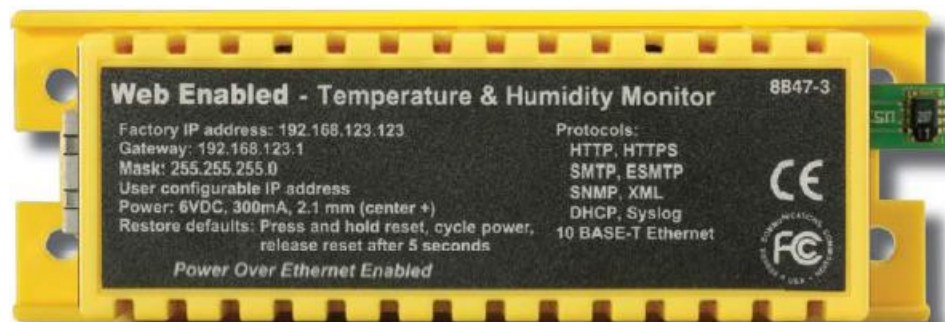




Instruction Manual
Environmental Monitoring Unit

RSMINI-P, RSMICRO, RSMINI163
Firmware Version 3



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Specifications

Overview

The RSMINI-P, RSMICRO, and RSMINI163 Environmental Monitoring Units provide remote environmental monitoring and alarming capability needed to detect climate conditions in data centers. The RSMINI-P, RSMICRO, and RSMINI163 Environmental Monitoring Units are equipped with a built-in web server. Web pages, including graphs, are generated by the unit to monitor environmental conditions within the cabinet. No software other than a web browser is required for operation and several data formats are available. The RSMICRO has built-in sensors to monitor Temperature and Relative Humidity. The RSMINI-P and RSMINI163 have a built-in temperature sensor. The RSMINI-P has one expansion port for the connection of up to 16 external sensors. The RSMINI163 has 16 expansion ports for the connection of external sensors and 3 I/O ports for optional remoter sensors. The RSMINI-P, RSMINI163, and the RSMICRO support the use of network cameras.

Environmental

Temperature

Operating:	10°C (50°F) min	45°C (104°F) max
Storage:	-25°C (-13°F) min	65°C (149°F) max

Humidity

Operating:	5% min	95% max	(non-condensing)
Storage:	5% min	95% max	(non-condensing)

Elevation

Operating:	0 m (0 ft) min	2000 m (6561 ft) max
Storage:	0 m (0 ft) min	15240 m (50000 ft) max

Electrical

6-12 Volts DC, 2 Amps

Power Over Ethernet (POE) Enabled

Networking

Protocols

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

Ethernet Link Speed

10 Mbit; half-duplex

Data Formats

HTML, SNMP, CSV/Plain Text, XML

EMC Verification

This Class A device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Installation

Guidelines

- If the Environmental Monitoring Unit is installed in a cabinet the ambient temperature of the rack should be no greater than 45°C.
- Install the Environmental Monitoring Unit such that the amount of airflow required for safe operation of equipment is not compromised.
- Mount the Environmental Monitoring Unit so that a hazardous condition is not achieved due to uneven mechanical loading.

Network Overview

This product comes preconfigured with a default IP address set. Simply connect to the Environmental Monitoring Unit and access the web page with your browser.

Default IP Address

RSMINI-P, RSMICRO, and RSMINI163 units have a default IP address for initial setup and access to the unit if the assigned address is lost or forgotten. Once an IP address is assigned to a unit, the default IP address is no longer active. To restore the default IP address, press and hold for approximately 20 seconds the reset button for approximately 20 seconds. The reset button is located below the network connector (RSMINI-P and RSMINI163) or on the side of the unit (RSMICRO). On the RSMINI-P and RSMINI163 the idle and activity lights on the network connector will both light up when the IP address has been reset.

Note: Pressing the reset button will restore the default IP address and will also clear all password settings.

The Configuration page allows you to assign the network properties or use DHCP to connect to your network. Access to the unit requires the IP address to be known, so use of a Static IP or reserved DHCP is recommended. The default address is shown on the front of the unit:

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

Initial Setup

Connect the RSMINI-P, RSMICRO, or RSMINI163 unit to your computer using a crossover cable or hub/switch.

Windows XP

On your computer, go to "Start > Settings > Control Panel > Network and Dial Up Connections"

Right click on "Local Area Connection" and select "Properties"

Select "Use the following IP address". Use these settings:

- **IP Address:** 192.168.123.1
- **Subnet Mask:** 255.255.255.0
- **Gateway:** Leave blank

Click "OK" twice.

The unit should now be accessible in a web browser via the unit's permanent IP address: <http://192.168.123.123/>. See Unit Configuration (page 19) for details.

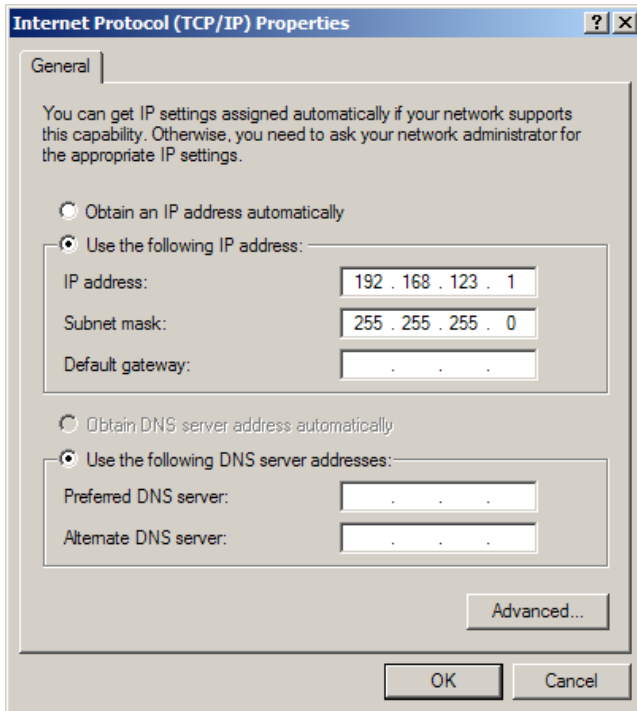


Figure 1: Network settings for initial setup.

MacOS X Leopard

Open System Preferences via the Dock or the Apple menu.

Select "Network" under "Internet & Network."

Select "Ethernet" from the list on the left side of the window and enter these settings on the right side of the window:

- **Configure:** Manually
- **IP Address:** 192.168.123.1
- **Subnet Mask:** 255.255.255.0
- **Router:** Leave blank

Hit "Apply" and confirm the changes.

The unit should now be accessible in a web browser via the unit's permanent IP address: <http://192.168.123.123/>. See Unit Configuration (page 19) for details.

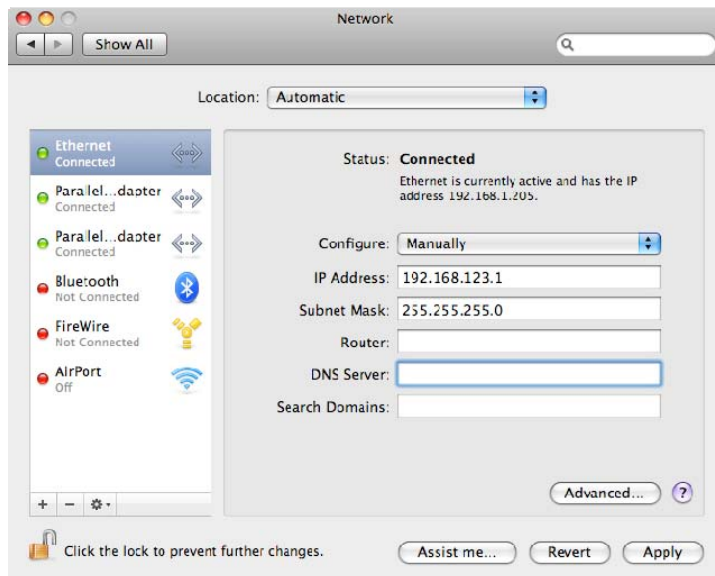


Figure 2: MacOS X network settings for initial setup

Web Interface

Overview

The unit is accessible via a standard, unencrypted HTTP connection as well as an encrypted HTTPS (SSL) connection. The following web pages are available:

Sensors Page

The front page, *Sensors*, gives both instantaneous and historical views of the unit's data. Real time readings are provided for all sensor data next to historical graphs.

Optional cameras may be added and their live snapshots are shown on this page. On RSMINI-P and RSMINI163 units, plug-and-play sensors appear below the internal sensors when attached.

The menu bar allows access to the rest of the Environmental Monitoring Unit's functionality.

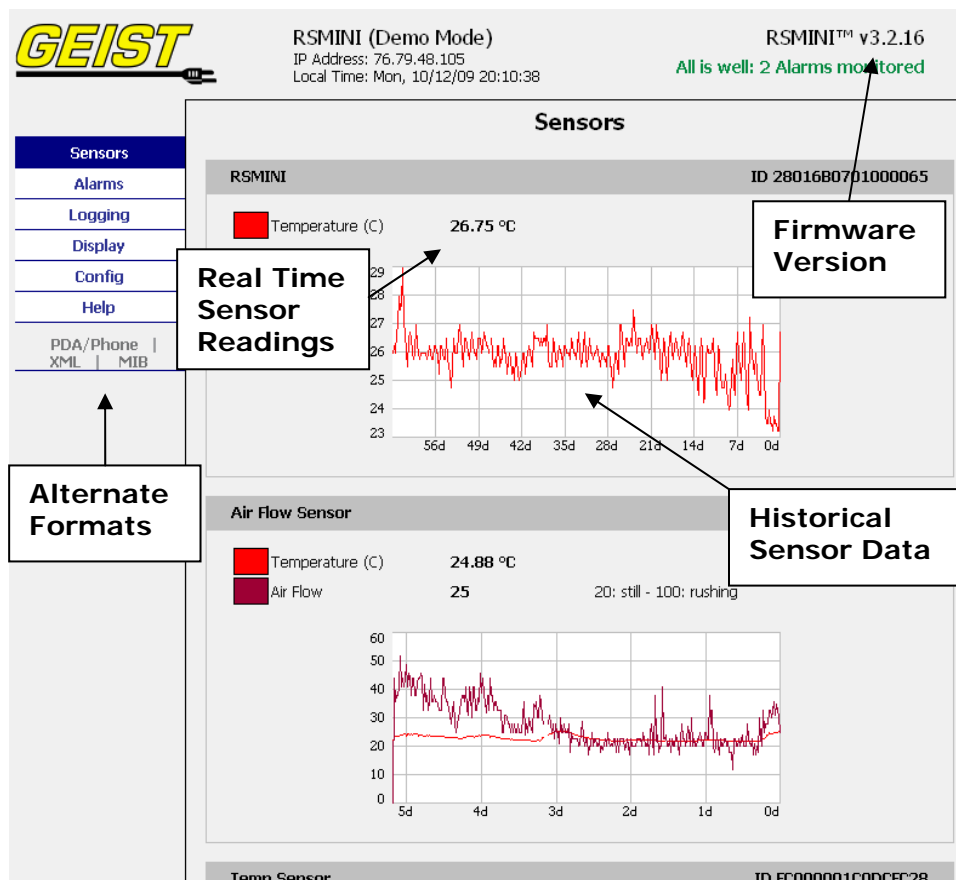


Figure 3: Sensors Page – Internal Temperature Sensor



Figure 4: Sensors Page – External Sensor Data (RSMINI-P Only)

Logging Page

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. Please note that although data is logged once per minute, all sensor data used in the real time display and alarm functions is read at least once every 5 seconds for internal sensors and once every 30 seconds for external sensors. External sensors are available on the RSMINI-P and RSMINI163 only. Recorded data is available for download in a comma-separated values (CSV) file.

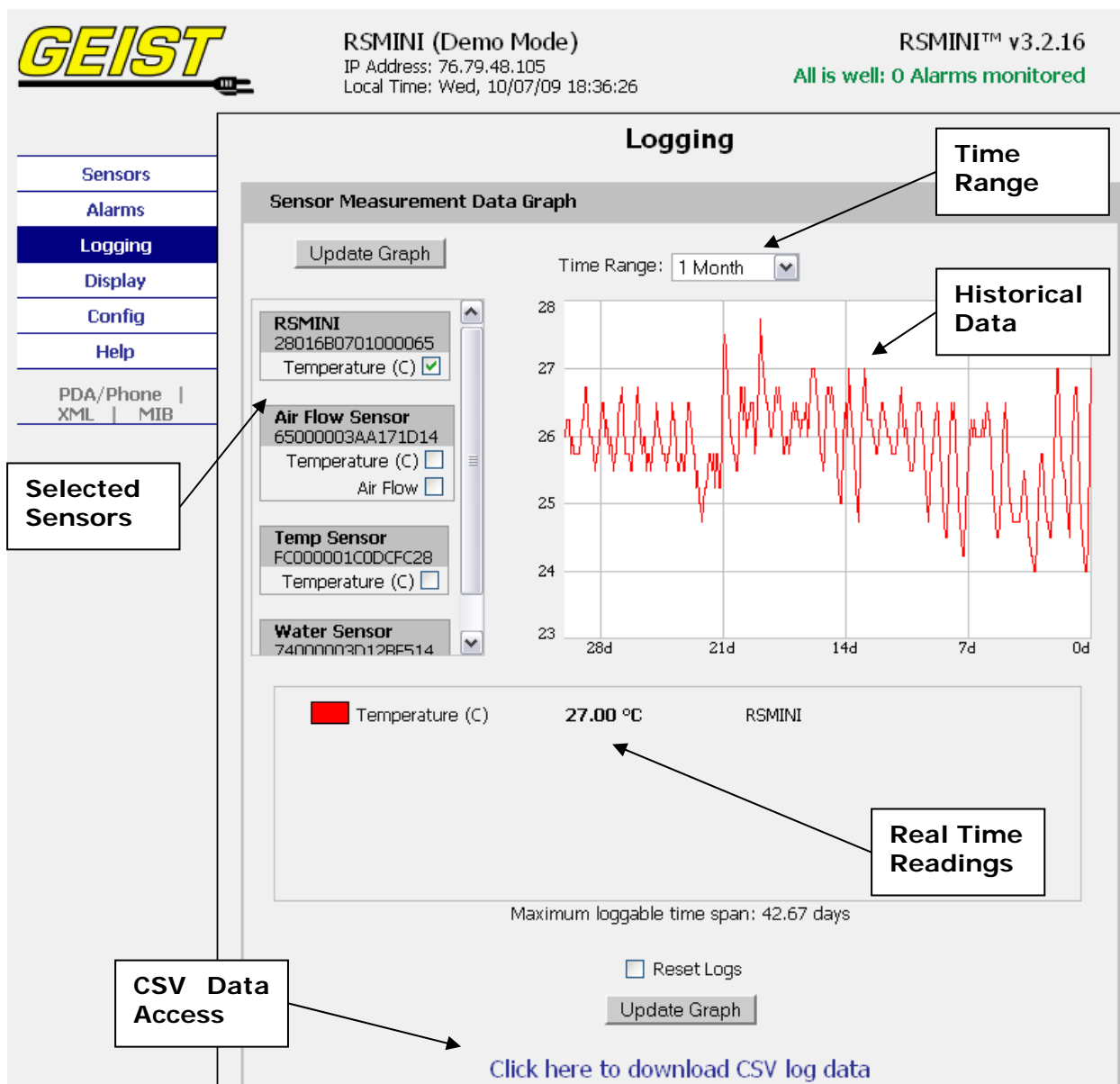


Figure 5: Logging Page

Display Page

The *Display* page allows the user to assign friendly names to internal and attached sensors as well as change the default temperature unit of measure for 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.

GEIST RSMINI (Demo Mode) RSMINI™ v3.2.16
IP Address: 76.79.48.105 All is well: 0 Alarms monitored
Local Time: Wed, 10/07/09 18:40:29

Display

General

Date Format: USA (MM/DD/YY) **Temperature Units**

Temperature Unit: Celsius

Internal Temperature Offset: 0

WARNING: Internal temperature is pre-calibrated at the factory. The offset is necessary only when the unit is operating in a very low airflow environment where internal board heating inside the case causes internal temperature to read slightly warmer than the outside air.

Interface Type: Default **Interface Type**

Save Changes

Devices

Unique Address	Device Type	Friendly Name
2801680701000065	climate	RSMINI
65000003AA171D14	airFlowSensor	Air Flow Sensor
FC000001C0DCFC28	tempSensor	Temp Sensor
74000003D12BF514	waterSensor	Water Sensor

☐ Remove all unplugged devices **Friendly Names**

Save Changes

Unit Location:
Unit Description:
Admin: or Call
Support: support@geistmfg.com or Call 800.432.3219
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Figure 6: Display Page

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. The alarms are displayed in different sections based on the device the alarm is associated with. Alarm notification options include Email and SNMP Trap. See Alarms (page 25) for details.

GEIST RSMINI (Demo Mode) RSMINI™ v3.2.16
IP Address: 76.79.48.105
Local Time: Wed, 10/07/09 18:45:43
All is well: 2 Alarms monitored

Alarms

RSMINI ← **Device Friendly Name**

Temperature (C) ▼
High Trip ▼ 50.0

Save Changes Add New Alarm

Air Flow Sensor

Alarm Type → Temperature (C) ▼
Trip Type → Low Trip ▼

Alarm Threshold → 10.0

Save Changes Add New Alarm

Alarm Options → E-mail Traps

Temp Sensor

Figure 7: Alarms Page

Configuration Page

The *Configuration* page has five sub-tabs; *Network*, *Monitoring*, *Diagnostics*, *Event Log*, and *Admin*. See Unit Configuration (page 19) for details.

Configuration Network Tab

The user can enter and update the network settings on the *Network* tab of the *Configuration* page. See Unit Configuration section for details.

GEIST RSMINI (Demo Mode) RSMINI™ v3.2.16
IP Address: 76.79.48.105 All is well: 2 Alarms monitored
Local Time: Wed, 10/07/09 18:59:51

Configuration

Network

Current Network Configuration

IP Address: **76.79.48.105** from Static Configuration
Subnet Mask: **76.79.48.97**
Gateway: **76.79.48.97**
Primary DNS Server: **208.67.222.222** from Static Configuration
Secondary DNS Server: **208.67.222.220**

☐ Use DHCP for network configuration
☒ Use Static Network Configuration:

IP Address:
Subnet Mask:
Gateway:

☐ Use DHCP for DNS server addresses
☒ Use Static DNS server addresses:

Primary DNS Server:
Secondary DNS Server:

Web Server

Protocols:

HTTP Port:
HTTPS Port:
Telnet Service:

Unit Location:
Unit Description:
Admin: or Call
Support: support@geistmfg.com or Call 800.432.3219
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Figure 8: Configuration Network Tab

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 (page 19) for details.

The screenshot displays the 'Configuration' page for the GEIST RSMINI v3.2.16. The interface includes a left-hand navigation menu with options: Sensors, Alarms, Logging, Display, Config (highlighted), Network, Monitoring (highlighted), Diagnostics, Event Log, Admin, and Help. Below this menu are links for PDA/Phone, XMS, and MIB. The main content area is titled 'Configuration' and contains several sections:


- E-mail:** Fields for SMTP Server, SMTP Port (25), From E-mail Address, To E-mail Address 1-5, POP3 Server, POP3 Port (110), Username, and Password. A 'Save Changes' button is at the bottom.
- System Status E-Mail Reports:** An 'Add New Report' button.
- SNMP:** Fields for SNMP Service (Enabled), Read Community (public), Listen port for GET (161), Trap Community (private), Write Community (private), Trap Type (V1 Trap), Trap IP Address:port 1, and Trap IP Address:port 2. A 'Save Changes' button is at the bottom.
- Initial SNMPV3 data:** Fields for Unauthenticated User (initial), Authenticated Manager (manager), Manager Authentication Password (12345678), Manager Privacy Password (12345678), Trap User (Trap), Trap Authentication Password (12345678), and Trap Privacy Password (12345678). A 'Save Changes and/or Reset SNMPV3 Non-volatile RAM' button is at the bottom.
- Cameras:** Fields for Cam 1, 2, 3, and 4, including IP Address (0.0.0.0) and Model (No camera). A 'Save Changes' button is at the bottom.
- Test SNMP Trap and E-Mail:** Buttons for 'Send Test SNMP Trap' and 'Send Test E-Mail'.

At the bottom of the page, there is a footer with the following text: 'Unit Location: Unit Description: Admin or Call Support: support@geistmfg.com or Call 800.432.3219 Copyright © 2003-2009 Geist Manufacturing All Rights Reserved.'

Figure 9: Configuration Monitoring Tab

Configuration Diagnostics Tab

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



RSMINI (Demo Mode)
IP Address: 76.79.48.105
Local Time: Wed, 10/07/09 19:22:02

RSMINI™ v3.2.16
All is well: 2 Alarms monitored

Sensors
Alarms
Logging
Display
Config
Network
Monitoring
Diagnostics
Event Log
Admin
Help
PDA/Phone | XML | MIB

Configuration

Syslog

Facility: LOCAL0

Daemon Address:port 1:

Save Changes

Syslog Configuration

Subsystems	Severity							
	emergency	alert	critical	error	warning	notice	inform	debug
os	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
lwip	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
socket	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
macphy	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
flashfile	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
webserver	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
spiflash	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
device	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
goose	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
setvars	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
dynweb	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
snmp	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
alarms	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
email	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
rtclock	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
sntp	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
dns	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
datalogger	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
graphing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
firmware	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
msgcatalog	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>


Save Changes

Unit Location:
Unit Description:
Admin: or Call
Support: support@geistmfg.com or Call 800.432.3219
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Figure 10: Configuration Diagnostics Tab

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.



RSMINI (Demo Mode)
 IP Address: 76.79.48.105
 Local Time: Wed, 10/07/09 19:25:59

RSMINI™ v3.2.16
All is well: 2 Alarms monitored

- Sensors
- Alarms
- Logging
- Display
- Config**
- Network
- Monitoring
- Diagnostics
- Event Log**
- Admin
- Help

PDA/Phone |
 XML | MIB

Configuration

Memory Syslog

```

9/28/2009 11:39:52 setvars:var_init: Reading data from flash succeeded. Me
9/28/2009 11:39:52 setvars:var_init: size of block in flash: 12492, curren
9/28/2009 11:39:52 setvars:var_init: Current firmware rev [416], data in f
9/28/2009 11:39:52 setvars:var_init: token_read=[VARS BLOCK HERE], from ad
9/28/2009 11:39:52 setvars:var_init: Last save_block revision: 23, new rev
9/28/2009 11:39:52 setvars:var_netstack_push: secondary dns address set to s
9/28/2009 11:39:52 setvars:var_netstack_push: primary dns address set to s
9/28/2009 11:39:52 setvars:var_netstack_push: gateway set to 192.168.123.1
9/28/2009 11:39:52 setvars:var_netstack_push: netmask set to 255.255.255.0
9/28/2009 11:39:52 setvars:var_netstack_push: IP address set to 192.168.12
9/28/2009 11:39:51 socket:set static IP to 192.168.123.123
9/28/2009 11:39:51 setvars:var_netstack_push: DHCP status set to 0.
9/28/2009 11:39:51 setvars:var_netstack_push: net_dhcp_status=0, pushing n
9/28/2009 11:39:51 setvars:var_netstack_push: MAC address was set to 00:19
9/28/2009 11:39:51 lwip:tcp_slowtmr:no active pcb's
9/28/2009 11:39:51 setvars:var_netstack_push: secondary dns address set to
9/28/2009 11:39:51 setvars:var_netstack_push: primary dns address set to s
9/28/2009 11:39:51 setvars:var_netstack_push: gateway set to 0.0.0.0.
9/28/2009 11:39:51 setvars:var_netstack_push: netmask set to 0.0.0.0.
9/28/2009 11:39:51 setvars:var_netstack_push: IP address set to 0.0.0.0.
          
```

Memory Syslog

Subsystems	Severity							
	emergency	alert	critical	error	warning	notice	inform	debug
os	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
lwip	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
socket	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
macphy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
flashfile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
webserver	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
spiflash	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
device	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
goose	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
setvars	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
dynweb	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
snmp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
alarms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
email	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
rtclock	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
sntp	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
dns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
datalogger	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
graphing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
firmware	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
msgcatalog	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

E-mail ☐ Send logs now

Unit Location:
 Unit Description:
 Admin: or Call
 Support: support@geistmfg.com or Call 800.432.3219
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Figure 11: Configuration Event Log Tab

Configuration Admin Tab

The user can set the system clock and administrative information on this tab. Additionally the user can set administrator and account passwords. See Unit Configuration (page 19) section for details.

The screenshot displays the 'Configuration Admin Tab' of the GEIST RSMINI v3.2.16 interface. The top header shows 'RSMINI (Demo Mode)', IP address '76.79.40.105', and local time 'Wed, 10/07/09 19:23:42'. A status bar indicates 'All is well: 2 Alarms monitored'. A left sidebar contains navigation links: Sensors, Alarms, Logging, Display, Config (highlighted), Network, Monitoring, Diagnostics, Event Log, Admin, and Help. Below these are links for 'PDA / Phone' and 'XML / MIB'. The main content area is titled 'Configuration' and includes several sections: 'All Parameters' with 'Reset ALL to Default Values' and 'Refresh DNS Cache' buttons; 'System Clock, set to GMT' with a 'Set Clock method' dropdown (Manual - GMT), a GMT offset field (+00:00), and a date/time picker (Month: 10, Day: 07, Year: 09, Hour: 19, Minute: 23, Second: 42). It also includes NTP primary and secondary server fields and a 'Sync to NTP server period' field (1800). Below this is 'Name and Password Configuration' with fields for Administrator, Control, and View Only account names and passwords, each with a 'Save Changes' button. The 'Admin Info' section includes fields for Contact Name, Email, Phone, Device Location, and Device Description, also with a 'Save Changes' button. The 'Saved Configuration XML File' section has fields for XML File, 'Browse...', 'Upload Local XML File', and 'Download Current XML File' buttons. The 'Upload System Firmware' section has fields for Firmware package file, 'Browse...', and 'Upload New Firmware' buttons. At the bottom, there is a footer with 'Unit Location:', 'Unit Description:', 'Admin: or Call Support: usacon@geistmfg.com or Call 800.432.3219', and 'Copyright © 2003-2009 Geist Manufacturing All Rights Reserved.'

Figure 12: Configuration Admin Tab

Unit Configuration

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:

The screenshot displays the 'Network' configuration page. At the top, under 'Current Network Configuration', the following static settings are shown: IP Address: 76.79.48.105 (from Static Configuration), Subnet Mask: 76.79.48.97, Gateway: 76.79.48.97, Primary DNS Server: 208.67.222.222 (from Static Configuration), and Secondary DNS Server: 208.67.222.220. Below these, there are two radio button options: 'Use DHCP for network configuration' (unselected) and 'Use Static Network Configuration:' (selected). Under the static configuration, there are input fields for IP Address (76.79.48.105), Subnet Mask (76.79.48.97), and Gateway (76.79.48.97). Further down, there are two more radio button options: 'Use DHCP for DNS server addresses' (unselected) and 'Use Static DNS server addresses:' (selected). Below these, there are input fields for Primary DNS Server (208.67.222.222) and Secondary DNS Server (208.67.222.220). A 'Save Changes' button is located at the bottom of the network configuration section. The bottom section of the form is titled 'Web Server' and contains a 'Protocols' dropdown menu set to 'HTTP and HTTPS', 'HTTP Port' set to 80, 'HTTPS Port' set to 443, and 'Telnet Service' set to 'Enabled'. A 'Save Changes' button is also present at the bottom of the web server section.

Figure 13: Network Configuration

- **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. See Telnet (page 23) for details.
- **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.

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.

System Clock, set to GMT

Set Clock method:

GMT to local, (+/-)hh:mm Make sure you are in GMT time zone

Month	Day	Year	Hour	Minute	Second
<input type="text" value="10"/>	<input type="text" value="07"/>	<input type="text" value="09"/>	<input type="text" value="19"/>	<input type="text" value="31"/>	<input type="text" value="36"/>
		(yy)	(0-23)	(0-59)	(0-59)

NTP primary server
192.43.244.18

NTP secondary server
129.6.15.28

Sync to NTP server period
(seconds)

Figure 14: Time Settings

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

RSMINI (Demo Mode)
IP Address: 76.79.48.105
Local Time: Wed, 10/07/09 19:31:36

Figure 15: Time and Date Display

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.

E-Mail

The unit is capable of sending e-mail 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 e-mail configuration is set on the *Monitoring* tab of the *Configuration* page.

E-mail

SMTP Server:

SMTP Port:
Leaving the POP3 Server blank with the Username/Password filled in and using SMTP Port 465 enables ESMTP/SSL.

"From" E-mail Address:

To E-mail Address 1:

To E-mail Address 2:

To E-mail Address 3:

To E-mail Address 4:

To E-mail Address 5:

POP3 Server:

POP3 Port:
Leaving the POP3 Server blank with the Username/Password filled in enables ESMTP/TLS. No POP3 Server and no Username/Password enables no authentication.

Username:

Password:

Figure 16: E-Mail Configuration

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 e-mails. The POP3 server is used strictly for authentication and is not required when using None or ESMTP.

Status Reports

When enabled, the unit will periodically send a full status report to all "To" e-mail 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. E-mail addresses are selected when the report is created by checking the corresponding e-mail destination box. Allowing the cursor to hover over an e-mail destination box will display the e-mail address that the box is associated with.

System Status E-Mail Reports			
Report Time:	hour 00 (0-23)	min 00 (0-59)	Report Period: 24 hours ▼
E-mail Destinations: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		Delete This Report: <input type="checkbox"/>	
Save Changes		Add New Report	

Figure 17: Email Report Settings

SNMP

The unit supports retrieval of all data via Simple Network Management Protocol (SNMP) v1, v2c, and v3. 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.

SNMP	
SNMP Service:	Enabled ▼
Read Community:	public
Listen port for GET:	161
Trap Community:	private
Write Community:	private
Trap Type:	V1 Trap ▼
Trap IP Address:port 1:	
Trap IP Address:port 2:	
Save Changes	

Initial SNMPV3 data	
Unauthenticated User:	initial
Authenticated Manager:	manager
Manager Authentication Password:	12345678
Manager Privacy Password:	12345678
Trap User:	Trap
Trap Authentication Password:	12345678
Trap Privacy Password:	12345678
Save Changes and/or Reset SNMPV3 Non-volatile RAM	
Reset User/Access NVRAM will occur after next SNMP operation	

Figure 18: SNMP Configuration

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

Accounts and Passwords

The unit 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 Actions and Control Settings pages.
- **View-Only:** Password protects the Sensors, PDA, WAP and XML pages.

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

If blank, all access is granted without a password.

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

If blank, Control and View Only access is granted without a password.

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

If blank, View access is granted without a password.

Old Password

New Password

New Password Again (again, to confirm)

Warning: Record your password. Loss of password may require 48 hours to recover.

Figure 19: Account Configuration

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.

Note: The Control Access account must be active to enable the View-Only account.

Note: 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.

Telnet

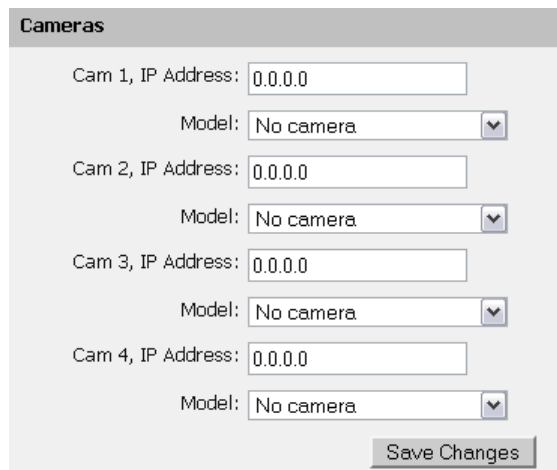
The unit provides a Telnet server for basic monitoring via the command line. The Administrator account must be enabled to use the Telnet interface. Type "help" after logging in to the unit to

see a list of available commands. The Telnet service can be disabled under “Web Server” on the *Network* tab of the *Configuration* page.

Note: 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.

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.



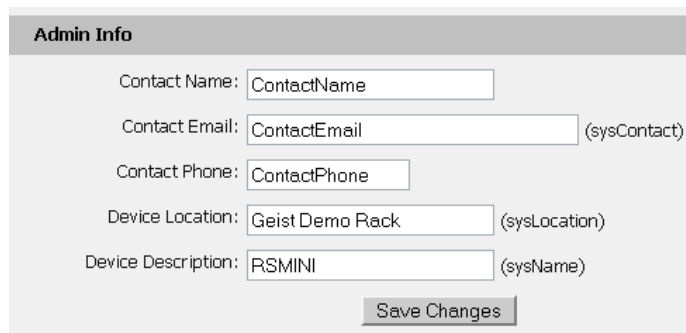
The screenshot shows a web interface titled "Cameras". It contains four identical rows for configuring cameras. Each row has a label "Cam 1, IP Address:", "Cam 2, IP Address:", "Cam 3, IP Address:", and "Cam 4, IP Address:" respectively. Each label is followed by a text input field containing "0.0.0.0". Below each IP field is a label "Model:" followed by a dropdown menu currently showing "No camera". At the bottom right of the form is a button labeled "Save Changes".

Figure 20: Configuration and Supported Models

Note: Each camera must be set to allow anonymous access to enable this feature.

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.



The screenshot shows a web interface titled "Admin Info". It contains five rows of configuration fields. The first row is "Contact Name:" with a text input field containing "ContactName". The second row is "Contact Email:" with a text input field containing "ContactEmail" and a label "(sysContact)" to its right. The third row is "Contact Phone:" with a text input field containing "ContactPhone". The fourth row is "Device Location:" with a text input field containing "Geist Demo Rack" and a label "(sysLocation)" to its right. The fifth row is "Device Description:" with a text input field containing "RSMINI" and a label "(sysName)" to its right. At the bottom right of the form is a button labeled "Save Changes".

Figure 21: Admin Information Fields



The screenshot shows a web interface displaying the admin information. It contains five lines of text: "Unit Location: Geist Demo Rack", "Unit Description: RSMINI", "Admin: ContactName or Call ContactPhone", "Support: support@geistmfg.com or Call 800.432.3219", and "Copyright © 2003-2009 Geist Manufacturing All Rights Reserved."

Figure 22: Admin Information Display

Alarms

Alarm Notifications

The RSPMINI-P, RSMICRO, and RSMINI163 support two types of alarm notification:

- **E-Mail:** The unit can be configured to send alarm e-mails to up to five recipients.
- **SNMP:** The unit can be configured to send SNMP traps to up to two trap servers.

The screenshot displays the 'RSMINI' interface for configuring alarms. It features a 'Sensor Value Menu' with a dropdown menu currently showing 'Temperature (C)'. Below this is a 'High Trip' dropdown menu set to '50.0'. A callout box labeled 'Threshold Type and Value' points to the 'High Trip' dropdown. To the right of the threshold value, there are two columns of checkboxes labeled 'E-mail' and 'Traps'. A callout box labeled 'Alarm Notification Types' points to these checkboxes. At the bottom of the interface are two buttons: 'Save Changes' and 'Add New Alarm'.

Figure 23: Alarm State Menu

The 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.

Alarm Types

The RSMINI-P, RSMINI163, and RSMICRO provide three types of alarm messages via E-Mail 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.

Alarms can be added for each internal device or external sensor 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.

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.

Sensors

Overview

All internal sensors are measured every 5 seconds. External sensors are measured every 10 to 30 seconds, depending on the number of devices connected. Sensor data collected by the RSMINI-P, RSMINI163 or RSMICRO provides useful trend analysis data. While all values are not absolute in relation to a known unit, trend analysis of the data allows users to view changes and draw useful conclusions about what is happening over time in the monitored environment.

Internal Sensors

The RSMINI-P and RSMINI163 contain the following onboard sensors:

- **Temperature:** Measures temperature and can be displayed in °C or °F. The accuracy is ± 1 °F from -50 °F to 185 °F. Note: This sensor may be heated by internal circuitry in the unit; a temperature offset is available to re-calibrate.

The RSMICRO contains the following onboard sensors

- **Temperature:** Measures temperature and can be displayed in °C or °F. The accuracy is ± 1 °F from -50 °F to 185 °F. Note: This sensor may be heated by internal circuitry in the unit; a temperature offset is available to re-calibrate.
- **Relative Humidity:** Measures the percent of Relative Humidity $\pm 5\%$.

Temperature Offset

The internal temperature sensor is pre-calibrated at the factory and the values reported by this sensor are accurate. However, due to low airflow and normal board heating, the temperature sensor may read a few degrees higher than any external sensors that are attached. To counteract this, an offset of up to -7 °C or °F is configurable on the *Display* Page.

I/O Sensors (RSMINI 163)

The RSMINI163 units come equipped with three I/O ports for connecting additional external sensors such as Water and Door Sensors. The three ports are designed to accept a 0-5 Vdc analog input; alternatively, an internal 100K pull up resistor to 5 V allows for the use of dry contacts. The I/O port input is converted to a digital number ranging from 0 to 99 and is displayed on the *Sensors* page. Unused I/O ports will display a value of 99.

Water sensors act as conductivity bridges. Moisture across the contacts causes the value to drop. Door switches can be wired in a serial connection; if the chain is broken the entire group is classified as open. The limiting factor on the I/O ports is the length of the wire, found to be around 400'.

Water Sensors

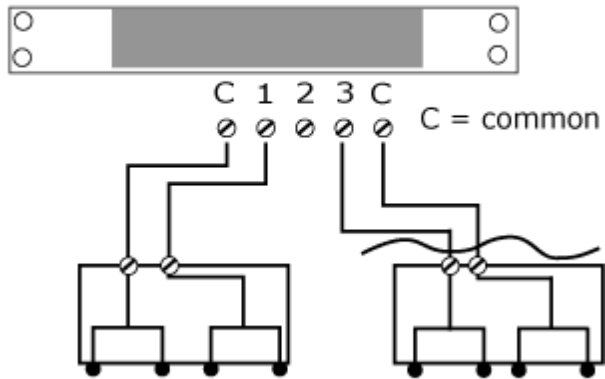


Figure 24: Water Sensor Wiring Example

Door Switches - Extended

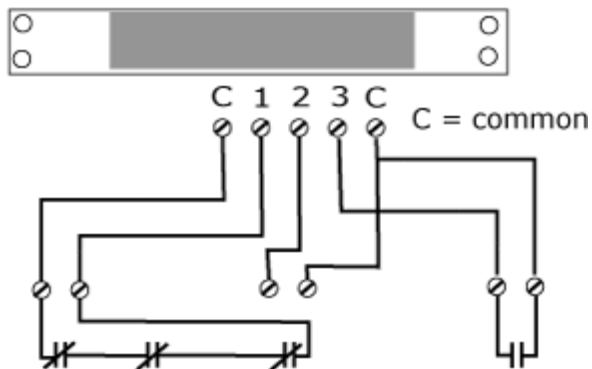


Figure 25: Door Sensor Wiring Example

Additional Optional I/O Sensors

- **RWS:** Water Sensor
- **RDPS:** Door Sensor
- **SA-1:** Smoke Alarm
- **RCP-2:** 125 V City Power Monitor
- **WSK-10:** 10' Water Sensing Cable Kit
- **WSK-40:** 40' Water Sensing Cable Kit
- **-48 VDCM:** Power Monitor
- **30 VDCM:** Power Monitor

Remote Sensors (RSMINI-P and RSMINI163 Only)

Available Sensors

- **RT:** Temperature
- **RTAFHD3:** Temperature / Air Flow / Humidity / Dew Point
- **CCAT:** Converts analog I/O Sensors to Remote Digital Sensors

*RTAF, RTAFH & RTHD sensors have been discontinued and replaced by the RTAFHD3 sensor. Some Geist R-Series devices may require a firmware update to allow for proper compatibility with the new RTAFHD3 sensors.

If your Geist R-Series device is using firmware version 2.xx you will want to make sure you are using firmware version 2.94 or newer.

If your Geist R-Series device is using firmware version 3.xx you will want to make sure you are using firmware version 3.5.0 or newer.

Please contact Geist Support at 800-432-3219 if you need assistance locating your current version or upgrading to the new firmware version

RTAFHD3 Compatibility

The (G)RTAFHD3 sensor cannot be utilized in combination with the discontinued (G)RTAF and (G)RTAFH sensors or (G)RTHD sensors built prior to 2010. If you desire to add (G)RTAFHD3 sensors to an existing installation currently utilizing incompatible sensors, please contact Customer Service for installation options.

Connecting Remote Sensors

Plug-and-play remote sensors may be attached to the unit at any time via the RJ-12 connectors on the face of the unit. A splitter may be used to add additional sensors to the RSMINI-P. Each sensor has a unique serial number and is automatically discovered and added to the web page. Up to sixteen sensors may be connected.

The display order of the sensors on the web page is determined by the serial number of each sensor. Friendly names for each sensor can be customized on the *Display* page.

Note: The sensor uses Cat. 3 wire and RJ12 connectors. Wiring must be straight-through: reverse polarity will temporarily disable all sensors until corrected.

Note: 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.

Data Logging and Display

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.

Accessories

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 26: Camera Images

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

Note: Some cameras require additional software downloads to display live video in a web browser.

RSC Integration

For users with multiple units, Geist RSC software offers:

- Convenient, single-window monitoring of multiple units via simple web-based interface
- Streamlined firmware updating
- Consolidation of alarm settings

See <http://www.geistmfg.com> for more information.

Alternate Data Formats

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



Figure 27: Alternate Format Links

- **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.

Technical Support

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 Environmental Monitoring Unit first be updated to the latest firmware version. If this is not possible, please have the unit's existing firmware version number available when contacting technical support.

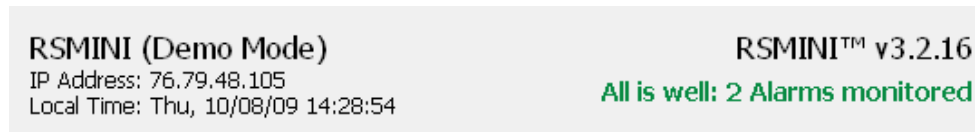


Figure 28: Web Page Header

Firmware Updates

Keep your unit updated with the latest firmware releases or sign up for notifications at the following website: <http://www.geistmfg.com/GeistUS/Docs/downloads.htm>.

Resetting the Unit

Should the Environmental Monitoring Unit lose communication, the processor may be manually rebooted by momentarily removing power from the unit.

Service and Maintenance

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

More Technical Support

<http://www.geistmfg.com>
(800) 432-3219
Email: support@geistmfg.com
Or contact your distributor.

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Revision History

Revision	Date	Notes	Approved By
1.0	10/14/2009	Initial Version	BGP, JP, AK
1.1	7/1/2010	Minor Text Edits	BGP
1.2	10/15/2010	RTAFHD3 Information Added	BGP