

4000 Series



Frequency-agile True Diversity UHF Wireless Microphone Systems

artist elite® wireless systems



Features

- **IntelliScan™** automatic frequency scanning and selection on all linked receivers
- **Two compatible frequency bands with 996 selectable frequencies each**
- **25 kHz frequency spacing makes it easier to find a clear, open frequency in crowded RF environments**
- **True diversity receiver with dual IF design for dropout free and silent automatic switching**
- **Up to 40 systems compatible using both bands**
- **High-efficiency dual companding system for flawless audio**
- **Digital Tone Lock™** squelch that communicates transmitter data to the receiver
- **Adjustable receiver squelch**
- **Receiver internal function menu with soft-touch controls**
- **High visibility white-on-blue LCD receiver status display**
- **All components store up to five preset configurations including names**
- **AC operation**
- **Rear panel front panel or external antenna mount options with 12 V antenna power**
- **Balanced and unbalanced outputs with three-position attenuator**
- **Ground lift switch on balanced output**
- **Headphone output**
- **Flexible 1/2 wave antennas supplied for superior range**
- **Receiver mounts in a single rack space (1 or 2 units)**
- **Transmitter battery life gauge on the front panel**
- **All transmitters offer rugged construction, programmable features, dual RF power output, backlit LCDs, and dual-color power/mute LED**

Description

The 4000 Series frequency-agile true diversity UHF wireless systems set a new standard for audio and RF reception. With a choice of 996 selectable frequencies on each of two UHF bands, 25 kHz frequency spacing enables the system to easily find an open frequency in crowded RF environments. With a large operating range and superb noise specifications, the 4000 Series provides the audio quality and reliability necessary for the most demanding requirements of today's audio systems.

The AEW-R4100 receiver features IntelliScan™ automatic channel assignment system that greatly simplifies the selection of usable frequencies in a multi-channel wireless system and eliminates the need for searching for clear channels. The flexibility in programming both the receiver and transmitters allows the user to customize this wireless system to the needs of virtually any application. The receiver features true diversity reception with two antennas feeding two completely indepen-

dent RF tuner sections. Automatic logic circuitry continuously compares and selects the superior received signal providing better sound quality and reducing the potential for dropouts. A unique dual compander design extends the audio bandwidth of the system and an advanced digital Tone Lock™ squelch helps minimize interference. In addition, the Tone Lock signal from the transmitter also conveys information on the transmitter's battery condition, mute status, and transmitter name back to the receiver for display. All receiver functions are accessed via front panel soft-touch controls with lock-out capability to prevent unauthorized access. The receiver's front panel display provides continuous indication of RF signal strength along with the audio modulation level of the received signal. Features not often found on other receivers include high-pass filter, meter hold function, adjustable squelch, alert indicators on the front panel, and 12V DC power on the antenna connections for powered RF accessories. A front panel headphone connection with level control is provided for audio confidence monitoring. Four user selectable presets allow the ability to store and recall commonly used settings increasing the flexibility of the receiver in multi-use venues.

Designed to operate from mains AC, the receiver incorporates a universal self selecting internal power supply with standard IEC power connector eliminating the need for a wall wart. Each receiver incorporates rear-panel connections for balanced XLR and unbalanced 1/4" outputs with adjustable gain along with detachable BNC 1/2 wave antennas. The receiver is half-width for a standard 1U 19" rack-mount and includes rack-mount adapters.

All transmitters operate using two standard AA batteries and feature high- and low-level RF output settings. The low level setting allows two additional hours of battery life while retaining a strong RF signal link. Each transmitter's backlit LCD display presents a great deal of setup and operating information clearly and conveniently, including battery fuel remaining, mute, and operating frequency. A dual-color power/mute indicator LED provides visual indication of transmitter status. A flashing "Lo-Batt" alert visually signals the battery life is almost depleted. Programmable power/ mute locks limit the functioning of transmitter's power/mute button as desired for particular users and applications. To match the audio input level to the transmitter, a three-position audio input gain setting selected through the function menu is provided. Four user presets allow for storage and recall of commonly used settings. Each handheld transmitter includes a heavy-duty Quiet-Flex™ stand clamp and a soft protective pouch.

The AEW-T1000a UniPak® body-pack transmitter features a safety cover to protect the soft-touch controls from being accidentally activated and a recessed input connector to increase the life of the microphone cable. Inputs are available on the UniPak® for low impedance microphone, and high impedance musical instrument or line input. The UniPak® supplies 5V DC bias to power condenser microphones. The locking 4-pin HRS-type audio input connector is recessed to protect the connection from damage. A dual-color status LED illuminates green when power is on, and red when the transmitter is muted. Constructed of metal, the UniPak® transmitter features a field replaceable whip antenna, a backlit LCD display, and a secure, locking battery compartment door.

The AEW-T5400a large-diaphragm cardioid condenser handheld transmitter features the Artist Elite® AE5400 large-diaphragm true condenser cardioid capsule based on the classic AT4050 studio microphone created for vocal applications. The element's large diaphragm assures an accurate, natural response and delivers pristine sound quality demanded by the most discriminating microphone user. The cardioid polar pattern with outstanding rejection qualities improves isolation of the desired sound source, and the superior anti-shock engineering ensures low handling noise and quiet performance. An internal capsule pad switch provides an additional 6 dB attenuation for high-SPL sources. An integral two-stage pop filter within the rugged steel headcase protects against "p" pops and other breath plosives. All transmitter setup functions are

menu-driven via soft-touch controls. To prevent accidental changes, the controls are covered by the transmitter's handle case when not being used. A dual-color status LED illuminates green when power is on, and red when the transmitter is muted. The rugged ergonomic metal body housing with integral antenna and backlit LCD display will provide years of dependable operation.

The AEW-T3300a cardioid condenser handheld transmitter features the Artist Elite® AE3300 cardioid capsule based on the classic AT4033 studio microphone created for vocal applications. The element's well-tempered polar pattern with outstanding rejection qualities includes internal shock mounts for low handling noise. An internal capsule pad switch provides an additional 6 dB attenuation for high-SPL sources. An integral two-stage pop filter within the rugged steel headcase protects against "p" pops and other breath plosives. All transmitter setup functions are menu-driven via soft-touch controls. To prevent accidental changes, the controls are covered by the transmitter's handle case when not being used. A dual-color status LED illuminates green when power is on, and red when the transmitter is muted. The rugged ergonomic metal body housing with integral antenna and backlit LCD display will provide years of dependable operation.

The AEW-T6100a hypercardioid dynamic handheld transmitter features the Artist Elite® AE6100 hypercardioid capsule created for live sound venues. With a polar pattern tailored for outstanding on-axis response, high output, fast transients and clean articulation, the capsule offers maximum feedback rejection and superior anti-shock engineering for low handling noise. An integral two-stage pop filter within the rugged steel headcase protects against "p" pops and other breath plosives. All transmitter setup functions are menu-driven via soft-touch controls. To prevent accidental changes, the controls are covered by the transmitter's handle case when not being used. A dual-color status LED illuminates green when power is on, and red when the transmitter is muted. The rugged ergonomic metal body housing with integral antenna and backlit LCD display will provide years of dependable operation.

The AEW-T4100a cardioid dynamic handheld transmitter features the Artist Elite® AE4100 cardioid capsule created for live sound venues. The element includes internal shock mounts for low handling noise. An integral two-stage pop filter within the rugged steel headcase protects against "p" pops and other breath plosives. All transmitter setup functions are menu-driven via soft-touch controls. To prevent accidental changes, the controls are covered by the transmitter's handle case when not being used. A dual-color status LED illuminates green when power is on, and red when the transmitter is muted. The rugged ergonomic metal body housing with integral antenna and backlit LCD display will provide years of dependable operation.

Architect's and Engineer's Specifications

The frequency-agile automatic scanning FM wireless system shall consist of a receiver and the appropriate transmitter. Operating in the bands of either 541.500–566.375 MHz or 655.500–680.375 MHz, it shall be capable of operating on any of 996 PLL-synthesized frequencies per band.

The all-metal receiver shall provide an intelligent automatic scanning and frequency plan building function to select and coordinate appropriate local usable channels for proper wireless system operation for all linked receivers. All functions of the receiver shall be controlled by soft-touch controls on the receiver front panel. It shall be a true diversity receiver with two independent internal tuner sections, automatically selecting the highest quality signal for the receiver's output. The receiver shall incorporate a dual compander system for processing high and low audio frequencies separately. The system will be equipped with an advanced Tone Lock™ digital identification system to ensure that only the desired wireless microphone transmitter allows the receiver to be un-muted. The receiver shall have four operator indicators on the front panel: Transmitter low battery warning, signal loss, input overload and transmitter power

setting. The receiver shall continuously monitor and display the battery life indicator of the associated wireless transmitter, the RF signal strength and the selection of internal dual tuner sections (A&B). A high-visibility white-on-blue receiver display shall be provided to monitor receiver functions and shall be visible in both bright and low light conditions. The display in conjunction with front panel soft-touch controls shall be used to configure and set up the receiver's operating parameters. It shall be possible to show the receiver or transmitter name on the display in alphanumeric characters. Four selectable, namable user presets shall be provided to store and recall receiver parameters. It shall be possible to lockout all receiver front panel controls to prevent unauthorized operation. A front panel headphone connection with independent output level control shall be provided for audio confidence monitoring. The receiver shall have a rear panel selector to lift the ground connection from pin 1 of the XLR-type output connector to prevent ground loops. A three-position audio output attenuator shall be located on the rear panel to match the receiver output to ancillary equipment. The receiver shall be able to be powered by 100–240V AC 50–60 Hz and incorporate a detachable power cable assembly using standard IEC connections. Antennas shall be located on the rear of the receiver and shall utilize standard BNC-type connectors to allow them to be detached from the receiver to facilitate the receiver being used with external antennas or antenna distribution devices. It shall be possible to move the antennas to the front of the receiver if desired. Switchable 12V DC antenna power shall be provided to power external active antenna system devices. The receiver's design shall provide totally silent audio output muting when the wireless transmitter is turned off or signal is lost. The wireless receiver and the supplied metal rack-mounting brackets shall be industrial black. The receiver can be rack-mounted singly or in pairs in a single rack space.

The frequency-agile FM wireless body-pack transmitter shall have microphone and line level inputs. It shall provide DC voltage to power microphones requiring DC bias. The body-pack transmitter shall have a reversible clothing clip allowing for up or down cable entry. The transmitter shall have a recessed 4-pin locking input connector and a viewable fuel gauge to indicate the remaining battery life. Operating in the bands of either 541.500–566.375 MHz or 655.500–680.375 MHz, it shall be capable of operating on any of 996 PLL-synthesized frequencies per band, selected with the soft-touch controls under the safety panel.

The device shall have a dual-color LED indicator to indicate when it is turned on or muted. A backlit LCD display shall be provided to show system configuration parameters, transmitter name, or frequency. There shall be an adjustment to allow input gain changes of up to 18 dB. A soft-touch mute/power control shall operate independently from the configuration controls. It shall be possible to electrically lock the transmitter mute/power function. The transmitter shall utilize a dual-compander system to process high and low audio frequencies separately and shall incorporate a digital tone lock to identify the wireless transmitter to the wireless receiver. A digital communications protocol shall enable the transmitter to send operational function data to the receiver. The transmitter shall utilize two RF output power levels and shall operate on two AA batteries. The transmitter battery compartment shall be locking. All adjustments shall be via soft-touch controls and shall remain as set even if the transmitter loses power or the batteries are removed. A sliding cover shall protect the controls from unauthorized access. It shall be possible to store transmitter settings into one of four namable user presets for ease of recall. The transmitter shall have a removable and field replaceable antenna. A short rigid helical antenna and a flexible wire antenna shall be supplied with the transmitter.

The frequency-agile FM wireless handheld transmitter utilizing a high quality large-diaphragm condenser cardioid element shall be a part of a wireless microphone system operating in the bands of 541.500–566.375 MHz or 655.500–680.375 MHz. The capsule shall be based on an Audio-Technica AT4050 studio microphone and provide accurate natural response. The capsule shall incorporate internal shock mounting and have

a two-stage integral pop filter. It shall be capable of transmitting on any of 996 frequencies per band. A 6 dB internal capsule pad switch shall provide additional attenuation for high-SPL sound sources. A dual-color LED indicator shall illuminate green when the transmitter is turned on and shall illuminate red when the transmitter is muted. A backlit LCD display shall be provided to show system configuration parameters, transmitter name, or frequency. A soft-touch mute/power control shall operate independently from the configuration controls. It shall be possible to electrically lock the transmitter mute/power function. The transmitter shall utilize a dual-comander system to process high and low audio frequencies separately and shall incorporate a digital tone lock to identify the wireless transmitter to the wireless receiver. A digital communications protocol shall enable the transmitter to send operational function data to the receiver. The microphone shall have an audio input level adjustment range of up to 18 dB. All adjustments shall be via soft-touch controls and shall remain as set even if the transmitter loses power or the batteries are removed. The transmitter shall operate on two AA batteries and contain a hi/lo power selector. A battery fuel gauge shall be incorporated to indicate the status of the internal batteries. It shall be possible to store transmitter settings into one of four namable user presets for ease of recall. It shall have a metal housing with an internal antenna and plastic antenna end cap. The transmitter shall be supplied with a heavy-duty stand clamp.

The frequency-agile FM wireless handheld transmitter utilizing a high quality condenser cardioid element shall be a part of a wireless microphone system operating in the bands of 541.500–566.375 MHz or 655.500–680.375 MHz. The capsule shall be based on an Audio-Technica AT4033 studio microphone and provide accurate response. The capsule shall incorporate internal shock mounting and have a two-stage integral pop filter. It shall be capable of transmitting on any of 996 frequencies per band. A 6 dB internal capsule pad switch shall provide additional attenuation for high-SPL sound sources. It shall be a metal housing with a plastic antenna end cap. A dual-color LED indicator shall illuminate green when the transmitter is turned on and shall illuminate red when the transmitter is muted. A backlit LCD display shall be provided to show system configuration parameters, transmitter name, or frequency. A soft-touch mute/power control shall operate independently from the configuration controls. It shall be possible to electrically lock the transmitter mute/power function. The transmitter shall utilize a dual-comander system to process high and low audio frequencies separately and shall incorporate a digital tone lock to identify the wireless transmitter to the wireless receiver. A digital communications protocol shall enable the transmitter to send operational function data to the receiver. The microphone shall have an audio input level adjustment range of up to 18 dB. All adjustments shall be via soft-touch controls and shall remain as set even if the transmitter loses power or the batteries are removed. The transmitter shall operate on two AA batteries and contain a hi/lo power selector. A battery fuel gauge shall be incorporated to indicate the status of the internal batteries. It shall be possible to store transmitter settings into one of four namable user presets for ease of recall. The transmitter shall be supplied with a heavy-duty stand clamp.

The frequency-agile FM wireless handheld transmitter utilizing a dynamic cardioid element shall be a part of a wireless microphone system operating in the bands of 541.500–566.375 MHz or 655.500–680.375 MHz. The capsule shall incorporate internal shock mounting and have a two-stage integral pop filter. It shall be capable of transmitting on any of 996 frequencies per band. It shall have a metal housing with a plastic antenna end cap. A dual-color LED indicator shall illuminate green when the transmitter is turned on and shall illuminate red when the transmitter is muted. A backlit LCD display shall be provided to show system configuration parameters, transmitter name, or frequency. A soft-touch mute/power control shall operate independently from the configuration controls. It shall be possible to electrically lock the transmitter mute/power function. The transmitter shall utilize a dual-comander system to process high and low audio frequencies separately and shall incorporate a digital tone lock to identify the wireless transmitter to the wireless receiver. A digital

communications protocol shall enable the transmitter to send operational function data to the receiver. The microphone shall have an audio input level adjustment range of up to 18 dB. All adjustments shall be via soft-touch controls and shall remain as set even if the transmitter loses power or the batteries are removed. The transmitter shall operate on two AA batteries and contain a hi/lo power selector. A battery fuel gauge shall be incorporated to indicate the status of the internal batteries. It shall be possible to store transmitter settings into one of four namable user presets for ease of recall. The transmitter shall be supplied with a heavy-duty stand clamp.

The frequency-agile FM wireless handheld transmitter utilizing a high quality dynamic hypercardioid element shall be a part of a wireless microphone system operating in the bands of 541.500–566.375 MHz or 655.500–680.375 MHz. The capsule shall incorporate internal shock mounting and have a two stage integral pop filter. It shall be capable of transmitting on any of 996 frequencies per band. It shall have a metal housing with a plastic antenna end cap. A dual-color LED indicator shall illuminate green when the transmitter is turned on and shall illuminate red when the transmitter is muted. A backlit LCD display shall be provided to show system configuration parameters, transmitter name, or frequency. A soft-touch mute/power control shall operate independently from the configuration controls. It shall be possible to electrically lock the transmitter mute/power function. The transmitter shall utilize a dual-comander system to process high and low audio frequencies separately and shall incorporate a digital tone lock to identify the wireless transmitter to the wireless receiver. A digital communications protocol shall enable the transmitter to send operational function data to the receiver. The microphone shall have an audio input level adjustment range of up to 18 dB. All adjustments shall be via soft-touch controls and shall remain as set even if the transmitter loses power or the batteries are removed. The transmitter shall operate on two AA batteries and contain a hi/lo power selector. A battery fuel gauge shall be incorporated to indicate the status of the internal batteries. It shall be possible to store transmitter settings into one of four namable user presets for ease of recall. The transmitter shall be supplied with a heavy-duty stand clamp and a soft protective pouch.

The wireless system shall be an Audio-Technica
(Note to specifier: choose one)

AEW-4110a – Basic Body-pack (AEW-T1000a) System
AEW-4230a – Condenser (AEW-T3300a) Handheld System
AEW-4240a – Dynamic (AEW-T4100a) Handheld System
AEW-4250a – Condenser (AEW-T5400a) Handheld System
AEW-4260a – Dynamic (AEW-T6100a) Handheld System
AEW-4313a – Dual Transmitter System (AEW-T1000a, AEW-T3300a)
AEW-4314a – Dual Transmitter System (AEW-T1000a, AEW-T4100a)
AEW-4315a – Dual Transmitter System (AEW-T1000a, AEW-T5400a)
AEW-4316a – Dual Transmitter System (AEW-T1000a, AEW-T6100a)

4000 Series

Specifications

Overall system	
UHF operating frequencies	Band C: 541.500–566.375 MHz; Band D: 655.500–680.375 MHz
Number of frequencies	996 total per band (25 kHz increments)
Frequency stability	±0.005%, Phase Lock Loop frequency control
Modulation mode	FM
Normal deviation	±5 kHz
Operating range	300' typical
Operating temperature range	5° C (41° F) to 45° C (113° F)
Frequency response	70 Hz to 15 kHz

AEW-R4100 receiver	
Receiving system	Dual independent RF sections, automatic-switching diversity
Image rejection	60 dB typical
Signal-to-noise ratio	115 dB at 40 kHz deviation (IEC-weighted, 75 kHz maximum modulation)
Total harmonic distortion	≤1% (10 kHz deviation at 1 kHz)
Sensitivity	20 dBμV (S/N 70 dB at 5 kHz deviation, IEC-weighted)
Intermediate frequency	65.75 MHz, 10.7 MHz
Audio output (attn switch at "0")	Microphone: 25 mV (at 1 kHz, ±5 kHz deviation, 10k ohm load), Instrument: 50 mV (at 1 kHz, ±5 kHz deviation, 10k ohm load)
Audio output attenuator (ATTN)	Three-position switch: 0 / –6 / –12 dB
Output connectors	Microphone: XLRM-type (balanced); Instrument: 6.3 mm (1/4") TS unbalanced phone jack
Headphone output	Connector: 6.3 mm (1/4") TRS ("stereo") phone jack; Power output: 10 mW + 10 mW at 1 kHz, ±5 kHz deviation into 32 ohms; maximum output, 220 mW + 220 mW into 32 ohms
Antenna power	DC 10V-12V, 20 mA (BNC-type jack)
Power supply	100-240V AC 50/60 Hz, 8W
Dimensions	211.0 mm (8.31") W x 235.0 mm (9.26") D x 44.0 mm (1.74") H
Net weight	1.7 kg (3.8 lbs)
Accessories included	Detachable IEC-type AC power cable; two flexible UHF half-wave antennas; link cable; rack-mount adapters

AEW-T1000a UniPak® transmitter	
RF power output	High: 35 mW; Low: 10 mW, nominal
Spurious emissions	Under federal regulations
Dynamic range	Microphone: ≥110 dB, A-weighted Instrument: ≥100 dB, A-weighted
Input connections	High impedance, low impedance, bias
Batteries	Two 1.5V AA alkaline (not included)
Current consumption	High: 185 mA; Low: 165 mA, typical
Battery life	Approximately 8 hours (High); 10 hours (Low), depending on battery type and use pattern
Dimensions	66.0 mm (2.60") W x 24.0 mm (0.94") D x 87.0 mm (3.43") H
Net weight	125 g (4.4 oz) (without batteries)
Accessory Included	Pouch

AEW-T3300a, AEW-T4100a, AEW-T5400a, AEW-T6100a handheld transmitters

RF power output	High: 35 mW; Low: 10 mW, nominal
Spurious emissions	Under federal regulations
Dynamic range	≥110 dB, A-weighted
Microphone element	AEW-T3300a: Cardioid Condenser AEW-T4100a: Cardioid Dynamic AEW-T5400a: Cardioid Condenser AEW-T6100a: Hypercardioid Dynamic
Batteries	Two 1.5V AA alkaline (not included)
Current consumption	High: 185 mA; Low: 165 mA, typical
Battery life	Approximately 6 hours (High); 8 hours (Low), depending on battery type and use pattern
Dimensions	AEW-T3300a, AEW-T5400a: 239.0 mm (9.41") long, 50.0 mm (1.97") diameter AEW-T4100a, AEW-T6100a: 237.0 mm (9.33") long, 48.0 mm (1.89") diameter
Net weight	AEW-T3300a: 270 g (9.5 oz) AEW-T4100a: 276 g (9.7 oz) AEW-T5400a: 285 g (10.0 oz) AEW-T6100a: 275 g (9.7 oz) (without batteries)
Accessories included	AT8456a Quiet-Flex™ stand clamp, pouch

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.



Audio-Technica U.S., Inc., 1221 Commerce Drive, Stow, Ohio 44224
Audio-Technica Limited, Old Lane, Leeds LS11 8AG England
©2010 Audio-Technica U.S., Inc. audio-technica.com

0001-0015-01