INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS

Important Safety Instructions. Save These Instructions.

WARNING: When using electronic products, basic precautions should always be followed, including:

1. Keep these instructions.
2. Heed all warnings.
3. Follow all instructions.
4. Do not use the apparatus near water.
5. Clean only with dry cloth.
6. Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.
7. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
8. Do not defeat the safety purpose of the polarized or grounding-type plug.
9. PRONG IS PROVIDED FOR YOUR SAFETY. IF THE PROVIDED PLUG DOES NOT FIT INTO YOUR OUTLET, consult an electrician for replacement of the obsolete outlet.
10. Only use attachments/accessories specified by the manufacturer.
11. Follow all instructions.
12. Use the apparatus in the positions only.
13. 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.
14. WARNING: To reduce the risk of fire or electric shock do not place this apparatus in any position in which it is exposed to dripping or splashing liquids, rain, moisture, excessively high humidity, objects containing liquid shall be placed in positions where they are likely to splash or spray objects into the apparatus.

What’s in the Box

Here’s what you can expect to find when you open the package:

- ZeeVee Modulator
- AC Power Cord
- RCA Cable (Yellow/White/Red)
- ATSC Antenna
- Male to female RF connector and a 6ft Coaxial Cable
- Technical Support at +1(877) 4-ZEEVEE (1.877.493.3833).

If you run into problems during setup, feel free to contact Technical Support at +1(877) 4-ZEEVEE (1.877.493.3833).

Welcome to ZeeVee.

ZeeVee products convert your video and audio source to a digital cable channel and broadcast it over coax to all your HDTVs. This guide walks you through basic and more enhanced setup for ZeeVee’s HDbridge 2312 modulator.

Maestro Configuration

- Connecting with Maestro
- Configuring RF numbers and virtual channels
- Labeling channels with channel and content information
- Using other Maestro tabs

Troubleshooting

Warranty

Contact ZeeVee

Refer to the literature accompanying the product.

NOTICE: The information in this document is subject to change without notice. ZeeVee reserves the right to make changes in the products described herein. The manufacturer assumes no responsibility for any errors that may appear in this publication.

FCC Statement

FCC Compliance and Advisory Statement: This hardware device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: 1) this device may not cause harmful interference, and 2) this device must accept any interference which may cause undesired operation. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed or used in accordance with the instructions, may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: 1) reorient or relocate the receiving antenna; 2) increase the separation between the equipment and the receiver; 3) connect the equipment to an outlet on a circuit different from that to which the receiver is connected; 4) consult the dealer or an experienced radio/television technician for help. Any changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment. Where shielded interface cables have been provided with the product or specified additional components or accessories elsewhere defined to be used with the installation of the product, they must be used in order to ensure compliance with FCC regulations.
Front and Back Panels

1. **HD2312** - Name and description of unit
2. **Color Display** - Configuration and system status
3. **5-Way Control** - Navigate options on front panel display
4. **Coax Output** - Up to 2 paired, frequency-agile QAM RF CATV output channels for up to 12 video sources. Output power can be set between +45 to +25 dBmV using the Maestro web interface or the front panel.
5. **Audio/Video Inputs** - Video: Composite Audio: Analog 3.5mm
6. **Event Detection** - This function not implemented yet
7. **10/100 LAN Port** - Two symmetrical Ethernet ports for configuration and remote management
8. **Delay Matched Audio Output** - For matching audio to external audio system (first port only)
9. **AC Power Input** - 100-240VAC / 50-60Hz
10. **SD Card Port** - This function not implemented

Basic Installation

1. **Apply power.**
2. **Connect a Composite Video source to any Composite Video Input of the HDb2312.**
3. **Connect the Analog Audio.**

Tuning your channel at the HDTV (Auto Scan)

1. **Connect the Coaxial Output of the HDb2312 to your RF network.** If the RF power for your network is too high, you will observe video breakup.
2. **Specify Cable (not Air or Antenna) setting in your TV menu.**
3. **Enter the RF number to tune directly to the channel.** For default channel lineup information, refer to the Default Channel Lineup table. If you cannot tune directly to the channel at this point, it is because most TVs will require you to run a full Auto Scan.
4. **Run the Auto Scan through the menu system of your HDTV to find the channels.**

Factory default settings allow HDb2312 series modulators to broadcast up to 12SD sources on RF channels 2, 3, 5, and 6 for reception at connected HDTVs. We recommend using the most updated version of firmware. You can find the latest version on the Support section of our website.

Beginning setup

1. **Apply power.**
2. **Connect a Composite Video source to any Composite Video Input of the HDb2312.**
3. **Connect the Analog Audio.**

**DEFAULT CHANNEL LINEUP (HDb2312)**

<table>
<thead>
<tr>
<th>AV Input</th>
<th>RF</th>
<th>HDTV Channel</th>
</tr>
</thead>
<tbody>
<tr>
<td>AV Input 1</td>
<td>2</td>
<td>2.1</td>
</tr>
<tr>
<td>AV Input 2</td>
<td>2</td>
<td>2.2</td>
</tr>
<tr>
<td>AV Input 3</td>
<td>2</td>
<td>2.3</td>
</tr>
<tr>
<td>AV Input 4</td>
<td>3</td>
<td>3.1</td>
</tr>
<tr>
<td>AV Input 5</td>
<td>3</td>
<td>3.2</td>
</tr>
<tr>
<td>AV Input 6</td>
<td>3</td>
<td>3.3</td>
</tr>
<tr>
<td>AV Input 7</td>
<td>5</td>
<td>5.1</td>
</tr>
<tr>
<td>AV Input 8</td>
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</tr>
<tr>
<td>AV Input 11</td>
<td>6</td>
<td>6.2</td>
</tr>
<tr>
<td>AV Input 12</td>
<td>6</td>
<td>6.3</td>
</tr>
</tbody>
</table>

**WARNING:** +45 dBmV Do not connect directly to HDTV

**Coax cable connects to coax network**

**Ethernet to network or directly to computer**

**Optional Delay Matched Analog Audio Out to audio system**

**RF Output** +45 dBmV

**Composite Video Source**

**Video Source**

**Back of HDb2312 Modulator**

**Digital Video Encoder / Modulator**

**Ethernet to network or directly to computer**

**Optional Delay Matched Analog Audio Out to audio system**

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**Ethernet to network or directly to computer**

**Optional Delay Matched Analog Audio Out to audio system**

**RF Output** +45 dBmV

**Composite Video Source**

**Video Source**

**Back of HDb2312 Modulator**
### Front Panel Configuration

You can set the RF broadcast channels using the front panel controls. In many cases, your ZeeVee modulator will require only these configurations.

#### Setting the RF broadcast channels or power

1. Unlock the panel by pressing holding together the left and right arrow buttons (4) until “Setup” lights up.
2. Press “OK” to enter the Configuration screen.
3. Press “OK” to select “RF Setup.”

#### Power

- To reset IP address:
  - Hold the left and right arrow buttons down and press “OK.”
- To update firmware:
  - Hold the left and right arrow buttons until “Setup” lights up.
- To revert firmware:
  - When using DHCP, select Reset IP Address and press “OK.”
  - If unit is connected to the internet and can communicate with our servers, select Update Firmware from the Setup screen and press “OK.”

#### IMPORTANT NOTES

- RF numbers are applied based on the frequency map. For instance, if you enter RF # 2, then RF # 3 cannot be paired together because of a gap in the frequencies (MHz).
- RF numbers are not always paired in numerical sequence (as with RF # 6, which can be paired with RF numbers 14 and so on).

#### RF Setup

- Use the up and down (4) arrow buttons to scroll down and select “Apply,” then click “OK” to save your changes.
- Once you’ve made changes, press “OK” to accept.
- You can select the next item for configuration.

#### Service

- When finished making changes, use the arrow buttons to scroll down and select “Apply,” then click “OK” to accept.

#### RF modulator will require only these configurations.

The Cable TV Channels vs RF Frequency (MHz) Map shows how the RF channels are paired and matched with RF numbers. You will need to refer to this map when configuring RF numbers and virtual channels.

#### Frequency Map for configuring RF numbers and virtual channels

The Cable TV Channels vs RF Frequency (MHz) Map shows how the RF channels are paired and matched with RF numbers. You will need to refer to this map when configuring RF numbers and virtual channels.

#### IMPORTANT NOTES

- RF numbers are applied based on the frequency map. For instance, if you enter RF # 2, then RF # 3 cannot be paired together because of a gap in the frequencies (MHz).
- RF numbers are not always paired in numerical sequence (as with RF # 6, which can be paired with RF numbers 14 and so on).
- ZV channels can be set directly adjacent to any other well-formed channel and will not cause interference. No channel spacing is required.

#### Notes

- The ZV channels can be set directly adjacent to any other well-formed channel and will not cause interference. No channel spacing is required.
- The RF numbers are not always paired in numerical sequence (as with RF # 6, which pairs with RF # 14 and so on).
- ZV channels can be set directly adjacent to any other well-formed channel and will not cause interference. No channel spacing is required.
Maestro Configuration

Maestro is a configuration tool that you use optionally to customize your system beyond what is allowed in the front panel. For example, using Maestro you can assign a channel number (virtual channel) independent of the RF number and label the channels.

Connecting with Maestro
1. Connect your computer directly to the ZeeVee modulator using a standard Ethernet cable (not a cross-over cable) or connect the unit and your computer to any LAN that has a DHCP server.
2. After a few moments, an IP address will appear at the top of the front panel display.
3. Using any web browser (Chrome or Firefox preferred), enter the IP address to launch Maestro.
4. You will be directed to a login page. Your user name is always “admin.”
5. After you log in, the Maestro Status tab appears. Here you can see the general information status.

Configuring RF numbers and virtual channels
1. Click on the Channel Plan tab.
2. Click in the RF # field and enter the RF number as you choose from the RF Frequency Map (on page 7). Make sure you’ve reviewed the RF Frequency Map Important Notes before completing this task.
3. Click in the Channel # field and enter a channel number (virtual channel). The channel number is what the TV displays. You can configure a channel number two ways:
   • As a dotted number — Enter the number with a “.” following it, for example, “5.1”. This is the default display.
   • As a dotless number — Enter the number with a “#” preceding it, for example, “#5”.
4. Note that you can choose a channel number that is different from the RF#. For instance, if your RF# is 3, you can choose a channel number of 10.1 or #10.
5. Click Apply to save changes. Your unit stores configurations so they are not lost on power-down.
6. Run Auto Scan at TV (see Tuning your channel at the HDTV, page 5) when you have saved configuration changes.

Labeling channels with channel and content information
1. In the Channel Plan tab, click in the Name field and enter the channel short name (up to 7 characters).
2. In the Long Name field and enter the long or more descriptive channel name (up to 63 characters). The TV displays these names and descriptions when the channel is changed or info guide information is requested.
3. Click Apply to save changes.

Using the Maestro tabs
Click on the Maestro tabs to configure your unit as needed. We provide brief information here. Please click on the Help button on each tab or refer to the Support section of our website for further detail on configuration options.

THE RF TAB
Allows you to change the RF power output.

THE DEVICE TAB
Allows you to change the device password and update firmware as well as configure Emergency Alerts System (EAS). You can find detailed information on EAS in the Support section of the website.

THE NETWORK TAB
Allows you to assign a static IP address.

THE SUPPORT TAB
Provides technical support contact information and allows you to send logs for troubleshooting.

THE ADMIN TAB
Allows for creating user accounts which limit access to specific parts of Maestro including ZvShow, STB and EAS access.

THE AV SOURCE TAB
Allows you to specify audio and video sources as well as other configuration options for the sources.

Delayed Audio Out found on the AV Source tab allows for matching audio to external audio system (first port only).
Troubleshooting

Audio and video are not synchronized

If you are using the audio and video directly from the source into the distribution (whole house) audio system and not through the ZeeVee unit, it will arrive to the speakers before the video arrives to the HDTV. This happens because the video is being encoded into a digital signal, modulated by the unit and then demodulated. The audio is sent before the video, and therefore may receive some latency. In addition, distortion may occur at the video output because some analog modulators can spill over to adjacent channels and cause unexpected interference.

EXCLUSIVE REMEDY FOR ZEEVEE EQUIPMENT

At the option of ZeeVee, the ZeeVee Equipment will be repaired or replaced, without charge to the original end user, or the ZeeVee Equipment will be refunded to the extent allowable under the terms of these warranties. In no event will ZeeVee be liable for any indirect, special, punitive, exemplary, or incidental damages (including loss of revenue or profits, or costs of repair or replacement of out-of-warranty ZeeVee Equipment), to the extent allowable under the terms of these warranties. ZeeVee shall not be liable for any cost or expense (including attorneys’ fees) incurred in connection with any legal action or proceeding.

THE ABOVE WARRANTIES ARE SUBJECT TO THE FOLLOWING CONDITIONS

• You must have proof of purchase from an authorized reseller or ZeeVee dealer to receive warranty service. A sales receipt or a Return Material Authorization (RMA) number which you can return the product. ZeeVee is not responsible for any shipping charges, including insurance.

FEATURED RESIDENTIAL VERSIONS

HDbridge 2312 Configuration Guide

WARRANTY

HDbridge 2312 is a new ZeeVee product. No maintenance is required if used as described in this guide. If problems persist, please contact ZeeVee Technical Support at +1.877.4ZEEVEE (1.877.493.3833) or warranty@zeevee.com with any questions.

5 YEAR WARRANTY

In the unlikely event that you experience a problem with your HDbridge Series and ZvPro Product Line, ZeeVee will cover the cost of repair or replacement, including labor, for the full 5 years from the original date of purchase. This warranty is in addition to any implied warranties which may be applicable to the product. This warranty is exclusive of any implied warranties under state laws, this warranty is exclusive of any implied warranties under state laws, and is not intended to conflict with any other warranties or conditions which may apply.

LIMITATION OF LIABILITY

In no event shall ZeeVee shall be liable for any amount greater than the retail price of the ZeeVee Equipment. ZeeVee does not warrant any related items you acquire to complement the ZeeVee Equipment. ZeeVee is not responsible for any incidental or consequential damages, including but not limited to lost profits, lost data, or loss of use of the ZeeVee Equipment. ZeeVee is not responsible for any damage or loss caused by a third party or by the use of the ZeeVee Equipment.

MAINTENANCE AND SUPPORT

ZeeVee provides technical support to ensure that the ZeeVee Equipment is performing properly. If you have questions or concerns regarding the operation of the ZeeVee Equipment, please contact ZeeVee by calling our support line at +1.877.4ZEEVEE (1.877.493.3833) or at warranty@zeevee.com. ZeeVee deems as necessary). ZeeVee will help you through the process through the return of the ZeeVee Equipment. Please keep your sales receipt and any other documentation showing proof of purchase. Also, please try a different web browser. We have found some older versions of Internet Explorer are not compatible with the Maestro tool. Updating IE or using Firefox or Chrome should correct the issue. If that does not correct it, make sure your PC is not using a static IP address. The PC and the HDbridge2000 unit must be on the same network. If unable to connect, try one of the following:

Verify the HDbridge has a QAM (digital cable) tuner. Verify that you have performed a full channel scan on the HDtv with the ZeeVee unit connected. Many HDtv’s will display a menu option to turn on or channel by connecting the unit directly to the HDtv.

If the image or video break up is often caused by an issue in the RF coax network. You may have chosen a channel number that is not completely vacated. If you are receiving other channels with modulators, be sure the channel # selected on the HDTV does not conflict with any other channels. Keep in mind that some analog modulators may spill over to adjacent channels and cause unexpected interference.

If you are combining a cable service, keep in mind that most people have extra signals that a TV will not display or are unaware of due to interference. There may also be an RF power balance issue. Verify that the RF power of the unit is balanced with signals from other modulators, including any other ZeeVee units, your cable company, or anything else, before you remove any signals (cable, other modulators, etc) and see if you still see similar issues.

Slight delays may also show video issues if the signal strength is too high. Try lowering the RF power on the unit so you are not overdriving the HDTV tuner.

If both the audio and video are being sent through the unit to the TV, be sure your firmware is fully updated, listen for echoes or other distortion, and ensure you are not overloading the unit.

Please keep your sales receipt and any other documentation showing proof of purchase. Also, please try a different web browser. We have found some older versions of Internet Explorer are not compatible with the Maestro tool. Updating IE or using Firefox or Chrome should correct the issue. If that does not correct it, make sure your PC is not using a static IP address. The PC and the HDbridge2000 unit must be on the same network. If unable to connect, try one of the following:

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Slight delays may also show video issues if the signal strength is too high. Try lowering the RF power on the unit so you are not overdriving the HDTV tuner.
# Contact ZeeVee

## Support

Contact us for installation and technical support, repairs, and warranty service:

+1 (877) 4-ZEEVEE (1.877.493.3833) support@zeevee.com

Representatives are available from 9:00 AM to 6:00 PM, Monday through Friday (Eastern Time).

## Sales

**North America:**

+1 (347) 851-7364 Phone sales@zeevee.com

**EMEA:**

+44 1494 956677 Phone EMEAsales@zeevee.com

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<table>
<thead>
<tr>
<th>Customer Details</th>
<th>Product Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>End User Company Name</strong></td>
<td><strong>Dealer / Installer Company Name</strong></td>
</tr>
<tr>
<td><strong>End User Address 1</strong></td>
<td><strong>Order / PO Number</strong></td>
</tr>
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<td><strong>Contact Name</strong></td>
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</table>

If you choose to register by mail, complete the form below and mail to ZeeVee at the address on the back. Be sure to PRINT CLEARLY and attach a postcard stamp.

If you choose to register online, fill out the form, attach a stamp, and mail to ZeeVee.

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Contact +1.877.493.3833 or warranty@zeevee.com with any questions.