

# 2-Channel Business Audio System

For Easy On Hold® and Brandi Music  
Phone-On-Hold and Background Music

## USER GUIDE

Version 2.1.0

**Thanks for choosing Easy On Hold®, and the newest,  
most advanced business audio system available.**

This guide will provide more than basic instructions. You'll learn helpful tips that will unlock many innovative performance features. For that reason, it is recommended that you review every page of this guide and keep it in a convenient place for future reference.



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## IN THE BOX



- A. Power Cable (6 feet / 2 meters. 5V 3.0 Amps)
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- E. User Guide
- F. RCA-to-RCA mono audio cable
- G. RCA-to-3.5mm audio adapter

### **OPTIONAL ACCESSORIES**

- H. 6-foot Ethernet Cable (supplied for streaming audio users)
- I. 3.5mm-to-dual-RCA audio cable (supplied for Brandi Music users)

## QUICK SET-UP GUIDE



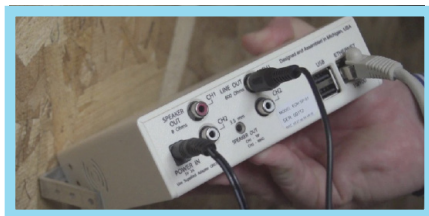
Plug Ethernet cable (provided) into Ethernet Port and connect to internet source.



Connect power cable to device, marked POWER IN; plug power adapter into a surge-protected outlet.



After approximately 20 seconds, the display will illuminate and begin to show information. A musical chime indicates successful start-up. Within one minute, the device will play content.

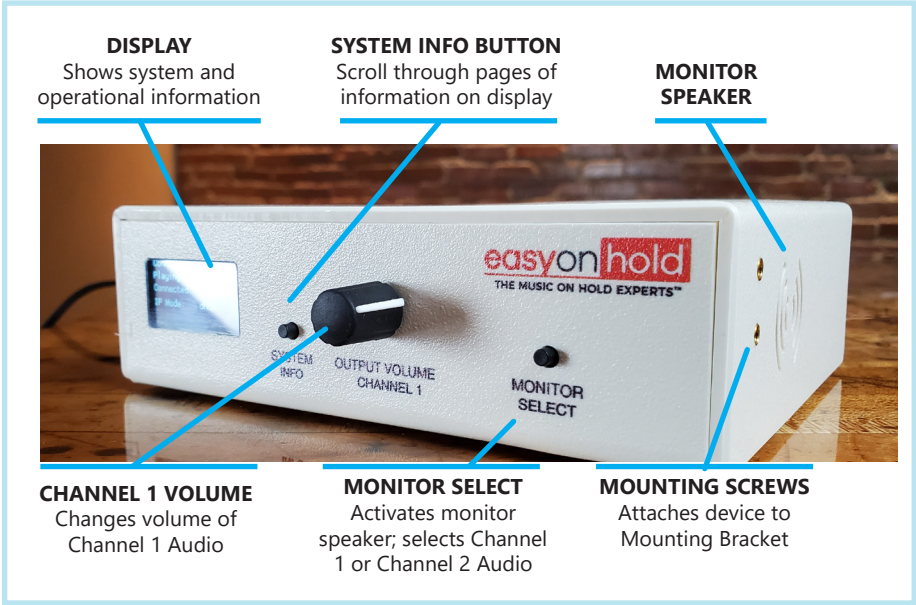


Connect audio cable between active output channel on device and phone system or amplifier; check volume.

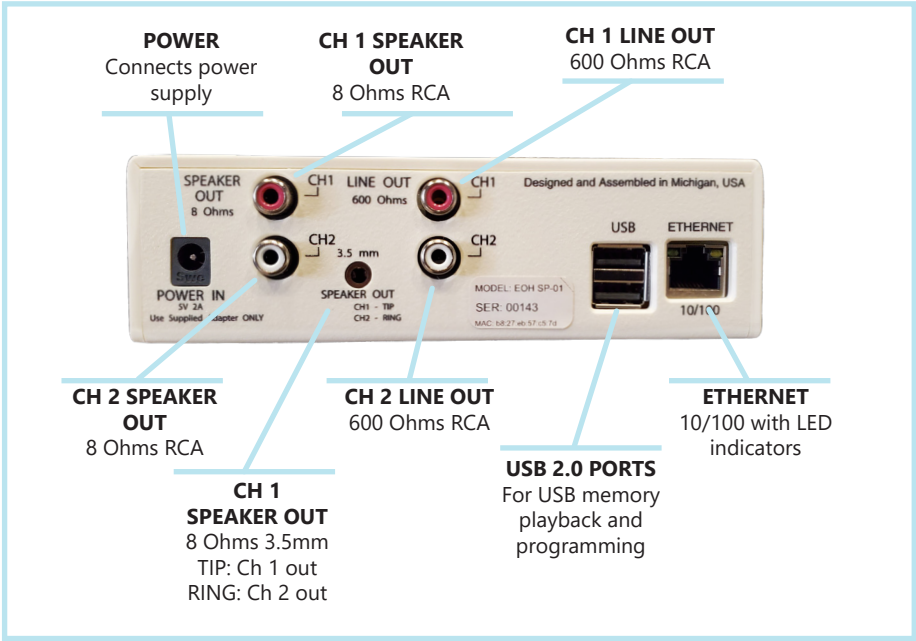
NOTE: Audio output for your phone system or amplifier may differ from shown.

# 1. PRODUCT TOUR

## 1.1 FRONT



## 1.2 BACK



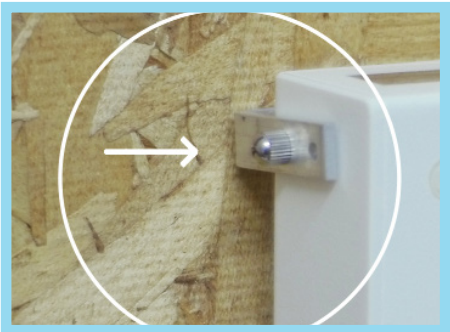
## 2. INSTALLATION

### 2.1 MOUNTING THE DEVICE

The included mounting bracket and screws may be used to mount the player to a wall in a position that allows easy viewing of the device display.



Attach the bracket to the wall.



Connect the device to the bracket using provided knurled screws.

### 2.2 STAND-OUT WALL MOUNTING



Shown: Stand-out wall mounting that allows the device to "swivel" for easy access.



The device may be mounted in a high position while still allowing easy access to controls and display.

### 2.3 SHELF MOUNTING

The device is equipped with rubber feet installed, for non-slip shelf mounting.



### 3. INTERNET AUDIO STREAMING MODE

This 2-Channel Business Audio System has been built to provide high quality, continuous audio via http mp3 internet stream. Stream configuration is typically done by Easy On Hold®. Wireless connectivity is available, however a wired internet connection is preferred.

#### 3.1 INTERNET CONNECTIVITY CHECKLIST

- ☐ **For wired connection:** Locate available port in router or switch.
- ☐ **For wireless connection:** Provide SSID and Password to Easy On Hold® for configuration. Device may be configured for private networks upon request.
- ☐ **If DHCP:** Router is able to hand out IP addresses from DHCP Pool.
- ☐ **If STATIC:** Provide Unit IP, Default Gateway, Network Mask, DNS Server 1, DNS Server 2 to Easy On Hold® for configuration.
- ☐ **FIREWALL SETTINGS:** Contact Easy On Hold for settings specific to your stream.  
Ports clear for traffic: 80 (http), 443 (https), 53 (DNS), 123 (Network Time / NTP).  
Network Time Protocol: pool.ntp.org  
Stream URI: \*easynholdcloud.com

#### 3.2 DEVICE START-UP: FOLLOW STEPS IN THIS ORDER

1. Plug Ethernet cable (provided) into Ethernet Port and connect to internet source.
2. Connect power cable to device, marked POWER IN; plug power adapter into a surge-protected outlet.
3. After approximately 20 seconds, the display will illuminate and begin to show information.
4. A musical chime indicates successful start-up. Within one minute, the device will play content.

#### 3.3 CHECK TO SEE IF DEVICE IS ONLINE

1. Device screen will indicate status as ONLINE or OFFLINE.
2. Music playing will indicate STREAM or LOCAL source.





### **3.4 DEVICE OFFLINE? TROUBLESHOOTING STEPS**

If the device is not connecting to the stream, check the following:

- The device has an internet connection (observe activity lights on the ethernet port on the device).
- The device is plugged into an active connection on your switchy or router. Is the switch port active and unblocked?
- For a static device, confirm settings with Easy On Hold support.
- For a DHCP device, is there an active DHCP pool? Can the device be discovered on the network?
- Are the necessary ports clear? Check for allowable traffic on Ports: 80 (http), 443 (https), 53 (DNS), 123 (Network Time / NTP).
- Check to be sure pool.ntp.org is allowed.
- Whitelist anything \*easyonholdcloud.com.

## **4. USB AUDIO SOURCE MODE**

If internet connectivity is not available or desired, the 2-Channel Business Audio System may be configured to play audio files stored on a USB Flash drive. Insert the music drive provided by Easy On Hold into one of the USB ports on the device.

### **4.1 USB DRIVE SPECIFICATIONS**

Only a USB FLASH memory stick device should be connected to the USB Port of the player. This USB memory device is used for direct playback of audio files or to load configuration files and media content into the player. The USB port should not be used for any other purposes.

- USB drive must be formatted with a FAT32 file system.
- Audio files may be .mp3 or loss-less .flac, up to 320Kbps.
- Files may be named with or without spaces, but must end in .mp3.
- Files are played in alpha-numeric order and repeat continuously.

### **4.2 USB SOURCE STARTUP AND OPERATION**

1. Insert USB Drive with device powered off.
2. Plug in device. USB drive is recognized during bootup.
3. Test audio by pushing Monitor Select button once (USB audio only plays on Channel 1).
4. Volume knob controls both output volume and speaker volume.
5. Tap Monitor Select button twice to turn monitor speaker off.



### 4.3 CHANGE CONTENT ON USB DRIVE

1. Place USB drive into active port on PC. Drive is called MOH Drive.
2. Callers hear the internally-stored audio while drive is removed.
3. Remove audio from drive and replace with MP3 audio file provided by Easy On Hold.
4. All MP3 audio files on drive will play in alpha-numeric order.
5. Unplug power to 2CBAS device.
6. Insert USB drive in device and restore power.

Check volume by calling and listening on hold. Adjust volume with volume knob.



Video shows you how to set up your Easy On Hold Business Audio System to use audio from a USB drive for music and messages on hold: [https://youtu.be/mYM9ze5NM\\_o](https://youtu.be/mYM9ze5NM_o)

## 5. ANALOG AUDIO CONNECTIONS AND VOLUME

Audio source requirements of phone systems and business background music systems vary. Choose an output from the following:

### 5.1 ANALOG AUDIO CONNECTIONS

**Channel 1** (the default output when only one channel of audio is in use): 8-Ohms RCA, 8-Ohms 3.5mm, 600-Ohms RCA. For a typical PBX phone on hold installation, begin with 600-Ohm output. Volume levels are controlled by the volume knob on device.

**Channel 2:** 8-Ohms RCA, 600-Ohms RCA. *Volume knob does not control output for Channel 2.* Volume is a fixed level set by Easy On Hold support.

**Connection to phone system** may be 3.5mm, RCA or punch-down block. Commonly-used adapters are shipped with the device. An RCA-male-to-RCA-male audio cable is shipped with the device, along with a female-RCA-to-male-3.5mm adapter. (See types of connectors on next page.)



5.2 AUDIO CONNECTORS



3.5mm Mono Adapter

An audio adapter is provided in the event your phone system requires a 3.5mm connection. *Note, this adapter is only to be used on the phone system connection, not in the 2CBAS.*



RCA Mono

The RCA-to-RCA cable (provided) is preferred for Channel 1 and Channel 2 outputs.

RCA Type Connections



3.5mm Stereo

The 3.5mm Stereo Output is a speaker-level (8-Ohm) output that carries BOTH channels of audio. The TIP is carrying Channel 1 audio and the RING carries Channel 2 audio. If the 2CBAS device is set up to play in Stereo, the 3.5mm connector can be used.

Alternatively, a splitter cable, as shown, can be used to separate Channel 1 and Channel 2 audio.

*Caution: Do NOT attempt to place a 3.5mm plug into an RCA jack on the 2CBAS device; damage may occur.*



3.5mm Stereo Male to 2 RCA Male (as shown on [monoprice.com](http://monoprice.com))

5.3 VOLUME CONTROL

**Volume knob.** The Volume knob on the device controls the output volume of Channel 1 audio only. Changing the volume using the volume knob will affect the output of all Channel 1 audio connections as well as the monitor speaker.

**Channel 2 Volume.** Channel 2 is not configurable on the device. When used as a source of overhead/background music, volume is controlled at the point of amplification. Channel 2 volume can be changed remotely by Easy On Hold Support.

6. OVERHEAD/BACKGROUND MUSIC APPLICATION

The high-quality digital audio processing designed into the 2-Channel Business Audio System is ideal for overhead music and announcements in your business.

6.1 MONO VS. STEREO

Unless otherwise requested, the Business Audio System combines the Left and Right channels of music from your Brandi Music stream to output *mono audio*. When a single channel of audio is needed, it will be on Channel 1, with Channel 2 silent. Easy On HOLD can configure a second stream to be available on Channel 2. For overhead amplification use, the 8-Ohm output is recommended.

**Why is mono preferred for overhead/background music?**

Enjoying the benefits of stereophonic sound requires the listener to hear both the left and right audio channels. In a business or retail setting, the location and numbers of speakers usually make this impractical. Therefore, monophonic distribution is preferred.

**6.2 CONNECTIONS TO AMPLIFIER**

For overhead/background music use, an amplifier is required. The 2CBAS device is not intended to provide amplification over speakers.

**Audio On Channel 1 Only:** RCA Channel 1 out.

**Audio On Channels 1 and 2 (multi-zone):** RCA Channel 1 Speaker (8-Ohm) out for Zone 1; RCA Channel 2 Speaker (8-Ohm)) out for Zone 2. Alternatively, 3.5mm out, feeding Channels 1 (TIP) and 2 (SLEEVE).

**Controlling the volume in for multi-zone outputs:** The volume knob on the front of the device controls the output level of the monitor speaker and all Channel 1 analog output jacks. Volume for Channel 2 audio cannot be set locally. Contact Easy On Hold support (support@easyonhold.com) to request a change in output level for Channel 2.



Amplifier should be in MONO mode.

**Amplifier should be in MONO mode.** If available, use MONO mode on amplifier to allow use of a single connection to the amp from the audio device. If mono mode is not available, use a cable splitter to feed audio to both Left and Right channels.

**Amplification is required for overhead/background music systems.** Do not connect the 2CBAS directly to speakers.

## 7. GENERAL OPERATION

### 7.1 DISPLAY

During normal use, the display shows a rotation of five or (if Channel 2 in use) six screens.

1. Title Page, including Easy On Hold® support phone number
2. Now Playing on Channel 1: artist, track title
3. Now Playing on Channel 2: artist, track title (if configured)
4. Client Name and Device Serial Number
5. Connection Status
6. Current time and date (local)

**System Info.** The display screen has 15 pages of information available. The **SYSTEM INFO BUTTON** is used to select information pages shown on the display to help with configuration and diagnosis of the system. After a short delay, the unit will return to Screen Rotation Mode, as described in 3.1, above. See the full list of SYSTEM INFORMATION PAGES in Appendix A of this publication.

### 7.2 VOLUME KNOB

The rotary volume knob adjusts the output level for Channel 1 on the RCA LINE OUT, RCA SPEAKER OUT, Channel 1 on the 3.5 mm SPEAKER OUT connectors.

**NOTE:** *When Monitoring Channel 1 using MONITOR SELECT, changes in volume level will be heard on both the internal speaker and the phone system or audio system connected to Channel 1.*

**NOTE:** *Channel 2 is a "fixed output" and cannot be controlled by the volume knob.*

### 7.3 FAILOVER ARCHITECTURE

When used as an internet-connected device, the Business Audio System will continuously monitor connectivity. In the event of a loss of internet service, the system will play pre-configured locally stored files. When connectivity is restored, the unit will automatically resume playing the internet stream.

### 7.4 CHANGING CONTENT

When using the device as a local audio player (USB drive audio files), see 2.6 of this guide, LOCAL FILE PLAYBACK OPTION. For use with streaming content, login to your account at <https://easonhold.com> and/or <https://brandimusic.com>. A robust web application provides access to content management.

## 7.5 MONITOR SPEAKER

Each press of the **MONITOR SELECT** button will cycle through the following modes:

- Listen to Channel 1 on Monitor Speaker.
- Listen to Channel 2 on Monitor Speaker.
- Monitor Speaker off.

The display will briefly show the current monitor mode.

NOTE: Channel 2 is a "fixed output" and cannot be controlled by the volume knob.

## 8. ADVANCED OPERATIONS

### 8.1 CHANGE WIRED/WI-FI MODE

Wired connectivity for streaming mode is always recommended, however Wi-Fi can also be used. To switch between Wired and Wi-Fi Modes, contact Easy On Hold® Support (support@easyonhold.com). Configuration files are loaded through the USB Port or remotely.

### 8.2 REMOTE SYSTEM UPDATES

From time to time, it may be necessary to update the software in the Business Audio System. This can be done locally or remotely. As long as the device is able to connect to the update server, new versions of the software can be deployed. The device will automatically reboot to activate the new software, causing an interruption in audio playback of about 30 seconds. Updates are scheduled events and can happen at a time that is convenient to you.

### 8.3 SPECIAL OPERATIONS MENU

To enter the Special Operations Menu, press and hold both the SYSTEM INFO and MONITOR buttons for 5 seconds, then release. Once in the Special Operations Menu, use the System Info Button to step through several "pages" or "screens". When the display indicates a desired option, press the Monitor button to activate the displayed option.

The following options are available from Special Operations Menu:

- Shutdown – Activates safe shutdown process to make device ready to be unplugged.
- Volume Ch2 – Temporary volume for this power cycle only. Contact Easy On Hold® support to configure this level permanently.
- Volume Ch1 – Temporary volume for this power cycle only. Works in series with the front panel volume control to limit maximum level. Contact Easy On Hold® support to configure this level permanently.
- Play USB Only – Forces device to play audio from a connected USB drive only.
- Temporary DHCP – Forces device to try to get a DHCP IP address. Used when debugging network issues.
- Reboot – Immediately reboots the device.
- Exit – Returns device to previous normal play mode.

The Special Operations Menu will time out and return to normal play after two minutes.

## **8.4 RTP STREAMING OVER ETHERNET**

RTP ("Real Time Transport") is a digital audio network protocol used to connect to modern phone systems compatible with this format. When RTP is enabled, the 2-C BAS receives the HTTP network stream from the internet and locally "transcodes" the stream, sending digital audio to the phone system (typically attached within the local network). The phone system format is typically G.711  $\mu$ Law ("mu-law") or A-Law format. The 2-C BAS supports RTP as multicast (broadcast) and unicast (device-to-device) connections over the UDP protocol. Please contact Easy on Hold support (support@easonhold.com) for further information.

## **9. PRODUCT SAFETY INFORMATION**

Protect the unit against moisture, dirt and any kind of damage during transport, storage and operation.

Install in a clean, dry location.

It is advised that the device remain powered up 100% of the time.

When installing this product in a rack, control cabinet, or other area where dangerous voltages are present, always switch off the power supply to the cabinet or equipment.

Do not operate the unit outside the parameters specified in technical data. See Appendix B, page 11 in this guide.

Ensure that the product is properly installed and ventilated to prevent overheating.

Follow all applicable electrical safety standards, guidelines, specifications and regulations for installation, wiring and operations of this product.

Using excessive force with tools may damage the product or degrade its safety.

## **10. FCC INFORMATION**

### **10.1 USA**

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to 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.

### **10.2 CANADA**

This device has been tested and found to comply with the limits for a Class B digital apparatus, pursuant to Canadian ICES-003.

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

## 11. OPEN SOURCE SOFTWARE

The following open source software authors are acknowledged for their generous work. luma.oled, luma.core, PIL, RPi.GPIO, Mpv, pythonmpv.

Additional information about the product software is available on Easy on Hold's® website, located at: <https://easynhold.com/product-software/>.

## 12. COMPLIANCE INFORMATION

This product contains a standard Raspberry Pi 3 Model B single board computer. This board has WiFi and Bluetooth radios.

### 12.1 USA

Raspberry Pi 3 Model B FCC IDENTIFIER: 2ABCB-RPI32

The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter, except in accordance with FCC multi-transmitter product guidelines. This (WIFI DTS) device has 20 MHz bandwidth mode.

### 12.2 CANADA

Raspberry Pi 3 Model B IC CERTIFICATION No.: 20953-RPI32

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

## 13. LIMITED WARRANTY

Easy On Hold® warrants the device hardware against defects in materials and workmanship under normal use for a period of five (5) years from the date of purchase ("Warranty Period") if used in accordance with the documentation provided with the device. If Easy On Hold® determines that the device's hardware is defective during the Warranty Period, Easy On Hold's® sole obligation, and your exclusive remedy, will be to either repair or replace the unit with either a new or rebuilt player, at its option. Important information about warranty returns and replacements is available at: <https://easynhold.com/purchase-policy/>.



## APPENDIX A: **SYSTEM INFORMATION PAGES**

Press SYSTEM INFO button to manually scroll through the following screens:

1. Title Page, including Easy On Hold® support phone number
2. Now Playing on Channel 1: artist, track title
3. Now Playing on Channel 2: artist, track title (if configured)
4. Client Name and Device Serial Number
5. Connection Status
6. Current time and date (local)
7. Network Settings – This page shows items useful for diagnosing network connectivity issues, including Internet Protocol Address (IP Address), Internet Gateway, Netmask, Ethernet MAC address. The IP address, Gateway and Netmask are either obtained via DHCP when that is mode configured, or configured statically during installation, using values provided by your network administrator. The ethernet MAC address is a fixed value, set during manufacturing.
8. Network Statistics – This page shows network Internet Protocol address, network errors and network packet counters. These are useful to show the network connection is operating correctly.
9. Network DNS Information – This page shows the Domain Name System (DNS) server addresses in use. These are typically allocated automatically by the DHCP server, or configured statically during installation, using values provided by your network administrator.
10. Time Information – Network Time Protocol information. Shows the server used to obtain the correct time and the currently configured time zone.
11. Device Statistics – This page shows: current temperature, maximum temperature (both in degrees Celsius), up-time since power on and total run-time for the unit (in hours). The unit should be operated in normal room temperature environment, between 10 and 30 degrees Celsius (50 and 86 °F).
12. Stream Position – Shows the current stream position in seconds. Useful for diagnosing that the network and stream playback are operating correctly.
13. Data Storage (Memory) – Shows space on internal storage partitions.
14. USB Information – Shows the available space on USB drive, if in use.
15. System Statistics – To assist in diagnosing system issues, this page shows a selection of internal statistics, including uptime, processor load, memory usage, disk usage and Ethernet / WiFi network usage.

### OTHER ON-SCREEN NOTICES

Latency - Shows ping response to source server. 100ms or less is considered normal.

RTP Range - If RTP is enabled, screen can display configured rtp settings.

APPENDIX B: **SPECIFICATIONS**

POWER SUPPLY	Length: 6 feet / 2 meters. 5V 3.0 Amps Only use provided adapter. Input 100V-240V AC
OUTPUTS	Line Out - RCA Speaker Out - RCA Speaker Out - 3.5mm "tip-ring-sleeve": Channel 1: Tip; Channel 2: Ring; Ground: Sleeve
NETWORK	RJ-45 10/100 Ethernet IEEE 802.3
WI-FI	2.4 GHz BGN IEEE 802.11 Internal Antenna
INTERNET ACCESS	http: and https: Port 80 and Port 443 With network time configured: UDP Port 123
WEIGHT	1.2 Pounds / .54 Kg with packaging
SIZE	5.9 x 1.8 x 5.7 inches / 151 x 45 x 145 mm
OPERATING TEMPERATURE	0° C to 45° C / 32° to 113° F
STORAGE TEMPERATURE	-20° C to +70° C / -4° to 158° F
STREAM TYPES	HTTP MP3, RTP µLaw 8Bit 8khz (Configurable)
BANDWIDTH CONSUMPTION	0.025 GB/hr @128Kbps / 0.13 GB/hr @ 192Kbps
SSH	Disabled
I.P. ADDRESS TYPE	Static or DHCP
TIME SERVER	UDP Port 123; may be configured to custom time server
URLs	streaming.easynhold.com and/or easynholdcloud.com and/or streaming.brandimusic.com
SOURCE I.P. (FIREWALL RULES)	52.152.204.149 over TCP 443

Designed, engineered and built in Michigan, USA. Some parts imported.

Notes

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## Notes

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THE MUSIC ON HOLD EXPERTS™

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