



HTP-1 16 Channel Dolby Atmos, DTS:X, Auro3D
HOME THEATER PROCESSOR W/ DIRAC & ALEXA COMPATIBILITY

P/N **37887**
User's Manual

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Amplifier Technologies Inc.

1749 Chapin Road

Montebello, California, USA 90640

GENERAL SAFETY WARNINGS AND GUIDELINES

AVERTISSEMENTS ET DIRECTIVES GÉNÉRALES DE SÉCURITÉ

Please read this entire manual before using this device, paying extra attention to these safety warnings and guidelines. Please keep this manual in a safe place for future reference.

CAUTION: To reduce the risk of electrical shock, do not remove the cover (or back). No user serviceable parts inside. Refer servicing to qualified service personnel.

ATTENTION: Pour réduire le risque de choc électrique, ne retirez le couvercle (ou l'arrière). Aucune pièce réparable par

l'utilisateur à l'intérieur. Confiez l'entretien à un technicien qualifié.

WARNING: To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.

VERTISSEMENT: Pour réduire le risque d'incendie ou de choc électrique, n'exposez pas cet appareil à la pluie ou à l'humidité.



The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electrical shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operation maintenance (servicing) instructions in the literature accompanying the appliance.



Le flash avec pointe de flèche, dans un triangle équilatéral, est destiné à alerter l'utilisateur de la présence d'une "tension dangereuse" non isolée dans l'enceinte du produit qui peut

être d'une amplitude suffisante pour constituer un risque de choc électrique pour les personnes.

Le point d'exclamation dans un équilatéral triangle est destiné à alerter l'utilisateur de la présence d'une opération importante instructions de maintenance (entretien) la documentation accompagnant l'appareil.

- This device is intended for indoor use only.
- Cet appareil est destiné à une utilisation en intérieur uniquement.
- Do not expose this device to water or moisture of any kind. Do not place drinks or other containers with moisture on or near the device. If moisture does get in or on the device, immediately unplug it from the power outlet and allow it to fully dry before reapplying power.
- N'exposez pas cet appareil à l'eau ou à l'humidité d'aucune sorte. Ne placez pas de boissons ou autres récipients humides sur ou à proximité de l'appareil. Si de l'humidité pénètre dans ou sur l'appareil, débranchez-le immédiatement de la prise de courant et laissez-le sécher complètement avant de remettre l'appareil sous tension.
- Do not touch the device, the power cord, or any other connected cables with wet hands.
- Ne touchez pas l'appareil, le cordon d'alimentation ou tout autre câble connecté avec les mains mouillées.
- Do not expose this device to excessively high temperatures. Do not place it in, on, or near heat sources, such as a fireplace, stove, radiator, etc. Do not leave it in direct sunlight.
- N'exposez pas cet appareil à des températures excessivement élevées. Ne le placez pas dans, sur ou près de sources de chaleur, comme un foyer, une cuisinière, un radiateur, etc. Ne le laissez pas en plein soleil.
- This device ventilates excessive heat through the slots and openings in the case. Do not block or cover these openings. Ensure that the device is in an open area where it can get sufficient airflow to keep from overheating.
- Cet appareil évacue une chaleur excessive à travers les fentes et les ouvertures du boîtier. Ne bloquez pas et ne couvrez pas ces ouvertures. Assurez-vous que l'appareil est dans une zone ouverte où il peut obtenir un flux d'air suffisant pour éviter la surchauffe.
- Do not place or install this device in an area where it can be exposed to excessive amounts of dust, humidity, oil, smoke, or combustible vapors.

- Ne placez pas ou n'installez pas cet appareil dans une zone où il peut être exposé à des quantités excessives de poussière, d'humidité, d'huile, de fumée ou de vapeurs combustibles.
- Prior to operation, check the unit and power cord for physical damage. Do not use if physical damage has occurred.
- Avant utilisation, vérifiez que l'unité et le cordon d'alimentation ne sont pas endommagés physiquement. Ne pas utiliser en cas de dommages physiques.
- CAUTION: FOR CONTINUED PROTECTION AGAINST THE RISK OF FIRE, REPLACE ONLY WITH THE SAME TYPE AND RATING OF FUSE.
- ATTENTION: POUR UNE PROTECTION CONTINUE CONTRE LES RISQUES D'INCENDIE, REMPLACER UNIQUEMENT PAR LE MÊME TYPE ET LA QUALITÉ DES FUSIBLES.
- This equipment is not suitable for use in locations where children are likely to be present.
- Cet équipement n'est pas adapté à une utilisation dans des endroits où des enfants sont susceptibles d'être présents.
- Take care to prevent damage to the power cord. Do not allow it to become crimped, pinched, walked on, or become tangled with other cords. Ensure that the power cord does not present a tripping hazard.
- Prenez soin de ne pas endommager le cordon d'alimentation. Ne le laissez pas se froncer, pincer, marcher ou s'emmêler avec d'autres cordons. Assurez-vous que le cordon d'alimentation ne présente pas de risque de trébuchement.
- Before plugging the unit into a power outlet, ensure that the outlet provides the same type and level of power required by the device.
- Avant de brancher l'appareil dans une prise de courant, assurez-vous que la prise fournit le même type et niveau d'alimentation requis par l'appareil.
- This device uses a grounded power cord and requires a ground connection for safe operation. Ensure that the power source has a proper ground connection. Do not modify the plug or use a "cheater" plug to bypass the ground connection.
- Cet appareil utilise un cordon d'alimentation mis à la terre et nécessite une connexion à la terre pour un fonctionnement sûr. Assurez-vous que la source d'alimentation est correctement raccordée à la terre. Ne modifiez pas la fiche et n'utilisez pas de fiche "tricheur" pour contourner la connexion à la terre.
- Ensure that power is turned off and disconnected before making any electrical connections.

- Assurez-vous que l'alimentation est coupée et déconnectée avant de faire des connexions électriques.
- Do not plug this device into the switched output of a preamplifier or other audio component. Power Amplifiers only: This amplifier requires higher current levels than these devices are designed to handle.
- Ne branchez pas cet appareil sur la sortie commutée d'un préamplificateur ou autre composant audio. Amplificateurs de puissance uniquement: cet amplificateur nécessite des niveaux de courant plus élevés que ceux que ces appareils sont conçus pour gérer.
- Unplug this device from the power source when not in use.
- Débranchez cet appareil de la source d'alimentation lorsqu'il n'est pas utilisé.
- Never unplug the unit by pulling on the power cord. Always grasp the connector head or adapter body.
- Ne débranchez jamais l'appareil en tirant sur le cordon d'alimentation. Saisissez toujours la tête du connecteur ou le corps de l'adaptateur.
- Clean using a soft, dry cloth only. Do not use chemical cleaners, solvents, or detergents.
- Nettoyez uniquement avec un chiffon doux et sec. N'utilisez pas de nettoyeurs chimiques, de solvants ou de détergents.
- This device has no user serviceable parts. Do not attempt to open, service, or modify this device.
- Cet appareil ne contient aucune pièce réparable par l'utilisateur. N'essayez pas d'ouvrir, de réparer ou de modifier cet appareil.

INTRODUCTION

The Monolith™ HTP-1 is an "AVR" or "Pre-Processor" designed for use in home theaters. It supports Dolby Atmos®, DTS:X®, Auro-3D®, and Dirac Live®. It features eight HDMI® Ultra High Definition (4K UHD) inputs and two HDMI 4K UHD outputs. It has seven digital audio inputs, two stereo analog inputs, one secondary stereo analog output, and sixteen balanced XLR analog outputs. It has a built-in web GUI, which allows you to configure it using a computer, smartphone, or tablet, as well as an infrared remote control for adjusting volume, changing the upmix, and selecting inputs. It is designed for easy software updates using an internet connection.

The HTP-1's software and this manual may be updated from time-to-time. The latest manual will always be available on the Monoprice website. Refer to the *SOFTWARE UPDATE* section for details about updating the HTP-1's software.

CUSTOMER SERVICE

The Monoprice Customer Service department is dedicated to ensuring that your ordering, purchasing, and delivery experience is second to none. If you have any problem with your order, please give us an opportunity to make it right. You can contact a Monoprice Customer Service representative through the Live Chat link on our website www.monoprice.com or via email at support@monoprice.com. Check the website for support times and links.

PACKAGE CONTENTS

Please take an inventory of the package contents to ensure you have all the items listed below. If anything is missing or damaged, please contact Monoprice Customer Service for a replacement.

1x HTP-1 Home Theater Pre-Processor

1x IR Remote Control

1x Bluetooth®/Wi-Fi® Antenna

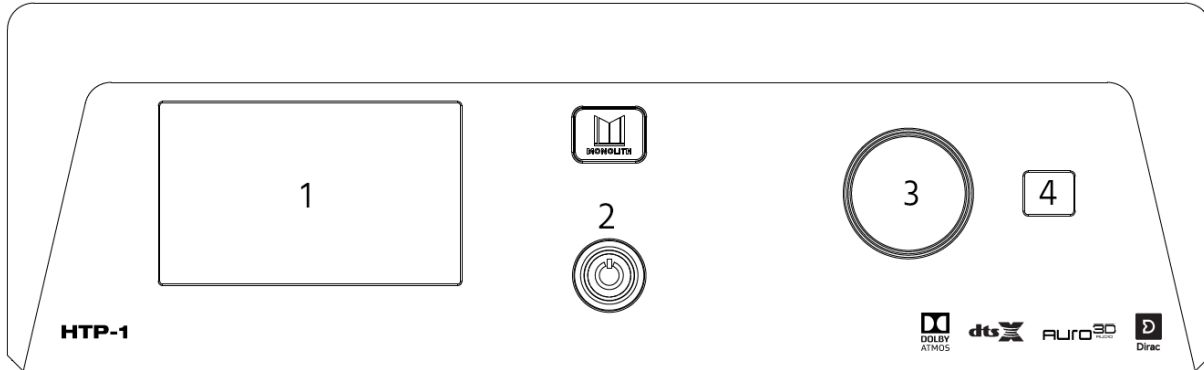
1x AC Power Cord

REQUIREMENTS

- A laptop or desktop computer with a calibrated microphone (not included) are required to perform a Dirac® calibration. A smartphone or tablet cannot be used to perform a Dirac calibration. Dirac recommends using the [MiniDSP UMIK-1](#) microphone.
- The HTP-1 must be connected to an existing Ethernet wired or wireless network and to the internet. Computers or mobile devices connected to the network can be used to control and configure the HTP-1. For the initial *BASIC SETUP*, you should have a wired Ethernet connection.
- One or more separate power amplifiers or powered speakers are required.
- One or more audio and/or video source devices.
- A web browser. Note that the system has been tested and works well with the Chrome™, Firefox®, and Safari® browsers, but has had some problems with Microsoft Edge®.

PRODUCT OVERVIEW

Front Panel

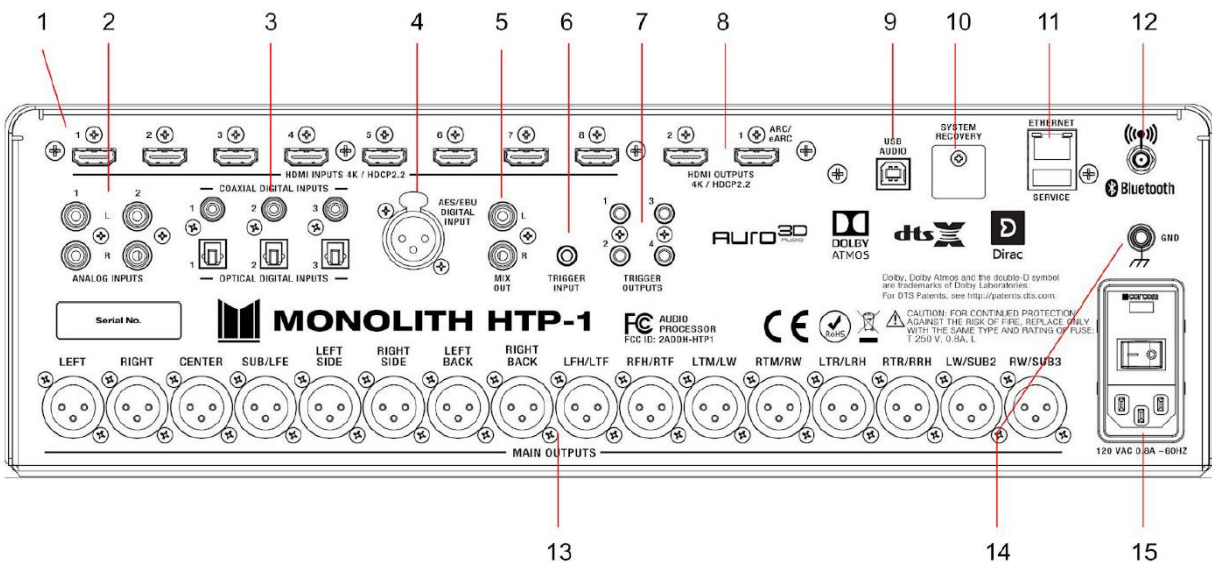


1. **LCD Display:** This 5" touchscreen displays the volume level, selected input, upmix selection, and various other system statuses. See the *Front Panel LCD Display* section below for details.
2. **Power Button:** If the **Master Power Switch** on the rear panel is in the **ON** position, the front panel **Power Button** turns the unit on or puts it into standby. While the unit is booting, the button flashes blue. When fully powered on, the button illuminates blue.

IMPORTANT! If you switch the unit off using the **Master Power Switch** on the rear panel, wait at least 15 seconds before flipping the **Master Power Switch** to the **ON** position, again.

3. **Volume Knob:** Rotate the **Volume Knob** counterclockwise to decrease the volume level or clockwise to increase the volume level.
4. **IR Receiver:** The **IR Receiver** accepts infrared signals from the included **IR Remote Control**.

Rear Panel

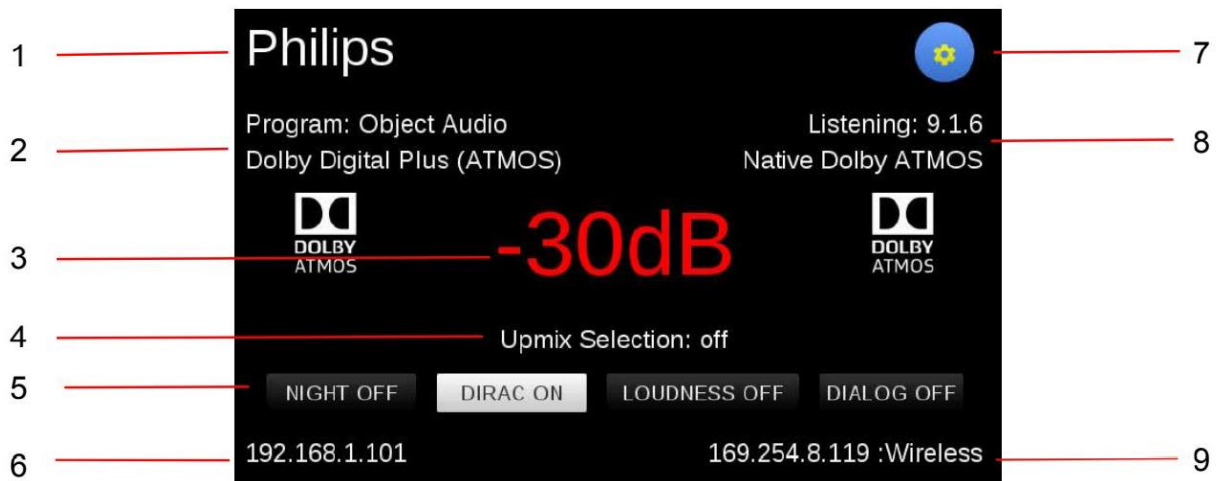


- HDMI INPUTS:** Eight HDMI® inputs for connecting HDMI source devices. Each input supports the 4K resolution and the HDMI 2.0 and HDCP™ 2.3 standards.
- ANALOG INPUTS:** Two pairs of RCA analog stereo jacks for connecting up to two analog stereo audio sources.
- COAXIAL/OPTICAL DIGITAL INPUTS:** Three digital coaxial and three digital optical S/PDIF audio connectors for connecting digital audio inputs. All six inputs are active and can be independently selected.
- AES/EBU DIGITAL INPUT:** Three-pin XLR jack for connecting an audio device that outputs an AES/EBU (aka AES3) digital audio signal.
- MIX OUT:** One pair of RCA analog stereo jacks for connecting a stereo amplifier or powered speakers. The input signal is mixed down to a stereo signal.
- TRIGGER INPUT:** This 3.5mm trigger input turns the HTP-1 on when a 12V signal is applied. The HTP-1 will go into standby mode when the trigger signal is removed. Note that the **Master Power Switch** on the rear panel must be in the **ON** position for the trigger signal to turn the HTP-1 on.
- TRIGGER OUTPUTS:** These four 3.5mm jacks send a 12V 50mA trigger signal when the HTP-1 is powered on. The 12V signal is sent continuously while the HTP-1 is powered on. These triggers are typically used to power on the power amplifiers.

8. **HDMI OUTPUTS:** Two HDMI® outputs for connecting HDMI displays. The 1 output supports the Audio Return Channel (ARC)/Extended Audio Return Channel (eARC) HDMI features, which receives audio signals from the connected display. This is necessary if you are going to stream video from an app on your TV or if you are receiving over-the-air television broadcasts using an HD antenna.
9. **USB AUDIO:** Not supported.
10. **SYSTEM RECOVERY:** The cover hides a miniSD™ card slot which is used at the factory for production purposes only.
11. **ETHERNET/SERVICE:** An RJ45 jack for making a wired connection to an existing Ethernet network. The USB port is for performing service at the factory.
12. **ANTENNA:** An SMA connector for attaching the included Bluetooth®/Wi-Fi® Antenna.
13. **MAIN OUTPUTS:** Sixteen balanced XLR jacks for connecting external power amplifiers.
14. **GND:** Screw terminal for making a ground connection to the chassis.
15. **POWER SECTION:** The **POWER SECTION** contains the **Master Power Switch**, the C14 **Power Connector** for attaching the included **AC Power Cord**, and a **Fuse Holder**. Always disconnect the power cord from the power source before replacing the fuse, and replace the fuse with the same type.

IMPORTANT! If you switch the unit off using the **Master Power Switch**, wait at least 15 seconds before flipping the **Master Power Switch** to the **ON** position, again.

Front Panel LCD Display



1. **Input:** The current active **Input** is displayed in the upper left corner of the screen. The sample screenshot above shows **Philips** as the **Input**. The text for each input can be configured on the **INPUTS** tab on the **System Configuration** screen in the Web GUI.
2. **Program Format:** The **Program Format** displays the audio format of the selected **Input**. The sample screenshot above shows **Object Audio Dolby Digital Plus (ATMOS)** as the **Program Format**. See the *About Speaker Configurations* section for details of the number displayed.
3. **Volume:** The **Volume** level is displayed in the center of the screen. The sample screenshot above shows **-30dB** as the **Volume**. The decibel (dB) value is relative to the amplifier input sensitivity setting, which can be configured on the **CALIBRATION** tab on the **System Configuration** screen in the Web GUI. When the audio is muted, the display changes from white to red. **Mute** can be toggled on or off by touching the **Volume** display on the screen, using the IR remote control, or by clicking the **Volume** display on the built-in **Web GUI Home Page**.
4. **Upmix Selection:** The current **Upmix Selection** setting is displayed beneath the **Volume** on the screen. The upmix is selected using the IR remote control or with the built-in Web GUI. The selected mode is only the desired/requested upmix mode. The system will perform the requested upmix mode only if it is supported. The **Listening Format** (see 8 below) is displayed beneath the **Setup** icon and shows the

actual upmix mode algorithm being used, which may not match the requested mode. See the *Using Surround Modes* section for details.

5. **Special Listening Modes:** The status of the **NIGHT**, **DIRAC**, **LOUDNESS**, and **DIALOG** modes is displayed beneath the **Upmix Selection**.
6. **IP Address:** The current wired Ethernet **IP Address** is displayed in the lower left corner. The sample screenshot above shows the **IP Address** as **192.168.1.101**. You access the built-in Web GUI by typing the **IP Address** into the address bar of your web browser. Some browsers default to **https://** before the address, which will not work. The address must begin with **http://**.
7. **Wi-Fi Setup:** Touch the **gear** icon to display the **Wi-Fi® Setup** screen. See the *Wi-Fi* section for details. If the icon is yellow, a software update is available for the HTP-1.
8. **Listening Format:** The **Listening Format** is displayed beneath the **Setup** icon and shows the actual upmix mode algorithm being used, which may not match the requested mode. See the *Using Surround Modes* section for details.
9. **Wireless:** If the HTP-1 is connected to a Wi-Fi Ethernet network, the **IP Address** will be displayed in the lower right corner. The sample screenshot above shows **192.254.8.119** for the wireless IP address. Note that if both a wired and wireless connection is available, you can use whichever you prefer.

Remote Control

1. **POWER:** Press the **POWER** button to turn the unit on or or to put it into standby mode.
2. **USER INPUTS:** Press the number buttons to select individual inputs. The numbers map to the visible inputs, from left to right, that are display on the **Web GUI Home Page**. Press the **LAST** button to select the last input used.
3. **INFO:** Press the **INFO** button to display the relevant information on the **LCD Display**.
4. **Red, Green, Yellow, Blue:** Not used.

5. **HDMI+:** Press the **HDMI+** button to cycle forward through the available HDMI® inputs, as well as the HDMI TV input. Note that when using the **HDMI+** button, the display will show the new input about 3 seconds before the change is actually made. This allows you to cycle through unwanted inputs to get to the one you want without having to change to each input in between.

6. **SURROUND MODES:** Press the buttons to select the **NATIVE**, **DTS®**, **DIRECT**, **DOLBY®**, or **AURO-3D®** surround modes.

7. **SPDIF+:** Press the **SPDIF+** button to cycle forward through the available digital audio inputs. The cycle order is

COAXIAL 1, COAXIAL 2, COAXIAL 3, OPTICAL 1, OPTICAL 2, OPTICAL 3, and AES/EBU.

8. **MASTER:** Press the **+** button to increase the **MASTER** volume level or press the **-** button to decrease the **MASTER** volume level.

9. **A, B, C, D:** Not used.

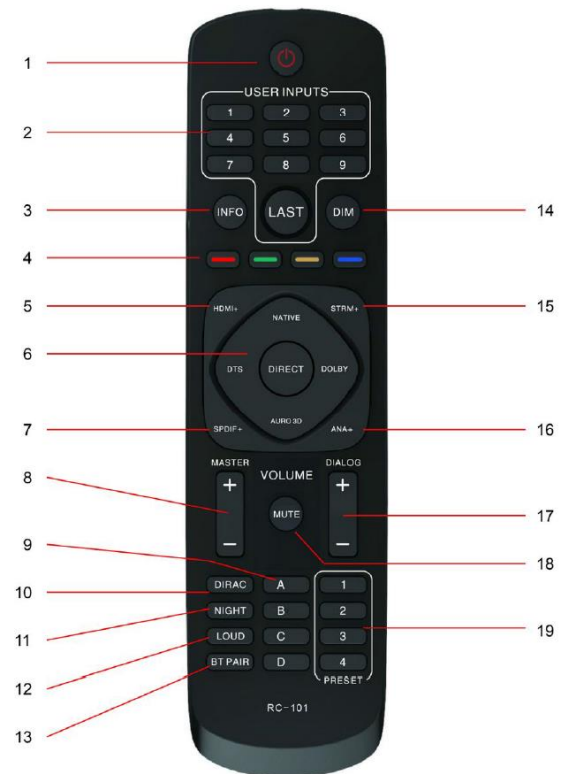
10. **DIRAC:** Press the **DIRAC** button to enable or disable Dirac® Room Correction.

11. **NIGHT:** Press the **NIGHT** button to enable or disable **Night Mode** for low volume movie viewing or to set it to auto. Refer to the *Night Mode* section for details.

12. **LOUD:** Press the **LOUD** button to enable or disable **Loudness Mode**, which boosts low and high frequencies for low volume music listening. Refer to the *Loudness* section for details.

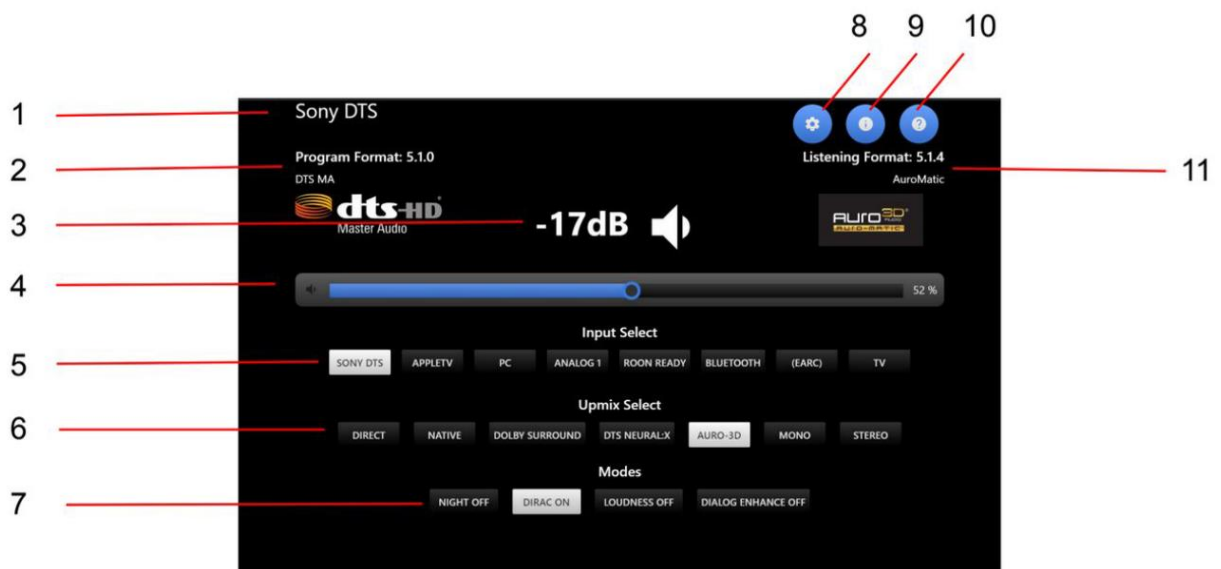
13. **BT PAIR:** Not used.

14. **DIM:** Press the **DIM** button to cycle through several brightness levels for the **LCD Display**.

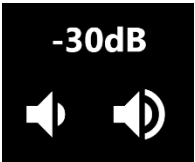


15. **STRM+**: Press the **STRM+** button to cycle through the **Roon®** and **Bluetooth®** streaming inputs.
16. **ANALOG+**: Press the **ANALOG+** button to toggle between the two analog audio inputs.
17. **DIALOG**: Press the **+** button to increase the **DIALOG** volume level or press the **-** button to decrease the **DIALOG** volume level.
18. **MUTE**: Press the **MUTE** button to turn audio muting of all speakers on or off.
19. **1, 2, 3, 4**: Not used.

Web GUI Home Page



1. **Active Input**: The current **Active Input** is displayed in the upper left corner. The sample screenshot above shows **Sony® DTS** as the **Active Input**. The specific text used for each input is configured on the **INPUTS** tab of the **System Configuration** screen.
2. **Program Format**: The **Program Format** displays the audio format of the selected input. The sample screenshot above shows **5.1.0 DTS MA** as the **Program Format**. See the *About Speaker Configurations* section for details of the number displayed.

3. **Volume:** The **Volume** level is displayed in the center of the screen. The sample screenshot above shows **-17dB** as the **Volume**. The decibel (dB) value is relative to the input sensitivity, which can be configured on the **CALIBRATION** tab on the **System Configuration** screen. When audio is muted, the display changes from white to red. **Mute** can be toggled on or off by touching the **Volume** display on the **LCD Display**, using the IR remote control, or by clicking the **Volume** display on the **Web GUI Home Page**.
4. **Volume Slider:** Click and drag the slider to change the volume level. The **Volume Slider** can be replaced by **Volume Buttons** on the **SYSTEM** tab on the **System Configuration** screen. The **Volume Buttons** display is shown in the image to the right.
5. **Input Select:** Click one of the buttons to select one of up to nine inputs. Which inputs are displayed and how they are named can be configured on the **INPUTS** tab on the **System Configuration** screen.
6. **Upmix Select:** Click one of the buttons to select one of up to nine upmix/surround modes. The selected mode is only the desired/requested upmix mode. The system will perform the requested upmix mode only if it is supported. The **Listening Format** (see 11 below) shows the actual upmix mode algorithm being used, which may not match the requested mode. See the *Using Surround Modes* section for details.
7. **Modes:** Click the buttons to toggle the state of the **NIGHT**, **DIRAC**, **LOUDNESS**, and **DIALOG** special listening modes.
8. **Setup:** Click the **gear** icon to display the **System Configuration** screen with the **SPEAKERS**, **CALIBRATION**, **EQ**, **INPUTS**, **SOUND ENHANCEMENT**, **CONNECTIVITY**, and **SYSTEM** setup tabs.
9. **Information:** Click the **i** icon to display a screen with detailed status, as well as access to updates and the ability to roll back the current software installation. If the button is yellow, a software update is available.
10. **Help:** Click the **?** icon to see useful information about the current tab or page.
11. **Listening Format:** The **Listening Format** is displayed beneath the **Help** icon and shows the actual upmix mode algorithm being used, which may not match the requested mode. See the *Using Surround Modes* section for details.

BASIC SETUP

The best way to become familiar with the HTP-1 is to simply start using it! Before delving into more advanced topics, we will connect one HDMI® source, an HDMI display, and a power amplifier in stereo 2.0.0 mode. Perform the following steps connect these devices.

1. Place the HTP-1 in its desired location. Ensure that it is not in an enclosed cabinet, that it has at least 3" of space around and above the unit, and that it is in a well-ventilated area to ensure sufficient cooling airflow.
2. Ensure that all equipment to be connected is powered off and unplugged from its power source.
3. Connect the included **Bluetooth®/Wi-Fi® Antenna** to the antenna jack on the rear panel.
4. Using a Cat5e or Cat6 Ethernet cable (not included), plug one end into the **ETHERNET** jack on the rear panel, then plug the other end into your Wi-Fi® router or Ethernet switch. Note that the HTP-1 supports Gigabit (1000Mbps) data rates.
5. Using a Premium High Speed HDMI Cable (not included), plug one end into the input on your HDMI® display, then plug the other end into **HDMI OUTPUT 1** on the rear panel.

Note that **HDMI OUTPUT 1** supports the Audio Return Channel (ARC) and Enhanced Audio Return Channel (eARC) HDMI features, which send audio from the connected display back to the amplifier. The ARC/eARC feature is necessary if you plan on streaming content from the internet using an application on your TV or if you plan on receiving over-the-air TV broadcasts using an HD antenna connected to the TV.

6. Using an appropriate gauge of speaker wire (not included), connect your left and right speakers to the left and right speaker outputs on your power amplifier. Ensure that there are no stray wires and that polarity is properly maintained.
7. If your power amplifier has XLR inputs, plug a 3-pin XLR cable (not included) into the left channel input on your power amplifier, then plug the other end into the **LEFT MAIN OUTPUT** on the rear panel. If your power amplifier only has RCA inputs, use an XLR to RCA cable (not included) instead. Repeat for the right channel.

8. Using a Premium High Speed HDMI® Cable (not included), plug one end into **HDMI INPUT 1** on the rear panel, then plug the other end into the HDMI output on a video source device (e.g., DVD player, Blu-ray Disc™ player, satellite receiver, cable box, etc.).
9. Ensure that the **Master Power Switch** on the rear panel is in the **OFF** position (**O** side depressed).
10. Plug the included **AC Power Cord** into the C14 **Power Connector** on the rear panel, then plug the other end into a nearby AC power outlet.
11. Plug in and power on all connected devices. Start video playback on your video source device.
12. Flip the **Master Power Switch** on the rear panel to the **ON** position (**I** side depressed) to boot the system. The Monolith™ logo will be shown on the **LCD Display** and the **Power Button** on the front panel will flash blue while the HTP-1 is booting up.

Once the unit has finished booting, the **LCD Display** will look similar to the display in the *PRODUCT OVERVIEW* section and the **Power Button** on the front panel will illuminate solid blue to indicate that the unit is fully powered on. For normal operation, use the **Power Button** on the front panel or on the included remote control to turn the unit on or put it into standby mode, rather than using the **Master Power Switch** on the rear panel. The initial volume level shown on the **LCD Display** should be -50dB.

Note that the HTP-1 has a Slow Start/Eco mode and a Fast Start mode. By default, the unit is configured for Slow Start, which takes about a minute. The Slow Start mode uses a lower power standby mode (below 500mW). You can configure the HTP-1 for Fast Start on the **SYSTEM** tab on the **System Configuration** screen in the Web GUI.

13. Slowly turn the **Volume Knob** on the front panel clockwise until the volume is at a comfortable level. Verify that both the left and right audio channels are playing audio properly and that there is video on your display.
14. Note the **Wired IP Address** in the bottom left corner of the **LCD Display**.

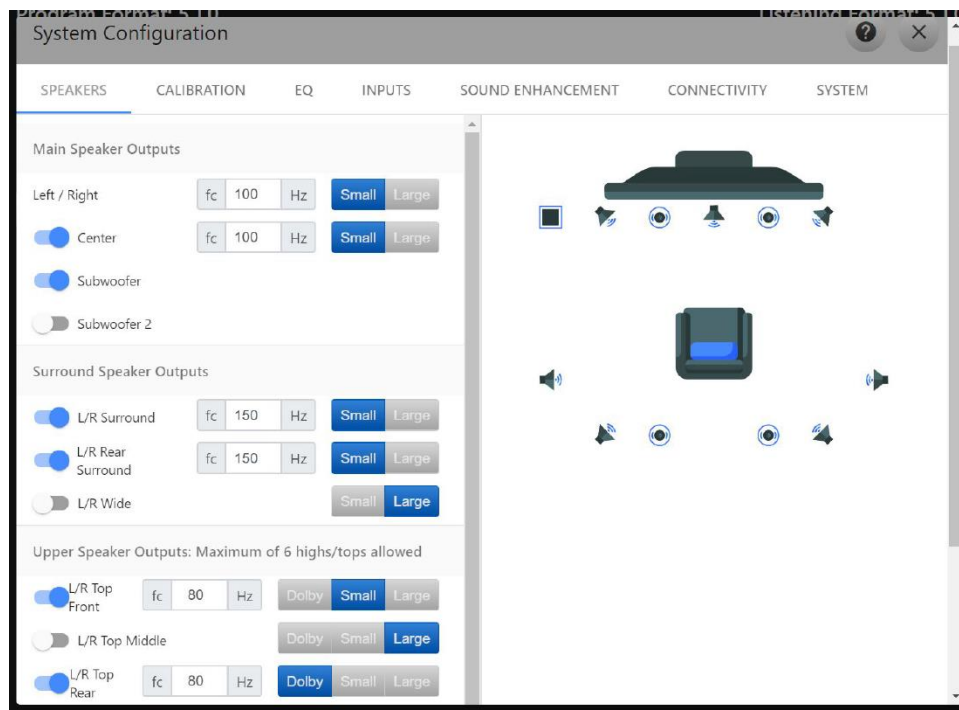
15. Open a web browser on your computer, then type **http://** followed by the **IP Address** on the display into the address bar and hit Enter to display the **Web GUI Home Page**. Note that some browsers default to using **https://** on the address, which will not work. To be safe, it is best to explicitly type **http://** before the address. Create a bookmark in your browser, so you can quickly access the **Web GUI Home Page**.

Note that the system has been tested and works well with the Chrome™, Firefox®, and Safari® browsers, but has had some problems with Microsoft Edge®.

Congratulations! You have finished the Basic Setup and are ready to learn more about the advanced features and functionality of the HTP-1.

SYSTEM CONFIGURATION

Click the **gear** icon in the upper right corner of the **Web GUI Home Page** to display the **System Configuration** screen, as shown below. The specific functionalities and options on each tab are described in following sections. The **?** icon displays help information for the current page.



SPEAKERS

About Speaker Configurations

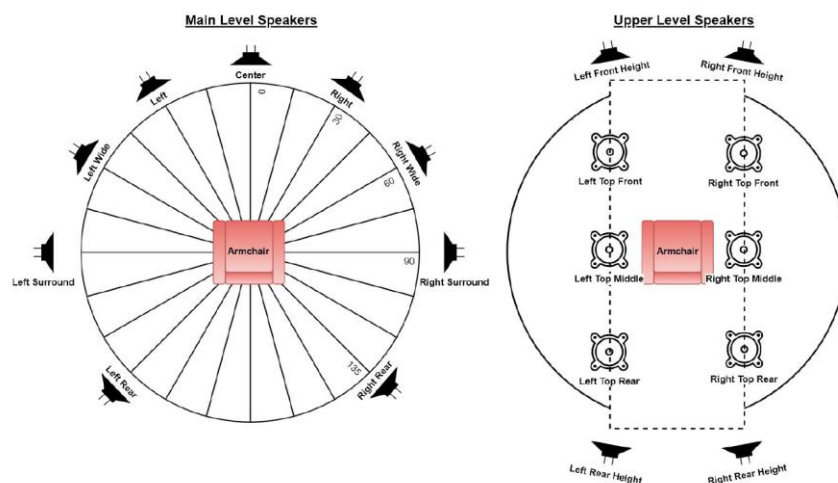
A speaker configuration (also known as a **Listening Mode**) is described using 3 numbers separated by dots and an optional letter suffix.

The first number is the number of speakers on the main listening level, with the speakers arranged at the ear level of a seated listener. The second number is the number of subwoofers in the system. The third is the number of speakers that are above the seated listener, which are known as Upper or Height speakers. The **h** suffix indicates that the Upper speakers are arranged High on the walls, as opposed to in the ceiling, which are known as Top speakers. Note that it is common to only use two digits rather than all three (e.g., 5.1 rather than 5.1.0) when there are no height speakers.

For example, 5.1.4h indicates that there are 5 main level speakers, 1 subwoofer, and 4 High speakers. A 7.1.4h configuration adds two additional Surround speakers at the back of the listening area. A 9.1.4h configuration adds two additional Wide Surround speakers.

Speaker Location Diagrams

The following diagrams illustrate the ideal placement of the main level and upper level speakers. Real world conditions may not allow for ideal placement, so this is just a guide to the ideal. The upper level speakers should be mounted high on the wall or in the ceiling. All speakers should be aimed toward the listener, if possible.



Valid Speaker Configurations

The HTP-1 has 16 output channels, which can be configured in a variety of ways. You can have up to up to 9 Main level channels, up to 6 Upper channels, and up to 3 Subwoofers. The following table shows the available main and upper level configurations.

Main Level Speaker Count/Configuration	Upper Level Options*
2 Speakers: L/R Front	0 or 2 speakers
3 Speakers: L/R Front + Center	0 or 2 speakers
4 Speakers: L/R Front + L/R Surround	0, 2, or 4 speakers
5 Speakers: L/R Front + Center + L/R Surround	0, 2, 4, or 6 speakers
6 Speakers: L/R Front + L/R Surround + L/R Rear	0, 2, 4, or 6 speakers
7 Speakers: L/R Front + Center + L/R Surround + L/R Rear	0, 2, 4, or 6 speakers
8 Speakers: Not supported	Not supported
9 Speakers: L/R Front + Center + L/R Surround + L/R Rear + L/R Wide	0, 2, 4, or 6 speakers

*Refer to the following table for Upper level options.

The HTP-1 supports many different upper speaker configurations. The Upper speakers can be High, which are mounted high on the walls, or Top, which are mounted in the ceiling firing down.

Dolby® Enabled speakers are also supported. Dolby Enabled speakers have two independent drivers with two independent inputs. One of the drivers points up, so that sound will reflect off the ceiling and sound like a Top speaker. Dolby Enabled speakers are convenient in that they are integrated with typical front firing speakers. They work best when the ceiling is flat and reflective to sound.

Dolby® content is typically authored with the Upper level speakers in the ceiling. DTS® and Auro-3D® content is typically authored with the speakers High on the walls. The HTP-1

remaps the source material to match the user-defined speaker configuration. The following table displays the Upper level speaker options:

Upper Level Speaker Count/Configuration	Details, Suggestions, and Restrictions
2 Top: Middle or Front pair only	Dolby® content is often authored assuming only the Top Middle speaker pair. If only two Upper speakers are used, the Top Middle position is best.
2 High: Front pair only	If your speakers are High on the Front wall, use this setting, but this is not a preferred speaker configuration.
4 Top: 4 ceiling mounted, down firing speakers using the Front and Rear pairs	This is a Dolby preferred speaker layout. Other formats also support this configuration.
4 High: 4 speakers mounted High on the walls using the Front and Rear pairs	This is a DTS® preferred configuration.
4 Mixed: Front High and Rear Top pairs or Front Top and Rear High pairs	If your speakers are most easily installed in such a mixed configuration, the HTP-1 can be configured to map the signal to these configurations.
6 Top: Front, Middle, and Rear pairs mounted in the ceiling firing down	This configuration is the best of both worlds.
6 High: Front and Rear pairs mounted High on the wall, plus a Middle pair mounted in the ceiling firing down	The Auro-3D® "Voice of God" signal is routed to the Top Middle pair.
6 Mixed: Top Middle pair plus a Front High pair and Rear Top pair or a Front Top pair and a Rear High pair	This is not an ideal layout, but use it if it matches your speaker installation best.

Note that all Top speakers can be Dolby® Enabled.

The status display differentiates between Top and High speaker configuration by appending an **h** suffix when the upper speakers are mounted High on the walls. The modifiers \ or / are used to indicate the mixed configurations. Top is higher than High, so / indicates High in the Front and Top in the Rear.

While many configurations are supported, the following configurations are preferred:

- 5.1.2 is a "minimum object audio" recommendation.
- 7.1.4 is a "normal object audio" configuration.
- 6 Upper level speakers gives a clear advantage to match common source material exactly without remapping.
- More than 1 Subwoofer can minimize dead spots in low frequency material. The HTP-1 supports up to 3 Subwoofers, depending on the allocation of channels for the Main and Upper level speakers.

Mapping Channels to Speakers

There can be cases in which the channels found in the source material do not exactly match the speakers in the room. The various decoders apply remap algorithms to pan the source signal to the best available set of speakers. This is best illustrated with the following examples:

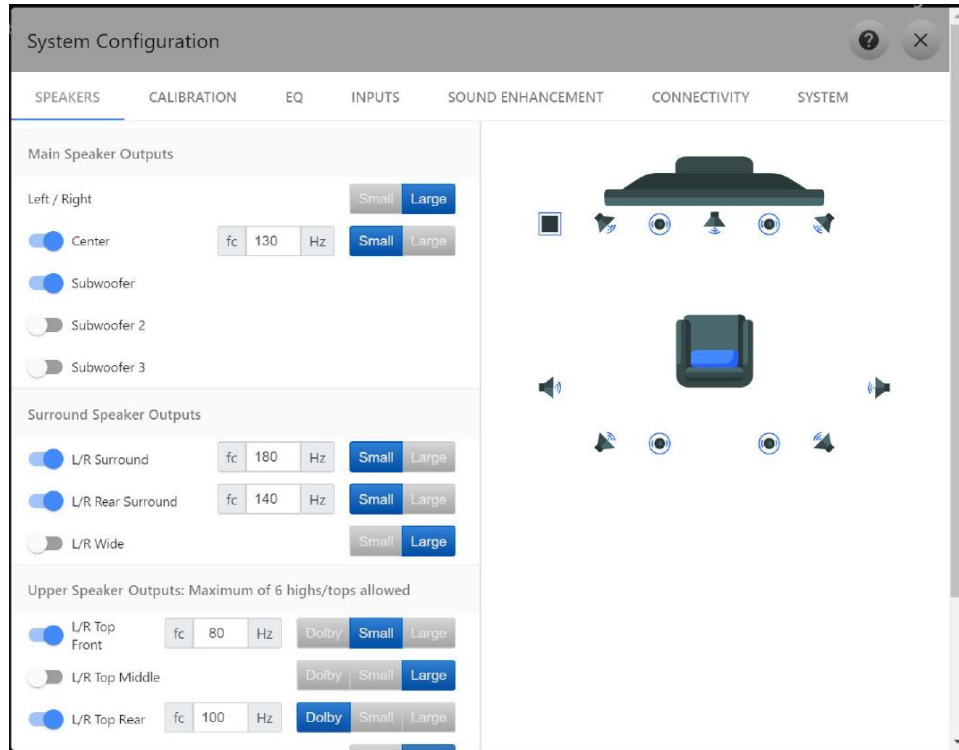
- DTS® material is typically constructed with High channels, but a room may have only Top speakers. DTS applies a remapping feature in this case and the resulting signal is heard on both the Top speaker, as well as from the matching Main level speaker. The sound from the Front Left High speaker is therefore panned between the Top Left and the Left Main speakers, so that it sounds like it is coming from the High speaker location between these two.
- A DTS 5.1 stream is usually authored with the surround speakers at 110° from the listening position (see the *Speaker Location Diagrams* section above). A 7.1 speaker setup places the Surrounds (sides) at 90° and the Rear speakers at 135°. Therefore, a 5.1 DTS signal is typically represented with the Surround signal split between the Surround and Rear speakers.

- The full Auro-3D® channel set includes the "Voice of God" (VoG) speaker located directly overhead and the "Front Center High" or "Center Vertical High" (CVH) speaker on the wall above the screen. These signals are not directly supported as they are not generated by the other decoders. Like all of the Upper speaker modes, the available signals are mapped to the available speakers. The VoG signal is routed equally to the two Top Middle speakers, if available. In a ".4" configuration, the VoG signal will be routed to all 4 Upper speakers. The CVH signal is split between the Upper Front speakers.
- The Auro-3D speaker set is in fact High channels, not Top channels. If you choose to install Top speakers, the Auro-3D High channels are mapped directly to the Top speakers.

Dolby Atmos® and DTS:X® are object-based audio systems. This means that sound "objects" do not have to be located in a fixed channel, but are instead decoded to match the available set of speakers. This makes it possible to move sounds around a room reliably with various speaker configurations. On the other hand, Auro-3D® is a channel-based system. The fixed speaker locations need to be rendered to the available speakers. This is also apparent when a stream is constructed with a mix of channels and objects.

Speaker Setup

Click the **gear** icon in the upper right corner of the **Web GUI Home Page** to access the **System Configuration** screen, then click the **SPEAKERS** tab.



The speaker configuration is set by clicking the sliders in the left-most column. When a specific speaker is enabled, the slider is blue and the speaker appears in the illustration on the right, which helps place the speakers in the correct position in the room. In the illustration, Subwoofers appear as squares, the Upper level speakers appear as circles, and the Main level speakers appear as speaker icons.

The center column allows you to set the cutoff frequency for the speakers. For the subwoofers, the cutoff frequency is handled automatically. For all other speakers, the cutoff frequency is the lower end of the high-pass filter. The cutoff frequency setting is enabled whenever the selected speaker size/type is set to Small or Dolby® and is not present when the speaker size/type is set to Large. For best results, the cutoff frequencies should be set to about 5-10 Hz above the lower end of the speaker's frequency response. This allows the HTP-1's reliable, fourth order Linkwitz-Riley crossover to perform the work, rather than relying on the less predictable natural filtering of the speaker.

The right-most column contains two or three buttons that set the size or type of speaker. Most speaker setups will use Small speakers, which are not able to reproduce the lowest frequencies, while Large speakers are able to produce even the lowest frequencies, obviating the need for a Subwoofer. Dolby® speakers behave like Small speakers, except when a Dirac® calibration is performed, which preserves the special filters used in Dolby Enabled speakers.

Enabling Speakers

When you first open the **SPEAKERS** tab, only the Front Left and Right speakers are enabled. The sliders will not allow you to select an unsupported speaker configuration. Refer to the *Valid Speaker Configurations* section above for a list of supported speaker configurations. The HTP-1 follows the rules set by the Dolby® and DTS® decoders. Some of these rules are:

- The L/R Rear Surround speakers cannot be enabled until the L/R Surround speakers are enabled.
- The L/R Wide Speakers cannot be enabled until the L/R Rear and Surround speakers are enabled.
- Subwoofer 3 cannot be enabled until Subwoofer 2 is enabled.
- There is no L/R Middle High configuration. You must first enable L/R Top Front speakers to select the L/R Top Middle speakers.
- You cannot have only L/R Rear Upper speakers. The first pair must be L/R Front Upper or L/R Middle Upper speakers.
- There is no L/R Middle High speaker type. If you want to have six Upper speakers, they must be configured as L/R Top Middle.

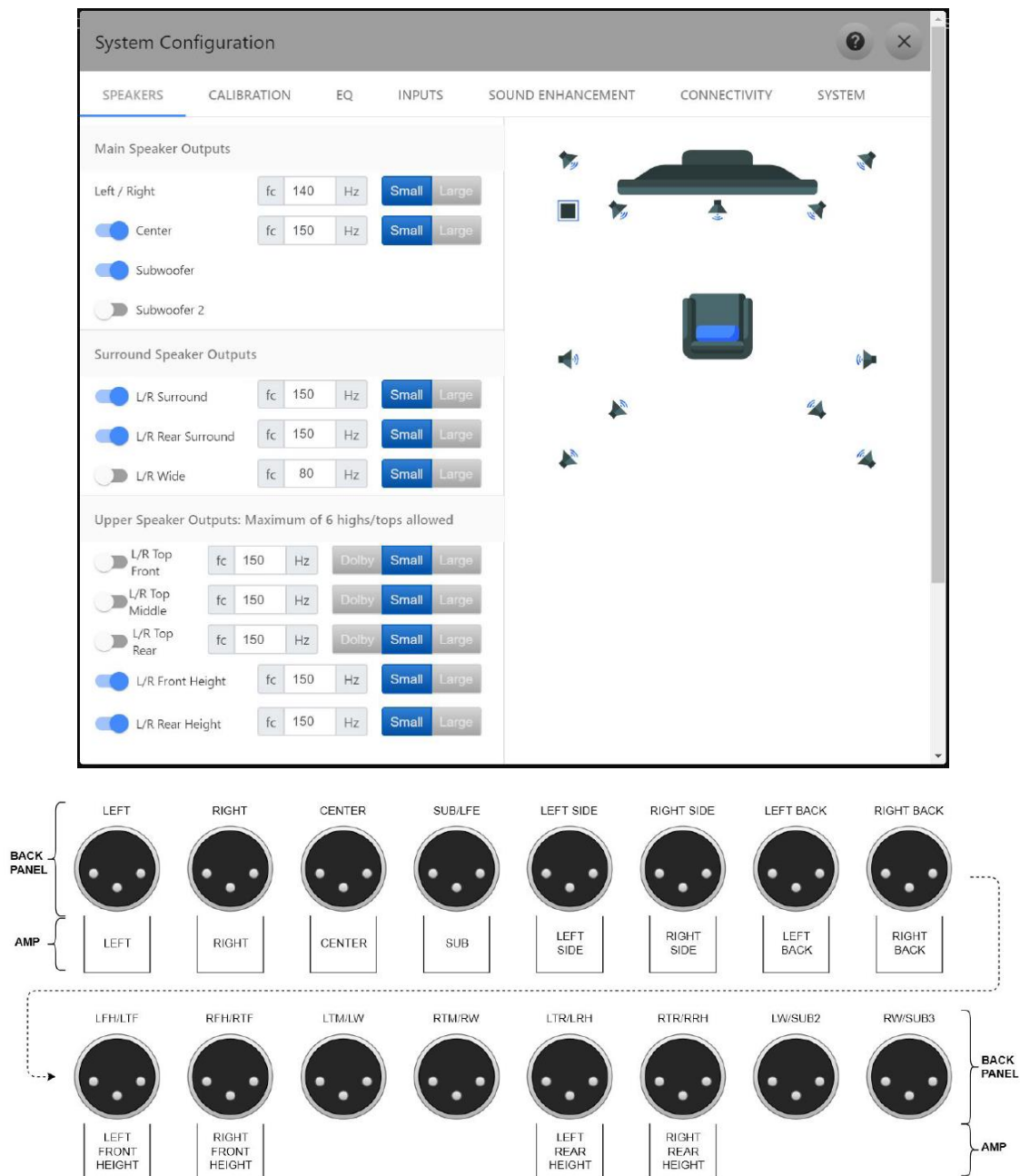
If you have only two Upper speakers, it is a good idea to choose the L/R Top Middle pair. Many Dolby® tracks are authored to favor this pair. The 5.1.2 Dolby Atmos® configuration uses the L/R Top Middle pair. DTS:X® streams are likely authored using four High speakers. The HTP-1 carefully remaps any source arrangement to match the speaker configuration you choose. This is why you should configure your speaker setup as accurately as possible, though few people will be able to tell the difference if a pair of speakers labeled L/R Top Front are actually High on the wall in front.

The bottom of the page shows the actual assignment of jacks on the rear panel.

Example Speaker Configurations

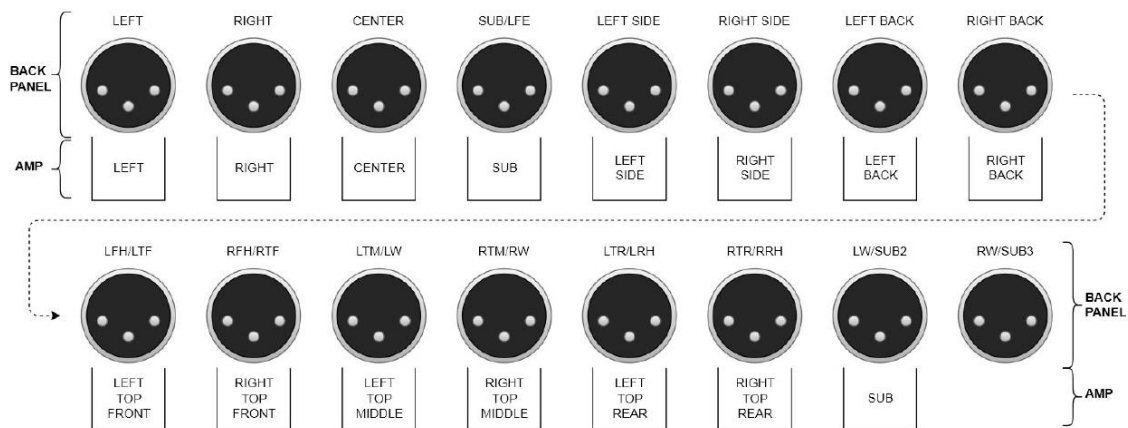
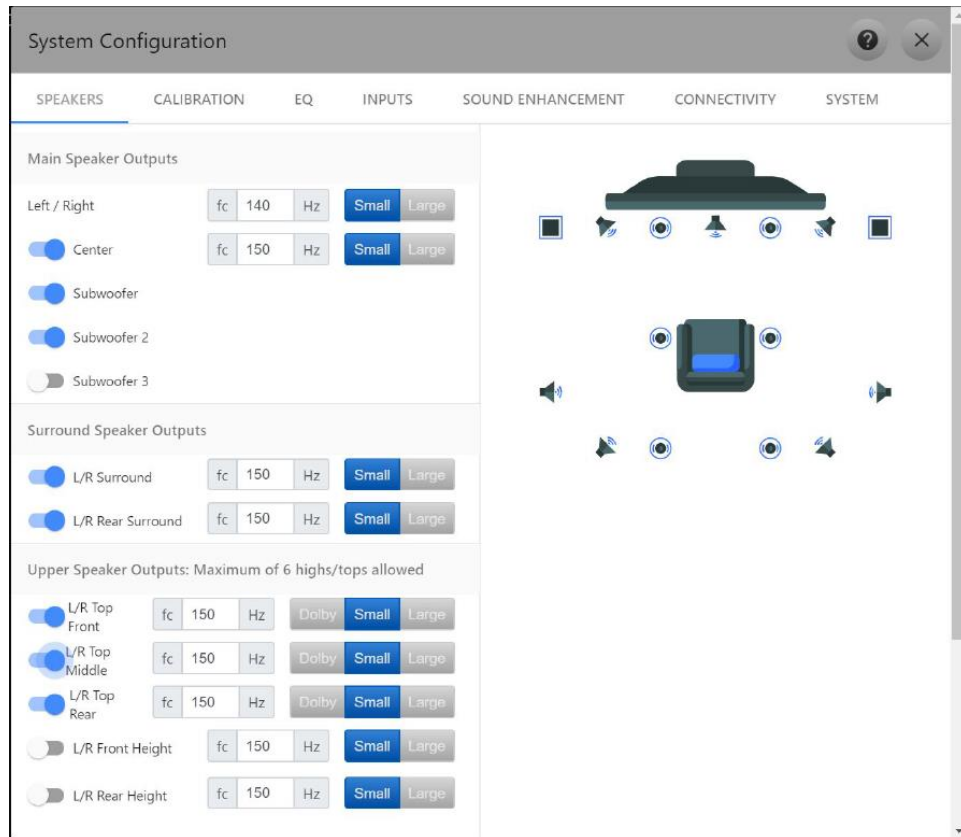
7.1.4h Speaker Configuration

This speaker configuration uses 7 Main level speakers, 1 Subwoofer, and 4 High speakers mounted high on the walls.



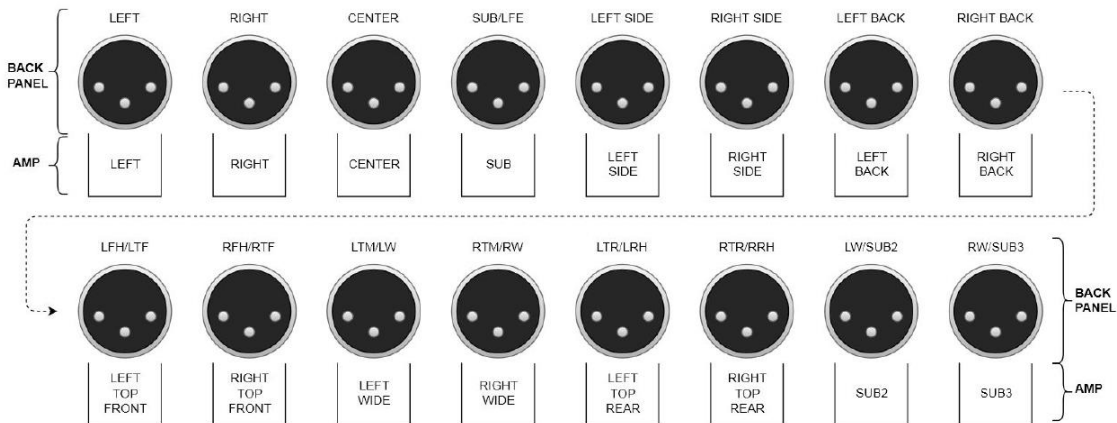
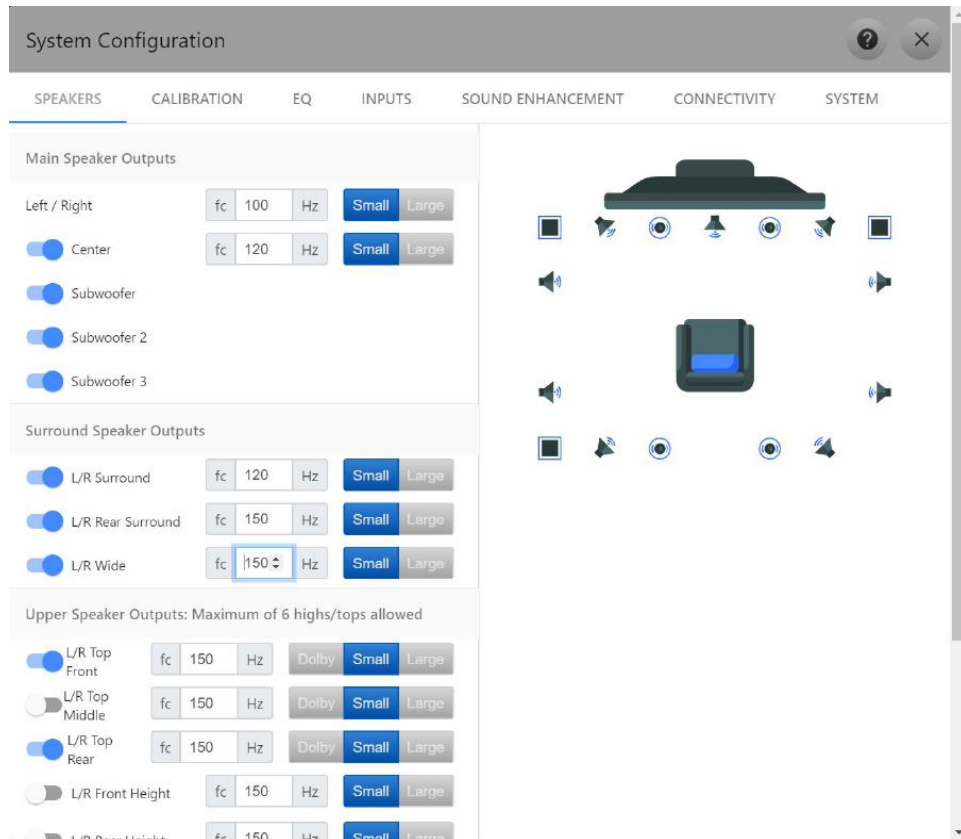
7.2.6 Speaker Configuration

This speaker configuration uses 7 Main level speakers, 2 Subwoofers, and 6 Upper level speakers mounted in the ceiling.



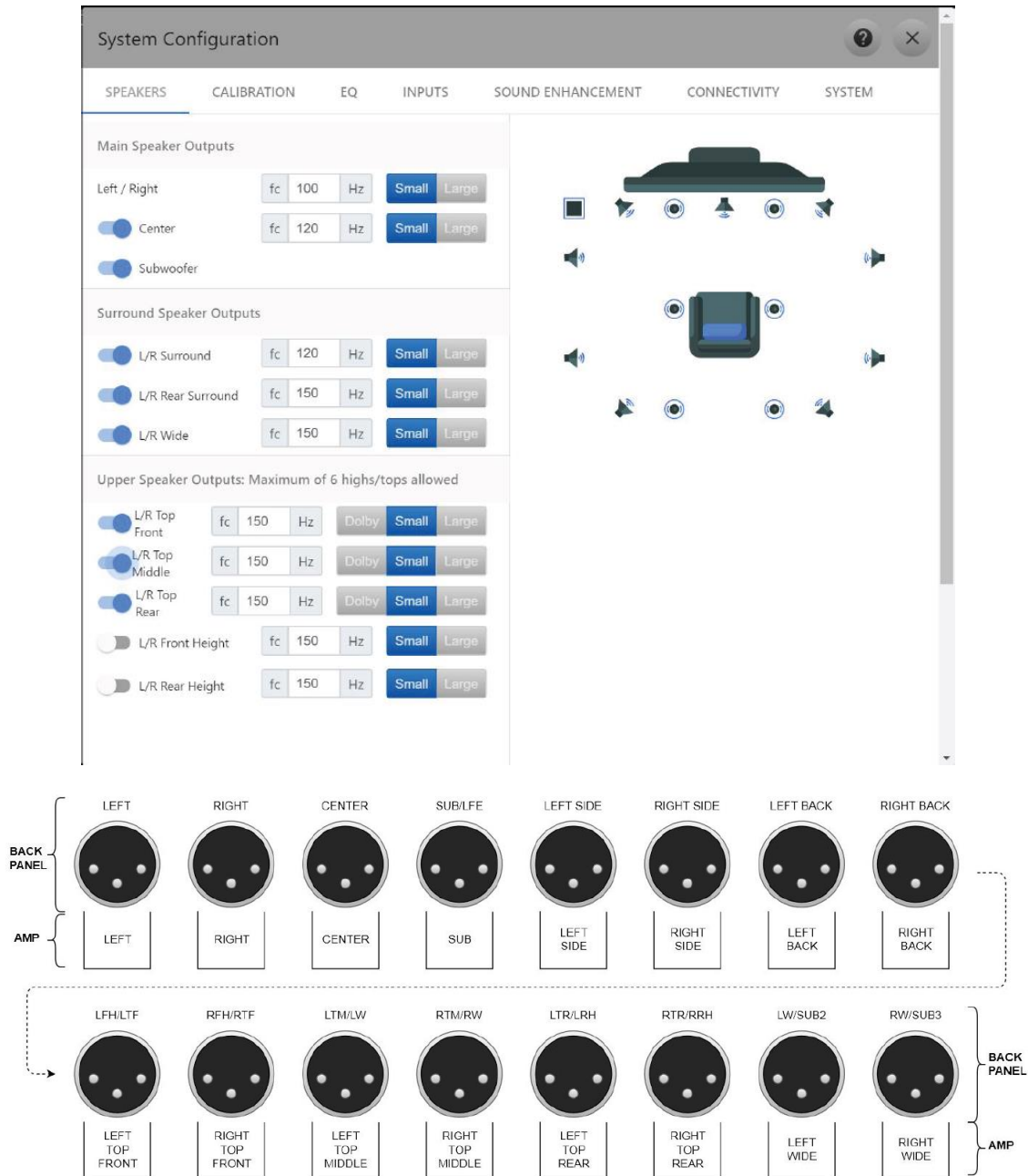
9.3.4 Speaker Configuration

This speaker configuration uses 9 Main level speakers, 3 Subwoofers, and 4 Upper level speakers mounted in the ceiling.



9.1.6 Speaker Configuration

This speaker configuration uses 9 Main level speakers, 1 Subwoofer, and 6 Upper level speakers mounted in the ceiling.



Dolby Enabled Speakers

As mentioned before, Dolby® Enabled Speakers have two separate drivers and two separate inputs. One driver fires out the front of the speaker enclosure, the same as any other main level speaker. The second driver fires upward and is designed to emulate an in-ceiling speaker by reflecting the sound off the ceiling. As such, it is treated as a Top speaker by the system. It is important to label these up-firing speakers as Dolby Enabled when performing a Dirac® calibration.

CALIBRATION

Calibration is a critical part of getting good sound. The following screenshot shows the **CALIBRATION** tab on the **System Configuration** screen.

Channel	Dirac Calibration			Dirac Calibration		
	Delay (ms)	User Delay (ms)	Total Delay (ms)	Trim (dB)	User Trim (dB)	Total Trim (dB)
Left Front	4.9	0	4.9166669845581055	-3.7	0	-3.7098920345306396
Right Front	7.5	0	7.4791669845581055	-2.5	0	-2.5381391048431396
Center	6.6	0	6.5833330154418945	0.0	0	0
Left Surround	9.3	0	9.291666984558105	-1.3	0	-1.334354043006897
Right Surround	2.3	0	2.2708330154418945	-2.1	0	-2.0883219242095947
Subwoofer 1	0.0	0	0	-12.1	0	-12.061155319213867

Voltage Range and Amplifier Input Sensitivity

The HTP-1 uses a sophisticated mixture of analog and digital volume controls. The analog volume control is used as much as possible. The digital volume control is adjusted to provide for headroom. An **Amplifier Sensitivity** control is provided on the **CALIBRATION** tab on the **System Configuration** screen so that you can set the **Amplifier Sensitivity** to match your amplifier. Large amplifiers with balanced inputs typically have a sensitivity between 1 and 2 volts. Consumer amplifiers with unbalanced inputs typically have a sensitivity of about 6V. When the **Amplifier Sensitivity** is set correctly, the amplifier should clip before the HTP-1 clips. This should only happen at the loudest volume that your amplifiers and speakers support.

To avoid the volume being set to a painful and/or damaging level and to optimize the range of volume control, you can set the minimum and maximum volume levels. These will correspond to the range of the **Volume Slider**, if enabled. The minimum and maximum volume levels function as stops or limits to the volume control. Typically, the lower limit is set so that you can barely hear it and the upper limit is set by your comfort level with your speakers and amplifiers.

If the sensitivity of your amplifier is unknown, begin by setting the **Amplifier Sensitivity** to **1V**. Set the volume to zero, then increase the volume to see if it gets as loud as you want. If you think it should be louder, increase the **Amplifier Sensitivity**. Setting the **Amplifier Sensitivity** to **2V** allows you to set the maximum volume to **6dB**, with full scale signal clipping at 2Vrms into a balanced load. You can repeat this procedure, increasing the sensitivity until the system is as loud as you want and as loud as your amplifiers and speakers can sustain. The **Amplifier Sensitivity** setting is calibrated for a balanced amplifier. If you are using an unbalanced amplifier, you should set the sensitivity to twice the value specified in the amplifier's specifications.

Following are some recommendations on setting the **Amplifier Sensitivity**:

- If you consistently listen at very low volume levels (such as -40 or -50), you are giving up dynamic range and operating closer to the noise floor of the system. This may be alright, but it may be better to lower the **Amplifier Sensitivity**.
- If you use the maximum volume above the **Amplifier Sensitivity**, you make it possible for loud material to distort/clip. If you consistently use volume levels

higher than -10, it would be better to raise the **Amplifier Sensitivity** or invest in more powerful amplifiers and speakers capable of handling the higher power rating.

Dirac Calibration

The Monolith™ HTP-1 supports Dirac Live® room correction. Using a calibrated microphone, the system listens to the response of your speakers in your room and applies corrections to make the system more linear and therefore more accurate. The calibration system addresses several aspects of the system:

1. It sets the delay for each speaker. Sound travels about 1 foot per millisecond. The delays are designed to ensure that sound from all speakers reaches your ears at the same time. If the delays are not set correctly, you are likely to perceive a sound in the center as coming from one side or the other.
2. It sets the trim for each speaker. Different speakers and different amplifiers produce a different sound level for any given amplifier power. Distance also plays a role. Speaker trims are included so that the same sound from each speaker reaches your ears with the same loudness.
3. It corrects the frequency response of the system. The frequency response of speakers is seldom flat. The Dirac Live system measures the frequency response and makes it closer to flat.
4. It provides measurements of the frequency response of each speaker. The measurement reveals the low frequency performance, allowing you to more accurately set the cutoff frequency for each speaker pair.

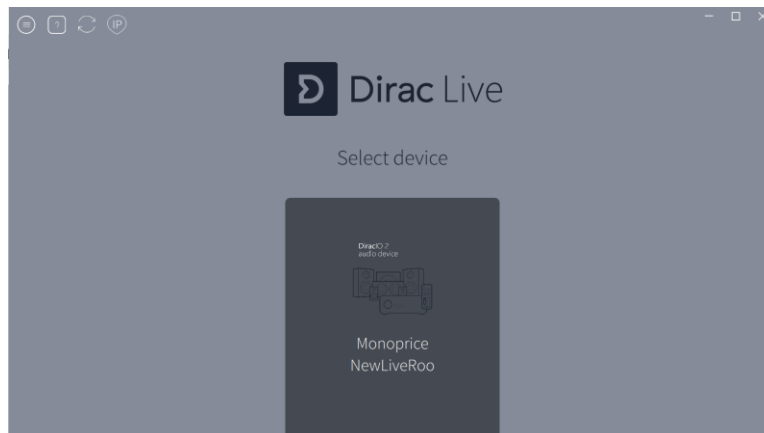
The HTP-1 makes it easy to perform a Dirac® calibration, so you should do such a calibration to get the most out of your system. Prior to performing the calibration, you should do the following:

- Turn off all tone controls and equalizers. These run after the Dirac filter and performing a calibration with these enabled will cause the Dirac filter to attempt to nullify the equalizers to obtain a flat frequency response.
- Use the **SPEAKERS** tab on the **System Configuration** screen to enable all the speakers in your system.

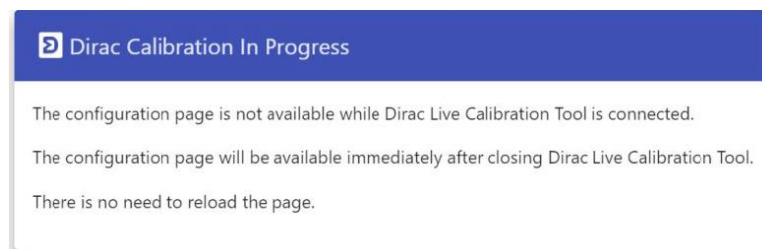
- Download and install the Dirac Live® tool from <https://live.dirac.com/download> to a Windows® or Mac® laptop or desktop computer located near the listening position. Note that the Dirac smartphone app does not support running a calibration at this time.
- Obtain a quality USB microphone. Dirac® recommends using the [MiniDSP UMIK-1](#).

Perform the following steps to perform a Dirac calibration:

1. Plug your microphone into an available USB port on your computer.
2. Launch the Dirac Live® tool, then login. If you do not already have a Dirac Live account, you will need to create one first. Note that ownership of the HTP-1 conveys a license for Dirac usage.
3. Open Dirac Live and connect to the HTP-1. The unit's name is the name you set on the **SYSTEM** tab on the **System Configuration** screen.

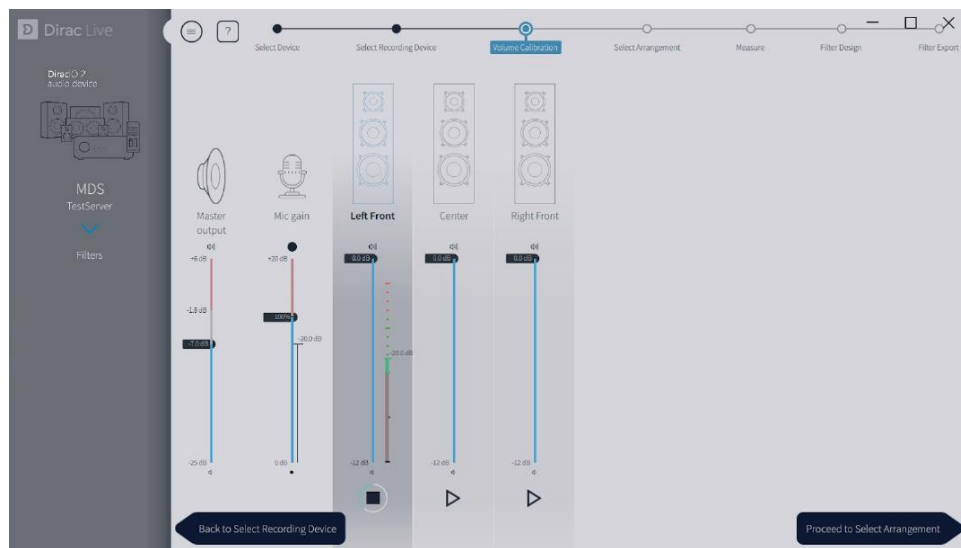


Note that normal interaction with the HTP-1's user interface is suspended while performing the Dirac Live calibration.



4. Choose your microphone. While a built-in microphone could be used, the results will be inaccurate. Dirac® recommends using the [MiniDSP UMIK-1](#) calibrated microphone.

- Set the volume levels for calibration. Begin by setting the **Mic gain** to full (100%). Press **Play** under the **Left Front** speaker and adjust the **Master output** to reach about **-20dB** on the scale for the channel. The noise plays for about 30 seconds. Press **Play** again if you need more time. Repeat for each channel. The volumes don't have to all be the same, but they should be close. If several amplifiers are involved, like with a powered Subwoofer, it is better to get the volumes about the same using the amplifier volumes. If the volume is too low, the calibration will fail for "missing samples". If the volume is too high, the calibration will fail for "clipping". If the calibration fails, go back to the **Volume Calibration** page and adjust the **Master output** accordingly.



6. Proceed to the **Measure** screen and hear the sweeps. When a measurement is successfully completed, you will see the frequency response displayed. The sample screen below shows that the surround speakers aren't much good below 200Hz.



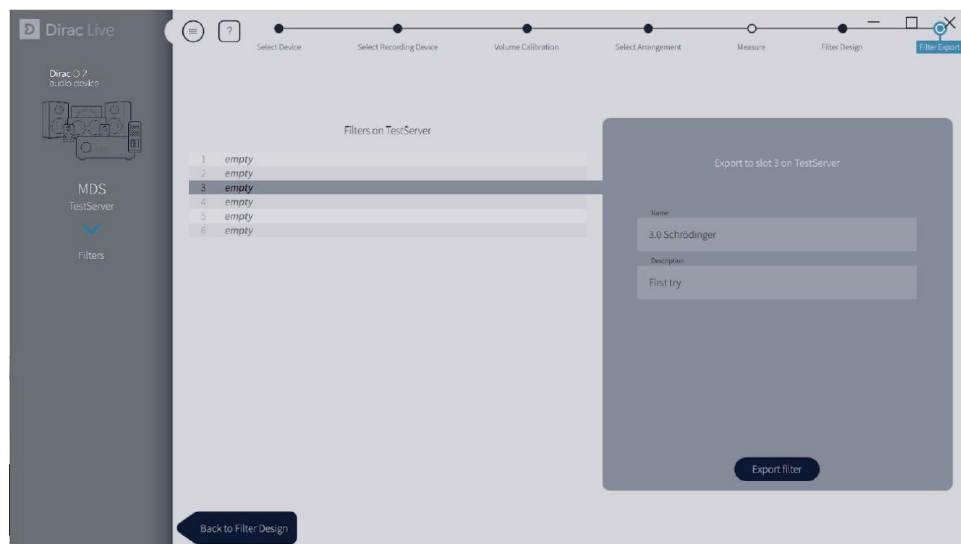
7. The Dirac Live® tool encourages you to run sweeps at multiple locations. We suggest you first try a calibration with one location to understand the calibration process, then do a calibration with a full set of measurement locations for better correction.
8. Proceed to the **Filter Design** screen and see the correction that Dirac® suggests. You can drag the left and right endpoints and can determine the proper cutoff frequency for your speakers.



9. While the Left channel looks good down to 100Hz, the Center channel speaker is having trouble below 150Hz. These are small, cheap speakers.



10. Choose a slot in which to store this calibration. The system gives you six slots. You can store calibrations for different room conditions, such as curtains open and closed. You might also want to calibrate for different speaker configurations. The system calibrates the channels that were configured on the **SPEAKERS** tab on the **System Configuration** screen. Dirac® suggests the names of interesting physicists and philosophers. The name is visible in the HTP-1 UI, but the description is not, so create a name that is meaningful to you.



11. Click **Export filter** to send the filter to the HTP-1. This can take a minute or two. The filter is then installed and enabled on the HTP-1.

12. Save the session as a Dirac Live® project before you exit. Each project contains one calibration session.
13. Close the Dirac Live tool. The "UI locked" dialog from step 3 above should close. If it does not, launch the Dirac Live tool, then close it again.
14. Click the **gear** icon on the **Web GUI Home Page**, then click the **CALIBRATION** tab. In the sample screen below, it shows that the HTP-1 is setup for a 5.1 configuration and a 5.1 calibration is selected. If a calibration is for fewer speakers than the current configuration, the uncalibrated channels will then be passed without any filtering. The Delay and Trim values are as determined by Dirac® and are applied when **Dirac Room Correction** is active.

System Configuration

< SPEAKERS **CALIBRATION** EQ INPUTS SOUND ENHANCEMENT CONNECTIVITY >

Lipsync delay: ms

Min. volume: dB

Max. volume: dB

Dirac Room Correction Active

Dirac room correction filters - up to 6 sets or slots available

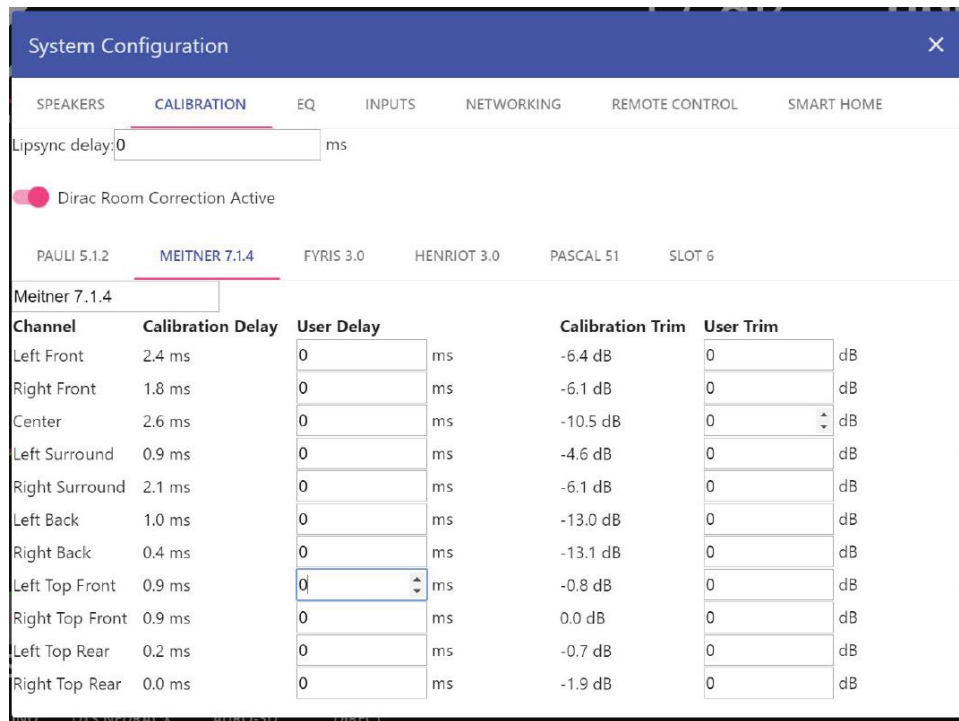
< ONE PT 5.1 **TWELVE PT 5.1** NULL FILTER NULL FILTER NULL FILTER NULL FI >

Name for current Dirac slot number

Channel	Dirac			Dirac		
	Calibration Delay (ms)	User Delay (ms)	Total Delay (ms)	Calibration Trim (dB)	User Trim (dB)	Total Trim (dB)
Left Front	0.0	0	0	-1.2	0	-1.2217899560928345
Right Front	0.0	0	0.04166699945926666	-1.2	0	-1.1539249420166016
Center	0.1	0	0.0625	0.0	0	0
Left Surround	0.1	0	0.10416699945926666	-0.7	0	-0.7041299939155579
Right Surround	0.0	0	0	-0.8	0	-0.8191779851913452
Subwoofer 1	0.3	0	0.29166701436042786	-4.3	0	-4.2701640129089355

15. You can modify the Dirac calibration values with values of your own. You can also supply your own values that are applied, even when Dirac calibrations are not enabled. The **User Delay** and **User Trim** values add to the Dirac values when Dirac calibrations are enabled. Note that the **Delay** cannot be less than 0. Setting the **Trim** to high values can work, but it sacrifices headroom that you may want for other filters.

The following screenshot shows the **CALIBRATION** tab for a 7.1.4 configuration. Notice the wide variation in Trim values. This might be better corrected with the volume on the amplifiers, but the Dirac Live® calibration tool handles it with ease.



Manual Calibration

You can manually calibrate the HTP-1 using the **User Delay** and **User Trim** fields on the **CALIBRATION** tab. The Dirac® calibration is preferred because it is very accurate and simple to perform. Details for manual calibration are not covered here, but the following guidelines should be considered:

- Set the **User Delay** using 1 millisecond per foot of distance.
- Set the **User Trim** using an SPL meter and a pink noise source from a common Blu-ray™ calibration disc.

Using the PEQ

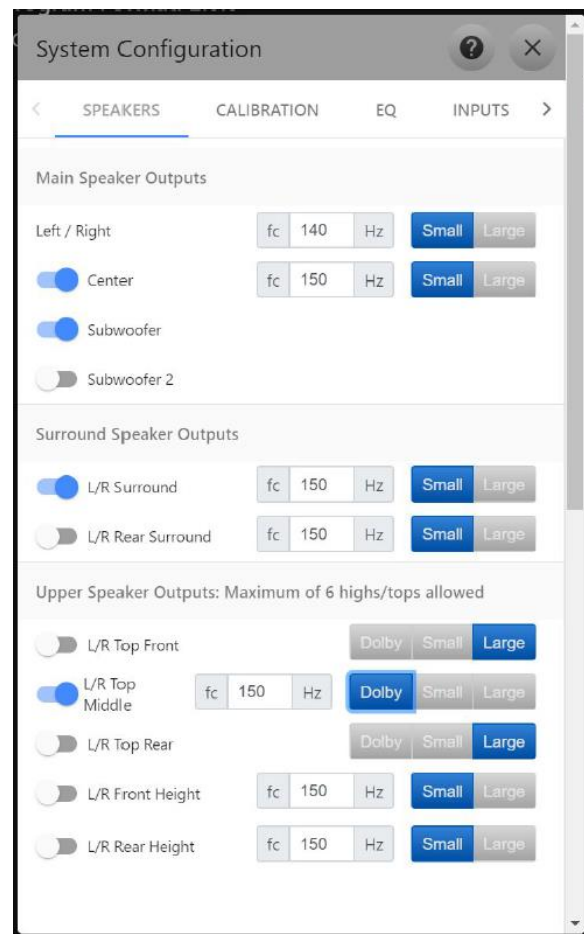
Dirac® calibration flattens the frequency response, and the Parametric Equalizer (PEQ) can be used to modify the frequency response after calibration. It can be argued that this is equivalent to setting a target curve during Dirac calibration.

Adjusting the Cutoff Frequencies

Now that the Dirac® calibration is complete and you know the effective frequency response range of each speaker, it is time to enter more accurate cutoff frequencies than from looking at the manufacturer's printed specifications.

Click the **SPEAKERS** tab on the **System Configuration** screen, then select the speaker size/type and set the cutoff frequency. If the speaker has an effective frequency range down to 30Hz or lower, select the Large speaker size. Otherwise, select Small or Dolby® and enter the proper cutoff frequency.

For best results, set the cutoff frequency of the Small and Dolby speakers to a value about 5-10Hz higher than the measured lower frequency limit.



EQ

The EQ tab on the **System Configuration** screen gives you **Tone Controls** and a **Parametric Equalizer** (PEQ). The **Parametric Equalizer** is extremely flexible. It features sixteen bands, each of which allows you to independently set the **Center Frequency**, **Gain**, and **Q** (the width of the EQ band).

System Configuration

< SPEAKERS CALIBRATION EQ INPUTS SOUND ENHANCEMENT >

Tone Control

Bass Corner Frequency: 500 Hz

Bass Boost/Cut Level: 1 dB

Treble Corner Frequency: 925 Hz

Treble Boost/Cut Level: 4 dB

Parametric Equalization

Parametric Equalization filters - up to 16 bands are available

Note that a gain of 0dB is equivalent to bypassing the filter

< BAND 1 BAND 2 BAND 3 BAND 4 BAND 5 BAND 6 B >

Channel	Center Freq(Hz)	Gain (dB)	Q
Left Front	240	1.8	1.1
Right Front	250	3.1	0.7
Center	100	0	1
Left Surround	100	0	1
Right Surround	100	0	1
Left Back	100	0	1
Right Back	100	0	1

You can set the cutoff frequency (**Corner Frequency**) of the **Bass** and **Treble** shelf filters, as well as the **Gain**. The following plots show the sort of adjustment achieved by the **Tone Control**.

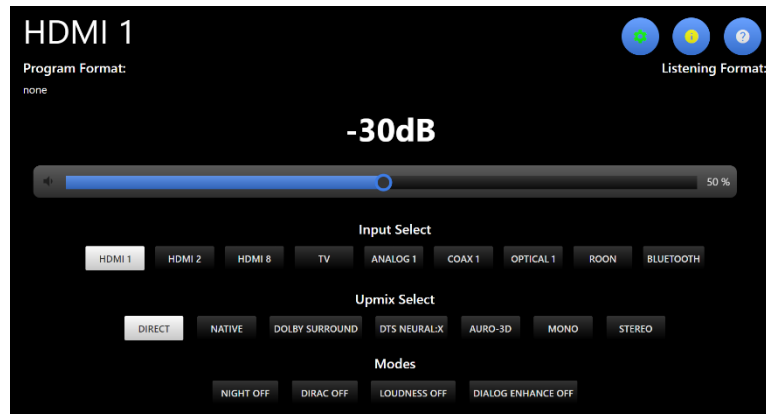
The figure consists of two frequency response plots. Both plots have a logarithmic frequency axis (Hz) ranging from 20 to 20,000 Hz and a linear gain axis (dB) ranging from -10 to 10 dB. The left plot shows a bass boost, with curves rising at low frequencies. The right plot shows a treble boost, with curves rising at high frequencies. Both plots show multiple curves for different gain settings, with a reference line at 0dB. The plots are labeled 'All SPL' and '0dB'.

43

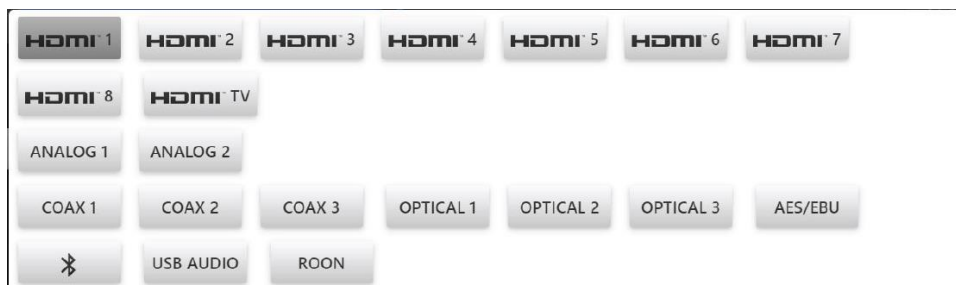
INPUTS

Selecting Inputs

By default, the nine **INPUT SELECT** buttons on the **Web GUI Home Page** are set to the HDMI® inputs, including the HDMI TV input. Perform the following steps to reassign one or more of the buttons to an audio only input.



1. On the **Web GUI Home Page**, click the **Active Input** in the upper left corner. The system will show the currently selected inputs and alternative inputs, as shown in the image below. Note that custom names are not displayed here.



2. The current inputs are listed with bold text, while alternative inputs are displayed below. Click one of the current inputs, then click one of the alternate inputs to change that input. Repeat as desired for other inputs. Note that the **USB AUDIO** input is not supported.

Naming and Activating Inputs

The HTP-1 allows you to change the displayed names of the inputs to something that is more recognizable than HDMI® 1, HDMI 2, etc., such as **Cable Box** or **DVD Player**. It also allows you to disable unused inputs, so that only the inputs that you have are displayed. To change the displayed names, click on the gear icon in the upper right of the **Web GUI Home Page**, then select the **INPUTS** tab. Type the name you want into the field in the **Label** column. Note that the **TV** entry on the page below is the **HDMI TV** input.

Input	Label	Visible on Home Page	UHD Capable
HDMI 1	TiVo	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
HDMI 2	Magnavox	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
HDMI 3	Sony	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
HDMI 4	LG	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
HDMI 5	Samsung	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
HDMI 6	HDMI 6	<input type="checkbox"/>	<input checked="" type="checkbox"/>
HDMI 7	PC	<input type="checkbox"/>	<input checked="" type="checkbox"/>
HDMI 8	HDMI 8	<input type="checkbox"/>	<input checked="" type="checkbox"/>
TV	TV	<input type="checkbox"/>	
ANALOG 1	Tape Deck	<input checked="" type="checkbox"/>	
ANALOG 2	Analog 2	<input type="checkbox"/>	
COAX 1	Coax 1	<input type="checkbox"/>	
COAX 2	Coax 2	<input type="checkbox"/>	
COAX 3	Coax 3	<input type="checkbox"/>	
OPTICAL 1	CD	<input type="checkbox"/>	
OPTICAL 2	Optical 2	<input type="checkbox"/>	
OPTICAL 3	Optical 3	<input type="checkbox"/>	
AES/EBU	AES/EBU	<input type="checkbox"/>	
ROON	Roon	<input checked="" type="checkbox"/>	
USB AUDIO	USB	<input type="checkbox"/>	
BLUETOOTH	Bluetooth	<input checked="" type="checkbox"/>	

Discoverable Timeout (seconds, 0=Always Discoverable)

100

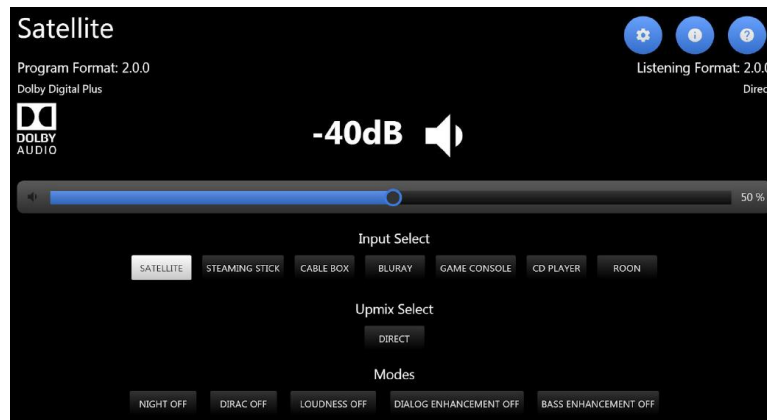
Enable Discovery

To make a given input visible on the **Web GUI Home Page**, click the **Visible on Home Page** slider. The selected inputs have blue sliders. The first nine inputs with the **Visible on Home**

Page sliders enabled will be visible on the home page and will correspond to the nine numbered buttons on the included **IR Remote Control**.

In the following example, the **USER INPUTS** buttons on the **IR Remote Control** are as follows:

1 Satellite, 2 Streaming Stick, 3 Cable Box, 4 Blu-ray™, 5 Game Console, 6 CD Player, 7 Roon®



UHD Capable

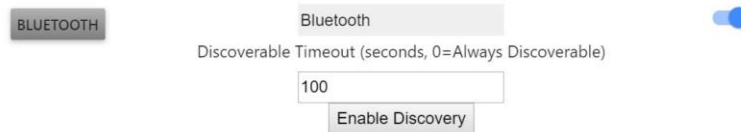
The HTP-1 supports HDMI® video resolutions up to 4K@60Hz (4K UHD), but some legacy (older) devices may have problems with the HTP-1 indicating support for UHD. A problematic source device might be indicated by discolored or horrible looking video on the TV at all times, never getting audio from the source all the time, or other constant anomalies.

The **INPUTS** tab on the **System Configuration** screen has a slider next to each HDMI input labeled **UHD Capable**. Setting the slider to the **Off** position will remove information from the EDID® that can cause problems for these legacy devices. In technical terms, the HDMI Forum Vendor Specific Data Block is removed, along with video timing formats defined in the HDMI 2.0 specification that are found in the Short Video Descriptor block.

This change in the EDID takes effect immediately upon changing the setting. There will be a momentary disruption in the video being passed to the TV while the EDIDs are being reconfigured.

Bluetooth

The HTP-1 has a Bluetooth® radio that can communicate with your mobile devices. Click the **gear** icon on the **Web GUI Home Page**, then click the **INPUTS** tab. Click the **Bluetooth** slider to turn Bluetooth on, then click the **Enable Discovery** button.

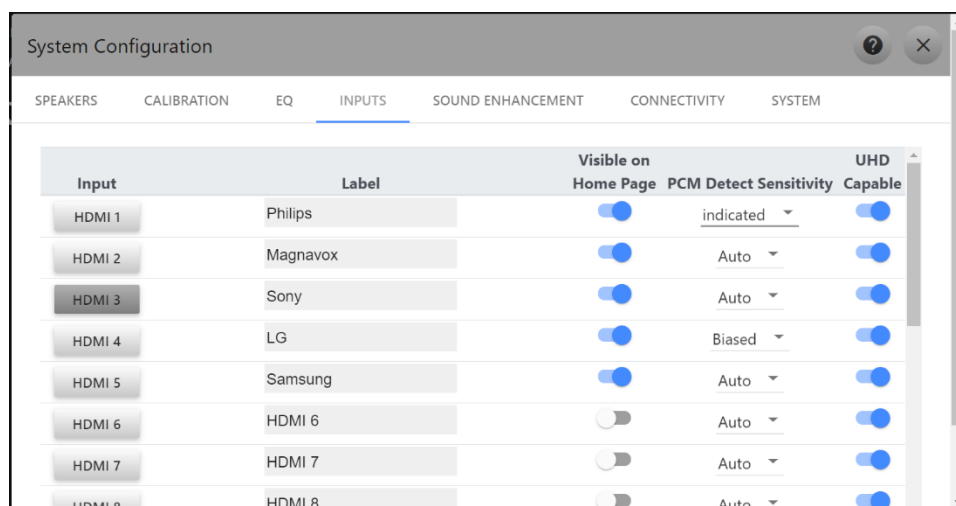


Your mobile device should now be able to see the HTP-1 and pair. The typical pairing dialog is displayed. If you are pairing with the HTP-1 and at the same time are using your mobile device's web browser to control the HTP-1, you'll find that switching back and forth clears the pairing dialog and aborts pairing. Try it again and accept the pairing dialog as soon as you see it.

Note that the **Discoverable Timeout** entry determines the amount of time that the HTP-1 will be visible to Bluetooth devices after clicking the **Enable Discovery** button. If you set the value to 0, the HTP-1 will always be discoverable.

PCM Detect Sensitivity

The **PCM Detect Sensitivity** entry on this page is hidden by default. To display the **PCM Detect Sensitivity** entry, enable the **Advanced Settings** option on the **SYSTEM** tab.



Input	Label	Visible on Home Page	PCM Detect Sensitivity	UHD Capable
HDMI 1	Philips	<input checked="" type="checkbox"/>	indicated	<input checked="" type="checkbox"/>
HDMI 2	Magnavox	<input checked="" type="checkbox"/>	Auto	<input checked="" type="checkbox"/>
HDMI 3	Sony	<input checked="" type="checkbox"/>	Auto	<input checked="" type="checkbox"/>
HDMI 4	LG	<input checked="" type="checkbox"/>	Biased	<input checked="" type="checkbox"/>
HDMI 5	Samsung	<input checked="" type="checkbox"/>	Auto	<input checked="" type="checkbox"/>
HDMI 6	HDMI 6	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>
HDMI 7	HDMI 7	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>
HDMI 8	HDMI 8	<input type="checkbox"/>	Auto	<input checked="" type="checkbox"/>

By default, the HTP-1 automatically detects the audio format for each signal. However, there are a few cases where this automatic detection might not be optimal. The **PCM Detect Sensitivity** entry allows you to override the automatic detection.

The default selection in the **PCM Detect Sensitivity** column is **Auto**. Setting it to **Biased** biases the detector towards PCM material, while setting it to **Indicated** relies on the PCM/non-PCM bit indicated in the HDMI® stream. Choosing a setting other than **Auto** can lead to problems, such as noise caused by playing coded audio as PCM or a squeal caused by playing the IEC pause packet. You can only know for certain by trying the other settings. Following are some cases where selections other than **Auto** can be useful.

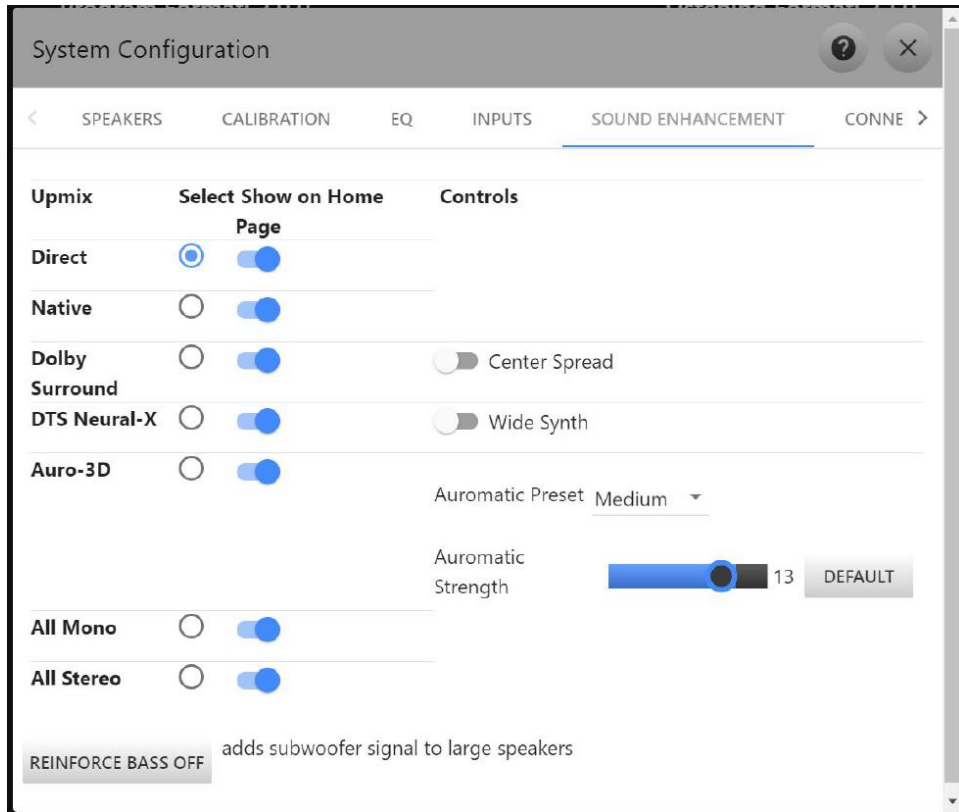
- If you know that this source always produces PCM and you get drop outs or miss the beginning of sounds, you might want to try setting the **PCM Detect Sensitivity** first to **Biased**, then **Indicated**.
- If you are using an older Apple TV® or other device that switches between coded audio and PCM to make beeps, the **Biased** setting may allow you to hear more of the beeps.

Note: Only try these alternate settings if necessary.

SOUND ENHANCEMENT

The HTP-1 supports a number of different Surround Modes, which control how the source material is mapped to the current set of speakers. A number of surround modes use proprietary algorithms to spread sound to more speakers. You are encouraged to listen to each of them and choose which one you like best for a given soundtrack or piece of music. While Direct, Atmos®, and DTS:X® are by definition as the producer intended, the other modes are purely a matter of personal taste.

The Surround Mode selection is also called the Upmix. While you can request any upmix, that mode may not be possible with the given source material. The **Listening Mode** on the **LCD Display** and **Web GUI Home Page** shows the actual upmix being used. This is most often noticed when you select something like Auro-3D®, but the source material is Dolby Atmos®. Only the Mono and Stereo modes can override Atmos and DTS:X content.



The following table describes each Surround Mode:

Surround Mode	Description
Direct	The input stream is presented without modification. This is appropriate if you have a stereo source and you want to hear it through the two Front speakers only. Whether or not the Subwoofer is engaged depends on whether or not the Front speakers are configured with a cutoff frequency. When a cutoff frequency is set, the Subwoofer will be used.
Dolby Atmos	A Dolby Atmos® stream is presented in its native format. Proprietary sound modes cannot be applied to an Atmos stream, but it can be overridden by using the Mono or Stereo modes. You cannot directly select the Atmos mode.

Surround Mode	Description
DTS:X	A DTS:X [®] stream is presented in its native format. Proprietary sound modes cannot be applied to an DTS:X stream, but it can be overridden by using the Mono or Stereo modes. You cannot directly select the DTS:X mode.
Auro-3D	An Auro-3D [®] encoded stream is detected and decoded. The channels present in the stream are mapped to the available speakers. See the <i>Mapping Channels to Speakers</i> portion of the <i>Valid Speaker Configurations</i> section.
Dolby Surround	Dolby's proprietary Dolby Surround [®] algorithm is applied to the input signal. Dolby Surround is an evolution of the Dolby ProLogic [®] algorithms used in older systems. It uses various cues in the signal to route sound to the speaker set according to rules known only to Dolby [®] . An obvious rule is that the material common to the Left and Right channels is extracted and routed to the Center channel. When the setup parameter for Center Spread is engaged, the Center signal is also spread to the Left and Right channels. Dolby Surround can be applied to any signal that has 8 or fewer channels. There is no point in applying it to signals that have more than 8 channels.
DTS Neural:X	The proprietary DTS Neural:X [®] algorithm is applied to the input signal. Neural:X is an evolution of the DTS Neo [®] algorithms used in older systems. It uses various cues in the signal to route the sound to the speaker set according to rules known only to DTS [®] . An obvious rule is that the material common to the Left and Right channels is extracted and routed to the Center channel. DTS Neural:X can be applied to any signal that has 8 or fewer channels. There is no point in applying it to signals that have more than 8 channels. When the setup parameter for Wide Synth is enabled, the 12 channel/7.1.4 output of the DTS system is used to "synthesize" Wide and Top Middle channels in a 9.1.6 configuration.

Surround Mode	Description
Auro-Matic	Auro Technology's proprietary Auro-Matic® algorithm is applied to the input signal. Auro-Matic uses various cues in the signal to route the sound to the speaker set according to rules known only to Auro Tech. An obvious rule is that the material common to the Left and Right channels is extracted and routed to the Center channel. The SOUND ENHANCEMENT tab allows you to set two of three different parameters affecting Auro-Matic. The Size option sets a sort of reverb time. The Strength option determines how much of the Auro-Matic signal is mixed into the original signal. The defaults are Medium and 12 (0dB). The Auro Listening Mode is set automatically by your speaker layout.
Native	Native is a requested mode and will result in one of the other modes being selected. The applied surround mode depends on the input signal. Dolby® signals will be processed with Dolby Surround®. DTS® signals will be processed with Neural:X®. Auro-3D® encoded signals will be decoded. PCM, Atmos®, and DTS:X® signals will be passed through unchanged.
All channel Mono	The input signal is mixed down to Mono and sent to all speakers.
All channel Stereo	The input signal is mixed down to stereo and the Left and Right channels are sent to all speakers on the Left and Right, respectively. A mono signal is routed to the center channel.

CONNECTIVITY

The **CONNECTIVITY** tab allows you to control the Consumer Electronics Control (CEC) feature, as well as settings for the wired Ethernet and Wi-Fi® connections.

Setting Up ARC/eARC and CEC

The HTP-1 supports the ARC (Audio Return Channel) and the newer eARC (Enhanced Audio Return Channel) HDMI® features. The ARC/eARC channel is used to return audio from the TV to the HTP-1 and acts as one of the available inputs. The main difference between the two is that eARC can support higher fidelity audio formats, such as Dolby TrueHD™ and DTS-HD Master Audio™. eARC can also support Dolby Digital Plus™, while only some ARC implementations support this format.

The CEC (Consumer Electronic Control) HDMI feature is a key part of ARC, while eARC is not dependent on CEC, although some TV manufacturers require CEC support to be enabled for eARC to be used. At this time, eARC is not a feature that is commonly supported.

Most "smart" TVs have built-in apps, such as Netflix® or Vudu™. Additionally, some systems have components connected directly to the TV's HDMI inputs. These are the primary reasons to use ARC/eARC to get audio from the TV to the HTP-1.

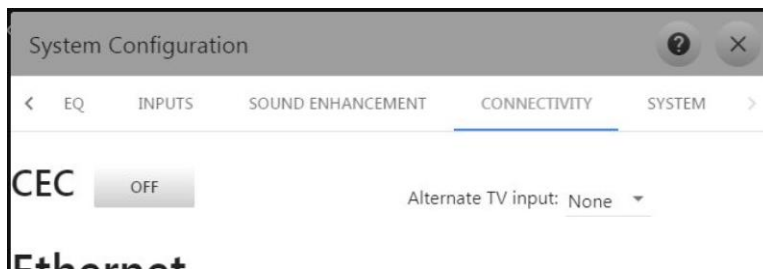
The implementation of CEC and ARC varies with different TV models, with some working better than others. It is quite common to have to try a few different configurations before settling on a CEC/ARC configuration that works properly for you. Fortunately, the HTP-1 is quite flexible in its CEC/ARC options.

Connecting the HTP-1 to the TV for ARC/eARC

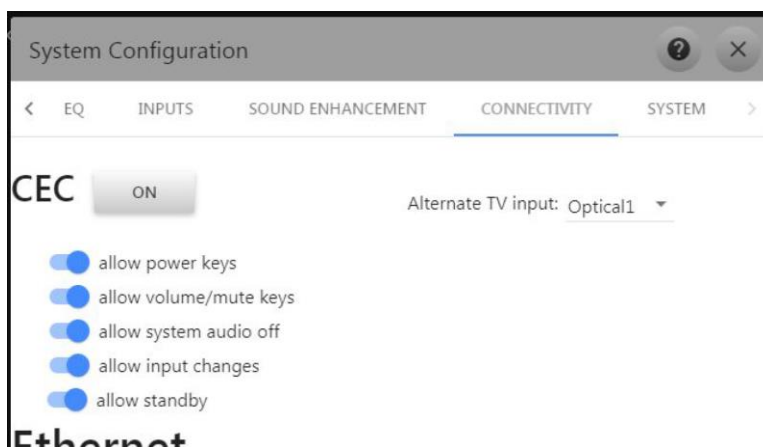
Your TV likely has only a single input that supports ARC/eARC. Ensure that your HDMI® cable connection is plugged into that input on your TV and that the other end is plugged into the **HDMI OUTPUTS 1** on the HTP-1, which is the one that supports ARC/eARC. **Failure to use the proper input on the TV and/or output on the HTP-1 is the most common problem with ARC/eARC setup.**

CEC Settings

By default, CEC should be turned off. The button next to the **CEC** label shows the current state of CEC, as shown in the image below.



If the CEC status is **OFF**, click the button to turn it **ON**. A list of CEC options will appear beneath the label. All options should be enabled, with the slider to the right and colored blue. If they are not all enabled, enable them now by clicking the sliders that are off.



The options should remain enabled, unless you need to disable specific options in response to requests from other devices on the CEC network.

Next, you must configure your TV to enable CEC and ARC, if not already enabled. Refer to your TV's user's manual to see where these options are located in your TV's setup options. Many TVs will allow at least a basic selection between using the TV speakers and HDMI[®] ARC.

CEC Control Options

CEC implementations by other devices can vary enough that sometimes not all devices work well together. The various options allow you to selectively disable HTP-1 CEC controls, which may help eliminate undesirable control issues. Note that disabling these

controls may result in other possible side effects. The HTP-1's options and their meanings are as follows:

- **allow power keys:** key commands involving **Power** (on, off, toggle) are enabled.
- **allow volume/mute keys:** key commands involving **Volume** and **Mute** are enabled.
- **allow system audio off:** allows the HTP-1 to be commanded to the **OFF** state of **System Audio** (see the *System Audio* portion of this section for details).
- **allow input changes:** allows the HTP-1 to follow **Input** change requests.
- **allow standby:** allows the HTP-1 to be commanded into **Standby** mode, which is different from the power keys.

Alternate TV Input

If your TV does not support ARC/eARC or you must connect the HTP-1 HDMI® output to an HDMI TV input that does not support ARC/eARC, you may use the **Alternate TV Input** pop-up menu to specify an audio connection to the TV using one of the input ports listed in the menu. You may choose between **Analog**, **Coaxial**, or **Optical** inputs. Associating one of these inputs with the HTP-1 HDMI TV input allows the HTP-1 to know which input to get the audio from the TV whenever it receives instructions over the CEC network to do so. In the screenshot above, the **Optical 1** input is the input to use when ARC/eARC are not available.

If you are using an **Alternate TV Input**, be sure to connect the specified input to the appropriate TV audio output using an appropriate cable.

TV Audio Priority

The HTP-1 has three ways to get audio from the TV: eARC, ARC, and the user-defined **Alternate TV Input**. The **eARC** option is the preferred method, followed by **ARC**, and finally **Alternate TV Input**. When TV is shown as the current input on the **Web GUI Home Page**, the actual input being used to receive audio is shown on the **Information** screen next to the label **TV Sound Source**.

System Audio

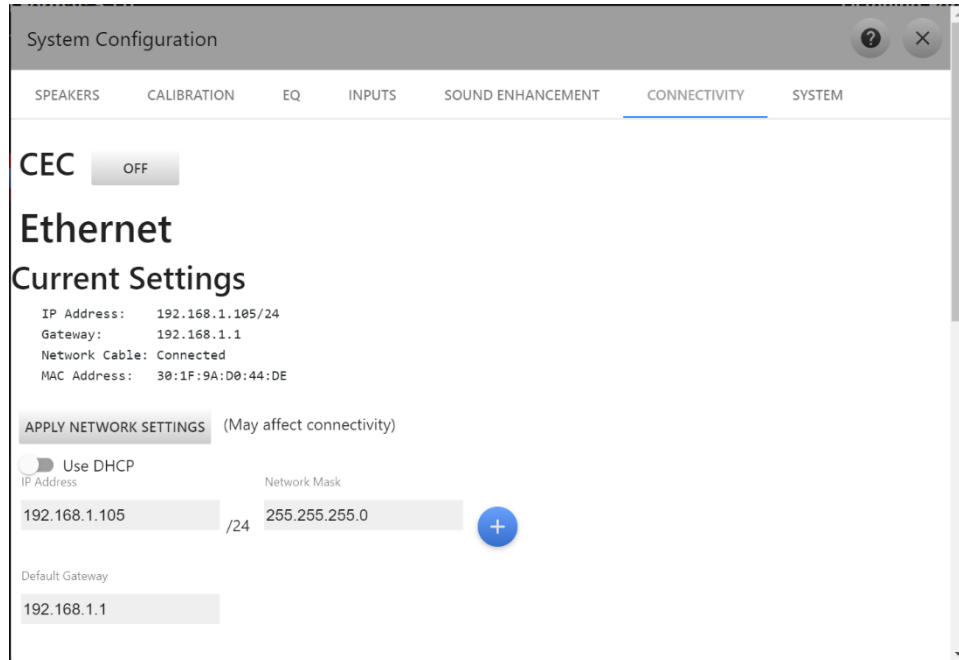
CEC has a feature called **System Audio**. When **System Audio** is **ON**, the HTP-1 is asked to render audio for the system. The HTP-1 will always turn on **System Audio** when it is first powered on and will attempt to determine where it should get the audio from . If there is an **Active Source** in the system, it will configure itself to receive audio from that device. If no **Active Source** can be discovered, it will stay on the last input used.

Most TVs have a setting to allow you to select the audio rendering device, such as **TV Speakers** or **Amp**. When the HTP-1 is de-selected as the audio rendering device, the TV will send a CEC command to turn **System Audio OFF**. When the HTP-1 receives this command, it will stop rendering audio and will configure the HDMI module to pass through audio from its inputs to the outputs. While making this transition, the video on the TV will be blanked while the EDID® settings provided by the HTP-1 are updated with the TV's audio capabilities, so that the source devices will provide an audio format that the TV can use. The **Web GUI Home Page** and the **LCD Display** will replace their display of the HTP-1 volume settings to the message **TV Audio**. Additionally, all HTP-1 audio settings/status will be removed from these displays.

There are three ways to restore using the HTP-1 to render audio:

- Use the TV speaker settings to select the Amplifier to render audio. This will result in the TV sending a command to the HTP-1 to turn **System Audio On** and tells the HTP-1 where to get the audio from.
- On the HTP-1's **Web GUI Home Page**, beneath the **TV Audio** message is a button that has the text **CLICK TO RETURN TO HTP-1 AUDIO**. Pressing this button will trigger the HTP-1 to turn **System Audio ON**.
- Selecting an audio only source, such as **Coaxial**, **Optical**, or **Analog** will trigger the HTP-1 to turn **System Audio ON**.

Ethernet



The Ethernet section allows you to modify the Ethernet settings. By default, the HTP-1 has the **DHCP** entry enabled, allowing it to automatically obtain an IP address. If you want to use a specific IP address, disable **DHCP**, then enter the new **IP Address** and **Network Mask**. Click the **APPLY NETWORK SETTINGS** button to save your changes. You will lose your existing network connection. The current IP address(es) are shown on the **LCD Display**.

Wi-Fi

After you have setup the HTP-1 to use a wired Ethernet connection in the *BASIC SETUP* section, you can switch over to use a Wi-Fi® connection. Ensure that the antenna that came with the unit is connected to the gold SMA antenna connector on the rear panel.

With the HTP-1 powered on, note the IP address on the **LCD Display** and enter it into your browser. Click the **gear** icon on the **Web GUI Home Page** to access the **System Configuration** screen. Click the **CONNECTIVITY** tab, then click the **Enable Wi-Fi** slider to turn Wi-Fi on. Ensure that the Wi-Fi **Use DHCP** slider is on.

The HTP-1 will automatically scan for available Wi-Fi® networks and will display them in the **Available Networks** list on the left. Note that your Wi-Fi network must be configured to

broadcast its SSID (the default setting for most Wi-Fi® routers) for the HTP-1 to display it in the list of **Available Networks**.

The screenshot shows the 'Wi-Fi' configuration page. At the top, there's a blue '+' icon. Below it, the 'Current Settings' section displays: 'Connected Network: yellowkitty', 'IP Address: 192.168.1.8/24', 'Gateway: 192.168.1.1', and 'MAC Address: 00:25:CA:33:46:05'. A toggle switch for 'Enable Wi-Fi' is turned on. The 'Available Networks' list on the left includes 'yellowkitty', 'yellowcat', and 'bills network'. A 'CONFIGURE' button is next to this list. In the center, there's a 'Password' input field and a 'Show Password' checkbox. To the right, the 'Configured Networks' list shows 'yellowkitty', with 'CONNECT', 'DISCONNECT', and 'FORGET' buttons next to it. At the bottom, the 'Configuration for Network "yellowkitty"' section has an 'APPLY NETWORK SETTINGS' button (with a note '(May affect connectivity)') and a 'Use DHCP' toggle switch which is turned on.

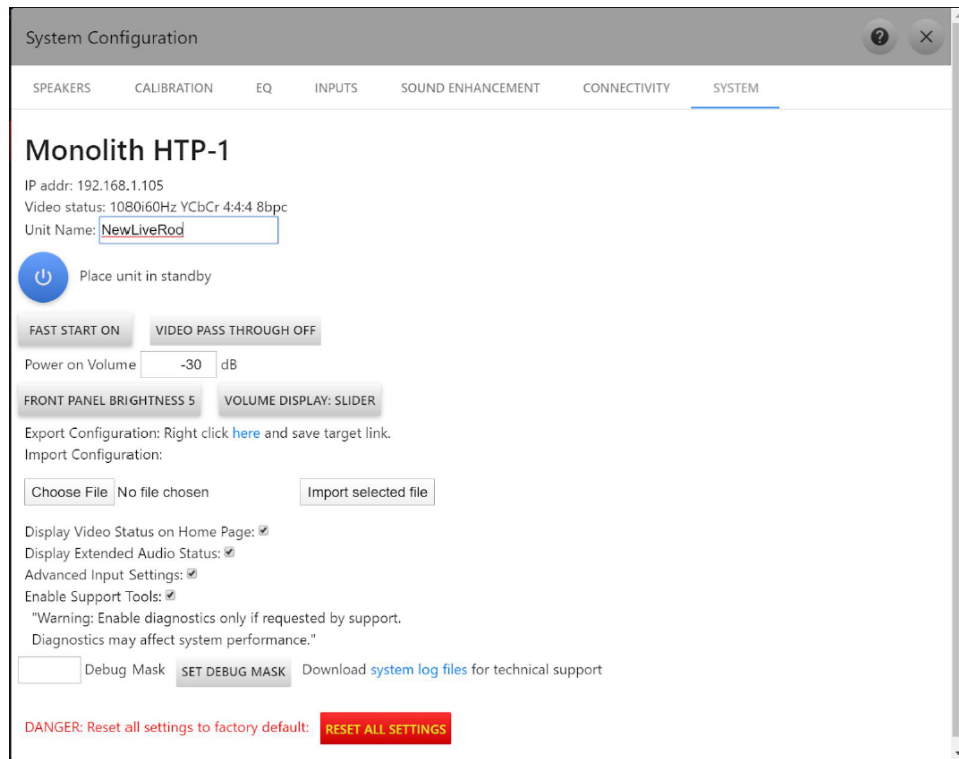
Highlight your Wi-Fi network, type your password in the **Password** field, then click the **CONFIGURE** button to save your network in the list of **Configured Networks** on the right.

Click the **CONNECT** button to connect the HTP-1 with your Wi-Fi network.

Once you have joined the Wi-Fi network, you can unplug the wired connection and use the Wi-Fi IP address to access the **Web GUI Home Page**.

SYSTEM

The SYSTEM tab allows you to control several advanced features and other features that do not apply to the other tabs. It also shows information that cannot be changed on this page, including the current IP address and video settings.



This page contains the following options:

- **Unit Name:** The current **Unit Name** is displayed at the top of the page (**Monolith HTP-1** in the example above). To change the **Unit Name**, type a new name into the field next to the **Unit Name** label, then press Enter to save the change. The HTP-1 must be powered off using the **Master Power Switch** on the rear panel for the change to take effect.
- **Standby:** Click the blue power button to put the HTP-1 into standby mode.
- **Fast Start:** The HTP-1 has a Slow Start/Eco mode, which uses a lower standby power and takes about a minute to fully power on, and a Fast Start mode, which boots up much more quickly. Clicking the **FAST START** button toggles Fast Start on or off. By default, Fast Start is off. Note that CEC features, such as automatic power on, and video pass through in standby mode require Fast Start mode to be enabled.

- **Video Pass Through:** When Fast Start mode is enabled, video will pass through to the display when the HTP-1 is in standby mode. Click the **VIDEO PASS THROUGH** button to toggle video pass through in standby mode on or off.
- **Power On Volume:** You can control the default volume level whenever the HTP-1 is powered on. To change the default volume level, type the new value into the field and press Enter.
- **Front Panel Brightness:** By default, the brightness of the **LCD Display** on the front panel is set to the maximum (10). You can change this if it is too bright for you. You can also use the **DIM** button on the included remote control to change the brightness of the display.
- **Volume Display:** By default, the volume display is a **Volume Slider**. You can change this to **Volume Buttons** by clicking the **VOLUME DISPLAY** button. This can be useful if you have problems with the volume jumping around too much.



- **Export Configuration:** Click the link to save the current configuration to a file on your computer. The settings are stored in a **JSON** format file.
- **Choose File/Import selected file:** If you want to load a previously saved configuration, click the **Choose File** button to locate and select the saved configuration file, then click the **Import selected file** button to load the saved settings.
- **Display Video Status on Home Page:** Select this option to enable display of the video format on the home page.
- **Display Extended Audio Status:** Select this option to display extended audio information, such as the input and output sample rates, on the **Information** screen.
- **Advanced Settings:** Click the box next to the **Advanced Settings** label to toggle the **PCM Detect Sensitivity** setting on the **INPUTS** tab on or off. Refer to the *PCM Detect Sensitivity* section above.

- **Enable Support Tools:** Click the box next to the **Enable Support Tools** label to enable system diagnostics. The diagnostics can slow down system performance, so only enable this when requested to do so by the support team.
- **Debug Mask/SET DEBUG MASK:** When support tools are enabled, the debug mask field and button are displayed. The debug mask may be used by the support team to enable additional logging of specific events.
- **system log files:** When support tools are enabled, the **system log files** link is displayed. If the support team requests the log files, click the link to save the log file for forwarding to the support team. This takes a few moments to complete.
- **Reset:** The red **RESET ALL SETTINGS** button clears all of your custom input names and EQ settings. It does not delete any Dirac® filter sets. This should only be done in emergency situations.

AUDIO FEATURES

The HTP-1 includes a full range of audio features. These are utilities that make the sound "better", which is a matter of taste, but they can all prove useful in certain situations.

Night Mode

Action movies are notorious for having a wide dynamic range. At times, the dialog is very quiet. At other times, explosions can rock the house. **Night Mode** is designed to reduce the difference between loud and soft material, as you might want do while the children are sleeping. **Night Mode**, also known as Dynamic Range Control, uses features of the Dolby® and DTS® coding systems. This means it has little effect on PCM (stereo) streams. The Subwoofer is also attenuated when **Night Mode** is engaged, regardless of stream type.

Night Mode is engaged or disengaged using one of the buttons at the bottom of the **Web GUI Home Page** or by pressing the **NIGHT** button on the included **IR Remote Control**. There are three modes available:

Night Mode Auto	This is the recommended operating mode. Dolby® streams specify dynamic range parameters and Auto mode means that they are followed. The Subwoofer is not attenuated.
Night Mode On	The Dolby and DTS® decoders are configured to enable dynamic range compression. The Subwoofer is attenuated.
Night Mode Off	The Dolby and DTS decoders are configured to disable all of the dynamic range compression features, giving the most contrast between loud and soft material. The Subwoofer is not attenuated.

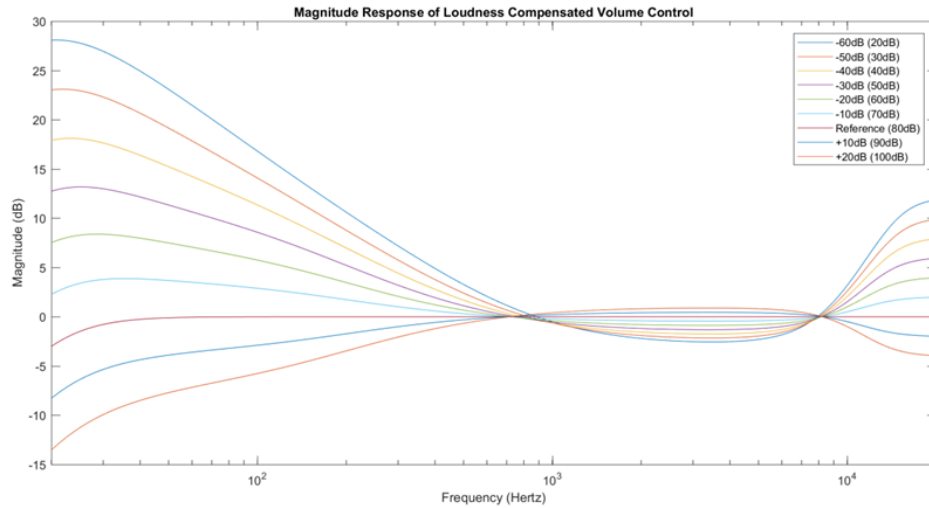
Dialog Enhancement

Some people enjoy movies more if they can hear the dialog better. The DTS:X® coding system includes a means to directly control the dialog. The **DTS Dialog indicator** is displayed when this feature is available. When the content does not have DTS Dialog control, the dialog enhancement feature uses a simpler method. It simply adjusts the Center speaker volume, as most dialog comes from the Center speaker. You can adjust the dialog between 0dB (as authored) and a +6dB. You might want to boost the Center channel further using the **User Trim** setting on the **CALIBRATION** tab.

Loudness

Human hearing is non-linear. When the volume is turned down, people report that the Bass tends to go away before the Midrange. This phenomenon was first described by Fletcher and Munson in the 1930s. The Equal Loudness Curves have been repeatedly measured with greater sophistication and are standardized as ISO 226:2003. Wikipedia® has a good article on the equal loudness contours. Older audio receivers often included a Loudness button, that simply boosted the Bass.

The HTP-1 uses a six-pole filter carefully designed to match the equal loudness contours. It is calibrated to the **Volume Bar**, so that 90% volume represents "natural" loudness. Bass boost matching the known curve is added slowly as you lower the volume, so there is no effect at high volume levels, with increasing amounts of Bass as you lower the volume level. The following graph shows the frequency response at various levels:



A high-pass filter is also included to avoid boosting the region below 20Hz. The relatively large Bass boost applied when the volume is low means that it is often possible to hear a thump or a tick when turning **Loudness** on or off.

Bass Reinforcement

The **Bass Reinforcement** feature routes the Subwoofer signal not only to your Subwoofer, but also to any Large speakers in the system. It does nothing if there are no Large speakers. You can enable or disable **Bass Reinforcement** on the **SPEAKER** tab in the **System Configuration** screen in the Web GUI.

Highest Quality Audio Guidelines

There are a number of considerations that you should be aware of to achieve the highest possible audio quality:

- Engaging any of the Surround Modes results in the sample rate being limited to 48kHz by a high-quality sample rate converter. Avoid using the Surround Modes if you wish to take advantage of higher sample rates.
- The Dirac® Room Correction filter limits the sample rates to 48kHz. Turn off **Dirac Room Correction** if you wish to take advantage of higher sample rates.

- Ensure that the **Amplifier Sensitivity** (maximum volume) on the **CALIBRATION** tab is set correctly. The best dynamic range (Signal-to-Noise Ratio) will be achieved when the output is set to match the amplifier and the HTP-1 volume is at the maximum for the amplifier. The HTP-1 uses a high-quality analog volume control. It reserves some of its digital dynamic range using a small amount of digital attenuation. This digital attenuation and headroom are at minimum when the volume is at its maximum level, as set on the **CALIBRATION** tab. Remember that, if there is no headroom, adding gain in equalizers (Dirac®, PEQ, Tone) and Trim controls can result in clipping.

VIDEO FEATURES

The video system of the HTP-1 supports the HDMI® 2.0 and HDCP™ 2.3 specifications on all **HDMI INPUTS** and **HDMI OUTPUTS**. The HDMI repeater in the HTP-1 passes video according to the rules of HDMI, while extracting audio for local decoding. It has two **HDMI OUTPUT** ports that output the same content. During normal operation, audio is extracted and not passed through. Selecting an audio-only input leaves the current HDMI input selected to pass video, but the HTP-1 will render audio from the selected audio-only source.

When cold booting the system by turning on the **Master Power Switch**, video is not passed through until the HTP-1 control system is up and running.

The current video status can be found on the **Information** screen next to the label **Video Status**, which is accessed by clicking the **i** icon on the **Web GUI Home Page**. Optionally, the video status can be displayed on the bottom of the **Web GUI Home Page** by checking the box next to **Display Video Status on Home Page** option on the **SYSTEM** tab on the **System Configuration** screen.

EDID Management

The HTP-1 will read and parse the downstream EDIDs and populate an internal data structure with the video and audio display devices connected to the two output ports. It then creates a combined EDID® from the data to present to the source devices. The EDIDs are created with a logical AND approach, meaning that both displays must support a capability for that capability to be enabled on the source devices.

After cold booting the HTP-1 by turning on the **Master Power Switch** on the rear panel, the EDIDs will not be made available to the source devices until the control system is up and running and can load the audio descriptors with the correct audio support. After this is completed, the EDID® will be sent to the source devices.

Turning off one of the displays will NOT result in its EDID capabilities being removed from the composite EDID that is created and sent to the source devices. To force the HTP-1 to "forget" an output port EDID, the HDMI® cable must be disconnect from the output port and the HTP-1 power cycled using the **Master Power Switch** on the rear panel.

Dolby Vision

Dolby Vision™ is the one exception to the logical AND rule for the EDID capabilities of the displays. The Dolby Vision descriptor found in the EDID of the display connected to **HDMI OUTPUT 1** is the only Dolby Vision descriptor that will be used and sent to the source devices. If only one display supports Dolby Vision, it must be connected to the **HDMI OUTPUT 1** port to have Dolby Vision recognized.

When Dolby Vision content is received, the EDID® of the display connected to the **HDMI OUTPUT 2** will be examined for Dolby Vision support. If supported, Dolby Vision will be allowed to pass to this output. If not supported, the output port will be disabled. When Dolby Vision content is no longer being received, it may take up to 10-12 seconds for this output to be re-enabled while the HTP-1 is making sure that Dolby Vision content has really stopped before re-enabling the output port.

TRIGGERS

Triggers are typically used to cause the external amplifiers to turn on when the HTP-1 turns on. The HTP-1 has four 3.5mm **TRIGGER OUTPUT** jacks to drive up to four amplifiers. The trigger outputs send a 12V 50mA signal and are over-current protected using a thermistor.

The HTP-1 also has one **TRIGGER INPUT** that can be used to turn the HTP-1 on. If you use the trigger input, you should not use the **Power Button** on the **Front Panel** or the **POWER** button on the **IR Remote Control**, as the trigger input takes precedence.

USING ROON

The HTP-1 directly supports Roon®. Roon provides a music service that is designed to support a locally stored archive of music, which includes high-quality stereo audio formats, such as 96kHz 24-bit and 192kHz. Roon is a service that you must subscribe to. The HTP-1 takes the role of an output device in your Roon system. You can only play stereo audio using Roon.

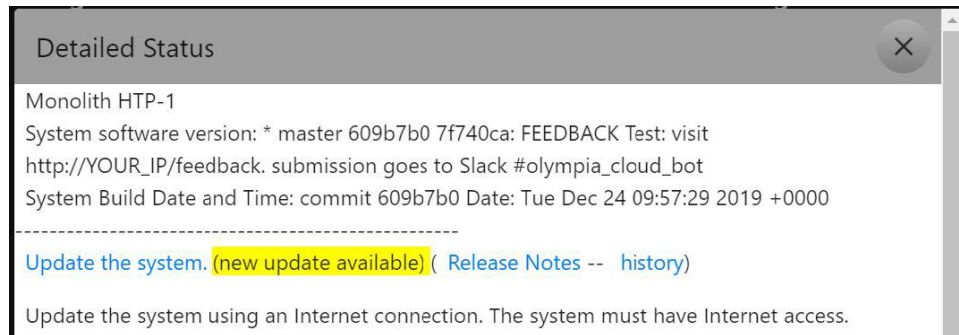
When you have a Roon subscription, there is a device known as a Roon Server in the system, which can be a program on your PC. The Roon Server knows where your music is located. There must also be a device that can navigate your music collection and press the play button. The HTP-1 does not perform this role, but the Roon program installed on your PC can perform this role, as well as the Roon app on your mobile device.

With your Roon controller ready, select the **Roon** input on the HTP-1. With the Roon® input selected, the Roon audio is routed through the HTP-1. You can enable upmixing, if you desire, or enjoy the pure 192kHz sample rate (as available), if preferred.

SOFTWARE UPGRADE

The HTP-1 may see periodic improvements to the software. When an update is available, the **Information** and **gear** icons on the **Web GUI Home Page** will turn yellow. Click the **Information** icon to access the **Detailed Status** screen.

We recommend that you click the **Release Notes** link to see details on the update before starting the update process.



Click the **Update the system** link to start the update process. The web interface and the **LCD Display** will show the progress of the update. The HTP-1 will reboot at the end of the process and all your settings will be preserved.

Click the **history** link to see a selection of software releases, which you can select in place of the latest release. Releases in the **master** branch are recommended for general use. The **preview** releases are also available, which are releases that are currently or have recently been in testing, but these are not recommended for general use.

By default, the latest **master** release is downloaded and installed when you click the **Update the system** link. However, if you use the history to select a different release, that version will be downloaded and installed instead.

FEEDBACK

On the **Detailed Status** screen above is the line:

FEEDBACK Test: visit http://YOUR_IP/feedback. submission goes to Slack #olympia_cloud_bot

To provide feedback about your HTP-1 and your experience using it, open a web browser and navigate to http://YOUR_IP/feedback. You will be presented with the following web page.

Please give us your feedback:

Your feedback is very important to us. It is the most direct way we can learn about how the system is actually performing in the field. It also informs us about the direction for future work and improvement. While we very much appreciate your feedback, due to the volume of the feedback we may get, we cannot promise an individual response to your specific input. However, you can rest assured that your input is recorded and carefully reviewed for future improvement.

Back to [Home page](#)

Your feedback:

Please describe the make and model of all the equipment connected to your HTP-1 input and output connectors:

HDMI 1:
HDMI 2:
HDMI 3:
HDMI 4:
HDMI 5:
HDMI 6:
HDMI 7:

all feedback history

Please note that the system log files are also uploaded to our server so that we can better review the underlying system operation with reference to the behavior you described.

Your feedback is anonymous unless you volunteer contact information. This is not for requesting support, it is only for providing your feedback and suggestions directly to the development team. Note that you can also use the feedback form to volunteer to be a beta tester.

IR CODE TABLE

The tables below show the entire set of supported IR codes. The HTP-1 accepts NEC® format remote codes at address 0x36C9. The first table lists the codes sent by the included IR Remote Control.

Function	NEC Code	Function	NEC Code	Function	NEC Code
Power Toggle	02fd	User Input 1	609f	Red	51ae
Vol Down	09f6	User Input 2	619e	Green	52ad
Mute Toggle	0af5	User Input 3	629d	Yellow	53ac
Vol Up	0bf4	User Input 4	639c	Blue	54ab
Mode None	1be4	User Input 5	649b	A	55aa
Mode Dolby Surround®	1ce3	User Input 6	659a	B	56a9
Mode DTS Neural:X®	1de2	User Input 7	6699	C	57a8
Mode Native	1ee1	User Input 8	6798	D	58a7
Mode Auro-3D®	1fe0	User Input 9	6897	Preset 1	03fc
Night Toggle	40bf	Last Input	44bb	Preset 2	04fb
Dialog Up	41be	HDMI+	4db2	Preset 3	05fa
Dialog Down	42bd	SPDIF+	4eb1	Preset 4	05f9
Dirac® Toggle	47b8	Analog+	4fb0	Info	43bc
BT Pair	59a6	Stream+	50af	Dim	45ba
Loudness Toggle	5aa5				

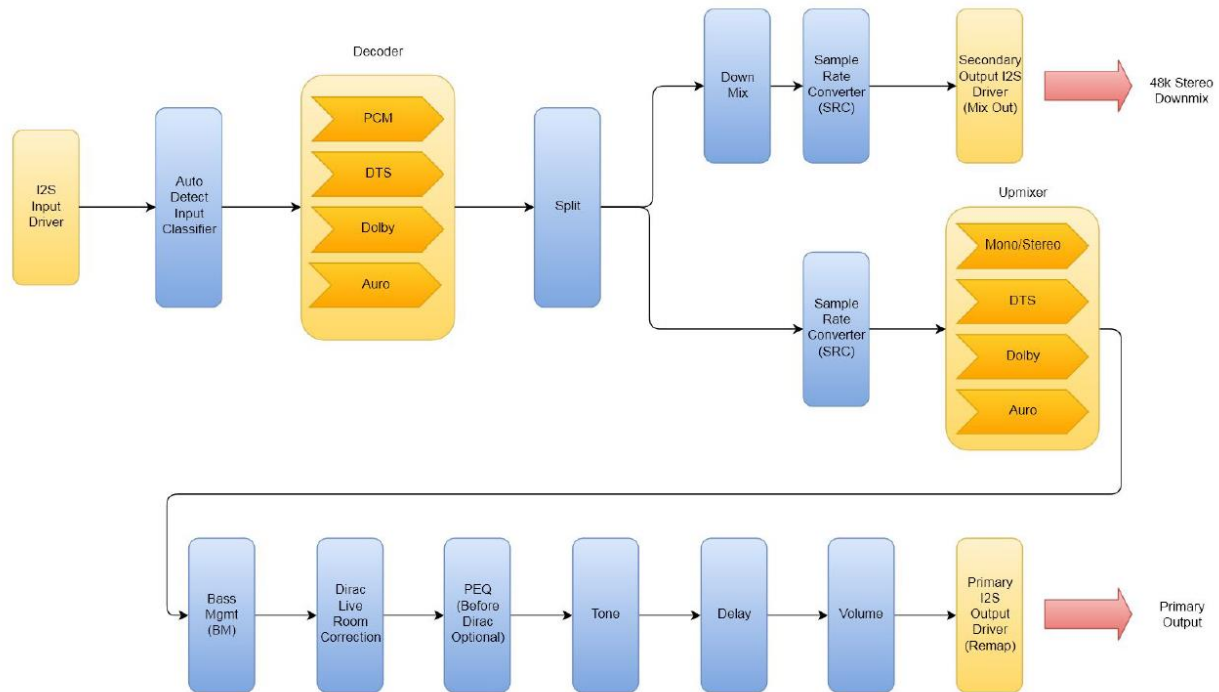
Note that only the **Volume Up** and **Volume Down** buttons support the standard NEC® repeat code for repeating these keys. All other buttons do not support button repeat.

The following table lists all other codes recognized by the HTP-1.

Function	NEC Code	Function	NEC Code	Function	NEC Code
Power Off	25da	TV Input	0ef1	In Analog 1	27d8
Power On	26d9	In HDMI 1	0ff0	In Analog 2	28d7
Mute On	4bb4	In HDMI 2	10ef	In Optical 1	29d6
Mute Off	4cb3	In HDMI 3	11ee	In Optical 2	2ad5
Loud On	3ac5	In HDMI 4	12ed	In Optical 3	49b6
Loud Off	3bc4	In HDMI 5	13ec	In Coaxial 1	2bd4
Night On	3cc3	In HDMI 6	14eb	In Coaxial 2	2cd3
Night Off	3dc2	In HDMI 7	15ea	In Coaxial 3	48b7
Dirac® On	3ec1	In HDMI 8	17e8	In Roon	4ab5
Dirac Off	3dc0			In Bluetooth®	46b9
				In USB	2dd2
				In AES	5ba4

SIGNAL PROCESSING FLOW

The following diagram gives a rough idea of the signal flow inside the HTP-1.



TECHNICAL SUPPORT

Monoprice is pleased to provide free, live, online technical support to assist you with any questions you may have about installation, setup, troubleshooting, or product recommendations. If you ever need assistance with your new product, please come online to talk to one of our friendly and knowledgeable Tech Support Associates. Technical support is available through the online chat button on our website www.monoprice.com or through email by sending a message to tech@monoprice.com. Check the website for support times and links.

SPECIFICATIONS

Model	HTP-1
Part Number	38788
Video Inputs	8x HDMI®
Audio-Only Inputs	2x analog stereo RCA, 3x digital coaxial, 3x digital optical, 1x AES/EBU, 1x ARC/eARC
Streaming Inputs	Bluetooth® and Roon®
Video Outputs	1x HDMI ARC/eARC, 1x HDMI
Audio Outputs	16-channels balanced XLR line outputs, unbalanced stereo analog RCA
Triggers	1x trigger input, 4x trigger outputs
HDMI Version	2.0
HDCP™ Version	2.3
Maximum Video Resolution	4K@60Hz UHD
Audio Frequency Response	20Hz ~ 20kHz
Supported Audio Codecs	Dolby Atmos®, Dolby TrueHD™, Dolby Digital®, Dolby Surround®, DTS:X®, DTS Neural:X®, DTS-HD Master Audio™, Auro-3D®, Auro-Matic®
Crossover	Variable 4th order Linkwitz-Riley
Room Correction/Equalization	Dirac Live® (licensed with HTP-1 ownership)
Built-in Audio Correction	Bass and Treble tone controls, 16-band parametric equalizer with independent speaker control on each band
Connectivity	Wired 10/100/1000Mbps Ethernet, Wi-Fi®
Input Power	100 ~ 240 VAC, 50/60 Hz
Dimensions	17.1" x 5.7" x 12.0"

REGULATORY COMPLIANCE

Notice for FCC



This 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 received, including interference that may cause undesired operation.

Modifying the equipment without Monoprice's authorization may result in the equipment no longer complying with FCC requirements for Class B digital devices. In that event, your right to use the equipment may be limited by FCC regulations, and you may be required to correct any interference to radio or television communications at your own expense.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and 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:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

RF Exposure Statement for FCC



Caution

This equipment complies with radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must be at least 20 cm from the user and must not be collocated or operated in conjunction with any other antenna or transmitter.

Notice for Industry Canada

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

RF Exposure Statement for Industry Canada



Caution

This equipment complies with radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must be at least 20 cm from the user and must not be collocated or operated in conjunction with any other antenna or transmitter.

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