



Seismo Underground Sensor

Invisible Perimeter Intrusion Detection System



Borders



Airports and
Seaports



Power
infrastructure



Petrochemical
plants



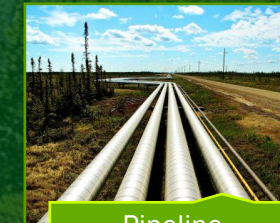
Government and
Military Sites



Residential /
Corporate
Complexes



Industrial Parks



Pipeline
protection

Why RBtec?

Wide Range of Solutions
Broad selection of technologies, sensors, and solutions to provide customers with exceptional solution flexibility

Stability and Experience
with 34 years RBtec is one of the most experienced companies in the market



Customer Satisfaction
At RBtec customer satisfaction is above all.

We listen to the market
Innovating, developing and manufacturing sensors that keep develop and adapt to the market needs.

A Growing World Presence

RBtec has provided systems for more than 2,500 security projects in more than 35 countries around the world.



Proven Experience

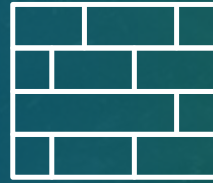
RBtec has provided systems for more than 2,500 security projects in different facilities such as:



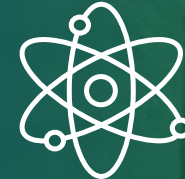
Airports



Explosives Plants
&
Pharmaceutical



Correctional Facilities
&
Jails



Nuclear Stations



Self Storage Facilities
RV & Boat Storage



Remote
Communication Sites



Military and Borders



Petrochemical
Plants & Refineries



Commercial and
Industrial Areas



Luxury Residences
and Facilities

SEISMO

Underground Intrusion Detection Sensor

- ✓ Detection Pattern: Circular (360°) Up To 10m/33ft Per Sensor
- ✓ 4 or 8 Sensors + Analyzer Per System – 4/8 x 10m/33ft Per System
- ✓ Completely Invisible
- ✓ Sensitivity Adjustment Per Sensor by software
- ✓ Plug & Play Installation
- ✓ AI Based Detection Algorithm
- ✓ Connects with Dry Contact Relay to any CCTV or Alarm system
- ✓ Easy to Deploy and Operate, installation in minutes.
- ✓ No Training or Special Tools Needed
- ✓ Event Classification – Steps, Vehicle
- ✓ Standalone or IP Network Versions Play

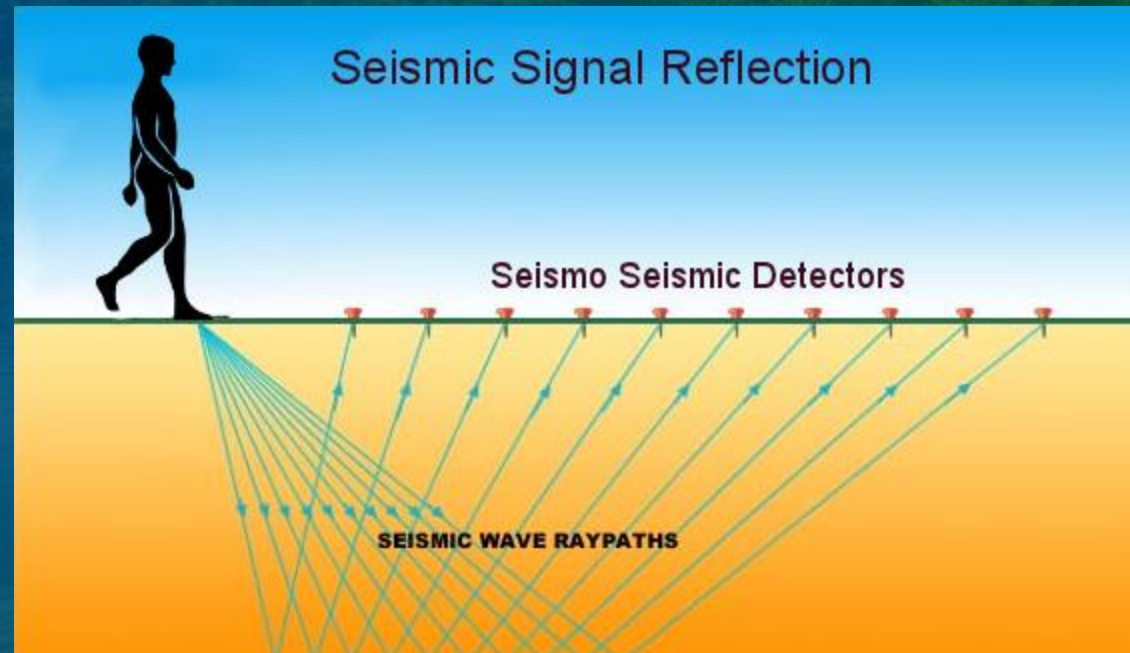


SEISMO Principle of Operation

The basic principle of seismic security sensing is the monitoring of waves by a seismic source reflected of the subsurface.

The Seismo sensor, a geophone is sensitive to up-down motions of the Earth, is like a weight hanging from a spring, both suspended from a frame that moves along with any motion detected. The relative motion between the weight (called the mass) and the frame provides a measurement of the vertical ground motion.

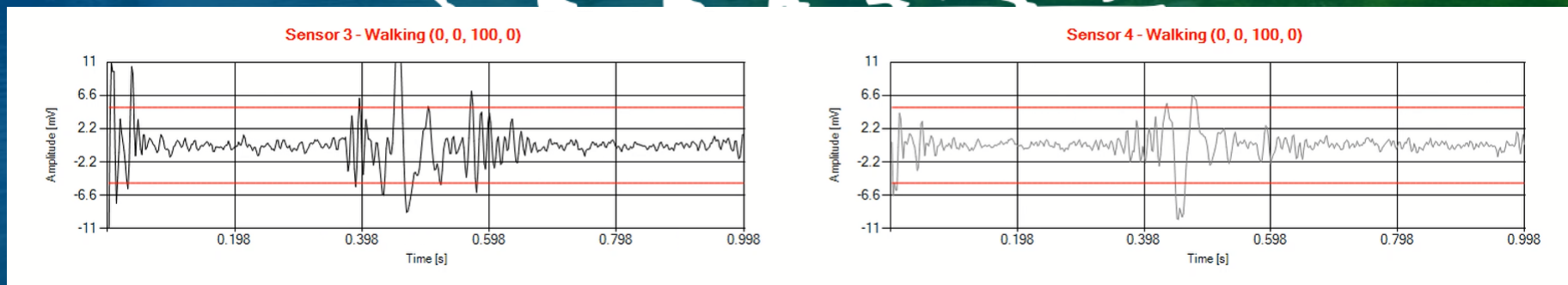
The Seismo sensor does NOT sense earthquakes



SEISMO Principle of Detection

When an activity is registered in the protected area, the seismic sensor produces a signal which is processed in real time through an advanced algorithm. The algorithm is based on “machine learning – AI” that can identify and classify the type of activity that has been registered. Not every seismic vibration generates an alarm.

Walking/Running/Crawling of any intruder in the area of the sensor’s proximity triggers an alarm. The alarm is based on the sensitivity level, the database recorded into the unit, ground type and surrounding environment.





Low voltage system – Less than 0.5 amps consumption



24/7 monitoring of secured area



Resistant to extreme environmental conditions.



Can be integrated with any existing security or alarm system.



Standalone sensor or IP Network configuration



Detection pattern: Circular (360°) up to 10m/33ft diameter per sensor. 40/80m 130/260ft liner protection per kit

System Specifications and Layout



- Detection pattern: Circular (360°) up to 10m/33ft per sensor
- Power supply: 12 to 48VDC
- Outputs: Dry contact Relay, TCP/IP, Optional wireless.
- Operating temperature: -22f/-30°C – +158f/+70°C
- IP rating: IP67
- Seismic Detector Every 20-32' / 6-10m Pre-installed on the cable
- Pre-installed connectors for sensor cable

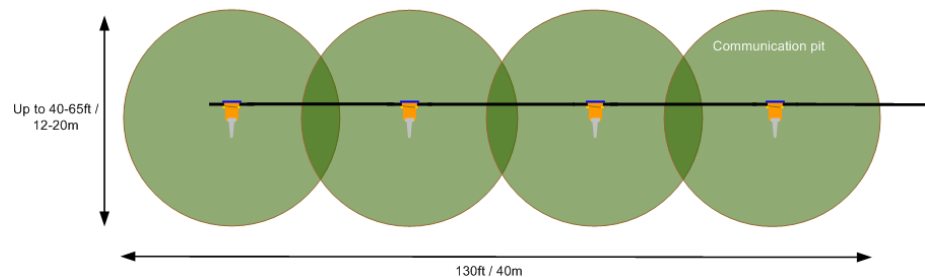
Burglar alarm or CCTV system



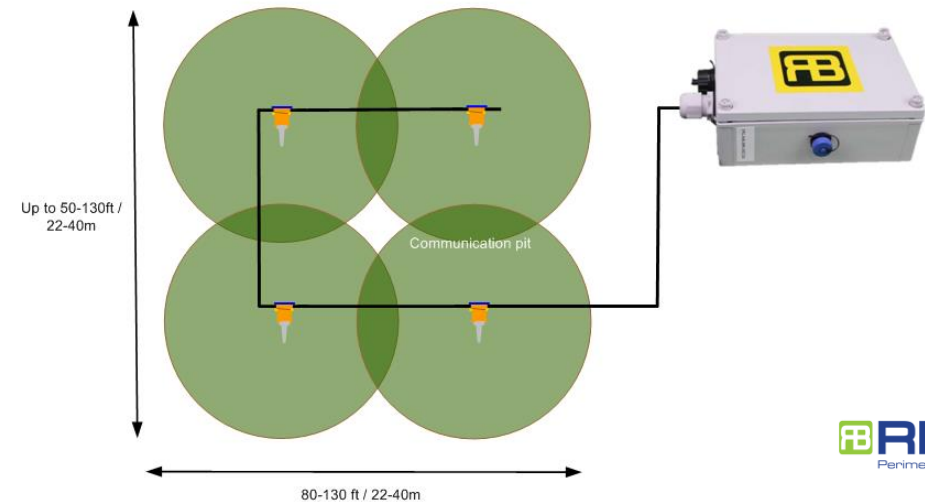
Relay



Line Installation

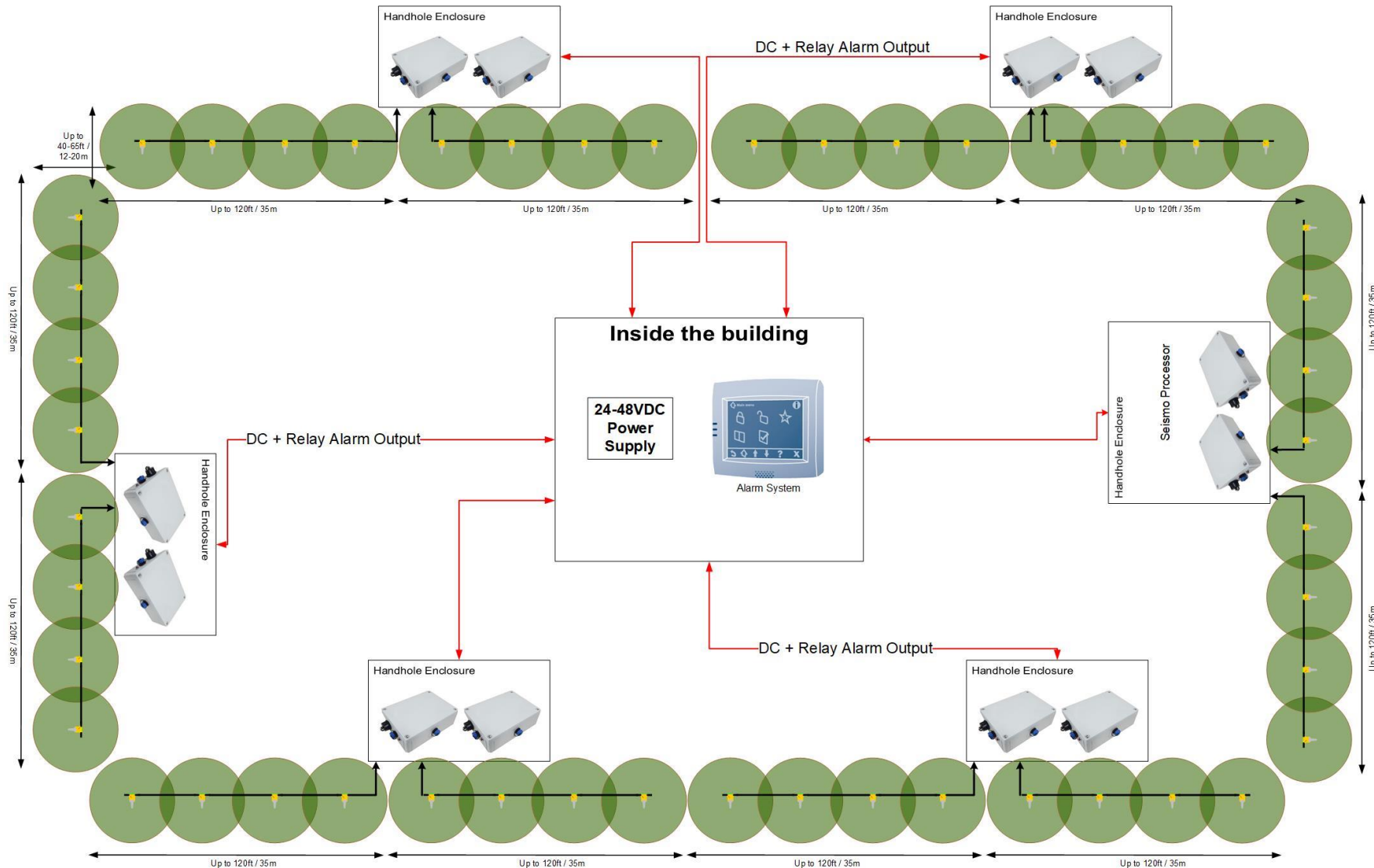


Square Installation



Multiple Independent & Standalone Seismo Units

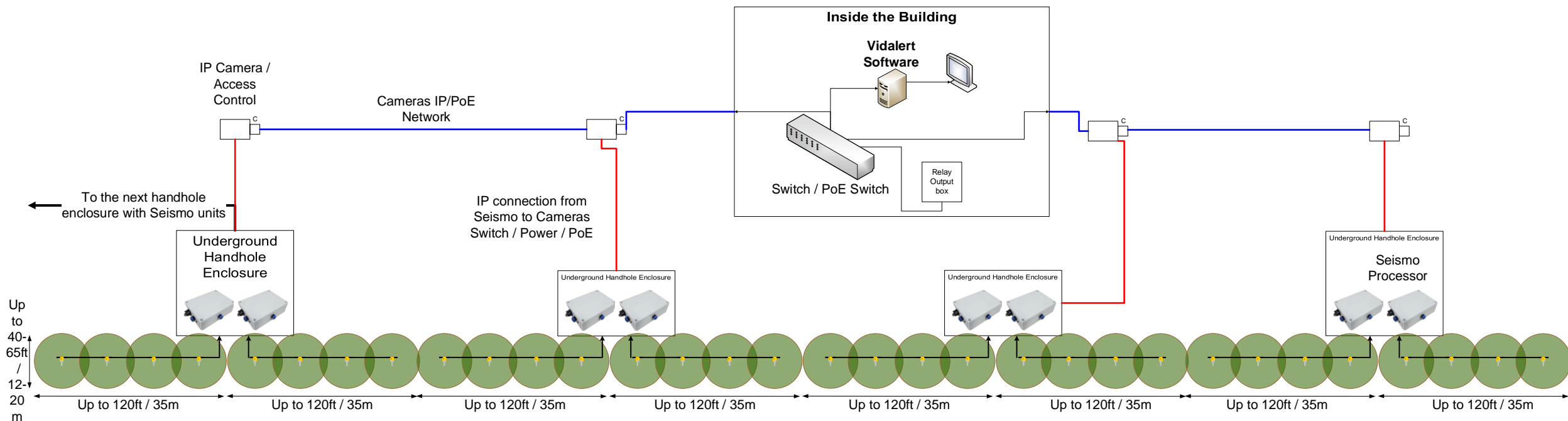
Each System is wired with DC power and relay to the alarm system



Seismo Units Connected to an Existing Network

The Seismo processors are IP based units. The units can connect to an existing network installed on site to communicate alarms back to the control center.

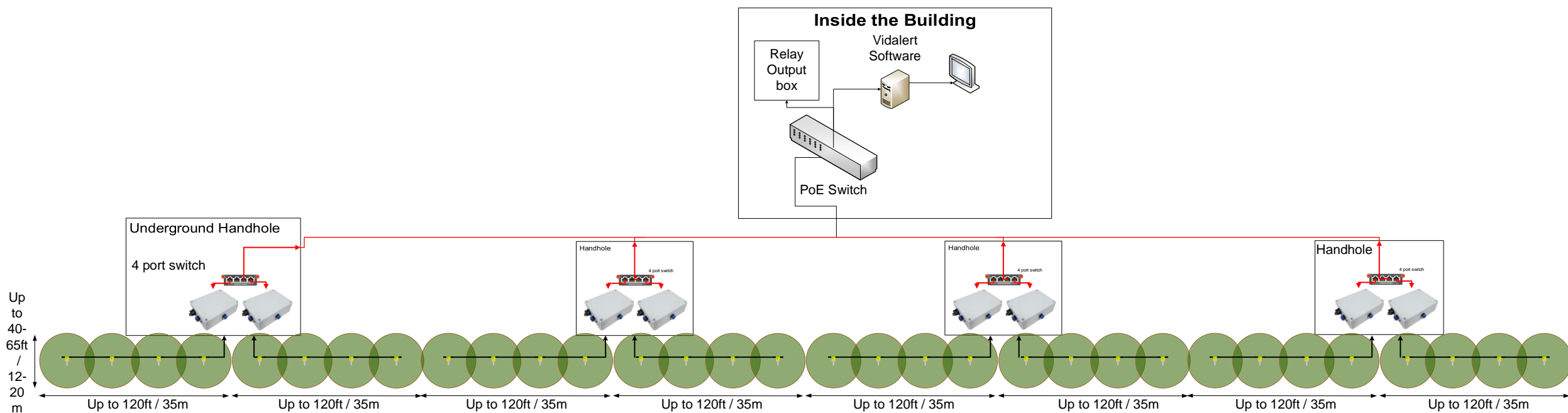
In this layout the Seismo will communicate and be powered from the existing infrastructure. That infrastructure can be cameras, access control or any other network laid around the site.



Seismo Units Connected by PoE Network

The PoE Network version is based on single cable in the trench.

The ethernet cable provides power and connectivity to Seismo controllers from the control center. At the control center alarms can be received in either relay form or software alarm or both at the same time.



Calibration Software

Each Sensor is calibrated and monitored independently

The screenshot displays the Calibration Software interface with several key sections:

- System control:** Includes buttons for Disconnect, Stop, and Browse. It shows Node IP (192.168.1.5), Node ID (SV100-4G), HW ver. (1), SW ver. (1), and Manual IP (192.168.1.5).
- Configuration:** Features a Recording time [s] field set to 1, No. recordings field set to 0, Filepath (C:\Users\Dor\Desktop), and Filename (data). A red ALARM button is present.
- Sensitivity levels:** A table shows sensitivity for Walking and Car for sensors S1-S4. Walking sensitivity is 5 mV for all sensors, and Car sensitivity is 12.5 mV for all sensors.
- Scale [mV]:** Set to 11, with Set scale and FFT buttons.
- Detection classes:** (Silence, Car, Walking, Fault).
- Sensors 1-4:** Four graphs showing Amplitude [mV] vs Time [s] for Sensor 1, 3, and 4. Each graph has a red horizontal line at 2.2 mV. Sensor 1 is labeled "Sensor 1 - Walking (0, 2, 97, 0)", Sensor 3 is "Sensor 3 - Walking (0, 0, 100, 0)", and Sensor 4 is "Sensor 4 - Walking (0, 0, 100, 0)".

Annotations with blue arrows point to the Manual IP field, the sensitivity table, and the sensor labels.

Calibration Software

The screenshot displays the RBtec Calibration Software interface. At the top, the 'System control' tab is active, showing a 'Disconnect' button, Node IP (192.168.1.5), Node ID (SV100-4G), HW ver. (1), SW ver. (1), Manual IP (192.168.1.5), and the RBtec logo. Below this, there are controls for 'Stop', 'Recording time [s]' (set to 1), 'No. recordings' (0), and a red 'ALARM' button. A yellow callout box with an arrow points to the 'ALARM' button, containing the text 'Indication of Alarm and Relay Triggered'. Further down, there are 'Browse' and 'Filepath' fields (C:\Users\Dor\Desktop), and 'Filename' (data). A status bar shows 'Tampered: yes', 'Water: no', 'Walking', and sensor thresholds for S1-S4 (5 mV) and Car (12.5 mV). A 'Scale [mV]' field is set to 11, with 'Set scale' and 'FFT' buttons. The 'Detection classes' are listed as (Silence, Car, Walking, Fault). The main area shows four sensor graphs for 'Sensors 1-4'. Each graph plots 'Amplitude [mV]' (y-axis, -11 to 11) against 'Time [s]' (x-axis, 0 to 1.0). The graphs are titled: 'Sensor 1 - Walking (0, 2, 97, 0)', 'Sensor 2 - Walking (0, 0, 100, 0)', 'Sensor 3 - Walking (0, 0, 100, 0)', and 'Sensor 4 - Walking (0, 0, 100, 0)'. A yellow callout box with an arrow points to the title of the first graph, containing the text 'Detection Type'. Another yellow callout box with an arrow points to a sharp spike in the third graph, containing the text 'Detection Signal'. At the bottom left, the text 'NaN, NaN Current cursor position Cursors difference' is visible. The RBtec logo and 'Perimeter Security Systems' are in the bottom right corner.

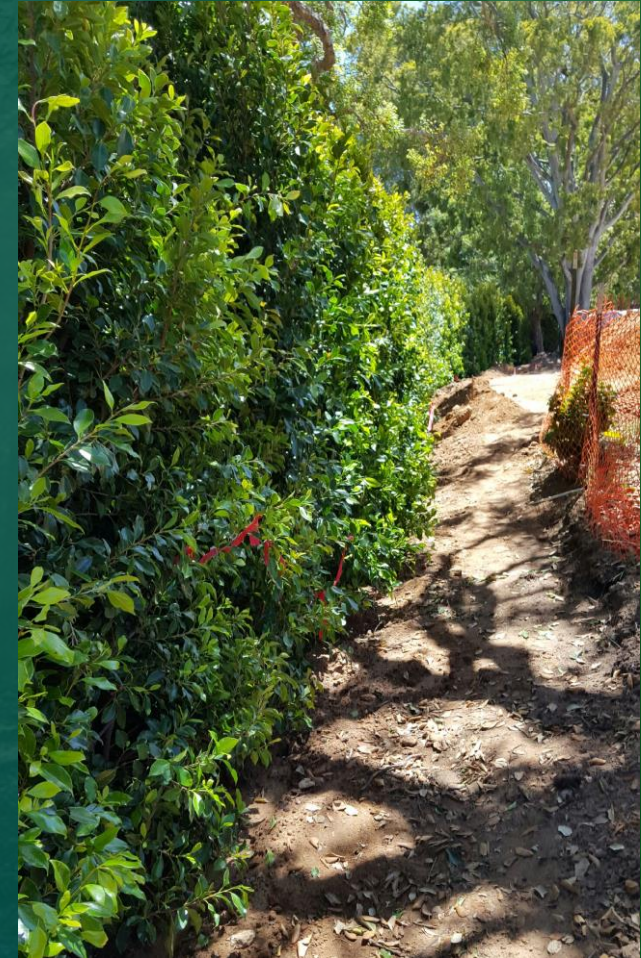
Configuration

Alarm Triggering is based on 3 key components: Sensitivity, Repetition and Signal Match to Database

The screenshot shows the configuration page for a security unit. The top navigation bar includes 'System control', 'Configuration', 'Alarms log', and 'Relay board configuration'. The main configuration area is divided into several sections:

- Detection type:** A dropdown menu is set to 'Car + wal', and a 'Configure unit' button is visible.
- Sensitivity:** A grid of 8 sensitivity settings (G1-G8) for 'Walking' and 'Car' detection types. Each setting is a dropdown menu. A yellow callout box labeled 'Adjustment per Sensor' points to these dropdowns.
- Repetition threshold:** Two dropdown menus for 'Repetition threshold' are set to 2 and 3. A yellow callout box labeled 'Detection repetitions to trigger an alarm' points to these dropdowns. A note below says 'Lower is more sensitive'.
- Detection percentages [%]:** Four input fields for 'Silence', 'Car', 'Walking', and 'Fault' are all set to 60. A yellow callout box labeled 'Detected Seismic Signal Match to Database' points to these fields.
- Custom ID:** A text input field containing 'Seismo111'.
- Relay alarm time [s]:** A dropdown menu set to 6.
- Configure unit IP:** A button and an 'Update firmware' button.
- Network settings:** Fields for Unit IP (192.168.100.111), Unit mask (255.255.255.0), Unit gateway (192.168.100.1), Unit DNS (8.8.8.8), Hub IP (192.168.100.10), Hub port (8500), and Relay board IP (192.168.100.6).
- Enable alarm:** Checkboxes for Sensor 1 through Sensor 8, all checked.
- Operational hours:** Checkboxes for days of the week (Monday-Sunday) and time pickers for start and end hours.
- Network interface:** A dropdown menu and an 'Enable DHCP' checkbox.
- PC configuration:** Fields for PC IP (192.168.100.6), PC mask (255.255.255.0), and PC gateway (192.168.100.1).
- Buttons:** 'Configure PC', 'Set password', and 'Unlock' buttons.

EXAMPLES OF SEISMO INSTALLATIONS



Thank you!

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Perimeter Security Systems