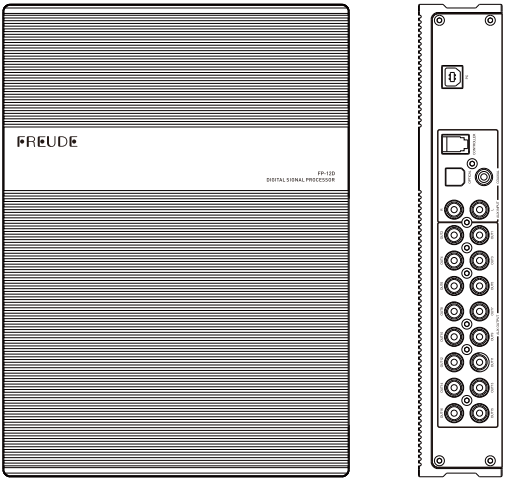
FREUDE

OWNER'S MANUAL



FP-12D

16 CHANNELS DSP + 12 CHANNELS AMPLIFIER

⚠ WARNING

PLEASE READ CAREFULLY BEFORE INSTALLING OR OPERATING THIS UNIT, AND KEEP IT WELL FOR NECESSARY REFERENCE DURING USE.

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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.

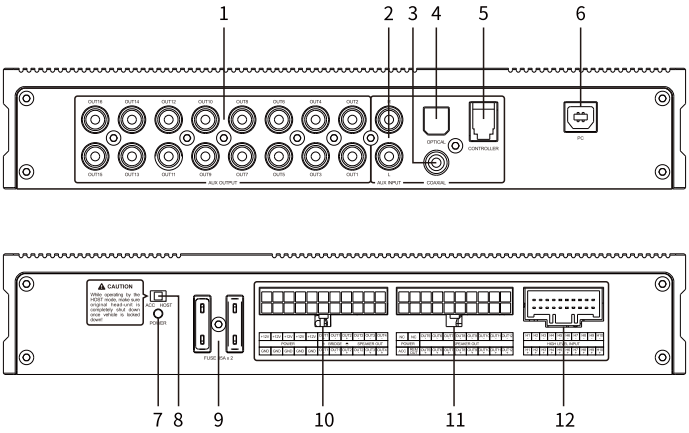
· There is no repairing unit inside for user, please do not try to disassemble the bottom cover. Any problem please contact our service engineers in time.

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-12D	· 1pc
· User Manual (English)	· 1pc
· User Manual (Simplified Chinese)	· 1pc
· Power And High Level Composite Cable 1	· 1pc
· Power And High Level Composite Cable 2	· 1pc
· High Level Input Cable	· 1pc
· Installation Bracket	· 4pcs
· Tapping Screws	· 4pcs
· Machine Screws	· 8pcs

Hardware Interface Introduction



1. **Low level output interface:** Up to 16 Channel low level output.
2. **Low level input interface:** Connect two input channels.
3. **Coaxial input port:** Connect the car CD or DVD coaxial line.
4. **Optical fiber input port:** Connect the car CD or DVD optical line.
5. **Wire controller interface:** Data call and total volume adjustment can be made throughwire controller.
6. **USB2.0 interface:** Connect to the computer tuning software, without driver installation.
7. **Power indicator**
8. **Machine start mode switch:** When the switch is switched to the "ACC" end, the ACC startsthe machine, when it is switched to the "HOST" end, the high level H1+/H1- input signalstarts the machine.
9. **Fuse**
10. **High level output and power interface**

+12V	+12V	+12V	+12V	+12V	OUT1 +	OUT1 -	OUT2 +	OUT2 -	OUT3 -	OUT4 -
POWER					⊕ BRIDGE ⊖			SPEAKER OUT		
GND	GND	GND	GND	GND	OUT1 +	OUT1 -	OUT2 +	OUT2 -	OUT3 +	OUT4 +

11. **High level output and power interface**

NC	NC	OUT5 -	OUT6 -	OUT7 -	OUT8 -	OUT9 -	OUT10 -	OUT11 -	OUT12 -
POWER		SPEAKER OUT							
ACC	REM OUT	OUT5 +	OUT6 +	OUT7 +	OUT8 +	OUT9 +	OUT10 +	OUT11 +	OUT12 +

12. **High level input interface**

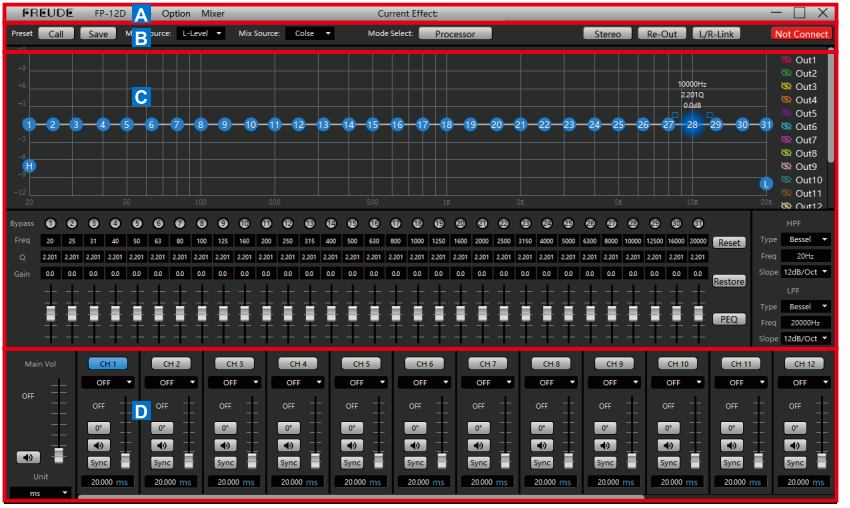
H1 -	H2 -	H3 -	H4 -	H5 -	H6 -	H7 -	H8 -	H9 -	H10 -
HIGH LEVEL INPUT									
H1 +	H2 +	H3 +	H4 +	H5 +	H6 +	H7 +	H8 +	H9 +	H10 +

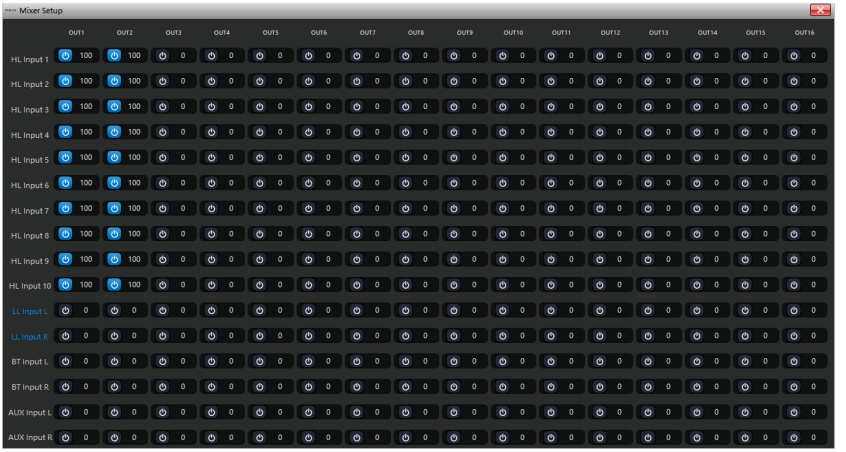
User Interface Software Introduction

User Interface (we call “UI”in the following)

System requirements:

Computer Configuration Requirements: Screen resolution higher than 1280 x 768 otherwise the software UI is incomplete, only suitable for windows operation system laptop, desktop and tablets.





A. Main Menu

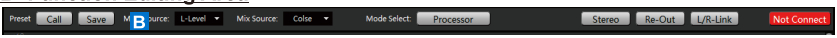
Main functions: Files, Options and Mixing settings.

(1) Click "File" to load as a computer scene file, save as a computer scene file, load as machine file and save as machine file.

(2) Click "Options" to switch between Chinese and English interfaces, enter advanced items to set the main audio source attenuation ratio and noise gate switch, firmware update, restore factory settings and view the version number and other information.

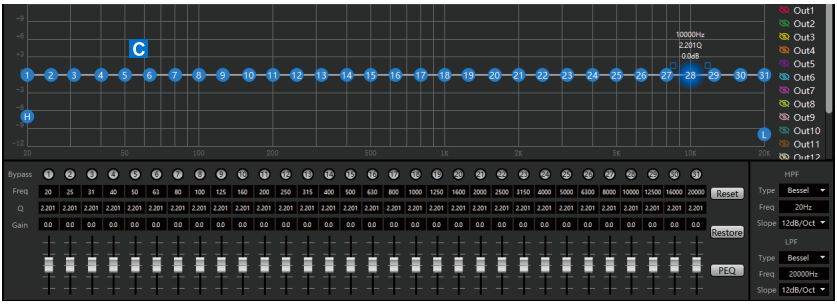
(3) Click "Mixer" to enter the mixing interface.(as FIG, Mixer)

B. Function Editing Area



Main functions: recall or storage of preset sound effect files, main sound source and mixed sound source selection, mode selection, reset output type, output joint tuning and software connection.
(1) Click "Call" or "Save" to recall or store 6 groups of preset sound effect data.
(2) Click the "Main Audio Source" drop-down box to select the input audio source. There are high-level, low-level, optical, coaxial and Bluetooth options.
(3) Click the drop-down box of "Mixed Audio Source" to select the mixed audio source.
There are high-level, low-evel, optical, coaxial, Bluetooth and off options.
(4) Click"Amp + Processor" to switch to "Processor".
(5) Click "Reset Output" to clear the current channel type or restore the factory default channel value.
(6) Click "Output joint debugging" to select the joint debugging synchronization mode, copy from left to right or copy from right to left.
(7) Click "Not Connect" to connect to the software, and click "Connect" to disconnect the software.
Note: You need to use a USB2.0 cable to connect the computer and the machine to operate!

C. EQ And Filter Editing Area



Main functions: channel high and low pass distribution settings, EQ settings and equalizersettings of the current output channel.
(1) Selection of high and low pass types: Butterworth, Bessel and Linkwitz-Riley are available.
(2) High and low pass slope selection: off, 6dB/0ct, 12dB/Oct,18dB/Oct, 24dB/Oct.30dB/Oct, 36dB/Oct, 42dB/Oct and 48dB/Oct are optional.
(3) The range of high and low pass frequency can be set: 20Hz~20KHz.
(4) EQ curve setting: There are 31 segments of EQ can be set, you can drag the corresponding EQ segment to set the frequency, Q value and gain.
(5) EQ editing: gain, Q value and frequency can be set,
Adjustable gain range: -12dB~+12dB;
Adjustable range of Q value: 0.404~28.852;
Frequency range: 20HZ~20KHz.
(5) Click "Reset" to restore the parameters of the 31-band equalizer to the original factory pass-through mode (the frequency, Q value and gain of the equalizer are all restored to the initial values.)
(6) When there is EQ curve adjustment, click "Bypass" to restore the gain of all curves to 0.0.and click "Restore" to restore the last adjustment data.
(7) Click "PEQ" equalization to switch to the "GEQ" equalization interface, the gain, Q value and frequency can be set under the parametric equalization interface. gain can be set under the graphic equalization interface, and the Q value and frequency are not adjustable.

D. Total Volume And Output Configuration Editing Area

The main function:
Master volume adjustment and output channel configuration, volume adjustment, mute, forward and reverse switching and delay settings.
(1) Main volume: Adjustable range: Off, -59dB-6dB, click on the speaker to mute the main volume.
(2) Channel type: Click the channel type drop-down box to configure the output channel type.
(3) Channel volume: adjustable range: off, -59.9dB-0.0dB, click on the speaker to mute the channel.
(4) Phase: Click "0°" to switch to "180°".
(5) Delay: Delay units are available in milliseconds, centimeters and inches. Adjustable range: 0.000 to 20 ms, 0 to 692 cm, 0" to 273".

Technical Specification

· Dynamic Range(RCA Input):	· 95dB
· S/N (RCA Input):	· 95dB
· THD:	· ≤0.05%
· Frequency Response:	· 20Hz~20kHz
· Decoding Capability:	· 32bit/48kHz
· Input Impedance:	· Low Level input: 20KΩ, High Level input: 22Ω
· Low Level Output Impedance:	· 51Ω
· Output Rms Power:	· 8 x 40W + 4 x 80W/BTL(1 x 150W)
· Output Max Power:	· 8 x 80W + 4 x 160W/BTL(1 x 300W)
· Signal Input Range:	· RCA input: 5.5Vpp; High level input: 28Vpp
· Signal Output Range:	· RCA output: 5.5Vpp
· Working Temperature:	· -20~70℃
· Power:	· DC 9V~16V
· REM Input:	· High Level Input Signal or ACC control cable
· REM Output:	· DC +12V Start-up Voltage Output(0.2A)
· Standby Power:	· ≤0.1W
· Gross Weight:	· Approx 2.7KG
· Product Dimension:	· 260(L) x 190.5(W) x 46(H)mm

The Functions of DSP

· Input Signal Type:	· 8 Channel High Level, 2 Channel Low Level, Digital Bluetooth, Optical Fibre, Coaxial
· Output Signal Type:	· 16 Channel low level output, 12 Channel power amplifier
· Output Signal Gain:	· Gain Range: Mute, -59dB~0dB
· Output Signal EQ:	· 31 Levels EQ · 1.Frequency Range20Hz~20kHz, 1Hz Accuracy · 2.Q Value(Slope) 0.404~28.852 · 3.Gain -12.0dB~+12.0dB, 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: 20Hz~20kHz, Resolution 1Hz · 3.Filter Slope Setup: OFF, 6dB/Oct~48dB/Oct.
· Output Phase and Time Alignment:	· Phase and time alignment adjustable for every output channel. · Phase: In Phase or Out Phase (0°~180°) · Time Alignment: 0.000 to 20.000ms, 0 to 692cm, 0" to 273".
· Presets:	· Save 6 presets into the device.

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.

When a failure occurs: Before sending for repair, please refer to the table below to find the reason. → **When still unable to repair after checking:** Please restore this machine to its default value. → **When still unable to repair:** Please consult the manufacturer's customer service department.

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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