HOLO AUDIO SPRING 2

Digital Analog Converter (DAC)

泉二   User's Manual

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Overview

泉 2

SPRING 2

By Holo Audio

A new generation of fully discrete resistor network（Commonly known as R2R）DAC.

Compared with its predecessor product "Spring", it has the following improvements.

- A new generation of fully discrete resistor network DAC modules with lower distortion for small signals and faster conversion speed

- The world's first DAC that truly supports DSD1024 and PCM1.536M

- USB interface uses self-developed firmware, with ultra-low latency, high reliability data transmission, performance 2-4 times higher than the official firmware

- Femtosecond clock

- Improved I2S input interface, four independent receiving circuits, which allow the I2S clock signal to have lower interference and improve sound quality overall.

- Improved power and analog reference power for the digital section. Superior performance, higher than 110db PSRR and noise below 0.2uV within 100KHz

- Aluminum CNC Machined Remote control (Included with L2 and KTE models only)

- Improved display screen. Imitating the original classic matrix display on the Spring version 1. Showing more info at one time. Three different points of information at once.

Specifications

DIGITAL INPUT

COAXIAL1, COAXIAL2, OPTICAL, AES	PCM 44.1-192K (24bit)
	DSD 64X （DOP）
USB	PCM 44.1K-1.536M (32bit)
	DSD 64-512X （DOP）
	DSD 64-1024X （Native）
I2S	PCM 44.1K-1.536M (32bit)
	DSD 64-1024X

ANALOG OUTPUT

PCM 48K NOS	THD+N 0.0006% @1K
	SNR -124dB
	Voltage Output 1.9Vrms(RCA), 3.8Vrms(XLR)
DSD 128X	THD+N 0.0008% @1K
	SNR -118dB
	Voltage Output 0.95Vrms(RCA), 1.9Vrms(XLR)

PHYSICAL CHARACTERISTICS

| Size	430x300x55mm / 16.93x11.81x2.17inch (WxLxH Dimensions do not include protruding parts)
Weight	8.5kg/18.74lbs

CONFIGURATIONS

Power input (configurable, depending on the bottom label of the machine)	220-230V 50/60Hz 2A
	110-115V 50/60Hz 4A
Power consumption	40W

MISCELLANEOUS

Accessories	Power Cable x1 (North America only)
	USB Cable x1
	Remote Control x1 **(Not Included in Level 1 models)**

Front Panel
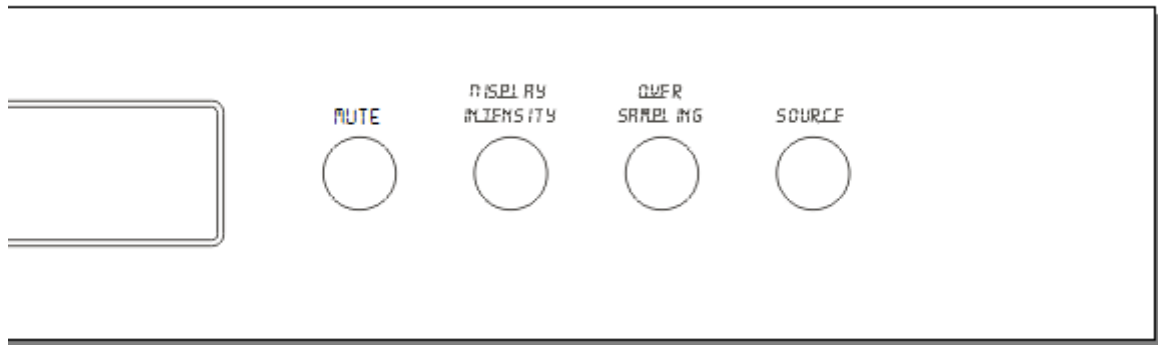
From right to left the four buttons are as follows: MUTE, DISPLAY INTENSITY, OVER SAMPLING, SOURCE

MUTE

In standby mode the "Spring 2" output stage circuit turns off. However, the power consumption of the Dac essentially remains constant while retaining thermal stability at its ideal temperature for optimal performance.

DISPLAY INTENSITY

Selection of backlight brightness, display can also be turned off.

OVER SAMPLING MODES

- **NOS - No Oversampling Mode:** directly converts the original data. Since digital oversampling caN cause time domain distortion such as ringing effects, NOS can avoid these problems. Generally speaking, NOS has a significant impact on other performance indicators, but the"Spring 2"is designed to maintain good performance in NOS mode.

- **OS - Over Sampling Mode**:
  - Super-sampling the PCM to a higher frequency PCM
  - oversampling the DSD to a higher frequency DSD
  - performing a digital to analog conversion.

- **OS PCM - Over Sampling/PCM Mode:** whether it is PCM input or DSD input, always oversample to PCM for digital analog conversion.

- **OS DSD – Over Sampling Direct Stream Digital Mode:** Whether in PCM input or DSD input, super-sampling to DSD mode for digital analog conversion.

SOURCE

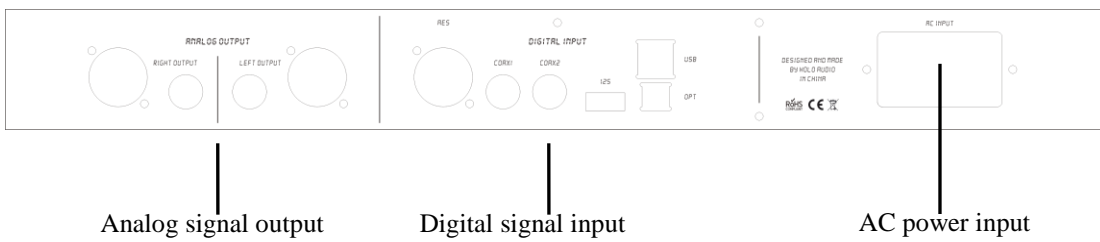Digital input source selection:
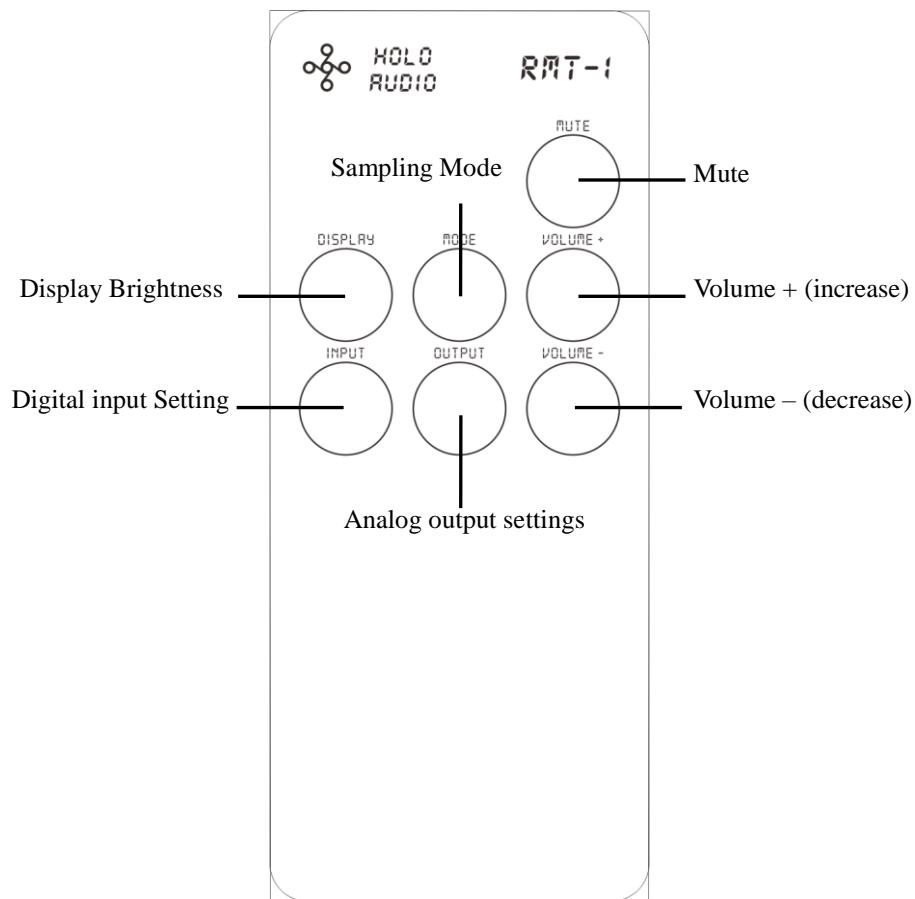
- USB (ground isolation)

- RCA

- BNC

- AES

- Optical

- HDMI interface I2S

Rear Panel

ANALOG OUTPUT
RIGHT OUTPUT   LEFT OUTPUT

AES   DIGITAL INPUT
COAX1   COAX2   USB
I2S   OPT

DESIGNED AND MADE
BY HOLO AUDIO
IN CHINA

AC INPUT

Analog signal output   Digital signal input   AC power input

Remote Control

Sampling Mode — Mute

Display Brightness — Volume + (increase)

Digital input Setting — Volume – (decrease)

Analog output settings

Note: Volume does not apply for the Spring2 Dac. This remote can be used with other HoloAudio Devices.

I2S Port

LVDS differential transmission mode has the same physical interface as HDMI, and a HDMI cable can be used. But note that the electrical signal it transmits is I2S, not the audio and video signals of a conventional HDMI.
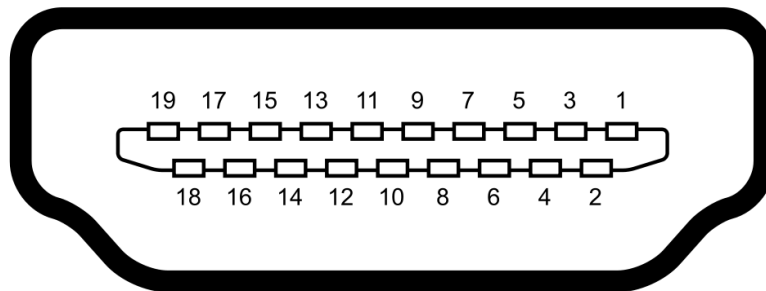
Pin	PCM	DSD
1	I2S_DATA-	DSD_DATA_L-
2	GND	GND
3	I2S_DATA+	DSD_DATA_L+
4	I2S_BCK+	DSD_BCK+
5	GND	GND
6	I2S_BCK-	DSD_BCK-
7	I2S_LRCK-	DSD_DATA_R-
8	GND	GND
9	I2S_LRCK+	DSD_DATA_R+
10	I2S_MCLK+	DSD_MCLK+
11	GND	GND
12	I2S_MCLK-	DSD_MCLK-
13	NC	NC
14	NC	NC
15	NC	NC
16	NC	NC
17	GND	GND
18	NC	NC
19	GND	GND

Driver Installation

Apple/Mac OS X 10.6.5 and above comes with a driver built in. There is no need to install drivers. Mac OS does not support DSD Native mode.

Linux has its own built in drivers and does not require driver.

The latest Win10 comes with a driver, but since its own driver does not support ASIO and does not support DSD, you need to install the driver provided by Holo Audio. The driver installation steps are as follows.

- Connect the device to the power and turn it on, connect the USB input port of the device to the USB Port of the computer with a USB cable. Select input source on dac to USB. Note: if you do not select the digital source than the computer will not recognize the device.
- When the device is connected to the computer via USB, the Windows system will display a notification that the new hardware is found and driver installation failed. Please ignore this notification (see figure below)
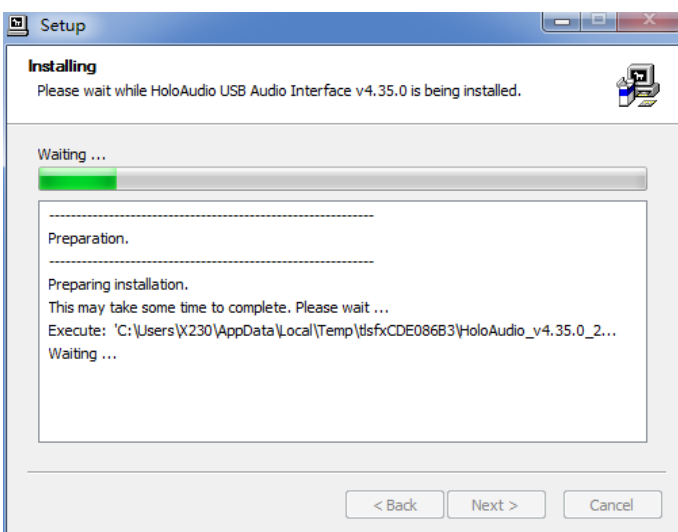

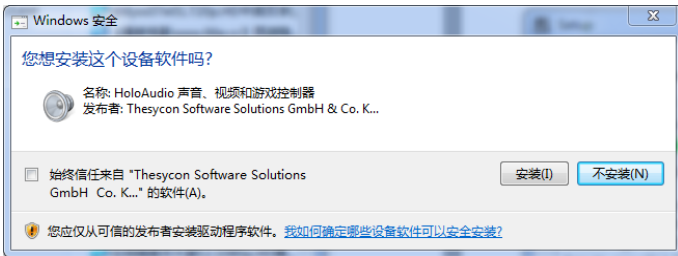- Locate the driver installation file and double-click to open/run the file.

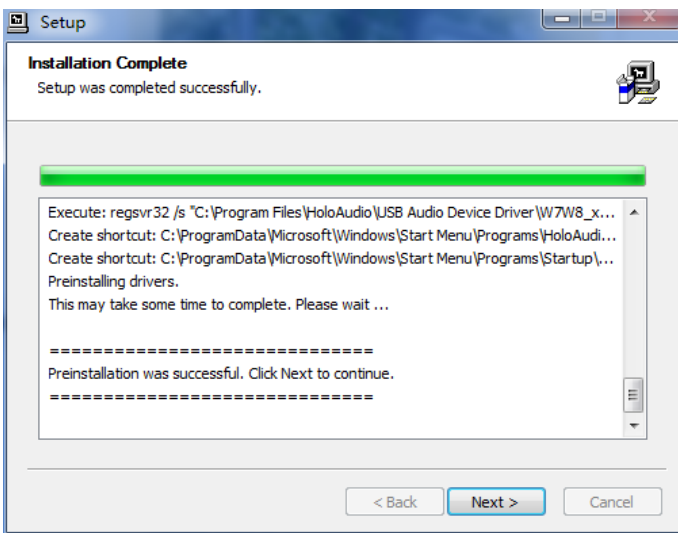The installation wizard will ask you to close other applications before installing. Please do this then click "Next"
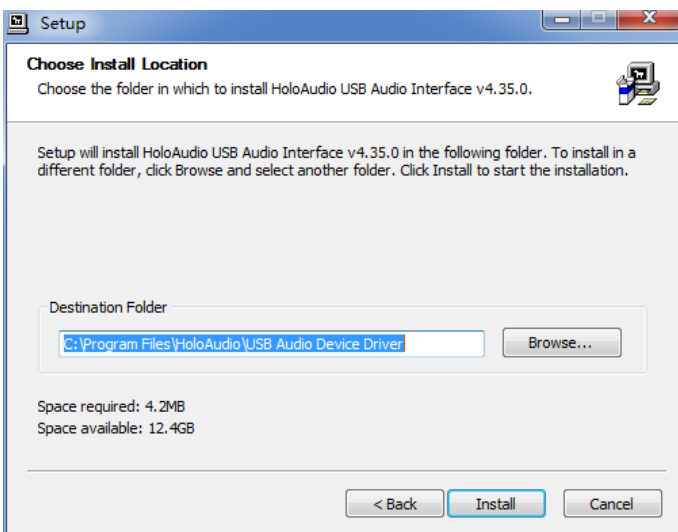
If necessary, select the installation folder by clicking "Browse…"or use default path (recommended) then click "Install.
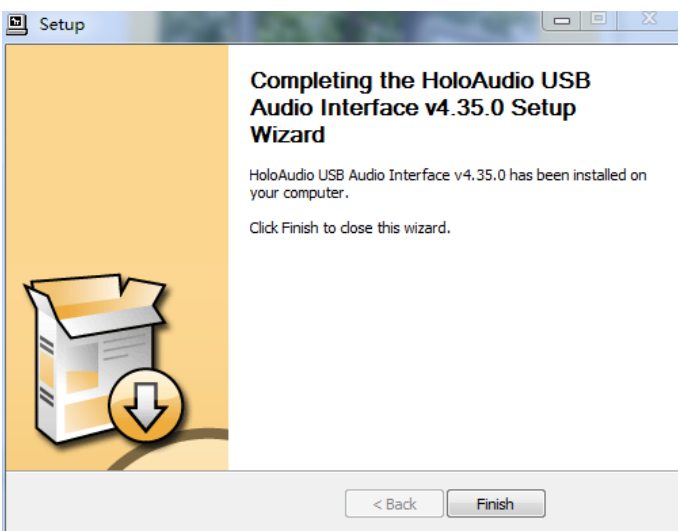

Installation in progress…

If the message like the one on the left pops up during the installation process, please click "Install"

When you see the notification as shown on the left, the driver installation is complete. Click "Next"to continue.

Click "Finish"to close the installer. The device is now available under Windows as an ASIO and WDM Audio Device.

Common Software Settings

Windows Default playback settings

　　After installing the driver, Windows will have one more audio output device, so that the system will have multiple audio output devices to choose from. Normal application software will be using the output to the default playback device on Windows. At this time, you need to set it up to use "Spring 2" as the default playback device for Windows.

Right click the sound icon in systray. Click to select "playback device (P)" or press the "P"key on the keyboard to enter the playback device control panel, as shown. (win10 is a little different)

In the Sound/Playback folder,　right click on "Holo Audio USB Digital Interface Gen2", and then click "set as default"- you will see a green check appear to confirm it is now default device.