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 VoIP Intercom 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 pictorial 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 pictorial 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

<table>
<thead>
<tr>
<th>Revision</th>
<th>Date Released</th>
<th>Description of Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>10/3/2008</td>
<td>This is the first release of the 010935B manual.</td>
</tr>
<tr>
<td>B</td>
<td>11/17/2008</td>
<td>Updated Figure 2-8.</td>
</tr>
</tbody>
</table>
| C        | 12/8/2008     | Updated Section 2.1.3, "Set up the Intercom".  
|          |               | Updates Figure 2-17 through Figure 2-24.  
|          |               | Updates Table 2-6 and Table 2-7.  
|          |               | Adds Table 2-8.  
|          |               | Updates Section 2.1.3, "Set up the Intercom".  
|          |               | Adds Section 2.1.5, "Configure the Sensor Setup Parameters".  
|          |               | Adds Note about upgrading the firmware to version 3.3.0 in Section 2.1, "Upgrade the Firmware and Reboot the Intercom".  
|          |               | Firmware: This revision provides information for firmware version 3.3.0. Release notes detailing the difference between this firmware version and earlier firmware versions is available in the firmware zip file at the following URL:  
|          |               | [http://www.cyberdata.net/support/voip/intercom.html](http://www.cyberdata.net/support/voip/intercom.html) |
| D        | 1/6/2009      | Updates Section 2.1.6.1, "Announcing the IP Address".  
|          |               | Updates Section 2.1.6.2, "Restore the Factory Default Settings".  
|          |               | Changes firmware version number to 3.3.2. |
| E        | 3/11/2009     | Adds Section 2.1.4.1, "Point-to-Point Configuration" and the following note:  
|          |               | "Receiving point-to-point SIP calls may not work with all phones."  
|          |               | Adds Figure 2-21, "SIP Setup Page Set to Point-to-Point Mode"  
|          |               | Updates Section 2.1.5, "Configure the Sensor Setup Parameters" to add information about sensor setup options. |
| F        | 5/27/2009     | Adds Section 1.7, "Dimensions". |
1 Product Overview

1.1 How to Identify This Product

To identify the VoIP Intercom, look for a model number label similar to the one shown in Figure 1-1. The model number on the label should be 010935B.

Figure 1-1. Model Number Label
1.2 Typical System Installation

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

Figure 1-2, Figure 1-3, and Figure 1-4 illustrate how the VoIP Intercoms can be installed as part of a VoIP phone system.

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

Figure 1-3. Typical Installation—Mass Notification
Figure 1-4. Typical Installation—Emergency Phone

**Warning**

*Electrical Hazard:* The VoIP Intercom 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.
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
- 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

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

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

1.6 Product Specifications

<table>
<thead>
<tr>
<th>Category</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speaker Output</td>
<td>8 Watts Peak Power</td>
</tr>
<tr>
<td>Network Rate</td>
<td>10/100 Mbps</td>
</tr>
<tr>
<td>Power Requirement</td>
<td>802.3af compliant or 5V at 1000 mA</td>
</tr>
<tr>
<td>Protocol</td>
<td>SIP</td>
</tr>
<tr>
<td>Part Number</td>
<td>010935B</td>
</tr>
<tr>
<td>Dimensions</td>
<td>5” x 5” x 2.5”</td>
</tr>
<tr>
<td>Weight</td>
<td>1.6 lbs./shipping weight of 2.2 lbs.</td>
</tr>
<tr>
<td>Auxiliary Relay</td>
<td>(0.7 kg/shipping weight of 1.0kg)</td>
</tr>
<tr>
<td></td>
<td>2 A at 30 VDC</td>
</tr>
</tbody>
</table>
1.7 Dimensions

**Figure 1-5. Dimensions—Size of Unit With Case**

- Dimensions: 5.0 [127] inches \([\text{millimeter}]\)
- Depth: 2.3 [59] inches \([\text{millimeter}]\)
Figure 1-6. Dimensions—Size of Unit Without Case
2 Installing the VoIP Intercom

2.1 Parts List

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

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Part Name</th>
<th>Illustration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Intercom Assembly</td>
<td><img src="image1.png" alt="Intercom Assembly Illustration" /></td>
</tr>
<tr>
<td>1</td>
<td>Installation Quick Reference Guide</td>
<td><img src="image2.png" alt="Installation Quick Reference Guide Illustration" /></td>
</tr>
<tr>
<td>1</td>
<td>Intercom Mounting Accessory Kit</td>
<td><img src="image3.png" alt="Intercom Mounting Accessory Kit Illustration" /></td>
</tr>
</tbody>
</table>
2.1 Intercom Setup

2.1.1 VoIP Intercom Connections

Figure 2-7 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.

![VoIP Intercom Connections](image-url)
2.1.2 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 2-7). 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.

**Warning**

*Electrical Hazard:* The VoIP Intercom 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 2-8. Auxiliary Relay Wiring Diagram**

[Diagram showing the auxiliary relay wiring connections and labels for the various components.]
2.1.3 Identifying the VoIP Intercom Connectors

See Figure 2-9, Figure 2-10, and Table 2-2 to identify the connectors and functions.

Figure 2-9. J2, J5, and J6 Connector Locations

Figure 2-10. J1 and J7 Connector Locations
See Table 2-2 for the connector settings.

### Table 2-2. Connector Settings

<table>
<thead>
<tr>
<th>Jumper</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>J1</td>
<td>PoE Network Connection (RJ-45 ethernet)</td>
</tr>
<tr>
<td>J4</td>
<td>J-Tag (Factory only)</td>
</tr>
<tr>
<td>J3</td>
<td>Terminal Block (see Figure 2-7)</td>
</tr>
<tr>
<td>JP2</td>
<td>Call-Button/LED interface</td>
</tr>
<tr>
<td>JP4</td>
<td>Reset (Factory only)</td>
</tr>
<tr>
<td>JP5</td>
<td>Microphone Interface</td>
</tr>
<tr>
<td>JP6</td>
<td>Speaker Interface</td>
</tr>
<tr>
<td>JP8</td>
<td>Console (Factory only)</td>
</tr>
<tr>
<td>JP11</td>
<td>RTFM (see Section 2.1.6, &quot;RTFM Switch Jumper&quot;)</td>
</tr>
</tbody>
</table>
2.1.4 Call Button and Indicator Light

2.1.4.1 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 Intercom has acquired its network settings and is operational.
- The first blink indicates that the Intercom has acquired its network settings.
- The second blink indicates that the Intercom is operational.

2.1.4.2 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 Intercom 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 2-12. Call Button and Indicator Light
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 2-13 and Figure 2-14). 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 2-13. Network Connector Prior to Installation*
2.1.5.1 Verify Network Activity

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

*Figure 2-14. Network Connector*
2.1.6 RTFM Switch Jumper

When the Intercom is operational and linked to the network, use the Reset Test Function Management (RTFM) switch (see Figure 2-15) 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 2-15. RTFM Switch Jumper](image)

2.1.6.1 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.
2.1.6.2 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 2.1.6.1, "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 Intercom 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 2-16. RTFM Switch Jumper

2.1.7 Adjust the Volume

You will be only able to adjust the volume through the network configuration page.
2.1 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 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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Factory Default Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP Addressing</td>
<td>static</td>
</tr>
<tr>
<td>IP Address</td>
<td>192.168.3.10</td>
</tr>
<tr>
<td>Web Access Username</td>
<td>admin</td>
</tr>
<tr>
<td>Web Access Password</td>
<td>admin</td>
</tr>
<tr>
<td>Subnet Mask</td>
<td>255.255.255.0</td>
</tr>
<tr>
<td>Default Gateway</td>
<td>192.168.3.1</td>
</tr>
</tbody>
</table>
2.1.1 Log in to the Configuration Home Page

1. Open your browser to the Intercom IP address.
   
   For the initial configuration of the Intercom, open your browser to the default IP address:
   
   http://192.168.3.10

   **Note** Make sure that the PC is on the same IP network as the 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 Intercom product page at:

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

2. When prompted, use the following default **Web Access Username** and **Web Access Password** to access the **Home Page** (Figure 2-17):

   Web Access Username: admin
   Web Access Password: admin

---

**Figure 2-17. 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

<table>
<thead>
<tr>
<th>Web Page Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device Name</td>
<td>Shows the device name.</td>
</tr>
<tr>
<td>Serial #</td>
<td>Device serial number.</td>
</tr>
<tr>
<td>Ethernet Address</td>
<td>Device ethernet address.</td>
</tr>
<tr>
<td>IP Addressing</td>
<td>Shows the current IP addressing setting (DHCP or static).</td>
</tr>
<tr>
<td>IP Address</td>
<td>Shows the current IP address.</td>
</tr>
<tr>
<td>Subnet Mask</td>
<td>Shows the current subnet mask address.</td>
</tr>
<tr>
<td>Default Gateway</td>
<td>Shows the current default gateway address.</td>
</tr>
<tr>
<td>DNS Server 1</td>
<td>Shows the current DNS server 1 address.</td>
</tr>
<tr>
<td>DNS Server 2</td>
<td>Shows the current DNS server 2 address.</td>
</tr>
<tr>
<td>Speaker Volume (0-9)</td>
<td>Shows the current volume level.</td>
</tr>
<tr>
<td>Microphone Gain (0-9)</td>
<td>Shows the current microphone gain level.</td>
</tr>
<tr>
<td>Primary Dial-Out</td>
<td>Shows the current primary dial-out number</td>
</tr>
</tbody>
</table>

- Link to the **Intercom Setup** web page.
- Link to the **Network Setup** web page.
- Link to the **SIP Setup** web page.
- Link to the **Upgrade Firmware** web page.
2.1.2 Configure the Network Parameters

1. Click the **Network Setup** button to open the **Network Setup** page (Figure 2-18).

   **Figure 2-18. Network Setup Page**

   ![Network Setup Page]

   **Table 2-5. Network Setup Parameters**

<table>
<thead>
<tr>
<th>Web Page Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP Addressing*</td>
<td>Select either <strong>DHCP IP Addressing</strong> or <strong>Static IP Addressing</strong> by marking the appropriate radio button. If you select <strong>Static</strong>, configure the remaining parameters indicated in <strong>Table 2-5</strong>. If you select <strong>DHCP</strong>, go to <strong>Step 3</strong>.</td>
</tr>
<tr>
<td>IP Address*</td>
<td>Enter the Static IP address.</td>
</tr>
<tr>
<td>Subnet Mask</td>
<td>Enter the Subnet Mask address.</td>
</tr>
<tr>
<td>Default Gateway</td>
<td>Enter the Default Gateway address.</td>
</tr>
<tr>
<td>DNS Server 1*</td>
<td>Enter the DNS Server 1 address.</td>
</tr>
<tr>
<td>DNS Server 2*</td>
<td>Enter the DNS Server 2 address.</td>
</tr>
</tbody>
</table>

   Click this button to save your configuration settings. Changing a parameter that has an asterisk next to it will cause a system reboot when saved.

   ![Save Settings]

   ![Intercom Setup]

   Link to the **Intercom Setup** page.

2. On the **Network Setup** page, enter values for the parameters indicated in **Table 2-5**.
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.

### Table 2-5. Network Setup Parameters (continued)

<table>
<thead>
<tr>
<th>Web Page Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIP Setup</td>
<td>Link to the SIP Setup page.</td>
</tr>
<tr>
<td>Upgrade Firmware</td>
<td>Link to the Upgrade Firmware page.</td>
</tr>
<tr>
<td>Home Page</td>
<td>Link to the Home page.</td>
</tr>
</tbody>
</table>
2.1.3 Set up the Intercom

1. Click the **Intercom Setup** button to open the **Intercom Setup** page. See **Figure 2-19**.

![Figure 2-19. Intercom Setup](image-url)
2. On the **Intercom Setup** page, enter values for the parameters indicated in **Table 2-6**.

**Table 2-6. Intercom Setup Parameters**

<table>
<thead>
<tr>
<th>Web Page Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device Name</td>
<td>Enter a descriptive name for this device (if desired).</td>
</tr>
<tr>
<td>Change Username</td>
<td>Use this field to change the Web Access Username</td>
</tr>
<tr>
<td>Change Password</td>
<td>Use this field to change the Web Access Password</td>
</tr>
<tr>
<td>Re-enter New Password</td>
<td>Use this field to re-enter a new password</td>
</tr>
<tr>
<td>Speaker Volume (0 - 9)</td>
<td>Shows the current volume level.</td>
</tr>
<tr>
<td>Microphone Gain (0 - 9)</td>
<td>Shows the current microphone gain level.</td>
</tr>
<tr>
<td>Auto Answer</td>
<td>When <strong>Auto Answer</strong> is <strong>Off</strong>, the Intercom will play a ringtone through the speaker until someone presses the button.</td>
</tr>
<tr>
<td>Activate Relay During Ring</td>
<td>With the <strong>Activate Relay During Ring</strong> option, the relay will be activated for as long as the phone is ringing.</td>
</tr>
<tr>
<td>NOTE: When the phone is set to <strong>Auto Answer</strong>, it will not ring and this option does nothing.</td>
<td></td>
</tr>
<tr>
<td>Activate Relay On Button Press</td>
<td>If you select <strong>Yes</strong>, this will activate the relay for a user-selectable amount of time when the button is pressed.</td>
</tr>
<tr>
<td>Relay on Button Press Timeout (in seconds)</td>
<td>Type the desired number of seconds for the timeout on the relay after the button is pressed.</td>
</tr>
<tr>
<td>Auxiliary Relay</td>
<td>Allows you to enable or disable the auxiliary relay.</td>
</tr>
<tr>
<td>DTMF Relay Activation Code (3 digits)</td>
<td>Use this field to enter the DTMF relay activation code.</td>
</tr>
<tr>
<td>Relay Activation Duration (0 - 9 seconds)</td>
<td>Use this field to enter the relay activation duration.</td>
</tr>
<tr>
<td>Button Lit When Idle</td>
<td>If you select <strong>Yes</strong>, the front button light will remain on when a call is not active. If you select <strong>No</strong>, the front button light will remain off when a call is not active. The button light will still flash when a call is active.</td>
</tr>
<tr>
<td>Play Ringback tone</td>
<td>If you select <strong>Yes</strong>, then while initiating a call to a remote phone, this will enable the Intercom to play a ringtone while the remote device is ringing.</td>
</tr>
<tr>
<td><strong>Save Settings</strong></td>
<td>Click on this button to save your configuration settings.</td>
</tr>
<tr>
<td><strong>Relay Test</strong></td>
<td>Click on this button to do a relay test. Generates a voice message for testing the Intercom audio quality and volume.</td>
</tr>
<tr>
<td><strong>Audio Test</strong></td>
<td>Click on this button to do an audio test. Generates a voice message for testing the Intercom audio quality and volume.</td>
</tr>
<tr>
<td><strong>Home Page</strong></td>
<td>Link to the <strong>Home</strong> page.</td>
</tr>
<tr>
<td><strong>Network Setup</strong></td>
<td>Link to the <strong>Network Setup</strong> page.</td>
</tr>
</tbody>
</table>
### Table 2-6. Intercom Setup Parameters (continued)

<table>
<thead>
<tr>
<th>Web Page Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIP Setup</td>
<td>Link to the <strong>SIP Setup</strong> page.</td>
</tr>
<tr>
<td>Sensor Setup</td>
<td>Link to the <strong>Sensor Setup</strong> page.</td>
</tr>
<tr>
<td>Upgrade Firmware</td>
<td>Link to the <strong>Upgrade Firmware</strong> page.</td>
</tr>
</tbody>
</table>

3. After changing the parameters, click **Save Settings**.
2.1.4 Configure the SIP Parameters

1. Click **SIP Setup** to open the **SIP Setup** page (Figure 2-20).

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

   **Figure 2-20. SIP Setup Page**

   ![SIP Setup Page](image)

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

   **Table 2-7. SIP Setup Parameters**

<table>
<thead>
<tr>
<th>Web Page Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIP Server*</td>
<td>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.</td>
</tr>
<tr>
<td>Outbound Proxy</td>
<td>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.</td>
</tr>
<tr>
<td>Remote SIP Port*</td>
<td>Enter the <strong>Remote SIP Port</strong> number (default 5060).</td>
</tr>
<tr>
<td>Local SIP Port*</td>
<td>Enter the <strong>Local SIP Port</strong> number (default 5060).</td>
</tr>
<tr>
<td>SIP User ID*</td>
<td>Enter the <strong>SIP User ID</strong> (up to 25 alphanumeric characters).</td>
</tr>
</tbody>
</table>
Table 2-7. SIP Setup Parameters (continued)

<table>
<thead>
<tr>
<th>Web Page Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authenticate ID*</td>
<td>Enter the <strong>Authenticate ID</strong> (up to 25 alphanumeric characters).</td>
</tr>
<tr>
<td>Authenticate Password*</td>
<td>Enter the <strong>Authenticate Password</strong> (up to 25 alphanumeric characters).</td>
</tr>
<tr>
<td>SIP Registration*</td>
<td>Enable/Disable SIP Registration. For information about the Point-to-Point Configuration, see Section 2.1.4.1, &quot;Point-to-Point Configuration&quot;.</td>
</tr>
<tr>
<td>Register Expiration*</td>
<td>Enter the SIP Registration lease time in minutes (default 60 minutes).</td>
</tr>
<tr>
<td>Dial-Out Extension</td>
<td>Enter the button dial-out extension number.</td>
</tr>
</tbody>
</table>

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.

3. After changing the parameters, click **Save Settings**.
2.1.4.1 Point-to-Point Configuration

When the board is set to not register with a SIP server (see Figure 2-21), 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 2-21. SIP Setup Page Set to Point-to-Point Mode](image)

Board is set to not register with a SIP server
2.1.4.2 Delayed DTMF

On the SIP setup 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>
<thead>
<tr>
<th>Extension String</th>
<th>Resulting Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>302</td>
<td>Dial out extension 302 and establish a call</td>
</tr>
<tr>
<td>302,2</td>
<td>Dial out extension 302 and establish a call, wait 3 seconds then send the DTMF tone ‘2’</td>
</tr>
<tr>
<td>302,25,,4,,1</td>
<td>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</td>
</tr>
</tbody>
</table>

**Note**  The maximum number of total characters in the dial-out field is 25.
2.1.5 Configure the Sensor Setup 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 setup 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 setup as a point-to-point call, but currently can’t send delayed DTMF tones.

Click **Sensor Setup** to open the **Sensor Setup** page (Figure 2-22).

![Figure 2-22. Sensor Setup Page](image-url)
4. On the Sensor Setup page, enter values for the parameters indicated in Table 2-8.

<table>
<thead>
<tr>
<th>Web Page Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Door Sensor</td>
<td></td>
</tr>
<tr>
<td>Flash Button LED*</td>
<td>Select Yes to flash the LED until the sensor is deactivated (roughly 10 times/second).</td>
</tr>
<tr>
<td>Activate Relay</td>
<td>Select Yes to activate the relay until the sensor is deactivated.</td>
</tr>
<tr>
<td>Play Audio Locally</td>
<td>Select Yes to loop an audio file out of the Intercom speaker until the sensor is deactivated.</td>
</tr>
<tr>
<td>Play Audio Remotely</td>
<td>Select Yes to call a preset extension and play a pre-recorded audio file (once).</td>
</tr>
<tr>
<td>Dial Out Extension</td>
<td>Enter the button dial-out extension number.</td>
</tr>
<tr>
<td>Door Open Timeout (in seconds)</td>
<td>Select the number of seconds that you want to pass before the door sensor is activated.</td>
</tr>
<tr>
<td>Door Sensor Normally Closed</td>
<td>Select the inactive state of the door sensors.</td>
</tr>
<tr>
<td>Intrusion Sensor</td>
<td></td>
</tr>
<tr>
<td>Flash Button LED*</td>
<td>Select Yes to flash the LED until the sensor is deactivated (roughly 10 times/second).</td>
</tr>
<tr>
<td>Activate Relay</td>
<td>Select Yes to activate the relay until the sensor is deactivated.</td>
</tr>
<tr>
<td>Play Audio Locally</td>
<td>Select Yes to loop an audio file out of the Intercom speaker until the sensor is deactivated.</td>
</tr>
<tr>
<td>Play Audio Remotely</td>
<td>Select Yes to call a preset extension and play a pre-recorded audio file (once).</td>
</tr>
<tr>
<td>Dial Out Extension</td>
<td>Enter the button dial-out extension number.</td>
</tr>
</tbody>
</table>

5. After changing the parameters, click Save Settings.
2.1 Upgrade the Firmware and Reboot the Intercom

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 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 2.1.1, "Log in to the Configuration Home Page".

6. Click the Upgrade Firmware button to open the Firmware Upgrade page. See Figure 2-23.

   Figure 2-23. Firmware Upgrade Page
7. Enter the IP address of your TFTP server into the **TFTP Server IP** parameter field.

8. Enter the firmware filename of the file to be uploaded into the **New Filename** parameter field.
   For example, kernel filename **201-image-spk-sip.bin**.

9. Click **Upload File**.

**Note**  This starts the upload process. Once the 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 **Firmware Upgrade** 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 **Intercom Setup** 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 Setup** 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 2-9** shows the web page items on the **Firmware Upgrade** page.

---

**Table 2-9. Firmware Upgrade Parameters**

<table>
<thead>
<tr>
<th>Web Page Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Configuration</td>
<td>Shows the current configuration.</td>
</tr>
<tr>
<td>BootLoader</td>
<td>Shows the current boot loader filename.</td>
</tr>
<tr>
<td>Firmware</td>
<td>Shows the firmware for partition 1 and 2.</td>
</tr>
<tr>
<td>TFTP Server IP</td>
<td>Enter the TFTP Server IP address.</td>
</tr>
<tr>
<td>New Filename</td>
<td>Use this field to enter the new file name for the kernel or application firmware file that you are uploading.</td>
</tr>
</tbody>
</table>

**Upload File**

Click on this button to automatically upload the selected firmware and reboot the system.

**Network Setup**

Link to the **Network Setup** page.

**Intercom Setup**

Link to the **Intercom Setup** page.

**SIP Setup**

Link to go to the **SIP Setup** page.
Table 2-9. Firmware Upgrade Parameters (continued)

<table>
<thead>
<tr>
<th>Web Page Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Page</td>
<td>Link to the Home page.</td>
</tr>
<tr>
<td>Reboot</td>
<td>Click on this button to reboot the system.</td>
</tr>
</tbody>
</table>
2.1.1 Reboot the Intercom

To reboot a Intercom, log in to the web page as instructed in Section 2.1.1, "Log in to the Configuration Home Page".

1. Click **Upgrade Firmware** to open the **Firmware Upgrade** page (Figure 2-24).

![Figure 2-24. Reboot System Section](image)

2. Click **Reboot**. A normal restart will occur.
Appendix A: Mounting the 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. Drop Ceiling Mounting Components (Part of the Accessory Kit)

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Part Name</th>
<th>Illustration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Outlet Box Plugs</td>
<td><img src="image1.png" alt="Illustration" /></td>
</tr>
<tr>
<td>2</td>
<td>Flush Mounting Plate</td>
<td><img src="image2.png" alt="Illustration" /></td>
</tr>
<tr>
<td>2</td>
<td>8-32 x 1/4&quot; Flat Head Phillips Machine Screw</td>
<td><img src="image3.png" alt="Illustration" /></td>
</tr>
<tr>
<td>1</td>
<td>10-24 x 5/16&quot; Pan Head Phillips Machine Screw</td>
<td><img src="image4.png" alt="Illustration" /></td>
</tr>
</tbody>
</table>
To mount the Intercom:

1. Plug the Ethernet cable into the Intercom Assembly (see Figure A-1). Section 2.1.5, "Network Connectivity, and Data Rate" explains how the Link and Status LEDs work.

Figure A-1. Network Connector Prior to Installation
2. To fasten the Intercom:
   - For wall mounting, use the two **8-32 X 1/4" FLAT HEAD PHILLIPS MACHINE SCREW** and the one **10-24 X 5/16" PAN HEAD PHILLIPS MACHINE SCREW** to secure the Intercom.

**Figure A-1. VoIP Intercom Assembly**

![Diagram of VoIP Intercom Assembly](image-url)
If the thread on the conduit is longer than 3/8 inch, then a stop nut (not supplied) is required. Otherwise, use the outlet box plug to plug the exit hole.

Figure A-2. Mounting the VoIP Intercom Assembly

Figure A-3 shows the restrictions of the conduit going into the box.

Figure A-3. Conduit Restrictions
Figure A-4 shows how to properly mount the VoIP Intercom.

**Figure A-4. Mounting**

Flush Mounting Plate (2 x)

Flat Head Phillips Machine Screw (2 x)

Mounting Screw Not Provided
Appendix B: Setting up a TFTP Server

B.1 Set up a TFTP Server

Upgrading the VoIP 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 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.


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 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 Intercom product page at:

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

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

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 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:
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.
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