MICRONET™

Perimeter Security System

The Next Generation Perimeter Security System

MICRONET™ combines patented Southwest Microwave technology with microprocessor power and laptop computer convenience. It is a sophisticated perimeter security system which provides precise location of alarms.

MICRONET is based on MicroPoint™ cable technology which detects any fence disturbance and locates it to within 10 feet. Precise location allows proprietary digital signal processing (DSP) algorithms to detect any attempt to cut or climb the fence while ignoring distributed noise from wind, rain or heavy vehicles. Reliable detection is assured.

MICRONET also transmits alarm signals and operating power to all MICRONET modules and auxiliary sensors along the perimeter eliminating the need for extra wiring. MICRONET software interfaces directly with a personal computer (PC) so that your computer becomes the installation test set, graphic map, and alarm monitoring display. Installed cost is very low!

Best of all, MICRONET was designed by Southwest Microwave, and it is backed by our 30 years experience with exterior security systems around the world.

Features:

- MicroPoint Detection with location to 10 feet
- Sensitivity Leveling for varying fence conditions
- Free Format Zoning eliminates hardware constraints in system design
- Point Impact Discrimination increases detection without increasing nuisance alarms
- MicroPoint cable with integrated power and data for reduced installation costs
- Windows® based PC installation

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System Description

MICRONET MicroPoint cable is tie wrapped to a chain link fence where it detects vibrations from any cut or climb and precisely locates the point of intrusion. MicroPoint cable transmits alarm data and system status to each MICRONET module and provides power to these modules and auxiliary sensors along the perimeter. No other equipment or wiring is needed.

Precise location of each fence disturbance provides:

- ***Point Impact Discrimination***

Sensitive to a localized fence disturbance caused by a cut or climb. Insensitive to distributed fence noise due to wind, rain and nearby vehicles.

- ***Sensitivity Leveling***

Calibration automatically compensates for fence variations. Each meter of perimeter fence is equally sensitive to intrusions.

- ***Free Format Zoning***

Zones are set from the keyboard, independent of processor location and may be changed at will.

Built-in microprocessor and PC software provide:

- ***Windows based installation program***

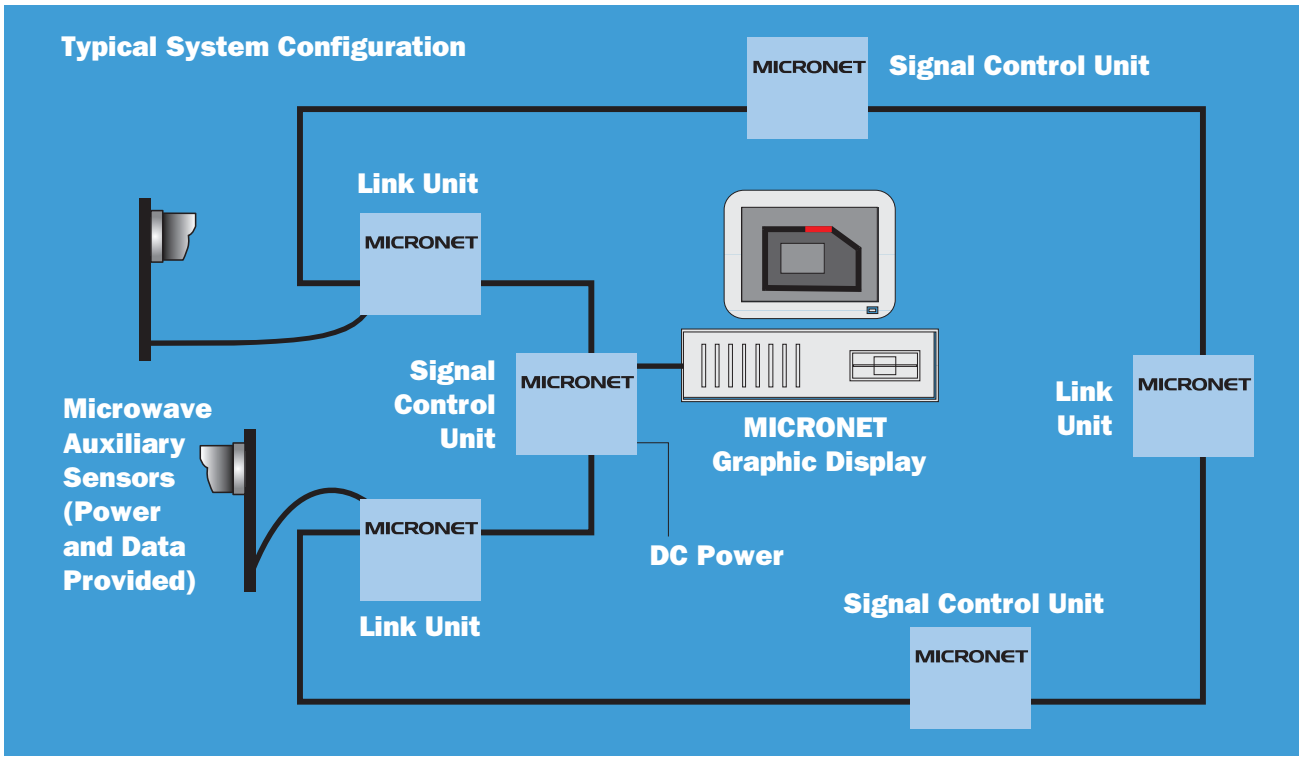
Installation and service is completed with easy to use graphic tools.

- ***Graphic annunciator map***

User drawn site map is converted into a basic graphic annunciator map. No other multiplexer or map display system is needed.

- ***Remote diagnostics***

Modem interface reports site conditions and alarm information over ordinary telephone lines. This feature allows for remote trouble shooting.



MICRONET's major components are the Signal Control Unit, MicroPoint cable and Windows software. The Signal Control Unit provides the system intelligence to perform powerful signal processing, DC power distribution and data communications networking. The MicroPoint cable permits the easy connection of the perimeter system providing: DC power, data communication for alarms and control, as well as an intrusion detection sensor. The MICRONET Perimeter Manager software included provides; site design, step by step installation, and graphic map display.

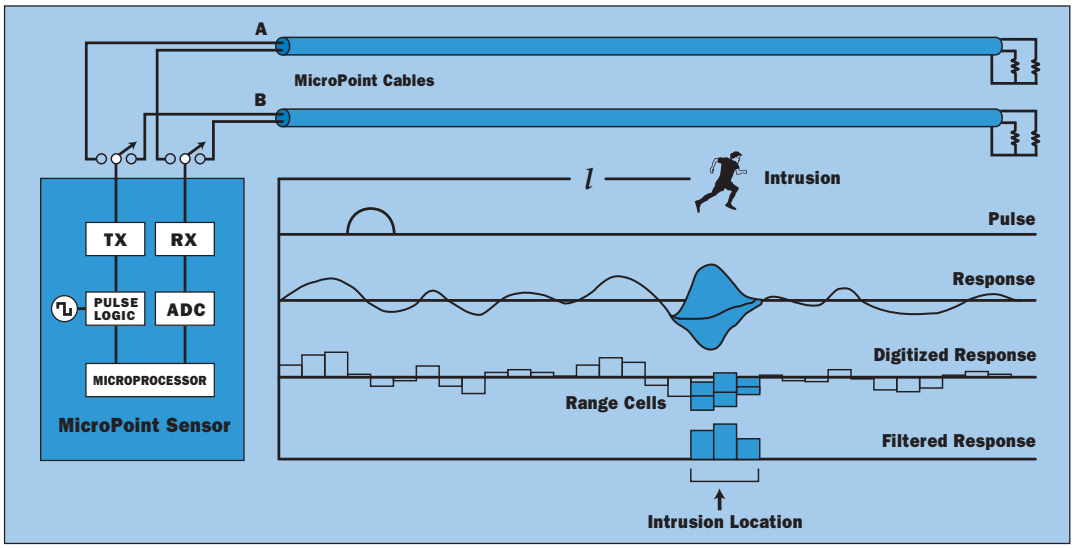
Principle of Operation

The signal control unit sends a pulse down the MicroPoint cable. The pulse is reflected back by a disturbance providing location of the intrusion along the length of cable. The received signal is sampled to create a signature which describes the reflected pulse. Digital Signal Processing (DSP) allows MicroPoint sensor to measure the location and shape of the reflected pulse. The microprocessor recognizes the shape of the response from a point target (cutting or climbing) and distinguishes it from responses caused by distributed signals such as rain, wind and vehicle traffic.

The installer uses any PC to calibrate the MicroPoint cable sensor and assign zones. During calibration, the sensitivity of each (3 ft.) of cable is set to provide uniform sensitivity along the entire length of MicroPoint cable. In fence installations, Sensitivity Leveling accommodates variations in the type of fence fabric and in the fabric tension. Zones are user defined from the keyboard. Free Format Zoning allows the number and location of zones to be easily altered to meet changing site conditions. Windows based installation software provides installation guidance and records "as installed" details for later maintenance and diagnostic purposes.

Perimeter Monitor (Operator Graphic Display)

MicroPoint Sensor - Detection Concept



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MICRONET		OTHER SENSORS	
MicroPoint Detection and Assessment			
YES	Locates alarms within 10 feet	**NO**	Only detects presence
✔	Intruder stands out from wind/rain	**NO**	Intruder buried in wind/rain
✔	Digital processing increases Pd	**$$$**	External processors required
✔	Focused CCTV assessment	**$$$**	Many more processors needed
Sensitivity Leveling			
YES	Calibrated every 3 feet	**NO**	One threshold for entire zone
✔	Compensates for fence variations	**$$$**	Often requires fence work
✔	Calibration optimizes Pd vs FAR	**NO**	Pd vs FAR compromised
✔	Easy to locate problems	**$$$**	Difficult to locate problems
Free Format Zoning			
YES	Software Controlled Zones	**NO**	Hardware defined zones
✔	Multiple zones per cable	**NO**	Only 1 zone per cable
✔	Easy to add zones	**$$$**	Requires more processors
✔	Easy to change zone boundaries	**$$$**	Requires reinstallation
Point Impact Discrimination			
YES	Recognizes local disturbances	**NO**	Responds equally to all disturbances
✔	Ignores noise from wind, rain	**NO**	Sensitivity to wind, rain, vehicles
MicroPoint cable with Integrated Power and Data			
YES	Power & Data Superimposed on Transducer Cable	**NO**	Separate power & data wires
✔	One cable carries all	**$$$**	Additional material & labor
✔	Secured by the sensor	**$$$**	Requires conduit to secure
✔	Supports auxiliary sensors	**$$$**	Separate power and data required
MICRONET *Communications*			
YES	Built-in FSK network	**NO**	Separate wiring required
✔	Peer to peer network	**$$$**	Separate wiring from each sensor
Computer Aided Installation			
YES	Windows based Installation and Service Tools	**NO**	User Manual is rarely read, often lost
✔	Install it right the first time	**$$$**	Costly repairs
✔	Well documented sites	**NO**	Documentation is lost or never read
✔	Telephone maintenance & diagnostics remote upload/download capability	**$$$**	Many unnecessary trips to site

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System Specifications

- MicroPoint™ Detection locates intrusions to within 3 meters (10 feet).
- Point Impact Discrimination recognizes and suppresses distributed disturbances due to wind, rain and vibrations.
- Sensitivity Leveling automatically compensates for fence variations to equalize entire perimeter.
- Free Format Zoning allows the zones to be set in software independent of cable length or equipment location.
- MicroPoint cable provides detection, power distribution and data communications for the entire system.
- Windows® based MICRONET Perimeter Manager with Drawing Tool and Installation and Service Tool included.
- MICRONET Map software with precise intrusion location displayed in color graphics.
- Auxiliary sensors and devices are powered and controlled by the system.
- Each Signal Control Unit protects up to 1310 Feet (1/4 mile), (400 meters) of perimeter.
- Multiple Signal Control Units can be connected together for larger lengths of perimeter.
- Operating voltage range (10.5 - 60 VDC)
- Temperature range -40°C to 70°C (-40°F to 159°F).

System Components

Signal Control Unit

Each module processes data from two lengths of Micro-Point cable (A and B). Each length of transducer cable can be up to 200 meters (650 ft) long. Both A and B lengths of transducer cable are terminated in either Link Units or Termination Units.

Size: 35.5 L x 30.5 W x 15.3H cm (14 x 12 x 6 in)

Weight: 7 kg (15.5 lb)

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

Power: 10.5 to 60 VDC at 3.5 watts (without auxiliary sensors)
12 VDC at 580 ma, 24 VDC at 260 ma and 48 VDC at 160 ma

Inputs: 2 MicroPoint cables (A and B)
6 Dry contacts inputs
3 Analog inputs (0-5 V)
4 Alarms and 2 Tampers from the Link Units over the MicroPoint cable

Outputs: 3 Alarm relays SPDT (Form C) - 2 amp @ 28 VDC
+12 VDC at 150 ma for auxiliary sensors.
Communications port for computer or relay models. (with optional 232 or 422A Adapter)

MicroPoint Cable MC-115

The MicroPoint cable is used for detection, power distribution and data communications.

MC-115 Type

Size: 4.902 mm (0.193 in) diameter

Jacket: High density polyethylene, UV resistant, black.

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

Minimum Bend Radius: 10 cm (4 in)

Packaged:

Roll Size	Weight
100m (328 ft)	4kg (9 lbs)
200m (656 ft)	8kg (18 lbs)

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Link Unit

Link Units terminate the detection process and provide a means of interconnecting multiple Signal Control Units. They are used at the ends of the A and B MicroPoint cables. They also provide terminals to interface to auxiliary sensors.

Size: 35.5L x 30.5W x 15.3H cm (14 x 12 x 6 in)

Weight: 7kg (15.5 lbs)

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

Inputs: 2 MicroPoint cables
4 Isolated contacts

Outputs: +12 VDC at 150 ma for auxiliary sensors and devices (optional with Power Converter Card)

Optional Isolated Link Unit:
Used on larger systems (please consult factory)

Termination Unit

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

Size: 7.6L x 6.4W x 13.3H cm (3.0 x 2.5 x 5.25 in)

Weight: 0.45 kg (1 lb)

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

Inputs: 1 MicroPoint Cable

Network Interface Module

The Network Interface Module provides interface points for external connections to data and graphic displays. This module provides RS232 and RS422/RS485 data ports for external communications and real time clock. This module plugs into any Signal Control Units.

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

Outputs: RS485 to Relay Module
RS232 or RS422 to PC/modem
Real time clock
RS422 to Converter

Relay Module

Relay Modules communicate via RS485 to the Signal Control Unit with a Network Interface Module. It provides both NO and NC relay contacts and analog channels for external alarm panels, auxiliary controls or remote devices. Multiple Relay Modules can be connected (up to 10) to the RS 485 line.

Size: 33.7 x 12.7 x 13.9H cm (13.25 x 5 x 5.5 in)

Weight: 1.36 kg (3 lbs)

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

Power: 10.5 to 13 VDC at 2.0 watts (110 ma)

Inputs: 6 Dry contact inputs
4 Analog Inputs (0 - 5 VDC)
RS485 from Network Interface Module

Outputs: 6 Alarm Relays SPDT (Form C) - 2 Amp @ 28 VDC
12 VDC at 150 ma for Auxiliary Sensors and devices (optional with Power Converter Card)

Accessories:

- Heavy Duty DC Power Supplies
- MicroPoint Cable Splice Kit
- 232A or 422A Adapter for Communication Connection
- Power Converter Card

Options:

- Multiple Map Graphic Display & Control Software
- Armored MicroPoint cables available.

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