



**PURERESONANCEAUDIO<sup>®</sup>**

**WMS1-HH-A WIRELESS HANDHELD  
MICROPHONE SYSTEM**

# **INSTALLATION AND OPERATION MANUAL**



Caution: Please read this manual carefully before operating.  
Damage caused by misuse is not covered by the warranty.

# SAFETY PRECAUTIONS

- Be sure to read the instructions in this section carefully before use. The included conventions of safety symbols and messages are regarded as essential precautions.
- We recommend that you keep this instruction manual handy for future reference.

## SAFETY SYMBOL AND MESSAGE CONVENTIONS

Safety symbols and messages described below are used in this manual to prevent bodily injury and property damage that could result from mishandling. Before operating this product, read this manual first and understand the safety symbols and messages so you are thoroughly aware of the potential safety risks.



Indicates a potentially hazardous situation which, if mishandled, could result in death or serious personal injury.



Indicates a potentially hazardous situation which, if mishandled, could result in moderate or minor personal injury, and/or property damage.



- If you notice any abnormal conditions, turn off the power, unplug the unit, and contact your nearest dealer. Do not operate the unit if any of the following occurs:
  - Smoke or an unusual odor is coming from the unit.
  - Water or metal objects have entered the unit.
  - The unit has been dropped, fallen, or damaged.
  - The power supply cord is damaged (exposed wires, disconnection, etc.).
  - The unit is malfunctioning.
  - The sound from the unit is distorted.
- The unit contains high-voltage components. To avoid fire or electric shock, DO NOT open or disassemble.
- DO NOT place cups, bowls, vases, or any liquid containers on the unit or touch it with wet hands, as this may cause fire or electric shock.
- DO NOT expose the unit to rain, excessive moisture, or splashing liquids, as this may lead to fire or electric shock.
- DO NOT insert metal objects, flammable materials, or coins into the unit, as doing so may result in fire or electric shock.

\*No user-serviceable parts inside. Refer all servicing to qualified service personnel.

\*Changes or modifications not expressly approved by the manufacturer could void the user's warranty.



- DO NOT place heavy objects on the unit to prevent personal injury or property damage.
- Before turning on the power, set the volume to the lowest level to avoid hearing damage.
- Clean the unit regularly to prevent dust buildup, which could cause fire hazards or damage the unit, power supply, or AC wall outlet.
- When replacing batteries, use only those with identical specifications and install them correctly to prevent electrical damage or explosion risks.
- Ensure proper grounding by connecting the unit to a power socket with a grounding device.

- The unit's power plug is the primary method of disconnection. For safety, ensure it is easily accessible and can be unplugged when necessary.
- Only use the unit at altitudes of 1.24 miles (2,000 m) or below.
- When installing the unit, ensure proper ventilation and avoid high temperatures or direct sunlight to allow for normal heat dissipation.
- This unit is intended for indoor use only. If used outdoors, it must be properly protected from moisture, rain, and lightning.
- DO NOT operate the unit in areas with wireless shielding equipment or severe vibrations.
- The original packaging has undergone shock-proof testing. Always use the original packaging for transportation to prevent accidental damage.
- DO NOT move the unit between extreme temperature changes, as condensation may form and cause potential damage.

## **PRECAUTIONS FOR USE**

- Keep your hand in the middle of the microphone to prevent interference with frequency response or signal transmission.
- Avoid placing two transmitters next to each other to prevent interference.
- DO NOT point the microphone directly at a speaker to prevent feedback oscillation.
- To reduce intermodulation interference, the wireless microphone receiver and transmitter should be at least 16 feet (5 meters) apart.
- The receiving range varies based on environmental factors. Avoid large metal obstructions for better signal transmission.
- If the battery symbol flashes while the transmitter is in use, replace the batteries immediately.
- If the transmitter will not be used for an extended period, remove the batteries to prevent damage from leakage.

## **MICROPOWER RADIO TRANSMITTING EQUIPMENT MUST COMPLY WITH REGULATIONS**

- The unit must comply with Federal Communications Commission (FCC) regulations and local radio transmission laws.
- The unit must operate within designated frequencies and approved power levels for its intended application. Unauthorized modifications, including changes to transmission frequency, power output, or antennas, are prohibited and may void the warranty.
- Ensure the unit does not interfere with lawful radio stations or communication systems. If interference occurs, discontinue use immediately and resolve the issue before resuming operation.
- This device may experience interference from industrial, scientific, and medical (ISM) equipment or other legally operating radio sources.
- This unit is subject to FCC regulations and local laws governing radio frequency emissions, particularly in sensitive areas such as airports, broadcast stations, and critical infrastructure sites. Users must comply with all applicable federal, state, and local restrictions when operating near such locations.

# DESCRIPTION

The Pure Resonance Audio WMS1-HH handheld wireless microphone system offers exceptional performance with low bit error rates, stable transmission, and robust anti-interference abilities. Utilizing advanced digital U-band transmission technology and pi/4-DQPSK modulation, this wireless system ensures clear and reliable audio. The ergonomic transmitter design provides a comfortable grip, while the rack-mountable receiver integrates seamlessly into any setup. Ideal for conferences, training rooms, public address, and large-scale events, the WMS1-HH delivers professional sound quality with natural, high-reduction audio output.

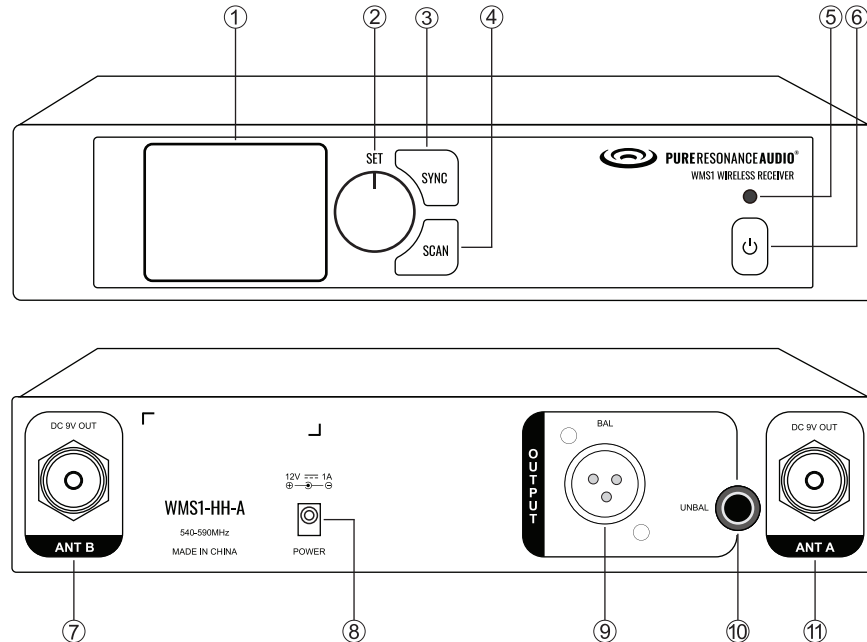
# FEATURES

- Rack-mountable receiver
- Dynamic microphone transmitter
- Strong anti-interference, low bit error rate, and stable transmission
- ID code pilot encryption prevents cross-frequency interference
- Automatic frequency scanning for clear signal
- Infrared scanning for easy transmitter/receiver pairing
- EQ adjustments for highs, mids, and bass
- Balanced and unbalanced mixing outputs
- Optional Auto Mute function engages when inactive and to avoid impact sounds
- One-key Mute mode
- Auto shutoff after 8 minutes of inactivity
- 328 ft (100 m) working range
- 10-hour max battery life

# SPECIFICATIONS

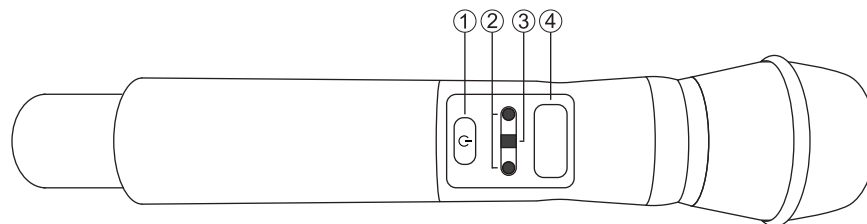
<b>SYSTEM</b>	
RF Range	540 MHz - 590 MHz
Modulation Mode	pi/4-DQPSK
Frequency Response ( $\pm 3$ dB)	20Hz - 20kHz
Distortion Plus Noise (THD+N)	<0.1%
Signal-to-Noise (S/N) Ratio	$\geq 105$ dB (XLR)
Range	328 ft (100 m)
Weight	4.55 lbs (2.06 kg)
Shipping Dimensions (H x W x D)	3.35" (85 mm) x 14.76" (375 mm) x 18.11" (460 mm)
Shipping Weight	6 lbs (2.72 kg)
<b>RECEIVER</b>	
Antenna Interface	BNC/50 $\Omega$
Receive Sensitivity	<-95 dBm
Maximum Output	Balanced output 500 mV; Unbalanced output 1000 mV
Working Current	$\leq 300$ mA
Power Supply	DC 12V/1A
Dimensions (H x W x D)	1.72" (43.6 mm) x 8.35" (212 mm) x 8.43" (214 mm)
Weight	2.91 lbs (1.32 kg)
<b>HANDHELD TRANSMITTER</b>	
Microphone Cartridge	Dynamic microphone
Output Power	$\geq 10$ dBm
Working Current	$\leq 200$ mA
Battery	(2) Replaceable AA batteries
Max Battery Life	Up to 10 hours
Dimensions (L x Dia)	9.65" (245 mm) x 1.54" (39 mm) with cartridge
Weight	0.88 lbs (0.4 kg) with batteries

# RECEIVER FRONT & REAR PANELS



1. **LCD Display:** Displays the system's working status and settings (RF, Volume, Scan, Settings, Battery Level, RF Signal Strength, AF Level).
2. **SET Button/Knob:** Unlock and adjust receiver settings.
3. **SYNC Button:** Sync the receiver and transmitter after the transmitter frequency changes or any changes are made to the receiver.
4. **SCAN Button:** Scan local frequencies. The result will be the frequency with the least interference in that frequency band.
5. **IR Indicator Light:** Used for frequency pairing with the transmitter.
6. **Power Button:** Press and hold the power button to turn the receiver on and off.
7. **ANT-B-IN:** Used to connect the antenna.
8. **POWER:** DC 12V/1A power input.
9. **OUTPUT BAL:** XLR balanced output.
10. **OUTPUT UNBAL:** ¼" TS unbalanced output.
11. **ANT-A-IN:** Used to connect the antenna.

# HANDHELD MICROPHONE TRANSMITTER



1. **Power/Mute Button:**
  - Long Press: to turn on or off
  - Short Double Press: to mute or unmute
2. **Status Indicator Lights:**
  - Unmuted: Both lights are solid
  - Muted: Alternating flashing lights
  - Off: Both lights are off
3. **IR Window:** Used for updating the transmitter via the receiver IR indicator.
4. **OLED Display:** Used to display the current status information of the handheld transmitter.

# OPERATION GUIDE

## RECEIVER OPERATION

### Power On/Off

- When the receiver is off, press and hold the **Power Button** to turn the receiver on (Figure 1).
- When the receiver is on, press and hold the **Power Button** to turn the receiver off (Figure 2).

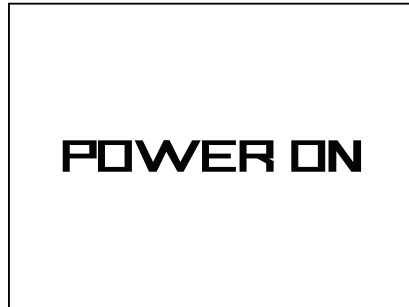


Fig. 1 Receiver Power On

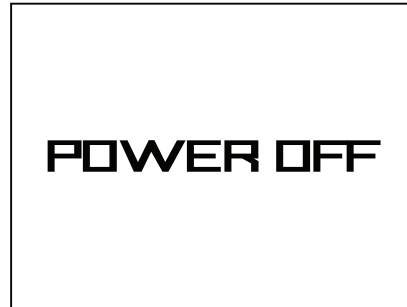


Fig. 2 Receiver Power Off

### SET Button/Knob

- **Long-press** the **SET Button** to lock or unlock the menu. Pressing other buttons while the screen is locked will prompt, "Locked. Please long-press the unlock button to unlock."
- **Short-pressing** the **SET Button** when the screen is unlocked will highlight the different options in a larger font. When the desired option is highlighted, short-press the knob to edit or select the option. While flashing, you can turn the **SET Knob** to adjust the different parameters. Once finished adjusting, short-press the **SET Button** to confirm the selection.

### SCAN Button

- Once the receiver has been changed, press the **SYNC Button**. The receiver's **IR Indicator Light** will begin flashing. While flashing, move the handheld transmitter's **IR Window** within 12" of the **IR Indicator Light** to complete the update. Once the transmitter has been updated, the **IR Indicator Light** will stop flashing.

### SYNC Button

- Once a change has been made to the receiver, press the **SYNC Button**. The receiver's **IR Indicator Light** will begin flashing. While flashing, move the handheld transmitter's **IR Window** within 12" in front of the **IR Indicator Light** to complete the update. Once the transmitter has been updated, the **IR Indicator Light** will stop flashing.

### Receiver Home Screen (Figure 3)

- **RF Signal Strength:** Displays RF signal strength in real-time.
- **AF Signal Strength:** Displays the audio signal strength from the transmitter in real time.
- **Radio Frequency:** Displays the current frequency selected on the receiver.
- **Volume Level:** Displays the current volume level (for proper gain staging, start by setting volume to 80%)
- **SCAN:** Automatically scans the local radio frequencies for the frequency with the least interference. The receiver will automatically stop at the optimal frequency.
- **SETTINGS:** Opens the **Settings Screen**.

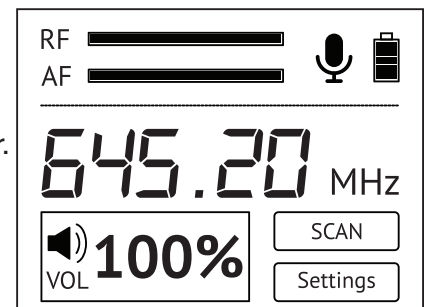


Fig. 3 Main Screen

## Settings Screen. (Figure 4)

### • Microphone Settings (Figure 5):

- **Power:** [1-7] Strength of RF output being transmitted from the handheld unit. If intermodulation occurs (typically in a system with multiple wireless microphones being used simultaneously), adjusting the transmit power intensity down can help minimize the interference.
- **Auto Mute:** [ON or OFF] Enables the transmitter to mute automatically after 5 seconds of no movement. Auto Mute will disengage when the transmitter is moved again. Auto Mute will also engage if the transmitter is dropped.
- **ID:** [ON or OFF] Enables audio encryption between transmitter and receiver. The encrypted audio signal will have enhanced anti-interference abilities.
- **Mute Mode:**
  - **One Click:** Sets the **Power/Mute Button** to mute the transmitter with a single short press.
  - **Double Click:** Sets the **Power/Mute Button** to mute the transmitter with a short double click.
  - **OFF:** Disables the mute function of the **Power/Mute Button**.

**PLEASE NOTE:** Any changes made to the **Microphone Settings** will require you to **SYNC** the TRANSMITTER and RECEIVER to take effect.

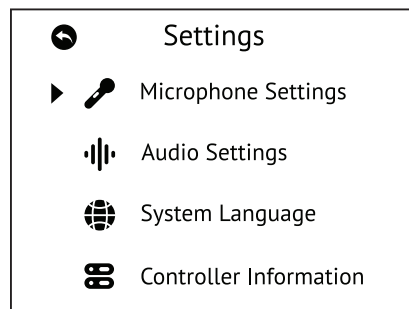


Fig. 4 Settings

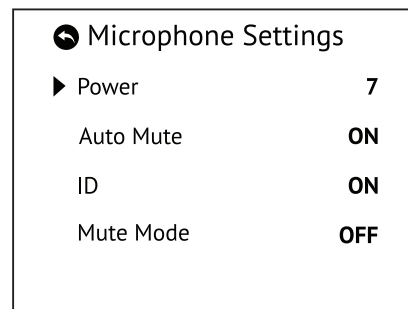


Fig. 5 Microphone Settings

### • Audio Settings (Figure 6):

- **Reverb:**
  - **Ratio:** Adjusts the rate of decay.
  - **Delay:** Adjusts the rate of delay.
  - **Level:** Adjusts the amount of effect applied to the channel.
- **EQ:**
  - **Bass:** Boosts or cuts low frequencies  $\pm 6$  dB.
  - **Midd:** Boosts or cuts mid-range frequencies  $\pm 6$  dB.
  - **Treble:** Boosts or cuts high frequencies  $\pm 6$  dB.

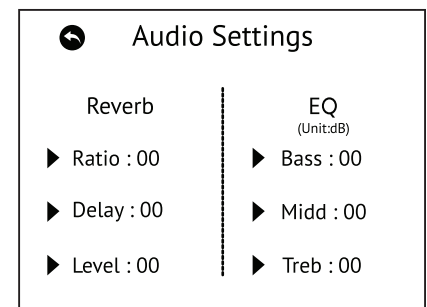


Fig. 6 Audio Settings

- **System Language (Figure 7):** [Chinese or English] Set the desired language to be displayed.

- **Controller Information (Figure 8):** Displays the current software version.



Fig. 7 System Language

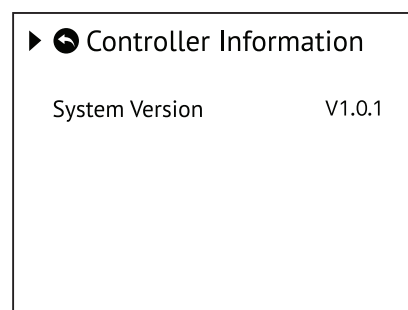


Fig. 8 Controller Information

## Low Battery Alert (Figure 9)

- When the microphone battery level is low, the receiver display turns red, and a low battery symbol appears.

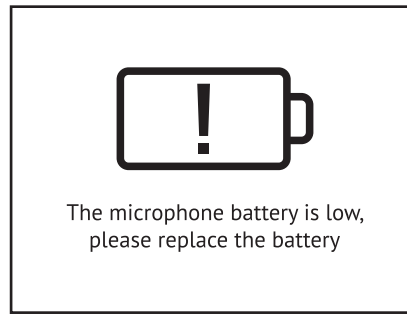


Fig 9 Low Battery Reminder

## HANDHELD MICROPHONE TRANSMITTER OPERATION

### Power On/Off Button

- When the transmitter is off, press and hold the **Power/Mute Button** to turn the transmitter on (Figure 10).
- When the transmitter is on, press and hold the **Power/Mute Button** to turn the transmitter off (Figure 11).






Fig. 10 Transmitter Power On



Fig. 11 Transmitter Power Off

### Microphone Transmitter Home Screen (Figure 12)

- **Transmit Power Intensity:** **P7** [P1-P7] Displays the selected power setting.
- **ID Encryption Status:**  Indicates that ID encryption is active.
- **Battery Status:**  Displays battery status. When the battery level is low, the icon will begin to flash.
- **Radio Frequency:** **670.00 MHz** Displays the current radio frequency selected on the transmitter.
- **Auto Mute:** **Mute-A** Indicates that the Auto Mute feature is active.
- **Mute Status:**  Displays current mute status. If One-key Mute is enabled on the receiver, it can be enabled/disabled by double-clicking the Power/Mute Button.

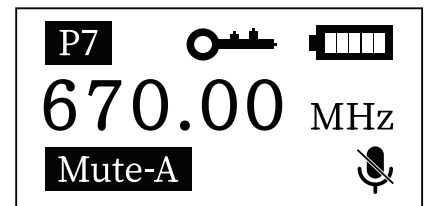


Fig. 12 Transmitter Main Screen

### Automatic Shutdown

- The microphone transmitter supports a long-term automatic shutdown function. The device detects the working status (in use or resting state) and automatically turns off after 8 minutes of inactivity.

**PLEASE NOTE:** This feature can not be disabled.

# SERVICE

In the event of a malfunction, ensure the problem is not related to operator error or system devices external to this unit. Once it is certain that the problem is related to the product, contact your warranty provider as described in the warranty section of this manual.

## LIMITED WARRANTY

PRO ACOUSTICS, LLC. ("PRO ACOUSTICS") warrants this product to the original purchaser to be free from defects in materials and workmanship (subject to the terms set forth below) for the following periods from the date of purchase.

### THIS WARRANTY COVERS THE LISTED PRODUCTS AGAINST DEFECTS IN MATERIALS OR WORKMANSHIP FOR THE FOLLOWING PERIOD

Warranty Terms	
Speakers	2 Years
Amplifiers & Electronics	1 Year
Microphones	1 Year
Accessories	1 Year

PRO ACOUSTICS will repair or replace (at PRO ACOUSTICS's option) this product or any defective parts (excluding electronics and amplifiers) in this product.

Your authorized PRO ACOUSTICS dealer will inspect the product, and if your dealer is not equipped to perform the repair of your PRO ACOUSTICS product, they will replace your product or return it to PRO ACOUSTICS for repair at their discretion. Proof of purchase in the form of a bill of sale or receipted invoice, which is evidence that this product is within the warranty period, must be presented to obtain warranty service.

This warranty is invalid if the factory applied serial number has been altered or removed from this product. This warranty is invalid if this product was not purchased from a PRO ACOUSTICS authorized dealer. Cosmetic damage or damage due to the accident, acts of God, misuse, abuse, negligence, commercial use, or modification of, or to any part of, the product are not covered in this warranty. This warranty does not cover damage due to improper operation, maintenance, installation, or attempted repair by anyone other than PRO ACOUSTICS or a PRO ACOUSTICS dealer that is authorized to do PRO ACOUSTICS warranty work. Any unauthorized repairs will void this warranty.

This warranty does not cover products sold as is.

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

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