

## **ARCHITECTURAL AND ENGINEERING SPECIFICATIONS**

### **FENCE INTRUSION DETECTION SYSTEM**

#### **FPS-2-2-R**

#### **PART GENERAL**

##### **1.01 PURPOSE**

The intent of these specifications is to describe the equipment and functional requirements of an electronic fence intrusion detection system.

##### **1.02 QUALIFICATIONS**

1. Brand names and catalog numbers included in the equipment or material specifications are used to establish standards of quality and performance characteristics, not for the purpose of limiting competitive bidding.
2. The entire fence intrusion detection system described in this section must be provided by one manufacturer or supplier.

##### **1.03 DESCRIPTION**

###### **THE SENSOR SYSTEM**

1. The manufacturer or supplier shall furnish all materials for complete and operative fence intrusion detection system which is designed to detect movement on a chain link fence as small as 1/39 millionth of an inch.
2. The sensor shall be complete with "state-of-the-art" electronic circuitry that is capable of discriminating between environmentally generated fence movement and intrusion related disturbances.

NOTE: For HELISENSOR applications see attached addendum

3. The sensor cable shall be attached to the fence with ultraviolet resistant cable ties at twelve-inch intervals (cable ties to be provided by sensor manufacturer).
4. The fence movement and the fence cut detection portion of the sensor system will be a two conductor coaxial cable sensitized to become an electret transducer cable. The transducer cable shall have equal sensitivity throughout its entire

length; have only one variable sensitivity adjustment throughout its entire length, and be capable of having a maximum length of 300 meters per zone.

Each reel of cable furnished shall be tested over its entire length prior to installation and test results relating sensitivity to length for each reel must be furnished by manufacturer. The jacket covering of the sensor shall have maximum ultraviolet resistance protection. The manufacturer must be able to demonstrate non-degraded sensor performance in actual field operation.

5. The entire sensor system shall be capable of being installed in extreme radio frequency interference (RFI) or electromagnetic interference (EMI) environments without any affect on normal operational characteristics. In order to ensure this capability, the sensor cable shall be terminated and spliced with a water-tight copper shielded kit. Dow Corning 4 can be inserted in the kit for flooding connector as necessary.
6. The electronic signal processor shall be housed in a cast aluminum enclosure with no dimension greater than 9 inches and total volume not exceeding .2 cubic feet. All openings must be gasketed and sealed.
7. The electronic signal processor shall connect two transducer sensor cables (2 zones). The processor boards shall be 100 percent solid state, conformal coated and solder masked with interchangeable plug-in zone modules for quick removal to facilitate field repairs. A relay interface card shall plug into the mother board to provide isolated and supervised relay contacts. The relays shall be 24 VDC normally open or normally closed contacts with 0.5 ampere rating-plug programmable.
8. The dual zone electronic processor shall operate at +11.0 to 16.0 volts DC @ 50 mA, noise +/- 0.5 Vpp. The input power shall be DC to DC converted to isolate signal and power grounds. Operating temperatures shall be -40°C to +70°C (-40°F to 158°F).
9. The electronic circuitry shall provide sensitivity and count control adjustments, each of which has a minimum of 9 individual settings by means of internal DIP switches.
10. The entire sensor system shall be capable of detecting tampering within any portion of the system by either enclosure cover switch or transducer cable fault. In the dual zone processor the zone in fault shall be indicated with the lighting of a red LED on the appropriate processor board. The tamper alarm contact outputs shall provide isolated and/or supervised outputs, normally open or normally closed. Tamper alarm will continue until tamper is corrected.
11. The signal processor shall have a remotely actuated built-in self test generator that simulates time and frequency characteristics of an actual intrusion. The actuating pulse shall be +12 VDC for 500 milliseconds minimum and 1.5 seconds maximum. Both zones of the dual processor must respond as independent alarms with respect to count and sensitivity settings.

12. All cable connections (sensor and field wiring) shall connect to processor with removable plug-in terminal blocks. All input/output lines shall be protected from lightning with gas discharge arrestors (90 Volts @ 5000 amperes) and transorb's.
13. The electronic circuitry portion of the sensor system shall provide an output usable by an external audio amplifier that will allow an operator to actually hear the movement of the fence, regardless of whether the system is in a normal or alarm status.
14. The fence intrusion detection system shall be capable of being field tested with portable battery operated field test set with audio annunciation. The field test set must verify all functional aspects of the system. The field test unit shall be turned over to the owner upon completion of the project.

#### OPTIONAL

15. The fence protection system shall provide coverage on sliding gates by use of an auto-retraction device which will automatically retract the transducer cable connection on the gate as the gate is opened. The auto retraction device shall not employ brushes or sliding contacts. This device shall be the Perimeter Products, Inc. TELEGATE or equal.

#### HELISENSOR APPLICATIONS ADDENDUM for section 1.03 description

3. The sensor cable shall have a 3/8" flexible metallic jacket. The cable shall be attached to the fence with ultraviolet resistant cable ties (stainless steel optional) at twelve-inch intervals (ultraviolet ties provided by sensor manufacturer). Thin wall EMT and rigid conduit are not acceptable substitutions.
4. The fence movement and the fence cut detection portion of the sensor system will be a two conductor coaxial cable sensitized to become electret transducer cable. The transducer cable shall have equal sensitivity throughout its entire length; have only one variable sensitivity adjustment throughout its entire length and be capable of having a maximum length of 300 meters per zone.

Each reel of cable furnished shall be tested by the manufacturer over its entire length prior to insertion into the metal jacket. Test results relating sensitivity to length for each reel must be furnished by the manufacturer. Field insertion of the sensor cable is not acceptable.

5. The entire sensor system shall be capable of being installed in extreme radio frequency interference (RFI) or electromagnetic interference (EMI) environments without any effect on normal operational characteristics. In order to ensure this capability, the sensor cable shall be terminated and spliced with a water-tight all metal enclosure via a circuit-board mounted terminal block furnished by the manufacturer.