

Specifications

Mechanical interlock, coded:	PL e acc. to EN ISO 13849-1
Coding level:	type 2 acc. to EN ISO 14119
Safety parameters:	Low acc. to EN ISO 14119
B_{10d} :	2,000,000 for NC contacts
Service life:	20 years
Ambient operating temperature:	-25°C ... +80°C
Max. actuation frequency:	3600 operating cycles ¹ /hour
Mechanical endurance:	1 million operating cycles ¹
Max. actuation speed:	0.5 m/s
Min. actuation speed:	1 mm/s

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

Housing

LP series housing made of glass fiber reinforced technopolymer, self-extinguishing, shock-proof and with double insulation:

LD, LL and LC series: metal housing, baked powder coating.

Metal head, baked powder coating.

LD, LP, LC series: one threaded conduit entry:

M20x1.5 (standard)

LL series - three threaded conduit entries:

M20x1.5 (standard)

Protection degree:

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

Cable cross section (flexible copper wire)

Contact blocks C20, C21, C22, C33, C34:	min. 1 x 0.34 mm ² (1 x AWG 22)
	max. 2 x 1.5 mm ² (2 x AWG 16)
Contact blocks C5, C6, C7, C9:	min. 1 x 0.5 mm ² (1 x AWG 20)
	max. 2 x 2.5 mm ² (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, EN ISO 13850, EN 418, UL 508, CSA 22.2 No.14 .

In conformity with requirements requested by

Low Voltage Directive 2006/95/EC, Machinery Directive 2006/42/EC and EMC Directive 2004/122/EC.

Positive contact opening in conformity with standards

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

Electrical data

Utilization category

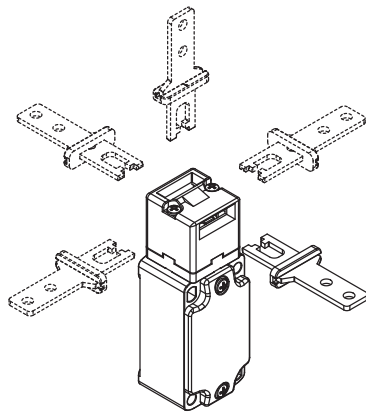
without connector	Thermal current (Ith):	Rated insulation voltage (Ui):	Rated impulse withstand voltage (U _{imp}):	Conditional short circuit current:	Protection against short circuits:	Pollution degree:	Alternating current: AC15 (50/60 Hz)
	10 A	500 Vac 600 Vdc	400 Vac 500 Vdc (contact blocks C20, C21, C22, C33, C34)	1000 A acc. to EN 60947-5-1	type aM fuse 10 A 500 V	3	Ue (V) 250 400 500 Ie (A) 6 4 1
			6 kV	4 kV (contact blocks C20, C21, C22, C33, C34)			Direct current: DC13 Ue (V) 24 125 250 Ie (A) 6 1.1 0.4
with MT12 connector 4 or 5 poles	Thermal current (Ith):	Rated insulation voltage (Ui):	Protection against short circuits:	Pollution degree:	Alternating current: AC15 (50/60 Hz)		
	4 A	250 Vac 300 Vdc	type gG fuse 4 A 500 V	3	Ue (V) 24 120 250	Ie (A) 4 4 4	Direct current: DC13 Ue (V) 24 125 250 Ie (A) 4 1.1 0.4
with MT12 connector 8 poles	Thermal current (Ith):	Rated insulation voltage (Ui):	Protection against short circuits:	Pollution degree:	Alternating current: AC15 (50/60 Hz)		
	2 A	30 Vac 36 Vdc	type gG fuse 2 A 500 V	3	Ue (V) 24	Ie (A) 2	Direct current: DC13 Ue (V) 24 Ie (A) 2

Description



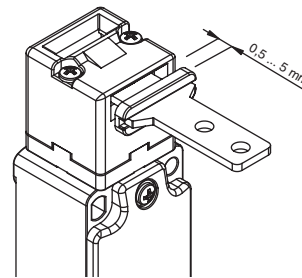
These safety switches are ideal for controlling gates, sliding doors and other guards which protect dangerous parts of machines without inertia. The stainless steel actuator is fastened to the moving part of the guard, so it is removed from the switch on every opening of the guard. The switch mechanism guarantees that removing the actuator forces the positive opening of the electrical contacts. Easy to install, these switches can be applied to any kind of protection (with hinge, sliding and removable ones). Besides, the possibility to actuate the switch only with its actuator guarantees that the machine can be restarted only when the guard has been closed. Made of rugged materials and with oversized thickness, these switches are designed for the use on heavy guards.

Orientable heads



Removing the two fastening screws (in all switches), the head can be rotated in 90° steps. In this way it is possible to actuate the switch from 5 different directions.

Wide-ranging actuator travel



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

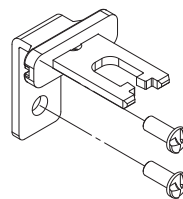
Protection degree IP67

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.

Safety screws for actuators



As required by EN ISO 14119, the actuator must be fixed immovably to the door 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 with using common tools.

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.

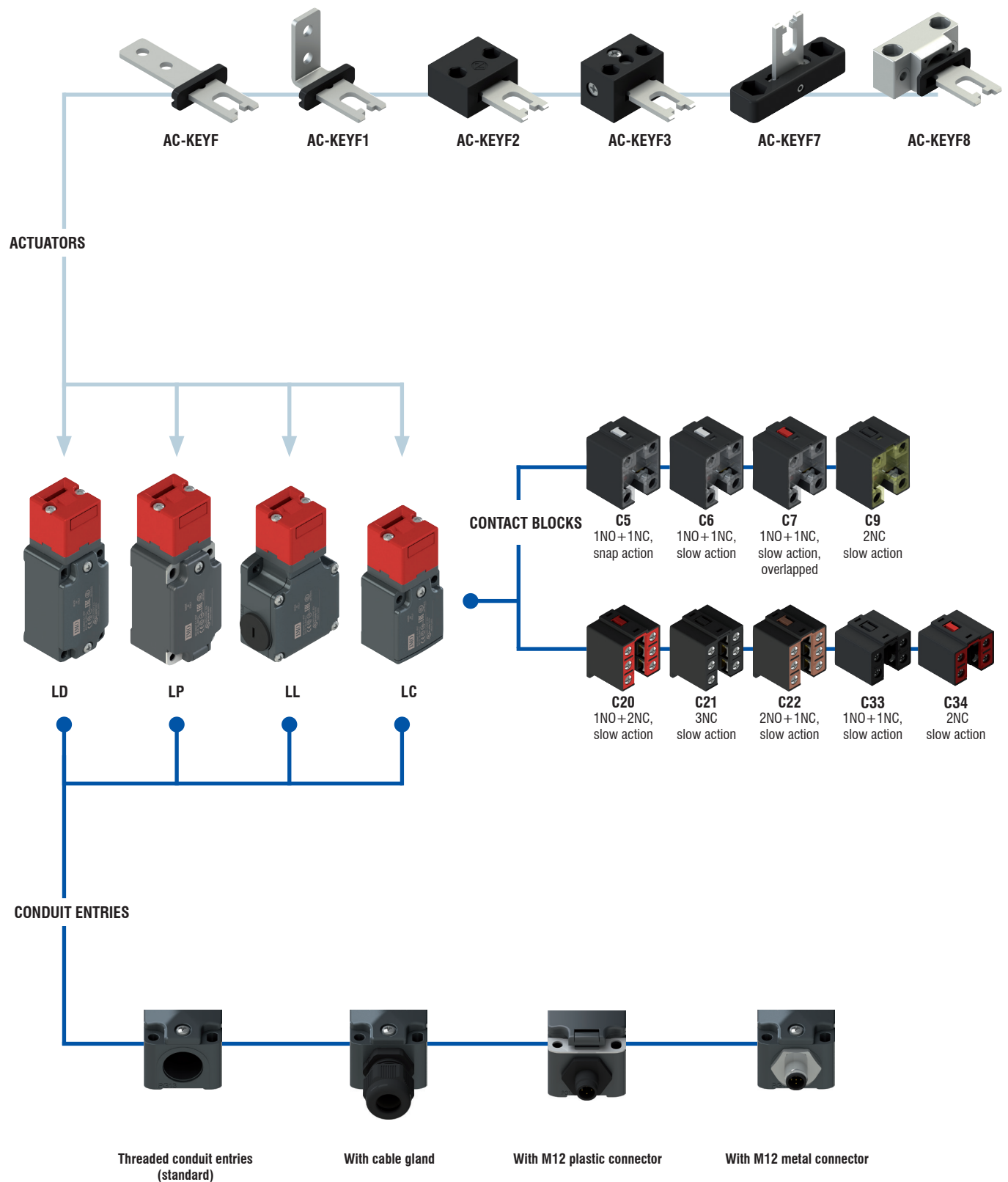
They can be used for applications in cold stores, sterilisers and other devices with low temperature environments. Special materials that have been used to realize these versions, maintain their features under such conditions, widening the installation possibilities.

Laser engraving



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

Selection diagram



● Product option
 ➤ Accessory sold separately

Dimensional drawings

All measures in the drawings are in mm

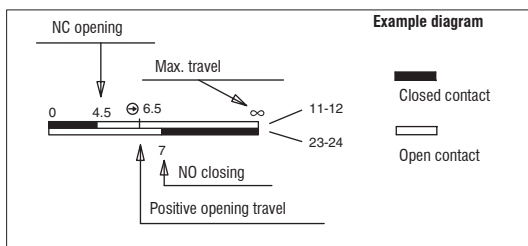
Contact type:
R = snap action
L = slow action
LO = slow action overlapped

Contact blocks

	Technopolymer housing		Metal housing		Metal housing		Metal housing	
	Without actuator		Without actuator		Without actuator		Without actuator	
C5	R	LPC5JK (1NO+1NC)	LDC5JK (1NO+1NC)	LLC5JK (1NO+1NC)				
C6	L	LPC6JK (1NO+1NC)	LDC6JK (1NO+1NC)	LLC6JK (1NO+1NC)				
C7	LO	LPC7JK (1NO+1NC)	LDC7JK (1NO+1NC)	LLC7JK (1NO+1NC)				
C9	L	LPC9JK (2NC)	LDC9JK (2NC)	LLC9JK (2NC)				
C20	L	LPC20JK (1NO+2NC)	LDC20JK (1NO+2NC)	LLC20JK (1NO+2NC)				
C21	L	LPC21JK (3NC)	LDC21JK (3NC)	LLC21JK (3NC)				
C22	L	LPC22JK (2NO+1NC)	LDC22JK (2NO+1NC)	LLC22JK (2NO+1NC)				
C33	L	LPC33JK (1NO+1NC)	LDC33JK (1NO+1NC)	LLC33JK (1NO+1NC)	LCC33JK (1NO+1NC)			
C34	L	LPC34JK (2NC)	LDC34JK (2NC)	LLC34JK (2NC)	LCC34JK (2NC)			
Min. force		10 N (18 N ⊕)	10 N (18 N ⊕)	10 N (18 N ⊕)				10 N (18 N ⊕)

How to read travel diagrams

All measures in the diagrams are in mm



IMPORTANT:

NC contact has to be considered with inserted actuator. In **safety applications**, actuate the switch at least up to the **positive opening travel** shown in the travel diagrams with symbol ⊕. Operate the switch at least with the **positive opening force**, indicated between brackets below each article, aside the minimum force value.

Utilisation limits

Do not use where dust and dirt may penetrate in any way into the head and deposit there, in particular where metal dust, concrete or chemicals are spread. Adhere to the EN ISO 14119 requirements regarding low level of coding for interlocks. Do not use in environments where explosive or flammable gas may be present.

Stainless steel actuators

All measures in the drawings are in mm

IMPORTANT: These actuators can be used with items of the LD, LP, LL, LC and PS series only (e.g. LDC6JK).
Low level of coding acc. to EN ISO 14119.

Article	Description
AC-KEYF	Straight actuator

Article	Description
AC-KEYF1	Angled actuator

Article	Description
AC-KEYF2	Jointed actuator

Article	Description
AC-KEYF3	Actuator adjustable in two directions

The actuator can flex in four directions for applications where the door alignment is not precise.

Actuator adjustable in two directions for doors with reduced dimensions.

Article	Description
AC-KEYF7	Actuator adjustable in one direction

Actuator adjustable in one direction for doors with reduced dimensions.

Article	Description
AC-KEYF8	Universal actuator

Joined and two directions adjustable actuator for doors with reduced dimensions.
The actuator has two couples of fixing holes and it is possible to rotate by 90° the actuator-working plan.
Body material: zinc alloy

Accessories

Article	Description
AC-KB1	Actuator entry locking device

Padlockable device to lock the actuator entry in order to prevent from the accidental closing of the door behind operators while they are inside the machine.

Hole diameter for padlocks is 9mm