



ISN-SM Seismic Detectors



- ▶ **24-hour surveillance of vault walls and doors, safes, night safes, and automatic teller machines**
- ▶ **Sensitivity settings using DIP switches**
- ▶ **SENSTEC® sensor and signal processing system based on microcontrollers**
- ▶ **Low-profile design**

The following models belong to the ISN-SM series seismic detectors:

Model	Features
ISN-SM-50	<ul style="list-style-type: none"> • 4 m operating radius on concrete • 50 m² monitoring area
ISN-SM-80	<ul style="list-style-type: none"> • 5 m operating radius on concrete • 80 m² monitoring area

Each seismic detector monitors objects and surfaces, has a low-profile design, and can be installed effortlessly, even in tight spaces. ISN-SM seismic detectors are designed to monitor safes, night safes, and automatic teller machines.

System Overview

When cutting and drilling through materials such as concrete, steel, or synthetic reinforcements, deviations from the structures' normal vibration pattern ensue. The SENSTEC sensor converts vibration deviations into electrical signals. The digital processing in the seismic detector analyzes the signals and compares them to a frequency range typical of tools used to break into safes, night safes etc. If the signals fall within this frequency range, the seismic detector transmits an alarm via a relay contact.

Functions

Detection

The seismic detector recognizes vibrations caused by explosives and tools such as diamond-tipped drills, mechanical and hydraulic rams, flame cutters, thermal lances, or water jet cutters.

The SENSTEC sensor and the digital signal processing monitor a narrow frequency range, thus offering reliable detection. The seismic detector tolerates environmental conditions such as air movement and noise.

Sensitivity settings using DIP switches

The sensitivity settings are selected using DIP switch settings. Select the appropriate sensitivity setting for the application, the material, and the object, as well as any interference present. The following settings are available:

- Steel, 2.0 m
- Steel, 2.5 m
- Concrete, 4.0 m
- User mode, with SensTool

SensTool software

SensTool software for PCs provides the following options:

- Changing factory default settings
- Monitoring detector performance
- Storing information such as integrator signals
- Selecting additional settings for detector and shock sensitivity

Fixing device

A fixing device is available as an optional hardware accessory for ISN-SM seismic detectors. When the system is armed, the fixing device monitors safes and strong rooms for attacks using thermal and mechanical tools, as well as unauthorized opening. The fixing device components consist of a detector plate, a door plate, and a standby plate.

The detector plate has a monitoring microswitch and a magnetic contact. When the system is armed, the monitoring switch in the detector plate is closed. If the detector is removed from the door plate, the monitoring switch opens and triggers an alarm.

The detector can be hung on the standby plate during working hours.

Swivel plate

A swivel plate is available as an optional hardware accessory for the ISN-SM seismic detector. A swivel plate is used for monitoring safes and strong rooms with exposed keyholes. A microswitch in the swivel plate monitors movement. Any unauthorized swivel movement immediately triggers an alarm. When the system is armed, the swivel plate fully covers the keyhole. When the system is disarmed, the swivel plate swivels so it is at a 90° angle to the keyhole.

Certifications and Approvals

Region	Certification
Germany	VdS ISN-SM-50 ISN-SM-80
Europe	CE 89/336/EEC, EN50130-4: 2002 (including A1 and A2), EN61000-6-3: 2001, EN61000-6-4: 2001
USA	UL ANSR: Intrusion Detection Units (UL639)
China	CCC 2009031901000116
the Netherlands	NCP ISN-SM-50: 06229520/AA/00

CE

Installation/Configuration Notes

Installation notes

Seismic detectors can be mounted directly onto steel plates with smooth surfaces. The surface must not be painted and must be level with a maximum deviation of 0.1 mm. If these conditions cannot be met, the MXPO mounting plate must be used.

The seismic detector cannot be mounted directly onto plastered or unplastered concrete.

Parts Included

Number	Components
1	Seismic detector (ISN-SM-50 or ISN-SM-80)
1	Installation manual
1	Installation template
3	Cable ties

Technical Specifications

Electromagnetic sensitivity

Compatibility:	Better than EN 50130-4
HF interference tolerance (EN 61000-4-3):	No alarm or setup at critical frequencies within a range of 1 MHz to 1000 MHz at > 30 V/m.

Housing

Dimensions: 8.9 cm x 8.9 cm x 2.2 cm

Weight: 0.320 kg

Environmental conditions

Humidity (EN60721):	Up to 95% relative humidity, not condensing
Housing protection class (EN 60529, EN 50102):	IP435
Temperature (operating):	-40 °C to +70 °C
Temperature (storage):	-50 °C to +70 °C

Function test

For the test:	Low < 1.5 VDC High > 3.5 VDC
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Test duration (including test transmitter ISN-GMX-S1): ≤ 3 sec

Operating radius according to monitoring area on concrete and steel for all tools, including thermal tools

ISN-SM-50: 4 m radius = 50 m² monitoring area

ISN-SM-80: 5 m radius = 80 m² monitoring area

Outputs

Alarm relay (changeover contact): Contact closed in standby mode (opened in the event of an alarm) designed for 30 VDC, 100 mA, resistance < 20 Ohm

Alarm holding time: Approx. 2.5 sec

Tamper switch/wall tamper: Tamper contact closed in standby mode (opened in the event of tampering) designed for 30 VDC, 100 mA, resistance < 45 Ohm

Test connection: Analog integration signal

Power requirements

Power consumption at 12 VDC:	Alarm: 6 mA Standby: 3 mA
Power supply monitoring:	8 VDC to 16 VDC (12 V nominal) Alarm: < 7 VDC

Input for remote controlled reduction of sensitivity

For reduction:	Low < 1.5 VDC High > 3.5 VDC
Reduction to:	1/8 of current setting

Trademarks

SENSTEC® is a registered trademark of Siemens Building Technologies.

Ordering Information

ISN-SM-50 Seismic Detector 4 m operating radius on concrete and 50 m ² monitoring area.	ISN-SM-50
ISN-SM-80 Seismic Detector 5 m operating radius on concrete and 80 m ² monitoring area.	ISN-SM-80
Accessories	
ISN-GMX-D7 anti-drill foil For use with seismic detectors to provide drill protection. Insert foil in the detector's cover to provide extra tamper protection.	ISN-GMX-D7
ISN-GMA-S6 fixing device For use with seismic detectors to monitor safes and strong rooms. Consists of a detector plate, a door plate, and a standby plate.	ISN-GMA-S6
ISN-GMX-B0 floor socket For floor mounting a seismic detector. Weight: 2.08 kg. A surface at least 30 cm x 30 cm and at least 80 cm deep is required.	ISN-GMX-B0
ISN-GMX-P0 mounting plate Mounting plate for seismic detectors. Weight: 0.27 kg. Suitable for mounting seismic detectors to steel or concrete surfaces. Screw or weld the mounting plate directly onto the surface.	ISN-GMX-P0
ISN-GMX-P3S swivel plate For use with ISN-SM-50 seismic detectors. Monitors safes and strong rooms with exposed keyholes.	ISN-GMX-P3S
ISN-GMX-PZ swivel plate For use with ISN-SM-80 seismic detectors. Monitors safes and strong rooms with exposed keyholes.	ISN-GMX-PZ
ISN-GMX-S1 test transmitter For installation under a seismic detector. Checks the detector and the physical contact between the detector and the protected object.	ISN-GMX-S1

Ordering Information

ISN-GMX-W0 wall mounting kit, surface and flush mount For surface or flush mounting a seismic detector to the wall. Weight: 1.16 kg.	ISN-GMX-W0
ISN-GMXW-G0 watertight housing Protects seismic detectors from water and dust.	ISN-GMXW-G0
ISN-GMX-P3S2 spacer (2 mm) Thickness: 2 mm.	ISN-GMX-P3S2
ISN-GMX-P3S4 spacer (4 mm) Thickness: 4 mm.	ISN-GMX-P3S4
Software Options	
ISN-SMS-W7 SensTool PC software Programming software for seismic detectors.	ISN-SMS-W7

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