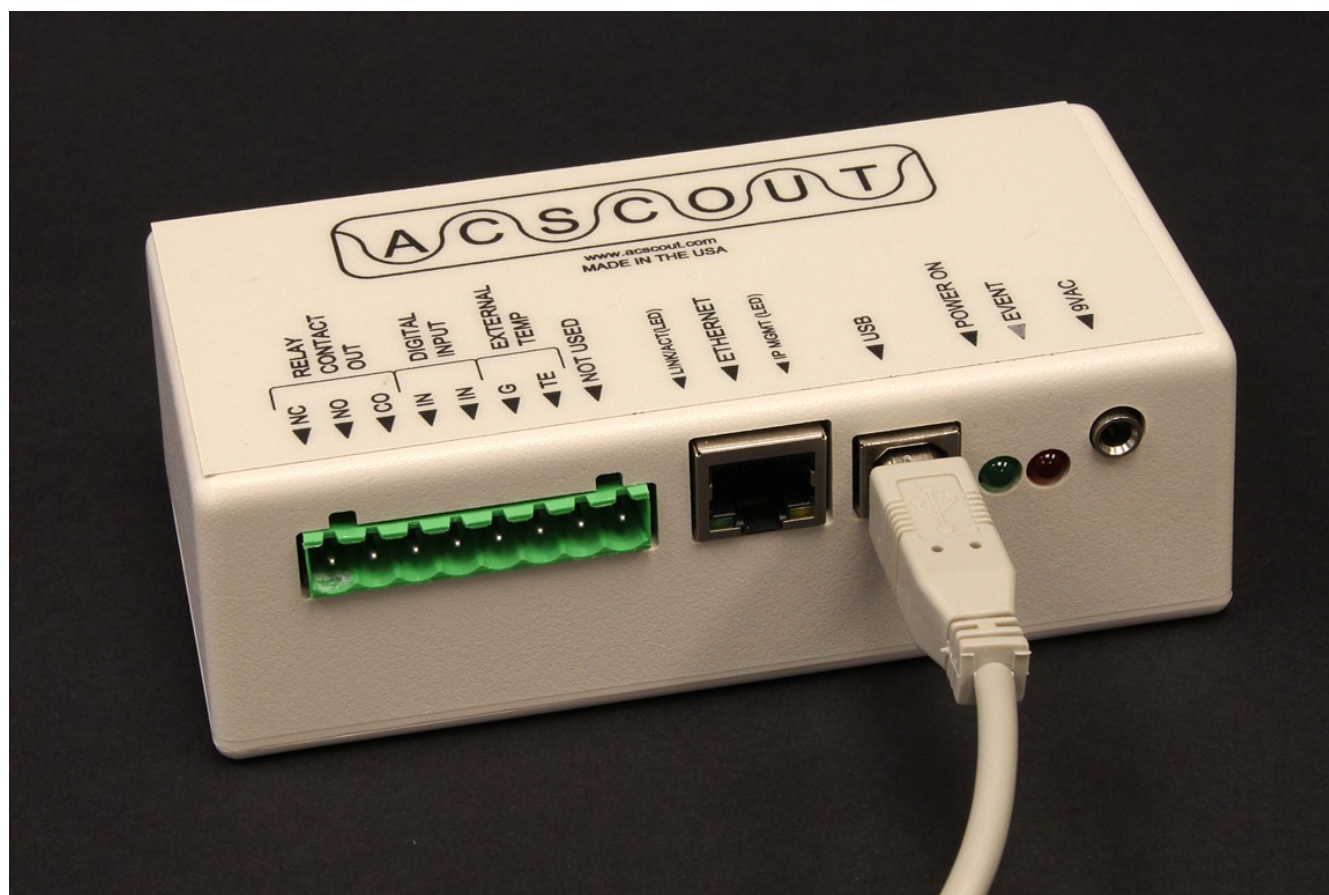


## ACScout-NETBB User's Manual



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# **1 ACScout-NETBB Introduction**

## ***1.1 General Description and Uses***

### **ACScout-NETBB Overview**

The ACScout-NETBB is a highly reliable, easy-to-use AC voltage monitor that plugs into an electrical outlet. It records outages and variations in voltage and frequency. In addition to AC voltage monitoring the ACScout-NETBB can monitor both internal and external temperature. The internal temperature is that generated from inside of the ACScout-NETBB case. The external temperature is sensed with the supplied thermistor assembly.

The ACScout-NETBB is able to report log files to your personal computer through USB or through your network (Ethernet). The ACScout-NETBB has a list of predefined alarms that are reported in a log file. These alarms are the ACScout-NETBB real-time measurements. For example, the Voltage Low alarm is triggered when the AC voltage dips below a specified voltage value. The ACScout-NETBB may also send out email messages, notifying you (in real-time) when these alarms have occurred.

**Note that the ACScout-NETBB can send email messages for 5 minutes when power is lost.**

### **ACScout-NETBB GUI Overview**

The ACScout-NETBB Graphical User Interface (GUI) is included with your purchase and must be installed on a Windows personal computer (Microsoft Windows 2000™, Windows XP/XP Pro™, VISTA™ or Windows 7™). The ACScout-NETBB GUI is used to configure network settings, email settings, download log files, and define sensed alarms.

## ***1.2 ACScout-NETBB Package Contents***

Below is a list of the items that are included with your purchase of the ACScout-NETBB.

1. ACScout-NETBB
2. ACScout Install CD
3. USB cable
4. AC Wall Adapter
5. External Thermistor Assembly (Temperature Monitoring)
6. AA Size Battery

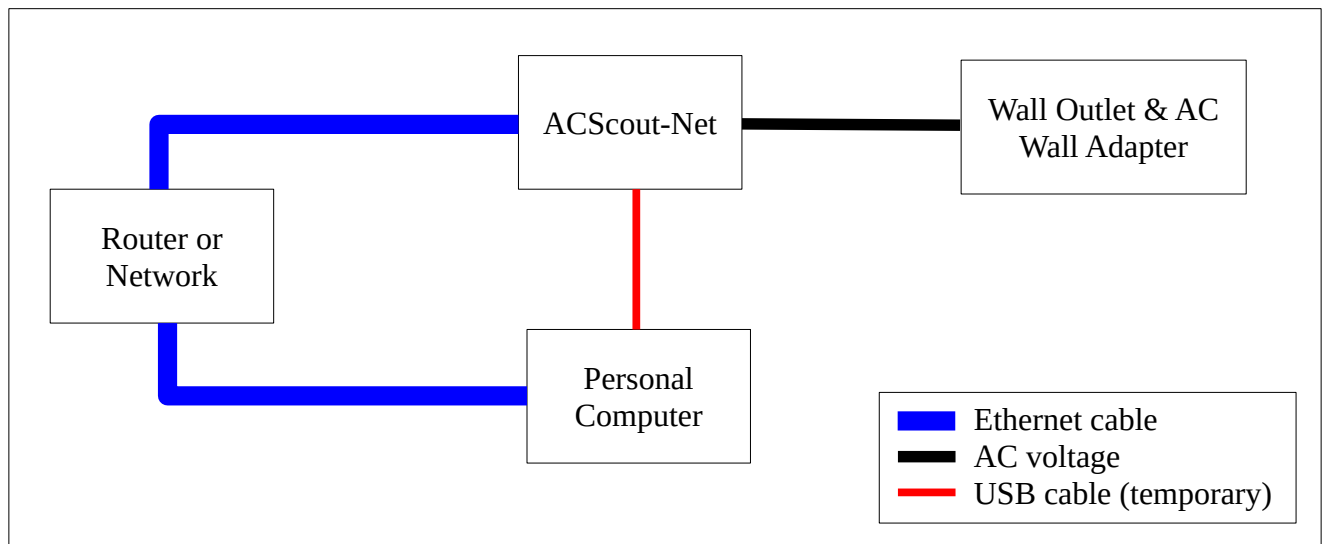
### 1.3 Specifications

Characteristic	Notes	Rating	Units
Physical Dimensions:			
Length		5	inch
Width		2.5	inch
Height		1	inch
Weight		8	oz
Operating Limits:			
Nominal AC Voltage Min		100	Volts RMS
Nominal AC Voltage Max		135	Volts RMS
AC Voltage Min	AC sag detection	75	Volts RMS
AC Voltage Max	AC spike detection	180	Volts RMS
Temperature Min (non-condensing)		0	F
Temperature Max (non-condensing)		120	F
Operating Accuracy:			
Voltage Detection Time (Min)		0.1	s
Frequency Detection Time (Min)		0.033	s
Nominal Frequency		60	Hz
Frequency Accuracy		+/- 0.2	Hz
Temperature Accuracy		+/- 5	F

## 2 Basic Operation

### 2.1 Hardware Configuration

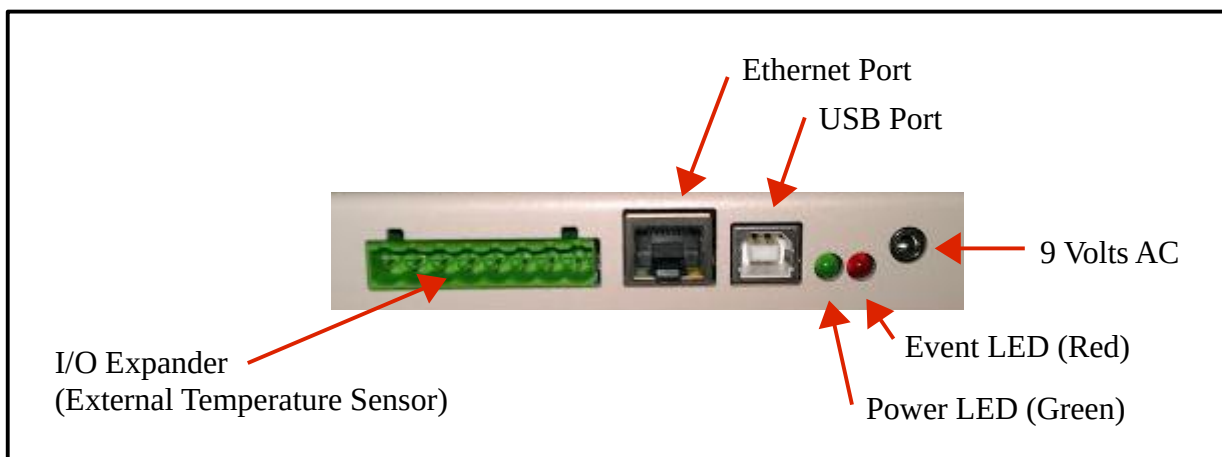
The ACScout-NETBB should be connected as shown in Illustration 1. The ACScout-NETBB and your personal computer are both connected to your router or network using Ethernet cable. The Wall Adapter is plugged into the wall outlet and connected to the ACScout-NETBB. Do not plug the wall adapter into a surge protection outlet, as it may affect the accuracy of the reading. If monitoring an uninterruptible power supply (UPS), plug into the UPS output. (Note: the AC Wall Adapter is calibrated to the specific ACScout-NETBB). USB cable must be temporarily used to connect your computer to the ACScout-NETBB for configuration purposes.



*Illustration 1: Basic ACScout-NETBB Configuration*

### 2.2 ACScout-NETBB Connections

Illustration 2 shows the connectors on the front of the ACScout-NETBB. The green LED is activated whenever power is supplied to the ACScout-NETBB. The red LED is activated when the ACScout-NETBB detects that an event has occurred.



*Illustration 2: ACScout-NETBB Connectors*

## 2.3 GUI Description

The ACScout-NETBB has the ability to display AC voltage, frequency, and temperature readings in real time (approximately every 2 seconds). Illustration 3 shows what the ACScout-NETBB GUI when the ACScout-NETBB is connected to the computer. The GUI is made of primarily 3 sections: tab menus, status bar, and log file. The tab menus are used to connect, configure, and request information from the ACScout-NETBB. That status bar is located towards the top of the GUI and is highlighted green when a connection has been established between the GUI and the ACScout-NETBB. When an active connection exists, the status bar shows the real time values. The GUI also shows a log file that displays events detected by the ACScout-NETBB.

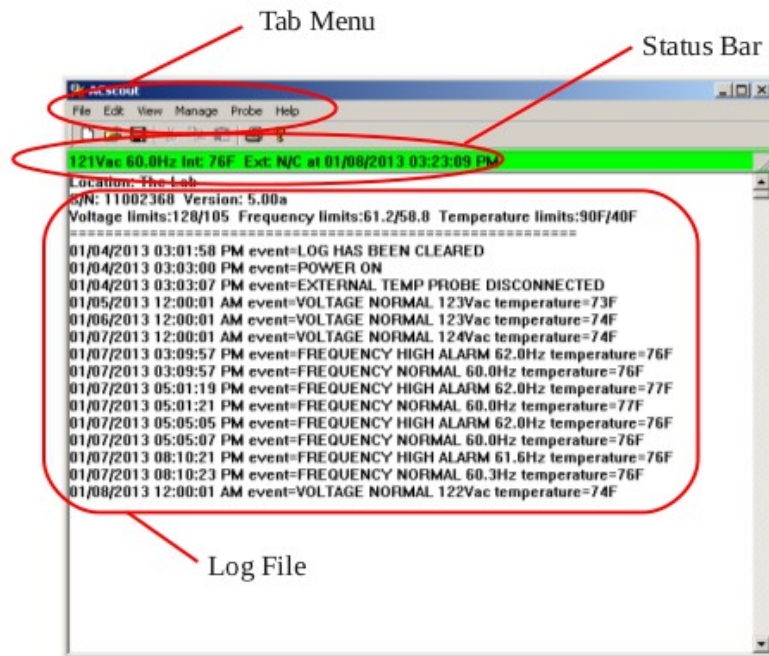
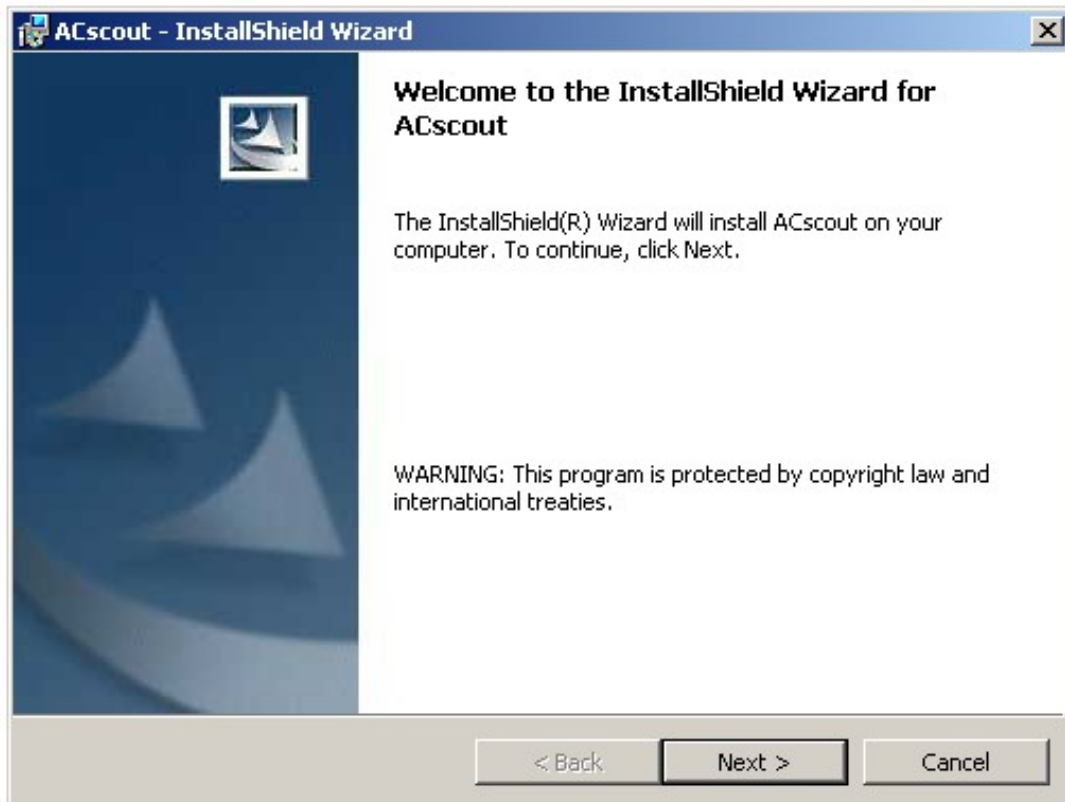


Illustration 3: ACScout-NETBB GUI

## 3 Software Installation

### 3.1 ACScout GUI

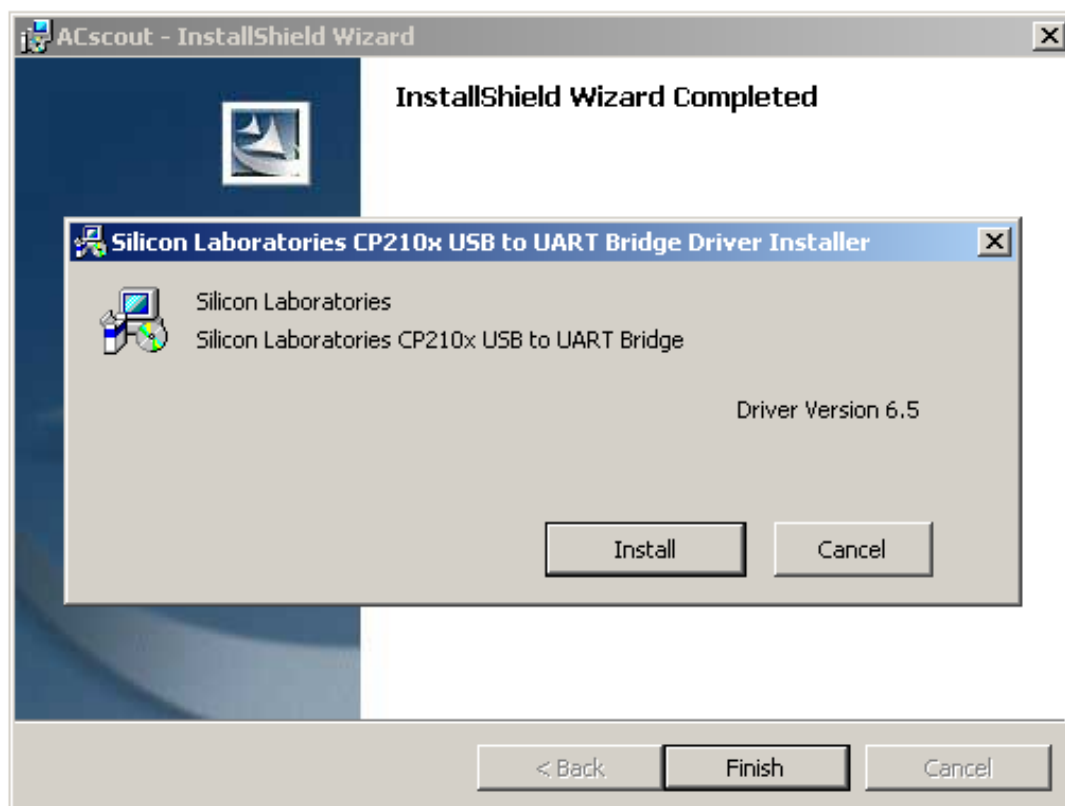
To install the ACScout-NETBB GUI insert the ACScout software CD into the computer CD drive. The CD should be automatically recognized and launch the Install Shield Wizard as shown in Illustration 4. If Windows does not launch the Install Shield Wizard automatically then open the CD using Windows Explorer and double click on the Setup.exe program. Continue to click “Next” until the installation has completed.



*Illustration 4: Install Shield Wizard (ACScout)*

### 3.2 USB drivers

After installation of the ACScout-NETBB GUI is complete the Silicon Laboratories CP210x USB to UART Bridge Driver Installer will be installed automatically as shown in Illustration 5. Click the “Install” button and continue through the prompts until the installation is complete then reboot your computer.



*Illustration 5: USB Driver Installation*

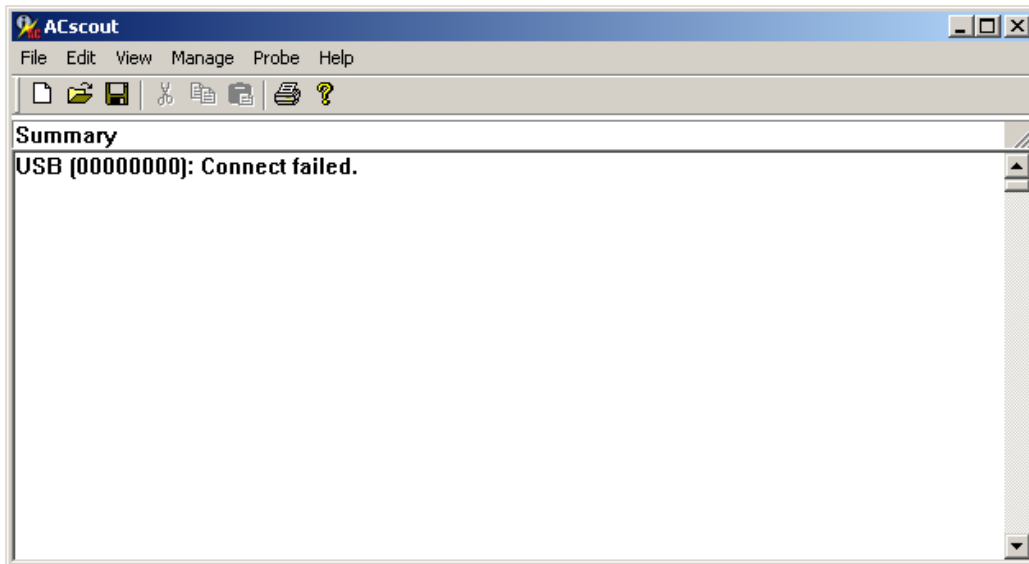


## 4 Configuration

After the ACScout-NETBB is connected to the computer via USB, the ACScout-NETBB will upload voltage, frequency, and temperature readings in real time (approximately every 2 seconds). The GUI also shows a log file that displays alarms

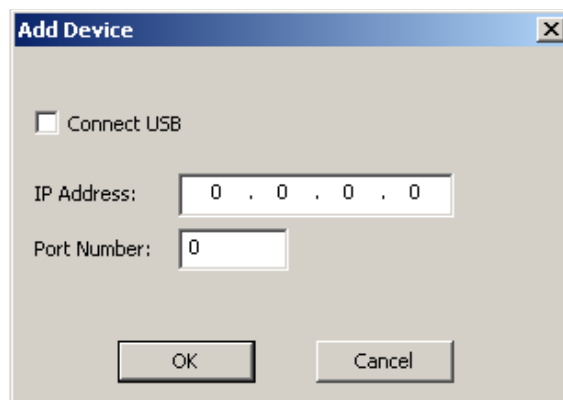
### 4.1 Connect to ACScout-NETBB

The initial ACScout-NETBB GUI screen is shown in Illustration 6. Notice that the GUI is not connected to the ACScout-NETBB. Connect the USB cable between the ACScout-NETBB and your computer, then click the “Manage” tab and select “Add Device”.



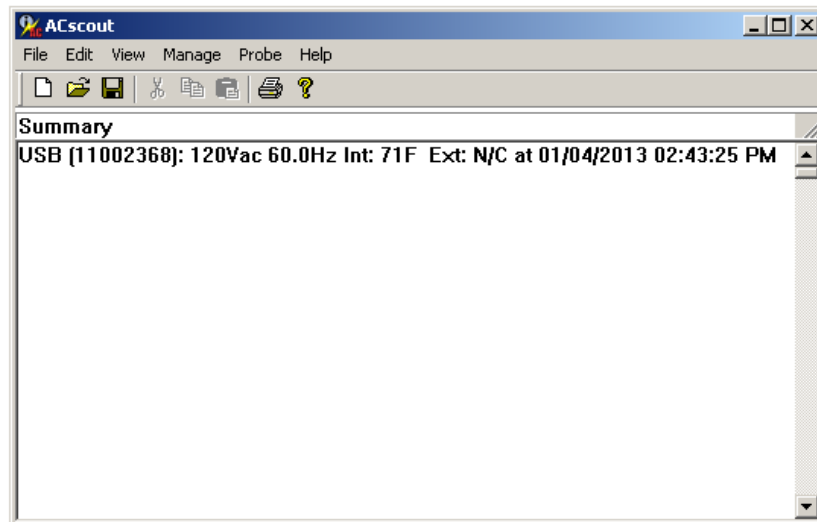
*Illustration 6: Initial ACScout-NETBB GUI Screen*

This will bring up the Add Device screen, shown in Illustration 7. Click on the check-box labeled “Connect USB” and push the OK button.



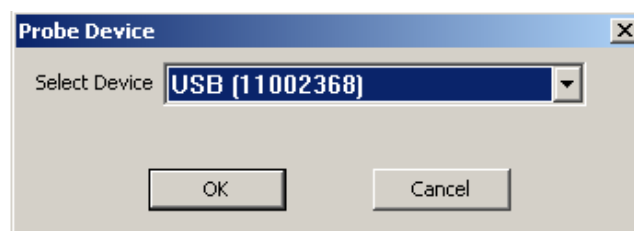
*Illustration 7: Add Device Screen*

If an ACScout-NETBB is detected, then the log screen will change and show the device serial number (in square brackets) followed by the real time voltage, frequency, and temperature measurements, as shown in Illustration 8.



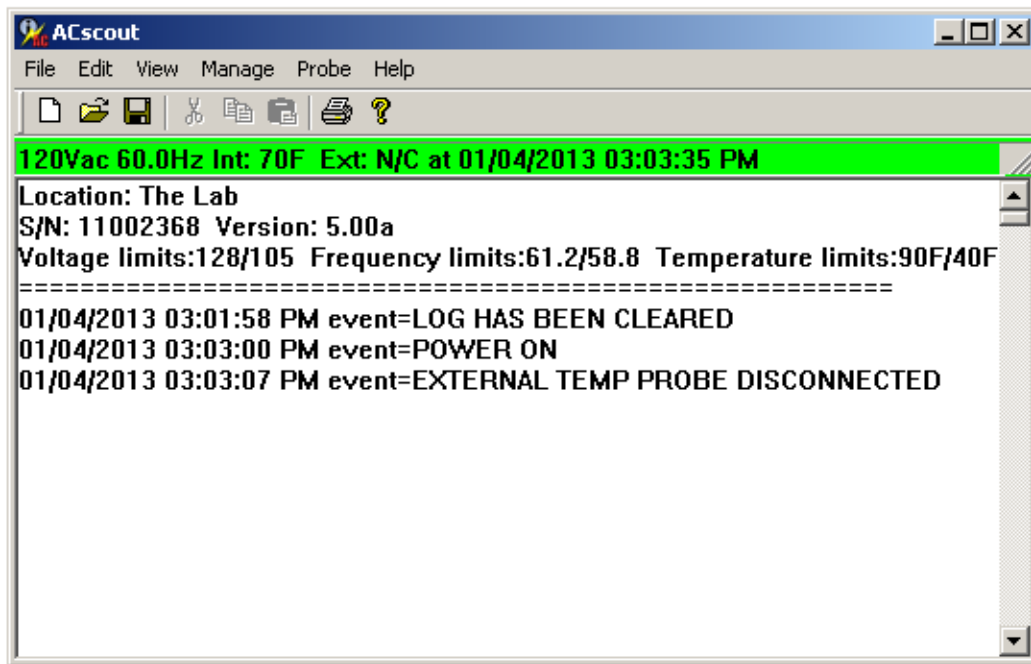
*Illustration 8: ACScout-NETBB Detected Screen*

To fully connect, click the “Manage” tab and select “Probe Device”. The Probe Device Screen will pop-up where the ACScout-NETBB can be selected by choosing USB device from the drop down menu as shown in Illustration 9.



*Illustration 9: Probe Device Screen*

When a connection is established the ACScout-NETBB GUI screen will appear like Illustration 10. The status bar will change from displaying “Summary” to displaying the ACScout-NETBB voltage and temperature readings. The status bar will also change from white to green. The log file is also downloaded from the ACScout-NETBB showing the location, serial number and software version.

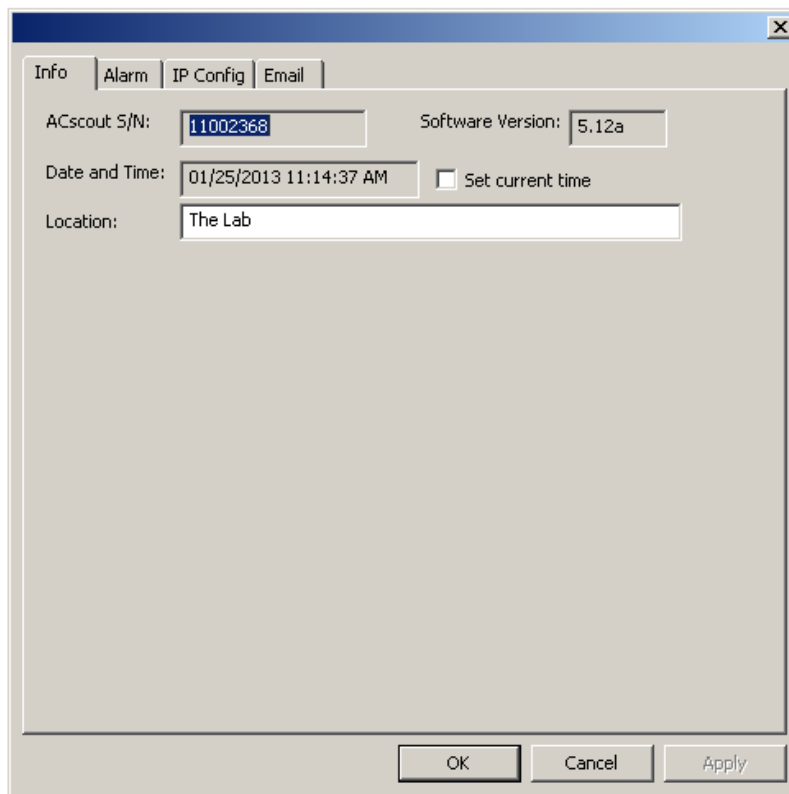


*Illustration 10: ACScout-NETBB GUI Connected*

## **4.2 Configure ACScout-NETBB**

The ACScout-NETBB can be configured in multiple ways depending on your needs. This section provides information with respect to configuring your ACScout-NETBB to work with your network, send emails, and define sensing alarms for the AC voltage, frequency, and temperature.

Launch the configuration screen by clicking on the “Probe” tab and selecting “Configure”. This will bring up the screen shown in Illustration 11. There are 4 tabs in this configuration screen: Info, Alarm, IP Config, and Email. The info tag displays the ACScout-NETBB serial number, software version, date and time, and location. The location should be modified to define where your ACScout-NETBB is located. This is very useful when you are using multiple ACScout-NETBB units.



*Illustration 11: Configuration Screen*

### **Configure IP Address (Networking)**

The ACScout-NETBB may be configured to operate with your network. This will enable the GUI to modify the ACScout-NETBB configuration and receive log information through the Ethernet cable instead of the USB cable.

To configure the ACScout-NETBB to be compatible with your network you will need some basic information about your network to proceed. Specifically, you will need to have:

- An IP Address that may be used by the ACScout-NETBB that is not currently being used by any other device on your network.
- Subnet Mask used by your network
- Gateway used by your network
- DNS Server used by your network

You may need to contact your network administrator for some of this information. If you are using the ACScout-NETBB for home use then you should access your router to find an unused IP Address.

A convenient way to find some of your network settings is to use the command “ipconfig \all” in the Windows command prompt. This can be done by clicking “Start” going to “Run” and typing “cmd”. When the command prompt comes up you will be able to type in the command “ipconfig \all”. Illustration 12 shows what you can expect to see after typing this command (Note: for best results make sure that the computer is connected to your network via Ethernet cable). Please take note of your Subnet Mask, Default Gateway, and DNS Server.

```

C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\kyle>ipconfig /all

Windows IP Configuration

    Host Name . . . . . : SWDEU-PC01
    Primary Dns Suffix . . . . . :
    Node Type . . . . . : Broadcast
    IP Routing Enabled. . . . . : No
    WINS Proxy Enabled. . . . . : No

Ethernet adapter Local Area Connection 3:

    Connection-specific DNS Suffix . :
    Description . . . . . : AMD PCNET Family PCI Ethernet Adapter
    Physical Address. . . . . : 08-00-27-72-C8-2C
    Dhcp Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes
    IP Address. . . . . : 192.168.8.44
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.8.1
    DHCP Server . . . . . : 192.168.8.1
    DNS Servers . . . . . : 192.168.8.1
    Lease Obtained. . . . . : Tuesday, January 08, 2013 1:01:54 PM
    Lease Expires . . . . . : Wednesday, January 09, 2013 1:01:54 PM

C:\Documents and Settings\kyle>_

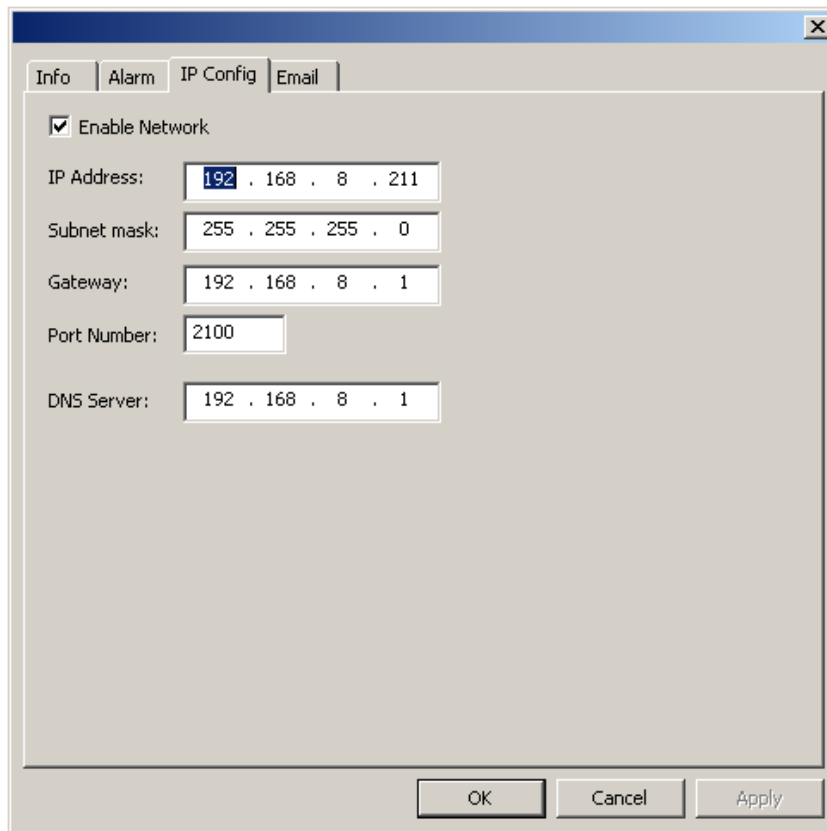
```

*Illustration 12: Windows Command Prompt (ipconfig \all)*

To modify the network setting click on the “IP Config” tab. Next enter in the Subnet Mask, Default Gateway, DNS Server, and IP address as shown in Illustration 13. Note: the IP address must be different than the IP address of the computer to which it is connected. Leave the port number at the default (2100), unless you have a specific reason to change it. Click “OK” button to store the settings on the ACScout-NETBB.

Note: After making configuration changes, reboot the ACScout-NETBB (power down then power up) to insure that changes are loaded into active memory space.

Note: Finish all configuration steps before installing battery!!

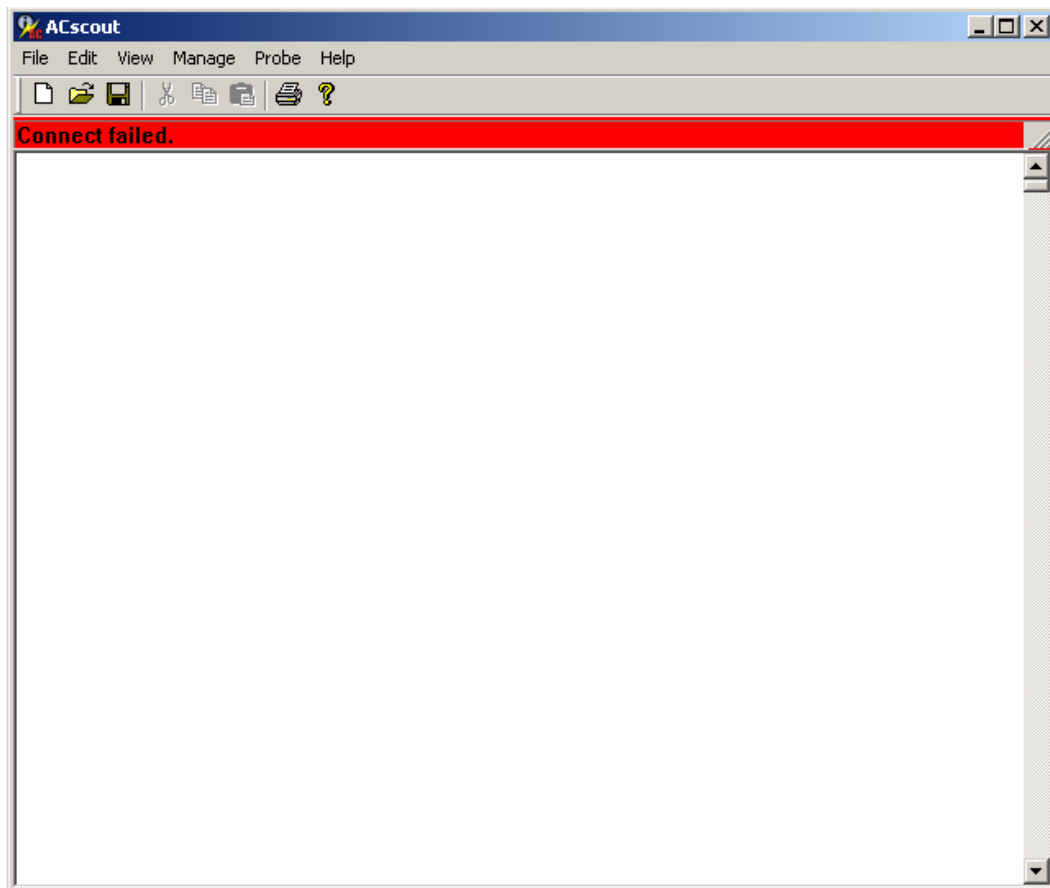


The image shows a software window titled "IP Configuration Screen" with a standard Windows-style title bar (minimize, maximize, close buttons). The window contains four tabs: "Info", "Alarm", "IP Config", and "Email". The "IP Config" tab is currently selected. Inside this tab, there is a checkbox labeled "Enable Network" which is checked. Below this, there are several input fields for network configuration: "IP Address" (192 . 168 . 8 . 211), "Subnet mask" (255 . 255 . 255 . 0), "Gateway" (192 . 168 . 8 . 1), "Port Number" (2100), and "DNS Server" (192 . 168 . 8 . 1). At the bottom right of the window, there are three buttons: "OK", "Cancel", and "Apply".

Field	Value
IP Address:	192 . 168 . 8 . 211
Subnet mask:	255 . 255 . 255 . 0
Gateway:	192 . 168 . 8 . 1
Port Number:	2100
DNS Server:	192 . 168 . 8 . 1

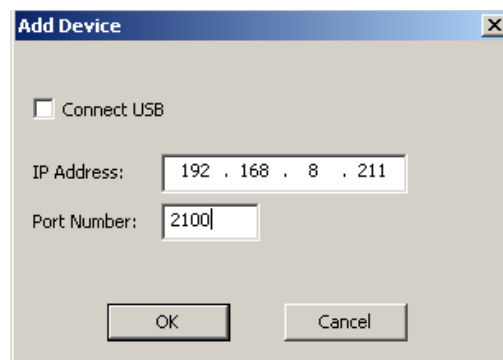
*Illustration 13: IP Configuration Screen*

Test your network configuration by disconnecting the USB cable from your computer. The GUI will indicate that the ACScout-NETBB is disconnected when the status bar changes to red and displays "Connect failed" as shown in Illustration 14.



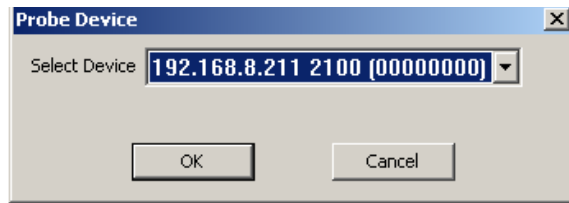
*Illustration 14: ACScout-NETBB Disconnected*

To connect using your network, plug the ACScout-NETBB into a router on your network using a standard Ethernet cable and click the “Manage” tab and select “Add Device”. The Add Device screen will pop-up. Enter the IP Address and port number that you used previously, as shown in Illustration 15.



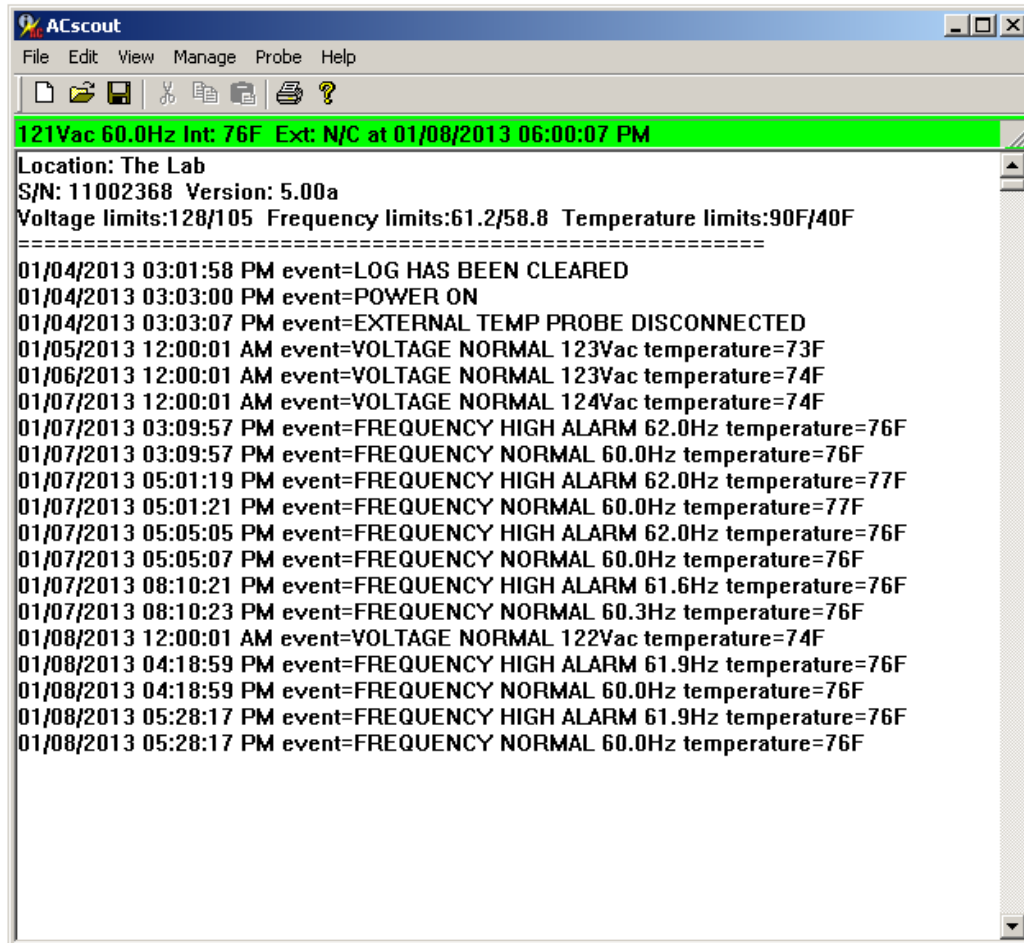
*Illustration 15: Add Device Screen  
(Using IP Address)*

Next click “Manage” tab and select “Probe Device”. Use the drop down menu to select the options that has the IP Address in as shown in Illustration 16. Click “OK” button.



*Illustration 16: Probe Device (Using IP Address)*

Illustration 17 shows the main screen successfully connected. Notice that the status bar is green and the log file is loaded.



*Illustration 17: Successfully Connected*

## Configure Email

The ACScout-NETBB may be configured to send emails alerts, which is useful when you are not in the same location as your ACScout-NETBB. This is done by using the ACScout-NETBB as an email server and using your email address to send emails. The ACScout-NETBB can only use port 25 to send emails. An existing SMTP server and email address is required to use this feature. Please contact your network administrator or internet service provider if you do not have any of this information.

Illustration 18 shows an example of the email configuration screen. The following are descriptions of the different options on this screen.

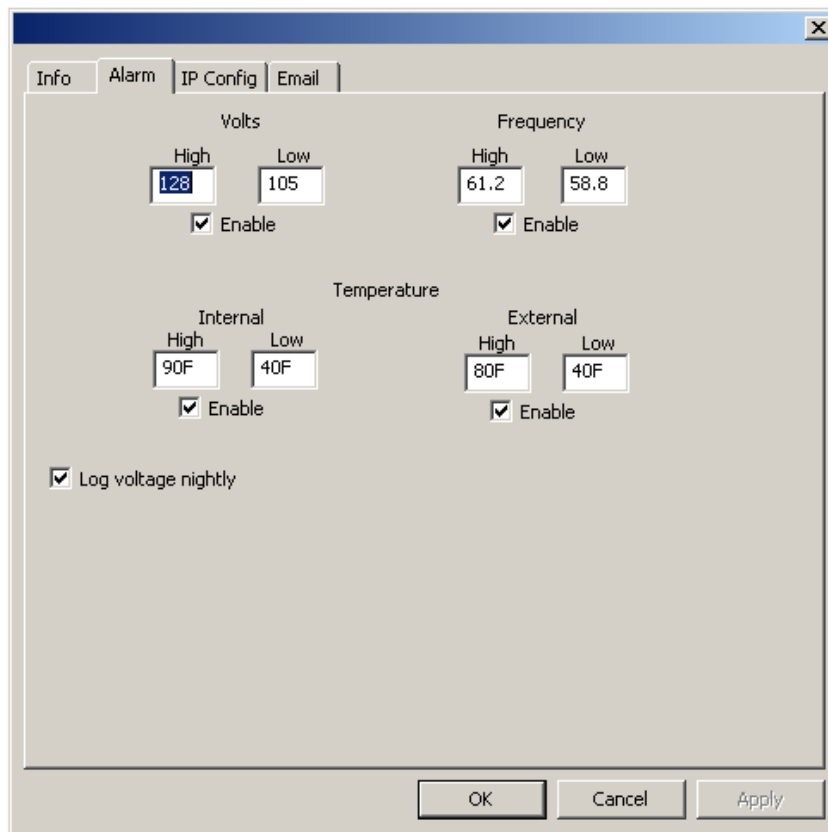


- Email Address 1 – is an address that will receive and email from the ACScout-NETBB.
- Email Address 2 – is a second address that will receive and email from the ACScout-NETBB.
- SMTP Server – is the outgoing mail server used for sending email.
- SMTP Port – is the outgoing mail server port used for sending email. (must be 25)
- Username – is the email address that the ACScout-NETBB will use to send email.
- Password – is the password for the email address that the ACScout-NETBB will use to send email.
- Reply-to Address – is the reply-to email address that will be displayed in the email.
- Subject Line – anything typed in here will be displayed in the subject of the email.
- Body – anything typed in here will be added to the body of the email.

*Illustration 18: Email Configuration Screen*

## Configure Alarms

The ACScout-NETBB has alarms that are triggered when the voltage spikes or sags, when frequency drifts, or when the internal or external temperature goes to high or low. The min and max value that triggers the alarm may be modified by clicking on the “Alarm” tab in the configuration screen. An example of an Alarm configuration is shown in Illustration 19.



*Illustration 19: Alarm Tab*

The Alarm configuration is divided into 4 sections: Volts, Frequency, Internal Temperature, and External Temperature. For each section an acceptable range can be defined by the high and low value. When the ACScout-NETBB detects a value outside of this range then an alarm is triggered and the log file is updated. If the email is configured properly, then an email message will be sent indicating which alarm was triggered. Individual alarms can be deactivated by removing the check mark from the “Enable” check box.

Note: The ACScout-NETBB maintains internal time and date referenced to Coordinated Universal Time (UTC) often referred to as Greenwich Mean Time (GMT) or Zulu time. This is different than the time and date displayed in the log file by the ACScout application on your computer which is converted before being displayed to local time.

## 5 Application Notes

### 5.1 Send Text Messages (SMS Messages)

The ACScout-NETBB can be configured to send short-message-service (SMS) messages to your cell phone. All major mobile phone carriers have an email address that feeds into your SMS inbox. The only information that you need to is your phone number and your phone carriers email address. Table 1 shows a list of the more commonly used cell phone carriers.

Phone Carrier	Carriers Email Address
Sprint	@pm.sprint.com
Verizon	@vtext.com
T-Mobile	@tmomail.net
AT&T	@txt.att.net

*Table 1: Cell Phone Carriers Email*

To configure the ACScout-NETBB to send a text message make sure that the ACScout-NETBB is connected to your computer and click “Probe” menu then go to “Configure”. To send a text message to the cell phone number (614) 436-2300 that has Sprint as the carrier, you would enter [6144362300@pm.sprint.com](mailto:6144362300@pm.sprint.com) into the Email Address 1 box under the Email tab as shown in Illustration 20. You can verify that this configuration works by unplugging the power to the ACScout-NETBB then reconnecting it. You should receive a text message within the next few minutes indicating a power failure.

The screenshot shows a configuration window with four tabs: Info, Alarm, IP Config, and Email. The Email tab is selected. The fields are as follows:

- E-mail address 1: 6144362300@pm.sprint.com
- E-mail address 2: (empty)
- SMTP Server: smtpout.secureserver.net
- SMTP Port: 25
- ☒ Server requires authentication
- Username: test@audiopowerlabs.com
- Password: (masked with asterisks)
- Password verify: (masked with asterisks)
- Reply-to address: test@audiopowerlabs.com
- Subject line: ACScout Test
- ☒ Include location
- ☒ Include measurements
- Body: (empty text area)

At the bottom are buttons for OK, Cancel, and Apply.

*Illustration 20: Text Messaging Configuration*

## **6 Company Information**

### ***6.1 About ACScout***

We are based in Columbus, Ohio and are proud to offer homeowners and businesses a simple, affordable solution to AC power monitoring.

Founded and operated by pioneers in the electronics, computing and utility industries, we have more than 100 years' experience building quality products.

On occasion, we build custom AC monitoring devices for special applications.

Don't hesitate to contact us with recommendations for ACScout enhancements, customization, distribution, or sales. We appreciate your feedback and welcome your suggestions.

### ***6.2 Warranty***

All of our products come with a 5 year warranty from the time of purchase. Use the contact information below if any issues are found with your ACScout product. The device will need to be returned to factory for a replacement.

### ***6.3 Contact Information***

Website: [www.acscout.com](http://www.acscout.com)

Phone: (614) 436-2300

Address: 7020 Huntley Rd. Suite A, Columbus, OH 43229

Email: [sales@acscout.com](mailto:sales@acscout.com)