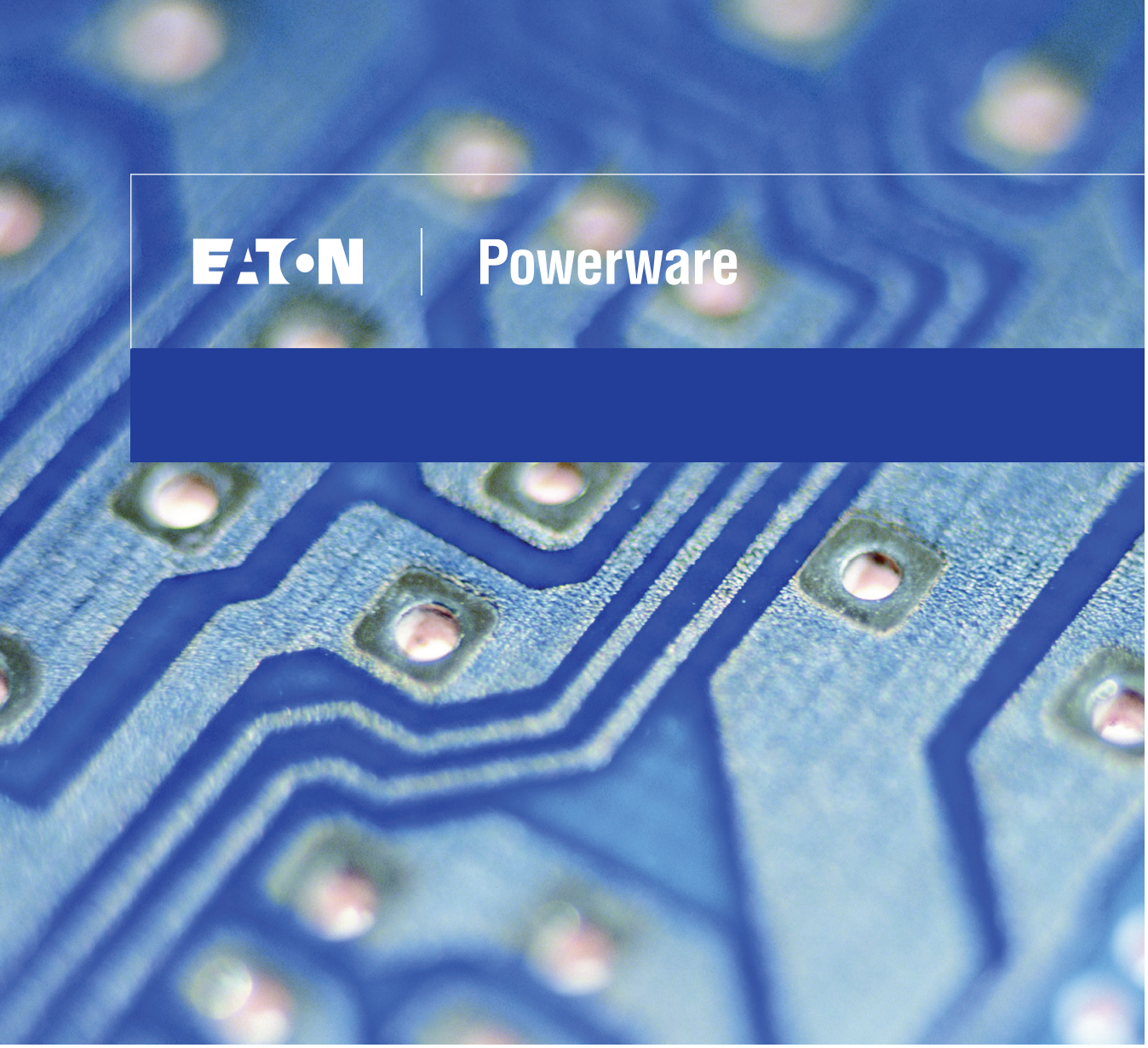


Powerware® Environmental Rack Monitor
User's Guide

Class B EMC Statements

FCC Part 15

NOTE 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 the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

ICES-003

This Class B Interference Causing Equipment meets all requirements of the Canadian Interference Causing Equipment Regulations ICES-003.

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

Requesting a Declaration of Conformity

Units that are labeled with a CE mark comply with the following harmonized standards and EU directives:

- Harmonized Standards: EN 50091-1-1 and EN 50091-2; IEC 60950 Third Edition
- EU Directives: 73/23/EEC, Council Directive on equipment designed for use within certain voltage limits
  93/68/EEC, Amending Directive 73/23/EEC
  89/336/EEC, Council Directive relating to electromagnetic compatibility
  92/31/EEC, Amending Directive 89/336/EEC relating to EMC

The EC Declaration of Conformity is available upon request for products with a CE mark. For copies of the EC Declaration of Conformity, contact:

Eaton Power Quality Oy
Koskelontie 13
FIN-02920 Espoo
Finland
Phone: +358-9-452 661
Fax: +358-9-452 665 68

Table of Contents

Chapter 1 Introduction

The Powerware® Environmental Rack Monitor (ERM) is designed to remotely monitor the temperature, humidity, and status of two contact devices via a standard Web browser, providing greater management control and flexible monitoring.

To install the ERM on a network and change its default configuration, you need a workstation running Microsoft® Windows® (9x, Me, NT4.0, 2000, XP or later). If your network dynamically configures IP address, all you need is a workstation with a Web browser.

The ERM's unique benefits include the following:

- Hot-swappable TH-Module, simplifying installation by allowing you to install the TH-Module safely without powering down the ERM.
- Monitoring of temperature and humidity information for any desired environment to protect your critical equipment.
- Monitoring the status of two user-provided contact devices to protect your critical equipment.
- Configuration from HTTP Web browser or SNMP management software.
- E-mail notification through SMTP (simple mail transport protocol) via e-mail client software, a PCS (personal communication services) phone, or alphanumeric pager when acceptable alarm limits are exceeded or contact status changes.
- History log files (data and events) for recording temperature and humidity problems. Changes in contact closure status are logged in the ERM's Event History Log.

For more detailed information that is not included in this manual, first register your product at warranty.powerware.com, then visit our Web site: www.powerware.com/rackmonitor. You can also download firmware upgrades, the latest manuals, and other documentation.

Safety Warnings

IMPORTANT SAFETY INSTRUCTIONS
SAVE THESE INSTRUCTIONS

This manual contains important instructions that you should follow during installation and maintenance of the Environmental Rack Monitor. Please read all instructions before operating the equipment and save this manual for future reference.

DANGER

All repairs and service should be performed by **AUTHORIZED SERVICE PERSONNEL ONLY**. There are **NO USER SERVICEABLE PARTS** inside the ERM.

WARNING

- To reduce the risk of fire or electric shock, install the Environmental Rack Monitor in a temperature and humidity controlled, indoor environment, free of conductive contaminants. Ambient temperature must not exceed 40°C (104°F). Do not operate near water or excessive humidity (95% maximum).
- Remove watches, rings, or other metal objects before installation or maintenance of the Environmental Rack Monitor.
- Before plugging the Environmental Rack Monitor power adapter in, verify that the rating of the power source is matched with the rating of the power adapter.

Chapter 2 Installation

ERM Installation

To install the Environmental Rack Monitor (ERM):

1. Connect the supplied straight-through CAT 5 network cable from the ERM's RJ-45 connector (labeled "TH-Module-1") to the TH-Module's RJ-45 connector (labeled "010101"). See Figure 3 on page 6.

NOTE *If the supplied straight-through CAT5 network cable is not long enough for your application, you may substitute a longer cable (not to exceed 20m/65.6 ft).*

2. If applicable, connect external contact closure inputs to the screw terminals on the TH-Module (see Figure 1 and Table 1).

NOTE *Contact closure device 1 is connected between Pins 1 and 2. Device 2 is connected between Pins 3 and 4 (as labeled to show device 1 and 2). Contact closure devices may be normally open or normally closed.*

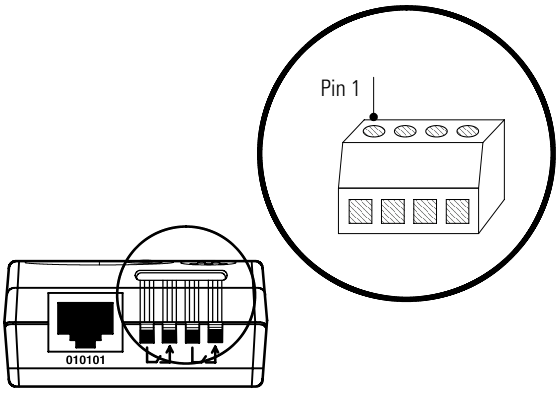


Figure 1. TH-Module Screw Terminal

Table 1. TH-Module Screw Terminal Pin Assignment

Pin Number	Description	Normally Open/ Normally Closed
1	Contact 1 Return	NC
2	Contact 1 Signal Input	NO
3	Contact 2 Return	NC
4	Contact 2 Signal Input	NO

3. Insert the detachable power cord into the ERM power inlet (labeled "12 VDC").

4. Attach the cable clamp to the ERM as shown in Figure 2.

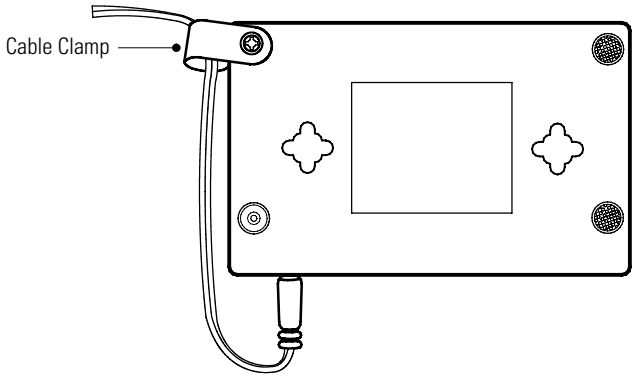


Figure 2. Cable Clamp

5. Plug the other end of the power cord into a power outlet.

6. Continue to "Configuration" on page 5 to configure the ERM.

Chapter 3 Configuration

Use the following procedures to access the Environmental Rack Monitor's (ERM's) configuration menus through a serial port, Web browser, or Telnet utility.

Configuration Through a Serial Port

Connect the ERM

To connect the ERM through a serial port:

1. Verify that both DIP switches on the ERM are set to the **0** (off) position (see Figure 3).
2. Connect the supplied serial cable to the RJ-45 connector (labeled "TH-Module-2") on the ERM.
3. Connect the other end of the serial cable to the COM port on the PC.
4. Connect an active Ethernet cable (supplied) to the network connector on the ERM.

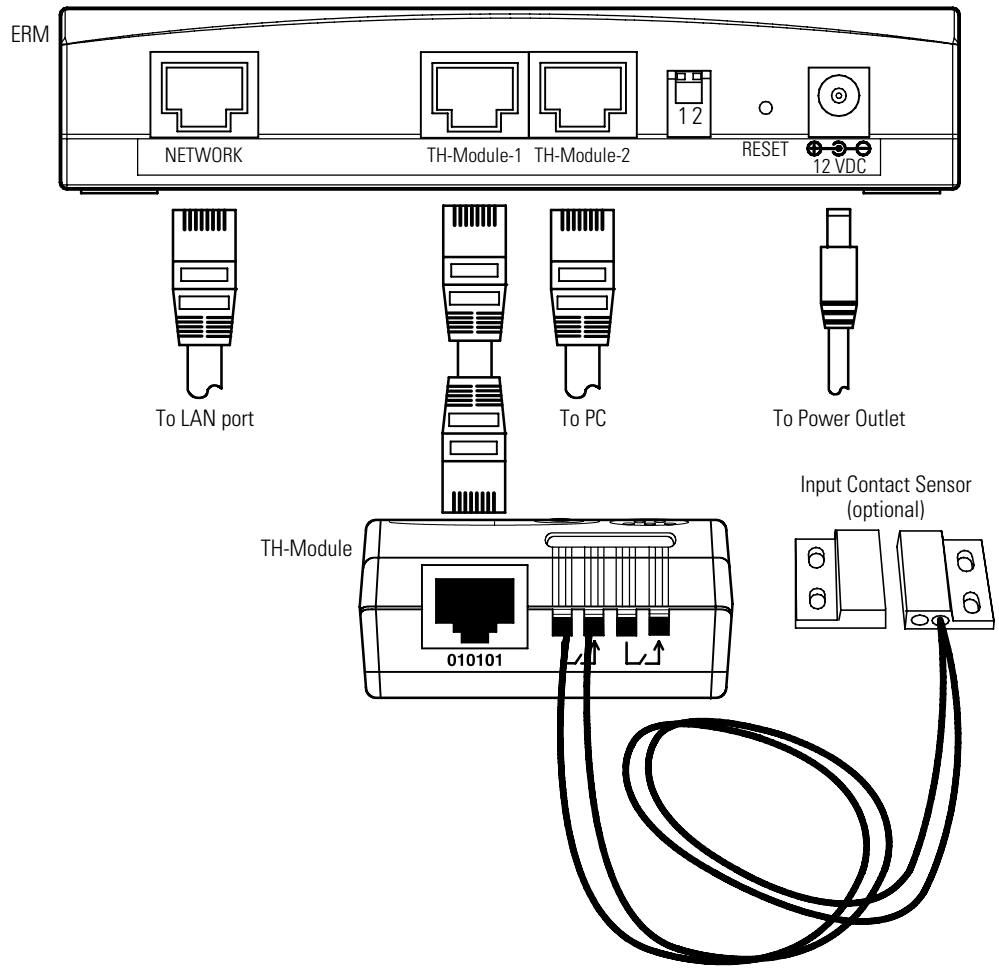


Figure 3. Typical ERM Installation

Configure the ERM

To configure the ERM:

1. Open your terminal emulation program (such as HyperTerminal). See Figure 4.

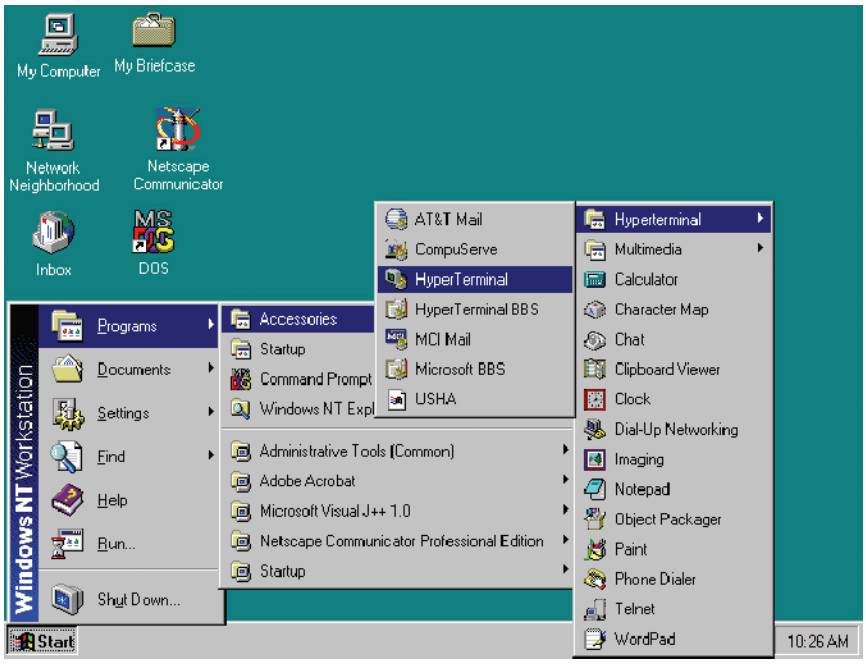


Figure 4. Accessing HyperTerminal

2. Enter a name and choose an icon for the connection (see Figure 5).

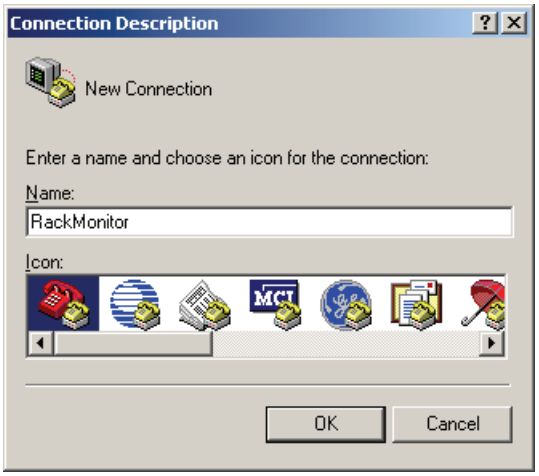


Figure 5. New Connection Screen

3. Select direct COM port connection (see Figure 6).

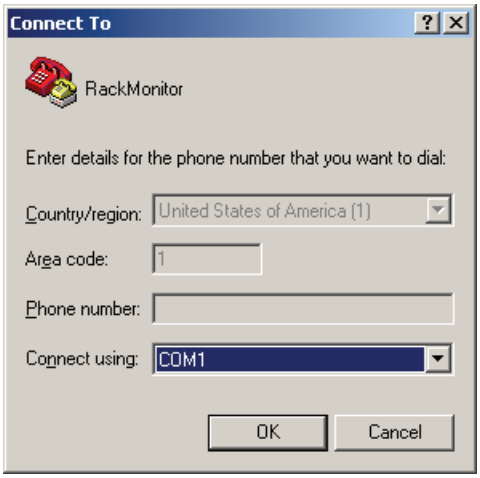


Figure 6. Select Direct to COM Port Connection

4. Set the serial line to 9600 baud, 8 data bits, No parity, 1 stop bit, and no flow control (see Figure 7).

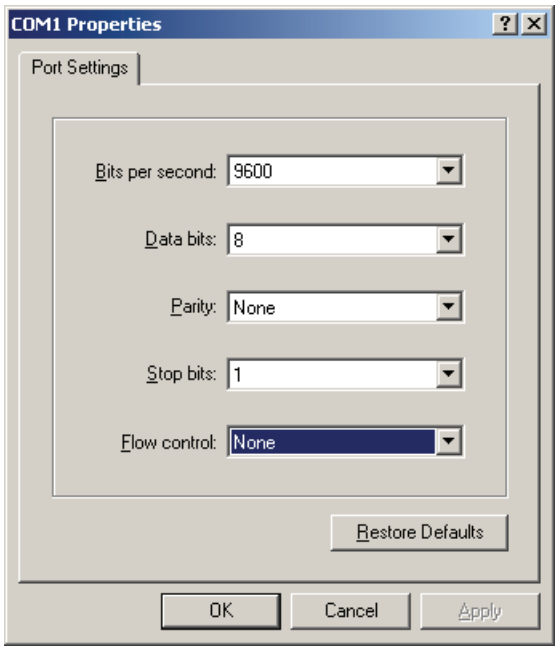


Figure 7. COM1 Properties Screen

5. After a few seconds, the Password prompt appears (see Figure 8).

   If the Password prompt does not appear, check the following conditions:

   - Verify that the serial cable is connected to the RJ-45 connector labeled "TH-Module-2" on the ERM.
   - Verify the serial line is set to 9600 baud, No parity, 8 data bits, 1 stop bit, and no flow control.
   - If the serial line settings are correct, check the cabling to verify all connections are secure.
   - Verify that your terminal program is on the correct communication port for the serial connection.
   - Verify that the ERM has power (one or more LEDs on the ERM are illuminated). The ERM should be turned on.

6. Type your *password* (the default is *admin*) and press Enter. The Main Menu screen appears (see Figure 8).

```
+==============================================================================+
|              [ Rack Monitor Configuration Utility Main Menu ]                |
+==============================================================================+

Enter Password:  *****


+==============================================================================+
|              [ Rack Monitor Configuration Utility Main Menu ]                |
+==============================================================================+
   1. Rack Monitor Configuration
   2. TH-Module Configuration
   3. Access Control Table
   4. Trap Receiver Table
   5. Reset Configuration To Default
   6. Restart Rack Monitor
   0. Exit

Please Enter Your Choice => _
```

Figure 8. ERM Configuration Menu

7. Type **1** on the Main Menu to display the Rack Monitor Configuration Menu screen (see Figure 9).

```
+==============================================================================+
|              [ Rack Monitor Configuration Utility Main Menu ]                |
+==============================================================================+
   1. Rack Monitor Configuration
   2. TH-Module Configuration
   3. Access Control Table
   4. Trap Receiver Table
   5. Reset Configuration To Default
   6. Restart Rack Monitor
   0. Exit

Please Enter Your Choice => 1


+==============================================================================+
|                      [ Rack Monitor Configuration Menu ]                     |
+==============================================================================+
   1. System Group
   2. Control Group
   3. Parameter Group
   4. Email Group
   0. Return to previous menu

Please Enter Your Choice => _
```

Figure 9. ERM Configuration Menu

Configure the System Group Parameters

To configure the IP address, Gateway address, and Network Mask parameters:

1. Type **1** on the Rack Monitor Configuration Menu screen to display the System Group Configuration Menu screen (see Figure 10 and Table 2).

2. Type **0** to return to the Rack Monitor Configuration Menu screen.

NOTE *To complete the ERM configuration, continue to the following section, "Modify the Control Group Parameters" on page 13 or connect the ERM through a Web browser (see page 22).*

```
+================================================================================+
|                      [ Rack Monitor Configuration Menu ]                       |
+================================================================================+
   1. System Group
   2. Control Group
   3. Parameter Group
   4. Email Group
   0. Return to previous menu

Please Enter Your Choice => 1


+================================================================================+
|                      [ System Group Configuration Menu ]                       |
+================================================================================+
      Rack Monitor Version     : Rack Monitor v1.00.b4 (SN              )
      Ethernet address         : 00 E0 D8 09 10 6D
   1. Ip Address               : 203.67.163.40
   2. Gateway Address          : 203.67.163.254
   3. Network Mask             : 255.255.255.0
   0. Return to previous menu

Please Enter Your Choice => 0
```

Figure 10. System Group Configuration Menu

Table 2. System Group Parameters

Number	Function	Description	Example/Remark
1	IP Address	The ERM IP address.	192.168.1.100
2	Gateway Address	The network default gateway.	192.168.1.254
3	Network Mask	The sub-net mask setting.	255.255.255.0

Modify the Control Group Parameters

To modify the access password and enabled/disabled status of the available network protocols:

1. Type **2** on the Rack Monitor Configuration Menu screen to display the Control Group Configuration Menu screen (see Figure 11 and Table 3).

2. Type **0** to return to the Rack Monitor Configuration Menu screen.

```
+==============================================================================+
|                      [ Rack Monitor Configuration Menu ]                     |
+==============================================================================+
   1. System Group
   2. Control Group
   3. Parameter Group
   4. Email Group
   0. Return to previous menu

Please Enter Your Choice => 2


+==============================================================================+
|                    [ Control Group Configuration Menu ]                      |
+==============================================================================+
   1. HTTP Login Username   : EATON
   2. Community Read-Only   : public
   3. Community Read/Write  : *
   4. BOOTP/DHCP Control    : Enable
   5. TFTP Upgrade Control  : Enable
   6. PING Echo Control     : Enable
   7. Telnet Control
   8. HTTP Control
   9. SNMP Control
   0. Return to previous menu

Please Enter Your Choice => 0
```

Figure 11. Control Group Configuration Menu

Table 3. Control Group Parameters

Number	Function	Description	Example/Remark
1	HTTP Login Username	HTTP access login string.	“EATON“
2	Community Read-Only	General password for read-only access.	“public”
3	Community Read/Write	Administrator password for read and write access.	“admin”
4	BOOTP/DHCP Control	Enable/disable the BOOTP/DHCP protocols.	Enable
5	TFTP Upgrade Control	Enable/disable the TFTP protocol for firmware upgrades through the local network.	Enable
6	PING Echo Control	Enable/Disable the ERM to respond to Ping request.	Enable
7	Telnet Control	Enable/disable the TELNET protocol.	Enable
8	HTTP Control	Enable login and password request for HTTP access.	Enable
9	SNMP Control	Enable login and password request for SNMP access.	Enable

Modify the Parameter Group Parameters

To modify the SNMP identification information and the speed of reading data from the ERM:

1. Type **3** on the Rack Monitor Configuration Menu screen to display the Parameter Group Configuration Menu screen (see Figure 12 and Table 4).

2. Type **0** to return to the Rack Monitor Configuration Menu screen.

```
+================================================================================+
|                      [ Rack Monitor Configuration Menu ]                       |
+================================================================================+
   1. System Group
   2. Control Group
   3. Parameter Group
   4. Email Group
   0. Return to previous menu

Please Enter Your Choice => 3


+================================================================================+
|                    [ Parameter Group Configuration Menu ]                      |
+================================================================================+
   1. sysContact       : Technical Support
   2. sysName          : Rack Monitor
   3. System Location  :
   4. Poll Rate        : 5
   0. Return to previous menu

Please Enter Your Choice => 0
```

Figure 12. Parameter Group Configuration Menu

Table 4. Parameter Group Parameters

Number	Function	Description	Example/Remark
1	sysContact	Alphanumeric string	Technical Support Team
2	sysName	Alphanumeric string	Rack Monitor
3	System Location	Alphanumeric string	Technical Support Lab
4	Poll Rate	The time interval in seconds the ERM update measurement (Temperatures and Humidity) from sensor, valid value is between 3 to 60.	

Configure the Email Group Parameters

To configure the Email Group parameters:

1. Type **4** on the Rack Monitor Configuration Menu screen to display the Email Group Configuration Menu screen (see Figure 13 and Table 5).
2. Type **0** to return to the Rack Monitor Configuration Menu screen.
3. Type **0** again to return to the Main Menu.

```
+================================================================================+
|                     [ Rack Monitor Configuration Menu ]                        |
+================================================================================+
   1. System Group
   2. Control Group
   3. Parameter Group
   4. Email Group
   0. Return to previous menu

Please Enter Your Choice => 4


+================================================================================+
|                     [ Email Group Configuration Menu ]                         |
+================================================================================+
   1. Mail Server     :
   2. User Account    :
   3. User Password   :
   4. DNS IP Address  : 0.0.0.0
   5. Mail Receivers
   6. Test Email Configuration
   0. Return to previous menu

Please Enter Your Choice => 0
```

Figure 13. Email Group Configuration Menu

Table 5. Email Group Parameters

Number	Function	Description	Example/Remark
1	Mail Server	As Administrator, you may enter the IP Address or Hostname of a SMTP mail server that will be used to send email messages from the ERM.	
2	User Account	As Administrator, you may enter the User Account of the mail server that will be used by the ERM to login mail server to forward mails.	
3	User Password	As Administrator, you may enter the User Password of User Account.	
4	DNS IP Address	As Administrator, you are required to enter the IP address of your network DNS server if you entered a Hostname for the Mail Server. Otherwise, this field will contain 0.0.0.0.	

Set the TH-Module Configuration

To change the status and name of the TH-Module-1 and TH-Module-2:

1. Type **2** on the Main Menu to display the TH-Module Configuration Menu screen (see Figure 14).

```
+=============================================================================+
|              [ Rack Monitor Configuration Utility Main Menu ]               |
+=============================================================================+
   1. Rack Monitor Configuration
   2. TH-Module Configuration
   3. Access Control Table
   4. Trap Receiver Table
   5. Reset Configuration To Default
   6. Restart Rack Monitor
   0. Exit

Please Enter Your Choice => 2


+=============================================================================+
|                       [ TH-Module Configuration Menu ]                      |
+=============================================================================+
   1. TH-Module-1 Setup
   2. TH-Module-2 Setup
   0. Return to previous menu

Please Enter Your Choice => _
```

Figure 14. TH-Module Configuration Menu

2. Type **1** or **2** on the TH-Module Configuration Menu screen to select the TH-Module-1 or TH-Module-2 Setup screens, respectively. See Figure 15 and Figure 16.

```
+=============================================================================+
|                            [ TH-Module-1 Setup ]                            |
+=============================================================================+
   1. TH-Module-1 Status  : Auto
   2. TH-Module-1 Name    : Lab Door Sensor
   0. Return to previous menu

Please Enter Your Choice => _
```

Figure 15. TH-Module-1 Setup Screen

```
+=============================================================================+
|                           [ TH-Module-2 Setup ]                             |
+=============================================================================+
   1. TH-Module-2 Status  : Auto
   2. TH-Module-2 Name    : Desktop Sensor
   0. Return to previous menu

Please Enter Your Choice => _
```

Figure 16. TH-Module-2 Setup Screen

3. Type **0** to return to the TH-Module Configuration Menu screen.
4. Type **0** again to return to the Main Menu.

Configure the Access Control Table

If you wish to use a workstation with SNMP Manager installed, or if you wish to set more restrictive ERM access, use the access table to add the IP address of the PCs on which you wish to modify the access permissions.

1. Type **3** on the Main Menu to display the Access Control Table screen (see Figure 17).
2. Type **1** on the Access Control Table screen to modify an entry in the Access Control Table.
3. Type **2** on the Access Control Table screen to reset an entry to the default setting.
4. Type **0** to return to the Main Menu.

NOTE *The configuration of Access Control Table is configured for SNMP and HTTP Network Management. Access through Telnet or RS-232 is permitted only when using the "Community Read/Write" password in the Control Group.*

NOTE *The community strings entered in the Community String fields are visible only in the RS-232 connection. The TELNET connection does not display the string. An asterisk "*" will be shown in the field.*

NOTE *If a "NotAccess" access right is associated with an IP address, the associate workstation will not be able to display any information regarding the ERM, even if the Community Read-Only string is entered.*

```
+=============================================================================+
|   IP Address        Community String           Access                       |
+=============================================================================+
[1] 0.0.0.0           *                          NotAccess
[2] 0.0.0.0           *                          NotAccess
[3] 0.0.0.0           *                          NotAccess
[4] 0.0.0.0           *                          NotAccess
[5] 0.0.0.0           *                          NotAccess
[6] 0.0.0.0           *                          NotAccess
[7] 0.0.0.0           *                          NotAccess
[8] 0.0.0.0           *                          NotAccess

   COMMANDS -
   1. Modify - Modify an entry of table
   2. Reset - Reset an entry to default from table
   0. Return to previous menu

Please Enter Your Choice => _
```

Figure 17. Access Control Table

Set Trap Receivers

If you want to use a PC and perform the SNMP manager 'trap' function in order to manage the TH-Module through the ERM, the IP address of the PC must be added to the ERM list.

1. Type **4** on the Main Menu to display the Trap Receiver Table screen (see Figure 17).
2. Type **1** on the Trap Receiver Table screen to modify an entry in the Access Control Table.
3. Type **2** on the Trap Receiver Table screen to reset an entry to the default setting.
4. Type **0** to return to the Main Menu.

NOTE *The Set Trap Receivers configuration is used only for SNMP Network Manager.*

```
+=============================================================================+
|   IP Address       Community String    Severity       Description          |
+=============================================================================+
[1] 192.168.65.235   *                   Informational
[2] 192.168.61.168   *                   Informational
[3] 0.0.0.0          *                   Informational
[4] 0.0.0.0          *                   Informational
[5] 0.0.0.0          *                   Informational
[6] 0.0.0.0          *                   Informational
[7] 0.0.0.0          *                   Informational
[8] 0.0.0.0          *                   Informational

   1. Modify - Modify an entry of table
   2. Reset - Reset an entry to default from table
   0. Return to previous menu

Please Enter Your Choice => _
```

Figure 18. Trap Receiver Table

Complete ERM Configuration

After configuration is complete, press "0" to exit the console connection. It is not necessary to reboot the ERM.

If you wish to reboot the ERM, type **6** to exit the console connection and restart the ERM.

NOTE *If you want the ERM to load the factory configuration default, type **5** to Reset Configuration To Default. After completing all the settings, type **0** to terminate the connection without starting the ERM again or type **6** to terminate the connection forcing the ERM internal program to start again. At this point, the initial ERM configuration is complete.*

NOTE *If you want to restore the default ERM configuration data set in the factory, type **5**.*

Configuration Through a Telnet Connection

To configure the ERM parameters through a Telnet connection:

1. Verify that a TCP/IP network is already installed.
2. Run a command shell (i.e., Windows MS-DOS prompt).
3. The ERM initially tries to acquire an IP address from the DHCP network service, if it exists, on the network.
4. Type **Telnet *<IP address obtained from DHCP>*** and press Enter. Continue to Step 7.
5. If there is no DHCP network service on the network, contact your network administrator to obtain an IP address for your workstation that has the same network's address as the ERM's default IP address.

NOTE *The default IP address of the ERM is 172.17.XXX.ZZZ where XXX and ZZZ is the last two pairs of the MAC address of the ERM in decimal.*

6. Type **Telnet 172.17.*XXX.ZZZ*** and press Enter.
7. From this point, the configuration procedures are the same as the configuration via RS-232.

Configuration Through a Web Browser

Connect the ERM

To connect the ERM through a Web browser:

1. Verify that an active 10/100BaseT cable is connected to your PC's Ethernet card's network connector.
2. Verify that your PC is using a Web browser such as Microsoft Internet Explorer.
3. Connect another network cable (twisted-pair cable) from the ERM network connector to an active 10BaseT hub port (see Figure 3 on page 6).
4. Verify that both DIP switches on the ERM are set to the **0** (off) position (see Figure 3 on page 6).

Setup the IP Address

To set up the IP address:

1. Verify that an active 10/100BaseT cable is connected to the ERM's network connector.
2. If the IP address of the computer is on the same network with the ERM, you can run the Web browser directly; continue to the following section, "Configure the ERM." Otherwise, continue to the following step.

NOTE *The default IP address of the ERM is 172.17.XXX.ZZZ where XXX and ZZZ is the last two pairs of the MAC address of the ERM in decimal.*

3. If the IP address of the computer is not on the same network with the ERM, use a cross-over cable (not supplied) to set up the computer's TCP/IP protocol parameters temporarily to the 172.17.XXX.(YYY+1) subnet.

NOTE *Refer to the operating system documentation for additional details on changing the computer's IP address.*

NOTE *The computer and the ERM must be on the same subnet for configuration. You can change the ERM's IP address to match your local subnet during configuration.*

Configure through a Web Browser

To configure the ERM through a Web browser:

1. Run the Web browser.
2. Enter the URL **http:\\172.17.*XXX.ZZZ*** in the address box (where *XXX* and *ZZZ* is the last two pairs of the MAC address of the ERM in decimal). The ERM home page displays (see Figure 19).

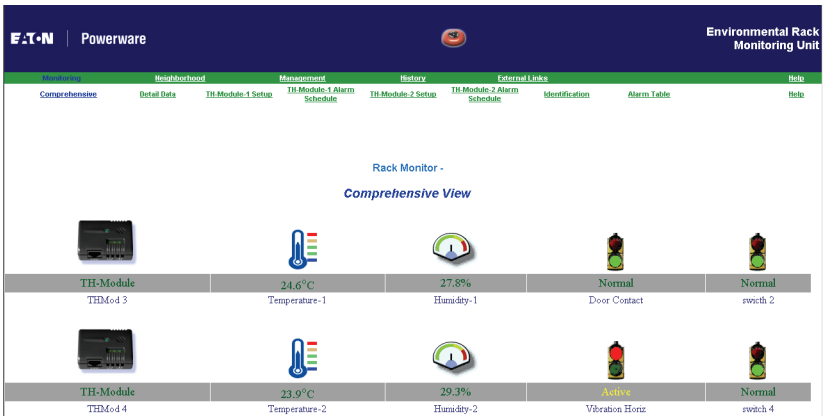


Figure 19. Comprehensive View Screen

Initial Configuration

1. Select **Rack Monitor Setup** from **Management** of the main menu to set up the network configuration parameters (see Figure 20).
2. Click the Become Administrator button at the bottom of the screen. Enter **EATON** as the login name and **admin** as the password.
3. Enter the ERM IP address.
4. Enter the ERM Gateway Address in the network.
5. Enter the ERM Subnet Mask of the network.
6. Select **Set Value** to save the settings.
7. Select **Date and Time** from **Management** of the main menu and enter the appropriate date and time information in the specified format.
8. Select **Set Value** to save the date and time settings.
9. Select **Rack Monitor Control** to enable or disable the network protocols (see Figure 21).
10. Select **Apply** to save the changes.
11. Select **Restart Rack Monitor**.

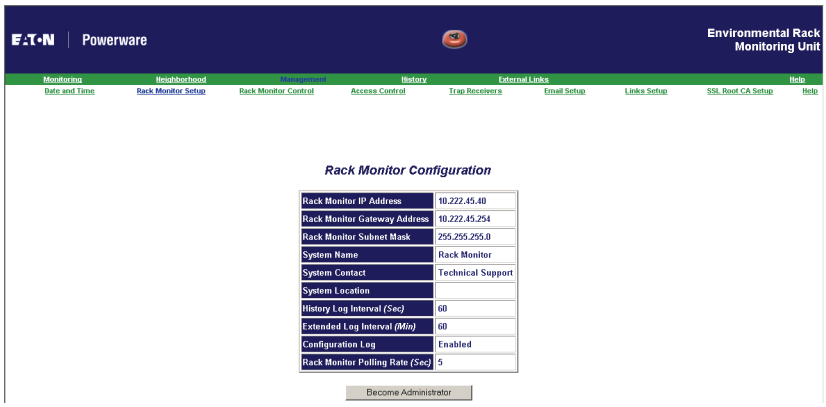


Figure 20. Rack Monitor Configuration Screen

Figure 21. Rack Monitor Control Screen

Chapter 4 ERM Management

You can manage the ERM from a Web browser or from an SNMP network management system.

NOTE *The IP address of the PC must be entered in the ERM Access Control Table to prevent unauthorized users from configuring the ERM via HTTP or SNMP protocols.*

NOTE *If you do not add the IP address of the workstation to the Access Control Table (via RS-232 or Telnet) or the SNMP/HTTP Access Control (via Web Browser) in the ERM, you can only view the in TH-Module status; it will not be able to perform any configuration on the ERM/TH-Module.*

ERM Home Page

1. Start the Web Browser and enter the ERM IP address.
2. The ERM home page displays on the screen.
3. Click the Help button at the bottom of each page for a detailed description of each item.

ERM Monitoring

The main menu contains all the measurements and data read from the ERM.

All the sub-menus are read-only for all users; write-mode access is not allowed.

Comprehensive View

This page gives a snapshot of all the parameters of the ERM. The parameters are updated automatically every five seconds.

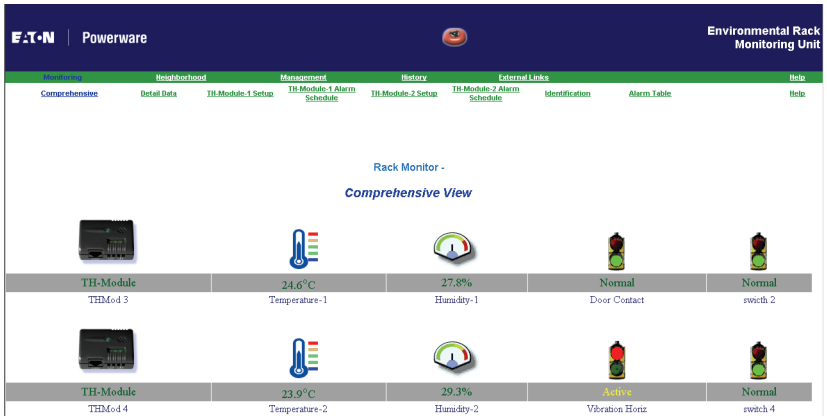


Figure 22. Comprehensive View Screen

Detail Data

This page gives the detail information of all parameters. This page refreshes automatically every five seconds.

Figure 23. Detail Data Screen

TH-Module-1 Setup

This page lets the user configure all necessary parameters of the TH-Module-1.

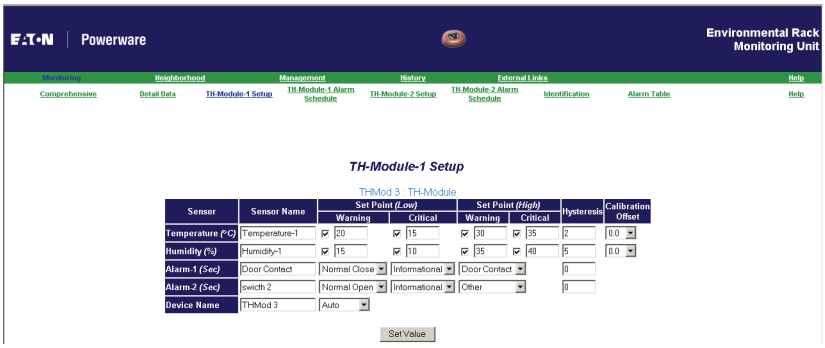


Figure 24. TH-Module-1 Setup Screen

TH-Module-2 Setup (optional)

This page lets the user configure all necessary parameters of the optional TH-Module-2.

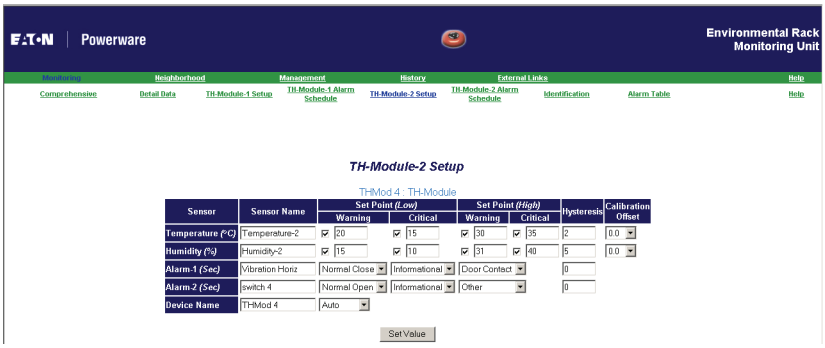


Figure 25. TH-Module-2 Setup Screen

Rack Monitor Identification

This page lets you get all the ERM information.

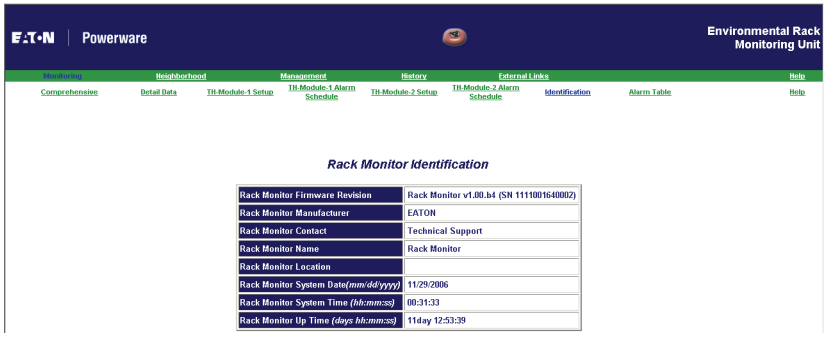


Figure 26. Rack Monitor Identification Screen

Alarm Table

Select **Alarm Table** from **Monitoring** on the main menu to get a table of the TH-Module alarms present. This menu refreshes automatically.

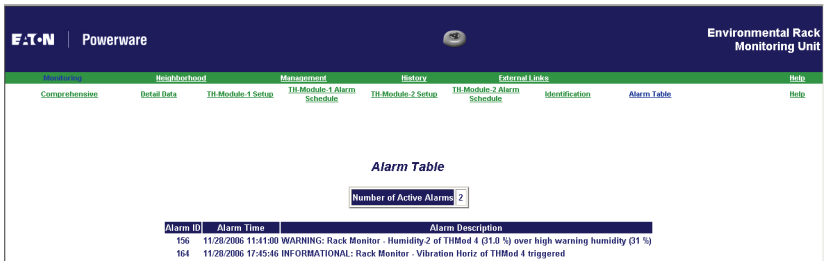


Figure 27. Alarm Table Screen

ERM Management

This menu contains the control parameters of the TH-Module connected to the ERM.

All the sub-menus are available in read-only for all users. Only the administrator has access in read/write mode.

Date and Time

This page lets you manually set the ERM internal date and time.

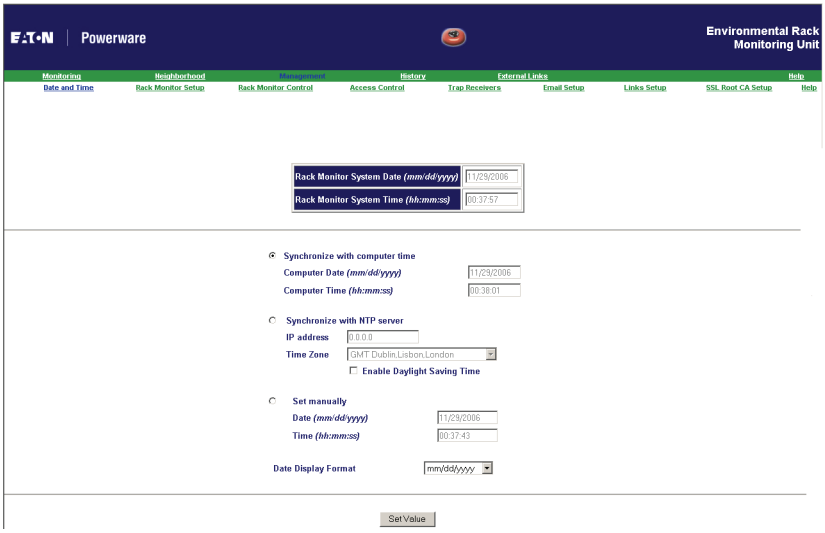


Figure 28. Date and Time Screen

ERM Configuration

This page lets the Administrator set the local network configuration parameters for the ERM.

Figure 29. ERM Configuration Screen

ERM Control

This page lets you enable or disable the communication protocols available in the ERM and affect a restart and reset of the ERM internal parameters. Some of the items in this menu are visible only to those having read/write access rights.

Figure 30. ERM Control Screen

Access Control

This page displays a list of the workstations enabled for read/write access to the ERM.

NOTE *An administrator can customize this configuration to limit different workstations or subnets using different passwords with different Access Types. While different workstations or subnets use a password with Read/Write Access Type to login, only allowing modification of the ERM parameters and Access Type, to prevent someone arbitrarily from changing it unless they login with the Admin password.*

Figure 31. Access Control Screen

Trap Receivers

This page can hold a maximum of four entries. It holds the list of the IP address of the Network Management Stations (NMS), which will receive the SNMP traps sent by the ERM.

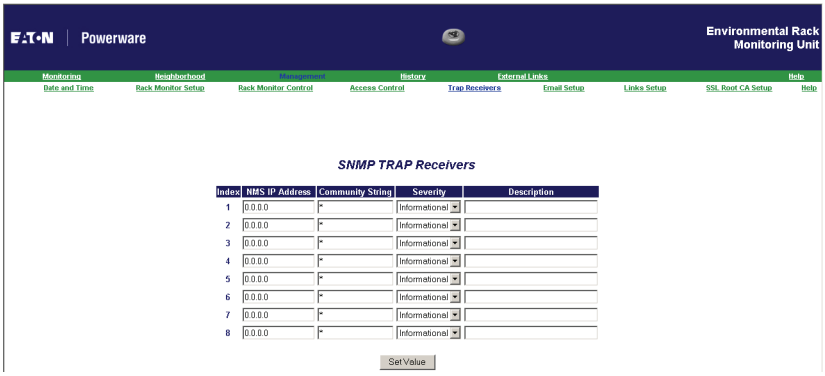


Figure 32. SNMP TRAP Receivers Screen

Email Notification

This page describes the ERM email notification setting to allow the administrator to configure the mail server and mail receiver in order to receive notification or report from the ERM by email once the sensor event has occurred.

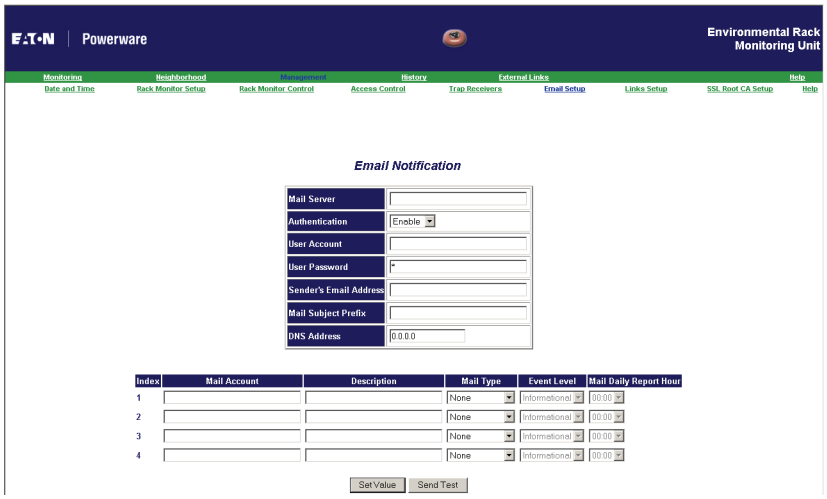


Figure 33. Email Notification Screen

External Links

This page describes the setting of external links. Up to five links can be set up by this page, each link can be configured to an external Web page that users can easily connect to related Web pages.

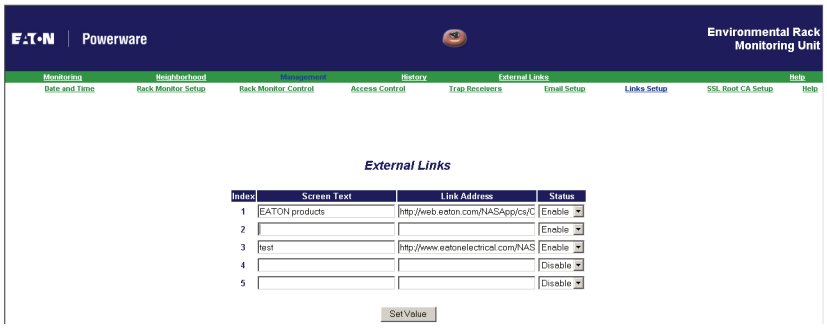


Figure 34. External Links Screen

ERM History

Through this menu you can view all types of TH-Module and ERM log messages displayed in chronological order, such as the History Log, Extended Log, Sensor Events Log, and ERM Events Log. These log messages can help you detect and diagnose problems with the ERM.

History Log

This page gives a snapshot of all the fundamental TH-Module parameters. The existing values are overwritten when the maximum number of entries (rows) has been reached. The Administrator has the access rights to delete the table entries.

NOTE *To save the History Log to a file in Microsoft Excel format, go to the* ***Clear/Save Log*** *sub-menu and click on* ***History Log*** *under the* ***Save Log Data*** *title bar.*

Log Date (mm/dd/yyyy)	Log Time (hh:mm:ss)	Temperature-1 (°C)	Temperature-2 (°C)	Humidity-1 (%)	Humidity-2 (%)
11/29/2006	00:00:00	27.3	26.3	26.8	28.9
11/29/2006	00:01:00	27.3	26.3	26.8	28.8
11/29/2006	00:02:00	27.3	26.3	26.7	28.8
11/29/2006	00:03:00	27.3	26.3	26.8	28.8
11/29/2006	00:04:00	27.3	26.3	26.8	28.8
11/29/2006	00:05:00	27.2	26.3	26.8	28.8
11/29/2006	00:06:00	27.2	26.2	26.9	28.9
11/29/2006	00:07:00	27.1	26.2	27.0	29.0
11/29/2006	00:08:00	27.1	26.2	27.0	29.0
11/29/2006	00:09:00	27.1	26.2	26.9	29.0
11/29/2006	00:10:01	27.1	26.2	26.9	29.0
11/29/2006	00:11:00	27.1	26.1	27.0	29.0
11/29/2006	00:12:00	27.1	26.2	26.9	29.0
11/29/2006	00:13:00	27.1	26.1	27.0	29.0
11/29/2006	00:14:00	27.1	26.2	26.9	28.9
11/29/2006	00:14:43	27.2	26.2	26.9	28.8
11/29/2006	00:15:00	27.2	26.2	26.9	28.9
11/29/2006	00:16:00	27.1	26.2	26.9	28.9
11/29/2006	00:17:00	27.1	26.2	26.9	28.9
11/29/2006	00:18:00	27.1	26.2	26.9	28.9
11/29/2006	00:19:00	27.2	26.2	26.8	28.8

Figure 35. History Log Data Screen

Extended Log

This page gives a consolidated view of the TH-Module parameters taken over a period. For each of the TH-Module parameters, minimum, maximum, and average values are shown in each of the records.

NOTE *The Administrator can change the consolidation interval by changing the value of the Extended Log Interval in the ERM Configuration page. The existing log is overwritten when the maximum numbers of entries are reached.*

Start Date (mm/dd/yyyy)	Start Time (hh:mm:ss)	End Date (mm/dd/yyyy)	End Time (hh:mm:ss)	Temperature.1 (°C)			Temperature.2 (°C)			Humidity.1 (%)			Humidity.2 (%)		
				min	avg	max	min	avg	max	min	avg	max	min	avg	max
11/27/2006	00:00:09	11/27/2006	01:00:05	23.6	24.1	24.9	23.0	23.4	24.1	21.2	22.1	23.0	22.8	23.6	24.2
11/27/2006	01:00:10	11/27/2006	02:00:05	23.6	24.3	25.1	22.9	23.6	24.2	20.5	21.5	22.6	22.1	23.0	23.9
11/27/2006	02:00:09	11/27/2006	03:00:04	23.5	24.2	24.8	22.9	23.4	23.9	20.6	21.3	22.2	22.0	22.6	23.4
11/27/2006	03:00:09	11/27/2006	04:00:05	23.7	24.3	24.9	23.1	23.6	24.1	20.2	20.8	21.7	21.6	22.2	22.9
11/27/2006	04:00:10	11/27/2006	05:00:05	23.7	24.3	24.9	23.1	23.5	23.9	19.8	20.5	21.3	21.4	21.9	22.6
11/27/2006	05:00:09	11/27/2006	06:00:04	23.6	24.2	24.9	23.1	23.4	24.0	19.5	20.3	21.1	21.1	21.7	22.3
11/27/2006	06:00:09	11/27/2006	07:00:05	23.6	24.1	24.8	23.0	23.4	23.9	19.5	20.2	20.9	21.0	21.5	22.1
11/27/2006	07:00:10	11/27/2006	08:00:05	23.6	24.2	24.9	22.9	23.4	24.0	19.4	20.1	20.9	21.0	21.5	22.1
11/27/2006	08:00:09	11/27/2006	09:00:04	23.6	23.9	24.3	23.0	23.2	23.6	20.1	20.7	21.2	21.5	22.1	22.6
11/27/2006	09:00:09	11/27/2006	10:00:05	23.6	24.1	24.8	23.0	23.3	23.9	21.0	21.8	22.3	22.4	23.2	23.7
11/27/2006	10:00:09	11/27/2006	11:00:04	23.9	24.3	24.8	23.3	23.6	23.9	21.7	22.9	23.8	23.3	24.3	25.1
11/27/2006	11:00:09	11/27/2006	12:00:05	23.9	24.4	25.3	23.4	23.8	24.4	22.7	23.5	24.1	24.3	24.9	25.4
11/27/2006	12:00:10	11/27/2006	13:00:05	24.4	24.8	25.3	23.8	24.2	24.6	23.1	23.6	24.3	24.7	25.0	25.6
11/27/2006	13:00:09	11/27/2006	14:00:04	24.7	25.1	25.5	24.1	24.4	24.8	23.9	24.4	25.1	25.2	25.8	26.6
11/27/2006	14:00:09	11/27/2006	15:00:05	24.8	25.1	25.6	24.2	24.4	24.9	24.5	25.5	26.1	26.2	26.9	27.5
11/27/2006	15:00:10	11/27/2006	16:00:05	24.9	25.1	25.6	24.3	24.4	24.9	25.3	26.2	26.8	26.9	27.8	28.4
11/27/2006	16:00:09	11/27/2006	17:00:04	24.8	24.9	25.3	24.1	24.2	24.5	26.7	27.0	27.4	28.3	28.6	29.0
11/27/2006	17:00:09	11/27/2006	18:00:05	24.9	25.2	25.7	24.2	24.4	24.8	26.4	27.0	27.4	28.3	28.7	29.0
11/27/2006	18:00:10	11/27/2006	19:00:05	24.7	24.9	25.3	24.2	24.3	24.6	26.9	27.6	28.2	28.6	29.2	29.6
11/27/2006	19:00:09	11/27/2006	20:00:04	24.7	25.0	25.7	24.1	24.3	24.8	26.6	27.6	28.3	28.4	29.2	29.7
11/27/2006	20:00:09	11/27/2006	21:00:05	24.7	24.9	25.3	24.1	24.3	24.7	27.2	27.8	28.4	28.8	29.4	29.8

Figure 36. Extended Log Data Screen

Sensor Events

This page lists all the events that have occurred since the table was cleared. The existing values are overwritten when the maximum number of entries (rows) has been reached.

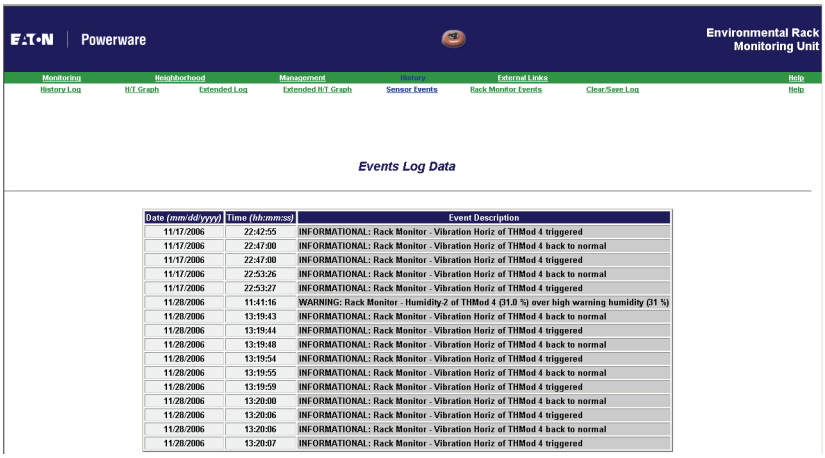
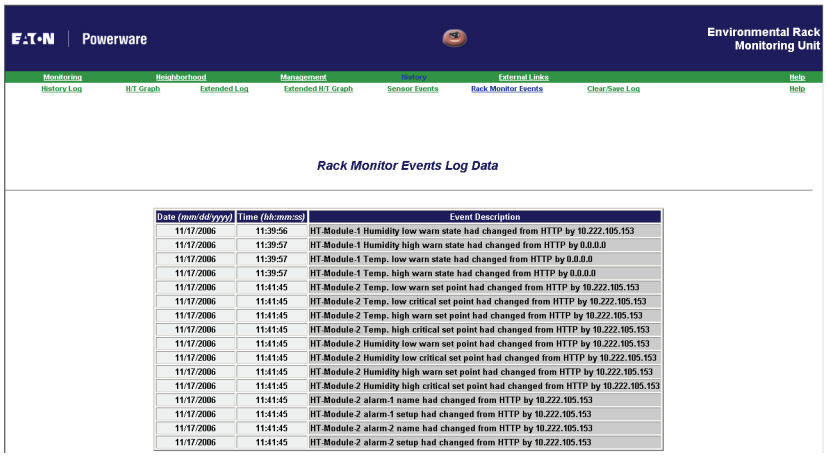


Figure 37. Sensor Events Screen

ERM Events

This page lists all the ERM events that have occurred since the table was cleared. The Administrator has the access rights to delete the entries of the table.



Date (mm/dd/yyyy)	Time (hh:mm:ss)	Event Description
11/17/2006	11:39:56	HT-Module-1 Humidity low warn state had changed from HTTP by 10.222.105.153
11/17/2006	11:39:57	HT-Module-1 Humidity high warn state had changed from HTTP by 0.0.0.0
11/17/2006	11:39:57	HT-Module-1 Temp. low warn state had changed from HTTP by 0.0.0.0
11/17/2006	11:39:57	HT-Module-1 Temp. high warn state had changed from HTTP by 0.0.0.0
11/17/2006	11:41:45	HT-Module-2 Temp. low warn set point had changed from HTTP by 10.222.105.153
11/17/2006	11:41:45	HT-Module-2 Temp. low critical set point had changed from HTTP by 10.222.105.153
11/17/2006	11:41:45	HT-Module-2 Temp. high warn set point had changed from HTTP by 10.222.105.153
11/17/2006	11:41:45	HT-Module-2 Temp. high critical set point had changed from HTTP by 10.222.105.153
11/17/2006	11:41:45	HT-Module-2 Humidity low warn set point had changed from HTTP by 10.222.105.153
11/17/2006	11:41:45	HT-Module-2 Humidity low critical set point had changed from HTTP by 10.222.105.153
11/17/2006	11:41:45	HT-Module-2 Humidity high warn set point had changed from HTTP by 10.222.105.153
11/17/2006	11:41:45	HT-Module-2 Humidity high critical set point had changed from HTTP by 10.222.105.153
11/17/2006	11:41:45	HT-Module-2 alarm-1 name had changed from HTTP by 10.222.105.153
11/17/2006	11:41:45	HT-Module-2 alarm-1 setup had changed from HTTP by 10.222.105.153
11/17/2006	11:41:45	HT-Module-2 alarm-2 name had changed from HTTP by 10.222.105.153
11/17/2006	11:41:45	HT-Module-2 alarm-2 setup had changed from HTTP by 10.222.105.153

Figure 38. ERM Events Screen

Clear & Save Log Data

This page allows the Administrator to save ERM log data to a file in Microsoft Excel format. The Administrator is also able to clear specific log data or choose to clear the log data after saving the log data.

NOTE *When you select any of the hyper-links here while the "Clear the corresponding log data as you click the hyper-link below" selection is set to "Yes", the corresponding log data will be lost even if you cancel the operation.*

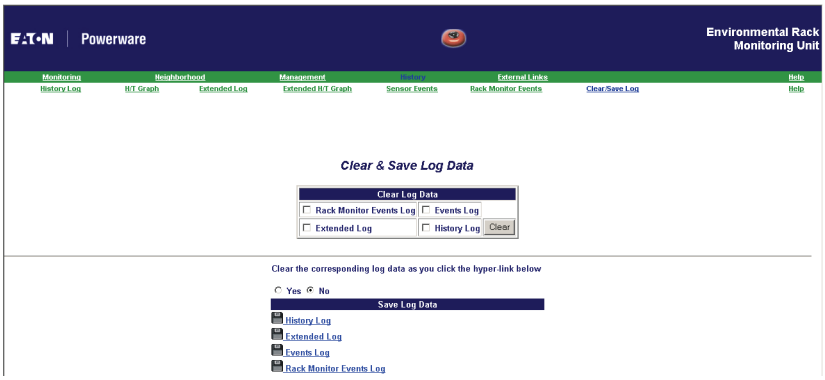


Figure 39. Clear & Save Log Data Screen

Chapter 5 Monitoring

History Log Monitor

Select **H/T Graph** from **History** of the main menu to open a TH-Module History Log monitor in a separate window. This monitor displays the TH-Module History Log as a line graph. By default, all the TH-Module parameters display on the same graph. You can select any combination of the parameters to be displayed on the graph by selecting the check box beside each parameter on the monitor screen and click the Refresh button.

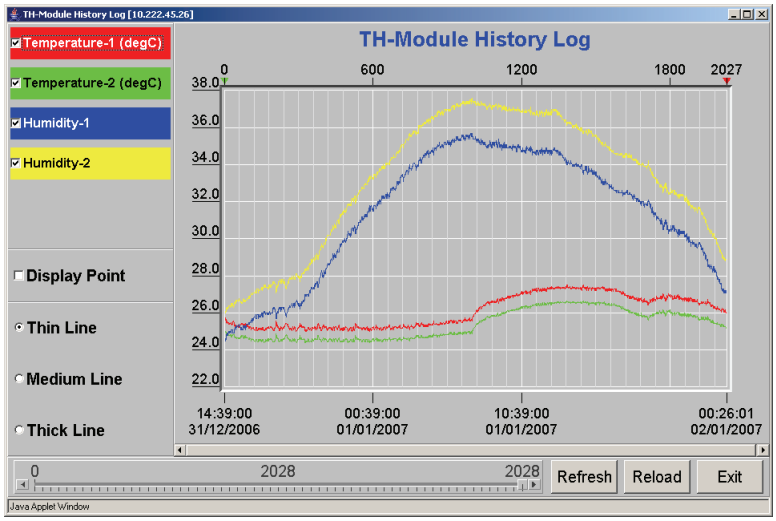


Figure 40. TH-Module History Log Monitor

Table 6. TH-Module History Log Monitor

	Description
Display Point	Displays the log interval on the graph.
Refresh	Click the Refresh button after configuring any setting on the TH-Module History Log Monitor for the change to take effect.
Reload	Update the TH-Module History Log Monitor and reset the right display margin.
Exit	Close the TH-Module History Log Monitor window.

Extended History Log Monitor

Select **Extended H/T Graph** from **History** of the main menu to open a TH-Module Extended History Log monitor in a separate window. This monitor displays the TH-Module Extended History Log as a line graph. By default, all the TH-Module parameters display on the same graph. You can select any combination of the parameters to be displayed on the graph by selecting the check box beside each parameter on the monitor screen and click the Refresh button.

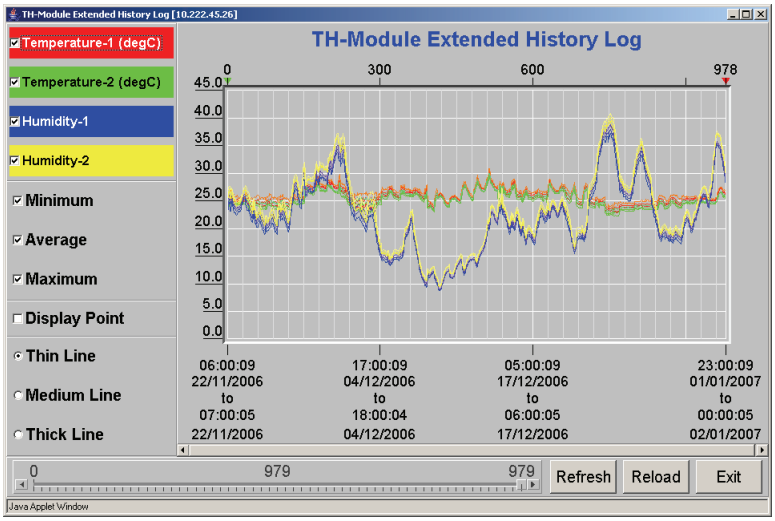


Figure 41. TH-Module Extended History Log Monitor

Table 7. TH-Module Extended History Log Monitor

	Description
Display Point	Displays the extended log interval on the graph.
Refresh	Click the Refresh button after configuring any setting on the TH-Module Extended History Log Monitor for the change to take effect.
Reload	Update the TH-Module Extended History Log Monitor and reset the right display margin.
Exit	Close the TH-Module Extended History Log Monitor window.

Chapter 6 Managing ERM via SNMP

If you intend to manage your ERM/TH-Module via SNMP Network Management Station (NMS), you may want to customize some of the SNMP settings (such as System Name, System Contact, and System Location).

NOTE *Before using the ERM in an SNMP environment, the IP address, Gateway address, and other group parameters must be configured properly. See "Configuration" on page 5 for details.*

SNMP Access Control Setting

The ERM supports SNMP protocol. You can use SNMP NMS to manage the TH-Module through the network.

NOTE *The IP address of the PC must be entered in the ERM Access Control Table to prevent unauthorized users from configuring the ERM via HTTP or SNMP protocols.*

NOTE *If you do not add the IP address of the workstation to the Access Control Table (via RS-232 or Telnet) or the SNMP/HTTP Access Control (via Web Browser) in the ERM, you can only view the in TH-Module status; it will not be able to perform any configuration on the ERM/TH-Module.*

SNMP Trap Receivers Setting

See "Trap Receivers" on page 32 for details.

Setup SNMP Manager Software

1. Add the ERM MIB file (included on the ERM CD) to the MIB database of the SNMP manager.
2. Search for the ERM in the network.
3. To access the ERM SNMP agent, use *public* for the GET community string and the read/write password (default is **admin**) for the SET community string.

   GET Community string: *public*
   SET Community string: *admin*

For more information, see the MIB file on the ERM CD.

Appendix

The appendix contains:

- The Environmental Rack Monitor (ERM) panel details (connections and LEDs)
- Technical specifications
- DIP switch settings
- Serial cable definition
- Upgrading the firmware
- External contact monitoring feature
- Configuration menu settings
- Secure Sockets Layer (SSL) certificate installation
- Secure Shell (SSH) Installation
- Service and support
- Warranty

ERM Panel Details

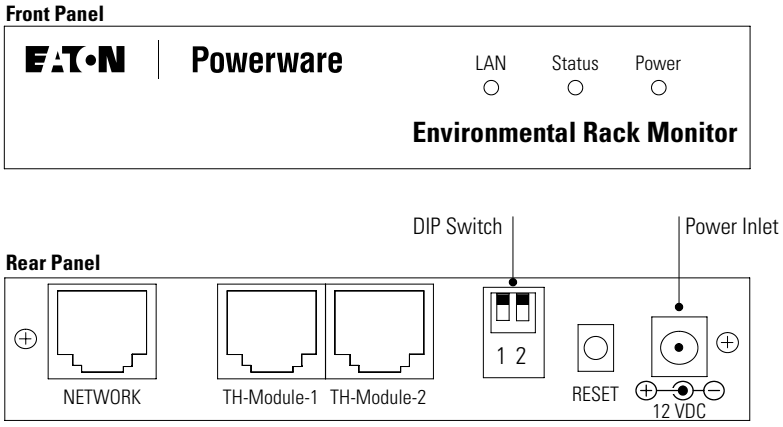


Figure 42. ERM Panel Details

LED Description

The functions of the ERM are indicated by the Network, Status, and Power LEDs, as listed in Table 8 and Table 8.

Table 8. Network LEDs

Green	Yellow	ERM Function Description
Flashing	Off	Ethernet 100 traffic
Off	Flashing	Ethernet 10 traffic
Off	Flashing	Ethernet disconnected
On	Off	Ethernet 100 ready
Off	On	Ethernet 10 ready

Table 9. Status and Power LEDs

Status LED	Power LED	ERM Function Description
—	On	Power on
Flashing	—	TH-Module activity
Flashing	Off	Serial upgrade mode
Two LEDs Cross Flashing	Two LEDs Cross Flashing	Auto diagnostic mode
On	On	Hardware error

Technical Specifications

Table 10. Technical Specifications

CPU	16-bit micro control
Memory	2 Mb Static RAM 2 Mb Flash ROM
Serial Communication	Two asynchronous serial ports
LAN Chip	Auto-Sense 10/100 Mbps Fast Ethernet controller
Network Connection	10/100 TX RJ-45 jack connector
Network Protocol	SNMP over UDP/IP HTTP over TCP/IP ARP, TFTP, and ICMP
Supported MIB	Environmental Rack Monitor (ERM) MIB
Operating Temperature	0–40°C (32–104°F)
Operating Humidity	10–80%, noncondensing
Power Input	12 Vdc unregulated
Power Consumption	3.0 Watts Maximum
Size (L x W x H)	13.4 cm x 8.6 cm x 2.7 cm (5.3″ x 3.4″ x 1.1″)
Weight	170 gm (6 oz)
EMC Statements	Class B: FCC Part 15, ICES-003, CE

DIP Switch Description

DIP switch definitions for the ERM are listed in Table 11.

Table 11. DIP Switch Modes

SW1	SW2	Description
On	On	Manufacture diagnostic mode
On	Off	Serial upgrade mode
Off	On	Reserved
Off	Off	Operating mode

Serial Cable Definition

Straight-Through CAT5 Network Cable

NOTE *Cable length not to exceed 20m/65.6 ft.*

Table 12. Cable for the ERM TH-Module-1 Port

RJ-45	RJ-45	Color
1	1	White/Orange
2	2	Orange
3	3	White/Green
4	4	Blue
5	5	White/Blue
6	6	Green
7	7	White/Brown
8	8	Brown

PC Cable

NOTE *Pins 2 and 7 of the RJ-45 connector are connected internally.*

Table 13. Cable for the ERM TH-Module-2 Port

RJ-45	DB-9 Female	Description
1	—	Not connected
3	2	Received data from PC
4	5	Signal ground
5	Case GND	Chassis ground
6	3	Transmitted data to PC
8	—	Not connected

Upgrading the ERM Firmware

To perform firmware upgrading, the ERM must be connected to the same network as the PC from which the file is to be sent.

In the ERM Control menu, check that **Network Upgrade** is enabled and that you have the login string information and the community read/write password.

Updating ERM Firmware from Windows

To upgrade the firmware, use the **ERMupgrade.exe** program (included on the ERM CD). This program is compatible with Windows 95/98/Me, Windows NT 3.51/4.0/2000/XP and higher.

NOTE *You can simultaneously upgrade up to four ERMs on the network using the* ***EMPupgrade.exe*** *program.*

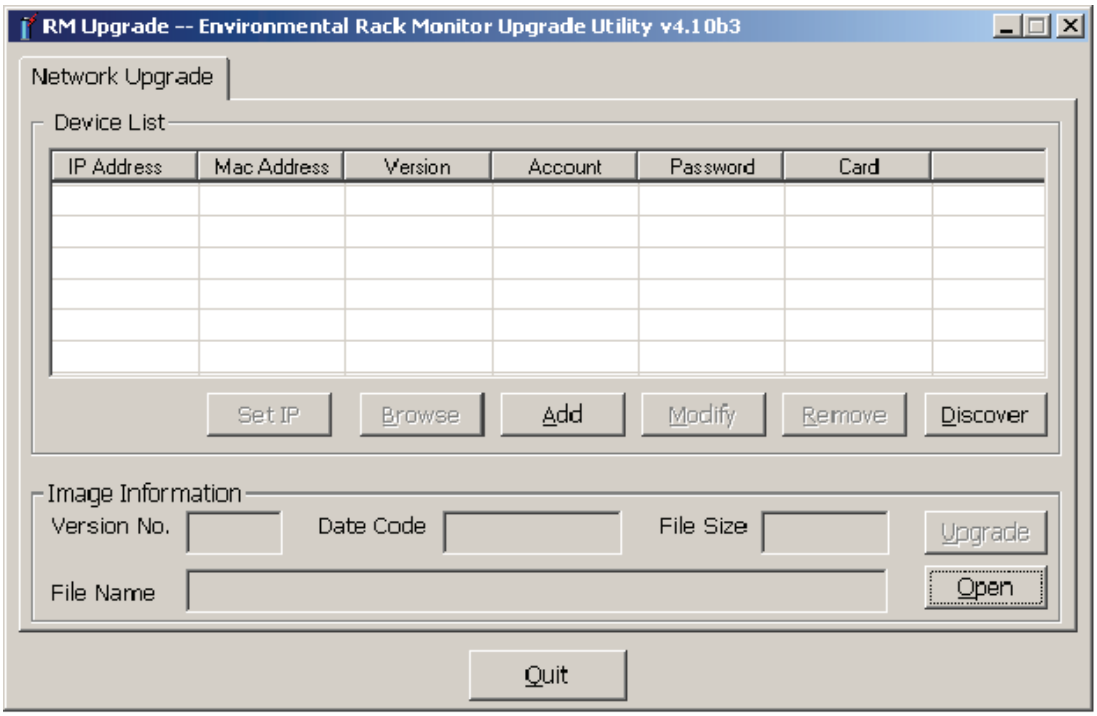


Figure 43. Upgrade Utility Screen

Table 14. Upgrade Utility Screen

	Description
Device List	Displays the addresses of the ERMs present in the local network.
Discover	Search for the ERM on the local network.
Add	Lets you add the IP address of the ERM to the UPS List manually.
Modify	Lets you modify the parameters of the ERM selected in the ERM List.
Remove	Removes the selected ERM from the ERM List.
Upgrade	Sends the program loaded with the Open button to the selected ERM of the ERM List.
Open	Open and load the new image file for upgrade.
Quit	Exit the program.