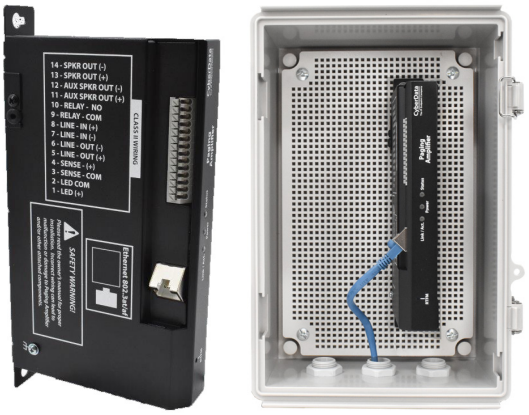
CyberData

The IP Endpoint Company



Paging Amplifier Operations Guide

Part #011324, 011403, 011405, 011407

Document Part #*932064A*
for Firmware Version *22.0*

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Paging Amplifier Operations Guide 932064A
Part # 011324, 011403, 011405, 011407

CyberData
The IP Endpoint Company

Technical Support

The fastest way to get technical support for your VoIP product is to submit a VoIP Technical Support form at the following website:
https://support.cyberdata.net/

Phone: (831) 373-2601, Ext. 333
Fax: (831) 373-4193
Company and product information is at **www.cyberdata.net**.

Revision Information

Revision 932064A, which corresponds to firmware version 22.0, was released on November 19, 2024.

Pictorial Alert Icons

 GENERAL ALERT	General Alert *This pictoral alert indicates a potentially hazardous situation. This alert will be followed by a hazard level heading and more specific information about the hazard.*
	Ground *This pictoral alert indicates the Earth grounding connection point.*

Hazard Levels

Danger: Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This is limited to the most extreme situations.

Warning: Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

Caution: Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also alert users against unsafe practices.

Notice: Indicates a statement of company policy (that is, a safety policy or protection of property).

The safety guidelines for the equipment in this manual do not purport to address all the safety issues of the equipment. It is the responsibility of the user to establish appropriate safety, ergonomic, and health practices and determine the applicability of regulatory limitations prior to use. Potential safety hazards are identified in this manual through the use of words Danger, Warning, and Caution, the specific hazard type, and pictorial alert icons.

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
13. Prior to installation, consult local building and electrical code requirements.

Warning

Electrical Hazard: This product should be installed by a licensed electrician according to all local electrical and building codes.

Warning

Electrical Hazard: To prevent injury, this apparatus must be securely attached to the floor/wall in accordance with the installation instructions.

Warning

The PoE connector is intended for intra-building connections only and does not route to the outside plant.

Abbreviations and Terms

Abbreviation or Term	Definition
A-law	A standard companding algorithm, used in European digital communications systems to optimize, i.e., modify, the dynamic range of an analog signal for digitizing.
AVP	Audio Video Profile
Cat 5	TIA/EIA-568-B Category 5
DHCP	Dynamic Host Configuration Protocol
LAN	Local Area Network
LED	Light Emitting Diode
Mbps	Megabits per Second.
NTP	Network Time Protocol
PBX	Private Branch Exchange
PoE	Power over Ethernet (as per IEEE 802.3af standard)
RTFM	Reset Test Function Management
SIP	Session Initiated Protocol
SRTP	Secure Real Time Protocol
u-law	A companding algorithm, primarily used in the digital telecommunication
UC	Unified Communications
VoIP	Voice over Internet Protocol

Contents

1 Installing the Paging Amplifier

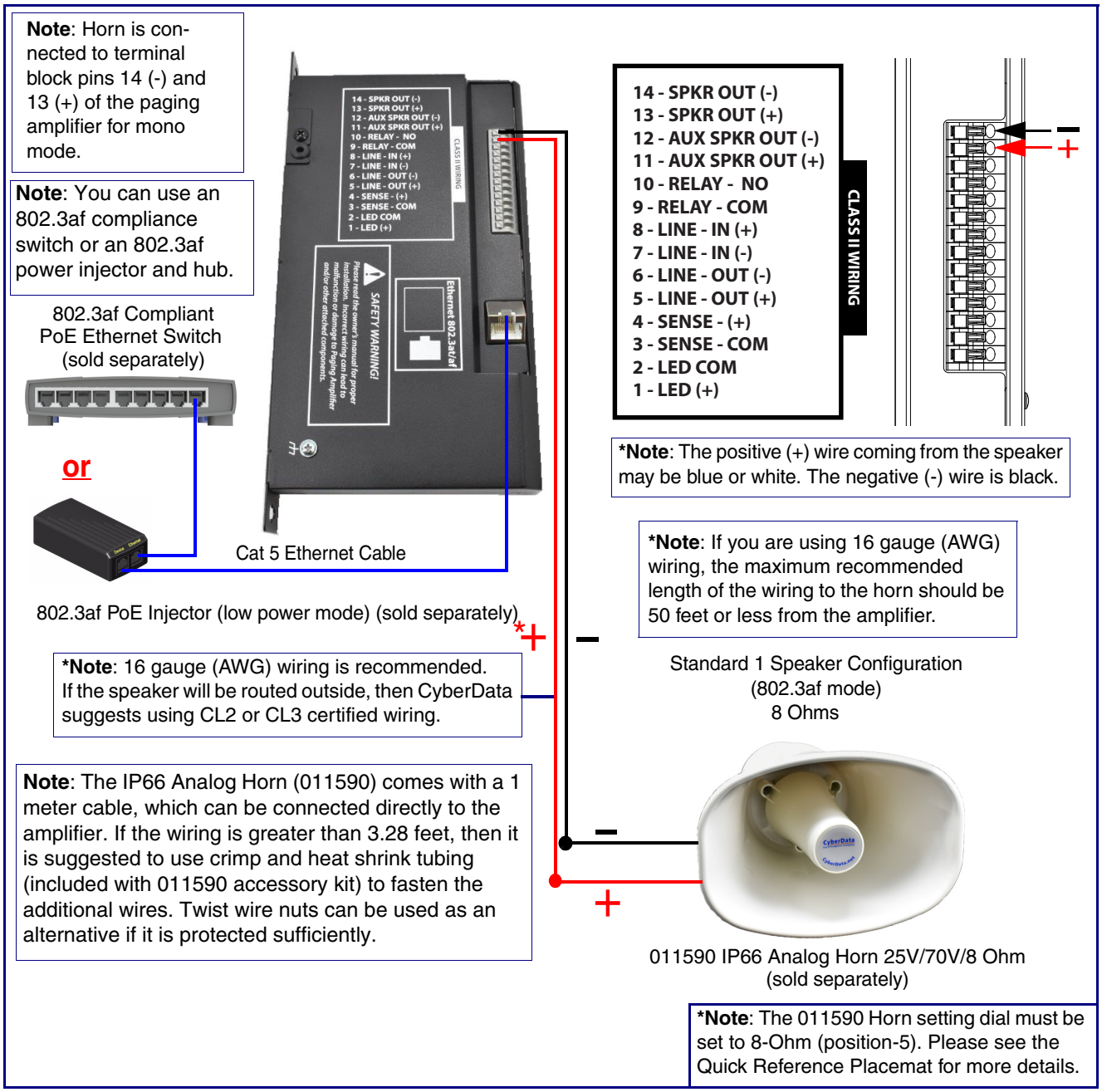
1.1 Connecting the Device

1.1.1 Using the Amplified Outputs

Low Power Mode (One Speaker)

The following figure illustrates how to connect the Paging Amplifier and use the amplified outputs in low power mode to one speaker or horn.

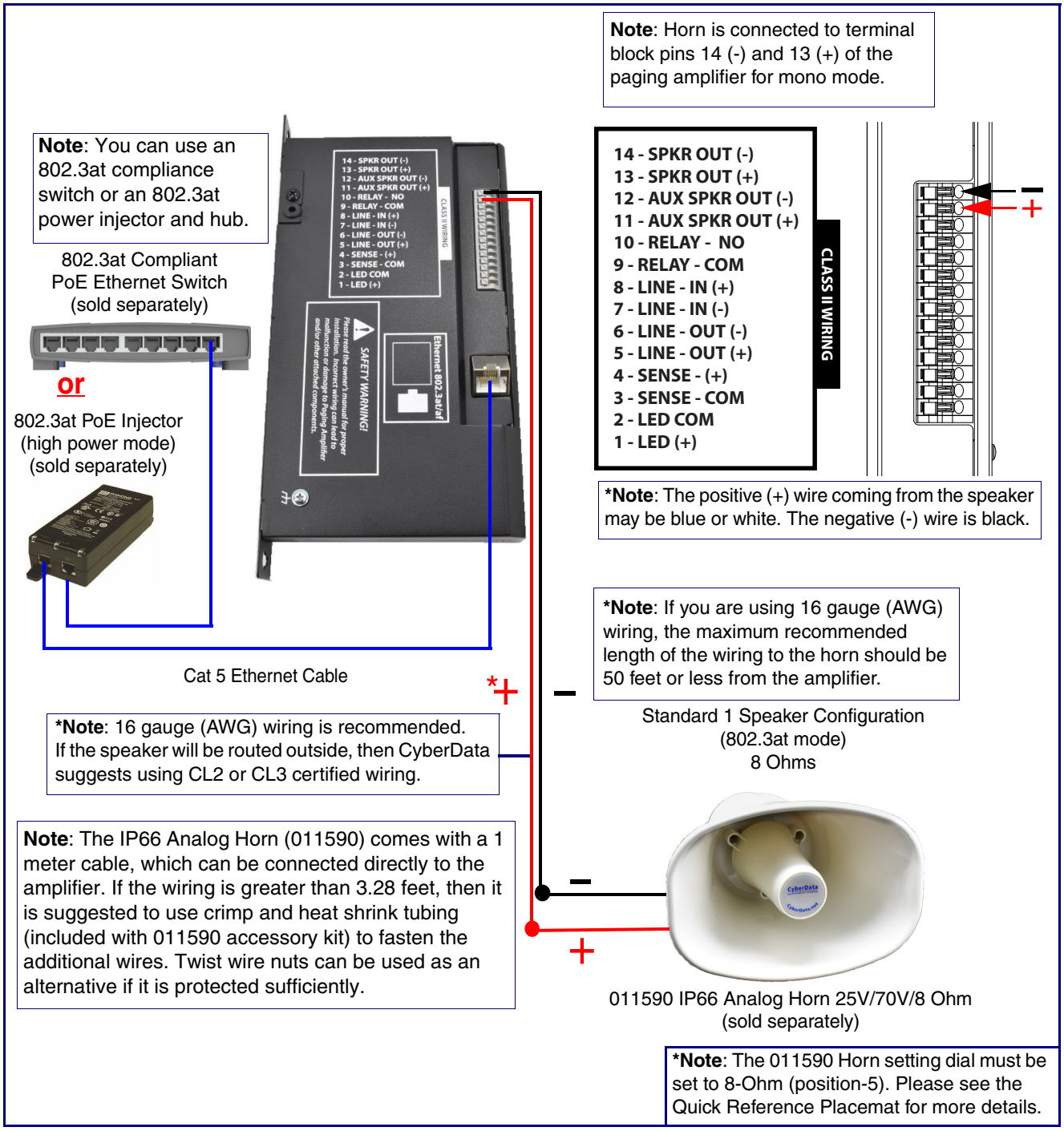
Figure 1-1. Low Power Mode with One Speaker



High Power Mode (One Speaker)

The following figure illustrates how to connect the Paging Amplifier and use the amplified outputs in high power mode to one speaker or horn.

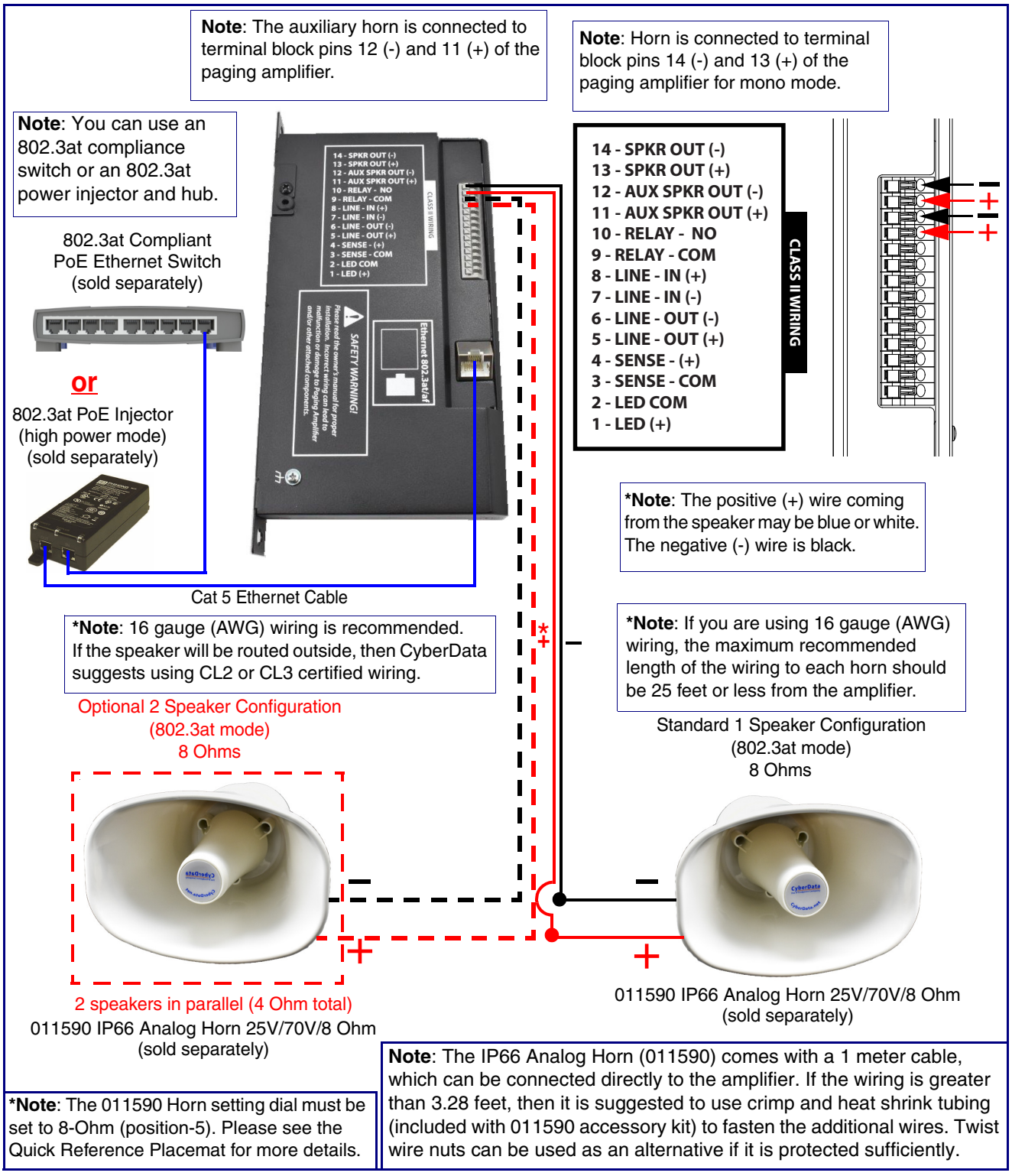
Figure 1-2. High Power Mode with One Speaker



High Power Mode (Two Speakers)

The following figure illustrates how to connect the Paging Amplifier and use the amplified outputs in high power mode to two speakers or horns.

Figure 1-3. High Power Mode with Two Speakers



1.1.2 System Installation and Connection Options

The following figures show the connection options for the Paging Amplifier.

Figure 1-4. Paging Amplifier Connections

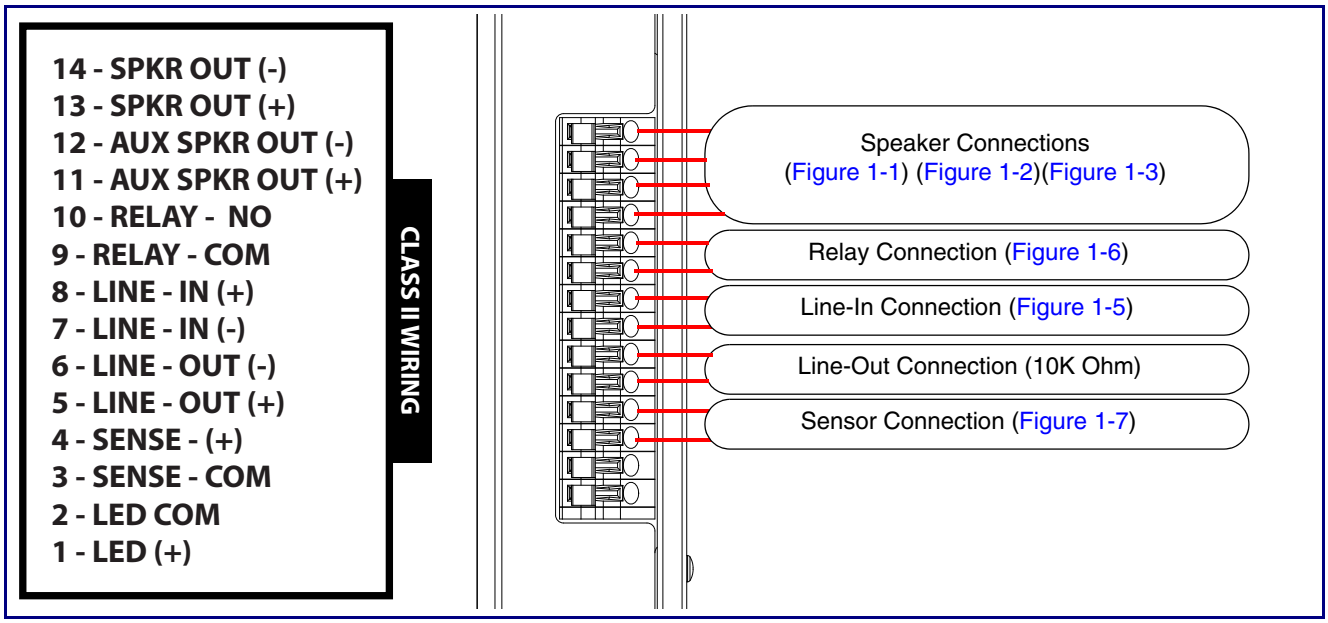


Figure 1-5. Line-In Connection

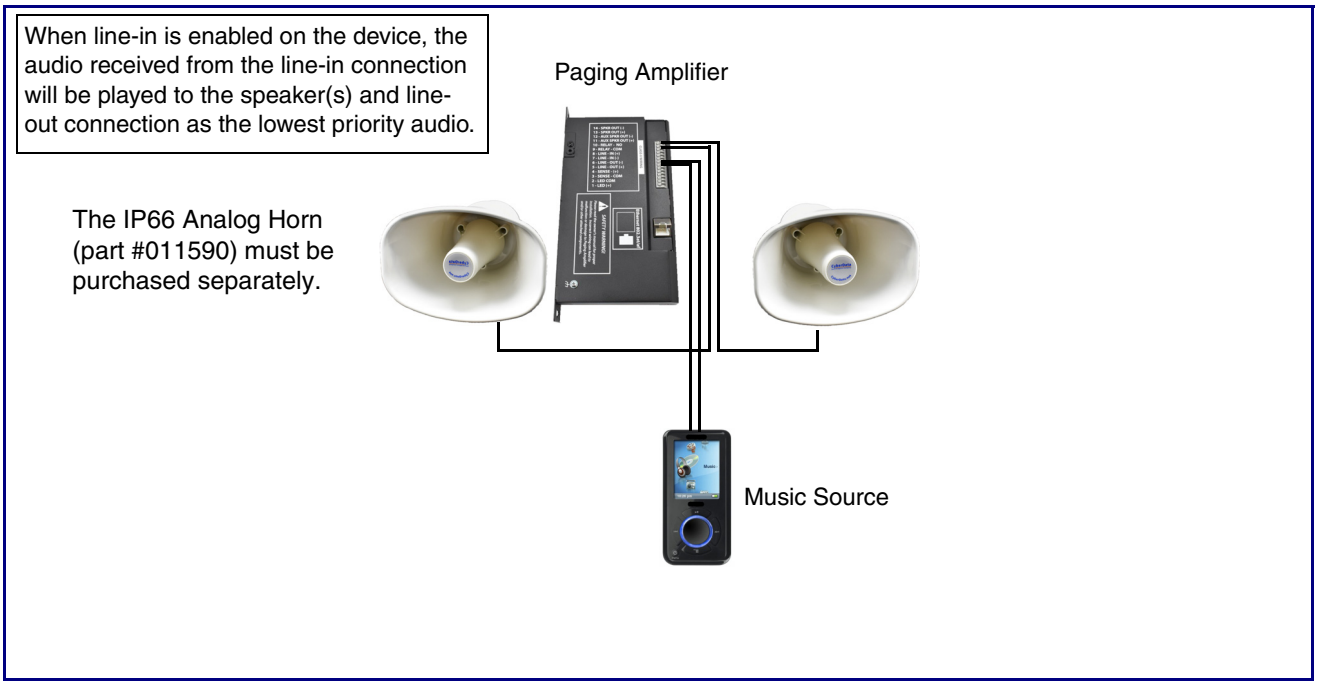


Figure 1-6. Relay or LED Strobe Connection

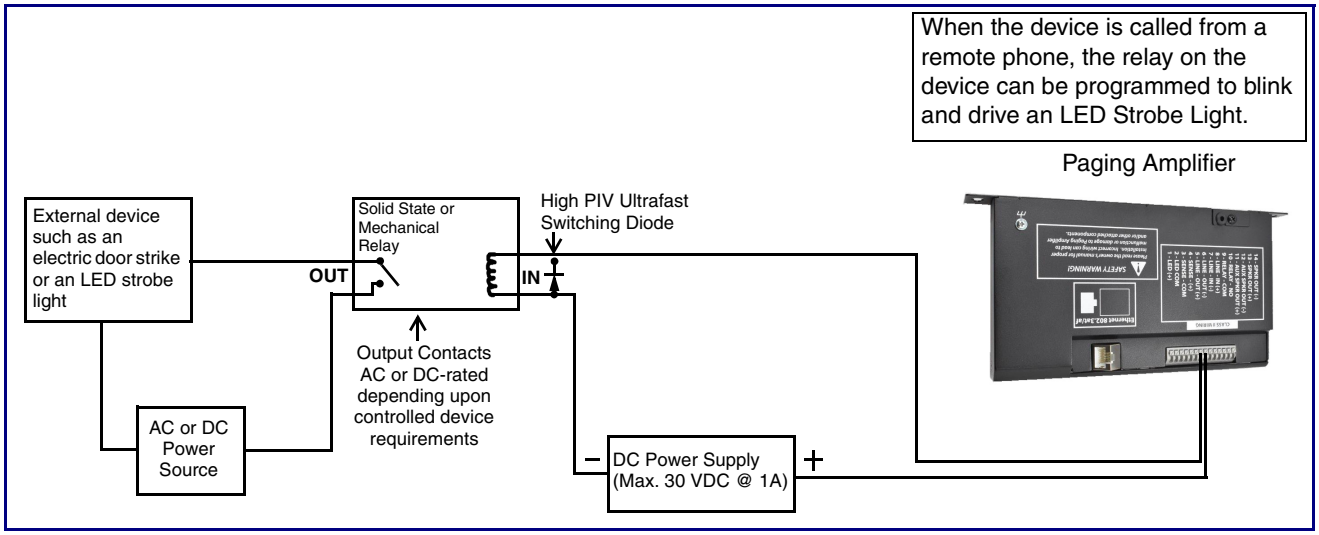
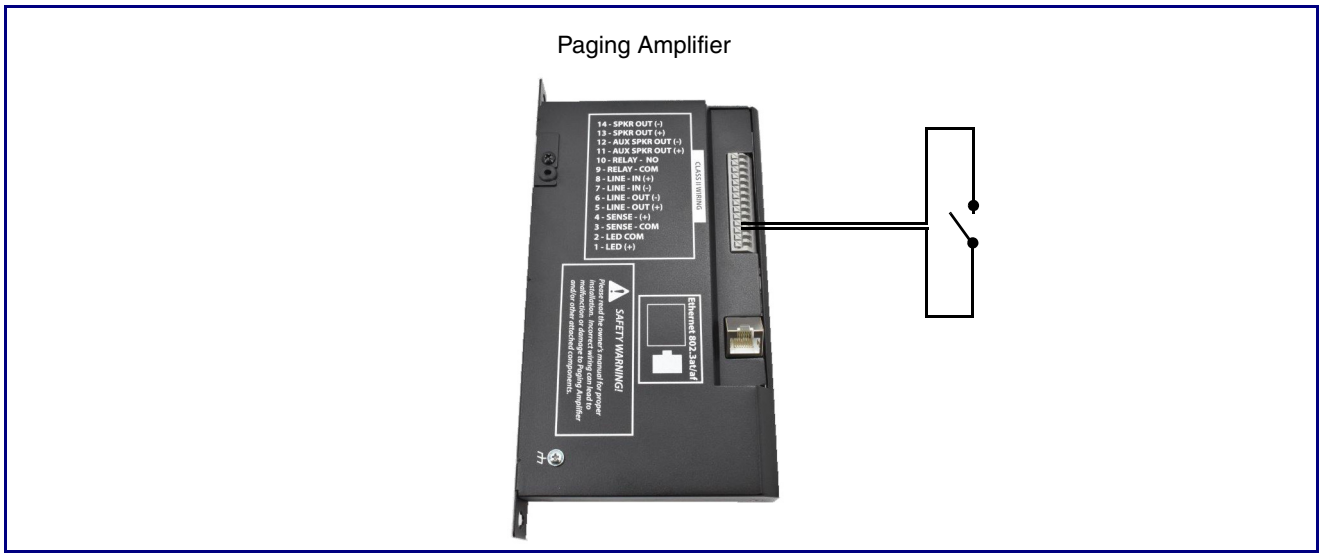


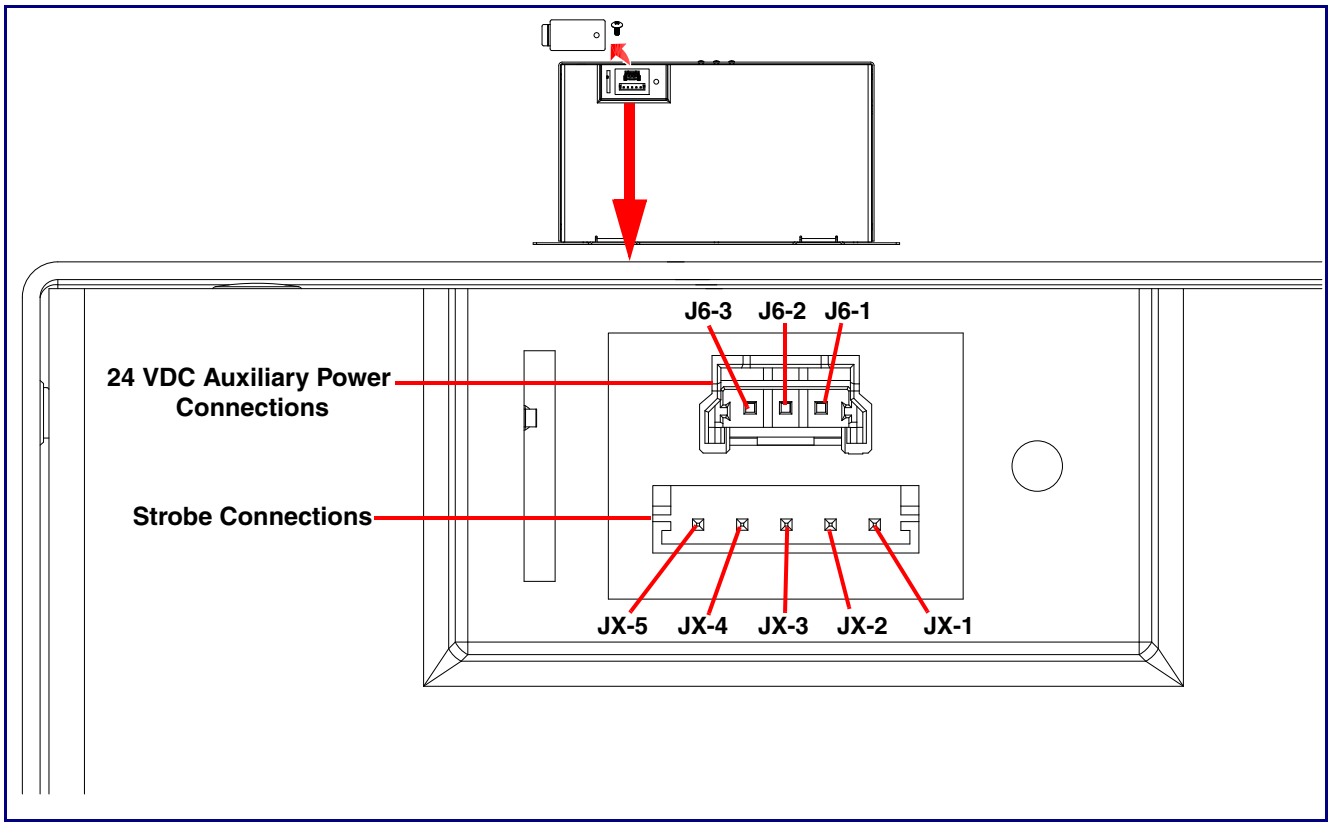
Figure 1-7. Sensor Connection



1.1.3 Strobe Connections Behind the Port Cover

See Figure 1-8 for the additional connection options for the Paging Amplifier.

Figure 1-8. Connections Behind the Port Cover



See Table 1-1 for the descriptions of the connections behind the port cover.

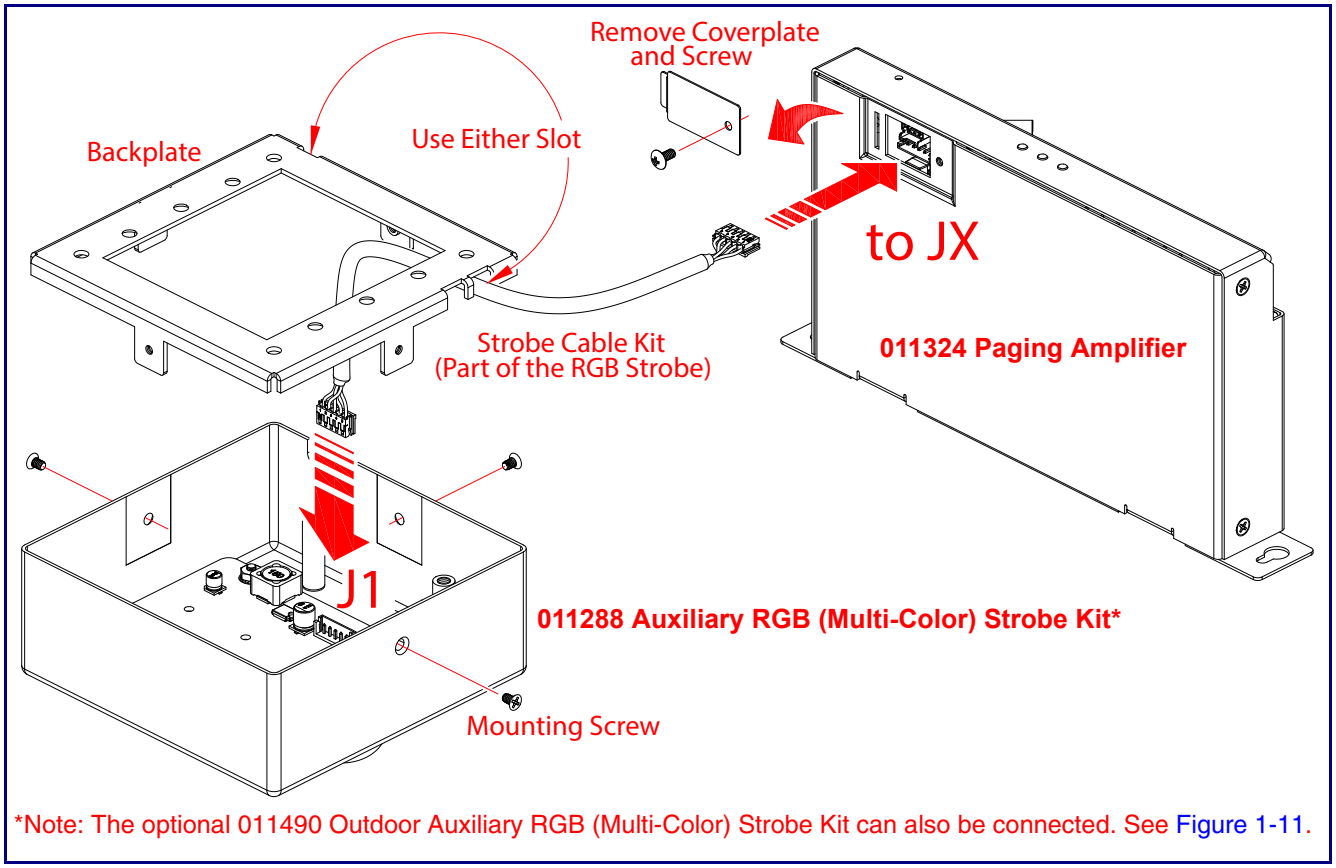
Table 1-1. Connections Behind the Port Cover

Connection	**Description**
J6-1	+24VDC
J6-2	Ground
J6-3	Chassis Ground
Strobe Connections	
Connection	**Description**
JX-1	Ground
JX-2	Strobe positive power (+24V)
JX-3	Ground
JX-4	I2C data
JX-5	I2C clock

1.1.4 Connecting the 011288 Auxiliary RGB (Multi-Color) Strobe Kit[1]

1. Remove the mounting screw to remove the cover plate. See Figure 1-9.
2. Remove the hole plug and grommet. See Figure 1-9.
3. Slide the cover plate through the slot on the cable grommet. See Figure 1-9.
4. Install the mounting screw to secure the cover plate. See Figure 1-9.

Figure 1-9. Connecting the 011288 Auxiliary RGB (Multi-Color) Strobe Kit



1.The optional 011490 Outdoor Auxiliary RGB (Multi-Color) Strobe Kit can also be connected. See Figure 1-11.

Figure 1-10. Connecting the 011288 Auxiliary RGB (Multi-Color) Strobe Kit

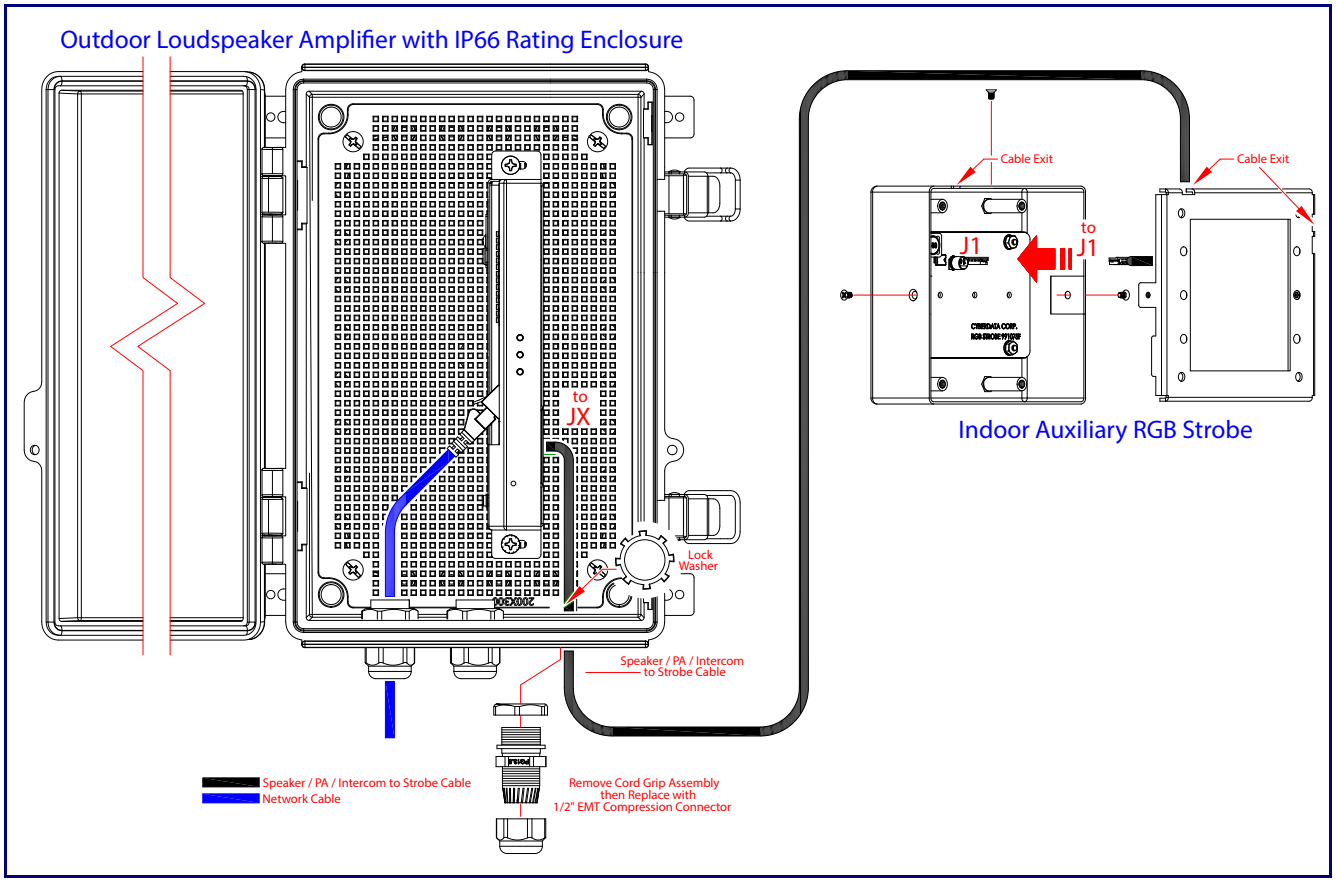
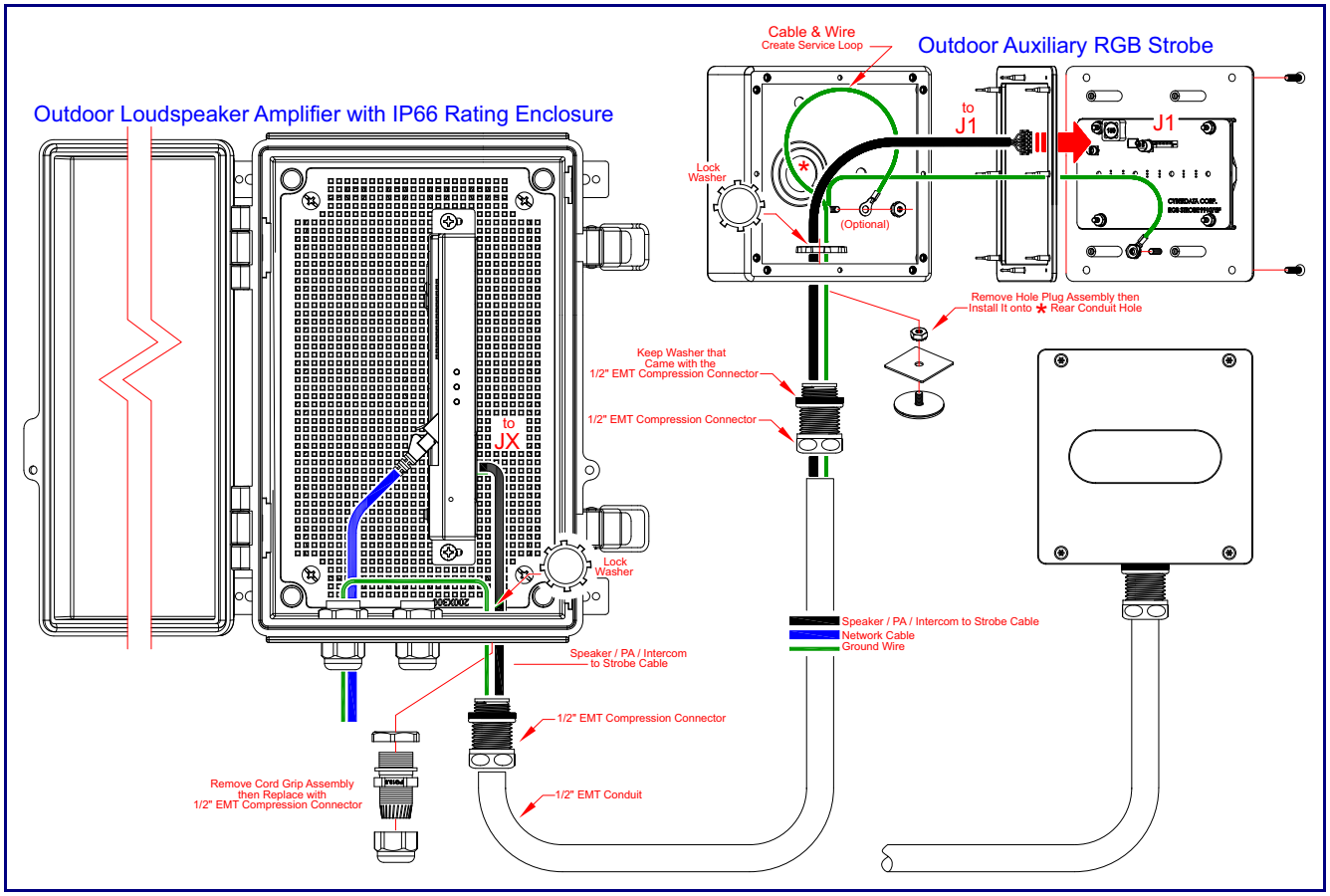


Figure 1-11. Connecting the 011490 Outdoor Auxiliary RGB (Multi-Color) Strobe Kit



1.1.5 Ethernet Connection

See Table 1-2 for details about the Paging Amplifier connection.

Table 1-2. Paging Amplifier Connection

Connection	Connection Details	Location
Ethernet	Use a RJ 45 cable.	Paging Amplifier

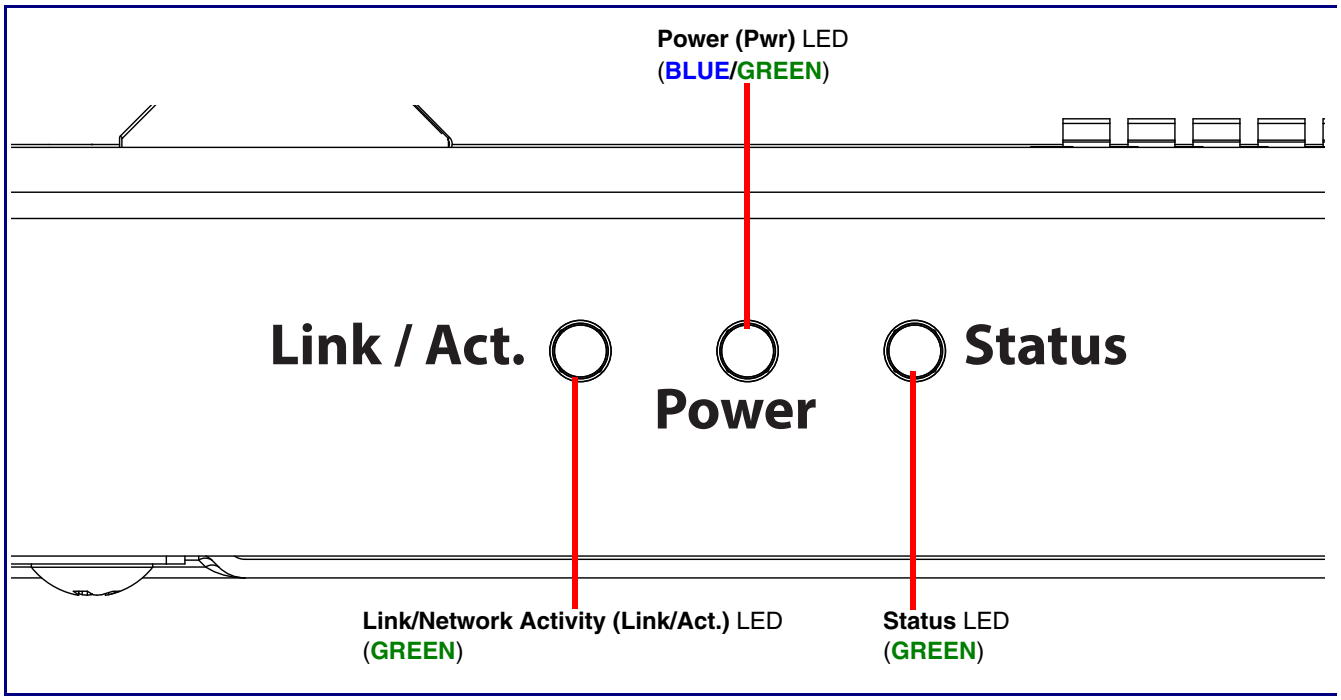
1.1.6 Confirm Operation

After connecting the Paging Amplifier to the 802.3af compliant ethernet hub, use the LEDs on the Paging Amplifier face to confirm that the Paging Amplifier is operational and linked to the network.

Table 1-3. Paging Amplifier LEDs

LED	Color	Function
Power (PWR)	**BLUE/GREEN**	The power LED is **GREEN** in low power mode (802.3af) and a **BLUE** during high power mode (802.3at). The power LED will blink during a boot up or a phone call.
Status	**GREEN**	After supplying power to the device, a steady **GREEN** **Status** LED illuminates. After about 20 seconds the **GREEN** **Status** LED will blink twice to indicate that the board is fully booted. The status LED will blink during a page when it is online.
Link/Network Activity (Link/Act.)	**GREEN**	The **Link/Network Activity (Link/Act.)** **GREEN** LED blinks to indicate network traffic.

Figure 1-12. Paging Amplifier LEDs



2 Configure the Device

2.2 Log In Page

1. Open your browser to the device IP address.

Note If the network does not have access to a DHCP server, the device will default to an IP address of 192.168.1.23.

Note Make sure that the PC is on the same IP network as the Paging Amplifier.

Note You may also download CyberData's VoIP Discovery Utility program which allows you to easily find and configure the default web address of the CyberData VoIP products.

CyberData's VoIP Discovery Utility program is available at the following website address:

https://www.cyberdata.net/pages/discovery

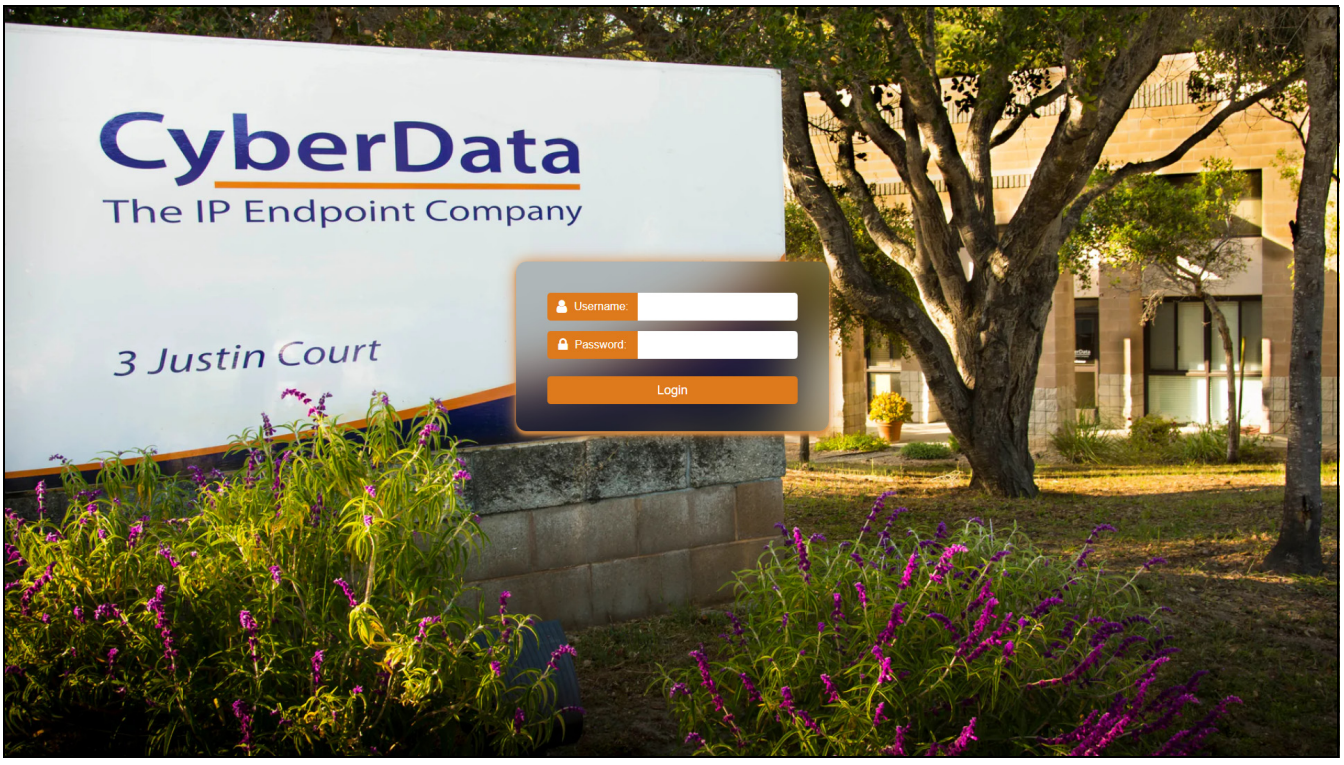
Note The Intercom ships in DHCP mode. To get to the **Home** page, use the discovery utility to scan for the device on the network and open your browser from there.

2. On the Log In Page (Figure 2-13), use the following default **Web Access Username** and **Web Access Password** to access the **Home Page** (Figure 2-2):

   Web Access Username: **admin**

   Web Access Password: **admin**

Figure 2-13. Log In Page

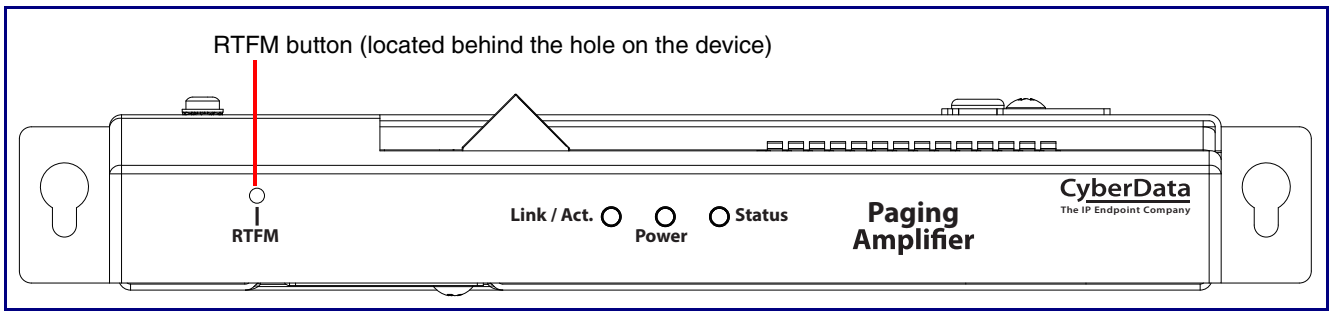


2.2.1 Announcing the IP Address

The RTFM button is located on the front of the each device (Figure 2-1). Use a paper clip to access the button through the hole.

Briefly pressing the RTFM button prompts the device to announce its IP address.

Figure 2-1. RTFM Button



2.2.2 Restoring Factory Defaults

To restore the device to its factory default settings (Table 3-1), hold the RTFM button for approximately seven seconds. After 15 to 20 seconds, "Restoring defaults, rebooting" is announced.

The device will default to DHCP to obtain an IP address, or will use 192.168.1.23 if a DHCP server is not present.

Table 2-1. Factory Default Settings

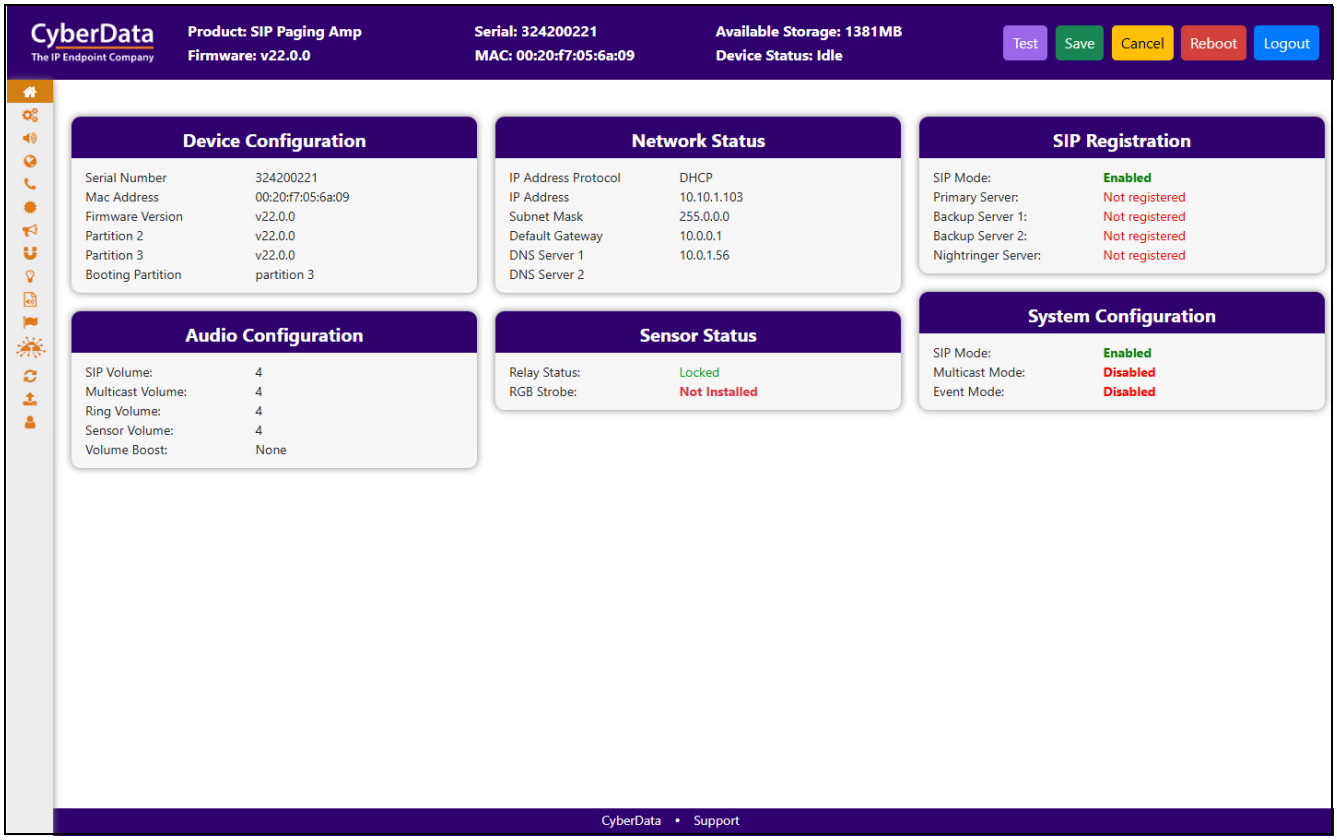
Parameter	Factory Default Setting
IP Addressing	DHCP
IP Address[a]	192.168.1.23
Web Access Username	admin
Web Access Password	admin
Subnet Mask[a]	255.255.255.0
Default Gateway[a]	192.168.1.1

a. Default if there is not a DHCP server present.

2.3 Home Page

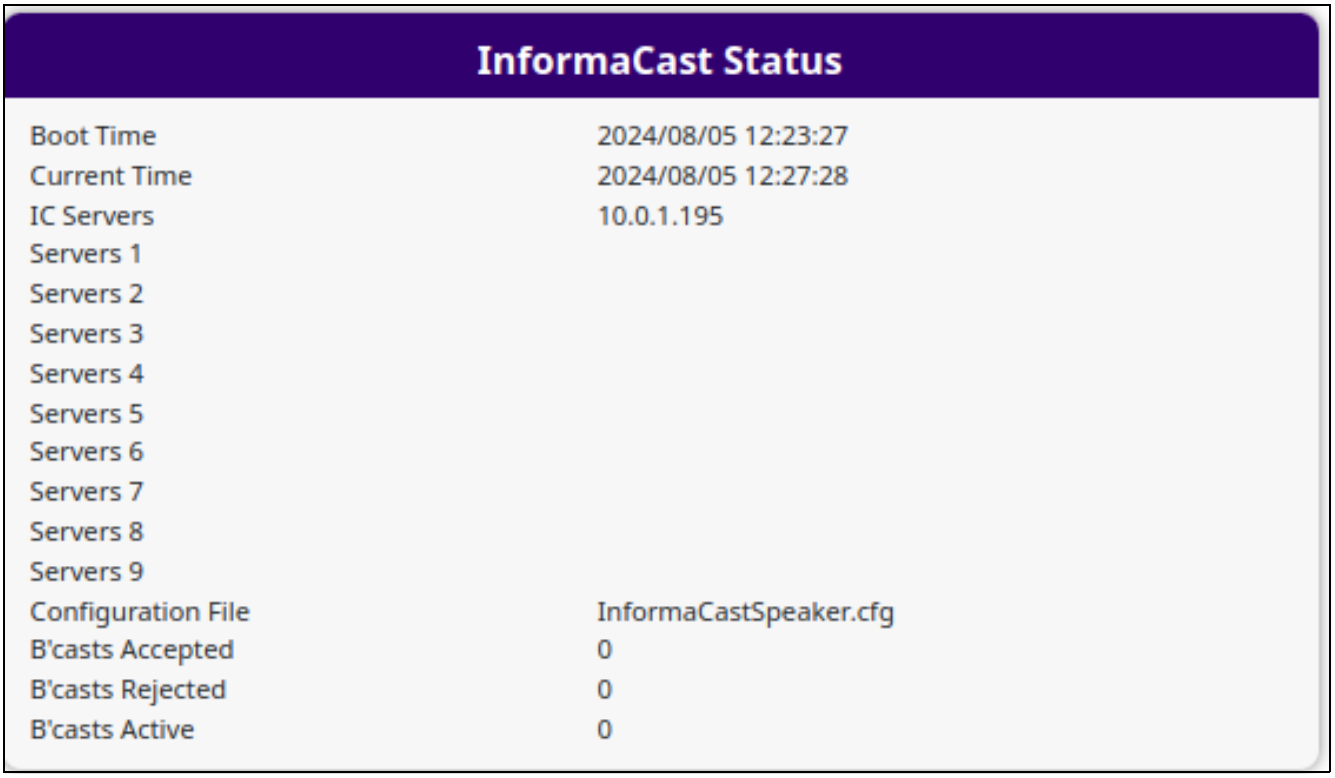
The **Home** page provides device specific information such as Serial Number, Mac Address, and Firmware version. This page is designed as an initial landing page to provide general information on the status of the device.

Figure 2-2. Home Page



If you are using an InformaCast enabled device, you will see the following:

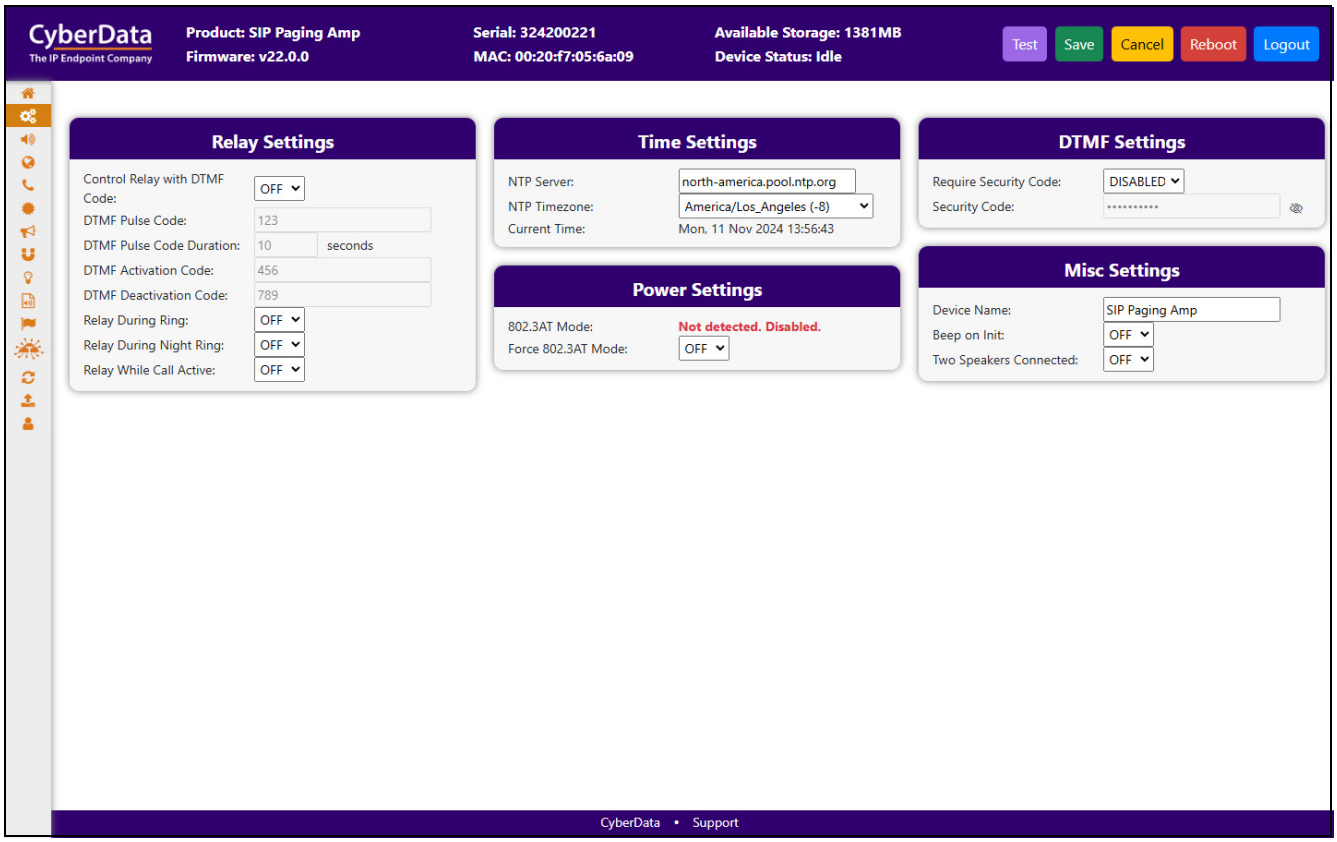
Figure 2-3. InformaCast enabled Device



2.4 Device

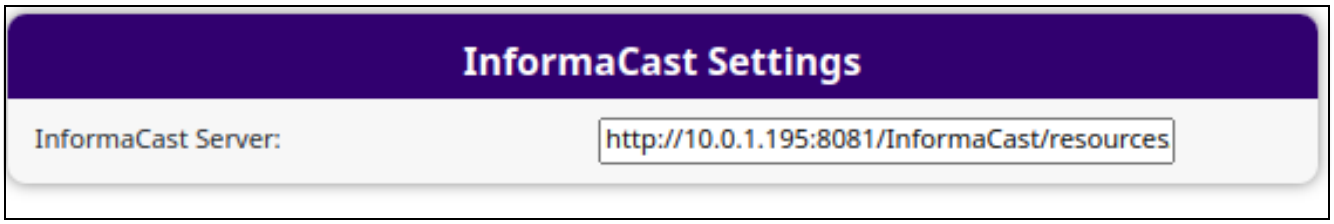
The **Device** page allows for adjustment of settings that pertain to the physical device such as relay settings and time zone.

Figure 2-4. Device Page



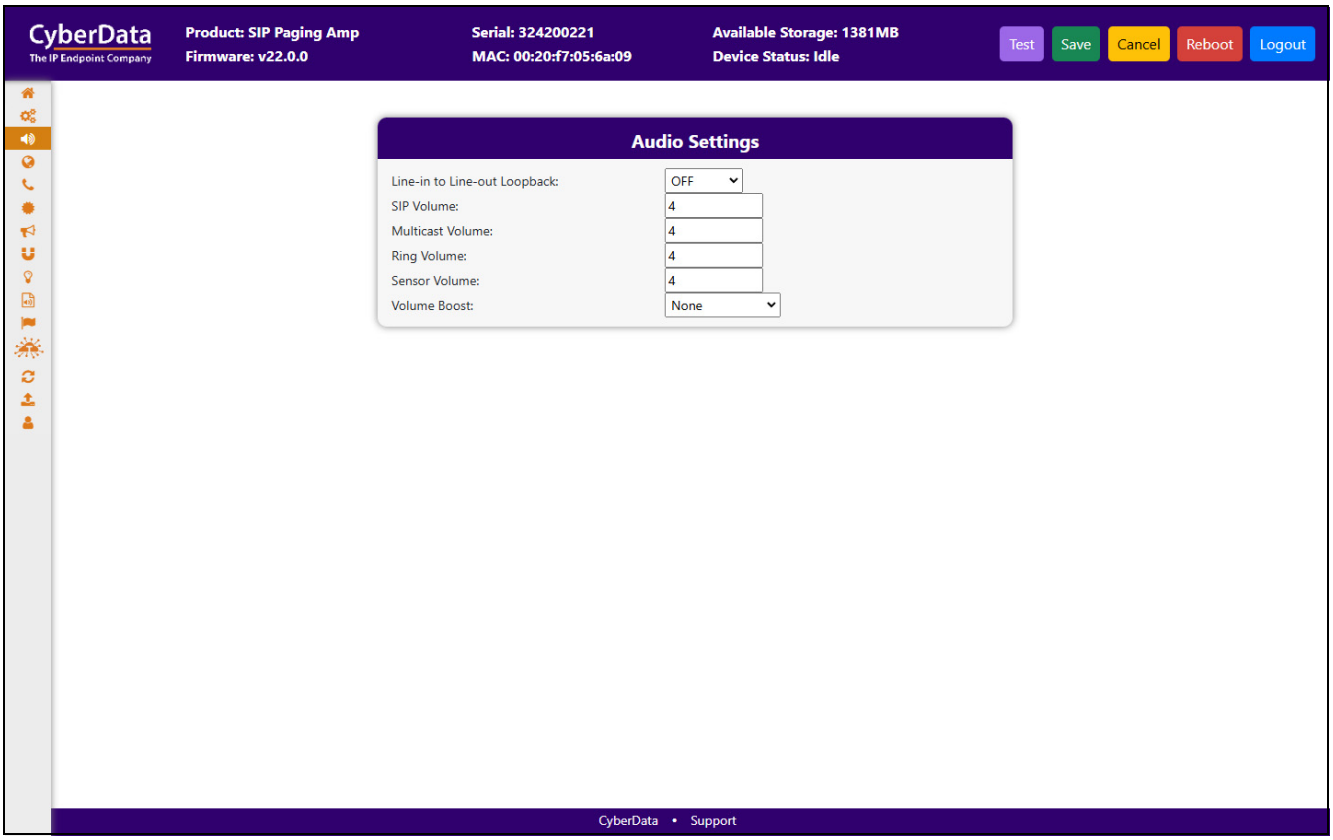
If you are using an InformaCast enabled device, you will see the following:

Figure 2-5. InformaCast enabled Device



2.5 Audio

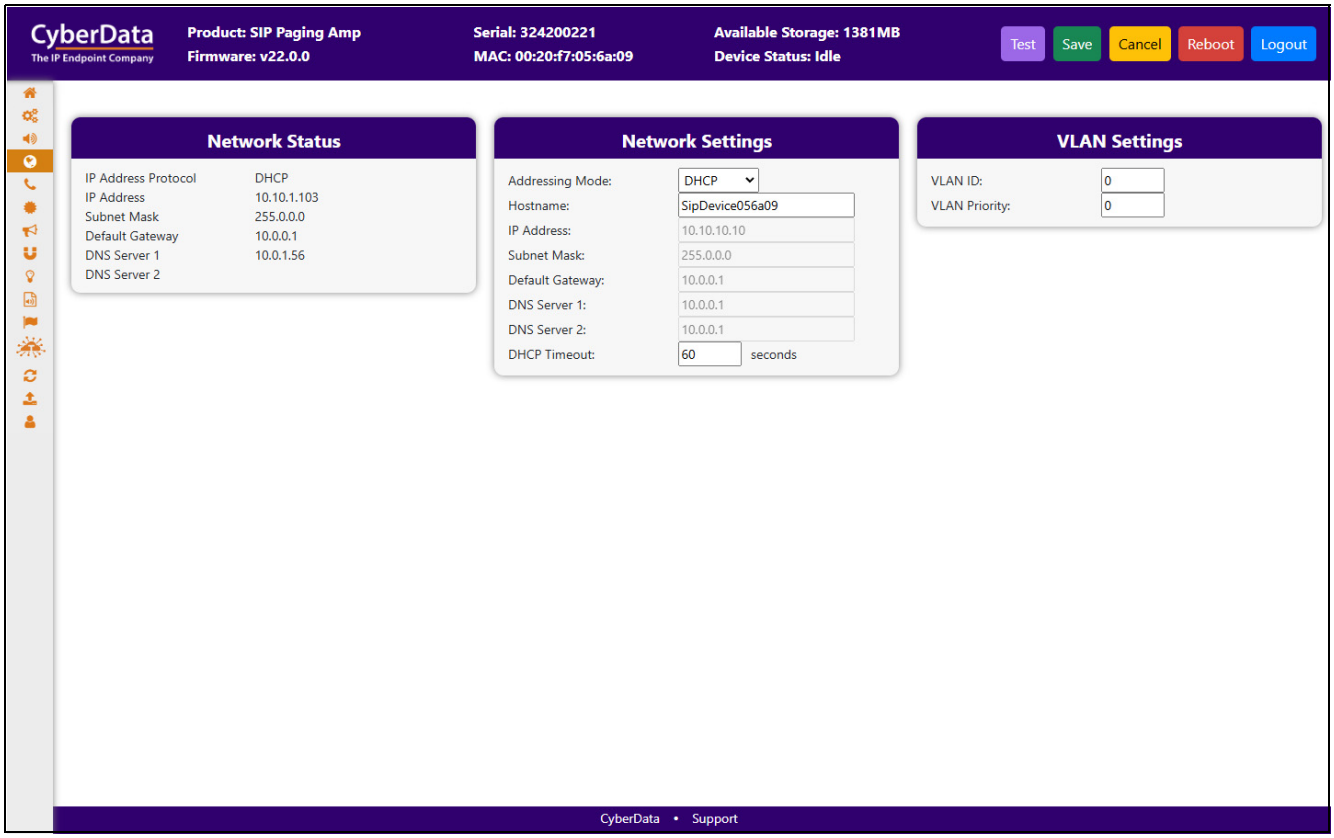
Figure 2-6. Audio Page



2.6 Network

The **Network** tab provides access to network-related settings. Assigning the device a static IP address or VLAN is done on this page.

Figure 2-7. Network Page



2.7 SIP (Session Initiation Protocol)

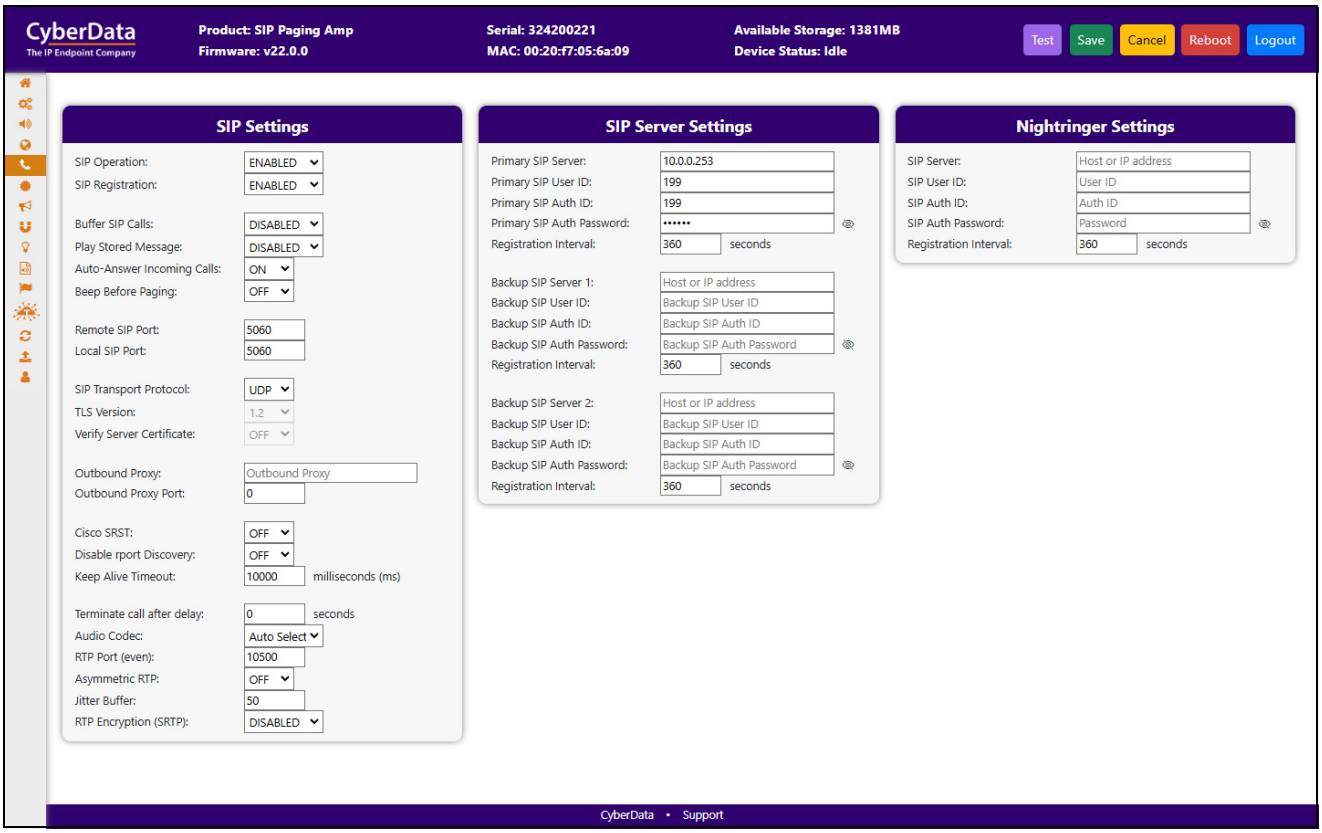
This page sets the options for phone calls. Configure up to 3 servers, with 2 acting as backup, and a server for the nightringer. The nightringer is a second sip extension that only rings, never connects to a call. Many customers use the nightringer in a hunt group.

Use this page to configure the options for security, transport, codec, and others.

Note For specific server configurations, go to the following website address:

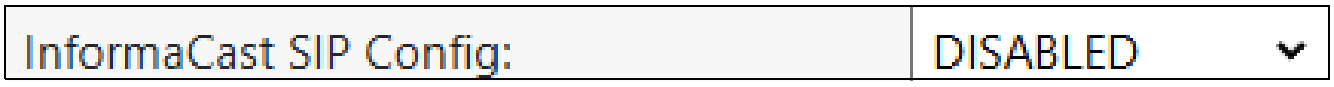
https://www.cyberdata.net/pages/connecting-to-ip-pbx-servers

Figure 2-8. SIP Page



If you are using an InformaCast enabled device, you will see the following:

Figure 2-9. InformaCast enabled Device



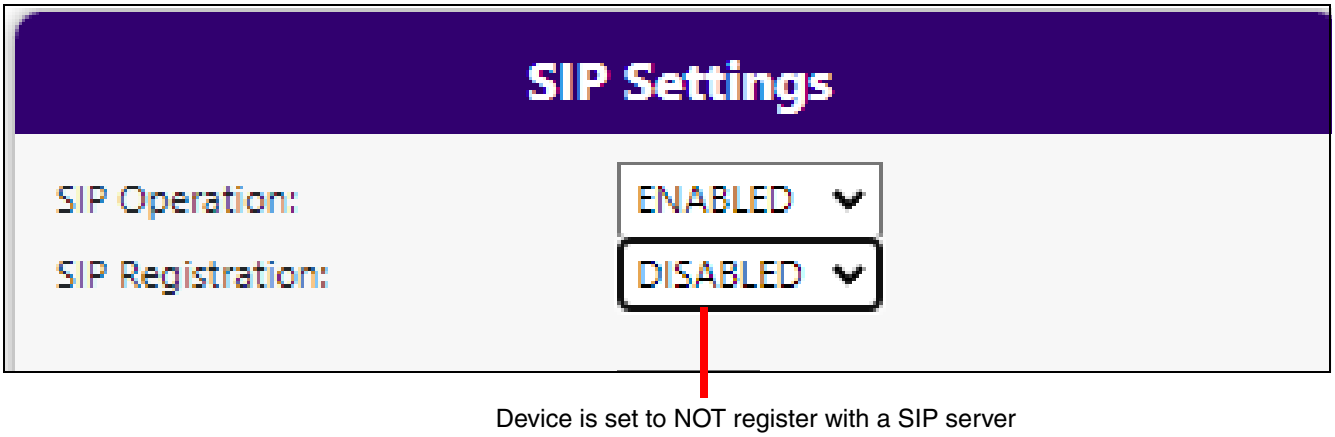
2.7.1 Dial Out Extension Strings and DTMF Tones (using rfc2833)

Outgoing calls support delayed DTMF (rfc2833) with the first comma pausing 2 seconds and subsequent commas pausing 1 second.

2.7.2 Point-to-Point Configuration

Dialing point-to-point allows the device to call and a single endpoint. All CyberData endpoints and many phones can use this option. To do this, enable **SIP Operation**, do not enable **SIP Registration**, and use the endpoint's IP address as the Dial Out extension. Delayed DTMF is supported. See Figure 2-10.

Figure 2-10. SIP Page Set to Point-to-Point Mode



2.8 SSL

The **SSL** tab allows for the adjustment of certificates used by the device. The certificates used for the web server, SIP Client, and Autoprovisioning can be changed here. It is also possible to add additional CA certificates on this page. CA Certificates allow the device to authenticate servers that it contacts.

Figure 2-11. SSL Page (1 of 3)

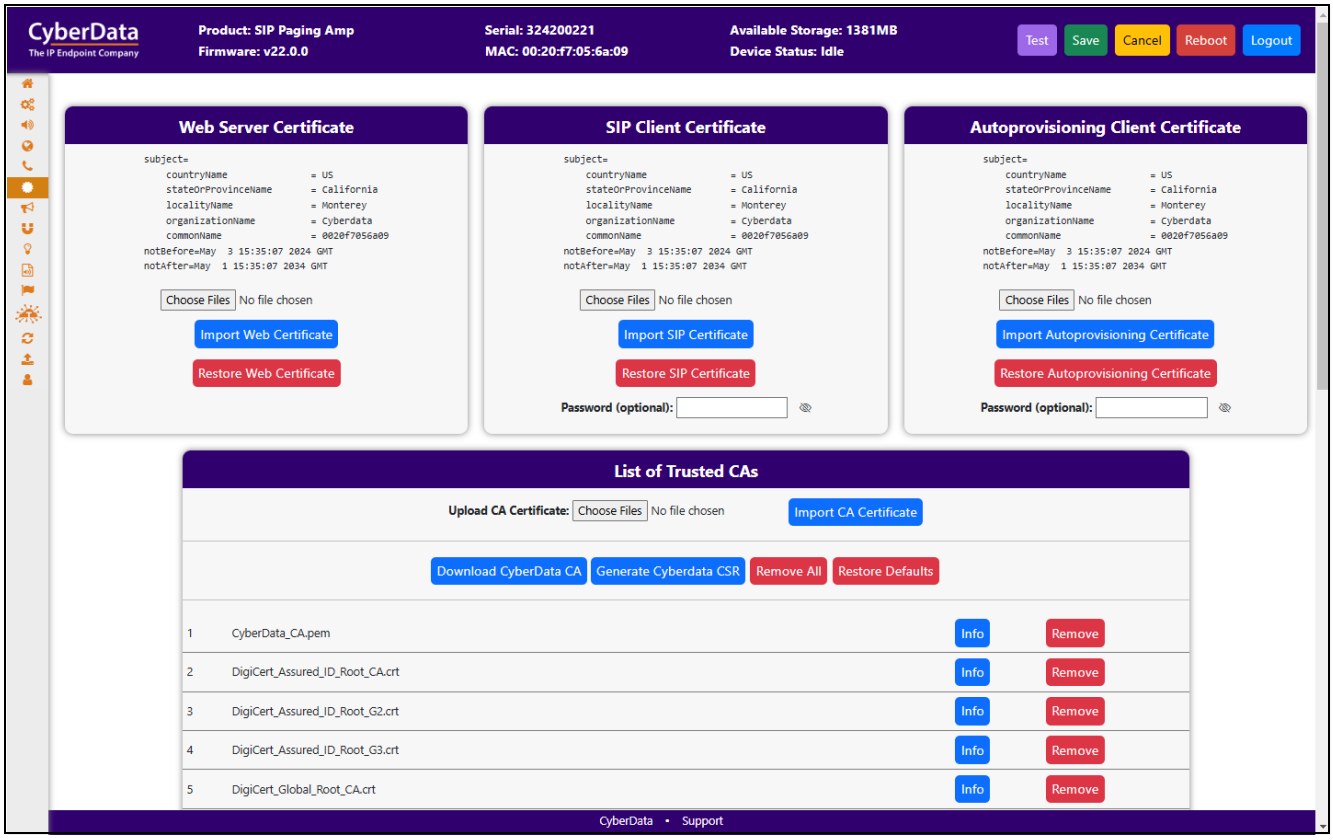


Figure 2-12. SSL Page (2 of 3)

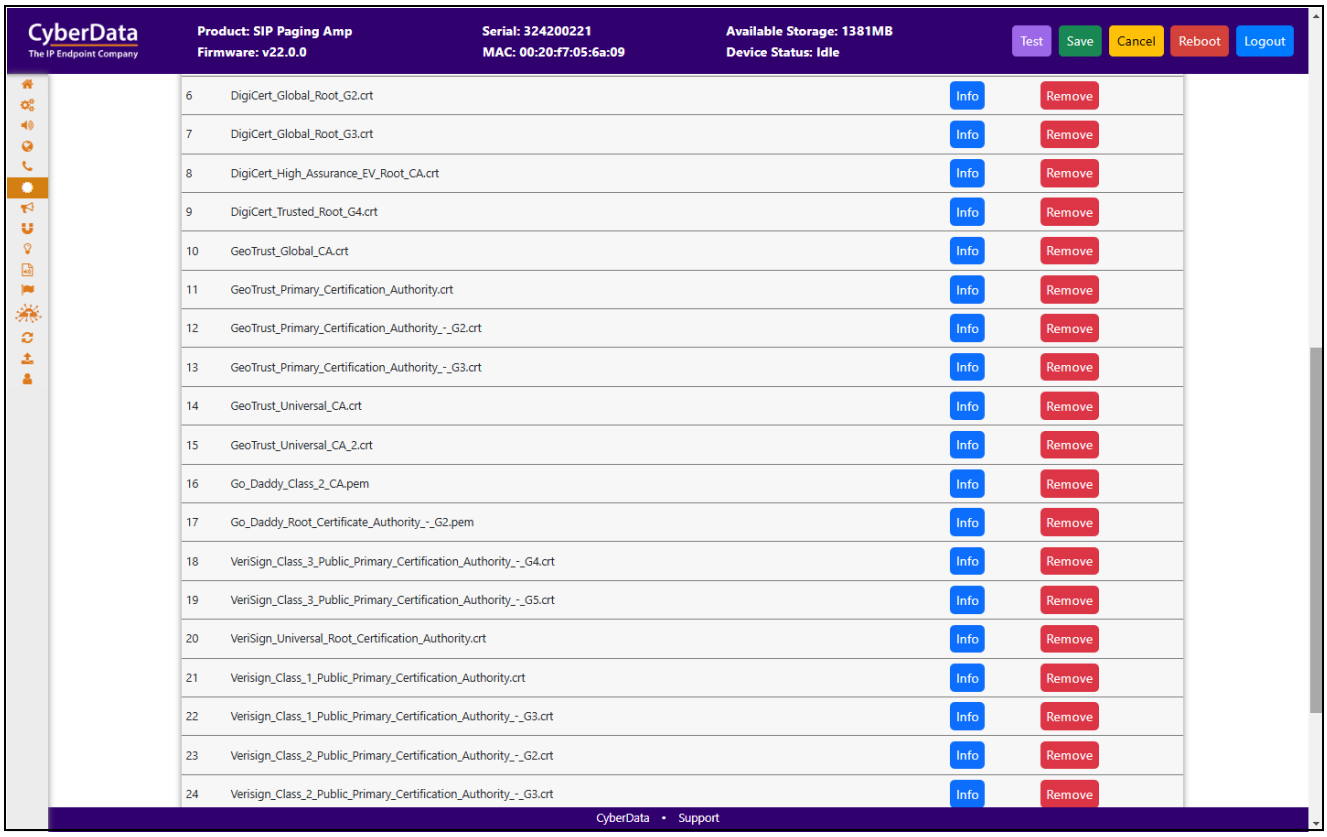
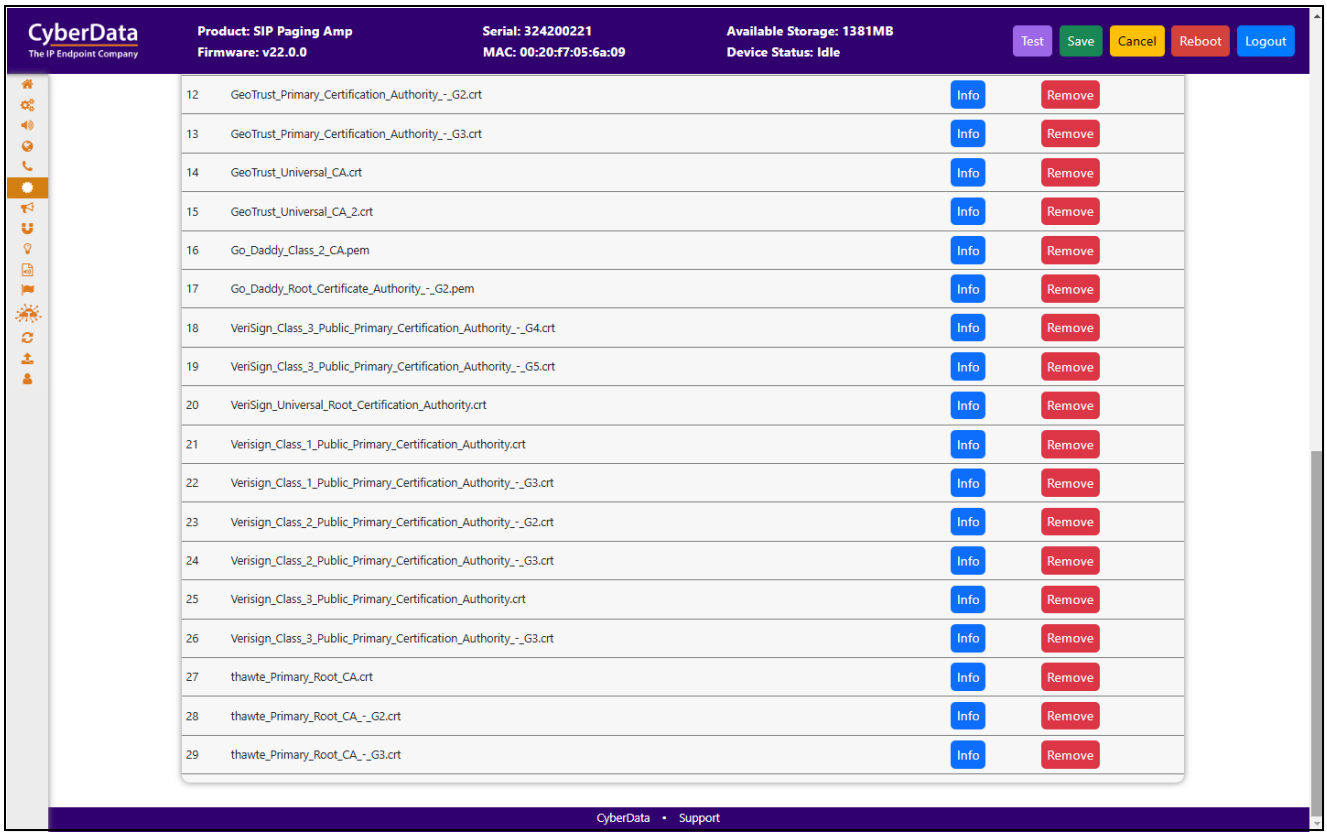


Figure 2-13. SSL Page (3 of 3)



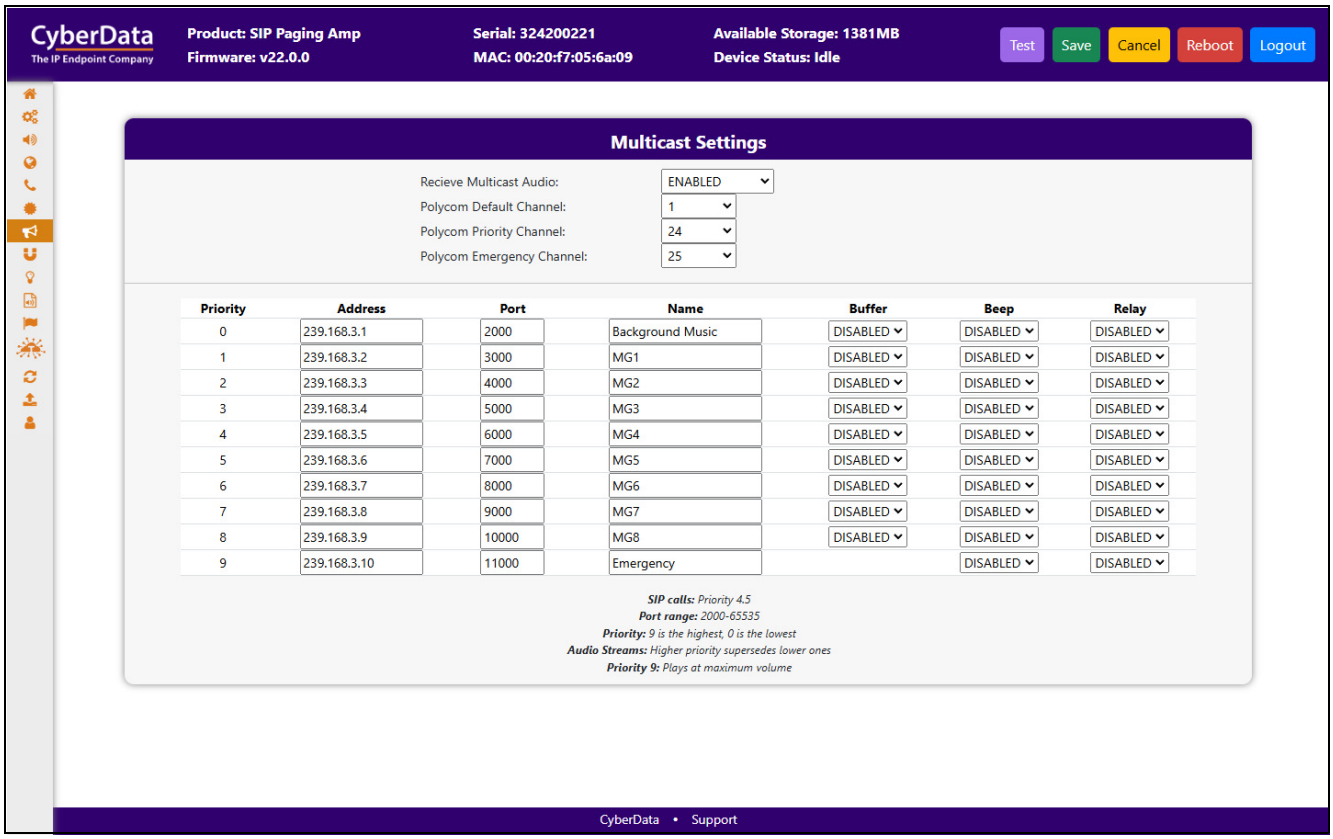
2.9 Multicast

The Multicast page allows the device to join up to ten paging zones that will activate the strobe when a stream is sent to its address.

A paging zone can consist of one or many CyberData multicast group-enabled products. There is no limit to how many endpoints can be in a given paging zone. Each multicast group is defined by a multicast address and port number.

Each multicast group is assigned a priority, allowing simultaneously arriving pages to be serviced based on importance. Multicast groups are compatible with IGMP through version 3. The device supports simultaneous SIP and Multicast.

Figure 2-14. Multicast Page



2.10 Sensor

The door sensor (pins 5 and 6) on the header can be used to monitor a door's open or closed state. There is an option on the **Sensor** page to trigger on an open or short condition on these pins. The door sensor alarm will be activated when the **Door Open Timeout** parameter has been met.

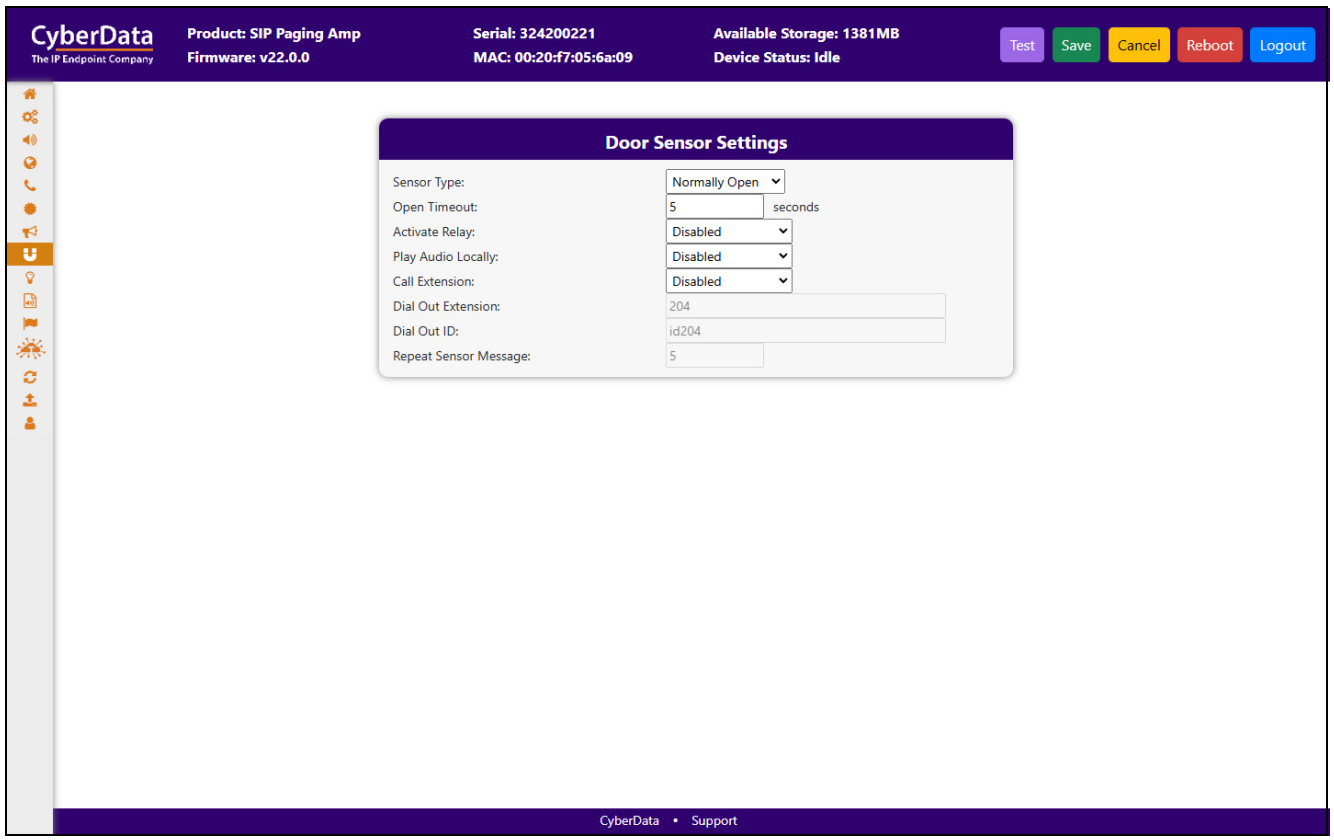
The intrusion sensor is an optical sensor installed on the Intercom board and will be activated when the Intercom is removed from the case.

Each sensor can trigger up to four different actions:

- Flash the LED until the sensor is deactivated (roughly 10 times/second)
- Activate the relay until the sensor is deactivated
- Loop an audio file out of the Intercom speaker until the sensor is deactivated
- Call an extension and play a pre-recorded audio file

Note Calling a preset extension can be set up as a point-to-point call, but currently can't send delayed DTMF tones.

Figure 2-15. Sensor Page



2.11 Audiofiles

The **Audiofiles** page is used to add custom audio to the board. User uploaded audio will take precedence over the audio files shipped with the device.

This device supports stored messages. When stored messages are enabled, the user will hear "Press 0 to page, press 1 to 9 to play stored message" when calling the device. To configure stored messages, an audio file must be uploaded, using Choose **File** and **Save**. The number of repeats can be specified or set to infinite (where the message plays until cancelled by the **#** button during a phone call).

Figure 2-16. Audiofiles Page (1 of 2)

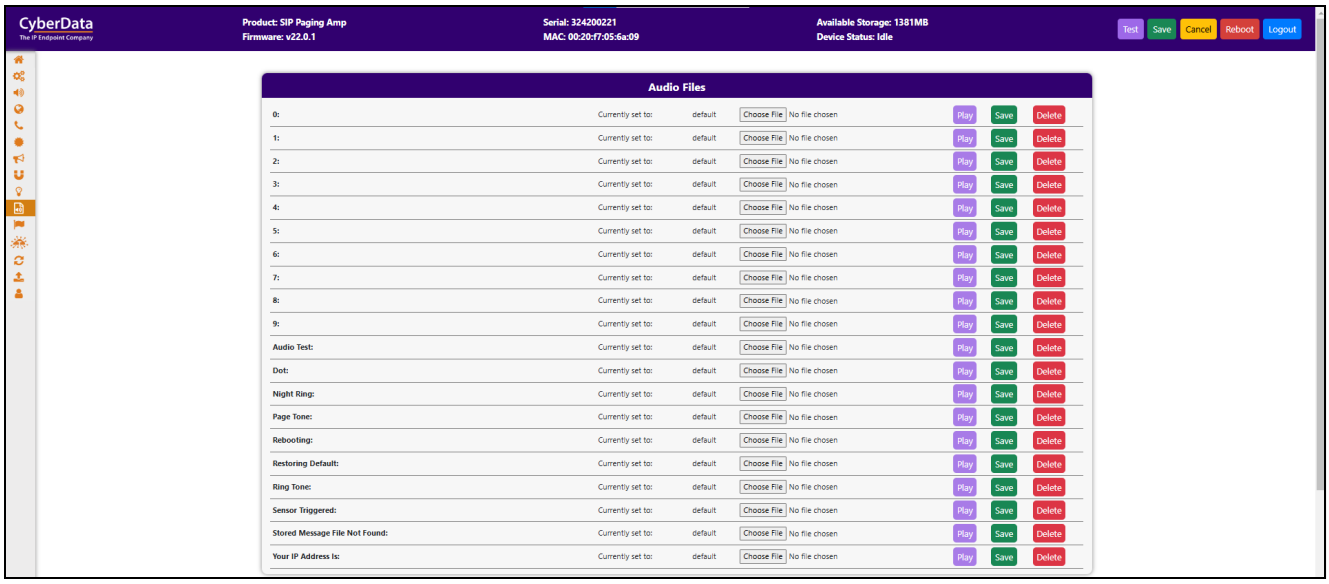


Figure 2-17. Audiofiles Page (2 of 3)

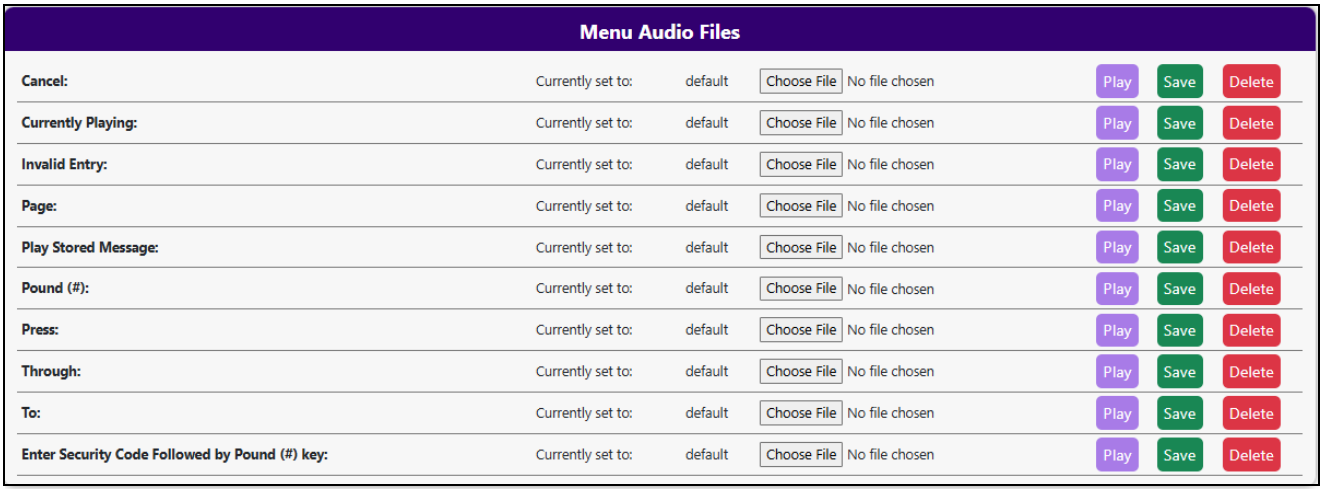
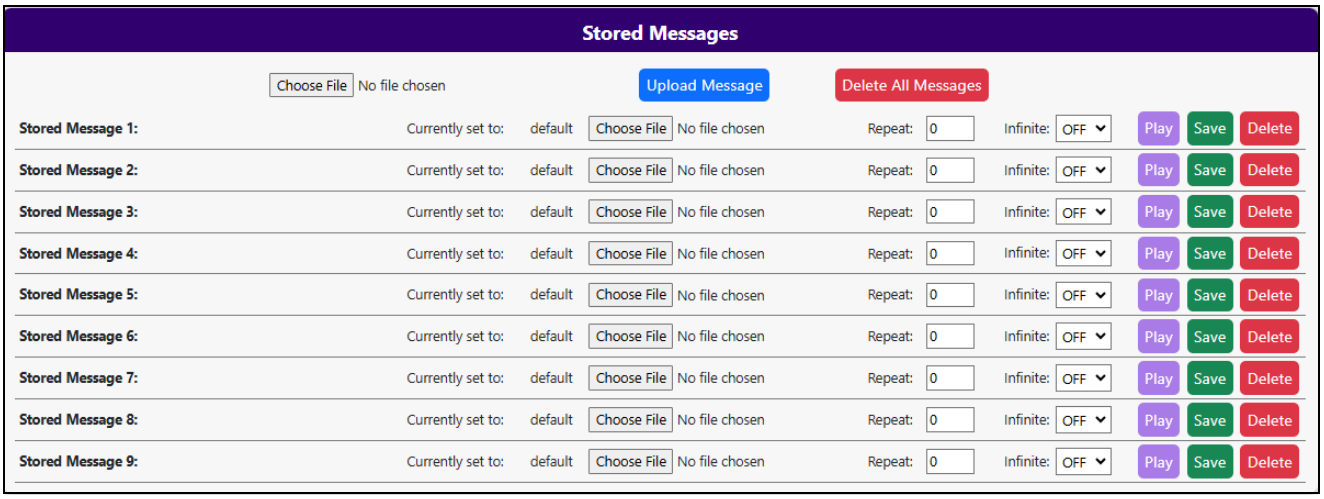


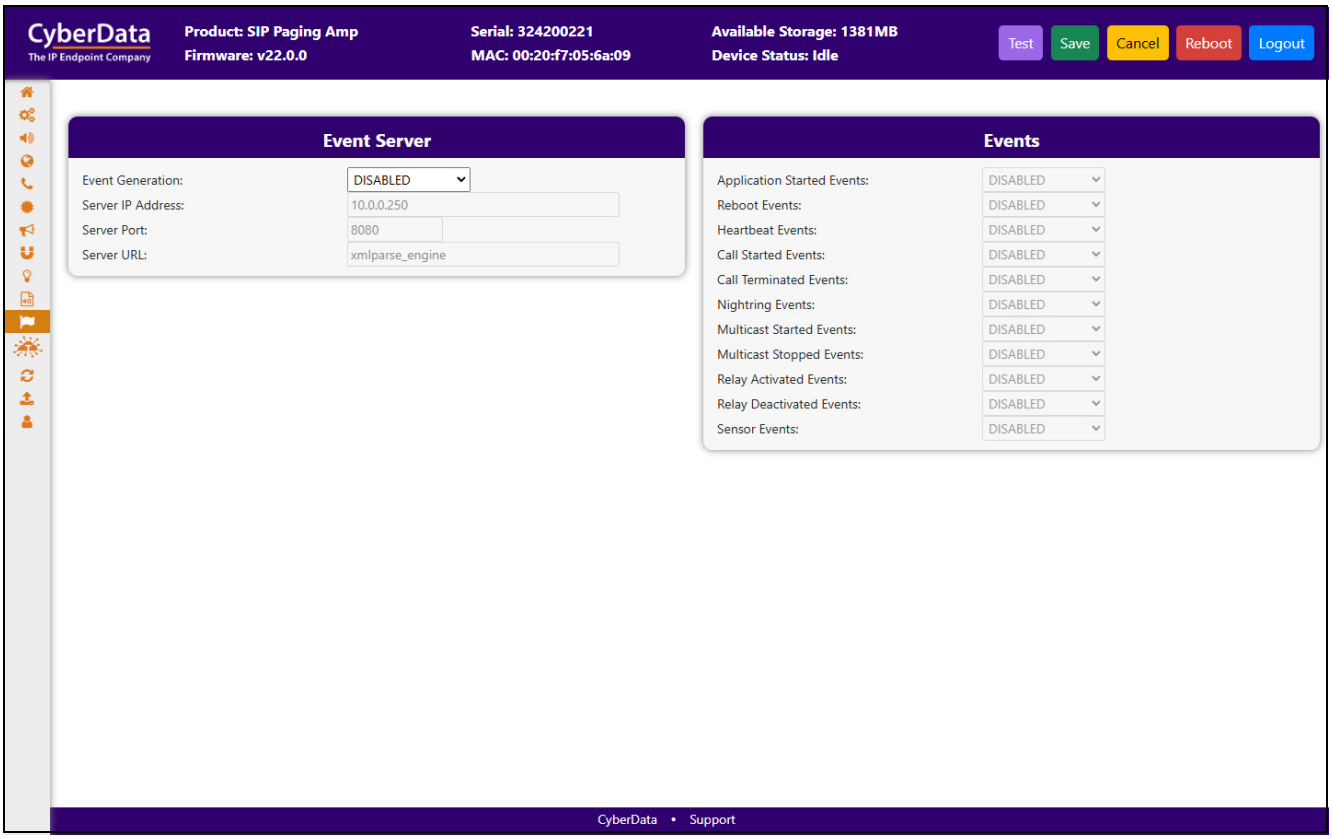
Figure 2-18. Audiofiles Page (3 of 3)



2.12 Events

The **Events** page specifies a remote server that can be used to receive HTTP POST events when actions take place on the device.

Figure 2-19. Events Page



If you are using an InformaCast enabled device, you will see the following:

Figure 2-20. InformaCast enabled Device

2.12.1 Example Packets for Events

The server and port are used to point to the listening server and the 'Remote Event Server URL' is the destination URL (typically the script running on the remote server that's used to parse and process the POST events).

Note The XML is URL-encoded before transmission so the following examples are not completely accurate.

Here are example packets for every event:

```
POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 197
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>APPLICATION_STARTED</event>
</cyberdata>


POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 199
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>HEARTBEAT</event>
</cyberdata>


POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 196
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>BUTTON</event>
</cyberdata>

POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 201
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>CALL_ACTIVE</event>
</cyberdata>
```

```
POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 205
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>CALL_TERMINATED</event>
</cyberdata>


POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 197
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>RINGING</event>
</cyberdata>


POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 234
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>MULTICAST_START</event>
<index>8</index>
</cyberdata>

POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 233
Content-Type: application/x-www-form-urlencoded

<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>MULTICAST_STOP</event>
<index>8</index>
</cyberdata>

POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 234
Content-Type: application/x-www-form-urlencoded
<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>RELAY_ACTIVATED</event>
</cyberdata>
```

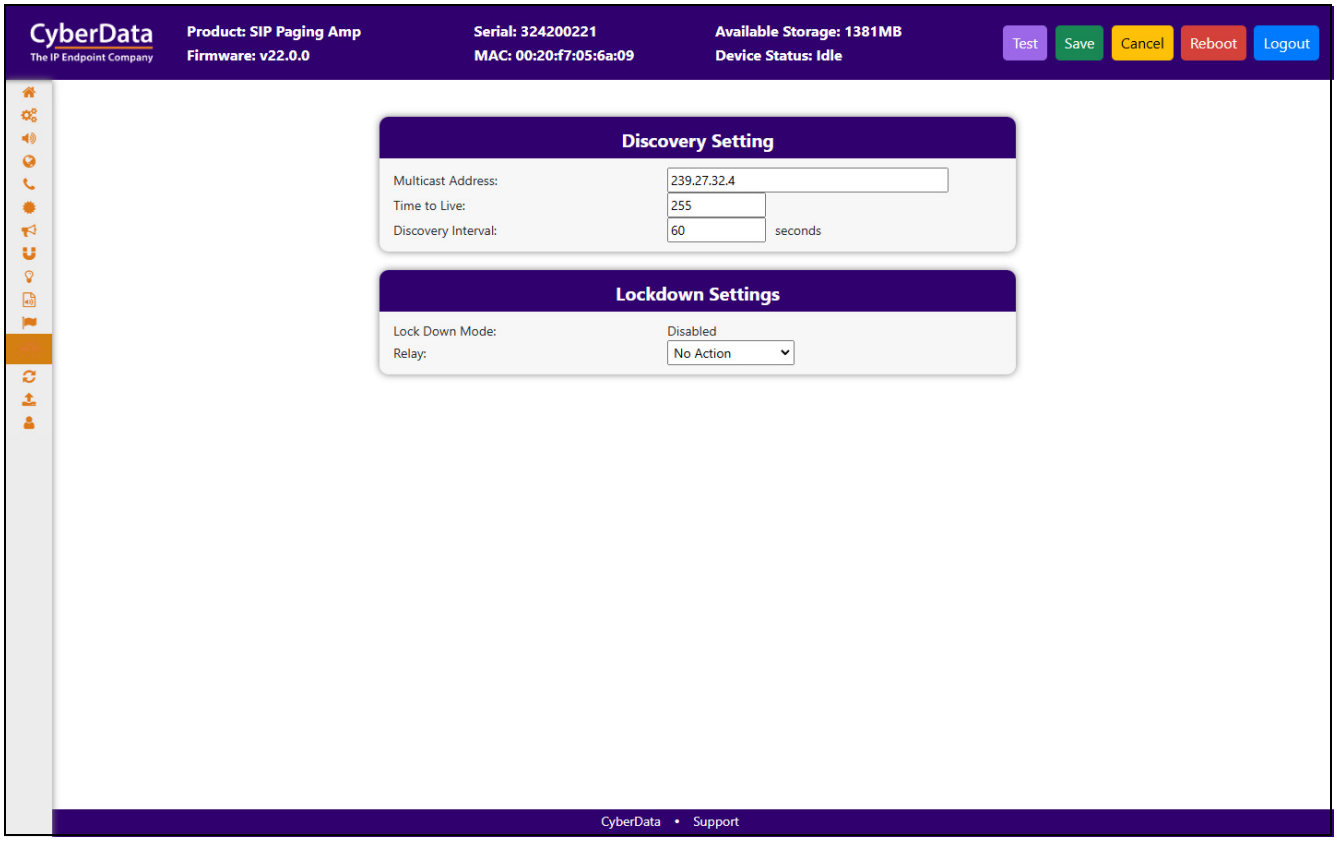
```
POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 234
Content-Type: application/x-www-form-urlencoded
<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>RELAY_DEACTIVATED</event>
</cyberdata>

POST xmlparse_engine HTTP/1.1
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 234
Content-Type: application/x-www-form-urlencoded
<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData VoIP Device' MAC='0020f70015b6'>
<event>NIGHTRINGING</event>
</cyberdata>
```

2.13 Terminus

Terminus Cloud Control™ allows users to configure, monitor, and manage notification functions for CyberData's extensive VoIP product line, all from a single, easy-to-use platform. To learn more about Terminus Cloud Control™, go to **https://www.cyberdata.net/pages/terminus**.

The **Terminus** page allows for configuration of settings related to Terminus Cloud Control™.

Figure 2-21. Terminus Page



2.14 Autoprovisioning

Enabling autoprovisioning allows the device to download provisioning files from a server. It defaults to using DHCP, with options configured in dhcpd.conf on the DHCP server. The file name is <mac address>.xml and if not found, 000000cd.xml.

If a server is named, DHCP is bypassed, and the device will look for a file on the named server.

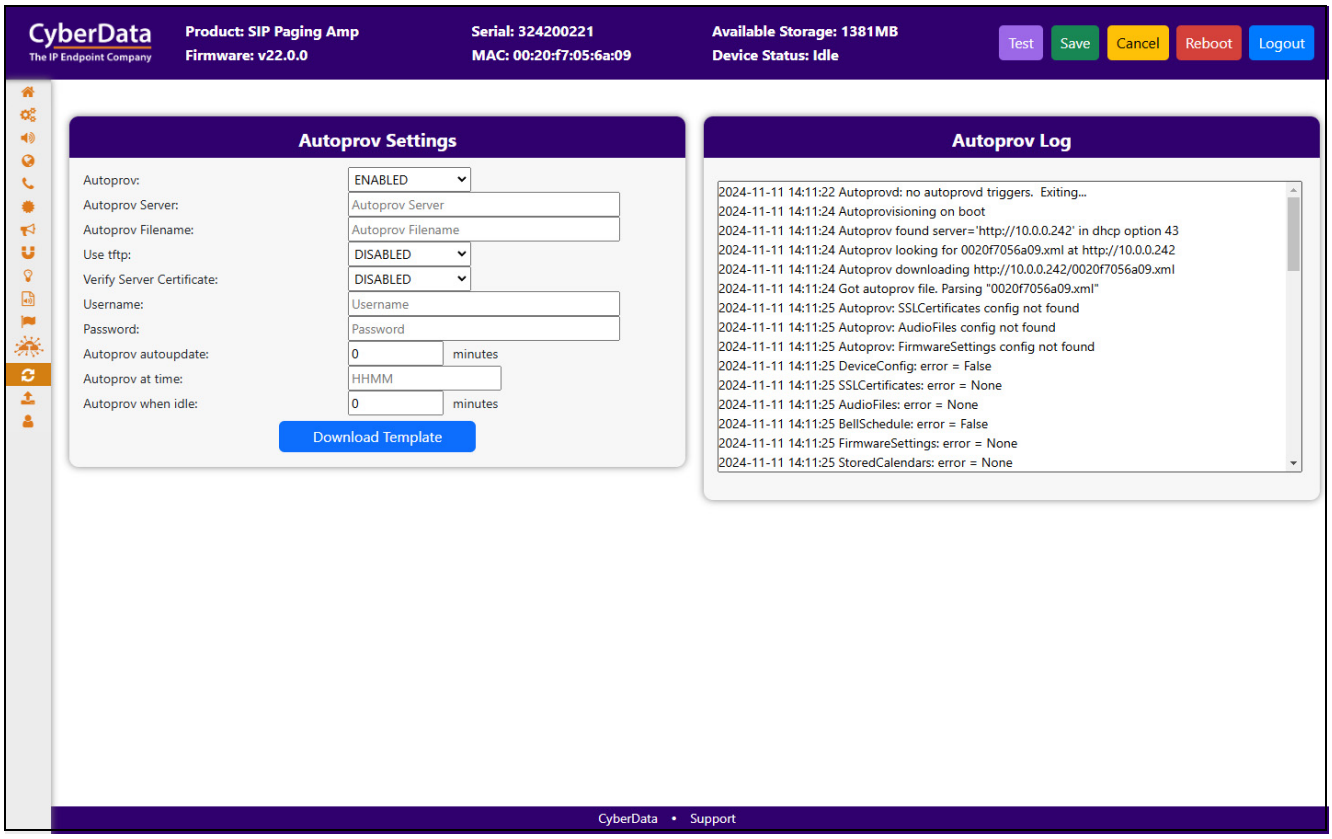
If a file is named, it will be downloaded instead of <mac address>.xml.

If a server is named, **Use tftp** searches for the file on a tftp server instead of http. If the server is secured (with a password), use **Verify Server Certificate** (username/password) to access it. When using DHCP, these options are configured in dhcpd.conf.

Autoprov autoupdate, **Autoprov at time**, and **Autoprov when idle** options are available with either DHCP or a named server.

The template is an xml file with all options set to default values.

Figure 2-22. Autoprovisioning Page



2.15 Firmware

Note CyberData strongly recommends that you do not upgrade the firmware when the device is likely to be in use.

To upgrade the firmware of your device:

1. Download the latest firmware from the following CyberData web site, and locate your device:

   https://www.cyberdata.net/collections/sip
   https://www.cyberdata.net/collections/singlewire (for InformaCast Enabled devices)

2. Unzip the firmware version file. This file may contain the following:

- Firmware file
- Release notes
- Autoprovisioning template

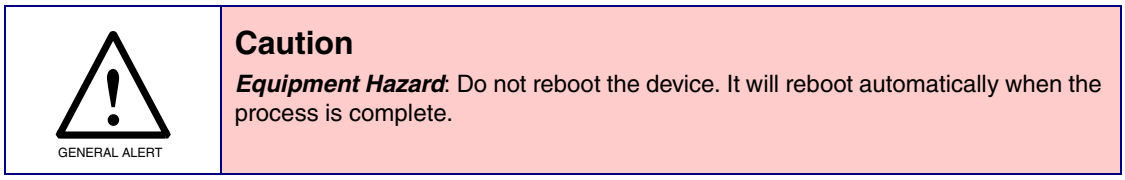
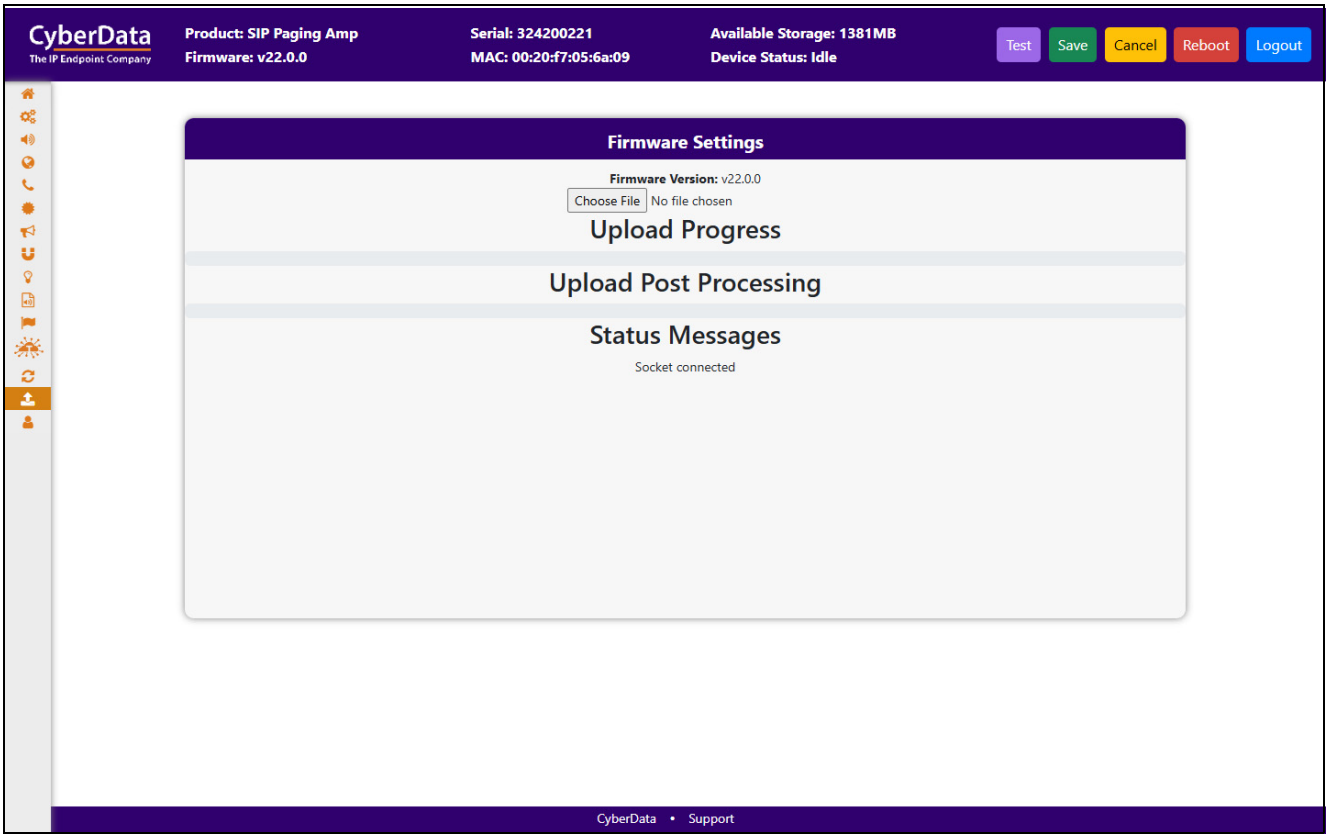


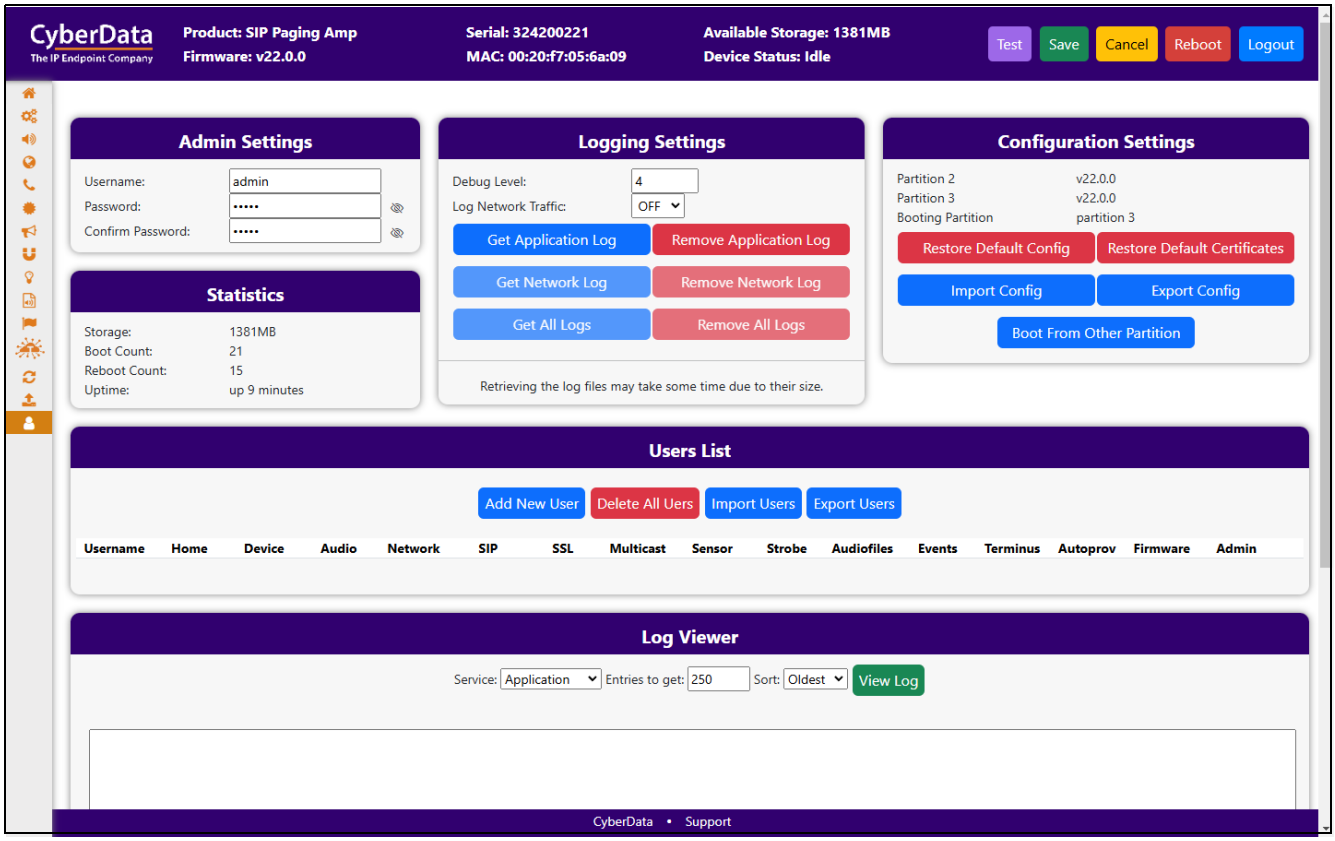
Figure 2-23. Firmware Page



2.16 Admin

The administrator uses the Users List to create new accounts, assigning user names and passwords, and granting access to specific web pages.

Figure 2-24. Admin Page



2.17 Command Interface

Some functions on the device can be activated using simple POST commands to the web interface. The examples in Table 2-2 use the free unix utility, **wget commands**. However, any program that can send HTTP POST commands to the device should work.

2.17.1 Command Interface Post Commands

These commands require an authenticated session (a valid username and password to work).

Table 2-2. Command Interface Post Commands

Device Action	HTTP Post Command[a]
Reboot	wget --user admin --password admin --auth-no-challenge --quiet -O /dev/null --no-check-certificate "https://10.10.1.247/command" --post-data "request=reboot"
Place call to extension (example: extension 600)	wget --user admin --password admin --auth-no-challenge --quiet -O /dev/null --no-check-certificate "https://10.10.1.247/command" --post-data "request=call&extension=600"
Terminate a calli	wget --user admin --password admin --auth-no-challenge --quiet -O /dev/null --no-check-certificate "https://10.10.1.247/command" --post-data "request=terminate"
Speak IP Address	wget --user admin --password admin --auth-no-challenge --quiet -O /dev/null --no-check-certificate "https://10.10.1.247/command" --post-data "request=speak_ip_address"
Test Audio	wget --user admin --password admin --auth-no-challenge --quiet -O /dev/null --no-check-certificate "https://10.10.1.247/command" --post-data "request=test_audio"
Swap Boot partitions	wget --user admin --password admin --auth-no-challenge --no-check-certificate --quiet -O /dev/null "https://10.10.1.81/command" --post-data "request=swap_boot_partition"

a.Type and enter all of each http POST command on one line.

Appendix A: Troubleshooting/Technical Support

A.1 Contact Information

Contact

CyberData Corporation
3 Justin Court
Monterey, CA 93940 USA
www.cyberdata.net
Phone: 831-373-2601
Fax: 831-373-4193

Sales

Sales 831-373-2601, Extension 334

Technical Support

The fastest way to get technical support for your VoIP product is to submit a VoIP Technical Support form at the following website:

https://support.cyberdata.net/

The Support Form initiates a ticket which CyberData uses for tracking customer requests. Most importantly, the Support Form tells us which PBX system and software version that you are using, the make and model of the switch, and other important information. This information is essential for troubleshooting. Please also include as much detail as possible in the **Comments** section of the Support Form.

Phone: (831) 373-2601, Extension 333

A.2 Warranty and RMA Information

The most recent warranty and RMA information is available at the following website address:

https://support.cyberdata.net/

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