

**Software Newsletter**  
**April 2017**

# Software Newsletter

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### ArrayCalc V9.2

The d&b ArrayCalc simulation software is the prediction tool for d&b line arrays, column loudspeakers, and a selection of point source loudspeakers and subwoofers. ArrayCalc accurately models the exact performance of the system in a given space defined by the user.

The optional ArrayProcessing function with ArrayCalc optimizes the level and tonal balance of a d&b line array in the vertical plane over the entire audience listening area. A reference point can be defined for the NoizCalc immission modelling software, which uses data from ArrayCalc to predict the effects of the sound reinforcement system on neighbouring areas in the far field.

### Overview of new features in ArrayCalc V9.2

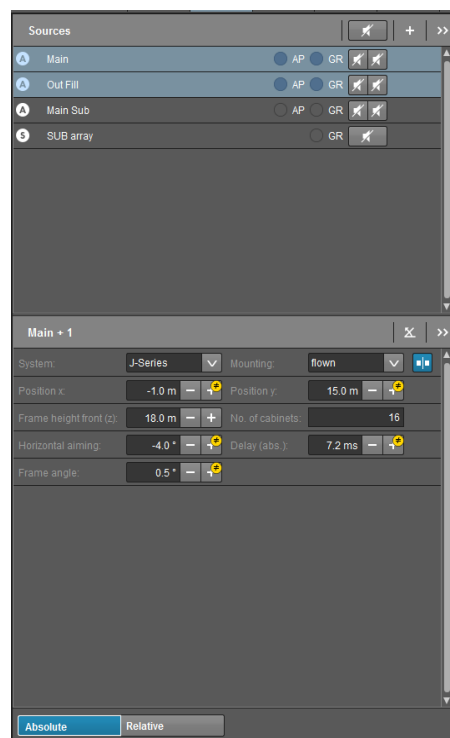
- User defined order of source groups
- User defined order of ArrayProcessing slots
- Multiselection of source groups
- ArrayCalc Viewer export (.dbev)
- Translation of the origin of the coordinate system
- 3D Preview in Venue tab

### User defined order of Source groups and ArrayProcessing slots

Ordering of Source groups and ArrayProcessing slots can be changed via drag and drop.

### Multiselection of source groups

Several source groups can be selected at the same time (by using Shift or CMD/Ctrl). The system, mounting, positioning, aiming, number of cabinets and delay parameters can be edited simultaneously if multiple groups are selected. Please note that positions cannot be changed if any of the selected arrays has ArrayProcessing enabled.

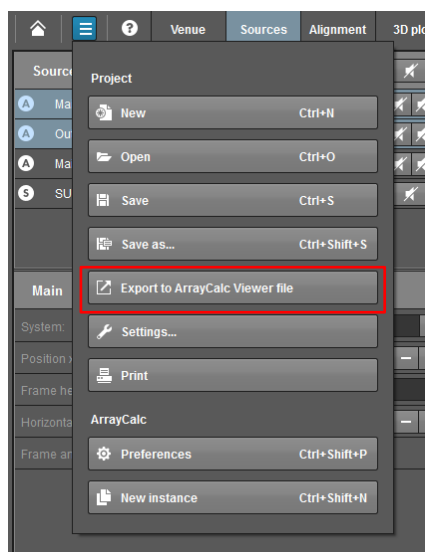


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### ArrayCalc Viewer export (.dbev)

The d&b ArrayCalc Viewer app for iOS and Android devices provides all key information for positioning and flying a d&b audiotechnik loudspeaker system. More details are available later in this document. A .dbac2 file can be opened in the ArrayCalc Viewer app, or alternatively the ArrayCalc project can be exported as a .dbev file. Unlike a .dbac2 file, the .dbev file will not include the project information regarding the venue 3D model and the ArrayProcessing slots out of the exported file. This way, only the essential information for setting up the system is shared.



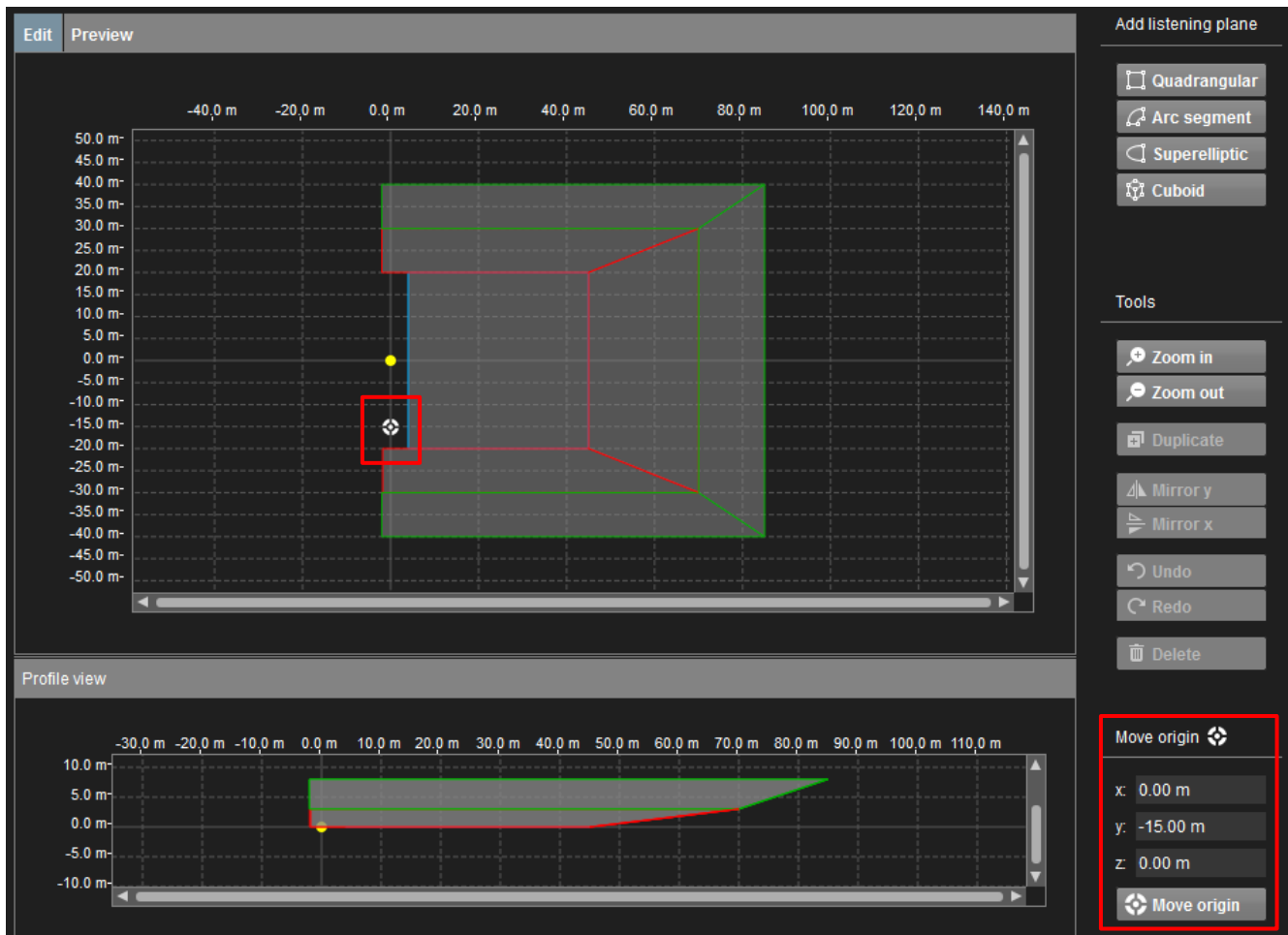
### Translation of the origin of the coordinate system

After designing a system, the origin of the coordinate system can be moved to a different position. Both the venue and the system will be referenced to the new origin. This can be helpful for moving the zero-point to a more useful position for physically setting up the system (e.g. Stage front left corner).

The origin of the coordinate system can be moved in the Venue page:

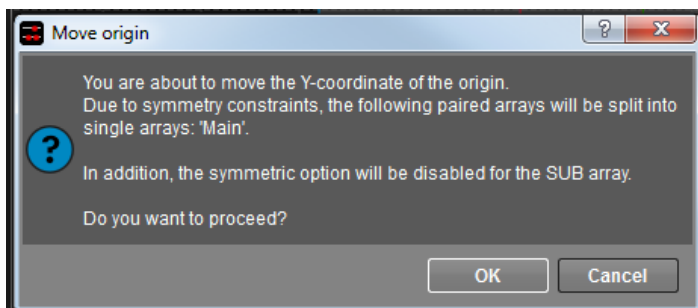
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In the Move origin section, enter the desired new zero point. This will be previewed in the diagram. After the desired position is set, click on the Move origin button for moving the design to the new position.

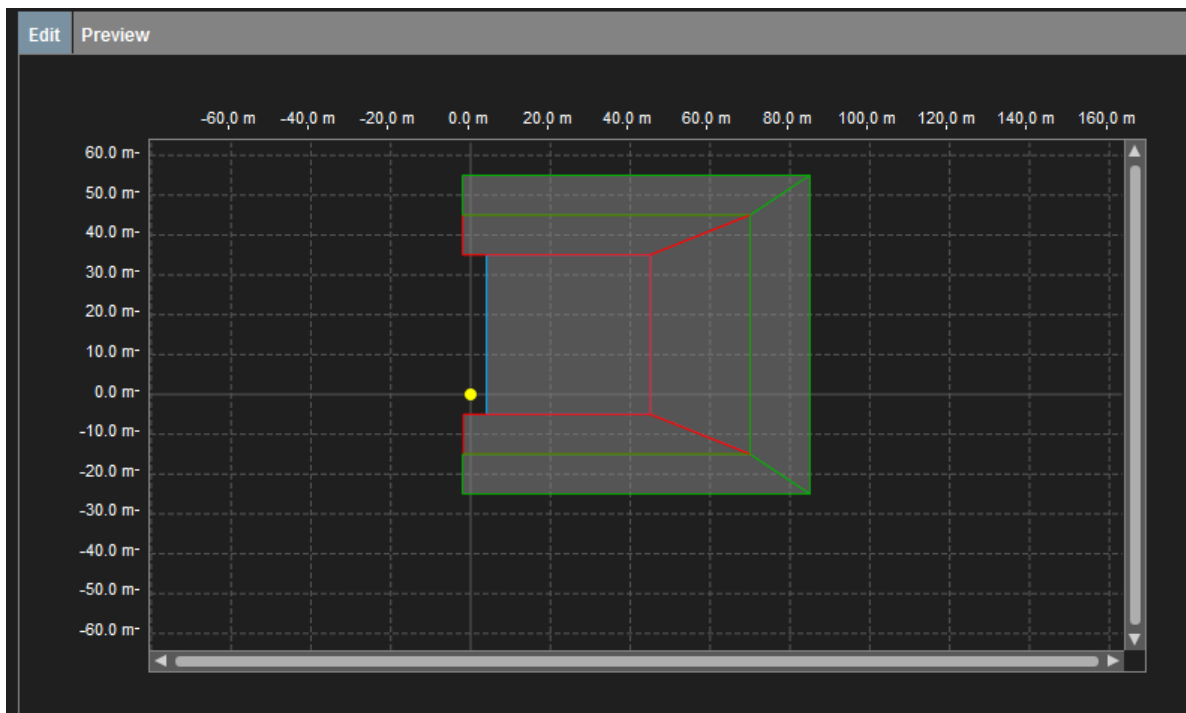
The following warning may appear regarding symmetrical source groups if the symmetry around the X axis is broken:



After confirmation the design will appear at the new position:

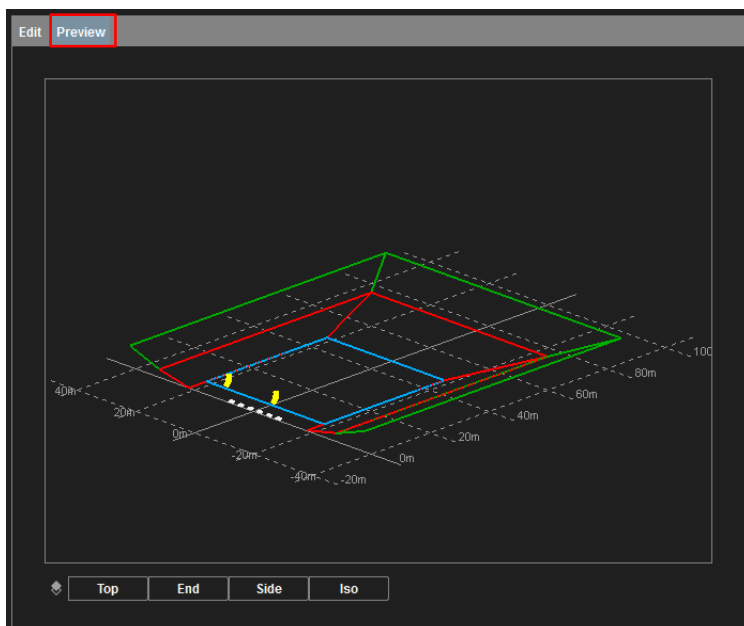
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### 3D Preview in Venue tab

A Preview option has been added to the Venue tab, in which the complete venue including the loudspeaker system can be previewed in 3D.



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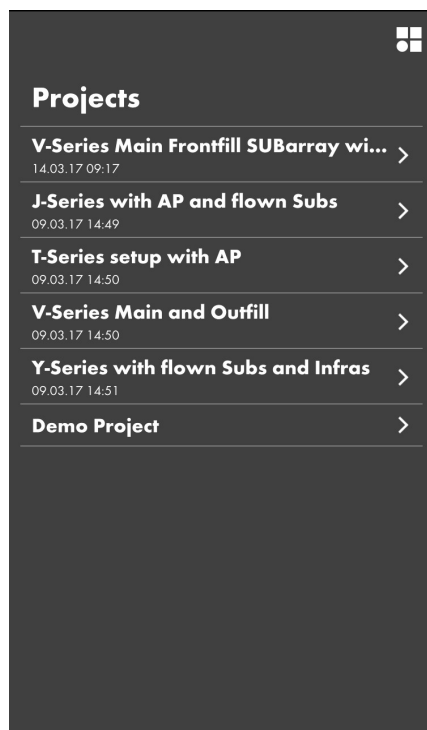
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### ArrayCalc Viewer

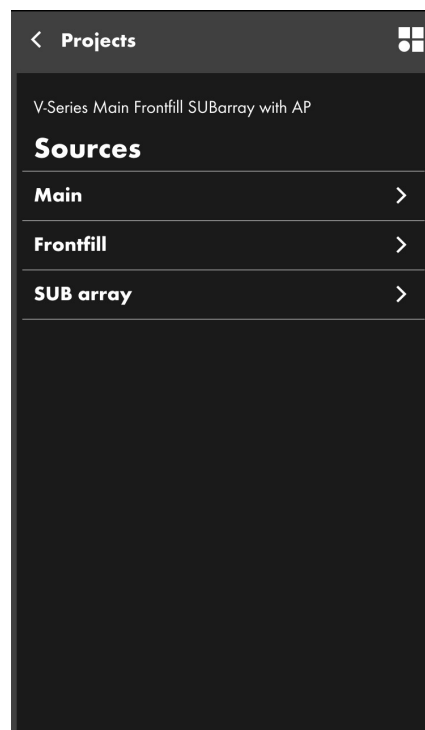
The ArrayCalc Viewer app is designed specifically for smartphones and tablets, enabling users to view information from ArrayCalc projects on an iOS or Android device, including all key data for positioning and flying a d&b audiotechnik loudspeaker system. Once the system has been designed, calculated and optimized in the ArrayCalc simulation software, the .dbac2 or .dbev file can be shared via email, AirDrop, or downloaded onto any iOS or Android device.

The ArrayCalc Viewer app provides data such as splay angles, amplifier channel IDs and cabling information, flying frame height and the height of the lowest edge, frame angle, horizontal aiming, Pickpoints, weight and load status. Any change to the system design can be distributed to each user immediately, ensuring an efficient and user friendly approach to rigging.

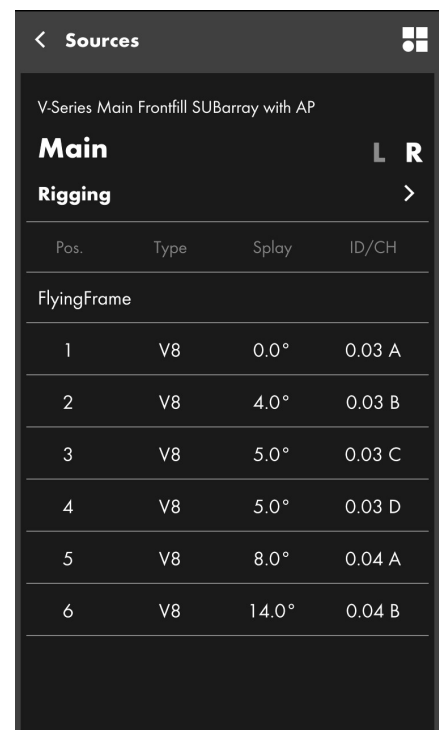
ArrayCalc Viewer is available free of charge on both Google's Play Store and Apple's App Store.



Projects



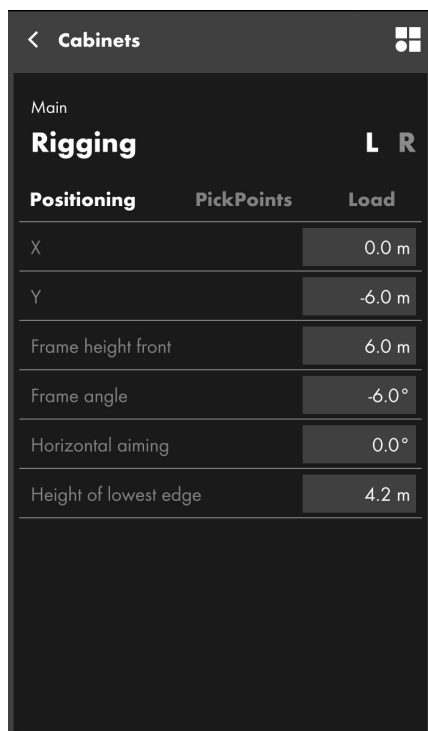
Sources



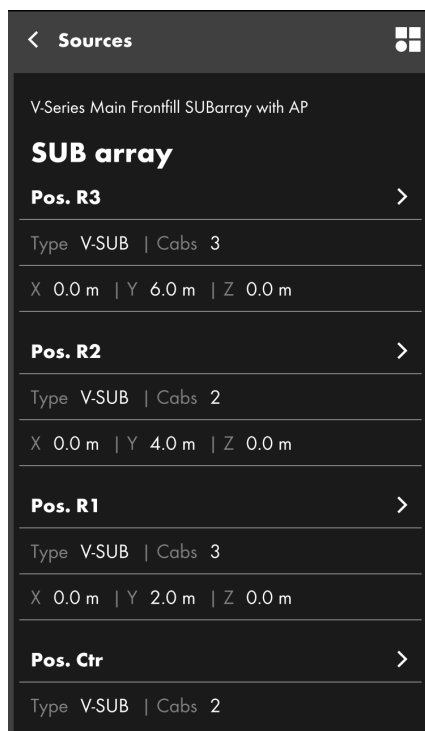
Line array details

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Rigging



SUB array



Point source positioning



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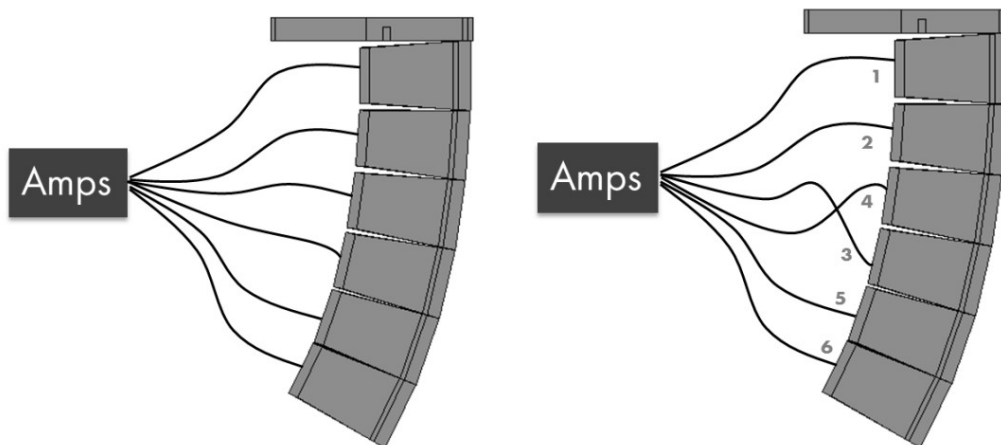
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### R1 Remote control software V2.18.8

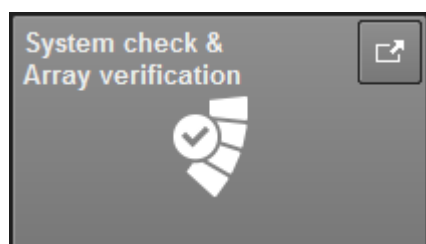
The R1 Remote control software provides a flexible workplace for the d&b user from anywhere in the network. All features, functions and controls that are accessible via the front panel and web remote interface of d&b amplifiers, can also be remotely controlled and/or monitored using R1 Remote control software. It allows each channel of the amplifier to be controlled and enables the creation of groups of loudspeakers. The latest version of the R1 Remote control software includes a number of new features, as described below.

### Array verification

The patent pending Array verification feature is capable of identifying the position of a loudspeaker in an array automatically, so that the actual order within the array can be compared to the one in the ArrayCalc project. This function means cabling issues can be easily identified for both line and subwoofer arrays.



Array verification is an extension to the known System check feature, and it is accessible from the System check and Array verification view, when R1 is Online and in Tuning mode:



### Requirements for Array verification

For Array verification to work effectively, all selected sources must fulfill the following requirements:

- The arrays must be designed in ArrayCalc, with a minimum of three amplifier channels and a maximum of two linked loudspeakers per channel.
- The system must have been successfully calibrated since the last power cycle.
- All loudspeakers must be powered by the D20, D80, 10D or 30D d&b amplifiers (Firmware version 2.08 or higher).

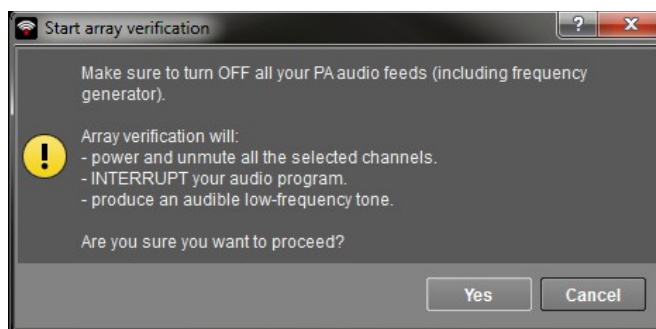
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### Array verification procedure

The Array verification procedure is very similar to Calibrate and System check.

1. On the «Sources» tab, select the arrays you would like to verify. Array verification will be performed on each array, consecutively.
2. On the top right, select «Array verification» to start the procedure. The following message will appear:



3. Click «Yes» to start Array verification.

At this point, all amplifiers for the selected sources are automatically powered on from Standby mode and unmuted to perform the procedure. After the Array verification process is finished, the original power and mute status of the amplifiers will be restored.

4. If any discrepancies were determined between actual and nominal positions, inspect the loudspeaker connections of the highlighted channels and repeat Array verification until no further errors are reported.
5. Finally, the loudspeaker setup can be manually verified if required using the traditional pink noise method by using the «Play» buttons provided by the System check and Array verification tables.

Under some circumstances, Array verification may be unable to determine the loudspeaker positions. This can occur, for example, when the loudspeakers are placed too far from each other, or when one of them has a loose connection. Such cases will be marked by a yellow warning icon on the table.

Load Monitoring will be paused while the Array verification process is active. It will be automatically resumed after Array verification finishes.

In the unlikely event that an array were to be cabled in the exact reverse order, Array verification would regard the cabling as correct. For such cases the «Play» buttons on the System check and Array verification tables can be used to quickly check that the array is cabled the right way.

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Speaker	Ch. name	Ch.	ID	Status	Noise	Nominal position ▲	Actual position
V8 Arc	Main 01L	A	0.01	✔	▶	1	✔ 1
V8 Arc	Main 02L	B	0.01	✔	▶	2	✔ 2
V8 Arc	Main 03L	C	0.01	✔	▶	3	✔ 3
V8 Arc	Main 04L	D	0.01	✔	▶	4	✔ 4
V8 Arc	Main 05L	A	0.02	✔	▶	5	✘ 6
V8 Arc	Main 06L	B	0.02	✔	▶	6	✘ 5
V8 Arc	Main 07L	C	0.02	✔	▶	7	✔ 7
V8 Arc	Main 08L	D	0.02	✔	▶	8	✔ 8

The Array verification algorithm will determine the position of each loudspeaker relative to every other loudspeaker within the array. This position will be displayed on the «Actual position» column of the Array verification table.

For every channel of the selected sources, the Array verification table displays the nominal as well as the actual position of the corresponding loudspeakers within the array.

Any differences between nominal and actual positions will be highlighted on the table, and are an indication that the respective loudspeakers have been cabled incorrectly.

Array verification only supports arrays which have been created in ArrayCalc. For point sources or unassigned channels no nominal position is available, and no actual position can be determined.

### Noise

Using the «Play» buttons will enable the pink noise generator on that specific channel.

### Nominal position

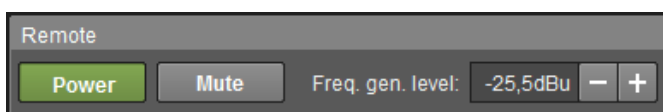
The desired position of a channel's associated loudspeaker(s) within its array as defined by ArrayCalc.

### Actual position

The true position of the loudspeaker(s) as determined by the Array verification algorithm.

### Remote bar

A «Remote» bar has been added to both the System check and the Array verification views. It provides quick access buttons for basic functions of the source(s) currently selected on the «Sources» tab.



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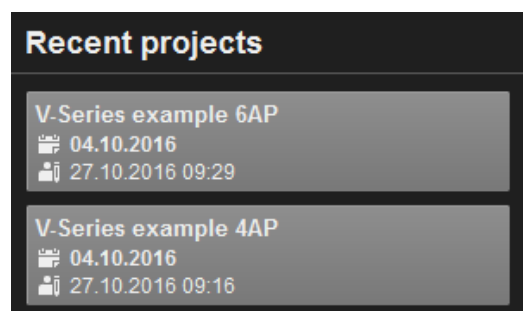
Please note that both System check and Array verification automatically power and unmute the necessary amplifiers. The «Remote» bar is designed to assist with the pink noise generator functionality.

Power	Switches the devices in the selected sources between Standby and On.
Mute	Mutes or unmutes the channels contained in the selected sources.
Freq. gen. level	Sets the frequency generator level of all channels in the selected sources. This setting will affect the pink noise generated by the «Play» buttons on the System check and Array verification tables. Please note that in order to bring the pink noise to a suitable level, the channel gain may need to be adjusted as well.

### Recent projects list

The Recent projects list has been updated in both ArrayCalc and R1 to show the last modified date/time for each project. This helps with identifying the right project to choose from the list. Each entry in the list shows:

- Project name: set within the 'Settings' menu.
- Project date: Typically set to the date of the event within the "'Settings' menu
- Last modified date/time: Date and time when the file was last saved/modified, automatically set by the system.



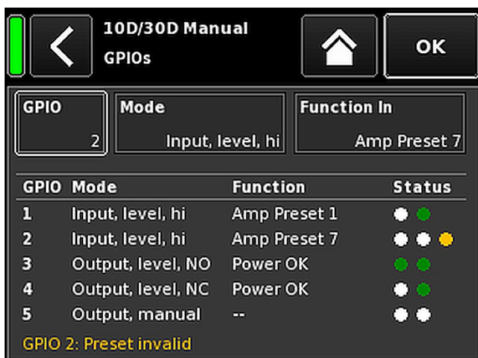
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### Amplifier firmware V2.08 (D80/D20/10D/30D)

The latest firmware for the four channel d&b amplifiers introduces the Array verification functionality (see R1 section of this document). Additionally, V2.08 includes status indicators for GPIO command execution for the 10D and 30D amplifiers.

#### GPIO command execution status



#### Status LEDs

Three status LEDs are provided for each GPIO:

The first LED indicates the status of the GPIO. For Inputs it indicates the logical state, and for Outputs the status of the relay:

- For outputs the logical status is "1" (green), when the relay is closed.
- For outputs in "NO" mode (normally open) the status of the Object and GPIO are equal. In "NC" mode (normally closed) the status of the Object and GPIO are inverted.

The second LED indicates the status of the related Object (binary object) or AmpPreset. Objects/AmpPresets and GPIOs are evaluated separately.

- For Objects, the logical status is "1" (green), when the Object is logical "1" (binary object).
- For AmpPresets the logical status is "1" (green), when the AmpPreset is loaded and not modified.

For edge triggered inputs, the Object/AmpPreset status LED and the GPIO status LEDs are always equal.

For level triggered inputs the GPIO status is defined by the external voltage applied. The triggered Object/AmpPreset can however have a different status, e.g. an AmpPreset was modified or an AmpPreset, which is defined for a dedicated GPIO, is loaded as shown in the above screenshot for GPIO 1.

The third LED appears as soon as an error has occurred (yellow).

Provided the corresponding GPIO is selected, for any configuration which is not applicable/functional, a corresponding message will be shown at the bottom left of the GPIO screen.

#### GPIO error messages

The possible error messages for a selected GPIO are:

- GPIO x: Preset not allowed: the selected preset can not be loaded (e.g. Backup preset with Level-triggered GPIO)
- GPIO x: Preset invalid: the selected preset is invalid
- GPIO x: Error loading preset: the preset could not be loaded (e.g. an edge triggered GPIO cannot load a Preset because a level triggered GPIO is active).
- GPIO x: Error loading backup: same as above, but for Backup presets

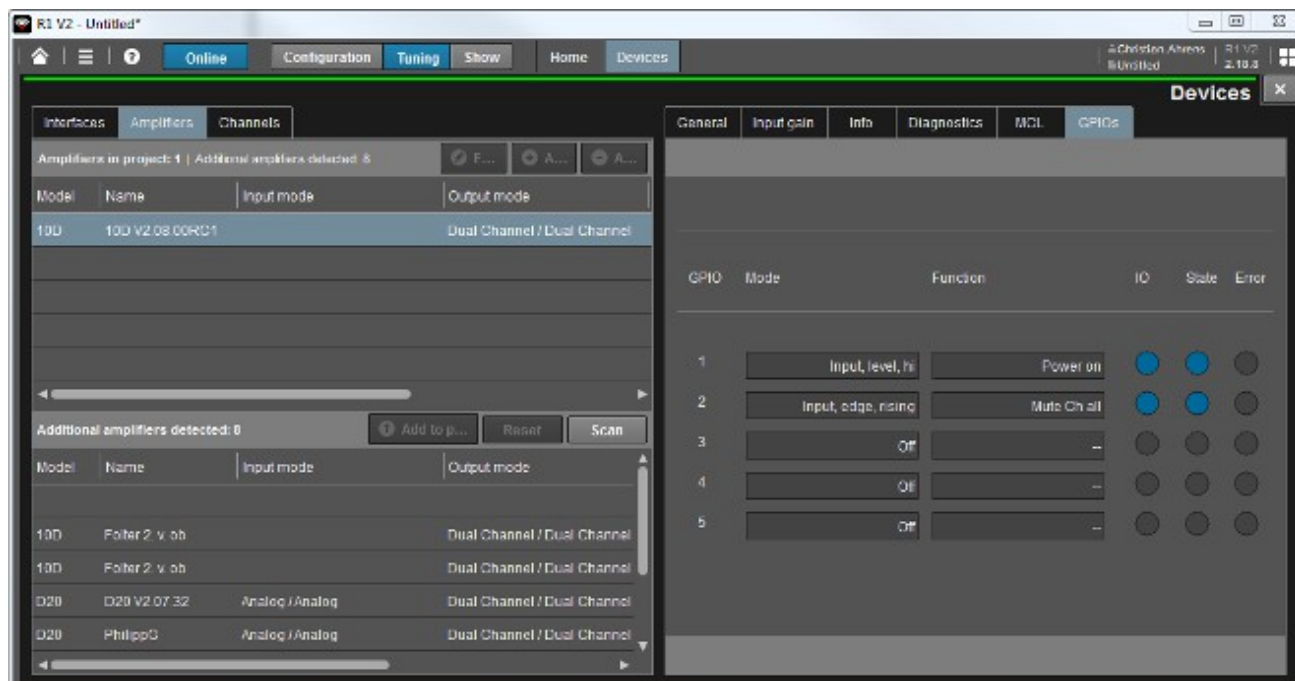
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- GPIO x: Fallback not manual: Fallback mode is not set to Manual, so it cannot be controlled via GPIO
- GPIO x: Override not manual: Override mode is not set to Manual, so it cannot be controlled via GPIO

### R1 GPIO Tab

The GPIO Tab in R1 will also show the Status information as described above:



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### DS10 Audio network bridge Integration in Yamaha CL/QL Consoles

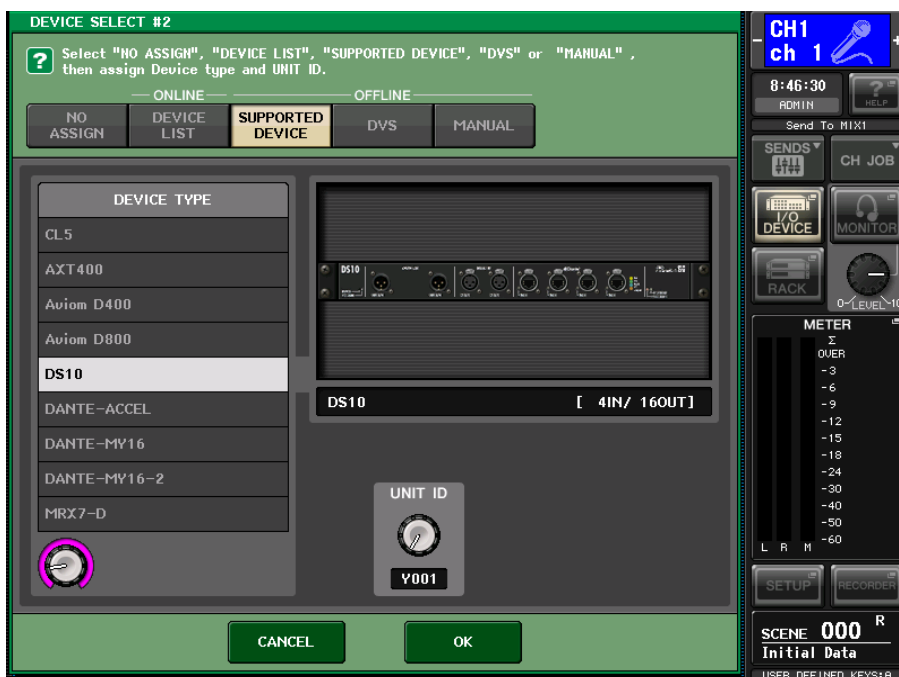
Yamaha CL/QL Consoles (Firmware version 4.10 or higher) support the mounting of a DS10 directly from the console.

For this purpose, a Unit ID must be defined on the DS10. This is done by changing the DS10 Device name using Dante Controller. The Device name has to adhere to the following format:

Y[nnn]-[User Defined Name] where [nnn] is the desired Unit ID.

Example

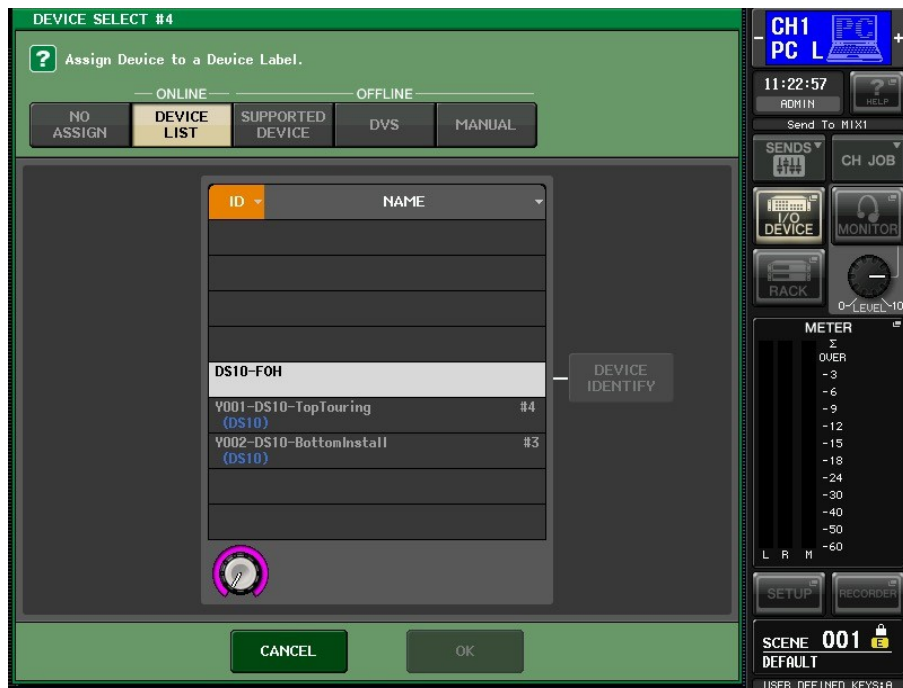
Device name: "Y002-DS10-StageLeft" has a Unit ID of 002.



As soon as a DS10 with a valid Unit ID is found by the console, a (DS10) in blue will be shown in the Online Device List:

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For further information, please also refer to the Yamaha CL/QL Console User Manuals.