ART 9-AX Reference Guide

Date: Sept 20, 2022
Rev.: 1.8

Reference Manual for
Firmware version 1.19

This document applies to the following RCF products:

ART 910-AX
ART 912-AX
ART 915-AX

1. QUICK START

The ART 9-AX series combines the powerful ART 9 active speaker with a compact yet advanced digital mixer, that adds ample flexibility and several functions to the product.

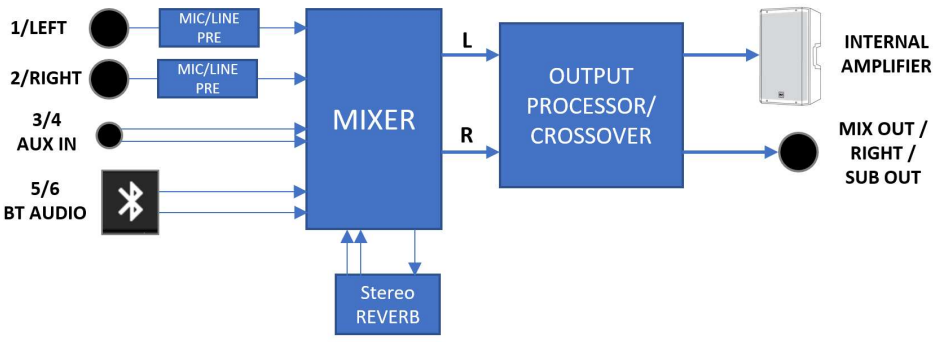
Remote audio and control via Bluetooth and a touch-based color display allow full management of the following internal functions:

- 6-input digital mixer
  - input processing and internal reverb
  - Dual COMBO XLR & TRS inputs, with mic/line preamp
  - Independent 48V phantom power for each of the 2 COMBO inputs
  - Stereo Bluetooth audio input

- Output Processor
  - Internal crossover option, with presets for selected RCF subwoofer products
  - MIX OUT connector with multiple functions
  - Output delay and EQ (HPF, 4-band PEQ, Hi Shelf)

- Multiple operating modes of the internal mixer: MONO, STEREO, CROSSOVER (stereo mode enables a perfect match with another ART 9 cabinet, offering full stereo management)

- Bluetooth operating modes: MONO (single speaker management) and DUAL (two speakers are paired in Dual L/R or Zone mode)



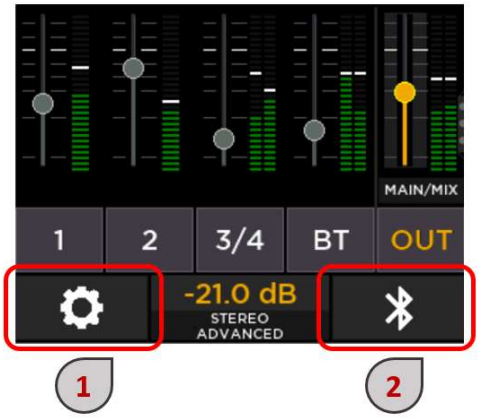
ART 9-AX signal flow

The encoder just below the touch screen is primarily dedicated to speaker level control; when navigating into the edit pages, if parameters are selected the encoder allows to change parameter values.

The Mixer view is the default page that appears when turning on the unit; during edit, after a specified time interval of inactivity, the screen returns to the Mixer view. After touching any of the on-screen faders, their value can be modified with the encoder.

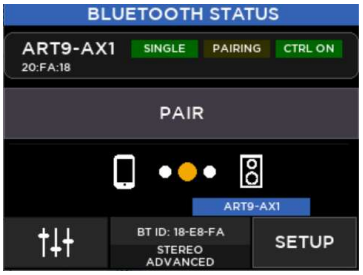
After a longer time, the touch screen goes in *idle mode*, where the screen shows two indicators (signal presence, clip), the RCF logo or the speaker volume when modified. A click on the encoder resumes from screen idle mode, showing the Mixer view again.

Touching button (1) brings you to the **SETTINGS** menu, while button (2) jumps to the **BLUETOOTH STATUS** page.

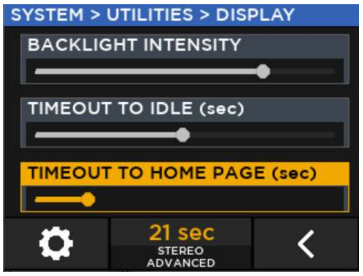


The **SETTINGS** view allows a full configuration of the unit; this is explained in detail in the following chapters.

The **BLUETOOTH STATUS** page allows a quick check of current status, and allows pairing with a smartphone running the LiveRemote app (available for iOS and Android).



*Note: go to SETTINGS > SYSTEM SETTINGS > UTILITIES > DISPLAY to modify **Timeout to Idle** and **Time to Home Page** values, both in seconds.*



2. OPERATING MODES OVERVIEW

The flexible digital ART 9-AX engine offers several different operating modes, covering a wide range of use cases.

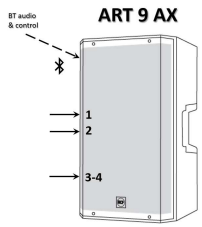
MIX OUT MODE essentially relates to the internal digital mixer and processor behaviour, and its associated MIX OUT connector.

BLUETOOTH SETUP relates to communication between one or two ART 9-AX products with the associated **LiveRemote** control app, that runs on iOS or Android smartphones. It can be set in **SINGLE mode** (only one Bluetooth speaker is available) or in **DUAL mode** (two ART 9-AX speakers are available).

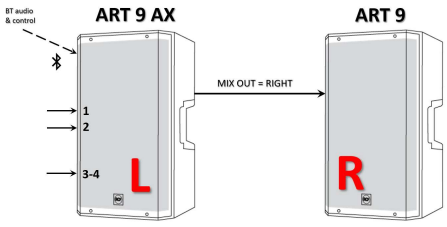
Single Mode

If only one ART 9-AX speaker is available, then **BLUETOOTH** should run in **SINGLE mode**. The LiveRemote app controls a single speaker, with all functions available. The speaker can operate in one of the following MIX OUT modes:

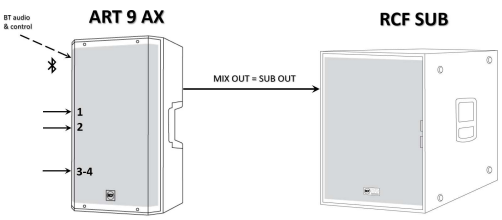
MIX OUT mode	
MONO	Default operating mode of ART 9 AX. The internal mixer operates in mono; MIX OUT is available for sending the mixed output to other speakers. Bluetooth audio feed is mixed to mono.
STEREO	The internal mixer operates in stereo; MIX OUT is dedicated to the other output (default is MIX OUT = RIGHT). Bluetooth audio feed is reproduced in stereo.
XOVER	The internal mixer operates in mono; the digital crossover is enabled and MIX OUT becomes a subwoofer feed. Bluetooth audio feed is mixed to mono.



SINGLE MODE, MONO



SINGLE MODE, STEREO



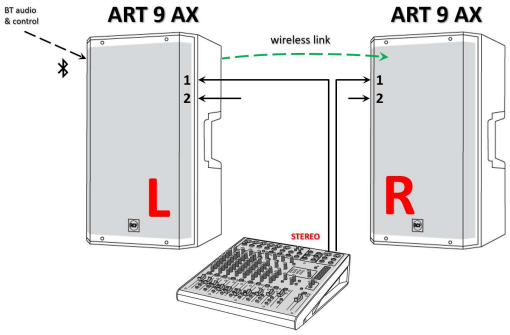
SINGLE MODE; CROSSOVER

Dual Mode

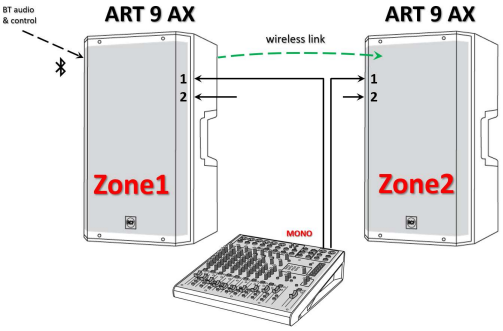
If two ART 9-AX products are available, it is possible to control them from the same LiveRemote app, with a reduced parameter count.

This mode is best suited for direct control from an external mixer, as the internal ART 9-AX mixer becomes less practical.

BLUETOOTH should be set in DUAL modes; the LiveRemote app discovers the PRIMARY speaker, which connects to the SECONDARY speaker via a private wireless link.



DUAL MODE, STEREO



DUAL MODE, ZONE

The dual-speaker system can operate in one of the following MIXER modes:

MIXER mode	
DUAL L/R	Each speaker operates as either LEFT or RIGHT when fed from an external stereo signal pair. MIX OUT can be either the main output or the crossover subwoofer feed. EDIT mode is forced to EASY (no input EQ and Compressor, no output EQ). Reverb is disabled. Bluetooth audio feed is handled as a stereo source and correctly routed.
ZONE	Each speaker operates as an independent unit with respect to output settings. MIX OUT can be either the main output or the crossover subwoofer feed. EDIT mode is forced to EASY (no input EQ and Compressor, no output EQ). Reverb is disabled. Bluetooth audio feed is mixed to mono.

All available modes can be enabled by either using the STEP-BY-STEP CONFIGURATION or using the dedicated submenus:

SETTINGS > SYSTEM SETTINGS > BLUETOOTH

SETTINGS > SYSTEM SETTINGS > AUDIO SETUP > MIX OUT MODE

More details are available in the **Operating Modes Reference** section, later in this document.

3. MIXER EDIT

Channel Edit modes: Easy and Advanced

The internal digital mixer is a versatile processing system that in some cases may be too complex for immediate operation; therefore, the EDIT mode can be set in EASY or ADVANCED; to modify the EDIT mode, go to SETTINGS (⚙)from the Home Page, and press EASY/ADVANCED, a popup will appear, with confirmation required.

The EASY EDIT mode is assuming the user is operating in MONO MIX OUT mode, without full processing control:

EDIT mode ➔	**EASY**	**ADVANCED**
MIX OUT mode	MONO MAIN or MONO XOVER	All modes
Input EQ	No	Yes
Input Dynamics (Ch. 1, 2)	No	Yes
Input Pan/BAL	No	Yes
Input 48 V, sensitivity set	Yes	Yes
Output EQ	No	Yes
Reverb	Yes	Yes

The current mode is displayed on MIXER view, at the center lowest row, and also in the edit pages backround:

Mixer View

CH 1 or 2 Edit

Ch 3/4 or 5/6 Edit

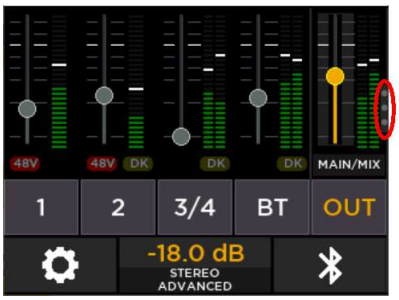
MAIN Edit

Touch Screen Gestures

On some pages, gestures are enabled to allow a faster navigation. A 3-dot graphical element helps in understanding if a gesture is available.

As an example, on the MIXER view, a right-to-left swipe is available for jumping to the Reverb page, as shown on the right.

In this document, when a gesture is available, it will be detailed for each of the pages affected.

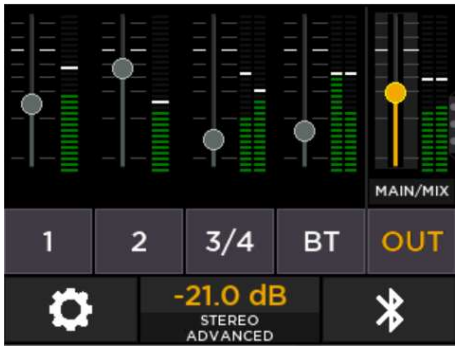


Here is a summary of available gestures:

FROM	Gesture	TO
Mixer View (home page)	Right to Left	Reverb page
Reverb page (only if reached with the gesture above)	Left to Right	Mixer View (home page)
Input Channel Edit, page 1 or 2 ((Ch. 1, 2) Input Channel Edit (Ch. 3-4, BT)	Top to Bottom	Mixer View (home page)
Input Channel Edit, page 1 (Ch. 1, 2)	Right to Left	Goes to page 2 (equivalent to **>** button)
Input Channel Edit, page 2 (Ch. 1, 2)	Left to Right	Returns to page 1 (equivalent to **<** button)
Output Edit	Top to Bottom	Mixer View (home page)
System Settings and subpages (except LOAD/SAVE, CROSSOVER)	Top to Bottom	Mixer View (home page)
Step-by-Step Configuration (not on subpages)	Top to Bottom	Mixer View (home page)

Mixer (home)

MIXER View is the default page which shows up when the mixer is powered on or exits from the idle state.



To change the value of any fader on this page, touch the fader once and use the encoder to modify its current value; the encoder highlights in yellow and the current value is shown in yellow above the encoder itself.

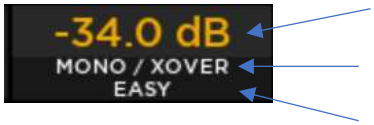
To enter the EDIT pages of input channels, touch buttons 

To enter the EDIT page of the MAIN output, touch button 

To enter the SETTINGS pages, touch button 

To enter the BLUETOOTH setup page, touch button 

The center lower section of this page contains several details:



current edit value

current MIX OUT mode

current EDIT mode (EASY/ADVANCED)

Please note that if a fader is set to its minimum value (-infinity), it turns red to indicate a muted state. This can be useful when controlling from the LiveRemote smartphone app, which also features a MUTE button.

Gesture: *a right-to-left swipe jumps to the REVERB page*.

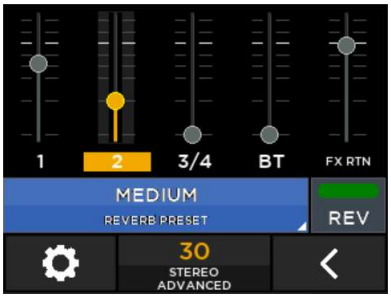
Reverb

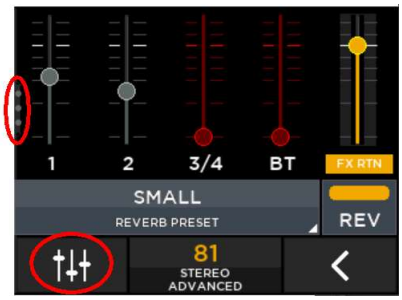
Path: SETTINGS > SYSTEM SETTINGS > AUDIO SETUP > REVERB

The internal stereo Reverb can be applied to all inputs. Three presets are available: SMALL, MEDIUM, LARGE.

A global Effect Return level control is available (FX RTN), affecting the reverb amount mixed into the stereo L/R buss.

A global Reverb ON/OFF is also available. When Mix OUT mode is set to MONO, Reverb outputs are summed to mono.

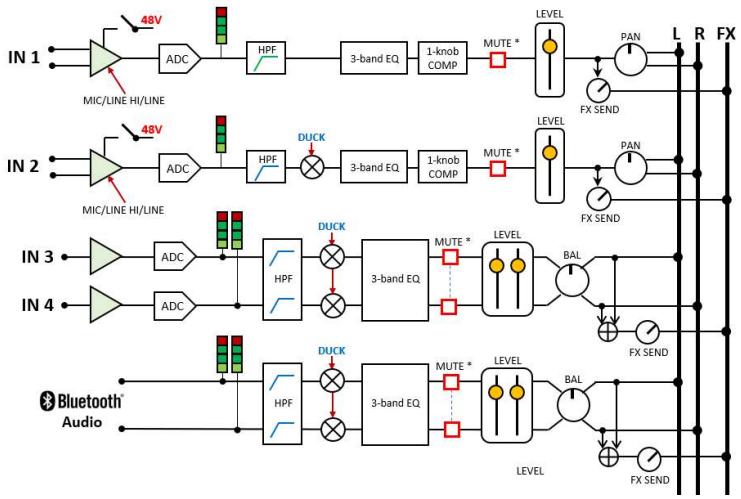




Gesture: *A left-to-right swipe returns to Mixer view, only if reached with the opposite gesture; when the Reverb page is reached with navigation, a top-to-bottom gesture returns to Mixer View. The two cases differ by the lower left button (see above).*

Input channel EDIT

The 6 inputs are arranged as follows:



Inputs 1 and 2 feature a Compressor section, and can be set as a stereo pair or independent; inputs 3-4 and BT are always managed as a stereo pair, and do not feature the Compressor section.

From the Mixer view, click on the channel edit buttons to enter the EDIT pages (shown here with Edit mode = ADVANCED):

The first page shows both HPF and input 3-band equalizer; you can modify the values by clicking on the parameter and rotate the encoder. The EQ offers the following characteristics:

HPF:	OFF, 20…400 Hz
LO EQ:	40 Hz, LO SHELF
MID EQ:	1000 Hz, PEAK
HI EQ:	4000 Hz, HI SHELF

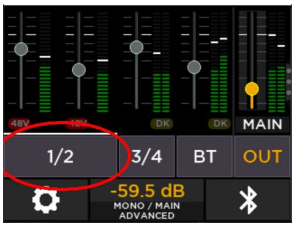
The input channel level is always accessible, on the left. Just below, the PAN control is available, and enabled when MIX OUT is set to STEREO mode.

The lower rightmost button (**>**) directs you to the second edit page. A right-to-left gesture has the same effect to direct you to the second edit page.

In this page, a single-control Compressor, optimized for generic input signals, is available. To disable the compressor, set it to the minimum value.

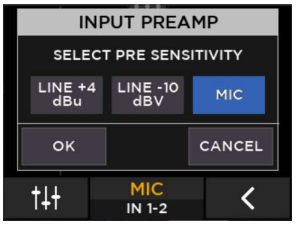
The other 3 controls all require a confirmation.

Link 1-2, when enabled, links input channels 1 and 2 to behave like a stereo pair, with ganged levels and parameters. When linked, buttons 1 and 2 are merged (see image on the right).



Please note that 48V on/off control is enabled only when input PRE is set to MIC.

For channels 1 and 2, the input preamp has 3 possible settings, please refer to the table below for details.



PRE SENSIVITY	Connector	Maximum input level	Input Z	48 V	Use for
LINE +4 dBu	XLR, TRS	+ 20 dBu	18 kohm	*Disabled*	Balanced audio sources
Line -10 dBV	XLR, TRS	+ 8 dBu	18 kohm	*Disabled*	Unbalanced audio sources, or low-level balanced audio sources
MIC	XLR only	-8 dBu	6 kohm	ON / OFF	Microphones

Please note that if EDIT mode is set to EASY, the EQ section is disabled.
If BLUETOOTH mode is set to DUAL, the EQ section is disabled, because EASY is the only available EDIT mode in DUAL Bluetooth setup.

Gesture: *A top-to-bottom gesture returns to Mixer View. Right-to-left and left-to-right gestures allow navigation between first and second page of Input Channels 1 and 2.*

Output channel EDIT

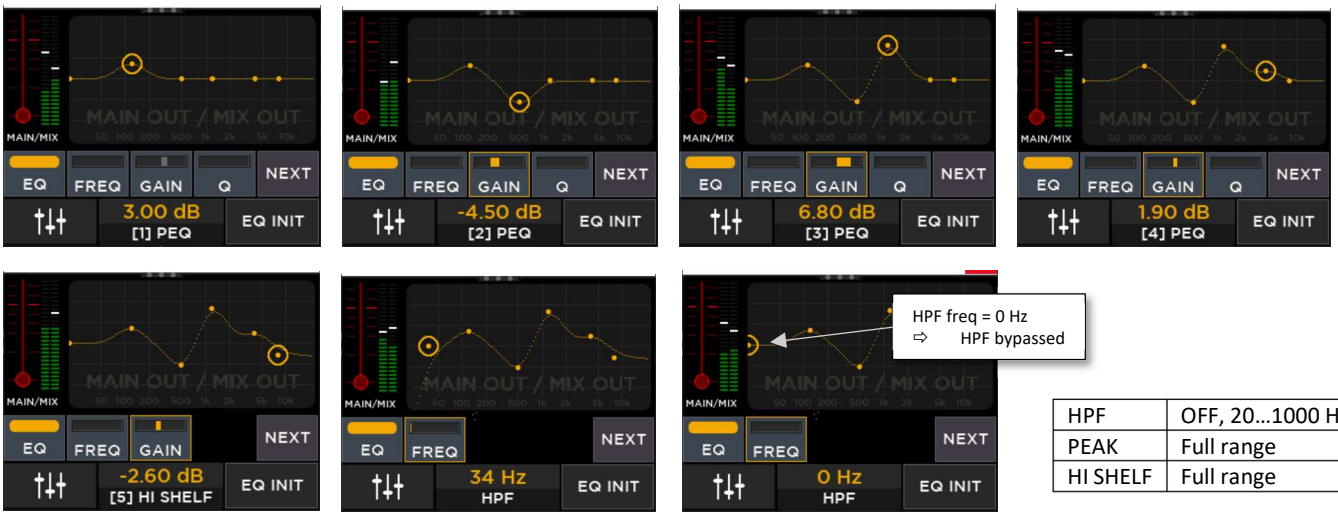
A stereo EQ section is available on both MIX OUT and MAIN outputs; It can be accessed from Mixer view by pressing the MAIN button.

Depending on output settings, this page can control both the MAIN/MIX sections, with ganged controls, or the MAIN only, or the MIX OUT only. Current mode is also shown in the EQ background.

The default and most typical use is in MAIN/MIX mode.

MAIN/MIX control

The output EQ section includes an high-pass filter (HPF), 4 fully parametric peak filters (PEQ 1-4), and a Hi Shelf filter (HI SHELF); by clicking on the NEXT buttons, the screen cycles through these 6 filters, with current filter shown below the numeric value (center low of the screen).



HPF	OFF, 20…1000 Hz
PEAK	Full range
HI SHELF	Full range

An EQ INIT button is available, and a global EQ on/off button. The MAIN output level is also available on the left.
Please note that when the HPF Frequency control is set to zero (leftmost value), the HPF is bypassed.

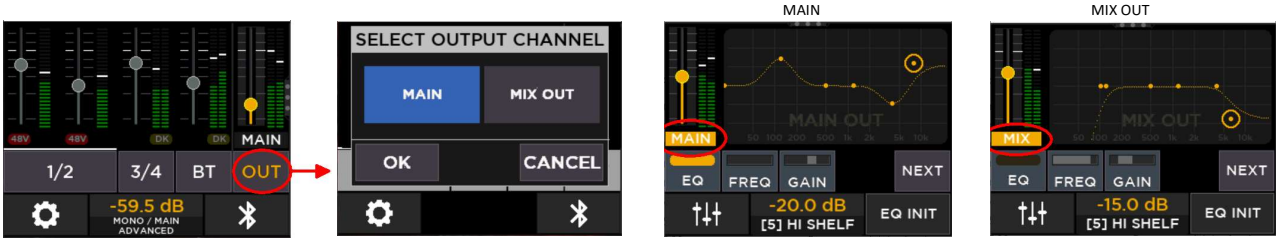
Gesture: *A top-to-bottom gesture returns to Mixer View.*

MAIN or MIX OUT control

Two parameter link enables can affect the Output channel EDIT page.

In the SETTINGS > SYSTEM SETTINGS > AUDIO SETUP > MIX OUT MODE page (see image on the right): when output EQ and Level Pamater Link are not both enabled, then the User Interface offers separate control pages for MAIN and MIX outputs.

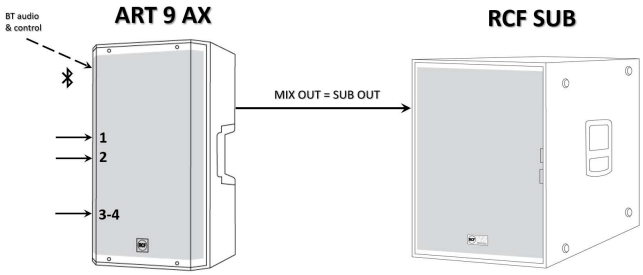
When clicking the OUT button on Mixer View, a selection is required between MAIN output edit and MIX OUT edit (see below). The fader label changes accordingly.



4. CROSSOVER

A high-performance Crossover has been implemented on the ART 9-AX engine, that allows an optimal match with selected RCF subwoofer models.
The MIX OUT connector is reassigned to drive an external subwoofer cabinet.

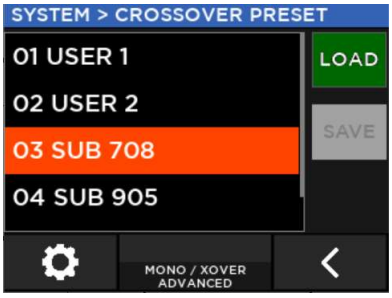
The preset list will grow in time when new subwoofer models will be introduced. Two User locations are also available to save custom crossover settings. RCF presets are read-only.



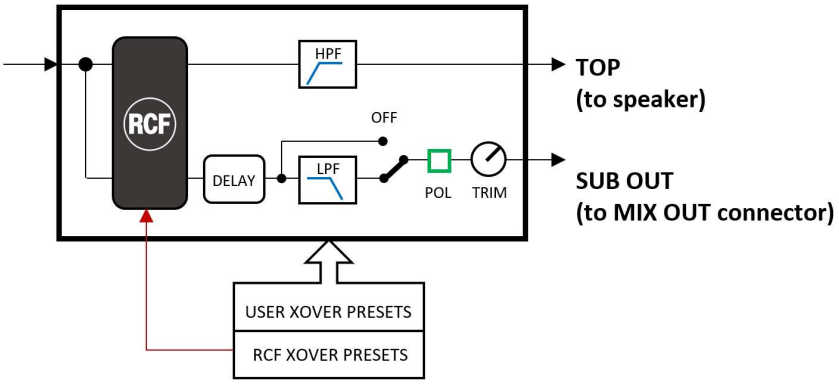
The available crossover parameters are:

- SUB Level Trim [-12.0 dB…. + 12.0 dB], level offset between TOP and SUB output
- SUB Delay [-10 ms…..+10 ms], delay offset between TOP and SUB output
- SUB Polarity
- LPF Enable, normally ON. You can turn the LPF off when the external SUB already has internal filtering.
- Crossover Frequenc: OFF, 20 Hz…. 160 Hz

Additional, non-editable filtering is inserted when an RCF model is selected, for optimal TOP/SUB matching.



For USER 1 and USER 2, SAVE is enabled, while other presets are read-only.



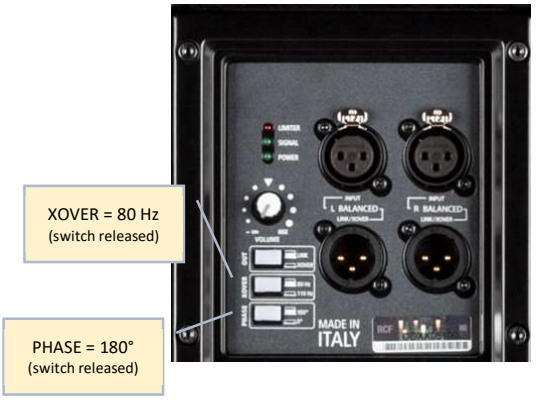
Internal, read-only presets have been created assuming specific subwoofer configurations; please follow the table below to correctly configure the subwoofer unit connected to MIX OUT.

ART 910-AX		
	Preset Name	**Subwoofer suggested settings**
01	USER 1	----
02	USER 2	----
03	SUB 705-AS II	XOVER = 80 Hz, Polarity = 180°
04	SUB 708-AS II	XOVER = 80 Hz, Polarity = 180°
05	SUB 905-AS II	Preset = L3, Polarity = 0°

ART 912-AX		
	Preset Name	**Subwoofer suggested settings**
01	USER 1	----
02	USER 2	----
03	SUB 708-AS II	XOVER = 80 Hz, Polarity = 180°
04	SUB 905-AS II	Preset = L2, Polarity = 0°
05	SUB 8003-AS II	Preset = L3, Polarity = 0°

ART 915-AX		
	Preset Name	**Subwoofer suggested settings**
01	USER 1	----
02	USER 2	----
03	SUB 708-AS II	XOVER = 80 Hz, Polarity = 180°
04	SUB 8003-AS II	Preset = L4, Polarity = 0°
05	SUB 8004-AS II	XOVER = 90 Hz, Polarity = 0° Delay = 0 ms, all switch released

Please notice that for SUB 705-AS II and SUB 708-AS II the required setup is with all switches released (see image below); on other models, specific values should be entered on the display.



The preset list will be expanded when new RCF subwoofer models will be introduced.

5. SETTINGS

From Mixer view, pressing the EDIT button (lower left) leads to the SETTINGS page.

The EASY/ADVANCED button allows for a global settings of editing complexity (see par. 3).

SYSTEM SETTTINGS brings to further subpages to handle system setup in all its details.

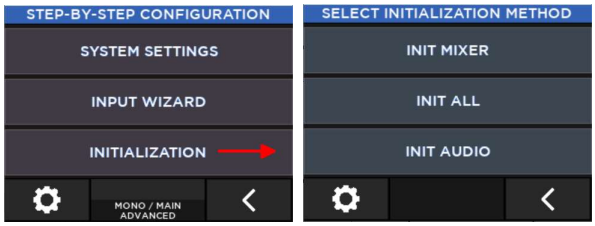
STEP-BY-STEP CONFIGURATION is a wizard-like approach to quickly configure the system.

Step-by-Step Configuration

The ART 9-AX engine can be deployed in several different configurations; to simplify the setup, a guided step-by-step configuration sequence is available to properly set all the required parameters.
Three options are available:

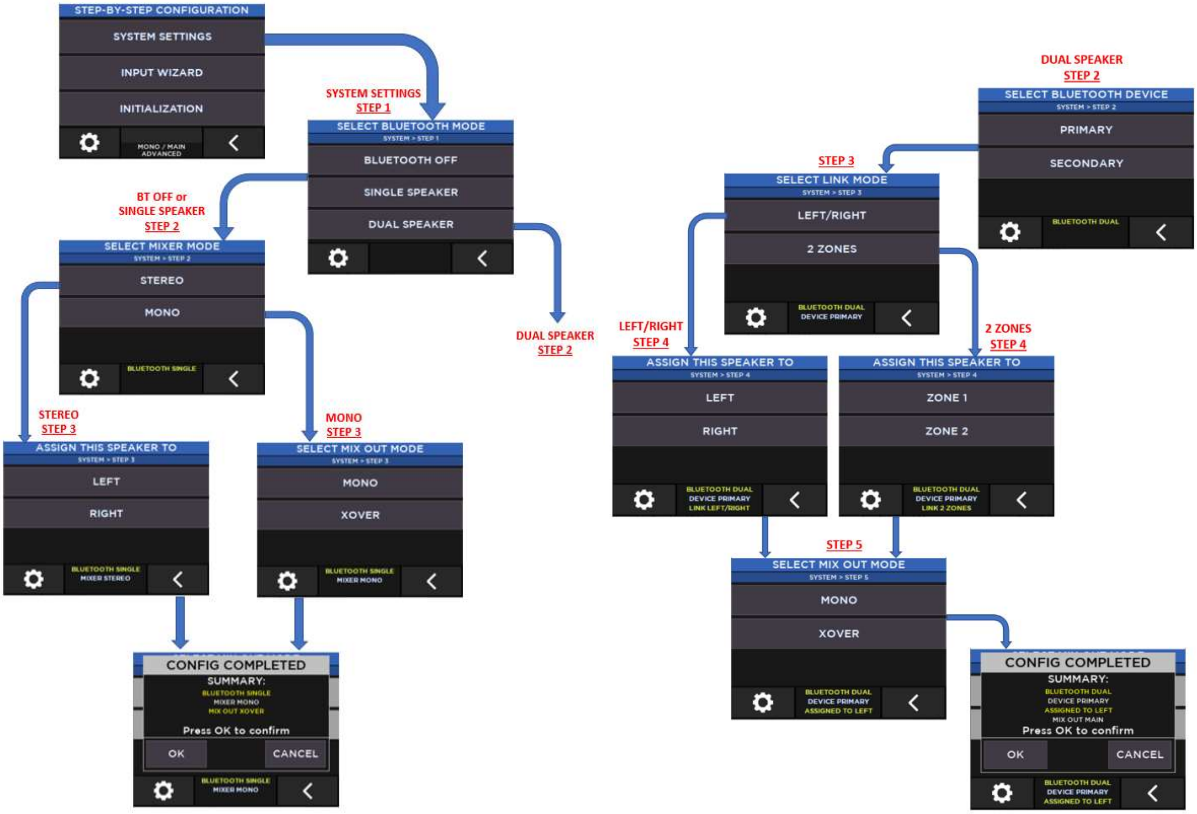
- SYSTEM SETTINGS
- INPUT WIZARD
- INITIALIZATION

The INITALIZATION section initializes audio parameters. It is useful for working on the unit starting again from a “clean” setup.



INIT MIXER	All the parameters, related to input channels only, are set to default values
INIT ALL	All the parameters related to input and output channels are set to default values
INIT AUDIO	This is a debug feature only

The SYSTEM SETTINGS section requires multiple steps to properly configure the system, either with one ART 9-AX speaker or two one ART 9-AX speakers paired via wireless. The unit is configured without modifying audio-related parameters. Therefore, to adjust a crossover of an output EQ, you will need to go the specific page.
Depending on intermediate selections, it will require from 3 to 5 steps; the last step will show all choices, which are going to be applied only after pressing the OK button. If you press the CANCEL button, no changes will be applied.



The INPUT WIZARD is a quick way to configure input parameters for channels 1 and 2.

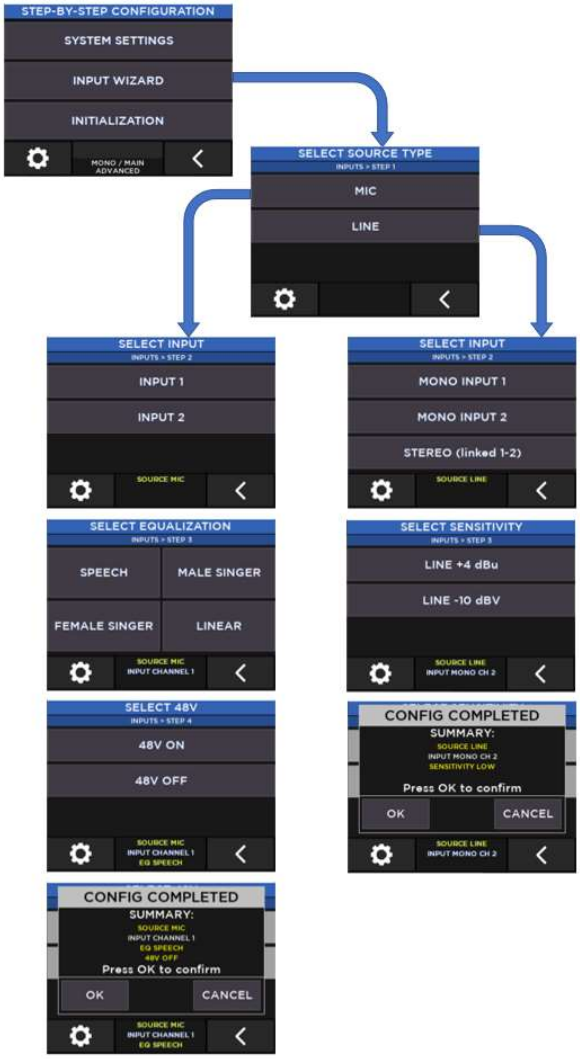
When MIC is selected, an input EQ & compressor setting can be selected for 3 use cases:

- SPEECH
- MALE SINGER
- FEMALE SINGER

The LINEAR option sets EQ and compressor to flat.

Equalization options are not available when EDIT mode is set to EASY, as input equalizers are disabled anyway.

Also for this guided configuration, all changes are applied at the end, after pressing OK.



System Settings

The System Settings pages allow full configuration of the ART 9-AX engine; some pages are also accessible from other starting points.

The SPEAKER PRESET page offers the option to select the same loudspeaker tunings available in the standard ART 9, to allow a perfect match in all conditions:

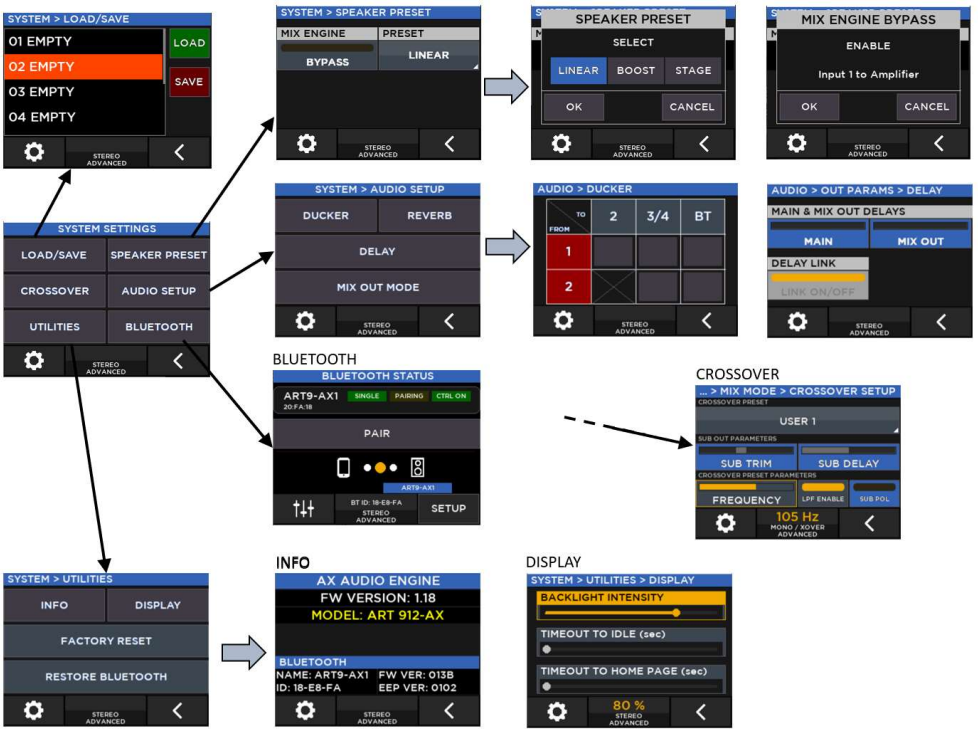
LINEAR, no emphasis, recommended for regular use

BOOST, loudness equalization, recommended for background music at low playback level

STAGE, for use as a stage monitor

The MIX ENGINE BYPASS option turns the digital mixing engine off, and the speaker becomes a standard ART 9 equivalent.
The only control that can be accessed is the SPEAKER PRESET.

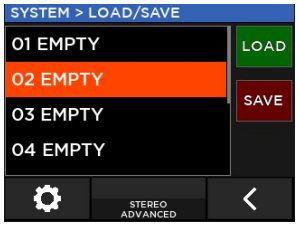
BLUETOOTH and CROSSOVER pages are already detailed in other sections of this document.

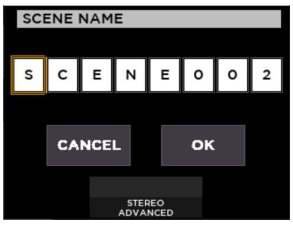


The **LOAD/SAVE** page allows saving and recalling the full configuration of the unit, with the exception of:

- Bluetooth parameters
- Edit mode (EASY or ADVANCED)

A total of 8 memory locations can be saved.
Select the desired memory location, then press SAVE; you can modify the default name, by using the encoder to select the character and the confirm (encoder push) to jump to next available position. If you press OK, name editing is completed. The first available character is an END-OF-LINE special symbol (grayed out) that indicates the name end, ignoring the following characters; the second available character is the usual space character.





The **UTILITIES** page group several global parameters and some special functions:

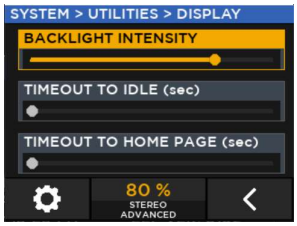
INFO: provides the current firmware version and Bluetooth low-level details

DISPLAY: 3 parameters are available:

- Backlight Intensity
- Timeout to Idle, the time interval (in seconds) of inactivity after which the display goes in idle state
- Timeout to Home Page, the time interval (in seconds) of inactivity after which the display returns to the Mixer VIew

FACTORY RESET: it clears all parameters to the default state

RESTORE BLUETOOTH: in rare cases, the Bluetooth connection may need to be restarted; this function allows to restart the Bluetooth section without power cycling the speaker.

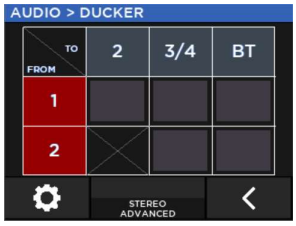


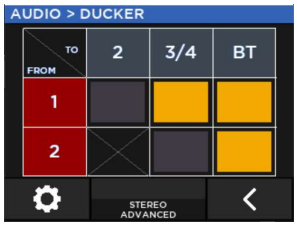
To disable timeouts, for both Timeout to Idle and Timeout to Home Page, set value to zero

The **AUDIO SETUP** page groups global parameters and global functions.

The **REVERB** and **MIX OUT MODE** pages are already detailed in previous sections of this document.

The DUCKER page contain individual enable buttons to allow level reduction of destinations (ch. 2, ch. 3-4 or BT) when a signal is present on ch. 1 or ch. 2.
As an example, the rightmost screenshot shows that audio signals on ch. 1 attenuate ch. 3-4 and BT, while audio signals on ch. 2 attenuate BT only.





The **DELAY** page contains individual DELAY settings for both the MAIN output (the actual speaker) and the MIX OUT connector. They can be linked for convenience. When MIX OUT is used for specific functions (XOVER OUT, STEREO) then the Delay Link is permanently enabled.

Delay value is expressed in ms; when clicking on the encoder, the current delay value indication alternates between meters and milliseconds.

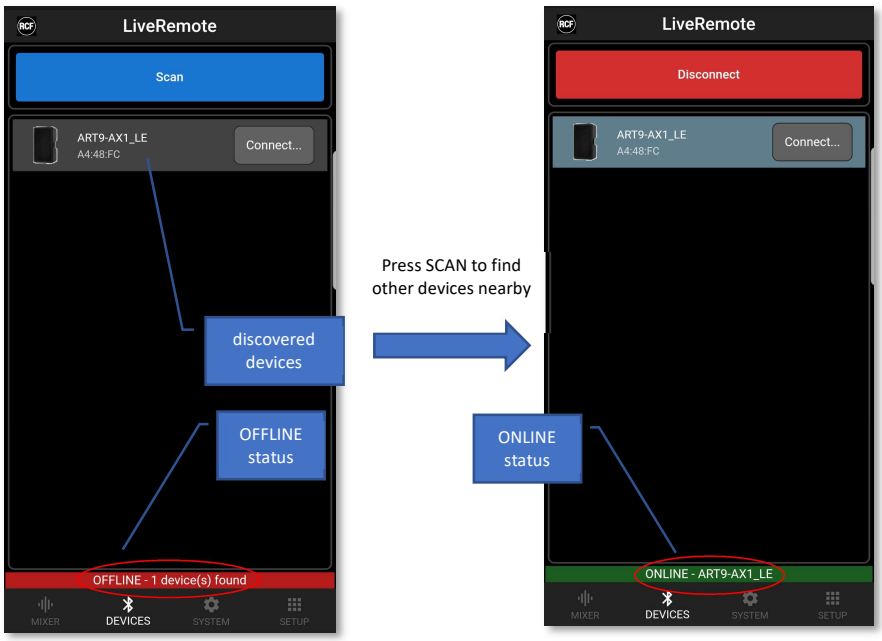
Maximum delay value is 136 ms, corresponding to 46.6 meters.

6. BLUETOOTH

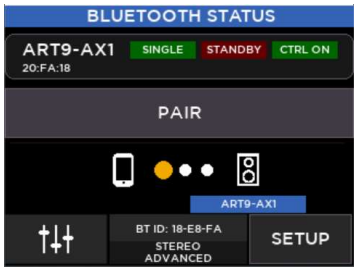
The ART 9-AX speaker offers a Bluetooth connection for both audio streaming and remote control.
The modes to connect audio and control are different.

For remote control, please launch the **LiveRemote** app on your smartphone, then go to the DEVICES lower tab; launch a SCAN to discover devices and select the one you wish to connect to.
This page helps you to select the appropriate device in case there is more than one unit within reach. We suggest modifying the default Bluetooth names to differentiate between units.

If the ART 9-AX speaker is not found, please refer to the paragraph "Troubleshooting the Bluetooth connection" below.



For audio connection, the ART 9-AX behaves like a usual Bluetooth speaker: press PAIR on the unit (available on the main Bluetooth page), then open the Bluetooth settings on your smartphone and select the ART 9-AX speaker. Take care in avoiding selecting entries with _LE suffix, as they are not available for audio streaming.



Please notice that ART 9-AX1 is the default Bluetooth name; it can be edited on the speaker itself. To modify the name, go into the Bluetooth SETUP page and tap once on the current name (lower row on the display). Then select each character using the encoder and the confirm the choice with an encoder push, which also jumps to next available position. If you press OK, name editing is completed. The first available character is an END-OF-LINE special symbol (grayed out) that indicates the name end, ignoring the following characters: the second available character is the usual space character.

In the Bluetooth SETUP page, you can configure Bluetooth mode, as follows:

OFF: no Bluetooth connection

SINGLE: a single ART 9-AX speaker is available, and acts as a standalone speaker

DUAL: two ART 9-AX speakers are paired and can be treated as a combined group

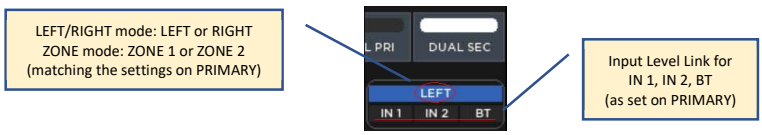
In **DUAL** mode, two different roles are available:

DUAL PRIMARY: this unit is visible from LiveRemote app and can be paired for audio streaming. The PRIMARY unit controls the SECONDARY directly. When PRIMARY is selected, the ART 9-AX tries a connection with a SECONDARY speaker.

DUAL SECONDARY: this unit is still visible from LiveRemote app, but cannot be selected, as it is controlled by the PRIMARY speaker only.

We suggest setting the SECONDARY speaker first, then proceed to configure the PRIMARY speaker for quick connection between the two units.

In SECONDARY Bluetooth mode, a summary of settings is visible:

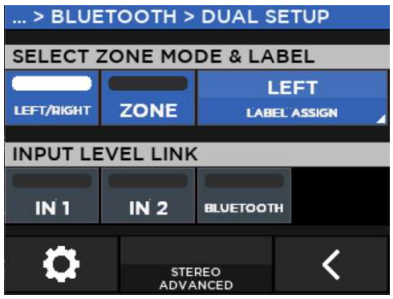


On the DUAL PRIMARY speaker, you can also enable input level links of inputs 1, 2 and BT: this will gang input levels on both speakers. This option is useful when you are sending audio from an external source, i.e. a stereo mixer, avoiding left/right balance loss.
These settings are automatically imposed to the SECONDARY speaker, to make sure the system is consistent.

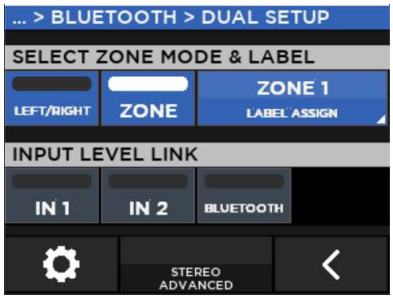
When selecting PRIMARY Bluetooth mode, the speaker tries to connect to an available SECONDARY speaker. If this fails, the DUAL CONNECT button forces an explicit connection trial.

CLEAR LIST dismisses all previously paired smartphone, so that a connection sequence can be restarted again.

When setting the Bluetooth PRIMARY mode, some options are available:

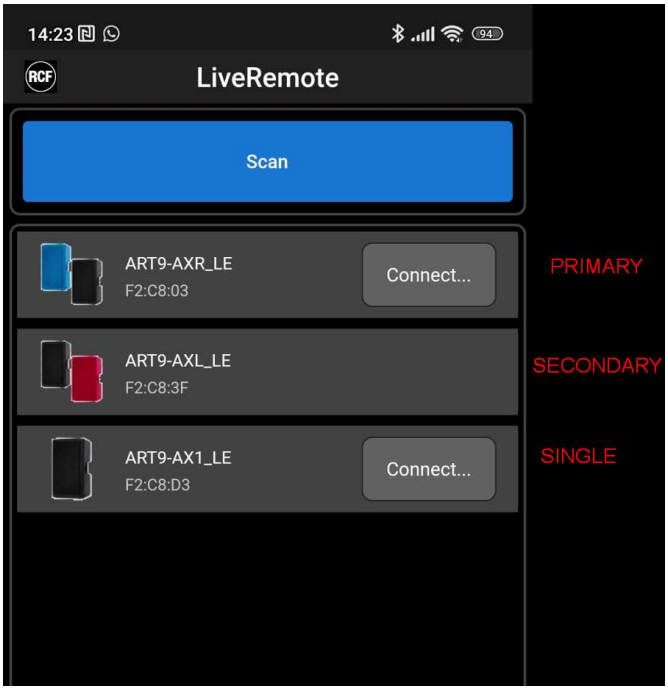


The DUAL system is set in LEFT/RIGHT mode; Bluetooth audio is running in stereo (one channel per speaker), and MAIN output level of the speakers are linked.
You can use this setting to maintain a proper stereo image.
You can swap L and R channels by changing label assignment (which is PRI = LEFT, SEC = RIGHT by default).



The DUAL system is set in ZONE mode; Bluetooth audio is summed to mono and sent to both speakers. MAIN output levels are independent.
You can use this setting to allow independent level control of the two zones.
You can swap ZONE 1 and ZONE 2 by changing label assignment (which is PRI = ZONE 1 , SEC = ZONE 2 by default).

On the LiveRemote app, PRIMARY and SECONDARY speakers are visible, but only PRIMARY (and of course SINGLE) speakers can be selected for connection:



Troubleshooting the Bluetooth connection

If for some reason the LiveRemote app is not connecting to the speaker, there may be three possible actions to follow:

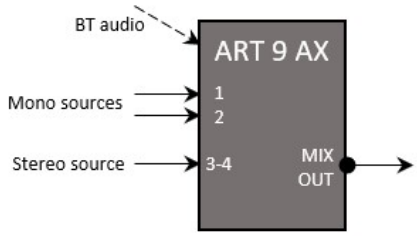
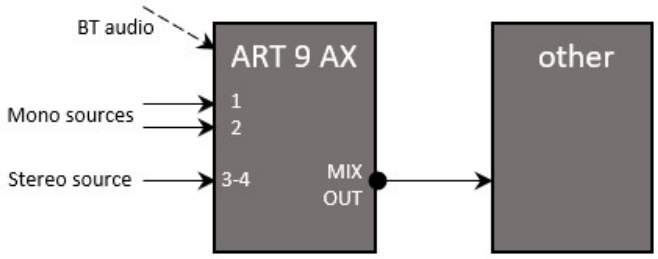
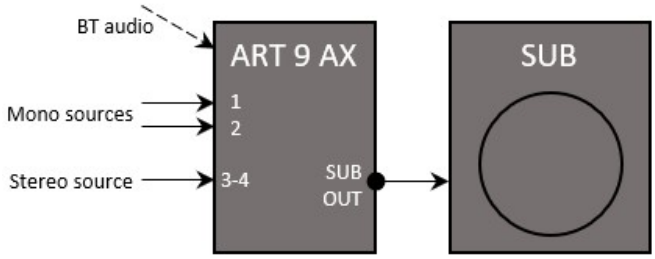
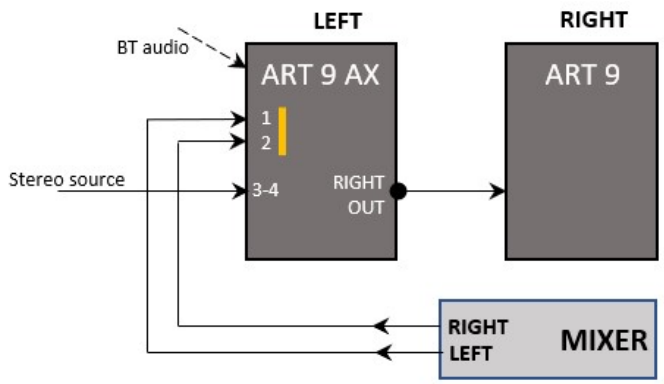
1) Device Scan list on the LiveRemote app is showing an outdated list: please press SCAN again to verify device presence

2) The speaker is already connected to another smartphone: please double check

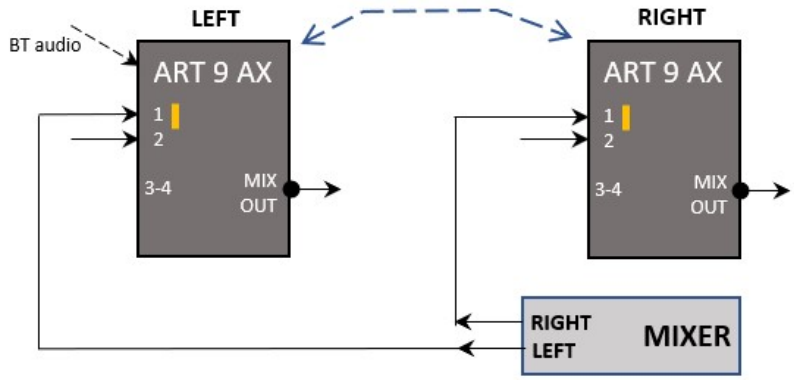
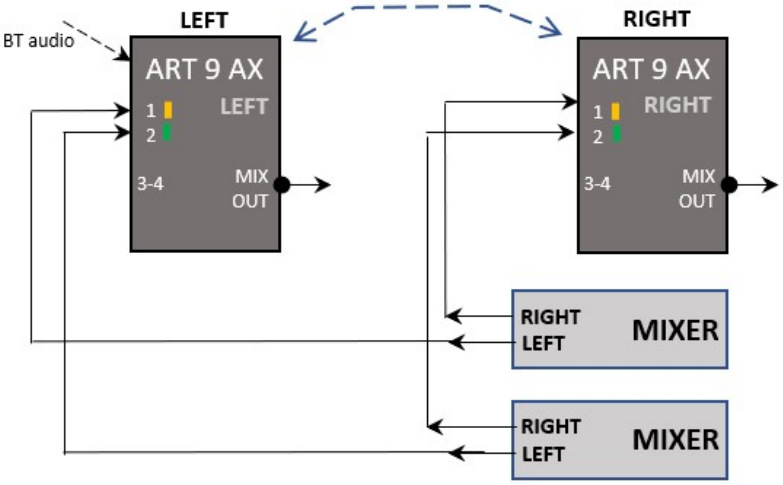
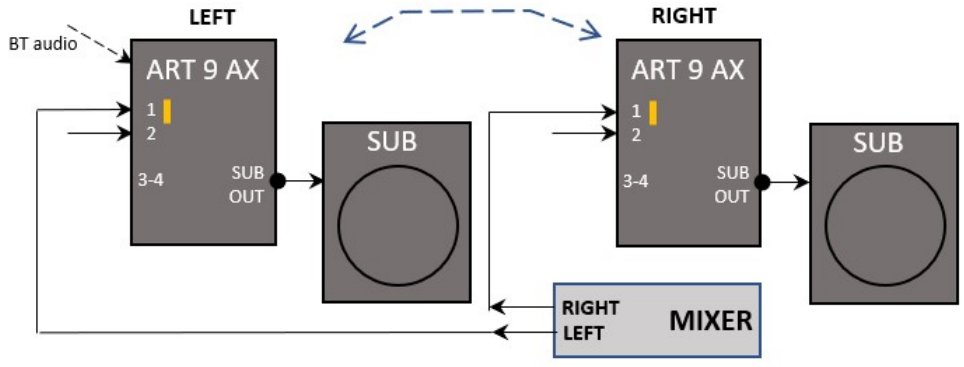
3) If the connection fails, there is the possibility to clear all connections, both saved and current, by clicking on CLEAR LIST. After performing a CLEAR LIST, redo the SCAN on LiveRemote and connect to the desired unit. CLEAR LIST is available in all Bluetooth modes.

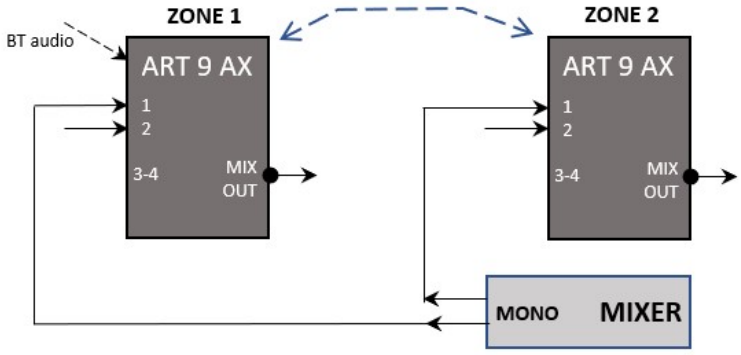
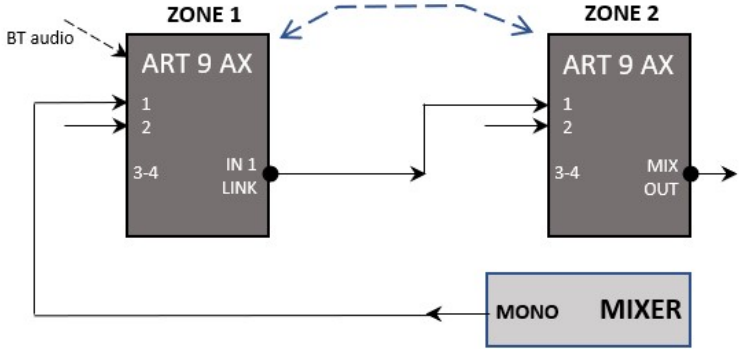
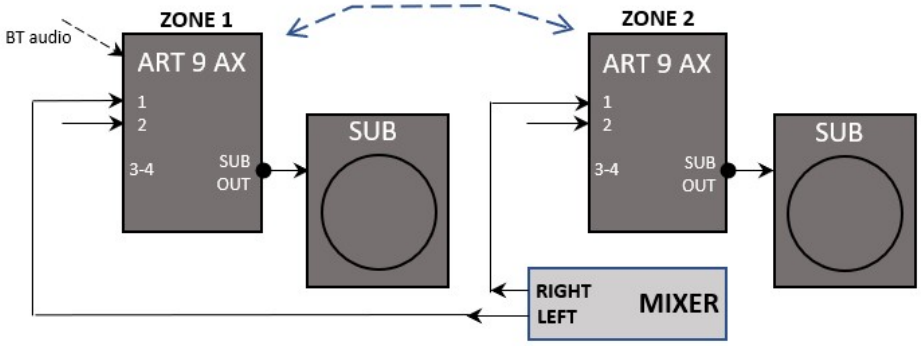
7. OPERATING MODES REFERENCE

A detailed list of possible use cases for the ART 9-AX follow, single-speaker first, then with dual speaker setups.

SINGLE SPEAKER - USE CASES	Description	Settings
	**ONE ART 9-AX** Single speaker; mono sources, stereo source to 3-4 and Bluetooth audio are all mixed to mono. MIX OUT is a copy of MAIN output.	BT = SINGLE MIX OUT MODE = MONO (parameter links ON) *MIX OUT is MAIN*
	**ONE ART 9-AX with feed** Single speaker; mono sources, stereo source to 3-4 and Bluetooth audio are all mixed to mono. Another speaker can be driven with independent level, delay and EQ.	BT = SINGLE MIX OUT MODE = MONO (parameter links OFF) *MIX OUT is MAIN*
	**ONE ART 9-AX with SUB** Single speaker with internal crossover for external subwoofer; mono sources, stereo source to 3-4 and Bluetooth audio are all mixed to mono.	BT = SINGLE MIX OUT MODE = XOVER *MIX OUT is SUB*
	**ONE ART 9-AX in STEREO** Two speakers, stereo system; a stereo source fed to inputs 1 and 2 is handled as a stereo signal, stereo source to 3-4 and Bluetooth audio are handled in stereo.	BT = SINGLE MIX OUT MODE = STEREO LINK 1-2 = ON *MIX OUT is RIGHT*

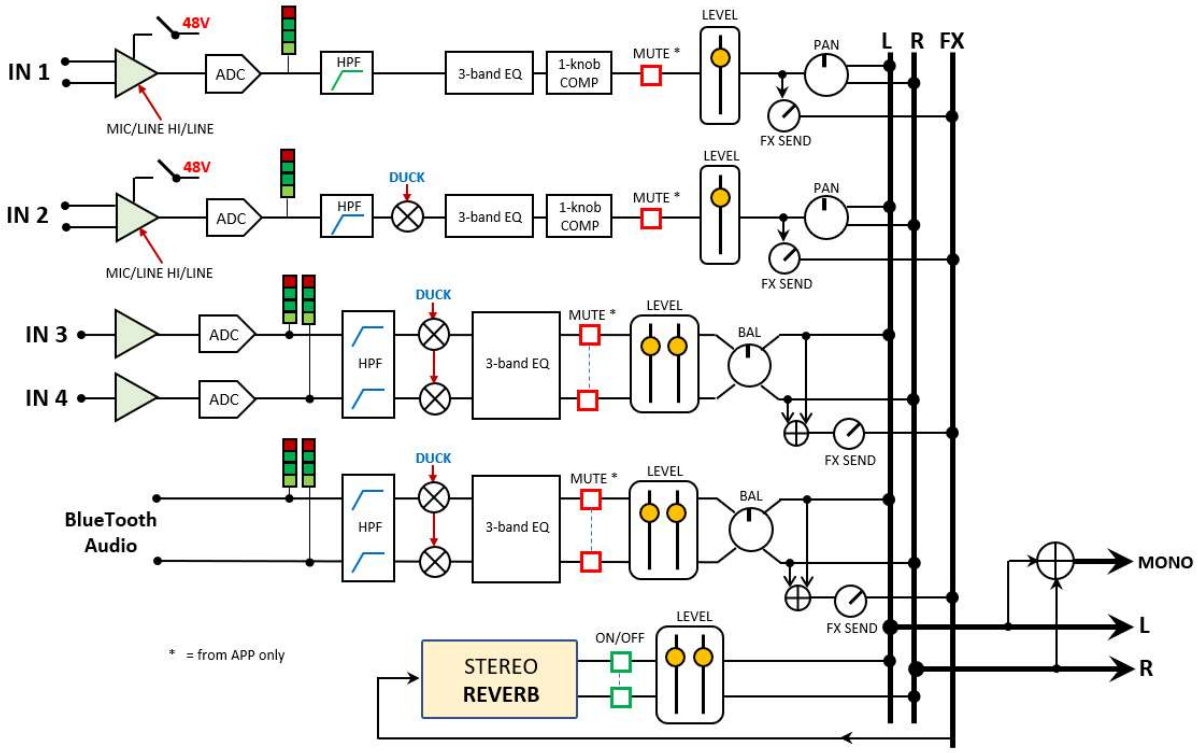
In DUAL mode, Bluetooth (both audio and control) is available on the PRIMARY speaker only; the SECONDARY speaker connects to the PRIMARY with a private wireless link. Parameter count is simplified, and the internal mixer is available in EASY edit mode only.

DUAL L/R SPEAKERS - USE CASES	Description & Settings
	**TWO ART 9-AX in STEREO** Two ART 9-AX speaker offer Bluetooth audio streaming in stereo, remote control via the LiveRemote app and simplified parameter count. Both channels are controlled in linked mode. BT = DUAL, L/R MIX OUT MODE = MONO IN 1 PARAM LINK = ON
	**TWO ART 9-AX in STEREO with dual mixer feeds** As above; two independent stereo sources are mixed on the ART 9-AX speakers BT = DUAL, L/R MIX OUT MODE = XOVER IN 1 PARAM LINK = ON IN 2 PARAM LINK = ON
	**TWO ART 9-AX in STEREO with SUBs** Two SUB + TOP systems are remotely controlled and fed from a stereo source, with Bluetooth streaming in stereo. BT = DUAL, L/R MIX OUT MODE = XOVER IN 1 PARAM LINK = ON

DUAL ZONE SPEAKERS - USE CASES	Description & Settings
 	**TWO ART 9-AX for 2 ZONES** Two ART 9-AX speaker offer Bluetooth audio streaming in mono, remote control via the LiveRemote app. Each zone has independent level and EQ controls. BT = DUAL, ZONE MIX OUT MODE = MONO <u>Upper diagram</u>: independent feed from mixer *MIX OUT is MAIN* <u>Lower diagram</u>: daisy-chained feed *MIX OUT is IN 1 LINK (HW THRU)*
	**TWO ART 9-AX for 2 ZONES, with SUBs** Two SUB + TOP systems offer Bluetooth audio streaming in mono, remote control via the LiveRemote app and independent EQ section for both zones. Each zone has independent level and EQ controls. BT = DUAL, ZONE MIX OUT MODE = XOVER *MIX OUT is SUB*

8. AX AUDIO ENGINE BLOCK DIAGRAM

MIXER SECTION



OUTPUT SECTION