ALTO
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RADIUS 100
RADIUS 100H
RADIUS 100L
RADIUS 100M

User Guide
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User Guide (English)

Introduction

Features

- All-in-one, easy-to-use wireless microphone system for professional applications
- Dual-antenna UHF diversity receiver for increased reliability and signal consistency
- UHF band operation (520–937.5MHz), regionally selected
- Receiver includes a high-visibility back-lit LCD display: Displays RF frequency and channel, AF and RF signal levels and other critical functions
- **Radius 100:** Hand-held condenser vocal microphone transmitter with integrated LCD display
- **Radius 100H:** High-quality headset microphone and wireless belt-pack transmitter
- **Radius 100L:** High-quality lavalier/lapel microphone with included clip and wireless belt-pack transmitter
- **Radius 100M:** Wireless belt-pack transmitter and 1/4" (6.35mm) instrument cable
- Single-button scan feature for quickly identifying the optimal operating frequency
- Sync function automatically synchronizes transmitter and receiver frequency
- Squelch control for maximum clarity and dynamic range
- Front-panel rotary volume control
- Balanced XLR and unbalanced 1/4" (6.35mm) mic or line-level outputs

Box Contents

Radius 100
Radius 100 Receiver
Radius HHT Condenser Microphone Transmitter
Rackmount and Coupling Brackets (screws included)
1/4" (6.35mm) Unbalanced Audio Cable (3 feet / 1 meter)

Power Adapter
2 AA Batteries
User Guide
Safety & Warranty Manual

Radius 100H
Radius 100 Receiver
Radius HSM Headset Microphone Transmitter
Radius BPT Wireless Belt-Pack Transmitter
Rackmount and Coupling Brackets (screws included)
1/4" (6.35mm) Unbalanced Audio Cable (3 feet / 1 meter)

Power Adapter
2 AA Batteries
User Guide
Safety & Warranty Manual

Radius 100L
Radius 100 Receiver
Radius LVM Lavalier Microphone Transmitter
Radius BPT Wireless Belt-Pack Transmitter
Rackmount and Coupling Brackets (screws included)
1/4" (6.35mm) Unbalanced Audio Cable (3 feet / 1 meter)

Power Adapter
2 AA Batteries
User Guide
Safety & Warranty Manual

Radius 100M
Radius 100 Receiver
Radius BPT Wireless Belt-Pack Transmitter
Rackmount and Coupling Brackets (screws included)
1/4" (6.35mm) Instrument Adapter Cable
1/4" (6.35mm) Unbalanced Audio Cable (3 feet / 1 meter)

Power Adapter
2 AA Batteries
User Guide
Safety & Warranty Manual

Support

For the latest information about this product (system requirements, compatibility information, etc.) and product registration, visit **altoprofessional.com**.

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Important Safety Precautions

Please note: Alto Professional and inMusic are not responsible for the use of its products or the misuse of this information for any purpose. Alto Professional and inMusic are not responsible for the misuse of its products caused by avoiding compliance with inspection and maintenance procedures. Please also refer to the included safety and warranty manual for more information.

Cables

Make sure your cables are out of the way of performers, production crew, and audience so they will not trip over them.

Sound Level

Permanent hearing loss may be caused by exposure to extremely high noise levels. The U.S. Occupational Safety and Health Administration (OSHA) has specified permissible exposures to certain noise levels. According to OSHA, exposure to high sound pressure levels (SPL) in excess of these limits may result in hearing loss. When using equipment capable of generating high SPL, use hearing protection while such equipment is under operation.

| Hours per day	SPL (dB)	Example
8	90	Small gig
6	92	Train
4	95	Subway train
3	97	High level desktop monitors
2	100	Classical music concert
1.5	102	Riveting machine
1	105	Machine factory
0.50	110	Airport
0.25 or less	115	Rock concert

Features

Transmitter

Your Radius 100 includes one of the following transmitter systems:

- **Radius 100:** a **hand-held condenser vocal microphone transmitter**
- **Radius 100H:** a **headset microphone** and **wireless belt-pack transmitter**
- **Radius 100L:** a **lavalier microphone** and **wireless belt-pack transmitter**
- **Radius 100M:** a 1/4" (6.35mm) **instrument adapter cable** and **wireless belt-pack transmitter**

Condenser Microphone Transmitter (**Radius 100**)
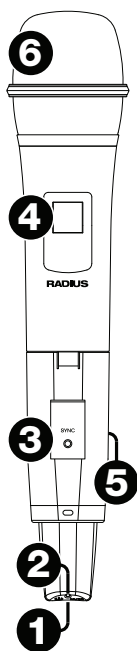
1. **Power/Mute Button:** Press this button for **4** seconds to power the transmitter on or off. When the transmitter is on, press this button briefly to mute or unmute the microphone.
2. **Power/Mute LED:** This light indicates the power or mute status:
   - **Red light:** The transmitter is on.
   - **Flashing red light:** The transmitter is low on battery power.
   - **Blue light:** The transmitter is muted.
   - **Flashing blue light:** The transmitter is muted and low on battery power.
3. **Sync Button:** Press this button to synchronize the transmitter with the receiver. See *Operation* to learn more.
4. **Display:** This display shows the current channel and battery power level.
5. **Battery Compartment (not pictured):** Insert 2 AA batteries into the compartment. Make sure the polarities of the batteries (**+** and **–**) are correct.
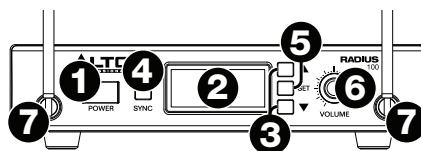6. **Grille:** This mesh protects the microphone capsule and reduces noise from air and breath.

Belt-Pack Transmitter (for **Radius 100H** headset, **Radius 100L** lavalier microphone, or **Radius 100M** instrument cable)
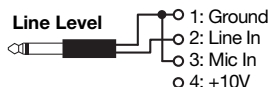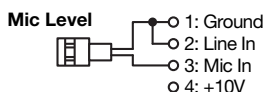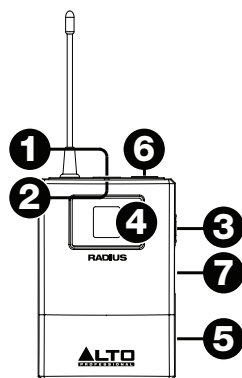
1. **Power/Mute Button:** Press this button for **2** seconds to power the transmitter on or off. Press this button briefly to mute or unmute the transmitter.

2. **Power/Mute LED:** This light indicates the power or mute status:

   - **Red light:** The transmitter is on.
   - **Flashing red light:** The transmitter is low on battery power.
   - **Blue light:** The transmitter is muted.
   - **Flashing blue light:** The transmitter is muted and low on battery power.

3. **Sync Button:** Press this button to synchronize the transmitter with the receiver. See *Operation* to learn more.

4. **Display:** This display shows the current channel and battery power level.

5. **Battery Compartment (not pictured):** Insert 2 AA batteries into this compartment. Make sure the polarities of the batteries (**+** and **–**) are correct.

6. **Microphone/Instrument Input (mini-XLR):** Connect the included microphone or instrument cable to this input.

7. **Gain Selector:** Use this switch to set the gain of the audio input to **10 dB**, **0 dB**, or **-10 dB**. For instruments with passive pickups, we recommend setting this to **-10 dB**. For instruments with active pickups, you may want to set this to **0 dB** or **-10 dB**.

Mic Level
- 1: Ground
- 2: Line In
- 3: Mic In
- 4: +10V

**Line Level**
- 1: Ground
- 2: Line In
- 3: Mic In
- 4: +10V

Receiver

Front Panel

1. **Power Button:** Press this button to power the receiver on or off.
2. **Display:** This display shows the current channel, frequency, and other settings. See *Display* for more information.
3. **Up/Down (▲▼):** Press one of these buttons to select the different modes (**Manual**, **Autoscan**, **Preset**). When searching for channels, press one of these buttons to move to the next-highest or next-lowest channel, respectively.
4. **Sync:** Press this button to synchronize the receiver with the transmitter. See *Operation* to learn more.
5. **Set:** Press this button to confirm your mode selection (**Manual**, **Autoscan**, **Preset**) or to set the current channel. See *Operation* to learn more.
6. **Volume Knob:** Turn this knob to adjust the receiver's output level.
7. **Antennae:** These antennae receive the signal from the transmitter.

Display
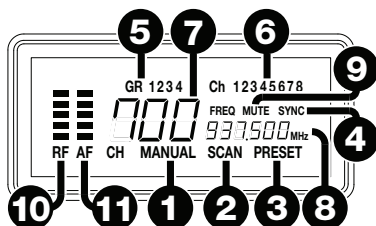
1. **Manual:** This indicator appears when the receiver is in **Manual** Mode, where you can select the channel manually. Use the **Up/Down** buttons to cycle between the different modes.

2. **Scan:** This indicator appears when the receiver is in **Autoscan** Mode, where the receiver automatically selects the channel with the clearest and strongest reception.

3. **Preset:** This indicator appears when the receiver is in **Preset** Mode, where you can select a Preset group of channels rather than having to scan the entire frequency band.

4. **Sync:** This indicator appears when the transmitter and receiver are synchronized.

5. **GP (P1, P2, P3, P4):** This is the current Preset group.

6. **CH (1–8):** This is the current Preset Channel.

7. **CH (region-specific):** This is the current channel number. The number of available channels depends on your region.

8. **Freq:** This is the current frequency in **MHz**.

9. **Mute:** This indicator appears when the audio signal is muted.

10. **RF:** This meter shows the current level of reception between the transmitter and receiver.

11. **AF:** This meter shows the current audio signal level sent from the receiver's **audio outputs**.

Rear Panel
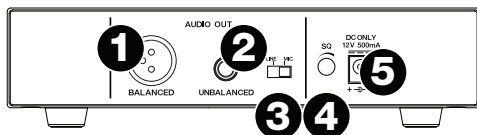
1. **Audio Output (XLR):** Use a standard XLR cable to connect this balanced output to your mixer, PA system, etc.

2. **Audio Output (1/4" / 6.35 mm):** Use a standard 1/4" (6.35 mm) cable to connect this unbalanced output to your guitar amplifier, mixer, PA system, etc.

3. **Line/Mic Selector:** Use this switch to select whether the signal from the receiver's output is line-level or microphone-level. Set this switch to **Line** if you are connecting it to a balanced line-level input (e.g., a mixer's XLR or 1/4" TRS input) or an instrument amplifier's **low**-impedance active instrument input. Set this switch to **Mic** if you are connecting it to an instrument amplifier's **high**-impedance instrument-level input.

4. **Squelch:** Turn this knob to adjust the noise floor level.

5. **Power Input:** Use the included power adapter (12 V, 1 A, center positive) to connect this input to your power source.

Operation

To set up and use your Radius 100, follow the steps in this chapter *in order*. If you are setting up a system using multiple receiver-transmitter pairs, set up each pair *one at a time*, and keep each pair powered on as you set up others.
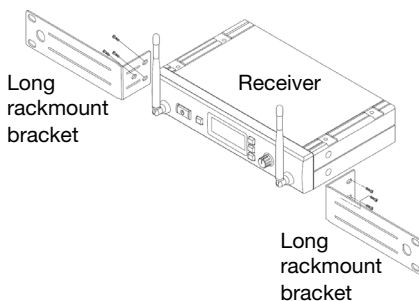
1. Set Up the Receiver

Optional: Connect Rackmount Pieces and/or Antennas

To use two receivers in a standard 19" rack, use the included rackmount brackets, coupling brackets, and screws.
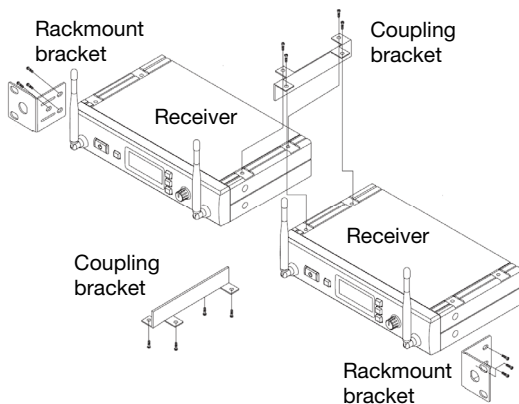
To use one receiver in a standard 19" rack, use two long rackmount brackets (sold separately) and screws.

Set Up the Receiver's Connections, Mode, and Channel

1. Use the included power adapter to connect the receiver's **power input** to your power source. The receiver will power on automatically.

2. Use a standard XLR cable or 1/4" (6.35mm) to connect one of the receiver's **audio outputs** to your mixer or amplifier system. Do **not** use both audio outputs at the same time; this can result in signal loss or increased noise.

3. Set the **Line/Mic Selector** to the appropriate setting:

   - Set this switch to **Line** if you are connecting it to a balanced line-level input (e.g., a mixer's XLR or 1/4" (6.35mm) TRS input) or an instrument amplifier's **low**-impedance active instrument input.

   - Set this switch to **Mic** if you are connecting it to an instrument amplifier's **high**-impedance instrument-level input.

4. Set the receiver's channel using one of the following methods:

   - **Manual Mode**

     Important: Do not place two or more transmitters within range of the receiver when selecting a channel. Also, keep the transmitter at least **3** feet (**1** meter) away from the receiver.

     i. Use the receiver's **Up** or **Down** buttons to select **Manual** Mode. (You must press and hold each button for approximately **1** second to switch to the next mode.)

     ii. Press and hold the **Set** button for approximately **1** second. The **display**'s numbers will flash.

     iii. Use the **Up/Down** buttons to select a channel.

     iv. Press the **Set** button to lock the reception to that channel.

   - **Autoscan Mode**

     Important: If you are setting up a system using multiple receiver-transmitter pairs, keep each pair powered on as you set up others. This will prevent each pair from automatically selecting the same channel.

     i. Use the receiver's **Up** or **Down** buttons to select Autoscan Mode (**Auto**). (You must press and hold each button for approximately **1** second to switch to the next mode.)

     ii. Press and hold the **Set** button for approximately **1** second. The **display**'s numbers will flash.

     iii. Press the **Up** or **Down** button once. The receiver will automatically scan frequencies and select the first channel with strong, clear reception.

     iv. Press the **Set** button to lock the reception to that channel.

   - **Preset Mode**

     i. Use the receiver's **Up** or **Down** buttons to select **Preset** Mode. (You must press and hold each button for approximately **1** second to switch to the next mode.)

     ii. Press and hold the **Set** button for approximately **1** second. The **display**'s numbers will flash.

     iii. Use the **Up/Down** buttons to select a Preset group (**P1**, **P2**, **P3**, or **P4**).

     iv. Press the **Set** button to lock the reception to that Preset group.

     v. Use the **Up/Down** buttons to select a channel in that Preset group.

     vi. Press the **Set** button to lock the reception to a channel in that Preset group.

     Important: If there is any interference on the current Preset group's channels, repeat **Steps iii–vi**.

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2. Set Up the Transmitter

Condenser Vocal Microphone Transmitter:

1. Remove the transmitter's **battery compartment** cover and insert **2 AA** batteries into the compartment. Make sure the polarities of the batteries (**+** and **–**) are correct.

2. Reattach the **battery compartment** cover.

3. Press the transmitter's **Power Button** for **4** seconds to power the transmitter on or off.

Wireless Belt-Pack Transmitter:

1. Remove the transmitter's **battery compartment** door and insert **2 AA** batteries into the compartment. Make sure the polarities of the batteries (**+** and **–**) are correct.

2. Press the transmitter's **Power Button** for **2** seconds to power the transmitter on or off.

3. Synchronize the Receiver and Transmitter

1. Make sure the receiver and transmitter are within **3** feet (**1** meter) from each other and powered on.

2. Press and hold the **Sync** button on the transmitter until **Sync** flashes in the receiver's **display**.

3. Press the **Sync** button on the receiver.

4. Adjust Your Levels and Settings

Gain Level: If you are using a wireless belt-pack transmitter, set its **Gain Selector** to **10 dB**, **0 dB**, or **-10 dB** to set the gain of the audio input.

Volume Level: Use the receiver's **Volume Knob** to set the audio signal level sent from the receiver's **audio output** to your mixer or amplifier system.

Squelch Level: Use the **Squelch Knob** to adjust the noise floor level, minimizing background or ambient noise during silent moments. Higher settings allow for greater noise reduction and dynamic range, but a setting that's too high can cause intentionally quieter sounds to be silenced along with the noise. Be sure to experiment with different settings to find an optimal balance.

Troubleshooting

Problem	Solution
The receiver does not produce any sound.	Make sure the receiver's power adapter is properly connected to the **power input** and a power source.
	Make sure the transmitter's batteries are properly inserted and that their polarities (**+** and **–**) are correct.
	Make sure the transmitter and receiver are set to the same frequency.
	Make sure the receiver's **audio output** is properly connected to your mixer, amplifier system, etc.
	Make sure the receiver and transmitter are within **328** feet (**100** meters) and have a clear line of sight. Also, make sure the receiver is not immediately near any metal objects or devices that could cause RF interference (other wireless systems, TVs, radio, etc.).
	Lower the setting of the receiver's **Squelch** knob.
There is audible interference in the transmission.	Make sure the receiver and transmitter are within **328** feet (**100** meters) and have a clear line of sight. Also, make sure the receiver is not immediately near any metal objects or devices that could cause RF interference (other wireless systems, TVs, radio, etc.).
	If you are using multiple transmitter-receiver pairs, make sure the pairs are not using the same or adjacent frequencies.
The signal is distorted.	Make sure the receiver is not immediately near any metal objects or devices that could cause RF interference (other wireless systems, TVs, radio, etc.).
	Lower the setting of the receiver's **Volume** knob.