



B-RTX / User Manual

Auracast™ Transceiver

Model: B-RTX

www.bettear.com

Firmware Version: 1.1.4



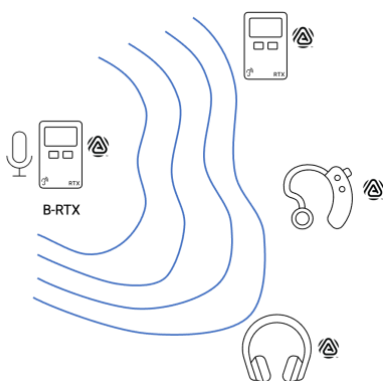
Highlights:

- Dual Mode: RX (Receiver) and TX (Transmitter)
- Low-Latency Audio Streaming (<40ms)
- Easy Connectivity: B-PASS, B-SmarHive, NFC
- Wide Area Coverage
- Fully Interoperable with Auracast™ Systems
- On-Demand MP3 Streaming and Playback
- Speech-to-Text Optimizer

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OVERVIEW



The **Bettear B-RTX** is a versatile Auracast™ audio transceiver designed to enhance a wide range of auditory environments. It seamlessly switches between transmitter and receiver modes, making it ideal for both **tour guiding**, **assistive listening** and **professional audio streaming** applications.

In **transmitter mode**, the B-RTX functions as a powerful audio broadcasting tool. In **receiver mode**, it delivers a smart, user-friendly listening experience—even for users without Auracast™-enabled hearables.

Full compatibility with the **B-CASTER** series further expands its integration within larger audio systems.



Theaters

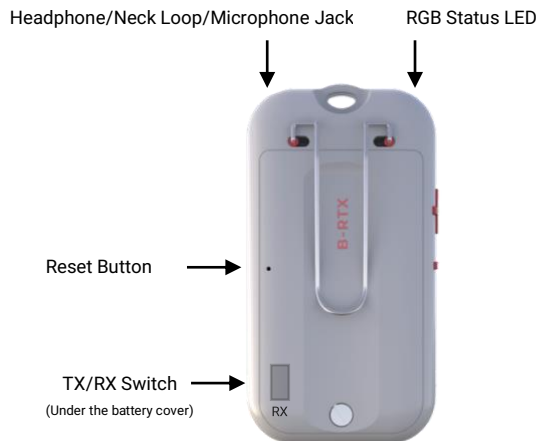
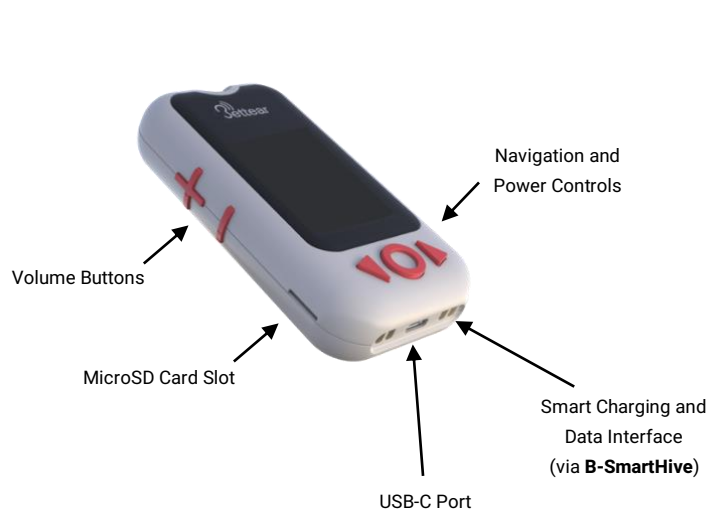
Tour Guiding

Museums

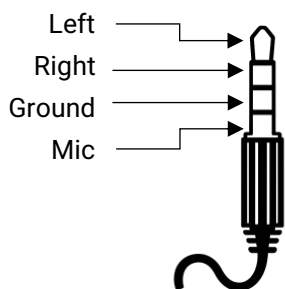
Classrooms

Legal Venues

PHYSICAL CONTROLS & INTERFACES



AUDIO INTERFACE




The B-RTX features a TRRS 3.5mm jack that supports headphones, headsets, neck loops and microphone connections.

*Ensure that you connect an audio device that is compatible with this plug configuration.

*Supports TRS or TRRS headphones.

INTRODUCING THE B-RTX

POWERING THE DEVICE ON / OFF

Press and hold the red circle button for 3 seconds to power the B-RTX on/off 

RX MODE (RECEIVER)

When operating in Receiver (RX) mode, the B-RTX scans for available Auracast™ streams and enables the user to connect to a selected broadcast.

1. **Status Bar** displaying:
 - Battery level
 - Charging indicator
 - SD card insertion status
 - Stream scanning indicator
 - Current firmware version

2. Available Auracast Stream List



QUICK START – LISTENING

1. Connect headphones or a neck loop
2. Power on the B-RTX
3. Use the navigation buttons to scroll through available Auracast™ streams
4. Press the red circle button to join the selected broadcast
5. Adjust the volume as required

Notes:

- The B-RTX scans for new Auracast™ streams when not actively connected to a broadcast. Selecting the active stream again stops playback and resumes scanning.
- A lock icon replaces the Auracast™ symbol when a stream is secure (encrypted).
- Secure streams cannot be accessed directly from the list. Use B-PASS or B-SmartHive to access secure broadcasts.
- An *X* icon replaces the Auracast™ symbol if the connection attempt fails.

TX MODE (TRANSMITTER)

When operating in Transmitter (TX) mode, the B-RTX captures audio from the connected microphone and broadcasts it as an Auracast™ stream.

The Broadcast screen is the main view displayed after the device boots in Transmitter (TX) mode.

1. Status Bar displaying:

- Battery level
- Charging indicator
- SD card insertion indicator

2. Broadcast Name

The advertised broadcast name used by Auracast™ receivers to connect to the stream.

3. QR code

Enables **scan-to-Connect** functionality for compatible devices.

4. Navigation Menu

Allows navigation between screens. Press and hold the red arrow buttons for **3 seconds** to switch between screens.



Broadcast Info Screen – displays the current broadcast information



Audio Player Screen – Displays audio files loaded on the device. Audio files can be played and broadcast to connected listeners alongside live microphone audio.

***Note:** this screen is available only when an SD card created using the **Hive Central** software is inserted. Refer to the ADVANCED MODES section on page 7 for details.*



Settings Menu – Allows configuration and modifications of broadcast settings

QUICK START - BROADCASTING

1. Connect a microphone or headset
2. Power on the B-RTX
3. Modify the broadcast name if required (default: B-RTX1)
*Refer to the Hive Central User Guide to customize the broadcast name.
4. Begin broadcasting audio to nearby Auracast™-compatible receivers

Use the red arrow buttons to move between settings. To edit a setting:

1. Select the required setting, and press the red circle button
2. Use the red arrow buttons to change the value
3. Press the red circle button again to save the selection



SETTINGS OVERVIEW

Setting	Values	Description
Name	B-RTX1... B-RTX50	Select one of the predefined broadcast names advertised to Auracast™ receivers. <i>Note: Custom broadcast names can be configured using B-SmartHive and the Hive Central software.</i>
TX Power	5, 10, 15, 20 dBm	Adjust the RF transmission power. Warning: It is the user's responsibility to comply with local regulations. Bettetear assumes no liability for regulatory non-compliance.
Voiceover	ON / OFF	Enables or disables automatic audio ducking based on microphone activity.
Monitor	ON / OFF	Enables or disables local audio monitoring (self-monitoring of the microphone input).
Version	1.1.4	Displays the currently installed firmware version.

EASY CONNECTIVITY

To simplify user interaction, the B-RTX supports multiple connectivity mechanisms for Auracast™ streams:

1. Stream Lock

Locks B-RTX devices to a predefined Auracast™ stream, enabling automatic connection without user interaction.

2. List Lock

Filters available Auracast™ streams so that only streams associated with a specific deployment are displayed on the device.

3. Tap-to-Connect

Enables automatic connection by tapping the B-RTX on a B-PASS panel associated with the relevant B-CASTER.

Note: Stream Lock and List Lock are configured using B-SmartHive in conjunction with the Hive Central software.

B-RTX LICENSES

B-RTX functionality is enabled through software licenses, which unlock advanced operating modes and features.

	EXPERIENCE	DUPLEX	DUPLEX+
Receiver Mode	✓	✓	✓
Transmitter Mode	x	✓	✓
Tap to Connect (NFC)	Available only on NFC-enabled B-RTX devices		
Audio Files Broadcasting & Playback	x	x	✓

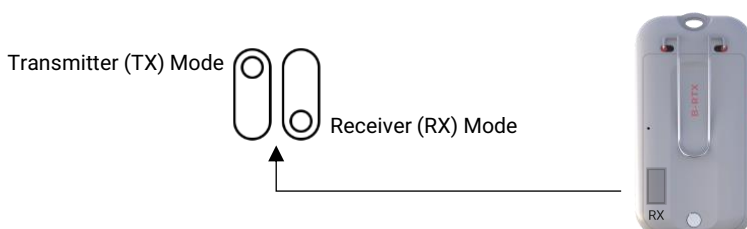
*For license installation instructions, refer to the LICENSE INSTALLATION section on page 10.

OPERATION MODE SWITCHING

Switching between **transmitter (TX)** and **Receiver (RX)** modes is supported on B-RTX devices licensed with **DUPLEX** or **DUPLEX+**.

To switch operation modes:

1. Remove the battery cover from the rear of the B-RTX device
2. Use a pin or similar tool to toggle the internal slide switch between TX and RX positions
3. Reinstall the battery cover



***Note:** The TX/RX mode switch is disabled on B-RTX devices without an active DUPLEX or DUPLEX+ license.*

ADVANCED MODES

PRE-LOADED AUDIO BROADCAST

Tour packages containing pre-recorded audio content in multiple languages can be created using the **Hive Central** software. These packages are written to a microSD card and inserted into **B-RTX** devices.

After programming a device to a specific tour via **Hive Central**, tour guides can broadcast pre-recorded audio content alongside live microphone audio. Automatic audio ducking is applied to prioritize speech when the microphone is active.

***Note:** Refer to the Hive Central User Guide for detailed configuration instructions.*



AUDIO GUIDE MODE

Audio Guide Mode enables visitors to access on-demand audio content and Auracast™ streams in multiple languages. Audio guide packages are created using **Hive Central** and written to microSD cards, which are then inserted into **B-RTX** devices.

Once programmed, visitors can listen to synchronized live audio and on-demand audio content in their selected language, alongside the tour.

Audio content can be accessed using one of the following methods:

1. Manual selection from an on-screen content list
2. NFC tap-to-connect
3. Proximity-based triggering using beacons*



Note: Refer to the Hive Central User Guide for additional details.

DEVICE RESET

Hardware Reset

To force a hardware reboot, use a pin to press the **Reset** button.



Factory Settings Reset

To restore the device to its factory default settings:

1. Power on the device.
2. Press and hold both the **Volume Up** and **Volume Down** buttons for 5 seconds, then wait for the device to restart.

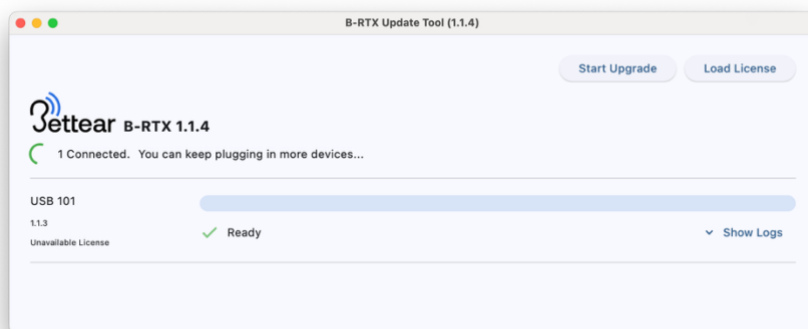
FIRMWARE UPGRADE

To upgrade the B-RTX device:

1. Visit the Bettear website at www.bettear.com and download the **RTX Upgrade Tool** (Available for **Windows** and **macOS**).
2. Launch the **RTX Upgrade Tool**
3. Connect the B-RTX device to your computer using a USB cable, and power it off.
4. Press the red circle button on the B-RTX device and wait for the Upgrade Tool to detect it.

Note: The **Upgrade Tool** supports simultaneous upgrades of multiple B-RTX devices (up-to 10 devices). Repeat steps 3-4 as needed to add additional devices.

5. Click **Start Upgrade** and wait for the process to complete.

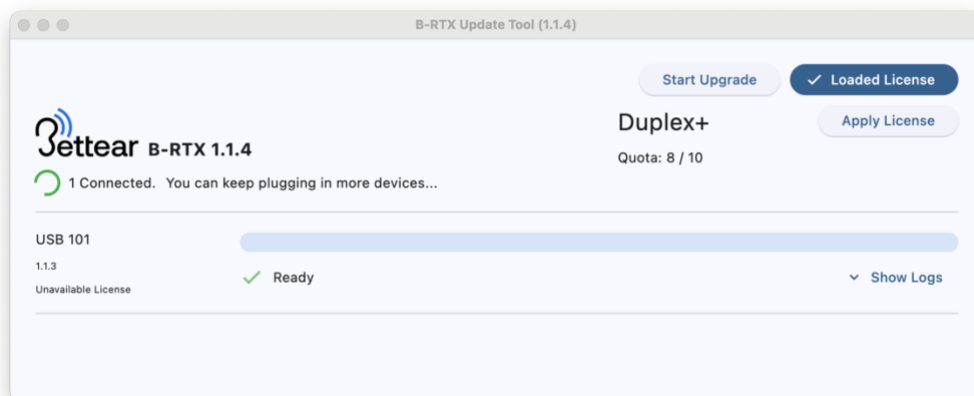


*Note: B-RTX devices can also be upgraded using the SmartHive cradle and the Hive Central software. Refer to the **Hive Central User Guide** for more information.*

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 **RTX Upgrade Tool** (Available for **Windows** and **macOS**).
3. Connect the B-RTX device to your computer using a USB cable and wait for the **Update Tool** to detect the device.
4. In the **Detected Device** area, verify the currently available license information.
5. Click **Load License** and select the license file you received via email.
6. The number of available licenses included in the license file is now displayed on the screen.
7. Click **Apply License** and wait for the process to complete.



Notes:

1. Licenses can be applied to B-RTX devices running firmware version 1.0.9 or later.
If your device is running an earlier version, please update the firmware before loading a license.
2. License can also be loaded using the SmartHive cradle and the Hive Central software. Refer to the **Hive Central User Guide** for more information.

CHARGING

The B-RTX supports two charging interfaces:

1. USB-C Charging
2. **B-SmartHive** charging via 4 pogo-pin contacts with magnetic latch

*The **B-SmartHive** is used for both charging and programming B-RTX devices. By communicating directly with each unit, the **B-SmartHive** enables smart charging, engineered to maximize the battery lifespan.

SPECIFICATIONS

Audio

Connection	3.5mm TRRS jack for wired headset, headphones, neckloops, or microphone. Supports TRS or TRRS headphones
Maximum Input Voltage	0.707 Vrms
ADC Signal-to-Noise Ratio	91dB
DAC Signal-to-Noise ratio	95dB
ADC THD+N	-85dB
DAC THD+N	-82dB
Frequency Response	10Hz-22kHz
Input Gain	0 dB to 59.5 dB
Sample Rate	48kHz
Playback Codec	MP3
Ducking	Audio playback is automatically attenuated (side-chained) when an Auracast™ stream is active
AGC	Support for Automatic Gain Control
Headphone output (recommended load)	16 Ω - 32 Ω
Headphone output (compatible load)	16 Ω - 64 Ω

Radio

Bluetooth Version	5.3
Broadcast Frequency	2400 – 2482 MHz
Codec	LC3 (48kHz, 24kHz, 16kHz)
Max TX Power	20 dBm
Controllable TX Power	Yes (configurable via the built-in menu or through the SmartHive*)
Operating Mode	RTX EXPERIENCE: Auracast™ receiver only RTX DUPLEX / DUPLEX+: Auracast™ receiver / transmitter (switchable)
Secure Broadcast	Yes (4–16-character password, AES128 encryption) *Supported via B-SmartHive or B-PASS only
NFC	Yes – Tap-to-connect and secure stream access (Experience+ devices only)

Controls

Buttons	Navigation Buttons (up, down, select/power), volume up/down, reset button
Display	2" TFT RGB display (240x320)
Status LED	RGB LED indicator

Environmental

Operating Temperature	-10 °C (14 °F) to 43 °C (+109.4°F)
Storage Temperature	-30 °C (-22 °F) to 70 °C (+158 °F)

Regulatory

Standards	CE, RoHS, REACH, WEEE, FCC, ISSED, TELEC, UKCA, RCM, MSDS
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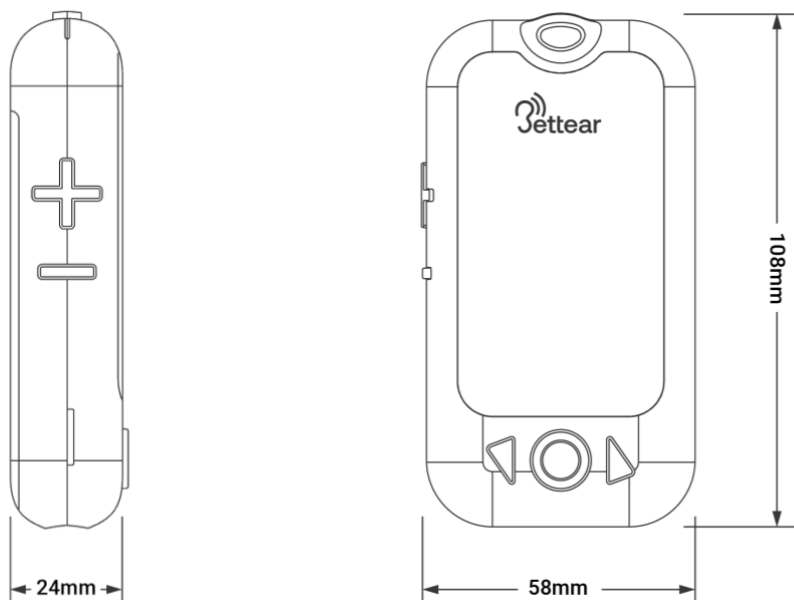
Power and Charging

Power Supply	B-SmartHive cradle or USB-C - 5V, 500mA
SmartHive Cradle Connection	4 pogo-pin contacts with magnetic latch for charging and programming
Battery	Lithium Polymer, 3.7 VDC, 1,400 mAh
Battery Life	Receiver Mode: up to 16 hours Transmitter Mode: up to 10 hours (may vary depending on TX power level)
Battery Charge Time	Fully charged in under 4 hours

PHYSICAL

Weight	B-RTX – 120 g (0.264 lbs)
Shipping Weight	210 g (0.462 lbs)
Colors	Light Gray, Dark Gray, Blue
Belt Clip	Removable (not included)
Battery Cover	Removable for battery replacement

Dimensions



ACCESSORIES AND COMPATIBLE ADD-ONS

USB-C to USB-A Charging Cable	Included
Belt Clip	Supported (not included)
B-PASS An add-on that enables access to secure streams using Tap-to-Connect logic	Supported (not included)
B-SmarHive Cradle and Hive Central Software A smart charger for programming and charging up to 10 RTX devices. *Multiple SmarHive units can be linked together for mass control and programming	Supported (not included)
Hive4 A compact 4-bay B-RTX charger	Supported (not included)

SAFETY PRECAUTIONS

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.
- The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.
- 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.



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 using your B-RTX, 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 B-RTX 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.

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

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