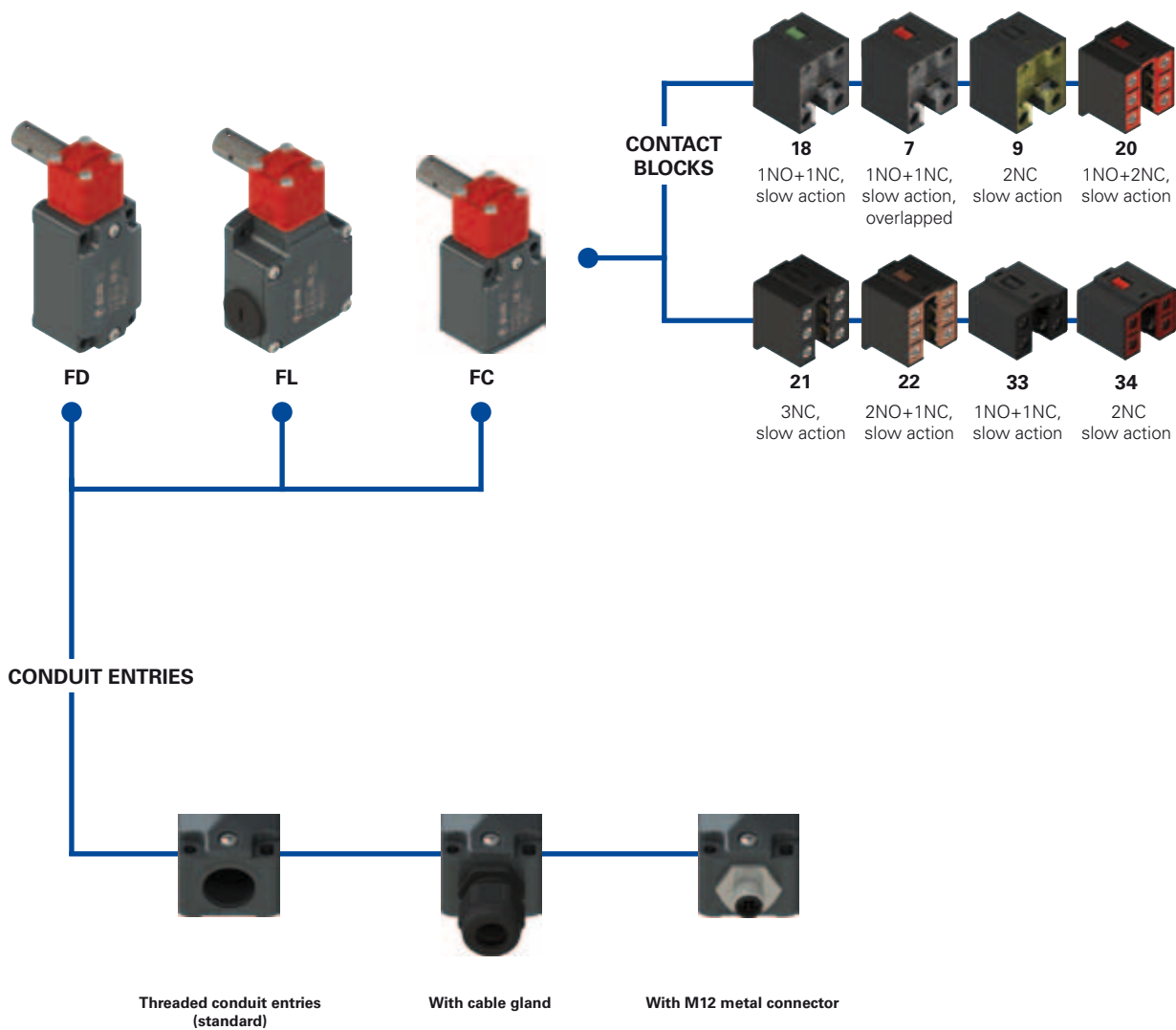


Selection diagram



—●— 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 options
FD 1895-GM2K50T6

Housing	
FD	metal, one conduit entry
FL	metal, three conduit entries

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

Contact blocks	
18	1NO+1NC, slow action
7	1NO+1NC, slow action, overlapped
9	2NC, slow action
20	1NO+2NC, slow action
21	3NC, slow action
22	2NO+1NC, slow action
33	1NO+1NC, slow action
34	2NC, slow action

Pre-installed cable glands or connectors	
	without cable gland or connector (standard)
K23	cable gland for cables Ø 6...Ø 12 mm
...
K50	M12 metal connector, 5 poles
...

Please contact our technical service for the complete list of possible combinations.

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

Threaded conduit entry	
M2	M20x1.5 (standard)
	PG 13.5

article options options
FC 3395-GM2K50T6

Housing	
FC	metal, one conduit entry

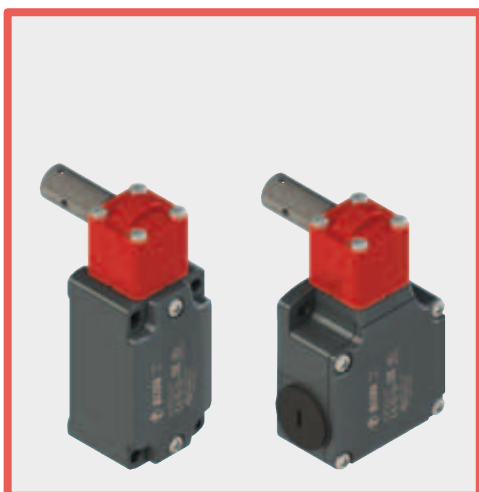
Ambient temperature	
	-25°C ... +80°C (standard)
T6	-40°C ... +80°C

Contact blocks	
33	1NO+1NC, slow action
34	2NC, slow action

Pre-installed cable glands or connectors	
	without cable gland (standard)
K23	cable gland for cables Ø 6...Ø 12 mm
K50	M12 metal connector, 5 poles

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

Threaded conduit entry	
M2	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

Markings and quality marks:



IMQ approval:	EG605
UL approval:	E131787
CCC approval:	2007010305230000
EAC approval:	RU C-IT ДМ94.В.01024

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 having equal or higher protection degree

General data

For safety applications up to:

SIL 3 acc. to EN 62061

PL e acc. to EN ISO 13849-1

type 1 acc. to EN ISO 14119

Mechanical interlock, not coded:

Safety parameters:

B_{10d} :

5,000,00 for NC contacts

Service life:

20 years

Ambient temperature:

-25°C ... +80°C

Max. actuation frequency:

3600 operating cycles¹/hour

Mechanical endurance:

1 million operating cycles¹

Max. actuation speed:

180°/s

Min. actuation speed:

2°/s

Tightening torques for installation:

see pages 297-308

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

Cable cross section (flexible copper strands)

Contact blocks 20, 21, 22, 33, 34:

min. 1 x 0.34 mm² (1 x AWG 22)

max. 2 x 1.5 mm² (2 x AWG 16)

Contact blocks 7, 9, 18:

min. 1 x 0.5 mm² (1 x AWG 20)

max. 2 x 2.5 mm² (2 x AWG 14)

In conformity 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, UL 508, CSA 22.2 No.14.

Approvals:

IEC 60947-5-1, UL 508, CSA 22.2 No.14, GB14048.5-2001.

In conformity with the requirements of:

Low Voltage Directive 2006/95/EC, Machinery Directive 2006/42/EC and EMC Directive 2004/108/EC.

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 chapter utilization requirements from page 297 to page 308.

	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 for 4 or 5 poles	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
	Utilization category	Alternating current: AC15 (50÷60 Hz) Ue (V) 250 400 500 Ie (A) 6 4 1 Direct current: DC13 Ue (V) 24 125 250 Ie (A) 6 1.1 0.4
with M12 connector for 8 poles	Thermal current (I _{th}):	2 A
	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) Ue (V) 24 Ie (A) 2 Direct current: DC13 Ue (V) 24 Ie (A) 2



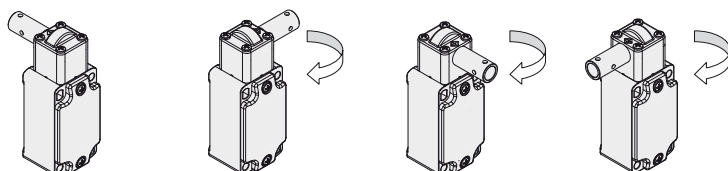
Description



These safety switches are ideal to control gates or doors protecting hazardous parts of machines without inertia. They are very sensitive and positively open the contacts after few degrees of rotation, sending an immediate stop signal. The head adjustable in 90° steps allows their installation in four different positions.

The metal housing and the stainless steel actuator allow this switch to be used even in hard environments where sedimented powder or dirt could block working of safety switches with separated actuator.

Orientable heads



Removing the four fastening screws, in all switches, it is possible to rotate the head in 90° steps. This allows you to use the same switch on both right- and left-facing door fronts.

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 IEC 60529.

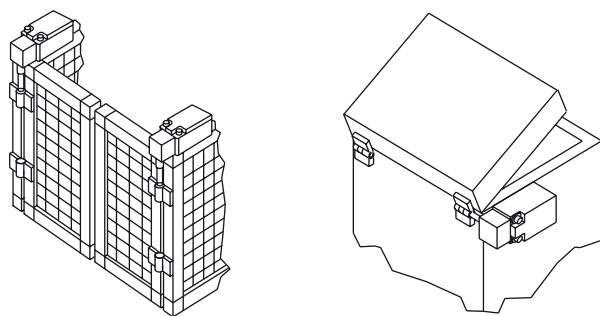
They can therefore be used in all environments where the maximum protection of the housing is required.

Laser engraving



All devices are indelibly marked with a dedicated laser system that allows the marking to be also suitable for extreme environments. This system that does not use labels, prevents the loss of plate data and the marking is more resistant over time.

Application examples



Extended temperature range

-40°C

This range of switches is also available in a special version with an ambient operating temperature range of -40°C to +80°C.

They can be used for applications in cold stores, sterilisers and other devices with low temperature environments. Special materials that have been used to realize these versions, maintain unchanged their features also in these conditions, widening the installation possibilities.

Adjustable operating point



When installing the device, you can adjust the contact operating point over the entire 360° range. By affixing the stud screw, you can check the correct activation angle adjustment, and quickly and easily adjust it if required. Once adjustment is complete, you can render the device tamper-proof against commonly used tools using the supplied lock pin.

Characteristics approved by IMQ

Rated insulation voltage (Ui): 500 Vac
400 Vac (for contact blocks 20, 21, 22, 33, 34)
Conventional free air thermal current (Ith): 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 blocks 20, 21, 22, 33, 34)
Protection degree of the housing: IP67
MV terminals (screw terminals)
Pollution degree 3
Utilization category: AC15
Operating voltage (Ue): 400 Vac (50 Hz)
Operating current (Ie): 3 A
Forms of the contact element: Zb, Y+Y, Y+Y+X, Y+Y+Y, Y+X+X
Positive opening of contacts on contact blocks 7, 9, 18, 20, 21, 22, 33, 34

In conformity with standards: EN 60947-1, EN 60947-5-1+ A1:2009, fundamental requirements of the Low Voltage Directive 2006/95/EC.

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

Characteristics approved by UL

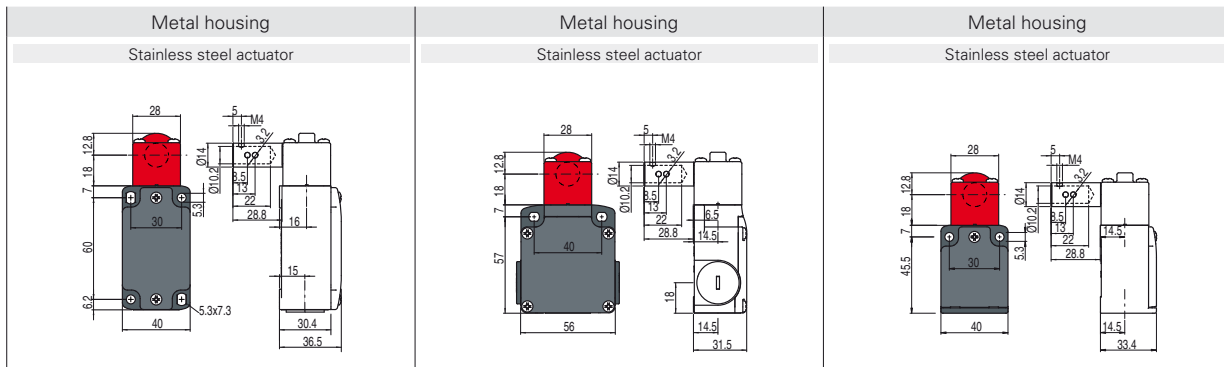
Utilization categories Q300 (69 VA, 125 ... 250 Vdc)
A600 (720 VA, 120 ... 600 Vac)
Data of housing type 1, 4X "indoor use only", 12, 13
For all contact blocks use 60 or 75 °C copper (Cu) conductor, rigid or flexible, wire size AWG 12-14. Terminal tightening torque of 7.1 lb in (0.8 Nm).
In conformity with standard: UL 508, CSA 22.2 No. 14

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

Dimensional drawings

All measures in the drawings are in mm

Contact type:
L = slow action
LO = slow action overlapped

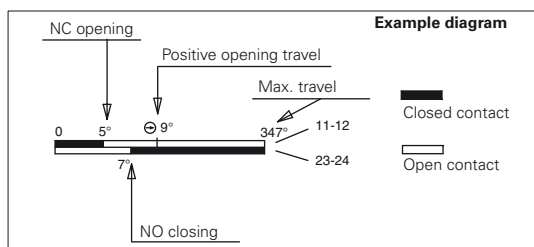


Contact blocks

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

How to read travel diagrams

All measures in the diagrams are in degrees

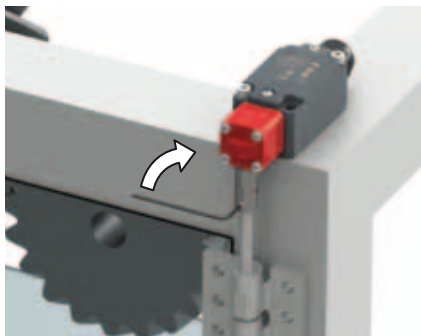


IMPORTANT:

In **safety applications**, actuate the switch **at least up to the positive opening travel** shown in the travel diagrams with symbol \ominus . Operate the switch **at least with the positive opening force**, indicated between brackets below each article, aside the minimum force value.



Adjustment of the operating point



Temporary shaft locking
(dowel provided).



Verify the operating point according to
EN ISO 13857, adjust the
operating point again if necessary.



Switch locking (pin provided).