ETYMŌTIC RESEARCH INC.

CM•4 Companion Mics®

Multi-Talker Noise Reduction System

User Guide

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ABOUT COMPANION MICS®

The Companion Mics project began in 1992. Before it was introduced in 2006, it went through five developmental phases: 1) ultra low-power digital transmission; 2) low-cost FM systems; 3) high-cost FM systems; 4) low-power digital security-alarm systems; and 5) the 2006 version, a 2.4 GHz spread-spectrum (digital frequency hopping) system. None of the first four systems provided adequate bandwidth and/or sufficient signal-to-noise ratio.The present Companion Mics system has both.

The Companion Mics system was developed to help those who have significant difficulty understanding conversation in background noise, such as encountered in restaurants and other noisy places. Our quality of life depends to a great extent on our ability to communicate with family and friends. When this ability is compromised, there is a tendency to withdraw. With the Companion Mics system, those who have been excluded from conversation in noisy places can enjoy social situations and fully participate again.

The CM•4 Companion Mics system establishes a direct communication among all active units and bypasses the noise and reverberation of the local acoustic environment. The wireless technology used in the Companion Mics system is similar to that used by digital cordless phones and other wireless devices using the 2.4 GHz band.

BENEFITS

The Companion Mics system enables up to four persons to listen and speak to each other. The microphones in this system give up to a ten-to-one decrease in the relative noise level that is heard by each listener, which makes it possible to carry on a normal conversation even in high levels of background noise. The units use lithium polymer rechargeable batteries. Battery life is 6-10 hours, which gives ample use time for most applications. A complete charge takes 2-3 hours. To conserve battery life, the system automatically times out and turns off after a period of inactivity.

IMPORTANT PRIVACY NOTICE TO ALL USERS

It is easy to forget that you are wearing Companion Mics. If you leave the conversation, or want to have a private conversation with someone, be sure to disconnect from the system. The operating range of this system can be 150 feet or more, so even if you are across a room or away from the conversation, others may be able to hear you!

SYSTEM CONFIGURATIONS

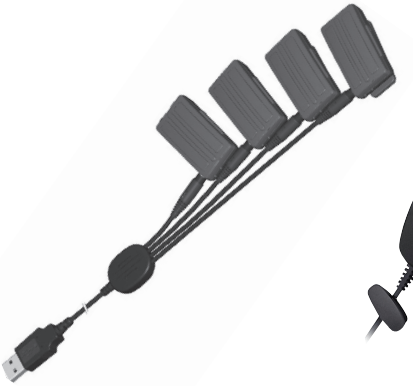
- 2, 3 or 4 individual CM4 units
- 1-4 pairs of ER-6i earphones as specified by purchaser
- 1-4 Neckloop(s) as specified by purchaser
- AC adapter
- 4-unit charging cable
- Carrying Case
- User Guide

CM4

Carrying case

ER-6i high-fidelity
Noise-isolating Earphones

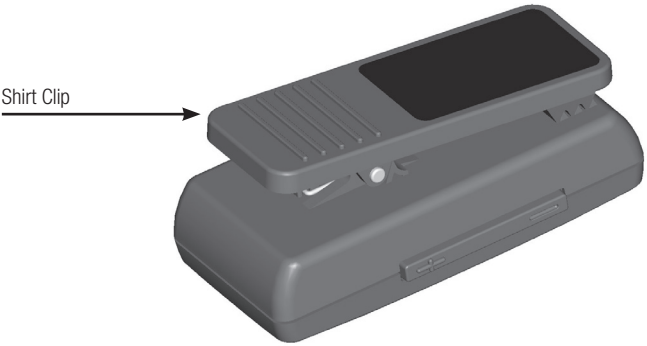
AC adapter



Charging cable
Shown with units attached

Neckloop

IDENTIFICATION OF CONTROLS



LISTENING OPTIONS

- ER-6i noise-isolating earphones
- Neckloop with hearing aid or cochlear implant on t-coil mode
- Direct audio input (DAI) on hearing aids and cochlear implants

Neckloop

OPERATION

- Each unit has two buttons: ON/Volume Up and OFF/Volume Down
- Each unit has two LEDs
    - Green: ON (off when unit is off)
    - Amber: Charging (off when unit is fully charged)
- Units are charged through the earphone jacks

Pairing

Pairing is done at factory and is not required by the user. If additional units are purchased, the system must be returned to Etymotic Research to be paired. The units turn on independently, but the Master Unit (Unit 0) must be on at all times when the system is in use.

Once a unit forms an RF connection to at least one other unit, both units will show a solid green light indicating that the system is functional.

Controls

- To turn ON: Press and hold "+" key for at least 2 seconds
- To turn OFF: Press and hold "-" key for at least 2 seconds
- VOLUME UP: Press the "+" key
- VOLUME DOWN: Press "-" key

Smart Microphones

Each unit has a position-sensitive directional microphone. Users should clip the CM unit on clothing as close to the head as possible, with the longer side pointing toward the mouth. An internal sensor automatically selects the appropriate microphones for best noise rejection.

Disconnecting and Reconnecting

- Any unit (except the Master Unit) can be disconnected from the system and reconnected by simply pressing the ON and OFF buttons. When the green LED is off, the unit is off.
- If the LED is blinking green, check the Master Unit. It needs to be on during use.
- If any unit will not turn on, it may need to be recharged.

INTERFERENCE

Unique Identifier

Companion Mics are paired as a system at the factory with a unique identifier so that only the units in that system will connect with each other. There can be many systems operating in the same area without interfering with each other.

RF Interference

If there is significant RF interference, complete recovery from the interference can be obtained by the following three steps:

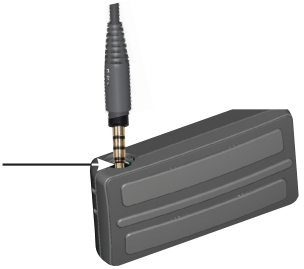
- Make sure the LED on the Master Unit is still green. If not, turn it back on.
- Check all units. Turn on any units whose green light is off.

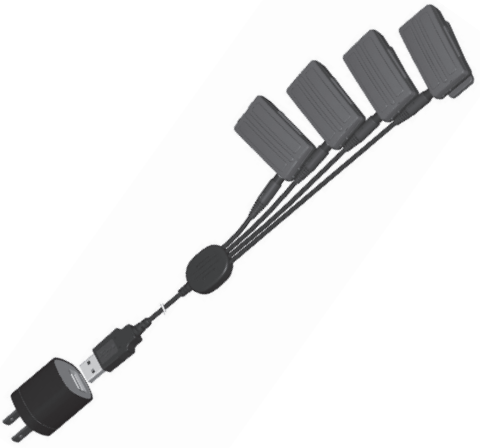
OPERATING DISTANCE

Under line-of-sight conditions out in the open, the units may operate over a distance of 150 feet or more. Indoors, where there are reflections, operation may be limited to 30 feet or less.

CHARGING

Step 1 Insert the 3.5 mm plug from the charging cable into the earphone jack on the CM4





Step 2. Plug the USB end of the charging cable into the AC adapter.

Step 3. Plug the AC adapter into a wall socket.

- While charging, an amber light will illuminate on each unit. The light on the units will remain amber until the units are fully charged.
- When the units are charged the amber lights will go out.
- A complete charge (from “empty”) takes about 2-3 hours.

Overcharging:

It is not possible to overcharge the units. They can be plugged in indefinitely without damaging the system.

Battery Life:

Battery life is 6-10 hours depending on use.

Auto Shut Off:

- If the units maintain a connection, the system automatically turns off after 4 hours.

SPECIFICATIONS

Size:	2" x 1" (52 x 26 mm) 1/2" thick (12.7 mm) without clip
Weight:	About one-half ounce
Talk Time:	About six to ten hours depending on use
Charging Connector:	3.5mm jack to USB
Charge Time:	About one hour to 80% full; 2 hours to full
Low Battery Time:	Amber light flutters when the battery capacity is about or less than 10%
Audio Connector:	3.5 mm stereo jack
Output:	At least 120 to 6900 Hz audio bandwidth Separate stereo drivers (mono signal) >40 mW output into 16 ohms ~ 1 V rms (± 5%) output signal

ABOUT ETYMOTIC RESEARCH

Etymotic Research is an engineering-driven company. Its mission, to develop products to measure, improve and protect hearing, has not changed in over 30 years. New product development reflects our commitment to improve the lives of those with hearing loss and to enhance the listening experience of musicians and music lovers everywhere. Scientists, engineers, and audiologists working together have generated more than 100 patents issued or pending. Etymotic Research has an extensive sound laboratory that includes three anechoic chambers and a reverberation room.

Etymotic (et-im-*oh*-tik) means “true to the ear.”

WARRANTY

Etymotic Research, Inc. warrants this product against defects in material or workmanship for a period of one year from the date of original purchase from an authorized Etymotic distributor or reseller. Etymotic will repair or replace the defective product at its option if returned within the warranty period to our service facility. This warranty is in lieu of all other warranties, expressed or implied, including, but not limited to, any implied warranty of merchantability or fitness for a particular purpose.

FCC AND OTHER INFORMATION

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. 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.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. Some equipment operates at frequencies that may cause interference to nearby TVs and VCRs; to minimize or prevent such interference, the system base should not be placed near or on top of a TV, PC monitor, or VCR; and, if interference is experienced, moving the desk station farther away from the TV or VCR will often reduce or eliminate the interference.

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 system off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Increase the separation between the equipment and receiver.
2. Consult the dealer or an experienced radio TV technician for help.

FCC HEALTH AND SAFETY INFORMATION

Your device is a radio transmitter and receiver. It is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government. The FCC has established criteria for the amount of radio frequency energy various products may produce depending on their intended usage. This product has been evaluated and found to comply with the FCC's exposure criteria. For body worn operation, the FCC RF exposure guidelines were also met when used with the accessories supplied or designed for this product. Use of other accessories may not ensure compliance with FCC RF exposure guidelines and should be avoided.

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

INDUSTRY CANADA

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.

This device complies with Part 15 of the FCC rules and with Industry Canada licence-exempt RSS standard(s). 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.

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'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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

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Use of other accessories may not ensure compliance with FCC RF exposure guidelines and should be avoided.

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

This device must not be co-located with other transmitters.

The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website www.hc-sc.gc.ca/rpb

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