1 | Overview

The ISC-SK10 is an advanced shock sensor designed to monitor and detect mechanical attacks.
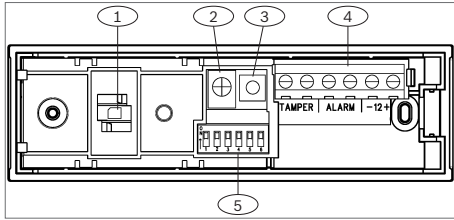

Figure 1.1: ISC-SK-10 overview

Callout — Description
1 — LED
2 — Potentiometer (sensitivity adjustment)
3 — Cover tamper
4 — Terminal block
5 — Switches

2 | Installation considerations

– Install the ISC-SK10 indoors and mount on a variety of flat surfaces.

– Use the included screws or an adhesive glue to secure the unit to the surface.

NOTICE!
Do not use double-sided tape or RTV which reduces vibration.

Surface	Radius (m)	Radius (ft)
Concrete	1.5	5
Brick wall	2.5	8
Steel	3	10
Wood	3.5	11.5
Glass	3.5	11.5

Table 2.1: Maximum detection range

3 | Installation

1. Insert a slotted screwdriver into the rotary lock on the front of the sensor and turn counter-clockwise to the open position (unlocked).

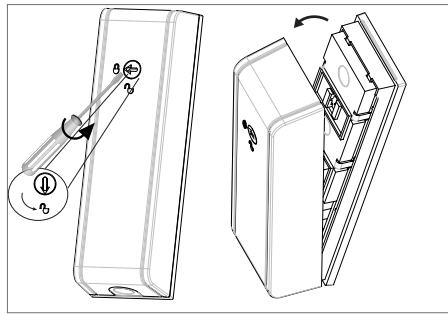2. Pull apart the sensor from the top to remove the cover from the base.

Figure 3.1: Unlocking and opening cover

Mounting the base:

1. Identify mounting location and surface.
2. Remove or drill through the mounting holes in the base.
3. Insert the screws into the mounting holes or use glue to secure the base to the surface.
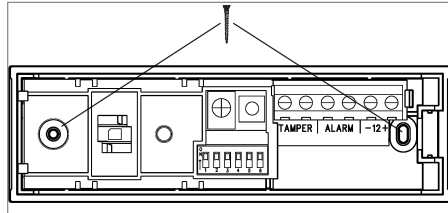

Figure 3.2: Screw locations

3.1 | Wiring

1. Insert the wire through the grommet (removable). *Refer to Figure 3.3.*
2. Attach wire to the appropriate terminals. Tamper and Alarm Contact normally-closed (NC), Power 12VDC. *Refer to Figure 3.4.*
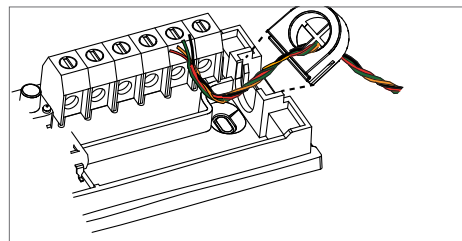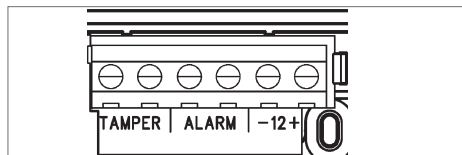

Figure 3.3: Wiring

Figure 3.4: Terminal

4 | Switch settings

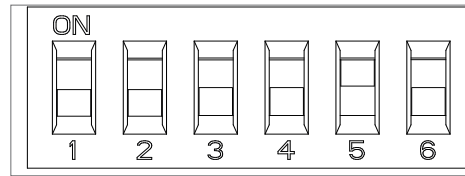The switch settings change sensor configuration or sensitivity.

Figure 4.1: Switches

NOTICE!
Cycle the sensor power after changing switch settings.

4.1 | Set sensitivity level

Switches 1 and 2 - sensitivity level setting. *Refer to sections 6 and 7* for configuring these switch settings during installation.

Switch		Sensitivity Level
1	2	
OFF	OFF	Low (default - least sensitive)
OFF	ON	Low-medium
ON	OFF	High-medium
ON	ON	High (most sensitive)

4.2 | Set pulse count

Switch 3 - pulse count setting. The sensor generates an alarm when noise occurs within the pulse count. When set to ON the alarm triggers on 4 pulses within 40 seconds (15 seconds - 10 seconds - 15 seconds). When set to OFF, the alarm triggers on the first pulse.

Switch 3	Pulse count
ON	4 pulses
OFF	1 pulse (default)

4.3 | Set drill/saw detection

Switch 4 - drilling or sawing detection setting.

Switch 4	Drill/saw detection
ON	Disabled
OFF	Enabled (default)

4.4 | Set LED

Switch 5 - LED setting. Do not disable this setting during installation.

Switch 5	LED function
ON	Enabled (default)
OFF	Disabled

LED	Condition
Green flash	Vibration, movement, contact or attack attempt or during configuration.
Red on 2 seconds	Alarm
Red on steady	Sensor fault, sensor position changed from original installation.

4.5 | Set installation mode

Switch 6 - Manual or Self-learning mode setting.

Switch 6	Installation mode
ON	Self-learning mode
OFF	Manual mode (default)

NOTICE!
Manual mode is active for 20 minutes after power up.

5 | Adjust potentiometer

Fine tune the sensitivity level by turning the potentiometer clockwise to increase sensitivity or counter-clockwise to decrease sensitivity. During Self-learning mode, adjust the potentiometer until the sensor LED turns off, indicating that the sensor is correctly configured.
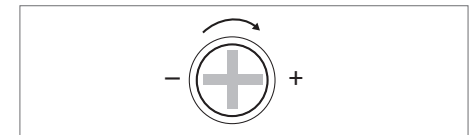

Figure 5.1: Sensitivity potentiometer

6 | Self-learning mode

Perform the following to use Self-learning mode when installing the sensor (recommended method).

1. Power down the sensor and set Switch 6 to ON (Self-learning mode). Switches 1, 2, 3, 4, are OFF. Switch 5 is ON (default). The potentiometer setting does not matter.

2. Power up the sensor and wait for 2 seconds. During this time, do not remove or disturb the sensor. The LED flashes green once when ready.

3. Simulate noise within the detection range of the sensor for 3 minutes. The sensor records, and the LED flashes green when vibration is detected during the 3 minute duration.

4. When finished sensing and recording, the red LED flashes quickly. Set Switch 6 to OFF:

   • If the LED turns off, then the settings are correct, no adjustment is required.

   • If the red LED turns on steady, skip to step 5 below to adjust the potentiometer.

   • If the LED begins flashing in a pattern, continue with step 4 to adjust the DIP switches. Set the sensitivity level (Switch 1 and Switch 2). *Refer to Table 6.1* below for switch settings.

Red LED flashing	Switch 1	Switch 2
4 x	ON	ON
3 x	ON	OFF
2 x	OFF	ON
1 x	OFF	OFF

Table 6.1: LED flashing states

5. After setting the switches:

   • if the LED is off, no adjustment is needed.

   • if the red LED is on, turn the potentiometer slowly until it turns off.

6. Cycle the power of the sensor and wait for 2 seconds. The sensor is now configured.

7 | Manual mode

Perform the following to set the sensitivity manually when installing the sensor.

1. Power down the sensor and set Switch 6 to OFF. Switches 1, 2, 3, 4, are OFF. Switch 5 is ON (default). The potentiometer setting is medium level. To set to medium level, turn the potentiometer down (counter-clockwise) as far as possible. Then, turn half way up (clockwise) until the slot is pointed up in the center position. *Refer to Figure 7.1* below.
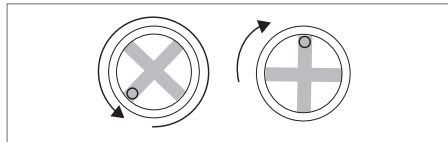

Figure 7.1: Medium potentiometer setting

2. Power up the sensor and wait for 2 seconds. During this time, do not remove or disturb the sensor. The LED flashes green once when ready.

3. Simulate noise within the detection range of the sensor for 3 minutes. The sensor records, and the LED flashes green for each noise detected during the 3 minute duration.

4. When the LED flashes red, adjust the sensitivity level (Switch 1 and Switch 2). *Refer to section 4.1* for sensitivity levels.

> **NOTICE!**
> When the LED turns off, the sensor is configured.

5. Turn the Potentiometer slowly based on the LED response.

6. Repeat steps 4 and 5 until the desired sensitivity is achieved.

7. Power up the sensor and wait for 2 seconds. The sensor is now configured.

8 | Close the cover

1. Align the bottom of the cover to the bottom of the base and attach the cover.

2. Insert a slotted screwdriver into the rotary lock on the front of the sensor and turn clockwise to the close position (locked). *Refer to Figure 8.1*.
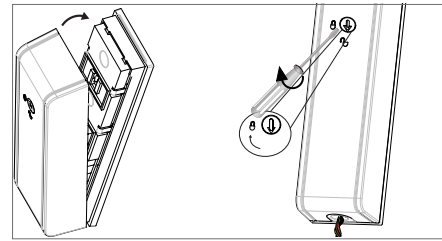

Figure 8.1: Closing the cover

9 | Specifications

Dimensions	100 mm x 30 mm x 20 mm (3.93 in x 1.18 in x 0.78 in)
Voltage (operating)	9-15 VDC, 12 V nominal
Current draw	8.5 mA (Standby), 12 mA (Alarm)
Alarm output	NC solid state relay, 100 mA@30 VDC
Tamper switch	NC 50 mA@30 VDC
Operating temperature	-10°C to +55°C (+14°F to +131°F)
Relative humidity	0% to 95% non-condensing
Ingress protection	IP43
Detection method	Triaxial acceleration sensor

10 | Certifications

Region	Agency	Certification
Europe	CE	EN 50130-4:2011
		EN61000-6-3:2007/A1:2011
		EN60950-1:2006

Shock Sensor
ISC-SK10

en Installation Guide