

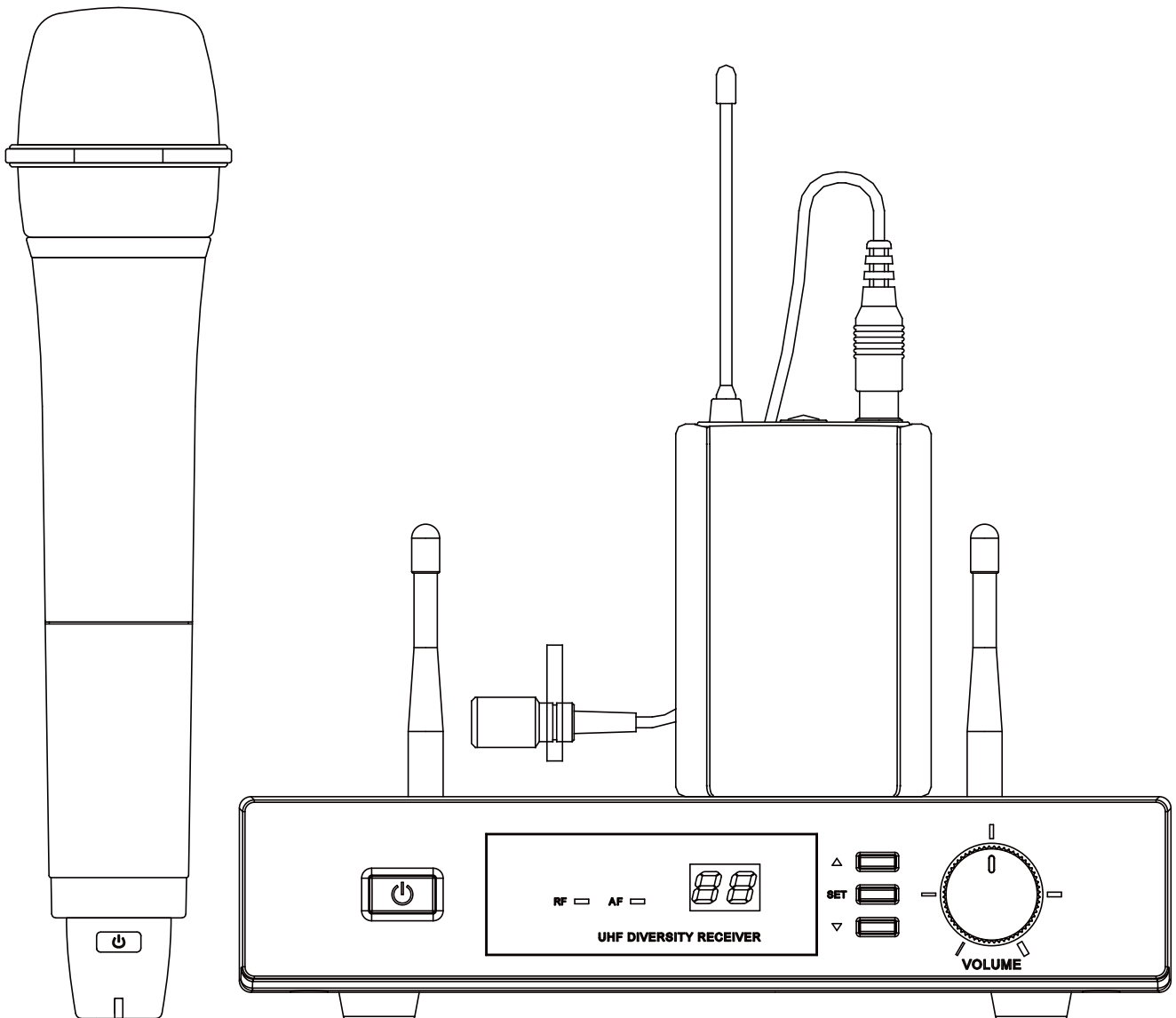
UHF

PLL SYNTHESIZED

USER'S MANUAL

UHF

SWITCHING-DIVERSITY
WIRELESS MICROPHONE SYSTEM



WIRELESS MICROPHONE SYSTEM

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1. Introduction

Thank you for purchasing our product. This PLL synthesized wireless microphone system operates in UHF band frequency with 16 selectable channels. Please read this instruction manual carefully before operating the system. This manual covers the function and operation of the wireless microphone system.

1.1 FCC Statement

This device complies with part 15 of the FCC rules. 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 undesired operation

Notice : The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

IMPORTANT NOTE: To comply with the FCC RF exposure compliance requirements, no change to the antenna or the device is permitted. Any change to the antenna or the device could result in the device exceeding the RF exposure requirements and void user's authority to operate the device.

1.2 Safety

- Do not spill liquid on the appliance and do not drop it on a hard concrete floor.
- Do not place the appliance near heat sources such as radiators, amplifier, or etc.
- Do not expose it to direct sunlight, extremely dust, excessive moisture, or vibration.
- Take out the battery from transmitter, if the appliance has been not used for a longer period. This will avoid the damage resulting from a defective leaking battery.

1.3 Environment

- Do not throw used batteries into a fire or garbage bin with domestic rubbish. Be sure to dispose of used batteries in accordance with local waste disposal rules.
- When disposing the equipment, remove the batteries, separate the case, circuit boards, and cables, and dispose of all components in accordance with local waste disposal rules.

1.4 Wireless Note

- Before setting up, make sure that the transmitter and receiver are tuned to the same frequency.
- Do not use two or above transmitters operating in the same frequency.
- Use good quality batteries to avoid the damage resulting from a defective leaking battery.
- Turn the MIC/LINE switch on the rear of receiver to adjust receiver output level to match input level requirements of an audio mixer or amplifier.
- While checking sound, move the transmitter around the area where you use the system to look for dead spots. If you find any dead spot, change the receiver position. If it does not work, avoid such places.
- To avoid interference, do not put the receiver too near metal object and avoid obstructions between transmitter and receiver.
- Avoid the interference from TV, radio, other wireless appliances and etc.

2. System Features

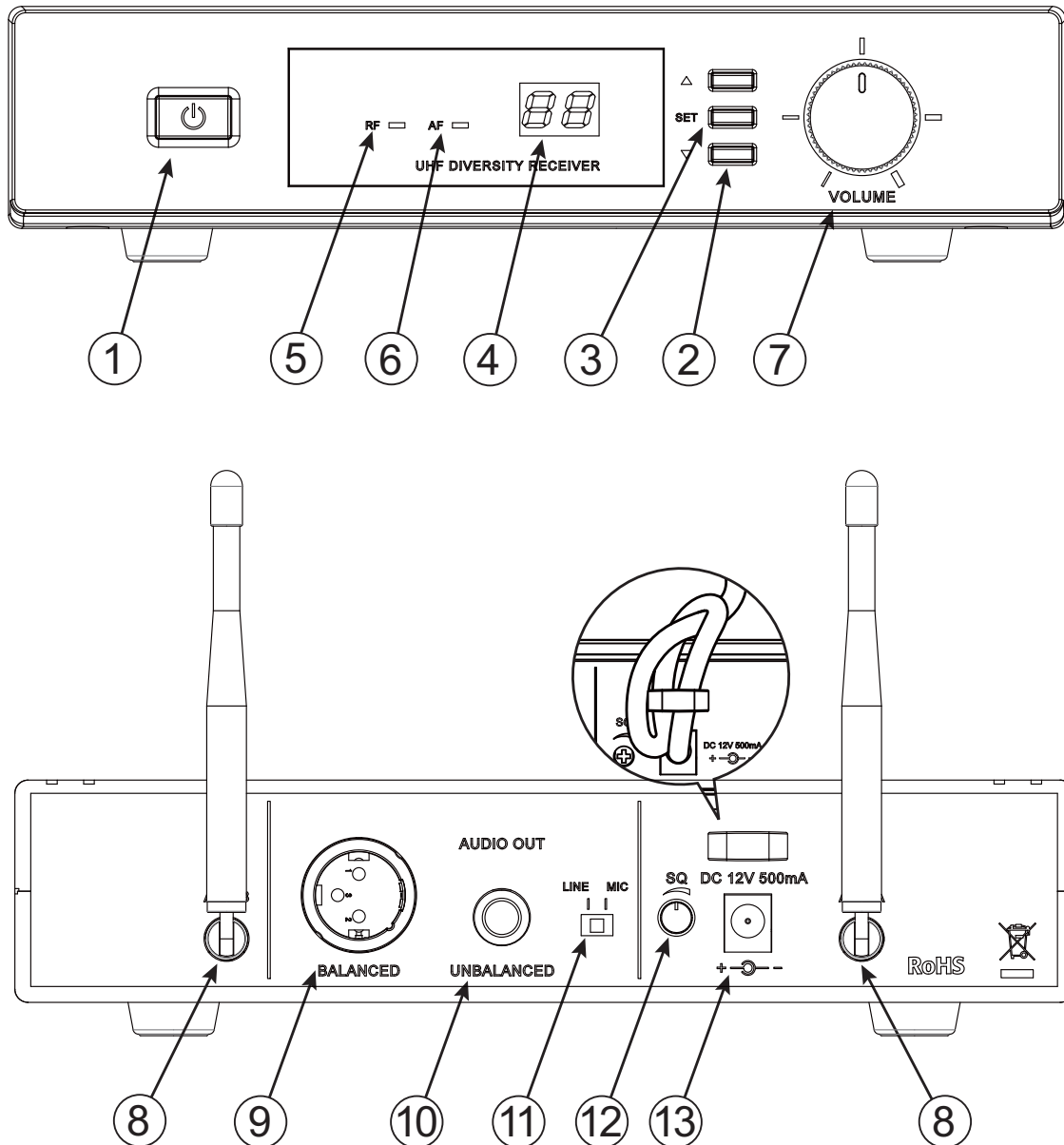
- Carrier Frequency Range: UHF 520 ~ 930MHz
- Switching-Diversity technology and adjustable squelch ensures the reception quality.
- Auto-Scan function can locate the interference-free channel easily.
- Low noise mixer circuitry helps to reduce the noise from interference to a minimum.
- Clear status display including RF, AF and channel presence LED.
- Durable plastic chassis with 1/2 rack design.
- Balanced XLR connector and unbalanced 1/4" jack audio outputs.
- The flexibility and the professional performance are specifically designed for stages, places of worship, and professional sound installations.
- Operating in UHF band frequency with synthesized controlled.
- The wireless microphone system with 16 or 64 selectable frequencies via Phase Locked Loop (PLL) circuitry makes it easy to choose non-interfered channels.
- Super high sensitivity, extremely low noise transmission and reception.
- SMT assembled PCB module ensures the quality and stability.

3. Product Description

The receivers are used with our 16 channel selectable channels transmitters. (The number of frequency channels depends on local regulations.) The receiver operates in UHF band frequency with PLL synthesized control. Powered by 12V DC.

3.1 Receiver

3.1.1 Single Channel (Switching Diversity , Back Antenna)

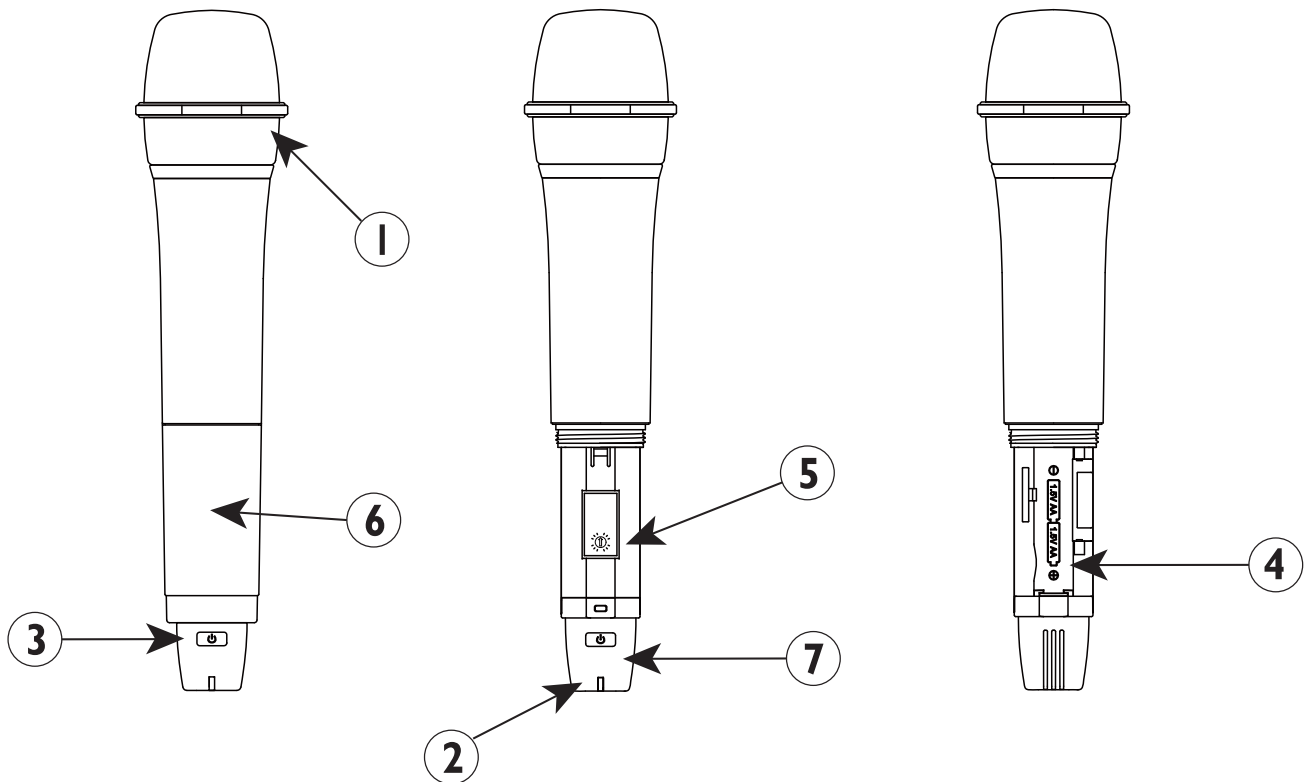


WIRELESS	PRODUCT DESCRIPTION
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1. **Power:** Press for 4 seconds to power the receiver on or off.
2. **Button $\triangle\nabla$:** Used to select your desired mode, and search channel forward.
3. **Set Button:** Press for 2 seconds. When the LED display is flashing to change the CH. Release the Set button then LED display flashing five times to lock the setting.
4. **LED Display:** Showing the channel number.
5. **RF indicator:** When it receives the signal, the LED will be red light.
6. **AF Indicator:** When it receives the signal, the LED will be green light.
7. **Volume Control:** Use this rotary control to adjust the receiver output level to match the input sensitivity of an audio mixer or an amplifier.
8. **Antenna:** Fixed-length UHF antenna permanently mounted.
9. **Balanced Output:** 3-pin XLR connector provides balanced low-impedance output.
10. **Unbalanced Output:** Unbalanced 6.3mm mono jack audio output for connecting to, e.g., a guitar amplifier.
11. **Mic/Line Switch:** Use this to adjust output (XLR balanced connector and 6.3 ϕ unbalanced phone jack) for microphone (-20dB) or line-level (0dB).
12. **Squelch:** Use the squelch to adjust the output level to suppress the noise. The higher squelch control, the lower the sensitivity of the receiver and smaller the service area of the system. Set the squelch to minimum before turning the receiver on.
13. **DC IN:** DC Input connector for the supplied AC adapter.

3.2 Handheld Microphone

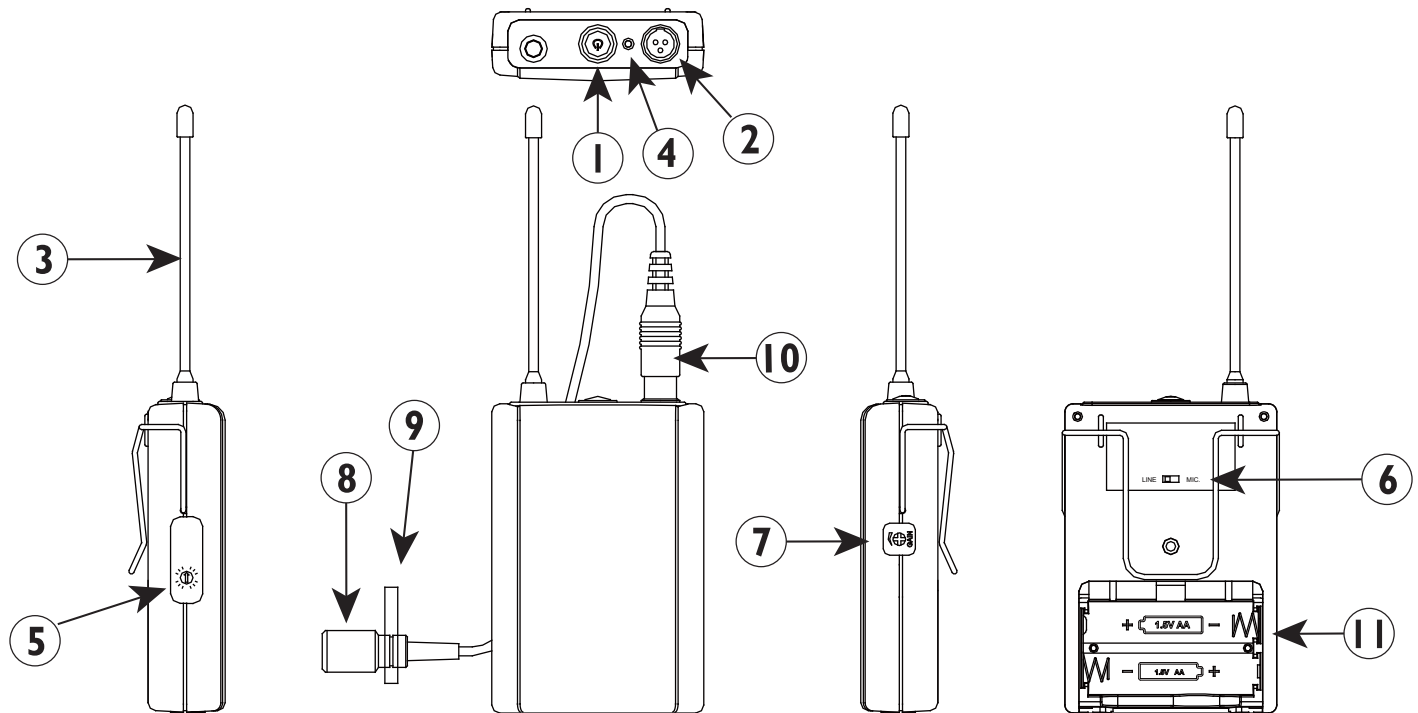
The handheld microphone operates in UHF band frequency with PLL synthesized control. UHF 16 preprogrammed selectable frequencies to avoid interference. Uni-directional dynamic or uni-directional condenser capsules with different characters for various choices. Use 2 x DC1.5V AA size dry or rechargeable batteries for low operating cost.



1. **Grille:** Protects the microphone capsule and helps reduce breath sounds and wind noise. The grille for the various microphone capsules differ in appearance.
2. **Low Battery LED:** LED indicates battery life status. When turn on the power, the LED will stay on to indicate the batteries have sufficient power. Contrarily, if the LED fails to light, the battery is either dead or not positioned correctly. If the LED stays flashing, it indicates that the battery will out of power soon and should be changed.
3. **Power:** Press for 2 seconds to turn transmitter on or off.
4. **Battery Compartment:** Insert two AA dry or rechargeable batteries into the compartment and make sure that the polarity of batteries is correct.
5. **Channel Selector:** Changes transmitter Channel setting.
6. **Battery Cover:** Unscrew to expose battery compartment and Channel selector.
7. **Color Clip:** This color clip helps to mark the same frequency of receiver and transmitter.

3.3 Bodypack Transmitter

The bodypack transmitter operates in UHF band frequency with PLL synthesized control. UHF 16 preprogrammed selectable frequencies to avoid interference. Uni-directional condenser cartridges with different characters for various choices. Use 1.5V x 2 AA size dry or rechargeable batteries for low operating cost.

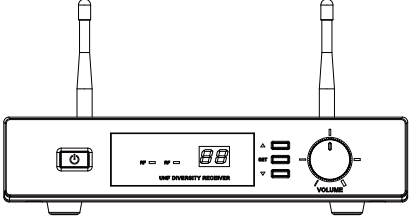
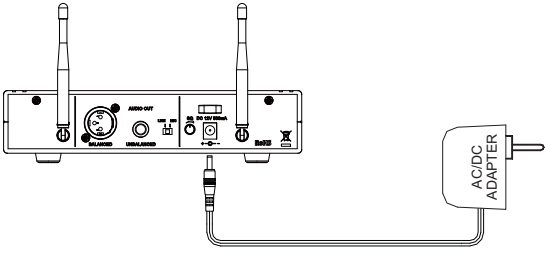
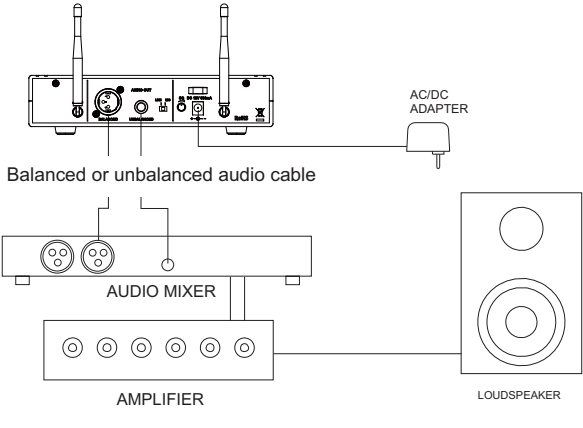
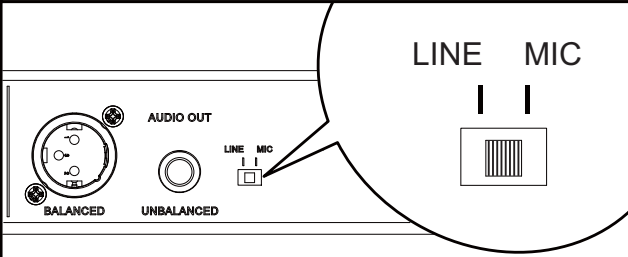


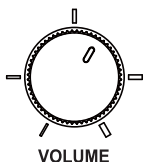
1. **Power:** Press for 4 seconds to power the transmitter on or off.
2. **Mini XLR Connector:** The included electret lapel microphone is inserted into the connector on transmitter.
3. **Antenna:** Permanently connected, helical antenna.
4. **Low Battery LED:** LED indicates battery life status. When turn on the power, the LED will stay on to indicate the batteries have sufficient power. Contrarily, if the LED fails to light, the battery is either dead or not positioned correctly. If the LED stays flashing, it indicates that the battery will out of power soon and should be changed.
5. **Channel Selector:** Changes transmitter Channel setting.
6. **Mic/Line Selector:** The switch sets the audio input either to microphone level or line level.
7. **Gain:** The rotary control adjusts the input audio level of the transmitter. The gain adjustment range is 10dB.
8. **Mic Unit:** The uni-directional electret condenser unit features the wide frequency response for warm, rich bass and clear sound.
9. **Tie Clip:** To clip on the tie or lapel for free-movement.
10. **Cable:** With mini XLR connector cable to connect the transmitter.
11. **Battery Compartment:** Insert two AA dry or rechargeable batteries into the compartment and make sure that the polarity of batteries is correct.

4. Set Up

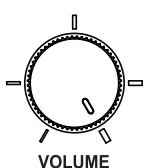
4.1 Connecting the Receiver

NOTICE: Prior to set up, please check that the transmitter and receiver are tuned to the same frequency. Two or more transmitters operating in the same frequency can not be used at the same time and area. So for each extra transmitter, please select a different frequency which can be used simultaneously at local area.

	<ul style="list-style-type: none"> • Turn the antenna upward.
	<ul style="list-style-type: none"> • Plug the DC 12V 500mA power supply into the power connector on the back of the receiver.
	<ul style="list-style-type: none"> • Connect the receiver output to the audio mixer or amplifier input, using a standard audio cable with 3-pin XLR connectors or 6.3φ phone plugs. Never use the balanced and unbalanced audio outputs at the same time! This may cause signal loss or increased noise.
	<ul style="list-style-type: none"> • Matching the Mic / Line selector position of receiver with the audio Mixer before connecting with Mixer. For Mic (-20dB) For Line (0dB)



➤ When using a standard audio cable with 3-pin XLR connectors or 6.3 φ phone plugs to plug into the MIC IN on the audio mixer or on the amplifier, please turn the Volume Level Control of the receiver to around 1 o'clock position, the output level for balanced and unbalanced output is about at 77mV.



➤ When using a standard audio cable with 3-pin XLR connectors or 6.3 φ phone plugs to plug into the LINE IN on the audio mixer or on the amplifier, please turn the Volume Level Control of the receiver to around MAX. position, the output level for balanced and unbalanced output is about at 770mV. Never use the balanced and unbalanced audio outputs at the same time! This may cause signal loss or increased noise.

4.2 Set up interference-free channel on receiver

Notice: Do not put two or more transmitters operate nearby when set up the frequency channel. Please keep transmitter at least 1 M away from receiver.

4.2.1 Manual Mode

Set up interference -free channel by manual operation.

	<p>➤ Press the button to turn the power on.</p>
	<p>➤ Press button "SET" for 1 second to let channel flashing on the LED display.</p>
	<p>➤ Press Δ/∇ change the channel forward or backward.</p>
	<p>➤ Stop pressing button and let LED display flashing five times to lock the setting.</p>

4.2.2 Auto-Scan Mode

Set up interference-free channel by auto-scan programmed search.

	<ul style="list-style-type: none"> ➤ Press the button to turn the power on.
	<ul style="list-style-type: none"> ➤ Press button "Set" for 3 seconds to search the next interference-free channel automatically. ➤ The auto-scan system would stop at the next interference-free channel.
	<ul style="list-style-type: none"> ➤ Stop pressing button and let LED display flashing five times to lock the setting.

NOTE: If user need to set up a multi-receiver system, please keep your previous receiver-microphone pair power on. Then go on to next scanning procedure.

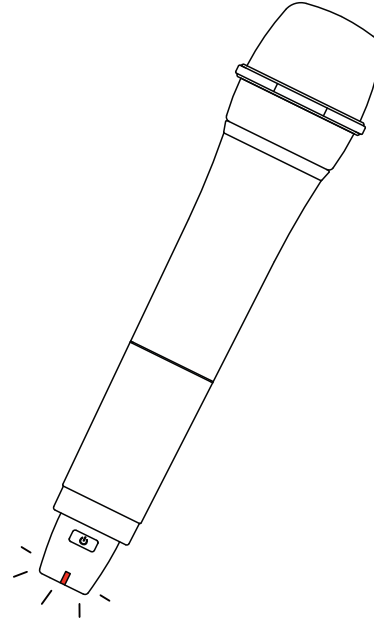
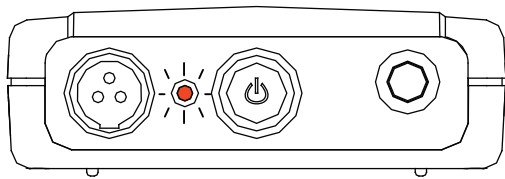
4.3 Set up the handheld microphone / Bodypack transmitter

	<ul style="list-style-type: none"> • Open the battery cover and insert batteries into the battery compartment conforming to the polarity (+)(-) marks.
	<ul style="list-style-type: none"> • Unscrew the handheld Mic and open the battery cover to insert the battery into the battery compartment and confirm the marks of the polarity (+) (-).
	<ul style="list-style-type: none"> • Press the button "SET" of the receiver to auto-scan the channel and let LED display flashing to lock the channel automatically. • Use the adjust pin to set the channel of the transmitters as same as the receiver.
	<ul style="list-style-type: none"> • Plug the mini XLR connector of the microphone cable into the audio input connector on the bodypack transmitter.
	<ul style="list-style-type: none"> • Press for 4 seconds to turn the Handheld/ Bodypack transmitter on.

Note : When you don't use this device for a long term period, please switch the power switch to "off" mode to save more electric power.

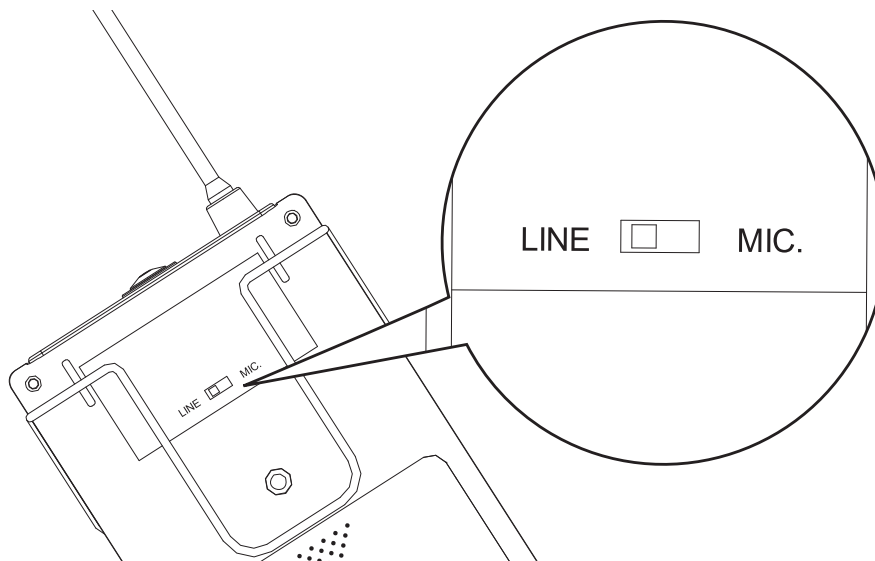
4.4 Low Battery

If the LED stays flashing , it indicates that the battery will out of power soon and should be changed.



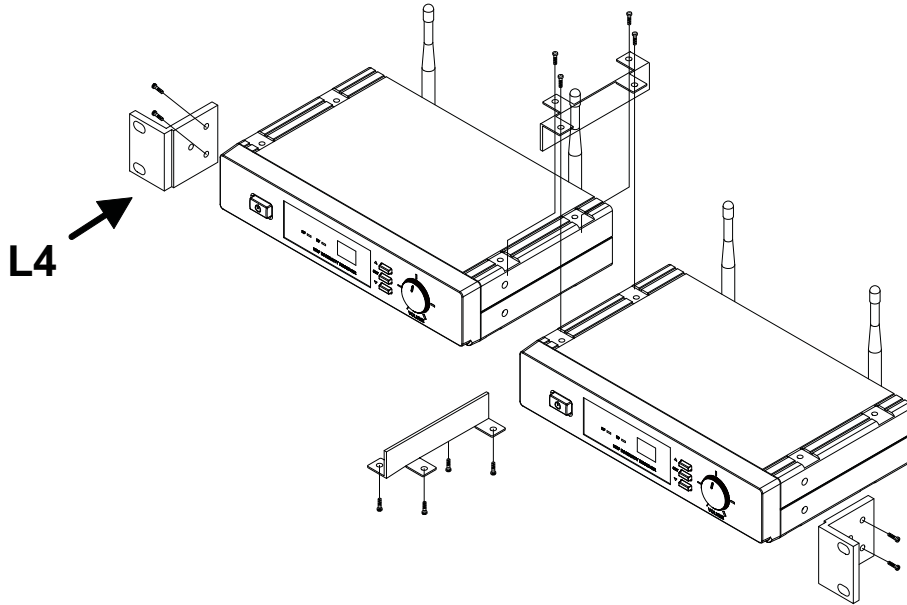
4.5 Adjusting Gain

Use MIC/LINE switch to adjust the input level. Switching the selector to the Mic position when connect with microphone for the normal audio input level. Switching the selector to the Line position when connect with instrument for the high audio input level.

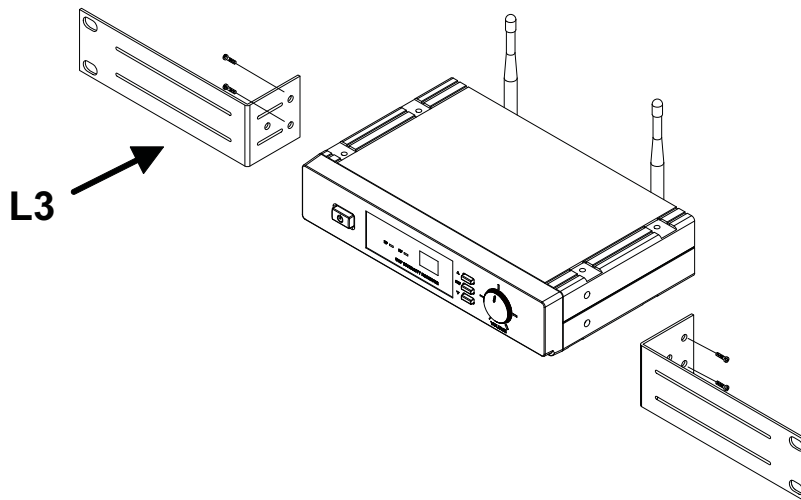


5. Basic Connections

To combine two receivers in a 19" standard rack by using 2 short L type metal racks mounts and 2 metal connecting plates. (Each system includes a short L type.)



To mount a receiver in a 19" standard rack by using 2 L type long metal racks mounts. (L type long metal racks is an optional product, so please purchase extra in local shops.)



6. Trouble-shooting

Problem	Solution
No sound	<ul style="list-style-type: none">➤ Check the power supply of the microphone and receiver.➤ Check that the transmitter and receiver are tuned to the same frequency.➤ Check whether the hi-fi appliance is switched on and the receiver output is connected to audio mixer or amplifier input.➤ Check whether transmitter is too far away from receiver or SQUELCH control set too high.➤ Check whether receiver is located too near metal object or there are obstructions between transmitter and receiver.
Sound interference	<ul style="list-style-type: none">➤ Check the antenna location.➤ When using 2 or above microphone sets simultaneously, make sure that the chosen frequencies are not interfered.➤ Check whether the interference comes from other wireless microphones, TV, radio and etc.
Distortion	<ul style="list-style-type: none">➤ Check the receiver volume level whether is set too high or too low.➤ Check whether the interference comes from other wireless microphones, TV, radio and etc.

7. System Specification

Receiver

- Carrier Frequency Range : UHF 520 - 930MHz
- Oscillator : PLL Synthesized
- Modulation : FM
- Frequency Stability : $\pm 0.005\%$
- S/N ratio : $> 94\text{dB}$, at 20KHz deviation and 60dB μV antenna input
- Image and Spurious Rejection : 80 dB minimum
- Receiving Sensitivity : At 10 μV over 80dB S/N ratio
- Selectivity : $> 50\text{dB}$
- AF Response : 80Hz to 16KHz
- T.H.D. : $< 1\%$ (at 1KHz)
- IF Frequency : 1st: 243.95MHz 2nd:10.7MHz
- Dynamic Range : $> 96\text{dB}$
- Tone Signal : 32.768KHz
- Audio Output : Balanced and unbalanced audio outputs
- Power Supply : 12V DC
- Current Consumption : About 200mA

Handheld/Bodypack Transmitter

- Carrier Frequency Range : UHF band 520 ~ 930MHz
- RF Power Output : 10mW (max.)
- Oscillator : PLL synthesized
- Frequency Stability : $\pm 0.005\%$
- Maximum Deviation : $\pm 20\text{KHz}$ with limiting compressor
- Spurious Emission : $> 60\text{dB}$ below carrier frequency
- T.H.D. : $< 1\%$ (at 1KHz)
- Microphone Cartridge : **Handheld** uni-directional dynamic or uni-directional electret condenser unit
Lavalier uni-directional electret condenser unit
- Operating voltage : DC1.5V x 2 AA size dry or rechargeable batteries
- Current consumption : 120mA \pm 10mA

* The specification subject to change without notice.