# ClosetAir Installation Manual

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# Table of Contents


## Introduction 5

Welcome ..... 5

## About this Manual 8

Revision History ..... 8
Organization of the Manual ..... 8
Audience Profile ..... 8
On-line Documentation ..... 9
Reporting Document Errors ..... 9
Conventions ..... 9
- Software ..... 9
- Hardware ..... 9
- Safety ..... 11
- Figures ..... 12
- Tables ..... 12

## Chapter 1 - Product Specifications 13

Overview ..... 13
Environmental ..... 13
- Temperature ..... 13
- Humidity ..... 13
- Elevation ..... 13

Electrical ..... 14
- Electrical Specifications ..... 14

Networking ..... 14
- Ethernet ..... 14
- Protocols ..... 14

Regulatory Compliance ..... 14
- Underwriters Labratories (UL) ..... 14
- Federal Communications Commission (FCC) ..... 15

## Chapter 2 - Pre-Installation 16

Two Installation Options ..... 17
Mounting Requirements ..... 18
Initial Setup ..... 20
- Data Formats ..... 20
- Accessing Web Server ..... 20
- Windows ..... 20
- Mac ..... 23

## Chapter 3 - Installation 24



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**Sensors** ..... 24
Items Displayed on Sensors Page ..... 25
**Alarms** ..... 26
Alarms Page ..... 26
Alarm Types ..... 27
Alarm Notifications ..... 28
Thresholds ..... 29
Alternate Data Formats ..... 29
**Logging** ..... 30
**Display** ..... 31
**Config** ..... 32
Network Configuration ..... 32
Configuration Network Tab ..... 33
Configuration Monitoring Tab ..... 34
Configuration Diagnostics Tab ..... 35
Configuration Event Log Tab ..... 36
Configuration Admin Tab ..... 37
Time and Date ..... 39
Email ..... 40
Status Reports ..... 41
Accounts and Passwords ..... 42
SNMP ..... 43
Camera Configuration ..... 44
Telnet ..... 45
Admin Information ..... 45
**Control** ..... 46
General Operation ..... 46
Control Page ..... 46
Initial Set Point Configuration ..... 47
**Accessories** ..... 48
Available Sensors ..... 48
Connecting Remote Sensors ..... 48
IP-Addressable Network Cameras ..... 49

**Chapter 4 - Final Checkout** 50

**Firmware Version** ..... 50
**Firmware Updates** ..... 50
**Service and Maintenance** ..... 50
**More Technical Support** ..... 50
**Product-Specific Safety Notices** ..... 51
General Safety ..... 51
Live Circuits Safety ..... 51
Equipment Grounding ..... 51
Electrostatic Discharge ..... 52
Explosive Environment ..... 52
Servicing and Adjustments ..... 52
Repairs and Modifications ..... 52


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# Introduction

## Welcome

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### Geist Policy on Conflict Minerals

This document details Geist's corporate policy regarding the use of conflict minerals. The policy expressed in this document should be considered to cover the Geist and Geist Europe divisions of PCE Inc.

Section 1502 of the Dodd-Frank Act which was passed by the US Congress in 2010 requires certain companies to annually disclose their use of conflict minerals. Conflict minerals covered under this act include tantalum, tin, tungsten, and gold.

Although Geist is not directly subjected to the requirements of the Dodd-Frank Act, Geist recognizes that all companies within the electronics manufacturing industry supply chain are impacted by this legislation. Geist supports the intent of the law, which is the reduction of violence within the Democratic Republic of the Congo and will take several actions to both advance the goals of the Dodd-Frank Act and to provide exceptional support to our customers.

- Geist will work with our direct suppliers to identify purchased components and materials that contain tin, tantalum, tungsten or gold.
- Geist will work with our direct suppliers to trace sources of any tin, tantalum, tungsten or gold used in our products back to the smelter.
- Geist will document our efforts to trace tin, tantalum, tungsten, and gold minerals back to the smelter and will accurately report the results to our customers.
- Geist will continue to monitor industry progress in identifying conflict-free smelters and will adjust corporate policy as the electronics supply chain becomes more fully documented.

Geist will not require that our direct suppliers source only conflict-free minerals until an adequate number of smelters has been reliably identified and audited by The Electronic Industry Citizenship Coalition (EICC) and the Global e-Sustainability Initiative (GeSI) to service the electronic industry supply chain. Mandating a conflict-free supply chain before an adequate number of smelters has been identified will prohibit the use of all tin, tantalum, tungsten, and gold originating in the Democratic Republic of the Congo and surrounding countries. This prohibition would cut off the sole income source for many artisanal miners within the region and may result in increased violence within the Democratic Republic of the Congo in direct opposition to the goals of the Dodd-Frank Act. Geist will work continuously with our direct suppliers in order to annually increase the percentage of documented conflict-free minerals that are used in our products until all products can be certified as conflict-free.

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Geist Europe is obligated to finance the cost of the collection, treatment, recovery and environmentally sound disposal of all products sold by Geist Europe into the UK market this includes:

- New WEEE (displaying ‘the crossed out wheeled bin symbol’) that Geist Europe has placed onto the market after the 13th August 2005.

- Historic WEEE (not displaying ‘the crossed out wheeled bin symbol’), when Geist Europe is supplying new WEEE that is intended to replace the historic WEEE and is of equivalent type or fulfills the same function even if the historic WEEE was manufactured by a third party.

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# About this Manual

This document provides an overview of Geist product(s), the major topics covered include:

- Copyright, Trademarks, and Disclosure Restrictions.
- Instructions for installing, powering and using the equipment.
- Information that will aid in managing and maintaining the equipment.

## Revision History

| Revision | Date | Notes | Approved By |
|---|---|---|---|
| 0.0 | 4/27/2013 | Original Published Version | JB |
| 1.0 | 6/18/2013 | Updated Geist Branding | JB |
| 2.0 | 3/11/2015 | Updated ClosetAir Features | JB |
| 3.0 | 10/27/2016 | Updated Format | JB |
| 3.1 | 7/11/2017 | Updated Information | JB |

## Organization of the Manual

This Geist document contains the following product information:

- Product Specifications - This chapter describes the major product characteristics and its functional role within the system. Where appropriate, reference to cabling among product components and to other Geist product(s) is provided.
- Pre-Installation - This chapter provides pre-installation information for the preparation and use of Geist product(s). Subjects discussed in this chapter must be considered prior to performing the installation of the Geist product.
- Installation - This chapter provides procedures required to adequately mechanically and electrically attach Geist product into supporting systems.
- Final Checkout - The final checkout/power-up procedures after product installation are provided in this chapter. The procedures in this chapter provide for an orderly system power-up sequence and ensure proper operation of this product.

## Audience Profile

This document is intended for use by authorized technicians experienced with same of similar product types and for personnel requiring guidance for equipment installation, operation, maintenance, and support.


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# On-line Documentation

This document is available on-line and within the corresponding *Geist Product Manuals*. Additional Geist product supporting *Videos*, *Product Literature* and *Case Studies* can be found on the *Geist Resource* page.

Product firmware updates can be found and downloaded from the *Geist Support* site, under *Firmware Updates*.

Should this product fail within its warranty period and be in need of repair or replacement, a Return Material Authorization may be obtained on-line from the *RMA Form* link located within the *Geist Support* site.

# Reporting Document Errors

Should you discover any error or identify a deficiency in this document, please take time to contact us at the following email address:

**Geist-Documents@geistglobal.com**

Please be sure to provide us with the document name, part number, and page number(s). Also please provide us with description of the error or the deficiency for the document. If you would like for us to contact you, please provide us with your name and contact information.

Thank you for your time. We appreciate any comments and feedback you can provide.

# Conventions

The information contained within this document is established around the framework of various conventions, which are defined as follows:

## Software

- Release Management: Product name, Version control ; (GU V 3.0.0)
  - Product Name: Name of Hardware Platform
  - Version control: V(ersion) Platform #, Major #, Minor #

## Hardware

Product Classification

- Power Distribution Unit
  - Basic
  - Monitored only
  - Switched only
  - Monitored + Switched
- Environmental Monitoring
- Cooling
- Data Center Infrastructure Management (DCIM)


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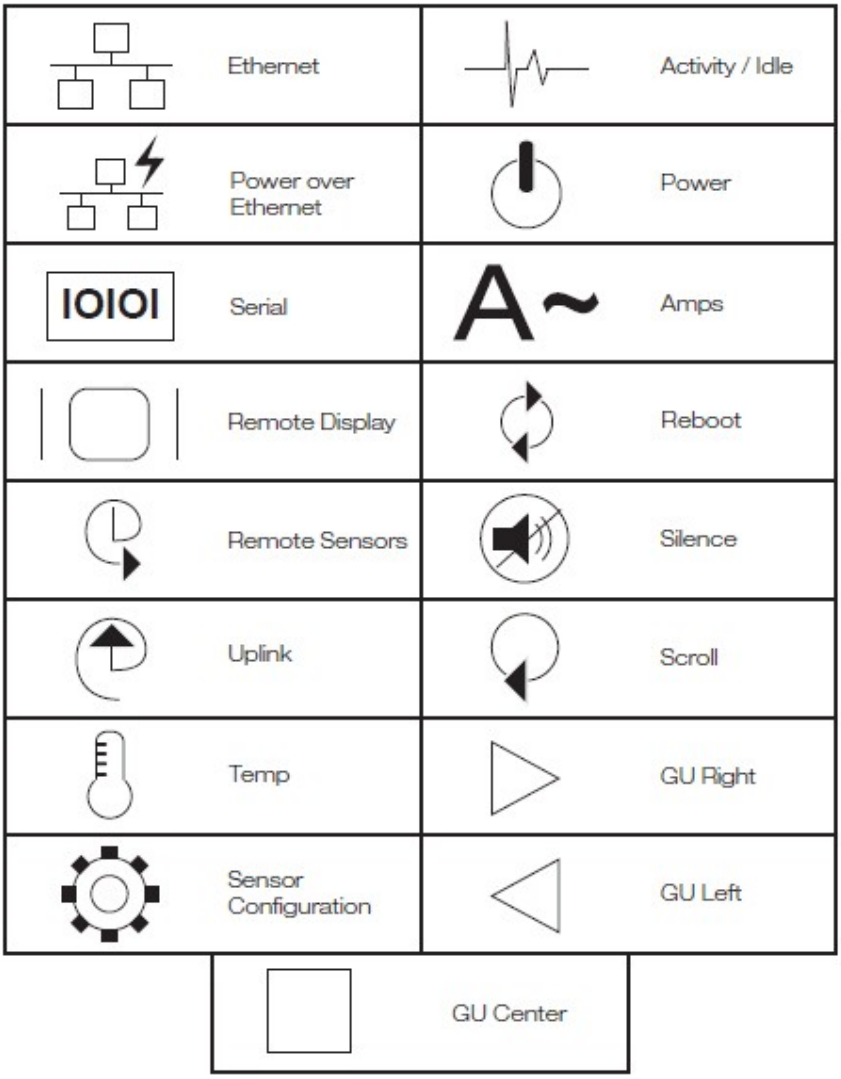
Figure 1 Overlay Symbology Guide




The chart above depicts the symbols used on Geist overlays.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## Safety

This document contains varying levels of alerts pertaining to product and user safety. The alerts are visually presented with graphics and text per Geist equipment guidelines.

The representations are:

### DANGER

INDICATES AN **IMMINENT** HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, WILL RESULT IN **DEATH OR SERIOUS INJURY**.

### WARNING

INDICATES A **POTENTIAL** HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN **DEATH OR SERIOUS INJURY**.

### CAUTION

INDICATES A **POTENTIAL** HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN **PRODUCT DAMAGE** AND **MINOR TO MODERATE INJURY**.

### NOTE

Provides useful information that is beneficial for operation and usage of this product.


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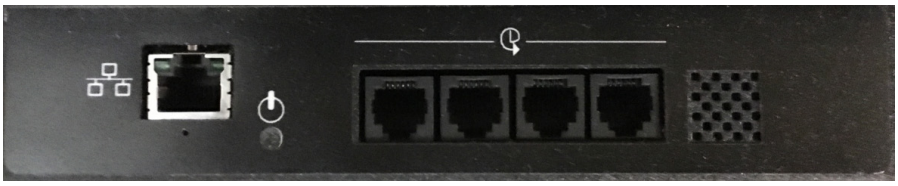
# Figures

Figures presented in this document are identified and designated as follows:

'Figure:', Chapter # - Image #

Example:

Figure 1-1 Name and/or Title goes here



# Tables

Tables presented in this document are identified and designated as follows:

'Table:', Chapter # - Image #

Example:

Table 1-1 Name and/or Title goes here

| Column 1 | Column 2 | Column 3 | Column 4 | Column 5 |
|---|---|---|---|---|
| Text | Text | Text | Text | Text |
| Text | Text | Text | Text | Text |
| Text | Text | Text | Text | Text |
| Text | Text | Text | Text | Text |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# Chapter 1 - Product Specifications

## Overview

The RAC10 system evacuates heat load from a small space and sends it to the outside corridor or ceiling plenum return. The RAC10 system provides control and monitoring via a built-in web server. Web pages and graphs, generated by the RAC10, are used to monitor environmental conditions and unit settings. No software other than a web browser is required for operation and several data formats are available. The RAC10 system includes one internal temperature sensor, two external temperature sensors, and ports for two additional (optional) external temperature sensors.

## Environmental

The operational environmental limits pertaining to Temperature, Humidity, and Elevation are as defined below:

### Temperature

Table 1-1 Temperature Limits

| | Minimum | Maximum |
|---|---|---|
| Operating | 10°C (50°F) | 45°C (113°F) |
| Storage | -25°C (13°F) | 65°C (149°F) |

### Humidity

Table 1-2 Humidity Limits

| | Minimum | Maximum |
|---|---|---|
| Operating | 5% | 95% (non-condensing) |
| Storage | 5% | 95% (non-condensing) |

### Elevation

Table 1-3 Elevation Limits

| | Minimum | Maximum |
|---|---|---|
| Operating | 0 m (0 ft) | 2,000 m (6,561 ft) |
| Storage | 0 m (0 ft) | 15,240 m (50,000 ft) |


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# Electrical

Electrical product characteristics an performance are defined below. Also please see the product nameplate for additional rating limits.

## Electrical Specifications

The ClosetAir RAC10 operates with power inputs as shown in the following table.

Table 1-4 Electrical Specs

| Input | Specifications |
|---|---|
| Input Power | 120 Volt, 60 Hz |
| Input Sources | 1 |

# Networking

The product communications requirements are identified below.

## Ethernet

The Ethernet link speed for this product is: 10 Mb; half-duplex.

## Protocols

The communications protocols support by this product include:

HTTP, HTTPS (SSL/TLS), SMTP, POP3, ICMP, DHCP, TCP/IP, NTP, FTP, Telnet, Syslog.

# Regulatory Compliance

Geist products are regulated for Safety, Emissions, and Environment Impact per the below agencies and policies.

## Underwriters Labratories (UL)

UL Standards are used to assess products; test components, materials, systems and performance; and evaluate environmentally sustainable products, renewable energies, food and water products, recycling systems and other innovative technologies. The UL standards specific to this equipment are: UL 507, cUL 507.


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## Federal Communications Commission (FCC)

The Federal Communications Commission (FCC) regulates interstate and international communications by radio, television, wire, satellite, and cable in all 50 states, the District of Columbia and U.S. territories. An independent U.S. government agency overseen by Congress, the commission is the United States' primary authority for communications laws, regulation and technological innovation.

The FCC standards specific to this equipment are:

FCC Part 15 Class A


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# Chapter 2 - Pre-Installation

The RAC10 relies on the building installation for protection from overcurrent. A Listed circuit breaker is required in the building installation. The circuit breaker should be rated at 15 or 20 Amps. Install the RAC10 so the input plug may be disconnected for service.

**Installation:**

1. Using appropriate hardware, mount unit into wall or dropped ceiling as detailed in the Mounting Requirements Section of Instruction Manual.

2. Plug RAC10 into appropriately rated and protected branch circuit receptacle.

**Service and Maintenance:**

No service or maintenance is required. Do not attempt to open the RAC10 or you may void the warranty. No serviceable parts inside.


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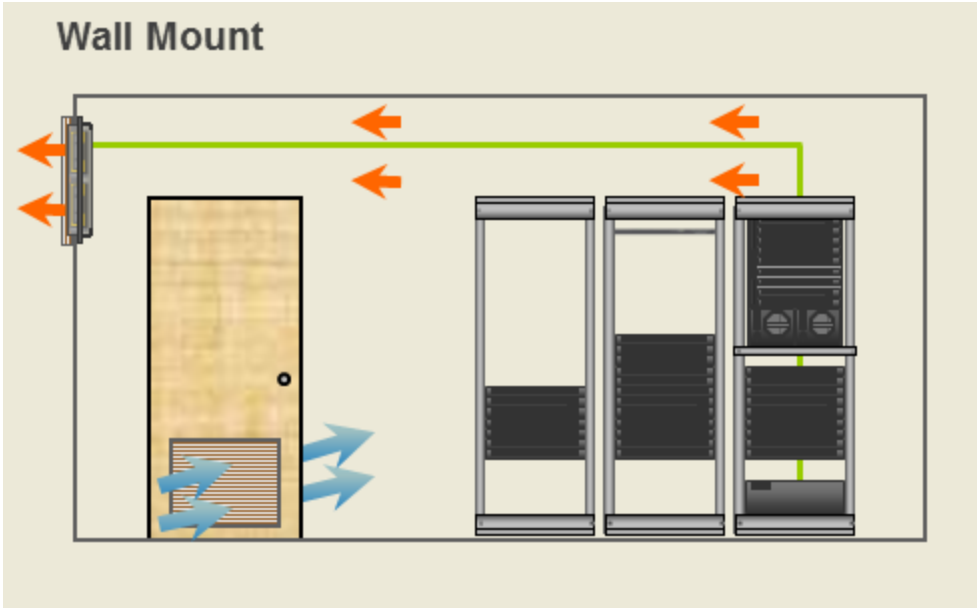
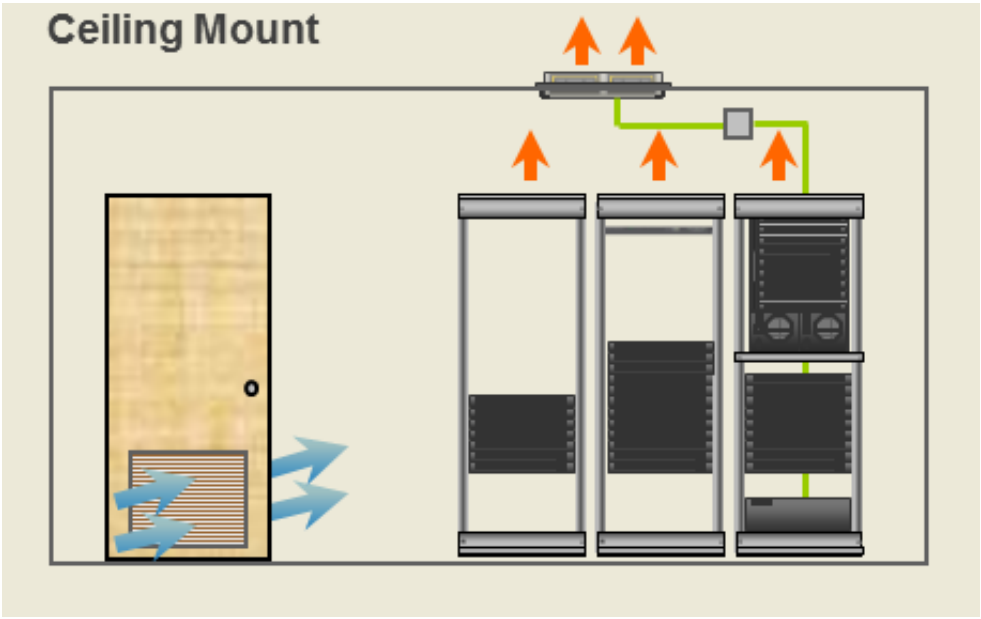
# Two Installation Options

Figure 2-1 Installation Options




Wall or ceiling mount for automated heat exhaust and critical monitoring / alerts.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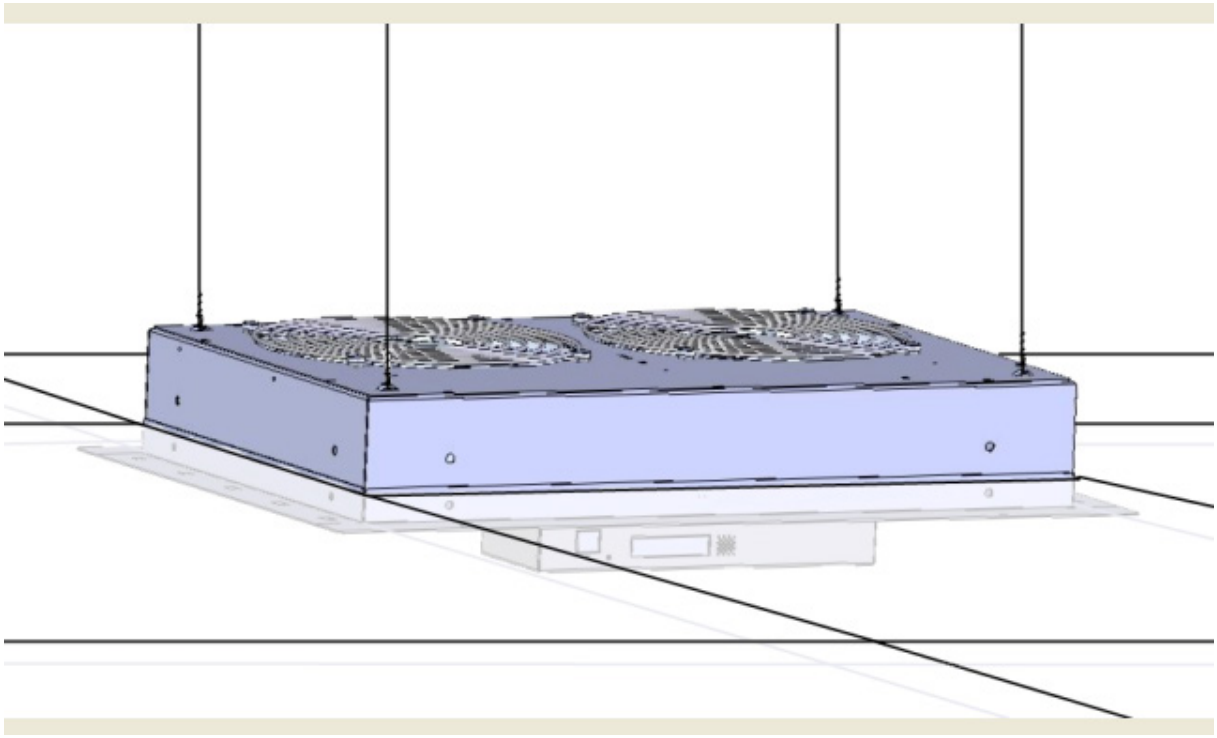
# Mounting Requirements

Drop-Ceiling Mount

1. Must use 16 or heavier gauge drop-ceiling hanger wire.
2. Attach to unit through four eyelets on top of unit as shown in Figure 1.
3. Supplying power receptacle must be below drop ceiling to keep power cord out of plenum space.
4. Optional RAC-D002 duct kit may be used for interfacing to existing duct work.

Figure 2-2 Drop Ceiling Mount Option

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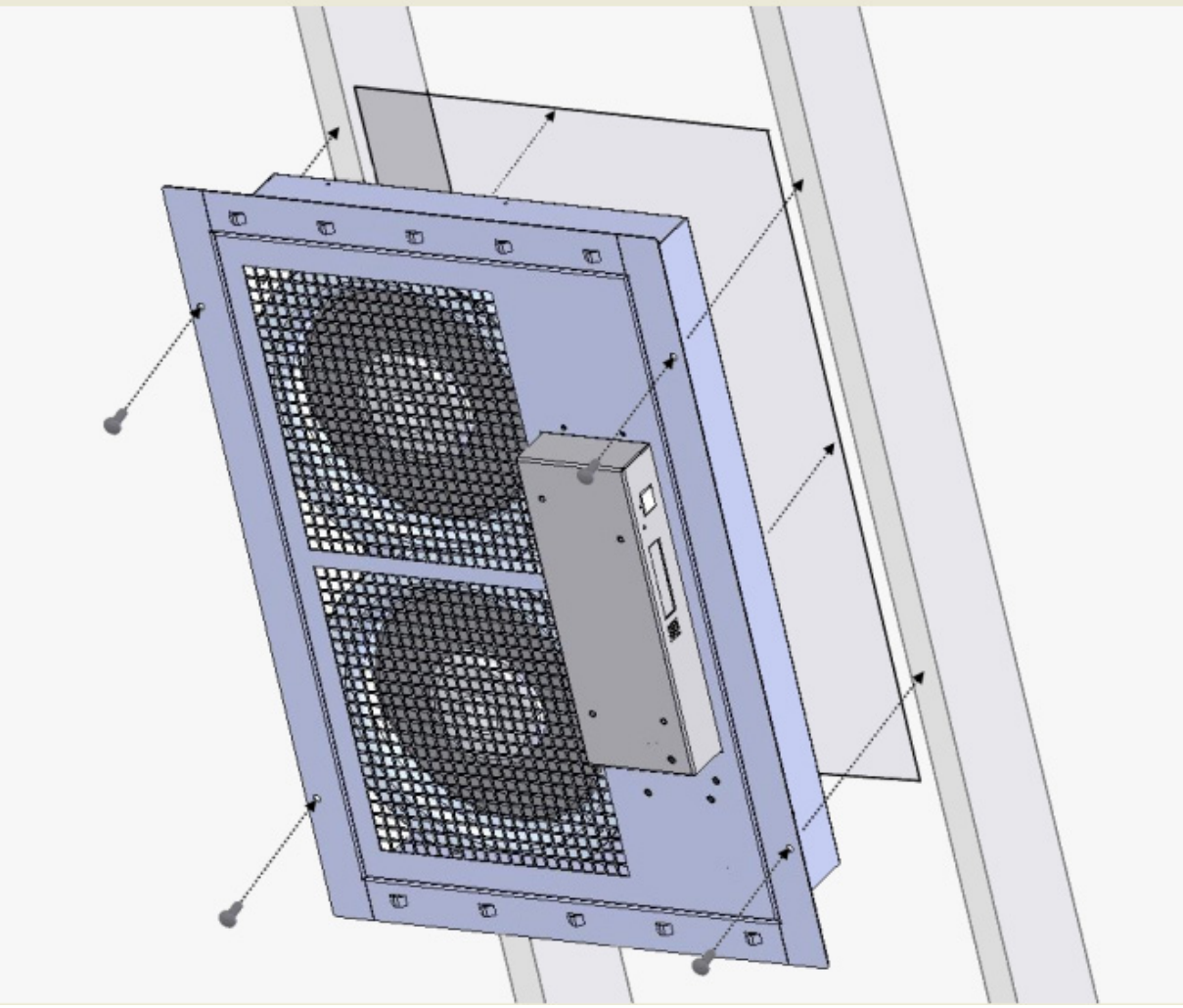
Wall Mount

1. Mount to wood studs, spaced 16” apart.
2. Must use 2” length, #10 wood screws into studs as shown in Figure #2.

Figure 2-3 Wall Mount Option

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# Initial Setup

Install a CAT5 Ethernet cable between the RAC10 and the computer being used for device configuration. If connecting directly to the RAC10 and not going through a hub, switch, or router, a crossover cable may be required.

## Data Formats

HTML, SNMP, CSV/Plain Text, XML.

## Accessing Web Server

**Default IP Address**

The RAC10 has a default IP address for initial setup and access to the unit if the assigned address is lost or forgotten.

**IP Address:** 192.168.123.123
**Subnet Mask:** 255.255.255.0
**Gateway:** 192.168.123.1

**Reset to factory default IP address procedure**

To restore the default IP address, press and hold the reset button located below the network connector for 20 seconds. The reset button is accessed through the white, circular hole located below the Ethernet jack.

Using a probe (even a medium size paper clip, straightened) place through the hole below the Ethernet jack (RJ45) to locate the soft feel push switch on the circuit board. You should be able to feel a slight click when you have it depressed.

Once the unit has rebooted, you will be able to connect (via crossover cable) using IP address 192.168.123.123, the factory default. Now you can set up all parameters as detailed in Unit Configuration.

**NOTE**

Pressing the reset button under the network connector will restore the default IP address and will also clear all password settings.

## Windows

- **Windows 2000 / XP / Server 2003:**

Click the **Start** button, choose **Settings**, then **Network Connections.**

- **Windows 7 / Server 2008:**

Click the **Start** button, then choose **Control Panel** >> **Adjust Your Computer's Settings** >> **View Network Status and Tasks** >> **Change Adapter Settings**.
(Alternatively, on some Windows 7 machines, this may be **Start**, then **Settings** >> **Control Panel** >> **Network and Sharing Center** >> **Change Adapter Settings**.)


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- **Windows 8 / Server 2012:**

Move the mouse cursor to the bottom or top right corner of the screen, click the **Settings** icon, then select **Control Panel**. Change the view type from **Category** to **Large** or **Small Icons** if necessary, then select **Network and Sharing Center**, then **Change Adapter Settings**.

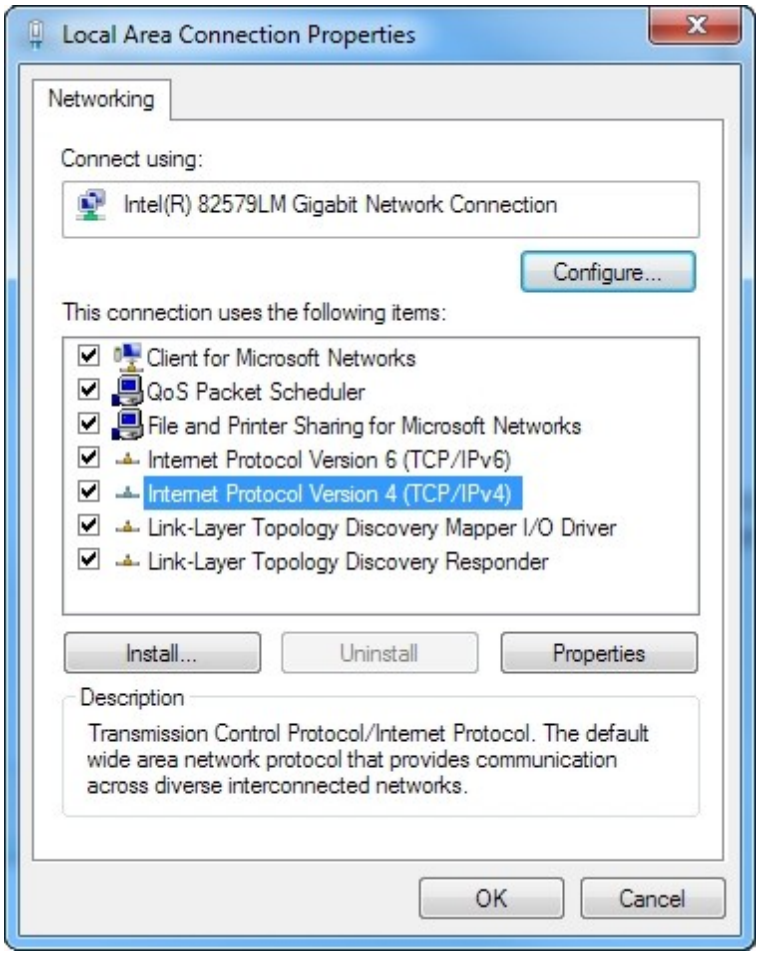
- **Windows 10:**

Click the **Start** button, then choose **Network & Internet**, then click **Change adapter options.**

Locate the entry under **LAN or High-Speed Internet** or **Local Area Connection** which corresponds to the network card (NIC) which the unit is connected to. (Note: Most computers will only have a single Ethernet NIC installed, but a WiFi or 3G adapter will also show as a NIC in this list, so be sure to choose the correct entry.)

Double-click on the network adapter's entry in the **Network Connections** list to open its status dialog box, then click the **Properties** button to open the **Local Properties** window.

Figure 2-4 Windows Network Settings




Find the entry titled "**Internet Protocol Version 4 (TCP/IPv4)**" in the list, then click the **Properties** button to open the **Internet Protocol Properties** window. If you see more than one TCP/IP entry, as in the example above, the computer may be configured for IPv6 support as well as IPv4; make sure to select the entry for the IPv4 protocol.


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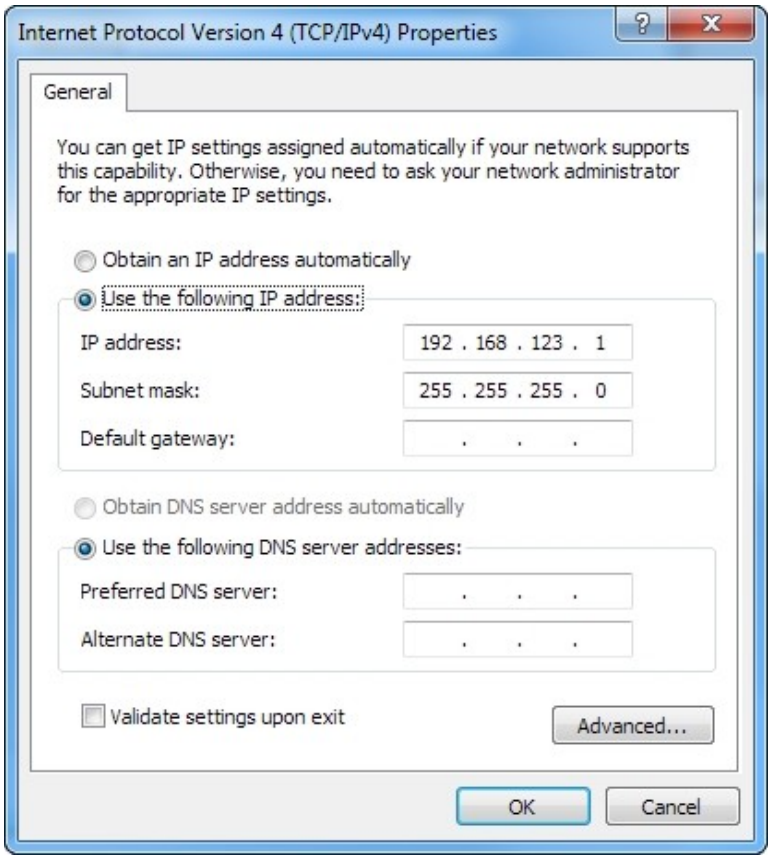
Figure 2-5 Windows TCP/IPv4 Settings




Choose the **Use the following IP address** option, then set **IP address** to 192.168.123.1 and **Subnet Mask** to 255.255.255.0. For this initial setup, **Default Gateway** and the **DNS Server** entries can be left blank. Select **OK**, then **OK** again to close both the **Internet Protocol Properties** and **Local Properties** windows.

Once the NIC settings are configured properly, you should be able to access the unit by typing http://192.168.123.123 into the address bar of your web browser. If you are setting up the unit for the first time, or if the unit has been reset back to factory defaults via the network-reset button, the unit will require you to create an Admin account and password before you can proceed.

Once you have created the Admin account and logged into it, the unit's default **Sensors** page should come up by default. Navigate to the **System** tab, then the **Network** page to configure the device's network properties. The unit's IP Address, Subnet Mask, Gateway, and DNS settings can either be assigned manually, or acquired via DHCP.

Note that the new settings will take effect instantly when the **Save** button is clicked, so the browser will no longer be able to reload the web page from the 192.168.123.123 address and will probably display a "page not found" or "host unavailable" message. This behavior is normal. Once you have finished configuring the unit's IP address, simply repeat the steps above, and change the computer's Ethernet NIC card settings back to the ones you wrote down prior to changing them, to restore its normal network and internet settings.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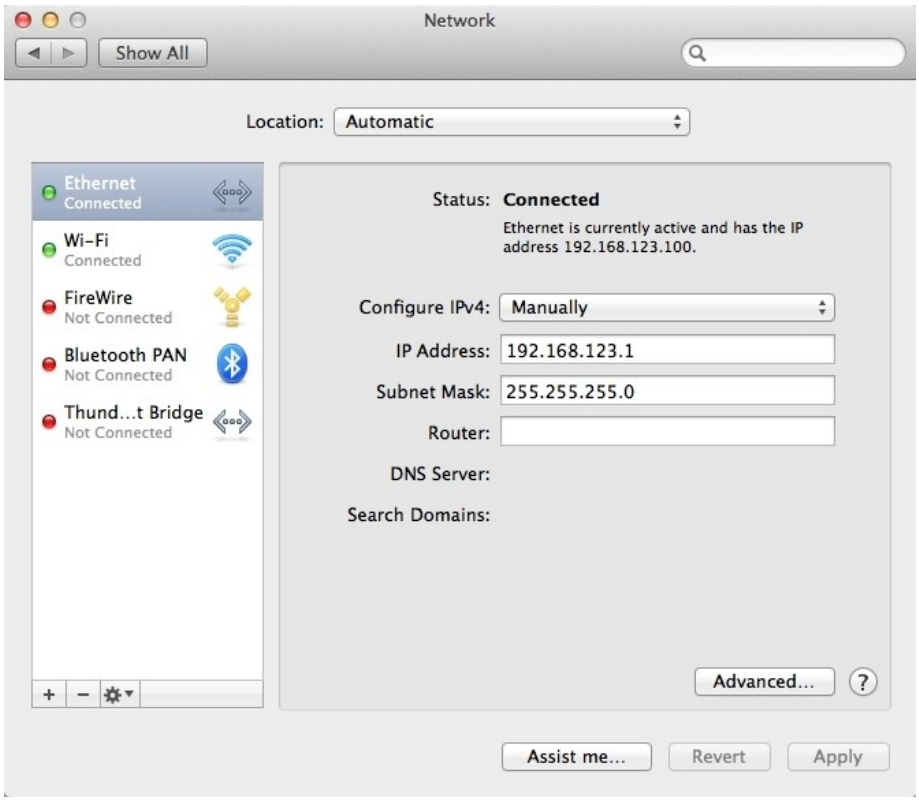
## Mac

Click the **System Preferences** icon on the Dock, and choose **Network**.

Figure 2-6 Mac Network Settings




Be sure **Ethernet** is highlighted on the left side of the NIC window. (In most cases, there will only be one Ethernet entry on a Mac.)

Select **Manually** from the **Configure IPv4** drop-down list, then set **IP Address** to 192.168.123.1 and **Subnet Mask** to 255.255.255.0. (The **Router** and **DNS Server** settings can be left blank for this initial setup.) Click **Apply** when finished.

Once the NIC settings are configured properly, you should be able to access the unit by typing http://192.168.123.123 into the address bar of your web browser. If you are setting up the unit for the first time, or if the unit has been reset back to factory defaults via the network-reset button, the unit will require you to create an Admin account and password before you can proceed.

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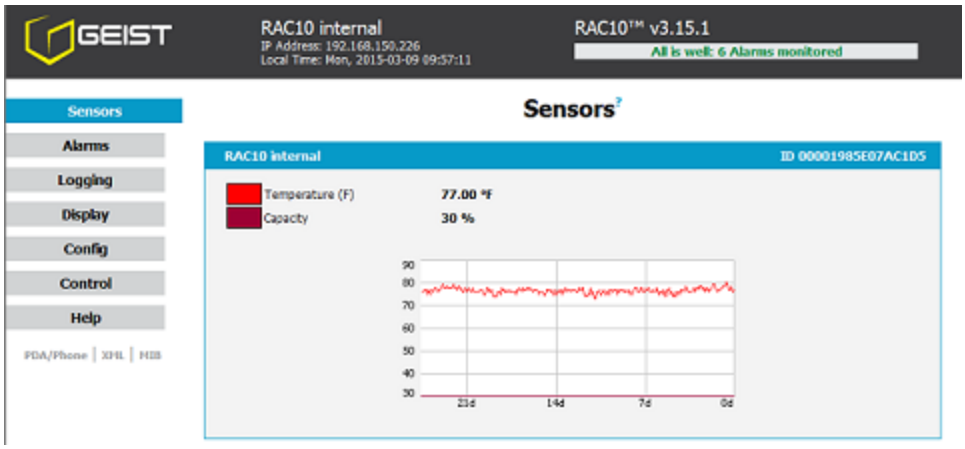
# Chapter 3 - Installation

## Sensors

The front page, Sensors, gives both instantaneous and historical views of the unit's data. Real time readings are provided for all data next to historical graphs. Optional cameras may be added and their live snapshots are shown on this page. Plug-and-play external temperature sensors appear on this page when installed. The menu bar allows access to the rest of the RAC's functionality. The internal temperature sensor is measured every 5 seconds. External sensors are measured at approximately the same rate, depending on the number (1-4) of devices connected. Sensor data collected by the Fan Controller gives useful trend analysis data that allows users to view changes and draw useful conclusions about what is happening over time in the monitored environment.

Figure 3-1 Sensors Page





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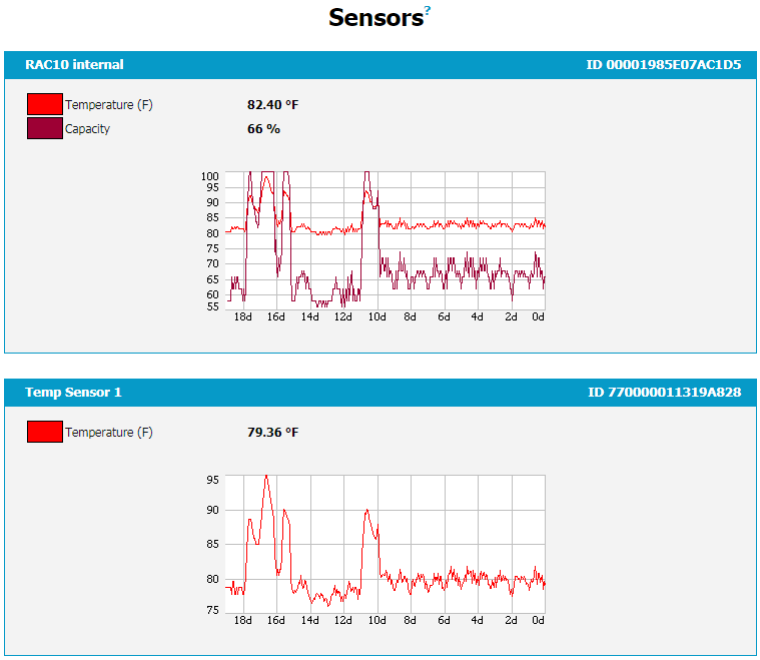
# Items Displayed on Sensors Page

The RAC will display the following items on the Sensors page:

Figure 3-2 Sensors Page Items




- **Set Point Temp:** Displays the desired temperature set by the user.
- **Internal Temp:** Displays measured temperature inside the unit in °C or °F.
- **Temp 1:** Displays temperature measured by external sensor in °C or °F.
  This value will read 0 °C or 32 °F until and external temperature sensor is connected.
- **Temp 2:** Displays temperature measured by external sensor in °C or °F.
  This value will read 0 °C or 32 °F until and external temperature sensor is connected.
- **Temp 3:** Displays temperature measured by external sensor in °C or °F.
  This value will read 0 °C or 32 °F until and external temperature sensor is connected.
- **Temp 4:** Displays temperature measured by external sensor in °C or °F.
  This value will read 0 °C or 32 °F until and external temperature sensor is connected.
- **Capacity:** Percent, from 30-100 of maximum fan speed. 0 may be selected to disable the fans if needed.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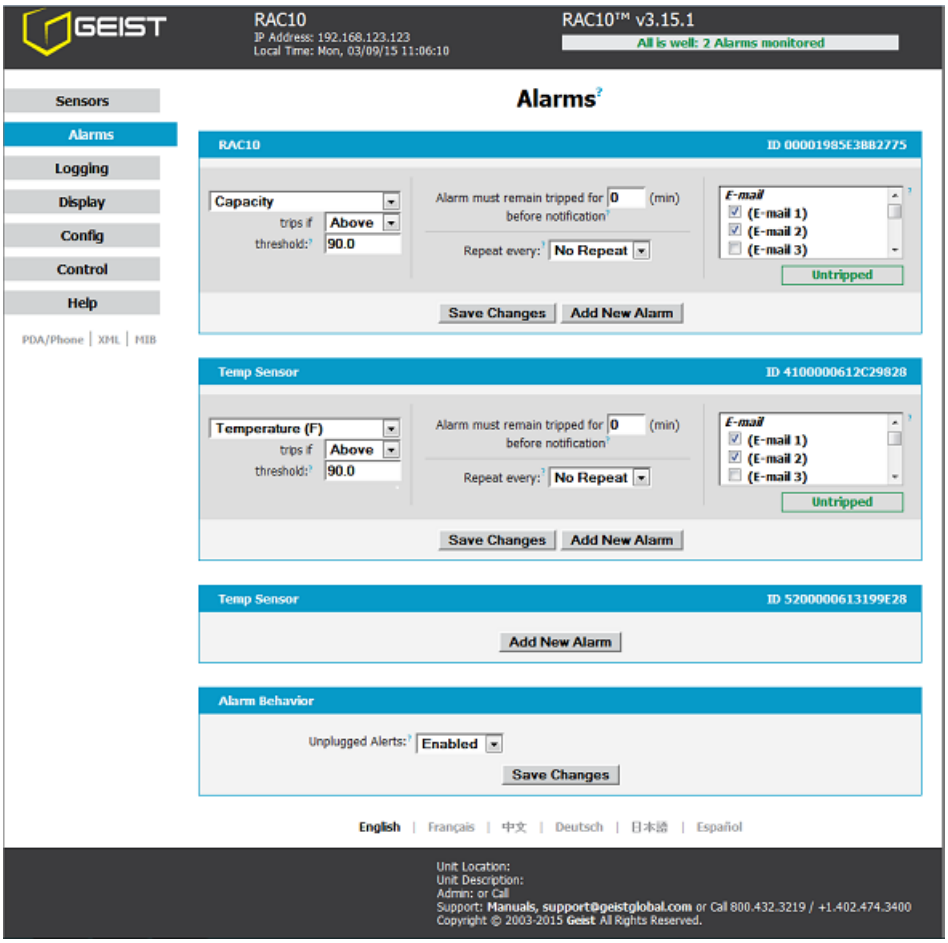
# Alarms

## Alarms Page

The Alarms page allows the user to establish alarm conditions for each sensor reading. Alarm conditions can be established with either high or low trip thresholds. Alarm options include time tripped before notification, a repeat cycle, Email and SNMP Trap. There is also a provision to notify if a sensor is unplugged.

Figure 3-3 Alarms Page





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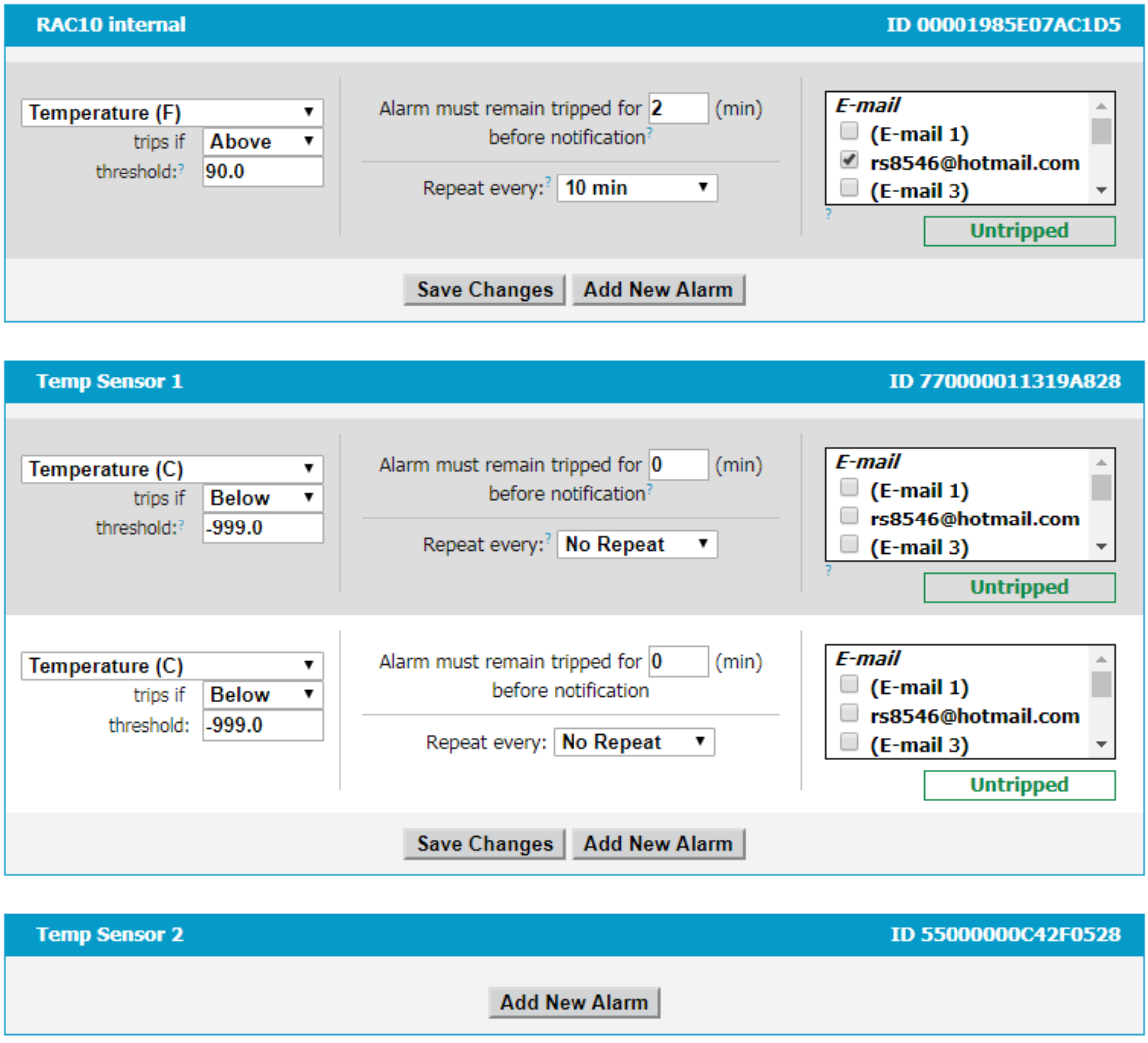
# Alarm Types

The RAC provides three types of alarm messages via email and SNMP:

- **Trip:** Occurs when a sensor value goes above a high trip threshold or below a low trip threshold.
- **Clear:** Occurs when a sensor already in the Tripped or Unplugged state goes back into its normal range.
- **Unplugged:** Occurs when a sensor with an alarm set loses contact with the main unit due to the sensor being physically unplugged or another communications error.

Figure 3-4 Alarms Types




Alarms can be added for set point, fan speed, and internal or external temperature sensors displayed on the Alarms page. An alarm is added by pressing the “Add New Alarm Button” and selecting the sensor value to be monitored from a drop down menu.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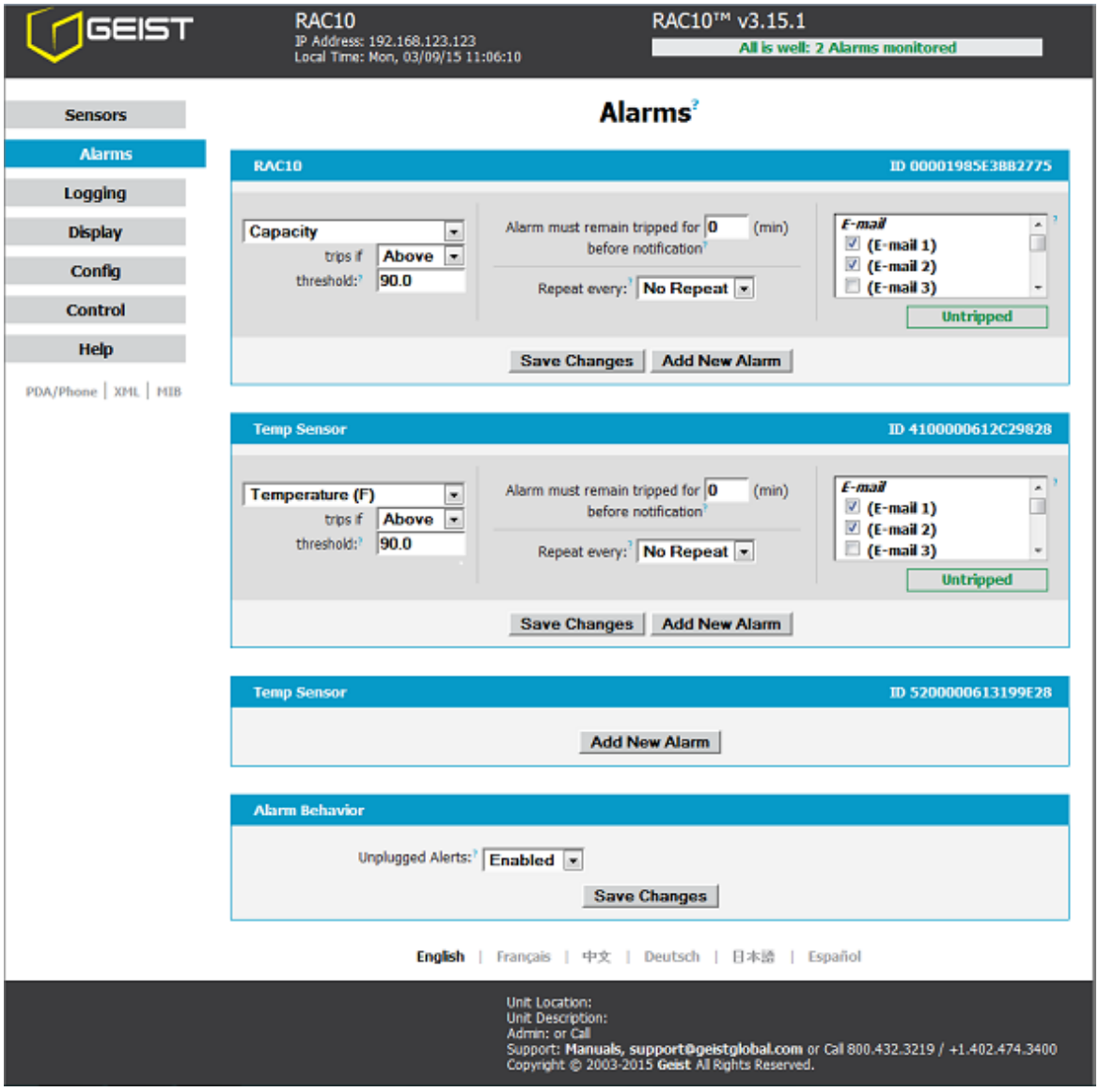
# Alarm Notifications

The RAC10 supports two types of alarm notification:

- **Email:** The unit can be configured to send alarm emails to up to five recipients.
- **SNMP:** The unit can be configured to send SNMP traps to up to two trap servers.

Figure 3-5 Alarm Notifications




The RAC unit is capable of any combination of the above alarms at once. Alarm type combinations are selected per alarm via the check boxes which are displayed for each alarm on the Alarms page.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## Thresholds

The user must set a trip threshold and type for each alarm that is added to the Alarms page. The threshold type is chosen as either “High Trip” or “Low Trip” from a drop down menu when the alarm is created. The threshold value is typed into a data window when the alarm is created. Alarms are triggered based on the selected sensor’s data and the trip threshold type and value. Alarm settings can be edited or deleted at any time.

Analysis of each unit is recommended before setting alarm thresholds as some of the values monitored by the unit are relative values, whose scale will differ slightly between units. Allow each unit to operate under normal, steady state conditions for several hours before setting alarm thresholds. By allowing the sensors to operate for several hours, the user can better understand what the normal variations are; thereby allowing the user to choose alarm thresholds that will not trigger numerous false alarms.

**NOTE**

Changes in settings take a few moments to become active. Rapidly resetting alarm values may not provide the desired results. Allow up to 2 minutes after changing a setting before modifying it again.

## Alternate Data Formats

In addition to the full access, control and configuration available via a desktop web browser, the RAC10 System presents data in multiple formats for easy integration with other monitoring systems. Data formats available via links on the unit’s web page are:

- **PDA/Phone:** Presents data in a format best-suited for PDA or cellular phone web browsers.
- **XML:** Extensible Markup Language. Presents data in a structured tree for use with automated scripts and monitoring systems.
- **MIB:** Management Information Base. Downloads the MIB for use with SNMP monitoring tools.


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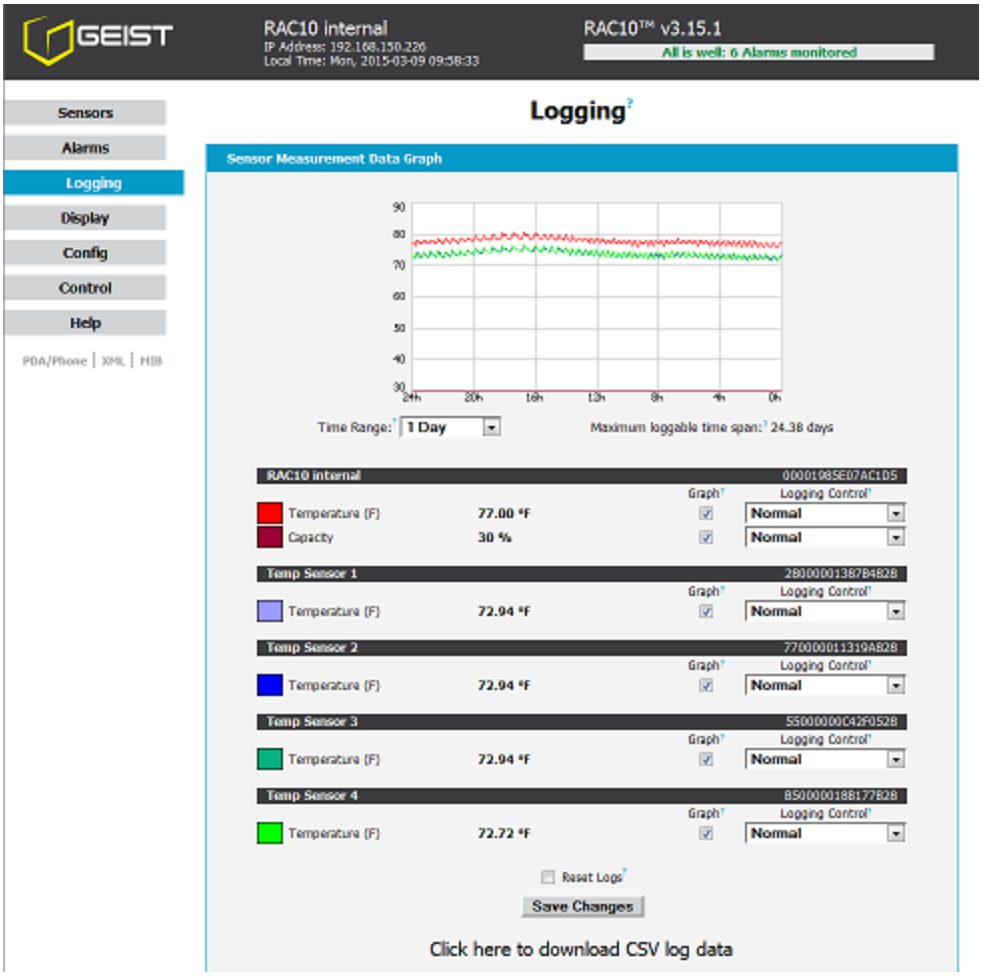
# Logging

The Logging page allows the user to access the historical data by selecting the desired sensors and time range to be graphed. Selected sensor values are logged into the data file at a rate of one point per minute. Recorded data is available for download in a comma-separated values (CSV) file.

Figure 3-6 Logging Page




All data collected by the unit can be graphed. The Logging page allows the user to select graphed content to be logged. Selected sensor values are logged into the data file at a rate of one point per minute. The number of selected sensors determines the maximum data logging time span. This period is calculated and displayed on the Logging page. The oldest data will be deleted when the onboard memory fills up in order to make room for new data.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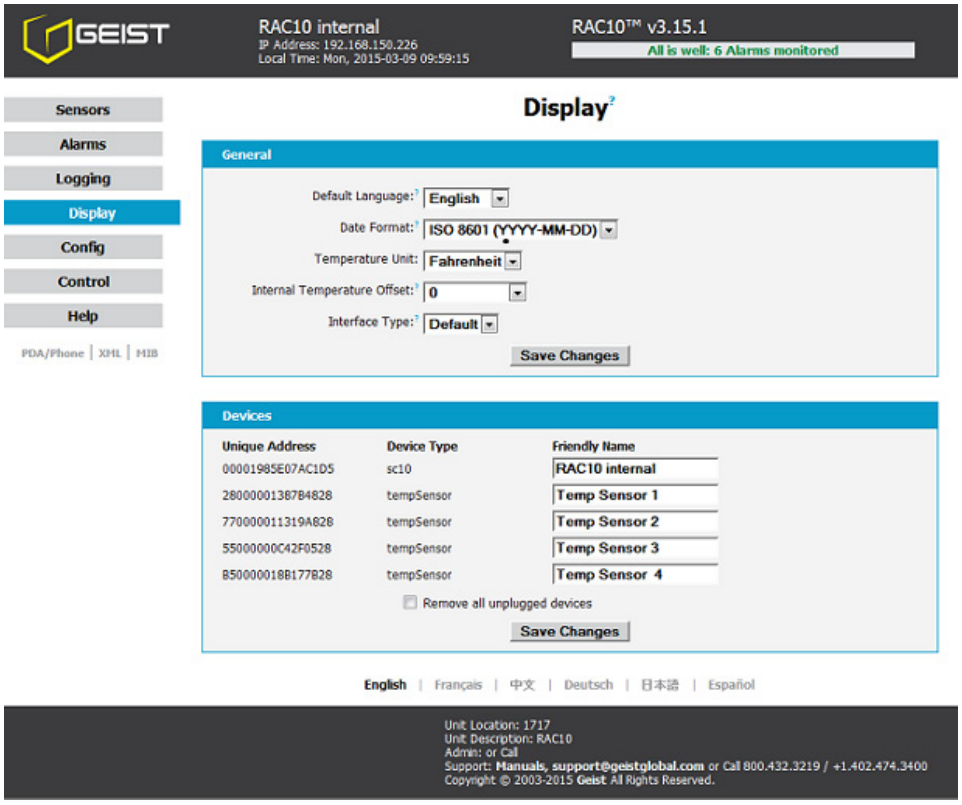
# Display

The Display page allows the user to assign a friendly name to the Fan Controller as well as change the default temperature unit of measure for internal and external sensors. The display page also allows the user to select between the default and classic web page layouts. The default interface displays a vertical menu bar to the left of the main window, while the classic interface displays a horizontal menu bar across the top of the screen.

Figure 3-7 Display Page





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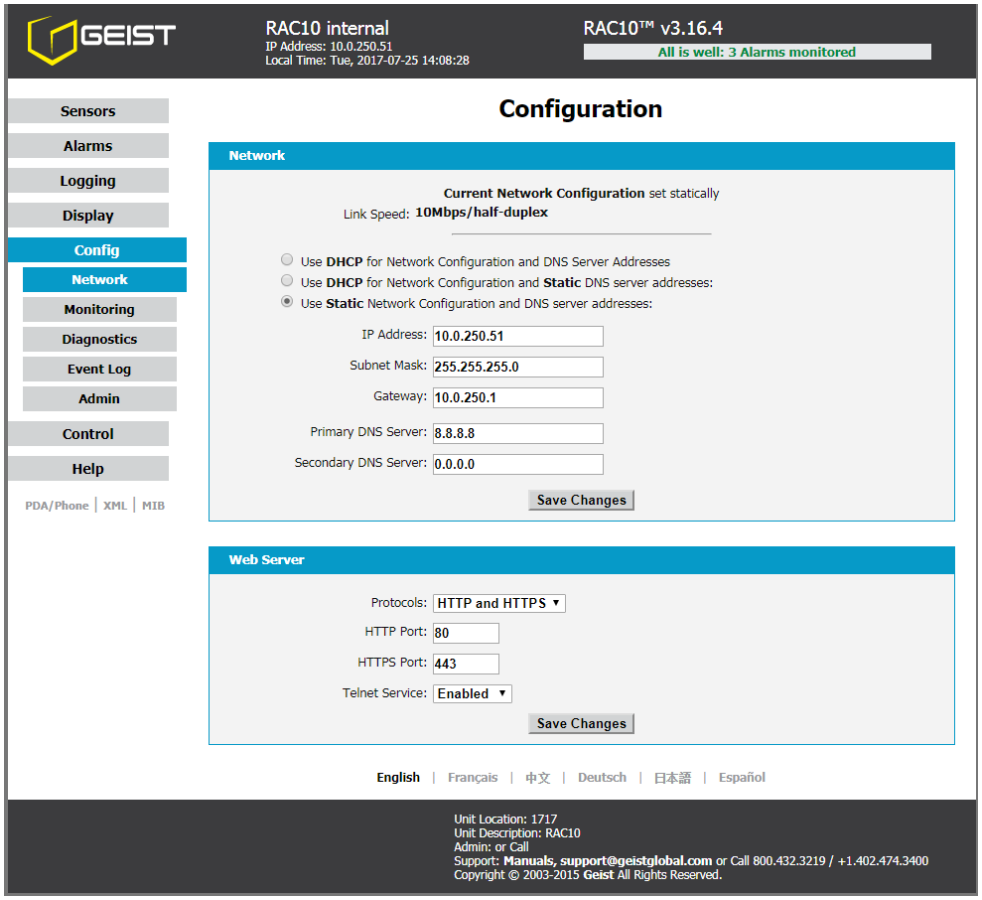
# Config

The Configuration page has five sub-tabs; Network, Monitoring, Diagnostics, Event Log, and Admin.

## Network Configuration

The unit's network configuration is set on the Network tab of the Configuration page. Settings pertaining to the unit's network connection are:

Figure 3-7 Network Configuration Page




- **DHCP:** Allows the unit to request a dynamic IP address from a server on the network.
- **Static IP Address/Net Mask/Gateway:** When not using a dynamic address, enter static network configuration information here.
- **Telnet Service:** Enable or disable the built-in Telnet server.
- **HTTP Services:** Enables/disables access via HTTP and HTTPS. Available options are: HTTP and HTTPS, HTTP only, and HTTPS only. It is not possible to disable the web interface completely.
- **HTTP/HTTPS Server Port:** Changes the TCP port that each server listens on.
- **DNS Servers:** Allows the unit to resolve host names for Email, NTP and SNMP servers as well as cameras.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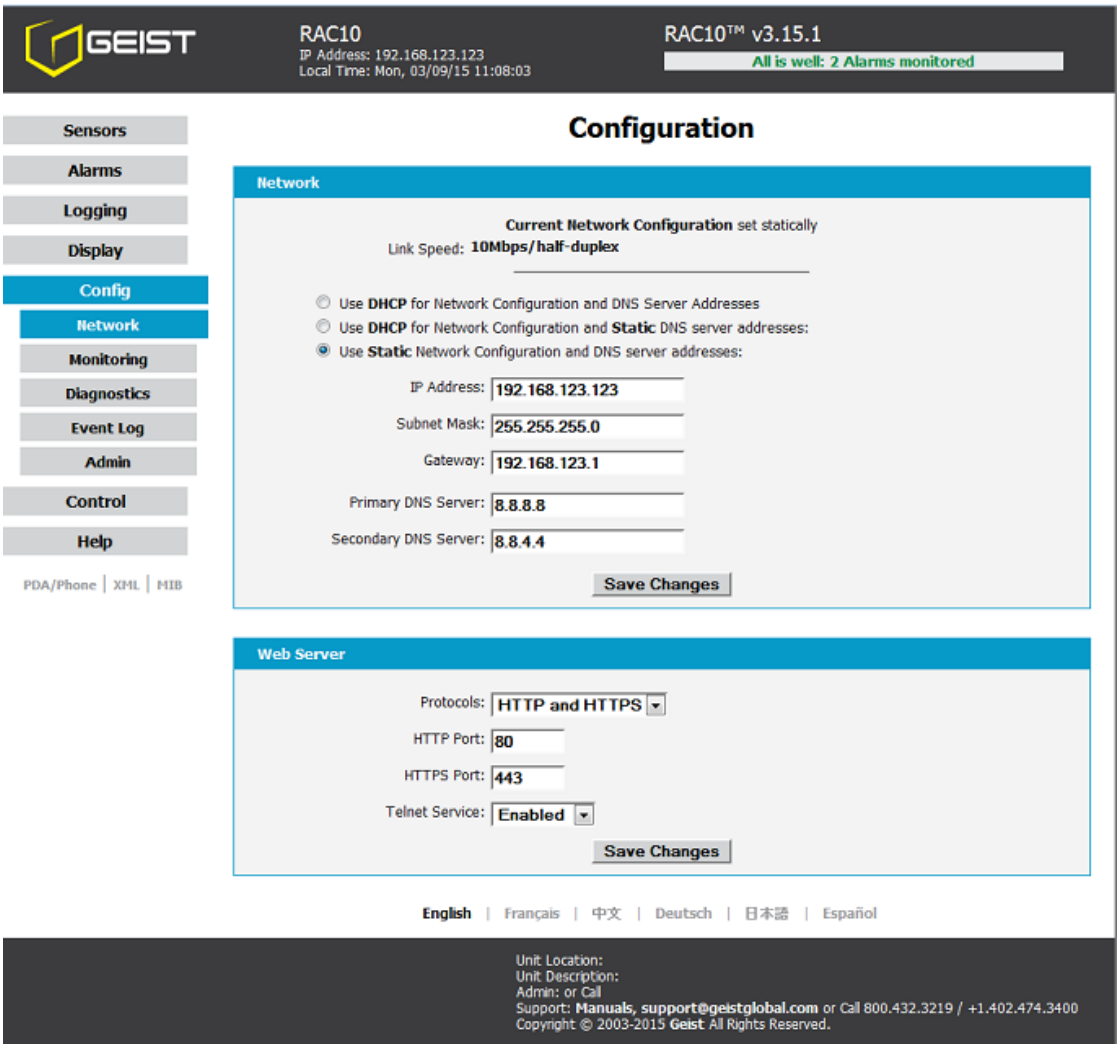
# Configuration Network Tab

The user can enter and update the network settings on the Network tab of the Configuration page.

Figure 3-8 Configuration Network Tab





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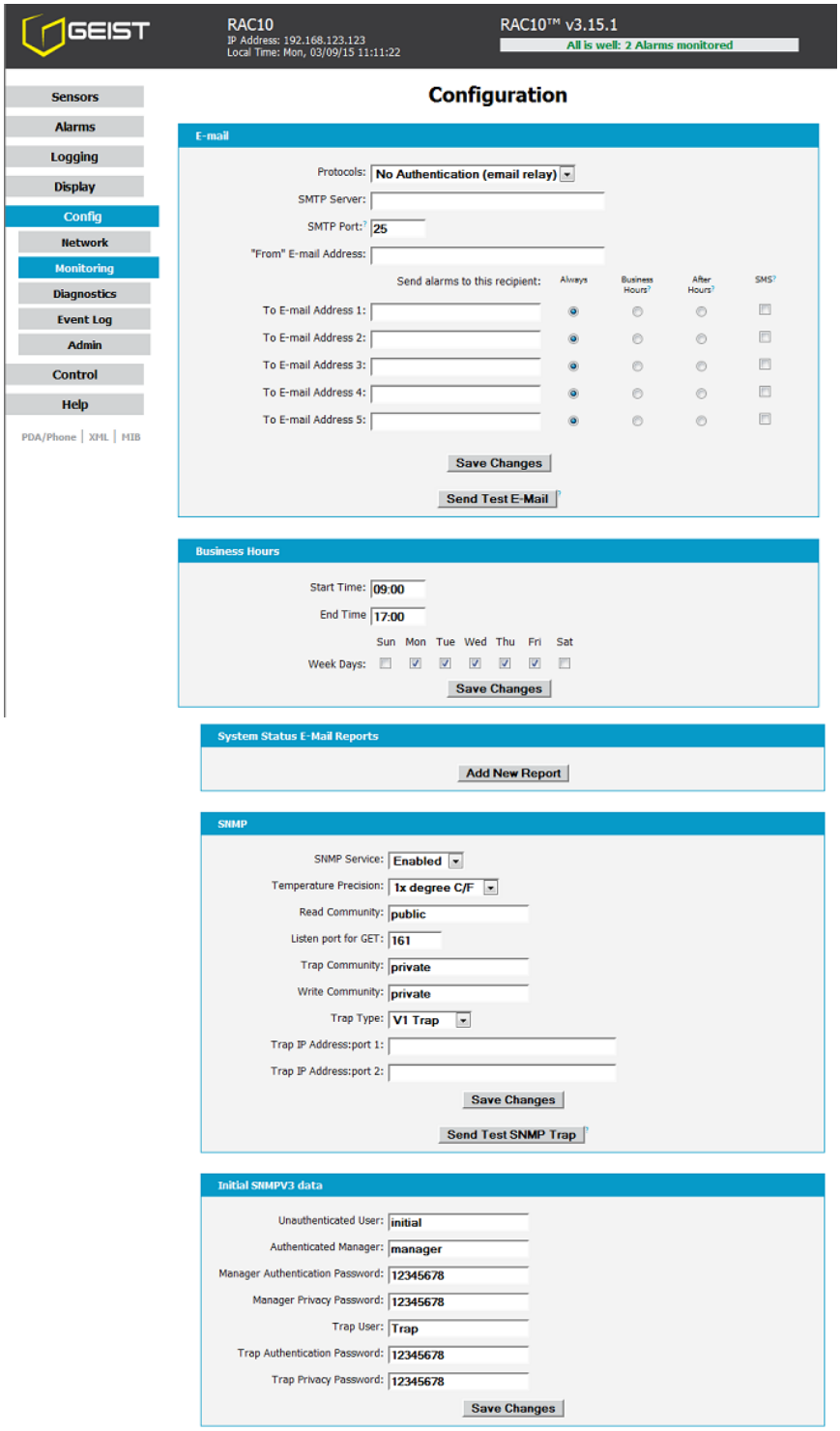
# Configuration Monitoring Tab

The user can enter and update the email alert, SNMP, and camera settings on the Monitoring tab of the Configuration page. See Unit Configuration section for details.

Figure 3-9 Configuration Monitor Tab





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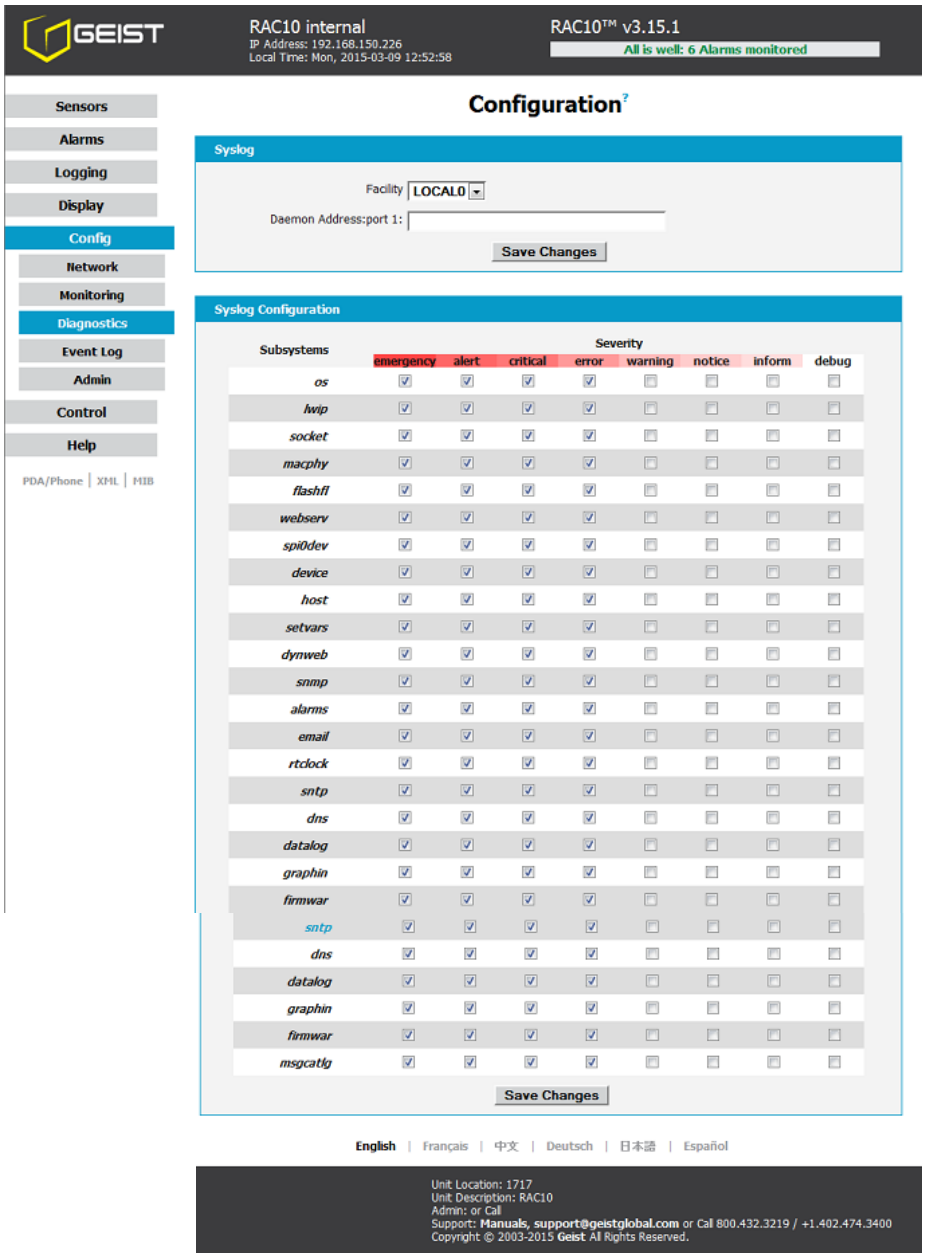
## Configuration Diagnostics Tab

The user can update the Syslog settings on the Diagnostics tab of the Configuration page.

Figure 3-10 Configuration Diagnostics Tab





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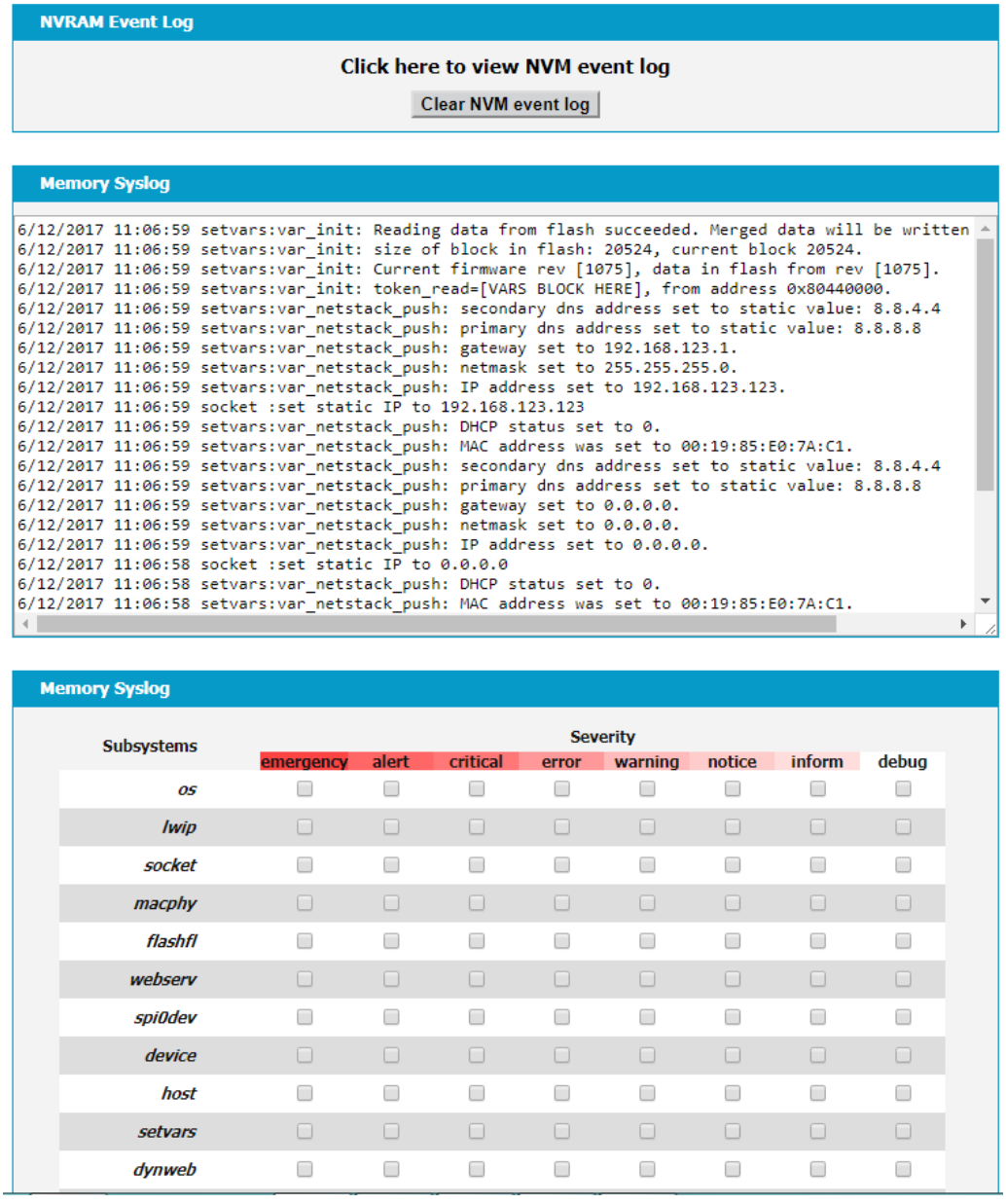
# Configuration Event Log Tab

The user can view the Event Log and update the Memory Syslog settings on the Event Log tab of the Configuration page.

Figure 3-11 Configuration Event Log Tab





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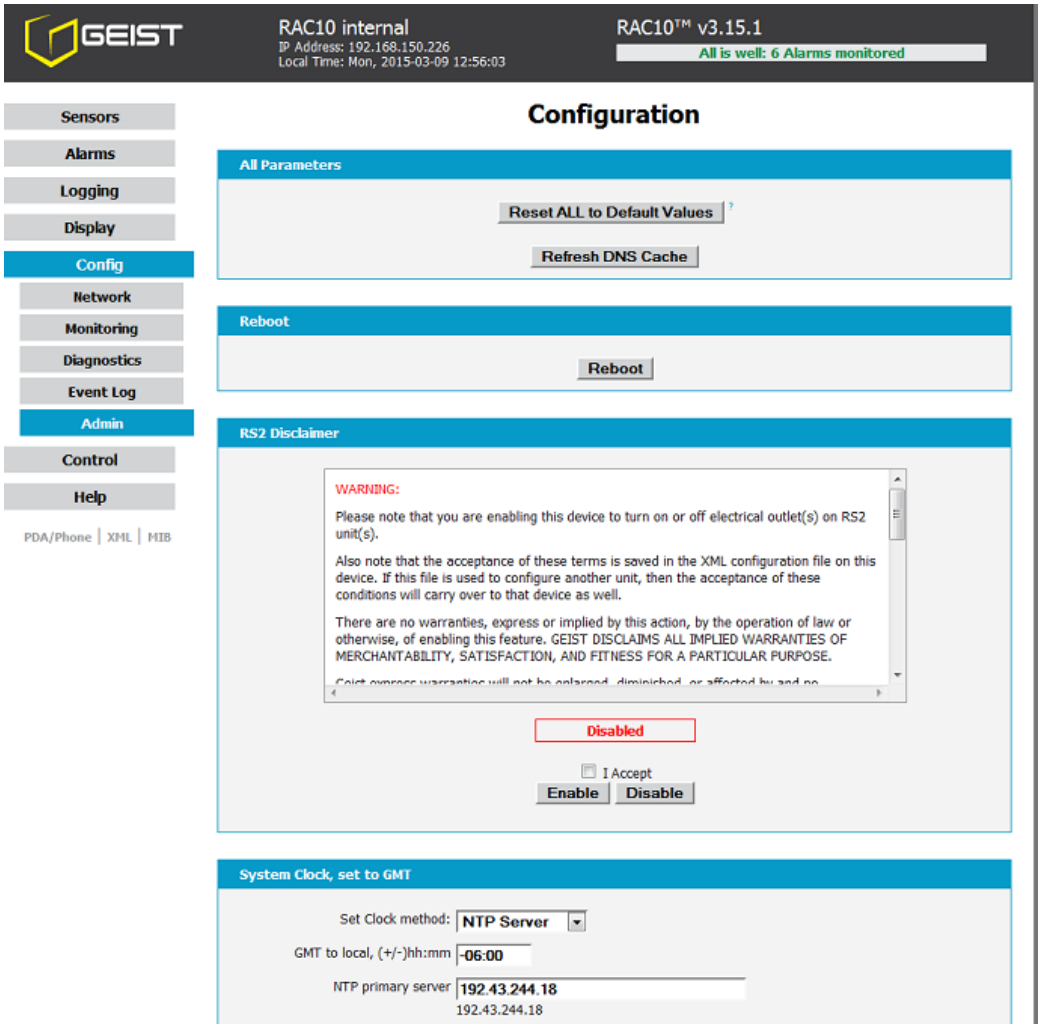
# Configuration Admin Tab

The user can set the system clock on this tab. Additionally the user can set administrator and account passwords.

Figure 3-12 Configuration Admin Tab





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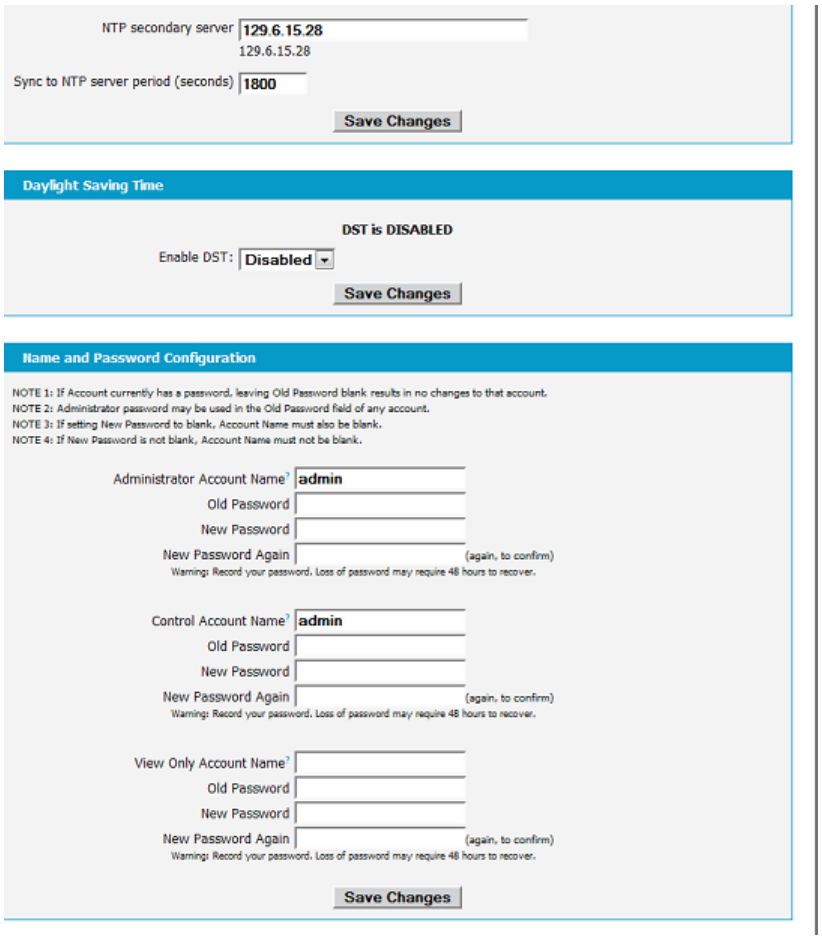
NTP secondary server
129.6.15.28
129.6.15.28
Sync to NTP server period (seconds)
1800
Save Changes
Daylight Saving Time
DST is DISABLED
Enable DST:
Disabled
Save Changes
Name and Password Configuration
NOTE 1: If Account currently has a password, leaving Old Password blank results in no changes to that account.
NOTE 2: Administrator password may be used in the Old Password field of any account.
NOTE 3: If setting New Password to blank, Account Name must also be blank.
NOTE 4: If New Password is not blank, Account Name must not be blank.
Administrator Account Name
admin
Old Password
New Password
New Password Again
(again, to confirm)
Warning: Record your password. Loss of password may require 48 hours to recover.
Control Account Name
admin
Old Password
New Password
New Password Again
(again, to confirm)
Warning: Record your password. Loss of password may require 48 hours to recover.
View Only Account Name
Old Password
New Password
New Password Again
(again, to confirm)
Warning: Record your password. Loss of password may require 48 hours to recover.
Save Changes


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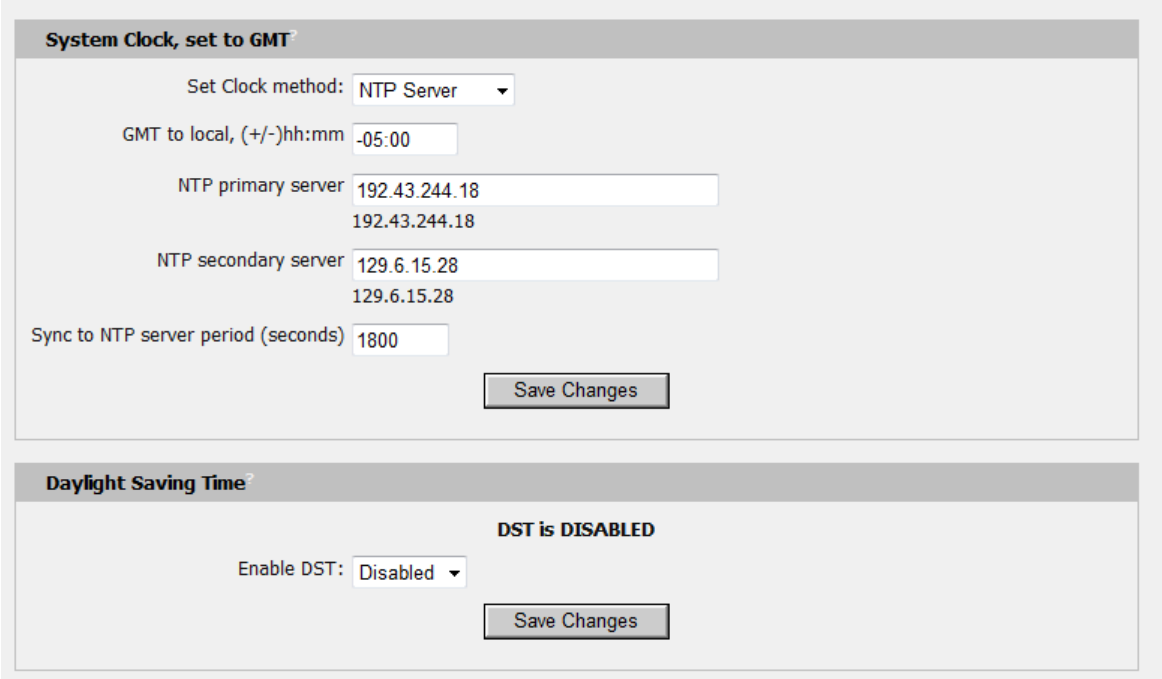
## Time and Date

The system clock is set on the Admin tab of the Configuration page. The unit comes preconfigured with the IP addresses of two NIST time servers and is set to the Central Time Zone (-0500 GMT). Should a local time server be preferred, enter its IP address into the “NTP primary server” box and click the “Save Changes” button. Clearing the time server addresses and clicking “Save Changes” will set the time servers back to the defaults. The unit attempts to contact the time servers during boot up and periodically while running. Until a time server is contacted or the system clock is manually set, all log time stamps will present time as the number of seconds since the unit was powered up and graphs will not be shown.

Figure 3-13 System Clock Page




The time, date, IP address and friendly name of the unit are displayed in the top of each web page.

**NOTE**

The time and date are not adjusted for daylight savings time. Setting the time zone offset forward and backward an hour will cause a gap or overwriting of logs, respectively.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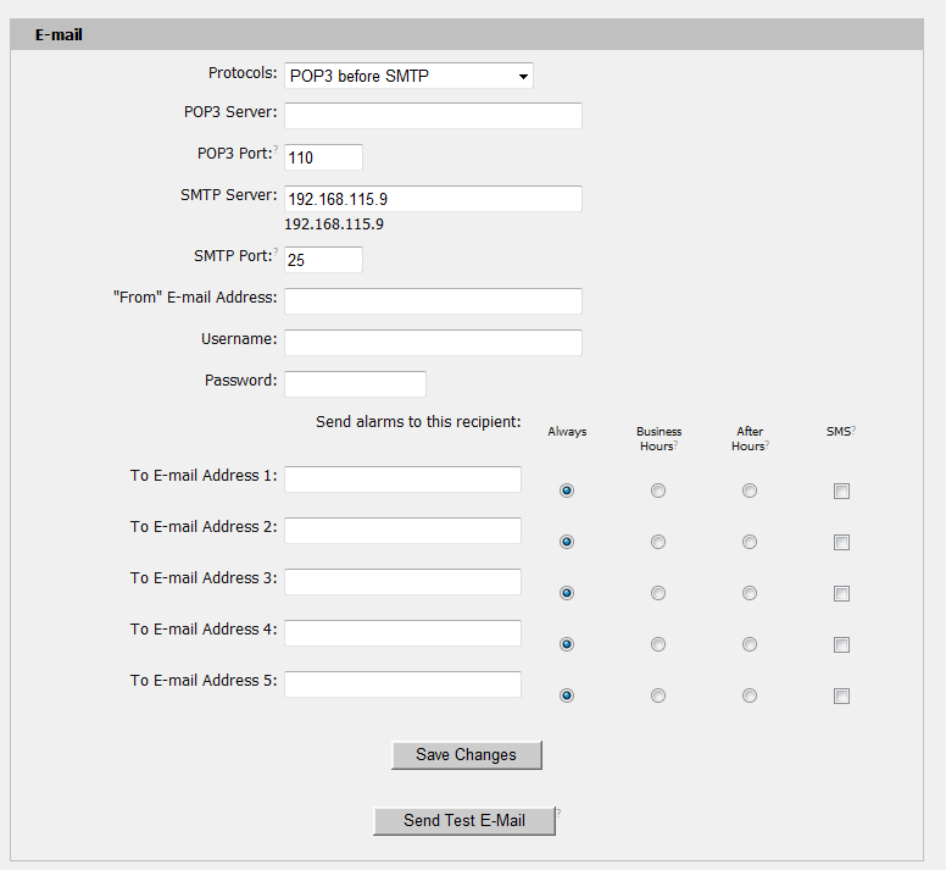
# Email

The unit is capable of sending email to as many as five addresses at once. Most SMTP and ESMTP servers are compatible. Authentication options are None, POP3 (POP-before-SMTP) or ESMTP. The email configuration is set on the Monitoring tab of the Configuration page.

Figure 3-14 Email Page




An SMTP server as well as “From” and “To” addresses are required to send e-mails. Some mail servers may require a username and password. In most cases, the username does not have to match the “From” address, but does need to be a valid user on the authenticating server. Microsoft Exchange servers will have to be set to allow SMTP relay from the IP address of the unit. In addition, a test email can be sent from the bottom of the Monitoring tab of the Configuration page.

## NOTE

The unit cannot receive emails, the POP3 server is used strictly for authentication and is not required when using None or ESMTP.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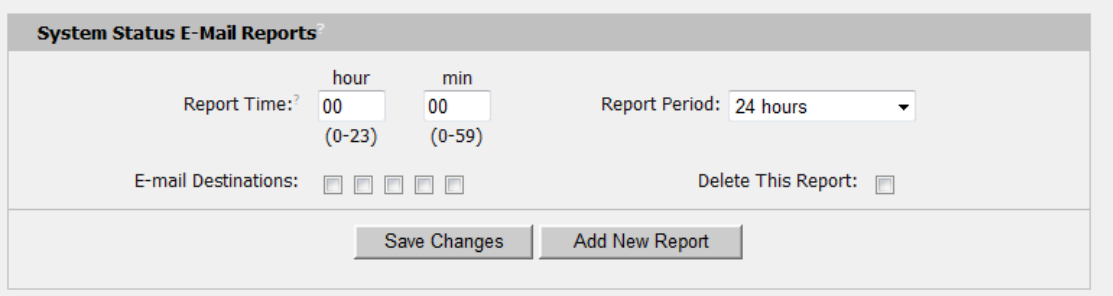
## Status Reports

When enabled, the unit will periodically send a full status report to all “To” email addresses selected for the report. The report includes current unit data from all attached sensors as well as alarm states. Reporting frequency options are: weekly, hourly, every 2, 3, 4, 6, 8, 12, 24, or 48 hours. Email addresses are selected when the report is created by checking the corresponding email destination box. Allowing the cursor to hover over an email destination box will display the email address that the box is associated with.

Figure 3-15 Email Reports Page





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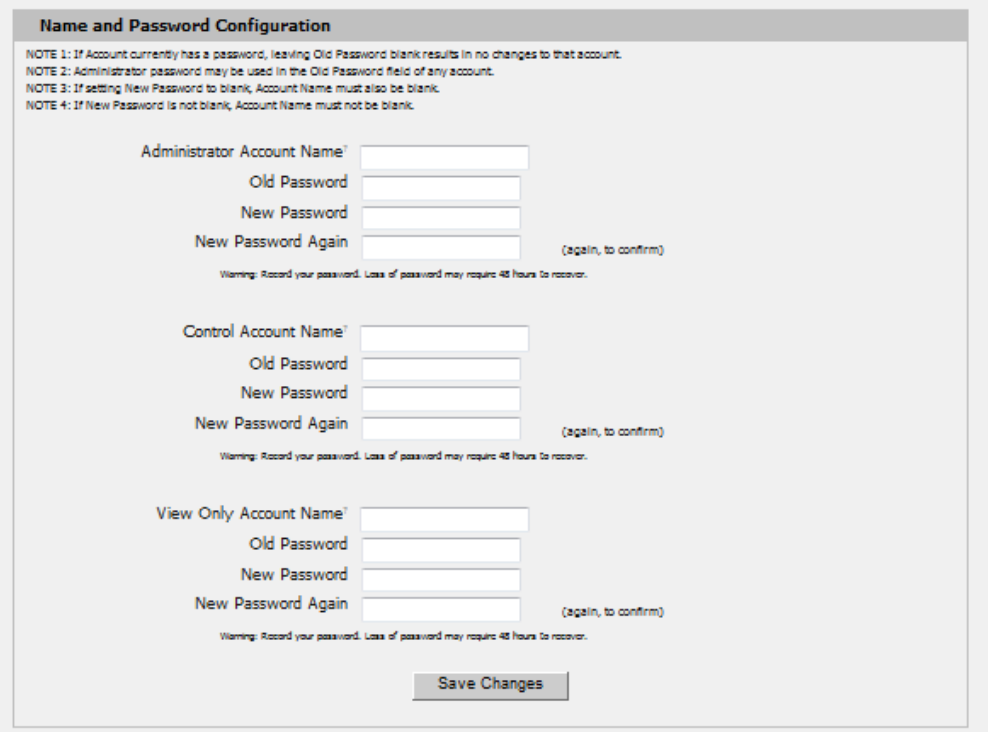
## Accounts and Passwords

The RAC10 offers account security options that are entered on the Admin tab of the Configuration page. There are three levels of account security:

- **Administrator:** Password protects the Display, Alarms and Configuration pages.
- **Control Access:** Password protects the Control page.
- **View-Only:** Password protects the Sensors page, including PDA and XML data.

Figure 3-16 Account Configuration Page




User account names may include alphanumeric characters, spaces and underscores. Passwords may include alphanumeric characters and underscores.

### NOTE

The Administrator account must be active to enable the Control Access and View-Only accounts. The Control Access account must be active to enable the View-Only account. The account names “root” and “admin” are disabled for security reasons and cannot be re-enabled.

### WARNING

Record your passwords. To reset lost passwords, follow the instructions for resetting the unit’s IP address and passwords given in the Default IP Address section. To generate a temporary recovery password to access the unit, contact customer service from a location where the unit can be accessed via the internet.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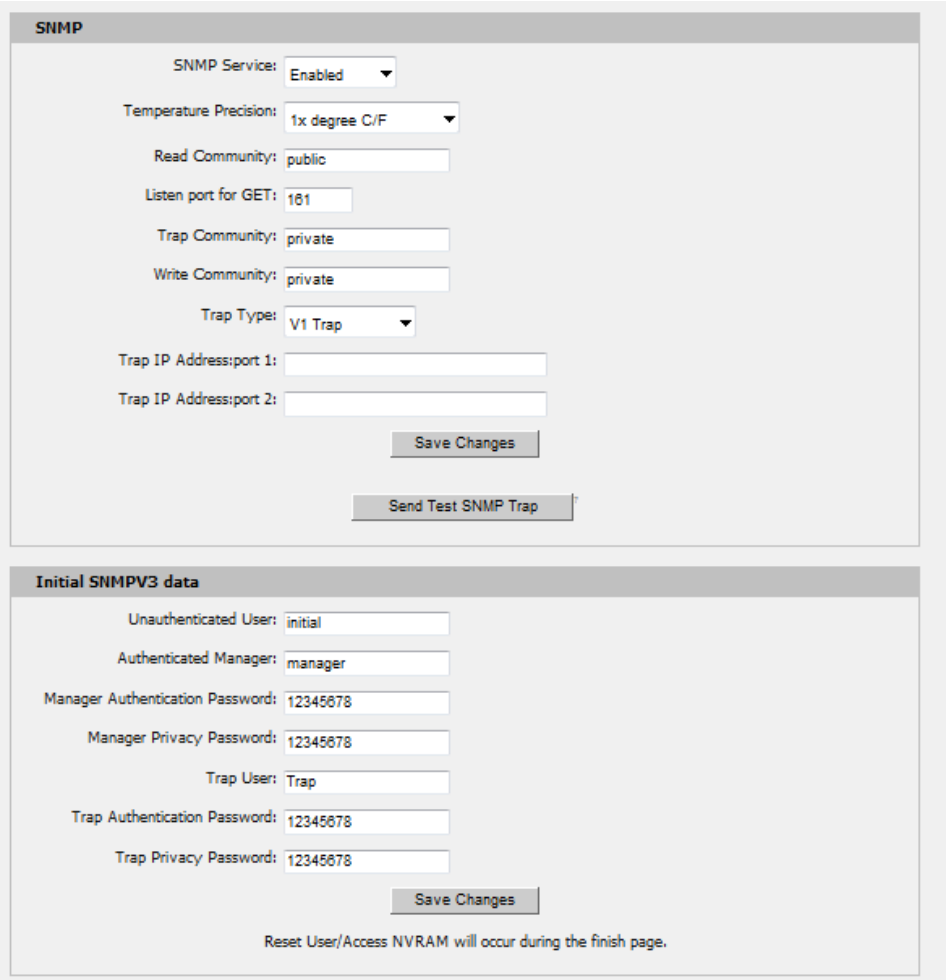
# SNMP

The unit supports retrieval of all data via Simple Network Management Protocol (SNMP) v1 and v2c. In addition, alarm traps can be sent to up to two IP addresses. The SNMP configuration is entered on the Monitoring tab of the Configuration page.

Figure 3-17 SNMP Configuration Page




The default community string is “public” and the MIB is downloadable via a link at the top of the unit’s web page.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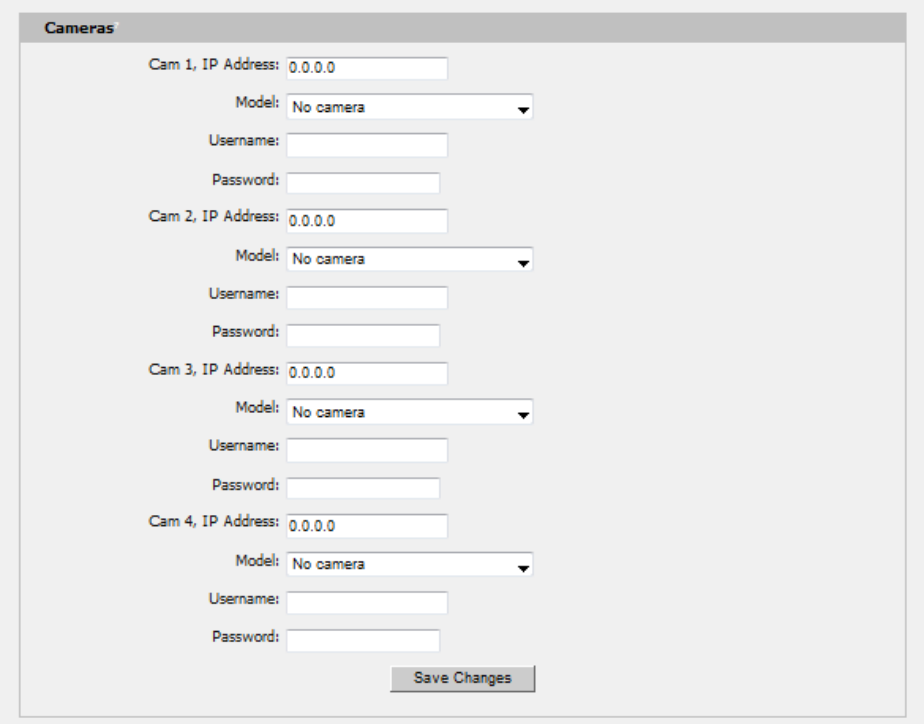
## Camera Configuration

Enter the domain names/IP addresses and models of up to four IP-addressable network cameras in the “Cameras” section of the Monitoring tab on the Configuration page. The unit will present a linked snapshot from each camera on the Sensors page.

Figure 3-18 Camera Configuration Page



**NOTE**

Each camera must be set to allow anonymous access to enable this feature.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## Telnet

The unit provides a Telnet server for basic monitoring via the command line. The Administrator account must be enabled to use the Telnet interface. Type “help” after logging in to the unit to see a list of available commands. The Telnet service can be disabled under “Web Server” on the Network tab of the Configuration page.

**NOTE**

The All data sent via Telnet is unencrypted. Some settings can be changed and user names and network settings are available via Telnet. In secure environments, it is recommended that Telnet be disabled.

## Admin Information

Information entered in the “Admin Info” section of the Admin tab of the Configuration page will show up at the bottom of the unit’s web interface.

Figure 3-19 Admin Configuration Page

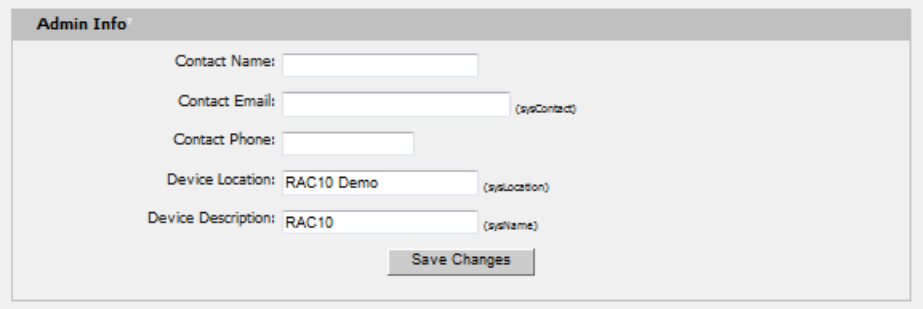
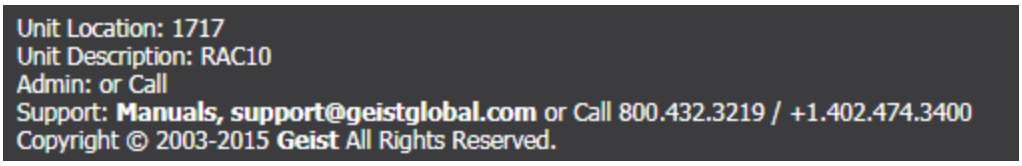



Figure 3-20 Admin Information Display on Configuration Page





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# Control

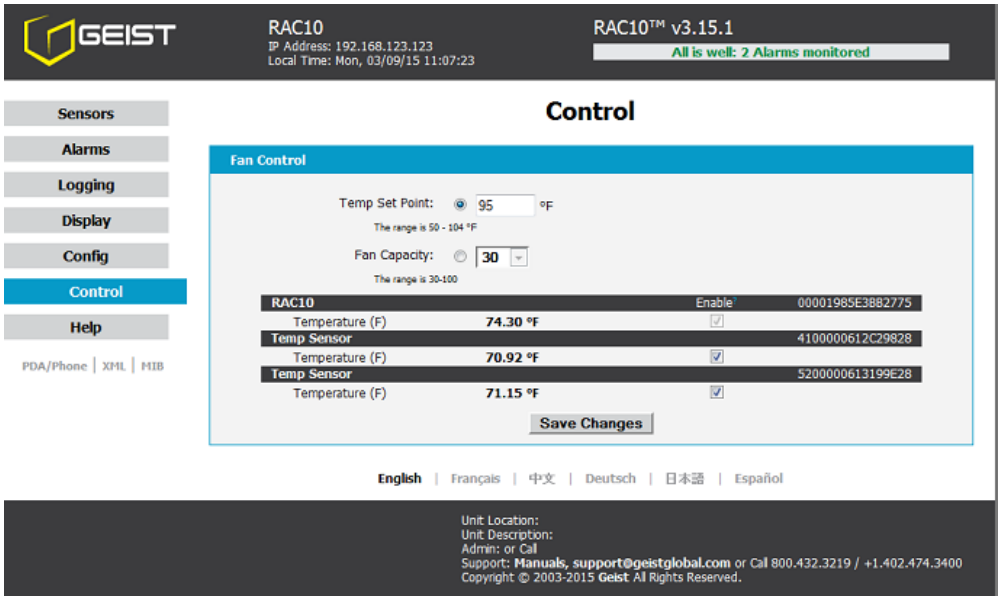
## General Operation

The RAC10 System may be set to automatically maintain a desired temperature, or to manually circulate a set volume of air on a continual basis. Once the desired mode of operation and set point has been set, the unit will operate without any interaction with the user.

## Control Page

The Control page gives the user several options for entering the RAC10 control set point. A drop down menu allows the user to choose between a temperature set point or a manual fan capacity set point. In addition, the Control page allows the user to assign friendly names to any external temperature sensors attached to the RAC10.

Figure 3-21 Control Page





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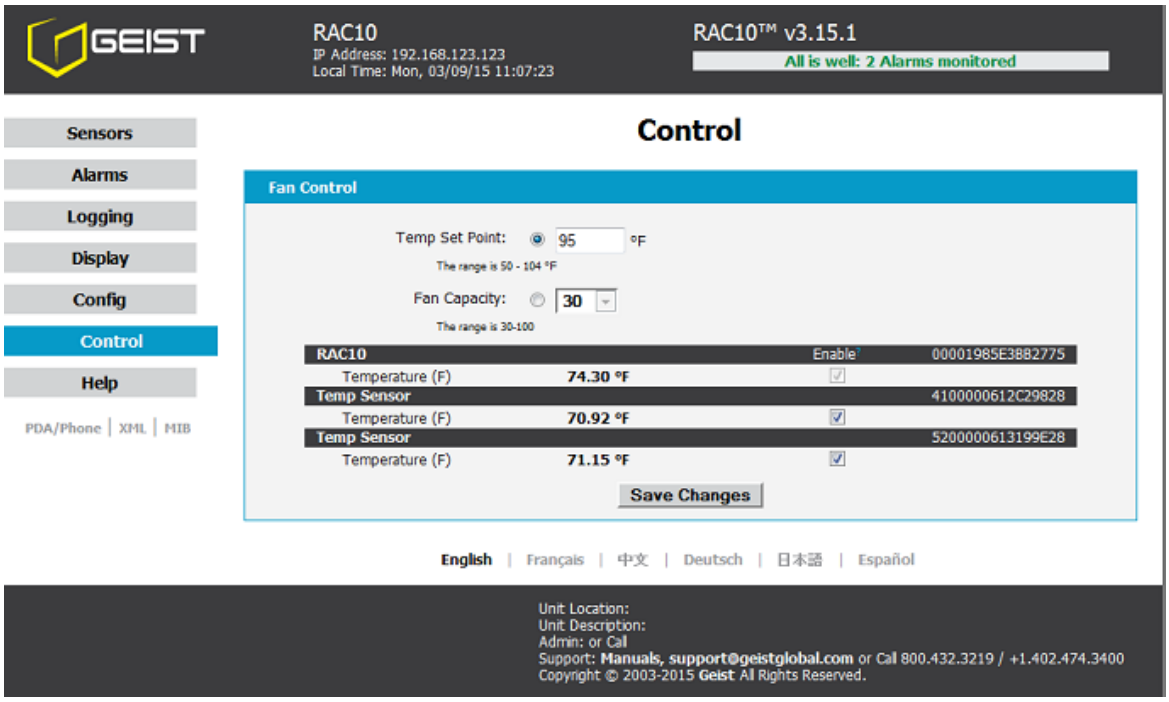
# Initial Set Point Configuration

The available control modes are:

- **Temperature Set Point:** Tells the RAC10 to use the temperature set point entered to control fan speed.
- **Fan Capacity:** Tells the RAC10 to use the manual set point entered in the box on the Control page for a continuous fan capacity.

Figure 3-22 Set Point Configuration





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# Accessories

## Available Sensors

- **RT-12:** Temperature – 12 ft. cord
- **RT-20:** Temperature – 20 ft. cord

## Connecting Remote Sensors

Plug-and-play remote temperature sensors may be attached to the RAC at any time via the RJ-12 connectors on the unit. Each sensor has a unique serial number and is automatically discovered and added to the web page. Up to four temperature sensors may be connected.

**NOTE**

The display order of the sensors on the web page is determined by the internal serial number of each sensor. Friendly names for each sensor can be customized on the Display page. The RAC will only recognize RT (Temperature) sensors. The sensor uses Cat. 3 wire and RJ12 connectors. Wiring must be straight-through: reverse polarity will temporarily disable all sensors until corrected. The sensors use a serial communication protocol and are subject to network signaling constraints dependent on shielding, environmental noise, and length of wire. Typical installations allow runs of up to 600 feet of sensor wire.


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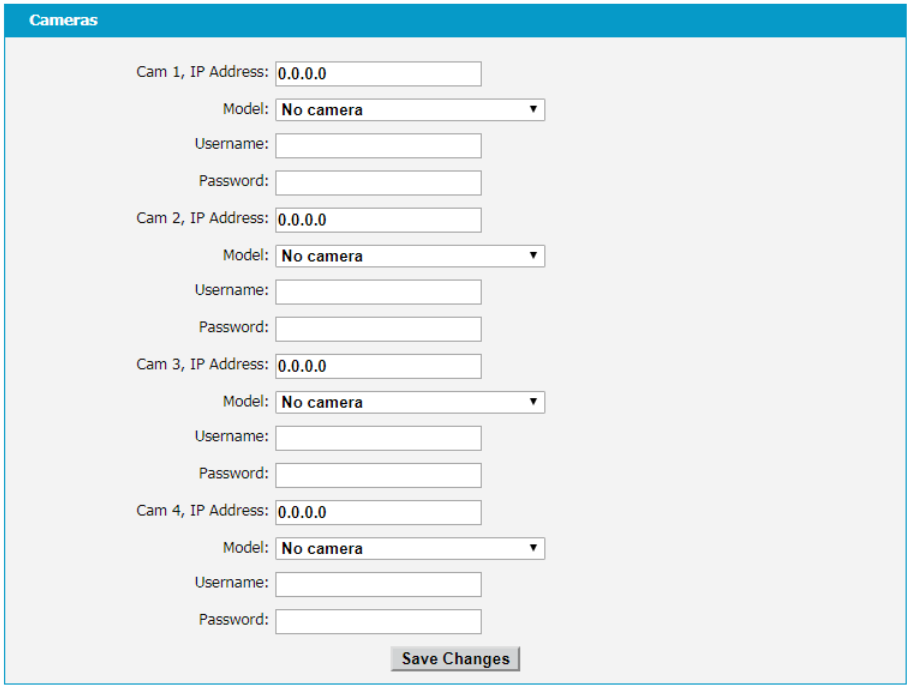
# IP-Addressable Network Cameras

The unit is able to interface with up to four IP-addressable network cameras. A live snapshot from each camera will be displayed on the unit's Sensors page underneath the main unit's graph. Clicking on a snapshot opens the camera's website in a new browser window.

Figure 3-23 Camera Images

Camera model and IP address are entered on the Monitoring tab of the Configuration page.

Figure 3-24 Camera Configuration Page



## NOTE

Some cameras require additional software downloads to display live video in a web browser.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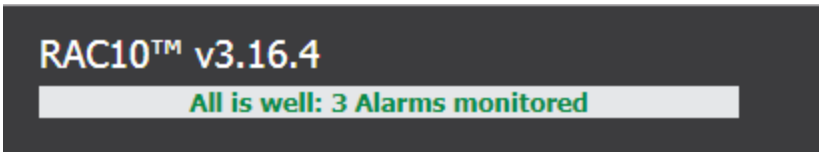
# Chapter 4 - Final Checkout

## Firmware Version

The firmware version is located in the upper right section of the web interface header, represented by v3.y.xx. Before contacting support, it is recommended that the Fan Controller first be updated to the latest firmware version. If this is not possible, please have the existing firmware version number for the unit available when contacting technical support.

Figure 4-1 Web Page Interface Header




## Firmware Updates

Keep your unit updated with the latest firmware releases or sign up for notifications. http://www.geistglobal.com/GeistUS/Docs/downloads.htm.

## Service and Maintenance

No service or maintenance is required. Do not attempt to open the RAC10 or you may void the warranty. No serviceable parts inside. It is recommended that power be removed from the unit before installing or removing any equipment.

## More Technical Support

http://www.geistglobal.com
Email: support@geistglobal.com

Americas

- 1 888 630 4445

Europe and Middle East

- From within the UK 0845 026 3853
- From abroad +44 845 026 3853

Asia

- English +1 888 630 4445 (US number)
- Chinese +86 755 8663 9505

Or contact your distributor.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# Product-Specific Safety Notices

The specific procedural safety precautions relating to this product are stated below.

## General Safety

Safety is a serious matter and all precautions should to taken to guarantee a safe work and operational environment. General safety precautions must be observed during all aspects of operation, service, and repair of equipment described in this document. Failure to comply with the safety warnings, procedures and guidelines as presented in this document is in violation of the safety standards of design, manufacture, and intended use of this equipment.

You are responsible for following the safety guidelines and warnings presented in this document for this equipment. Individuals using or maintaining Geist product(s) are expected to follow all the noted warnings and safety precautions necessary for safe operation of the equipment in your environment. Geist assumes no liability for failure to comply with these requirements.

## Live Circuits Safety

**DANGER**

**HAZARDOUS VOLTAGE, CURRENT, AND ENERGY LEVELS ARE PRESENT IN THIS PRODUCT. POWER SWITCHED CIRCUITS CAN HAVE HAZARDOUS VOLTAGES PRESENT EVEN WHEN THE SWITCH IS IN THE OFF POSITION. DO NOT OPERATE THE PRODUCT WITH ANY COVER PLATE REMOVED. ALWAYS MAKE SURE THAT PRODUCT IS FULLY ENCLOSED PRIOR TO USE.**

Operating personnel must:

- Not remove equipment covers. Only Geist Authorized Service Personnel or other qualified maintenance personnel may remove equipment covers for internal sub-assembly, or component replacement, or any internal adjustment.
- Not replace any equipment component with power applied to the line cord. Under certain conditions, dangerous voltages may exist even with the input power cable disconnected. Any exceptions for 'Hot-Swap' modules will be specifically noted in this product document.
- Always disconnect input power and discharge circuits before touching any sub-assembly of circuit component.

## Equipment Grounding

To minimize shock hazard, the equipment chassis and enclosure must be connected to an electrical earth ground. The input power cable must be either plugged into an industry electrical code compatible receptacle or wired directly into an electrical code compatible interface. The equipment earth ground wire (typically green) must be firmly connected to the


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facility electrical safety ground. The mating electrical interface to this equipment must comply with International Electromechanical Commission (IEC) standards.

## Electrostatic Discharge

Geist strongly recommends that an anti-static precautions be taken when installing, removing, or working on and around static sensitivity equipment. Industry approved anti-static devices such as wrist and heel straps, in conjunction with conductive foam pads, should be available and implemented only after verifying that they are in good working condition.

Electronic components such as memory modules, circuit boards, and LED displays, are sensitivity to Electro-Static Discharge (ESD). Handling of such components should be done only after proper anti-static workspace conditions have been established. Any static producing packing materials such as plastic, Styrofoam, and some cardboards, should be removed and discarded in a timely manner.

## Explosive Environment

Do not operate this equipment in the presence of flammable gases or fumes. Operation of any electrical equipment in such an environment constitutes a definite safety hazard.

## Servicing and Adjustments

Do not attempt to service this equipment, there are no field serviceable parts or sub-assemblies. Any adjustments should be made by authorized service personnel only.

## Repairs and Modifications

Because of the danger of electrocution and/or severe health hazard, do not install substitute parts or preform any unauthorized modifications of this equipment. It is best to contact Geist for Warranty and Repair Service to ensure that safety features are maintained.


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