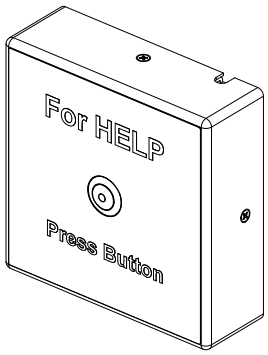
CyberData

The IP Endpoint Company



SIP Call Button Operations Guide

Part #011049

Document Part #930292E

for Firmware Version 1.0.2

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SIP Call Button Operations Guide 930292A
Part # 011049

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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.
14. **WARNING: The SIP Call Button enclosure is not rated for any AC voltages!**

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.

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
u-law	A companding algorithm, primarily used in the digital telecommunication
UC	Unified Communications
VoIP	Voice over Internet Protocol

Revision Information

Revision 930292E, which corresponds to firmware version 1.0.2, was released on June 29, 2011 and has the following changes:

- Updates Section 2.2.5.2, "Point-to-Point Configuration".
- Adds Figure 2-16, "Sensor Configuration Page".

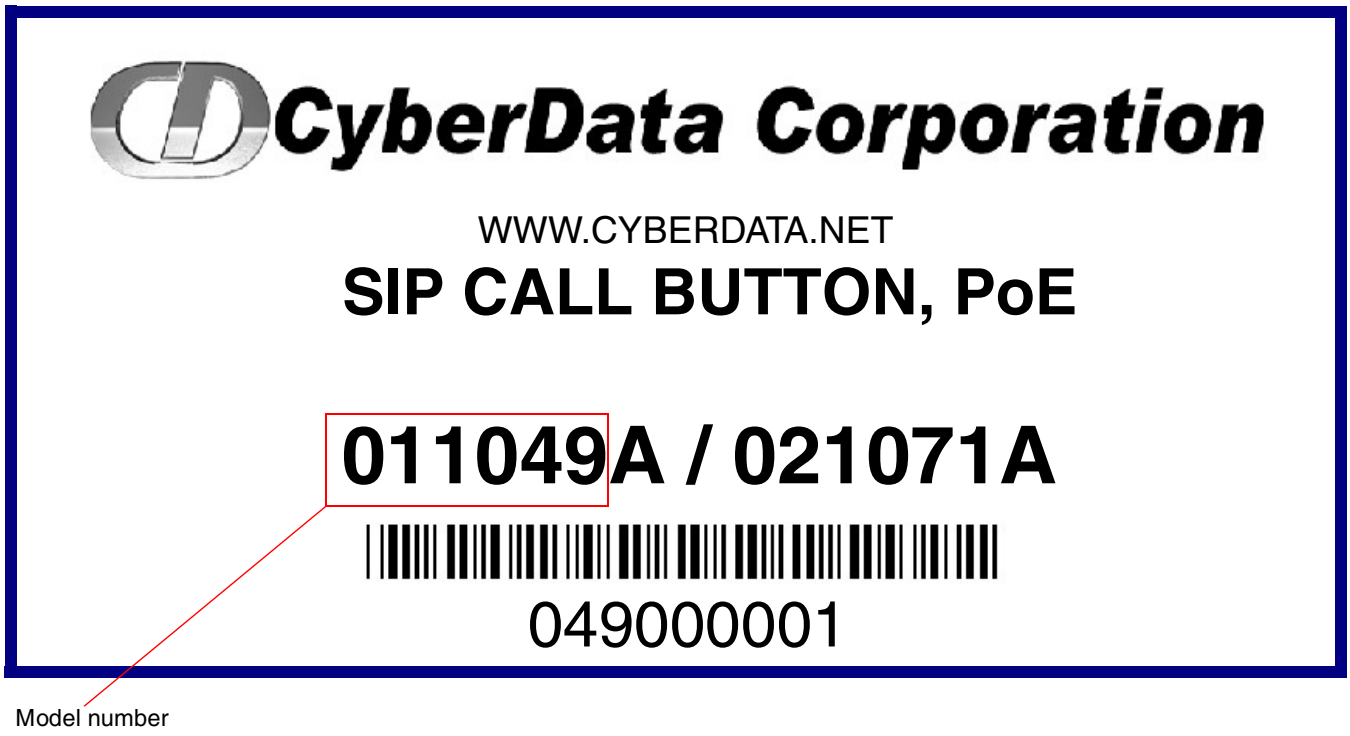
Contents

1 Product Overview

1.1 How to Identify This Product

To identify the SIP Call Button, look for a model number label similar to the one shown in Figure 1-1. The model number on the label should be **011049**.

Figure 1-1. Model Number Label

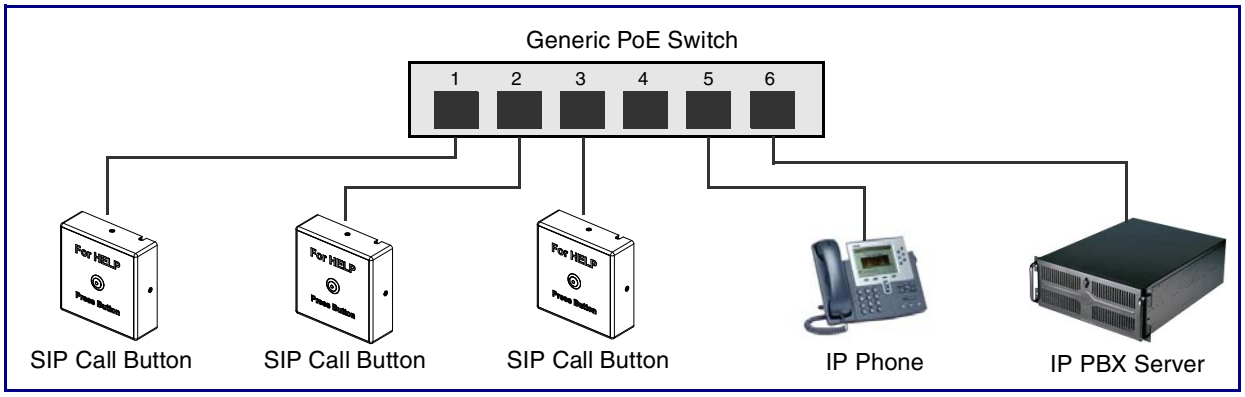


1.1 Typical System Installation

The Session Initiation Protocol (SIP) SIP Call Button is a SIP endpoint designed to provide VoIP phone connectivity in a tamper proof and secure package.

Figure 1-2 illustrate how the SIP Call Buttons can be installed as part of a VoIP phone system.

Figure 1-2. Typical Installation



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GENERAL ALERT	Warning *Electrical Hazard:* The SIP Call Button 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.

1.1 Product Features

- *SIP*
- *User downloadable message up to 80 seconds*
- *Single button call to pre-set number*
- *Continuous repeat of message*
- *Call progress light*
- *Event-controlled relay*
- *Tamper sensor*
- *Web-based setup*
- *PoE-powered*

1.1 Supported Protocols

The SIP Call Button supports:

- SIP
- HTTP Web-based configuration

  Provides an intuitive user interface for easy system configuration and verification of SIP Call Button operations.
- DHCP Client

  Dynamically assigns IP addresses in addition to the option to use static addressing.
- RTP
- RTP/AVP - Audio Video Profile
- Audio Encodings

  PCMU (G.711 mu-law)

  PCMA (G.711 A-law)

  Packet Time 20 ms

1.1 Supported SIP Servers

Go to the following link to find the SIP Call Button product page which will have information on how to configure the SIP Call Button for various supported SIP servers:

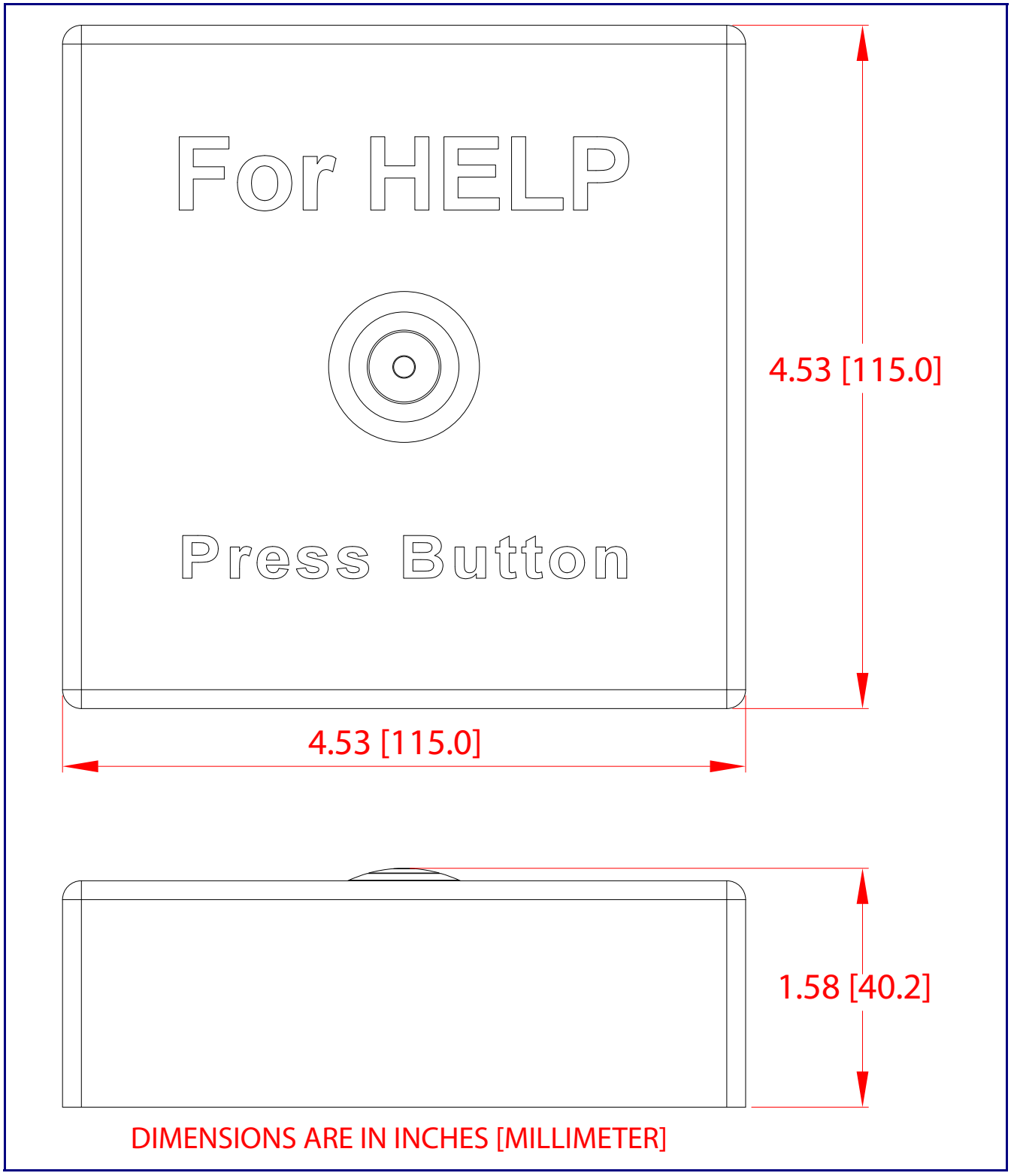
http://www.cyberdata.net/support/server/index.html

1.1 Product Specifications

Category	Specification
Network Rate	10/100 Mbps
Power Requirement	802.3af compliant or 5V at 1000 mA
Protocol	SIP
Part Number	011049
Dimensions	4.5” x 4.5” x 1.5”
Weight	1.6 lbs./shipping weight of 2.2 lbs.
	(0.7 kg/shipping weight of 1.0kg)
Auxiliary Relay	1A at 30 VDC

1.1 Dimensions

Figure 1-3. Dimensions—Size of Unit with Case



2 Installing the SIP Call Button

2.1 Parts List

Table 2-1 illustrates the SIP Call Button parts.

Table 2-1. Parts List

Quantity	Part Name	Illustration
1	SIP Call Button Assembly	
1	Installation Quick Reference Guide	
1	SIP Call Button Mounting Accessory Kit	

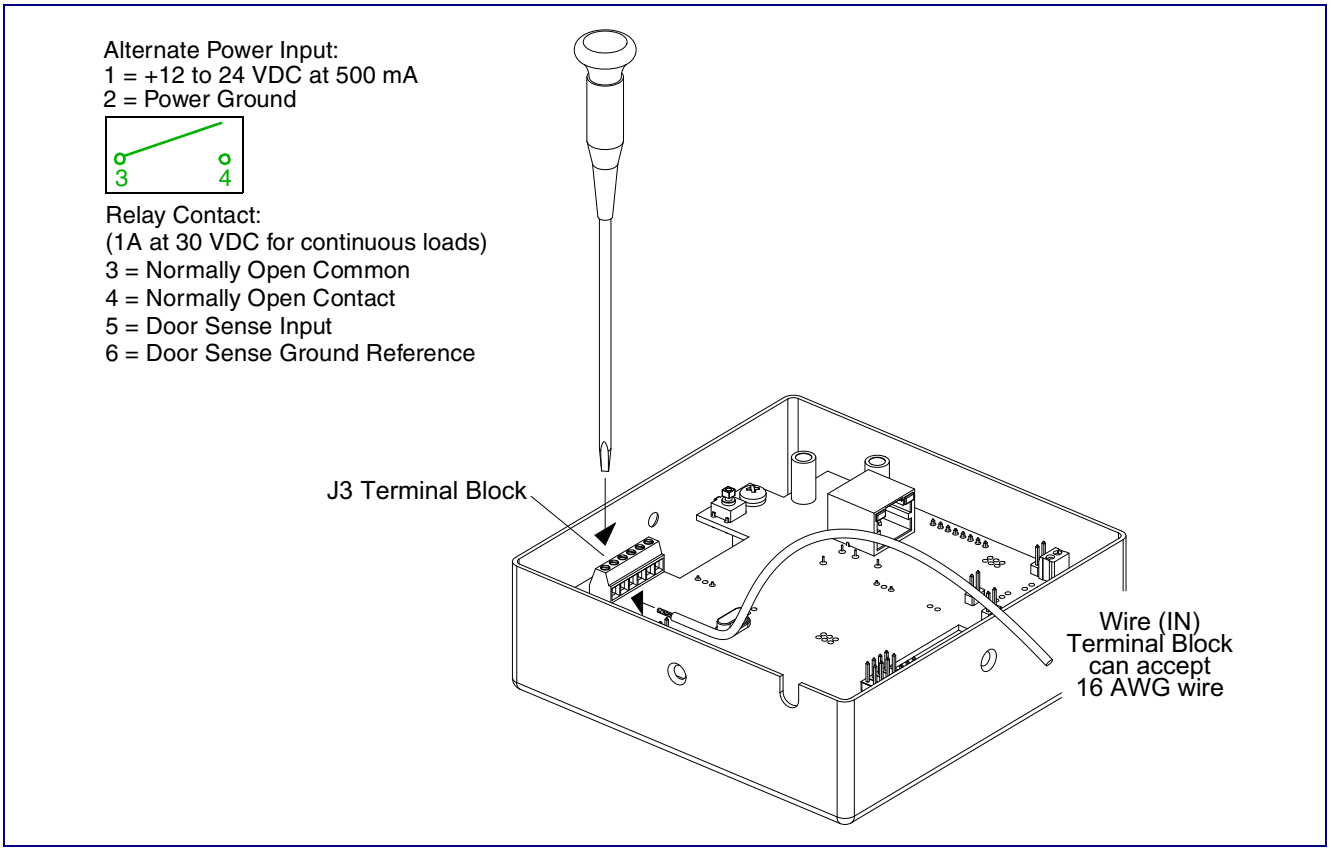
2.1 SIP Call Button Setup

2.1.1 SIP Call Button Connections

Figure 2-1 shows the pin connections on the J7 (terminal block). This terminal block can accept 16 AWG gauge wire.

Note As an alternative to using PoE power, you can supply 12 to 24 VDC at 500 mA into the terminal block.

Figure 2-1. SIP Call Button Connections



2.1.2 Connecting a Device to the Auxiliary Relay

The SIP Call Button 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 2-2). The SIP Call Button relay contacts are limited to 1 amp at 30VDC. The SIP Call Button 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.

Warning

Electrical Hazard: The SIP Call Button enclosure is not rated for any AC voltages.

Warning

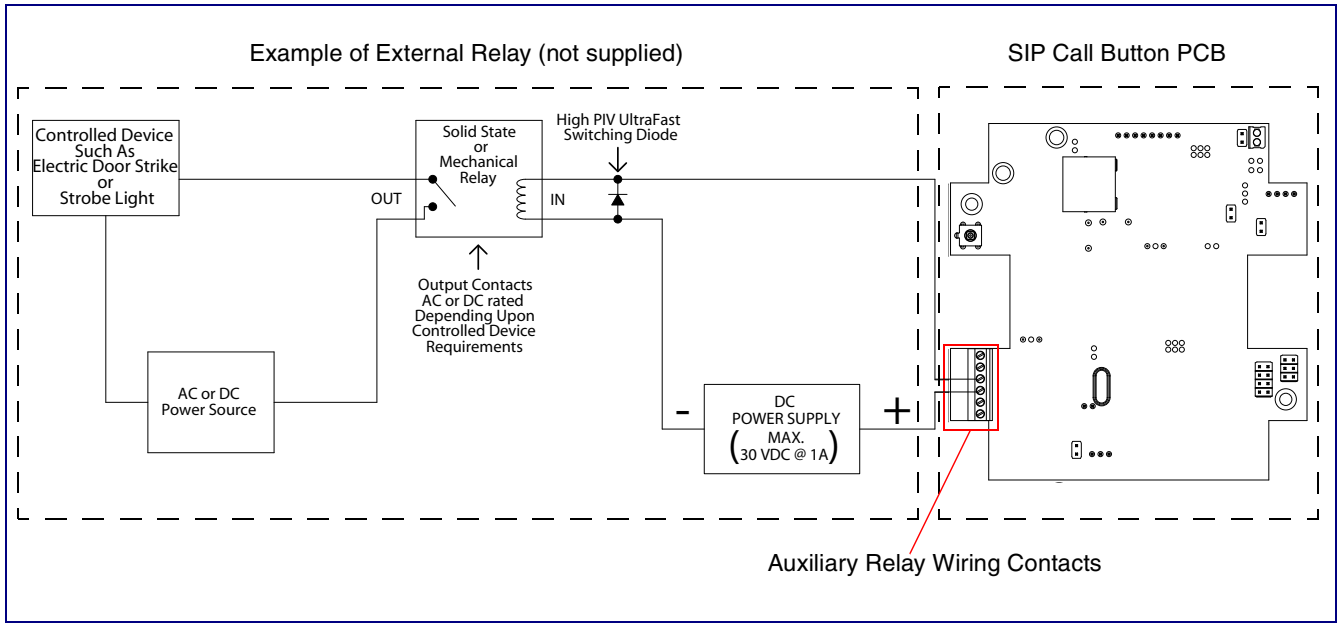
Electrical Hazard: This product should be installed by a licensed electrician according to all local electrical and building codes.

Warning

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

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

Figure 2-2. Auxiliary Relay Wiring Diagram



2.1.3 Identifying the SIP Call Button Connectors and Jumpers

See the following figures and tables to identify the SIP Call Button connector locations and functions.

Figure 2-3. J2, J5, and J6 Connector Locations

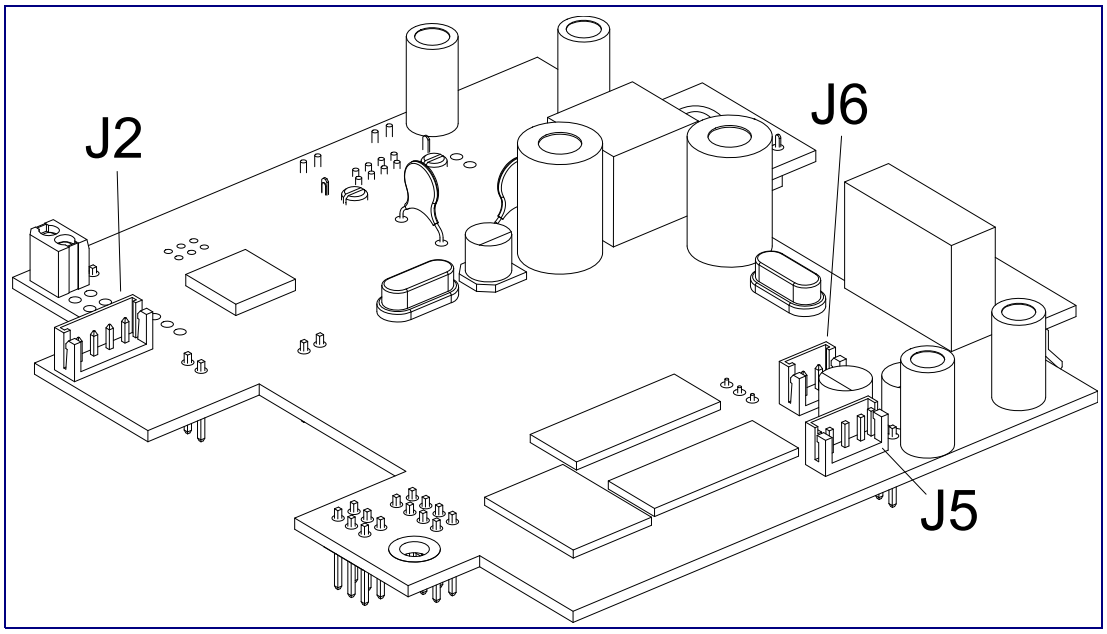


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Table 2-2. Connector Functions

Connector	Function
J2	Call Button - LED Interface
J5	Not Used
J6	Not Used

Figure 2-4. Connector Locations

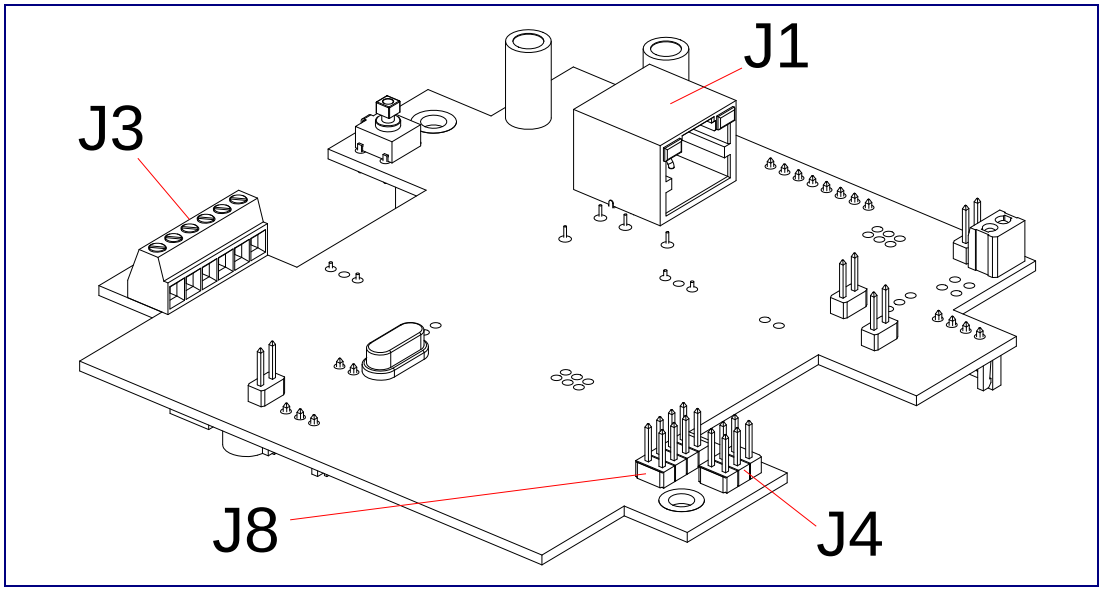

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Table 2-3. Connector Functions

Connector	Function
J1	Ethernet Connector
J3	User Terminal Block Interface
J4	J-Tag (Factory only)
J8	Console (Factory only)

Figure 2-5. Jumper Locations

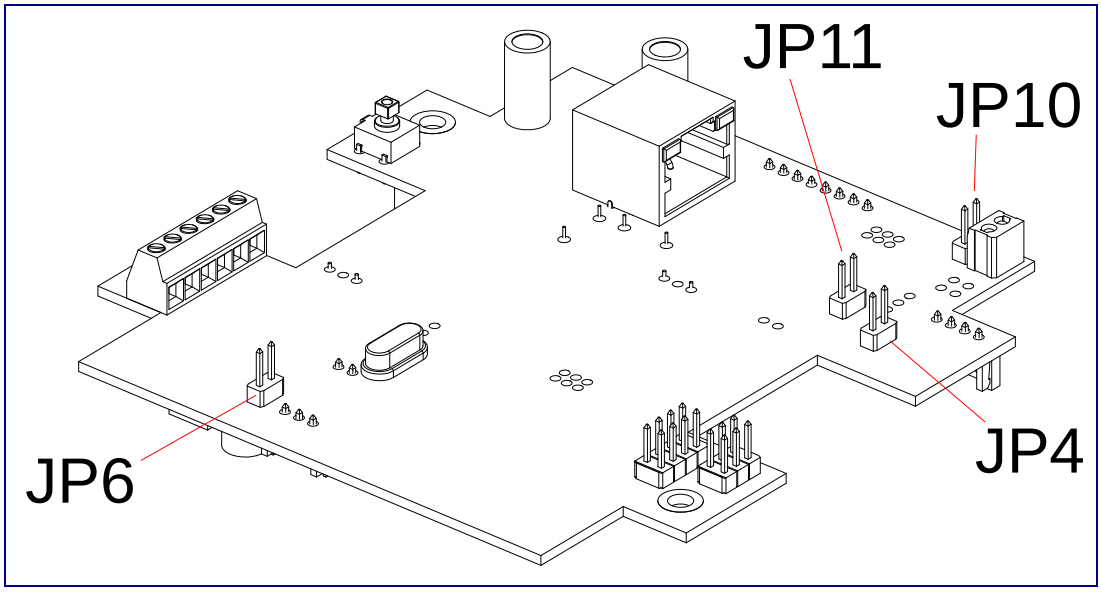


Table 2-4. Jumper Functions

Connector	Function
JP4	Reset (Factory only)
JP6	Audio Enable (Factory only)
JP10	Intrusion Sensor Disable. Place jumper on to disable.
JP11	Option Jumper (Not used)

2.1.4 Call Button and the Call Button LED

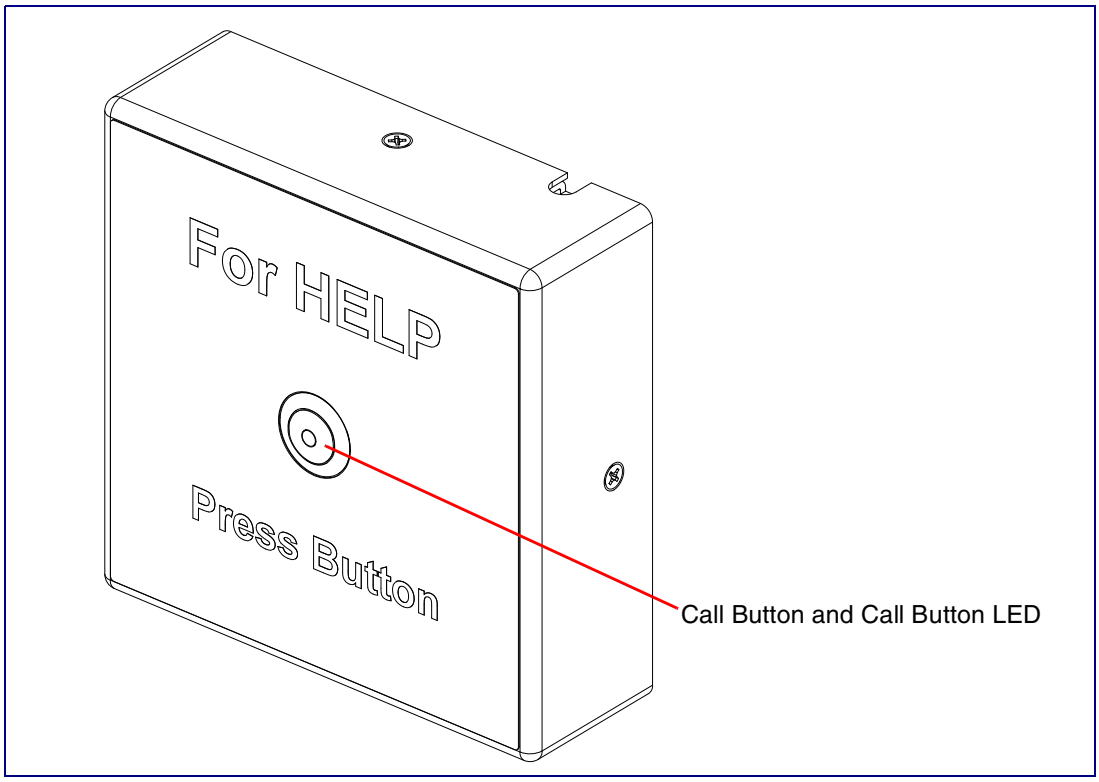
2.1.4.1 Calling with the The Call Button

- You may initiate a call by pressing the **Call** button.
- An active call is indicated by the Call Button LED blinking at one second intervals.
- You can press the **Call** button to terminate an active call.

2.1.4.2 Call Button LED Function

- Upon initial power or reset, the Call Button LED will illuminate.
- When the software has finished initialization, the Call Button LED will blink twice.
- When a call is established (not just ringing), the Call Button LED will blink.
- On the **Device Configuration Page**, there is an option called **Button Lit When Idle**. This option sets the normal state for the indicator light. The Call Button LED will still blink during initialization and calls.

Figure 2-6. Call Button and Call Button LED

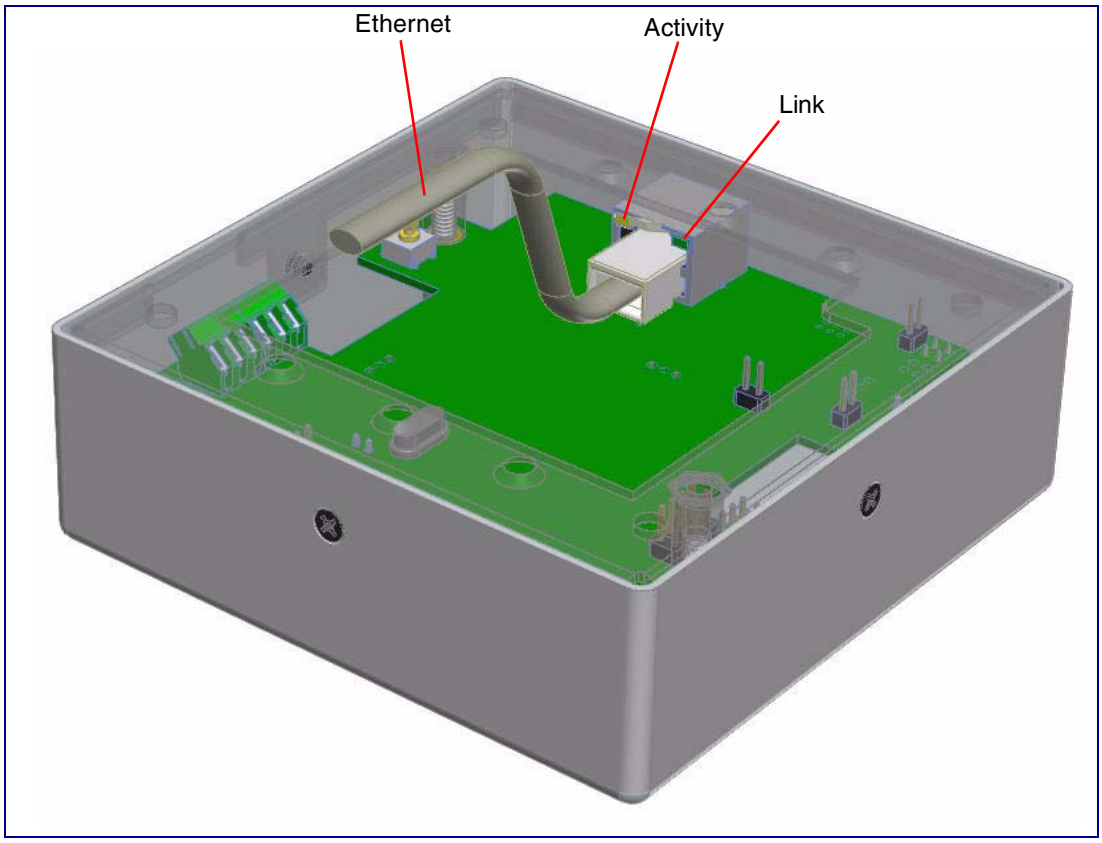


2.1.5 Network Connectivity, and Data Rate

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.

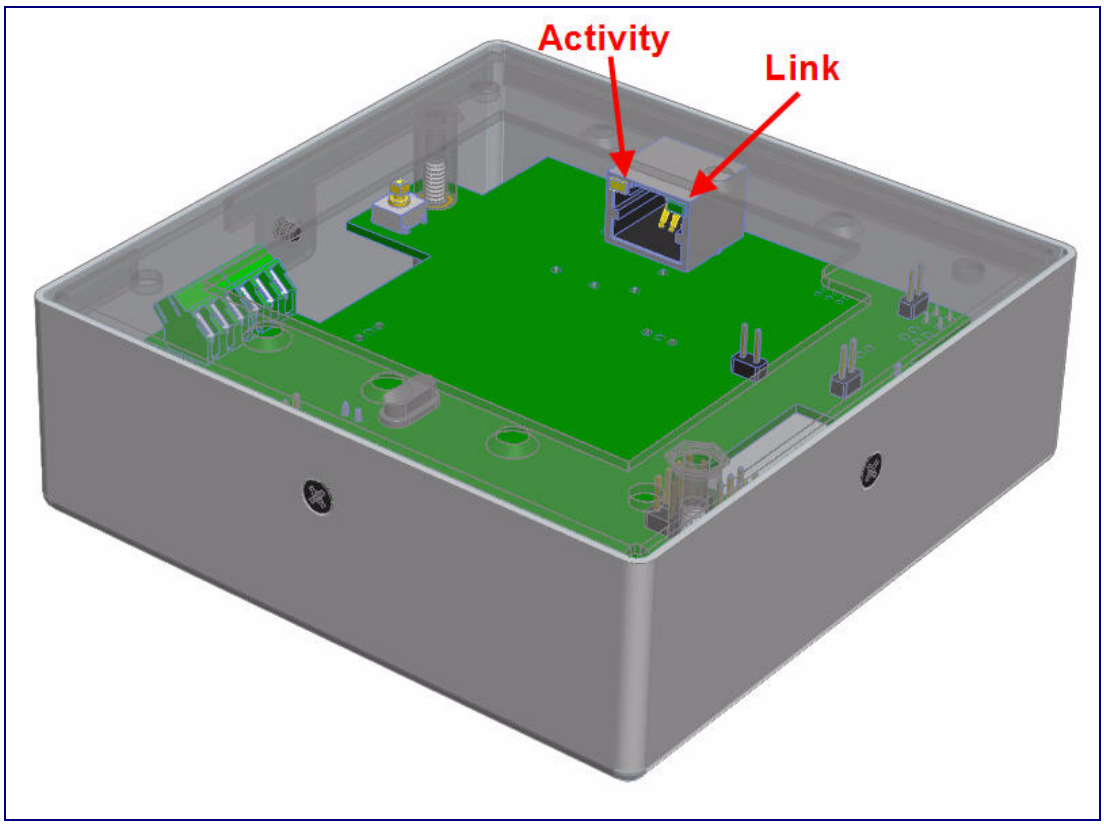
Figure 2-7. Network Connector Prior to Installation



2.1.5.1 Verify Network Activity

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

Figure 2-8. Network Connector

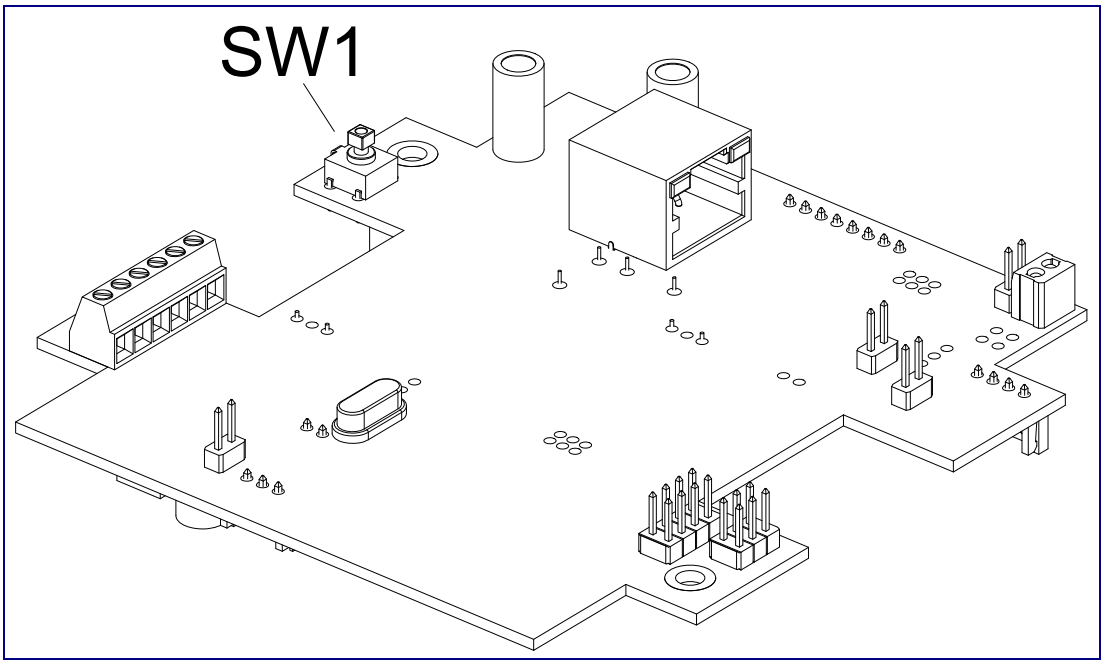


2.1.6 RTFM Switch

When the SIP Call Button is operational and linked to the network, use the Reset Test Function Management **(RTFM)** switch (Figure 2-9) on the SIP Call Button board to restore the unit to the factory default settings.

Note You must do these tests prior to final assembly.

Figure 2-9. RTFM Switch



2.1.7 Restore the Factory Default Settings

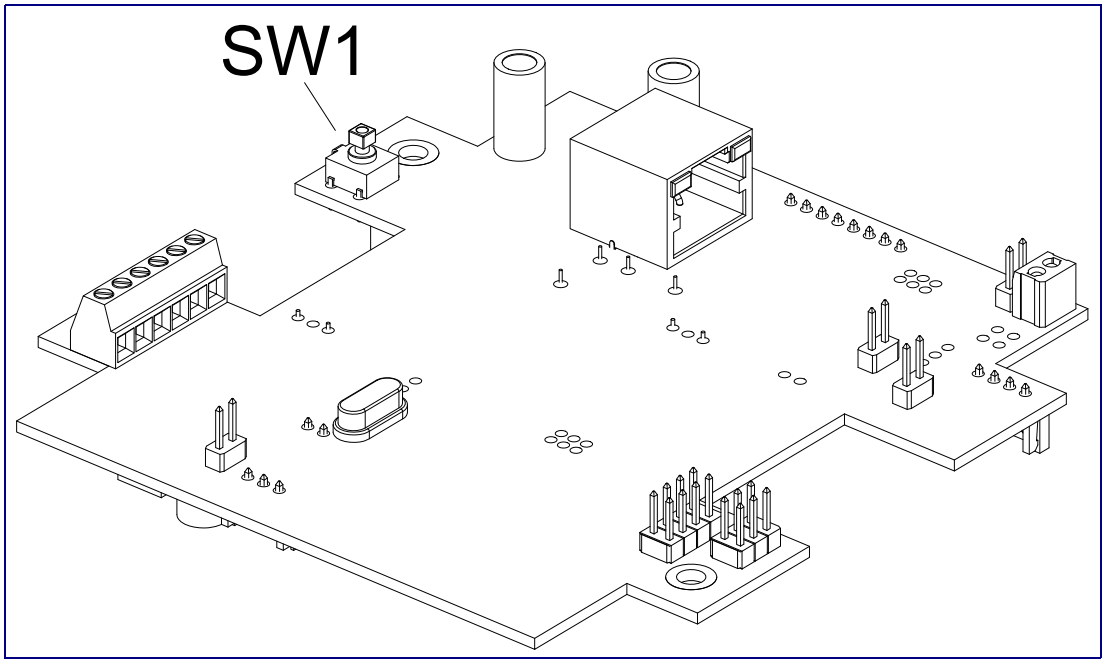
2.1.7.1 RTFM Switch

When the SIP Call Button is operational and linked to the network, use the Reset Test Function Management (RTFM) switch (Figure 2-10) to set the factory default settings.

Note Each SIP Call Button is delivered with factory set default values.

Note The SIP Call Button will use DHCP to obtain the new IP address (DHCP-assigned address or default to 10.10.10.10 if a DHCP server is not present).

Figure 2-10. RTFM Switch



To set the factory default settings:

1. Press and hold the **RTFM** switch until the button LED starts blinking rapidly(about 10 seconds), then release the RTFM switch.

2.2 Configure the SIP Call Button Parameters

To configure the SIP Call Button online, use a standard web browser.

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

All SIP Call Buttons are initially configured with the following default IP settings:

When configuring more than one SIP Call Button, attach the SIP Call Buttons to the network and configure one at a time to avoid IP address conflicts.

Table 2-5. 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.

2.2.1 SIP Call Button Web Page Navigation

Table 2-6 shows the navigation buttons that you will see on every SIP Call Button web page.

Table 2-6. Web Page Navigation

Web Page Item	Description
	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 **Event Configuration** page.
	Link to the **Autoprovisioning Configuration** page.
	Link to the **Update Firmware** page.

2.2.2 Log in to the Configuration Home Page

1. Open your browser to the SIP Call Button 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 SIP Call Button.

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:

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

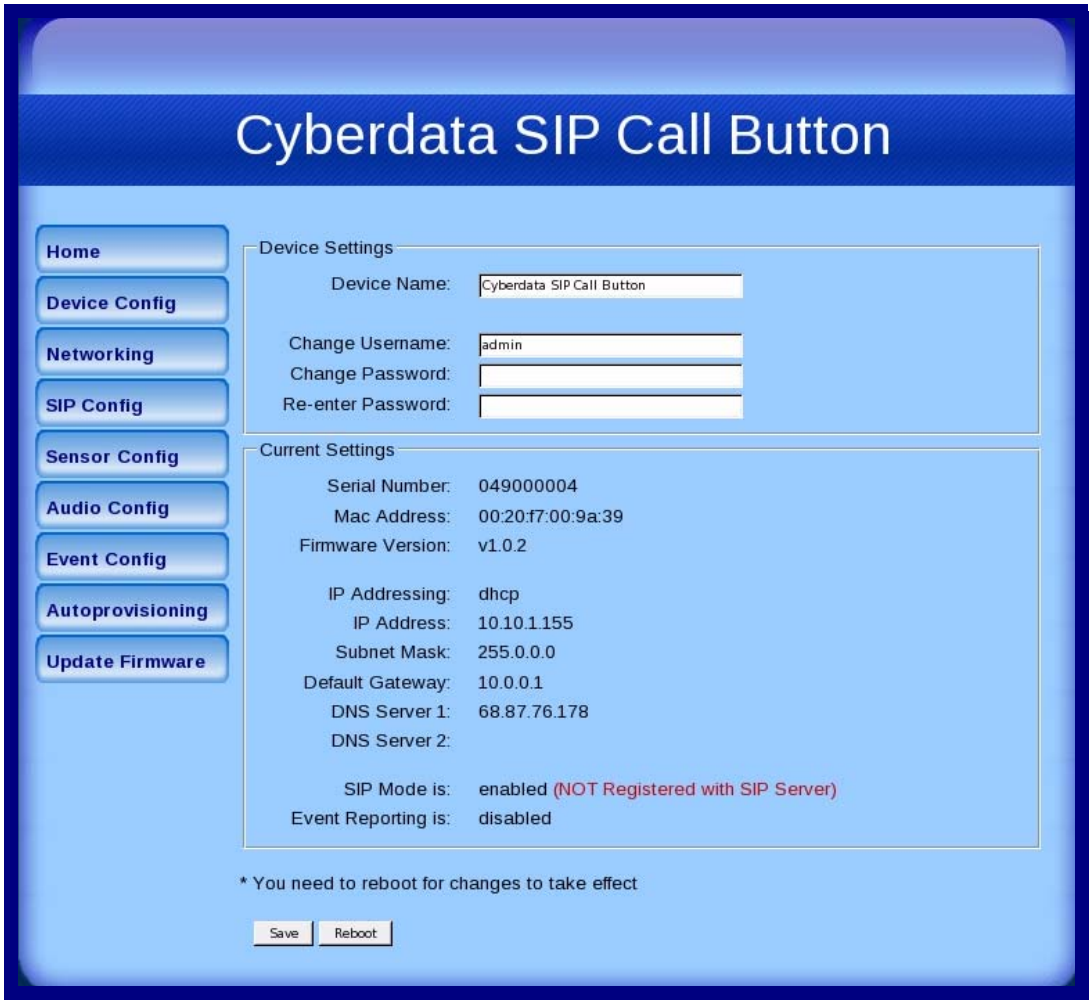
Note The Call Button ships in DHCP mode. To get to the **Home** page, use the discovery utility to scan for the device on the network and open your browser from there.

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 2-7.

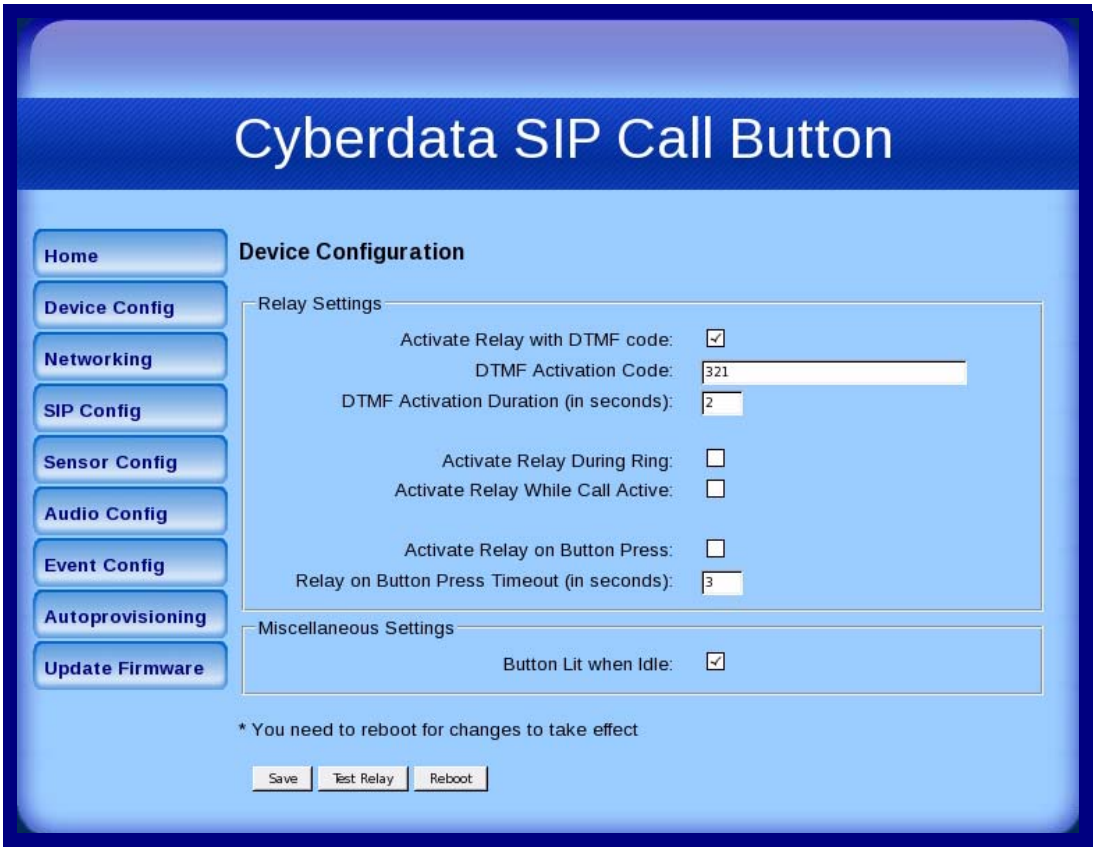
Table 2-7. Home Page Overview

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.
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.
SIP Mode is	Shows the current status of the SIP mode.
Event Reporting is	Shows the current status of the Event Reporting mode.
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.

2.2.3 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 2-8.

Table 2-8. Device Configuration Parameters

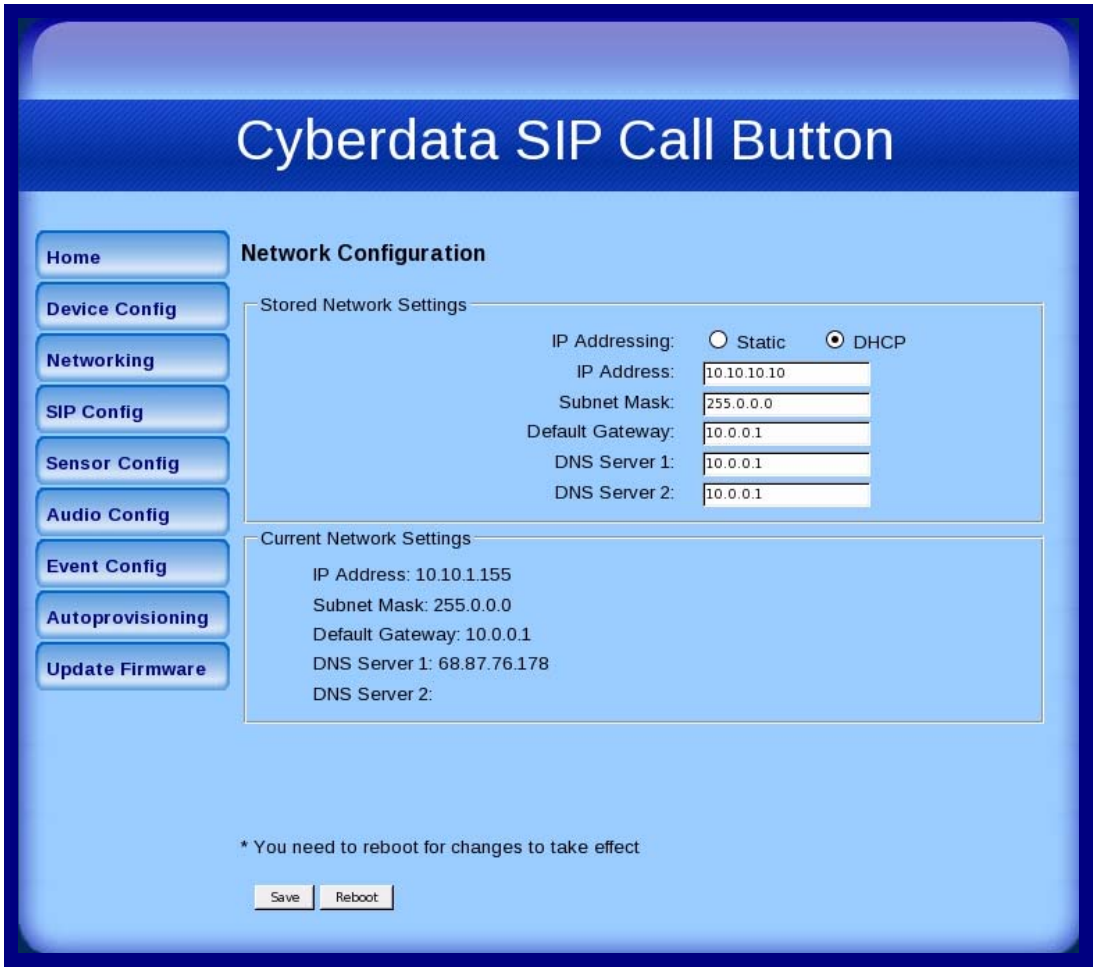
Web Page Item	Description
Relay Settings	
Activate Relay with DTMF Code	When selected, the relay can be activated with a DTMF code.
DTMF Activation Code	Type the desired DTMF activation code (25 character limit).
DTMF Activation Duration (in seconds)	Type the desired DTMF activation duration (in seconds) (1 character limit). **NOTE**: A DTMF activation duration of **0** will toggle the relay indefinitely or until the activation code is sent again
Activate Relay During Ring	When selected, the relay will be activated for as long as the call is active. **NOTE**: When the phone is set to **Auto Answer**, it will not ring and this option does nothing.
Activate Relay While Call Active	When selected, the relay will be activated for as long as the call is active.
Activate Relay on Button Press	When selected, the relay will be activated when the Call Button is pressed.
Relay on Button Press Timeout (in seconds)	Type the desired time (in seconds) that you want the relay to activate after the Call Button is pressed (1 character limit).
Miscellaneous Settings	
Button Lit When Idle	When selected, the Call Button remains lit when idle.
Save	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
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.

2.2.4 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 2-9.

Table 2-9. 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 2-9. If you select **DHCP**, go to Step 3.
Stored 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.

Table 2-9. Network Configuration Parameters (continued)

Web Page Item	Description
DNS Server 2	Enter the DNS Server 2 address.
Current Network Settings	Shows the current network settings.
IP Address	Shows the current Static 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.
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.

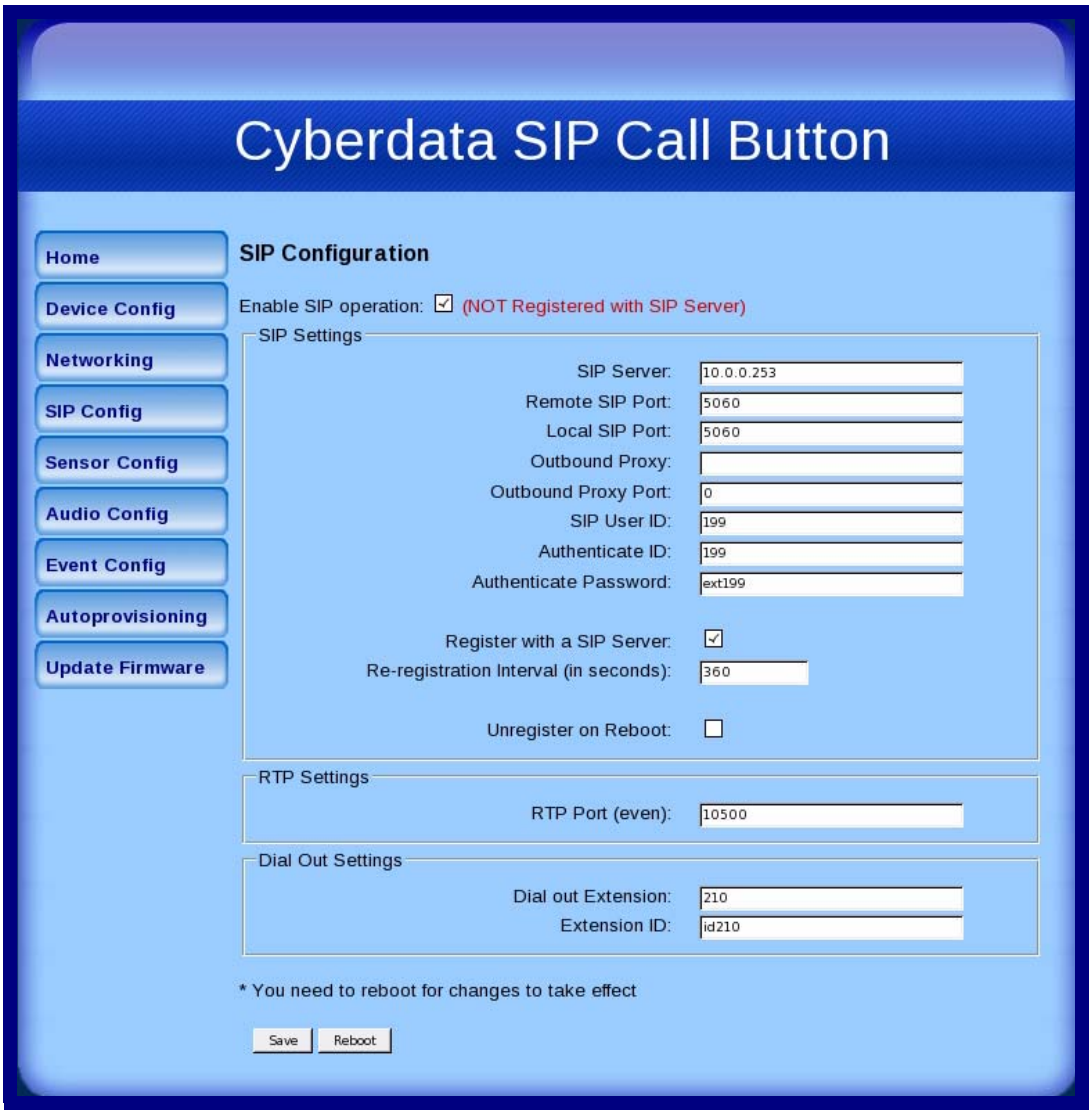
3. After changing the parameters, click **Save Settings**. This updates the changed parameters and reboots the SIP Call Button if appropriate.
4. Connect the SIP Call Button to the target network.
5. From a system on the same network as the SIP Call Button, open a browser with the new IP address of the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

2.2.5 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 following website address: http://www.cyberdata.net/support/server/index.html

Figure 2-14. SIP Configuration Page



2. On the **SIP Configuration** page, enter values for the parameters indicated in Table 2-10.

Table 2-10. SIP Configuration Parameters

Web Page Item	Description
Enable SIP Operation	Enables or disables SIP operation.
SIP Settings	
SIP Server*	Type the SIP server represented as either a numeric IP address in dotted decimal notation or the fully qualified host name (255 character limit [FQDN]).
Remote SIP Port*	Type the **Remote SIP Port** number (default 5060) (8 character limit).
Local SIP Port*	Type the **Local SIP Port** number (default 5060) (8 character limit).
Outbound Proxy	Type the Outbound Proxy as either a numeric IP address in dotted decimal notation or the fully qualified host name (255 character limit [FQDN]).
Outbound Proxy Port	Type the Outbound Proxy Port number (8 character limit).
SIP User ID*	Type the **SIP User ID** (up to 64 alphanumeric characters).
Authenticate ID*	Type the **Authenticate ID** (up to 64 alphanumeric characters).
Authenticate Password*	Type the **Authenticate Password** (up to 64 alphanumeric characters).
Register with a SIP Server*	Check this box to enable SIP Registration. For information about Point-to-Point Configuration, see Section 2.2.5.2, "Point-to-Point Configuration".
Re-registration Interval (in seconds)*	Type the SIP Registration lease time in minutes (default is 60 minutes) (8 character limit). Re-registration Interval (in seconds)*
Unregister on Reboot*	When selected, on boot, the device will first register with a SIP server with a expiration delay of 0 seconds. This has the effect of unregistering any current devices on this extension.
RTP Settings	
RTP Port (even)	Specify the port number used for the RTP stream after establishing a SIP call. This port number has to be an even number and defaults to 10500.
Dial Out Settings	
Dial Out Extension	Type the dial out extension number (64 character limit). **Note**: For information about dial-out extension strings and DTMF tones, see Section 2.2.5.1, "Dial Out Extension Strings and DTMF Tones (using rfc2833)".
Extension ID	Type the desired Extension ID (64 character limit).
Save	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.

Table 2-10. SIP Configuration Parameters (continued)

Web Page Item	Description
Reboot	Click on the **Reboot** button to reboot the system.

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

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

On the **Button Configuration** page, dial out extensions support 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 2-11. 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 64.

2.2.5.2 Point-to-Point Configuration

When the device is set to not register with a SIP server, it is possible to set the SIP Call Button to dial out to a single endpoint.

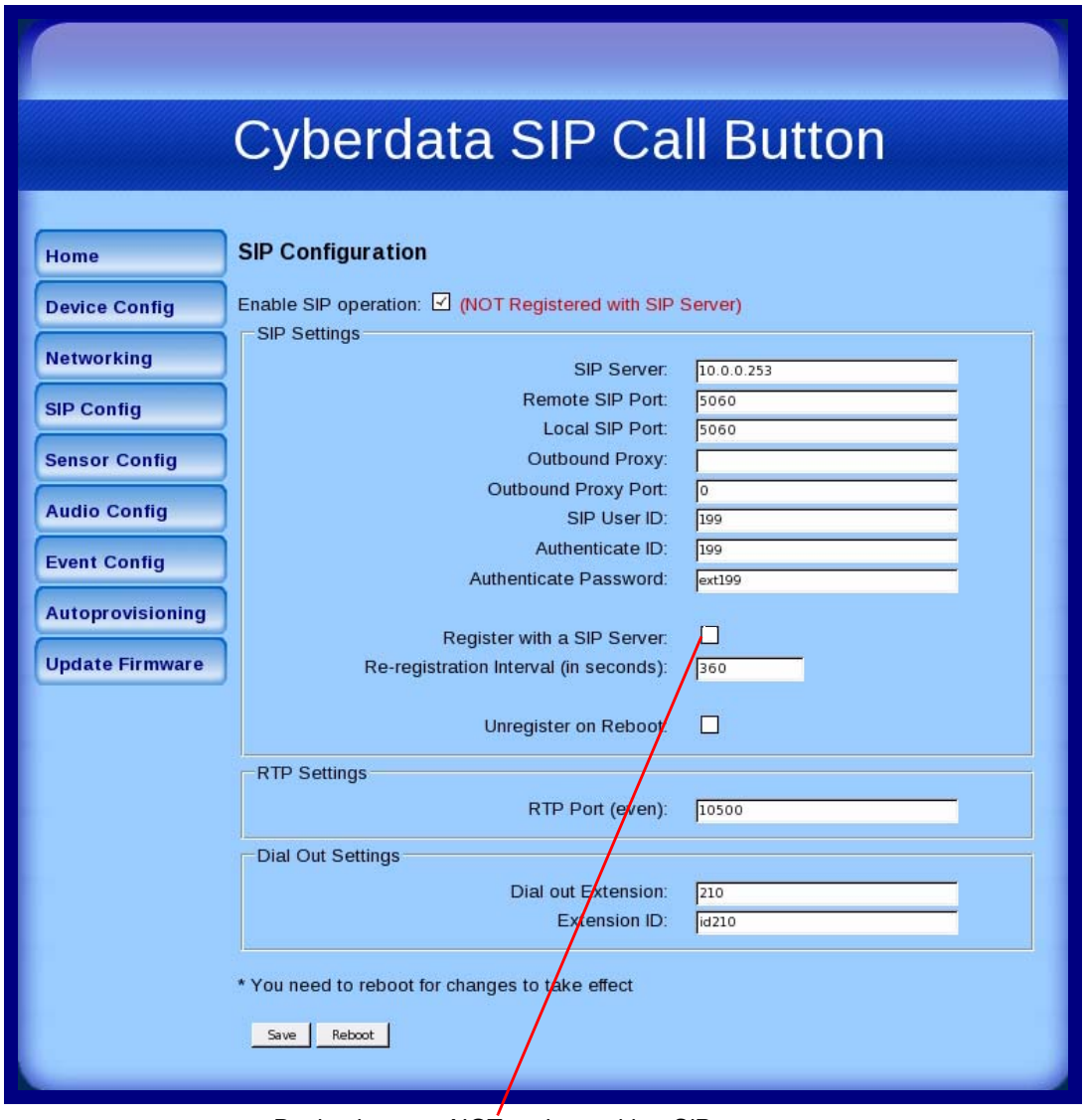
To set the SIP Call Button to dial out to a single endpoint, complete the following steps:

1. Make sure that the **Register with a SIP Server*** setting on the **SIP Configuration Page** is not enabled. See Figure 2-15.
2. In the **Dial Out Extension** field on the **Sensor Configuration Page** (see Figure 2-16), type the IP address of the remote device.
3. Select **Save**.

Note The SIP Call Button can also receive Point-to-Point calls. The delayed DTMF functionality is available in the Point-to-Point Mode.

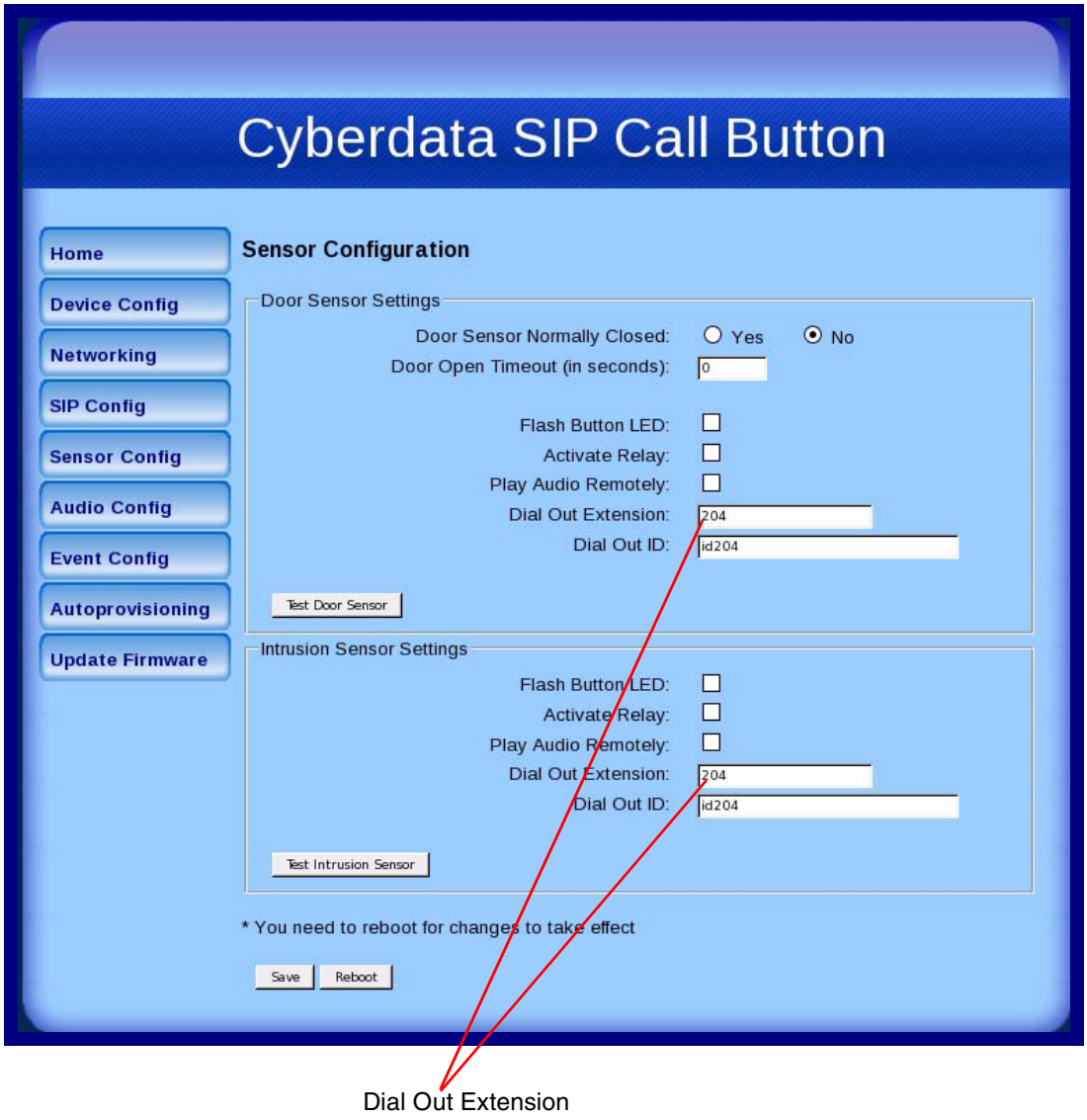
Note Receiving point-to-point SiP calls may not work with all phones.

Figure 2-15. SIP Configuration Page



Device is set to NOT register with a SiP server

Figure 2-16. Sensor Configuration Page



Dial Out Extension

2.2.5.3 Delayed DTMF

On the **SIP Configuration** page the dial out extension 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 2-12. 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.

2.2.6 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 Call Button board and will be activated when the Call Button is removed from the case.

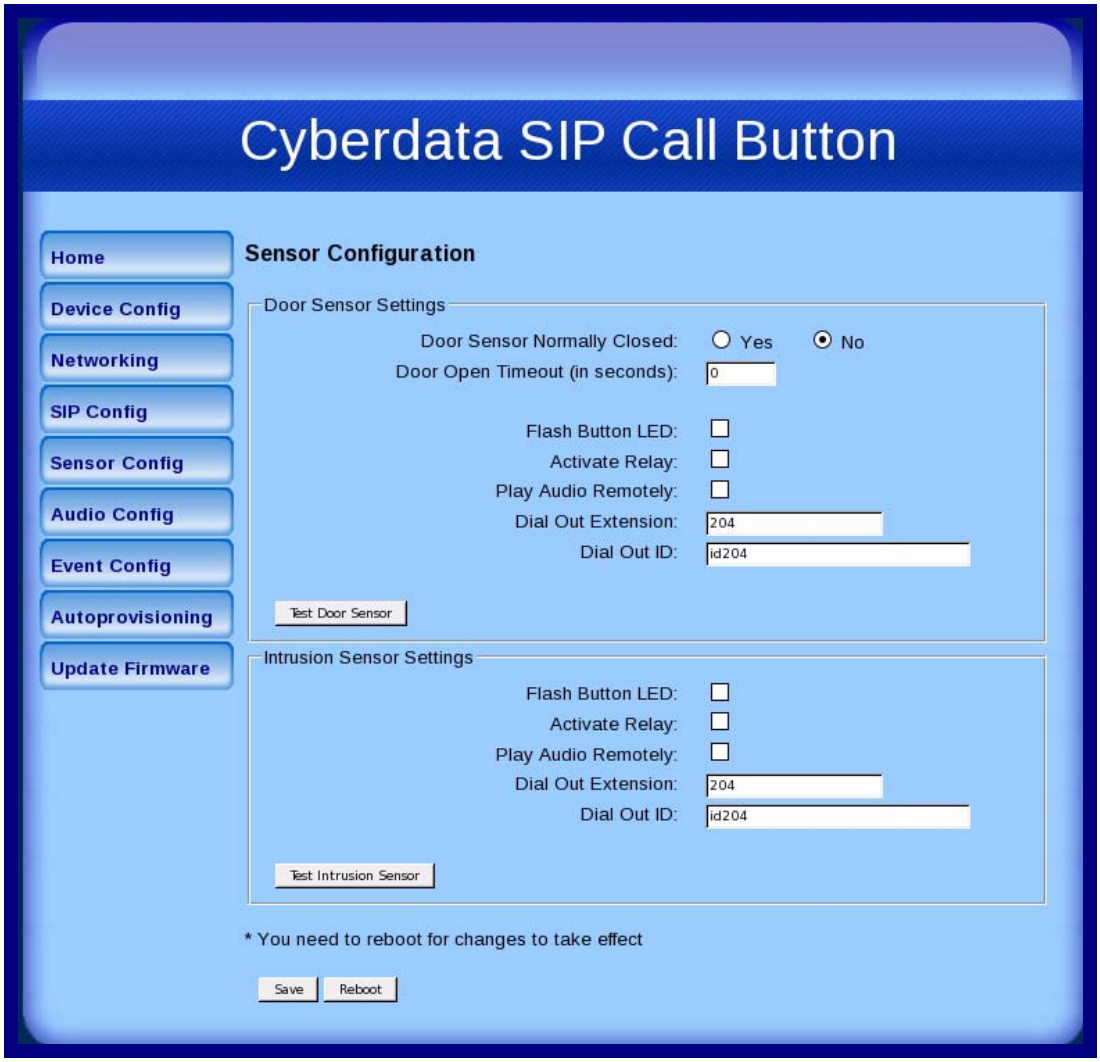
For each sensor there are four actions the Call Button can take:

- Flash the LED until the sensor is deactivated (roughly 10 times/second)
- Activate the relay 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 2-17).

Figure 2-17. Sensor Configuration Page



2. On the **Sensor Configuration** page, enter values for the parameters indicated in Table 2-13.

Table 2-13. 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 Remotely	Check this box to call a preset extension and play a pre-recorded audio file (once).
Dial Out Extension	Enter the desired dial-out extension number. For information about dial-out extension strings and DTMF tones, see Section 2.2.5.1, "Dial Out Extension Strings and DTMF Tones (using rfc2833)".
Dial Out ID	Enter the desired dial-out extension ID.
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 Remotely	Check this box to call a preset extension and play a pre-recorded audio file (once).
Dial Out Extension	Enter the desired dial-out extension number. For information about dial-out extension strings and DTMF tones, see Section 2.2.5.1, "Dial Out Extension Strings and DTMF Tones (using rfc2833)".
Dial Out ID	Enter the desired dial-out extension ID.
Test Intrusion Sensor	Use this button to test the Intrusion sensor.
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.

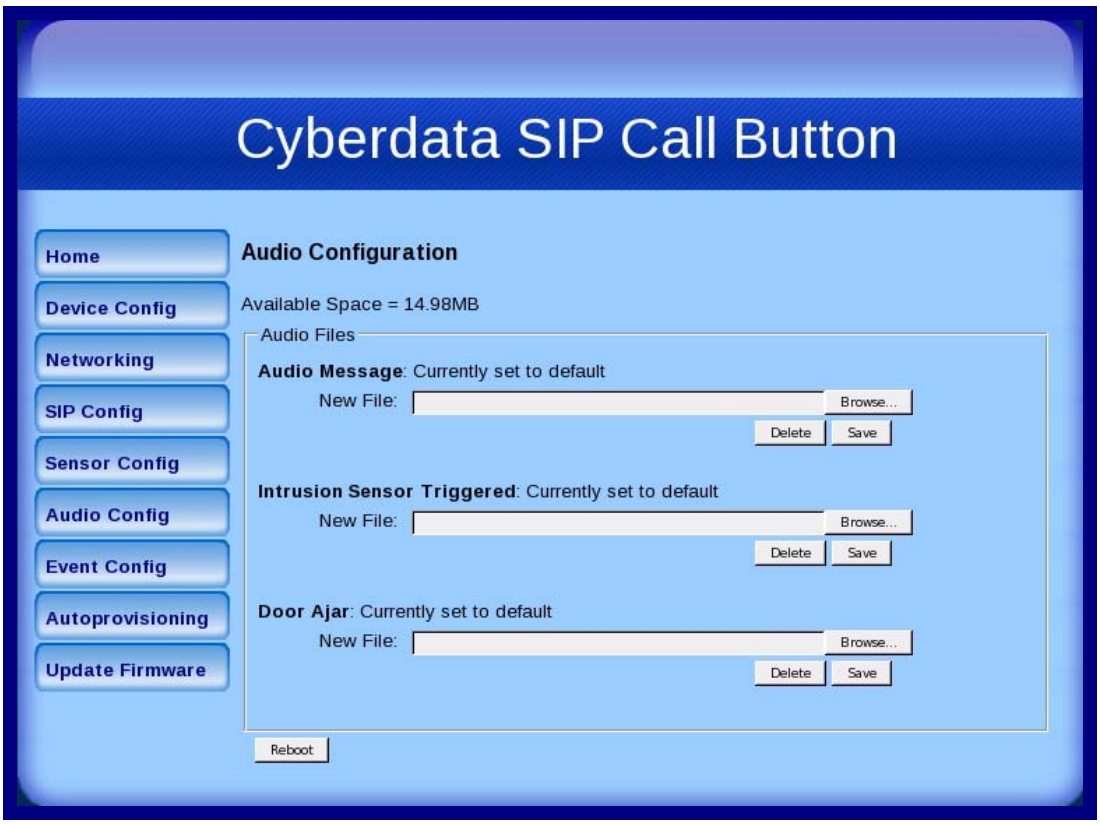
3. After changing the parameters, click **Save Settings**.

2.2.7 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 Call Button.

1. Click **Audio Config** to open the **Audio Configuration** page (Figure 2-18).

Figure 2-18. Audio Configuration Page



2. On the **Audio Configuration** page, enter values for the parameters indicated in Table 2-14.

Table 2-14. Audio Configuration Parameters

Web Page Item	Description
Audio Files	
Audio Message	Specifies the audio file that will be played repeatedly for the extension number that is configured in the **Dial Out Settings** on the **SIP Configuration Page** (24 character limit).
Intrusion Sensor Triggered	Corresponds to the message “Intrusion Sensor Triggered” (24 character limit).
Door Ajar	Corresponds to the message “Door Ajar” (24 character limit).
	The **Browse** button will allow you to navigate to and select an audio file.
	The **Delete** button will delete any user uploaded audio and restore the stock audio file.
	The **Save** button will download a new user audio file to the board once you've selected the file by using the **Browse** button. The **Save** button will delete any pre-existing user-uploaded audio files.
	Click on the **Reboot** button to reboot the system.

2.2.7.1 User-created Audio Files

User created audio files should be saved in the following format:

RIFF (little-endian) data, WAVE audio, Microsoft PCM, 16 bit, mono 8000 Hz

You can use the free utility *Audacity* to convert audio files into this format. See Figure 2-19 through Figure 2-21.

Figure 2-19. Audacity 1

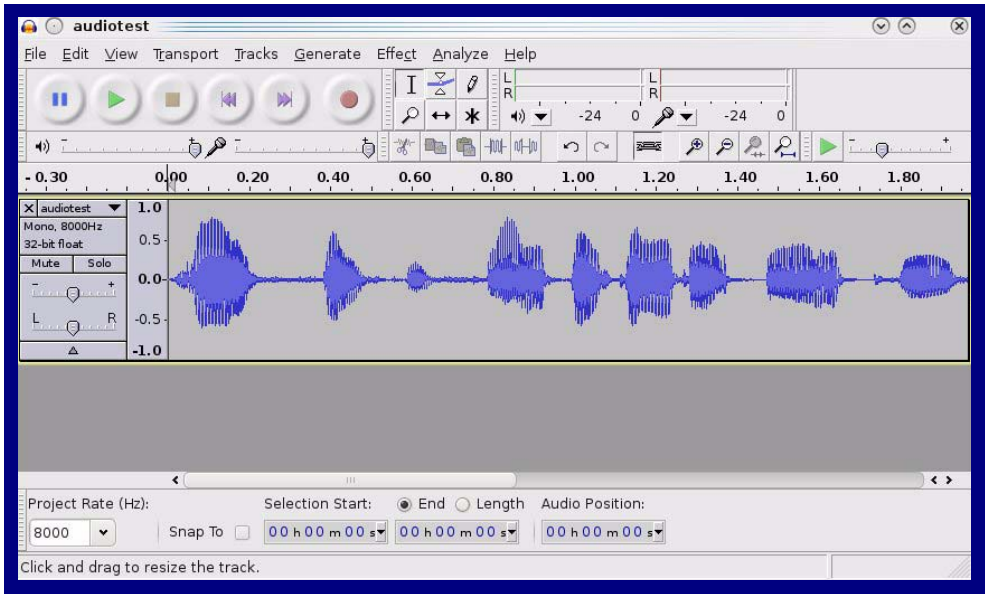
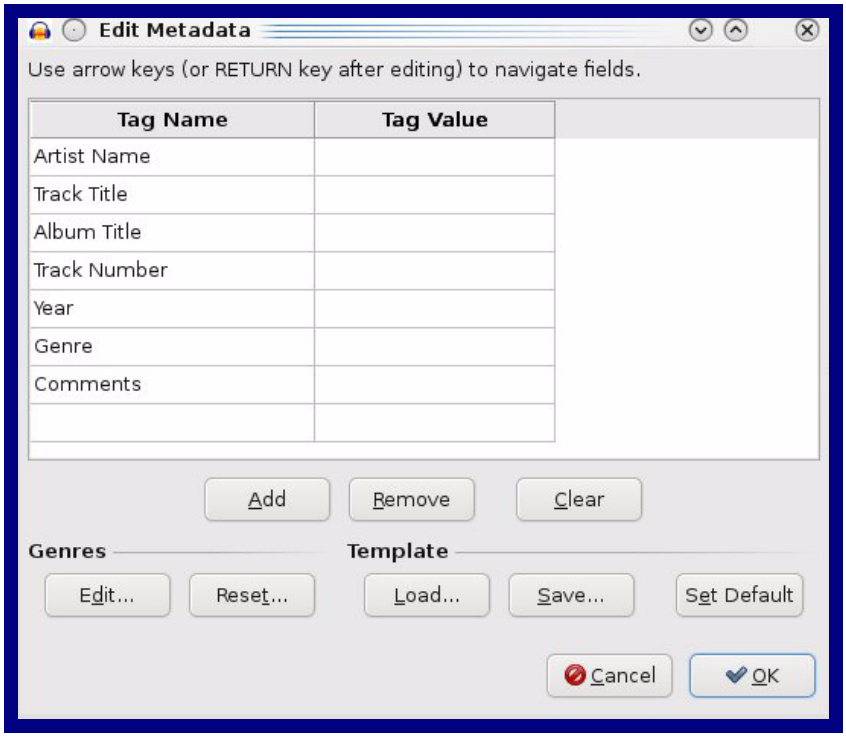


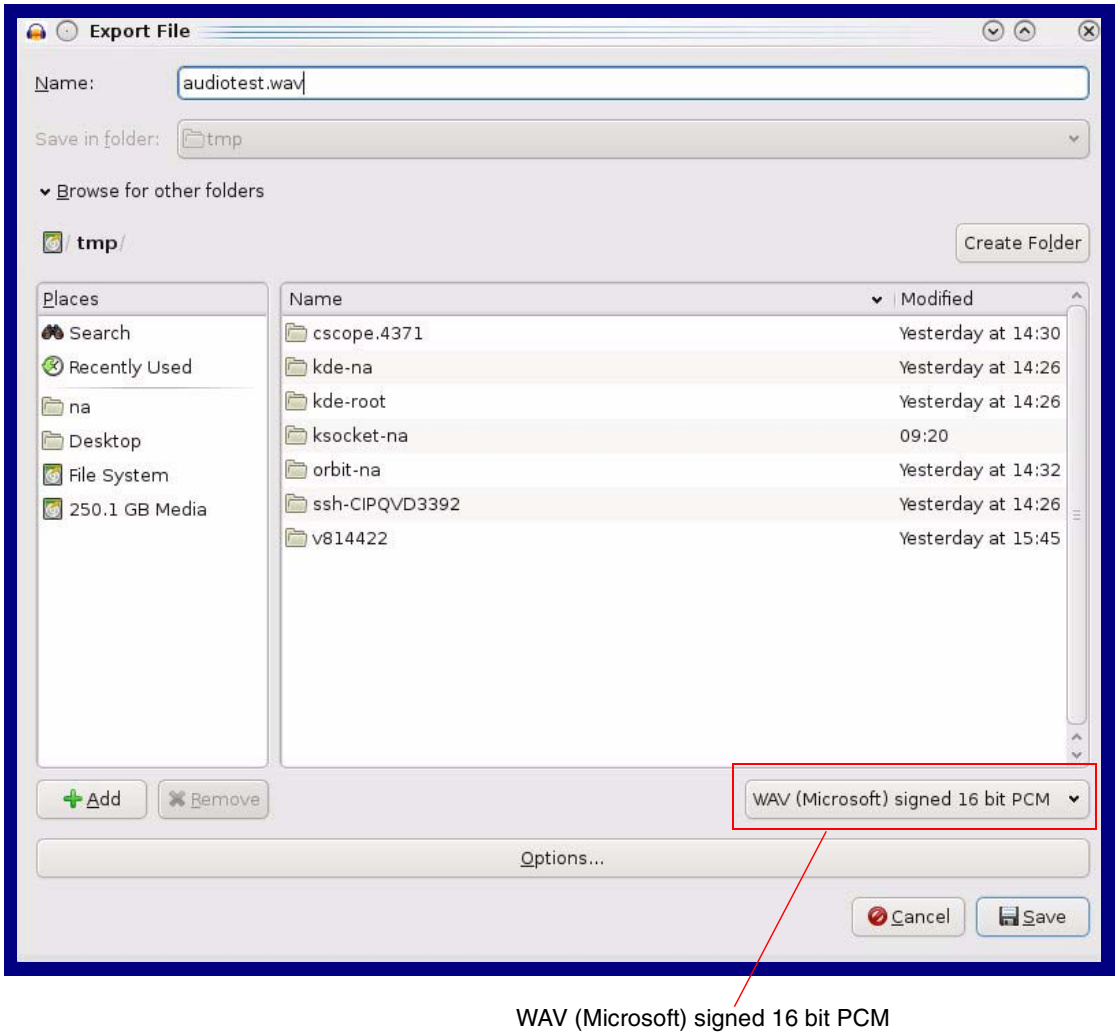
Figure 2-20. Audacity 2



When you export an audio file with Audacity, save the output as:

- **WAV (Microsoft) signed 16 bit PCM**.

Figure 2-21. WAV (Microsoft) signed 16 bit PCM



2.2.8 Configure the Event Parameters

Click the **Event Config** button to open the **Event Configuration** page (Figure 2-22). The **Event Configuration** page specifies a remote server that can be used to receive HTTP POST events when actions take place on the board.

Figure 2-22. Event Configuration Page

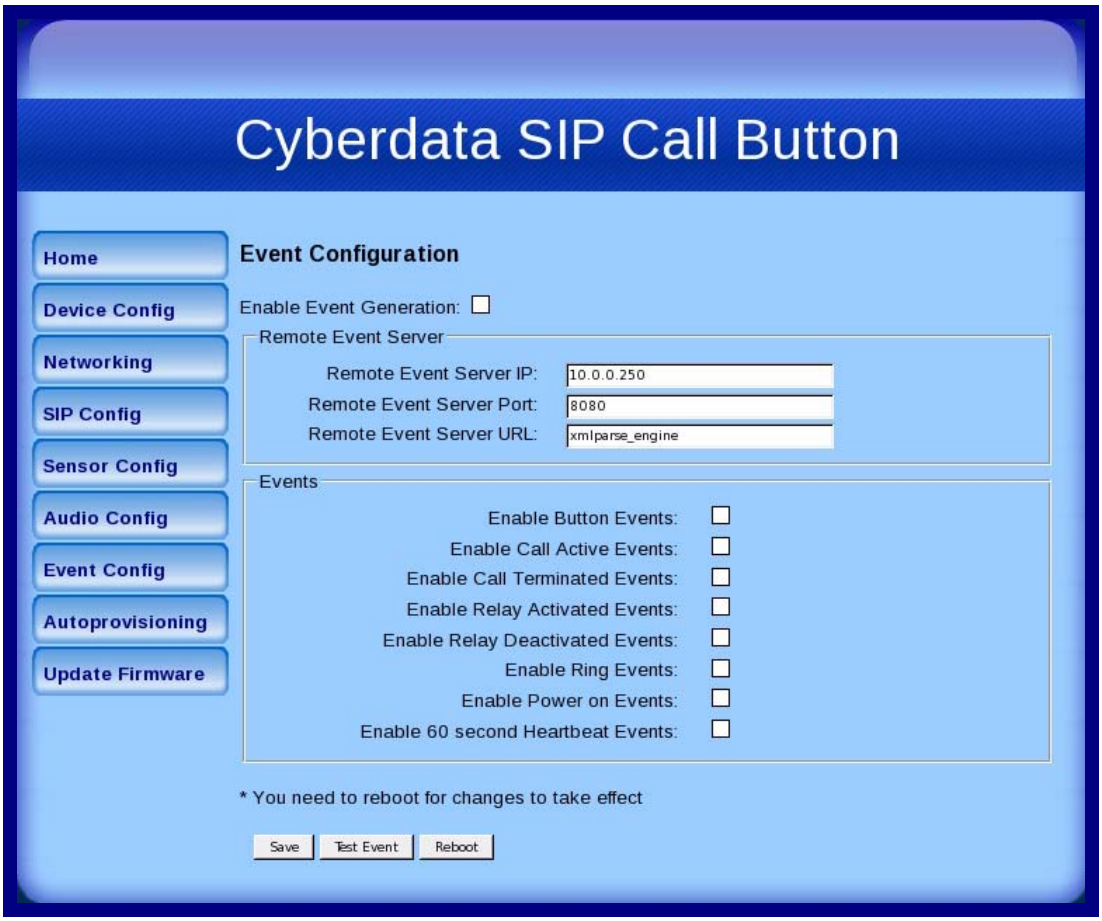


Table 2-15 shows the web page items on the **Event Configuration** page.

Table 2-15. Event Configuration

Web Page Item	Description
Enable Event Generation	When selected, Event Generation is enabled.
Remote Event Server	
Remote Event Server IP	Type the Remote Event Server IP address. (64 character limit)
Remote Event Server Port	Type the Remote Event Server port number. (8 character limit)
Remote Event Server URL	Type the Remote Event Server URL. (127 character limit)
Events	
Enable Button Events	When selected, Button Events are enabled.
Enable Call Active Events	When selected, Call Active Events are enabled.
Enable Call Terminated Events	When selected, Call Terminated Events are enabled.
Enable Relay Activated Events	When selected, Relay Activated Events are enabled.
Enable Relay Deactivated Events	When selected, Relay Deactivated Events are enabled.
Enable Ring Events	When selected, Ring Events are enabled.
Enable Power On Events	When selected, Power On Events are enabled.
Enable 60 Second Heartbeat Events	When selected, 60 Second Heartbeat Events are enabled.
Save	Click the **Save** button to save your configuration settings. **Note**: You need to reboot for changes to take effect.
Test Event	Click on the **Test Event** button to test an event.
Reboot	Click on the **Reboot** button to reboot the system.

2.2.8.1 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 SIP Device' MAC='0020f70015b6'>
<event>POWERON</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 SIP 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 SIP 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 SIP 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 SIP 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 SIP 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 SIP 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 SIP 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 SIP Device' MAC='0020f70015b6'>
<event>RELAY_ACTIVATED</event>
</cyberdata>
POST xmlparse_engine HTTP/1.1
```

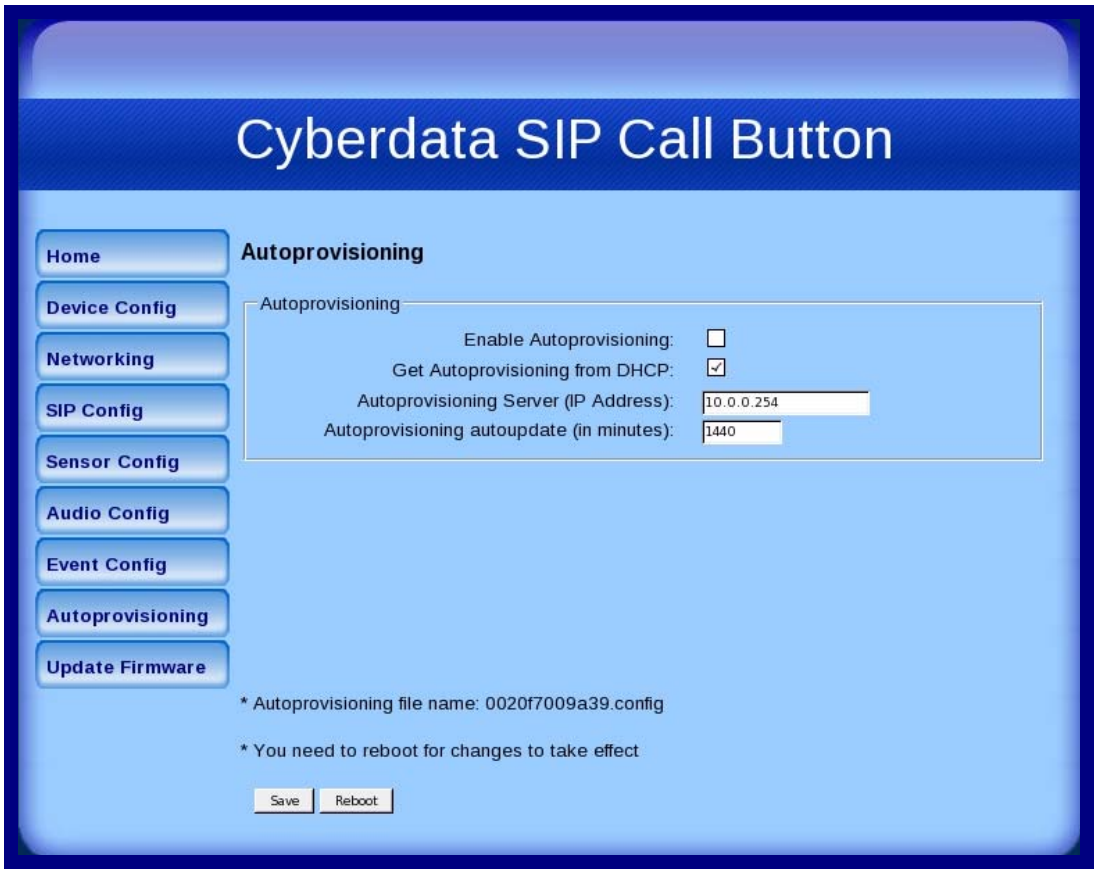
```
Host: 10.0.3.79
User-Agent: CyberData/1.0.0
Content-Length: 234
Content-Type: application/x-www-form-urlencoded
<?xml version="1.0" encoding="ISO-8859-1"?>
<cyberdata NAME='CyberData SIP Device' MAC='0020f70015b6'>
<event>RELAY_DEACTIVATED</event>
</cyberdata>

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 SIP Device' MAC='0020f70015b6'>
<event>NIGHTRINGING</event>
</cyberdata>
```

2.2.9 Configure the Autoprovisioning Parameters

1. Click the **Autoprovisioning** button to open the **Autoprovisioning Configuration** page. See Figure 2-23.

Figure 2-23. Autoprovisioning Configuration Page



2. On the **Autoprovisioning Configuration** page, you may enter values for the parameters indicated in Table 2-16.

Table 2-16. Autoprovisioning Configuration Parameters

Web Page Item	Description
Autoprovisioning	
Enable Autoprovisioning	See Section 2.2.9.1, "Autoprovisioning".
Get Autoprovisioning from DHCP	See Section 2.2.9.1, "Autoprovisioning".
Autoprovisioning Server (IP Address)	See Section 2.2.9.1, "Autoprovisioning" (15 character limit).
Autoprovisioning Autoupdate (in minutes)	Type the desired time (in minutes) that you want the Autoprovisioning feature to update (6 character limit).
Autoprovisioning file name	Displays the current autoprovisioning file name.
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 the **Save** button.

2.2.9.1 Autoprovisioning

Enable Autoprovisioning Option

With autoprovisioning enabled, the board will get its configuration from a remote TFTP server on startup or periodically on a scheduled delay. Autoprovisioned values will override values stored in on-board memory and will be visible on the web page. The board gets its 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.

To use autoprovisioning, create a copy of the autoprovisioning template with the desired settings and name this file with the mac address of the device to configure (for example: **0020f7350058.config**). Put this file into your TFTP server directory and manually set the TFTP server address on the board.

It is not necessary to set every option found in the autoprovisioning template. As long as the XML is valid, the file can contain any subset. Options not autoprovisioned will default to the values stored in the on board memory. For example if you only wanted to modify the device name, the following would be a valid autoprovisioning file:

```
<?xml version="1.0" encoding="utf-8" ?>
<specific>
    <MiscSettings>
        <DeviceName>auto Call Button</DeviceName>
    </MiscSettings>

</specific>
```

Networking

The board will only apply networking settings or firmware upgrades after a reboot.

Get Autoprovisioning from DHCP

When this option is checked, the device will automatically fetch its autoprovisioning server address from the DHCP server. The device will use the address specified in **OPTION 150** (TFTP-server-name) or **OPTION 66**. If both options are set, the device will use **OPTION 150**.

Refer to the documentation of your DHCP server for setting up **OPTION 150**.

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;}
```

Autoprovisioning Server (IP Address)

Instead of using DHCP to provide the autoprovisioning tftp server address, you can specify an address manually.

Autoprovisioning Autoupdate

If **Autoprovisioning** is enabled 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 its autoprovisioning file. It will compare its previously autoprovisioned file with this new file and if there are differences, it will reboot the board.

Autoprovisioned Firmware Upgrades

An Autoprovisioned firmware upgrade only happens after a reboot, will take roughly three minutes, and the web page will be unresponsive during this time.

The '**FirmwareVersion**' value in the xml file *must* match the version stored in the '**FirmwareFile**'.

```
<FirmwareVersion>v5.0.5b01</FirmwareVersion>
<FirmwareFile>505b01-uImage-Call Button</FirmwareFile>
```

If these values are mismatched, the board can get stuck in a loop where it goes through the following sequence of actions:

1. The board downloads and writes a new firmware file.
2. After the next reboot, the board recognizes that the firmware version does not match.
3. The board downloads and writes the firmware file again.

CyberData has timed a firmware upgrade at 140 seconds. Therefore, if you suspect the board is stuck in a loop, either remove or comment out the **FirmwareVersion** line in the XML file and let the board boot as it normally does.

Autoprovisioned Audio Files

Audio files are stored in non-volatile memory and an autoprovisioned audio file will only have to be downloaded once for each device. Loading many audio files to the device from the web page could cause it to appear unresponsive. If this happens, wait until the transfer is complete and then refresh the page.

The device uses the file name to determine when to download a new audio file. This means that if you used autoprovisioning to upload a file and then changed the contents of this file at the TFTP server, the device will not recognize that the file has changed (because the file name is the same).

Since audio files are stored in non-volatile memory, if autoprovisioning is disabled after they have been loaded to the board, the audio file settings will not change. You can force a change to the audio files on the board by clicking **Restore Default** on the **Audio Configuration** page or by changing the autoprovisioning file with "**default**" set as the file name.

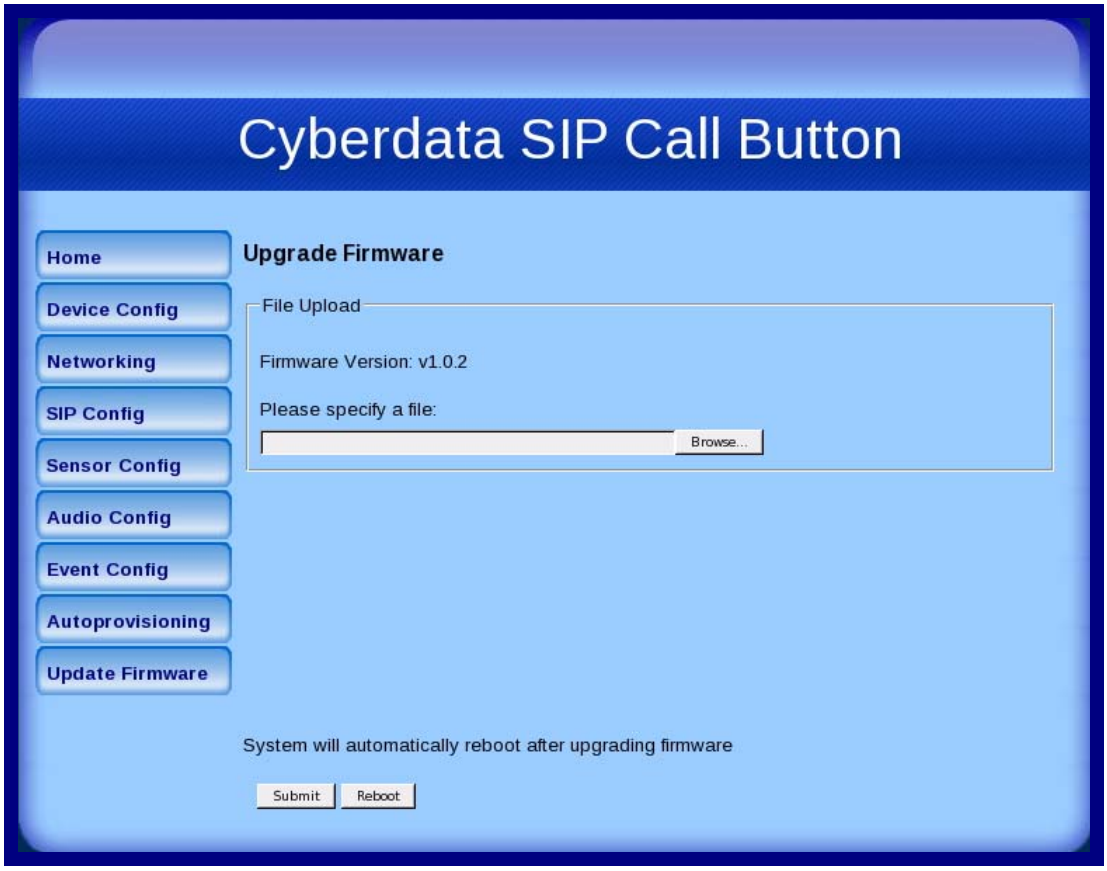
2.3 Upgrade the Firmware and Reboot the SIP Call Button

Note To guard against failed firmware upgrades, units shipped from CyberData with firmware version 1.0.2 and later feature a built-in "fail safe" mechanism.

To upload the firmware from your computer:

1. Retrieve the latest SIP Call Button firmware file from the SIP Call Button **Downloads** page at:
   http://www.cyberdata.net/products/voip/digitalanalog/callbutton/downloads.html
2. Unzip the firmware version file. This file may contain the following:
- Firmware file
- Release notes
3. Log in to the SIP Call Button home page as instructed in Section 2.2.2, "Log in to the Configuration Home Page".
4. Click the **Update Firmware** button to open the **Upgrade Firmware** page. See Figure 2-24.

Figure 2-24. Upgrade Firmware Page



5. Select **Browse**, and then navigate to the location of the SIP Call Button firmware file.
6. Click **Submit**.

Note This starts the upgrade process. Once the SIP Call Button has uploaded the file, the **Uploading Firmware** countdown page appears, indicating that the firmware is being written to flash. The SIP Call Button 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).

Table 2-17 shows the web page items on the **Upgrade Firmware** page.

Table 2-17. Firmware Upgrade Parameters

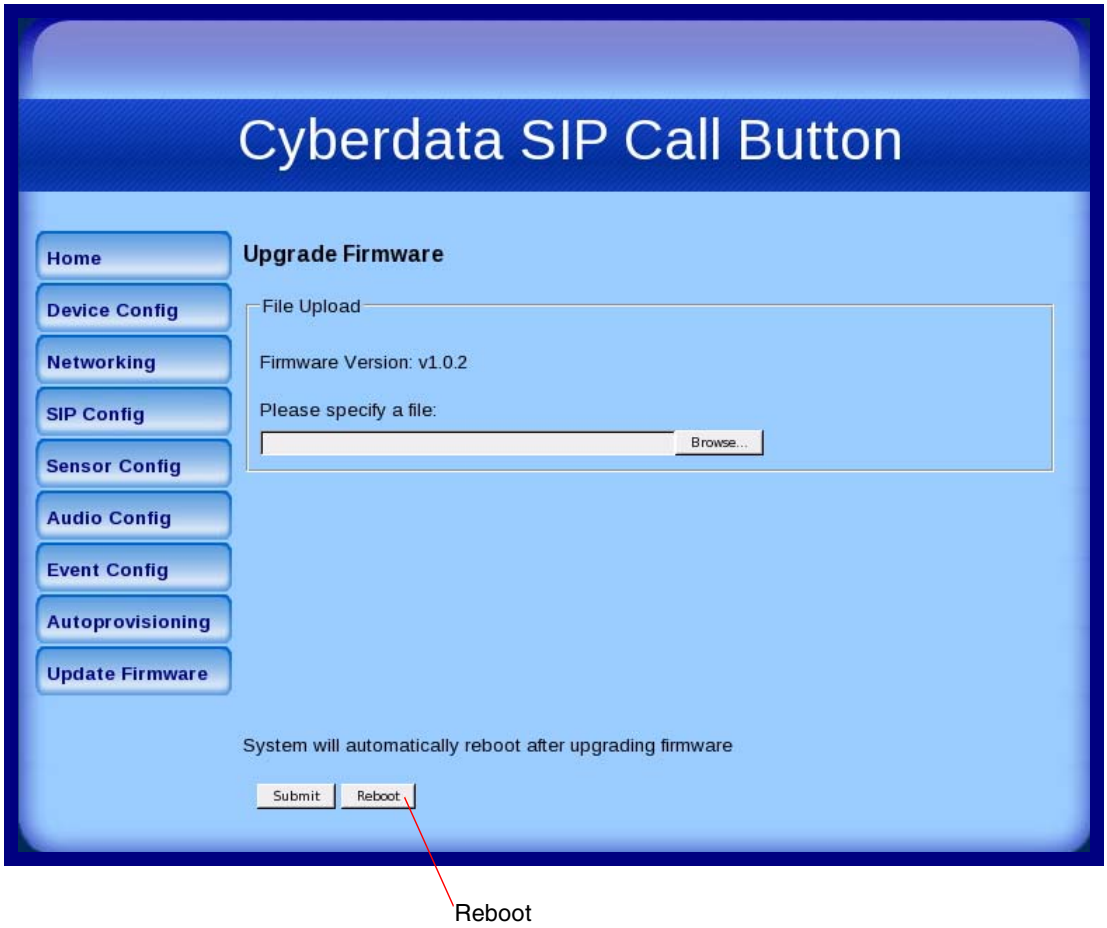
Web Page Item	Description
File Upload	
Firmware Version	Shows the current firmware version.
	Use the **Browse** button to navigate to the location of the Call Button firmware file that you want to upload.
	Click on the **Submit** button to automatically upload the selected firmware and reboot the system.
	Click on the **Reboot** button to reboot the system.

2.3.1 Reboot the SIP Call Button

To reboot a SIP Call Button, log in to the web page as instructed in Section 2.2.2, "Log in to the Configuration Home Page".

1. Click **Update Firmware** to open the **Upgrade Firmware** page (Figure 2-25).

Figure 2-25. Reboot System Section



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

Appendix A: Mounting the SIP Call Button

A.1 Mount the SIP Call Button

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

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

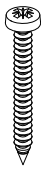
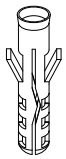
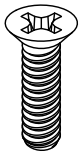
Quantity	Part Name	Illustration
4	#6 x 1.5 inches Sheet Metal Screw	
4	#6 Ribbed Plastic Anchor	

Table A-2. Gang Box Mounting Components

Quantity	Part Name	Illustration
4	#6-32 x 0.625-inch Flat-Head Machine Screw.	

After the SIP Call Button is assembled, plug the Ethernet cable into the SIP Call Button Assembly (see Figure A-26).

Section 2.1.5, "Network Connectivity, and Data Rate" explains how the **Link** and **Status** LEDs work.

Figure A-26. Network Connector Prior to Installation

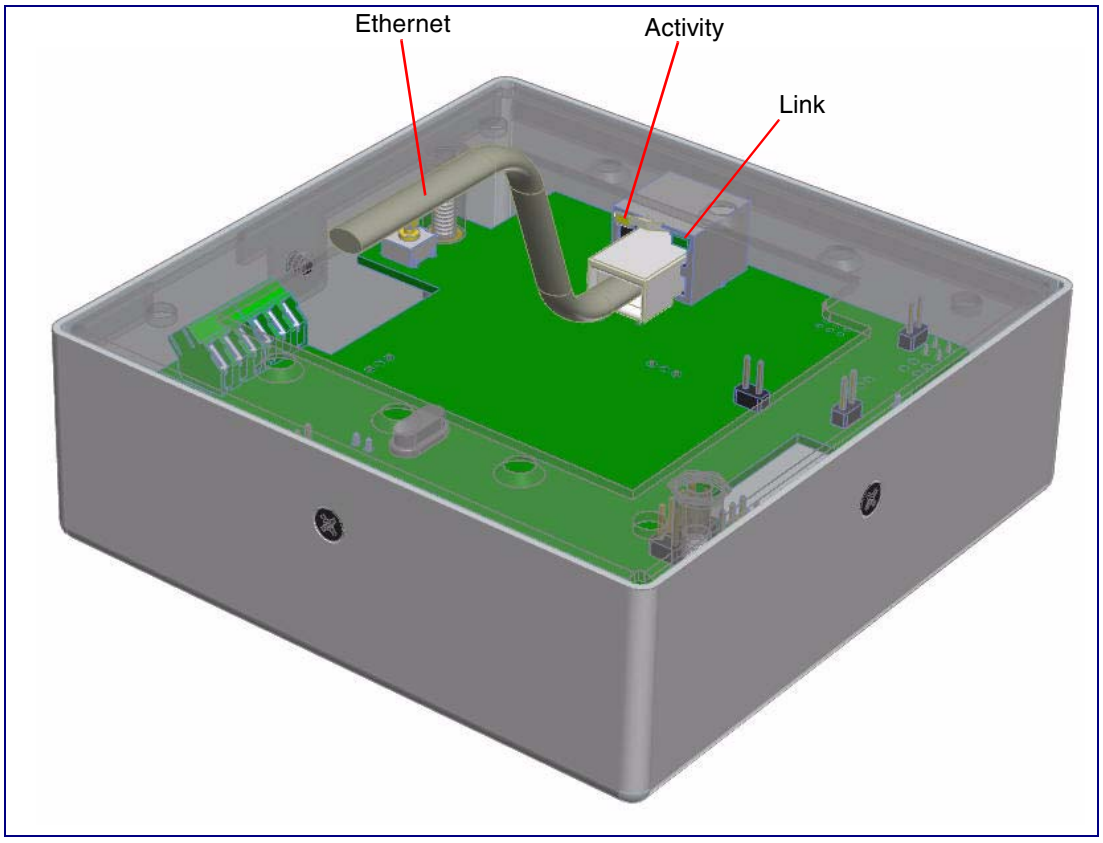


Figure A-27 shows the mounting options for the SIP Call Button.

Note Be sure to connect the Call Button up to the Earth Ground.

Figure A-27. Mounting Options

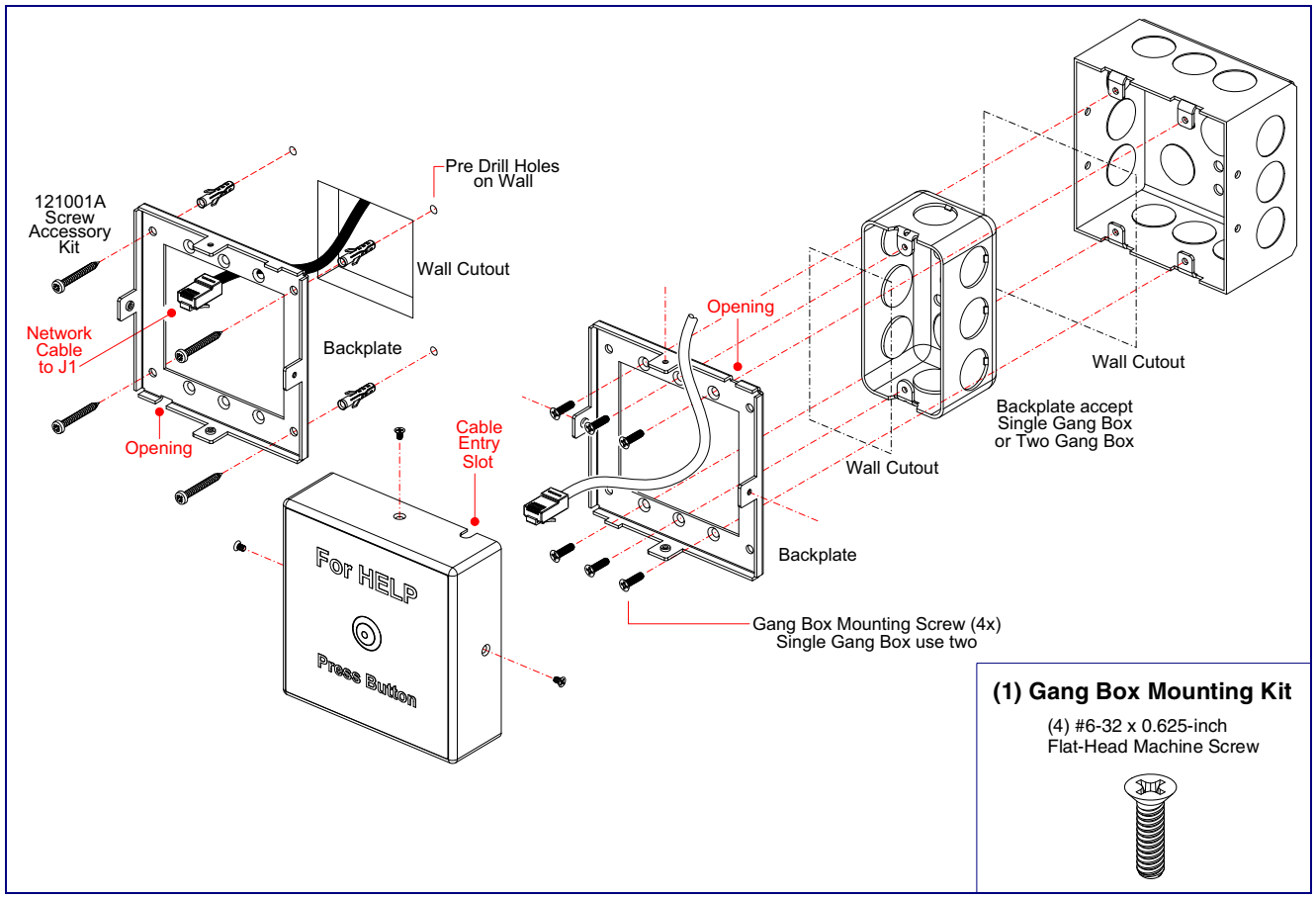
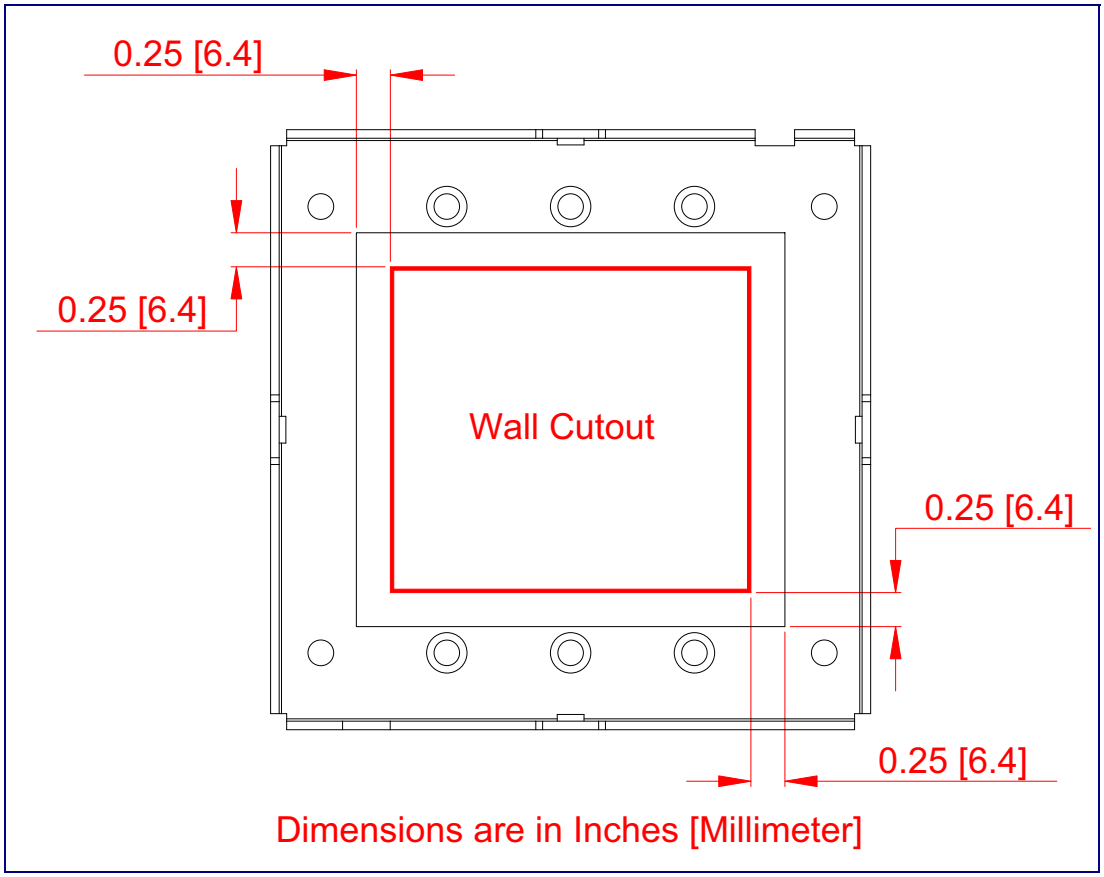


Figure A-28 shows the maximum recommended wall cutout dimensions for mounting the SIP Call Button.

Figure A-28. Maximum Recommended Wall Cutout Dimensions



Appendix B: Troubleshooting/Technical Support

B.1 Frequently Asked Questions (FAQ)

A list of frequently asked questions (FAQs) are available on the SIP Call Button product page at:

http://www.cyberdata.net/products/voip/digitalanalog/callbutton/faqs.html

Select the support page for your product to see a list of frequently asked questions for the CyberData product:

B.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 SIP Call Button product page at:

http://www.cyberdata.net/products/voip/digitalanalog/callbutton/docs.html

B.3 Contact Information

Contact	CyberData Corporation 3 Justin Court 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 Web: **http://www.cyberdata.net/support/contactsupportvoip.html**
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
3 Justin Court
Monterey, CA 93940
Attention: RMA "your RMA number"

RMA Status Form

If you need to inquire about the repair status of your product(s), please use the CyberData RMA Status form at the following web address:

http://www.cyberdata.net/support/rmastatus.html

B.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.

Should the product fail out-of-warranty, a flat rate repair charge of one half of the purchase price of the product will be assessed. Repairs that are in warranty but are damaged by improper modifications or abuse, will be charged at the out-of-warranty rate. Products shipped to CyberData, both in and out-of-warranty, are shipped at the expense of the customer. Shipping charges for repaired products shipped back to the customer by CyberData, will be paid by CyberData.

CyberData shall not under any circumstances be liable to any person for any special, incidental, indirect or consequential damages, including without limitation, damages resulting from use or malfunction of the products, loss of profits or revenues or costs of replacement goods, even if CyberData is informed in advance of the possibility of such damages.

B.4.1 Warranty & RMA Returns within the United States

If service is required, you must contact CyberData Technical Support prior to returning any products to CyberData. Our Technical Support staff will determine if your product should be returned to us for further inspection. If Technical Support determines that your product needs to be returned to CyberData, an RMA number will be issued to you at this point.

Your issued RMA number must be printed on the outside of the shipping box. No product will be accepted for return without an approved RMA number. The product in its original package should be sent to the following address:

CyberData Corporation

3 Justin Court

Monterey, CA 93940

Attn: RMA "xxxxxx"

B.4.2 Warranty & RMA Returns Outside of the United States

If you purchased your equipment through an authorized international distributor or reseller, please contact them directly for product repairs.

B.4.3 Spare in the Air Policy

CyberData now offers a *Spare in the Air* no wait policy for warranty returns within the United States and Canada. More information about the *Spare in the Air* policy is available at the following web address:

http://www.cyberdata.net/support/warranty/spareintheair.html

B.4.4 Return and Restocking Policy

For our authorized distributors and resellers, please refer to your CyberData Service Agreement for information on our return guidelines and procedures.

For End Users, please contact the company that you purchased your equipment from for their return policy.

B.4.5 Warranty and RMA Returns Page

The most recent warranty and RMA information is available at the CyberData Warranty and RMA Returns Page at the following web address:

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

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