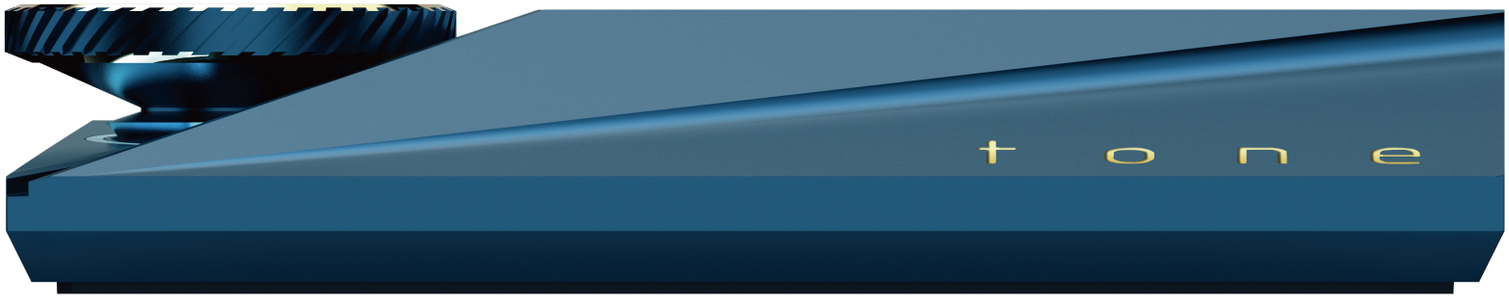
KHADAS

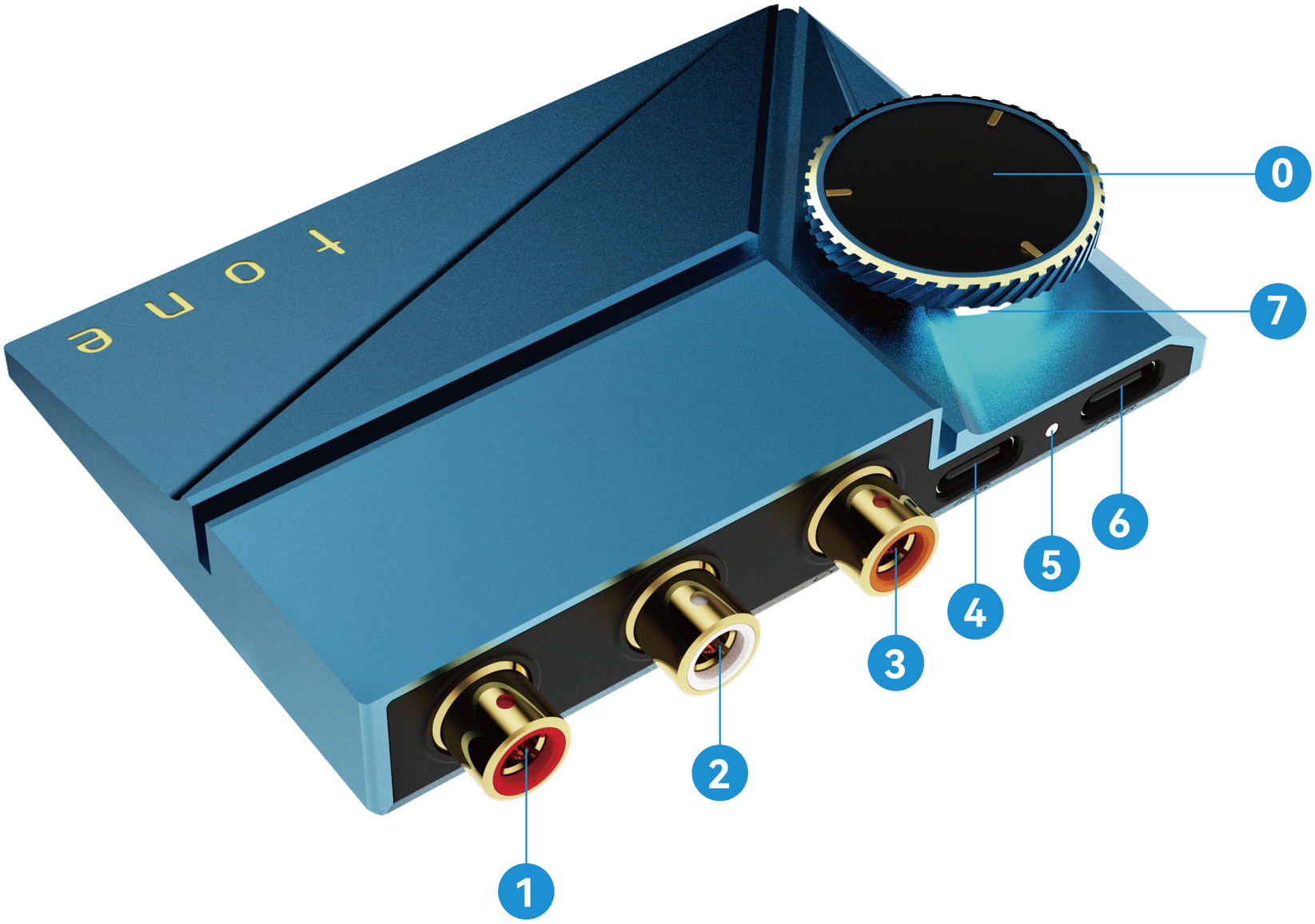


Tone2

Hi-Fi Mini Desktop DAC

Quickstart | 入门指南

Interface Diagram



1 Balanced RCA-R

2 Balanced RCA-L

3 S/PDIF (Coaxial)

4 USB-C (I2S)

5 Power LED

6 USB-C (USB)

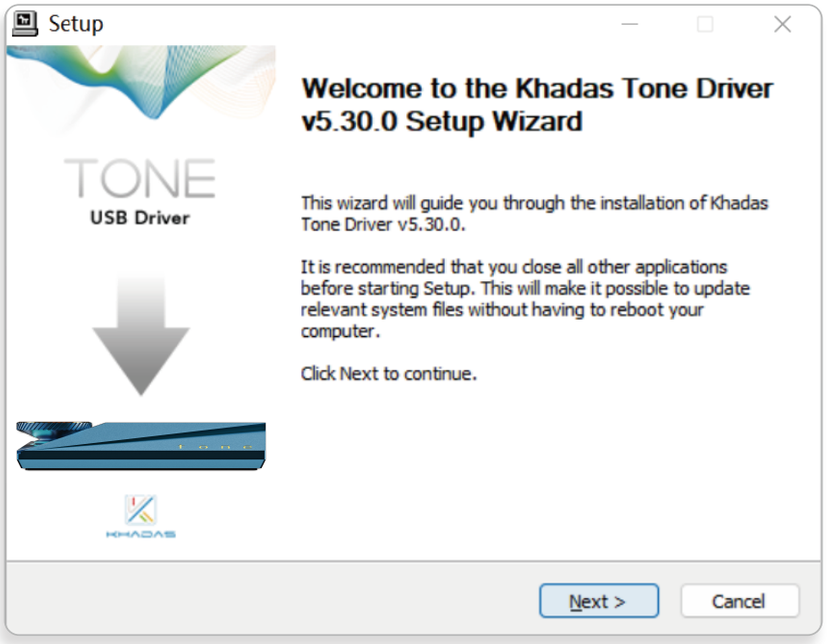
7 RGB LED Light

0 Volume Knob

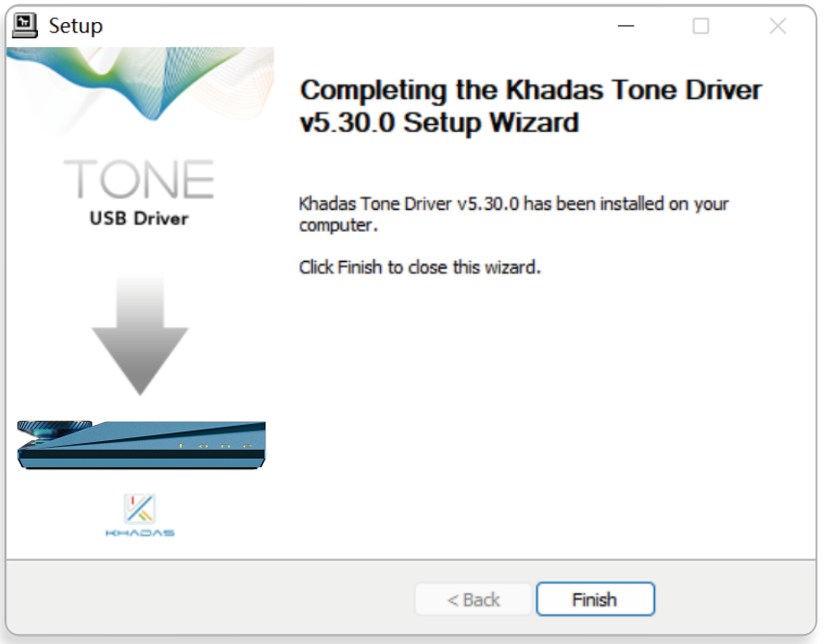
Driver Installation

1 Install the Khadas ASIO USB driver
Download the latest driver from dl.khadas.com/products/tone2/driver

2 Restart your Windows PC
The Khadas ASIO USB driver will activate after your PC restarts.



1 Step 1



2 Step 2

* Windows' default USB audio driver has high latency, low sampling rates, and does not support ASIO. For a better user experience, please install the Khadas ASIO USB driver.

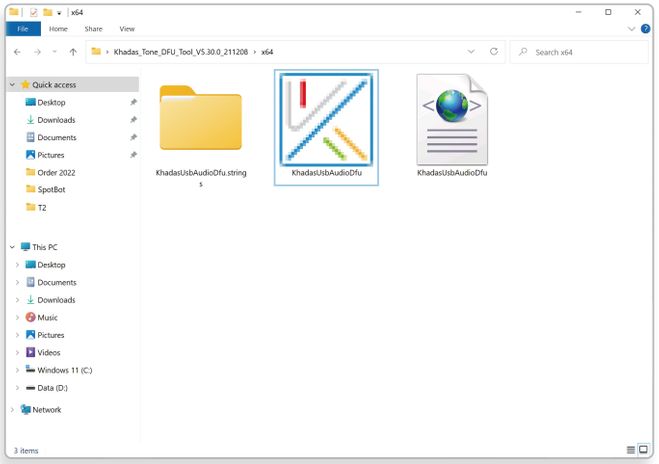
Firmware Upgrade

1 **Open the Khadas DFU Upgrade Tool**
Download the latest tool from dl.khadas.com/products/tone2/dfu_tool

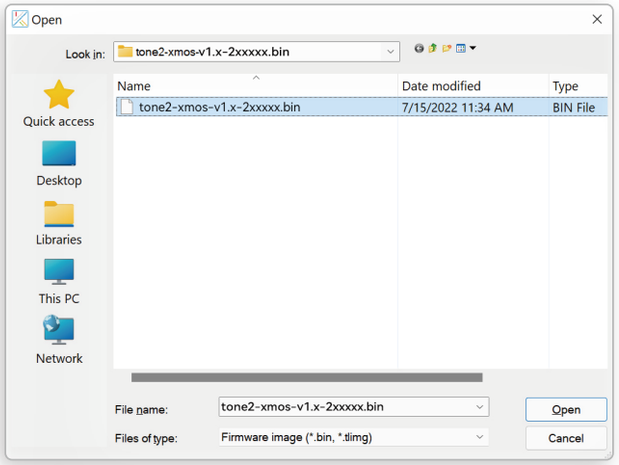
2 **Download the latest Tone2 firmware**
Download the latest firmware from dl.khadas.com/products/tone2/firmware

3 **Flash new firmware to Tone2**
Connect your Tone2 via a USB-C cable to your PC, and use the DFU tool to burn the new firmware.

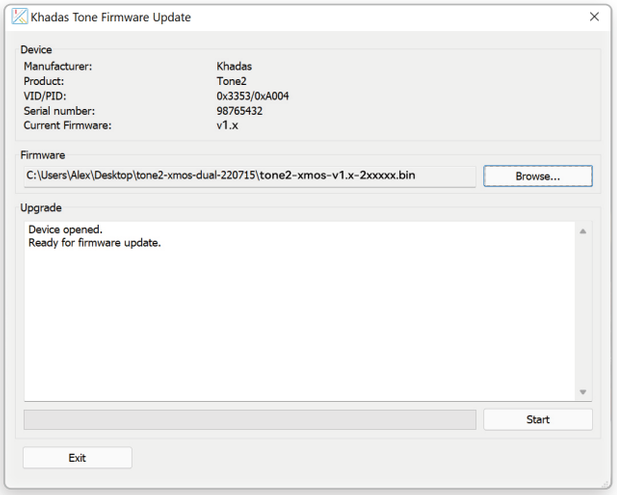
4 **Power off and restart your Tone2**
After the firmware update is completed, Tone2 needs to be powered off and restarted to activate the new firmware.



1 Step 1



2 Step 2



3 Step 3

* For more details, visit docs.khadas.com/tone2

Input / Output Sources

1 — Pre-amp (analog out) -> Amp -> Hi-Fi speaker

2 — Pre-amp (analog out) -> Amp -> Hi-Fi speaker

3 — CD player (S/PDIF coax-in)

4 — ‘Khadas BT Magic’ Bluetooth audio receiver module / USB-C 5V linear power supply (power-in)

5 — Computer / Smartphone/ SBC (data-in and power-in)

* The ‘Khadas BT Magic’ Bluetooth audio receiver module needs to be purchased separately.

RCA Usage Modes

- Khadas balanced RCA to XLR-3 converter

- Standard RCA cable

RCA port	Standard RCA cable	Balanced RCA cable
1 Balanced RCA-R	Unbalanced signal-R	Balanced signal-R
2 Balanced RCA-L	Unbalanced signal-L	Balanced signal-L
3 S/PDIF coaxial input	Input S/PDIF signal R+L	

* Attach RCA cables first, before powering on Tone2.

Power Priority

1 **USB-C (I2S)**
Linear power supply

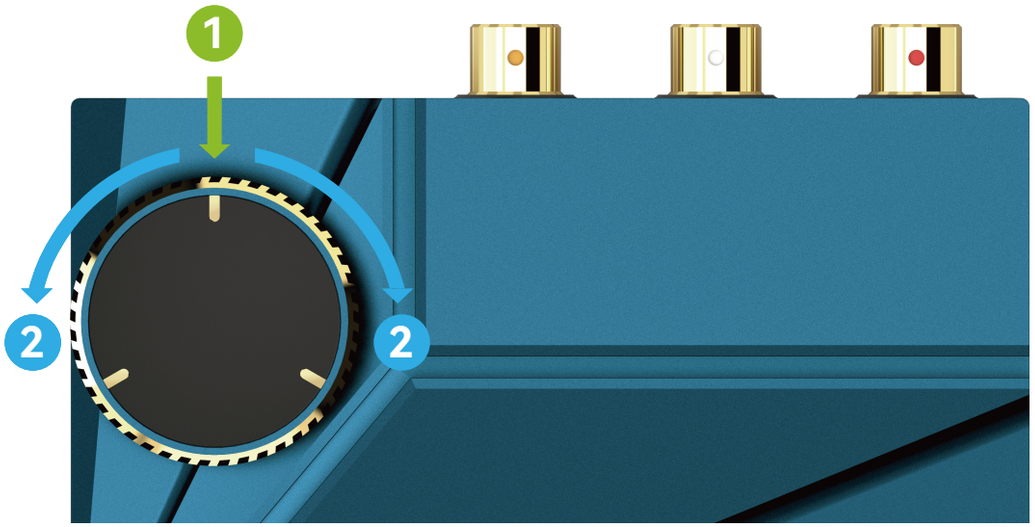
2 **USB-C (USB)**
Smartphone/PC/SBC

* The USB-C (I2S) interface is not standard.
Only specific cables (sold separately) can be used for linear power supplies connected to the USB (I2S) port.

Volume Knob

1 **Push**

2 **Rotate**



Action		[1] Push				[2]Rotate	
Mode	Function	Single	Double	Triple	Long	Clock	Anti-C
General	Play / Stop	*					
	Lock / Unlock			***			
	Off				********		
	On	*					
	Erase BT record				********		
Volume	Increase		** Mode switch			↻	
	Decrease						↺
Track	Next		** Mode switch			↻	
	Previous						↺
Input	Next		** Mode switch			↻	
	Previous						↺
Filter	Next		** Mode switch			↻	
	Previous						↺

* With the external Bluetooth Module plugged-in and Tone2 powered off (USB cable with 5V power still plugged-in), long-press the volume knob for 5s to clear the Bluetooth pairing record.

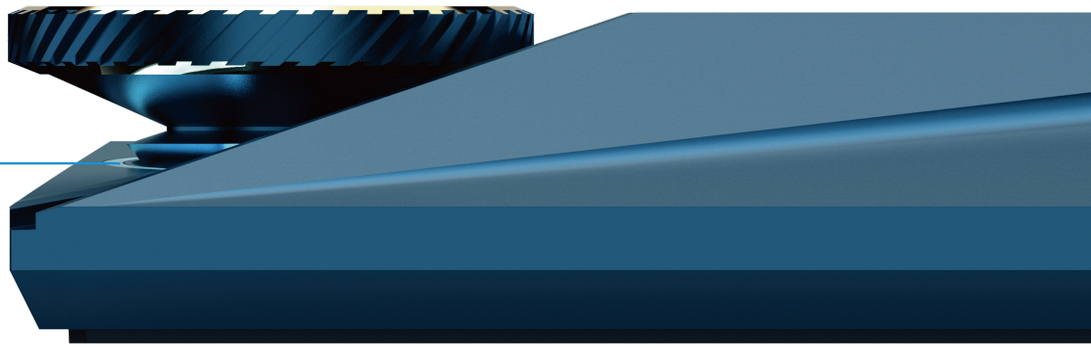
LED Lights

Power LED

White
USB-C (I2S) power supply

Light red
USB-C (USB) power supply

RGB ring light



* For a more detailed explanation of the RGB ring light, turn to the next page.

RGB Ring Light Interpretation

Volume
turquoise

Volume
(mute)

1-20%

21-40%

41-60%

61-80%

81-100%

HID volume adjusting
(Flashes 3 times)

Track
red

Track

* HID volume adjusting refers to the ‘system volume’ of the playback device, e.g. PC, Smartphone, Tablet.

RGB Ring Light Interpretation

Input selection
yellow, red

USB

S/PDIF

I2S

GPIO (I2S)

AUTO

Filter selection
blue, red

Linear fast

Linear slow

Mini fast

Mini slow

Apodizing

Hybrid fast

Brick wall

* GPIO (I2S) input refers to input I2S signal via GPIO interface, it's only supported in the Tone2 Maker Kit.
* In ‘S/PDIF’ input mode, playing, pausing, skipping tracks and adjusting HID volume are not supported.

RGB Ring Light Interpretation

DSD format
white

64

128

256

512

PCM format
yellow

44.1 / 48K

88.2 / 96K

176.4 / 192K

352.8 / 384K

705.6 / 768K

* The audio format is only indicated by the RGB ring light when Tone2 is in ‘USB’ input mode.

RGB Ring Light Interpretation

Encoder locked
white

Locked
(Flashes 3 times)

Power off
grey

Power off

FAQ

Why does Windows require the Khadas USB driver?
The Khadas USB driver provides ASIO support and removes the latency and sample rate conversion issue experienced with the default Windows USB driver for DACs.

What is Balanced RCA?
A new balanced audio connector standard, designed by Khadas for small form-factor desktop DACs. It is backwards compatible with standard RCA plugs and cables, more details visit https://khadas.com/balanced-rca

How do I use my existing XLR-3 equipment with Balanced-RCA?
Purchase the Khadas Balanced-RCA to XLR-3 adapter; it is a male Balanced-RCA plug connected to a male XLR-3 plug.

How do I use 'S/PDIF' input?
Attach a standard RCA cable to the orange-coloured RCA jack, and set the input mode to 'S/PDIF'. Alternatively, set the input mode to 'AUTO' and stop music playback from other sources.

How do I connect my smartphone to Tone2 via Bluetooth?
Attach a Khadas bluetooth module to the USB-C (I2S) port, and set input mode to 'I2S'.

Can the USB-C input be used with the USB-C output of Android phone?
Yes, Tone2 can be powered by most Android smartphones via USB-C.

What are the input priorities of the 'Auto' input mode?
When connecting both USB-C (USB) and S/PDIF interface in 'Auto' input mode, 'USB' input has the highest priority.
When music playback over USB is stopped (you do not need to remove the USB cable), input will switch to the 'S/PDIF'.

Can I connect Tone2 to my iPhone or iPad?
Apple's iPhone does not support the Tone2. You can still connect Tone2 to your iPad using a USB-C to C cable, but the Tone2 device information will not appear on your iPad.

Does the Tone2 support native DSD decoding?
Yes, DSD512 native decoding can be enabled by installing the Khadas USB driver.

What is the voltage level of the Balanced RCA connection?
4.0Vrms for balanced RCA mode, and 2.0Vrms for standard RCA mode (single-ended).

Can I use the Tone2 to receive a signal from the TV via coaxial and send it to the amplifier via RCA?
Yes. Set the input mode as 'S/PDIF' or 'Auto', Tone2 will output to the RCA.

Can I supply power to the USB (I2S) interface using my computer, PC or laptop?
No. Please instead connect a linear power supply or battery bank to the USB (I2S) interface.

How do I adjust the HID (system) volume using the volume knob?
When Tone2 is not at or above maximum volume, turning the volume knob clockwise will increase the device's hardware volume. Once Tone2 is at maximum volume, continuing to turn the knob clockwise will cause the RGB indicator to flash turquoise 3 times. Continuing to turn the knob clockwise after this point will instead increase the HID (system) volume of your PC.

Why can't I adjust the HID volume whilst playing DSD formatted audio?
Tone2 does not support HID volume adjustment whilst playing DSD formatted audio.

* For the latest FAQ, visit khadas.com/tone2-faq

Troubleshooting Guide

The Volume Knob is unresponsive and flashing full-white when I turn it.
It has been locked, triple-press it to unlock.

My Android phone can't detect Tone2, the power LED remains off, and USB-C is plugged-in correctly.
Go to 'Settings' and enable the 'USB-OTG' feature, most phones have this off by default.

My Tone2 is connected to my PC and I'm playing a song but there's no sound!
Check your computer's sound-output device, switch from 'Speakers' to the 'Tone2'. Secondly, check that your Tone2's input mode is set to 'USB' or 'Auto'.

Help! I've connected my PC to the Tone2 and the lights are on, but my computer cannot detect it!
Ensure that you've plugged your USB-C cable into the USB-C port labelled 'USB'.

I cannot hear any sound from Tone2 when playing music through the S/PDIF input.
Check to ensure that your music is not DSD formatted. The 'S/PDIF' input does not support playback of DSD music.

HID volume control does not work when playing non-DSD formatted audio and the input source is set to USB input.
Please check if there is more than one audio player running simultaneously on your playback device. In such cases, the HID volume control command will only be sent to one of the audio players. Close additional audio players, only open one audio player when using your Tone2.

* For more technical assistance, visit forum.khadas.com/khadas-tone2

Specifications丨规格参数

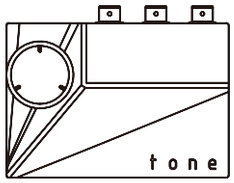
Balanced RCA Line-Out Performance
THD+N：0.000126% (-118dB)
DNR：121dB
Crosstalk, 200KΩ：> 120dB
Noise level：3.5uVrms
Output, 200KΩ：4.0Vrms

Single End RCA Line-out Performance
THD+N：0.000158% (-116dB)
DNR：118dB
Crosstalk, 200kΩ：>118dB
Noise Level：2.3uVrms
Output, 100KΩ：2Vrms

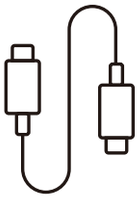
平衡RCA输出性能
总谐波失真加噪音：0.000126% (-118dB)
动态范围：121dB
串扰（200KΩ）：> 120dB
噪声：3.5uVrms
输出电压（200KΩ）：4.0Vrms

单端RCA输出性能
总谐波失真加噪音：0.000158%（-116dB）
动态范围：118dB
串扰（200KΩ）：>118dB
噪声：<2.3uVrms
输出电压（100KΩ）：2Vrms

What’s In The Box丨包装清单



Tone2 * 1pcs



USB-C Cable (Type-C to C) * 1pcs
USB-C 充电线 (Type-C to C) * 1pcs

Instruction Manual * 1pcs
产品说明书 * 1pcs

Warranty Card * 1pcs
保修卡 * 1pcs

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