The Comepi safety limit switches are devices designed and made in compliance with the international IEC regulations and the EN European standards.
They can be used on machines where danger conditions may last for a certain period of time after the stop signal and for building safety systems in compliance with standard ISO14119. 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.
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.
In case of doubts or special applications, please contact COMEPI Technical Support.
Do not install in dusty or dirty places.
During installation and operation, it is fundamental to prevent dust and dirt from entering the opening when the start key is not inserted.
Before any painting operation, cover the openings and 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.
Do not remove and install again the starting head: improper installation may lead to malfunctions.
Possibility of disassembling, rotating and reassembling the drive head: the operation, if performed incorrectly, could lead to malfunction.
(follow the instructions on page 2)
Use only proper actuators supplied by COMEPI, suitable for the model used; otherwise warranty could be void.
Install the actuator in a suitable way, so that it does not harm the operator when the door is open.
If the microswitch is damaged or worn, replace the whole device to ensure safety.
If the actuator is damaged or worn, replace it.
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 a tightening torque not higher than 0.5Nm.
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, instructions were not followed, assembly and maintenance operations were carried out by unauthorized or unskilled staff, functional tests were omitied.

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 14119
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 ensure the operator's safety on machines where a danger condition can last a certain time after the stop condition has been enabled on the machine, for example due to inertia of some mechanical moving parts, or to the presence of parts with high temperature or pressure.
This device, if used singularly, is not suitable for machines where the operator can completely enter a fenced area, because an accidental closure of the fence may occur after the operator had entered this area.
To test the proper operation of the equipment, check the correct insertion of the actuator into the head opening and close the guard starting the machine.
In these conditions it shall not be possible to open the guard.
When the machine is stopped and the protection disabled, the machine shall not start.

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.
Never bypass or tamper with the device.
In order to avoid any tampering attempt, it is advisable for the installer to mount the device in a place that cannot be easily reached by unauthorized staff, even using physical barriers or other means to make tampering difficult.

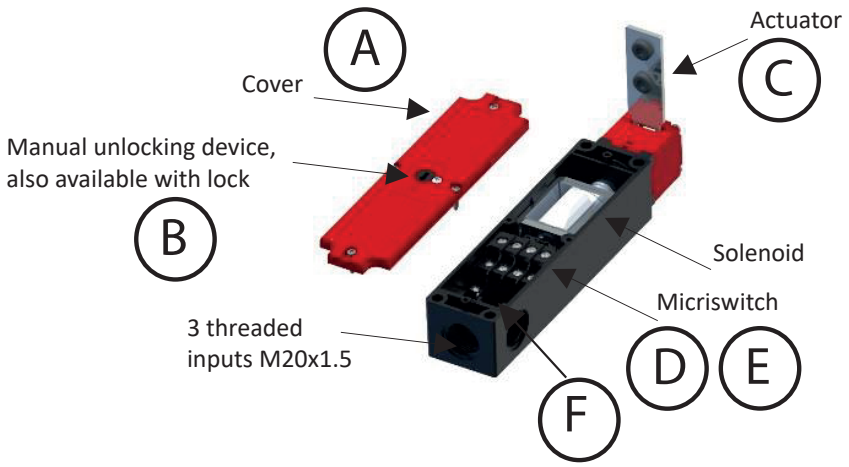
Technical data

Casing	Technopolymer casing	Rated impulsive withstand voltage Uimp	2,5 kV
Room temperature during operation	-25°C … +70°C	Conventional thermal current Ith	10A
Environmental designation	Type-1 enclosure	Operational current AC-15	24V 10A / 230V 4A
Protection against electrical shocks	Class II (thermoplastic casing)	Operational current DC-13	24V 4A
Degree of protection IP	IP65 (plastic casing)	Maximum switching frequency	600 cycles/hour
Rated insulation voltage Ui	250V	Load factor	0.5
Use categories according to UL508	A300 – Q300	Resistance between contacts	25 mΩ
Connecting terminals	Screws M3 with cable clamp	Terminal marking	According to IEC 60947-5-1
Dimensions of connecting cables*	0.34 … 1.5 mm²	Mechanical durability	1 million operations
		B10d	4 million operations

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

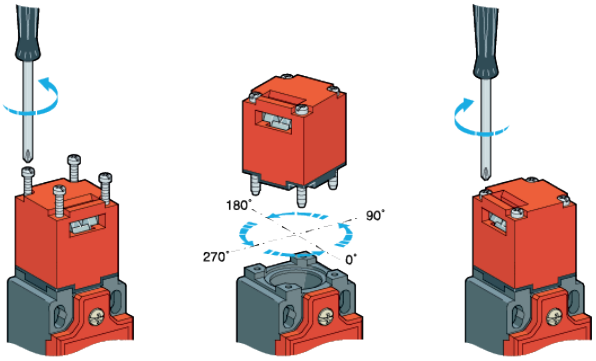
The CE declaraiton of this product is available in the download section of website www.comepi.it or by writing to the following email address: tecnico@comepi.it
DDC 12 – Electromagnetic switches with separate actuator series FEP

Components / Tightening torques



	A	B	C	D	E	F
	Closing cover	Manual unlocking	Head fastening	Microswitch fastening	Microswitch	Supply terminals
Screws	Ø3 pozidriv1	Ø3 pozidriv1	Ø3 pozidriv1	Ø3 pozidriv1	M3 pozidriv1	M3 pozidriv1
Couple of tightening Recommended Max (Nm/lbin)	0.8/7 0.9/8	0.5/4.3 0.8/7	0.8/7 0.9/8	Not removable Factory sealed	0.5/4.3 0.8/7	0.5/4.3 0.8/7

Head orientation



By following these steps it will be possible to orient the head of the FEP maintaining correct operation.
- Unscrew the 4 screws Ø3 pozidriv1
- Remove the head from the body
- Check that the gasket on the pin is intact and well positioned
- Reposition the head in the desired direction
(0 °, 90 °, 180 °, 270 °) then press on it to anchor it to the body.
- Screw the head to the body, reusing the 4 screws Ø3 pozidriv1.
(tightening torque 0.8Nm)
- Repeat the functional tests before commissioning.

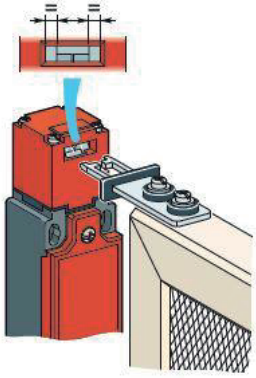
Type of actuator

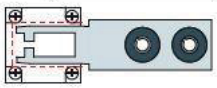
Fold key | Flat key | Dampet fold key | Dampet flat key | Swivel key

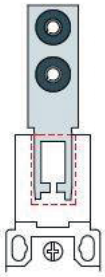
Auxiliary release

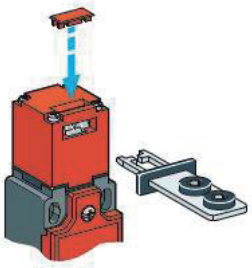
The device can be equipped with two types of release auxiliary.
Auxiliary release via safety screw.
The arrow on the cover indicates the status of the device.
The release is activated by unscrewing the safety screw and turning 180 °.
In order to avoid misuse of the function of release, the device is supplied with the safety screw sealed with paint.
Auxiliary release with lock.
The release is activated by inserting the key into the lock, then turning it 180 °.
The device is supplied complete key and dust seal.

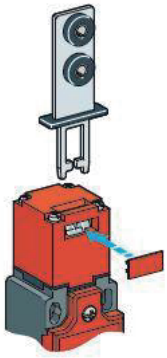
Actuator installation precautions





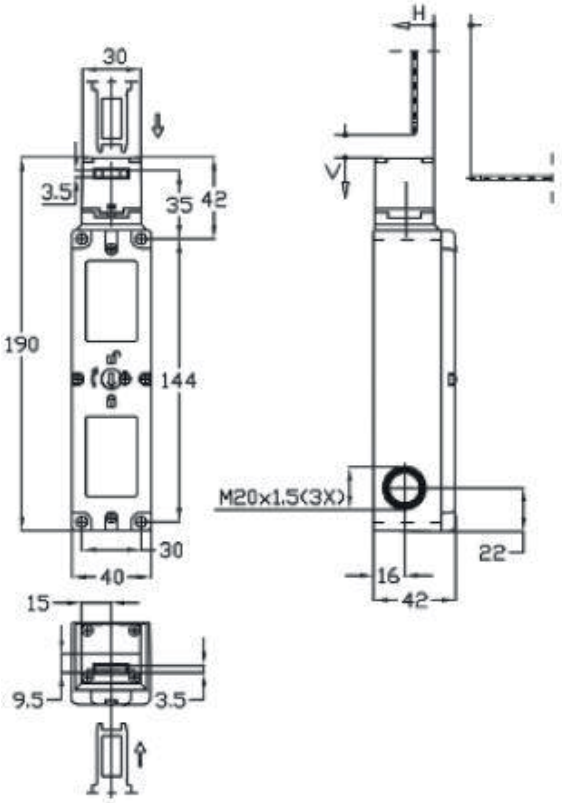




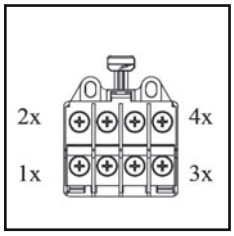


Always use the cap
for the unused slot

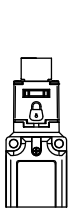
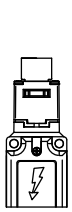
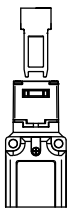
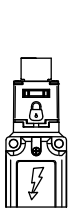
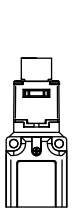
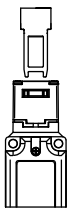
Drawing 2D



Contact numbering



Definition of electrical contacts

TYPE		MECHANICAL INTERLOCK			ELECTRICAL INTERLOCK		
							
ACTUATOR		Inserted and locked	Inserted and unlocked	Not inserted	Inserted and locked	Inserted and unlocked	Not inserted
SOLENOID		Not excited	Excited	-	Excited	Not excited	-
CONTACT ELEMENTS	ACTUATION						
FA1 1 contact moved by actuator 3 contact moved by solenoid	ACTUATOR SOLENOID SOLENOID SOLENOID	11 12 21 22 33 34 41 42	11 12 21 22 33 34 41 42	11 12 21 22 33 34 41 42	11 12 21 22 33 34 41 42	11 12 21 22 33 34 41 42	11 12 21 22 33 34 41 42
FA2 1 contact moved by actuator 3 contact moved by solenoid	ACTUATOR SOLENOID SOLENOID SOLENOID	13 14 21 22 33 34 41 42	13 14 21 22 33 34 41 42	13 14 21 22 33 34 41 42	13 14 21 22 33 34 41 42	13 14 21 22 33 34 41 42	13 14 21 22 33 34 41 42
FA3 2 contact moved by actuator 2 contact moved by solenoid	ACTUATOR SOLENOID ACTUATOR SOLENOID	13 14 21 22 31 32 41 42	13 14 21 22 31 32 41 42	13 14 21 22 31 32 41 42	13 14 21 22 31 32 41 42	13 14 21 22 31 32 41 42	13 14 21 22 31 32 41 42
FA4 2 contact moved by actuator 2 contact moved by solenoid	ACTUATOR ACTUATOR SOLENOID SOLENOID	13 14 21 22 33 34 41 42	13 14 21 22 33 34 41 42	13 14 21 22 33 34 41 42	13 14 21 22 33 34 41 42	13 14 21 22 33 34 41 42	13 14 21 22 33 34 41 42
FA5 1 contact moved by actuator 3 contact moved by solenoid	ACTUATOR SOLENOID SOLENOID SOLENOID	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42
FA6 1 contact moved by actuator 3 contact moved by solenoid	ACTUATOR SOLENOID SOLENOID SOLENOID	13 14 21 22 31 32 41 42	13 14 21 22 31 32 41 42	13 14 21 22 31 32 41 42	13 14 21 22 31 32 41 42	13 14 21 22 31 32 41 42	13 14 21 22 31 32 41 42
FA7 2 contact moved by actuator 2 contact moved by solenoid	ACTUATOR ACTUATOR SOLENOID SOLENOID	11 12 21 22 33 34 41 42	11 12 21 22 33 34 41 42	11 12 21 22 33 34 41 42	11 12 21 22 33 34 41 42	11 12 21 22 33 34 41 42	11 12 21 22 33 34 41 42
FA8 2 contact moved by actuator 2 contact moved by solenoid	ACTUATOR SOLENOID ACTUATOR SOLENOID	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42
FA9 2 contact moved by actuator 2 contact moved by solenoid	ACTUATOR SOLENOID ACTUATOR SOLENOID	13 14 21 22 33 34 41 42	13 14 21 22 33 34 41 42	13 14 21 22 33 34 41 42	13 14 21 22 33 34 41 42	13 14 21 22 33 34 41 42	13 14 21 22 33 34 41 42
FB1 4 contact moved by solenoid	SOLENOID SOLENOID SOLENOID SOLENOID	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42
FB2 4 contact moved by actuator	ACTUATOR ACTUATOR ACTUATOR ACTUATOR	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42
FB3 3 contact moved by actuator 1 contact moved by solenoid	ACTUATOR SOLENOID ACTUATOR ACTUATOR	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42	11 12 21 22 31 32 41 42