

BLV-D1 2 x 50W Bluetooth v5.0 Enabled Audio Amplifier - TPA3116

The BLV-D1 audio amplifier, featuring high-power output, Bluetooth v5.0 connectivity, user-friendly features like a volume control potentiometer and Bluetooth unpair button, along with LED indicators, is integrated with DSP and equipped with a heat sink, all while utilizing the TPA3116 Amplifier IC.

Features:

- **LED Indicators:**
 - Green LED for power status.
 - Blue LED for Bluetooth connectivity status.
- **Power ON/OFF Switch:**
 - Allows you to turn the unit on and off.
- **Bluetooth Pairing Button:**
 - Used for Bluetooth pairing and unpairing with compatible devices.
- **Audio Controls:**
 - Allows you to fine-tune the audio output to your preferences.
 - Bass control potentiometer. Center frequency 120Hz, ± 6 dB.
 - Treble control potentiometer. Center frequency 5kHz, ± 6 dB.
 - Volume control potentiometer.
- **Bluetooth Antenna:**
 - Enhances Bluetooth signal reception and range.
- **Line Input and Line Output:**
 - Line Input for connecting audio sources to the BLV-D1.
 - Line Output with an AUX connector for connecting the BLV-D1 to external devices.

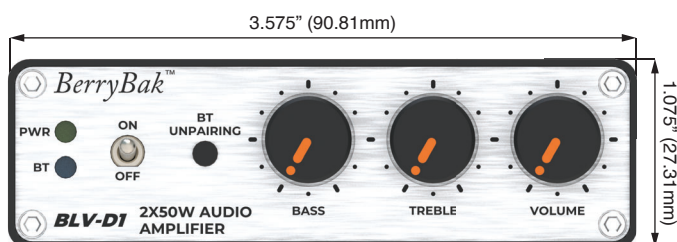
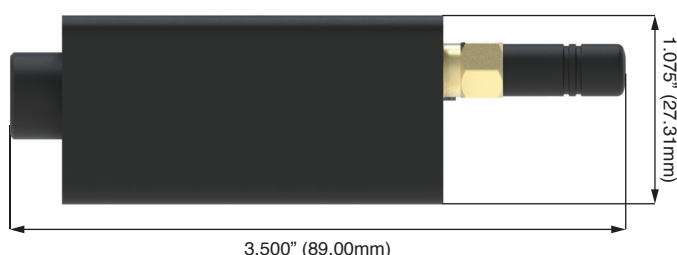


| Specification(s) | |
|-------------------|-------------------------------------|
| Bluetooth Version | 5.0 |
| Bluetooth Name | BerryBak BLV-D1 |
| Power Supply | DC 12V - 24V |
| Audio Input | Bluetooth / Line Input |
| Speaker Output | Screw-Free Push-Type Terminal Block |

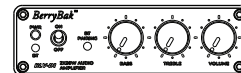
| | |
|-------------------|---------------------------------|
| Output Channel(s) | 2.0CH |
| Output Power | 2 x 50W |
| Product Size | 3.575" x 3.500" x 1.075" (inch) |
| Product Size | 90.81 x 89.00 x 27.31 (mm) |
| Weight | 6.0 oz \pm 0.3 oz (ounce) |
| Weight | 170g \pm 10g (gram) |

Mechanical Drawing

(Nominal Dimensions, inch (mm))

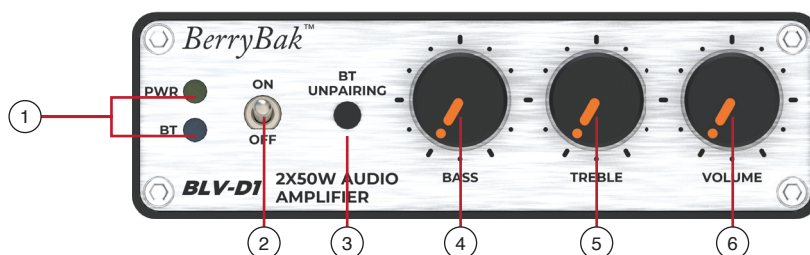


*The product size does not include the Bluetooth antenna on the rear panel and the potentiometer knob on the front panel.



Panel Layouts

Front panel

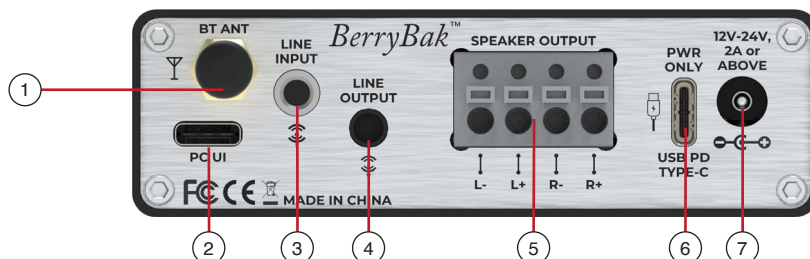


Note: The 2D illustration is provided in a 1:1 scale. Please ensure that your print settings are set to "actual size" or "100%" to maintain accurate dimensions.

- LED Indicator** - A solid green light indicates the power status, and a blue LED blinks when the device is not connected to any Bluetooth source but remains steady once it establishes a Bluetooth connection.
- Power Switch** - The BLV-D1 features a power switch that allows user to control the device's power status.
- Bluetooth Unpair Button** - The Bluetooth Unpair Button on BLV-D1 - serves a straightforward purpose: it allows you to disconnect or cancel the Bluetooth connection between the BLV-D1 and any paired Bluetooth devices.
- Bass Control Potentiometer** - The BLV-D1 is equipped with a Bass Control Potentiometer, which allows user to adjust the level of bass output according to your preferences.
- Treble Control Potentiometer** - The BLV-D1 includes a Treble Control Potentiometer, which enables user to fine-tune the treble or high-frequency audio output to suit your audio preferences.
- Volume Control Potentiometer** - The BLV-D1 is equipped with a Volume Control Potentiometer, allowing user to adjust the audio output volume to your desired level, providing you with precise control over the sound output.

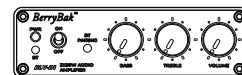
Panel Layouts

Rear panel



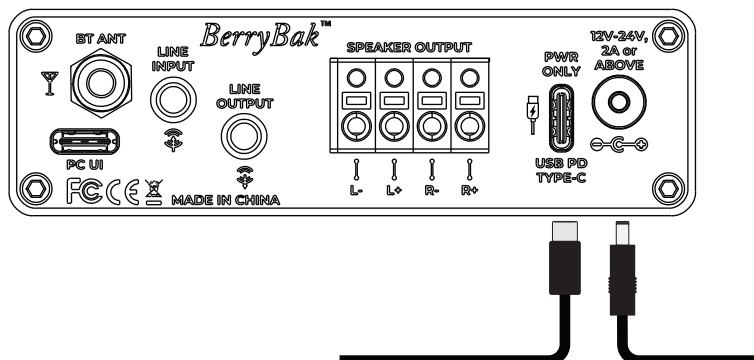
Note: The 2D illustration is provided in a 1:1 scale. Please ensure that your print settings are set to "actual size" or "100%" to maintain accurate dimensions.

- Bluetooth Antenna** - The Bluetooth Antenna ensures an extended operating range, allowing you to enjoy uninterrupted audio streaming even from a distance, thereby expanding the Bluetooth connection range.
- PC UI Programming Port** - With the PC UI Programming port the BLV-D1 offers a personalized and tailored audio experience, delivering exceptional sound quality for any application, be it entertainment or professional audio.
- Line Input** - The BLV-D1 features a 3.5mm Line Input, which allows you to connect various audio sources such as smartphones, MP3 players, or other compatible devices, enabling you to enjoy your favorite audio content through the Bluetooth receiver. **Input Impedance: 10kΩ, 500mV = 0dB @ 4Ω, 25W.**
- Line Output** - The BLV-D1 is equipped with a 3.5mm Line Output, which enables you to connect the Bluetooth receiver to external audio equipment, such as speakers or amplifiers, to transmit the audio signal for an enhanced listening experience or to extend audio playback to other devices. **Output Impedance - 600Ω, not suitable for driving headphones.**
- Speaker Output** - The BLV-D1 is equipped with a powerful speaker output, harnessing the impressive capabilities of the TPA3116 AMP IC, which delivers a total power of 2 x 50 Watts.
- USB Type-C Port for Power** - The BLV-D1 is equipped with a versatile USB Type-C port for power delivery, allowing for convenient and efficient charging or powering of the device. This port ensures that the BLV-D1 can be powered with modern, high-capacity power sources, making it compatible with a wide range of USB Type-C adapters and power banks. The USB Type-C port provides stable and reliable power input to ensure optimal performance, even during extended use.
- DC Power Input 12V-24V** - The BLV-D1 features a flexible power input option, accepting direct current (DC) power supply within the voltage range of 12 Volts to 24 Volts, with a minimum current requirement of 2 Amps, 3 Amps or above will be recommended.



Power Input Options

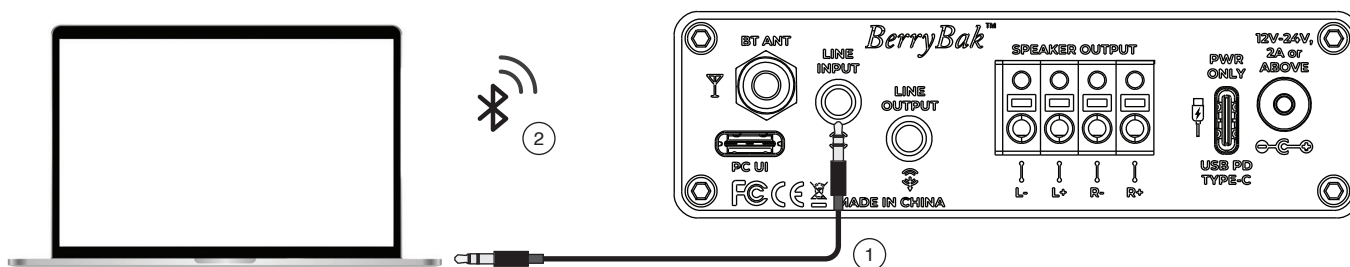
Flexible Power Connections via DC Jack and USB Type-C



The BLV-D1 supports two power input methods. First, it accepts DC power within a 12V to 24V range, requiring a minimum of 2 Amps, with 3 Amps or more recommended for stable operation. Additionally, the device includes a USB Type-C port specifically for power delivery. This allows users to power the BLV-D1 using modern USB Type-C adapters and power banks, providing flexibility in power source options while maintaining consistent performance.

Audio Input Source Options

3.5mm Line Input and Bluetooth Connectivity

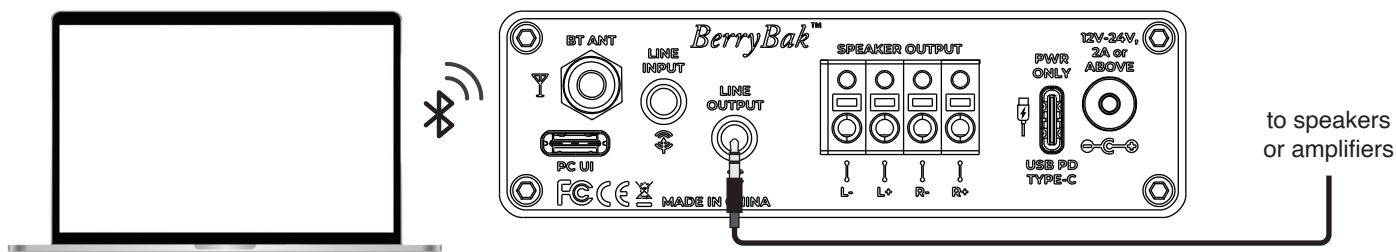


The BLV-D1 provides two primary audio input options: a 3.5mm line input and Bluetooth connectivity. The 3.5mm input offers a reliable wired connection for direct audio signal transmission from various devices like smartphones, PCs, or audio players. This ensures low-latency, high-quality audio.

When both inputs are connected simultaneously, the 3.5mm input takes priority due to its pin detection mechanism. This design ensures that the BLV-D1 automatically selects the 3.5mm audio source for playback, providing a seamless user experience without the need for manual switching.

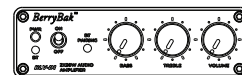
Audio Output Options

Connect to Speakers or External Amplifier



The BLV-D1 features audio output designed for connecting to speakers or an external amplifier. This output is optimized for high-fidelity sound reproduction, ensuring compatibility with various speaker systems.

The output impedance is 600Ω, which makes it unsuitable for driving headphones directly. Users should connect the device to speakers or an amplifier to achieve optimal audio performance and prevent potential damage to headphones.



Launch ACP Workbench



Figure 1: Connect the BLV-D1 to a personal computer or laptop and ensure that you have installed the ACP Workbench application.

When ACPWorkbench.exe is launched, it will automatically find and connect the BLV-D1 Audio Amplifier via the connected UART (serial) or USB (HID) port. Once connected, ACPWorkbench.exe will read all the configurations in the chip and update its GUI controls accordingly. Please ensure the BLV-D1 Audio Amplifier is connected to the PC and powered on. Whenever the BLV-D1 Audio Amplifier is powered on/off, ACPWorkbench will always try to re-connect it.

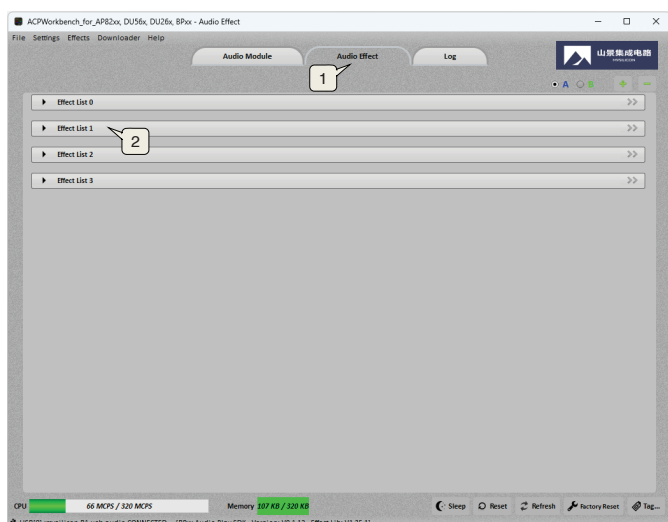


Figure 2: Audio effect page.

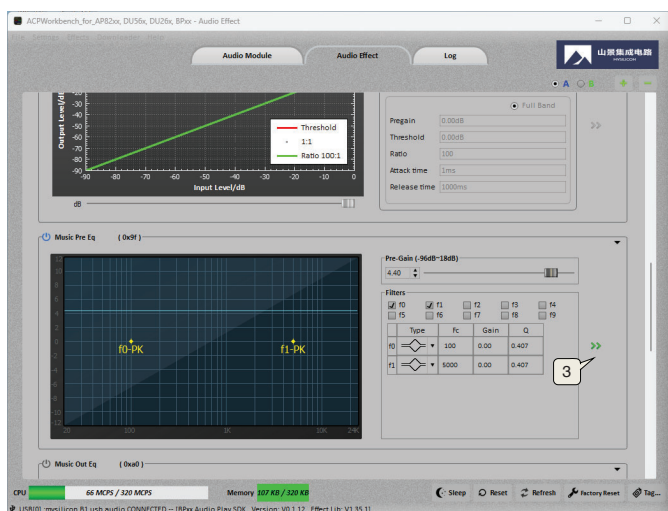


Figure 3: Effect list 1 for Music Pre EQ.

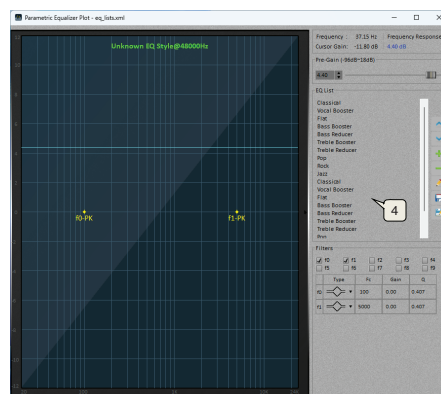


Figure 4: Preset EQ list.

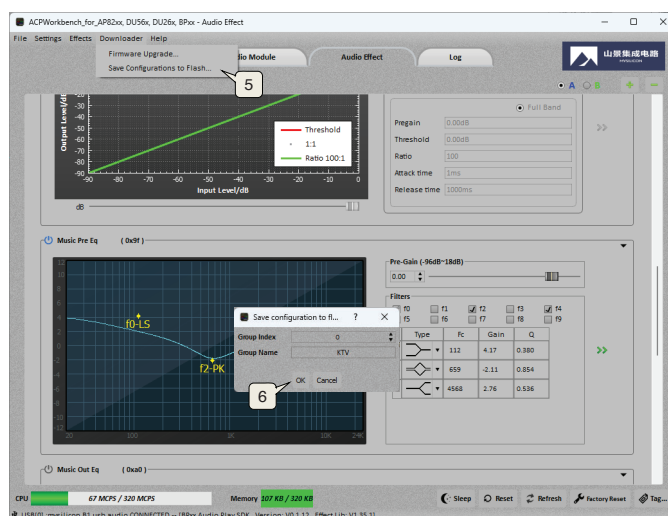


Figure 5: Save operation.

1. Easily control the BLV-D1 via PC UI by connecting the programming port to your computer using a USB cable that supports communication.
2. Upon downloading and launching the software, you will be directed to the "Audio Module" page where basic configurations load automatically. Typically, these settings remain unchanged.
3. For custom adjustments, navigate to "Audio Effect", then select "Effect List 1" to access a range of functions like delay, bass enhancement, EQ, and more. Choose your desired function and activate it to tailor your audio experience.
4. To save your configurations, click on "Downloader" and then select "Save Configurations to Flash." This action ensures that your settings are stored for future use.
5. Click "OK" in the pop-up window. This action ensures that the process will continue to run even if the device is powered off.

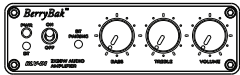
Where can you get ACPWorkbench.exe?

You can download (ACPWorkbench.exe) at link below:

[http://files.sure-electronics.com/download/BDM&BRU_PCUI_ACPWorkbench_V2.24.2\(2\).zip](http://files.sure-electronics.com/download/BDM&BRU_PCUI_ACPWorkbench_V2.24.2(2).zip)

You can watch PC UI Control Tutorial Series at link below:

<https://www.youtube.com/watch?v=GRIUdU670HI>



Electrical & Audio Specifications

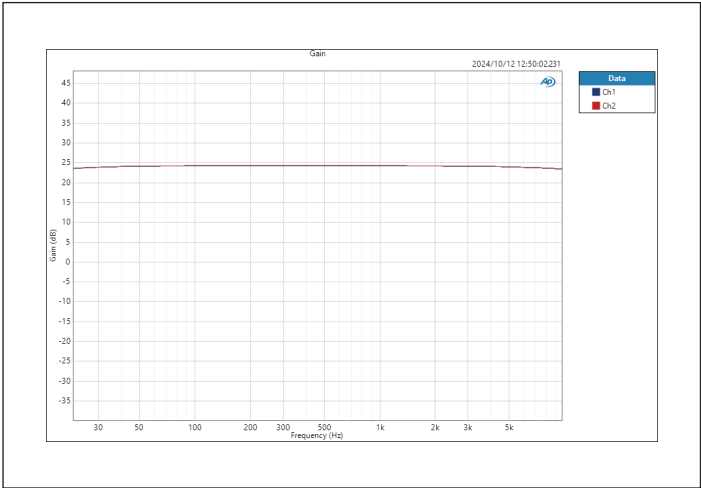
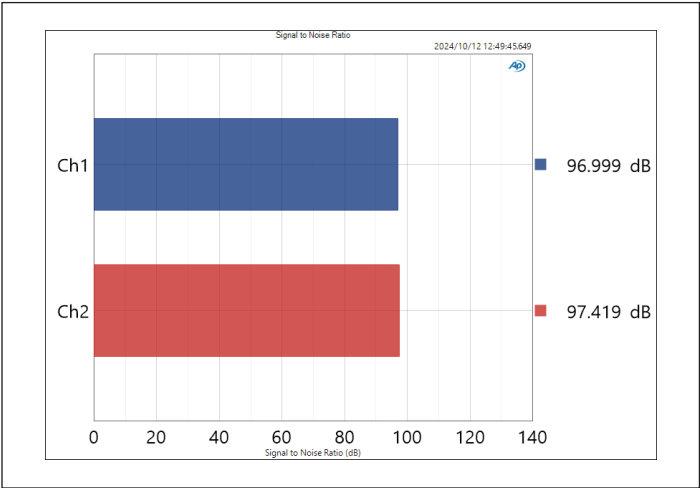
Electrical and audio performance specifications are typical at +25°C, powered by 21V DC, unless subject to change without notice.

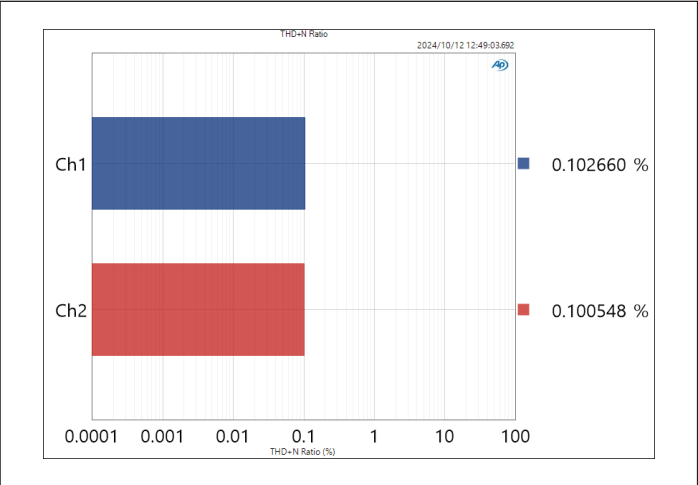
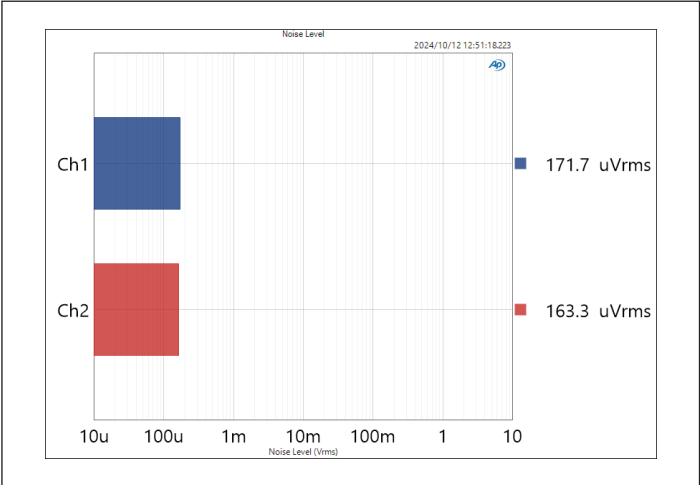
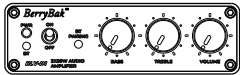
| Parameter | Conditions | | Min. | Typ. | Max. | Units |
|--------------------|---|-----|-------|-------|-------|-------|
| Amp Gain | Line In, Potentiometers set at the minimum and maximum position | L&R | 24.4 | 25.0 | 25.8 | dB |
| SNR | Line In, 2 x 50W @ 4Ω, A-weighting | L&R | 96.2 | 97.3 | 98.0 | dB |
| THD + N | Line In, 1W @ 4Ω, 1kHz | L&R | 0.08 | 0.10 | 0.11 | % |
| | Bluetooth, 1W @ 4Ω, 1kHz | L&R | 0.08 | 0.10 | 0.11 | % |
| Output Noise Level | Line In, A-weighting, Input Connected to GND | L&R | 165.2 | 171.9 | 175.0 | uV |
| | BT, A-weighting, Input Connected to GND | L&R | 168.7 | 170.0 | 172.5 | uV |
| Input Impedance | Line In @ 4Ω, 1kHz | | 9.5 | 10.0 | 10.5 | kΩ |
| DC Offset | - | | 9.0 | 10.0 | 11.0 | mV |

| Parameter | Conditions | | Min. | Typ. | Max. | Units |
|---------------------------|-----------------------|--|------|-------|------|-------|
| Minimum Load Impedance | - | | - | 4 | - | Ω |
| Nominal Power Requirement | @ 1kHz, THD + N 1-% | | - | 2x50W | - | W |
| Operating Voltage | @ 1kHz, 8Ω | | 12.0 | 21.0 | 24.0 | V |
| Idle Power | Signal detected @ 24V | | - | 2.4 | - | W |
| Switching Frequency | SD Floating | | - | 400.0 | - | kHz |

BLV-D1 Audio Parameters & Performance Graph

The BLV-D1 test conditions include the following: for frequency response, VDD is set at 21V with a Pout of 2x5W and an Rload of 4Ohm; for noise level testing, VDD is at 21V with Pout at 0W and an Rload of 4Ohm, utilizing an A-weighting filter with the input shorted to GND; and for THD+N ratio assessment, VDD is maintained at 21V with a Pout of 2x1W and an Rload of 4Ohm. For all tests, measurements are conducted with analog input sources.





Warranty Terms and Product Usage Restrictions

BerryBak products come with a one-year warranty starting from the date of purchase. Customers are responsible for the cost of returning the goods to the seller, and by making a purchase, you agree to this condition. Due to the nature of DIY products, visible damage or use on screw holes or tinning of solder pads directly invalidates the warranty. Damage caused by the use of incorrect power sources, such as exceeding the specified voltage range or reverse polarity, is not covered under warranty. All BerryBak products undergo thorough testing before shipment. We do not accept bulk returns after a bulk purchase. If you are unsure of the quantity you need, please purchase the appropriate quantity as needed. All BerryBak products are intended for DIY use only and do not support any industrial applications. The rated operating temperature range is 0-40°C. Please refrain from using BerryBak products in industrial or any special industrial environments. If you require products tested for industrial operating temperature ranges, we recommend seeking products clearly labeled to support operating ranges such as -20-65°C or -40-85°C.

Bulk Purchase Rights

All rights for bulk purchases are limited to the quantity purchased in a single transaction and are not related to the annual or cumulative purchase quantity. Due to cost considerations, any customization and pricing are determined based on the quantity purchased in a single transaction. Retail purchases can only be made through Amazon e-Commerce platforms, and there are no other purchasing channels. The listed prices visible on the platform are the retail prices, which may fluctuate at any time. We do not provide any form of modification to existing products or additional price discounts for quantities below 100 units.

For purchases that meet the minimum quantity of 100 units, you can send an email to customize the silkscreen and have your brand logo placed on the panel or enclosure. BerryBak does not provide any other form of customization services such as changing panel dimensions or adding/removing ports. There is a standard price list for purchases of 100 units or more, which can be requested from our contact email. You can sell at a price you deem appropriate, but there is not a significant difference between the bulk price and the bundled price based on 10 units.

Distributed by:



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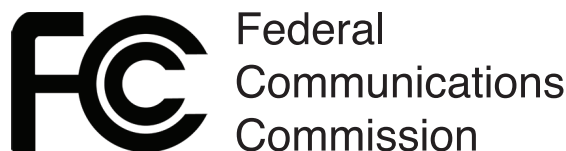
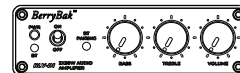
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(Please use phone calls or email instead of WhatsApp or iMessage.)

To view our products and purchase, please check the Taobao or Aliexpress website by searching for the product name (example: BLV-D1).



About the Manual

This manual displays general installation guidelines. However, please note that proper installation of wired cables for the BLV-D1 audio amplifier requires qualified experience. If you do not have the knowledge and tools to successfully perform this installation, we strongly recommend consulting an authorized BerryBak dealer about your installation options. Keep all instructions and sales receipts for reference.



FCC WARNING

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC's RF Exposure guidelines, This equipment should be installed and operated with minimum 20cm distance between the radiator and your body: Use only the supplied antenna.