MATRIX AUDIO™

element·i

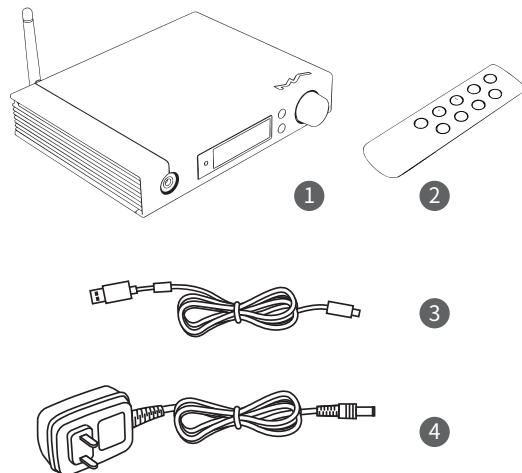### MUSIC STREAMER COMBO
User Manual

Hi-Res AUDIO ❖❖ TIDAL ⓠ qobuz roon READY

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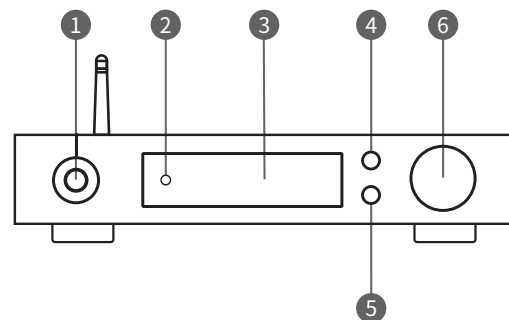
1. 6.35mm headphone jack   4. Menu button

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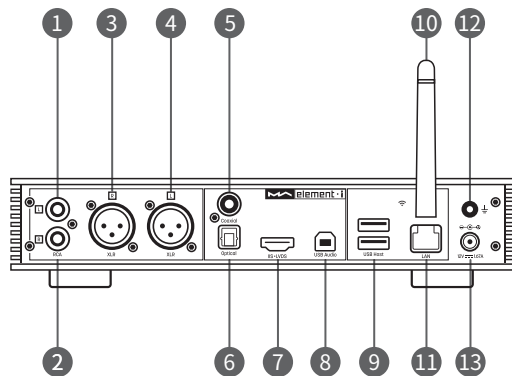
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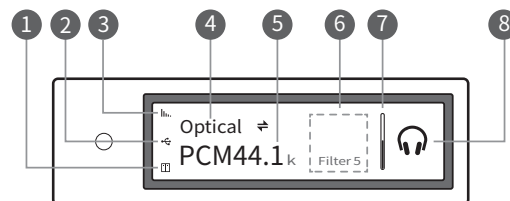
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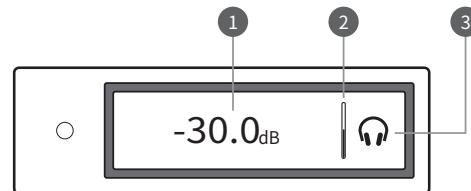
1. Current volume dB level
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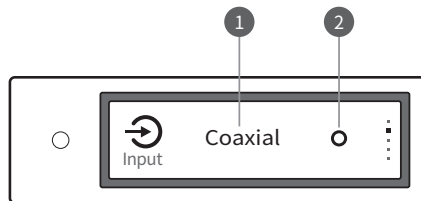
1. Input channel   2. Unselected

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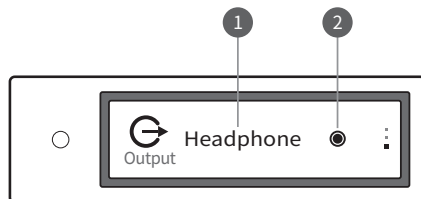
1. Current output mode   2. Selected

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5. Filter
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8. IIS
9. USB/Network*
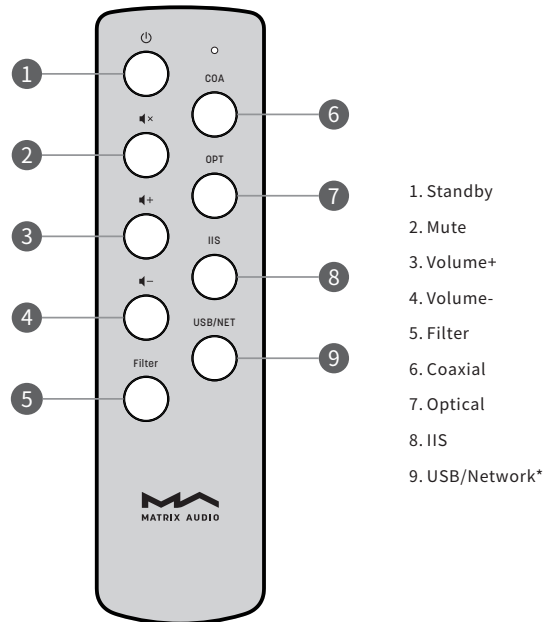
*This button can switch input channels between USB and Network.

3.Connections

3.1 Connect to power

element i uses a 12V DC power adapter which output current not less than 1.67A (output power not less than 20W). Please use the supplied power adapter or a high-quality external linear power supply. The quality of the power supply will affect the sound quality.

According to the grounding conditions under actual use environment, choose whether to connect the ground terminal on the back of the device to other equipment used at the same time, to eliminate the AC noise that may be caused by the undesirable ground loop.

3.2 Connect headphones

The 6.35mm headphone jack on the front panel can be connected to a variety of 16Ω-600Ω earbuds or headphones.
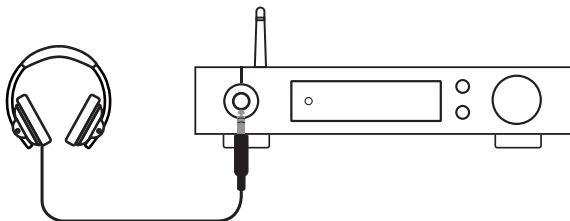
3.3 Connect to input source

Connection for front-end devices including S/PDIF output signal through coaxial and optical port;

Connection for digital interface products of Matrix through IIS prot
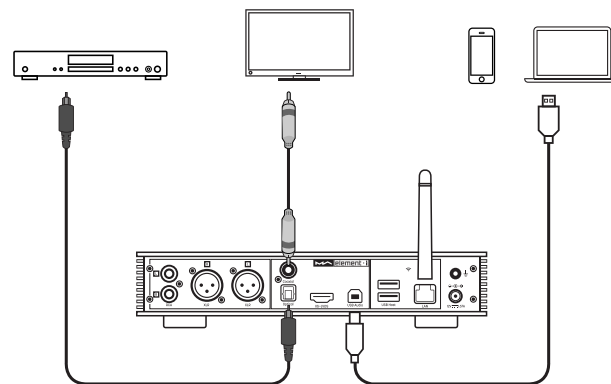
3.4 Connect to active speakers or AMPs

In order to avoid damage to your devices, please turn off the active speakers or amplifiers before you connect them to element i.

IN   OUT

R   L

IN   OUT

R   L
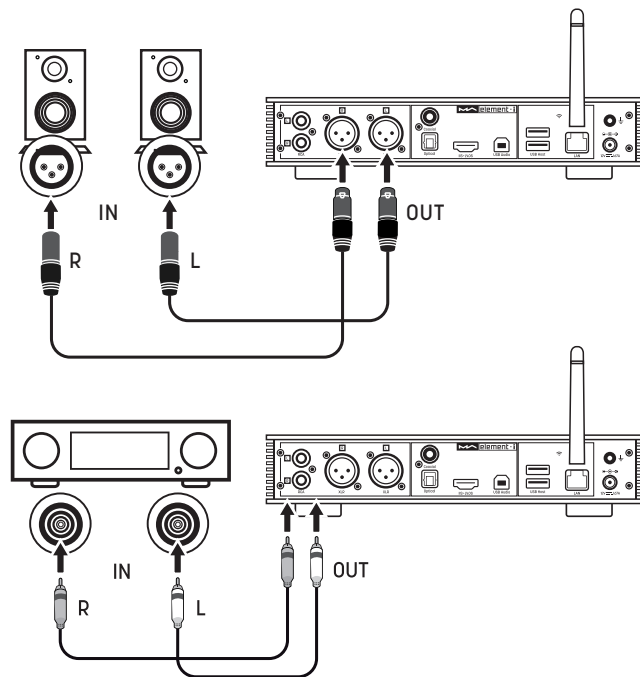
3.5 Connect to storage devices

There are two USB HOST ports on the rear panel to connect with standard mass storage USB devices.

Each USB ports provide up to 500mA of current to external devices.
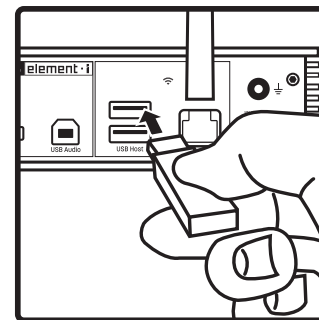
3.6 Connect to LAN

Please use ethernet cable to connect element i to your network router (recommend using CAT-5 or higher version shielded ethernet cable), and let element i in the status as shown below:
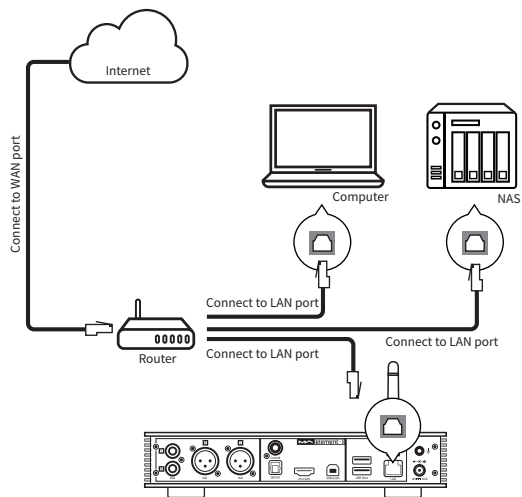
It is advisable to set up the router as DHCP server, and this function will allocate the device IP address in LAN automatically.

3.7 Connect to WLAN

3.7.1 The Wi-Fi antenna of element i is not removable. Adjusting the antenna direction can change the Wi-Fi signal reception.

3.7.2 Let element i in the status as shown below:
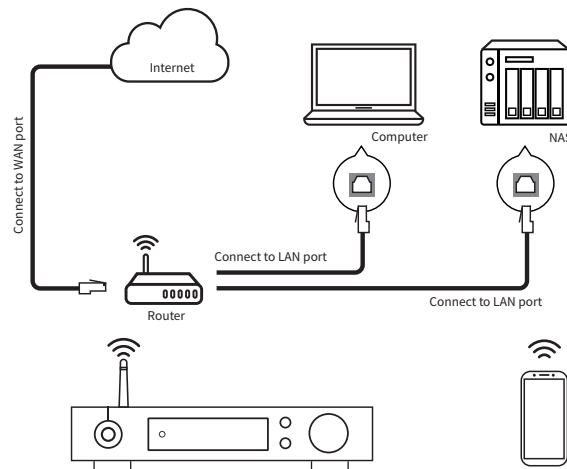
3.7.3 Scan the QR code below to download MA Remote app for your iPhone, iPad and Android devices, and follow the configuration wizard in the app to connect your element i to Wi-Fi and explore more exciting functionalities.

4. Play

4.1. Basic operation

4.1.1 Power on and off

Connect the power adapter, press the knob on the device or the Standby button on the remote control to turn on the device, the screen will light on.
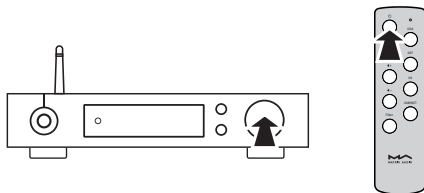
When the power is on, press the knob or the Standby button to enter standby state.

4.1.2 Select the input source

Press the menu button '≡' to switch to channel option menu, then rotate the knob to select between auto, coaxial, optical, IIS LVDS, USB Audio and Network, you can press the knob to confirm the selection.
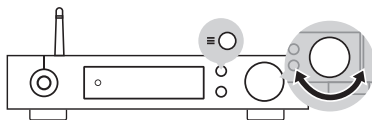
Under 'AUTO' mode, element i will automatically scan all digital input chan-nels, the first connected input channel will be locked immediately. It will continue to scan other channels until the current channel signal is lost. When there are several input channels being connected, element i is always locks the signal which is detected first. The order of input channel scanning is as shown,
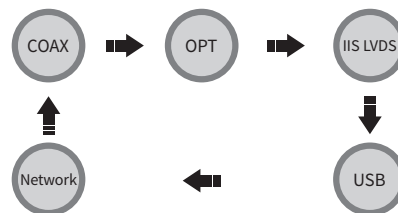
When selected 'AUTO' channel and the input signal being locked, it will show the auto scan mark beside the channel name. As shown,
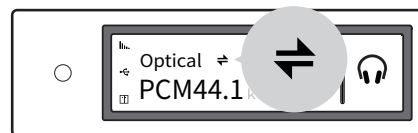
When using network related music source such as AirPlay, DLNA, Roon or MA player, please select Network input channel.

4.1.3 Select output channel

Select the output mode between headphone output, line output and 'AUTO' mode by pressing the " ≡ " button on the front panel, press the knob to confirm. When 'AUTO' mode activated, when the headphone is connected to element i, it will automatically switch to headphone output, and vice versa when the headphone disconnected, element i will automatically switch to line output mode.

4.1.4 Volume control

4.1.4.1 Volume adjustment

The volume can be adjusted by the knob ◀− or ◀+ and the key on the remote control, the screen will show the current volume level at the same time. Line output and headphone output have independent volume control level, also, the line output can be configured as fixed level output.
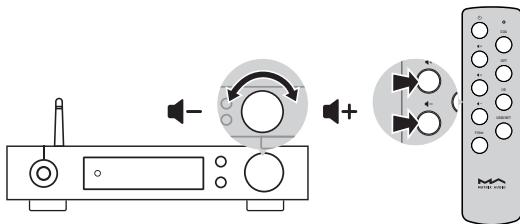
⚠ CAUTION :

'Fixed output' means that the device outputs signal with maximum level at 0dB. Before selecting this mode, please make sure that your power amplifier or active speaker has been adjusted to a lower volume level. If the amplifier or speakers do not have volume control, DO NOT set up to 'Fixed output' mode, otherwise this operation may damage to your devices and harm your ears.

4.1.4.2 Mute

In playback status, you can press the 'Mute' button on the remote control to activate mute; press the 'Mute' again or turn the volume knob to exit mute. There will be a mute icon on the screen when mute is activated.

4.1.4.3 Hearing protection

In order to protect your hearing and avoid damage by excessive volume, when the volume level of a single-ended headphone is higher than -30dB, the volume will be recovered to -30dB after element i reboot; if the volume is lower than -30dB, it will return to the same volume level as you set last time.

4.1.5 Filter settings

When element i is playing PCM or DSD music, users can select the digital filters to get different sound performance. Users can switch on the 2nd option in setting menu or add the Filter setting to shortcut key 'O' on 9th option to fast switch it. The current selected filter will display in the assistant information area on the screen, and the encoding mode of DSD audio is also displayed there.

```
  O      2   PCM  Filter        MOD 1
```
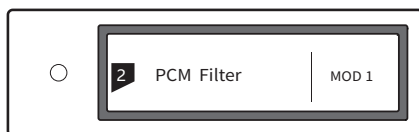
4.1.6 Auto sleep and wake up

element i will enter sleep mode when the current selected digital channel has no input signal and no operation for more than 5 minutes.

The following operations can wake up element i from sleep status,

· Press the volume knob on the front panel of element i

· Press the 'Standby' button on element i or remote control

· Recover the input signal of the selected channel or recover signal of any digital channels under Auto Scan mode

When element I has stopped playing for more than 5 minutes on the Network input channel, and no operation for more than 5 minutes, it will enter sleep mode automatically, and will wake up by the following conditions:

· Push music to element i through AirPlay or DLNA

· Play music through MA player

· Play music as a ROON endpoint

4.1.7 Remote control

Remote control uses a CR2032 button cell battery.Pull out the battary slot at the bottom to install battery and make sure to put in the right polarity.
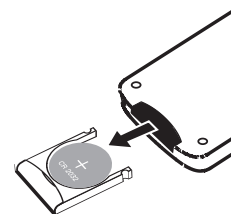
Please point the remote control to the remote sensor in the area in the following picture, the remote distance is about 8 meters and the battery life is about one year, please replace the battery if the remote distance becomes shorter or loses sensitivity.

About 8 meters

30°   30°
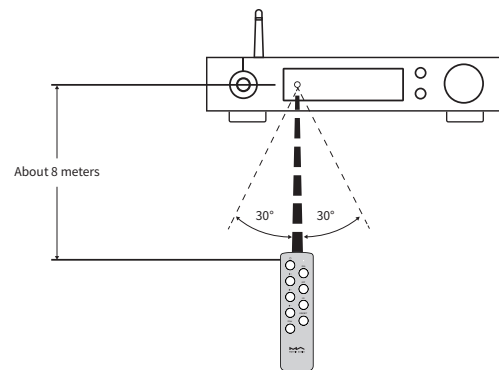
4.2 Play music through optical, coaxial or IIS-LVDS port

When it is connected with front-end devices, which including S/PDIF output digital signal through coaxial and optical port or digital interface products of Matrix Audio through IIS port, the screen will show sampling rate and signal format of the selected input channel.
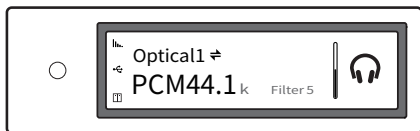
If the sampling rate and signal format on the screen is not displayed correctly, please check if the cable is correctly connected or the front-end device is outputting signal.

4.3 Play music from USB storage devices or NAS

element i can play the music from USB storage devices or NAS through MA player. Download MA Remote APP to get more detail about user guide.

MA player is a digital music and streaming media audio playback system based on network control, it is developed by MATRIX. It can realize remote control on the mobile device under the same LAN. It can browse and play music tracks and automatically get album covers and artist information from internet. MA player supports a variety of lossless formats, supports both DSD and PCM music files playback, which bringing you a brand new music playback experience.

4.4 Play music through AirPlay or DLNA

After element I is connected to LAN with the ethernet cable or wireless, users can push the music from a smart phone or other mobile devices to it through AirPlay or DLNA.

Connect the Wi-Fi of your iPhone or iPad to the same local area network as the element i, and click AirPlay to select element i as audio device, then choose and enjoy your favored music.
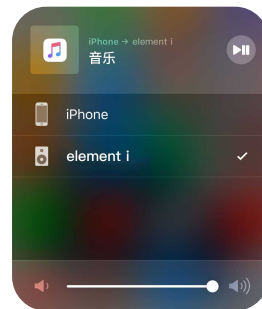
Connect the Android devices and element i through Wi-Fi under the same LAN, and open the APP including DLNA function, then play music and push it to element i.

The experience of using element i with an Android device is due to the compatibility of music APPs, not all the Android devices or music APPs have DLNA function.

4.5 USB Audio

When the element i needs to be connected to computer as an USB DAC, please install driver for Windows 7/8/10 which can be found in Matrix official website, the URL of the download page is: https://matrix-digi.com/en/downloads/, the installation process as follow,

Install the Windows driver for element i

Step 1:
Double-click the driver installation file,
and click 'Next'

Step 2:
Please select the installation path
and click 'Install'
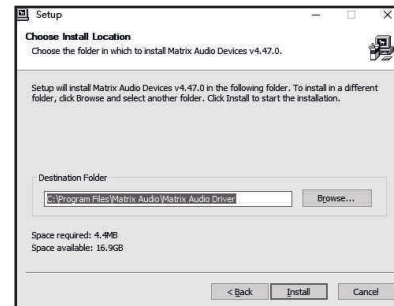
Step 3:
Installation is completed
and click 'Next'
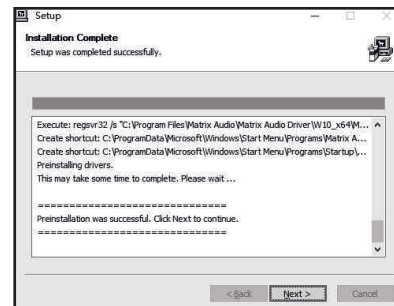
Step 4:

Click 'Finish', the

driver installation

is completed.
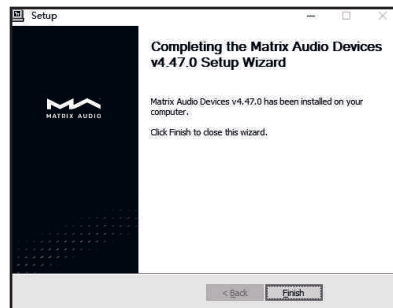
Use element i under Mac OS X

Mac OS X does not need
a driver. Please select
the audio device as
'element Series' in
System Preferences.

Connect element i to mobile devices via USB port

Use Apple Lightening to USB Camera Kits to connect element i with iOS devices.

element i can be connected to an Android device with Micro USB or Type-C USB port via the OTG cable, but it's not guaranteed to be compatible with all Android devices.

5. Settings

Repeat pressing the 'Menu' key to enter into configuration menu, then press the knob to enter configuration items.

As shown:

```
  ○        ⚙     Push knob enter settings
          Settings
```

There are 13 items in the configuration menu as follow:

5.1 Lineout Mode

Lineout mode can be set as,

0dB Fixed: 0dB gain , fixed

0dB ADJ: 0dB gain，attenuation adjustable (Default)

```
  ○      1   Lineout Mode        0dB ADJ
```
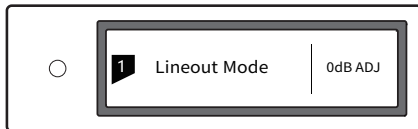
Connect to active speakers, recommend to set as '0dB ADJ' .

Connect to power amplifier including volume control, recommend to set as '0dB Fixed' .

In order to avoid misoperation, switching from 0dB ADJ to 0dB Fixed requires a 2-step confirmation, press "○" button to confirm, other operations will cancel this setting.

```
  ○        ⚠   Line output max volume
              Press "o" button to confirm
```
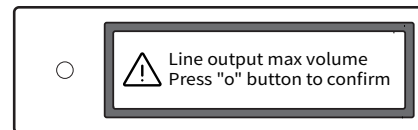
5.2 PCM Filters

7 configurable digital filters with different frequency response curves, to set filters for different timbre

MOD1 fast roll-off, minimum phase filter (Default)

MOD2 slow roll-off, minimum phase filter

MOD3 fast roll-off, linear phase filter

MOD4 slow roll-off, linear phase filter

MOD5 brickwall filter

MOD6 hybrid, fast roll-off, minimum phase filter

MOD7 Apodizoing, fast roll-off, linear phase filter

The frequency response curve of 7 different filters are as follow:
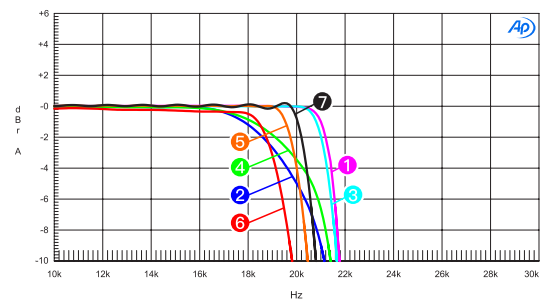
Sweep	Trace	Line Style	Thick	Data	Axis	Comment	
1	1	Solid	1	DSP Anlr.Level A	Left	mod1_fast roll-off,minimum	❶
2	1	Solid	1	DSP Anlr.Level A	Left	mod2_solw roll-off,minimum	❷
3	1	Solid	1	DSP Anlr.Level A	Left	mod3_fast roll-off,linear	❸
4	1	Solid	1	DSP Anlr.Level A	Left	mod4_slow roll-off,linear	❹
5	1	Solid	1	DSP Anlr.Level A	Left	mod5_brickwall	❺
6	1	Solid	1	DSP Anlr.Level A	Left	mod6_hybrid	❻
7	1	Solid	1	DSP Anlr.Level A	Left	mod7_apodizing	❼

(Tested at 44.1kHz)
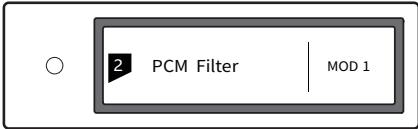
5.3 DSD Filters

Set the cut-off frequency of DSD digital filter

47kHz（Default）, 50kHz, 60kHz, 70kHz, AUTO
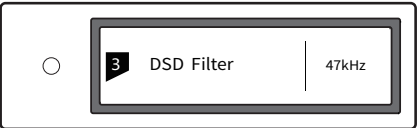
Suggestion:

DSD64 - 47k, DSD128 - 50k, and so on. When this option sets to AUTO, the DSD filter will be selected automatically.

5.4 Dither

Configure to turn ON/OFF the dither function, it can effectively reduce the quantizing distortion.

ON（Default）

OFF

5.5 Jitter Eliminator

Set the internal time-base jitter elimination circuit for turn ON or OFF.

ON (Default)

OFF

```
  ○        5   Jitter Eliminator  │  ON
```
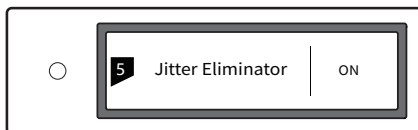
5.6 DPLL Bandwidth

Set the DPLL Bandwidth

Low: Low bandwidth   High: High bandwidth

Normal: Standard bandwidth (Default)

```
  ○        6   DPLL Bandwidth  │  Normal
```
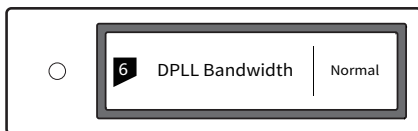
It's recommended to set the DPLL bandwidth to default, when the quality of digital signal which output from front-end device is poor and the element i can not lock the signal stably, please select high bandwidth. The sound quality may be reduced in high bandwidth mode.

5.7 IIS-LVDS Port Definition

There are two kinds of IIS-LVDS port definition for option, two different definitions as shown bellow,

TYPE A (Default) , TYPE B, TYPE C, TYPE D

```
  ○        7   IIS - LVDS Port     │  TYPE A
               Definition
```
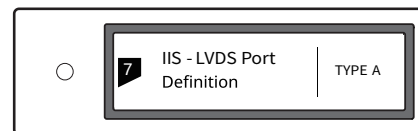
Please select 'TYPE A' when collocated with Matrix audio products.

5.8 Auto Sleep

When there is no input signal from the selected channel and no operation for more than 5 minutes, element i will enter sleep mode. element i will not enter 'Auto Sleep' mode when 'Auto Sleep' function is off.

ON

OFF (Default)

```
  ○        8   Auto Sleep       │  ON
```

5.9 User defined button settings

Set the function of 'O' button on the front panel. There are 4 actions available:

INPUT: Set 'Input Channel Select' as a shortcut, switch to next input channel by every pressing

OUTPUT: Set 'Output Channel Select' as a shortcut, switch to next output channel by every pressing (Default)

FILTER: Set 'Filter Select' as a shortcut, switch to next filter by every pressing

INFO: Set 'Product Info' as a shortcut to display hardware and software information of the unit

○ 9 "O" Button Func | OUTPUT

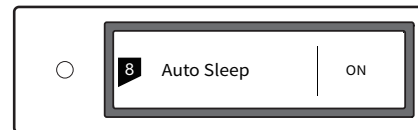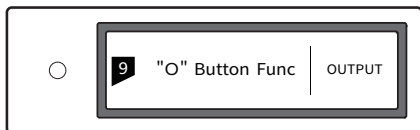## 5.10 Network Type

Select network access method for element i, when you select the option LAN, Wi-Fi is disabled and vice versa if you select Wi-Fi, ethernet is disabled.

LAN: Wired network

Wi-Fi: Wireless network (Default)

○ 10 Network Type | Wi-Fi
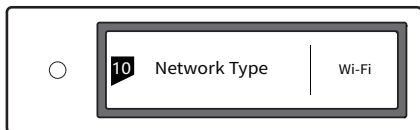
5.11 Remote control

If there are more than 1 Matrix device in the same place, in order to prevent one remote control from controlling multiple device at the same time, element i has 5 built-in sets of remote control address codes, which can be switched under this option to achieve 'one-to-one' control between the remote control and the host.

○ 11 Remote control | Enter
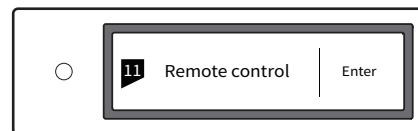
Press the knob to enter the remote control settings as shown below, at this time, you will see the current remote control address code on the screen, press the button on the remote control and the screen will display the corresponding name. Hold the Standby and Filter buttons on the remote control for 5 seconds at the same time, the screen will display a new address code, press the 2 buttons again within 5 seconds to switch to the next address code, repeat the operations above to select the address code, press '≡' or 'O' to return to the menu page.

○ ADD: 1
Key: Filter | Set
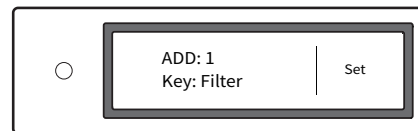
5.12 Load Default

Press the knob in this option, all the settings will return to default.

| 12 | Load Default | Enter |
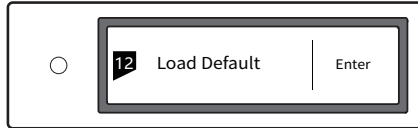
5.13 Product Information

Push the knob under this option, the hardware and software information will shown on the screen.

| 13 | Product info | Enter |

6. Appendix

6.1 Audio file formats and sampling rate supported

MA player supports the following audio file formats：

Mp3, WMA, WAV, AIF, AIFC, AIFF, AAC, FLAC, OGG, APE, ALAC, M4A, DSF, DFF

PCM sampling rate support up to:

PCM 16/24/32Bit 44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz, 352.8kHz, 384kHz

DSD sampling rate support up to:

DSD 2.8 MHz, 5.6 MHz, 11.2 MHz

More audio file formats could be supported through future firmware updates.

6.2 USB storage device requirements

• element i can use devices that comply with the USB mass storage standard, but cannot guarantee compatibility with all storage devices or memory cards.

• USB storage devices support FAT32, exFAT, NTFS formats.

• If the USB storage device is partitioned, each partition will be treated as a separated device.

• When using extension cable to connect a USB storage device may result in unstable connection.

• When using a USB hub to connect the USB storage device to element i, it may not work properly.

• Each USB ports provide up to 500mA of current to the peripherals.

• If USB storage device comes with a power adapter, please connect power adapter to the storage device.
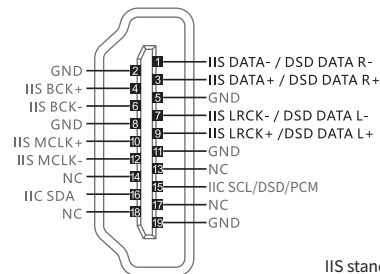
⚠ CAUTION：

Matrix Audio is not responsible for data loss, modification, or failure to the USB storage devices. We strongly recommend you back up the data in the USB storage device before using it on element i.

6.3 IIS-LVDS Port

The IIS port of element i is a standard 19-pin HDMI connector. It uses four sets of LVDS differential signals to transmit IIS data. It supports up to 32Bit/768kHz PCM signal input and 1Bit/45.1MHz DSD signal input. The PCM format is the standard IIS format, the DSD format supports the original DSD format (Native DSD) and the DSD format of DoP encoding.

The IIS port of element i is compatible with TYPE A, B, C and D. These are 4 different interface definitions, which can be configured in the 8th setting option.

The port definition as shown bellow:

Pin	Signal
2	GND
4	IIS BCK+
6	IIS BCK-
8	GND
10	IIS MCLK+
12	IIS MCLK-
14	NC
16	IIC SDA
18	NC
1	IIS DATA- / DSD DATA R-
3	IIS DATA+ / DSD DATA R+
5	GND
7	IIS LRCK- / DSD DATA L-
9	IIS LRCK+ / DSD DATA L+
11	GND
13	NC
15	IIC SCL/DSD/PCM
17	NC
19	GND

TYPE A:

IIS standard definition

GND
DSD BCK+
DSD BCK-
GND
MCLK+
MCLK-
NC
IIC SDA
NC

IIS DATA+ / DSD DATA R+
IIS DATA- / DSD DATA R-
GND
IIS LRCK+ / DSD DATA L+
IIS LRCK- / DSD DATA L-
GND
NC
IIC SCL/DSD/PCM
NC
GND

TYPE B:

IIS reverse definition

GND
IIS BCK+
IIS BCK-
GND
IIS MCLK+
IIS MCLK-
NC
IIC SDA
NC

IIS DATA+/ DSD DATA L+
IIS DATA- / DSD DATA L-
GND
IIS LRCK- / DSD DATA R+
IIS LRCK+ /DSD DATA R-
GND
NC
IIC SCL/DSD/PCM
NC
GND

TYPE C:

IIS reverse definition

GND
DSD BCK+
DSD BCK-
GND
MCLK+
MCLK-
NC
IIC SDA
NC

IIS DATA - / DSD DATA L-
IIS DATA+/ DSD DATA L+
GND
IIS LRCK+ / DSD DATA R-
IIS LRCK- / DSD DATA R+
GND
NC
IIC SCL/DSD/PCM
NC
GND

TYPE D:

IIS reverse definition

6.4 Technical Specifications

Digital Input

COAXIAL & OPTICAL:

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

DSD DSD64(DoP)

IIS-LVDS:

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

DSD DSD64/128/256/(DoP)   DSD64/128/256/512 (Native)

USB Audio：

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

DSD DSD64/128 (DoP)

DSD DSD64/128/256 (Native)

Line Output

XLR

SNR: 127dB   A-weighting

THD+N: <0.00025%@1kHz
        <0.00027%@20Hz-20kHz

Frequency Response: 20Hz-20kHz ±0.05, -3dB@150kHz

Crosstalk: > -143dB

Output Level: 4.0VRMS@0dB

RCA

SNR: 120dB   A-weighting
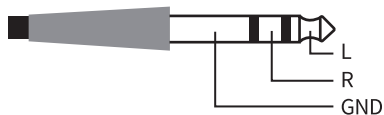
THD+N: <0.00040%@1kHz
        <0.00045%@20Hz-20kHz

Frequency Response: 20Hz-20kHz ±0.05, -3dB@100kHz

Crosstalk: > -114dB

Output Level: 2.0VRMS@0dB

Pin Definition：

1: GND
2: +
3: -

Headphone Output

TRS 6.35mm Definition:

L
R
GND

SNR: 111dB   A-weighting

THD+N: <0.0006%@1VRMS

Frequency Response: 20Hz-20kHz±0.1 -3dB@47kHz

Output Impedance: <0.6Ω

Output Power: 1320mW@33Ω, 248mW@300Ω, 124mW@600Ω（1%THD）

Gain: +12dB

Network

LAN: 10BASE-T/100BASE-TX

WLAN: 2.4GHz, IEEE 802.11 a/b/g/n standard

USB Host

USB 2.0 High-Speed
Each port provides a maximum of 500mA current

Power Supply

Power Voltage: DC12V≤1.67A (or output power larger than 20W)
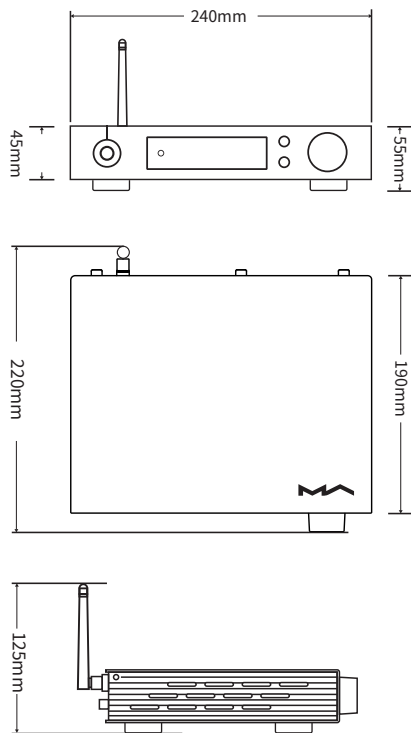
Standby Power Consumption: < 6W

Sleep Power Consumption: < 10W

Max Power Consumption: < 20W

Weight

1.5kg

Dimension

Precautions

- 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 stuffs 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 machine 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.

- Do not put stuffs around the device power plug and the AC power socket, in order to disconnect the power supply easily when needed.

The product with Hi-Res Audio logo is conformed to High-Resolution Audio standard defined by Japan Audio Society. This logo is used under license from Japan Audio Society.

Being Roon Ready means that Matrix network players transparently discover and connect to Roon without any configuration, and bit-perfect audio is delivered from Roon to your network player.

PGWA001V1.1

HIGH PERFORMANCE AUDIO

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