BOSCH
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ISN-SM Series Seismic Detectors

▸ 24-hour monitoring of strong-room walls and doors, safes, night deposits, and automatic cash dispensers

▸ DIP switch sensitivity settings

▸ SENSTEC° sensor and micro-controller based signal processing system

▸ Low-profile design

The ISN-SM Series includes the following seismic detector models:

Model	Properties
ISN-SM-50	• 4 m (13 ft) operating radius on concrete • 50 m² (164 ft²) coverage area
ISN-SM-80	• 5 m (16 ft) operating radius on concrete • 80 m² (263 ft²) coverage area

Each seismic detector surveys objects and surfaces, has a low-profile design, and is easy to install in small spaces. Use an ISN-SM Series Seismic Detector model to monitor safes, night deposits, and automatic cash dispensing machines.

Functions

Detection

The seismic detector detects vibrations caused by explosives and tools such as diamond-tipped drills, mechanical and hydraulic pressure tools, flame cutters, thermal-lancers, or water jets.
The SENSTEC sensor and digital signal processing evaluate a narrow frequency range, providing reliable detection. The seismic detector tolerates environmental influences such as air and noise.

DIP Switch Sensitivity Settings

There are defined DIP switch sensitivity settings. Select the sensitivity setting to suit the application, the material, and the object with the associated interference. The settings include:
• Steel 2.0 m
• Steel 2.5 m
• Concrete 4.0 m
• User Mode, with SensTool

SensTool Software

Use the SensTool PC Software to:
• Modify default operating parameters
• Monitor detector performance
• Store information such as integrator signals
• Select additional detector and shock sensitivity settings

Fixing Device

A fixing device is available as an optional hardware accessory to the ISN-SM Series Seismic Detectors. A fixing device monitors safes and strong-rooms against attack from thermic and mechanical tools, and unauthorized opening while the system is armed. The fixing device consists of a detector plate, door plate, and quiescent plate.

The detector plate has a monitoring micro switch and a magnet contact in line. When the system is armed, the monitoring switch inside the detector plate closes. If the detector raises from the door plate, the monitoring switch opens and activates an alarm.

During working hours, you can hang the detector plate on the quiescent plate.

Swivel Plate

A swivel plate is available as an optional hardware accessory to the ISN-SM Series Seismic Detectors. A swivel plate monitors safes and strong room doors with exposed keyholes. A micro-switch inside the swivel plate monitors movement. Any unauthorized swiveling movement immediately triggers an alarm. When the system is armed, the swivel plate completely covers the keyhole. When the system is disarmed, the swivel plate swings 90° away from the keyhole.

System Overview

Cutting material such as concrete, steel, or synthetic armor produces variations in structure vibrations. The SENSTEC sensor converts the varying vibrations into electrical signals. The seismic detector's digital processing analyzes the signals and compares them with a frequency range that is typical for tools generally used to break into safes, night deposits, and so on. If the signals fall within the frequency range, the seismic detector sends an alarm through a relay contact.

Installation/Configuration Notes

Mounting considerations

You can mount the seismic detector directly to steel plates with a smooth surface. The surface must be free of paint and level to within 0.1 mm (0.004 in.). If these conditions are impossible, use the MXP0 Mounting Plate.

Do not mount the seismic detector directly on bare or plastered concrete.

Parts Included

Quantity	Components
1	Seismic Detector (ISN-SM-50 or ISN-SM-80)
1	Set of mounting instructions
1	Mounting template
3	Cable straps

Technical Specifications

Electromagnetic Sensitivity

Compatibility:	Better than EN 50130-4
HF Interference Tolerance (EN 61000-4-3):	No alarm or set up on critical frequencies in the range from 1 MHz to 2 GHz at > 30 V/m.

Enclosure Design

Dimensions:	8.9 cm x 8.9 cm x 2.2 cm (3.5 in. x 3.5 in. x 0.9 in.)
Weight:	0.320 kg (11 oz)

Environmental Considerations

Air Humidity (EN 60721):	< 95% rh, non-condensing
Housing Protection (EN 60529, EN 50102):	IP435
Temperature (Operating):	-40℃ to +70℃ (-40℉ to +158℉)
Temperature (Storage):	-50℃ to +70℃ (-58℉ to +158℉)

Function Test

For Test:	Low < 1.5 VDC High > 3.5 VDC
Test Duration (Includes Test Transmitter ISN-GMX-S1):	≤3 s

Operating Radius by Coverage Area on Concrete and Steel For All Tools, Including Thermic

ISN-SM-50:	4 m radius = 50 m^2 coverage area (13 ft radius = 164 ft^2 coverage area)
ISN-SM-80:	5 m radius = 80 m^2 coverage area (16 ft radius = 263 ft^2 coverage area)

Outputs

Alarm Relay Changeover:	Contact (opens on alarm) rated at 30 VDC, 100 mA, Ri < 20 Ω
Alarm Hold Time:	Approximately 2.5 s
Tamper/Backtamper:	Cover Contact (opens on tamper) rated at 30 VDC, 100 mA, Ri < 45 Ω
Test Point:	Analog Integration Signal

Power Requirements

Power Consumption at 12 VDC:	Alarm: 6 mA Quiescent: 3 mA
Power Supply Voltage Monitoring	8 VDC to 16 VDC (12 V nominal) Alarm: < 7 VDC

Remote Sensitivity Reduction Input

For Reduction:	Low < 1.5 VDC High > 3.5 VDC
Reduction To:	1/8 of actual setting

Trademarks

SENSTEC® is a registered trademark of Siemens Building Technologies.

Ordering Information

ISN-SM-50 Seismic Detector Provides 4 m (13 ft) operating radius on concrete, and 50 m^2 (164 ft^2) coverage area.	ISN-SM-50
ISN-SM-80 Seismic Detector Provides 5 m (16 ft) operating radius on concrete, and 80 m^2 (263 ft^2) coverage area.	ISN-SM-80

Hardware Accessories

ISN-GMX-D7 Anti-drill Foil Use with a seismic detector for anti-drill protection. Fit the foil into the detector cover for additional protection against tampering.	ISN-GMX-D7
ISN-GMA-S6 Fixing Device Works with a seismic detector to monitor safes and strong-rooms. Includes a detector plate, door plate, and quiescent plate.	ISN-GMA-S6
ISN-GMX-B0 Floor Box Mounts a seismic detector within the floor. Weighs 2.08 kg (4.5 lb). Requires a base area of at least 30 cm x 30 cm (12 in. x 12 in.) and a depth of 80 cm (31 in.).	ISN-GMX-B0
ISN-GMX-P0 Mounting Plate Mounting plate for a seismic detector. Weighs 0.27 kg (9.5 oz). Appropriate for mounting the seismic detector to steel or concrete surfaces. Screw or weld the mounting plate directly on an object.	ISN-GMX-P0
ISN-GMX-P3S Swivel Plate Use with an ISN-SM-50 Seismic Detector to monitor safes and strong room doors with exposed keyholes.	ISN-GMX-P3S
ISN-GMX-PZ Swivel Plate Use with an ISN-SM-80 Seismic Detector to monitor safes and strong room doors with exposed keyholes.	ISN-GMX-PZ
ISN-GMX-S1 Test Transmitter Mounts under a seismic detector. Tests the detector and the physical contact between the detector and protected object.	ISN-GMX-S1
ISN-GMX-W0 Wall Recess Set Mounts a seismic detector in a wall surface or flush with a wall surface. Weighs 1.16 kg (2.5 lb).	ISN-GMX-W0
ISN-GMXW-G0 Watertight Housing Protects seismic detectors from water and dust.	ISN-GMXW-G0
ISN-GMX-P3S2 Spacer (2 mm) 2 mm (0.1 in.) thick.	ISN-GMX-P3S2
ISN-GMX-P3S4 Spacer (4 mm) 4 mm (0.2 in.) thick.	ISN-GMX-P3S4

Software Options

ISN-SMS-W7 SensTool PC Software Programming software for seismic detectors.	ISN-SMS-W7