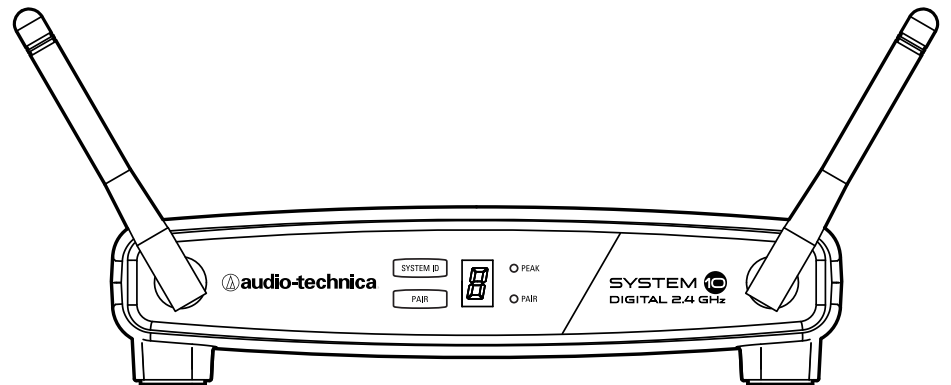

System 10

Digital Wireless System
Installation and Operation



ATW-1101

UniPak® Transmitter System

ATW-1101/G

Guitar System

ATW-1101/H

Headworn Microphone System

ATW-1101/H92

Miniature Headworn Microphone System

ATW-1101/H92-TH

Miniature (beige) Headworn Microphone System

ATW-1101/L

Lavalier Microphone System

ATW-1102

Handheld Microphone System

System 10 Installation and Operation



CAUTION

**RISK OF ELECTRIC SHOCK
DO NOT OPEN**



WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT REMOVE SCREWS. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THE APPLIANCE TO RAIN OR MOISTURE.

CERTIFICATION: THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. THIS DEVICE COMPLIES WITH INDUSTRY CANADA LICENSE-EXEMPT RSS STANDARD(S). OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.

Cet appareil est conforme à la/aux norme(s) RSS exempte(s) de licence d'Industrie Canada. Son fonctionnement est soumis aux deux conditions suivantes : (1) cet appareil ne doit pas causer d'interférence et (2) cet appareil doit accepter toutes les interférences, y compris celles susceptibles de provoquer un fonctionnement non souhaité.

WARNING: Changes or modifications not expressly approved in writing by Audio-Technica may void the user's authority to operate this equipment.

RF Exposure Statement: This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

This receiver must be positioned at least 20 cm away from any persons when in use.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

CAUTION! Electrical shock can result from removal of the receiver cover. Refer servicing to qualified service personnel. No userserviceable parts inside. Do not expose to rain or moisture. 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.

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.

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Unplug this apparatus during lightning storms or when unused for long periods of time.
10. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

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 wireless microphone system is the successful result of years of design and manufacturing experience.

Audio-Technica's System 10 is an eight-channel digital wireless system designed to provide rock-solid performance along with easy setup and clear, natural sound quality. Featuring stackable, contemporary styling, System 10 is available in handheld, headworn, guitar, lavalier and body-pack configurations. Operating in the 2.4 GHz range, far from TV and DTV interference, System 10 offers extremely easy operation and instantaneous channel selection. Up to eight channels may be used together without any frequency coordination problems or group selection issues.

System 10 wireless ensures clear communications by providing three levels of diversity assurance: frequency, time, and space. Frequency Diversity sends the signal on two dynamically allocated frequencies for interference-free communication. Time Diversity sends the signal in multiple time slots to maximize immunity to multipath interference. Finally, Space Diversity uses two antennas on each transmitter and receiver to maximize signal integrity.

Each System 10 professional digital wireless system includes a receiver and either a body-pack transmitter or a handheld microphone/transmitter. ATW-1101 UniPak® body-pack transmitter systems include models pre-packaged with either an AT-GcW guitar cable (G), a PRO 8HEcW headworn microphone (H), a PRO 92cW headworn microphone (H92), a PRO 92cW-TH headworn microphone (H92-TH), or an MT830cW lavalier mic (L) for particular applications. All A-T Wireless Essentials® microphones and cables, available separately, are pre-terminated for use with any ATW-1101 system.

Because System 10 packaging is designed to hold all versions of the system, some compartments in the carton may be intentionally left empty.

The ATW-R1100 receiver includes a switching power supply that automatically adapts to changes in mains voltage.

The versatile ATW-T1001 UniPak body-pack transmitter has both a high-impedance input for instruments, and a low-impedance input with bias connection for use with dynamic and electret condenser microphones. The ATW-T1002 handheld transmitter features a unidirectional dynamic microphone element.

Both the body-pack and handheld transmitters use internal AA batteries and have Power/Mute switches and input Trim (level) adjustments.

Receiver Installation

Location

For best operation the receiver should be at least 3' (1 m) above the ground and at least 3' (1 m) away from a wall or metal surface to minimize reflections. Keep the receiver antennas away from noise sources such as other digital equipment, microwave ovens, as well as away from large metal objects. **Keep System 10 receiver 30' (9 m) away from wireless access points.** In multi-channel systems, position receivers at least 3' (1 m) apart and keep operating transmitters at least 6' (2 m) from the receivers to help assure maximum RF performance.

Output Connection

There are two audio outputs on the back panel: balanced XLR-type output and unbalanced ¼" TRS phone jack. Use shielded audio cable for the connection between the receiver and the mixer. If the input of the mixer is a ¼" jack, connect a cable from the ¼" unbalanced audio output on the back of the receiver housing to the mixer. If the input of the mixer is an XLR-type input, connect a cable from the balanced XLR-type audio output on the back panel to the mixer.

Power Connection

Connect the DC plug on the included AC power adapter to the DC power input on the back of the receiver. Secure the cord over the cord hook on the back of the receiver, to keep the plug from being detached by an accidental tug on the cord. Then plug the adapter into a standard 120 Volt 60 Hz AC power outlet.

(Note that the receiver has no power Off/On switch. The receiver will be energized whenever the power adapter is connected and plugged into the AC outlet. Unplug the power supply from the AC outlet when the system is not in use — both for safety, and to conserve energy.)

Antennas

Rotate the permanently attached antennas in the shape of a "V" (both 45° from vertical) for best reception.

ATW-R1100 Receiver Controls and Functions

Figure A — Front Panel Controls and Functions

1. Antennas: Position the antennas as shown.
2. System ID Select Switch: Press to cycle through System ID numbers. (System ID is an identical number assigned to a paired receiver and transmitter for identification purposes.)
3. System ID Display: Shows System ID number.
4. Pairing Switch: Press to initiate pairing.
5. AF Peak Indicator: Only lights when audio distortion is present at maximum modulation. Not affected by position of Volume control.
6. Pair Indicator: Glows green to indicate presence of paired transmitter. Also blinks green to indicate pairing mode activated.

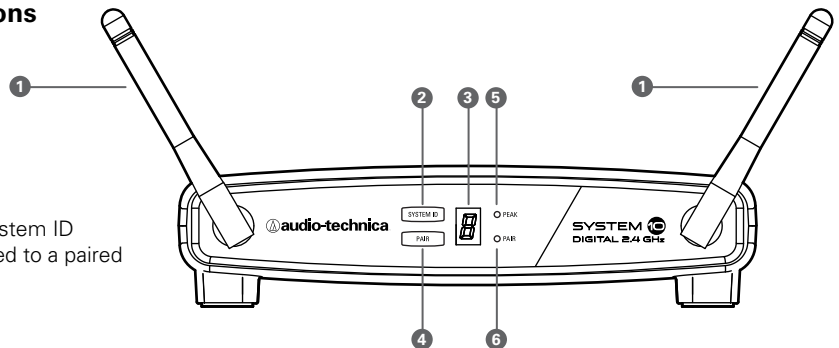
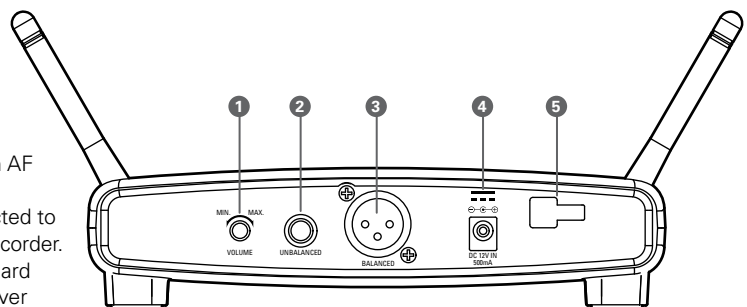


Figure B — Rear Panel Controls and Functions

1. AF Level (Volume) Control: Adjusts audio output level of both AF Output jacks; maximum output is fully clockwise.
2. Unbalanced Audio Output Jack: ¼" phone jack. Can be connected to an unbalanced aux-level input of a mixer, guitar amp or tape recorder.
3. Balanced Audio 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.
4. Power Input Jack: Connect the DC from the included in-line AC adapter.
5. Cord Hook: Loop the cord around the cord hook to keep the DC plug from pulling out accidentally.



System 10 Installation and Operation

ATW-T1002 Transmitter Setup Controls and Functions

Battery Selection and Installation

Two alkaline AA batteries are recommended. When inserting the battery, *observe correct polarity as marked inside the battery compartment.*

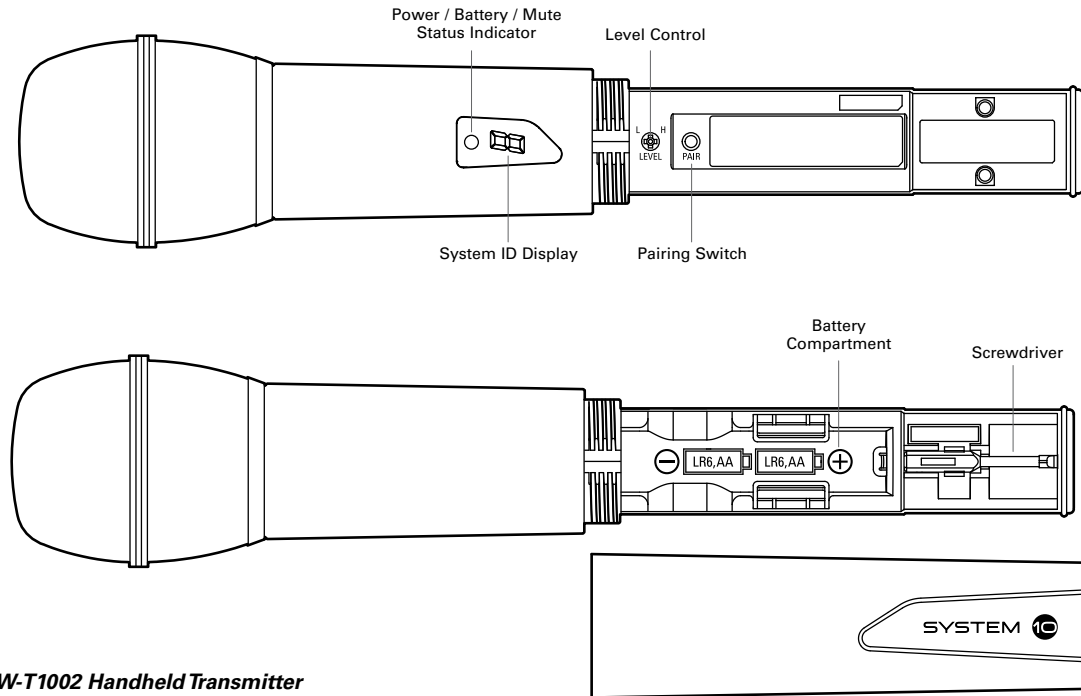


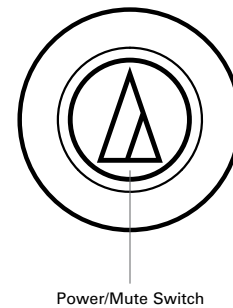
Figure C – ATW-T1002 Handheld Transmitter

Handheld Transmitter Battery Installation

1. While holding the upper part of the transmitter body just below the ball-screen, unscrew the lower body cover and slide it off to expose the battery compartment (Fig. C).
2. Carefully insert two fresh AA alkaline batteries, observing polarity markings.
3. Screw the body back together. *Do not overtighten.*

Handheld Transmitter Battery Condition Indicator

After the batteries are installed, press and hold the Power/Mute switch on the bottom of the handheld transmitter until the indicator LED turns green. If the indicator LED does not light up when the Power/Mute switch is pressed, the batteries are installed incorrectly or they are dead. The indicator LED will flash to show low-battery condition.



Power/Mute Switch

Handheld Transmitter Mute Function

With the transmitter on, a slight touch of the power switch will toggle between muted and unmuted operation. Red indicator LED shows muted operation. Green indicator LED shows unmuted operation.

Handheld Transmitter Pairing Switch

Used to complete pairing sequence. See page 6.

Handheld Transmitter Level Control

Used to set microphone level. See page 6.

Handheld Transmitter Screwdriver

Used to adjust Level Control. See page 6.

Handheld Transmitter System ID Display

Shows System ID. See page 6. **Note:** System ID is an identical number assigned to a paired receiver and transmitter for identification purposes. When Power is applied, the System ID Display on the transmitter glows bright and then turns off to conserve battery life. To turn the System ID Display back on, mute and unmute the transmitter.

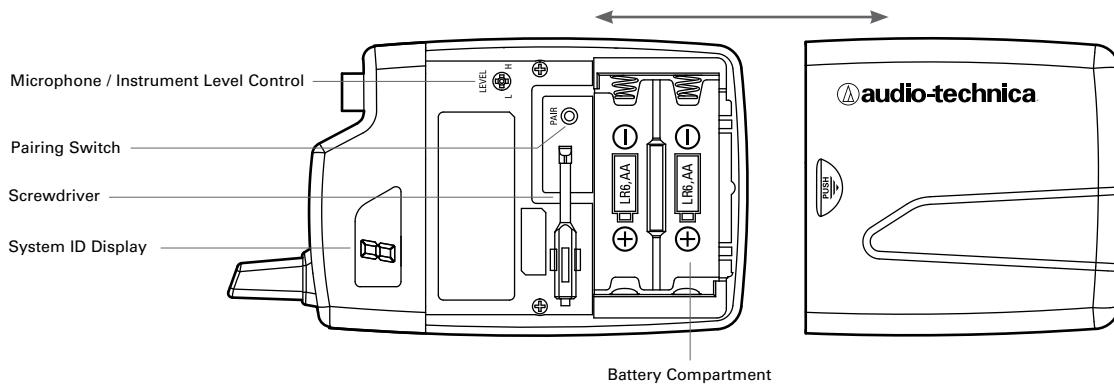


Figure D — ATW-T1001 UniPak® Transmitter

UniPak® Transmitter Battery Installation

1. Slide off the battery cover.
2. Carefully insert two fresh AA alkaline batteries, observing polarity markings.
3. Replace the battery cover (Fig. D).

UniPak® Transmitter Power/Mute/Battery Indicator

After the battery is installed, press and hold the Power/Mute button until the indicator LED turns green (Fig. E). If the indicator LED does not light up when the power button is pressed, the batteries are installed incorrectly or they are dead. The indicator LED will flash to show low-battery condition.

UniPak® Transmitter Mute Function

With the transmitter on, a slight touch of the Power/Mute button will toggle between muted and unmuted operation. Red indicator LED shows muted operation. Green indicator LED shows unmuted operation.

UniPak® Transmitter Input Connection

Connect an audio input device (microphone or guitar cable) to the audio input connector on the top of the transmitter. A number of Audio-Technica professional microphones and cables are available separately, pre-terminated with a UniPak® input connector (see www.audio-technica.com).

UniPak® Transmitter Antenna

The UniPak® transmitter includes a permanently-attached antenna. If the received signal is marginal, experiment with different transmitter positions on your body or instrument; or try repositioning the receiver. Do not attempt to remove, replace or change the length of the transmitting antenna.

UniPak® Transmitter Pairing Switch

Used to complete pairing sequence. See page 6.

UniPak® Transmitter Microphone/Instrument Level Control

Used to set microphone/instrument level. See page 6.

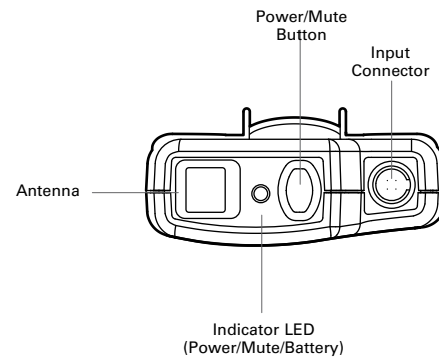
UniPak® Transmitter Screwdriver

Used to adjust Level Control. See page 6.

UniPak® Transmitter System ID Display

Shows System ID. See page 6. **Note:** System ID is an identical number assigned to a paired receiver and transmitter for identification purposes. When power is applied, the System ID Display on the transmitter glows bright and then turns off to conserve battery life. To turn the System ID Display back on, mute and unmute the transmitter.

Figure E — UniPak® Transmitter



System 10 Installation and Operation

System Operation

Turn down the receiver volume control and the mixer/amplifier level before starting up the wireless system. Do not switch on the transmitter yet.

Receiver on...

Plug the power supply into an AC power source. The blue System ID number on the front panel will illuminate.

Transmitter on...

When the transmitter is switched on, the receiver's green pair indicator will light, and two indicators light on the transmitter: the transmitter Power / Battery / Mute status indicator will glow green; and the transmitter blue System ID display will illuminate. The blue System ID display on the transmitter turns off after 30 seconds to conserve battery power; the transmitter Power / Battery / Mute status indicator will remain illuminated, indicating transmitter status.

To re-illuminate System ID display, press the Power / Mute switch.

Note: this will alter the transmitter mute status. A slight touch of the power switch toggles between muted and unmuted operation.

The transmitter's Power / Battery / Mute status indicator glows red when transmitter is muted, or green to indicated unmuted status. In a low-battery situation, the Power / Battery / Mute status indicator begins to blink.

The transmitters have a soft-touch power switch. When the switch is set to "Mute" (red indicator LED), the transmitter produces RF with no audio signal. When the switch is "On" (green indicator LED) the transmitter produces both RF and audio. Excessive audio input to the transmitter will cause the receiver's red AF Peak indicator to light.

Transmitter Auto Power Off

The transmitter will automatically power off after 10 minutes if:

1. The receiver is powered off.
2. No paired signal is established between the transmitter and receiver.

Receiver Volume

Under typical operating conditions, the receiver's volume control should be turned all the way up, with overall system audio gain adjusted at the mixer or amplifier.

Input Level Adjustment

Input trimmer controls in the transmitters enable you to maximize performance for a particular microphone or guitar sensitivity, or to adjust for different acoustic input levels.

Adjusting Input Level — UniPak Transmitter

Slide the battery cover off the transmitter and remove the screwdriver from its clip. Using the screwdriver, gently turn the "VOL" (Volume – Microphone/Instrument Level) all the way up (clockwise, toward "H"). Check for excessive gain by speaking / singing into the microphone at typically loud levels while watching the receiver's Peak Indicator. If the Peak indicator does light, turn the "VOL" control slightly counterclockwise until the Peak indicator no longer lights with maximum audio input to the transmitter.

Adjusting Input Level — Handheld Transmitter

Unscrew the lower body cover and slide it off, exposing the screwdriver and "LEVEL" (Gain Trimmer) control (Fig. C). Remove the screwdriver from its clip. Gently turn the "LEVEL" control to its full clockwise position (toward the side marked "H"), the factory setting. Check for

excessive gain by speaking/singing into the microphone at typically-loud levels while watching the receiver's AF Peak indicator. If the AF Peak indicator does light, turn the "LEVEL" control slightly counterclockwise until the AF Peak indicator no longer lights with maximum audio input to the mic/transmitter.

Return the screwdriver to its clip and close and secure the lower body. No further transmitter gain adjustments should be needed, as long as the acoustic input does not change significantly.

CAUTION! *The small trimmer controls are delicate; use only the supplied screwdriver. Do not force the trimmers beyond their normal 190° range of rotation.*

Return the screwdriver to its storage clip when not in use.

Setting System ID Number & Pairing your Transmitter and Receiver

Your system has been preconfigured at the factory to operate with no other pairing setup required; it will work out of the box. That is, your receiver and transmitter are already a digital pair, and they have been assigned the same System ID number.

The pairing instructions outlined below will help you if you find it necessary to change system ID numbers in multiple-system configurations, or pair a new transmitter to an existing receiver.

NOTE: System ID is an identical number assigned to a paired receiver and transmitter for identification purposes. The System ID number is not related to transmitting frequency. Due to the dynamic nature of System 10 automatic frequency selection, the actual transmitting frequencies may change during power-up or performance. These frequency changes are seamless and imperceptible to the ear.

Single System — Pairing/System ID Instructions

1. Turn the receiver and transmitter on.
2. Push the System ID button on your receiver to choose an ID number from 1 to 8. The receiver's display will show your new ID and begin to blink.
3. Within 15 seconds, push and hold the Pair button on your receiver for about one second. The pair light will begin to blink green. Your receiver is now in Pair Mode.
Note: If the receiver pair button is not pushed within 15 seconds, the system ID number will revert to its previous setting.
4. Open your transmitter and push its Pair button within 30 seconds* of entering Pair Mode. The transmitter display will now show the System ID number you have chosen for your receiver. The Pair Light will glow steady, indicating you have successfully paired your system.

Multiple Systems — Pairing/System ID Instructions

Note: Up to eight systems may be used together without any frequency coordination problems or group selection issues.

1. Turn the first receiver and first transmitter on.
2. Push the System ID button on your first receiver to choose an ID number from 1 to 8. The receiver's display will show your new ID and begin to blink.
3. Within 15 seconds, push and hold the Pair button on your first receiver for about one second. The pair light will begin to blink green. Your first receiver is now in Pair Mode.
Note: If the receiver pair button is not pushed within 15 seconds, the system ID number will revert to its previous setting.

4. Open your first transmitter and push its Pair button within 30 seconds* of entering Pair Mode. The first transmitter display will now show the System ID number you have chosen for your first receiver. The Pair Light will glow steady, indicating you have successfully paired your first system.
5. Repeat for each additional system, identifying each system with its own unique ID number.

Note: While unique System ID numbers are not required, we recommend assigning unique System ID numbers for each transmitter-receiver pair. As noted previously, System ID numbers are not related to transmitter frequency; they are provided for user convenience only.

*If transmitter pair button is not pushed within 30 seconds, the system will revert to its previous settings.

Ten Tips to Obtain the Best Results

1. Use only fresh alkaline or fully charged rechargeable batteries.
2. Position the receiver so that it has the fewest possible obstructions between it and the normal location of the transmitter. Line-of-sight is best.
3. The transmitter and the receiver should be as close together as conveniently possible, but not less than 6' (2 m).
4. While System 10 has been designed to stack for convenient multiple-system operation, please keep other wireless devices (including wireless systems and routers) away from System 10 receivers. For best performance, some routers and Wi-Fi-based wireless systems may need to be up to 30 feet away from System 10 receivers.
5. The receiver antennas should be kept away from any metal.
6. As some guitar pickups may be overly sensitive to magnetic interference, please keep the System 10 UniPak® body-pack transmitter at least 1 foot away from guitar pickups.

7. Use the transmitter level control to optimize performance for your instrument, voice, or other sound source.
8. If the receiver output is set too low, the overall signal-to-noise ratio of the system may be reduced. Conversely, if the volume control of the receiver is set too high, it may over-drive the input of the mixer/amplifier, causing distortion. Adjust the output level of the receiver so the highest sound pressure level going into the microphone (or the loudest instrument playing level) causes no input overload in the mixer, and yet permits the mixer level controls to operate in their "normal" range (not set too high or too low). This provides the optimum signal-to-noise for the entire system.
9. Turn the transmitter off when not in use. Remove the battery if the transmitter is not to be used for a period of time.
10. Unplug the receiver from the AC outlet when the system is not in use.

System Operating Frequencies

Automatic Frequency Selection

System 10 wireless systems operate in automatically selected frequencies in the 2.4 GHz range, far from TV and DTV interference. Up to eight channels may be used together without any frequency coordination problems or group selection issues. Every time a receiver/transmitter pair is powered on, it automatically selects clear frequencies. Due to the dynamic nature of System 10 automatic frequency selection, these transmitting frequencies may change during power-up or performance if interference is encountered. These frequency changes occur at both the receiver and transmitter; they are seamless and imperceptible to the ear.

System Frequencies

For future reference, please record your system information here (the serial number appear on each transmitter, and on the bottom of each receiver):

Receiver

Model ATW-R1100

Serial Number _ _ _ _ _

Transmitter

Model ATW-T100 _____
1 or 2

Serial Number _ _ _ _ _

Specifications


OVERALL SYSTEM

Operating Frequencies	2.4 GHz ISM band
Dynamic Range	>109 dB (A-weighted), typical
Total Harmonic Distortion	<0.05% typical
Operating Range	30 m (100') typical <i>Open range environment with no interfering signals</i>
Operating Temperature Range	0° C to +40° C (32° F to 104° F) <i>Battery performance may be reduced at very low temperatures</i>
Frequency Response	20 Hz to 20 kHz <i>Depending on microphone type</i>
Audio Sampling	24 bit / 48 kHz

RECEIVER

Receiving System	Diversity (frequency/time/space)
Maximum Output Level	XLR, balanced: 0 dBV 1/4" (6.3 mm), unbalanced: +6 dBV
Power Supply	100-240V AC (50/60 Hz) to 12V DC 0.5A (center positive) switched mode external power supply
Dimensions	190.0 mm (7.48") W x 46.2 mm (1.82") H x 128.5 mm (5.06") D
Net Weight	290 grams (10.2 oz)
Accessory Included	Power supply

UNIPAK® TRANSMITTER

RF Output Power	10 mW
Spurious Emissions	Following federal and national regulations
Input Connection	 Four-pin Locking Connector Pin 1: GND, Pin 2: INST INPUT, Pin 3: MIC INPUT, Pin 4: DC BIAS +9V
Batteries (not included)	Two 1.5V AA
Battery Life	>7 hours (alkaline) <i>Depending on battery type and use pattern</i>
Dimensions	70.2 mm (2.76") W x 107.0 mm (4.21") H x 24.9 mm (0.98") D
Net Weight (without batteries)	100 grams (3.5 oz)

HANDHELD TRANSMITTER

RF Output Power	10 mW
Spurious Emissions	Following federal and national regulations
Batteries (not included)	Two 1.5V AA
Battery Life	>7 hours (alkaline) <i>Depending on battery type and use pattern</i>
Dimensions	254.8 mm (10.03") long, 50.0 mm (1.97") diameter
Net Weight (without batteries)	280 grams (9.9 oz)
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.

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