VoIP Loudspeaker Amplifier Operations Guide (Wireless, AC Powered)

Part #*010860*

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930112F

VoIP Loudspeaker Amplifier Operations Guide 930112F
Part # 010860

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Revision History

Revision	Date Released	Description of Changes
A	11/06/06	This is the first release of this manual.
B	1/18/2007	Adds Section 2.4, “Set up the MGROUPS”
C	4/12/2007	Changes the Authenticate ID and password character limit from 30 to 25 in Table 2-11.
D	07/20/2007	Adds Figure 1-2, "Public Address System—Multicast" . Adds more information about MGROUPS in Section 2.4, “Set up the MGROUPS”. Adds information about the Outbound Proxy in Table 2-7.
E	3/18/2008	Adds Section 2.2.3.1, “Using the Line Out Output”.
F	3/9/2009	Adds the following text to Section 2.2.3.3, “Cabling/Wiring”: “For maximum output, use two 8-Ohm speakers that are wired in parallel with the shortest possible cable length (total combined length should not exceed more than 25 feet).”

Contents

Chapter 1 Product Overview 1

1.1 Typical System Installation 1
1.2 Product Features 2
1.3 Supported Protocols 3
1.4 Supported SIP Servers 3
1.5 Product Specifications 3

Chapter 2 Installing the VoIP Loudspeaker Amplifier 5

2.1 Parts List 5
2.2 Loudspeaker Amplifier Setup 6
- 2.2.1 Loudspeaker Amplifier Components 6
- 2.2.2 Loudspeaker Amplifier Jumpers 7
- 2.2.3 Connect the Loudspeaker Amplifier 8
- 2.2.4 Confirm Operation 11
- 2.2.5 Confirm the IP Address, Test the Audio, and Check the Volume 12
- 2.2.6 Adjust the Volume 13

2.3 Configure the Loudspeaker Amplifier Parameters 14
- 2.3.1 Log in to the Configuration Home Page 14
- 2.3.2 Configure the Network Parameters 17
- 2.3.3 Set up the Loudspeaker Amplifier 19
- 2.3.4 Configure the SIP Parameters 20

2.4 Set up the MGROUPS 23
2.5 Upgrade the Firmware and Reboot the Loudspeaker Amplifier 25
- 2.5.1 Reboot the Loudspeaker Amplifier 27

2.6 Restore the Factory Default Settings 28

Appendix A Mounting the Enclosure 29

A.1 Mount the Enclosure 29

Appendix B Setting up a TFTP Server 31

B.1 Set up a TFTP Server 31
- B.1.1 In a LINUX Environment 31
- B.1.2 In a Windows Environment 31

Appendix C Troubleshooting/Technical Support 33

C.1 Frequently Asked Questions (FAQ) 33
C.2 Documentation 33
C.3 Contact Information 33
C.4 Warranty 34

Index 35

1 Product Overview

The Voice-over-IP (VoIP) Loudspeaker Amplifier (Wireless, AC powered) uses a single cable to connect to existing LANs to broadcast digital audio over your public address system. The small footprint and low height makes this an ideal loudspeaker amplifier to discreetly mount almost anywhere.

1.1 Typical System Installation

Figure 1-1 illustrates how the VoIP Loudspeaker Amplifier (Wireless, AC Powered) is normally installed as part of a public address system.

Figure 1-1. Public Address System—SIP

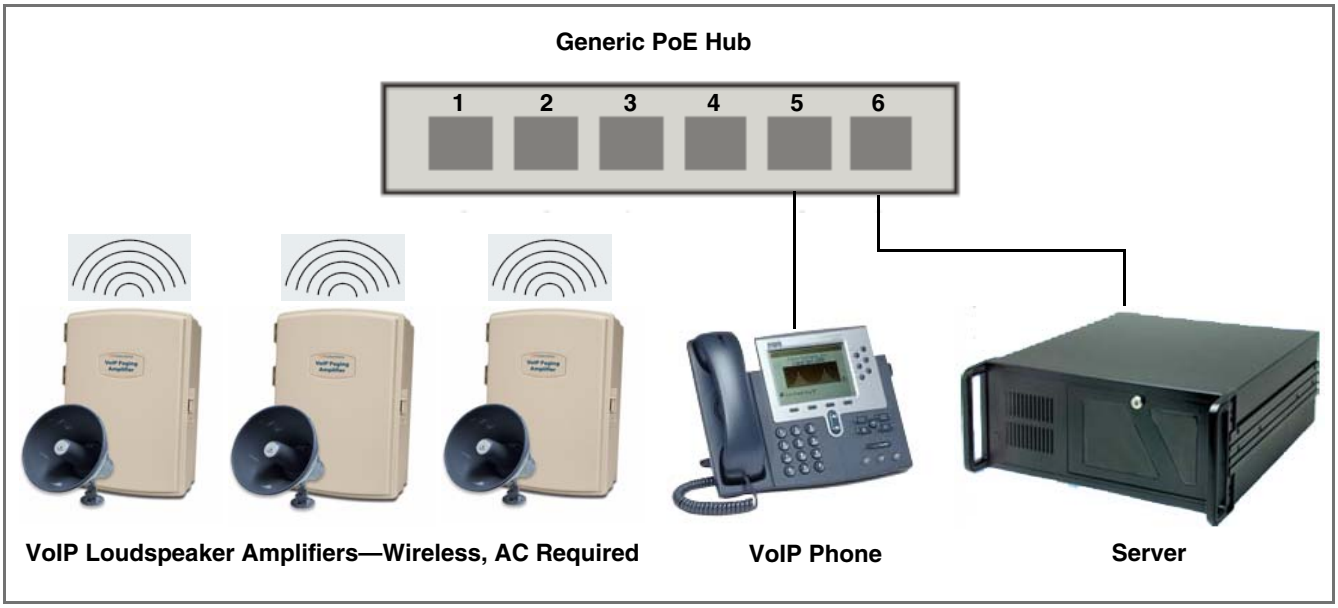
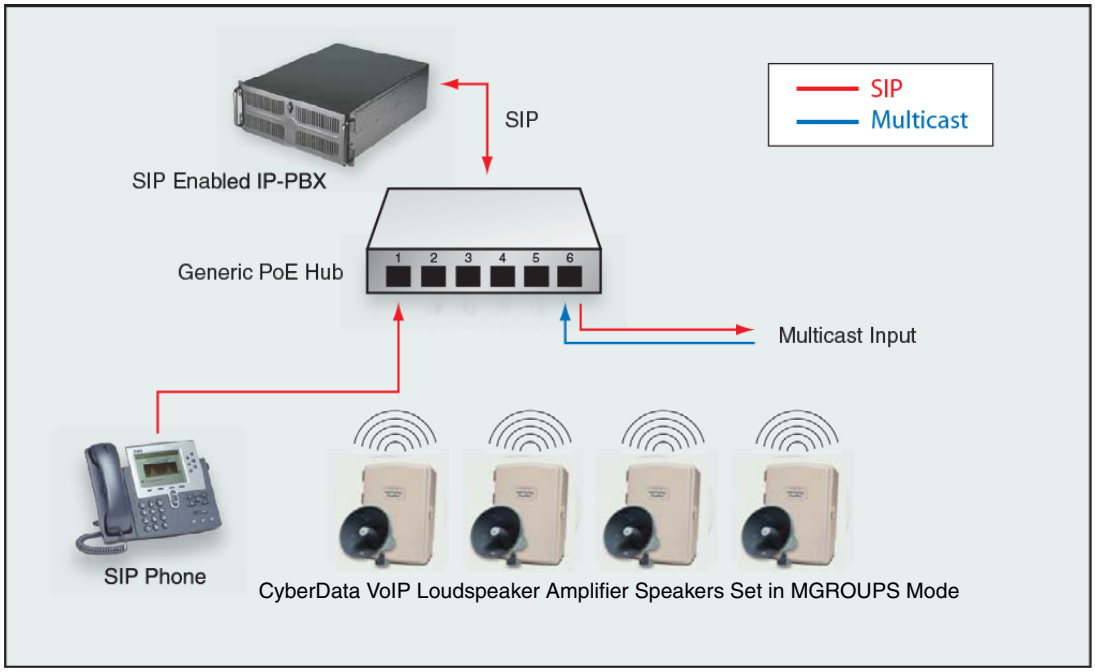
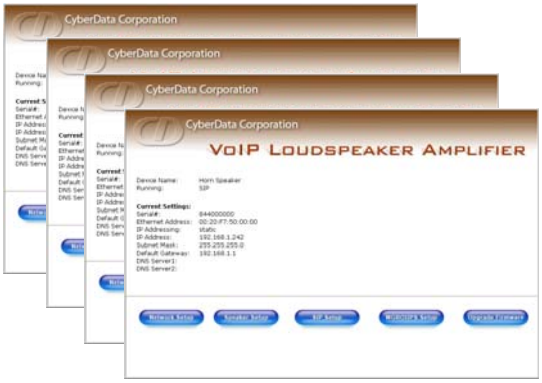


Figure 1-2. Public Address System—Multicast



1.2 Product Features



- *SIP (RFC 3261) compatible*
- *Dual-Speed 10/100 Mbps*
- *Web-based configuration*
- *Web-based firmware upgradeable*
- *High-efficiency speaker driver*
- *PoE (Power-over-Ethernet)*
- *8W output under PoE*
- *16W max. output (Non-PoE)*
- *Supports 8 ohm horn speakers*
- *Moisture-proof NEMA enclosure*

1.3 Supported Protocols

The Loudspeaker Amplifier supports:

- SIP
- Multicast
- HTTP Web-based configuration

  Provides an intuitive user interface for easy system configuration and verification of loudspeaker amplifier operations.
- DHCP Client

  Dynamically assigns IP addresses in addition to the option to use static addressing.
- TFTP Client

  Facilitates Web-based firmware upgrades of the latest loudspeaker amplifier capabilities.
- RTP
- RTP/AVP - Audio Video Profile
- Audio Encodings

  PCMU (G.711 mu-law)

  PCMA (G.711 A-law)

  Packet Time 20 ms

1.4 Supported SIP Servers

The following link contains information on how to configure the loudspeaker amplifier for the supported SIP servers:

http://www.cyberdata.net/support/voip/index.html

1.5 Product Specifications

Category	Specification
Sensitivity	96dB/1W/1M S.P. Level
Output	8 W PoE/16 W with internal power supply
Port Baud Rate	10/100 Mbps
Power Requirement	802.3af compliant
Protocol	SIP RFC 3261
Part Number	010860
Dimensions	14” x 10” x 4”
Weight	4.4 lbs.

2 Installing the VoIP Loudspeaker Amplifier

2.1 Parts List

Table 2-1 illustrates the parts for each loudspeaker amplifier and includes a kit for mounting.

Table 2-1. Parts List

Quantity	Part Name	Illustration
1	Loudspeaker Amplifier Assembly	
1	Installation Quick Reference Guide	
1	Loudspeaker Amplifier Mounting Accessory Kit (part #070057A) which includes: 3 x #8 x 1-1/4” truss head screws	

2.2 Loudspeaker Amplifier Setup

Set up and configure each loudspeaker amplifier *before* you mount it.

CyberData delivers each loudspeaker amplifier with the factory default values indicated in Table 2-2:

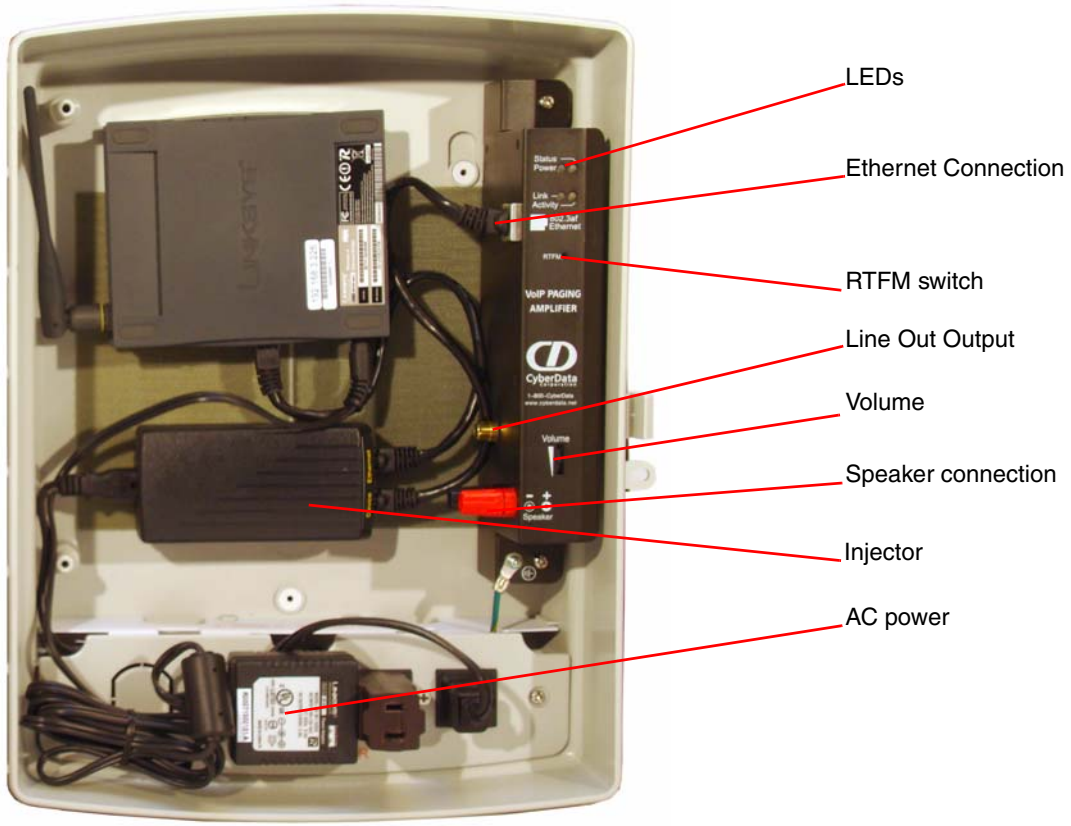
Table 2-2. Factory Default Settings

Parameter	Factory Default Setting
IP Addressing	static
IP Address	192.168.3.10
Web Access Username	admin
Web Access Password	admin
Subnet Mask	255.255.255.0
Default Gateway	192.168.3.1

2.2.1 Loudspeaker Amplifier Components

Figure 2-3 shows the components of the loudspeaker amplifier (AC powered).

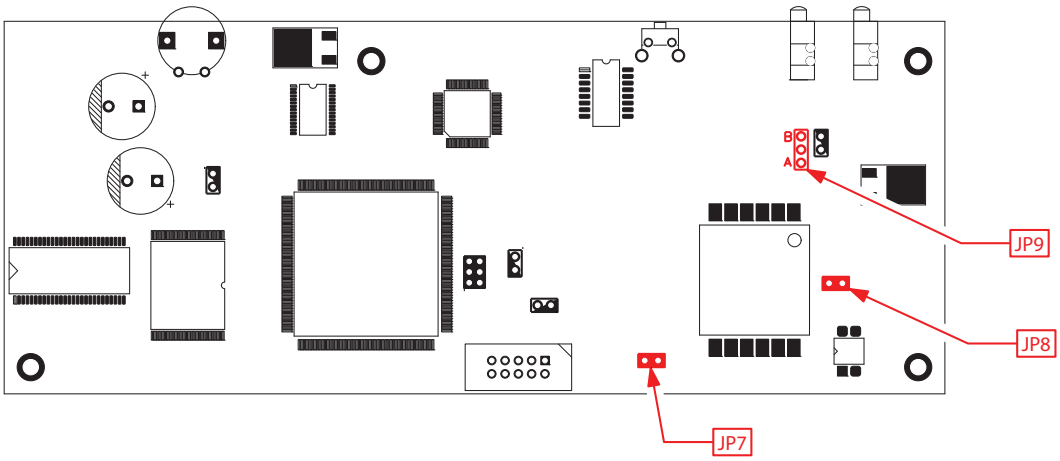
Figure 2-3. Loudspeaker Amplifier Components—AC Powered, Wireless



2.2.2 Loudspeaker Amplifier Jumpers

See Figure 2-4 to identify the jumper and component locations.

Figure 2-4. Jumper Locations



See Table 2-3 and Table 2-4 for the jumper settings.

Table 2-3. Jumper Settings—Low Power—802.3af Compliant (Default)

Jumper	Setting
JP7	OFF -> Low Power (21V)
JP8	OFF -> Low Power (21V)
JP9	Position B -> Low Power

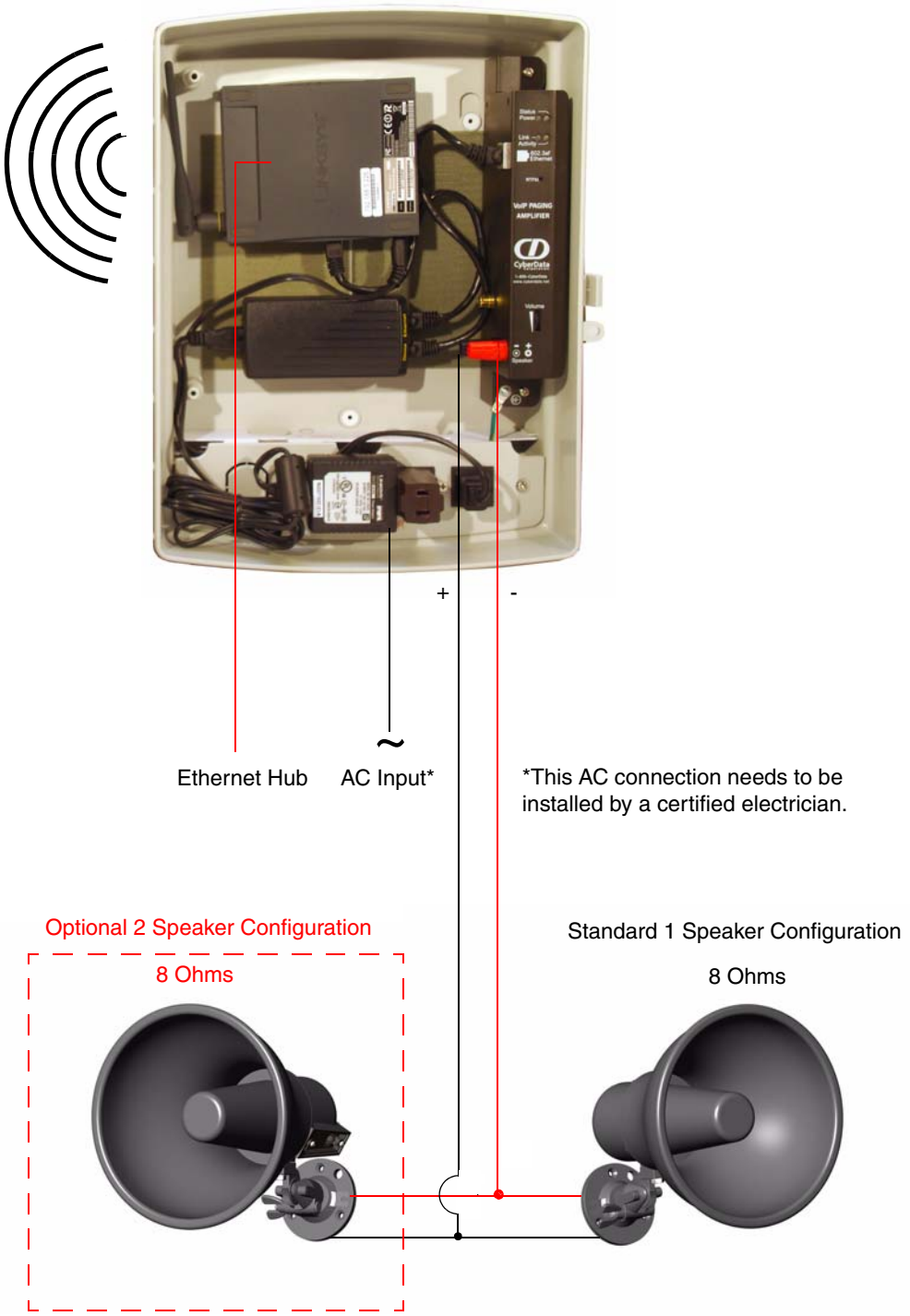
Table 2-4. Jumper Settings—High Power—Non-PoE Compliant

Jumper	Setting
JP7	ON -> High Power (21V)
JP8	ON -> High Power (21V)
JP9	Position A -> High Power

2.2.3 Connect the Loudspeaker Amplifier

Figure 2-5 illustrates how to connect the VoIP Loudspeaker Amplifier (Wireless, AC-powered).

Figure 2-5. Connect a Loudspeaker



See Table 2-5 for details about connecting the loudspeaker amplifier.

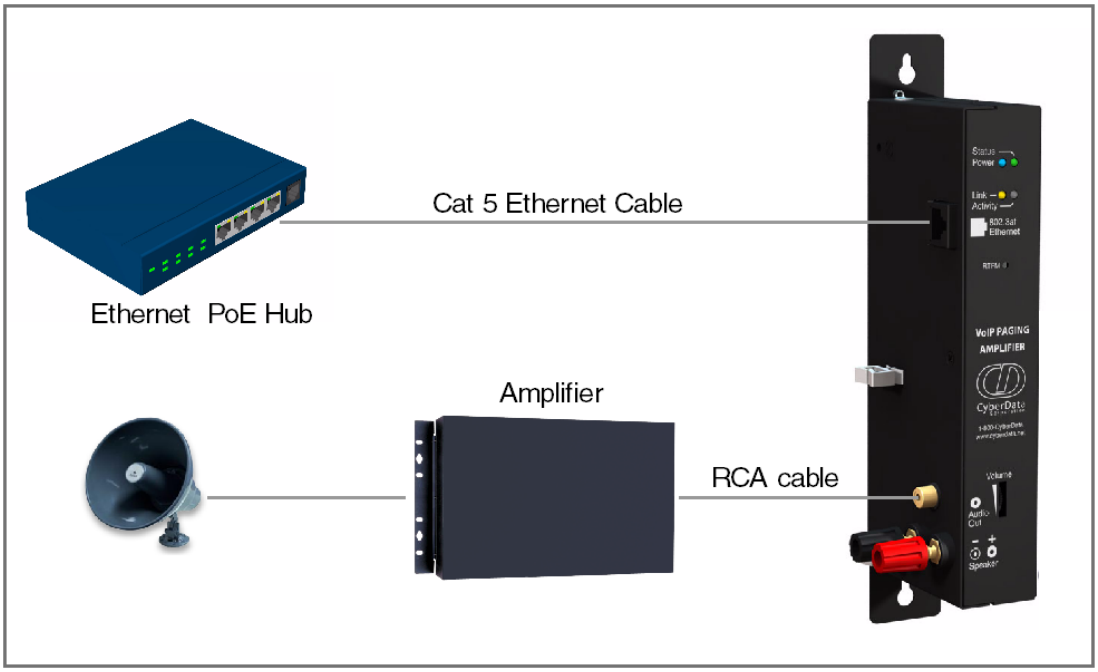
Table 2-5. Loudspeaker Amplifier Connections

Connection	Connection Details	Location
Loudspeaker	• Use two binding posts for up to 0.083 inch diameter loudspeaker wire.	VoIP paging amplifier
Ethernet	• Use a RJ 45 cable.	VoIP paging amplifier
AC[a]	• For a phase connection, use a press-down connector for 14 AWG solid copper wire. • For a neutral connection, use a press-down connector for 14 AWG solid copper wire. • For an earth/ground connection, use a screw-down connector for 14 AWG solid copper wire.	AC panel

a.Prior to installation, consult local building/electrical code requirements.

2.2.3.1 Using the Line Out Output

Figure 2-6. Using the Line Out Output



2.2.3.2 Loudspeaker Type

The CyberData VoIP Loudspeaker Amplifier supports an 8 Ohm Bogen or equivalent unamplified loudspeaker. See Figure 2-7.

Figure 2-7. Hornspeaker

2.2.3.3 Cabling/Wiring

You may connect a loudspeaker to a loudspeaker amplifier with a good quality speaker cable that is limited to 25 feet in length.

For maximum output, use two 8-Ohm speakers that are wired in parallel with the shortest possible cable length (total combined length should not exceed more than 25 feet).

Note Prior to installation, consult local building/electrical code requirements.

2.2.4 Confirm Operation

After connecting the loudspeaker amplifier to the ethernet hub, use the LEDs on the loudspeaker amplifier face to confirm that the loudspeaker amplifier is operational and linked to the network.

Figure 2-8. Loudspeaker Amplifier LEDs—Power and Link

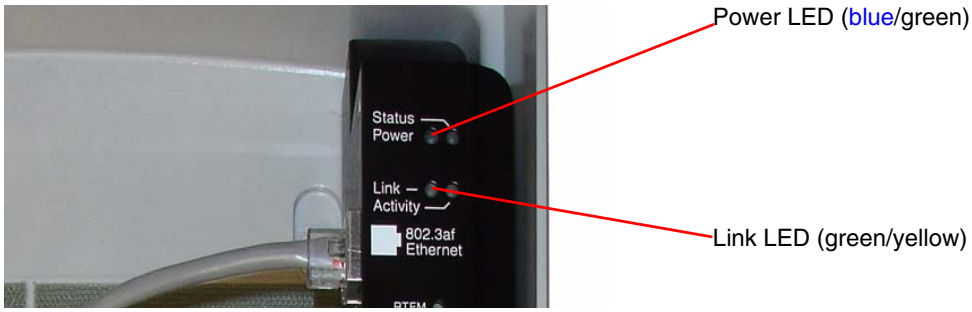


Figure 2-9. Loudspeaker Amplifier LEDs—Status and Activity

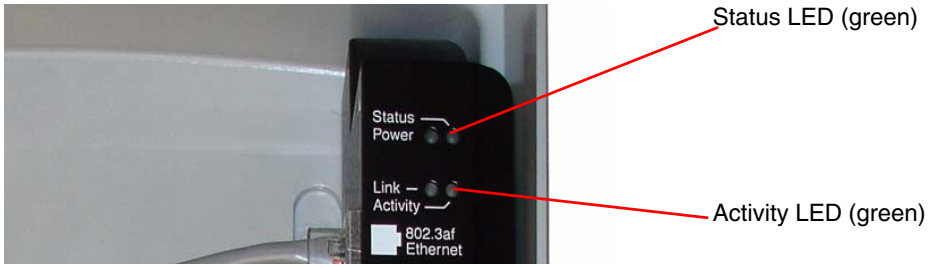


Table 2-6. Loudspeaker Amplifier LEDs

LED	Color	Function
Power	Blue/Green	The power LED is illuminated a steady blue when the power is on and blue/green when the amplifier is in the high power mode.
Status	Green	After supplying power to the loudspeaker amplifier: 1. The green Status LED illuminates after approximately five seconds to indicate the start of the firmware verification and load process. 2. After approximately 15 seconds, the Status LED begins to blink at one second intervals to indicate the start of the firmware boot process. 3. After approximately 35 seconds, the loudspeaker amplifier beeps once to indicate that it is operational. 4. The Status LED will continue to blink at one second intervals to indicate normal operation.
Link	Green/Yellow	The Link LED is illuminated green for a 10Mb link or yellow/green for a 100Mb link when the network link to the loudspeaker amplifier is established.
Activity	Green	The Activity LED blinks to indicate network traffic.

2.2.5 Confirm the IP Address, Test the Audio, and Check the Volume

When the loudspeaker amplifier is operational and linked to the network, use the Reset Test Function Management **(RTFM)** switch (Figure 2-10) on the loudspeaker amplifier face to announce and confirm the loudspeaker amplifier's IP Address, test that the audio is working, and check the volume.

Figure 2-10. RTFM Switch

To announce a loudspeaker amplifier's current IP address:

1. Press and hold the **RTFM** switch until it beeps (after one second).
2. Release the switch to hear the IP address announcement, and check the loudspeaker amplifier volume.

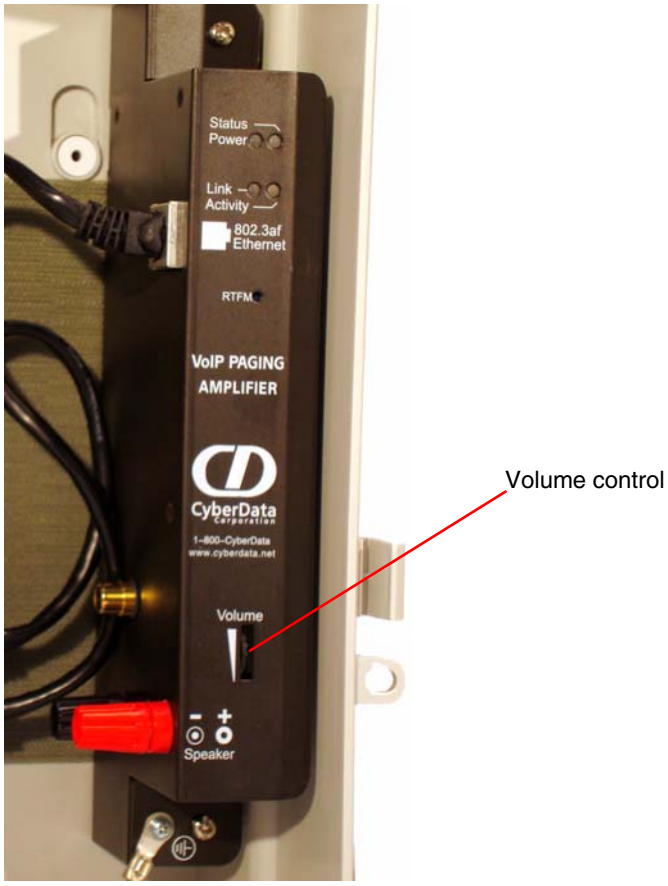
Caution

Equipment Caution: Pressing and holding the RTFM switch for longer than 20 seconds will restore the loudspeaker amplifier to the factory default settings. See Section 2.6, "Restore the Factory Default Settings".

2.2.6 Adjust the Volume

To adjust the loudspeaker amplifier volume, turn the **Volume** dial (Figure 2-11) on the loudspeaker amplifier face.

Figure 2-11. Volume Control



2.3 Configure the Loudspeaker Amplifier Parameters

To configure the loudspeaker amplifier online, use a standard web browser.

Configure each loudspeaker amplifier and verify its operation *before* you mount it. When you are ready to mount a loudspeaker amplifier enclosure, refer to Chapter A, "Mounting the Enclosure" for instructions.

All loudspeaker amplifiers are initially configured with the default IP settings indicated in Table 2-7.

When configuring more than one loudspeaker amplifier, attach the loudspeaker amplifiers to the network one at a time to avoid IP address conflicts.

Table 2-7. Factory Default Settings

Parameter	Factory Default Setting
IP Addressing	static
IP Address	192.168.3.10
Web Access Username	admin
Web Access Password	admin
Subnet Mask	255.255.255.0
Default Gateway	192.168.3.1

2.3.1 Log in to the Configuration Home Page

1. Open your browser to the speaker IP address.

   For the initial configuration of the speaker, open your browser to the default IP address:

   http://192.168.3.10

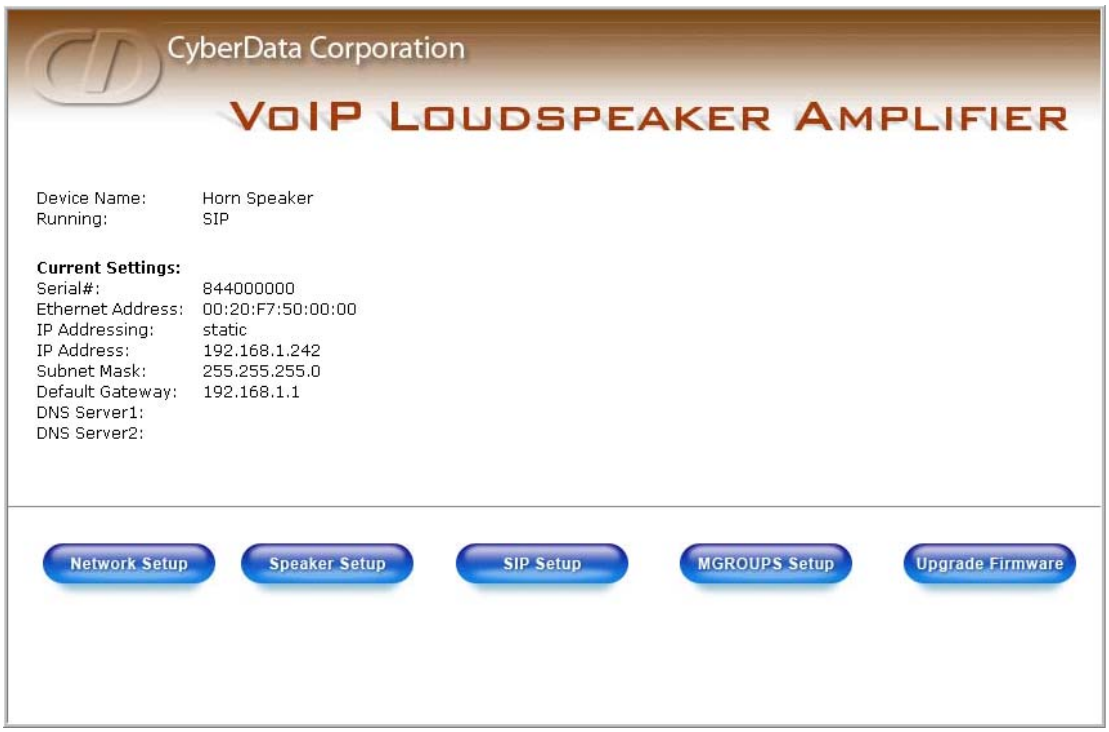
Note Make sure that the PC is on the same IP network as the loudspeaker amplifier.

2. When prompted, use the following default **Web Access Username** and **Web Access Password** to access the **Home Page** (Figure 2-12):

   Web Access Username: **admin**

   Web Access Password: **admin**

Figure 2-12. Home Page



3. On the **Home Page**, review the setup details and navigation buttons described in Table 2-8.

Table 2-8. Home Page Overview

Web Page Item	Description
Device Name	Shows the device name.
Running	Shows the current speaker function.
Serial #	Device serial number.
Ethernet Address	Device ethernet address.
IP Addressing	Shows the current IP addressing setting (**DHCP** or **static**).
IP Address	Shows the current IP address.
Subnet Mask	Shows the current subnet mask address.
Default Gateway	Shows the current default gateway address.
Network Setup	Link to the **Network Setup** page.
Speaker Setup	Link to the **Speaker Setup** page.
SIP Setup	Link to the **SIP Setup** page.
MGROUPS Setup	Links to the **MGROUPS Setup** page.

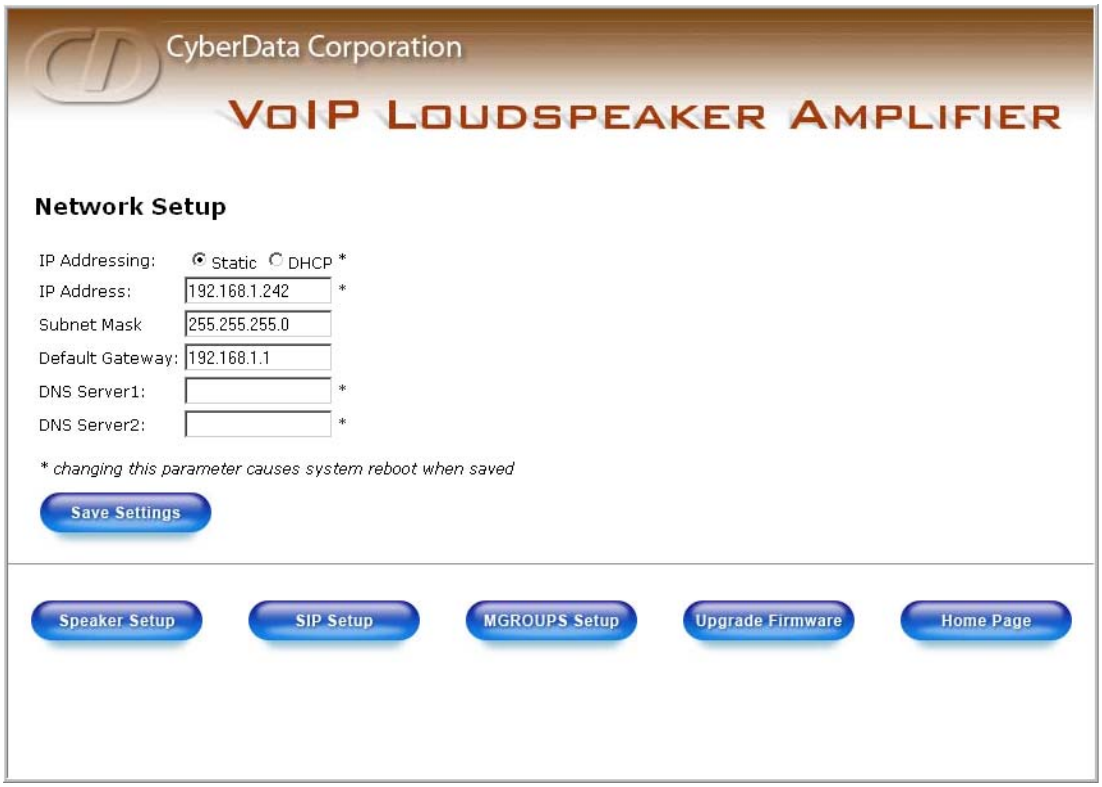
Table 2-8. Home Page Overview

Web Page Item	Description
	Link to the **Upgrade Firmware** web page.

2.3.2 Configure the Network Parameters

1. Click the **Network Setup** button to open the **Network Setup** page (Figure 2-13).

Figure 2-13. Network Setup Page



2. On the **Network Setup** page, enter values for the parameters indicated in Table 2-9.

Table 2-9. Network Setup Parameters

Web Page Item	Description
IP Addressing*	Select either **DHCP IP Addressing** or **Static IP Addressing** by marking the appropriate radio button. If you select **Static**, configure the remaining parameters indicated in Table 2-9. If you select **DHCP**, go to Step 3.
IP Address*	Enter the static IP address.
Subnet Mask	Enter the Subnet Mask address.
Default Gateway	Enter the Default Gateway address.
DNS Server 1*	Enter the DNS Server 1 address.
DNS Server 2*	Enter the DNS Server 2 address.
Save Settings	Click on this button to save your configuration settings. Changing a parameter that has an asterisk next to it will cause a system reboot when saved.

Table 2-9. Network Setup Parameters

Web Page Item	Description
Speaker Setup	Link to the **Speaker Setup** page.
SIP Setup	Link to the **SIP Setup** page.
MGROUPS Setup	Links to the **MGROUPS Setup** page.
Upgrade Firmware	Link to the **Upgrade Firmware** page.
Home Page	Link to the **Home** page.

3. After changing the parameters, click **Save Settings**. This updates the changed parameters and reboots the speaker if appropriate.

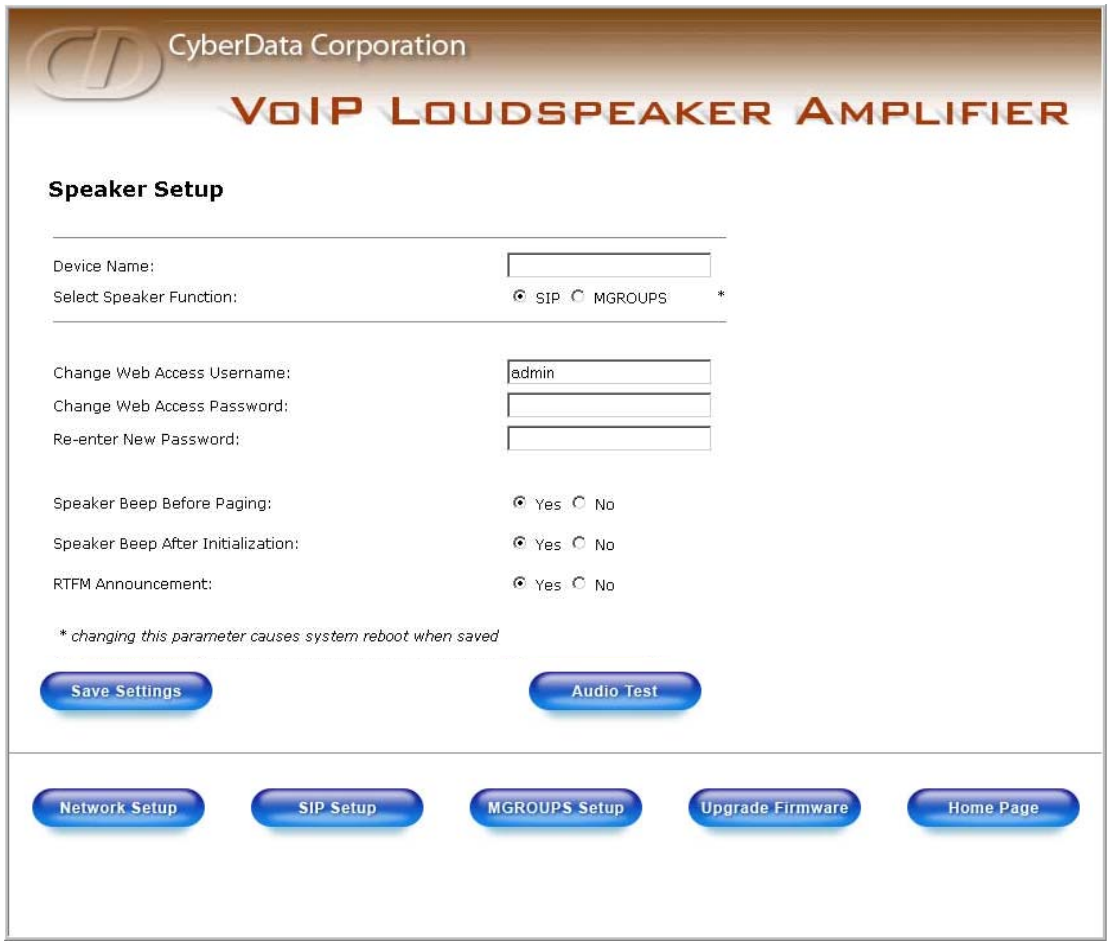
4. Connect the speaker to the target network.

5. From a system on the same network as the speaker, open a browser with the new IP address of the speaker.

2.3.3 Set up the Loudspeaker Amplifier

1. Click the **Speaker Setup** button to open the **Speaker Setup** page. See Figure 2-14

Figure 2-14. Loudspeaker Amplifier Setup



2. On the **Loudspeaker Amplifier Setup** page, enter values for the parameters indicated in Table 2-10.

Table 2-10. Loudspeaker Amplifier Setup Parameters

Web Page Item	Description
Device Name	Enter a descriptive name for this device (if desired).
Select Speaker Function	Select SIP or MGROUPS.
Change Web Access Username	Use this field to change the Web Access Username
Change Web Access Password	Use this field to change the Web Access Password
Re-enter New Password	Use this field to re-enter a new password
Speaker Tone Before Paging	Enable/Disable the speaker tone (beep) before each page.
Speaker Tone After Initialization	Enable/Disable the speaker tone (beep) after the system startup.

Table 2-10. Loudspeaker Amplifier Setup Parameters

Web Page Item	Description
RTFM Announcement[a]	Enable/Disable the speaker tone (beep) and audio associated with the RTFM switch.
Save Settings	Click on this button to save your configuration settings. Changing a parameter that has an asterisk next to it will cause a system reboot when saved.
Audio Test	Click on this button to do an audio test. Generates a voice message for testing the speaker audio quality and volume.
Network Setup	Link to the **Network Setup** page.
SIP Setup	Link to the **SIP Setup** page.
MGROUPS Setup	Links to the **MGROUPS Setup** page.
Upgrade Firmware	Link to the **Upgrade Firmware** page.
Home Page	Link to the **Home Page** page.

a.If you select **No** for **RTFM Announcement**, you will not hear a beep or associated RTFM audio. However, the return to default settings function remains active. If you wish to return to default settings, hold the RTFM button at least 20 seconds, then release the button.

3. After changing the parameters, click **Save Settings**.

2.3.4 Configure the SIP Parameters

1. Click **SIP Setup** to open the **SIP Setup** page (Figure 2-15).

Note For specific server configurations, go to the following URL:
http://www.cyberdata.net/support/voip/index.html

Figure 2-15. SIP Setup Page

2. On the **SIP Setup** page, enter values for the parameters indicated in Table 2-11.

Table 2-11. SIP Setup Parameters

Web Page Item	Description
SIP Server*	Enter the SIP server represented as either a numeric IP address in dotted decimal notation or the fully qualified host name (FQHN) up to 64 characters.
Outbound Proxy	Enter the Outbound Proxy as either a numeric IP address in dotted decimal notation or the fully qualified host name (FQHN) up to 64 characters.
Remote SIP Port*	Enter the **Remote SIP Port** number (default 5060).
Local SIP Port*	Enter the **Local SIP Port** number (default 5060).
SIP User ID*	Enter the **SIP User ID** (up to 25 alphanumeric characters).
Authenticate ID*	Enter the **Authenticate ID** (up to 25 alphanumeric characters).
Authenticate Password*	Enter the **Authenticate Password** (up to 25 alphanumeric characters).
SIP Registration*	Enable/Disable SIP Registration.
Unregister on Reboot*	• Select **Yes** to automatically unregister the paging amplifier when it is rebooted. • Select **No** to keep the paging amplifier registered when it is rebooted.
Register Expiration*	Enter the SIP Registration lease time in minutes (default 60 minutes).
Save Settings	Click this button to save your configuration settings. Changing a parameter that has an asterisk next to it will cause a system reboot when saved.
Network Setup	Link to the **Network Setup** page.
Speaker Setup	Link to the **Speaker Setup** page.
MGROUPS Setup	Links to the **MGROUPS Setup** page.
Upgrade Firmware	Link to the **Upgrade Firmware** page.
Home Page	Link to the **Home** page.

3. After changing the parameters, click **Save Settings**.

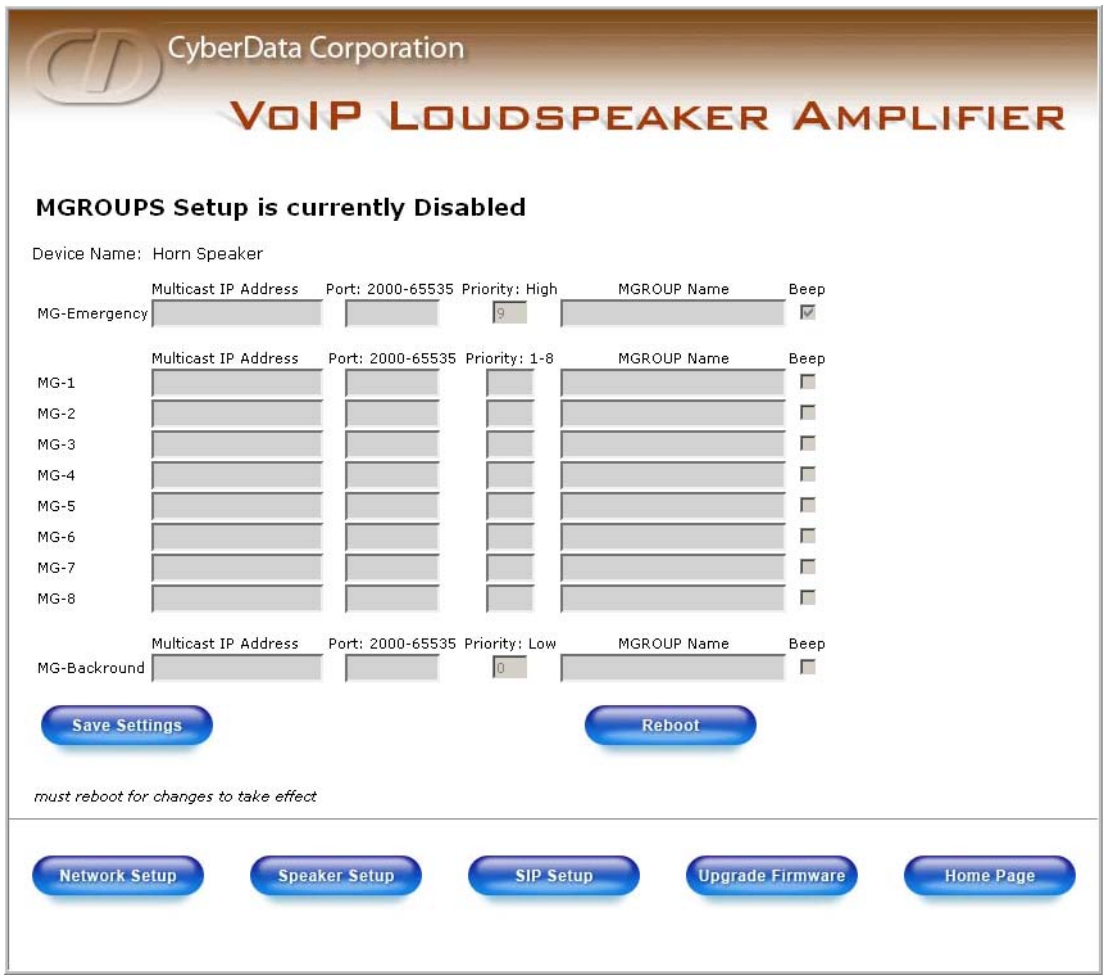
2.4 Set up the MGROUPS

MGROUPS uses multicasting to create Public Address Paging Zones. Multicasting is based on the concept of a group. Multicast addresses specify an arbitrary group of IP hosts that have joined the group and want to receive traffic sent to the group. Group members send IGMP messages to their local multicast routers, allowing the group traffic traversal from the source.

MGROUPS Setup provides the ability to join up to 10 Paging Zones. A Paging Zone can consist of one, or many, CyberData MGROUPS-enabled speakers. There is no limit to how many speakers can be in a given Paging Zone. Each MGROUP is defined by a multicast address and port number. Each MGROUP is also assigned a priority, allowing simultaneously arriving pages to be serviced based on importance. MGROUPS are compatible with IGMP through version 3.

1. Click on the **MGROUPS Setup** button to open the **MGROUPS Setup** page. See Figure 2-16.

Figure 2-16. MGROUPS Setup



2. On the **MGROUPS Setup** page, enter values for the parameters indicated in Table 2-12.

Table 2-12. MGROUPS Setup Parameters

Web Page Item	Description
Device Name	Displays the device name.
MG-Emergency	Use MG-Emergency for the MGROUP with the highest priority.
MG-(1-8)	Use MG-(1-8) to assign MGROUPS 1 through 8.
MG-Background	Use MG-Background for the MGROUP with the lowest priority (background audio for example).
Multicast IP Address	Enter the multicast IP Address for this MGROUP.
Port 2000-65535	Enter the port number for this MGROUP.
Priority	Assign the priority for this MGROUP (the higher the number, the higher the priority).
MGROUP Name	Assign a descriptive name for this MGROUP.
Beep	Check this box if you want a beep to precede a page.
Save Settings	Click this button to save your configuration settings.
Reboot	Click this button to reboot the system.
Network Setup	Link to the **Network Setup** page.
Speaker Setup	Link to the **Speaker Setup** page.
SIP Setup	Link to the **SIP Setup** page.
Upgrade Firmware	Link to the **Upgrade Firmware** page.
Home Page	Link to the **Home** page.

3. After changing the parameters, click **Save Settings**.

Note For information on how to set up MGROUPS in Cisco Call Manager Express, see Appendix D, "Setting Up MGROUPS in Cisco Call Manager Express".

2.5 Upgrade the Firmware and Reboot the Loudspeaker Amplifier

To upload the speaker firmware from your PC:

1. Set up a TFTP server.

   If you do not already have a TFTP server running on your network, see Chapter B, "Setting up a TFTP Server".

2. Retrieve the latest speaker firmware from the CyberData website: http://www.cyberdata.net/support/voip/index.html

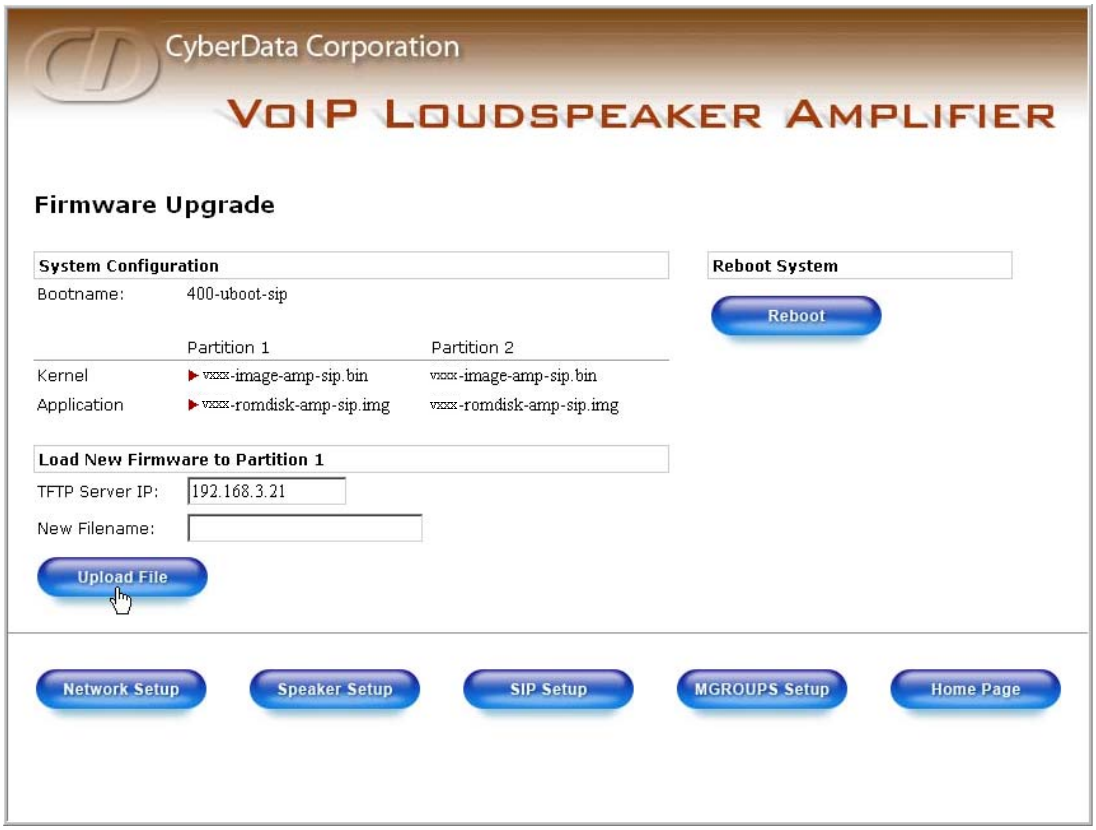
3. Unzip the speaker version file. This file may contain the following:
   - y

4. Copy the firmware files to be upgraded to the appropriate TFTP server directory:
   - c:\tftp-root\ (for Windows)
   - /tftpboot/ (for Linux)

5. Log in to the speaker home page as instructed in Section 2.3.1, "Log in to the Configuration Home Page".

6. Click the **Upgrade Firmware** button to open the **Firmware Upgrade** page. See Figure 2-17.

Figure 2-17. Firmware Upgrade Page



7. Enter the IP address of your TFTP server into the **TFTP Server IP** parameter field.
8. Enter the firmware filename of the file to be uploaded into the **New Filename** parameter field.

   For example, kernel filename "201-image-spk-sip.bin".
9. Click **Upload File**.

Note This starts the upload process. Once the speaker has uploaded the file, the **Uploading Firmware** countdown page appears, indicating that the firmware is being written to flash. The speaker will automatically reboot when the upload is complete. When the countdown finishes, the **Firmware Upgrade** page will refresh. The uploaded firmware filename should be displayed in the system configuration (indicating successful upload and reboot).

10. Repeat steps 8 and 9 if you are uploading the **Kernel** and **Application** files.

    For example, **Application** filename "201-romdisk-spk-sip.img".

    Table 2-13 shows the web page items on the **Firmware Upgrade** page.

Table 2-13. Firmware Upgrade Parameters

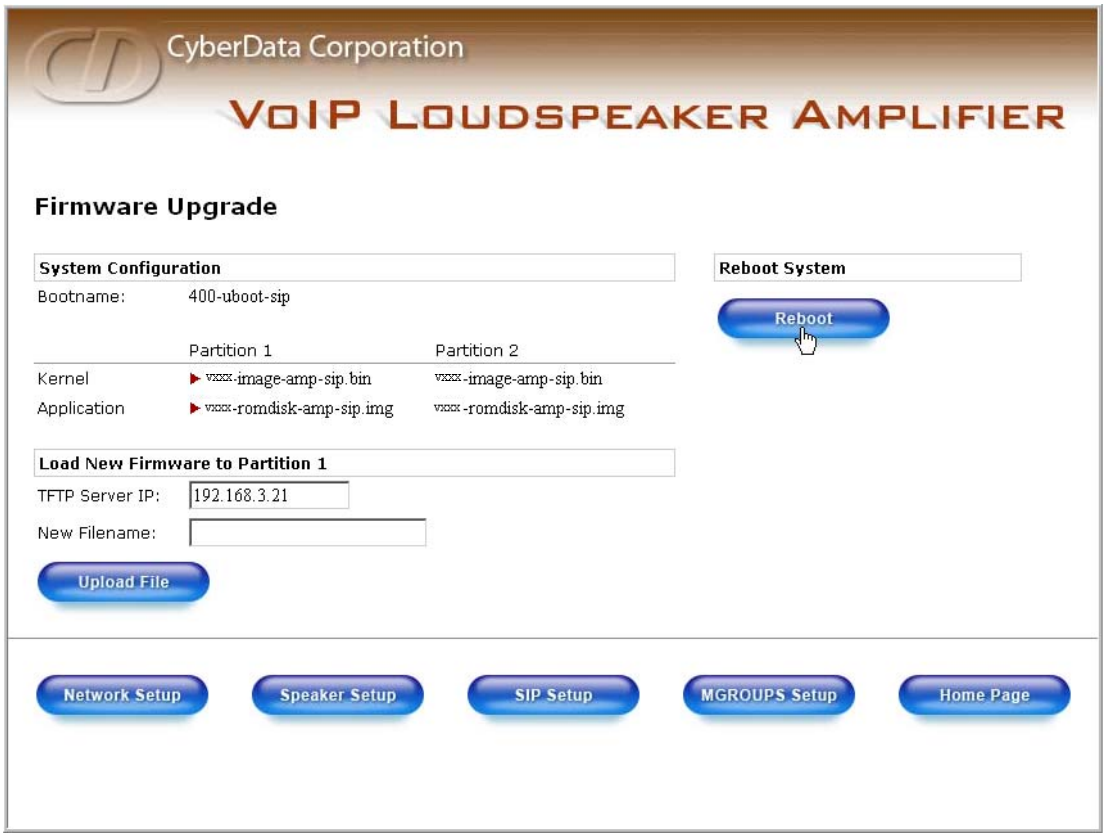
Web Page Item	Description
System Configuration	Shows the current configuration.
Bootname	Shows the current boot loader filename.
Kernel	Shows the current kernel filename for partition 1 and 2.
Application	Shows the current application filename for partition 1 and 2.
Load new firmware to Partition 1	Enter the TFTP Server IP address.
New Filename	Enter the new file name for the kernel or application firmware file that you are uploading.
Upload File	Click on this button to automatically upload the selected firmware and reboot the system.
Network Setup	Link to the **Network Setup** page.
Speaker Setup	Link to the **Speaker Setup** page.
SIP Setup	Link to go to the **SIP Setup** page.
MGROUPS Setup	Links to the **MGROUPS Setup** page.
Home Page	Link to the **Home** page.
Reboot	Click on this button to reboot the system.

2.5.1 Reboot the Loudspeaker Amplifier

To reboot a loudspeaker amplifier, log in to the web page as instructed in Section 2.3.1, "Log in to the Configuration Home Page".

1. Click **Upgrade Firmware** to open the **Firmware Upgrade** page (Figure 2-18). Use the **Reboot System** section on the right side of the page.

Figure 2-18. Reboot System Section



2. Click **Reboot**. A normal restart will occur as per the Status LED section of Table 2-6.

2.6 Restore the Factory Default Settings

When troubleshooting configuration problems, it is sometimes convenient to restore the device to a known state.

Each loudspeaker amplifier is delivered with factory set default values for the parameters indicated in Table 2-14. Use the **RTFM** switch on the loudspeaker amplifier face to restore these parameters to the factory default settings.

When you use the RTFM switch, the factory default settings are restored for *only* the parameters indicated in Table 2-14. The other parameters in the current loudspeaker amplifier configuration will remain unchanged.

Table 2-14. Factory Default Settings

Parameter	Factory Default Setting
IP Addressing	static
IP Address	192.168.3.10
Web Access Username	admin
Web Access Password	admin
Subnet Mask	255.255.255.0
Default Gateway	192.168.3.1

To restore these parameters to the factory default settings:

1. Press and hold the RTFM switch for 20 seconds.
2. The loudspeaker amplifier will beep after one second. Continue to hold the switch until the loudspeaker amplifier beeps again after 20 seconds.
3. Release the switch. The following occurs:
   - A voice message announces that the factory default settings are being restored.
   - Once the settings are restored, a voice message announces the restored default IP address:

     `192.168.3.10`

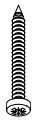
   - A voice message announces that the loudspeaker amplifier is rebooting.
   - The loudspeaker amplifier reboots.

Appendix A: Mounting the Enclosure

A.1 Mount the Enclosure

Before you mount the enclosure, make sure that you have received all of the parts for each enclosure. Refer to Table A-15.

Table A-15. Wall Mounting Components (Part of the Accessory Kit)

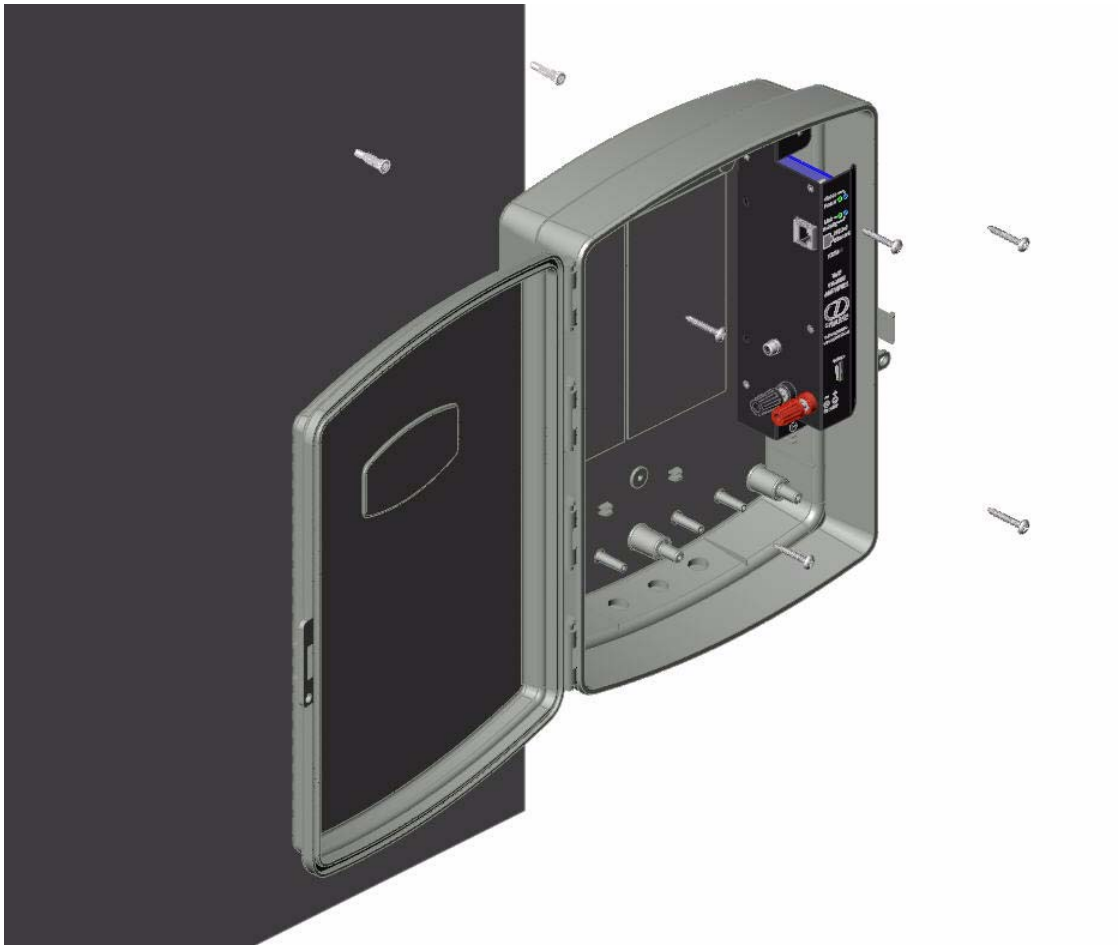
Quantity	Part Name	Illustration
3	#8 Sheet Metal Screws	

Note The loudspeaker amplifier was designed for indoor use. Mounting it on the external part of a building will require additional hardware for weatherproofing, cabling access, and lightning suppression. Consult a certified electrician for details.

See Figure A-1 to mount the enclosure.

Note For mounting, use the three **#8 SHEET METAL SCREWS** to secure the enclosure.

Figure A-1. Loudspeaker Amplifier Enclosure Assembly



Appendix B: Setting up a TFTP Server

B.1 Set up a TFTP Server

Upgrading the VoIP Loudspeaker Amplifier firmware requires a TFTP server on which you access the Web interface where you can upload the firmware files.

B.1.1 In a LINUX Environment

To set up a TFTP server on LINUX:

1. Create a directory dedicated to the TFTP server, and move the files to be uploaded to that directory.
2. Run the following command where `/tftpboot/` is the path to the directory you created in Step 1: the directory that contains the files to be uploaded. For example:

   ```
   in.tftpd -l -s /tftpboot/your_directory_name
   ```

B.1.2 In a Windows Environment

You can find several options online for setting up a Windows TFTP server. This example explains how to use the Solarwinds freeware TFTP server, which you can download at:

http://www.cyberdata.net/support/voip/index.html

To set up a TFTP server on Windows:

1. Install and start the software.
2. Select **File/Configure/Security** tab/**Transmit Only**.
3. Make a note of the default directory name, and then move the firmware files to be uploaded to that directory.
4. You can find several options online for setting up a Solarwinds server. This example explains how to use the Solarwinds freeware TFTP server, which you can download at:

   http://www.cyberdata.net/support/voip/index.html

Appendix C: Troubleshooting/Technical Support

C.1 Frequently Asked Questions (FAQ)

Go to the following URL to see CyberData's list of frequently asked questions:

http://www.cyberdata.net/support/voip/index.html

C.2 Documentation

The documentation for this product is released in an English language version only. You can download PDF copies of CyberData product documentation at:

http://www.cyberdata.net/support/voip/index.html

C.3 Contact Information

Contact	CyberData Corporation 2555 Garden Road Monterey, CA 93940 USA www.CyberData.net Phone: 800-CYBERDATA (800-292-3732) Fax: 831-373-4193
Sales	Sales (831) 373-2601 Extension 334
Technical Support	Phone: 831-373-2601 Extension 333 Email: support@CyberData.net
Returned Materials Authorization	To return the product, contact the CyberData Returned Materials Authorization (RMA) department at: Phone: 831-373-2601, Extension 136 Email: RMA@CyberData.net When returning a product to CyberData, an approved CyberData RMA number must be printed on the outside of the original shipping package. No product will be accepted for return without an approved RMA number. Send the product, in its original package, to the following address: CyberData Corporation 2555 Garden Road Monterey, CA 93940 Attention: RMA "your RMA number"

C.4 Warranty

CyberData warrants its product against defects in material or workmanship for a period of two years from the date of purchase. Should the product fail within the warranty period, CyberData will repair or replace the product free of charge. This warranty includes all parts and labor.

If the product is out-of-warranty and fails, a flat rate repair charge of one half the product purchase price will be assessed. Repair costs for products that are in warranty, but damaged by improper modifications or abuse, will be charged at the out-of-warranty rate. Products returned to CyberData, both in and out-of-warranty, are shipped to CyberData at the expense of the customer. Charges for shipping repaired products back to the customer will be paid by CyberData.

Index

Symbols

#8 sheet metal screws 29

Numerics

3 x #8 x 1-1/4" truss head screws 5

A

accessory kit 5
activity LED 11
address, configuration login 14
announcing a loudspeaker amplifier's IP address 12
announcing a speaker's IP address 24
asterisk 17, 20
audio encodings 3
audio line out 9

C

cablling
    length for maximum output 10
changing
    the web access password 19
configurable parameters 15, 17, 19, 22, 26
configuration
    default IP settings 14
    network 17
    SIP 20
    using Web interface 14
configuration home page 14
CyberData contact information, corporate, sales, tech support, service 33

D

default
    gateway 6, 14, 28
    IP address 6, 14, 28
    loudspeaker amplifier settings 35
    subnet mask 6, 14, 28
    username and password 6, 14, 28
    web login username and password 14
default gateway 6, 14, 17, 28
default IP settings 14
default login address 14
default loudspeaker amplifier settings 28
DHCP Client 3
DHCP IP addressing 17
dimensions 3
DNS server 17

E

electrical code requirements 9
enclosure, mounting 29
expiration time for SIP server lease 22

F

factory default settings 28
firmware upgrades 31

H

home page 14
http web-based configuration 3

I

illustration of enclosure mounting process 29
installation, typical loudspeaker amplifier system 1
IP address 6, 14, 17, 28
IP addressing 17

J

jumpers, settings 7

L

lease, SIP server expiration time 22
LEDs 11
line out output 9

link LED 11
Linux, setting up a TFTP server on 31
local SIP port 22
log in address 14
loudspeaker amplifer configuration page
    configurable parameters 19
loudspeaker amplifer setup 19
loudspeaker amplifier configuration
    default IP settings 14
loudspeaker amplifier configuration page
    configurable parameters 15, 17, 22, 26
loudspeaker amplifier operations, verifying 19
loudspeaker, cabling/wiring 10
loudspeaker, type 9

M

MGROUP
    MG-(1-8) 24
    MG-Background 24
    MG-Emergency 24
    MGROUP Name 24
    Multicast IP Address 24
mounting an enclosure 29

N

network configuration of loudspeaker amplifier 17
network link activity, verifying 11
Network Setup 17

O

outbound proxy 22
output 3

P

packet time 3
part number 3
parts
    #8 sheet metal screws 29
parts list 5
password
    changing for web configuration access 19
    for SIP server login 22
    login 14
    restoring the default 6, 14, 28
port
    local SIP 22
    remote SIP 22
port baud rate 3
power LED 11
power requirement 3
power, connecting to loudspeaker amplifier 8
product
    configuring 14
    mounting 29
    parts list 5
product features 2
product overview
    product features 2
    product specifications 3
    supported protocols 3
    supported SIP servers 3
    typical system installation 1
product specifications 3
protocols supported 3

R

reboot 26, 27, 28
registration and expiration, SIP server lease 22
remote SIP port 22
reset test function management switch 12
resetting the IP address to the default 29, 33
restoring factory default settings 28, 35
RMA returned materials authorization 33
RTFM switch 12, 28
RTP/AVP 3

S

sensitivity 3
server address, SIP 22
setting up a TFTP server 31
settings, default 28
SIP (session initiation protocol) 3
SIP Configuration 20
SIP configuration
    SIP Server 22
SIP registration 22
SIP server 22
    SIP servers supported 3
speakers
    maximum output 10
static IP addressing 17
status LED 11
subnet mask 6, 14, 17, 28
supported protocols 3

T

technical support, contact information 33
TFTP server 3, 31
truss head screws 5

U

unregister, from SIP server 22
user ID
    for SIP server login 22
user ID, SIP 22
username
    changing for web configuration access 19
    default for web configuration access 14
    restoring the default 6, 14, 28

V

verifying
    loudspeaker amplifier operations 19
    network link and activity 11
    power on to loudspeaker amplifer 11

W

warranty 34
web access password 6, 14, 28
web access username 6, 14, 28
web configuration log in address 14
web-based loudspeaker amplifier configuration 14
weight 3
Windows, setting up a TFTP server on 31
wiring 10
    cable length 10
    wiring and speakers for maximum output 10
wiring, electrical code 10