**SVi** *Series*

# Sound and Vibration Monitoring

With the tightening of compliance requirements and the aging buildings and infrastructures, construction work such as blasting, trench excavation, tunnel digging, pile driving or drilling can generate large amounts of noise and vibration which must be controlled. Noise and vibration monitoring allows you to:

- Optimize risk management by avoiding complaints, damage payouts and unplanned work stoppages, enabling better control of costs and schedules;

- Improve protection of vibration-sensitive structures by controlling the vibration they are exposed to;

- Generate detailed documentation to prove compliance with contract requirements or in the event of litigation.

The **SVi** *Series* offers a choice of manual measuring or automated options to suit your needs.

*SVi Portable*

## Why use automated monitoring stations?

Manual measurements may be sufficient for short-term projects or for monitoring a punctual activity. For long-term projects, some hidden costs associated with having to hire a technician (time required for traveling and attending the station, configuration and daily management of data, etc.) are avoided with automated stations. Additionally, they allow the generation of e-mail alarms, simplified data hosting and publishing, as well as better monitoring of trends with automatically updated historical graphs.

## How do automated monitoring stations work?

The stations are designed to continuously record noise and vibration levels. The stations are sturdy, reliable and simple-to-use. The working principle is as follows:

The noise or vibration signal is picked up by a microphone or a triaxial geophone connected to a data acquisition system. A cellular modem connects wirelessly the data acquisition system to a central server and allows the recorded data to be uploaded to the server. The server can also send commands to the data acquisition system through the same modem. An analysis module reads the incoming data and can send out alarm e-mails with a short report if a threshold is crossed. The data is then archived and can be downloaded or visualized through a secure web server.

## Technical features

### ▼ Recording modes

The Histogram recording mode records peak particle velocity (PPV) at regular intervals. The Waveform mode performs high frequency measurements (up to 4096 samples per second) for frequency distribution analysis. The Histogram-Combo mode optimizes memory management by continuously recording peak levels and activating high frequency measurements when a threshold is crossed.

The sound level meters offer third-octave band analysis, global levels and statistics ($L_{eq}$, $L_{10}$, $L_{90}$, etc.), as well as audio recording according to the selected options.

# Options

### ▼ Visual-audible alarms

Real-time alarms can be provided to on-site workers. A relay system can trigger a visual-audible alarm as soon as vibrations cross the threshold. In addition to the added safety these alarms offer, they are useful in situations where cellular connections are unreliable or very fast reaction times are required.

### ▼ Power option

For short-term monitoring, stations can be shipped with a battery that will last several days to several weeks depending on conditions and requirements.

For long-term monitoring, systems can be made autonomous by the addition of solar panels.

The stations can also be shipped with a DC converter to connect them directly to a power outlet. This is commonly used in indoor applications where AC 110V power is readily available.

### ▼ Enclosure options

The SVi *Series* systems can be constructed with either of the following options:

• A sturdy steel case to ensure protection for long term monitoring;

• A light and robust, water, dust and shock resistant case for a more portable station.

SVi Autonomous

# Technical informations

### ▼ Geophone

| | |
|---|---|
| Measurement range: | up to 254 mm/s (10 in/s) Geophones DIN or ISEE |
| Resolution: | 0.00788 mm/s (0.00031 in/s) |
| Accuracy (ISEE/DIN): | ±5 % or 0.5 mm/s (0.02 in/s) whichever is larger, of a flat response between 4 and 125 Hz/DIN 45669 -1 |
| Frequency range (ISEE/DIN): | 2 to 250 Hz, less than 0 to - 3 dB of a flat response/1 to 315 Hz |

### ▼ Microphone

| | |
|---|---|
| Sound level meters: | Class I or II |
| Weighting: | A, C, Z |
| Measurement range: | 16 Hz to 20 kHz |
| Dynamic range: | 18 to 143 dB |
| Response time: | Fast: 125 ms  Slow: 1 s |
| Resolution: | 0.1 dB |

## GEO INSTRUMENTS