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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™ II 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™ II Fence Detection System

1.2 System Devices

The alarm communication network shall be capable of supporting the following devices:

- **INTREPID™ MicroPoint™ II Fence Detection System** Each processor shall be capable of protecting 400 meters with software alarm zones. An acceptable product that meets or exceeds these requirements is the MicroPoint™ II system's Processor Module II (PM II)

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1.3 System Capabilities

- 1.3.1 The system shall utilize a common communication protocol with all sensors and devices to ensure full integration and interoperability.
- 1.3.2 If needed a common SDK (Software Development Kit) will be provided to facilitate integration with other security devices or management systems.
- 1.3.3 All the system devices shall have the capability to operate over a common voltage input from 10.5 to 60 VDC.

1.4 System Setup

- 1.4.1 The system shall have a single universal installation service tool, referred to as the Universal Installation Service Tool II (UIST II), to allow setup of all the intrusion sensors from a laptop or desktop computer.
- 1.4.2 The UIST II will provide intuitive setup, guided navigation and forward propagation to simplify setup and calibration in real time.
- 1.4.3 The UIST II shall support serial or network communications for diagnostics of the intrusion sensors both locally or remotely.
- 1.4.4 The UIST II shall utilize Auto Discovery to confirm communication of all devices.

1.5 System Monitoring

- 1.5.1 Alarm monitoring of the system shall be handled in one of three ways:
 - Via Form C Dry Relay Contacts
 - Via an INTREPID Series II 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™ II 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 to within 3 meters (10 ft) with a resolution of 1 meter (3.3 ft).
- 2.0.2 Each MicroPoint II Processor Module II (PM II) shall monitor up to 400 meters (1,312 ft) of linear fence with MicroPoint™ cable.
- 2.0.3 Detection and location of intrusions shall be performed by Digital Time Domain Reflectometry (DTDR) methodology. The DTDR function shall reside in the distributed PM II's and not in a centralized processor or computer.
- 2.0.4 The length of each zone in the system shall not be restricted to the physical location of the fixed PM II's but shall be variable between 3 meters (10 ft) and the maximum zone length as indicated elsewhere in the specifications or project drawings.
- 2.0.5 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.

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- 2.0.6 The fence sensor zone configuration shall be based on the design criteria listed below:
- 2.0.6.1 Zones should not exceed 15 linear meters (50 ft) in length for optimum CCTV assessment.
 - 2.0.6.2 Zones shall not extend around corners in perimeter fencing.
- 2.0.7 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.
- 2.0.8 Depending on the perimeter length and number of auxiliary devices, the sensor cable shall be capable of providing power to PM II's without additional cabling. The manufacturer shall advise the contractor of this capability for specific projects.
- 2.0.9 The fence sensor shall allow for the disabling in software of any section of the sensor cable (gate areas, etc.) eliminating the necessity for spliced non-sensitive cable.
- 2.0.10 The "Sensitivity Leveling" function (as described in paragraph 3.0.5) shall be calibrated with the use of system software and automatically calibrated for every 1 meter (3.3 ft) of cable.
- 2.0.11 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.
- 2.0.12 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.
- 2.0.13 The fence sensor shall detect cuts to the fence fabric with a Probability of Detection (Pd) of 95% at a 99% confidence level.
- 2.0.14 The fence sensor shall support "Free Format Zoning™", allowing zones to be established in software independent of the fixed PM II locations and sensor cable lengths.
- 2.0.15 The fence sensor shall utilize a distributed switching power network that provides DC power to all the modules without the use of separate power supplies. The configuration shall permit the use of a central UPS AC power supply for the entire system.
- 2.0.16 System input power shall be capable of accepting standard DC voltage power supplies of 12, 24 or 48 VDC power. The system shall allow for DC power input from 10.5 to 60 VDC.

2.1 INTREPID™ MicroPoint Cable

- 2.1.1 Fence sensor cable shall be available in lengths of 110 meters (361 ft) and 220 meters (722 ft) rugged construction to allow bending at gates without use of gate connect kits and with UV resistant jacket.

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- 2.1.2 The fence sensor cable shall be attached at 23 centimeter (9 in) intervals to the fence fabric with UV resistant cable ties at a mounting height determined by the manufacturer.
- 2.1.3 The fence sensor cable shall be capable of being cut on site during installation to any length up to a maximum of 220 meters (722 ft).
- 2.1.4 The fence sensor cable shall be field-repairable with simple hand tools if damaged by replacing the damaged section with a spare sensor cable section and a Splice Unit (SU).

2.2 Processor Module II (PM II)

- 2.2.1 Detection processing shall be performed by the various MicroPoint™ II Processor Module II's (PM II's) distributed around the perimeter. Each PM II shall provide processing for up to 440 meters (1,444 ft) of sensor cable.
- 2.2.2 Detection criteria shall reside in non-volatile memory in each respective PM II.
- 2.2.3 Positioning of the PM II's shall be determined by such factors as perimeter length, operational convenience, and physical security concerns. Positioning of PM II's shall have no effect on detection zoning.
- 2.2.4 In the event of a temporary loss of communication with the central Controller, each PM II shall have the capability of retaining site data until communication is restored.
- 2.2.5 PM II'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.
- 2.2.6 PM II's shall be hardened to operate within all specifications when continuously exposed to 0 - 100% relative humidity with conformal coated electronics.
- 2.2.7 The PM II's shall be housed in ABS weatherproof UV stabilized non corrosive enclosures fitted with tamper switches.
- 2.2.8 PM II's shall include transorb and gas discharge devices to protect against lightning and electrostatic discharge.
- 2.2.9 The PM II's shall be capable of accepting contact-closure alarm inputs from auxiliary devices (i.e., microwave, PIR, etc.) and provide alarm interface to the INTREPID™ Controller.
- 2.2.10 The installation locations of the PM II's shall be governed by the 440 meter (1,444 ft) maximum distance of supported cable and is not governed by detection zoning.
- 2.2.11 The PM II's shall provide up to 150mA at 12 VDC to auxiliary sensors.
- 2.2.12 The PM II's shall communicate via RS422 for communication of alarms using the INTREPID™ Polling Protocol II (IPP II).
- 2.2.13 The Processor shall utilize a software-based universal installation tool with graphic display in real time, referred to as the Universal Installation Service Tool II (UIST II), to setup and control sensor parameters with a laptop PC.

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- 2.2.14 The Processor shall store in memory up to 1,024 alarms and events for troubleshooting and maintenance.
- 2.2.15 Remote adjustment with UIST II will be available via the System Controller or direct connection.

3.0 Installation / Documentation / Services

- 3.0.1 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.
- 3.0.2 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 performing installation shall be factory certified by Southwest Microwave on the INTREPID MicroPoint II detection systems.
- 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.

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