suitable for controlling automatic lift doors.

Housing

Housing made of glass fiber reinforced technopolymer, self-extinguishing and shock-proof
 Protection degree acc. to EN 60529: IP00 (articles DS A•5VA)
 IP20 (articles DS A•1VA)

General data

Ambient temperature:	-30°C ... +80°C (humidity ≤ 95%, without condensation)
Max. operating frequency:	3600 operating cycles/hour
Mechanical endurance:	10 million operating cycles (DS A•1VA) 5 million operating cycles (DS A•5VA)
Mechanical interlock, not coded:	type 1 acc. to EN ISO 14119
Safety parameter B _{10D} :	20,000,000 (DS A•1VA) 10,000,000 (DS A•5VA)
Max. actuation speed:	0.5 m/s
Min. actuation speed:	1 mm/s
Actuating force:	1.2 ... 2.1 N (DS A•1VA) 1.2 ... 1.7 N (DS A•5VA) 0.8 ... 1.3 N (DS A•1VA) 0.8 ... 1.1 N (DS A•5VA)
Available with reduced actuating force on request:	
Tightening torques for installation:	see page 158
Fixing screws:	M4 self-tapping Longer fixing screws available on request

Connections:

Cable cross section (flexible copper strands):	min 1 x 0.5 mm ² (1 x AWG 20) max 1 x 2.5 mm ² (1 x AWG 14)
Cable stripping length:	7 mm

In compliance with standards:

IEC 60947-5-1, EN 60947-5-1, EN 60947-1, EN 60529, EN ISO 14119, EN 60529, EN IEC 63000, EN 81-20, EN 81-50, UL 508, CSA 22.2 No.14.

Approvals:

IEC 60947-5-1, UL 508, CSA 22.2 No.14, GB/T14048.5-2017.

Compliance with the requirements of:

Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU,
 Lift Directive 2014/33/EU, RoHS Directive 2011/65/EU.

Positive contact opening in conformity with standards:

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

Electrical data

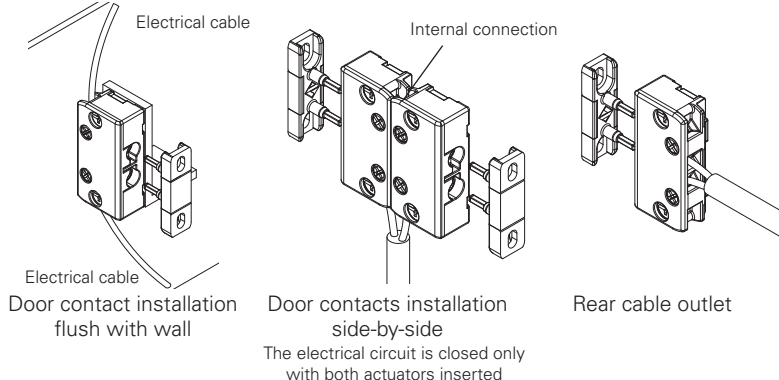
Thermal current (I _{th}):	4 A
Rated insulation voltage (U _i):	500 Vac
Impulse withstand voltage (U _{imp}):	6 kV
Protection against short circuits:	fuse 4 A 500 V type gG
Pollution degree:	3

Utilization categories:

Acc. to	Acc. to	Acc. to
EN 60947-5-1, EN 81-20 par. 5.11.2.2	EN 81-50 par. 5.2.2.4	EN 81-50 par. 5.2.2.2
AC15 (50, 60 Hz):	AC (50, 60 Hz):	AC (50, 60 Hz):
U _e (V) 120 250	230 Vac	230 Vac
I _e (A) 3 3	2 A	2 A
DC13:	DC:	DC:
U _e (V) 125 250	200 Vdc	125 Vdc
I _e (A) 0,55 0,27	2 A	0.5 A

Application examples

These devices have additional cable outlets, allowing installation even in tight spaces. For example:



Features approved by UL

Electrical Ratings: Q300 (69 VA, 125-250 V dc)
 120-240 V ac, 3 A pilot duty,
 5 A thermal current.

Use 60 or 75°C copper (Cu) conductors, rigid or flexible, wire size 12, 14 AWG. Tightening torque for terminal screws of 7.1 lb in (0.8 Nm).

Please contact our technical department for the list of approved products.



Dimensional drawings

Packs of 10 pcs.

	Door contacts with internal contacts		Door contacts with external contacts	
	Switch without actuator	Switch without actuator	Switch without actuator	Switch without actuator
Slow action contacts	DS AA1VA 1NC	DS AE1VA 1NC	DS AA5VA 1NC	DS AE5VA 1NC
Maximum actuation travel	8 mm	8 mm	6 mm	6 mm
Travel diagram				

Legend

Closed contact | Open contact | Positive opening travel | Minimum 2 mm opening travel between contacts, in accordance with UNI EN 81-20

Actuators for door contacts with internal contacts

Packs of 10 pcs.

Article	Description	Article	Description
DS KA1A	Straight actuator	DS KB1A	Angled actuator
DS KA2A	Straight actuator (*)	DS KB2A	Angled actuator (*)
DS KA3A	Straight actuator (*)	DS KB3A	Angled actuator (*)

(*) **ATTENTION:** When inserting the actuator, never exceed the maximum actuating travel.

Actuator for door contacts with external contacts

Packs of 10 pcs.

Article	Description
DS KP5A	Flat actuator

Centring device

Packs of 100 pcs.

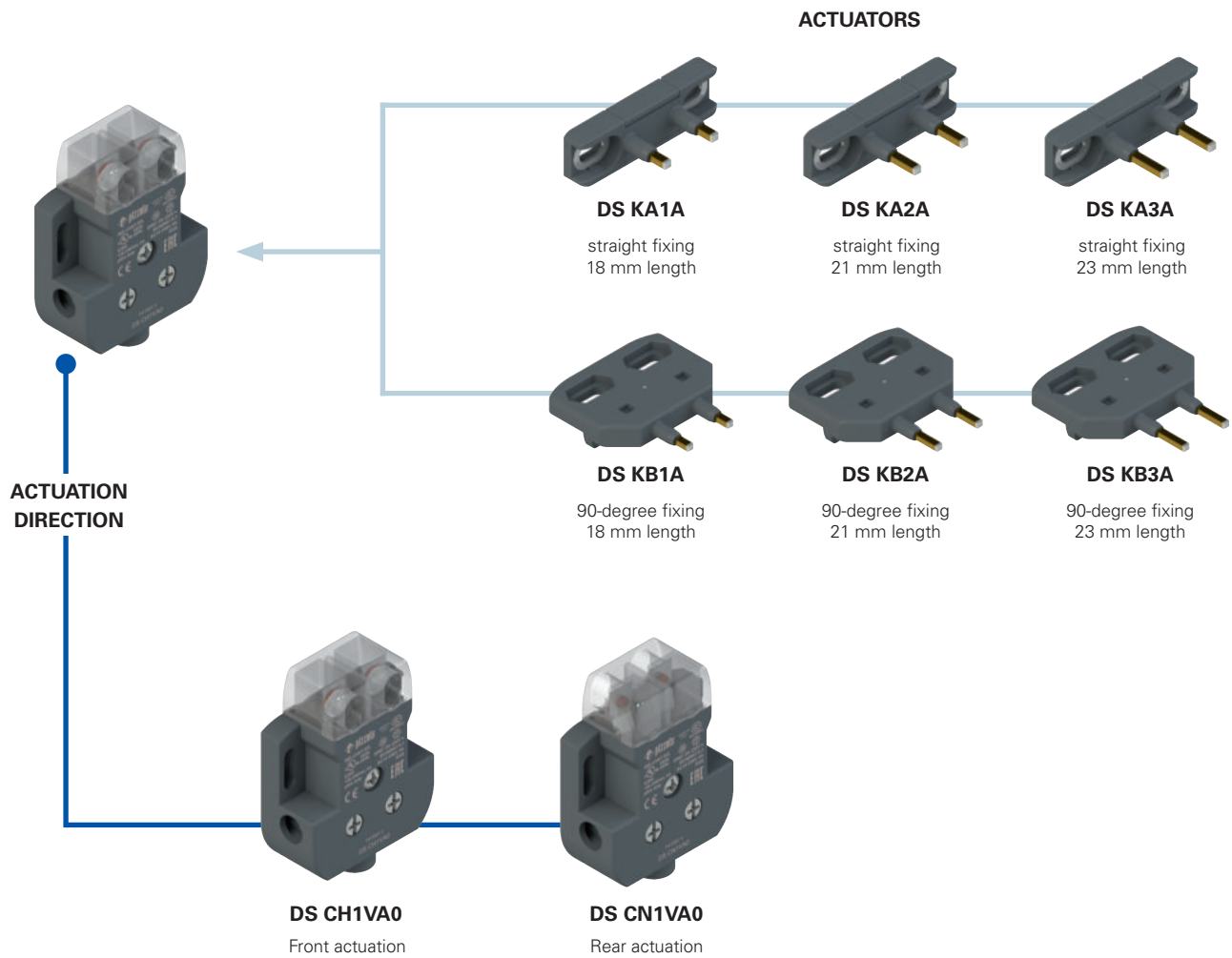
Article	Description
VD CE1A20	Centring device
	Centring device compatible with DS KA•• and DS KB•• actuators. Facilitates actuator centring with DS A•1VA switches during installation.

All values in the drawings are in mm

Accessories See page 149

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

Selection diagram



- Product options
- Sold separately as accessory

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

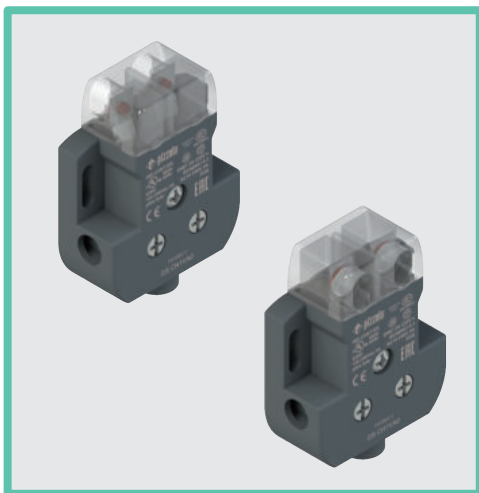
DS CH1VA0

Actuation direction	
H	Front actuation Dimensions 60 x 44 x 19 mm
N	Rear actuation Dimensions 60 x 44 x 19 mm

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

DS KA1A

Body design		Contact type	
A	Mounting hole spacing 29 mm straight fixing	1	actuator for internal contacts, 18 mm length
B	Mounting hole spacing 20 mm 90-degree fixing	2	actuator for internal contacts, 21 mm length
		3	actuator for internal contacts, 23 mm length



Main features

- Housing made of glass fibre reinforced technopolymer, self-extinguishing
- Self-cleaning contacts in solid silver
- 3 wiring options
- Protection degree IP20
- Transparent orientable head

Quality marks:



UL approval:	E131787
CCC approval:	2021000305000104
EAC approval:	RU C-IT.YT03.B.00035/19
TÜV SÜD approval:	EVOL 722228743

Technical data

Description

Double interruption positive opening safety switch. Suitable for controlling automatic lift doors.

Housing

Housing made of glass fiber reinforced technopolymer, self-extinguishing and shock-proof
Protection degree acc. to EN 60529: IP20

General data

Ambient temperature:	-30°C ... +80°C (humidity ≤ 95%, without condensation)
Max. operating frequency:	3600 operating cycles/hour
Mechanical endurance:	20 million operating cycles
Mechanical interlock, not coded:	type 1 acc. to EN ISO 14119
Safety parameter B _{10D} :	40,000,000 for NC contacts
Max. actuation speed:	0.5 m/s
Min. actuation speed:	1 mm/s
Max. actuating force:	1.5 N
Tightening torques for installation:	see page 158

Connections:

Cable cross section (flexible copper strands):	min 1 x 0.5 mm ² (1 x AWG 20) max 1 x 2.5 mm ² (1 x AWG 14)
Cable stripping length:	7 mm

In compliance with standards:

IEC 60947-5-1, EN 60947-5-1, EN 60947-1, EN 60529, EN ISO 14119, EN 60529, EN IEC 63000, EN 81-20, EN 81-50, UL 508, CSA 22.2 No.14.

Approvals:

IEC 60947-5-1, UL 508, CSA 22.2 No.14, GB/T14048.5-2017.

Compliance with the requirements of:

Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU, Lift Directive 2014/33/EU, RoHS Directive 2011/65/EU.

Positive contact opening in conformity with standards:

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

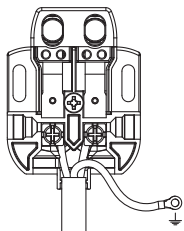
Electrical data

Thermal current (I _{th}):	6 A
Rated insulation voltage (U _i):	500 Vac
Impulse withstand voltage (U _{imp}):	6 kV
Protection against short circuits:	fuse 6 A 500 V type gG
Pollution degree:	3

Utilization categories:

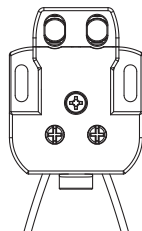
Acc. to	Acc. to	Acc. to	Ratings:
EN 60947-5-1,	EN 81-50	EN 81-50	Acc. to
EN 81-20 par. 5.11.2.2	par. 5.2.2.4	par. 5.2.2.2	UL508
AC15 (50, 60 Hz):	AC (50, 60 Hz):	AC (50, 60 Hz):	AC (50, 60 Hz):
U _e (V) 120 250	230 Vac	230 Vac	AC (50, 60 Hz):
I _e (A) 3 3	2 A	2 A	C300
DC13:	DC:	DC:	DC:
U _e (V) 125 250	200 Vdc	125 Vdc	Q300
I _e (A) 0.8 0.45	2 A	1 A	

Three wiring options



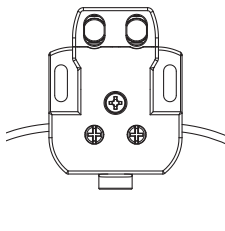
Standard wiring

With bipolar cable through the centre hole, on the bottom of the housing. It is also possible to use a tripolar cable, with the ground wire exiting via a lateral hole to earth other metallic parts.



Fast bottom wiring

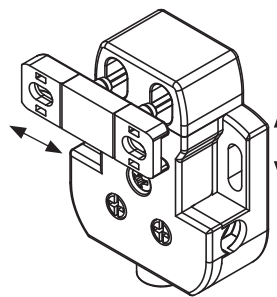
With two monopolar cables fed through two holes provided on the bottom of the housing. There is no need to open the contact cover during this procedure.



Fast lateral wiring

With two monopolar cables fed through two holes provided on the side of the housing. There is no need to open the contact cover during this procedure.

Transparent head and slotted holes

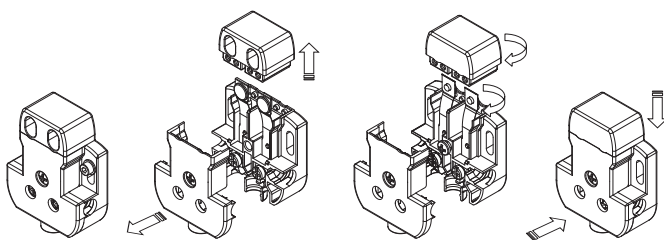


Head transparent on all sides, to allow adjustment and centring of the actuator in relation to contacts.

The slotted holes on the actuator and in the contact housing allow for correct alignment of both devices.

Rotating head

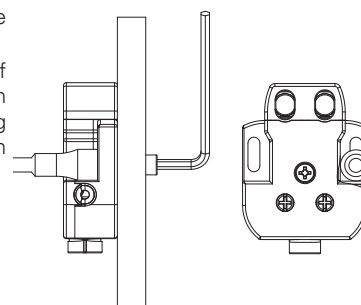
Turning the head and contact springs by 180°, a door contact with rear actuation can be converted to front actuation. Simply by loosening three screws.



Rear fixing of the housing

The special housing shape allows rear fixing.

You also have the option of inserting a tubular wrench close to the mounting holes, to hold the nut in place during fixing.



Dimensional drawings

Packs of **10 pcs.**

	Front actuation Switch without actuator A= Actuator insertion direction	Rear actuation Switch without actuator A= Actuator insertion direction
Slow action contacts	DS CH1VA0 1NC	DS CN1VA0 1NC
Maximum actuation travel	6 mm	6 mm
Travel diagram		

Legend

Closed contact | Open contact | Positive opening travel | Minimum 2 mm opening travel between contacts, in accordance with UNI EN 81-20

Centring device

Packs of **100 pcs.**

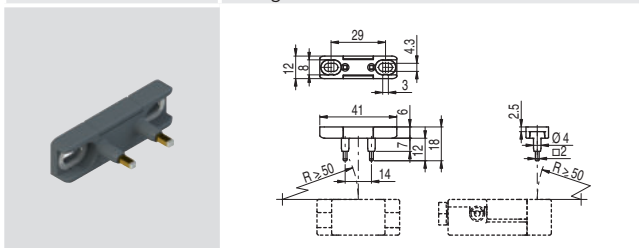
Article	Description
VD CE1A20	Centring device

Centring device compatible with DS KA●● and DS KB●● actuators. Facilitates actuator centring with DS C●1VA switches during installation.

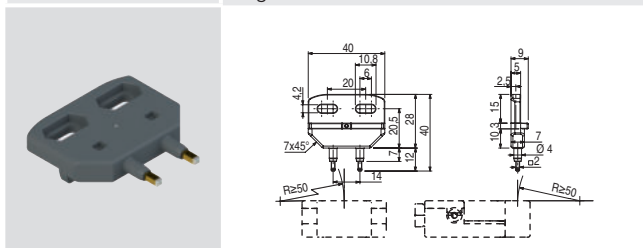
Actuators

Packs of **10 pcs.**

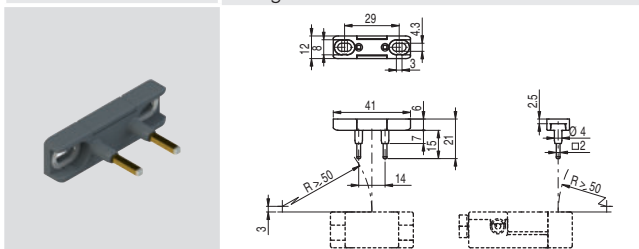
Article	Description
DS KA1A	Straight actuator



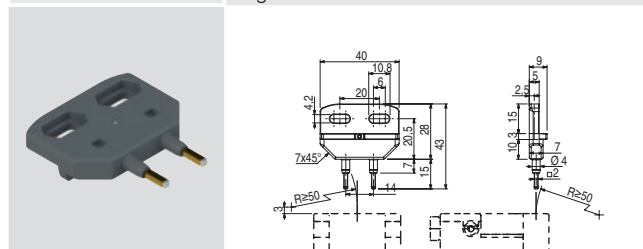
Article	Description
DS KB1A	Angled actuator



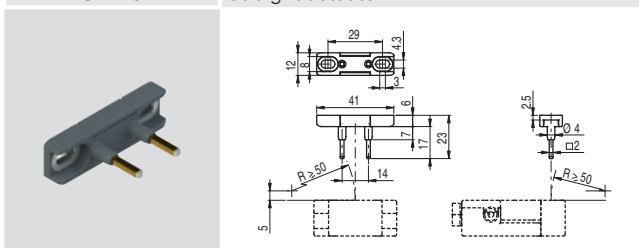
Article	Description
DS KA2A	Straight actuator (*)



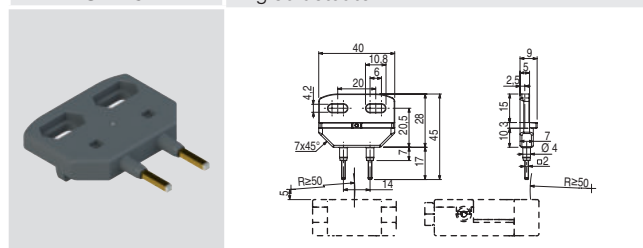
Article	Description
DS KB2A	Angled actuator (*)



Article	Description
DS KA3A	Straight actuator (*)



Article	Description
DS KB3A	Angled actuator (*)



(*) **ATTENTION:** When inserting the actuator, never exceed the maximum actuating travel.

All values in the drawings are in mm

Accessories See page 149

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



Main features

- Reduced actuating force
- Technopolymer housing, one or two conduit entries
- Hinged cover, fixed with single captive screw
- Metal plates on mounting holes of the housing
- Protection degree IP67 and IP69K
- Ability to affix actuator in 2 positions, perpendicular to one another

Quality marks:



IMQ approval:	EG610
UL approval:	E131787
CCC approval:	2021000305000101
EAC approval:	RU C-IT.YT03.B.00035/19

Installation for safety applications:

Use only switches marked with the \ominus symbol beside the product code. Always connect the safety circuit to the **NC contacts** (normally closed contacts: 11-12, 21-22 or 31-32) as stated in **standard EN 81-20 par. 5.11.2.2.1**. Actuate the switch **at least up to the positive opening travel** reported in the travel diagrams. Actuate the switch **at least with the positive opening force**, reported in brackets below each article, next to the actuating force value.

⚠ If not expressly indicated in this chapter, for correct installation and utilization of all articles see the instructions given on pages 153 to 162.

Technical data

Description

Double interruption positive opening safety switch. Suitable for controlling automatic lift doors.

Housing

Housing made of glass fibre reinforced technopolymer, self-extinguishing, shock-proof and with double insulation: \square

FR series, one conduit entry: M20x1.5 (M16x1.5 on request)

FX series, two knock-out threaded conduit entries: M20x1.5 (M16x1.5 on request)

Protection degree: IP67 acc. to EN 60529 with cable gland of equal or higher protection degree

IP69K acc. to ISO 20653 with cable gland of equal or higher protection degree

General data

Ambient temperature: -25°C ... +80°C

Version for operation at ambient temperatures from -40°C ... +80°C on request

Max. operating frequency: 3600 operating cycles/hour

Mechanical endurance: 10 million operating cycles

Mechanical interlock, not coded: type 1 acc. to EN ISO 14119

Safety parameter B_{10D} : 20,000,000 for NC contacts

Max. actuation speed: 0.5 m/s

Min. actuation speed: 1 mm/s

Mounting position: any

Tightening torques for installation: see page 155

Wire cross-sections and wire stripping lengths: see page 169

In compliance with standards:

IEC 60947-5-1, EN 60947-5-1, EN 60947-1, EN 50047, IEC 60204-1, EN 60204-1, EN ISO 14119, EN ISO 12100, IEC 60529, EN 60529, EN IEC 63000, EN 81-20, EN 81-50, UL 508, CSA 22.2 No.14.

Approvals:

IEC 60947-5-1, UL 508, CSA 22.2 No.14, GB/T14048.5-2017.

Compliance with the requirements of:

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

Lift Directive 2014/33/EU, RoHS Directive 2011/65/EU.

Positive contact opening in conformity with standards:

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

Electrical data

Thermal current (I_{th}):	10 A
Rated insulation voltage (U_i):	500 Vac 600 Vdc
Rated impulse withstand voltage (U_{imp}):	6 kV
Conditional short circuit current:	1000 A acc. to EN 60947-5-1
Protection against short circuits:	type aM fuse 10 A 500 V
Pollution degree:	3

Utilization category

Alternating current: AC15 (50÷60 Hz)			
U_e (V)	250	400	500
I_e (A)	6	4	1
Direct current: DC13			
U_e (V)	24	125	250
I_e (A)	3	0.55	0.3

Features approved by IMQ

Rated insulation voltage (U_i):	500 Vac
Conventional free air thermal current (I_{th}):	10 A
Protection against short circuits:	type aM fuse 10 A 500 V
Rated impulse withstand voltage (U_{imp}):	6 kV
Protection degree of the housing:	IP67
MV terminals (screw terminals)	
Pollution degree:	3
Utilization category:	AC15
Operating voltage (U_e):	400 Vac (50 Hz)
Operating current (I_e):	3 A
Forms of the contact element: Y, Y+Y	
Positive opening of contacts on contact blocks 38, 39	
In compliance with standards: EN 60947-1, EN 60947-5-1, fundamental requirements of the Low Voltage Directive 2014/35/EU	

Please contact our technical department for the list of approved products.

Features approved by UL

Electrical Ratings:	Q300 pilot duty (69 VA, 125-250 V dc) A600 pilot duty (720 VA, 120-600 V ac)
Environmental Ratings:	FR: Types 1, 4X FX: Types 1, 4X, 12, 13

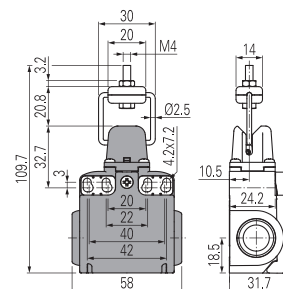
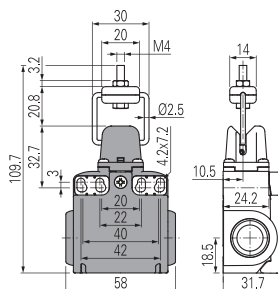
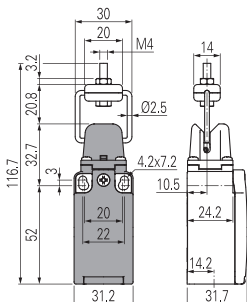
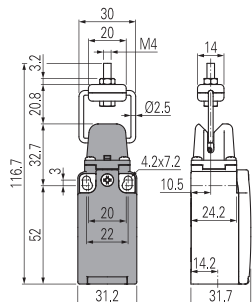
For all contact blocks use 60 or 75°C copper (Cu) conductors, rigid or flexible, wire size 12, 14 AWG. Tightening torque for terminal screws of 7.1 lb in (0.8 Nm).

The hub is to be connected to the conduit before the hub is connected to the enclosure.

Please contact our technical department for the list of approved products.

Dimensional drawings

Contact type:

L = slow action


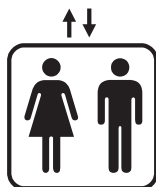
Contact block

38	L	FR 38B1-D30M2	1NC	/	FX 38B1-D30M2	1NC	/		
39	L	/	FR 39B1-D30M2	2NC	/	FX 39B1-D30M2	2NC		
Actuating force		3 N (25 N)		4.2 N (25 N)		3 N (25 N)		4.2 N (25 N)	
Travel diagrams									

Legend

Closed contact | Open contact | Positive opening travel

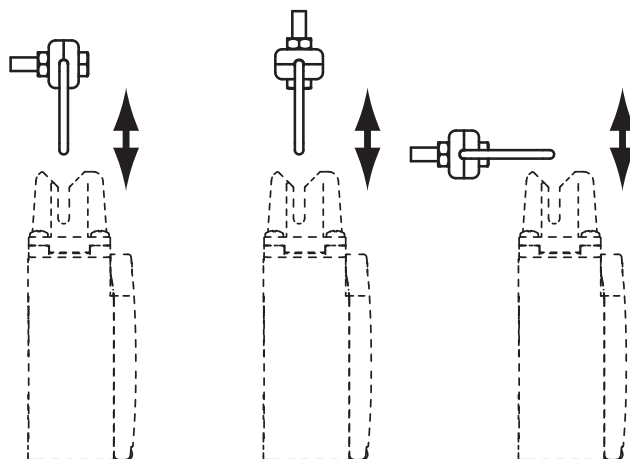
Compliant with EN 81-20 and EN 81-50



- Safety contacts in compliance with EN 60947-5-1, annex K.
- Protection degree higher than IP4x.
- Mechanical service life > 10⁶ cycles.

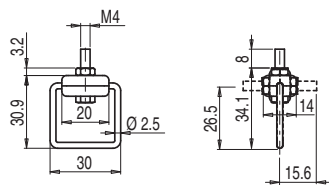
Adjustable actuator

The actuator can be fixed in two positions, perpendicular to one another. The switch can also be actuated from different directions.



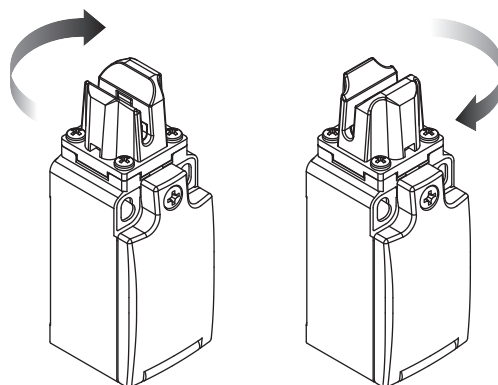
Separate actuator

Article	Description
VF KEYD30	Adjustable actuator

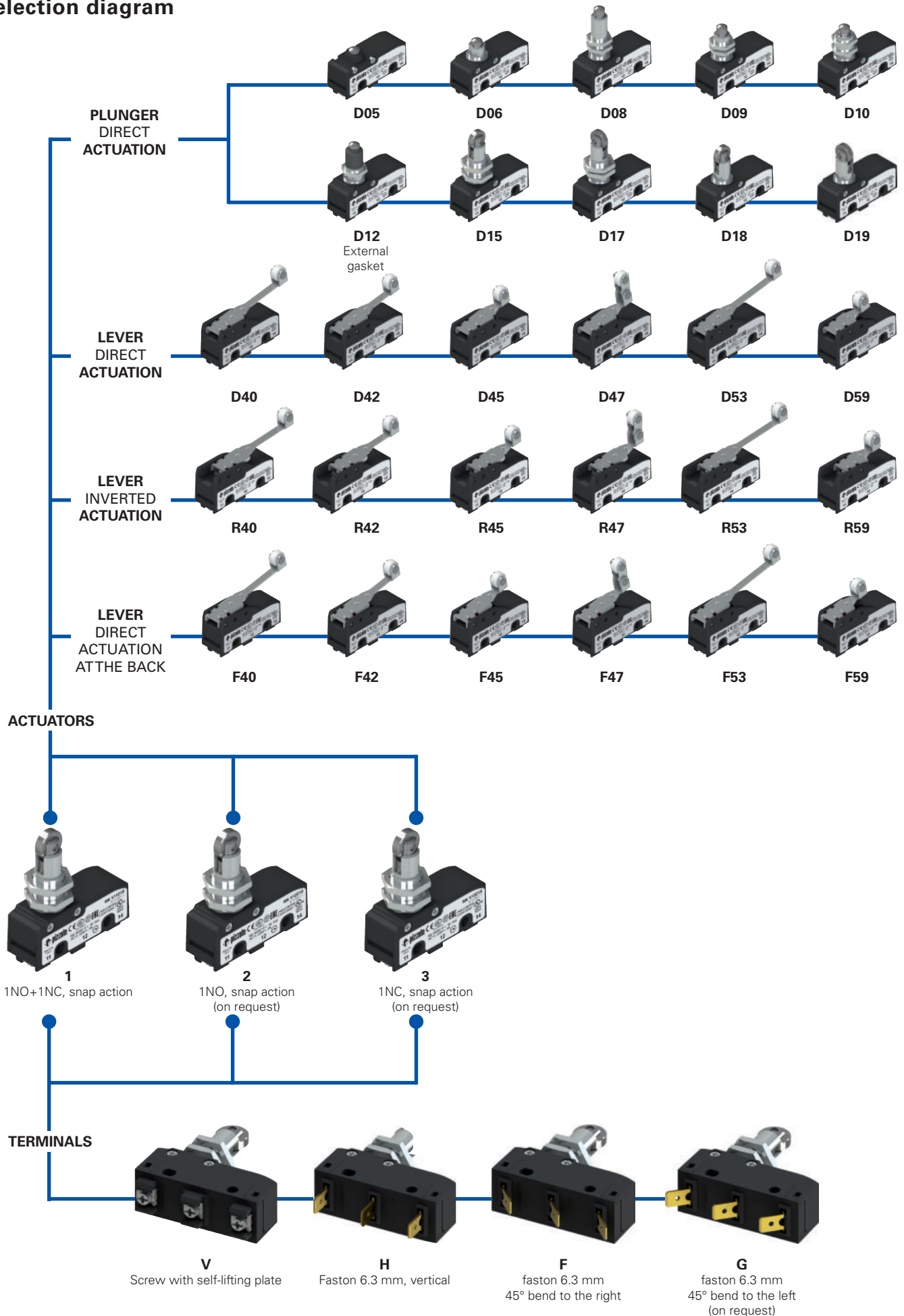


Head with variable orientation

The head of all switches is adjustable in 90° steps.

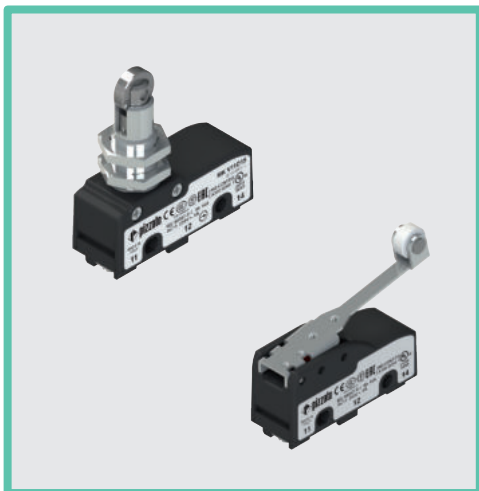


Selection diagram



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

article		options	
MK		V12D40-GR16T6	
Terminal type		Ambient temperature	
V	screw with self-lifting plate		-25°C ... +85°C (standard)
H	vertical faston	T6	-40°C ... +85°C
F	Faston, 45° bend to the right	Rollers	
G	Faston, 45° bend to the left (on request)		standard roller
Contact block		R16	metal roller Ø 9.5x4 mm (for actuators 40, 42, 45, 47, 53, 59 only)
1	1NO+1NC, snap action	R10	large plastic roller Ø 9.8x8.4 mm (for actuators 40, 42, 45, 53 only)
2	1NO, snap action (on request)	Contact type	
3	1NC, snap action (on request)		silver contacts (standard)
Maximum protection degree		G	silver contacts with 1 µm gold coating
1	IP40 (with terminal cover)	Actuator	
2	IP65 (with terminal cover)	01	pin
Type of actuation		02	pin
D	direct actuation	03	narrow plunger
R	inverted actuation
F	direct actuation at the back		



Main features

- Technopolymer housing
- Protection degree IP20, IP40 or IP65
- 4 terminal types available
- Versions with positive opening ⊕
- Versions with gold-plated silver contacts
- Terminal covers with strain relief cable gland

Quality marks:



IMQ approval:	CA02.05772
UL approval:	E131787
CCC approval:	2021000305000105
EAC approval:	RUC-IT.YT03.B.00035/19

Installation for safety applications:

Use only microswitches marked with the ⊕ symbol beside the product code. Always connect the safety circuit to the **NC contacts** (normally closed contacts) as stated in **standard EN 81-20 par. 5.11.2.2.1**. Actuate the switch **at least up to the positive opening travel (CAP)** reported next to the article code. Actuate the switch **at least with the positive opening force (FAP)** reported next to the article code.

⚠ If not expressly indicated in this chapter, for correct installation and utilization of all articles see the instructions given on pages 153 to 162.

Technical data

Housing

Housing made of glass fibre reinforced technopolymer, self-extinguishing and shock-proof.
Protection degree acc. to EN 60529:

IP00	without terminal cover
IP20	(with terminal covers VF C01, VF C03)
IP40	(with terminal covers VF MKC•1•, VF C02)
IP65	(with terminal covers VF MKC•22 + MK V•2•••• or VF MKC•23 + MK H•2••••)

General data

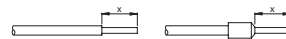
Ambient temperature:	-25°C ... +85°C (standard) -40°C ... +85°C (T6 option)
Max. actuation frequency:	3600 operating cycles/hour
Mechanical endurance:	10 million operating cycles
Safety parameter B _{10D} :	20,000,000 for NC contacts
Tightening torques for installation:	see page 158

Conductor cross section (flexible copper strands)

MK series:	min. 1 x 0.34 mm ² (1 x AWG 22)
	max. 2 x 1.5 mm ² (2 x AWG 16)

Wire stripping length (x):

MK V••••• articles (screw connection): 7 mm



In compliance with standards:

IEC 60947-5-1, EN 60947-5-1, IEC 60529, EN 60529, EN 60947-1, IEC 60947-1, EN IEC 63000.

Approvals:

UL 508, CSA 22.2 No.14, EN 60947-1, EN 60947-5-1.

Compliance with the requirements of:

Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU, RoHS Directive 2011/65/EU.

Positive contact opening in conformity with standards:

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

Electrical data

Thermal current (I _{th}):	16 A
Rated insulation voltage (U _i):	250 Vac 300 Vdc
Rated impulse withstand voltage (U _{imp}):	4 kV
Conditional short circuit current:	1000 A acc. to EN 60947-5-1
Protection against short circuits:	type gG fuse 16 A 250 V
Pollution degree:	3
Dielectric strength	2000 Vac/min.

Utilization category

Alternating current: AC15 (50 ... 60 Hz)			
U _e (V)	120	250	
I _e (A)	3	5	
Direct current: DC13			
U _e (V)	24	125	250
I _e (A)	4	0.6	0.3

Features approved by IMQ

Rated insulation voltage (U _i):	250 Vac
Conventional free air thermal current (I _{th}):	16 A
Protection against short circuits:	type gG fuse 16 A 250 V
Rated impulse withstand voltage (U _{imp}):	4 kV
Conditional short circuit current:	1000 A
Protection degree of the housing:	IP00
Terminals: screw terminals / faston	
Pollution degree:	3
Utilization category:	AC15
Operating voltage (U _e):	250 Vac (50 Hz)
Operating current (I _e):	5 A

Forms of the contact element: A, B, C
Positive opening of contacts on contact blocks 1, 3
In compliance with standards: EN 60947-1, EN 60947-5-1, fundamental requirements of the Low Voltage Directive 2014/35/EU.

Please contact our technical department for the list of approved products.

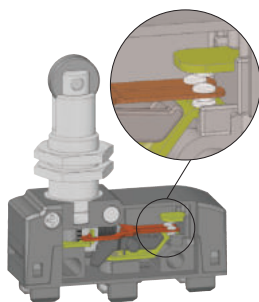
Features approved by UL

Electrical Ratings:	Q300 pilot duty (69 VA, 125-250 V dc)
	A300 pilot duty (720 VA, 120-300 V ac)

Please contact our technical department for the list of approved products.

Contact reliability

Thanks to the double and redundant execution, the electrical contact of the microswitch has been designed with a technology providing increased reliability. For high-volume part orders, the microswitch can be also supplied with the NO or NC contact only, in order to reduce the costs.



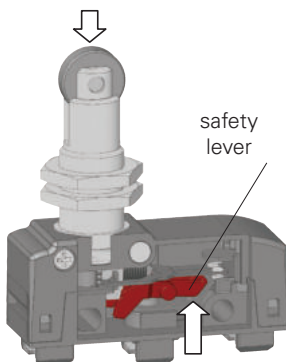
Versions with protection degree IP65

IP65

Inside the housing of the microswitch it is possible to insert gaskets to protect the mechanism against fine dusts or liquids up to the protection degree IP65.

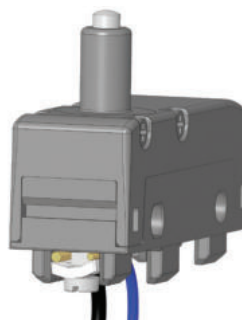
To achieve a protection degree of IP65, please order the IP65-compatible version of the microswitch, with the IP65 terminal cover version.

Microswitches for safety applications



All microswitches showing the symbol ⊕ besides the product code are with positive opening and therefore suitable for safety applications. These microswitches are provided with a rigid connection between the plunger and the NC contacts, which are forcibly actuated by an internal sturdy safety lever. The positive opening has been designed in compliance with the standard EN 60947-5-1, Annex K. Therefore, these microswitches are suitable for safety applications.

Clamping screw plates for cables of different diameters (MK V^o)



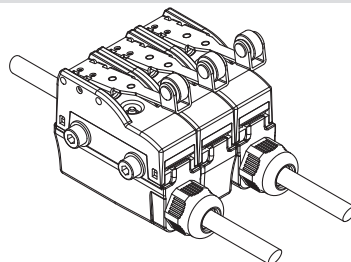
The clamping screw plates are provided with a particular "roofing tile" structure and are loosely coupled to the clamping screw. The design causes connection wires of different diameter to be pulled towards the screw when tightening the screw (see figure), preventing the wires from escaping towards the outside.

Compliant with EN 81-20 and EN 81-50



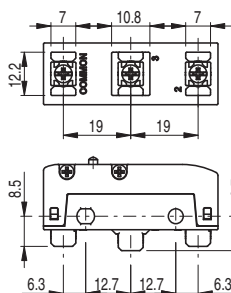
- Safety contacts in compliance with EN 60947-5-1, annex K.
- Protection degree higher than IP4x.
- Mechanical service life > 10⁶ cycles.

Stackable terminal covers with cable gland

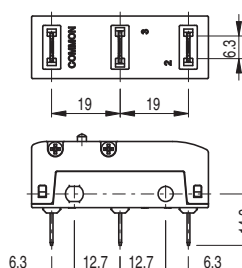


The terminal covers are provided with strain relief cable gland and protection degree up to IP65. These are snap-on terminal covers and have reduced dimensions contained in the profile of the microswitch so that these can be installed on microswitches fixed side by side as well. See page 70.

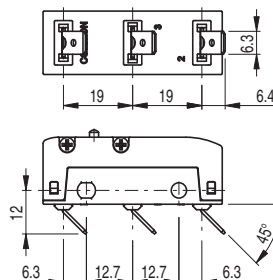
Terminal dimensions



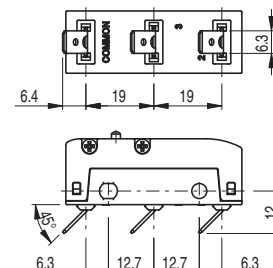
Screw terminals **V** with plate



Faston terminals **H**, vertical



Faston terminals **F**, right angle

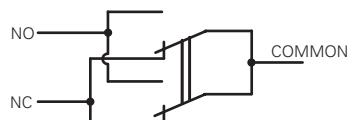


Faston terminals **G**, left angle (on request)

Note: The vertical faston terminals H can be bent according to specific installation requirements.

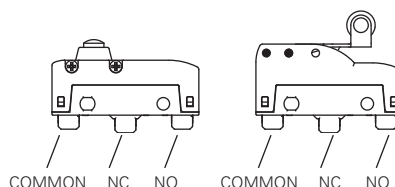
We recommend to bend the faston with an angle not higher than 45° and to carry out this operation no more than 5 times.

Circuit diagram

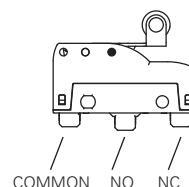


Mobile contact with single interruption and double contacts

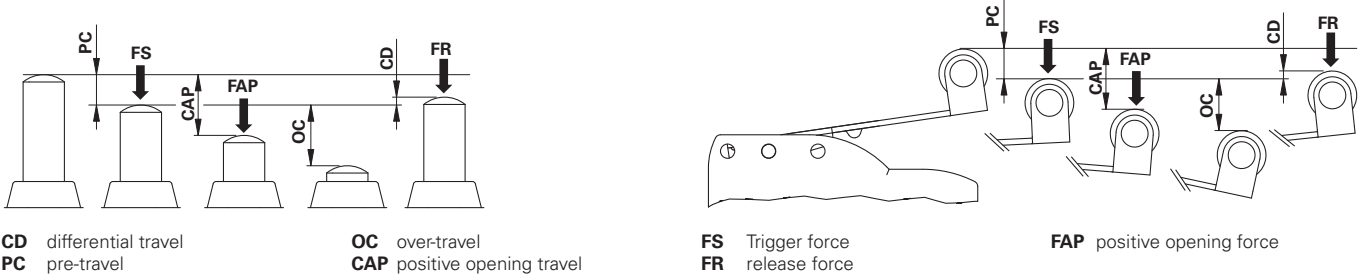
With direct actuation and direct actuation at the back (F, D)



With inverted actuation (R)



Legend



Microswitches with direct actuation

<p>MK V11D05 (1NO+1NC)</p> <p>PC 0,5 mm OC 2 mm CD 0,05 mm CAP 2,2 mm</p> <p>FS 4 N FR 3 N FAP 20 N</p> <p>Maximum and minimum speed see page 158 - type 1</p>	<p>MK V11D06 (1NO+1NC)</p> <p>PC 0,5 mm OC 3 mm CD 0,05 mm CAP 2,2 mm</p> <p>FS 4 N FR 3 N FAP 20 N</p> <p>Maximum and minimum speed see page 158 - type 1</p>
<p>MK V11D08 (1NO+1NC)</p> <p>PC 0,5 mm OC 5,5 mm CD 0,05 mm CAP 2,2 mm</p> <p>FS 4 N FR 3 N FAP 20 N</p> <p>Maximum and minimum speed see page 158 - type 1</p>	<p>MK V11D09 (1NO+1NC)</p> <p>PC 0,5 mm OC 5,5 mm CD 0,05 mm CAP 2,2 mm</p> <p>FS 4 N FR 3 N FAP 20 N</p> <p>Maximum and minimum speed see page 158 - type 1</p>
<p>MK V11D10 (1NO+1NC)</p> <p>PC 0,5 mm OC 5,5 mm CD 0,05 mm CAP 2,2 mm</p> <p>FS 4 N FR 3 N FAP 20 N</p> <p>Maximum and minimum speed see page 158 - type 1</p>	<p>MK V11D12 (1NO+1NC)</p> <p>PC 0,5 mm OC 5,5 mm CD 0,05 mm CAP 2,2 mm</p> <p>FS 4,5 N FR 3 N FAP 20 N</p> <p>Maximum and minimum speed see page 158 - type 1</p>
<p>Mounting only through threaded fitting</p>	<p>Mounting only through threaded fitting</p>
<p>MK V11D15 (1NO+1NC)</p> <p>PC 0,5 mm OC 5,5 mm CD 0,05 mm CAP 2,2 mm</p> <p>FS 4 N FR 3 N FAP 20 N</p> <p>Maximum and minimum speed see page 158 - type 2</p>	<p>MK V11D17 (1NO+1NC)</p> <p>PC 0,5 mm OC 5,5 mm CD 0,05 mm CAP 2,2 mm</p> <p>FS 4 N FR 3 N FAP 20 N</p> <p>Maximum and minimum speed see page 158 - type 2</p>

All values in the drawings are in mm

Accessories See page 149

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

MK V11D18	1NO+1NC	PC 0,5 mm OC 5,5 mm CD 0,05 mm CAP 2,2 mm	FS 4 N FR 3 N FAP 20 N	MK V11D19	1NO+1NC	PC 0,5 mm OC 5,5 mm CD 0,05 mm CAP 2,2 mm	FS 4 N FR 3 N FAP 20 N
Maximum and minimum speed see page 158 - type 2				Maximum and minimum speed see page 158 - type 2			

MK V11D40	1NO+1NC	PC 8,2 mm OC 6,1 mm CD 0,8 mm	FS 0,86 N FR 0,66 N	MK V11D42	1NO+1NC	PC 6,5 mm OC 4,8 mm CD 0,6 mm	FS 1,09 N FR 0,84 N
Maximum and minimum speed see page 158 - type 6				Maximum and minimum speed see page 158 - type 6			

MK V11D45	1NO+1NC	PC 4,5 mm OC 3,2 mm CD 0,4 mm	FS 1,66 N FR 1,28 N	MK V11D47	1NO+1NC	PC 4,2 mm OC 2,8 mm CD 0,4 mm	FS 1,66 N FR 1,28 N
Maximum and minimum speed see page 158 - type 6				Maximum and minimum speed see page 158 - type 6			

MK V11D53	1NO+1NC	PC 7,7 mm OC 7,8 mm CD 0,9 mm	FS 0,76 N FR 0,58 N	MK V11D59	1NO+1NC	PC 2,3 mm OC 4,5 mm CD 0,2 mm	FS 2,3 N FR 1,77 N
Maximum and minimum speed see page 158 - type 6				Maximum and minimum speed see page 158 - type 6			

Microswitches with inverted actuation

MK V11R40	1NO+1NC	PC 2,8 mm OC 10,9 mm CD 0,45 mm	FS 0,8 N FR 0,5 N	MK V11R42	1NO+1NC	PC 2,7 mm OC 8,4 mm CD 0,5 mm	FS 1,2 N FR 1,7 N
Maximum and minimum speed see page 158 - type 7				Maximum and minimum speed see page 158 - type 7			

All values in the drawings are in mm

Accessories See page 149

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

MK series switches for door operators

MK V11R45	1NO+1NC PC 1,5 mm OC 5,5 mm CD 0,3 mm	FS 1,7 N FR 1 N	
Maximum and minimum speed see page 158 - type 7		Maximum and minimum speed see page 158 - type 7	

MK V11R53	1NO+1NC PC 3,6 mm OC 11,2 mm CD 0,5 mm	FS 0,8 N FR 0,4 N	
Maximum and minimum speed see page 158 - type 7		Maximum and minimum speed see page 158 - type 7	

Microswitches with direct actuation at the back

MK V11F40	1NO+1NC PC 2,1 mm OC 8,3 mm CD 0,25 mm	FS 0,85 N FR 0,65 N	
Maximum and minimum speed see page 158 - type 8		Maximum and minimum speed see page 158 - type 8	

MK V11F45	1NO+1NC PC 1,1 mm OC 4,9 mm CD 0,1 mm CAP 5,8 mm	FS 1,5 N FR 0,9 N FAP 6,9 N	
Maximum and minimum speed see page 158 - type 8		Maximum and minimum speed see page 158 - type 8	

MK V11F53	1NO+1NC PC 2,5 mm OC 9,3 mm CD 0,3 mm	FS 0,7 N FR 0,6 N	
Maximum and minimum speed see page 158 - type 8		Maximum and minimum speed see page 158 - type 8	

All values in the drawings are in mm

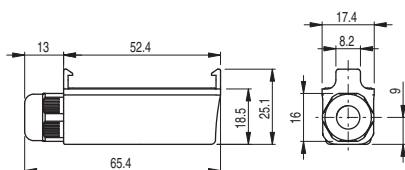
Accessories See page 149

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



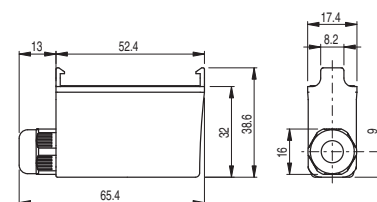
Protective terminal covers

Packs of 10 pcs.



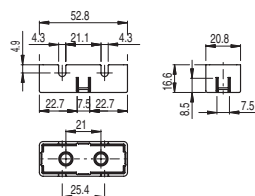
Protective terminal cover for screw terminals with strain relief cable gland and snap-in mounting. It allows to install multiple switches side-by-side.

Article	Description	Protection degree
VF MKCV11	Protective terminal cover without gasket for multipolar cables \varnothing 5 ... 7.5 mm	IP40
VF MKCV12	Protective terminal cover without gasket for multipolar cables \varnothing 4 ... 7.5 mm	IP40
VF MKCV13	Protective terminal cover without gasket for multipolar cables \varnothing 2 ... 5.5 mm	IP40
VF MKCV22	Protective terminal cover with gasket for multipolar cables \varnothing 4 ... 7.5 mm	IP65
VF MKCV23	Protective terminal cover with gasket for multipolar cables \varnothing 2 ... 5.5 mm	IP65

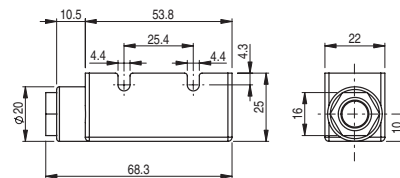
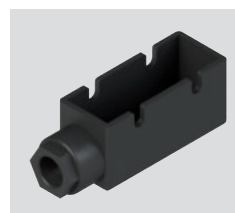


Protective terminal cover for vertical faston terminals with strain relief cable gland and snap-in mounting. It allows to install multiple switches side-by-side.

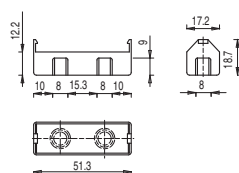
Article	Description	Protection degree
VF MKCH11	Protective terminal cover without gasket for multipolar cables \varnothing 5 ... 7.5 mm	IP40
VF MKCH12	Protective terminal cover without gasket for multipolar cables \varnothing 4 ... 7.5 mm	IP40
VF MKCH13	Protective terminal cover without gasket for multipolar cables \varnothing 2 ... 5.5 mm	IP40
VF MKCH22	Protective terminal cover with gasket for multipolar cables \varnothing 4 ... 7.5 mm	IP65
VF MKCH23	Protective terminal cover with gasket for multipolar cables \varnothing 2 ... 5.5 mm	IP65



Article	Description	Protection degree
VF C01	Protective terminal cover for screw terminals	IP20



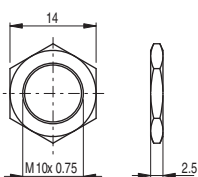
Article	Description	Protection degree
VF C02	Protective terminal cover for screw terminals with PG9 cable gland for multipolar cables \varnothing 5 ... 7 mm	IP40



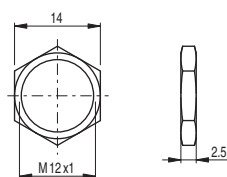
Article	Description	Protection degree
VF C03	Protective terminal cover for screw terminals, snap-in mounting. It allows to install multiple switches side-by-side	IP20

Accessories

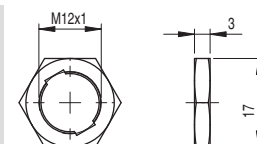
Packs of 10 pcs.



Article	Description
VF AC83	Hex threaded nut for microswitches with actuators D06, D08, D09



Article	Description
VF AC72	Hex threaded nut for microswitches with actuators D10, D12, D13



Article	Description
AC 35	Hex threaded nut, notched, for microswitches with actuators D15, D16

Description



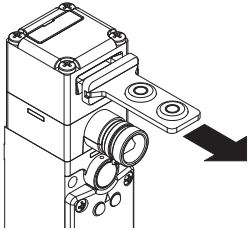
These switches, compliant with EN 81, are used as locking devices for hinged and sliding lift doors.

The door is unlocked by powering the internal solenoid, which then unlocks the actuator inserted in the head, thus allowing the door to be unlocked and opened. Equipped with a locking system with enhanced force, they meet the retention requirements (3000 N) set by the standards EN 81-20 and EN 81-50.

The versions with solenoid actuated NC contacts are considered interlocks with locking in accordance with ISO 14119, and the product's label is marked with the symbol shown.

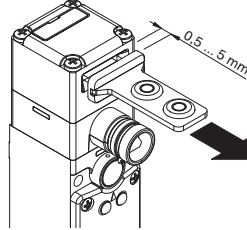


Holding force of the locked actuator



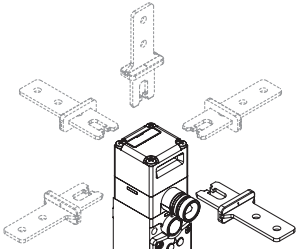
The strong interlocking system guarantees a maximum actuator holding force of 3000 N.

Wide-ranging actuator travel



The actuation head of this switch features a wide range of travel. In this way the guard can oscillate along the direction of insertion (4.5 mm) without causing unwanted machine shutdowns. This wide range of travel is available in all actuators in order to ensure maximum device reliability.

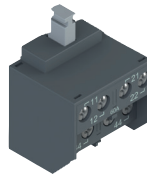
Heads and devices with variable orientation



The system can be variably configured by loosening the 4 screws on the head.

The key release device and the release button can also be rotated and secured independently of one another in steps of 90°. The device can thus assume 32 different configurations.

Contact blocks with 4 contacts



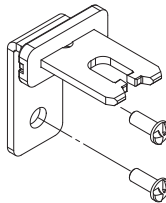
Innovative contact block with 4 contacts, available in various contact configurations for monitoring the actuator or the solenoid (patented). The unit is supplied with captive screws and self-lifting clamping plates. Removable finger protection for eyelet terminal.

High-reliability electrical contacts with 4 contact points and double interruption.

Key release devices with triangular key

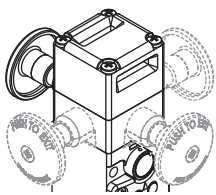


Safety screws for actuators



As required by EN ISO 14119, the actuator must be fixed immovably to the guard frame. Pan head safety screws with one-way fitting are available for this purpose. With this screw type, the actuators cannot be removed or tampered by using common tools. See accessories on page 149.

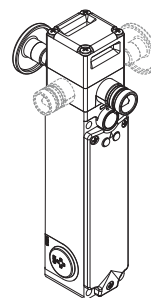
Escape release button



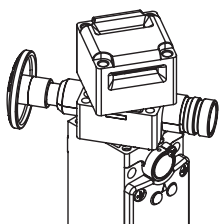
This device is used to safeguard a hazardous area that an operator may enter with his entire body. The release button allows for exit even in the event of possible blackouts. Pushing the button results in the same function as the auxiliary release device. To reset the switch, simply return the button to its initial position. The escape release button can be rotated and is available with different lengths. It is fixed to the switch by means of a screw allowing the installation of the switch both inside and outside the guards.

The device can be rotated and is available with different lengths. It is fixed to the switch by means of a screw allowing the installation of the switch both inside and outside the guards.

Key release device and escape release button

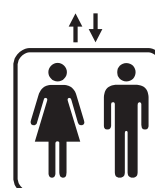


Non-detachable heads and release devices



The head and the release device can be rotated but cannot be detached from each other. This makes the switch more secure since the problem of incorrect assembly by the installer cannot occur; in addition, the risk of damage is lower (loss of small parts, penetration of dirt, etc.).

Compliant with EN 81-20 and EN 81-50

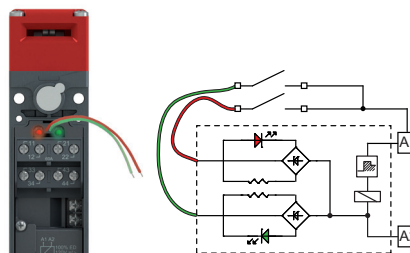


LED display unit, type A



In the version with LED display unit of type A, two green LEDs are switched-on directly by the power supply of the solenoid. Wiring is not necessary.

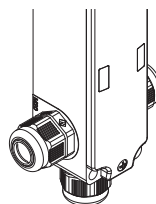
LED display unit, types B and C



Protection degree IP67

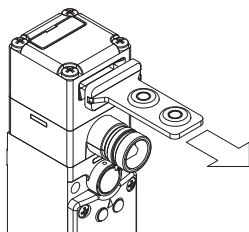
IP67

Three conduit entries



The switch is provided with three conduit entries in different directions. This allows its application in series connections or in narrow places.

Holding force of the unlocked actuator



Laser engraving



All FG series switches are permanently marked with a special laser system. As a result, the marking remains legible even under extreme operating conditions. Thanks to this system that does not use labels, the loss of plate data is prevented and a greater resistance of the marking is achieved over time.

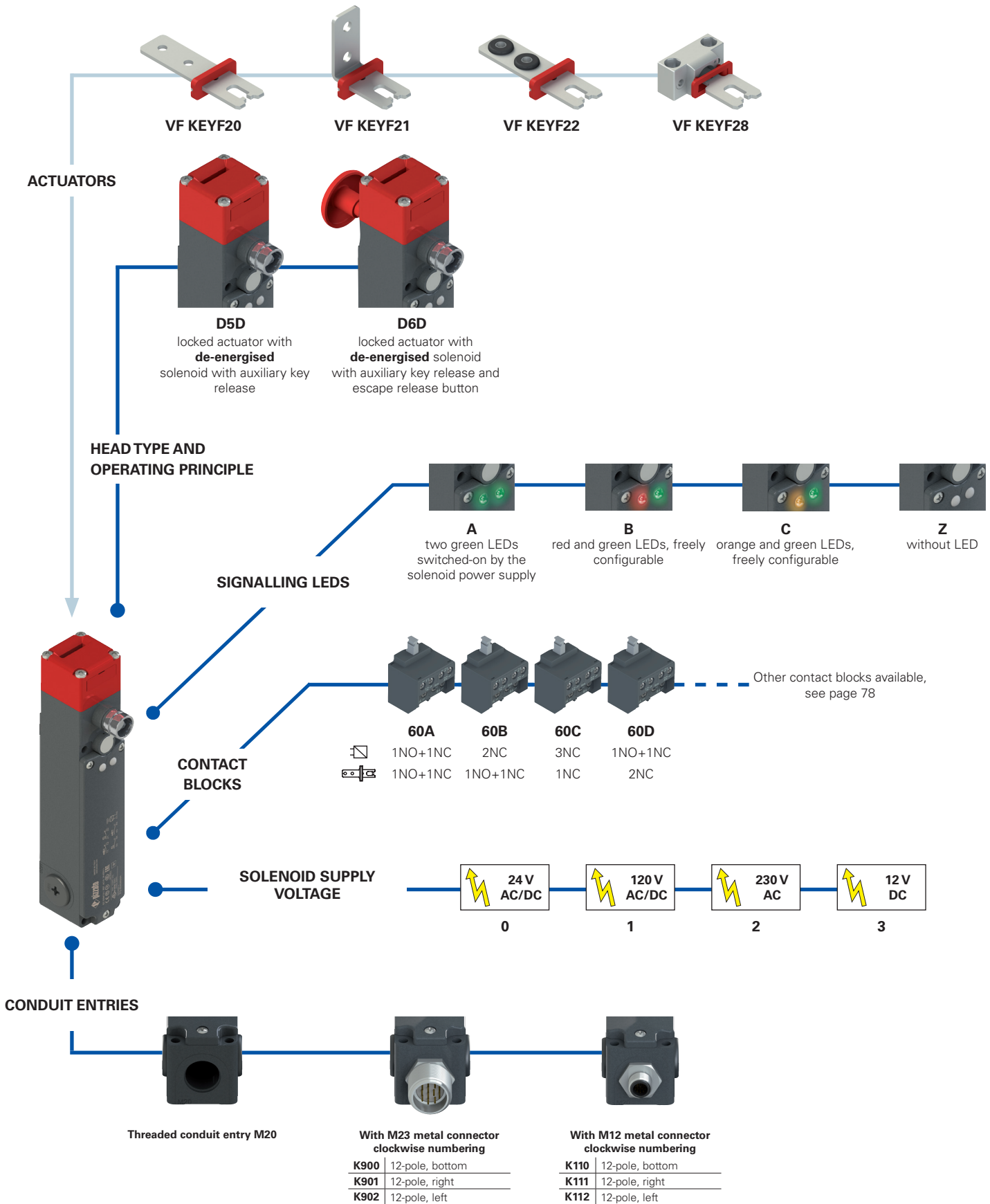
Extended temperature range

-40°C

LED signalling lights



Selection diagram



● product option
 → Sold separately as accessory



Code structure

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

article options

FG 60AD1D0A-LP30F20GK900T6V70V90

Contact block		
	Contacts activated by the solenoid	Contacts activated by the actuator
60A	1NO+1NC	1NO+1NC
60B	2NC	1NO+1NC
60C	3NC	1NC
60D	1NO+1NC	2NC
60E	1NO+2NC	1NC
60G	2NC	2NC
60L	2NO+1NC	1NC
60P	1NC	3NC
60S	1NC	2NO+1NC
60T	1NC	1NO+2NC
60X	1NO	3NC
60Y	1NO	1NO+2NC
61E	1NO	2NO+1NC
61G	2NO	1NO+1NC
61H	2NO	2NC
61M	3NO	1NC

Operating principle	
D5D	locked actuator with de-energised solenoid. With auxiliary key release.
D6D	locked actuator with de-energised solenoid. With auxiliary key release and escape release button.

Solenoid supply voltage	
0	24 Vac/dc (-10% ... +10%)
1	120 Vac/dc (-15% ... +10%)
2	230 Vac (-15% ... +10%)
3	12 Vdc (-10% ... +10%)

Signalling LEDs	
A	two green LEDs switched-on by the solenoid power supply
B	red and green LEDs, freely configurable
C	orange and green LEDs, freely configurable
Z	without LED

Ambient temperature

-25°C ... +60°C (standard)

T6 -40°C ... +60°C

Pre-installed connectors

without connector (standard)

K900 M23 metal connector, 12-pole, bottom

... ..

K110 M12 metal connector, 12-pole, bottom

... ..

For the complete list of possible combinations please contact our technical department.

Contact type

silver contacts (standard)

G silver contacts with 1 µm gold coating

Actuators

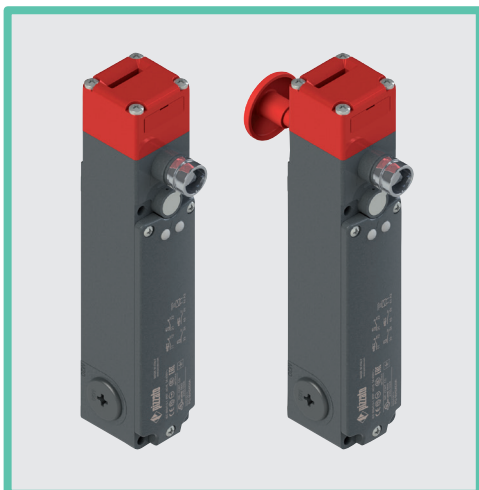
without actuator (standard)

F20 straight actuator VF KEYF20**F21** angled actuator VF KEYF21**F22** actuator with rubber pads VF KEYF22**F28** universal actuator VF KEYF28

Release button length

for max. 15 mm wall thickness (standard)

LP30 for max. 30 mm wall thickness**LP40** for max. 40 mm wall thickness**LP60** for max. 60 mm wall thickness**LPRG** adjustable, for wall thickness from 60 mm to 500 mm



Main features

- Actuator locking force: 3000 N
- 16 contact blocks with 4 contacts
- Metal housing, three M20 conduit entries
- Protection degree IP67
- Auxiliary key release with triangular lock and spring return
- 4 stainless steel actuators
- Head and release devices, individually turnable and non-detachable
- Signalling LEDs

Quality marks:



IMQ approval

(dir. 2014/35/EU): CA02.03808

IMQ approval

(dir. 2014/33/EU): CA50.00781

UL approval: E131787

CCC approval: 2021000305000103

EAC approval: RUC-IT.YT03.B.00035/19

Technical data

Housing

Metal head and housing, baked powder coating.

Three threaded conduit entries:

M20x1.5 (standard)

Protection degree:

IP67 acc. to EN 60529 with cable gland of equal or higher protection degree

General data

SIL (SIL CL) up to:

SIL 3 acc. to EN 62061

Performance Level (PL) up to:

PL e acc. to EN ISO 13849-1

Interlock with mechanical lock, coded:

type 2 acc. to EN ISO 14119

Coding level:

low acc. to EN ISO 14119

Safety parameters:

B_{10D} :

5,000,000 for NC contacts

Mission time:

20 years

Ambient temperature:

-25°C ... +60°C (standard)
-40°C ... +60°C (T6 option)

Max. actuation frequency:

600 operating cycles/hour

Mechanical endurance:

1 million operating cycles

Max. actuation speed:

0.5 m/s

Min. actuation speed:

1 mm/s

Locking closure force:

3000 N

Maximum clearance of locked actuator:

4.5 mm

Released actuator extraction force:

30 N

Tightening torques for installation:

see page 159

Wire cross-sections and

wire stripping lengths:

see page 170

Solenoid

Duty cycle:

100% ED (continuous operation)

Solenoid consumption:

9 VA

In compliance with standards:

IEC 60947-5-1, IEC 60947-1, IEC 60204-1, EN ISO 14119, EN ISO 12100, IEC 60529, IEC 61000-6-2, IEC 61000-6-3, EN IEC 63000, EN 81-20, EN 81-50, BG-GS-ET-15, BG-GS-ET-19, UL 508, CSA C22.2 No. 14.

Approvals:

EN 60947-5-1, UL 508, CSA C22.2 No. 14, GB/T14048.5

Compliance with the requirements of:

Low Voltage Directive 2014/35/EU, Lift Directive 2014/33/EU, Machinery Directive 2006/42/EC, EMC Directive 2014/30/EU, RoHS Directive 2011/65/EU.

Positive contact opening in conformity with standards:

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

⚠ If not expressly indicated in this chapter, for correct installation and utilization of all articles see the instructions given on pages 153 to 162.

Electrical data

Utilization category

without connector	Thermal current (I_{th}):	10 A	Alternating current: AC15 (50÷60 Hz)		
	Rated insulation voltage (U):	400 Vac 300 Vdc	U_e (V)	120	250 400
	Rated impulse withstand voltage (U_{imp}):	6 kV	I_e (A)	6	5 3
	Conditional short circuit current:	1000 A acc. to EN 60947-5-1	Direct current: DC13		
	Protection against short circuits:	type gG fuse 10 A 500 V	U_e (V)	24	125 250
	Pollution degree:	3	I_e (A)	3	0.7 0.4

with M23 connector, 12-pole	Thermal current (I_{th}):	8 A	Alternating current: AC15 (50÷60 Hz)		
	Rated insulation voltage (U):	250 Vac 300 Vdc	U_e (V)	120	250
	Protection against short circuits:	type gG fuse 8 A 500 V	I_e (A)	6	5
	Pollution degree:	3	Direct current: DC13		
			U_e (V)	24	125 250
			I_e (A)	3	0.7 0.4

with M12 connector, 12-pole	Thermal current (I_{th}):	1.5 A	Alternating current: AC15 (50÷60 Hz)		
	Rated insulation voltage (U):	30 Vac 36 Vdc	U_e (V)	24	
	Protection against short circuits:	type gG fuse 1.5 A	I_e (A)	1.5	
	Pollution degree:	3	Direct current: DC13		
			U_e (V)	24	
			I_e (A)	1.5	

Features approved by IMQ

In compliance with standards: EN 60947-1, EN 60947-5-1, fundamental requirements of the Low Voltage Directive 2014/35/EU.

Rated insulation voltage (U):	400 Vac
Conventional free air thermal current (I _{th}):	10 A
Protection against short circuits:	type gG fuse 10 A 500 V
Rated impulse withstand voltage (U _{imp}):	6 kV
Protection degree of the housing:	IP67
MV terminals (screw terminals)	
Pollution degree:	3
Utilization category:	AC15
Operating voltage (U _o):	400 Vac (50 Hz)
Operating current (I _o):	3 A

Forms of the contact element: X+X+X+X, Y+Y+Y+Y, X+Y+Y+Y, X+X+Y+Y, X+X+X+Y
 Positive opening of contacts on all contact blocks: 60A, 60B, 60C, 60D, 60E, 60G, 60L, 60P, 60S, 60T, 60X, 60Y, 61E, 61G, 61H, 61M

In compliance with standards: EN 81-20, EN 81-50, fundamental requirements of the Lift Directive 2014/33/EU.

Protection degree of the housing:	IP67
Resistance to tracking:	TK 175V
MV terminals (screw terminals)	
Operating voltage (U _o):	250 V c.a. / a.c. – 200 V c.c. / d.c.
Operating current (I _o):	2 A c.a. / a.c. – 0,5 A c.c. / d.c.

Forms of the contact element: Y+Y+Y+Y, X+Y+Y+Y, X+X+Y+Y
 Positive opening of contacts on all contact blocks: 60A, 60B, 60C, 60D, 60E, 60G, 60L, 60P, 60S, 60T

Please contact our technical department for the list of approved products.

Features approved by UL

Electrical Ratings:	A300 pilot duty (720 VA, 120-300 Vac) Q300 pilot duty (69 VA, 125-250 Vdc)
Environmental Ratings:	Types 1, 4X, 12, 13

Please contact our technical department for the list of approved products.

Operating principle

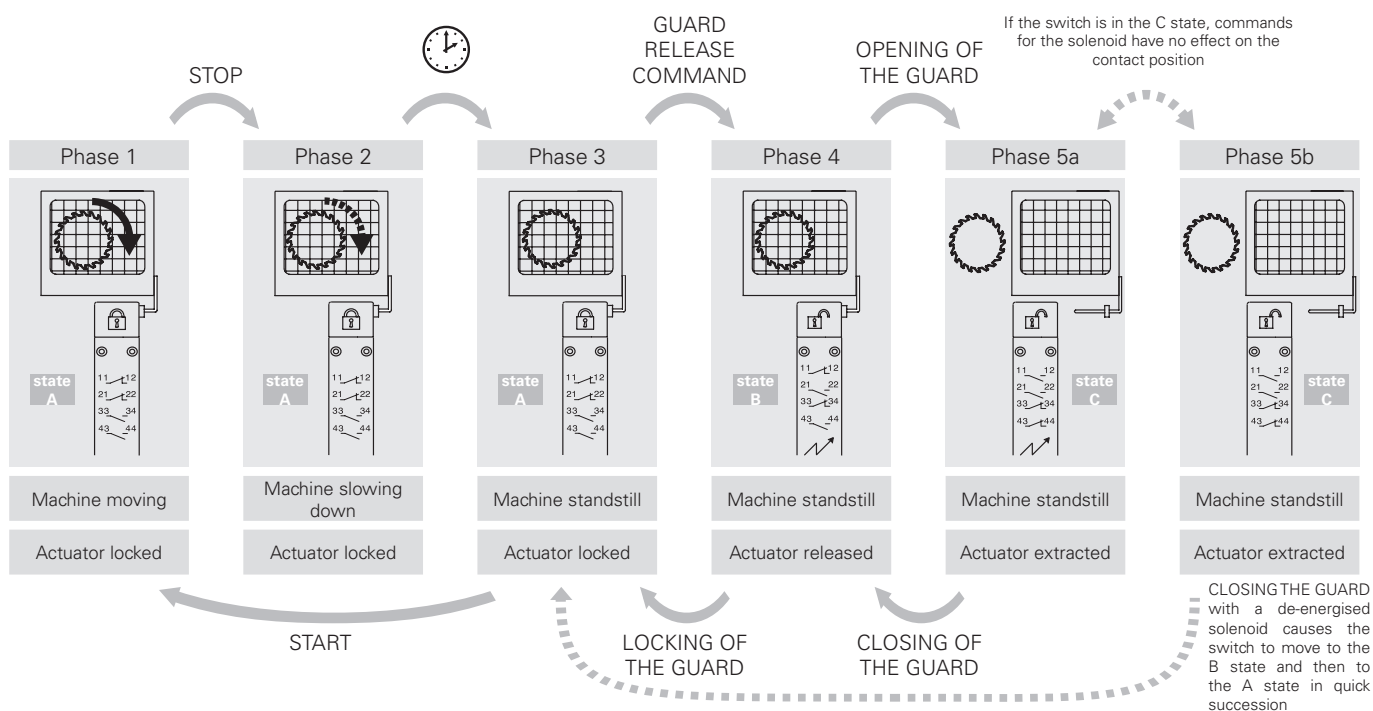
The operating principle of these safety switches allows three different operating states:

- state A:** with inserted and locked actuator
- state B:** with inserted but not locked actuator
- state C:** with extracted actuator

All or some of these states can be monitored by means of electrical NO contacts or NC contacts with positive opening by selecting the appropriate contact blocks. In detail, contact blocks that have electric contacts marked with the symbol of the solenoid (⊞) are switched in the transition between the state A and state B, while the electric contacts marked with the symbol of the actuator (⊞) are switched between state B and state C.

According to the operating principle, the actuator is locked when the solenoid is de-energised. The actuator is released by energising the solenoid (see example of operating phases).

Example of the operating phases

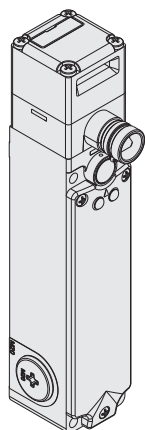


Contact positions related to switch states

Operating state	Operating principle		
	state A	state B	state C
Actuator	Inserted and locked	Inserted and released	Extracted
Solenoid	De-energised	Energised	-
FG 60A 1NO+1NC controlled by the solenoid 1NO+1NC controlled by the actuator	11 — 12 21 — 22 33 — 34 43 — 44	11 — 12 21 — 22 33 — 34 43 — 44	11 — 12 21 — 22 33 — 34 43 — 44
FG 60B 2NC controlled by the solenoid 1NO+1NC controlled by the actuator	11 — 12 21 — 22 31 — 32 43 — 44	11 — 12 21 — 22 31 — 32 43 — 44	11 — 12 21 — 22 31 — 32 43 — 44
FG 60C 3NC controlled by the solenoid 1NC controlled by the actuator	11 — 12 21 — 22 31 — 32 41 — 42	11 — 12 21 — 22 31 — 32 41 — 42	11 — 12 21 — 22 31 — 32 41 — 42
FG 60D 1NO+1NC controlled by the solenoid 2NC controlled by the actuator	13 — 14 21 — 22 31 — 32 41 — 42	13 — 14 21 — 22 31 — 32 41 — 42	13 — 14 21 — 22 31 — 32 41 — 42
FG 60E 1NO+2NC controlled by the solenoid 1NC controlled by the actuator	11 — 12 21 — 22 31 — 32 43 — 44	11 — 12 21 — 22 31 — 32 43 — 44	11 — 12 21 — 22 31 — 32 43 — 44
FG 60G 2NC controlled by the solenoid 2NC controlled by the actuator	11 — 12 21 — 22 31 — 32 41 — 42	11 — 12 21 — 22 31 — 32 41 — 42	11 — 12 21 — 22 31 — 32 41 — 42
FG 60L 2NO+1NC controlled by the solenoid 1NC controlled by the actuator	11 — 12 21 — 22 33 — 34 43 — 44	11 — 12 21 — 22 33 — 34 43 — 44	11 — 12 21 — 22 33 — 34 43 — 44
FG 60P 1NC controlled by the solenoid 3NC controlled by the actuator	11 — 12 21 — 22 31 — 32 41 — 42	11 — 12 21 — 22 31 — 32 41 — 42	11 — 12 21 — 22 31 — 32 41 — 42
FG 60S 1NC controlled by the solenoid 2NO+1NC controlled by the actuator	11 — 12 21 — 22 33 — 34 43 — 44	11 — 12 21 — 22 33 — 34 43 — 44	11 — 12 21 — 22 33 — 34 43 — 44
FG 60T 1NC controlled by the solenoid 1NO+2NC controlled by the actuator	11 — 12 21 — 22 31 — 32 43 — 44	11 — 12 21 — 22 31 — 32 43 — 44	11 — 12 21 — 22 31 — 32 43 — 44
FG 60X 1NO controlled by the solenoid 3NC controlled by the actuator	13 — 14 21 — 22 31 — 32 41 — 42	13 — 14 21 — 22 31 — 32 41 — 42	13 — 14 21 — 22 31 — 32 41 — 42
FG 60Y 1NO controlled by the solenoid 1NO+2NC controlled by the actuator	11 — 12 21 — 22 33 — 34 43 — 44	11 — 12 21 — 22 33 — 34 43 — 44	11 — 12 21 — 22 33 — 34 43 — 44
FG 61E 1NO controlled by the solenoid 2NO+1NC controlled by the actuator	13 — 14 21 — 22 33 — 34 43 — 44	13 — 14 21 — 22 33 — 34 43 — 44	13 — 14 21 — 22 33 — 34 43 — 44
FG 61G 2NO controlled by the solenoid 1NO+1NC controlled by the actuator	13 — 14 21 — 22 33 — 34 43 — 44	13 — 14 21 — 22 33 — 34 43 — 44	13 — 14 21 — 22 33 — 34 43 — 44
FG 61H 2NO controlled by the solenoid 2NC controlled by the actuator	11 — 12 21 — 22 33 — 34 43 — 44	11 — 12 21 — 22 33 — 34 43 — 44	11 — 12 21 — 22 33 — 34 43 — 44
FG 61M 3NO controlled by the solenoid 1NC controlled by the actuator	13 — 14 21 — 22 33 — 34 43 — 44	13 — 14 21 — 22 33 — 34 43 — 44	13 — 14 21 — 22 33 — 34 43 — 44

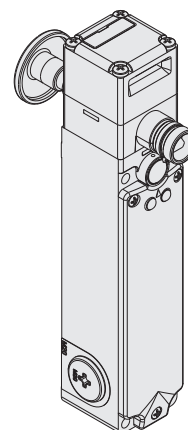


Contact type
L = slow action



Operating principle	Provided with key release with triangular key, without actuator	
Contact block		
60A L	FG 60AD5D0A-V70V90	1NO+1NC 1NO+1NC
60B L	FG 60BD5D0A-V70V90	2NC 1NO+1NC
60C L	FG 60CD5D0A-V70V90	3NC 1NC
60D L	FG 60DD5D0A-V70V90	1NO+1NC 2NC
60E L	FG 60ED5D0A-V70V90	1NO+2NC 1NC
60G L	FG 60GD5D0A-V70V90	2NC 2NC
60L L	FG 60LD5D0A-V70V90	2NO+1NC 1NC
60P L	FG 60PD5D0A-V70V90	1NC 3NC
60S L	FG 60SD5D0A-V70V90	1NC 2NO+1NC
60T L	FG 60TD5D0A-V70V90	1NC 1NO+2NC
60X L	FG 60XD5D0A-V70V90	1NO 3NC
60Y L	FG 60YD5D0A-V70V90	1NO 1NO+2NC
61E L	FG 61ED5D0A-V70V90	1NO 2NO+1NC
61G L	FG 61GD5D0A-V70V90	2NO 1NO+1NC
61H L	FG 61HD5D0A-V70V90	2NO 2NC
61M L	FG 61MD5D0A-V70V90	3NO 1NC
Actuating force	30 N (60 N)	
Travel diagrams	Page 170	

Contact type
L = slow action



Operating principle	Provided with key release with triangular key, escape release button, without actuator	
Contact block		
60A L	FG 60AD6D0A-V70V90	1NO+1NC 1NO+1NC
60B L	FG 60BD6D0A-V70V90	2NC 1NO+1NC
60C L	FG 60CD6D0A-V70V90	3NC 1NC
60D L	FG 60DD6D0A-V70V90	1NO+1NC 2NC
60E L	FG 60ED6D0A-V70V90	1NO+2NC 1NC
60G L	FG 60GD6D0A-V70V90	2NC 2NC
60L L	FG 60LD6D0A-V70V90	2NO+1NC 1NC
60P L	FG 60PD6D0A-V70V90	1NC 3NC
60S L	FG 60SD6D0A-V70V90	1NC 2NO+1NC
60T L	FG 60TD6D0A-V70V90	1NC 1NO+2NC
60X L	FG 60XD6D0A-V70V90	1NO 3NC
60Y L	FG 60YD6D0A-V70V90	1NO 1NO+2NC
61E L	FG 61ED6D0A-V70V90	1NO 2NO+1NC
61G L	FG 61GD6D0A-V70V90	2NO 1NO+1NC
61H L	FG 61HD6D0A-V70V90	2NO 2NC
61M L	FG 61MD6D0A-V70V90	3NO 1NC
Actuating force	30 N (60 N)	
Travel diagrams	Page 170	


Legend: With positive opening according to EN 60947-5-1, interlock with lock monitoring acc. to EN ISO 14119


Contacts activated by the actuator


Contacts activated by the solenoid

Stainless steel actuators

IMPORTANT: These actuators can be used only with items of the FG series (e.g. FG 60AD5D0A-F20V70V90).
Low level of coding acc. to EN ISO 14119.

	Article	Description
	VF KEYF20	Straight actuator

	Article	Description
	VF KEYF21	Angled actuator

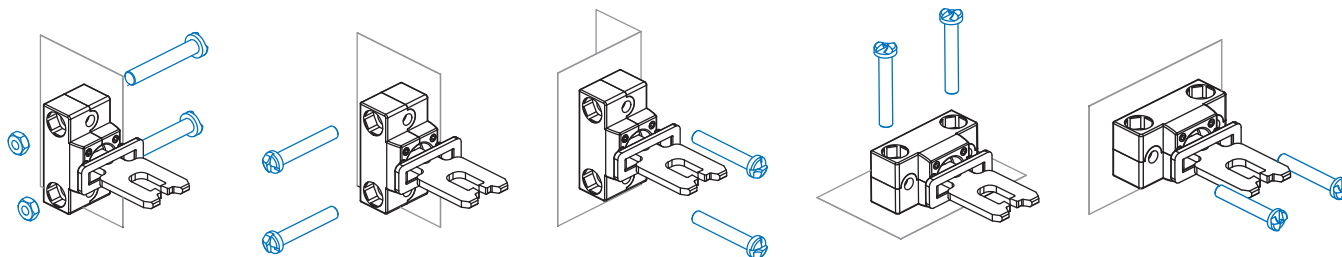
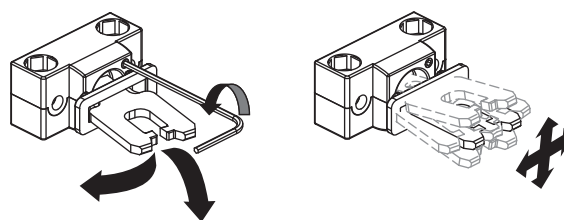
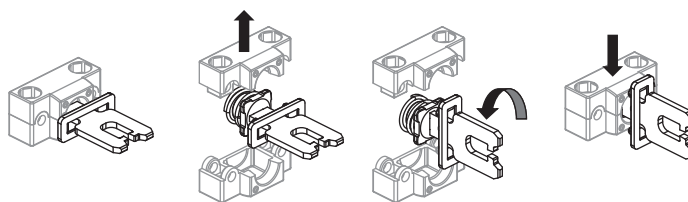
	Article	Description
	VF KEYF22	Actuator with rubber pads

Universal actuator VF KEYF28

IMPORTANT: These actuators can be used only with items of the FG series (e.g. FG 60AD5D0A-F28V70V90).
Low level of coding acc. to EN ISO 14119.

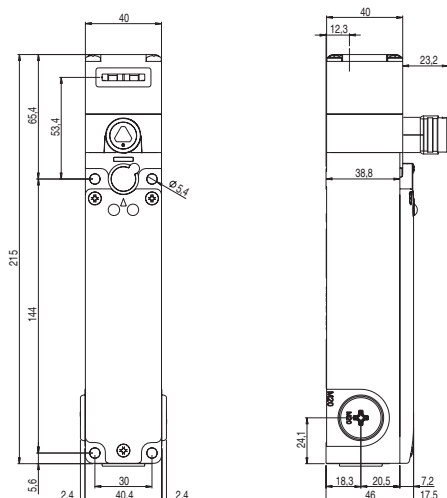
	Article	Description
	VF KEYF28	Universal actuator

Jointed actuator for guards with poor alignment, adjustable in two dimensions for small doors; can be mounted in various positions.
The metal fixing body has two pairs of bore holes; it is provided for rotating the working plane of the actuator by 90°.

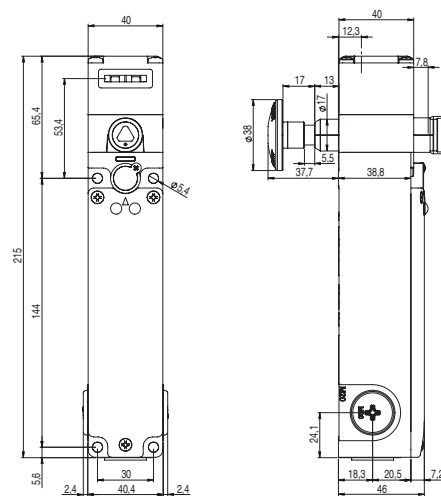


Dimensional drawings

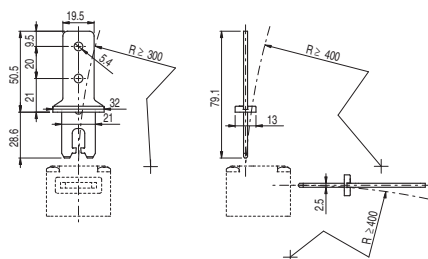
Switch FG 6●●D5D●●-V70V90
With auxiliary key release
with triangular key



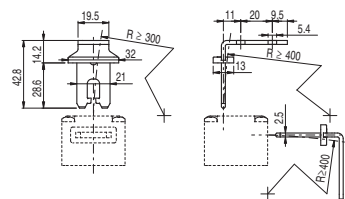
Switch FG 6●●D6D●●-V70V90
With auxiliary key release with triangular key and
escape release button



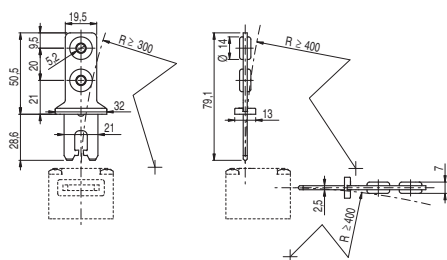
Actuator VF KEYF20



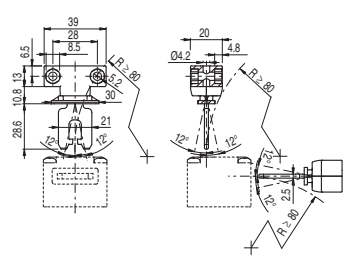
Actuator VF KEYF21



Actuator VF KEYF22

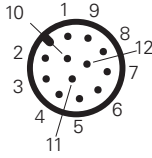


Actuator VF KEYF28



Wiring diagram for M12 connectors

M12 connector, 12-pole



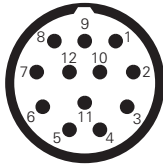
Contact block 60A 2NO+2NC		Contact block 60B 1NO+3NC		Contact block 60C 4NC		Contact block 60D 1NO+3NC		Contact block 60E 1NO+3NC		Contact block 60G 4NC		Contact block 60L 2NO+2NC		Contact block 60P 4NC		Contact block 60S 2NO+2NC		Contact block 60T 1NO+3NC									
Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.								
A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2						
NC	3-4	NC	3-4	NC	3-4	NO	3-4	NC	3-4	NC	3-4	NC	3-4	NC	3-4	NC	3-4	NC	3-4	NC	3-4	NC	3-4				
NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6		
NO	7-8	NC	7-8	NC	7-8	NC	7-8	NC	7-8	NC	7-8	NC	7-8	NO	7-8	NC	7-8	NO	7-8	NC	7-8	NC	7-8	NC	7-8		
NO	9-10	NO	9-10	NC	9-10	NC	9-10	NO	9-10	NC	9-10	NC	9-10	NO	9-10	NC	9-10	NO	9-10	NC	9-10	NO	9-10	NC	9-10	NO	9-10

Contact block 60X 1NO+3NC		Contact block 60Y 2NO+2NC		Contact block 61E 3NO+1NC		Contact block 61G 3NO+1NC		Contact block 61H 2NO+2NC		Contact block 61M 3NO+1NC			
Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.		
A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2
NO	3-4	NC	3-4	NO	3-4	NO	3-4	NC	3-4	NO	3-4	NO	3-4
NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6
NC	7-8	NO	7-8	NO	7-8	NO	7-8	NO	7-8	NO	7-8	NO	7-8
NC	9-10	NO	9-10	NO	9-10	NO	9-10	NO	9-10	NO	9-10	NO	9-10

Note: the wires connected to pins 11 and 12 of the M12 connector can be used to activate the LEDs in FG series configurations with freely connectable LEDs.

Wiring diagram for M23 connectors

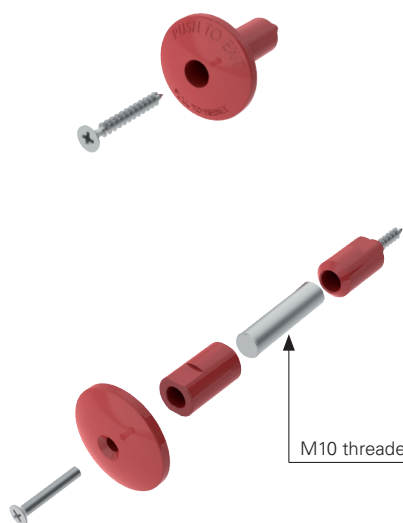
M23 connector, 12-pole



Contact block 60A 2NO+2NC		Contact block 60B 1NO+3NC		Contact block 60C 4NC		Contact block 60D 1NO+3NC		Contact block 60E 1NO+3NC		Contact block 60G 4NC		Contact block 60L 2NO+2NC		Contact block 60P 4NC		Contact block 60S 2NO+2NC		Contact block 60T 1NO+3NC									
Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.								
A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2						
NC	3-4	NC	3-4	NC	3-4	NO	3-4	NC	3-4	NC	3-4	NC	3-4	NC	3-4	NC	3-4	NC	3-4	NC	3-4	NC	3-4				
NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6		
NO	7-8	NC	7-8	NC	7-8	NC	7-8	NC	7-8	NC	7-8	NC	7-8	NO	7-8	NC	7-8	NO	7-8	NC	7-8	NC	7-8	NC	7-8		
NO	9-10	NO	9-10	NC	9-10	NC	9-10	NO	9-10	NC	9-10	NC	9-10	NO	9-10	NC	9-10	NO	9-10	NC	9-10	NO	9-10	NC	9-10	NO	9-10
ground	11	ground	11	ground	11	ground	11	ground	11	ground	11	ground	11	ground	11	ground	11	ground	11	ground	11	ground	11	ground	11		

Contact block 60X 1NO+3NC		Contact block 60Y 2NO+2NC		Contact block 61E 3NO+1NC		Contact block 61G 3NO+1NC		Contact block 61H 2NO+2NC		Contact block 61M 3NO+1NC			
Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.		
A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2	A1-A2	1-2
NO	3-4	NC	3-4	NO	3-4	NO	3-4	NC	3-4	NO	3-4	NO	3-4
NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6	NC	5-6
NC	7-8	NO	7-8	NO	7-8	NO	7-8	NO	7-8	NO	7-8	NO	7-8
NC	9-10	NO	9-10	NO	9-10	NO	9-10	NO	9-10	NO	9-10	NO	9-10
ground	11	ground	11	ground	11	ground	11	ground	11	ground	11	ground	11

Release button



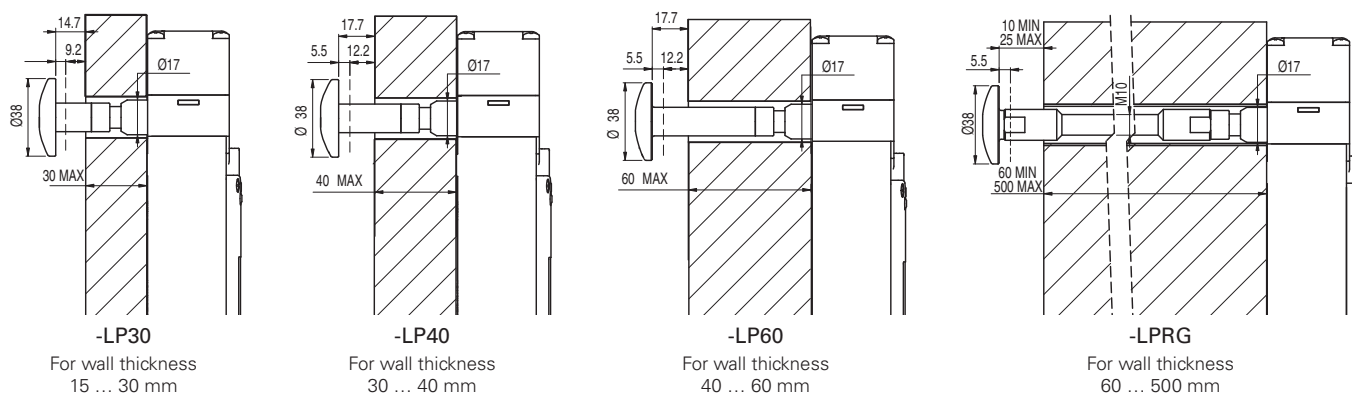
Article	Description
VF FG-LP15	Technopolymer release button for max. 15 mm wall thickness, supplied with screw
VF FG-LP30	Technopolymer release button for max. 30 mm wall thickness, supplied with screw
VF FG-LP40	Technopolymer release button for max. 40 mm wall thickness, supplied with screw
VF FG-LP60	Metal release button for max. 60 mm wall thickness, supplied with screw

Article	Description
VF FG-LPRG	Metal release button for wall thickness from 60 to 500 mm, supplied with 2 supports and 2 screws, without M10 threaded bar

The M10 bar can be supplied in zinc-plated steel with 1 m length. Article: AC 8512.

M10 threaded bar

Other release button lengths



-LP30, -LP40, -LP60:

- Avoid bending and twisting the release button.
- To guarantee correct device operation, keep a distance of 10 ... 25 mm between the wall and the release button.
- The actuation path of the release button must always be kept clean. Dirt or chemical products could compromise the device operation.
- Periodically check the device for proper function.

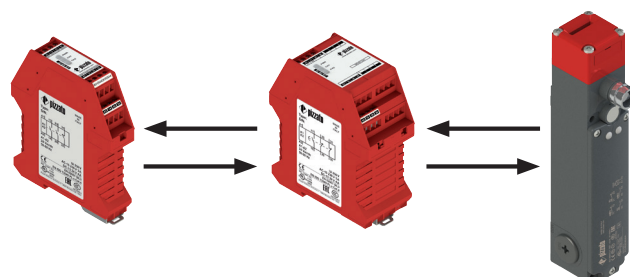
-LPRG:

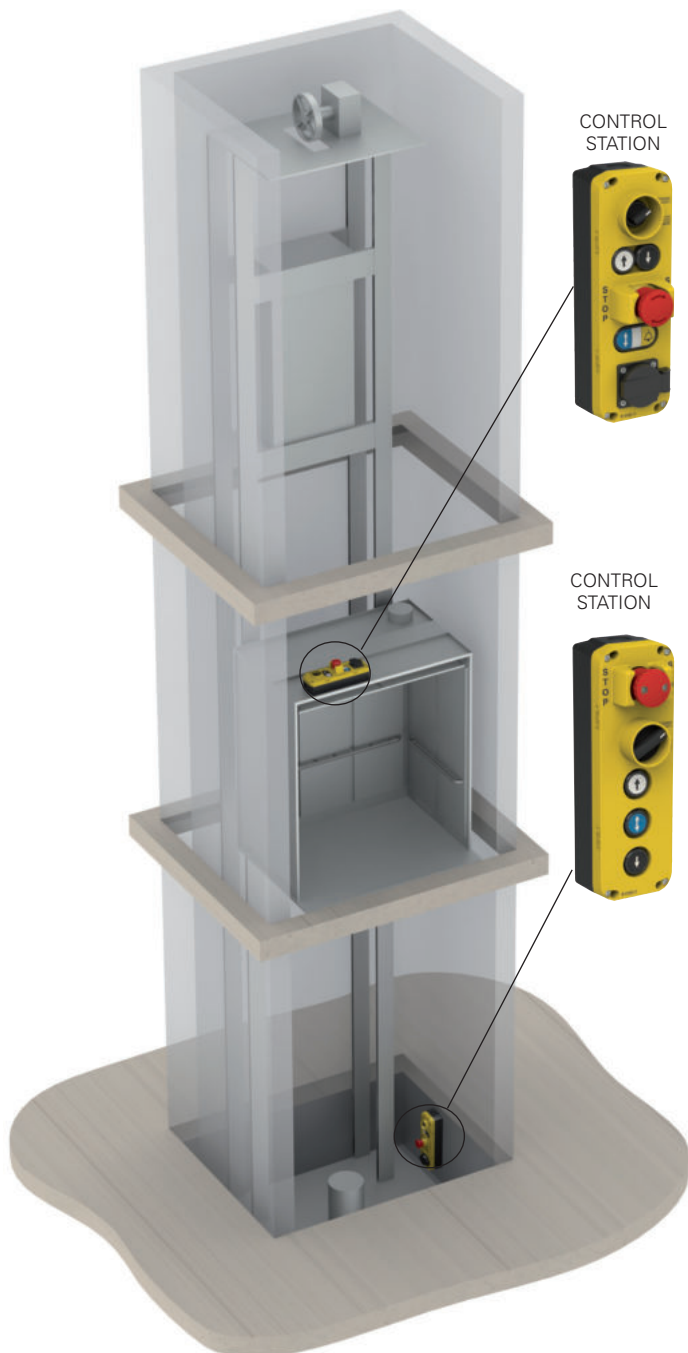
- Avoid bending and twisting the release button.
- On the inside of the wall, use a bushing or a tube with an inner diameter of 18 ± 0.5 mm as a guide.
- Guide in the M10 threaded rod in such a way so as to prevent bending. The M10 threaded rod is not supplied with the device.
- Use medium-strength thread locker to secure the threaded rod.
- Do not exceed an overall length of 500 mm between the release button and the switch.
- To guarantee correct device operation, keep a distance of 10 ... 25 mm between the wall and the release button.
- The actuation path of the release button must always be kept clean. Dirt or chemical products could compromise the device operation.
- Periodically check the device for proper function.

Safety modules

Pizzato Elettrica offers its customers a wide range of safety modules. These were developed taking into consideration typical problems encountered during the monitoring of safety switches under actual operating conditions. Safety modules with instantaneous or delayed contacts for emergency circuits of type 0 (immediate stop) or type 1 (controlled stop).

Safety switches with solenoid of the FG series can be connected to safety modules for the realization of safety circuits up to PL e acc. to EN ISO 13849. For technical information or wiring diagrams, please contact our technical office.





Introduction

The experience and knowledge acquired in decades of activity in the field of safety and automation enables Pizzato Elettrica to offer innovative solutions in other areas as well, combining maximum functionality and flexibility of use with clear lines and attention to detail.

The EL AC series lift control stations are designed for motion control of elevators during inspection and maintenance. The control stations are equipped with Pizzato Elettrica EROUND signalling and control devices.

In compliance with standards EN 81-20 and EN 81-50

International standards EN 81-20 and EN 81-50 set new, updated, technical and safety requirements in comparison to current standards. They are a significant development in terms of lift construction and installation.

The EL range of signalling and control stations is designed to meet all of the requirements included in these standards, to ensure that products are fully compliant.

Modularity



The number, type and location of holes made in the control stations to accommodate devices can be freely selected by the customer: The number of possible variants is very high.

This wide range of options is made possible by an innovative mould, made up of modular and interchangeable elements (patent pending). It allows free positioning of the various hole patterns and shapes required to accommodate devices. This modular mould allows the entire cover to be produced as a single piece in a single casting process.

Robustness

The protection of devices against impacts or kicks is guaranteed by both the laterally-hinged guard (in versions equipped with this feature), and by the use of recessed buttons, which do not protrude from the surface of the control station.

In addition, the use of robust guards for particularly bulky control switches, such as emergency stop buttons or selector switches, makes the product applicable in the toughest environments.

Station holder



The EL AC control stations can also be wall-mounted, using the dedicated VE SF series control station holder. This accessory is suitable for use in all situations where it is useful to be able to insert the station in a fixed and secure holder, when not in use by the operator. The reinforced structure and fitted design of the holder ensure easy insertion of the control station, secure hold, and sturdy protection. The snap-in attachment, felt when the station is fully inserted, provides feedback to the operator that the control station is held firmly in place, preventing poor positioning of the device that could allow it to slip from its retainer.



Changeover switches and selector switches



In the EL AC series control stations, a changeover switch can be installed instead of a selector on request.

The cam switches have a wide, ergonomic actuation knob, are available in versions with 2 or 3 stable positions, and can be internally wired to customer specifications, up to a maximum of 8 contacts.

The cover shapes designed to accommodate the switches provide a suitable enclosure with protection guard.

Equipped with a gasket below the knob, the switch achieves a protection degree of IP67.

Treadproof

The hinged lateral protective cover has a dual function: it protects devices from dust and dirt, and also from impacts or loads (up to a maximum of 100 kg).

Its special shape means that it is still easy to actuate the emergency stop button, while at the same time the protective function remains in place, even in the event of a distracted maintenance engineer accidentally treading on the control station.



The installed devices will remain unaffected, thanks to the shape of the protection, which allows the pressure exerted to be dispersed onto the robust structure of the control station.

Custom wiring

The control stations can be supplied wired, with the wiring implemented according to customer specifications; both in terms of cables used, and connectors.

This additional adaptation to customer requirements means that the control stations are supplied ready for final installation.



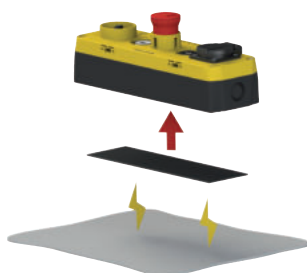
Aesthetics

The shape of the lower part of the control station merges seamlessly with that of the protection; thus forming a single body, characterised by the absence of any protruding elements.

This allows the station to be used even when an attractive design is required, which is increasingly the case when the lift shaft is framed in glass and the cabin is thus visible.



Magnetic bases

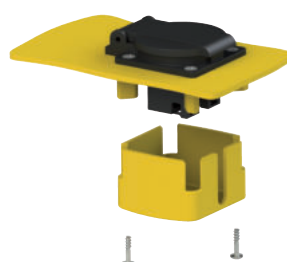


All EL AC series control stations can be supplied with a magnetic base, installed at the bottom of the housing; this allows the control stations to be anchored to walls and metallic surfaces, in such a way that they are removable, and no drilling is required. The adhesive magnetic bases can also be retrofitted.

Electrical socket

The interior parts of the socket are protected against accidental contact by a removable cover.

It is available in various versions to comply with different country-specific regulations.



Protective cover available separately

In the control station versions with centrally positioned emergency stop button, with no protruding guards, the laterally hinged protective cover can be retrofitted, as it is available separately to the control station.

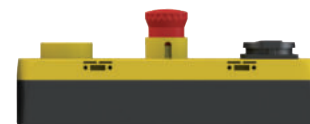


Two heights

The Pizzato Elettrica EL AC series control stations are available in both a high base version (2 levels of contacts) and a low base version (1 level of contacts). This significantly increases the number of application possibilities for the product itself.



2 levels of contacts



1 level of contacts

LASER engraving

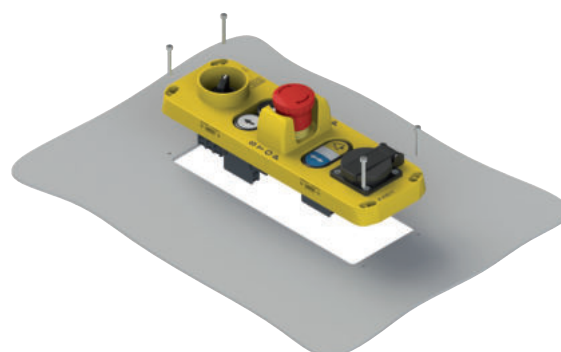


Pizzato Elettrica has introduced a new LASER engraving system for EL AC series control stations. Thanks to this new system, which does not use pad printing or labels, engravings on the products are indelible and durable over time.

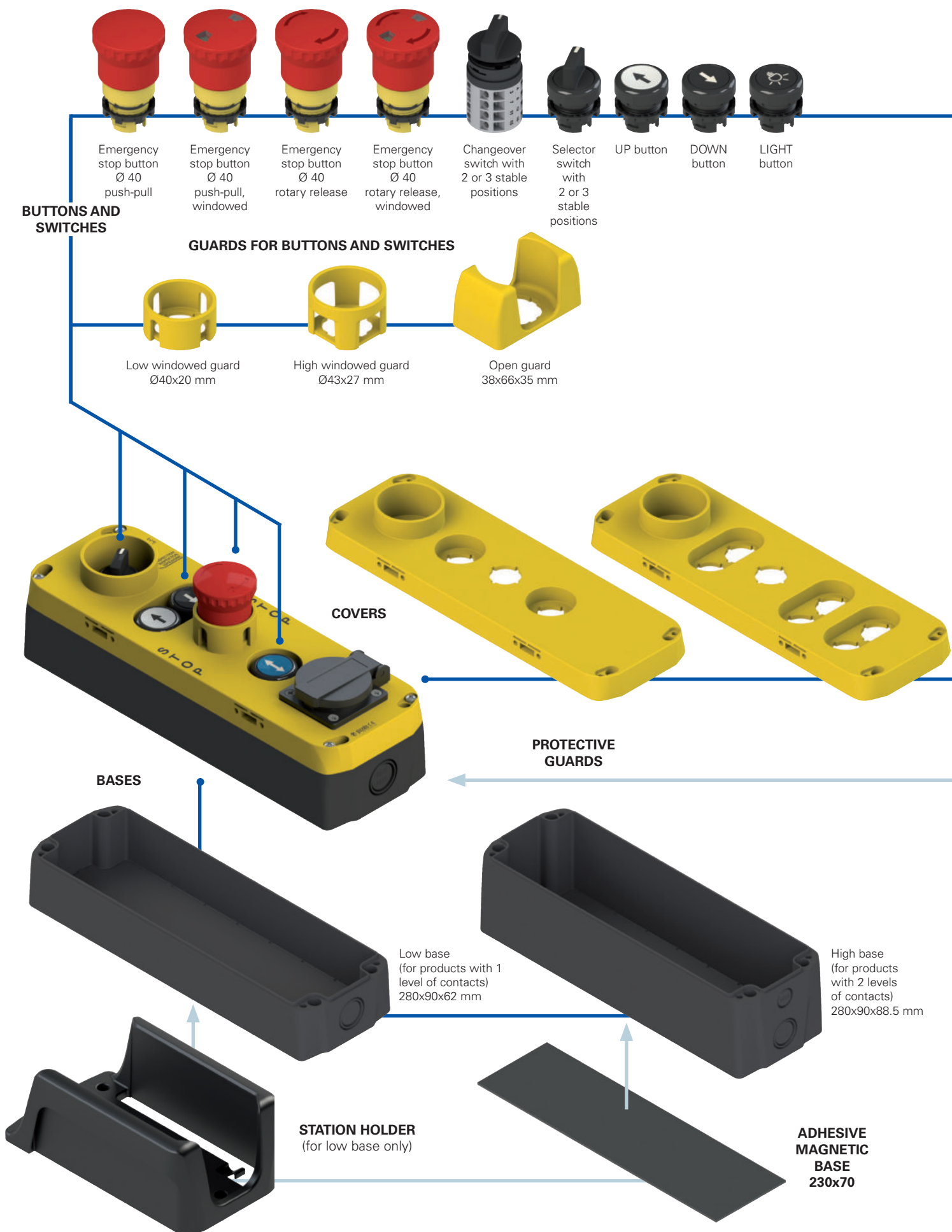
The laser engravings of the EL AC series control stations now include pictograms and icons compliant with the EN 81-20 standard; the control stations can also be customised using indicators, symbols, and logos, on customer request.

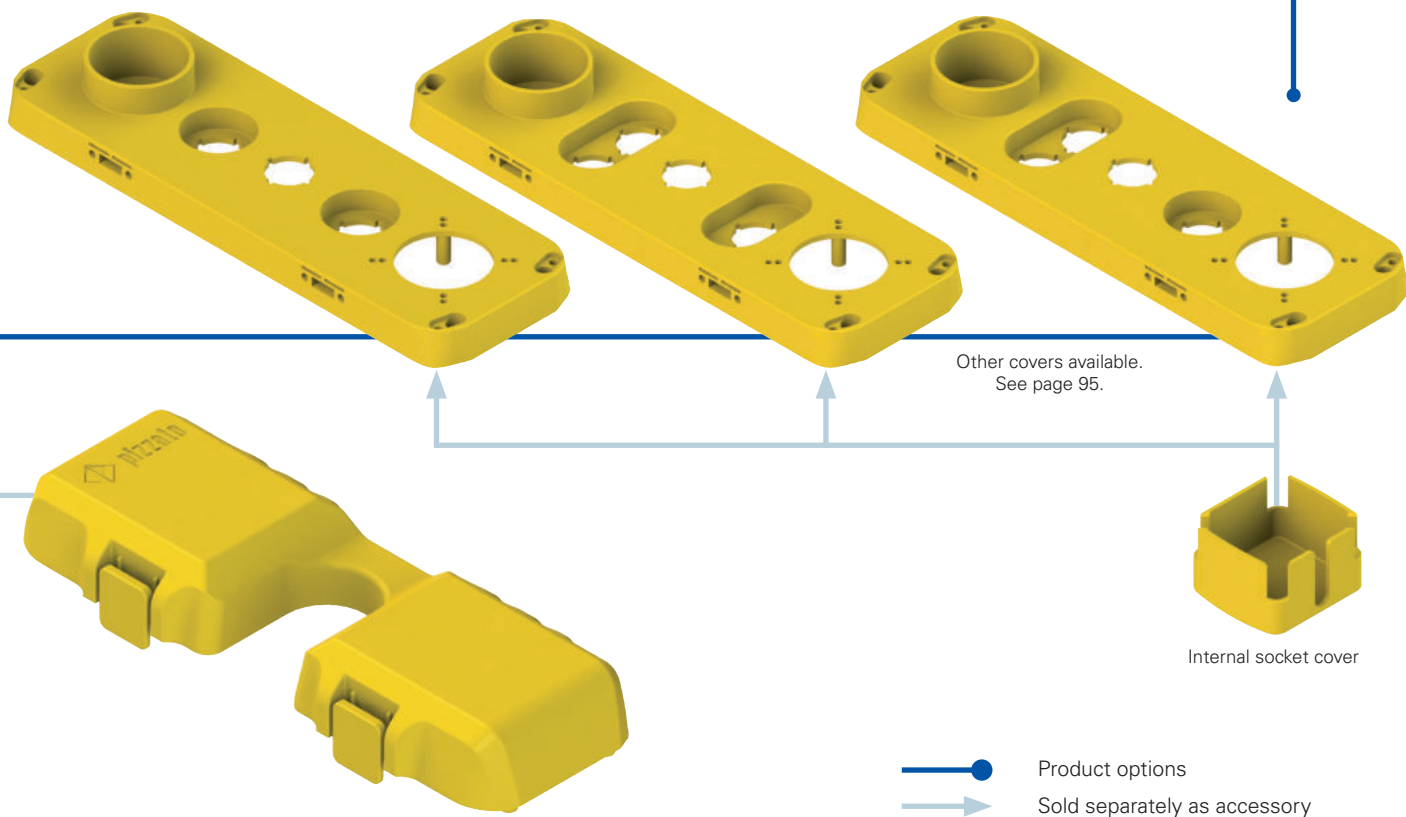
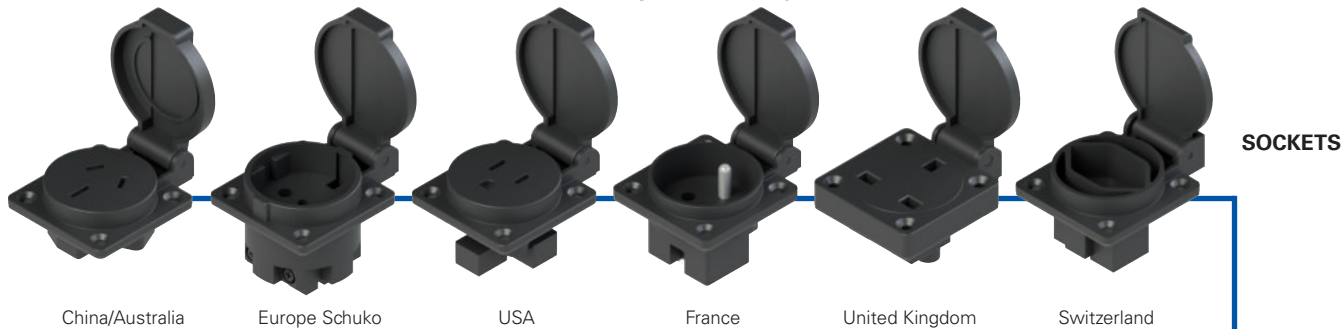
Cover without base

The EL AC control stations are also available as covers without base. These are designed for cases where the control station is to be mounted directly on a wall or in switching cabinet.



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.

EL AC27010

Housing shape		Incremental configuration number	
7	base 280 x 90 mm	010	configuration 010
		011	configuration 011
		012	configuration 012
	



Main features

- Various configurations available
- With treadproof protective cover
- Protection degree IP54, IP65, or IP67
- Internal and external fixing
- Devices flush-mounted or protected by guard
- Customisable electrical socket

Housing quality marks:



EAC approval: RU C-IT.YT03.B.00035/19

Contact block quality marks:



IMQ approval: CA02.04805

UL approval: E131787

CCC approval: 2021000305000106

EAC approval: RU C-IT.YT03.B.00035/19

Technical data

Housing

Shockproof, self-extinguishing technopolymer cover. UV resistant and double insulated:

High base:

- 2 lateral knock-out entries: M20 - M25 - PG 13.5 - 1/2 NPT
- 2 lateral knock-out entries: M16 - PG 11
- 6 knock-out entries at bottom: M20 - PG 13.5 - 1/2 NPT

Low base:

- 2 lateral knock-out entries: M20 - M25 - PG 13.5 - 1/2 NPT
- 2 knock-out entries at bottom: M20 - M25 - PG 13.5 - 1/2 NPT

Base colour:

Cover colour:

- Black RAL 9005
- Yellow RAL 1023 (standard)
- Black RAL 9005 (on request)

Protective cover colour:

- Yellow RAL 1023 (standard)
- Black RAL 9005 (on request)

Material of the screws:

- Zinc-plated steel; stainless steel available on request

Protection degree acc. to EN 60529:

- IP54 (standard)
- IP65 (on request)
- IP67 (on request)
- with cable gland of equal or higher protection degree

General data

Ambient temperature: -25°C ... +80°C

Cover screw tightening torque: 1 ... 1.4 Nm

In compliance with standards:

IEC 60947-5-1, EN 60947-5-1, EN 60947-1, IEC 60204-1, IEC 60947-5-5, EN 60947-5-5, EN 60204-1, EN ISO 14119, IEC 60529, EN 60529, EN IEC 63000, EN 81-20, EN 81-50, UL 508, CSA 22.2 No.14.

⚠ Installation for safety applications:

Use only contact blocks marked with the symbol \ominus . Always connect the safety circuit to the NC contacts (normally closed contacts: 1-2) as stated in standard EN 81-20 par. 5.11.2.2.1.

Compliance with the requirements of:

Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU, Lift Directive 2014/33/EU, RoHS Directive 2011/65/EU.

Positive contact opening in conformity with standards:

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

⚠ If not expressly indicated in this chapter, for correct installation and utilization of all articles see the instructions given on page 133.

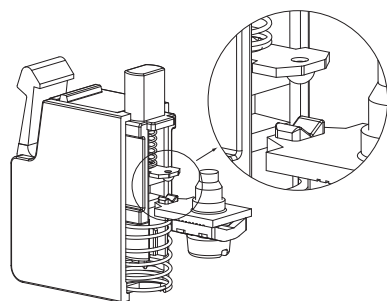
Electrical data

Thermal current (I_{th}):	10 A
Rated insulation voltage (U_i):	500 Vac/dc
Protection against short circuits:	type gG/gL fuse 10 A 500 V
Rated impulse withstand voltage (U_{imp}):	8 kV
Pollution degree:	3

Utilization category

Alternating current: AC15 (50 ... 60 Hz)					
U_e (V)	24	48	120	250	400
I_e (A)	6	6	6	6	3
Direct current: DC13					
U_e (V)	24	48	125	250	
I_e (A)	2.5	1.3	0.6	0.3	

High-reliability self-cleaning contacts



“V-shape” self-cleaning contacts with quadruple contact point. This type of shape, thanks to the presence of the double contact point, makes it possible to drastically reduce the probability of contact commutation failure. In addition to this, it improves considerably the reliability in the presence of dust (patent pending).

Positive opening

NC contact block suitable for safety applications, with positive opening contacts in accordance with IEC 60947-5-1.

Features approved by UL

Electrical Ratings: A600 pilot duty (720 VA, 120-600 V ac)
Q300 pilot duty (69 VA, 125-250 V dc)

For contact block series E2 C 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 screw less type terminals: use 60 or 75 °C copper (Cu) conductor and wire size range 16-24 AWG, stranded. These terminals are suitable also for stranded conductors prepared with ZMLF ferrules. Recommended stripping length: 8 mm.

Features approved by IMQ

Rated insulation voltage (U): 500 V
Conventional free air thermal current (I_{th}): 10 A

Thermal current inside housing (I_{th}): 10 A

Rated impulse withstand voltage (U_{imp}):

– Screw terminals or solder terminals 8 kV;

– Terminals without screw 6 kV.

Protection degree of the housing:

– Screw terminals or terminals without screw IP20;

– Solder terminals IP00;

– Screw terminals with dust protection cap, panel mounting only IP20.

Terminals: screw terminals, solder terminals, without screw

Utilization category: AC15

Operating voltage (U_e): 400 Vac (50/60 Hz)

Operating current (I_e): 3 A

Forms of the contact element: X, Y

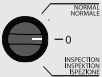










Positive opening of contacts on contact blocks 01G, 01K

In compliance with standards: EN 60947-1, EN 60947-5-1, fundamental requirements of the Low Voltage Directive 2014/35/EU.





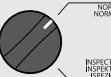








EL AC27029



	DEVICES	CONTACTS	DIAGRAM
		Selector switch with short handle 3 stable positions, black, with guard	4 NO
			NORMAL 
			0 
		UP button flush, spring-return, white	2NO 
		Emergency stop button Ø 40 rotary release, with guard	1NC 
		DOWN button flush, spring-return, black	2NO 
		Schuko socket 16 A 250 Vac with internal fuse	/ 

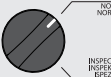














EL AC27433



	DEVICES	CONTACTS	DIAGRAM
		Emergency stop button Ø 40 windowed push-pull release, with guard	1NC 
		Changeover switch Ø 42 2 stable positions, black, with guard	NORMAL 
			INSPECTION 
		UP button flush, spring-return, white	1NO+1NC 
		ENABLE button flush, spring-return, blue	1NO 
		DOWN button flush, spring-return, black	1NO+1NC 

EL AC27616



	DEVICES	CONTACTS	DIAGRAM
		Changeover switch Ø 42 2 stable positions, black, with guard	NORMAL 
			INSPECTION 
		UP button flush, spring-return, white	2NO+1NC 
		DOWN button flush, spring-return, black	2NO+1NC 
		Emergency stop button Ø 40 rotary release, with guard	2NC 
		ENABLE button flush, spring-return, blue	1NO 
		ALARM button flush, spring-return, yellow	1NO 
		Schuko socket 16 A 250 Vac with internal fuse	/ 

EL AC27620



	DEVICES	CONTACTS	DIAGRAM
	Selector switch with short handle 2 stable positions, black, with guard	2NO+2NC	NORMAL INSPECTION
	UP button flush, spring-return, white	2NO	
	DOWN button flush, spring-return, black	2NO	
	Emergency stop button Ø 40 windowed push-pull release, with guard	1NC	
	ENABLE button flush, spring-return, blue	1NO	
	ALARM button projecting, spring-return, yellow	1NO	
	LIGHT button flush, spring-return, black	1NO	
	Schuko socket 16 A 250 Vac with internal fuse	/	

EL AC27615



	DEVICES	CONTACTS	DIAGRAM
	Emergency stop button Ø 40 windowed push-pull release, with guard	1NC	
	UP button flush, spring-return, white	2NO	
	DOWN button flush, spring-return, black	2NO	
	Selector switch with short handle 2 stable positions, black, with guard	2NO+2NC	NORMAL INSPECTION
	ENABLE button flush, spring-return, blue	1NO	
	Buzzer, continuous alarm perforated lens, black	24 Vac/dc	
	Schuko socket 16 A 250 Vac with internal fuse	/	

EL AC27617



	DEVICES	CONTACTS	DIAGRAM
	Emergency stop button Ø 40 windowed rotary release, with guard	1NC	
	ENABLE button flush, spring-return, blue	1NO	
	UP button flush, spring-return, white	2NO	
	LIGHT button flush, spring-return, black	1NO	
	DOWN button flush, spring-return, black	2NO	
	Selector switch with short handle 2 stable positions, black, with guard	2NO+2NC	NORMAL INSPECTION
	Selector switch with short handle 3 positions, black, with guard, left spring-return, stable, right spring-return	2NO	

EL AC27622


	DEVICES	CONTACTS	DIAGRAM				
	Emergency stop button Ø 40 windowed push-pull release, with guard	1NC					
	UP button flush, spring-return, white	2NO					
	DOWN button flush, spring-return, black	2NO					
	Changeover switch Ø 42 2 stable positions, black, with guard	2NO+2NC	<table border="0"> <tr> <td>NORMAL</td> <td></td> </tr> <tr> <td>INSPECTION</td> <td></td> </tr> </table>	NORMAL		INSPECTION	
NORMAL							
INSPECTION							
	ENABLE button flush, spring-return, blue	1NO					
	ALARM button flush, spring-return, yellow	1NO					
	WHITE luminous disc 5 LUX steady white light	24 Vac/dc					
	Buzzer, continuous alarm perforated lens, black	24 Vac/dc					

EL AC27619


	DEVICES	CONTACTS	DIAGRAM				
	Selector switch with short handle 2 stable positions, black, with guard	3NO+3NC	<table border="0"> <tr> <td>NORMAL</td> <td></td> </tr> <tr> <td>INSPECTION</td> <td></td> </tr> </table>	NORMAL		INSPECTION	
NORMAL							
INSPECTION							
	UP button flush, spring-return, white	2NO+1NC					
	DOWN button flush, spring-return, black	2NO+1NC					
	Emergency stop button Ø 40 windowed push-pull release, with guard	2NC					
	ENABLE button flush, spring-return, blue	2NO					
	ALARM button flush, spring-return, yellow	1NO					

EL AC27618


	DEVICES	CONTACTS	DIAGRAM				
	Selector switch with short handle 2 stable positions, black, with guard	3NO+3NC	<table border="0"> <tr> <td>NORMAL</td> <td></td> </tr> <tr> <td>INSPECTION</td> <td></td> </tr> </table>	NORMAL		INSPECTION	
NORMAL							
INSPECTION							
	UP button flush, spring-return, white	2NO					
	DOWN button flush, spring-return, black	2NO					
	Emergency stop button Ø 40 windowed push-pull release, with guard	2NC					
	LIGHT button flush, spring-return, black	1NO					
	ENABLE button flush, spring-return, blue	1NO					
	Schuko socket 16 A 250 Vac with internal fuse	/					

EL AC27025



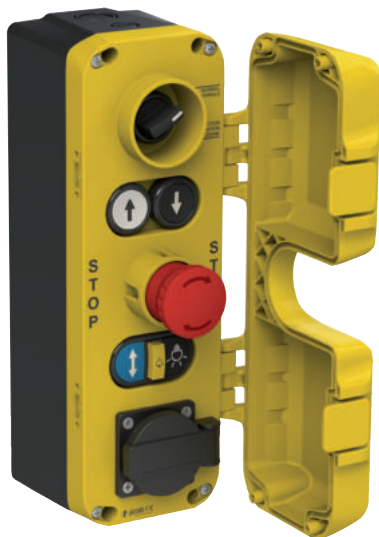
	DEVICES	CONTACTS	DIAGRAM
	Selector switch with short handle 2 stable positions, black, with guard	3NO+3NC	NORMAL
			INSPECTION
	UP button flush, spring-return, white	2NO	
	DOWN button flush, spring-return, black	2NO	
	Emergency stop button Ø 40 rotary release, with guard	1NC	
	ALARM button flush, spring-return, yellow	1NO	
	LIGHT button flush, spring-return, black	1NO	
	ENABLE button flush, spring-return, blue	2NO	
	Selector switch with short handle 3 positions, black, left spring-return, stable, right spring-return	2NO	 0

EL AC27613



	DEVICES	CONTACTS	DIAGRAM
	Changeover switch Ø 42 2 stable positions, black, with guard	3NO+3NC	NORMAL
			INSPECTION
	UP button flush, spring-return, white	2NO	
	DOWN button flush, spring-return, black	2NO	
	Emergency stop button Ø 40 windowed push-pull release, with guard	1NC	
	ENABLE button flush, spring-return, blue	1NO	
	Schuko socket 16 A 250 Vac with internal fuse	/	

EL AC27058



	DEVICES	CONTACTS	DIAGRAM
	Selector switch with short handle 2 stable positions, black, with guard	3NO+3NC	NORMAL
			INSPECTION
	UP button flush, spring-return, white	2NO+1NC	
	DOWN button flush, spring-return, black	2NO+1NC	
	Emergency stop button Ø 40 rotary release, with guard	1NC	
	ENABLE button flush, spring-return, blue	1NO	
	ALARM button projecting, spring-return, yellow	1NO	
	LIGHT button flush, spring-return, black	1NO	
	Schuko socket 16 A 250 Vac with internal fuse	/	

EL AC27048


	DEVICES	CONTACTS	DIAGRAM
	Selector switch with short handle 2 stable positions, black, with guard	2NO+2NC	NORMAL
			INSPECTION
	UP button flush, spring-return, white	2NO+1NC	
	DOWN button flush, spring-return, black	2NO+1NC	
	Emergency stop button Ø 40 rotary release, with guard	2NC	
	ENABLE button flush, spring-return, blue	1NO	
	ALARM button flush, spring-return, yellow	1NO	
	Schuko socket 16 A 250 Vac with internal fuse	/	

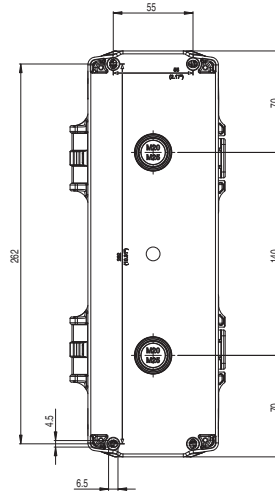
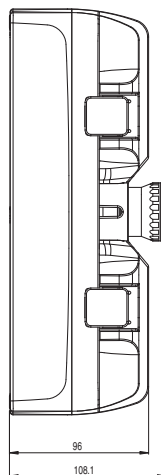
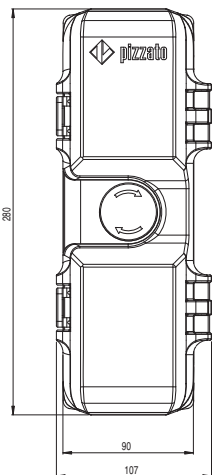
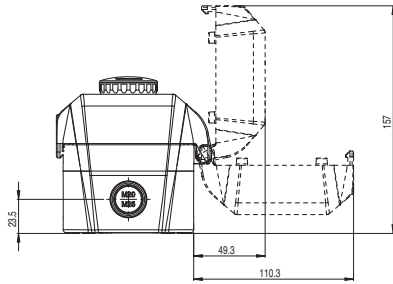
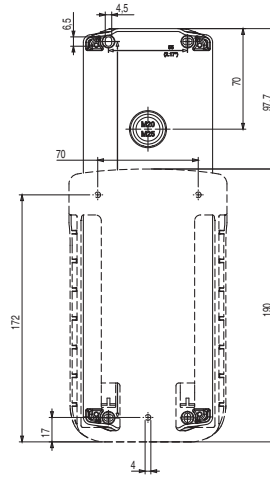
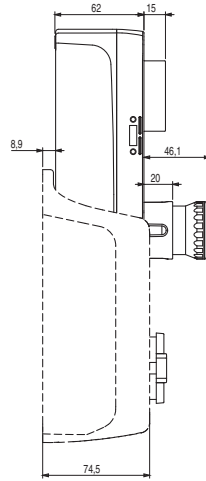
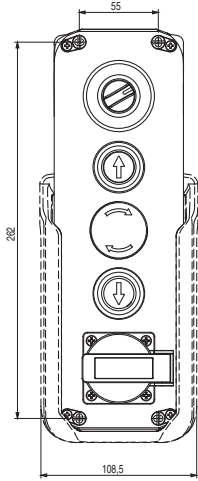
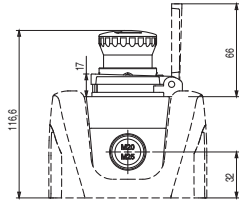
EL AC27623


	DEVICES	CONTACTS	DIAGRAM
	Changeover switch Ø 42 2 stable positions, black, with guard	2NO+2NC	NORMAL
			INSPECTION
	UP button flush, spring-return, white	2NO	
	DOWN button flush, spring-return, black	2NO	
	Emergency stop button Ø 40 rotary release, with guard	2NC	
	ENABLE button flush, spring-return, blue	1NO	
	ALARM button flush, spring-return, yellow	1NO	
	Schuko socket 16 A 250 Vac with internal fuse	/	

EL AC27614


	DEVICES	CONTACTS	DIAGRAM
	Selector switch with short handle 2 stable positions, black, with guard	3NO+3NC	NORMAL
			INSPECTION
	UP button flush, spring-return, white	2NO	
	DOWN button flush, spring-return, black	2NO	
	Emergency stop button Ø 40 windowed push-pull release, with guard	2NC	
	ENABLE button flush, spring-return, blue	1NO	
	ALARM button flush, spring-return, yellow	1NO	
	Schuko socket 16 A 250 Vac with internal fuse	/	

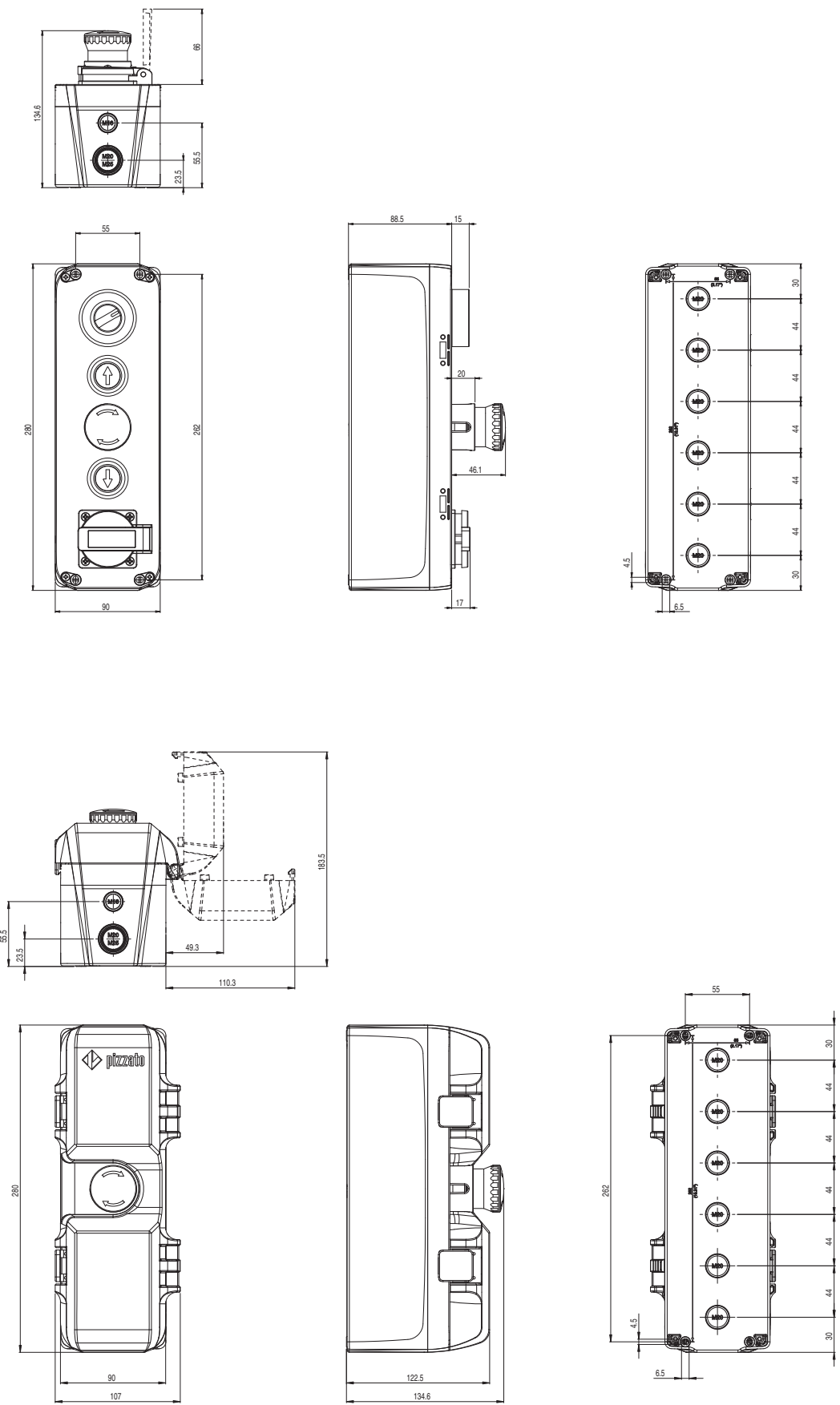
Housing dimensions for EL AC27••• series lift control stations with low base



All values in the drawings are in mm

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

Housing dimensions for EL AC27••• series lift control stations with high base













All values in the drawings are in mm


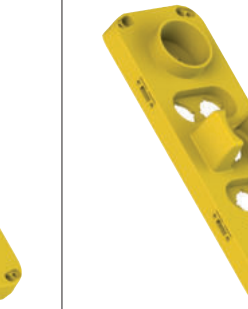
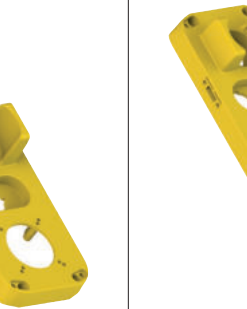
→ The 2D and 3D files are available at www.pizzato.com

EL AC series cover selection table (selector switch versions)

ATTENTION: The internal code does not designate a product. Covers are not available for sale separately.






					
internal code	25001	25068	25074	25075	25076

					
internal code	25081	25103	25116	25125	25129

			
internal code	25146	25150	25154

EL AC series cover selection table (changeover switch versions)

ATTENTION: The internal code does not designate a product. Covers are not available for sale separately.

					
internal code	25138	25153	25162	25183	25190

EL AC series cover selection table (selector switch versions)

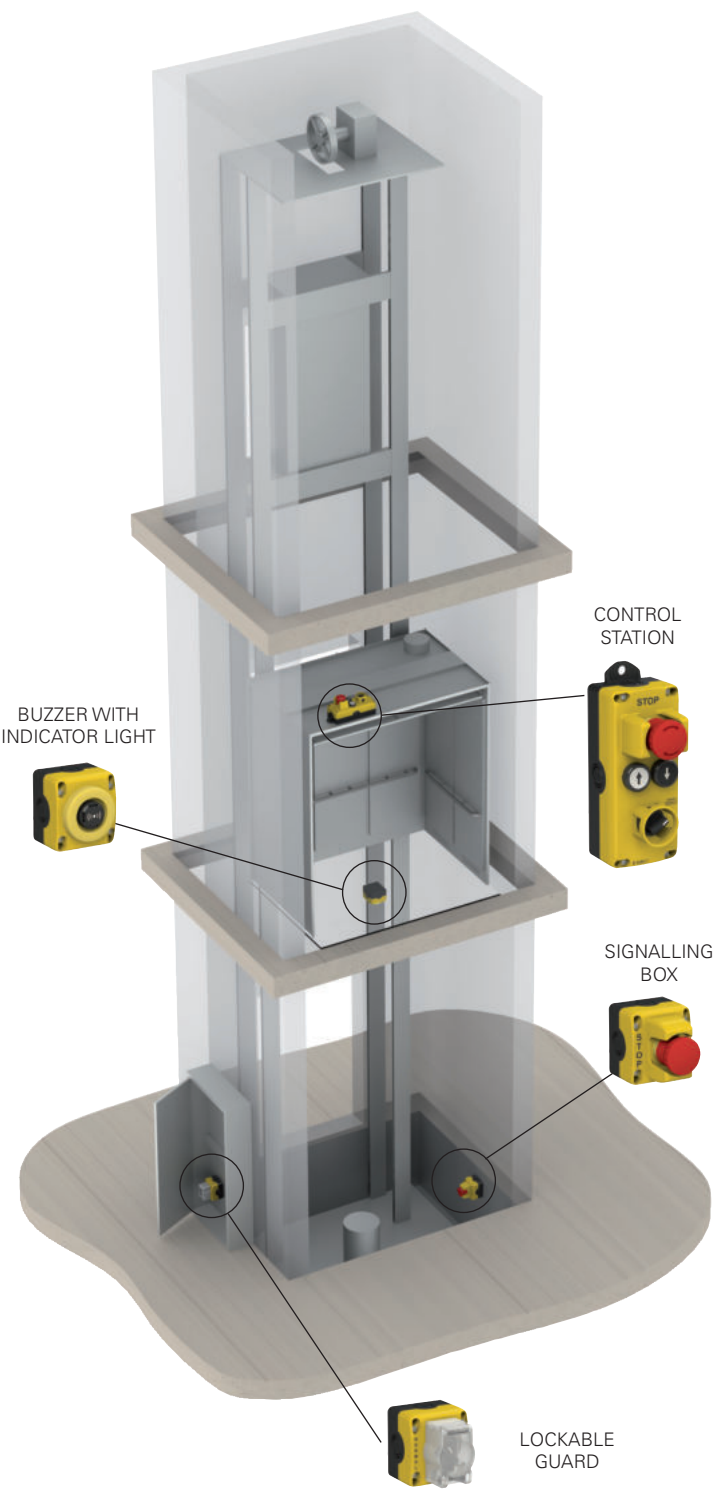
ATTENTION: The internal code does not designate a product. Covers are not available for sale separately.

					
internal code	25060	25101	25118	25119	25120

EL AC series cover selection table (changeover switch versions)

ATTENTION: The internal code does not designate a product. Covers are not available for sale separately.

	
internal code	25163



Introduction

The experience and knowledge acquired in decades of activity in the field of safety and automation enables Pizzato Elettrica to offer innovative solutions in other areas as well, combining maximum functionality and flexibility of use with clear lines and attention to detail.

The EL AN series control stations are equipped with Pizzato Elettrica EROUND signalling and control devices.

The EL AN series lift control stations are designed for motion control of elevators during inspection and maintenance.

In compliance with standards EN 81-20 and EN 81-50

International standards EN 81-20 and EN 81-50 set new, updated, technical and safety requirements in comparison to current standards. They are a significant development in terms of lift construction and installation.

The EL range of signalling and control stations is designed to meet all of the requirements included in these standards, to ensure that products are fully compliant.

Modularity

The number, type and location of holes made in the control stations to accommodate devices can be freely selected by the customer: The number of possible variants is very high.

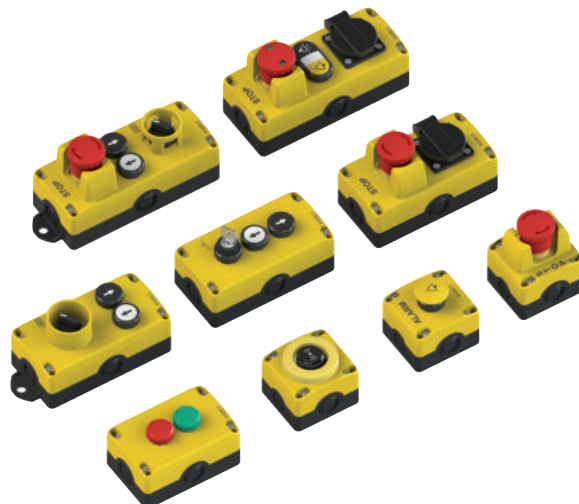
This wide range of options is made possible by an innovative mould, made up of modular and interchangeable elements (patent pending). It allows free positioning of the various hole patterns and shapes required to accommodate devices. This modular mould allows the entire cover to be produced as a single solid piece in a single casting process.



Wide range

The range of available EL AN series control stations includes 4 different dimensions, and multiple configurations.

The shape of the new EL AN control stations has been designed with particular attention to detail; creating a pleasing aesthetic result.



Changeover switches and selector switches



In the EL AN series control stations, a cam switch can be installed instead of a selector switch on request.

The cam switches have a wide, ergonomic actuation knob, are available in versions with 2 or 3 stable positions, and can be internally wired to customer specifications, up to a maximum of 4 contacts.

The cover shapes designed to accommodate the switches provide a suitable enclosure with protection guard.

Equipped with a gasket below the knob, the switch achieves a protection degree of IP67.

Treadproof

The EL AN series of control stations – thanks to their specific design, and the choice of materials used – are particularly resistant, and able to withstand impacts and loads.

They are therefore suitable for use in heavy-duty applications.



Custom wiring

The control stations can be supplied wired, with the wiring implemented according to customer specifications; both in terms of cables used, and connectors.

This additional adaptation to customer requirements means that the control stations are supplied ready for final installation.

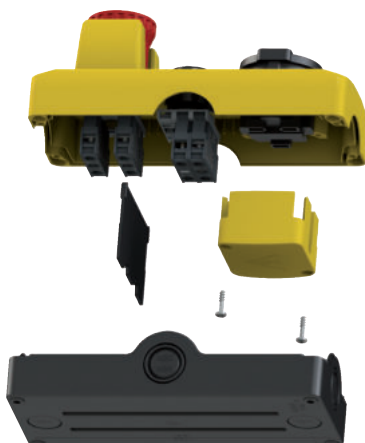


Electrical socket

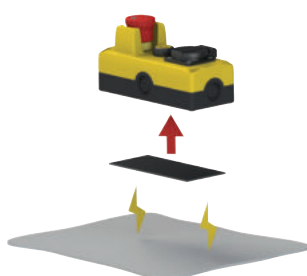
The interior parts of the socket are protected against accidental contact by a removable cover.

A separator plate is available (which can be installed in various positions), which is used to separate control station parts with different voltages.

The electrical socket is also always installed on the top of the control station, and never on its side; this makes it easier to use, and its position easier to see. It is available in various versions to comply with different country-specific regulations.



Magnetic bases



All EL AN series control stations can be supplied with a magnetic base, installed at the bottom of the housing; this allows the control stations to be anchored to walls and metallic surfaces, in such a way that they are removable, and no drilling is required.

The adhesive magnetic bases can also be retrofitted.

Padlockable protection for bypass device

Paragraph 5.12.1.8 of UN i.e. EN 81-20:2014 stipulates use of a bypass device, to allow maintenance of the contacts of landing and cabin doors, and of door locking devices. This device must be placed in the control or emergency panel, and must be a switch protected against unintended use through the use of mechanically mobile means. The Pizzato bypass device provides a solid guard with a movable cover, which, if needed, can be locked in a closed position by inserting one or two padlocks, or sealed.



To facilitate operations, the cover also has two shutter-release positions: fully open and fully closed.

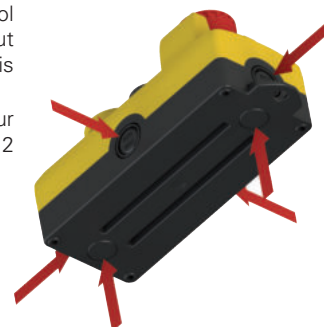
The cover therefore will not open inadvertently, but it must in any case be manually disconnected.

The lockable Pizzato guard can be installed on EL series control stations or on any electrical panel that has the appropriate holes for the fixing screws, as shown.

Conduit entries

The base of the EL AN control station has several knock-out entries for cable routing. This ensures easy wiring.

The control stations have four entries at the sides, and 2 entries on the bottom.



LASER engraving



Pizzato Elettrica has introduced a new LASER engraving system for EL AN series control stations.

Thanks to this new system, which does not use pad printing or labels, engravings on the products are indelible and durable over time.

The laser engravings of the EL AN series control stations now include pictograms and icons compliant with the EN 81-20 standard; the control stations can also be customised using indicators, symbols, and logos, on customer request.

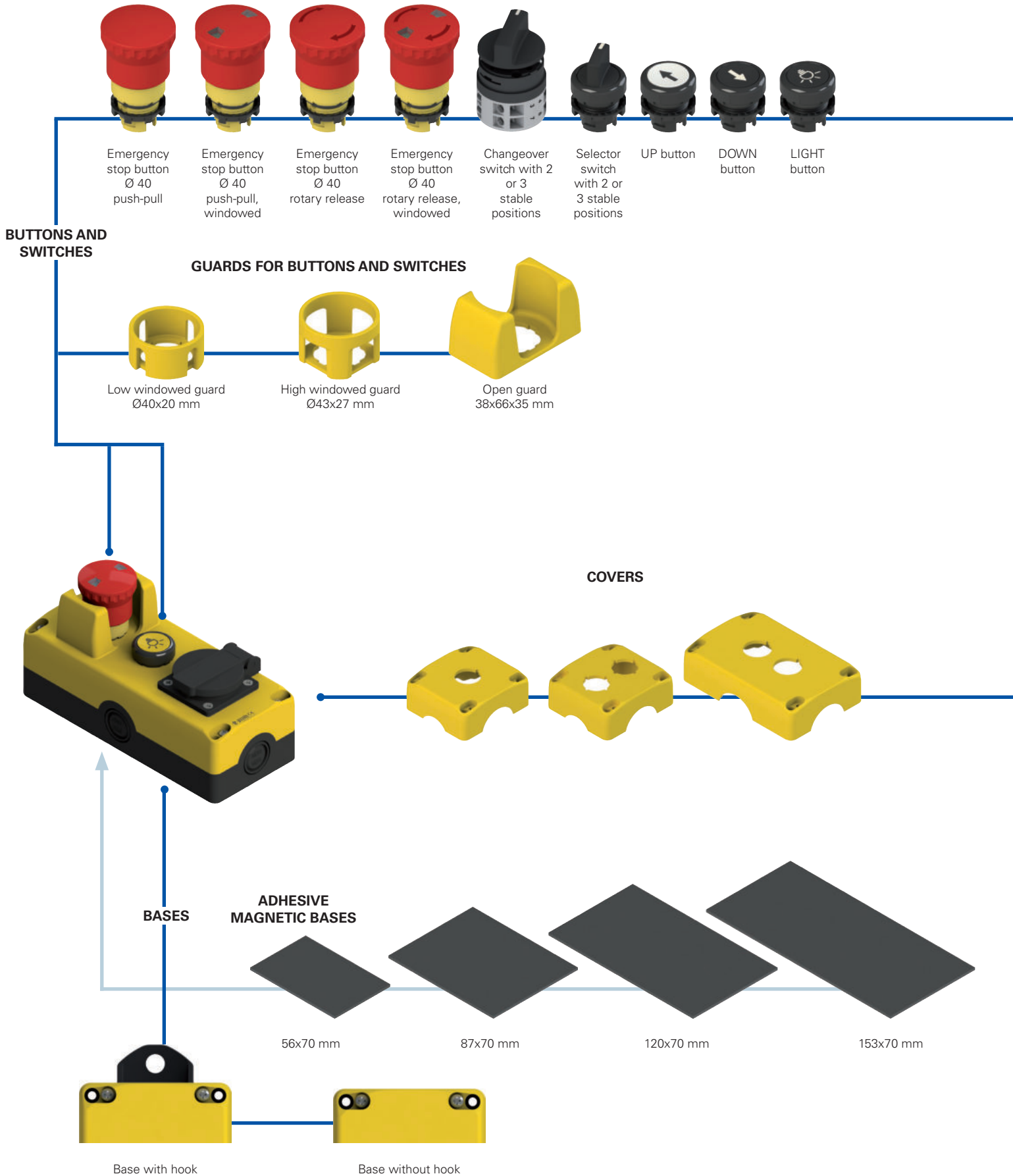
Visual and audible signals

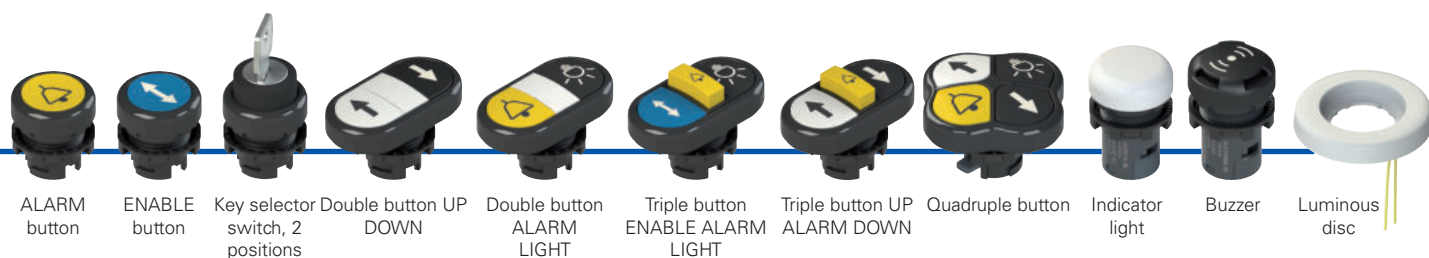
All devices required for compliance with the provisions of standard EN 81-20, in terms of visual and audible signals inside the lift shaft, are available.

All EL series control and signalling stations can therefore be equipped with white lights, with an intensity of 5 LUX at a distance of 1 metre; flashing yellow lights, and buzzers with continuous or pulsed tone, with a minimum sound intensity of 55 dB at a distance of 1 metre.



Selection diagram





ALARM button

ENABLE button

Key selector switch, 2 positions

Double button UP DOWN

Double button ALARM LIGHT

Triple button ENABLE ALARM LIGHT

Triple button UP ALARM DOWN

Quadruple button

Indicator light

Buzzer

Luminous disc


SOCKETS

China/Australia

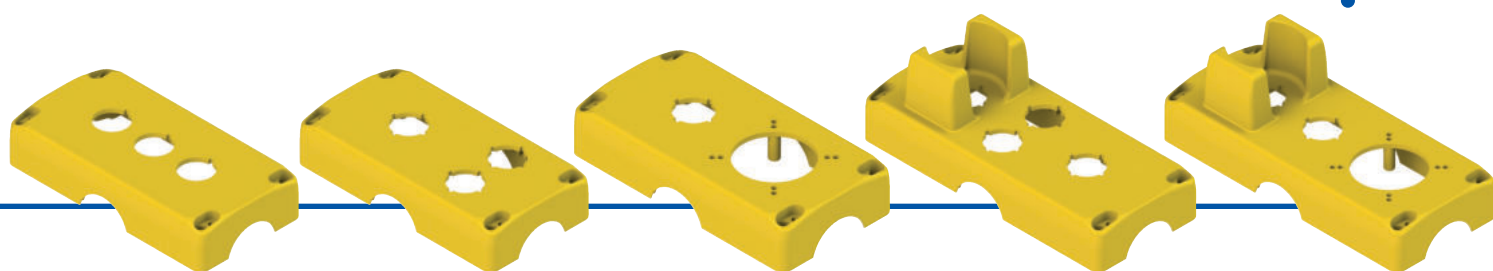
Europe Schuko

USA

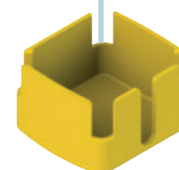
France

United Kingdom

Switzerland



Other covers available. See page 113.



Internal socket cover

- Product options
- Sold separately as accessory

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

EL AN23000

Housing shape	
1	72x80h56 mm
2	120x80h56 mm
3	153x80h56 mm
4	186x80h56 mm

Incremental configuration number	
000	configuration 000
001	configuration 001
...	...



Main features

- Various configurations available
- Protection degree up to IP69K
- Guards for buttons and switches
- Internal and external fixing
- Customisable electrical socket
- Captive screws

Housing quality marks:



EAC approval: RU C-IT.YT03.B.00035/19

Contact block quality marks:



IMQ approval: CA02.04805
 UL approval: E131787
 CCC approval: 2021000305000106
 EAC approval: RU C-IT.YT03.B.00035/19

Technical data

Housing

Shockproof, self-extinguishing technopolymer cover. UV resistant and double insulated:

Single element housing:

2 lateral knock-out entries: M20 - M25 - PG13.5 - 1/2 NPT
 2 lateral knock-out entries: M20 - PG13.5 - 1/2 NPT
 2 knock-out entries at bottom: M16 - PG11

Housing with 2 or more elements:

4 lateral knock-out entries: M20 - M25 - PG 13.5 - 1/2 NPT
 2 knock-out entries at bottom: M20 - PG 13.5 - 1/2 NPT

Base colour:

Cover colour:

Material of the screws:

Protection degree acc. to EN 60529:

Black RAL 9005

Yellow RAL 1023

Zinc-plated steel; stainless steel available on request

IP54 (standard)

IP65 (on request)

IP67 (on request)

IP69K (on request)

with cable gland of equal or higher protection degree

Protection degree acc. to ISO 20653:

General data

Ambient temperature: -25°C ... +80°C

Cover screw tightening torque: 1 ... 1.4 Nm

In compliance with standards:

IEC 60947-5-1, EN 60947-5-1, IEC 60947-5-5, EN 60947-5-5, EN 60947-1, IEC 60204-1, EN 60204-1, EN ISO 14119, IEC 60529, EN 60529, EN IEC 63000, EN 81-20, EN 81-50, UL 508, CSA 22.2 No.14

⚠ Installation for safety applications:

Use only contact blocks marked with the symbol Always connect the safety circuit to the NC contacts (normally closed contacts: 1-2) as stated in standard EN 81-20 par. 5.11.2.2.1.

Compliance with the requirements of:

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

Lift Directive 2014/33/EU, RoHS Directive 2011/65/EU.

Positive contact opening in conformity with standards:

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

⚠ If not expressly indicated in this chapter, for correct installation and utilization of all articles see the instructions given on page 133.

Electrical data

Thermal current (I_{th}): 10 A
 Rated insulation voltage (U_i): 500 Vac/dc
 Protection against short circuits: type gG/gL fuse 10 A 500 V
 Rated impulse withstand voltage (U_{imp}): 8 kV
 Pollution degree: 3

Utilization category

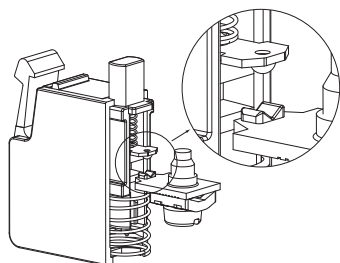
Alternating current: AC15 (50 ... 60 Hz)

U_e (V)	24	48	120	250	400
I_e (A)	6	6	6	6	3

 Direct current: DC13

U_e (V)	24	48	125	250
I_e (A)	2.5	1.3	0.6	0.3

High-reliability self-cleaning contacts



"V-shape" self-cleaning contacts with quadruple contact point. This type of shape, thanks to the presence of the double contact point, makes it possible to drastically reduce the probability of contact commutation failure. In addition to this, it improves considerably the reliability in the presence of dust (patent pending).

Positive opening

NC contact block suitable for safety applications, with positive opening contacts in accordance with IEC 60947-5-1.

Features approved by UL

Electrical Ratings: A600 pilot duty (720 VA, 120-600 V ac)
 Q300 pilot duty (69 VA, 125-250 V dc)

For contact block series E2 C 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 screw less type terminals: use 60 or 75 °C copper (Cu) conductor and wire size range 16-24 AWG, stranded. These terminals are suitable also for stranded conductors prepared with ZMLF ferrules. Recommended stripping length: 8 mm.


Features approved by IMQ




Rated insulation voltage (U_i): 500 V
 Conventional free air thermal current (I_{th}): 10 A
 Thermal current inside housing (I_{th}): 10 A
 Rated impulse withstand voltage (U_{imp}):
 - Screw terminals or solder terminals 8 kV;
 - Terminals without screw 6 kV.
 Protection degree of the housing:
 - Screw terminals or terminals without screw IP20;
 - Solder terminals IP00;
 - Screw terminals with dust protection cap, panel mounting only IP20.




Terminals: screw terminals, solder terminals, without screw





Utilization category: AC15
 Operating voltage (U_i): 400 Vac (50/60 Hz)
 Operating current (I_e): 3 A





Forms of the contact element: X, Y
 Positive opening of contacts on contact blocks 01G, 01K.
 In compliance with standards: EN 60947-1, EN 60947-5-1, fundamental requirements of the Low Voltage Directive 2014/35/EU.






EL AN21223	DEVICES	CONTACTS	DIAGRAM
		Emergency stop button Ø 40 windowed push-pull release, with guard	1NC 
EL AN21224	DEVICES	CONTACTS	DIAGRAM
		Emergency stop button Ø 40 rotary release, with guard	1NC 
EL AN21256	DEVICES	CONTACTS	DIAGRAM
		Emergency stop button Ø 40 push-pull release, with guard	1NC 
EL AN21257	DEVICES	CONTACTS	DIAGRAM
		Emergency stop button Ø 40 windowed rotary release, with guard	1NC 
EL AN21365	DEVICES	CONTACTS	DIAGRAM
		ALARM mushroom button Ø 36 spring-return, yellow	1NO 

EL AN21324	DEVICES	CONTACTS	DIAGRAM	
		LIGHT button flush, spring-return, black	1NO	






EL AN21369	DEVICES	CONTACTS	DIAGRAM	
		WHITE luminous disc 5 LUX steady white light	24 Vac/dc	
		Black closing cap	/	

EL AN21366	DEVICES	CONTACTS	DIAGRAM	
		Selector switch with short handle 2 stable positions, black, with lockable guard for bypass	1NO	NORMAL  BYPASS 






EL AN21348	DEVICES	CONTACTS	DIAGRAM	
		YELLOW luminous disc blinking yellow light	24 Vac/dc	
		Buzzer, continuous alarm perforated lens, black	24 Vac/dc	






EL AN21440	DEVICES	CONTACTS	DIAGRAM	
		UP button flush, spring-return, white	1NO	
		DOWN button flush, spring-return, black	1NO	











EL AN21441	DEVICES	CONTACTS	DIAGRAM
	 Monolithic indicator light Ø 30 colour: red	Red LED 12 ... 30 Vac/ dc	
	 Monolithic indicator light Ø 30 colour: green	Green LED 12 ... 30 Vac/ dc	








EL AN21439	DEVICES	CONTACTS	DIAGRAM
	 Schuko socket 16 A 250 Vac	/	






EL AN21442	DEVICES	CONTACTS	DIAGRAM
	 Buzzer, continuous alarm perforated lens, black	24 Vac/dc	
	 Indicator light Ø 30 red, blinking	Red LED 12 ... 30 Vac/ dc	






EL AN31435	DEVICES	CONTACTS	DIAGRAM
	YELLOW luminous cover continuous/blinking yellow light	24 Vdc	
	Buzzer continuous/intermittent tone		
	 ALARM button flush, spring-return, yellow	1NO	










For all details on this housing, see page 109.
For 12 Vdc versions contact our technical department.

EL AN22070	DEVICES	CONTACTS	DIAGRAM
	 Selector switch with short handle 2 stable positions, black	1NO+1NC	0  1 
	 UP button flush, spring-return, white	1NO	
	 DOWN button flush, spring-return, black	1NO	

EL AN23040		DEVICES	CONTACTS	DIAGRAM
		Emergency stop button Ø 40 rotary release	1NC	
		UP button flush, spring-return, white	1NO	
		DOWN button flush, spring-return, black	1NO	

EL AN23072		DEVICES	CONTACTS	DIAGRAM
		Emergency stop button Ø 40 windowed push-pull release	1NC	
		LIGHT button flush, spring-return, yellow	1NO	

EL AN23023		DEVICES	CONTACTS	DIAGRAM
		Emergency stop button Ø 40 rotary release, with guard	1NC	
		Schuko socket 16 A 250 Vac with internal fuse	/	








EL AN23118		DEVICES	CONTACTS	DIAGRAM
		Emergency stop button Ø 40 windowed push-pull release, with guard	1NC	
		Selector switch with short handle 2 stable positions, black, with guard	1NO+1NC	NORMAL  INSPECTION 
		UP button flush, spring-return, white	2NO	
		DOWN button flush, spring-return, black	2NO	








EL AN23052		DEVICES	CONTACTS	DIAGRAM
		Selector switch with short handle 2 stable positions, black, with guard	2NO+2NC	NORMAL INSPECTION
		UP button flush, spring-return, white	1NO	
		DOWN button flush, spring-return, black	1NO	









EL AN23116		DEVICES	CONTACTS	DIAGRAM
		Buzzer, continuous alarm perforated lens, black	24 Vac/dc	
		YELLOW luminous disc blinking yellow light	24 Vac/dc	
		ALARM button flush, spring-return, yellow	1NO	














EL AN23117		DEVICES	CONTACTS	DIAGRAM
		Buzzer, continuous alarm perforated lens, black	24 Vac/dc	
		Monolithic indicator light Ø 30 colour: red	Red LED 12 ... 30 Vac/ dc	
		ALARM button flush, spring-return, yellow	1NO	

EL AN23119		DEVICES	CONTACTS	DIAGRAM
		WHITE luminous disc 5 LUX steady white light	24 Vac/dc	
		ALARM button flush, spring-return, yellow	1NO	
		Schuko socket 16 A 250 Vac with internal fuse	/	

EL AN24025		DEVICES	CONTACTS	DIAGRAM
		Emergency stop button Ø40 windowed push-pull release, with guard	1NC	
		Illuminated LIGHT button flush, spring-return, yellow	1NO White LED 12 ... 30 Vac/dc	
		Schuko socket 16 A 250 Vac with internal fuse	/	

EL AN24026		DEVICES	CONTACTS	DIAGRAM
		Emergency stop button Ø40 windowed push-pull release, with guard	1NC	
		ALARM button flush, spring-return, yellow	1NO	
		Schuko socket 16 A 250 Vac with internal fuse	/	

EL AN24028		DEVICES	CONTACTS	DIAGRAM
		Emergency stop button Ø40 windowed push-pull release, with guard	1NC	
		ALARM button flush, spring-return, yellow	1NO	
		LIGHT button flush, spring-return, black	1NO	
		Schuko socket 16 A 250 Vac with internal fuse	/	

EL AN24111		DEVICES	CONTACTS	DIAGRAM			
		Emergency stop button Ø 40 rotary release, with guard	1NC				
		UP button flush, spring-return, white	2NO				
		DOWN button flush, spring-return, black	2NO				
		Selector switch with short handle 2 stable positions, black, with guard	2NO+2NC	<table border="0"> <tr> <td>NORMAL</td> <td>  </td> </tr> <tr> <td>INSPECTION</td> <td>  </td> </tr> </table>	NORMAL		INSPECTION
NORMAL							
INSPECTION							

EL AN24201		DEVICES	CONTACTS	DIAGRAM
		Emergency stop button Ø 40 push-pull release, with guard	1NC	
		UP button flush, spring-return, white	2NO	
		DOWN button flush, spring-return, black	2NO	
		Changeover switch Ø 42 2 stable positions, black, with guard	2NO+2NC	NORMAL INSPECTION

EL AN24202		DEVICES	CONTACTS	DIAGRAM
		Emergency stop button Ø 40 push-pull release, with guard	1NC	
		UP button flush, spring-return, white	2NO	
		DOWN button flush, spring-return, black	2NO	
		Selector switch with short handle 2 stable positions, black, with guard	2NO+3NC	NORMAL INSPECTION
		ENABLE button flush, spring-return, blue	1NO	

EL AN24203		DEVICES	CONTACTS	DIAGRAM
		Selector switch with short handle 2 stable positions, black	1NO+1NC	0 1
		Selector switch with short handle 2 stable positions, red	1NO+1NC	0 1
		Monolithic indicator light Ø 30 colour: green	Green LED 12 ... 30 Vac/ dc	
		UP button flush, spring-return, white	1NO	
		DOWN button flush, spring-return, black	1NO	

EL AN24204		DEVICES	CONTACTS	DIAGRAM
		WHITE luminous disc 5 LUX steady white light	24 Vac/dc	
		Buzzer, continuous alarm perforated lens, black	24 Vac/dc	
		Monolithic indicator light Ø 30 colour: red	Red LED 12 ... 30 Vac/ dc	
		Monolithic indicator light Ø 30 colour: green	Green LED 12 ... 30 Vac/ dc	
		Schuko socket 16 A 250 Vac with internal fuse	/	

EL AN series control stations with visual and audible signalling functions



Power supply electrical data

Rated operating voltage U_e : 12 Vdc or 24 Vdc
 Tolerance of the operating voltage: $\pm 20\%$ of U_e

Operating current at U_e voltage: 80 mA (12 Vdc version)
 50 mA (24 Vdc version)

Description

The series EL AN control station for lifts in the 1-unit version is also available with visual and audible signalling functions, in order to meet the requirements of the EN 81-20 and EN 81-50 standards, which prescribe the presence of an acoustic signal and flashing light beneath the cabin. Using the terminal block located inside the housing, the visual indicator can be configured as continuous light or flashing light, and the audible indicator can be set as a steady tone or intermittent tone. The control station is available as 12 Vdc or 24 Vdc version.

Base with installation flange

The base of the EL AN series control station equipped with visual and audible signalling functions is designed with mounting flanges with a hole spacing of 100x70 mm. This design allows additional options for a quick and flexible installation.

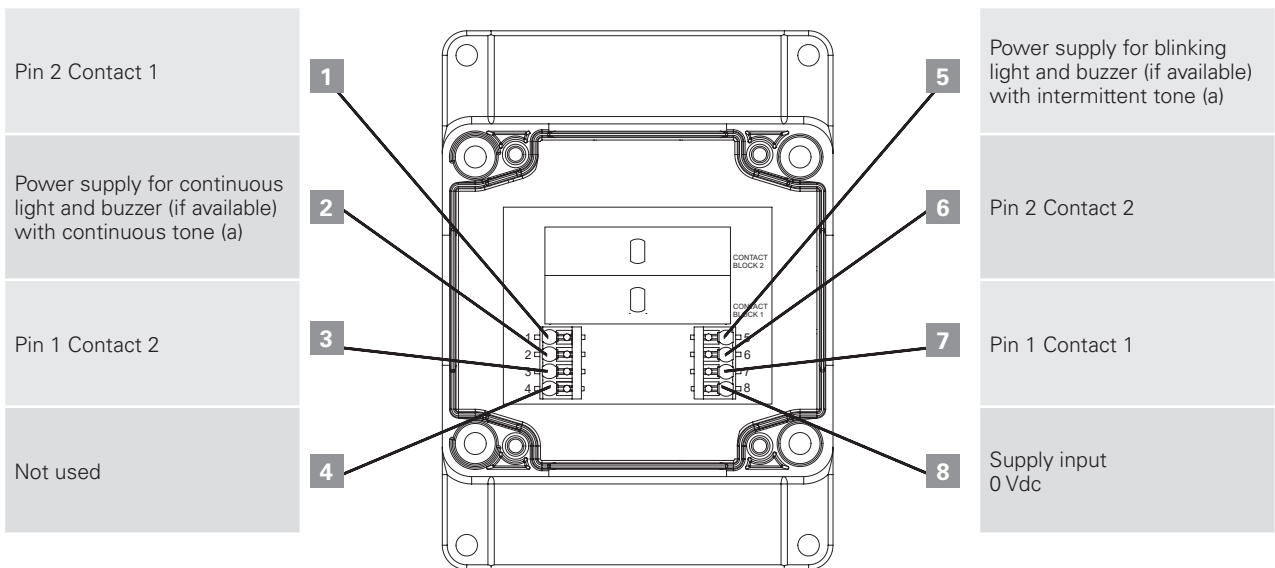
Indicator lights

The illuminated cover is equipped with LEDs that ensure highly visible illumination from any viewing direction, including from the side.

Buzzers

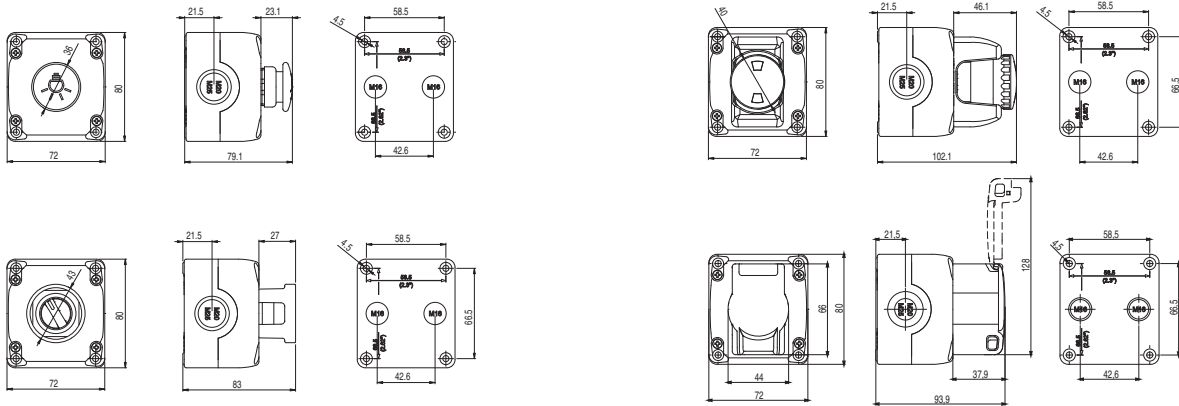
The control station guarantees a minimum sound intensity of 55 dB at a distance of 1 metre, in accordance with the EN 81-20 and EN 81-50 standard. The position of the buzzer inside the housing ensures its protection degree and also keeps the system protected from external influences.

Connections and configuration

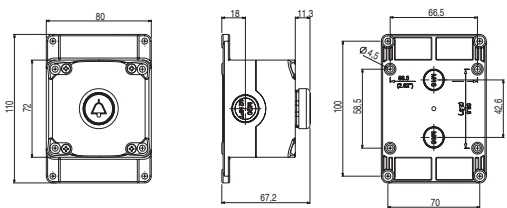


(a) for versions without buzzer please contact our technical department.

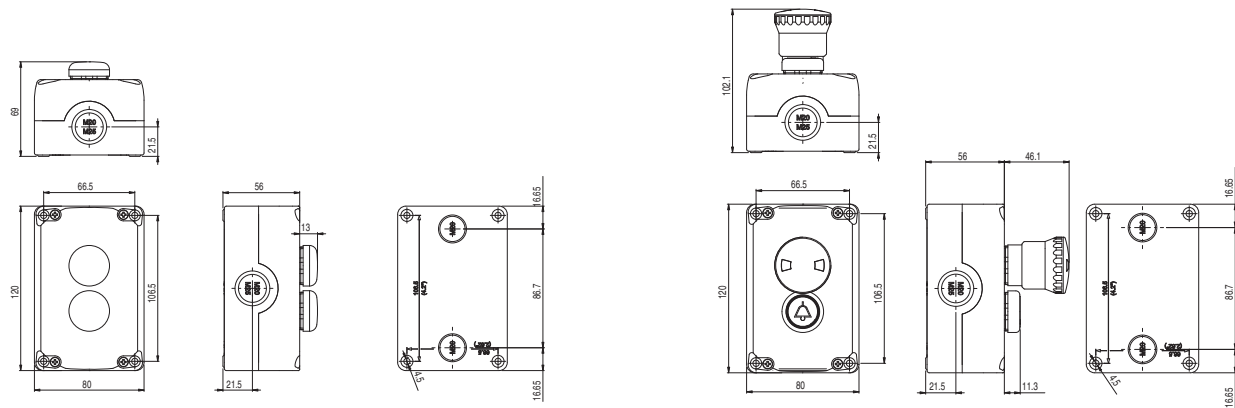
Housing dimensions for EL AN 21... series lift control stations



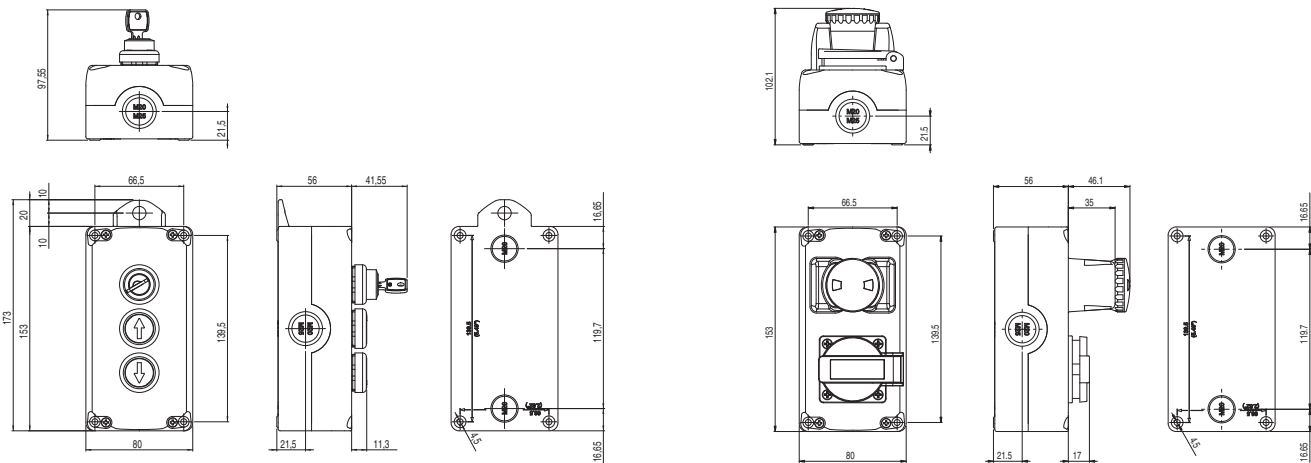
Housing dimensions for EL AN 31... series lift control stations



Housing dimensions for EL AN 22... series lift control stations



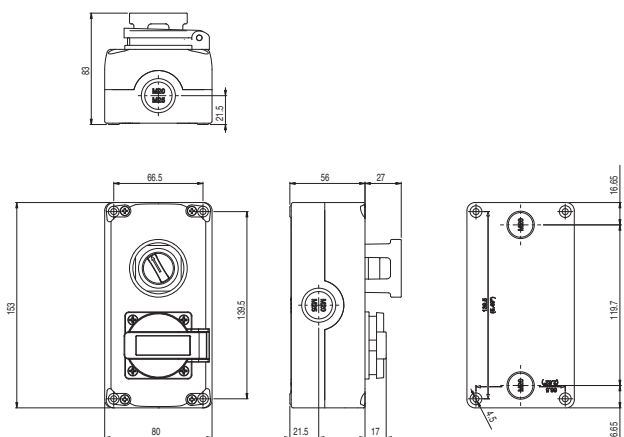
Housing dimensions for EL AN 23... series lift control stations



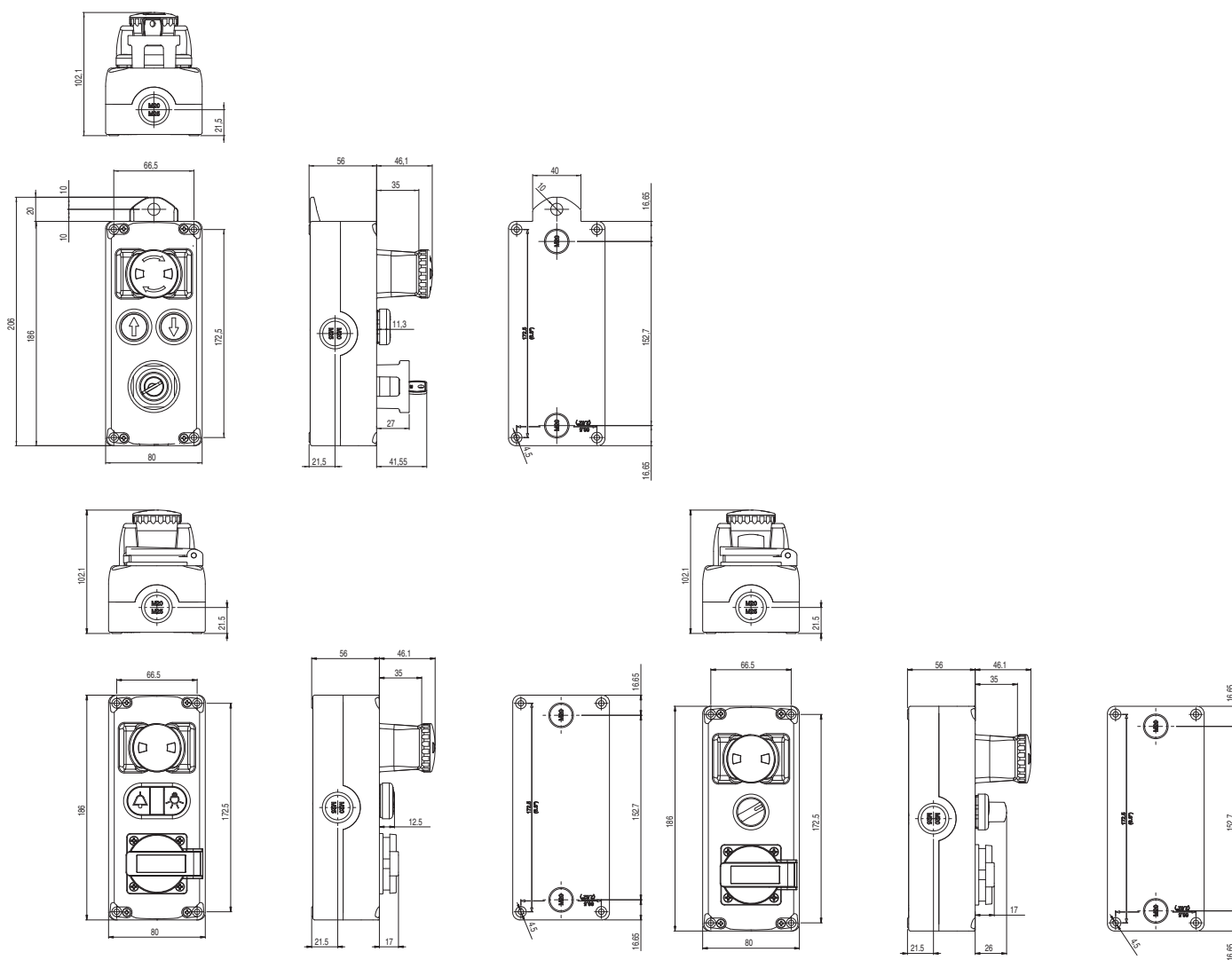
All values in the drawings are in mm

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

Housing dimensions for EL AN 23••• series lift control stations



Housing dimensions for EL AN 24••• series lift control stations





All values in the drawings are in mm

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



EL AN 21••• series cover selection table

ATTENTION: The internal code does not designate a product. Covers are not available for sale separately.

				
internal code	24151	24159	24195	24196






EL AN 22••• series cover selection table

ATTENTION: The internal code does not designate a product. Covers are not available for sale separately.

		
internal code	24201	24210

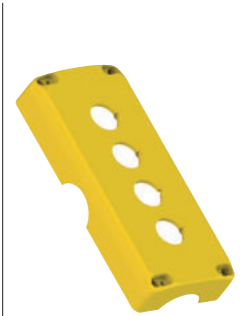
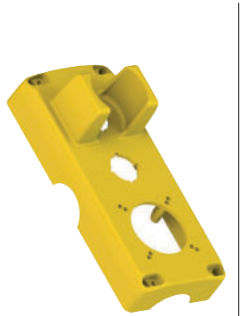
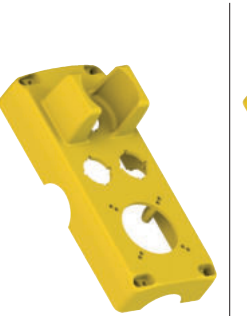
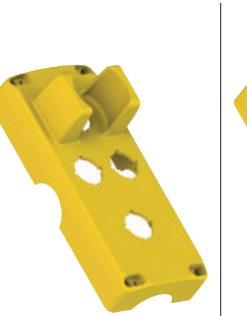

EL AN 23••• series cover selection table (selector versions)


ATTENTION: The internal code does not designate a product. Covers are not available for sale separately.

					
internal code	24251	24258	24260	24262	24263

EL AN 24... series cover selection table (selector versions)

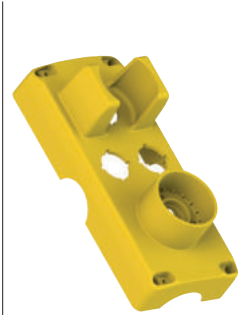
ATTENTION: The internal code does not designate a product. Covers are not available for sale separately.

					
internal code	24301	24310	24313	24315	24316

	
internal code	24326

EL AN 24... series cover selection table (changeover switch versions)

ATTENTION: The internal code does not designate a product. Covers are not available for sale separately.

	
internal code	24317

Introduction

The experience and knowledge acquired in decades of activity in the field of safety and automation enables Pizzato Elettrica to offer innovative solutions in other areas as well, combining maximum functionality and flexibility of use with clear lines and attention to detail.

The EL AD series control stations are equipped with Pizzato Elettrica EROUND signalling and control devices.

The EL AD series lift control stations are designed for motion control of elevators during inspection and maintenance.

In compliance with standards EN 81-20 and EN 81-50

International standards EN 81-20 and EN 81-50 set new, updated, technical and safety requirements in comparison to current standards. They are a significant development in terms of lift construction and installation.

The EL range of control stations is designed to meet all of the requirements included in these standards, to ensure that products are fully compliant.



Reduced height

Continuous optimisation of the space available in the lift shaft has led to the need for control stations with reduced height.

Pizzato meets these requirements by offering the innovative vertical variant of the new EL AD series housing: with a maximum overall height of 60 mm, contact blocks of standard height can be used, as well as recessed devices, including sockets, emergency stop buttons and generously dimensioned selector switches with robust protective guards.

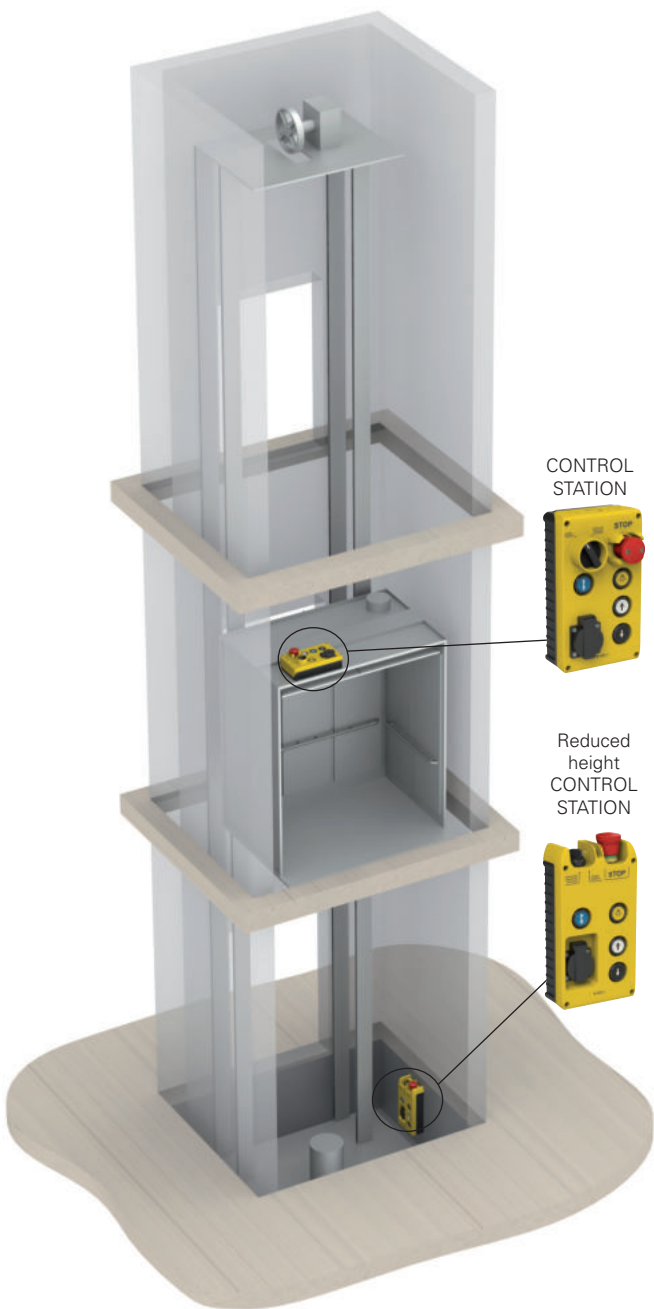


Modularity



The number, type and location of holes made in the control stations to accommodate devices can be freely selected by the customer: The number of possible variants is very high.

This wide range of options is made possible by an innovative mould, made up of modular and interchangeable elements (patent pending). It allows free positioning of the various hole patterns and shapes required to accommodate devices. This modular mould allows the entire cover to be produced as a single solid piece in a single casting process.



Robustness



The protection of devices against impacts or kicks is guaranteed by both the solid structure of the station – which is made from robust, extra thick materials – and by the use of buttons which are integrated

and therefore do not protrude from the surface. In addition, the use of robust guards for particularly bulky control switches, such as emergency stop buttons or selector switches, makes the product applicable in the toughest environments.

In the 60mm reduced height version, two solid guards have also been incorporated, designed to protect the two devices mounted on the top.

Ease of wiring

The design of the product offers many technical and practical advantages, the first of which is the ease of cabling: in addition to the four entries for cables on the base, there are up to six entries on the cover.



Having the entries directly on the cover means having everything positioned on the same side of the station, thus simplifying and speeding up the cabling and closing of the control station.

Custom wiring

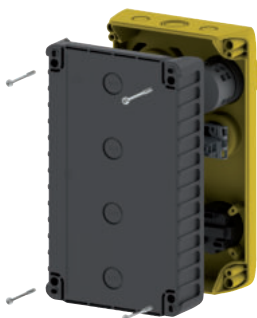
The control stations can be supplied wired, with the wiring implemented according to customer specifications; both in terms of cables used, and connectors.

This additional adaptation to customer requirements means that the control stations are supplied ready for final installation.



Rear fixing of the cover

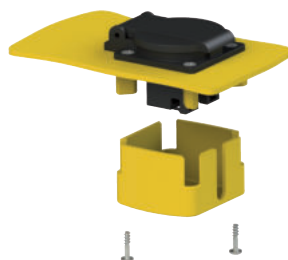
The cover fixing screws on the base are positioned obscured from view, behind the station; this in turn means that the station can only be opened once removed from the wall where it is fixed – making tampering more difficult.



Electrical socket

The interior parts of the socket are protected against accidental contact by a removable cover.

It is available in various versions to comply with different country-specific regulations.



Changeover switches and selector switches



In the EL AD series control stations, a cam switch can be installed instead of a selector switch on request.

The cam switches have a wide, ergonomic actuation knob, are available in versions with 2 or 3 stable positions, and can be internally wired to customer specifications, up to a maximum of 6 contacts.

The cover shapes designed to accommodate the switches provide a suitable enclosure with protection guard.

Equipped with a gasket below the knob, the switch achieves a protection degree of IP67.

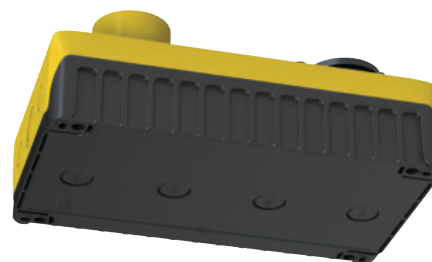
Fixing hook

The specific shape of the reduced height 60mm station also allows a practical fixing hook, positioned between the two devices mounted on the top, to be incorporated. With this robust hook, the control station can easily be hung on the wall.



Profiled base

The station base is also knurled, allowing easier grip when picking up and handling the station.



LASER engraving

Pizzato Elettrica has introduced a new LASER engraving system for EL AD series control stations.

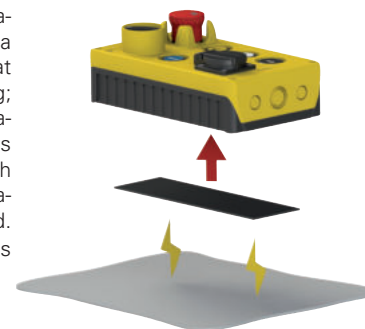
Thanks to this new system, which does not use pad printing or labels, engravings on the products are indelible and durable over time.

The laser engravings of the EL AD series control stations now include pictograms and icons compliant with the EN 81-20 standard; the control stations can also be customised using indicators, symbols, and logos, on customer request.

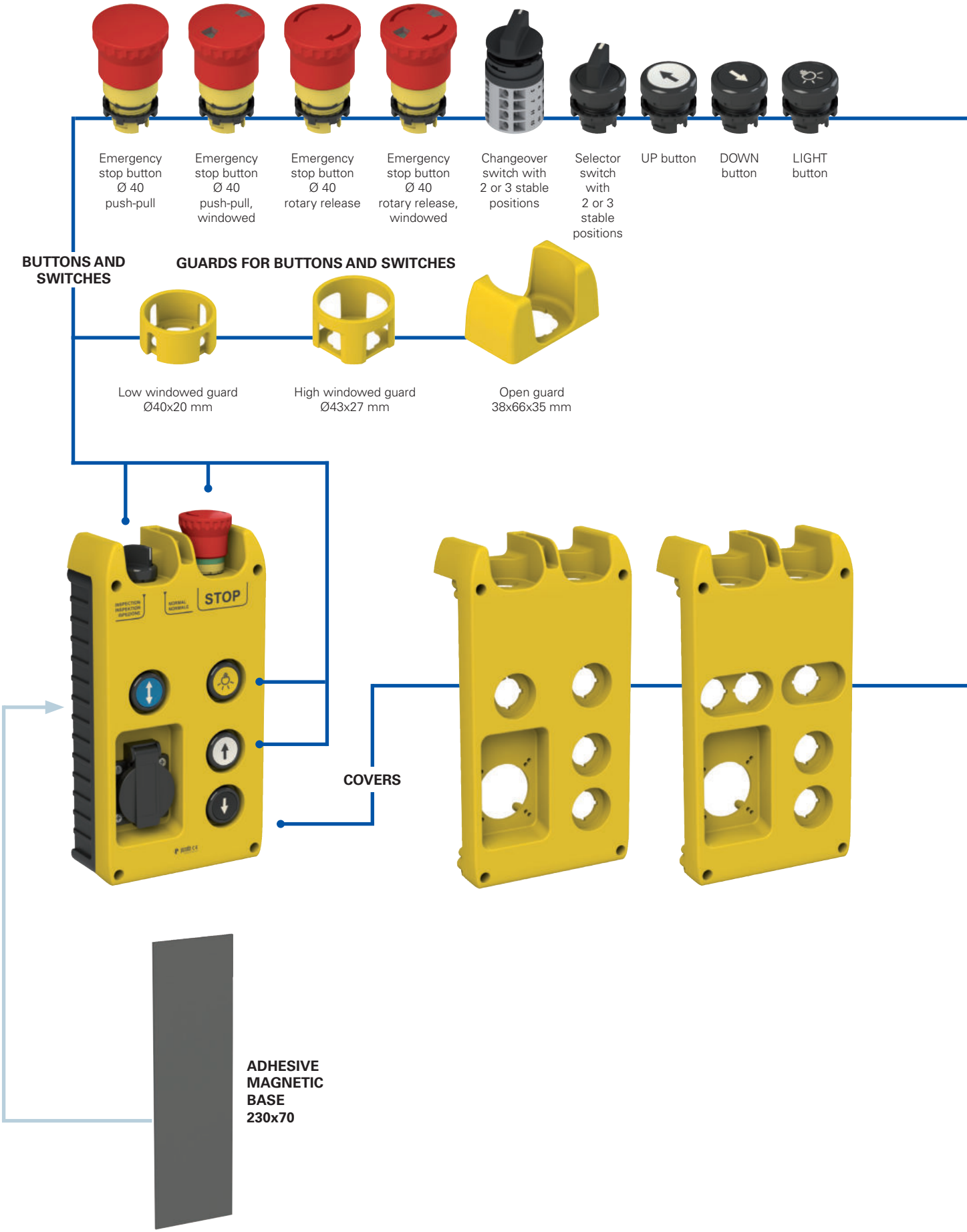


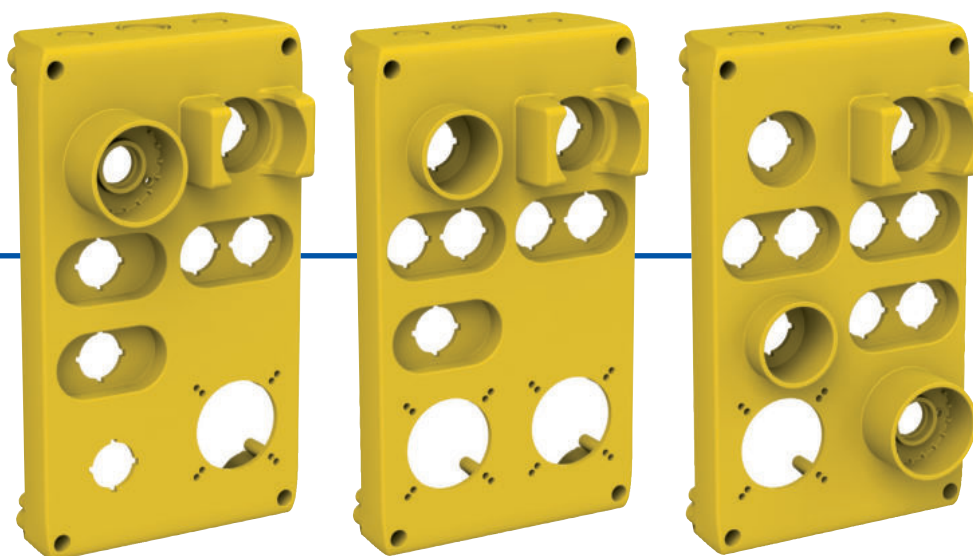
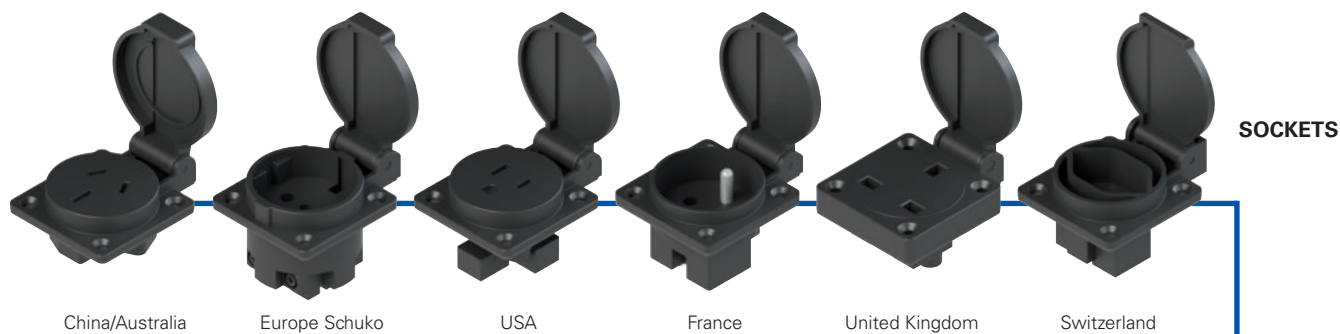
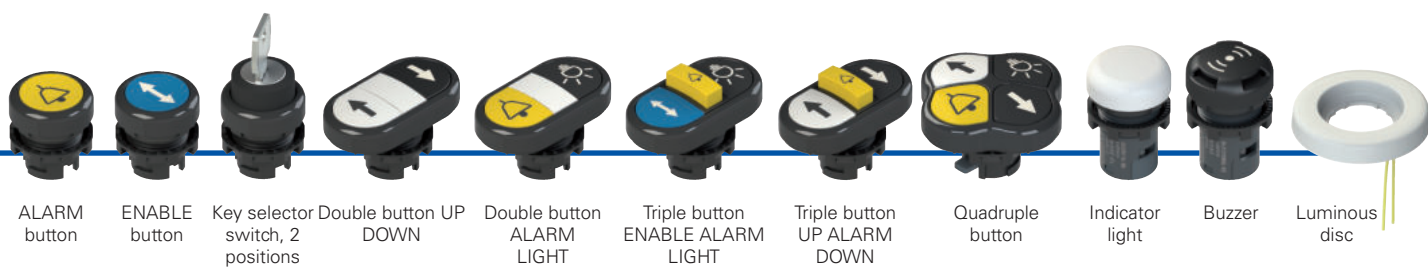
Magnetic fixing bases

All EL AD series control stations can be supplied with a magnetic base, installed at the bottom of the housing; this allows the control stations to be anchored to walls and metallic surfaces, in such a way that they are removable, and no drilling is required. The adhesive magnetic bases can also be retrofitted.

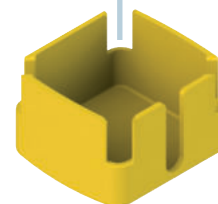


Selection diagram





Other covers available. See page 124.



Internal socket cover

- Product options
- Sold separately as accessory

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

EL AD23010

Housing shape		Incremental configuration number	
1	240 x 160 mm (standard height)	010	configuration 010
3	260 x 160 mm (height 60mm)	011	configuration 011
		012	configuration 012
	



Main features

- Reduced height version (60mm)
- Entries on cover for easier wiring
- Various configurations available
- Protection degree up to IP69K
- Devices flush-mounted or protected by guard
- Customisable electrical socket

Housing quality marks:



EAC approval: RU C-IT.YT03.B.00035/19

Contact block quality marks:



IMQ approval: CA02.04805
 UL approval: E131787
 CCC approval: 2021000305000106
 EAC approval: RU C-IT.YT03.B.00035/19

Technical data

Housing

Shockproof, self-extinguishing technopolymer cover. UV resistant and double insulated:

Cover:

Standard version:

2 lateral knock-out entries: M20 - M25 - PG 13.5 - 1/2 NPT
 4 lateral knock-out entries: M16 - PG 11

Reduced height version:

1 lateral knock-out entry: M20 - M25 - PG 13.5 - 1/2 NPT
 2 lateral knock-out entries: M16 - PG 11

Base:

4 knock-out entries at bottom: M20 - PG 13.5 - 1/2 NPT

Base colour:

Cover colour:

Material of the screws:

Protection degree acc. to EN 60529:

Protection degree acc. to ISO 20653:

Black RAL 9005
 Yellow RAL 1023
 Zinc-plated steel; stainless steel available on request
 IP40 (standard)
 IP54 (on request)
 IP65 (on request)
 IP67 (on request)
 IP69K (on request)
 with cable gland of equal or higher protection degree

General data

Ambient temperature: -25°C ... +80°C
 Cover screw tightening torque: 1 ... 1.4 Nm

In compliance with standards:

IEC 60947-5-1, EN 60947-5-1, EN 60947-1, IEC 60204-1, EN 60204-1, IEC 60947-5-5, EN 60947-5-5, EN ISO 14119, IEC 60529, EN 60529, EN IEC 63000, EN 81-20, EN 81-50, UL 508, CSA 22.2 No.14

Installation for safety applications:

Use only contact blocks marked with the symbol \ominus . Always connect the safety circuit to the NC contacts (normally closed contacts: 1-2) as stated in standard EN 81-20 par. 5.11.2.2.1.

Compliance with the requirements of:

Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU, Lift Directive 2014/33/EU, RoHS Directive 2011/65/EU.

Positive contact opening in conformity with standards:

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

⚠ If not expressly indicated in this chapter, for correct installation and utilization of all articles see the instructions given on page 133.

Electrical data

Thermal current (I_{th}): 10 A
 Rated insulation voltage (U_i): 500 Vac/dc
 Protection against short circuits: type gG/gL fuse 10 A 500 V
 Rated impulse withstand voltage (U_{imp}): 8 kV
 Pollution degree: 3

Utilization category

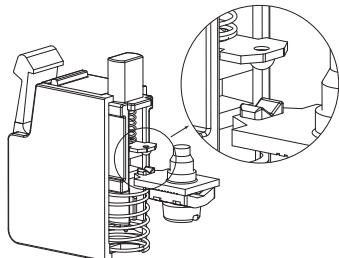
Alternating current: AC15 (50 ... 60 Hz)

U_e (V)	24	48	120	250	400
I_e (A)	6	6	6	6	3

 Direct current: DC13

U_e (V)	24	48	125	250
I_e (A)	2.5	1.3	0.6	0.3

High-reliability self-cleaning contacts



"V-shape" self-cleaning contacts with quadruple contact point. This type of shape, thanks to the presence of the double contact point, makes it possible to drastically reduce the probability of contact commutation failure. In addition to this, it improves considerably the reliability in the presence of dust (patent pending).

Positive opening

NC contact block suitable for safety applications, with positive opening contacts in accordance with IEC 60947-5-1.

Features approved by UL

Electrical Ratings: A600 pilot duty (720 VA, 120-600 V ac)
 Q300 pilot duty (69 VA, 125-250 V dc)

For contact block series E2 C 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 71 Lb In (0.8 Nm).

For contact block series E2 C provided with screw less type terminals: use 60 or 75 °C copper (Cu) conductor and wire size range 16-24 AWG, stranded. These terminals are suitable also for stranded conductors prepared with ZMLF ferrules. Recommended stripping length: 8 mm.

Features approved by IMQ

Rated insulation voltage (U_i): 500 V
 Conventional free air thermal current (I_{th}): 10 A
 Thermal current inside housing (I_{th}): 10 A
 Rated impulse withstand voltage (U_{imp}): 8 kV;
 - Screw terminals or solder terminals 8 kV;
 - Terminals without screw 6 kV.
 Protection degree of the housing:
 - Screw terminals or terminals without screw IP20;
 - Solder terminals IP00;
 - Screw terminals with dust protection cap, panel mounting only IP20.

Terminals: screw terminals, solder terminals, without screw
 Utilization category: AC15
 Operating voltage (U_e): 400 Vac (50/60 Hz)
 Operating current (I_e): 3 A
 Forms of the contact element: X, Y
 Positive opening of contacts on contact blocks 01G, 01K.
 In compliance with standards: EN 60947-1, EN 60947-5-1, fundamental requirements of the Low Voltage Directive 2014/35/EU.



EL AD23004



	DEVICES	CONTACTS	DIAGRAM
	Emergency stop button Ø40 rotary release, with green indicator, with guard	1NC	
	Selector switch with short handle 2 stable positions, black, with guard	2NO+2NC	NORMAL INSPECTION
	ENABLE button flush, spring-return, blue	1NO	
	UP button flush, spring-return, white	2NO	
	DOWN button flush, spring-return, black	2NO	
	LIGHT button flush, spring-return, yellow	1NO	
	Schuko socket 16 A 250 Vac with internal fuse	/	

EL AD23006



	DEVICES	CONTACTS	DIAGRAM
	Emergency stop button Ø40 rotary release, with green indicator, with guard	2NC	
	Selector switch with short handle 2 stable positions, black, with guard	2NO+2NC	NORMAL INSPECTION
	Buzzer, continuous alarm perforated lens, black	24 Vac/dc	
	Monolithic indicator light Ø 30 white	White LED 12 ... 30 Vac/ dc	
	UP button flush, spring-return, white	2NO+1NC	
	CLOSE button flush, spring-return, black	1NO	
	OPEN button flush, spring-return, white	1NO	
	DOWN button flush, spring-return, black	2NO+1NC	
	ALARM button flush, spring-return, yellow	1NO	
	LIGHT button flush, spring-return, black	1NO	
	ENABLE button flush, spring-return, blue	1NO	

EL AD23007



	DEVICES	CONTACTS	DIAGRAM
	Emergency stop button Ø40 rotary release, with green indicator, with guard	2NC	
	Selector switch with short handle 2 stable positions, black, with guard	2NO+2NC	NORMAL INSPECTION
	ENABLE button flush, spring-return, blue	1NO	
	Monolithic indicator light Ø 30 colour: red	Red LED 12 ... 30 Vac/ dc	
	ALARM button flush, spring-return, yellow	1NO	
	LIGHT button flush, spring-return, black	1NO	
	UP button flush, spring-return, white	2NO+1NC	
	DOWN button flush, spring-return, black	2NO+1NC	
	Schuko socket 16 A 250 Vac with internal fuse	/	

EL AD21002



	DEVICES	CONTACTS	DIAGRAM
	Emergency stop button Ø 40 windowed push pull release, with guard	1NC	
	Changeover switch 2 stable positions, black, with guard	2NO+2NC	NORMAL INSPECTION
	ENABLE button flush, spring-return, blue	1NO	
	UP button flush, spring-return, white	2NO	
	DOWN button flush, spring-return, black	2NO	
	LIGHT button flush, spring-return, yellow	1NO	
	Schuko socket 16 A 250 Vac with internal fuse	/	

EL AD21006



	DEVICES	CONTACTS	DIAGRAM
	Emergency stop button Ø 40 push-pull release, with guard	2NC	
	Selector switch with short handle 2 stable positions, black, with guard	2NO+2NC	NORMAL INSPECTION
	ENABLE button flush, spring-return, blue	1NO	
	Buzzer, continuous alarm perforated lens, black	24 Vac/dc	
	UP button flush, spring-return, white	2NO	
	DOWN button flush, spring-return, black	2NO	
	ALARM button flush, spring-return, yellow	1NO	
	LIGHT button flush, spring-return, black	1NO	
	Schuko socket 16 A 250 Vac with internal fuse	/	
	USA 15 A 125 Vac socket with internal fuse	/	

EL AD21008



	DEVICES	CONTACTS	DIAGRAM
	Emergency stop button Ø 40 push-pull release, with guard	2NC	
	Changeover switch Ø 42 2 stable positions, black, with guard	2NO+4NC	NORMAL INSPECTION
	ALARM button flush, spring-return, yellow	1NO	
	LIGHT button flush, spring-return, black	1NO	
	UP button flush, spring-return, white	2NO+1NC	
	DOWN button flush, spring-return, black	2NO+1NC	
	ENABLE button flush, spring-return, blue	1NO	
	Buzzer, continuous alarm perforated lens, black	24 Vac/dc	
	WHITE luminous disc 5 LUX steady white light	24 Vac/dc	
	Schuko socket 16 A 250 Vac with internal fuse	/	

EL AD21007


	DEVICES	CONTACTS	DIAGRAM
	Emergency stop button Ø40 windowed push-pull release, with guard	2NC	
	Selector switch with short handle 2 stable positions, black, with guard	2NO+2NC	NORMAL INSPECTION
	ENABLE button flush, spring-return, blue	1NO	
	ALARM button flush, spring-return, yellow	1NO	
	LIGHT button flush, spring-return, black	1NO	
	UP button flush, spring-return, white	2NO+1NC	
	DOWN button flush, spring-return, black	2NO+1NC	
	Schuko socket 16 A 250 Vac with internal fuse	/	

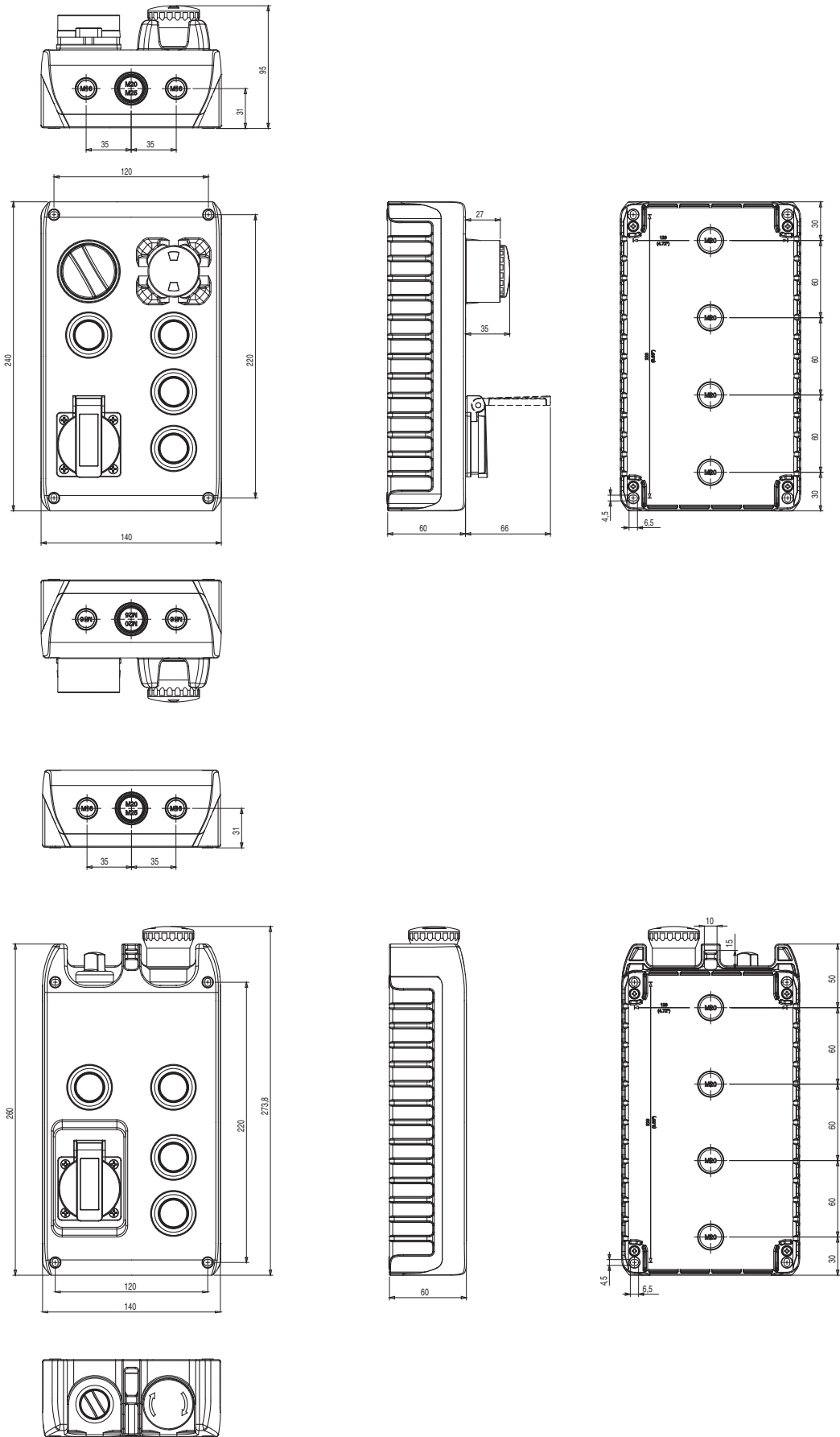
EL AD21004


	DEVICES	CONTACTS	DIAGRAM
	Emergency stop button Ø 40 windowed rotary release, with guard	1NC	
	Selector switch with short handle 2 stable positions, black, with guard	2NO+2NC	NORMAL INSPECTION
	UP button flush, spring-return, white	2NO	
	DOWN button flush, spring-return, black	2NO	
	ENABLE button flush, spring-return, blue	1NO	
	LIGHT button flush, spring-return, black	1NO	
	ALARM button flush, spring-return, yellow	1NO	
	Schuko socket 16 A 250 Vac with internal fuse	/	

EL AD21005


	DEVICES	CONTACTS	DIAGRAM
	Emergency stop button Ø 40 windowed push-pull release, with guard	2NC	
	Changeover switch Ø 42 2 stable positions, black, with guard	2NO+2NC	NORMAL INSPECTION
	ALARM button flush, spring-return, yellow	1NO	
	LIGHT button flush, spring-return, black	1NO	
	Selector switch with short handle 3 positions, black, with guard, left spring-return, stable, right spring-return	2NO	
	Buzzer, continuous alarm perforated lens, black	24 Vac/dc	
	Monolithic indicator light Ø 30 white	White LED 12 ... 30 Vac/ dc	
	Schuko socket 16 A 250 Vac with internal fuse	/	
	UP button flush, spring-return, white	2NO+1NC	
	DOWN button flush, spring-return, black	2NO+1NC	
	ENABLE button flush, spring-return, blue	1NO	

Housing dimensions for EL AD series lift control stations



All values in the drawings are in mm

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

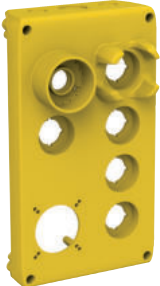


EL AD series cover selection table (selector switch versions)

ATTENTION: The internal code does not designate a product. Covers are not available for sale separately.

					
internal code	25502	25523	25527	25519	25526

EL AD series cover selection table (changeover switch versions)

ATTENTION: The internal code does not designate a product. Covers are not available for sale separately.

			
internal code	25501	25522	25524

Windowed protection guard

Article	Description
VE GP22A5A	Cylindrical yellow protection guard with 4 windows Ø 40x20 mm

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

Cylindrical protection guard

Article	Description
VE GP22B5A	Cylindrical yellow protection guard Ø 43x27 mm

Not applicable on emergency stop buttons of the E2 1PE series
It does not alter the IP protection degree of the associated device.

Open protection guard

Article	Description
VE GP22F5A	Rectangular open yellow protection guard 66x38 mm, 35 mm high With 4 screws (for panel thicknesses between 1 and 3.5 mm).

Closing cap

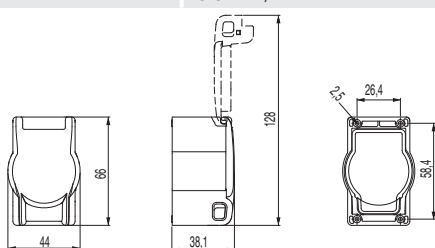
Packs of **10 pcs.**

Article	Description
E2 1TA1A110	Black closing cap for Ø 22 mm holes

Technical data:
 Body and ring material: technopolymer
 Protection degree: IP67 and IP69K
 Tightening torque: 2 ... 2.5 Nm

Lockable guard

Article	Description
VE GG3EA7A	Lockable guard complete with 4 screws (for panel thicknesses between 1 and 3.5 mm)



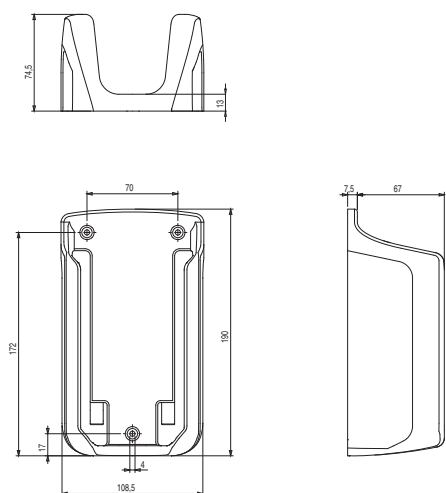
Sockets with IP54 cover

Article	Design	Description
VE PE1E1AA1		Europe Schuko + Italy IEC 60884-1 with child protection 16 A 250 Vac
VE PE1E1BA1		USA UL498/NEMA5-15 CSA22.2 no.4215 A 125 Vac
VE PE1E1CA1		France CEE 7/V IEC 60884-1 NFC 61314 with child protection 16 A 250 Vac
VE PE1E1DA1		United Kingdom BS1363 with child protection 13 A 250 Vac
VE PE1E1EA1		Switzerland IEC 60884-1 SEV 1011 10 A 250 Vac
VE PE1E1FA1		Australia / China AS/NZS 3112 15 A 250 Vac

Sockets with 4 screws for fixing

Station holder

Article	Description
VE SF12AD1003A	Station holder for EL AC housing with low base



Internal socket cover

Article	Description
VE GG2BA5A	Yellow socket cover

Socket cover with 2 screws for fixing below socket, inside control station.

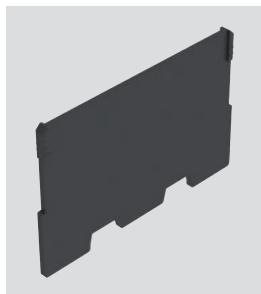
Protective cover

Article	Description
VE GG2CA5A	Yellow cover
VE GG2CB5A	Yellow cover (IP65)
VE GG2CA1A	Black cover (on request)

Product includes hinge and fixing screws, for EL AC control stations only.

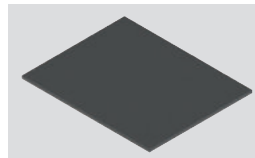
All values in the drawings are in mm

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

Separator plate


Article	Description
VE GG2DA1A	Separator plate

Separator plate (which can be installed in various positions) to separate control station parts with different voltages. For EL AN●●●● control stations only.

Adhesive magnetic bases


Adhesive magnetic base made of magnetic plasto-ferrite for application on the bottom of EL AC●●●●, EL AN●●●●, and EL AD control stations. Allows control stations to be attached to metallic surfaces.

Article	Description
VE BM2B56X70	56x70 mm for EL AN21●●● housing
VE BM2B87X70	87x70 mm for EL AN22●●● housing
VE BM2B120X70	120x70 mm for EL AN23●●● housing
VE BM2B153X70	153x70 mm for EL AN24●●● housing
VE BM2B230X70	230 x 70 mm for EL AC27●●● and EL AD●●●● housing

Emergency stop buttons


Body colour and marking	Actuator colour	Push-pull	Rotary release	Windowed push-pull	Windowed rotary release	Key release Key coding PY333
yellow	red	E2 1PEPZ4531	E2 1PERZ4531	E2 1PEPF4531	E2 1PERF4531	E2 1PEBZ4531
yellow with green indication	red	E2 1PEPZ4731	E2 1PERZ4731	E2 1PEPF4731	E2 1PERF4731	E2 1PEBZ4731
yellow	black	E2 1PEPZ4511	E2 1PERZ4511	/	/	E2 1PEBZ4511

Selector switches


Actuator colour and engraving	Positions	2 stable positions		Actuator colour and engraving	Positions	3 stable positions	
		Black bezel				Black bezel	
black	V	E2 1SE12AVA11AB		black	V	E2 1SE13ACE11AB	

Key selector switches


Colour and engraving actuator	Positions	2 stable positions	
		Black bezel	
black	Key	E2 1SC2AVA11AA	

Legend

- Maintained
- Spring-return
- Key extraction position

Luminous discs with steady light

Colour and engraving	Article	Description
White	VE DL1A2A00	White luminous disc, Ø 60 mm, 24 Vac/dc, without engraving, 5 LUX at 1m.
Yellow	VE DL1A5A00	Yellow luminous disc, Ø 60 mm, 24 Vac/dc, without engraving
Yellow with engraving	VE DL1A5A13	Yellow luminous disc, Ø 60 mm, 24 Vac/dc, with engraving:

Luminous discs with blinking light

Colour and engraving	Article	Description
White	VE DL1A2L00	White luminous disc, blinking (0.5s on, 0.5s off), Ø 60 mm, 24 Vac/dc, without engraving, 5 LUX at 1 m.
Yellow	VE DL1A5L00	Yellow luminous disc, flashing (0.5s on, 0.5s off), Ø 60 mm, 24 Vac/dc, without engraving
Yellow with engraving	VE DL1A5L13	Yellow luminous disc, flashing (0.5s on, 0.5s off), Ø 60 mm, 24 Vac/dc, with engraving:

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

Double buttons



Colour and engraving actuator		Upper button flush Central cap, flush Lower button flush	
		Function	Black bezel
	"→" black button	DOWN	E2 1PDRL1AABS
	white cap, illuminated		
	"←" white button	UP	
	"↑" white button	UP	E2 1PDRL1AABN
	white cap, illuminated		
	"↓" black button	DOWN	
	△ yellow button	ALARM	E2 1PDRL1AADJ
	white cap, illuminated		
	↕ blue button	ENABLE	
	💡 black button	LIGHT	E2 1PDRL1AABR
	white cap, illuminated		
	△ yellow button	ALARM	
	💡 black button	LIGHT	E2 1PDRL1AADL
	white cap, illuminated		
	↕ blue button	ENABLE	

Triple buttons



Actuator colour and engraving		Upper button flush Central button projecting Lower button flush	
		Function	Black bezel
	💡 black button	LIGHT	E2 1PTRS1AADK
	△ yellow button	ALARM	
	↕ blue button	ENABLE	
	"→" black button	DOWN	E2 1PTRS1AABK
	△ yellow button	ALARM	
	"←" white button	UP	

Single buttons and mushroom buttons



Actuator colour and engraving	Function	Single button flush	Mushroom button Ø 36 mm flush
		Black bezel	Black bezel
white	UP	E2 1PU2R221L7	/
black	DOWN	E2 1PU2R121L8	/
black	LIGHT	E2 1PU2R121L16	E2 1PU2F141L16
yellow	LIGHT	E2 1PU2R521L16	E2 1PU2F541L16
yellow	ALARM	E2 1PU2R521L14	E2 1PU2F541L14
blue	ENABLE	E2 1PU2R621L170	/

Quadruple buttons



Actuator colour and engraving (starting from the top and clockwise)		upper button flush right button flush lower button flush left button flush	
		Function	black bezel
	↑ white button	UP	E2 1PQFA1QAAQ
	💡 black button	LIGHT	
	↓ black button	DOWN	
	△ yellow button	ALARM	
	↑ white button	UP	E2 1PQFA1QAAS
	💡 black button	LIGHT	
	↓ black button	DOWN	
	↕ blue button	ENABLE	
	↑ white button	UP	E2 1PQFA1QAAR
	△ yellow button	ALARM	
	↓ black button	DOWN	
	↕ blue button	ENABLE	

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

High luminosity monolithic indicator lights

 Packs of **10 pcs.**


Colour	Operating voltage		
	12 ... 30 Vac/dc	120 Vac	230 Vac
white	E6 1IL1A2110	E6 1IL3A2110	E6 1IL4A2110
red	E6 1IL1A3110	E6 1IL3A3110	E6 1IL4A3110
green	E6 1IL1A4110	E6 1IL3A4110	E6 1IL4A4110
yellow	E6 1IL1A5110	E6 1IL3A5110	E6 1IL4A5110
blue	E6 1IL1A6110	E6 1IL3A6110	E6 1IL4A6110
orange	E6 1IL1A8110	E6 1IL3A8110	E6 1IL4A8110

Buzzers



Sound type	Operating voltage	Perforated lens	Perforation-free lens
Continuous ←	12 Vac/dc	E6 1IS5A1CV1B	E6 1IS5B1CV1B
	24 Vac/dc	E6 1IS6A1CV1B	E6 1IS6B1CV1B
Pulsing ← -	12 Vac/dc	E6 1IS5A1PV1B	E6 1IS5B1PV1B
	24 Vac/dc	E6 1IS6A1PV1B	E6 1IS6B1PV1B

Minimum level of sound intensity:
 24 Vac/dc versions: 95 dB at 10cm (perforated lens)
 80 dB at 10cm (perforation-free lens)
 12 Vac/dc versions: 90 dB at 10cm (perforated lens)
 75 dB at 10cm (perforation-free lens)

USB sockets



For ordering a **USB 3.0 socket** replace C with A in the respective article code.
 Example:
 E2 1USB9CAK → E2 1USB1AAK

Rear connection	Front connection A-type USB 2.0 integrated socket black bezel	
A-type USB integrated socket	E2 1USB1CAK	/
Output with PVC cable, length 1.8 m and A-type USB male connector	/	E2 1USB1CN1.8
Output with PVC cable, length 3 m and A-type USB male connector	/	E2 1USB1CN3
Output with PVC cable, length 5 m and A-type USB male connector (available only with USB 2.0 socket)	/	E2 1USB1CN5

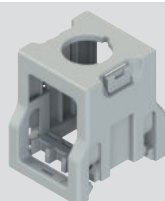
RJ45 sockets



For ordering a **socket with black bezel** replace 9 with 1 in the respective article code. Example:
 E2 1RJ459AAK → E2 1RJ451AAK

Connection type	Transfer speeds	
	1 Gb/s (for Cat. 5e)	10 Gb/s (for Cat. 6)
Integrated RJ45 socket	E2 1RJ459AAK	E2 1RJ459CAK
Output with PVC cable (length 1 m) and RJ45 male connector	E2 1RJ459AN1	E2 1RJ459CN1
Output with PVC cable (length 1.5 m) and RJ45 male connector	E2 1RJ459AN1.5	E2 1RJ459CN1.5
Output with PVC cable (length 2.5 m) and RJ45 male connector	E2 1RJ459AN2.5	E2 1RJ459CN2.5

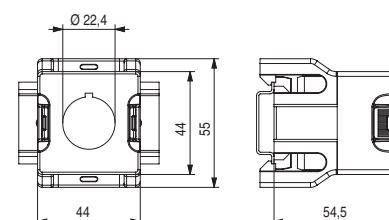
Adapter for DIN rail

 Packs of **10 pcs.**


Patent pending

Article	Description
VE AD3PF9A0	Support with Ø22 hole for fixing on DIN rail of the signalling and control devices of the EROUND line

Not suitable for joysticks and quadruple buttons

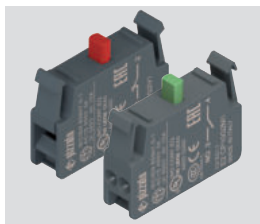


All values in the drawings are in mm

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

Single contact blocks

Packs of 10 pcs.



Article		Contacts
Clamping screw connection	PUSH-IN spring-operated connection	
E2 CP01G2V1	E2 CP01G2M1	Slow action 1NC \ominus
E2 CP10G2V1	E2 CP10G2M1	Slow action 1NO
E2 CP01K2V1	E2 CP01K2M1	Slow action 1NC \ominus delayed
E2 CP10L2V1	E2 CP10L2M1	Slow action 1NO early make

General data

Protection degree:	IP20 acc. to IEC 60529
Ambient temperature:	-40°C ... +80°C
Mechanical endurance:	20 million operating cycles
Max. actuation frequency:	3600 operating cycles/hour
Material of the contacts:	Silver contacts
Contact type:	"V-shape" self-cleaning contacts with quadruple contact point

Electrical data

Thermal current (I_{th}):	10 A
Rated insulation voltage (U_i):	500 Vac/dc
Protection against short circuits:	type gG/gL fuse 10 A 500 V
Rated impulse withstand voltage (U_{imp}):	8 kV
Pollution degree:	3

Clamping screw connection

Cable cross section:	min 1 x 0.5 mm ² (1 x AWG 20) max 2 x 2.5 mm ² (2 x AWG 14)
Tightening torque:	0.6 ... 0.8 Nm
Cable stripping length (x):	8 mm

Utilization category

Alternating current: AC15 (50÷60 Hz)					
U_e (V)	24	48	120	250	400
I_e (A)	6	6	6	6	3
Direct current: DC13					
U_e (V)	24	48	125	250	
I_e (A)	2.5	1.3	0.6	0.3	

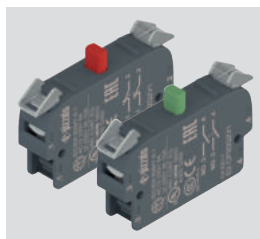
PUSH-IN spring-operated connection

Cable cross section (flexible conductors, with or without wire-end sleeve):	min. 1 x 0.25 mm ² (1 x AWG 24) max. 2 x 1.5 mm ² (2 x AWG 16)
Cable stripping length (x):	min. 8 mm, max. 10 mm



Double contact blocks

Packs of 5 pcs.



Article	Contacts
E2 CP11G2V1	Slow action 1NO+1NC \ominus
E2 CP20G2V1	Slow action 2NO
E2 CP02G2V1	Slow action 2NC \ominus

General data

Protection degree:	IP20 acc. to IEC 60529
Ambient temperature:	-40°C ... +80°C
Mechanical endurance:	20 million operating cycles
Max. actuation frequency:	3600 operating cycles/hour
Material of the contacts:	Silver contacts
Contact type:	"V-shape" self-cleaning contacts with quadruple contact point
Cable cross section:	min 1 x 0.34 mm ² (1 x AWG 22) max. 2 x 1.5 mm ² (2 x AWG 16)
Screw tightening torque:	0.6 ... 0.8 Nm
Cable stripping length (x):	7 mm

Electrical data

Thermal current (I_{th}):	10 A
Rated insulation voltage (U_i):	250 Vac/dc
Protection against short circuits:	type gG/gL fuse 10 A 500 V
Rated impulse withstand voltage (U_{imp}):	4 kV
Pollution degree:	3

Utilization category

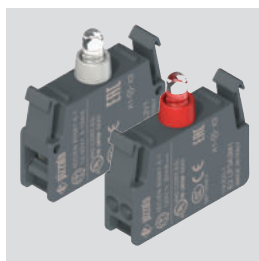
Alternating current: AC15 (50÷60 Hz)					
U_e (V)	24	48	120	250	
I_e (A)	6	6	6	6	
Direct current: DC13					
U_e (V)	24	48	125	250	
I_e (A)	2.5	1.3	0.6	0.3	

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



High luminosity LED unit

Packs of 5 pcs.



LED colour	Available device colour	Clamping screw connection			PUSH-IN spring-operated connection		
		Operating voltage					
		12 ... 30 Vac/dc	120 Vac	230 Vac	12 ... 30 Vac/dc	120 Vac	230 Vac
white	white / yellow	E2 LP1A2V1	E2 LP3A2V1	E2 LP4A2V1	E2 LP1A2M1	E2 LP3A2M1	E2 LP4A2M1
red	red	E2 LP1A3V1	E2 LP3A3V1	E2 LP4A3V1	E2 LP1A3M1	E2 LP3A3M1	E2 LP4A3M1
green	green	E2 LP1A4V1	E2 LP3A4V1	E2 LP4A4V1	E2 LP1A4M1	E2 LP3A4M1	E2 LP4A4M1
blue	blue	E2 LP1A6V1	E2 LP3A6V1	E2 LP4A6V1	E2 LP1A6M1	E2 LP3A6M1	E2 LP4A6M1
orange	orange	E2 LP1A8V1	E2 LP3A8V1	E2 LP4A8V1	E2 LP1A8M1	E2 LP3A8M1	E2 LP4A8M1

General data

Protection degree: IP20 acc. to IEC 60529
 Ambient temperature: -25°C ... +70°C
 Endurance: 100,000 hours (at rated voltage and +25 °C ambient temperature)

Electrical data

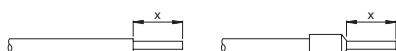
Operating voltages and currents: 12 ... 30 Vac/dc; 5 ... 20 mA
 102 ... 138 Vac; 20 mA max.
 195 ... 264 Vac; 20 mA max.
 Blinking frequency: 1 Hz

Clamping screw connection

Cable cross section: min 1 x 0.5 mm² (1 x AWG 20)
 max 2 x 2.5 mm² (2 x AWG 14)
 Tightening torque: 0.6 ... 0.8 Nm
 Cable stripping length (x): 8 mm

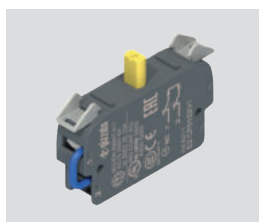
PUSH-IN spring-operated connection

Cable cross section (flexible conductors, with or without wire-end sleeve):
 min. 1 x 0.25 mm² (1 x AWG 24)
 max. 2 x 1.5 mm² (1 x AWG 16)
 Cable stripping length (x): min. 8 mm, max. 10 mm



Single self-monitored contact blocks

Packs of 5 pcs.



Article	Contacts
E2 CP01S2V1	Slow action, self-monitored 1NC

The operating principle of the self-monitoring contact blocks ensures that their associated control devices are free from faults and malfunctions caused by contacts separating, and that the safety function remains permanently available during machine operation.

General data

Protection degree: IP20 acc. to IEC 60529
 Ambient temperature: -40°C ... +80°C
 Mechanical endurance: 20 million operating cycles
 Max. actuation frequency: 3600 operating cycles/hour
 Material of the contacts: Silver contacts
 Contact type: "V-shape" self-cleaning contacts with quadruple contact point
 Cable cross section: min 1 x 0.34 mm² (1 x AWG 22)
 max. 2 x 1.5 mm² (2 x AWG 16)
 Screw tightening torque: 0.6 ... 0.8 Nm
 Cable stripping length (x): 7 mm

Electrical data

Thermal current (I_{th}): 10 A
 Rated insulation voltage (U_i): 250 Vac/dc
 Protection against short circuits: type gG/gL fuse 10 A 500 V
 Rated impulse withstand voltage (U_{imp}): 4 kV
 Pollution degree: 3

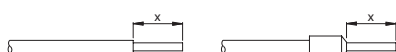
Utilization category

Alternating current: AC15 (50÷60 Hz)

U_e (V)	24	48	120	250
I_e (A)	6	6	6	6

 Direct current: DC13

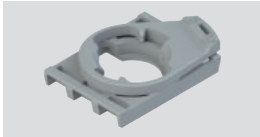
U_e (V)	24	48	125	250
I_e (A)	2.5	1.3	0.6	0.3



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

Mounting adapter

Packs of **10 pcs.**



Article	Description
E2 1BAC11	3-slot mounting adapter for E2 CP contact blocks and E2 LP LED units

Not combinable with E2 •PQ••••• quadruple buttons and E2 •MA••••• joysticks.



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

Compatible only with selectors E2 •SE•••••, key selector switches E2 •SC•••••, buttons E2 •PU•••••, double buttons E2 •PD•••••, emergency stop buttons E2 •PE•••••, configured in the appropriate versions for 4-slot adapter. Compatible with E2 •PQ••••• quadruple buttons and E2 •MA••••• joystick

Fixing ring

Packs of **20 pcs.**



Article	Description
VE GF121A	Technopolymer fixing ring



Article	Description
VE GF720A	Metal fixing ring

Fixing key



Article	Description
VE CH121A1	Technopolymer fixing key for VE GF••••• fixing rings

Changeover switches for EL control stations



Article	Positions	Contacts								L (mm)
		1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	
EH B2A11B-P01	∨	NC	NO	-	-	-	-	-	-	32
EH B2A22B-P01	∨	NC	NO	NC	NO	-	-	-	-	41.5
EH B2A24B-P01	∨	NO	NO	NC	NC	NC	NC	-	-	51
EH B2A33B-P01	∨	NC	NO	NC	NO	NC	NO	-	-	51
EH B2A35B-P01	∨	NO	NC	NO	NC	NO	NC	NC	NC	60.5

ATTENTION: only available pre-assembled on control stations

General data

Protection degree acc. to IEC 60529: IP67 only if installed on appropriate EL series cover.
IP20 at the terminals

Ambient temperature: -20°C ... +50°C

Mechanical endurance: 500,000 operating cycles at 120 operating cycles/hour

Material of the contacts: Silver contacts

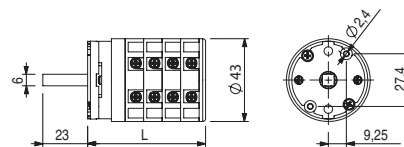
Tightening torque of the terminal screws: 1.2 Nm

Thermal current (I_m): 16 A

Rated insulation voltage (U_i): 660 Vac

Rated impulse withstand voltage (U_{imp}): 4 kV

Cross-section of stranded wire: min. 1 x 0.5 mm²
max. 2 x 2.5 mm²



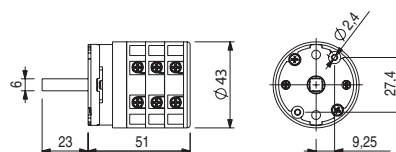
Vac	Rated operating current I_e : alternating current (50/60 Hz)				
	AC-21A	AC23A		AC-3	
		1PH	3PH	1PH	3PH
110-120	16 A	0.5 kW	/	0.4 kW	/
220-240	16 A	0.9 kW	2.6 kW	0.75 kW	2.2 kW
380-400	16 A	1.5 kW	7.5 kW	1.3 kW	5.5 kW

Bypass switches



Article	Description
EH AC-005	4-position switch for bypass with padlockable guard, for panel fixing

External dimensions and mounting holes:



For external dimensions and device mounting holes for padlockable guard, see page 125.

General data

Ambient temperature:	-20°C ... +50°C
Mechanical endurance:	500,000 operating cycles at 120 operating cycles/hour
Material of the contacts:	Silver contacts
Tightening torque of the terminal screws:	1.2 Nm
Thermal current (I_{th}):	16 A
Rated insulation voltage (U_i):	660 Vac
Rated impulse withstand voltage (U_{imp}):	4 kV
Cross-section of stranded wire:	min. 1 x 0.5 mm ² max. 2 x 2.5 mm ²

Position	Contact diagram					
	1-2	3-4	5-6	7-8	9-10	11-12
0	X					X
1		X			X	
2			X		X	
3				X	X	

X = closed contact

Other contact configurations available on request.

Rated operating current I_e : alternating current (50/60 Hz)					
Vac	AC-21A	AC23A		AC-3	
		1PH	3PH	1PH	3PH
110-120	16 A	0.5 kW	/	0.4 kW	/
220-240	16 A	0.9 kW	2.6 kW	0.75 kW	2.2 kW
380-400	16 A	1.5 kW	7.5 kW	1.3 kW	5.5 kW

General requirements

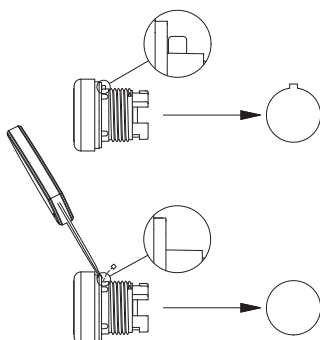
All electrical components and devices of the EROUND series that are to be installed inside switching cabinets or enclosures (e.g. E2 CP, E2 CF, E2 LP, E2 LF), are not provided with suitable protections against: water, high quantities of dust, condensation, humidity, steam, corrosive agents, explosive gases, flammable gases or other polluting agents. The protection degree of switching cabinets or enclosures shall ensure the necessary protection to the electrical components of the EROUND series inside them, depending on the application area.

Reference dowel

The mounting reference dowel on the external diameter of all EROUND line devices enables perfect device alignment and mounting on the panel, while avoiding rotations.

In case of use on holes without reference notches, simply remove the dowel with a slight leverage effect using a screwdriver, making sure that the seal gasket does not get damaged.

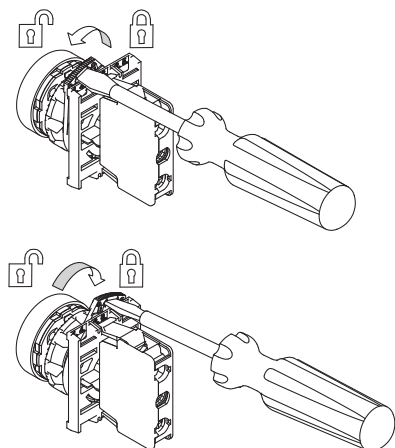
The removal of the reference dowel, is not advisable for the selectors (series E2 •SE, E2 •SL, E2 •SC) and emergency stop buttons (series E2 •PE) with rotary release, as these devices are subject to rotary-type actuation.



Connection to mounting adapter

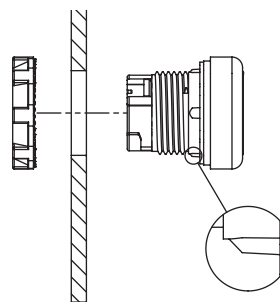
After its installation on the panel using the special ring, the control device can be fixed to the mounting adapter by turning the locking lever. The lever reports the free position (lock open) and locked position (lock closed) indications.

The locking lever rotation can be made smoother by using a flat-head screwdriver.



Seal gasket

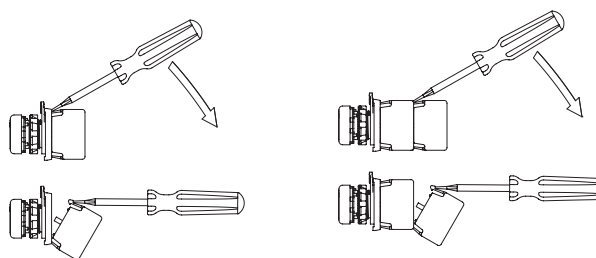
Thanks to its design, the seal gasket ensures a pre-fixing on the panel. This allows to mount the ring without having to hold the device in position.



Mounting of contact blocks and LED units

Contact blocks and LED units are provided with two snap-in mounting flaps that ensure a stable fixing between them and the mounting adapter (in the panel mounting version), or between them and the base of the housing (in the base mounting version). The panel contact blocks can be connected to each other, up to three, in observance of the limits specified for each actuator in the respective chapter.

Contact blocks and LED units can be quickly disassembled by using a flat-head screwdriver to leverage on the connection flaps.



Release of the contact block from the base

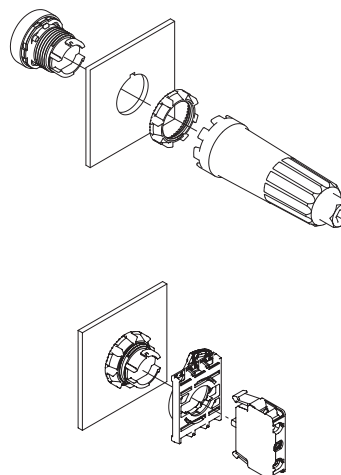
Release of the contact block from another unit

Panel fixing

The control and signalling devices have to be fixed on the rear of the panel with a fixing ring. This has to be tightened with the special fixing key which is supplied as an accessory.

The tightening torque for a correct fixing must be between 2.0 and 2.5 Nm.

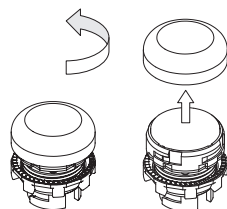
Once the fixing ring has been tightened, the mounting adapter and then the contact blocks or LED units can be mounted on the panel.



Lenses for E2 indicator lights

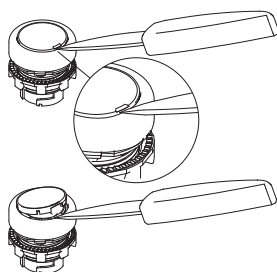
The E2 indicator lights are provided with interchangeable lenses in different colours. The lenses can be removed and mounted by simply turning them clockwise and anticlockwise respectively, without using tools.

For a correct colour rendering, it is necessary to use the correct combination between colour of the indicator light lens and colour of the LED unit applied to it.



Lenses for buttons and illuminated buttons

The buttons and the illuminated buttons feature replaceable lenses. To remove the lenses, leverage them with a pointed object near the reference notch on the external diameter of the lens itself.



Using the devices

- All devices of the EROUND series are hand operated.
- Do not apply excessive force to the device once it has reached the end of its actuation travel.
- Do not exceed the maximum actuation travel.
- Before installation, make sure the device is not damaged in any part.
- Do not disassemble or try to repair the device, in case of defect or fault replace the entire device.
- In case the device is deformed or damaged it must be entirely replaced. Correct operation cannot be guaranteed if the device is deformed or damaged.
- Always attach the device operating instructions (if present) 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.

Shock and vibrations

Avoid collisions with the devices. Excessive shock and vibrations may affect correct operation of the device

Wiring and installation

- Installation must be carried out by qualified staff only.
- Observe minimum distances between devices.
- Observe the tightening torques.
- Keep the electrical load below the value specified by the utilization category.
- Disconnect the power before to work on the contacts, also during the wiring.
- Do not paint or varnish the devices.
- Devices can only be installed on perforated surfaces with a thickness of between 1 mm and 6 mm that comply with the IEC 60947-5-1 standard.
- The protection degree and the correct operation are only guaranteed if the product is installed on a level and smooth surface and if the diameter of the holes is compliant with the IEC 60947-5-1 standard.
- After and during the installation do not pull the electrical cables connected to the contact blocks. If excessive tension is applied to the electrical cables, the contact blocks could detach from the actuator.
- During the coupling and uncoupling of the contact blocks from the mounting adapter or from the base, do not deform or put excessive stress on the coupling flaps. A possible deformation of the flaps could cause the detachment of the contact blocks from their mounting adapter.
- The housings in the EL AC, EL AN, EL AD series are fitted with knock-out holes for the passage of electrical cables. Open these holes using a suitable tool to avoid damaging the housing. Refrain from using housings damaged or cracked as a result of erroneous manoeuvres performed when opening the knock-out holes. After opening the hole, remove any plastic residues and insert a cable gland (or similar device) into the hole with a degree of protection equal or superior to that of the housing.
- After installation and before commissioning of the machine, verify:
 - the correct operation of the device;
 - the correct and full locking of the E2 1BAC•• mounting adapter to the device;
 - the correct coupling of the contact blocks.
- Periodically check for correct device operation.
- Do not deform or modify the device for any reason.
- Before installation, make sure the device is not damaged in any part.
- Refrain from opening, disassembling or attempting to repair the device and replace it immediately if it appears to be damaged.
- Should the installer be unable to fully understand the utilization requirements, the product must not be installed and the necessary assistance may be requested.

Do not use in following environments:

- Environments where dust and dirt can cover the device and by sedimentation stop its correct working.
- Environment where sudden temperature changes cause condensation.
- Environments where coatings of ice may form on the device.
- Environments where the application causes knocks or vibrations that could damage the device.
- Environment with presence of explosive or flammable gas or dust.
- In environments containing strongly aggressive chemicals, where the products used coming into contact with the device may impair its physical or functional integrity.

Limits of use

- Use the devices following the instructions, complying with their operation limits and the standards in force.
- The devices have specific application limits (min. and max. ambient temperature, mechanical endurance, protection degree, utilisation category, etc.) These limits are met by the different devices only if considered individually and not if combined with each other. For further information contact our technical department.
- The utilization implies knowledge of and compliance with following standards: EN 60204-1, EN 60947-5-1, ISO 12100, EN ISO 14119.
- Please contact our technical department for information and assistance (phone +39.0424.470.930 / e-mail tech@pizzato.com) in the following cases:
 - Cases not mentioned in the present utilization requirements.
 - 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.

vide the operator with efficient protection.

- The safety category of the system comprising the safety device also depends on external devices and their connection. Check that the device is capable of performing the safety function envisaged by the risk analysis of the machine, as provided by EN ISO 13849-1.

Additional requirements for safety applications

Provided that all previous requirements for the devices are fulfilled, for installations with operator protection function additional requirements must be observed.

- The utilization implies knowledge of and compliance with following standards: IEC 60204-1, IEC 60947-5-1, EN ISO 13849-1, EN 62061, EN ISO 12100.
- For emergency stop buttons the safety circuit must be connected to the .1-.2 NC contacts with the actuator in rest position. The auxiliary contacts NO .3-.4 must be used in signalling circuits only.
- The protection fuse (or equivalent device) must be always connected in series with the NC .1-.2 contacts of the safety circuit.
- Periodically verify the correct working of the safety devices; the periodicity of this verification is settled by the machine manufacturer based on the machine danger degree and it does not have to be less than one a year.
- After installation and before commissioning of the machine, verify:
 - the correct operation of the device;
 - the correct and full locking of the E2 1BAC•• mounting adapter;
 - the correct coupling of the contact blocks.
- For the E2 •PEBZ•••• emergency stop buttons with key release do not leave the key inserted. A possible sudden activation of the emergency stop button with the key inserted could cause injuries to the operator.
- All the safety devices installed on the machine (e.g. emergency stop button, stop button, automatic/manual mode selector etc.) have a limited endurance. Although still functioning, after 20 years from the date of manufacture the device must be replaced completely. The date of manufacture is placed next to the product code, on the label attached to the packing. In case of particularly adverse weather conditions, the endurance of the device can be drastically reduced over time. Regularly check that the safety devices are working properly and if required, replace them, even prior to the above-mentioned expiry date.
- The device is provided with external marking on its packaging. The marking includes: Producer trademark, product code, batch number and date of manufacture. The batch's first letter refers to the month of manufacture (A=January, B=February, etc.). The second and third letters refer to the year of manufacture (24 = 2024, 25 = 2025, etc.).
- If the device is used for safety applications, inadequate installation or tampering can cause people serious injuries and even death.
- These devices must not be bypassed, removed, turned or disabled in any other way.
- If the machine where the device is installed is used for a purpose other than that specified by the producer, the device may not pro-

Introduction



Based on the decades of experience of Pizzato Elettrica in the field of industrial safety and automation, the CS AR series of safety modules for lifts has been developed.

All CS series safety modules are implemented with cutting edge technology, and attention to detail.

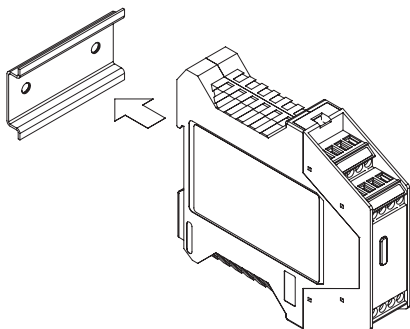
They are produced on the premises of Pizzato Elettrica, at Marostica (in Italy), using special SMT (surface mount technology) assembly lines that are able to operate with lead-free technology. This meets eco-compatibility requirements laid down by the RAEE and RoHS Directives.

Maximum safety level

PL e + SIL 3

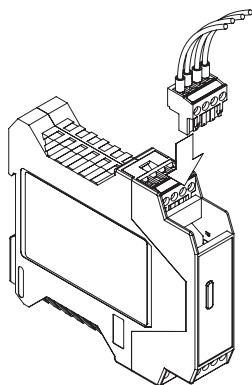
The safety modules of the CS series are equipped with redundant electronics. They enable the construction of circuits with the highest safety levels: PL e according to EN ISO 13849-1 and SIL 3 according to EN 62061.

Mounting on DIN rails



The housings of all CS series safety modules are suitable for DIN rail mounting and are compact (22.5 or 45 mm wide) to minimize the overall dimensions inside the control cabinets.

Fast wiring with removable connectors



The CS series safety modules can be ordered as versions with screw terminals, or with removable connectors and screw or spring terminals.

The versions with removable connectors are faster and easier to wire and install.

Furthermore, should a damaged module require replacement, machine downtimes are significantly reduced.

Compliant with EN 81-20 standard

EN 81-20

The CS series of safety modules for lifts has been subjected to testing carried out by notified bodies, which

have confirmed compliance with technical standard EN 81-20 on the construction and installation of lifts for the transport of persons and goods.

These devices can therefore be used for implementation of the following safety functions:

- levelling and re-levelling with doors open, in accordance with 5.12.1.4 of EN 81-20;
- detection of uncontrolled movements of the car and control of a device that stops and holds the car in accordance with 5.6.7.7 of EN 81-20, with a response time of 15 ms;
- monitoring of correct operation and release of the motor brake in accordance with 5.6.7.3 of EN 81-20;
- detection of uncontrolled movements of the car during levelling operations with doors open and control of a device that stops and holds the car in accordance with 5.6.7.7 of EN 81-20, with a response time equal to 15 ms.

Quality marks



All Pizzato Elettrica safety modules bear quality marks that confirm their fulfilment

of safety requirements and compliance with product directives in force in international markets.

Within the European Union, the CE marking is issued in accordance with the most recent version of the 2014/33/EU lift directive.

Final inspection of 100% of all products



To provide the user with a guarantee of the high quality standards of Pizzato Elettrica products, each safety module is tested individually using automated test stations, and identified by a unique serial number.

This process allows preventive identification of products displaying production defects, or deviations from standard operating parameters.

EC-type examination certificate



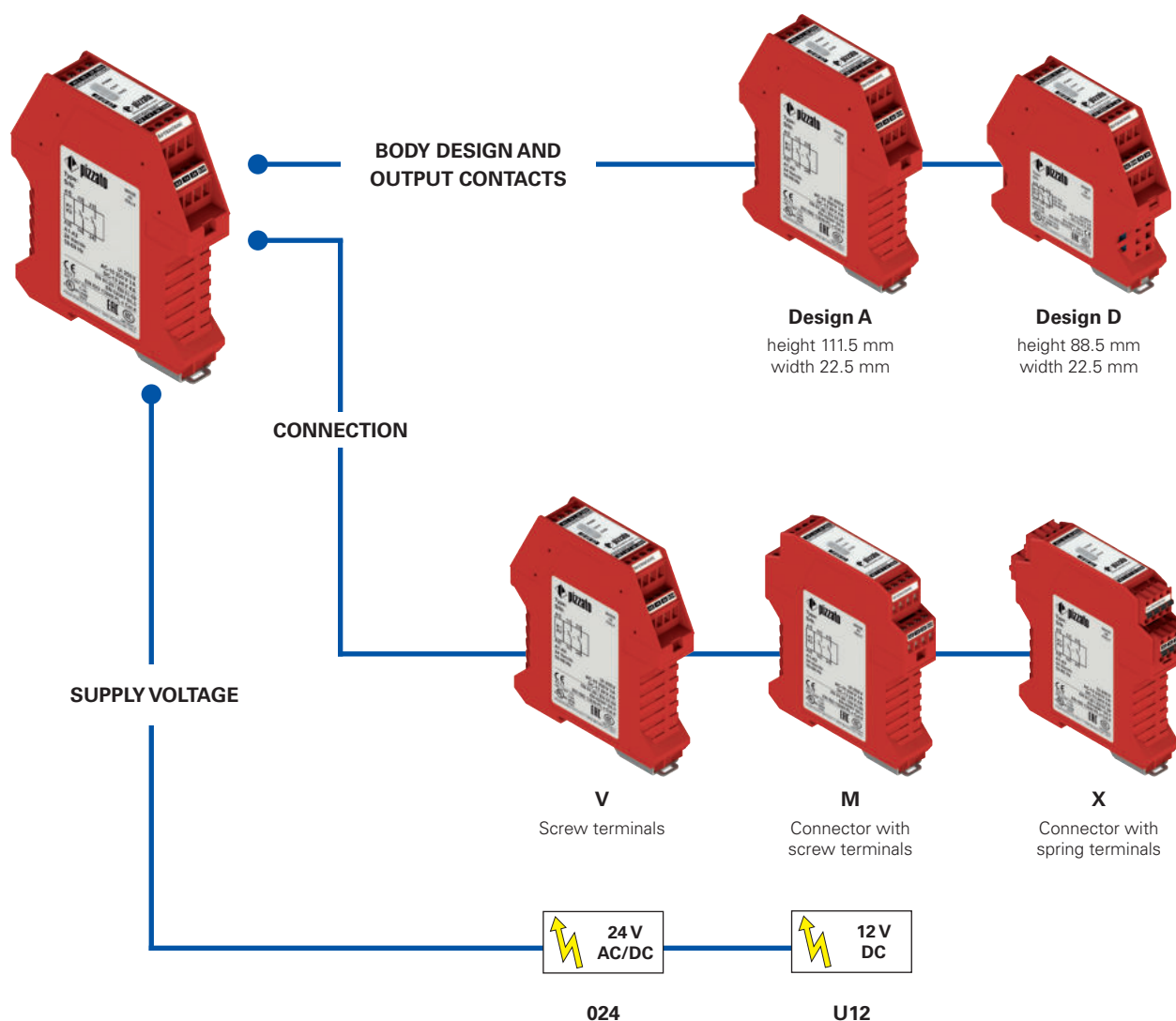
The EC-type examination certificate is issued by a Notified Body, and guarantees compliance with the safety requirements of the Machinery Directive and lift directive. The EC-type examination certificate guarantees to the customer, that experts of a Notified Body have verified compliance with directives and continuously monitor the production process and check the conformity of products with the sample (type) verified during approval. A product that is awarded EC-type certification can be marketed with the CE symbol, followed by a four-digit number identifying the Notified Body.

Technical assistance



The technical department of Pizzato Elettrica supports installers of CS series safety modules with useful information before, during, and after the installation phase, in the most complex applications.

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.

CS AR-94V024

Output contacts and body design

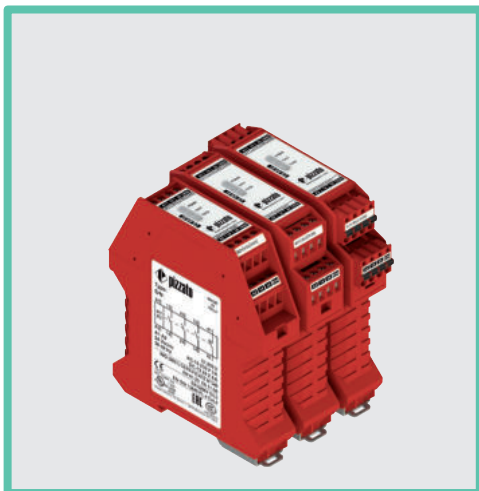
91	2 NO safety contacts, 1 NO opto-decoupled signalling contact, design A
93	3 NO safety contacts, 1 NC auxiliary contact, design A
94	2 NO safety contacts, design A
95	2 NO safety contacts, design D

Supply voltage

024	24 Vac/dc
U12	12 Vdc (for CS AR-94 only)

Connection type

V	Screw terminals
M	Connector with screw terminals
X	Connector with spring terminals



Module for floor levelling operations in lifts compliant to EN 81

Main features

- For safety applications up to SIL 3/PL e
- Choice between automatic start, manual start or monitored start
- Connection of input channels of opposite potentials
- Reduced housing width of 22.5 mm
- Output contacts:
2 NO safety contacts, 1 NO opto-decoupled signalling contact
- Supply voltage: 24 Vac/dc
- Insensitive to voltage dips

Utilization categories

Alternating current: AC15 (50...60 Hz)

U_e (V) 230

I_e (A) 3

Direct current: DC13 (6 oper. cycles/min.)

U_e (V) 24

I_e (A) 4

Quality marks:



EU-type examination certificate: IMQ no. 340
(EN 81-20/50:2020)

EC type examination certificate: IMQ CP 432 DM
(Machinery Directive)

UL approval: E131787

EAC approval: RU C-IT.YT03.B.00035/19

CCC approval: 2021000305000107

UKCA approval: 772884

UKCA-type examination certificate: 772883

Compliance with the requirements of:

Machinery Directive 2006/42/EC,

EMC Directive 2014/30/EU,

Lift Directive 2014/33/EU,

RoHS Directive 2011/65/EU.

Technical data

Housing

Polyamide housing PA 66, self-extinguishing V0 acc. to UL 94

Protection degree acc. to EN 60529:

IP40 (housing), IP20 (terminal strip)

Dimensions:

see page 147, design A

General data

SIL level (SIL CL):

up to SIL 3 acc. to EN IEC 62061

Performance Level (PL):

Up to PL e acc. to EN ISO 13849-1

Safety category:

Up to cat. 4 acc. to EN ISO 13849-1

MTTF_D:

227 years

DC:

High

PFH_D:

1.18 E-10

Ambient temperature:

-25°C ... +55°C

Mechanical endurance:

>10 million operating cycles

Electrical endurance:

>100,000 operating cycles

Pollution degree:

external 3, internal 2

Impulse withstand voltage (U_{imp}):

4 kV

Rated insulation voltage (U_i):

250 V

Overtoltage category:

II

Supply

Rated supply voltage (U_n):

24 Vac/dc; ± 15%; 50 ... 60 Hz

Max. DC residual ripple in DC:

10%

Power consumption AC:

< 5 VA

Power consumption DC:

< 2.5 W

Control circuit

Protection against short circuits:

PTC resistance, $I_h=0.5$ A

PTC response time:

Response time > 100 ms, release time > 3 s

Maximum resistance per input:

≤ 50 Ω

Current per input:

< 40 mA

Min. duration of start impulse t_{MIN} :

> 50 ms

Response time t_A :

< 120 ms

Release time t_{R1} :

< 20 ms

Release time in absence of power supply t_{R2} :

< 65 ms

Simultaneity time t_C :

unlimited

Response time starting from application of the supply: < 300 ms

Auxiliary signalling circuit

Auxiliary output (Y43-Y44):

1NO opto-decoupled

Rated operating voltage (U_o):

24 Vdc

Rated operating current (I_o):

25 mA

Rated impulse withstand voltage (U_{imp}):

4 kV

Release time t_{R2} :

< 1 ms

In compliance with standards:

EN 60204-1, EN ISO 13855, EN ISO 14118, EN ISO 12100, EN ISO 13850, EN 60529, EN 61000-6-2, EN 61000-6-3, EN 61326-1, EN 60664-1, EN 60947-1, EN IEC 63000, EN ISO 13849-1, EN ISO 13849-2, EN 62061, EN 81-20, EN 81-50, UL 508, CSA C22.2 no. 14, GB/T14048.5-2017.

Output circuit

Output contacts:

2 NO safety contacts,

Contact type:

forcibly guided

Material of the contacts:

gold-plated silver alloy

Maximum switching voltage:

230/240 Vac; 300 Vdc

Max. current per contact:

6 A

Conventional free air thermal current I_{th} :

6 A

Max. total current ΣI_{th}^2 :

36 A²

Minimum current:

10 mA

Contact resistance:

≤ 100 mΩ

External protection fuse:

4 A type F

The number and the load capacity of output contacts can be increased by using expansion modules or contactors. See the paragraph on the CS ME series expansion modules in the General Safety Catalogue.

Code structure

CS AR-91V024

Connection type

V	Screw terminals
M	Connector with screw terminals
X	Connector with spring terminals

Supply voltage

024 24 Vac/dc

Features approved by UL

Rated supply voltage (U_n): 24 Vac/dc; 50...60 Hz

Power consumption AC: < 5 VA

Power consumption DC: < 4 W

Electrical ratings:

- NO contacts: 230/240 Vac, 6 A general use, C300 pilot duty

- NC contacts: 230/240 Vac, 6 A resistive, B300 pilot duty

Notes:

- Use 60 or 75°C copper (Cu) conductor and wire size No. 30-12 AWG, stranded or solid.

- The terminal tightening torque of 5-7 lb in.

- Only for 24 Vac/dc versions: supply from remote Class 2 source or limited voltage limited energy.

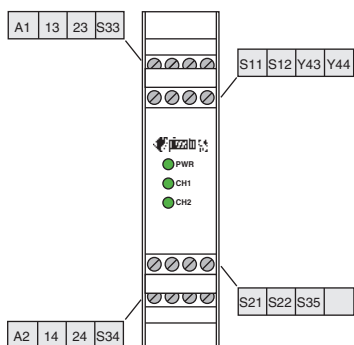
- Utiliser des conducteurs en cuivre (Cu) 60 ou 75°C rigides ou flexibles de section 30-12 AWG.

- Couple de serrage des bornes de 5-7 Lb In.

- Seulement pour les versions 24 Vac/dc, alimenter avec sources de classes 2 ou avec tension limitée et énergie limitée.

Safety module CS AR-91

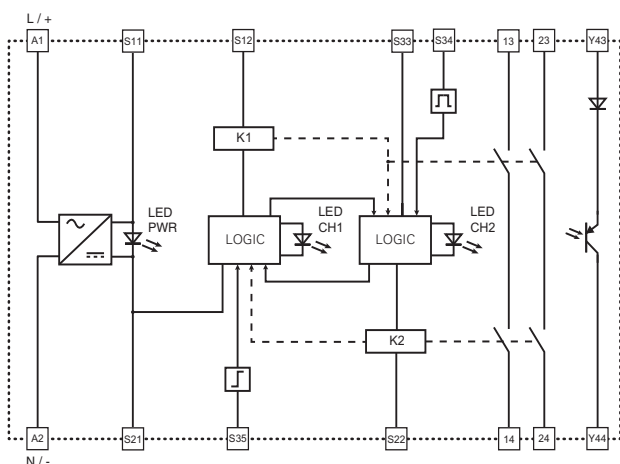
Pin assignment



Voltage dips, short interruptions and voltage variations

The CS AR-91 safety module has a built-in voltage drop sensor which serves to protect and safeguard the internal state of the safety relays, in the event of dips or short voltage interruptions. This is to prevent unwanted switching states in relation to the state of the inputs from occurring. When voltage is restored, the device continues to operate with a switching state that is consistent with the input signals. The safety module retains its normal function during voltage dips and brief interruptions; for longer voltage interruptions, the safety outputs open and reset themselves automatically during an automatic start if voltage is restored or – in the case of a manual or monitored start – require that the system be reset by the operator.

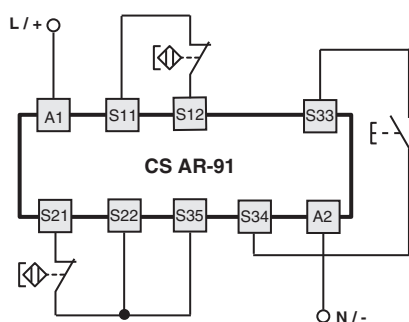
Internal wiring diagram



Input configuration

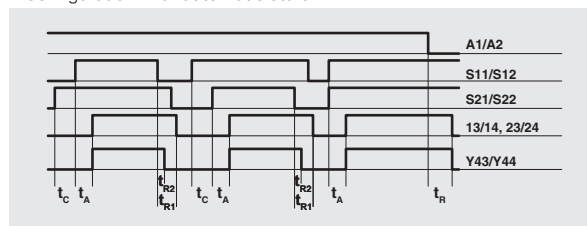
Input configuration with magnetic sensors

2 channels

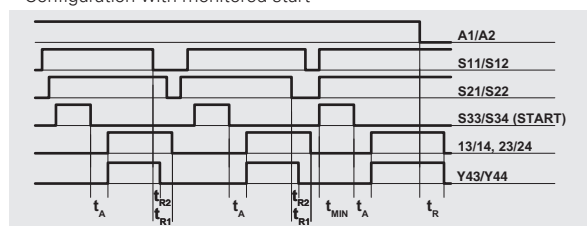


Function diagrams

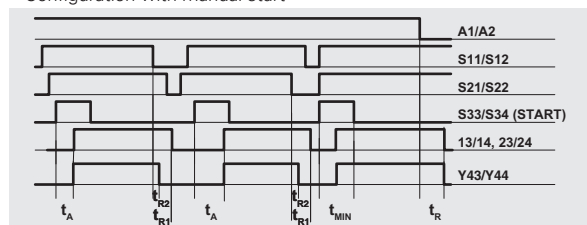
Configuration with automatic start



Configuration with monitored start



Configuration with manual start



Legend:

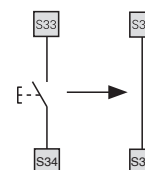
t_{MIN} : Min. duration of start impulse
 t_C : simultaneity time
 t_A : response time
 t_{R1} , t_{R2} : release time
 t_R : release time in absence of power supply

Notes:

The configurations with one channel are obtained taking into consideration the S11/S12 input only. In this case it is necessary to consider time t_{R1} referred to input S11/S12, time t_R referred to the supply, time t_A referred to input S11/S12 and to the start, and time t_{MIN} referred to the start.

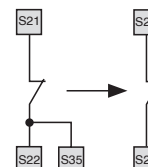
Automatic start

With regard to the indicated diagrams, bridge the start button between S33 and S34 in order to activate the automatic start module.



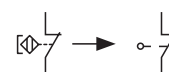
Monitored start

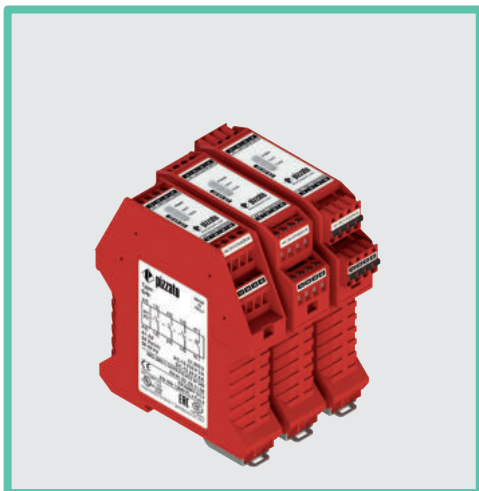
With regard to the indicated diagrams, remove the connection between the S22 and S35 terminals in order to activate the monitored start module.



Electromechanical switches

The safety module can control both magnetic sensors and electromechanical switches. Replace the sensor contacts with switch contacts.





Module for floor levelling operations in lifts compliant to EN 81

Main features

- For safety applications up to SIL 3/PL e
- Choice between automatic start or manual start
- Connection of input channels of opposite potentials
- Reduced housing width of 22.5 mm
- Output contacts:
3 NO safety contacts and 1 NC auxiliary contact.
- Supply voltage: 24 Vac/dc
- Insensitive to voltage dips

Utilization categories

Alternating current: AC15 (50...60 Hz)

U_e (V) 230

I_e (A) 3

Direct current: DC13 (6 oper. cycles/min.)

U_e (V) 24

I_e (A) 4

Quality marks:



EU-type examination certificate: IMQ no. 340
(EN 81-20/50:2020)

EC type examination certificate: IMQ CP 432 DM
(Machinery Directive)

UL approval: E131787

EAC approval: RU C-IT.YT03.B.00035/19

CCC approval: 2021000305000107

UKCA approval: 772884

UKCA-type examination certificate: 772883

Compliance with the requirements of:

Machinery Directive 2006/42/EC,

EMC Directive 2014/30/EU,

Lift Directive 2014/33/EU,

RoHS Directive 2011/65/EU.

Technical data

Housing

Polyamide housing PA 66, self-extinguishing V0 acc. to UL 94

Protection degree acc. to EN 60529:

IP40 (housing), IP20 (terminal strip)

Dimensions:

see page 147, design A

General data

SIL level (SIL CL):

up to SIL 3 acc. to EN IEC 62061

Performance Level (PL):

Up to PL e acc. to EN ISO 13849-1

Safety category:

Up to category 4 acc. to EN ISO 13849-1

MTTF_D:

227 years

DC:

High

PFH_D:

1.34 E-10

Ambient temperature:

-25°C ... +55°C

Mechanical endurance:

>10 million operating cycles

Electrical endurance:

>100,000 operating cycles

Pollution degree:

external 3, internal 2

Impulse withstand voltage (U_{imp}):

4 kV

Rated insulation voltage (U_i):

250 V

Overtoltage category:

II

Supply

Rated supply voltage (U_n):

24 Vac/dc; ± 15%; 50 ... 60 Hz

Max. DC residual ripple in DC:

10%

Power consumption AC:

< 5 VA

Power consumption DC:

< 2.5 W

Control circuit

Protection against short circuits:

PTC resistance, $I_h=0.5$ A

PTC response time:

Response time > 100 ms, release time > 3 s

Maximum resistance per input:

≤ 50 Ω

Current per input:

< 35 mA

Min. duration of start impulse t_{MIN} :

> 50 ms

Response time t_A :

< 130 ms

Release time t_{R1} :

< 20 ms

Release time in absence of power supply t_{R2} :

< 60 ms

Simultaneity time t_C :

unlimited

Response time starting from application of the supply: < 300 ms

In compliance with standards:

EN 60204-1, EN ISO 13855, EN ISO 14118, EN ISO 12100, EN ISO 13850, EN 60529, EN 61000-6-2, EN 61000-6-3, EN 61326-1, EN 60664-1, EN 60947-1, EN IEC 63000, EN ISO 13849-1, EN ISO 13849-2, EN 62061, EN 81-20, EN 81-50, UL 508, CSA C22.2 no. 14, GB/T14048.5-2017.

Output circuit

Output contacts:

3 NO safety contacts
1 NC auxiliary contact.

Contact type:

forcibly guided

Material of the contacts:

gold-plated silver alloy

Maximum switching voltage:

230/240 Vac; 300 Vdc

Max. current per contact:

6 A

Conventional free air thermal current I_{th} :

6 A

Max. total current ΣI_{th}^2 :

36 A²

Minimum current:

10 mA

Contact resistance:

≤ 100 mΩ

External protection fuse:

4 A type F

The number and the load capacity of output contacts can be increased by using expansion modules or contactors. See the paragraph on the CS ME series expansion modules in the General Safety Catalogue.

Code structure

CS AR-93V024

Connection type

V	Screw terminals
M	Connector with screw terminals
X	Connector with spring terminals

Supply voltage

024 24 Vac/dc

Features approved by UL

Rated supply voltage (U_n): 24 Vac/dc; 50...60 Hz

Power consumption AC: < 5 VA

Power consumption DC: < 4 W

Electrical ratings:

- NO contacts: 230/240 Vac, 6 A general use, C300 pilot duty

- NC contacts: 230/240 Vac, 6 A resistive, B300 pilot duty

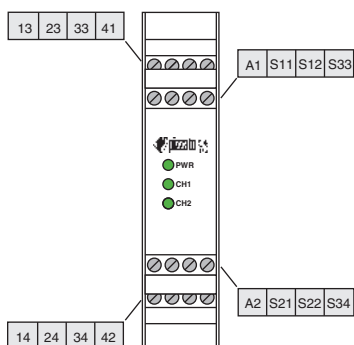
Notes:

- Use 60 or 75°C copper (Cu) conductor and wire size No. 30-12 AWG, stranded or solid.
- The terminal tightening torque of 5-7 lb in.
- Only for 24 Vac/dc versions: supply from remote Class 2 source or limited voltage limited energy.

- Utiliser des conducteurs en cuivre (Cu) 60 ou 75°C rigides ou flexibles de section 30-12 AWG.
- Couple de serrage des bornes de 5-7 Lb In.
- Seulement pour les versions 24 Vac/dc, alimenter avec sources de classes 2 ou avec tension limitée et énergie limitée.

CS AR-93 safety module

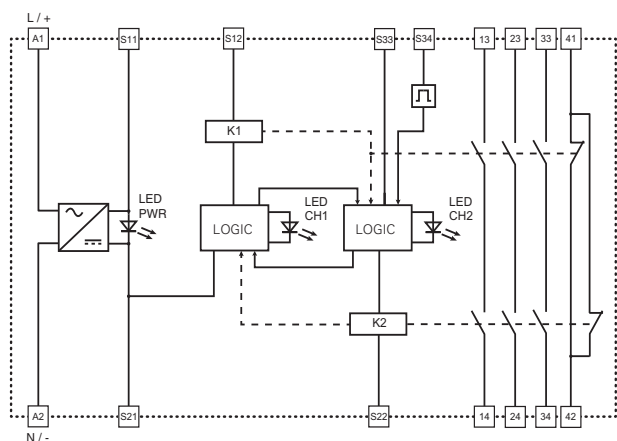
Pin assignment



Voltage dips, short interruptions and voltage variations

The CS AR-93 safety module has a built-in voltage drop sensor which serves to protect and safeguard the internal state of the safety relays, in the event of dips or short voltage interruptions. This is to prevent unwanted switching states in relation to the state of the inputs from occurring. When voltage is restored, the device continues to operate with a switching state that is consistent with the input signals. The safety module retains its normal function during voltage dips and brief interruptions; for longer voltage interruptions, the safety outputs open and reset themselves automatically during an automatic start if voltage is restored or – in the case of a manual or monitored start – require that the system be reset by the operator.

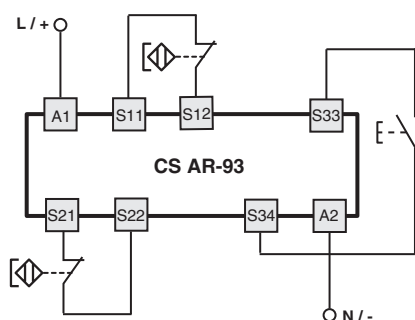
Internal wiring diagram



Input configuration

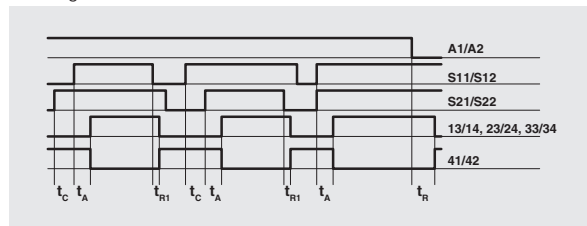
Input configuration with magnetic sensors

2 channels

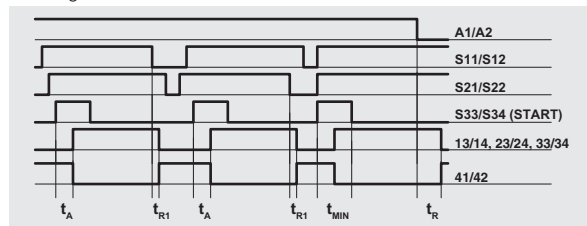


Function diagrams

Configuration with automatic start



Configuration with manual start



Legend:

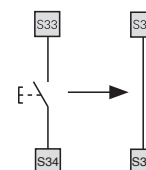
- t_{MIN} : Min. duration of start impulse
- t_c : simultaneity time
- t_A : response time
- t_{R1} : release time
- t_R : release time in absence of power supply

Notes:

The configurations with one channel are obtained taking into consideration the S11/S12 input only. In this case it is necessary to consider time t_{R1} referred to input S11/S12, time t_R referred to the supply, time t_A referred to input S11/S12 and to the start, and time t_{MIN} referred to the start.

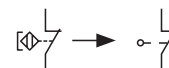
Automatic start

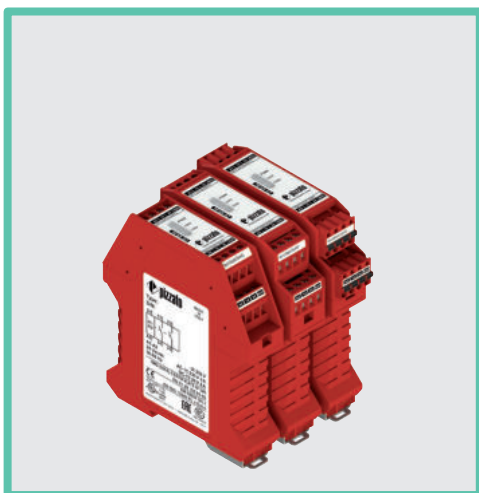
With regard to the indicated diagrams, bridge the start button between S33 and S34 in order to activate the automatic start module.



Electromechanical switches

The safety module can control both magnetic sensors and electromechanical switches. Replace the sensor contacts with switch contacts.





Module for floor levelling operations in lifts compliant to EN 81

Main features

- For safety applications up to SIL 3/PL e
- Choice between automatic start, manual start or monitored start
- Connection of input channels of opposite potentials
- Reduced housing width of 22.5 mm
- Output contacts: 2 NO safety contacts
- Supply voltage: 24 Vac/dc, 12 Vdc
- Insensitive to voltage dips

Utilization categories

Alternating current: AC15 (50...60 Hz)

U_e (V) 230

I_e (A) 3

Direct current: DC13 (6 oper. cycles/min.)

U_e (V) 24

I_e (A) 4

Quality marks:



EU-type examination certificate: IMQ no. 340
(EN 81-20/50:2020)

EC type examination certificate: IMQ CP 432 DM
(Machinery Directive)

UL approval: E131787

EAC approval: RU C-IT.YT03.B.00035/19

CCC approval: 2021000305000107

UKCA approval: 772884

UKCA-type examination certificate: 772883

Compliance with the requirements of:

Machinery Directive 2006/42/EC,

EMC Directive 2014/30/EU,

Lift Directive 2014/33/EU,

RoHS Directive 2011/65/EU.

Technical data

Housing

Polyamide housing PA 66, self-extinguishing V0 acc. to UL 94

Protection degree acc. to EN 60529:

IP40 (housing), IP20 (terminal strip)

Dimensions:

see page 147, design A

General data

SIL level (SIL CL):

up to SIL 3 acc. to EN IEC 62061

Performance Level (PL):

Up to PL e acc. to EN ISO 13849-1

Safety category:

Up to category 4 acc. to EN ISO 13849-1

MTTF_D:

227 years

DC:

High

PFH_D:

1.13 E-10

Ambient temperature:

-25°C ... +55°C

Mechanical endurance:

>10 million operating cycles

Electrical endurance:

>100,000 operating cycles

Pollution degree:

external 3, internal 2

Impulse withstand voltage (U_{imp}):

4 kV

Rated insulation voltage (U_i):

250 V

Overvoltage category:

II

Supply

Rated supply voltage (U_n):

24 Vac/dc; $\pm 15\%$; 50 ... 60 Hz

12 Vdc; -10% ... +15%

Max. DC residual ripple in DC:

10%

Power consumption AC:

< 5 VA

Power consumption DC:

< 2 W

Control circuit

Protection against short circuits:

PTC resistance, $I_h=0.5 A$

PTC response time:

Response time > 100 ms, release time > 3 s

Maximum resistance per input:

$\leq 25 \Omega$ (24 Vac/dc), $\leq 15 \Omega$ (12 Vdc)

Current per input:

< 35 mA (24 Vac/dc), 65 mA (12 Vdc)

Min. duration of start impulse t_{MIN} :

> 300 ms

Response time t_A :

< 130 ms

Release time t_{R1} :

< 20 ms

Release time in absence of power supply t_R :

< 120 ms (24 Vac/dc), 70 ms (12 Vdc)

Simultaneity time t_C :

unlimited

Response time starting from application of the supply: < 200 ms (24 Vac/dc), 400 ms (12 Vdc)

In compliance with standards:

EN 60204-1, EN ISO 13855, EN ISO 14118, EN ISO 12100, EN ISO 13850, EN 60529, EN 61000-6-2, EN 61000-6-3, EN 61326-1, EN 60664-1, EN 60947-1, EN IEC 63000, EN ISO 13849-1, EN ISO 13849-2, EN ISO 13849-2, EN 62061, EN 81-20, EN 81-50, UL 508, CSA C22.2 no. 14, GB/T14048.5-2017.

Output circuit

Output contacts:

2 NO safety contacts,

Contact type:

forcibly guided

Material of the contacts:

gold-plated silver alloy

Maximum switching voltage:

230/240 Vac; 300 Vdc

Max. current per contact:

6 A

Conventional free air thermal current I_{th} :

6 A

Max. total current ΣI_{th}^2 :

36 A²

Minimum current:

10 mA

Contact resistance:

$\leq 100 m\Omega$

External protection fuse:

4 A type F

The number and the load capacity of output contacts can be increased by using expansion modules or contactors. See the paragraph on the CS ME series expansion modules in the General Safety Catalogue.

Code structure

CS AR-94V024

Connection type	
V	Screw terminals
M	Connector with screw terminals
X	Connector with spring terminals

Supply voltage	
024	24 Vac/dc
U12	12 Vdc

Features approved by UL

Rated supply voltage (U_n): 24 Vac/dc; 50...60 Hz

Power consumption AC: < 5 VA

Power consumption DC: < 4 W

Electrical ratings:

- NO contacts: 230/240 Vac, 6 A general use, C300 pilot duty

- NC contacts: 230/240 Vac, 6 A resistive, B300 pilot duty

Notes:

- Use 60 or 75°C copper (Cu) conductor and wire size No. 30-12 AWG, stranded or solid.

- The terminal tightening torque of 5-7 lb in.

- Only for 24 Vac/dc versions: supply from remote Class 2 source or limited voltage limited energy.

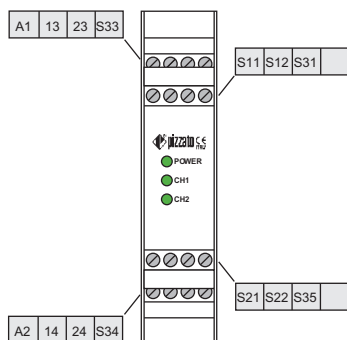
- Utiliser des conducteurs en cuivre (Cu) 60 ou 75°C rigides ou flexibles de section 30-12 AWG.

- Couple de serrage des bornes de 5-7 Lb In.

- Seulement pour les versions 24 Vac/dc, alimenter avec sources de classes 2 ou avec tension limitée et énergie limitée.

CS AR-94 safety module

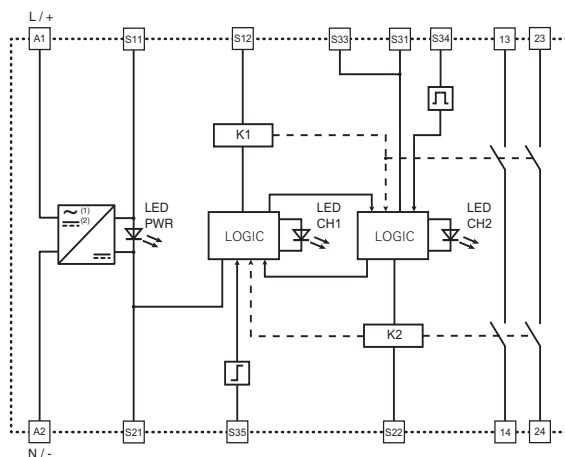
Pin assignment



Voltage dips, short interruptions and voltage variations

The CS AR-94 safety module has a built-in voltage drop sensor which serves to protect and safeguard the internal state of the safety relays, in the event of dips or short voltage interruptions. This is to prevent unwanted switching states in relation to the state of the inputs from occurring. When voltage is restored, the device continues to operate with a switching state that is consistent with the input signals. The safety module retains its normal function during voltage dips and brief interruptions; for longer voltage interruptions, the safety outputs open and reset themselves automatically during an automatic start if voltage is restored or – in the case of a manual or monitored start – require that the system be reset by the operator.

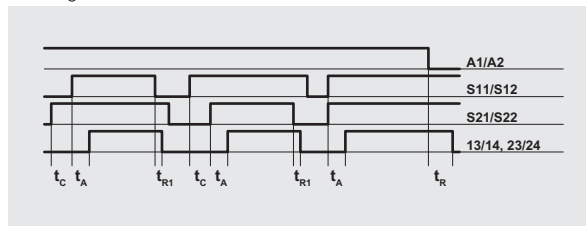
Internal wiring diagram



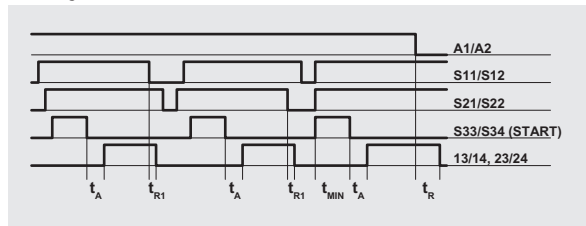
(1) articles CS AR-94•024 (2) articles CS AR-94•U12

Function diagrams

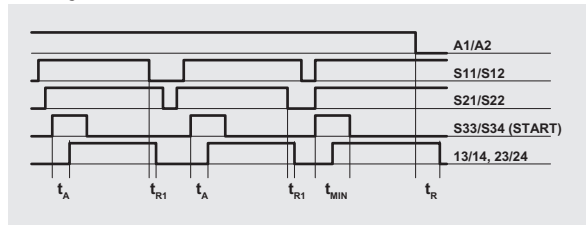
Configuration with automatic start



Configuration with monitored start



Configuration with manual start



Legend:
 t_{MIN} : Min. duration of start impulse
 t_c : simultaneity time
 t_A : response time
 t_{R1} : release time
 t_R : release time in absence of power supply

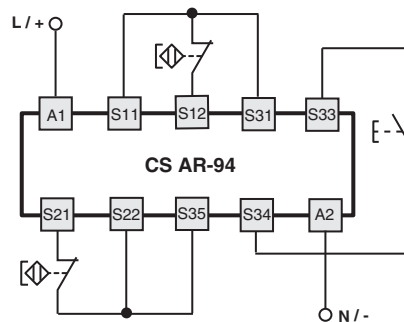
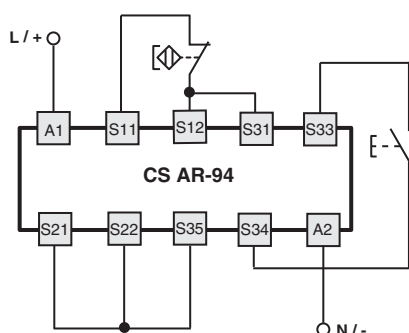
Notes:
 The configurations with one channel are obtained taking into consideration the S11/S12 input only. In this case it is necessary to consider time t_{R1} referred to input S11/S12, time t_A referred to the supply, time t_A referred to input S11/S12 and to the start, and time t_{MIN} referred to the start.

Input configuration

Input configuration with magnetic sensors

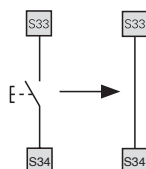
1 channel

2 channels



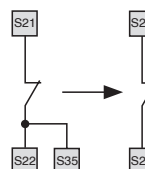
Automatic start

With regard to the indicated diagrams, bridge the start button between S33 and S34 in order to activate the automatic start module.



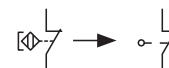
Monitored start

With regard to the indicated diagrams, remove the connection between the S22 and S35 terminals in order to activate the monitored start module.

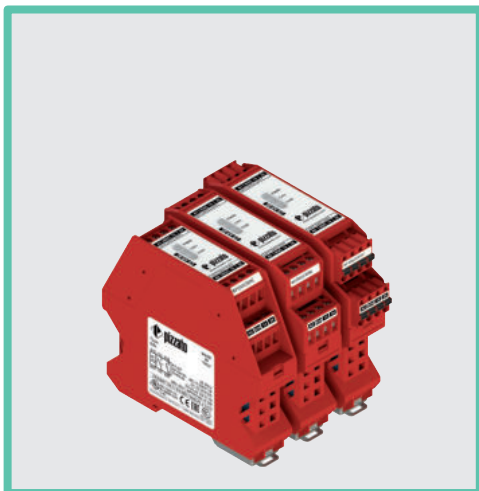


Electromechanical switches

The safety module can control both magnetic sensors and electromechanical switches. Replace the sensor contacts with switch contacts.



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



Module for floor levelling operations in lifts compliant to EN 81

Main features

- For safety applications up to SIL 3/PL e
- Choice between automatic start, manual start or monitored start
- Connection of input channels of opposite potentials
- 22.5 × 88.5 mm housing dimensions
- Output contacts: 2 NO safety contacts
- Supply voltage: 24 Vac/dc
- Insensitive to voltage dips

Utilization categories

Alternating current: AC15 (50...60 Hz)

U_e (V) 230

I_e (A) 3

Direct current: DC13 (6 oper. cycles/min.)

U_e (V) 24

I_e (A) 4

Quality marks:



EU-type examination certificate: IMQ no. 340
(EN 81-20/50:2020)

EC type examination certificate: IMQ CP 432 DM
(Machinery Directive)

UL approval: E131787

EAC approval: RU C-IT.YT03.B.00035/19

CCC approval: 2021000305000107

UKCA approval: 772884

UKCA-type examination certificate: 772883

Compliance with the requirements of:

Machinery Directive 2006/42/EC,

EMC Directive 2014/30/EU,

Lift Directive 2014/33/EU,

RoHS Directive 2011/65/EU.

Technical data

Housing

Polyamide housing PA 66, self-extinguishing V0 acc. to UL 94

Protection degree acc. to EN 60529:

IP40 (housing), IP20 (terminal strip)

Dimensions:

see page 147, design D

General data

SIL level (SIL CL):

up to SIL 3 acc. to EN IEC 62061

Performance Level (PL):

Up to PL e acc. to EN ISO 13849-1

Safety category:

Up to category 4 acc. to EN ISO 13849-1

MTTF_D:

213 years

DC:

High

PFH_D:

5,42 E-09

Ambient temperature:

-25°C ... +55°C

Mechanical endurance:

> 10 million operating cycles

Electrical endurance:

> 100,000 operating cycles

Pollution degree:

external 3, internal 2

Impulse withstand voltage (U_{imp}):

4 kV

Rated insulation voltage (U_i):

250 V

Overvoltage category:

II

Supply

Rated supply voltage (U_n):

24 Vac/dc; ± 15%; 50 ... 60 Hz

Max. DC residual ripple in DC:

10%

Power consumption AC:

< 5 VA

Power consumption DC:

< 2 W

Control circuit

Protection against short circuits:

PTC resistance, $I_h=0.5$ A

PTC response time:

Response time > 100 ms, release time > 3 s

Maximum resistance per input:

≤ 25 Ω

Current per input:

< 35 mA

Min. duration of start impulse t_{MIN} :

> 300 ms

Response time t_A :

< 250 ms

Release time t_{R1} :

< 20 ms

Release time in absence of power supply t_{R2} :

< 100 ms

Simultaneity time t_C :

unlimited

Response time starting from application of the supply: < 200 ms

In compliance with standards:

EN 60204-1, EN ISO 13855, EN ISO 12100, EN ISO 13850, EN 60529, EN 61000-6-2, EN 61000-6-3, EN 61326-1, EN 60664-1, EN 60947-1, EN IEC 63000, EN ISO 13849-1, EN ISO 13849-2, EN 62061, EN 81-20, EN 81-50, UL 508, CSA C22.2 no. 14, GB/T14048.5-2017.

Output circuit

Output contacts:

2 NO safety contacts,

Contact type:

forcibly guided

Material of the contacts:

gold-plated silver alloy

Maximum switching voltage:

230/240 Vac; 300 Vdc

Max. current per contact:

6 A

Conventional free air thermal current I_{th} :

6 A

Max. total current ΣI_{th}^2 :

36 A²

Minimum current:

10 mA

Contact resistance:

≤ 100 mΩ

External protection fuse:

4 A type F

The number and the load capacity of output contacts can be increased by using expansion modules or contactors. See the paragraph on the CS ME series expansion modules in the General Safety Catalogue.

Code structure

CS AR-95V024

Connection type		Supply voltage	
V	Screw terminals	024	24 Vac/dc
M	Connector with screw terminals		
X	Connector with spring terminals		

Features approved by UL

Rated supply voltage (U_n): 24 Vac/dc; 50...60 Hz

Power consumption AC: < 5 VA

Power consumption DC: < 4 W

Electrical ratings:

- NO contacts: 230/240 Vac, 6 A general use, C300 pilot duty

- NC contacts: 230/240 Vac, 6 A resistive, B300 pilot duty

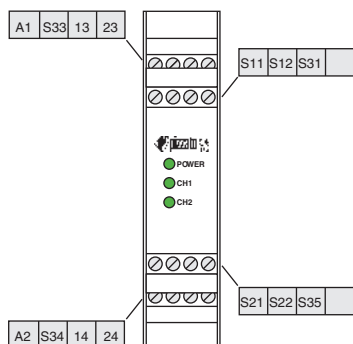
Notes:

- Use 60 or 75°C copper (Cu) conductor and wire size No. 30-12 AWG, stranded or solid.
- The terminal tightening torque of 5-7 lb in.
- Only for 24 Vac/dc versions: supply from remote Class 2 source or limited voltage limited energy.

- Utiliser des conducteurs en cuivre (Cu) 60 ou 75°C rigides ou flexibles de section 30-12 AWG.
- Couple de serrage des bornes de 5-7 Lb In.
- Seulement pour les versions 24 Vac/dc, alimenter avec sources de classes 2 ou avec tension limitée et énergie limitée.

CS AR-95 safety module

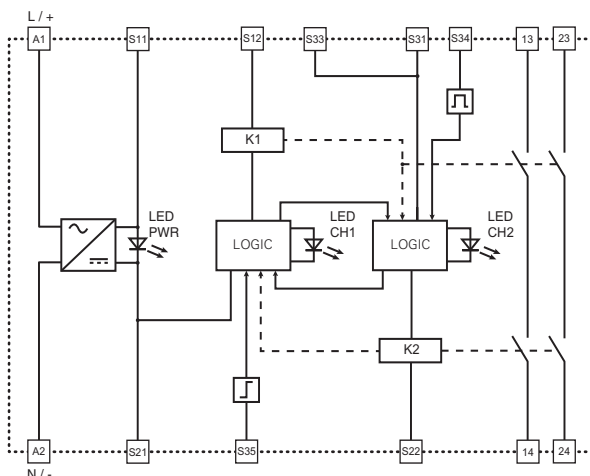
Pin assignment



Voltage dips, short interruptions and voltage variations

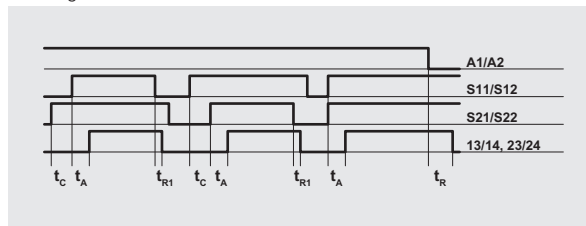
The CS AR-95 safety module has a built-in voltage drop sensor which serves to protect and safeguard the internal state of the safety relays, in the event of dips or short voltage interruptions. This is to prevent unwanted switching states in relation to the state of the inputs from occurring. When voltage is restored, the device continues to operate with a switching state that is consistent with the input signals. The safety module retains its normal function during voltage dips and brief interruptions; for longer voltage interruptions, the safety outputs open and reset themselves automatically during an automatic start if voltage is restored or – in the case of a manual or monitored start – require that the system be reset by the operator.

Internal wiring diagram

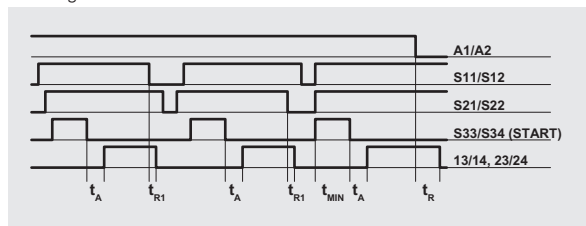


Function diagrams

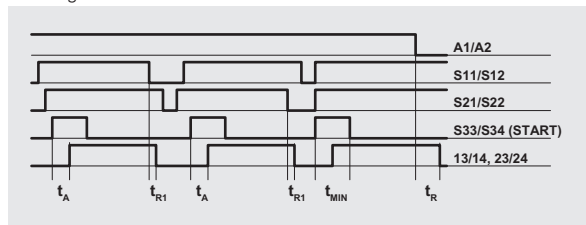
Configuration with automatic start



Configuration with monitored start



Configuration with manual start



Legend:

- t_{MIN} : Min. duration of start impulse
- t_c : simultaneity time
- t_A : response time
- t_{R1} : release time
- t_R : release time in absence of power supply

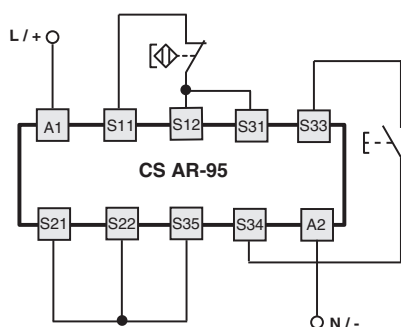
Notes:

The configurations with one channel are obtained taking into consideration the S11/S12 input only. In this case it is necessary to consider time t_{R1} referred to input S11/S12, time t_A referred to the supply, time t_A referred to input S11/S12 and to the start, and time t_{MIN} referred to the start.

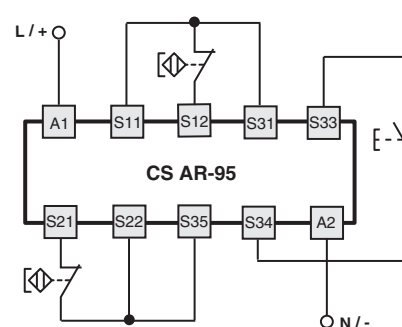
Input configuration

Input configuration with magnetic sensors

1 channel

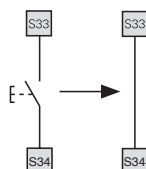


2 channels



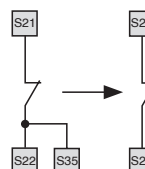
Automatic start

With regard to the indicated diagrams, bridge the start button between S33 and S34 in order to activate the automatic start module.



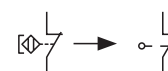
Monitored start

With regard to the indicated diagrams, remove the connection between the S22 and S35 terminals in order to activate the monitored start module.



Electromechanical switches

The safety module can control both magnetic sensors and electromechanical switches. Replace the sensor contacts with switch contacts.



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

Dimensional drawings, housings features

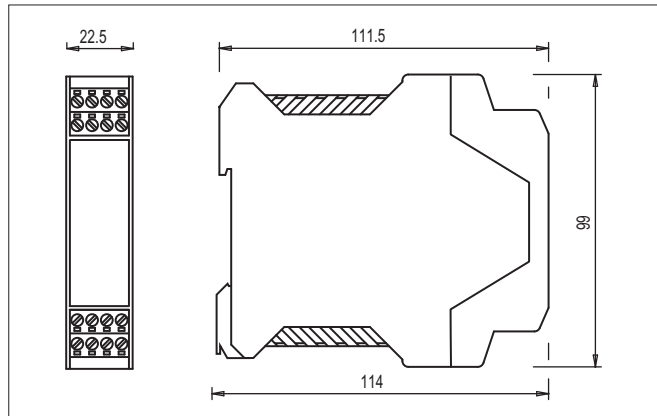
Design A, housing width 22.5 mm

Connection data

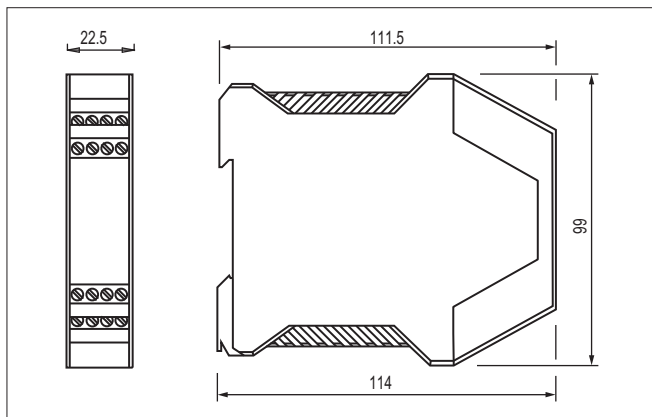
Terminal tightening torque: 0.5 ... 0.6 Nm
 Cable cross section: 0.2...2.5 mm²
 24...12 AWG

Installation

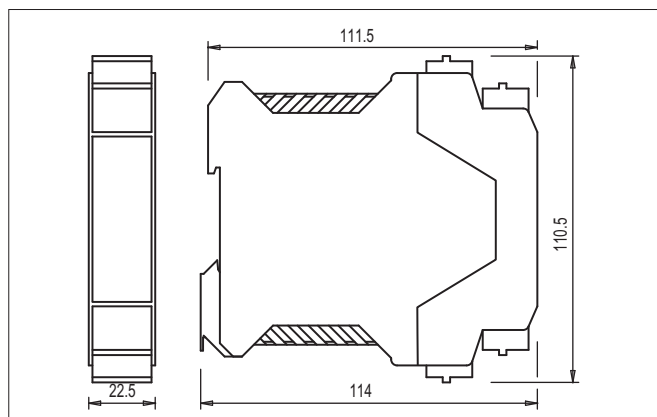
Snap-mounting on DIN rails



Connector with screw terminals



Screw terminals



Connector with spring terminals

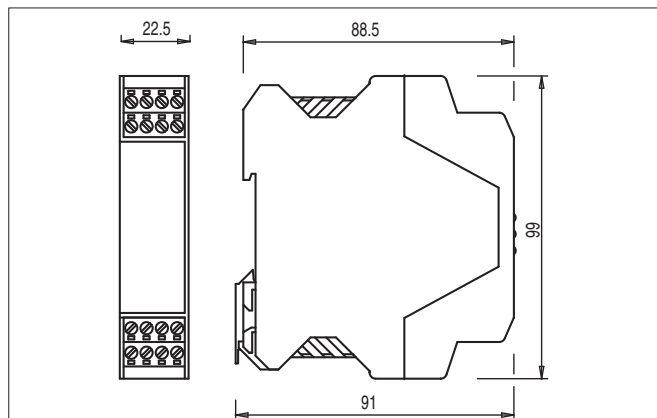
Design D, housing width 22.5 mm

Connection data

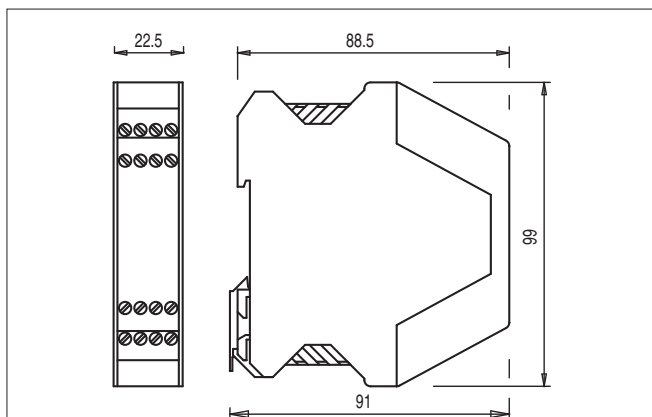
Terminal tightening torque: 0.5 ... 0.6 Nm
 Cable cross section: 0.2...2.5 mm²
 24...12 AWG

Installation

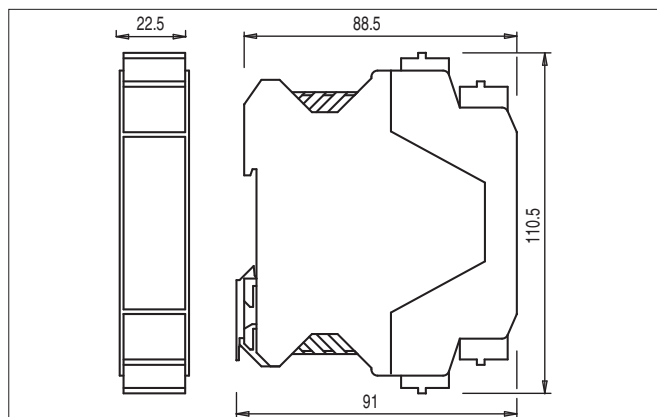
Snap-mounting on DIN rails



Connector with screw terminals



Screw terminals



Connector with spring terminals

All values in the drawings are in mm

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

Strain relief cable glands

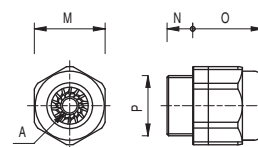
Packs of **10 pcs.**

This particular design ensures high resistance to traction of the cable glands. All cable glands are also suitable for a wide range of cable diameters.

Suitable for circular cross-section cables only.

Technical data:

Body and ring material: technopolymer without halogen
 Protection degree: IP67 acc. to EN 60529
 Tightening torque: 3 ... 4 Nm (PG 13.5/M20/M25)
 2 ... 2.5 Nm (PG 11/M16)



	Article	Description	A	⬡M	N	O	P
Metric threads	VF PAM25C7N	Cable gland M25x1.5 for a cable from Ø 10 to Ø 17 mm	⊙	30	10	28	M25x1.5
	VF PAM20C6N	M20x1.5 cable gland for one cable Ø 6 ... 12 mm	⊙	24	9	24	M20x1.5
	VF PAM20C5N	M20x1.5 cable gland for one cable Ø 5 ... 10 mm	⊙	24	9	24	M20x1.5
	VF PAM20C3N	M20x1.5 cable gland for one cable Ø 3 ... 7 mm	⊙	24	9	24	M20x1.5
	VF PAM16C5N	M16x1.5 cable gland for one cable Ø 5 ... 10 mm	⊙	22	7.5	23	M16x1.5
	VF PAM16C4N	M16x1.5 cable gland for one cable Ø 4 ... 8 mm	⊙	22	7.5	23	M16x1.5
	VF PAM16C3N	M16x1.5 cable gland for one cable Ø 3 ... 7 mm	⊙	22	7.5	23	M16x1.5
	VF PAM20CBN	M20x1.5 multi-hole cable gland for 2 cables Ø 3 ... 5 mm	⊙	24	9	23	M20x1.5
	VF PAM20CDN	M20x1.5 multi-hole cable gland for 3 cables Ø 1 ... 4 mm	⊙	24	9	23	M20x1.5
	VF PAM20CEN	M20x1.5 multi-hole cable gland for 3 cables Ø 3 ... 5 mm	⊙	24	9	23	M20x1.5
	VF PAM20CFN	M20x1.5 multi-hole cable gland for 4 cables Ø 1 ... 4 mm	⊙	22	9	23	M20x1.5
PG threads	VF PAP13C6N	PG 13.5 cable gland for one cable from Ø 6 ... 12 mm	⊙	24	9	24	PG 13.5
	VF PAP13C5N	PG 13.5 cable gland for one cable from Ø 5 ... 10 mm	⊙	24	9	24	PG 13.5
	VF PAP13C3N	PG 13.5 cable gland for one cable from Ø 3 ... 7 mm	⊙	24	9	24	PG 13.5
	VF PAP11C5N	PG 11 cable gland for one cable from Ø 5 ... 10 mm	⊙	22	7.5	23	PG 11
	VF PAP11C4N	PG 11 cable gland for one cable from Ø 4 ... 8 mm	⊙	22	7.5	23	PG 11
	VF PAP11C3N	PG 11 cable gland for one cable from Ø 3 ... 7 mm	⊙	22	7.5	23	PG 11

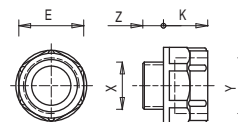
Thread adapters

Packs of **100 pcs.**

Thread adapters make it possible to fulfil requests for switches with a different thread to those generally found in stock. This means it is possible to offer customers a single product type with various threaded connections, while only having to stock the product itself and many kinds of adapters.

Technical data:

Body material: glass fibre reinforced technopolymer
 Tightening torque: 3 ... 4 Nm

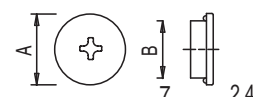


Article	Description	X	Y	Z	K	⬡E
VF ADPG13-PG11	Adapter from PG 13.5 to PG 11	PG 13.5	PG 11	9	12	22
VF ADPG13-M20	Adapter from PG 13.5 to M20x1.5	PG 13.5	M20x1.5	9	14	24
VF ADPG13-1/2NPT	Adapter from PG 13.5 to 1/2 NPT	PG 13.5	1/2 NPT	9	14	24
VF ADPG11-1/2NPT	Adapter from PG 11 to 1/2 NPT	PG 11	1/2 NPT	7	14	24
VF ADPG11-PG13	Adapter from PG 11 to PG 13.5	PG 11	PG 13.5	7	14	24
VF ADM20-1/2NPT	Adapter from M20 x 1.5 to 1/2 NPT	M20 x 1.5	1/2 NPT	9	14	24

Protection caps

Packs of **10 pcs.****Technical data:**

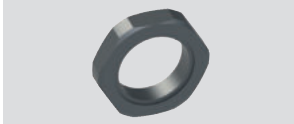
Body material: technopolymer, self-extinguishing
 Protection degree: IP67 acc. to EN 60529
 IP69K acc. to ISO 20653
 Tightening torque: 1.2 ... 1.6 Nm
 Cross-recessed screw: PH3



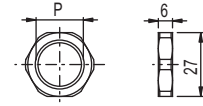
Article	Description	A	B
VF PTM20	Protection cap M20x1.5	24	M20x1.5
VF PTG13.5	Protection cap PG13.5	24	PG 13.5

Threaded nuts

Packs of **10 pcs.**



Technical data:
Tightening torque: 1.2 ... 2 Nm



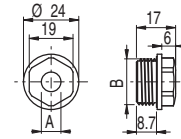
Article		Description	S	CH	P
Plastic	VF DFPM25	Plastic nut, threaded, M25x1.5	6	32	M25x1.5
	VF DFPM20	Plastic nut, threaded, M20x1.5	6	27	M20x1.5
	VF DFPM16	Plastic nut, threaded, M16x1.5	5	22	M16x1.5
	VF DFPP13	Plastic nut, threaded, PG13.5	6	27	PG 13.5
Metal	VF DFMM20	M20x1.5 threaded nut in nickel-plated brass	3	23	M20x1.5

Chock plugs

Packs of **100 pcs.**



Technical data:
Body material: technopolymer
Protection degree: IP54 acc. to EN 60529
Tightening torque: 0.8 ... 1 Nm

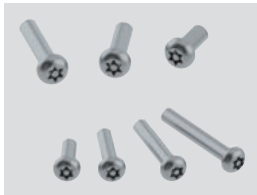


Note: Use a socket wrench for tightening.

Article		Description	A	B
VF PFM20C8N		M20x1.5 chock plug for cables from Ø 8...Ø 12 mm	7.5	M20x1.5
VF PFM20C4N		M20x1.5 chock plug for cables from Ø 4...Ø 8 mm	3.5	M20x1.5

Torx safety screws

Packs of **10 pcs.**



Pan head screws with Torx fitting and pin, stainless steel.
Use a thread locker where required for applications acc. to. EN ISO 14119.

Article	Description
VF VAM4X10BX-X	M4x10 screw, with Torx T20 fitting, AISI 304
VF VAM4X15BX-X	M4x15 screw, with Torx T20 fitting, AISI 304
VF VAM4X20BX-X	M4x20 screw, with Torx T20 fitting, AISI 304
VF VAM4X25BX-X	M4x25 screw, with Torx T20 fitting, AISI 304
VF VAM4X30BX-X	M4x30 screw, with Torx T20 fitting, AISI 304
VF VAM5X10BX-X	M5x10 screw, with Torx T25 fitting, AISI 304
VF VAM5X15BX-X	M5x15 screw, with Torx T25 fitting, AISI 304
VF VAM5X20BX-X	M5x20 screw, with Torx T25 fitting, AISI 304
VF VAM5X25BX-X	M5x25 screw, with Torx T25 fitting, AISI 304
VF VAM5X35BX-X	M5x35 screw, with Torx T25 fitting, AISI 304
VF VAM5X45BX-X	M5x45 screw, with Torx T25 fitting, AISI 304

OneWay safety screws

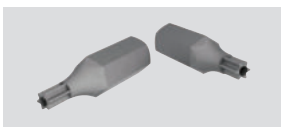
Packs of **10 pcs.**



Pan head screws with OneWay fitting in stainless steel.
This screw type cannot be removed or tampered with using common tools. Ideal for fixing safety device actuators in accordance with EN ISO 14119.

Article	Description
VF VAM4X10BW-X	M4x10 screw, with OneWay fitting, AISI 304
VF VAM4X15BW-X	M4x15 screw, with OneWay fitting, AISI 304
VF VAM4X20BW-X	M4x20 screw, with OneWay fitting, AISI 304
VF VAM4X25BW-X	M4x25 screw, with OneWay fitting, AISI 304
VF VAM5X10BW-X	M5x10 screw, with OneWay fitting, AISI 304
VF VAM5X15BW-X	M5x15 screw, with OneWay fitting, AISI 304
VF VAM5X20BW-X	M5x20 screw, with OneWay fitting, AISI 304
VF VAM5X25BW-X	M5x25 screw, with OneWay fitting, AISI 304

Bits for Torx safety screws



Bits for Torx safety screws with pin, with ¼" hexagonal connection.

Article	Description
VF VAIT1T20	Bits for M4 screws with Torx T20 fitting
VF VAIT1T25	Bits for M5 screws with Torx T25 fitting
VF VAIT1T30	Bits for M6 screws with Torx T30 fitting

All values in the drawings are in mm

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

Fixing plates



Metal fixing plate, for fixing rope switches on the ceiling.
The plate is provided with bore holes for fastening switches of the series. It is supplied without screws.

Article	Description
VF SFP2	Ceiling fixing plate

Fixing plates



Fixing plate (complete with fastening screws) provided with long slots for adjusting the operating point.
Each plate is provided with two pairs of mounting holes, one for standard switches and one for switches with reset device. The actuator thus always has the same actuating point.

Article	Description
VF SFP1	Fixing plate (FR series)
VF SFP3	Fixing plate (FX series)

LED signalling lights

Packs of 5 pcs.



These signalling lights with high luminosity LEDs are used for signalling that an electric contact has changed its state inside the switch. They can be installed on switches of the FL, FX, FZ, FW, FG, NG or FS series by screwing them on one of the conduit entries not used for electric cables. They can be used for many different purposes: for example, to signal, from a distance, whether the switch has been actuated; whether the guard has closed correctly; or whether the guard is locked or unlocked.

The inner part can rotate in such a way that it can be wired and screwed on the switch without any risk of twisting the wires.

Technical data:

Protection degree:

IP67 acc. to EN 60529
IP69K acc. to ISO 20653

Ambient temperature:

-25°C ... +70°C

Operating voltage U_n :24 Vac/dc (10 mA)
120 Vac (20 mA)
230 Vac (20 mA)

Tolerance on the supply voltages:

 $\pm 15\%$ of U_n

Operating current:

10 mA

Connection system:

PUSH-IN spring type

Cross-section of rigid/flexible wires w. wire-end sleeve:

min. 1 x 0.34 mm² (1 x AWG 24)
max. 1 x 1.5 mm² (1 x AWG 16)

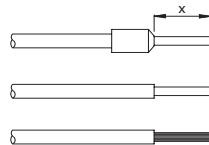
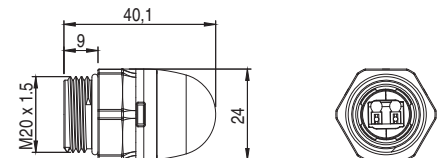
Wire cross-section with pre-insulated wire-end sleeve:

min. 1 x 0.34 mm² (1 x AWG 24)
max. 1 x 0.75 mm² (1 x AWG 18)

Tightening torque:

1.2 ... 2 Nm

Cable stripping length (x):

min.: 8 mm
max.: 12 mm

Application examples



Switch status indicator

Code structure

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

VF SL1A3PA1

Operating voltage

1	24 Vac/dc
3	120 Vac
4	230 Vac

Body design

A	Total height 40 mm, spherical lens, threading M20x1.5mm
---	---

Stock items

VF SL1A3PA1
VF SL1A5PA1

Type of light source

A	standard LED with continuous light
---	------------------------------------

Connection type

P	PUSH-IN terminal strip
---	------------------------



Lens colour

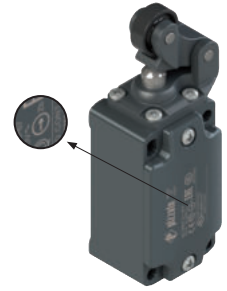
2	White
3	Red
4	Green
5	Yellow

All values in the drawings are in mm

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

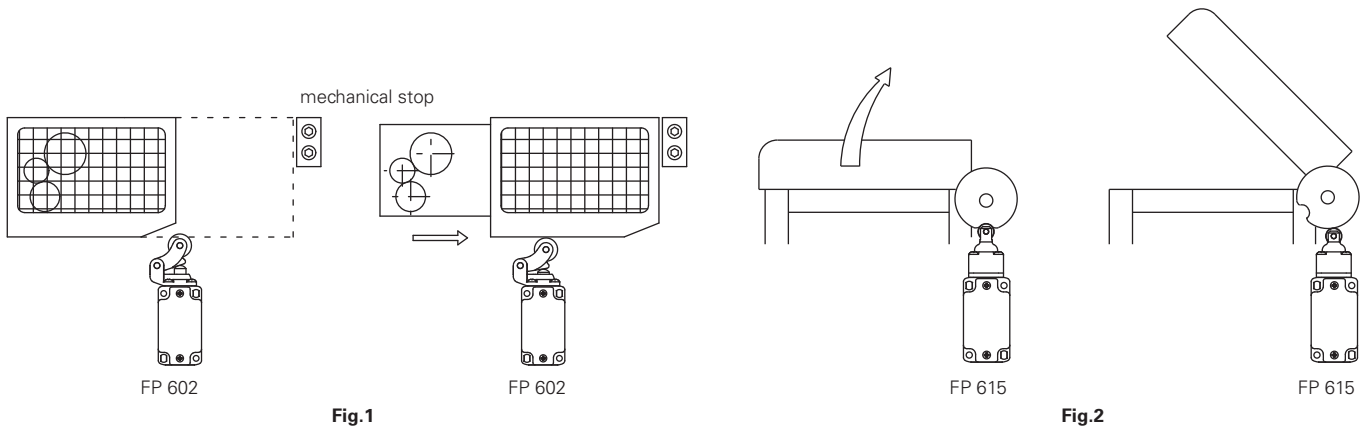
Installation of single switches with safety functions

- Use **only** switches with the symbol  (see figure on the side).
- Connect the safety circuit to **the NC normally closed contacts (11-12, 21-22 or 31-32)**.
- **The NO normally open contacts (13-14, 23-24, 33-34)** should be used **only for signalling**; these contacts are not to be connected with the safety circuit. However, if two or more switches are used on the same guard, a connection can be established between the NO contacts and the safety circuit. In this case at least one of the two switches must have positive opening and a normally closed contact NC (11-12, 21-22 or 31-32) must be connected to the safety circuit.
- Actuate the switch **at least up to the positive opening travel** shown in the travel diagrams with symbol .
- The actuation system must be able to exert a force that is greater than the **positive opening force**, as specified in brackets below each article, next to the minimum force value.
- The device must be affixed in compliance with EN ISO 14119.

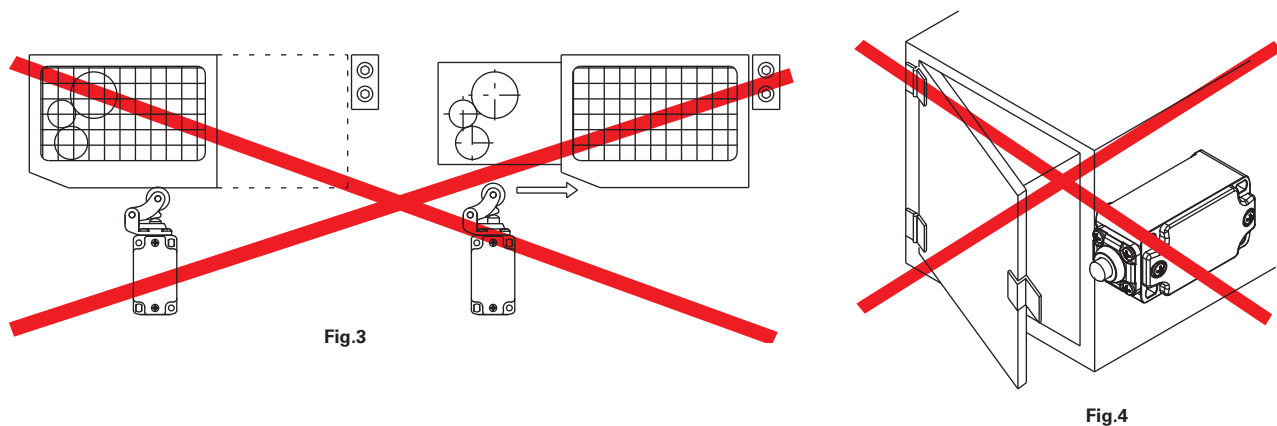


Whenever the machine guard is opened and during the whole opening travel, **the switch must be pressed directly** (fig. 1) **or through a rigid connection** (fig. 2).

Only in this way the positive opening of the normally closed NC contacts (11-12, 21-22, 31-32) is guaranteed.

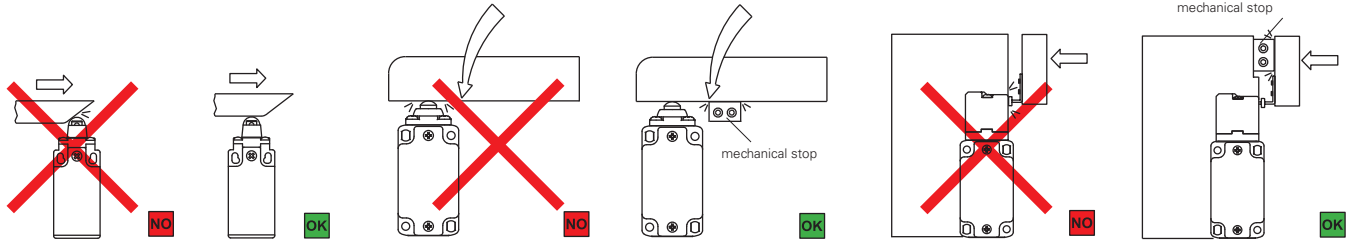


In safety applications with only one switch for each guard, the switches **must never be activated by a release** (fig. 3 and 4) **or through a non rigid connection** (i.e. by a spring).



Mechanical stop

Acc. to EN ISO 14119 paragraph 5.2 letter h) "the position sensors must not be used as mechanical stop"



The actuator must not exceed the max. travel as indicated in the travel diagrams.

The guard must not use the switch head as a mechanical stop.

The actuator must not strike directly against the switch head.

Actuation modes

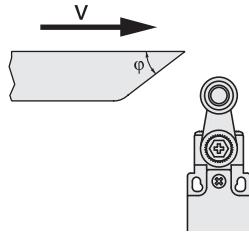
Recommended application	Application to avoid This application is possible, but increased mechanical stress may shorten the operating life of the switch	Forbidden application

FR, FX, FT, VF B series switches for standard applications

Maximum and minimum actuation speed

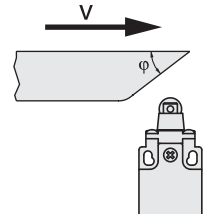
Roller lever - Type 1

ϕ	Vmax (m/s)	Vmin (mm/s)	
		L	R
15°	2.5	9	0.07
30°	1.5	8	
45°	1	7	
60°	0.75	7	



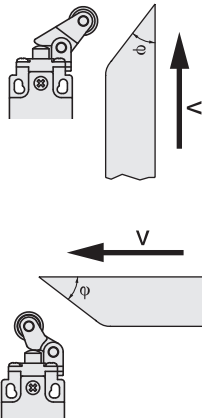
Roller plunger - Type 2

ϕ	Vmax (m/s)	Vmin (mm/s)	
		L	R
15°	1	4	0.04
30°	0.5	2	0.02
45°	0.3	1	0.01



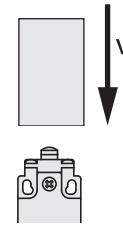
Roller lever - Type 3

ϕ	Vmax (m/s)	Vmin (mm/s)	
		L	R
15°	1	5	0.05
30°	0.5	2.5	0.025
45°	0.3	1.5	0.015



Plunger - Type 4

Vmax (m/s)	Vmin (mm/s)	Vmin (mm/s)
	L	R
0.5	1	0.01



Contact type:

- R** = snap action
- L** = slow action

Tightening torques

- 1 Cover screws
- 2 Head screws
- 3 Lever screw
- 4 Protection caps
- 5 Contact block screws
- 6 M4 fixing screws, body
(with washer for FR, FT, VF B series)

0.7 ... 0.9 Nm

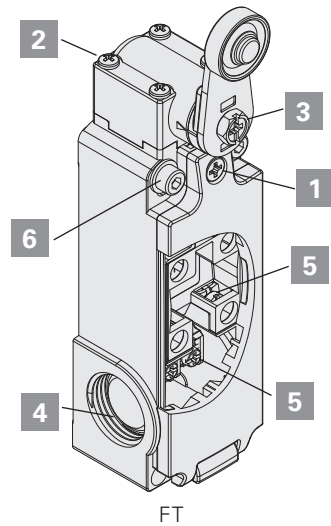
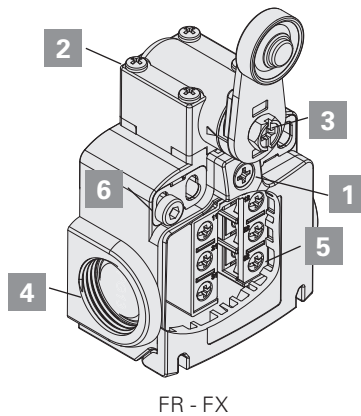
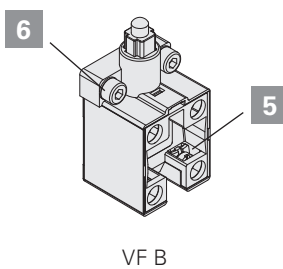
0.5 ... 0.7 Nm

0.7 ... 0.9 Nm

1.2 ... 1.6 Nm

0.6 ... 0.8 Nm

2 ... 2.5 Nm



Travel diagrams FR, FX series

Contact block	Group 1a	Group 2a	Group 3a	Group 4a
5 1NO+1NC				
6 1NO+1NC				
7 1NO+1NC				
9 2NC				
16 2NC	/	/	/	

Legend
 Closed contact | Open contact | Positive opening travel acc. to EN 60947-5-1 | Switch pressed / Switch released

Travel diagrams FR, FX series with reset

Contact block	Group 1c	Group 2c	Group 3c	Group 4c
6 1NO+1NC				
9 2NC				
20 1NO+2NC				

Legend:
 Closed contact | Open contact | Positive opening travel acc. to EN 60947-5-1

Travel diagrams FT series

Contact block	Group 1d	Group 2d	Group 3d	Group 4d	Group 5d
63 1NC					
64 2NC					

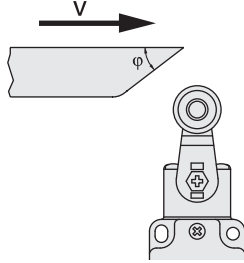
Legend:
 Closed contact | Open contact | Positive opening travel acc. to EN 60947-5-1

FP series switches for heavy duty applications

Maximum and minimum actuation speed

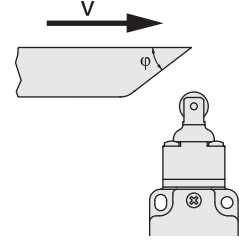
Roller lever - Type 1

φ	Vmax (m/s)	Vmin (mm/s) L	Vmin (mm/s) R
15°	2.5	9	
30°	1.5	8	0.07
45°	1	7	
60°	0.75	7	



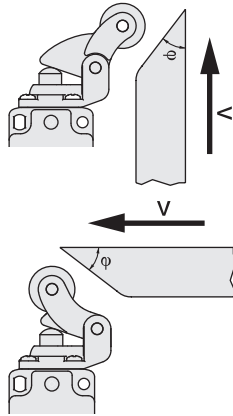
Roller plunger - Type 2

φ	Vmax (m/s)	Vmin (mm/s) L	Vmin (mm/s) R
15°	1	4	0.04
30°	0.5	2	0.02
45°	0.3	1	0.01



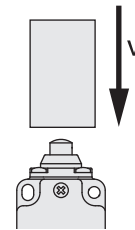
Roller lever - Type 3

φ	Vmax (m/s)	Vmin (mm/s) L	Vmin (mm/s) R
15°	1	5	0.05
30°	0.5	2.5	0.025
45°	0.3	1.5	0.015



Plunger - Type 4

Vmax (m/s)	Vmin (mm/s) L	Vmin (mm/s) R
0.5	1	0.01

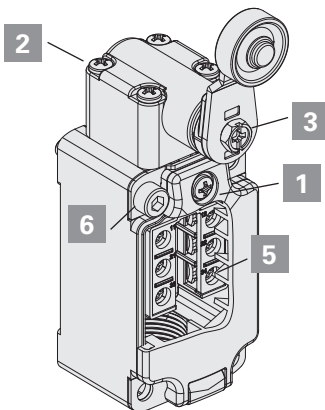


Contact type:

- R** = snap action
- L** = slow action

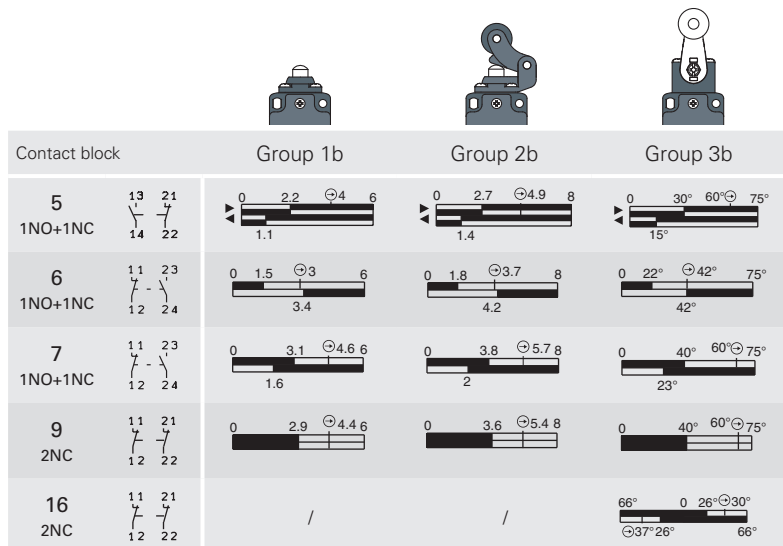
Tightening torques

- 1** Cover screws **0.8 ... 1.2 Nm**
- 2** Head screws **0.8 ... 1.2 Nm**
- 3** Lever screw **0.8 ... 1.2 Nm**
- 5** Contact block screws **0.6 ... 0.8 Nm**
- 6** M5 fixing screws, body **2 ... 3 Nm**



FP

Travel diagrams



Legend

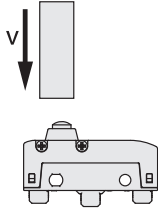
- Closed contact | ▨ Open contact | ⊕ Positive opening travel acc. to EN 60947-5-1
- ▶ Switch pressed / ◀ Switch released

MK series microswitches

Maximum and minimum actuation speed

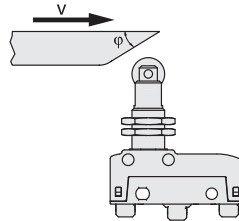
Plunger - Type 1

Vmax (m/s)	Vmin (mm/s)
0.5	0.05



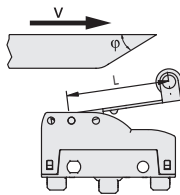
Roller plunger - Type 2

ϕ	Vmax (m/s)	Vmin (mm/s)
15°	0.6	0.2
30°	0.3	0.1
45°	0.1	0.05



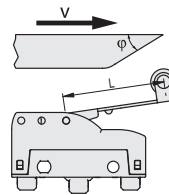
Roller lever with direct action (D) - Type 6

ϕ	Vmax (m/s)	Vmin (mm/s)
15°	0.1 x L	0.0664 x L
30°	0.05 x L	0.0332 x L
45°	0.03 x L	0.0166 x L



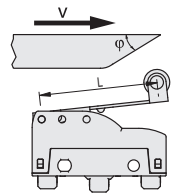
Roller lever with inverted action (R) - Type 7

ϕ	Vmax (m/s)	Vmin (mm/s)
15°	0.048 x L	0.0332 x L
30°	0.024 x L	0.0166 x L
45°	0.015 x L	0.0083 x L



Roller lever with direct action, rear (F) - Type 8

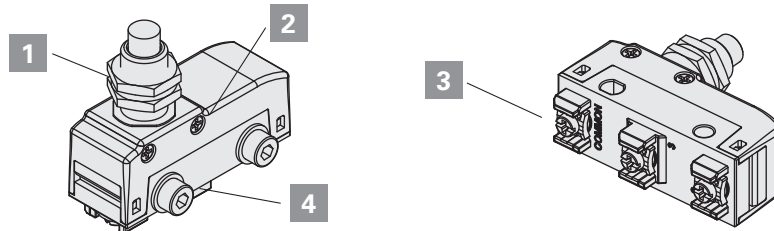
ϕ	Vmax (m/s)	Vmin (mm/s)
15°	0.032 x L	0.0188 x L
30°	0.016 x L	0.0094 x L
45°	0.01 x L	0.0047 x L



Tightening torques

- 1 Fixing nuts **2 ... 3 Nm**
- 2 Head screws **0.4 ... 0.5 Nm**
- 3 Terminal screws **0.6 ... 0.8 Nm**
- 4 M4 fixing screws, body (insert washer) **0.8 ... 1.2 Nm**

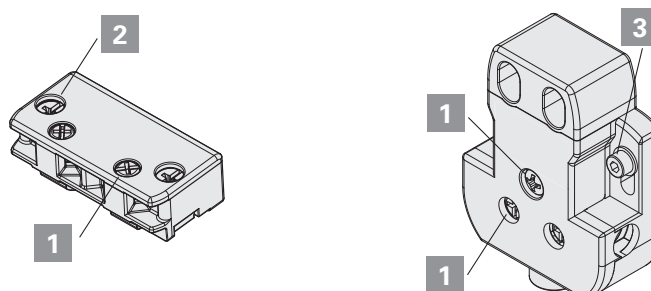
Attention: A tightening torque higher than 1.2 Nm can cause the breaking of the microswitch.



DS series door contacts

Tightening torques

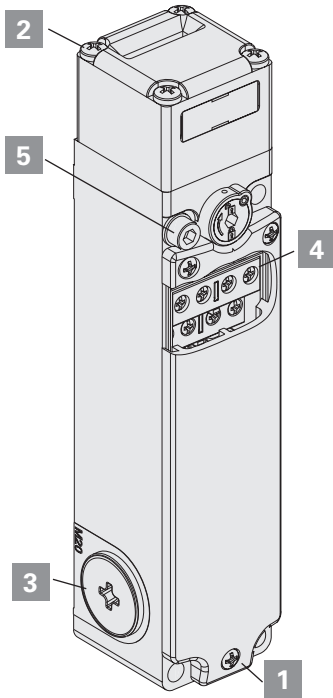
- 1 Terminal screws **0.8 ... 1.2 Nm**
- 2 Fixing screws **2 ... 3 Nm**
- 3 M4 fixing screws (with interposed washer) **1 ... 2 Nm**



Switches for heavy duty applications

Tightening torques – FD, FP, FL, FC, FG, FY, FS, NG, NS series

1 Cover screws	0.8 ... 1.2 Nm	4 Contact block screws	0.6 ... 0.8 Nm
2 Head screws	0.8 ... 1.2 Nm	5 M5 fixing screws, body FD, FP, FL, FC, FG, FY, FS, NG (with washer for FS series)	2 ... 3 Nm
3 Protection caps (conduit entry M20/PG13.5)	1.2 ... 1.6 Nm		



FG - FY - NG

General requirements

The device is designed to be installed on industrial machineries. The installation must be performed only by qualified staff aware of the regulations in force in the Country of installation. The device must be used exactly as supplied, properly fixed to the machine and wired.

It is not allowed to disassemble the product and use only parts of the same, the device is designed to be used in its assembly as supplied. It is prohibited to modify the device, even slightly e.g.: replace parts of it, drill it, lubricate it, clean it with gasoline or gas oil or any aggressive chemical agents.

The protection degree of the device refers to the electrical contacts only. Carefully evaluate all the polluting agents present in the application before installing the device, since the IP protection degree refers exclusively to agents such as dust and water according to EN 60529. Thus the device may not be suitable for installation in environments with dust in high quantity, condensation, humidity, steam, corrosive and chemical agents, flammable or explosive gas, flammable or explosive dust or other polluting agents.

Some devices are provided with a housing with openings for connecting the electrical cables. To guarantee an adequate protection degree of the device, the opening that the wiring passes through must be protected against the penetration of harmful materials by means of an appropriate seal. Proper wiring therefore requires the use of cable glands, connectors or other devices with IP protection degree that is equal to or greater than that of the device.

Store the products in their original packaging, in a dry place with temperature between -40° C and +70°C

Failure to comply with these requirements or incorrect use during operation can lead to the damage of the device and the loss of the function performed by the device itself. This will result in termination of the warranty on the item and will release the manufacturer from any liability.

Using the devices

- Before use, check if the national rules provide for further requirements in addition to those given here.
- Before installation, make sure the device is not damaged in any part.
- All devices are designed for actuation by moving parts of industrial machines.
- Do not use the device as a mechanical stop of the actuator.
- Do not apply excessive force to the device once it has reached the end of its actuation travel.
- Do not exceed the maximum actuation travel.
- Avoid contact of the device with corrosive fluids.
- Do not stress the device with bending or torsion.
- Do not disassemble or try to repair the device, in case of defect or fault replace the entire device.
- In case the device is deformed or damaged it must be entirely replaced. Correct operation cannot be guaranteed if the device is deformed or damaged.
- Always attach the following instructions to the manual of the machine in which the device is installed.
- If specific operating instructions exist for a device (supplied or downloadable from www.pizzato.com), they must always be included with the machine manual and be available for the entire service life of the machine.
- These operating instructions must be kept available for consultation at any time and for the whole period of use of the device.

Wiring and installation

- Installation must be carried out by qualified staff only.
- Use of the device is limited to function as a control switch.
- Observe minimum distances between devices (if provided).
- Comply with the tightening torques indicated in this catalogue.
- Keep the electrical load below the value specified by the respective utilization category.
- Disconnect the power before to work on the contacts, also during the wiring.
- Do not paint or varnish the devices.
- Install the product on flat and clean surfaces only.
- Do not bend or deform the device during installation.
- Never use the device as support for other machine components (cable ducts, tubes, etc.)
- For installation on the machine, use the intended bore holes in the housing. The device must be fixed with screws of adequate length and resistance to the expected stress. At least two screws (fitted to holes most suitable for the intended use) are required to fix the housing to the machine.
- After and during installation, do not pull the electrical cables connected to the device. If excessive tension is applied to the cables (that is not supported by an appropriate cable gland), the contact block of the device may be damaged.
- Provided that the device has an electrical connector, always switch off the circuit voltage before disconnecting the connector from the switch. The connector is not suitable for separation of electrical loads.
- During wiring comply with the following requirements:
 - for terminals (if present), comply with the minimum and maximum cross-sections of the conductors;
 - tighten the electrical terminals (if present) with the torque indicated in this catalogue;
 - do not introduce polluting agents into the device as: talc, lubricants for cable sliding, powder separating agents for multipolar cables, small strands of copper and other pollutants that could affect the proper functioning of the device;
 - before closing the device cover (if present) 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 the internal contact block;
 - for devices with integrated cable, the free end of the cable must be properly connected inside a protected housing. The electrical cable must be properly protected from cuts, impacts, abrasion, etc.
- After installation and before commissioning of the machine, verify:
 - the correct operation of the device and all its parts;
 - the correct wiring and tightening of all screws;
 - the actuating travel of the actuator must be shorter than the maximum travel allowed by the device.
- After installation, periodically check for correct device operation.

Do not use in following environments:

- Environments where dust and dirt can cover the device and by sedimentation stop its correct working.
- Environment where sudden temperature changes cause condensation.
- Environments where coatings of ice may form on the device.

- Environments where the application causes knocks or vibrations that could damage the device.
- Environment with presence of explosive or flammable gas or dust.

Limits of use

- Use the devices following the instructions, complying with their operation limits and the standards in force.
- The devices have specific application limits (min. and max. ambient temperature, mechanical endurance, protection degree, utilisation category, etc.) These limits are met by the different devices only if considered individually and not if combined with each other. For further information contact our technical department.
- The utilization implies knowledge of and compliance with following standards: EN 60204-1, EN 60947-5-1, ISO 12100, EN ISO 14119.
- Please contact our technical department for information and assistance (phone +39.0424.470.930 / e-mail tech@pizzato.com) in the following cases:
 - Cases not mentioned in the present utilization requirements.
 - 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.

Additional requirements for safety applications

- Provided that all previous requirements for the devices are fulfilled, for installations with operator protection function additional requirements must be observed.
- The utilization implies knowledge of and compliance with following standards: IEC 60204-1, IEC 60947-5-1, ISO 12100, EN ISO 14119, EN 62061, EN ISO 13849-1, EN ISO 13850.
- The protection fuse (or equivalent device) must be always connected in series with the NC contacts of the safety circuit.
- Periodically verify the correct working of the safety devices; the periodicity of this verification is settled by the machine manufacturer based on the machine danger degree and it does not have to be less than one a year.
- After installation and before commissioning of the machine, verify:
 - the correct operation of the device and all its parts;
 - the correct wiring and tightening of all screws;
 - the actuating travel of the actuator must be shorter than the maximum travel allowed by the device;
 - the actuating travel of the actuator must be greater than the positive opening travel;
 - the actuation system must be able to exert a force that is greater than the positive opening force.
- Devices with a safety function have a limited service life. Although still functioning, after 20 years from the date of manufacture the device must be replaced completely.
- The production date can be derived from the production batch on the item. Example: A24 FD7-411. The batch's first letter refers to the month of manufacture (A=January, B=February, etc.) The second and third letters refer to the year of manufacture (24 = 2024, 25 = 2025, etc.)

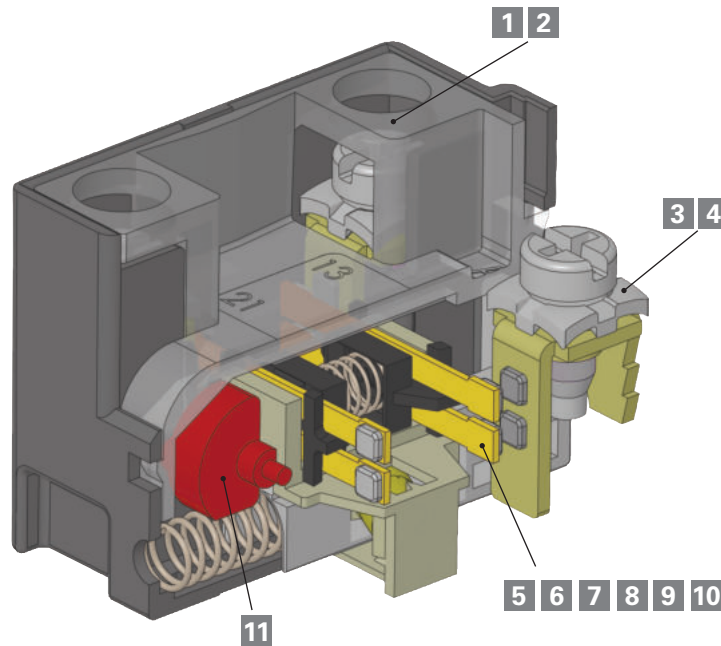
Features

The contact blocks developed by Pizzato Elettrica are the result of more than 30 years of development experience and millions of sold switches. The range of available contact blocks is one of the most extensive in the world in the sector of position switches.

This chapter introduces to some features of Pizzato Elettrica contact blocks, in order to give the final user a better understanding of the technologies behind that element simply named "contact".

We underline that contact blocks are not available for sale (to the public) separately from switches, both because some of them are mechanically connected to the switch and because some technical features may change in accordance with the switch and its function. The following data is only intended to serve as an aid for the initial selection of the contact block. It is not to be used for determining the characteristics of the switch that uses this contact block. For example, the use of a contact block with positive opening with a switch with flexible actuator results in the combination of the two devices not having positive opening.

In this chapter, the properties of the E1 electronic contact block are explained in detail. It is used with position switches with multiple monitoring tasks that would require extensive effort to realize with electronic sensors. There is no other electronic sensor on the market that can match this contact unit with respect to precision and repeatability, adjustment of the switching point, operating temperature and price.



Description

- 1** Captive screws
- 2** Finger protection
- 3** Clamping screw plates for cables with various diameters
- 4** Self-lifting clamping screw plates
- 5** Material of the contacts: Silver alloy or gold-plated silver alloy
- 6** Contact technology and reliability: Single bridge, double bridge
- 7** Operating voltages and currents for reliable switching

Description

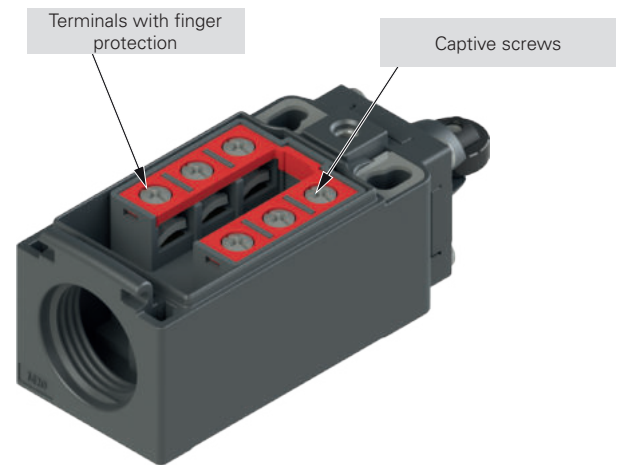
- 8** Classification of the contact type acc. to EN 60947-5-1: X, Y, C, Za, Zb
- 9** Contact type: Slow action / snap action / snap action with constant pressure
- 10** Force on contacts
- 11** Positive opening of contacts

1 Captive screws

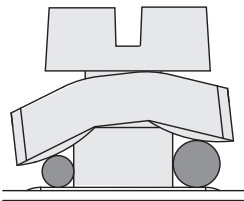
Switches with this characteristic have clamping screws that remain in place even if completely unscrewed. This feature reduces wiring time, since the operator does not have to be careful not to unscrew the screws completely and does not risk to lose them by mistake, which is very useful in case of wirings in uncomfortable position

2 Finger protection

All terminals in the contact blocks have protection degree IP20 in accordance with EN 60529, they are therefore protected against access to dangerous parts with a diameter greater than 12 mm.



3 Clamping screw plates for cables with various diameters



The clamping screw plates are provided with a particular "roofing tile" structure and are loosely coupled to the clamping screw. The design causes connection wires of different diameter to be pulled towards the screw when tightening the screw (see figure), preventing the wires from escaping towards the outside.

4 Self-lifting clamping screw plates

Switches with this feature are equipped with clamping screw plates that move up or down by turning the clamping screw; wiring is easier and faster as a result.

5 Material of the contacts: gold-plated silver alloy

The contact blocks can be supplied with silver electric contacts with a special gold-plated surface, with total gold thickness of one micron. This type of treatment can be useful in environments which are aggressive against silver (very humid or sulphurous atmospheres) and in case of very small electric loads, usually with low voltages and supply currents. This thickness of the gold coating permits several million switching cycles.

6 Contact technology and reliability

Very rarely, an electric contact does not function. A failed switching operation is a typical consequence of an exceptionally high contact resistance caused by dust, a thin layer of oxidation or other impurities that could penetrate the switch during wiring. Thus, the repeated occurrence of faulty switching depends not only on the sensor type, but also on its environmental conditions and the load that the switch drives. These effects are more evident with low electrical loads if the electric voltage cannot penetrate the thin layers of oxide or small grains of dust.

This type of malfunction can normally be tolerated with hand-operated devices, because repeating the operation is enough to restore the function. This is not the case with position switches, as severe machine damage could result if the end position is not ascertained.

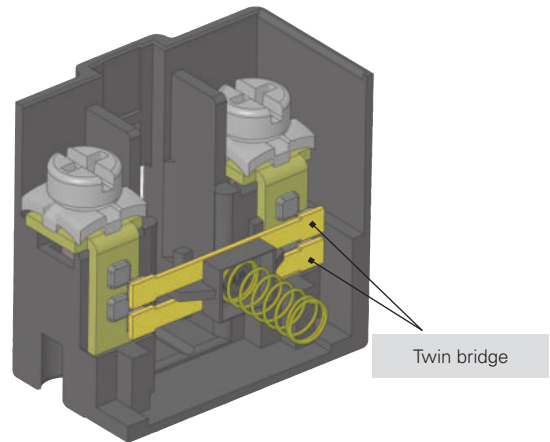
In the following table we refer to two typical contact structures (type A and B) normally used in the industry and the ones which have been used by Pizzato Elettrica for several years in most switches: movable contacts with double interruption and twin bridge (type C).

As you can see from the table below, the last structure (type C) has the same contact resistance (**R**) as the simple mobile contact (type A), but with a lower failure probability (**fe**).

With a failure probability of **x** for a single switching operation, the failure probability for type A is **fe = x**, for type B **fe = 2·x**, whereas for type C it is **fe = 4·x²**

This means that if the probability of a switching failure is x in a given situation, e.g., 1×10^{-4} , (1 switching failure in 10,000), the result is as follows:

- for type A one failed commutation every 10,000.
- for type B one failed commutation every 5,000.
- for type C one failed commutation every 25,000,000.



Type	Diagram	Description	Contact resistance R	Probability of errors fe
A		simple mobile contact	$R = R_c$	$fe = x$
B		mobile contact with double interruption	$R = 2 \cdot R_c$	$fe = 2x \cdot x^2$
C		mobile contact with double interruption and twin bridge	$R = \frac{2 \cdot R_c}{2} = R_c$	$fe = 4x^2 - 4x^3 + x^4$

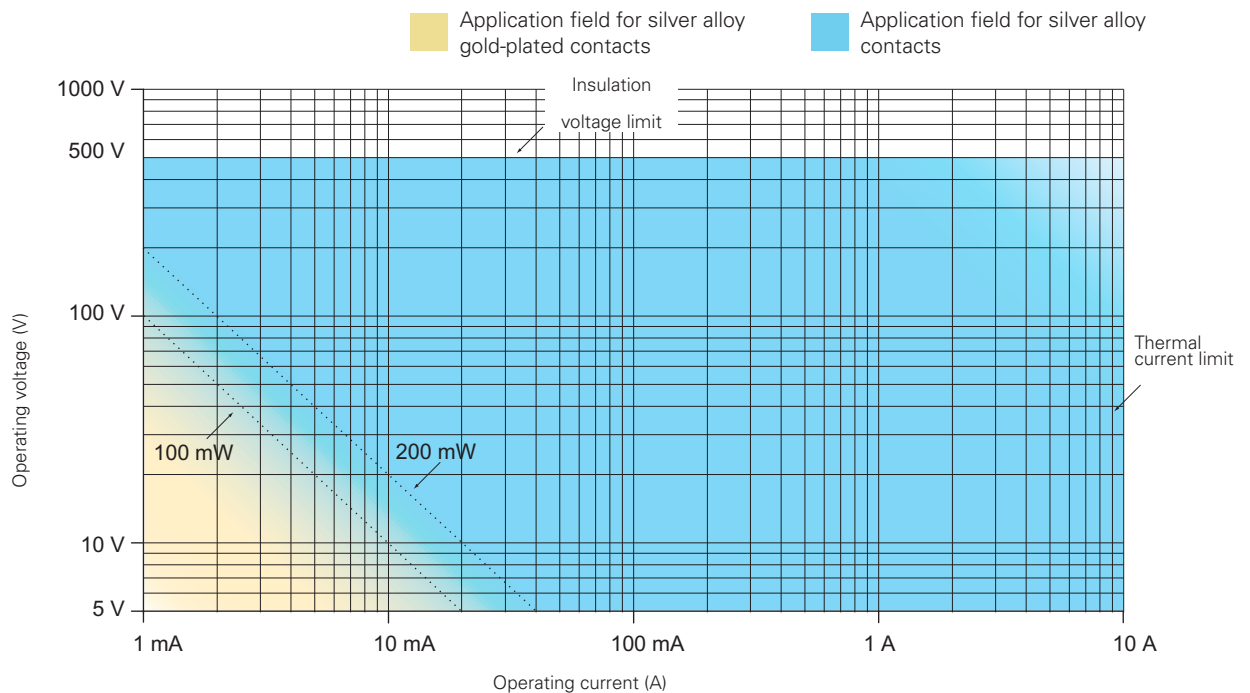
7 Minimum operating voltages and currents for reliable switching

The reliability of an electric contact depends on several factors, whose influence varies depending on the type of load. For high power loads is necessary for the contact to be able to dissipate the heat generated during switching. For low power loads, instead, it is important that it oxides and other impurities do not obstruct the passing of the electric signal. As a result, the material chosen for the electric contacts is a compromise among different and sometimes contrasting needs. In position switches contacts are usually made of a silver that has proved to be suitable for the switching of loads in the range of approximately 1 kW to 0.1 W. However, at lower loads, the effects of the oxide, which silver naturally develops upon contact with air, may occur; additionally to be taken into account are possible contaminations or impurities in the contact switching chamber (for example the talc powder in the cable sheaths that an installer could accidentally insert in the switch may have a similar effect).

It is impossible to define a fix threshold above which the "missing switching phenomenon" does not appear, because there are a lot of mechanical and electric parameters that influence this value. For example, in laboratory environment a good twin bridge electric contact is able to switch loads in the μW range for dozens of millions of handling operations, without losing signals. However, this does not mean that the same contact will have the same performance when the switch operates in environments with sudden changes of temperature (condensation) or where few switching occur (oxidation).

In order to avoid this kind of problem, gold plated contacts are used for very low loads profiting from the non-oxidability of this material. The gold-plating layer should be thick enough to be mechanically resistant to switching as well as electrically resistant to possible sparks that may vaporize it. For this reason Pizzato Elettrica uses micron thickness gold plating suitable for millions of working cycles. Thinner gold plating layers have often a purely aesthetic function and are only suitable to protect the product against oxidation during long time storage.

The minimum current and voltage values recommended by Pizzato Elettrica are shown in the diagram below, that is divided into two areas defined by a steady power limit. These values identify voltage and current combinations with high commutation reliability in most industrial fields. The lower voltage and current limits shown in the diagram are typical minimum values for industrial applications. They may also be reduced in non typical conditions. It is recommended, however, to always evaluate that the signal power to be switched is at least one magnitude order higher than the noise produced in the electric circuit, in particular when circuit cables are long and pass through areas with high electromagnetic fields and especially for powers lower than 10 mW.



100 mW Suggested limit for general applications with snap action contact blocks with silver alloy contacts.

200 mW Recommended limit for general applications with slow action contact blocks with silver alloy contacts.

8 Classification of the contact block acc. to the EN 60947-5-1

Design	Figure	Symbol	Description
X			Double interruption contact element with two terminals
Y			Change-over contact element with single interruption and three terminals
Za			Change-over contact element with double interruption and four terminals. The contacts have identical polarity
Zb			Change-over contact element with double interruption and four terminals. Mobile contacts are electrically separated

Electrically separated contacts

The “+” symbol between two designs (e.g., X+X, Za+Za, X+X+Y, etc.) represents the combination of simple, **electrically separated** contact blocks.

The electrically separated contacts allow different voltages to be applied between the contacts and loads to be connected to different polarities (figure 1).

Requirements and restrictions for Za contacts

Electrical loads must be connected to the same phase or polarity. The contacts **are not** electrically separated. As a result, different voltages may not be applied to the NC and NO contacts (figures 2 and 3).

According to EN 60947-5-1 section K.7.1.4.6.1, the following restrictions apply for positive opening contacts of design Za when used for safety applications.

If the control switch has changeover contact element of design C or Za, **only one contact element may be used** (closure or interruption). For changeover contact elements of design Zb, both contacts may be used.

Contact design Zb

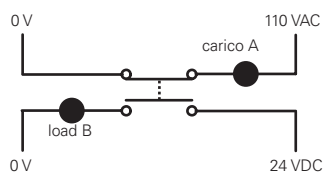


figure 1: correct

Contact design Za

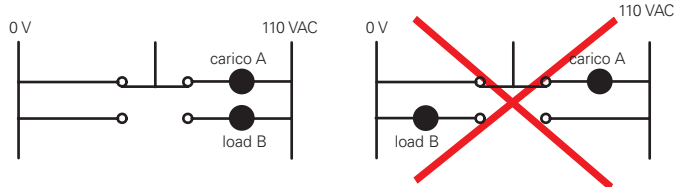


figure 2: correct

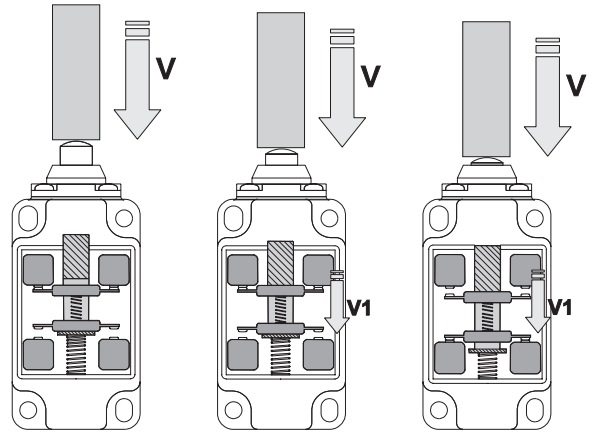
figure 3: incorrect

9 Contact blocks with different operating principle: slow action and snap action

Contact blocks with slow action: component where the speed of the contact movement (**V1**) depends on the speed of the switch actuation (**V**). The contact carrier moves at a rate proportional to the actuation speed.

The slow action contact block is suitable for applications having low to medium currents and quick actuation movements. It has no differential travel.

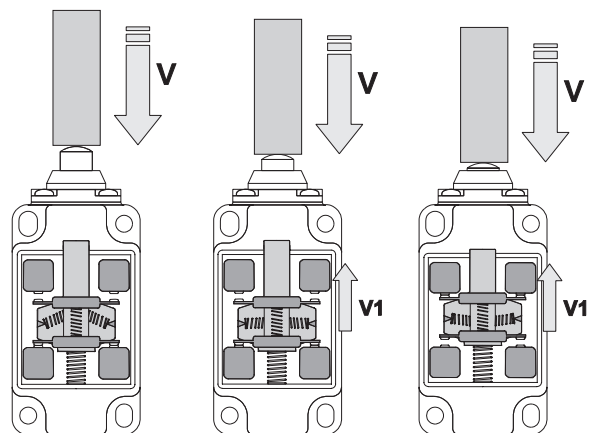
$$V = V1$$



Contact block with snap action: component where the speed of the contact movement (**V1**) doesn't depend on the speed of the switch actuation (**V**). Upon reaching a predetermined point in the actuation travel, the contact carrier triggers and switches the contacts.

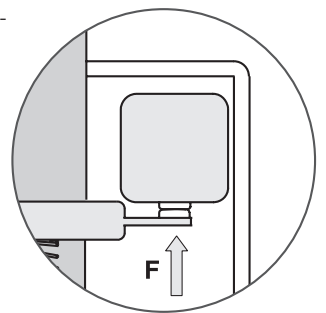
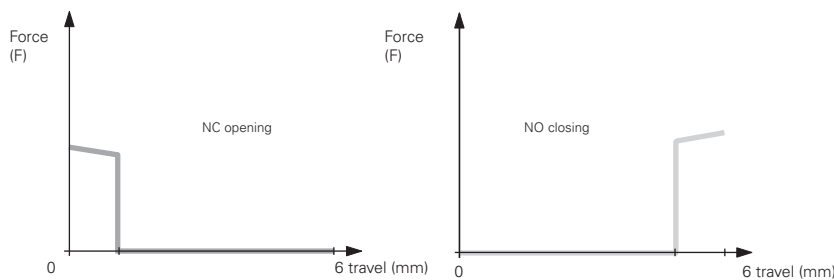
The snap action contact block is suitable for applications having high currents and/or slow actuation movements. This kind of contact block has a differential travel.

$$V \neq V1$$

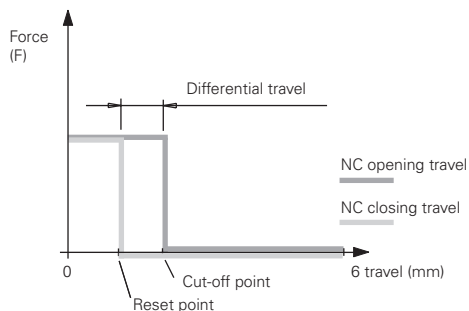


10 Contact blocks: diagrams of the force on the contacts

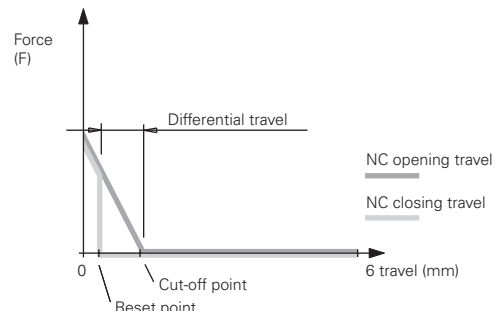
The following diagrams show the relationship between of the force exerted on the contacts (**F**) and the actuation travel to the end position.



Contact block with slow action



Contact block with snap action and constant pressure: 5, 11, 12.
The pressure on the contacts remains constant as the switching point is approached



Contact block with snap action: 2, 3, 17
The pressure on the contacts decreases as the switching point is approached

FR, FX, FP, FT series contact blocks

Contact block	Contact diagram	Linear travel diagram	Contact design	Operation type	Positive opening \ominus	Contact type	Wire cross-section min.	Wire cross-section max.	Wire stripping length	Captive screws	Terminals with finger protection	Gold-plated contacts
5 1NO+1NC			Zb	snap action	yes	Double interruption, twin bridge	1 x 0.5 mm ² 1 x AWG 20	2 x 2.5 mm ² 2 x AWG 14	8 mm	yes	yes	G / G1
6 1NO+1NC			Zb	slow action	yes	Double interruption, twin bridge	1 x 0.5 mm ² 1 x AWG 20	2 x 2.5 mm ² 2 x AWG 14	8 mm	yes	yes	G / G1
7 1NO+1NC			Zb	slow action	yes	Double interruption, twin bridge	1 x 0.5 mm ² 1 x AWG 20	2 x 2.5 mm ² 2 x AWG 14	8 mm	yes	yes	G / G1
9 2NC			Y+Y	slow action	yes	Double interruption, twin bridge	1 x 0.5 mm ² 1 x AWG 20	2 x 2.5 mm ² 2 x AWG 14	8 mm	yes	yes	G / G1
11 2NC			Y+Y	snap action	yes	Double interruption, twin bridge	1 x 0.5 mm ² 1 x AWG 20	2 x 2.5 mm ² 2 x AWG 14	8 mm	yes	yes	G / G1
12 2NO			X+X	snap action	no	Double interruption, twin bridge	1 x 0.5 mm ² 1 x AWG 20	2 x 2.5 mm ² 2 x AWG 14	8 mm	yes	yes	G / G1
16 2NC			Y+Y	slow action	yes	Double interruption, twin bridge	1 x 0.5 mm ² 1 x AWG 20	2 x 2.5 mm ² 2 x AWG 14	8 mm	yes	yes	G / G1
17 1NC			Y	snap action	yes	Double interruption, twin bridge	1 x 0.5 mm ² 1 x AWG 20	2 x 2.5 mm ² 2 x AWG 14	8 mm	yes	yes	G / G1
19 2NC			Y+Y	snap action	yes	Double interruption, twin bridge	1 x 0.5 mm ² 1 x AWG 20	2 x 2.5 mm ² 2 x AWG 14	8 mm	yes	yes	G / G1
20 1NO+2NC			Y+Y+X	slow action	yes	Double interruption, twin bridge	1 x 0.34 mm ² 1 x AWG 22	2 x 1.5 mm ² 2 x AWG 16	7 mm	yes	yes	G
38 1NC			Y	slow action	yes	Double interruption, twin bridge	1 x 0.34 mm ² 1 x AWG 22	2 x 1.5 mm ² 2 x AWG 16	8 mm	yes	yes	G / G1
39 2NC			Y+Y	slow action	yes	Double interruption, twin bridge	1 x 0.34 mm ² 1 x AWG 22	2 x 1.5 mm ² 2 x AWG 16	8 mm	yes	yes	G / G1
63 1NC			Y	snap action	yes	Double interruption, twin bridge	1 x 0.34 mm ² 1 x AWG 22	2 x 1.5 mm ² 2 x AWG 16	8 mm	yes	yes	G / G1
64 2NC			Y+Y	snap action	yes	Double interruption, twin bridge	1 x 0.34 mm ² 1 x AWG 22	2 x 1.5 mm ² 2 x AWG 16	8 mm	yes	yes	G / G1

Legend

Closed contact |
 Open contact |
 \ominus Positive opening travel acc. to EN 60947-5-1 |
 Switch pressed /
 Switch released
 G = gold-plated contacts 1 μ m | G1 = gold-plated contacts 2.5 μ m

Contact blocks - FG series

Contact block	Linear travel diagram	Contact design	Operation type	Positive opening ⊕	Contact type	Wire cross-section		Wire stripping length	Captive screws	Terminals with finger protection	Gold-plated contacts
						min.	max.				
60A 2NO+2NC		X+X+Y+Y	Slow action	yes	Double interruption, twin bridge and double contact point	1 x 0.34 mm ² 1 x AWG 22	2 x 1.5 mm ² 2 x AWG 16	7 mm	yes	yes	G
60B 1NO+3NC		X+Y+Y+Y	Slow action	yes	Double interruption, twin bridge and double contact point	1 x 0.34 mm ² 1 x AWG 22	2 x 1.5 mm ² 2 x AWG 16	7 mm	yes	yes	G
60C 4NC		Y+Y+Y+Y	Slow action	yes	Double interruption, twin bridge and double contact point	1 x 0.34 mm ² 1 x AWG 22	2 x 1.5 mm ² 2 x AWG 16	7 mm	yes	yes	G
60D 1NO+3NC		X+Y+Y+Y	Slow action	yes	Double interruption, twin bridge and double contact point	1 x 0.34 mm ² 1 x AWG 22	2 x 1.5 mm ² 2 x AWG 16	7 mm	yes	yes	G
60E 1NO+3NC		X+Y+Y+Y	Slow action	yes	Double interruption, twin bridge and double contact point	1 x 0.34 mm ² 1 x AWG 22	2 x 1.5 mm ² 2 x AWG 16	7 mm	yes	yes	G
60G 4NC		Y+Y+Y+Y	Slow action	yes	Double interruption, twin bridge and double contact point	1 x 0.34 mm ² 1 x AWG 22	2 x 1.5 mm ² 2 x AWG 16	7 mm	yes	yes	G
60L 2NO+2NC		X+X+Y+Y	Slow action	yes	Double interruption, twin bridge and double contact point	1 x 0.34 mm ² 1 x AWG 22	2 x 1.5 mm ² 2 x AWG 16	7 mm	yes	yes	G
60P 4NC		Y+Y+Y+Y	Slow action	yes	Double interruption, twin bridge and double contact point	1 x 0.34 mm ² 1 x AWG 22	2 x 1.5 mm ² 2 x AWG 16	7 mm	yes	yes	G
60S 2NO+2NC		X+X+Y+Y	Slow action	yes	Double interruption, twin bridge and double contact point	1 x 0.34 mm ² 1 x AWG 22	2 x 1.5 mm ² 2 x AWG 16	7 mm	yes	yes	G
60T 1NO+3NC		X+Y+Y+Y	Slow action	yes	Double interruption, twin bridge and double contact point	1 x 0.34 mm ² 1 x AWG 22	2 x 1.5 mm ² 2 x AWG 16	7 mm	yes	yes	G
60X 1NO+3NC		X+Y+Y+Y	Slow action	yes	Double interruption, twin bridge and double contact point	1 x 0.34 mm ² 1 x AWG 22	2 x 1.5 mm ² 2 x AWG 16	7 mm	yes	yes	G
60Y 2NO+2NC		X+X+Y+Y	Slow action	yes	Double interruption, twin bridge and double contact point	1 x 0.34 mm ² 1 x AWG 22	2 x 1.5 mm ² 2 x AWG 16	7 mm	yes	yes	G
61E 3NO+1NC		X+X+X+Y	Slow action	yes	Double interruption, twin bridge and double contact point	1 x 0.34 mm ² 1 x AWG 22	2 x 1.5 mm ² 2 x AWG 16	7 mm	yes	yes	G
61G 3NO+1NC		X+X+X+Y	Slow action	yes	Double interruption, twin bridge and double contact point	1 x 0.34 mm ² 1 x AWG 22	2 x 1.5 mm ² 2 x AWG 16	7 mm	yes	yes	G
61H 2NO+2NC		X+X+Y+Y	Slow action	yes	Double interruption, twin bridge and double contact point	1 x 0.34 mm ² 1 x AWG 22	2 x 1.5 mm ² 2 x AWG 16	7 mm	yes	yes	G
61M 3NO+1NC		X+X+X+Y	Slow action	yes	Double interruption, twin bridge and double contact point	1 x 0.34 mm ² 1 x AWG 22	2 x 1.5 mm ² 2 x AWG 16	7 mm	yes	yes	G

Legend:

FA 4101-•DN → NA B110AB-DN•

The codes in grey have been replaced by the code after the arrow

Old Article	New Article
VF L••-1	→ VF L••-R24
VF L••-2	→ VF L••-R25
VF L••-3	→ VF L••-R26
VF L••-4	→ VF L••-R27
VF LE••-1	→ VF LE••-R24
VF LE••-2	→ VF LE••-R25
VF LE••-3	→ VF LE••-R26
VF LE••-4	→ VF LE••-R27
VF IL••••••	→ VF SL••••••
VF LE30	→ VN A00KA
VF LE30-R23	→ VN A00KA-R23
VF LE31	→ VN A00KB
VF LE31-R24	→ VN A00KB-R24
VF LE31-R25	→ VN A00KB-R25
VF LE31-R5	→ VN A00KB-R5
VF LE33	→ VN A00LB
VF LE34	→ VN A00LL
VF LE50	→ VN A00LE
VF LE51	→ VN A00KE
VF LE51-R24	→ VN A00KE-R24
VF LE51-R25	→ VN A00KE-R25
VF LE51-R26	→ VN A00KE-R26
VF LE51-R5	→ VN A00KE-R5
VF LE52	→ VN A00KF
VF LE52-R24	→ VN A00KF-R24
VF LE52-R25	→ VN A00KF-R25
VF LE52-R5	→ VN A00KF-R5
VF LE53	→ VN A00LP
VF LE54	→ VN A00KG
VF LE54-R24	→ VN A00KG-R24
VF LE54-R26	→ VN A00KG-R26
VF LE54-R5	→ VN A00KG-R5
VF LE55	→ VN A00KP
VF LE55-R24	→ VN A00KP-R24
VF LE55-R25	→ VN A00KP-R25
VF LE55-R26	→ VN A00KP-R26
VF LE55-R27	→ VN A00KP-R27
VF LE55-R5	→ VN A00KP-R5
VF LE56	→ VN A00KP
VF LE56-R24	→ VN A00KP-R24
VF LE56-R25	→ VN A00KP-R25
VF LE56-R26	→ VN A00KP-R26
VF LE56-R27	→ VN A00KP-R27
VF LE56-R5	→ VN A00KP-R5
VF LE57	→ VN A00KH
VF LE57-R24	→ VN A00KH-R24
VF LE69	→ VN A00LH

General terms and conditions of sale

Order procedures:

Purchasing orders must always be sent in writing (e-mail). We reserve the right to not accept e-mail orders in case of missing characteristics necessary to correctly identify the sender or to not process them in case of virus infected attachments or attachments of dubious origin.

Minimum billing amount:

Unless specifically agreed, the minimum billing amount is EUR 200 net (VAT excluded). For invoices of less than EUR 200, a EUR 10 fee will be applied if the delivery occurs in Italy and San Marino. Invoices are issued weekly.

Prices:

The prices quoted in the price list do not include VAT, custom taxes or any other charges. Unless otherwise agreed, the prices quoted in the price list are not binding and may undergo changes without prior notice.

Order quantities:

Some products are shipped in packs. The ordered quantities of these items must be multiples of the quantities contained in the packages.

Order cancellation/changes:

Order changes might be accepted depending on the job order status. Changes or cancellation of special article orders will not be accepted.

Supply:

The supply includes only what is expressly stated in the order confirmation. As per article 1461 of the Italian Civil Code, we reserve the right to stop supply in case of changes in the customer's financial standing.

Delivery:

The delivery is indicated in the order confirmation and reports the period in which the goods can be available at the factories of Pizzato Elettrica and not the date of arrival at the customer's premises. This date is an approximate value and cannot be used as a reason of the order non-fulfilment. A list of items in stock can be found at www.pizzato.com

Packaging:

Packaging is free. For more than six boxes pallets can be necessary for the transport.

Shipment:

Unless expressly agreed between the parties, Pizzato Elettrica ships goods X works, in accordance with Incoterms 2010 (published by the ICC). In the event that the customer requests transport against payment on the invoice, all parties agree that the goods always travel at the risk and peril of the customer. The customer must check that the forwarder delivers the number of boxes indicated in the delivery note, that the boxes are intact and that the weight corresponds to what is stated in the documents. In case of any inconsistencies, always accept the goods SUBJECT TO VERIFICATION, clearly specifying the type of damage. Any discrepancy or mistakes should be reported in writing within 8 days of receipt of the goods at info@pizzato.com.

Warranty:

The warranty has a validity of 12 months starting from the shipping date of the material. The warranty does not cover improper use of the material, negligence or wrong installation/assembling. The warranty does not cover parts subjected to wear or products used beyond the technological limits described in the catalogue, or items that have not received the right maintenance. Pizzato Elettrica engages itself to repair and/or replace parts or the complete product for those elements that present evident manufacturing defects, provided that they are still covered by warranty. Pizzato Elettrica is only responsible for the value of the product and requests for compensation due to machine downtime, repairs or costs for direct or indirect damages resulting from product malfunctions will not be accepted, even if these occur during the warranty period. It is the responsibility of the manufacturer to evaluate the importance of the products used and the possible damage caused by their malfunction and to adopt the necessary technical measures to minimize consequences on machines also for personal safety purposes (redundancy systems, self-controlled systems, etc). The warranty will be subject to the customer's compliance with the payment terms. Any samples provided free of charge or bearing the phrase "SAMPLE" must be considered as purely demonstrative and are not covered by the guarantee.

Products:

Products can be subjected to technical improvements in any moment without prior notice.

Payment terms:

Payments should be settled within the terms agreed in the order confirmation. The payment method is always at the risk of the buyer, regardless of the means chosen. In case of delayed payment, Pizzato Elettrica reserves the right to stop the delivery of any current orders and charge interest at the rate envisaged by European Directive 2011/7/EU. Any technical or commercial complaints do not entitle the claimant to suspend the due payments.

Returns:

Any products returned for any reason will not be accepted unless they are previously APPROVED and AUTHORISED in writing. Otherwise, Pizzato Elettrica reserves the right to reject the goods and return them "freight collect" at the expense of the buyer, in the same way by which they were forwarded. Returns have to be sent back within 3 months from the authorization date and no later. After this period, returns will not be accepted. The request to return goods will lead to their sales price being devalued and will be considered if relative to standard items and materials shipped no more than 12 months ago. The returned goods and the relative packaging must be intact and free from damage.

Ownership:

The delivered products remain property of Pizzato Elettrica until full settlement of the invoices.

Proper Law:

The Court of Vicenza shall have jurisdiction in any disputes.

For the updated terms of sale, please consult the website www.pizzato.it



General Catalogue
Detection



General Catalogue
HMI



General Catalogue
Safety



General Catalogue
Lift



Website
www.pizzato.com



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