

# Terrain Defender TD100™

## Point Locating Buried Line Sensor

Covert high-security intrusion detection requires and demands the best performance from a buried sensor. The **Terrain Defender™** is the next generation buried line sensor providing one-meter target detection for the most demanding sites in the world.

With the **Terrain Defender**, a detection field consisting of Radio Frequency (RF) energy is formed between two parallel buried leaky coaxial cables. Processors on both ends of this cable pair transmit and receive RF energy forming a bi-directional static field using **End-to-End Correlation (E2EC™)**. E2EC is a technology developed and patented by Fiber SenSys that dramatically increases the performance and reliability of buried RF sensors, making the **Terrain Defender™** the best performing buried sensor available.



### Key Features:

- **Point location to one meter**
- **Virtual zoning**
- **Redundant enhanced bi-directional processing**
- **Terrain-following volumetric covert detection field**
- **Works in soil and other organic materials, under asphalt, and in concrete**

**Rejection of multi-path interference:** A problem with previous RF buried sensors is how they interact with metal objects such as fences. The signal “jumps” to a fence and then re-joins the static field further down the detection area. This phenomenon, which generates an alarm in competitive systems, is known as multi-path interference. By looking at the sensor cable signal from both directions using **E2EC**, the **Terrain Defender** rejects these false alarm occurrences.

**Increased data:** E2EC allows the **Terrain Defender** to collect four times as much target data as systems that only transmit and receive from one end of the cable pair. This additional data is used to improve signal processing results. More data equals better target discrimination, thus

exponentially increasing the probability of detection and lowering the nuisance alarm ratio. Again, the best performance in the industry.

**Signal level:** E2EC averages the signals from both ends of the cable pair resulting in a perfectly level detection field. This level field creates more consistency in detection for better signal processing and more tolerance on depth and cable spacing requirements increasing the ease of installation.

**Cut tolerant:** **Terrain Defender** is the industry’s only cut tolerant system. A single cut in the sensor cable does not cause a loss in the detection area; both sides of the cable continue to transmit and receive with **E2EC** technology.



*Terrain Defender: Higher security by design*

<b>TD100 Product Specifications</b>	
<b>Detection Area</b>	<p>Length: Up to 400-meters between processors, unlimited processors can be combined for very large sites</p> <p>Height: Detection height is nominally 1 meter</p> <p>Width: Distance between cables: 1 to 2-meters Dependent on cable spacing + 1 meter</p>
<b>Target Reporting</b>	<p>Resolution: Within one meter</p> <p>Virtual Zones: Minimum 15 meters; Maximum up to the size of the site across multiple processors</p> <p>Simultaneous targets can be detected</p>
<b>Alarm Reporting/Communications</b>	<ul style="list-style-type: none"> <li>• Through TCP/IP</li> <li>• Relay Input 4/Relay Output 8</li> </ul>
<b>Cut Tolerance / Redundancy</b>	<p>The system will still function with 100% detection if the cable pair is cut once. The processor on each end will detect up to the cut; thus, no loss in the detection area occurs. The system performance will be reduced as bi-directional correlation will not be possible.</p>
<b>Cable Installation</b>	<p>Two sensor cables run in parallel:</p> <ul style="list-style-type: none"> <li>• Soil: Nominally 9 inches (25 cm) deep</li> <li>• Asphalt: Nominally 9 inches (25 cm) deep</li> <li>• Concrete: Maximum 2 inches (5 cm) deep</li> </ul> <p>Cable installation methods: Cable plow for fast installation ▪ Trencher ▪ Hand</p>
<b>Environmental</b>	<ul style="list-style-type: none"> <li>• Operating Temperature Range: -40 C to 70C</li> <li>• Humidity: 95% non-condensing</li> </ul>
<b>Voltage / Power</b>	48 VDC
<b>Outdoor Enclosure</b>	<p>cULus, Type 1 / Type 3R</p> <p>Dimensions: 12.33 inches wide x 9.71 inches deep x 19.35 inches tall</p> <p>Tamper switch on interior processor enclosure</p>

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