INSTRUCTION MANUAL
Model WIAR1 Wireless Single Port Receiver
Wireless Water Intrusion Sensor Model WIAS2/Wireless Freezing Pipe Sensor Model WIAS3

Contents of package:

- (1) Single Port Receiver
- (1) Wireless Sensor (model WIAS2/WIAS3)
- (8) 1" #6 Phillips head screws
- (8) Plastic anchor inserts
- (8) Molly bolts

Tools you will need:

- Phillips head screwdriver for #6 size screws
- Small awl
- Small hammer
- Magic marker
- Drill w/ 3/16" masonry bit or 3/32" wood bit for pilot holes when installing receivers and sensors on masonry or wood.

Product Overview:

- The model WIAR1 is a single port receiver that reacts to coded information received from a Wireless Water Intrusion or Wireless Freezing Pipe Sensor. A wireless sensor can be located in a computer center, constantly checking for water intrusion or variations in temperature. The Single Port Receiver can be placed in another location and linked to a security system where alarm information is passed on to a central alarm center. The Single Port Receiver can also be set up to take action on its own by shutting off the water or vent pipes, etc., in the event of a water intrusion or temperature-related problem. To ensure that the system is functioning properly, the sensor sends status information daily that is indicated on the Single Port Receiver's LED display.

Getting Started:

- Before mounting any sensors, **choose a location for the Single Port Receiver**. Try to avoid steel cabinets, machinery, etc. that can interfere with the transmission of signals. Sensors can typically communicate with a receiver up to 350 feet away, a more than adequate range for most installations.

- An ideal place for the Single Port Receiver is on a wall about 5 feet off the floor. A **mounting height** of 5 feet is good for reading the receiver's display.

Powering up the Single Port Receiver:

- Before mounting the receiver in its final location you should connect the unit to a 12VDC power source. General Sensors Inc. recommends using 22 AWG, stranded wire when connecting to a power source.

- In the event that 12VDC power is not available from a centralized alarm box or similar source, you can power the Single Port Receiver from a small 12VDC power module available from General Sensors Inc., or other suppliers. Make sure the current rating of the power module is 200mA or greater. The power outlet should be non-switched, meaning that light switches must not turn the receiver off.

- To attach the 12VDC power source, locate the terminal port on the Single Port Receiver.(**see fig.3**). 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. On the small 12VDC power supply furnished by General Sensors, Inc., the terminal labeled "1" is +12VDC, terminal "4" is the negative lead. Terminal "2" is ground from the 110VAC if you wish to connect ground to the Single Port Receiver.

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

Mounting the Single Port Receiver:

- Place the Single Port Receiver against the wall where it is going to be mounted and mark the four mounting holes with a small awl or a pencil. For installations on a wooden wall, using a 3/32" drill bit, drill 4 pilot holes in the marked spots and attach the sensor to the wall 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 and secure the sensor to the wall with the #6 screws.

I. Using the Single Port Receiver with Wireless Sensors

1. Installing a Wireless Sensor with the Single Port Receiver:

- The model WIAS2 Wireless Water Intrusion Sensor is a wireless sensor designed for early detection of water. This is particularly useful where water can cause damage to valuable assets; such as in rooms that house computers and telecommunications equipment, power distribution vaults, and record keeping areas.

- The WIAS3 Wireless Freezing Pipe Sensor is a wireless sensor designed to sense air and pipe temperature. This is useful anywhere pipes are in danger of freezing, such as in unheated areas during the colder months.

Wireless Water Intrusion Sensor Model WIAS2

Wireless Freezing Pipe Sensor Model WIAS3

- Each sensor and Single Port Receiver share the same sensor number code so that the receiver can identify which sensor is sending data. If there is a water intrusion or temperature-related problem it is important to know *which* sensor is reporting a problem.

- If you are **installing only one wireless sensor with the Single Port Receiver** you do not have to set the code, the sensor number has already been set by the factory to sensor #1. However, it may be useful to take a magic marker and mark the case *sensor #1*.

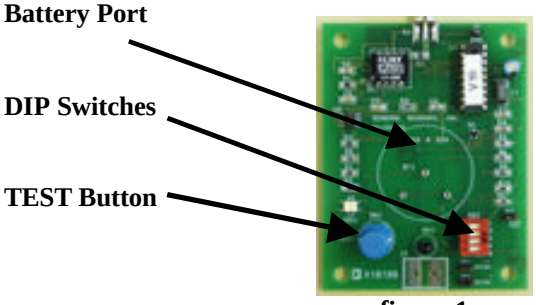

figure 1

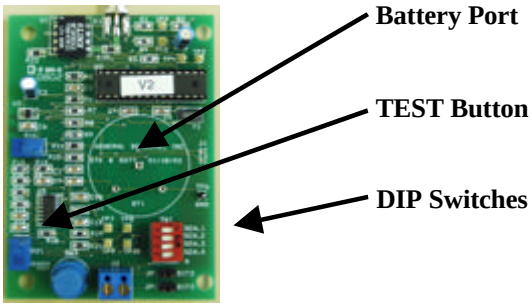

figure 2

Single Port Receiver Model WIAR1

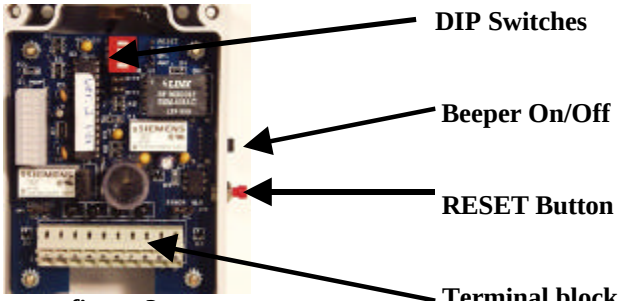

figure 3

2. Installing multiple wireless sensors and Single Port Receivers:

- To install more than one wireless sensor and single port receiver you will have to set each sensor and its own receiver to a different code so that they can communicate. Follow these **4 easy steps to set the code**:

  1) Mark the case of one sensor *sensor #1*, and one receiver *receiver #1*. The DIP switches in the units have already been set by the factory to identify sensor #1. All DIP switches in the unit should be in the ON position.

  2) For sensor and receiver #2 you will have to set the DIP switches. First you must remove the polyurethane covers. Locate the DIP switches on the printed circuit board in the units. With a pen or sharp instrument, push switch position 1 to the OFF position. Mark the sensor's case *sensor #2* and the receiver's case *receiver #2*.

  3) For sensor and receiver #3, set DIP switch position 2 to the OFF position. Mark the sensor's case *sensor #3* and the receiver's case *receiver #3*.

  4) For sensor and receiver #4 set DIP switch positions 1 and 2 to the OFF position, all others must be in the ON position. Mark the sensor's case *sensor #4* and the receiver's case *receiver #4*.

- If you are installing more than 4 wireless sensors and single port receivers in an area, please call General Sensors' technical support at **1-800-778-0836** for suggestions on how to set the additional sensor numbers.

3. Installing the battery and testing the sensor codes:

- The **DIP switches must be set** before you install the battery.

- Unwrap the protective plastic bag from each battery provided with the sensors. Look at the bottom of the battery; note that the battery pins are off center, meaning that there is only one way to **insert the battery** in the center of each sensor's printed circuit board.(**see fig.1&2**). There is a small arrow on one side of the battery indicating the top position of the battery as it fits in the pin sockets. Make sure the pins are straight and push the battery into the pin sockets.

- Now you can **test the sensor** to make sure the DIP switch settings on both the sensor and receiver match. Before mounting the sensor in its final location, bring it up close to the Single Port Receiver and press the TEST button on the sensor's printed circuit board for 3 seconds and then release. (NOTE: Connect the Single Port Receiver to a 12V DC power source *before* testing.) If the code matches, the receiver will scroll through its LED display. If the receiver is scrolling, the codes match and you can proceed to section 4 and install the sensor.

- If the receiver does NOT scroll through its display it means the code did not match. Check the DIP switch settings on both the sensor and the receiver. If the settings are not the same, you must change them so that they agree. *Before you change the setting you must remove the battery in the sensor and then reinstall it or the microcomputer in the units will not recognize a DIP switch setting change*. Once you change the setting, push the red RESET button on the side of the receiver. Now test the sensor again by pressing the TEST button. If the receiver scrolls through its LED display you can move ahead to the instructions on how to mount the sensor.

4a. Choosing a place to mount a Water Intrusion Action Sensor:

- A Wireless Water Intrusion sensor should be mounted where it cannot be tripped on, kicked or run over. **An ideal place for the sensor** is in a corner, or the lowest point in a room, as close as possible to the assets the sensor is protecting.

4b. Choosing a place to mount a Wireless Freezing Pipe Sensor:

- A Wireless Freezing Pipe sensor should be mounted as close as possible to the pipe it is going to protect. An ideal place for the sensor is on a wall directly above the pipe you want to monitor.

5. Establishing a Communication link between a wireless sensor and the Single Port Receiver:

- Once you have selected a good place for mounting the sensor you must **make sure the receiver can pick up the sensor's coded signal from its new location**. First place the sensor in an upright position on the floor or near the pipe where you plan to mount it and push the sensor's TEST button for 3 seonds and release it. Step back from the sensor so as not to "detune" the antenna. Now walk over to the receiver that shares the same sensor code and check to see if the display is scrolling. If it is scrolling, push the receiver's red RESET button. This puts the receiver in active mode.

- If the receiver is NOT scrolling, it did not receive the signal from the sensor. (If you previously made sure the sensor numbers matched, that is not the problem.) Try a different location for the sensor, away from any machinery and/or closer to the receiver. Now push the sensor's TEST button again from the new location and check the receiver to see if it is scrolling. If these tests fail then the installation of a Wireless Repeater, model WIAR3, will likely be necessary to boost the link needed between the sensor and the receiver. See the instruction sheet for the Wireless Repeater for details on installation.

6a. Mounting a Wireless Water Intrusion Sensor:

- Place the sensor against the wall where it is going to be mounted and **make sure that the end of the probe is flat on the floor**. Mark the 4 mounting holes with a small awl. For installations on a wooden wall, using a 3/32" drill bit, drill 4 pilot holes in the marked spots and attach the sensor to the wall 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 and secure the sensor to the wall using the #6 screws.

6b. Mounting a Wireless Freezing Pipe Sensor

- Place the sensor against the wall where it is going to be mounted and **make sure that the end of the temperature sensor probe reaches the pipe** you want to monitor. Mark the 4 mounting holes with a small awl. For installations on a wooden wall, using a 3/32" drill bit, drill 4 pilot holes in the marked spots and attach the sensor to the wall 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 sensor to the wall using the #6 screws provided. Now secure the pipe sensor to the pipe using the Velcro strap provided, make sure it is tight on the pipe. Secure cable in place.

7a. Final Test of the Wireless Water Intrusion Sensor:

- Once a Wireless Water Sensor and its matching receiver are mounted and a communication link is established you can make a **final test** of the system.

- Test the sensor by splashing water around the base, **making sure that both sides of the probe come into contact with the water**. The microcomputer in the sensor will perform a series of tests to ensure it is a true water intrusion problem, which will take about 10 seconds. At the end of that time, the sensor will transmit a coded signal to the receiver indicating a water intrusion problem. The red LED on the receiver labeled ALARM will blink and the beeper will sound. If the receiver worked as described, the system is operating properly. To clear the alarm, push the red Reset button. Another alarm will sound in 15 minutes if you don't clean up the water spill and dry the probes.

- If you splashed water on the sensor probes and the *Alarm* LED does not blink and the beeper does not sound, try again, making sure both probes are covered by water. Wait 10 seconds check to see if the receiver's display is showing an *Alarm* condition. If it is not showing an *Alarm* condition, call

General Sensors Inc., technical support at **1-800-778-0836** for assistance.

7b. Final Test of the Wireless Freezing Pipe Sensor:

- The Wireless Freezing Pipe Sensor has been rigorously tested by General Sensors Inc., to deliver a warning when pipe temperature reaches 39°F and an alarm when pipe temperature reaches 34°F. If the Wireless Freezing Pipe Sensor and its matching receiver are communicating as described in step #5, the sensor is operating properly and you have nothing left to do.

II. How to configure the Single Port Receiver to work with other systems:

1. Overview

- Once the Single Port Receiver is mounted and is communicating properly, you can configure the system to work in conjuction with a Central Alarm System (CAS) or to take local action to fix a water intrusion or temperature related problem.

- The wire terminations on the terminal block of the Single Port Receiver are located just below the two jumper ports (JP4 and JP5) at the bottom of the unit's printed circuit board and are numbered 1 through 10 (**see fig.3**). **Please Note: Terminal connections are always made in twos**, meaning two wires are always required to power the unit, provide closures to a CAS or a local control circuit. When we refer to signal closures we mean that low voltage signals, a maximum of 24VDC, are used to communicate from one system to another. Therefore, **voltages such as 120VAC are never used by the Single Port Receiver**.

- General Sensor's recommends that you **use 22 AWG, stranded wire when making terminal block connections**.

- Pushing the RESET button on the Single Port Receiver clears any existing alarms and starts the 24-hour check in timing. To shut off the beeper, move the beeper On/Off switch to the down position. The beeper LED will light.

2. Wire terminations and functions

- Use the following table as a guide to assist in setting up the receiver to communicate with a CAS or to take local action to fix a water intrusion or temperature related problem.

Terminal #	Function:	Connects to:	Notes:
10	**Power**	**+12v DC**	Required
9	**Power**	**Negative (ground)**	Required
8	**Disable Function**	**Negative(ground) input** to system that completes the **Disable** circuit	Optional. To engage the **Disable** feature you must provide a closure on terminals 7 and 8. The **Disable** feature provides for a signal from an administrative system to prevent the Receiver from operating function set up in terminals 1 and 2. **Please Note: This is useful to insure that water won't be shut off when there is a fire alarm and sprinklers are engaged.**
7	**Disable Function**	**Positive input** from system that initiates **Disable** function	Connection is optional, but must be made to use the **Disable** feature.
6/5	**Major Alarm**	**Central Alarm Station(CAS)**	Provides signal closure to CAS normally open (NO) circuit. This is a **Major Alarm**, indicating that some serious problem has occurred which requires immediate action.
4/3	**Minor Alarm (Closure or Open)**	**Central Alarm Station(CAS)**	Provides signal closure to CAS normally open circuit (place JP4 in NO position) or CAS normally closed circuit (place JP4 in NC position). This is a **Minor alarm**, such as a low battery condition that does not require immediate action.
2/1	**Closure or Open**	**Local Control Circuit**	Optional. Provides signal closure to a normally open circuit (place JP5 in NO position) and normally closed circuit (Place JP5 in NC position). This is the connection to a **Local Control** circuit to shut off water, vent pipes, etc. Local Control is operated when Major Alarm is operated.

Single Port Receiver
Model WIAR1

Technical Specifications

Size: 12"H x 3 1/8"W x 2 1/8" D
Weight: 9.6oz.
Power Supply: 12VDC/200mA (recommended)
Current Draw:
Idle State: 17mA @ 12VDC
Alarm Condition: 111mA @12VDC

Alarm Outputs:
Major Alarm: Normally Open (NO)
Control: NO or NC (select by jumper)
Minor Alarm: NO or NC (select by jumper)

Please Note: These are low voltage signal closures, they are not intended for 110VAC operation. Contacts rated for a maximum of 24VDC and 300 mA.

Disable Feature: Closure on this input to the Single Port Receiver will stop receiver from taking any action (i.e., no alarms sent). This feature is used to prevent the receiver from taking any local action to shut off water flow, etc. in the event of a fire when sprinklers are engaged.

Automatic testing of sensor:
-Failure of sensor to check in every 24 hours: Minor Alarm

-Sensor failed self-test: Minor Alarm

-Sensor has low battery: Minor Alarm

-Temperature sensor indicates temp. is below 39°F: Minor Alarm

-Water intrusion sensor shows presence of water: Major Alarm

-Temperature sensor indicates temp. below 34°F: Major Alarm

Indicators:
-Power On LED: GREEN
-Sensor failed to check in: YELLOW
-Sensor failed self-test: YELLOW
-Sensor has low battery: YELLOW
Receiving transmission: YELLOW
Beeper off: YELLOW
Warning: YELLOW
Alarm: RED

Other Features:
-On/Off switch for beeper
-Momentary switch for system RESET

Wireless Water Intrusion Sensor
Model WIAS2

Technical Specifications

Size: 14 ½”H, 3 1/8W, 2 1/8 ”D
Battery: 3.6V Lithium Inorganic Tadiran p/n TL 4935 1.7Ah
Current Draw:
Idle State: 30 µA @ 3.6V
Transmitting: 4mA @ 3.6V
Battery Life Expectancy: 5-6 years
Weight: 8.4 oz.

Sensitivity: The water intrusion sensor’s probe is sensitive to water or moisture with resistivity up to 200,000 ohms. (The resistivity of water is commonly less than 100,000 ohms.)

Probe: Gold plated solid 14AWG wire, to resist corrosion, with specially designed probe end cap for accurate placement of probe end 1/16” from floor or area being protected.

Automatic Testing: Electronics self-tested to the probe level every 24 hours with status report sent to receiver upon proper operation.

Wireless Freezing Pipe Sensor
Model WIAS3

Technical Specifications

Size: 12”H x 3 1/8” W x 2 1/8” D
Battery: 3.6V Lithium Inorganic Tadiran p/n TL 4935, 1.7Ah
Current Draw:
Idle State: 35µA @ 3.6V
Transmitting: 4mA @ 3.6V
Battery Life Expectancy: 5-6 years
Weight: 10.2oz.

Probe: NTC temperature sensor. Cord length is 3’ from sensor unit to temperature probe.

Automatic Testing: Electronics self-tested to the probe level every 24 hours with status report sent to receiver upon proper operation.

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, tortious 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**.**