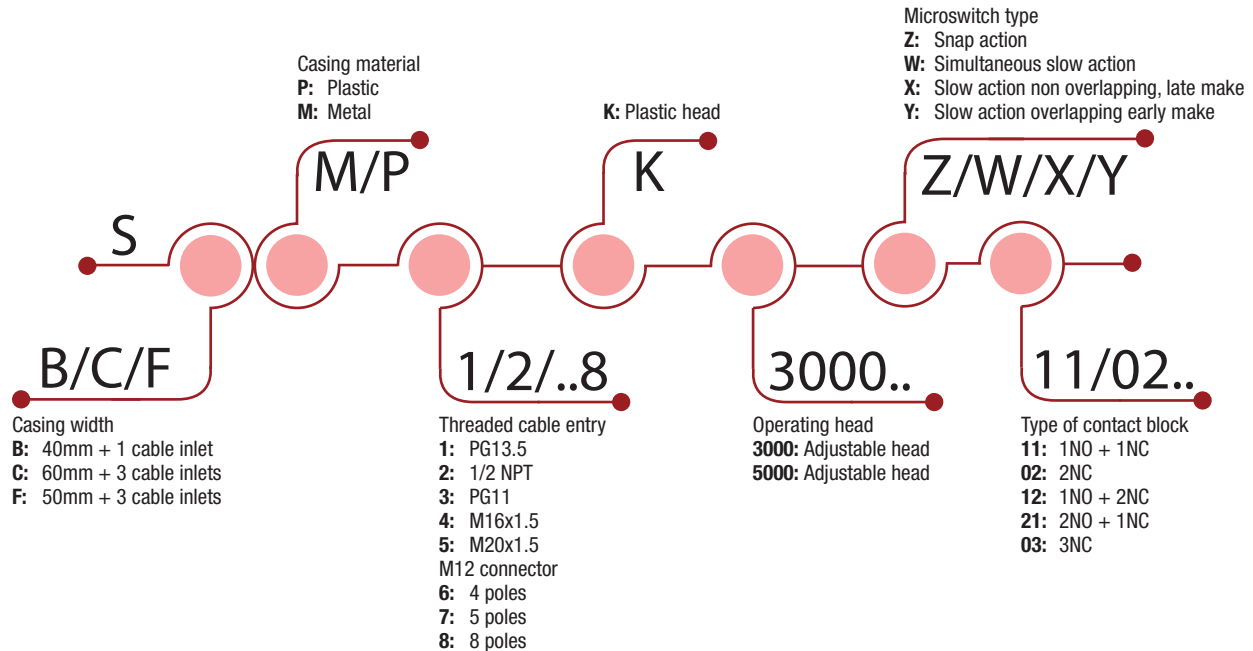


Safety Limit Switches

Safety Limit Switches with separate actuator

APPROVALS: UL 508 / CSA C22-2 N. 14



HOW IS IT MADE?

01 A variety of operating inox keys

- Flat / Bent
- Shock absorbing
- Adjustable

02 Fixed or turnable head

03 Casing

- SBP/SBM with dimensions acc. to EN 50041

04 Mounting screws

- 2 x M5 screws on top part for SFP/SCM series
- 2 or 4 x M5 screws on top part for SBP/SBM series

05 Cover

- 2 screws Ø3 pozidriv 1 for SFP/SBM series
- 4 screws Ø3 pozidriv 1 for SCM series

06 Contact Block

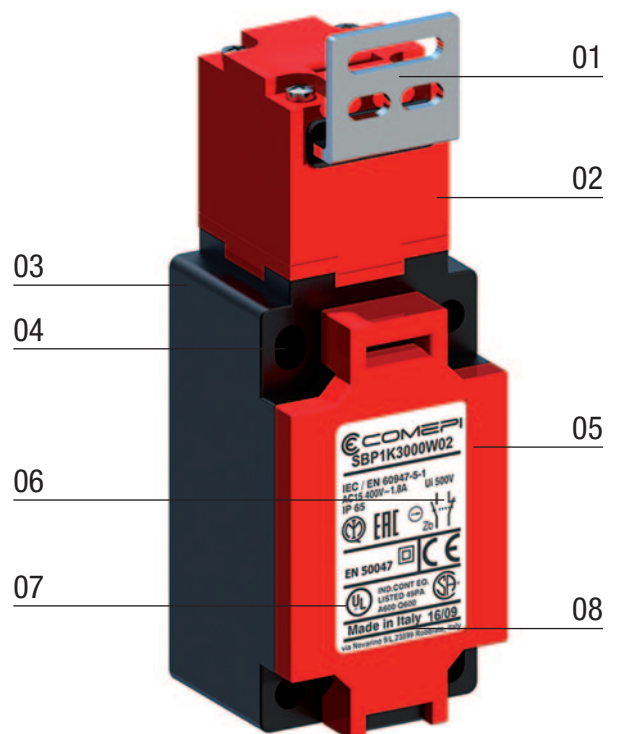
- Positive opening operation
- Snap action or slow action
- Electrically separated contacts

07 Connecting terminals

- 2 screws 3 pozidriv 1 for SFP/SBM series
- 4 screws 3 pozidriv 1 for SCM series
- Screw head with captive cable clamp
- Markings conform with IEC 60947-1, IEC 60947-5-1 standard

08 Electrical connection

- 1 x threaded cable inlet suitable for cable gland (SBP/SBM)
- 3 x threaded cable inlets suitable for cable gland (SFP/SCM)



Safety Limit Switches

Safety Limit Switches with separate actuator - Description

APPLICATIONS

Easy to use, the limit switches with small latch (key) offer specific qualities:

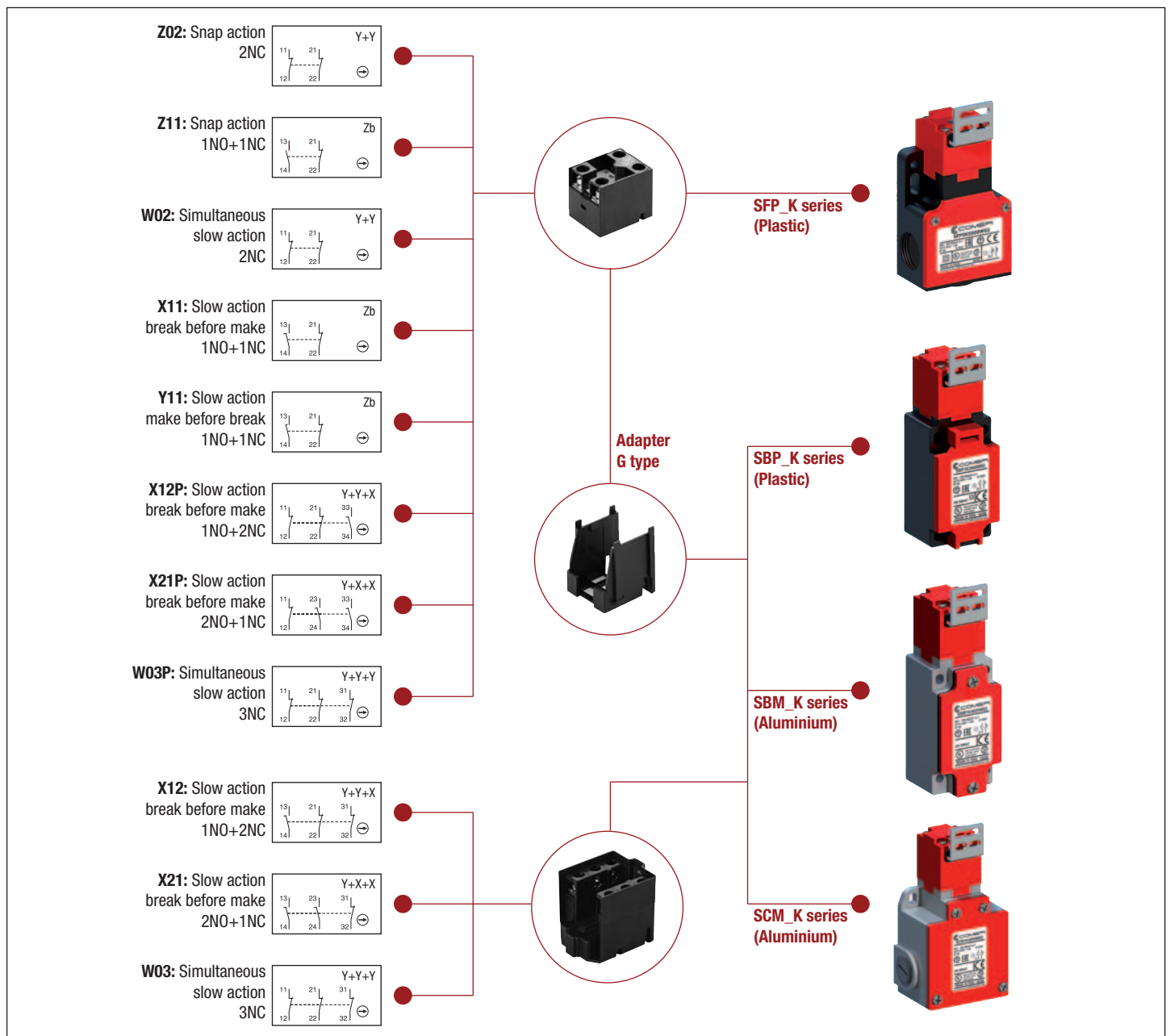
- Capability for strong current switching (conventional thermal current 10 A).
- Opening guaranteed of the "N.C." contact(s) when the small latch is withdrawn from the limit switch.
- Contact blocks with dependent action and positive opening operation of the "N.C." normally closed contact(s) (symbol \ominus).
- Electrically separated contacts.
- Precision on operation positions (consistency).
- Immunity to electromagnetic disturbances.

These specific features make the limit switches ideal for monitoring and protection of industrial machines without inertia in which downtime is less than access time to the dangerous area. Use on sliding or pivoting protectors (covers, cases, doors, grids, etc.).

- They contribute to protection of operators working on dangerous machines, by opening the control circuit. Withdrawal of the small latch (key) by opening the mobile protector causes immediate stopping of the machine drive.
- They comply with the requirements of European Directives (Low Voltage and Machines Directive) and are conform to European and international standards.

DESCRIPTION

Safety limit switches with small latch (key) of SFP/SBP series are made of fibre-glass reinforced UL-V0 thermoplastic material, and they offer double insulation \square and a degree of protection IP65. Safety limit switches of SBM/SCM series are made of painted zamack and have a degree of protection IP66. All models are equipped with 1NO+1NC, 2NC, 1NO+2NC, 2NO+1NC or 3NC contact blocks with positive opening operation of the "N.C." contact(s).



Safety Limit Switches

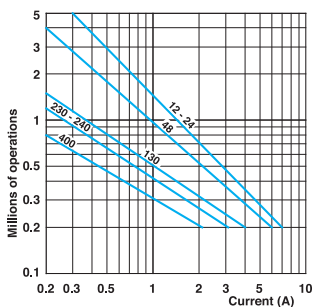
Safety Limit Switches with separate actuator - Technical Data

	SBP / SFP Series	SBM / SCM Series
Standards	IEC 60947-5-1, EN 60947-5-1 UNI EN ISO 14119	
Certifications - Approvals	UL - CSA - IMQ - EAC - CCC	
Air temperature near the device		
– during operation	°C	– 25 ... + 70
– for storage	°C	– 30 ... + 80
Mounting positions	All positions are authorised	
Protection against electrical shocks (acc. to IEC 61140)	Class II	Class I
Degree of protection (according to IEC 60529 and EN 60529)	IP 65	IP 66

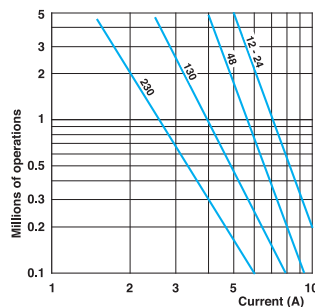
Electrical Data

Rated insulation voltage U_i - 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 Z02, X12P, X21P, W03P) A 600, Q 600 (A 300, Q 300 for SM/SDM series and contacts type X12P, X21P, W03P)	
Rated impulse withstand voltage U_{imp} (according to IEC 60947-1 and EN 60947-1)	kV	6
Conventional free air thermal current I_{th} (according to IEC 60947-5-1) $\theta < 40^\circ\text{C}$	A	10
Short-circuit protection $U_e < 500\text{ V a.c.}$ - gG (gl) type fuses	A	10
Rated operational current 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	10 6 4 (1.8A for contacts type X12, X21, W03)
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	6 (2.8A for contacts type X12, X21, W03) 0.55 0.4 (0.27A for contacts type X12, X21, W03)
Switching frequency	Cycles/h	3600
Load factor		0.5
Resistance between contacts	m Ω	25
Connecting terminals	M3.5 (+, -) pozidriv 2 screw with cable clamp (M3 for 3 poles contacts type)	
Terminal for protective conductor	-	
Recommended tightening torque		M3.5 (+, -) pozidriv 2 screw with cable clamp
Cover	Plastic 0,5Nm, max 0,8	Metal 0,8Nm, max 0,9
Head	0,5Nm, max 0,8	0,8Nm, max 0,9
Microswitch	0,8Nm, max 0,9	0,8Nm, max 0,9
Connecting capacity	1 or 2 x mm ²	0.34 ... 2.5 (0.34... 1.5 for 3 poles contacts type)
Terminal marking	According to IEC 60947-5-1	
Mechanical durability	1 million of operations	
Electrical durability (according to IEC 60947-5-1)	Utilization categories AC-15 and DC-13 (Load factor of 0.5 according to curves below)	
B10d	2 million of operations	

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	12 W
Voltage	48 V	9 W
Voltage	110 V	6 W

• Ordering details	page	12
• Additional Technical Data	page	96

Safety Limit Switches

Safety Limit Switches with separate actuator - Technical Data

Technical data approved by IMQ

Standards	Devices conform with international IEC 60947-5-1 and European EN 60947-5-1 standards		
Degree of protection	IP 65 (SP/SDP/SBP series), IP 66 (SM/SDM/SBM/SCM series)		
Rated insulation voltage U_i	500 V (degree of pollution 3) (400 V for contacts type Z02, X12P, X21P, W03P)		
Rated impulse withstand voltage U_{imp}	6 kV		
Conventional free air thermal current I_{th}	10 A		
Short-circuit protection - gG (gl) type fuses	10 A		
Rated operational current			
I_e / AC-15	24 V - 50/60 Hz	10 A	
	400 V - 50/60 Hz	4 A (1.8A for contacts type X12, X21, W03)	
I_e / DC-13	24 V - d.c.	6 A (2.8A for contacts type X12, X21, W03)	
	125 V - d.c.	0,55 A	
	250 V - d.c.	0.4 A (0.27A for contacts type X12, X21, W03)	

Technical data approved by UL

Standards	Devices conform with UL 508
Contact blocks type Z11, X11, Y11, W02 and Z02	A600, Q600
Utilization categories	(A300, Q300 when installed in SM/SDM series)
Contact blocks type X12, X21, W03	A600, Q600
Utilization categories	A600, Q600
Contact blocks type X12P, X21P and W03P	A300, Q300
Utilization categories	A300, Q300

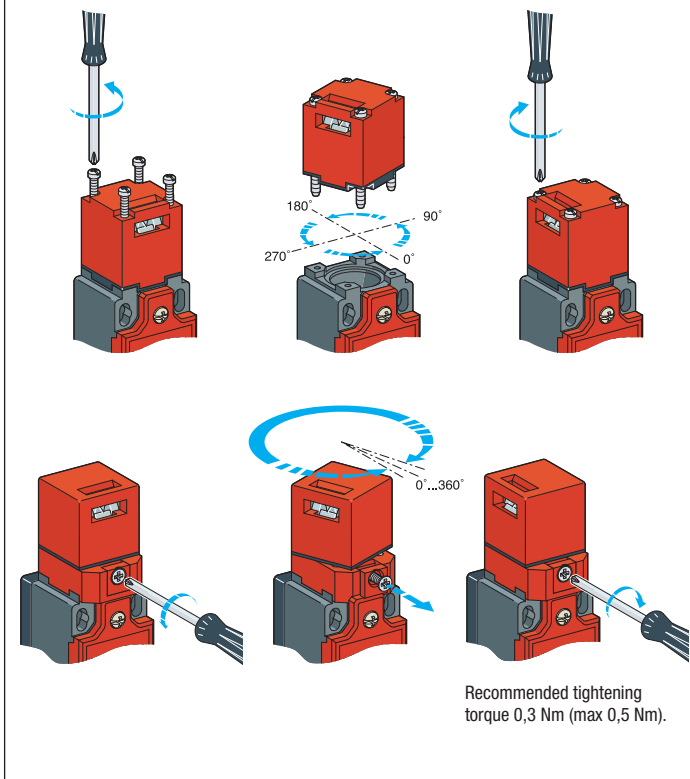
Use 60/75°C copper (Cu) conductor only. Wire ranges 14-18 AWG stranded or solid. The terminal tightening torque of 7 lbs-in / 0.78 Nm. Suitable for conduit connection only with use of adapter sleeve optionally provided or recommended by the manufacturer.

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

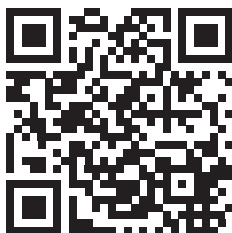
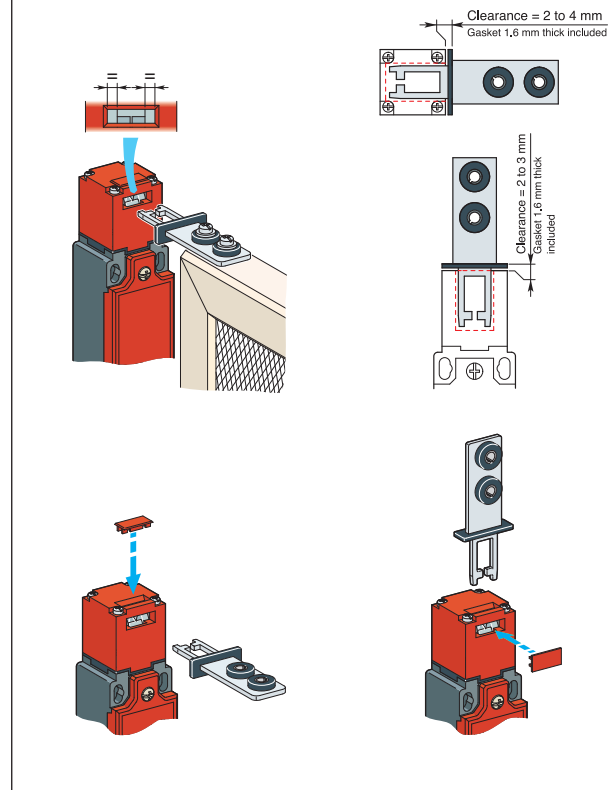
IMPLEMENTATION

Operating head orientation

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



Key adjustment



Download

Instruction sheet – Safety limit switches with separated actuator
CE declaration

Safety Limit Switches **SBP/SFP/SBM/SCM_K**

Key operated

Electrical connection:

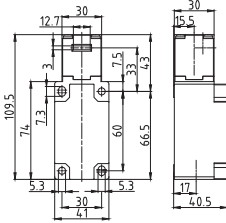
Replace the symbol “•” with the number of the thread desired

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

On SFP series available only
M20x1,5 version

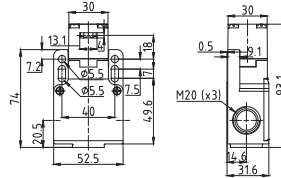
Operating keys to be ordered separately (see page 13)

K3000 Adjustable head 90°



Min. actuating force **15 N (30N ⇄)**
Weight **155 g**
Operating diagram **Page 96**

K5000 Adjustable head 90°



Initial minimum activating force **60 N (90N ⇄)**
Weight **140 g**
Operating diagram **Page 96**

Contact Blocks

Z11 (1NO+1NC)	SBP•K3000Z11	SFP5K5000Z11
X11 (1NO+1NC)	SBP•K3000X11	SFP5K5000X11
Y11 (1NO+1NC)	SBP•K3000Y11	SFP5K5000Y11
W02 (2NC)	SBP•K3000W02	SFP5K5000W02
Z02 (2NC)	SBP•K3000Z02	SFP5K5000Z02
X12 (1NO+2NC)	SBP•K3000X12	SFP5K5000X12P
X21 (2NO+1NC)	SBP•K3000X21	SFP5K5000X21P
W03 (3NC)	SBP•K3000W03	SFP5K5000W03P

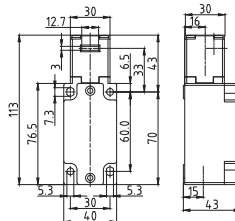
Electrical connection:

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

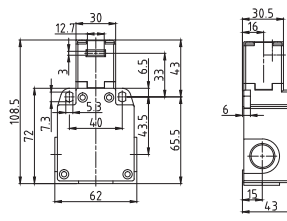
Operating keys to be ordered separately (see page 13)

K4000 Adjustable head 90°



Min. actuating force **15 N (30N ⇄)**
Weight **225 g**
Operating diagram **Page 96**

K4000 Adjustable head 90°



Min. actuating force **15 N (30N ⇄)**
Weight **220 g**
Operating diagram **Page 96**

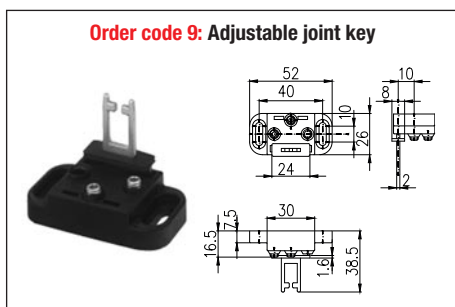
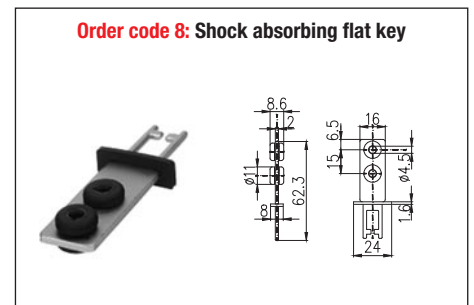
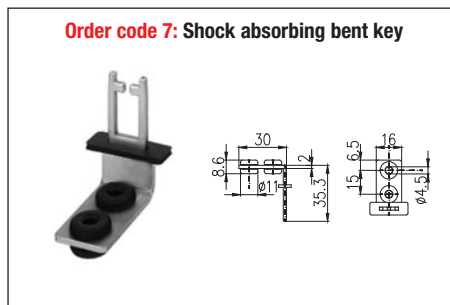
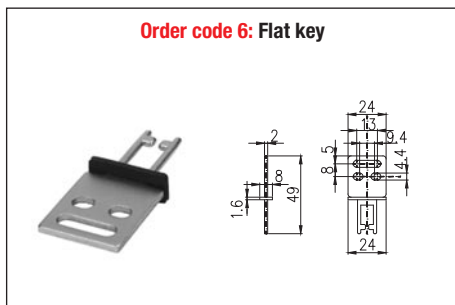
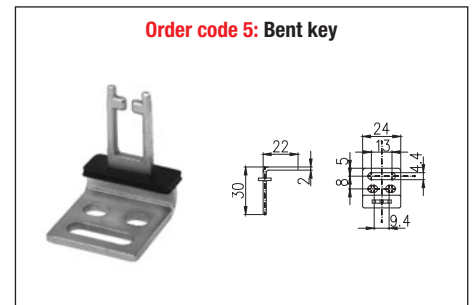
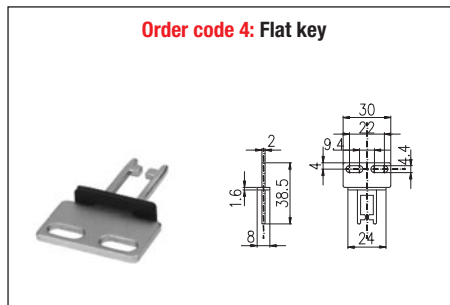
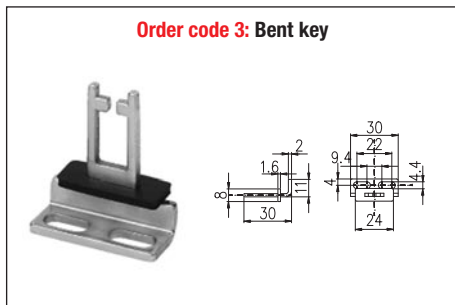
Contact Blocks

Z11 (1NO+1NC)	SBM•K4000Z11	SCM•K4000Z11
X11 (1NO+1NC)	SBM•K4000X11	SCM•K4000X11
Y11 (1NO+1NC)	SBM•K4000Y11	SCM•K4000Y11
W02 (2NC)	SBM•K4000W02	SCM•K4000W02
Z02 (2NC)	SBM•K4000Z02	SCM•K4000Z02
X12 (1NO+2NC)	SBM•K4000X12	SCM•K4000X12
X21 (2NO+1NC)	SBM•K4000X21	SCM•K4000X21
W03 (3NC)	SBM•K4000W03	SCM•K4000W03

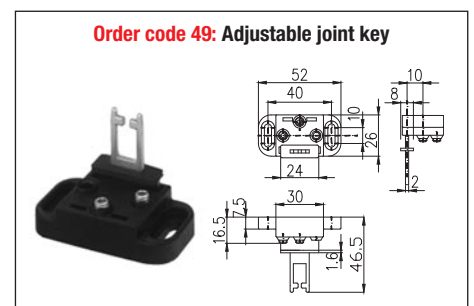
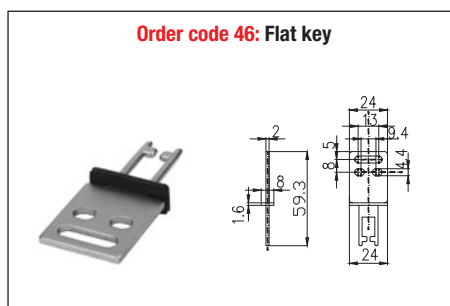
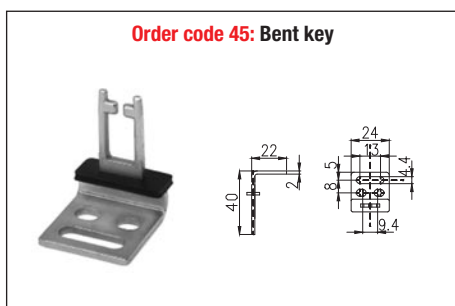
Safety Limit Switches **Accessories**

Operating keys

FOR OPERATING HEAD MODELS K10 AND K80 (dimensions in mm.)



FOR OPERATING HEAD MODELS K3000, K4000, K5000 (dimensions in mm.)



MINIMUM VALUES (mm)

	KEY 3	KEY 4	KEY 5/45	KEY 6/46	KEY 7	KEY 8	KEY 9/49
R1	400	400	400	400	250	350	180
R2	400	400	400	400	350	350	200

