

# Room *Alert*<sup>TM</sup> Signal Tower

Real-Time Event Alerting with  
Signal Lights, Temperature & Sensor Monitoring



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**User's Guide &  
Reference Manual**

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## Special Thanks

We would like to recognize field test participants, our inhouse support staff and the entire software & hardware development teams for their contributions and assistance in completing this manual.

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*Included With Room Alert & TemPageR...*

## PageR Enterprise



**PageR Enterprise**  
Network-Wide Monitoring Made Easy!

**Network-Wide Server, Device & Event  
Monitoring, Alerting & Automatic Corrective Action**

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# Introduction

## What Room Alert Signal Tower Is

The Room Alert Signal Tower ID Box is one of AVTECH Software's (AVTECH) hardware solutions for 'Real-Time Event Alerting with Signal Lights, Temperature & Sensor Monitoring'. It is designed specifically to monitor 1-2 digital temperature sensors and 1 switch sensor in distributed locations spanning several hundred feet. The Room Alert Signal Tower additionally allows alert notifications to be sent via email to devices like computers, phones, pagers and PDAs. Users can set up thresholds for temperatures that are rising or falling and easily work with the Room Alert Signal Tower through their favorite web browser. Status of attached sensors for Power, Smoke, Flood, Air Flow and more can be viewed in real-time. Because each Room Alert Signal Tower ID Box is SNMP enabled, they can easily be monitored by software applications like *PageR Enterprise (PageR)*, *Tivoli*, *OpenView*, *Unicenter*, *Nagios*, *Big Brother* and others.

Room Alert Signal Tower is designed to easily work with AVTECH Software's PageR software which is included and will significantly enhance the alert notification capabilities to allow notification to individuals, groups, hierarchies, different people at different sensors/locations, and different people for different times of the day. With PageR, alert notification methods can be expanded to include email, Simple Network Paging Protocol (SNPP), dialout paging (TAP or UCP), web page update, logfile update, pop-up broadcast message, MSN Messenger, audio alert, spoken English text and more.

PageR will also allow automatic corrective actions both on alarm start and resolution. This means that users have the ability to run commands, start executables, run JavaScripts, run Visual Basic (VB) scripts, and the like. If you have not looked at PageR before, take a look because it truly is one of the easiest and most powerful products to use in monitoring servers, devices and events network-wide, regardless of the various operating systems that may be in use across your organization's network.

Room Alert Signal Tower is a member of AVTECH's Room Alert product line. There are several powerful Room Alert models designed to monitor environmental conditions in the data center like temperature, humidity, main / UPS power, flood / water, smoke / fire, entry / intruder, air flow and more. All Room Alert models come with a license to run PageR and include a printed copy of the '*Getting Started With PageR Enterprise*' manual.

To learn more about PageR, Room Alert or TemPageR products, please visit AVTECH's primary websites at [AVTECH.com](http://AVTECH.com), [PagerEnterprise.com](http://PagerEnterprise.com), [RoomAlert.com](http://RoomAlert.com) and [TemPageR.com](http://TemPageR.com). To order AVTECH products, visit [EnvironmentMonitor.com](http://EnvironmentMonitor.com) or call 888.220.6700 / 401.847.6700. AVTECH products are also available through your favorite reseller, just ask them to contact us on your behalf.

## Benefits Of Using Room Alert Signal Tower

Know immediately when important or critical temperature changes and extremes occur within a computer room, data center or other facility that could lead to expensive downtime, damaged equipment, lost worker productivity or denied server access. Providing early warnings about situations that could damage hardware, threaten uptime or block system access allows staff and management to take actions that can avoid or minimize an events' impact on servers, the network, users, recovery insurance and the emergency IT budget.

Give the IT staff and management “peace of mind” by keeping them fully informed of critical temperature changes regardless of where they are, the time of day or day of the week. Temperature extremes place an enormous stress on computer hardware and are normally caused by failure of the main air conditioning system or a loss of power. Extremes for even a short time can create major challenges for the IT staff and their budget.

Room Alert Signal Tower provides dynamic, real-time temperature monitoring of the computer room, data center or other facilities. Some customers use Room Alert Signal Tower to monitor hospital lab refrigerators, incubators, or coolers. Restaurants use it to monitor their coolers, dining room and lounge areas. We even have people who use Room Alert Signal Tower to monitor their personal wine cellars, remote cabins in New England, and water pipes in homes during Winter months. Monitoring of digital temperatures is possible at up to three (3) locations for each Room Alert Signal Tower box, two (2) of these can be as far as 100 feet away from the Room Alert Signal Tower box. Monitoring of switch sensors such as main / UPS power, flood / water, smoke / fire, air flow, motion, intruder / entry, panic buttons and more is possible at up to one (1) location for each Room Alert Signal Tower box and can be as far as 100 feet away from the Room Alert Signal Tower box.

Notification to an unlimited number of individuals or groups, at unlimited temperature thresholds (too high or too low), and by notification to each users' device of choice when used with PageR Enterprise. Notifications can be sent by email to computers, mobile phones, pagers, PDAs, web pages and more.

Room Alert Signal Tower can log temperatures over the short or long term when used with PageR Enterprise for temperature tracking or identification of critical times of the day where environment conditions may change to consistently cause problems. This can be useful for justification of new air conditioning equipment, modifying the data center layout or justifying changes like the location of primary servers or the data center.

# Installation

The initial installation of the Room Alert Signal Tower can be completed quickly and easily provided the instructions below are followed with detail and care. Before beginning, please lay out the contents of the Room Alert Signal Tower package so that the components can all be located and accessed with ease.

## Package Contents

The main components included with the standard (default) Room Alert Signal Tower package include:

- One (1) Room Alert Signal Tower ID Box
- One (1) Ethernet Cable (10' length, red)
- One (1) 5v 1A Power Adapter (110-240v, 50-60Hz)
- One (1) *Room Alert Signal Tower User's Guide & Reference Manual* (you're reading it)
- One (1) *Getting Started With PageR Enterprise* manual
- One (1) AVTECH Update CD
- One (1) Package Of Literature & Additional Information

**NOTE:** Some of the components arriving with this package may be individually wrapped and contain additional supporting components. Please remember to keep these components together as they will be required for proper setup. If you received additional components (i.e. like additional sensors) that are not mentioned above, instructional material explaining the proper setup of that component should be included with it. If you cannot find the proper instructional materials, check the included CD or 'Support' and 'Downloads' sections of the [AVTECH.com](http://AVTECH.com) website for any appropriate installation or application note that will instruct you on the proper installation and use of that component. Install those components after the Room Alert Signal Tower setup is completed.

## Room Alert Signal Tower ID Box

The graphics below identify the primary components of the Room Alert Signal Tower ID box that are visible on the front and rear panels.

Front View (Room Alert Signal Tower ID Box)



- Main Power Port** — Connect the 'AVTECH 5v 1A Power Adapter' to this port to power the Room Alert Signal Tower unit. Do not use any other power adapter or it could damage the unit.
- Network Port** — Attach the Room Alert Signal Tower unit to the network by plugging the Ethernet cable into this port and then connecting the other end to the network. The left LED above the 'Network' port indicates Link status and should light up and remain a solid green or orange color. The right LED above the 'Network' port indicates Activity status and should blink with network activity on the port. The color of this LED can be green or orange as well. When the device reboots, the Link LED will turn on and off several times. If the Link LED

remains unlit and the Activity LED is blinking orange, please refer to the ‘Performing Firmware Recovery’ section of the ‘Advanced Topics’ chapter. This is an RJ-45 port.

- C. **External Environment Sensor Channels** (Digital Sensor Channels) — AVTECH’s Digital Temperature Sensors can be connected to these sensor channels. This is an RJ-11 port.
- D. **Switch Sensor Contact Sets** — Connect any AVTECH switch-based environment sensor to a set of sensor contacts for monitoring by the Room Alert Signal Tower unit. Any switch sensor device with a set of voltage-free dry contacts can be attached to a set of sensor contacts. AVTECH has many sensors available for monitoring environment and other conditions.

## Step 1: Install The AVTECH Device Discovery Utility

The AVTECH Device Discovery Utility is used to initially discover the Room Alert Signal Tower after it is connected to your network. The Device Discovery Utility can be installed from the AVTECH Update CD or downloaded from the ‘Downloads’ section of the [AVTECH.com](http://AVTECH.com) website. Install this utility on a Windows-based computer that is located on the same network that the Room Alert Signal Tower unit will be connected to. Install this now and we will come back to the Device Discovery Utility in a later step.

## Step 2: Install The Room Alert Signal Tower ID Box



The Room Alert Signal Tower must be connected in the following order for initial configuration and discovery on the network to be successful. Locate the Ethernet cable included with your package and connect one end to the ‘Network’ port on the front of the Room Alert Signal Tower unit. Connect the other end of the Ethernet cable to an open port on the switch or router that will give the Room Alert Signal Tower unit access to your network.

Next, locate the ‘AVTECH 5v 1A Power Adapter’ and plug it into a surge protected UPS power source. This will allow alert notifications even after a complete power loss.

**NOTE:** The Room Alert Signal Tower unit should be plugged into a UPS.



Attach the other end of the power adapter to the ‘Power’ port on the Room Alert Signal Tower unit only if the Room Alert Signal Tower unit is already connected to the network. Be sure to remove the sticker over the ‘Power’ port before attaching the ‘AVTECH 5v 1A Power Adapter’ to the Room Alert Signal Tower unit.

**IMPORTANT NOTE:** DO NOT CONNECT POWER to the Room Alert Signal Tower unit during the initial setup UNTIL AFTER you have connected it to your network as described above or it will cause problems automatically assigning the initial IP address.



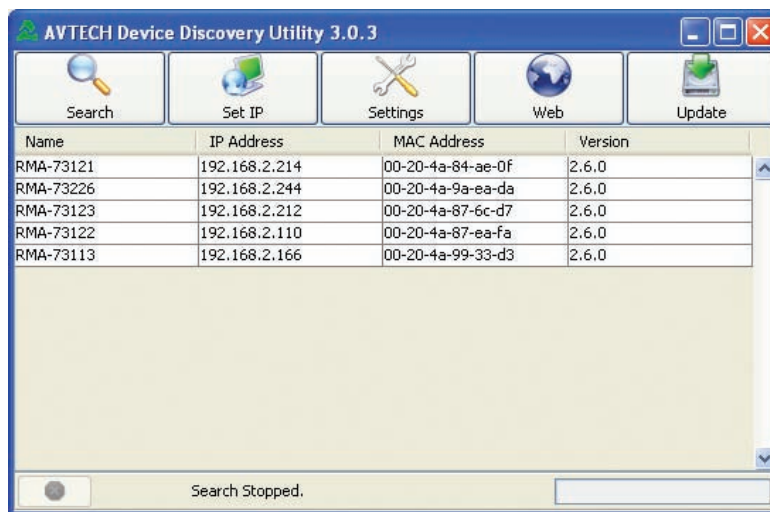
Once the network and power connections have been completed, verify that the LED located on the top-left side of the network jack lights up indicating power and network connectivity.

### Step 3: Discovery And Network Settings

Once the Room Alert Signal Tower unit has been properly installed according to Step 2 above, open the AVTECH Device Discovery Utility and click the ‘Search’ button. The AVTECH Device Discovery Utility will attempt to discover the Room Alert Signal Tower unit connected to your network by sending out a UDP broadcast on UDP port 30718.

**NOTE:** If there are multiple Ethernet adapters on the computer that the AVTECH Device Discovery Utility is installed on, a dialog will display asking for the proper network to perform the search on. Make the correct selection and then continue.

The Room Alert Signal Tower unit is initially set to obtain an IP address automatically using DHCP. If you do not have DHCP on your network, please see the ‘Static-Only Networks’ section below.



The Room Alert Signal Tower unit connected to your network should appear in the AVTECH Device Discovery Utility window as illustrated above. This will normally take just a few seconds. If the IP address displayed is ‘169.xxx.xxx.xxx’ and the ‘Name’ is displayed as ‘Unknown’ or if the Room Alert Signal Tower unit was not found, please see the ‘Device Not Found Or Invalid IP Address’ subsection below before continuing.

Once the Room Alert Signal Tower unit is displayed, select it from the list to perform an action on it. Selecting multiple units will cause the action selected to be performed on multiple units (i.e. all selected units) simultaneously.



The ‘Set IP’ button is used to assign a static IP address, gateway IP address, subnet mask and DNS server IP address or to set the Room Alert Signal Tower unit back to DHCP (0.0.0.0). If the ‘Set IP’ button is pressed without a specific Room Alert Signal Tower unit selected in the AVTECH Device Discovery Utility, a prompt will display asking for the MAC address of the unit. This option can be used in conjunction with the MAC address listed on the bottom of the Room Alert Signal Tower unit to attempt IP address assignment of a unit that cannot be located or has previously been obtained or assigned an incorrect IP address.



The **‘Settings’** button opens the default web browser and displays the ‘Settings’ screen of the Room Alert Signal Tower web interface. The ‘Settings’ screen allows for further configuration of the Room Alert Signal Tower unit and is where alerts, email, SNMP and other settings are configured.

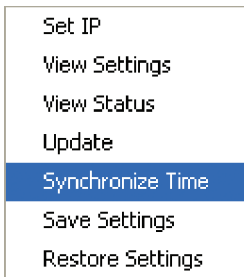


The **‘Web’** button displays the main ‘Status’ screen of the Room Alert Signal Tower web interface which shows current sensor data and alarm status in the default web browser for the system you are using. Be sure to bookmark the link that loads for quick and easy reference in the future.



The **‘Update’** button initiates the firmware upgrade process of the AVTECH Device Discovery Utility. If a Room Alert Signal Tower unit is not selected before left clicking this button, a dialog will display asking for the IP address of the unit to upload firmware to. Please see the ‘Upgrading Firmware’ section of the ‘Advanced Topics’ chapter for important instructions on the ‘Update’ feature.

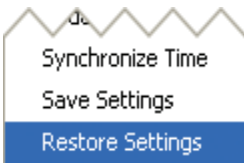
The AVTECH Device Discovery Utility offers additional features accessible via a right click context menu. This menu is accessible only when a located Room Alert Signal Tower unit has been selected and the right mouse button has been clicked. These menu options are described below.



The **‘Synchronize Time’** option instructs the Room Alert Signal Tower unit to synchronize with the time server specified in the ‘Time Server IP’ field on the ‘Advanced’ tab of the ‘Settings’ screen. The time displayed on the Room Alert Signal Tower ‘Status’ screen and included in email alert notifications can only be updated by linking with a network time server (NTP) on UDP port 123. If a time server is not available on your network and access to a time server on the internet is not possible, Microsoft has various help files available that explain how to configure a computer on the local network to act as a time server for other devices. Visit [Microsoft.com](http://Microsoft.com) to learn more or see AVTECH’s Frequently Asked Questions (FAQs).



The **‘Save Settings’** feature can be used to download the current configuration settings on a Room Alert Signal Tower unit for backup purposes. This feature can also be used to quickly configure multiple Room Alert Signal Tower units by configuring one unit, selecting it, clicking the ‘Save Settings’ option, then selecting multiple units and clicking the ‘Restore Settings’ option.



The **‘Restore Settings’** feature is used to restore a saved configuration created using the ‘Save Settings’ feature to one or multiple Room Alert Signal Tower units. When selected, the user will need to select from a previously saved ‘.bak’ file located in the ‘log’ folder of the ‘AVTECH Device Discovery Utility’ directory in order to restore or update the settings on the Room Alert Signal Tower unit(s).

## Static-Only Networks

If the network that the Room Alert Signal Tower unit will be connected to does not have automatic DHCP IP address assignment, the Room Alert Signal Tower unit will default to a '169.xxx.xxx.xxx' IP address. The AVTECH Device Discovery may or may not be able to discover your unit when it has obtained a '169 xxx.xxx.xxx' IP address, depending on various network conditions. Follow the steps below to assign an IP address to the Room Alert Signal Tower unit that will be appropriate for your network.

1. Restart the AVTECH Device Discovery Utility and click the 'Set IP' button.
2. Click 'Ok' on the first dialog that displays and enter the Room Alert Signal Tower MAC address when prompted. The MAC address is listed on the label located on the bottom of the Room Alert Signal Tower.
3. Enter a valid static IP address for the current location of the Room Alert Signal Tower unit when prompted.

**NOTE:** If the Room Alert Signal Tower unit is later relocated outside of the current subnet, you will need to reset the IP address in order to see and work with the Room Alert Signal Tower unit.

If the Room Alert Signal Tower unit is still not discovered or the IP address is not updated, continue with steps 4-6.

4. Locate a cross-over Ethernet cable or spare hub and connect it to the computer being used. Connect the Room Alert Signal Tower to the other end of the cross-over Ethernet cable or directly to the hub.
5. Assign static IP settings to the computer being used. If the 'Search' button is pressed after doing so, the Room Alert Signal Tower unit should be discoverable. If it is not, be sure that there are no applications on the computer being used that are blocking traffic sent to or from the AVTECH Device Discovery Utility (i.e. software firewalls, anti-virus applications, etc.)
6. Repeat steps 1-3 above although enter a static IP address in step 3 that has the same first three octets as the static IP address assigned to the computer (i.e. IP address of computer: 192.168.2.3, IP address of Room Alert Signal Tower: 192.168.2.4).

If the IP address of the Room Alert Signal Tower unit is still not updated, continue with steps 7-9.

7. Assign static IP settings to the computer being used that match the IP address of the Room Alert Signal Tower unit (i.e. IP address of Room Alert Signal Tower: 169.254.10.122, IP address of computer: 169.254.10.123).
8. Click the 'Search' button in the AVTECH Device Discovery Utility and select the Room Alert Signal Tower unit when discovered.
9. Click the 'Set IP' button and enter a valid IP address for the location on the network where the Room Alert Signal Tower unit will be located. If the IP address does not update, access the 'Settings' screen of the Room Alert Signal Tower unit and enter the IP address settings on the

‘Network’ tab. After doing so, click the ‘Save Settings’ button, wait 10 seconds and re-attach the Room Alert Signal Tower unit to the network.

## Device Not Found Or Invalid IP Address

If the Room Alert Signal Tower is not discovered by the AVTECH Device Discovery Utility, the network may be blocking UDP broadcast packets on port 30718. Even if the Room Alert Signal Tower obtains a valid IP address, this can prevent the Room Alert Signal Tower unit from being discovered. To resolve this issue, check the DHCP server for the MAC address listed on the label located on the bottom of the Room Alert Signal Tower unit. If this is not possible or if there is not an entry in the DHCP server, follow the instructions listed under the ‘Static-Only Networks’ subsection above.

If the Room Alert Signal Tower unit is discovered although has a ‘169.xxx.xxx.xxx’ IP address, the Room Alert Signal Tower unit may not have been connected properly or DHCP assignment may currently be getting blocked. In either case, follow the instructions listed in the ‘Static-Only Networks’ subsection above.

**NOTE:** If the instructions provided do not allow configuration of the Room Alert Signal Tower unit, please initiate a Live Chat technical support request on [AVTECH.com](http://AVTECH.com) or send an email support request to [Support@AVTECH.com](mailto:Support@AVTECH.com).

## Step 4: Connect Sensors And Accessories

The graphics below identify the connection ports and channels of the Room Alert Signal Tower ID box that are visible on the front and rear panels. Use these to connect the appropriate sensors and accessories.

Front View (Room Alert Signal Tower ID Box)



- A. **Digital Temperature Sensors** — Connect the included AVTECH Digital Temperature Sensor to one of the External Environment Sensor Channels shown above (A / B). The Digital Temperature Sensor provides a real-time digital temperature reading at the location of the temperature probe. Position the sensor in the desired location, running the sensor cable back to the Room Alert Signal Tower ID box. DO NOT remove the red plastic cap from the tip of the sensor.



- B. **Digital Temperature/Humidity Sensors (Audio Model Only)** — Connect the included AVTECH Digital Temperature/Humidity Sensor to one of the External Environment Sensor Channels shown above (A / B). The Digital Temperature/Humidity Sensor provides a real-time digital temperature and humidity reading at the location of the temperature/humidity probe. Position the sensor in the desired location, running the sensor cable back to the Room Alert Signal Tower ID box. DO NOT remove the blue plastic cap from the tip of the sensor.

- C. **Switch Sensors** — Connect the optional Switch Sensors to one of the Switch Sensor Contact Set (C). Position the sensor in the desired location, running the sensor cable back to the Room Alert Signal Tower ID box. This is an instant ‘plug & play’ sensor that connects to one of the switch sensor contact sets via a low voltage 2-wire cable.

## Step 5: Check Room Alert Signal Tower Firmware Version

Open the AVTECH Device Discovery Utility and click the ‘Search’ button. When the Room Alert Signal Tower unit is located, select it and click the ‘Web’ button. If you are unable to locate your Room Alert Signal Tower unit because UDP broadcast packets are blocked on your network, simply type the IP address of the Room Alert Signal Tower unit in the location bar of a web browser.

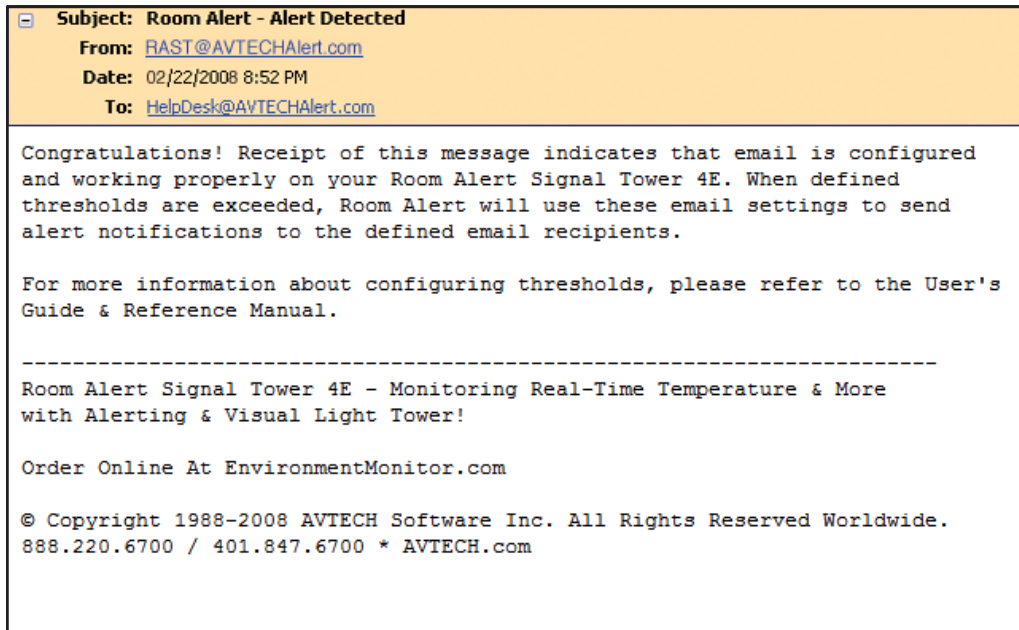
**NOTE:** If the ‘Status’ screen does not load sensor data, be sure that a proxy or Microsoft ISA (Internet Security and Acceleration) server is not blocking traffic to or from the Room Alert Signal Tower unit.

After the ‘Status’ screen has loaded and is fully displayed, click the ‘Room Alert Signal Tower vX.X.X’ link in the top right hand corner. If the pop-up that loads says a more current version is available, then follow the instructions in the ‘Upgrading Firmware’ section of the ‘Advanced Topics’ chapter of this manual.

## Configuration And Setup Screens

### Alert Methods

The Room Alert Signal Tower unit can send alert notifications via email and email-to-SMS using anonymous SMTP relay and/or SNMP Traps. The Room Alert Signal Tower unit is fully SNMP compliant and can be accessed by any application that can issue a SNMP Get request. Pager can therefore be used to perform SNMP Get requests and receive SNMP Traps.



### Email

The 'SMTP Email' section displays settings to allow Room Alert Signal Tower to send Email Alert Notifications when alert thresholds are exceeded. In order to enable email alerting from the Room Alert Signal Tower web server interface, your mail server must have 'SMTP Relay' enabled for either your network or the IP address of the Room Alert Signal Tower ID Box. Contact your Network Administrator if you need assistance in doing this.

The screenshot shows the 'Room Alert Signal Tower' configuration interface. The top navigation bar includes 'Status', 'Settings', 'Help', and 'About'. The 'Settings' tab is active, and the 'Email Settings' sub-tab is selected. The interface displays the following fields and options:

- MAC Address:** 00-20-4A-A3-51-DF
- Version:** V0.1.0.0
- Email Server Settings:**
  - Email Enabled:
  - Email Server IP: 65.123.45.50
  - Server Port: 25
  - Domain Name: YourMailServer.com
  - Return Address (From): RAST@YourMailServer.com
- Email Authentication (Optional):**
  - Authentication Enabled:
  - Email Username: authsmtpuser
  - Email Password: [masked]
- Email Recipients (Separated By Semi-Colon):** Alerts@YourMailServer.com

Buttons for 'Send Test Email' and 'OK' are located at the bottom of the form.

## Initial Email Setup

To configure Email Settings, first select the 'Email Enabled' checkbox. Enter the mail server address for the mail server you are using in the 'Email Server IP' field. If you do not know the IP address of your mail server or have multiple email servers, you can simply enter your domain name for your mail server in the 'Domain Name' field. If you wish to use a domain name instead of an IP address, it is strongly recommended to assign a Static IP address, Gateway IP address, DNS Server IP address, and Subnet Mask on the 'Network' tab.

**NOTE:** When only a domain name is specified for the Email Server Settings, Room Alert Signal Tower will attempt to resolve the domain name into an IP address before sending each email. If the domain name cannot be resolved, email will not be sent. Specifying an IP address for the mail server avoids DNS resolution and is recommended for ultimate reliability.

The 'Return Address (From)' field **MUST** contain an email address for an active account on the mail server specified. For example, if 'AVTECH.com' is entered in the 'Domain Name' field, the 'Return Address (From)' field must contain an email address with the 'AVTECH.com' domain. Contact your email administrator if you require additional assistance.

If your mail server requires authentication to send SMTP email, select the 'Authentication Enabled' checkbox and enter the appropriate username and password. Room Alert Signal Tower uses the 'AUTH LOGIN' protocol when authenticated SMTP is enabled. In the 'Email Addresses' field, you can enter a regular email address, distribution list email address or mobile phone, pager or PDA email address (Email-To-SMS) for email alert when alert thresholds are exceeded. Multiple email addresses can be entered and separated by semi-colons. Up to 79 characters are allowed for entering email addresses.

**NOTE:** Many email servers block SMTP email by default. To use SMTP email with Room Alert Signal Tower, be sure the Room Alert Signal Tower IP address is added to the list of allowed SMTP relay hosts on the email server you are using for email. On some email servers, using authenticated SMTP email will avoid this.

## Testing

A test email can be sent using the ‘Send Test Email’ button on the ‘Email’ tab. If the test email is not received, check with the mail server administrator in regards to the current SMTP relay settings. If anonymous SMTP relay messages are blocked, a mail server can usually be configured to allow anonymous SMTP relay messages from the IP address of the Room Alert Signal Tower unit.

## Email-To-SMS

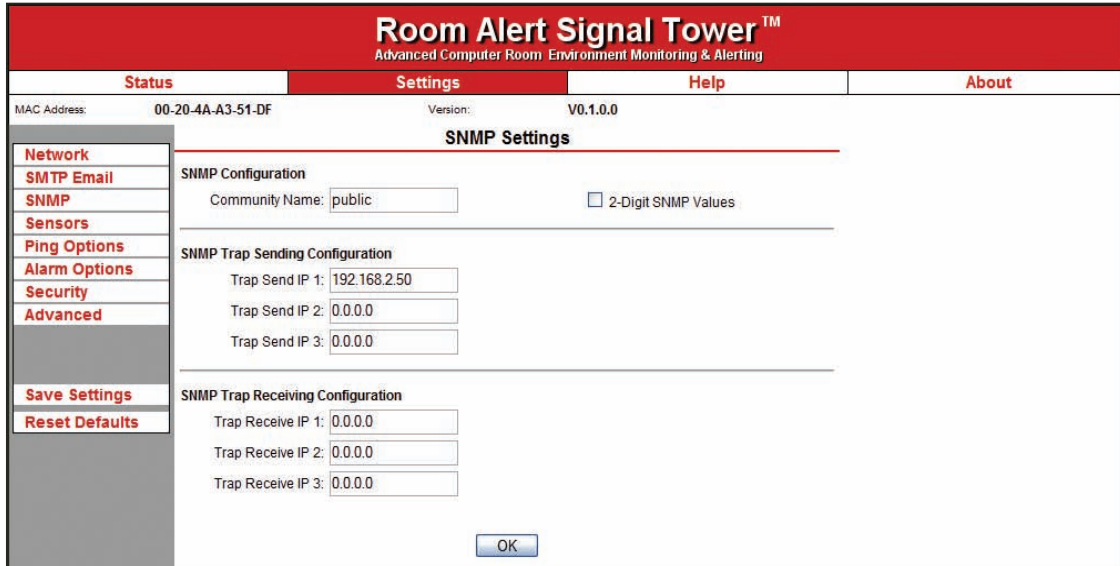
Email alert notifications can be sent via Short Message Service (SMS) to computers, mobile phones, alphanumeric pagers and PDAs using SMS text messaging in addition to regular email. This functionality is widely supported by current mobile device service providers and is accomplished by sending email to an email address, formatted in a way defined by the service provider being used for the target mobile device.

For example, Verizon’s email address format for sending an email alert to a mobile device using SMS text messaging is ‘<10 digit mobile device number>@vtext.com’ with ‘<10 digit mobile device number>’ being replaced by the area code and phone number of the mobile device without dashes, spaces or a ‘1’ in front of the area code.

If the specific format for your service provider is not known, AVTECH provides a database in the ‘Support’ section of the AVTECH.com website that contains the email-to-SMS format for many available service providers. This is the largest database of this type on the web. However, if your service provider is not listed, please contact them by phone for the proper format and be sure that the mobile device being used has text messaging capability enabled. If you learn of a new or changed format, please email this with your contact information to [Support@AVTECH.com](mailto:Support@AVTECH.com) so we may confirm it and post it online for the convenience of other users.

## SNMP

The Room Alert Signal Tower unit is fully SNMP compliant and can be monitored by applications capable of performing an SNMP Query or Get request. The Room Alert Signal Tower unit can also be configured to send SNMP Traps to up to three separate IP addresses when thresholds are exceeded. The bundled PageR software offers the ability to initiate SNMP Queries to and receive SNMP Traps from the Room Alert Signal Tower unit. PageR can be used if desired, enabling advanced alerting and automatic corrective action features. If another application is used to monitor the Room Alert Signal Tower unit, be sure to obtain the MIB files for the Room Alert Signal Tower unit from the ‘Downloads’ section of the AVTECH.com website or the most recent AVTECH Update CD.



### SNMP Queries (SNMP Get)

The ‘SNMP’ section displays settings allowing Room Alert Signal Tower to respond to SNMP Query requests from network monitoring applications like PageR Enterprise, Tivoli, OpenView, Unicenter and others. Enter the ‘Community Name’ to use for accessing the SNMP data via SNMP Query for the Room Alert Signal Tower sensors. By default, the sensor values are returned in 4-digit format since SNMP does not support floating point numbers (i.e. 78.55 would be 7855). If 2-digit format is preferred, select the ‘2-Digit SNMP Values’ checkbox.

The tower lights and audible alarms can also be controlled using SNMP Set commands. If your SNMP management application supports SNMP Set functions, the same Community Name will be used to control access to these functions. If the SNMP feature of the Room Alert Signal Tower ID Box is used, Room Alert Signal Tower MIBs are available for download via the AVTECH.com website in the ‘Downloads’ section under ‘Room Alert Software Downloads’

### SNMP Traps

Room Alert Signal Tower can also send SNMP Traps in response to alerts. Enter up to three (3) Trap Send IP addresses on the SNMP tab and Room Alert Signal Tower will send SNMP Traps to these systems for processing by network monitoring applications.

In addition to sending SNMP Traps, Room Alert Signal Tower can receive generic SNMP Traps and turn on the red LED on the light tower and send an email when received. Up to three (3) Trap Receive IP addresses can be configured and Room Alert Signal Tower will generate an alarm when a SNMP Trap is received from one of these IP addresses. If the Trap Receive IP addresses are left blank, any SNMP Trap received will generate an alarm.

## Monitoring With PageR Enterprise (PageR)

PageR is a network-wide monitoring application included (bundled) with the purchase of a Room Alert Signal Tower unit. The license level included will depend on the quantity of units purchased and can be upgraded for greater capacity or functionality at any time by speaking to your Product Specialist. The PageR software offers the ability to monitor the Room Alert Signal Tower unit via SNMP Query or SNMP Trap and provides more flexibility and control over when alert notifications are sent and which notification methods are available for use. PageR includes powerful features allowing unlimited alerting to individuals and groups, hierarchies, dependencies, scheduling, automatic corrective actions, and the ability to monitor any server, device or event worldwide across the network. All this is possible from a single installation, with no rules and no agents. PageR is a significant benefit of the overall Room Alert Signal Tower package. It can be used as your primary network monitoring application or in conjunction with other monitoring applications.

For instructions on configuring PageR to monitor a Room Alert Signal Tower unit, please refer to the *'Monitor Room Alert Signal Tower With PageR Enterprise'* application note included with your package. This application note is also available on the [AVTECH.com](http://AVTECH.com) website in the 'Downloads' section.

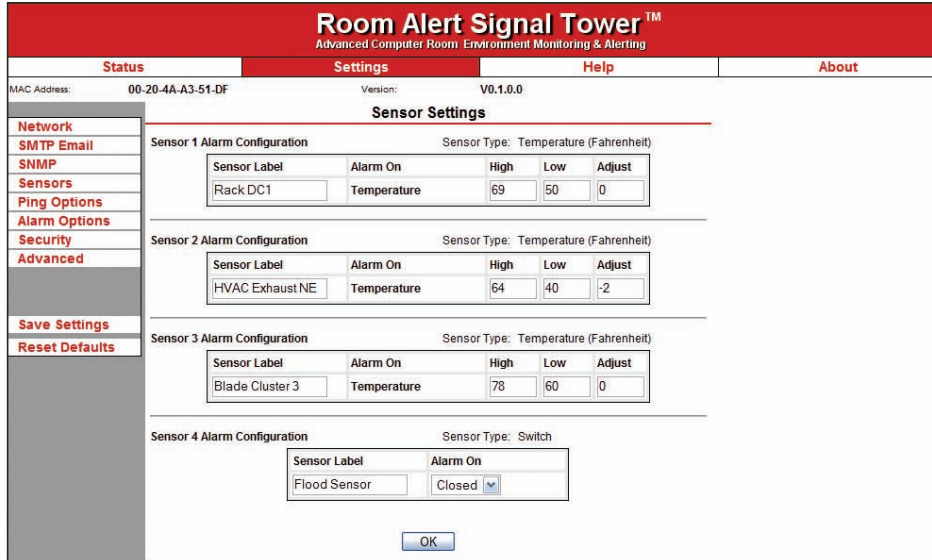
## Alert Thresholds

The 'Alerts' tab is used to configure sensor labels and to set temperature thresholds for when alerts will be generated. Sensor labels can be up to 14 characters in length. AVTECH recommends modifying the sensor labels to reflect the location of the sensor to make it easier to know the temperature of a specific location with a quick glance at the status screen.

High and low thresholds can be defined for each temperature sensor. If the current temperature rises above the high threshold or falls below the low threshold, an alert will be generated. When the temperature returns to a normal state, the alert will clear and a follow-up alert will be sent.

**NOTE:** The temperature sensors can be calibrated by entering correction values in the 'Adjust' field for each temperature sensor.

Alert thresholds for switch sensors connected to the Room Alert Signal Tower ID Box are set by specifying either 'closed' or 'open'. Please refer to the documentation received for any switch sensors purchased to determine the 'normal' state (open or closed) of the sensor. Next, select the opposite state (i.e. not normal) to setup the Room Alert Signal Tower ID Box to send an alert when the alarm condition exists.



## Digital Sensors

The 'Sensors' section is used to configure sensor labels and to set thresholds for when alerts will be generated. Sensor labels can be up to 14 characters in length. AVTECH recommends modifying the sensor labels to reflect the location of the sensor to make it easier to know the current reading in a specific location with a quick glance at the Status screen.

High and low thresholds can be defined for each sensor. If the current value rises above the high threshold or falls below the low threshold, an alert will be generated. When the current value returns to a normal state, the alert will clear and a follow-up alert will be sent.

The sensors can be calibrated by entering correction values in the 'Adjust' field for each temperature sensor. To adjust the temperature down, enter a minus (-) sign before the value (i.e. -5). Each row displays the type of sensor that is connected, as well as the currently configured temperature scale. Thresholds should be entered in the same temperature scale as currently configured.



Digital Temperature Sensor



Digital Temperature/Humidity Sensor

## Switch Sensors

Alert thresholds for switch sensors connected to the Room Alert Signal Tower ID Box are set by specifying either 'Closed' or 'Open'. Please refer to the documentation received for any switch sensors

purchased to determine the ‘normal’ state (open or closed) of the sensor. Next, select the opposite state (i.e. not normal) to configure the Room Alert Signal Tower ID Box to send an alert when the alarm condition exists.



Smoke Sensor



Power Sensor



Flood Sensor



Motion Sensor



Sound, Light & Entry Sensor



Room Entry Sensor



Air Flow Sensor



Panic Button

## Ping Options

The ‘Ping Options’ section is used to configure up to eight (8) IP Addresses to perform a ‘ping’ on to see if they are available on the network. This provides a very simple way to ensure that critical devices are ‘up’. If a device does not respond to the ping within the specified timeout, an alarm is generated and an email alert is sent if configured.

Room Alert Signal Tower will ping a single device approximately every four (4) seconds. This results in each configured device in the list being pinged at least once approximately every thirty (30) seconds. It is recommended that the ‘Ping Timeout’ value not be any higher than 5-10 seconds as other alarms will not be checked while waiting for a ping response.

The screenshot shows the configuration interface for the Room Alert Signal Tower. The title bar reads "Room Alert Signal Tower™ Advanced Computer Room Environment Monitoring & Alerting". The interface has a red header and a navigation menu on the left with options: Network, SMTP Email, SNMP, Sensors, Ping Options, Alarm Options, Security, and Advanced. The "Ping Settings" section is active, showing "Retry Count: 1" and "Ping Timeout: 3". Below this is a "Ping Host Information" table with 8 columns for host addresses.

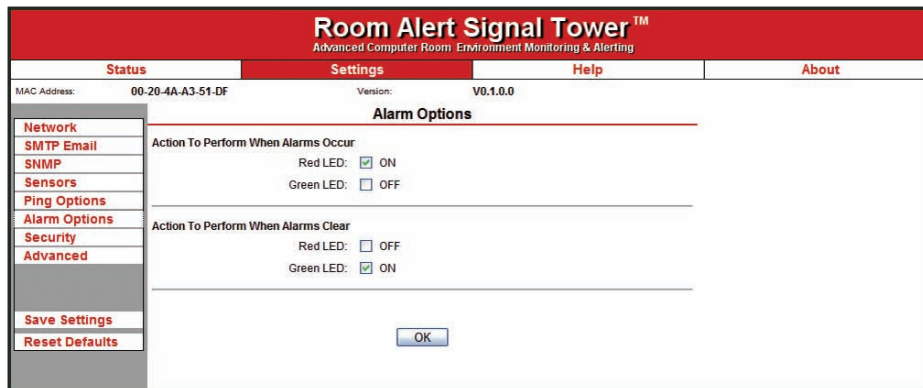
No.	Host Address	No.	Host Address
1	192.168.2.2	2	192.168.2.251
3	192.168.2.230	4	0.0.0.0
5	0.0.0.0	6	0.0.0.0
7	0.0.0.0	8	0.0.0.0

Buttons for "Save Settings", "Reset Defaults", and "OK" are visible at the bottom of the configuration area.

## Alarm Options

The ‘Alarm Options’ section is used to configure the light tower elements that will turn on or off in response to an alarm or alarm cleared condition. By default, the red light turns on when an alarm occurs and the green light turns on when an alarm clears. Both lights will remain illuminated until manually cleared through the Status screen or via SNMP Set.

The primary advantage to keeping the lights illuminated is so it is easy to tell if an alarm occurred during off hours or when staff is not in a location that can see the light or hear the audible alarm. If a manager comes in on Monday morning and sees both the red and green lights illuminated, they know immediately that an alarm occurred over the weekend that has now cleared and they should check to see what caused the alarm. If they see only the red light illuminated, they know there is an alarm currently in progress that should be dealt with immediately. If no lights are illuminated, they can rest assured knowing that none of the sensors are or have been in an alarm state.



## External Sensor Options

### Digital Temperature Sensor (TMP-SDT-SEN)



The AVTECH Digital Temperature Sensor provides a real-time digital temperature reading at the location of the temperature probe. The temperature range is from -67° to 257° Fahrenheit and/or -55° to 125° Celsius. Accuracy is within +/- 0.5 degrees. This is an instant 'plug & play' sensor that connects to one of the external environment sensor channels via an RJ-11 cable.

### Digital Temperature/Humidity Sensor (RMA-DTH-SEN)



The AVTECH Digital Temperature/Humidity Sensor provides a real-time digital temperature and digital humidity reading at the location of the sensor probe. The temperature range is from -67° to 257° Fahrenheit and/or -55° to 125° Celsius. Accuracy is within +/- 0.5 degrees. The humidity range is from 0 to 100 percent Relative Humidity (%RH). Accuracy is within +/- 3.5%. This is an instant 'plug & play' sensor that connects to one of the external environment sensor channels via an RJ-11 cable.

### Flood Sensor (RMA-F008-SEN, RMA-F024-SEN)



The AVTECH Flood Sensor is available with a standard 8' or 24' flood sensor cable and allows a real-time notification of flood or water leakage wherever the attached flood sensor cable is located. This is an instant 'plug & play' sensor that connects to one of the switch sensor contact sets via a low voltage 2-wire cable.

### Sound, Light & Entry Sensor (RMA-SLE-SEN)



The AVTECH Sound, Light & Entry Sensor allows real-time monitoring for sound and light at the location of the sensor. This sensor also includes a set of switch sensor contacts and an AVTECH Room Entry Sensor. Each sensor can be monitored independently or an 'any sensor' contact set allows all sensors to be monitored via a single cable. Any switch sensor can be attached to the switch sensor contacts. This is an instant 'plug & play' sensor that connects to one or more of the switch sensor contact sets via a low voltage 2-wire cable.

### Motion Sensor (RMA-MOT-SEN)



The AVTECH Motion Sensor allows a real-time notification of movement through a zone or across a path. This is an instant 'plug & play' sensor that connects to one of the switch sensor contact sets via a low voltage 2-wire cable.

**Power Sensor (RMA-PS1-SEN)**

The AVTECH Power Sensor allows a real-time notification of main power status change (i.e. power going on or off). This is an instant 'plug & play' sensor that connects to one of the switch sensor contact sets via a low voltage 2-wire cable.

**Smoke Sensor (RMA-SS1-SEN)**

The AVTECH Smoke Sensor allows a real-time notification of the presence of smoke or fire. This is an instant 'plug & play' sensor that connects to one of the switch sensor contact sets via a low voltage 2-wire cable.

**Air Flow Sensor (RMA-AF1-SEN)**

The AVTECH Air Flow Sensor allows a real-time notification of air flow status change (i.e. air flow going on or off). This is an instant 'plug & play' sensor that connects to one of the switch sensor contact sets via a low voltage 2-wire cable.

**Room Entry Sensor (RMA-RE1-SEN)**

The AVTECH Room Entry Sensor allows a real-time notification of door or cabinet entry (i.e. door opening or closing). This is an instant 'plug & play' sensor that connects to one of the switch sensor contact sets via a low voltage 2-wire cable.

**Panic Button (RMA-PB1-SEN)**

The AVTECH Panic Button provides the ability to initiate a real-time notification to others via the push of a button. This is an instant 'plug & play' sensor that connects to one of the switch sensor contact sets via a low voltage 2-wire cable.

**Dry Contacts**

Any non-voltage, dry contact sensor can be connected to provide an immediate alert when the sensor or device changes status to go on/off, make/break, open/close. This creates an instant 'plug & play' sensor when connected to one of the switch sensor contact sets via a low voltage 2-wire cable.

## Additional Screens And Interfaces

The Room Alert Signal Tower Settings Screen is used to modify the Room Alert Signal Tower configuration. Here users can configure Network, SMTP Email, SNMP, Alert, Sensors, Ping Options, Alarm Options, Security and Advanced settings. Settings can be modified in multiple sections before saving to the device. After changes in one section have been made, click the ‘OK’ button to temporarily save the changes. When all desired changes have been made, click the ‘Save Settings’ link on the left menu to save settings to the device. When settings are modified and saved, Room Alert Signal Tower will automatically reset and start with the new configuration.

### Network

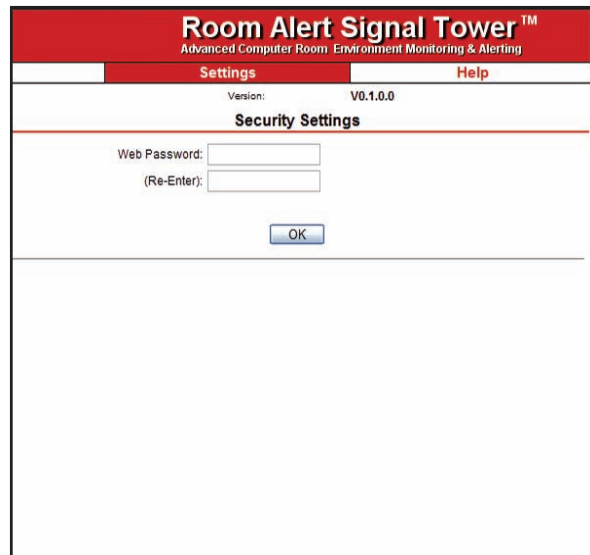
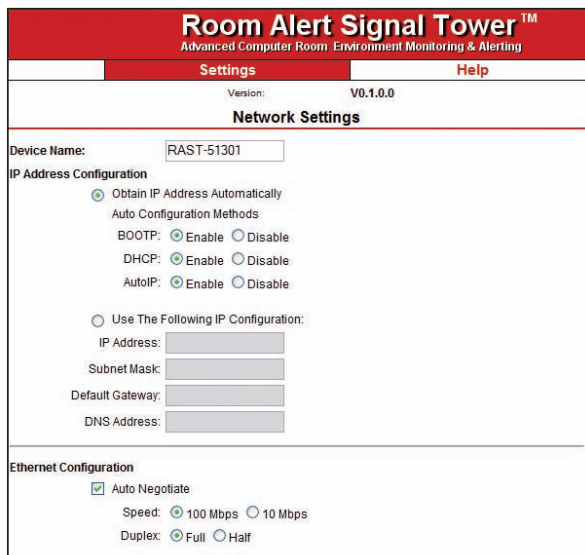
The ‘Network’ section displays settings to control how Room Alert Signal Tower appears on the local network. Modifying the Device Name will change how Room Alert Signal Tower reports to the DHCP server when attempting to obtain a dynamic IP address. This label must be unique, so take care when assigning the DHCP Name to ensure that duplicate labels do not appear on the network. This will also be the name that appears on the Status screen and in Device Manager.

To set a static IP address, select the ‘Use The Following IP Configuration’ radio button and enter the IP Address, Subnet Mask, Default Gateway and DNS Address.

If you wish to use a domain name instead of an IP address for the ‘Mail Server Address’ in the ‘Email’ section, be sure to enter the IP address of your DNS Server in the ‘DNS Address’ field.

**NOTE:** In many cases, the DNS Server IP address is the same as the IP address entered into the ‘Gateway IP’ field. If this does not work, please contact your network administrator for further assistance.

**NOTE:** If using Pager Enterprise to monitor the Room Alert Signal Tower ID Box, it is STRONGLY recommended that a static IP address be assigned to the device to ensure that Pager can find the unit. The IP address assigned must also be excluded from DHCP assignment to ensure that the IP address of the Room Alert Signal Tower ID Box is NOT given to another device on your network. If you are unsure what this means, please contact your Network Administrator for assistance.



## Security

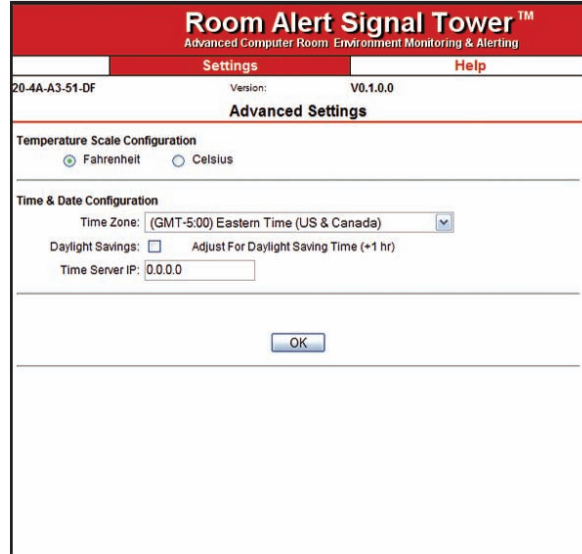
The ‘Security’ section is used to configure password security for access to the Room Alert Signal Tower Settings Screen and telnet configuration menu. Passwords can ONLY contain the alphanumeric characters ‘0-9’, ‘a-z’ and ‘A-Z’. Spaces, symbols, and punctuation are not supported. Be sure to record the password entered here in a safe place.

**NOTE:** If this password is lost or misplaced, the only way to restore access to the Settings screen is to reset factory default settings. Be sure to record the password in a safe place.

## Advanced

The ‘Advanced’ tab of the Room Alert Signal Tower ‘Settings’ screen is used to configure additional settings such as the Time & Date and Temperature Scale. The temperature scale selected will be used as the default display on the Status screen and for entering sensor thresholds. If you wish to modify the time display on the ‘Status’ screen to your local time zone, use the drop down box to select your local time zone, and check the ‘Daylight Savings’ checkbox if applicable. The ‘Time Server IP’ field can be used to manually enter a specific time server to use for the time display if access to the Internet is restricted or not available and a time server is available for use on the local network.

**NOTE:** If Daylight Savings Time is used in your location, be sure to toggle the ‘Daylight Savings Time’ checkbox when setting your clock forward in the Spring and backward in the Fall.



## Save Settings

After making changes to each section of the Settings, click the ‘OK’ button at the bottom of each screen to temporarily save the settings. When finished configuring the settings, click the ‘Save Settings’ link on the left menu to save the configuration to the device and reboot with the new settings. If the browser is closed or the Settings page is left before clicking ‘Save Settings’, any changes made will be discarded.

## Reset Defaults

If you wish to return the Room Alert Signal Tower to the factory default configuration, click the ‘Reset Defaults’ link on the left menu. A prompt will display confirming that you want to reset the factory default settings. Clicking ‘Yes’ will erase all settings and return the unit to its factory default configuration.


## Help

The Room Alert Signal Tower ‘Help’ screen provides links to online support and information resources for the Room Alert Signal Tower as well as information regarding telephone and email support. Directly below the ‘Room Alert Signal Tower Help’ heading will be the current firmware version that is installed on the Room Alert Signal Tower unit and its release date. The link entitled ‘Click Here To Check For Updates’ can be used to check if the firmware version installed on the Room Alert Signal Tower unit is the most current (requires internet access). The additional support information provided on this screen is presented in the order that it should be followed in the event that you have a technical question regarding the Room Alert Signal Tower or if you are experiencing a situation where assistance is desired.

**Room Alert Signal Tower 4E About**

**Room Alert Signal Tower 4E**  
 Firmware v1.0.0  
 Released 15 February 2008  
[Click Here To Check For Updates](#)

**Sales**                      [Sales@RoomAlert.com](mailto:Sales@RoomAlert.com)  
[Quote Request](#)  
[Order Online](#)  
 888.220.6700 (USA & Canada)  
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[Monitor Room Alert Signal Tower 4E With PageR Enterprise](#)  
[Support@RoomAlert.com](mailto:Support@RoomAlert.com)  
 888.220.6700 (USA & Canada)  
 401.847.6700 (International)

**Website**                      [AVTECH.com](http://AVTECH.com)  
[RoomAlert.com](http://RoomAlert.com)

**Room Alert Signal Tower 4E Help**

**Room Alert Signal Tower 4E**  
 Firmware v1.0.0  
 Released 15 February 2008  
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**Email Support**                      [Support@AVTECH.com](mailto:Support@AVTECH.com)

**Phone Support**                      888.220.6700 (USA & Canada)  
 401.847.6700 (International)  
 Mon-Fri 9 AM - 5 PM EST

## About

The Room Alert Signal Tower ‘About’ screen provides general links and contact information for AVTECH Software sales, support and websites. The firmware version that is currently installed on the Room Alert Signal Tower unit will also be listed with the date released directly below. The link entitled ‘Click Here To Check For Updates’ can be used to check if the firmware version installed on the Room Alert Signal Tower unit is the most current (requires internet access).

## Web Interface

The Room Alert Signal Tower web interface is available through the built-in web server and shows the current status of Room Alert Signal Tower sensors and LEDs. If thresholds are defined for the sensors, the status icon above the sensor label changes color based upon what the current value is in relation to the established thresholds.

The 'Signal Tower' column displays the current status of the light tower. Clicking the various areas of the light tower graphic will toggle the current status of that element. For example, clicking the 'Red LED' section of the light tower graphic will instantly turn the red LED on or off depending on its current status.

If the current sensor reading for Channel 1, 2 or 3 is between the high and low thresholds, the status icon will be green. If the high or low threshold is exceeded, the status icon will be red. If no thresholds are currently defined, the status icon will be gray.

The 'Channel 3: Switch Sensor' section displays the current status of the switch sensor connected to the Room Alert Signal Tower ID Box. The current state of the switch sensor connected will be displayed below the sensor label as 'open' or 'closed'. If the current state of the switch sensor corresponds with the state selected in the 'Alarm On' drop-down for that sensor on the 'Sensors' page of the Settings, the status icon above the sensor label will be red indicating that the sensor is currently in an alarm state. If the current state of the switch sensor is the opposite of the state selected in the 'Alarm On' drop-down, the status icon will be green indicating that the switch sensor is not currently in an alarm state. Please view the documentation that arrived with each sensor for information on the 'normal' state (open or closed) of the switch sensor in use.

Below the DHCP Name and time display are a number of radio buttons and form fields that allow the display of the Room Alert Signal Tower web server interface to be modified. Changing the 'Display' radio buttons will toggle how inactive sensors are displayed, modifying the 'Update Every' form field will adjust the refresh time of the Room Alert Signal Tower web server interface and selecting the 'Celsius' radio button instead of the 'Fahrenheit' radio button will display sensor values in Celsius.

The 'Current Ping Status' section displays the current status of any pings that have been configured in the 'Ping Options' section of the Settings. Any pings that are configured will display in this section displaying the IP Address of the ping and either a green status icon indicating the ping succeeded or a red status icon indicating the ping failed.

**NOTE:** Javascript MUST be enabled to view the 'Status' screen.


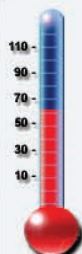
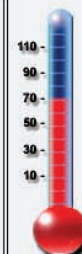
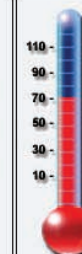
## Room Alert Signal Tower™

Advanced Computer Room Environment Monitoring & Alerting

StatusSettingsHelpAbout

**RAST-51301 - Current Sensor Status** 01/31/08 21:12:44 - MAC: 00:20:4A:A3:51:DF Room Alert Signal Tower 4E v1.0.0

Display: All Sensors  Connected Sensors  Update Every  secs | Fahrenheit  Celsius

Signal Tower	Channel 1: Temperature	Channel 2: Temperature	Channel 3: Temperature	Channel 4: Switch Disabled
 <b>RAST4E</b>	<input checked="" type="checkbox"/> <b>Rack DC1</b>	<input checked="" type="checkbox"/> <b>HVAC Exhaust NE</b>	<input checked="" type="checkbox"/> <b>Blade Cluster 3</b>	<input type="checkbox"/> <b>Flood Sensor</b>
	 Temp: 63.32°F High: 63.68°F Low: 63.14°F	 Temp: 72.71°F High: 72.71°F Low: 72.60°F	 Temp: 73.94°F High: 74.12°F Low: 73.76°F	Current Status: <b>DISABLED</b>

Current Ping Status

<input checked="" type="checkbox"/> <b>192.168.2.2</b>	<input checked="" type="checkbox"/> <b>192.168.2.251</b>	<input checked="" type="checkbox"/> <b>192.168.2.230</b>
---	---	---

Room Alert Signal Tower 4E - Advanced Computer Room Environment Monitoring, Alerting & Automatic Corrective Action

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## Advanced Topics

### Upgrading Firmware

The Room Alert Signal Tower firmware is upgraded using the AVTECH Device Discovery Utility and Room Alert Signal Tower Firmware Update file. The latest version of these files can be obtained from the 'Downloads' section of the [AVTECH.com](http://AVTECH.com) website. If the AVTECH Device Discovery Utility is already installed on the computer that will be used for the upgrade, check for an updated version before downloading the Room Alert Signal Tower Firmware Update file.

**NOTE:** When saving the Room Alert Signal Tower Firmware Update file to the computer, it may be saved with either a '.zip' or '.upd' file extension. If the extension is '.zip', DO NOT EXTRACT the Room Alert Signal Tower Firmware Update file.

After obtaining the most current version of the AVTECH Device Discovery Utility and the Room Alert Signal Tower Firmware Update file, be sure to install the AVTECH Device Discovery Utility on the system that will be used to upgrade the Room Alert Signal Tower firmware (if it is not already installed).

**IMPORTANT NOTE:** Be sure that there are NO WEB BROWSERS ACCESSING the Room Alert Signal Tower unit from anywhere on your network before uploading the firmware as this could cause the firmware update to be incomplete or become corrupted.

When completed, open the AVTECH Device Discovery Utility and click the 'Search' button. When the Room Alert Signal Tower unit is located, select it and click the 'Upgrade' button. If the unit can not be located although is accessible via a web browser, skip to the 'Unit Accessible Although Not Discoverable' section below. Navigate to the location where the Room Alert Signal Tower Firmware Update file was saved, select it and click the 'Upload' button. A dialog will then load asking for confirmation of the firmware upload. Click 'Ok' to upload the Room Alert Signal Tower Firmware Update file to the Room Alert Signal Tower unit.

### Unit Accessible Although Not Discoverable

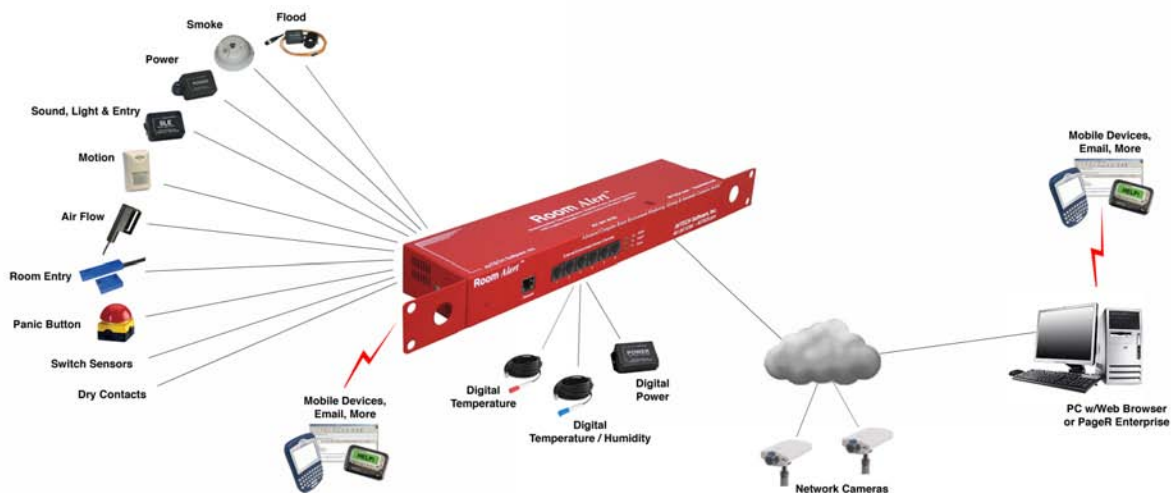
In the event that the network blocks UDP broadcast packets on port 30718, the AVTECH Device Discovery Utility will not be able to locate the Room Alert Signal Tower unit even though it is accessible via a web browser. As long as the Room Alert Signal Tower unit can be accessed via a web browser, the AVTECH Device Discovery Utility should still be able to update the firmware on it. To do so, click the 'Upgrade' button in the AVTECH Device Discovery Utility without anything selected. Enter the IP address of the Room Alert Signal Tower unit to be upgraded and click the 'Ok' button. Navigate to the location where the Room Alert Signal Tower Firmware Update file was saved, select it and then click the 'Upload' button. A dialog will then load asking for confirmation of the firmware upload. Click 'Ok' to upload the Room Alert Signal Tower Firmware Update file to the selected Room Alert Signal Tower unit(s).

## Performing A Firmware Recovery

If the Room Alert Signal Tower unit is not accessible on the network, the Link LED (left LED on the network adapter) is unlit and the Activity LED (right LED on the network adapter) is blinking orange, the Room Alert Signal Tower unit is currently requesting a firmware recovery. The AVTECH Device Discovery Utility is capable of performing a firmware recovery in the event that this occurs. To begin the firmware recovery process, please complete the following steps:

1. Install the AVTECH Device Discovery Utility on a computer with a single Ethernet adapter.
2. Download the most current version of the Room Alert Signal Tower Firmware Update file from the 'Downloads' section of the [AVTECH.com](http://AVTECH.com) website.
3. Connect the Room Alert Signal Tower unit to this computer using a cross-over Ethernet cable and power on the Room Alert Signal Tower unit.
4. Assign a static IP address to the computer being used and close or disable all software firewalls, anti-virus application and/or pop-up blockers.
5. Open the AVTECH Device Discovery Utility and press the reset button (the button next to power port on back of the Room Alert Signal Tower unit).
6. A dialog will load explaining that a unit is requesting firmware recovery. Click 'Ok' and enter the MAC address printed on the label on the underside of the Room Alert Signal Tower unit.
7. Follow the instructions that load to complete the firmware recovery process.

**NOTE:** If the Room Alert Signal Tower unit is found to be in need of a firmware recovery, please notify AVTECH Support by Live Chat or email for a quick consultation. This may save you valuable time and effort or help you to determine what caused the situation so that it can be avoided in the future.







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