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› Moondrop Free DSP Mini Portable USB-C DAC/AMP User Manual

Moondrop Free DSP Mini

Moondrop Free DSP Mini User Manual

Portable USB-C Miniature Decoding Amplifier

1. INTRODUCTION

The Moondrop Free DSP Mini is a compact, high-fidelity portable USB-C digital-to-analog converter (DAC) and amplifier designed to enhance audio quality from various devices. It features a CS43198 decoding chip, offering advanced audio processing capabilities for an improved listening experience. This manual provides instructions for setup, operation, and maintenance of your Free DSP Mini.



Image 1.1: The Moondrop Free DSP Mini, a compact USB-C DAC/AMP.

2. PACKAGE CONTENTS

Verify that all items are present in the package:

- FreeDSP Mini device
- Guidance Card
- Certificate

3. KEY FEATURES

- **Second Generation Online Interactive DSP:** Allows for precise adjustments of parameters such as filter type, frequency point, gain, and Q value. Includes a comprehensive headphone frequency response database for tuning.
- **Built-in Tune Sharing and Downloading Community:** Users can access and apply tuning optimizations created by other users for various headphones.
- **Continuously Updated Library of Frequency Response:** Provides reference frequency response curves for easy tuning.

- **One-button EQ Setting:** Simplifies tuning by allowing one-click settings based on original and target frequency curves via the MOONDROP WEB or Android APP.
- **Flagship Decoding Chip (CS43198):** Delivers high-fidelity sound quality, supporting PCM decoding from 16Bit/44.1kHz up to 32Bit/384kHz and DSD256.
- **CTIA Standard Wire-controlled Microphone Call Support:** Compatible with earphones featuring CTIA standard microphones.

4. SETUP

4.1 Connecting the Free DSP Mini

The Free DSP Mini features a USB-C port for connection to mobile phones, computers, and tablets. It is compatible with PC, Android, and iOS devices without requiring additional drivers.

1. Locate the USB-C port on your source device (e.g., smartphone, tablet, computer).
2. Insert the USB-C plug of the Free DSP Mini into the USB-C port of your source device.
3. Connect your 3.5mm earphones to the 3.5mm jack on the Free DSP Mini.



Image 4.1: Close-up view of the USB-C connector being inserted into a device.



Image 4.2: The Free DSP Mini connected to a smartphone, ready for use.

5. OPERATING INSTRUCTIONS

5.1 Online Interactive DSP Functionality

The Free DSP Mini features an online interactive DSP (Digital Signal Processor) for advanced audio customization. This interface allows users to adjust various audio parameters for a personalized listening experience.

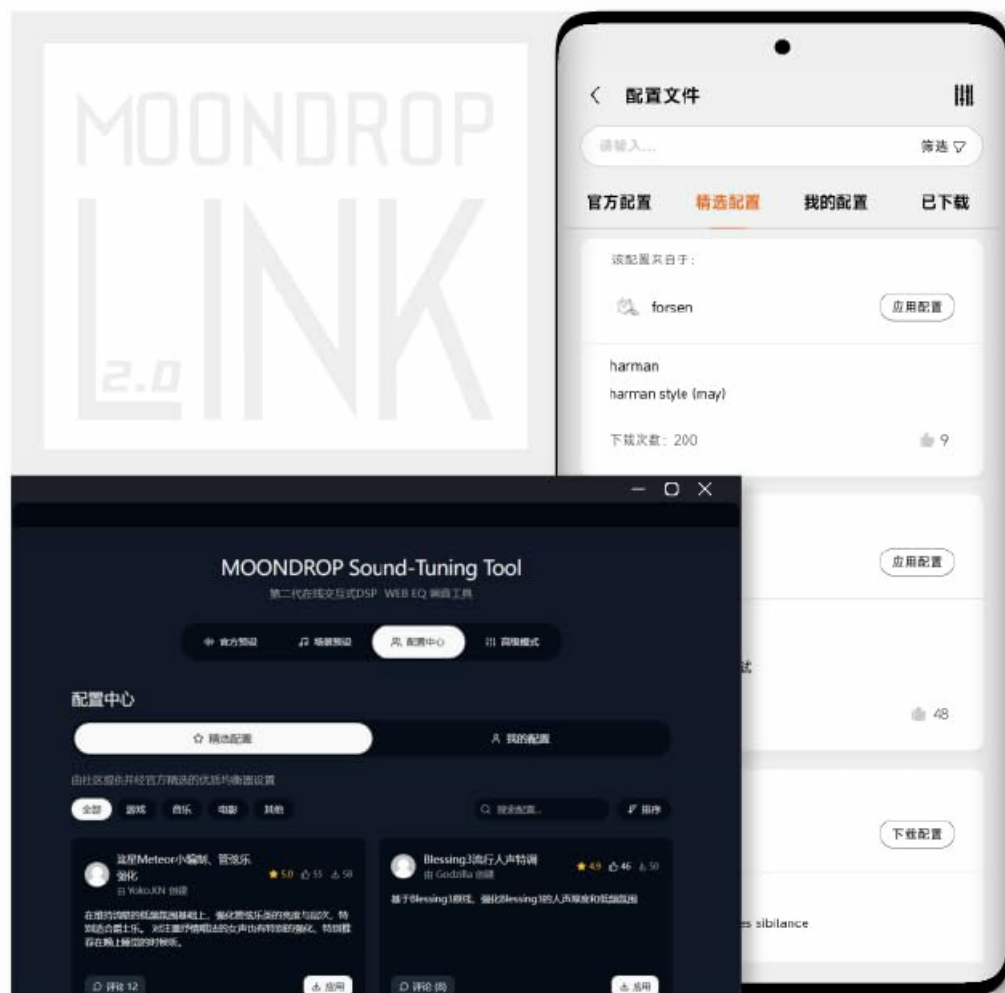
- **Parameter Adjustment:** Adjust filter type, frequency point, gain, and Q value to fine-tune the sound.
- **Headphone Frequency Response Database:** Utilize the built-in database for reference during the tuning process to achieve desired sound characteristics.



Build-in Tune Sharing and Downloading Community

Users can download tuning optimizations created by fellow users for various headphones through FreeDSP Mini and other devices (including FreeDSP Pro) in the built-in tuning sharing and downloading community, and apply them to the hardware of Free DSP Mini.

Both professionals and music enthusiasts can make their own tuning with the help of advanced online interactive DSP function, and upload and share it with other users *, This allows for more accurate correction of headphone timbre defects, optimization for different styles and application scenarios, and the ability to share intricate tuning settings with others, enhancing the advanced playability of portable HiFi audio.



* Submitted configurations are subject to approval. Shared tuning configurations will be displayed with the user's ID.

Image 5.1: The Moondrop application interface for DSP adjustments, showing various tuning parameters.

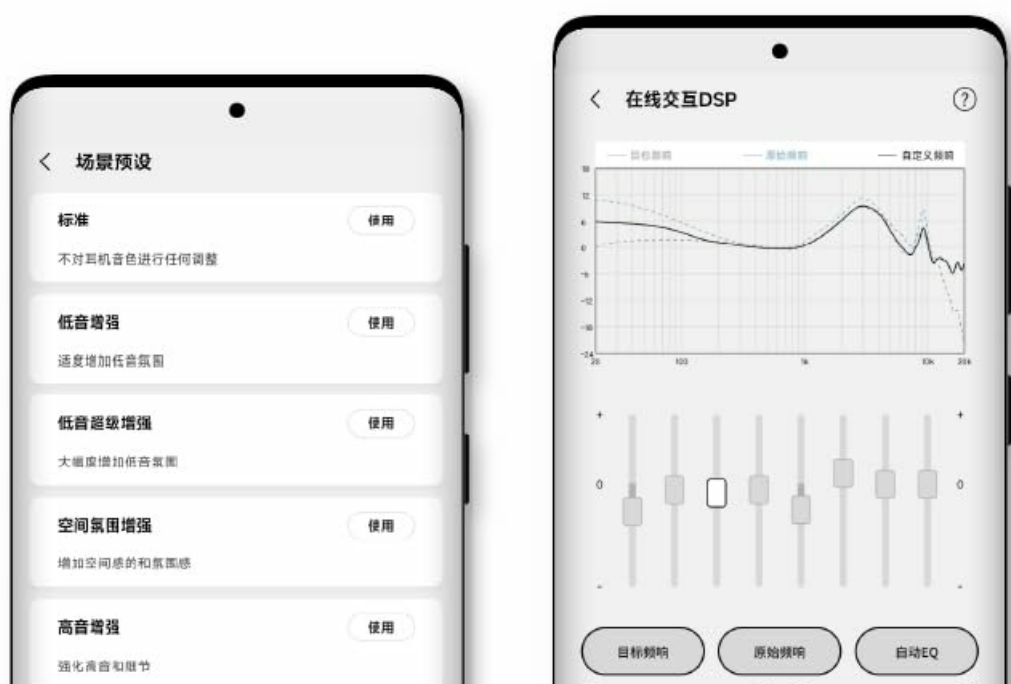
5.2 Tune Sharing and Downloading Community

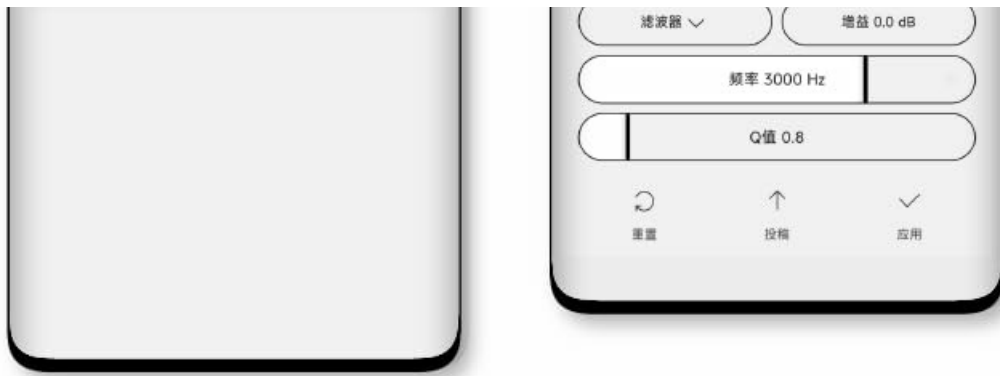
The Free DSP Mini supports a community feature where users can share and download tuning optimizations. This allows for easy access to custom EQ settings for various headphones.

- **Download Optimizations:** Access and apply tuning profiles created by other users.
- **Share Custom Tunings:** Contribute your own optimized settings to the community.

The Second Generation Online Interactive DSP More Professional, More Accurate

Through the recently updated MOONDROP APP*, users can not only tune quickly through presetting , but also customize and debug the parameterized equalizer in the DSP using a new professional tuning interface that is more precise and user-friendly. This interface allows adjustments to parameters such as filter type, frequency point, gain, and Q value. Additionally, a comprehensive headphone frequency response database is available for reference during the tuning process, further enhancing usability and accuracy.





*Please note that due to iOS permissions, this function is only supported on Android devices. iOS users can utilize the settings after they have been preset on an Android phone.

Image 5.2: The Moondrop application interface for the tuning sharing and downloading community.

5.3 One-button EQ Setting

Both the MOONDROP WEB and Android APP provide a one-button EQ setting feature. This simplifies the tuning process by automatically applying settings based on selected frequency curves.

- Select or upload the original frequency curve.
- Select the target response curve.
- Apply settings with a single click.

5.4 WEB Tuning Interface

For users whose mobile phone systems may not be compatible with the app for tuning, or for those who prefer a larger interface, a web-based tuning tool is available. This web interface offers comprehensive tuning capabilities.

- Access the tuning tool via a web browser.
- Ensure you are using Microsoft Edge (version 135.0 or later) or Google Chrome (version 131.0 or later) for optimal compatibility.

More Professional WEB Tuning More Accurate Usage

Even if your mobile phone system is not compatible with the APP for tuning, it can still be debugged online through the WEB. The tuning interface in the WEB's "tuning community" function is more professional, comprehensive, and precise compared to the mobile app. Additionally, the community sharing and downloading interface is much clearer. The interoperability between the official website account, database, and mobile APP is flexible and convenient.



* Ensure you are using Microsoft Edge (version 135.0 or later) or Google Chrome (version 131.0 or later) to access the tune tool.

Image 5.3: The Moondrop web-based tuning interface, displaying detailed frequency response graphs and adjustment controls.

6. MAINTENANCE

- Keep the device clean by wiping it with a soft, dry cloth.
- Avoid exposing the device to extreme temperatures, humidity, or direct sunlight.

- Do not attempt to disassemble or repair the device yourself, as this will void the warranty.
- Store the device in a safe place when not in use to prevent damage.

7. TROUBLESHOOTING

7.1 No Sound Output

- Ensure the Free DSP Mini is securely connected to both your source device and your earphones.
- Check the volume level on your source device and ensure it is not muted.
- Verify that your earphones are functioning correctly by testing them with another device.
- Restart your source device and reconnect the Free DSP Mini.

7.2 Poor Sound Quality

- Ensure the audio source file is of high quality.
- Check for any loose connections between the Free DSP Mini, source device, and earphones.
- If using the DSP or EQ functions, try resetting them to default settings to see if the issue persists.
- Avoid using the device in environments with strong electromagnetic interference.

7.3 Device Not Recognized by Source

- Ensure your source device's operating system is up to date.
- Try connecting the Free DSP Mini to a different USB-C port or another compatible device to rule out port issues.
- For PC users, check device manager to see if the Free DSP Mini is listed.

8. SPECIFICATIONS

Product Information



Product Model: MOONDROP FreeDSP Mini

Product Type: HiFi Miniature DAC&

Dynamic Range(A-wt): 127dB @1kHz

THD+N(A-wt): 0.00017% @1kHz

Output Amplitude: 2Vrms @0dBFS

Output Power: 80+80mW @16Ω THD+N<1%

Earphone jack: 3.5mm-4pin(SE+MIC/CTIA)

Plug: USB-C

Designed & Developed & Made by Chengdu Shuiyueyu Technology Co.,Ltd.

Address: Haixia Technology Industry Park, Wenjiang District, Chengdu, China

Package List

FreeDSP Mini, Guidance Card, Certificate

Image 8.1: Detailed product information and specifications.

Specification	Value
Product Model	MOONDROP FreeDSP Mini
Product Type	HiFi Miniature DAC&
Dynamic Range (A-wt)	127dB @1kHz

THD+N (A-wt)	0.00017% @1kHz
Output Amplitude	2Vrms @0dBFS
Output Power	80+80mW @16Ω THD+N<1%
Earphone Jack	3.5mm-4pin (SE+MIC/CTIA)
Plug Type	USB-C
Decoding Chip	Cirrus Logic CS43198
PCM Decoding	16Bit/44.1kHz up to 32Bit/384kHz
DSD Decoding	DSD256
Package Dimensions	6.3 x 4.02 x 0.15 inches
Item Weight	0.32 ounces

9. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the official Moondrop website or contact your retailer. Keep your proof of purchase for warranty claims.

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ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page’s manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question