

## IEM Owners Manual

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### M2 Wireless In-Ear Monitor System

M2R UHF Stereo Receiver

M2T UHF Stereo Transmitter

EP3 Dynamic Earphones

This device complies with part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

This device complies with INDUSTRY CANADA R.S.S. 210, en conformité avec IC: RSS-210/CNR210.

Operation is subject to the following conditions: 1) This device may not cause harmful interference and 2) this device must accept any interference received, including interference which may cause undesired operation. Changes or modifications not expressly approved by Audio-Technica could void your authority to operate this equipment.

**CAUTION!** The circuits inside the receiver and transmitter have been precisely adjusted for optimum performance and compliance with federal regulations. Do not attempt to open the receiver or transmitter. To do so will void the warranty, and may cause improper operation.

**Warning:** To prevent fire or shock hazard, do not expose this appliance to rain or moisture.

**Attention:** Pour prévenir feu ou choc électrique, ne pas exposer l'appareil à la pluie ou à l'humidité.

### About RF Interference

Please note that wireless frequencies are shared with other radio services. According to Federal Communications Commission regulations, "Wireless microphone operations are unprotected from interference from other licensed operations in the band. If any interference is received by any Government or non-Government operation, the wireless microphone must cease operation..." If you need help with operation or frequency selection, please contact your local dealer or Audio-Technica. Extensive wireless information also is available at [www.audio-technica.com](http://www.audio-technica.com).

**Warning—Use as low volume levels as possible.**

To prevent damage to your eardrums, never use this system at excessive volume levels. Listening to loud sounds for an extended period may cause temporary or permanent hearing damage.

### System components

[with illustrations]

M2R UHF Stereo Receiver

M2T UHF Stereo Transmitter with AC adapter

EP3 Dynamic Earphones

### Quick start guide

M2R Stereo Receiver

M2T Stereo Transmitter

1. Plug in the included AC adapter and connect to transmitter's DC input.
2. Insert 2 AA batteries in the M2R Stereo Receiver following polarity as indicated.
3. Set M2R Stereo Receiver and M2T Stereo Transmitter to the same frequency. (See page \_\_.)
4. Power on M2R Stereo Receiver with **volume in minimum position**; power on M2T Stereo Transmitter. Check to see that RF LED on M2R Stereo Receiver is illuminated.
5. Power off receiver and transmitter
6. Connect audio source(s) to inputs on the rear panel of the transmitter.
7. Power on M2T Stereo Transmitter.
8. Adjust attenuator on rear panel of M2T Stereo Transmitter to appropriate level. (See page \_\_.)
9. Adjust trim level on front panel of M2T Stereo Transmitter, if needed. (See page \_\_.)
10. Plug EP3 Dynamic Earphones into earphones locking output jack on M2R Stereo Receiver. **NOTE:** Do not put the earphones in your ears at this point.
11. Turn on receiver with volume in **minimum position**.
12. With volume on receiver at **minimum position**, put earphones into your ears and gradually increase volume until appropriate level is reached.

### M2 Wireless In-Ear Monitor System—Introduction

Thank you for buying the Audio-Technica M2 Wireless In-Ear Monitor System. This feature-rich in-ear monitor system is designed to provide you with comfortable high-fidelity sound on stage.

The M2 is a frequency-agile in-ear monitor system designed to make stage monitoring more effective, comfortable, portable, and intelligible. The M2R Stereo Receiver allows the user to create and control his/her own mix on stage with Personal Mix Control that offers independent control of volume and mix at the receiver. The M2T Stereo Transmitter offers two ¼"/XLR combo input

connectors into which users can directly connect instruments, microphones or other line-level and mic-level inputs (from a mixing console, for example). The EP3 earphones are equipped with a proprietary Audio-Technica dynamic driver offering a full frequency response and richly detailed high-fidelity sound. The clean, articulate mix allows performers to hear themselves at comfortable SPLs. The earphones come with three sizes of rubber flexible eartips and a universal-fit foam tip for a custom fit, increased isolation and long-wearing listening comfort.

**Note:** M2 “L” Band receivers must be used only with “L” Band transmitters; the same holds true for M2 “M” Band receivers and transmitters. For multiple-channel applications, as many as eight systems may be used together per frequency band.

### Features

- High-fidelity sound with clean, articulate mix allows you to hear yourself better at lower SPLs
- 100 selectable UHF channels
- Up to 8 simultaneous systems per frequency band
- Three receiver modes: Personal Mix, stereo, and mono
- Personal Mix Control allows you to adjust your own mix on stage
- 3.5 mm line-in jack connects to ambient microphone, click track & more
- LED indicators provide easy-to-read level monitoring
- XLR loop output (true pass-through) connects signal to mixing console, additional IEM system or recording device with no signal degradation
- Adjustable squelch eliminates annoying static
- Pilot tone protects against RF interference when the transmitter is turned off
- Limiter (defeatable) helps protect your hearing from sudden peaks
- Portable system is quick to load and set up
- Reduces on-stage audio clutter for better overall mix & less feedback
- Use any number of M2R Stereo Receivers (with individual mixes) on the same frequency
- EP3 earphones with proprietary dynamic driver offer full frequency response and outstanding isolation
- Personal fit with 3 sizes of rubber eartips plus an ear-conforming foam tip

### Front panel transmitter

#### Rear panel transmitter

1. **Power LED.** Lights red when power is applied.
2. **Power switch.** Depress once to turn on. Depress again to turn off.
3. **L/1 and R/2 trim control.** Controls level of corresponding audio input.
4. **Input Level indicator.** Shows signal level from audio input L/1 and R/2.
5. **Frequency group selector.** Selects frequency group.
6. **Frequency channel selector.** Selects frequency channel.
7. **Flexible antenna.** Permanently attached antenna transmits to receivers.

8. **Data port.** For factory use only.
9. **Loop output.** The R/2 XLR jack duplicates the unprocessed signal of the R/2 input; the L/1 XLR jack duplicates the unprocessed signal of the L/1 input. Not affected by front panel settings.
10. **Attenuators.** Offer -20, -10, and 0 attenuation for each input. Typically, if your input signal is line level (from an amplifier or guitar cable, for example) set attenuation to -10 or -20. Typically, if your input signal is mic level (from a microphone), set attenuation to 0.
11. **Inputs.** Combination input jacks offer both XLR and ¼" jacks.
12. **DC input.** Plug the included power supply in here.
13. **Cord hook.** Loop the small DC cord around the cord hook to keep the DC plug from pulling out accidentally.

### Phantom Power

The transmitter does not provide phantom power, but **it does allow phantom power to pass through from your phantom power supply to a condenser microphone plugged into either input jack.**

**NOTE:** If connecting guitars, keyboards or other instruments to a mixing console through the transmitter loop output, then **use a direct box to prevent damage to your instruments and/or equipment from the mixing console's phantom power;** i.e. hook your instrument into a direct box, then hook your direct box into the transmitter.

### Receiver Controls

1. **On/off volume knob.** Turn inner knob to the right; turns on with click. Turn volume up with clockwise turn; turn volume down with counterclockwise turn.
2. **Balance control.** 12 o'clock position offers equal left (L1) and right (R2) in both ears. In typical setups, turn the knob counterclockwise from the 12 o'clock position to hear more of L1 in both ears; turn the knob clockwise from the 12 o'clock position to hear more of R/2 in both ears. (See page \_\_\_ for other detailed functions of the balance control.)
3. **Battery indicator.** Green indicates functioning battery; low battery is red.
4. **Earphones locking output jack.** Connect your EP3 earphones to this 3.5 mm locking jack.
5. **AF peak indicator.** Illuminates orange to indicate audio signal is at peak level.
6. **RF indicator.** Illuminates green to indicate RF signal is present.
7. **Removable flexible antenna.** Receives RF signal from the transmitter.
8. **Aux input.** Connect a 3.5 mm line- or mic-level input to this auxiliary input. (Mic- or line-level is selectable by DIP switch inside receiver.) (See page \_\_\_.)

9. **Belt clip.** Attach the receiver to your belt or guitar strap with this belt clip.
10. **Battery door release.** Slide tabs in direction of arrows to open battery compartment door.
11. **Dip switches.**

#### **1—Limiter**

Limits output level to earphones. Up—ON (factory setting); Down—OFF.  
**IMPORTANT:** Leave limiter ON. This setting protects your hearing from unexpected signal peaks; it does not protect your hearing from long-term exposure to high SPLs.

#### **2—Headphones Output.**

Switches headphones output between Mix and Stereo.  
Up—MIX; Down—STEREO.

#### Basic Function

In the Stereo setting (Down) the L1 signal goes to the left earphone; the R2 signal goes to the right earphone.  
In the Mix setting (Up), a combined signal from both the L/1 and R/2 inputs goes to both earphones.

#### Advanced Function

These dip switches interact with the Mode Switch (4) settings (see below). Please see page \_\_\_\_ for diagrams of combined settings.

#### **3—Mic/Line**

The Mic/Line switch changes the auxiliary input from mic level to line level.  
Up—MIC; Down—LINE.  
See page \_\_\_\_ for more information.

#### **4—Mode Switch: Mono/Stereo**

The Mode Switch changes the receiving mode from Mono to Stereo.  
Up—MONO; Down—STEREO.

This switch is used in conjunction with Headphones Output (2) as follows:

#### **Stereo Mode & Stereo Output**

4 in STEREO Mode (Down)  
2 in STEREO Output (Down)

The Stereo/Stereo configuration is used as follows: the L/1 input signal goes to the left earphone; the R/1 input signal goes to the right earphone. Use the receiver's balance control to adjust the stereo image.

#### **Stereo Mode & Mix Output**

4 in STEREO Mode (Down)  
2 in MIX Output (Up)

The Stereo/Mix configuration is used as follows: the signals from both the L/1 and R/2 inputs go to both the left and right earphones. Use the receiver's balance control as follows: turn clockwise to make R/2 louder and L/1 quieter; turn counterclockwise to make L/1 louder and R/2 quieter. (However you adjust the balance control, both the left and right earphones will have the same total volume).

### **Mono Mode & Mix Output**

4 in MONO Mode (Up)  
2 in MIX Output (Up)

The Mono/Mix configuration is used as follows: there is only one output from your mixer (connected to either the L/1 or R/2 input of your transmitter). This signal will go to both left and right earphones.

- 12 Frequency group selector.** Use included miniature screwdriver to select frequency group here. (See *How to select a frequency*, page \_\_\_\_.)
- 13 Frequency channel selector.** Use included miniature screwdriver to select a frequency channel here. (See *How to select a frequency*, page \_\_\_\_.)
- 14 Squelch level.** Use included miniature screwdriver to adjust squelch on receiver, eliminating unwanted background RF noise. Full clockwise is maximum squelch setting (minimum range); full counterclockwise is minimum squelch setting (maximum range). (See *Squelch control*, page \_\_\_\_.)
- 15 Mic volume.** Use included miniature screwdriver to control the level of Aux In (auxiliary input) when using an ambient microphone **Note:** The mic volume control is functional only when DIP switch #3 is in the MIC position (UP). The mic volume control is disabled with DIP switch #3 is in the LINE level position (DOWN).
- 16 Miniature screwdriver.** For selecting frequency group and channel, adjusting squelch level and controlling the level of your auxiliary input.
- 17 Data port.** For factory use only.

## **How to install the batteries in your M2R Stereo Receiver**

Each M2R Stereo Receiver uses two 1.5V AA batteries, not included. Alkaline type is recommended. Always replace all batteries. Make certain the receiver power is Off before replacing batteries.

1. Open the battery compartment door by sliding tabs in the direction of the arrows and rotating the door open.

2. Observe correct polarity as marked and carefully insert two fresh 1.5V AA alkaline batteries
3. Close the door, making certain the latches click securely in place.

**Note:** If the battery indicator LED turns red, replace the batteries.

## System Operation

### Placement:

#### Location

For best operation, place the transmitter near the performance location. The transmitter should be at least 3 ft. from the receiver. Keep antennas away from noise sources such as digital equipment, motors, automobiles and neon lights, as well as away from large metal objects. Audio-Technica recommends that you do not locate the M2T Stereo Transmitter in the same rack with a wireless microphone receiver.

### System set-up:

1. Plug in the included AC adapter and connect to transmitter's DC input.
2. Insert two AA batteries in the receiver, observing polarity as indicated.
3. Set the receiver and transmitter to the same frequency group and frequency channel. (See page \_\_.) **Note:** Do not set more than one transmitter to the same frequency.
4. Power on your receiver (without headphones) with **volume in minimum position**  
**Note:** At this point, check to be certain the RF indicator is not illuminated. If it is illuminated before you have powered on the transmitter, this means the frequency you have chosen is already in use. Choose another frequency.
5. Power on the transmitter.
6. Check the RF LED on your receiver to be certain it is illuminated. (This indicates that it is receiving a signal from the transmitter.)
7. Power off both units (transmitter and receiver).

### Audio set-up:

8. Connect audio source(s) to inputs on the rear panel of the transmitter. There are two combination audio inputs on the back panel; each offers both XLR and 1/4" inputs. Use shielded audio cable for the connection between the transmitter and the audio source (mixer, microphone, or instrument).  
**Note:** If you want to send the audio signal through your transmitter (to another transmitter or recording device, for instance), use the **Loop output** connectors on the back of the M2T Stereo Transmitter. The R/2 XLR jack duplicates the unprocessed signal of the R/2 input; the L/1 XLR jack duplicates the unprocessed signal of the L/1 input. These are not affected by front panel settings.
9. Turn on the transmitter.

10. Set the attenuator on rear panel of transmitter to appropriate level. If connecting a mic level source, set the attenuator to 0 dB. If connecting a line-level source, set the attenuator to -10 dB. If Input Level LEDs are consistently red or orange, set the attenuator to -20 dB or turn the trim down for corresponding audio input.
  11. Trim levels are set at the factory to the maximum position; adjust if necessary. (See page \_\_.)
  12. Plug earphones into jack on receiver. Turn the locking ring clockwise until tight.
- NOTE:** Do not put the headphones in your ears at this point.
13. Turn on receiver with volume in minimum position.
  14. With volume on receiver at **minimum position**, put earphones into your ears and gradually increase volume until appropriate level is reached.

### How to select a frequency

1. Select a frequency group (A-J) via the Frequency Group Selector on the front panel of the M2T Stereo Transmitter.
2. Next, select a channel (1-10) via the Frequency Channel Selector on the front panel of the M2T Stereo Transmitter.
3. Before turning on your receiver, use the provided screwdriver to set the receiver channel selector switches (see page \_\_) to the same frequency group and channel you have selected on the transmitter. Select frequency groups A-J and channels 1-10. The transmitter may be either on or off when changing channels (frequencies).

Each transmitter/receiver system operates on a choice of 100 switch-selected frequencies per band (10 frequencies in 10 frequency groups). Available frequencies are shown in the chart below. In multi-channel systems, always use the same frequency group.

Note that M2R Stereo Receiver and M2T Stereo Transmitters operate either in TV channels 38-43, identified as Band L, or in .... M2 "L" Band transmitters must be used only with "L" Band receivers; the same holds true for all the frequency bands (i.e., always use receivers and transmitters that operate in the same band). The Band marking will be found on the antenna of both the M2T Stereo Transmitter and M2R Stereo Receiver.

Note: Because these frequencies are shared with TV broadcasting (depending on country of use), frequency selection is largely dependent upon which TV broadcast channels are in operation where the wireless system is to be used.

[frequency chart]



## Squelch Control

The squelch control is preset at the factory, but can be adjusted if you must use the system in a high RF interference area. If there is audio output from the receiver when your transmitter is off, adjust the squelch control so the system will receive the signal from your transmitter but “squelch” or eliminate the unwanted background RF noise. This adjustment can cause a reduction in useable range of the wireless transmitter, so set the control to the lowest position which reliably mutes the unwanted RF signals.

## Setting Levels

Correct adjustment of transmitter audio input and receiver audio output is important for optimum system performance.

### *M2T UHF Stereo Transmitter*

The M2T Stereo Transmitter trim (volume) controls (See *L/1 and R/2 trim control*, page ...) have factory pre-set audio input levels. Factory setting is full clockwise, maximum gain. Set the receiver's AF Level control to its full clockwise position (maximum). With a source plugged into the transmitter (at typical levels, check the AF peak indicator on the transmitter. If the AF peak indicator is red, it may be necessary to adjust the transmitter trim control clockwise until the AF peak indicator is illuminated only on audio peaks. No further transmitter trim adjustments should be needed, as long as the acoustic input does not change significantly.

## Aux In jack

The M2R Stereo Receiver offers a ¼” Aux In jack that allows you to add another audio source, such as a click track, or ambient microphone

- To use a condenser microphone as an ambient microphone, select Mic-level on the DIP switch inside receiver (see page \_\_\_\_), plug MT830 Omnidirectional Condenser Lavalier Microphone or equivalent into the Aux In jack, and adjust volume control as needed.
- To use the Aux-in jack as a line-level input, select Line-level on the DIP switch inside the receiver (see page \_\_\_\_), plug line-level source into the Aux In jack.

## System Applications

Basic Stereo Setup

**Need copy to go with Gary's illustrations.**

## Specifications