



Performance Application Guide

MDSP

MDSP10/8A
MDSP8/6A
MDSP8/4A
MDSP6/4A



App Control & Tuning Requirements

The Morel MDSP App provides wireless DSP tuning, amplifier control, and Bluetooth audio streaming from compatible iOS and Android devices. Through the app, users can access and adjust key audio settings including crossover configuration, parametric EQ, time alignment, output levels, input routing, mixer settings, and preset management directly from a smartphone or tablet. The app provides a convenient wireless interface for complete system setup, tuning, and daily operation, eliminating the need for a direct wired connection during adjustments. The **Morel MDSP App** is available for download through the Apple App Store and Google Play Store.

BLUETOOTH DONGLE REQUIRED

The following models require the optional Bluetooth dongle accessory for app control, DSP tuning, and Bluetooth audio streaming:

- MDSP10/8A
- MDSP8/6A
- MDSP8/4A

BUILT-IN BLUETOOTH

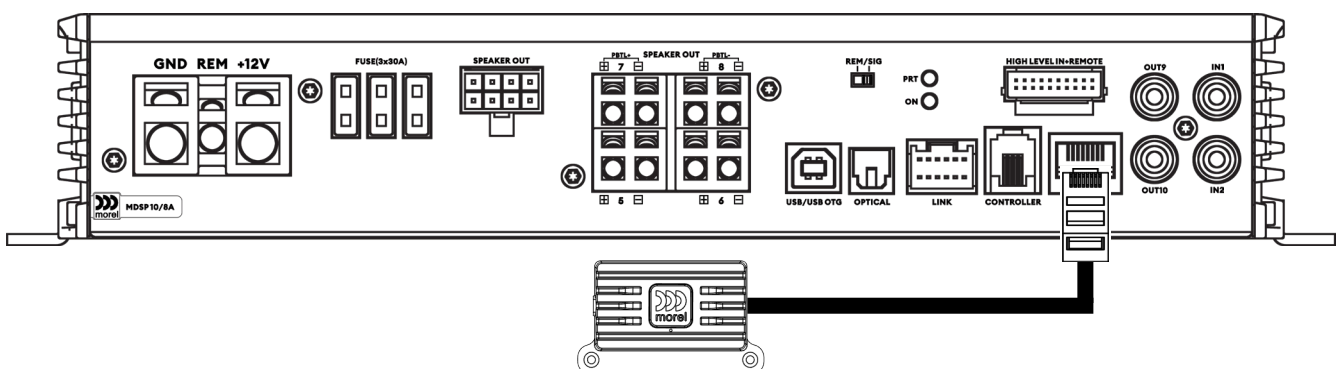
The following model includes internal Bluetooth and does not require an external dongle:

- MDSP6/4A

Bluetooth dongle sold separately where required.

Bluetooth Installation (MDSP10/8A, MDSP8/6A, and MDSP8/4A)

The **Bluetooth Dongle** must be physically installed to enable wireless app-based DSP tuning, amplifier control, and Bluetooth audio streaming on supported MDSP models. Refer to the installation image shown below for proper connection location and orientation. For complete installation procedures and additional mounting information, refer to the **MDSP Installation Manual**.



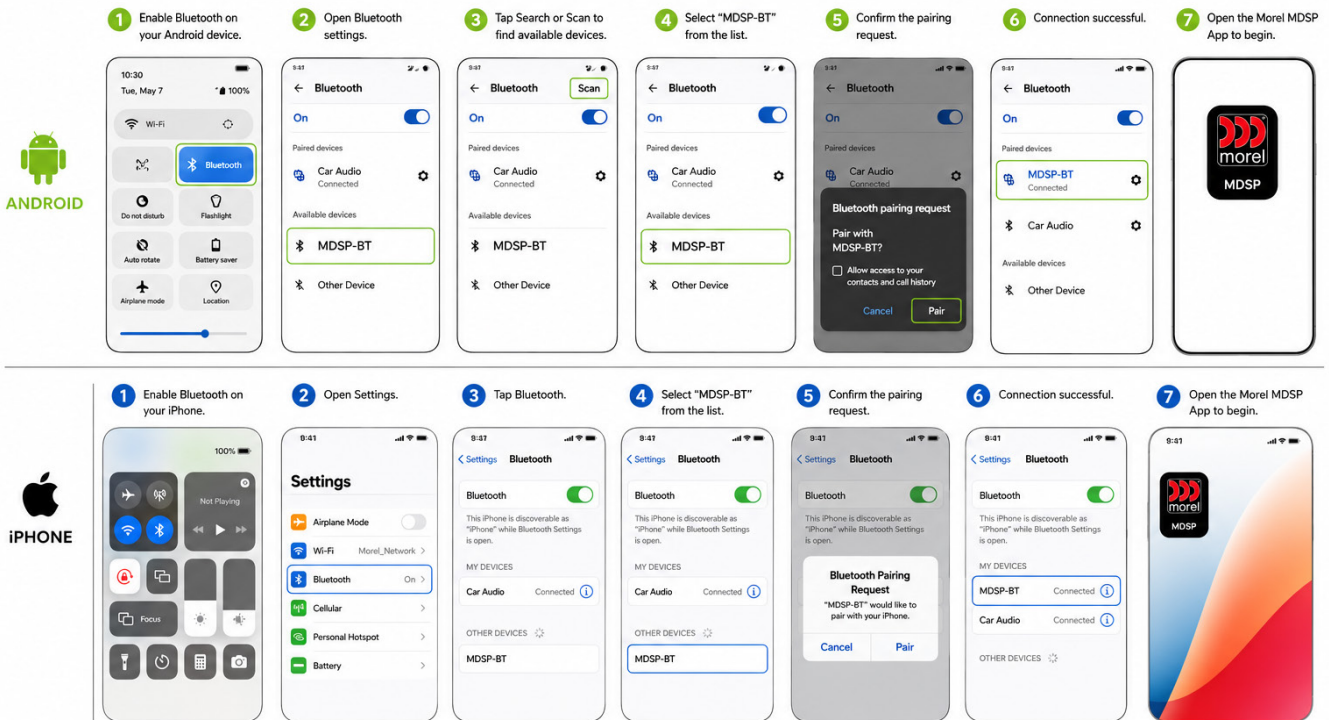
Pairing to the MDSP

The initial Bluetooth connection pairs the mobile device directly to the MDSP amplifier, enabling wireless audio streaming and allowing the Morel MDSP App to detect and communicate with the device. This first-time pairing establishes the primary communication link between the amplifier and the mobile device, which is required for full access to tuning, configuration, and system control features within the app.

Once paired, the MDSP amplifier will automatically reconnect to the previously connected device whenever it is within range, Bluetooth is enabled on the mobile device, the amplifier is powered on (vehicle ignition on or amplifier power active), and another device is not currently connected to the MDSP. This ensures a reliable and consistent connection during normal system operation without the need to manually re-pair each time the system is used. It also helps maintain a stable wireless link for both audio streaming and real-time DSP adjustments, allowing users to make tuning changes while listening to the system in real time.

For faster access, QR codes are provided below this section—simply scan the appropriate code with your mobile device to be taken directly to the correct App Store listing for your platform.

Once installed, open the app and complete the Bluetooth pairing process with the MDSP amplifier to access all available features and controls.



Connection process and screen appearance may vary slightly depending on mobile device and operating system version.

Downloading the App

The Morel MDSP App can be downloaded directly to compatible iOS and Android devices through the Apple App Store or Google Play Store. Open the appropriate app marketplace on the mobile device, search for “Morel MDSP,” and download the application to enable wireless DSP tuning, amplifier control, and Bluetooth audio streaming.

For faster access, QR codes are provided below this section—simply scan the appropriate code with your mobile device to be taken directly to the correct App Store listing for your platform.

Once installed, open the app and complete the Bluetooth pairing process with the MDSP amplifier to access all available features and controls.



Connecting the App to the MDSP in the App

After the mobile device is paired to the MDSP amplifier via Bluetooth in the device settings, a second connection must be made within the Morel MDSP App to enable full control and tuning. This step connects the app directly to the MDSP Bluetooth interface (BT dongle), confirming the device for system control rather than audio streaming only.

APP CONNECTION STEPS:

1. Open the Morel MDSP App on your mobile device.
2. Ensure Bluetooth is enabled and the MDSP amplifier is powered on (vehicle ignition on or amplifier power active).
3. Tap the top right red Bluetooth icon to start searching for local devices.
4. Select the MDSP amplifier from the list of available devices.
5. If prompted, choose the correct unit from your paired device history (if multiple devices are stored).
6. Wait for the app to confirm the connection.

Once connected, full DSP control, tuning, and system configuration features become available.

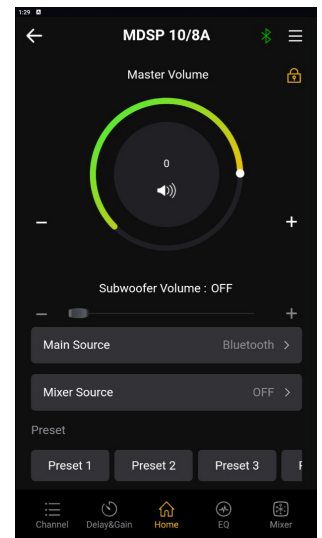
This app-level connection is typically required only during initial setup. Afterward, the device will recognize the MDSP automatically for future use when the amplifier is powered on, Bluetooth is active, and the paired device is in range.

Software Layout

The app is built around a streamlined workflow with the Main Operational Window serving as the central workspace. This area is where all tuning, routing, and system adjustments are performed, providing immediate visual feedback so changes can be evaluated in real time as they are made.

Navigation within the app is organized for fast and intuitive access to core functions. Key controls and system tools are positioned for efficiency, allowing users to move between tuning, routing, and configuration sections without interrupting workflow.

While all MDSP amplifiers share a common feature structure, the app interface remains consistent across models to maintain a familiar user experience. However, some functions and available features may differ depending on the specific amplifier version. Any such variations will be clearly identified throughout this manual where applicable.



Bottom Navigation Bar

The **Bottom Navigation Bar** provides quick access to the MDSP's main control sections, allowing the user to move between all key system functions from a single location. From this bar, the user can switch instantly between Channel selection, Delay & Gain adjustments, Home, EQ, and Mixer views.

This layout keeps the primary tuning and control pages readily available at all times, without requiring the user to exit the current screen or navigate through multiple menus. Each section opens a dedicated control page, providing clear separation of functions and straightforward access to all major adjustment tools within the app.



1.

Channel - The Channel section provides access to individual output channel controls and configuration settings. From this page, the user can adjust channel level, mute status, polarity, channel labeling, and high-pass/low-pass crossover settings, allowing detailed control and customization of each speaker output within the system.

2. **Delay & Gain** - The Delay & Gain section provides access to channel level, delay, polarity, mute, and grouping controls used during the tuning process. This page allows multiple channels to be linked and adjusted simultaneously, simplifying system setup and enabling faster overall tuning adjustments across the system.

3. **Home** - The Home screen provides quick access to the MDSP's primary day-to-day controls and commonly used functions. From this page, the user can adjust Master Volume, Subwoofer Level, select Presets, change audio Sources, and access Mixer Source controls, allowing convenient system operation and fast access to the most frequently used features.

4. **EQ** - The EQ section provides access to the system's equalization controls, allowing the user to navigate between each output channel EQ, input channel EQ, and the device's Global EQ settings. This area is used for tonal shaping, acoustic correction, and overall sound tuning across the entire audio system.

(*MDSP6/4A does not support Input EQ or Global EQ functions)

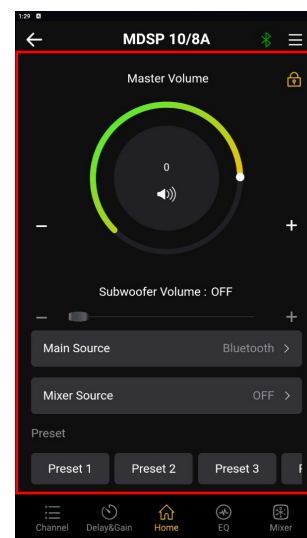
5. **Mixer** - The Mixer section allows the user to configure signal routing and input summing for each output channel within the system. From this page, the user can select an output channel and assign the desired input signals for each available source, providing flexible control over signal distribution, source routing, and channel summing configurations.

Main Operational Window

The **Main Operational Window**, highlighted in red, occupies the central portion of the app and serves as the primary workspace for tuning, routing, and system configuration functions. This area displays the majority of system information, controls, adjustment parameters, and real-time feedback for the currently selected feature or page within the app.

As different functions are selected from the Navigation Bar, the Main Operational Window updates dynamically to display the corresponding controls and adjustment options for that section. The Navigation Bar and Top Status Bar remain visible at all times, allowing quick movement between major functions while maintaining access to system status, connected device information, and settings throughout operation.

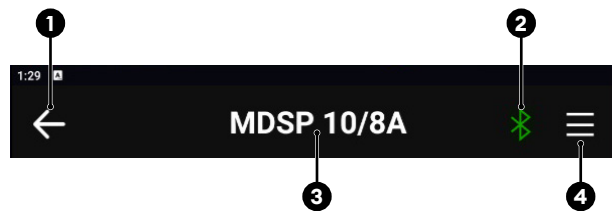
This layout keeps all active controls organized within a single view, reducing the need to navigate through multiple screens during adjustments. It provides a consistent working area where changes can be made and reviewed immediately.



Top Menu Bar

The **Top Menu Bar** provides constant system information and quick access to key app functions. This area displays the currently connected device, including the amplifier model number, along with the current Bluetooth connection status.

In addition, the Settings icon is located within this bar, providing direct access to system preferences and configuration options. The Top Menu Bar remains visible at all times, ensuring the user can quickly confirm connection status and device information without interrupting the current operation.



1. **Back** - The Back function allows the user to return to the previous screen or exit the current selection. When navigating within the app, it provides a simple way to step back through menus without losing current progress or settings.

From the Home screen, using Back will return the user to the device selection page, where previously paired Bluetooth devices can be chosen. This screen also provides access to offline mode options, allowing limited app functionality without an active connection to the MDSP amplifier.

2. **Bluetooth Status** - The Bluetooth Status indicator shows the current connection state between the app and the MDSP amplifier. It provides a clear visual reference of whether the device is connected, searching, or disconnected.

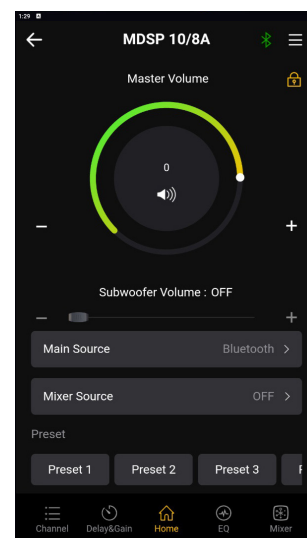
Tapping the Bluetooth Status icon allows the user to either establish a connection to the MDSP or disconnect an active session. This provides direct control over the app-to-device link, ensuring the user can quickly manage connectivity as needed during setup or tuning.

3. **Connected Device** - The Connected Device display shows the currently linked MDSP amplifier along with its model number for easy identification, allowing the user to confirm which unit the app is actively communicating with at any time. When multiple devices are stored, this area helps ensure the correct amplifier is selected and connected for control and tuning, and it automatically updates when the active connection changes or a different device is selected.
4. **Menu / Settings** - The dropdown provides access to system-level functions, file management, and app configuration options, including the ability to save and load tuning files, adjust app settings, and access additional MDSP functions and utilities. This area centralizes advanced controls and preferences outside of the main tuning workflow, keeping the interface clean while still providing full access to system management tools when needed.

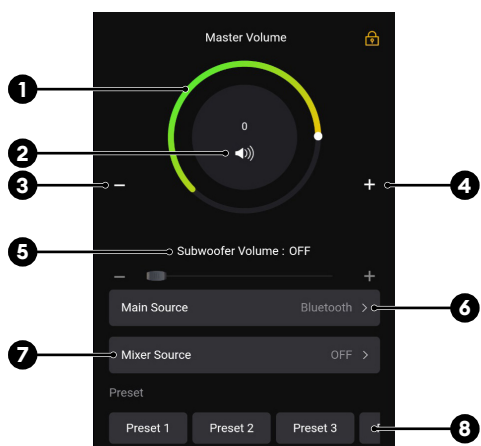
Home Screen

The **Home** screen serves as the central control hub of the app, providing quick access to the MDSP's most commonly used functions and real-time system adjustments. From this screen, the user can control Master Volume and Subwoofer Level, select and manage Presets, change audio Sources, and adjust Mixer Source settings for overall system operation.

This page is designed for everyday use, allowing immediate control over key listening and system functions without entering deeper tuning menus. It also provides a clear overview of system status and active settings, ensuring the user can make quick adjustments during normal operation while maintaining full awareness of the current system configuration.



Home Screen Layout



1. **Volume Indicator** - The Volume Indicator displays the current Master Volume level of the system and allows the user to adjust overall output by dragging the control to the desired level. It provides a clear visual reference of system loudness and enables direct adjustment from the Home screen for immediate volume changes during operation.
2. **Mute** - The speaker icon provides a quick mute function for the entire audio system; when tapped, the system output is muted and the icon turns red with an "X" indicator to confirm mute status. The numeric value shown above the speaker displays the current Master Volume level, and tapping the speaker icon again will unmute the system and restore audio output to the previously set volume level.

3. **Minus** - The minus control is linked to the Master Volume function and is used for fine adjustments to reduce overall system volume. While the volume slider provides a quick way to make larger changes, the minus control allows for more precise, incremental decreases in level for accurate fine-tuning of the listening volume.
4. **Plus** - The plus control is linked to the Master Volume function and is used for fine adjustments to increase overall system volume. While the volume slider provides a quick way to make larger changes, the plus control allows for more precise, incremental increases in level for accurate fine-tuning of the listening volume.

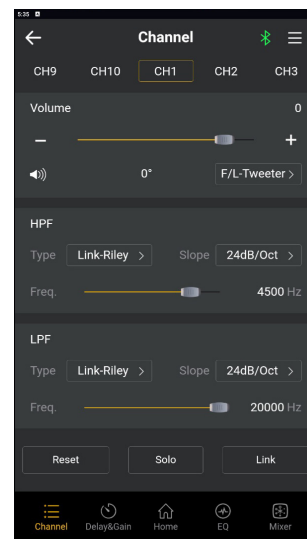


5. **Subwoofer Volume** - The Subwoofer Volume control adjusts the output level of the subwoofer channel within the system. It includes a slider for quick, larger adjustments to overall subwoofer volume, allowing immediate level changes based on listening preference. The plus and minus controls provide fine adjustment capability for more precise level matching, ensuring accurate subwoofer balance within the overall system.
6. **Main Source** - The Main Source display shows the currently selected audio input source for the MDSP system, providing a clear indication of what signal is actively being used. It also allows the user to select from any available input sources supported by the MDSP, enabling quick switching between different audio inputs directly from the Home screen.
7. **Mixer Source** - The Mixer Source function allows an additional audio source to be mixed into the main signal or, if required, override the main source entirely, providing flexibility for integrating secondary inputs such as navigation prompts, alerts, or other vehicle audio information into the system output. This feature is typically configured during installation to match the specific system setup and intended use, and is generally not intended for regular adjustment during everyday operation.
8. **Presets** - The Presets function allows the user to switch between different saved profiles containing tuning, configuration, and system settings. These presets are used to store and recall various system setups within the MDSP, enabling quick changes between different tuning preferences or operating configurations. This feature provides an efficient way to manage multiple system setups for different listening environments or use cases without needing to manually reconfigure settings each time.

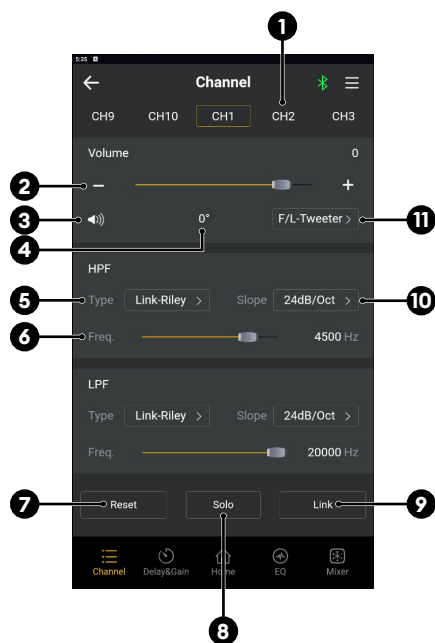
Channel Selection Screen

The **Channel Selector** allows the user to choose the output channel they wish to adjust. Each channel section includes essential controls for system tuning and management, including channel labeling, output level, polarity, delay, mute, solo, and a clipping indicator. When a channel is selected, it illuminates gold to clearly identify the active channel. The graph and EQ display areas automatically update to show the settings and adjustments for the selected output channel.

The adjustment area is divided into three main sections for simplified tuning and system setup. The top section contains the channel output controls, including output level and channel management functions. The middle section contains the High-Pass Filter (HPF) controls, which determine the lowest frequencies the channel will reproduce. The bottom section contains the Low-Pass Filter (LPF) controls, which determine the highest frequencies the channel will reproduce. Together, these sections provide complete control over the channel’s frequency range, output behavior, and speaker integration.



Channel Selector Screen Layout



1. **Channel Selector** - Allows the user to select the output channel to adjust. When selected, the channel illuminates gold to indicate the active channel, while the graph and EQ sections automatically update to display that channel’s settings.
2. **Level** - Displays the current output level setting for the selected channel, providing a precise numerical reference for gain adjustment. Output level can be adjusted from +12 dB through -59.5 dB, down to Off.
3. **Mute** - Temporarily silences the selected output channel without changing its level or settings.
4. **Polarity** - Allows the user to invert the polarity of the selected output channel. This is useful for correcting phase relationships between speakers.

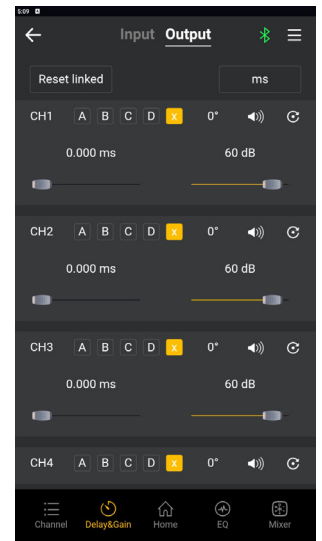
5. **Crossover Type** - The crossover Type determines the filter alignment used for the selected crossover. Available types include Butterworth, Linkwitz-Riley, and Bessel, each offering different phase and roll-off characteristics that affect how frequencies transition between speakers.
6. **Crossover Frequency** - The Frequency setting determines the point at which the crossover begins filtering the signal. This value defines where the High-Pass or Low-Pass filter engages and should be selected based on the speaker’s capabilities and system design.

Delay and Gain

The Delay & Gain window provides centralized control for adjusting output channel gain and delay settings from a single interface, allowing fast and efficient system tuning without needing to individually select each channel. This layout streamlines the tuning process by providing quick access to all channel adjustments in one location for easier system balancing and fine tuning.

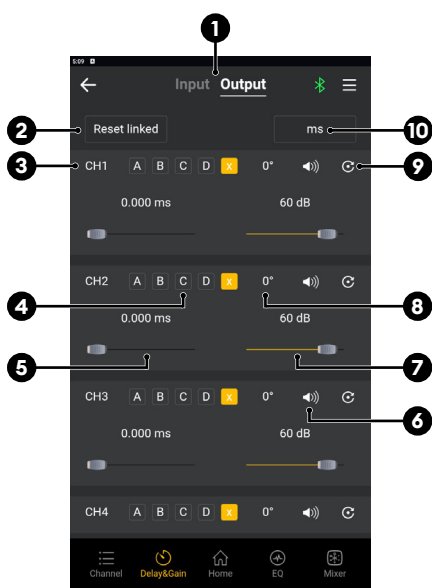
Gain controls are used to balance speaker output levels throughout the system, while delay controls allow precise speaker timing alignment to improve staging, imaging, focus, and overall sound quality within the vehicle. The window also includes channel grouping functionality, allowing multiple channels to be linked together for simultaneous adjustments. This is especially useful when tuning speaker pairs, subwoofers, or channel groups that require matching or proportional changes.

On the MDSP6/4A, the Delay & Gain window is limited to output channel adjustments only. Input delay correction and OEM signal timing compensation functions are not available on this model.



Output Delay and Gain Screen Layout

The Output Delay & Gain screen provides adjustment of the gain and delay settings for each output channel individually. Gain controls are used to balance speaker output levels throughout the system, while delay controls are used to align speaker timing for improved staging, imaging, and overall sound quality. This screen allows precise tuning of each speaker channel to optimize system balance, listener positioning, and overall audio performance.



- 1. Input / Output Selector** - The Input and Output selector allows quick switching between input delay settings and output delay settings within the Delay & Gain window. This provides fast access to the desired adjustment section, making it easier to configure and fine-tune both input and output signal timing during system setup and tuning.
- 2. Reset Linked** - Reset Linked removes all active channel groupings, unlinking the channels so they can once again be adjusted independently. This allows individual delay and level settings to be modified separately for each channel after grouped adjustments have been completed, providing greater flexibility and precision during detailed system tuning and final adjustments.

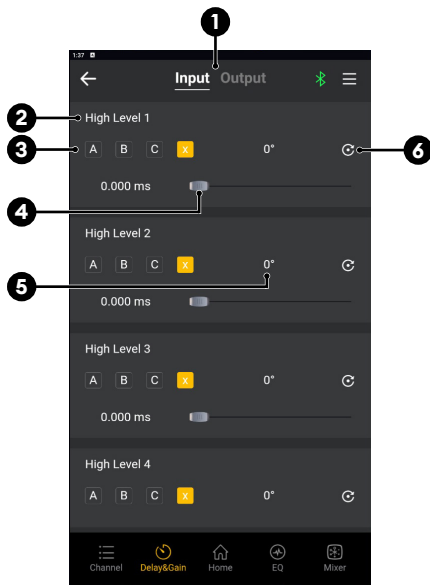
- 3. Channel Indicator** - Displays which channel is currently being adjusted within the Delay & Gain window, providing clear visual feedback during tuning. It updates in real time as channels are selected or grouped, helping ensure the correct channel settings are being modified during system setup and fine tuning.

4. **Channel Grouping** - Channel grouping allows the user to select multiple channels and adjust them simultaneously for more efficient system tuning. When using output mode, grouped channels can be adjusted together for both level and delay, ensuring consistent changes across all selected outputs. This feature is especially useful for matching speaker pairs or managing multiple channels that require identical or proportional adjustments, helping streamline setup and maintain system balance.
5. **Delay** - Adjusts the time delay applied to the selected output channel. This is used for time alignment, ensuring sound from different speakers reaches the listener at the correct time.
6. **Mute** - The speaker icon provides a quick mute function for the entire audio system; when tapped, the system output is muted and the icon turns red with an "X" indicator to confirm mute status. The numeric value shown above the speaker displays the current Master Volume level, and tapping the speaker icon again will unmute the system and restore audio output to the previously set volume level.
7. **Channel Level** - Displays the current output level setting for the selected channel, providing a precise numerical reference for gain adjustment. Output level can be adjusted from +12 dB through -59.5 dB, down to Off.
8. **Polarity** - Allows the user to invert the polarity of the selected output channel. This is useful for correcting phase relationships between speakers.
9. **Channel Reset** - Channel Reset restores the selected channel's settings to their default state. This clears all delay and level adjustments, returning the channel to its original configuration. It is useful for quickly undoing changes during tuning or starting fresh with a clean baseline for further adjustments.
10. **Delay Units** - Delay Units allows the user to select the measurement format used for delay adjustments. Delay values can be displayed and adjusted in inches, centimeters, or milliseconds, providing flexibility based on the user's preferred tuning method and workflow. This allows delay settings to be configured using either physical speaker distance or direct timing values for precise system alignment.

NOTE: Changing the selected unit only changes how the delay value is displayed and adjusted. The software does not automatically calculate or convert speaker distance into acoustic delay compensation, and all entered values are treated as direct distance or time values.

Input Delay Screen Layout

The Input Delay screen allows delay adjustments to be applied to each input channel independently. This is primarily used to compensate for delays present in OEM audio systems, helping restore proper signal alignment before processing and tuning within the DSP. Adjusting input delays can help correct factory time alignment, improve signal coherence, and create a more consistent foundation for overall system tuning and integration.



1. **Input / Output Selector** - The Input and Output selector allows quick switching between input delay settings and output delay settings within the Delay & Gain window. This provides fast access to the desired adjustment section, making it easier to configure and fine-tune both input and output signal timing during system setup and tuning.

2. **Channel Indicator** - The Channel Indicator displays which channel is currently being adjusted within the Delay & Gain window. This provides clear visual feedback during tuning, ensuring the user always knows which channel's settings are active and being modified. It updates in real time as channels are selected or grouped, helping prevent confusion when making adjustments across multiple outputs. This is especially useful during fine tuning, where precise identification of the active channel is critical for accurate system setup and alignment.

3. **Channel Grouping** - Channel grouping allows the user to select multiple channels and adjust them simultaneously for more efficient system tuning. When using output mode, grouped channels can be adjusted together for both level and delay, ensuring consistent changes across all selected outputs. This feature is especially useful for matching speaker pairs or managing multiple channels that require identical or proportional adjustments, helping streamline setup and maintain system balance.

4. **Delay** - Adjusts the time delay applied to the selected output channel. This is used for time alignment, ensuring sound from different speakers reaches the listener at the correct time.

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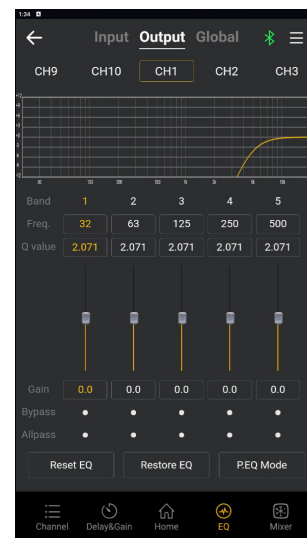
6. **Channel Reset** - Channel Reset restores the selected channel's settings to their default state. This clears all delay and level adjustments, returning the channel to its original configuration. It is useful for quickly undoing changes during tuning or starting fresh with a clean baseline for further adjustments.

Equalization

The EQ section provides comprehensive equalization control for shaping and refining system frequency response through adjustable filtering. EQ can be applied at different stages of the signal path, depending on the available processing options.

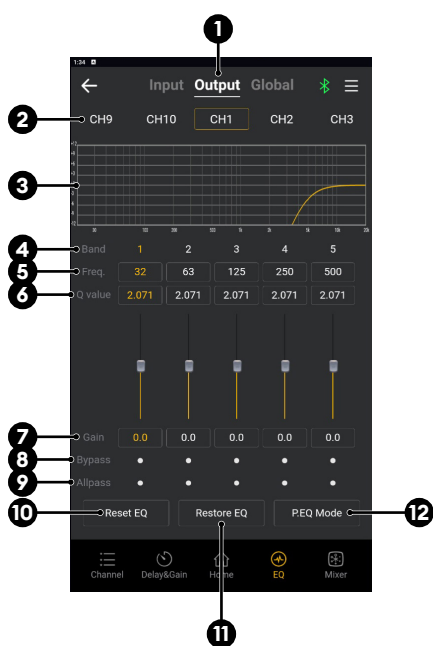
Input Correction is used to adjust and normalize the incoming signal before it is distributed through the system, helping compensate for source or OEM signal characteristics (not available on the MDSP6/4A). Output Correction provides independent EQ control for each output channel, allowing precise tuning of individual speakers to achieve balanced response, improved clarity, and proper system integration. Global EQ applies broad adjustments across all channels simultaneously for overall tonal shaping (not available on the MDSP6/4A).

Together, these EQ stages provide flexible control over system response, allowing precise correction at the input level, detailed tuning at the output level, and overall tonal adjustment where supported.



Output Equalization Screen Layout

The Output Equalization screen allows EQ adjustments to be applied to each output channel independently. This is used to fine-tune the frequency response of individual speakers, helping achieve balanced system performance, improved clarity, and proper integration between drivers. Adjustments made in this section shape the tonal output of each channel after processing, allowing precise control over the final sound of the system.

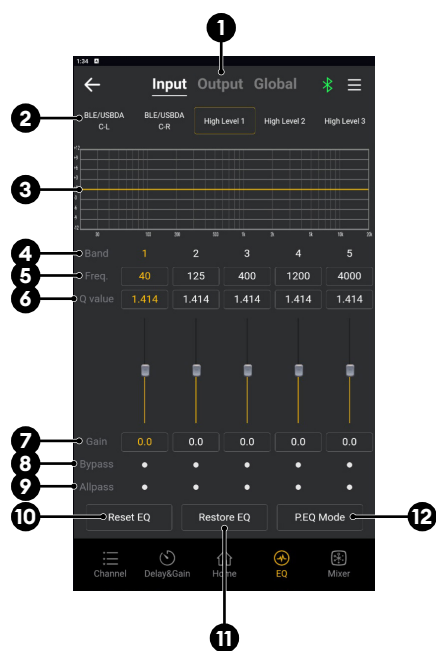


- 1. Input / Output / Global Selector** - The Input, Output, and Global selector allows quick switching between input equalization, output equalization, and global equalization processing within the Equalization window. This provides fast access to each processing stage, making it easier to apply and refine EQ adjustments during system setup and tuning.
- 2. Channel Selector** - Allows the user to select the output channel to adjust. When selected, the channel illuminates gold to indicate the active channel, while the graph and EQ sections automatically update to display that channel's settings. This ensures all adjustments are clearly tied to the active output, providing accurate feedback during tuning. It also helps streamline workflow by immediately reflecting any changes made to EQ or crossover settings for the selected channel, allowing for faster and more precise system configuration.

3. **Graph** - The graph provides a visual representation of the combined equalization and crossover settings applied to the selected channel. It does not reflect real-world acoustic measurements, but instead shows how the active filters and EQ adjustments shape the signal before output. This allows the user to clearly see the overall processing curve and understand how each setting contributes to the final signal response during tuning.
4. **EQ Band Number** - EQ Band Number displays the specific EQ band currently being adjusted, providing clear identification during tuning. This helps the user quickly understand which frequency band is active, ensuring precise and efficient adjustments without confusion when working across multiple EQ bands.
5. **Frequency** - Sets the center frequency of the selected EQ band, determining which part of the audio spectrum will be affected by the adjustment. This allows precise targeting of specific frequency ranges for detailed tonal shaping and system tuning.
6. **Q-Value** - Controls the width of the selected EQ band, determining how much of the surrounding frequency range is affected. Lower Q-values create a wider, more gradual adjustment that impacts a larger range of frequencies, while higher Q-values produce a narrower, more focused adjustment for precise control over a smaller frequency range.
7. **Gain** - Controls the level adjustment applied to the selected EQ band, allowing frequencies to be boosted or attenuated. The adjustment range is +12 dB to -12 dB, providing flexible control for shaping tonal balance, reducing problem frequencies, or enhancing specific parts of the audio spectrum during tuning.
8. **Bypass** - Allows the user to quickly enable or disable the selected EQ band. This provides an easy way to compare the audio with and without the applied filter, helping verify that the adjustment is having the desired effect on the system response during tuning.
9. **Allpass** - Switches the selected EQ band to an allpass filter mode. Instead of changing the amplitude of the affected frequencies, an allpass filter alters the phase response while maintaining a flat frequency level. This allows for phase alignment adjustments without impacting tonal balance.
10. **Reset EQ** - Clears all applied EQ adjustments and restores the selected channel to its default flat settings. This provides a quick way to remove all filtering changes and return to a neutral baseline for re-tuning or starting a new adjustment process.
11. **EQ Bypass / Restore** - Allows the user to bypass or restore all EQ bands at the same time. This provides a quick way to disable all equalization for comparison or troubleshooting, and just as easily re-enable all previously applied EQ settings to return to the active tuning curve.
12. **PEQ / GEQ** - This switches the EQ bands between Parametric EQ and Graphic EQ modes. In Parametric mode, each band allows full control of frequency and Q for precise shaping. In Graphic mode, the frequency and Q values are locked, allowing only gain adjustments for each fixed band.

Input Equalization Screen Layout

The Input Equalization screen allows EQ adjustments to be applied to each input channel independently. This is used to shape and condition the incoming signal before it is distributed to the output channels, helping correct source or OEM signal characteristics and establish a balanced foundation for system tuning. Adjustments made in this section affect the overall tonal response of the signal prior to processing, allowing precise control over how the audio is fed into the system.



- 1. Input / Output / Global Selector** - The Input, Output, and Global selector allows quick switching between input equalization, output equalization, and global equalization processing within the Equalization window. This provides fast access to each processing stage, making it easier to apply and refine EQ adjustments during system setup and tuning.
- 2. Channel Selector** - Allows the user to select the output channel to adjust. When selected, the channel illuminates gold to indicate the active channel, while the graph and EQ sections automatically update to display that channel's settings. This ensures all adjustments are clearly tied to the active output, providing accurate feedback during tuning. It also helps streamline workflow by immediately reflecting any changes made to EQ or crossover settings for the selected channel, allowing for faster and more precise system configuration.

- 3. Graph** - The graph provides a visual representation of the combined equalization and crossover settings applied to the selected channel. It does not reflect real-world acoustic measurements, but instead shows how the active filters and EQ adjustments shape the signal before output. This allows the user to clearly see the overall processing curve and understand how each setting contributes to the final signal response during tuning.
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- 6. Q-Value** - Controls the width of the selected EQ band, determining how much of the surrounding frequency range is affected. Lower Q-values create a wider, more gradual adjustment that impacts a larger range of frequencies, while higher Q-values produce a narrower, more focused adjustment for precise control over a smaller frequency range.
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8. **Bypass** - Allows the user to quickly enable or disable the selected EQ band. This provides an easy way to compare the audio with and without the applied filter, helping verify that the adjustment is having the desired effect on the system response during tuning.
9. **Allpass** - Switches the selected EQ band to an allpass filter mode. Instead of changing the amplitude of the affected frequencies, an allpass filter alters the phase response while maintaining a flat frequency level. This allows for phase alignment adjustments without impacting tonal balance.
10. **Reset EQ** - Clears all applied EQ adjustments and restores the selected channel to its default flat settings. This provides a quick way to remove all filtering changes and return to a neutral baseline for re-tuning or starting a new adjustment process.
11. **EQ Bypass / Restore** - Allows the user to bypass or restore all EQ bands at the same time. This provides a quick way to disable all equalization for comparison or troubleshooting, and just as easily re-enable all previously applied EQ settings to return to the active tuning curve.
12. **PEQ / GEQ** - This switches the EQ bands between Parametric EQ and Graphic EQ modes. In Parametric mode, each band allows full control of frequency and Q for precise shaping. In Graphic mode, the frequency and Q values are locked, allowing only gain adjustments for each fixed band.

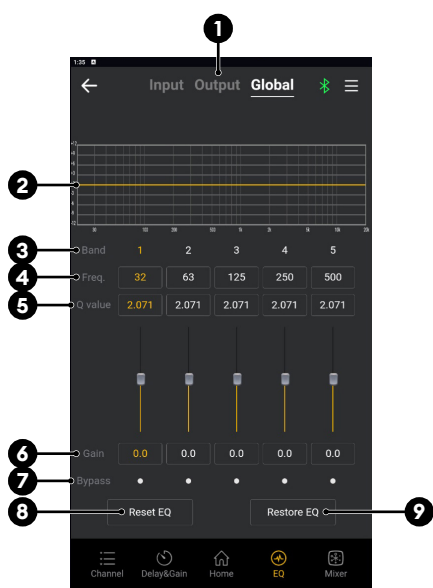
Global Equalization Screen Layout

The Global Equalization screen allows EQ adjustments to be applied across all channels simultaneously. This processing stage is used to make broad tonal corrections that affect the entire system equally, ensuring a consistent and balanced frequency response regardless of individual channel or speaker settings. Global EQ is typically used during the final stages of tuning to refine the overall character of the system after input and output equalization have been completed.

Adjustments made within the Global Equalization section are applied to the combined signal path, allowing installers to quickly shape the entire audio system without needing to individually modify each output channel. This can be useful for compensating for overall vehicle acoustics, adjusting tonal balance to listener preference, or making quick system-wide refinements during the tuning process.

Because Global EQ affects every channel simultaneously, changes made here should generally be more subtle and broad in nature compared to Output EQ adjustments. This helps maintain the integrity of individual channel tuning while still allowing precise control over the final overall sound signature of the system.

NOTE: Global Equalization functionality is not available on the MDSP6/4A.



1. **Input / Output / Global Selector** - The Input, Output, and Global selector allows quick switching between input equalization, output equalization, and global equalization processing within the Equalization window. This provides fast access to each processing stage, making it easier to apply and refine EQ adjustments during system setup and tuning.

2. **Graph** - The graph provides a visual representation of the combined equalization and crossover settings applied to the selected channel. It does not reflect real-world acoustic measurements, but instead shows how the active filters and EQ adjustments shape the signal before output. This allows the user to clearly see the overall processing curve and understand how each setting contributes to the final signal response during tuning.

3. **EQ Band Number** - EQ Band Number displays the specific EQ band currently being adjusted, providing clear identification during tuning. This helps the user quickly understand which frequency band is active, ensuring precise and efficient adjustments without confusion when working across multiple EQ bands.

4. **Frequency** - Sets the center frequency of the selected EQ band, determining which part of the audio spectrum will be affected by the adjustment. This allows precise targeting of specific frequency ranges for detailed tonal shaping and system tuning.

5. **Q-Value** - Controls the width of the selected EQ band, determining how much of the surrounding frequency range is affected. Lower Q-values create a wider, more gradual adjustment that impacts a larger range of frequencies, while higher Q-values produce a narrower, more focused adjustment for precise control over a smaller frequency range.

6. **Gain** - Controls the level adjustment applied to the selected EQ band, allowing frequencies to be boosted or attenuated. The adjustment range is +12 dB to -12 dB, providing flexible control for shaping tonal balance, reducing problem frequencies, or enhancing specific parts of the audio spectrum during tuning.

7. **Bypass** - Allows the user to quickly enable or disable the selected EQ band. This provides an easy way to compare the audio with and without the applied filter, helping verify that the adjustment is having the desired effect on the system response during tuning.

8. **Reset EQ** - Clears all applied EQ adjustments and restores the selected channel to its default flat settings. This provides a quick way to remove all filtering changes and return to a neutral baseline for re-tuning or starting a new adjustment process.

9. **EQ Bypass / Restore** - Allows the user to bypass or restore all EQ bands at the same time. This provides a quick way to disable all equalization for comparison or troubleshooting, and just as easily re-enable all previously applied EQ settings to return to the active tuning curve.

Mixer

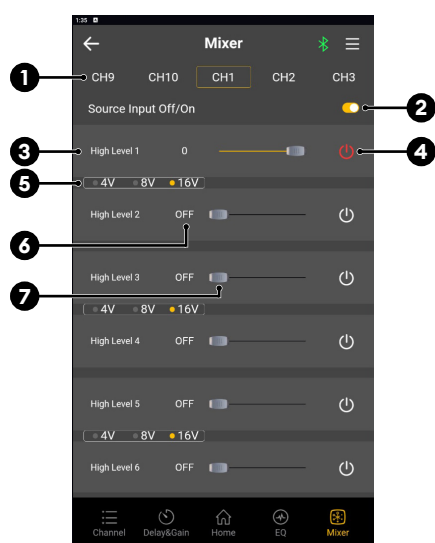
The Mixer handles input-to-output routing, signal level control, and input summing, serving as the central hub for managing how audio signals are distributed throughout the system. From this window, inputs can be assigned to specific output channels, allowing flexible system configuration for a variety of installations, including active systems, multi-channel setups, and OEM integration applications. The Mixer also provides input summing functionality, allowing multiple input channels to be combined into a full-range signal when working with factory audio systems that use separated frequency outputs.

In addition to routing and summing, the Mixer serves as the primary gain-setting interface for the processor or amplifier. Input sensitivity and signal levels can be adjusted to properly match the incoming source voltage, helping maximize dynamic range while minimizing clipping, distortion, and unwanted noise. Proper gain structure established within the Mixer is critical for achieving optimal system performance and sound quality. Depending on the connected device, the Mixer window layout, available routing options, and control functions may vary.



Mixer Screen Layout

The Output Equalization screen allows EQ adjustments to be applied to each output channel independently. This is used to fine-tune the frequency response of individual speakers, helping achieve balanced system performance, improved clarity, and proper integration between drivers. Adjustments made in this section shape the tonal output of each channel after processing, allowing precise control over the final sound of the system.



1. **Channel Selector** - The output channel selector is used to navigate between available output channels within the Mixer window. When selected, the active channel illuminates gold to indicate which output is currently being configured, while the routing and level controls automatically update to display that channel's settings. This makes it possible to assign desired input channels, configure input summing, and adjust signal levels for each output independently, providing clear visual feedback and streamlining system setup and tuning.
2. **Source Input Off / On** - Enables or disables the selected input source within the Mixer. When turned on, the input source becomes available for routing and can be assigned to any output channel as needed. When turned off, the source is removed from the routing matrix and can no longer be used or assigned within the system. This provides quick control over which inputs are active and available during system configuration and tuning.

3. **Channel Indicator** - Displays which output channel is currently being adjusted within the Mixer window, providing clear visual feedback during routing and level configuration. The display updates in real time as different output channels are selected, helping ensure the correct channel assignments, summing, and signal level adjustments are being modified during system setup and tuning.
4. **Input Channel Power Button** - Enables or disables the selected input channel for the current output channel. When turned on, the input is assigned and active for that output; when turned off, it is unassigned and removed from the routing path. This provides a quick and efficient way to control input-to-output assignments during system setup and tuning.
5. **High-Level Input Voltage Range Selector** - The High-Level Input Voltage Range Selector adjusts the scaling of the input sensitivity slider based on the expected high-level input voltage range. This ensures the sensitivity control is properly aligned to the incoming signal, allowing for more precise and usable adjustment across its range.

For most high-level inputs, three ranges are available: 4V, 8V, and 16V. The 4V setting is used for signals from 0-4V, the 8V setting for 4-8V, and the 16V setting for 8-16V. Selecting the correct range optimizes resolution and accuracy of the sensitivity control for the connected source.

High-level inputs 7 and 8 also include an additional 30V range option, which supports input signals from 16-30V. This should be selected only when higher-voltage factory systems are present.

NOTE: High-level input is the only input type that includes voltage range selection. The MDSP6/4A does not include range selection and instead uses a fixed sensitivity slider adjustable from 1V-10V.

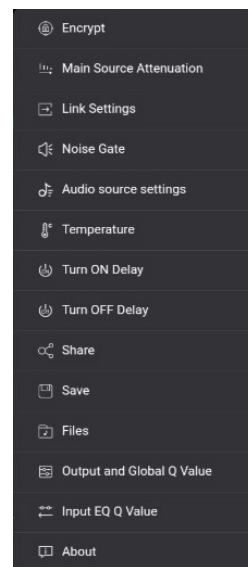
6. **Input Sensitivity Indicator** - The input sensitivity indicator displays the current sensitivity setting applied via the slider, with a range from +6 dB to -48 dB. This provides a clear visual reference of the active gain level for each input channel. The indicator updates in real time as adjustments are made, ensuring accurate feedback during setup and tuning. Each input can also be enabled or disabled using the adjacent power button, allowing quick control over whether the signal is active within the system.
7. **Input Sensitivity Slider** - Input sensitivity is adjusted using the slider bars, with a range from +6 dB to -48 dB. Each input can also be disabled using the power button next to the slider. This allows the incoming signal to be properly matched to the amplifier's output capability for optimal performance.

Main Menu and Options

The **Main Menu** (Hamburger Menu) is located in the top-left corner of the application and is accessed by selecting the three-line icon. When opened, it expands into a drop-down menu that provides access to all system-level settings, configuration options, and device controls for the unit.

This menu acts as the central navigation point for the application, organizing key functions such as device settings, system configuration, firmware management, and other advanced options in one location. It also provides access to deeper internal DSP parameters and advanced feature controls that are not part of the main tuning workflow, allowing experienced users to fine-tune system behavior and processing behavior at a more detailed level. These settings are intended for advanced configuration and system-level optimization beyond standard setup tools.

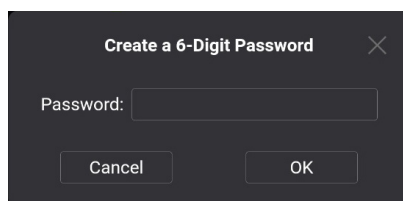
In addition, the menu may include diagnostic tools, channel configuration utilities, and system status information used during installation and troubleshooting. These functions are typically not required for everyday tuning but are essential for setup verification and advanced system integration. By grouping these capabilities in one place, the interface keeps the main workspace clean while still providing full access to the processor's internal capabilities when needed.



MDSP10/8A Pictured

ENCRYPT

The **Encrypt** function secures the DSP by locking all tuning and adjustment capabilities behind a password. When enabled, it prevents any changes to system settings, including EQ, crossover, routing, delay, mixer configuration, and gain adjustments, ensuring the configuration remains protected from unauthorized access or accidental modification.

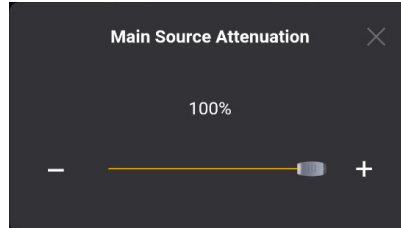


Once encrypted, the DSP remains fully operational using the currently stored settings, but all tuning controls and editable parameters are restricted until the correct password is entered. This allows the system to continue functioning normally while preventing unwanted changes to the calibration or setup. The password protection is especially useful after the tuning process has been finalized, helping preserve system performance and consistency over time.

To regain access to tuning and system controls, the unit must be unlocked using the proper password. This feature is intended for protecting finalized setups, maintaining installer configurations, and ensuring system integrity once tuning has been completed. It can also help prevent accidental adjustments during daily use or when the system is serviced or transferred between users.

MAIN SOURCE ATTENUATION

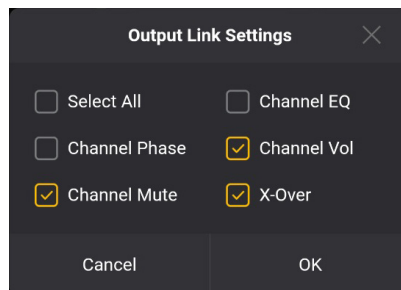
Main Source Attenuation works in conjunction with your selected Mixer Source to control how much the Main Source is reduced while the Mixer Source is playing. The Mixer Source always plays at 100% of its level, while the Main Source is turned down according to the attenuation setting. This function provides the tuner with flexible options to optimize the listening experience.



EXAMPLE: If Main Source Attenuation is set to 50% and the Mixer Source is sending navigation prompts, the Main Source will play at 50% of its current volume while the Mixer Source remains at 100%. This allows music to continue in the background while navigation prompts are clearly heard.

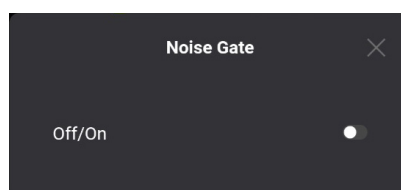
LINK SETTINGS

The **Link Settings** menu allows the user to select which functions of each output channel are mirrored when Link is active. Available options include Polarity, Level, Mute, Crossover, and EQ. A check mark in the box indicates that the function is enabled and will apply adjustments to both channels with the same channel labeling.



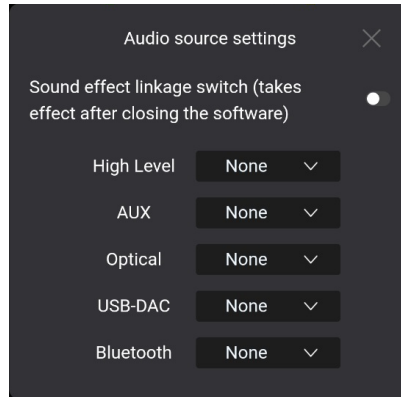
NOISE GATE

The **Noise Gate** setting helps reduce or eliminate unwanted hiss, hum, or low-level noise in the audio playback. When enabled, it attenuates audio signals that fall below a certain threshold, effectively removing the quietest portions of the signal where noise typically resides. This results in a cleaner, more focused sound, especially at lower listening levels, without affecting the main content of the audio.



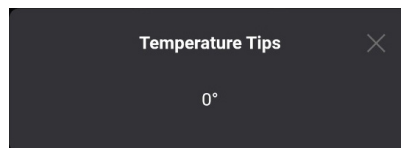
AUDIO SOURCE SETTINGS

The **Audio Source** feature must be turned on for this function to work. The **Audio Source Setting** allows the user to assign a specific source to a preset. When the listener selects that source, either from the Remote (DRC) or the mobile app, the associated preset will automatically load, ensuring the correct settings are applied for that input. After the feature is turned on and all settings are assigned, a power cycle is required for the function to operate properly.



TEMPERATURE

The Temperature display shows the current operating temperature of the DSP, providing real-time monitoring of the device’s internal thermal condition. This helps ensure the unit remains within a safe operating range during use and can be useful for system diagnostics and performance monitoring.



NOTE: The MDSP6/4A does not provide a visible temperature readout, but it does include internal thermal protection that will automatically limit or shut down operation if unsafe temperature levels are reached.

TEMPERATURE PROTECTION

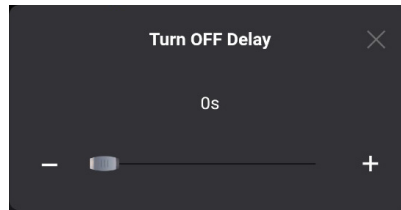
The **Temperature Protection** feature controls the built-in thermal safety system on the MDSP6/4A. It will automatically shut the unit down if internal temperatures exceed safe operating limits to protect the device.

This menu is specific to the MDSP6/4A, as temperature protection is mandatory across all MDSP products. Normal operation resumes automatically once safe temperatures are restored.



TURN OFF DELAY

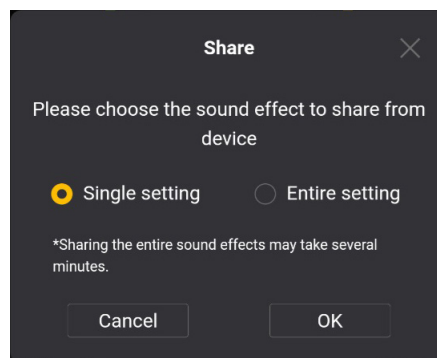
This setting delays the shutdown of the DSP and the Remote Out for a specified period of time, from 0 to 255 seconds. It can help prevent turn-off pops and avoid unexpected issues in the vehicle's audio system while shutting down.



SHARE

The **Share** function exports and saves DSP preset data for backup, transfer, or future use. Users can save a single preset or export all presets stored within the device, creating files that can be archived locally or shared with another tuner or installer.

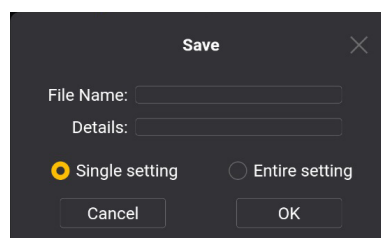
Shared files retain tuning information such as EQ, crossover, delay, routing, mixer configuration, and gain settings, allowing configurations to be quickly restored without manual retuning. This feature is useful for backing up finalized tunes, transferring setups between devices, and maintaining consistent system configurations.



SAVE

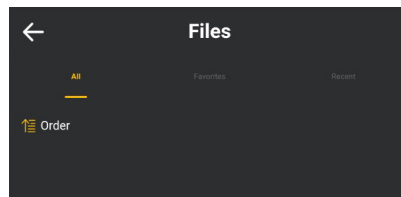
The **Save** function stores the current DSP configuration directly to the connected device, preserving all active tuning and processing settings including EQ, crossover, delay, routing, mixer configuration, and gain adjustments.

Users can choose to save the current settings to a single preset or save all presets stored within the device. Saving ensures all changes made during setup and tuning are retained after the device is powered off or disconnected, allowing configurations to be recalled later as needed.



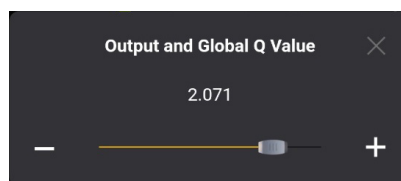
FILE

The File menu allows saved preset files or shared tuning files to be loaded into the software. This provides quick access to previously saved configurations, backup files, or tuning files shared by other users or installers for restoration, editing, or transfer to the connected DSP.



OUTPUT AND GLOBAL Q-VALUE

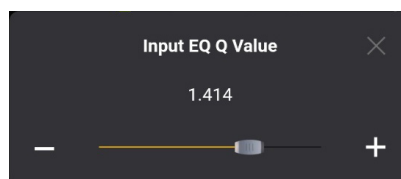
This setting adjusts the default Q value for each EQ band on the Output and Global work windows. The default value is 2.071. Increasing the Q value may create gaps between bands if individual band frequencies are not adjusted accordingly, while decreasing the Q value may cause significant overlap between EQ bands. Changing this value updates all bands and overrides any previous Q adjustments, so it is recommended to set the desired Q value before beginning the tuning process.



NOTE: The MDSP6/4A does not include Output EQ or Global functionality, so this setting is not available on that model for Output or Global processing.

INPUT Q-VALUE

This setting defines the default Q value applied to each EQ band in the Input and Output work windows. The default value is 1.414. Raising the Q value can create spacing gaps between adjacent bands if frequencies are not adjusted accordingly, while lowering the Q value increases overlap between EQ bands. Any change to this setting is applied across all bands and will overwrite existing Q settings, so it is best to establish the desired Q value before beginning the tuning process.

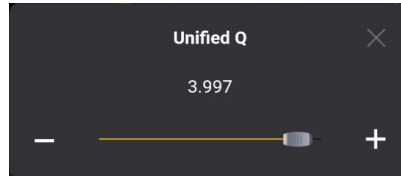


NOTE: The MDSP6/4A does not include Input EQ functionality, so this setting is not available on that model for Input processing.

UNIFIED Q-VALUE

The Unified Q setting on the MDSP6/4A adjusts the Q value for all Output EQ bands at the same time. Changing this value updates the bandwidth of every Output EQ band, ensuring a consistent filter shape across all channels.

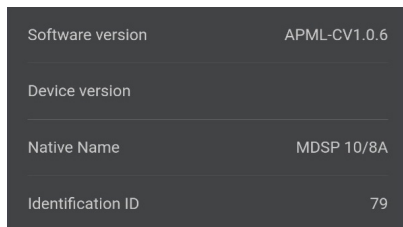
This provides a quick way to refine overall Output EQ behavior without adjusting each band individually. Any change applies globally and overrides existing individual band Q settings.



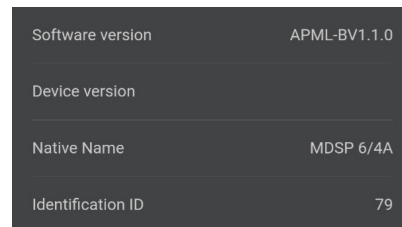
ABOUT

The About section displays firmware details and key device information for the connected DSP. This includes the current firmware version, hardware model identification, and other relevant system data used to verify proper device operation.

It is primarily used as a reference during setup, firmware updates, and troubleshooting to ensure the correct software version is installed and the device is functioning as expected. This information can also be helpful when diagnosing issues or confirming compatibility with specific configurations or tuning files.



MDSP10/8A Pictured



MDSP6/4A Pictured

How to Use Offline Mode for the App

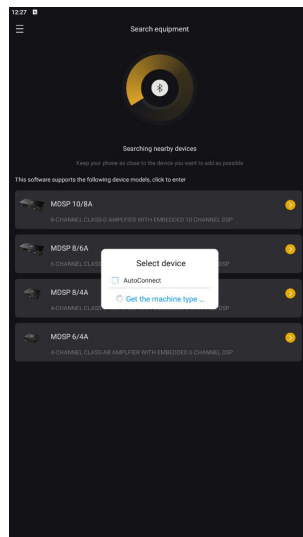
The MDSP App can be used in offline mode, allowing users to explore and navigate the interface without the amplifier being connected to the computer. In this mode, users can familiarize themselves with the App features, adjust settings, and review presets, providing a hands-on tour of the system without requiring a live amplifier connection.

Follow the steps below to use the MDSP App offline:

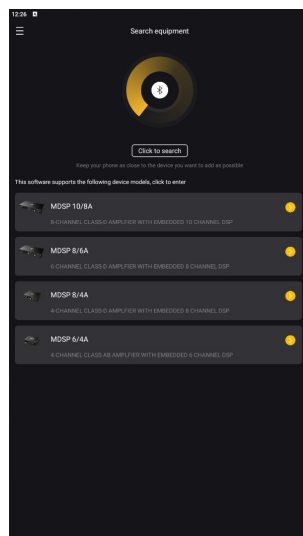
1. Launch the MDSP App.



2. Tap the screen away from the device search on somewhere on the main page.



3. Tap the gold arrow next to the device you want to use in Offline Mode.



Troubleshooting

Symptom	Possible Cause	Remedy
1 No device detected in software launch window.	Bluetooth not paired in phone.	Ensure the MDSP has been paired to your phone (see page 2).
	Connection timed out before device was seen.	The App will continuously check for available bluetooth devices until the search is skipped. If auto-search is not working, tap the "Click to search" button.
	Another device is already connected to the Bluetooth.	Ensure no other phones or tablets are already connected to the MDSP-BT.
	Faulty Bluetooth device.	May need to make sure the Bluetooth device is plugged all the way in or replacement of the Bluetooth dongle may be needed.
2 There is no output audio.	Master Volume is turned all the way down.	On the DRC, in the App, or in the Morel DSP Software, turn up the Master Volume until at desired output. Warning: It is suggested to turn down the source unit to a comfortable level before adjusting Master volume to in case output is set to loud.
	All channels muted.	In the Morel DSP Software, unmute the individual channels or unmute the Master Volume Control.
	The correct source is not selected.	Change the source in the DRC, the Bluetooth App, or in the Morel DSP Software.
	Mixer settings are incorrect.	Make sure that the proper source is being sent to the proper output. If settings are for High-Level and using Low-Level, output will never be able to happen.
	Amplifier is in protect.	Check for illuminated PROTECT light on amplifier. Power cycle the amplifier. If sound continues to shut off, an impedance check should be done on the connected speakers to ensure no shorts are present. Wrong turn on option is selected.
3 Not getting full range sound.	Crossovers are not correctly applied	Make sure that the high-pass and low-pass are not reversed in the settings.
	OEM audio system has crossovers applied to the input signal for the amplifier.	The outputs should be verified using an oscilloscope and RTA to confirm the frequencies being produced.
		If the outputs are crossed over, they must be combined with other channels to achieve a full-range signal. Check the MDSP outputs to determine which channels require additional mixing.



Troubleshooting

	Symptom	Possible Cause	Remedy
4	Power LED stays on after vehicle turns off	The MDSP stays on after REM IN or Accessory is turned off	A delay on turn off is normal. This ensures all components of the system are powered down in the proper order. This turn off delay time can be altered through the Morel DSP Software. If this time was set by an installation shop, the time should likely not be changed or issues may arise.
5	Distortion of sound in playback	EQ bands are too high	Go into the Home, Input, and Global pages to validate no EQ bands are boosted too high. EQ bands should be cut in practice and only boosted if needed and enough headroom is left in the amplifier. Verifying proper headroom can be checked with the CLIPPING INDICATOR on each channel to ensure no harmful signal are present.
6	Engine whine or engine speed dependent noise is present	RCAs are run next to the main power wire	Isolate the RCAs by moving them to the opposite side of the vehicle or as far away from the power wire as possible (more than 2 feet).
		There is a ground loop issue	The ground may not have good contact with the chassis of the vehicle. Clean any paint or intrusion between the contact of the ground wire (ring terminal) and the actual metal of the vehicle.
			A ground reference wire needs to be run to connect the ground of the source unit to the amplifier.
			The ground is physically loose. Tighten and check audio.

x

Wishing you many years of sound enjoyment!



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