

WiSpeak Hardware

WiSpeak – Wireless Pro Audio
Transmitters - Receivers

CUBE



TUBE



CORE

USER MANUAL

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1. IMPORTANT REMARK




WARNING: SHOCK HAZARD - DO NOT OPEN
AVIS: RISQUE DE CHOC ÉLECTRIQUE - NE PAS OUVRIR



The lightning flash with arrowhead symbol, 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 electric shock to persons.



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

WARNING (If applicable): The terminals marked with symbol of “” may be of sufficient magnitude to constitute a risk of electric shock. The external wiring connected to the terminals requires installation by an instructed person or the use of ready-made leads or cords.

WARNING: To prevent fire or shock hazard, do not expose this equipment to rain or moisture.

WARNING: An apparatus with Class I construction shall be connected to a mains socket-outlet with a protective earthing connection.

2. IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.

8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at the plugs, convenience receptacles, and at the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Unplug the apparatus during lightening sorts or when unused for long periods of time.
13. Refer all servicing to qualified personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
14. Disconnecting from mains: Switching off the POWER switch all the functions and light indicators of the amplifier will be stopped, but fully disconnecting the device from mains is done unplugging the power cord from the mains input socket. For this reason, it always shall remain readily operable.
15. Equipment is connected to a socket-outlet with earthing connection by means of a power cord.
16. The marking information is located at the bottom of apparatus.
17. The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on apparatus.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



WARNING: This product must not be discarded, under any circumstance, as unsorted urban waste. Take to the nearest electrical and electronic waste treatment centre.

NEEC AUDIO BARCELONA, S.L. accepts no liability for any damage that may be caused to people, animal or objects due to failure to comply with the warnings above.

3. IMPORTANT NOTE

Thank you for choosing our Ecler **WiSpeak** Wireless Pro Audio system!

It is **VERY IMPORTANT** to carefully read this manual and to fully understand its contents before any connection in order to maximize your use and get the best performance from this equipment.

To ensure optimal operation of this device, we strongly recommend that its maintenance be carried out by our authorised Technical Services.

Ecler WiSpeak hardware devices come with a **3-year warranty**.

4. INTRODUCTION

Ecler WiSpeak is a technology that provides Wireless Professional Audio for fixed (permanent or temporary) installations, including transmitter devices and receiver (loudspeakers) devices.

The main highlights of the WiSpeak technology are:

- Simple and fast installation (with or without the use of the WiSpeak grip app)
- Plug & play: no wires, no construction works
- The receivers just need to get mains AC, usually from the already existing lighting rails. They integrate an internal universal Power Supply (100-240VAC - 50-60Hz)
- Solid and stable wireless transmission protocol, robust against audio drops
- Up to 500 m2 coverage (depending on the location of the transmitter and the receivers, and the obstacles in between them)
- Master volume control and individual loudspeaker volume control, allowing for audio level zoning
- WiSpeak grip app available for Android and iOS, for the setup and advanced tuning of the system (Admin profile), as well as for the end user simple control (User profile)
- Scalable: daisy-chain option from one receiver to a new transmitter, or from one transmitter to a second transmitter, to extend the total amount of loudspeakers and the area coverage

- Compatible with Eutrac and Global Trac Pro lighting rail standards

A WiSpeak installation is typically made up of one transmitter device and from 1, up to a maximum of 24 receiver units, where:

- the transmitter device is the electronic unit that communicates with all the receiver devices to create a WiSpeak wireless network, and takes the role of the **Master unit** in it
- the receiver units are self-powered loudspeakers with wireless audio reception and control capabilities, under the control of the Master unit

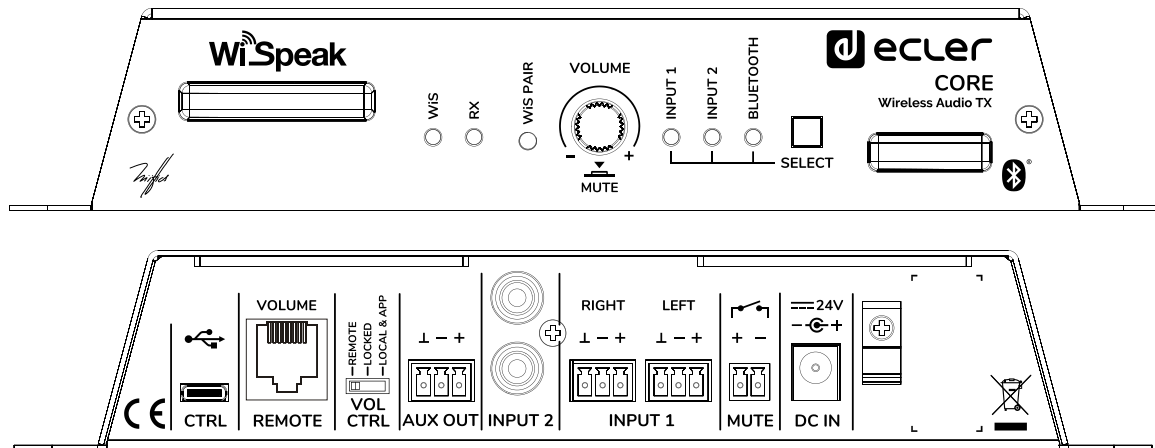
The Master unit has these main functions:

- to pair (link) and keep a stable communication with all the receiver units in the system – when paired and within the valid wireless coverage range - supervising the connection quality of them all
- to take care of the global configuration of the system (audio inputs in use, equalisation, levels, etc.)
- to send the individual configuration commands to each receiver unit, as each receiver can have customised parameters
- to send audio contents to all the receiver units, keeping a perfect synchronisation among them all (<6ms latency and <1µs jitter)

5. TRANSMITTER AND RECEIVER MODELS

The available transmitter devices are:

5.1. CORE model



Main features:

- External, universal Power Supply (100-240VAC 50-60Hz)
- Compatible with WiSpeak grip app for set up and control functions (available for Android and iOS), using Bluetooth® connection
- 3 audio inputs available:
 - Analogue stereo, unbalanced. 2 x RCA connectors
 - Analogue stereo, balanced. 2 x Euroblock 3p connectors
 - Bluetooth®, class 1 (up to 25 meters range, maximum)
- 1 x WiSpeak wireless audio signal transmitted (a mono conversion of the selected input)
- 1 x AUX OUT analogue signal available (a copy of the transmitted WiSpeak signal). It can be used for linking the unit to external audio devices, like amplifiers, mixers or subwoofer units
- MUTE port, to allow the system's audio silencing when an external dry contact is closed
- REMOTE port, to allow a simple general volume control for the end user -within a programmable range- using a WPaVOL or compatible wall panel
- Maximum number of receivers under control per transmitter device = 24 units. The system can be extended by linking a new transmitter to an existing receiver, creating a second WiSpeak network that shares the audio contents and Master volume with the first (main) one
- Front panel controls for source (input) selection and general (Master) volume control

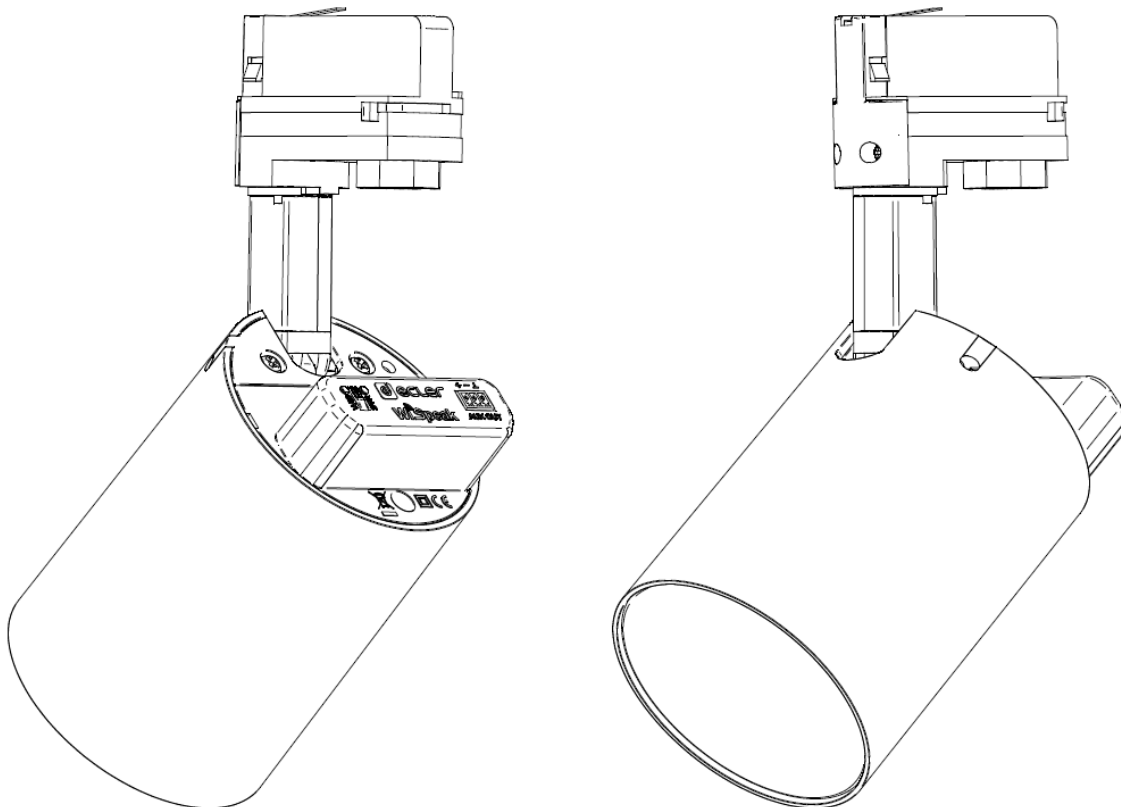
- Recommended maximum range from a CORE transmitter to any WiSpeak paired receiver (TUBE or CUBE): 12 meters, with direct line of sight (*)
- Front panel PAIR key: it allows pairing the receivers to the transmitter quickly and easily, for a basic set up of the WiSpeak system.

Note: Additionally, WiSpeak grip app, available for Android and iOS, can be used for an advanced set up and fine tuning of a WiSpeak system

- Front panel LED indicators

The available receiver devices are:

5.2. TUBE model

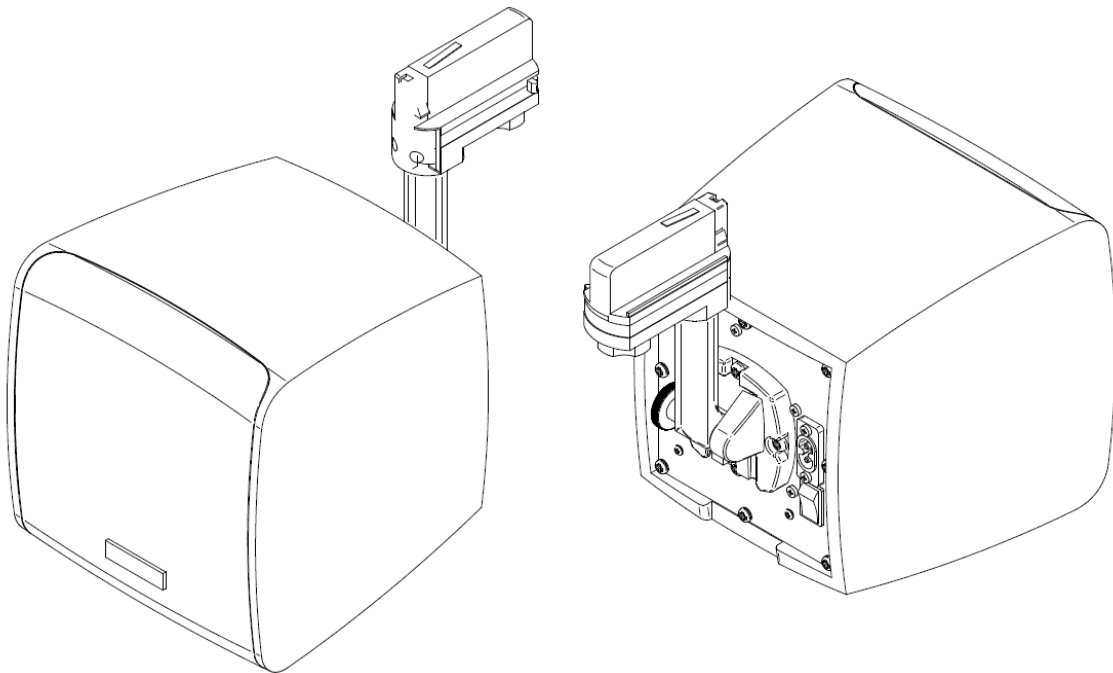


Main features:

- Lamp style self-powered WiSpeak receiver, including 3" driver
- Lighting rail mount included
- Surface mount accessory available, optional (ref. TUBE SMA)
- Universal, internal power supply, taking mains AC from the lighting rail bracket (100-240VAC 50-60Hz)
- 1 x WiSpeak wireless audio signal received, from the transmitter it is paired to

- 1 x AUX OUT analogue signal available (a copy of the received WiSpeak signal). It can be used for linking the unit to another WiSpeak transmitter, to extend the network, or to external audio devices, such as amplifiers, mixers or subwoofer units
- Back panel UNPAIR control and LED indicators

5.3. CUBE model



Main features:

- Loudspeaker cabinet style self-powered WiSpeak receiver, including 5" woofer and 1" tweeter drivers
- Lighting rail mount included
- Surface / wall mount accessory included
- Universal, internal power supply, taking mains AC from the lighting rail bracket (100-240VAC 50-60Hz) or from the external AC wire (both included)
- 1 x WiSpeak wireless audio signal received, from the transmitter it is paired to
- 1 x AUX OUT analogue signal available (a copy of the received WiSpeak signal). It can be used for linking the unit to another WiSpeak transmitter to extend the network or to external audio devices, such as amplifiers, mixers or subwoofer units
- Back panel UNPAIR control and front panel LED indicators

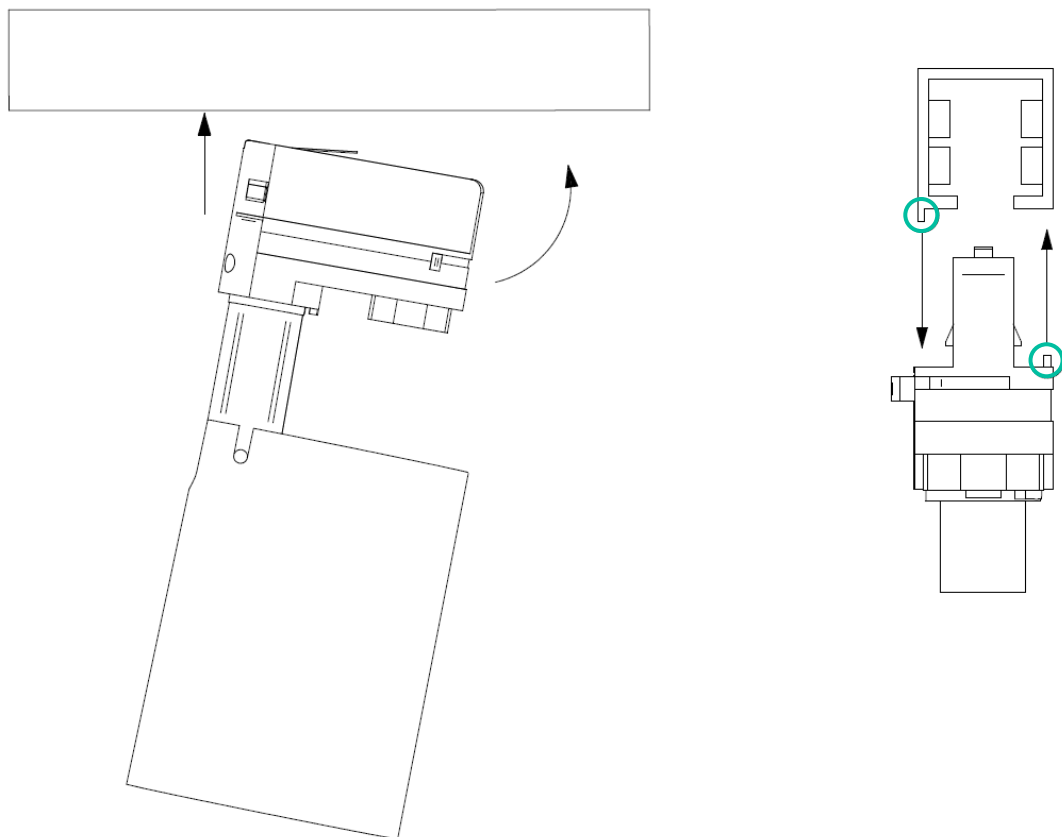
6. INSTALLATION

6.1. TUBE receivers mounting and power up

The TUBE receivers come with the lighting rail bracket already mounted.

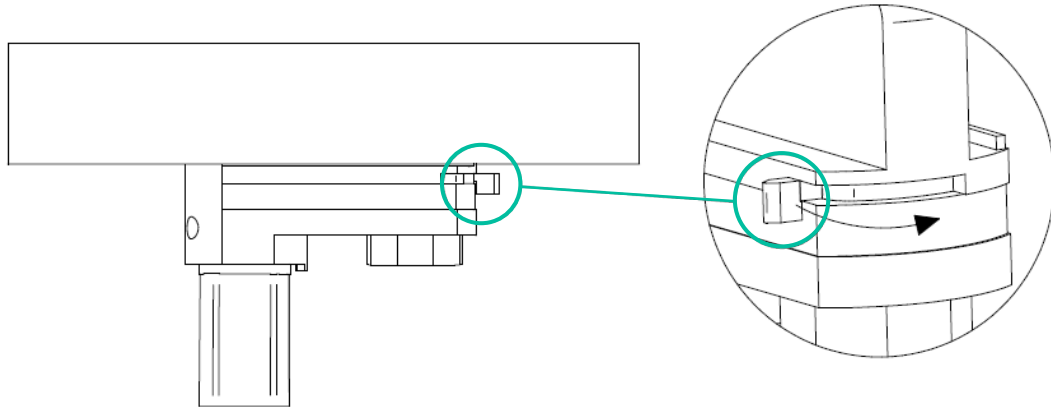
Follow these steps to install a TUBE unit in a lighting rail:

1. Ensure that the 4-position (OFF-1-2-3) circuit selector wheel in the TUBE unit is in the OFF position
2. Insert the loudspeaker in the lighting rail, as shown in the image



Connection to a GLOBAL Trac Pro / Eutrac lighting rail (three-circuit lighting track system)

3. Rotate the safety lug to secure the loudspeaker on the lighting rail. Rotate the circuit selector wheel to a position other than OFF, the one matching with a circuit in the rail that will deliver mains AC to the unit. Then, the safety lug will be locked



4. Check whether the unit is really powered ON or not by watching the LED indicators at its back panel: depending on the status of the receiver unit (at factory defaults, already paired, etc) blinking or fixed lit LEDs will appear.

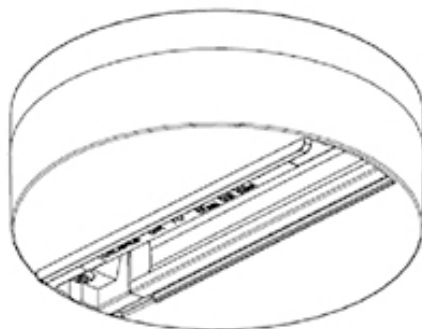
Both LEDs OFF permanently will mean that the unit is not powered, probably not getting mains AC from the lighting rail. In this case, please check:

- The lighting rail is really powered with mains AC
- The TUBE receiver circuit selector wheel is in the right position. Check the rest of positions to try to get a valid one, with some LED activity, thus getting mains AC from the rail tracks

5. Orient the loudspeaker to obtain the required position on the vertical and horizontal axes

Note: in case you want to install a TUBE receiver on a surface, where there is no available lighting rail, you may want to use the optional surface mount accessory, ref.

TUBE SMA:



In first place, mount and power the accessory with mains AC. Then, follow the previous steps to insert and fix the TUBE unit in it.

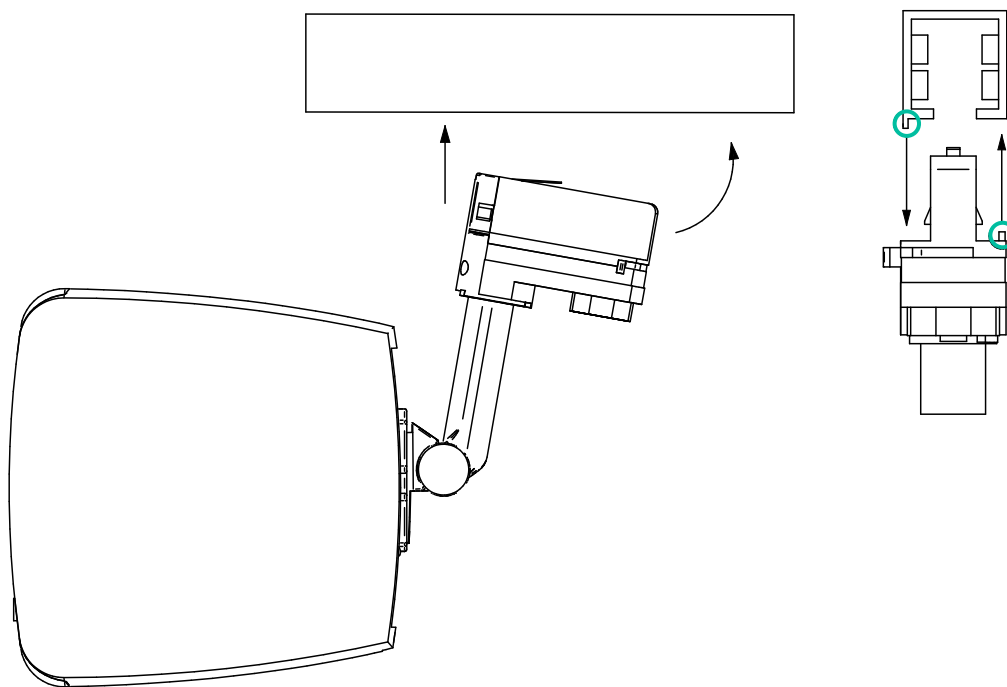
6.2. CUBE receivers mounting and power up

The CUBE receivers come with a lighting rail bracket already mounted, but they also include a wall / surface mount bracket that can replace the lighting bracket in case that a wall mount is the chosen option.

A CUBE unit could be as well installed directly on a surface, like a desktop, shelf, table, etc, without using the rail mount or the wall mount included brackets. To do so, the supplied self-adhesive rubber legs can be attached to the unit's bottom face, and the connection to a standard AC plug can be performed using the supplied additional AC cord.

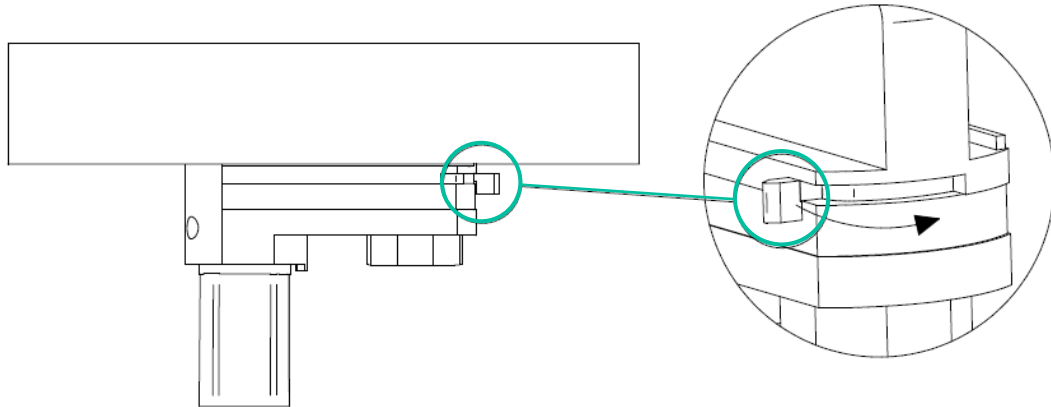
Follow these steps to install a CUBE unit in a lighting rail:

1. Ensure that the 4-position (OFF-1-2-3) circuit selector wheel in the CUBE unit is in the OFF position
2. Insert the loudspeaker in the lighting rail, as shown in the image



Connection to a GLOBAL Trac Pro / Eutrac lighting rail (three-circuit lighting track system)

3. Rotate the safety lug to secure the loudspeaker on the lighting rail. Rotate the circuit selector wheel to a position other than OFF, the one matching with a circuit in the rail that will deliver mains AC to the unit. Then, the safety lug will be locked



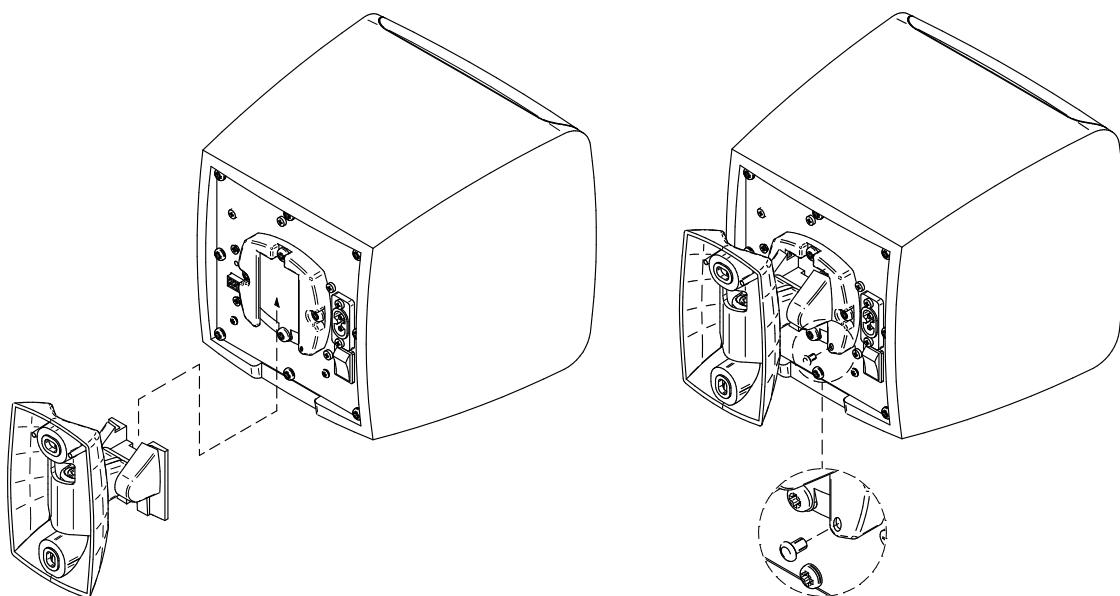
4. Power ON the unit by means of the back panel ON/OFF switch. Check whether the unit is really powered ON or not by watching the LED indicators at its front grill: depending on the status of the receiver unit (at factory defaults, already paired, etc) blinking or fixed lit LEDs will appear.

Both LEDs OFF permanently will mean that the unit is not powered, probably not getting mains AC from the lighting rail. In this case, please check:

- The lighting rail is really powered with mains AC
 - The CUBE receiver circuit selector wheel is in the right position. Check the rest of positions to try to get a valid one, with some LED activity, thus getting mains AC from the rail tracks
 - ON/OFF switch is in ON position and AC cable is connected
5. Orient the loudspeaker to obtain the required position on the vertical and horizontal axes

Follow these steps to install a CUBE unit on a wall:

1. Drill three 6 mm holes in the wall, matching the position of the holes in the bracket.
2. Insert three 6 mm wall plugs into them.
3. Place the wall bracket in place, previously passing the supplied AC cable (if required) through the square hole in the bracket. Attach the bracket to the wall.
4. Place the speaker in its final position by sliding it vertically downward so that the guide on its back side matches the guide on the bracket.
5. Fasten the safety guide at the back of the mount (as shown in the diagram).
6. Orient the loudspeaker to the desired position on the vertical and horizontal axes.
Tighten the Allen screws on the bracket to fix this position on both axes.
7. Power ON the unit by means of the back panel ON/OFF switch.



6.3. CORE transmitter installation

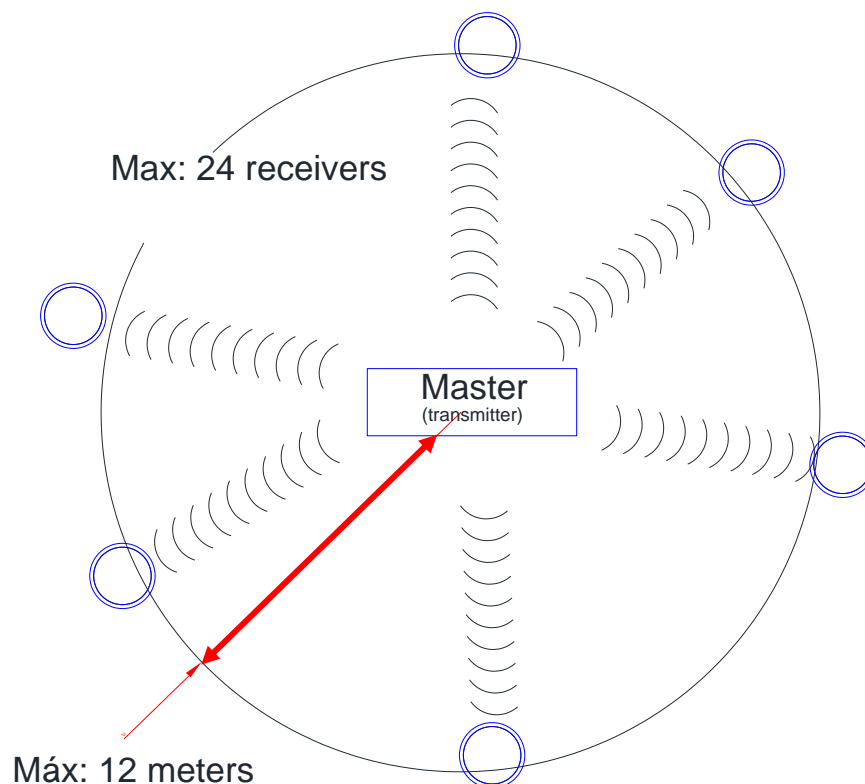
A CORE transmitter unit is necessary to control and feed with wireless audio a WiSpeak network of TUBE and/or CUBE receivers, up to a maximum of 24 units.

The CORE unit is suitable for installation on a wall or under a surface (table, shelf, cupboard, etc.), thanks to its design and layout of its connectors, controls and LED indicator lights. As it is a wireless transmitter device, it is very important to carefully study and decide the physical location of the transmitter and the receiver units in the venue.

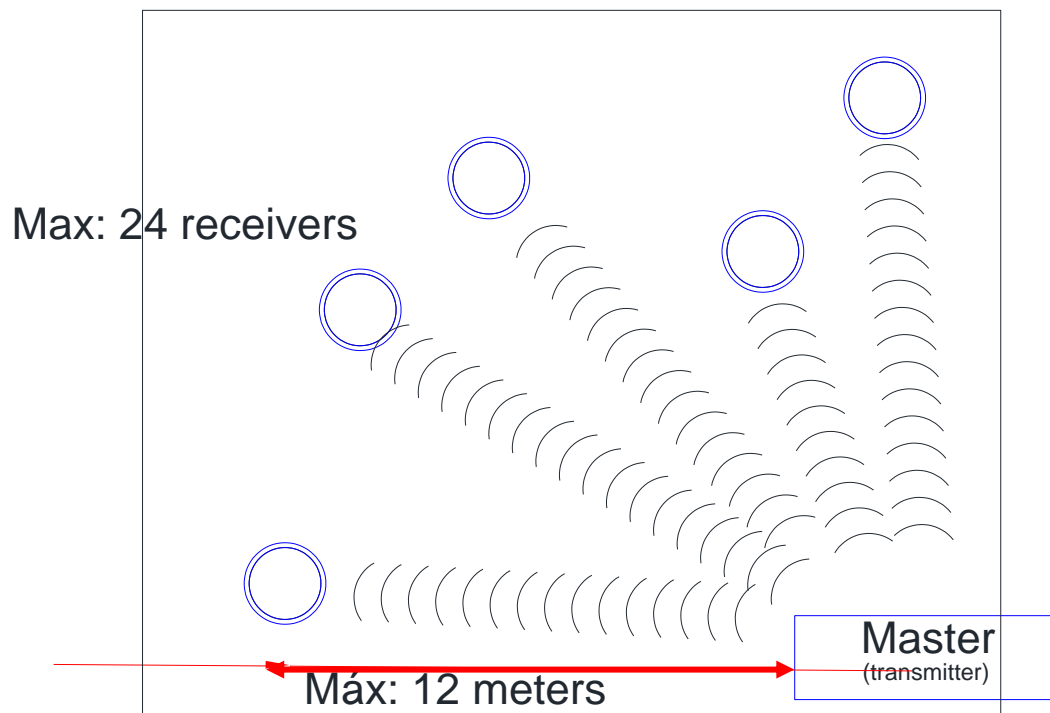
Please, follow the following guidelines to decide a location for the CORE unit that can get the best of a WiSpeak system in any venue:

- Take into consideration that the maximum RF operating scope from the CORE unit to any receiver unit (TUBE or CUBE) is 12 meters, with direct line of sight. This distance or shorter, with no obstacles in between both units, is required to try to ensure the maximum connection quality and stability possible
- To get the maximum coverage area in a certain space, the location of the transmitter unit (or **Master** unit) should be, ideally, as much centred as possible in respect to the receivers' network

Example 1: the transmitter is at the centre of a perimeter disposition of receivers

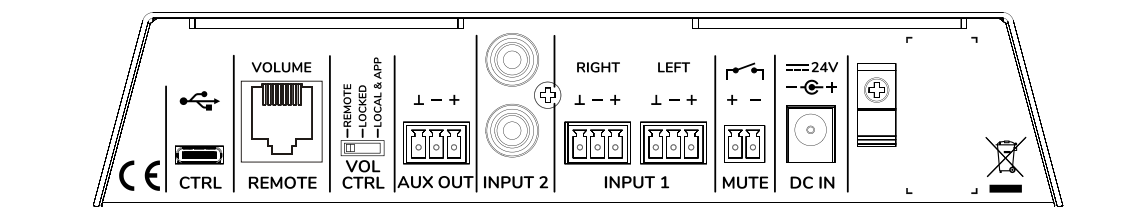


Example 2: the transmitter is close to a corner in a rectangular space, to be covered with WiSpeak receivers



In the second example, the maximum coverage area will be around $\frac{1}{4}$ th of the maximum coverage area in the first example

Once decided its location, the CORE transmitter must be fed with up to 3 audio inputs:



- INPUT 1: stereo balanced, Euroblock connectors (rear panel)
- INPUT 2: stereo unbalanced, RCA connectors (rear panel)
- INPUT 3: stereo, received via Bluetooth®, class 1 / up to 25 metre range (front panel antenna)

Note: INPUT 3 (Bluetooth®, class 1) and, especially, INPUT 1 (analogue, balanced) are suitable options to use when the transmitter unit is tried to be located as much centred as possible in respect to the loudspeakers (for instance, on the ceiling of a retail store, a restaurant or a corporate room), with the aim to get the maximum coverage are possible. Both options allow sending audio from the music source (audio player) to the transmitter over long distances, which would be necessary in some cases, where it's not possible to have booth devices close to each other.

For each channel (left or right) of the balanced input, INPUT1, the wiring is as follows):

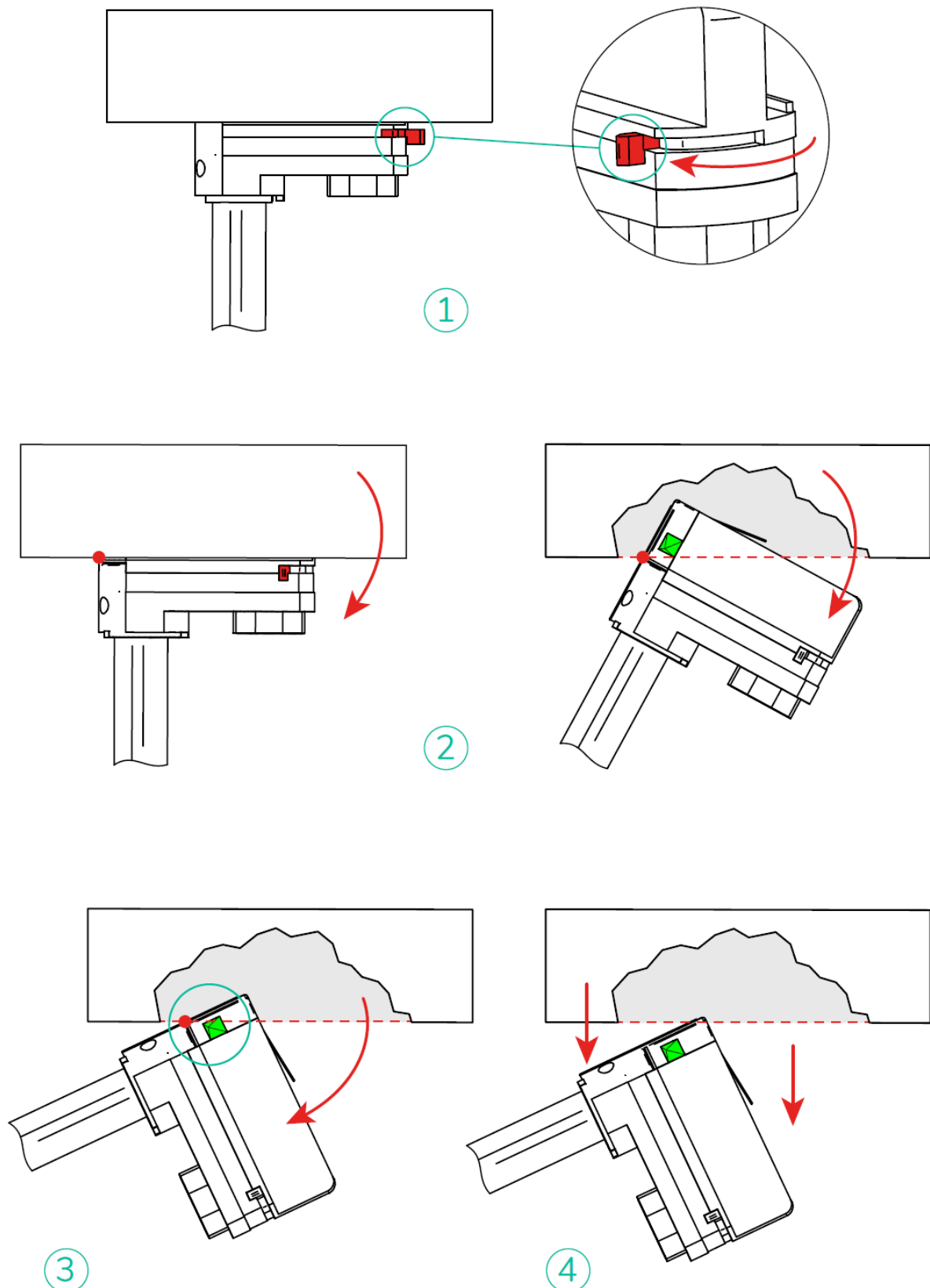
Hot or direct signal	>	+ terminal
Cold or inverted signal	>	- terminal
Ground	>	⊥ terminal

The AUX OUT connection is available to connect external audio systems, like subwoofer reinforcement loudspeakers, mixers, amplifiers, matrices, etc. By default, this output will deliver exactly the same audio signal as the one sent to the receivers' network, but this can be modified using the WiSpeak grip app.

When all the connections are made, it's time to power up the transmitter using the included external power supply, connected to the DC IN terminal at the rear panel, and start the WiSpeak setup process.

6.4. Disassembling WiSpeak receivers from lighting rails installations

Before detaching the WiSpeak receiver, ensure that the 4-position (OFF-1-2-3) circuit selector wheel is set in the OFF position.



7. PAIRING THE RECEIVERS & STARTING UP THE WiSpeak SYSTEM

When a CORE transmitter is powered up for the very first time (or after a Factory Defaults reset has been applied to it), it will show the **WiS** LED permanently lit ON and the **RX** LED quickly blinking.

This LED code means that the CORE unit is ready to be paired to a network of receivers, TUBE and/or CUBE models, up to a maximum of 24 of them.

Note: before stating a pairing procedure, it's extremely important to check that the CORE transmitter and every single TUBE or CUBE receiver are them all powered ON and within the coverage range of the WiSpeak system. Otherwise, a **Partial Pairing** result can be achieved (See chapter 9 for further information)

The pairing process is as follows:

1. Make a short press on the recessed **WiS PAIR** key, using a small screwdriver or pin tool for that
2. The **Discover** process, or scan for available receivers, will start. Both LED indicators (WiS and RX) will blink together (not alternately) during the time it takes to finish it (the full procedure can take several seconds to finish completely)
3. When it's over, and the network connections have been stabilised, both LEDs will stay permanently lit, with no blinking. This means that a valid pairing process has been performed, and a solid WiSpeak network exists between the transmitter and from 1 to a maximum of 24 receivers

See chapter 9 for further information about the WiSpeak pairing system and procedure.

Once the pairing process is over and successful, the system is ready to be used:

- Press the SELECT key to select which audio source, from the 3 inputs available, will be the selected one to be sent and played by the receivers' network. A dedicated LED for each input will turn ON when it is selected. When the Bluetooth input is selected, its blue LED will remain permanently lit when there's a Bluetooth emitter paired and correctly connected to it, and will blink when there is not
- Gesture the VOLUME knob to adjust the Master (general) volume of the installation. A short press of the same knob will activate / deactivate the MUTE function of the system (meanwhile MUTE is ON, Volume can't be modified)

Note: the Bluetooth® audio input needs a standard Bluetooth® pairing process from the audio player (smartphone, tablet, computer, etc.) to the CORE transmitter. The Bluetooth® ID and pairing code are available in the CORE transmitter Model / Serial Number label.

The above process provides a solid “plug&play” method to easily set a system up and running in few minutes, with no need to use the **WiSpeak grip** app. However, WiSpeak grip provides the installer of the system with many additional fine-tune options that can lead to a system's more precise performance, better yet customised to each venue and end user profile requirements. WiSpeak grip also can provide a very simple control screen for end users, just including a general volume control and audio source selection, both under the limits specified by the Admin (installer).

See WiSpeak grip app user manual for further information.

8. CORE transmitter VOLUME control: REMOTE and MUTE control ports

The CORE transmitter includes two audio control interfaces at its back panel:

- **MUTE** port, Normally Open, Euroblock 2 pin connector: it allows to connect an external dry contact circuit (relay, switch, etc.) that, when closed, will MUTE the WiSpeak wireless audio transmission, as well as the audio delivered at the AUX OUT back panel connector. It is a very useful way of silencing the WiSpeak audio system completely whenever an external emergency or alarm system, for instance, must be activated
- **REMOTE** port, RJ45 connector: it allows connecting a WPaVOL or compatible wall panel, providing the end user with a very simple volume control method, and using a standard CAT5 cable to connect the wall panel to the CORE unit

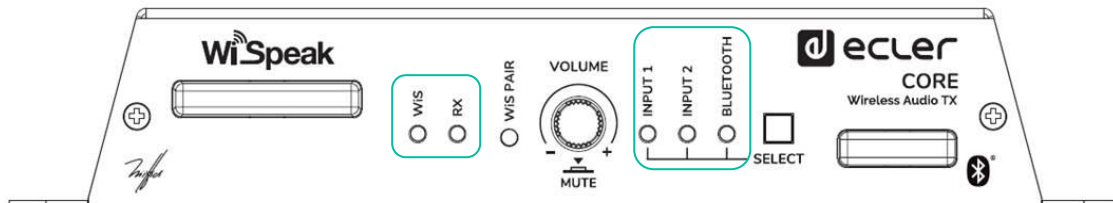
The 3-positions **VOL CTRL** switch at the back panel of a CORE transmitter provides these 3 volume control options:

- **LOCAL & APP**: at this switch position, the general volume of the WiSpeak system can be controlled using the front panel VOLUME knob and the WiSpeak grip app. Both methods can adjust the volume within the minimum and maximum volume range that can be defined using the WiSpeak grip app (Admin user) (*). The REMOTE VOLUME port is disabled in this position
- **LOCKED**: when the switch is set to this position, the volume control keeps the current value and remains blocked. It can't be modified again using any method, unless the switch is set to a different position
- **REMOTE**: at this switch position, the volume can just be adjusted using the WPaVOL wall panel connected to the REMOTE port. The CORE front panel VOLUME knob and the WiSpeak grip app volume faders are then disabled in this position (*)

(*) The general volume control, by any method used, can be limited within a given minimum and maximum volume range, which can be defined using the WiSpeak grip app (Admin User)

9. LED information, codes and additional procedures

9.1 CORE transmitter



The front panel LEDs provide information about the working status of the unit and the currently selected source.

- **WiS / RX LEDs**

At the left-hand side, there are two LED indicators that provide information about the global status of the transmitter unit and its network of paired receivers: **WiS** (WiSpeak interface status) and **RX** (receivers' network status), with these possible codes or combinations:

WiS LED	RX LED	Transmitter status
ON	-	The WiSpeak wireless interface is working properly
OFF	-	The WiSpeak wireless interface is not working properly. Please, contact your authorised Technical Service
ON	ON, permanently	The unit is paired to a network of receivers and working properly, with all the paired receivers currently online. This is the usual status after the system has been set up, and running in normal conditions with no receiver in offline condition
ON	Blinking sequence (3 seconds loop)	Within a 3 seconds loop sequence, every single blink that is shown means that one of the paired receivers is offline, or not reached by the transmitter for any reason (it is powered OFF, or out of range, or it is failing, etc.). Under this scenario, it is recommended to use WiSpeak grip app for a proper troubleshooting
ON	Blinking quickly	The transmitter unit is ready to be paired to a network of receivers, up to a maximum of 24 of them
Blinking	Blinking sequence (3 seconds loop)	The last pairing process ended up with a Partial Pairing result (see chapter 9 for further information)

- **INPUT1 / INPUT2 LEDs**

- Permanently ON: IN1 or IN2 is selected, and its incoming audio signal is sent via WiSpeak wireless audio transmission to the receivers' network.
Short-press the SELECT key to modify the input selection
- Blinking (gain adjust mode): when IN1 or IN2 is selected (its LED is in fixed ON condition), a long press (> 5 seconds) of the SELECT key will get the unit into gain adjust mode. Rotate the front panel knob to adjust an input's gain:
 - IN1 gain: 14 steps, each one increasing or decreasing with each knob's rotation step
 - IN2 gain: 5 steps, each one increasing or decreasing with each knob's rotation step

A short press on SELECT key will exit the gain adjust mode.

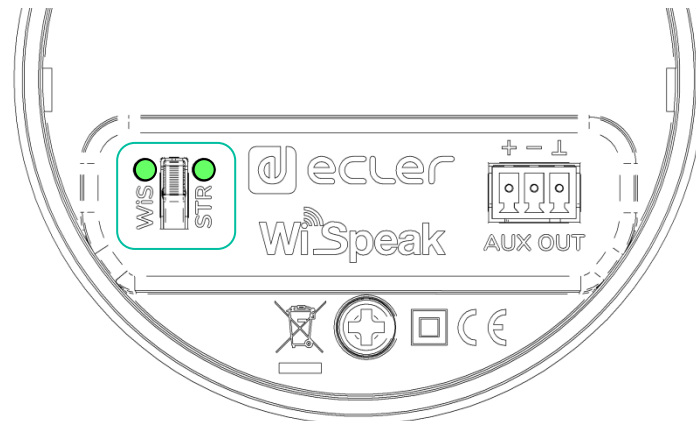
- **BLUETOOTH® LED**

- Permanently ON: the Bluetooth® input is selected, and **there is an external device** (smartphone, tablet, computer, audio player, etc.) **connected to the CORE unit for audio transmission** (A2DP). If a valid media is played in this external device and transmitted via Bluetooth®, it will be received by the CORE unit and sent via WiSpeak wireless audio transmission to the receivers' network
- Blinking: the Bluetooth® input is selected, but **there is NOT an external device** (smartphone, tablet, computer, audio player, etc.) **connected to the CORE unit for audio transmission** (A2DP). Therefore, even the Bluetooth® input is selected in the CORE unit, no audio will be received via Bluetooth® by the CORE unit, thus not sent via WiSpeak wireless audio transmission to the receivers' network

9.2 TUBE / CUBE receivers

9.2.1. TUBE

The TUBE receiver has two LED indicators at its rear panel: WiS (WiSpeak interface status) and STR (wireless streaming reception status):

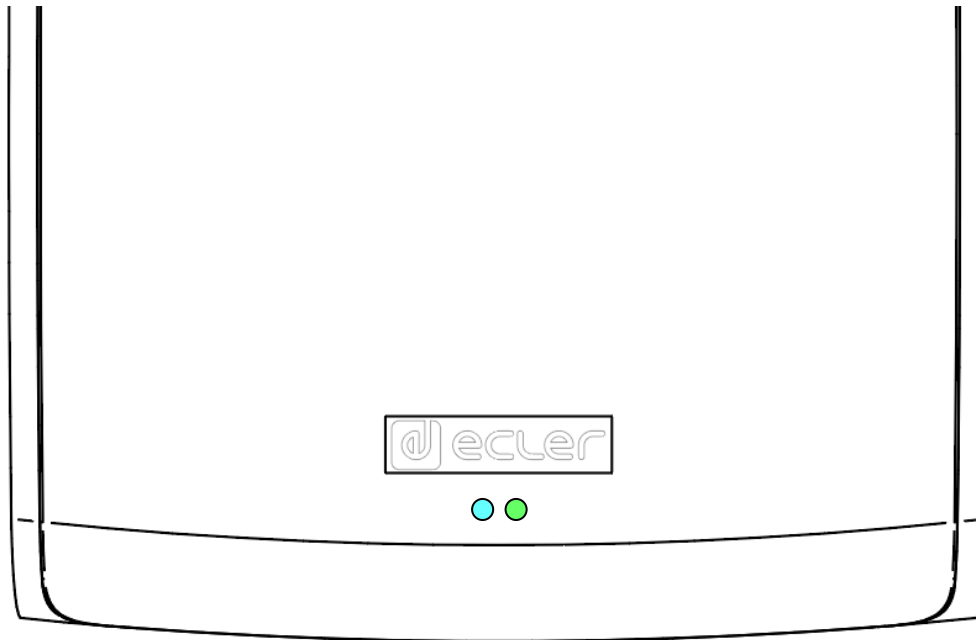


The possible combinations of the status of both LEDs have the following meaning regarding the status of a TUBE receiver unit:

WiS Green LED	STR Green LED	Receiver status
OFF	ON permanently	The unit is paired with a transmitter, currently reached by it (online) and receiving WiSpeak wireless audio correctly. This is considered the correct status of a receiver in normal working conditions
OFF	Blinking	The unit is paired with a transmitter, but currently not online with it for any reason (the transmitter is OFF, out of range, etc.), and trying to establish a proper WiSpeak connection
Blinking	Blinking	The unit is not paired to any transmitter and it is available to be paired to a transmitter

9.2.2. CUBE

The CUBE receiver has the same two LED indicators, but visible through the front panel grill, under the Ecler logo.



The possible combinations of the status of both LEDs have the following meaning regarding the status of a CUBE receiver unit:

WiS Blue LED	STR Green LED	Receiver status
OFF	ON permanently	The unit is paired with a transmitter, currently reached by it (online) and receiving WiSpeak wireless audio correctly. This is considered the correct status of a receiver in normal working conditions
OFF	Blinking	The unit is paired with a transmitter, but currently not online with it for any reason (the transmitter is OFF, out of range, etc.), and trying to establish a proper WiSpeak connection
Blinking	Blinking	The unit is not paired to any transmitter and it is available to be paired to a transmitter

10. Extended information about the WiSpeak PAIRING PROCEDURE

The WiSpeak pairing procedure must be necessarily performed at least once to setup a WiSpeak system, after the transmitter and all the receivers have been physically installed and powered, and it's time to set up and run the installation.

But it can be performed later again, for a second, third, or more times if needed, and due to many possible reasons, like:

One or more TUBE / CUBE receivers have been added to the initial batch

One or more receivers have been removed

One or more receivers have been replaced by other units

... or, sometimes, because the last pairing process was not 100% satisfactory (we'll call it "**Partial Pairing**")

The pairing procedure is accumulative, meaning this that:

- When the pairing procedure is done for the first time, it starts a **Discover** process, or scan for available receivers. Both LED indicators (WiS and RX) will blink together (not alternately) during the time it takes to finish it
- It ends up with a internal list in the transmitter containing the successfully paired receivers
- When performed over again (for the second, third time, or further) it scans once more to check whether those receivers already in the paired list are online or not, and also tries to find out more available (new, unpaired) receivers. The list is then increased including the new receivers successfully paired, but it will also log the ones already paired in the past, but not successfully reached during the last scan, if any (*)

(*) If that happens (one or more paired receivers in the past are not correctly reached during a new pairing process), we're facing a **Partial Pairing** result.

A **Partial Pairing** result will be displayed with the following transmitter's front panel LED code:

- **WiS** LED: blinking
- **RX** LED: blinking within a 3 seconds loop sequence. Every single blink that is shown means that one of the paired receivers in the past is currently offline, or not reached by the transmitter for any reason (it is powered OFF, or out of range, or it is failing, etc.). Under this scenario, it is recommended to use WiSpeak grip app for a proper troubleshooting.

Warning: in case a pairing procedure results in a Partial Pairing, **a new pairing process will be required**, after having applied the proper countermeasures to try to pair again and get a successful result. **A WiSpeak system always needs a successful pairing process to start performing in a stable and reliable way.**

Please, apply countermeasures (check coverage distances, receivers and transmitter power and integrity, etc.) and repeat the pairing procedures as many times as necessary to finally end up with a successful pairing status.

11. UNPAIR PROCEDURE

Whenever a system needs to be restored back to an “unpaired” status (to start the installation from scratch, to reuse the hardware units in a different environment, etc.), the following steps must be followed:

- Check that the transmitter is powered ON
- Check that each and every single receiver paired to it is as well powered ON
- Check that both the transmitter and all the receivers paired to it are performing correctly (see chapter 8 for further information)
- Press and hold the WiS PAIR recessed key, with a small screwdriver or pin tool, for more than 5 seconds
- WiS and RX LEDs will start blinking alternately for some seconds, until the unpair process finishes

After a successful unpair procedure:

- WiS LED should remain lit ON and the RX LED should blink quickly in the transmitter, meaning this that the transmitter unit is ready to be paired to a network of receivers, up to a maximum of 24 of them
- WiS LED and STR LEDs will both blink in each receiver, meaning this that the unit is not paired to any transmitter and it is available to be paired to a transmitter

(*) Note: when it happens that one TUBE or CUBE receiver is not in these conditions (powered ON, paired and online with its Master transmitter), the unpair procedure conducted by the transmitter, and described above, will be unable to unpair that particular receiver unit. In this case, the alternative method of unpairing a receiver is by pressing and holding its rear panel UNPAIR key for 5 seconds, starting its own unpair process. It will end up with its WiS LED and STR LEDs blinking, meaning this that the unit is not paired to any transmitter and it is available to be paired to a transmitter

12. SPECIAL RESET PROCEDURES

Sometimes it will necessary to reset the transmitter / receiver units to their factory defaults, or perhaps just the Bluetooth® module to its factory defaults as well.

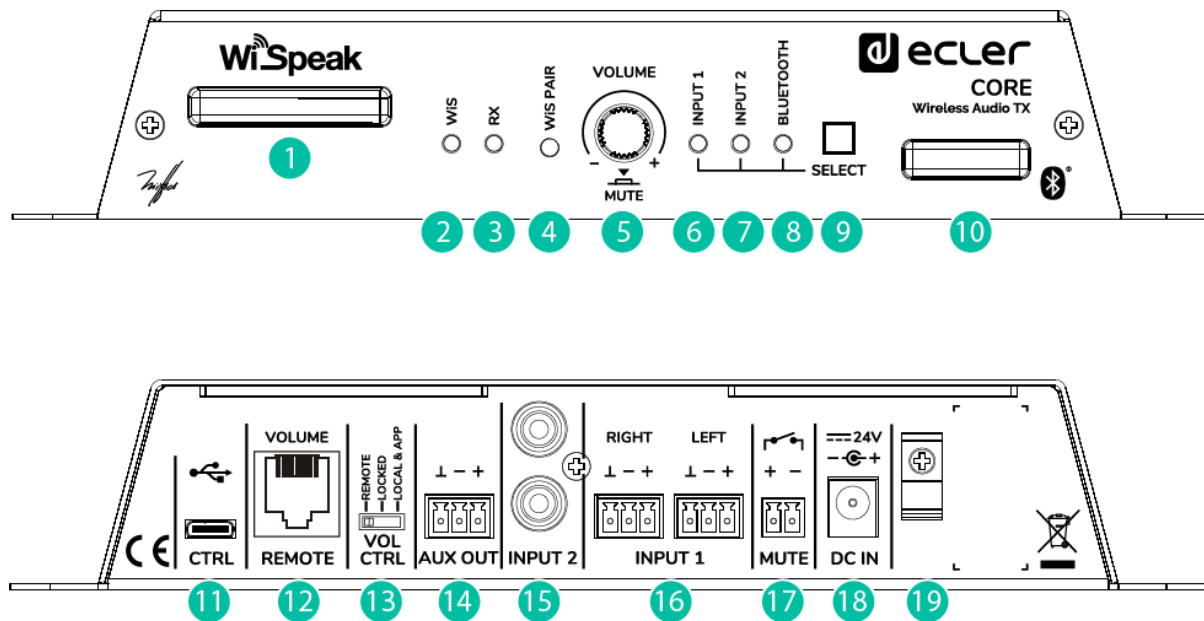
As both procedures are extremely dangerous for a running WiSpeak system when applied without the proper permissions, and/or without the right knowledge of their consequences, we beg you ask your official WiSpeak installer / distributor to carry them out.

13. CLEANING

The casing should not be cleaned with solvents or abrasive materials since they can damage the screen printing. To clean the product, please used a cloth dampened with a mild liquid detergent and water, and wipe it off with a dry and clean cloth. Be careful that water never gets into the unit through its holes.

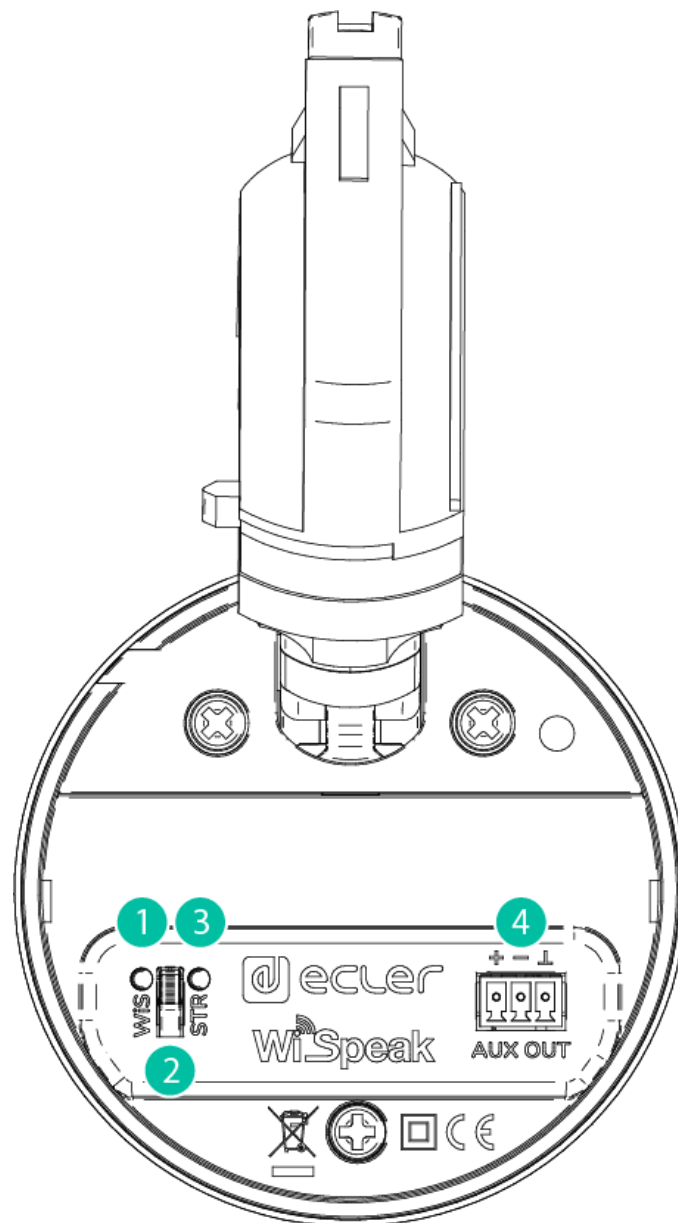
14. FUNCTION DIAGRAMS

14.1. CORE



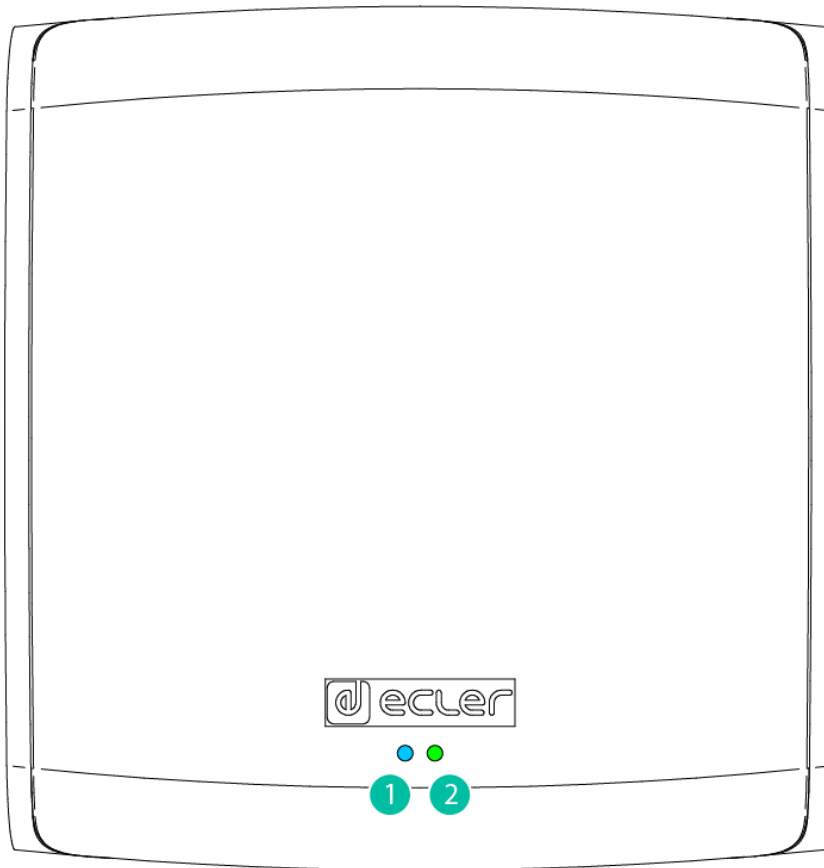
1. RF Antenna
2. WiSpeak LED
3. RX LED
4. WiSpeak Pair key
5. Volume / MUTE
6. Input 1 LED
7. Input 2 LED
8. Bluetooth® LED
9. Input Source Selector
10. Bluetooth® Antenna
11. Service USB-C port
12. Volume Remote RJ45 Port
13. Volume Control Selector
14. Local Aux Output
15. Input 2: unbalanced RCA connector
16. Input 1: balanced Euroblock connector
17. Mute GPI
18. DC in
19. DC cable security fixation

14.2. TUBE

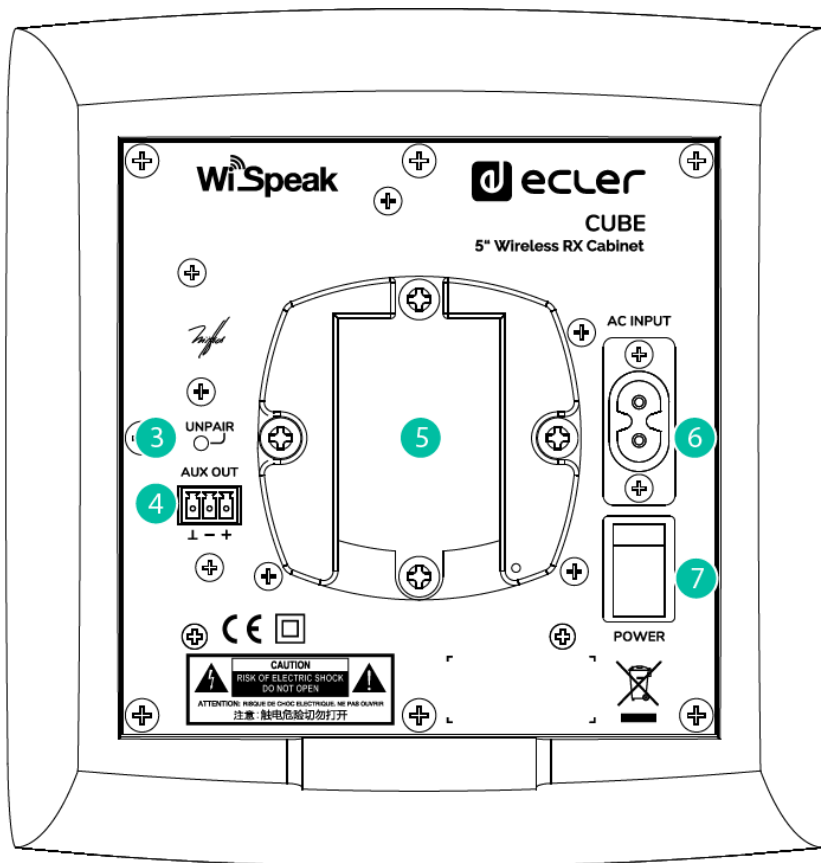


1. WiSpeak interface status LED
2. WiSpeak Pair key
3. Wireless streaming reception status LED
4. Local Aux Output

14.3. CUBE



1. WiSpeak interface status LED
2. Wireless streaming reception status LED
3. WiSpeak Pair key
4. Local Aux Output
5. Rail / wall bracket guide
6. AC cable connector
7. Mains switch



15. TECHNICAL CHARACTERISTICS

15.1. CORE

Inputs	
Type	IN1: Balanced, Stereo, Euroblock IN2: Unbalanced, Stereo, RCA BT: Bluetooth wireless
Input Sensitivity* / Nominal Impedance	IN1: -10dBV to 0dBV / >20kΩ IN2: -10dBV to 0dBV / >20kΩ BT: -10dBV FS
Gain Control Range ²	IN 1&2: 10dB
Input Selector (same selection for Ch1&2)	Frontal panel keys / WiSpeak grip control app
CMRR	IN2: >60dB @ 1kHz
Bluetooth Input	Type: Compliant 5.0, Class 1 Range: 25m (ideal conditions) Profiles: A2DP1.3/AVRCP1.6/HFP1.6/HSP1.2
Frequency Response (at TX AUX OUT)	IN1: 10Hz – 20kHz (-1dB) IN2: 10Hz – 20kHz (-1dB) BT: 10Hz – 20kHz (-1dB)
THD+D (at TX AUX OUT)	IN 1&2: <0.015%

Signal Noise Ratio (at TX AUX OUT)	IN 1&2: >95dB
Local Output	
Type	AUX OUT: Analog, Mono, Balanced, Euroblock
Input Selection	CH 1&2: WiSpeak grip control app
Nominal Output Level / Min Load	AUX OUT: 0dBV / 10kΩ
WiSpeak Channels (RF Wireless Audio)	
Channel	CH 1&2: Digital, Mono, RF Wireless Audio
General Controls (affects Ch1&2)	Master VOL, MUTE: Frontal panel keys / WiSpeak grip control app
Tone Control ³ (independent for each Ch)	BASS: 100Hz, ±10dB MID: 1k2kHz, ±10dB TREBLE: 10kHz, ±10dB
High Pass Filter ³ (independent for each Ch)	OFF / 120Hz / 150Hz Butterworth 12dB/oct
Low Pass Filter ³ (independent for each Ch)	OFF / 120Hz / 150Hz Butterworth 12dB/oct

RF Wireless Audio	
Frequency Band	U-NII 5.1 – 5.8GHz (supported worldwide) Up to 24 non-overlapping RF channels ⁴ DFS support
Transmission Recommended Distance	Up to 12m from a TX to any paired RX, direct line of sight ¹
Audio Transmission	24bit uncompressed, 48kHz SR
Audio Channels	WiSpeak CH 1&2
Latency (I2S digital audio to RX output)	5.1ms, fixed
Inter-channel delay error	±1us
Reconnection time	Up to 120s ⁵
Pairing time	Up to 120s ⁵
Latency	
From TX Analog Audio IN to TX AUX OUT	<700usec
From TX Analog Audio IN to TR AUX OUT	<6ms
From TX Analog Audio IN to RX Speaker	<6ms
DSP	
Processor	25 / 56 bits
Sampling Rate	48kHz
Converters	
Resolution	ADC/DAC: 24 bits
Dynamic Range	ADC: 96dB DAC: 98dB
Miscellaneous	
Control Port	USB-C: Service & Firmware updates
Supply	
DC Supply	24VDC
Mains (using supplied DC adapter)	100-240AC 50-60Hz
Power Consumption	0.5A at 24V
Mechanical	
Dimensions (WxHxD)	225x120x40mm / 8.9"x4.7"x1.6"
Weight	0.8kg / 1.76 lb.

15.2. TUBE

Inputs	
Type	CH1 / CH2: Digital, Mono, RF Wireless Audio
Input Selector	CH1 / CH2: via WiSpeak grip app
Controls	VOL: via WiSpeak grip app SOLO: via WiSpeak grip app ID TEST SIGNAL: via WiSpeak grip app PAIR / UNPAIR: via WiSpeak grip app and Panel button
Outputs	
Type	Internal Loudspeaker: Analog, Mono, Self-powered AUX OUT: Analog, Mono, Balanced, Euroblock
Nominal Output level / Min. Load	0dBV / 10k Ω
THD+N (at RX AUX OUT)	<0.015%
Signal Noise Ratio (at RX AUX OUT)	>95dB
Internal Loudspeaker	
Size	3" driver
Impedance	4 Ω
Ways	1
Sensitivity 1W / 1m	83dB
Frequency range	105 - 20kHz (-10dB)
Power Amplifier	
Power (4 Ω , 1% THD)	18W
THD+N (1kHz Full Power)	<0.15%
RF Wireless Audio	
Frequency band	U-NII 5.1 – 5.8GHz (supported worldwide) Up to 24 non-overlapping RF channels ² DFS support
Transmission Recommended Distance	Up to 12m from a TX to any paired RX, direct line of sight ¹
Audio transmission	24bit uncompressed, 48kHz SR
Audio channels	WiSpeak CH1 / CH2
Latency (I2S digital audio to RX output)	5.1ms, fixed
Inter-channel delay error (speaker - speaker)	$\pm 1\mu s$
Reconnection time	Up to 120s ³
Pairing time	Up to 120s ³

Latency	
From TX IN to RX AUX OUT	<6ms
From TX IN to RX Speaker	<6ms
From Speaker to Speaker	±1us
Digital Audio Performance	
Sample size	24 bits
Sampling rate	48kHz
Frequency response	20Hz – 20kHz (-0.1dB)
Converters	
Resolution (DAC)	24 bits
Dynamic range (DAC)	100dB
Supply	
Mains voltage	100-240VAC 50-60Hz
Rated power consumption	15W
Power consumption (pink noise, 1/8 power)	7W
Power consumption (pink noise, 1/3 power)	13W
Mechanical	
Finish colour	White (RAL 9003) or black (RAL 9005)
Dimensions (without arm)	ø96mmx110mm / ø3.8"x4.3"
Support arm	Swivel (pan and tilt)
Weight	0.8kg / 1.76lb.

15.3. CUBE

Inputs	
Type	CH1 / CH2: Digital, Mono, RF Wireless Audio
Input Selector	CH1 / CH2: via WiSpeak grip app
Controls	VOL: via WiSpeak grip app SOLO: via WiSpeak grip app ID TEST SIGNAL: via WiSpeak grip app PAIR / UNPAIR: via WiSpeak grip app and Panel button
Outputs	
Type	Internal Loudspeaker: Analog, Mono, Self-powered AUX OUT: Analog, Mono, Balanced, Euroblock
Nominal Output level / Min. Load	0dBV / 10k Ω
THD+N (at RX AUX OUT)	<0.015%
Signal Noise Ratio (at RX AUX OUT)	>95dB
Internal Loudspeaker	
Size	5" woofer + 1" tweeter
Impedance	8 Ω
Ways	2
Sensitivity 1W / 1m	83dB
Frequency response	70 - 20kHz
Power Amplifier	
Power (8 Ω , 1% THD)	32W
THD+N (1kHz Full Power)	<0.15%
RF Wireless Audio	
Frequency band	U-NII 5.1 – 5.8GHz (supported worldwide) Up to 24 non-overlapping RF channels ² DFS support
Transmission Recommended Distance	Up to 12m from a TX to any paired RX, direct line of sight ¹
Audio transmission	24bit uncompressed, 48kHz SR
Audio channels	WiSpeak CH1 / CH2
Latency (I2S digital audio to RX output)	5.1ms, fixed
Inter-channel delay error (speaker - speaker)	$\pm 1\mu s$
Reconnection time	Up to 120s ³
Pairing time	Up to 120s ³

Latency	
From TX IN to RX AUX OUT	<6ms
From TX IN to RX Speaker	<6ms
From Speaker to Speaker	±1us
Digital Audio Performance	
Sample size	24 bits
Sampling rate	48kHz
Frequency response	20Hz – 20kHz (-0.1dB)
Converters	
Resolution (DAC)	24 bits
Dynamic range (DAC)	100dB
Supply	
Mains voltage	100-240VAC 50-60Hz
Rated power consumption	15W
Power consumption (pink noise, 1/8 power)	7,5W
Power consumption (pink noise, 1/3 power)	14W
Mechanical	
Finish colour	White (RAL 9003) or black (RAL 9005)
Dimensions (without arm) WxHxD	175x175x180mm / 6,9"x6,9"x7,1"
Support arm	Swivel (pan and tilt)
Weight	2,1 kg / 4.6lb.

All product characteristics are subject to variation due to production tolerances. **NEEC AUDIO BARCELONA S.L.** reserves the right to make changes or improvements in the design or manufacturing that may affect these product specifications.

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