

The COMEPI limit switches with rope for emergency stop are devices designed and made in compliance with the international IEC regulations and the EN European standards. This device is used for controlling emergency stops along the perimeter of a machine or a production line, in compliance with standard EN 60947-5-5. Being a protection equipment for operators, its incorrect installation or tampering can damage people, even seriously. The device installation must be carried out according to the regulations in force by authorized staff only. Make sure the switch works properly before starting the machine and periodically check the correct operation of the equipment.

#### Installation precautions

Before starting the machine, check the proper operation of the safety system. Periodically check the correct operation of the device and the rope pre-tensioning.

The device installation must be carried out by authorized and qualified staff only.

The device use must be limited to the applications meeting the regulations requirements.

The device installation and the safety system design must be carried out only by people knowing the regulations in force.

The device installation and the safety system design must be carried out in compliance with the regulations in force and with the indications contained in these instructions.

In case of doubts or special applications, please contact COMEPI Technical Support. Do not install in places with continuous sudden temperature changes and condensate formation.

In case of ambient temperature increase, check the correct operation of the device and its correct pre-tensioning.

Before any painting operation, cover the identification label.

Do not install in places where there are flammable dusts or gases.

Do not install in places with strong vibrations; impacts and vibrations can prevent the switch correct operation.

Use only proper accessories supplied by COMEPI, suitable for the model used; otherwise warranty could be void.

Install the rope so that it can be easily reached by the operator without representing a danger for him.

Do not exceed the distance limits indicated in this document.

If the rope or the accessories are damaged or worn, replace them. In case the device is damaged, replace the whole device to ensure safety.

Replace the equipment after exceeding the mechanical durability limit.

During wiring, keep load under the value of the use category.

Check that safety contacts are connected to a protection fuse.

Before reaching the switch contacts, make sure the device is not supplied with power.

Tighten the screws with the specified tightening torques (0.5Nm plastic, 0.8Nm metal).

The device must not be disposed of following special procedures, just comply with the regulations in force in the country where the device is used.

#### Use limits

Use the switch complying with the regulations in force within its operation limits and following the instructions. The manufacturer is not to be held responsible for damages if: the device was not used properly, the installation accessories were not used properly, instructions were not followed, assembly and maintenance operations were carried out by unauthorized or unskilled staff, functional tests were omitted.

#### This device complies with the following Directives:

Low Tension Directive 2014/35/EU

According to standard EN 60947-5-1

Machinery Directive 2006/42/EC

According to standard EN ISO 60947-5-5

Directive RoHS 2002/95/EC

#### Approvals

cULus according to standard UL508 – IMQ according to EN 60947-5-1 (for the complete list of the certified products, please contact COMEPI Technical Support).

#### Use and operation examples

This kind of device is typically used to control emergency stop along the whole perimeter of a machine or a production line. The pre-tensioning of the device brings it to a rest position with contacts in their normal condition. The pre-tensioning condition is reached when the green strip on the shaft is completely visible. The device is enabled by pulling the rope or when the rope is no longer tensioned. This causes the switching of contacts and the reset mechanism trip. The machine will remain in the stop condition until an operator restores the safety condition by acting on the blue reset piston with an action different from the one which caused the device enabling. To test the proper operation of the equipment, check the correct pre-tensioning of the rope and generate the stop signal by pulling it. The machine emergency stop shall be immediately enabled and the machine cannot be restarted before the device reset. The device must not be used as mechanical lock or for a function beyond its intended use.

#### Safety warnings

Safety switches protect operators. An incorrect installation as well as the tampering of the device and of its safety system can cause even extremely dangerous situations. The correct operation of the safety system must be periodically checked and any malfunctions must be immediately solved to avoid dangerous situations for operators and machines.

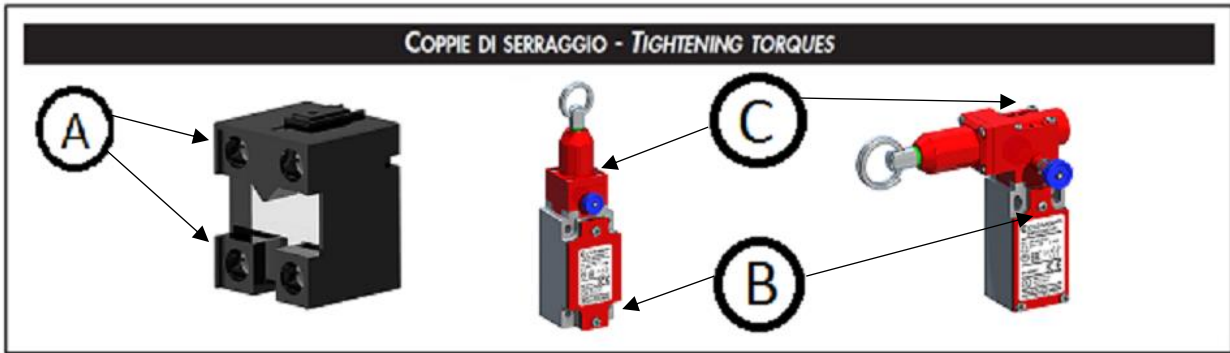
## Technical data

Casing	Painted metal casing	Rated impulsive withstand voltage U <sub>imp</sub>	6 kV		
Room temperature during operation	-25°C ... +70°C	Conventional thermal current I <sub>th</sub>	10A		
Environmental designation	Type-1 enclosure	Operational current AC-15	24V 10A	120V 6A	400V 4A
Protection against electrical shocks	Class I (metal casing)	Operational current DC-13	24V 6A	125V 0.55A	250V 0.4A
Degree of protection IP	IP66 (metal casing)	Maximum switching frequency	3600 cycles/hour		
Rated insulation voltage U <sub>i</sub>	500V (400V X12P-X21P-W03P)	Load factor	0.5		
Use categories according to UL508	A600 – Q600 (A300-Q300 X12P-X21P-W03P)	Resistance between contacts	25 mΩ		
Connecting terminals	Screws M3.5 with cable clamp (M3 for 3 poles contacts type)	Terminal marking	According to IEC 60947-5-1		
Dimensions of connecting cables*	0.34 ... 1.5 mm <sup>2</sup>	Mechanical durability	500.000 operations		
		B10d	1 million operations		

\*Only use copper conductors 60/70°C, AWG14-18, stranded and solid conductor. Terminals maximum tightening torque 0.8Nm

The CE declaration of this product is available in the *download* section of website [www.comepi.it](http://www.comepi.it) or by writing to the following email address: [tecnico@comepi.it](mailto:tecnico@comepi.it)

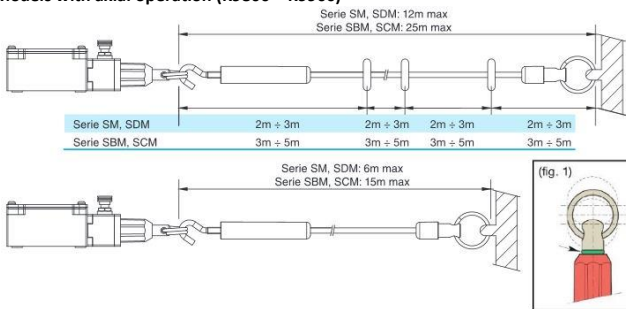
DDC 03A – Safety limit switches with rope series SM-SDM-SBM-SCM



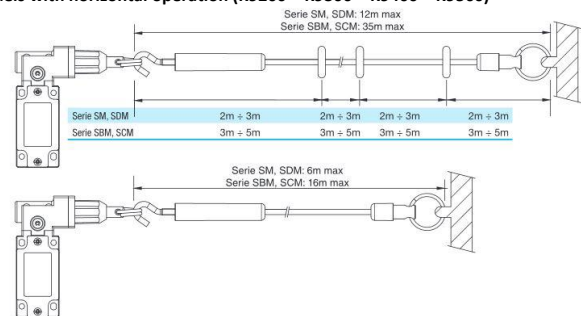
Screws	A		B		C	
	RECOM.	MAX	RECOM.	MAX	RECOM.	MAX
Tightening torque Nm / lb. in.						
Metal limit switches	0.8 / 7	0.9	0.8 / 7	0.9	0.8 / 7	0.9

**Maximum distances for installation**

**Models with axial operation (K9800 – K9900)**

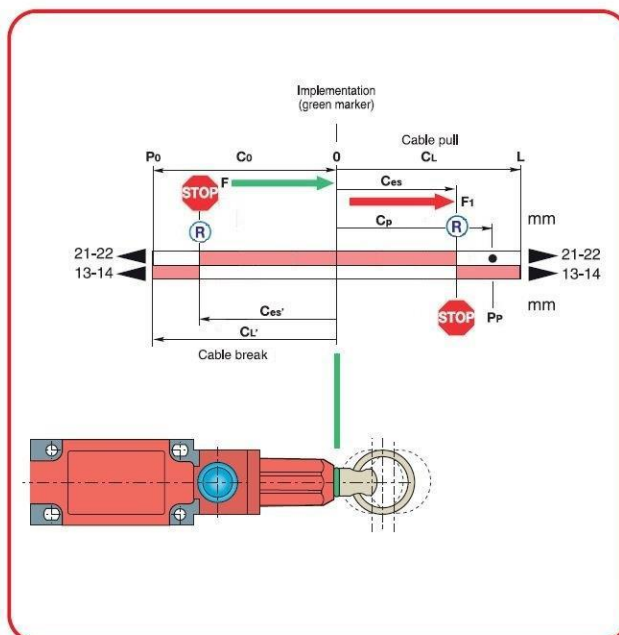
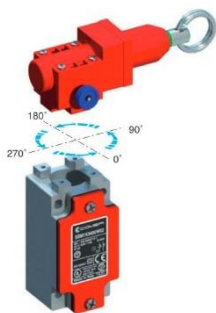


**Models with horizontal operation (K9200 – K9300 – K9400 – K9500)**



**Procedure for a correct installation**

- 1) If needed, adjust the position of the reset knob by unscrewing the four head fastening screws and rotating the head in the desired direction. Then lock the screws with a tightening torque of 0.8 Nm / 7 lb. In. (max. 0.9 Nm).
- 2) Fix the switch and pull the rope connected to it so that the green OR on the limit switch shaft is positioned near the red end of the limit switch (Pict.1).
- 3) Pull the reset knob so as to close the safety contacts of the limit switch.
- 4) The contacts inside the limit switch will change their state when the rope is pulled or in case the rope is no longer in the pre-tensioning condition.
- 5) Check the correct operation of the switch before starting the machine.



**P<sub>0</sub> Rest position:**  
actuator position when no external force is applied.

**0 Initial position:**  
actuator position with the operating mass force F applied.

**P<sub>p</sub> Positive opening position:**  
actuator position when there is a positive opening.

**L Maximum stroke position:**  
maximum stroke reachable by the actuator.

**C<sub>0</sub> Pre-tensioning ideal stroke:**  
distance between the rest position P<sub>0</sub> and the initial position.

**C<sub>p</sub> Positive opening stroke:**  
minimum stroke of the actuator, from the initial position 0, to ensure the positive opening of contacts NC.

**C<sub>es</sub>, C<sub>es'</sub>**  
Stroke for emergency stop and hooking position.

**C<sub>l</sub> Maximum stroke:**  
distance between 0 and the maximum stroke L.

**C<sub>l'</sub>** Distance between the initial position C<sub>0</sub> and the rest position P<sub>0</sub> in case of cable break.