

FiberPatrol

Fence-Mounted Intrusion Detection Sensor



HIGH SECURITY WELD MESH

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FEATURES AND BENEFITS

- Detect and locate perimeter intrusions over a distance of up to 50 km
- Pinpoint intrusions with a ± 4 m 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
- 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 surveillance cameras 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

The FiberPatrol for fence-mounted intrusion detection provides up to 50 km 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 FiberPatrol 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 FiberPatrol'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 FiberPatrol is designed specifically to detect multiple simultaneous events. The full length of the cable is continuously analysed and disturbances at different locations are reported independently.

Cut immunity

When the sensor cable is cut, either accidentally or in an attempt to defeat the sensor, the FiberPatrol 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.

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.



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Sensor cables

The FiberPatrol 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 serial-over-fiber communications protocols.

Supported fence types

The FiberPatrol 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 in height. The sensor may also be used on palisade-style fences depending on the specific characteristics of the fence.

System capabilities

The FiberPatrol provides sensing on up to 50 km of cable when the two sensor channels are used independently. In the cut-immune configuration, the FiberPatrol provides sensing on up to 25 km 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 FiberPatrol perimeter monitoring can use the processor's built-in alarm display. Third-party systems can provide enhanced capabilities for those requiring multiple workstations and maps as well as the management of additional security equipment. The FiberPatrol can report alarm locations by zone number, cable distance and/or GPS coordinates.

Third-party integration

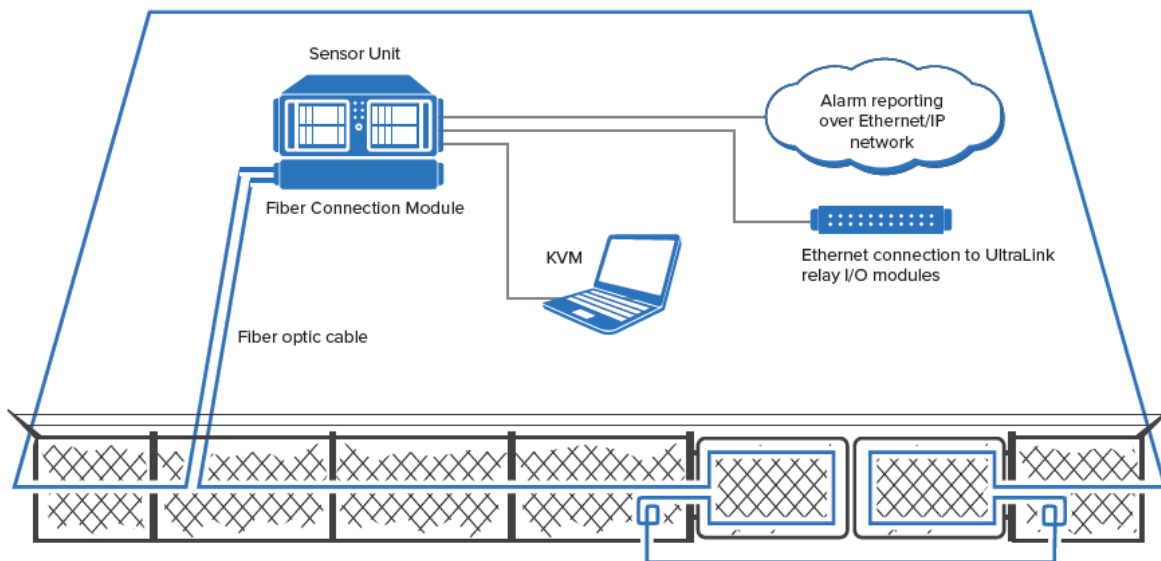
The FiberPatrol Network Manager software is used to integrate the FiberPatrol with security management systems and video management systems. The Network Manager software provides an IP-based interface to the FiberPatrol that is common to other industry-leading sensors.

Alarms and status can also be presented on relays or open-collector outputs.

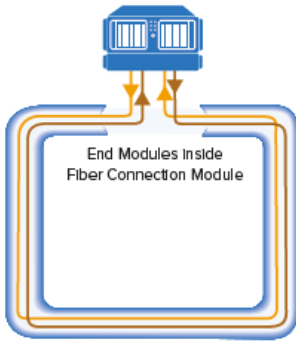
Communication line protection

The FiberPatrol 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.

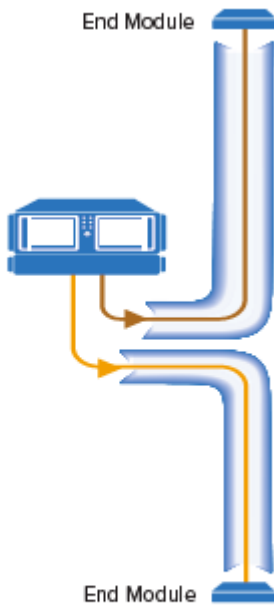
Up to 50 km (31 mi) with independent sensor configuration, or up to 25 km (15.5 mi) in cut-immune configuration



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
- Dual-channel sensor unit provides industry-leading resilience to cut or damaged cable
- Central adjustment of all sensor parameters
- Simple integration with SMS/VMS systems

SPECIFICATIONS

Sensor length

- Two sensor channels, each providing sensing on up to 25 km of cable

Detection zones

- Software-assignable
- Up to 1,440 zones

Detection performance

- Detection accuracy: ± 4 m typical
- Detection resolution: 45 m; 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

Optical

- Laser classification: Class 1, 1550 nm wavelength

Environmental (sensor unit)

- Operating temperature: 0 to 50°C
- Humidity: 20% to 80% non-condensing

Power

- Dual redundant field-replaceable power supplies
- Voltage: 100 – 240 VAC, 50/60 Hz
- Power: 200W maximum

Mechanical

- Style: standard 19-inch rack-mount, 51 cm deep
- Rack space: sensor unit 4U, KVM 1U, fiber connection module 1U
- Rack clearance required: 5 cm front, 15 cm back
- Weight: 23 kg

FIBER OPTIC SENSOR CABLE

Cable installation

- Attach cable to fence fabric with cable ties

Typical cable construction

- Loose tube, 11.1 mm diameter typical
- Black UV-stabilized medium density PE jacket
- 12–60 fiber count
- Armoured cable options available

Optical fiber

- Single mode, attenuation of 0.25 dB/km or less at 1550 nm

Weight

- 75 kg/km typical

Environmental

- Temperature: -40 to 70°C
- Humidity: no restrictions