

# M&O ELECTRONICS

## MOOH-BE00BT



## USER MANUAL

Warnings .....	2
FCC and environmental protection compliance .....	4
Instructions for product usage .....	5
Product features .....	14
Product specifications .....	15
Limited product warranty .....	17



**CPSIA COMPLIANT**

## M&O Electronics, Inc.

support@mo-electronics.com  
www.mo-electronics.com  
(+1) 888-65-MandO  
2880 Zanker Road, Suite 203, San Jose, CA 95134, USA  
Made in China



## Warnings (Read before product usage)

Thank you for purchasing this Beryllium acoustic Bluetooth headphone. Before you start using the product, you are strongly recommended to carefully read these warnings and cautions described in this section. If you ignore these warnings, you may suffer various kinds of risks including, but not limited to, abusing or misusing this device, damaging this device, damaging other devices, causing temporary or permanent ear and hearing damage, hurting people, local traffic violation, and accidents after missing verbal warning signals. Also, you may lose the product warranty issued under the condition of a proper use of this product, or may even lose the authority to operate this product. To learn more about the M&O Electronics, Inc. headphone important safety instructions, please visit [www.mo-electronics.com](http://www.mo-electronics.com).

 Please keep your package box, purchase receipt, and this product and its accessories in a good condition in case that you may need them when you are seeking for customer service.

 Do not open the cabinet by yourself to avoid the risk of electrical shock or product damage. Refer servicing to qualified personnel only. Also, any changes or modifications not authorized in writing by M&O Electronics, Inc. will void your authority to operate this product, and void your right of product warranty issued under the condition of a proper use of this product.

 Do NOT expose the product to environment with temperature out of the range of 41 °F to 104 °F.

 Do NOT expose the product to rain, liquids or high moisture environment.

 Do NOT expose the product to unusual chemical substances.

 Do NOT use the product while driving.

 Do NOT use the product in a hazardous area or location with safety warning signs.

 Do NOT use the product Bluetooth transmission function while taking flight or in other vehicles where the use of Bluetooth transmission signals may be prohibited. In this situation, the users shall use the passive mode audio operation without Bluetooth transmission. The passive mode audio operation also extends headphone battery life, and shall support audio function when battery is completely depleted or headphone system is turned off.

 Do NOT put the product on the ear at a high-volume level (> 50% volume level) while you are moving to avoid missing any verbal warnings signs other people are trying to offer you.

 Do NOT put the product on the ear at an extremely high-volume level (> 70% volume level) or at a high-volume level (> 50% volume level) for a long time to avoid temporary or permanent hearing damage. You are always suggested to turn the volume up slowly and gradually.

 This product contains magnetic material. Do NOT use it around devices or people very sensitive to magnetic signal. This product is not intended for working in close distance to any implantable medical devices.

 Choking hazard: This product contains small parts not for children under 3 years of age. Also, this product is not a toy or game, and not intended for children 12 years old and younger.

 Do NOT use any unqualified or unfamiliar charging devices to charge this product. Please use the included charging cable to connect this product to a qualified USB 5V DC power supply working in a good condition.

 Stop using this product if it emits any loud unexpected noise. Please verify this encountered noise by turning on this product again in a quiet environment without the existence of those signals in the Bluetooth frequency range (from 2402 MHz to 2480 MHz), for example a microwave oven. Then, carefully listen to the audio signals. If the loud unexpected noise still exists, please pack this product and contact M&O Electronics, Inc. for customer service.

 This product must not be discarded as household waste; and shall be delivered to an appropriate collection facility for recycling or disposed of following those regulations about electronic waste in your local areas. DO NOT put it in the garbage or curbside recycling bins. Bring it to the recycler. Plenty of nonprofit organizations and local communities offer options to help you recycle old electronics. Proper disposal and recycling helps protect natural resources, human health, and the environment. For more information on disposal and recycling of this product, contact your local municipality and disposal service.

## FCC and environmental protection compliance

FCC ID: 2ALHGOHBE00BT

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.

You are cautioned that any changes or modifications not authorized in writing by M&O Electronics, Inc. will not only void your authority to operate this equipment, but also void your right of product warranty issued under the condition of a proper use of this product.

This device complies with FCC limits set forth for the general population. It must not be collocated or be operating in conjunction with any other antenna or transmitter. Also, this device is not a toy or game, and not intended for children 12 years old and younger.

This equipment has been tested and found to comply with both 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/TV technician for help.



CPSIA COMPLIANT



lead-free



mercury-free

This product has been tested and found to comply with comprehensive environmental protection regulations, standards or directives in the United States, California in the United States, Canada, and Europe. Those environment protection regulations, standards, and directives include:

- California proposition 65;
- ROHS (Restriction of Hazard Substances), also known as Directive 2011/65/EU;
- REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals);
- CPSIA (Consumer Product Safety Improvement Act);
- lead-free; and
- mercury-free.

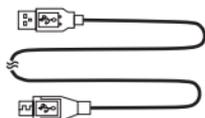
We always work hard to provide the users with high quality products, and improve the protection of human health and environment from the risks that can be posed by chemicals.

## Instructions for product usage

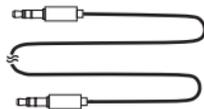
### Package contents



Bluetooth Headphone  
(Beryllium Acoustic)  
MODEL: MOOH-BE00BT



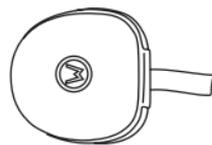
Micro-USB Charging Cable  
(5 V DC supply, ~ 31 1/2" (0.8 m))



Stereo Headphone Cable  
(3.5 mm, ~ 47 1/4" (1.2 m))



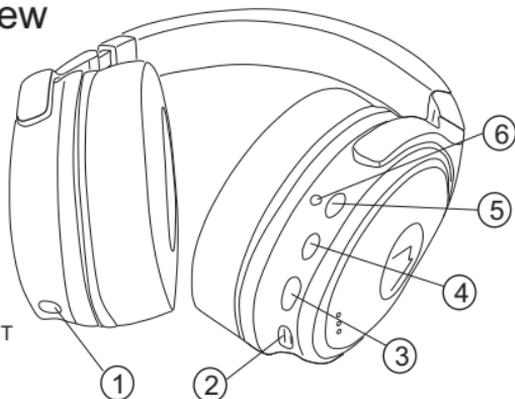
User Manual  
(Warnings, FCC and environment protection compliance, Instructions for product usage, Product features, Product specifications, Limited Product Warranty)



Headphone EVA Box  
(Hardness 70 degrees)

# Product overview

Bluetooth Headphone  
(Beryllium Acoustic)  
MODEL: MOOH-BE00BT



## Buttons, indication lights and ports on the product

- ① Stereo audio cable port    ② Micro-B charging port    ③ Volume - / Fast reverse    ④ Power on/off, pairing  
Music play/pause  
Call answer/reject
- ⑤ Volume + / Fast forward    ⑥ Status indication light

## Two different modes to use this product

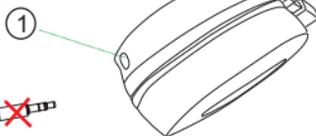
There are two different modes to use this product, including: a) use this product in regular Bluetooth transmission mode; and b) use this product in passive audio operation mode.

### MODE A) regular Bluetooth transmission mode

Bluetooth transmission mode is the default operation mode of this product and the so-called system operation mode in this user manual. The Bluetooth transmission mode operation is activated after pressing on the power button as described in this section. However, if there is a stereo audio cable plugged in, the Bluetooth transmission mode shall be switched off. Meanwhile, this product shall work in a passive audio operation mode with which audio signals will be transferred over the audio cable. For more details about the passive audio operation mode, please refer to MODE B) in the next section.

Pressing on the power button to activate  
Bluetooth transmission mode

Bluetooth transmission mode is not available  
until the audio cable is disconnected



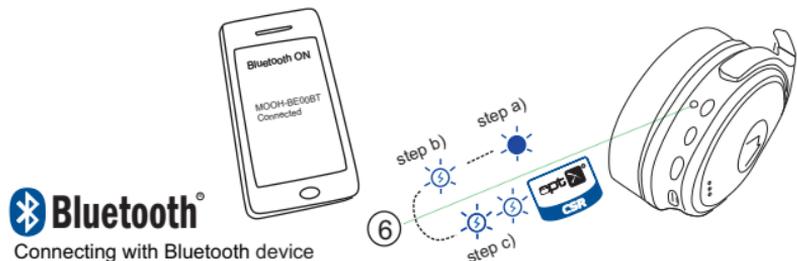
## Bluetooth connecting without pairing

Bluetooth transmission mode can be activated without the involvement of Bluetooth device pairing procedure if all the following four conditions are satisfied at the same time.

- this product has most recently paired with the Bluetooth audio device;
- this product's pairing name "MOOH-BE00BT" is listed in the audio device's Bluetooth system as a paired device;
- the audio device is working and ready for accepting a Bluetooth connecting request; and
- this product is in the Bluetooth work distance of the audio device.

A typical Bluetooth connecting in this situation is introduced in the following steps:

*Step a)* Pressing on the power button for more than 3 seconds to turn on this product, four series of short beep sounds shall present in a rising tone and the status indication light turns blue to indicate the device's turning on event. Another two series of beep sounds shall prompt up after this product is turned on;



*Step b)* This product shall send out connecting requests to an audio device it most recently paired. The status indication light flashes blue once every two seconds to indicate that this product detects the audio device, but the audio device has not accepted its requests yet;

*Step c)* After the audio device accepts this product's connecting request, the Bluetooth connection is set up and two series of beep sounds shall prompt up after this connecting. Also, the status indication light flashes blue twice every five seconds to indicate a connected Bluetooth transmission.

Another typical Bluetooth connecting without pairing applies when this product is already turned on but temporarily disconnected from the audio device by the users. The status indication light shall flash blue once every two seconds to indicate that this product detects the audio device, but the audio device has not accepted its requests. In this case, the users do not need to power off and on this product again, and shall resume the connection via the audio device's Bluetooth device manager.

\* This product is a feature of a 5-minute continuous no-Bluetooth-connecting time limit, beyond which this product will be automatically turned off.

## *Bluetooth connecting in need of Bluetooth pairing*

Bluetooth device pairing shall be required to activate the Bluetooth transmission mode if the audio device to be connected has any one of the following characteristics:

- a) a new device to this product;
- b) a device removing this product from its paired device list;
- c) a device not the one which most recently paired with this product.

The device pairing procedure is identified by a visual signal that the status indication light alternatively flashes blue and red.

A typical Bluetooth connecting in this situation is introduced in the following steps:

### *Step a) Two different options to initiate the device pairing procedure:*

#1 option) Pressing on the power button for less than 5 seconds then releasing the button. Starting with four series of beep sounds and another two series of beep sounds next, this product is powered on and sends out connecting requests to an audio device it paired to most recently. However, because the audio device to be connected does not satisfy either one of the aforementioned requirements about connecting without pairing, this product shall automatically initiate a device pairing procedure.

#2 option) The users press on the power button for more than 5 seconds before releasing it. In this situation, this product immediately starts a device pairing procedure. The users shall also notice four series of beep sounds and another two series of beep sounds next to it.

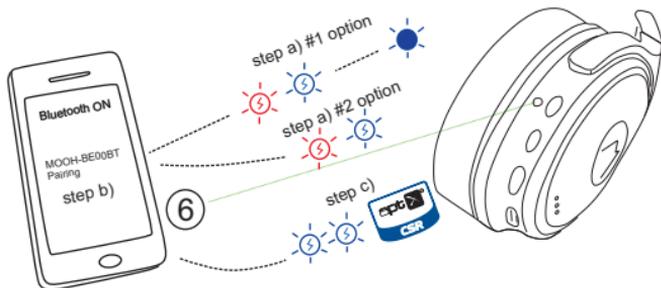
### *Step b) Finding this product in the audio device's Bluetooth available devices list:*

During this product's device pairing procedure, in the audio device's Bluetooth device manager system, check available Bluetooth devices. This product's pairing name "MOOH-BE00BT" shall be added into the list of those available devices to be connected' in the audio device Bluetooth device manager system as a response to this product's pairing request.

Note 1) If this product is not added in the list, it may be in a priority order paired with another Bluetooth audio device that it connected before. In this case, the users shall either release this product from another audio device's connecting device list, or bring this product out of the Bluetooth signal range (> 50 feet in-sight distance) of another audio device, then turn off and on this product and repeat the device pairing procedure. Another kind of cause may be related to the audio device, which shall be solved by restarting the audio device or refresh its Bluetooth device manager system.

### *Step c) Selecting this product as the audio device's Bluetooth connected devices:*

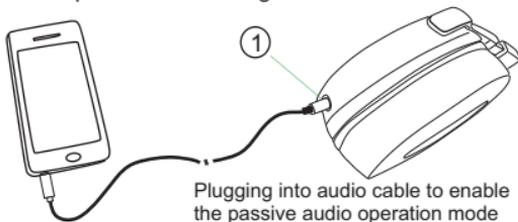
In the audio device's Bluetooth device manager system, the users shall select this product as "my device" or "the paired device" of the Bluetooth audio device, after which this product is Bluetooth connected with the audio device and the Bluetooth transmission mode is activated. The users shall notice two series of beep sounds and the status indication lights flashes blue twice every five seconds to indicate a connected Bluetooth transmission.



Bluetooth transmission mode shall be turned off via pressing on the power button for more than 5 seconds. Then, four series of short beep sounds shall present in a descending tone and the status indication light turns red before the system shuts down itself and stops Bluetooth audio transmission.

## MODE B) passive audio operation mode

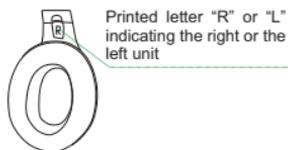
Passive audio operation mode is enabled by plugging an audio cable connector into this product's stereo audio cable port. Operating in this mode, this product acts like a passive speaker with the listed characteristics. This mode ensures this product recommended for audio operation in many special situations prohibiting Bluetooth communication, for example airline traveling.



- audio signals transferred over the audio cable;
- supporting audio functions when the battery is exhausted and/or when system shuts down;
- most of electronic components stop operation. Neither verbal nor visual warning signal;
- Bluetooth transmission mode is terminated and its resume requires unplugging of the audio cable and powering on this product again;
- leakage current < 0.1 mA.

# Listening to music

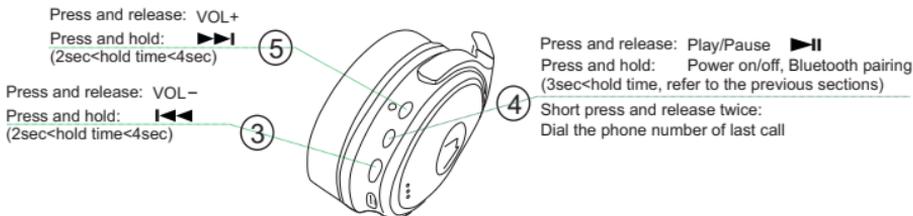
**A** Put on this product and be aware of the unit's direction. The right unit fits the right ear, and the left unit the left ear. The unit direction shall be identified by printed letter "R" or "L" on the unit.



**B** Listening to music in the operating MODE A– Bluetooth transmission mode (Profile: A2DP c1.2, AVRCP v1.4)

1) power on this product and setup the Bluetooth connection following the instructions in the previous sections;

2) use those specified buttons and instructions indicated below to implement various music play functions. The second, abbreviated as "sec", is the base unit of measuring the button holding time.



3) the achievable music play functions may vary depending on the Bluetooth device and/or its audio music player .

4) this product provides fifteen levels of volume for the users to select. When the volume level is set to be the maximum one or the minimum one, a verbal beep warning signal prompts up.



*Do NOT put the product on the ear for listening audio signals at an extremely high-volume level (> 70% volume level) or at a high-volume level (> 50% volume level) for a long time to avoid temporary or permanent hearing damage. You are always suggested to turn the volume up slowly and gradually.*

*Whenever a percent of volume level is mentioned in this manual, it is assumed that the Bluetooth device audio volume is set to be the maximum one and the Bluetooth device works properly.*

## C Listening to music in the operating MODE B– passive audio operation mode

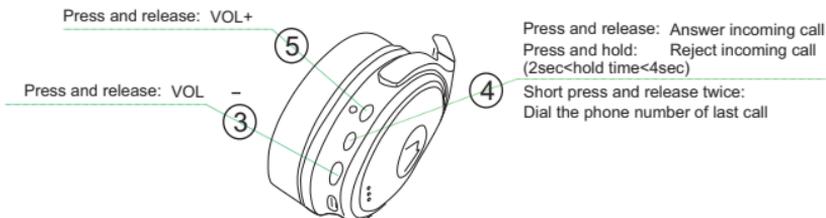
When this product works in the passive audio operation mode, it acts as a passive audio speaker, and all the music play functions are only provided by the audio device connected via a 3.5 mm audio cable included in the product package.

## Phone talk

The features of this product including: active echo cancelling, CVC noise suppression, and two operating modes, make it a great choice for phone talks.

*It shall be cautioned that when using this product to make or answer a network phone call or video call, some of the buttons in this product may not function, and the users need to use Bluetooth device or audio device to manage those network calls.*

## A Phone talk in the operating mode A– Bluetooth transmission mode (Profile: HSP v1.6, HFP v1.2)



 **Bluetooth**<sup>®</sup> Receiving or making phone call

### Making a phone call

- Dial a phone number with the aid of the Bluetooth device and end the dialing or end the call made by pressing and releasing the button #4.
- Adjust the volume of phone talk by pressing and releasing the button #3 or #5.
- Redial the phone number of the last call by rapidly repeating the press and release action twice on the button #4.

## *Receiving a phone call*

- Answer a call by pressing and releasing the button #4.
- Reject a call by pressing and holding the button #4 for 3 seconds
- Adjust the volume of phone talk by pressing and releasing the button #3 or #5.

## **B** Phone talk in the operating mode B- passive audio operation mode

When this product works in the passive audio operation mode, it acts as a passive audio speaker, and all the phone call functions are only provided by the audio device connected via a 3.5mm audio cable included in the product package.

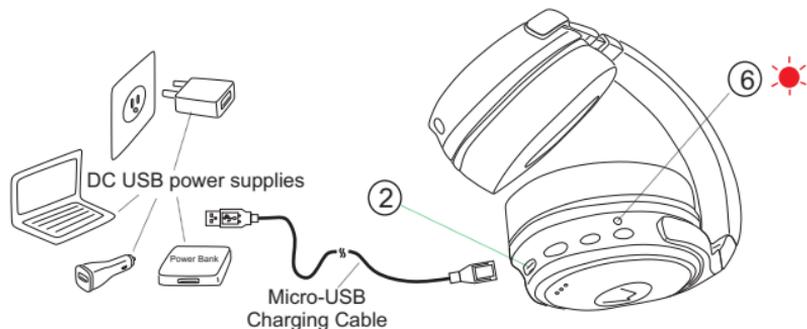
## **Power saving automatic shutdown**

If this product loses Bluetooth transmission connection for more than 5 minutes, it shall automatically turn off the status indication light and shut down its system operation to decrease the battery charge consumption and extend battery life. This product needs to be turned on again to resume system operation and Bluetooth transmission.

## **Low battery verbal and visual warning signals**

This product features both verbal and visual warning signals after about 90% of battery charge is consumed and battery voltage drops below 3.3V. From then on, five series of short beep sound in a descending tone sounds every minute and the status indication light flashes red every minute. This product is still able to continuously work 10 to 30 more minutes in normal Bluetooth transmission mode until more than 94% of battery charge is consumed and the battery voltage drops below 3.0 V, then it automatically shuts down system operation. The actual number of the aforementioned operating time with an exhausting battery depends on conditions of audio operation.

## Charging the device



The charging process of this product starts when connecting it to a 5 V DC USB power supply, which is implemented by plugging the included micro-USB charging cable into the charging cable port of this product and the USB port of the 5 V DC USB power supply. The maximum charging current is 180 mA, which is achievable with most state-of-current 5 V DC USB power supplies, computers, or car USB output ports.

The status indication light turns red color to indicate an ongoing charging process.

A regular charging process to fully charge a depleted battery takes around 5.5 hours.

All functions of this product are available during the charging process. For a deeply depleted battery, the recovery of Bluetooth functions may take ten more minutes. Passive mode operation is always available despite the battery charge level.

The charging process automatically terminates after the battery is fully charged. Also, the status indication light shall turn blue to indicate that the battery is fully charged.

# Product features

## Major features

- ★ Beryllium acoustic is a feature of clean, accurate, and stable acoustic. Beryllium is a relatively rare element on earth and in the Universe, and outstanding for high stiffness to density ratio, good strength to density ratio, high velocity of sound, and high Debye temperature. It is a light, but very rigid material that features high-speed sound propagation, low distortion, and high efficiency drive
- ★ Beryllium acoustic is a feature of the right tuning of headphones and the well-balanced pleasing frequency response throughout the audio range. Enhanced acoustic in both the treble and the bass range. Made to hear sounds with more clarity
- ★ aptX high quality audio across Bluetooth transmission
- ★ active echo cancellation, CVC noise suppression, and call quality improvement techniques supporting clear phone talk and remote meeting talk
- ★ about 32 hours of continuous transmission time including music playback at 80% volume level
- ★ about 35 hours of continuous transmission time including phone talk at 80% volume level
- ★ power-conscious automatic system shutdown after around 5 minutes of no connection of Bluetooth transmission signals to extend battery life
- ★ low battery verbal and visual warning signals. Indication light flashes red and a verbal warning signal sounds every minute from then on. Taking 10 to 30 more minutes in normal Bluetooth transmission mode depending on conditions of audio operation. After the battery charge is exhausted, system automatically shuts down
- ★ support passive mode audio operation when battery charge is exhausted and/or headphone system shuts down
- ★ ergonomic design and comfortable ear cushion kits
- ★ strict quality control and comprehensive reliability tests qualified
- ★ compliance with the environmental protection requirements, standards or directives including the CA proposition 65, the CPSIA, the ROHS, the REACH, the FCC part 15B, and the FCC part 15.247.

## Product specifications

### Communication Specifications

Communication system:	Bluetooth version 4.0
Frequency range:	2402 MHz to 2480 MHz
Support Bluetooth profile:	A2DP v1.2, AVRCP v1.4 HFP v1.6, HSP v1.2
Support codec:	aptX, SBC
Active echo cancellation during phone talking:	Yes
CVC noise suppression and call quality improvement technique:	Yes
RF transmission power:	Class II, +4 dBm max.
Receiver sensitivity:	-80 dBm
Maximum communication range:	Line of sight - more than 10 m (33 ft)
Name to pair with Bluetooth devices:	MOOH-BE00BT
Pass-code possibly required when pairing with devices below Bluetooth version 2.0:	0000

### Electroacoustic Specifications

Transducer	closed-back moving coil, diameter: 40 mm
	transducer material: Nd-Fe-B
	diaphragm: Beryllium acoustic technique
	impedance 32 ohms
	frequency response: 20 Hz to 40 KHz
to be continued	

Electroacoustic Specifications (continued)						
Transducer	sensitivity (dB SPL/mW)	20 Hz	50 Hz	100 Hz	200 Hz	500Hz
		101+/-5	106+/-5	109+/-5	104+/-5	101+/-4
		1 KHz	2 KHz	5 KHz	10 KHz	20KHz
		99+/-3	98+/-4	94+/-6	105+/-6	98+/-6
Microphone	electret 4015 omnidirectional microphone					
	impedance 2.2 Kohms, frequency response: 100 Hz to 10 KHz					
	sensitivity: -42+/-4 dB SPL/mW					

Others	
Headphone physical size:	Width: 7 3/4 ", Height: 6 3/4 ", Depth: 3 1/4 "
Headphone weight:	9.8 oz
Headphone power supply:	700 mA DC 3.7 V lithium polymer battery
Headphone charging power supply:	5 V DC, 180 mA maximum charging current
Continuous Bluetooth transmission including music playback:	about 32 hours at 80% volume level
Continuous Bluetooth transmission including phone talking:	about 35 hours at 80% volume level
Continuous standby time: (Bluetooth pairing on)	more than 85 hours
Power-conscious automatic system shutdown:	To extend battery life, headphone system automatically shuts down after around 5 minutes continuous no connection of Bluetooth transmission signals.
Passive mode audio operation without Bluetooth transmission:	Activated by plugging 3.5 mm audio cable from audio device into the headphone stereo audio port. Extend headphone battery life and support audio function after battery is exhausted and system shuts down.
to be continued	

## Others (continued)

Low battery warnings before system shutdown:	When battery charge is less than 10% left, indication light flashes red and a verbal warning signal presents every minute from then on. After around 10 to 30 more minutes in normal Bluetooth transmission mode, depending on conditions of audio operation, less than 6% battery charge is left and headphone system automatically shuts down.
Headphone operation during charging process:	All functions available during charging process <sup>1</sup> .
<i>Note 1: Bluetooth related functions may require 10 more minutes charging for a completely depleted battery.</i>	
Charging time (5 V DC):	about 5.5 hours
Suggested storage or operating environment:	41 °F to 104 °F; no rain, liquids or no high moisture exposure; no exposure to unusual chemical substances

Design and specifications are subject to change without notice.

## Limited product warranty

This limited product warranty is a voluntary manufacturer's warranty and extended only to the original end-user purchaser or the person receiving the product as a gift, and shall not be extended to any other person or transferee.

This product warranty shall apply to, at our sole option, repair or replacement of any defective parts, using new or refurbished replacement parts, within a reasonable period of time and free of charge, for one year after the date of original retail purchase. Any accessories supplied with the product are not under the warranty.

This product warranty excludes faults due to wear and tear, and normal depletion of consumable parts, such as batteries, unless failure has occurred due to a defect in materials or workmanship, and defects and damage resulting from abuse, misuse, or unreasonable use or maintenance, unauthorized changes or repairs or modifications, ignorant of warnings and cautions described, failure to follow operating instructions, accident, excess moisture or temperature, insects, lighting, power surges, connection to improper power supply, or other causes that are not defects in this product's materials and workmanship.

The users are responsible for the payment of this product's shipping cost, insurance, or transportation charges from the users to us, or any import fees, duties, and taxes.

OUR MAXIMUM LIABILITY SHALL NOT EXCEED THE ACTUAL PURCHASE PRICE PAID BY YOU FOR THE PRODUCT. IN NO EVENT SHALL WE BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL, OR INDIRECT DAMAGES.

The users are highly recommended to contact us first before any shipment via sending an email to [support@mo-electronics.com](mailto:support@mo-electronics.com) to request the initiation of a product warranty procedure. The users are recommended to in detail describe the defects, malfunctions, or other issues the users encountered during the product usage in the email. Upon receipt of the email request, we will contact the users in a reasonable period of time to identify the problems and provide the users the best customer service.

If the users want to obtain the one-year limited warranty service, the users need to package this product into its original package case together with the proof of purchase or gift and all other accessories of this product. The users need to ship this package to our corporation address listed in this manual. For more information about our corporation and limited product warranty policies, please visit [www.mo-electronics.com](http://www.mo-electronics.com).

This product warranty shall be void if any case listed below occurs:

- the label bearing the serial number has been removed or defaced;
- the proof of purchase or gift is not provided;
- ship back the product without freight prepaid, or in an improper package;

This limited product warranty gives the users specific rights, and the users may also have other rights that vary from state to state or country to country. Some places do not allow limitations on implied warranties or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusion may not apply to you.

## M&O ELECTRONICS



## THE ELECTRONICS OF MINE AND OURS