

M3 System

Wireless In-Ear Monitor System



Features

- **High-fidelity sound with clean, articulate mix allows performers to hear themselves clearly at lower volume**
- **Three receiver modes: Personal Mix, stereo, and mono**
- **Personal Mix Control allows volume and mix control of two independent signals at the receiver**
- **Auxiliary input (switchable) on receiver offers connection point for ambient microphone, click track, or other mic- or line-level input**
- **Up to 1321 selectable UHF frequencies with automatic frequency scanning**
- **Up to 16 simultaneous systems per frequency band**
- **LCD information display offers step-through menus for setting preferences**
- **XLR loop output (true pass-through) connects signal to mixing console, additional IEM system or recording device**
- **Multi-level limiter (defeatable) helps protect hearing from sudden peaks**

Description

The M3 is a frequency-agile in-ear monitor system designed to make stage monitoring more effective, comfortable, portable, and intelligible. This rugged, feature-rich system is built to stand up to the inevitable bumps of life on the road, delivering clear, natural sound for touring and installed-sound applications.

The M3R 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 of two independent signals at the receiver. The clean, articulate mix allows performers to hear themselves at comfortable SPL levels.

The wireless UHF M3T Stereo Transmitter provides a choice of up to 1321 selectable frequencies and is equipped with two XLR-1/4" combination input jacks into which users can connect line-level inputs from a mixing console or other audio source. While up to 16 complete M3 systems may be used on stage simultaneously, any number of M3R stereo receivers may be used on the same frequency with a single M3T stereo transmitter.

The transmitter inputs are equipped with loop-through outputs allowing the audio signal to pass through to another transmitter or device. Two selectable RF output levels on the transmitter allow it to operate successfully on small or large stages or in conjunction with other RF equipment such as wireless microphones and other IEM systems.

Easy-to-use front panel soft-touch transmitter controls and a menu-driven LCD display provide direct access to the transmitter's configuration settings. Along with setup information, the LCD provides real-time visual

indication of the current transmission frequency and audio levels. Additionally, a front panel headphone jack with level control allows the user to monitor the transmitter input signals directly. The rear mounted transmitter antenna is detachable and uses a standard BNC connector allowing the system to operate with external antennas and accessories. A built-in scanning function enables the receiver to quickly find an open available frequency, or the frequency can be set manually.

Using the soft-touch controls, the receiver can be configured for one of three operation modes. Mono mode supplies a mono signal to both ears while stereo mode supplies a true stereo feed with balance control to the ears. The third mode, Personal Mix, enables the user to control the balance between two mono sources providing an on-stage mix control at the receiver. Additionally, a switchable local input is provided for inserting a signal into the receiver. Switchable between mic and line level, this input is typically used with a small ambient microphone worn by the performer. The input can also be used to add in a click track or other audio signal at line or mic level. The auxiliary input level is easily set using the receiver's soft-touch controls.

The receiver incorporates a built-in three-stage limiter to help protect the user's hearing from sudden audio peaks. The three stages allow the user to adjust for the amount of limiting desired. The limiter can also be defeated for situations where upstream processors or other equipment connected to the transmitter provide limiting. A pilot-tone squelch system with user-adjustable squelch level helps minimize RF interference at the receiver when the transmitter is turned off. A standard 3.5 mm locking earphone jack allows the receiver to be used with a wide variety of earphones and headsets. The flexible receiver antenna is removable for field service or storage. The receiver operates using standard 1.5V AA alkaline batteries with an 8-hour battery life. A built-in "battery fuel" gauge on the receiver's LCD display continuously shows the state of the batteries. In addition, a flashing "Low Batt" on the display alerts the user that the batteries are about to expire.

The supplied earphones are equipped with a proprietary Audio-Technica dynamic driver offering a full frequency response and richly detailed high-fidelity sound. The earphones come with three sizes of rubber flexible eartips and universal-fit foam tips for a custom fit, increased isolation and long-wearing listening comfort.

Architect's and Engineer's Specifications

The wireless IEM (In-Ear Monitor) system shall be designed to allow a performer on stage to control and monitor audio signals over headphones or earbud-type phones. The system shall consist of an FM transmitter and one or more FM receivers. The transmitter shall transmit in stereo using one of up to 1321 selectable frequencies. Up to 16 transmitters shall be able to be used simultaneously within the same frequency band. The transmitter shall be equipped with two XLR-1/4" combination connectors designed to accept line-level audio signals either balanced or unbalanced. Loop-through XLR-type outputs shall allow the audio signal to be routed to another transmitter or other audio input with no degradation in signal level or quality. Rear panel attenuators shall provide -20 dB, -10 dB and 0 dB of attenuation to allow the transmitter to be matched to a variety of input signal levels. In addition, input trim level controls shall be provided on the transmitter for gain adjustment. The transmitter shall provide visual indication of operating frequency and audio input signal levels using a backlit LCD display. The LCD display in conjunction with the transmitter's soft-touch controls shall be used for setup and configuration. The system shall provide six pre-coordinated frequency groups of 16 channels. In addition, it shall be possible for the user to select any one of up to 1321 available operating frequencies per band. Two selectable RF output levels (10 mW/50mW) on the transmitter shall enable it to operate successfully on small or large stages or in conjunction with other RF equipment such as wireless microphones and other IEM systems. A front panel headphone jack with independent level control shall be provided to allow the operator to monitor the incoming audio signals. The antenna connection shall be

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located on the rear of the transmitter. The antenna connection shall be 50 ohms designed to operate with standard antennas and wireless accessories. The transmitter shall be designed to operate on 12-18V DC, 600 mA power via the included AC power supply.

The wireless IEM receiver shall be a user-worn device capable of receiving any one of up to 1321 frequencies in the same band as the wireless IEM transmitter. It shall be possible to operate an unlimited number of receivers on the same frequency as the transmitter with no interference. The receiver shall be equipped with an automatic scanning function to enable it to find an open frequency. In addition, the receiver will have six pre-coordinated frequency groups of 16 channels each for ease in multi-system set-ups. A backlit LCD display and soft-touch controls shall be provided on the receiver for access to the receiver configuration settings. When in operation, the display shall show selected frequency and battery fuel remaining. Along with the display, the receiver shall be equipped with independent AF and RF peak LED indicators. The wireless IEM receiver shall provide functionality to allow the user to create his or her own personal mix along with standard mono or stereo receiving operation. It shall be possible to select one of the three operating modes (mono, stereo, or personal mix) by using the soft-touch switches and LCD display on the receiver. When mono mode is selected, the receiver shall output the single (left) channel to both earphones. When stereo mode is selected, the receiver shall output a true left & right stereo image to the earphones. It shall be possible to control the panning and level of the stereo image using the top mounted concentric level/balance controls on the receiver. When in the Personal Mix mode, the receiver shall output both incoming audio channels to both earphones while providing the user the ability to control the overall level of the mix using the receivers level control and balance between the two audio channels using the balance control, creating a unique and independent mix. The receiver shall incorporate an additional auxiliary input with on/off switch and dedicated level control for mixing in a local ambient microphone, click track or other audio signal at the receiver. It shall be possible to set the auxiliary input to accept microphone or line/aux level sources. A +5V DC bias voltage shall be available to operate a condenser microphone capsule connected to the auxiliary input. The receiver shall incorporate pilot-tone squelch with adjustable levels. A built-in 3-stage selectable limiter shall be provided in the receiver to protect the user's hearing against sudden audio peaks. It shall be possible to defeat the limiter for use in applications where peak limiting is provided in equipment ahead of the IEM system. The receiver shall operate on 2 AA-type alkaline batteries providing 8 hours of operation under normal conditions. The batteries shall be under a captive locking cover. The receiver's display shall continuously indicate battery fuel remaining and flash "Low Batt" when the batteries are about to expire. Connection to the earphones shall be by a standard 3.5 mm TRS jack. The jack shall be equipped with threads to allow the use of threaded/locking plugs for a secure mechanical connection. The receiver shall incorporate a field-replaceable, removable whip antenna tuned to the receiver's operating band.

Each receiver shall be supplied with a reversible steel wire belt clip designed to hold the receiver securely to the wearer. Included with each receiver shall be a pair of dynamic ear buds designed for IEM applications. The ear buds shall terminate in a threaded locking 3.5 mm TRS plug designed to mate with the receiver's output jack. The ear buds shall include 3 replaceable rubber eartips along with a set of foam eartips.

The Audio-Technica M3 IEM system is specified.

Specifications

Overall system	
Operating frequency	Band L: 575.000 – 608.000 MHz, 1321 frequencies Band M: 614.000 – 647.000 MHz, 1321 frequencies
Minimum frequency step	25 kHz
Modulation mode	FM stereo
Maximum deviation	±40 kHz
Dynamic range	90 dB (typical), A-weighted
Total harmonic distortion	<1% (at 1 kHz, ±20 kHz deviation)
Operating range	100 m (300'), typical Open range environment with no interfering signals
Operating temperature range	-5° C (23° F) to +50° C (122° F) Battery and LCD performance may be reduced at very low temperatures
Frequency response	60 Hz to 13 kHz (+/- 3 dB)
Simultaneous use	16 channels per band (maximum recommended). For assistance with multi-band operation or other frequency coordination issues, please contact your local Audio-Technica customer service representative.
Components	EP3 Headphones: In-ear dynamic headphones offer high-fidelity sound and excellent isolation. M3T Stereo Transmitter: Wireless UHF transmitter (frequency-agile) offers LCD display and up to 1321 user-selectable frequencies. M3R Stereo Receiver: Personal Mix Control in a lightweight body-pack with backlit LCD display.
M3R stereo receiver	
Receiving system	Double conversion superheterodyne
RF sensitivity	20 dBµV (at 60 dB S/N ratio, 50 ohms termination)
Headphone output connector	3.5 mm TRS stereo phone jack
Headphone output power	65 mW (at 32 ohms)
Antenna input	SMA-type, 50 ohms
Aux input connector	3.5 mm TRS stereo phone jack
Batteries	Two 1.5V AA (not included)
Battery life	8 hours (alkaline) Depending on battery type and use pattern
Dimensions	70.0 mm (2.76") W x 25.0 mm (0.98") D x 110.0 mm (4.33") H
Net weight	133 g (4.7 oz), without batteries
Accessories included	EP3 earphone; flexible antenna
M3T stereo transmitter	
Rf power output	10 mW/50 mW (switchable), 50 ohms Limited to 10 mW within 863 MHz to 865 MHz Following national regulations
Spurious emissions	Following federal and national regulations
Input connections	XLRF-type/6.3 mm stereo (1/4") combination connector Pin 1 and Sleeve: Ground Pin 2 and Tip: Hot Pin 3 and Ring: Cold
Maximum input level	XLRF-type/6.3 mm stereo, (1/4") balanced: +26 dBu 6.3 mm (1/4") mono, unbalanced: +26 dBu
Loop output connector	XLRF-type connector. Pin 1: Ground. Pin 2: Hot. Pin 3: Cold.
Power requirement	12-18V DC, 600 mA
Headphone output connector	6.3 mm (1/4") TRS stereo phone jack
Headphone output power	120 mW at 32 ohms
Antenna connector	BNC, 50 ohms
Dimensions	210.0 mm (8.30") W x 132.0 mm (5.20") D x 44.0 mm (1.70") H
Net weight	930 g (32.8 oz), without accessories
Accessories included	AC adapter (country dependent); rack-mount adapters; flexible antenna

In the interest of standards development, A.T.U.S. offers full details on its test methods to other industry professionals on request.

Specifications are subject to change without notice.



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