

# Buried Intrusion Detection System (BIDS)



## Border & Open Boundary Protection

Buried Intrusion Detection System (BIDS) for Border Security & Open Boundary Protection is a buried fibre optics sensing solution that secures perimeters by detecting a range of threats above and below ground, e.g. illegal cross-border immigrants, tunneling, intrusion into an area with no physical barrier.

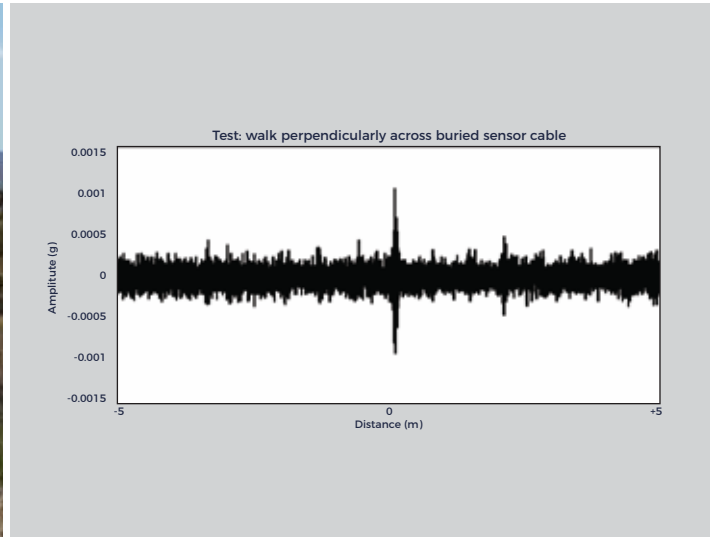
### How It Works

Highly-sensitive discrete fibre sensors are spaced a distance apart, linked by a fibre-optic cable, and installed below ground to create an “invisible perimeter” along the desired protection areas. This intricate sensing system is able to detect small movements like footsteps of an intruder crossing into a protected area. Backend equipment, each covering a few kilometres, are housed in intermediate locations one every few kilometres to effectively cover extended border lengths.

### Key Features

- Covert deployment of buried highly-sensitive fibre sensors
- Signal transmitted via low-loss fibre optic cable can be remotely monitored
- No electronics or power in the field, no lightning risk
- Intrinsically safe, immune to EMI/RFI
- Zero field maintenance, easy operation
- Terrain-following
- Unlimited scalability
- Good accuracy of  $\pm 2$  m

## Operational Concept



## Advanced Features

### Compared With Conventional Distributed Acoustic Sensing

- Positioning of discrete fibre sensors is flexible, adjustable and customisable depending on terrain
- Extremely sensitive sensors for weak ground disturbance factors like footsteps
- Offers alarm resolution, giving multiple alarms triggered by different fibre sensors
- Signal processing software rides on COTS PC server, thus cheaper, fully reliable and supportable
- Can be scaled down for shorter distance using fewer-channel Sensing Unit

## Technical Specifications

<b>Detection Range</b>	Footstep $\pm$ 2 m away from cable
<b>Detection Resolution</b>	15 m
<b>Coverage (per two sets of equipment and 2 <math>\times</math> 16-core SM OFC in each cluster)</b>	3,200 m
<b>Power Consumption (per set)</b>	Sensing Unit: 25 W Signal Processing Unit: 460 W Set of keyboard & monitor: 60 W

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