



MicroTrack™

INTREPID™ *Buried Cable Perimeter Intrusion Detection System*



MicroTrack, the latest addition to Southwest Microwave's INTREPID™ family of intrusion detection products, is a new buried cable intrusion detection system for applications where covert perimeter protection is essential. MicroTrack is a volumetric, terrain-following sensor that reliably detects and precisely locates walking, running or crawling intruders along a facility's perimeter.

With a coverage range of 400 meters (1312 ft) per processor, the MicroTrack system consists of a MicroTrack processor unit and two 200-meter sensor cable pairs that may be buried along a facility's perimeter in soil, asphalt or concrete. A detection field is created around each pair of sensor cables, enabling the detection of intrusions.

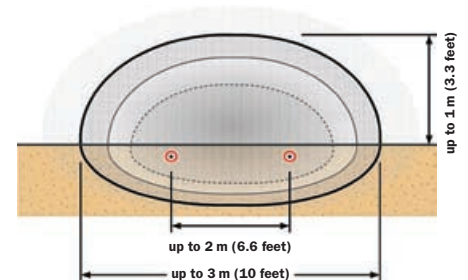
MicroTrack is the first buried cable sensor designed to fully adapt to its installed environment, setting new standards for performance by providing covert, terrain-following detection that is uniform along a site's perimeter.

MicroTrack pinpoints the location of perimeter disturbances using a target's spatial and time signatures to discriminate legitimate intrusions from harmless disturbances caused by small animals or environmental factors such as wind, rain or snow. The system's high signal-to-noise ratio and precise target location produce superior probability of detection and a very low false/nuisance alarm rate (FAR/NAR).

With MicroTrack, detection zones are set in software. As such, zoning can be cost-effectively tailored to suit a site's unique requirements. MicroTrack also features a built-in communications system that interfaces with INTREPID set-up and monitoring software, ensuring user-friendly installation, system administration and diagnostics.

Features:

- ▶ Intrusion Location to 3 m (10 ft)
- ▶ Invisible Detection Field
- ▶ Terrain Following Capability
- ▶ Site-adaptive Sensitivity Leveling™
- ▶ Software-controlled Detection Zones
- ▶ Direct High-level Interface



Typical MicroTrack detection field cross-section



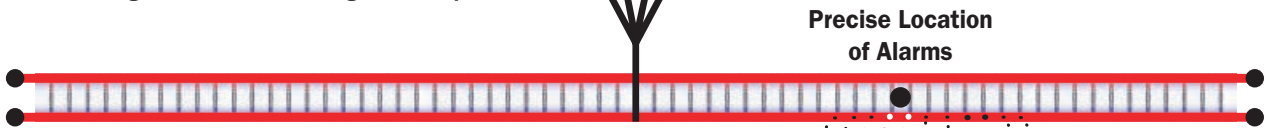
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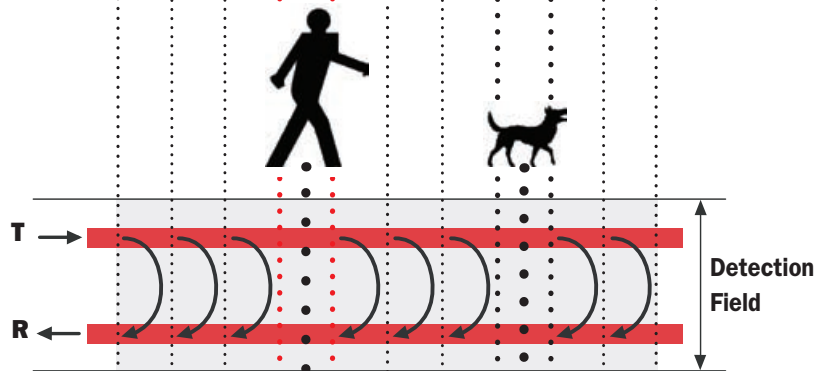
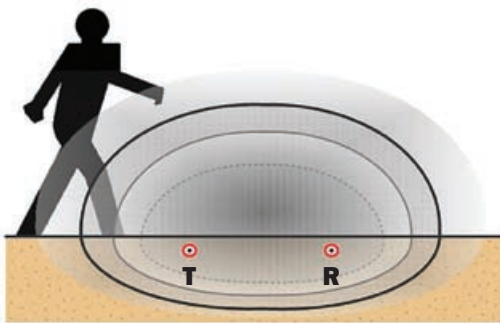
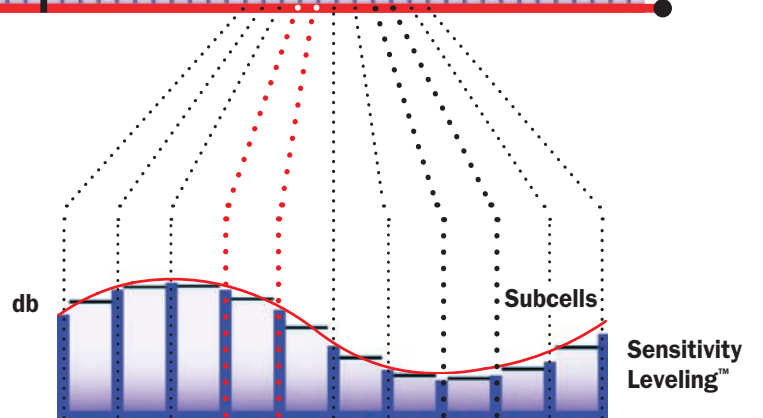
Principles of Detection and Location

MicroTrack sensor cables are divided into subcells via system software. There are typically 100 subcells per 200 m (656 ft) cable pair.

To initiate detection, the MicroTrack processor sends out ultra wide-band, coded RF signals via the transmit cable. As these signals couple with the receive cable, an invisible electromagnetic detection field is generated above and below the ground surface and along the cable pair.

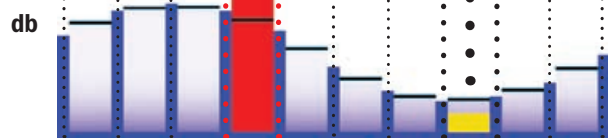


A calibration walk is performed to optimize detection capabilities within each subcell and to adapt to local terrain. A sensitivity profile is generated across all subcells, and the alarm threshold is set.



When a target enters the detection field, the receive cable picks up the altered signal in the disturbed field and transmits it to the processor. The processor analyzes the phase and amplitude of the altered signal and compares this with the calibrated threshold.

If the target exceeds the threshold, an alarm is declared and its precise location identified.



Intruder Exceeds Threshold

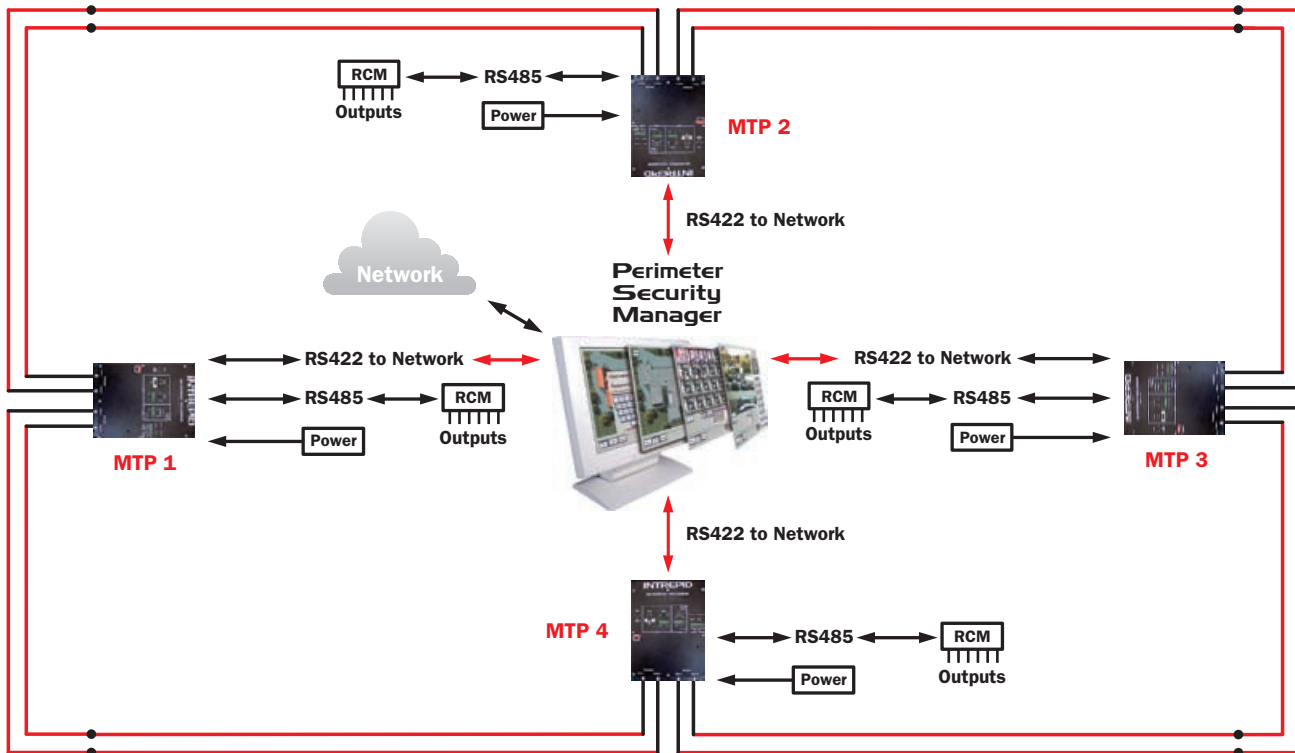
Animal Does Not Exceed Threshold

Performance Benefits

MicroTrack™ provides performance benefits unequalled in other outdoor systems. These include:

- ▶ **Invisible detection field** – unobtrusive and covert with low vulnerability to defeat
- ▶ **Wide detection field pattern** – volumetric high-security detection
- ▶ **Terrain following capability** – follows ground contours and goes around corners
- ▶ **Precise target location** – the ability to locate intruders anywhere along the cable
- ▶ **Sensitivity Leveling™** – the system adapts precisely to its installed environment so detection sensitivity is uniform along the entire length of sensor cable
- ▶ **Free format zoning** - Zones are controlled via system software. MicroTrack features up to 100 subcells per 200 meters (656 ft) of sensor cable, and up to 200 subcells per processor.
- ▶ **High Security alarm data network** – dedicated alarm communication for reliable, flexible and secure system architecture
- ▶ **Uniform sensor cable** – sensor cable is identical from one end to the other for easy repair
- ▶ **Factory-installed connections** – provide high reliability and eliminate the need for field installation of cable connectors

MicroTrack Processor with Sensor Cable Assemblies. For large sites, multiple MicroTrack systems can be networked and monitored using Perimeter Security Manager, a comprehensive alarm display, monitoring and control system.



INTREPID™ MicroTrack™ Unique System Features

MicroTrack offers broad product applications, increased system capabilities and easy installation and commissioning. The result – a system that provides unparalleled performance and measurable cost savings over past generation buried cable sensors.

Detection zones	Generated via system software – up to 100 zones per sensor cable (200 per processor)
Target location	Locates to within 3 meters (10 feet)
Sensitivity Leveling™	Adapts to multiple burial mediums and varying site conditions via sensitivity leveling
Cable adjustment on installation	No adjustment necessary for faster installation time
Threshold settings per cable set	Up to 100 subcells, each can be independently adjusted
Pd	High
FAR/NAR	Very low
Sensor cable repair	Uniform cable easy to repair
Connectors	No field installation required as connectors are factory installed
Installation and service costs	Low



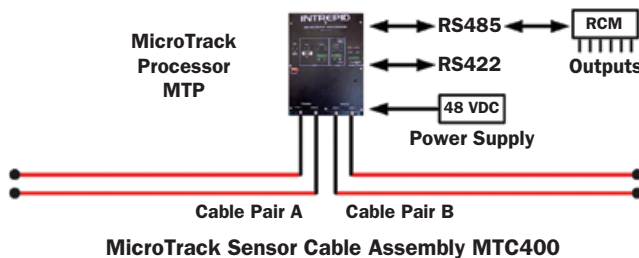
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System Components & Specifications

▶ **MicroTrack Processor (MTP)**

The MTP provides electronic processing for up to two 200 m (656 ft) sensor cable sets for a total perimeter length of 400 m (1312 ft). The MTP is packaged in a black metal EMI/RFI housing which is installed in a weather-tight enclosure when used outdoors. Each MTP supports up to 4 Relay Control Modules and can communicate with the Perimeter Security Manager for command and control.



Size: 33.7 cm H x 21.6 cm W x 10.2 cm D
(13.25 in H x 8.5 in W x 4 in D)

Weight: 2.5 kg (5.5 lbs)

Operating Temperature: -40°C to +70°C (-40°F to +159°F)

Power: 10.5 to 60 VDC @ 9 Watts

Current Draw: 12 v @ 750 mA
24 v @ 375 mA
48 v @ 188 mA

Inputs: 2 MicroTrack Cable Pairs (A and B)
External Tamper Switch Input

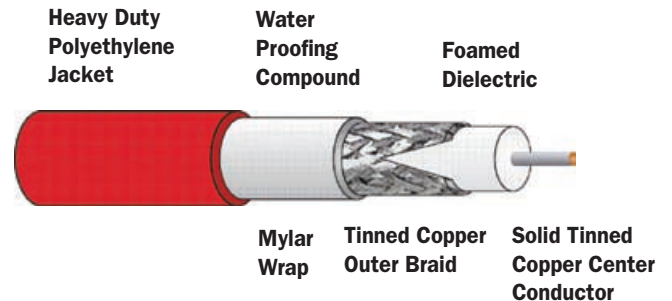
Outputs: Two Communications Ports
Com 1 = RS232 or RS422
Com 2 = RS422 or RS485

Enclosure Options: NEMA 4, NEMA 4X

▶ **MicroTrack Sensor Cable Assemblies (MTC400-110, MTC400-210)**

An MTC400 sensor cable assembly consists of a sensor cable, factory-spliced with 20 m (66 ft) of lead-in cable.* MicroTrack sensor cable assemblies are available in two detection lengths: 110 m (361 ft) MTC400-110, and 210 m (689 ft) MTC400-210. (5 m of each sensor cable pair are overlapped to provide for detection field startup.)

* Ferrites and TNC connector are factory-installed on the lead-in cable.



Size: 10.3 mm (0.405 in) diameter

Jacket: Heavy duty polyethylene with water-proofing compound

Operating Temperature: -40°C to +65°C (-40°F to +149°F)

Packaged: Size Weight (on reel)
110 m (361 ft) 20.4 kg (45 lbs)
210 m (689 ft) 34 kg (75 lbs)

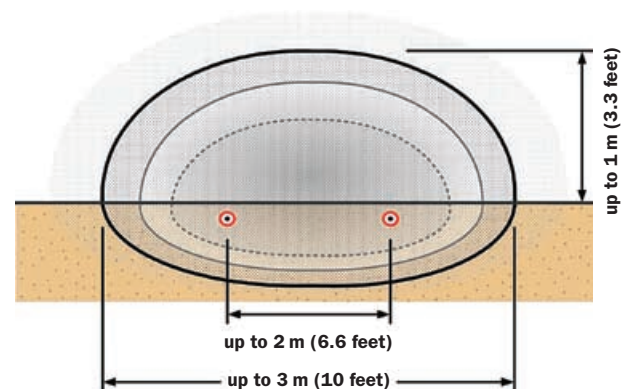
Reel: 27.9 cm W x 60.9 cm D (11 in W x 24 in D)

▶ **MicroTrack Termination Kit (MTT)**

The MTT kit is used to terminate the detection field at the end of a sensor cable. Two MTT kits are required for each sensor cable pair.

▶ **MicroTrack In-Line Termination Kit (MTI)**

The MTI kit is used to terminate the detection field between two sensor cable pairs. Two MTI kits are required for each sensor cable pair.



Typical MicroTrack detection field dimensions

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Advanced, Fully-Integrated Perimeter Security Management System

▶ **Perimeter Security Manager**

PSM is a real-time, Windows®-based security monitoring and control system that provides the ultimate in integration capabilities, reliability and ease of use. The system is ideal for facilities seeking to integrate and manage numerous perimeter security devices across single or multiple locations.

Perimeter Security Manager monitors, displays and controls Southwest Microwave's complete range of perimeter detection sensors, including the INTREPID™ MicroTrack™ system. Perimeter Security Manager also incorporates and operates a wide range of third-party contact-closure security devices, and facilitates high-level interface to CCTV cameras, digital video recorders and monitors.

▶ **MicroTrack Polling Protocol Software Development Kit (SDK)**

An integrated package for developing customized security monitoring, CCTV and access control systems applications for Linux, Mac and Microsoft operating platforms.

FCC Identifier CA6MTP.

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▶ **Relay Control Module (RCM)**

RCM is used to annunciate MicroTrack zones and receive inputs from auxiliary sensors. Each RCM provides for eight (8) relay inputs and eight (8) relay outputs. RCM provides 12 VDC @ 150 mA power output to auxiliary sensors when equipped with optional Power Converter Card (PCC).

Size: 14.0 cm H x 34.3 cm W x 12.7 cm D
(5.5 in H x 13.5 in W x 5 in D)

Weight: 1.1 kg (2.5 lbs)

Operating Temperature: -40°C to +70°C (-40°F to +159°F)

Power: Input: 10.5 to 14 VDC @ 3 watts
7 to 60 VDC with optional PCC
Output: 12 VDC @ 150 mA with optional Power Converter Card (PCC)

Inputs: 8 NO or NC, supervised inputs

Outputs: 8 relay alarm contacts (SPDT, 2 Amp @28 VDC)

Communications: One RS485 alarm port
One RS232 configuration port



MicroTrack terrain-following detection field



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