

ISN-SM Seismic Detectors

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Invented for life



- ▶ 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 |
| | VdS | ISN-SM-80 |
| Europe | CE | EN 61000-6-3, 2007, Ref EN 50130-4, 1995 + A1: 1998 + A2: 2003 [ISN-SM-50, ISN-SM-51 CHI, ISN-SM-80] |
| USA | UL | ANSR: Intrusion Detection Units (UL639) |
| China | CCC | 2011031901000203 |
| the Netherlands | NCP | ISN-SM-50: 06229520/AA/00 |

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 |
| 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 m ² monitoring area |
| ISN-SM-80: | 5 m radius = 80 m ² 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 m² monitoring area.

Order number **ISN-SM-50**

ISN-SM-80 Seismic Detector

5 m operating radius on concrete and 80 m² monitoring area.

Order number **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.

Order number **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.

Order number **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 mm deep is required.

Order number **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.

Order number **ISN-GMX-P0**

ISN-GMX-P3S swivel plate

For use with ISN-SM-50 seismic detectors. Monitors safes and strong rooms with exposed keyholes.

Order number **ISN-GMX-P3S**

ISN-GMX-PZ swivel plate

For use with ISN-SM-80 seismic detectors. Monitors safes and strong rooms with exposed keyholes.

Order number **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.

Order number **ISN-GMX-S1**

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.

Order number **ISN-GMX-W0**

ISN-GMXW-G0 watertight housing

Protects seismic detectors from water and dust.

Order number **ISN-GMXW-G0**

ISN-GMX-P3S2 spacer (2 mm)

Thickness: 2 mm.

Order number **ISN-GMX-P3S2**

ISN-GMX-P3S4 spacer (4 mm)

Thickness: 4 mm.

Order number **ISN-GMX-P3S4**

Software Options

ISN-SMS-W7 SensTool PC software

Programming software for seismic detectors.

Order number **ISN-SMS-W7**

Represented by:

Americas:

Bosch Security Systems, Inc.
130 Perinton Parkway
Fairport, New York, 14450, USA
Phone: +1 800 289 0096
Fax: +1 585 223 9180
security.sales@us.bosch.com
www.boschsecurity.us

Europe, Middle East, Africa:

Bosch Security Systems B.V.
P.O. Box 80002
5617 BA Eindhoven, The Netherlands
Phone: + 31 40 2577 284
Fax: +31 40 2577 330
emea.securitysystems@bosch.com
www.boschsecurity.com

Asia-Pacific:

Robert Bosch (SEA) Pte Ltd, Security
Systems
11 Bishan Street 21
Singapore 573943
Phone: +65 6571 2808
Fax: +65 6571 2699
apr.securitysystems@bosch.com
www.boschsecurity.asia

China:

Bosch (Shanghai) Security Systems Ltd.
201 Building, No. 333 Fuquan Road
North IBP
Changning District, Shanghai
200335 China
Phone +86 21 22181111
Fax: +86 21 22182398
www.boschsecurity.com.cn

America Latina:

Robert Bosch Ltda Security Systems Division
Via Anhanguera, Km 98
CEP 13065-900
Campinas, Sao Paulo, Brazil
Phone: +55 19 2103 2860
Fax: +55 19 2103 2862
latam.boschsecurity@bosch.com
www.boschsecurity.com