pizzato elettrica

RFID Safety switch with solenoid
NG series

RFID Safety switch with solenoid **NG series**

Description

These switches are used on machines where the hazardous conditions remain for a while, even after the machines have been switched off, for example because of mechanical inertia of pulleys, saw disks, parts under pressure or with high temperatures. They can also be used when it is necessary to control machine guards allowing the opening of protections only under specific conditions.
Models with activation Mode 1 (safety outputs active with guard closed and locked) are considered as interlocking device with guard locking in compliance with EN ISO 14119, they have the symbol aside on the product marking.

Maximum safety with a single device

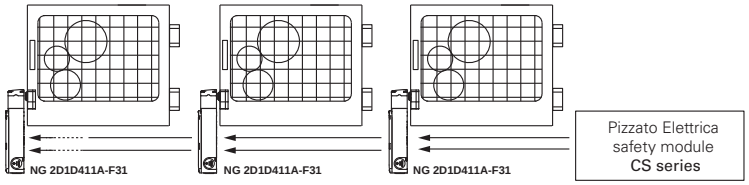
PLe + SIL3

Constructed with redundant electronic technology, the NG series switches make it possible to create circuits having maximum PL e and SIL 3 safety levels by fitting just one device on the protection. This avoids expensive wiring on the field and allows quicker installation. Inside the panel, the two electronic safety outputs must be connected to a safety module with OSSD inputs or to a safety PLC.

Connection of several switches in series

PL e + SIL 3

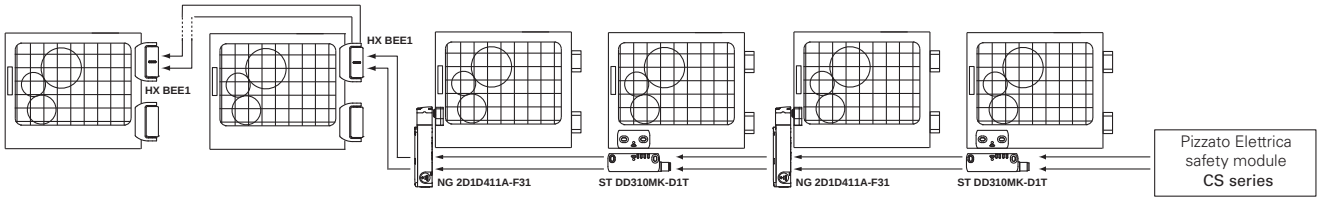
One of the most relevant features of the NG line is the optional connection in series of several switches, up to a maximum number of 32 devices, while maintaining the maximum PL e safety level according to the EN 13849-1 standard and the SIL 3 safety level according to the EN 62061 standard.
Such connection method is permitted in safety systems where a safety module, which evaluates the outputs of the last NG switch, is present at the end of the chain.
The fact that the PL e safety level can be maintained, even with 32 switches connected in series, is indicative of the extremely safe structure found inside each individual device.



Connection in series to other devices

PL e + SIL 3

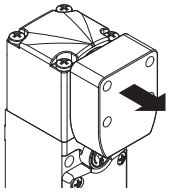
The NG series features two safe inputs and two safe outputs, which can be connected in series with other Pizzato Elettrica safety devices. This option allows the creation of safety chains containing various devices, for example the creation of circuits with connections in series, including stainless steel safety hinges (HX BEE1 series), transponder sensors (ST series) and door lock sensors (NG series), while maintaining maximum PL e and SIL 3 safety levels.



RFID actuators with high coding level

NG series features an electronic system based on RFID technology to detect the actuator. This system gives a different coding to each actuator and makes it impossible to tamper with a device by using another actuator belonging to the same series. The actuators may have millions of different coding combinations, and are therefore classified as actuators with a high coding level, according to EN ISO 14119.

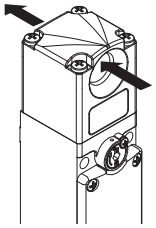
Locked actuator holding force



7500 N

The sturdy interlocking system guarantees the F_{zh} actuator a maximum holding force equal to 7500 N, corresponding to a breaking force F_{1max} equal to 9750 N.
This is one of the highest values available on the market today, making this device suitable for severe heavy-duty applications.

Dustproof



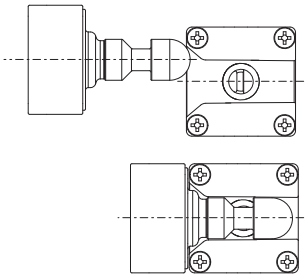
The switch is provided with a through hole for inserting the actuator and, thanks to this peculiarity, any dust which may go inside the actuator hole can always come out of the opposite side instead of being left there. Moreover, the lock pin is provided with an external diaphragm gasket which makes it suitable for any environment where dust is present.

High protection degree

IP69K
IP67

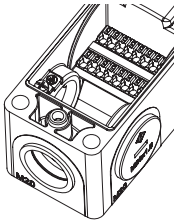
Designed for use in even the more severe conditions, these devices pass the immersion test IP67 according to IEC 60529. They can be used in all environments that require the highest degree of protection of the enclosure. Special expedients allow also to use the devices in machines that are subjected to washing with warm water jets at high pressure. In fact, these devices pass the IP69K test according to ISO 20653 with jets of water at 100 atmospheres and temperature at 80 ° C.

Centring



The switch is provided with a wide centring inlet for the actuator pin. Such solution makes it easier to align the actuator with the hole found in the head during the fitting stage. Moreover, this solution drastically reduces any probable collisions between the actuator and the switch, also allowing it to be fitted on inaccurate doors.

Push-in spring connections

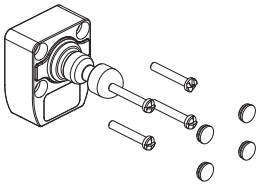


The switch is provided with a PUSH-IN type spring connection system on the inside. This technology allows quick handy wiring, since the wire simply needs to be inserted in the appropriate hole for it to be secured and for the electrical connection to be established. Such operation can be carried out without the help of any tool but just using rigid or flexible wires with a tip. The wires can be released by pressing the appropriate wire-releasing push-buttons.

6 LEDs for immediate diagnosis

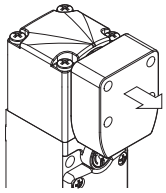
As the LEDs have been designed for quick immediate diagnosis, the status of each input and output is highlighted by one specific LED. This makes it possible to quickly identify the interruption points in the safe chain, which device is released, which door is opened and any errors inside the device. All that in a straightforward way without needing to decode complex blinking sequences.

Double anti-tampering safety



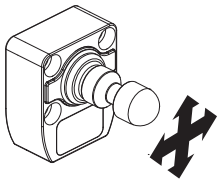
Each NG series actuator is supplied with four stainless steel anti-crash screws, for it to be fitted on the protection. Four protection insert caps are also supplied together with the screws. Besides preventing any deposit from building up and making it easy to clean the actuator, these caps help to prevent any tampering as they obstruct access to the anti-crash screws.

Unlocked actuator holding force



The inside of each switch features a device which holds the actuator in its closed position. Ideal for all those applications where several doors are unlocked simultaneously, but only one is actually opened. The device keeps all the unlocked doors in their position, stopping any vibrations or gusts of wind from opening them.

Articulated joint for inaccurate doors

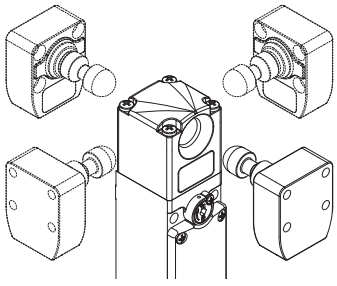


All the NG series actuators are articulated, and allow the pin to match the centring hole found in the switch. This way there is no need for precise actuator-switch aligning operations during the fitting stage. Moreover, thanks to its flexibility, this device can be used on doors with an activating range up to 150 mm, without having to tilt the pin beforehand.

Laser marking

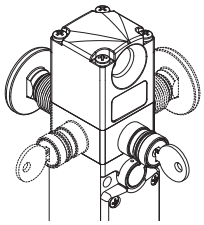
All the NG series switches are marked indelibly by means of a dedicated laser system which makes the marking suitable for extreme environment. Thanks to this system, which does not use labels, it is possible to avoid the loss of identification data and to make the marking more resistant over the years.

Adjustable head and devices



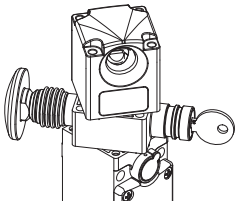
The head can be quickly positioned on all four sides by turning the 4 fixing screws.
The lock release devices and the release push-button can also be adjusted by 90° at a time, thus obtaining as many as 16 different configurations with the same article.

Lock release device and anti-panic button



The lock release device allows the actuator release only to staff who possess the actuating key. It also works in absence of power supply and once actuated it prevents the guard arrest.
The anti-panic button allows the actuator release, and the immediate opening of the door. Generally used in machines in which an operator may inadvertently remain trapped, it is directed towards the inner part of the machine allowing the exit of the operator even in case of black out. Equipped with bistable operation it can be freely extended with special extensions (see accessories).
Both of these devices can be oriented on the four sides of the switch, thus allowing the installation both inside and outside the machine.

Non-detachable heads and devices



The head and the release device can be adjusted but cannot be detached from each other. This makes the switch more secure since the installer need not worry about how to assemble the various pieces, and the switch is less likely to become damaged (small parts being lost, dirt getting in etc.).

Two modes of safe outputs activation

CLOSED
OR
CLOSED & LOCK

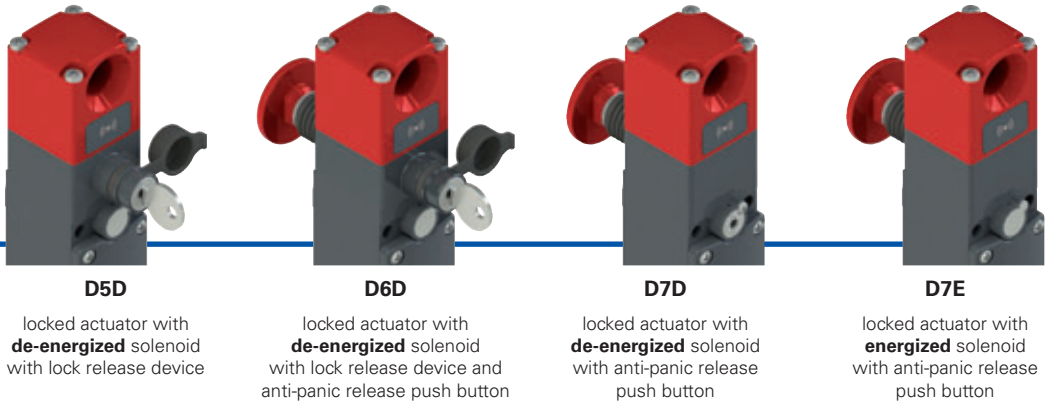
The switch can be chosen between two different modes of activation of the safe outputs: safe outputs active with guard closed and locked (Mode 1) for machines with inertia, or safe outputs active with guard closed (Mode 2) for machines without inertia.

External device monitoring

EDM

On request the switch can be provided with EDM (External Device Monitoring) so that the switch itself verify the integrity of the devices connected to the safe outputs. These devices, (typically relays or contactors) provide a feedback signal at the EDM input that verify the consistency of the received signal with respect to the state of the safe outputs.

Selection diagram



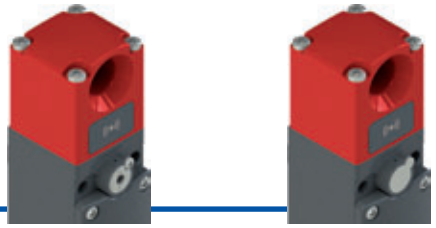
D5D
locked actuator with **de-energized** solenoid with lock release device

D6D
locked actuator with **de-energized** solenoid with lock release device and anti-panic release push button

D7D
locked actuator with **de-energized** solenoid with anti-panic release push button

D7E
locked actuator with **energized** solenoid with anti-panic release push button

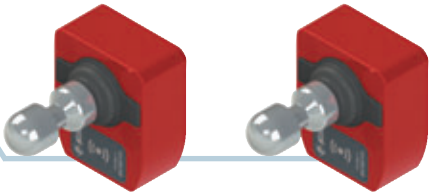
HEAD AND WORKING PRINCIPLE



D1D
locked actuator with **de-energized** solenoid

D1E
locked actuator with **energized** solenoid

ACTUATORS



VN NG-F30
actuator with low coding level

VN NG-F31
actuator with high coding level

CONDUIT ENTRIES

Threaded conduit entries M20

With M23 metal male connector fitted and wired (clockwise numbering)

K900	12 poles from bottom
K901	12 poles from right
K902	12 poles from left

With M12 metal male connector fitted and wired

K110	12 poles from bottom
K111	12 poles from right
K112	12 poles from left

With M12 metal male connector for stand-alone connection

K953	8 poles from bottom
K954	8 poles from right
K955	8 poles from left

With M12 metal male connector for connection in series with Y connectors

K950	8 poles from bottom
K951	8 poles from right
K952	8 poles from left

product option

accessory sold separately

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

NG 2D1D411A-F31E34K900LP30

Working principle	
D1D	locked actuator with de-energized solenoid
D1E	locked actuator with energized solenoid
D5D	locked actuator with de-energized solenoid. With lock release device
D6D	locked actuator with de-energized solenoid. With lock release device and anti-panic release push button
D7D	locked actuator with de-energized solenoid. With anti-panic release push button
D7E	locked actuator with energized solenoid. With anti-panic release push button

Release button length	
	wall thickness length max 15 mm (standard)
LP30	wall thickness length max 30 mm
LP40	wall thickness length max 40 mm
LP50	wall thickness length max 50 mm
LP60	wall thickness length max 60 mm
...	other wall thickness on request

Preinstalled connectors	
	no connector (standard)
K110	M12 metal connector, 12 poles on the bottom
K900	M23 metal connector, 12 poles on the bottom
K953	M12 metal connector, 8 poles on the bottom, stand-alone connection
K950	M12 metal connector, 8 poles on the bottom, connection in series
...	other connectors on request

Input and output	
3	2 safety inputs IS1, IS2 2 safety outputs OS1, OS2 1 auxiliary output guard closed O3 1 auxiliary output guard locked O4 1 electromagnet activation input I4
4	2 safety inputs IS1, IS2 2 safety outputs OS1, OS2 1 auxiliary output guard closed O3 1 auxiliary output guard locked O4 1 electromagnet activation input I4 1 programming input I3
5	2 safety inputs IS1, IS2 2 safety outputs OS1, OS2 1 auxiliary output guard closed O3 1 auxiliary output guard locked O4 1 electromagnet activation input I4 1 programming input I3 1 EDM input I5
6	2 safety inputs IS1, IS2 2 safety outputs OS1, OS2 1 auxiliary output guard closed O3 1 auxiliary output FAULT O4 1 electromagnet activation input I4 1 programming input I3

Actuator holding force	
	actuator holding force 30 N (standard)
E34	actuator unholded

Actuator	
F30	provided with VN NG-F30 actuator with low coding level the switch recognises any type F30 actuator
F31	provided with VN NG-F31 actuator with high coding level the switch recognises one single actuator

Output activation OS	
1	activation mode 1: safety outputs OS active with guard locked
2	activation mode 2: safety outputs OS active with guard closed

Actuator code structure

VN NG-F30

Actuator	
F30	actuator with low coding level the switch recognises any type F30 actuator
F31	actuator with high coding level the switch recognises one single actuator

Main data

- Activation without contact using RFID technology
- Actuator coded with a digital code
- Actuator holding force 7500 N
- SIL 3/ PL e/ Cat. 4 with one single device
- Metal housing, three M20 cable inlets
- IP67 and IP69K protection degree
- Versions with lock release and anti-panic release button
- PL e also connected in series with up to 32 devices
- Signalling LEDs

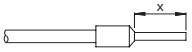
Markings and quality marks:

Approval UL: E131787
Approval TÜV SÜD: Z10 15 01 75157 005
Approval EAC: RU C-IT ДМ94.B.01024

In conformity with standards:
EN ISO 14119, EN 60947-5-3, EN 60947-1, IEC 60204-1, EN 60204-1, EN ISO 12100, IEC 60529, EN 60529, EN 61000-6-2, EN 61000-6-3, BG-GS-ET-19, IEC 61508-1, IEC 61508-2, IEC 61508-3, IEC 61508-4, SN 29500, EN ISO 13849-1, EN ISO 13849-2, EN 62061, EN 61326-1, EN 61326-3-1, EN 61326-3-2, ETSI 301 489-1, ETSI 301 489-3, ETSI 300 330-2, UL 508, CSA 22.2 No.14

In conformity with requirements requested by:
Machinery Directive 2006/42/CE
EMC Directive 2004/108/CE
R&TTE Directive 1999/05/EC
FCC Part 15

Connection terminals
Connection system: PUSH-IN type with spring
Cross section of solid and flexible leads with tips:
min 1 x 0.34 mm² (1 x AWG 24)
max 1 x 1.5 mm² (1 x AWG 16)
Cross section of leads with pre-insulated tips:
min 1 x 0.34 mm² (1 x AWG 24)
max 1 x 0.75 mm² (1 x AWG 18)
Cable stripping length (x):
min: 8 mm
max: 12 mm



Technical data

Housing

Metal housing and head, coated with baked powder.	
Three threaded cable inlets:	M20x1.5
Protection degree:	IP67 according to EN 60529 IP69K according to ISO 20653 with cable clamp having equal or higher protection degree

General data

SIL level (SIL CL):	up to SIL 3 according to EN 62061
Performance Level (PL):	up to PL e according to EN ISO 13849-1
Safety category:	up to 4 according to EN ISO 13849-1
Interlocking device with guard locking, non-contact, coded:	type 4 according to EN ISO 14119
Coding level according to EN ISO 14119:	low with actuator F30 high with actuator F31
Safety parameters:	
$MTTF_d$:	1883 years
PFH_d:	8,07 E-10
DC:	High
Ambient temperature:	-20°C ... +50°C
Maximum activation frequency with actuator lock and release:	600 operation cycles[1]/hour
Mechanical endurance:	1 million of operations cycles[1]
Max actuating speed:	0.5 m/s
Min. actuating speed:	1 mm/s
Maximum force before breakage F_{1max}	9750 N according to ISO 14119
Maximum holding force F_{zh}	7500 N according to ISO 14119
Maximum play of locked actuator:	4 mm
Extraction force of released actuator:	30 N

(1) One operation cycle means two movements, one to close and one to open contacts, as foreseen by EN 60947-5-1 standard.

Electrical data of IS1/IS2/I3/I4/I5/EDM inputs

Rated operation voltage Ue1:	24 Vdc
Rated absorbed current:	5 mA

Electrical data of OS1/OS2 safety outputs

Rated operation voltage Ue1:	24 Vdc
Type of output:	OSSD type PNP
Maximum current for Ie1 output:	0.25 A
Minimum current for Ie1 output:	0.5 mA
Category of use:	DC13; Ue=24 Vdc, Ie=0.25 A
Short-circuit detection:	Yes
Protection against overcurrent:	Yes
Internal self-resetting protection fuse:	1.1 A
Time for deactivation impulses on safe outputs:	< 300 µs
Maximum capacity admitted between output and output:	< 200 nF
Maximum capacity admitted between output and earth:	< 200 nF

Electrical data of O3/O4 signalling outputs

Rated operation voltage Ue1:	24 Vdc
Type of output:	PNP
Maximum current for Ie1 output:	0.1 A
Category of use:	DC12; Ue=24 Vdc, Ie=0.1 A
Short-circuit detection:	No
Protection against overcurrent:	Yes
Internal self-resetting protection fuse:	1.1 A

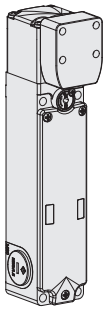
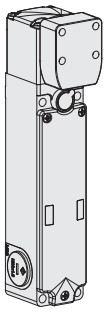
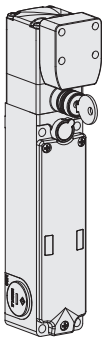
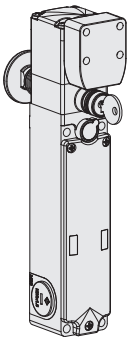
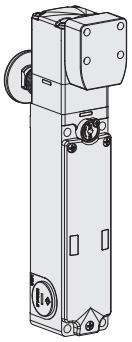
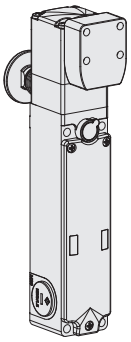
RFID sensor data

Assured operating distance S_{ao}:	2 mm
Assured release distance S_{ar}:	4 mm (actuator not locked) 10 mm (actuator locked)
Rated intervention distance S_n:	2.5 mm
Repeatability precision:	≤ 10 % S_n
Differential travel:	≤ 20 % S_n
Maximum switching frequency:	1 Hz

Electrical data

Rated operation voltage Ue:	24 Vdc ±10% SELV
Operation current at Ue voltage:	
- minimum:	40 mA
- with electromagnet activated:	0.4 A
- with electromagnet activated and all outputs at maximum power:	1.2 A
Rated insulation voltage Ui:	32 Vdc
Thermal current Ith:	0,25 A
Rated impulse withstand voltage U_{imp}:	1.5 kV
External protection fuse:	1.5 A type F
Overvoltage category:	III
Electrical life:	1 million operation cycles
Solenoid insertion ratio:	100% ED
Electromagnet consumption:	9 W

Switch with actuator selection table

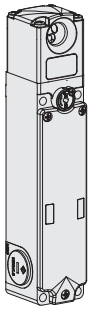
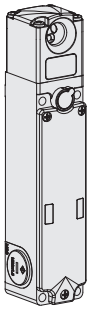
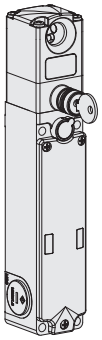
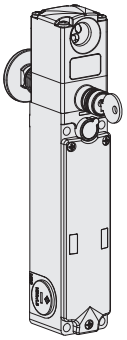
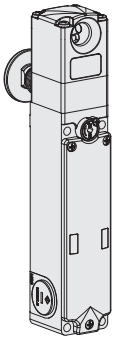
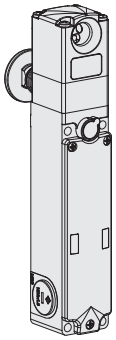







	Working principle D with sealable auxiliary release device	Working principle E	Working principle D, supplied with lock release	Working principle D, supplied with lock release and anti-panic release button	Working principle D, supplied with anti-panic release button	Working principle E, supplied with anti-panic release button
Activation mode 1 safety outputs OS active with guard locked and closed	NG 2D1D411A-F3•	NG 2D1E411A-F3•	NG 2D5D411A-F3•	NG 2D6D411A-F3•	NG 2D7D411A-F3•	NG 2D7E411A-F3•
Activation mode 2 safety outputs OS active with guard closed	NG 2D1D421A-F3•	NG 2D1E421A-F3•	NG 2D5D421A-F3•	NG 2D6D421A-F3•	NG 2D7D421A-F3•	NG 2D7E421A-F3•

For EDM models change n. 4 with n. 5 in the codes above.
Example: NG 2D1D**4**11A-F3• → NG 2D1D**5**11A-F3•

Legend: interlocking device with guard locking monitored according to EN ISO 14119

Switch selection table

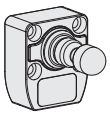







	Working principle D, supplied with sealable auxiliary release	Working principle E	Working principle D, supplied with lock release	Working principle D, supplied with lock release and anti-panic release button	Working principle D, supplied with anti-panic release button	Working principle E, supplied with anti-panic release button
Activation mode 1 safety outputs OS active with guard locked and closed	NG 2D1D411A	NG 2D1E411A	NG 2D5D411A	NG 2D6D411A	NG 2D7D411A	NG 2D7E411A
Activation mode 2 safety outputs OS active with guard closed	NG 2D1D421A	NG 2D1E421A	NG 2D5D421A	NG 2D6D421A	NG 2D7D421A	NG 2D7E421A

For EDM models change n. 4 with n. 5 in the codes above.
Example: NG 2D1D**4**11A → NG 2D1D**5**11A

Legend: interlocking device with guard locking monitored according to EN ISO 14119

Actuator selection table



Type of coding	Level coding according to ISO 14119	Article
coded	low	VN NG-F30
univocally coded	high	VN NG-F31

The RFID technology featured in the NG series devices allows them to be used in a wide variety of applications. Pizzato Elettrica makes two different versions of actuators available in order to best suit specific requirements. The type F30 actuators are all coded with the same code. This implies that a device associated with a type F30 actuator can be activated by means of other type F30 actuators.
The type F31 actuators are always coded differently. This implies that a device associated with a type F31 actuator can only be activated by one specific actuator. Another F31 type actuator will not be recognised until a new association procedure is carried out (reprogramming). After reprogramming, the old F31 actuator will no longer be recognised.

Data type approved by UL

Utilization categories: 24 Vdc, 0,25 A (resistive load).

Input supplied by Class 2 Source or limited voltage limited energy

In conformity with standard: UL 508, CSA 22.2 No.14

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

Data type approved by TÜV SÜD

Protection degree: IP67, IP69K
Working temperature: -20°C...+50°C
Storage temperature: -40°C...+75°C
PL, Category: PL e, Cat 4.
SIL: SIL 3 / SIL CL 3

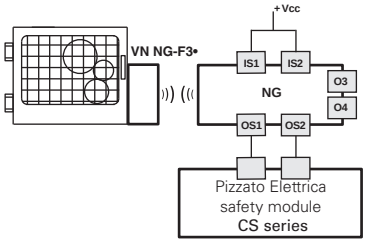
In conformity with standards: 2006/42/EC, EN 60947-1/A1:2011, EN 60947-5-2/A1:2012, EN 60947-5-3:2013, EN 14119:2013, EN 61508-1:2010 (SIL 3), EN 61508-2:2010 (SIL 3), EN 61508-3:2010 (SIL 3), EN 61508-4:2010 (SIL 3), EN 62061/A1:2013 (SIL CL 3), EN ISO 13489-1: 2008 (PL e, Cat 4).

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

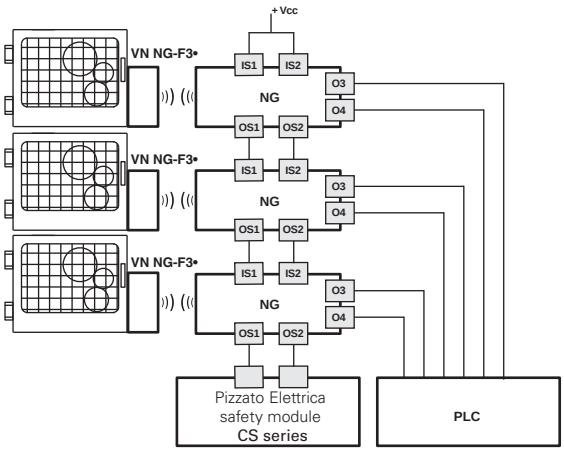
Complete safety system

The use of complete solutions and heads provides the customer with assurance of electrical compatibility between the NG series switch and the Pizzato Elettrica safety modules, guaranteeing greater reliability.
In fact, these sensors have been checked for operating with the modules specified in the table on the side.

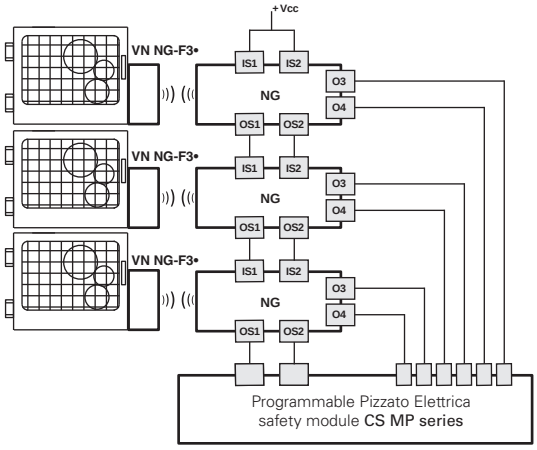
Switches	Compatible safety modules	Safety module output contacts		
		Safety instantaneous contacts	Safety delayed contacts	Signaling contacts
NG 2•••4•1A	CS AR-05••••	3NO	/	1NC
	CS AR-06••••	3NO	/	1NC
	CS AR-08••••	2NO	/	/
	CS AT-0•••••	2NO	2NO	1NC
	CS AT-1•••••	3NO	2NO	/
	CS MP••••••	See the General Catalog		
	CS MF••••••	See the General Catalog		



The NG series switch can be used individually, prior evaluation of the safe outputs by means of a Pizzato Elettrica safety module (see table for safety modules to be combined).

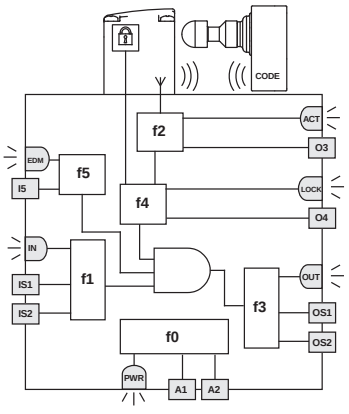


Possible connection in series of several switches in order to simplify the safety system wiring, prior evaluation of the outputs of the last switch in the chain by means of a Pizzato Elettrica safety module (see table for safety modules to be combined). Each NG series switch is provided with two signalling outputs which are activated when the guard is closed (O3) or locked (O4). This piece of information can be managed by a PLC, depending on the specific requirements of the system installed.



Possible connection in series of several switches in order to simplify the safety system wiring, prior evaluation of the outputs of the last switch in the chain by means of a Pizzato Elettrica CS MP safety module, which allows management of the safety function as well as the signalling function.
The above examples refer to applications with NG 2•••4•1A.

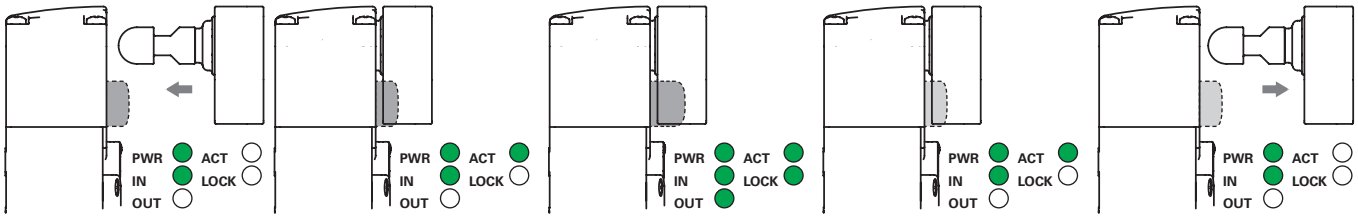
Internal diagram



The diagram on the side represents the 6 logic functions which interact inside the device.
Function f0 is a global function which deals with the device power supply and the internal tests which it cyclically undergoes.
The task of function f1 is to evaluate the status of the device inputs, whereas function f2 checks the presence of the actuator inside the switch intervention areas.
Function f4 checks the actuator lock condition.
Function f3 is intended to activate or otherwise the safe outputs and check for any faults or short circuits in the outputs.
In EDM versions function f5 checks the consistency of the EDM signal during the change of status of the safe outputs. The macro function that combines the functions described above does enable the safe outputs only in the presence of active inputs, the actuator into the safe area and the locking of the same, for switches with mode 1. For switches with mode 2, safe outputs are activated in the presence of active inputs and actuator in the safe zone.
The status of each function is displayed by the corresponding LED (PWR, IN, OUT, ACT, LOCK, EDM), in such a way that the general device status becomes immediately obvious to the operator.

LEDs	Function
PWR	power supply/self-diagnosis
IN	safe input status
OUT	safe output status
ACT	actuator status
LOCK	actuator lock status
EDM	EDM input status (version NG 2D••5•1A)

Activating sequence (activation mode 1)



The switch is supplied with power (PWR LED on, green), the IS1 and IS2 inputs are enabled (IN LED on, green), the OS1 and OS2 safety outputs are disabled (OUT LED off). The actuator is outside the activation area (ACT LED off).

When the actuator is brought inside the safe activation area (dark grey area), the switch turns on the ACT LED (green). In this position, the O3 door-closed signalling output is activated. The actuator is not locked (LOCK LED off).

The I4 input can be used to lock the actuator (LOCK LED on, green). The OS1 and OS2 safe outputs are enabled (OUT LED on, green). The O4 signalling output is activated at the same time. The safe activation area is extended in order to allow greater play for the actuator.

The I4 input can be used to unlock the actuator (LOCK LED off). The switch disables the OS1 and OS2 safety outputs and turns off the OUT LED. The O4 signalling output is deactivated at the same time. The safe activation area returns to the initial values.

When the actuator leaves the activation limit area, the device turns off the ACT LED and the O3 signalling output.

Activating sequence (activation mode 2)

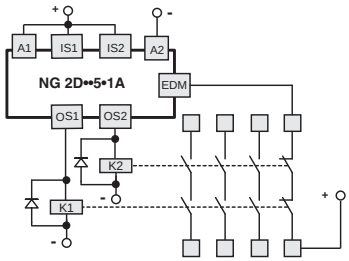
Unlike the above here safety outputs OS1, OS2 are activated when the actuator is detected and deactivated when the actuator is no more detected.

Operation status

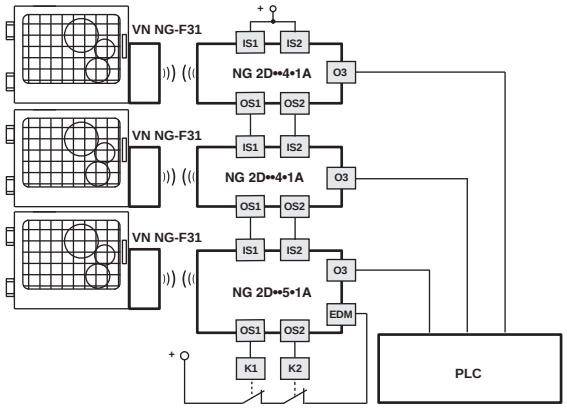
PWR LED	IN LED	OUT LED	ACT LED	LOCK LED	EDM[a] LED (a)	Device status	Description
○	○	○	○	○	○	OFF	Device switched off.
◐	◐	◐	◐	◐	◐	POWER ON	Internal tests on activation.
●	○	○	✳	✳	●	RUN	Device with safe inputs not active.
●	●	✳	✳	✳	✳	RUN	Activation of safe inputs.
●	◐	○	✳	✳	✳	RUN	Non-coherence of safe inputs. Recommended action: check for presence and/or wiring of inputs.
●	✳	✳	●	✳	✳	RUN	Actuator in safe area. O3 signalling output active.
●	✳	✳	●	●	○	RUN	Actuator in safe area and locked; O3 and O4 outputs active.
●	●	●	●	●	○	RUN	**Activation mode 1** Activation of the IS1 and IS2 safe inputs. Actuator in safe area and locked. O3, O4, OS1 and OS2 outputs active.
●	●	●	●	✳	○	RUN	**Activation mode 2** Activation of the IS1 and IS2 safe inputs. Actuator in safe area. O3, OS1, OS2 outputs active.
●	✳	◐	✳	✳	✳	ERROR	Error on safe outputs. Recommended action: check for any short circuits between the outputs, outputs and earth or outputs and power supply, then restart the device.
●	○	○	◐	○	○	ERROR	Actuator detection error. Check for physical integrity of the device, if faulty replace the entire device. If undamaged, realign the actuator with the switch and restart the device.
●	○	○	○	○	○	ERROR	Internal error. Recommended action: restart the device. If the fault persists, replace the device.
●	✳	○	✳	✳	●	RUN	EDM signal active (external relay OFF)[a]
●	●	●	●	●	○	RUN	EDM signal inactive (external relay ON)[a]
●	○	○	○	○	◐	ERROR	Error in EDM function[a]

Legend: ○ = off ● = on ◐ = blinking ◑ = alternate colours ✳ = indifferent (a) Available only on NG 2D••5•1A

External Device Monitoring



The NG 2D••5•1A version maintains the safety and operating characteristics of the NG series, and allows the control of **the NC contacts of contactors or of forcedly guided relays**, which are controlled by the safety outputs of the switches.
As an alternative to relays or contactors, it is possible to use Pizzato Elettrica's expansion modules type CS ME-03. This check is performed by monitoring the EDM input (External Device Monitoring according to EN 61496-1) of the switch.

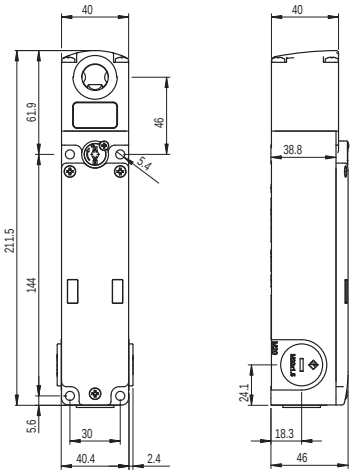


This model, having safety inputs IS, **can be connected at the end of a series** of NG switches, **maximum 32 devices**, while maintaining the maximum safety levels PL e in conformity with EN ISO 13849-1 and SIL 3 according to EN 62061.
This solution avoids the use of a safety module connected to the last device of the chain.

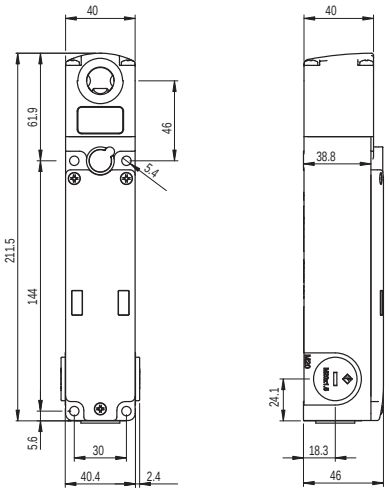
Dimensional drawings

All measures in the drawings are in mm

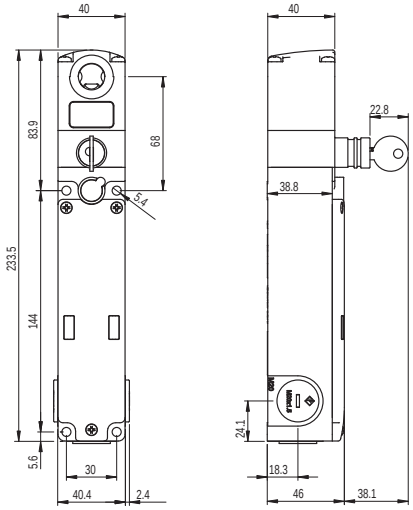
Switch NG 2D1D••1A
Working principle D, supplied with sealable auxiliary release and without actuator



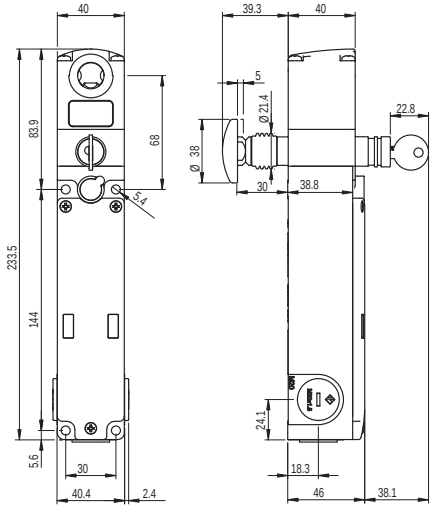
Switch NG 2D1E••1A
Working principle E, supplied without actuator



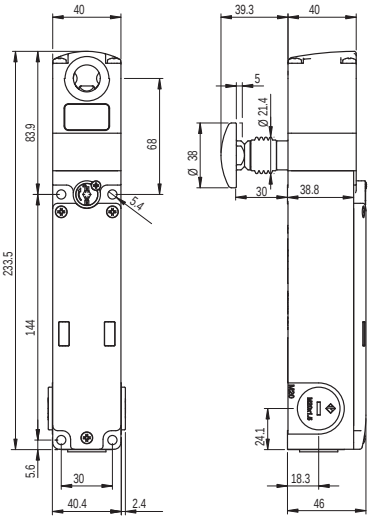
Switch NG 2D5D••1A
Working principle D, supplied with lock release and without actuator



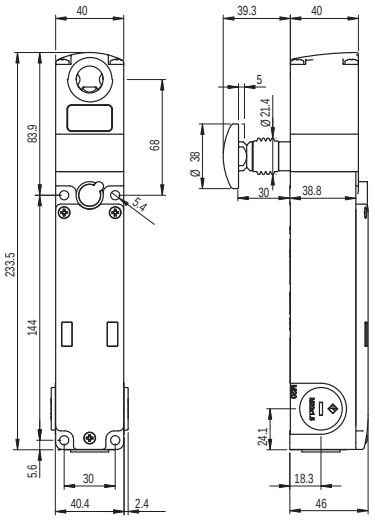
Switch NG 2D6D••1A
Working principle D, supplied with lock release, anti-panic release button and without actuator



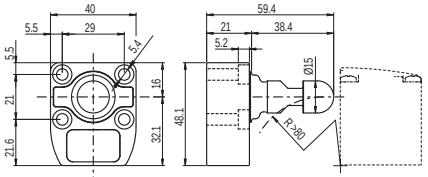
Switch NG 2D7D••1A
Working principle D, supplied with anti-panic release button and without actuator



Switch NG 2D7E••1A
Working principle E, supplied with anti-panic release button and without actuator



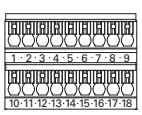
Actuator VN NG-F3•

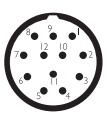


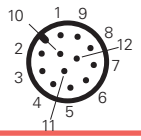
➔ 2D and 3D files available on **www.pizzato.com**

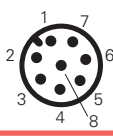
Internal connections

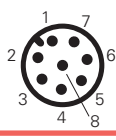
Internal terminal board	M23 connector 12 poles	M12 connector 12 poles	Connettore M12 8 poles stand-alone connection	Connettore M12 8 poles connection in series with Y connectors	Connection	
1	3	3	3	3	A2	Power supply input 0 V
2	/	/	/	/	B2	Auxiliary power supply 0 V
3	10	10	8	8	I4	Electromagnet activation input
4	5	5	2	/	O3	Signalling output for actuator switched on
5	9	9	5	5	O4	Signalling output for actuator switched on and locked (b)
6	8	8	6	/	I3	Actuator programming input
10	1	1	1	1	A1	Power supply input +24 Vdc
11	/	/	/	/	B1	Auxiliary power supply +24 Vdc, 8 A max
12	2	2	/	2	IS1	Safe input
13	6	6	/	6	IS2	Safe input
14	11	11	/	/	I5	EDM input (a)
15	4	4	4	4	OS1	Safe output
16	7	7	7	7	OS2	Safe output











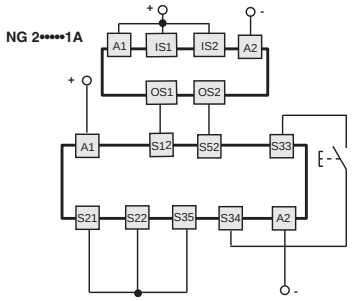
Warning: terminals 7, 8, 9, 17 and 18 must not be used.
(a) Available only on NG 2D••5•1A.
(b) For NG 2D••6•1A the output indicates the fault condition of the device.

Wiring with safety modules

Wiring with safety modules CS AR-08••••

Input configuration with monitored start

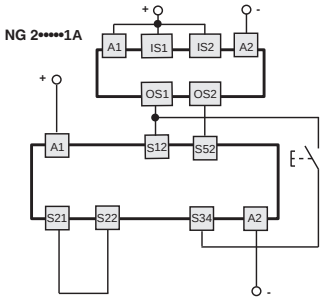
2 channels / Category 4 / up to SIL 3 / PL e



Wiring with safety modules
CS AR-05•••• / CS AR-06••••

Input configuration with manual start (CS AR-05••••) and monitored start (CS AR-06••••)

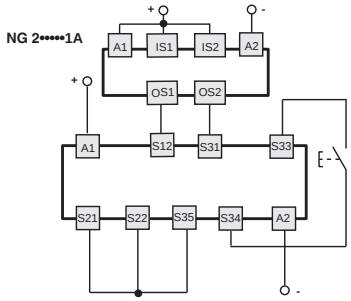
2 channels / Category 4 / up to SIL 3 / PL e



Wiring with safety modules
CS AT-0••••• / CS AT-1•••••

Input configuration with monitored start

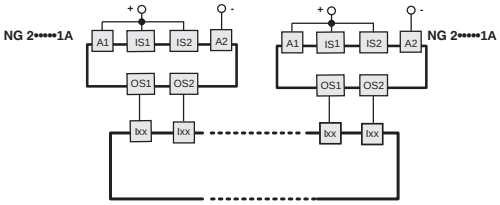
2 channels / Category 4 / up to SIL 3 / PL e



Wiring with safety modules CS MF•••••, CS MP•••••

The connections vary according to the program of the module

Category 4/ up to SIL 3 / PL e



Accessories

Article	Description
VF KLB300	Set of 2 locking keys

Extra copy of the locking keys to be purchased if further keys are needed (standard supply 2 units).
All switches keys have the same code.
Other codes on request.

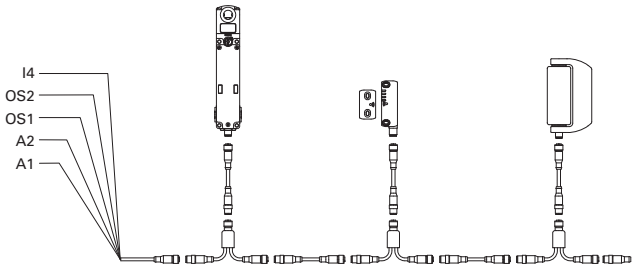
Stickers for anti-panic release button

Polycarbonate yellow adhesive, rectangular 300x32 mm, red writing. Applied on the jamb internal part it helps finding the emergency release push button.

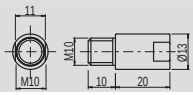
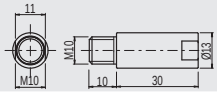
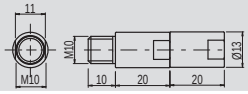
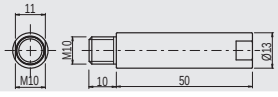
Article	Description
VF AP-A1AGR01	PREMERE PER USCIRE
VF AP-A1AGR02	PUSH TO EXIT
VF AP-A1AGR04	ZUM OFFNEN DRUCKEN
VF AP-A1AGR05	POUSSER POUR SORTIR
VF AP-A1AGR06	PULSAR PARA SALIR
VF AP-A1AGR07	НАЖАТЬ ДЛЯ ВЫХОДА
VF AP-A1AGR08	NACISNĄĆ ABY WYJŚĆ
VF AP-A1AGR09	PRESSIONAR PARA SAIR

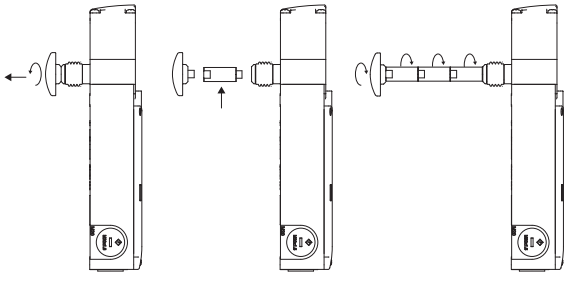
Connection in series

To simplify the connection in series we have available M12 connectors that allow complete wiring.
This solution greatly reduces the installation time, while maintaining the highest level of security PL e and SIL 3.



Extensions for release push-button

Article	Description	Drawing
VN NG-LP30	Metal extension for release push-button. For max wall thickness of 30 mm.	
VN NG-LP40	Metal extension for release push-button. For max wall thickness of 40 mm.	
VN NG-LP50	Metal extension for release push-button. For max wall thickness of 50 mm.	
VN NG-LP60	Metal extension for release push-button. For max wall thickness of 60 mm.	



Metal extensions can be combined together until the required length is obtained.
Do not exceed an overall length of 500 mm between the release button and the switch.

Items with code on the **green** background are available in stock

General Catalog

Production program

EROUND
brochure

LIFT
General Catalog

DVD

Web site
www.pizzato.com

pizzato elettrica
Passion for Quality

Pizzato Elettrica s.r.l. Via Torino, 1 - 36063 Marostica (VI) Italy
Phone +39.0424.470.930 - Fax +39.0424.470.955
E-mail: info@pizzato.com - Web site: www.pizzato.com

ZE FGL16A15-ENG
8 018851 310331