AUDALytic

AH90

Streamer& DAC& Headphone-amplifier
User Manual

About MQA

MQA stands for Master Quality Authenticated.

Using pioneering scientific research into how people hear, MQA's award-winning technology captures and authenticates the sound of the original master recording, and packages it for efficient streaming and storage.

When playing MQA streams, "MQA", "MQA." or "OFS" will be displayed on screen.

"MQA": A regular MQA file is guaranteed to match the source material when played back on a device with an MQA decoder.

"MQA.": An MQA Studio file is the same – but has also been approved in the studio by the artist or producer, or verified by the copyright owner.

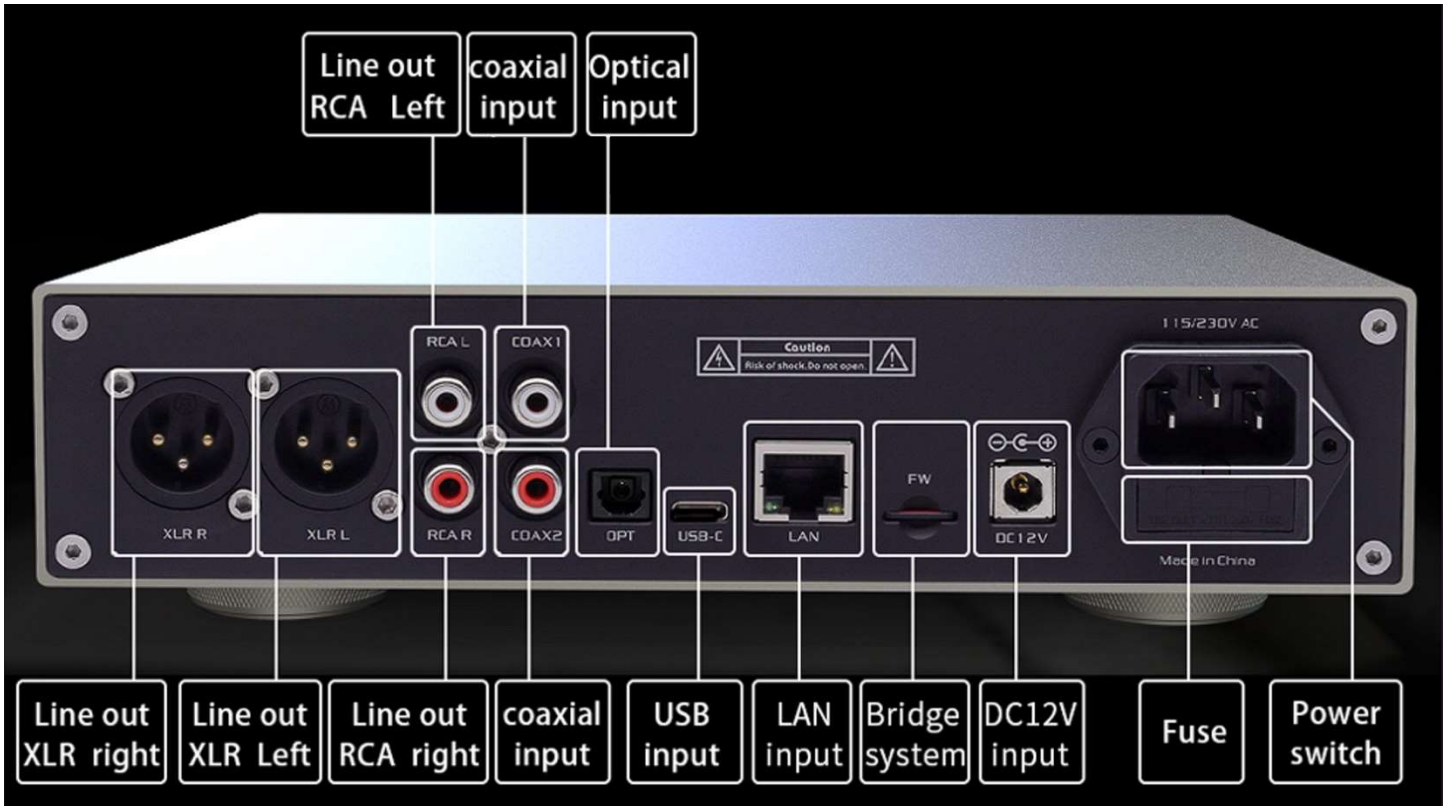
"OFS": A valid state of MQA indication for when a device receives an MQA signal already decoded by a downstream piece of hardware or software.

Contents

Front Panel

1. **Power button**
2. **Screen**: Input Chanel, format, rate and volume.
3. **Single-end**: **6.35mm**
4. **Balanced**: 4.4mm
5. **The knob**: Long press to enter/exit menu. Rotate in menu to select and adjust volume in main page.

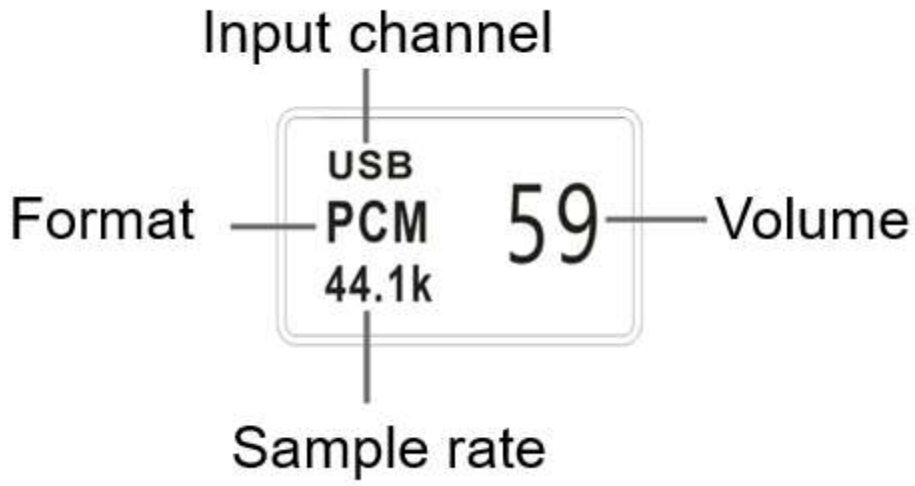
Back Panel



Screen and menu

1. Screen

AH90 uses a high-resolution OLED screen to display the working situation and functions. The following figure is main page of the display.



2. Input

AH90 In main page, short-press the knob to select the input port by the order of COAX1—COAX2—OPT—USB—LAN.

3. Volume

In main page, rotate the knob to adjust AH90's volume. There are 80 steps of digital volume from 00 to 80.

When the volume position is at 80 and then increase the volume to enter the fixed output mode (volume bypass), the volume position displays FIXED. decrease the volume is to exit FIXED first and then adjust the volume.

4. Menu

In the main screen, long press the knob to enter the setting menu. In this state, rotate the knob to switch up and down the menu items you want to modify the settings, the middle button is used to adjust the currently selected menu options, when the screen is in the setting menu, long press the knob again will return to the main page. When the screen is in the setting menu, press and hold the knob once more to return to the main page. A long period of non-operation will automatically exit the menu.

The menus are switched by cursor movement, in that order::

—1).FILTER

—2).AMP GAIN

—3).OUTPUT

—4).PHASE

—5).BRIGHTNESS

—6).AUTO STANDBY

—7).UPGRADE

1) **FILTER：**

The AH90 uses 6 types of AKM's built-in high-performance PCM filters:

SHARP Sharp Roll-off (Default)

SLOW Slow Roll-off

SD SHARP Short Delay Sharp Roll-off

SD SLOW Short Delay Slow Roll-off

SUPER SLOW Super Slow Roll-off (NOS-like)

LOW-D SHORT Low Dispersion Short Delay Filter

2) **AMP GAIN:**

The amplifier features two gain options.

LOW Low Gain, Output Voltage = DAC Voltage (Default)

HIGH High Gain, +6dB

3) **OUTPUT:**

Output configuration

AUTO (Default)

HP ONLY Headphone only

LINE ONLY Line-out only

When set to AUTO, once any headphone is plugged in, it will automatically disconnect the internal output, and turn on the output when no headphones are plugged in. And the volume is automatically lowered to 30 when switching automatically to avoid excessive volume.

When set to HP ONLY, the line-out does not output whether headphones are plugged in or not.

When set to LINE ONLY, the headphone output does not output whether headphones are plugged in or not.

******* For safety, the output volume is automatically reduced to 30 when the option is adjusted.

4) PHASE:

NON-inverted: RCA non-inverted phase

XLR 1-Ground 2-Hot 3-Cold

Inverted: RCA inverted phase

XLR 1-Ground 2-Cold 3-Hot

5) BRIGHTNESS:

Dark

Moderate

Bright

Auto off

Saver

Due to the OLED's own properties, long term high brightness use can easily lead to screen burning.

Long-term use of bright options should be avoided.

6) AUTO STANDBY:

ON

OFF

When there is no signal (coaxial/optical lockout) or no playback (no data streaming from USB/LAN), it automatically enters standby mode after about 20 minutes.

7) UPGRADE:

Enter – Press the knob to enter the mode

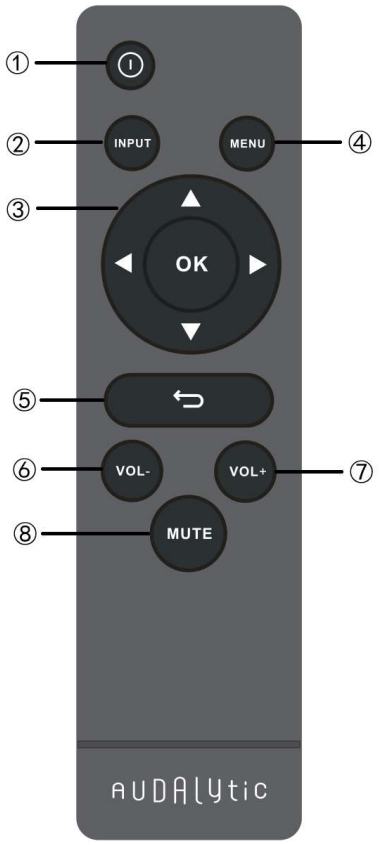
Exit – Press the power button, or unplug and plug back in to exit this mode.

In this mode the AH90 USB-C port will become a card reader and can write directly to the AH90 internal firmware storage.

Then follow the streamer's upgrade manual.

It is also possible to remove the internal firmware memory from the unit and use a card reader to upgrade the firmware.

Remote



① **Standby**: Press this button in standby mode, AH90 will light up the screen and enter use mode; when AH90 is in use mode, press this button to enter standby mode.

② **Input Selection**: Press this button to switch the input channel of the AH90.

③ **Direction buttons**: when entering the menu of AH90, up/down to switch the function to be adjusted, left/right to adjust the options. ok button is used to confirm the function of some entries.

④ **Menu**: enter/exit menu

⑤ **Return**: Returns to the main screen display.

⑥ **Volume minus**: when the AH90 is in the main screen display, press this key to reduce the volume of the output.

⑦ **Volume Plus**: When the AH90 is in the main screen display, press this key to increase the volume of the output.

⑧ **Mute**: Mute/unmute

Attention:

- The operating distance varies depending on the angle
- If there is an object between the remote control and the sensor, it may not operate properly
- If the remote control will not be used for a long period of time (one month or more), remove the batteries
- If the batteries are leaking, thoroughly clean all residue from the battery compartment and install new batteries.
- When other devices controlled by infrared light are used, use of this remote control may misoperate those devices.

Specifications

Input

COAX/OPT: PCM 16-24bit/44.1-192KHz;

DSD DOP64

USB/LAN: PCM 16-32bit/44.1-768KHz;

DSD DoP64-DOP256;

NATIVE DSD DSD64-DSD512

OS support: Windows 7~11 32/64bit, macOS, Linux

Output

Line-out

Frequency Response: 20-20kHz /+-0.2dB Sharp Roll-off

Dynamic range： >127dB

Signal-to-noise ratio：>126dB

Crosstalk：-125dB @ 1kHz

THD+N：<=0.0001% @1kHz

IMD： ≈0.001% @ -1dbfs

RCA: 2Vrms (VOLUME FIXED) 100Ω

XLR: 4Vrms (VOLUME FIXED) 100Ω

Headphone

Frequency Response: 20-20kHz /+-0.2dB Sharp Roll-off

Dynamic range： >123dB

Signal-to-noise ratio：>122dB

Crosstalk：-125dB @ 1kHz

THD+N：<=0.0001% @1kHz

IMD： ≈0.001% @ -1dbfs

6.35: 2Vrms (Low gain) 4Vrms (High gain) output impedance 2.3Ω

4.4 : 4Vrms (Low gain) 8Vrms (High gain) output impedance 4.6Ω

Output power: 1000mW max (4.4 balanced port, 64 ohm or lower impedance headphones)

Others

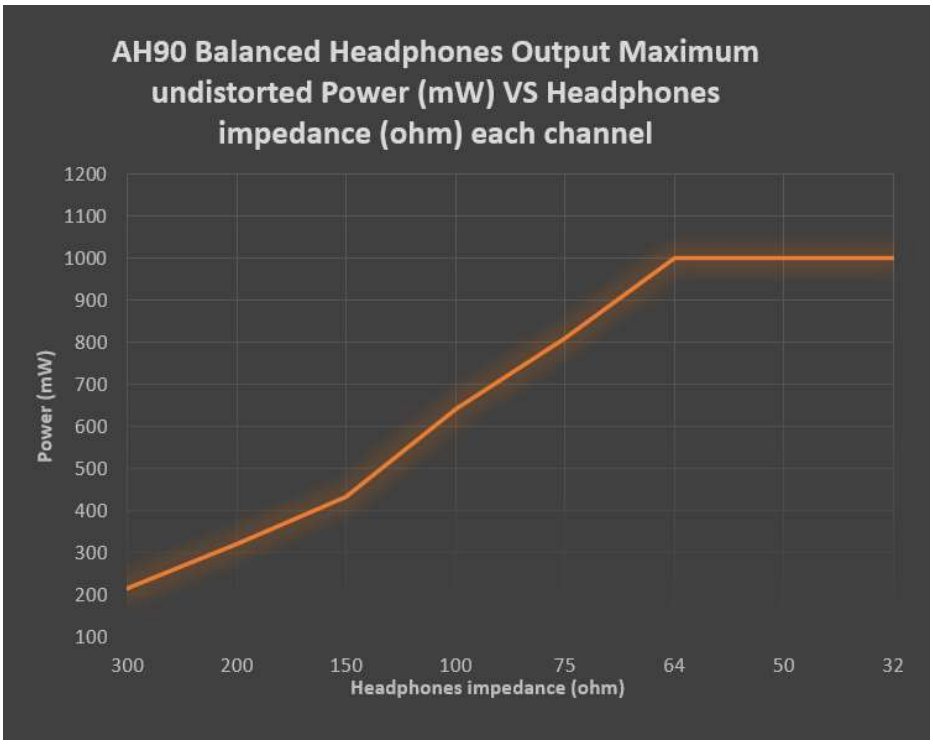
Power Supply: AC 115V/230V 50/60Hz

Power Consumption<20W

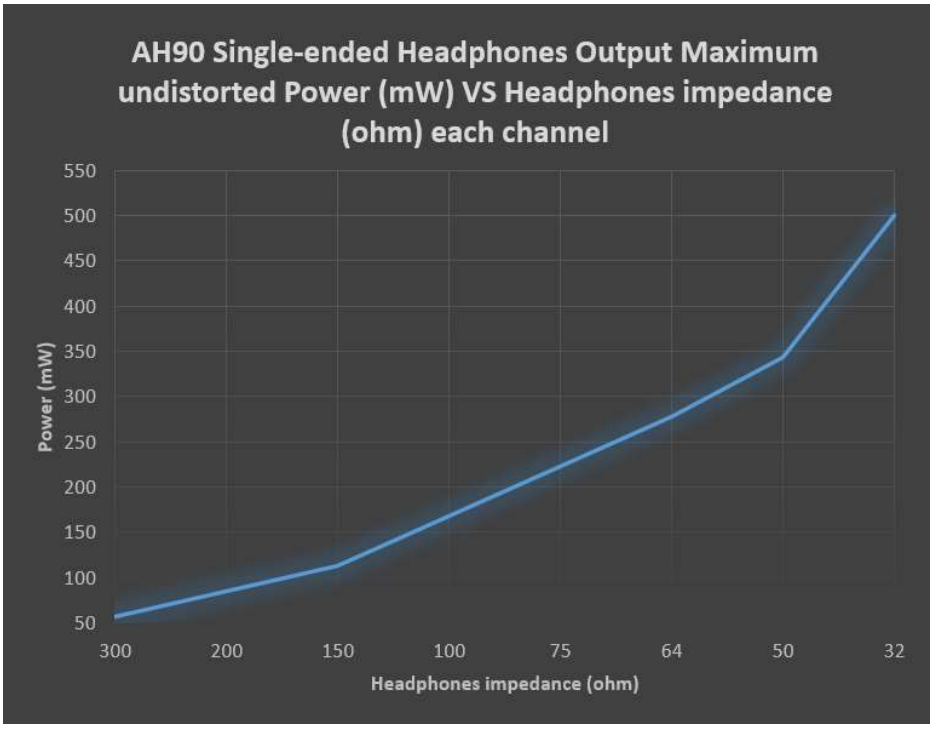
Size：220mm (Width) * 170mm (Length) * 50mm (Height) (protrusion not included)

Weight：2.2Kg (with package)

Power (balanced port) vs Impedance



Power (single-end) vs Impedance



Product Warranty

You will enjoy the 2-year free warranty and lifetime maintenance after the date purchasing AUDALYTIC's AH90 product.

*** The manufacturer bears only the freights from Chinese mainland. Part of the freight and tax generated from overseas will be solved by the user with the dealer negotiation.**

Free Warranty Service

AUDALYTIC AH90 from the purchasing date in the free warranty period, the user uses the product in normal, and the product fails due to component quality or manufacturing problems.

Beyond the Warranty Service

Belonging to one of the following circumstances, products are no longer provided warranty service.

a. Products from the date of purchase has exceeded a predetermined warranty period.

b. Model, barcodes and purchase date do not match the actual product and warranty card.

c. Without AUDALYTIC technician permission, unauthorized modifications to the circuit，components, or self-repaired product.

d. Damaging caused by irresistible natural forces.

e. Beyond the permitted use of environmental damage.

f. Damaging due to incorrect use or improper storage. Including but not limited to: the

voltage is too high to burn the circuits or components; Bumping and resulting in damaging the shell or internal; damaging due to water, oil, liquid and excessive dust; product oxidation or corrosion, etc.

g. Beyond the warranty period, such as an individual component damage, appearance due to human damage, firmware modifications lead to unable to work by unauthorized users. AUDALYTIC commits to take reasonable maintenance fees (except large area components or circuit board burned beyond repair). Freight and maintenance costs, material costs are required the user to bear.