

**SP3223 Pass Thru Fence Shock Sensor**  
**SP3223D Damped Fence Shock Sensor**  
Installation Manual 11/30/06  
STLIT02045D

SECURITY



528R

This Product is Listed by  
UNDERWRITERS LABORATORIES INC.

### How Terminus Works

The Terminus Fence Intrusion Detection System utilizes shock sensors to detect the vibrations associated with intrusion attempts. Cutting the fence fabric, climbing the fence, and lifting the fence material produce mechanical vibrations in the fence material. Terminus shock sensors detect these vibrations and send the signals to a Terminus Processor.

The **SP3223** is usually used for straight sections of fence. For corner posts, it is often easier to use the SP2539 fence kit.

The **SP3223D** is used for gates.

The SP3223 and SP3223D are designed to be used with the SP3268 Single Zone Processor, SP3274 Four Zone Processor and/or the SP3273 Four Zone Expander. **Do not wire the sensor loop to a PAC-A-DAP Processor since these processors do not have the adjustments needed to provide accurate signal processing for fence applications. Also, they do not have the lightning protection needed for outside security devices.**

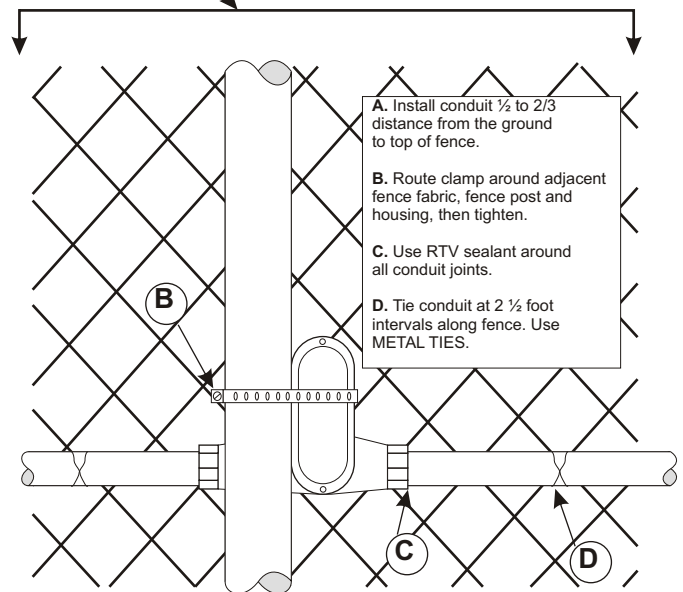
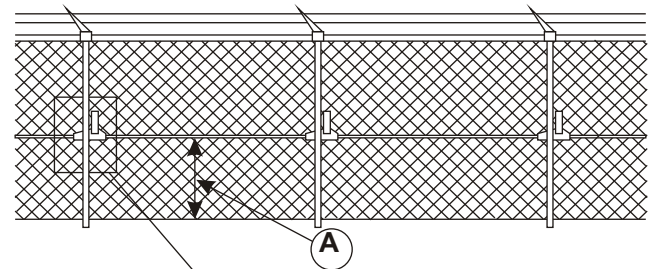
The SP3223 and SP3223D sensors will operate over a temperature range of -40° to 120° Fahrenheit.

### Sensor Spacing

Terminus fence sensors are mounted on the sides of fence posts so that the shock sensors are perpendicular (at a 90° angle) to the fence fabric. Typical spacing between sensors is every other fence post (about 20 linear feet or 6 meters apart for an 8-10 foot high chain link fence) where the fence is in excellent condition and maximum security is not required. For applications where maximum security is needed, fence sensors can be mounted on every vertical fence post (about 10 linear feet or 3 meters for an 8-10 foot high chain link fence). These spacings assume the use of thin walled metal conduit (EMT). For UL Listed systems, a sensor on every post is required and a maximum of ten feet is allowed between sensors.

Vinyl coated fence fabric does not transmit shock activity very well. It is highly recommended that sensors be on every post with conduit on these applications.

### Hardware Installation



1. Mount the conduit (EMT and the SP3223) to the fence fabric parallel to the ground and perpendicular to the fence post, not lower than one-half or greater than two-thirds of the distance from the ground to the top of the fence. The longer portion of the SP3223 should go between the fence fabric and the fence post. Be sure all conduit is installed so that it passes between the fence post and fence fabric. Slight bends in the conduit may be necessary at sensor locations where the terrain is uneven. EMT compression connectors will be necessary at each sensor for adapting the conduit to the threaded housing. Sensor housings are threaded for pipe thread. Tie the conduit to the fence fabric at least twice between fence posts using metal ties.

2. Pull the loop wire through the conduit and the sensor housings. Loop wires should be 22 gauge twisted pair cable for runs less than 1500 feet and 18 gauge twisted pair for runs exceeding 1500 feet. Leave enough loop wire at the top of each conduit section to cut and wire into fence sensors.

3. Connect each sensor to the loop wires (described in sensor wiring section).

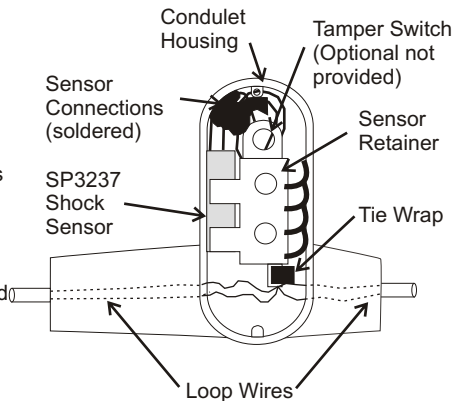
4. (Optional) Should the installation require a tamper switch, a hole is provided at the top of the retainer assembly. Reed switch part number MSPM101CS1 manufactured by Alco Switch is recommended for tampering purposes. It requires soldering the loop wires and is an SPST normally-closed switch.

5. Using the clamp provided in each sensor kit, route the clamp around the fence post (with the clamp screw toward the inside of the perimeter) and tighten the screw. Please note this step is executed after wiring. Use silicon sealant around the adaptors and couplings to prevent moisture from entering the conduit.

### Sensor Installation

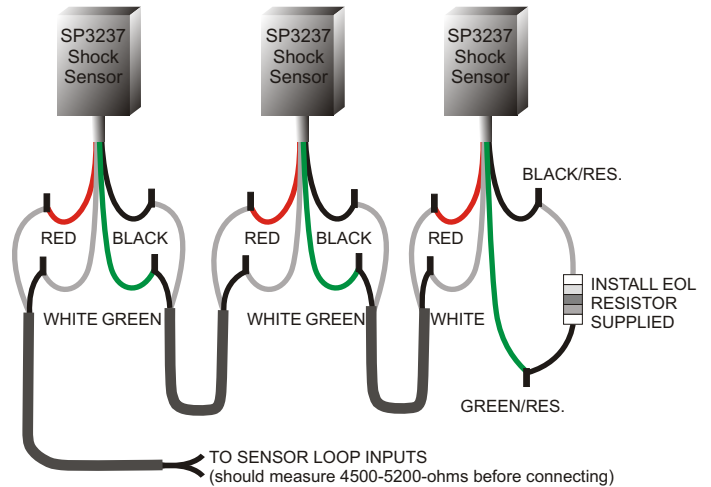
Connections should be made at top of housing in order to prevent moisture from corroding the connections. Do not make loop connections in the conduit tees.

For wire runs under 1500 feet use 22 AWG wire size or greater and for runs 1500 feet or over use 18 AWG wire size.



### SP2539 Standard Fence Kit

1. Cut the sensor lead wire to a length of 4 or 5 inches to ease installation. Solder the sensor lead wires to the loop wires as shown in the Electrical Connections diagram at left. Properly insulate all wire connections. The end-of-line resistor (supplied with the processor) must be installed at the last sensor as shown.
2. (Optional) Should the installation require a tamper switch, solder the switch to the loop wires in series with the sensor. Alco Switch MSPM101CS1 is recommended.
3. Place the SP3237 sensor into the sensor retainer as shown in the diagram above. Insert the sensor and retainer into the housing with leads up in order to prevent moisture from corroding the connections. Dress the excess wire into the slot on the back of the retainer. Using a tie wrap to secure the loop wires to the eyelet at the bottom of the retainer assembly for strain relief.
4. Push the insulated connections and excess wire into the space between the sensor assembly and the top of the housing.
5. Install the condulet gasket and cover and clamp.
6. To test the sensor, set the processor to a count of one and shake the fence in the area covered by each sensor. If the response of the processor is not satisfactory, make the necessary adjustments and retest.



- All joints must be soldered
- End-of-Line Resistor (EOL) is supplied with the processor.

### Electrical Connections

### Completing the Installation

If the previous steps have been followed in the correct order, all the sensors should be wired together and ready to complete the installation. Before the sensor loop connecting to the processor, we suggest that the following be checked:

1. The end-of-line resistor has been connected to the last sensor of each loop.
2. Lightning arrester devices have been installed between the loop and the processor unit. The ground terminal of the arrester should be attached to a cold water ground or earth ground.
3. All electrical connections have been taped or insulated to avoid short/grounds.
4. Loop wires to be connected to processor inputs should measure 4500-5200 ohms before being connected.
5. All joints should be sealed using RTV sealant.

You are now ready to connect the sensor loop to the zone processor and adjust the level of zone sensitivity as required. Test the system at least once a year.