ENVIROMUX® Series

Serial Control Manual

E-16D/-5D/-2D
Enterprise Environment Monitoring System

Front and Rear View of E-16D

Front View of E-5D

Front View of E-2D

CE

TRADEMARK

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CHANGES

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Firmware Version

Current Firmware version 2.53

 CAUTION

RISK OF ELECTRIC SHOCK. Do not remove cover.   No user serviceable components inside.   All repairs and maintenance must be performed by authorized service personnel only.

 CAUTION

Turn OFF power to the ENVIROMUX and discharge your body's static electric charge by touching a grounded surface or use a grounding wrist strap before performing any connections to the unit.

 CAUTION

For continued protection against fire and electric shock this device should only be connected to an AC mains outlet equipped with a proper ground terminal.

TABLE OF CONTENTS

TABLE OF FIGURES

INTRODUCTION

This manual provides instruction for connection and control of the E-16D/ E-5D and E-2D Enterprise Environment Monitoring Systems using serial connection and the built-in text menu.

The text menu can be accessed two ways:

    1. using a terminal program on a PC connected through the "RS232" port (E-16D only) or through the USB "CONSOLE" port (**all models)**.
    2. using Telnet or the SSH protocol through an Ethernet connection

Only the user "root" can connect using a terminal connection, but up to 8 users can connect simultaneously using the Ethernet connection.

To quickly return to the main ENVIROMUX manual,   click here.

HARDWARE CONNECTION

Terminal Connection

To use the "RS232" port, connect one end of a CAT5 patch cable (supplied) to the port labeled "RS232" on the rear of the E-16D (or the "RS232 AUX" on the E-5D). Plug the other end of the CAT5 cable into an RJ45-to-DB9F adapter (supplied), and connect the adapter to the RS232 port on the control terminal.   Follow the instruction under "RS232 Connection" on page 13 for configuration and use of the Serial Control feature.
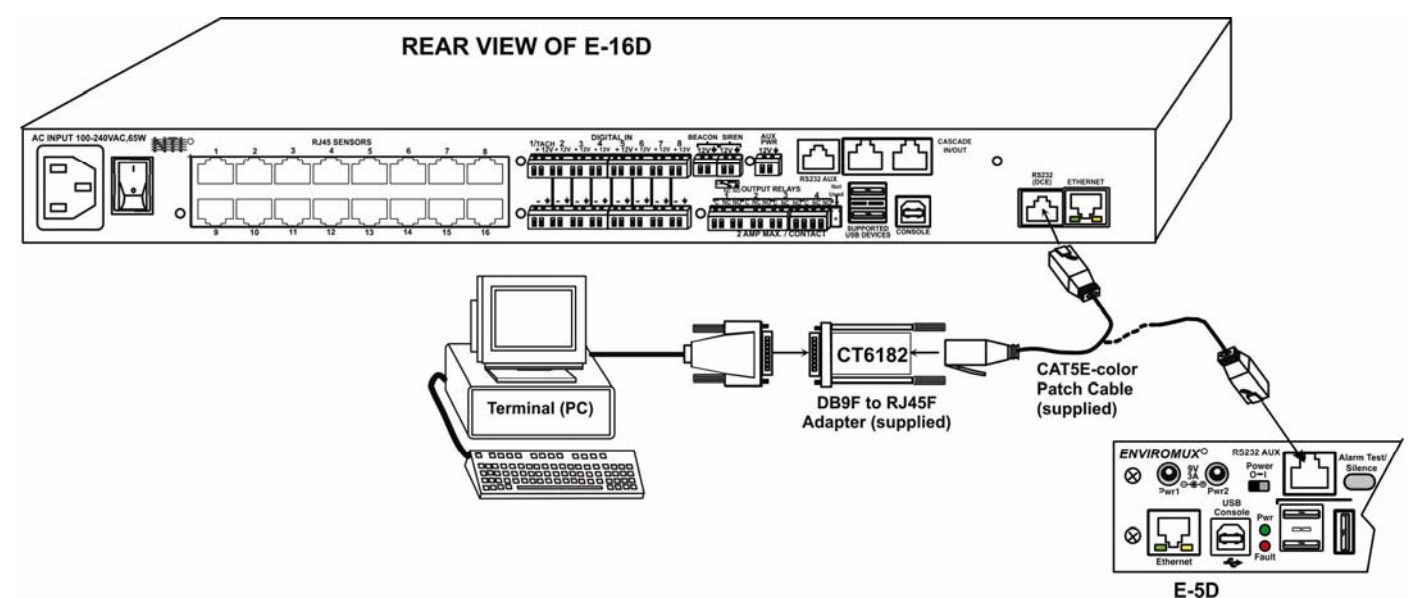
Figure 1- Connect a terminal for direct RS232 serial communication

To use the USB "CONSOLE" port, connect a USB cable (2 meter cable supplied) between the ENVIROMUX and your PC. Then install the drivers as described on page 7.
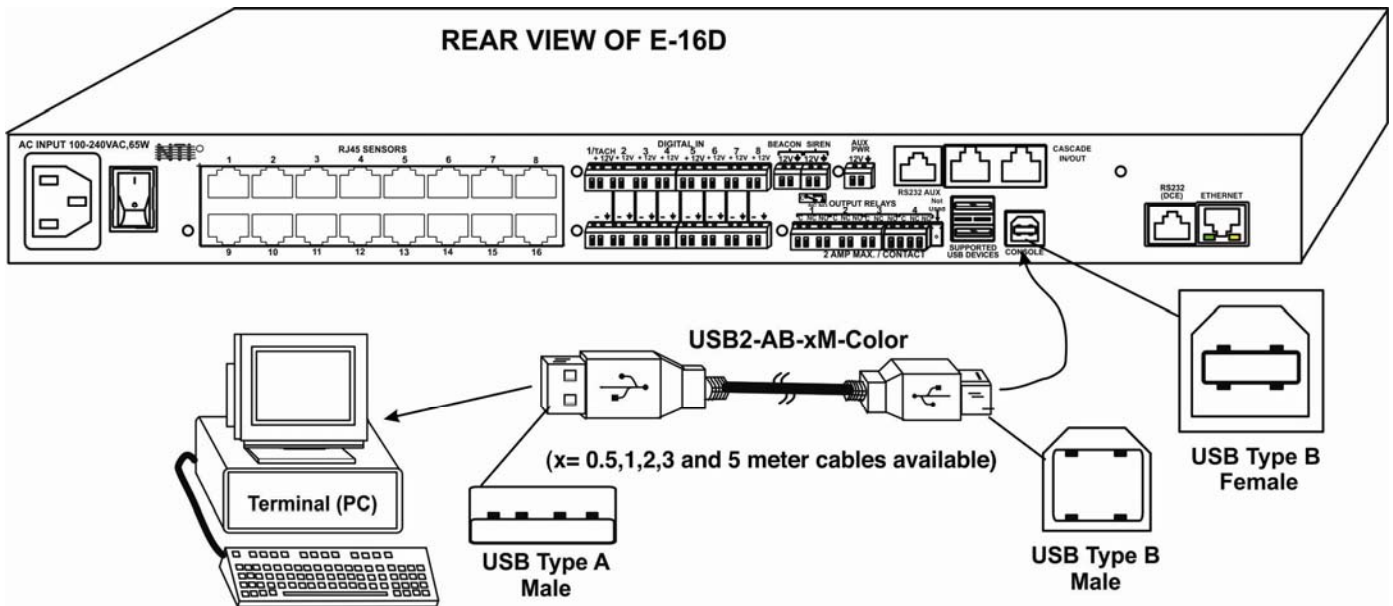
Figure 2- Connect a terminal using USB Console port

Ethernet Connection

To make a connection over the Ethernet, from anywhere on the local area network, connect a CAT5/5e/6 Ethernet cable with RJ45 male connectors on the ends, wired straight through (pin 1 to pin 1, pin 2 to pin 2, etc.).

Note: A direct connection from a computer's Ethernet port to the ENVIROMUX "ETHERNET" port may also be made using the same cable.
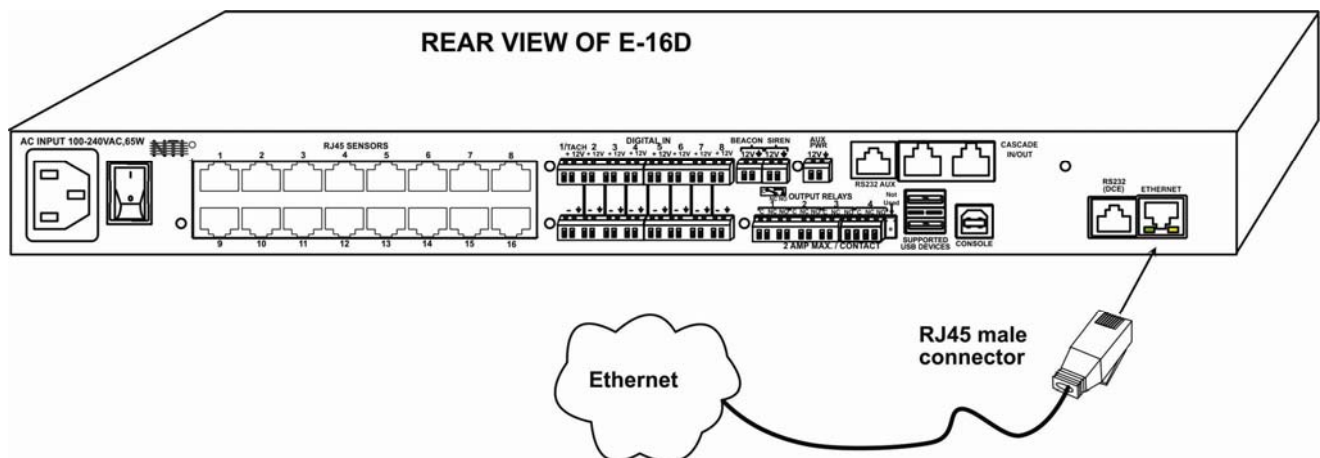
Figure 3- Connect ENVIROMUX to the Ethernet

USB Console Port

To use the USB "Console" port, you will need to install drivers provided on your CD.
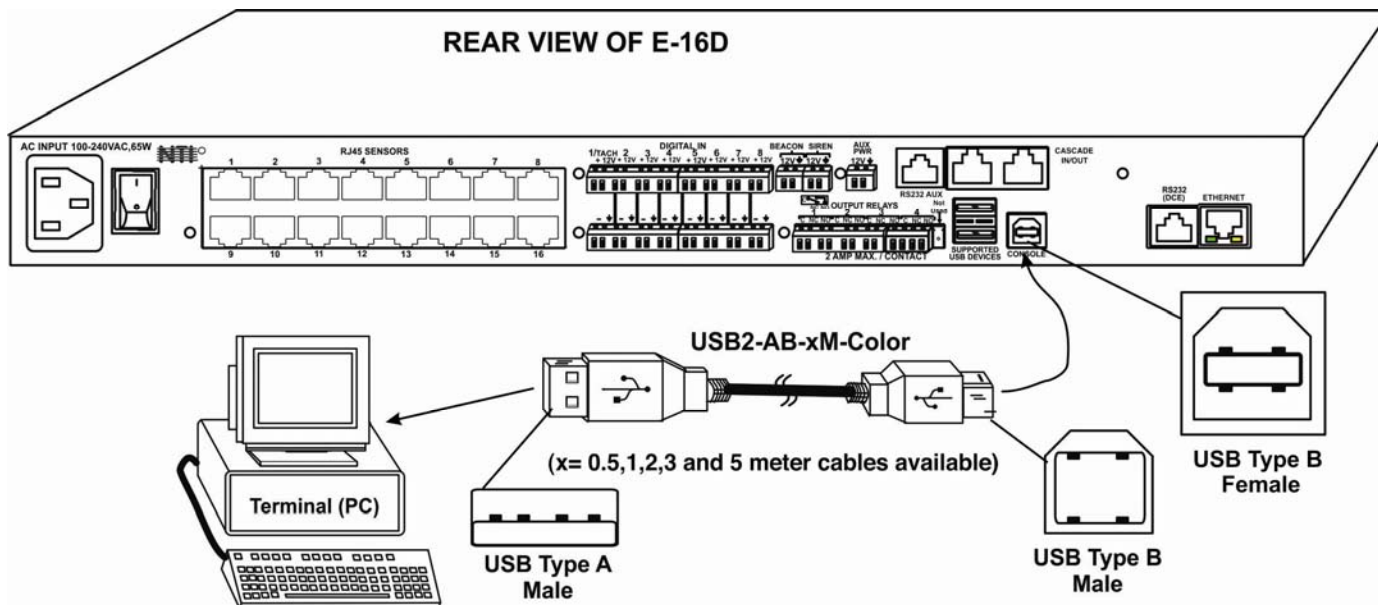
Figure 4- Connect terminal to USB Console port

Installing Drivers

You will only need to install drivers the first time the ENVIROMUX is connected to your PC with Windows XP, 2000, Vista, Windows 7 and Windows 8 (32 and 64 bit versions).   (Drivers will automatically install when connected to a Windows 10 PC.) After the first time, when the ENVIROMUX is connected, your PC should recognize the ENVIROMUX and re-assign the COM port. Follow the steps below to install the drivers.

Note: When trying to load the USB driver to a Windows 8 PC, you will likely be stopped by an "unsigned driver" warning, even though the driver you are trying to load is actually a Microsoft driver from an earlier operating system.   Follow the instruction on page 12 to disable this warning and be able to proceed with driver installation.

1. Make sure the USB cable is connected between the ENVIROMUX and your PC.

2. Power ON the ENVIROMUX. The PC will see the ENVIROMUX as "New Hardware" and create a virtual COM port to communicate with it.

3. You will be prompted to load drivers.   A driver file compatible with Windows XP, 2000, Vista, Windows 7 and Windows 8 (32 and 64 bit versions) can be found on the CD that came with your ENVIROMUX. Browse to the drive your Product Manual CD is in and locate and select the file named "`enviromux.inf`" in a directory named **"`windows-drivers\32bit  or  \64bit`"** depending upon your operating system.

The .inf file will direct your PC to locate and install the file `usbser.sys` (already on your PC, comes with Windows).   Installing the usbser.sys file should happen automatically. When finished, Windows will indicate installation is successful.

Windows XP-32 bit Installation

Your typical installation will include windows like the ones that follow.   The images below are from a Windows XP SP2 32 bit installation.

A. Windows will want to check the internet for drivers.   Choose "**No, not this time**" because the drivers are unique to the ENVIROMUX.

B. You can try to "**Install the software automatically**" but if windows doesn't check the CD, you will need to use "**Install from a list or specific location**" instead.
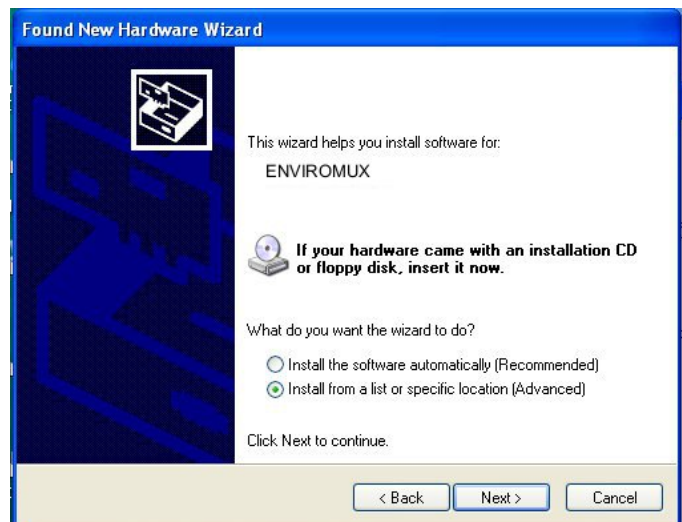
C. Let the New Hardware Wizard search for the driver, but direct it to the drive the Product Manual CD is in and the directory of either the 32 bit driver or the 64 bit driver.
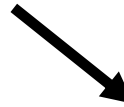
D. Once the driver is installed, you will get this screen and the ENVIROMUX USB Console Port will be ready to use.

Windows 7-64 bit Installation

A Windows 7 64 bit installation has a few extra steps. The images below are from a Windows 7, 64-bit installation.

Driver Software Installation

Device driver software was not successfully installed

ENVIROMUX   ✖ No driver found

You can change your setting to automatically search Windows Update for drivers

Change setting...

What can I do if my device did not install properly?
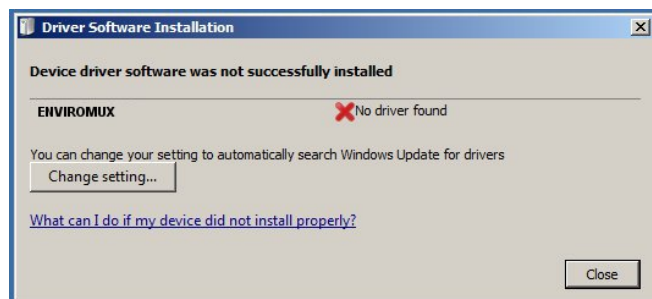
Close

A. Upon ENVIROMUX power ON, the driver cannot be found. Press "**Close**".

Device Manager

File Action View Help

□ win7-64-amd
  ⊞ Computer
  ⊞ Disk drives
  ⊞ Display adapters
  ⊞ DVD/CD-ROM drives
  ⊞ Human Interface Devices
  ⊞ IDE ATA/ATAPI controllers
  ⊞ Keyboards
  ⊞ Mice and other pointing devices
  ⊞ Monitors
  ⊟ Network adapters
      Intel(R) 82574L Gigabit Network Connection
      Intel(R) 82574L Gigabit Network Connection #2
      VMware Virtual Ethernet Adapter for VMnet1
      VMware Virtual Ethernet Adapter for VMnet8
  ⊟ Other devices
      ENVIROMUX
  ⊞ Ports (COM & LPT)
  ⊞ Processors
  ⊞ Sound, video and game controllers
  ⊞ System devices
  ⊞ Universal Serial Bus controllers

B. Open the Device Manager and select the ENVIROMUX in the device list. Right-click and open "Properties".   Select "Update Driver Software".

Tip: The Device Manager can be opened by right-clicking on "My Computer" on the desktop, selecting "Properties", and selecting "Device Manager".

Update Driver Software - ENVIROMUX

Update Driver Software - ENVIROMUX

How do you want to search for driver software?

→ **Search automatically for updated driver software**
Windows will search your computer and the Internet for the latest driver software for your device, unless you've disabled this feature in your device installation settings.

→ **Browse my computer for driver software**
Locate and install driver software manually.

Cancel

C. From the next window, select "**Browse my computer for driver software**".

Update Driver Software - ENVIROMUX

Update Driver Software - ENVIROMUX

Browse for driver software on your computer

Search for driver software in this location:

D:\windows-drivers\64bit   Browse...

☑ Include subfolders

→ **Let me pick from a list of device drivers on my computer**
This list will show installed driver software compatible with the device, and all driver software in the same category as the device.

Next   Cancel

D. In the next window, enter the path to the .inf driver file (on the Product Manual CD). Press "Next".
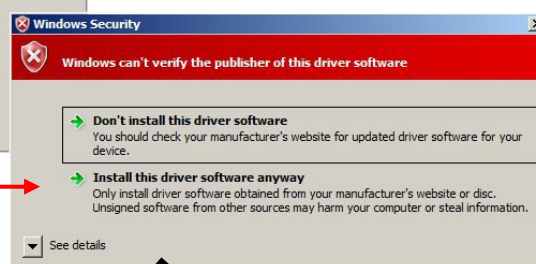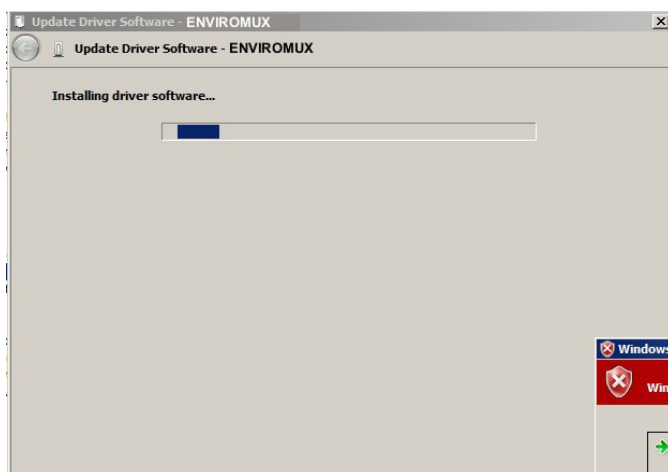
E. You will probably get this warning that Windows can't verify the publisher of the driver software. Select **"Install this driver software anyway. "**
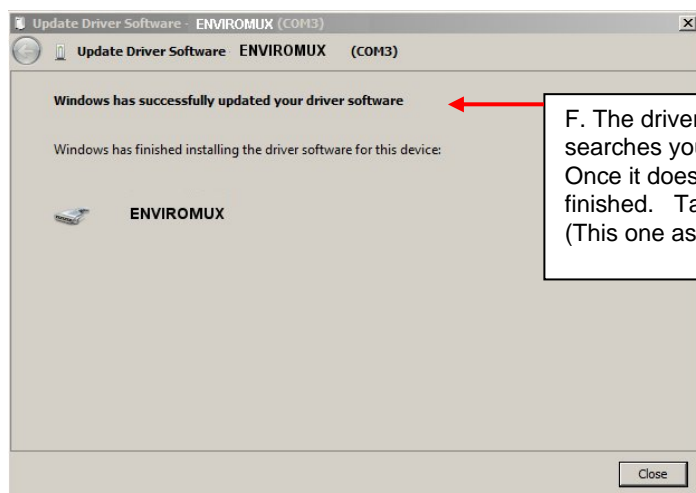
F. The driver will load. This might take a minute while it searches your computer for the `usbser.sys` file it needs. Once it does, you will get a window telling you Windows is finished. Take note of the COM port number it assigned. (This one assigned COM3.)

Installing an Unsigned Driver in Windows 8 and 10 (x64)

When trying to load the USB driver into a Windows 8 or 10 PC in order to use the USB Console port on an NTI product, you may encounter a window that prevents it because it is an "unsigned driver", in spite of the fact it is actually a Microsoft driver from an earlier operating system.

The steps to enable the installation of the USB driver on Windows 8 are as follows:

1. From Windows 8 Control Panel choose General –> Under "Advanced Startup" –> Restart now.

Now the system will restart and might take some minutes to show up the boot menu. Wait for It patiently.
After some time you will be prompted with a menu with the following options.

```
1. Continue
2. Troubleshoot
3. Turn off
```

2. Choose "Troubleshoot"

Then the following menu appears:

```
Refresh your PC
Reset your PC
Advanced Options
```

3. Choose "Advanced Options"

Then the following menu appears:

```
System Restore
System Image Recovery
Automatic Repair
Command Prompt
Windows Startup settings
```

4. Choose "Windows Startup Settings", then Click Restart.

Now the computer will restart and the boot menu appears.

5. Choose "Disable Driver Signature Enforcement" from the boot menu.

Now Windows will start and you can follow the instructions on page 7 for the installation of the USB driver.

The steps to enable the installation of the USB driver on Windows 10 are as follows:

1. Click the **Start menu** and select **Settings**.
2. Click **Update and Security**.
3. Click **Recovery**.
4. Click **Restart now** under **Advanced Startup**.
5. Click **Troubleshoot**.
6. Click **Advanced options**.
7. Click **Startup Settings**.
8. Click **Restart**.
9. On the Startup Settings screen press **7** or **F7** to disable driver signature enforcement.

Your computer will restart and you will be able to install non-digitally signed drivers.
Note: If you restart your computer again the driver signature enforcement **will be re-enabled**.

SOFTWARE CONNECTION

The ENVIROMUX can be controlled serially through a text menu using a terminal program (e.g. HyperTerminal) when connected to the RJ45 "RS232" port or USB "Console" Port, or by using the Telnet or the SSH protocol when connected through the Ethernet Port (page 6).   Either of these methods will work to access the ENVIROMUX text menu.   The text menu can be used to control most functions of the ENVIROMUX as an alternative to the Web Interface (described in the main user manual).

Connect to ENVIROMUX from a Terminal Program

Note: Drivers must first be installed on the PC (page 7) if the terminal program is connected through a USB CONSOLE port.

1.   Make sure the ENVIROMUX is powered ON and booted-up fully.

Note: When using the "RS232 AUX" port on an E-5D for terminal connection, you must first configure the port to be used for "Console" connection through the web interface (ADMINISTRATION menu -> System Configuration -> Auxiliary Serial Port Configuration (page 59 of the ENVIROMUX Installation and Operation Manual)).   Set the baud rate for a speed compatible with the connected terminal.   After making this change, click "Save" and reboot the ENVIROMUX fully for the settings to take effect.

2.   Using the terminal connected to the ENVIROMUX, start the terminal program (e.g. Windows HyperTerminal) and configure it as follows:

- direct connection (using the appropriate CPU local serial Com port)
- 115200 bps
- 8 bits
- no parity
- 1 stop bit
- no flow control
- VT100 terminal mode.

> **The COM port assigned to the USB-to-serial connection can be found in the device manager or your PC operating system.**

Note: To display special characters (German, Japanese, etc.) correctly in the Text Menu, use a terminal program that supports UTF8 character encoding (such as putty or TeraTerm). Also, the script may need to be set specific to your location.

3.   Press `<Enter>` and a login prompt will appear- type `<root>` (all lowercase letters) and press `<Enter>`.
4.   At "`Password`" type `<nti>` (all lowercase letters) and press `<Enter>`.

```
Network Technologies Inc        ENVIROMUX-16D        www.networktechinc.com

                    ENVIROMUX-16D Server Environment Monitoring System


        Username :root_____
        Password :***_____













Enter login credentials.
Press <Enter> to move between fields.
```
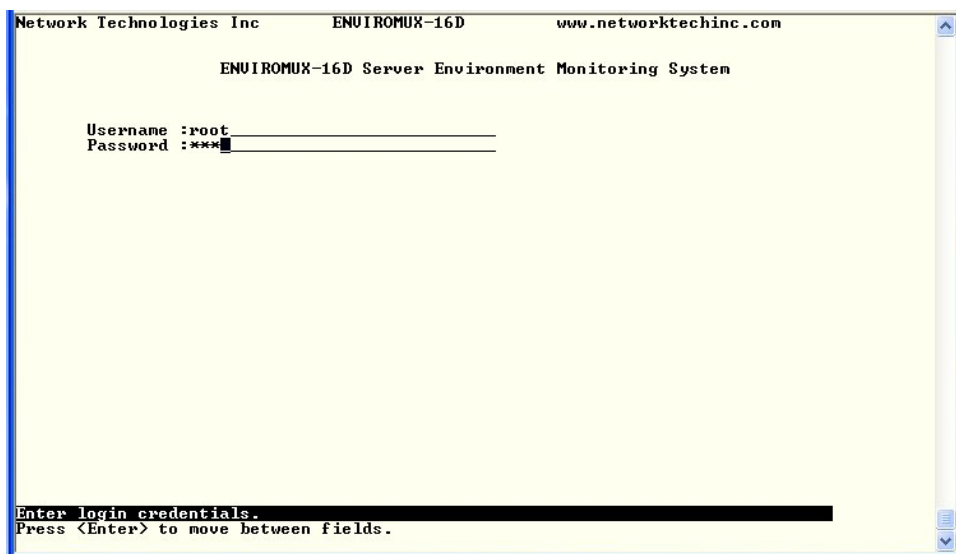
Figure 5- Text Menu Login screen

Note: User names and passwords are case sensitive.   It is important to know what characters must be capitalized and what characters must <u>not</u>.

Note: Only the user "root" can access the text menu when connected through the "USB CONSOLE" or "RS232" port.

Connect to ENVIROMUX from Command Line

To access the Text Menu from the command line, the ENVIROMUX must first be connected to the Ethernet.

Connect Via Telnet

Note: Telnet must be enabled through the web interface for a connection via Telnet to be possible (refer to the main user manual).   SSH (below) is enabled by default.

To open a telnet session to the ENVIROMUX, Issue the following command from the command line:

`telnet` *<ENVIROMUX hostname or IP address>*

<ENVIROMUX hostname> is the hostname configured in the workstation where the telnet client will run (through /etc/hosts or DNS table). It can also be just the IP address of the ENVIROMUX (default is **192.168.1.21**).

The user will be prompted for username and password to connect to the ENVIROMUX.

Connect Via SSH

To open an SSH session to a serial port, issue the following command from the command line:

`ssh -l` *<Username>* *<ENVIROMUX hostname or IP address>*

<Username> is any user configured to access the ENVIROMUX.   The default user is "**root**".

<ENVIROMUX hostname> is the hostname configured in the workstation where the SSH client will run (through /etc/hosts or DNS table). It can also be just the IP address of the ENVIROMUX (default is **192.168.1.21**).

The user will be prompted for a password to connect to the ENVIROMUX. The default password is "**nti**" (all lowercase letters).

The main menu of the Text Menu will be displayed whether you are connecting via USB Console,Telnet, or SSH.


```
                              Main Menu

        1. Monitoring
        2. System Configuration
        3. Enterprise Configuration
        4. Network Configuration
        5. User Configuration
        6. Security Configuration
        7. Event & Data Logs
        8. System Information
        9. Reboot


        [Logout]




 Monitor and configure sensors, power outlets, and IP devices.
 Press <Tab> to move between the menu and logout button. Press <Enter> to
 select highlighted item.
```
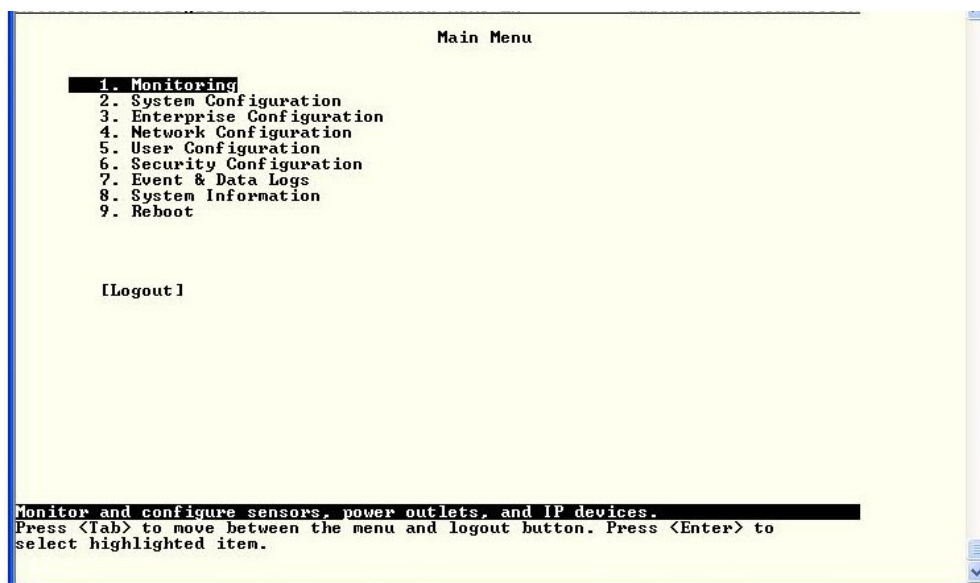
Figure 6- Text Menu- Administrator Main Menu

If you are a user with only user privileges (no administrative privileges), the text menu will have more limited options.
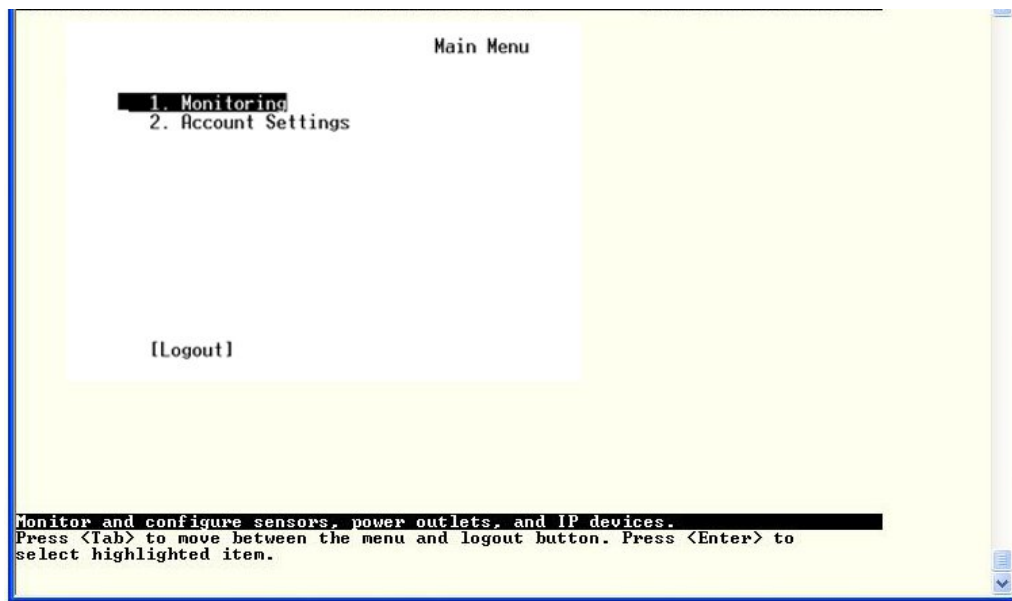

Figure 7- Text Menu- User Main Menu

For more on the Text Menu options for non-administrative users, see page **54**.

USING THE TEXT MENU

Text Menu Navigation

- To move up and down the numbered menu items or toggle through field options, use the arrow keys.
- To jump from menu item to another quickly, press the numbered key above the QWERTY keys (**the numberpad number keys are not used**).
- To move from menu list to action key (such as "Logout" in Figure 7), press `<Tab>`.
- To exit an action or menu, press `<Esc>`.
- To select a highlighted item or move to another field in a configuration page, press `<Enter>`.
- Be sure to Tab to "**Save**" and press `<Enter>` when configuration changes are made.
- To return from "Save" back to a field on the configuration page, press `<Tab>`.

The Administrators Main Menu is broken into 9 categories:

Function	Description
Monitoring	Monitor and configure the sensors, accessories and IP devices
System Configuration	Set the ENVIROMUX time settings or reset the unit to factory default settings
Enterprise Configuration	Configure system settings
Network Configuration	Configure network settings
User Configuration	Configure user access settings
Security Configuration	Configure security settings
Event and Data Logs	View and configure the Event and Data Logs
System Information	View system and network settings
Reboot	Enables the user to reboot the ENVIROMUX

Monitoring

The Monitoring menu lists choices for viewing the status of items monitored by the ENVIROMUX as well as for configuring how they are monitored and how or if alert messages will be sent.
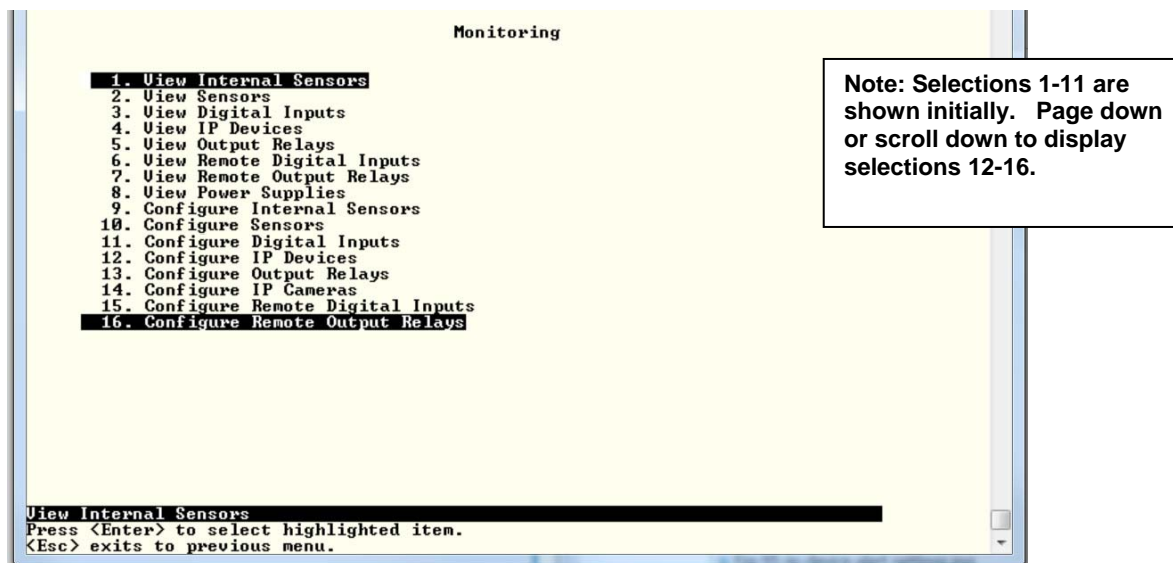

Figure 8- Text Menu-Monitoring Menu

View Sensors

The View Sensors selection will show the present status of each analog sensor connected to the ENVIROMUX.

The current value being reported by the sensor and the state (whether Normal or Alert) will be shown. If the sensor is in alert status, pressing the <Enter> key would provide the option to either **acknowledge** the alert or **dismiss** it.

Figure 9- Text Menu-Sensor Status

View Digital Inputs

The View Digital Inputs selection will show the present status of each dry contact sensor connected to the ENVIROMUX.

The current value being reported by the sensor and the state (whether Normal or Alert) will be shown. If the sensor is in alert status, pressing the <Enter> key would provide the option to either **acknowledge** the alert or **dismiss** it.

Figure 10- Text Menu- Digital Input Status

View IP Devices

The View IP Devices selection will show the present status of each IP Device monitored by the ENVIROMUX.

The current value being reported by the IP Device and the state (whether Normal or Alert) will be shown. If the IP Device is in alert status, pressing the <**Enter**> key would provide the option to either **acknowledge** the alert or **dismiss** it.
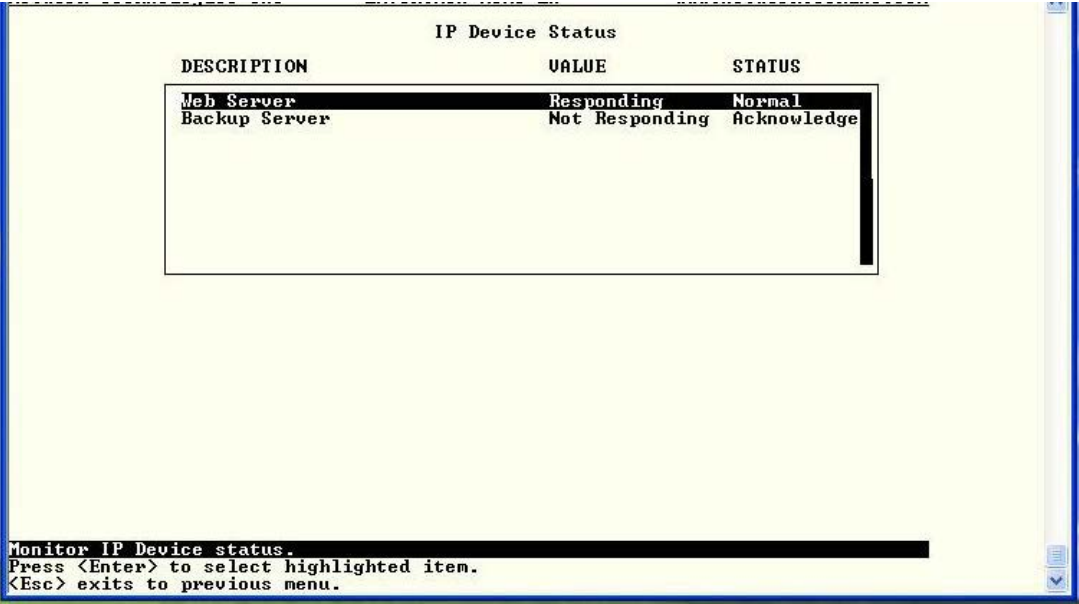

Figure 11- Text Menu-View IP Devices

View Output Relay

The View Output Relay selection will show the present state of the Output Relay on the ENVIROMUX.   To manually change its state, press <**Enter**> and select between Inactive and Active.
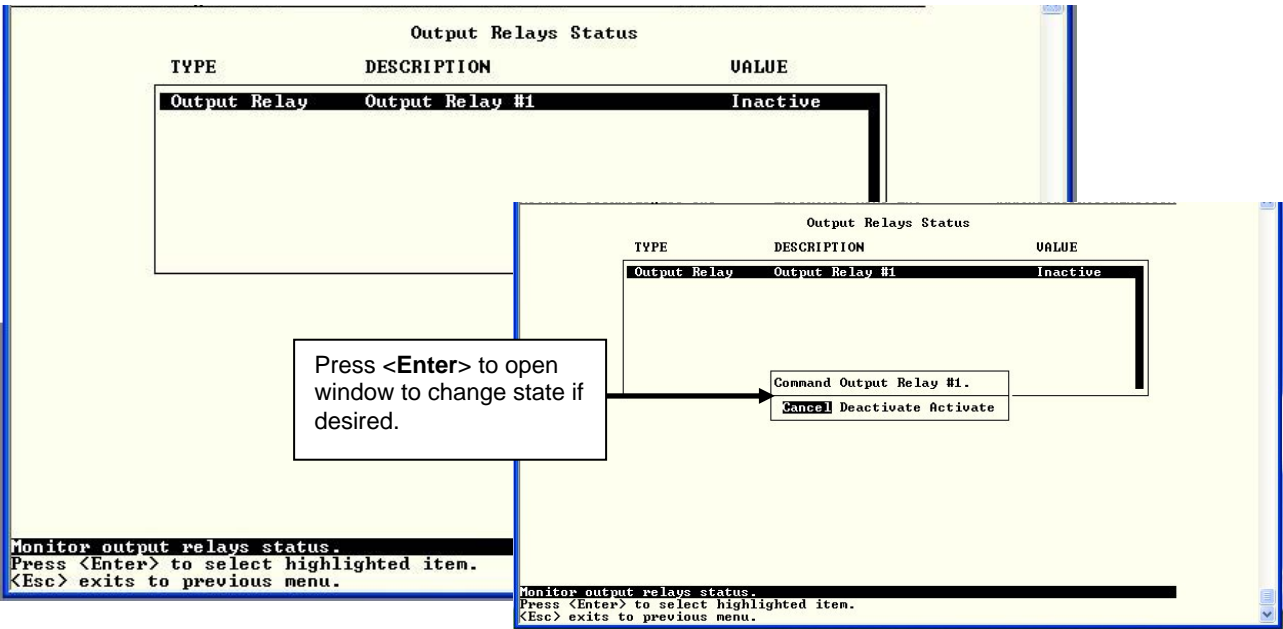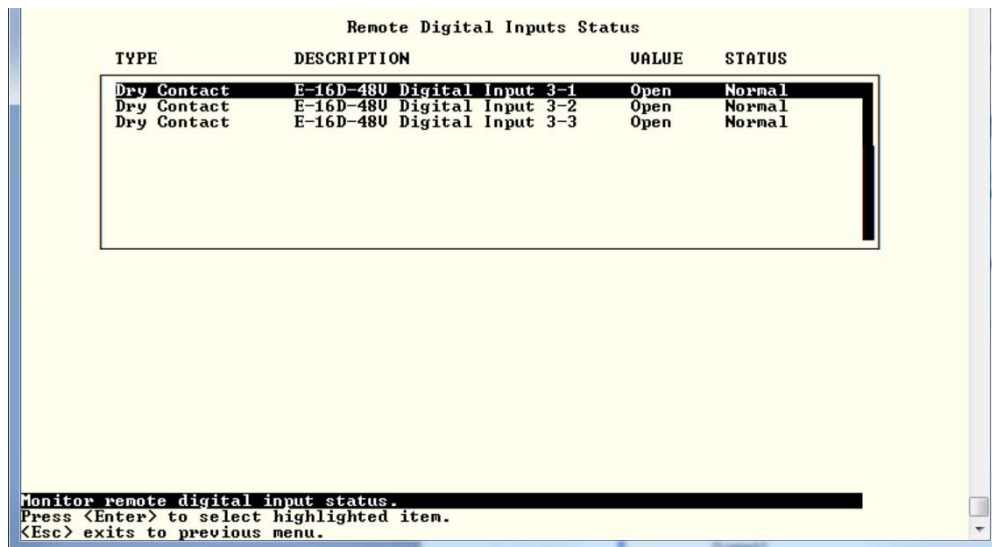
Figure 12- Text Menu- View Output Relay Status

View Remote Digital Inputs

The View Remote Digital Inputs selection will show the present status of each dry contact sensor connected to expansion devices (i.e. E-DI16DO16) connected to the ENVIROMUX.

The current value being reported by the sensor and the state (whether Normal or Alert) will be shown. If the sensor is in alert status, pressing the <**Enter**> key would provide the option to either **acknowledge** the alert or **dismiss** it.
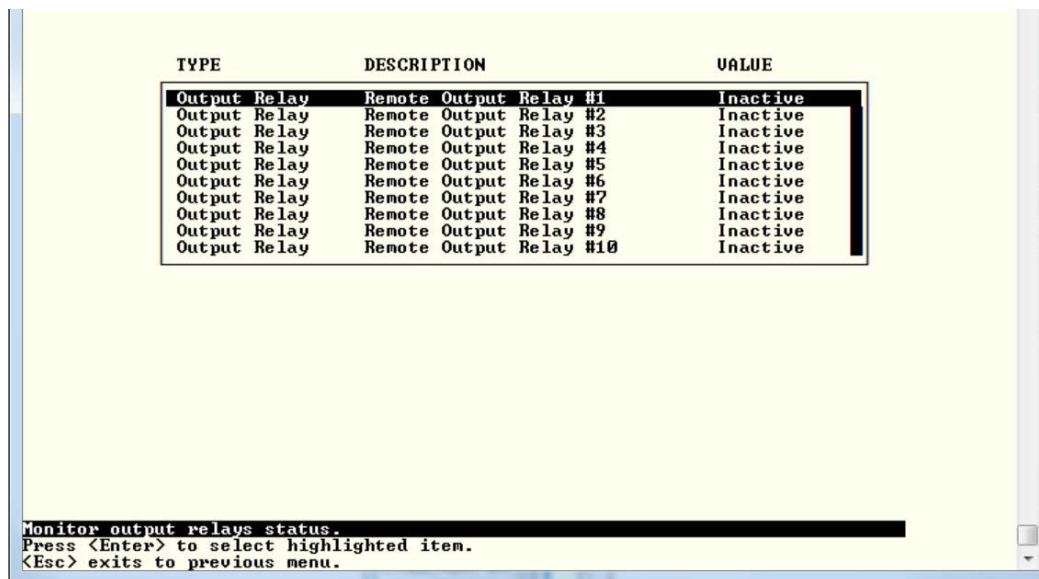
Figure 13- Text Menu-View Remote Digital Inputs

View Remote Output Relay

The View Remote Output Relay selection will show the present state of the Remote Output Relays connected to the ENVIROMUX through expansion devices (i.e. E-DI16DO(R)16). To manually change its state, press <**Enter**> and select between Inactive and Active.

Figure 14- Text Menu-View Remote Output Relays

View Power Supply Status

The View Power Supply Status selection will show the present state of the power supply in the ENVIROMUX.   If the power is OFF, status will change to alert.
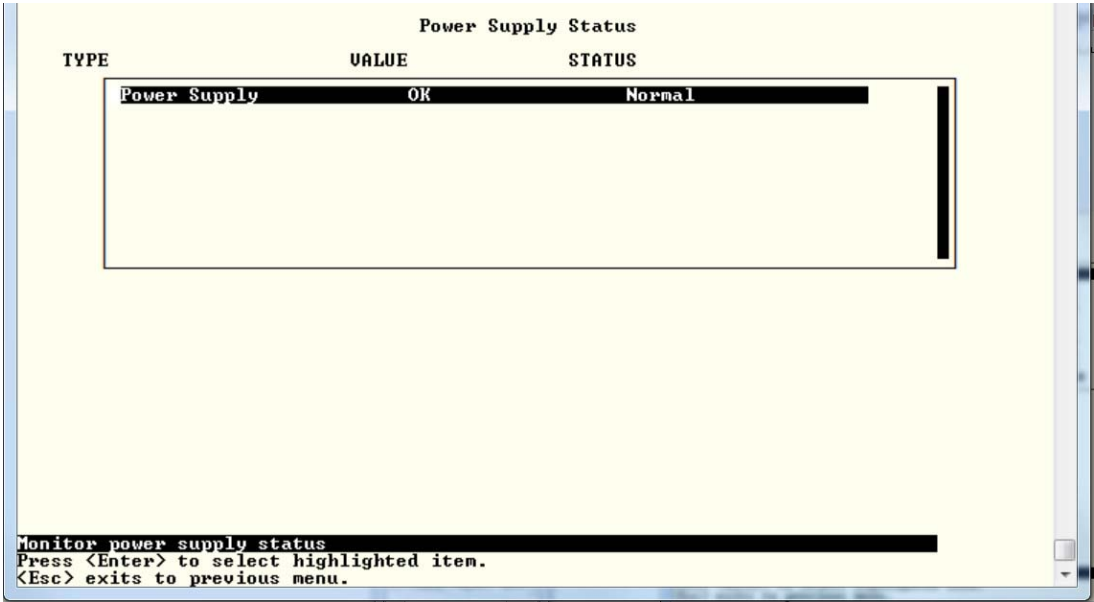
Figure 15- Text Menu-View Power Supply Status

Configure Sensors

The Configure Sensors menu lists the temperature and humidity sensors connected to the ENVIROMUX.   Press **<Enter>** to open the configuration menu for the selected sensor.

Figure 16- Text Menu-Configure Sensors list

The configuration menu for the sensor includes options to enter the Sensor Settings, Non-Critical Alert Settings, Critical Alert Settings, and Data Logging.

Figure 17- Text Menu-Configuration Menu for Sensor

From the Sensor Settings menu enter the Description for the sensor and select which sensor group the sensor should belong to (1 or 2).

Figure 18- Text Menu-Sensor Settings

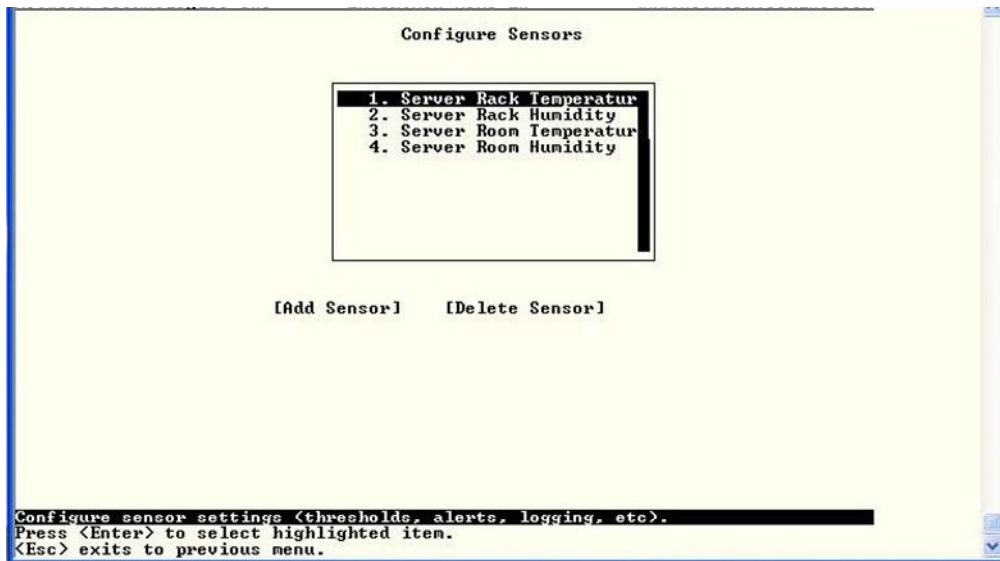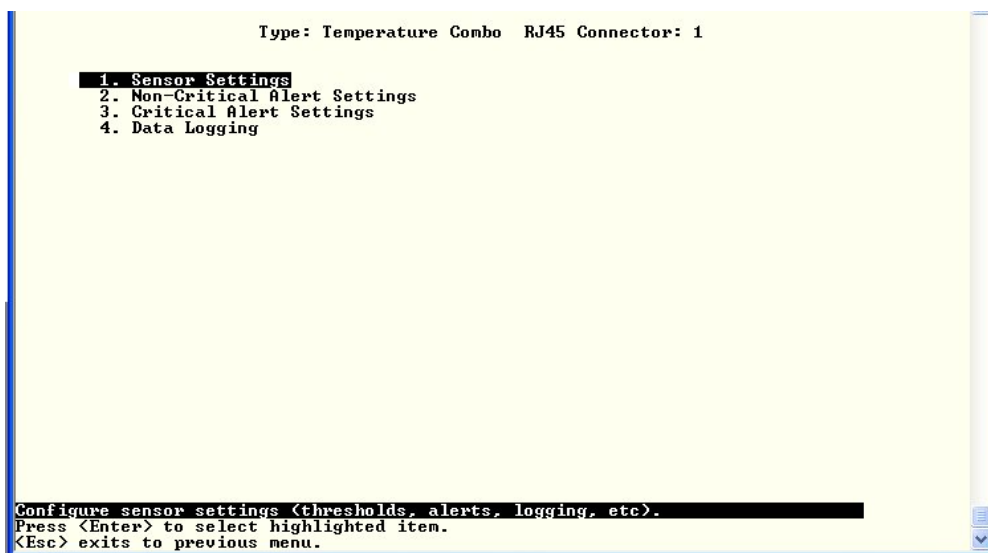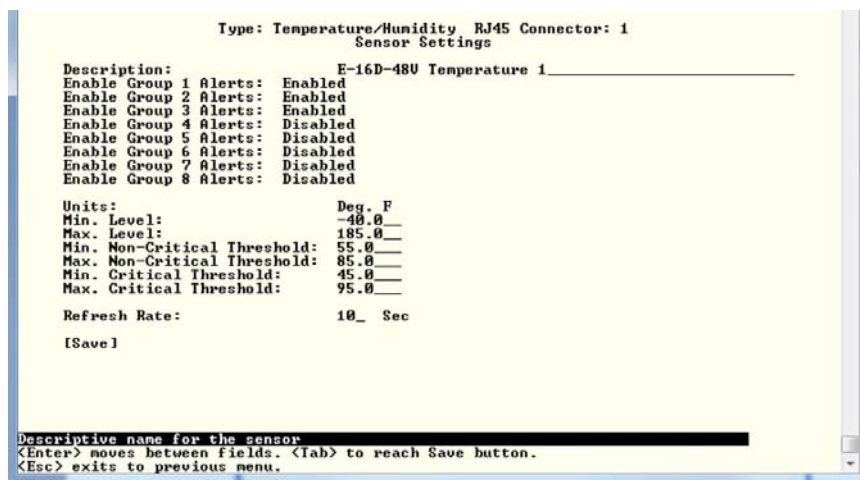| Sensor Settings	Description
Description	The description of the sensor that will be viewed in the Summary page and in the body of alert messages
Groups	Assign the sensor to one or more groups (1 -8) (see also page 44)
Units	This lets the operator choose between Celsius and Fahrenheit as the temperature measurement unit.
Min. Level	Displays the minimum value that this sensor will report
Max. Level	Displays the maximum value that this sensor will report
Minimum Non-Critical -Threshold	The user must define the lowest acceptable value for the sensors. If the sensor measures a value below this threshold, the sensor will move to non-critical alert status. The assigned value should be ➢ within the range defined by Minimum Level and Maximum Level and ➢ lower than the assigned Maximum Threshold value. If values out of the range are entered, and error message will be shown.
Maximum Non-Critical Threshold	The user must define the highest acceptable value for the sensors. If the sensor measures a value above this threshold, the sensor will move to non-critical alert status. The assigned value should be ➢ within the range defined by Minimum Level and Maximum Level and ➢ higher than the assigned Minimum Threshold value. If values out of the range are entered, and error message will be shown.
Minimum Critical Threshold	The user must define the lowest acceptable value for the sensors. If the sensor measures a value below this threshold, the sensor will move to alert status. The assigned value should be ➢ within the range defined by Minimum Level and Maximum Level, ➢ lower than the assigned Maximum Threshold value, and ➢ lower than the Minimum Non-Critical Threshold value. If values out of the range are entered, and error message will be shown.
Maximum Critical Threshold	The user must define the highest acceptable value for the sensors. If the sensor measures a value above this threshold, the sensor will move to alert status. The assigned value should be ➢ within the range defined by Minimum Level and Maximum Level, ➢ higher than the assigned Minimum Threshold value, and ➢ higher than the Maximum Non-Critical Threshold value. If values out of the range are entered, and error message will be shown.
Refresh Rate	Determines how often the displayed sensor value is refreshed on the Sensor page. A numeric value and a measurement unit (minimum 1 seconds, maximum 999 minutes) should be entered.

Press <Tab> to highlight **Save** and press <Enter> to save before pressing <Esc> to exit.

From the Non-Critical or Critical Alert Settings menu, the user can enable/disable alert messages to be sent when the sensor is in an alert state and configure when and how alert messages are sent. Additionally, from the Critical Alert Settings menu, the user can configure the ENVIROMUX to capture a snapshot from an IP camera and attach the image to the alert message sent via email.
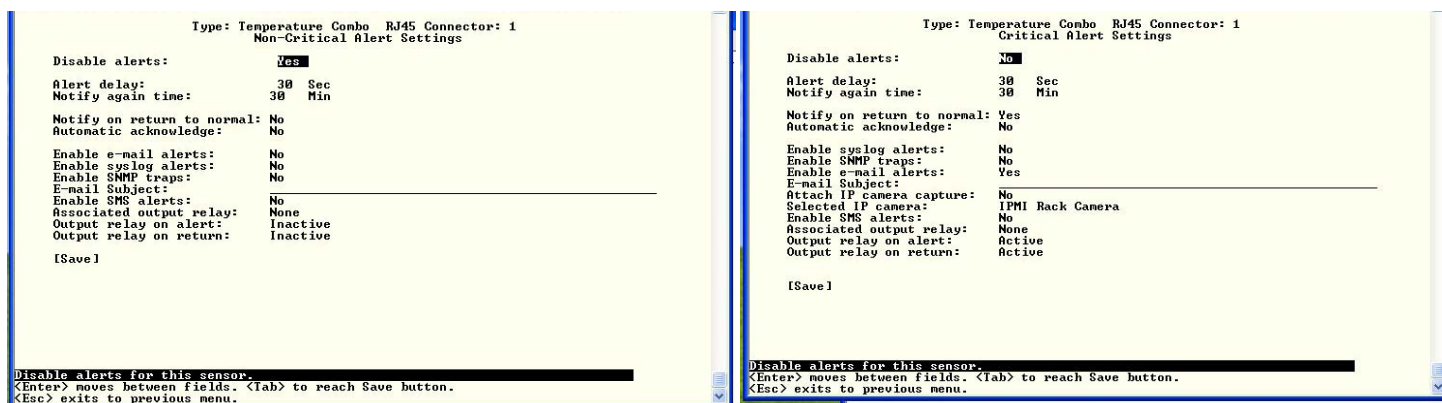
```
               Type: Temperature Combo  RJ45 Connector: 1
                        Non-Critical Alert Settings

   Disable alerts:              Yes

   Alert delay:                 30  Sec
   Notify again time:           30  Min

   Notify on return to normal: No
   Automatic acknowledge:       No

   Enable e-mail alerts:        No
   Enable syslog alerts:        No
   Enable SNMP traps:           No
   E-mail Subject:
   Enable SMS alerts:           No
   Associated output relay:     None
   Output relay on alert:       Inactive
   Output relay on return:      Inactive

   [Save]




Disable alerts for this sensor.
<Enter> moves between fields. <Tab> to reach Save button.
<Esc> exits to previous menu.
```

```
               Type: Temperature Combo  RJ45 Connector: 1
                        Critical Alert Settings

   Disable alerts:              No

   Alert delay:                 30  Sec
   Notify again time:           30  Min

   Notify on return to normal: Yes
   Automatic acknowledge:       No

   Enable syslog alerts:        No
   Enable SNMP traps:           No
   Enable e-mail alerts:        Yes
   E-mail Subject:
   Attach IP camera capture:    No
   Selected IP camera:          IPMI Rack Camera
   Enable SMS alerts:           No
   Associated output relay:     None
   Output relay on alert:       Active
   Output relay on return:      Active

   [Save]


Disable alerts for this sensor.
<Enter> moves between fields. <Tab> to reach Save button.
<Esc> exits to previous menu.
```

Figure 19- Text Menu-Non-Critical and Critical Alert Settings

Alert Settings	
Disable alerts	Change to "Yes" to prevent alerts from being sent when this sensor's status changes
Alert Delay	The alert delay is an amount of time the sensor must be in an alert condition before an alert is sent. This provides some protection against false alarms. The Alert Delay value can be set for 0-999 seconds or minutes.
Notify Again Time	Enter the amount of time in seconds, minutes, or hours (1-999) before an alert message will be repeated
Notify on Return to Normal	The user can also be notified when the sensor readings have returned to the normal range by changing to "Yes" for "*Notify on return to normal*" for a sensor.
Auto Acknowledge	Change to "Yes" to have alert notifications in the summary page return to normal state automatically when sensor readings return to normal.
Enable Email Alerts	Change to "Yes" to have alert notifications sent via Email
Enable Syslog Alerts	Change to "Yes" to have alert notifications sent via Syslog messages
Enable SNMP traps	Change to "Yes" to have alert notifications sent via SNMP traps (v2c)
Enable SMS Alerts	Change to "Yes" to have alert notifications sent via SMS (requires GSM modem)
Email Subject	Enter the subject to be viewed when an email alert message is received
Attach IP camera capture	Change to "Yes" to enable a snapshot to be taken from an IP camera and attached to the alert message (for critical alert messages only.)
Selected IP camera	Select which IP camera to take a snapshot from to be attached to an alert message (for critical alert messages only)
Associated output relay	Choose which output relay to change state when sensor is in alert
Output relay on alert	Choose the state the output relay should be in when the sensor is in alert
Output relay on return	Choose the state the output relay should be in when the sensor returns to normal

Press `<Tab>` to highlight **Save** and press `<Enter>` to save before pressing `<Esc>` to exit.

From the Data Logging menu for the sensor, the user can decide if the data sampled should be recorded in the Data Log and how frequently.
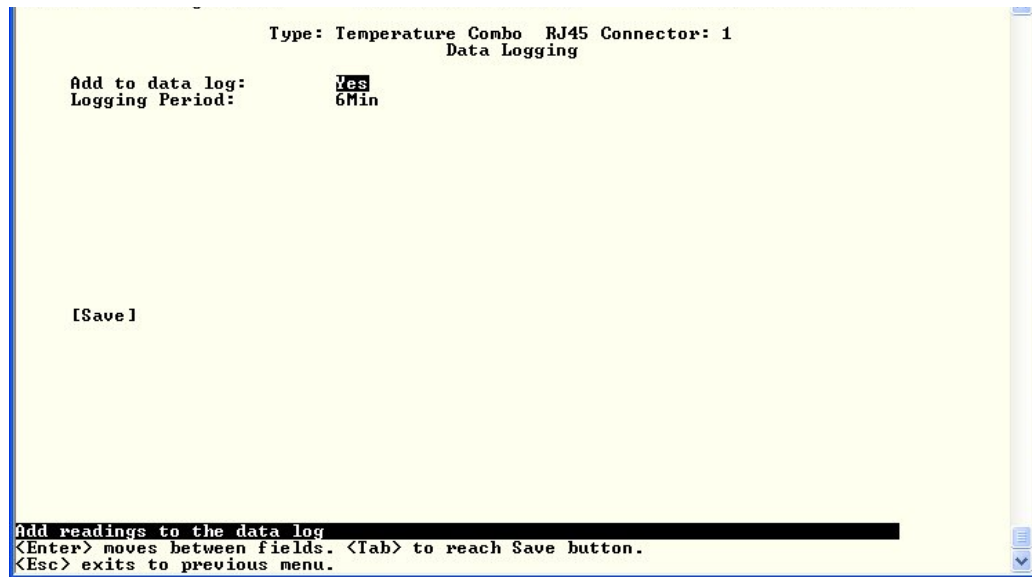

Figure 20- Text Menu-Sensor Data Logging

Configure Digital Inputs

The Configure Digital Input Sensors menu lists the contact sensors connected to the ENVIROMUX.   Press **<Enter>** to open the configuration menu for the selected contact sensor.   (The Water Sensor menu contains the same options as the contact sensor menu.) The configuration menu for the Digital Inputs includes options to enter the Digital Input Settings, Alert Settings, and Data Logging.
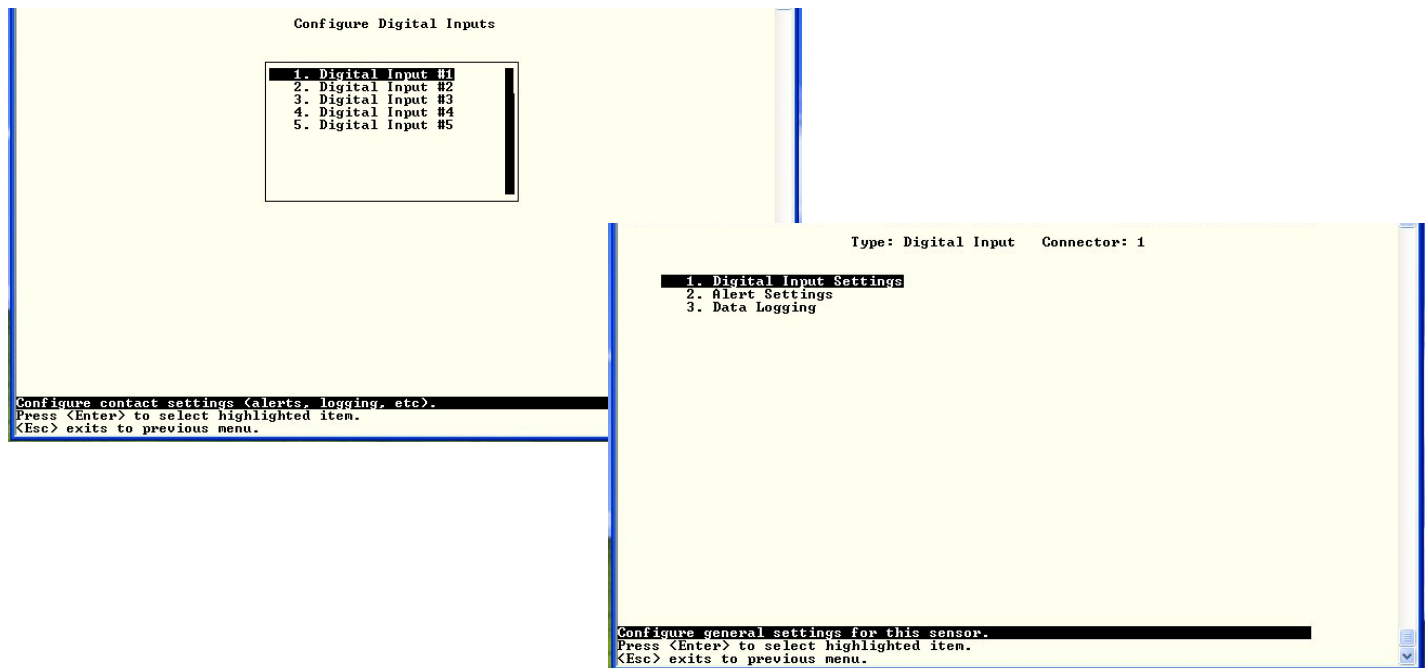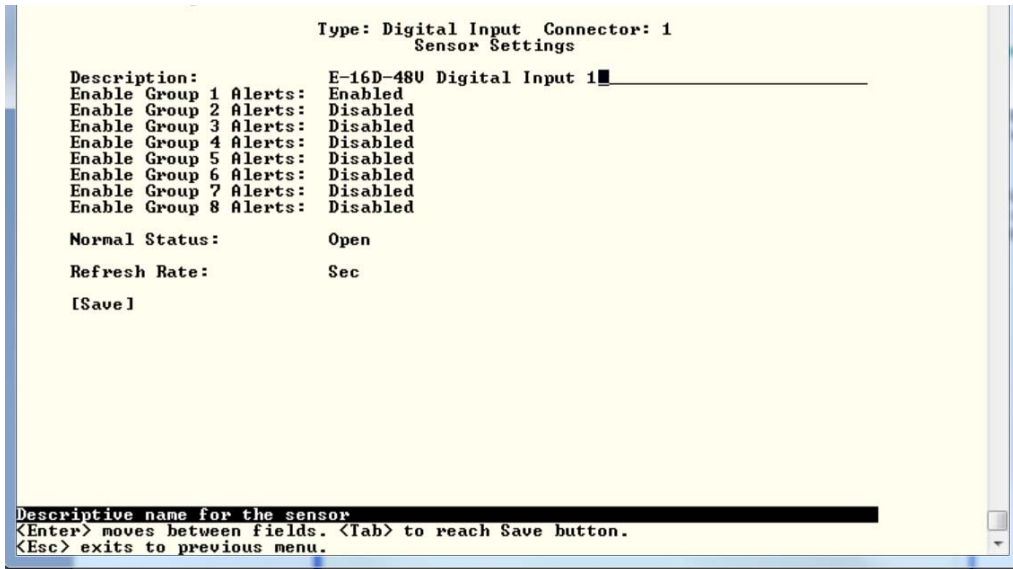

Figure 21- Configure Digital Input Sensors

Water sensors and contact sensors are each configured much like the temperature and humidity sensors previously described. Only the Sensor Settings menu (below) is different.   Alert settings and data logging menus are as seen in Figure 19 and Figure 20.

Instead of threshold and minimum/maximum levels settings, water sensors and contact sensors are either open contact or closed contact sensors.   Therefore, the field "**Normal Status**" is provided to select the status of the sensor when it is <u>not</u> in an alert state.   Select between **Open** contacts, or **Close** contacts for the normal status of the sensor.   (Water sensors are open contact when not in an alert state.)

```
                        Type: Digital Input   Connector: 1
                             Sensor Settings
    Description:             E-16D-48U Digital Input 1█_____
    Enable Group 1 Alerts:  Enabled
    Enable Group 2 Alerts:  Disabled
    Enable Group 3 Alerts:  Disabled
    Enable Group 4 Alerts:  Disabled
    Enable Group 5 Alerts:  Disabled
    Enable Group 6 Alerts:  Disabled
    Enable Group 7 Alerts:  Disabled
    Enable Group 8 Alerts:  Disabled

    Normal Status:          Open

    Refresh Rate:           Sec

    [Save]




Descriptive name for the sensor
<Enter> moves between fields. <Tab> to reach Save button.
<Esc> exits to previous menu.
```
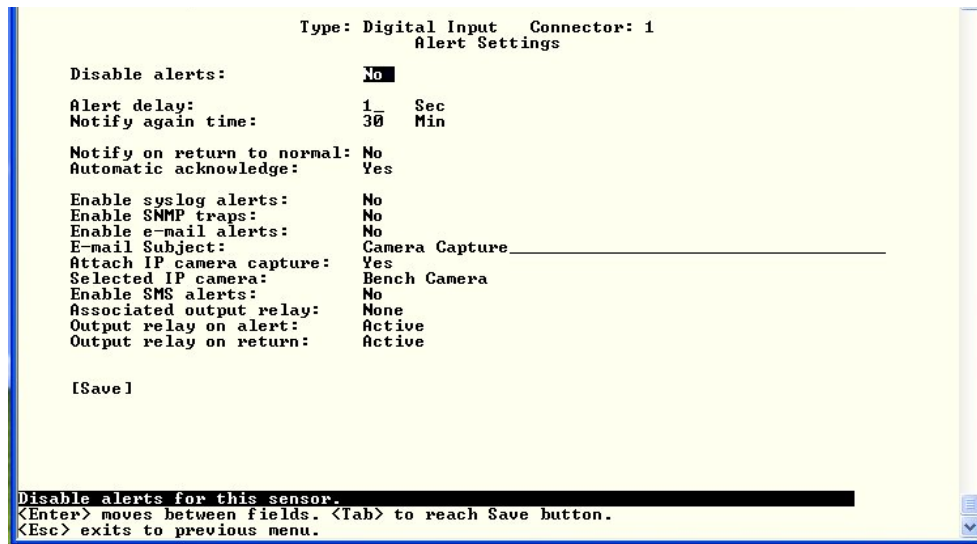
Figure 22- Digital Input Sensor Settings Menu

From the Alert Settings menu, the user can enable/disable alert messages to be sent when the sensor is in an alert state and configure when and how alert messages are sent.

```
                        Type: Digital Input   Connector: 1
                             Alert Settings
    Disable alerts:           No

    Alert delay:              1_    Sec
    Notify again time:        30    Min

    Notify on return to normal: No
    Automatic acknowledge:      Yes

    Enable syslog alerts:     No
    Enable SNMP traps:        No
    Enable e-mail alerts:     No
    E-mail Subject:           Camera Capture_____
    Attach IP camera capture: Yes
    Selected IP camera:       Bench Camera
    Enable SMS alerts:        No
    Associated output relay:  None
    Output relay on alert:    Active
    Output relay on return:   Active


    [Save]



Disable alerts for this sensor.
<Enter> moves between fields. <Tab> to reach Save button.
<Esc> exits to previous menu.
```

Figure 23- Digital Input Alert Settings

Alert Settings	
Disable alerts	Change to "Yes" to prevent alerts from being sent when this sensor's status changes
Alert Delay	The alert delay is an amount of time the sensor must be in an alert condition before an alert is sent. This provides some protection against false alarms. The Alert Delay value can be set for 0-999 seconds or minutes.
Notify Again Time	Enter the amount of time in seconds, minutes, or hours (1-999) before an alert message will be repeated
Notify on Return to Normal	The user can also be notified when the sensor readings have returned to the normal range by changing to "Yes" for "*Notify on return to normal*" for a sensor.
Auto Acknowledge	Change to "Yes" to have alert notifications in the summary page return to normal state automatically when sensor readings return to normal.
Enable Syslog Alerts	Change to "Yes" to have alert notifications sent via Syslog messages
Enable SNMP traps	Change to "Yes" to have alert notifications sent via SNMP traps (v2c)
Enable Email Alerts	Change to "Yes" to have alert notifications sent via Email
Email Subject	Enter the subject to be viewed when an email alert message is received
Attach IP camera capture	Change to "Yes" to enable a snapshot to be taken from an IP camera and attached to the alert message (for critical alert messages only.)
Selected IP camera	Select which IP camera to take a snapshot from to be attached to an alert message (for critical alert messages only)
Enable SMS Alerts	Change to "Yes" to have alert notifications sent via SMS (requires GSM modem)
Associated output relay	Choose which output relay to change state when sensor is in alert
Output relay on alert	Choose the state the output relay should be in when the sensor is in alert
Output relay on return	Choose the state the output relay should be in when the sensor returns to normal

Press <Tab> to highlight **Save** and press <Enter> to save before pressing <Esc> to exit.

From the Data Logging menu for the Digital Input sensor, the user can decide if the data sampled should be recorded in the Data Log and how frequently.

Figure 24- Data Logging for Digital Input Sensors

Configure IP Devices

The Configure IP Devices menu lists the IP Devices monitored by the ENVIROMUX.   Press <**Enter**> to open the configuration menu for the selected IP Device.
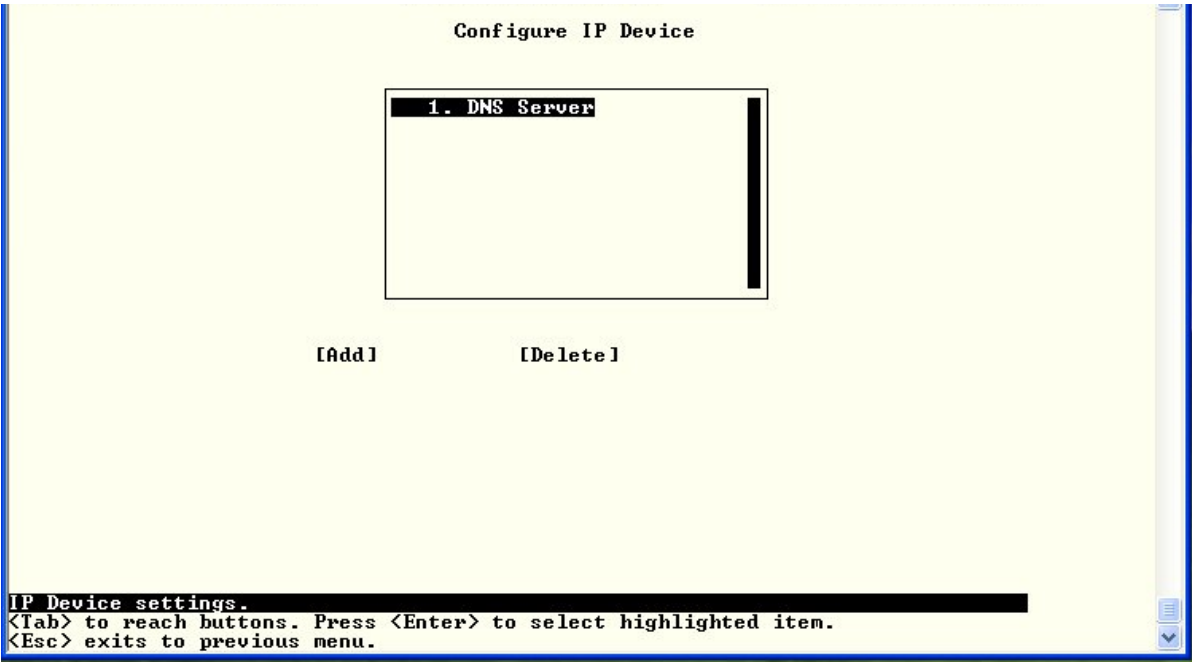

Figure 25- Text Menu-Configure IP Devices List

The configuration menu for the IP Device includes options to enter the IP Device Settings, Alert Settings, and Data Logging.
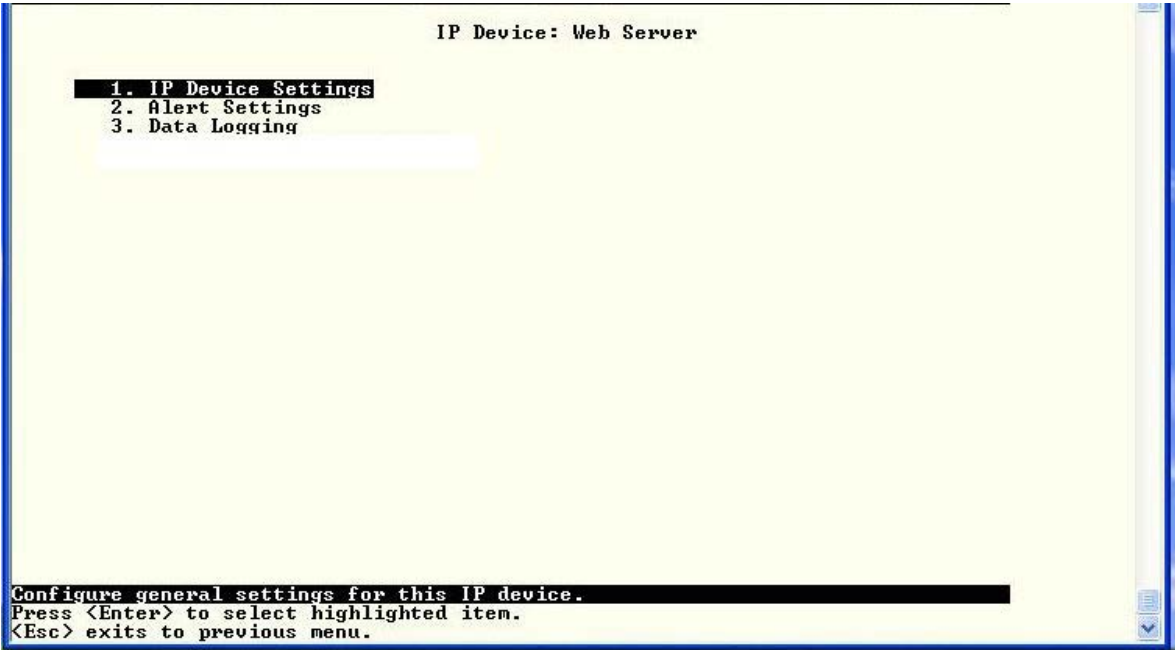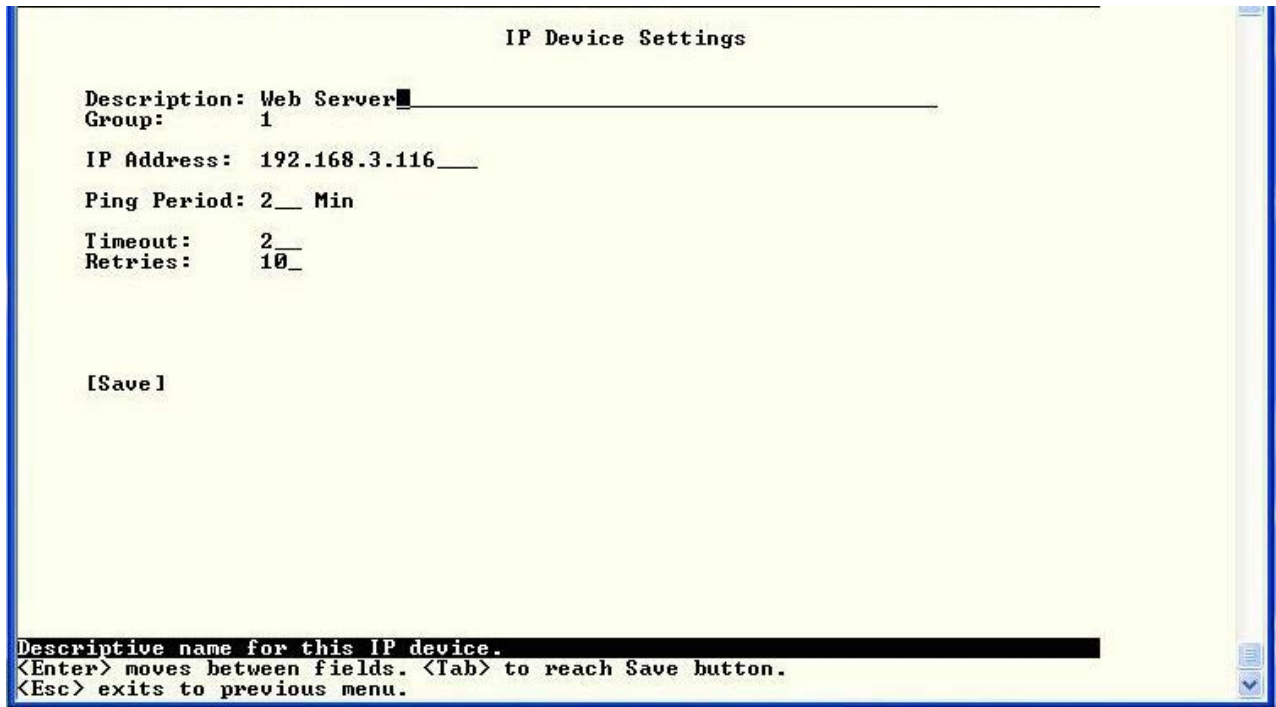

Figure 26- Text menu-Configuration Menu for IP Devices

From the IP Device Settings menu, the user can enter the name and address of the IP Device, assign a sensor group, and define how the IP Device will be monitored.

Figure 27-Text Menu-IP Device Settings

IP Device Settings	Description
Description	The description of the IP Device that will be viewed in the Summary page and in the body of alert messages
Group	Assign the IP device to a group (1 -8)
IP Address	The IP address of the IP Device
Ping Period	Enter the frequency in minutes or seconds that the ENVIROMUX should ping the IP Device
Timeout	Enter the length of time in seconds to wait for a response to a ping before considering the attempt a failure
Retries	Enter the number of times the ENVIROMUX should ping a non-responsive IP device before changing its status from normal to alarm and sending an alert

Press <Tab> to highlight **Save** and press <Enter> to save before pressing <Esc> to exit.

From the Alert Settings menu, the user can enable/disable alert messages to be sent when the IP Device is not responding and configure when and how alert messages are sent.

Figure 28- Text Menu-IP Device Alert Settings

Alert Settings	Description
Disable alerts	Change to "Yes" to prevent alerts from being sent when this IP Device's status changes
Notify Again Time	Enter the amount of time in seconds, minutes, or hours (1-999) before an alert message will be repeated
Notify on Return to Normal	The user can also be notified when the IP Device's state has returned to the normal by changing to "Yes" for "***Notify on return to normal***" for a sensor.
Auto Acknowledge	Change to "Yes" to have alert notifications in the summary page return to normal state automatically when sensor readings return to normal.
Enable Email Alerts	Change to "Yes" to have alert notifications sent via Email
Enable Syslog Alerts	Change to "Yes" to have alert notifications sent via Syslog messages
Enable SNMP traps	Change to "Yes" to have alert notifications sent via SNMP traps (v2c)
Email Subject	Enter the subject to be viewed when an email alert message is received
Enable SMS Alerts	Change to "Yes" to have alert notifications sent via SMS (requires GSM modem)
Siren	Change to "Yes" to activate the siren circuit during an alert condition
Beacon	Change to "Yes" to activate the beacon circuit during an alert condition

Press <**Tab**> to highlight **Save** and press <**Enter**> to save before pressing <**Esc**> to exit.

From the Data Logging menu for the IP Device, the user can decide if the data sampled should be recorded in the Data Log and how frequently.
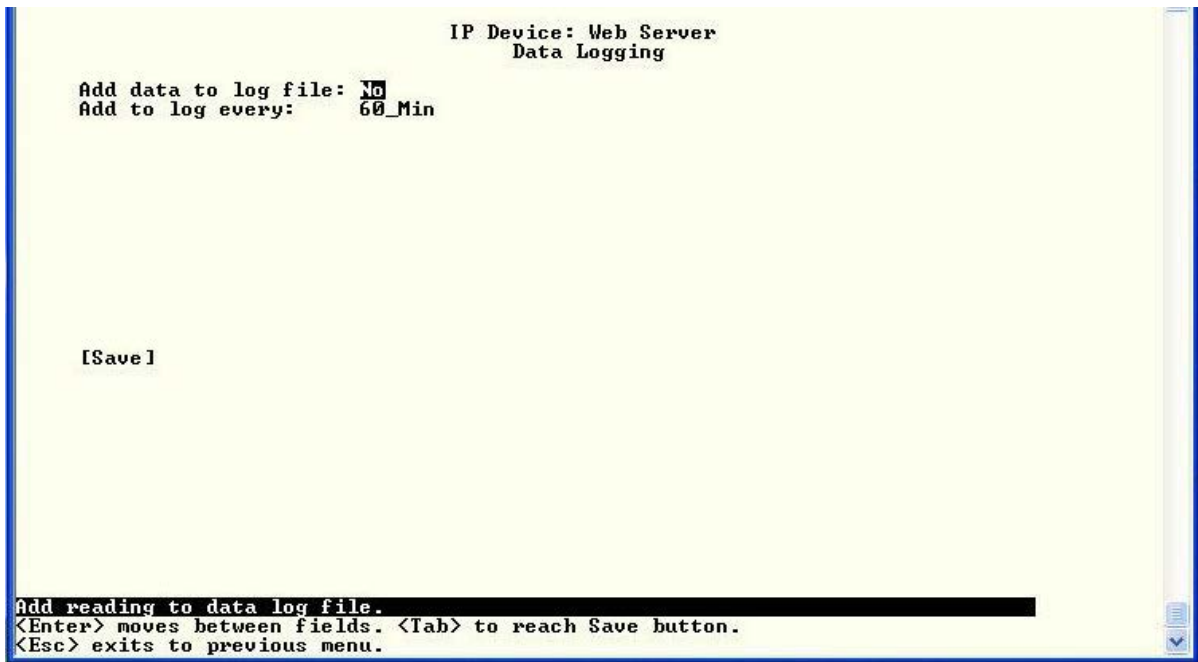

Figure 29- Text Menu-IP Device Data Logging

Configure Output Relay

From the Monitoring menu, the user can select to configure the Output Relay. You will first be presented with the Output Relays list (only one in this product). Press <Enter> to be given a choice of configuring Output Relay Settings or Alert Settings to associate with the relay state.
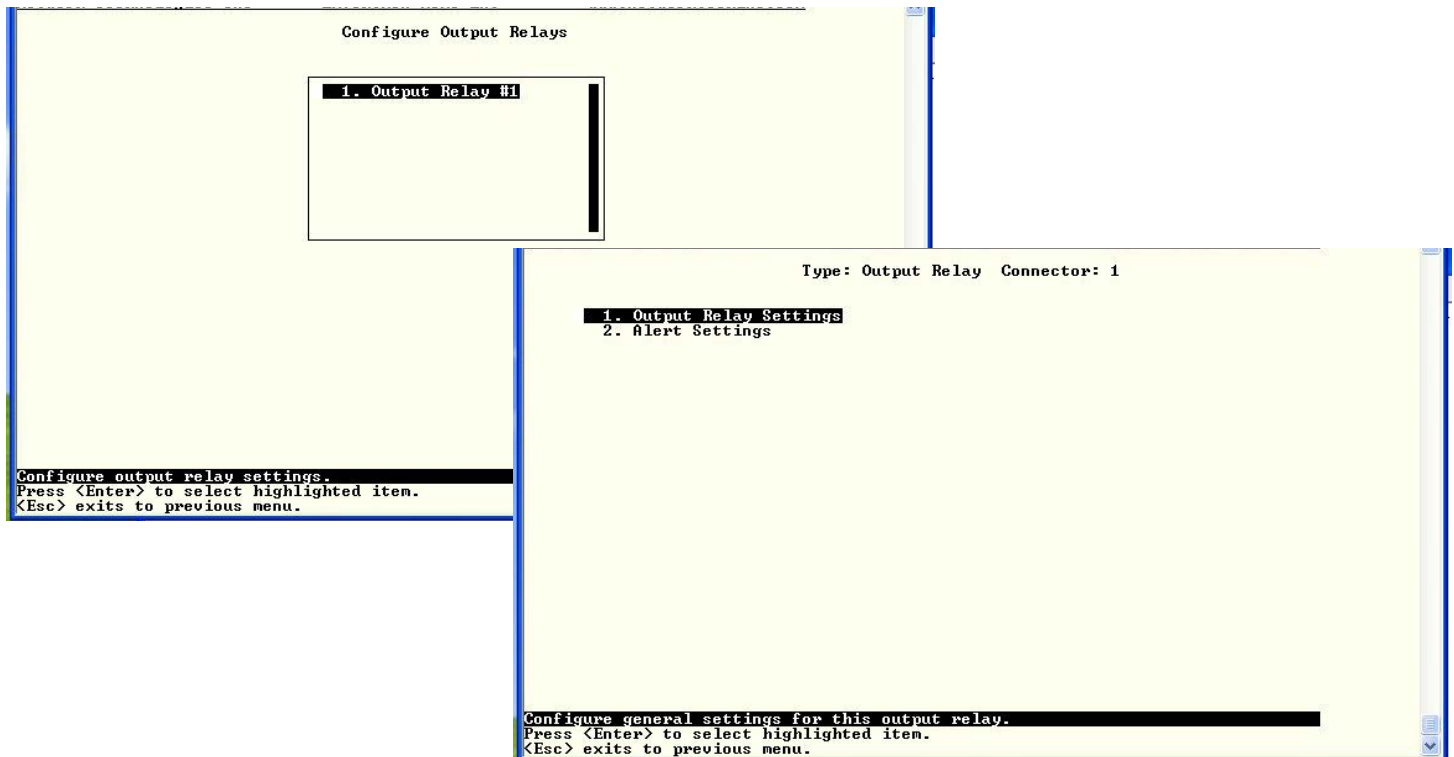

Figure 30- Text Menu- Select Configure Output Relay

Select the Output Relay Settings to access a menu where the description of the Output Relay can be defined.   This definition will be presented in the View Output Relays list as well as in the description field when viewing the list through the WEB interface.

The group this relay will be associated with can be defined here to determine who will receive alerts generated by the relay state change, if any.

The "Normal Status" of the relay is defined here which determines what the ENVIROMUX will consider a normal versus alert condition for the relay.

```
                         Type: Output Relay  Connector: 1
                              Output Relay Settings

       Description:      Output Relay #1█_____
       Group:            1

       Normal Status:    Active




       [Save]




Descriptive name for the output relay
<Enter> moves between fields. <Tab> to reach Save button.
<Esc> exits to previous menu.
```

Figure 31- Text Menu- Output Relay Settings

Select the Alert Settings to access a menu for enabling alert messages that can be sent when the relay changes from its "Normal" state.

```
                         Type: Output Relay  Connector: 1
                              Alert Settings




       Enable syslog alerts: No█
       Enable SNMP traps:    No
       Enable e-mail alerts: No
       E-mail Subject:       Output Relay Activity_____
       Enable SMS alerts:    No

       [Save]




Enable syslog alerts for this output relay.
<Enter> moves between fields. <Tab> to reach Save button.
<Esc> exits to previous menu.
```

Figure 32- Text Menu- Output Relay Alert Settings

Configure IP Cameras

From the Monitoring menu, the user can select to configure IP Cameras.   You will first be presented with the IP Cameras list (up to 8 can be configured).   Select an IP Camera in the list and press <Enter> to open the IP Camera Settings menu.
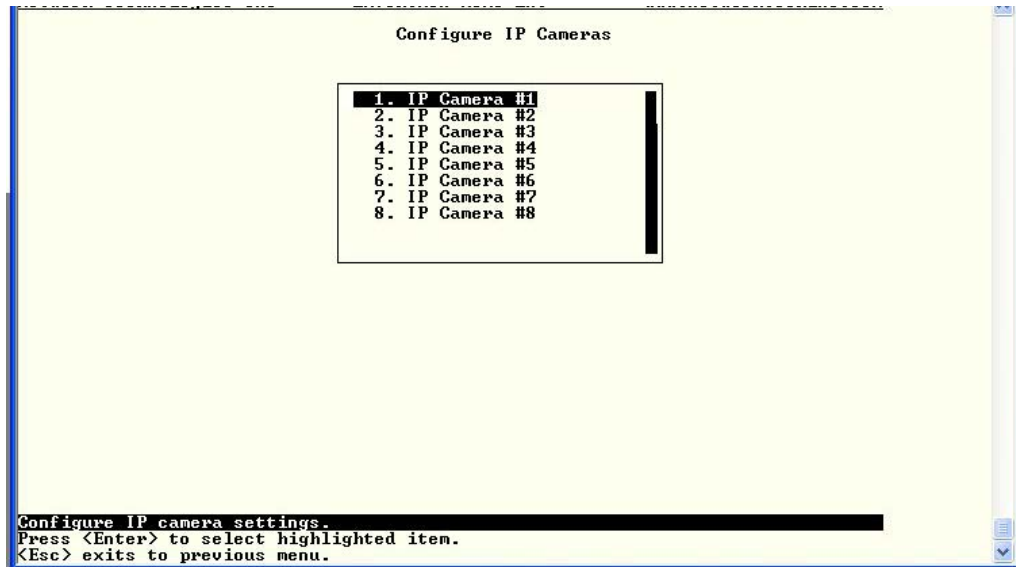

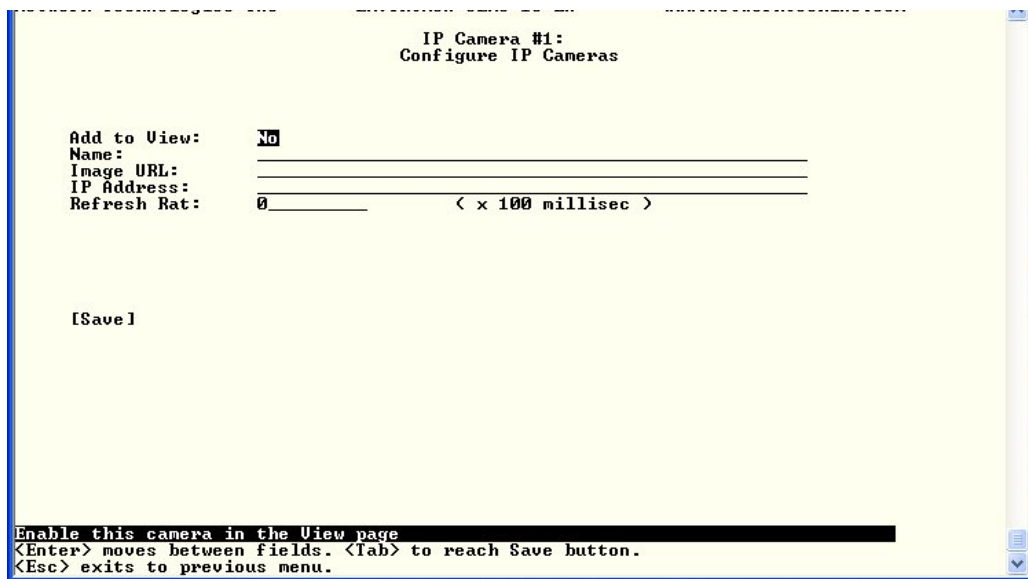**Figure 33- Text Menu- IP Camera List for Configuration**

Figure 34- Text Menu- IP Camera Settings

Camera Settings	Description
View	Change to "Yes" to enable images from the IP Camera to appear in the view when selecting the IP Cameras from the Monitoring menu in the WEB interface
Name	Characters entered will appear in any listing of the IP camera selection.
Image URL	Enter the full path to the image file captured by the IP camera under "Image URL".
IP Address	the IP address for the IP camera.
Refresh Time	Enter a refresh time period in increments of 100 msec (milliseconds). That is, a value of 1 = 100 msec, 5 = 500 msec , 10 = 1000 msec (or 1 second). The images can be set to be refreshed every 100 msec (.1 second) up to 99,900 msec (almost 100 seconds).

Configure Remote Digital Inputs and Output Relays

Remote Digital Inputs and Output relays can be configured just the same as those directly attached to the ENVIROMUX (pages 24 and 30).
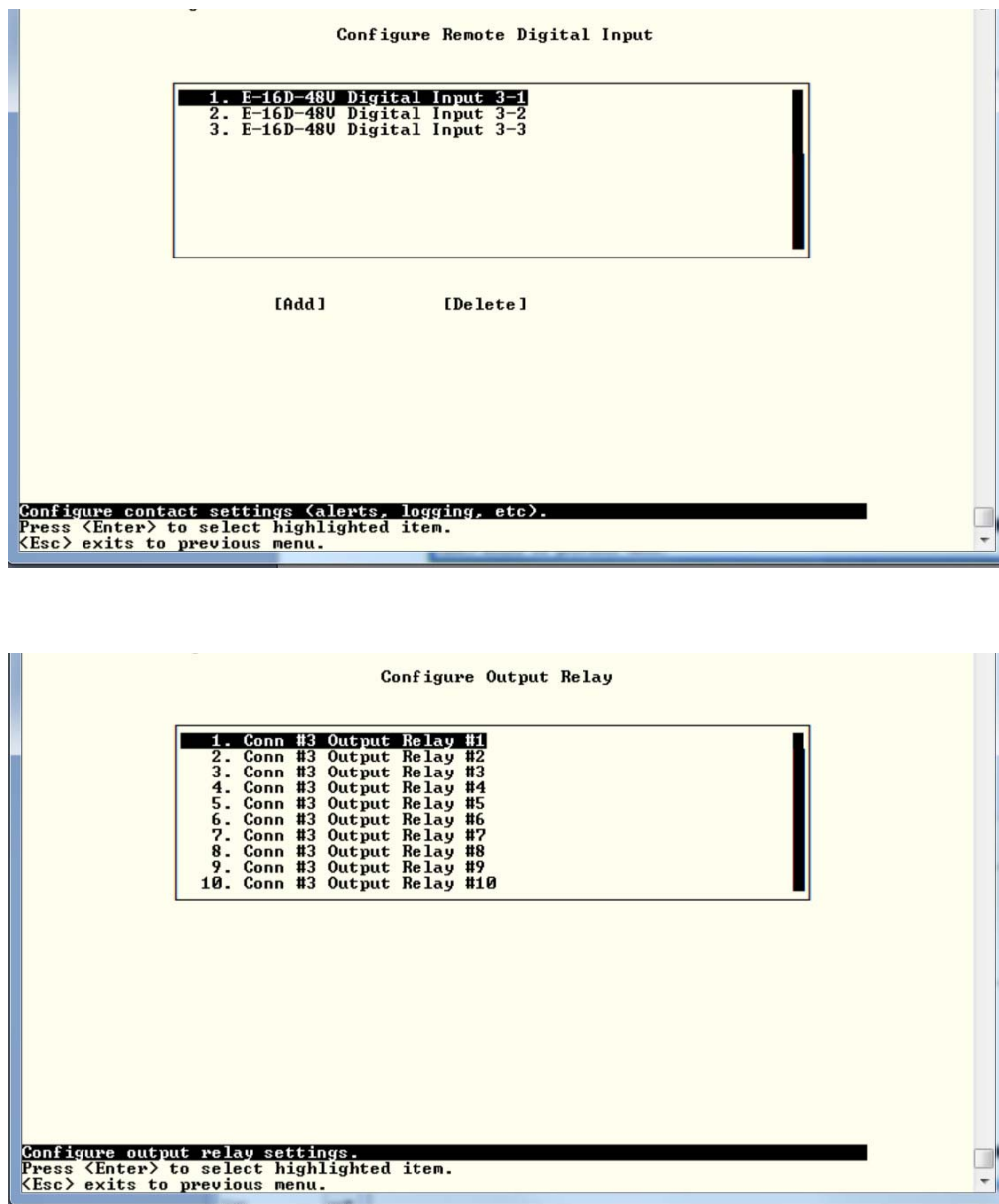

Figure 35- Text Menu-Configure Remote Digital Inputs and Output Relays

System Configuration

Under System Configuration (from the Main Menu), select "Time Settings" to enter the time of day, time zone, enable daylight saving time, or NTP server settings.   Also, select "Configuration Backup & Restore" to clear all configuration and user settings and restore the ENVIROMUX to settings as received from the factory.
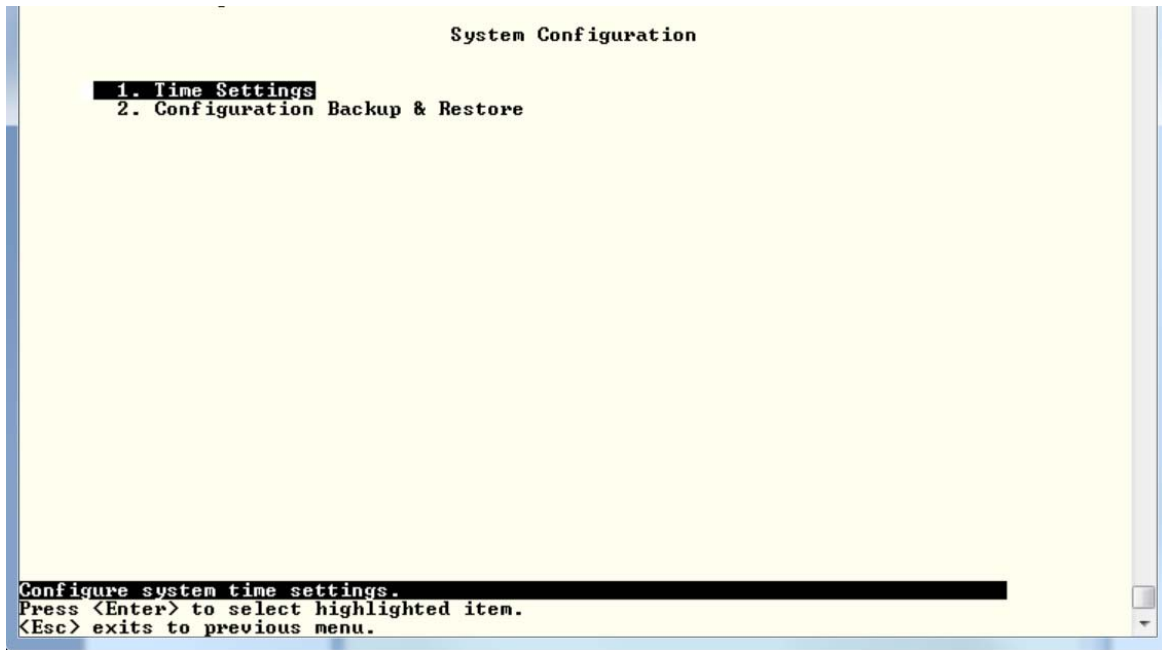
Figure 36- Text Menu- System Configuration

Time Settings

On the Time Settings menu, the user can designate what time zone the unit is associated with, set the date and time manually or configure the ENVIROMUX to get this information from an NTP server.
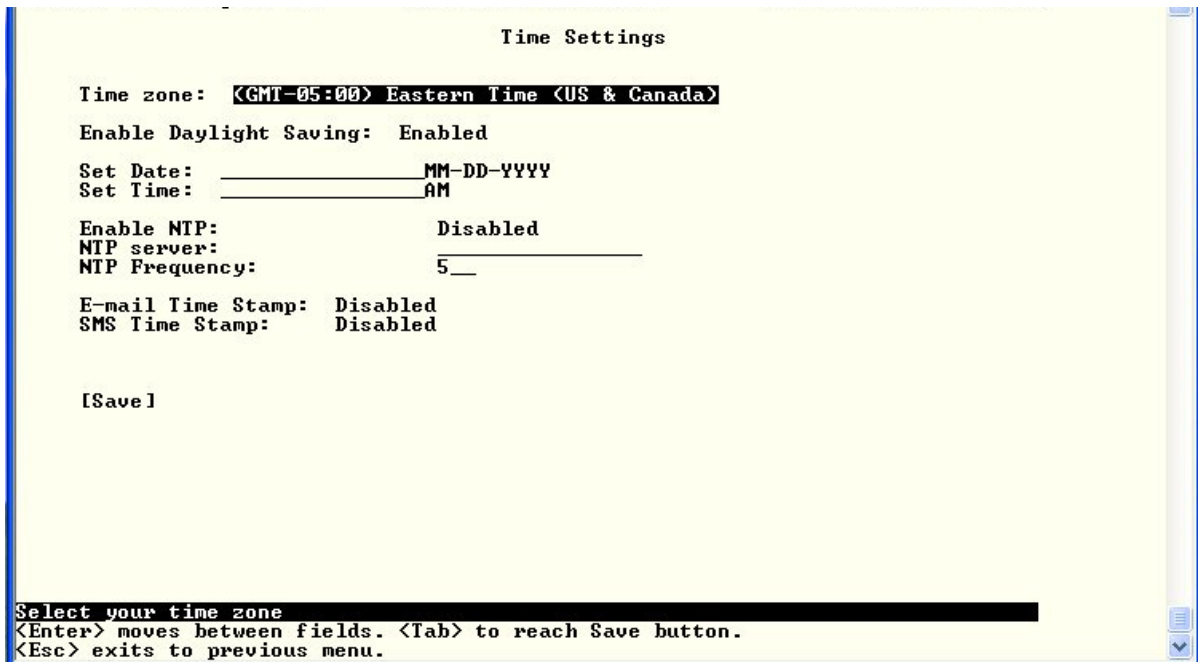
Figure 37- Text Menu-Time Settings menu

Time Settings	Description
Time Zone	Enter the appropriate time zone
Enable Daylight Saving	Change to "Yes" to have the time change in accordance Daylight Saving Time rules
Set Date	Enter the system date in MM-DD-YYYY format
Set Time	Enter the system time of day in hh:mm:ss format
Enable NTP	Change to "Enabled" to allow the ENVIROMUX to automatically sync up with a time server via NTP
NTP server	If the NTP is enabled, enter the Domain Name or IP address of the NTP server
NTP Frequency	Enter the frequency (in minutes) for the ENVIROMUX to query the NTP server (minimum is 5 minutes)
E-mail Time Stamp	Change to "Enabled" to allow the ENVIROMUX to automatically apply a time stamp to e-mail messages sent to users
SMS Time Stamp	Change to "Enabled" to allow the ENVIROMUX to automatically apply a time stamp to SMS messages sent to users

Press <Tab> to highlight **Save** and press <Enter> to save before pressing <Esc> to exit.

Restore Default Settings

Select this option to restore the ENVIROMUX to the configuration settings it had upon receipt from the factory.   **Be careful!** This will erase all user configuration settings.   Upon restoration, the ENVIROMUX will reboot. Allow 1 minute before trying to reconnect and log in again.

Note: You can also restore settings to defaults from the "Restore Defaults" button on the front of the ENVIROMUX.
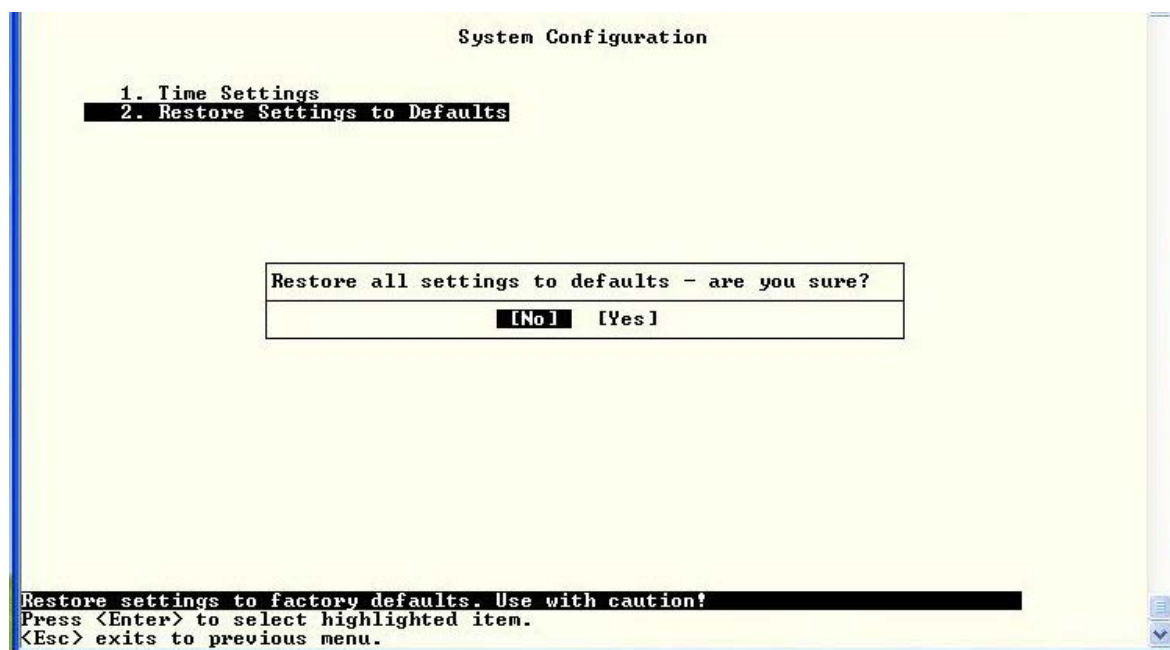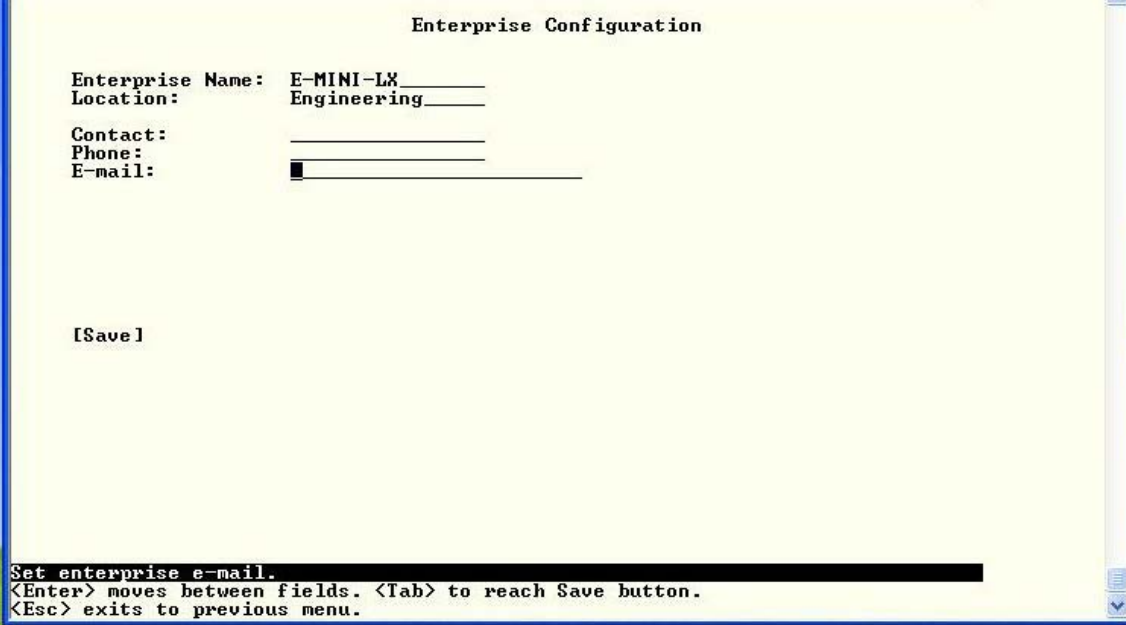

Figure 38- Text Menu-Restore Default Settings

Note: If "Restore Defaults" is used, the IP address will also be restored to its default address (192.168.1.21) with a login name "root" and password "nti".   To restore the root password to "nti" without having to restore all default settings, contact NTI for assistance.

To identify the IP address of the ENVIROMUX without restoring defaults, use the Device Discovery Tool (see main manual for "Device Discovery Tool"- pg 21).

Enterprise Configuration

Under Enterprise Configuration (from the Main Menu), enter the unit name, location, the contact person emails should refer to and their phone number, and the email address of the ENVIROMUX to be used for outgoing alert messages.
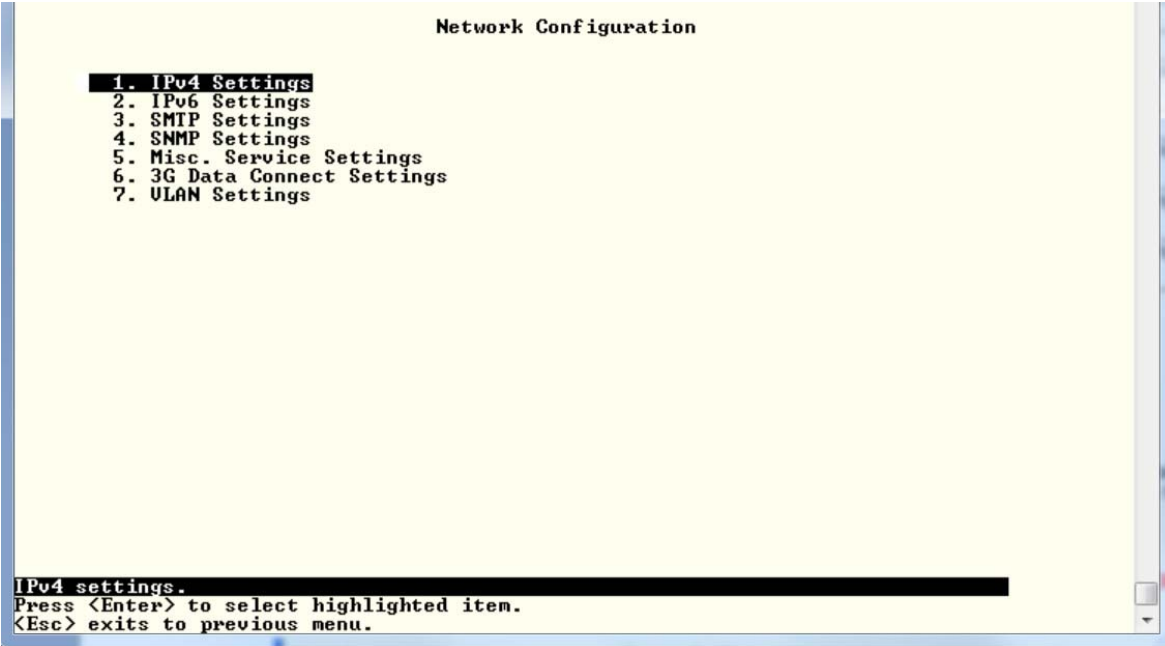

Figure 39- Text Menu-Enterprise Configuration

Network Configuration

The Network Configuration menu (from the Main Menu) includes submenus for applying IPv4 and IPv6 Settings, SMTP server settings, SNMP settings, miscellaneous settings to enable services for SSH, Telnet, HTTP, HTTPS and Web Timeout, 3G data and VLAN connection settings.

Figure 40- Text Menu-Network Configuration

IPv4 Settings

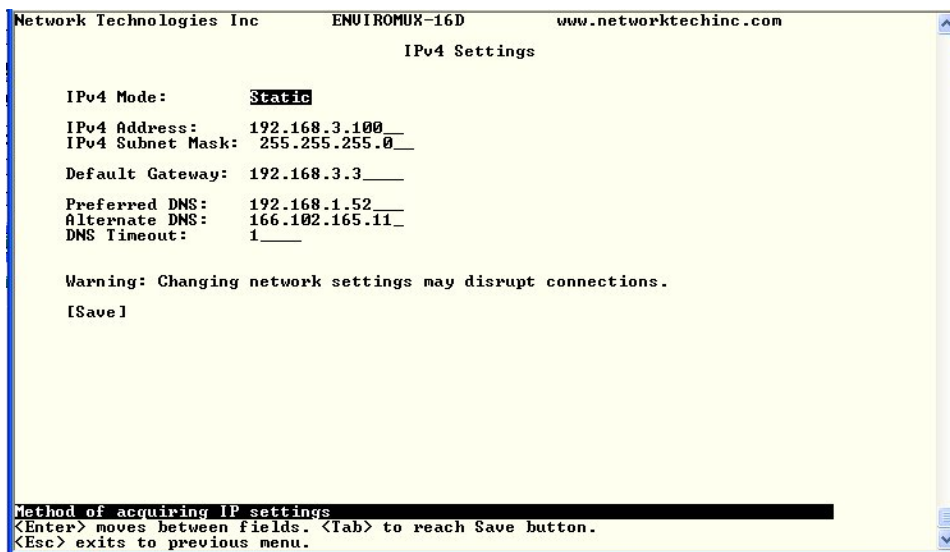The IP Settings menu contains the network connection settings for the ENVIROMUX.

Figure 41- Text Menu-IPv4 Settings Menu

IP Settings	Description
IPv4 Mode	Select between Static (manual) , or DHCP (automatic IP and DNS) settings
IPv4 Address	Enter a valid IPv4 address (default value is 192.168.1.21)
IPv4 Subnet Mask	Enter a valid subnet mask (default value is 255.255.255.0)
Default Gateway	Enter a valid gateway (default gateway value is 192.168.1.1)
Preferred DNS	Enter a preferred domain name server address
Alternate DNS	Enter an alternate domain name server address
DNS Timeout	Enter a value from 1-30 (seconds) to query a DNS server before timing out

If the administrator chooses to have the DNS and IP address information filled in automatically via DHCP,   the SMTP server and port number still need to be entered for email alerts to work. If the SMTP server requires a password in order for users to send emails, the network administrator must first assign a user name and password to the ENVIROMUX.

Press <**Tab**> to highlight **Save** and press <**Enter**> to save before pressing <**Esc**> to exit.
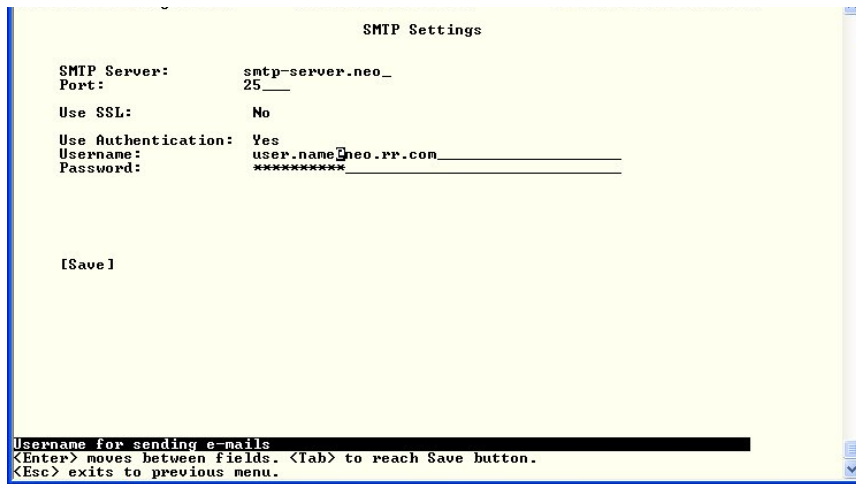
IPv6 Settings
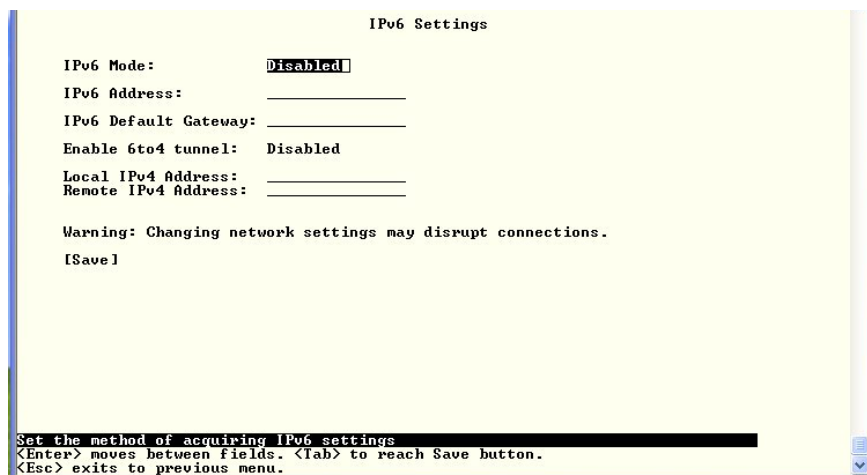
If IPv6 protocol will be used, change the mode to "Enabled" and apply valid in addresses for the IPv6 address and gateway. To use a 6to4 tunnel, change "Disabled" to "Enabled" and apply valid local and remote addresses.

Figure 42- Text Menu-IPv6 Settings Menu

SMTP Settings

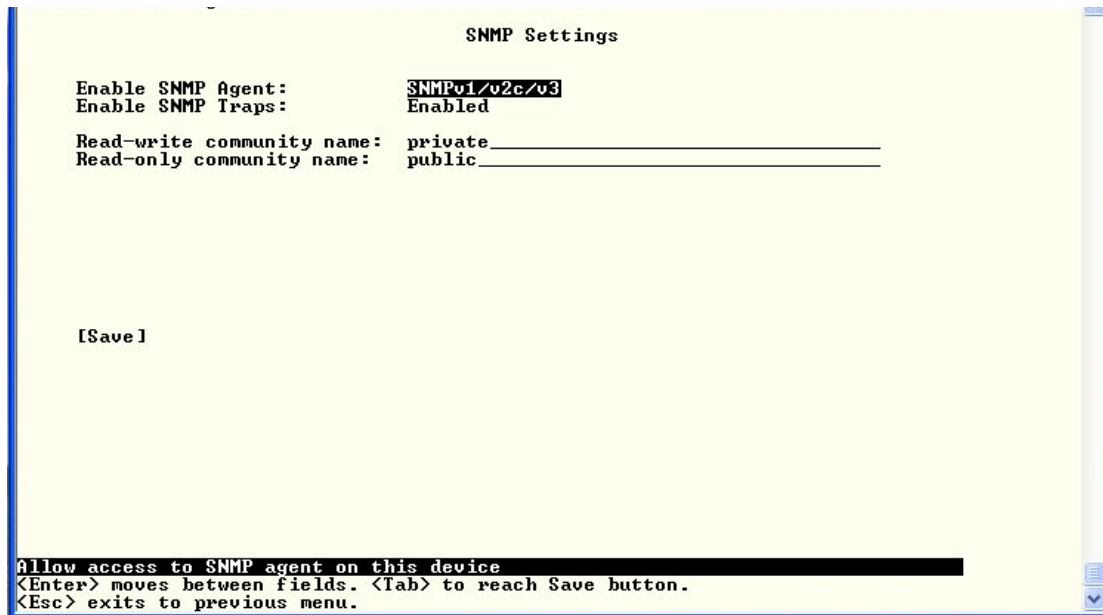The SMTP Settings menu contains the SMTP server settings for the ENVIROMUX.

Note: The SMTP server port number is shown in Figure 43 as "25". This is a common port number assigned, but not necessarily the port number assigned to your SMTP server. For SMTP servers that support SSL, the common port number is 465.

Figure 43- Text Menu-SMTP Server Settings

SMTP Settings	Description
SMTP Server	Enter a valid SMTP server name (e.g. yourcompany.com)
Port	Enter a valid port number (default port is 25)
Use SSL	Change to "Yes" if the SMTP server supports SSL
Use Authentication	Change to "Yes" if the SMTP server requires authentication to send email
Username	Enter a valid username to be used by the ENVIROMUX to send emails
Password	Enter a valid password assigned to the ENVIROMUX username

SNMP Settings

The SNMP Settings menu contains the SNMP server settings for the ENVIROMUX.

Figure 44- Text Menu-SNMP Server Settings

SNMP Settings	
Enable SNMP agent	Choose between v1/v2c, v3 , and v1/v2c/v3 SNMP agent version settings
Enable SNMP traps	Change to "Enabled" to enable SNMP traps to be sent
Read-write community name	Enter applicable name (commonly used- "private") **(not used as of this printing)**
Read-only community name	Enter applicable name (commonly used- "public")

Read-Only Community Name

The SNMP Read-only community name enables a user to retrieve "read-only" information from the ENVIROMUX using the SNMP browser and MIB file.   This name must be present in the ENVIROMUX and in the proper field in the SNMP browser.

Read-Write Community Name

(This field is not used by the ENVIROMUX as of this printing)

The SNMP Read-Write community name enables a user to read information from the ENVIROMUX and to modify settings on the ENVIROMUX using the SNMP browser and MIB file. This name must be present in the ENVIROMUX and in the proper field in the SNMP browser.

Miscellaneous Service Settings

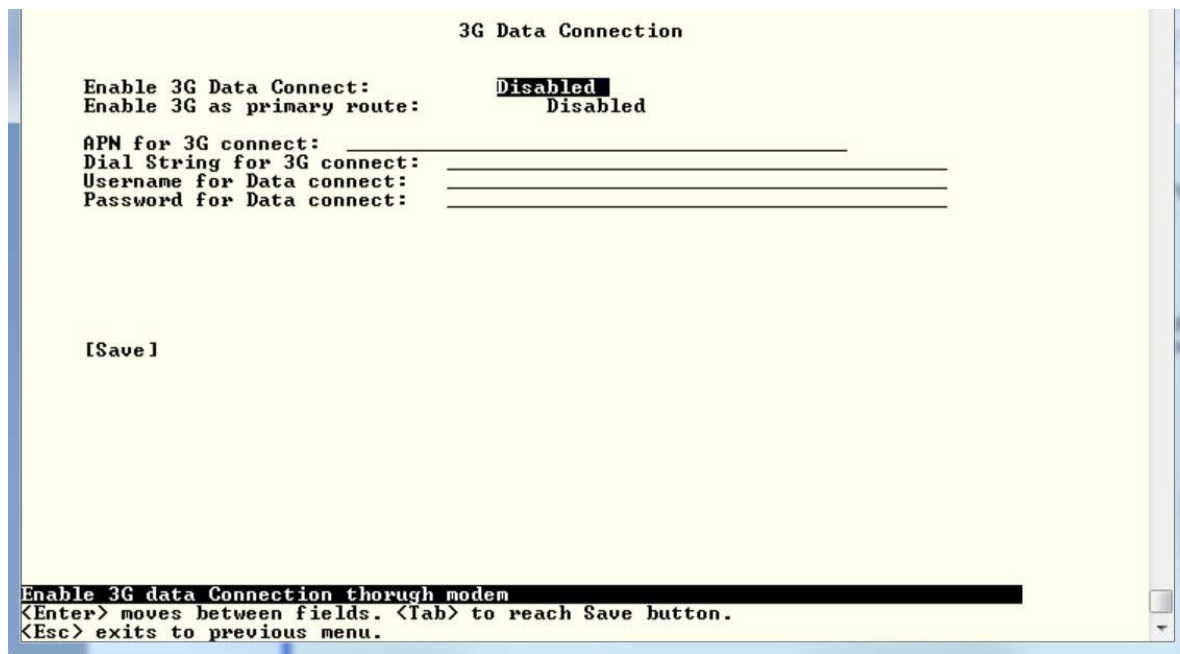The Misc. Service Settings menu contains selections to configure services running on the ENVIROMUX.

Figure 45- Text Menu-Misc. Service Settings menu

Service Settings	
Enable SSH	Enable this to allow access to the ENVIROMUX via SSH
Enable Telnet	Enable this to allow access to the ENVIROMUX via Telnet **The default setting is Disabled.**
Enable HTTP access	Enable this to allow access to the ENVIROMUX via standard (non-secure) HTTP requests
HTTP Port	Port to be used for standard HTTP requests
HTTPS Port	Port to be used for HTTPS requests
Web Timeout	Number of minutes after which idle web uses will be logged-out (enter 0 to disable this feature)

The administrator may assign a different HTTP Server Port than is used by most servers (80).

3G Data Connect Settings

The 3G Data Connect Settings are used to enable the 3G data features of your SIM card if you have installed a USB modem with SIM card that has these features.

Figure 46- Text Menu-3G Data Connect Settings

3G Data Connection	
Enable 3G Data	Enable if you want the option to have the ENVIROMUX send alert messages through the USB modem and the option to access the web interface using the IP address assigned to the SIM card account. The default is disabled. *NOTE: In order to access the web interface through the modem, the SIM card must have a "public" IP address*
Enable 3G as primary route	Enable if you want all messages that are sent by the ENVIROMUX to go through the modem connection instead of the Ethernet. The default is disabled. *Note: If this feature is enabled, and then later disabled, the ENVIROMUX must be rebooted to reset outgoing messaging parameters.*
APN	Enter the APN address of the service provider (provided by the service provider)
Dial String	Enter the dial string required for data connection(provided by the service provider)
Username	Enter the username supplied by service provider for access to connection. Leave blank if no username is required.
Password	Enter the password supplied by service provider for access to connection. Leave blank if no password is required.

To access the web interface through your USB modem, your SIM card must be configured to support 3G data connections and have a "**public**" IP address.   The ENVIROMUX can be configured (above) to send all alert messaging through the USB modem instead of requiring an Ethernet connection for these messages. With a public IP address, you will also be able to access the web interface using the IP address of the SIM card for full control of the ENVIROMUX through the modem.   With only a "private" IP address, you will still be able to have the ENVIROMUX send email messages, but no web interface access will be possible.

Make sure the account associated with the SIM card also has SMS messaging enabled if this feature will be used.

Contact your service provider to obtain a SIM card with the features you desire.

VLAN Settings

You can enable or disable 802.1Q VLAN support, and if it is enabled you can enter an VLAN ID. Enter a number between 0-4095 for your VLAN ID.
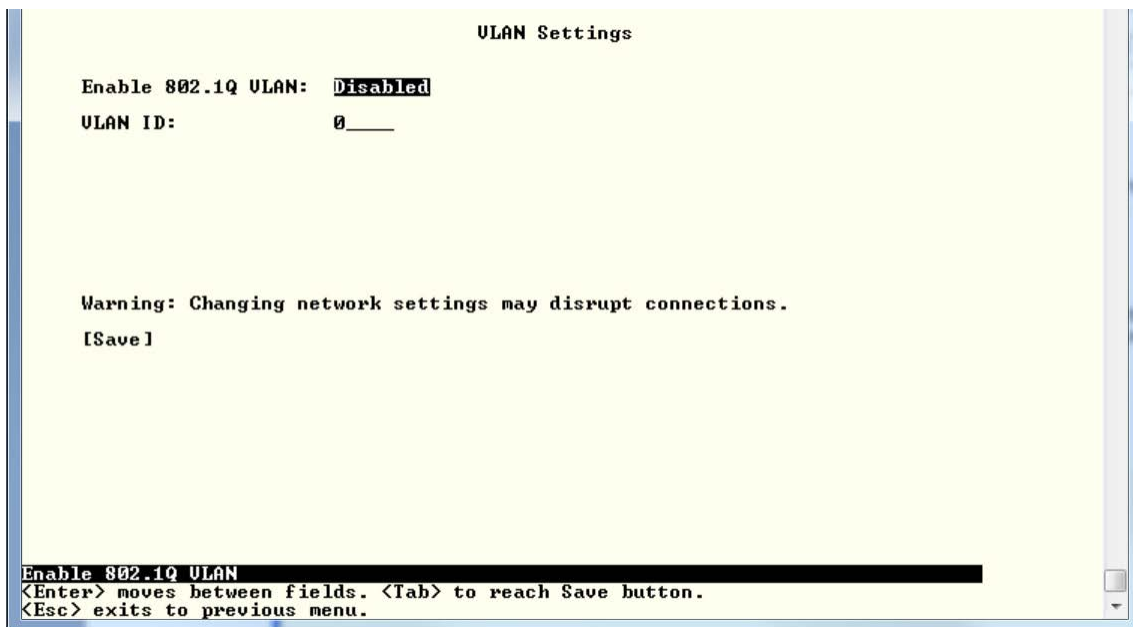

Figure 47- Text Menu-VLAN Settings

User Configuration

The User Configuration menu lists all configured user names of the ENVIROMUX. A maximum of 15 users (other than root) can be configured.   From this screen the administrative user can add users, go to the user configuration page to edit a user's access to the ENVIROMUX, or delete a user from the list.
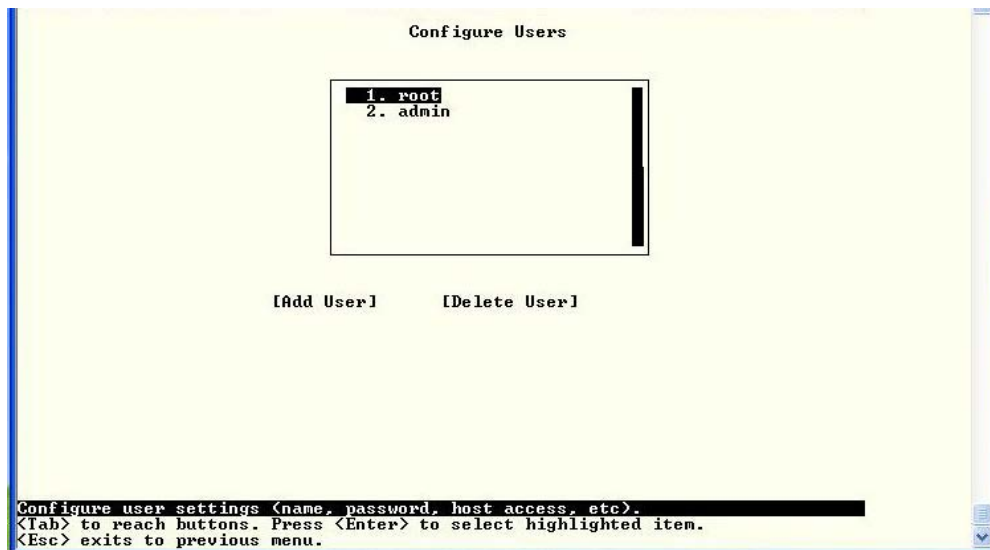

Figure 48- Text Menu-User Configuration

To add a user, Tab to "Add User" and press <**Enter**>.

To edit a user's configuration, select the listed username and press <**Enter**>

To delete a user and their configuration, select a listed username, Tab to "Delete User", and press <**Enter**>.   You will be prompted for confirmation before deleting the user and configuration.

When adding a new user, you will be prompted to confirm the addition of the user.   At that point, the Configure User menu will open a user settings list with the username "user*x"* assigned,   where x = the next consecutive number (up to 15) based on the quantity of users in the list (other than the root user).
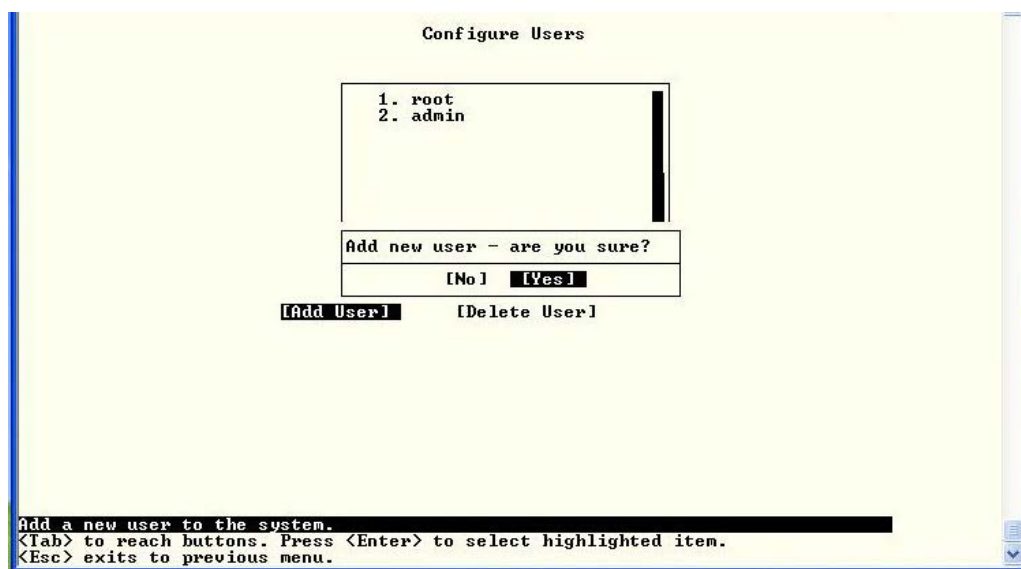

Figure 49- Text Menu-Confirm to add new user

Figure 50- Text Menu-Configuration List for User

User Account Settings

Select "Account Settings" from the list and press <**Enter**>. A menu with the account settings for that specific user will open where you can either leave the name as "userx", or change it.   With the name assigned, fill in the remaining information as needed.

Figure 51- Text Menu-User Account Settings

Account Settings	Description
Username	Enter the desired username for this user
Password	Enter a password that a user must use to login to the system **A password must be assigned for the user's login to be valid** **Passwords must be at least 1 keyboard character.**
Confirm	Re-enter a password that a user must use to login to the system

Account Settings	Description
Enabled	Change to "Yes" to enable this user to access the ENVIROMUX
Admin	Change to "Yes" if this user should have administrative privileges
Title	Enter information as applicable (optional)
Company	Enter information as applicable (optional)
Department	Enter information as applicable (optional)
LDAP CN	"Common Name" assigned in the LDAP server account in an Active Directory. Often a name assigned that is different than the Username. If this is the same as the Username (above), this can be left blank.
LDAP OU	Enter the Organizational Unit the user belongs to in an Active Directory Format is <ou,ou,etc>

More about User Privileges

The root user (or any user with administrator rights) can change the root password and configure how the root user will receive alert messages.   Users with administrative rights can change all configuration settings except for the root user name.

User Contact Settings

Select "Contact Settings" from the list and press <Enter>. A menu with the contact settings for that specific user will open.
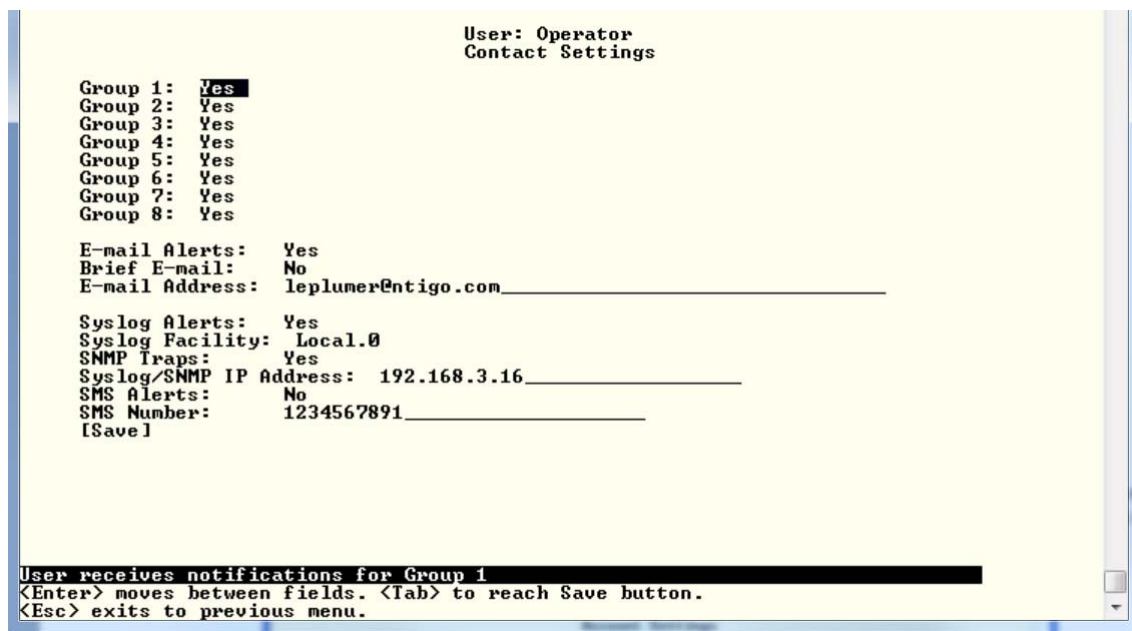

Figure 52- Text Menu-User Contact Settings

Contact Settings	
Group 1-8	Change to "Yes" if the user should receive messages from sensors, IP devices and accessories in Groups 1-8
Email Alerts	Change to "Yes" if the user should receive messages via email
Brief Email	Change to "Yes" if the user should receive messages with limited content via email
Email address	Enter a valid email address if the user should receive email alert messages
Syslog alerts	Change to "Yes" if the user should receive alerts via syslog messages
Syslog Facility	Select a Syslog Facility for the messages to be sent to- Local0 thru Local7 (default is Local0).
SNMP traps	Change to "Yes" if the user should receive alerts via SNMP traps
Syslog/SNMP IP address	Enter a valid syslog/SNMP IP address for the user to receive syslog/SNMP messages
SMS Alerts	Change to "Yes" if the user should receive alerts via SMS messages
SMS Number	Enter a valid phone number for the user to receive SMS messages

Press <Tab> to highlight **Save** and press <Enter> to save before pressing <Esc> to exit.

User Activity Schedule

Select "Schedule" from the list and press **<Enter>**. A menu with the user activity settings for that specific user will open.

Figure 53- Text Menu-User Activity Schedule

Schedule Settings	
Schedule Type	**Always active**- user will receive messages at all hours of each day
	Active during defined times- user will only receive alert messages during times as outlined below
Day of Week-From:	First day of the week the user should begin receiving messages
Day of Week-To:	Last day of the week the user should receive messages
Hour From:	First hour of the day the user should begin receiving messages
Hour To:	Last hour of the day the user should receive messages

User SNMP Settings

Figure 54-Text Menu- SNMP User Settings

Security settings can be configured within each user configuration if the SNMP protocol has been selected for use (page 39).

Settings	
Authentication Protocol	Choose between MD5 or SHA to require authentication, or none to disable it. This only needs to be changed from "none" if SNMPv3 is used.
Privacy Protocol	Choose between DES or AES to encrypt SNMP readings or traps or none to disable encryption. If encryption is enabled, then the Authentication Protocol must also be set at "MD5" or "SHA".
Authentication Passphrase	Assign the passphrase to be used to enable the receipt of SNMP messages. This only needs to be changed from "none" if SNMPv3 is used.
Privacy Passphrase	Assign the passphrase to be used to open and read readings or alert messages received via SNMPv3
Traps Type	Choose which format traps should be received in, SNMP v1, v2c, or v3

After changing any settings in the user profile, press "Apply".

Security Configuration

The Security Configuration menu provides two submenus for setting local versus LDAP authentication methods and for applying IP filtering rules to prevent unwanted access to the ENVIROMUX.

Figure 55- Text Menu-Security Configuration

Authentication Settings

Security in the ENVIROMUX can be managed one of two ways; through the local settings (passwords assigned in user settings on page 43) or through an LDAP server.   If security is configured to use LDAP mode, then the passwords for users must be those found on a configured LDAP server.

Select "Authentication Settings" from the list and press `<Enter>`. A menu providing an option to either user Local authentication or LDAP mode. When in LDAP mode, usernames on the LDAP server must match those in the user settings of the ENVIROMUX or access will be denied.

Note: When the root user logs with the ENVIROMUX in LDAP mode, if the LDAP server is not responding, local authentication will be tried.

Figure 56- Text Menu-Authentication Settings

User Authentication	
Mode	Select Local to use authentication based on passwords in the ENVIROMUX user configuration
	Select LDAP to use authentication based on passwords in an LDAP server
Primary LDAP Server	Enter Hostname or IP address of Primary LDAP Server
Secondary LDAP Server	Enter Hostname or IP address of Secondary LDAP Server (optional)
LDAP Server Type	Tab to choose from the following:
	Generic LDAP server
	Novell Directory server
	Microsoft Active Directory
LDAP Service Base DN	Enter the Base DN for users (ex: ou=People,dc=mycompany,dc=com)

Even though LDAP authentication is being used, each user must also have a local account. User permission level is established by the local account.

Press `<Tab>` to highlight **Save** and press `<Enter>` to save before pressing `<Esc>` to exit.

IP Filtering

Included in the Security Configuration options is IP Filtering.   IP Filtering provides an additional mechanism for securing the ENVIROMUX. Access to the ENVIROMUX network services (SNMP, HTTP(S), SSH, Telnet) can be controlled by allowing or disallowing connections from various IP addresses, subnets, or networks.

Up to 16 IP Filtering rules can be defined to protect the ENVIROMUX from unwanted access from intruders. Each rule can be set as Enabled or Disabled. Rules can be set to explicitly drop attempts to connect, or to accept them.
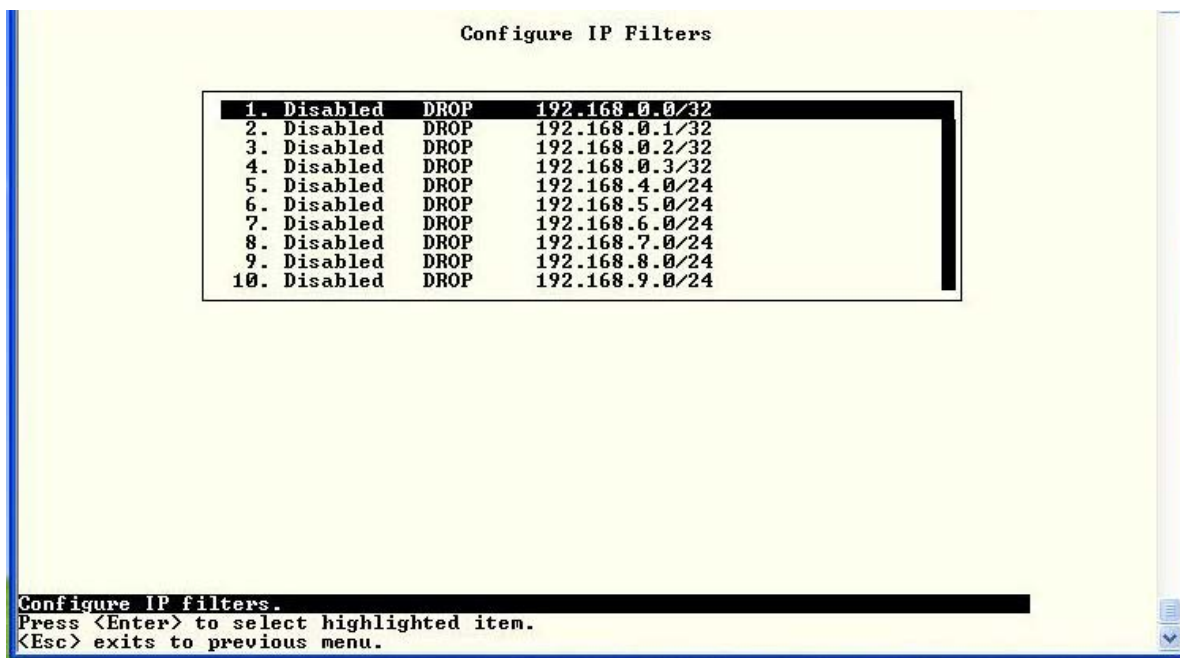
Figure 57- Text Menu-IP Filtering

To configure an IP Filter, select an IP Filter rule from the list and press **<Enter>**.
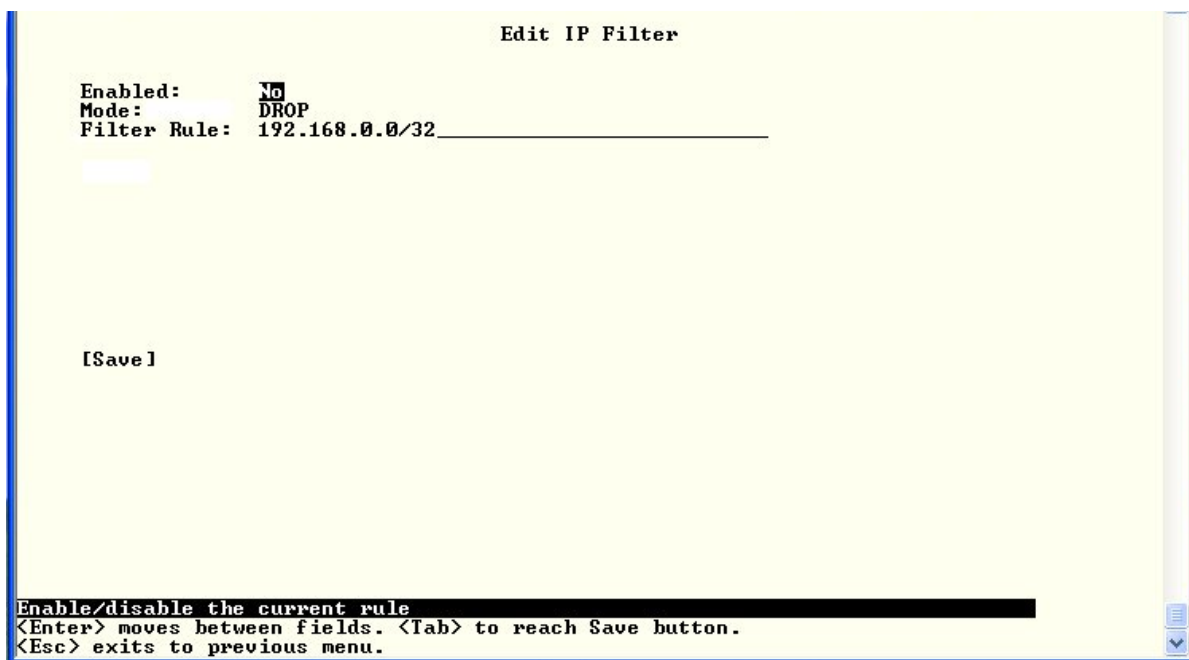
Figure 58- Text Menu-Configure IP Filter rule

The most common approach is to only allow "white-listed" IP addresses, subnets, or networks to access the device while blocking all others. The IP Filters are processed sequentially from top to bottom, so it is important to place the most precise rules at the top of the list and the most generic rules at the bottom of the list.

As an example, assume we wish to block all connections except those which come from the IP address 192.168.1.100. To allow connections from 192.168.1.100, we need to configure and enable an ACCEPT rule at the top of the list:

(Rule 1)

```
Enabled: Yes
Rule type: ACCEPT
IP/mask:   192.168.1.100
```

Then, to block all other IP addresses from connecting to the ENVIROMUX, we add a rule to drop all other connections.

(Rule 16)

```
Enabled: Yes
Rule type: DROP
IP/mask:   0.0.0.0/0
```

If the preceding "drop all connections" rule was placed in position one, no connections at all would be allowed to the unit. Remember: rules are processed from top to bottom. As soon as a rule matches, the processing stops and the matching rule is executed.

To match a particular IP address, simply enter in the desired IP address (e.g. 192.168.1.100).

To match a subnet, enter in the subnet with the associated mask (e.g. 192.168.1.0/24).

To match all IP address, specify a mask of 0 (e.g. 0.0.0.0/0).

Press <**Tab**> to highlight **Save** and press <**Enter**> to save before pressing <**Esc**> to exit.

Event and Data Logs

Under the Event and Data Logs menu find 4 submenus for viewing a log record of the events monitored by the ENVIROMUX and configuring how the ENVIROMUX will handle reaching the capacity of those logs.
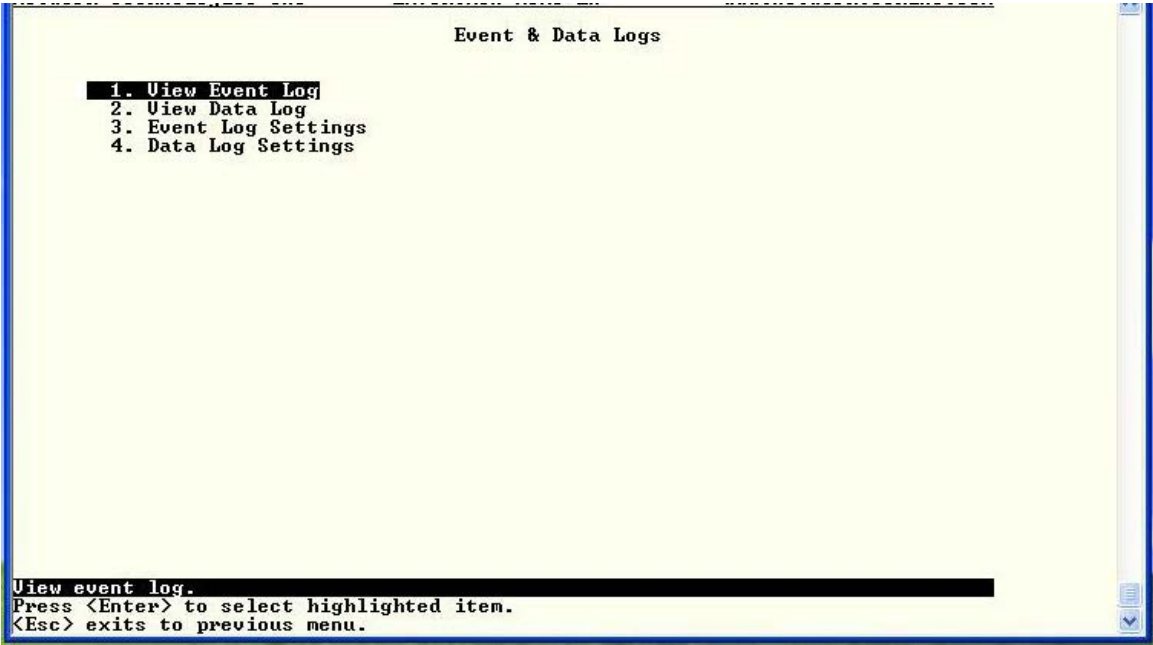

Figure 59- Text Menu-Event & Data Logs

View Event Log

The Event Log provides the administrative user with a listing of many events that occur within the ENVIROMUX.   The event log will record the date and time of:

- each ENVIROMUX startup,
- each user login and logout time,
- any time an unknown user tries to login,
- sensor and IP device alerts
- an alert handled by a user
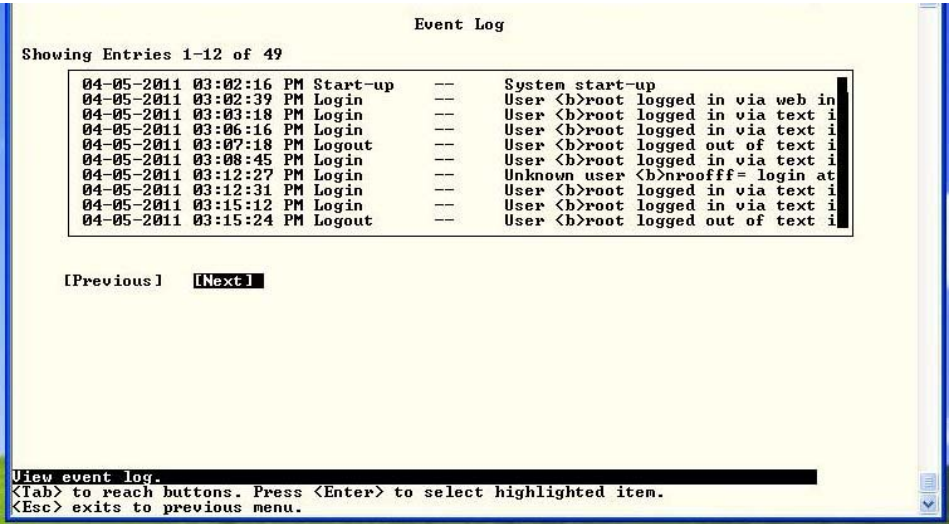
Figure 60- Text Menu-View Event Log

From the Event Log the administrative user can view the logs.   In order to clear specific logs, download log entries, or clear the entire log, use the Web Interface (see main manual, section "LOG" -page 70). To navigate between pages of logs, pres **<Tab>** to move between **Previous** and **Next** and press **<Enter>**.

View Data Log

The Data Log provides the administrative user with a listing of all the readings taken by the ENVIROMUX pertaining to the sensors and IP Devices being monitored. The data log will record the date and time of each reading.
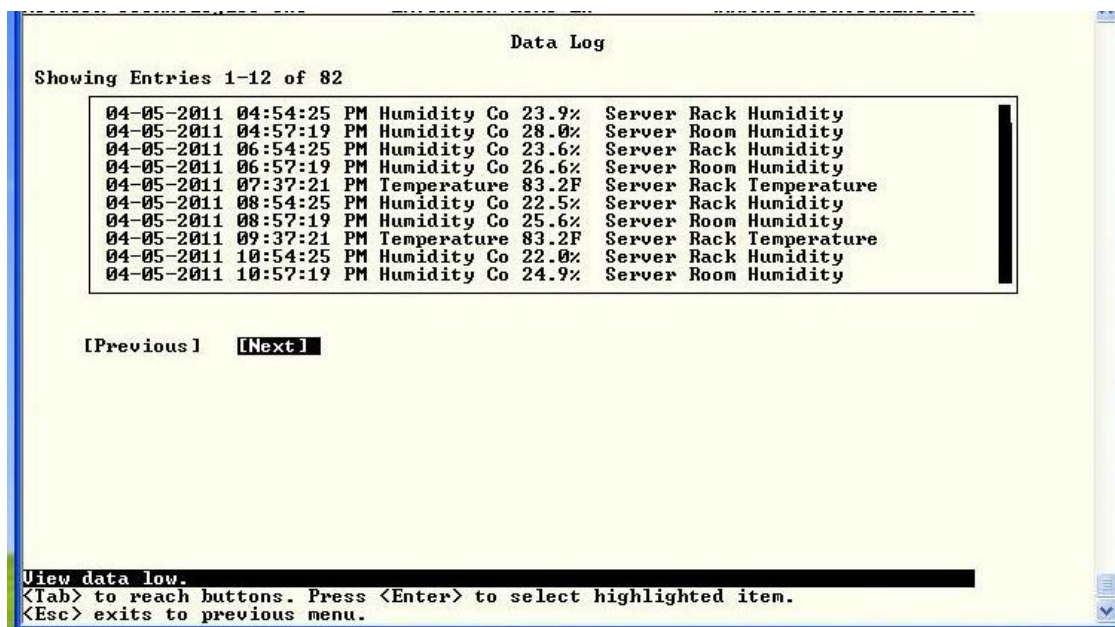

Figure 61- Text Menu-View Data Log

From the Data Log the administrative user can view the logs.   In order to clear specific logs, download log entries, or clear the entire log, use the Web Interface (see main manual, section "LOG" -page 70). To navigate between pages of logs, pres <**Tab**> to move between **Previous** and **Next** and press <**Enter**>.

Log Settings Menus

The Log Settings menus (Figure 62 and Figure 63) provide settings for how the ENVIROMUX will react when its Data and Event logs reach capacity.

The Event Log settings include a logging level that can be configured to log different amounts of information:

- Error : shows only system errors (like sending email failures or SMS)
- Alerts: shows recorded system errors and alert messages
- Info: In addition to all of the above, the log will show less relevant information: user login/logout for example

Each log can be assigned to a group and any user that receives messages from that group can be notified when capacity is being reached.

As a capacity overflow action the log can be set to either :

- Discontinue- stop logging information
- Clear and restart- delete all log entries and restart with new entries
- Wrap- continue logging but delete the oldest entries and new ones are recorded

The Data and/or Event log can be set to send alerts to users via email, syslog, and/or SNMP traps once it has reached 90% of capacity, allowing them time to react.

The Data log can also be set to send log entries via email, syslog, or SNMP traps to users in addition to the entries it records internally.   Enable Remote Logging for email, syslog, or SNMP as desired.

Figure 62- Text Menu-Event Log Settings

Figure 63-Text Menu-Data Log Settings

System Information

The System Information page lists current firmware, time, and network settings for the ENVIROMUX.   It also lists the ENVIROMUX MAC address.
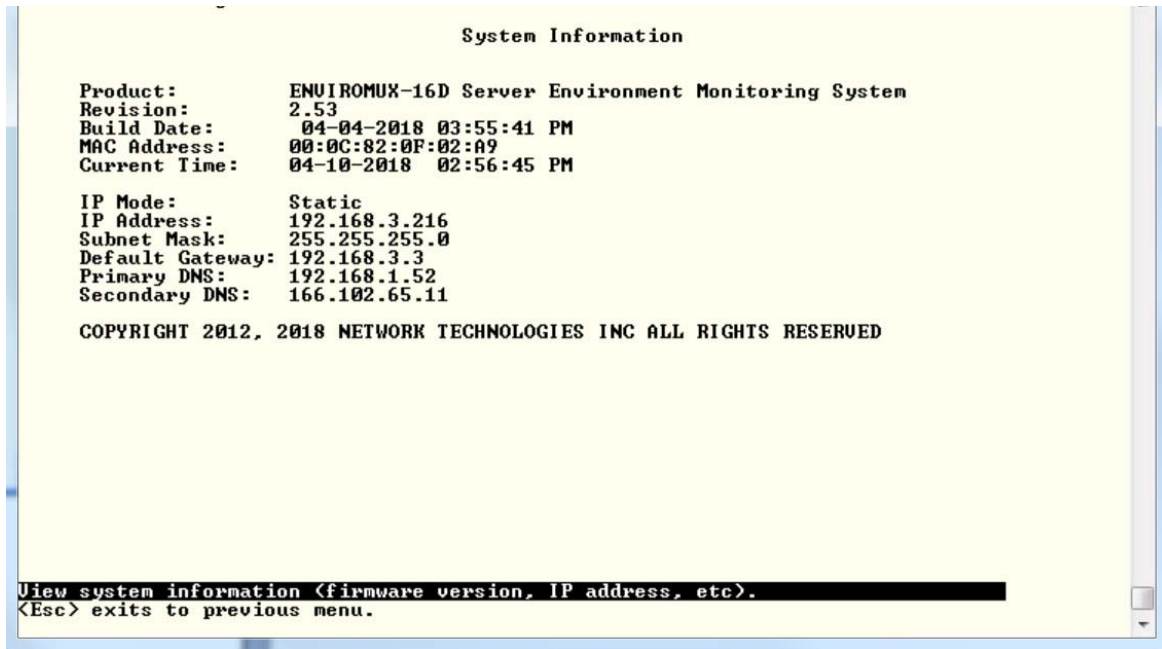

Figure 64-Text Menu-System Information

Reboot

From the Main Menu the administrative user can initiate a reboot of the ENVIROMUX.   By highlighting "Reboot" and pressing **<Enter>** (or **<9>** and **<Enter>**), you will be prompted to confirm that you want to reboot the ENVIROMUX.   Press <Enter> to cancel, or press the **<Tab>** or either **<arrow>** key to highlight "Yes" and **<Enter>** to reboot. The ENVIROMUX will reboot and a new connection must be initiated to reconnect, login, and resume operation.
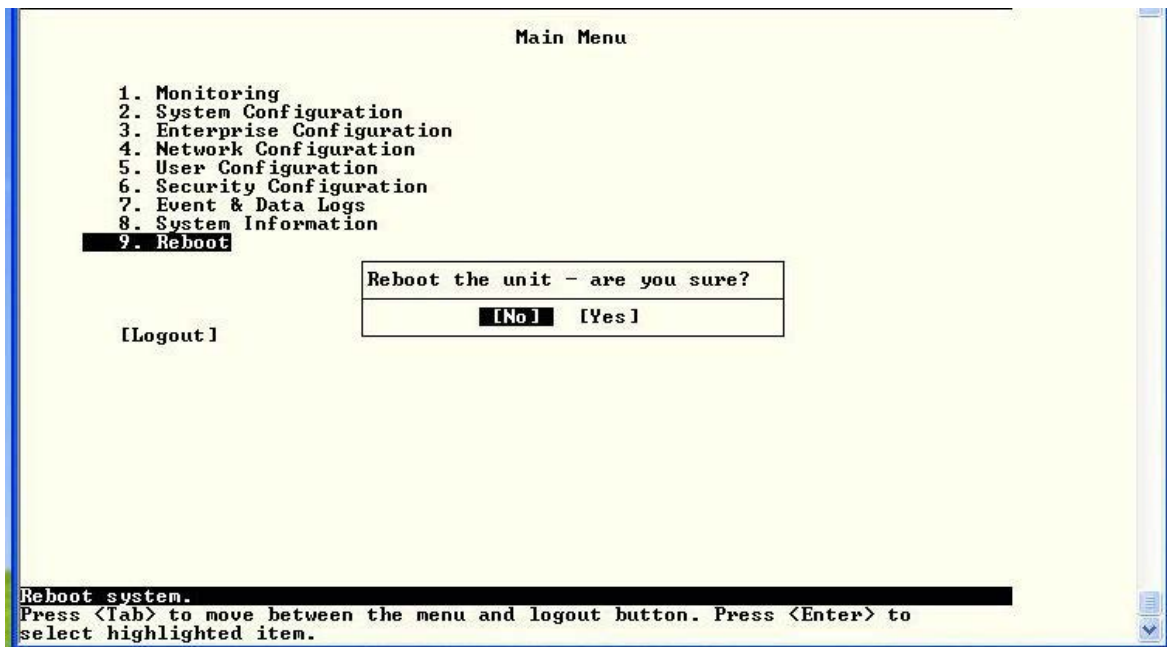
Figure 65- Text Menu-Reboot the ENVIROMUX

Text Menu for Non-Administrative Users

Users without administrative privileges are able to view sensors and IP Devices and edit their own account settings.
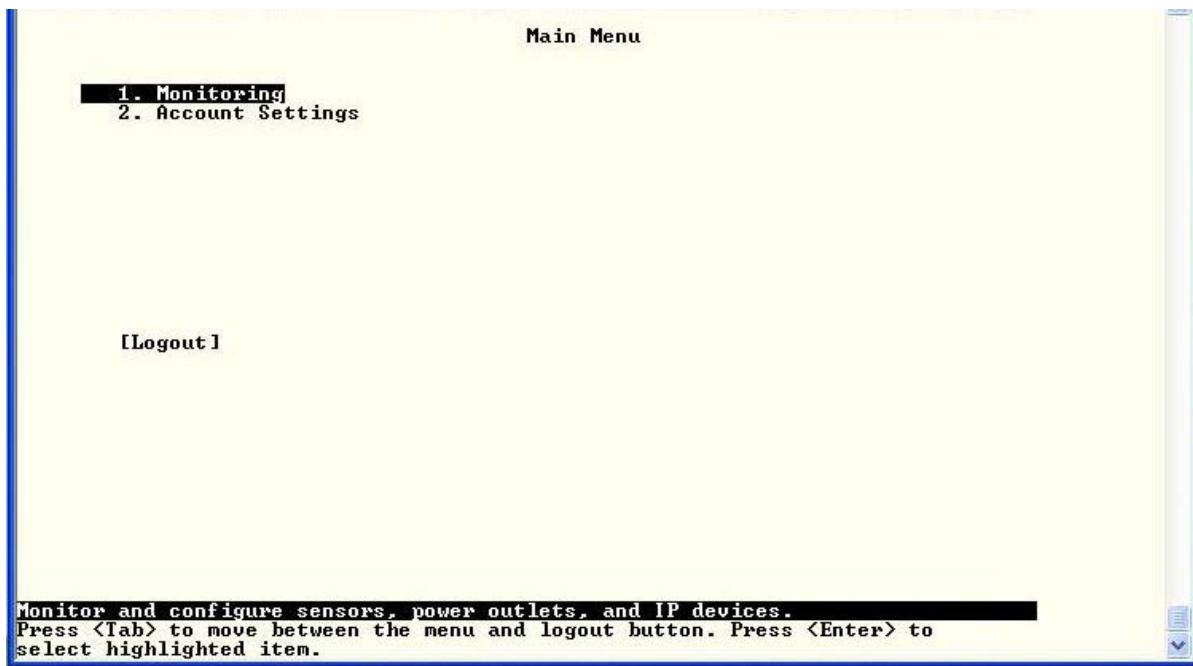

Figure 66- Text Menu-User Main Menu

Monitoring

The Monitoring menu lists 4 options for viewing the status of the items monitored by the ENVIROMUX.
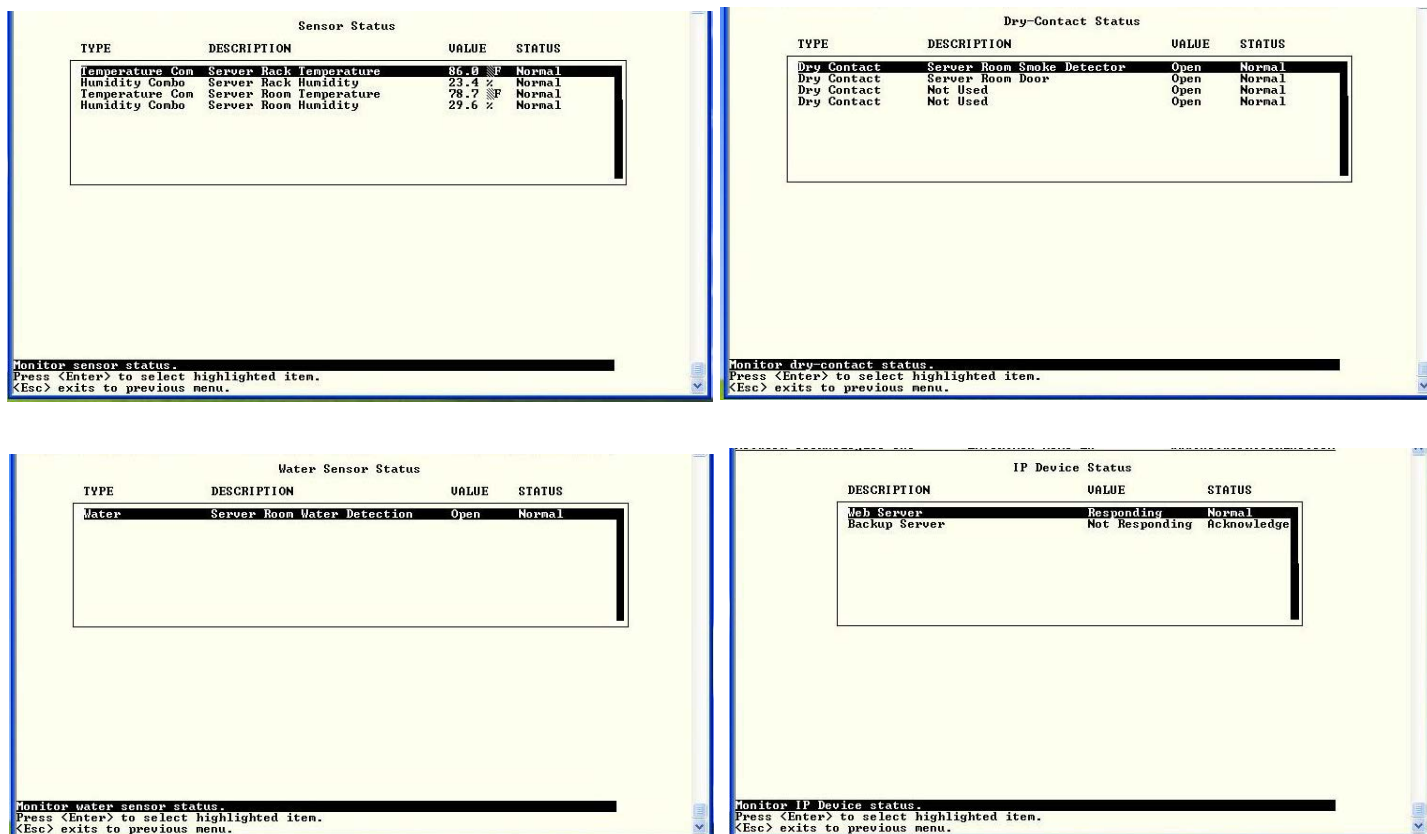

Figure 67-Text Menu-User Monitoring Menu

Figure 68- Text Menu-User accessible status menus

If a monitored item is in alert status, the non-administrative user can enter a response to it.   By pressing the `<Enter>` key with the sensor selected, the user will have the option to either **acknowledge** the alert or **dismiss** it.   If the user acknowledges the alert, no additional alert messages will be sent during that alert status cycle.   If the user dismisses the alert, another alert message will be sent once the "notify again after" time designated on the configuration page (one example on page 25) elapses.

User Accessible Settings

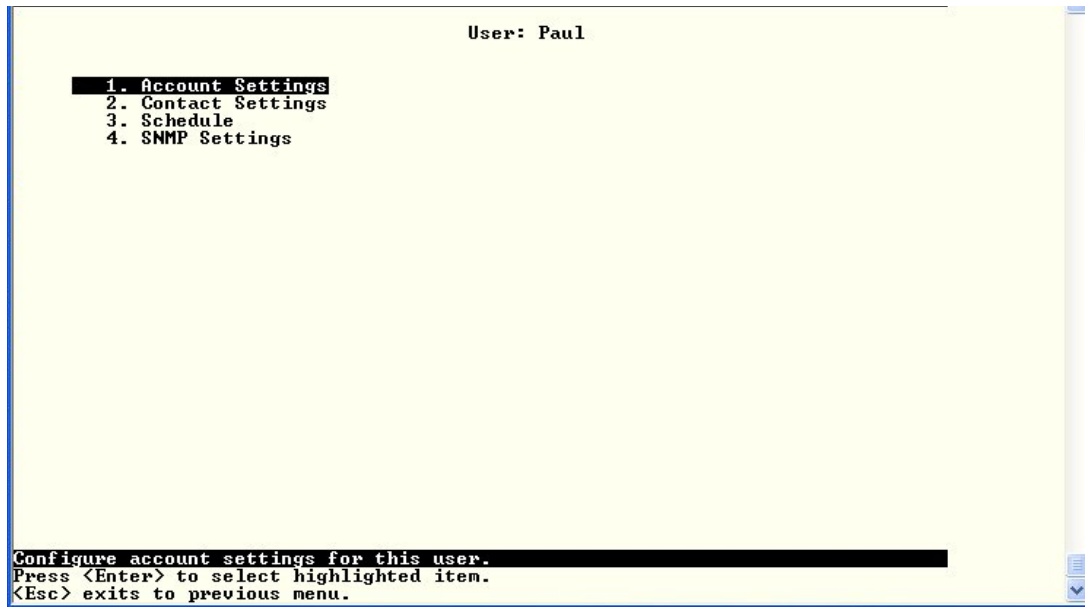The User without administrative privileges has access to setting for their own account.

Figure 69- Text Menu-User Accessible Settings

Account Settings

Under Account Settings, the non-administrative user can edit their password, title, company, or department settings.   Other settings are only accessible to the administrative user.
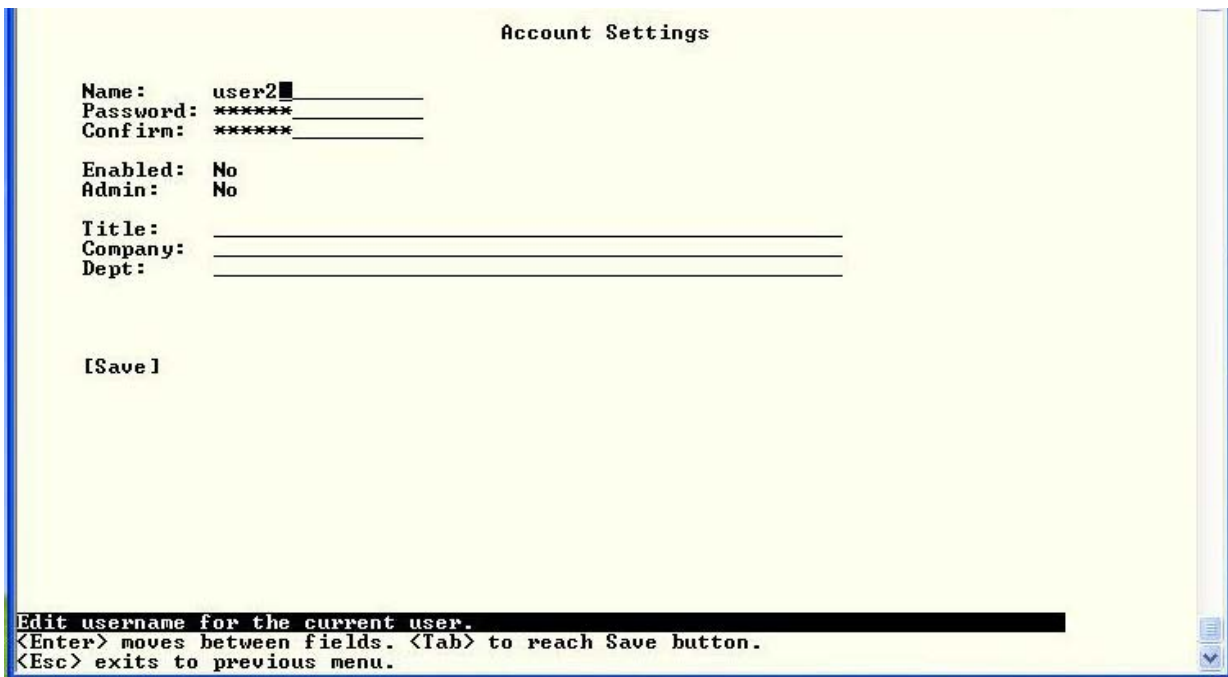

Figure 70- Text Menu-User Account Settings

Contact Settings

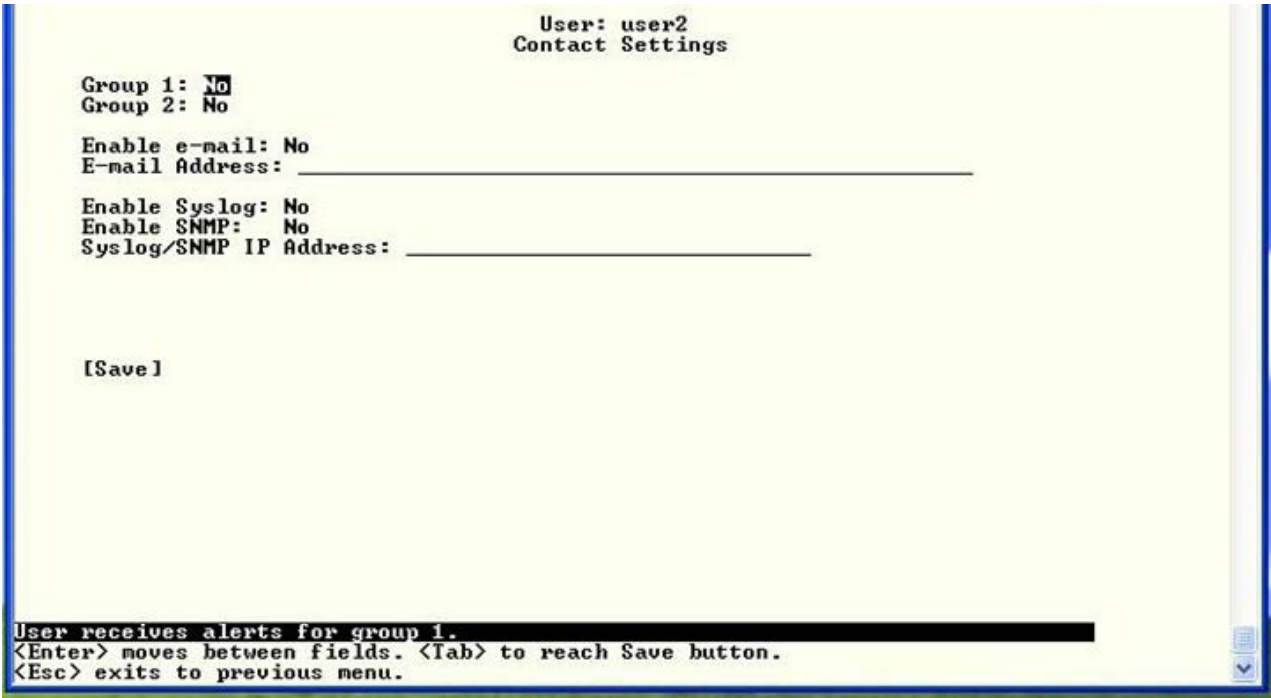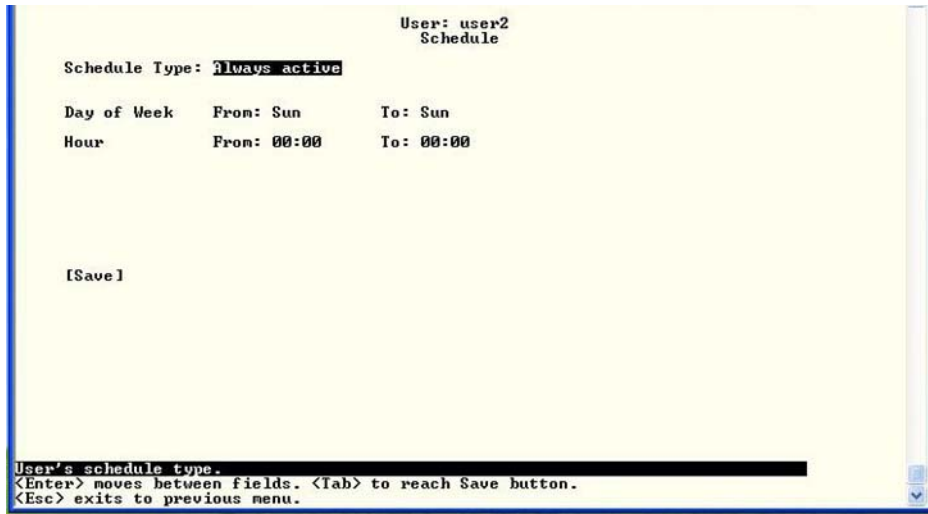Under Contact Settings, the non-administrative user can decide which sensor group messages they will receive and how.

Figure 71- Text Menu-User Contact Settings

Contact Settings	
Group x	Change to "Yes" to receive messages from sensors, IP devices and accessories in any Group that sensors have been assigned to
Enable Email	Change to "Yes" to receive messages via email
Email address	Enter a valid email address to receive email alert messages
Syslog alerts	Change to "Yes" to receive alerts via syslog messages
SNMP traps	Change to "Yes" to receive alerts via SNMP traps
Syslog/SNMP IP address	Enter a valid syslog/SNMP IP address to receive syslog/SNMP messages

Press <Tab> to highlight **Save** and press <Enter> to save before pressing <Esc> to exit.

Schedule

Under Schedule, the non-administrative user can edit their activity schedule to control when messages should be sent to them.
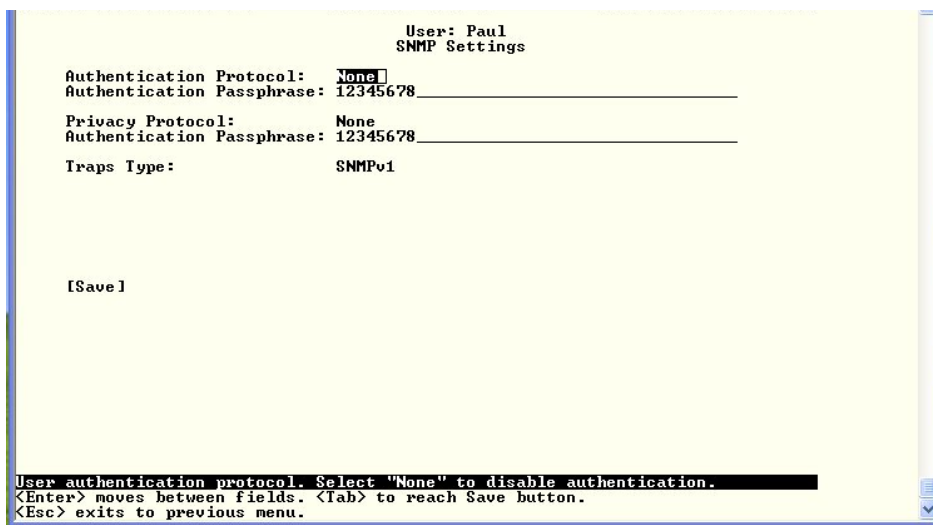
Figure 72- Text Menu-User Activity Schedule

Schedule Settings	
Schedule Type	**Always active**- user will receive messages at all hours of each day
	Active during defined times- user will only receive alert messages during times as outlined below
Day of Week-From:	First day of the week the user should begin receiving messages
Day of Week-To:	Last day of the week the user should receive messages
Hour From:	First hour of the day the user should begin receiving messages
Hour To:	Last hour of the day the user should receive messages

Press <**Tab**> to highlight **Save** and press <**Enter**> to save before pressing <**Esc**> to exit.

SNMP Settings

Under SNMP Settings, the non-administrative user can edit the settings required to receive SNMP messages.

Figure 73- Text Menu-User SNMP Settings