

The Saddle Tramp DSP is an interface and DSP combined into a single solution.

Harley Davidson's radios use pre-programmed crossover and equalization settings that are locked into the OE radio. These settings restrict the audio quality when adding aftermarket equipment. The ST-DSP fixes that issue. The interface will reprogram your OE radio to output a flat frequency response curve. During the re-flash process the DSP will load a Pre-tuned equalization curve tuned by Harman Kardon.

Interface and DSP set up for Harley Davidson **Street Glide and Road Glide 2014-2022** Infinity and Saddle Tramp six speaker kit

DSP is compatible with these H-D radios.

Not compatible with the Rockford Fosgate OE system



4-button



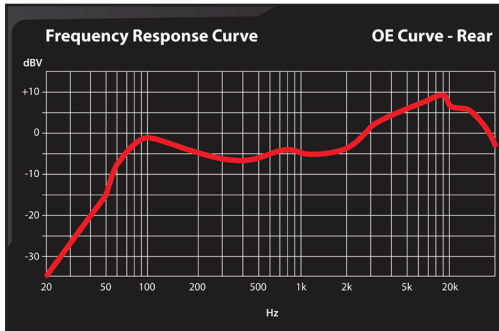
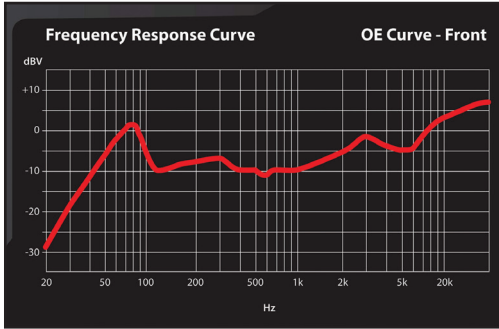
11-button



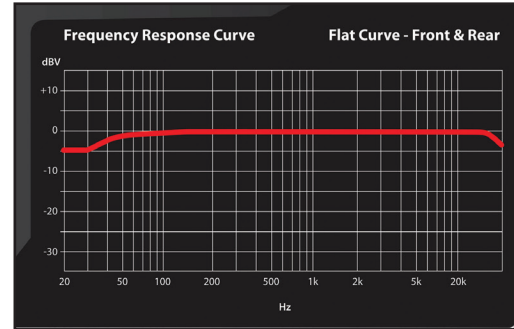
GTS Touchscreen

Re-flashing the OE Radio

Below are the frequency response curves of a stock Harley Davidson non-amplified radio.



Frequency response curve after the Saddle Tramp DSP reflashes the OE radio.



INTERFACE AND DSP SETUP

Quick Setup:

1. Now that the motorcycle-specific harnesses are connected to the bike and Infinity product.
2. Download the Saddle Tramp DSP App (Figure A) on your Android device.
3. Use the QR Code provided to quickly locate and download the app. (Figure B)
4. Turn on the ignition of your bike. Make Sure Volume on radio is reduced to one notch, volume of one.
5. Open the ST-DSP App on your Android device. (Figure C)

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(Figure A)



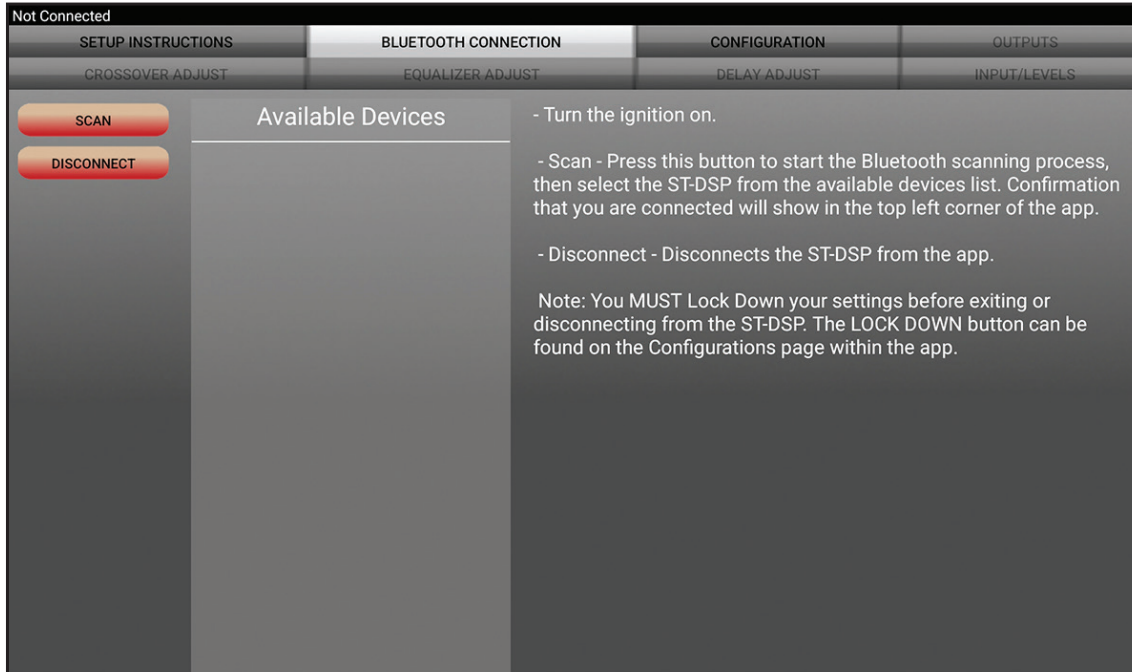
(Figure B)



(Figure C)

INTERFACE AND DSP SETUP (CONT)

Quick Setup: (cont.)



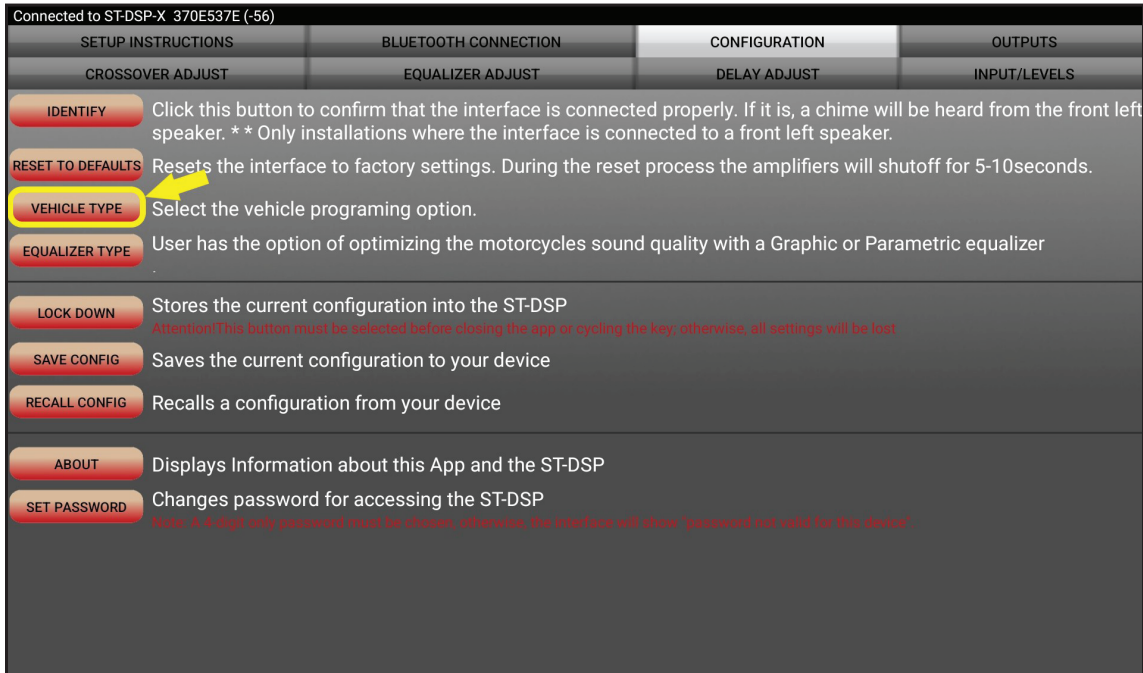
(Figure D)

6. Go to the Bluetooth Connection page within the app, tap on “Scan,” and select your device from the list. (Figure D)

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INTERFACE AND DSP SETUP (CONT)

Quick Setup: (cont.)



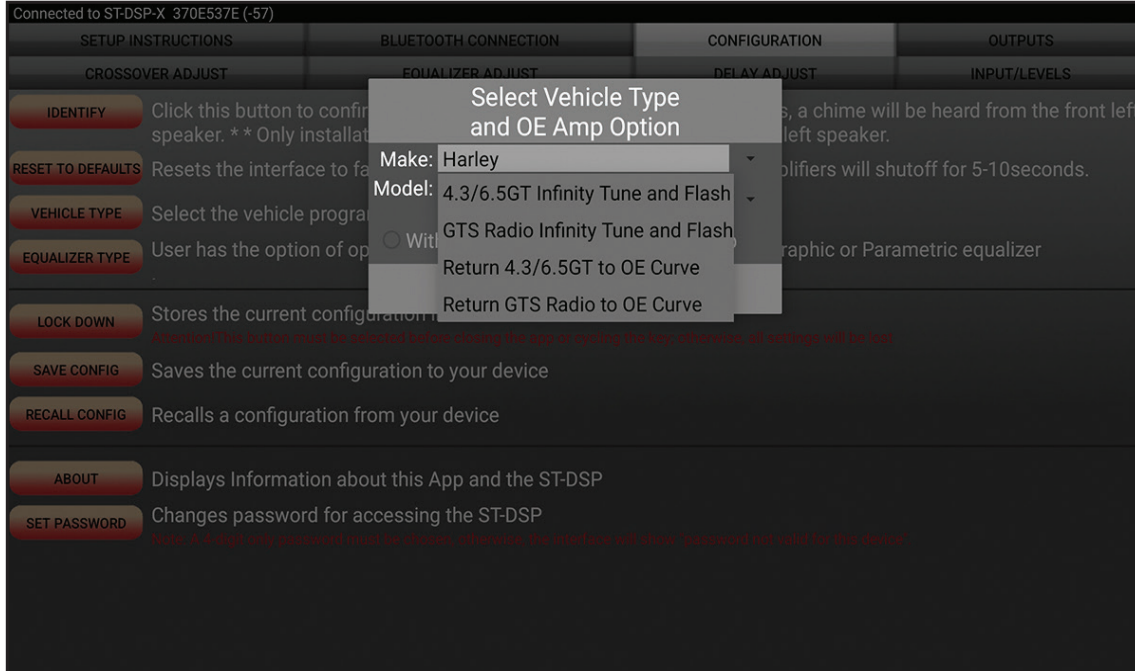
(Figure E)

7. Navigate to the Configuration page. (Figure E)

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INTERFACE AND DSP SETUP (CONT)

Quick Setup: (cont.)



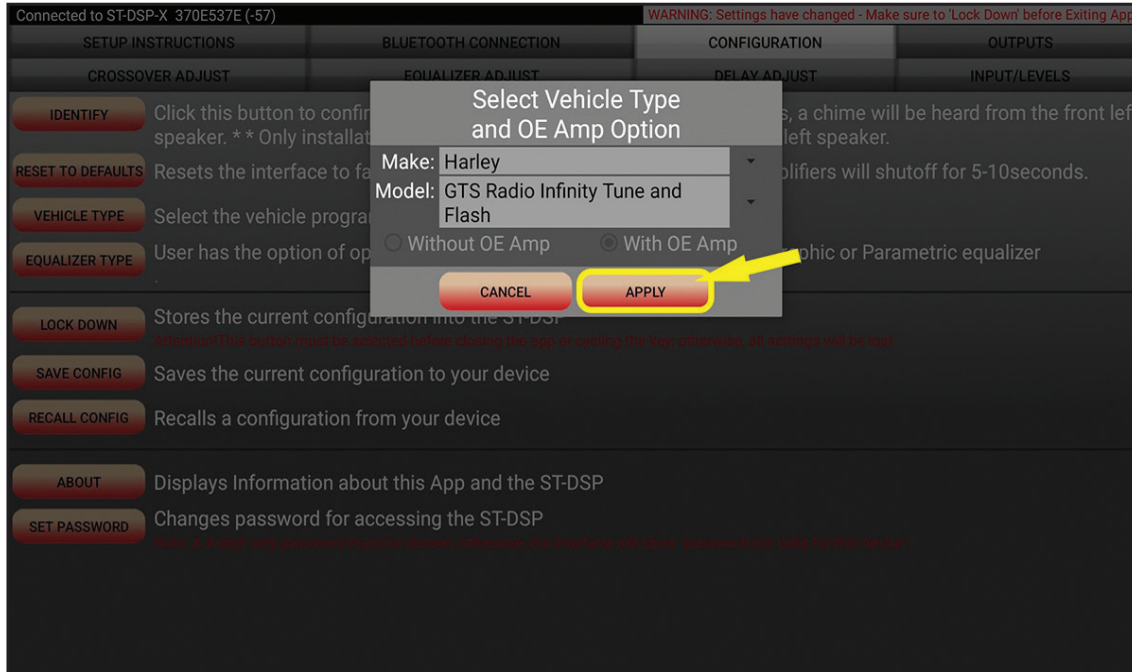
(Figure F)

8. Select the appropriate Vehicle Type and choose your desired Flash option (Figure F)

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INTERFACE AND DSP SETUP (CONT)

Quick Setup: (cont.)



(Figure G)

9. Apply the settings. The ST-DSP will initiate the programming sequence. During this process, your radio will turn off and then turn back on. It is crucial not to turn off the bike's ignition at this stage. The process can take up to 1 minute. (Figure G)

Continued on next page

INTERFACE AND DSP SETUP (CONT)

Quick Setup: (cont.)

Connected to ST-DSP-X 370E537E (-56)

SETUP INSTRUCTIONS	BLUETOOTH CONNECTION	CONFIGURATION	OUTPUTS
CROSSOVER ADJUST	EQUALIZER ADJUST	DELAY ADJUST	INPUT/LEVELS

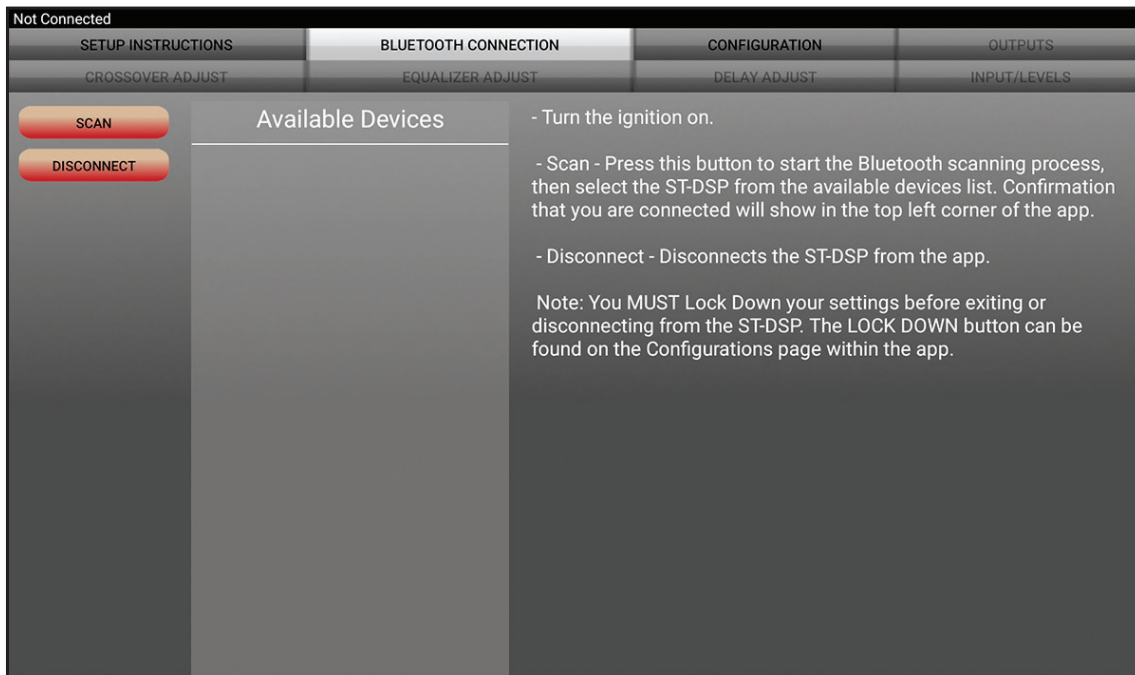
- IDENTIFY** Click this button to confirm that the interface is connected properly. If it is, a chime will be heard from the front left speaker. ** Only installations where the interface is connected to a front left speaker.
- RESET TO DEFAULTS** Resets the interface to factory settings. During the reset process the amplifiers will shutoff for 5-10seconds.
- VEHICLE TYPE** Select the vehicle programming option.
- EQUALIZER TYPE** User has the option of optimizing the motorcycles sound quality with a Graphic or Parametric equalizer
- LOCK DOWN** Stores the current configuration into the ST-DSP
Attention! This button must be selected before closing the app or cycling the key, otherwise, all settings will be lost
- SAVE CONFIG** Saves the current configuration to your device
- RECALL CONFIG** Recalls a configuration from your device
- ABOUT** Displays Information about this App and the ST-DSP
- SET PASSWORD** Changes password for accessing the ST-DSP
Note: A 4-digit only password must be chosen, otherwise, the interface will show "password not valid for this device"

(Figure H)

10. Once the programming is complete, go to the CONFIGURATION page and LOCK DOWN your settings. Ensure that the bike's ignition remains on during this step. (Figure H)
11. After the LOCK DOWN process finishes, you're all set. Reassemble your bike, and enjoy the updated features.
12. If you wish to fine-tune your audio, refer to the advanced setup section of the manual.

FEATURES BY SCREEN (CONT)

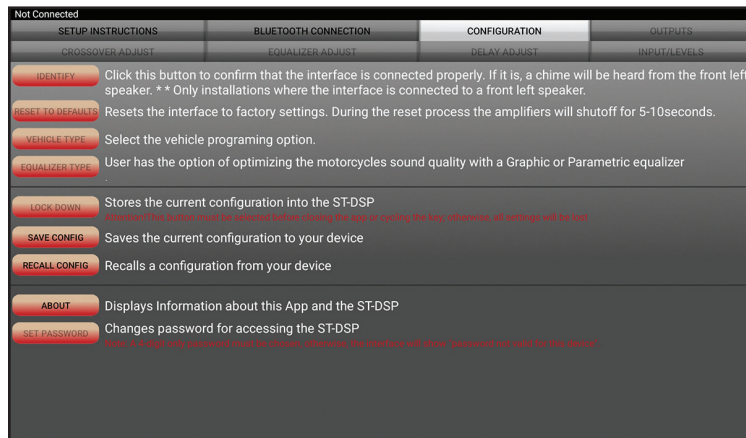
Bluetooth Connection screen



- Turn the ignition on.
- Scan - Press this button to start the Bluetooth scanning process, then select the ST-DSP from the available devices list. Confirmation that you are connected **will show in the top left corner** of the app.
- Disconnect - Disconnects the ST-DSP from the app.

Note: You MUST Lock Down your settings **before exiting or disconnecting from the ST-DSP. The LOCK DOWN button can be found on the Configurations page within the app.**

Configuration screen



- **IDENTIFY**: Click this button to verify proper connection of the interface. If connected correctly, a chime will be heard from the front left speaker. ** This applies only to installations where the interface is connected to a front left speaker.
- **RESET TO DEFAULTS**: Restores the interface to its factory settings. During the reset process, the amplifiers will shut off for 5-10 seconds.
- **VEHICLE TYPE**: Select the vehicle programming option.
- **EQUALIZER (EQ) TYPE**: Choose between a Graphic or Parametric equalizer to optimize the motorcycle's sound quality.
- **LOCK DOWN**: Click this button to save the selected settings.
- **Attention!** This button must be selected before closing the app or turning off the key; otherwise, all settings will be lost.
- **SAVE CONFIGURATION**: Saves the current configuration to the mobile device.
- **RECALL CONFIGURATION**: Retrieves a configuration from the mobile device.
- **ABOUT**: Displays information about the app, vehicle, interface, and mobile device.
- **SET PASSWORD**: Assign a 4-digit password to lock the interface. If no password is desired, use "0000" to clear any currently set password. Locking down the interface is not necessary when setting a password.
- **Note**: Only a 4-digit password is valid for this device. If a different password is chosen, the interface will display "password not valid for this device." If the password is forgotten, the DSP can be reset by updating the interface with the Axxess Updater Windows software.

FEATURES BY SCREEN (CONT)

ABOUT:

Connected to ST-DSP-X 370E537E (-56)

SETUP INSTRUCTIONS	BLUETOOTH CONNECTION	CONFIGURATION	OUTPUTS
CROSSOVER ADJUST	EQUALIZER ADJUST	DELAY ADJUST	INPUT/LEVELS

IDENTIFY Click this button to confirm that the interface is connected properly. If it is, a chime will be heard from the front left speaker. * * Only installations where the interface is connected to a front left speaker.

RESET TO DEFAULTS Resets the interface to factory settings. During the reset process the amplifiers will shutoff for 5-10seconds.

VEHICLE TYPE Select the vehicle programing option.

EQUALIZER TYPE User has the option of optimizing the motorcycles sound quality with a Graphic or Parametric equalizer

LOCK DOWN Stores the current configuration into the ST-DSP
Attention!This button must be selected before closing the app or cycling the key otherwise, all settings will be lost

SAVE CONFIG Saves the current configuration to your device

RECALL CONFIG Recalls a configuration from your device

ABOUT Displays Information about this App and the ST-DSP

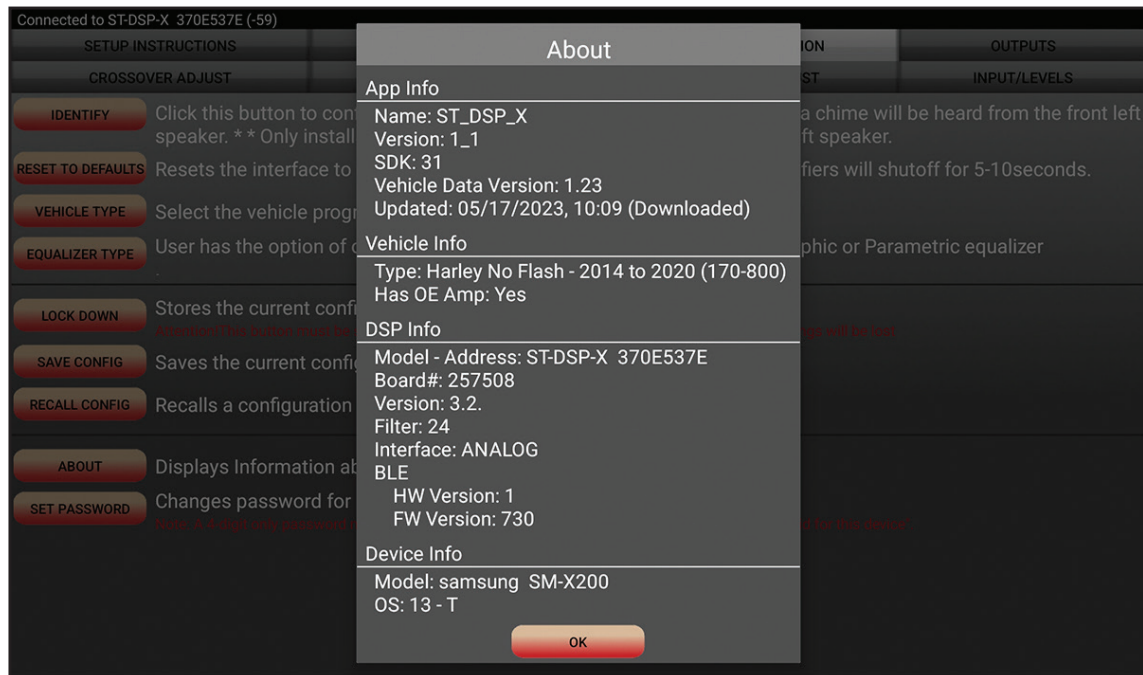
SET PASSWORD Changes password for accessing the ST-DSP
Note: A 4-digit only password must be chosen otherwise, the interface will show "password not valid for this device".

(Figure A)

- ABOUT: Displays information about the app, vehicle, interface, and mobile device. (Figures A, B on next page)

FEATURES BY SCREEN (CONT)

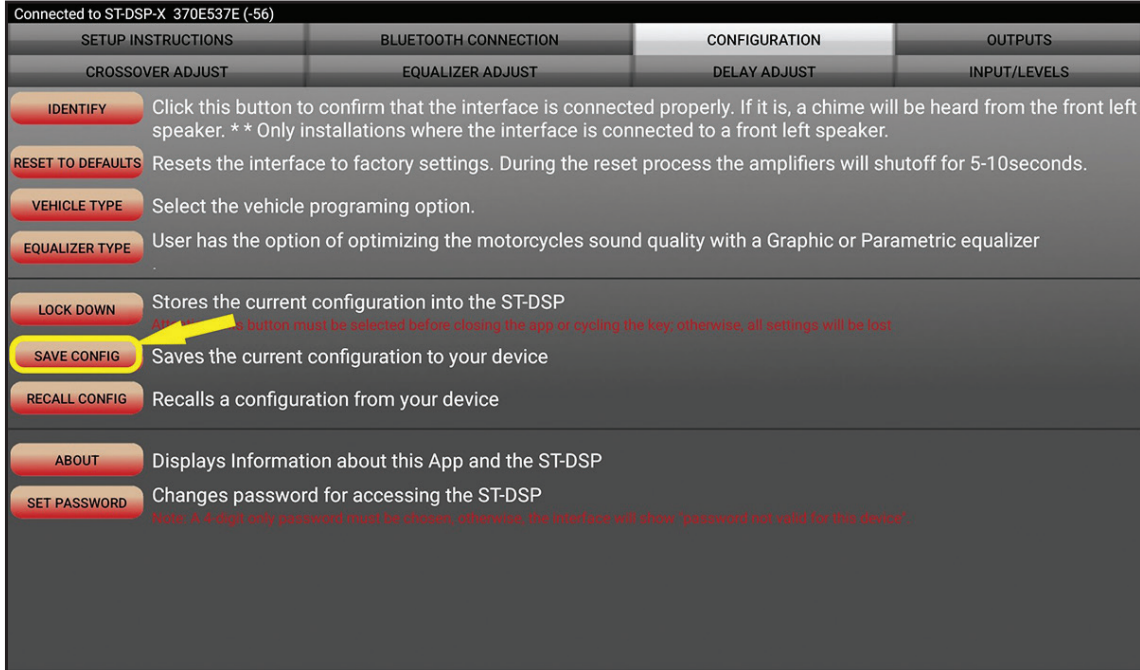
ABOUT: (cont.)



(Figure B)

FEATURES BY SCREEN

SAVE CONFIGURATION:



(Figure C)

- **SAVE CONFIGURATION:** Saves the current configuration to the mobile device. (Figures C, D on next page)

FEATURES BY SCREEN (CONT)

SAVE CONFIGURATION: (cont.)

Connected to ST-DSP-X 370E537E (-60) WARNING: Settings have changed - Make sure to 'Lock Down' before Exiting App.

SETUP INSTRUCTIONS	BLUETOOTH CONNECTION	CONFIGURATION	OUTPUTS
CROSSOVER ADJUST	EQUALIZER ADJUST	DELAY ADJUST	INPUT/LEVELS

IDENTIFY Click this button to confirm that the interface is connected properly. If it is, a chime will be heard from the front left speaker. ** Only installations where the interface is connected to a front left speaker.

RESET TO DEFAULTS Resets the interface to factory settings. During the reset process the amplifiers will shutoff for 5-10seconds.

VEHICLE TYPE Select the vehicle programing option.

EQUALIZER TYPE User has the option of optimizing the motorcycles sound quality with a Graphic or Parametric equalizer

LOCK DOWN Stores the current configuration to a file. Warning: The interface must be 'Lock Down' before exiting the app.

Click on the File Name Box to create a new file
File Name: SaddleTrampRocks

SAVE CONFIG Saves the current configuration to a file.

RECALL CONFIG Recalls a configuration from your device

ABOUT Displays Information about this App and the ST-DSP

SET PASSWORD Changes password for accessing the ST-DSP
Note: A 4 digit only password must be chosen, otherwise the interface will show "password not valid for this device"

CANCEL SAVE

(Figure D)

FEATURES BY SCREEN (CONT)

RECALL CONFIGURATION:

Connected to ST-DSP-X 370E537E (-56)

SETUP INSTRUCTIONS	BLUETOOTH CONNECTION	CONFIGURATION	OUTPUTS
CROSSOVER ADJUST	EQUALIZER ADJUST	DELAY ADJUST	INPUT/LEVELS

IDENTIFY Click this button to confirm that the interface is connected properly. If it is, a chime will be heard from the front left speaker. ** Only installations where the interface is connected to a front left speaker.

RESET TO DEFAULTS Resets the interface to factory settings. During the reset process the amplifiers will shutoff for 5-10seconds.

VEHICLE TYPE Select the vehicle programing option.

EQUALIZER TYPE User has the option of optimizing the motorcycles sound quality with a Graphic or Parametric equalizer

LOCK DOWN Stores the current configuration into the ST-DSP
Attention! This button must be selected before closing the app or cycling the key, otherwise, all settings will be lost

SAVE CONFIG Saves the current configuration to your device

RECALL CONFIG Recalls a configuration from your device

ABOUT Displays Information about this App and the ST-DSP

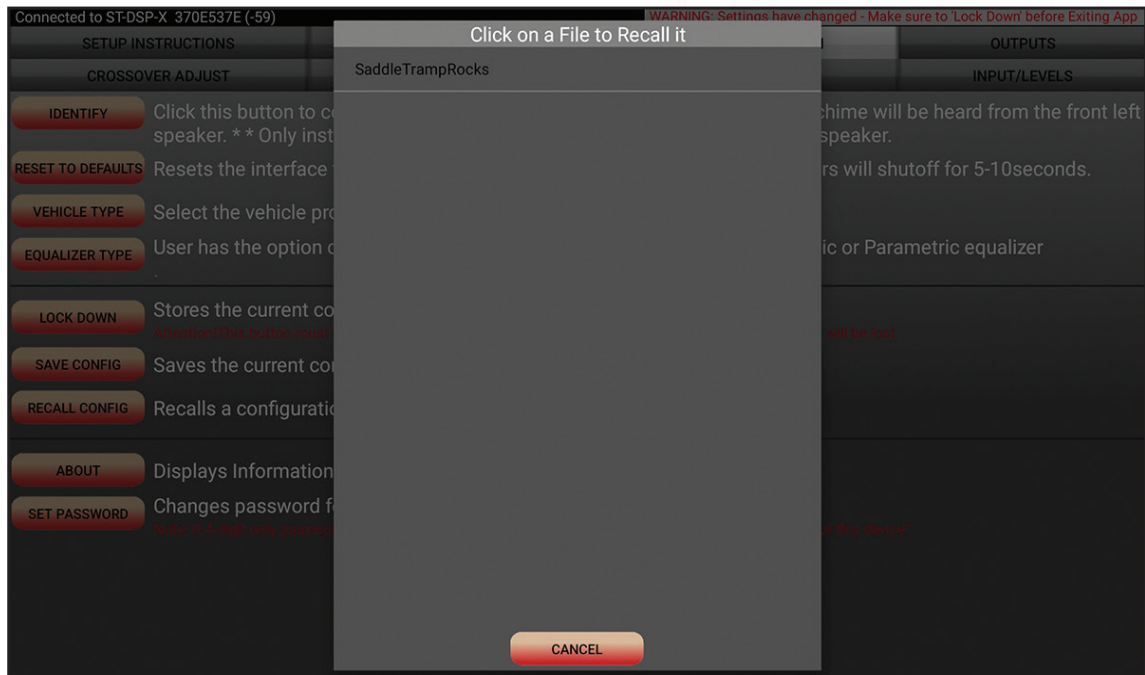
SET PASSWORD Changes password for accessing the ST-DSP
Note: A 4 digit only password must be chosen, otherwise, the interface will show "password not valid for this device"

(Figure E)

- **RECALL CONFIGURATION:** Retrieves a configuration from the mobile device. (Figures E, F on the next page)

FEATURES BY SCREEN (CONT)

RECALL CONFIGURATION: (cont.)



(Figure F)

FEATURES BY SCREEN (CONT)

SET PASSWORD:

Connected to ST-DSP-X 370E537E (-56)

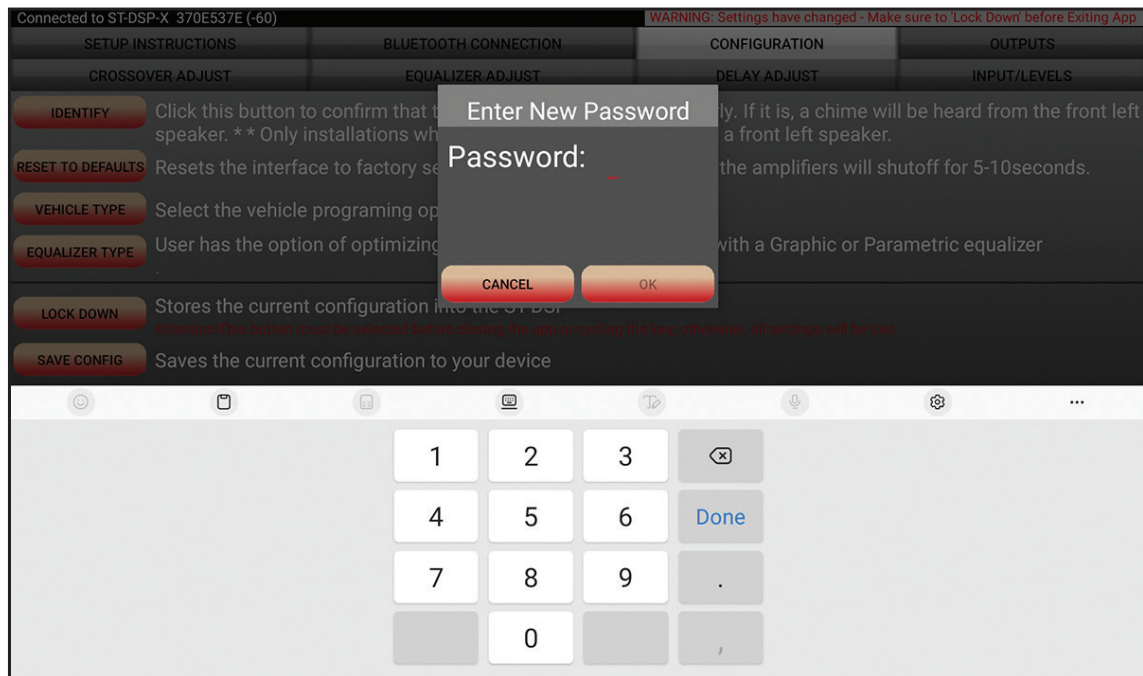
SETUP INSTRUCTIONS	BLUETOOTH CONNECTION	CONFIGURATION	OUTPUTS
CROSSOVER ADJUST	EQUALIZER ADJUST	DELAY ADJUST	INPUT/LEVELS
IDENTIFY	Click this button to confirm that the interface is connected properly. If it is, a chime will be heard from the front left speaker. * * Only installations where the interface is connected to a front left speaker.		
RESET TO DEFAULTS	Resets the interface to factory settings. During the reset process the amplifiers will shutoff for 5-10seconds.		
VEHICLE TYPE	Select the vehicle programing option.		
EQUALIZER TYPE	User has the option of optimizing the motorcycles sound quality with a Graphic or Parametric equalizer		
LOCK DOWN	Stores the current configuration into the ST-DSP <i>Attention! This button must be selected before closing the app or cycling the key otherwise, all settings will be lost</i>		
SAVE CONFIG	Saves the current configuration to your device		
RECALL CONFIG	Recalls a configuration from your device		
ABOUT	Displays Information about this App and the ST-DSP		
SET PASSWORD	Changes password for accessing the ST-DSP <i>Note: A 4-digit only password must be chosen, otherwise, the interface will show "password not valid for this device".</i>		

(Figure G)

- SET PASSWORD: Assign a 4-digit password to lock the interface. If no password is **desired, use "0000" to clear any currently set password. Locking down the interface is not necessary when setting a password.**
- **Note:** Only a 4-digit password is valid for this device. If a different password is chosen, the interface will display "password not valid for this device." If the password is forgotten, the DSP can be reset by updating the interface with the Axxess Updater Windows software. (Figures G, H on the next page)

FEATURES BY SCREEN (CONT)

SET PASSWORD: (cont.)



(Figure H)

FEATURES BY SCREEN (CONT)

Output screen

Connected to ST-DSP-X 370E537E (-60) WARNING: Settings have changed - Make sure to 'Lock Down' before Exiting App

SETUP INSTRUCTIONS	BLUETOOTH CONNECTION	CONFIGURATION	OUTPUTS
CROSSOVER ADJUST	EQUALIZER ADJUST	DELAY ADJUST	INPUT/LEVELS

#	Location	Group	
1	Left Front	Front	<input checked="" type="checkbox"/> M <input type="checkbox"/> Invert <input type="checkbox"/> Mute
2	Right Front	Front	<input type="checkbox"/> <input type="checkbox"/> Invert <input type="checkbox"/> Mute
3	Left Rear	Left Rear	<input checked="" type="checkbox"/> M <input type="checkbox"/> Invert <input type="checkbox"/> Mute
4	Right Rear	Left Rear	<input checked="" type="checkbox"/> <input type="checkbox"/> Invert <input type="checkbox"/> Mute
5	Left Front Mid	Right Rear	<input checked="" type="checkbox"/> M <input type="checkbox"/> Invert <input type="checkbox"/> Mute
6	Right Front Mid	Right Rear	<input checked="" type="checkbox"/> <input type="checkbox"/> Invert <input type="checkbox"/> Mute
7	Left Rear	Rear	<input checked="" type="checkbox"/> M <input type="checkbox"/> Invert <input type="checkbox"/> Mute
8	Right Rear	Rear	<input checked="" type="checkbox"/> <input type="checkbox"/> Invert <input type="checkbox"/> Mute
9	Not Used	None	<input type="checkbox"/> <input type="checkbox"/> Invert <input type="checkbox"/> Mute
10	Not Used	None	<input type="checkbox"/> <input type="checkbox"/> Invert <input type="checkbox"/> Mute

- The screen is used for speaker configuration and provides the option to group speakers together, simplifying the process of equalizing multiple speakers simultaneously.
- The numbers (#) from 1 to 10 on the left side of the screen correspond to the RCA outputs on the DSP Harness.
- Location: Displays the selected location for each respective RCA output number.
- Group: Enables the grouping of speakers for simultaneous equalization. For example, when Front Left and Right LOCATIONS are GROUPED under "Front," both the left and right channels are equalized together.
- Invert: Inverts the output polarity of each channel.
- Mute: Silences the output of the channel for testing purposes or when adjusting the EQ.

FEATURES BY SCREEN (CONT)

Crossover Adjustments screen

Connected to ST-DSP-X 370E537E (-58) WARNING: Settings have changed - Make sure to 'Lock Down' before Exiting App

SETUP INSTRUCTIONS	BLUETOOTH CONNECTION	CONFIGURATION	OUTPUTS
CROSSOVER ADJUST	EQUALIZER ADJUST	DELAY ADJUST	INPUT/LEVELS

Left Front Lower Freq: 60 Hz

Low Pass 12dB

Band Pass 24dB

High Pass 36dB

48dB

Right Front Lower Freq: 60 Hz

Low Pass 12dB

Band Pass 24dB

High Pass 36dB

48dB

Left Rear Lower Freq: 60 Hz

Low Pass 12dB

Band Pass 24dB

High Pass 36dB

48dB

Right Rear Lower Freq: 60 Hz

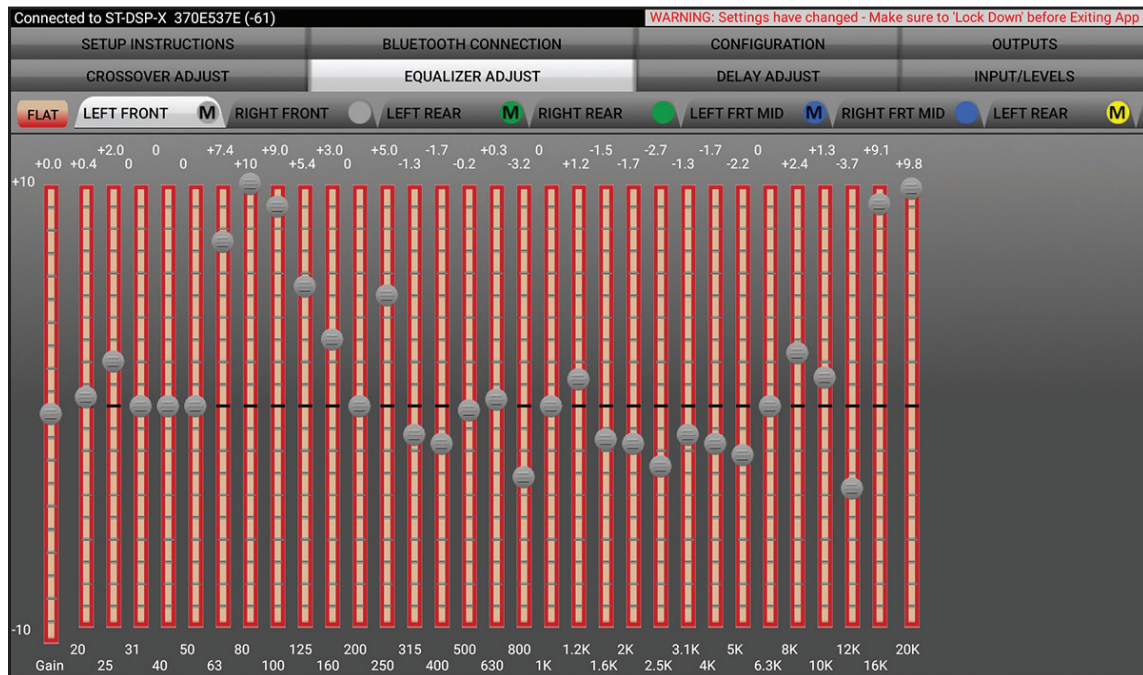
Low Pass 12dB

Band Pass 24dB

- After completing the programming, the crossovers are preset for your system. If you wish to fine-tune the crossover points, you can make adjustments from this screen.
- Choosing High Pass and Low Pass will allow you to adjust one crossover frequency. Band Pass should only be selected if you are installing front speakers with a dedicated amplifier for the woofers/mids, a separate amplifier for the tweeters, and a subwoofer.
- Select your desired crossover slope: 24 dB, 36 dB, or 48 dB. A higher slope indicates a steeper cutoff.

FEATURES BY SCREEN (CONT)

Equalizer Adjustments screen



- After completing the DSP programming, the Harman Kardon equalizer settings will be preloaded for all speakers. If further adjustments are needed, it is recommended to use an RTA (Real-Time Analyzer) for precise adjustments.
- Each channel of the DSP features a 31-band graphic EQ with an adjustable level control.
- To reset all EQ adjustments, simply select the FLAT button located in the top left corner.

Time Delay Adjustments screen

Connected to ST-DSP-X 370E537E (-55) WARNING: Settings have changed - Make sure to 'Lock Down' before Exiting App

SETUP INSTRUCTIONS	BLUETOOTH CONNECTION	CONFIGURATION	OUTPUTS
CROSSOVER ADJUST	EQUALIZER ADJUST	DELAY ADJUST	INPUT/LEVELS

Distance from each speaker to 'Head' position (in inches)

Left Front	30
Right Front	30
Left Rear	28
Right Rear	28
Left Front Mid	38
Right Front Mid	38
Left Rear	34
Right Rear	34

Measure the distance from each speaker to the desired 'Head' position and enter those values in the corresponding boxes.
Maximum distance is 99".

- This feature allows you to apply a delay to each channel. The settings are preset after programming and further adjustment is not needed unless preferred by the listener. If you wish to add a delay, start by measuring the distance (in inches) from each speaker to the listening position. Then, input these values for the corresponding speakers. To delay a specific speaker further, add the desired additional distance (in inches).
- **NOTE:** For riders who primarily have a passenger in the rear seat, Harman recommends modifying the time delay by adding 10 inches to the front speakers and subtracting 10 inches from the rear speakers.


FEATURES BY SCREEN (CONT)

Input/Levels screen

Connected to ST-DSP-X 370E537E (-64) WARNING: Settings have changed - Make sure to 'Lock Down' before Exiting App


SETUP INSTRUCTIONS	BLUETOOTH CONNECTION	CONFIGURATION	OUTPUTS
CROSSOVER ADJUST	EQUALIZER ADJUST	DELAY ADJUST	INPUT/LEVELS

Clipping Level

Off On Level: 1 

The AX-DSP can detect clipping of the audio signals and reduce the level for a period of time to prevent damage to the speakers.

Amp Turn On

Turn On Delay: 9  Seconds

Signal Sense Always On

The AMP ON line can be turned on whenever accessory power is on, or only when a signal is detected from the radio.

- **Clipping Level:** Use this feature to protect sensitive speakers, such as tweeters, from being pushed beyond their capabilities. If the input signal of the ST-DSP clips, the audio will be automatically reduced by 20 dB. Lowering the volume will restore the audio to a normal level. The sensitivity of this feature can be adjusted according to the user's listening preference.
- **Turn-on Delay:** By default, a 9-second delay is preprogrammed. This delay can be shortened, but if any popping sound is heard when turning the system on or off, increase the delay until the popping is no longer audible.

FEATURES BY SCREEN (CONT)

Configuration Lockdown screen

Connected to ST-DSP-X_370E537E (-59)

SETUP INSTRUCTIONS	BLUETOOTH CONNECTION	CONFIGURATION	OUTPUTS
CROSSOVER ADJUST	EQUALIZER ADJUST	DELAY ADJUST	INPUT/LEVELS

IDENTIFY Click this button to confirm that the interface is connected properly. If it is, a chime will be heard from the front left speaker. * * Only installations where the interface is connected to a front left speaker.

RESET TO DEFAULTS Resets the interface to factory settings. During the reset process the amplifiers will shutoff for 5-10seconds.

VEHICLE TYPE Select the vehicle programing option.

EQUALIZER TYPE User has the option of optimizing the motorcycles sound quality with a Graphic or Parametric equalizer

LOCK DOWN Stores the current configuration into the device. **Warning:** When this button is selected before any adjustments are made, all settings will be lost.

SAVE CONFIG Saves the current configuration to your device.

RECALL CONFIG Recalls a configuration from your device.

ABOUT Displays Information about this App and the ST-DSP

SET PASSWORD Changes password for accessing the ST-DSP
Note: A 4 digit only password must be chosen, otherwise, the interface will show "password not valid for this device"

Locking Down Data
38

Last and the most important...

You MUST lock down your configuration!!!