

**Southwest Microwave, Inc.**

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# Product Specifications

## Fence-Mounted Perimeter Intrusion Detection System

**System Type:** Perimeter Intrusion Detection System

**Installation:** By Contractor

**Project:** Sample "XYZ" Project

### 1.0 General

It is the intent of the **[XYZ Company]** to purchase a complete and operable outdoor fence-mounted perimeter detection and control system for the **[XYZ Facility]** as specified below and on referenced drawings and documents.

1.0.1 The following specifications are for a fence-mounted perimeter intrusion detection system.

1.0.2 The performance criteria required for this project shall meet or exceed those provided by the INTREPID™ MicroPoint-POE-S system as manufactured by Southwest Microwave, Inc., Tempe, Arizona (+1-480-783-0201).

1.0.3 The contractor shall provide all installation labor, hardware, and electronics for the system. After installation, the contractor shall secure the services of the manufacturer's technician to provide on-site technical assistance for installation inspection, testing, and training.

1.0.4 The contractor shall provide certification, as a part of the project submittals, that the controller and sensor manufacturer's on-site services will be provided as a part of this contract.

### 1.1 System Description

The complete fence-mounted perimeter detection system shall consist of:

- INTREPID™ MicroPoint-POE-S IP-based Power Over Ethernet Fence Detection System

# Procurement Specifications

## INTREPID™ MicroPoint-POE-S Fence Detection System

### 1.2 System Capabilities

1.2.1 The system shall comply with Power over Ethernet, IEEE 802.3af, Class 0.

### 1.3 System Setup

1.3.1 The system shall have an embedded, browser-based installation service tool, referred to as the Installation Service Tool (IST), to allow setup of the processor modules from a PC or mobile device.

1.3.2 The IST shall support TCP-IP network communications to simplify setup and enable real-time calibration in the field. Its function shall be to align and configure the detection parameters and network parameters of the MicroPoint-POE-S Processor Module (PM-POE-S). It shall also be used for diagnostics and servicing of the processor and sensor cable, either locally or remotely.

### 1.4 System Monitoring

1.4.1 Alarm monitoring for the fence detection system shall be handled in one of two ways:

- Via an INTREPID™ POE system controller
- Through high level interface (HLI) to a compatible third party Physical Security Information Management (PSIM) or Video Management System (VMS).

## 2.0 INTREPID™ MicroPoint-POE-S Fence Detection System

2.0.1 The fence-mounted system shall detect vibrations from cut or climb attempts to the fence fabric and subsequently identify the point of intrusion with a resolution of 1 meter (3.3 ft).

2.0.2 The fence sensor shall detect climbing intruders with a weight of 35 kilograms (77 lbs) with a Probability of Detection (Pd) of 95% at a 99% confidence level.

2.0.3 The fence sensor shall detect cuts to the fence fabric with a Probability of Detection (Pd) of 95% at a 99% confidence level.

2.0.4 Each MicroPoint-POE-S Processor Module (PM-POE-S) shall supervise up to 400 meters (1,312 ft) of linear distance using MicroPoint™ sensor cable.

2.0.5 The Fence Detection System shall employ a browser-based installation service tool with graphic display in real time, referred to as the Installation Service Tool (IST), for local or remote system administration.

2.0.6 The fence sensor shall provide Sensitivity Leveling™ on a meter-by-meter basis which automatically compensates for fence variations making each meter of fence equally sensitive to intrusions. Sensitivity Leveling™ is a calibration technique which sets thresholds for each and every cell along the sensor cable.

2.0.7 The Sensitivity Leveling™ function shall be calibrated with the use of system software and automatically calibrated for every 1 meter (3.3 ft) of cable.

**Procurement Specifications**  
**INTREPID™ MicroPoint-POE-S Fence Detection System**

- 2.0.8 Detection and location of intrusions shall be performed by Digital Time Domain Reflectometry (DTDR) methodology. The DTDR function shall reside in each PM-POE-S and not in a centralized processor or computer.
- 2.0.9 The fence sensor shall employ Point Impact Discrimination™, made possible by DTDR technology, which detects single location activity (climbing or cutting the fence) while rejecting other distributed environmental conditions (wind, rain, or other environmental disturbances). The digital signal processing (DSP) shall utilize both temporal and spatial filtering.
- 2.0.10 The partitioning of the perimeter fence into detection zones shall be established in software after installation of the system and in consideration of site conditions. Considerations for zoning shall include the reduction of nuisance alarms and assessment advantages for patrol personnel.
- 2.0.11 The Fence Detection System shall support Free Format Zoning™, allowing zones to be established in software, independent of fixed PM-POE-S locations or sensor cable lengths.
- 2.0.12 The length of each zone in the system shall be variable between 1.1 meters (3.6 ft) and the maximum zone length as indicated elsewhere in the specifications or project drawings.
- 2.0.13 The fence sensor zone configuration shall be based on the design criteria listed below:
  - 2.0.13.1 Zones should not exceed 15 linear meters (50 ft) in length for optimum CCTV assessment.
  - 2.0.13.2 Zones shall not extend around corners in perimeter fencing.
- 2.0.14 The Fence Detection System shall allow for the disabling in software of any section of the sensor cable (gate areas, etc.) thus eliminating the need for spliced non-sensitive cable.
- 2.0.15 The Fence Detection System shall communicate alarms over a TCP/IP communication network.

**2.1 INTREPID™ MicroPoint Cable**

- 2.1.1 Fence sensor cable shall feature a UV-resistant outer jacket, as well as a center conductor to carry the primary detection pulse plus two passive sense wires for detection of physical disturbances.
- 2.1.2 For tamper-prone environments, cable shall include an internally-embedded layer of steel armor to maximize tamper resistance.
- 2.1.3 Fence sensor cable shall be available in reels of 100 meters (328 ft) and 220 meters (722 ft) and have a minimum bend radius of 2.5”.
- 2.1.4 The fence sensor cable shall be attached to the fence fabric at 23 centimeter (9 in) intervals via UV-resistant cable ties. Mounting height shall be determined by the manufacturer.

## **Procurement Specifications**

### **INTREPID™ MicroPoint-POE-S Fence Detection System**

- 2.1.5 During installation, the fence sensor cable shall be capable of being cut on-site to any length up to a maximum of 220 meters (722 ft).
- 2.1.6 The fence sensor cable shall be field-repairable with simple hand tools by replacing the damaged section with a spare sensor cable section and a Splice Unit II (SU II).

## **2.2 MicroPoint-POE-S Processor Module (PM-POE-S)**

- 2.2.1 Detection processing shall be performed by the various MicroPoint-POE-S Processor Modules distributed around the perimeter. Each PM-POE-S shall provide detection processing for up to 400 meters (1,312 ft) of linear distance.
- 2.2.2 The installation location for each PM-POE-S shall be governed by the 400 meters (1,312 ft) maximum linear distance supported by each PM-POE-S and not by detection zoning considerations.
- 2.2.3 Positioning for each PM-POE-S shall be determined by such factors as perimeter length, operational convenience, and physical security concerns. The position of each PM-POE-S shall have no effect on detection zoning.
- 2.2.4 Each PM-POE-S shall communicate alarms to the Controller or third-party monitoring system over a TCP/IP network using the INTREPID Polling Protocol II (IPP II).
- 2.2.5 Each MicroPoint-POE-S sensor shall have an optically isolated RJ-45 connector supporting 10/100 Base-T ports for:
  - Local sensor setup/configuration and maintenance using the embedded, browser-based Installation Service Tool (IST)
  - Remote sensor administration and maintenance using the embedded, browser-based Installation Service Tool (IST)
  - Sensor alarm monitoring
- 2.2.6 Each PM-POE-S shall utilize an embedded browser-based installation service tool with graphic display in real time, referred to as the Installation Service Tool (IST), to setup and control sensor parameters with a laptop PC or mobile device.
- 2.2.7 Detection criteria shall reside in non-volatile memory in each respective PM-POE-S.
- 2.2.8 Each PM-POE-S shall store in memory up to 1,024 alarms and events for troubleshooting and maintenance.
- 2.2.9 In the event of a temporary loss of communication with the central Controller, each PM-POE-S shall have the capability of retaining site data until communication is restored.
- 2.2.10 The PM-POE-S shall operate on an input voltage of 8.0W Typ.
- 2.2.11 The PM-POE-S shall be capable of accepting contact-closure alarm inputs from auxiliary devices (i.e., microwave, PIR, etc.) and provide alarm interface to the Controller.
- 2.2.12 The PM-POE-S shall operate continuously within specification at temperatures between -40°C (-40°F) and +70°C (+159°F), without assistance from cooling or heating apparatus.

## **Procurement Specifications**

### **INTREPID™ MicroPoint-POE-S Fence Detection System**

- 2.2.13 The PM-POE-S shall be hardened to operate within all specifications when continuously exposed to 0 - 100% relative humidity with conformal coated electronics.
- 2.2.14 The PM-POE-S shall include transorb and gas discharge devices to protect against lightning and electrostatic discharge.
- 2.2.15 The PM-POE-S shall be housed in ABS weatherproof UV stabilized noncorrosive enclosures fitted with tamper switches.

### **3.0 Installation / Documentation / Services**

- 3.0.1 The contractor performing installation shall be factory certified by Southwest Microwave on the INTREPID™ MicroPoint-POE-S IP-based Power Over Ethernet Fence Detection System.
- 3.0.2 After installation of the system, the contractor shall make provisions for manufacturer's technical representative to perform final on-site inspection and installation certification.
- 3.0.3 The contractor shall provide the necessary documentation to confirm that the system is installed in accordance with on-site requirements and manufacturer's installation instructions. The contractor shall perform all wire hook-ups.
- 3.0.4 The supplier shall provide technical support and warrant that spare parts and assemblies shall be available for a minimum of 10 years.
- 3.0.5 The supplier shall provide three (3) years warranty from date of purchase with an additional two (2) years available at no cost with registration of the project installation.

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