# 2000 Series

audio-technica

## Frequency-agile True Diversity UHF Wireless Microphone Systems

### Features

- **High sensitivity dual IF receiving design for dropout-free performance**
- **Automatic frequency scanning finds open channel**
- **High efficiency compander for flawless audio**
- **10 compatible user-switchable channels in one of two UHF frequency ranges**
- **Antenna power available for powered antennas & other in-line RF devices**
- **Receiver internal function menu with soft-touch controls**
- **Straightforward channel selection process**
- **Digital Tone Lock™ squelch**
- **Adjustable receiver squelch**
- **True diversity receiver with silent, automatic switching**
- **Tuner operation indicator displays tuner with strongest reception**
- **Receiver front panel displays for RF and AF signal levels**
- **AC or 12–18 V DC operation**
- **Rear panel or front panel antenna mount options**
- **Balanced and unbalanced outputs**
- **Output level control on the rear panel**
- **Switchable transmitter power output with high and low settings offered**
- **Ground lift switch on balanced output**
- **Rugged metal receiver construction**
- **Mounts in a single rack space (1 or 2 units)**
- **Simple single switch transmitter power/mute operation**
- **Positive action transmitter switch with tactile feel**
- **Clear sound quality, rock solid, dependable performance**

### Description

The 2000 Series frequency-agile True Diversity UHF wireless systems deliver professional audio and RF performance unheard of in its class. Straightforward setup, automatic scanning, and other advanced wireless features brings its performance to a standard that provides the audio quality and reliability necessary for the quality sound systems of today.

The ATW-R2100b receiver features automatic frequency scanning that eliminates the need for searching for clear channels by automatically selecting the most appropriate frequency for the area in which the wireless is operating. A pre-coordinated integral channel plan allows for simultaneous operation of any of the ten channels in a given location. The flexibility in programming both the receiver and transmitters eliminates confusing frequency groups and other frequency coordination problems. Advanced Tone Lock™ adjustable squelch system fights interference. Features not often found in other receivers include balanced XLR-type and unbalanced 1/4" output connections, ground-lift switch on XLR-type output, metal receiver construction, detachable receiver antennas, field replaceable body-pack transmitter antenna, high-pass filter, adjustable squelch, and control of input sensitivity. A two-position switch turns on/off 12V AC antenna power for use with powered antennas or accessories.

The ATW-T210a UniPak® body-pack transmitter features a latching cover to protect the internal controls from being accidently activated and a recessed 4-pin HRS-type locking input connector to increase the life of the microphone cable. Inputs are available on the transmitter for low impedance microphone, and high impedance musical instrument or line input. The transmitter supplies DC bias voltage to power condenser microphones. A straightforward recessed power/mute switch allows for operation without the need to look at the transmitter. A red LED power/battery indicator glows when the transmitter is turned on and the batteries are in operating condition. An RF power select switch offers high and low settings.

The ATW-T220a handheld transmitter uses a PRO 41-type dynamic unidirectional capsule to maintain sonic consistency with wired counterparts. Adjustable trim control helps match the microphone to the audio source and an ergonomically designed handle and end-mounted recessed controls help maintain a clean uncluttered appearance. A rugged steel head case protects the capsule while providing relief from wind-induced noise. Both transmitters function with standard readily available AA alkaline batteries providing over 8 hours of operation and feature an easy-to-configure channel selection switch. An RF power select switch offers high and low settings.

### Architect's and Engineer's Specifications

The frequency-agile FM wireless microphone system shall consist of a receiver and appropriate transmitter. Offered in two UHF bands, 656.125–678.500 and 487.125 – 506.500 MHz, the wireless system shall be capable of operating on any of 10 PLL-synthesized channels. Simultaneous operation of any of the ten channels shall be possible without the need for frequency groups or presets.

The frequency-agile FM wireless receiver shall be all-metal and shall provide an automatic scanning function to select appropriate local usable channels for proper wireless system operation. Functions of the receiver shall be controlled by soft-touch controls on the receiver front panel. It shall be a True Diversity receiver with two independent internal receiver sections, automatically selecting the highest quality signal for the receiver's output. The system will be equipped with a Tone Lock™ digital identification system to ensure that only the desired wireless microphone transmitter allows the receiver to be un-muted. Visual indication of the channel selected shall be provided on the front panel. The receiver shall continuously monitor and display the RF signal strength and the selection of internal dual (True Diversity) receiver sections along with the audio modulation level of the received signal. A front panel power switch shall be provided along with illuminated display indicating receiver is active. A two-position switch shall turn on/off the12V AC antenna power for use with powered antennas or accessories.

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. Both XLR-type and 1/4" audio output connections shall be provided. Output gain and squelch level adjustments shall be provided on the rear panel of the receiver. The receiver shall be able to be powered by 120V AC 60 Hz or 12–18V DC at 500 mA. The receiver as supplied can be rack-mounted singly or in pairs in a single rack space. The receiver's design shall provide totally silent audio output mute when the wireless transmitter is turned off or signal is lost. The wireless receiver and the supplied metal rack-mounting brackets shall be industrial black.

The frequency-agile FM wireless body-pack transmitter shall be part of a wireless system operating in the UHF bands of 656.125 – 678.500 or 487.125 – 506.500 MHz. The body-pack transmitter shall have inputs for microphone and line level inputs. It shall provide DC voltage to power microphones requiring DC bias. The body-pack transmitter shall have a

reversible clip allowing for up or down cable entry. A two-position positive-action mechanical power/mute switch operable without looking at the transmitter shall be provided. Transmitters using separate mute and power buttons shall be unacceptable. The transmitter shall have a recessed input connector and illuminated indicator to indicate battery condition. Ten selectable channels shall be available. Channel selection shall be via a recessed rotary selector and the proper tool shall be included with the transmitter. An RF power select switch shall offer high and low settings. The device shall have an LED indicator when it is turned on. There shall be individual trim adjustments on each input. The transmitter shall include Tone Lock™ to identify the wireless transmitter to the wireless receiver. This transmitter shall operate on two AA batteries. All channel settings and level adjustments shall be hidden behind a latching cover to prevent unnecessary access. The transmitter shall have a removable and field replaceable antenna.

The frequency-agile FM wireless handheld transmitter shall incorporate a cardioid dynamic element shall be part of a wireless system operating in the band of 656.125–678.500 MHz. The element shall be protected by a rugged metal head case with integral two-stage pop filter. A two-position positive-action mechanical power/mute switch operable without looking at the transmitter shall be provided. Transmitters using separate mute and power buttons shall be unacceptable. The transmitter shall have an illuminated indicator to signify battery condition. 10 selectable channels shall be available. Channel selection shall be via a recessed rotary selector and the proper tool shall be included with the transmitter. An RF power select switch shall offer high and low settings. The device shall have an LED indicator when it is turned on. There shall be a trim adjustment to allow input gain changes. The transmitter shall include a Tone Lock™ to identify the wireless transmitter to the wireless receiver. This transmitter shall operate on two AA batteries. All channel settings and level adjustments shall be hidden behind a removable cover to prevent unnecessary access. The transmitter shall have an integral antenna and be constructed of high-impact materials. A heavy-duty stand clamp shall be included with the transmitter.

The wireless system shall be an Audio-Technica (note to specifier: choose one):
ATW-2110b – Basic Body-pack System
ATW-2120b – Basic Handheld System
ATW-2129b – Body-pack System with Lavalier Microphone
ATW-2192b – Body-pack System with Miniature Headworn Microphone (black)
ATW-2192b-TH – Body-pack System with Miniature Headworn Microphone (beige)

## Specifications

| | **Overall system** |
|---|---|
| UHF operating frequencies | Band D: 656.125–678.500 MHz, 10 channels.<br>Band I: 487.125–506.500 MHz, 10 channels.<br>Not all frequencies are available in all areas. Please check with local regulations. |
| Modulation mode | FM |
| Maximum deviation | ±40 kHz |
| Dynamic range | > 110 dB (A-weighted), typical |
| Total harmonic distortion | < 1% (at 1 kHz, ±20 kHz deviation) |
| Operating range | 100 m (300'), typical (open range environment with no interfering signals) |
| Operating temperature range | 5° C (41° F) to 45° C (113° F)<br>(battery and LCD performance may be reduced at very low temperatures) |
| Frequency response | 100 Hz to 15 kHz (+1 dB, -3 dB) |

| | **ATW-R2100b receiver** |
|---|---|
| Receiving system | True diversity |
| Image rejection | 60 dB nominal, 55 dB minimum |
| RF sensitivity | 20 dBuV at 60 dB S/N ratio (50 ohms termination) |
| Maximum output level | |
| XLR, balanced: | +9 dBV |
| 1/4" (6.3 mm), unbalanced: | +4 dBV |
| Balanced audio output attenuator | Two position switch: 0/-12 dB |
| Antenna input | BNC-type, 50 ohms<br>Bias voltage 12V DC, 60 mA, each |
| Power requirements | 12-18V DC, 500 mA |
| Dimensions | 210.0 mm (8.27") W x 162.2 mm (6.39") D x 44.0 mm (1.73") H (not including BNC connectors or feet) |
| Net weight | 1.0 kg (35.3 oz), without accessories |
| Accessories included | Two flexible UHF antennas; AC adapter (country dependent); rack-mount adapters |

| | **ATW-T210a UniPak® transmitter** |
|---|---|
| RF power output (50 ohms) | High: 30 mW, Low: 10 mW (switchable) |
| Spurious emissions | Following federal and national regulations |
| Input connection | Four-pin locking connector<br>  <br>Pin 1: GND<br>Pin 2: INST INPUT<br>PIN 3: MIC INPUT<br>PIN 4: DC BIAS +9V |
| Batteries | Two 1.5V AA alkaline (not included)<br>or two 1.2V AA NiMH (not included)<br>*Recharging power for NiMH batteries (with ATW-CHG2)*<br>*U.S./Canada/Latin America: 3.2 V DC ⎓ 230 mA x2*<br>*Other world areas: 3.2 V DC ⎓ 320 mA x2* |
| Battery life | High: 7 hours (alkaline), Low: 9 hours (alkaline)<br>Depending on battery type and use pattern |
| Dimensions | 66.0 mm (2.60") W x 22.5 mm (0.89") D x 92.3 mm (3.63") H |
| Net weight | 81 g (2.9 oz), without batteries |

| | **ATW-T220a handheld transmitter** |
|---|---|
| RF power output (50 ohms) | High: 30 mW, Low: 10 mW (switchable) |
| Spurious emissions | Following federal and national regulations |
| Microphone element | Dynamic, cardioid |
| Batteries | Two 1.5V AA alkaline (not included)<br>or two 1.2V AA NiMH (not included)<br>*Recharging power for NiMH batteries (with ATW-CHG2)*<br>*U.S./Canada/Latin America: 3.2 V DC ⎓ 230 mA x2*<br>*Other world areas: 3.2 V DC ⎓ 320 mA x2* |
| Battery life | High: 7 hours (alkaline), Low: 9 hours (alkaline)<br>Depending on battery type and use pattern |
| Dimensions | 232.0 mm (9.13") long, 48.0 mm (1.89") diameter |
| Net weight | 252 g (8.9 oz), without batteries |
| 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.

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