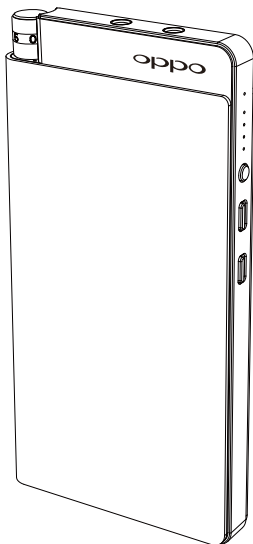




HA-2

Portable Headphone Amplifier / USB DAC

USER GUIDE



Important Information



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operation and maintenance (servicing) instruction in the literature accompanying the appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DO NOT OPEN THE CABINET. REFER SERVICING TO QUALIFIED PERSONNEL ONLY. THE APPARATUS SHALL NOT BE EXPOSED TO DRIPPING OR SPLASHING AND THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES SHALL BE PLACED ON THE APPARATUS.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this device near water.
6. Clean only with a dry cloth.
7. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatuses (including amplifiers) that produce heat.
8. Only use attachments and accessories specified by the manufacturer.
9. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



WARNING: To prevent possible hearing damage, do not listen at high volume levels for long periods. Caution should be taken when using earphones or headphones with the product because excessive sound pressure (volume) from earphones or headphones can cause hearing loss.

FCC Statement (For U.S. Customers)

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 a 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 or TV technician for help.
- This device complies with FCC radiation exposure limits set forth for an uncontrolled environment.

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

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.

Canada Statement (For Canadian Customers)

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

The device meets the exemption from the routine evaluation limits in section 2.5 of RSS 102 and compliance with RSS-102 RF exposure, users can obtain Canadian information on RF exposure and compliance.

Le dispositif rencontre l'exemption des limites courantes d'évaluation dans la section 2.5 de RSS 102 et la conformité à l'exposition de RSS-102 rf, utilisateurs peut obtenir l'information canadienne sur l'exposition et la conformité de rf.

Legal Notice

"Made for iPod", "Made for iPhone", and "Made for iPad" mean that an electronic accessory has been designed to connect specifically to iPod®, iPhone®, or iPad®, respectively, and has been certified by the developer to meet Apple performance standards. Apple is not responsible for the operation of this device or its compliance with safety and regulatory standards. Please note that the use of this accessory with iPod, iPhone, or iPad may affect wireless performance.

iPad, iPhone, iPod and iPod touch® are trademarks of Apple Inc., registered in the U.S. and other countries.

Compatible iPod/iPhone/iPad Models

USB works with iPhone 6, iPhone 6 Plus, iPhone 5S, iPhone 5C, iPhone 5, iPhone 4S, iPad (4th generation), iPad mini, iPod touch (5th generation).

Made for



iPod



iPhone



iPad

Android™ Compatibility

The HA-2's USB input B works with Android devices that support USB OTG (USB On-The-Go) and USB Audio Class. Not all devices are compatible.

Android is a trademark of Google Inc.

Introduction

Thank you for choosing the OPPO HA-2 portable headphone amplifier and USB DAC. The HA-2 draws upon the success of the HA-1 desktop headphone amplifier and is optimized for portable use. Featuring a hybrid class AB amplifier and a USB DAC supporting 384 kHz PCM and DSD256, the HA-2 offers high performance digital-to-analog conversion for both Apple's iPhone/iPod, Android devices, PC and Mac computers. A 3.5 mm input works with the remaining portable music players that do not have a USB-compatible digital output. Convenience features such as VOOC rapid charging and a mobile device power bank make the HA-2 a true companion for music on the go.

Accessories

Ensure that the following accessories have been included with your OPPO HA-2:

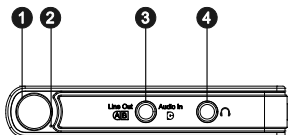
- 1x USB A – Lightning data cable
- 1x USB micro-B – USB micro-B data cable
- 1x 3.5 mm – 3.5 mm stereo audio cable
- 1x USB A – USB micro-B data and rapid charging cable
- 1x VOOC rapid charger
- 2x Silicone rubber bands
- This user guide

Features

- Digital-to-Analog conversion by ESS Sabre³² Reference ES9018-2M DAC chip
- Supports PCM audio up to 384 kHz / 32-bit, DSD audio up to 12 MHz (DSD256 or DSD4x)
- Supports multiple device types for digital-to-analog conversion via USB: iPod / iPhone / iPad, smartphones with USB OTG feature, PC and Mac computers
- Stereo headphone output and line-out
- Two gain settings for optimal headphone matching
- Bass boost
- OPPO VOOC rapid charging
- Mobile power bank for charging other mobile devices

Names and Functions of Parts

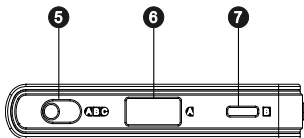
Top:



1. **Power/Volume Knob:** Turn this knob clockwise until it clicks to turn on the unit. Continue turning it clockwise to increase the volume. Turn it counterclockwise to decrease the volume. Turn it counterclockwise until it clicks to turn off the unit.
2. **Power Indicator:** A green light indicates that the power is on. The light also serves as a reference point for the scale on the Volume Knob.
3. **Audio-in / Line-Out Jack:** When the Source Selector is set to "C", this jack can be connected to an analog audio source, such as a portable music player. When the **Source Selector** is set to "A" or "B", this jack acts as the line-out for the USB DAC.
4. **Headphone Jack:** Plug your headphones into this jack.

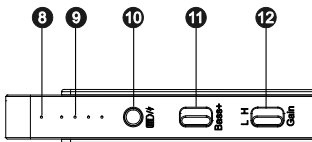
CAUTION: Always reduce the volume before plugging headphones in and putting them on. While wearing headphones, do not connect or disconnect them. Doing so could result in a sudden loud noise that could harm your hearing.

Bottom:



5. **Source Selector:** Select one of the three input sources: USB A port, USB micro-B port, or Audio-in.
6. **USB A Port:** For connecting to an iPod, iPhone or iPad; or for charging a mobile device when using the power bank function.
7. **USB micro-B Port:** For connecting to a PC, Mac, or smartphone with USB OTG feature. This port is also used for charging the HA-2's internal battery.

Side:

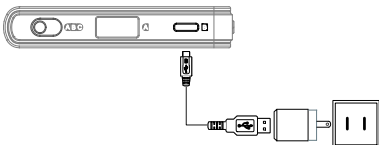


8. **Power Bank Indicator:** A blue light indicates that the HA-2 is supplying power to a connected device via the USB A port.
9. **Battery Level / Charging Indicators:** Four green lights indicate the HA-2's internal battery level. When charging, these lights also indicate the charging status and currently charged capacity.
10. **Battery Check / Power Bank Button:** A single press of this button lights up the Battery Level Indicators to show the HA-2's internal battery level. Press and hold this button to turn on/off the power bank function, as indicated by the Power Bank Indicator.
11. **Bass Boost Switch:** Allows you to enable the Bass Boost feature. A visible green bar means Bass Boost is enabled.
12. **Gain Switch:** Allows you to select low (L) or high (H) gain for the headphone output.

Charging and Battery Use

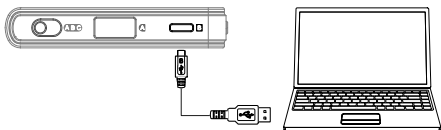
This unit has a built-in rechargeable lithium polymer battery. It should be charged before use.

VOOC Rapid Charging



Connect the USB micro-B port of the HA-2 to the supplied VOOC Rapid Charger using the included USB A – USB micro-B data and rapid charging cable. Plugging the charger into a power outlet will begin charging the HA-2's battery, and the Charging Indicators on the side of the unit will start to blink. It may take a few seconds to enter the rapid charging mode, which is indicated by the Charging Indicators quickly blinking. When the battery is almost full, rapid charging will change to normal charging automatically, and the blinking speed of the Charging Indicators will slow down.

Normal Charging



The unit can also be charged by connecting the USB micro-B port to a USB port on a Mac or PC. The Charging Indicators on the side of the unit will blink when the unit is being charged. Rapid charging is not possible using this connection method.

Charging Status

The Charging Indicators on the side of the unit may show the following statuses:

< 25%	25% - 50%	50% - 75%	75% - 100%	Fully Charged

Legend:

- - dark
- ⚡ - slowly flashing: normal charging; quickly flashing: rapid charging
- - green light

CAUTION:

- Use only the VOOC Rapid Charger and the USB A – USB micro-B data and rapid charging cable to charge the unit.
- Make sure the environment temperature is between 10°C - 35°C (50°F - 95°F) when charging the unit. If trying to charge outside of this temperature range, charging may not occur properly.
- If you do not plan to use the unit for a long period of time, please store it in a cool place. Charge the unit at least once every 6 months in order to avoid completely draining the battery.

Checking Battery Level

Press the Battery Check / Power Bank Button briefly to check the battery level. The Battery Level Indicators will light up to show the remaining battery power:

< 20%	20% - 25%	25% - 50%	50% - 75%	75% - 100%
				

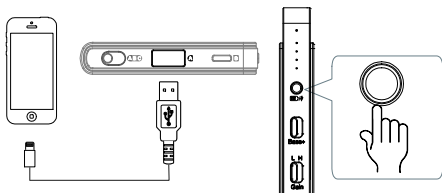
Legend:

- - dark
- - red light
- - green light

When the battery level is below 20%, the Battery Level Indicators will automatically light up in red as a reminder to charge as soon as possible.

Charging Other Devices

The unit can be used as a power bank to charge other mobile devices.



- Connect the mobile device to the unit's USB A port using the charging cable that comes with your mobile device.

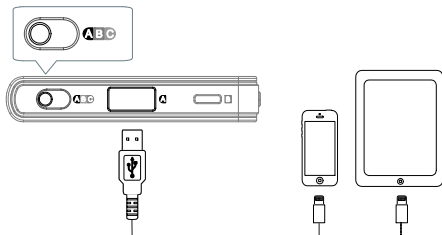
- Press and hold the Battery Check / Power Bank Button until the blue Power Bank Indicator lights up. The HA-2 is now supplying power to the mobile device.
- Press and hold the Battery Check / Power Bank Button again until the blue Power Bank Indicator goes off when you no longer need to supply power to the mobile device.

CAUTION: When the HA-2 is being charged, it cannot supply power to an external device at the same time.

Source Device Connections

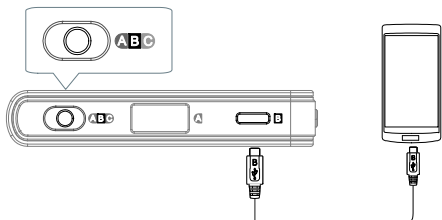
It is recommended that you turn the unit off before making the connections.

iPod / iPhone / iPad



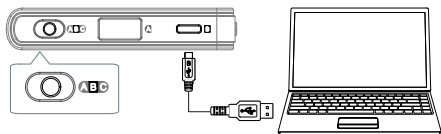
- Set the Source Selector to position "A".
- Connect the USB A port of the unit to the iPod / iPhone / iPad using the supplied USB A – Lightning data cable, or the cable that comes with your iPod / iPhone / iPad.

Smartphones with USB OTG Feature



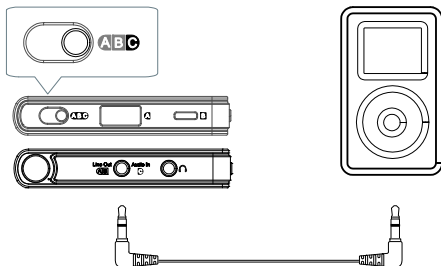
- Set the Source Selector to position "B".
- Connect the USB micro-B port of the unit to the smartphone using the supplied USB micro-B – USB micro-B data cable.

Computers



- Set the Source Selector to position "B".
- Connect the USB micro-B port of the unit to a USB port on the computer.
- For Mac, no driver is required. You may need to select the HA-2 as the sound output device by going into System Preferences / Sound in Mac OS X.
- For PC, please download the HA-2 USB driver from the OPPO Digital web site (www.oppodigital.com) and follow the instructions to install the driver.

Other Playback Devices

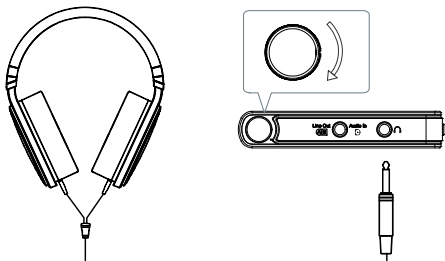


- Set the Source Selector to position "C".
- Connect the Audio-in port of the unit to the playback device using the supplied 3.5 mm – 3.5 mm stereo audio cable, or any other audio cable with a 3.5 mm stereo jack.

Listening to Music

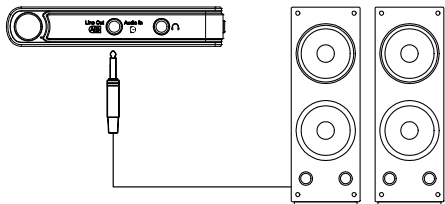
To listen to music, you can connect a pair of headphones to the headphone jack, or connect an amplifier or a pair of powered speakers to the line-out jack.

Using Headphones



- Plug the headphones into the Headphone Jack of the unit.
- Connect the unit to your music source according to the connections described above. Set the Source Selector to the correct position.
- Turn on the unit by rotating the Power / Volume Knob clockwise. You will hear a click and the green Power Indicator will light up.
- Start music playback from the source device.
- Put on the headphones and adjust the volume.
- Turn on Bass Boost if desired.

Using Line-out



- Connect the Line-out jack to the stereo audio input of your amplifier or powered speakers.
- Connect the unit to your music source according to the connections described above. Set the Source Selector to the correct position. Please note that the Line-out is only active when sources A or B are selected.
- Turn on your amplifier or powered speakers and set at minimum volume.
- Turn on the unit by rotating the Power/Volume Knob clockwise. You will hear a click and the green Power Indicator will light up.
- Start music playback from the source device.
- Gradually increase the volume on your amplifier or powered speakers to a comfortable listening level.

CAUTION:

- When both the Headphone Jack and the Line-out Jack are plugged in, only the Headphone Jack will output sound. Please do not plug in headphones if you need to use the Line-out Jack.
- The Line-out is at a fixed volume level. The Power/Volume Knob of the unit does not affect the volume of the Line-out. Please use the volume control on your amplifier or powered speakers.

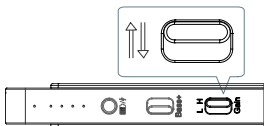
Quick Reference Chart

Input, Output, and Source Selector for various sources:

Playback Source	Source Selector	Input Port	Output Jacks
iPod, iPhone, iPad	A (left)	USB A	Headphone or Line-out
Other Smartphones	B (center)	USB micro-B	Headphone or Line-out
Computers	B (center)	USB micro-B	Headphone or Line-out
Other Devices	C (right)	Audio-in	Headphone

Gain Selection

The HA-2 has two gain levels. The low gain (L) level is intended for use with high sensitivity headphones and In-Ear Monitors (IEMs). The high gain (H) level can be used for other headphones if you feel that the volume is too low in low gain level even when the Power/Volume Knob has been rotated to the maximum volume position.



Please follow this procedure to safely change gain level:

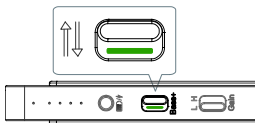
- Turn off the unit first.
- Flip the Gain Switch to the high gain (H) position.
- Turn on the unit and gradually adjust the volume.
- Remember to reset the Gain Switch to low gain (L) position if you switch to a new pair of headphones.

For certain IEMs, if at the low gain setting the volume is still too loud, you can adjust the volume control on your playback device. For Apple products connected to the USB A port or playback software that supports USB volume, the HA-2's internal 32-bit digital volume control will be used so there will be no loss of resolution or truncation of audio samples.

CAUTION: Changing the gain level on the fly may result in a sudden increase of the output power, and may damage your headphones and hearing.

Bass Boost

If you like to listen to music with a strong bass effect, you may turn on the Bass Boost function of the unit. To do so, flip the Bass Boost switch so a green bar is shown.



Troubleshooting

Use this chart to resolve general operational problems. If there are any problems that you cannot resolve, please contact your OPPO service center.

Symptom: No sound

Possible Cause and Solution:

- The unit is not turned on. Turn on the unit by rotating the Power / Volume Knob
- The battery is completely drained and the Power Indicator does not come on. Charge the unit until the battery is full before using.
- The volume is too low. Adjust the volume of the source device, and/or adjust the volume of the HA-2.
- Incorrect connection to the source device. Please check the connection by referring to the "Source Device Connection" section of this guide.
- Incorrect Source Selector position. Check which input source is in use and set the Source Selector accordingly.
- Line-out is muted when headphones are plugged in. Unplug the headphones if you wish to use line-out.

Symptom: The unit fails to charge

Possible Cause and Solution:

- Incorrect cable connection. Check the cable connection and re-set all cables.
- Incompatible charger or cable. Please use the supplied original VOOC rapid charger and data / charging cable.
- Reset required. Please press and hold the Battery Check / Power Bank button for 20 seconds until all lit indicator lights go dark and then release the button.

Symptom: Temporary malfunction

Possible Cause and Solution:

- The protection mechanism is triggered. Please turn off the unit, remove all connections, and wait for 30 seconds before trying again.
- Interference from other devices. Identify interference by turning off other devices, and then relocate or replace the offending device.

Specifications

General	
Dimensions (W x H x D)	2.5 x 6.2 x 0.5 inches, 68 x 157 x 12 mm
Weight	6.2 oz, 175 grams
Frequency Response	20 Hz – 200 kHz
Audio-in Level	1 Vrms
Line-out Level	1 Vrms @ 0 dBFS
Recommended Headphone Impedance	16 Ohm – 300 Ohm
Maximum Headphone Output Power	300 mW into 16 Ohm 220 mW into 32 Ohm 30 mW into 300 Ohm
Output Jacks	3.5 mm stereo headphone 3.5 mm stereo line-out
Input Ports	Analog: 3.5 mm stereo audio-in Digital: USB A for iPod / iPhone / iPad; USB micro-B for smartphones with USB OTG feature and computers.
DAC Chip	ESS Sabre ³² Reference ES9018-2M
Input Format	Stereo PCM, Stereo DSD (DoP v1.1 or native)
PCM Sampling Frequencies	44.1 kHz - 384 kHz, 16 / 24 / 32-bit
DSD Sampling Frequencies	2.8224 MHz (DSD64), 5.6448 MHz (DSD128), 11.2896 MHz (DSD256, native mode only)
Profile	USB 2.0, USB Audio 2.0
Battery	
Built-in Battery type	3000 mAh lithium polymer rechargeable battery
Battery Operation Time	Approx. 13 hours for analog source via Audio-in; approx. 7 hours for digital sources via USB
Charging Time	Approx. 1 hour 20 minutes

Designs and specifications are subject to change without notice.

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