

NEO iDSD 2 Tech Lowdown



NEO iDSD2

Wireless. Lossless.

World first Lossless Bluetooth DAC/Amp

Bluetooth 5.4™ - Supports new **aptX Lossless**.

The only Bluetooth codec capable of streaming lossless CD-quality audio.

Ample power for headphones and power amplifiers

Headphone Balanced output: >13.3V (**19.5V Max**) / **5,551 mW** (@ 32Ω)

XLR Balanced output: **19.5V max.** (variable), 4.4V fixed



5,551
mW

5 times more powerful than its predecessor.



Qualcomm® aptX™
Lossless

Key Features

All-in-one DAC/Amp that can be used as a **Pure DAC**, **DAC/Preamp**, and **headphone DAC/Amp**.

Enhanced headphone output with gain selection

Added four digital filters

Added analogue processing modes: XSpace, XBass II



NEO iDSD 2 vs. iDSD Looks

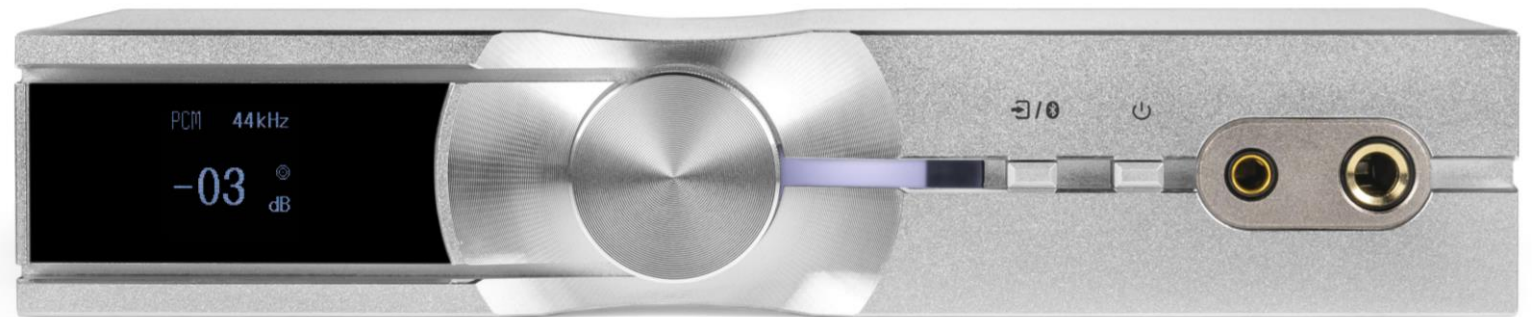
NEO iDSD2



SilentLine retina-grade TFT **colour** display with noise-free design for pure audio signal.

Added analogue processing modes **XSpace** and **XBass II**, as well as a **headphone gain** selection.

NEO iDSD



Mono display.

NEO iDSD 2 vs. iDSD Looks



NEO iDSD 2

Added **external clock input** and single ended 3.5mm input.

Improved **internal antenna** design.

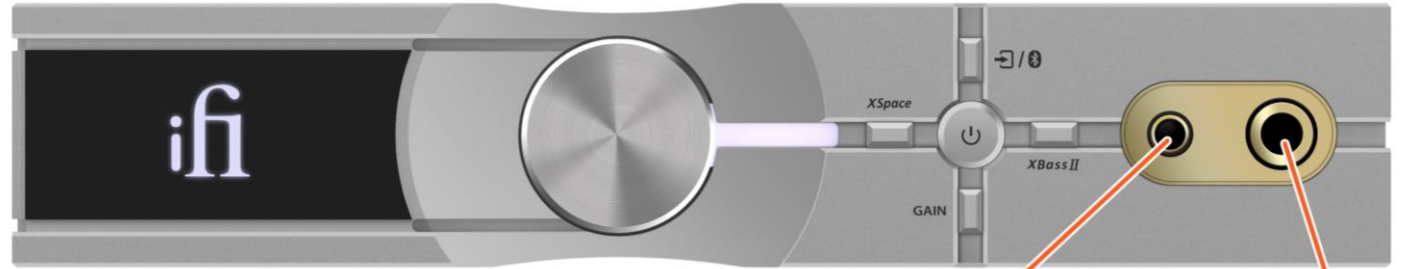


NEO iDSD

NEO iDSD vs. iDSD 2

	NEO iDSD	NEO iDSD2
Digital Inputs	USB 3.0 (USB2.0 compatible) S-PDIF (coaxial/optical) Bluetooth 5.1™ (aptX, aptX HD, aptX Adaptive, LDAC, HWA/LHDC, AAC and SBC)	USB 3.0 (USB2.0 compatible) S-PDIF (coaxial/optical) Bluetooth 5.4™ (aptX Lossless, aptx, aptX Adaptive, LDAC, HWA/LHDC, AAC and SBC)
Clock	N/A	External Sync Clock 10MHz
Headphone gain selection	N/A	Auto iEMatch (-12dB) 0dB > +8dB > +16dB > -12dB
Headphone section Output (12Ω - 600Ω Headphone)	Balanced 4.4mm: 2V / 6.2V max. Unbalanced 6.3mm: 1V / 3.3V max.	3.5V / 19.5V max. 4.5V / 9.5V max.
Output power	Balanced: >6.4V/68.6 mW (@ 600Ω) >5.77V/1040 mW (@ 32Ω) UnBAL: >3.25V/17.6 mW (@ 600Ω) >3V/295 mW (@ 32Ω)	>19.5V/650 mW (@ 600Ω) >13.3V/5,551 mW (@ 32Ω) >10.5V/184 mW (@ 600Ω) >9.5V/2,832 mW (@ 32Ω)

Connection Guide



RCA Output
Unbalanced



BNC Clock Input
Digital Sync



S/PDIF Input
Optical



Power Input
DC 9V-15V



4.4mm output
Balanced



6.3mm output
Single-Ended



XLR 3-Pin Output
Balanced



3.5mm Input
Analogue



S/PDIF Input
Digital



USB Input
PC, Streamer etc.



iFi Nexis App. Enhancing User Experience.



OTA Upgrades: Automatic firmware updates over the network.

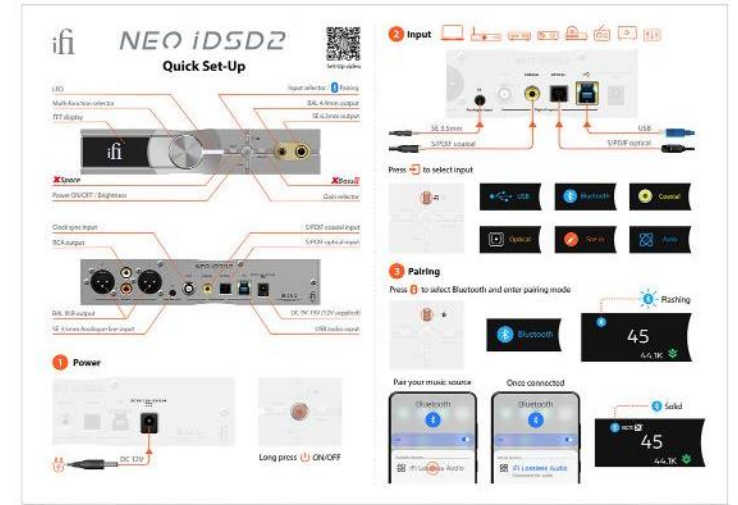
Modern Remote Control: User-friendly interface replaces traditional remotes.

Easy Adjustments: Manage and adjust NEO iDSD2 functions with convenience.

New Aluminium Remote Control



Box contents



Specifications

SPECIFICATIONS	
Inputs:	
Digital	USB3.0 B (USB2.0 compatible) S/PDIF (RCA Coaxial) S/PDIF (Optical) Bluetooth 5.4™ (aptx, aptX Lossless, aptX Adaptive, LDAC, HWA/LHDC, AAC and SBC)
Analogue	UnBAL 3.5mm
Clock:	External Sync Clock 10MHz, 1Vpp (min 600mV, 5V max.) Sinewave or Squarewave
Format:	DSD 512 / 22.6MHz PCM 768kHz MQA Full Decoder Bluetooth
DAC:	Bit-Perfect DSD & DXD DAC by Burr Brown Qualcomm QCC 5181 Series
Line Section	
Outputs:	
Balanced XLR	19.5V max. (variable) 4.4V fixed
UnBAL RCA	10.5V max. (variable) 2.2V fixed
Output Impedance:	
Balanced	≤100Ω
UnBAL	≤50Ω
SNR:	
Balanced	<-120dB(A) @ 0dBFS
UnBAL	<-120dB(A) @ 0dBFS
DNR:	
Balanced	>120dB(A) @ -60dBFS
UnBAL	>120dB(A) @ -60dBFS
THD+N:	
Balanced	<0.0015% @ 0dBFS
UnBAL	<0.0015% @ 0dBFS

Headphone Section	
Output:	
Balanced 4.4mm	3.5V / 19.5V max. 12Ω - 600Ω Headphone
UnBAL 6.3mm	4.5V / 9.50V max. 12Ω - 300Ω Headphone
Output Power:	
Balanced	> 19.5V/650 mW (@ 600Ω) > 13.3V/5,551 mW (@ 32Ω)
UnBAL	> 10.5V/184 mW (@ 600Ω) > 9.5V/2,832 mW (@ 32Ω)
Output Impedance:	
Balanced	<1Ω
UnBAL	<1Ω
SNR:	
Balanced	> 120dB(A) @ (6.2V)
UnBAL	> 120dB(A) @ (3.3V)
DNR:	
Balanced	-120dB(A)
UnBAL	120dB(A)
THD + N:	
Balanced	<0.0015% (125mW @ 32Ω)
UnBAL	<0.0015% (125mW @ 32Ω)
Frequency Response: 20Hz - 90kHz (-3dB)	
Power supply requirement: DC 9V/1.5A - 15V/0.9A (centre +ve)*	
Power consumption: No Signal ~5W Max Signal ~13.5W	
Dimensions: 214 x 158 x 41 mm (8.4" x 6.2" x 1.6")	
Net weight: 916g (2.0 lbs)	
Limited Warranty: 12 months**	
*A power supply unit must be able to deliver minimum rated repetitive current	
**12 months typical or as permitted/required by local reseller laws.	
***Specifications are subject to change without notice	

Components



Ultra-low Jitter Audio Stage Oscillator



Precision analogue volume control with digital interface

Panasonic ECU
Panasonic film capacitors



Low noise/distortion OV2637A (0.0001%)
Performance equals/surpasses many high-end headphone amplifiers



COG capacitors
For audio use with extremely low distortion



Advanced trench technology MOSFET as muting switch
Hence when not in use doesn't affect the sound



Qualcomm 518x series Bluetooth chip
Bluetooth 5.4™ (aptX Lossless, aptX Adaptive, aptX, LDAC, HWA/LHDC, AAC and SBC)



All new cloud based iFi Ecosystem



SilentLine TFT



Full MQA Decoding
Xmos 16-Core controller with iFi optimised firmware



Burr-Brown Products from Texas Instruments
Burr-Brown Native DSD DAC



Components



Tantalum Polymer Capor ltra-low noise/distortion



Murata Low-ESR high Q multilayer capacitor

Panasonic **ECPU**
Panasonic film capacitors



TEXAS INSTRUMENTS
Precision low-noise power supply



Fully balanced circuit

5,551_{mW}

Exceptional power drives the toughest headphone loads
(5x the power of the first-gen NEO iDSD)

TDK
COG capacitors

For audio use with extremely low distortion

Explanation of Analogue Processing Modes

XSpace

The XSpace Matrix on/off recreates a holographic sound field using purely analogue signal processing, designed for headphone as if one was listening to speakers. It addresses the 'music inside the head' sensation that can be uncomfortable.

XBassII

"XBass" is an analogue circuit designed to 'add back' the lost bass response for more accurate reproduction of the original music.
"Presence" refers to improving the upper midrange for a natural sound.

Cycle through the three bass modes to select:

Off > **XBass** > **Presence** > **XBass + Presence**
Off XBass Presence XBass + Presence

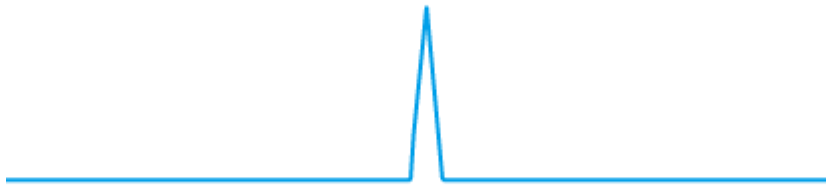
Note: Research into headphone frequency response showed that a purely flat response may not be correct. Our long present XBass fits the profile of the low-frequency correction required. However, it was also shown that a certain amount of upper midrange boost is needed to give many headphones a more 'natural' sound. This upper midrange region is usually called the 'presence' region; we have used this term to indicate the upper midrange correction. In the NEO iDSD2, XBass II (or perhaps better HPEQ) can be selected to have either Bass + Presence correction, only Bass or only Presence correction.

Note: Sonically-hindering DSP is NOT used for XBass II nor XSpace matrix systems. 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.

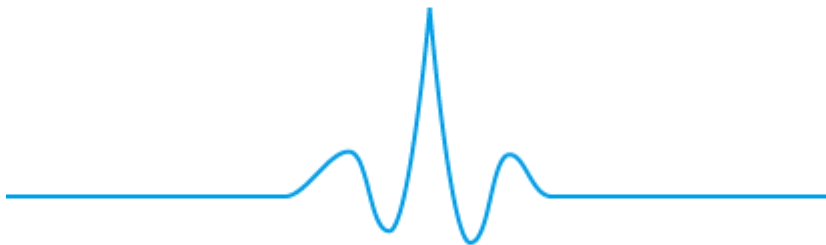
Explanation of Digital Filters

There's no one-size-fits-all solution; it's about finding what suits you best. The following four digital filters are available:

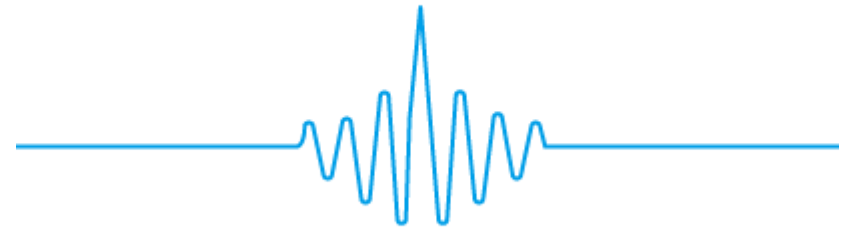
'**BP**' **Bit-Perfect**, with no digital filtering or pre/post ringing. Delivers crisp, robust sound, sharp natural tones, and a fuller midrange.



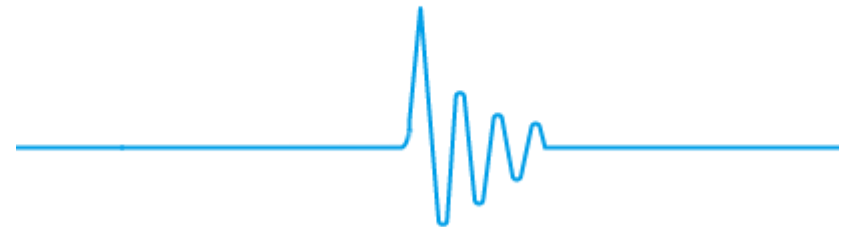
'**MIN**' **Minimum Phase** offers slow roll-off with minimal pre and post ringing, slight reverberation, and a warmer sound. It balances data metrics and listening experience, between STD and BP.



'**STD**' **Standard** provides balanced filtering with modest pre and post ringing. With its fast roll-off and subtle post-reverb, delivering a powerful sound. It reduces high-frequency noise, resulting in a tighter sound with controlled highs.



'**GTO**' **Gibbs Transient-Optimized**, up-sampled to 352.8/384kHz, offers minimal filtering with no pre-ringing and minimal post-ringing. With its precision characteristic, it enhances sound details and density.



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audio