INSTRUCTION MANUAL
Model WIAR3 WIRELESS REPEATER

Contents of Package:
- (1) Wireless Repeater
- (4) 1" #6 Phillips head screws
- (4) Plastic anchor inserts
- (4) Molly bolts

Tools you will need:
- Phillips head screwdriver for #6 size screws
- Small awl
- Small hammer
- Magic marker

Other tools you may need:
- Drill w/ 3/16" masonry bit or 3/32" wood bit for pilot holes when installing a Wireless Repeater on masonry or wood.

Product Overview
- The model WIAR3, Wireless Repeater is a wireless device that operates by receiving a sensor's coded signal and then transmitting that signal to a receiver, greatly increasing the effective range of the system. It will be necessary to install a Wireless Repeater if distance or interference is making it difficult for a wireless sensor to communicate with either a General Sensor's Single Port or 4 Port Receiver. Under ideal conditions (no interference from steel machinery or cabinets and a clear line of sight between the receiver and its corresponding sensor), a Wireless Repeater can increase the effective range of the receiver to more than 700 feet. **Please Note:** For a typical installation, the presence of steel cabinets, machinery, electrical equipment, etc., will limit the effective range of the system, even when used in conjunction with a Wireless Repeater.

1. Do I need a Wireless Repeater?

- Before you begin, **make sure a Wireless Repeater is necessary** to solve the communication problem between the receiver and the sensor(s). The fastest way to do this is to remove the sensor from the wall, bring it up close to its corresponding receiver, and push the sensor's blue *Test* button at the bottom of the sensor's printed circuit board. If the DIP switch settings on the sensor and receiver match, the receiver should scroll through its LED display, indicating a good communication link.

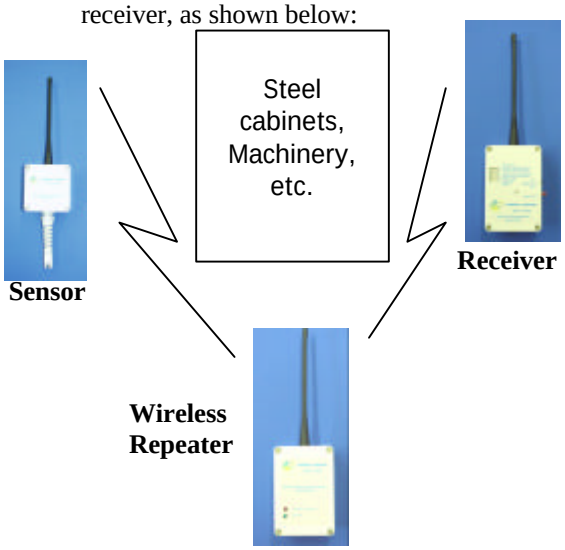
- If the receiver does NOT scroll through its display, check the DIP switch settings on both units. If the settings are not the same you must change them so that they agree. *Make sure you remove the battery before changing the DIP switch settings or the micro-computer in the units will not recognize the change*. Once you change the settings, push the red *Reset* button on the receiver. Now bring the sensor up close to the receiver and push the blue *Test* button again to see if the receiver scrolls through its display. A Wireless Repeater will not solve the problem if the receiver still does not scroll through its LED display. If this happens call General Sensors' technical support toll-free at **1-800-778-0836** for further assistance.

- **A Wireless Repeater is needed to boost the signal if** the receiver scrolls through its LED display when the sensor is brought up close to it and tested, but does NOT scroll through its LED display when the sensor is tested after being mounted in its ultimate location. This usually means that something between the sensor and the receiver such as steel cabinets or machinery is blocking successful transmission of the signal.

2. Finding a location for the Wireless Repeater:

- A Wireless Repeater reacts in the same way as the Single Port and 4 Port Receiver to interference from steel cabinets, machinery, etc. Simply installing a Wireless Repeater right next to the sensor or receiver you are having trouble with will probably not solve the problem, since the object(s) that are interfering with the signal sent by the sensor will also obstruct the transmission of a good signal by the Wireless Repeater.

- The **ideal place to install the Wireless Repeater** is high on the wall, about halfway between the sensor and receiver that are having trouble communicating. If possible, try and place the Wireless Repeater away from any steel cabinets, machinery, etc. If there are steel cabinets, machinery, etc. between the sensor and its corresponding receiver, try to place the Wireless Repeater against a wall where there is a direct line of sight between it and *both* the sensor and the receiver, as shown below:

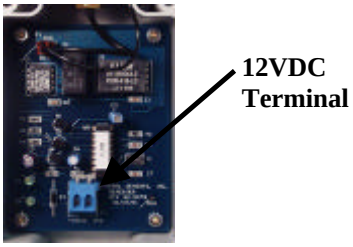


3. Powering up the Wireless Repeater:

- Before proceeding to mount the Wireless Repeater in its final location you should **connect the unit to a 12VDC power source**. General Sensors Inc. recommends using 22 AWG, stranded wire when making connections to a power source.

- You can commonly obtain a 12VDC power source from centralized alarm boxes or building automation systems. In the event that power is not available from such a source, you can power the Wireless Repeater from a small 12VDC power module available from General Sensors Inc. or other suppliers that plugs into a 110VAC commercial outlet. Make sure the current rating of the power module is 200 mA or greater. The power outlet should be non-switched, meaning that light switches must not turn the sensor unit off. Another power option is to connect the repeater to a 4 Port Receiver's 12VDC supply. The advantage to this arrangement is that the 4 Port Receiver provides standby battery power for the 12VDC supply.

- **To attach the 12VDC power source**, locate the terminal port on the Wireless Repeater's printed circuit board (see below). Using a small flat head screwdriver, press on the arm of the jack labeled "-" and insert the negative lead into the jack. Do the same for the jack labeled "+" and insert the positive lead into the jack.



- When the Wireless Repeater has been connected to a 12VDC power source the Green LED labeled *Power On* will light.

4. Establishing a communication link:

- Once you have found a good location and have connected the Wireless Repeater to a 12VDC power source, follow these three steps to make sure the Wireless Repeater is acting to solve the communication problem between the sensor and receiver:

  1) Place the repeater in an upright position where you plan to mount it. If the repeater is receiving signals from a Wireless Sensor, the green LED labeled *Receiving Transmission* should be lit.

  2) Walk over to the sensor with the communication problem and push the blue *Test* button on the sensor's printed circuit board.

  3) Now walk over to the receiver that shares the same number code as the sensor and see if the LED display is scrolling. If the receiver scrolls through its LED display your communication problem is solved and the system is operating properly.(If you are using a 4 Port Wireless Receiver, the system is working properly if the number of the sensor you are testing is displayed.)

- If the receiver doesn't scroll through its LED display, try a different location for the repeater and try again. If problems continue, call General Sensors Inc., for assistance.

5. Mounting the Wireless Repeater:

- Place the Wireless Repeater against the wall where it is going to be mounted and mark the 4 mounting holes with a small awl. For installations on wood, using a 3/32" drill bit, drill 4 pilot holes in the marked spots and attach the Wireless Repeater with the 4 #6 screws provided. For sheet-rock or other hollow walls, use the 4 Molly bolts provided. For concrete walls, drill pilot holes with a 3/16" masonry drill bit, insert the 4 plastic anchors provided and secure the Wireless Repeater to the wall using the #6 screws provided.

- Once the Wireless Repeater has been tested and mounted in its final location it is constantly searching for transmissions from wireless sensors.

Repeater Dip Switch and Jumper Settings

The dip switch and jumper settings for the repeater are factory set to work with most installations (with only one repeater). The only time settings need to be changed is when more than one repeater is installed. When the jumper is removed the repeater repeats ALL transmissions it receives; when the jumper is installed it will repeat only sensor transmissions. Removing the jumper is only required when you are trying to extend the range beyond 700'.

There is a maximum of 4 repeaters per installation. Each repeater has its own DIP switch setting, meaning that no two repeaters can have the same settings. Each binary increment on the DIP switch (off=1, on=0) will cause that repeater to delay 0.5 seconds more after receiving a transmission.

Recommended DIP switch settings

Repeater #	DIP1	DIP2
1	OFF	OFF
2	ON	ON
3	ON	OFF
4	OFF	ON

Technical Specifications

Size: 113/4" H x 3" W x 2 1/4" D
Weight: 8.4oz
Power Supply: 12VDC/200 mA (recommended)
Current Draw:
Idle State: 14mA @ 12VDC
Transmitting: 55mA @ 12VDC

Indicators:
Green LED: Power On
Green LED: Receiving Transmission

Frequency:
Receiving signals: 418MHz
Transmitting signals: 418MHz

FCC Statement

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-Reorient or relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION

For U.S. and Canada installations: The wireless radios are required to comply with FCC rules and regulations as well as Canada rules and regulations. Consequently, the radios have

limited range because of their limited output power under these rules.

Changes cannot be made to these devices because such changes may void compliance with U.S. and Canadian rules and regulations.

Transmitters send a normal check-in message four times. Alarm messages are sent twelve times. However, a receiver can respond to only one message at a time, and consequently a message may be missed or blocked by radio signals that occur on or near their operating frequencies, regardless of code settings.

Distributors and dealers should have a general knowledge of wireless operations and typical problems encountered with such equipment. It is important that this be conveyed to end users.

Warranty

For a period of three (3) years from the date General Sensors Inc., order document is received upon purchase of equipment, General Sensors Inc., warrants to the original customer that the equipment is free from manufacturing defects. This warranty is void if the equipment has been subject to improper or abnormal use. If a manufacturing defect is discovered during the stated warranty period, the defective equipment must be returned to General Sensors Inc., for repair. All transportation costs for return will be borne by the customer. General Sensors Inc. will make a best effort to expedite the repair and return of repaired products.

The foregoing warranty is exclusive and in lieu of all other warranties, express or implied, whether oral or arising by usage of trade or course of dealing, including, without limitation, any warranties of fitness or merchantability. This warranty is the purchaser's sole and exclusive remedy. In no event shall General Sensors be liable for any anticipated or lost profits, incidental damages, consequential damages or other losses, whether based on breach of contract, tortuous conduct or any other theory, incurred in connection with the purchase, installation, repair or operation of sensors and receivers. General Sensors Inc. does not authorize anyone to assume for it any liability or make on its behalf any additional warranties**.**