Introduction

XD05 Bal is a portable high-fidelity DAC & balanced headphone amplifier, which integrates USB, coaxial, optical, AES, Bluetooth decoding and amplifier. USB supports up to PCM 32Bit/768kHz and DSD512; coaxial, optical, AES supports up to 24 Bit/192kHz and DSD64; Bluetooth supports aptX、aptX LL、aptX HD、LDAC and other high-definition formats, so that make wireless audio become HIFI. The DAC chip uses two high-specification ES9038Q2M chips, which have extremely low noise and higher resolution, which greatly improves the quality of sound. The amp circuit adopts the OP+BUF architecture, the output power reaches 1000mW, and the power is strong, which can easily drive many kinds of headphones. In addition to the 6.5 phone out, there is also one 4.4 balanced phone out, with balanced headphone, which greatly improves the S/N and dynamics, and the quality of sound is improved.

In addition to the gain setting, boost setting, DAC filter setting, and SRC setting functions, the external functions have added a power selection function, so you no longer worry about battery life. This product is suitable for advanced players who have higher requirements for portability, sound quality, and thrust.

Features

1. With OLED display, real-time display of product working information.
2. The USB receiving chip adopts XMOS' XU208, working in asynchronous transmission mode, supports up to PCM32 Bit/768 kHz, DSD512.
3. Coaxial/optical supports up to PCM 24Bit/192kHz, DSD64 (DOP).
4. It has one AES input, which is balanced digital input, go to DAC and balanced headphone output, balanced from digital to analog, allowing you have a new experience.
5. Support decoding USB audio of IOS or Android phone, support up to 32 Bit /768kHz, DSD512.
6. Bluetooth chip uses Qualcomm's CSR8675, supports Bluetooth 5.0, supports aptX、aptX LL、aptX HD、LDAC formats.
7. The DAC chip uses two ESS' ES9038Q2M, with better decoding performance, extremely low noise and higher resolution, which greatly improves the sense of sound.
8. Using dual active low-phase noise crystal oscillators, data shaping processing through FPGA achieves a unified clock and reduces jitter.
9. Built-in filter circuit and high-efficiency power conversion circuit, optimize the power

supply design through the LDO circuit, and separately supply power to the decoder chip, LPF, amplifier, XMOS, and digital receiver chip.

10. The amp circuit adopts the OP+BUF architecture, the output power reaches 1000mW, and the power is strong, which can easily promote many kinds of headphones.

11. The amp chip can be replaceable by yourself, different chips bring different sound quality.

12. External gain setting and boost setting to adapt to headphones with different impedances.

13. External DAC filter settings, SRC settings, a lot of playability.

14. The external power selection switch can be used at home or office, and switch to the internal battery when going out, so you don't worry about battery life when you are carrying it.

15. 4.4 Balanced phone jack, more reliable contact, all balanced circuit, with higher S/N and dynamics, the sense of sound is improved.

16. Adopt 4-link balanced analog potentiometer to adjust the volume. Compared with digital volume adjustment, the damage of physical adjustment to sound quality is almost zero.

Parameters

Battery: 3.8V/5000mAh
Screen: 0.91 inch OLED
Applicable OS: Win7/8/10, Linux, Mac OS X, IOS, Android system
Frequency Response:
USB/SPDIF: 20Hz~20kHz($\pm$0.5dB)
      AMP: 10Hz~60kHz ($\pm$0.5dB)
Sampling Rate support:
      USB:PCM: 16-32BIT/44.1-768KHZ
      DSD: DOP/NATIVE mode, DSD64-512
AES/Optical/Coaxial:
      PCM: 16-24BIT/44.1-192KHZ
      DSD: DSD64(DOP)
Bluetooth Formats: AAC、SBC、aptX、aptX LL、aptX HD、LDAC
Gain: +6/15dB
6.5 phone output parameters:

Output power: 1000mW (32Ω load)

THD+N: 0.0015%@1kHz

S/N: 115dB

Crosstalk: ≥72dB

4.4 phone output parameters:

Output power: 1000mW (32Ω load)

THD+N: 0.0009%@1kHz

S/N: 117dB

Crosstalk: ≥100dB

AUX OUT parameters:

Output level: 2.0Vrms

THD+N: 0.0008%@1kHz

S/N: 120dB

Crosstalk:≥100dB

Battery Life: USB IN ≥9H |SPDIF IN≥15H | AUX IN≥24H

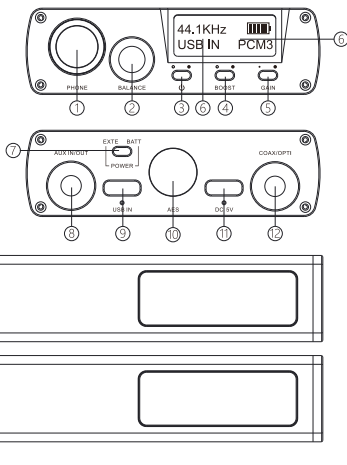Charging time: ≤5 hours (fast charging 1.2A) | ≤11 hours (slow charging 500MA)

Size: 13.0X7.5X2.2cm

Weight: 0.29kg

Parts and Controls

1) 6.35 headphone out.

2) 4.4 Balanced headphone out.

3) Power on/off.

4) Boost switch, increase the supply voltage of the op amp(from±8V to ±13V).

5) Gain switch.

6) Screen.

7) Power selection, the power supply from battery when switched to the BATT position, otherwise from USB 5V when switched to the EXTE position.

8) AUX OUT/IN, it is AUX OUT(output analog signal) when DAC working, otherwise it is used as AUX IN.

9) USB audio in.

11) Charging port.

12) Optical/Coaxial in.

13) Volume.

14) Input selection.

4.4 Balance pin definition

GND R- R+ L- L+

44.1KHz
USB IN   PCM3

PHONE BALANCE

① ② ③ ⑥ ④ ⑤

AUX IN/OUT EXTE   BATT
POWER
USB IN AES DC 5V COAX/OPTI

⑦ ⑧ ⑨ ⑩ ⑪ ⑫

⑬

⑭ ⑮ ⑯

15) DAC's Filter setting: DSD filter: 47K cut-off filter; PCM filter: 1) linear phase fast roll-off; 2) linear phase slow roll-off; 3) minimum phase fast roll-off; 4) minimum phase slow Quick roll-off; 5) apodizing fast roll-off; 6) corrected minimum phase fast roll-off; 7) brick wall filter.

16) Pairing&play (bluetooth) button: long press for 3 seconds to force into pairing state. Short press to Play/pause.

Display Information

Input —— USB   DSD256 —— Sampling rate

DAC filter —— FILTER3   ▮▮▮▮ —— Power

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Listening to Music

1. Connect headphone to the unit.
*Note: The XD05 Bal only supports dual or balanced channel headphone, does not support the
mono headphone or with remote control function or microphone function.
2. Connect audio device with the unit.
For details, see "Connecting to the Audio Device".
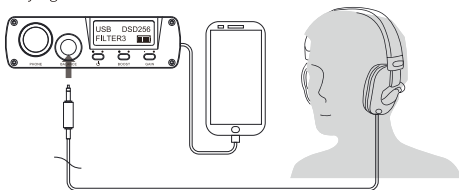3. Turn the power switch to right to turn on the unit.
For the first time the unit connect with the computer would be taking some time.
4. Play music with the connected audio device.
5. Adjust the volume to your comfort value, and start enjoying music.
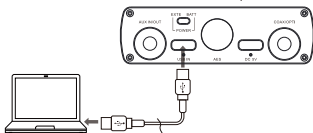6. Set the GAIN or BOOST according to your headphone, you can also set up DAC filter according to your preferences.
7. According to your needs, you can stick it tightly with the machine with magic stickers to facilitate carrying.
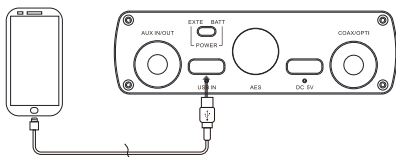

Connecting to the Audio Device

1.Pressing INPUT to the screen display USB IN, use the USB cable to connect to an Apple/windows/Linux system computer, connect headphone, playing music on computer and enjoy it. (Need to set this unit as an audio output device on the computer)
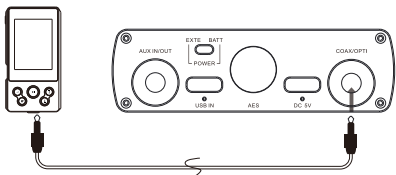
2.Pressing INPUT to the screen display USB IN, use the USB OTG cable to connect to USB audio out of an IOS/ Android phone, pad or HiFi player, connect headphone, then playing music, and enjoy it. (pay attention to pressing INPUT to the screen display USB IN).
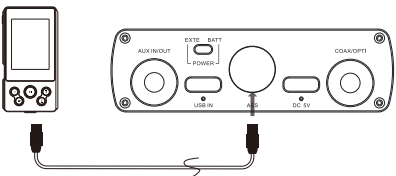

*Note: When you connect the phone for the first time, the phone will automatically turn down the volume, you need to manually set the volume of the phone to maximum. Only when there is sound, there will be no such phenomenon in subsequent use.
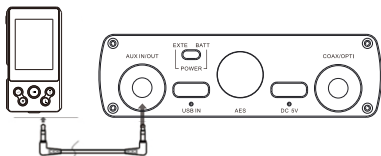
3.Pressing INPUT to the screen display COAXIAL/OPTICAL, use Coaxial/Optical cable to connect with player or CD which with Coaxial /Optical audio output, playing music, connect headphone and enjoy it.
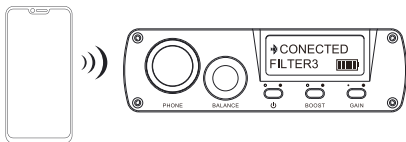

4.Pressing INPUT to the screen display AES, use AES cable to connect with player or CD which with AES audio output, playing music, connect headphone and enjoy it.

5.Pressing INPUT to the screen display AES, use AES cable to connect with player or CD which with AES audio output, playing music, connect headphone and enjoy it.

6.Pressing INPUT to the screen display Bluetooth, connect bluetooth to phone or computer, playing music, connect headphone and enjoy it.
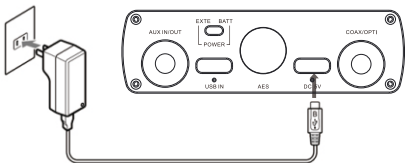
Install USB Driver

1, When this unit is connected to the computer, the driver is required to be installed.(No need if your system is MAC.)

2, you can downloaded the Driver from the official website, link: (https://www.xduoo.net/firmware-download/), choose XDUOO USB Drive, guiding is inside the package.

3, When using the device to play a high resolution audio files on the computer, we recommend using Jriver or Foobar2000 player.

Charging the Unit

1. Charger specifications: output voltage 5V, output current ≥1A.
2. When charging, the red light is on; will turn off when full charged.
3. About 5 Hours for a full charging.
4. If use PC USB power to charge, it will take 11 hours.
5. Can be charged when the device in working, but it will take more time. Advice you charge it after turning it off.
6. If you planning not to use the XD05 Basic for long time, charge it every half year to avoid excessive battery discharge.

Package List

XD05 Bal	1pc
6.5 to 3.5 Converter	1pc
Type-C USB Cable	1pc
USB A to Type-C Converter	1pc
Type-C to Type-C USB cable	1pc
Rubber Feet	10pcs
Magic Stick	1pc
User Manual	1pc
Warranty Card	1pc

Troubleshooting

If you run into any problems using this unit, use the following checklist and read the Troubleshooting.

If you run into any problems using this unit, use the following checklist and read the product support information on user's manual. Should any problem persist, consult your nearest xDuoo dealer or consult us.

The unit does not turn on.
→Charge the battery of the unit.
→When battery life reduces to half, the battery is approaching the end of its service life. Consult your nearest xDuoo dealer for replacement.

The battery cannot be charged.
→Check that the charge switch of unit is turned on.
→Check that the unit and your computer are firmly connected using the USB cable.
→Check that the computer is turned on and not in standby or sleep mode.

→A USB AC adaptor that is not recommended is being used.

→The battery is fully charged.

No sound

→Turn up the volume of connected device or the unit.

→Check that the unit and the audio device are connected correctly.

→Check that the connected device is turn on.

→When connected to a computer, there is no sound or sound is not played back properly, check the device setting of you computer are correct.

Failed to install USB driver for windows

→Check that the unit is connected to computer.

Failed to connect to computer

→Check that the USB driver is successfully installed.

Warranty Information

Our products can enjoy 12-month free warranty services from the date of the sale, if the warranty period is expired, our company will charge parts cost depend on the product fault conditions. Accessories are not covered under warranty.

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