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Product Specifications

1.0 INTREPID™ MicroNet™ II Fence-Mounted Perimeter Intrusion Detection System

System Type: Perimeter Intrusion Detection System

Installation: By Contractor

Project: Sample "XYZ" Project

1.1 General

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

1.1.1 The following specifications are for a perimeter intrusion detection system.

1.1.2 The performance criteria required for this project shall meet or exceed that provided by the INTREPID™ Series II MicroNet II™ system as manufactured by Southwest Microwave, Inc., Tempe, Arizona (+1-480-783-0201).

1.1.3 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.

1.1.4 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.

1.2 System Description

The complete perimeter detection system shall consist of:

- INTREPID™ MicroNet™ II Fence Intrusion Detection System

1.3 System Devices

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

- **INTREPID™ MicroNet™ 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 MicroNet™ II system's MicroNet Processor Module II (MPM II)

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1.4 System Capabilities

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

1.5 System Setup

- 1.5.1 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.
- 1.5.2 The UIST II will provide intuitive setup, guided navigation and forward propagation to simplify setup and calibration in real time.
- 1.5.3 The UIST II shall support serial or network communications for diagnostics of the Intrusion sensors, both locally or remotely.
- 1.5.4 The UIST II shall utilize Auto Discovery to confirm communication of all devices.

1.6 System Monitoring

- 1.6.1 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™ MicroNet™ 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 MicroNet Processor Module II (MPM 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 MPM 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 MPM 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.

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- 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.
- 2.0.6 The fence sensor zone configurations shall be based on the design criteria listed below:
- a) Zones should not exceed 15 linear meters (50 ft) in length for optimum CCTV assessment.
 - b) 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 MPM II's without additional cabling. The manufacturer shall advise the contractor of this capability for specific projects.
- 2.0.9 The system 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" functions (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 34 kilograms (75 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 Fence sensor 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.

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2.1 INTREPID™ MicroPoint Cable

- 2.1.1 Sensor cable shall be available in lengths of 100 meters (328 ft) and 220 meters (722 ft) rugged construction to allow bending at gates without use of gate connect kits and with UV resistant jacket.
- 2.1.2 The 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 MicroPoint™ 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 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 MicroNet Processor Module II (MPM II)

- 2.2.1 Detection processing shall be performed by the various MicroNet™ II MicroNet Processor Module II's (MPM II's) distributed around the perimeter. Each MPM 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 MPM II.
- 2.2.3 Positioning of the MPM II's shall be determined by such factors as perimeter length, operational convenience, and physical security concerns. Positioning of MPM 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 MPM II shall have the capability of retaining site data until communication is restored.
- 2.2.5 MPM 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 MPM 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 MPM II's shall be housed in NEMA 4 enclosures fitted with locks and tamper switches.
- 2.2.8 MPM II's shall include transorb and gas discharge devices to protect against lightning and electrostatic discharge.
- 2.2.9 The MPM 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 MPM 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 MPM II's shall provide up to 150mA at 12 VDC to auxiliary sensors.
- 2.2.12 The MPM II's shall communicate via RS422 for communication of alarms using the INTREPID™ Polling Protocol II (IPP II).

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- 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.
- 2.2.14 The Processor shall store in memory up to 1,000 alarms and events for troubleshooting and maintenance.
- 2.2.15 Remote adjustment with UIST II will be available via the Controller or direct connection.
- 2.2.16 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.
- 2.2.17 The Processor shall store in memory up to 1,000 alarms and events for troubleshooting and maintenance.
- 2.2.18 Remote adjustment with UIST II will be available via the 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 INTREPID™ Series 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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