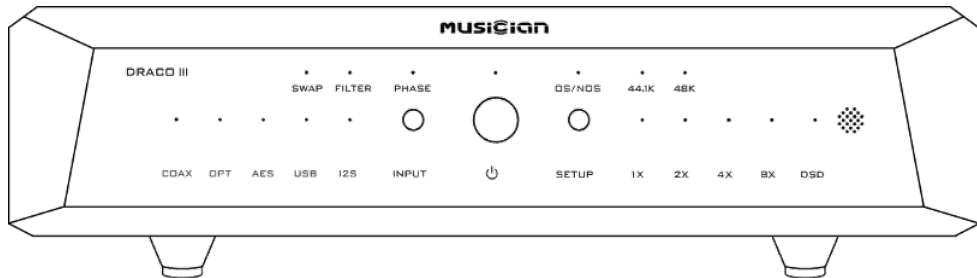


# DRACO III R2R DAC



# Introduction

## Thank you for Choosing MUSICIAN Products!

Guangzhou LEZHILIA Technology Co.,Ltd.(MUSICIAN Audio) was formally established in 2020. The R & D team is formed by a group enthusiast with more than 20 years of audio research and development experience. It is committed to the following product: R2R DAC, R2R Headphone Amplifiers, R2R Power Amplifiers, R2R Pre-amplifiers, Headphones, Passive speakers, and other audio products.

### \*Tips

- Do not cover newspapers, tablecloths, curtains, etc. on the machine, as this may prevent heat dissipation. If the temperature inside the machine is too high, it may cause a fire, damage the machine, or cause personal injury. When using switches, knobs or cables, do not use excessive force.
- Only use the voltage specified by this machine. Using a voltage higher than the specified value is dangerous and may cause fire, damage to the unit, or personal injury.
- Do not attempt to modify or repair this unit by yourself. If you need any service, please contact the MUSICIAN after-sales team through the official website.
- If you plan not to use the machine for a long time, disconnect the power cord from the AC wall outlet. To strengthen the protection of this product, unplug the power cord from the wall outlet during lightning, or when no one is managing it, and when not using it for a long time. This will prevent the product from being damaged during lightning and power grid surges.

# Features and technical parameters

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## Technical Highlights

- Proprietary R2R + DSD architecture
- Low thermal effect, high precision hand-matched 0.005% resistors
- TCXO Crystal 45.1548 MHz, 49.152 MHz
- Low-noise power supply
- FIFO Buffer
- Digital Signal Processing via FPGA
- USB/I2S input all supports DSD1024, PCM up to 1536kHz (Audio source must be compatible with this unit's interface)
- Proprietary USB Audio Solution Based on the Advanced ARM MCU STM32F446
- Driverless on Mac & Linux

## DSD

- All inputs support DSD64-DoP64
- USB and I2S inputs support DSD1024

## PCM

- All inputs support 24-bit/192kHz
- USB/I2S input supports 1536 kHz

## Sampling Mode

- Original Sampling NOS/Oversampling OS

## Numeric Input

- Coaxial \*1
- Optical \*1
- USB \*1
- AES \*1
- I2S \*1

## Analog Output Level and Impedance

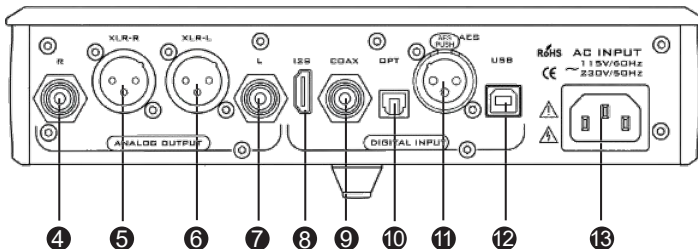
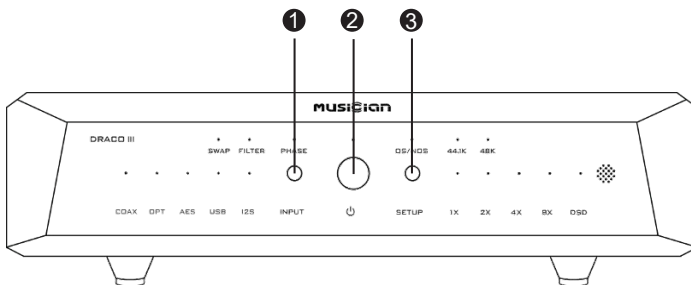
- RCA: 2.0 Vrms, 625  $\Omega$
- XLR: 4.0 Vrms, 1250  $\Omega$

## Technical Specifications

- Frequency Response: 20Hz-75kHz (+1/-3dB)
- Distortion: <0.002%(A-weighted)
- Signal-to-noise ratio:  $\geq$ 120dB(A-weighted)
- Dynamic Range:  $\geq$ 121dB
- Stereo crosstalk:  $\geq$ 110dB
- AC Power Requirements: 115V/60Hz ; 230V/50Hz (Automatic Voltage Switching)
- Total power consumption:  $\leq$ 20W
- Package Contents: DAC, power cord, instruction manual, remote control
- Machine Dimensions: 270\*245\*70mm
- Net Weight: 4.05 kg (5 kg including packaging)
- Color: Silver/Black

# Front and Back Panel Overview

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- |  |                          |                       |
|--|--------------------------|-----------------------|
| <b>1</b> Signal Input Selection Button | <b>6</b> Left XLR Output | <b>11</b> AES Input   |
| <b>2</b> Standby/Power Button          | <b>7</b> Left RCA Output | <b>12</b> USB input   |
| <b>3</b> Settings Button               | <b>8</b> I2S Input       | <b>13</b> Power Input |
| <b>4</b> Right RCA Output              | <b>9</b> Coaxial input   |                       |
| <b>5</b> Right XLR Output              | <b>10</b> Optical Input  |                       |

# Driver Installation Guide

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1. Please visit the MUSICIAN official website and download the DRACO driver via technical support:  
(<http://www.musician-audio.com/col.jsp?id=105>)  
“Draco / Draco III Driver”
2. Connect the USB cable between the computer and the device → Turn on the device → Briefly press the Input button to switch to USB input mode.
3. Open the downloaded Draco file → Click setup to begin installation → Continue clicking Next → Until installation completes and displays Finish
4. After installation, go to the bottom right corner of your computer → right-click the playback device → select MUSICIAN USB DAC as the default device

Driver, Complete

# Operating Instructions

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## Standby Button and indicator light

After powering, the standby lights on, indicating standby mode.

Press the standby button, standby lights off, and the DAC start operate.

## Indicator Light Guide

a. Input Source Indicators: COAX, OPT, AES, USB, I2S.

When a specific input source is selected, the corresponding indicator will illuminate.

b. Sampling rate indicator lights: 44.1K, 48K. These indicator lights indicate the sampling rate of the current input audio signal. (K: Sampling rate in kHz)

c. Multiplier Indicator Lights: 1X, 2X, 4X, 8X.

The corresponding indicator shows the current audio signal's multiplication factor.

d. Audio Format Indicator: Lit for DSD, unlit for PCM.

e. PHASE Indicator: Lit for inverted phase, unlit for in-phase.

f. SWAP: Swaps left and right channels in I2S during DSD mode.

g. FILTER: Fast/Slow filter selection.

h. OS/NOS: Lit for native sampling, unlit for oversampling.

## Analog Audio Signal Output

This unit features two output options: XLR balanced output and RCA output.

## Digital Audio Signal Input

This device features five input methods: I2S, coaxial, optical, AES, and USB.

## AC Power Input

AC Power Requirements: 115V/60Hz; 230V/50Hz

Note: This unit is a Class I device and requires a 3-wire power cord.

Ensure the power supply is properly grounded.

The power supply of this unit must be manually adjusted at the bottom (115V/230V).

## Digital Audio Signal Input Sampling Rate

The following table shows the status of the input sampling rate LED.

Reference sampling rate	Multiplier	Input Format Sampling Rate
44.1 kHz	1X	44.1 kHz
	2X	88.2 kHz
	4X	176.4 kHz
	8X	352.8 kHz
48 kHz	1X	48 kHz
	2X	96 kHz
	4X	192 kHz
	8X	384 kHz
DSD	1X	DSD 64
	2X	DSD 128
	4X	DSD 256
	8X	DSD 512

# SETUP Button Operation Guide

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**The SETUP button works together with the INPUT button. The five sound source indicator lights on the panel correspond to the following function settings:**

PHASE: Corresponding COAX indicator lights up

DSD\_L/R Left/Right Channel Swap: Corresponding USB LED lights up

OS/NOS Oversampling: Corresponding OPT indicator lights up

I2S Cable Sequence Selection: Corresponding I2S LED lights up

FILTER Fast/Slow Filtering: Corresponding AES indicator lights up

USB Upgrade Mode: Corresponding COAX + OPT LEDs lights up simultaneously

**Press SETUP, then press INPUT. All audio source indicator(COAX/OPT/AES/USB/I2S ) lights on, it means the device entry into setup mode. Details are as follows:**

## Phase adjustment

Press SETUP, then press INPUT until the COAX indicator lights on. Press SETUP again to switch the phase.

PHASE indicator ON = inverted phase, indicator off = in-phase.

After confirming the phase, stop all operations. The device will automatically exit this mode after a few seconds.

## Oversampling Switching

Press SETUP → Press INPUT repeatedly until the OPT indicator lights up, then press SETUP again to switch sampling modes.

OS/NOS indicator ON = Original sampling, indicator OFF = Oversampling.

After confirming the sampling mode, stop all operations. The device will automatically exit this mode after a few seconds.

## Fast/Slow Filter Adjustment

Press SETUP → Press INPUT repeatedly until the AES indicator lights up, then press SETUP again to switch the filter mode.

FILTER indicator ON = Fast roll-off, indicator OFF = Slow roll-off

After confirming the filter mode, cease operation. The device will automatically exit this mode after a few seconds.

## DSD Left/Right Channel Swap

Press SETUP → Press INPUT repeatedly until the USB indicator lights up, then press SETUP again to switch channels.

SWAP indicator lit = Channel swapped, indicator off = Normal channel.

After confirming the channel mode, stop all operations. The device will automatically exit this mode after a few seconds.

**Note:** If confusion occurs during setup, unplug the device, wait 3 seconds, then plug it back in and repeat the setup process.

## USB Upgrade Mode

First, set the audio source to USB mode. Then press SETUP → repeatedly press INPUT until both the COAX and OPT indicators light up simultaneously. Press SETUP twice in quick succession to enter upgrade mode. After the upgrade completes, power off the device, unplug the power cable, and reconnect it to resume normal operation.

# IIS Information

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## Draco III I2S Pin Configuration

When using a standard HDMI cable, the Musician Draco III is compatible with most devices through the following mode settings:

### I2S Pin Switching (Note: Adjust the volume down before debugging the pins)

- First, select the audio source to I2S;
- Short press the SETUP button;
- Short press INPUT button to select I2S input; the I2S indicator will light up.
- Press SETUP again to adjust to the appropriate mode. The 1X, 2X, and 4X indicator lights will light up according to the corresponding mode, cycling through 8 phase modes.
- When you select a satisfactory sound, stop the operation. The machine will automatically exit the I2S mode setup function.

Note: You can also operate via the remote control. First select I2S as the audio source, then press the SETUP button on the remote control, and finally press the I2S button to cycle through the 8 phase modes.

Draco III features 8 adjustable I2S modes, offering broad compatibility with most devices on the market. It automatically adjusts and assigns settings based on the connected device, requiring no manual pin configuration on the Draco III unit. In summary, if you hear noise (such as hissing) or no sound at all, it indicates the current mode is incompatible. Please proceed to the next mode. If no noise is present, it confirms compatibility between the Draco III and your device. you can keep this mode to work with your equipment.

**For the operation of the 8 modes and the corresponding pin diagram, please refer to**

PIN	Mode1	Mode2	Mode3	Mode4	Mode5	Mode6	Mode7	Mode8
1	DATA-	DATA-	DATA+	DATA+	DATA-	DATA-	DATA+	DATA+
3	DATA+	DATA+	DATA-	DATA-	DATA+	DATA+	DATA-	DATA-
4	BCK-	BCK-	BCK-	BCK-	BCK+	BCK+	BCK+	BCK+
6	BCK+	BCK+	BCK+	BCK+	BCK-	BCK-	BCK-	BCK-
7	LRCK-	LRCK+	LRCK-	LRCK+	LRCK-	LRCK+	LRCK-	LRCK+
9	LRCK+	LRCK-	LRCK+	LRCK-	LRCK+	LRCK-	LRCK+	LRCK-

For different products, there may be more than one or two modes available for matching. Simply select your preferred mode for playback.

# Products and Packaging

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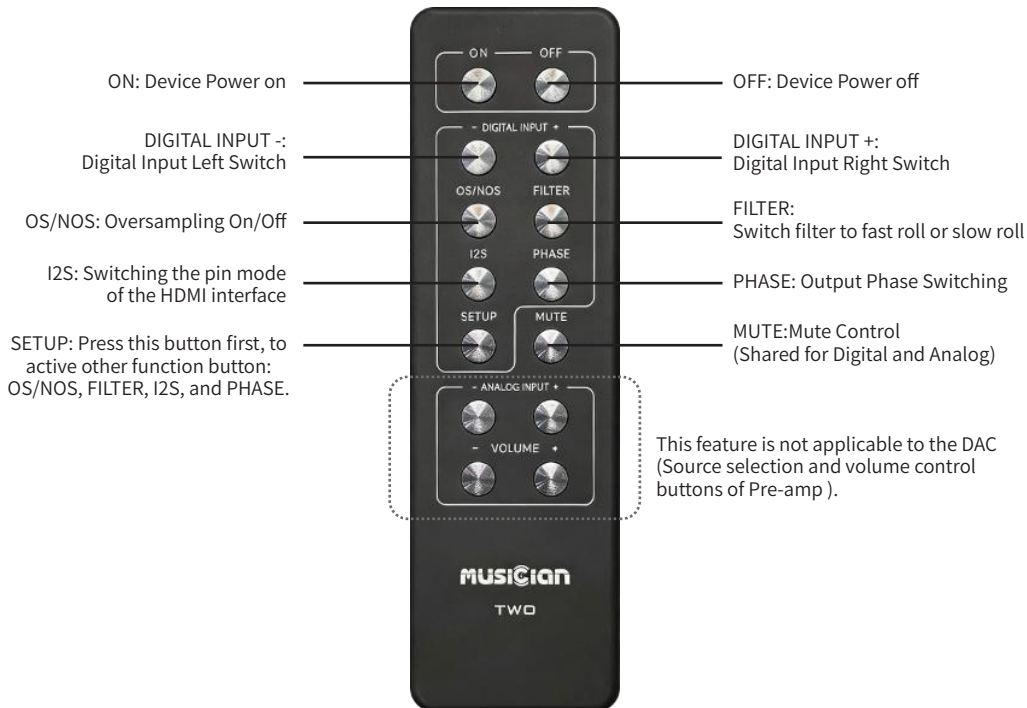


## Package contents:

Remote Control × 1	AC Power Cable × 1
Product Manual × 1	Warranty Card × 1
DRACO III Device	

# MUSICIAN TWO Remote Control Button Operation Guide

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## Notes:

1. Due to air transport regulations, the remote control is shipped without batteries; you will need to purchase them separately.
2. Please use a 2mm Allen wrench to remove the screws before inserting the batteries. Recommended battery type: CR2032

# Warranty

We take pride in the quality of our products with strict quality control checks. To give you more confidence, all of our products are provided with a one-year warranty. Within the first 30 days from the date of purchase, most items can be returned for refund or exchange if meet the following conditions. Wish you enjoy a wonderful shopping experience!

## RETURNABLE ITEMS

Items that can be returned/refunded or exchanged within 30 days of receipt must comply with the following standards

- 1.Any returned items must be accompanied by all accessories, hardware, manuals or instructions, and in the same "new" state as when shipped to you.
- 2.Any returned items will be evaluated after receipt. Of course, we will not refund any defective products caused by improper handling, improper use, tampering or improper use.
- 3.If there is no complete original packaging (original packing box, foam filling, etc.) at the time of return, 25% replenishment fee will be charged.

**Tips:** The items should be transported back safely. Before we received, You will take full responsibility. If you choose to replace, we will ship your replacement items free of charge.

## RETURN FEE AND ADDRESS

We aim to provide services that benefit all our loyal customers. Global customers can return products to our Chinese warehouse. Please always contact us before returning items to relevant addresses.

1. All transportation costs are borne by the customer. This includes shipping costs for returns or exchanges. Shipping costs are non-refundable.
2. Please contact your local post office to confirm the actual return shipping fee before shipping back. We recommend that you use the cheapest postal service if available.