# SONY

# Portable Headphone Amplifier

Operating Instructions

Made for
☐ iPod ☐ iPhone ☐ iPad

*4 4 7 7 1 2 4 1 3 * (1)

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PHA-2

## WARNING

Do not install the appliance in a confined space, such as a bookcase or built-in cabinet.
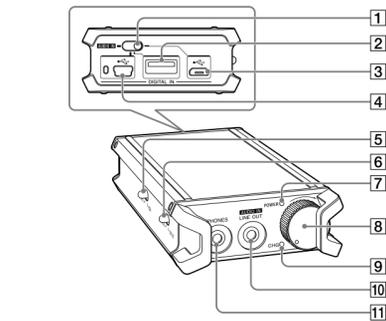
Do not expose the batteries (battery pack or batteries installed) to excessive heat such as sunshine, fire or the like for a long time.

The nameplate is located on the bottom exterior.

## Features

- USB Audio 192 kHz/24 bit, DSD compatible
- iPhone/iPad/iPod* and "WALKMAN" Digital connection
- High-quality analog circuit with dedicated master clock
- High-quality operational amplifier used for line-out signal
- Selected parts for high quality sound
* When connecting iPhone/iPad/iPod, use the USB cable supplied with iPhone/iPad/iPod.

## Parts and Controls



1 **Input select switch**
2 **iPhone/iPad/iPod connecting port**
3 **⟷ (USB) port (for connecting to a computer, and charging the unit)**
4 **"WALKMAN" connecting port**
5 **GAIN select switch**
   For details, see "Listening to Music."
6 **OUTPUT SELECT switch**
   For details, see "Listening to Music."
7 **POWER indicator**
   Lights up green when the power is turned on.
   When the power is turned on, you can check the battery level by the number of times the indicator flashes.

| Indicator | Battery level |
|---|---|
| Three flashes | Full |
| Two flashes | Middle |
| one flash | Low<br>It is necessary to charge the unit. |
| Always flashes | It is necessary to charge the unit. If you continue to use the unit without charging, the unit will turn off after a few minutes. |

8 **Power/Volume knob**
   Turns on/off the unit, and adjusts the volume.
   Rotate the power/volume knob clockwise to turn on the power; rotate it further to increase the volume.
   Rotate the power/volume knob counterclockwise to decrease the volume; rotate it further until it clicks to turn off the power.
9 **CHG (charge) indicator**
   Lights up red while you are charging the unit.
10 **AUDIO IN/LINE OUT jack**
11 **PHONES (headphones) jack**
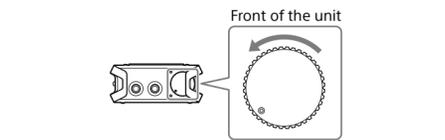
## Charging the Unit

The unit contains a rechargeable lithium-ion battery, which should be charged before using it for the first time. The CHG (charge) indicator lights up red while you are charging the unit. Charging is completed in about 7 hours, then the indicator turns off automatically.
If the battery is not charging properly, the CHG (charge) indicator will flash in red.
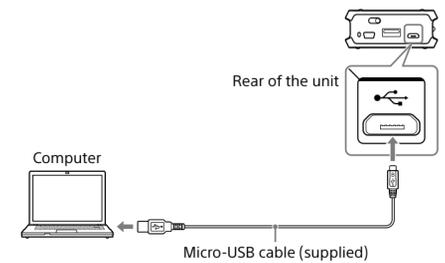
**1 Rotate the power/volume knob counterclockwise until it clicks to turn off the unit.**
   While the unit is on, the battery is not charged.
   If you turn on the unit while the unit is charging, the charge is interrupted.



Front of the unit

**2 Connect the unit to your booted computer using the micro-USB cable (supplied).**



Rear of the unit

Computer

Micro-USB cable (supplied)

### When the battery cannot be charged

Check the following.
- Check that the unit and your computer are firmly connected using the micro-USB cable (supplied).
  Use only the micro-USB cable (supplied). Do not charge the unit using any other USB cable.
- Check that the computer is turned on and not in standby, sleep or hibernation mode.
  If the computer enters standby, sleep, or hibernation mode while the unit is connected to the computer, the charging will not be completed properly. Check the setting of the computer before connecting to the unit. The CHG (charge) indicator will turn off automatically when the computer enters standby, sleep, or hibernation mode. In this case, charge the unit again.
- Check that the unit and the computer are directly connected, and not via a USB hub.
  Connect the unit directly to a computer, using the micro-USB cable (supplied). Charging may not be completed properly by an indirect connection, such as via a USB hub.

**Notes**
- When charging the battery, turn off the unit, then connect to the computer using the micro-USB cable (supplied) to charge the battery of the unit. Otherwise, the battery may not be charged properly. In this case, the CHG (charge) indicator will flash in red.
- If the unit is not used for a long time, the CHG (charge) indicator may take a while to light up red when you connect it to your computer. In this case, do not disconnect the micro-USB cable from the unit, and wait until the CHG (charge) indicator lights up red.
- Charge the battery in an ambient temperature of between 5 °C to 35 °C. If you try to charge the battery outside this range, the CHG (charge) indicator may flash in red and the battery will not charge.
- When the battery is full, the CHG (charge) indicator may not light up red.
- When charging has finished, the CHG (charge) indicator may flash in red. This is not malfunction.
- When storing the unit for a long time, avoid a place subject to high temperatures. When storing the unit for more than 1 year, charge the battery every six months to prevent over discharge.

### Before going outside

Check the battery level by the following.

**1 Disconnect the micro-USB cable (supplied) from the ⟷ (USB) port of the unit.**

**2 Turn on the unit, and check the battery level by the number of times the POWER indicator flashes.**
   For details on checking the battery level by the POWER indicator, see "Parts and Controls."

## Connecting to an Audio Device

You can enjoy music with the unit by connecting the audio device to the unit. An audio device can be connected to the unit by the following four methods.

### Connecting to a high resolution supported "WALKMAN": High resolution supported "WALKMAN"

You can connect the unit to the "WALKMAN" using the digital output USB cable for "WALKMAN" (supplied). The digital audio data from the "WALKMAN" is transferred directly to the unit, and the unit outputs the analog audio converted by the internal DA converter of the unit.

### Connecting to an iPhone/iPad/iPod: iPod

You can connect the unit to the iPhone/iPad/iPod using the USB cable supplied with iPhone/iPad/iPod. The digital audio data from the iPhone/iPad/iPod is transferred directly to the unit, and the unit outputs the analog audio converted by the internal DA converter of the unit.

### Connecting to a computer: Computer

You can connect the unit to a computer using the micro-USB cable (supplied). The unit is compatible with High-Resolution Audio format, USB audio up to 192 kHz/24 bit, DSD compatible.
When playing music files on your Windows computer with the unit, you need to download and install the driver software for Windows "Sony Portable Headphone Amplifier USB Audio 2.0 Driver" on a Windows computer.
When playing High-Resolution Audio format data on your computer with the unit, you need to download and install "Hi-Res Audio Player" on your computer.

### Connecting to other devices: Other devices

You can connect the unit to devices, such as smartphones and portable music players, etc., using the stereo mini cable (supplied), and enjoy music from the device with the unit.
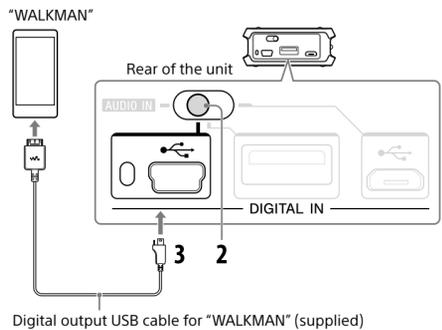
## High resolution supported "WALKMAN"

By using the digital output USB cable for "WALKMAN" (supplied), the unit can amplify the signal directly without the built-in amplifier of the "WALKMAN."

### Compatible "WALKMAN" models

NWZ-F880 series
(as of September 2013)
Depending on the country/region, some models may not be available.
When connecting a "WALKMAN" model other than NWZ-F880 series, follow the connecting method described in Other devices.

**1 Turn on the "WALKMAN."**

**2 Set the input select switch to the position of the "WALKMAN" connecting port (second position from the left).**

**3 Connect the "WALKMAN" to the "WALKMAN" connecting port using the digital output USB cable for "WALKMAN" (supplied).**

"WALKMAN"



Rear of the unit

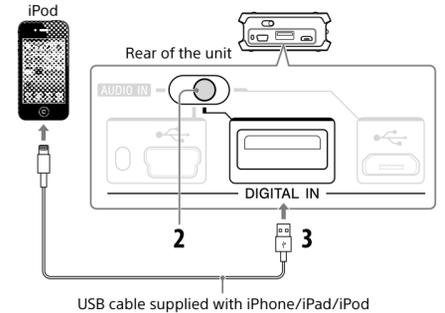DIGITAL IN

Digital output USB cable for "WALKMAN" (supplied)

**Notes**
- The unit only supports the audio playback function of the "WALKMAN."
- Turn on your "WALKMAN" before operating the unit.
- Sony is not liable for damage/erasure of recorded data caused by using a "WALKMAN" connected to the unit.
- Some operations may not be possible with the unit, even if you use a supported "WALKMAN."
- Depending on the "WALKMAN," Dynamic Normalizer, Equalizer, VPT (Virtualphones Technology), DSEE (Digital Sound Enhancement Engine) or speaker output optimizer, etc., may be set to on. If the sound is distorted, set these to off.
- Sound is not output from the headphone jack of the "WALKMAN" when it is connected to the unit.
- You cannot adjust the volume of the "WALKMAN" when a "WALKMAN" is connected to the unit.
- The "WALKMAN" will not be charged when connected to the unit.
- If you are listening to music too loudly, the battery may drain even if the unit is connected to a computer.
- If the battery level is too low, the unit may not turn on even when connected to a computer. In this case, charge the unit. For details, see "Charging the Unit."

## iPod

For details on compatible models, see "Compatible iPhone/iPad/iPod models."
In the Operating Instructions, iPhone, iPad, and iPod are collectively described as "iPod," except in special cases.

**1 Turn on the iPod.**

**2 Set the input select switch to the position of the iPhone/iPad/iPod connecting port (second position from the right).**

**3 Connect the iPod to the iPhone/iPad/iPod connecting port using the USB cable supplied with iPhone/iPad/iPod.**



iPod

Rear of the unit

DIGITAL IN

USB cable supplied with iPhone/iPad/iPod

### Compatible iPhone/iPad/iPod models

You can use the unit with only the following models. Update your iPhone, iPad or iPod to the latest software before use.

- iPhone 5
- iPhone 4S
- iPhone 4
- iPhone 3GS
- iPad (4th generation)
- iPad mini
- iPad (3rd generation)
- iPad 2
- iPad
- iPod touch (5th generation)
- iPod touch (4th generation)
- iPod touch (3rd generation)
- iPod touch (2nd generation)
- iPod classic 120GB / 160GB (2009)
- iPod nano (7th generation)
- iPod nano (6th generation)
- iPod nano (5th generation)
- iPod nano (4th generation)
- iPod nano (3rd generation)

(as of July 2013)

**Notes**
- If noise is generated, turn off the connected iPod, then turn it on again.
- The unit only supports the audio playback function of an iPod.
- You cannot transfer music to your iPod from the unit.
- Do not connect an iPod that is not supported. The unit is not guaranteed to work with an iPod that is not supported.
- Sony is not liable for damage/erasure of recorded data caused by using an iPod connected to the unit.
- Do not disconnect the iPod while operating. To connect/disconnect the iPod to/from the unit, stop playback, then turn off the unit to prevent damage to data.
- If the sound is distorted, set the equalizer to "OFF" or "Flat" on your iPod.
- Turn on your iPhone/iPod touch before connecting it to the unit.
- Depending on the iPod, the sound may become loud suddenly when you adjust the volume.
- If the battery level of the iPod is too low, charge the iPod.
- Music volume may vary depending on the ring tone of the iPhone and its application. Refer to the operating instructions of your iPhone.
- If the iPhone is set to silent mode, the ring tone may not be heard from the headphones.
- For details on operating the iPod, refer to the operating instructions of your iPod.
- An iPod will not be charged when connected to the unit.
- If you are listening to music too loudly, the battery may drain even if the unit is connected to a computer.
- If the battery level is too low, the unit may not turn on even when connected to a computer. In this case, charge the unit. For details, see "Charging the Unit."
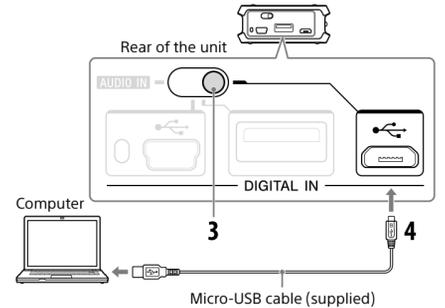
## Computer

For information about the operating environment, see "Specifications" overleaf.

**1 Start your computer.**

**2 Download and install the driver software for Windows "Sony Portable Headphone Amplifier USB Audio 2.0 Driver" on a Windows computer.**

   **Note**
   - If the driver software is not installed on your computer, music files played on the computer will not be output from the unit.

   When connecting to Macintosh, skip this step, and proceed to step 3.

   Visit the following Web sites, and download the driver software. Communication fees to download are required separately.
   http://www.sony-asia.com/support/
   For details on installing, refer to the download pages.

**3 Set the input select switch to the position of the ⟷ (USB) port (right edge position).**

**4 Connect your computer to the ⟷ (USB) port using the micro-USB cable (supplied).**



Rear of the unit

DIGITAL IN

Computer

Micro-USB cable (supplied)

### To play High-Resolution Audio format data

When playing the High-Resolution Audio format data on your computer with the unit, you need to download and install "Hi-Res Audio Player" to your computer.
Visit the following Web sites, and download the software. Communication fees to download are required separately.
http://www.sony-asia.com/support/
For details on installing, refer to the download pages.

**Tip**
- The unit supports USB 2.0 (USB 2.0 High Speed) as an audio device.

**Notes**
- If you are listening to music loudly with the unit connected to a computer, the POWER indicator may flash or the sound may be interrupted. This is not a malfunction. In this case, turn down the volume.
- The unit is not guaranteed to operate via a USB hub or USB cable extension. Use the supplied USB cable only.
- Do not disconnect a USB device while operating. To disconnect a USB device from the unit, stop playback, then turn off the unit to prevent damage to data.
- Digitally broadcast sound may not be output from a computer's USB port. In this case, connect the AUDIO IN/LINE OUT jack of the unit to the analog audio output of the computer. For details on connecting, see Other devices.
- If you are listening to music too loudly, the battery may drain even if the unit is connected to a computer.
- If the battery level is too low, the unit may not turn on even when connected to a computer. In this case, charge the battery. For details, see "Charging the Unit."
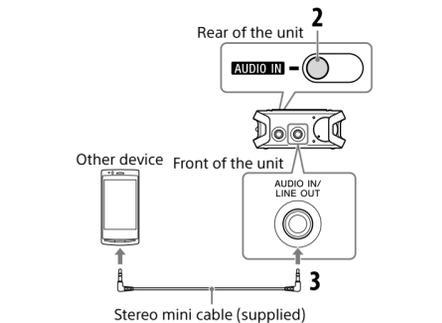- Be careful not to trip over a connecting cord.

## Other devices

You can enjoy listening to an audio device, such as a smartphones or portable music player, with the unit. Before connecting, turn down the volume on the device and turn off the unit.

**Note**
- You can listen to the audio input from an audio device connected to the AUDIO IN/LINE OUT jack of the unit with only the headphones connected to the PHONES jack of the unit.

**1 Turn on the audio device.**

**2 Set the input select switch to AUDIO IN.**

**3 Connect the audio device to the AUDIO IN/LINE OUT jack using the stereo mini cable (supplied).**



Rear of the unit

AUDIO IN

Other device   Front of the unit
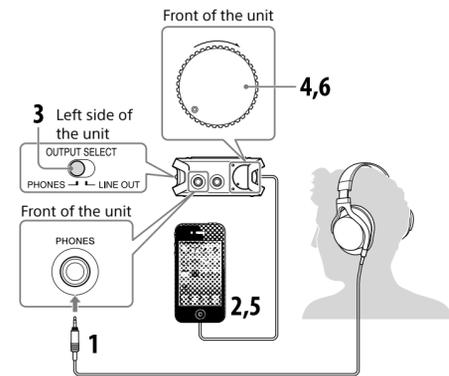
AUDIO IN/ LINE OUT

Stereo mini cable (supplied)

**Notes**
- If you connect the unit via a device with a built-in radio or tuner, broadcasts may not be received, or sensitivity may be reduced significantly.
- If there is noise in broadcasts, locate the unit farther away from the connected device and check whether reception improves.
- If you are listening to music too loudly, the battery may drain even if the unit is connected to a computer.
- If the battery level is too low, the unit may not turn on even when connected to a computer. In this case, charge the unit. For details, see "Charging the Unit."

### Listening to music with headphones



Front of the unit

**3** Left side of the unit
OUTPUT SELECT
PHONES ◁━▷ LINE OUT

Front of the unit
PHONES

**4,6**

**2,5**

**1**

You can listen to music from an audio device connected to the unit with the headphones connected to the PHONES jack of the unit.

**Notes**
- Connect the stereo mini plug to the unit.
- This unit does not support monaural headphones, headphones with a remote control, or headsets with a microphone.

**1 Connect the headphones to the PHONES jack of the unit.**

**2 Connect an audio device to the unit, then turn on the connected audio device.**
For details on connecting the audio device, see "Connecting to an Audio Device."

**3 Set the OUTPUT SELECT switch to PHONES.**

**4 Rotate the power/volume knob clockwise to turn on the unit.**
The POWER indicator lights up green. Rotate the power/volume knob clockwise further to turn up the volume. When the power is turned on, you can check the battery level by the number of times the POWER indicator flashes.
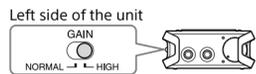
**5 Start playback on the connected audio device.**
When playing High-Resolution Audio format data on your computer with the unit, use "Hi-Res Audio Player."
For details on installing "Hi-Res Audio Player," see "To play High-Resolution Audio format data" of [Computer].

**6 Adjust the volume.**
Adjust the volume by the power/volume knob. Depending on the headphones, the volume may remain low, even if you turn the volume up to the max.
In this case, turn off the unit, set the GAIN select switch to HIGH, then turn on the unit. In normal use, the setting should be NORMAL.
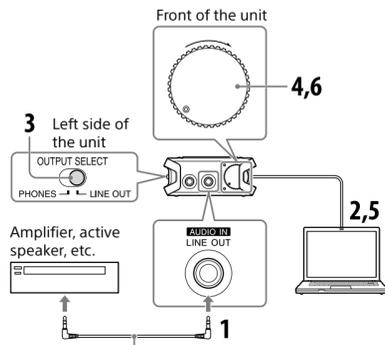
Left side of the unit
GAIN
NORMAL ◁━▷ HIGH

**Note**
- If you turn the volume up too high, it may damage your hearing. Be careful not to turn the volume up too high.

**Tip**
- When connecting a device such as a smartphone or portable audio player, adjust the volume on the connected device beforehand. Depending on the device, audio output settings may be required.

### Listening to music with an amplifier or active speaker



Front of the unit

**4,6**

**3** Left side of the unit
OUTPUT SELECT
PHONES ◁━▷ LINE OUT

**2,5**

Amplifier, active speaker, etc.

**1**

Prepare the connecting cord or cable according to the equipment to be connected.

You can listen to music from an audio device connected to the unit with the amplifier or active speaker connected to the AUDIO IN/LINE OUT jack of the unit.

**1 Connect an amplifier or active speaker to the AUDIO IN/LINE OUT jack of the unit.**

**2 Connect an audio device to the unit, then turn on the connected audio device.**
For details on connecting the audio device, see "Connecting to an Audio Device."

**3 Set the OUTPUT SELECT switch to LINE OUT.**

**4 Rotate the power/volume knob clockwise to turn on the unit.**
The POWER indicator lights up green. When the power is turned on, you can check the battery level by the number of times the POWER indicator flashes.

**5 Start playback on the connected audio device.**
When playing High-Resolution Audio format data on your computer with the unit, use "Hi-Res Audio Player."
For details on installing "Hi-Res Audio Player," see "To play High-Resolution Audio format data" of [Computer].

**6 Adjust the volume.**
Adjust the volume on the connected audio device.
For details on adjusting the volume, refer to the operating instructions of the connected audio device.

**Note**
- The sound from the AUDIO IN/LINE OUT jack of the unit cannot be adjusted by the power/volume knob or the GAIN select switch of the unit.

### List of the settings/outputs of each port/jack which is connected to the audio device

| Port/jack which is connected to the audio device | Setting position of the input select switch | Output jack of the audio signal |
|---|---|---|
| "WALKMAN" connecting port | Second position from the left | PHONES jack*1 or AUDIO IN/LINE OUT jack*2 |
| iPhone/iPad/iPod connecting port | Second position from the right | PHONES jack*1 or AUDIO IN/LINE OUT jack*2 |
| ⊷ (USB) port (for connecting to a computer) | Right edge position | PHONES jack*1 or AUDIO IN/LINE OUT jack*2 |

*1 When listening to music with headphones connected to the PHONES jack, set the OUTPUT SELECT switch to PHONES.
*2 When listening to music with an amplifier or active speaker connected to the AUDIO IN/LINE OUT jack, set the OUTPUT SELECT switch to LINE OUT.
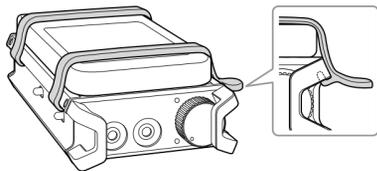
| Port/jack which is connected to the audio device | Setting position of the input select switch | Setting position of the OUTPUT SELECT switch | Output jack of the audio signal |
|---|---|---|---|
| AUDIO IN/LINE OUT jack | AUDIO IN (the left edge position) | PHONES | PHONES jack only |

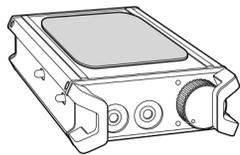You can fasten a connected device to the unit using the silicone belts (supplied).

### How to use the silicone belts (supplied)
Mount the connected device on the unit. Insert the lugs of the silicone belts into the slots on one side of the unit. Pull the belts over and insert the lugs in the slots on the other side, as shown below. (4 silicone belts are supplied.)



**Tip**
- If the audio device does not mount on the rubber rails of the unit, insert the protection sheet (supplied) between this unit and the audio device, to avoid scratching.



**Notes**
- Be careful not to pinch your finger when inserting the lugs of the silicon belt into the slots of the unit. It may cause injury.
- Sony is not liable for damage to an audio device caused by using the silicone belts.
- The silicone belts are not guaranteed to fasten all audio devices.
- Do not over-stretch the silicone belt. It may cause a malfunction.

If you run into any problems using this unit, use the following checklist and read the product support information on our website. Should any problem persist, consult your nearest Sony dealer.

**No sound**
→ Check that the unit and the audio device are connected correctly.
→ Check that the connected device is turned on.
→ Check that the unit is turned on.
→ If the POWER indicator does not light up, charge the battery.
→ Check that the input select switch is in the correct position for the connected audio device.
→ Check that the OUTPUT SELECT switch is in the correct position for the output jack.
→ Turn up the volume of the connected device.
→ Turn up the volume of the unit.
→ Connect the headphone plug firmly to the unit.
→ Check that the unit, amplifier and active speaker are connected correctly.
→ Check that the connected headphones are stereo, not monaural.
The unit does not support monaural headphones. Do not connect monaural headphones. It may cause a malfunction.

**When connected to a computer, there is no sound or the sound is not played back properly.**
→ The computer does not recognise the unit as a USB device. Restart your computer.
Install the driver software for Windows "Sony Portable Headphone Amplifier USB Audio 2.0 Driver" on your Windows computer. For details on installing, see [Computer].
→ Turn up the volume of your computer or software.
→ If the unit was connected to the computer while using audio playback software, restart the audio playback software.
→ When playing High-Resolution Audio format data on your computer with the unit, use the audio playback software compatible with the High-Resolution Audio format data, such as "Hi-Res Audio Player."
When "Hi-Res Audio Player" is not installed, install it on your computer. For details on installing, see "To play High-Resolution Audio format data" of [Computer].
→ If the computer enters standby, sleep or hibernation mode, while the music is played back by using the audio playback software, restart the audio playback software.
→ Check that the sound device settings of your computer are correct.
→ **For Windows 8**
Press and hold the [Windows] and [X] keys to display the menu, select [Control Panel], [Hardware and Sound], [Sound], [Playback] tab, select [Sony Portable Headphone Amplifier] for the playback device, then click [Set default].
→ **For Windows 7/Windows Vista**
Click the [Start] menu, select [Control Panel], [Hardware and Sound], [Sound], [Playback] tab, select [Sony Portable Headphone Amplifier] for the playback device, then click [Set default].
→ **For Macintosh**
Click the [Apple] menu, select [System Preferences], [Sound], [Output] tab, then select [Portable Headphone Amplifier] for [Select a device for sound output].
→ The volume control of your computer or the audio playback software is set to suppress the sound. Cancel the setting.
→ The CD-ROM drive does not support the digital reproduction function. Use a CD-ROM drive that supports the digital reproduction function.
→ Digitally broadcast sound may not be output from a computer's USB port. In this case, connect the AUDIO IN/LINE OUT jack of the unit to the analog audio output of the computer.

**Low sound**
→ Turn up the volume of the connected device.
→ Turn up the volume of the unit.
→ When using high-impedance headphones, set the GAIN select switch to HIGH.
→ Use headphones that have a stereo mini plug. The unit only supports headphones that have a stereo mini plug. If you use headphones/headset with a remote control or microphone, there may be low sound or no sound.

**The unit does not turn on.**
→ Charge the battery of the unit.
→ When battery life reduces to half, the battery is approaching the end of its service life. Consult your nearest Sony dealer for replacement.

**Distorted sound**
→ If the audio device is connected to the AUDIO IN/LINE OUT jack of the unit, turn down the volume of the connected device.
→ Set the equalizer setting of the connected device to off.
→ Charge the battery of the unit.

**The battery cannot be charged.**
→ Turn off the unit.
→ Check that the unit and your computer are firmly connected using the micro-USB cable (supplied).
→ Check that the computer is turned on and not in standby, sleep or hibernation mode.
→ Check that the unit and the computer are directly connected, and not via a USB hub.
→ Try the USB connection procedure again in cases other than those stated above.
→ The USB port of the connected computer may have a problem. Connect the unit to another USB port of the computer if available.
→ Charging methods that are not supported may not be possible.
→ The battery is fully charged.
If the battery is fully charged, the CHG (charge) indicator may blink and go off, and charging may not start. This is not a malfunction. For details, see "Charging the Unit."

→ If the unit is not used for a long time, the CHG (charge) indicator may take a while to light up red when you connect it to your computer. In this case, do not disconnect the micro-USB cable from the unit, and wait until the CHG (charge) indicator lights up red.

**Charging time is too long.**
→ Check that the unit and the computer are directly connected, not via a USB hub.
→ A cable which is not supplied is used.

**Noise is generated.**
→ When connecting an audio device to the AUDIO IN/LINE OUT jack of the unit, adjust the volume of the connected device, then turn up the volume of the unit.
→ Keep the computer away from the unit.
→ Restart the audio playback software.
→ Turn off the connected audio device, then turn it on again.

**Sound is interrupted when connecting to the computer.**
→ The CPU of your computer is overloaded. Close other applications.
→ Other USB devices are connected to your computer and being used simultaneously. Quit operating other USB devices.

**The remote control of the headset does not work.**
→ Remote control operation is not supported by this unit.

**The microphone of the headset does not work.**
→ Headset microphones are not supported by this unit.

**A connected radio or TV cannot receive a signal/ Noise is generated.**
→ Keep the connected device away from the unit.

**On Safety**
- Do not put weight or pressure on this unit as it may cause the unit to deform during long storage.
- Do not drop the unit or subject it to external shock, as it may cause a malfunction.
- Clean the unit with a soft dry cloth.
- If there is noise while listening to the radio, etc., move the unit farther away from the connected device.

**On placement**
- Do not place the unit in a location where it is:
  — Subject to extreme high temperature (such as in a car with its windows closed).
  — Subject to direct sunlight or near a heat source.
  — Subject to mechanical vibration or shock.
  — Subject to a magnetic field.
    (such as near a magnet, speaker or TV).
  — Subject to excessive dust.

**Frequency range**
10 Hz – 100 kHz (AUDIO IN input)
Distortion 0.01% or less (1 kHz)

**Supported impedance**
8 Ω – 600 Ω

**Maximum input**
1 Vrms (AUDIO IN)

**Maximum output (when using the built-in lithium-ion rechargeable battery)**
Approx. 165 mW + 165 mW
(8 Ω, 10 % distortion)
Approx. 90 mW + 90 mW
(32 Ω, 1 % distortion)
Approx. 25 mW + 25 mW
(300 Ω, 10 % distortion)

**Output jack**
Stereo mini jack*1 (PHONES jack)
Stereo mini jack*1 (Switching the input and output of the AUDIO IN/LINE OUT jack by the OUTPUT SELECT switch)

**Input jack/port**
Stereo mini jack*1 (Switching the input and output of the AUDIO IN/LINE OUT jack by the OUTPUT SELECT switch)
Micro-USB port (type B)
"WALKMAN" connecting port
iPhone/iPad/iPod connecting port
*1 Only a 3-pole stereo mini plug is supported. Other plugs, including 2-pole mini plug or 4-pole stereo mini plug, are not supported.

**Operating temperature**
0 °C to 40 °C

**Charging temperature**
5 °C to 35 °C

**Power source**
DC 3.7 V built-in lithium-ion rechargeable battery

**Rated current consumption**
1000 mA

**Battery life*2**
Analog connection: Approx. 17 hours*2
Digital connection: Approx. 6.5 hours*2

**Charging time**
Approx. 7 hours*3
*2 when using the unit at 1 mW + 1 mW output (24 Ω). Time may vary, depending on the immediate environment or conditions of use.
*3 Time required for empty battery to recharge.

**Dimensions**
Approx. 68 mm × 29 mm × 140 mm (w/h/d, projecting parts are not included)

**Mass**
Approx. 270 g

**Supported sampling frequencies/bit**
PCM: Maximum 192 kHz/24 bit
DSD: 2.8 MHz, 5.6 MHz*4
*4 When playing back DSD on your Mac OS, or Windows in DoP mode, 2.8 MHz is the upper limit.

**Included items**
PHA-2 (this unit) (1)
Digital output USB cable for "WALKMAN" (1)
Micro-USB cable (1)
Stereo mini cable (1)
Silicone belt (4)
Protection sheet (1)
Operating Instructions (this manual) (1)

**Operating environment**
Compliant OS:
Windows 8/Windows 8 Pro
Windows 7
Starter (SP1 or later)/Home Basic (SP1 or later)/Home Premium (SP1 or later)/Professional (SP1 or later)/Ultimate (SP1 or later)
Windows Vista
Home Basic (SP2 or later)/Home Premium (SP2 or later)/Business (SP2 or later)/Ultimate (SP2 or later)
Mac OS X (10.6.8 or later)
CPU: Intel Core 2 Processor 1.6 GHz or better
Memory: 1 GB or better
USB port (USB 2.0 High Speed)
- One of the above OS need to be installed to the computer at the factory.
- The unit is not guaranteed to operate with all computers.
- The unit is not guaranteed to operate with home built computers, operating systems that are personally upgraded, or multiple operating systems.
- The unit is not guaranteed to operate with functions such as system suspend, sleep, or hibernation, on any computer.

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