INTREPID™ MicroPoint™ X

IP-BASED POWER OVER ETHERNET (POE) FENCE DETECTION SYSTEM

SOUTHWEST MICROWAVE



INTREPID™ MicroPoint™ X is a perimeter fence detection system ideal for applications with cut or climb intrusion risks. Proprietary Digital Signal Processing (DSP) algorithms precisely locate intrusion attempts to within 1.1 m (3.6 ft) while ignoring harmless disturbances caused by wind, rain or vehicle traffic, producing superior probability of detection (PD) and a low nuisance alarm rate (NAR). This IP-based solution couples the field-proven performance of MicroPoint™ II with TCP/IP network integration via a single Ethernet cable, providing installation and maintenance convenience, system design flexibility and lower infrastructure costs.

With a coverage area of 600 linear meters (1969 ft) per processor, the MicroPoint™ X system consists of a Processor Module and two sensor cables that are tie-wrapped to a perimeter fence or topper wire. The system's unique calibration process (Sensitivity Leveling™) ensures uniform detection performance across various fence fabrics and tensions, making MicroPoint™ X an ideal solution for challenging applications or harsh environmental conditions.

Through our proprietary Free Format Zoning™ functionality, detection zones can be assigned anywhere along the detection cable, regardless of processor location, to efficiently tailor zoning to a site's unique requirements. MicroPoint™ X can be networked with Southwest Microwave's complete range of POE technologies, including INTREPID™ Model 316-POE-S (CE), Model 334-POE-S and Model 336-POE-S Digital Microwave Links, INTREPID™ Model 390 and Model 395 Advanced Digital Transceivers, Input / Output Modules and INTREPID™ POE System Controllers.

KEY FEATURES

- INTRUSION LOCATION TO 1.1 M (3.6 FT)
- ADVANCED DIGITAL SIGNAL PROCESSING FOR HIGH PD / LOW NAR
- UNIFORM DETECTION SENSITIVITY ALONG THE FENCELINE
- SOFTWARE-BASED FREE FORMAT ZONING™
- INTEGRATION WITH IP/ POE-BASED SECURITY DEVICES AND CAMERAS
- ECONOMICAL PLUG-AND-DEPLOY INSTALLATION
- USER-FRIENDLY CONFIGURATION VIA PC OR MOBILE DEVICE
- ALARM MONITORING VIA RELAY CONTROLLER, GUI-BASED CONTROLLER OR THIRD-PARTY HLI



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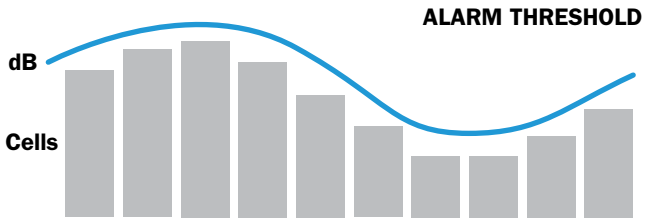
PRINCIPLES OF DETECTION AND LOCATION

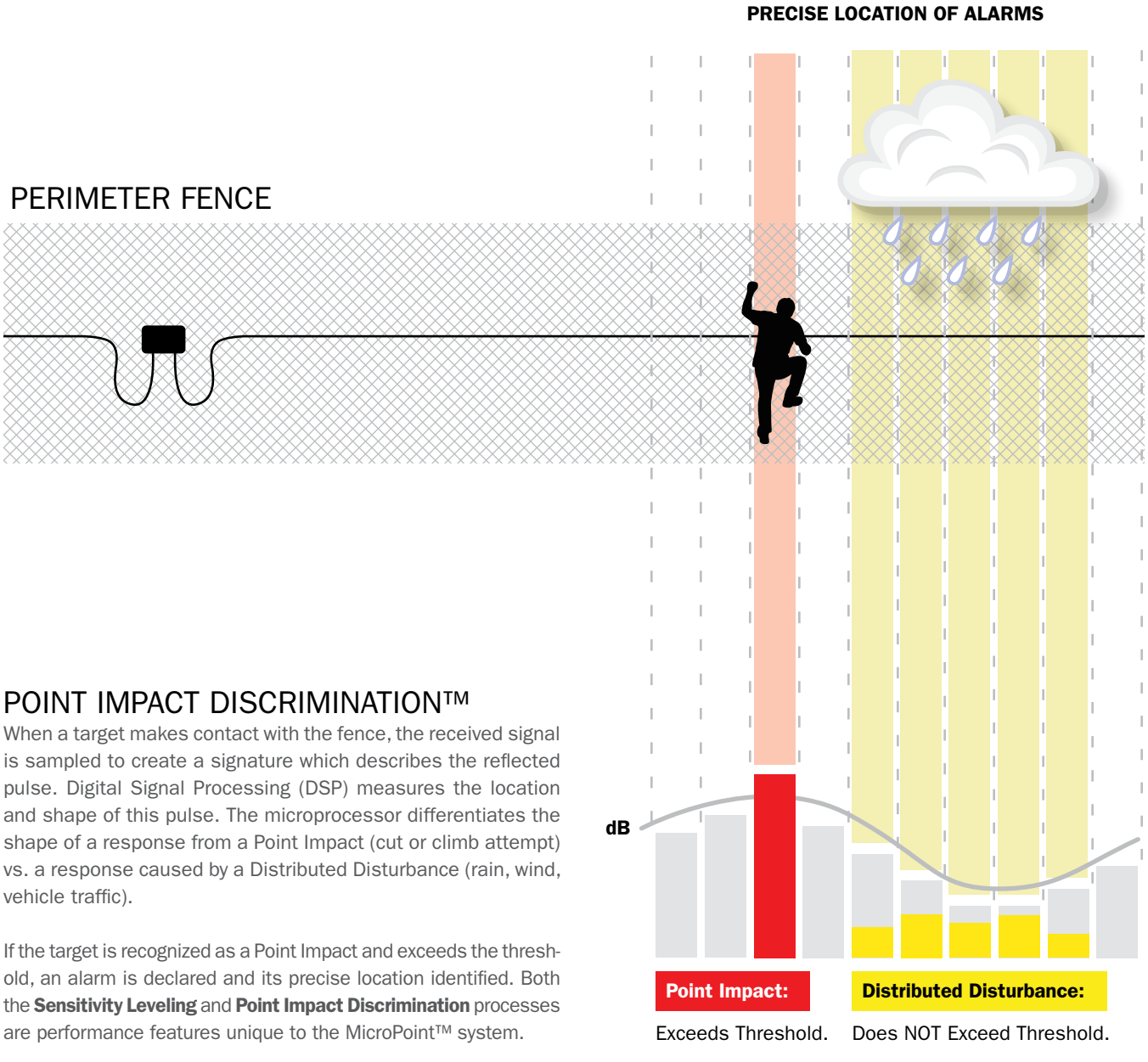
Unique, patented detection technology allows MicroPoint™ X to identify the precise location of an intrusion attempt or event. To initiate detection, the MicroPoint™ X processor sends a pulse down the sensor cable using the principles of Time Domain Reflectometry (TDR). The pulse is reflected back to the receiver by a disturbance to the fence, providing the precise location of the event detected along the length of the cable.

SENSITIVITY LEVELING™

MicroPoint™ sensor cables are divided into cells through the browser-based Installation Service Tool. There are typically 324 cells per 330m (1083 ft) of cable.

A calibration walk is performed to optimize detection sensitivity within each 1.1 m (3.6 ft) cell by accounting for variations in fence fabric or tension. A sensitivity profile is then generated across all cells and the alarm threshold is set.





POINT IMPACT DISCRIMINATION™

When a target makes contact with the fence, the received signal is sampled to create a signature which describes the reflected pulse. Digital Signal Processing (DSP) measures the location and shape of this pulse. The microprocessor differentiates the shape of a response from a Point Impact (cut or climb attempt) vs. a response caused by a Distributed Disturbance (rain, wind, vehicle traffic).

If the target is recognized as a Point Impact and exceeds the threshold, an alarm is declared and its precise location identified. Both the **Sensitivity Leveling** and **Point Impact Discrimination** processes are performance features unique to the MicroPoint™ system.

FEATURES AND BENEFITS

PRECISE TARGET LOCATION
Locates intruders to within 1.1 m (3.6 ft) anywhere along the cable.

POINT IMPACT DISCRIMINATION™
Identifies localized attempts to cut or climb the fence, but ignores distributed fence noise generated by wind, rain or vehicle traffic - solving nuisance alarm problems that plague conventional fence sensors.

SENSITIVITY LEVELING™
A proprietary calibration process accounts for variations in fence fabric or tension to provide uniform detection sensitivity along the fenceline.

FREE FORMAT ZONING
Detection zones are assigned in software - independent of processor location - keeping hardware costs low and offering maximum flexibility. The number and location of zones can be easily altered to meet changing site conditions.

IP/POE-BASED SOLUTION
Using a single cable for data and power transmission, each MicroPoint™ X sensor operates as a secure element that seamlessly integrates with other IP/POE-based intrusion detection devices - such as IP cameras and access control systems - for greater system design flexibility, reduced installation costs, networked power and the convenience of local or remote monitoring and servicing.

BROWSER-BASED INSTALLATION SERVICE TOOL
An embedded, browser-based INTREPID™ MicroPoint™ X Installation Service Tool enables local or remote configuration and management of the system, eliminating the need for software downloads. Reporting features include enhanced visual scatter graphs showcasing events and alarms for at-a-glance decision-making and trend analysis.

REMOTE DIAGNOSTICS
Monitor and control system status, detection parameters and alarm information via remote laptop or mobile device for easy troubleshooting or adjustment.

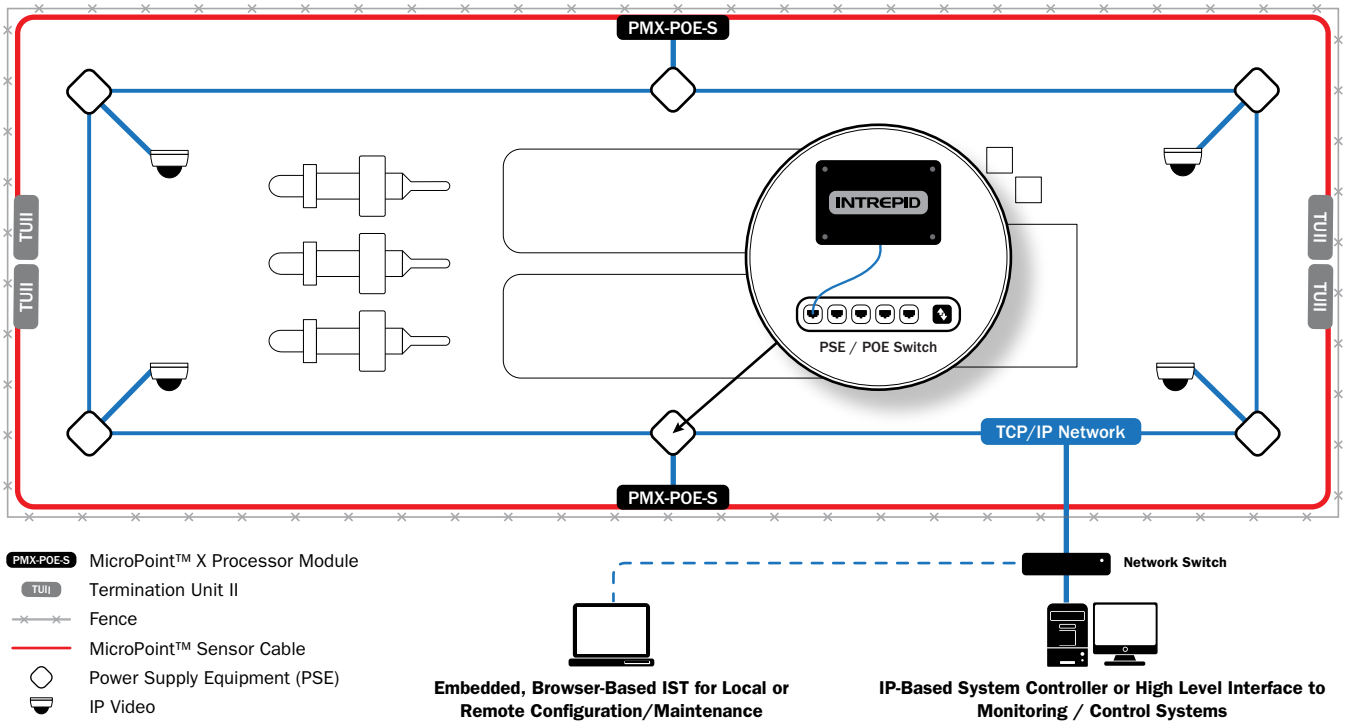
SCALABLE SYSTEM CONTROLLERS
INTREPID™ POE system controller options are available to manage INTREPID™ POE sensors via TCP/IP network communications protocol using a standard Ethernet connection. An SDK is available to developers for high-level integration of INTREPID™ POE sensors into custom monitoring and control applications.

INTEGRATED I/O MODULES
Auxiliary input modules* can be used to incorporate auxiliary devices, such as Southwest Microwave's conventional sensors, gate and door contacts or other alarm contacts. Relay Output Modules* provide simple interface to CCTV, legacy alarm panels, perimeter lighting or other relays if high-level interface is not available.

* See INTREPID™ POE System Controllers data sheet and configuration diagrams for complete specifications.

TYPICAL MICROPOINT™ X SYSTEM CONFIGURATION DIAGRAM

MicroPoint™ X seamlessly integrates with the TCP/IP network via a single cable for power and data transmission.



INTREPID™ MicroPoint™ X

SYSTEM COMPONENTS & SPECIFICATIONS

SOUTHWEST MICROWAVE

PROCESSOR MODULE X-POE-S (PMX-POE-S)

Each module processes data from two lengths of MicroPoint™ cable (A and B). Each length of transducer cable can be up to 330m (1083 ft) long. Both A and B lengths of transducer cable are terminated in Termination Units.

Size: 268 H x 333 W x 108 D mm (8.59 x 13.11 x 4.26 in)
Weight: 1.81 kg (4 lbs)
Operating Environment: -40° C to 70° C (-40° F to 159° F)
0-100% Relative Humidity
POE: IEEE 802.3af, Class 0
Power Requirements: 8.0W Typ.
Supervised / Unsupervised Inputs: 4
Inputs: 2 MicroPoint™ cables (A and B), 4 Dry Contact Inputs
Ports: RJ45 [1]
Security Protocols: TLS 1.2, supports X.509v3 Public Key Infrastructure Certificates, max size 3K
Enclosure Rating: IP66

MICROPOINT™ CABLE

The MicroPoint™ cable is used for intrusion and event detection. It has a high density, solid polyethylene jacket designed for outdoor use, and is supplied on 330m (1083 ft), 220m (722 ft) or 110m (361 ft) reels.

NOTE: For detection beyond 200m (656 ft) on either side (A or B) of the PMX-POE-S processor module, only 330m (1083 ft) cables may be used. To ensure optimal performance of the system, 110m (361 ft) and 220m (722 ft) cables CANNOT be spliced together to make a 330m (1083 ft) cable length.

MC-115 (Standard)
Size: 4.902 mm (0.193 in) diameter
Jacket: High density polyethylene, UV resistant, black.
Operating Environment: -40° C to 70° C (-40° F to 159° F)
0-100% Relative Humidity
Minimum Bend Radius: 63.5 mm (2.5 in)

Model Number:	Packaged Size:	Packaged Weight:
MC115-330	330 m (1083 ft)	13 kg (29 lbs)
MC115-220	220 m (722 ft)	9.1 kg (20 lbs)
MC115-110	110 m (361 ft)	4.5 kg (10 lbs)

INTREPID™ POE SYSTEM CONTROLLERS

INTREPID™ POE System Controllers plus available SDK offer scalable IP-based security management solutions to suit any site parameters. Consult **POE System Controllers** data sheet for details.

TERMINATION UNIT II (TU II)

The Termination Unit II is used at the end-of-line in an open loop configuration to terminate detection process.

Size: 115 H x 90 W x 55 D mm (4.53 x 3.54 x 2.17 in)
Weight: 0.45 kg (1 lb)
Operating Environment: -40° C to 70° C (-40° F to 159° F)
0-100% Relative Humidity
Inputs: 1 MicroPoint™ cable
Enclosure Rating: NEMA 4X

LINK UNIT II (LU II)

One Link Unit II may be used as an alternative to two TU IIs if uniform housings along the fence line are preferred.

Size: 268 H x 333 W x 108 D mm (8.59 x 13.11 x 4.26 in)
Weight: 1.59 kg (3.5 lbs)
Operating Environment: -40° C to 70° C (-40° F to 159° F)
0-100% Relative Humidity
Inputs: 2 MicroPoint™ cables
Enclosure Rating: IP66

CABLE CONNECTOR UNIT (CCU)

One Cable Connector Unit is included with each 330 m (1,083 ft) of MicroPoint™ cable.

Size: 25.4 Diameter x 116.84 L mm (1 x 4.6 in)
Weight: 0.12 kg (4 oz)
Operating Environment: -45° C to 90° C (-49° F to 194° F)
0-100% Relative Humidity
Inputs: 2 MicroPoint™ cables
Enclosure Rating: SCTE IPS-TP-013 / ANSI-SCTE 60

INSTALLATION SERVICE TOOL (IST)

An embedded, browser-based Installation Service Tool configures INTREPID™ MicroPoint™ X through supported browsers: Internet Explorer 11, Edge 40, Firefox 54, Chrome 59 or higher.

ACCESSORIES

- **MicroPoint™ Cable Splice Unit II (SU II)**
- **MicroPoint™ Cut Simulator Tool (2614875-A01)**
- **MicroPoint™ Cut Simulator Tool: Painted Coated Fences (2647132-A01)**

CE | National Protective Security Authority

INTREPID™ MicroPoint™ is approved for UK Government use. For details contact NPSA.
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