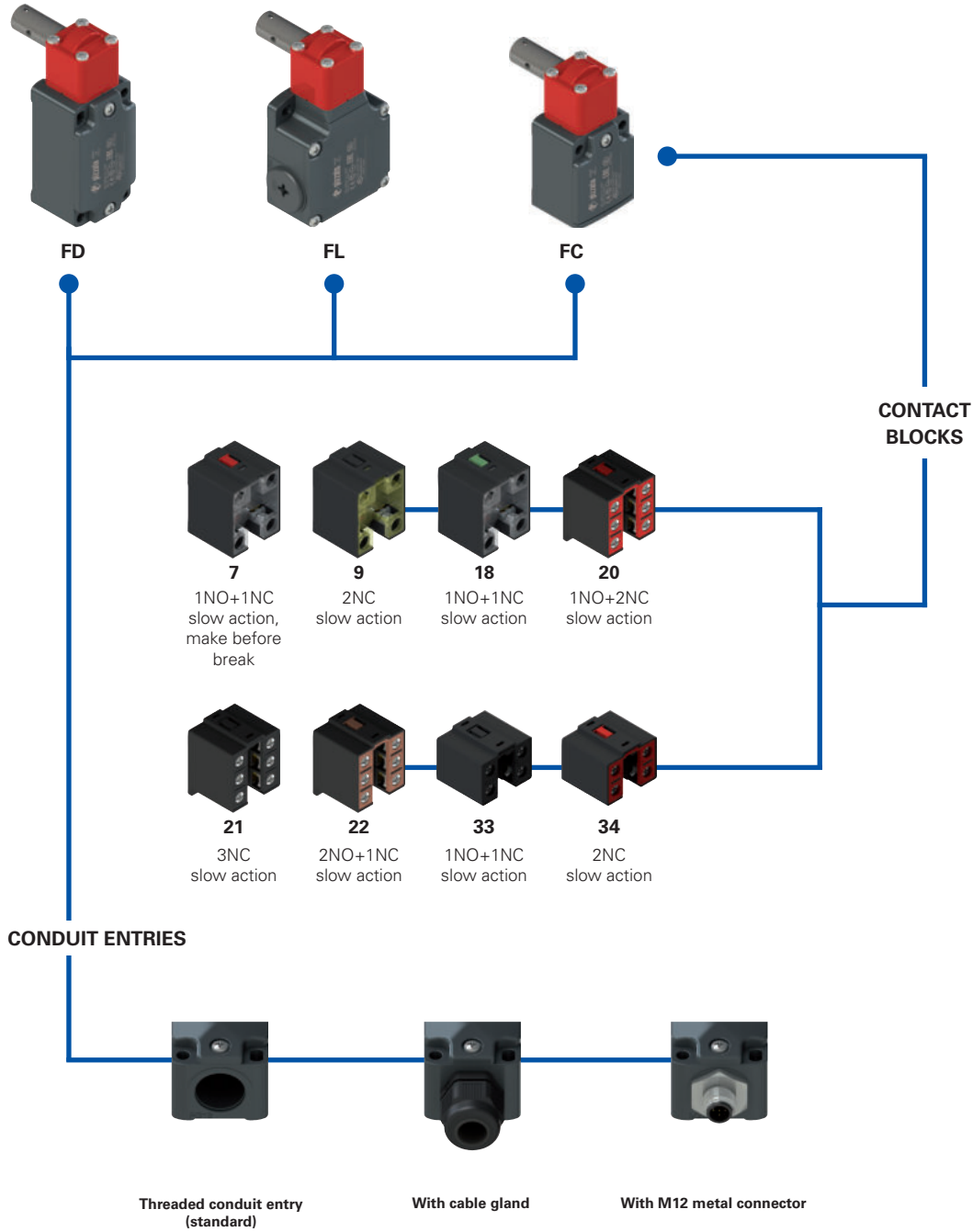


## Selection diagram



—●— Product options



**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  
**FD 1895-GM2K50T6**

Housing	
<b>FD</b>	metal, one conduit entry
<b>FL</b>	metal, three conduit entries

Contact block	
<b>7</b>	1NO+1NC, slow action, make before break
<b>9</b>	2NC, slow action
<b>18</b>	1NO+1NC, slow action
<b>20</b>	1NO+2NC, slow action
<b>21</b>	3NC, slow action
<b>22</b>	2NO+1NC, slow action
<b>33</b>	1NO+1NC, slow action
<b>34</b>	2NC, slow action

Contact type	
	silver contacts (standard)
<b>G</b>	silver contacts with 1 µm gold coating
<b>G1</b>	silver contacts, 2.5 µm gold coating (not for contact blocks 20, 21, 22, 33, 34)

Ambient temperature	
	-25°C ... +80°C (standard)
<b>T6</b>	-40°C ... +80°C

Pre-installed cable glands or connectors	
	no cable gland or connector (standard)
<b>K23</b>	cable gland for cables Ø 6 ... 12 mm
...	.....
<b>K50</b>	M12 metal connector, 5-pole
...	.....

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

Threaded conduit entry	
<b>M2</b>	M20x1.5 (standard)
	PG 13.5

article options options  
**FC 3395-GM2K50T6**

Housing	
<b>FC</b>	metal, one conduit entry

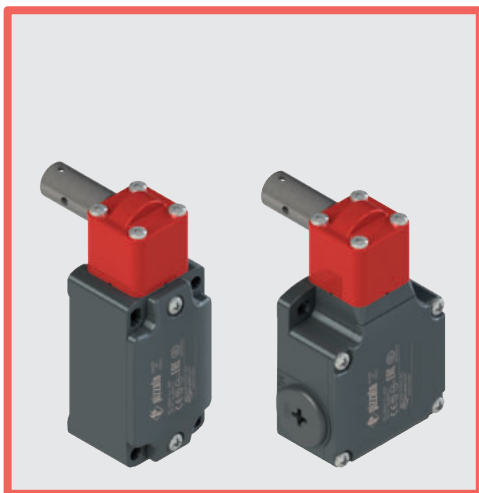
Contact block	
<b>33</b>	1NO+1NC, slow action
<b>34</b>	2NC, slow action

Contact type	
	silver contacts (standard)
<b>G</b>	silver contacts with 1 µm gold coating

Ambient temperature	
	-25°C ... +80°C (standard)
<b>T6</b>	-40°C ... +80°C

Pre-installed cable glands or connectors	
	no cable gland (standard)
<b>K23</b>	cable gland for cables Ø 6 ... 12 mm
<b>K50</b>	M12 metal connector, 5-pole

Threaded conduit entry	
<b>M2</b>	M20x1.5 (standard)
	PG 11



### Main features

- Metal housing, from one to three conduit entries
- Protection degree IP67
- 8 contact blocks available
- Stainless steel actuator
- Versions with M12 connector
- Versions with gold-plated silver contacts

### Quality marks:



IMQ approval:	EG605
UL approval:	E131787
CCC approval:	2020970305002282
EAC approval:	RU C-IT.AQ35.B.00454

### Technical data

#### Housing

FD, FL and FC series: metal housing, baked powder coating.	
Stainless steel actuator:	
FD, FC series: one threaded conduit entry:	M20x1.5 (standard)
FL series: 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
Mechanical interlock, not coded:	type 1 acc. to EN ISO 14119
Safety parameters:	
$B_{10D}$ :	5,000,000 for NC contacts
Mission time:	20 years
Ambient temperature:	-25°C ... +80°C (standard) -40°C ... +80°C (T6 option)
Max. actuation frequency:	3600 operating cycles/hour
Mechanical endurance:	1 million operating cycles
Max. actuation speed:	180°/s
Min. actuation speed:	2°/s
Tightening torques for installation:	see page 379
Wire cross-sections and wire stripping lengths:	see page 399

#### In compliance with standards:

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

#### Approvals:

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

#### Compliance with the requirements of:

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 377 to 392.**

	Electrical data	Utilization category
without connector	Thermal current ( $I_{th}$ ):	10 A
	Rated insulation voltage ( $U_i$ ):	500 Vac 600 Vdc 400 Vac 500 Vdc (contact blocks 20, 21, 22, 33, 34)
	Rated impulse withstand voltage ( $U_{imp}$ ):	6 kV 4 kV (contact blocks 20, 21, 22, 33, 34)
	Conditional short circuit current: Protection against short circuits: Pollution degree:	1000 A acc. to EN 60947-5-1 type aM fuse 10 A 500 V 3
with M12 connector, 4 or 5-pole	Thermal current ( $I_{th}$ ):	4 A
	Rated insulation voltage ( $U_i$ ):	250 Vac 300 Vdc
	Protection against short circuits: Pollution degree:	type gG fuse 4 A 500 V 3
	with M12 connector, 8-pole	Thermal current ( $I_{th}$ ):
Rated insulation voltage ( $U_i$ ):		30 Vac 36 Vdc
Protection against short circuits: Pollution degree:		type gG fuse 2 A 500 V 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
		Alternating current: AC15 (50÷60 Hz)
		$U_e$ (V) 24 120 250
		$I_e$ (A) 4 4 4
		Direct current: DC13
		$U_e$ (V) 24 125 250
		$I_e$ (A) 3 0.55 0.3
		Alternating current: AC15 (50÷60 Hz)
		$U_e$ (V) 24
		$I_e$ (A) 2
		Direct current: DC13
		$U_e$ (V) 24
		$I_e$ (A) 2



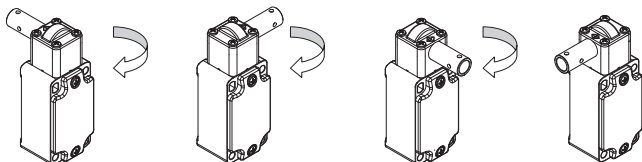
## Description



These safety switches are designed to monitor gates or guards that safeguard dangerous parts of machines without inertia. They are very sensitive, open the contacts after few degrees of rotation and immediately send the stop signal. The head, which can be turned in 90° steps, enables installation in multiple positions.

The metal housing and the stainless steel actuator enable use even under operating conditions in which dust and dirt could inhibit the operation of normal safety switches with separate actuator.

## Head with variable orientation



For all switches, the head can be adjusted in 90° steps after removing the four fastening screws. This allows you to use the same switch on both right- and left-facing door fronts.

## Laser engraving



All devices are marked using a dedicated indelible laser system. These engravings are therefore suitable for extreme environments too. 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.

## Protection degree IP67

**IP67** These devices are designed to be used in the toughest environmental conditions and they pass the IP67 immersion test acc. to EN 60529. They can therefore be used in all environments where maximum protection degree of the housing is required.

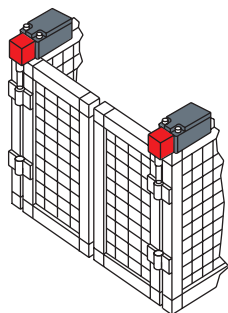
## Extended temperature range

**-40°C**

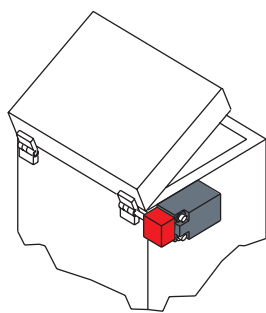
These devices are also available in a special version suitable for an ambient operating temperature range from -40°C up to +80°C.

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

## Application examples



Safety switches for hinges, mounting on double door



Safety switch for hinges, mounting outside the safety guard

## Adjustable switching point



When installing the device, the contact switching point can be adjusted over the entire 360° range. By fixing the stud screw, it is possible to check the correct setting of the activation angle and quickly and easily adjust it if necessary. Once adjustment is complete, you can render the device tamper-proof against commonly used tools using the supplied lock pin.

## Features approved by IMQ

Rated insulation voltage (Ui):	500 Vac 400 Vac (for contact blocks 2, 11, 12, 20, 21, 22, 28, 29, 30, 33, 34, 37)
Conventional free air thermal current (Ith):	10 A
Protection against short circuits:	type aM fuse 10 A 500 V
Rated impulse withstand voltage (U <sub>imp</sub> ):	6 kV 4 kV (for contact blocks 20, 21, 22, 28, 29, 30, 33, 34)
Protection degree of the housing:	IP67
MV terminals (screw terminals)	
Pollution degree:	3
Utilization category:	AC15
Operating voltage (U <sub>e</sub> ):	400 Vac (50 Hz)
Operating current (I <sub>e</sub> ):	3 A
Forms of the contact element:	Za, Za+Za, X+X, Zb, Y+Y, Y+Y+X, Y+Y+Y, Y+X+X, Y, X.
Positive opening of contacts on contact blocks	5, 6, 7, 8, 9, 11, 13, 14, 16, 17, 18, 19, 20, 21, 22, 28, 29, 30, 33, 34, 37, 38, 39, 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 pilot duty (69 VA, 125-250 V dc) A600 pilot duty (720 VA, 120-600 V ac)
Environmental Ratings:	Types 1, 4X, 12, 13
Use	60 or 75 °C copper (Cu) conductor and wire size range 12, 14 AWG, stranded or solid. The terminal tightening torque of 7.1 lb in (0.8 Nm).

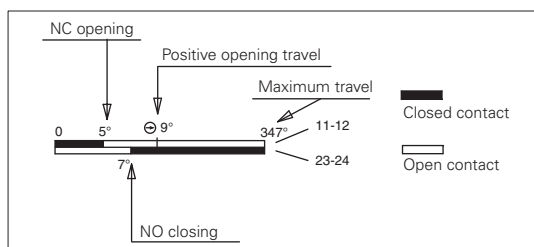
Please contact our technical department for the list of approved products.

Contact type:  
**L** = slow action  
**LO** = slow action make before break

	Metal housing Stainless steel actuator	Metal housing Stainless steel actuator	Metal housing Stainless steel actuator
7	<b>LO</b> FD 795-M2 $\rightarrow$ 1NO+1NC 	FL 795-M2 $\rightarrow$ 1NO+1NC 	/
9	<b>L</b> FD 995-M2 $\rightarrow$ 2NC 	FL 995-M2 $\rightarrow$ 2NC 	/
18	<b>L</b> FD 1895-M2 $\rightarrow$ 1NO+1NC 	FL 1895-M2 $\rightarrow$ 1NO+1NC 	/
20	<b>L</b> FD 2095-M2 $\rightarrow$ 1NO+2NC 	FL 2095-M2 $\rightarrow$ 1NO+2NC 	/
21	<b>L</b> FD 2195-M2 $\rightarrow$ 3NC 	FL 2195-M2 $\rightarrow$ 3NC 	/
22	<b>L</b> FD 2295-M2 $\rightarrow$ 2NO+1NC 	FL 2295-M2 $\rightarrow$ 2NO+1NC 	/
33	<b>L</b> FD 3395-M2 $\rightarrow$ 1NO+1NC 	FL 3395-M2 $\rightarrow$ 1NO+1NC 	FC 3395-M2 $\rightarrow$ 1NO+1NC 
34	<b>L</b> FD 3495-M2 $\rightarrow$ 2NC 	FL 3495-M2 $\rightarrow$ 2NC 	FC 3495-M2 $\rightarrow$ 2NC 
Actuating force	0.15 Nm (0.4 Nm $\rightarrow$ )	0.15 Nm (0.4 Nm $\rightarrow$ )	0.15 Nm (0.4 Nm $\rightarrow$ )

## How to read travel diagrams

All values in the diagrams are in degrees

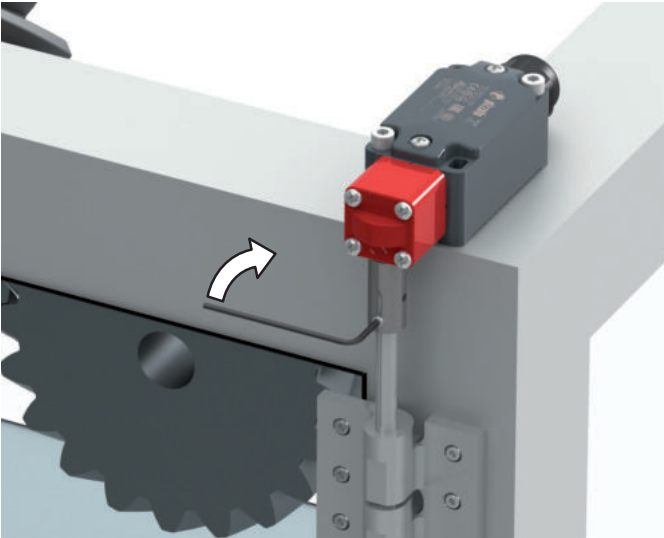


### IMPORTANT:

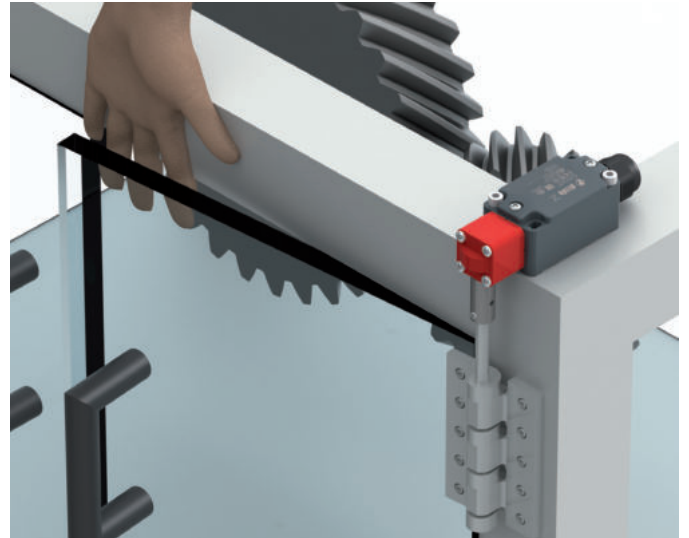
In **safety applications**, actuate the switch **at least up to the positive opening travel** shown in the travel diagrams with symbol  $\oplus$ . Actuate the switch **at least with the positive opening force**, reported in brackets below each article, next to the actuating force value.



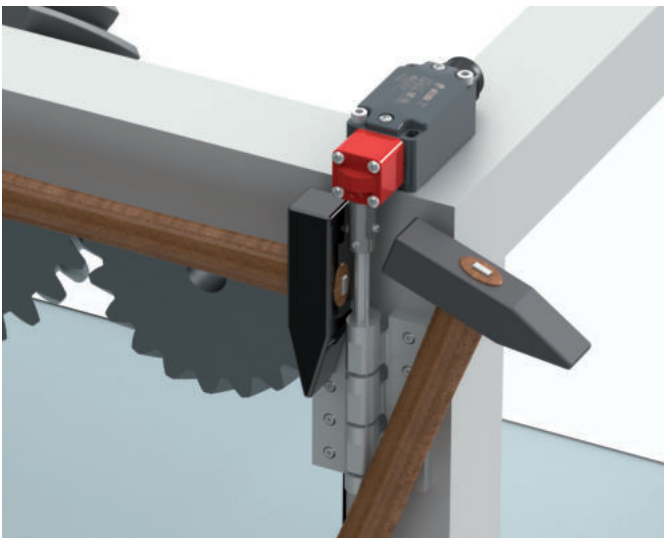
### Adjustment of the switching point



Temporary locking of the actuator (stud screw provided).



Verify the switching point according to EN ISO 13857 and recalibrate if necessary.



Pin the switch (pin is provided).