FPS

Strain sensitive cable intrusion detection sensor

Features & Benefits ▼

- Advanced signal processing
- Detects cutting, climbing and lifting
- Terrain following sensor
- High Probability of detection (Pd)
- Low Nuisance Alarm Rate (NAR)
- Audio assessment of alarms
- Optional armored sensor cable available
- Dual zone (2) processor
- Quick and easy to install or repair
- Proven in thousands of applications worldwide
- EDAPT (Environmentally Derived Adaptive Processing Technique)
- Copper and fiber sensor network option
- Audio carried on fiber sensor network
- Easy integration to Security Management System (SMS)

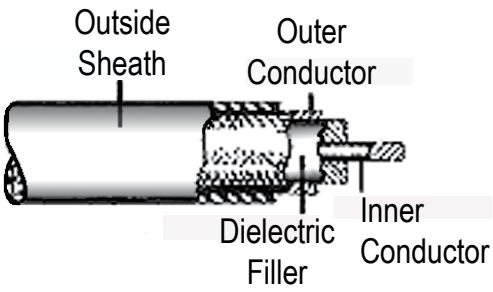
FENCE AND WALL-MOUNTED SENSORS

DESCRIPTION

FPS (Fence Protection System) strain sensitive cable sensor system detects mechanical disturbances on the fence caused by cutting, climbing or lifting. Advanced signal processing extracts the maximum amount of data from the fence. More information means better alarm decisions.

APPLICATION

The FPS sensor cable is equally sensitive throughout its entire length. This linear sensor enables it to be tailored t the design of the fence on site.



HOW IT WORKS

The FPS processor connects to two transducer sensor cables, and is mounted on or near the fence in the middle of two detection zones (left and right). Mechanical disturbances detected by the sensor cable are sent to the FPS processor. The processor contains the circuitry that analyzes the detected disturbance. The electronics are designed to match the characteristics of the sensor cable input and only report events based on signals that are similar to the disturbances caused by climbing, cutting or lifting the fence fabric.

The FPS processor “looks” at a broad spectrum of frequencies: 80 Hz to 3000 Hz. This enables the processing logic to recognize the signals generated by a climb (low frequency) to the signals generated by a cut (high frequency). The FPS processing logic is also able to distinguish between intrusion attempts and most disturbances caused by environmental effects such as wind, rain, and extremes of temperature.

MICROPHONIC ELECTRET TRANSDUCER (MEX) CABLE

MEX cable is a 0.138 in. (3.5 mm) coaxial cable specially manufactured with a permanent electrical charge throughout its entire length. The charge is stored within the cable in the dielectric material.

The transducer cable is then able to act as a long extended capacitor microphone for which the applied bias voltage is supplied internally. Any movement in the fence causes a small voltage to appear at the sensor cable output. MEX cable is equally sensitive over the entire zone length. Senstar tests every foot of cable for sensitivity. With this method of testing, you are assured the sensor works before incurring the labour required to place the cable on the fence. The outer jacket of the cable is a made from high density polyethylene rugged material that is resistant to ultraviolet rays. The MEX cable connects directly to the zone processor card with a plug removable terminal block.

Features:

- Uniform sensitivity and easy to repair
- Linear sensor - tailor senstivity as required
- Flexibility - change zone configurations easily

HELISENSOR - RUGGEDIZED TRANSDUCER SENSOR CABLE

The Helisensor is the MEX cable encased in a 0.56 in. (1.4 cm) flexible metallic jacket, designed for use with the Senstar FPS series of signal processors. Helisensor is designed to be used in demanding areas where vandalism may be a problem or industrial sites where physical damage can occur. Helisensor can be attached to razor ribbon, concertina or barbed wire. Helisensor is available in 328 ft. (100 m) lengths which can be coupled together for longer zones up to 984 ft. (300 m) each.

Special hardware is included for end-of-line terminations and splicing. Helisensor can be installed on a standard chain link fence using the outdoor plastic cable ties provided or with optional stainless steel ties. A minimum bend radius of 3 in. (7.62 cm) provides for service loops and sensitivity enhancing arrangements.

- Armored sensor cable
- Protects from physical damage and vandalism
- Easy to install
- Can be used on “razor ribbon”

FPS PROCESSORS

The FPS dual zone processors are available in three models, one with relay outputs; two using multiplexed communication.

- FPS-2-2R (Relay)
- FPS-2-2M/AP (Multiplex)
- FPS-5 (Multiplex)

The FPS dual zone processors contain two zone processor cards, one main board and one transponder. The zone processor cards each have adjustments for the sensitivity of that particular zone. The processor cards are interchangeable. The alarm threshold (count setting) is set in software in the MX Control Unit or DCU for the FPS-2-2M/AP and FPS-5.

Each tamper proof solid-state dual zone processor controls two 1000 ft. (305 m) zones. The plug-in circuit cards facilitate field diagnostics by simply exchanging boards.

The FPS dual zone processor has built-in lightning protection on all input and output lines utilizing gas discharge tubes and transient bypasses. The processor housings are made of cast aluminum with all openings gasketed and sealed for a weather-tight fit.

The processor and signal cable will initiate a tamper alarm by removing the cover or cutting or shorting the sensor cable. The tamper signal is sent by the processor to the alarm monitoring and control unit.

Each zone processor provides an audio representation of the signal received through the sensor cable. This audio signal is multiplex switched on alarm or manually switched onto an audio bus to enable the control room personnel to hear the activity on the fence and assess the situation. The patented process used by Senstar to produce our electret cable provides a very quiet ambient noise level which results in a very clear audio signal from the sensor. The differential between quiet and alarm also provides a very high signal to noise ratio which is very important in reducing nuisance alarms.

FPS-2-2M/AP - ADVANCED SIGNAL PROCESSOR

The FPS-2-2M/AP processors communicate with the MX Multiplex Control Unit or the Data Collection Unit (DCU) via the multiplex transponder built into the processor. The communication is bi-directional from the MX or DCU utilizing the exclusive Senstar CEnDe communications protocol. Control functions are received from the MX or DCU unit and sensor status messages are returned to the MX or DCU. All of the communication functions are performed on a single pair of wires daisy-chained from processor to processor.

The FPS-2-2M/AP processor zone cards have both a sensitivity adjustment for each zone and a count setting for each zone. The standard FPS processing uses pattern recognition to determine those signals that represent a threat versus those generated by other sources such as wind, rain, etc.

EDAPT

Most systems make the alarm decision in the processor utilizing the information from one or two zones. The EDAPT (Environmentally Derived Adaptive Processing Techniques) installed in the MX and the DCU uses the environmental effects being experienced by all of the zones on the system in the alarm decision process. The alarm threshold is set in software at the MX or DCU. This technique maintains a high Pd while greatly reducing the nuisance alarm rate.

FPS-5 - ADVANCED SIGNAL PROCESSOR WITH INTEGRATED FIBER OPTIC COMMUNICATIONS

The FPS-5 processor contains a fiber optic transponder that sends the detected events via a fiber optic network to the MXF or the DCUF which allows multiplexing or bi-directional communications over a redundant ring of fiber.

Each FPS-5 processor validates the communication packet before re-transmitting the information to the next processor. The FPS-5 audio signal is digitized and interleaved with the data packets on the same fiber optic cable. This technique eliminates the need for a dedicated audio bus.

MEX CABLE

TYPE:
- Two conductor coaxial
- Outside diameter: 0.138 in. (3.5 mm)
- Life expectancy: 10 years
- Half life sensitivity: 40 years

REPAIR:
- Copper-shielded transducer service kit
- No heat gun or soldering required

SUPERVISION:
- Constant impedance monitoring
- EOL kit provided with cable

ATTACHMENT: Ultraviolet resistant cable ties furnished with cable

HELISENSOR

TYPE: Outside diameter: 0.56 in. (1.4 cm)

CONNECTION / ATTACHMENT:
- Conduit fitting on processor enclosure
- Ultraviolet resistant cable ties furnished with cable or stainless steel ties available

SUPERVISION:
- Constant impedance monitoring
- EOL kit provided with cable

FPS-2-2M/AP

TAMPER ALARM ACTUATION: Activated by either enclosure switch or transducer cable fault (shorting or cutting)

REMOTE TESTING: Built-in self-test generator simulates actual intrusion signals

INPUT POWER ISOLATION: Built-in DC to DC converter allows isolated signal and power grounds

AUDIO ASSESSMENT: Audio information from transducer cable is provided and multiplex switched to isolated audio bus

COMMUNICATIONS: Integrated transponder

POWER REQUIREMENTS:
- +12.0 to 16.0 VDC, 30 mA, Ripple ±0.5 Vpp
- Provided by the MX / DCU series control unit

WIRE ENTRY:
- 0.75 in (1.9 cm) flexible weather-proof conduit fitting for power and alarm cables
- Gasketed compression bulkhead fitting for transducer cables

WEATHERPROOFING:
- Cast aluminum enclosure
- 0.25 in. (6.3 mm) minimum thickness
- All openings gasketed and sealed
- Conformal coated circuit boards, lightning protection
- Input / output lines protected by gas discharge arrestors and / or transorbs (90 V, 5000 Amp)

OPERATING TEMPERATURE: -40°F to +158°F (-40°C to +70°F)

SIZE: 9 W x 8 H x 4.5 in. D (23 W x 20 H x 11 cm D)

WEIGHT:
- 7 lbs. (3.2 kg)
- Excess of 40,000 hours MTBF

FPS-5

TAMPER ALARM ACTUATION: Activated by either enclosure switch or transducer cable fault (shorting or cutting)

REMOTE TESTING: Built-in self-test generator simulates actual intrusion signals

INPUT POWER ISOLATION: Built-in DC to DC converter allows isolated signal and power grounds

COMMUNICATIONS: Integrated fiber optic transceiver

POWER REQUIREMENTS: 12 - 24 VDC, 140 mA

OPERATING TEMPERATURE: -40°F to +158°F (-40° to +70°F)

ENCLOSURE: Cast aluminum

SIZE: 9 W x 8 H x 4.5 in. D (23 W x 20 H x 11 cm D)

WEIGHT: 7 lbs. (3.2 kg)

PART	PRODUCT TYPE	DESCRIPTION
02-130001	FPS-2-2R	Dual zone signal processor, relay outputs
02-130005	FPS-2-2R	Dual zone signal processor, relay outputs, for Helisensor cable
02-130002-1	FPS-2-2M/AP	Dual zone signal processor, multiplex output, EDAPT advanced processing
02-130006-1	FPS-2-2M/AP	Dual zone signal processor, copper multiplex output, EDAPT for Helisensor cable
02-130015	FPS-5	Dual zone signal processor, F/O multiplex output, EDAPT
02-130016	FPS-5	Dual zone signal processor, F/O multiplex output, EDAPT for Helisensor cable
100MEX	Sensor cable	100 m FPS sensor cable with TSK and cable ties
200MEX	Sensor cable	200 m FPS sensor cable with TSK and cable ties
300MEX	Sensor cable	300 m FPS sensor cable with TSK and cable ties
100 MHS	Sensor cable	100 m sensor cable in conduit with EOL condulet and cable ties
100BNS	Lead-in cable	30 m non-sensitive cable
82-210000	Gate option	Telegate telescoping sensor cable retractor for sliding gates
02-1278140-2	Gate option	Gate by-pass unit
Dow compound #4	Cable accessory	Sealant for TSK, seals 10 TSK units
E6FG0300	Power supply	Indoor-rated UPS for FPS sensors, 1.2 A output
02-150400	Power supply	Indoor-rated UPS for FPS sensors, 4.0 A output
Note: Signal processors are also available in single-zone versions, contact Senstar for part numbers.		

Specifications are subject to change without prior notice.