ARTIST ELITE®

4000 & 5000 Series
Professional UHF Wireless Systems

Installation and Operation

audio-technica®

Professional UHF Wireless Systems

Installation and Operation

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.

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.

CAUTION RISK OF ELECTRIC SHOCK DO NOT OPEN	AVIS RISQUE DE CHOC ÉLECTRIQUE NE PAS OUVRIR

To prevent electric shock, do not remove the cover. There are no user-serviceable parts inside. Internal adjustments are for qualified professionals only. Refer all servicing to qualified service personnel.

Pour prévenir un choc électrique, ne pas ouvrir le couvercle. Il n'y aucune pièces de rechanges à l'intérieur. Tout ajustement interne doit être fait par une personne qualifié seulement. Référez tout réparation au personnel qualifié.

WARNING: This apparatus must be grounded.
This product is a safety class 1 product. There must be an uninterruptible safety earth ground from the main power source to the product's AC input. Whenever it is likely that the protection has been impaired, disconnect the power cord until the ground has been restored.

ATTENTION: Cet appareil doit être mise à la terre.
Cet appareil est de classe de sûreté 1. Il doit y avoir un ininterrompable de mise à la terre de sécurité provenant de la source principale de courant de l'appareil de l'entrée du courant alternatif. Quand la protection a été affaiblie, débrancher le fil de courant jusqu'à la mise à terre a bien été réétablie.

The detachable IEC type power cords supplied are intended for use in regions with mains voltage in the range of 100–125VAC only. Use only the furnished power cord that includes the appropriate NEMA 5-15P/ANSI C73.11 type attachment plug.

For use in geographical areas with mains voltage outside of the range 100–125VAC, it is necessary for the user to utilize a power cord rated and configured for operation in their region. Replace the supplied power cord with a cord rated for correct voltage 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 exposé l'appareil à la pluie ou à l'humidité.

CAUTION: For continued protection against fire hazard, replace only with same type/rating of fuse.

AVIS: Pour poursuivre la protection contre le feu, replacez la fusible de même type/cote.

WARNING: There are some sharp edges inside. To reduce the risk of injury, do not remove cover.

ATTENTION: Bord tranchant à l'intérieur. Pour réduire le risque de blessure, ne pas ouvir le couvercle.

Notice to individuals *with implanted cardiac pacemakers or AICD devices:*

Any source of RF (radio frequency) energy *may* interfere with normal functioning of the implanted device. All wireless microphones have low-power transmitters (less than 0.05 watts output) which are unlikely to cause difficulty, especially if they are at least a few inches away. However, since a "body-pack" mic transmitter typically is placed against the body, we suggest attaching it at the belt, rather than in a shirt pocket where it may be immediately adjacent to the medical device. Note also that *any medical-device disruption will cease when the RF transmitting source is turned off*. Please contact your physician or medical-device provider if you have any questions, or experience any problems with the use of this or any other RF equipment.

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Thank you for choosing an Audio-Technica professional wireless system. You have joined thousands of other satisfied customers who have chosen our products because of their quality, performance and reliability. This Audio-Technica wireless microphone system is the successful result of years of design and manufacturing experience.

Recent advances in the quality and sophistication of professional live-sound systems have been nothing short of revolutionary. Tours, clubs, broadcast events, corporate facilities and worship venues sound better than ever, utilizing better system design and better components in the audio chain.

That's why Audio-Technica has been partnering with industry professionals on the front line of this revolution – the top touring companies, award show designers, FOH and monitor engineers, audio consultants and artists – to learn what it takes to make the best-sounding, most reliable and consistent microphones for the live-sound industry.

We listened carefully. Then, we applied this knowledge to the creation of the Artist Elite® line of high-performance microphones and wireless systems. Our ultimate design goal was this: Each model must extend the performance of a sound system, not limit it.

Artist Elite Receivers

Artist Elite 4000 Series and 5000 Series wireless systems by Audio-Technica share a range of transmitters in common, both body-pack and handheld types. The difference between the two series is simply in the choice of receiver:

4000 Series AEW-R4100 half-rack single receiver with multi-unit, multi-channel control linking.

5000 Series AEW-R5200 full-rack independent dual receiver with multi-unit, multi-channel control linking, plus Ethernet computer-control connection, and software for graphical user interface.

IntelliScan™ Channel Assignment System

The IntelliScan™ automatic channel assignment system, provided on both the 4000 and 5000 Series receivers, greatly simplifies the selection of usable frequencies in a multi-channel wireless system. The receivers are first linked together with included communication cables. The selected "Master" receiver then "knows" how many total channels it is looking for. It can scan the available frequencies, checking for local interference sources, selecting a group of channels that will all work together (using a built-in frequency plan), and automatically setting the other receivers accordingly. Once this procedure is completed, it's just a matter of setting the transmitter frequencies to match those of the receivers.

Artist Elite Transmitters

Transmitter models in the Artist Elite Series include:

A UniPak™ body-pack transmitter:

- **AEW-T1000** UniPak™ body-pack transmitter

Four handheld mic/transmitters with different Artist Elite microphone capsules:

- **AEW-T3300** Handheld mic/transmitter with AEW-C3300 cardioid condenser capsule
- **AEW-T4100** Handheld mic/transmitter with AEW-C4100 cardioid dynamic capsule
- **AEW-T5400** Handheld mic/transmitter with AEW-C5400 cardioid condenser capsule
- **AEW-T6100** Handheld mic/transmitter with AEW-C6100 hypercardioid dynamic capsule

All components in the 4000/5000 Series may be used together in a variety of unit combinations and system configurations to create extremely flexible and powerful solutions for a variety of applications.

4000 Series System Configurations

System	Receiver	Transmitter		
		UniPak™	Handheld	
		Body-pack	Condenser	Dynamic
Body-pack System				
AEW-4110	AEW-R4100	AEW-T1000	—	—
Handheld Systems				
AEW-4230	AEW-R4100	—	AEW-T3300	—
AEW-4240	AEW-R4100	—	—	AEW-T4100
AEW-4250	AEW-R4100	—	AEW-T5400	—
AEW-4260	AEW-R4100	—	—	AEW-T6100
Two-Transmitter Systems				
AEW-4313	AEW-R4100	AEW-T1000	AEW-T3300	—
AEW-4314	AEW-R4100	AEW-T1000	—	AEW-T4100
AEW-4315	AEW-R4100	AEW-T1000	AEW-T5400	—
AEW-4316	AEW-R4100	AEW-T1000	—	AEW-T6100

Note: All model numbers have an additional letter at the end to indicate frequency band.

5000 Series System Configurations

System	Receiver	Transmitter		
		UniPak™	Handheld	
		Body-pack	Condenser	Dynamic
Dual Body-pack System				
AEW-5111	AEW-R5200	AEW-T1000 (2)	—	—
Dual Handheld Systems				
AEW-5233	AEW-R5200	—	AEW-T3300 (2)	—
AEW-5244	AEW-R5200	—	—	AEW-T4100 (2)
AEW-5255	AEW-R5200	—	AEW-T5400 (2)	—
AEW-5266	AEW-R5200	—	—	AEW-T6100 (2)
Dual Systems with Body-pack and Handheld Transmitters				
AEW-5313	AEW-R5200	AEW-T1000	AEW-T3300	—
AEW-5314	AEW-R5200	AEW-T1000	—	AEW-T4100
AEW-5315	AEW-R5200	AEW-T1000	AEW-T5400	—
AEW-5316	AEW-R5200	AEW-T1000	—	AEW-T6100
Dual Systems with Pairs of Body-pack and Handheld Transmitters				
AEW-5413	AEW-R5200	AEW-T1000 (2)	AEW-T3300 (2)	—
AEW-5414	AEW-R5200	AEW-T1000 (2)	—	AEW-T4100 (2)
AEW-5415	AEW-R5200	AEW-T1000 (2)	AEW-T5400 (2)	—
AEW-5416	AEW-R5200	AEW-T1000 (2)	—	AEW-T6100 (2)

Note: All model numbers have an additional letter at the end to indicate frequency band.

Operating Frequencies

4000/5000 Series systems and components operate on 200 frequencies in one of two 25 MHz-wide UHF frequency ranges:

- **Band C** 541.500–566.375 MHz (TV Channels 25–30)
- **Band D** 655.500–680.375 MHz (TV Channels 44–49)

For simplicity, model numbers used throughout this manual will reference only the basic model number without the "C" or "D" band indications.

Artist Elite Series components feature an advanced digital Tone Lock™ squelch system and unique Dual Compander design (patents pending). As a result, Artist Elite Series transmitters and receivers must be used together in Tx-Rx pairs and should not be mixed with components from other Audio-Technica wireless systems, or with those of other manufacturers.

All Artist Elite Series components feature soft-touch controls for quick, easy access to a formidable range of functions; an LCD information display in each unit provides convenient visual indication of unit settings and operation. Digital data sent by the transmitters is available for display on the receivers.

Receivers

Both Artist Elite receiver models feature True Diversity reception. Two antennas feed two completely independent RF sections on the same frequency; automatic logic circuitry continuously compares and selects the superior received signal, providing better sound quality and reducing the possibility of interference and dropouts.

Both receivers offer a choice of 200 operating frequencies in a 25 MHz-wide UHF frequency range. AEW wireless are designed with a channel spacing that exceeds the transmitters' maximum modulation deviation, so even adjacent channels are actually usable, unlike some other wireless systems on the market. (For operation of two or more systems at the same time, use the IntelliScan function for frequency selection or, if setting the frequencies manually, use frequencies that are within the same IntelliScan groups listed on page 30.)

AEW-R4100: A single synthesized UHF receiver in a half-rack 1U case. Its power supply operates on 100–240V 50/60 Hz AC power worldwide with the appropriate IEC-type power input cordset.

AEW-R5200: Two independent synthesized UHF receiver channels in a full-rack 1U case. Its common power supply operates on 100–240V 50/60 Hz AC power worldwide with the appropriate IEC-type power input cordset. In addition, a "pass-through" AC outlet on each receiver with included AC jumper cable permits daisy-chaining of an entire AEW-R5200 receiver stack, freeing AC outlets for other equipment.

Multi-channel Systems

Artist Elite systems provide extensive monitoring and control facilities. Transmitter data, in addition to being available at the transmitter, is conveyed in digital form to and displayed on the associated receiver.

Linked systems: Both Artist Elite receivers provide linking jacks and cables. AEW-R4100 and AEW-R5200 receivers may be combined in linked multi-channel systems, if desired.

Ethernet-based monitoring and control (AEW-R5200): Some wireless systems on the market offer remote control/monitoring of the receiver via a serial interface, but the Audio-Technica AEW-R5200 receiver takes this a significant step further by including control over IP using standard networking protocol and Ethernet interfacing. This permits receivers in a system to be integrated, monitored and controlled from a single computer in real-time. And not only can an individual channel of an individual receiver be examined and its settings modified: if the transmitter on that channel is activated, thanks to the digital data link, data from the associated transmitter can also be monitored.

Because standard control over IP is used, Ethernet-connected AEW systems can range from a single laptop controlling a free-standing multi-channel system, to local area network-based systems, to systems controlled via the Internet, even from great distances. Complete setup and operating information for computer-connected AEW systems will be found in the separate Computer Interface manual provided with AEW-R5200 receivers and 5000 Series systems.

Transmitters

The versatile AEW-T1000 UniPak™ body-pack transmitter features a metal case and includes field-replaceable helical and flexible-wire antennas. It has both low- and high-impedance inputs plus a bias connection, for use with dynamic and electret condenser microphones, as well as Hi-Z instrument pickups. In addition to its programmable functions, the transmitter includes a three-position sliding control cover to limit access, if desired, to only the Power/Mute button, or to no controls at all, as appropriate for the application and/or user.

The handheld microphone/transmitters feature metal-body construction. Four models are available, incorporating a variety of capsules from the Artist Elite wired-microphone series created for professional live-sound venues.

All Artist Elite Series transmitters use two 1.5V AA batteries for economical operation and wide availability. The receiver and both transmitters have "fuel gauge" battery condition indicators with low-battery warnings.

Please note that in multiple-system applications there must be a transmitter-receiver combination set to a separate frequency for each input desired (only one transmitter for each receiver). Because the wireless frequencies are within UHF TV frequency bands, only certain operating frequencies may be usable in a particular geographic area. Also, only certain of the available operating frequencies may be used together. Operating frequencies and IntelliScan frequency groupings will be found on pages 29-30. (Use of the IntelliScan channel assignment system will determine and set appropriate frequencies automatically.)

Receiver Installation

Location

For best operation the receiver should be at least 3 ft. (1 m) above the ground and at least 3 ft. away from a wall or metal surface to minimize reflections. The transmitter should be at least 3 ft. from the receiver, as shown in Figure A. Keep antennas away from noise sources such as digital equipment, motors, automobiles and neon lights, as well as away from large metal objects.

Output Connections

There are two audio outputs on the back panel: an XLR Mic Output (25 mV) and a 1/4" (6.3 mm) phone jack Instrument Output (50 mV). The two isolated audio outputs permit simultaneous feeds to two different inputs.

AEW-R4100: This receiver offers a balanced XLR Mic jack and an unbalanced Instrument 1/4" TS phone jack. Output levels of both are adjusted by the rear-panel Attenuator (ATTN) switch.

AEW-R5200: Since there are two independent channels of receiver in the AEW-R5200, there are two sets of output jacks. All audio outputs on the AEW-R5200 are transformer-isolated and balanced. The ground connections of both outputs on each receiver channel may be interrupted ("lifted") by use of their associated Ground Lift switch. This permits feeding mixers with different ground levels without an additional external splitter. The Instrument output is a balanced 1/4" TRS jack with "audio +" on the Tip, "audio –" on the Ring and ground (shield) on the Sleeve. The rear-panel Attenuator (ATTN) switch for each receiver channel adjusts levels of both outputs in its channel.

Use the appropriate shielded audio cable for connections between the receiver and the input(s) of the mixer or other equipment.

Antennas

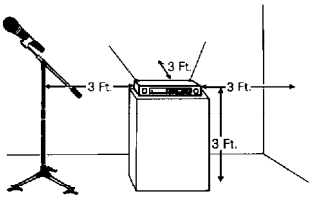
Attach a pair of UHF antennas to the antenna input jacks. The antennas are normally positioned in the shape of a "V" (both 45° from vertical) for best reception. In addition to rotating at the connector, the included half-wave antennas pivot from straight to right-angle.

Antennas can be remotely located from the receiver. However, due to signal loss in cables at UHF frequencies, use the lowest-loss RF cables practical for any cable runs over 25 feet. RG8-type is a good choice. Use only copper-shielded cable, not CATV-type foil-shielded wire. Audio-Technica offers auxiliary antennas, and quality RF cables in four lengths; see the Optional System Accessories section on page 28.

Antenna Power

The antenna input jacks also can provide +12V DC output on their center pins to power inline RF devices. A maximum of 20 mA can be drawn from each of the jacks. While an accidental short-circuit will not harm the internal 12V supply, make certain that an antenna cable shield does not contact the center conductor. Antenna Power ("*ANT.PWR*") is selected (switched on or off) from the LCD menu. (On the AEW-R5200, Antenna Power will be found in the menu on Channel 1 only.)

Figure A



Front-mount Antennas

AEW-R4100: Provision has been made to move the antenna jacks from the rear to the front of the receiver. However, because this involves opening the receiver case and exposing AC power circuitry, instructions are not included in this manual. A qualified service technician must perform this modification.

AEW-R5200: BNC-to-BNC connectors and jumper cables are included with the unit to permit mounting antennas on the front panel.

- BNC-BNC through-panel connectors: Remove the nut and lock-washer from each connector. Install the connectors ***from the front*** into the two panel holes. Note that the flat on the threaded section must be aligned with the flat in each panel hole. Secure each connector from the back with its lock-washer and nut, tightening the nut firmly.
- BNC-BNC cable jumpers: Connect the jumpers to the rear antenna jacks first; then attach them to the BNC connectors on the front panel. Make certain the bayonet twist-rings are ***fully latched*** on the connectors at both ends.

Headphone Jack

A headphone jack on the front panel provides monitoring of the receiver's output. The 1/4" TRS jack is intended for use with stereo headphones. The Phones Level control affects the headphone jack only. Note: On an operating unit, ***be careful not to press the Power switch accidentally when inserting a headphone jack or adjusting the headphone level.*** In addition to interrupting receiver operation, even a momentary loss of power to a single unit within a linked multi-channel system will cause the loss of linking connection to the affected receiver and all those "downstream" from it.

AEW-R5200: Press and release the Phones Level control knob to switch headphone monitoring from Channel 1 to Channel 2 and back again. Small, lighted indicators just above the knob show which receiver channel is being monitored.

Power Connections

The switching power supply is designed to operate properly from any AC power source 100–240V, 50/60 Hz without user adjustment. Simply connect the receiver to a standard AC power outlet, ***using only an IEC-type input cordset approved for the country of use.*** Power to the unit is controlled by the front-panel Power switch.

AEW-R5200: An auxiliary AC "jumper" (pass-through) outlet is provided on the rear panel, and a "jumper" power cordset is included, to simplify power connections by "daisy-chaining" an array of AEW-R5200's. Maximum output from the auxiliary outlet is 5 Amperes, which will easily handle a full complement of AEW-R5200 units.

"Link" Connections

Artist Elite Series multi-channel systems can comprise all AEW-R4100, all AEW-R5200, or combinations of AEW-R4100 and AEW-R5200 receivers. The exclusive IntelliScan™ channel assignment system provides easy, automatic scanning of the RF spectrum and assignment of usable, compatible frequencies to all linked AEW receiver channels.

Both AEW receiver models can be interconnected using Link In/Out jacks and included link cables. In addition, the AEW-R5200 offers a built-in Ethernet 10 BaseT connection, with interface software provided on CD-ROM. See the separate AEW Control Interface manual provided with AEW-R5200 receivers and 5000 Series systems.

All AEW receivers in a linked multi-channel system should be interconnected with included link cables. When the system is properly configured, the "slave" units will "link data in" to the "Master" unit. (See Figure B for an example.)

1. First, decide which receiver will be the "Master" unit. Connect a link cable to the **Link In** jack ***only***. (In an AEW-R5200, the Channel 1 unit is the Master and Channel 2 becomes the first "slave.")

2. Connect the free end of the link cable from the Master unit (in #1 above) to the **Link Out** jack of the desired "next" unit.

3. Connect one end of a new link cable to the **Link In** jack of the unit in #2 above.

4. Connect the free end of the link cable from the unit in #2 above to the **Link Out** jack of the desired "next" unit.

5. Continue this process of "daisy-chaining" the system's receivers together with link cables. The "last" unit in the system will have a cable connected to its **Link Out** jack, but ***no*** connection to its **Link In** jack.

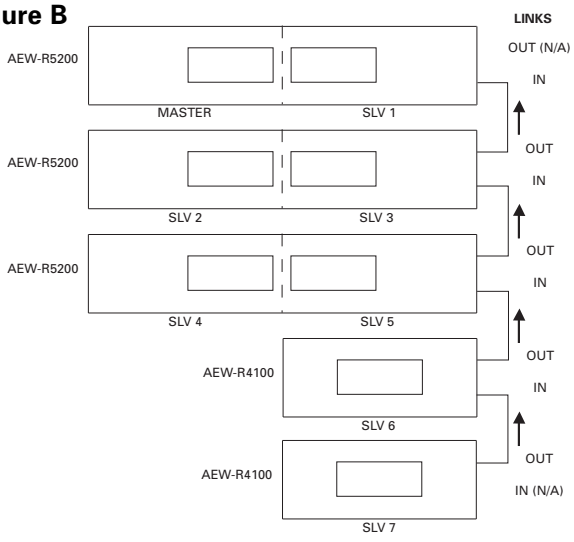
Installing link cables starting with the last slave unit and working toward the Master unit is also acceptable practice.

The attachment order of link cables establishes the numerical order of the receivers in the multi-channel system, from the selected Master unit through all the slave units. (In the case of AEW-R5200 receivers, a unit's Channel 1 always comes before its Channel 2.) In a multi-channel system that includes both models of receivers, it's common practice to position all the AEW-R5200 units ***first*** in the chain; followed any AEW-R4100 units.

Note 1: For the receiver linking to work, all receivers in the system must have AC power applied ***at the same time***, or the Master receiver must be turned on ***last***.

Note 2: In addition, if AC power is interrupted or a link connection is broken at ***any*** receiver in a linked system, ***even for an instant***, receivers from that unit onward are no longer linked to the system. When all power and linking have been restored, ***the system must be restarted by turning all the receivers Off, then On*** (all turned on simultaneously, or the Master receiver must be turned on ***last***). This will re-initialize the system and re-establish all the data links.

Figure B



Receiver Installation (Continued)

Ethernet connections (AEW-R5200): An RJ-45 jack on the rear panel of each AEW-R5200 provides an Ethernet 10 BaseT data/control connection from both of its channels to an external computer system. Data monitored includes actual, real-time "*RF*" and "*AF*" levels for receiver channels with ***direct*** Ethernet connections to the associated computer. All other linked receivers in a system supply control-function access and all their data – except for "*RF*" and "*AF*" levels – to the computer connected to the Master receiver.

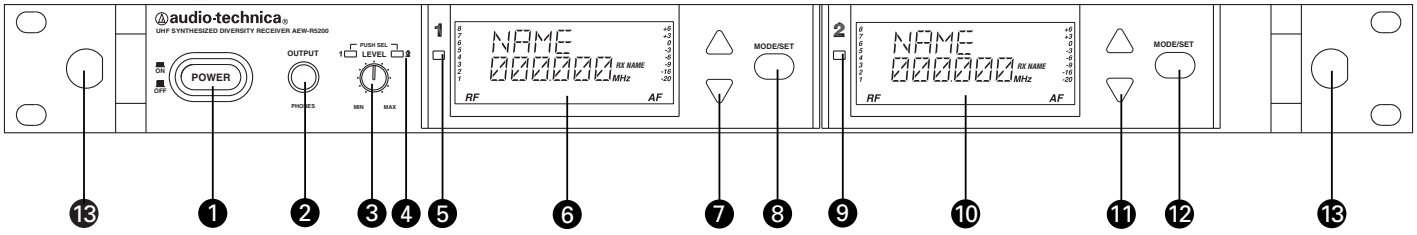
Multiple AEW-R5200 receivers in a system can each provide real-time "*RF*" and "*AF*" levels to the associated computer if ***each*** AEW-R5200 has its own Ethernet connection, through an Ethernet hub, to the computer.

Other than being able to "see" the "*RF*" and "*AF*" levels, all functions of all receivers in a linked system can be monitored and controlled from the computer connected to the Master receiver.

Details of the computer setup and operation will be found in a separate AEW Control Interface manual provided with AEW-R5200 receivers and 5000 Series systems.

Receiver Controls and Functions

Figure C AEW-R5200 Receiver Front Panel



Front Panel Controls and Functions (Fig. C)

1 POWER SWITCH: Press Power switch in and the receiver readouts will light.

2 HEADPHONE OUTPUT: ¼" (6.3 mm) TRS ("stereo") phone jack. Plug in either a mono or "stereo" headphone to monitor receiver signal.

3 HEADPHONE LEVEL CONTROL / CHANNEL SWITCH: Adjusts the level of the headphone jack only; it does not affect receiver audio output. Press-and-release the knob to switch between Channel 1 and Channel 2.

4 HEADPHONE CHANNEL INDICATOR: Shows which receiver channel is feeding the monitor headphones.

Channel 1 / Channel 2

5 / 9 ALERT INDICATOR: The Alert Indicator lights:

(a) When the receiver is in the Mute mode,
(b) When no RF signal is received from the transmitter,
(c) When only one or two RF signal-strength bars are on,
(d) When the transmitter is in the Mute mode,
(e) When audio modulation level from the transmitter is close to the clipping point (AF +6 bar), or
(f) When the "LOW BAT" warning appears in the LCD (transmitter battery is weak).

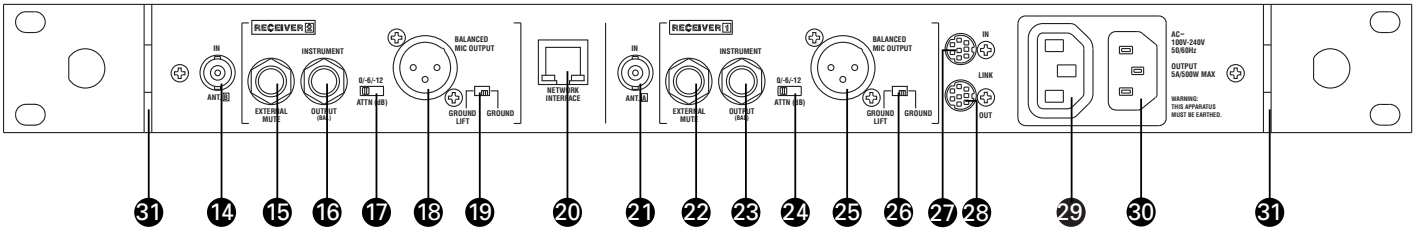
6 / 10 LCD WINDOW: Liquid Crystal Display indicates control settings and operational readings. See Figure G on page 13 for details.

7 / 11 UP/DOWN BUTTONS: Press Up or Down arrow button, in conjunction with the Mode/Set button, to step through menus, select operating frequency and edit receiver function choices.

8 / 12 MODE/SET BUTTON: Use in conjunction with the Up/Down arrow buttons to step through menus, choose operating frequency and select receiver function options.

13 FRONT-MOUNT ANTENNAS: Cables and panel connectors are included with the AEW-R5200 to permit attaching antennas at the front panel.

Figure D AEW-R5200 Receiver Rear Panel



Rear Panel Controls and Functions (Fig. D)

14 ANTENNA INPUT JACK: BNC-type antenna connector for Tuner "B." Attach the antenna directly, or extend it with a low-loss antenna cable. See the "Antennas" section on page 8 for more details. Antenna power at +12 volts is available at both antenna jacks; select it via the LCD menu on Channel 1.

15 / 22 EXTERNAL MUTE: Permits manual and absolute muting of the receiver via a 1/4" TS phone jack and a user-provided external switch. "Shorting" the jack (closing the switch connection) mutes the receiver channel. When External Mute has been applied, the only way to un-mute the receiver is to open the External Mute switch connection.

16 / 23 INSTRUMENT OUTPUT JACK: 1/4" transformer-isolated TRS balanced phone jack output. Tip: "audio +"; Ring: "audio –"; Sleeve: ground (shield). Can be connected to an aux-level input of a mixer, guitar amp or tape recorder. Using the associated Ground Lift switch permits feeding equipment with different ground levels.

17 / 24 AF OUTPUT ATTENUATOR: Three-position switch adjusts audio output level of both audio output jacks, with attenuation of 0 dB, –6 dB or –12 dB.

18 / 25 MIC OUTPUT JACK: XLRM-type connector. Pin 1: ground (shield); Pin 2: "audio +"; Pin 3: "audio –". A standard 2-conductor shielded cable can be used to connect the receiver output to a balanced microphone-level input on a mixer or integrated amplifier. This output is transformer-isolated from the 1/4" TRS Instrument output jack.

19 / 26 GROUND LIFT SWITCH: Disconnects the ground of both the Mic and Instrument output jacks on the associated receiver channel. Normally, the switch should be to the right (ground connected). If hum caused by a ground loop occurs, slide switch to the left (ground lifted).

20 NETWORK INTERFACE CONNECTOR: An Ethernet connection on the AEW-R5200 provides full communication and monitor/control by an associated computer. See the separate AEW Control Interface manual for computer setup and operation.

21 ANTENNA INPUT JACK: Connector for Tuner "A." Attach the antenna directly, or extend it with a low-loss antenna cable.

27 LINK IN JACK: Connect the provided cable to this jack with the index mark on the plug aligned toward the screw head to the right of the jack. The receiver with a Link In and no Link Out connection is the "Master" unit. (With an AEW-R5200 in the Master position, its Channel 1 is the system's Master and its Channel 2 is the first "slave.")

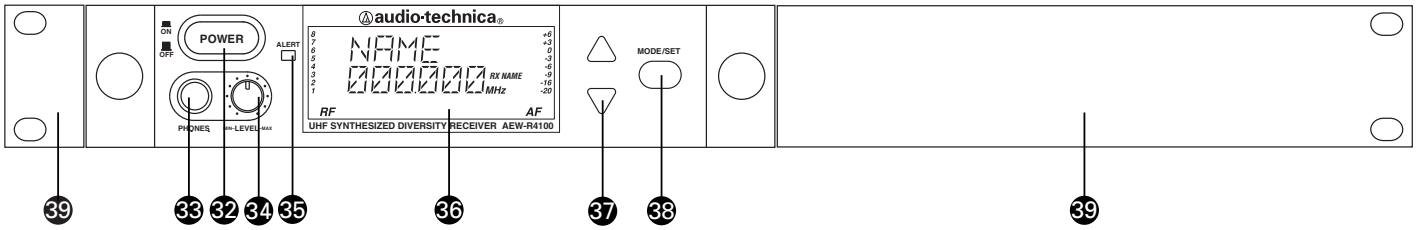
28 LINK OUT JACK: Connect the provided cable to this jack with the index mark on the plug aligned toward the screw head to the right of the jack. The receiver with a Link Out and no Link In connection is the last slave in a multi-unit system.

29 AUXILIARY AC OUTLET: An auxiliary AC pass-through outlet and included "jumper" power cordset simplify making power connections to an array of AEW-R5200's. Maximum output from the auxiliary AC outlet is 5 Amperes.

30 AC POWER INPUT: IEC-type connector for 100V–240V AC, 50/60 Hz power input. No adjustment for mains voltage/frequency is necessary.

31 REAR RACK MOUNT: Mounts are provided at the rear of the side panels to permit attachment to rear rack rails in racks so equipped. The additional support is especially helpful when equipment is transported.

Figure E AEW-R4100 Receiver Front Panel



Front Panel Controls and Functions (Fig. E)

32 POWER SWITCH: Press Power switch in and the receiver readouts will light.

33 HEADPHONE OUTPUT: 1/4" (6.3 mm) TRS ("stereo") phone jack. Plug in either a mono or "stereo" headphone to monitor receiver signal.

34 HEADPHONE LEVEL CONTROL: Adjusts the level of the headphone jack only; it does not affect receiver audio output.

35 ALERT INDICATOR: The Alert Indicator lights:
- (a) When the receiver is in the Mute mode,
- (b) When no RF signal is received from the transmitter,
- (c) When only one or two RF signal-strength bars are on,
- (d) When the transmitter is in the Mute mode,
- (e) When audio modulation level from the transmitter is close to the clipping point (AF +6 bar), or
- (f) When the "LOW BAT" warning appears in the LCD (transmitter battery is weak).

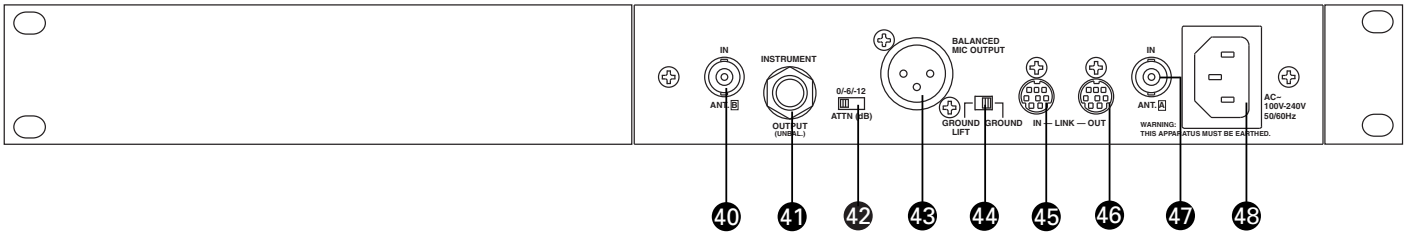
36 LCD WINDOW: Liquid Crystal Display indicates control settings and operational readings. See Figure G on page 13 for details.

37 UP/DOWN BUTTONS: Press Up or Down arrow buttons, in conjunction with the Mode/Set button, to step through menus, select operating frequency and edit receiver function choices.

38 MODE/SET BUTTON: Use in conjunction with the Up/Down arrow buttons to step through menus, choose operating frequency and select receiver function options.

39 MOUNTING ADAPTERS: For mounting the receiver in any standard 19" rack. Attach to the receiver with the screws supplied. (Use an optional AT8628a joining-plate kit to mount two AEW-R4100 receivers side by side.)

Figure F AEW-R4100 Receiver Rear Panel



Rear Panel Controls and Functions (Fig. F)

40 ANTENNA INPUT JACK: BNC-type antenna connector for Tuner "B." Attach the antenna directly, or extend it with a low-loss antenna cable. See the "Antennas" section on page 8 for more details.

41 INSTRUMENT OUTPUT JACK: ¼" phone jack. Can be connected to an aux-level input of a mixer, guitar amp or tape recorder. On the AEW-R4100, this is an unbalanced TS phone jack.

42 AF OUTPUT ATTENUATOR: Three-position switch adjusts audio output level of both audio output jacks with attenuation of 0 dB, –6 dB or –12 dB.

43 MIC OUTPUT JACK: XLRM-type connector. A standard 2-conductor shielded cable can be used to connect the receiver output to a balanced microphone-level input on a mixer or integrated amplifier.

44 GROUND LIFT SWITCH: Disconnects the ground pin of the balanced output jack (43) from ground. Normally, the switch should be to the right (ground connected). If hum caused by a ground loop occurs, slide switch to the left (ground lifted).

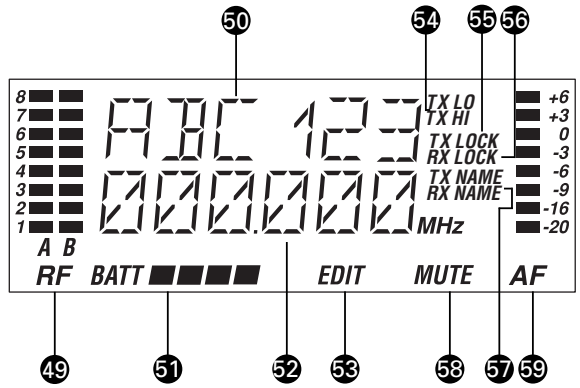
45 LINK IN JACK: Connect provided cable to this jack with the index mark on the plug aligned toward the screw head above the jack. The receiver with a Link In and no Link Out connection is the "Master" unit.

46 LINK OUT JACK: Connect provided cable to this jack with the index mark on the plug aligned toward the screw head above the jack. The receiver with a Link Out and no Link In connection is the last unit in a multi-unit system.

47 ANTENNA INPUT JACK: Connector for Tuner "A." Attach the antenna directly, or extend it with a low-loss antenna cable.

48 AC POWER INPUT: IEC-type connector for 100V–240V AC, 50/60 Hz power input. No adjustment for mains voltage/ frequency is necessary.

Figure G Receiver LCD Window



49 RF SIGNAL LEVEL INDICATOR: Shows the strength of the RF signal received from the transmitter. Also indicates which Tuner (A or B) has the better reception and is in operation. When the METER HOLD function is on, the lowest-level RF signal received from the transmitter is indicated by a flashing bar.

50 ALPHANUMERIC DISPLAY: Shows Receiver Name (57), Transmitter Name (57), or Link Address (MASTER, or SLV and the slave number). The factory setting displays "DEF" in Receiver Name mode ("RX NAME"). Once the settings have been changed, the unit will display the last setting and mode selected. Also flashes the "*LOW.BAT*" warning when the associated transmitter's batteries are weak.

51 TRANSMITTER BATTERY INDICATOR: Displays a maximum of four bar segments, with four bars indicating full power.

52 FREQUENCY DISPLAY: Indicates the current frequency setting in MHz.

53 "*EDIT*": Appears and flashes when the receiver is in edit mode.

54 TRANSMITTER RF POWER DISPLAY: Indicates either "*TX LO*" or "*TX HI*".

55 "*TX LOCK*": Appears when the transmitter is in one of its three lock settings (*ALL.LOC*, *MUT.LOC* or *PWR.LOC*).

56 "*RX LOCK*": Appears when the receiver is in one of its three lock settings (*ALL.LOC, PC.LOC or RX.LOC*).

57 TX/RX NAME: Indicates whether the transmitter name or the receiver name is displaying in the top line of the LCD display.

58 "*MUTE*": Appears when the receiver or transmitter is muted, when the receiver is not receiving an audio signal, or when the receiver is externally muted by use of the EXTERNAL MUTE jack.

59 AF LEVEL INDICATOR: Shows the audio modulation level of the received signal. When the METER HOLD function is on, the bar corresponding to the highest level reached will stay lit.

Receiver Controls

Power On/Off

Press the power switch to turn the receiver on. After a short power-up sequence, the display shows the operating frequency and the alert light is illuminated (if no active transmitters are present on this frequency). The receiver may also display a system position (i.e., "MASTER", "SLV-#") or an assigned transmitter or receiver name (if this feature has been set up—the display recalls the setting from the last time power was applied). Refer to page 16 on setting up receiver names or page 20 on setting up transmitter names.

Level

This control is used to set a comfortable listening level for the headphone jack. Turn the control clockwise to increase the level.

LCD Window

The LCD (Liquid Crystal Display) window provides visual indication of key operating and configuration parameters. It is also used in conjunction with the Mode/Set and Up/Down arrow buttons to change user-configurable functions.

Alert Light (LED)

The alert light illuminates to indicate to the user that something needs attention; for example, the transmitter batteries are low, or the transmitter is muted or turned off. Refer to page 10 for a complete description of alert light indications.

Mode/Set Button

The Mode/Set button has different functions depending on the status of the receiver. Two distinct operations are associated with this button:

Touch: A momentary press of the Mode/Set button. It is used to enter Menu mode, to enter Edit mode, or to Escape without making any changes to current settings.

Hold: A press and hold (about two seconds) of the Mode/Set button. It is used to accept a new setting when the receiver is in Edit mode or to save the current settings to one of the five user-defined name presets or the internal memory location ("NAME?").

Up/Down Arrow Buttons

The Up/Down arrow buttons are used in conjunction with the Mode/Set button to scroll through the function menu in Menu mode or through the available choices for a given function in Edit mode.

When the receiver is in normal operating mode, the Up/Down arrow buttons scroll through Receiver Address ("MASTER" or "SLV-#"), Receiver Preset Name, or Transmitter Preset Name.

How to change receiver settings

Enter Menu mode

With the receiver in the normal operating mode, ***touch*** the Mode/Set button. The top line of the receiver display shows "FRQ" preceded by one, two, or three asterisks.

Touch the Up/Down arrow buttons to scroll through the available functions that may be changed. (See the chart on page 17 for a list of functions and display indication.) Note that the display's lower line indicates the current setting for a given function.

Enter Edit mode

When the function to be edited is displayed, ***touch*** the Mode/Set button. The small word "EDIT" flashes in the bottom of the display, indicating Edit mode.

Touch the Up/Down arrow buttons to scroll through the available choices for the function, stopping on the desired choice.

Hold the Mode/Set button to accept the new choice. "STORED" appears in the display when the choice is accepted. The receiver then reverts to Menu mode.

Continue this process until all desired function-setting changes are complete.

Note: To escape from Edit mode without making any changes, ***touch*** the Mode/Set button. "ESCAPE" appears briefly in the display, and the receiver reverts to Menu mode.

Quitting and saving changes

The receiver has several methods of saving function settings. Each receiver has five loadable user presets that may be given individual names (up to six characters), along with a special, non-loadable memory location called "NAME?" that can store the most recent settings until they are changed.

To save a set of receiver function settings, use the Up/Down arrow buttons to scroll until the display shows "QUIT." The procedure for saving the current settings depends upon the desired location:

Saving to the "NAME?" location

If the current receiver settings do ***not*** need to be identified with a name, the special "NAME?" location may be used to store them. As with the "last number redial" function on a telephone, these settings remain stored in the receiver even if power is turned off. They disappear only if one of the settings is modified.

To store settings in the "NAME?" location, ***touch*** the Mode/Set button. The display shows "NAME?" for the receiver name.

Saving updated settings to the currently loaded user "PRESET#" location

To update the receiver settings in the currently loaded user preset that is already named, ***hold*** the Mode/Set button. The display shows "STORE XXXXXX" (where XXXXXX indicates the preset's name).

Hold the Mode/Set button a *second* time. The first character of the name flashes.

Hold the Mode/Set button a *third* time. The display briefly shows "STORED", and the receiver reverts to normal operation.

Saving to a different user PRESET# location

To store settings to a different user preset location, ***hold*** the Mode/Set button. The receiver shows "STORE XXXXXX" (where XXXXXX indicates the loaded preset's name).

Touch the Up/Down buttons to scroll to another preset location (the display shows the user-defined name for each location, or "PRESET#" if no name has been assigned).

At the desired preset location, ***hold*** the Mode/Set button. The first character of the name becomes the cursor and flashes.

Touch the Up/Down arrow buttons to scroll through the characters until the desired character is displayed. ***Touch*** the Mode/Set button to accept the character and advance to the next character. To advance the cursor without changing the character, ***touch*** the Mode/Set button.

After setting the last character, ***hold*** the Mode/Set button to store the name and revert to normal operation. ***Holding*** the Mode/Set button at any time during the naming process while the cursor is flashing will store the setting and return the receiver to normal operation.

Note: To escape the naming process, ***touch*** the Mode/Set button repeatedly until the last character is flashing, and then ***touch*** the Mode/Set button again to escape. At the flashing "ESCAPE" display, ***touch*** the Mode/Set button to go back to the beginning of the name, or ***hold*** the Mode/Set button to return to "QUIT."

Note: While the receiver is in Edit mode, no action (no buttons pressed) for approximately 30 seconds causes the receiver to revert to Menu mode.

While the receiver is in Menu mode, no action for approximately 30 seconds causes the receiver to revert to normal operating mode. Any setting changes stored will remain in the "NAME?" memory location, and the receiver will display "NAME?" because the settings were not saved to a user preset. This will occur even if a user preset was previously loaded.

Receiver Functions

IntelliScan™ Channel Assignment System

The IntelliScan™ channel assignment system, provided on both the AEW-R4100 and AEW-R5200 receivers, eliminates the trouble and frustration normally encountered while attempting to find and select usable, compatible frequencies in a multi-channel system. The Artist Elite receivers are simply connected together with included communication link cables. A "Master" receiver then "knows" how many total channels it is looking for. It can scan the available frequencies, checking for local interference sources, selecting a group of channels that will all work together (using a built-in frequency plan), and automatically setting the other linked AEW receivers accordingly. Once this procedure is completed, the transmitter frequencies must be set to match the receiver frequencies.

Receiver Locks

Programmable locks restrict the ability to change receiver settings, reducing the possibility of unauthorized access or unintended changes during performances.

Setting	Description
NO.LOC	Receiver functions and frequency settings can be edited from the receiver's front panel or from an associated computer via an Ethernet connection to a linked AEW-R5200.
ALL.LOC	Receiver functions and frequency settings ***cannot*** be edited from the front panel or from a computer via an Ethernet connection to a linked AEW-R5200. *ALL.LOC* must be changed via the receiver's Menu before other settings can be changed.
PC.LOC	Receiver functions and frequency settings can be edited from the receiver's front panel, but they ***cannot*** be edited from an associated computer (via an Ethernet connection to a linked AEW-R5200).
RX.LOC	Receiver functions and frequency settings can be edited from an associated computer (via an Ethernet connection to a linked AEW-R5200), but they ***cannot*** be edited from the receiver's front panel.

When ***any*** lock condition is applied to a receiver (*ALL.*, *RX.* or *PC.*), the LCD window displays a small "*RX LOCK*" just to the right of the frequency. If an action is attempted that currently is locked out, the LCD will briefly display "*LOCKED*", then return to its previously displayed contents.

Note: Locks remain in place even when receiver power is turned off. However, locks may be removed by using the Menu.

Antenna Power

This function turns on the 12V AC antenna power for use with powered antennas or accessories.

Digital Tone Lock™ Squelch

The Artist Elite Series employs a unique digital Tone Lock squelch system that provides enhanced rejection of interference. In addition to providing highly effective control of unwanted noise, the Tone Lock signal from the transmitter also conveys data with the transmitter's name (Tx Name), battery condition, mute status and lock status back to the receiver for display. In addition to displaying in the receiver's LCD window, the data are also displayed on an Ethernet-connected computer.

The squelch level is adjustable in fifteen 2 dB steps, providing a 30 dB range. Increasing the squelch level – also called "tightening the squelch" – can cause a reduction in usable range of the wireless transmitter, so use the lowest value that reliably mutes the unwanted RF signals. (If interference is a problem, first consider trying a different frequency, either manually or by scanning.)

Meter Hold

When activated ("*METER HOLD*"), this function permits the bar meters in the LCD window to capture and display the *highest*-level "*AF*" audio modulation (a solid bar) and the *lowest*-level "*RF*" signal (a flashing bar) received from the transmitter. This is particularly useful when setting up the system initially, performing a sound-check, or diagnosing operating problems. The default setting is Off ("*METER NORMAL*").

When the Meter Hold is On, it is possible to reset it – to obtain a new set of RF and AF readings – without turning it off-and-on using the Menu/Edit functions. Simply press the transmitter's Power/Mute button once (to mute the transmitter) and ***wait until the receiver's Alert light comes on***, indicating the Mute condition. Then press the transmitter's Power/Mute button once again, to un-mute the transmitter. ***After the Alert light goes out***, a new set of min/max RF/AF readings will be indicated on the bar meters. (Note that, depending upon the digital updating-and-confirming sequence of the Mute condition data from the transmitter, it can take from a few to many seconds for the Alert light condition to change. ***The Meter Hold readings are not reset until the Alert light has turned on, then off.***)

Note: Any or all of these receiver functions may be stored to, or loaded from, one of the five user presets.

Using "PRESET" Store and Recall

There are two aspects to Preset operation: ***Storing*** a particular collection of settings for future use ("*STORE*"), and ***recalling*** a stored collection of settings ("*LOAD*"). All Artist Elite receivers and transmitters permit the storing and recalling of up to five user-defined Preset combinations—with customized names, if desired—plus the recalling of the factory-defined Default ("*DEF*") settings.

While the standard Preset names ("*PRSET1*" – "*PRSET5*") can be used, customized receiver and transmitter identification can simplify system operation, especially in larger systems. For example, a guitar channel's Rx Name could be "*GUITAR*", while the transmitters for the performer's two different guitars could be named "GTR-1" and "GTR-2".

To store Preset configurations:

1. ***Touch*** the Mode/Set button once to move to Menu mode.
2. ***Touch*** the Up arrow twice to move to "*PRESET*" in the LCD window. (The second line of LCD will show currently loaded presets.)
3. ***Touch*** the Mode/Set button once. "*LOAD*" (or "*STORE*") appears in the LCD.
4. ***Touch*** the Up or Down arrow once, if needed, to change the selection to "*STORE.*"
5. ***Hold*** the Mode/Set button until "*PRSET1*" (or the name of the currently loaded Preset) appears on the second line of the LCD.
6. If desired, ***touch*** the Up or Down arrow to cycle through the available choices: "*PRSET1*" through "*PRSET5*" (or their previously changed names).
7. Accept or enter a name for the Preset:
   a. To accept the ***standard*** name "*PRSET1*" – "*PRSET5*" (or previously stored name) for a new Preset configuration and to update (overwrite) any previously stored configuration choices:
      a1. At the desired choice, ***hold*** Mode/Set until the first character blinks, giving an opportunity to change the name.
      a2. To accept the standard (or existing) name, ***hold*** the Mode/Set button again until "*STORED*" appears in the window. This stores the standard or existing Preset name with the associated function choices and returns the unit to normal operation. The name of the stored preset will appear in the top line of the display.
   b. To enter a ***custom*** name for a Preset:
      b1. At the desired choice, ***hold*** the Mode/Set button. The first character blinks.
      b2. Using the Up or Down arrow, move through the available characters (see box below) until the desired character is reached. ***Touch*** an arrow button for single steps, or ***hold*** it down to scroll through the characters at increasing speed.
      b3. ***Touch*** the Mode/Set button ***once*** to accept the first character and move to the second character, which now is blinking. Use an Up/Down arrow button to find the desired second character; ***touch*** the Mode/Set button once to accept it and move to the third position. Repeat this selection process until the character for the sixth position has been selected.
      b4. Once the sixth character has been selected as desired, ***hold*** the Mode/Set button until "*STORED*" appears in the window. This stores the custom Name with the associated function choices and returns the unit to normal operation. The display shows the custom name in the top line.

   Note: If a correction or change is desired while entering characters, simply ***touch*** the Mode/Set button ***once*** when the sixth (last) character has been reached. The window will flash "*ESCAPE.*" ***Touch*** the Mode/Set button once more to start the name-entry process over at the first character. (To leave any characters as they are, simply ***touch*** Mode/Set once to skip over them.)

Available receiver Name character choices:

A …through… Z,

__ (underscore) … (*space*) …

[(*left bracket*) …] (*right bracket*),

* … + … – … / ,

0 …through… 9,

| … < … > … ?

To load (recall) a Preset:

1. ***Touch*** the Mode/Set button once to move to Menu mode.
2. ***Touch*** the Up arrow twice. LCD top line shows "PRESET."
3. ***Touch*** the Mode/Set button once. "*LOAD*" (or "*STORE*") appears in the LCD.
4. If needed, ***touch*** the Up arrow once to change the selection to "*LOAD.*"
5. ***Hold*** the Mode/Set button. The name of the currently loaded Preset appears on the second line of the LCD.
6. ***Touch*** the Up or Down arrow to cycle through the available choices, stopping on the desired choice.
7. ***Hold*** the Mode/Set button until "*LOADED*" appears briefly in the LCD. The receiver reverts to normal operation with the selected preset's functions loaded. The top display line indicates the loaded preset and the bottom line the current frequency.

To revert to factory-default values:

1. ***Touch*** the Mode/Set button once to move to Menu mode.
2. ***Touch*** the Up arrow twice. "*PRESET*" shows in the LCD window.
3. ***Touch*** the Mode/Set button once. "*LOAD*" (or "*STORE*") appears in the LCD.
4. ***Touch*** the Up arrow once, if needed, to change the selection to "*LOAD.*"
5. ***Hold*** the Mode/Set button. The name of the currently loaded Preset appears on the second line of the LCD.
6. ***Touch*** the Up/Down arrow buttons to cycle through the available choices until "DEF" appears in the display.
7. ***Hold*** the Mode/Set button to load the factory default settings. "*LOADED*" appears briefly in the LCD. The receiver then reverts to normal operation at factory-default values. "DEF" appears in the upper line of the LCD.

Note: Loading the default setting will also revert the receiver frequency to the default value of 541.500 (Band C) or 655.500 (Band D).

Receiver Functions

Function Menu	Default Value	Choices (Edit) ▲▼	Wrap-around*
▲▼ Frequency	Lowest in band†	200 discrete frequencies	Yes
▲▼ Scan**/***	No value	Scan start	--
▲▼ Lock	*NO.LOC*	*NO.LOC ALL.LOC PC.LOC RX.LOC*	Yes
▲▼ Antenna Power**	*OFF*	*OFF ON*	Yes
▲▼ Squelch	- (one bar)	15 steps, 2 dB each	No
▲▼ Meter	*NORMAL*	*NORMAL HOLD*	Yes
▲▼ Preset	*PRESET*	Press once, then select *LOAD* or *STORE*	Yes
▲▼ *LOAD:*	*DEF*	*DEF* (default), *PRSET1* through *PRSET5*	Yes
▲▼ *STORE:*	*PRSET1*	*PRSET1* through *PRSET5*	Yes
▲▼ Quit (exit Menu)	*QUIT*	Press Mode/Set once to exit	--

* Continue in the same Up/Down direction and choices "wrap around" to the other end of the range.
** AEW-R5200: Scan and Antenna Power selections in LCD menu on Channel 1 only.
*** Scan selection is not available when the receiver has been linked as a slave unit.
† Band C: 541.500 MHz; Band D: 655.500 MHz

Table 1. Receiver Functions

Transmitter Controls and Functions

Refer to Figures H through Q for an overview of transmitter functions and controls.

Touch: A momentary press of the Mode/Set button. It is used to enter Menu mode, to enter Edit mode, or to Escape without making any changes to current settings.

Hold: A press and hold (about two seconds) of the Mode/Set button. It is used to accept a new setting when the receiver is in Edit mode or to save the current settings to one of the five user-defined name presets or the internal memory location ("NAME?").

LCD Window

The Liquid Crystal Display presents a great deal of setup and operating information clearly and conveniently (Figure H). The LCD in the transmitters is designed for greatest contrast and best viewing with the window rotated somewhat ***away*** from the viewer (about 30 degrees), not straight-on, for a more convenient holding/viewing position.

Power/Mute Button

The transmitters have a combination Power and Mute switch (Figure J/K). When used in combination with the programmed choices explained below, the various functions available to the transmitter user may be tailored to fit personal preferences or particular situations.

Power On/Off

To turn the transmitter on, ***hold*** the Power/Mute button until the red power indicator and the LCD window come on (about 1–2 seconds). The operating frequency shows in the window after the power-up sequence.

To turn the transmitter off, ***hold*** the Power/Mute button again, until the red power indicator and the LCD window are extinguished (about 1–2 seconds). The LCD window shows "*PWR.OFF*" before shutdown.

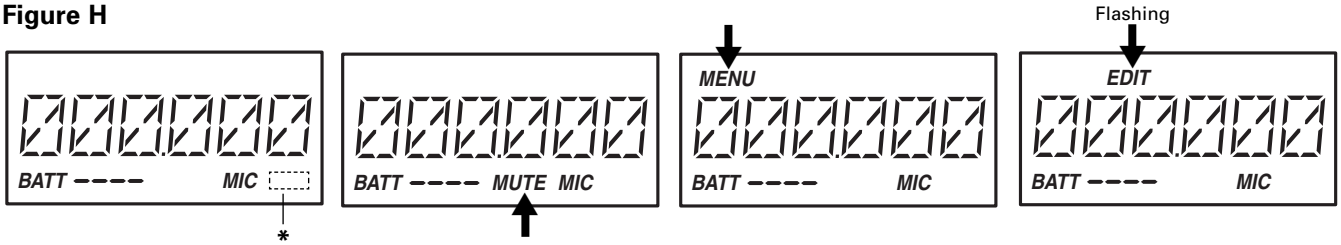
Mute On/Off

When the transmitter is muted, it produces RF with no audio signal modulation. When the transmitter is un-muted, it produces both RF and audio.

To mute the transmitter (cut off the audio, but continue the RF output), ***touch*** the Power/Mute button ***once***. A small "*MUTE*" appears in the LCD window, just below the frequency (Figure H-2).

To un-mute the transmitter (restore the audio), ***touch*** the Power/Mute button ***once*** again. The "*MUTE*" disappears from the LCD window.

Figure H



H-1. Normal Operation

H-2. Operation with Mute On

H-3. Menu Mode (Frequency)

H-4. Edit Mode (Frequency)

* AEW-T1000 only: *"INST"*

Figure J

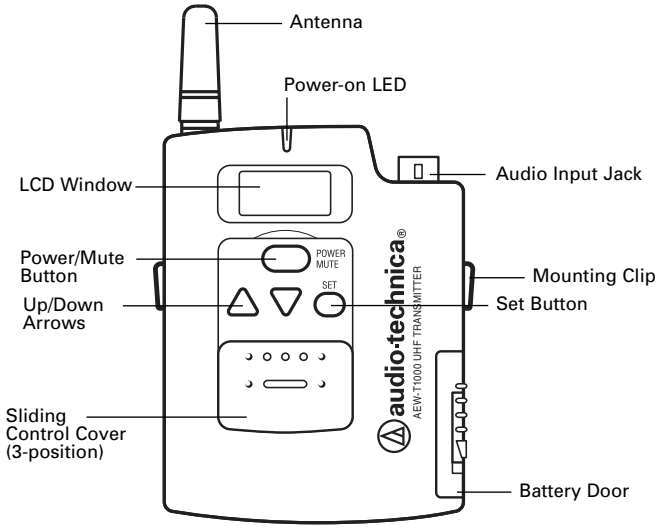
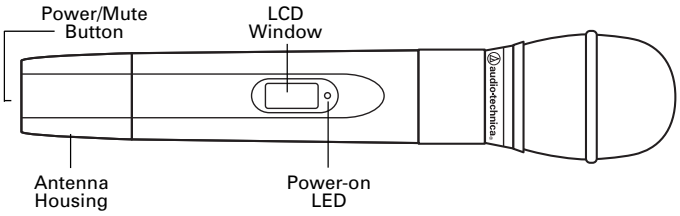


Figure K



Power/Mute Locks

Programmable Power/Mute Locks limit the functioning of the Power/Mute button as desired for particular users and/or applications. Power can be locked On; Mute can be locked Off. Selection of the desired locks, if any, is made through the function menu:

Setting	Description
NO.LOC	The normal Power and Mute functions are fully operational.
ALL.LOC	Power is locked On and Mute is locked Off when "*ALL.LOC*" is applied. When in the *ALL.LOC* mode, the transmitter may be turned off by (1) re-accessing the *.LOC* Menu and changing the setting, (2) pressing and holding the Up arrow button ***and*** the Set button ***at the same time***, until the power goes off, or (3) removing and re-installing the batteries. When the transmitter is turned on again, it will power up in the *NO.LOC* mode.
MUT.LOC	In this mode, the audio cannot be muted (Mute function is locked Off). The Power functioning is unaffected. "Mute" Note: If *ALL.LOC* or *MUT.LOC* is applied ***while the transmitter is muted***, pressing the Power/Mute button once will return the transmitter to un-muted operation; thereafter the Mute function is disabled (Mute Off) until the .LOC setting is changed again.
PWR.LOC	Power is locked On when "*PWR.LOC*" is applied. The Mute functioning is unaffected. When in the *PWR.LOC* mode, the transmitter may be turned off by: (1) Re-accessing the *.LOC* Menu and changing the setting, (2) Pressing and holding the Up arrow button ***and*** the Set button ***at the same time***, until the power goes off, or (3) Removing and re-installing the batteries. When the transmitter is turned on again, it will power up in the *NO.LOC* mode. Note: Only the *ALL.LOC* or *PWR.LOC* Power function will change when batteries are removed; *NO.LOC* and *MUT.LOC* settings remain stored in memory.

If an action is attempted that currently is locked out, the transmitter LCD will briefly display "*LOC.KED*", then return to its previously displayed contents.

Whenever any lock condition is applied to a transmitter, its associated ***receiver*** will display a small "*TX LOCK*" in the LCD window, just to the right of the frequency.

Audio Input Selector

The UniPak™ body-pack transmitter provides input connections for both low-impedance (Lo-Z) microphones and high-impedance (Hi-Z) instruments. A wide range of Audio-Technica Wireless Essentials® microphones and cables is available pre-terminated with the appropriate professional latching connector. (See page 28.)

Selection of the desired input – microphone or instrument – is made through the function menu. Depending upon the input selected, a small "*MIC*" or "*INST*" will continue to show in the LCD window, just below the frequency. (In the handheld transmitters, "*MIC*" will always show in the LCD window.)

Setting Audio Input Level

AEW-T1000 UniPak: A 10-position audio input gain setting, selected through the function menu, serves to match the audio input level to the transmitter for best modulation with minimum distortion. Available choices are +12 dB to –6 dB in 2 dB steps. The default value is +6 dB.

AEW-T4100 and AEW-T6100 Dynamic Handhelds:
A 4-position audio input gain setting, selected through the function menu, serves to match the audio input level to the transmitter for best modulation with minimum distortion. Available choices are +12 dB to –6 dB in 6 dB steps. The default value is +6 dB.

AEW-T3300 and AEW-T5400 Condenser Handhelds:
A 3-position audio input gain setting, selected through the function menu, serves to match the audio input level to the transmitter for best modulation with minimum distortion. Available choices are +12 dB, +6 dB and 0 dB. The default value is +6 dB. In addition, a mechanical pad switch on the condenser capsule (inside the screw-on wire mesh grille) can provide another 6 dB of attenuation. For best performance, adjust the input level using the function menu choices, keeping the capsule's mechanical switch at 0 dB. If more audio attenuation is needed than the menu provides, then set the capsule's pad switch to –6 dB.

For all transmitters: Select the highest audio level setting that does not result in over-modulation with the highest audio/instrument input levels (an AF indication on the receiver no higher than "+3"); watch the receiver's "*AF*" meter "+6" indication and the Alert light to make certain they are not triggered often by the highest audio levels.

The transmitter's red LED power indicator, which is on during normal operation, will blink ***off*** if the peak audio input reaches overload level.

Preset/Default Settings

A "*PRESET*" selection in the menu permits the storing of up to five different user-definable configurations. Customized names, using letters, numbers and symbols, can also be created and stored for Presets 1–5. In addition, a Default ("*DEF*") choice permits returning all transmitter functions to their factory-default settings.

To store Preset configurations:

1. ***Touch*** the Set button once to move to Menu mode.
2. ***Touch*** the Up arrow twice to move to "*PRESET*" in the LCD window.
3. ***Touch*** the Set button once and "*LOAD*" (or "*STORE*") will appear in the LCD.
4. ***Touch*** the Up or Down arrow once, if needed, to change the selection to "*STORE*".
5. ***Hold*** the Set button until "*STORE*" changes to "*PRSET1*" (or the name of the currently loaded Preset).
6. If desired, ***touch*** the Up or Down arrow to cycle through the available choices: "*PRSET1*" through "*PRSET5*" (or their previously changed names).
7. Accept or enter a name for the Preset:
   a. To accept the ***standard*** name (*PRSET1 – PRSET5*, or the previously stored name) for a new Preset configuration and to update (overwrite) any previously stored configuration choices:
      a1. At the desired Preset, ***hold*** the Set button until the first character blinks.
      a2. ***Hold*** the Set button again until "*STORED*" appears in the window. This stores the standard Preset name with the associated function choices and returns the transmitter to normal operation.
   b. To enter a ***custom*** name for a Preset:
      b1. At the desired Preset, ***hold*** the Set button until the first character blinks.
      b2. Using the Up or Down arrow, move through the available characters (see box below) until the desired character is reached. ***Touch*** an arrow button for single steps, or hold it down to scroll through the characters at increasing speed.
      b3. ***Touch*** the Set button once to accept the first character and move to the second character, which now is blinking. Use an Up/Down arrow to find the desired second character; ***touch*** the Set button once to accept it and move to the third position. Repeat this selection process until the character for the sixth position has been selected. (It is not necessary to change or step through all six characters before storing the result. At any point in the process, simply ***hold*** the Set button until "*STORED*" appears in the window.)
      b4. Once the sixth character has been selected as desired, ***hold*** the Set button until "*STORED*" appears in the window. This stores the custom Name with the associated function choices and returns the transmitter to normal operation.

   Note: If a correction or change is desired while entering characters, simply ***touch*** the Set button ***once*** when the sixth (last) character has been reached. The window will flash "*ESCAPE.*" ***Touching*** the Set button ***once more*** will start the name-entry process over at the first character. (To leave any characters as they are, simply ***touch*** the Set button once to skip over them.)

Available transmitter Name character choices (listed in the Up-arrow direction):

A …through… Z,

__ (underscore) … (*space*),

[(*left bracket*) …] (*right bracket*),

* … + … – … /,

0 …through… 9,

| … < … > … ?

To load (recall) a Preset:

1. ***Touch*** the Set button once to move to Menu mode. (The window changes to frequency, if Name had been displayed.)
2. ***Touch*** the Up arrow twice to move to "*PRESET*" in the LCD window.
3. ***Touch*** the Set button once. "*LOAD*" (or "*STORE*") appears in the LCD.
4. If needed, ***touch*** the Up or Down arrow once, to change the selection to "*LOAD.*"
5. ***Hold*** the Set button until "*LOAD xxxxxx*" (the current Preset) appears in the LCD.
6. ***Touch*** the Up or Down arrow to change the selection from "*xxxxxx*" to the desired Preset.
7. ***Hold*** the Set button until "*LOADED*" appears briefly in the LCD. The transmitter reverts to normal operation with the selected preset's settings loaded. To toggle between transmitter name and frequency, ***touch*** an Up or Down arrow button.

To revert to factory-default values:

1. ***Touch*** the Set button once to move to Menu mode.
2. ***Touch*** the Up arrow twice. "*PRESET*" shows in the LCD window.
3. ***Touch*** the Set button once. "*LOAD*" (or "*STORE*") appears in the LCD.
4. ***Touch*** the Up or Down arrow once, if needed, to change the selection to "*LOAD.*"
5. ***Hold*** the Set button. The current Preset appears in the LCD.
6. ***Touch*** the Up or Down arrow buttons to cycle through the available choices until "DEF" appears in the display.
7. ***Hold*** the Set button to load the factory default settings. "LOADED" appears briefly in the LCD. The transmitter reverts to normal operation at the default settings.

Note: Loading the default settings resets the transmitter frequency to the default value of 541.500 (Band C) or 655.500 (Band D).

UniPak Transmitter Functions

Function Menu	Default Value	Choices (Edit) ▲▼	Wrap-around*
▲▼ Frequency	Lowest in band†	200 discrete frequencies	Yes
▲▼ RF Power	*RF LOW*	*RF LOW* *RF HI*	Yes
▲▼ Audio Input Level	*+6 dB*	*–6 dB* to *+12 dB* in 2 dB steps	No
▲▼ Power/Mute Locks	*NO.LOC*	*NO.LOC* *ALL.LOC* *MUT.LOC* *PWR.LOC*	Yes
▲▼ Input Select	*MIC*	*MIC* *INSTR*	Yes
▲▼ Preset Configurations	*PRESET*	*LOAD* *STORE*	Yes
▲▼ *LOAD:*	*DEF*	*DEF* (default), *PRSET1* through *PRSET5*	Yes
▲▼ *STORE:*	*PRSET1*	*PRSET1* through *PRSET5*	Yes
▲▼ Quit (exit Menu)	QUIT	Press Set once to exit	--

* Continue in the same Up/Down direction and choices "wrap around" to the other end of the range.
† Band C: 541.500; Band D: 655.500 MHz

Table 2. UniPak Transmitter Functions

Handheld Transmitter Functions

Function Menu	Default Value	Choices (Edit) ▲▼	Wrap-around*
▲▼ Frequency	Lowest in band†	200 discrete frequencies	Yes
▲▼ RF Power	*RF LOW*	*RF LOW* *RF HI*	Yes
▲▼ Audio Input Level			
Dynamic	*+6 dB*	*–6 dB* *0 dB* *+6 dB* *+12dB*	No
Condenser**	*+6 dB*	*0 dB* *+6 dB* *+12dB*	No
▲▼ Power/Mute Locks	*NO.LOC*	*NO.LOC* *ALL.LOC* *MUT.LOC* *PWR.LOC*	Yes
▲▼ Preset Configurations	*PRESET*	*LOAD* *STORE*	Yes
▲▼ *LOAD:*	*DEF*	*DEF* (default), *PRSET1* through *PRSET5*	Yes
▲▼ *STORE:*	*PRSET1*	*PRSET1* through *PRSET5*	Yes
▲▼ Quit (exit Menu)	QUIT	Press Set once to exit	--

* Continue in the same Up/Down direction and choices "wrap around" to the other end of the range.
** Additional 6 dB pad switch on capsule.
† Band C: 541.500; Band D: 655.500 MHz

Table 3. Handheld Transmitter Functions

Transmitter Setup

Battery Selection and Installation

Each transmitter uses two 1.5V AA batteries, not included. Alkaline type is recommended. Always replace both batteries. *Make certain the transmitter power is Off before replacing batteries.*

UniPak™ Transmitter Battery Installation

1. Open the battery compartment door by sliding the catch down (Figure L). (If no batteries are inside, the door will not spring open by itself.)
2. *Observe correct polarity as marked on the metal contacts on the door* and carefully insert two fresh 1.5V AA alkaline batteries (Figure M).
3. Close the door, making certain the latch clicks securely in place.

Figure L

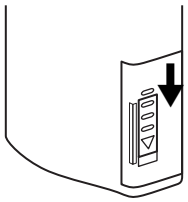


Figure M

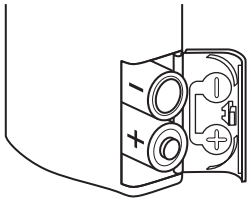


Figure N

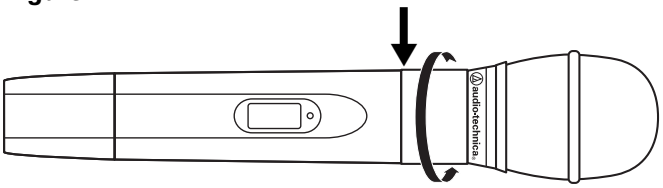


Figure P

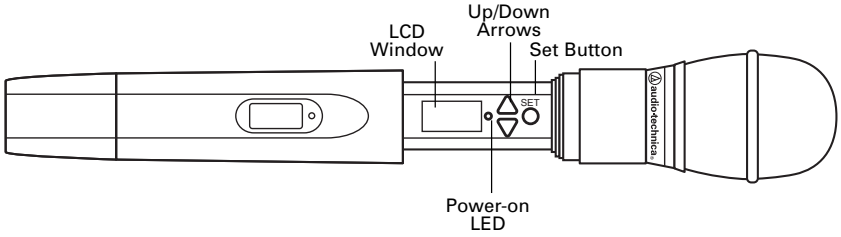
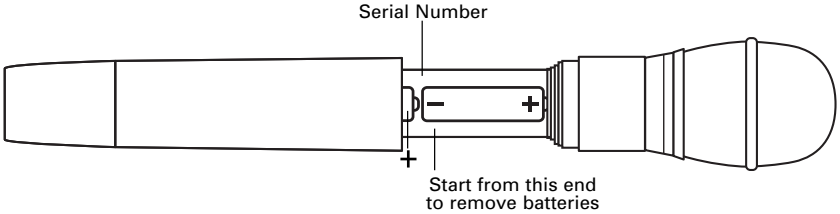


Figure Q



Handheld Transmitter Battery Installation

1. While holding the lower body cover (near the LCD window), grasp the upper part of the transmitter body just ***below*** the grille and unscrew it at least four complete turns (Figure N); then slide the lower body cover down until it stops (Figure P). Once the cover has been lowered, turn the transmitter over to reveal the battery compartment on the side opposite the LCD window.
2. *Observe correct polarity as marked inside the battery compartment* and carefully insert two fresh 1.5V AA alkaline batteries (Figure Q). Insert the first battery and slide it down. Then insert the second battery, bottom first, into the space remaining. Make certain the batteries are fully seated in the battery compartment.
3. Slide the lower body cover back up the body, then screw the housing together. *Do not overtighten.*

Note: Remove batteries from the handheld transmitter starting at the ***bottom*** (– end) of the top battery (Figure Q). The top (+ end) of the top battery is captured in a recess and will not come straight out.

Battery Condition Indicator

After the batteries are installed, turn the power on by ***pressing and holding*** the Power/Mute button. The small red power-on LED (see Figure J/K on page 18.) should light and the LCD window should come on. If this does not happen, the batteries are installed incorrectly or they are dead. The transmitter's "fuel gauge" battery indicator displays a maximum of four bar segments. When the LCD flashes "*LOW.BAT*", the batteries should be replaced immediately to ensure continued operation. (The receiver also displays the transmitter's battery condition in the LCD window with bar segments; the Alert indicator and a flashing "*LOW.BAT*" come on to warn of a low-battery condition.)

UniPak Transmitter Input Connection

Connect an audio input device (microphone or guitar cable) to the audio input jack on the bottom of the transmitter. A number of Audio-Technica professional microphones and cables are available separately, pre-terminated with a UniPak input connector (see "Optional System Accessories" on page 28). The cable connector latches automatically when inserted into the transmitter jack. To unlatch and remove the connector, simply pull up on the connector's knurled metal collar.

UniPak Transmitter Antenna

The AEW-T1000 transmitter includes two field-replaceable antennas. A flexible-wire antenna is supplied mounted on the transmitter, while a separate short, helical antenna is supplied with the accessories. Either antenna simply screws into the transmitter's antenna fitting. Check the installed antenna occasionally to make certain it is snugly attached (only finger-tight). The helical antenna is more convenient physically but may not have the operating range of the wire antenna. The wire antenna should hang down, at its full length, from the bottom of the transmitter. If the received signal is marginal, experiment with different transmitter positions on your body or instrument; try the wire antenna; or try repositioning the receiver. ***Do not attempt to modify either transmitting antenna. Replace them only with the same parts***, available from the Audio-Technica Service Department.

Handheld Transmitter Antenna

The antenna for the handheld mic/transmitter is in the black, non-metallic section at the bottom of the unit (see Figure K on page 18). For best results, hold the mic/transmitter naturally, around its painted metal case. Holding or otherwise covering the antenna housing may reduce operating range.

UniPak Transmitter Mounting Clip

The UniPak transmitter's mounting clip may be installed with the case positioned either "up" or "down," depending upon which is preferred for the particular application. To turn the clip around, spring the ends of the clip out of the two holes on the sides of the transmitter case (see Figure J on page 18) and reinstall it facing in the opposite direction.

Artist Elite wireless receivers and transmitters are extremely versatile components with many operating features and functions, some of which are not obvious. As a result, we suggest the following approaches to assure a "comfort level" with any new equipment:

1. Begin using a single receiver/transmitter pair at their Default ("*DEF*") settings, to become familiar with equipment functions and operation before doing any customizing. (If the Default frequency is not usable in your area, change the frequency to one that is suitable.)

2. Before installing/starting up a large multi-channel system, explore the functions and operation of only two or three receiver/transmitter pairs together.

The details of setting up and operating a multi-channel system vary greatly in complexity, depending upon the number of receivers and nature of the system. Because the feature-rich nature of AEW units can greatly increase this complexity, we suggest starting with a simpler, straightforward setup and use to become familiar with the equipment and its capabilities.

Single AEW-R4100 receiver system:
Begin using a receiver and transmitter at their Default ("*DEF*") settings, to become familiar with equipment functions and operation before doing any customizing. (If the Default frequency is not usable in your area, manually change only the frequency to one that is suitable.)

Single AEW-R5200 receiver system (two channels):
Start out using only Channel 1, treating this the same as the single AEW-R4100 above.

Multiple-receiver system with link cables only:
The link cables provide data and control between receivers. The IntelliScan™ feature scans for clear channels and assigns non-conflicting frequencies to all linked receivers. (If IntelliScan is not used, the receiver frequencies may all be set individually/manually, as with any standard receiver, selecting frequencies that are within the same IntelliScan groups listed on page 30.)

Multiple-receiver system with Ethernet-connected computer interface:
Refer to the separate AEW Control Interface manual for setup and operation of a computer-based system. Basic hardware aspects of the receivers, and all transmitter setup/operating information, are in the manual you are now reading.

Basic Operation – Single AEW-R4100 receiver system:
Turn down the AF Level of the mixer or amplifier. Switch on the receiver. Do ***not*** switch on the transmitter yet.

Turning on the Receiver
The Alert indicator and the LCD window lights up; the normal operation LCD display appears after 1–2 seconds. If any of the bars show in the "*RF*" bar-graph meters, there may be RF interference in the area. If this occurs, select another frequency as explained below. (If the Meter Hold function has been selected, one of the RF bars in each column will be flashing, indicating the lowest RF levels received.)

Selecting/Setting Receiver Frequency
Selection of the desired operating frequency is made through the function menus. There must be no local interference on that frequency. If the Default frequency (lowest in band) happens not to be usable, the receiver frequency may be set manually, or by using the IntelliScan function.

- ***Manual frequency selection:*** Adjust the receiver frequency as detailed in the next section.
- ***IntelliScan frequency selection:*** The receiver's IntelliScan function may be employed to select a usable operating frequency automatically, as detailed in the section following on page 25.

Note: Once the receiver frequency is set, the associated ***transmitter*** must be set manually to the receiver's ***exact*** frequency. See page 26 for the correct procedure.

Setting Receiver Frequency Manually

Touch: A momentary press of the Mode/Set button. It is used to enter Menu mode, to enter Edit mode, or to Escape without making any changes to current settings.

Hold: A press and hold (about two seconds) of the Mode/Set button. It is used to accept a new setting when the receiver is in Edit mode or to save the current settings to one of the five user-defined name presets or the internal memory location ("NAME?").

1. ***Touch*** the Mode/Set button once. "FRQ" appears on the first line of the LCD window with the current frequency setting on the second line. (The receiver is now in Menu mode.)

2. ***Touch*** the Mode/Set button again. The small flashing word "EDIT" appears at the bottom of the window. (The receiver is now in Edit mode.)

3. Use the Up/Down arrow buttons to change the frequency. ***Touch*** either arrow for single steps, or ***hold*** either arrow for rapid cycling through the band. Frequencies "wrap around" to the other end of the range when the top or bottom of the band is reached. Choose a frequency appropriate for your area, avoiding frequencies with active TV channels. (See the frequency listings on pages 29 and 30.)

Note: The top line of the LCD indicates when frequencies belong to IntelliScan groups. Asterisks (*) are displayed in front of "FRQ" to indicate membership in one of more of the three groups (Figure R on page 25). See page 30 for frequency group listings.

4. To choose this frequency, ***hold*** the Mode/Set button until the word "STORED" appears in the receiver's window. (If you do not wish to complete this selection, ***touch*** the Mode/Set button ***once***. The word "ESCAPE" appears briefly in the window, and the receiver returns to Menu mode.)

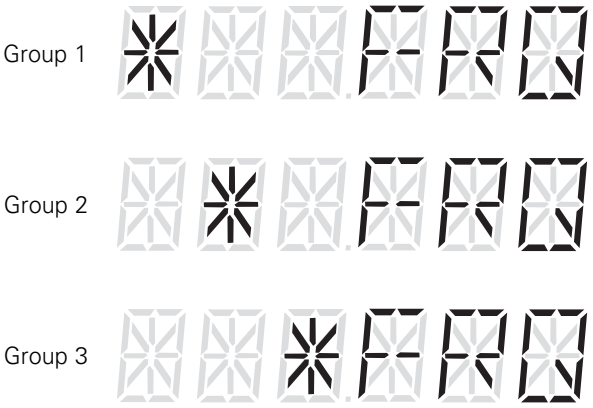
5. When finished entering a frequency, ***touch*** the Up arrow button ***once***. The display reads "QUIT."

   There are several ways to quit, depending on whether the current Name is to be retained or the frequency stored to a user preset. See page 14 for help with Quitting and saving changes.

   To quickly store the new frequency into the "NAME?" location, ***touch*** the Mode/Set button. The receiver shows "NAME?" in the top line and the new frequency in the bottom line.

Note: You must now set the transmitter to the exact same frequency for the system to operate!

Figure R



Note: An asterisk in two or more locations indicates this frequency is in more than one group.

Setting Receiver Frequency Using IntelliScan

Single-receiver systems (either an AEW-R4100 or an AEW-R5200):

Turn down the AF level of the associated mixer or amplifier.

Make certain that any AEW transmitters are turned ***off.*** (Other RF-generating devices in the area should be turned ***on***, if possible.)

1. ***Touch*** the Mode/Set button once to enter the Menu mode. (On an AEW-R5200, use Channel 1 to perform the IntelliScan for both channels.)

2. ***Touch*** the Down arrow once. The display shows "SCAN."

3. ***Hold*** the Mode/Set button to start the scan. The second line displays "–––––" during the scan and then briefly displays "SCAN OK" when the scan is successfully completed.

4. The display on the receiver then shows "RESET NAMES." The receiver remains in this state (system is muted) until one of the following steps is completed:
   a. To accept and use this frequency with the currently loaded/named preset, ***touch*** the Mode/Set button. The LCD briefly displays "STORED" and reverts to normal operation. At this point, the display shows the receiver name/preset currently loaded. (Note: This frequency is now stored with the associated named preset and is recalled when that preset is reloaded.)
   b. To accept and use this frequency and store it in the special "NAME?" location, ***hold*** the Mode/Set button. The LCD displays "NAME?" on the top line. (Note: Doing this allows a new frequency to be used without affecting previously stored preset data. However, the receiver shows "NAME?" instead of the preset's name.)

      To store this frequency along with other settings into one of the user presets, refer to the instructions on page 15.

IMPORTANT! If one of the above steps (a or b) is not completed, the receiver will remain in the "RESET NAMES" state indefinitely (system is muted), and it will ***not*** automatically back out to normal operating mode.

Multiple-receiver systems:

Turn down the AF level of the associated mixer or amplifier. Make certain that any AEW transmitters are turned ***off.*** (Other RF-generating devices in the area should be turned ***on***, if possible.)

1. Make certain all the receivers are connected (daisy-chained) with link cables. The receiver with only a Link In (no Link Out connection) becomes the Master receiver. (See "Link connections" on page 9.)

2. Switch on ***all*** the slave receivers first; switch on the Master receiver ***last***. Alternatively, all receivers can be turned on ***simultaneously***, as when using AC power plug strips controlled by a single AC switch. (If an AC power or link connection is interrupted, even briefly, ***all*** receivers must be turned off and the power-up sequence repeated to assure complete system control.)

3. Using controls on the Master receiver, follow all the steps listed for single-receiver systems to assign compatible frequencies for all receivers by using IntelliScan.

4. The display on the Master shows "RESET NAMES", and the display on each slave shows "SCAN" and the new frequency. The receivers remain in this state (system is muted) until one of the following steps is completed to accept the new frequency plan:
   a. To accept and use this frequency plan with the currently loaded/named presets, ***touch*** the Mode/Set button. If a user preset was previously loaded on the receiver, the LCD briefly displays "STORED" and reverts to normal operation. The LCD then displays the previously loaded user preset or receiver name and the new frequency. (Note: This frequency is now stored with the associated named preset and is recalled when that preset is reloaded.) If no user preset was loaded (i.e., the default settings were in effect), the LCD shows "NAME?" and the new frequency.
   b. To accept and use this frequency ***and*** store it in the special "NAME?" location, ***hold*** the Mode/Set button. The LCD displays "NAME?" on the top line. (Note: Doing this allows a new frequency to be used without affecting previously stored preset data. However, the receiver shows "NAME?" instead of the preset's name.)

To store this frequency along with other settings into one of the user presets, refer to the instructions on page 15.

Note: These changes affect ***all linked receivers.***

IMPORTANT! If one of the above steps (a or b) is not completed, the Master and all linked slave receivers will remain in the "RESET NAMES" state indefinitely (system is muted) and will ***not*** automatically back out to normal operating mode.

Note: A "SCAN ERROR" message may be attributable to one or more of the following:

- The link connection was broken somewhere in the chain.
- The power to one or more of the linked receivers was turned off.
- Not enough available frequencies existed for IntelliScan to assign all receivers a frequency.

If IntelliScan cannot locate enough available frequencies, it will set as many as it can on the linked receivers.

Turning on the Transmitter

Turn on the transmitter by ***holding*** the Power/Mute button (see Figure J/K on page 18) for a second or two, until the red power indicator and the LCD window have come on. (When using a handheld transmitter, unscrew and slide down the lower body cover, as shown in Figures N/P on page 22.)

Setting Transmitter Frequency

Touch: A momentary press of the Mode/Set button. It is used to enter Menu mode, to enter Edit mode, or to Escape without making any changes to current settings.

Hold: A press and hold (about two seconds) of the Mode/Set button. It is used to accept a new setting when the receiver is in Edit mode or to save the current settings to one of the five user-defined name presets or the internal memory location ("NAME?").

1. ***Touch*** the Set button once. The small word "*MENU*" appears above the frequency. ***Touch*** the Set button again and the small ***flashing*** word "*EDIT*" appears to the right of "*MENU*." (The actual frequency flashes twice, then "*EDIT*" continues to flash.)

2. Use the Up/Down arrow buttons to change the transmitter frequency. ***Touch*** either arrow for single steps, or hold down either arrow for rapid cycling through the range. Frequencies "wrap around" when the top or bottom of the band is reached. Select the ***exact*** frequency displayed on the receiver.

3. To activate this frequency selection, ***hold*** the Set button until the word "*STORED*" appears in the transmitter's window. (If you do not wish to complete this selection, just ***touch*** the Set button ***once***: the word "*ESCAPE*" appears briefly in the window, and the transmitter returns to the Menu mode.)

4. When finished entering a frequency, ***touch*** the Up arrow button ***once*** to move to "*QUIT.*" Then ***touch*** the Set button ***once*** to exit the menu. The word "*MENU*" in the transmitter window disappears, indicating the return to normal operation.

5. If desired, assign a standard or custom Preset Name at this time as described on page 20 (To store Preset configurations), so this particular configuration can be recalled in the future. If a new name is not assigned, the transmitter will continue to operate on this frequency (and with these settings) until some other change in settings is made.

When the transmitter is switched on and in normal operation, the receiver's two "*RF*" signal-level bar meters will display from bottom to top, with more bars indicating increased signal reception. For optimum performance, at least four bars, and preferably five or more bars, on at least one of the RF indicators should be displayed at all times.

Setting Levels

Correct adjustment of transmitter audio input, receiver audio output, and mixer/amplifier input and output levels is important for optimum system performance.

Setting Transmitter Audio Input Level

Multiple-position audio input gain settings, selected through the function menu, serve to match the audio input level to the transmitter for best modulation and highest signal-to-noise ratio with minimum distortion.

Select the highest setting that does not result in over-modulation with the highest audio/instrument input levels (an AF indication on the receiver no higher than "+3"); watch the receiver's "*AF*" bar-graph "+6" indication and the Alert light to make certain that they are not triggered by the highest audio levels.

Also, the transmitter's red LED power indicator, which is on during normal operation, will blink ***off*** if the peak audio input reaches overload level.

Available Level Settings

AEW-T1000 UniPak™: Choices are +12 dB to –6 dB in 2 dB steps. The default setting is +6 dB.

AEW-T4100/6100 Dynamic Handhelds: Choices are +12 dB, +6 dB, 0 dB and –6 dB. The default setting is +6 dB.

AEW-T3300/5400 Condenser Handhelds: Choices are +12 dB, +6 dB and 0 dB. The default setting is +6 dB. A mechanical switch on the condenser capsule activates a 6 dB pad. For best performance, adjust the input level using the function menu choices first, keeping the capsule's pad switch at 0 dB. If more audio attenuation is needed, set the capsule's switch to –6 dB.

RF Power Adjustment

RF power may be set to "*RF HI*" (35 mW nominal) or "*RF LOW*" (10 mW nominal) through the function menu. The default setting is "*RF LOW.*" While the Hi setting normally provides maximum operating range, the Low setting will help extend battery life. The Low setting may also be preferred when using multi-channel systems, or when operating very close to the receiver, to reduce the possibility of interference or overload.

RF Interference

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 assistance with operation or frequency selection, please contact your dealer or the Audio-Technica professional division. Extensive information on using wireless microphones is also available on the Audio-Technica Web site at www.audio-technica.com.

Specifications†

OVERALL SYSTEM

UHF Operating Frequency	Band C: 541.500 to 566.375 MHz Band D: 655.500 to 680.375 MHz
Number of Channels	200 total per band
Frequency Stability	±0.005%, Phase Lock Loop frequency control
Modulation Mode	FM
Normal Deviation	±5 kHz
Operating Range	300' typical
Operating Temperature Range	41° F (5° C) to 113° F (45° C)
Frequency Response	70 Hz to 15 kHz

AEW-R4100 & AEW-R5200 RECEIVERS

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) AEW-R5200: Both outputs are transformer isolated and balanced
Audio Output Attenuator (ATTN)	Three-position switch: 0 / -6 / -12 dB
Output Connectors	
Microphone	XLRM-type
Instrument	
AEW-R4100	1/4" (6.3 mm) TS unbalanced phone jack
AEW-R5200	1/4" (6.3 mm) TRS balanced phone jack
Headphone Output	
Connector	1/4" (6.3 mm) 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. AEW-R5200: Headphones switchable between Channel 1 and Channel 2
External Mute (AEW-R5200)	1/4" (6.3 mm) TS unbalanced phone jack, each channel
Antenna Terminal Voltage	DC 10V-12V, 20 mA (BNC-type jack)
Computer Interface (AEW-R5200)	
Type	Ethernet, 10 BaseT mode
Connector	RJ-45
Proprietary Software	Supplied on CD-ROM
Power Supply	
AEW-R4100	100–240V AC 50/60 Hz, 8W
AEW-R5200	100–240V AC 50/60 Hz, 15W
Pass-through AC Power Outlet (AEW-R5200)	100–240V AC 50/60 Hz, 5A maximum
Dimensions	
AEW-R4100	8.31" (211.0 mm) W x 1.74" (44.0 mm) H x 9.26" (235.0 mm) D
AEW-R5200	18.98" (482.0 mm) W x 1.74" (44.0 mm) H x 10.85" (275.5 mm) D
Net Weight (without accessories)	
AEW-R4100	3.8 lbs (1.7 kg)
AEW-R5200	8.8 lbs. (4.0 kg)
Accessories Included	
Both receivers	Detachable IEC-type AC power cable; two flexible UHF half-wave antennas; link cable
AEW-R4100	Rack-mount adapters
AEW-R5200	IEC-type AC pass-through cable; front-mount antenna cables and connectors; CD-ROM with computer control interface software; AEW-TB44 transmitter bag

AEW-T1000 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 (not included)	Two 1.5V AA alkaline
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	2.60" (66.0 mm) W x 3.43" (87.0 mm) H x 0.94" (24.0 mm) D; not including antenna
Net Weight (without batteries)	4.4 oz (125 g)

HANDHELD TRANSMITTER

RF Power Output	High: 35 mW; Low: 10 mW, nominal
Spurious Emissions	Under federal regulations
Dynamic Range	≥110 dB, A-weighted
Microphone Element	
AEW-T3300	Cardioid Condenser
AEW-T4100	Cardioid Dynamic
AEW-T5400	Cardioid Condenser
AEW-T6100	Hypercardioid Dynamic
Batteries (not included)	Two 1.5V AA alkaline
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-T3300, AEW-T5400	9.41" (239.0 mm) long, 1.97" (50.0 mm) maximum diameter
AEW-T4100, AEW-T6100	9.33" (237.0 mm) long, 1.89" (48.0 mm) maximum diameter
Net Weight (without batteries)	
AEW-T3300	9.5 oz (270 g)
AEW-T4100	9.7 oz (276 g)
AEW-T5400	10.0 oz (285 g)
AEW-T6100	9.7 oz (275 g)
Accessory Included	AT8456a Quiet-Flex™ stand clamp

† 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.

Optional System Accessories

WIRELESS ESSENTIALS™ MICROPHONES AND CABLES

All Wireless Essentials accessories are terminated for use with AEW-T1000 and other UniPak™ transmitters.

AT829cW	Miniature cardioid condenser lavalier microphone. Includes clothing clip and windscreen.
MT830cW	Subminiature omnidirectional condenser lavalier microphone. Includes clothing clip and windscreen.
MT830cW-TH	"Theater" model, same as MT830cW except beige color mic and cable for concealment.
AT831cW	Miniature cardioid condenser lavalier microphone. Includes clothing clip and windscreen.
AT851cW	Surface-mount wide-range hemi-cardioid condenser microphone.
AT857AMLcW	19" gooseneck cardioid microphone. Mounts to 5/8"-27 thread. Includes windscreen.
AT889cW	Headworn noise-canceling condenser microphone. Includes windscreen and cable clip.
AT899cW	Subminiature omnidirectional condenser lavalier microphone. Includes AT899AK accessory kit.
AT899cW-TH	"Theater" model, same as AT899cW except beige color mic and cable for concealment. Includes AT899AK-TH accessory kit.
ATM35cW	Cardioid condenser instrument microphone. Includes AT8418 clip-on instrument mount.
ATM73cW	Headworn cardioid condenser microphone. Includes windscreen.
ATM75cW	Headworn cardioid condenser microphone. Includes windscreen.
PRO 8HEcW	Headworn hypercardioid dynamic microphone. Includes windscreen and cable clip.
PRO 35xcW	Cardioid condenser instrument microphone. Includes AT8418 clip-on instrument mount.
AT-GCW	Hi-Z instrument/guitar cable with 1/4" phone plug.
XLRW	Connecting cable for UniPak transmitter with an XLRF-type input connector, for Lo-Z microphones with XLRM-type output terminations.

RECEIVER ACCESSORIES

AEW-DA550C	UHF (540-565 MHz) active unity-gain antenna distribution system provides two "1-in, 4-out" RF channels; connects a pair of antennas to as many as four diversity receivers; cascade output provided as a directional coupler. AC pass-through allows daisy-chain AC hookup. Defeatable antenna power. Metal receiver chassis with reinforced mounting ears and rear rack mount capability. Includes detachable IEC power cable, IEC pass-through cable, ten RF cables, front-mount antenna cables and connectors, four DC power cables to power up to four 3000 Series receivers. Mounts in a single 19" rack space.
AEW-DA660D	Same as AEW-DA550C except 655-680 MHz operation.
AT8628a	Joining-plate kit allows rack-mounting two AEW-R4100 receivers side-by-side in a single (1U) 19" rack space.
ATW-A20	Pair of UHF ground-plane antennas with 5/8"-27 thread for mounting to microphone stands, etc. Interchangeable top antenna elements provide optional reception of the 650-686 MHz, 728-746 MHz and 800-865 MHz bands. Takes RF cables with BNC connectors, not included; see RF Cables below.
ATW-A49	Pair of UHF wide-band directional LPDA (log periodic dipole array) antennas provide enhanced signal pickup for UHF wireless systems throughout a wide band range (440-900 MHz). Each antenna paddle is matched to 50 ohms impedance with an integral high-quality low-loss BNC connector; 6 dB gain. For permanent or temporary installation; mounts to 5/8"-27 threads.
ATW-A62P	Pair of UHF (656-668 MHz) powered dipole antennas provides effective signal pickup for diversity UHF wireless systems. Requires 12V DC on antenna cables from receiver or distribution system. Internal gain-setting switch. For permanent or temporary installation; includes portable mounts with 5/8"-27 threads.
ATW-A65	Pair of UHF (655-681 MHz) undirectional Yagi beam antennas provides enhanced signal pickup for UHF wireless systems. Mounts rotate on booms to permit cross-polarized acquisition of diversity signals. Encapsulated baluns with BNC connectors; 10 dB gain. Mounts to 5/8"-27 threads.
RF Cables	Low-loss design, 50 ohm impedance, with BNC-to-BNC connectors: AC12 RG58-type cable (12') AC25 RG8-type cable (25') AC50 RG8-type cable (50') AC100 RG8-type cable (100')

TRANSMITTER ACCESSORIES

AEW-TB44	Transmitter bag, fits four AEW handheld and four AEW body-pack transmitters. Included with 5000 Series systems.
AT8114	Foam windscreen for handheld transmitter.
AT8141	Water-resistant pouch for UniPak transmitter.
AT8390	Shielded audio cable with 1/4" to 1/4" phone plugs. Available in a variety of lengths. (Also available with one straight and one 90° phone plug as the AT8316.)
AT8456a	Stand clamp for handheld transmitter, 5/8"-27 threads.

Artist Elite Series UHF Wireless Operating Frequencies

TV Ch.	Band C: 541.500 - 566.375 MHz							
25	---	---	---	---	541.500	541.625	541.750	541.875
26	542.000	542.125	542.250	542.375	542.500	542.625	542.750	542.875
26	543.000	543.125	543.250	543.375	543.500	543.625	543.750	543.875
26	544.000	544.125	544.250	544.375	544.500	544.625	544.750	544.875
26	545.000	545.125	545.250	545.375	545.500	545.625	545.750	545.875
26	546.000	546.125	546.250	546.375	546.500	546.625	546.750	546.875
26	547.000	547.125	547.250	547.375	547.500	547.625	547.750	547.875
27	548.000	548.125	548.250	548.375	548.500	548.625	548.750	548.875
27	549.000	549.125	549.250	549.375	549.500	549.625	549.750	549.875
27	550.000	550.125	550.250	550.375	550.500	550.625	550.750	550.875
27	551.000	551.125	551.250	551.375	551.500	551.625	551.750	551.875
27	552.000	552.125	552.250	552.375	552.500	552.625	552.750	552.875
27	553.000	553.125	553.250	553.375	553.500	553.625	553.750	553.875
28	554.000	554.125	554.250	554.375	554.500	554.625	554.750	554.875
28	555.000	555.125	555.250	555.375	555.500	555.625	555.750	555.875
28	556.000	556.125	556.250	556.375	556.500	556.625	556.750	556.875
28	557.000	557.125	557.250	557.375	557.500	557.625	557.750	557.875
28	558.000	558.125	558.250	558.375	558.500	558.625	558.750	558.875
28	559.000	559.125	559.250	559.375	559.500	559.625	559.750	559.875
29	560.000	560.125	560.250	560.375	560.500	560.625	560.750	560.875
29	561.000	561.125	561.250	561.375	561.500	561.625	561.750	561.875
29	562.000	562.125	562.250	562.375	562.500	562.625	562.750	562.875
29	563.000	563.125	563.250	563.375	563.500	563.625	563.750	563.875
29	564.000	564.125	564.250	564.375	564.500	564.625	564.750	564.875
29	565.000	565.125	565.250	565.375	565.500	565.625	565.750	565.875
30	566.000	566.125	566.250	566.375	---	---	---	---

TV Ch.	Band D: 655.500 - 680.375 MHz							
44	---	---	---	---	655.500	655.625	655.750	655.875
45	656.000	656.125	656.250	656.375	656.500	656.625	656.750	656.875
45	657.000	657.125	657.250	657.375	657.500	657.625	657.750	657.875
45	658.000	658.125	658.250	658.375	658.500	658.625	658.750	658.875
45	659.000	659.125	659.250	659.375	659.500	659.625	659.750	659.875
45	660.000	660.125	660.250	660.375	660.500	660.625	660.750	660.875
45	661.000	661.125	661.250	661.375	661.500	661.625	661.750	661.875
46	662.000	662.125	662.250	662.375	662.500	662.625	662.750	662.875
46	663.000	663.125	663.250	663.375	663.500	663.625	663.750	663.875
46	664.000	664.125	664.250	664.375	664.500	664.625	664.750	664.875
46	665.000	665.125	665.250	665.375	665.500	665.625	665.750	665.875
46	666.000	666.125	666.250	666.375	666.500	666.625	666.750	666.875
46	667.000	667.125	667.250	667.375	667.500	667.625	667.750	667.875
47	668.000	668.125	668.250	668.375	668.500	668.625	668.750	668.875
47	669.000	669.125	669.250	669.375	669.500	669.625	669.750	669.875
47	670.000	670.125	670.250	670.375	670.500	670.625	670.750	670.875
47	671.000	671.125	671.250	671.375	671.500	671.625	671.750	671.875
47	672.000	672.125	672.250	672.375	672.500	672.625	672.750	672.875
47	673.000	673.125	673.250	673.375	673.500	673.625	673.750	673.875
48	674.000	674.125	674.250	674.375	674.500	674.625	674.750	674.875
48	675.000	675.125	675.250	675.375	675.500	675.625	675.750	675.875
48	676.000	676.125	676.250	676.375	676.500	676.625	676.750	676.875
48	677.000	677.125	677.250	677.375	677.500	677.625	677.750	677.875
48	678.000	678.125	678.250	678.375	678.500	678.625	678.750	678.875
48	679.000	679.125	679.250	679.375	679.500	679.625	679.750	679.875
49	680.000	680.125	680.250	680.375	---	---	---	---

Artist Elite Series Wireless Operating Frequencies

IntelliScan™ Frequency Groups

Band C: 541.500 - 566.375 MHz (TV Ch. 25-30)

Band C Group 1		
TV Ch.	Frequency - MHz	*
25	(None)	0
	-	
26	542.750	6
26	543.000	
26	545.500	
26	546.000	
26	547.125	
26	547.375	
	-	
27	549.500	4
27	549.750	
27	550.375	
27	550.625	
28	557.250	5
28	557.500	
28	558.750	
28	559.250	
28	559.500	
29	562.000	4
29	562.250	
29	563.375	
29	563.625	
30	566.000	2
30	566.250	

Band C Group 2		
TV Ch.	Frequency - MHz	*
25	541.500	1
	-	
26	542.750	7
26	543.250	
26	544.375	
26	544.750	
26	545.750	
26	547.500	
26	547.750	
27	(None)	0
	-	
28	554.250	5
28	556.125	
28	557.250	
28	557.500	
28	559.375	
29	560.000	6
29	561.875	
29	562.250	
29	563.250	
29	563.500	
29	565.500	
30	566.000	1

Band C Group 3		
TV Ch.	Frequency - MHz	*
25	541.500	1
	-	
26	542.125	6
26	543.250	
26	543.500	
26	544.000	
26	546.250	
26	547.875	
	-	
27	548.250	2
27	549.750	
	-	
28	555.750	4
28	556.625	
28	558.250	
28	559.375	
29	560.125	6
29	561.500	
29	562.625	
29	564.000	
29	564.250	
29	565.625	
30	566.125	1

Band D: 655.500 - 680.375 MHz (TV Ch. 44-49)

Band D Group 1		
TV Ch.	Frequency - MHz	*
44	655.500	1
	-	
45	658.000	6
45	658.375	
45	659.250	
45	659.500	
45	661.500	
45	661.750	
	-	
46	662.375	2
46	662.750	
	-	
47	669.625	2
47	671.750	
	-	
48	674.750	8
48	675.125	
48	675.750	
48	676.125	
48	678.000	
48	678.250	
48	679.000	
48	679.500	
49	(None)	0

Band D Group 2		
TV Ch.	Frequency - MHz	*
44	655.875	1
	-	
45	656.250	7
45	657.500	
45	658.500	
45	659.750	
45	660.000	
45	660.500	
45	661.750	
46	664.375	2
46	665.500	
	-	
47	671.625	2
47	672.000	
	-	
48	674.000	6
48	674.500	
48	675.500	
48	675.750	
48	676.750	
48	678.250	
	-	
	-	
49	680.250	1

Band D Group 3		
TV Ch.	Frequency - MHz	*
44	655.500	2
44	655.750	
45	656.625	5
45	656.875	
45	658.500	
45	658.750	
45	659.500	
	-	
	-	
46	662.750	3
46	663.000	
46	665.250	
47	671.250	3
47	672.375	
47	673.125	
48	674.125	6
48	674.500	
48	675.375	
48	675.625	
48	678.625	
48	679.125	
	-	
	-	
49	(None)	0

* Number of wireless frequencies in TV Channel.

For future reference, please record your system information here:

Receivers: AEW-R4100 S/N_____ _____ _____ _____ _____ _____ _____

Serial Number appears on the FCC label on the bottom of the receiver.

AEW-R5200 S/N_____ _____ _____ _____ _____ _____ _____

Serial Number appears on the FCC label on the bottom of the receiver.

Transmitters: AEW-T1000 S/N_____ _____ _____ _____ _____ _____ _____

Serial Number appears on the FCC label on the back of the transmitter.

S/N_____ _____ _____ _____ _____ _____ _____

AEW-T3300 S/N_____ _____ _____ _____ _____ _____ _____

Serial Number appears in a recess in the battery compartment of the transmitter.

S/N_____ _____ _____ _____ _____ _____ _____

AEW-T4100 S/N_____ _____ _____ _____ _____ _____ _____

Serial Number appears in a recess in the battery compartment of the transmitter.

S/N_____ _____ _____ _____ _____ _____ _____

AEW-T5400 S/N_____ _____ _____ _____ _____ _____ _____

Serial Number appears in a recess in the battery compartment of the transmitter.

S/N_____ _____ _____ _____ _____ _____ _____

AEW-T6100 S/N_____ _____ _____ _____ _____ _____ _____

Serial Number appears in a recess in the battery compartment of the transmitter.

S/N_____ _____ _____ _____ _____ _____ _____

One-Year Limited Warranty

Audio-Technica professional wireless systems purchased in the U.S.A. are warranted for one year from date of purchase by Audio-Technica U.S., Inc. (A.T.U.S.) to be free of defects in materials and workmanship. In event of such defect, product will be repaired promptly without charge or, at our option, replaced with a new product of equal or superior value if delivered to A.T.U.S. or an Authorized Service Center, prepaid, together with the sales slip or other proof of purchase date. ***Prior approval from A.T.U.S. is required for return.*** This warranty excludes defects due to normal wear, abuse, shipping damage, or failure to use product in accordance with the instructions. This warranty is void in the event of unauthorized repair or modification, or removal or defacing of the product labeling.

For return approval and shipping information, contact the Service Dept., Audio-Technica U.S., Inc., 1221 Commerce Drive, Stow, Ohio 44224.

Except to the extent precluded by applicable state law, ***A.T.U.S. will have no liability for any consequential, incidental, or special damages; any warranty of merchantability or fitness for particular purpose expires when this warranty expires.***

This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

Outside the U.S.A., please contact your local dealer for warranty details.

Visit our Web Site!

www.audio-technica.com

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Audio-Technica U.S., Inc., 1221 Commerce Drive, Stow, Ohio 44224 330/686-2600 www.audio-technica.com