



KHADRAS



Tone2 Pro

Mini Desktop DAC & Headphone Amplifier

Quickstart | 入门指南

Interface Diagram



1 3.5mm Single ended

2 4.4mm Balanced

3 Balanced RCA-R

4 Balanced RCA-L

5 S/PDIF (Coaxial)

6 USB-C(I2S)

7 Power LED

8 USB-C

9 RGB LED Light

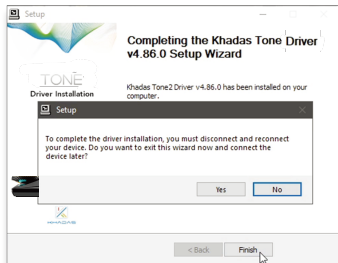
0 Volume Knob

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

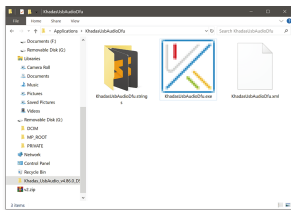


2 Step 2

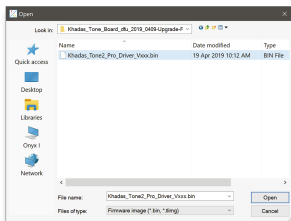
*Windows 10's default USB audio driver has high latency, low sampling rates, and does not support ASIO. For a better user experience, please install the Khadas ASIO USB driver.

Firmware Upgrade

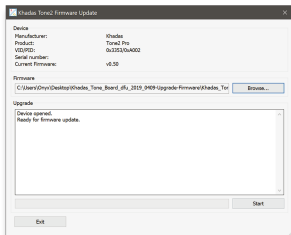
- 1 Open the Khadas DFU Upgrade Tool**
Download the latest tool from dl.khadas.com/products/tone2/dfu_tool
- 2 Download the latest Tone2 Pro Firmware**
Download the latest firmware from dl.khadas.com/products/tone2/firmware
- 3 Flash new firmware to Tone2 Pro**
Connect your Tone2 Pro via a USB-C cable to your PC, and use the DFU tool to burn the new firmware.



1 Step 1



2 Step 2















3 Step 3

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

Input / Output Sources



- 1  3.5mm single ended headphones (analog out)
- 2  4.4mm balanced headphones (analog out)
- 3   Pre-Amp(analog out) -> Amp -> Hi-Fi speaker
- 4   Pre-Amp(analog out)-> Amp -> Hi-Fi speaker
- 5  CD player(S/PDIF coax-in)
- 6   External bluetooth module (data-in)/ USB-C 5V linear power supply (power-in)
- 7    Computer / Smartphone/ SBC (data-in and power-in)

*The external bluetooth module needs to be purchased seperately.

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

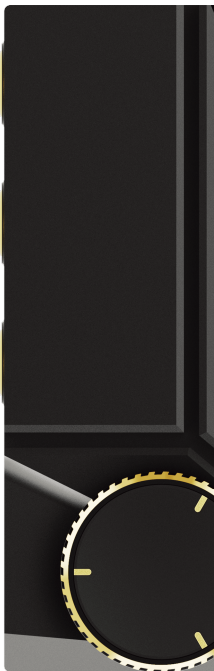
1



2



3



*Attach RCA cables first, before powering on Tone2 Pro.

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.

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

Mode selection
red



Volume(mute)



Track



Gain



Input



Filter

Headphone volume
turquoise



0-20%



21-40%



41-60%



61-80%



81-100%

Headphone gain
green,red



Low



High



Pre-Amp

*If the Pre-Amp mode is activated, the Line-Out volume will be controlled by the volume knob.

RGB Ring Light Interpretation

 **Input selection**
yellow, red



USB




S/PDIF



I2S



AUTO

 **Filter selection**
blue, red



Linear fast



Linear slow



Mini fast



Mini slow



Apodizing



Hybrid fast



Brick wall

MQA OFS format
magenta



44.1 / 48K



88.2 / 96K



176.4 / 192K



352.8 / 384K



705.6 / 768K

MQA studio format
blue



44.1 / 48K



88.2 / 96K



176.4 / 192K



352.8 / 384K



705.6 / 768K

MQA format
green



44.1 / 48K



88.2 / 96K



176.4 / 192K



352.8 / 384K



705.6 / 768K

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

 Lock encoder
flashing white



Locked

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 does MQA stand for?

MQA(Master Quality Authenticated) is an award-winning audio codec technology. The master MQA file is fully authenticated for high sample rate audio and is small enough to stream and download.

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.

What is the maximum headphone impedance supported by Tone2 Pro's headphone amplifier?

3.5mm Single ended: 150Ω

4.4mm Balanced: 300Ω

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 Pro via Bluetooth?

Attach a Khadas bluetooth module to the USB-C (I2S) port, and set input mode to "I2S" or "Auto".

Why doesn't my Lightning USB to USB-C cable work with the Tone2 Pro?

Connect an Apple C78-USBH Lightning USB to USB-C cable to Tone2 Pro's USB-C (USB) port for data communication, then connect a 5V power source to the USB-C (I2S) port.

Can the USB-C input be used with the USB-C output of Android phone?

Yes, Tone2 Pro can be powered by most Android smartphones via USB-C.

FAQ

Does the Tone2 Pro 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).

What are the priorities when input mode is set to “Auto”?

Priority from high to low: Bluetooth, USB (disconnect the Bluetooth module) , and finally “S/PDIF” (the USB-C cable must still be attached to supply power).

How can I play MQA music?

Tone2 Pro supports full hardware decoding of MQA data. Stream or play music from a software or app that contains music that uses MQA encoding. Visit mqa.co.uk/how-it-works to learn about MQA-supported software and apps.

When inserting headphones during RCA output playback, will RCA playback be interrupted or will it play through both RCA and headphones concurrently?

The RCA playback will not be interrupted, Tone2 Pro will play through both RCA and headphone jacks concurrently.

Can I use the Tone2 Pro 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 Pro will output to both the RCA and headphone jacks.

Troubleshooting Guide

Why is the Volume Knob unresponsive and flashing full-white when I turn it?

It has been locked, triple-press it to unlock.

Help! My iPhone is connected to Tone2 Pro, and the LEDs keep flickering!

The power output of iPhone is unable to support Tone2 Pro. iPhone can not be used to power Tone2 Pro via a Lightning USB to USB-C cable.

Please use a Khadas customized charging cable, connect a 5V linear power supply or USB power bank to the USB-C (I2S) port for power supply. Ensure that a Apple C78-USBH Lightning USB to USB-C converter cable is connected between your iPhone and Tone2 Pro's USB-C (USB) port for data communications.

Why can't my Android phone detect the Tone2 Pro? I've plugged USB-C in, but the power LED remains off.

Go to "Settings" and enable the "USB-OTG" feature, most phones have this off by default.

My Tone2 Pro 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 Pro". Secondly, check that your Tone2 Pro's input mode is set to "USB" or "Auto".

Why is the volume so low? I've already rotated the volume knob to maximum!

Tone2 Pro is set to "low gain" as a default mode. When using high impedance headphones in "low gain" mode, the volume will be low. In this case, Tone2 Pro needs to be set to "high gain" mode.

Help! I've connected my PC to the Tone2 Pro 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".

Specifications

Balanced RCA Line-Out Performance

THD+N: 0.000126% (-118dB)

DNR: 121dB

Crosstalk,200K Ω : > 120dB

Noise level: 3.5uVrms

Output,200K Ω : 4.0Vrms

4.4 Balanced Headphone Performance

THD+N,300 Ω : 0.000158%(-116dB)

DNR: 121dB

Crosstalk,32 Ω : > 117dB

Noise level: < 4.2uVrms

Max output,32 Ω : 211mW(2.6Vrms)

What's In The Box

Tone2 Pro x1

USB-C cable (Type-C to C) x1

Instruction manual x1

Warranty card x2

Amazing Khadas, Always Amazes You.

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