FiberGuard SF 1000

FIBERGUARD SENSOR CABLE PERIMETER INTRUSION DETECTION SYSTEM

The FiberGuard SF 1000

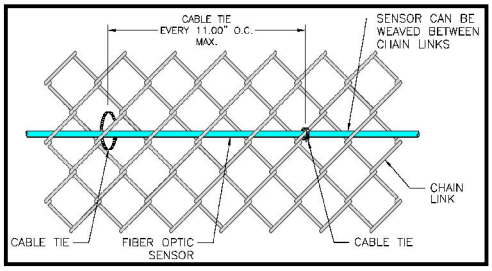
The FiberGuard SF 1000 is an advanced versatile outdoor Perimeter Intrusion Detection System (PIDS). It provides a very reliable and cost effective intrusion detection solution for a variety of perimeters and can operate in diverse and challenging environments. The FiberGuard SF 1000 can be easily mounted on a variety of new and existing fences including chain link fences, welded mesh fences and palisade fences.
The two major components of the FiberGuard SF 1000 are the fiber optic sensor cable and the FG 1010 signal processor. The fiber optic sensor cable is protected by a Kevlar reinforced ultraviolet resistant polyurethane jacket and is suitable for outdoor application in the most extreme environmental conditions. The FG 1010 signal processor is typically installed in an environmentally sealed enclosure.

Configuration & Integration

The FiberGuard SF 1000 can accommodate fences of various types and heights. For lower fences it is installed in a single run with the FG 1010 processor at the beginning of the run and a splice box at the end of the run (zone). For higher fences it is typically attached to the fence in a return loop, beginning at the fiber optic sensor cable output (Tx) on the FG 1010 processor to the end of the zone and returning to the fiber optic sensor cable input (Rx) on the processor. Each FG 30 processor accommodates a single FiberGuard zone. The FiberGuard SF 1000 PIDS can be installed as a “stand alone” PIDS and seamlessly controlled and annunciated by DeTekions’ Open Media Network Interface (OMNI) controller or integrated with other sensor systems and controls. When used with DeTekions’ OMNI controller communication can be via the onboard RS485 port. The FG 1010 also provides dry contact outputs for integration with other controls and communication devices. The FG 1010 processor can also accommodate dry contact inputs from other sensor systems and communicate their status to the controller.

Advantages

- High Probability of Detection (POD).
- Very Low False Alarm Rate (FAR) and a very low Nuisance Alarm Rate (NAR).
- On board algorithms accommodating weather and other environmental conditions.
- Two on board detection channels with individual settings for optimal performance.
- The POD & FAR / NAR are optimized by several parameters that can be set individually for each zone including: peak signal, current duration, event threshold, event count, current event count, event window and event duration.
- Immune to EMI & RFI including lightning strikes.
- Intrinsically safe. Can be installed in combustible areas (oil refineries, chemical plants etc.).
- Uniform detection along the entire zone.
- Can be mounted on various types of fences / barriers and walls of different heights.
- Can operate in extreme weather conditions.
- Minimal maintenance.
- Local & remote diagnostics.
- Available audio output.



Principle of Operation

A laser diode on the FG 1010 processor transmits patterned light waves through the fiber optic sensor cable. The light waves are trapped by the process of “Total Internal Reflection” which facilitates the light waves to appear at the receiver end of the fiber optic cable. The light waves appear as a speckle of light and dark patches called an “Optical Interference Pattern” (“Interferogramme”). Under steady conditions Optical Interference Pattern is relatively stationary. Pressure and vibration applied to the fiber optic sensor cable or to the medium to which it is attached (fence etc’) will cause the speckle pattern (redistribution of the light waves) to change (including amplitude and frequency). The change of the speckle pattern is detected by the photo diode receiver and converted into an electronic signal which is electronically processed by the digital microprocessor on the FG 1010 processor running sophisticated proprietary algorithms that include ambient signal compensation and selectable common mode rejection. If the electronic signal is not within the pre defined parameters an alarm is initiated.

Specifications

General:

FG 1010 Processor	High performance microcontroller with integral digital signal processor (DSP) and Analogue-to-digital (A to D) converter.
FG 1010 Processor Size:	6.22” x 4.37” (158mm x 111mm).
Storage Temperature:	-40°F to 158°F (-40°C to +70°C) ambient.
Operating Temperature:	-40°F to 158°F (-40°C to +70°C). The FG 1010 -14°F to 158°F ambient
Operating Humidity (processor):	Up to 95% at 104°F (40°C), non condensing.
Max Zone Length	3280 ft (1000 M)

Electrical & Optics:

Power	Input voltage: 11 – 14 VDC @ 300mA
Laser Type:	Class 3B
Fiber Optic Sensor Cable:	Multi Mode 62.5/125 micron (x2) protected by a 4.8mm loose tube outer jacket, Kevlar reinforced
Display & Indicators:	One (1) Green single 7 segment display & one (1) red dual seven segment display Eighteen (18) LEDS for various status and diagnostic notifications
Alarm Output Relay:	Up to 1A @ 12 VDC
Ancillary Outputs:	Two (2) Open Collector (100 mA @ 24VDC)
Inputs:	One (1) FiberGuard Zone (sensor cable) Three Tamper protected for switches, relay contacts, open collectors or CMOS/TTL level digital signals
Maintenance Port:	1 non isolated RS-232 serial port for local high level diagnostics
Communication:	1 isolated RS232 / RS485 serial port for alarm transmission, remote setup or diagnostics
Switches (toggle & push button):	Fence or buried application, environmental compensation, static or moving event window, station address
Push Buttons:	Settings & Programming
Programming:	Remote or local. Can also be done with optional PC based programming and diagnostic software program (also facilitates high level test).
Electromagnetic Compatibility (EMC)	The FG 1010 meets EN55022: 1998, EN50082-1: 1998 and Low Voltage Directive 93/68/EEC.

Connectors:

Communication Ports:	RG 45
Power:	Junction block with Screws.
Relay Outputs:	Junction block with Screws.
TTL’s Inputs:	Junction block with Screws
Fiber Optic Sensor Cable	SMA Connectors

Mean Time to Repair: Less than 30 Min. (FG 1010 replacement).

Mean Time Between Failure: 200,000 Hours (FG 1030)

Warranty: 12 Months from date of approved Installation

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