MicroPoint™ Cable

INTREPID™ *Perimeter Intrusion Detection System*

Next Generation Perimeter Protection

M **icroPoint**™ Cable 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.

MicroPoint Cable is based on MicroPoint™ cable technology which detects any fence disturbance and locates it to within 10 feet (3 m). 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.

MicroPoint Cable also transmits alarm signals and operating power to all modules and auxiliary sensors along the perimeter eliminating the need for extra wiring. MicroPoint Cable 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, MicroPoint Cable was designed by Southwest Microwave, and it is backed by more than 30 years experience with exterior security systems around the world.

Features:

► MicroPoint Detection with location to 10 feet (3 m)

► 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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MicroPoint™ Cable

INTREPID™ Perimeter Intrusion Detection System

System Description

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 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 (3 feet) of perimeter fence is equally sensitive to intrusions.

► **Free Format Zoning**
Zones are set in software, independent of processor location and may be changed at will.

Built-in microprocessor and PC software provide:

► **Windows® based Site-Manager installation program**
Installation and service is completed with easy to use graphic tools.

► **Remote diagnostics**
Modem interface reports site conditions and alarm information over ordinary telephone lines. This feature allows for remote trouble shooting.
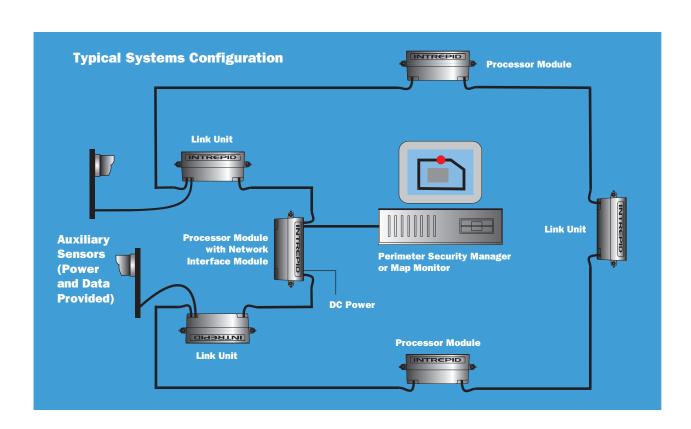
Optional alarm monitoring systems offer:

► **Graphic annunciation**
With Map Monitor, the user-drawn INTREPID site map is converted into a full-color graphic annunciator map, with alarm reports.

► **Complete security management**
Perimeter Security Manager features comprehensive alarm display, monitoring and control capabilities, as well as high-level interface to CCTV equipment and auxiliary perimeter security devices.

Typical Systems Configuration

Processor Module

Link Unit

Auxiliary Sensors (Power and Data Provided)

Processor Module with Network Interface Module

Perimeter Security Manager or Map Monitor

Link Unit

DC Power

Link Unit

Processor Module

INTREPID™ Map Monitor
for precise intrusion location
and alarm reporting.

Perimeter Security Manager
for complete perimeter control.

MicroPoint Cable's major components are the Processor Module, MicroPoint™ cable and Windows® software. The Processor Module provides the system intelligence to perform powerful signal processing, DC power distribution and data communications networking. The MicroPoint cable permits easy connection of the perimeter system and provides DC power, data communication for alarms and control, and intrusion detection capabilities. Site Manager software provides site design, installation, and service capabilities.
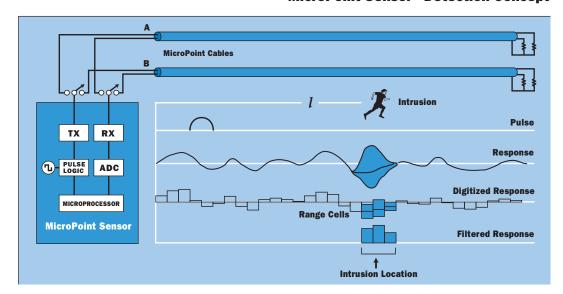
Principle of Operation

The Processor Module 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 the 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 meter (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 in software. 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.

MicroPoint Sensor - Detection Concept

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MicroPoint™ Cable   OTHER SENSORS

MicroPoint Detection and Assessment

YES	Locates Intruder within 3 meters	**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 per meter (3 feet)	**NO**	One threshold per zone
✔	Compensates for fence variations	**$$$**	Often requires fence work
✔	Calibration optimizes Pd vs FAR	**NO**	Pd vs FAR compromise
✔	Easy to locate problems	**$$$**	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	**$$$**	Requires more processors
✔	Easy to redefine zone boundaries	**$$$**	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

INTREPID™ Communications I-COM

YES	Built-in FSK network	**NO**	Separate wiring required
✔	Peer to peer network	**$$$**	Separate wiring from each sensor

Computer Aided Installation

YES	Windows® based software installation Instructions	**NO**	User Manual is rarely read, often lost
✔	Install it right the first time	**$$$**	Costly repairs
✔	Well documented sites	**NO**	Documentation is lost or not completed
✔	Telephone maintenance, diagnostics, remote upload/download capability	**$$$**	Many unnecessary trips to site

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System Specifications

► MicroPoint™ Detection and Assessment locates intrusions to within 3 meters (10 feet).

► Point Impact Discrimination recognizes and suppresses distributed disturbances.

► Sensitivity Leveling automatically compensates for fence variations to equalize entire perimeter.

► Free Format Zoning sets the zones in software and is independent of cable length or equipment location.

► MicroPoint cable provides detection, power distribution and data communications for the entire system.

► Windows® based INTREPID Site Manager with Site Design Tools and Installation Support Tools included.

► INTREPID Map Monitor software with precise intrusion location displayed in color graphics, or Perimeter Security Manager with high-level interface to CCTV systems and auxiliary devices.

► Auxiliary sensors and devices are powered and controlled by the system.

► One Processor Module protects up to 1310 Feet, (400 meters) of perimeter.

► Multiple Processor Modules 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

Processor Module

Each module processes data from two lengths of MicroPoint cable (A and B). Each length of transducer cable can be up to 200 meters (656 ft) long. Both A and B lengths of transducer cable are terminated in either Link Units or Termination Units.

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

Weight: 1.36 kg (3 lb)

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

Power: 10.5 to 60 VDC at 11 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 (0-5V)
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:

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

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Link Unit

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

Size: 33.7L x 12.7W x 13.97H 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)

Inputs: 2 MicroPoint cables
4 Isolated contacts

Outputs: +12 VDC at 150 ma for auxiliary sensors
(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 Processor Module.

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

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

Relay Module

Relay Modules communicate via RS485 to the Processor Module 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.

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
(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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