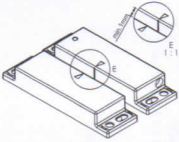


### 3. Mounting



Mounting is only allowed to be performed by qualified technical personnel. Pay attention to EN ISO 14 119 on reducing possible ways of bypassing an interlocking device. Do not mount the magnetic switch in an environment with interfering magnetic fields. Fit magnetic switch and actuating element such that they do not touch each other: minimum distance between the front faces with the guard closed 1mm. Align the central markings of the safety sensor and the actuator with each other.

Do not use the sensor and the actuator as a mechanical stop  
Do not subject the safety sensor and actuator to extreme vibrations and shocks.  
Mount the actuator on guard so that it cannot be detached.  
If possible, do not mount the sensor and the actuator on ferromagnetic material. A non-magnetic spacer at least 5 mm thick or the original spacer must be used. The use of non-magnetic fixing screws is recommended also.  
Do not use anaerobic adhesive (e.g. Loctite) to lock the screws, as this will attack the plastic housing.  
The mounting distance between two magnetic switch should always be at least 50 mm.

### 4. Set-up and maintenance

An incorrect connection may result in the loss of the safety function or the device to malfunction or become damaged. The electrical connection is only allowed to be made by qualified technical personnel. Safety switch and actuating element must not touch when the guard is closed, minimum distance with guard closed 1 mm.

#### 5. Commissioning

##### 5.1 Test before the initial commissioning

- Close the guard.
- Start machine.
- Open the guard.
- Check whether the machine stops when the guard is opened.
- Switch off machine.
- Open the guard.
- Start machine.
- The machine must not start with a guard open!

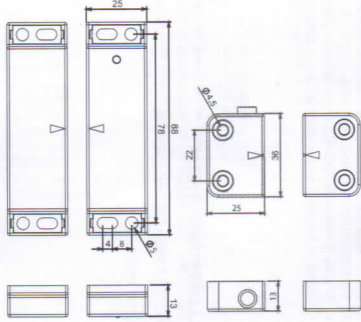
##### 5.2 Periodic Technical Checks

To ensure correct function over the long term, regular checks are necessary. The reliable functioning of the protective device should be checked at appropriate intervals as part of the maintenance program. For information on possible intervals refer to EN ISO 14 119. Check the following points:

- Correct function
- Visible signs of tampering
- The sealing of the cable glands on the safety switches
- The placement of the cable connections on safety relay
- The shutdown distances
- Damaged or worn system components must be replaced.

### 4. TECHNICAL SPECIFICATIONS

Technical Specifications	
Housing Material	Nylon6 N30 CE
Protection Class	IP67
Connection	1m Cable M08/M4 Connector M12/M8 Connector
Operating Principle	Magnetic
Type	Type 4 (EN ISO 14119)
Actuator Coding Level	Low coding level (EN ISO 14119)
Switching Condition Indication	Led (SMB)* LED only with ordering "1"
Switching Voltage	without LED: 24V DC with LED: 24V DC
Max. Switching Current:	without LED: 200mA with LED: 20mA
Ambient Temperature	-25/+70°C
Storage Temperature	-25/+70°C
Switching Distances	5-15mm / 8-20mm
TM (Mission Time)	20 Year
Shock Resistance	20 g / 11 ms
Vibration Resistance	10 - 50 Hz, ampl. 3 mm
Electrical Life	10 <sup>6</sup> SP



### 1. Safety

This chapter deals with your own safety and the safety of the equipment operators. Please read this chapter carefully before working with the safety switch or with the machine protected by the magnetic switch. The national/international rules and regulations apply to the installation, commissioning, use and periodic technical inspections of the magnetic switch, in particular the work safety regulations and safety rules.

#### 1.1 Qualified Technical Personnel

The switch must be mounted, installed and commissioned only by qualified technical personnel. Qualified technical personnel are defined as persons who...  
Have undergone the appropriate technical training.  
Have been instructed by the responsible machine operator in the operation of the machine and the current valid safety guidelines and  
Have access to the operating instructions.

#### 1.2 Application

SM\* Series magnetic switches are magnetically operated, non contact safety switches. The magnetic switch is magnetically coded. In combination with a suitable safety-related evaluation unit, they protect guards in the following way:  
-The dangerous state of the machine can only be switched on when the guard is closed.  
-If the guard is opened while the machine is running, a stop command is triggered.  
-Activation commands that result in dangerous states are only allowed to become effective if the guard is in the protective position.  
-Dangerous states must have been terminated before the protective position is left.  
The products described in these operating instructions are developed to execute safety-related functions as part of an entire plant or machine. It is the responsibility of the manufacturer of a machine or plant to ensure the correct functionality of the entire machine or plant.

### 2. Functions

#### 2.1 Wiring Diagram

On integrating magnetic switches into suitable safe evaluation units, the following must be taken into account:  
-It is imperative all contact signals are evaluated separately.  
-On the detection of a fault related to the magnetic switch, the safe evaluation unit must shut down and adopt a locked state.  
-Both contacts must change output state, before it can be reset. Compliance with this sequence must be monitored by the safe evaluation unit

The contact position shows the actuated sensor function when the safety guard is closed.  
The LED for the output state indication has an internal resistance of 1.5 kΩ.

