

IntelliFIBER™

Fiber optic cable intrusion detection sensor

Description – This unique fiber optic cable intrusion detection sensor is used in outdoor, fence-mounted perimeter security applications. This sensor will detect an intruder cutting through, climbing on or lifting the fence fabric by analyzing the signals generated by flexing the cable.

APPLICATION – IntelliFIBER™ is easily and quickly attached to most types of fences with strong UV-resistant tie wraps which secure the sensor cable to the fence at 30 cm (1.0 ft.) intervals. A powerful digital signal processor (available in single or dual zone configuration) monitors independent zones each up to a maximum of 1,000 m (3,280 ft.). The cable is terminated at the far end.



Features

- Fence-mounted system
- Digital Signal Processing (DSP)
- Independent detection of fence cutting and climbing
- Audio "Listen-in" capability
- Standalone and network versions available (color graphic display for network version)
- Remote adjustment of all parameters in each zone
- Color graphic displays for network version
- Optional weather sensor available

Benefits

- High Probability of detection (Pd)
- Quick and easy installation
- Environmental nuisance alarms virtually eliminated through adaptive algorithms
- Plug-in configuration module allows user to set operating parameters for each zone
- Ability to interface to a variety of alarm monitoring systems
- Immune to Electromagnetic Interference (EMI) / Radio Frequency Interference (RFI)
- No conduit required

Markets

- Airports
- Government agencies and laboratories
- Correctional facilities
- Energy sector
- Commercial and industrial sites
- Equipment and storage yards
- Electric and gas distribution
- Utilities
- Military bases
- Communications sites
- VIP residences / residential

IntelliFIBER

Microphonic cable intrusion detection sensor

INTELLIFIBER TECHNOLOGY

IntelliFIBER's unique signal processing incorporates a set of non-volatile programs called adaptive algorithms. This adjustable firmware allows features such as ambient compensation and common mode rejection to interpret the nature of the disturbance, virtually eliminating alarms caused by natural or environmental events. An optional weather sensor is available to provide each signal processor with independent verification of the current weather conditions affecting its performance. IntelliFIBER will adapt to these conditions without sacrificing detection sensitivity.

The IntelliFIBER signal processor is available with either an output relay interface or a built-in multiplex circuit interface to a variety of alarm monitoring systems. With StarNet™ 1000, it is possible to process all alarms on a color graphic display and adjust parameters for each zone remotely from the central station.

OPTIONS

IntelliFIBER is available in a 2-core cable version for sensing only, a 4-core version for sensing and data communication on the same cable and a 4-core with integrated power, known as the 4 + 2 configuration, for combined sensing, data communications and power distribution on the same cable. No conduit is required.

SYSTEM CONFIGURATION

Each IntelliFIBER zone consists of up to 1000 m (3280 ft.) of Senstar's proprietary fiber optic sensor cable. A single pass of cable is required to protect a 2.5 m (8 ft.) high metal fabric fence. For fences up to 3.7 m (12 ft.), a double pass of the cable at equal vertical distances is required. Contact Senstar for details regarding higher fences.

Alarms caused by natural or environmental events are virtually eliminated.

In most cases, facility perimeters are configured in shorter zones to match CCTV assessment capabilities and to allow rapid response to the area of attempted intrusion.

Integrated fiber optic power monitoring and remote test capability permit the signal processor to assure the integrity and functionality of each zone.

Standalone IntelliFIBER processors with relay contact closures for alarm outputs are used for short perimeters. For longer perimeters, multiple zones of the IntelliFIBER sensor can be monitored and controlled over a fiber optic network or a twisted copper pair using the network IntelliFIBER processors.

The processor is in a CSA Type 4 (equivalent to IP66 / NEMA 4) enclosure on the safe side of the fence. 15 VDC local power is required for each processor. 20 - 56 VDC network power can be used with an additional power converter module at each processor. Alarm information is communicated by either relay contact closures or on a data network.





Serving a range of markets, IntelliFIBER detects intruders cutting through, climbing on or lifting the fence fabric.

SET-UP

All processing parameters can be adjusted locally using a hand-held plug-in CM. Once calibration is complete for each processor, the module can be removed and used elsewhere. Alternatively, for network configurations, once the processor address and network baud rate is set via the CM, all further set-up can be done over the network. This can be done using either the StarNeT 1000 software package or the Universal Configuration Module (UCM) software package. Using the network to set-up and calibrate results in considerable savings in field time and effort.

The following parameters are adjustable for each zone:

Cut: threshold, minimum count, and time window.

Climb: threshold, minimum duration, and time window.

NETWORK FEATURES

IntelliFIBER has network signal processors that interface with either twisted-pair copper wiring or fiber optic cables. These processors are equipped with two additional inputs for alarm reporting from auxiliary sensors and two additional relay outputs for remote device control. Central alarm control and display is performed by the StarNeT 1000 system. StarNeT 1000 features a graphic map display and allows remote adjustment of all operating parameters in each zone. StarNeT 1000 can communicate with a wide range of video matrix switches to control video inputs.

Technical Specifications

PROCESSOR COMMON SPECIFICATIONS

MAIN FEATURES:

- Sensor processing capability for two independent zones, each with up to 1,000 m (3,281 ft.) of active sensor cable
- Digital Signal Processor (DSP) provided either as a circuit card on a mounting plate or pre-installed in a CSA Type-4 (equivalent to IP66 / NEMA 4) enclosure
- Optical module provides two laser diode modules and two optical sensors all with ST-type connectors
- Each fiber optic zone (laser / sensor pair) has separate field-adjustable laser output and sensor gain controls
- LED bar-graph power meter indicates the received optical power, allowing optimum laser output to be set for different sensor cable lengths
- Field replaceable laser diode module
- Operating parameters are set using a hand-help Configuration Module (CM), Universal Configuration Module (UCM) software or StarNet 1000 software

OPERATING TEMPERATURE & HUMIDITY:

- -40° C to 70° C (-40° F to 158° F) ambient
- Relative humidity to 95% non-condensing

INPUT POWER (PROCESSOR ONLY):

- 15 VDC nominal (14.5 to 15.5) local input power
- 20 to 56 VDC network input power (requires optional C6BA1103 DC/DC converter module)
- 4 watts (not including Configuration Module)

LIGHTNING PROTECTION:

- Transorb and gas discharge devices on all relay outputs, copper communication lines and power supply input

SUPERVISION:

- Monitoring of the sensor cable for fiber-optic power level
- Door tamper detected with integral Hall Effect magnetic field sensor

STANDARD ENCLOSURE:

- Weatherproof aluminum CSA Type 4 (equivalent to IP66 / NEMA 4)
- Comes with two rotary draw latches lockable with a pad lock
- Cable entry points for standalone and RS-485 network versions - one Max-Loc cable gland, one 2.8 cm D (1.1 in. D) hole with knock-out cover
- Cable entry points for fiber-optic network versions - one Max-Loc cable gland, one 2.8 cm D (1.1 in. D) hole with knock-out cover
- Overall dimensions with mounting flanges, hinges and latches 31.5 h x 27 W x 13.2 cm D (12.5 H x 10.6 W x 5.2 in. D)
- Weight (with processor, without battery) 3.6 kg (8 lbs.)

CIRCUIT CARD MOUNTING PLATE

- Circuit card and mounting plate overall dimensions 26 H x 20 cm W (10.2 H x 7.9 in. W)

STANDALONE PROCESSOR INPUTS & OUTPUTS

- Alarm and supervision relay outputs: Form C, 0.5 A at 30 VDC
- One alarm relay and one supervision relay for each zone
- Alarm relay activation time adjustable from 0.5 to 5.0 seconds, factory default 2.0 seconds
- Two self-test inputs, one per zone, invoke self-test when a voltage between 5 V and 12 V is applied

CROSSFIRE™ NETWORK PROCESSOR INPUTS & OUTPUTS

- Crossfire interface for alarm and status reporting and centralized configuration
- Copper network option: RS-422, A side Rx and Tx, B side Rx and Tx
- Fiber network options:
 - A side Rx and Tx, B side Rx and Tx
 - ST connectors compatible with 50/125 µm, 62.5/125 µm, 100/140 µm, and 200 µm HCS® multi-mode fiber
- Two relay outputs, Form C, 0.5 A at 30 VDC, can be controlled via the network or locally for alarm outputs
- Two supervised inputs for accepting stat from auxiliary devices

SENNET® NETWORK PROCESSOR INPUTS & OUTPUTS

- Sennet® network interface for alarm and status reporting and centralized configuration
- Copper network option: A side multi-drop half-duplex RS-485, B side multi-drop half-duplex RS-485
- Fiber network option:
 - A side Rx and Tx, B side Rx and Tx
 - ST connectors compatible with 50/125 µm, 62.5/125 µm, 100/140 µm and 200 µm HCS® multi-mode fiber
- Two relay outputs, Form C, 0.5 Amp at 30 VDC, can be controlled via the network or locally for alarm outputs
- Two supervised inputs for accepting status from auxiliary devices

ACCESSORIES

- Audio module for "listen-in" capability; attaches to any IntelliFIBER processor
- Weather station
- Configuration Module (CM)
- 2.9 Ah gel-cell battery
- Indoor-rated local power supply
- Indoor-rated network power supply

CONFIGURATION MODULE

- Hand-held unit for processor configuration
- Required to set-up processor address and baud-rate
- Allows for complete processor configuration (see below)
- Molded ABS plastic casing
- Attaches to processor RJ-45 connector
- Input via tactile membrane switches in graphics panel
- Two-character alphanumeric display and function-specific LEDs
- Operating temperature: -30° to 40° C (-22° F to 104° F)
- Power consumption - 2 watts (provided by the processor)

CM USER-PROGRAMMABLE PARAMETERS

- Cut** - threshold, minimum count, and time window
- Climb** - threshold, minimum duration, and time window
- Cipher**-protected programmable parameters
- Common Mode Rejection** - enable / disable
- Ambient Compensation** - value, enable / disable
- Peak trigger values
- Cut profile values
- Alarm output relay activation time

FIBER OPTIC SENSOR CABLE

- IntelliFIBER 2-core sensor cable in 100 m (328 ft.), 200 m (656 ft.), 300 m (984 ft.) and 1000 m (3281 ft.) rolls
- IntelliFIBER 4-core sensor cable for sensing and data communications in 100 m (328 ft.), 200 m (656 ft.), 300 m (984 ft.) and 1000 m (3281 ft.) rolls
- IntelliFIBER 4-core sensor cable with integral 14 AWG copper pair for power distribution, sensing and data communication in 100 m (328 ft.), 200 m (656 ft.), 300 m (984 ft.) and 1000 m (3281 ft.) rolls

ENVIRONMENT

Cable operating temperature

- -40°C to +85°C (-40°F to +185°F)

CABLE ACCESSORIES

- UV resistant cable tie wraps
- Zone termination kit
- Multiplex processor zone terminator kit
- Multiplex processor zone termination kit, aluminum enclosure (stainless steel option)
- Fiber optic connector installation toolkit
- Fiber optic ST-style connectors

REPLACEABLE LASER DIODE MODULES

- For ease of maintenance the IntelliFIBER laser diode modules can be replaced on site in the field
 - The expected lifetime of the laser diode modules is approximately 2 - 3 years
- Specifications are subject to change without prior notice.*



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