FiberPatrol® FP1100X

For Fence-Mounted Intrusion Detection

FEATURES AND BENEFITS

- Detect and locate perimeter intrusions over a distance of up to 50 km (31 mi)
- Pinpoint intrusions with a ±4 m (13 ft) accuracy
- Accurate ranging of multiple simultaneous intrusions
- Sensor cable continues to operate up to the point of a cut
- Dual sensor channels
- 100% operational after a cable cut in cut-immune configuration; maximum perimeter 25 km (15.5 mi)
- High Probability of detection (Pd) and low Nuisance Alarm Rate (NAR)
- Software-configurable detection zones
- No outdoor power or communication infrastructure required
- EMI and lightning immune
- No electronics or grounding points required in the field
- Accurate locating for directing CCTV and/or response forces
- Field components intrinsically safe
- Alarms reported by zone number, cable distance and/or GPS coordinates
- Multiple options for integration with SMS, VMS and PSIM platforms
- Easy to install and maintain
- Economy-of-scale value

DATASHEET

The FiberPatrol FP1100X for fence-mounted intrusion detection provides up to 50 km (31 mi) of protection in perimeter applications. Its fiber optic sensor technology requires no powered or conductive items in the field, making the sensor completely immune to EMI and lightning and intrinsically safe in the presence of explosive atmospheres.

The FP1100X accurately locates intrusions even when there are multiple simultaneous intrusions or in the presence of non-localized environmental noise that would overwhelm the location capability of other long-range fiber optic sensors.

The FP1100X's resilient design allows detection to continue right up to the point of a cut in the sensor cable.

Detection and ranging of simultaneous intrusions

The FP1100X is designed specifically to detect multiple simultaneous events. The full length of the cable is continuously analyzed and disturbances at different locations are reported independently.

FiberPatrol FP1100X Sensor Unit

Cut immunity

When the sensor cable is cut, either accidentally or in an attempt to defeat the sensor, the FP1100X immediately reports the incident, including its exact location. Moreover, the sensor retains the ability to detect and localize intrusions up to the point of the cut. When installed in the cut-immune configuration, the sensor continues to provide detection on the full perimeter even after a cable cut. The maximum perimeter length in the cut-immune configuration is 25 km (15.5 mi).

Detection settings

The advanced detection algorithm incorporates thresholds, spatial parameters and timing parameters. Detection settings include alarm threshold, disturbance threshold, event life persistence and duration threshold.

Sensor cables

The FP1100X uses single-mode fiber within telecommunications-grade cable. The sensing function requires one fiber – additional fibers within the cable can be used for other communications purposes like Ethernet and/or Senstar's proprietary Silver Network protocol (for communication with other Senstar sensors like Senstar LM100 intelligent perimeter lighting and sensing solution, OmniTrax® buried cable sensor, UltraWave™ microwave, or XField® electrostatic sensors).

Supported fence types

The FP1100X can be used on most types of metallic fences including chain-link, welded mesh and expanded metal. A single pass of sensor cable provides effective protection for fences up to 3 m (10 ft) in height. The sensor may also be used on palisade-style fences depending on the specific characteristics of the fence.

System capabilities

The FP1100X provides sensing on up to 50 km (31 mi) of cable when the two sensor channels are used independently. In the cut-immune configuration, the FP1100X provides sensing on up to 25 km (15.5 mi) of cable. For planning purposes, 15% extra sensor cable must be budgeted over the fence length for use in service loops, extra coverage at brace and corner posts and zone isolation loops.

The sensor cable can be mounted on swinging gates to provide gate protection.

Alarm display options

Several options are available for alarm display and integration with third-party devices. Customers requiring a single display dedicated to FP1100X perimeter monitoring can use the processor's built-in alarm display. Senstar's StarNet 2 Security Management System (SMS) provides enhanced capabilities for those requiring multiple workstations and maps as well as the management of additional security equipment. The FP1100X can be configured to report alarm locations by zone number, cable distance and/or GPS coordinates.

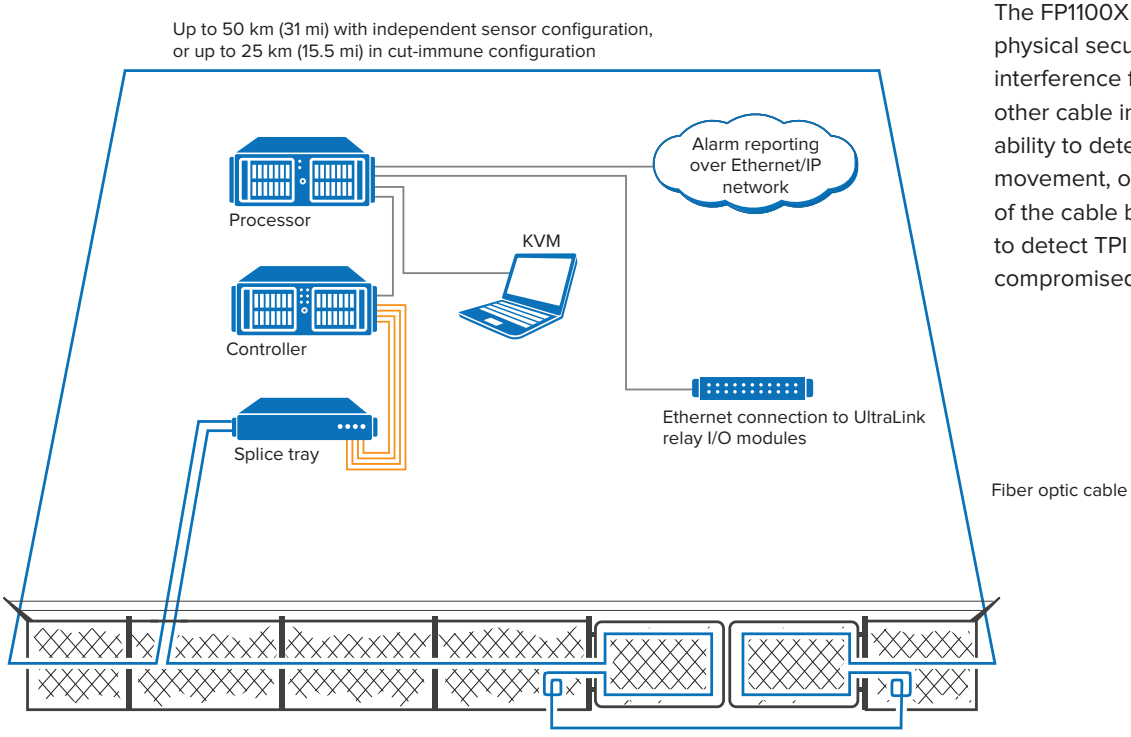
Third-party integration

Senstar's Network Manager software is used to integrate the FP1100X with security management systems and video management systems. The Network Manager software provides an IP-based interface to the FP1100X that is common to Senstar's other industry-leading sensors, including the OmniTrax® buried RF cable sensor, Senstar LM100 intelligent perimeter lighting and sensing solution, XField® electrostatic sensor, UltraWave™ microwave, and the FlexZone™ cable-based fence sensor.

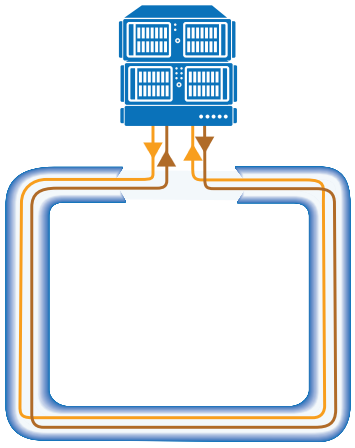
Alarms and status can also be presented on relays or open-collector outputs using UltraLink I/O modules.

Dataline protection

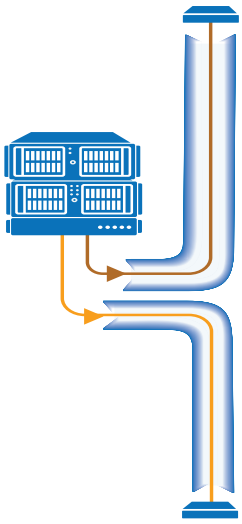
The FP1100X is an effective way to provide physical security against third-party interference for fiber optic data links and other cable infrastructure. The sensor's ability to detect minute vibrations, movement, or other physical disturbances of the cable bundle or conduit enables it to detect TPI before communications are compromised.



Fence Protection Site Configuration



Cut-immune configuration



Independent sensor configuration

Technical specifications

SENSOR UNIT

Main features

- Provides intrusion detection for long perimeters from a central location
- Localization of intrusions and software assignable detection zones
- Redundant bi-directional dual receiver operation provides industry-leading resilience to cut or damaged cable
- Central adjustment of all sensor parameters over long distances
- Simple integration with SMS/VMS systems

SPECIFICATIONS

Sensor length

- Two sensor channels, each providing sensing on up to 25 km (15.5 mi) of cable

Detection zones

- Software-assignable
- Up to 1,440 zones

Detection performance

- Detection accuracy: ±4 m (13 ft) typical
- Detection resolution: 45 m (150 ft); minimum separation for two disturbances to be reported separately
- Pd: 95%
- FAR: less than 1/km/year typical
- NAR: site dependent
- Cut cable detection:
  - Operation: as specified up to the cable cut
  - Accuracy of cut location: 30 m (100 ft)

Optical

- Laser classification: Class 1, 1550 nm wavelength
- Connector type: FC/APC

Interfaces and software

- Networking: Dual Gigabit Ethernet
- Operating system: Windows 7 Pro 64-bit
- HDD: minimum 2x500 RAID array
- Standard alarm interface – Senstar standard API over TCP/IP from Network Manager
- Optional alarm interface – relay closures via UltraLink I/O modules

Environmental (sensor unit)

- Operating temperature: +10 to 35°C (50 to 95°F)
- Humidity: 20% to 80% non-condensing

Energy consumption

- Voltage: 100 – 240 VAC, 50/60 Hz
- Power: 250W maximum

Mechanical

- Style: standard 19-inch rack-mount, 51 cm (20 in) deep
- Rack space: processor 4U, controller 3U, splice enclosure 1U, KVM 1U, total 9U
- Rack clearance required: 5 cm (2 in) front, 15 cm (6 in) back
- Weight: 48 kg (105 lbs) total with processor, controller and 1U splice enclosure

REGULATORY COMPLIANCE

- FCC Part 15 Class A
- CE: EC Low Voltage Directive 2006/95/EC

FIBER OPTIC SENSOR CABLE

Cable installation

- Attach cable to fence fabric with cable ties

Cable construction

- Loose tube, 11.1 mm (0.44 in) diameter typical
- Black UV-stabilized medium density PE jacket
- 12–60 fiber count
- Armored cable options available

Optical fiber

- Single mode, 0.25 dB/km typical @ 1550 nm, optical loss or better

Weight

- 75 kg/km (50 lb/kft) typical

Cable mounting ties

- UV-resistant
- Stainless steel optional

Environmental

- Temperature: –40 to 70°C (–40 to 158°F)
- Humidity: no restrictions

Part	Description
FP1100X-xx	FiberPatrol FP1100X sensor unit for fence-mounted intrusion detection. Provides up to xx km of detection processing per sensor, where xx can be 01 (for 1.5 km), 03, 06, 09, 12, 16, 20 or 25 (1 km = 3280 ft).
GB0296-15	15 in 1U rackmount KVM (KB/LCD/Mouse) (MONIT1)
FPKT0400	8 port KVM switch w/ 2 sets of cables (KVM8)
FPEM0400	1U rack-mount splice enclosure kit (SPLENC)
FPMA0212	Single End module for FiberPatrol FP1100X
FPMA0223	Dual Start/End module for FiberPatrol FP1100X (START/ENDMOD01)
GM0749-24	Field splice enclosure (24 splice capacity, 3 cable ports) (SPLHW)
FPKT0200	Splice consumables kit (SPLCON)
GH1080-08	3/16" x 08" (4.8 x 20.3 cm) stainless steel cable ties (100 ea) (SSTIES)
GH1080-08C	3/16" x 08" (4.8 x 20.3 cm) black-coated stainless steel cable ties (100 ea) (SSTIESC)
GX0310	Tool – manual tension and cut-off tool for stainless steel cable ties (SSTOOL)
GX0311	Tool – upgraded manual tension and cut-off tool for stainless steel cable ties (SSTOOL2)
FPKT0500	Sensor cable management kit for swinging gates. One (1) section of 5 cm. (2 in.) diameter split conduit 1 m (3 ft.) long and two (2) hose clamps (SPCON).
FPSP0424	Fiber optic sensor/lead cable for fence applications, 24 fibers. Priced in 100 m (328 ft) increments (FIB002)
00FG0220	Network Manager service version on CD

Contact Senstar for required training and installation support services.
Ask about Senstar's wide range of perimeter protection and security management solutions for fence, wall, buried and free-standing applications.

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