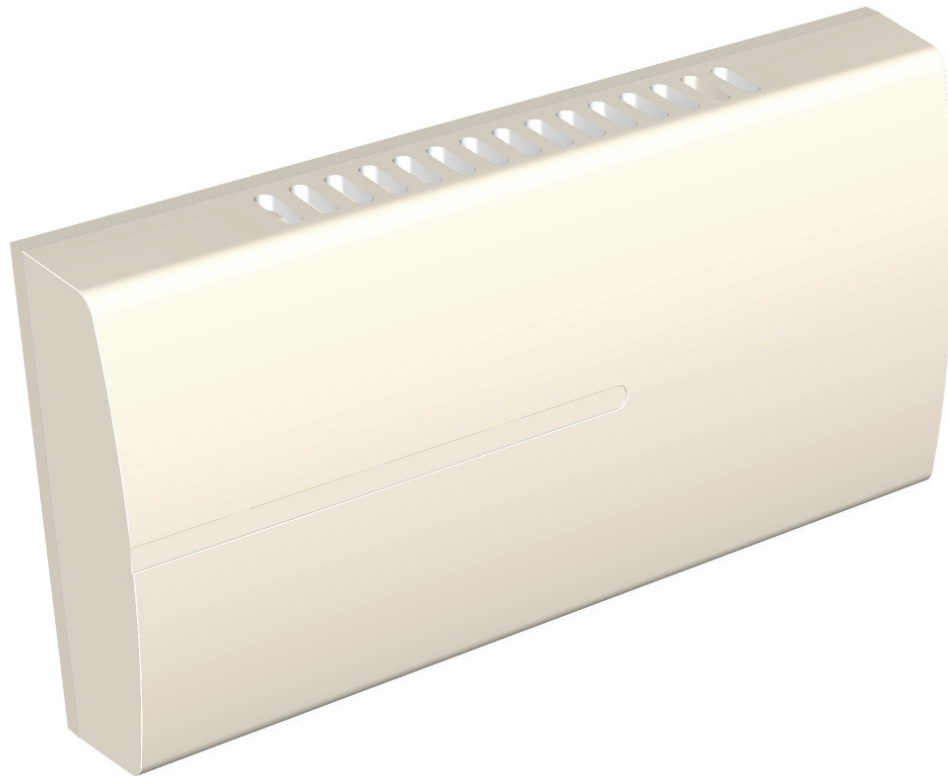


Installation and Operation Manual

Wireless Network Sensor System For Platinum Controls

Wireless Space Sensor



⚠ WARNING

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 separation between the equipment and wireless components.

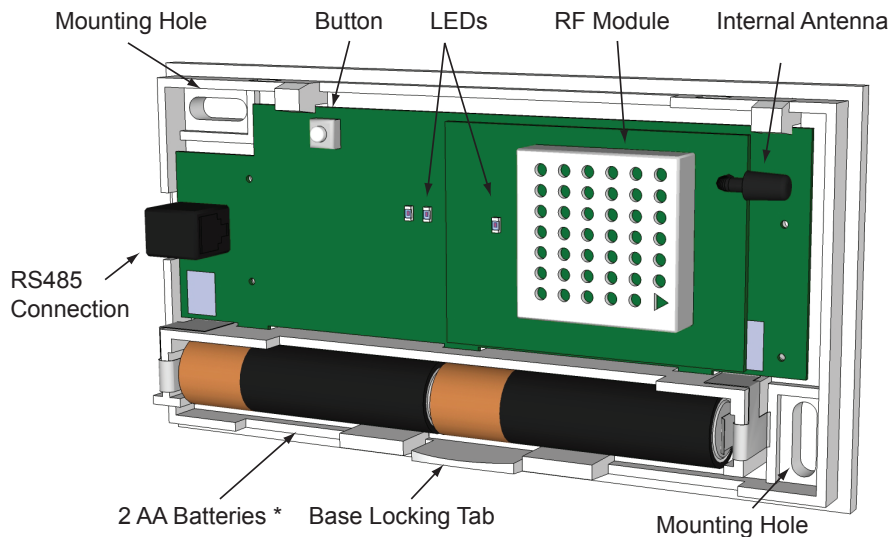
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OVERVIEW

The New Heat-Timer Wireless Network Sensor System is designed to be used in a variety of large buildings, garden apartments, and in retrofit applications, giving both the accuracy and flexibility required to monitor those buildings' temperatures. The system will ease the installation of space sensors in buildings where it would be difficult or cost prohibitive utilizing other means. Thus, allowing Heat-Timer Platinum controls with communication access to the wireless sensor data. The values read from the wireless system are used by the Platinum controls for monitoring, fine-tuning its operation, and logging its data.

The primary integral components of the system are: the Network Manager (NM), the Transceivers (TRV), the Wireless Sensors (SNR), Wireless Temperature Module (WTM), and finally, the Wireless Programmer (WP). The SNRs communicate their information to a nearby TRV or NM. The TRV transmits the information down either to another TRV or to the NM. The NM communicates all the data it receives to the Platinum control. The WP is the tool used to map, configure, diagnose, and troubleshoot the Heat-Timer Wireless Network System.






WP WIRELESS SURVEY

A wireless survey of the building must be done prior to installing any wireless component. The survey involves the use of at least two WPs (Wireless Programmers). Each of the WPs must be set to emulate a different wireless component. Then, test communication and signal strength between the two wireless WPs. Both signal strength readings (RSSI) should be above 50 for a reliable connection. Upon receiving a good continuous signal strength, *MARK* the two locations of the WPs. These will be the locations of the wireless components' installation. To set the WP to emulate each component, follow the steps.








SETTING THE WP SYSTEM ID

- Make sure that the WP is fully charged.
- Power the WP on. That should turn its LED to Green.
- Select **WP Setup Mode** from the Main menu by pressing the (Enter / ) button. Then, type a System ID or press the (Down / ) button to select a random ID. To accept the new System ID press the (Enter / ) button. Then, press the **F** button to load it into the WP.
- This will be followed by the Emulation Mode menu.
- Record the System ID to help you in setting up the next WP to the same System ID.

⚠ WARNING

DO NOT use 0000 as a System ID to avoid errors in operation. The Heat-Timer Wireless Network components can communicate only if they have the same System ID.

WP EMULATING SENSOR (SNR)

- After setting the System ID on the WP, the Emulation menu will display.
- Select **EMULATE SNR** and Press the (Enter / ) button.
- Select **DETECT RSSI** using the (Enter / ) button followed by the **F** to accept.
- Press the **Mode** to go to the main menu.
- Select **Auto Mode** using the  or  buttons. Then press the (Enter / ) button to accept. Within a few seconds, signal strength data should display.
- The numbers below the **MASTER** and **WPROG** represent the signal strength received by each of the components from the other component. That is, the number below **MASTER** represents how well the **MASTER** received current **WPROG** signal.
- The fourth display line contains **T01** which represents the master's Net Address ID. A **00** represents the NM. Any ID that starts with the **T** or **R** represents a TRV.
- The **NEW 01A** represents the next TRV ID upstream available.

```
-WP.SETUP MODE
SYSTEM ID# C9E5
[UP] DELETE
[DOWN] PICK
```



```
*CONFIG. MODE[9]
WP.SYS ID# C9E5
[F] TO LOAD
```



```
-WP.SETUP MODE
EMULATE TRV
> EMULATE SNR
EMULATE NM
```

```
-WP.SETUP MODE
SNIFF
> DETECT RSSI
```

Accept Detect RSSI 

```
-WP.SETUP MODE
DETECT RSSI
[F] TO LOAD
```

Enter the Detect RSSI **F**

```
CONFIG DEVICES
GET DEVICE DATA
WP.SETUP MODE
>AUTO MODE
```

Enter Auto Mode 

```
AUTO MODE
MASTER      WPROG
  65         62
T01         NEW 01A
```

CONFIGURING THE SNR

- For the SNRs to function in a wireless system, each must communicate to a nearby TRV (Transceiver) or NM (Network Manager).
- Each wireless network should have a unique System ID. The System ID enables all wireless components with that ID to communicate to each other.
- The WP is the only tool used to configure all system components and their parameters. When used to program wireless devices, it must be connected to the wireless device. See "Connecting SNR to WP" on page 5.

Setting the SNR's System ID

- After setting the WP to the System ID, you'll need to configure the SNR with the System ID.
- To return to the main menu, press the **Mode** button
- Select `Config devices` from the Main menu by pressing the (Enter / **↵**) button. Then, select `System Id` from the list by pressing the (Enter / **↵**) button. This will display the System ID configured into the WP.
- Make sure that the phone cable is connected to the WP and the SNR to be programmed.
- Press the **F** button to load the System ID into the SNR.
- This will show `ACK` momentarily on the third line of the display acknowledging the SNR acceptance of the new System ID.

Exit to Main Menu **Mode**

```
>CONFIG DEVICES
GET DEVICE DATA
WP.SETUP MODE
AUTO MODE
```

Accept Config Devices **↵**

```
*CONFIG. MODE[9]
>SYSTEM ID
RESET SENSOR
POWER DWN SNR
```

Select System ID **↵**

```
*CONFIG. MODE[9]
WP.SYS ID# C9E5
[F] TO LOAD
```

To load the System ID **F**

TESTING AND OPERATING WIRELESS SNR

The newer SNR requires the use of 2 AA 1.5 each Alkaline batteries. However, older style sensor battery types varies depending on the SNR Hardware version.

⚠ WARNING

For older style sensors, different batteries and batteries installation is required. If batteries are to be installed in opposite direction, use the 1.5 V Alkaline batteries. If batteries are to be installed in the same direction, use the Lithium 3.6 V batteries. DO NOT use the Lithium batteries with other electronic devices. These batteries can damage the device they are used on.

The SNR is designed to work with other Heat-Timer Wireless Network System components. The sensor will measure the space temperature and transmit its data, using its internal antenna, to either a RTR or a NM to pass it downstream the network to the Heat-Timer Platinum control. The SNR will send its temperature, battery status, transmission and reception power, and address; at predetermined intervals.

Normal Mode

- In the Normal Mode, the SNR will transmit data to the RTR or NM that can hear it. During that process no LED lights will blink.
- If reliable communication to the last RTR or NM cannot be achieved, the SNR will try to send the data to any RTR or NM in the same network.

Install Mode

- By pressing and holding the SNR button for three seconds, it will get into the Install Mode. This can be identified by the continuous Red blinking light on the main board. Whenever the data is received by a RTR or a NM, the Green LED on the SNR will blink once indicating good reception.
- In the Install Mode, the SNR will try to search for a RTR or NM within the Wireless Network and then send its data.
- In the SNR Install Mode the SNR will transmit data at 15 second interval for a total of 15 minutes to allow for troubleshooting and diagnoses. After the 15 minutes period, the SNR will revert to normal operation.
- To exit this mode, press the button once. The SNR will exit the mode and revert to normal operation.

One Packet Mode

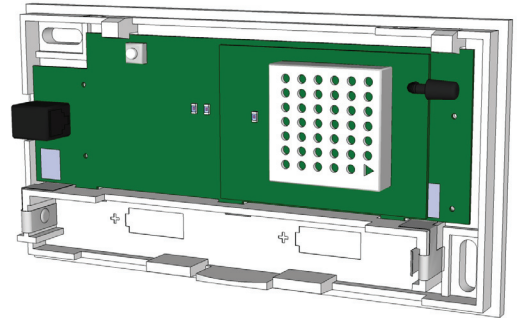
- The SNR can be set to send a single data packet by clicking the button once. Once done, the SNR RF Module LED will blink Red to indicate data transmission. This is useful when testing SNR transmission operation or after installing the SNR on the web.

LED INDICATION

- **Red RF Module LED:** Blinks when transmitting data in Install Mode or One Packet Mode has been initiated.
- **Red Main LED:** Blinks when in Install Mode.
- **Green Main LED:** Blinks when in Install Mode and data reception by a RTR or NM has been acknowledged.
- **Both Red LEDs:** When both Red LEDs are blinking it indicates SNR requires System ID to be configured. This is the default mode from the factory prior to configuration.
- **All three LEDs:** When all three LEDs are blinking it indicates no System ID was configured. If after programming the System ID all LEDs are still blinking, call factory.

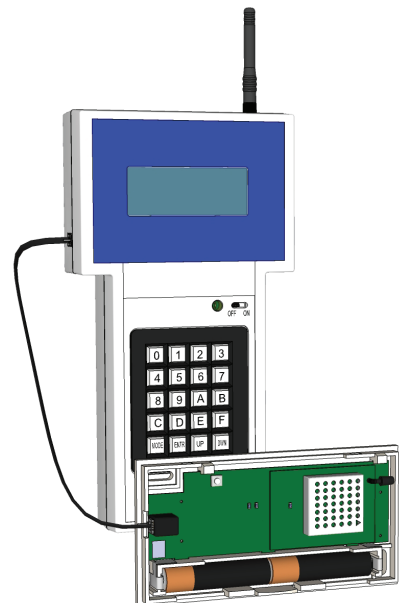
MOUNTING THE SENSOR (SNR)

- The SNR should be mounted on a wall that will represent the current living space temperature. A good guide will be in the living room at 5 feet height on an interior wall.
- Mount the SNR away from all heat, cool, and humidity sources; near radiators, windows, doors, or in the kitchen.
- Open the SNR Cover by gently pushing at the base Locking Tab.
- Use the base two mounting holes to install the SNR base to the wall using the screws and wall anchors provided.
- Replace the SNR cover.



CONNECTING SNR TO WP

- Insert the two AA-Alkaline batteries to activate the SNR. Make sure to observe battery direction.
- If the SNR LEDs are blinking after installing the batteries, then the SNR System ID is not set. In this case, connect the WP to the SNR using the cable provided with the WP.
- However, if the LEDs are off after installing the batteries, then the SNR System ID is configured. In this case, put the SNR in Install Mode by holding down its button for 3 seconds. Then, connect the WP to the SNR using the cable provided with the WP.
- Using the WP send the System ID to the SNR and wait for ACK (acknowledgement). The SNR should automatically switch back to Normal Mode. Otherwise, press the button once to exit the Install Mode.

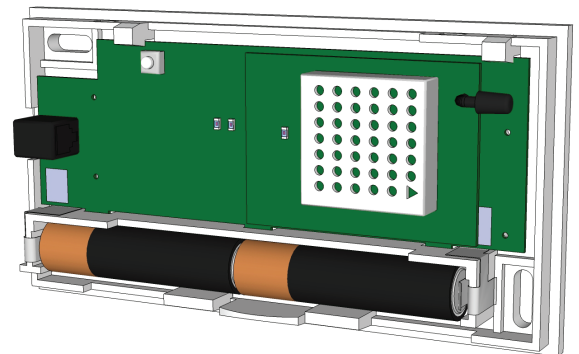


ALERT

After programming the System ID in to the SNR, it is good practice to use the GET command to retrieve the System ID from the SNR to guarantee good operation.

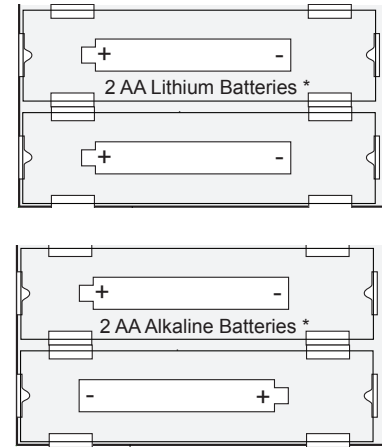
INSTALLING THE BATTERIES

- The SNR uses two AA-Alkaline batteries (HT# 020008-00). When installing the batteries, make sure to observe their polarity and direction.
- If the SNR LEDs are blinking after installing the batteries, then the SNR System ID is not set. In this case, connect the WP to the SNR using the cable provided with the WP. Then, program the SNR with the System ID.
- However, if the LEDs are off after installing the batteries, then the SNR System ID is configured. In this case, put the SNR in Install Mode by holding down its button for 3 seconds. Then, connect the WP to the SNR using the cable provided with the WP. Then, program the SNR with the new System ID.



Installing the Batteries for Older Styles SNR

- There are two types of older SNR. Some use two AA-Alkaline batteries and other use two AA-Lithium batteries
- If the two batteries are installed in the same direction, then the batteries used are two AA-Lithium (HT# 020006-00). These batteries are 3.6 V each and must be ordered through Heat-Timer.
- If the two batteries are installed in opposite direction, then the batteries used are two AA-Alkaline (HT# 020008-00). These batteries can be purchased from most retail stores.



CONFIGURING THE SNR ON THE ICMS WEBSITE

- The Wireless Network Sensor System data can only be read by any Platinum control with Internet communication option.
- If using the ICMS web system (<http://www.htcontrols.com>), configure the SNRs on the web to see their data. The Device ID, Type, and Floor are required to configure any of the wireless components.
- There are two ways to configure sensors on the ICMS web site, one allows you to configure a single wireless device at a time while the other allows for adding multiple wireless devices at a time.

Sensor Info

ID #:

ime: *

Type: *

Floor: *

Location:

Use In Space Average:



Configure Individual SNRs on ICMS

MENU: Buildings/Click a Building Icon/Click Add Devices/Click Wireless Sensors

- Follow the above menu steps to reach the "Sensor Info" entry form.
- Enter the 12 alphanumeric Device ID in the ID field.
- Give the SNR a name (Apartment number) to make it easy to identify on other screens.
- Select "Space" from the Type drop-down list.
- By default, the sensor will be used in the Space Average calculation of the Platinum control. If you do not need that, then deselect the "Use In Space Average" option.
- Click the "Configure Sensor" button. A red message will display indicating the percent of the process that has finished.

Network / MIG Sensors Wireless Sensors / TRCVRs

Add blank 'Wireless' template(s) to the list to configure.

#	Device ID	Device Name	Type	Floor	Location	Spc Avg:
<input checked="" type="checkbox"/>	<input type="text" value="0000"/> <input type="text" value="0000"/> <input type="text" value="A123"/>	<input type="text" value="SNR1 Apt1"/>	<input type="text" value="Space"/>	<input type="text" value="2"/>	<input type="text"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="text" value="0000"/> <input type="text" value="0000"/> <input type="text" value="A124"/>	<input type="text" value="SNR2 Apt1"/>	<input type="text" value="Space"/>	<input type="text" value="2"/>	<input type="text"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="text" value="0000"/> <input type="text" value="0000"/> <input type="text" value="A125"/>	<input type="text"/>	<input type="text" value="Temperature"/>	<input type="text" value="BR"/>	<input type="text"/>	<input type="checkbox"/>

Configure Multiple SNRs on ICMS








MENU: Functions/Mass Device Changes/Configure/(Select a Control)/Wireless Sensors-TRCVRs

- The easiest way to configure multiple wireless devices is to log on to your account as an Owner or a Full Rights user. Then, follow the above menu steps to reach the Wireless Sensor-TRCVRs menu..
- List all your wireless devices using the Device ID, Name, Type, Floor Number, and Space Average inclusion. Try to provide a meaningful name (i.e. Apartment number) to each device to help in identifying them later in other webpages as well as in troubleshooting.
- Then, click the "Run Mass Changes" button. It will be followed by a confirmation screen. Click the "Yes" button to proceed.

HT# 059049-00 C

TROUBLESHOOTING

- The Wireless Network System can mostly be diagnosed over the web using the *Wireless Diagnostic View* that can be accessed from the *3D building* page.
- Primarily, the signal strength (RSSI), and the Battery Status are the most important information. The RSSI measures the signal between the wireless device and its downstream component in both directions.
- If either of the RSSI measurement is below 55%, you can move either the SNR or the TRV its communicating to. Start by switching the sensor to Install Mode to help it locate a different TRV.
- If the Battery status indicates bad or low, then replace the sensor batteries.

Name	ID #	Floor	Current Value	Battery	TRCVR Address	RSSI Sensor	RSSI Master
 Net Manager	00000000EE2	10			NM		
 Boiler room	000003000000	6	82 °F		NM	51%	49%
 Boiler room N6	00000000258E	6	82 °F*		NM	48%	50%
 Large conf N5	000000002742	5	73 °F*		NM	84%	90%

SPECIFICATIONS

Frequency:	RF 900mHz FHSS
Signal Strength:	25mw to 100mw
Power Input:	2 AA Alkaline (1.5V) batteries
Transmission/Reception:	Built-in Antenna
Buttons:	1 button
LED:	3 LED for status display
Temperature Range:	40°F to 150°F degree
Programming Interface:	RS485
Dimensions:	5" x 2-5/8" x 7/8"
Mounting:	Wall Mount