CyberData

VoIP Indoor Intercom Operations Guide

Part #011030

Document Part #930260D
for Firmware Version 5.1.2

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PoE VoIP Intercom Operations Guide 930260D
Part # 011030

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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.

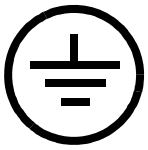
Warning

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.

Pictorial Alert Icons

	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.

Revision History

Revision	Date Released	Description of Changes
A	4/10/2009	This is the first release of the manual.
B	7/8/2009	Updates the following sections for the version 4 firmware: Section 2.3.1, "Log in to the Configuration Home Page" Section 2.3.3, "Configure the Network Parameters" Section 2.3.4, "Configure the SIP Parameters" Section 2.3.5, "Configure the Sensor Configuration Parameters" Section 2.3.6, "Configure the Audio Configuration Parameters" Section 2.4.1, "Reboot the Intercom"
C	10/6/2009	010935D board and version 5.1.2 firmware updates. Adds the following notes to Section 2.4, "Upgrade the Firmware and Reboot the Intercom": Note: To guard against failed firmware upgrades, speakers shipped from CyberData with firmware version 5.1.1 and later feature a built-in "fail safe" mechanism. Note that field upgrading earlier units with v5.x.x will not allow for this feature. Note: The Intercom will store the TFTP Server IP and New Filename entered on the Update Firmware web page. If, during the boot process, the Intercom is unable to boot the firmware, it will attempt to download the stored image from the stored TFTP server. Firmware: This revision provides information for firmware version 5.1.2. Release notes detailing the difference between this firmware version and earlier firmware versions is available in the firmware zip file at the VoIP Indoor Intercom product page at the following URL: http://www.cyberdata.net/support/voip/index.html
D	10/8/2009	Updates Figure 1-3, "Dimensions". Updates Figure 2-4, "Terminal Block Connections". Updates Figure 2-7, "Call Button and Indicator Light". Updates Figure A-1, "Cable Connections". Updates Figure A-2, "Gang Box Mounting". Updates Figure A-3, "Wall Mounting Option".

Contents

Chapter 1 Product Overview 1

1.1 How to Identify This Product 1
1.2 Typical System Installation 2
1.3 Product Features 3
1.4 Supported Protocols 4
1.5 Supported SIP Servers 4
1.6 Product Specifications 4
1.7 Dimensions 5

Chapter 2 Installing the VoIP Indoor Intercom 6

2.1 Parts List 6
2.2 Intercom Setup 7
2.2.1 VoIP Intercom Connections 7
2.2.2 Connecting a Device to the Auxiliary Relay 8
2.2.3 Identifying the VoIP Intercom Connectors 9
2.2.4 Call Button and Indicator Light 11
2.2.5 Network Connectivity, and Data Rate 12
2.2.6 RTFM Switch Jumper 13
2.2.7 Adjust the Volume 14
2.3 Configure the Intercom Parameters 15
2.3.1 Log in to the Configuration Home Page 16
2.3.2 Configure the Device 19
2.3.3 Configure the Network Parameters 23
2.3.4 Configure the SIP Parameters 25
2.3.5 Configure the Sensor Configuration Parameters 30
2.3.6 Configure the Audio Configuration Parameters 34
2.4 Upgrade the Firmware and Reboot the Intercom 37
2.4.1 Reboot the Intercom 40

Appendix A Mounting the Indoor Intercom 41

A.1 Mount the Intercom 41

Appendix B Setting up a TFTP Server 44

B.1 Set up a TFTP Server 44
B.1.1 In a LINUX Environment 44
B.1.2 In a Windows Environment 44
B.1.3 In a Solarwinds Server Environment 44

Appendix C Troubleshooting/Technical Support 45

C.1 Frequently Asked Questions (FAQ) 45
C.2 Documentation 45
C.3 Contact Information 45
C.4 Warranty 46

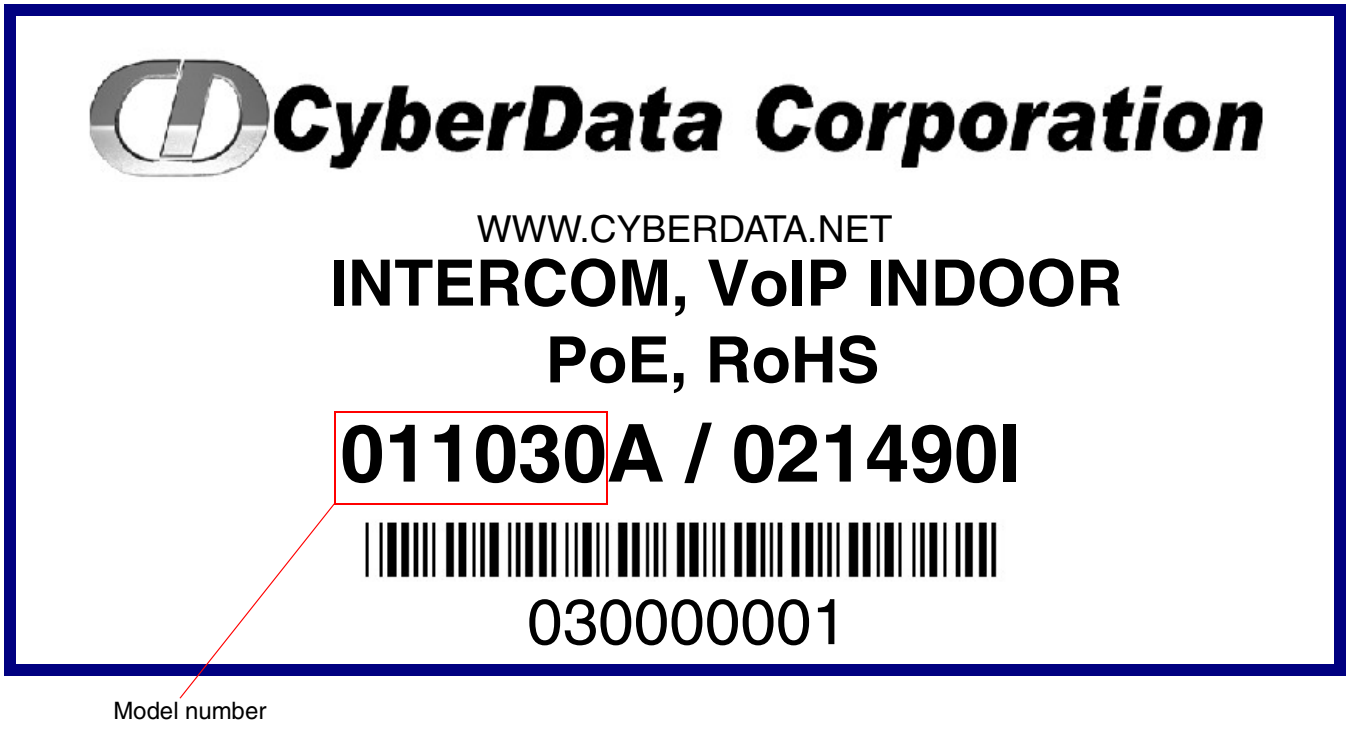
Index 47

1 Product Overview

1.1 How to Identify This Product

To identify the VoIP Indoor Intercom, look for a model number label similar to the one shown in Figure 1-1. The model number on the label should be **011030**.

Figure 1-1. Model Number Label

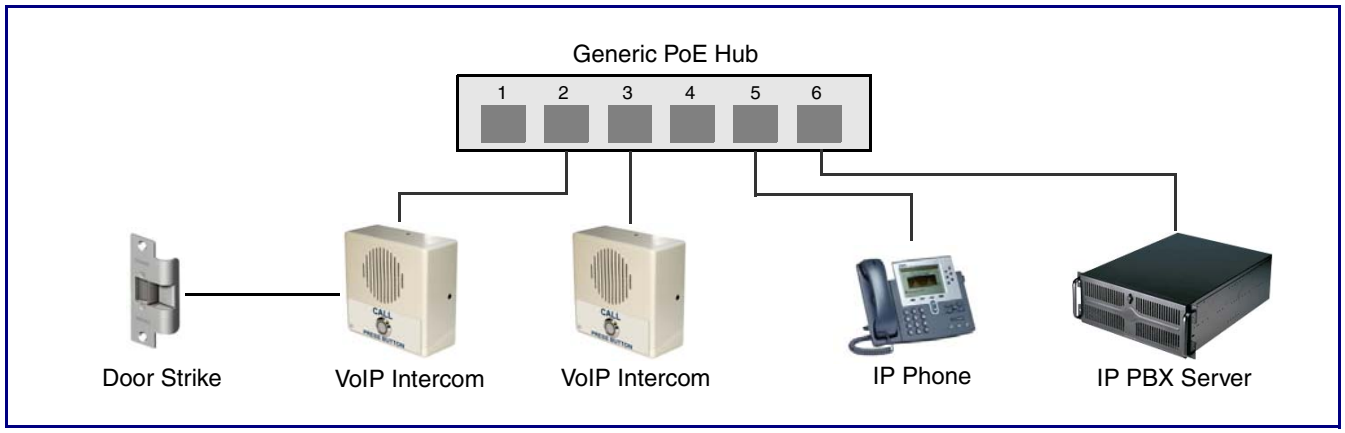


1.2 Typical System Installation

The Voice-over-IP (VoIP) VoIP Indoor Intercom is a SIP endpoint designed to provide VoIP phone connectivity in a tamper proof and secure package.

Figure 1-2 illustrates how the VoIP Indoor Intercom can be installed as part of a VoIP phone system.

Figure 1-2. Typical Installation—Door Entry/Access Control



.

GENERAL ALERT	Warning *Electrical Hazard:* The VoIP Intercom enclosure is not rated for any AC voltages.
GENERAL ALERT	Warning *Electrical Hazard:* This product should be installed by a licensed electrician according to all local electrical and building codes.
GENERAL ALERT	Warning *Electrical Hazard:* To prevent injury, this apparatus must be securely attached to the floor/wall in accordance with the installation instructions.

1.3 Product Features

- *SIP*
- *Dual speeds of 10 Mbps and 100 Mbps*
- *802.3af compliant*
- *2 gang outlet box size*
- *Adaptive full duplex voice operation*
- *Network/Web management*
- *Network adjustable speaker volume adjustment*
- *Network configurable door or intrusion sensor settings*
- *Network configurable relay activation settings*
- *Dial Out Extension supports the addition of comma delimited pauses before sending additional DTMF tones*
- *Network configurable microphone input sensitivity adjustment*
- *Network downloadable product firmware*
- *Doubles as a paging speaker*
- *Call button*
- *Call activity indicator (light)*
- *Tamper proof design*
- *One dry contact relay for auxiliary control*
- *Autoprovisioning*
- *Configurable audio files*
- *Three year warranty*

1.4 Supported Protocols

The Intercom supports:

- SIP
- HTTP Web-based configuration

  Provides an intuitive user interface for easy system configuration and verification of Intercom 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 Intercom capabilities.
- RTP
- RTP/AVP - Audio Video Profile
- Audio Encodings

  PCMU (G.711 mu-law)

  PCMA (G.711 A-law)

  Packet Time 20 ms

1.5 Supported SIP Servers

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

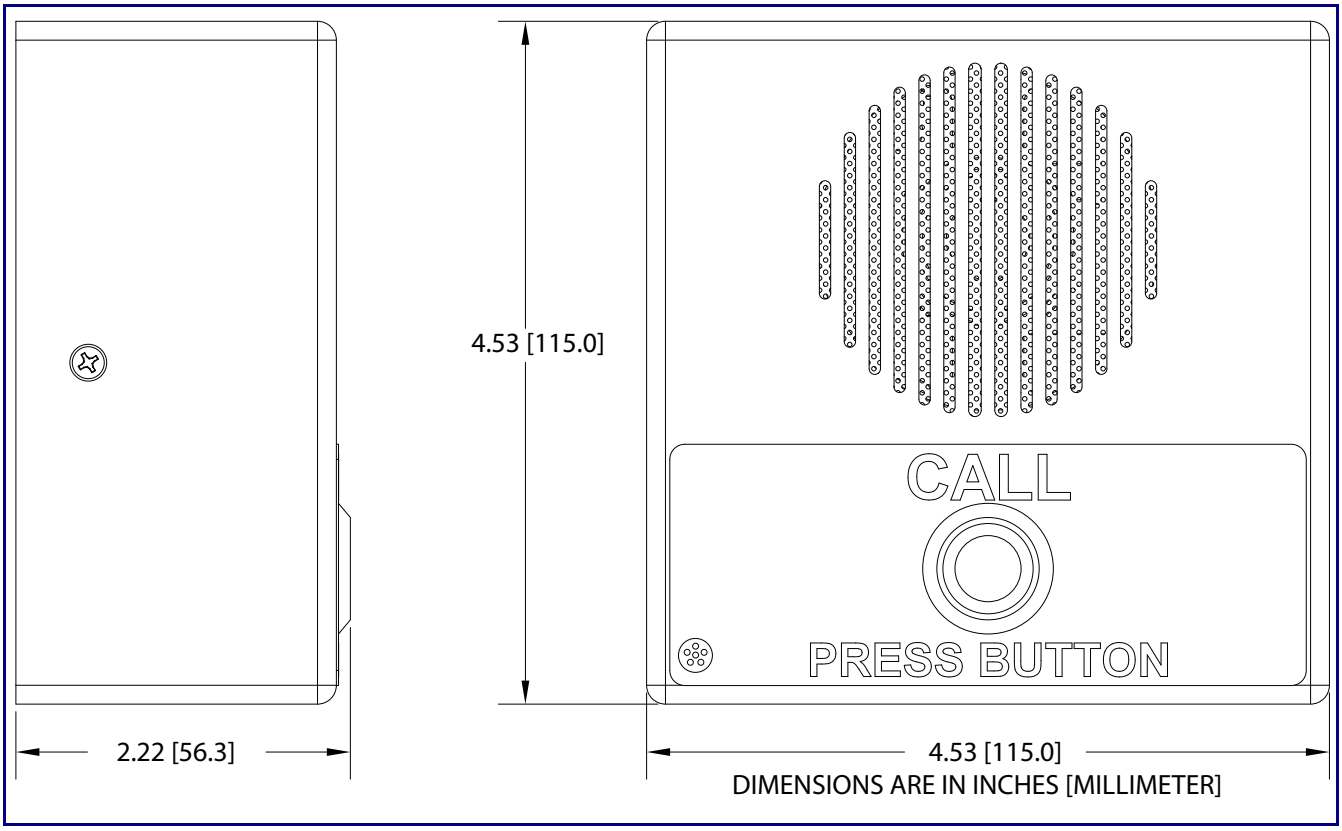
http://www.cyberdata.net/support/voip/server.html

1.6 Product Specifications

Category	Specification
Speaker Output	1 Watt Peak Power
Network Rate	10/100 Mbps
Power Requirement	PoE 802.3af compliant
	or +5 volts at 1000mA
Protocol	SIP
Part Number	011030
Dimensions	4.53” x 4.53” x 2.11” (H x W x D)
Weight	0.71 lbs./shipping weight of 1.1 lbs.
	(0.32 kg/shipping weight of 0.5 kg)
Auxiliary Relay	2 A at 30 VDC

1.7 Dimensions

Figure 1-3. Dimensions

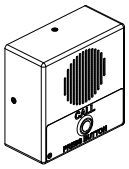


2 Installing the VoIP Indoor Intercom

2.1 Parts List

Table 2-1 illustrates the SiP VoIP and PoE Speaker parts.

Table 2-1. Parts List

Quantity	Part Name	Illustration
1	Intercom Assembly	
1	Installation Quick Reference Guide	
1	Intercom Mounting Accessory Kit	

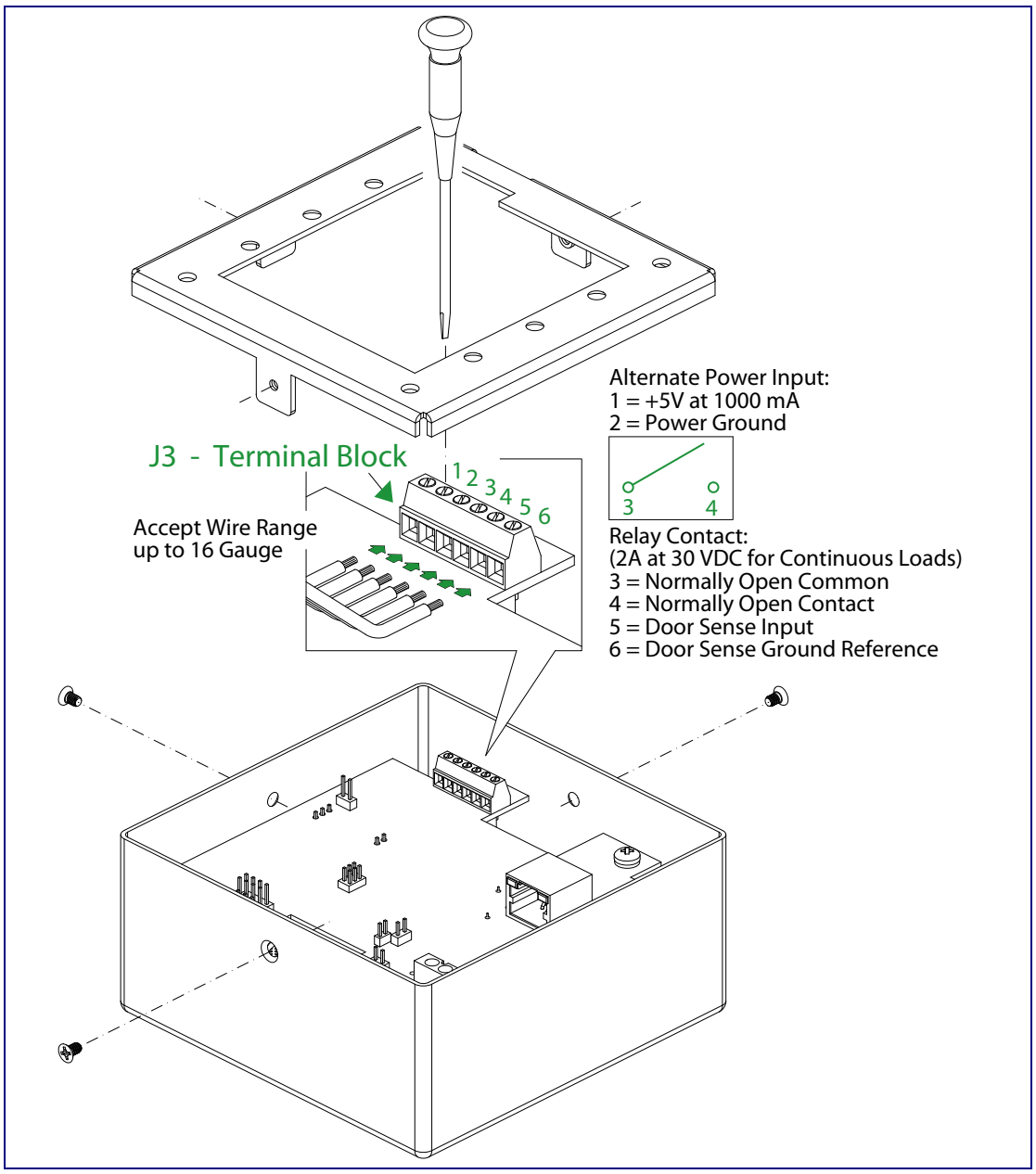
2.2 Intercom Setup

2.2.1 VoIP Intercom Connections

Figure 2-4 shows the pin connections on the J7 (terminal block). This terminal block can accept a wire range from 16 AWG to 26 AWG.

Note As an alternative to using PoE power, you can supply 5 VDC at 1000 mA into the terminal block.

Figure 2-4. Terminal Block Connections



2.2.2 Connecting a Device to the Auxiliary Relay

The VoIP Intercom incorporates an on-board relay which enables users to control an external relay for activating an auxiliary device such as an electric door strike (see Figure 2-4). The Intercom relay contacts are limited to 1 amp at 30VDC. The Intercom relay activation time is selectable through the web interface and is controlled by DTMF tones generated from the phone being called. The DTMF tones are selectable from the web interface as well.

GENERAL ALERT

Warning

Electrical Hazard: The VoIP Intercom enclosure is not rated for any AC voltages.

GENERAL ALERT

Warning

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

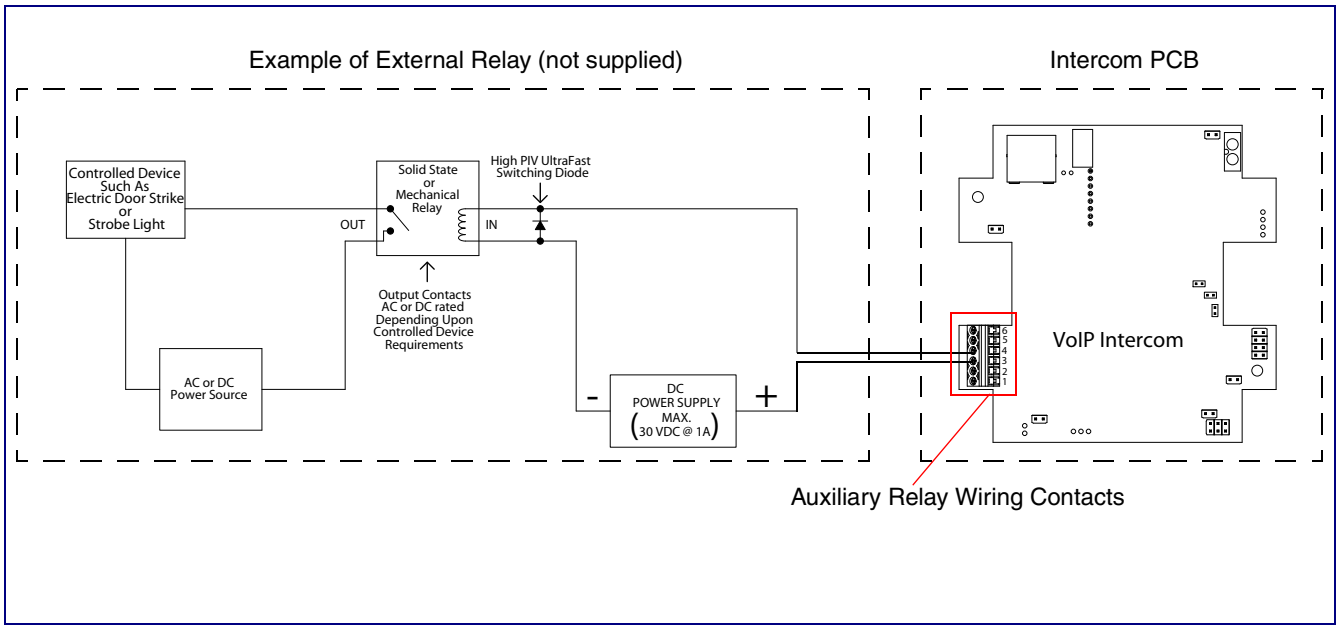
GENERAL ALERT

Warning

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

Note The three digit code for the auxiliary relay must be sent in conformance with RFC2833 DTMF generation.

Figure 2-5. Auxiliary Relay Wiring Diagram



See Figure 2-6 and Table 2-2 to identify the connectors and functions.

2.2.3 Identifying the VoIP Intercom Connectors

See Figure 2-6 and Table 2-2 to identify the connector locations and functions.

Figure 2-6. Connector Locations

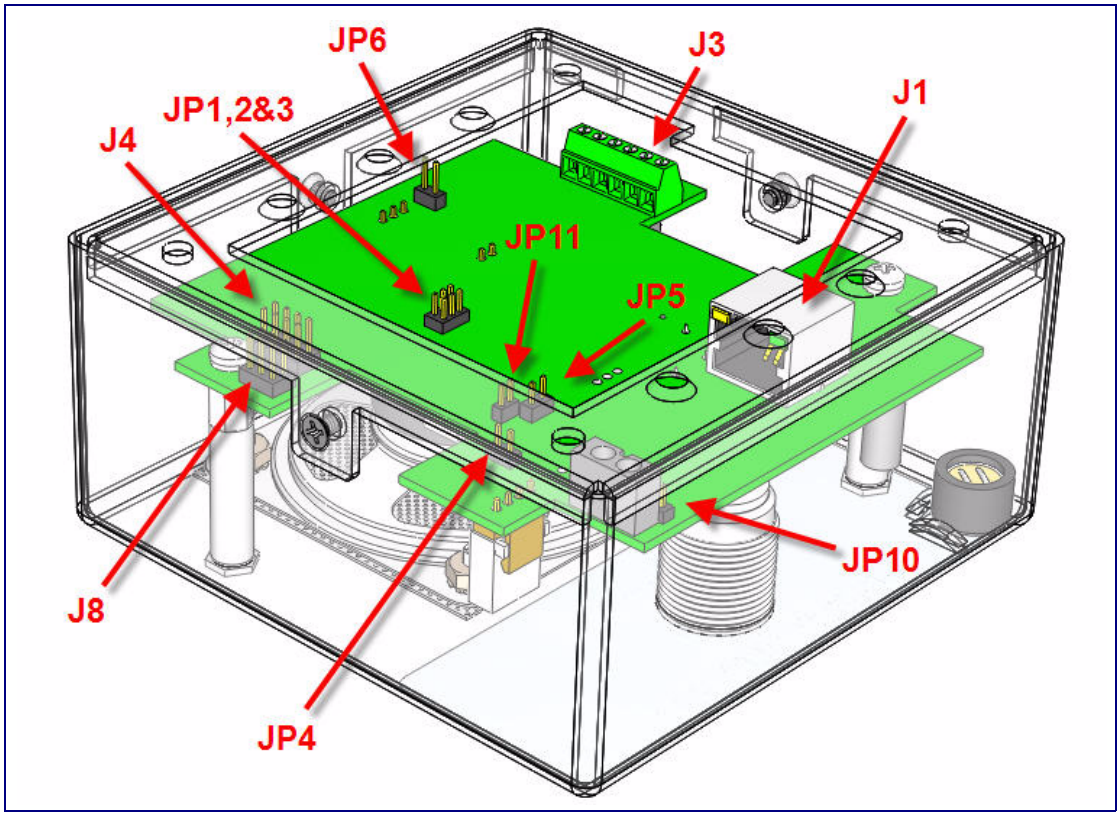


Table 2-2. Connector Functions

Connector	Function
J1	PoE Network Connection (RJ-45 ethernet)
J2	Call Button - LED Interface
J3	Terminal Block (see Figure 2-4)
J4	J-Tag (Factory only)
J5	Microphone Interface
J6	Speaker Interface
J8	Console (Factory only)
JP2	Boot Mode (Factory only)
JP4	Reset (Factory only)
JP5	Watchdog Timer (Factory only)
JP6	Audio Enable (Factory only)
JP7	Network Mode (not installed) (Factory only)
JP8	Network Mode (not installed) (Factory only)
JP9	Network Mode (not installed) (Factory only)
JP11	RTFM (see Section 2.2.6, "RTFM Switch Jumper")

2.2.4 Call Button and Indicator Light

2.2.4.1 Initial Power

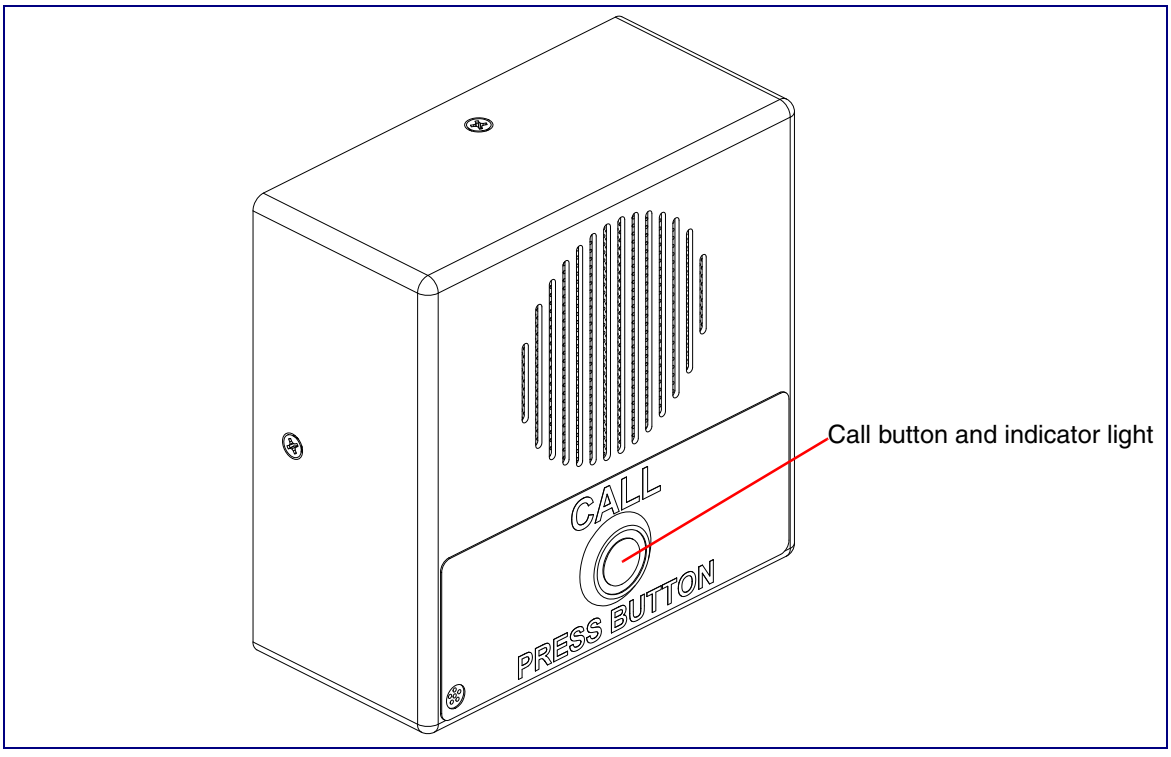
Upon initial power or reset, you will see the following:

- The light is on.
- The light will blink twice to indicate that the Interfom has acquired its network settings and is operational.
- The first blink indicates that the Interfom has acquired its network settings.
- The second blink indicates that the Interfom is operational.

2.2.4.2 Calling

- You may initiate a call by pressing the **Call** button.
- An active call is indicated by the light blinking at one second intervals.
- The Interfom will automatically answer an incoming call.
- You can press the **Call** button to terminate an active call whether the call was an incoming call or a call that was initiated by you.

Figure 2-7. Call Button and Indicator Light



2.2.5 Network Connectivity, and Data Rate

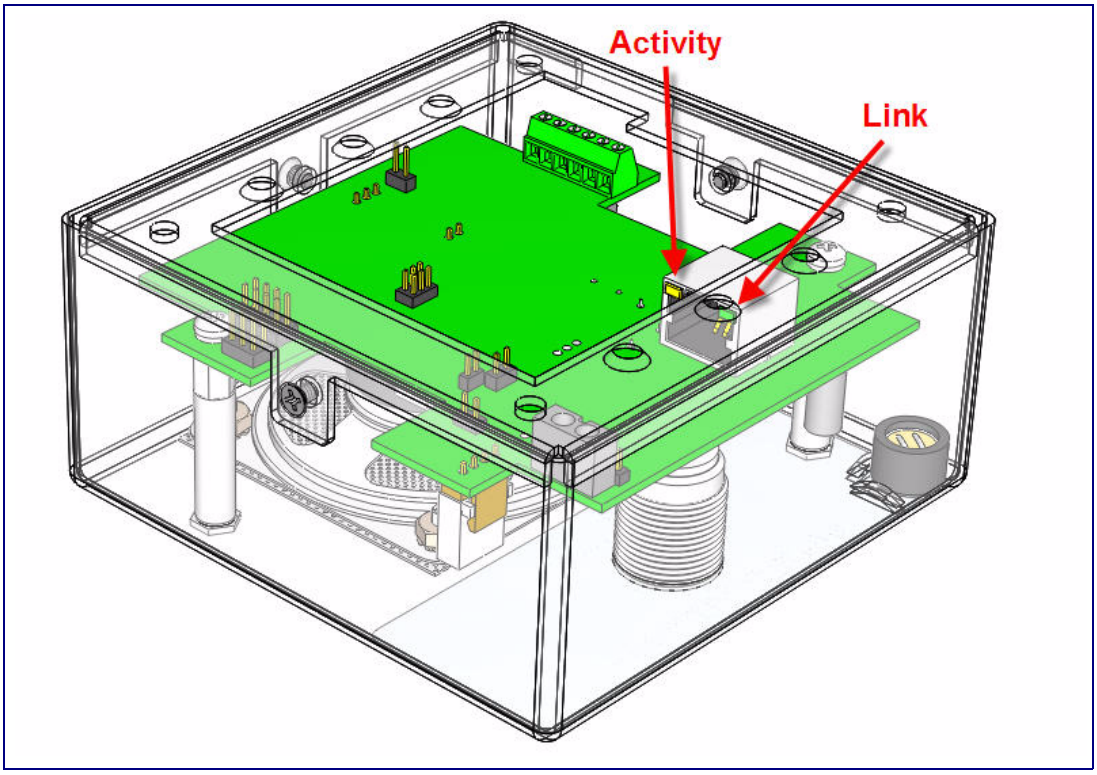
When you plug in the Ethernet cable or power supply:

- The square, green **Link** light above the Ethernet port indicates that the network connection has been established (see Figure 2-8). The Link light changes color to confirm the auto-negotiated baud rate:
  - This light is yellow at 10 Mbps.
  - It is orange at 100 Mbps.

2.2.5.1 Verify Network Activity

The square, yellow **Activity** light blinks when there is network activity.

Figure 2-8. Network Connector

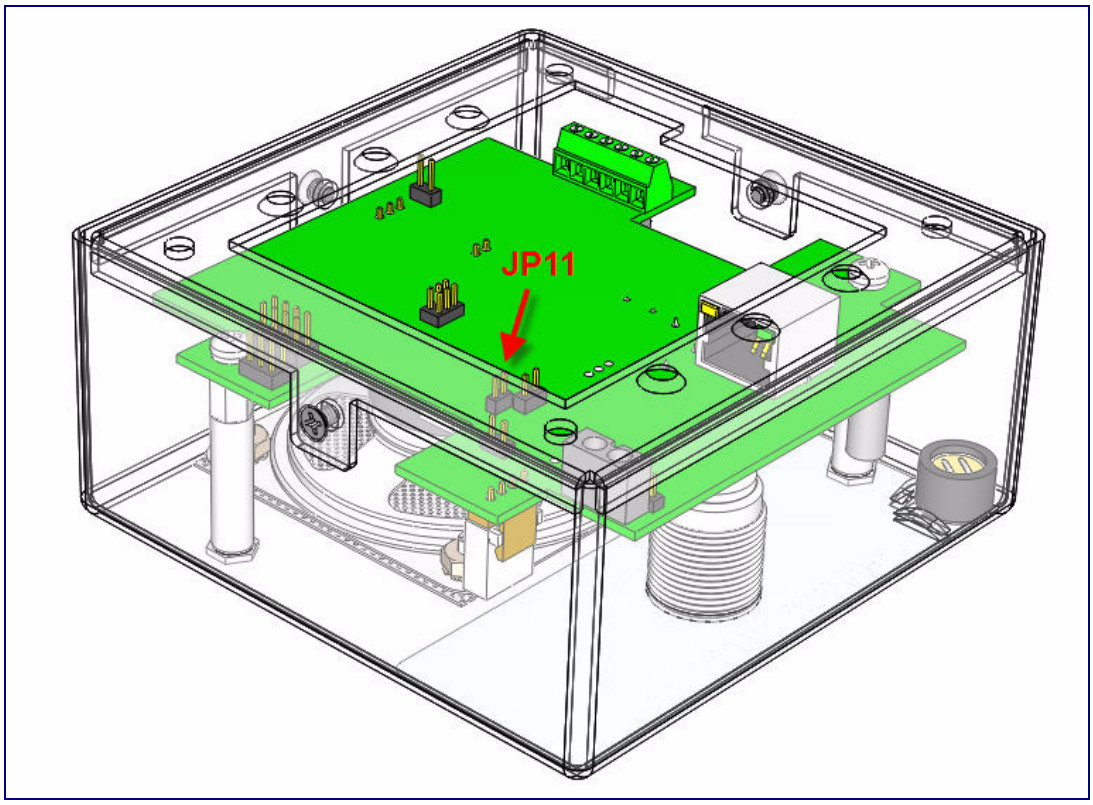


2.2.6 RTFM Switch Jumper

When the Intercom is operational and linked to the network, use the Reset Test Function Management **(RTFM)** switch (see Figure 2-9) on the Intercom board to announce and confirm the Intercom's IP Address, test that the audio is working, and check the volume.

Note You must do this test prior to final assembly. Please remember to remove the RTFM switch jumper prior to final assembly.

Figure 2-9. RTFM Switch Jumper



2.2.6.1 Announcing the IP Address

To announce an Intercom's current IP address:

1. Unplug the Intercom.
2. Install the RTFM jumper on JP11.
3. Plug the network cable into the Intercom to supply power to the Intercom. The LED will illuminate during initialization, blink once, and then turn off.
4. The Intercom will announce the IP address.
5. After the Intercom has rebooted, remove the jumper from JP11.
6. Cycle power by disconnecting the PoE cable from J1 and plugging the PoE cable back into J1.

2.2.6.2 Restore the Factory Default Settings

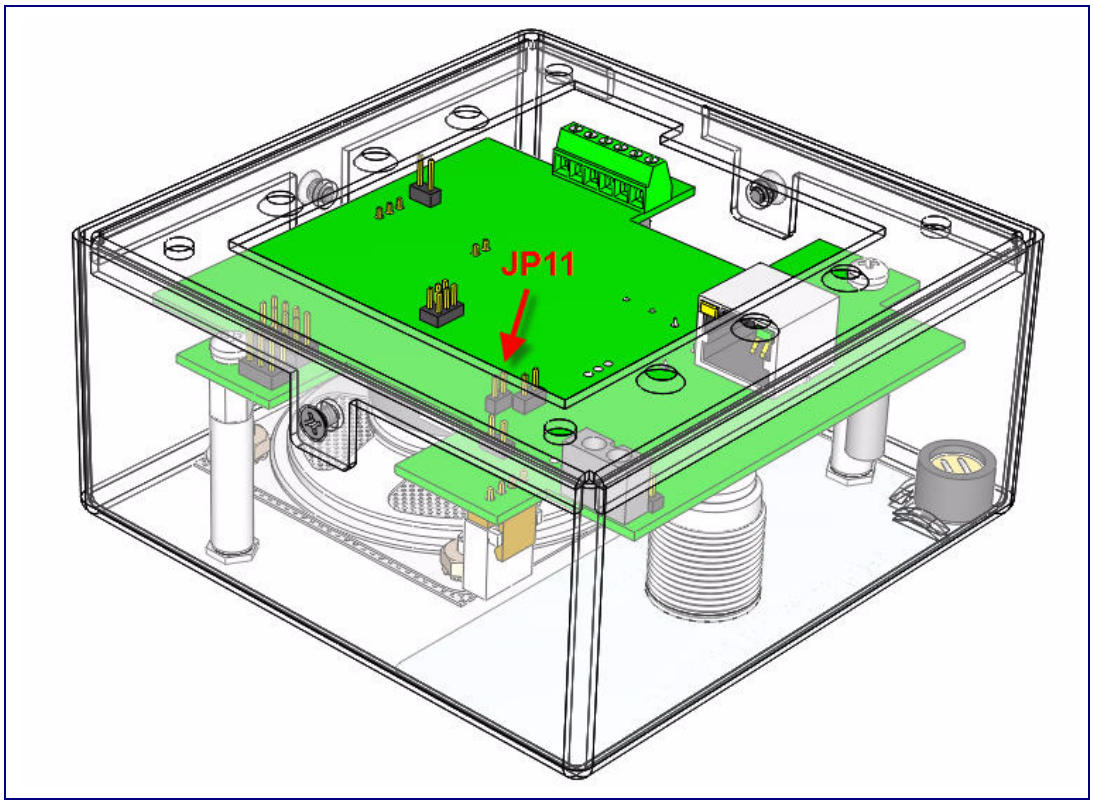
When troubleshooting configuration problems, it is sometimes convenient to restore the device to a known state.

Each Intercom is delivered with factory set default values. Use the **RTFM** switch on the Intercom face to restore these parameters to the factory default settings.

To restore the factory default settings:

1. Complete steps 1 through 4 in Section 2.2.6.1, "Announcing the IP Address".
2. Press and hold the **Call** button for **10** seconds.
3. When you hear the announcement, release the **Call** button. The factory default settings are restored, and the Interfom will automatically restart.
4. After the Intercom has rebooted, remove the jumper from JP11.
5. Cycle power by disconnecting the PoE cable from J1 and plugging the PoE cable back into J1.

Figure 2-10. RTFM Switch Jumper



2.2.7 Adjust the Volume

You will be only able to adjust the volume through the network configuration page.

2.3 Configure the Intercom Parameters

To configure the Intercom online, use a standard web browser.

Configure each Intercom and verify its operation *before* you mount it. When you are ready to mount an Intercom, refer to Appendix A, "Mounting the Indoor Intercom" for instructions.

All Intercoms are initially configured with the following default IP settings:

When configuring more than one Intercom, attach the Intercoms to the network and configure one at a time to avoid IP address conflicts..

Table 2-3. Factory Default Settings

Parameter	Factory Default Setting
IP Addressing	DHCP
IP Address[a]	10.10.10.10
Web Access Username	admin
Web Access Password	admin
Subnet Mask[a]	255.0.0.0
Default Gateway[a]	10.0.0.1

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

2.3.1 Log in to the Configuration Home Page

1. Open your browser to the Intercom IP address.

Note If the network does not have access to a DHCP server, the device will default to an IP address of 10.10.10.10.

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

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 on the VoIP Indoor Intercom product page at:

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

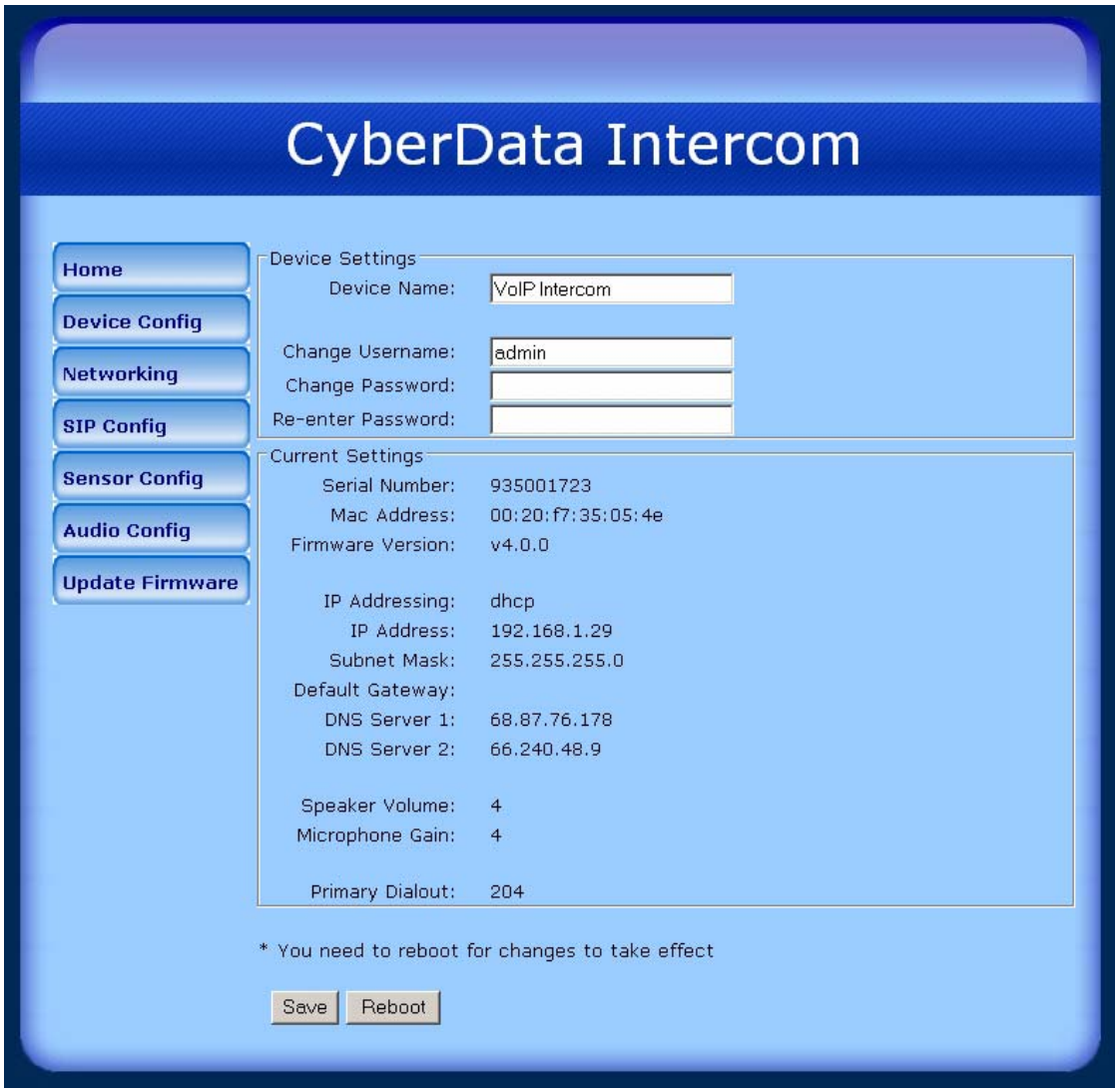
Note The Intercom ships in DHCP mode. To get to the **Home** page, use the discovery utility to scan for the device on the network and open your browser from there.

2. When prompted, use the following default **Web Access Username** and **Web Access Password** to access the **Home Page** (Figure 2-11):

   Web Access Username: **admin**

   Web Access Password: **admin**

Figure 2-11. Home Page



3. On the **Home Page**, review the setup details and navigation buttons described in Table 2-4.

Table 2-4. Home Page Overview

Web Page Item	Description
Device Settings	
Device Name	Shows the device name.
Change Username	Type in this field to change the username.
Change Password	Type in this field to change the password.
Re-enter Password	Type the password again in this field to confirm the new password.

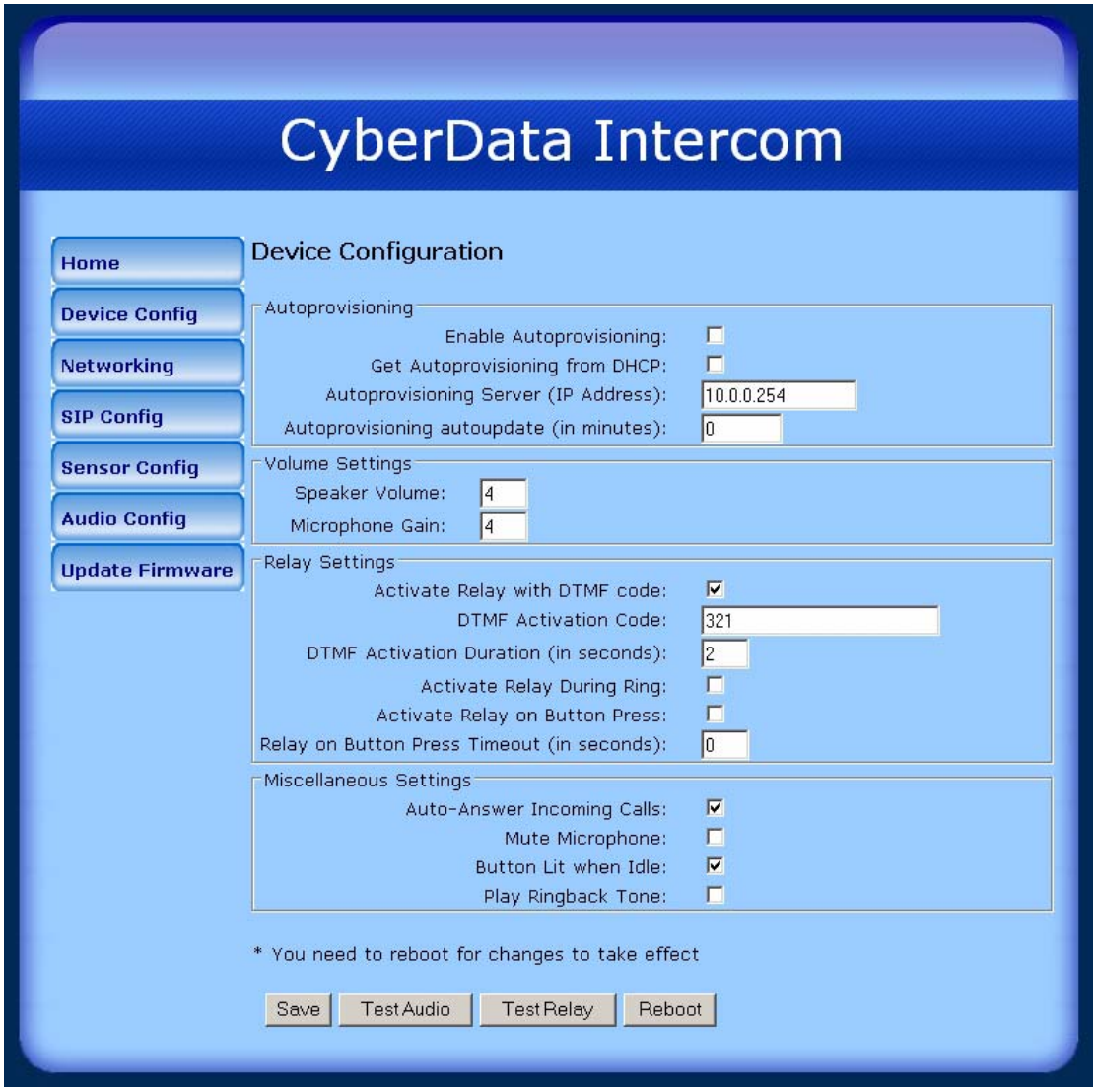
Table 2-4. Home Page Overview

Web Page Item	Description
Current Settings	
Serial Number	Shows the device serial number.
Mac Address	Shows the device Mac address.
Firmware Version	Shows the current firmware version.
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.
DNS Server 1	Shows the current DNS Server 1 address.
DNS Server 2	Shows the current DNS Server 2 address.
Speaker Volume	Shows the current speaker volume level.
Microphone Gain	Shows the current microphone gain level.
Primary Dialout	Shows the current dialout number.
	Link to the **Home** page.
	Link to the **Device Configuration** page.
	Link to the **Networking** page.
	Link to go to the **SIP Configuration** page.
	Link to the **Sensor Configuration** page.
	Link to the **Audio Configuration** page.
	Link to the **Update Firmware** page.
	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
	Click on the **Reboot** button to reboot the system.

2.3.2 Configure the Device

1. Click the **Device Configuration** button to open the **Device Configuration** page. See Figure 2-12.

Figure 2-12. Device Configuration Page



2. On the **Device Configuration** page, you may enter values for the parameters indicated in Table 2-5.

Table 2-5. Device Configuration Parameters

Web Page Item	Description
Autoprovisioning	
Enable Autoprovisioning	See Section 2.3.2.1, "Autoprovisioning".
Get Autoprovisioning from DHCP	See Section 2.3.2.1, "Autoprovisioning".
Autoprovisioning Server (IP Address)	See Section 2.3.2.1, "Autoprovisioning".
Autoprovisioning autoupdate (in minutes)	See Section 2.3.2.1, "Autoprovisioning".

Table 2-5. Device Configuration Parameters

Web Page Item	Description
Volume Settings	
Speaker Volume	Type the desired Intercom volume level into this field.
Microphone Gain	Type the desired microphone gain level into this field.
Relay Settings	
Activate Relay with DTMF Code	Check this box to use a DTMF code to activate the relay.
DTMF Activation Code	Type the desired DTMF activation code.
DTMF Activation Duration (in seconds)	Type the desired DTMF activation duration (in seconds). **NOTE**: A DTMF activation duration of **0** will toggle the relay indefinitely or until the activation code is sent again
Activate Relay During Ring	Check this box to activate the relay for as long as the phone is ringing. **NOTE**: When the phone is set to **Auto Answer**, it will not ring and this option does nothing.
Activate Relay on Button Press	Check this box to activate the relay for a user-selectable amount of time when the button is pressed.
Relay on Button Press Timeout (in seconds)	Type the desired number of seconds for the timeout on the relay after the button is pressed.
Miscellaneous Settings	
Auto-Answer Incoming Calls	Check this box to have the Intercom automatically answer incoming calls. When **Auto Answer** is Off, the Intercom will play a ringtone through the speaker until someone presses the button.
Mute Microphone	When selected, the Intercom microphone is muted.
Button Lit When Idle	Check this box to have the Call Button light on when the Intercom is idle.
Play Ringback Tone	Check this box to enable the Intercom to play a ringtone while the remote device is ringing.
	Link to the **Home** page.
	Link to the **Device Configuration** page.
	Link to the **Networking** page.
	Link to go to the **SIP Configuration** page.
	Link to the **Sensor Configuration** page.
	Link to the **Audio Configuration** page.

Table 2-5. Device Configuration Parameters

Web Page Item	Description
Update Firmware	Link to the **Update Firmware** page.
Save	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
Test Audio	Click on the **Test Audio** button to do an audio test. Generates a voice message for testing the Intercom audio quality and volume.
Test Relay	Click on the **Test Relay** button to do a relay test.
Reboot	Click on the **Reboot** button to reboot the system.

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

2.3.2.1 Autoprovisioning

Enable Autoprovisioning Option

With autoprovisioning enabled, the board will get it's configuration from a remote TFTP server on startup or periodically on a scheduled delay. These autoprovisioned values will take precedence over values stored in the boards own non-volatile memory. The board gets it's autoprovisioning information from an XML-formatted file hosted from a TFTP server. CyberData will provide a template for this XML file and the user can modify it for their own use.

Get Autoprovisioning from DHCP

On the webpage you can specify an address where the board will look for autoprovisioning information or have it use an address supplied by your DHCPD server through option 66 (tftp-server-name) or 150.

Autoprovisioning Autoupdate

If autoprovisioning is turned on and the autoprovisioning autoupdate value is something other than **0** minutes, a service is started on startup that will wait the configured number of minutes and then try to re-download it's autoprovisioning file. It will compare it's previously autoprovisioned file with this new file and if there are differences, it will reboot the board.

Autoprovisioning Server (IP Address)

On boot the device will go to it's autoprovisioning server address and try to read a configuration file. The board will look for a configuration file named <mac address>.config. For example:

```
0020f7350185.config
```

The mac address has to be all lower case.

It's possible to only configure a subset of all configuration options using autoprovisioning. Options not autoprovisioned will default to the values stored in the on board memory.

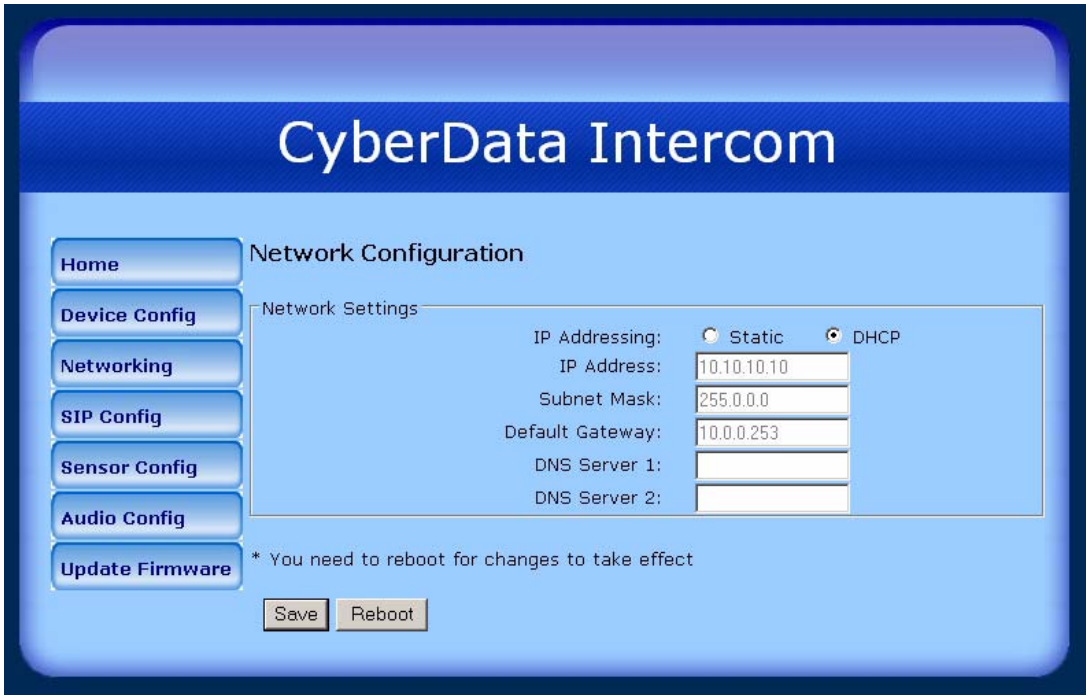
To set up a Linux DHCPD server to serve autoprovisioning information (in this case using both option 66 and 150), here's an example dhcpd.conf:

```
# dhcpd.conf
#
# Configuration file for ISC dhcpd (see 'man dhcpd.conf')
#
ddns-update-style ad-hoc;

option option-150 code 150 = ip-address;

subnet 10.0.0.0 netmask 255.0.0.0 {
        max-lease-time 120;
        default-lease-time 120;

        option routers                  10.0.0.1;
        option subnet-mask              255.0.0.0;

        option domain-name              "voiplab";
        option domain-name-servers       10.0.0.1;

        option time-offset              -8;     # Pacific Standard Time

        option tftp-server-name         "10.0.0.254";

        option option-150               10.0.0.254;

        range 10.10.0.1 10.10.2.1;}
```

2.3.3 Configure the Network Parameters

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

Figure 2-13. Network Configuration Page



2. On the **Network Configuration** page, enter values for the parameters indicated in Table 2-6.

Table 2-6. Network Configuration 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 2-6. If you select **DHCP**, go to Step 3.
Network Settings	
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.
Home	Link to the **Home** page.
Device Config	Link to the **Device Configuration** page.

Table 2-6. Network Configuration Parameters

Web Page Item	Description
	Link to the **Networking** page.
	Link to go to the **SIP Configuration** page.
	Link to the **Sensor Configuration** page.
	Link to the **Audio Configuration** page.
	Link to the **Update Firmware** page.
	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
	Click on the **Reboot** button to reboot the system.

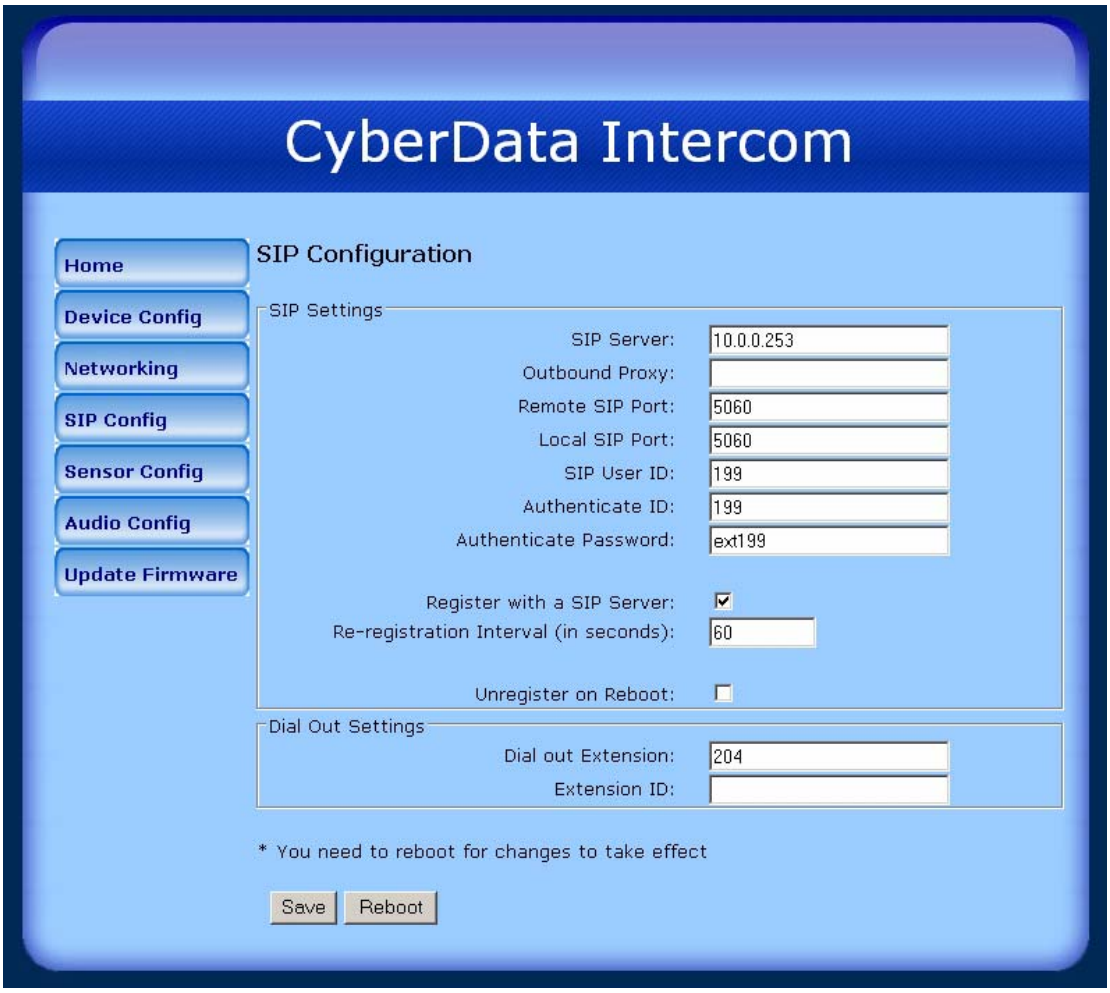
3. After changing the parameters, click **Save Settings**. This updates the changed parameters and reboots the Intercom if appropriate.
4. Connect the Intercom to the target network.
5. From a system on the same network as the Intercom, open a browser with the new IP address of the Intercom.

2.3.4 Configure the SIP Parameters

1. Click **SIP Config** to open the **SIP Configuration** page (Figure 2-14).

Note For specific server configurations, go to the VoIP Indoor Intercom product page at: http://www.cyberdata.net/support/voip/index.html

Figure 2-14. SIP Configuration Page



2. On the **SIP Configuration** page, enter values for the parameters indicated in Table 2-7.

Table 2-7. SIP Configuration Parameters

Web Page Item	Description
SIP Settings	
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.

Table 2-7. SIP Configuration Parameters

Web Page Item	Description
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).
Register with a SIP Server*	Check this box to enable SIP Registration. For information about the Point-to-Point Configuration, see Section 2.3.4.1, "Point-to-Point Configuration".
Re-registration Interval (in seconds)*	Enter the SIP Registration lease time in seconds (default 60 seconds).
Unregister on Reboot	Check this box to disable the SIP registration after a reboot.
Dial Out Settings	
Dial Out Extension	Enter the desired dial-out extension number. **Note**: The Dial Out Extension also supports the addition of comma delimited pauses before sending additional DTMF tones (using rfc2833). The first comma will pause three seconds after a call is first established with a remote device. Subsequent commas will pause for two seconds. A pause of one second will be sent after each numerical digit. Examples of Dial-Out Extension strings: **302**: Dial out extension 302 and establish a call. **302,2**: Dial out extension 302 and establish a call. Wait three seconds and then send the DTMF tone '**2**'. **302,25,,,4,,1**: Dial out extension **302** and establish a call. Wait 3 seconds and then send the DTMF tone '**2**'. Send out DTMF tone **5**. Wait six seconds. Send out DTMF tone **4**. Wait four seconds. Send out DTMF tone **1**. **Note**: The maximum number of total characters in the dial-out field is 25.
Extension ID	Type the desired ID name for the dial out extension.
	Link to the **Home** page.
	Link to the **Device Configuration** page.
	Link to the **Networking** page.
	Link to go to the **SIP Configuration** page.

Table 2-7. SIP Configuration Parameters

Web Page Item	Description
Sensor Config	Link to the **Sensor Configuration** page.
Audio Config	Link to the **Audio Configuration** page.
Update Firmware	Link to the **Update Firmware** page.
Save	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
Reboot	Click on the **Reboot** button to reboot the system.

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

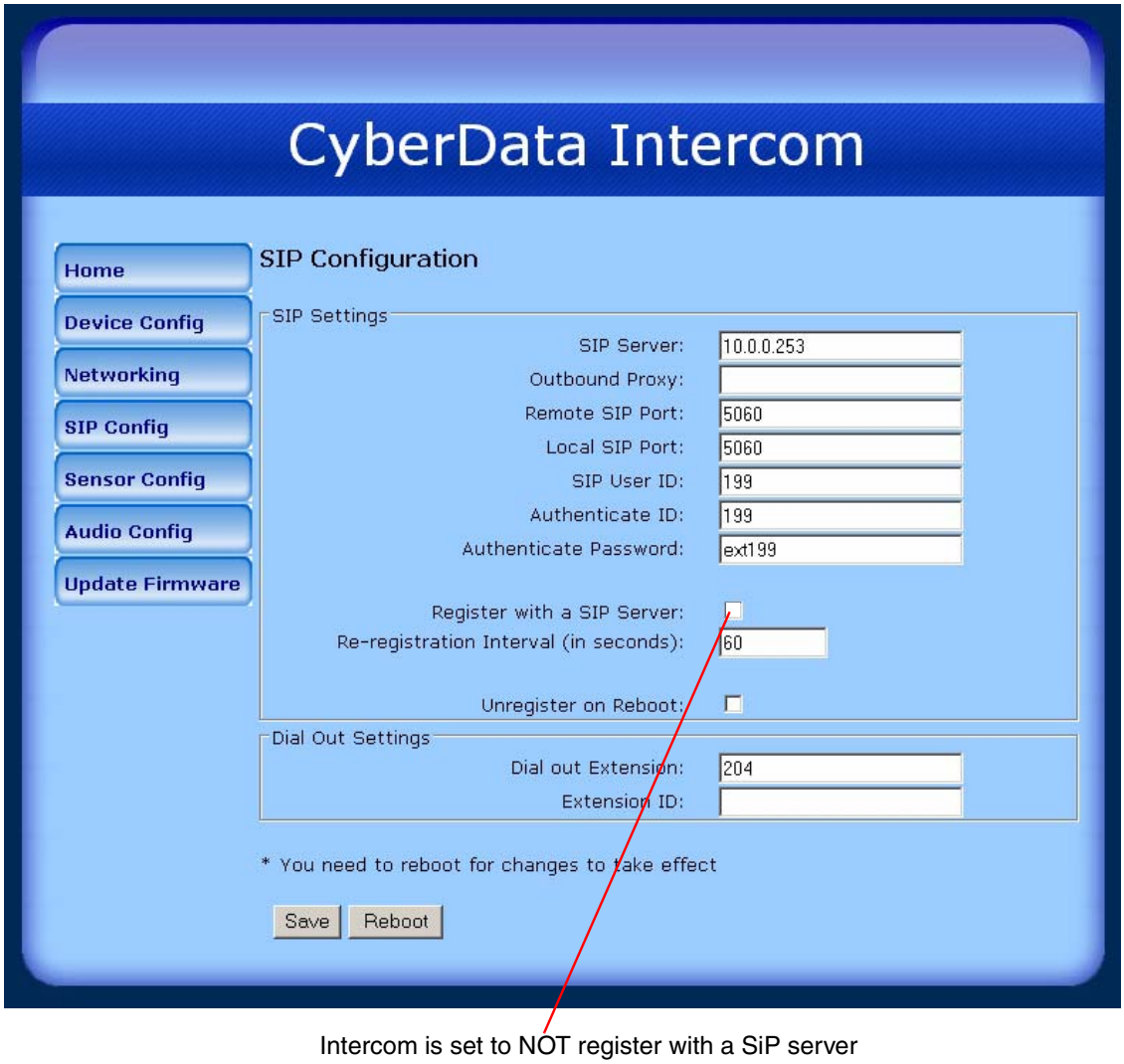
2.3.4.1 Point-to-Point Configuration

When the board is set to not register with a SIP server (see Figure 2-15), it's possible to set the intercom to dial out to a single endpoint.

In this case, the dial-out extension should be the IP address of the remote device. The Intercom can also receive Point-to-Point calls. The delayed DTMF functionality is available in the Point-to-Point Mode.

Note Receiving point-to-point SiP calls may not work with all phones.

Figure 2-15. SIP Configuration Page Set to Point-to-Point Mode



2.3.4.2 Delayed DTMF

On the **SIP Configuration** page the dial out extension now supports the addition of comma delimited pauses and sending additional DTMF tones (using rfc2833). The first comma will pause three seconds after a call is first established with a remote device. Subsequent commas will pause for 2 seconds. A pause of one second will be sent after each numerical digit.

Table 2-8. Examples of Dial-Out Extension Strings

Extension String	Resulting Action
302	Dial out extension 302 and establish a call
302,2	Dial out extension 302 and establish a call, wait 3 seconds then send the DTMF tone '2'
302,25,,,4,,1	Dial out extension 302 and establish a call, wait 3 seconds then send the DTMF tone '2', send out DTMF tone 5, wait 6 seconds, send out DTMF tone 4, wait 4 seconds, send out DTMF tone 1

Note The maximum number of total characters in the dial-out field is 25.

2.3.5 Configure the Sensor Configuration Parameters

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 Configuration** 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.

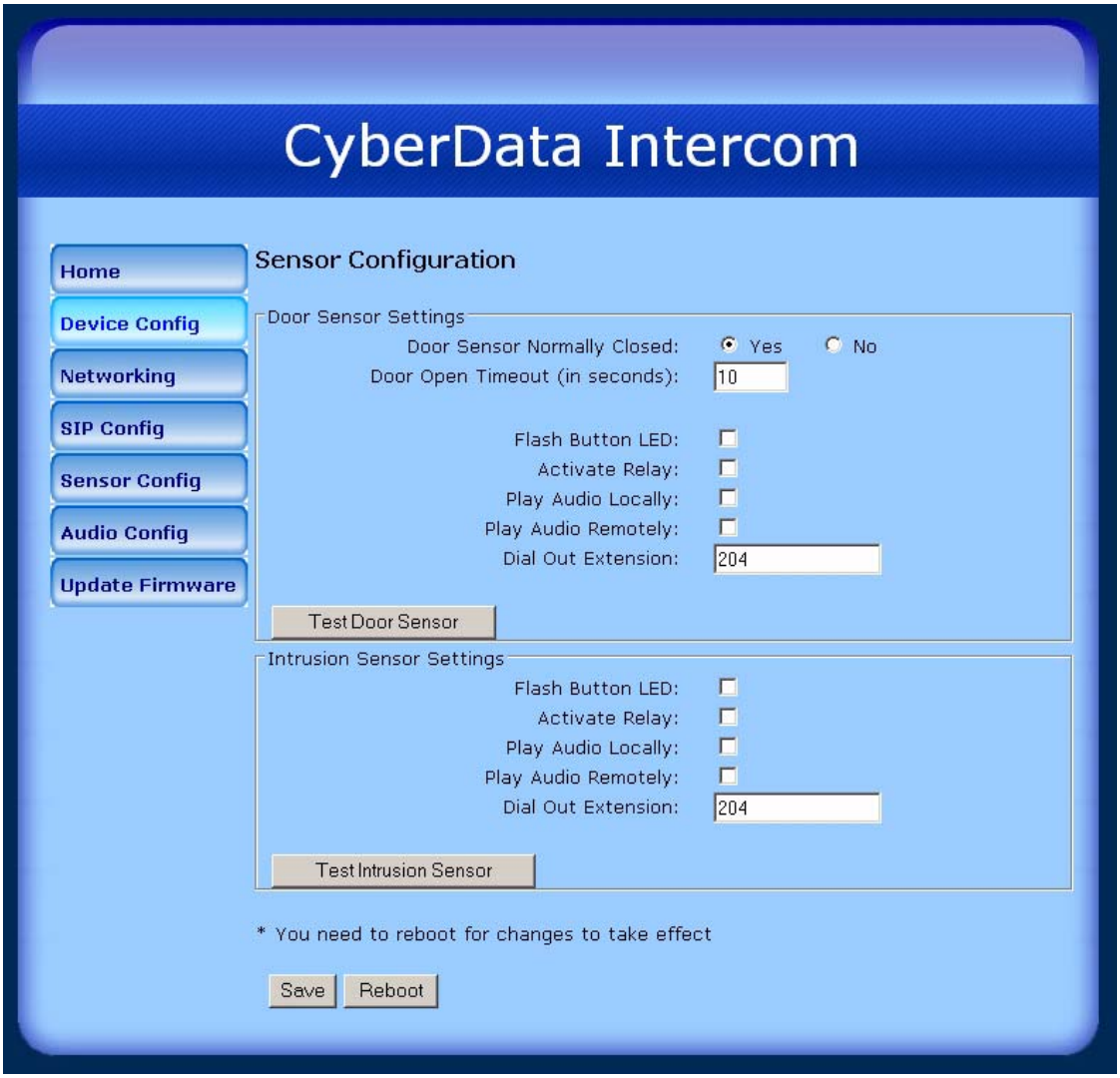
For each sensor there are four actions the Intercom can take:

- 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 a preset extension and play a pre-recorded audio file (once)

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

1. Click **Sensor Config** to open the **Sensor Configuration** page (Figure 2-16).

Figure 2-16. Sensor Configuration Page



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

Table 2-9. Sensor Configuration Parameters

Web Page Item	Description
Door Sensor Settings	
Door Sensor Normally Closed	Select the inactive state of the door sensors.
Door Open Timeout (in seconds)	Select the number of seconds that you want to pass before the door sensor is activated.
Flash Button LED*	Check this box to flash the LED until the sensor is deactivated (roughly 10 times/second).
Activate Relay	Check this box to activate the relay until the sensor is deactivated.
Play Audio Locally	Check this box to loop an audio file out of the Intercom speaker until the sensor is deactivated.
Play Audio Remotely	Check this box to call a preset extension and play a pre-recorded audio file (once).
Dial Out Extension	Enter the button dial-out extension number.
Test Door Sensor	Use this button to test the door sensor.
Intrusion Sensor Settings	
Flash Button LED*	Check this box to flash the LED until the sensor is deactivated (roughly 10 times/second).
Activate Relay	Check this box to activate the relay until the sensor is deactivated.
Play Audio Locally	Check this box to loop an audio file out of the Intercom speaker until the sensor is deactivated.
Play Audio Remotely	Check this box to call a preset extension and play a pre-recorded audio file (once).
Dial Out Extension	Enter the button dial-out extension number.
Test Intrusion Sensor	Use this button to test the Intrusion sensor.
	Link to the **Home** page.
	Link to the **Device Configuration** page.
	Link to the **Networking** page.
	Link to go to the **SIP Configuration** page.
	Link to the **Sensor Configuration** page.
	Link to the **Audio Configuration** page.

Table 2-9. Sensor Configuration Parameters

Web Page Item	Description
Update Firmware	Link to the **Update Firmware** page.
Save	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
Reboot	Click on the **Reboot** button to reboot the system.

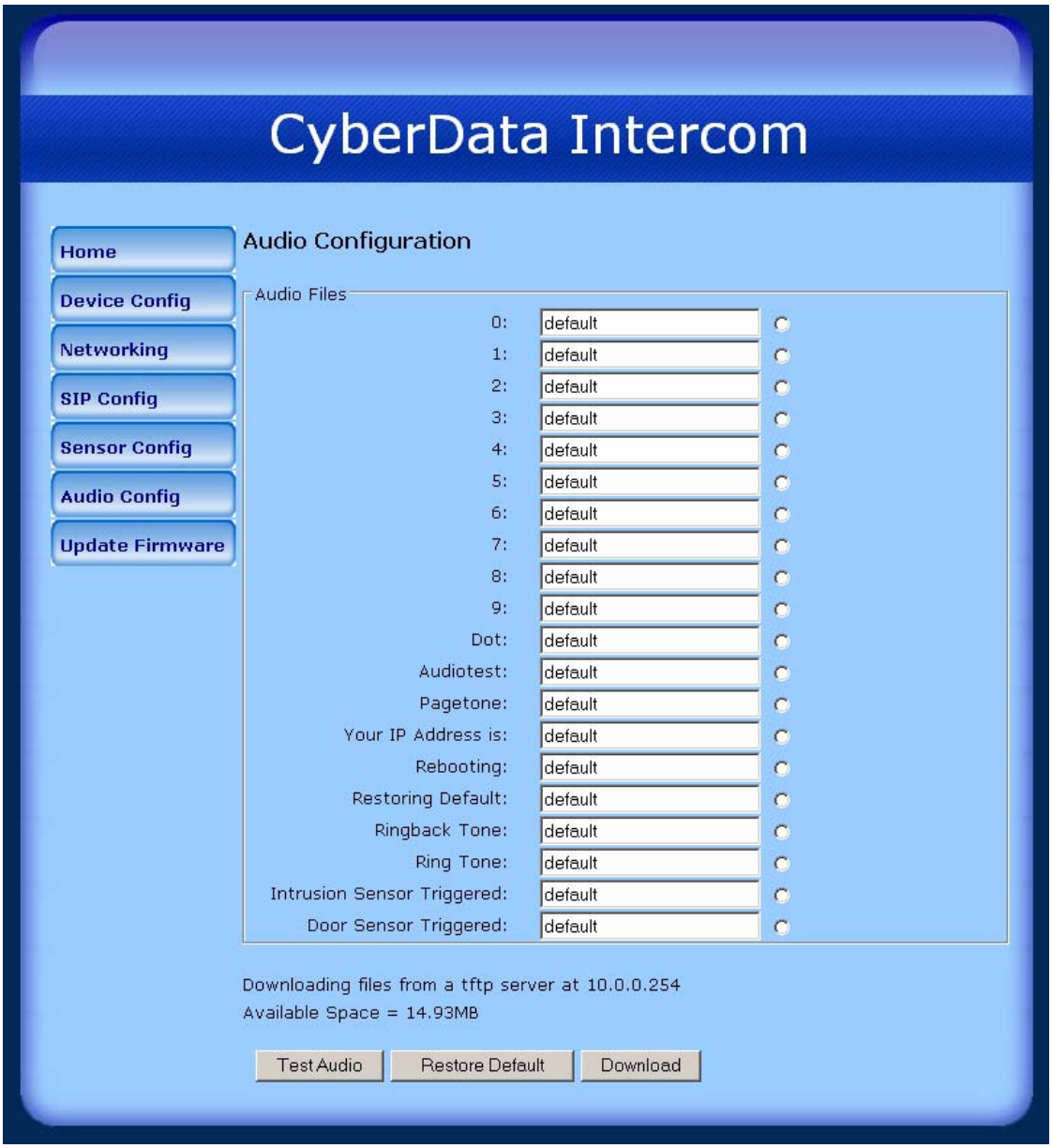
3. After changing the parameters, click **Save Settings**.

2.3.6 Configure the Audio Configuration Parameters

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

1. Click **Audio Config** to open the **Audio Configuration** page (Figure 2-16).

Figure 2-17. Audio Configuration Page



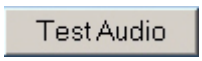
2. On the **Audio Configuration** page, enter values for the parameters indicated in Table 2-9.

Note Each entry on the **Audio Configuration** page replaces one of the stock audio files on the board. When the input box displays the word **default**, the Intercom is using the stock audio file. If that file is replaced with a user file, it will display the uploaded filename.

Table 2-10. Audio Configuration Parameters

Web Page Item	Description
Audio Files	
Radio button (to the right of each input box)	For each entry, if the user selects the radio button to the right of the input box they have several options: The **Test Audio** button will play that audio file. The **Restore Defaults** button will delete any user uploaded audio and restore the stock audio file. The **Download** button will download a new user audio file to the board. It will delete any pre-existing user uploaded audio files.
0-9	The name of the audio configuration option is the same as the spoken audio that plays on the board. '0' corresponds to the spoken word “zero.” '1' corresponds to the spoken word “one.” '2' corresponds to the spoken word “two.” '3' corresponds to the spoken word “three.” '4' corresponds to the spoken word “four.” '5' corresponds to the spoken word “five.” '6' corresponds to the spoken word “six.” '7' corresponds to the spoken word “seven.” '8' corresponds to the spoken word “eight.” '9' corresponds to the spoken word “nine.”
Dot	Corresponds to the spoken word “dot.”
Audiotest	Corresponds to the message “This is the CyberData IP speaker test message...”
Pagetone	Corresponds to a simple tone that is unused by default.
Your IP Address is	Corresponds to the message “Your IP address is...”
Rebooting	Corresponds to the spoken word “Rebooting.”
Restoring default	Corresponds to the message “Restoring default.”
Ringback Tone	This is the ringback tone that plays when calling a remote extension.
Ring Tone	This is the tone that plays when set to ring when receiving a call.
Intrusion Sensor Triggered	Corresponds to the message “Intrusion sensor triggered.”
Door Sensor Triggered	Corresponds to the message “Door ajar.”
Downloading files from a tftp server at	Corresponds to the spoken word “dot.”

Table 2-10. Audio Configuration Parameters

Web Page Item	Description
Available Space =	Indicates how much space is left in the internal non-volatile memory.
	Link to the **Home** page.
	Link to the **Device Configuration** page.
	Link to the **Networking** page.
	Link to go to the **SIP Configuration** page.
	Link to the **Sensor Configuration** page.
	Link to the **Audio Configuration** page.
	Link to the **Update Firmware** page.
	Click on the **Download** button to download a file from a TFTP server at the address specified on the **Update Firmware** page. **Note**: Downloading large files can sometimes take a long time. It's not recommended to interrupt the process once it has started.
	Click on the **Test Audio** button to test the audio.
	Click on the **Restore Default** button to restore the default settings.

2.4 Upgrade the Firmware and Reboot the Intercom

Note To guard against failed firmware upgrades, speakers shipped from CyberData with firmware version 5.1.1 and later feature a built-in "fail safe" mechanism. Note that field upgrading earlier units with v5.x.x will not allow for this feature.

Note The Intercom will store the **TFTP Server IP** and **New Filename** entered on the **Update Firmware** web page. If, during the boot process, the Intercom is unable to boot the firmware, it will attempt to download the stored image from the stored TFTP server.

To upload the Intercom firmware from your PC:

1. Set up a TFTP server.

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

2. Retrieve the latest Intercom firmware from the VoIP Indoor Intercom product page at:

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

3. Unzip the Intercom version file. This file may contain the following:
   - Firmware file
   - Release notes

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

6. Click the **Update Firmware** button to open the **Upgrade Firmware** page. See Figure 2-18.

Figure 2-18. Upgrade Firmware 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 Intercom has uploaded the file, the **Uploading Firmware** countdown page appears, indicating that the firmware is being written to flash. The Intercom will automatically reboot when the upload is complete. When the countdown finishes, the **Upgrade Firmware** page will refresh. The uploaded firmware filename should be displayed in the system configuration (indicating successful upload and reboot).

Note If you are upgrading an older version of the Intercom firmware to version 3.3.0 or later, several features will be in an unknown or random state. Therefore, in the case of a firmware upgrade to version 3.3.0 or later, CyberData recommends that you go to the **Device Config** page and make sure the following values are set properly.

- Auto Answer
- Activate Relay on Ring
- Activate Relay on Button Press
- Relay on Button Press Timeout
- Button Lit when Idle
- Play Ringback Tone

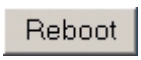
On the **Sensor Configuration** page make sure that all of the settings are set properly.

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 2-11 shows the web page items on the **Upgrade Firmware** page.

Table 2-11. Firmware Upgrade Parameters

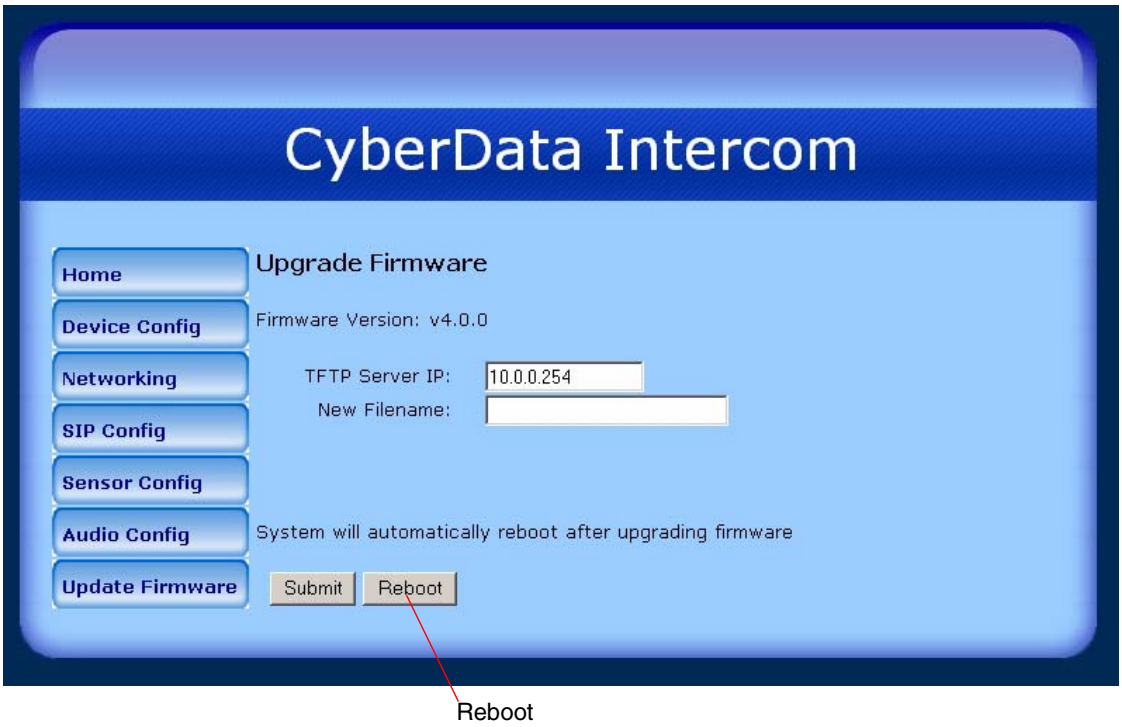
Web Page Item	Description
Firmware Version	Shows the current firmware version.
TFTP Server IP	Enter the TFTP Server IP address.
New Filename	Use this field to enter the new file name for the kernel or application firmware file that you are uploading.
	Link to the **Home** page.
	Link to the **Device Configuration** page.
	Link to the **Networking** page.
	Link to go to the **SIP Configuration** page.
	Link to the **Sensor Configuration** page.
	Link to the **Audio Configuration** page.
	Link to the **Update Firmware** page.
	Click on the **Submit** button to automatically upload the selected firmware and reboot the system.
	Click on the **Reboot** button to reboot the system.

2.4.1 Reboot the Intercom

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

1. Click **Update Firmware** to open the **Upgrade Firmware** page (Figure 2-19).

Figure 2-19. Reboot System Section



2. Click **Reboot**. A normal restart will occur.

Appendix A: Mounting the Indoor Intercom

A.1 Mount the Intercom

Before you mount the Intercom, make sure that you have received all the parts for each Intercom. Refer to Table A-1.

Table A-1. Wall Mounting Components (Part of the Accessory Kit)

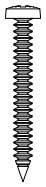
Quantity	Part Name	Illustration
4	6-32 x 1" Pan head phillips wood screw	
4	Plastic-ribbed anchor	

Table A-1. Gang Box Mounting Components

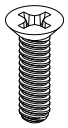
Quantity	Part Name	Illustration
4	6-32 x 0.5-inch flat undercut Phillips machine screw	

Figure A-1 shows how to properly connect the VoIP Intercom.

Figure A-1. Cable Connections

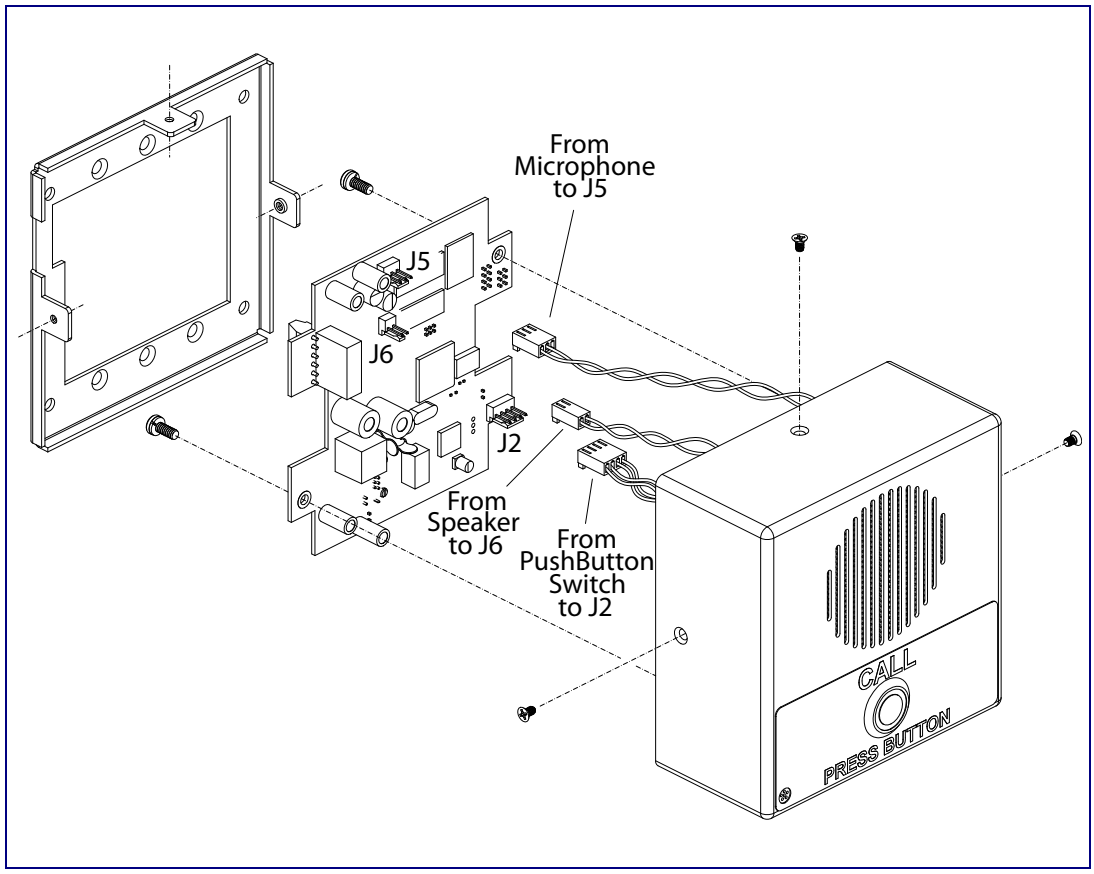


Figure A-2 shows a 1-Gang Box and a 2-Gang Box mounting option.

Figure A-2. Gang Box Mounting

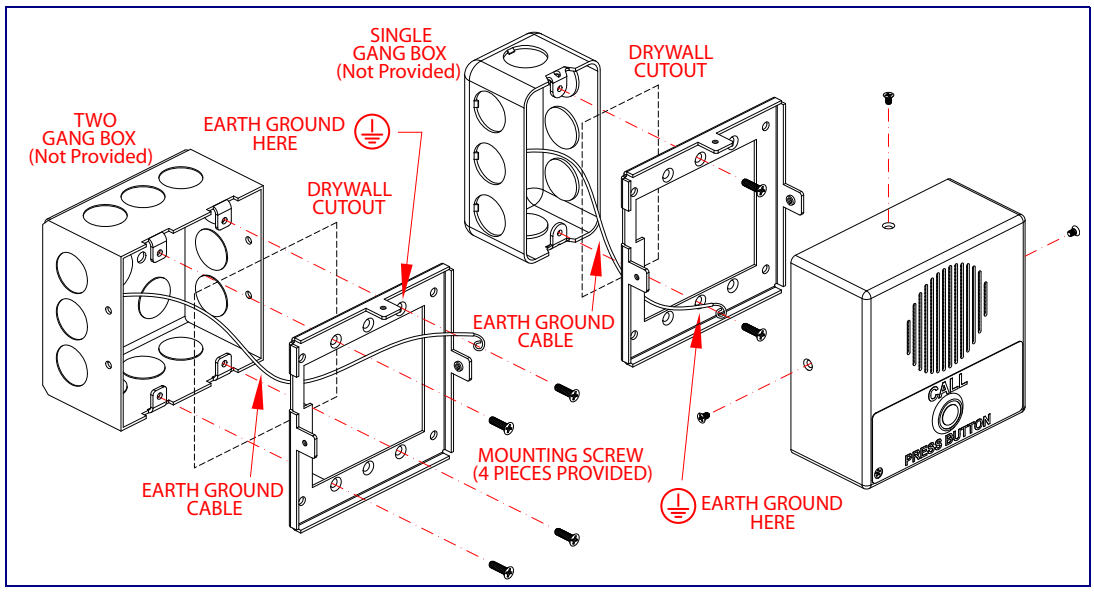
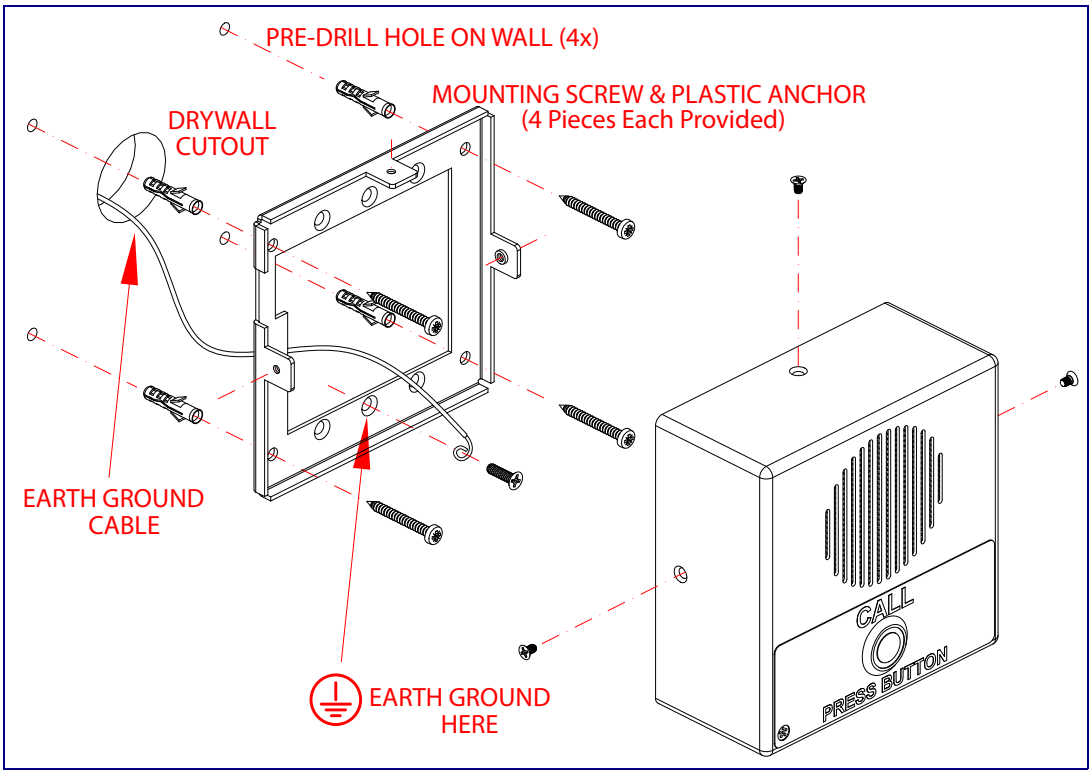


Figure A-3 shows a wall mounting option.

Figure A-3. Wall Mounting Option



Appendix B: Setting up a TFTP Server

B.1 Set up a TFTP Server

Upgrading the VoIP Indoor Intercom 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 from the VoIP Indoor Intercom product page 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.

B.1.3 In a Solarwinds Server Environment

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 from the VoIP Indoor Intercom product page at:

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

Appendix C: Troubleshooting/Technical Support

C.1 Frequently Asked Questions (FAQ)

A list of frequently asked questions (FAQs) are available on the VoIP Indoor Intercom product page at:

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 from the VoIP Indoor Intercom product page 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

Numerics

100 Mbps indicator light 12

A

AC voltages 2, 8
act light 12
activate relay (door sensor) 32
activate relay (intrusion sensor) 32
address, configuration login 16
announcing a intercom's IP address 13, 14
audio configuration 34
audio configuration page 34
audio encodings 4
authenticate ID 26
authenticate password 26
autoprovisioning 22
autoprovisioning enabled option 22
autoprovisioning from DHCP 22
autoprovisioning server (IP address) 22
auxiliary relay wiring diagram 8

B

baud rate
    verifying 12

C

cable connections 42
changing
    the web access password 19
configurable parameters 17, 19, 23, 25, 39
configuration
    audio 34
    default IP settings 15
    door sensor 30
    intrusion sensor 30
    network 23
    SIP 25
    using Web interface 15
configuration home page 17
connector locations 9
CyberData contact information, corporate, sales, tech support, service 45

D

default
    gateway 15
    intercom settings 47
    IP address 15
    subnet mask 15
    username and password 15
    web login username and password 17
default gateway 15, 23
default intercom settings 14
default IP settings 15
default login address 16
device configuration 19
device configuration page 19
device configuration parameters 19
device configurationpassword
    changing for web configuration access 19
DHCP Client 4
DHCP IP addressing 23
dial out extension (door sensor) 32
dial out extension (intrusion sensor) 32
dial-out extension
    support for comma delimited pauses 26
dial-out extension strings 29
dimensions 4, 5
discovery utility program 16
DNS server 23
door sensor 30, 32, 35
    activate relay 32
    dial out extension 32
    door open timeout 32
    door sensor normally closed 32
    flash button LED 32
    play audio locally 32
    play audio remotely 32
DTMF tones 29
dual speeds 12

E

expiration time for SIP server lease 26

F

factory default settings 14
firmware
    upgrading an older version of the intercom firmware

to version 3.3.0 38
where to download the latest firmware 38
where to get the latest firmware 37
firmware upgrades 44
failure 37
flash button LED (door sensor) 32
flash button LED (intrusion sensor) 32

G

gang box mounting 42
green link light 12

H

home page 17
http web-based configuration 4

I

identifying your product 1
illustration of intercom mounting process 41
installation, typical intercom system 2
intercom configuration
default IP settings 15
intercom configuration page
configurable parameters 25, 39
intrusion sensor 30, 32
activate relay 32
dial out extension 32
flash button LED 32
play audio locally 32
play audio remotely 32
IP address 15, 23, 39
IP addressing 23
default
IP addressing setting 15

L

lease, SIP server expiration time 26
link light 12
Linux, setting up a TFTP server on 44
local SIP port 26
local SiP port 26
log in address 16

M

mounting an intercom 41

N

network activity, verifying 12
network configuration of intercom 23
network rate 4
Network Setup 23

O

orange link light 12
outbound proxy 25

P

packet time 4
part number 4
parts list 6
password
for SIP server login 26
login 17
restoring the default 15
play audio locally (door sensor) 32
play audio locally (intrusion sensor) 32
play audio remotely (door sensor) 32
play audio remotely (intrusion sensor) 32
point-to-point configuration 28
port
local SIP 26
remote SIP 26
power requirement 4
product
configuring 15
mounting 41
parts list 6
product features 3
product overview
product features 3
product specifications 4
supported protocols 4
supported SIP servers 4
typical system installation 2
product specifications 4
protocols supported 4

R

reboot 39, 40
register expiration 26
registration and expiration, SIP server lease 26
remote SIP port 26
remote SiP port 26
reset test function management switch 13
resetting the IP address to the default 41, 45
restoring factory default settings 14, 47
RJ-45 10
RMA returned materials authorization 45
RTFM jumper 13, 14
RTFM jumper switch 13
RTFM switch 13, 14
RTP/AVP 4

S

sensor setup page 31
sensor setup parameters 30
sensors 32
server address, SIP 25
setting up a TFTP server 44
setting up an intercom 7
settings, default 14
SIP (session initiation protocol) 4
SIP configuration 25
  SIP Server 25
SIP registration 26
SIP server 25
  SIP servers supported 4
SIP user ID 26
solarwinds 44
speaker configuration page
  configurable parameters 17, 19, 23
speaker operations, verifying 19
speaker output 4
static IP addressing 23
subnet mask 15, 23
supported protocols 4

T

technical support, contact information 45
TFTP server 4, 44
TFTP Server IP 37

U

user ID
  for SIP server login 26
  SIP 26
username
  changing for web configuration access 19
  default for web configuration access 17
  restoring the default 15

V

verifying
  baud rate 12
  network activity 12
  network connectivity 12
  speaker operations 19

W

wall mounting option 43
warranty 46
web access password 15
web access username 15
web configuration log in address 16
web-based intercom configuration 15
weight 4
Windows, setting up a TFTP server on 44

Y

yellow act light 12
yellow link light 12