OptaSense®
A LUNA company

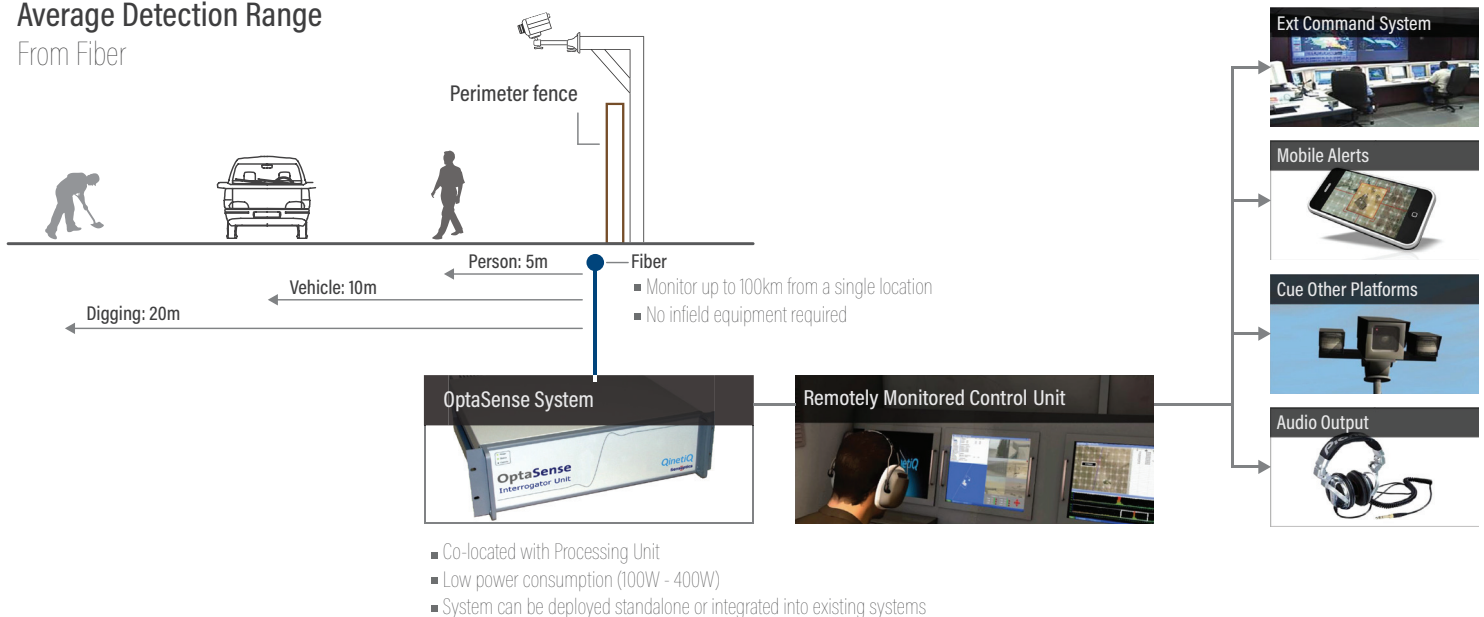# Perimeter Intrusion Detection and Security

Protecting critical infrastructure and assets

Perimeter security
is your first line of defense.

But many systems can be easily bypassed or fail to provide rapid, reliable alerts— leaving your assets vulnerable to infiltration.

The OptaSense Perimeter Intrusion Detection and Security system (PIDS) safeguards your infrastructure and assets using advanced distributed acoustic sensing (DAS) technology capable of identifying and locating multiple threats in real time, with point-locating capabilities to 10 m.

Average Detection Range
From Fiber

Perimeter fence

Person: 5m — Fiber
- Monitor up to 100km from a single location
- No infield equipment required

Vehicle: 10m

Digging: 20m

OptaSense System

Remotely Monitored Control Unit

Ext Command System

Mobile Alerts

Cue Other Platforms

Audio Output

- Co-located with Processing Unit
- Low power consumption (100W - 400W)
- System can be deployed standalone or integrated into existing systems

To ensure threats to your most valuable assets are predicted and averted, rely on the innovative PIDS system from OptaSense.
For more information, contact your local representative or visit us online at www.optasense.com.

Ensure threats are predicted and averted with reliable, covert, real-time protection.

Reliable Alarms

Instead of simply providing an alarm, OptaSense DAS technology can detect, classify and precisely locate seismic/acoustic energies, including people, vehicle movement, low flying aircraft, manual and mechanical digging, tunneling, gunfire and many others.

Unlike conventional buried sensors, the PIDS system significantly reduces nuisance alarms using reliable algorithms that decipher and classify the type of intrusion in real time. Users will be notified of alarms via our user interface with map overlay, alarm panel and raw acoustic data. Alerts can also be sent by text or email. By leveraging GPS coordinates, the system can pinpoint the location of a security breach within seconds. Integration to alarm aggregators is easily accomplished with our open platform interface.

With this information, asset owners can increase the effectiveness of response mechanisms, such as patrols and reconnaissance, by ensuring manual inspection is focused on areas of real activity.

Seamless Installation

In addition to simplifying the installation process, the PIDS system can be customized to meet the demands of the perimeter it is protecting.

The system offers three types of installation: fence, buried or hybrid. A hybrid installation provides additional design flexibility and added security on fence and buried systems utilizing the same processor, providing two layers of detection to allow for overall higher probability of detection. The system can also be run in stealth mode for high security areas.

Security Application Design Options
- Fence Mounted – detection of fence activity.
- Buried – early warning detection and classification of threat approaching the fiber path
- Hybrid – combination of fence and buried methods provides dual detection zones for customized alerts

Architecture Resiliency Options
- Single or Dual Paths
- Cut Resiliency
- Failure Tolerant

Installation is a simple process. After having the fiber buried or attached to a fence using a third-party, our engineering expertise is at your service to install the required hardware and calibrate the system to its environment. No certification is required for installation, and no hardware or power is required in the field. All electronics are indoors in a controlled environment—protecting equipment from electromagnetic and radio interference as well as other hazardous environmental conditions.

The system is software based, allowing easy alterations to perimeter adjustments and/or changes to the zones being monitored. The system is also easily integrated with other systems and sensors, such as video, perimeter alarm management solutions and command and control systems for a more robust security management solution.

How It Works

The PIDS system utilizes one strand of a single mode standard telecommunications fiber, installed along the perimeter of an asset, to monitor and detect unwanted activity.

For measurement, the system utilizes a Coherent Optical Time Domain Reflectometer, or Interrogator Unit (IU), located alongside the processing unit. After injecting laser pulses down the length of the fiber, the IU reconstructs acoustic signals detected from the backscattered light along the cable.

Signal processing software is used to analyze these signal in real time, with a 5-10 m location accuracy.

Benefits
- Early warning detection and assessment tool
- Detects, locates and classifies multiple threats
- Identifies vehicles, personnel, digging and fence breach
- Offers passive and undetectable protection
- Provides continuous coverage
- Installed on standard fiber optic telecoms cable
- Delivers superior Nuisance Alarm (NAR) and False Alarm Rates (FAR) as a result of advanced algorithms, consultative design, and engineering efforts
- Integrates easily to other sensors (CCTV, VMS, PSIM, SCADA, C2, etc.)
- Provides exceptional wind noise rejection
- Delivers a scalable and expandable system
- Eliminates infield maintenance requirements

Applications
- Buried, fence mounted or hybrid installations
- Borders and military
- Utilities (water / energy / communications)
- Industrial (chemical / petrochemical / refinery)
- Transportation (roads / rail / ports / airports)
- Commercial (data centers / distribution facilities)

Proven Technology

OptaSense DAS technology is protecting the world's most valuable perimeter and linear critical assets. In fact, we are currently monitoring more than 25,000 km of critical infrastructure across the globe.

The OptaSense DAS system has proven valuable protecting critical assets in market sectors, including defense, oil & gas, utilities, industrial, transportation, commercial, and residential.

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