



Bettear CASTER | User Manual

High-Performance Auracast™ Audio Streamer

www.bettear.com

Firmware Version: 1.0.8



Highlights:

- Low-Latency Audio Streaming (<40ms)
- Secure Audio Streaming
- Audio Optimization (AGC, LPF, HPF)
- Intuitive Management Dashboard
- Power and Audio Cascading
- Full Support for Auracast™ Enabled Devices
- Extended Wide-Area Coverage

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OVERVIEW

The CASTER is a powerful Auracast™ streamer designed to effortlessly sample and broadcast audio across diverse environments—perfect for both **assistive listening** and **high-fidelity real-time streaming**.

It includes a built-in, user-friendly web management panel, allowing quick and intuitive configuration over an Ethernet connection.

Designed for versatility, the CASTER is easy to install and seamlessly integrates into a wide range of setups, making it an ideal choice for various audio deployment scenarios.

Ensure the best listening experience for everyone—powered by the CASTER.

Theaters

Sports Arena

Cinemas

Classrooms

Meeting Rooms

Airports

Law Courts

INTRODUCING THE CASTER

FRONT PANEL – INDICATION LED

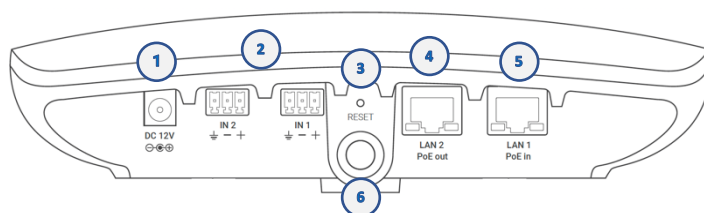
1. Power Indicator
2. Audio Broadcasting Indicator
3. LAN 1 Connectivity Indicator
4. LAN 2 Connectivity Indicator

Note: LAN 1 and LAN 2 indicators can also operate as audio presence indicators, switchable via the CASTER management panel.



REAR PANEL - CONNECTORS

1. Power Input 12VDC, 2.5A (Compatible plug: 2.0ø x 5.5ø x 9.0 mm)
2. **IN 1** and **IN 2**: Balanced Analog Audio Inputs (Terminal Block Jack)
3. Reset Button
4. **LAN 2** (PoE Out)
*Supported only on CASTER-S licensed devices
5. **LAN 1** (PoE In)
6. Mounting Hole (3/8" Internal Thread)



QUICK START

1. **Connect to Audio** – Connect **IN 1** and **IN 2** to an audio source.
For the best audio quality, it is highly recommended to use balanced audio inputs.
2. **Connect to Power** – Use a 12VDC (⊖⊕) power supply, or a Power Over Ethernet (PoE) source.
3. **Access, Listen, Enjoy** – Use an Auracast™-compatible device to search and connect to the ‘B-CASTER’ stream.

Note: For advanced configurations, access the **CASTER management panel**.

Refer to the **MANAGEMENT PANEL** on page 4 for more details.

MANAGEMENT PANEL

The CASTER can be easily managed and optimized for best performance across various use cases.

Access the device’s management panel to configure and control advanced settings, such as transmission power, broadcast name, security, audio quality, processing and more.

ACCESSING THE CASTER MANAGEMENT PANEL

Direct Connection to a Laptop

In **stand-alone mode**, you can seamlessly access the CASTER management panel by directly connecting your laptop to the CASTER. **To access the management panel in this setup:**

1. Connect an Ethernet cable from your laptop to the **LAN 1** port of the CASTER.
2. Configure your laptop’s network settings:
 - a. Open ‘Network Settings’ and set the Ethernet adapter to **static IP mode**.
 - b. Assign a static IP address within the same subnet as the CASTER’s default IP (for example: 192.0.2.10).
 - c. Set subnet Mask to **255.255.255.0**.
3. Open a web browser (Google Chrome, Safari, etc.).
4. Enter the CASTER’s default IP address in the address bar: **192.0.2.1**, then press **Enter**.
5. You can now access the CASTER management panel.

Connection Over Network

The CASTER can be integrated into an existing network where IP addresses are automatically assigned by an existing DHCP server. **To access the management panel in this setup:**

1. Connect an Ethernet cable from the **LAN 1** port of the CASTER to the local network switch.
2. Connect a laptop to the network via Wi-Fi or wired connection.
3. Use an IP Scanner to find the CASTER’s IP address.
Optional scanners: Windows - Advanced IP Scanner | macOS - LanScan
4. Identify the CASTER by searching ‘Betttear – Accessibility Technologies Development’ under the ‘Manufacturer’ / ‘Vendor’ section.
5. Open a web browser (Google Chrome, Safari, etc.).
6. Enter the CASTER’s IP address in the address bar and press Enter.
7. You can now access the CASTER management panel.

MANAGEMENT PANEL OVERVIEW

Advanced features and settings can be accessed and configured through the CASTER management panel.

Device Info

This section provides key information about the device, including:

- Device model
- Current firmware version
- Serial number
- Applied license
- MAC address
- Self-assigned local IP address



Model	B-CASTER
Firmware	1.0.8
S/N	CTR125020002
License	CASTER S
MAC	A4:59:D3:50:00:02
IP Address	192.0.2.1

Broadcast Settings

This section allows to configure and control the audio broadcast and sharing settings. Select the required mode that matches your project requirements.

Stereo Broadcast Mode

IN1 and **IN2** inputs are streamed as single **stereo channels**.

Stereo Broadcast Mode Overview:

Enable / Disable broadcast ☒ Enable Broadcast

Toggle this switch to enable or disable the broadcast advertisement. Disabling the broadcast prevents users from accessing the stream.

Broadcast name

Customize the broadcast name that will be advertised and displayed to listeners.

*The broadcast name must be between 4 and 32 characters long.

*The broadcast name currently supports only English letters, numbers and symbols.

Support for additional languages will be added in the future.

Broadcast

Stereo Broadcast

Dual Mono Broadcasts

Extender Broadcast

☒ Enable Broadcast

QR

Broadcast Name

B-CASTER

☐ Encrypted Broadcast

Passphrase

☐ Compatibility Mode

Audio Sharing

☐ Enable

Transport

☒ Multicast

239.3.2.1

☐ Unicast

Enable / Disable encryption ☒ Encrypted Broadcast

Configure the broadcast as open or encrypted depending on the installation requirements.

If **Encrypted Broadcast** is enabled, enter a passphrase (up to 16 characters) to access the stream.

Generate QR code

Press the  button to generate, copy and save an Auracast™ connection QR code, providing quick and easy access to the broadcast stream for third-party supported devices.



Audio Sharing

Enable **Audio Sharing** to allow other CASTER devices on the same network to connect to a **Master** device and receive its audio inputs over the network.

Audio sharing supports both **Multicast** and **Unicast** modes, allowing flexible configuration to meet different network requirements.

Refer to the **AUDIO-OVER-ETHERNET SHARING** on page 9 for more details

Dual Mono Broadcast *

IN1 and IN2 inputs are streamed as two separate mono channels.

Note: This feature is displayed in the interface but is not yet active. It will be enabled in a future firmware update.

Extender Mode

A CASTER operating in Extender mode receives audio from a Master CASTER (with Audio Sharing enabled) via the Ethernet network and rebroadcasts it to extend Auracast™ coverage.

Multiple CASTER devices can be deployed in Extender mode to extend coverage as required.

Extender Mode Overview:

Master IP Address

Enter the IP address of the **Master CASTER** device to connect to it and receive its audio broadcast.

Broadcast Information

This section displays the Master's broadcast information.

By default, the extender unit is configured with the same broadcast settings as the **Master** device, allowing users to move smoothly and automatically between different broadcasters.

Override Master Configuration

Enabling **Override Master Configuration** allows you to customize the broadcast information as needed.

Audio Settings

This section allows fine-tuning and adjusting of the audio input.

Audio Quality

Select the audio quality that best suits the installation requirements.

Audio Quality	Details	Hearing Aids and Cochlear Implants Support
Low	16 kHz, 16-bit, 32 kbps	Yes
Medium (default)	24 kHz, 16-bit, 48 kbps	Yes
High	48 kHz, 16-bit, 96 kbps	No

AGC (Automatic Gain Control)

Enable or disable **AGC** functionality.

Link Channels

Enable or disable **Link Channels** to adjust the **IN 1** and **IN 2** input gains simultaneously or independently.

Mix Mono

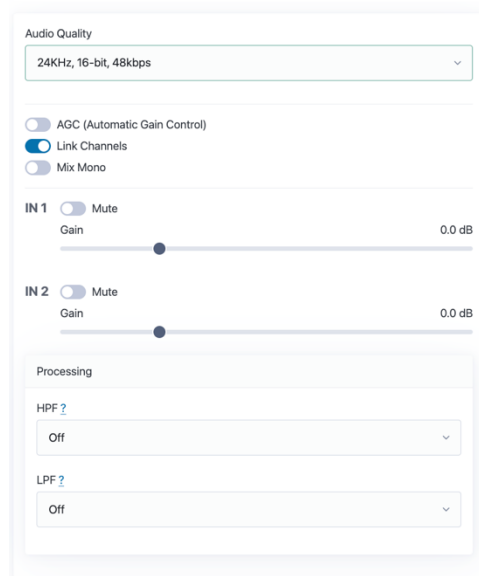
Mixes **IN1** and **IN2** and streams the combined signal as a single **mono channel**. Use the **IN1** and **IN2** gain and mute controls to adjust the broadcast mix.

To broadcast a mono input, enable **Mix Mono** mode and **mute** the unused input.

Input Gains

Adjust **IN 1** and **IN 2** gain sliders to adjust the input levels and balance between the inputs when operating in **Mix Mono** mode. Mute or unmute each input as needed.

Audio



The screenshot shows the 'Audio' settings panel. At the top, 'Audio Quality' is set to '24KHz, 16-bit, 48kbps'. Below this, there are three toggle switches: 'AGC (Automatic Gain Control)' is off, 'Link Channels' is on, and 'Mix Mono' is off. Under 'IN 1', there is a 'Mute' toggle (off) and a 'Gain' slider set to 0.0 dB. Similarly, under 'IN 2', there is a 'Mute' toggle (off) and a 'Gain' slider set to 0.0 dB. The 'Processing' section at the bottom has two dropdown menus: 'HPF ?' is set to 'Off' and 'LPF ?' is set to 'Off'.

Audio Processing

Apply low-pass and high-pass filters to optimize the audio.



The screenshot shows two dropdown menus for audio processing. The first menu is labeled 'HPF' and has options: 'Off' (selected with a checkmark), '80Hz', '120Hz', and '250Hz'. The second menu is labeled 'LPF' and has options: 'Off' (selected with a checkmark), '8KHz', and '12KHz'.

Note: HPF is currently not supported when Transmission Quality is set to 48KHz.



Transmission Power

Adjust the transmission Power using the **TX Power** slider.

Radio

Note: It is the user’s sole responsibility to comply with local regulations. Bettetear will not be held liable for any regulatory violations.

Network Configuration

This section allows configuring the device’s self-assigned IP and network settings.

DHCP Mode

When enabled, the device operates as a client, automatically obtaining an IP address from a DHCP server on the same network, which manage IP assignment.

If no DHCP server is detected, the CASTER defaults to its predefined IP configuration, allowing access in **stand-alone** mode.

Default IP address (if no DHCP server is available):

IP Address	Subnet Mask	Gateway
192.0.2.1	255.255.255.0	0.0.0.0

Static IP Mode

Select **Static IP** mode to manually configure the device’s IP and network settings.

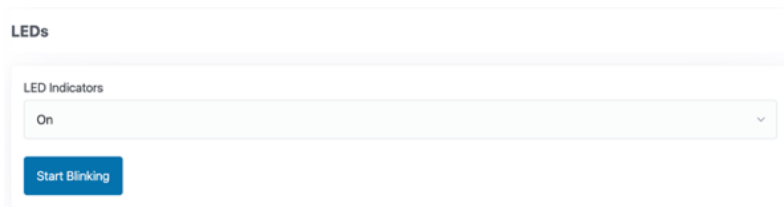
This mode is useful when managing multiple CASTER devices on the same network, as each device must have a unique IP address within the same network range.

Additionally, **Static IP** mode ensures that the device retains a fixed (static) IP address, preventing it from receiving a dynamically assigned IP from the DHCP server.

Note: After modifying the IP configuration and pressing ‘**Save Changes**’, you must reconnect to the management panel using the updated IP address.

LED Indicators

Select the operation mode of the indication LEDs on the CASTER's front panel.



ON	LEDs operate in default mode, indicating whether the device is powered on, broadcasting, and if LAN 1 and LAN 2 are connected.
OFF	Turns off the indication LEDs
Audio Indicator	LAN 1 and LAN 2 LEDs indicate audio input presence and level.

Press '**Start Blinking**' to flash all LEDs simultaneously. This is useful for identifying the device when multiple units are in use.

Save Changes

After modifying the device settings, click '**Save Changes**' to apply the changes or '**Reset**' to discard them.



AUDIO-OVER-ETHERNET SHARING

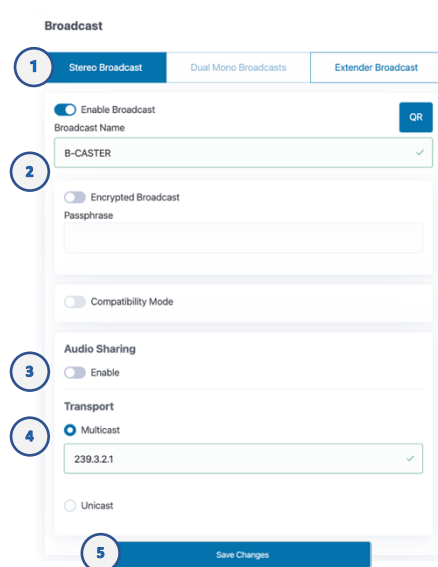
Enable **Audio Sharing** to allow other CASTER devices on the same network to connect to the audio-sharing-enabled device and receive its audio inputs over the network.

Audio sharing supports both **Multicast** and **Unicast** modes, allowing flexible configuration to match different network requirements.

How to set up Audio Sharing:

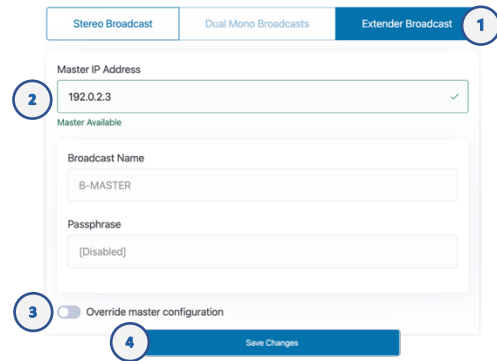
MASTER Setup Steps

1. Select a broadcast mode (**Stereo** or **Dual Mono Broadcast**)
2. Update the broadcast name and passphrase
3. Enable **Audio Sharing**
4. Select the transport type: **Multicast** / **Unicast**
5. Click **Save Changes**



Extender Setup Steps

1. Select **Extender Broadcast** mode
2. Enter the **Master CASTER** device IP address
3. If needed – Override Master Configuration
4. Click **Save Changes**



Note:

- In Unicast mode, audio from each CASTER device can be shared with up to 2 guest CASTER devices.
- In Multicast mode, audio from each CASTER device can be shared with more than 20 guest CASTER devices, subject to network capabilities.
- The allowed multicast IP address range for audio sharing is: 239.3.2.1/24
- When sharing audio from multiple CASTER devices on the same network using Multicast mode, each shared device must be configured with a unique multicast IP address.

Example:

- Shared device #1 multicast IP address: 239.3.2.1
- Shared device #2 multicast IP address: 239.3.2.2
- Refer to the
- on page **14** for more details

CONNECTION TOPOLOGY

CASTER devices support various installation configurations:

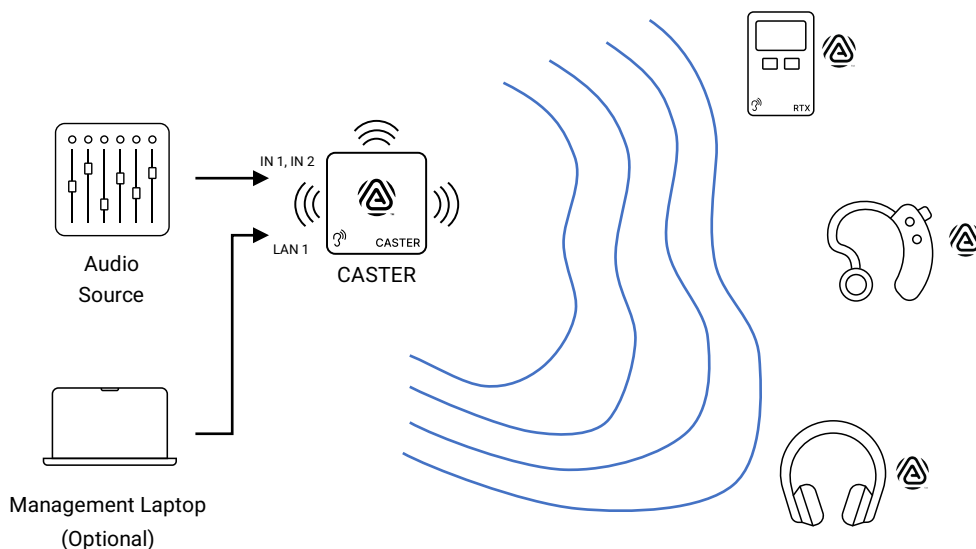


Diagram A

Basic installation
(Stand-Alone Mode)

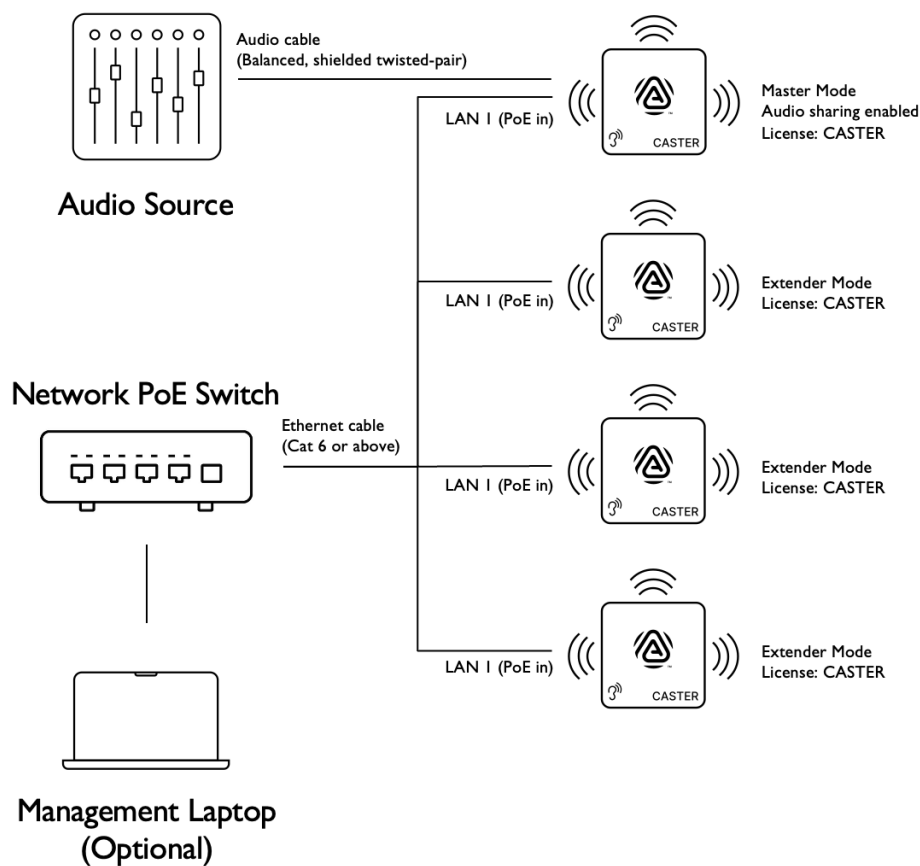


Diagram B

Extender Mode using external network switch

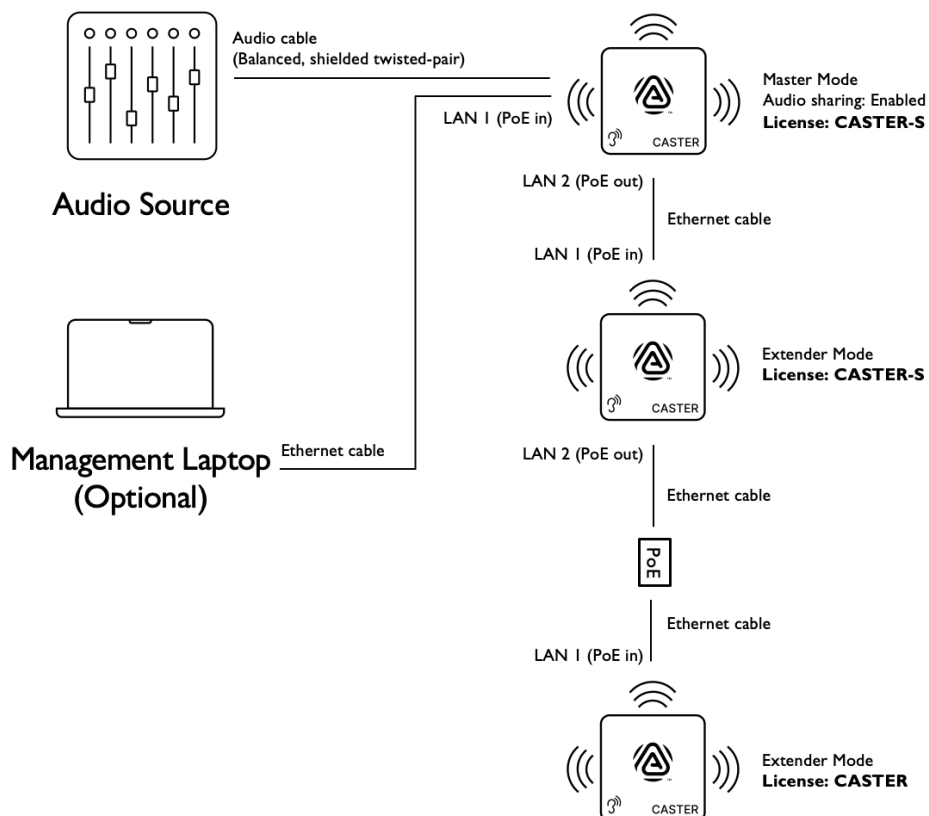


Diagram C

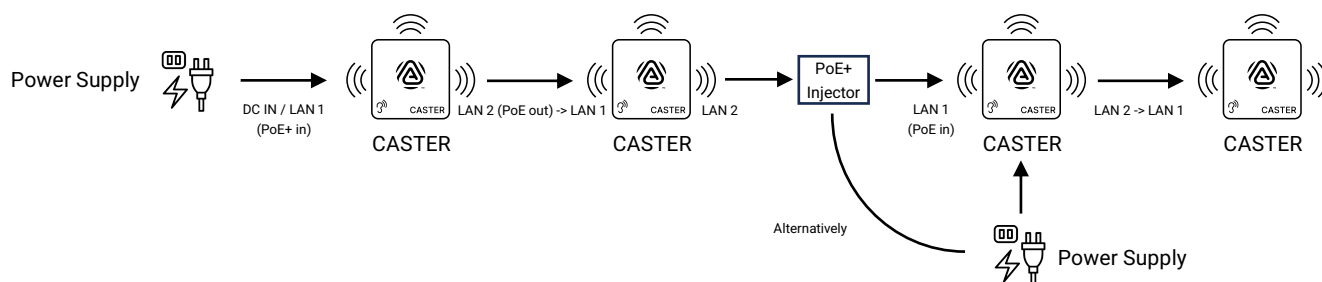
Extender Mode using CASTER-S

CASCADING

The CASTER features two built-in LAN ports enabling the cascading of multiple devices with power, control and audio over a single Ethernet cable.

POE CASCADING

A CASTER device powered by either a 12V power supply or a PoE+ (Power over Ethernet) source can power an additional unit via an Ethernet cable. To link more than two units, a power supply or a PoE+ injector must be connected to the third unit.



Note: A power source connected to **DC in** takes priority over a PoE source connected to **LAN 1 (PoE in)**. If both power sources are connected, the device will use **DC in**.

CONTROL AND AUDIO CASCADING

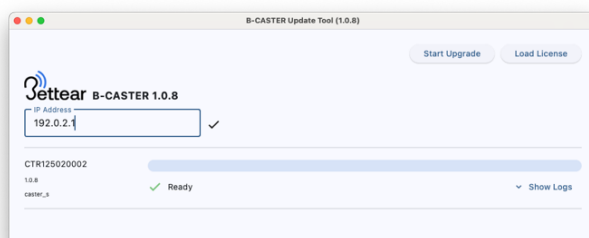
The CASTER built-in network switch allows up to four devices to be linked via Ethernet for control and audio transmission.

For larger setups, additional devices can be connected using an external network switch.

FIRMWARE UPGRADE

To upgrade the CASTER device:

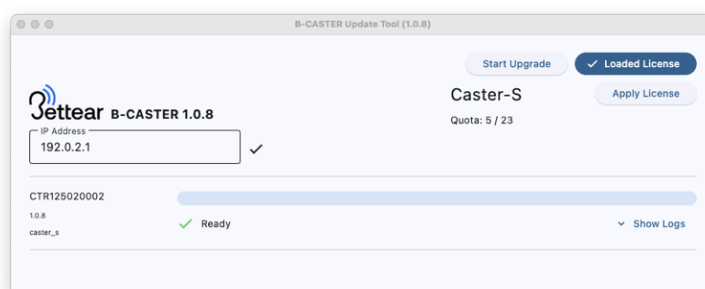
1. Visit the Betttear website at: www.betttear.com and download the **CASTER Upgrade Tool** (Available for **Windows** and **macOS**).
2. Connect your computer to the same network as the CASTER device and launch the upgrade tool.
*See the **ACCESSING THE CASTER MANAGEMENT PANEL** section for connection details.
3. Enter the CASTER's IP address in the **Device IP address** field.
4. Click **Start Upgrade** and wait for the process to complete.



LICENSE INSTALLATION

To unlock advanced features by loading licenses:

1. Contact **Bettetear** or a local **Bettetear distributor** to purchase the required licenses.
You will receive a license file via email – download it.
2. Visit the Bettetear website at: www.bettetear.com and download the **CASTER Upgrade Tool** (Available for **Windows** and **macOS**).
3. Connect your computer to the same network as the CASTER device and launch the upgrade tool.
*See the **ACCESSING THE CASTER MANAGEMENT PANEL** section for connection details.
4. Enter the CASTER's IP address in the **Device IP address** field.
5. In the **Detected Device** area, verify the currently available license information.
6. Click **Load License** and select the license file you received via email.
7. The number of available licenses included in the license file is now displayed on the screen.
8. Click **Apply License** and wait for the process to complete.



Note: Licenses can be applied to CASTER devices running firmware version 1.0.6 or later.

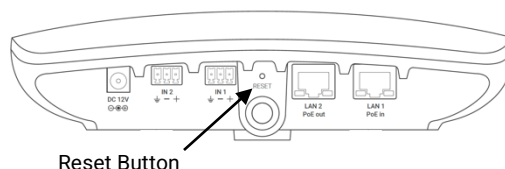
If your device is running an earlier version, please update the firmware before loading a license.

FACTORY RESET

To restore the CASTER device to factory settings:

Press and hold the **Reset** button using a pin for 10 seconds, until all the LED indicators on the front panel start blinking.

The reset process may take up to 10 seconds to complete.



SPECIFICATIONS

Audio Input

Input Modes	Stereo / Mono / Mix
Maximum Input Voltage	2.1Vrms (4.2Vrms for balanced input)
ADC Signal-to-Noise Ratio	110dB
ADC THD+N	-90dB
Frequency Response	10Hz-22kHz
Input Gain	-12dB to 32dB
Sample Rate	48kHz
Connection	2 x 3-pin 3.5mm pitch terminal block

Audio Processing

HPF	Off, 80Hz, 120Hz, 250Hz
LPF	Off, 8KHz, 12KHz, 16KHz
AGC	Support for Automatic Gain Control

Radio

Bluetooth Version	5.3
Broadcast Frequency	2400 – 2482 MHz
Codec	LC3
Max TX Power	20 dBm
Controllable TX Power	Yes (via CASTER management panel or Hive Central software)
Secure Broadcast	Yes (4–16-character password, AES128)

Network

IP Address	Static, Reserved
Port Speed	LAN 1 – 1 Gbps LAN 2 – 1 Gbps (Enabled on CASTER-S licensed devices only)
PoE	LAN 1 – PoE in LAN 2 – PoE out (Enabled on CASTER-S licensed devices only)

Environmental

Operating Temperature	-12 °C (10.4 °F) to 40 °C (+104 °F)
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Regulatory

Standards	CE, RoHS, REACH, WEEE, FCC, ISED, TELEC, UKCA, RCM
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Power

	12 VDC (positive polarity), 2.5A (Compatible plug: 2.0ø x 5.5ø x 9.0 mm) * Power supply is not included within the CASTER box.
Power Supply	Use AC/DC adapter which is safety approved according to IEC/EN 60950-1 or IEC/EN 62368-1 with rated voltage of 12Vdc and which certified as Limited Power Source (LPS). Usage d'adaptateur AC/DC (courant alternatif/courant continu) avec sécurité approuvé par IEC/EN 60 ou IEC/EN 62368-1, avec une tension nominale de 12Vdc et certifiée comme source d'alimentation limitée (LPS).
Power Consumption	Single-CASTER mode: 3.2W Cascade mode: 8W
PoE	IEEE 802.3at (PoE+, 30W)

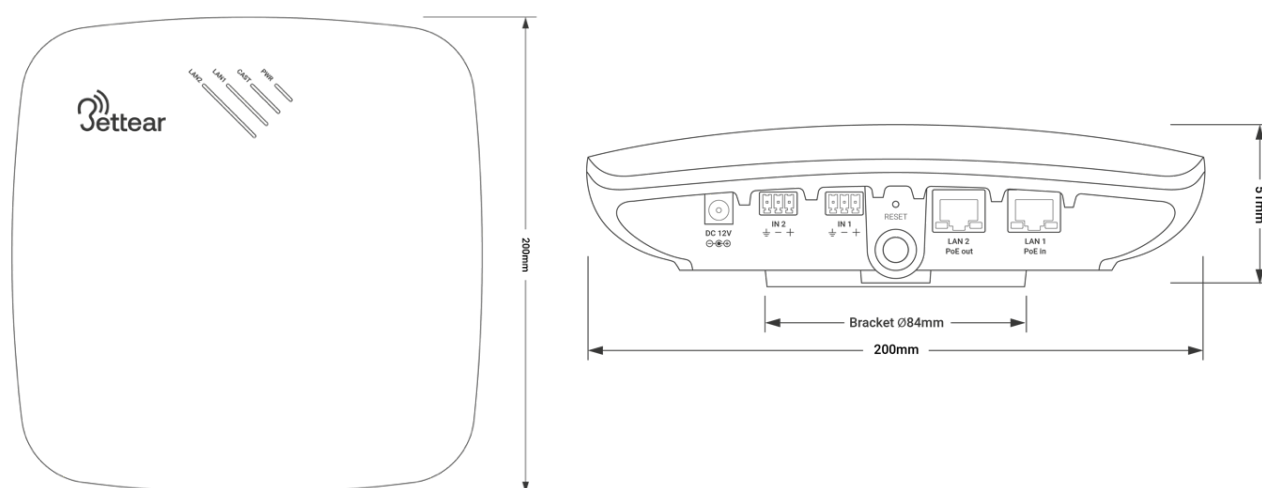
NETWORK REQUIREMENTS

Multicast Address	239.238.237.0/24 *Required when operating in multicast mode
Port	80 (HTTP) – Management panel 1338 (UDP) – control 1339 (UDP) – audio sharing 9000 (UDP) – API 1337 (UDP) – Firmware Upgrade 5353 (UDP) - mDNS
mDNS	Enabled (service: _caster._tcp)
IGMP	Enabled *Required when operating in multicast mode
IP Addressing	DHCP (automatic IP address assignment) or static IP configuration
Network Switch	IGMP Snooping-capable switch recommended for Multicast mode

PHYSICAL

Weight	CASTER – 419 g (0.92 lbs) Mounting Bracket – 25 g (0.05 lbs)
Shipping Weight	589 g (1.3 lbs)
Colors	White, Black

Dimensions

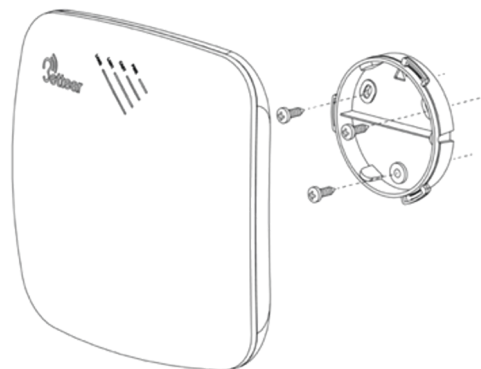


MOUNTING

The CASTER can be installed on a wall or ceiling using the included mounting bracket or mounted on a 3/8" threaded stand (e.g., microphone stand).

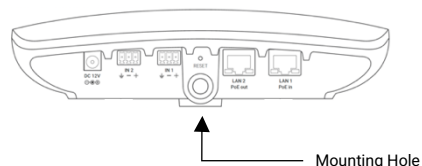
Wall or Ceiling Installation:

1. Secure the mounting bracket to the wall or ceiling using M5 screws (not included).
2. Attach the CASTER to the fixed bracket and rotate it counterclockwise (left) until it aligns with the groove (45°).
3. Rotate the CASTER clockwise (right) until it clicks into place.



Tripod Stand Installation:

Thread the stand into the CASTER's 3/8" mounting hole.



ACCESSORIES AND COMPATIBLE ADD-ONS

Mounting Bracket A bracket designed for wall or ceiling installation.	Included
B-PASS An add-on that enables connection to secure streams using tap-to-connect logic	Supported (not included)
B-RTX A designated Auracast™-enabled receiver.	Supported (not included)

SAFETY PRECAUTIONS

HEARING SAFETY

This product is designed to amplify audio to a high-volume level which could potentially cause hearing damage if used improperly. To protect your hearing make sure the volume is turned down before putting on the headset, then adjust the volume up to the minimum setting required to hear clearly. Do not allow children or other unauthorized individuals to have access to this product without supervision.

*This device is equipped with Automatic Gain Control AGC to prevent the sensation of intense noise bursts.

MEDICAL DEVICE SAFETY

Before using the CASTER streamer with an implantable or other medical device, consult your physician or implant manufacturer or other medical device manufacturer. Always make sure you are using this product in accordance with the safety guidelines established by your physician or the implantable device manufacturer.

WARNING

- 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.
- Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- Note: 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.
- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.
- Always observe standard safety precautions during installation, operation, and maintenance of this product. Only qualified and authorized service personnel should carry out adjustment, maintenance, or repairs to this product. No installation, adjustment, maintenance, or repairs should be performed by either the operator or the user.

Respectez toujours les standards de sécurité durant l'installation, l'opération et la maintenance de ce produit. Seul le personnel de service qualifié et autorisé devrait effectuer l'ajustage, la maintenance ou les réparations de ce produit. Aucune opération d'installation, d'ajustage, de maintenance ou de réparation ne devrait être effectuée par un opérateur ou l'utilisateur.
- This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:
 - (1) This device may not cause interference.
 - (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 radioexempts 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.



WARRANTY

Please visit www.bettear.com for warranty and service information.

WARNING: Electrical Shock Hazard. No user serviceable parts inside. To reduce the risk of electrical shock, do not remove or open the cover. Please contact Bettear for assistance.

PRIVACY POLICY

Please visit www.bettear.com for privacy policy and service information.

SUPPORT

33 Ha'Barzel, Tel-Aviv, Israel

Website: www.bettear.com

Email: support@bettear.com

Phone: +972-3-777-8630