NEO X Introduction

NEO X is an all-in-one device integrating 4K UHD media player, music streaming media player, audio and video media center, high-fidelity headphone amplifier, music decoder and Bluetooth decoder.

As a 4K UHD media player, it can decode and output advanced 4K 12Bit HDR10+/Dolby vision.

NEO X supports playing music from a variety of input sources, such as hard disk, computer and NAS server. Not only supporting almost all high-sampling master-tape music files such as MQA, SACD ISO, DFF, DSF, FLAC, WAV, APE etc., but also supporting managing local music resources and music streaming. Live streaming media app and DLNA streaming all can get good audio quality.

NEO X adopts ESS9038Pro DAC chip for audio decoding and supports lossless Bluetooth, Coaxial, AES/EBU and asynchronous USB audio input, which can be used as an independent high-fidelity audio decoder. XLR balance, RCA stereo preamplifier output and high-performance headphone amplifier output are supported. No matter for local file playback or external audio input, excellent audio index can be obtained with the decoding processing of DAC, fully balanced operational amplifier circuit and audio components. It can parse lossless master-tape format files up to 22.5792 MHz DSD files (DSD512 Native mode), 768 kHz 32-bit PCM.

NEO X can be controlled easily by cell phone with exclusive Zidoo Controller APP. The large 5-inch OLED HD screen can intuitively display general settings menu, music library data, playback status and input source sampling rate etc. Touch screen, physical volume and multifunctional control knobs are very convenient to operate.

NEO X helps us solving devices connecting and matching problems, which is easy to use and pursuing for excellent performance.
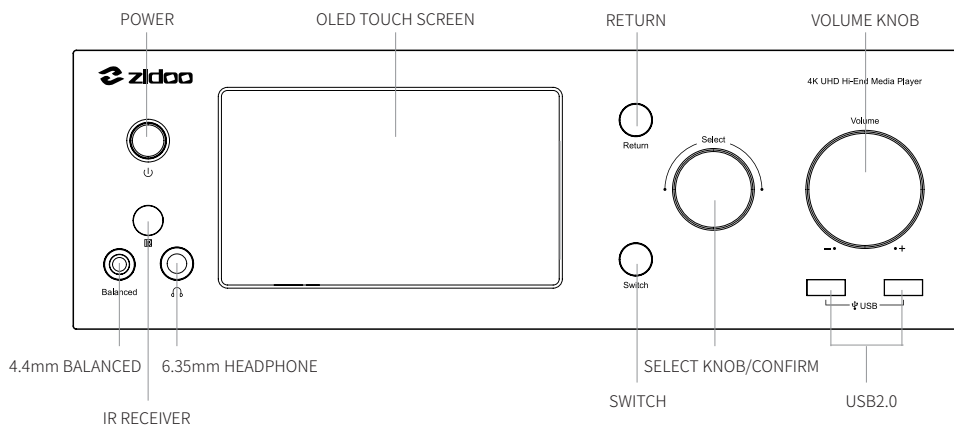
Specification

Chassis	Aviation aluminum alloy
Display	5-inch OLED HD touch screen
OS	Android 9.0
CPU	Realtek RTD1619DR ARM Cortex-A55(hexa-core)
GPU	ARM Mali-G51 MP3
Internal Storage	2GB DDR4 (RAM)+16GB eMMC
DAC	ESS 9038Pro
Bluetooth	BT 4.2
Wi-Fi	2.4G+5G dual band WiFi, 802.11 a/b/g/n/AC 2T2R MIMO 867Mbps
Ethernet	1*RJ-45(10/100/1000Mbps)
HDMI Output	2.0a (4K@60fps/12Bit/HDR/BT2020/YCbCr 4:4:4 output) support audio passthrough
Video Decoding	4K@60p HEVC/H.265 12Bit HDR10, HDR10+, Dolby Vision
Audio Decoding	Support true-hd HD audio passthrough, stereo PCM decoding; Built-in DAC audio decoding: support up to stereo DSD512 24Bit, PCM 768KHz 32Bit, MQA
Bluetooth Audio Input	CSR8675 flagship Bluetooth audio module supports mainstream lossless audio protocols such as SBC/AAC
USB Audio Input	USB audio compatible system: Windows(7,10), Mac, Android Support up to stereo DSD512 24Bit, PCM 768KHz 32Bit, MQA
Digital Audio Input	USB DAC IN*1, AES/EBU input*1, Coaxial input *1
Digital Audio Output	Optical output*1, Coaxial output*1
Analog Audio Output	Preamplifier output: XLR(balanced)*1, RCA*1 Headphone amplifier output: 4.4mm balanced*1 6.35mm single end*1
Headphone Impedance	16-300Ω (low-gain mode: 16-32Ω/ high-gain mode: 32-300Ω)
USB Ports	USB3.0*1，USB2.0*2
SATA	Internal SATA3.0 (3.5-inch HDD bay, hard drives are not included)
Control Ports	IR IN*1, RS-232*1, TRIGGER (12V) IN/OUT, TCP/IP control (WOL)
Power Supply	AC 110-240V 50/60Hz (dual linear power supply)
Dimensions	395mm*291mm*110mm
Packing List	Remote control*1, Power cable*1, Antennas*3, Product manual*1

Specification

Analog Audio Characteristics	**XLR(balanced) Output** Output Level: 4.1 Vrms THD+N: -110dB（0.00031%) Noise: 2uVrms SNR: 118dB(20Hz-20kHz) Frequency response: ±0.25dB(20Hz-20kHz) Crosstalk: -126dB(1kHz,Fs=44.1kHz) DNR: 118dB	
	RCA Output Output level: 2.26 Vrms THD+N: -109dB（0.00035%) Noise: 2.6uVrms SNR: 115dB(20Hz-20kHz) Frequency response: ±0.258dB(20Hz-20kHz) Crosstalk: -132dB(1kHz,Fs=44.1kHz) DNR: 114dB	
	Headphone 4.4mm Balanced Output Output level: 2.9 Vrms Output power: 410mW/32Ω THD+N : -110dB（0.00032%) Noise: 1.7uVrms SNR: 120dB(20Hz-20kHz) Frequency response: ±0.25dB(20Hz-20kHz) Crosstalk: -131dB(1kHz,Fs=44.1kHz) DNR: 118dB	
	Headphone 6.35mm Single End Output **Low-gain mode** Output level: 1.45Vrms Output Power/ Headphone impedance: 110mW/32Ω THD+N: -108dB（0.0004%) Noise: 3.2uVrms SNR: 112dB(20Hz-20kHz) Frequency response: ±0.25dB(20Hz-20kHz) Crosstalk: -128dB(1kHz,Fs=44.1kHz) DNR: 110dB **High-gain mode** Output level: 2.56Vrms Output Power/ Headphone impedance: 42mW/300Ω THD+N: -108dB（0.0004%) Noise: 3.3uVrms SNR: 114dB(20Hz-20kHz) Frequency response: ±0.25dB(20Hz-20kHz) Crosstalk: -132dB(1kHz,Fs=44.1kHz) DNR: 108dB	

Hardware Introduction

1.Front

POWER   OLED TOUCH SCREEN   RETURN   VOLUME KNOB

4.4mm BALANCED   6.35mm HEADPHONE   SELECT KNOB/CONFIRM

IR RECEIVER   SWITCH   USB2.0

In addition to the touch screen of NEO X, the front panel is also designed with convenient control buttons to collaborate the operation of touch screen.

① **Select Knob**
The Select knob is multifunctional, it can be used to rotate left/right and press down.
Horizontal menu: rotate the Select Knob clockwise to move right, rotate the knob counterclockwise to move left, press down the knob to confirm.
Vertical menu: rotate Select Knob clockwise to move downwards, rotate the knob counterclockwise to move upwards, press down the knob to confirm.

② **Volume Knob**
Volume knob can be used to adjust the volume, rotate clockwise to increase output volume, and rotate counterclockwise to decrease output volume.
* Under the DAC IN mode, volume can be adjusted with step 0.5db~3db in DAC setting.

③ **Return Button**
Press Return Button will go back to previous menu. When long press Return Button,it will go back to Home page.

④ **Switch Button**

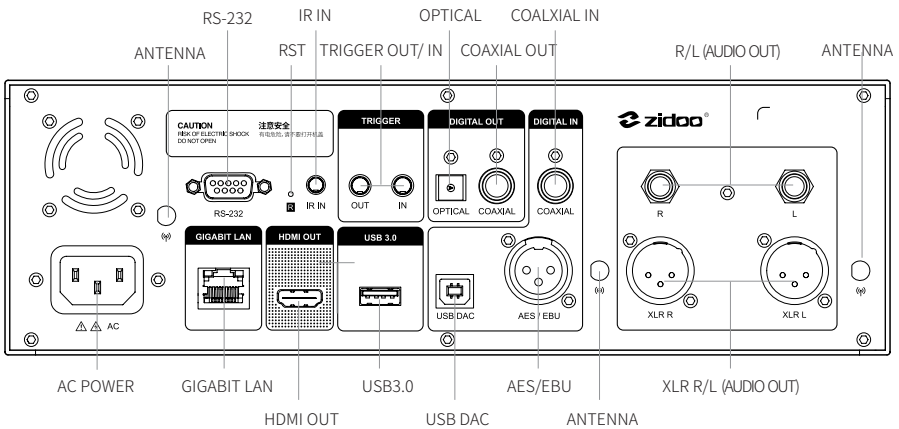Press Switch Button will directly go to the current music playback page.

⑤ **Power Button**

Power on/off this device.

Note:

Except Power Button and Volume Knob, other buttons can only work for NEO X OLED touch screen (not for large screen of display device).

2.Back

RS-232   IR IN   OPTICAL   COALXIAL IN
ANTENNA   RST   TRIGGER OUT/ IN   COAXIAL OUT   R/L (AUDIO OUT)   ANTENNA

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
注意安全
有电危险, 请不要打开机盖

TRIGGER   DIGITAL OUT   DIGITAL IN
RS-232   OUT   IN   OPTICAL   COAXIAL   COAXIAL
IR IN   R   R   L

GIGABIT LAN   HDMI OUT   USB 3.0
USB DAC   AES / EBU   XLR R   XLR L
AC

AC POWER   GIGABIT LAN   USB3.0   AES/EBU   XLR R/L (AUDIO OUT)
HDMI OUT   USB DAC   ANTENNA

3.Right

NEO X is equipped with a 3.5-inch SATA 3.0 high-speed HDD bay, which can load a hard drive. Just pull out the door of HDD bay and push in hard drive with suitable size, no other tools are needed (support hard drive up to 16TB).

Hard Disk Loading
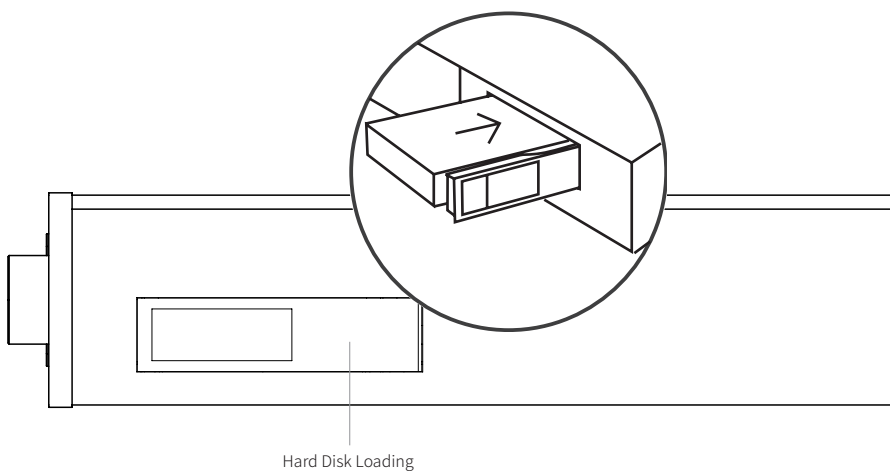
Note:
Do not install or replace the hard disk when the device is power-on, so as to avoid the damage of the device and data corruption of hard disk. Please format newly-purchased hard disk on the computer and then load it to the device. This device supports hard disk formats including EXT3, EXT4, NTFS, FAT32, EXFAT.

Connection and Installation

1. HDMI Device Connection

① Connect with TV

Make sure both TV and NEO X are power-off, connect these two devices by HDMI cable, from NEO X HDMI OUT port to TV HDMI IN port. And choose the correct signal source on TV after powering on.

HDMI OUT

HDMI cable

TV
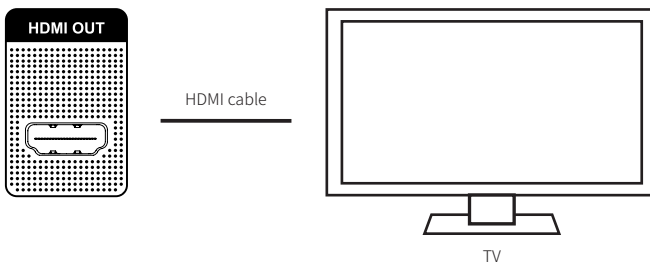
Note:

Please use HDMI 2.0 or higher-spec cable and display device to enjoy 4K UHD HDR experience.

② Connect with TV and AVR

Make sure AVR, TV, and NEO X are all power-off. Two HDMI cables are required in this process, one cable connect from NEO X HDMI OUT port to AVR HDMI IN port, another cable connect from AVR HDMI OUT port to TV HDMI IN port. Choose the correct signal source on AVR and TV respectively after powering on.

HDMI OUT

HDMI cable

AVR

HDMI cable

TV
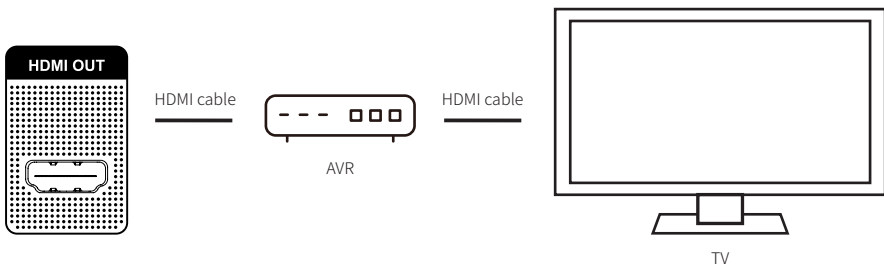
Note:

* In order to get wonderful 4K UHD HDR experience, please ensure that HDMI cable, display device and AVR all can meet the corresponding technical specifications.

* HDMI audio out and DAC analog audio cannot output at the same time. It is needed to turn off DAC to output audio from HDMI.

Settings > DAC Audio > Source In > Digital OUtput (Turn Off DAC)

* HDMI audio passthrough is supported by NEO X, if AVR supports more advanced audio formats, please set HDMI output mode to RAW.

Settings > Audio > HDMI Audio > RAW

2.Audio Output Connection and Installation

Digital audio output includes HDMI audio output, Optical audio output, Coaxial audio output, USB audio output and Bluetooth audio output. Please select the audio source as "Digital Output", meanwhile the DAC audio will be turned off.

① Digital Output

❶ Connect DAC or AVR by Optical/Coaxial
Connect NEO X with AVR by Optical/Coaxial audio cable, switch to corresponding signal source on DAC or AVR.

DIGITAL OUT

OPTICAL   COAXIAL

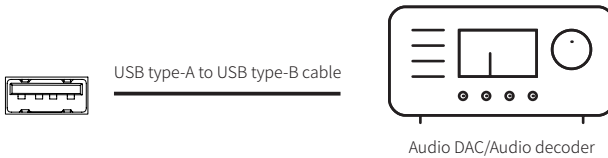Optical cable/Coaxial cable

DAC/AVR
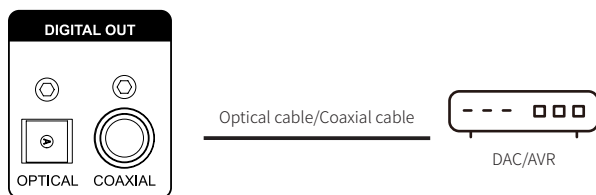
Note:

Optical/Coaxial supports up to 5.1 output.

❷ Connect DAC by USB Audio Output

Connect NEO X USB Type-A port with DAC USB DAC IN port by USB audio cable.

USB type-A to USB type-B cable

Audio DAC/Audio decoder

Note：

* Corresponding setting: **Settings > Audio > USB Audio**

* There might be incompatible situation when USB audio output to some DACs. If so, please contact with Zidoo tech support.
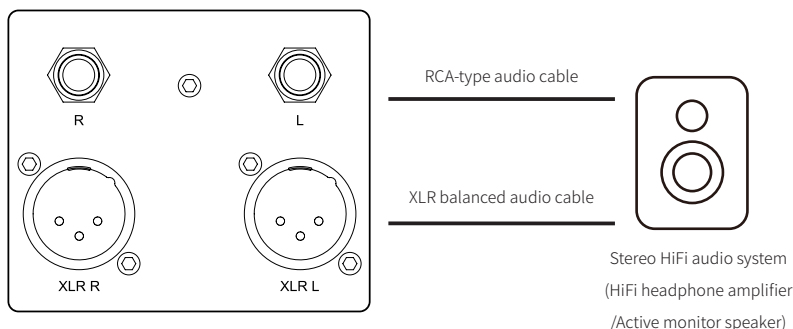
② Analog Output

Audios from analog output includes RCA, XLR, and headphone jacks all have been decoded and output by the ESS 9038Pro DAC. When playing from internal player, it's needed to turn on "Source In > DAC (internal player)". When playing from external player, please switch to relevant sources. The digital output will be closed when outputting from analog output.
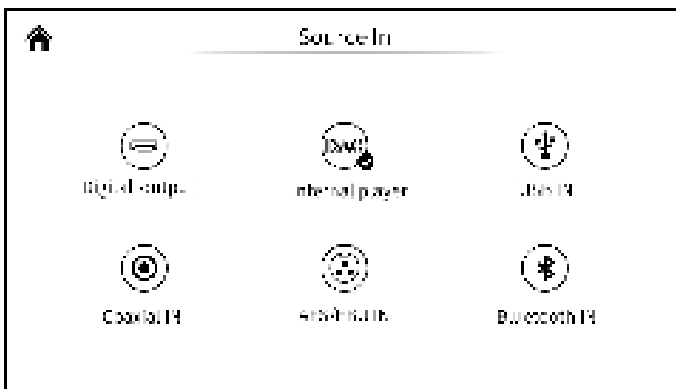
❶ RCA, XLR output

Using a pair of RCA or XLR balanced analog audio cables to connect NEO X with active speaker or HiFi amplifier.

RCA-type audio cable

R   L

XLR balanced audio cable

XLR R   XLR L

Stereo HiFi audio system
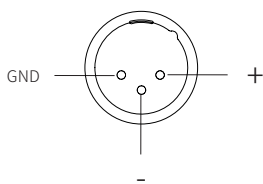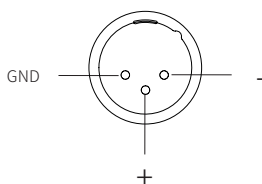(HiFi headphone amplifier
/Active monitor speaker)

Note：

* NEO X is equipped with two independent stereo output ports: RCA-type and XLR-type balanced ports can output audio signals simultaneously. Generally only choosing one of these ports is enough, and it is recommended to choose XLR balanced port to obtain better noise suppression and signal integrity.

* NEO X's balanced output is a three-pin XLR male port, which will output differential signals pair (positive/negative signals). The amplifier circuit can compare the voltage difference of signals pair to cancel common mode noise and improve the integrity of the original signal.

* In some audio systems, the positive and negative polarities are reversed. The default positive polarity are shown below. If you need to reverse the polarity, please set it in the system: **Settings > DAC audio > XLR Port Polarity > Reverse**

GND   +   GND   –

–   +

Positive polarity diagram + system positive setting   Negative polarity diagram + system negative setting

❷ Headphone Amplifier Output

There is two headphone ports including 6.35mm and 4.4mm balanced headphone amplifier output on NEO X front panel. Please connect to corresponding port according to your demand.

Balanced — 4.4 mm balanced headphone cable

— 6.35mm single headphone cable
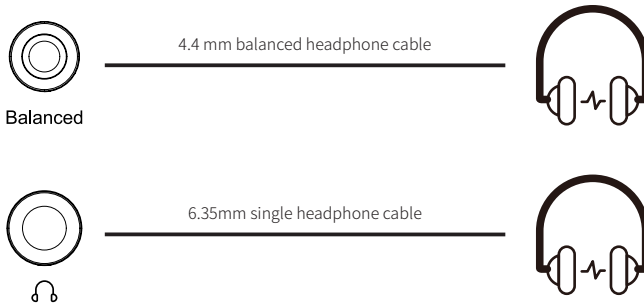
Note：

* This recommended headphone impedance range is 16-300Ω (low-gain mode: 16-32Ω/ high-gain mode: 32-300Ω).

* Switch headphone amplifier gain mode on NEO X OLED screen,

Settings > DAC settings > Headset gain > Low gain/High gain

* The output priority: 6.35mm headphone output > 4.4mmbalanced headphone output > XLR balanced output = RCA output.

3. Digital Audio Input

① USB Audio Input

NEO X can connect with a PC, USB audio output device and mobile phone by using a USB Type-A port to USB Type-B port cable.
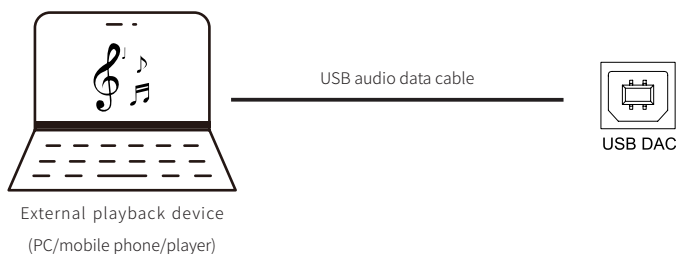
This connection method allows NEO X to be used as a high-performance pure DAC. The digital signal input by the external player has been decoded by ES9038PRO DAC decoding chip, so that it provides the best audio decoding performance.

* Corresponding setting

Settings > Source IN >   **USB IN**

USB audio data cable

USB DAC

External playback device
(PC/mobile phone/player)

Note：

* You may need to install drivers or make settings to support external playback device to transmit audio to NEO X. For example, audio driver is needed to be installed for Windows. Please download the driver on official website or contact technicians. No drivers are needed on Mac OS and Android.

* NEO X USB input supports up to stereo DSD512 24Bit, PCM 768KHz 32Bit and MQA, but external playback devices and software are also needed to support corresponding specifications.

② Coaxial Input and AES/EBU Audio Input

❶ Coaxial Audio Input

A 75 ohm coaxial cable is used to connect coaxial output port of a playback device to the digital coaxial in port of NEO X. Please don't forget to switch audio source input setting to:

Source In >   **Coaxial IN**

Coaxial audio cable

DIGITAL IN

External playback device

(CD player/digital decoder /player)

COAXIAL
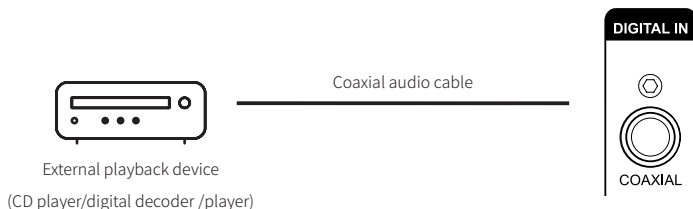
❷ AES/EBU Audio Input

A 75 ohm digital XLR audio cable is used to connect the AES/EBU output of a playback device to the AES/EBU balanced digital audio input port of NEO X. And it is needed to switch audio source input setting to:

Source In >   **AES/EBU IN**

AES/EBU audio cable

External playback device

(CD player/digital decoder /player)

AES / EBU
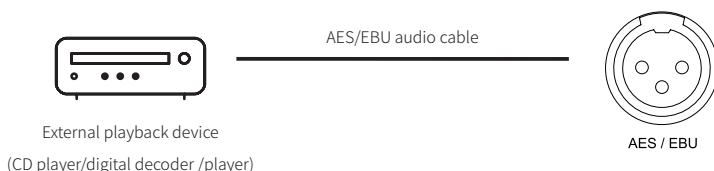
❸ Bluetooth Audio Input

A Independent CSR8675 flagship Bluetooth audio module has been built in NEO X, which supports SBC and AAC lossless audio protocols and can receive Bluetooth audio signals from mobile devices as a Bluetooth decoder.

Settings: **Source In >** **Bluetooth In**

Open Bluetooth on mobile device and search "NEO X" and finish pairing.

4. Smart Control

① RS-232

NEO X RS-232 port can be used for most home theater control system. RS-232 control protocol can be downloaded on Zidoo official website. If you want to integrate NEO X into control system, please contact with relevant distributors or AV installers.

② Trigger Port

There are 3.5mm standard 12V Trigger IN/OUT ports on NEO X. NEO X Trigger IN port is connected to Trigger OUT port of CD player/ digital decoder, and NEO X Trigger OUT is connected to Trigger IN port of active speaker/headphone amplifier. All of these devices can be connected by 3.5mm trigger cables.


TRIGGER

3.5mm cables

Headphone amplifier/active speaker Trigger IN

OUT   IN

3.5mm cables

CD player/digital decoder Trigger OUT
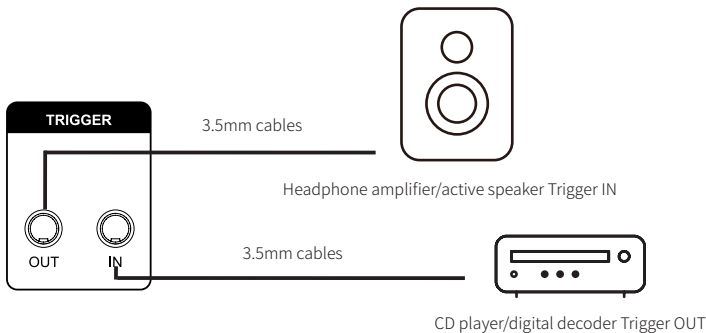
Note：

Trigger cables is 2-pin 3.5mm. You can also use a 3-pin AUX cables instead.

③ IR IN Port

For audio-visual system integrators, 3.5mm IR IN port is an optional port for control system; For ordinary users, if NEO X is put into a cabinet, the infrared signal will be blocked, then it is suggested to connect with a external infrared receiver extension device.

IR cable

IR IN

IR receiver/Infrared transmitter
port of central control host
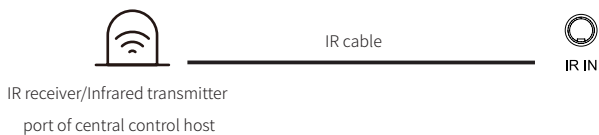
④ Smart Phone APP Control

Users can control Zidoo media players by installing Zidoo Controller APP. File manager, applications, music player, poster wall and settings can all be controlled.

❶ Application Installation
Please find "**All APPs > Control Center**" on display device or "**Settings > Control Center**" on NEO X touch screen, then scan the QR code to download the APP. Zidoo Controller APP can be downloaded on iPhone by searching "Zidoo" in"Apple Store".

❷ Connection
After the APP is installed, please ensure devices are connected with network successfully and mobile device and Zidoo media player in same LAN. Then following steps below to add device:

Open Zidoo Controller APP and click "+" on the right-top corner then scan QR code in Media Center.
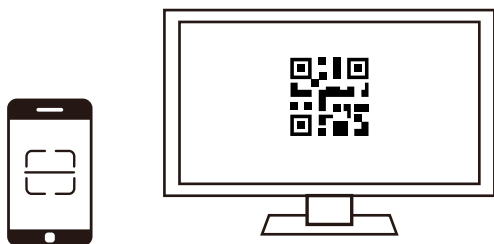
Boot and Initial Setup Wizard

NEO X will enter into initial setup wizard when it is booted for the first time, which will be displayed on large screen (display device) or small screen (NEO X OLED touch screen). If it is detected that NEO X has connected with display device by HDMI cable, initial setup wizard will show on large screen. Otherwise it will show on small screen. Please follow the system guidance to finish setting.

1.Initial Setup Wizard on Large Screen

① **System language selection, screen zoom, time zone setting**

Choose the system language according to your language habit.

Press the UP and DOWN buttons on remote control to adjust screen display area.

Select the time zone for the system according to your location.
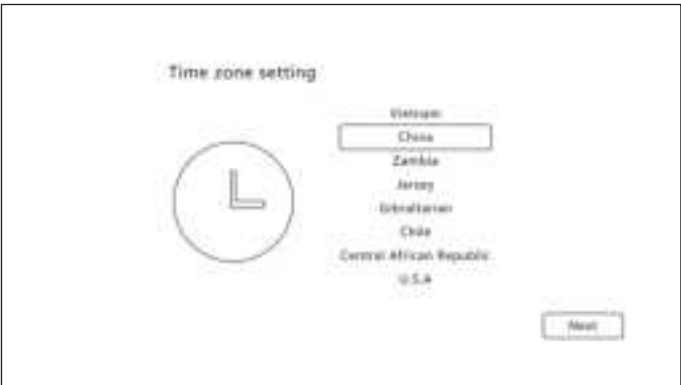
② Bluetooth Match-Up

Let remote controller be aligned with media player and press Page-Down KEY and Menu KEY at the same time for least 5 second until indicator light blinking.The light will be off after matching successfully.

③ Network Setting

Configure network to connect device with network quickly.
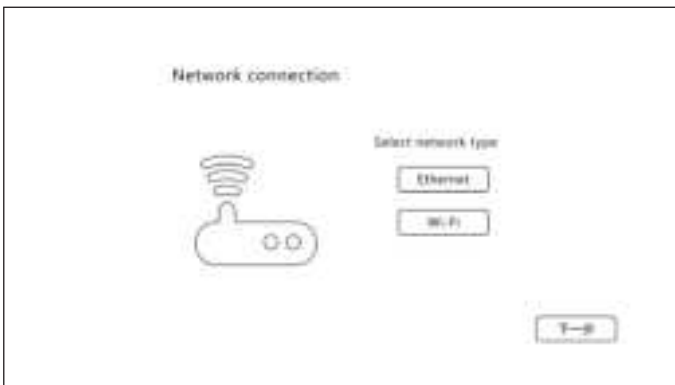
WI-FI: choose network SSID, input password and connect WIFI.
Ethernet: plug in the network cable to connect the network automatically.

④ **Select output mode**

Please select the corresponding mode according to your needs, then it will finish relevant setting.

Wizard mode: select the corresponding option according to your usage environment and device connection.
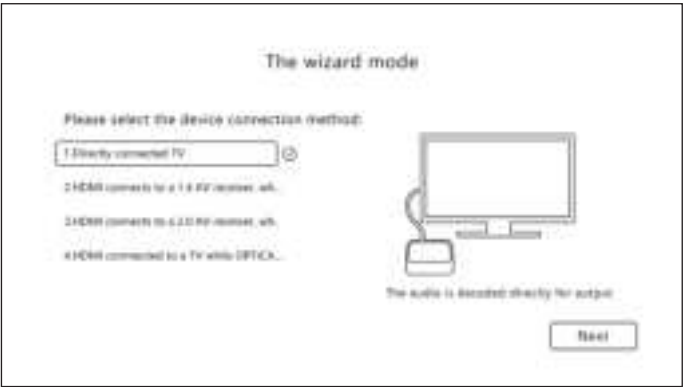
Expert mode: The audio and video output is customized by users, it is recommended for professionals.

⑤ **The key definition**

Define the corresponding functions for number keys, timing key, subtitle key, audio key, up and down keys and page keys on the remote control according to your usage habits.
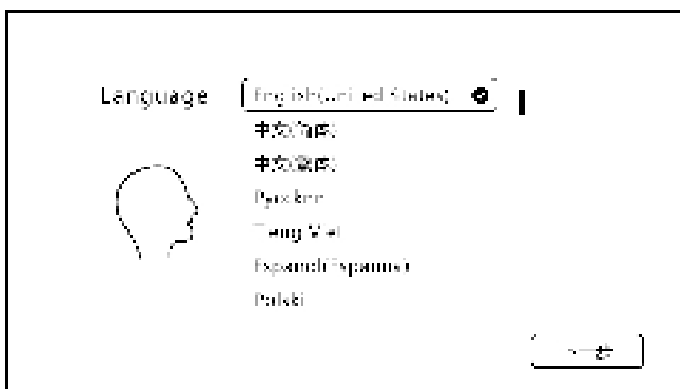

After completing settings above, please follow prompts and click"Next"to finish initial setup. Enjoy Zidoo audio visual feast!
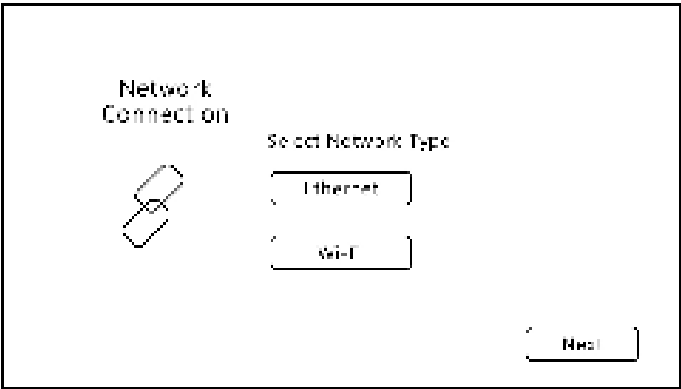
2. Initial Setup Wizard on Small Screen

① **System Language Selection**

Select the system language according to your demand.

② Network Settings

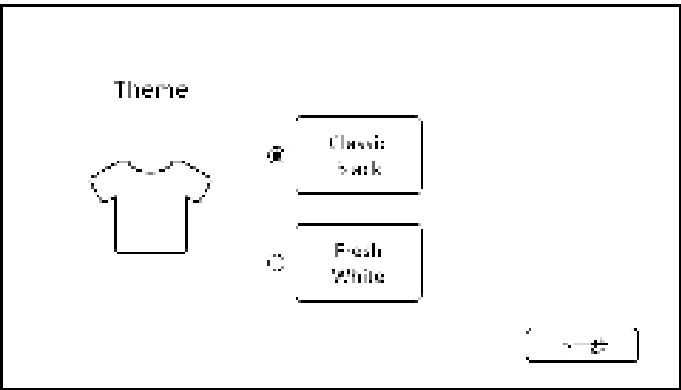Choose Ethernet or WiFi to connect the device with network quickly.

WI-FI: choose network SSID, input password and connect WIFI.

Ethernet: plug in the network cable to connect the network automatically.

③ Theme Selection

Two themes are supported, please choose the theme according to personal preference.

OTA Update

Zidoo will update firmware from time to time. After new firmware is released, it can be updated through the OTA to experience new functions. NEO X OTA update can be updated through large display screen or small NEO X OLED screen. Both online update and USB update are supported.

1.Update on Large Display Screen

① Online Update

Click the "online update" option to obtain the latest firmware information through the network. Follow instructions to update and wait the device to restart automatically after the update is finished.

② USB Update

Download firmware from official website to a USB stick, insert the USB stick to the device, and then click "USB update"option. Follow instructions to update and wait the device to restart automatically after the update is finished.

2.Update on NEO X OLED Screen

Firstly find "**Settings > Generic Setting > Update** " on NEO X OLED screen.

① Online Update

Click the "online update" option to obtain the latest firmware information through the network. Follow instructions to update and wait the device to restart automatically after the update is finished.

② USB Update

Download firmware from official website to a USB stick, insert the USB stick to the device, and then click "USB update"option. Follow instructions to update and wait the device to restart automatically after the update is finished.
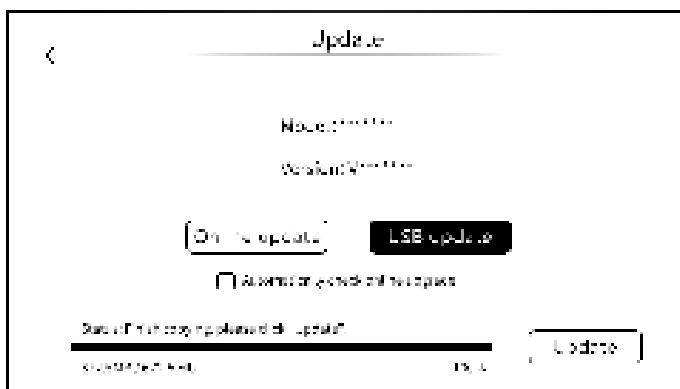
Special Note：

In order to improve user experience, Zidoo will update firmware from time to time. Therefore the content of this manual may differ from the actual menus in this product.

Safety Warning：

1. No water splashing or dripping, don't put objects with liquids like vases on the device.
2. The socket should be put aside the device, easy to operate and no occlusions.
3. It is a Class 1 device, there must be grounding measures inside the box when using.

* Safe using below 2000m altitude.

FCC Statement

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: 1) this device may not cause harmful interference, and 2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

--Reorient or relocate the receiving antenna.

--Increase the separation between the equipment and receiver.

--Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

--Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Radiation Exposure Statement

This device complies with RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This device must operate with a minimum distance of 20 cm between the radiator and user body