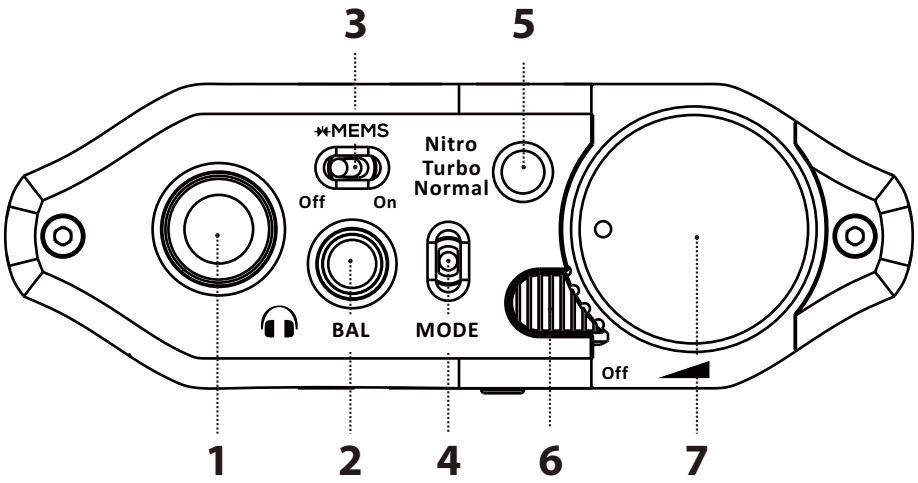
iDSD Diablo 2



Thank you for purchasing the Diablo 2 from the Diablo series. The **iDSD Diablo 2** is a balanced USB and Bluetooth Ultra-Res portable DAC + headphone amplifier

1. Single-Ended 6.35mm output

Connection for 6.35 single ended headphones . Please use 3.5 to 6.35 mm adaptor for 3.5 single ended headphones.

Tip: With a new pair of IEMs/Headphones, ALWAYS start with the volume no higher than 9 o' clock and with the Power Mode (item 4) set to 'Normal'.

2. Balanced 4.4mm and xMEMS analogue output

Connect balanced 4.4mm headphones. See the next section for instructions on using the xMEMS headset.

Tip: As iDSD Diablo 2 is balanced, we recommend the 4.4mm output.

3. xMEMS Mode ON/OFF

This mode is specifically designed for xMEMS headphones. To use xMEMS headphones, please enable xMEMS mode.

Tip: xMEMS transducers are a piezoelectric technology that has specific drive requirements, and can only be used when xMEMS mode is on.

Warning: With xMEMS mode on, please connect xMEMS IEMs to the balanced 4.4mm headphone output only (item 2). It is not recommended to connect other types of headphones while xMEMS mode is on. To connect those, please turn off the xMEMS mode before connecting.

Tip: If the mode is used incorrectly, such as plugging xMEMS headphones into the balanced 4.4mm headphone port when xMEMS mode is not turned on, or plugging regular balanced 4.4mm headphones into the balanced 4.4mm headphone port when xMEMS mode is turned on, please don't worry about damage to your headphones or your hearing, but it will result in distorted sound.

4. Power Mode

There are 3 different types of power output levels to drive different headphones from the ultra-sensitive in-ear monitors to the most demanding over-ear headphones.

General mode

Approximate listening time (in Battery mode with typical headphones):

Normal	for high-sensitivity IEMs, up to a maximum of 12 hours
Turbo	for medium-sensitivity headphones, up to a maximum of 9 hours
Nitro	for the most demanding headphones, up to a maximum 6 hours

xMEMS mode

Normal	DC bias level is 10V, up to a maximum of 8 hours
Turbo	DC bias level is 12V, up to a maximum of 7 hours
Nitro	DC bias level is 14V, up to a maximum 6 hours

5. INPUT Mode/Audio Format (kHz) /Bluetooth Format LED

INPUT LED

LED	Mode
White (flashing)	Wired (USB or S/PDIF or 4.4mm)
Blue (flashing)	Wireless Bluetooth (Awaiting connection)
Blue/Red (flashing)	Wireless Bluetooth (Pairing)

Audio Format (kHz) LED

The LED colour scheme indicates the audio format and sampling frequency received by the iDSD Diablo 2 from the music source.

LED	Format (kHz)
Yellow	PCM 48/44.1kHz
White	PCM 768/705.6/384/352.8/192/176.4/96/88.2kHz
Cyan	DSD 128/64
Red	DSD 512/256
Green	MQA
Blue	MQA Studio
Magenta	Original Sample Rate*

**MQB*

Attention: Installing GTO enabled firmware may result in the LED's on this device no longer changing in accordance with the above table

Bluetooth Format LED

The colors shown on the LEDs are based on the Bluetooth audio format received by the iDSD Diablo 2.

LED	Format
Off	SBC
Yellow	AAC
Blue	aptX*
Magenta	aptX HD*
Green	aptX Adaptive*
White	AptX Lossless*
Red	HWA/LHDC
Cyan	LDAC™

6. Volume lock

Used to lock the volume knob in position. This prevents it from turning if touched accidentally, resulting in a sudden increase or decrease in volume. It also prevents accidentally powering the iDSD Diablo 2 on.

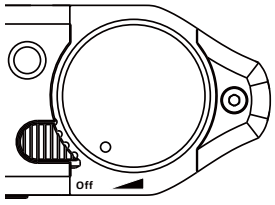
7. ON/OFF and Analogue Volume Control

The analogue volume control in iDSD Diablo 2 is sonically superior to any digital volume control.

Warning: Due to the high power of iDSD Diablo 2, 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.

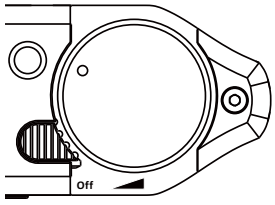
Power ON.

Step 1 ON



Power OFF.

Step 2 OFF

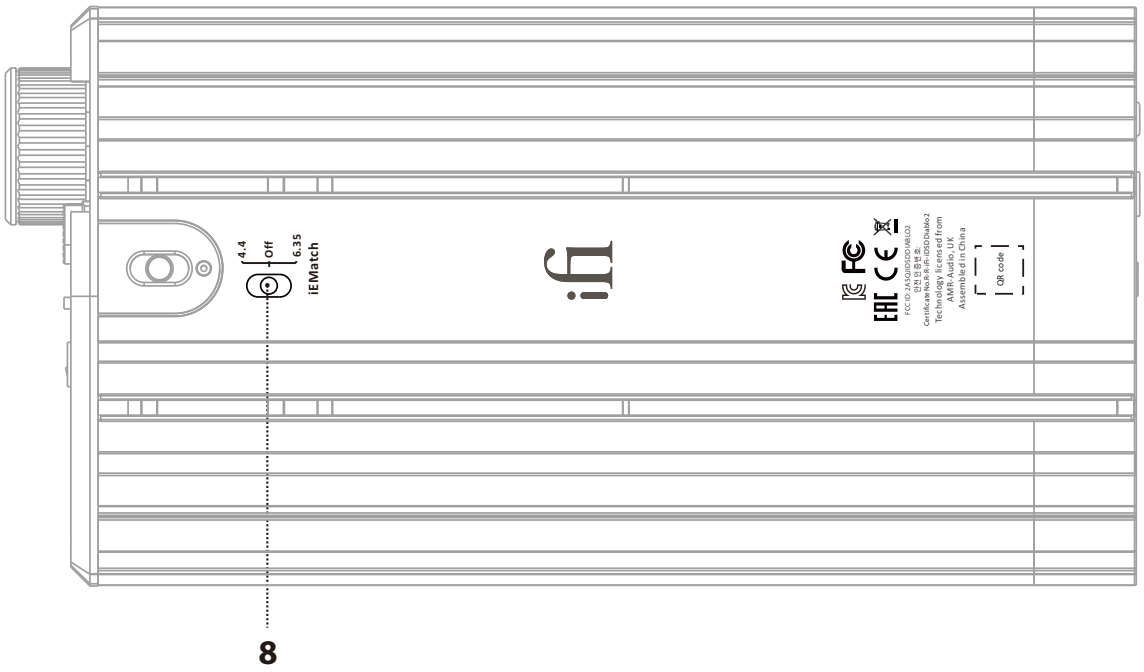


The iDSD Diablo 2 is equipped with a memory function, after powering on, it will automatically restore the last mode used. If the last mode used when powering off was wireless Bluetooth mode, after powering on, the iDSD Diablo 2 will firstly enter into the Waiting for Connection mode (item 5, INPUT: blue light blinking), which is the mode in which it automatically searches for the pairing device from 15 seconds ago; if it does not find the stored pairing device is not found, it will automatically enter the waiting pairing mode (item 5, INPUT: blue/red light blinking alternately).

Tip: iDSD Diablo 2 will continue to use battery power even if the USB cable is connected afterwards.

Tip: For connection to Apple devices, an Apple Lightning to a USB Camera Adapter is required. For connection to Android devices, a USB-C to USB-C cable and appropriate OS support are required.

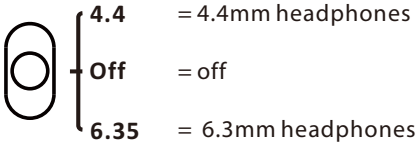
For more information, please refer to www.ifi-audio.com.



8. iEMatch switch

iEMatch reduces the output level, so that even the most sensitive In-Ear-Monitors (IEMs) can be matched to the iDSD Diablo 2.

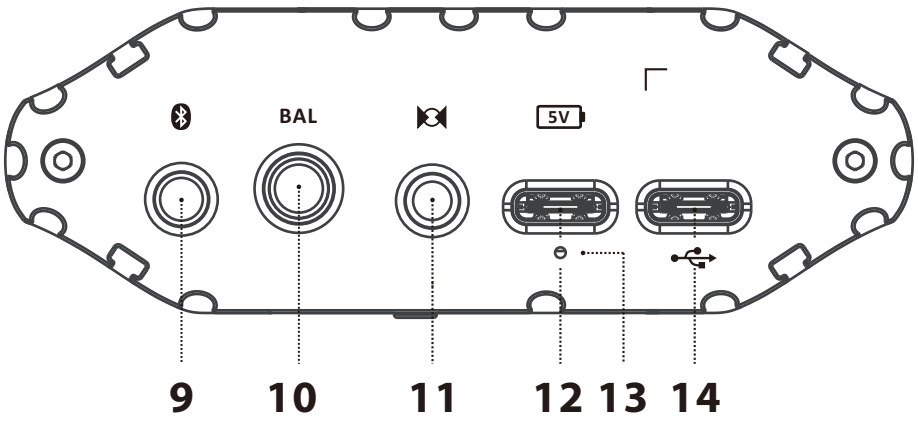
iEMatch can increase the dynamic range of sensitive IEMs by reducing background amplifier hiss.



Tip: The iDSD Diablo 2 or the headphone will not be damaged if the iEMatch switch is adjusted incorrectly, but the attenuation level will not be correct.

Tip: When using the 4.4mm headphone output, the 4.4 iEMatch position reduces the level by -12dB, and the 6.35 position reduces it by -6dB. Similarly, when using the 6.35mm headphone output, the 6.35 iEMatch position reduces the level by -12dB, and the 4.4 position reduces it by -6dB.

Note: The iEmatch function is not available when the driver mode is "Nitro", or when xMems mode is turned on.



9. Input mode selector/Bluetooth pairing

Input Mode selector

Short press cycles between wired and wireless (Bluetooth) modes. The LED (item 5) flashes white for wired mode, or flashes blue for Bluetooth mode after a short press.

Wired Mode (USB or S/PDIF or 4.4mm)

This mode allows you to connect the iDSD Diablo 2 with a DAP, phone, laptop or any other device via a Lightning to USB camera adapter (Apple) or a USB-C to USB-C cable (Android), S/PDIF, 4.4mm.

The selection between S/PDIF and USB and 4.4mm is automatic. The USB signal has priority over S/PDIF (USB > S/PDIF > 4.4mm) . To use the S/PDIF signal input, please make sure there is no signal going through the USB input.

Wireless Mode (Bluetooth)

This mode allows you to connect the iDSD Diablo 2 to a DAP, phone or any other music source with Bluetooth wirelessly.

Bluetooth Pairing

When Bluetooth input is selected, the INPUT LED (item 5) will blink blue and search for previously paired devices. If a stored device is not found, it will automatically enter pairing mode and flash blue/red.

Press and hold the button (3 s) to enter pairing mode until the INPUT LED (item 5) flashes blue/red. To pair, find the 'iFi Lossless Audio' Bluetooth device on your audio source device such as a mobile phone.

The iDSD Diablo 2 can store up to 8 paired Bluetooth devices.

Tip: The iDSD Diablo 2 receives Bluetooth signals via aptX, aptX Lossless, aptX Adaptive, LDAC™, LHDC/HWA, AAC and SBC.*

10. Balanced 4.4mm line ouput/SE line intput

a) Output - when input mode is S/PDIF, USB or Bluetooth, etc.
b) Input - when there is no S/PDIF, USB or Bluetooth input, the 4.4mm line input is available (Single-Ended only).

Tip: Analogue output via 4.4mm > XLR or other balanced interconnects may be used when in fixed line output mode. You can use this to connect to active speakers or amplifiers that have a volume control. To use this balanced output with a single ended connection, please use the iFi 3.5mm to 4.4mm adapter (This adapter does not convert an single ended connector into a balanced one – the connection remains single ended).

Tip: The input impedance as a line input is very low when in xMEMS mode. Please use an analogue source with low impedance output < 10 ohms when in xMEMS mode. During playback from a digital source using USB, S/PDIF or Bluetooth (ie. when in line output mode), please unplug your analogue source.

Warning: The volume level is fixed from this 4.4mm connector in line out mode. The volume control and headphone amp settings have no influence on it. Do not insert 4.4mm headphones to this source as the full volume is likely to damage your headphones or your hearing.

11. S/PDIF 3.5mm Coaxial/Optical input

When USB is not used, connect to a coaxial cable (3.5mm TS), or an optical cable through a Toslink to 3.5mm Mini-Plug.

Tip: a 3.5mm optical mini-plug to Toslink adaptor is included for connecting a Toslink optical cable.

Tip: MQA can be decoded from the S/PDIF input as well as the USB input.

Tip: The S/PDIF standard supports PCM only up to 192kHz.

12. USB-C (5V) battery charge input

For charging only. Due to the very high-power nature of iDSD Diablo 2, it will take ~12 hours and ~5 hours for a standard and high-powered charger, respectively, to fully recharge.

Tip: iDSD Diablo 2 will continue to use battery power even if the USB-C (5V) cable is connected afterwards.

Tip: When the iDSD Diablo 2 is off and a 5V USB power supply is detected, the LED (item 13) will change colour to show the various states of charge (see next section).

Tip: We recommend charging the iDSD Diablo 2 while the machine is off, otherwise the following two situations will occur:
1. Can listen to music while charging, but it may take longer to be fully charged, depending on the volume level and the headphones used.
2. The iDSD Diablo 2 may be slightly warm to the touch when it is simultaneously in use and being charged. This is normal, and there is no cause for concern.

Tip: The iDSD Diablo 2 will run from battery power whilst charging.

13. LED for Battery Status

LED	Status
White*	> 75%
Green*	> 25%
Red*	> 10%
Red (flashing)	≤ 10%

**Battery LED will flash when it is charging.*

14. USB-C data input port

Connect your phone to the iDSD Diablo 2 with a Lightning to USB Camera Adapter (Apple) or USB-C to USB-C cable (Android). When using other audio sources, please connect with a USB cable. This USB-C port is intended for data transfer only.

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

Tip: For firmware optimised to run PCM768/DSD512(non-MQA) please install corresponding firmware.

Tip: For all latest firmware updates please refer to our website here: www.ifi-audio.com/download-hub/

Specifications

Digital Inputs:	USB-C
	S-PDIF (3.5mm coaxial/optical)
	Bluetooth 5.4™ (aptX Lossless, aptX Adaptive, aptX, LDAC, HWA/LHDC, AAC and SBC)
Analogue Input:	Single-Ended 4.4mm, 2Vrms max. positive phase connection only
Formats supported:	DSD 512 /22.6MHz
	PCM 768kHz
	MQA Full Decoder
	Bluetooth 5.4™
DAC:	Bit-Perfect DSD & DXD DAC by Burr Brown
	Qualcomm QCC 518x Series
Frequency Response:	
DAC mode	1.5Hz-114kHz (-3dB)
Line mode	1.5Hz-400kHz (-3dB)
Line Output Section	
Line Output:	Balanced 4.4mm
Output Level:	4.1Vrms @ 0dBFS (Bal)
Output Impedance:	≤210Ω
SNR:	≥114dB(A)
DNR:	≥114dB(A)
THD + N:	0.002% @ 0dBFS (200kΩ load)
Headphone Output Section	
Headphone Output:	Balanced 4.4mm; Single-Ended 6.35mm
Output power:	
Balanced (Max.^)	>19.2V/611mW (@ 600Ω); >12.87V/5,180mW (@ 32Ω)
Single-Ended (Max.^)	>9.6V/153mW (@ 600Ω); >8.85V/2,450mW (@ 32Ω)
Balanced (RMS)	>11.5V/2066mW (@ 64Ω)
Single-Ended (RMS)	>8.1V/2050mW (@ 32Ω)
xMEMS	>28Vpp (Balanced 4.4mm), 22Ω, 10-14V DC bias
Output impedance:	
Balanced	<1Ω(≤5.7Ω with iEMatch engaged)
Single-Ended	<1Ω(≤5.7Ω with iEMatch engaged)
SNR:	
Balanced	≥113dB(A)
Single-Ended	≥113dB(A)
DNR:	
Balanced	≥113dB(A)
Single-Ended	≥113dB(A)
THD + N:	
Balanced	0.003% (16Ω @ 2.4V)
Single-Ended	0.003% (16Ω @ 2.4V)
Power consumption:	
Nitro	12W
Turbo	5W
Normal	2W
xMEMS Mode:	
Nitro	4.1W
Turbo	4.0W
Normal	3.5W
Battery:	Lithium-polymer 4800mAh
Power System:	Charging via USB-C BC V1.2 compliant up to 1900mA charging current
Dimensions:	166 x 85 x 28.5 mm (6.5" x 3.3" x 1.1")
Net Weight:	455 g (1.0 lbs)
Limited Warranty:	12 months*

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*12 months typical or as permitted/required by local reseller laws.
**Specifications are subject to change without notice.
^See FAQ at ifi-audio.com for more information.