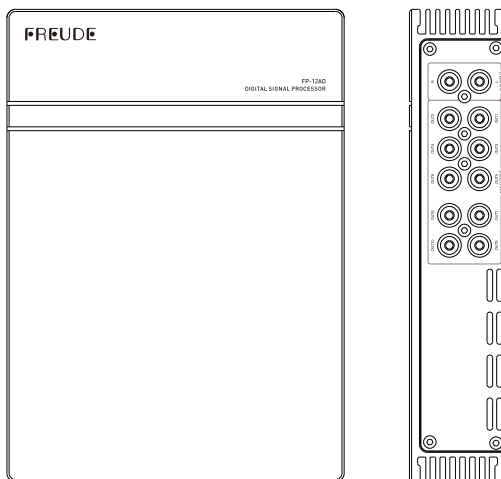




OWNER'S MANUAL



FP-12AD

10 CHS DSP + 12 CHS AMPLIFIER

WARNING

PLEASE READ CAREFULLY BEFORE INSTALLING OR OPERATING THIS UNIT!

Contents

Part 1: Hardware Interface Introduction

Part 2: User Interface Software Introduction

Part 3: Technical Specification

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WARNING

· To prevent short circuit, please keep the device away from water or wet places.

· If water or any other liquid soak into the device, cut off the power immediately, and call our service engineer of inspection, in case of emergency.

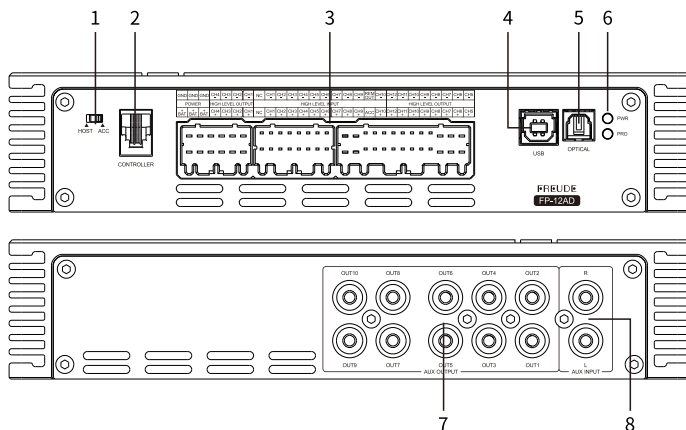
· There is no repairing unit inside for user, please do not try to disassemble the bottom cover. Any problem please contact our service engineers in time.

| Packing List

The following items should be placed in the gift box according to the model you purchased. If there is any missing, please inform the seller or manufacturer as soon as possible.

- | | |
|--|--------|
| · FP-12AD | · 1pc |
| · User Manual | · 1pc |
| · Power And High Level Composite Cable | · 3pcs |
| · Installation Bracket | · 4pcs |
| · Machine Screws | · 8pcs |

| Hardware Interface Introduction



1. The turn on/off method switch:

When the switch is turned to the "ACC" mode, the on and off of device are controlled by the ACC voltage of the vehicle. When switch to the "HOST" mode, the device is turn on by the DC signal input from high level In1+/. Note: Some vehicles' speaker level has no DC signal output, in this case you need to use the "ACC" to control the machine; while, some vehicles turn off the speaker DC level signal only when turning off vehicle and lock the vehicle door.

2. Control Board Interface: External Control Panel with Rj11

3. Main connector Input output terminal:

4. USB Type B: connect to audio software which named tuning controlled by PC; driver-free automatic installation.

5. Digital - Optical Fiber Input Interface: Capable of connecting 1 set of optical fiber inputs (stereo L/R).

6. Power/Protection Indicator:

Normal operation is indicated by a green light. In case of malfunction or protection activation, a red light will illuminate.

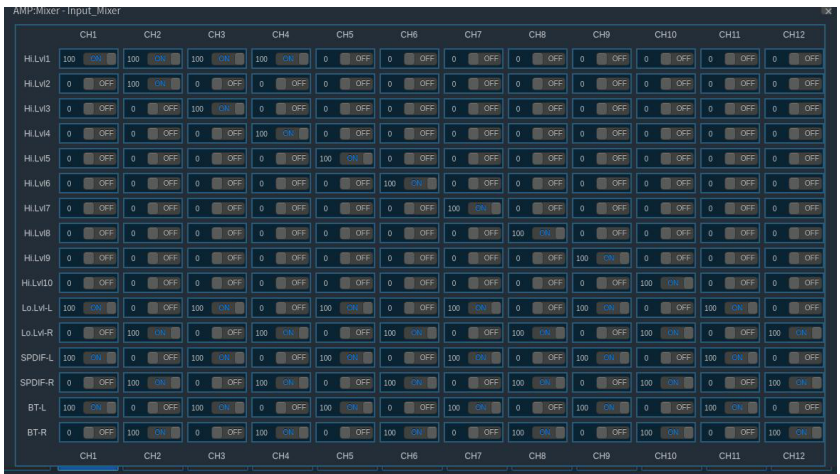
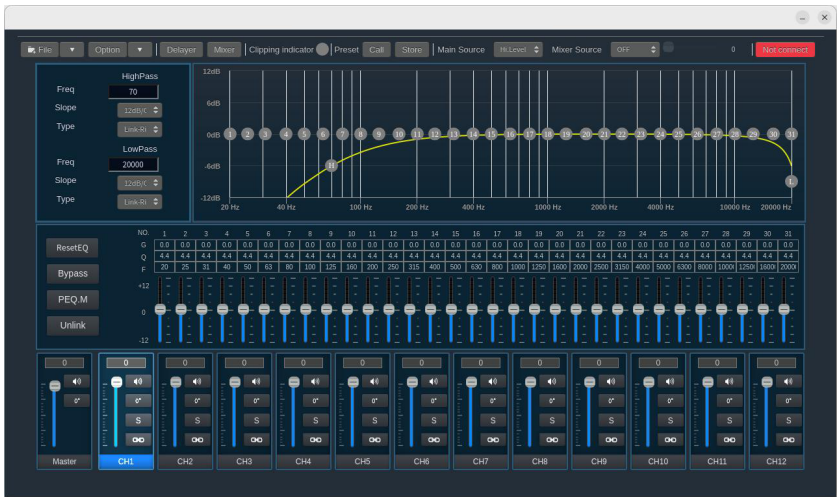
7. Low-Level (Line) Output Interface: Supports up to 10 channels of line-level output.

8. Low-Level (Line) Input Interface: 2 channels of line-level inputs.

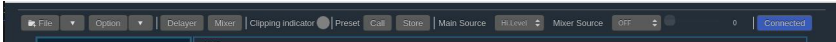
User Interface Software Introduction

Control Software Overview
PC Software Usage Introduction

The software is designed to run on laptops and desktop computers with a display resolution greater than 1280*720, and it is compatible with Windows 7 or later operating systems. Higher computer configurations result in smoother operation.



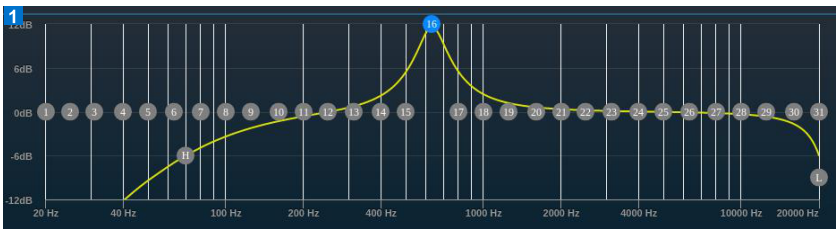
A. Main Menu Editing Area



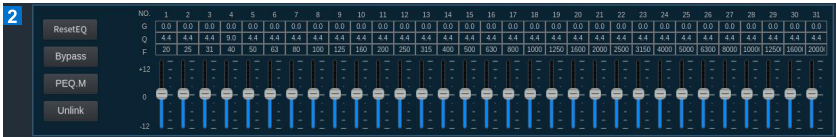
Main Functions: File, Delayer, Mixer, Clipping Indicator, Preset, Main Source, Mixer Source, and Connect.

- (1) File: Save preset sound effects to the computer and load them into the device. Scene operations require an online connection.
- (2) Delayer: Adjusts the delay of audio output.
- (3) Mixer: Mixes audio data from different channels.
- (4) Clipping Indicator: Displays whether the audio signal has reached the maximum amplitude.
- (5) Preset: Call to retrieve preset sound effect data from the amplifier and store to save current sound effect settings to the amplifier device.
- (6) Main Source: Adjusts the main audio source.
- (7) Mixer Source: Adjusts the mixed audio source.
- (8) Connect: Used for PC control to connect/disconnect the amplifier and display the connection status.

B. Output Channel Graphical Frequency Response Curve Editing Area



In the output signal channel graphical frequency response curve editing area, there are 31 adjustable EQ sections (EO). By hovering the mouse over the small dot at the serial number position and holding down the left mouse button, you can drag the mouse up and down to adjust the equalizer gain. While adjusting, the corresponding parameters will be displayed in real-time in the parameter display and editing area below the serial number, as shown in Figure 2.



Warm Tip: Editing in this area facilitates precise adjustments.

C. Output Channel Gain, Q Value, Frequency Editing Area

- (1) Frequency: In the editing area, you can directly input values or use the up and down arrow keys on the keyboard to adjust the frequency.
- (2) Q Value: In the editing area, you can adjust the Q value by directly inputting values or using the up and down arrow keys on the keyboard.
- (3) Gain: In the editing area, you can adjust the gain by directly inputting values, using the up and down arrow keys on the keyboard, or dragging the slider directly.

D. Setting Equalizer and Input Selection

- (1) PEQ.M: Users can adjust various parameters of the equalizer.
- (2) GEQ.M: Clicking locks the equalizer's frequency and Q value, allowing only gain adjustment.
- (3) Bypass: Clicking displays a direct pass curve in the curve area, while turning off the equalizer effect. Clicking "Bypass Equalizer" again restores the original curve and equalizer effect, facilitating comparison of equalizer tuning effects.
- (4) Reset EQ: Resets all equalizer parameters to factory default settings. Note that "Reset Equalizer" only applies to the currently selected channel.
- (5) Link: Copies the EQ and filter parameters of the left and right channels to each other for unified adjustment.utting values, using the up and down arrow keys on the keyboard, or dragging the slider directly.

E. Crossover Editing Area



Allows for the setting of high-pass and low-pass crossovers:

- (1) Clicking the Slope dropdown list provides options such as Bypass, 6dB/oct, 12dB/oct, 18dB/oct, 24dB/oct, 30dB/oct, 36dB/oct, 42dB/oct, 48dB/oct.
- (2) Frequency Adjustment Range: 20Hz~20KHz.
- (3) Types: Includes Bessel, Linkwitz-Riley, and Butterworth.

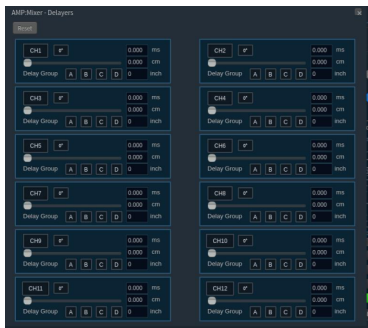
F. Output Channel Editing Area



Individual output channel adjustment area allows for adjusting the volume, phase, mute, and linking of each channel.

- (1) Volume Adjustment: Slide the scrollbar up and down to adjust the channel volume. Alternatively, input values or use the mouse wheel to adjust the volume in the volume input box.
- (2) Mute: Click the speaker button to mute the channel output, and click again to unmute.
- (3) Polarity Adjustment: Clicking 0° or 180° switches between positive and negative phase.
- (4) Mute Other Channels: Click the "S" button to mute other channels, keeping only the current channel's output. Click again to restore.
- (5) Sync: This is incremental synchronization, allowing simultaneous addition and subtraction of volume and delay parameters for the selected channels. Note: All parameters are relative adjustments to the original values, not absolute.

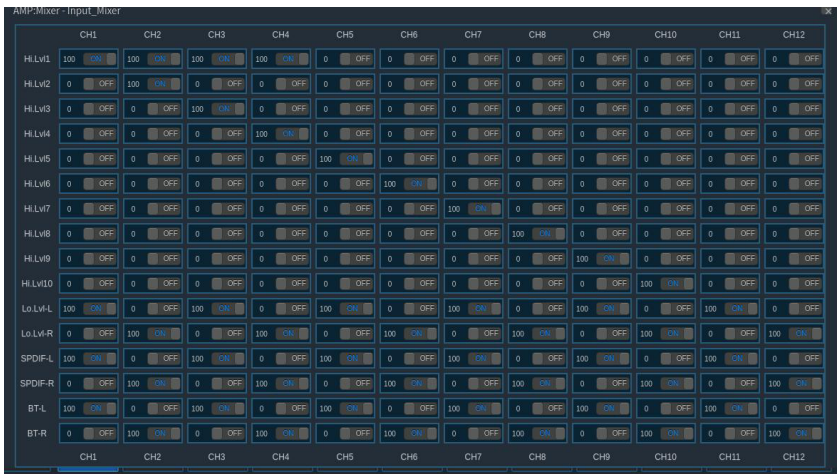
G. Delay Editing Area



Allows for setting the delay parameters for 12 channels:

- (1) Time Adjustment: Input time in milliseconds (ms) in the input box and press Enter to set the delay time, supporting a range of 0-13ms.
- (2) Distance Adjustment: Input distance in centimeters (cm) or inches (inch) in the corresponding input box and press Enter to set the distance, supporting a range of 0-442cm for cm and 0-174 inches for inch.

H. Mixer Editing Area



Controls audio output for 12 channels. Turning on the corresponding channel will activate the physical channel of the amplifier and output the audio stream, while turning off the channel will stop the audio stream output.

Click the buttons below each channel (CH1-CH12). When the button displays ON, it means the channel is on and will output the audio stream.

The software may be updated without prior notice. Due to the update, some functions and operations of the software may differ from the current instructions. Please refer to the actual software situation when operating this unit. Thank you for your understanding and support.

SICHERHEIT reserves the right to make changes to the software without further notice.

Technical Specification

· Dynamic Range(RCA Input):	· $\geq 96\text{dB}$
· S/N (RCA Input):	· $\geq 96\text{dB}$
· THD:	· $\leq 0.01\% @ 1\text{kHz } 1\text{V}$
· Frequency Response:	· $20\text{Hz}\sim 20\text{kHz}$
· Decoding Capability:	· $24\text{bit}/96\text{kHz}$
· Signal Input Range:	· RCA input: 2Vrms ; High level input: 9Vrms
· Input Impedance:	· Low Level input: $15\text{K}\Omega$, High Level input: 22Ω
· Output Rms Power:	· $8 \times 25\text{W}(\text{Ch1}\sim\text{Ch8}) + 4 \times 50\text{W}(\text{CH9}\sim\text{CH12})$
· Output Max Power:	· $8 \times 50\text{W}(\text{Ch1}\sim\text{Ch8}) + 4 \times 100\text{W}(\text{CH9}\sim\text{CH12})$
· Signal Output Range:	· RCA output: 2Vrms Class D channel output: 17.8V Class AB channel output: 10V
· Power:	· $\text{DC } 9\text{V}\sim 16\text{V}$
· Working Temperature:	· $-20\sim 45^{\circ}\text{C}$
· REM Input:	· High Level Input Signal or ACC control cable
· REM output:	· $\text{DC}+12\text{V}(\geq 0.2)$
· Standby Curren:	· $\leq 0.1\text{mA}$
· Standby Power:	· $\leq 0.1\text{W}$
· Net Weight:	· Approx 1.28KG
· Product Dimension:	· $220(\text{L}) \times 157(\text{W}) \times 45(\text{H})\text{mm}$

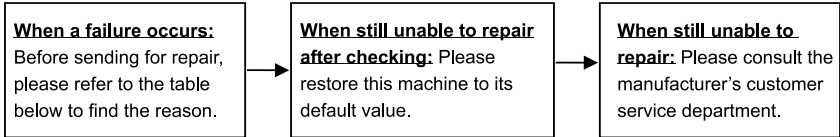
The Functions of DSP

· Input Signal Type:	· 10 Channel High Level, 2 Channel Low Level, Digital Bluetooth 5.1, Optical Fibre
· Output Signal Type:	· 10 Channel low level output, 12 Channel power amplifier
· Output Signal Gain:	· Gain Range: Mute, $-96\text{dB}\sim 0\text{dB}$
· Output Signal EQ:	· 31 Levels EQ · 1.Frequency Range $20\text{Hz}\sim 20\text{kHz}$, 1Hz Accuracy · 2.Q Value(Slope) $0.4\sim 10$ · 3.Gain $-12.0\text{dB}\sim +12.0\text{dB}$, 0.1dB Accuracy
· Output Signal Crossover:	· Each channel is Equipped with a multi-order high-low pass independent filter. · 1.Professional filter type: Butterworth, Linkwitz-Riley, Bessel · 2.Filter Crossover Point: $20\text{Hz}\sim 20\text{kHz}$, Resolution 1Hz · 3.Filter Slope Setup: $-6\text{dB}/\text{Oct}\sim 48\text{dB}/\text{Oct}$.
· Output Phase and Time Alignment:	· Phase and time alignment adjustable for every output channel. · Phase: In Phase or Out Phase ($0^{\circ}\sim 180^{\circ}$) · Time Alignment: 0.000 to 13.000ms , 0cm to 442cm .
· Presets:	· Save 6 presets into the device.

The contents of this manual and the specifications of this product are subject to change without notice.
SICHERHEIT reserves the right to make changes to the specifications and materials contained therein without notice.

| Troubleshooting

Before powering on, you should carefully check whether the connection line is normal, and you must ensure that all interfaces are properly connected. Common fault judgment and treatment methods.



Troubleshooting method:

No.	Malfunction	Reason and Solution
1	No Power	① Is the power connection properly connected? ② Is the connection method correct?
2	No Sound	① Has the mute operation been activated? ② Is the signal input channel selected correctly?
3	USB connection is not available	① Is the USB cable inserted in place? ② Is there any discovery in the ergonomic input device of the computer device manager named "HID-compliant device" equipment.

FREUDE

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