SENSTAR® FiberPatrol® FP400

senstar.com

Fiber optic zone-based intrusion detection sensor

Cost-effective fiber optic fence-mounted perimeter intrusion detection sensor that detects any attempt to cut, climb, or otherwise break through the fence.

The FiberPatrol FP400's fiber optic sensor cable is completely immune to EMI and lightning. Intrinsically safe in explosive atmospheres, the FP400 is ideal for protecting electrical substations, pipeline valve and pump stations, oil and gas well-pads, and other critical infrastructure sites.

The FP400 builds upon Senstar's 35+ years of perimeter security experience to deliver a sensor that is easy to install, supports remote configuration and works reliably in the most harsh environments.

HOW IT WORKS

By monitoring the minute flexing of its sensor cable, the FP400 detects intruders climbing, cutting or lifting the fence fabric. High-speed sampling ensures that the FP400 processor captures a precise picture of the fence signal.

Advanced Digital Signal Processing (DSP) and tunable detection settings enable the FP400 to adapt to fences of different types and conditions.

Features and Benefits

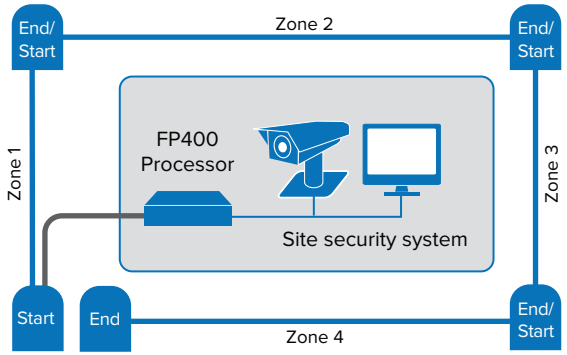
- 4 detection zones per processor, with up to 300 m (984 ft) of sensor cable per zone
- Up to 20 km (12.4 mi) of insensitive lead cable to zone start
- Environmentally Derived Adaptive Processing Technology (EDAPT) minimizes nuisance alarms
- Cut of sensor cable detected within 3 seconds
- Light-weight, easy-to-install fiber optic sensor cable is immune to EMI and lightning and is intrinsically safe in explosive atmospheres
- Outdoor, extended temperature-rated processor may be panel-mounted, installed on a rack tray, or installed outdoors in a protective enclosure
- Supports most fence types
- Built-in Ethernet with Power over Ethernet (PoE) support
- Low power consumption
- On-board alarm history storage (internal queuing in case of network interruption)
- Calibrated with Windows®-based point-and-click utility – over the network or locally via USB
- Software-configurable output relays and auxiliary inputs simplify integration with alarm panels and other security devices
- Common Network Manager protocol interface leverages existing SMS/VMS/PSIM/AC integrations

ENVIRONMENTALLY DERIVED ADAPTIVE PROCESSING TECHNOLOGY (EDAPT)

Senstar EDAPT mitigates the effects of wind and heavy rain. The FP400 adaptively accounts for the background environmental noise before declaring an alarm. The result is an increase in the probability of detection while nuisance alarms are minimized.

FOUR SIDES, FOUR ZONES

Each FP400 processor supports four zones of detection. Detection zones are created through the use of Start/End modules. A Start module, installed at the beginning of the first zone, transforms the non-detecting lead-in cable into sensing cable, while an End module terminates the zone. The sensing function requires two fibers. Start and End modules are housed in weather-proof enclosures. Multiple modules can be installed together in a given enclosure (Start, Start + End, End + End, etc.).



Detection zones

SIMPLE INSTALLATION

The sensor cable is attached directly to the fence fabric with UV-resistant nylon cable ties. The processor unit is outdoor-rated for temperature and humidity and includes mounting flanges for installation in a variety of locations, including panel-mounting, on a rack shelf, or outdoors in a protective enclosure.

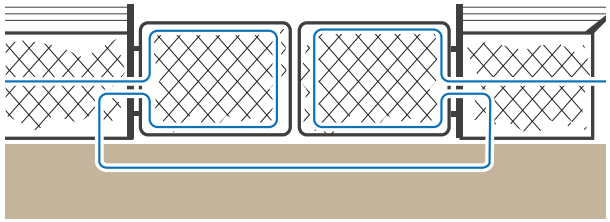
The FP400 supports up to 20 km (12.4 mi) of fiber-optic lead-in cable between the processor and the start of the detection zones, enabling the processor to be installed away from the perimeter in a secure area. The same cable type is used for the lead-in and active sections.

FENCE TYPES

The FP400 works with chain-link, welded mesh, expanded metal mesh and palisade fences. It may also be used on non-standard fence types and walls (a trial installation on a representative section is recommended in this case).

GATE OPTIONS

The FP400 sensor cable can be installed on swinging gates to provide detection. Gate contacts can be connected to the processor's auxiliary inputs for integrated site monitoring.

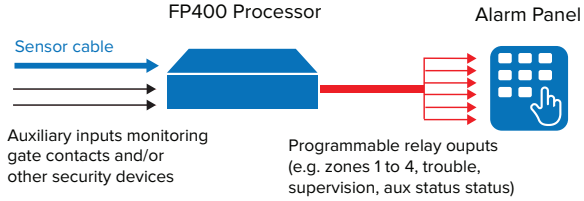


Protected double swinging gate

Other gate protection options include Senstar's Wireless Gate Sensor and the UltraWave™ microwave sensor. Contact your Senstar technical representative for information.

RELAY OUTPUTS AND DRY-CONTACT INPUTS

Each processor includes six relay outputs and two dry-contact inputs. When used as a stand-alone system, the built-in output relays enable alarm and status information to be reported to an alarm panel without any additional equipment. When networked, the FP400 output relays may be controlled by a Security Management System (SMS) and used to control other security devices, including lights, sirens, and gate control hardware.



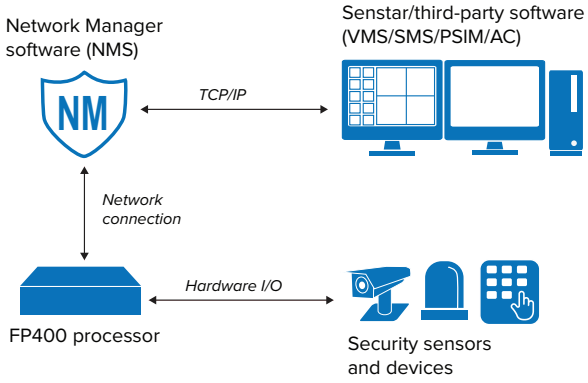
Relay output integration example

The dry-contact inputs serve as self-test inputs in standalone mode. In network mode, they serve as auxiliary inputs for the SMS and can be used to monitor ancillary security sensors such as PIR devices.

NETWORKING AND INTEGRATION

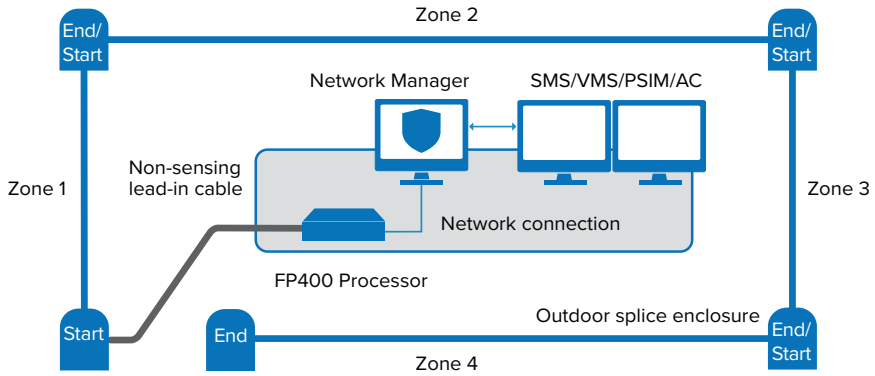
The FP400 includes built-in Ethernet for network-based integration. If network connectivity is lost, alarms are queued internally and resent when connectivity is re-established.

Senstar's Windows®-based Network Manager conveys alarm and status information to a Senstar or third-party management system.



Network Manager integration

For integration with third-party systems, Senstar provides an SDK that includes API documentation, a Network Manager simulator, and complete sample code. The Network Manager also supports customizable ASCII text output. For information about integrating Senstar sensors, see the Senstar Sensor Integration datasheet.



Network integration example

PART	DESCRIPTION
F4EM0100	FiberPatrol FP400 processor in black aluminum panel-mount enclosure. Supports 4 detection zones
F4KT0200	Zone Kit. Includes one Start Module and one End Module for installation in field splice enclosures
F4SP0100	Fiber optic sensor/lead-in cable. 250 m (820 ft) reel
F4SP0101	Fiber optic sensor/lead-in cable. 1,000 m (3,280 ft) reel
F4KT0100	Compact field splice enclosure
GH1210-1000	1000-piece bag of UV-resistance Nylon 12 cable ties, 4.8 x 188 mm (0.19 x 7.4 in)
FPKT0500	Sensor cable management kit for swinging gates. Split conduit, protective sleeving, and clamps. One per swinging panel
F4KT0500	FP400 19-inch rack shelf, supports two FP400 processors and provides fiber management for two connecting field cables. Fits in 1U space
GE0444	USB interface cable (Type A male to Type B male, 3 m (9.8 ft) length)
00CD0100	Universal documentation package on USB, includes Universal Configuration Module (UCM)

Technical Specifications

PROCESSOR SPECIFICATIONS

Main features

- 4 zones per processor, up to 300 m (984 ft) of sensor cable per zone
- Up to 20 km (12.4 mi) of non-sensing lead-in cable
- Supports most fence types
- Environmentally Derived Adaptive Processing Technology (EDAPT) lowers Nuisance Alarm Rate (NAR) by mitigating the effects of wind and rain
- The Probability of detection (Pd) of an intruder cutting the fence, lifting the fence fabric, or climbing unaided over the fence shall be a minimum of 95% with a 95% confidence factor, when the system is installed in accordance with the manufacturer's directions on a high-quality fence

Environmental specifications

- Temperature: –40 to 70 °C (–40 to 158 °F)
- Relative humidity: 0 to 95%, non-condensing
- Conformally coated

Dedicated power input

- Input power: 12 to 48 VDC
- Consumption: 2.0W

Physical specifications

- Dimensions (L/W/D): 179 x 43 x 155 mm (7.1 x 1.7 x 6.1 in), including mounting brackets and connectors
- Weight: 444 g (1.0 lbs)

Sensor controller/optical

- Laser classification: Class 1
- Laser wavelength: 1550 nm

Interfaces

- Optical: SC/APC
- Power: Screw terminal block
- Ethernet: RJ-45 (10/100 Base-T) with PoE (802.3af Class 1)
- Relays: Screw terminal block
- Auxiliary inputs: screw terminal block
- USB: Type B connector

Supervision/self-test features

- Monitoring of the sensor cable to detect cuts and disconnects
- Monitoring of critical processor parameters
- Cut of sensor cable detected within 3 seconds

On-board storage

- Alarm queuing in the event of network interruption

FIBER OPTIC SENSOR CABLE

Cable installation

- Attach cable to fence fabric with cable ties
- Works on most types of fencing including chain-link, weld-mesh, and palisade

Cable construction

- Central loose-tube cable, 12 fibers, black UV-resistant HDPE jacket

Weight

- 34 kg/km (23 lb/kft) typical

Cable mounting ties

- UV-resistant Nylon-12

RELAY OUTPUTS AND AUXILIARY INPUTS

- 6 Form C output relays, 1.0A at 30VDC
- Relays can be controlled locally or over the network
- Function of each relay can be assigned based on requirements
- Assignable functions under local control include: alarm, supervision, power fail and fail-safe
- Activation time programmable from 0.125 to 10 seconds
- In network mode, relays programmable for activation type and timing
- Two self-test inputs, one per cable side, become auxiliary dry contact inputs when processor is operating in network mode
- Auxiliary inputs are programmable for supervision type, resistor value(s) and filtering

USER-PROGRAMMABLE PARAMETERS

- Fence type, gain, filter, and disturbance count parameters
- Stand-alone or network configuration
- Relay function assignment and operating mode
- Auxiliary input supervision parameters

UNIVERSAL CONFIGURATION MODULE (UCM) SOFTWARE

- Windows®-based, point-and-click interface
- Communicates with FP400 processor via local USB connection or over network
- View real-time sensor data and save for later analysis

REGULATORY COMPLIANCE

- FCC 47 CFR Part 15, Subpart B requirements for Class B devices
- CE: EN 61000-6-3:2007/A1:2011, EN 50130-4: 2011, RoHS3
- Industry Canada ICES-003, Issue 4 requirements for Class A devices
- REACH (Registration, Evaluation, Authorization and Restriction of Chemicals)
- Safety: IEC 62368-1:2018

Copyright © 2023. All rights reserved. Features and specifications are subject to change without notice. The Senstar name and FiberPatrol are registered trademarks of Senstar Corporation.
UltraWave is a trademark of Senstar Corporation. Windows is a trademark of Microsoft Corporation. Version: DS-F4-001-IN-R7-E-08/23