# ND-1
Audio DAC

# USER MANUAL

# Catalog

Product

Remote control (RM4F)

Power cable

Printed materials

# Parts and names

## Front



**1** **Power on/Standby**
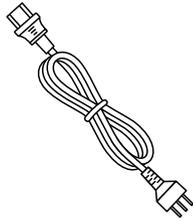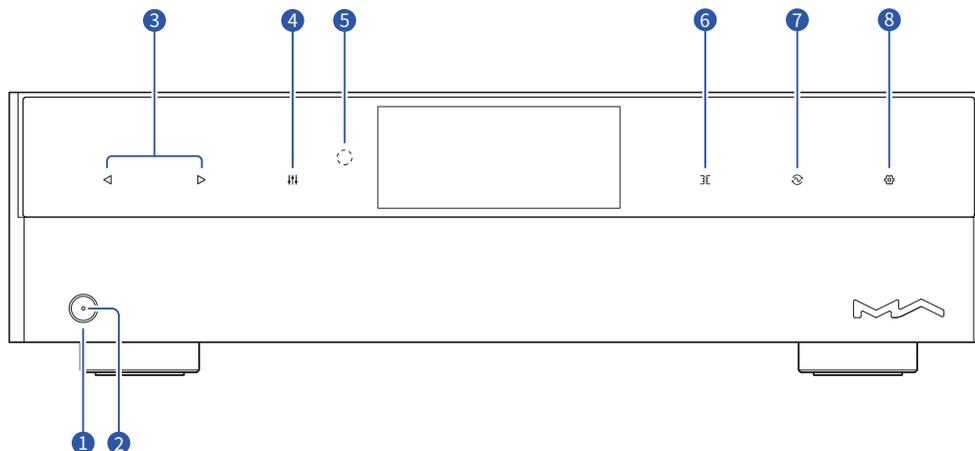After connecting to power supply, press this button to power on the device. Press and hold it for 2 seconds to switch to standby mode.

**2** **Status LED**
The LED indicator will go off when the device is standby. It flashes when the device is delayed starting, and will keep lit up after the device is started.

**3** **Select buttons**
Under the default status, each press of these buttons switches to the next input channel in sequence : Coaxial → Optical → USB Audio B → USB Audio C → AES/EBU → IIS·LVDS.
When Volume Control mode is enabled, the Sound Color button can be used to switch between input selection and volume control. On different function pages, these buttons allow either input channel switching or volume control. Please follow the instructions on device display for operation details.

**4** **Sound color**
Press this button to select and switch between preset sound colors.

**5** **IR receiver**
Keep the receiver is not obstructed when using the IR remote control.

**6** **Transformer coupling**
Activate or deactivate the transformer coupling mode.

**7** **ASRC**
Enable the hardware conversion engine to asynchronously resample original audio data, boosting audio density and sound quality. It supports PCM upsampling and DSD remastering modes.

**8** **Settings**
Enter or exit the settings menu.
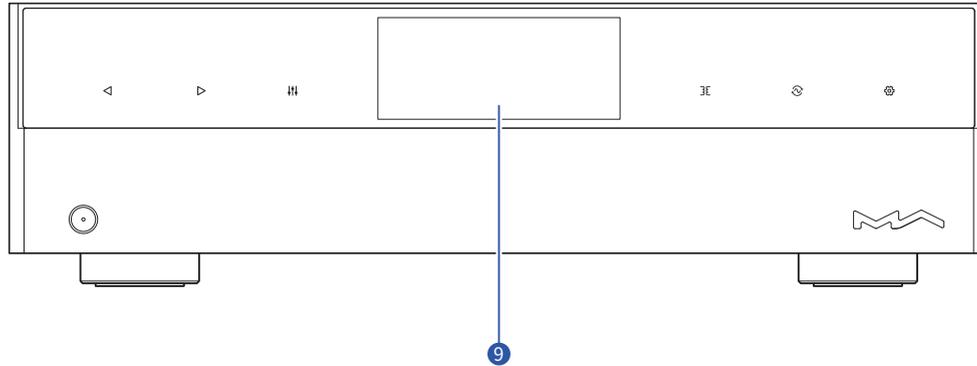
**9** LCD

Volume control on
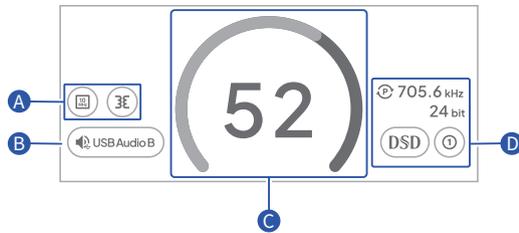
**A** Status info
Status including clock mode, transformer coupling mode.

**B** Input channel

**C** Volume

**D** Audio info
Including sampling rate, audio format and the sound color being used.

Volume control off

**a** Input channel

**b** Audio info
Including sampling rate, audio format and the sound color being used.

**c** Status info
Status including clock mode, transformer coupling mode.

## Rear

External clock in     Digital input     Analog output

AES/EBU   Coaxial   Optical   IIS·LVDS   USB Audio B   C   RCA   XLR   Trigger Out In   Auto Range

10MHz

MATRIX AUDIO

100-120V~/220-240V~50/60Hz

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

**① External clock input**
Use a coaxial cable with 50-ohm impedance to connect the device to an external clock source (e.g., SC-1), and set the device to the "External Clock" mode in the settings.
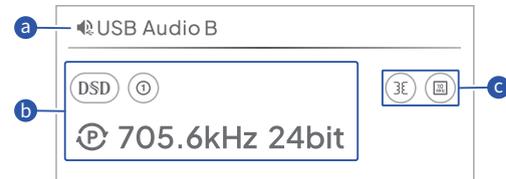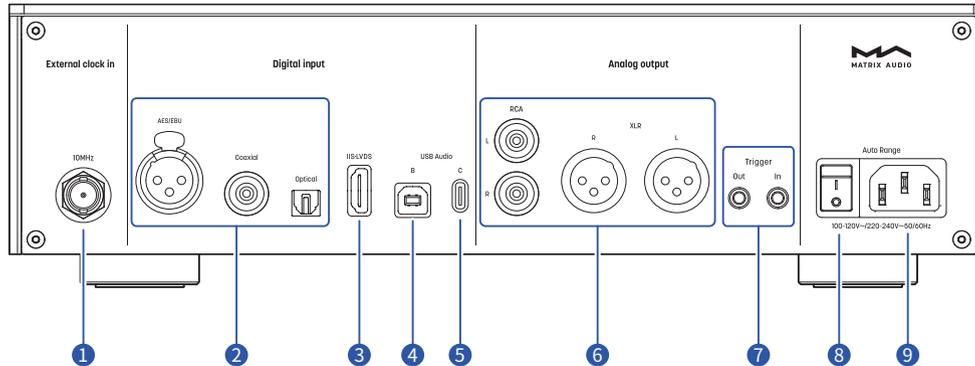
**② AES/EBU, Coaxial and optical inputs**
The AES/EBU, coaxial and optical ports input up to 24bit/192kHz PCM signals in S/PDIF standard and 1bit/DSD64 signals via DoP.

**③ IIS·LVDS Input**
The IIS·LVDS port inputs maximum 32bit/768kHz sampling rate PCM signals, DSD64/128/256/512 signal in Native DSD standard, and DSD64/128/256 signal via DoP.
Use an HDMI cable to connect to Matrix Audio products with IIS·LVDS output (e.g., NT-1) or other compatible devices. This device supports four types of IIS·LVDS interface definitions, which can be viewed and configured in the settings.
The IIS·LVDS input port is electrically isolated from the device ground.

**④ USB Audio B**
Use a USB-A to B or C cable to connect to a computer, serving as an external audio playback device for the computer.

**⑤ USB Audio C**
Use a USB-C to A or C cable to connect to mobile phones and tablets, serving as an external audio playback device for these devices.
Use a USB-C to C cable to connect to a computer for firmware update.
Note: When connecting Apple devices which have a Lightning port to this device, you'll need a Lightning to USB-C Camera

Adapter. Due to the hardware differences between Android devices, we can't ensure this device is compatible with all Android devices.

**⑥ XLR&RCA Line output**
When set to volume control off, use XLR or RCA cables to connect to a preamplifier (e.g., NA-1).
When set to variable level output, use XLR or RCA cables to connect to active speakers.

**⑦ Trigger input/output**
Connect to audio devices with trigger ports through a ø3.5 mm mono plug cables, to achieve a linkage control between NA-1 and other devices. The trigger output provides a 12V DC signal.
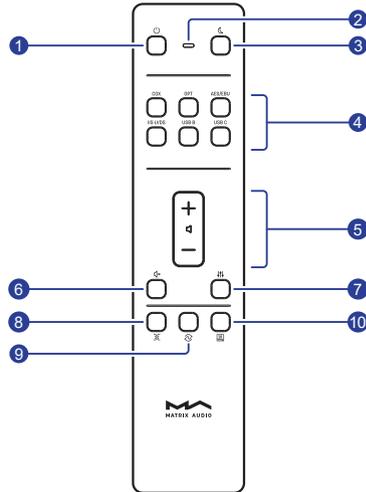
**⑧ Power switch**
If you need the device to be turned off completely, please turn off this switch. Otherwise, there is still about 3W power consumption in standby mode.

**⑨ Power input**
Please use a power cable which includes an earth wire and ensure you have a reliable earth wire connection. Otherwise, the casing of the device may have a slightly charged touch.

# Parts and names

## Remote Control



### Battery replacement

Slide in the direction of the arrow to open the battery holder. Please pay attention to the polarity when installing the batteries.
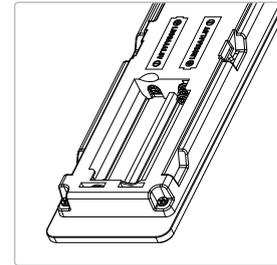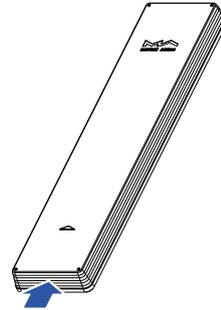


Point the remote control to the device when using it, the operating distance is about 8 meters. When the battery is low, the LED indicator on the remote control flashes red.

1 Power on/Standby

2 Working/Battery status

3 Dimmer

4 Input channels

5 Volume — Only available when the "Volume control" function is enabled.

6 Mute/Unmute — Press to mute, press again to unmute. You also can unmute by pressing the volume +/- buttons in mute state.

7 Sound color

8 Transformer Coupling

9 ASRC

10 Clock Mode

## Driver for USB Audio

When connecting the devices to a Windows 7/8/10/11 computer via USB connection as an external audio device, please install drivers as following instructions:

1.Double-click the driver installation package and click "Next".
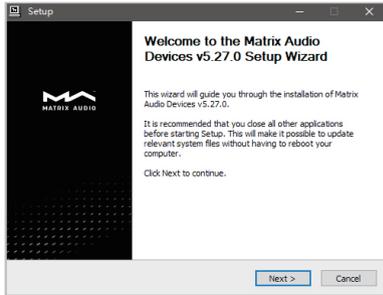


3.Click "Next" after the installation is complete.
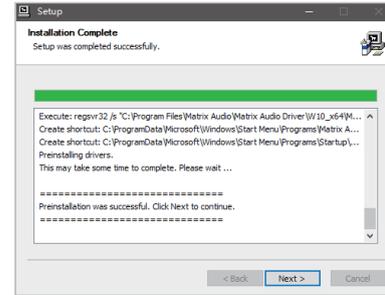


2.Select installation path and click "Install".



4.Click "Finish" to close the Setup Wizard.

# Operations before using

It's no need to install drivers for macOS, just select "ND-1" as the audio output device in Sound Preferences.

# Settings

When powered on, touch the " ⚙ " to enter the settings menu. Available settings functions are listed below:

### 1.Output Amplitude

Set the amplitude of line outputs, including XLR & RCA line outputs.

```
┌─────────────────────────────────────┐
│              Output Level             │
│  ─────────────────────────────────   │
│                                       │
│   ○  RCA 2 Vrms      ⦿ RCA 2.25 Vrms  │
│      XLR 4 Vrms         XLR 4.5 Vrms  │
│                                       │
│      ◁  ▷ Change options   ⚙ Back     │
└─────────────────────────────────────┘
```

### 2.Volume Control

Enable this setting to adjust the volume of XLR & RCA analog outputs.

```
┌─────────────────────────────────────┐
│             Volume Control            │
│  ─────────────────────────────────   │
│                                       │
│         ○  On       ⦿ Off             │
│                                       │
│      ◁  ▷ Change options   ⚙ Back     │
└─────────────────────────────────────┘
```
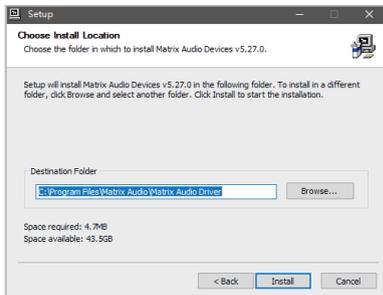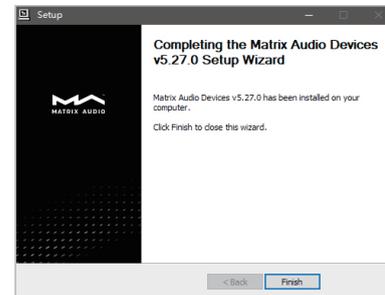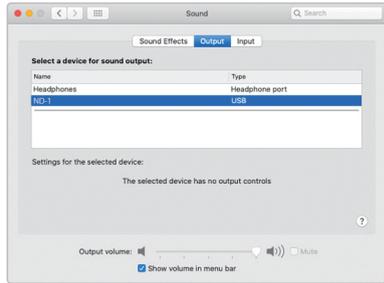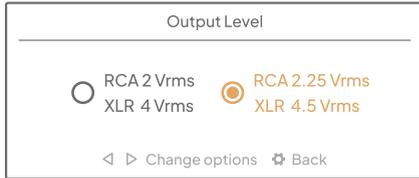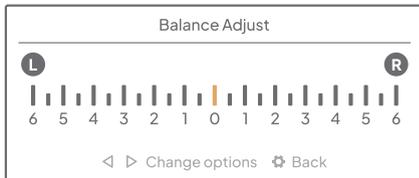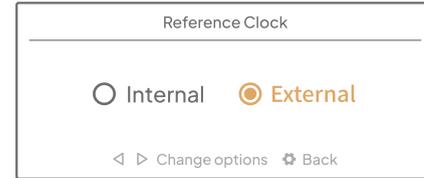
### 3.Balance Adjust

Set the balance of left and right channels. Every step changes 0.5dB, the maximum adjustment per channel is 6dB.

```
┌─────────────────────────────────────┐
│             Balance Adjust            │
│  ─────────────────────────────────   │
│  L                              R      │
│  |ı|ı|ı|ı|ı|ı|ı|ı|ı|ı|ı|ı|            │
│  6 5 4 3 2 1 0 1 2 3 4 5 6            │
│      ◁  ▷ Change options   ⚙ Back     │
└─────────────────────────────────────┘
```
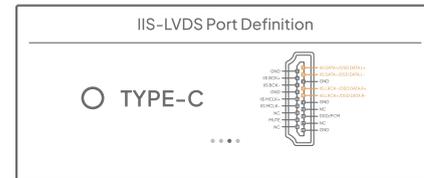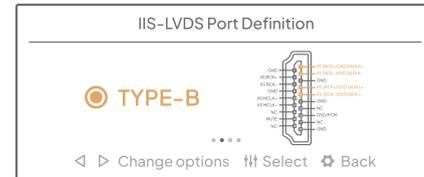
### 4.Clock Mode

Set the reference clock source for the device. When using an external 10MHz clock source such as the SC-1, set it to "External Clock".

```
┌─────────────────────────────────────┐
│             Reference Clock           │
│  ─────────────────────────────────   │
│                                       │
│      ○  Internal    ⦿ External        │
│                                       │
│      ◁  ▷ Change options   ⚙ Back     │
└─────────────────────────────────────┘
```

### 5.IIS-LVDS Port Definition

Set the IIS-LVDS Port Definition; four options are available. Incorrect settings may cause noise, no sound or reversed left and right channels.

```
┌─────────────────────────────────────┐
│         IIS-LVDS Port Definition      │
│  ─────────────────────────────────   │
│                                       │
│   ○  TYPE-A            [connector]    │
│                                       │
│    ◁  ▷ Change options ⇅ Select ⚙ Back│
└─────────────────────────────────────┘
```

```
┌─────────────────────────────────────┐
│         IIS-LVDS Port Definition      │
│  ─────────────────────────────────   │
│                                       │
│   ⦿  TYPE-B            [connector]    │
│                                       │
│    ◁  ▷ Change options ⇅ Select ⚙ Back│
└─────────────────────────────────────┘
```

```
┌─────────────────────────────────────┐
│         IIS-LVDS Port Definition      │
│  ─────────────────────────────────   │
│                                       │
│   ○  TYPE-C            [connector]    │
│                                       │
└─────────────────────────────────────┘
```

# Settings

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## IIS-LVDS Port Definition

○ TYPE-D

◁ ▷ Change options  ⇅ Select  ⚙ Back
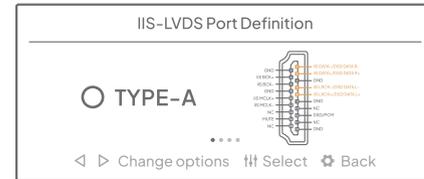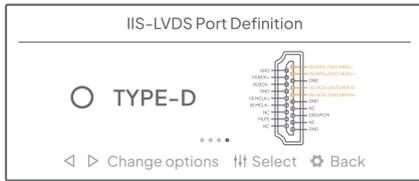
### 6.Auto Power on

With this setting enabled, auto power-on activates when a signal is detected on the selected input channel before standby.

## Auto Power on

○ On  ⦿ Off

◁ ▷ Change options  ⚙ Back
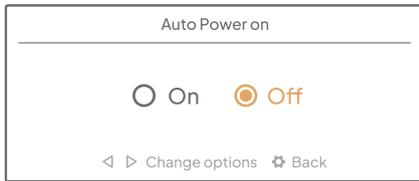
### 7.Auto Sleep

Set the idle time before the device automatically enters standby. The device will enter standby mode if there is no input, touch interaction, or remote control input for the set duration.

## Auto Sleep

○ 5 minutes  ⦿ 10minutes  ○ Off

◁ ▷ Change options  ⚙ Back
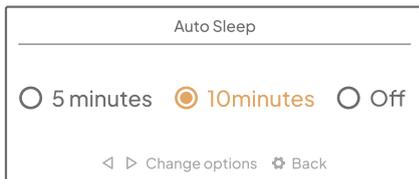
### 8.Power Button Short Press Function

Set the function of the Power Button short press when powered on.

## Power Button short Press

○ Mute  ⦿ Dimmer  ○ Off

◁ ▷ Change options  ⚙ Back

### 9.Touch Button Beep

Set to enable or disable the Touch Button Beep.

## Touch Button Beep

○ On  ⦿ Off

◁ ▷ Change options  ⚙ Back
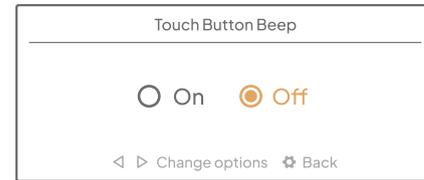
### 10.Screen & Button Brightness

Set the brightness of the display and the touch buttons.

## Backlight Brightness

○ Low  ○ Medium  ⦿ High

◁ ▷ Change options  ⚙ Back

# Settings
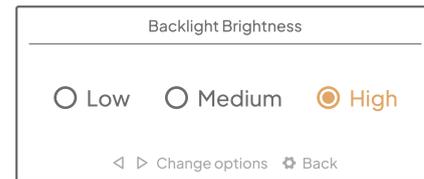
**11.Auto Dimmer**

Enable or disable the device automatically enters dimmer mode when there is no operation. When this option is set to "Off", the device will still enter dimmer mode by pressing the Dimmer button on the IR remote or the power button on the device.
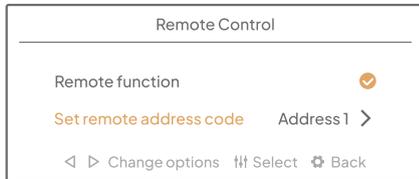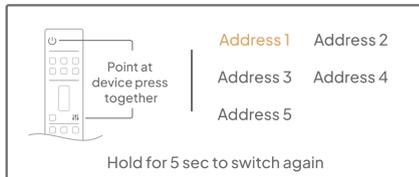
```
                    Auto Dimmer
        ─────────────────────────────────
        ○ 15 seconds     ○ 30 seconds
        ◉ 1 minute       ○ Off
        ◁ ▷ Change options    ⚙ Back
```
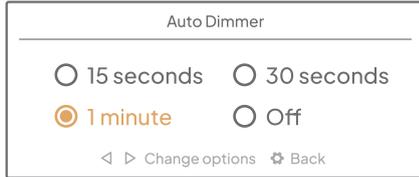
**12.Remote Control**

Enable or disable IR remote control functionality.

```
                    Remote Control
        ─────────────────────────────────
        Remote function                    ✓

        Set remote address code    Address 1 >

        ◁ ▷ Change options   ⯐ Select   ⚙ Back
```

When there are multiple identical devices in the usage environment, or when the remote control address code of this unit's remote control duplicates that of other electrical appliances, you can switch the remote control address code to avoid incorrect remote control operations.

```
        ┌──────────────────────────────────────┐
        │                Address 1    Address 2 │
        │   Point at                            │
        │   device press Address 3    Address 4 │
        │   together                            │
        │                Address 5              │
        │       Hold for 5 sec to switch again  │
        └──────────────────────────────────────┘
```

**13.Trigger Setting**

When connecting ND-1 to NT-1 by a ⌀3.5mm stereo plug cable, enabling "Advanced control" to achieve linkage control of input and output channels of ND-1 through MA Remote App.
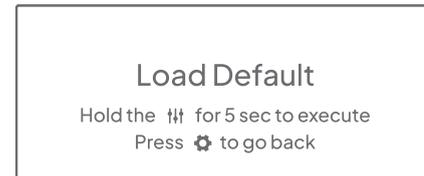
```
                    Trigger Setting
        ─────────────────────────────────
        ○ Standard trigger
        ◉ Advanced control
        ◁ ▷ Change options    ⚙ Back
```

**14.Language**

Select your preferred language for the user interface. Chinese and English are available.

```
                    Language
        ─────────────────────────────────
        ○ 中文      ◉ English
        ◁ ▷ Change options    ⚙ Back
```
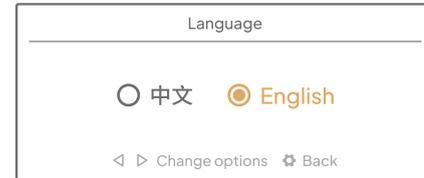
**15.Load Default**

Reset all the settings to default.

```
        ┌──────────────────────────────────────┐
        │            Load Default               │
        │   Hold the ⯐ for 5 sec to execute     │
        │        Press ⚙ to go back             │
        └──────────────────────────────────────┘
```

## Technical specifications

### Digital Input

AES/EBU,COAXIAL,OPTICAL

    PCM 16-24Bit /44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz

    DSD 2.82MHz(DoP)

IIS·LVDS

    PCM 16-32Bit /44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz, 352.8kHz, 384kHz, 705.6kHz, 768kHz

    DSD 2.82MHz, 3.07MHz, 5.64MHz, 6.14MHz, 11.29MHz, 12.29MHz, 22.58MHz, 24.58MHz, 45.16MHz,49.15MHz (Native)

USB Audio(USB Type B & USB Type C)

    PCM 16-24Bit /44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz, 352.8kHz, 384kHz, 705.6kHz, 768kHz

    DSD 2.82MHz, 5.64MHz, 11.29MHz (DoP)

    DSD 2.82MHz, 3.07MHz, 5.64MHz, 6.14MHz, 11.29MHz, 12.29MHz, 22.58MHz, 24.58MHz (Native)

### Analog Output

Op-amp output

XLR

    Output Impedance : 20Ω

    Output Level : 4.5Vrms / 0-4.5Vrms Adjustable

    SNR : >127dB A-weighting

    THD+N : <0.0002%@1kHz

    Frequency Response : 20Hz-20kHz ± 0.3 -3dB@90kHz

    Crosstalk : >-145dB

RCA

    Output Impedance : 10Ω

    Output Level : 2.25Vrms / 0-2.25Vrms Adjustable

    SNR : >121dB A-weighting

    THD+N : <0.0002%@1kHz

    Frequency Response : 20Hz-20kHz ± 0.3 -3dB@90kHz

    Crosstalk : >-125dB

Transformer output

XLR

    Output Impedance : 20Ω

    Output Level : 4.5Vrms / 0-4.5Vrms Adjustable

    SNR : >127dB A-weighting

    THD+N : <0.02%@1kHz

    Frequency Response : 20Hz-20kHz ± 0.3 -3dB@85kHz

    Crosstalk : >-140dB

RCA

    Output Impedance : 10Ω

    Output Level : 2.25Vrms / 0-2.25Vrms Adjustable

    SNR : >121dB A-weighting

    THD+N : <0.02%@1kHz

    Frequency Response : 20Hz-20kHz ± 0.3 -3dB@85kHz

    Crosstalk : >-125dB

### External Clock Input

    10MHz / 50Ω / Sine wave or square wave input

### Trigger

    Trigger in : DC 6-12V <10mA

    Trigger out : DC 12V/50mA MAX

### Power

    Power Voltage : AC 100V-120V 50/60Hz or AC 220V-240V 50/60Hz

    Standby Power Consumption : <3W
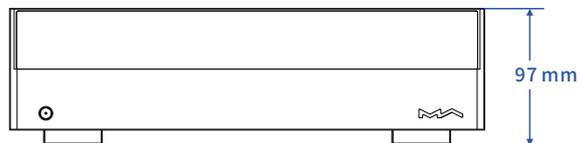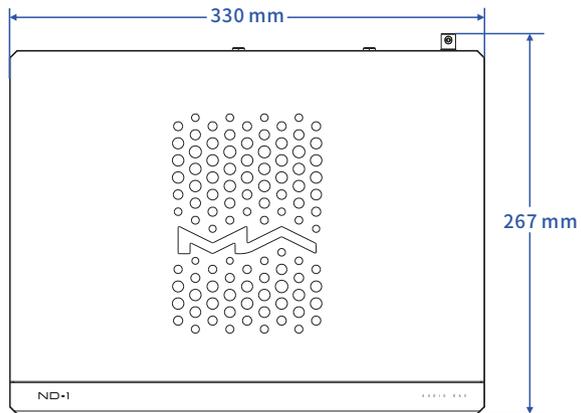
    MAX Power Consumption : <50W

**Weight & Size**

Weight : 5.6kg (12.35 pounds)
Dimensions : Width 330 mm (12.99 inches)
Depth 267 mm (10.51 inches)
Height 97 mm (3.82 inches)

330 mm

267 mm

ND·1

97 mm

- This product is for indoor use only.

- For full ventilation, it is recommended to reserve a space of larger than 5 cm around the device.

- Do not cover the air vents with stuffs such as papers, tablecloths, and curtains to obstruct ventilation.

- Do not place stuff with flame, such as lighted candles, on the device.

- If the device is used in tropical areas, please be careful to prevent insects from entering the unit through the air vents.

- The device must not be subject to water droplets or splashes. Please do not place stuffs filled with liquids such as vases and cups on or near the device.