COMPAQ

Console Management Controller

User Guide

Second Edition (July 2001)
Part Number 218258-002
Compaq Computer Corporation

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About This Guide

This guide is designed to be used as step-by-step instructions for installation and as a reference for operation, troubleshooting, and future upgrades.

Text Conventions

This document uses the following conventions to distinguish elements of text:

Keys	Keys appear in boldface. A plus sign (+) between two keys indicates that they should be pressed simultaneously.
USER INPUT	User input appears in a different typeface and in uppercase.
FILENAMES	Filenames appear in uppercase italics.
Menu Options, Command Names, Dialog Box Names	These elements appear in initial capital letters.
COMMANDS, DIRECTORY NAMES, and DRIVE NAMES	These elements appear in uppercase.
Type	When you are instructed to *type* information, type the information **without** pressing the **Enter** key.
Enter	When you are instructed to *enter* information, type the information and then press the **Enter** key.

Symbols in Text

These symbols may be found in the text of this guide. They have the following meanings.

WARNING: Text set off in this manner indicates that failure to follow directions in the warning could result in bodily harm or loss of life.

CAUTION: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

IMPORTANT: Text set off in this manner presents clarifying information or specific instructions.

NOTE: Text set off in this manner presents commentary, sidelights, or interesting points of information.

Symbols on Equipment

These icons may be located on equipment in areas where hazardous conditions may exist.

This symbol in conjunction with any of the following symbols indicates the presence of a potential hazard. The potential for injury exists if warnings are not observed. Review the documentation for specific details.

This symbol indicates the presence of hazardous energy circuits or electric shock hazards. Refer all servicing to qualified personnel.

WARNING: To reduce the risk of injury from electric shock hazards, do not open this enclosure. Refer all maintenance, upgrades, and servicing to qualified personnel.

This symbol indicates the presence of electric shock hazards. The area contains no user or field serviceable parts. Do not open for any reason.

WARNING: To reduce the risk of injury from electric shock hazards, do not open this enclosure.

This symbol on an RJ-45 receptacle indicates a Network Interface Connection.

WARNING: To reduce the risk of electric shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.

This symbol indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists.

WARNING: To reduce the risk of injury from a hot component, allow the surface to cool before touching.

⚠ Important Safety Information

Before installing this product, read the *Important Safety Information* guide provided in the Console Management Controller (CMC) Kit.

Rack Stability

WARNING: Make sure that the rack containing the CMC is stable. The following conditions must be met:

- The leveling feet are extended to the floor.
- The full weight of the rack rests on the leveling feet.
- The stabilizing feet are attached to the rack if it is a single-rack installation.
- The racks are coupled together in multiple-rack installations.
- A rack may become unstable if more than one component is extended for any reason. Extend only one component at a time.

Getting Help

If you have a problem and have exhausted the information in this guide, you can get further information and other help in the following locations.

Compaq Technical Support

In North America, call the Compaq Technical Phone Support Center at 1-800-652-6672 (1-800-OK-COMPAQ)[1]. This service is available 24 hours a day, 7 days a week.

Outside North America, call the nearest Compaq Technical Support Phone Center. Telephone numbers for world wide Technical Support Centers are listed on the Compaq website. Access the Compaq website at http://www.compaq.com.

Be sure to have the following information available before calling Compaq:

- Technical support registration number (if applicable)
- Product serial number(s)
- Product model name(s) and number(s)
- Applicable error messages
- Add-on boards or hardware
- Third-party hardware or software
- Operating system type and revision level
- Detailed, specific questions

Compaq Website

For more information on Compaq products, access the Compaq website at www.compaq.com.

Compaq Authorized Reseller

For the name of the nearest Compaq authorized reseller:

- In the United States, call 1-800-345-1518.
- In Canada, call 1-800-263-5868.
- Elsewhere, access the Compaq website at www.compaq.com.

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[1] For continuous quality improvement, calls may be recorded or monitored.

Chapter 1

Overview

This chapter contains information on the following topics:

- Compaq Console Management Controller
- General description
- Standard CMC features
- Front panel
- Rear panel

Compaq Console Management Controller

The Console Management Controller (CMC) offers one model, part number 203039-B21. This unit is rack-mountable and is Worldwide voltage adaptable.

General Description

The CMC is a rack-mounted device intended to monitor and control the environment within a single-rack or multiple-rack suites. The system consists of a CMC, several sensors, and the Compaq Intelligent Rack Manager Lite software. With the software, you can easily configure the CMC, remotely receive system status and alerts, and initiate planned actions. Optional sensor kits are available to expand the capabilities of the CMC and include additional temperature, humidity, vibration and intrusion sensors, as well as smoke detection and electronic door locks.

A number of sensors can be connected to the CMC to monitor temperature, humidity, smoke, mechanical shock/vibration, and security. With the proper setup, the system can:

- Monitor voltage within the rack.
- Monitor temperature within the rack
- Monitor humidity levels in the rack.
- Detect whether rack doors are open or closed.
- Detect someone tampering with the rack.
- Detect smoke within the rack.
- Remotely lock and unlock the rack doors.

The system can be programmed with thresholds for the sensors to trigger alarms, and programmed to take action on those alarms. For example, from the Console, the CMC can be programmed to turn the rack fans on when the rack temperature is too warm or turn the rack fan assemblies off if smoke is detected. Should an unauthorized person attempt to enter the rack, the system may sound an audible alarm, send an alert message to the Console, send an e-mail, send a page, or activate an alarm relay switch connected to some device set up by the user, such as a siren, or rotating light.

Standard CMC Features

- 1U design
- Ethernet communications port for data exchange with a host computer
- Four analog inputs:
  - Two temperature inputs
  - One humidity input
  - One voltage monitor for AC mains
- Two programmable fan output power controls
- Eight discrete inputs
  - Four intrusion inputs
  - One smoke input
  - One mechanical shock/vibration input
  - Two Auxiliary (AUX) inputs
- Two electronic door lock controls
- Easy configuration via:
  - Compaq Intelligent Rack Manager Lite
  - Serial port on front panel
  - SNMP - TCP/IP
  - User inputs on front panel
- Audible and visual alarm indicators
- Monitoring of up to two racks
- Two user-programmable alarm outputs, for rotating lights or other alarm devices (not included)

NOTE: If the external temperature sensors are not connected, the internal temperature of the unit will be displayed.

Communications Ports

The communications port for data exchange with the host computer consists of an Ethernet port (RJ-45) using SNMP communication.

The serial communication port (RJ-11) allows for the use of a VT-100/Xmodem device.

Compaq Intelligent Rack Manager Lite

With each CMC, Compaq supplies a CD containing Intelligent Rack Manager Lite software. This software permits the administrator to monitor and manage the rack environment through the Internet using Internet Explorer.

Software capabilities include the following:

- Configuring the CMC
- Monitoring the following sensors:
  - Input voltage
  - Temperature (up to two)
  - Humidity
  - Smoke
  - Mechanical shock/vibration
  - Intrusion (up to four doors)
- Controlling door locks for one or two racks
- Activating relay controls
- Activating and monitoring up to two rack fan arrays
- Logging all events
- Sending a Windows message
- Sending an email message
- Sending a pager notification

Front Panel

The CMC is rack-mountable in a 1U configuration.

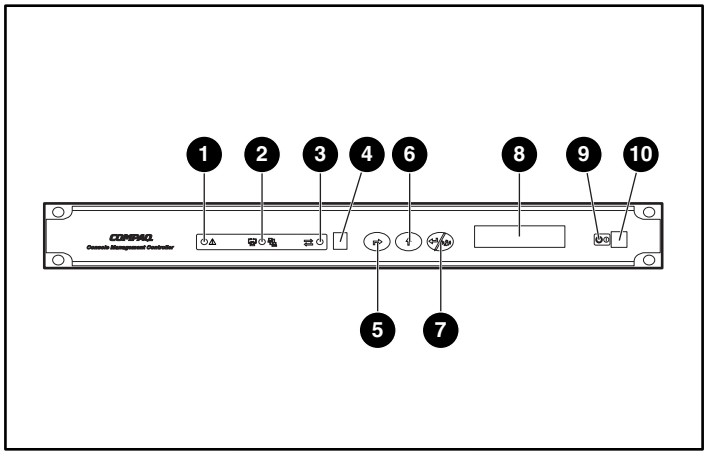

Figure 1-1. Front panel configuration

Table 1-1
CMC Front Panel

❶	Alarm LED
❷	Network LED
❸	Serial communication LED
❹	Serial communication port (RJ-11)
❺	Escape button
❻	Scroll up button
❼	Enter/Alarm silence button
❽	LCD display
❾	Power LED
❿	Power button

Front Panel Controls

The CMC front panel includes the controls required to:

- Power the unit On or Off.
- Scroll through LCD menus.
- Select LCD menu items.
- Silence audible alarms and deactivate alarm relays (if these features are enabled in the control software).

NOTE: For information about changing the configuration on the CMC, or to check the current configuration, see Chapter 4, "Software."

Front Panel LEDs

Each LED is described in the following table. See Table 1-1 for reference.

Table 1-2
Front Panel LEDs

LED	Reference	Color	Meaning
❶	Alarm LED	Red	General alarm indicator (blinking).
		Orange	Warning (intrusion alert/temperature warning).
		Green	No alarm.
❷	Network LED	Green	Normally On. Blinking indicates activity.
❸	Serial Communication LED	Green	Normally Off. Blinking indicates communication.
❾	Power LED	Green	Power On.

NOTE: Alarm status may be viewed in the LCD display (❽) or the system console.

Rear Panel

The CMC features the following rear panel configuration:

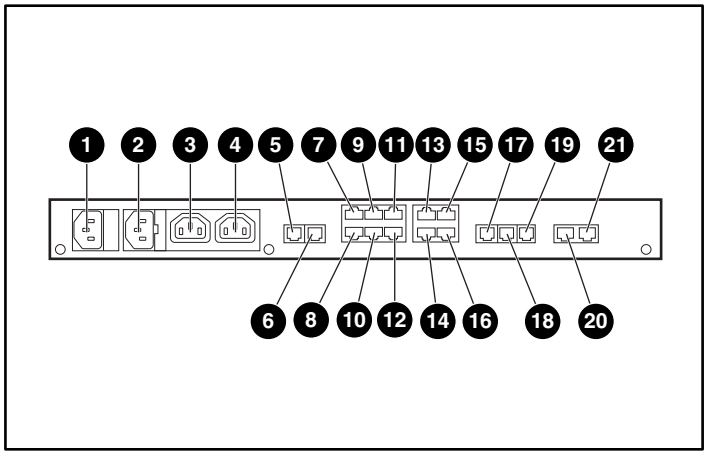

Figure 1-2. Rear panel configuration

Table 1-3
CMC Rear Panel

	Description	Type of connector
❶	Main power input	AC input (IEC 320-10A)
❷	Input voltage monitor / Power input for Fan #1 and #2	AC input (IEC 320-10A)
❸	Fan #1	Power output for fan #1 (IEC 320–10A)
❹	Fan #2	Power output for fan #2 (IEC 320–10A)
❺	Relay #1	Alarm relay (RJ-12)
❻	Relay #2	Alarm relay (RJ-12)
❼	Intrusion sensor #1	Discrete input (RJ-12)
❽	Intrusion sensor #2	Discrete input (RJ-12)
❾	Intrusion sensor #3	Discrete input (RJ-12)
❿	Intrusion sensor #4	Discrete input (RJ-12)
⓫	Smoke sensor	Discrete input (RJ-12)
⓬	Shock/vibration sensor	Discrete input (RJ-12)
⓭	Lock #1	Discrete output (RJ-12)
⓮	Lock #2	Discrete output (RJ-12)
⓯	Auxiliary 1	Discrete input (RJ-12)
⓰	Auxiliary 2	Discrete input (RJ-12)
⓱	Temperature sensor #1	Analog input (RJ-12)
⓲	Temperature sensor #2	Analog input (RJ-12)
⓳	Humidity sensor	Analog input (RJ-12)
⓴	I^2C port	I^2C communications (RJ-45)
㉑	Ethernet port	10BaseT (RJ-45)

Chapter 2

Installation

This chapter provides information on the following topics:

- Installation requirements
- Installation procedures
- Powering on the CMC
- Completing the installation

Installation Requirements

This section lists items required to install the CMC.

Items supplied with the basic CMC Kit

The CMC Kit (Compaq Part Number 203039-B21) contains the following components:

Hardware

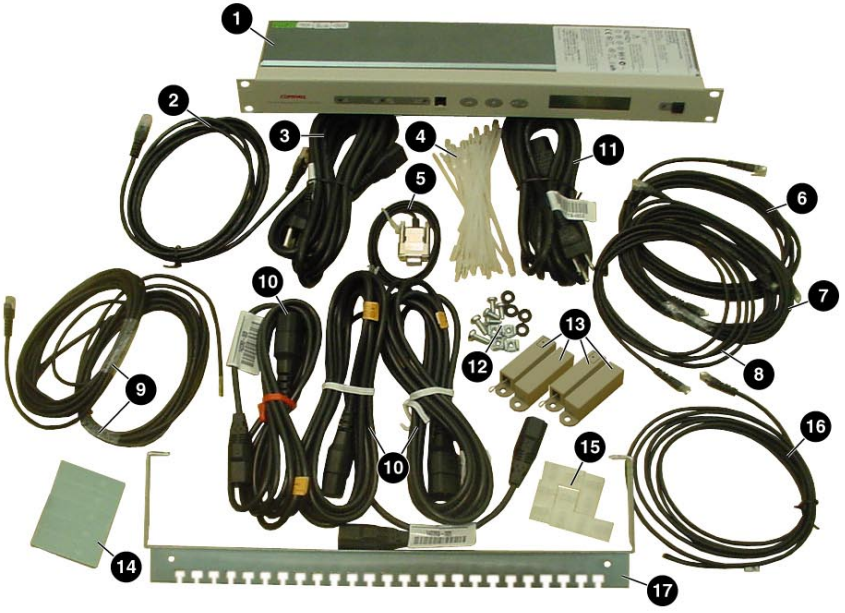

Figure 2-1. CMC kit contents (hardware)

❶ Console Management Controller

❷ Network cable (RJ-45 to RJ-45)

❾ RJ-12 to pigtail cables for relay ports

❿ Jumper power cords for fan arrays and for main input power via UPS (IEC 320 to 320)

❸ Input power cord (country-specific)

❹ Tie wraps

❺ Serial communication cable (RJ-11 to DB-9)

❻ Sensor cable

❼ Sensor cable

❽ Sensor cable

⓫ Voltage monitor cord/fan input cord (country-specific)

⓬ Screws, washers and cage nuts

⓭ Intrusion sensors (2 sets)

⓮ Double-sided tape

⓯ Cord management clips

⓰ Temperature sensor

⓱ Cord retention bracket

Software/Reference Material

- *Important Safety Information* guide to be reviewed before installing this product
- Power Products Documentation CD
- Compaq Intelligent Rack Manager Lite CD
- *Compaq Console Management Controller User Guide*
- Warranty information

Optional Sensor Kit, with assorted cable lengths
Compaq Part Number 203039-B22 (sold separately)

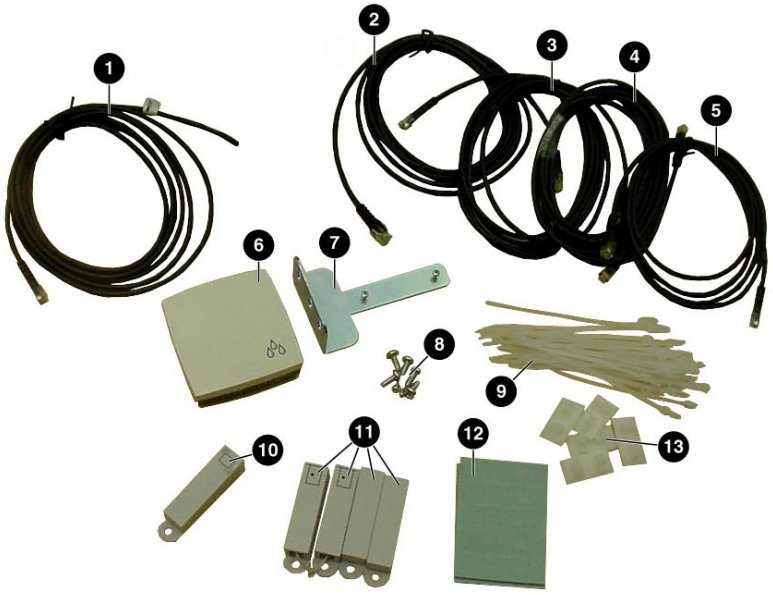

Figure 2-2. Optional sensor kit content

1. Temperature sensor
2. Sensor cable
3. Sensor cable
4. Sensor cable
5. Sensor cable
6. Humidity sensor
7. Humidity sensor bracket
8. Screws and cage nuts
9. Tie wraps
10. Shock/vibration sensor
11. Intrusion sensors (2 sets)
12. Double sided tape
13. Cord management clips

Optional Smoke Sensor Kit
Compaq Part Number 203039-B24 (sold separately)

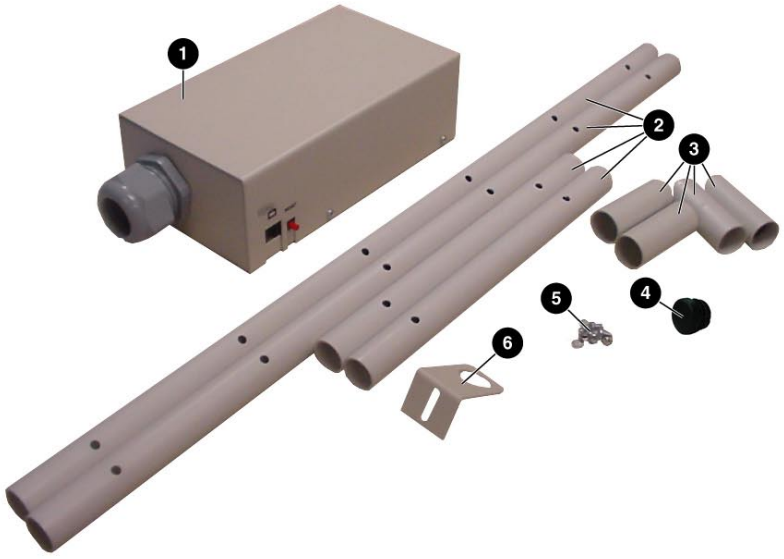

Figure 2-3. Optional smoke sensor kit contents

❶ Smoke sensor	❹ End cap
❷ Sampling tube sections	❺ Screws
❸ Tube couplings	❻ Sampling tube bracket

Optional Door Locking Kit
Compaq Part Number 203039-B23 (sold separately)

Items not supplied with the CMC Kit

Tools

- A medium flat-bladed screwdriver and a #2 Phillips screwdriver
- Cage nut-fitting tool (supplied with the Compaq rack)

IMPORTANT: Only use the power cords supplied with the CMC. If the CMC does not include a power cord that is suitable for your application, contact an authorized Compaq service representative to obtain the appropriate power cord. Refer to the "Precautions for Power Products" section of *Important Safety Information* (guide included with the CMC Kit.)

Installation Procedures

This section provides installation steps to install the CMC.

1. Attach the cord retention bracket to the CMC.
2. Install the sensors in the racks.
3. Connect the sensors to the CMC unit.
4. Connect the main input power cord to the CMC, or if an Uninterruptible Power System (UPS) will be used for main power, connect the power jumper cord to the CMC.
5. Connect the input power/voltage monitor cord to the CMC.
6. Connect jumper power cords to the fan assemblies.
7. Secure the cables to the cord retention bracket.
8. Mount the CMC in the rack.
9. Plug the input power cord to a UPS or AC power source.
10. Plug the fan input power cord to an AC source.
11. Secure the cables to the rack.
12. Power up the CMC.
13. Set the initial configuration using the front panel controls.
14. Insert the software CD.

Installing the Standard Sensors

The sensor cables may be routed through the rack and then attached to the rack by using the stick-on cable management clips or tie wraps.

Temperature Sensor

The temperature sensor can be installed on the ceiling of the rack, towards the rear, or near the most temperature-sensitive component in the rack.

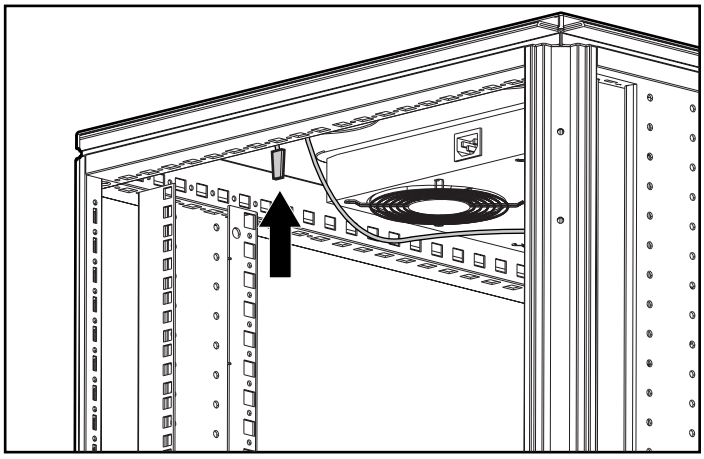

Figure 2-4. Installing the temperature sensor

Intrusion Sensor

An intrusion sensor consists of two parts:

- A magnet
- An electrical switch

1. The magnet should be installed on the inside of the rack door and the electrical switch on the rack as shown in the following instructions. Make sure the magnet and switch align with each other and allow sufficient clearance for the doors to close.

2. The intrusion sensors should be installed on the front door ❶ of the rack, as well as the rear door ❷.

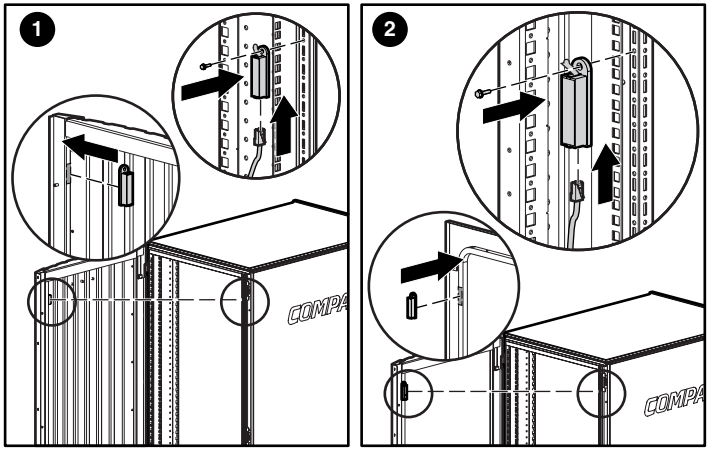

Figure 2-5. Installing the intrusion sensor in the 9000 series rack

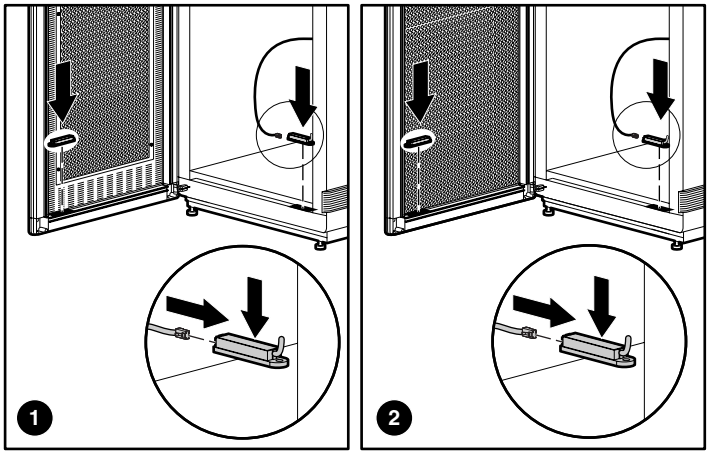

Figure 2-6. Installing the intrusion sensor in the 7000 series rack

To connect a series of intrusion sensors to the same CMC port, remove the plug shipped in the sensor and connect the cable from an additional intrusion sensor, as shown below.

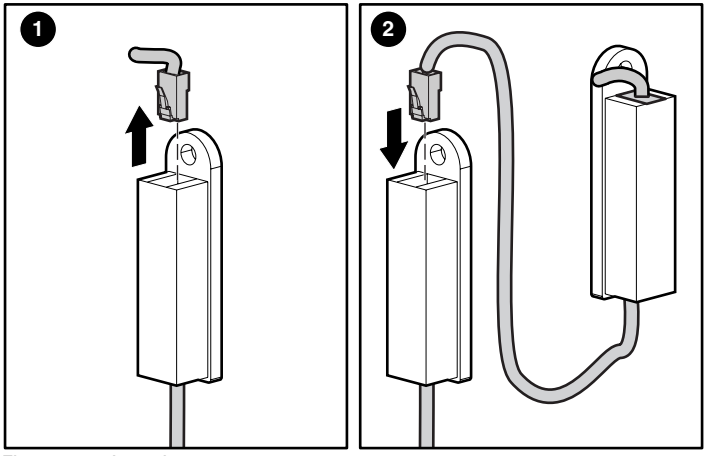

Figure 2-7. Intrusion sensor

Installing the Optional Sensors

Temperature sensor

- The optional temperature sensor should be installed on the ceiling of the second rack, towards the rear. (See Figure 2-4)

Intrusion sensor

- The optional intrusion sensors should be mounted on the doors of the second rack. (See Figures 2-5 and 2-6)

Humidity sensor

- The optional humidity sensor should be installed as follows:

  a. Install the bracket for the humidity sensor ❶ to the rack using the larger screws.

  b. Fasten the sensor unit ❷ to the bracket using the smaller screws.

  c. Snap the cover ❸ over the sensor unit.

  d. Connect the sensor cable ❹ to the sensor unit.

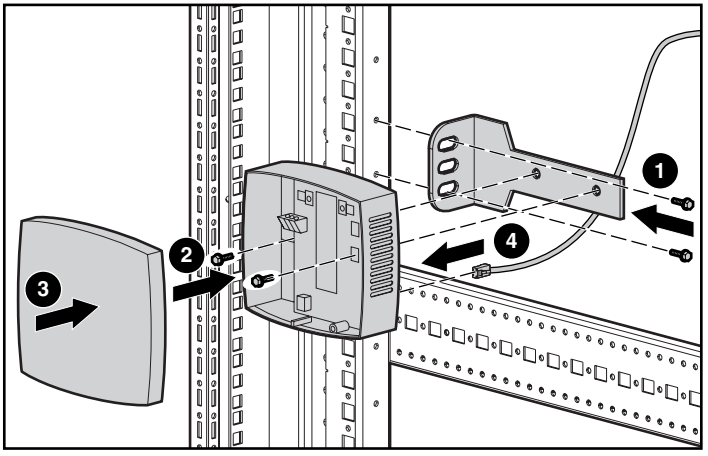

Figure 2-8. Installing the humidity sensor in the 9000 series rack

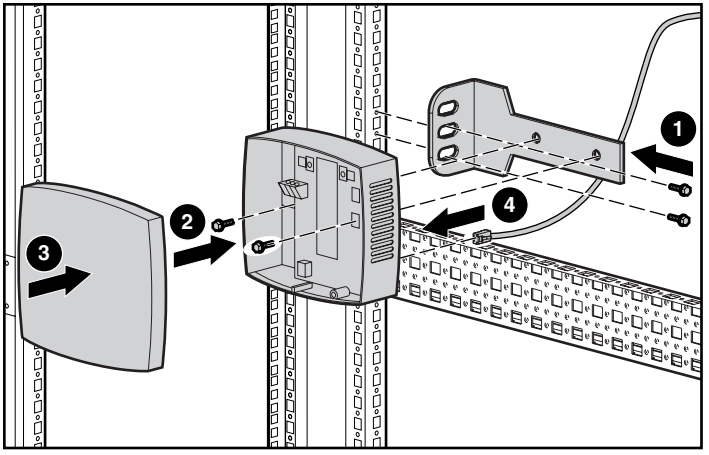

Figure 2-9. Installing the humidity sensor in the 7000 series rack

Mechanical shock/vibration sensor

- Install the optional mechanical shock/vibration sensor on the rails of the rack as follows:

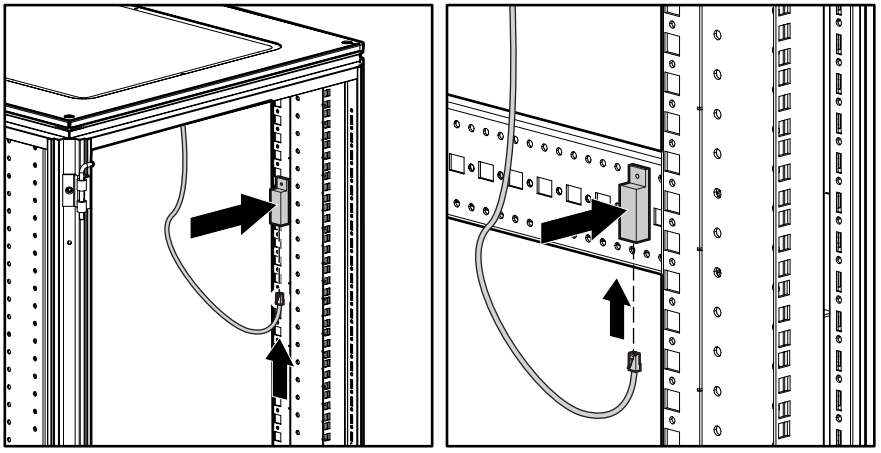

Figure 2-10. Installing the vibration sensor in the 9000 rack

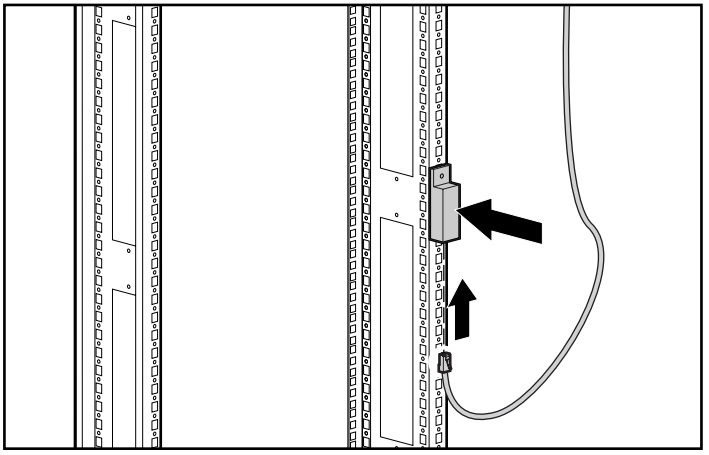

Figure 2-11. Installing the vibration sensor in the 7000 rack

Smoke sensor kit

- Install the optional smoke sensor as follows:

  a. Place the smoke sensor ❶ on rear rack door. Then place the screws with washers ❷ through the holes in the door and secure the sensor.

IMPORTANT: For the smoke sensor to be effective, the sampling tube must be placed in the path of the exhaust air from the equipment within the rack.

  b. Install a tube coupling on a section of the sampling tube. Insert the coupling into the smoke sensor. Position the holes in the tube to face the equipment in the rack. Hand-tighten the connection of the coupling and smoke sensor.

  c. Add couplings and tubes until the tube reaches the bottom of the door.

  d. Insert the plastic end cap on the bottom of the tube to secure the bracket to the end of the tube ❸.

  e. Align the bottom tube ❸ vertically with the sensor ❶.

  f. Insert a screw ❹ (with washer) through the hole in the door and fasten it to the tube bracket ❸ using a nut.

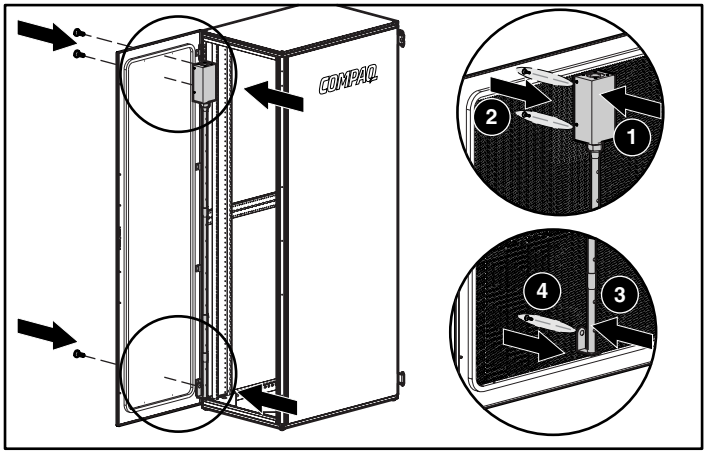

Figure 2-12. Installing the smoke sensor

g. Route the sensor cable through the rack.

h. Attach the cable to the rack with the stick-on cable retention clips or tie wraps included in the CMC basic unit.

i. Connect the cable to the sensor ❶.

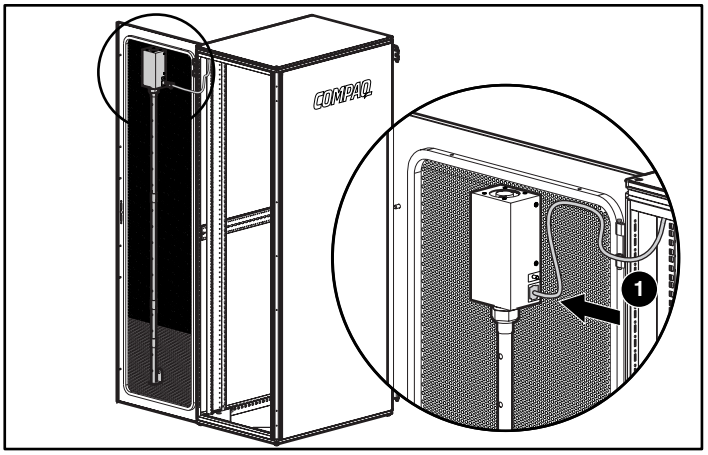

Figure 2-13. Connecting the smoke sensor

Smoke Sensor Operation

NOTE: The smoke sensor is for use only with the CMC and is not suitable for connection to building fire alarm systems.

Smoke passing by the sampling tube will be drawn into the optical smoke sensor by the fan. The smoke sensor can take up to 20 seconds to trigger an alarm to the CMC. The sampling tube must be placed in the path of the exhaust air from the rack equipment.

If smoke is detected, the sensor fan will automatically shut off. After the smoke has cleared, the sensor can be reset by pressing the RESET button for three seconds.

The sensor will not detect smoke if the fan stops running or runs too slowly. A fan fault like this will also trigger a smoke alarm. A smoke alarm should be investigated to determine whether smoke is present or a fan fault occurred.

Smoke Sensor Maintenance

Keep the sampling tube and holes clean and clear of dust and debris at all times.

Check the smoke sensor at least once per year. Use smoke test gas to check and verify proper unit functionality.

Compaq recommends replacing the smoke sensor after the sensor detects a fire. Contact a Compaq authorized representative for ordering details.

Door locking kit

- The optional door locking kit should be installed on the front and rear doors of the rack. Install the optional door locking kit according to the installation instructions included with the kit.

  NOTE: The door locking kit is only for use with the Compaq CMC.

Connecting the Cord Retention Bracket

Remove the screws ❶ from the rear of the CMC. Align cord retention bracket with the holes in the rear of the unit and insert screws ❶.

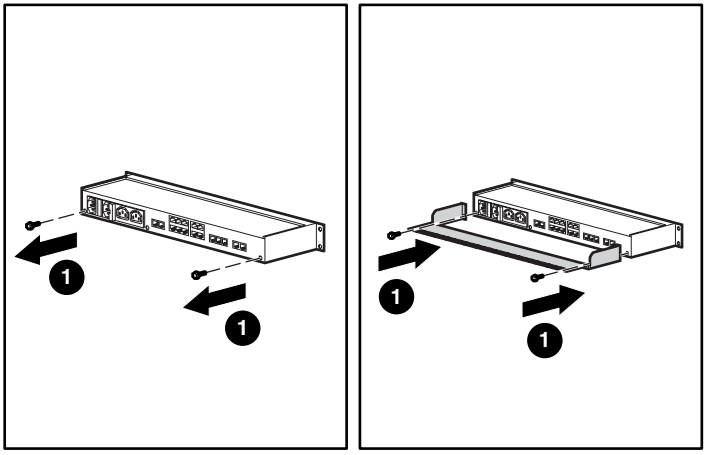

Figure 2-14. Connecting the cord retention bracket

Connecting the Sensors to the CMC

The sensors connect to the rear of the CMC. See Table 1-4, for a description of the rear connectors.

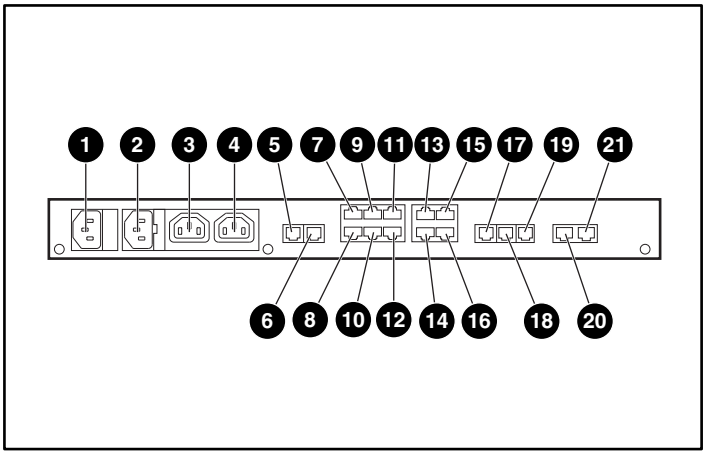

Figure 2-15. CMC rear panel

Connecting the Fan Assemblies

The fan assemblies should be connected to the fan power output sockets ❸ and ❹. The input power/voltage monitoring cord should be connected to the input power plug ❷. The cable Ⓐ is connecting the rack fan array in the second rack.

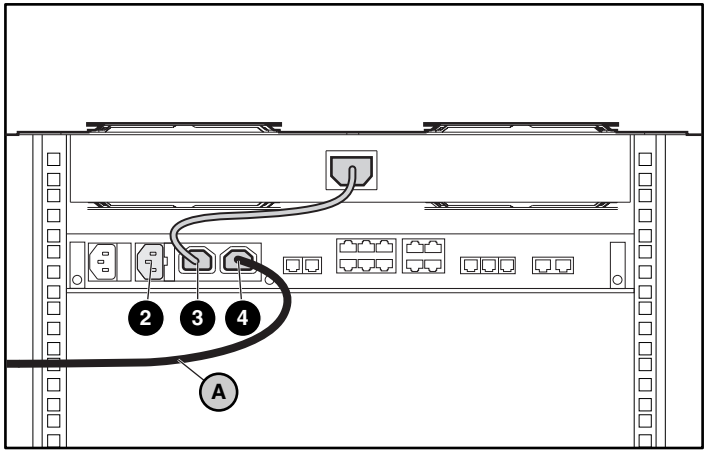

Figure 2-16. Connecting fan assemblies

Connecting the Input Power Cord to the CMC

Make sure the **Power** button ❿ is in the Off position before connecting the input power cord to the rear of the unit.

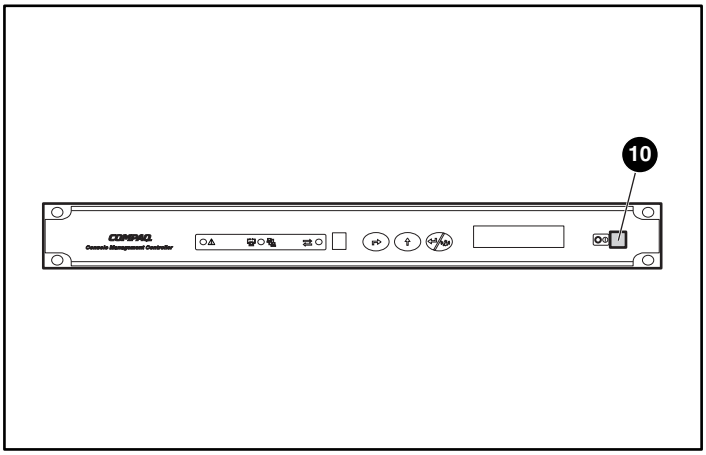

Figure 2-17. Power Button

Connect the input power cord to the input power socket ❶.

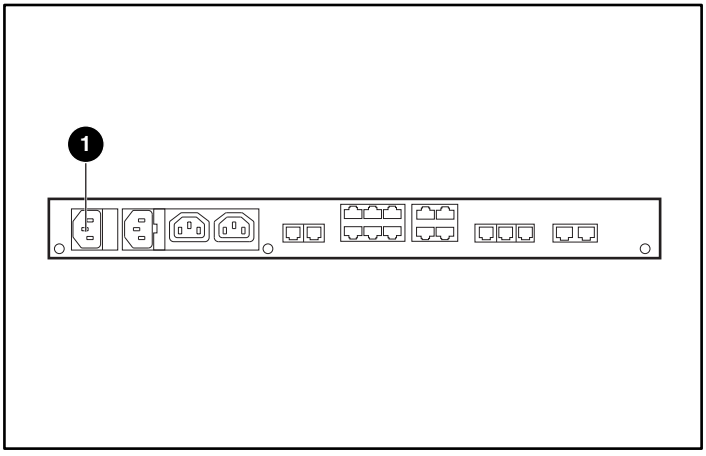

Figure 2-18. Input power connection

Connecting the CMC to Utility Power

If a UPS is installed in the rack, connect the CMC to the UPS. If a UPS is not installed in the rack, use a grounded utility power outlet.

The power for the fan outputs comes from the voltage monitor input. If the rack configuration includes fans, the rack fans must be powered from the fan power output sockets.

NOTE: Do not connect the voltage monitor input to a UPS.

WARNING: To reduce the risk of electric shock or damage to the equipment, take these precautions:

- Plug the input line cord into a grounded (earthed) electrical outlet that is installed near the equipment and is easily accessible.
- Do not disable the grounding plug on the input line cord. The grounding plug is an important safety feature.
- Do not use extension cords.

WARNING: Power grounds for the main AC input and the voltage monitor input are tied common within the CMC.

Connecting the Network Cable

Connect the network cable to the RJ-45 socket.

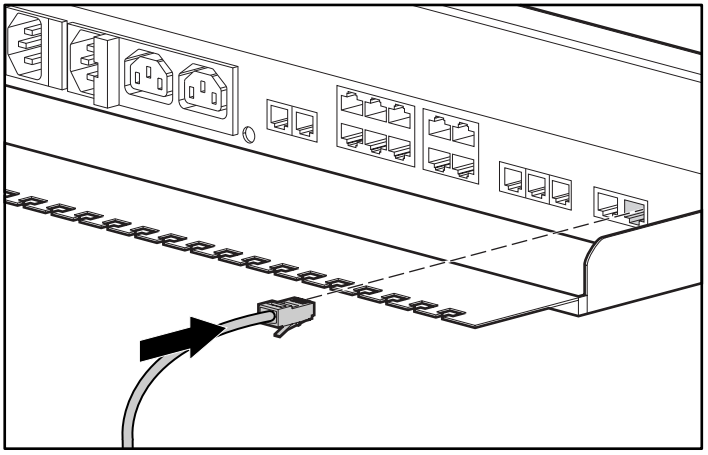

Figure 2-19. Connecting the network cable

Securing Cables to the CMC

Use the tie wraps (included with the CMC Kit) to secure the cables to the cable retention bracket.

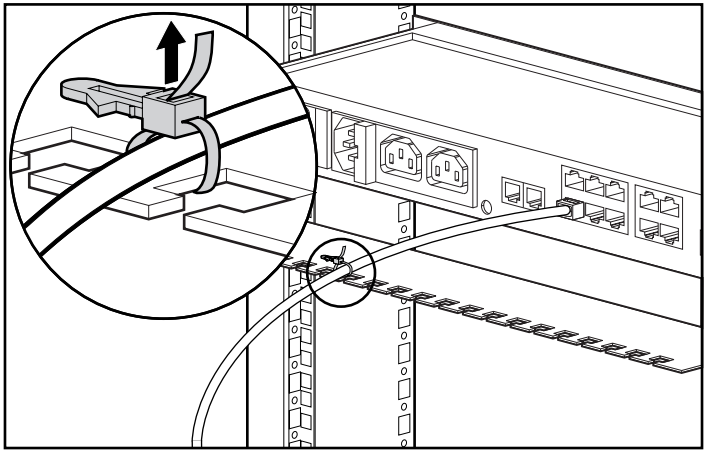

Figure 2-20. Securing cables to the CMC

Mounting the CMC in the Rack

The CMC mounts directly to the rack in a 1U configuration. Refer to the *Compaq Console Management Controller Installation Instructions* (supplied with the CMC Kit) for directions.

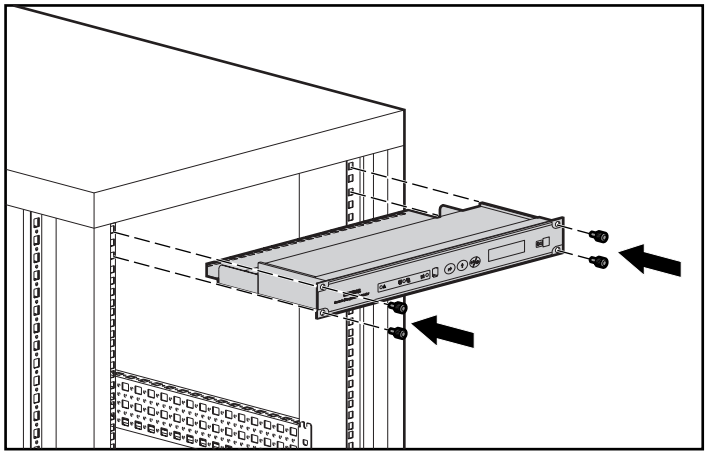

Figure 2-21. Mounting the unit in the rack

Powering on the CMC

Power On the unit by pressing the **Power** button ❿.

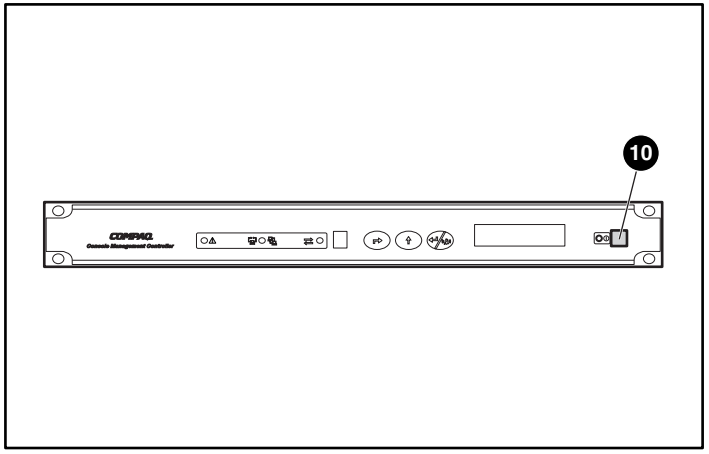

Figure 2-22. Turning the unit On

Configuring the CMC

Use the front panel for basic configuration of the unit. The CMC is fully localized to allow for complete functionality of the front panel in multiple languages.

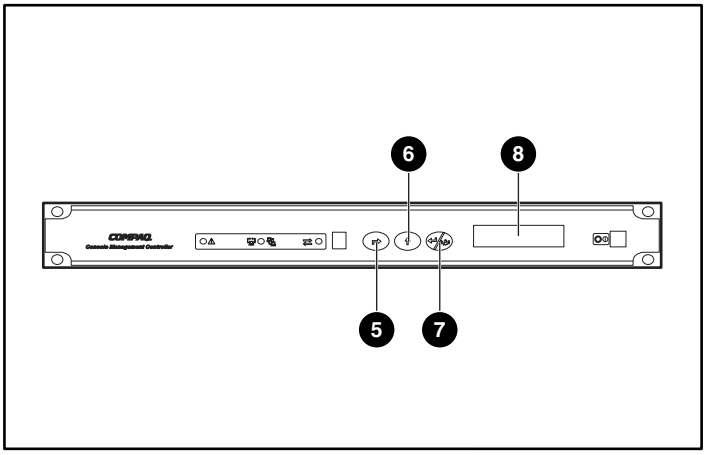

Figure 2-23. CMC front panel

Selecting the Language

Use the CMC front panel controls to select the appropriate language. To select the language:

1. Press **Scroll Up** ❻ to select the appropriate language.
2. Press **Enter/Alarm Silence** ❼ to save the language selection.

Setting the IP Address

Use the CMC front panel controls to set the CMC IP address. To set the IP address:

- Press **Scroll Up** ❻ and **Enter/Alarm Silence** ❼ to set the IP address.

Setting the Subnet Mask

- Press **Scroll Up** ❻ and **Enter/Alarm Silence** ❼ to set the Subnet Mask address. The default setting is 0.0.0.0.
- The CMC will automatically reboot.

NOTE: For more detailed configuration instructions, see Chapter 4, "Software."

Using the Front Serial Port

The serial port on the front panel may be used with a laptop computer to configure the CMC.

NOTE: For more detailed configuration instructions, see Chapter 4, "Software."

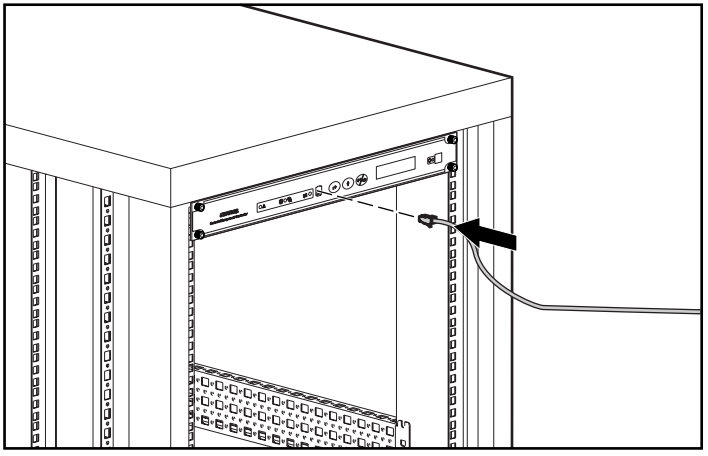

Figure 2-24. Connecting to the serial port

Installation Completion

Installation is now complete. For information on operating the CMC, see Chapter 3, "Operation." Use the Compaq website at www.compaq.com as an additional information source.

Chapter 3

Operation

This chapter contains information on the following topics:

- LCD menu
- Alert handling

LCD Menu

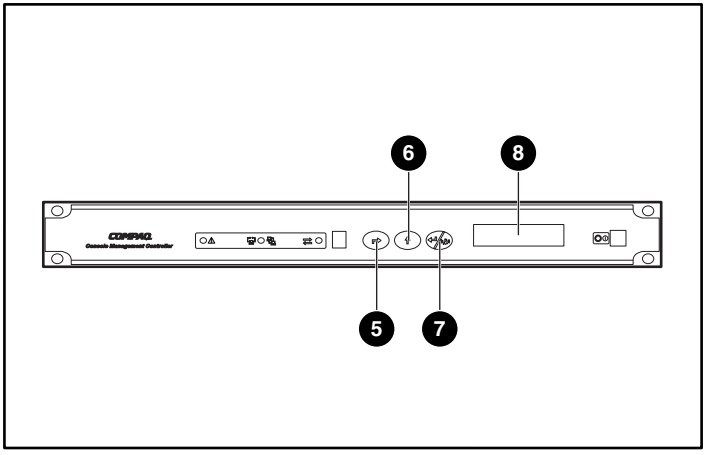

Figure 3-1. LCD menu and control buttons

From the **LCD** menu ❽, access information on **Status**, **System Information**, and **Setup**.

Status Menu

1. Press **Enter/Alarm Silence** ❼ one time to select the **Main** menu.
2. Press **Enter/Alarm Silence** ❼ one time to select the **Status** menu.
3. Press **Scroll Up** ❻ to scroll through the menu selections:
   - ❑ Temperature 1
   - ❑ Temperature 2
   - ❑ Fan 1
   - ❑ Fan 2
   - ❑ Voltage
   - ❑ Humidity
   - ❑ Door/Panel 1
   - ❑ Door/Panel 2
   - ❑ Door/Panel 3
   - ❑ Door/Panel 4
   - ❑ Lock Set 1
   - ❑ Lock Set 2
   - ❑ Locking dev. 1
   - ❑ Locking dev. 2
   - ❑ Smoke
   - ❑ Mechanical shock/vibration
   - ❑ Aux 1
   - ❑ Aux 2
4. Press **Escape** ❺ to return to the **Main** menu.

NOTE: If the external temperature sensors are not connected, the internal temperature of the unit displays.

System Information Menu

See Figure 3-1, for a description of the **LCD** menu.

1. Press **Scroll Up** ❻ one time to access the **System Information** menu.
2. Press **Enter/Alarm Silence** ❼ one time to select the **System Information** menu.
3. Press **Scroll Up** ❻ to scroll through the menu selections:
   - ❑ Hardware version
   - ❑ Firmware version
   - ❑ Software version
   - ❑ Device number
   - ❑ MIB version
   - ❑ System name
   - ❑ System location
   - ❑ System contact
   - ❑ Operating time
   - ❑ System time
4. Press **Escape** ❺ to return to the **Main** menu.

Setup Menu

See Figure 3-1, for a description of the **LCD** menu.

1. Press **Scroll Up ❻** one time to access the **Setup** menu.
2. Press **Enter/Alarm Silence ❼** one time to select **Setup** menu.
3. Press **Scroll Up ❻** to scroll through the menu selections:
   - ❑ Threshold fan 1
   - ❑ Threshold fan 2
   - ❑ Language
   - ❑ Temperature unit
   - ❑ IP address
   - ❑ IP mask
   - ❑ IP router
   - ❑ Password - Enable/Disable
4. Press **Escape ❺** to return to the **System Information** menu.

NOTE: To change one of these values, press **Enter/Alarm Silence ❼** to select the entry, **Scroll Up ❻** to change the value, and **Enter/Alarm Silence ❼** to confirm the change, or **Escape ❺** to cancel.

Alert Handling

An alert triggers an action as configured in the software. Possible actions, based on an alert, are identified below. Each alert can trigger any or all of these actions.

- Audible alarm
- Activate relay #1
- Activate relay #2
- Send a Microsoft Windows message to monitoring computer
- Send an alert via e-mail
- Send an alert via pager

Examples:

- Intrusion alert on Door #1 activates an audible alarm and pages the system administrator.
- Voltage out of specification pages the system administrator.

IMPORTANT: For more information regarding enabling and disabling alarms, see Chapter 4, “Software.”

Silencing an Audible Alarm

To silence an audible alarm, press **Enter/Alarm Silence** ❼. You can enable or disable the silencing feature in the software for all CMC alerts to ensure that an unauthorized individual cannot turn off an audible alarm.

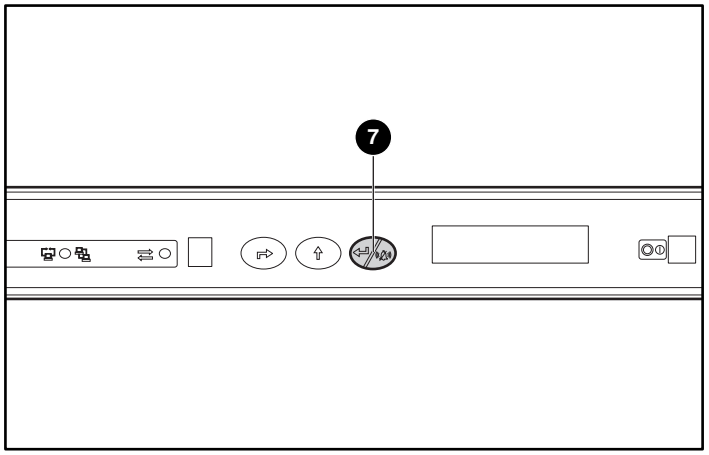

Figure 3-2. The Enter/Alarm Silence button

IMPORTANT

- Pressing the **Enter/Alarm Silence** button quiets the alarm, but does not clear the condition that originally initiated the alarm. The alert will remain active on the management console until the condition returns to normal.
- When the **Enter/Alarm Silence** button is pressed, silencing the alarm, any subsequent alarm will again cause the alarm to sound.

Deactivating an Alarm Relay

To deactivate an alarm relay, press **Enter/Alarm Silence** ❼. You can enable or disable this deactivation feature in the software for all CMC alerts to ensure that an unauthorized individual cannot turn off an active alarm relay output.

Chapter 4

Software

This chapter describes the management of rack environments using Compaq CMCs that are controlled using Compaq Intelligent Rack Manager Lite software.

Compaq Intelligent Rack Manager Lite Software

Compaq Intelligent Rack Manager Lite software is a Java-based application that runs a web server. Intelligent Rack Manager Lite ensures maximum reliability of Compaq computer systems through flexible and comprehensive remote monitoring of rack environments using Compaq CMCs. The software compiles information about all network-connected CMCs, allowing remote monitoring, configuration, management, and control of these devices.

NOTE: Compaq Intelligent Rack Manager Lite software is not essential for the operation of the CMC. The basic configuration of the CMC can be operated with the following:

- The front panel control buttons—Configuring a CMC with the front panel control buttons is discussed in the section titled "LCD Menu," in Chapter 3 of this guide.
- A terminal program—Managing a CMC with a terminal program is discussed at the end of this chapter.

System Requirements

Intelligent Rack Manager Lite software requires the following minimum hardware and software:

- 100-MHz Pentium computer
  - 50 MB free disk space
  - 32 MB RAM
- Windows NT 4.0 or Windows 2000
- Internet Explorer 5.0 or later
- A Mail Application Program Interface (MAPI)-compatible email system for email notification of alerts
- An installed modem for pager notification of alerts

Preinstallation Tasks

Use the CMC front panel controls to perform the following tasks before beginning the software installation:

- Selecting the language—See “Selecting the Language” in Chapter 2 of this guide.
- Setting the IP address—See “Setting the IP Address” in Chapter 2 of this guide.
- Setting the subnet mask—See “Setting the Subnet Mask” in Chapter 2 of this guide.

Software Installation

The Intelligent Rack Manager Lite software CD is provided in the CMC kit.

NOTE: To install the Intelligent Rack Manager Lite software, you must have Administrator rights.

To install the software using this CD:

1. Insert the CD into the CD-ROM drive of any network-connected computer. If the AutoPlay feature is enabled, the Install Wizard automatically starts. If the AutoPlay feature is disabled, explore the CD and double-click *INSTALL.HTM* in the root directory to begin software installation.

   A security warning displays.

2. Click **Yes** to accept the security warning. The Intelligent Rack Manager Lite CD menu displays.
3. Click **Start Installer for Windows NT, 2000**. The Install Wizard runs.
4. Select the appropriate language for the installation and click **OK**. The **Introduction** window displays.
5. Read the introduction and click **Next**. The **License Agreement** window displays.
6. Read the license agreement, click **Yes** to accept the license agreement, then click **Next**. The **Choose Install Folder** window displays.
7. Click **Install** to install the software in the default folder. To specify the folder in which the software installs, click **Choose...**, navigate to the appropriate folder, then click **Install**.

   The software installation begins and a horizontal status bar indicates the installation progress. The **Install Complete** window displays.

8. Click **Done** when the software is installed.

IMPORTANT: The Compaq Intelligent Rack Manager lite software application requires Microsoft's Virtual machine TM to be installed, in order to run properly. During the software installation process you will be guided to the Microsoft Web page where Microsoft Virtual Machine can be downloaded. Or, visit www.microsoft.com/java and download the Virtual Machine prior to installing the Compaq Intelligent Rack Manager lite software application.

NOTE: You will only be guided to the Microsoft web page if Virtual Machine is not already installed.

Uninstalling the Software

NOTE: To uninstall the Intelligent Rack Manager Lite software, you must have Administrator rights.

To remove the Intelligent Rack Manager Lite software from the system:

1. Select **Start**, **Programs**.
2. Select the Compaq Intelligent Rack Manager Lite program group.
3. Select **Uninstall**. The software uninstalls.

Accessing the Software

Intelligent Rack Manager Lite can be accessed from the host computer or any other network-connected computer.

To access the Intelligent Rack Manager Lite software from the host computer:

1. Select **Start**, **Programs**.
2. Select the Compaq Intelligent Rack Manager Lite program group.
3. Click **Compaq Intelligent Rack Manager Lite**. A browser window opens and the Intelligent Rack Manager Lite software **Login** screen displays.

To access the Intelligent Rack Manager Lite software from a network-connected computer:

1. Double-click the **Internet Explorer** icon on the desktop or select **Start**, **Programs**, **Internet Explorer**. The browser window displays.
2. In the **Address** field, type

   `http://location:8001/`

   where `location` is the IP address or the name of the computer on which the software was installed. The computer name can only be used if the computer has a DNS entry.
3. Click **Go**. The Intelligent Rack Manager Lite software **Login** screen displays.

Logging In to the Software

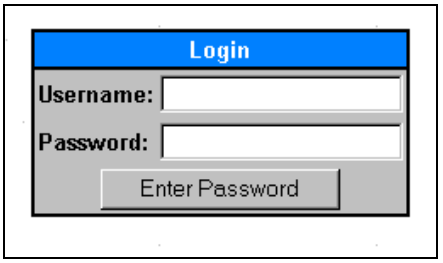

Figure 4-1. Login screen

Before using the Intelligent Rack Manager Lite software, you must log in with a username and password. The first time you log in, enter `Administrator` as the username and `Administrator` as the password. Click **Enter Password** to log in. After you are logged in, customize your password as described in "Change Password Screen" later in this chapter.

NOTE: Passwords are case sensitive.

Screen Layout

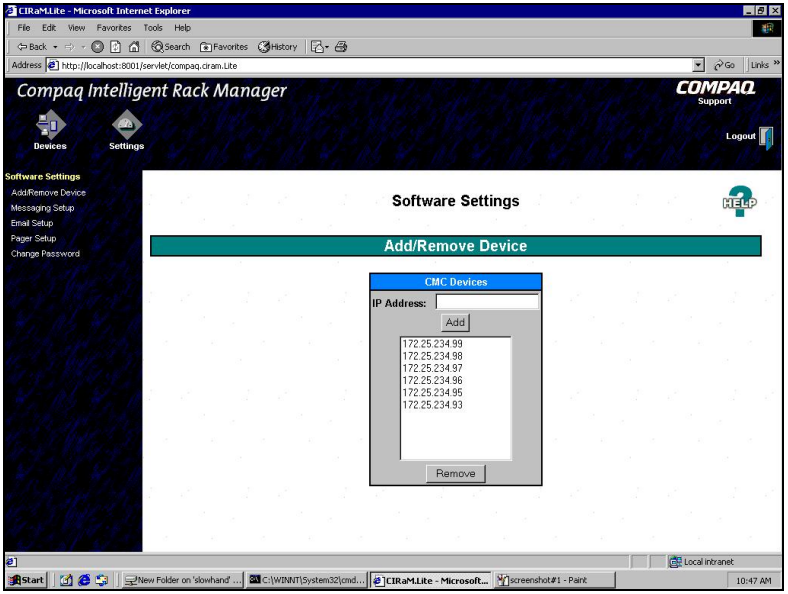

Figure 4-2. Intelligent Rack Manager Lite software screen layout

The Intelligent Rack Manager Lite software interface is divided into three frames:

- **Top frame**—Contains the title, a Settings icon, a Devices icon, and a Logout icon.
  - Click the **Settings** icon to view a list of links to the software settings screens.
  - Click the **Devices** icon to view a list of links to the device configuration screens.
  - Click the **Logout** icon to log out of the software.
- **Left frame**—Contains a list of links to other screens. The links in the list change depending on which screen you are viewing.
- **Main frame**—Contains the various screens of the software, which are discussed in detail in the following sections. Click the **Help** icon on any screen in the main frame to display the Compaq Intelligent Rack Manager Lite software online help.

Software Settings

To configure the software, click the **Settings** icon in the top frame of the interface. A list of links to software setup pages displays in the left frame:

- Add/Remove Device
- Messaging Setup
- Email Setup
- Pager Setup
- Change Password

Each software settings screen is labeled **Software Settings**.

Add/Remove Device Screen

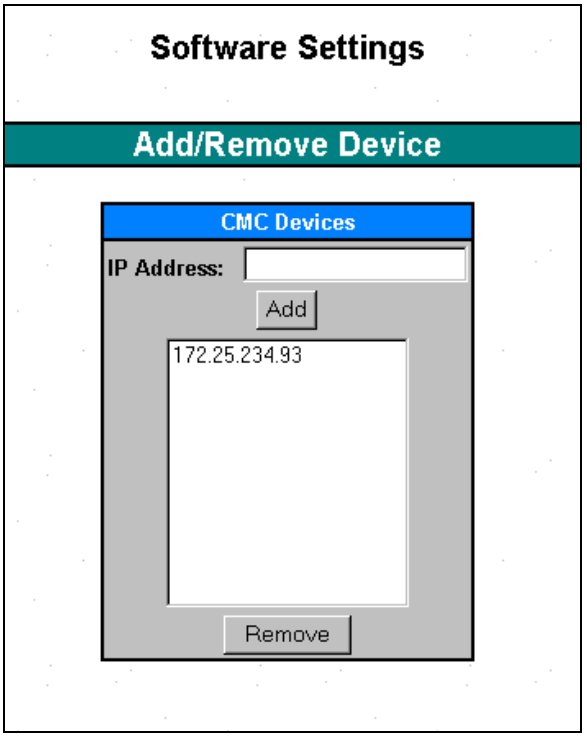

Figure 4-3. Add/Remove Device screen

Click the **Add/Remove Device** link to access the **Add/Remove Device** screen. The Intelligent Rack Manager Lite software only recognizes CMC devices that are listed on the **Add/Remove Device** screen.

To add a CMC to the software:

1. Type the IP address of the CMC in the **IP Address** field. See "Setting the IP Address" in Chapter 2.
2. Click **Add** to add the CMC to the list of recognized devices.

NOTE: Type in a range of IP addresses to locate several CMC devices. The software only recognizes ranges at the end of an IP address, for example 200.200.200.201-213.

To remove a CMC from the software:

1. Highlight the IP address of the CMC you want to remove.
2. Click **Remove** to remove the CMC from the list of recognized devices.

Messaging Setup Screen

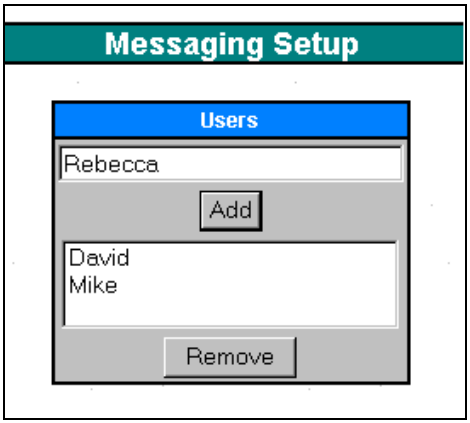

Figure 4-4. Messaging Setup screen

Click the **Messaging Setup** link to access the **Messaging Setup** screen. Use this screen to set the computer names to which popup messages can be sent when CMC alerts occur.

> **NOTE:** The added computer names become available on the Alert Handling screen, where each name must be configured to receive specific alerts. See the section "Alert Handling Screen," later in this chapter.

To add a computer name to the popup alert list:

1. Type a valid computer name in the **Users** field.
2. Click **Add** to add the name to the list.

To remove a computer name from the popup alert list:

1. Highlight the computer name you want to remove.
2. Click **Remove** to remove the name from the list.

Email Setup Screen

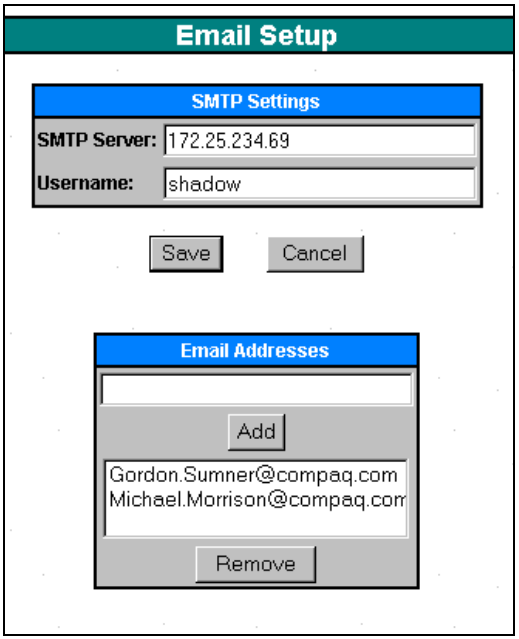

Figure 4-5. Email Setup screen

Click the **Email Setup** link to access the **Email Setup** screen. Use this screen to set the email addresses to which email messages can be sent when CMC alerts occur.

> **NOTE:** The added email addresses become available on the Alert Handling screen, where each address must be configured to receive specific alerts. See the section "Alert Handling Screen," later in this chapter.

Before email alerts can be sent, configure the software for the mail system:

> **NOTE:** Ask the system administrator to assign a mail account to the Intelligent Rack Manager Lite software.

1. Enter the hostname or IP address of a valid SMTP server, such as a Microsoft Exchange server, in the **SMTP Server** field.
2. Enter a valid mailing address in the **Username** field. This address displays in the **From:** field of all sent email messages.
3. Click **Save** to save the changes.

To add an address to the email alert list:

1. Type a user's valid email address in the **Email Addresses** field.
2. Click **Add** to add the address to the list.

To remove an address from the email alert list:

1. Highlight the email address you want to remove.
2. Click **Remove** to remove the address from the list.

Pager Setup Screen

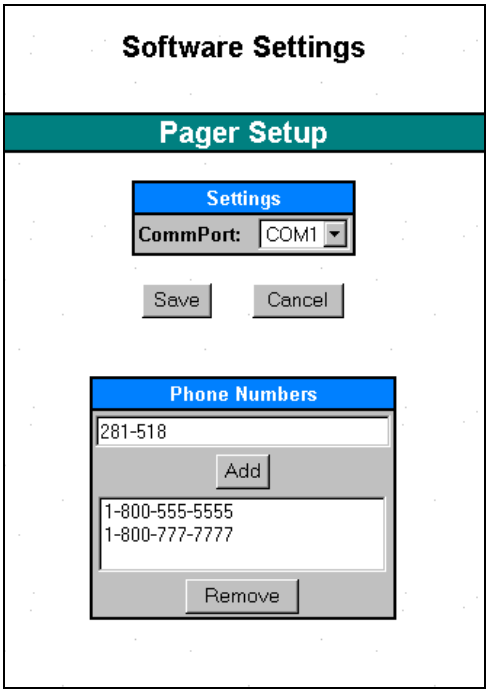

Figure 4-6. Pager Setup screen

Click the **Pager Setup** link to access the **Pager Setup** screen. Use this screen to set the phone numbers to which pager messages can be sent when CMC alerts occur.

NOTE: The added phone numbers become available on the Alert Handling screen, where each number must be configured to receive specific alerts. See the section "Alert Handling Screen," later in this chapter.

Before pager alerts can be sent, configure the software to use the modem:

1. Enter the COM port to which the modem is connected in the **CommPort** field.
2. Click **Save** to save the changes.

To add a phone number to the pager alert list:

1. Type a valid phone number for the pager and the Personal Identification Number (PIN) in the **Phone Numbers** field. The format is PHONE *PIN, where PHONE is the phone number for the pager and PIN is the PIN number, for example, 18003451518 *1234.
2. Click **Add** to add the phone number to the list.

To remove a phone number from the pager alert list:

1. Highlight the phone number you want to remove.
2. Click **Remove** to remove the phone number from the list.

Change Password Screen

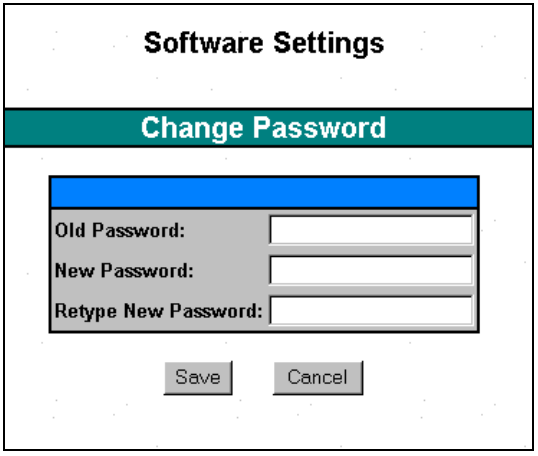

Figure 4-7. Change Password screen

Click the **Change Password** link to access the **Change Password** screen. Use this screen to change the password used to log in to the software.

NOTE: The software allows only one user. The user is called Administrator.

To change the password:

1. Type the old password in the **Old Password** field. If changing the password for the first time, the old password is **Administrator**.
2. Type the new password in the **New Password** field. Passwords must contain at least eight characters.

   NOTE: Passwords can contain 8 to 20 characters. Passwords are case sensitive.

3. Retype the new password in the **Retype New Password** field.
4. Click **Save** to save the changes or click **Cancel** to cancel the changes.

Device Configuration

To configure the individual CMC devices, click the **Devices** icon in the top frame of the user interface. The IP addresses of all recognized CMCs display in the left frame. Click the arrow next to each IP address for an expandable list of available links for that CMC. The links to the device configuration pages are as follows:

- CMC Properties
- Sensor Setup
- Accessory Setup
- Threshold Config
- Alert Handling
- Manual Control
- Log

After a CMC is configured, each device configuration screen available for that CMC is labeled with the CMC IP address, name, and physical location.

CMC Properties Screen

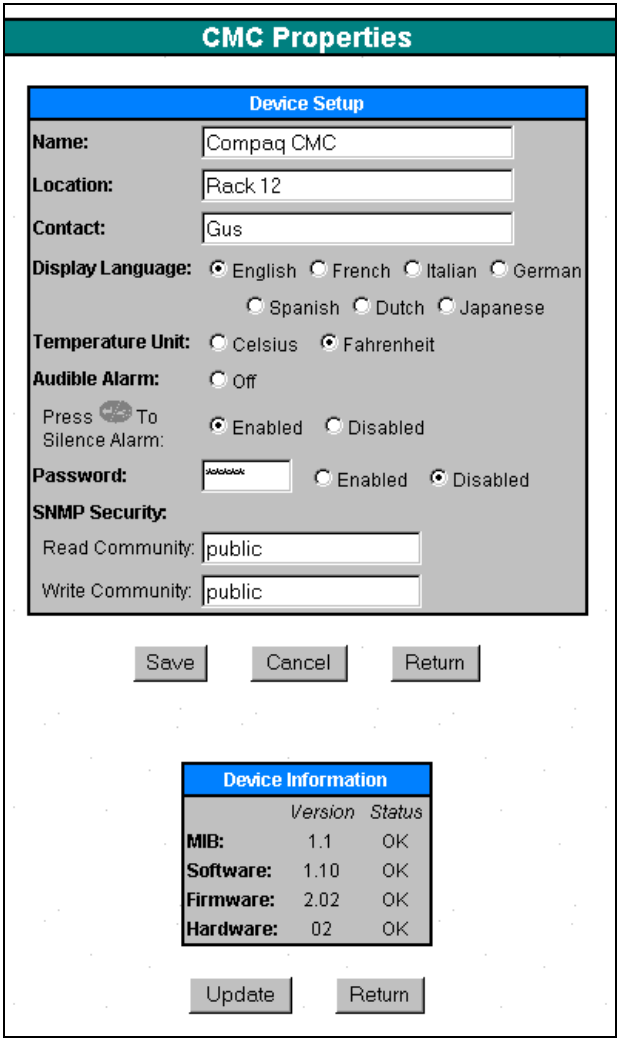

Figure 4-8. CMC Properties screen

Click the **CMC Properties** link to access the **CMC Properties** screen. Use this screen to configure the CMC properties for each CMC recognized by the Intelligent Rack Manager Lite software. The CMC hardware, software, firmware, and MIB version levels are indicated in the **Device Information** box. The availability of updated versions is indicated in the **Status** column.

To configure a CMC:

1. Enter the name, physical location, and contact person for the CMC in the **Device Setup** box.
2. Select the appropriate display language and temperature unit of measure.
3. Select the audible alarm **Off** radio button to permanently turn off the audible alarm.
4. Enable the **Press** **to Silence Alarm** option to be able to silence audible alarms from the front panel of the CMC.
5. Enter a password specific to this CMC and enable or disable the password functionality. The CMC password can be up to six characters in length. Characters can only be capital letters or numbers.

   NOTE: If the password is enabled, the password is required to change the CMC IP address and settings using the front panel controls or a terminal program.

6. Edit the SNMP Read/Write Community strings if necessary.

   CAUTION: The SNMP Read/Write Community strings displayed on the **CMC Properties** screen must match those on the CMC device. If you edit the strings on this screen, be sure to make the same changes for the CMC device using a terminal program as described in "Terminal Program Operation" in this chapter.

7. After entering the CMC properties, click **Save** to save the changes or click **Cancel** to cancel the changes.
8. Click **Return** to view the **Device Home** screen for this CMC. The **Device Home** screen is discussed in detail later in this chapter.

To update the MIB, software, and firmware for the CMC, click **Update**.

Sensor Setup Screen

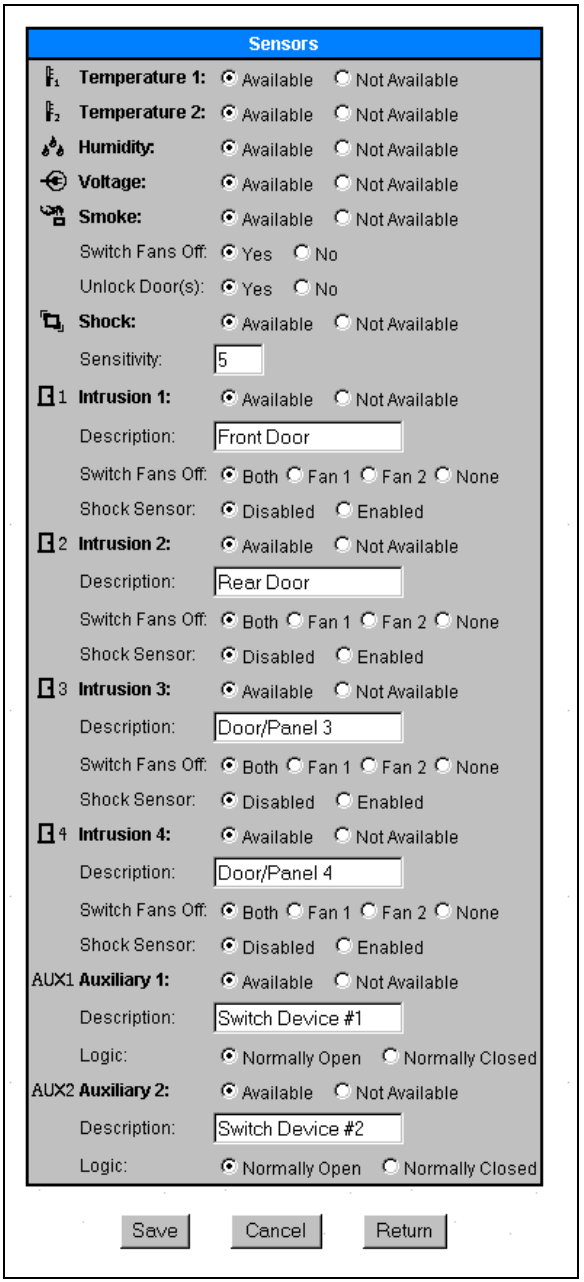

Figure 4-9. Sensor Setup screen

Click the **Sensor Setup** link to access the **Sensor Setup** screen. Use this screen to configure the sensors.

To configure the sensors:

1. Select the **Not Available** radio button for each sensor that is listed as available but not installed.

   NOTE: For the initial system installation and boot, the CMC automatically recognizes installed sensors and fans.

2. Set the appropriate fan and lock behavior when smoke is detected.
3. Set the sensitivity of the shock sensor, with 1 being low sensitivity and 10 being high sensitivity. The recommended setting is 5.
4. For Intrusion 1 through 4, enter the sensor description and set the fan behavior and shock control when doors are opened.

   IMPORTANT: For the door-locking feature to work properly, you must assign at least one intrusion sensor to each lock set. For more information about the door-locking feature, see "Accessory Setup Screen" in this chapter.

5. Enter the description and logic of sensors installed in Auxiliary 1 and 2.
6. After entering the sensor information, click **Save** to save the changes or click **Cancel** to cancel the changes.
7. Click **Return** to view the **Device Home** screen for this CMC. The **Device Home** screen is discussed in detail later in this chapter.

Accessory Setup Screen

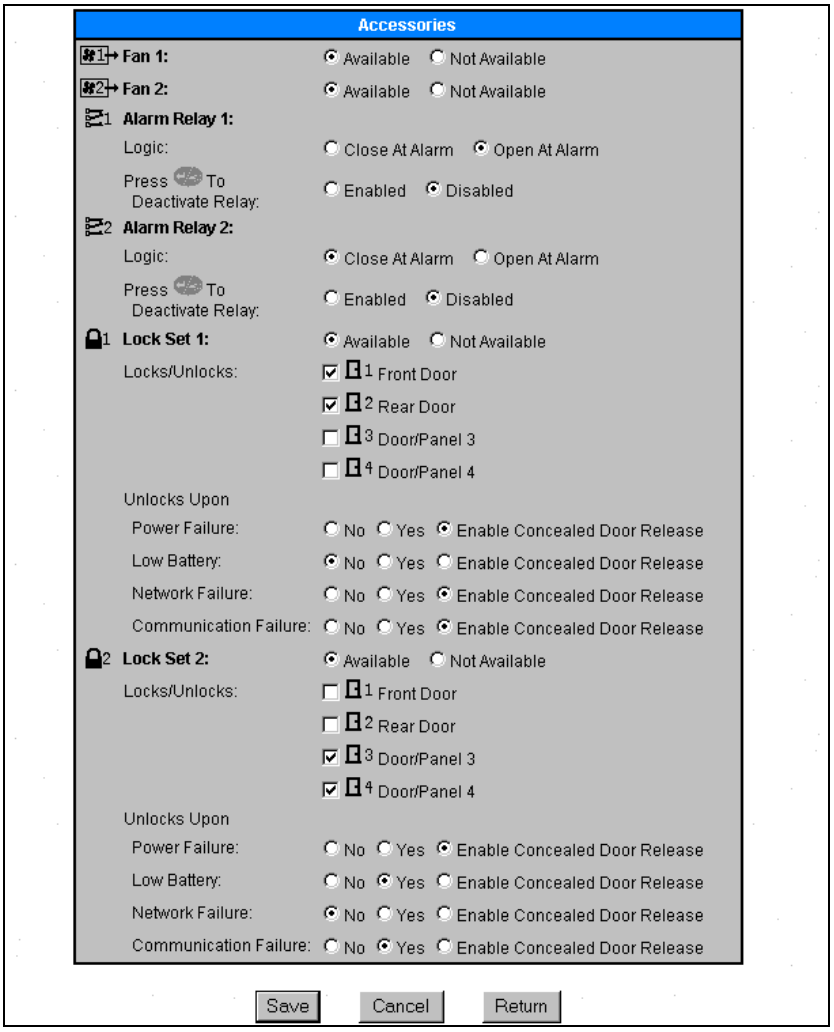

Figure 4-10. Accessory Setup screen

Click the **Accessory Setup** link to access the **Accessory Setup** screen. Use this screen to configure the CMC options.

To configure the options:

1. Select whether each fan is installed (available) or not installed (unavailable).
2. Select the appropriate logic for the alarm relays.
3. Enable the **Press** **to Deactivate Relay** option to be able to deactivate relay output from the front of the CMC.
4. Select the appropriate options for each lock set.
   a. Select whether each lock set is installed (available) or not installed (unavailable).
   b. Select the doors and panels that must be closed before the lock set can activate the lock.

IMPORTANT: For the door-locking feature to work properly, you must assign at least one intrusion sensor to each lock set. For more information about configuring intrusion sensors, see "Sensor Setup Screen" in this chapter.

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   c. Set the lock sets to remain locked or to unlock in the event of each listed fault. Enable the concealed door release to press a hidden switch to manually unlock locked doors.

NOTE: The software cannot detect the concealed door release. Make sure the concealed door release option is not selected for CMCs that control racks without a concealed door release.

5. After entering the accessory information, click **Save** to save the changes or click **Cancel** to cancel the changes.
6. Click **Return** to view the **Device Home** screen for this CMC. The **Device Home** screen is discussed in detail later in this chapter.

Threshold Configuration Screen

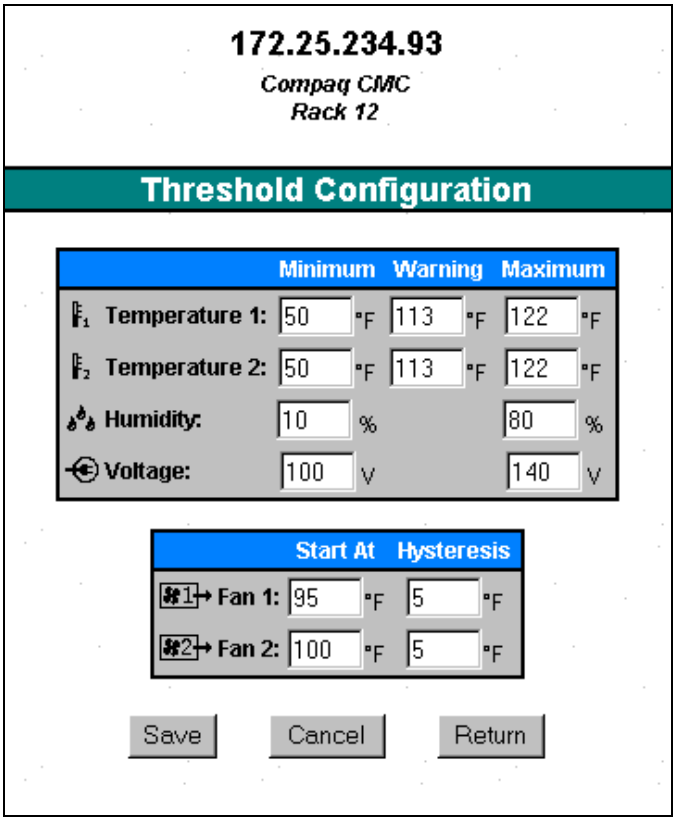

Figure 4-11. Threshold Configuration screen

Click the **Threshold Config** link to access the **Threshold Configuration** screen. Use this screen to modify the minimum and maximum acceptable values for temperature, humidity, and voltage.

To modify the values:

1. Enter the minimum and maximum temperature, humidity, and voltage values.
2. Enter the temperatures at which warnings are issued.
3. Enter the temperatures at which fans turn on and the degree of temperature drop that must be achieved before fans turn off.

4. After entering the threshold information, click **Save** to save the changes or click **Cancel** to cancel the changes.
5. Click **Return** to view the **Device Home** screen for this CMC. The **Device Home** screen is discussed in detail later in this chapter.

Alert Handling Screen

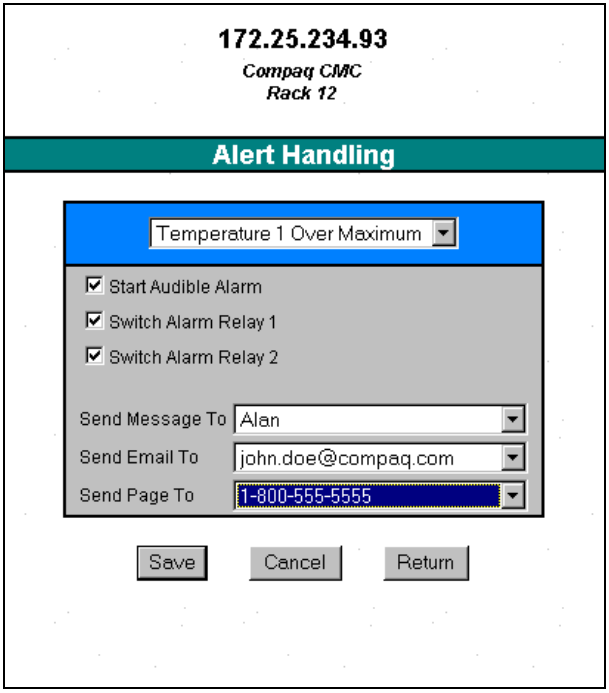

Figure 4-12. Alert Handling screen

Click the **Alert Handling** link to access the **Alert Handling** screen. Use this screen to choose how the software will issue each type of alert for each CMC. Alarms can be issued by message, pager, email, audible alarm, switch alarm relay 1, or switch alarm relay 2.

To set the behavior for each type of alert:

1. Select an alert situation from the pull-down menu.
2. Select the appropriate type of alert for that situation.
3. Click **Save** to save the changes.

4. Repeat steps 1 through 3 for each alert situation in the pull-down menu.
5. Click **Return** to view the **Device Home** screen for this CMC. The **Device Home** screen is discussed in detail later in this chapter.

NOTE: Computer names, email addresses, and phone numbers that display on the **Alert Handling** screen can be set using the software settings screens.

Manual Control Screen

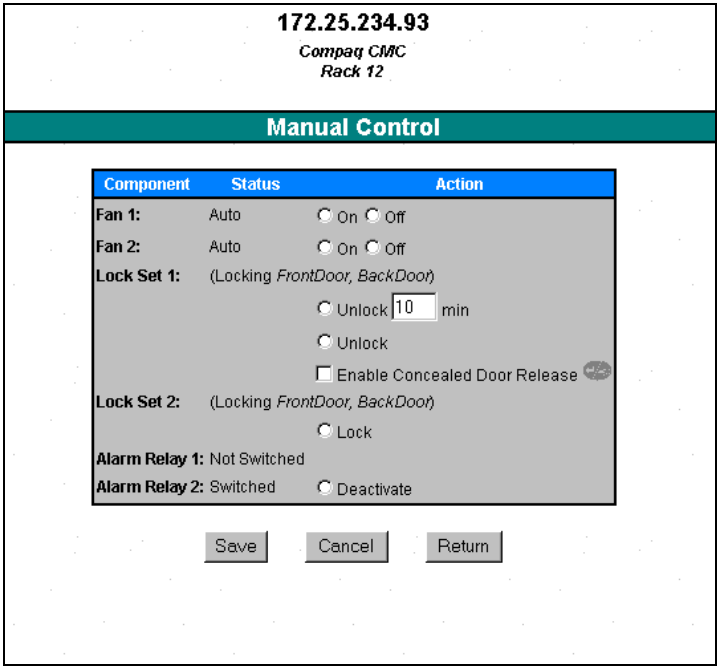

Figure 4-13. Manual Control screen

Click the **Manual Control** link to access the **Manual Control** screen. Use this screen to manually control fan, door-locking, and alarm relay behaviors.

NOTE: Only enabled fans and enabled lock sets display on the **Manual Control** screen. To enable fans and lock sets, see "Accessory Setup Screen" in this chapter.

To manually control the behaviors:

1. Select the appropriate radio button to manually turn fans on or off.
2. Lock a door that is unlocked or unlock a door that is locked. Doors can be unlocked after a specified amount of time has passed, immediately, or manually by activating the concealed door release.

   NOTE: Activating the concealed door release on the **Manual Control** screen allows the door to be unlocked using a hidden switch one time. After the door is closed, the door locking feature automatically locks the door and the concealed door release option is disabled. To permanently enable the concealed door release, see "Accessory Setup Screen" in this chapter.

3. Deactivate alarm relays as necessary. Alarm relays are only available after they are activated by an alarm. The alarm relay logic is set up on the **Accessory** screen.
4. Click **Save** to save the changes.
5. Click **Return** to view the **Device Home** screen for this CMC. The **Device Home** screen is discussed in detail later in this chapter.

Log Screen

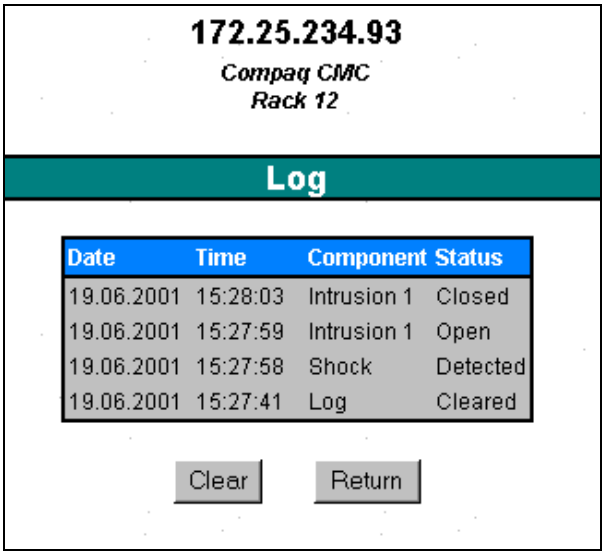

Figure 4-14. Log screen

Click the **Log** link to access the **Log** screen. Use this screen to view information about alerts issued for the CMC.

- Click **Clear** to clear all entries in the log.
- Click **Return** to view the **Device Home** screen for this CMC.
- Click **Print** on the browser window to print the log.

Device Monitoring

After the software and each recognized CMC are configured, monitor the CMC device status with the following:

- Active Alarms Screen
- Device Home Screen

Active Alarms Screen

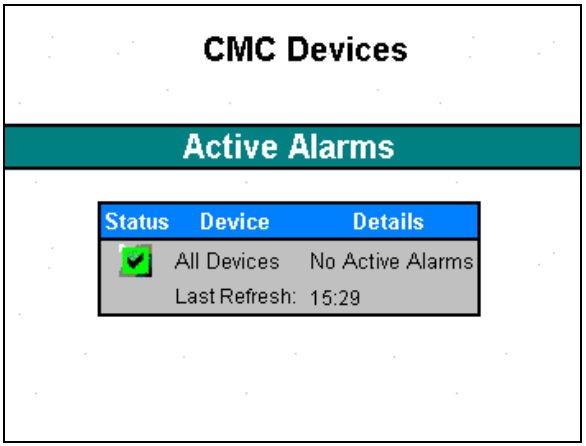

Figure 4-15. Active Alarms screen

Click the **Devices** icon, then click the **CMC Devices** heading in the left frame to access the **Active Alarms** screen. The **Active Alarms** screen automatically displays each time you log in to the software. Use this screen to view a summary of all active alarms and status information for all CMC devices. This information automatically updates every 15 seconds, or you can update the information at any time by clicking the **Refresh** link.

Click the IP address of a CMC in the list to display the **Device Home** screen and view details for that device.

Table 4-1 lists the meanings of the status symbols used on the **Active Alarms** screen.

Table 4-1
Active Alarms Status Symbols

Symbol	Meaning
	Normal
	Minor
	Major
	Critical

Device Home Screen

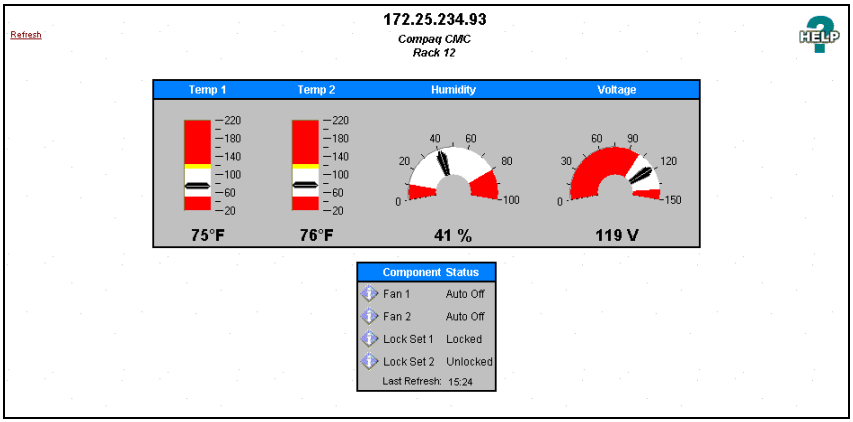

Figure 4-16. Device Home screen

The **Device Home** screen can be accessed by:

- Clicking an IP address in the **Active Alerts** screen status list.
- Clicking the IP address of a CMC in the left frame of the software interface.
- Clicking **Return** at the bottom of any device configuration screen.

Use this screen to view status information about individual CMC devices. The **Device Home** screen contains the following:

- CMC IP address, designation, and physical location
- A **Refresh** link

- Temperature, humidity, and voltage information in numerical and graphical form, including an indication of whether the temperature is in a safe range:
  - White—Safe range
  - Yellow—Warning
  - Red—Critical
  - Gray—No sensor
- Component status information. Table 4-2 lists the meanings of the status symbols used on the **Device Home** screen.

Table 4-2
Device Home Status Symbols

Symbol	Meaning
	Informational
	Minor
	Major
	Critical

Terminal Program Operation

Much of the Intelligent Rack Manager Lite software functionality is available in a simpler, text-based interface using a host computer and a terminal program over a serial connection to the CMC. See "Configuring the CMC" in Chapter 2 of this guide for more information on connecting the CMC to a host computer.

The serial link:

- Provides some additional functionality that lets you configure the CMC for operation with other SNMP managers. This feature is not needed for Intelligent Rack Manager Lite-only systems.

IMPORTANT: Up to four Compaq Intelligent Rack Manager Lite consoles or other trap monitors can be specified to receive alerts. The first trap receiver is always reserved for the last Compaq Intelligent Rack Manager Lite management console that accessed the CMC device. Compaq Intelligent Rack Manager Lite and other trap monitors, such as Compaq Insight Manager XE, cannot be loaded on the same server.

- Can be used to flash the memory with new CMC software. This operation is normally performed using the Intelligent Rack Manager Lite software over the network.

Starting HyperTerminal

HyperTerminal is a terminal program that is included with Microsoft operating systems. To start HyperTerminal:

1. Select **Start**, **Programs**.
2. Select **Accessories** and click **HyperTerminal**.
3. Do one of the following:
   - For Windows NT 4.0, click **HyperTerminal**.
   - For Windows 2000, click **Communications**, then click **HyperTerminal**.

4. Set up the properties for your terminal connection:
   a. Enter a name for your connection in the **New Connection** dialog box. Select an icon to represent the connection, then click **OK**. The **Phone Number** dialog box displays.
   b. In the **Connect Using** field, select **Direct Connection** to the COM port to which the CMC is connected, then click **OK**. The **Properties** dialog box displays.
   c. Enter the following port settings, then click **OK**.

Bits per second (baud rate)	`9600`
Data bits	`8`
Parity	`None`
Stop bits	`1`
Flow control	`None`

5. The main menu of the CMC displays on the HyperTerminal interface.

Navigating Menus

CAUTION: All configuration changes made in a terminal program are retained in CMC memory. If you change the Read and Write Community strings in the terminal program setup independently from the Compaq Intelligent Rack Manager Lite software, the software can no longer control the CMC.

Use Table 4-3 as a reference when navigating the CMC menus.

- To change values in HyperTerminal, type the new value in the field and press **Enter**.
- To select and toggle values, press the **spacebar**.
- To save changes and jump back to the previous menu, press **Esc**.

Table 4-3
CMC Terminal Program Menus

Main Menu Items	Submenu 1 Items	Submenu 2 Items	Brief Description
Values			Display rack information.
Status			Display rack status.
Network configuration			
	IP configuration		
		IP Address IP Subnetmask IP Router	Set network addresses.
	Trap receiver configuration		
		IP Trap receiver Enable/Disable IP Trap receiver Enable/Disable IP Trap receiver Enable/Disable IP Trap receiver Enable/Disable	Set up to 4 trap receiver IP addresses. Trap receiver number 1 is dedicated to the Compaq Intelligent Rack Manager software. Any IP address entered in number 1 will be over written when used with the software.
	SNMP IP Access		
		SNMP Manager SNMP Manager SNMP Manager SNMP Manager SNMP Manager SNMP Manager SNMP Manager SNMP Manager SNMP Manager SNMP Manager SNMP Manager	Set the authorized IP addresses of the management computers. In the default setting (all addresses set to 0.0.0.0), all network IP addresses are SNMP-authorized. If one or more IP addresses are entered, only those IP addresses have SNMP authorization. SNMP communication with the CMC can only be established from this system.

continued

Table 4-3
CMC Terminal Program Menus *continued*

Main Menu Items	Submenu 1 Items	Submenu 2 Items	Brief Description
Network configuration *(continued)*	Enable TFTP Enable Auth. Traps Read Community Write Community System Name System Contact System Location Change Password Enable Password Activate actual values		Set network properties. All configuration changes are retained in CMC memory. Changing the Read or Write Community strings independent of the software prevents the software from being able to control the CMC. If Enable TFTP is disabled, the Compaq Intelligent Rack Manager software will not be able to perform firmware upgrades.
General setup			
	Language Temperature unit Audible Alarm Quit Alarm relay 1 Quit Alarm relay 2 Logic Alarm relay 1 Logic Alarm relay 2 Set date of internal clock Set time of internal clock		Configure general CMC properties.
Setup Detectors (Analog/Fans)			Set up sensors.
	Temperature 1 available Temperature 2 available Fan1 available Fan2 available Voltage available Humidity available		

continued

Table 4-3
CMC Terminal Program Menus *continued*

Main Menu Items	Submenu 1 Items	Submenu 2 Items	Brief Description
Setup Detectors (Digital)			Set up sensors.
	Input 1		
		Available Description Fan option Shock option	
	Input 2		
		Available Description Fan option Shock option	
	Input 3		
		Available Description Fan option Shock option	
	Input 4		
		Available Description Fan option Shock option	
	Smoke sensor		
		Available Fan option	
	Shock sensor		
		Available Sensibility	

continued

Table 4-3
CMC Terminal Program Menus *continued*

Main Menu Items	Submenu 1 Items	Submenu 2 Items	Brief Description
Setup Detectors (Digital) *(continued)*	Aux 1		
		Available Description Logic	
	Aux 2		
		Available Description Logic	
Thresholds			Sets threshold values.
	Warning temp.1 Max.temp.1 Min.temp.1 Warning temp.2 Max.temp.2 Min.temp.2 Fan 1		
		Setpoint Fan 1 Hysteresis Fan 1	
	Fan 2		
		Setpoint Fan 2 Hysteresis Fan 2	
	Temperature unit Max.voltage Min.voltage Max.humidity Min.humidity		

continued

Table 4-3
CMC Terminal Program Menus *continued*

Main Menu Items	Submenu 1 Items	Submenu 2 Items	Brief Description
Alert handling			Configure alert handling.
	Temperature 1		
		Alarm relays max Alarm relays warning Alarm relays min Audible Alarm max Audible Alarm warning Audible Alarm min	
	Temperature 2		
		Alarm relays max Alarm relays warning Alarm relays min Audible Alarm max Audible Alarm warning Audible Alarm min	
	Fan 1		
		Alarm relays Audible Alarm	
	Fan 2		
		Alarm relays Audible Alarm	
	Voltage		
		Alarm relays max Alarm relays min Audible Alarm max Audible Alarm min	
	Humidity		
		Alarm relays max Alarm relays min Audible Alarm max Audible Alarm min	

continued

Table 4-3
CMC Terminal Program Menus *continued*

Main Menu Items	Submenu 1 Items	Submenu 2 Items	Brief Description
Alert handling *(continued)*	Aux 1		
		Alarm relays Audible Alarm	
	Aux 2		
		Alarm relays Audible Alarm	
System Info			Display system data and network addresses.
Defaults			
	Set thresholds to default Set setup to default		Revert settings to default values.

Chapter 5

Troubleshooting

This chapter provides information on the following topics:

- Troubleshooting during startup
- Troubleshooting after startup
- Repairing the CMC

Troubleshooting During Startup

If problems occur when starting the Compaq CMC, select the appropriate symptom for possible causes and actions.

Table 5-1
Troubleshooting Guide (CMC Startup)

Description of Fault Symptom	Solution
The CMC fails to function after power up.	Check the AC power connection.
	Make sure unit is On.
Connected sensors are not recognized by the CMC.	Make sure sensor is connected to correct port on the rear of the CMC.
	Check the cables to the sensors for cable breaks.
	If applicable, check the power supply to the sensors.
Alarm signals are only indicated on the CMC but not at the console management.	Verify network connection is correctly installed.
	Verify the correct IP address is programmed into the unit.
	Contact network administrator.
There is no shock alarm, despite the presence of vibrations.	Use software to adjust sensitivity. See Chapter 4.
Intrusion alarms do not activate when door is opened.	Verify intrusion magnetic switches are properly installed.
	Verify sensors connected to the correct port on the rear of the unit.
Faults are not reported although sensors are connected.	Check the sensors for correct installation.
	Verify that sensors are connected to the proper port on the rear of the unit.
The interface LEDs are not giving any signals.	Check the connection to the network.
	Contact network administrator.

Troubleshooting After Startup

For problems that occur after the CMC started, these suggested actions address possible causes.

Table 5-2
Troubleshooting Guide (After Startup)

Symptom	Possible Cause	Suggested Action
Audible Alarm	Alarm condition exists.	Check display or console for error condition and clear.

Repairing the CMC

Repairs to the CMC must be carried out by Compaq or a Compaq authorized service representative. The only user-serviceable parts are the fuses located in the rear of the unit. If the fuses have opened, verify that the condition that caused the fault has been cleared. Replace the fuse with the *exact* rating as specified on the unit label. Contact your Compaq authorized service representative for more details.

WARNING: Disconnect all power cords before servicing the unit.

Appendix **A**

Regulatory Compliance Notices

Regulatory Compliance Identification Numbers

For the purpose of regulatory compliance certifications and identification, the Compaq CMC model is assigned a Compaq Series Number. The Compaq Series Number for this product is shown in the following table. The CMC Series Number can be found on the Regulatory Compliance label, along with the required approval markings and information. The Regulatory Compliance label is located on the top of the CMC unit. When requesting certification information for this product always refer to this series number. This series number should not be confused with the marketing name or model number for your Compaq CMC.

Table A-1
Compaq CMC Series Number

Series Number	CMC Model
EO3009	Worldwide model - 100 to 240V

Federal Communications Commission Notice

Part 15 of the Federal Communications Commission (FCC) Rules and Regulations has established Radio Frequency (RF) emission limits to provide an interference-free radio frequency spectrum. Many electronic devices, including computers, generate RF energy incidental to their intended function and are, therefore, covered by these rules. These rules place computers and related peripheral devices into two classes, A and B, depending upon their intended installation. Class A devices are those that may reasonably be expected to be installed in a business or commercial environment. Class B devices are those that may reasonably be expected to be installed in a residential environment (that is, personal computers). The FCC requires devices in both classes to bear a label indicating the interference potential of the device as well as additional operating instructions for the user.

The rating label on the device shows which class (A or B) the equipment falls into. Class B devices have an FCC logo or FCC ID on the label. Class A devices do not have an FCC logo or FCC ID on the label. Once the class of the device is determined, refer to the following corresponding statement.

Class A Equipment

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at personal expense.

Class B Equipment

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult dealer or experienced radio or television technician for help.

Declaration of Conformity for Products Marked with the FCC logo - United States Only

This 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.

- For questions regarding your product, contact:
  Compaq Computer Corporation
  P. O. Box 692000, Mail Stop 530113
  Houston, Texas 77269-2000
  or call 1-800-652-6672 (1-800-OK COMPAQ)[1].
- For questions regarding this FCC declaration, contact:
  Compaq Computer Corporation
  P. O. Box 692000, Mail Stop 510101
  Houston, Texas 77269-2000
  or call (281) 514-3333.

To identify this product, refer to the Part, Series, or Model number found on the product.

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[1] For continuous quality improvement, calls may be recorded or monitored.

Modifications

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by Compaq Computer Corporation may void the user's authority to operate the equipment.

Canadian Notice (Avis Canadien)

Class A Equipment

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Class B Equipment

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Union Notice

Products with the CE Marking comply with both the EMC Directive (89/336/EEC) and the Low Voltage Directive (73/23/EEC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms (in brackets are the equivalent international standards):

- EN50091-1 – CMC Product Safety Requirements
- EN50091-2 – CMC EMC Requirements

Japanese Notice

ご使用になっている装置にVCCIマークが付いていましたら、次の説明文をお読み下さい。

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

VCCIマークが付いていない場合には、次の点にご注意下さい。

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスA情報技術装置です　この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

China Taiwan Notice

警告使用者：

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Appendix ***B***

Electrostatic Discharge

To prevent damaging the system, be aware of the precautions you need to follow when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

To prevent electrostatic damage, observe the following precautions:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Make sure you are always properly grounded when touching a static-sensitive component or assembly.

Grounding Methods

There are several methods for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm ±10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
- Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.
- Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, have a Compaq authorized reseller install the part.

NOTE: For more information on static electricity, or assistance with product installation, contact your Compaq authorized reseller.

Appendix C

Specifications

This appendix provides specifications that apply to the Compaq CMC:

- Physical specifications
- Environmental specifications
- Input/Output specifications

Specifications

Table C-1
Specifications – Console Management Controller (CMC)

Feature		Specification	
		U.S.	Metric
Dimensions	Height	1.75 in (1U)	44.5 mm
	Depth	4.13 in	105 mm
	Width	19 in	483 mm
Operating temperature	+10°C to +50°C		
Storage temperature	-20°C to +60°C		
Processor	AM186 based (20 MHz), 16-bit CPU, Intel-compatible		
RAM	512KB 16-bit DRAM		
Program memory	512KB flash-EPROM		
CMC Rated voltage	100 VAC to 240 VAC, 50/60 Hz		
CMC Maximum input current rating	300mA		
Voltage drop time	10 ms (maximum)		
Rated voltage for fan inlet/outlets	100 VAC to 240 VAC, 50/60 Hz		
Maximum current rating for fans	Fan inlet - 4A		
	Fan outlet - 2A (each)		

continued

Table C-1
Specifications – Console Management Controller (CMC) *continued*

Feature	Specification
Serial interface	RS-232
Ethernet connection	10BaseT, IEEE 802.3 (10 MB/sec), TCP/IP, SNMP, TFTP
Fuses	Main AC input power-250V, 800mA, T, IEC-127
	Fan #1 switched power-250V, 2A, T, IEC-127
	Fan #2 switched power-250V, 2A, T, IEC-127
Alarm relays 1 and 2	Contacts: S.P.D.T., 800 mA @ 24VDC
Maximum DC output (Alarm relay ports)	160 mA @ 24VDC (See Appendix D)
Displays	4 LEDs, LCD display (2 lines x 20 characters)
Audible Alarm	Piezoelectric signal generator

Appendix ***D***

Pin Layout Configuration

Compaq CMC

The RJ-12 connector pins on the rear of the CMC are identified in the following figure. The RJ-12 pin functions are described in Table D-1.

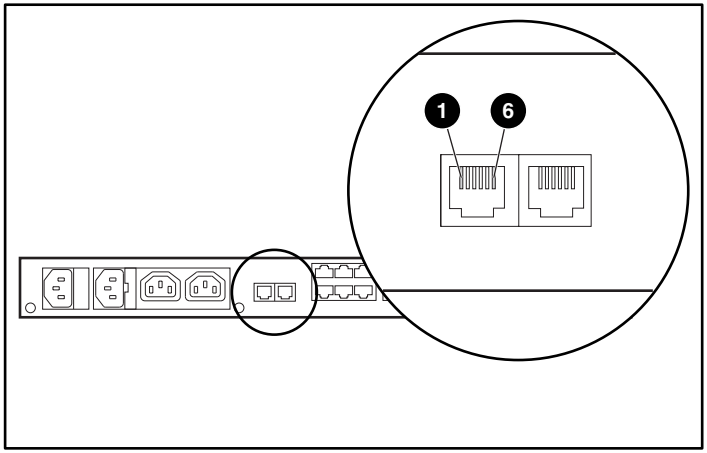

Figure D-1. RJ-12 ports

Alarm Relay Wiring Examples

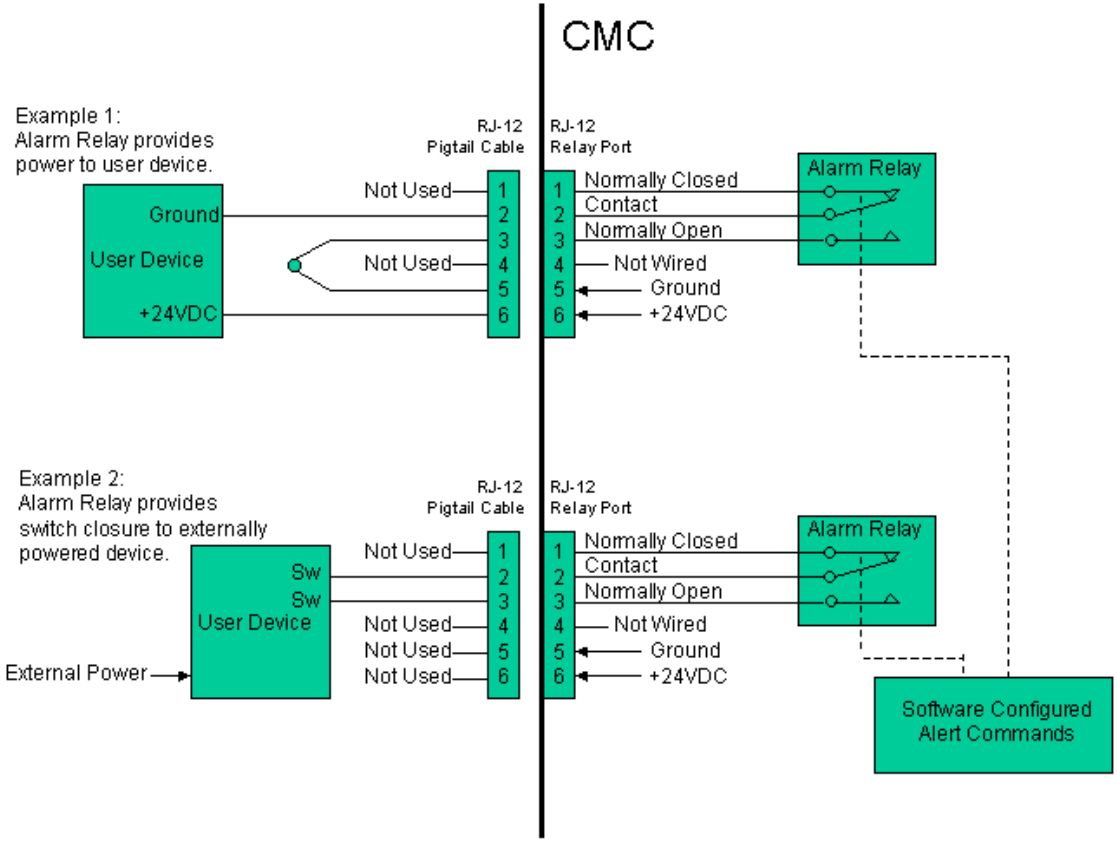

Figure D-2. Alarm relay wiring examples

Table D-1
RJ-12 Pin Layout Specifications

Pin	Temperature sensor	Humidity sensor	Discrete inputs	Smoke sensor	Alarm relays
1	Sensor	Humidity signal (4mA to 20mA)	Contact of sensor [3]	Contact of sensor	Contact NC[1]
2	Sensor	Ground (4mA to 20mA)	Contact of sensor [3]	Contact of sensor	Contact C[1]
3	-	-	-	-	Contact NO[1]
4	-	-	-	-	-
5	-	Ground	-	Ground	Ground
6	-	24VDC, 44mA		24VDC, 160 mA	24VDC, 160mA[2]

Note: 1. The alarm relay contacts are rated for a maximum of 24VDC and 800mA, when connecting to an external power source.

2. The CMC can supply up to 160mA to users from its internal 24VDC power supply via the two alarm relay ports. The 160mA can be split as needed between the two ports.

3. Intrusion sensors can be connected to Auxiliary 1 and 2 input ports to allow monitoring additional doors. Users may also wire a simple switch closure device between pins 1 and 2. Pin 2 is connected to the CMC signal ground and pin 1 is connected to the CMC signal input. Opening or closing the switch will trigger an alarm, as configured in the software setup.

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