



5000 Series (Third Generation) Frequency-agile True Diversity UHF Wireless Systems



Features

- Dual-channel receiver provides more than 229 MHz UHF tuning bandwidth (DE1 470.125–590.000 MHz and EG1 580.000–699.875 MHz) for maximum versatility in an ever-congested RF environment
- Antenna cascade output allows 8 receivers to be connected so that a single pair of antennas can feed up to 16 channels of wireless.
- Auto Squelch feature automatically adjusts squelch setting to maximize range while minimizing potential interference
- Wireless network monitoring and control software
- Unique function button on the handheld and body-pack transmitters can be used to switch to a backup frequency (on both transmitter and receiver) should interference be encountered
- Dual compander circuitry processes high and low frequencies separately for unmatched audio quality
- The full-rack receiver chassis holds two independent receivers, and offers antenna power, frequency scan and IR sync functionality, a ground-lift switch, and a front-panel headphone jack
- Dual-mode, highly visible OLED receiver screen can switch between standard view or a performance view that highlights key metering
- Receiver is available with two balanced XLR outputs (ATW-R5220) or with two balanced XLR outputs and a Dante output (ATW-R5220DAN)
- Both transmitters are available in two bands – DE1 (470.125–590.000 MHz) and EG1 (580.000–699.875 MHz) – and offer rugged, ergonomic metal bodies, highly visible OLED displays, soft-touch controls, programmable function button, 80 Hz high-pass filter, and switchable 2/10/50 mW RF power
- Handheld transmitter accepts six interchangeable microphone capsules (based on best-selling Audio-Technica models) that use industry-standard thread mount and provide low-handling noise
- New rugged cH-style connector on body-pack transmitter provides secure connection to lavalier mics, headworn mics, and cables with cH-style screw-down 4-pin connector
- Advanced digital Tone Lock™ squelch effectively blocks stray RF; the digitally encoded tone also communicates transmitter data for receiver display
- 5000 Series components are offered individually – not as preconfigured systems – for greater flexibility

Description

Designed for use on professional tours, in stadiums, concert halls, festivals, houses of worship and other demanding audio environments, the Audio-Technica 5000 Series (Third Generation) provides incredible audio quality and proven, critically acclaimed performance for artists, broadcasters and presenters worldwide. The

rugged dual-channel receiver provides more than 229 MHz UHF tuning bandwidth (DE1 470.125–590.000 MHz and EG1 580.000–699.875 MHz) for maximum versatility in an ever-congested RF environment.

Each of the ATW-R5220 receiver's frequencies can be set manually or with the aid of the receiver's scan feature. An additional backup frequency may also be set and accessed via the transmitter's function button if interference is encountered. An antenna cascade output enables up to eight receivers (16 channels of wireless) to be connected and fed by a single pair of antennas. An auto squelch feature automatically adjusts the squelch setting to maximize operating range while minimizing potential interference.

Each receiver features true diversity reception with RF inputs feeding two completely independent RF sections. Automatic logic circuitry continuously compares and selects the superior received signal, providing better sound quality and reducing the potential for dropouts. Unique dual-compander circuitry processes high and low frequencies separately for unmatched audio quality, and an advanced digital Tone Lock™ squelch helps minimize interference. In addition, the Tone Lock signal from the transmitter also conveys information on the transmitter's battery condition, mute status, RF power setting, high-pass filter setting, gain and transmitter lock status back to the receiver for display. The dual-mode, highly visible OLED receiver display switches between a main screen (that displays the frequency, RF and AF levels, antenna power, transmitter information and more) and a performance mode screen with a more detailed display of important performance indicators. All receiver functions are accessed via the soft-touch buttons and the control dial located on the front panel of each receiver. A front-panel 6.3 mm (¼") headphone jack with volume control and channel-selection switch enables the monitoring of either receiver.

The receiver is available with two balanced XLR outputs (ATW-R5220) or with two balanced XLR outputs and a Dante output (ATW-R5220DAN). A standard Ethernet connection is provided to interface the receiver with an external computer control and monitoring package (this connection doubles as the Dante output terminal on ATW-R5220DAN). Designed around an interactive graphical user interface, the software provides remote control and monitoring functions for all networked receivers.

Designed to operate from mains AC, the dual receiver incorporates a single universal self-selecting internal power supply with standard IEC power connector, eliminating the need for a wall wart. XLR balanced outputs with adjustable attenuator allow the receiver to function with a wide variety of mixers and control equipment. Rear panel BNC-type connectors are provided for the detachable ¼ wave antennas. The dual receiver is full-width for a standard 1U 19" rack-mount. Includes two flexible UHF antennas, a power cable (country dependent), and four legs with four mounting screws.

Two transmitters are available for use with the 5000 Series: ATW-T5201 body-pack transmitter and ATW-T5202 handheld transmitter. Both transmitters feature rugged, ergonomic metal bodies, highly visible OLED screens, power/mute indicator LED (illuminates green when power is on, red when the transmitter is muted), soft-touch controls that can be used to set: frequency, name, gain, RF power, high-pass filter and others. A programmable function button that can be set to: disabled, mute, mute onlock, backup frequency. The transmitters are

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available in two different frequency ranges – DE1 (470.125–590.000 MHz) and EG1 (580.000–699.875 MHz) – to provide complete coverage of the receiver’s bandwidth. Both transmitters operate using two AA batteries (alkaline or NiMH).

Each transmitter’s OLED screen displays important operating information, including lock status, battery level, RF output level, and high-pass filter status. The screen can be switched to prominently display one of three indicators: frequency, transmitter name, or group and channel. Users can configure the transmitter settings by using the transmitter’s soft-touch controls, or settings can be made on the receiver and transferred to the transmitter via the system’s convenient IR Sync functionality. Settings will remain as set even if the transmitter loses power or the batteries are removed.

The ATW-T5201 body-pack transmitter has the soft-touch controls under the battery cover to prevent accidental activation and a rugged cH-style connector to provide secure connection to lavalier mics, headworn mics, and cables with a cH-style screw-down 4-pin connector. The transmitter supplies 10V DC bias to power condenser microphones. Constructed of metal, the body-pack transmitter features a field-replaceable whip antenna and comes with an AT-BG3 protective carrying case.

The ATW-T5202 handheld transmitter is equipped with an industry-standard thread mount that makes it compatible with six interchangeable microphone capsules (based on best-selling Audio-Technica models) as well as capsules from other manufacturers that use the industry-standard thread. The transmitter has a rugged, ergonomic metal housing with integral antenna and offers low handling noise. It includes an AT8456a Quiet-Flex stand clamp, a 5/8"-27 male to 3/8"-16 female threaded screw adapter, and an AT-BG3 protective carrying case.

Six Audio-Technica microphone capsules are available for use with the ATW-T5202 handheld transmitter. Each capsule is equipped with an industry-standard thread mount and a multi-stage grille for excellent protection against plosives.

The ATW-C5400 cardioid condenser microphone capsule features the same sound characteristics as the Artist Elite® AE5400 microphone, which was based on the classic AT4050 studio microphone created for vocal applications. The element’s large diaphragm assures an accurate, natural response and delivers the pristine sound quality demanded by discriminating microphone users. The cardioid polar pattern with outstanding rejection qualities improves isolation of the desired sound source, and the superior anti-shock engineering ensures low handling noise and quiet performance.

The ATW-C3300 cardioid condenser microphone capsule features the same sound characteristics as the Artist Elite® AE3300 microphone, which was based on the classic AT4033 studio microphone created for vocal applications. The element’s well-tempered polar pattern with outstanding rejection qualities includes internal shock mounts for low handling noise.

The ATW-C6100 hypercardioid dynamic microphone capsule features the same sound characteristics as the Artist Elite® AE6100 microphone. With a polar pattern tailored for outstanding on-axis response, high output, fast transients and clean articulation, the capsule offers maximum feedback rejection and superior anti-shock engineering for low handling noise.

The ATW-C4100 cardioid dynamic microphone capsule features the same sound characteristics as the Artist Elite® AE4100 microphone. The element includes internal shock mounts for low handling noise.

The ATW-C710 cardioid condenser microphone capsule features the same sound characteristics as the ATM710 microphone. It is tailored for exacting detail and high-fidelity vocal reproduction. The Cardioid polar pattern reduces pickup of sounds from the sides and rear, improving isolation of desired sound source.

The ATW-C510 cardioid dynamic microphone capsule features the same sound characteristics as the ATM510 microphone. It is tailored for smooth, natural vocal reproduction, and its cardioid polar pattern provides excellent off-axis rejection for minimum feedback.

5000 Series components are offered individually – not as preconfigured systems – for greater flexibility.

Architect’s and Engineer’s Specifications

The frequency-agile automatic scanning FM wireless system shall consist of a dual receiver and the appropriate transmitters. The system shall be capable of operating in more than 229 MHz UHF tuning bandwidth (DE1 470.125–690.000 MHz and EG1 580.000–699.875 MHz). The all-metal dual receiver shall provide an automatic scanning function to select local usable channels for proper wireless system operation. In addition, it shall be possible to set up, control and monitor all pertinent receiver functions using a standard Ethernet network and the supplied control software. The control software shall have an easy to read graphical user interface All receiver functions of the dual receiver shall be controlled by soft-touch buttons and a control dial on the front panel of each individual receiver. Each channel of the dual receiver shall be a true diversity receiver with two independent internal tuner sections, automatically selecting the highest quality signal for the receiver’s output. The receiver shall incorporate a dual compander system for processing high and low audio frequencies separately. The system will be equipped with an advanced Tone Lock™ digital identification system to ensure that only the desired wireless microphone transmitter allows the receiver to be un-muted. A dual-mode, highly visible OLED receiver screen shall switch between a main screen (that displays the frequency, RF and AF levels, antenna power, transmitter information and more) and a meter screen with a more detailed display of important performance indicators. The display in conjunction with the soft-touch buttons and control dial shall be used to configure and set up the receiver’s operating parameters. It shall also be possible to configure transmitter settings via IR sync functionality. It shall be possible to lock out all receiver front panel controls to prevent unauthorized operation either via the hardware or software control application. A front panel headphone connection with receiver selection and independent output level control shall be provided for audio confidence monitoring. The receiver shall have a rear panel selector to lift the ground connection from pin 1 of the XLR-type output connector to prevent ground loops. All receivers shall provide balanced analog audio outputs. The receiver shall have a network interface that allows it to be connected to a PC via standard Ethernet cable so the wireless system can be monitored or controlled through the PC. On an optional version of the receiver this interface shall also serve as a Dante output terminal. The receiver shall be able to be powered by 100–240V AC 50–60 Hz and incorporate a detachable power cable assembly using standard IEC connections. Antennas shall be located on the rear of the receiver and shall incorporate standard BNC-type connectors to allow them to be detached from the receiver to facilitate the receiver being used with external antennas or antenna distribution devices. Antenna outputs are also provided allowing up to 8 total receivers (16 ch) to operate from a pair of antennas. Switchable 12V DC antenna power shall be provided to power external active antenna system devices. The receiver’s design shall provide totally silent audio output mute when the wireless transmitter is turned off or signal is lost. The dual receiver shall be industrial black and gray and shall mount in a standard 1U 19" rack space. The receiver shall include two flexible UHF antennas, a power cable (country dependent), and four legs with four mounting screws.

A body-pack transmitter and a handheld transmitter shall be available for use with the wireless system. Both transmitters shall have rugged, ergonomic metal bodies, highly visible OLED screens, power/mute indicator LED (illuminates green when power is on, red when the transmitter is muted), soft-touch controls, programmable function button that can be set to switch to a backup frequency or mute the transmitter, other assignable functions, adjustable gain setting (-10 dB to +20 dB), selectable sensitivity 0 or 10 dB, 80 Hz high-pass filter, and switchable RF power (2 mW/10 mW/50 mW). Both transmitters shall be available in two different frequency ranges – 470.125–590.000 MHz and EF2 580.000–607.875 MHz, 657.100–662.900 MHz – to provide complete coverage of the receiver’s bandwidth. Both transmitters shall operate using two AA batteries (alkaline or NiMH).

Each transmitter’s OLED screen shall display important operating information, including lock status, battery level, RF output level, and high-pass filter status. The screen shall be switchable to prominently display one of three indicators: frequency, transmitter name, or group and channel. Transmitter settings shall be configured by using the transmitter’s soft-touch controls, or settings can be made on the receiver and transferred to the transmitter via the system’s convenient IR Sync functionality. Settings shall remain as set even if the transmitter loses power or the batteries are removed.

It shall be possible to electrically lock a transmitter’s mute/power function. Each transmitter shall utilize a dual-compander system to process high and low audio frequencies separately and shall incorporate a digital tone lock to identify the transmitter to the receiver. A digital communications protocol shall enable the transmitter to send operational function data to the receiver.

The frequency-agile FM wireless body-pack transmitter shall provide 10V DC power to microphones requiring DC bias. It shall have a reversible clothing clip allowing for up or down cable entry. The transmitter shall have a cH-style screw-down 4-pin connector for secure connection to lavalier mics, headworn mics, and cables. The transmitter’s hinged, locking battery cover shall also protect the controls from unauthorized access. The transmitter shall have a removable and field-replaceable whip antenna, and come with AT-BG3 protective carrying case.

The frequency-agile FM wireless handheld transmitter shall be equipped with an industry-standard thread mount, making it compatible with six Audio-Technica interchangeable microphone capsules specially designed for use with transmitter, as well as capsules from other manufacturers that use the industry-standard thread. The transmitter shall have a rugged, ergonomic metal housing with an integral antenna and a screw-on grip case to protect the controls from unauthorized access and to provide access to the battery compartment. The transmitter shall have a selectable input gain sensitivity setting of 0 dB or +10 dB. It shall include a heavy-duty stand clamp, a 3/8"-27 male to 3/8"-16 female threaded screw adapter, and AT-BG3 protective carrying case.

Six specially designed microphone capsules – three cardioid condenser capsules, two cardioid dynamic capsules, and one hypercardioid dynamic capsule – shall be available for use with the handheld transmitter. Each capsule shall be equipped with an industry-standard thread mount and a multi-stage grille for excellent protection against plosives.

The components of the wireless system shall be offered individually – not as preconfigured systems – for greater flexibility.

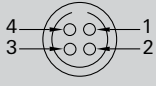
The wireless system components shall be an Audio-Technica (note to specifier: choose one.)

- ATW-R5220 – 5000 Series diversity dual receiver with Ethernet connection
- ATW-R5220DAN – 5000 Series diversity dual receiver with Dante output
- ATW-T5201 – 5000 Series body-pack transmitter with cH-style screw-down 4-pin connector
- ATW-T5202 – 5000 Series handheld microphone/transmitter body
- ATW-C5400 – Cardioid condenser microphone capsule
- ATW-C3300 – Cardioid condenser microphone capsule
- ATW-C6100 – Hypercardioid dynamic microphone capsule
- ATW-C4100 – Cardioid dynamic microphone capsule
- ATW-C710 – Cardioid condenser microphone capsule
- ATW-C510 – Cardioid dynamic microphone capsule

Specifications	Overall system
Operating frequencies ATW-R5220 Receiver	Band DE1: 470.125 to 590.000 MHz (9191 frequencies) Band EG1: 580.000 to 699.875 MHz, (9191 frequencies)
ATW-T5201/ATW-T5202 Transmitters	ATW-T5201/ATW-T5202 Transmitters Band DE1: 470.125 to 590.000 MHz (4796 frequencies) Band EG1: 580.000 to 699.875 MHz (4796 frequencies) (Please note that some frequency bands might not be available in your territory or could come with limited tuning bandwidth / transmitting power due to local regulations.)
Minimum frequency step	25 kHz
Modulation mode	FM
Maximum deviation	ATW-T5201: ±40 kHz (THD:10%) ATW-T5202: ±40 kHz (THD:10%)
Dynamic range (A-weighted, typical)	ATW-T5201 Mic input: > 120 dB ATW-T5201 Inst input: > 107dB ATW-T5202: > 116 dB
Total harmonic distortion	<1.0% (at 1 kHz, ±17.5 kHz deviation)
Operating range	100 m (328') typical (open range environment with no interfering signals)
Frequency response	ATW-T5201: 23 Hz to 16,300 Hz ATW-T5202: 33 Hz to 16,300 Hz (Frequency response depends on attached microphone element)

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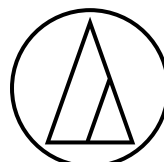
Specifications (continued)		ATW-R5220 receiver
Receiving system		True Diversity
Image rejection		80 dB nominal
RF sensitivity		18 dBuV at 60 dBA S/N ratio (50 ohms termination)
Maximum output level		XLR Balanced: +18 dBV
Headphone Output Connector		6.3 mm (¼") TRS Stereo
Headphone Output Power		180 mW, typical
Antenna input		BNC-type, 50 ohms
Antenna power		12 V DC, 150 mA x 2
Power supply		100-240 VAC 50/60 Hz
Dimensions		482.0 mm (18.98") W x 361.0 mm (14.21") D x 43.0 mm (1.69") H
Net weight		4,800 g (169.3 oz), without accessories
Accessories included		Two Flexible UHF antennas; Power Cable (country dependent); Legs x4 (4 mounting screws)

		ATW-T5201 body-pack transmitter
RF power output		High: 50 mW, Mid: 10 mW, Low: 2 mW (switchable), at 50 ohms (country dependent)
Spurious emissions		Following federal and national regulations
Input connection		cH-style screw-down 4-pin connector Pin 1: GND Pin 2: INST INPUT Pin 3: MIC INPUT Pin 4: DC BIAS +10V
		
High-pass (low-freq. roll-off)		80 Hz, 12 dB/octave
Batteries		Two 1.5V AA, not included
Battery life		High: 7 hours (alkaline) Mid: 9 hours (alkaline) Low: 10.5 hours (alkaline) (Depending on battery type, usage and environmental conditions.)
Dimensions		62.0 mm (2.44") W x 70.0 mm (2.75") D x 17.0 mm (0.67") H
Net weight		92 g (3.2 oz)
Operating Temperature Range		-5 °C to +45 °C (23 ° F to 113 °F)
Accessories Included		AT-BG3 Protective Carrying Case

		ATW-T5202 handheld transmitter
RF power output		High: 50 mW, Mid: 10 mW, Low: 2 mW (switchable), at 50 ohms (country dependent)
Spurious emissions		Following federal and national regulations
Microphone capsule		Interchangeable industry-standard thread
High-pass (low-freq. roll-off)		80 Hz, 12 dB/octave
Batteries		Two 1.5V AA, not included
Battery life		High: 6.5 hours (alkaline) Mid: 8 hours (alkaline) Low: 9.5 hours (alkaline) (Depending on battery type, usage and environmental conditions.)
Dimensions		ATW-T5202 (without capsule): 193 mm (7.60") long, 37 mm (1.46") maximum diameter ATW-T5202/C510: 265 mm (10.43") long, 54 mm (2.13") maximum diameter ATW-T5202/C710: 271 mm (10.67") long, 50 mm (1.97") maximum diameter
Net weight (without batteries)		ATW-T5202 (without capsule): 200g (7.1oz) ATW-T5202/C510: 330g (11.6oz) ATW-T5202/C710: 314g (11.1oz)
Operating Temperature Range		-5 °C to +40 °C (23 ° F to 104 °F)
Accessory included		AT8456a Quiet-Flex™ stand clamp (⅝"-27 male to ⅜"-16 female threaded screw adapter) AT-BG3 Protective Carrying Case

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

Specifications are subject to change without notice.



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