



Plug & Play DSP Power Amplifier

# DSP SOUND CONTROLLER USER GUIDE



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The dedicated DSP Sound Controller Tool together with other related download files are available from the Beat-Sonic English language website via the URL below:



#### Minimum system requirements

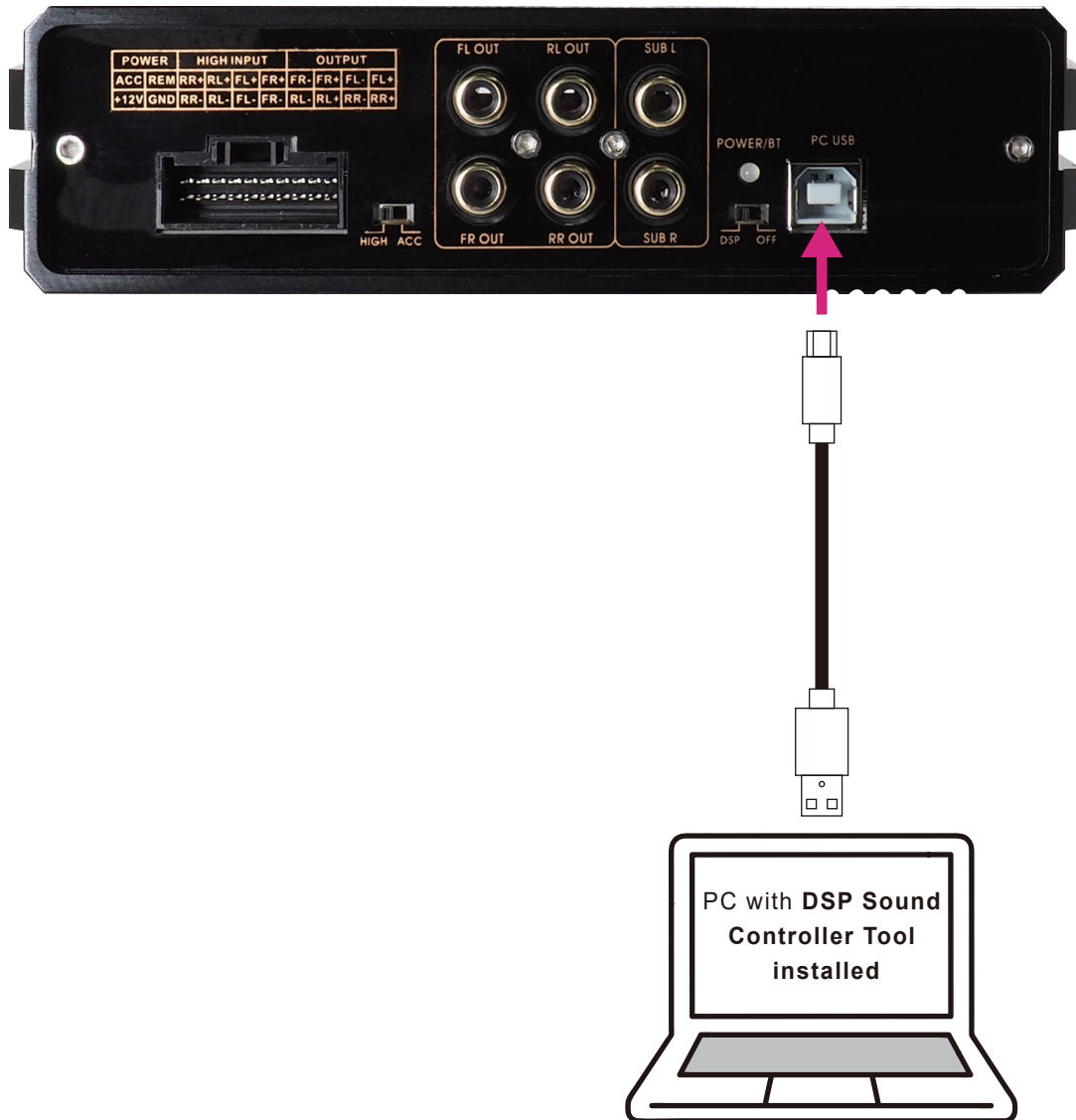
COMPATIBLE OS : Windows 7, 8, 10, 11  
 CPU : 1.6GHz or higher  
 MEMORY : 1GB RAM (minimum)  
 HDD : 512MB free disk space for installation  
 DISPLAY : 1024 × 576 or higher

- ① Enter the URL above, or visit [www.beatsonicglobal.com](http://www.beatsonicglobal.com) website and go to the downloads menu to download the DSP Sound Controller Tool.
- ② Locate the downloaded soundcontroller.zip file on the PC. Right click the folder and select “Extract All” then double click the Sound\_Controller.exe file within the extracted folder. Click Yes when prompted.
- ③ The application will launch automatically after the installation has completed. Click Finish to exit the installer.

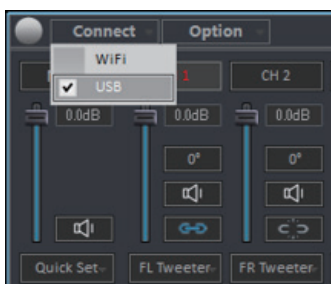


#### A note about “TOON”

This product was originally developed by Beat-Sonic for the Japanese market under the brand “TOON”. The brand name TOON is an acronym for Totally Optimized ONgaku (Ongaku is the word for music in Japanese).



- ① Install and connect the DSP amplifier in the vehicle before connecting to the PC. Download and install the DSP Sound Controller Tool onto the PC before connecting to the DSP amplifier.
- ② Connect the supplied USB cable from the PC to the DSP amplifier installed in the vehicle.
- ③ Turn the vehicle ignition to ACC or ON and confirm the DSP amplifier power indicator LED is illuminated. Note that some vehicles may require the IGN mode activated to turn on the DSP amplifier.
- ④ Launch the Sound Controller application. Select USB from the Connect drop-down menu to complete the connection process.



- ⑤ Changes can now be made to the DSP audio settings via the sound controller tool interface.

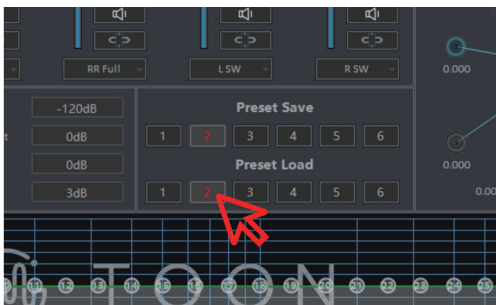
Loading of the DSP audio file is required if:

- (a) your encore X plug & play DSP power amplifier did not come with a preloaded vehicle specific DSP audio file;
- (b) you wish to install a different DSP audio file;
- (c) you are loading a saved DSP audio file that you are working on.

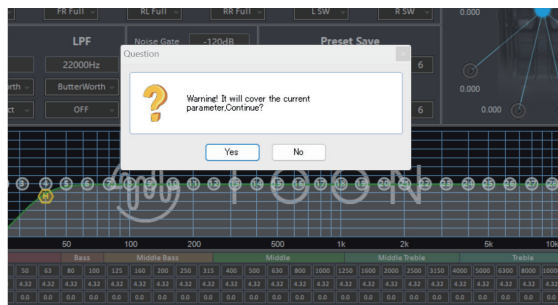
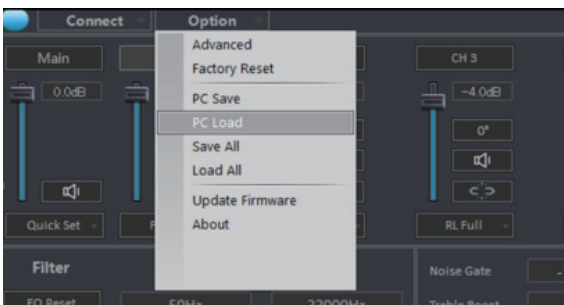
For (a) and (b) above, ensure you have the correct DSP audio file for your vehicle application. Vehicle specific DSP audio files are available from Beat-Sonic or from your Beat-Sonic distributor.

## Load a single DSP audio file (Set file):

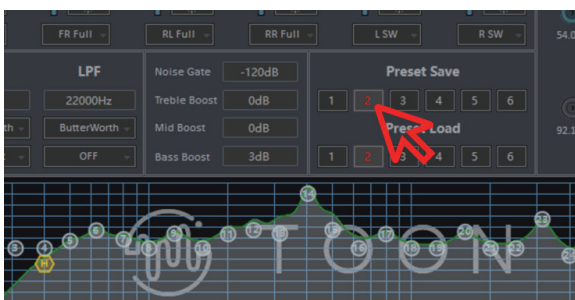
- ① Download and save the applicable DSP audio file to your PC. The filename convention for a single DSP audio file is: *example\_filename.C6LBS*
- ② Connect the PC to the DSP amplifier and launch the DSP Sound Controller Tool application.
- ③ Confirm the connection to the DSP is Online, then select the desired Preset Load slot (1 - 6) to load in the DSP audio file. In the example below, Preset Load slot #2 is selected.



- ④ From the Option drop-down menu, select PC Load. Locate the DSP audio file (Set file) saved on the PC, select it then click Open. Click Yes at the warning prompt to continue.



- ⑤ The DSP sound file will be loaded into the Preset Load slot selected in step 3. In this example, Preset Load slot #2 was selected.
- ⑥ Select Preset Save slot #2 to save the DSP audio file into the DSP amp internal memory. Click Yes at the warning prompt to complete the loading of a single DSP audio file (Set file) procedure.



**CAUTION**

Selecting a different Preset Load slot prior to selecting the Preset Save slot will result in the loss of the loaded DSP file.

- ⑦ Click the in the top right corner to close and exit the application. You may click No at the warning prompt, as the Preset Save was already completed in step 6 above.

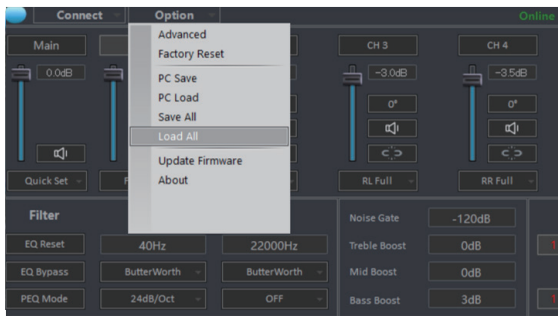
The DSP amp will utilize the DSP audio file stored in the most recently selected Preset Load slot prior to when the DSP Sound Controller tool was last closed.

For advanced users, a group of DSP audio files (Sets files) can be loaded from the PC with the data loaded into all six (6) Preset Save slots. Saving and loading groups of DSP audio files is required when creating vehicle specific DSP audio files to allow quick selection of up to 6 stored profiles.

**CAUTION** - Loading a Sets file automatically overwrites the DSP audio files in all six (6) Preset Save slots currently stored in the DSP amp internal memory.

**Load a group of DSP audio files (Sets file):**

- ① From the Option drop-down menu, select Load All.



- ② Locate the DSP audio file (Sets file) saved on the PC, select it then click Open. The filename convention for a group of DSP audio files is: *example\_filename.C6LBSets*

- ③ All Preset Save slots 1 - 6 will be loaded with the data from the Sets file.



Load All overwrites all six (6) Preset Save slots

The DSP amp will utilize the DSP audio file stored in the most recently selected Preset Load slot prior to when the DSP Sound Controller tool was last closed.

## How to save changes made to a DSP audio file

In addition to saving to the DSP amp internal memory (Preset Save), it is also possible to save the file(s) to the PC as either a single DSP audio file (*example\_filename.C6LBSet*), or as a group of DSP audio files (*example\_filename.C6LBSets*).

### CAUTION

Changes to the settings in the selected Preset Load slot are not automatically saved. Changes made to the currently selected Preset Load file should be saved to the DSP amp internal memory (Preset Save) and/or saved to the PC as a single DSP audio file (Set file). Selecting a different Preset Load slot without first (a) saving to a Preset Save slot, or (b) saving to the PC (PC Save) will result in the loss of any changes made to the Preset Load slot.

### Save a single DSP audio file (Set file):

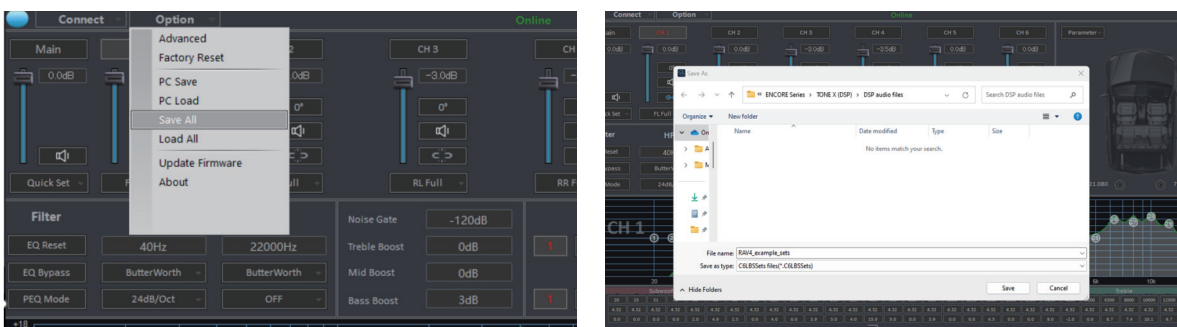
- ① From the Option drop-down menu, select PC Save.
- ② Enter a filename for your DSP audio file and click save. In the example below, the filename is “RAV4\_example\_set” with the filename extension “.C6LBSSet”.
- ③ Click OK to complete the save process. **Important:** The displayed Preset Load data is saved to the PC but not to the DSP amp internal memory. Select a Preset Save slot to save the displayed Preset Load data to the DSP amp internal memory.



### Save a group of DSP audio files (Sets file):

When creating or modifying DSP audio files for a particular vehicle, it is often necessary to have multiple DSP audio files (Sets files) to compare and make fine adjustments. The Save All command saves the DSP audio file data stored in all six (6) Preset Save slots. Ensure changes to the displayed Preset Load data are saved to the Preset Save slots before proceeding with Save All.

- ① From the Option drop down menu, select Save All.
- ② Enter a filename for your DSP audio files and click save. In the example below, the filename is “RAV4\_example\_sets” with the filename extension “.C6LBSSets”
- ③ Click OK to complete the save process.



The DSP amp will utilize the DSP audio file stored in the most recently selected Preset Load slot prior to when the DSP Sound Controller tool was last closed.

## User Interface



- (A) Online - indicates connection to DSP amp
- (B) Connect - selects connection type (USB only)
- (C) Option - main drop down menu
- (D) Main - master volume control
- (E) Channel and speaker settings
- (F) Filter - equalizer master control
- (G) HPF - high pass filter control
- (H) LPF - low pass filter control
- (I) Basic Adjustment
- (J) Preset Save / Preset Load - saves and loads to/from DSP main unit memory
- (K) Time alignment settings
- (L) Equalizer settings



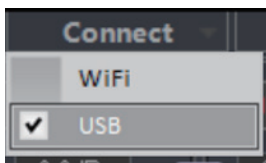
## Ⓐ Online Indicator



**Online** indicates DSP is powered On and connected to the PC.

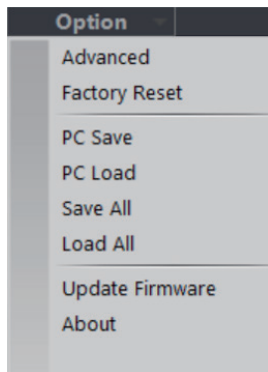
**Offline** indicates no connection to PC. Check power and USB cable.

## Ⓑ Connect



Confirm USB is selected. (WiFi connection is not available)

## Ⓒ Option



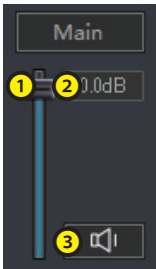
- Advanced** Sets the audio output delay (milliseconds) after the DSP is turned on.
- Factory Reset** Resets the currently selected Preset Load slot to factory default settings. CAUTION: all equalizer settings set to flat for the selected Preset Load slot.
- PC Save\*** Save a single DSP audio file (Set file) from the currently selected and displayed Preset Load slot (1 ~ 6) to the PC.
- PC Load\*** Load a single DSP audio file (Set file) from the PC to the currently selected Preset Load slot (1 ~ 6). CAUTION: does not automatically save to a Preset Save slot.
- Save All\*** Save a group of DSP audio files (Sets files) from all Preset Save slots (1 ~ 6) to the PC.
- Load All\*** Load a group of DSP audio files (Sets files) from the PC to all Preset Save slots (1 ~ 6).
- Update Firmware** Used to update software version.
- About** Displays software and hardware version number.

\* DSP sound file extension format:

Single DSP sound file : *filename.C6LBSSet*

All DSP sound files : *filename.C6LBSSets*

## ④ Main

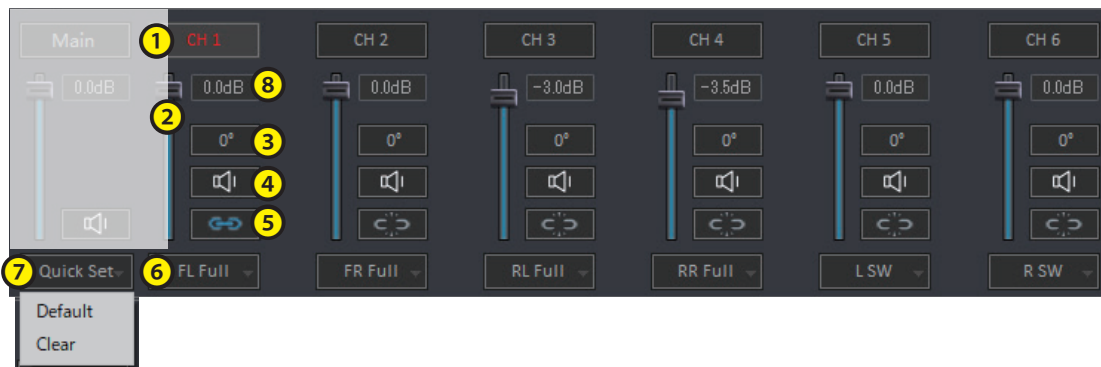


### Master volume control

- ① Volume Slider      Slider adjusts the volume
- ② Volume Input      Allows input of desired degree of loudness in decibels (-60.0dB ~ +6.0dB)
- ③ Mute Button        Temporarily mutes the audio output

## ⑤ Channel and Speaker Settings

Selecting a channel changes the channel button to red. Use drop-down menu ⑥ to assign a speaker type (see Table 1.) to the channel. Only non-assigned speakers are available for selection.



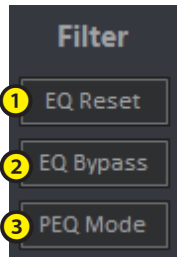
Each channel of the DSP amplifier has the following adjustable settings:

- ① CH Selection        Indicates the currently selected channel
- ② Volume              Slider to adjust volume. ⑧ Loudness in dB can also be directly input (-60.0dB ~ +6.0dB)
- ③ Phase                Inverts the speaker phase (0°↔180°)
- ④ Mute                 Temporarily mutes the selected channel
- ⑤ Link                 Links parameters from the currently selected channel to the linked channel. CAUTION: the linked channel settings are overwritten. All changes made on the currently selected channel are duplicated on the linked channel.
- ⑥ Speaker Type      Assigns speaker type to each of the channels. (see Table 1.)
- ⑦ Speaker Quick Set    **Default** : Resets ⑥ speaker type assignments to factory default settings  
**Clear** : Assigns all speakers in ⑥ to "OFF"

Table 1. Speaker Selection Table

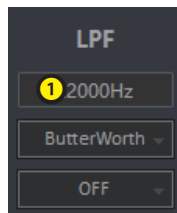
OFF	Front Left	Front Right	Rear Left	Rear Right	Center	Subwoofer
	Full	Full	Full	Full	Full	Subwoofer
	Tweeter	Tweeter	Tweeter	Tweeter	Tweeter	L Subwoofer
	Mid-Hi	Mid-Hi	Woofer	Woofer	Woofer	R Subwoofer
	Mid	Mid				
	MidBass	MidBass				
	Woofer	Woofer				

## Ⓕ Filter

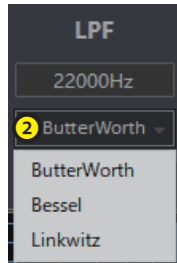
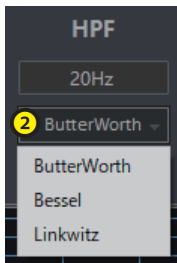


- ① EQ Reset Resets the equalizer settings to flat for the currently selected channel.
- ② EQ Bypass Temporarily sets the equalizer to flat for the selected channel. Select the button again to return to the previous equalizer settings.
- ③ EQ Mode Toggles between parametric equalizer (PEQ) mode and graphical equalizer (GEQ) mode. Caution - changing EQ modes resets parameters to flat. Save data prior to changing EQ modes as required.

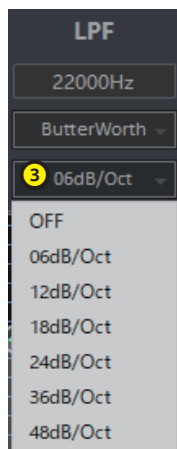
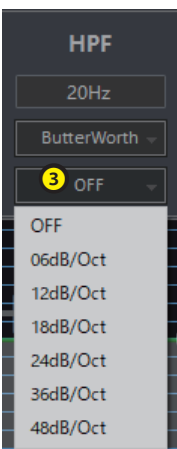
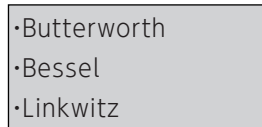
## Ⓖ High Pass Filter (HPF) Ⓗ Low Pass Filter (HPF)



- ① **Enter frequency in Hertz (Hz)**  
20Hz ~ 22,000Hz (22kHz) can be entered in increments of 1Hz.



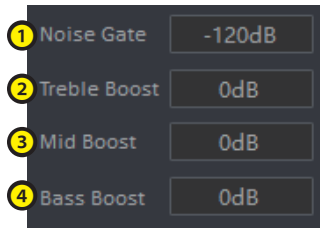
- ② **Select digital crossover type**  
Select from the 3 IIR crossover types. Butterworth is the default.



- ③ **Select crossover slope (dB/Oct)**  
Select from the available crossover slopes. 1st & 3rd order crossovers not available for Linkwitz.



## ① Basic Adjustment



### ① Noise Gate

Sets the noise filter threshold. When adjusting, set listening volume to barely audible and start from -120dB. Gradually increase by increments of 10dB until optimum noise gate threshold is achieved. i.e. background hum/noise is not audible when audio volume is low or paused.

### ② Treble Boost

Enter value (-6dB ~ +6dB) to decrease/increase volume for high frequency range.

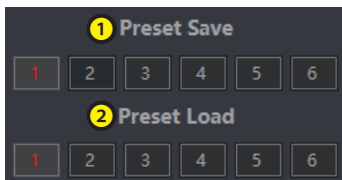
### ③ Mid Boost

Enter value (-6dB ~ +6dB) to decrease/increase volume for mid frequency range.

### ④ Bass Boost

Enter value (-6dB ~ +6dB) to decrease/increase volume for low frequency range.

## ② Preset Save / Preset Load



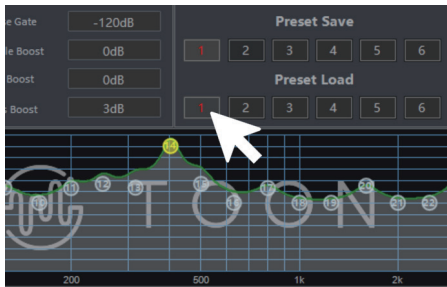
### ① Preset Save

Select slot (1 ~ 6) to save the current sound file data to DSP amp internal memory. i.e. Saves the currently displayed settings to the selected memory slot in the DSP. **CAUTION:** overwrites the saved settings in the DSP for the selected Preset Save slot.

### ② Preset Load

Select slot (1 ~ 6) to load the sound file data from DSP amp internal memory. i.e. Displays the settings from the selected memory slot in the DSP. **CAUTION:** overwrites the currently displayed settings for the selected Preset Load slot.

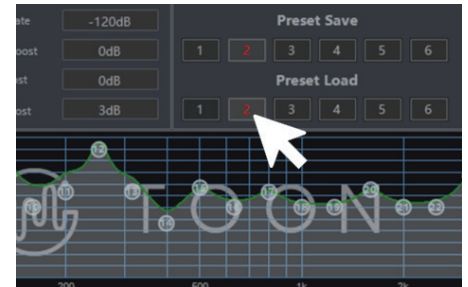
**Example:** modifying equalizer settings in Preset Save slot #1 and saving the changes to Preset Save slot #2



1. Select Preset Load slot #1 displays the DSP audio file settings stored in Preset Save slot #1



2. After making adjustments to the equalizer settings etc., click Preset Save slot #2 to save.

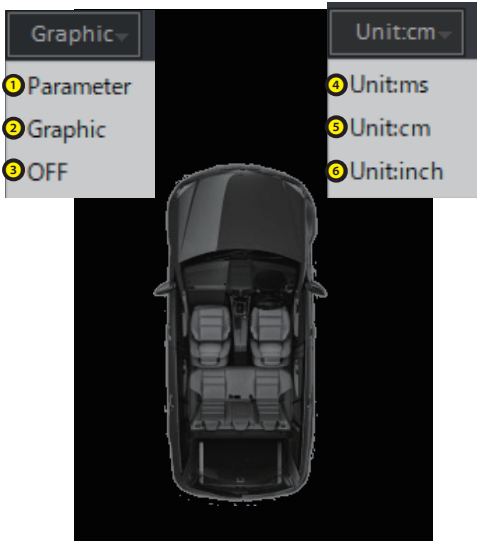


3. Select Preset Load slot #2 to display the DSP audio file settings stored in Preset Save slot #2



Result: Preset Load slot #1 contains the original DSP audio file and Preset Load slot #2 contains the modified DSP audio file

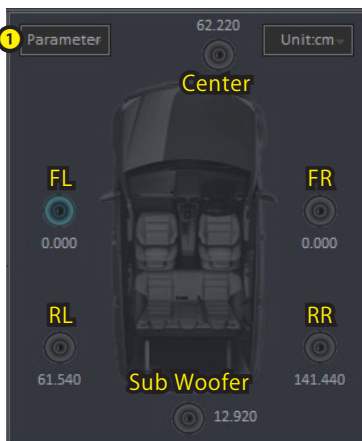
Ⓚ Time Alignment Settings



<b>Alignment Type</b>	① Parameter	Parametric alignment setting
	② Graphic	Graphical alignment setting
	③ OFF	Alignment settings OFF

<b>Unit</b>	④ Unit:ms	Milliseconds
	⑤ Unit:cm	Centimeters
	⑥ Unit:inch	Inches

① Parametric Setting

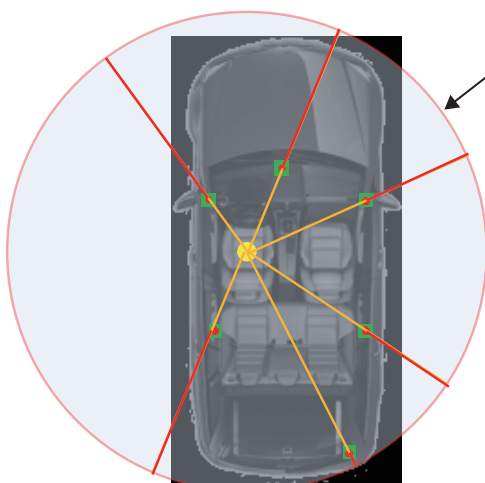


The listening area is determined by a imaginary circle of radius 204cm (80.315 in.), with its center at the listening point. The listening point is typically the driver's head position.

Measure the distance from the listening point to each speaker location. If using cms, subtract the measured distance in cms from 204 and enter this value for each of the channels. For distances greater or equal to 204cm, enter 0cm. Center speaker and subwoofer maximum distance is 136cm.

If using inches, subtract the measured distance in inches from 80.315 and enter this value for each of the channels. For distances greater or equal to 80.315 in, enter 0. Center speaker and subwoofer maximum distance is 53.543 in.

See example on next page.



204cm / 80.315 in. radius

- Listening point (left hand drive shown)
- Speaker location
- Distance from listening point to speaker
- Distance from speaker to listening area boundary (parameter input value)

## Time Alignment Settings (continued)



Example - distance from listening point to each speaker (unit:cm):

CH1 : 94.0  
 CH2 : 140.0  
 CH3 : 54.0  
 CH4 : 107.0  
 CH5 : 0  
 CH6 : 0

**Parameter value input (unit:cm)**

CH1 :  $204 - 94.0 = 110.0$   
 CH2 :  $204 - 140.0 = 64.0$   
 CH3 :  $204 - 54.0 = 150.0$   
 CH4 :  $204 - 107.0 = 97.0$   
 CH5 :  $136 - 0 = 136.0$   
 CH6 :  $136 - 0 = 136.0$

\* Time alignment parameters are automatically adjusted to the DSP optimized values when the screen is refreshed. E.g. Entered value of 10.0cm will automatically be adjusted to 9.860cm. The automatic adjustment occurs when selecting a different channel, changing alignment setting, changing the units etc.

## ② Graphic Setting



The listening point can also be set by dragging the mouse pointer.

Ⓛ Equalizer Settings



① Channel specific frequency response curve

Select and drag the band number to make adjustments to the frequency response (1 - 31 bands available in the above example)

**PEQ Mode**.....Up, down, left and right adjustments are available in parametric equalizer mode.

**GEQ Mode**.....Only up & down (gain) adjustments are available in graphic equalizer mode. Fc and Q are fixed to default values for each band in GEQ Mode.

**Channel bands**

..CH1/CH2.....31 bands

..CH3/CH4.....15 bands

..CH5/CH6.....9 bands

② Band settings (direct input available in PEQ mode)

**Fc** Center frequency

**Q** Q factor (bandwidth around center frequency)

**Gain** Volume amplification ratio (-15dB ~ +15dB)

③ Level slider for adjusting gain

**Level slider** Slide up/down to adjust the gain for the selected frequency band.

**work** The button below the slider temporarily sets the equalizer to flat for the selected band. Select the button again to return the equalizer to the previous setting.