

ZEN DAC 3 User Manual_Ver1.0

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ZEN DAC

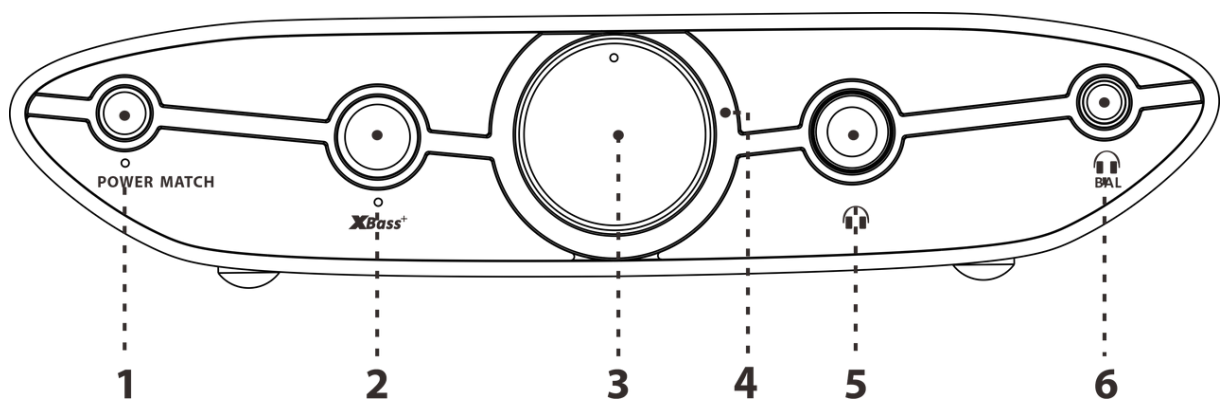
User Manuals

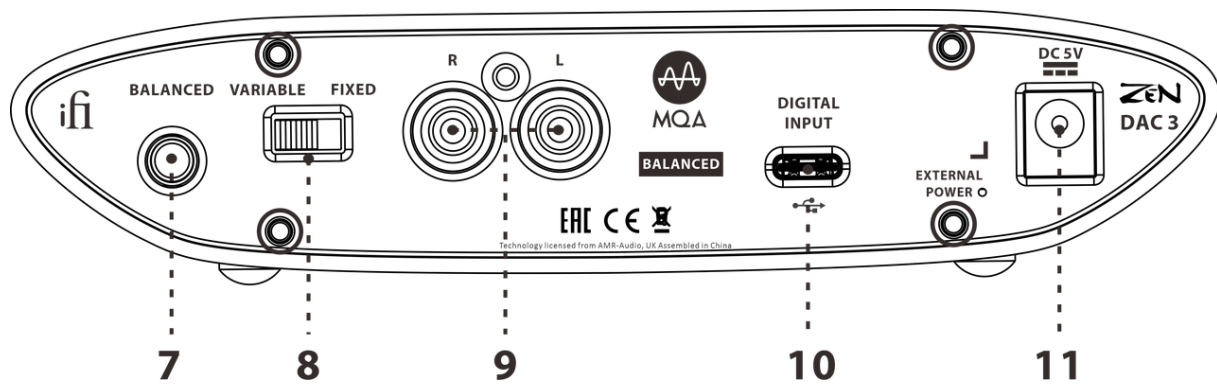
Thank you for purchasing the DAC 3 from the ZEN series. The DAC 3 is a balanced USB-audio DAC amplifier.

FEATURES:

- Supports all high-res music formats up to PCM 768kHz, DSD512, and MQA

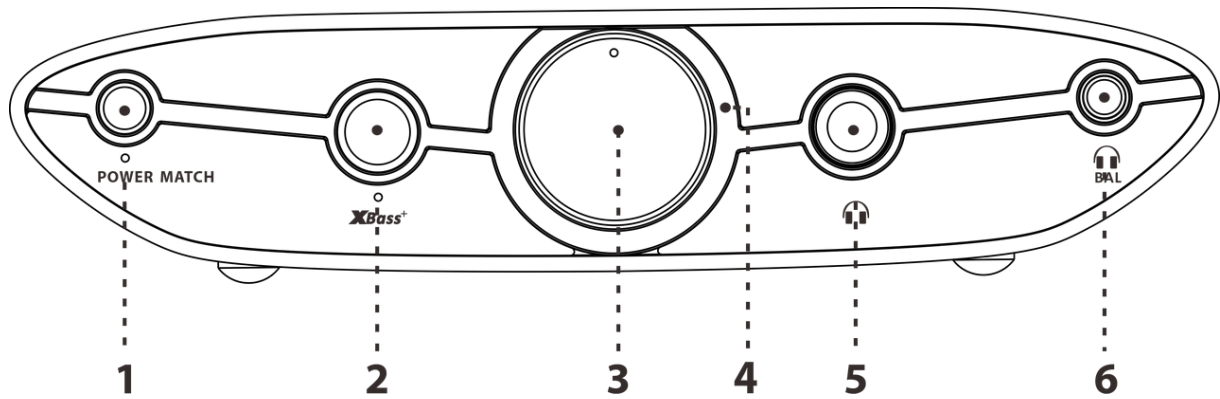
- Equipped with a USB-C input for plug-and-play connectivity
- Offers both 6.3mm Single-Ended and 4.4mm Balanced headphone outputs, delivering up to 390mW of power for various headphones and earphones
- Features RCA and 4.4mm balanced outputs with variable and fixed volume settings, allowing for seamless connection to your active speakers, preamplifiers, or power amplifiers
- Includes XBass+ to restore lost bass frequencies from open headphones
- Comes with PowerMatch, a switchable gain to ensure optimal power for the headphones you are using
- Improved low-jitter GMT (Global Master Timing) clock provides >20dB better performance
- Improved circuitry, including enhanced DC offset, ensures heightened signal purity and accuracy
- Incorporates a 16-Core XMOS low-latency microcontroller for DSD512 and MQA full decoding





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1. PowerMatch (High/Low)

PowerMatch setting should be on low for IEMs and on high for on/over headphones.

LEDStatus

White High

Off Low

WARNING: Due to the high power of ZEN DAC 3, before changing the PowerMatch setting, always start off at a low volume level so that there is no risk of damage to your headphones, speakers or your hearing. iFi audio is not responsible for any hearing or equipment damage from misuse.

2. XBass+ On/Off

Many headphones lack the correct bass response. XBass+ was uniquely designed as an analogue circuit designed to 'add back' the lost bass response for the most accurate playback.

Tip: Open headphones (lack of bass due to structural design) and some highly sensitive earbuds (lack of bass due to unit size limitations) sound better when XBass+ is on, or can be adjusted to suit personal preference.

Tip: Sonically-hindering DSP is NOT used for XBass. They use the highest-quality discrete components and operate purely in the analogue domain. Hence all the clarity and resolution of the original music is retained.

3. Analogue volume control

Turn the dial to control the volume. The analogue volume control in ZEN DAC 3 is superior to any digital volume control. It can be used to control the headphone volume or the pre-amplifier volume (when set to 'Variable'). If the output at the rear is set to 'Fixed' the volume control is bypassed.

Tip: In normal use, the volume should be controlled at around the 12 o'clock position, and then adjusted appropriately if this does not meet your needs; also, when using brand new headphones, it is recommended that the initial volume is controlled at no higher than the 9 o'clock position, and that PowerMatch (1) is set to "Low" to avoid damage your hearing or equipment.

WARNING: Due to the high power of the ZEN DAC 3, always start off at a low volume level so that there is no risk of damage to your headphones or your hearing. iFi audio is not responsible for any hearing or equipment damage from misuse.

4. Audio Format LED (kHz)

The LED colour scheme indicates the audio format and sampling frequency received by ZEN DAC 3 from the music source.

LED	Mode
Yellow	PCM 44.1/48kHz
White	PCM 88.2/96/176.4/192/352.8/384/768kHz
Cyan	DSD 64/128

Red	DSD 256/512
Green	MQA
Blue	MQA Studio
Magenta	Original Sample Rate*
*MQB	

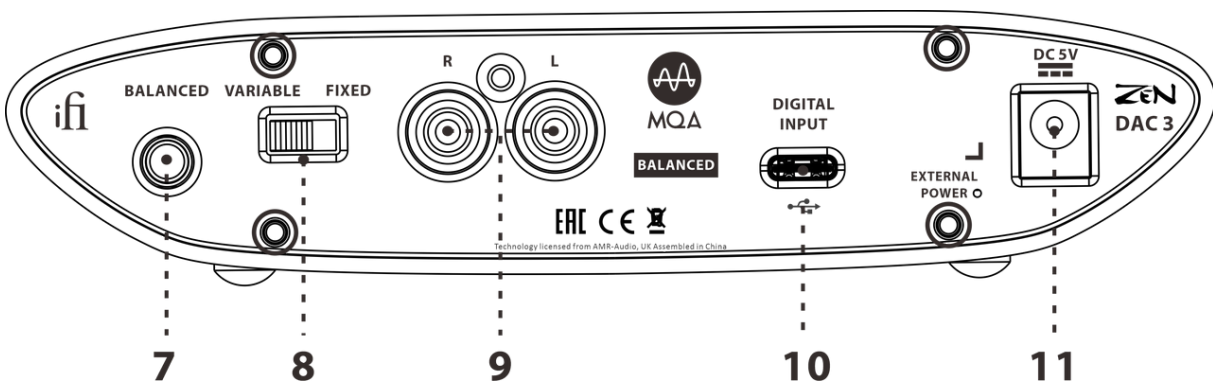
5. Single-Ended 6.35mm output

Connection for 6.35mm unbalanced headphones. Please use a 3.5 to 6.35mm adaptor for 3.5mm Single-Ended headphones.

6. Balanced 4.4mm output

Connect balanced 4.4mm headphones.

Tip: As ZEN DAC 3 is balanced, we recommend the 4.4mm output.



7. Balanced 4.4mm analogue line output

This is an analogue output via 4.4mm > XLR or other balanced interconnects. You can use this to connect to active speakers or amplifiers that have a volume control.

Tip: As ZEN DAC 3 is balanced, this is the recommended output.

8. Variable/Fixed switch

When the rear Balanced 4.4mm (7)/Single-Ended RCA (9) analogue outputs are used, this switch will determine whether or not ZEN DAC 3 analogue volume control (3) is used.

9. RCA analogue output

Single-Ended unbalanced signal output to an amplifier.

10. USB-C audio and power input

This is a USB-C input. It connects ZEN DAC 3 to the computer audio source and provides the power supply.

11. DC 5V Power Supply Connection

ZEN DAC 3 is powered by 5 volts, either via the enclosed USB-A to USB-C cable (for connection to laptop or PC) or DC power supply (not included).

Tip: For optimal performance, it is recommended to upgrade from being powered by USB-C to being powered by an ultra-low noise power adapter such as the iFi iPower 2 5V or iPower X 5V.

Note: For use with PC it is necessary to download drivers.

Tip: For the required driver and all the latest firmware updates please visit our website:

www.ifi-audio.com/download-hub/

SPECIFICATIONS:

Digital Input:	USB-C
Formats:	DSD 512 / 22.6MHz
	PCM 768kHz
	full MQA Decoder
DAC Chipset:	Bit-Perfect DSD & DXD DAC by Burr Brown
Line Output Section	
Line Output:	Balanced 4.4mm/Single-Ended RCA
Output Level:	
Balanced 4.4mm	2V / 6.2V max. (variable) 4.2V fixed
Single-Ended RCA	1V / 3.3V max. (variable) 2.1V fixed
Output Impedance:	

Balanced 4.4mm	$\leq 200\Omega$
Single-Ended RCA	$\leq 100\Omega$
SNR:	
Balanced 4.4mm	$\geq 113\text{dB @ } 0\text{dBFS}$
Single-Ended RCA	$\geq 113\text{dB @ } 0\text{dBFS}$
DNR:	
Balanced 4.4mm	$\geq 113\text{dB @ } 0\text{dBFS}$
Single-Ended RCA	$\geq 113\text{dB @ } 0\text{dBFS}$
THD + N:	
Balanced	$\leq 0.0015\% @ 0\text{dBFS}$
Single-Ended	$\leq 0.003\% @ 0\text{dBFS}$
Headphone Output Section	
Headphone Outputs:	
Balanced	4.4mm
Single-Ended	6.35mm
Output Level:	
Balanced	2V / 6.2V max.
Single-Ended	1V / 3.3V max.
Max. ^ Output power:	

Balanced	>70mW @ 600Ω
	>300mW @ 32Ω
Single-Ended	>18mW @ 600Ω
	>210mW @ 32Ω
RMS Output power:	
Balanced	>390mW @ 64Ω
Single-Ended	>210mW @ 32Ω
Output impedance:	
Balanced	≤1Ω
Single-Ended	≤1Ω
SNR:	
Balanced	≥109dB(A) (6.2V)
Single-Ended	≥109dB(A) (3.3V)
DNR:	
Balanced	≥109dB(A) (6.2V)
Single-Ended	≥109dB(A) (3.3V)
THD + N:	
Balanced	≤0.005% (2V @ 600Ω)
Single-Ended	≤0.013% (1.27V @ 32Ω)

Frequency Response:	5Hz-90kHz (\pm 3dB)
Power supply requirement:	USB-C or DC 5V/0.5A (centre +ve)
Power consumption:	
No Signal	~0.5W
Max Signal	~2.5W
Dimensions:	158 x 115 x 35 mm (6.2" x 4.6" x 1.4")
Net Weight:	456 g (1.0 lbs)
Limited Warranty:	12 months*
<i>*12 months typical or as permitted/required by local reseller laws.</i>	
<i>**Specifications are subject to change without notice.</i>	
<i>^See FAQ at ifi-audio.com for more information.</i>	