TUNNELGUARD

MAGAL SOLUTIONS
Integrate to Innovate

Description

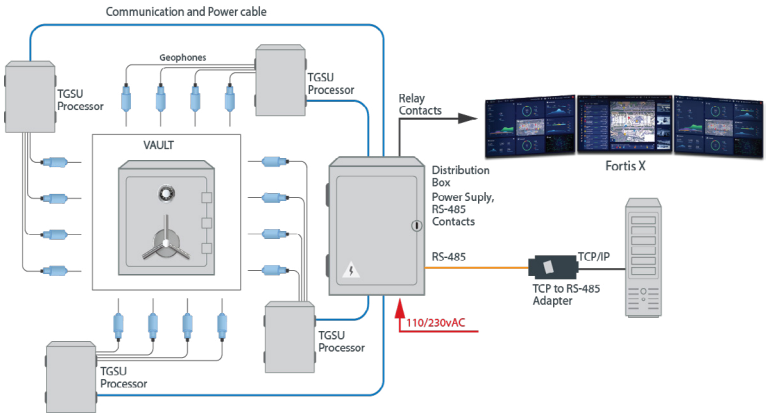
TunnelGuard is a covert system that uses seismic sensors, buried near the walls or foundations of a structure, to detect tunneling attempts nearby protected assets.

TunnelGuard can recognize the seismic footprint of a variety of activities (digging, drilling, scraping, jack-hammering, etc.), measure their intensity and duration. The proprietary detection algorithms intelligently filter out non-threatening vibrations, from traffic on nearby roads and underground subways, in order to minimize false alarms.

System Layout

A typical TunnelGuard system will consist of up to four TGSUs, connected to a Distribution Box – a hub for power and communication.

A computer collects the serial data from each TGSU trough the Distribution Box. The computer typically hosts a dedicated SMS (Security Management System) application. Integration to a 3rd party SMS can be done through dry contacts.



How it Works

The core of the protection system is the TunnelGuard Sensor Unit (TGSU), which consists of a digital signal processor connected to four geophones by shielded cables. The digital signal processor is housed in an IP66 water proof enclosure that can be installed near the protected structure. The geophones are designed to be installed in variety types of soils.

Markets

TunnelGuard is a robust and modular solution for detecting any tunneling and digging nearby any infrastructure early enough before the actual breach occurs.

It is typically used to protect bank vaults, prisons, museums and other cultural heritage sites.

Core Features

- Sensitive to digging, drilling, scraping, jack-hammering, etc.
- Filters out city noise (cars, etc.)
- Sophisticated algorithms enable very high Probability of detection (Pd)
- Very low False / Nuisance Alarm Rate (FAR / NAR)
- Easy to install around any building or asset
- Flexible integration to alarm panels through software or dry contacts

TECHNICAL SPECIFICATIONS

TUNNELGUARD SENSOR UNIT (TGSU)

Four inputs processor with dry contact output relays or RS-485 communication

INPUTS 4 geophone inputs

OUTPUTS RS-485 communication

8 relay dry contacts (5 alarm confidence levels)

INPUT VOLTAGE 5 to 24 VDC

CURRENT CONSUMPTION 10 mA @ 24vDC (no relay activated)

TEMPERATURE -40 to +70° C

HUMIDITY 95% non-condensing

ENCLOSURE Weatherproof per NEMA 12 / 13, IP66

UNIT SIZE 240 x 180 x 100 mm

DISTRIBUTION BOX

Power supply and junction box for communication and dry contacts

INPUTS 4 TGSU cables (power, communication and dry contacts)

OUTPUTS RS-485 communication to PC

20 relay dry contacts to 3rd party interface

INPUT VOLTAGE 110 / 230 VAC

POWER BACKUP Internal batteries provide power backup for 3 days

TRANSIENT SUPPRESSION All inputs and outputs are lightning protected

TEMPERATURE -40 to +70° C

HUMIDITY 95% non-condensing

ENCLOSURE Weatherproof per NEMA 12 / 13, IP66

UNIT SIZE 400 x 300 x 200 mm

GEOPHONE

NATURAL FREQUENCY
10 Hz

BAND PASS
>250 Hz

DC RESISTANCE
395 ohms

SENSITIVITY
0.197 V / cm / s

WEIGHT
86 g

DIAMETER
2.54 cm

OPERATING AND STORAGE TEMPERATURE
-45 to +100° C

Specifications are subject to change without prior notice.