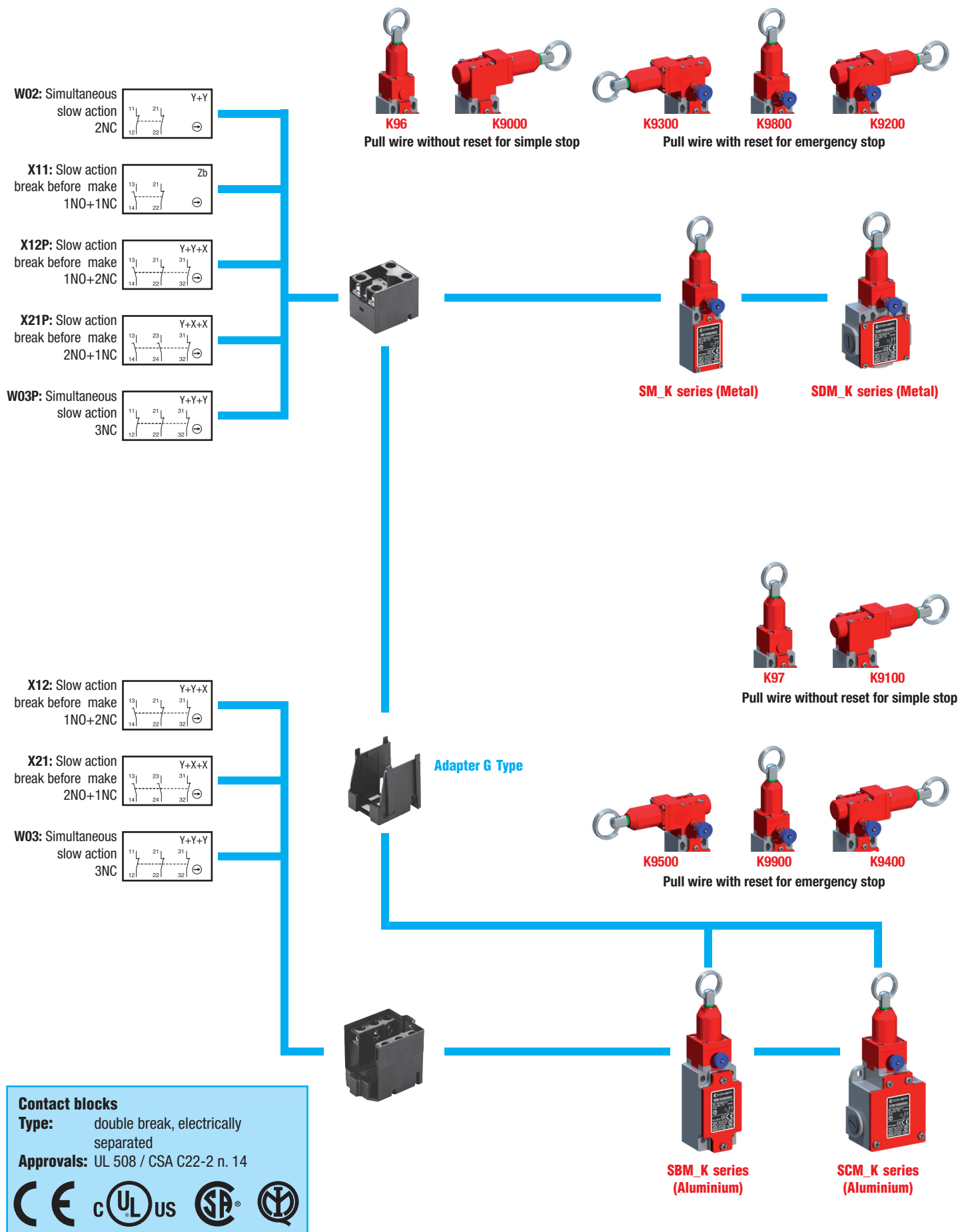


## Safety Limit Switches with rope



## Safety Limit Switches with rope - Description

### Applications

**Easy to use, the limit switches for safety applications with rope for simple and emergency stop offer specific qualities:**

- Capability for strong current switching (conventional thermal current 10 A).
- Contact blocks with positive opening operation of the "N.C." normally closed contact(s) (symbol  $\ominus$ ).
- Electrically separated contacts.
- Precision on operating positions (consistency).
- Immunity to electromagnetic disturbances.

**The use of the Comepi pull wire safety switches allows you to create perimeter protections of the machines, thus reducing the need to install sever emergency stop stations in different points of the machine.** They comply with the requirements of European Directives (Low Voltage and Machines Directive) and are conform to European and international standards.

### Description

SM/SDM series are made of zinc alloy (zamack). SBM/SCM series are realized in aluminium material, therefore they are mechanically more resistant and three times lighter than the ones in zinc alloy. All metal limit switches have a degree of protection IP66.

**Casing**

- 30 mm. width with standardized dimensions acc. to EN 50047
- 50 mm. width
- 40 mm. width with standardized dimensions acc. to EN 50041
- 60 mm. width

**Mounting the casing**

- 2 x M4 screws on top part for 30 mm. width
- 2 or 4 x M4 screws on top part for 50 mm. width
- 2 or 4 x M5 screws on top part for 40 mm. width
- 2 x M5 screws on top part for 60 mm. width

**Contact Block:**

- Positive opening operation
- Slow action contacts
- Contacts are electrically separated

**Connecting terminals:**

- Block of 2 contacts: M3.5 (+, -) pozidriv 2 screw
- Block of 3 contacts: M3 (+, -) screw
- Screw head with captive cable clamp
- Markings conform with IEC 60947-1, IEC 60947-5-1 standard

**Operating heads:**

- Straight
- 90° right
- 90° left

**Reset:**

- Manual reset button for emergency stop

**Cover:**

- 3 screws for 30 mm. casing
- 2 screws for 40 mm. casing
- 4 screws for 50 and 60 mm. casing

**Electrical connection:**

- 1 x cable gland for SM/SBM series
- 3 x cable gland for SBM/SCM series

**Symbols**

**Example:**

SD	M	1	K	10	X	1	1
----	---	---	---	----	---	---	---

**Structure:**

	M		K				
--	---	--	---	--	--	--	--

**Casing width:**

**S** = 30 mm width + 1 cable inlet

**SB** = 40 mm width + 1 cable inlet

**SC** = 60 mm width + 3 cable inlets

**SD** = 50 mm width + 3 cable inlets

**M:** Metal (SM, SDM) / Aluminium (SBM, SCM) casing

**Electrical connection**

**1:** cable inlets for PG13.5 cable gland

**2:** cable inlets for 1/2 NPT cable gland

**3:** cable inlets for PG11 cable gland (only for SM and SDM series)

**4:** cable inlets for M16 x 1,5 cable gland (only for SM and SDM series)

**5:** cable inlets for M20 x 1,5 cable gland

**Operating heads:**

codes 98, 9000, 9300, 9800, 9200, 97, 9100, 9500, 9900, 9400

**Contact block**

**11:** 1 NO + 1 NC contacts

**02:** 2 NC contacts

**12P:** 1 NO + 2 NC contacts

**21P:** 2 NO + 1 NC contacts

**03P:** 3 NC contacts

**Only for SBM, SCM series:**

**12:** 1 NO + 2NC contacts

**21:** 2 NO + 1 NC contacts

**03:** 3 NC contacts

**W:** Slow action (contact dependent)

**X:** Slow action non-overlapping late make

## Safety Limit Switches with rope - Technical Data

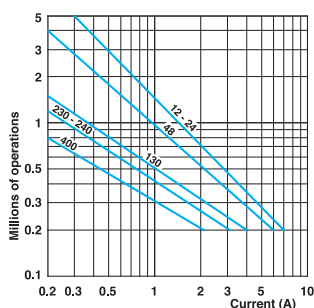
### SM / SBM / SCM / SDM Series

<b>Standards</b>	IEC 60947-5-1, EN 60947-5-1 EN 60947-5-5 (models with reset)
<b>Certifications - Approvals</b>	UL - CSA - IMQ
<b>Air temperature</b> near the device	
– during operation	°C
– for storage	°C
<b>Mounting positions</b>	All positions are authorised
<b>Protection against electrical shocks</b> (acc. to IEC 61140)	Class I
<b>Degree of protection</b> (according to IEC 60529 and EN 60529)	IP 66

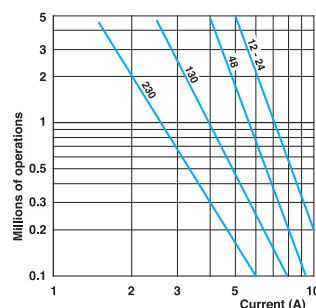
### Electrical Data

<b>Rated insulation voltage <math>U_i</math></b> - according to IEC 60947-1 and EN 60947-1 - according to UL 508 and CSA C22-2 n° 14	500 V (degree of pollution 3) (400 V for contacts type X12P, X21P, W03P) A 600, Q 600 (A 300, Q 300 for SM/SDM series and contacts type X12P, X21P, W03P)
<b>Rated impulse withstand voltage <math>U_{imp}</math></b> (according to IEC 60947-1 and EN 60947-1)	kV
<b>Conventional free air thermal current <math>I_{th}</math></b> (according to IEC 60947-5-1) $\theta < 40$ °C	A
<b>Short-circuit protection</b> $U_e < 500$ V a.c. - gG (gl) type fuses	A
<b>Rated operational current</b> $I_e$ / AC-15 (according to IEC 60947-5-1)	24 V - 50/60 Hz A 120 V - 50/60 Hz A 400 V - 50/60 Hz A
$I_e$ / DC-13 (according to IEC 60947-5-1)	24 V - d.c. A 125 V - d.c. A 250 V - d.c. A
<b>Switching frequency</b>	Cycles/h
<b>Load factor</b>	
<b>Resistance between contacts</b>	mΩ
<b>Connecting terminals</b>	M3.5 (+, -) pozidriv 2 screw with cable clamp (M3 for 3 poles contacts type)
<b>Terminal for protective conductor</b>	M3.5 (+, -) pozidriv 2 screw with cable clamp
<b>Connecting capacity</b>	1 or 2 x mm <sup>2</sup>
<b>Terminal marking</b>	According to IEC 60947-5-1
<b>Mechanical durability</b>	500.000 operations
<b>Electrical durability</b> (according to IEC 60947-5-1)	Utilization categories AC-15 and DC-13 (Load factor of 0.5 according to curves below)
<b>B10d = 1.000.000 cycles</b>	

#### AC-15 - Snap action



#### AC-15 - Slow action



DC-13	Snap action	Slow action
	Power breaking for a durability of 5 million operating cycles	
Voltage 24 V	9.5 W	12 W
Voltage 48 V	6.8 W	9 W
Voltage 110 V	3.6 W	6 W

## Safety Limit Switches with rope - Technical Data

### Technical data approved by IMQ

<b>Standards</b>	Devices conform with international IEC 60947-5-1 and European 60947-5-1 standards	
<b>Degree of protection</b>	IP 66	
<b>Contact blocks type Z11, X11, Y11, W02 and Z02</b>		
<b>Rated insulation voltage <math>U_i</math></b>	500 V (degree of pollution 3)	
<b>Rated impulse withstand voltage <math>U_{imp}</math></b>	6 kV	
<b>Conventional free air thermal current <math>I_{th}</math></b>	10 A	
<b>Short-circuit protection - gG (gl) type fuses</b>	10 A	
<b>Rated operational current</b>		
<b><math>I_e</math> / AC-15</b>	24 V - 50/60 Hz	10 A
	400 V - 50/60 Hz	1.8 A
<b><math>I_e</math> / DC-13</b>	24 V - d.c.	2.8 A
	125 V - d.c.	0.55 A
	250 V - d.c.	0.27 A

### Technical data approved by UL

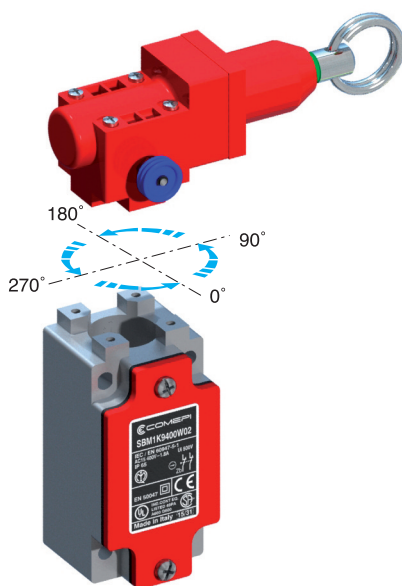
<b>Standards</b>	Devices conform with UL 508	
<b>Contact blocks type Z11, X11, Y11, W02 and Z02</b>		
<b>Utilization categories</b>	A600, Q600	
	(A300, Q300 when installed in SM/SDM series)	
<b>Contact blocks type X12P, X21P and W03P</b>		
<b>Utilization categories</b>	A300, Q300	
Use 60/75°C copper (Cu) conductor only. Wire ranges 14-18 AWG stranded or solid. The terminal tightening torque of 7 lbs-in / 0.78 Nm. Suitable for conduit connection only with use of adapter sleeve optionally provided or recommended by the manufacturer.		

For the complete list of approved products, contact our technical department

## Implementation

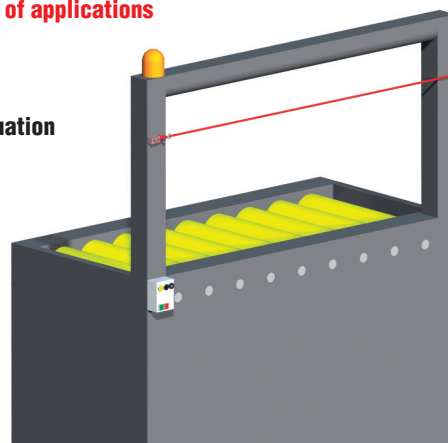
### Operating head orientation

The head can be rotated each 90°.  
Recommended tightening torque 0,5 Nm (max 0,8 Nm).

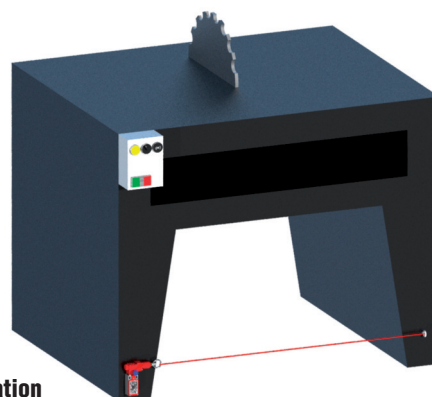


### Examples of applications

#### Hand actuation



#### Foot actuation



## Metal casing. Polymer head. 30 mm width. 1 cable inlet - IP66

### Electrical connection:

Replace the symbol “•” with the number of the thread desired

1: Cable gland PG 13.5

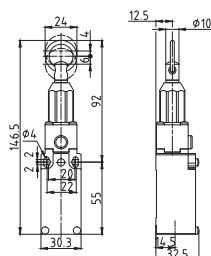
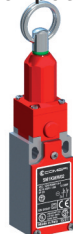
2: Cable gland 1/2" NPT

3: Cable gland PG 11

4: Cable gland M16 x 1,5

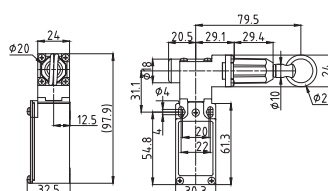
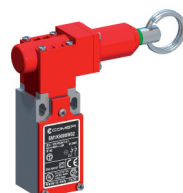
5: Cable gland M20 x 1,5

### K96 Pull wire without reset for simple stop



Min. forces Initial 60N, Final 80N (90N ⊖)  
Weight 220 g  
Operating diagram Page 54

### K9000 Pull wire without reset for simple stop



Min. forces Initial 65N, Final 85N (95N ⊖)  
Weight 265 g  
Operating diagram Page 54

### Contact Blocks

X11 (1NO+1NC)

SM•K96X11

SM•K9000X11

W02 (2NC)

SM•K96W02

SM•K9000W02

X12P (1NO+2NC)

SM•K96X12P

SM•K9000X12P

X21P (2NO+1NC)

SM•K96X21P

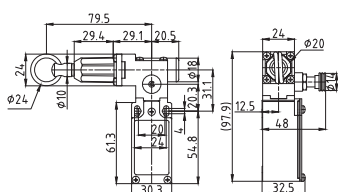
SM•K9000X21P

W03P (3NC)

SM•K96W03P

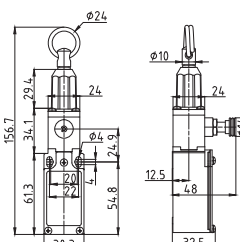
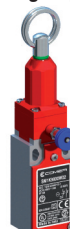
SM•K9000W03P

### K9300 Pull wire with reset for emergency stop



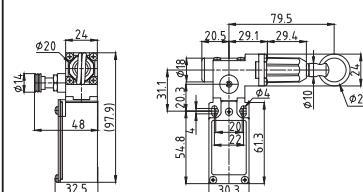
Min. forces Initial 65N, Final 85N (95N ⊖)  
Weight 275 g  
Operating diagram Page 54

### K9800 Pull wire with reset for emergency stop



Min. forces Initial 60N, Final 80N (90N ⊖)  
Weight 230 g  
Operating diagram Page 54

### K9200 Pull wire with reset for emergency stop



Min. forces Initial 65N, Final 85N (95N ⊖)  
Weight 275 g  
Operating diagram Page 54

### Contact Blocks

X11 (1NO+1NC)

SM•K9300X11

SM•K9800X11

SM•K9200X11

W02 (2NC)

SM•K9300W02

SM•K9800W02

SM•K9200W02

X12P (1NO+2NC)

SM•K9300X12P

SM•K9800X12P

SM•K9200X12P

X21P (2NO+1NC)

SM•K9300X21P

SM•K9800X21P

SM•K9200X21P

W03P (3NC)

SM•K9300W03P

SM•K9800W03P

SM•K9200W03P

## Metal casing. Polymer head. 50 mm width. 3 cable inlets - IP66

### Electrical connection:

Replace the symbol “●” with the number of the thread desired

1: Cable gland PG 13.5

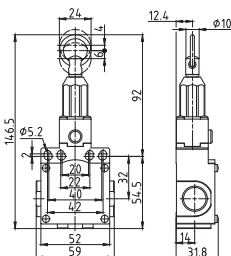
2: Cable gland 1/2" NPT

3: Cable gland PG 11

4: Cable gland M16 x 1,5

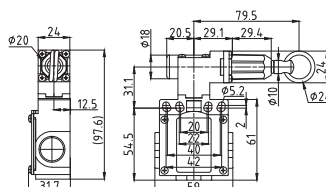
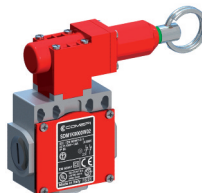
5: Cable gland M20 x 1,5

### K96 Pull wire without reset for simple stop



Min. forces Initial 60N, Final 80N (90N ⊖)  
Weight 310 g  
Operating diagram Page 54

### K9000 Pull wire without reset for simple stop



Min. forces Initial 65N, Final 85N (95N ⊖)  
Weight 355 g  
Operating diagram Page 54

### Contact Blocks

X11 (1NO+1NC)

SDM•K96X11

SDM•K9000X11

W02 (2NC)

SDM•K96W02

SDM•K9000W02

X12P (1NO+2NC)

SDM•K96X12P

SDM•K9000X12P

X21P (2NO+1NC)

SDM•K96X21P

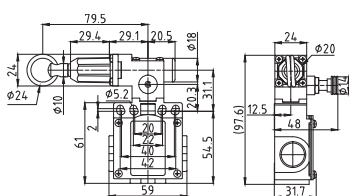
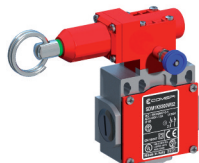
SDM•K9000X21P

W03P (3NC)

SDM•K96W03P

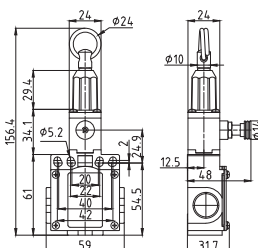
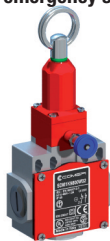
SDM•K9000W03P

### K9300 Pull wire with reset for emergency stop



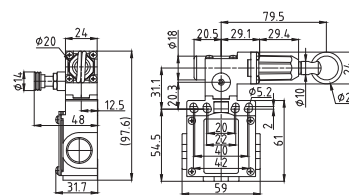
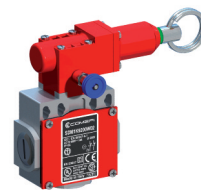
Min. forces Initial 65N, Final 85N (95N ⊖)  
Weight 365 g  
Operating diagram Page 54

### K9800 Pull wire with reset for emergency stop



Min. forces Initial 60N, Final 80N (90N ⊖)  
Weight 320 g  
Operating diagram Page 54

### K9200 Pull wire with reset for emergency stop



Min. forces Initial 65N, Final 85N (95N ⊖)  
Weight 365 g  
Operating diagram Page 54

### Contact Blocks

X11 (1NO+1NC)

SDM•K9300X11

SDM•K9800X11

SDM•K9200X11

W02 (2NC)

SDM•K9300W02

SDM•K9800W02

SDM•K9200W02

X12P (1NO+2NC)

SDM•K9300X12P

SDM•K9800X12P

SDM•K9200X12P

X21P (2NO+1NC)

SDM•K9300X21P

SDM•K9800X21P

SDM•K9200X21P

W03P (3NC)

SDM•K9300W03P

SDM•K9800W03P

SDM•K9200W03P

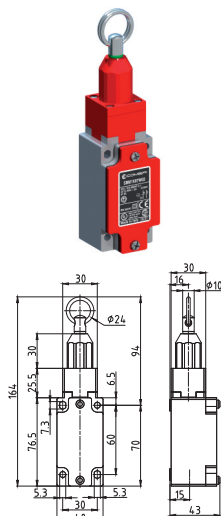
**Metal casing. Polymer head. 40 mm width. 1 cable inlet - IP66**

### Electrical connection:

Replace the symbol “●” with  
the number of the thread desired

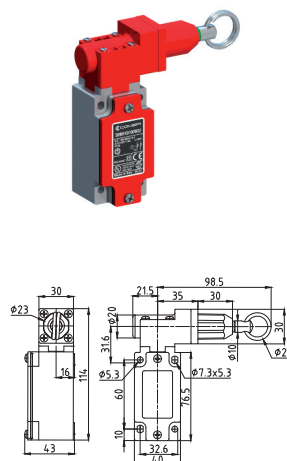
- 1:** Cable gland PG 13.5  
**2:** Cable gland 1/2" NPT  
**5:** Cable gland M20 x 1,5

**K97** Pull wire without reset for simple stop



Min. forces	Initial 120N, Final 160N (170N ⊖)
Weight	240 g
Operating diagram	Page 54

**K9100 Pull wire without reset  
for simple stop**

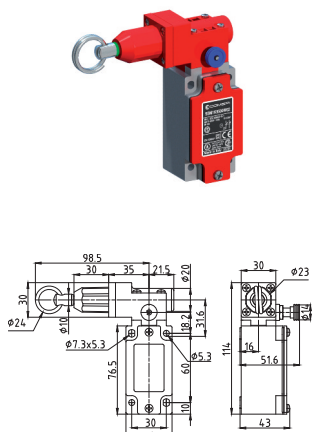


Min. forces	Initial 150N, Final 215N (230N ⊖)
Weight	310 g
Operating diagram	Page 54

## Contact Blocks

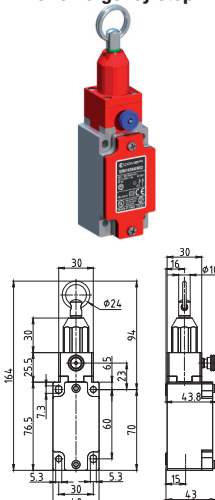
<b>X11</b>	(1N0+1NC)	SBM•K97X11	SBM•K9100X11
<b>W02</b>	(2NC)	SBM•K97W02	SBM•K9100W02
<b>X12</b>	(1N0+2NC)	SBM•K97X12	SBM•K9100X12
<b>X21</b>	(2N0+1NC)	SBM•K97X21	SBM•K9100X21
<b>W03</b>	(3NC)	SBM•K97W03	SBM•K9100W03

**K9500 Pull wire with reset for emergency stop**



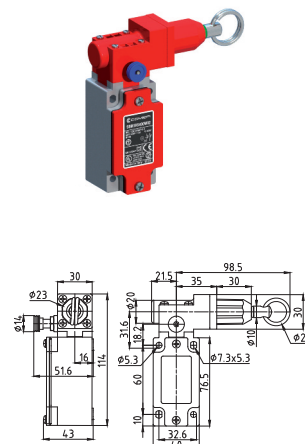
Min. forces	Initial 150N, Final 215N (230N ⊕)
Weight	320 g
Operating diagram	Page 54

**K9900 Pull wire with reset for emergency stop**



Min. forces	Initial 120N, Final 160N (170N $\ominus$ )
Weight	250 g
Operating diagram	Page 54

**K9400 Pull wire with reset for emergency stop**



Min. forces	Initial 150N, Final 215N (230N ⊖)
Weight	320 g
Operating diagram	Page 54

## Contact Blocks

<b>X11</b> (1NO+1NC)	SBM•K9500X11	SBM•K9900X11	SBM•K9400X11
<b>W02</b> (2NC)	SBM•K9500W02	SBM•K9900W02	SBM•K9400W02
<b>X12</b> (1NO+2NC)	SBM•K9500X12	SBM•K9900X12	SBM•K9400X12
<b>X21</b> (2NO+1NC)	SBM•K9500X21	SBM•K9900X21	SBM•K9400X21
<b>W03</b> (3NC)	SBM•K9500W03	SBM•K9900W03	SBM•K9400W03

## Metal casing. Polymer head. 60 mm width. 3 cable inlets - IP66

### Electrical connection:

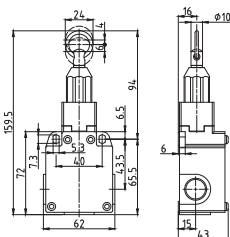
Replace the symbol “●” with the number of the thread desired

1: Cable gland PG 13.5

2: Cable gland 1/2" NPT

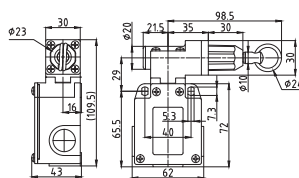
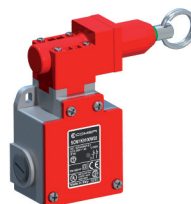
5: Cable gland M20 x 1,5

### K97 Pull wire without reset for simple stop



Min. forces	Initial 120N, Final 160N (170N ☹)
Weight	265 g
Operating diagram	Page 54

### K9100 Pull wire without reset for simple stop



Min. forces	Initial 150N, Final 215N (230N ☹)
Weight	335 g
Operating diagram	Page 54

### Contact Blocks

X11 (1NO+1NC)

SCM•K97X11

SCM•K9100X11

W02 (2NC)

SCM•K97W02

SCM•K9100W02

X12 (1NO+2NC)

SCM•K97X12

SCM•K9100X12

X21 (2NO+1NC)

SCM•K97X21

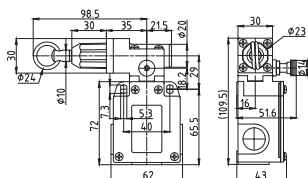
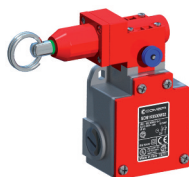
SCM•K9100X21

W03 (3NC)

SCM•K97W03

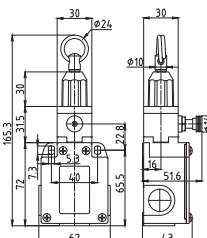
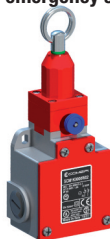
SCM•K9100W03

### K9500 Pull wire with reset for emergency stop



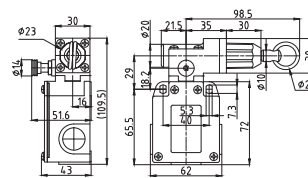
Min. forces	Initial 150N, Final 215N (230N ☹)
Weight	345 g
Operating diagram	Page 54

### K9900 Pull wire with reset for emergency stop



Min. forces	Initial 120N, Final 160N (170N ☹)
Weight	275 g
Operating diagram	Page 54

### K9400 Pull wire with reset for emergency stop



Min. forces	Initial 150N, Final 215N (230N ☹)
Weight	345 g
Operating diagram	Page 54

### Contact Blocks

X11 (1NO+1NC)

SCM•K9500X11

SCM•K9900X11

SCM•K9400X11

W02 (2NC)

SCM•K9500W02

SCM•K9900W02

SCM•K9400W02

X12 (1NO+2NC)

SCM•K9500X12

SCM•K9900X12

SCM•K9400X12

X21 (2NO+1NC)

SCM•K9500X21

SCM•K9900X21

SCM•K9400X21

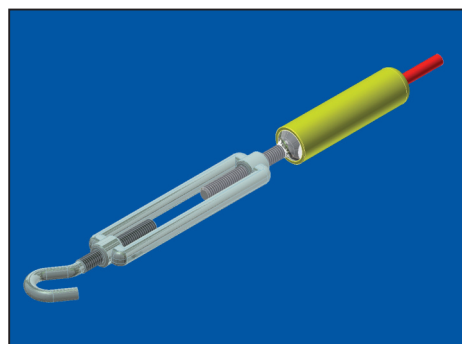
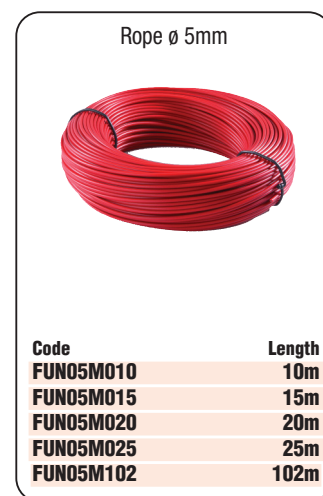
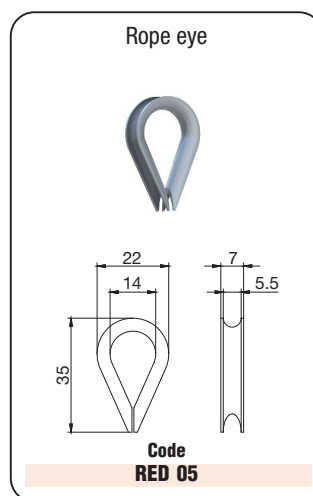
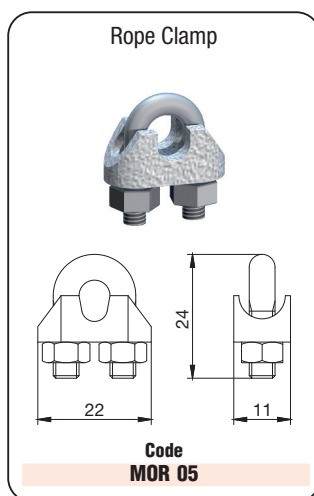
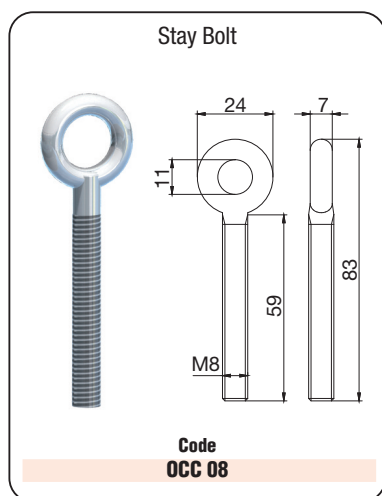
W03 (3NC)

SCM•K9500W03

SCM•K9900W03

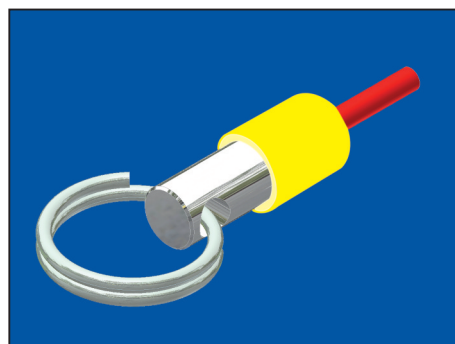
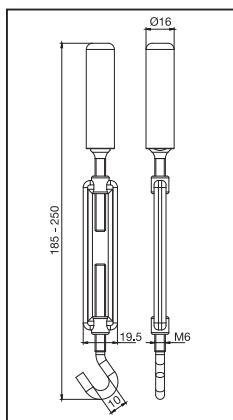
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## Safety Limit Switches with rope - Accessories



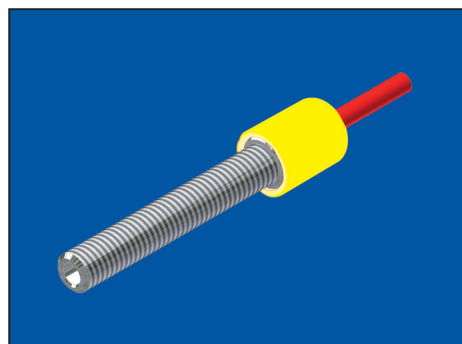
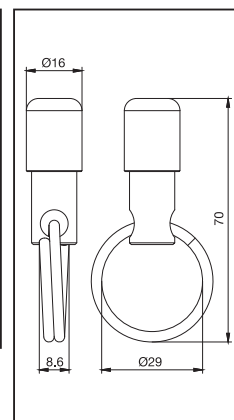
Code  
**SLS-FX1**

Description  
Hook stay bolt



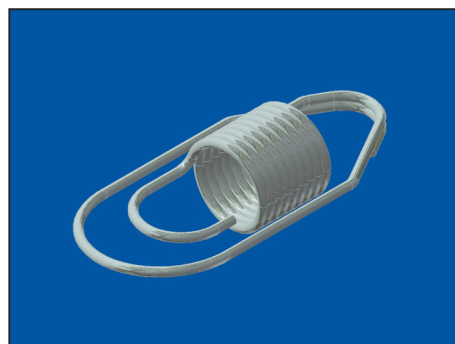
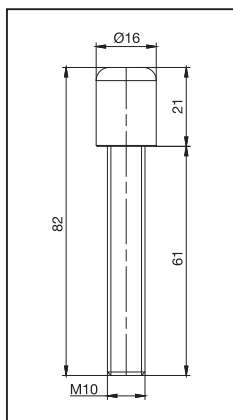
Code  
**SLS-FX2**

Description  
Fixing clamp



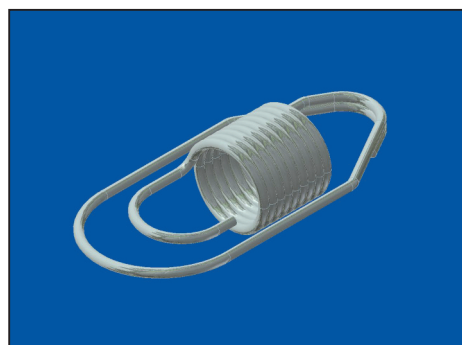
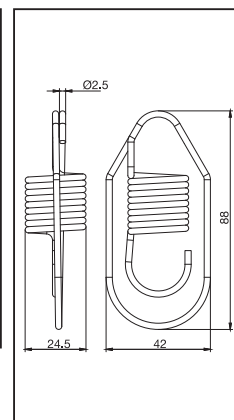
Code  
**SLS-FX3**

Description  
Stay bolt



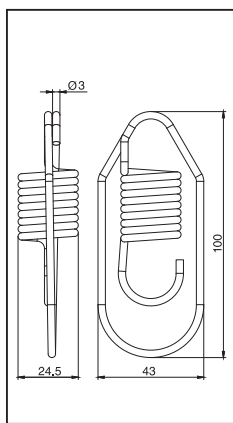
Code  
**SLS-M1**

Description  
Spring for SM, SDM series



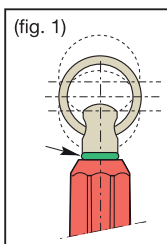
Code  
**SLS-M2**

Description  
Spring for SBM, SCM series



## Safety Limit Switches with rope

### Installation instructions



In order to obtain the correct operation of the device, please follow the following instructions.

1. Install the switch and secure the fixed end of the rope. Apply tension to the extent the green O-ring is visible and the bottom is flush with the end of the red housing. (Fig. 1).

2. Pull the reset pommel in order to close the safety contacts of the limit switch.
3. The contacts inside the limit switch will change their position whenever the rope is pulled or loose its tension.
4. Check the correct operation of the rope switch before you start the machine and periodically.

Performing the role of worker protection, improper installation or tampering with safety devices can cause serious injury to persons.

The installation must therefore be performed in accordance with local legislation and only by authorized personnel.

For any question about CE declaration of conformity or for any information and assistance, please contact our technical department

