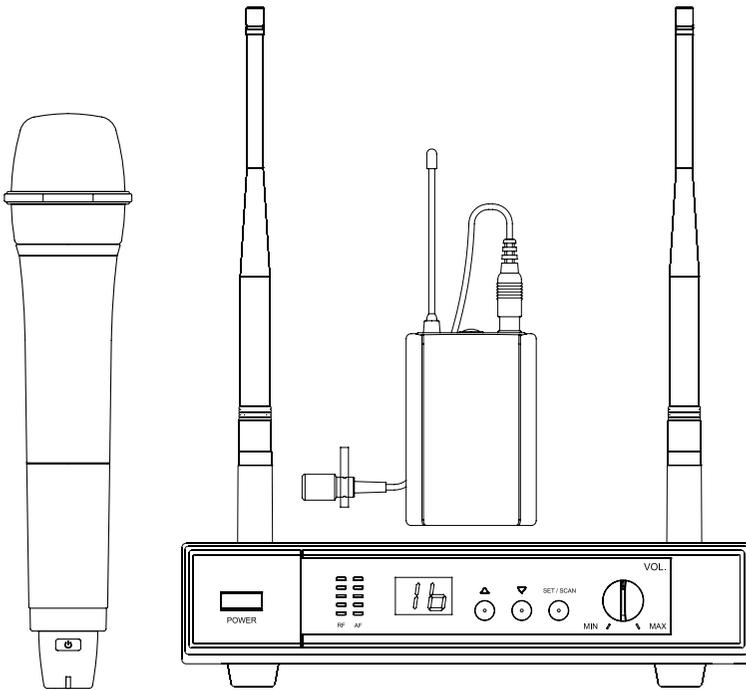


# UHF

**BAND**  
**WIRELESS MICROPHONE SYSTEM**



# WIRELESS MICROPHONE SYSTEM

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## **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. 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.

## **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.

## **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.

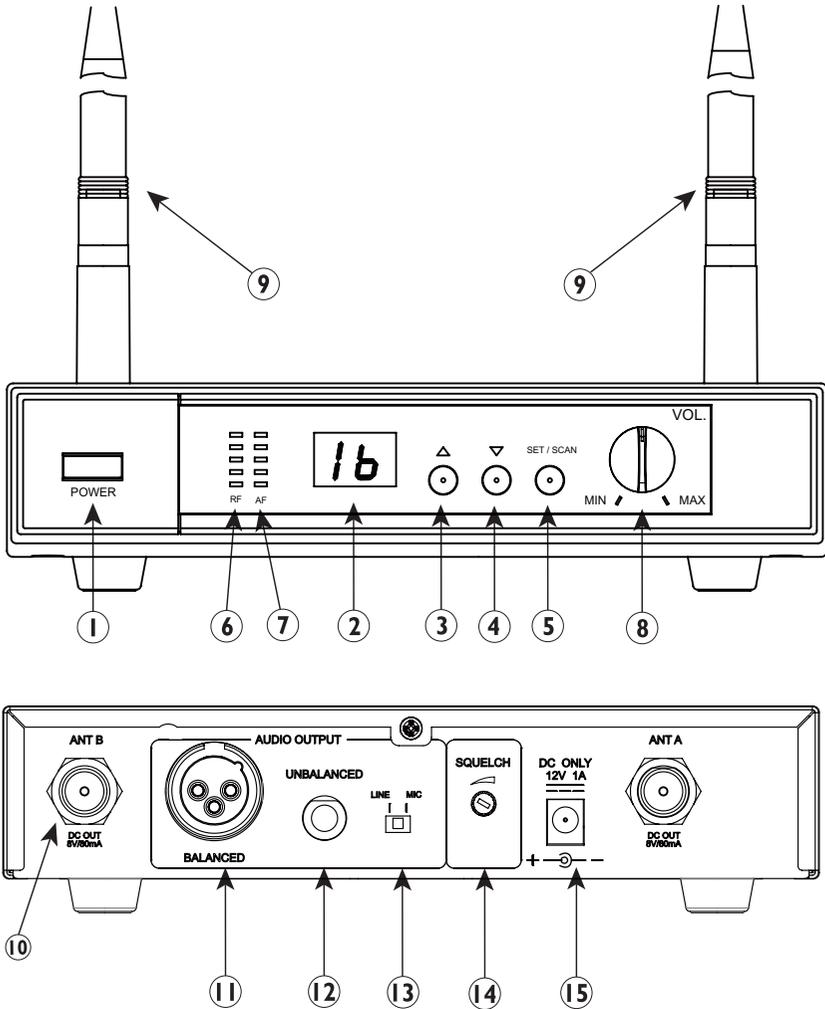
## **4. Wireless Note**

- 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.
- Use the gain control to adjust the sensitivity of the transmitter's audio to the level of the connected lapel microphone or instrument.
- To avoid interference, do not put the receiver too near metal object and avoid obstructions between transmitter and receiver.
- 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.
- Avoid the interference from TV, radio, other wireless appliances and etc.

## 5. Product Description

### 5.1 Receivers

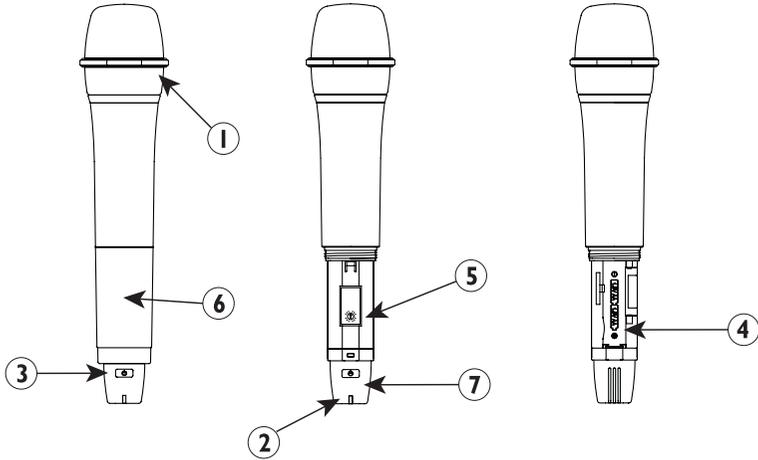
#### Ture Diversity, Detachable Antenna



1. **Power:** Press for 4 seconds to power the receiver on or off.
2. **Channel Display:** LED channel displays the channel number.
3. **Button  $\triangle$ :** When the LED display starts flashing, press this button to change the channel forward.
4. **Button  $\nabla$ :** When the LED display starts flashing, press this button to change the channel in backward.
5. **Set / Scan Button:**
  - Auto Scan : Press 3 seconds to search the next clean channel automatically.
  - Set Channel : Press 1 second to let LED channel display flashing, then press the channel button  $\triangle$  or  $\nabla$  to change the channel. Wait LED channel display flashing five times to lock the channel or press SET button for 1 second to lock the channel.
6. **RF Level Indicators:** 5-segment meter glows to indicate RF signal strength. The more segment glow, the stronger the received signal. If none of these segments glow, no signal is being received.
7. **AF Level Indicators:** 5-segment meter glows to indicate audio signal strength. The more segment glow, the stronger the received signal. If none of these segments glow, no signal is being input.
8. **Level Control:** Use this rotary control to adjust the receiver output level to match the input sensitivity of an audio mixer or an amplifier.
9. **Antenna:** Fixed-length UHF antenna permanently mounted.
10. **Antenna Input Connector:** TNC-type connectors provide connection to the supplied antennas or to coaxial cable used with an antenna divider, antenna boosters or remote antennas.
11. **Balanced Output:** 3-pin XLR connector provides balanced low-impedance output
12. **Unbalanced Output:** Unbalanced 6.3 $\phi$  mono jack audio output for connecting to, e.g., a guitar amplifier.
13. **Mic/Line Switch:** Select output of XLR balanced connector or 6.3 $\phi$  unbalanced phone jack. It can be set for microphone (-20dB) or line-level (0dB).
14. **Squelch :** The squelch adjust the output level to prevent from the external noise. Setting the squelch too high will reduce the range of the system. Set the squelch to minimum before turning the receiver on.
15. **DC IN:** DC input connector for the supplied AC adapter.

## 5.2 Handheld Microphone

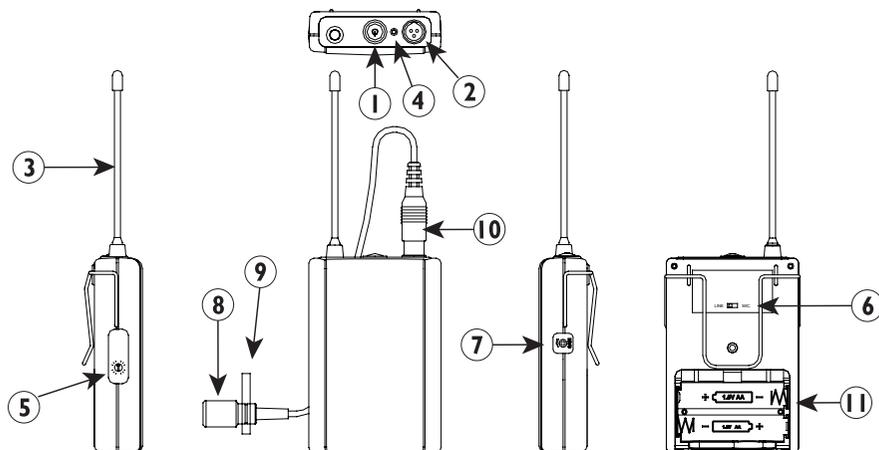
The handheld microphone operates in UHF band frequency with PLL synthesized control. UHF 16 preprogrammed selectable frequencies to avoid interference. Uni-directional dynamic or uni-directional condenser capsules with different characters for various choices. Use 2 x DC1.5V AA size batteries for low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

### 5.3 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 batteries for low operating cost.



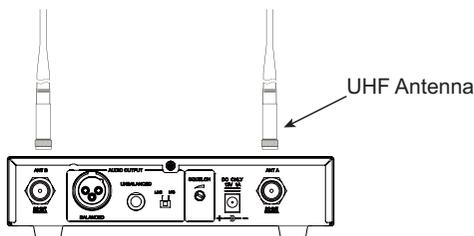
1. **Power:** Press for 4 seconds to power the transmitter on or off.
2. **Mini XLR Connector:** The included electret lapel microphone is inserted into the connector on transmitter.
3. **Antenna:** Permanently connected, helical antenna.
4. **Low Battery LED:** LED indicates battery life status. When 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.

## 6. Setting Up

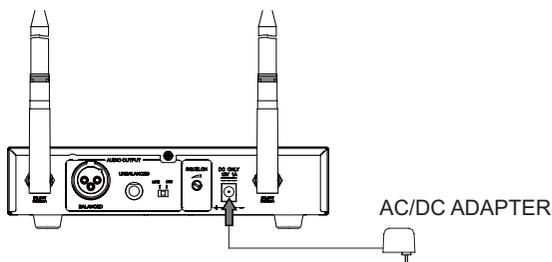
**NOTICE:** Prior to setting up, please check that the transmitter and receiver are tuned to the same frequency. Two or more transmitters operate in the same frequency can not be used at the same time and area. So for each extra transmitter, please select a different frequency which can be used simultaneously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

### 6.1 Connecting the receiver to power

- Plug the antennas into the TNC socket on the receiver, if the antennas are detachable and point them upward.



- Check that the voltage of the supplied AC adapter conforms to the voltage available (AC110 or 220) in local area. Using the wrong AC adapter may cause irreparable damage to the unit.
- Plug the feeder cable of the supplied AC adapter into DC IN socket on the receiver. Then plug the AC adapter into a power outlet.



### 6.2 Connecting the receiver to an audio mixer or an amplifier

In order to make sure the sound quality and avoid distortion, please adjust the volume level according to following instructions.



- When using a standard audio cable with 3-pin XLR connectors or 6.3φ 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 6.3φ 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.

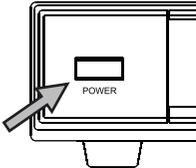
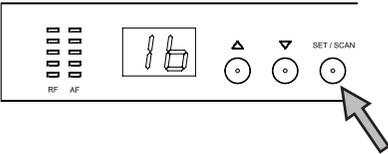
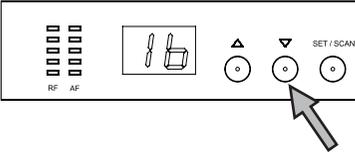
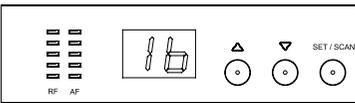
Never use the balanced and unbalanced audio outputs at the same time! This may cause signal loss or increased noise.

**6.3 Setting up interference-free channel on receiver**

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

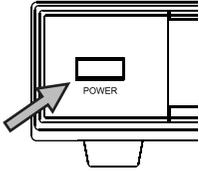
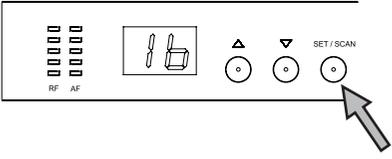
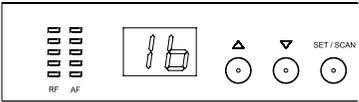
**6.3.1 Manual Mode**

Setting interference-free channel by manual operation.

	<ul style="list-style-type: none"> <li>➤ Press for 4 seconds to turn on the power.</li> </ul>
	<ul style="list-style-type: none"> <li>➤ Press button "Set/Scan" for 1 second to let LED channel display flashing.</li> </ul>
	<ul style="list-style-type: none"> <li>➤ Press button <math>\Delta</math> or <math>\nabla</math> for 2 seconds to change the channel forward or backward.</li> </ul>
	<ul style="list-style-type: none"> <li>➤ Stop pressing button and let LED display flashing five times to lock the setting.</li> </ul>

### 6.3.2 Auto-Scan Mode

Setting interference-free channel by auto-scan programmed search.

	<ul style="list-style-type: none"> <li>➤ Press for 4 seconds to turn on the power.</li> </ul>
	<ul style="list-style-type: none"> <li>➤ Press button "Set/Scan" for 3 seconds to search the next interference-free channel automatically.</li> <li>➤ The auto-scan system would stop at the next interference-free channel.</li> </ul>
	<ul style="list-style-type: none"> <li>➤ Stop pressing button and let LED display flashing five times to lock the setting.</li> </ul>

**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.

#### 6.4 Inserting batteries into the handheld / bodypack transmitter

- Unscrew the battery cover and insert batteries into the battery compartment conforming to the polarity (+)(-) marks. The transmitter can not work with incorrectly inserted batteries.
- Press the power button for 2 seconds to turn on the handheld / bodypack Transmitter. The LED will flash momentarily.
- Screw the battery cover.

#### 6.5 Setting up the handheld microphone

- Use the AC adaptor to connect the DC input connector for on the receiver and check the frequency.
- Turn the receiver power on and check the frequency and volume level.
- Switch the transmitter and hi-fi appliance (amplifier, tape deck etc.) power on.
- Adjust the channel setting of the transmitter according to the receiver's channel setting.
- Test the microphone and adjust the levels on your audio mixer or amplifier.

#### 6.6 Setting up the bodypack transmitter

##### A. Connecting a microphone

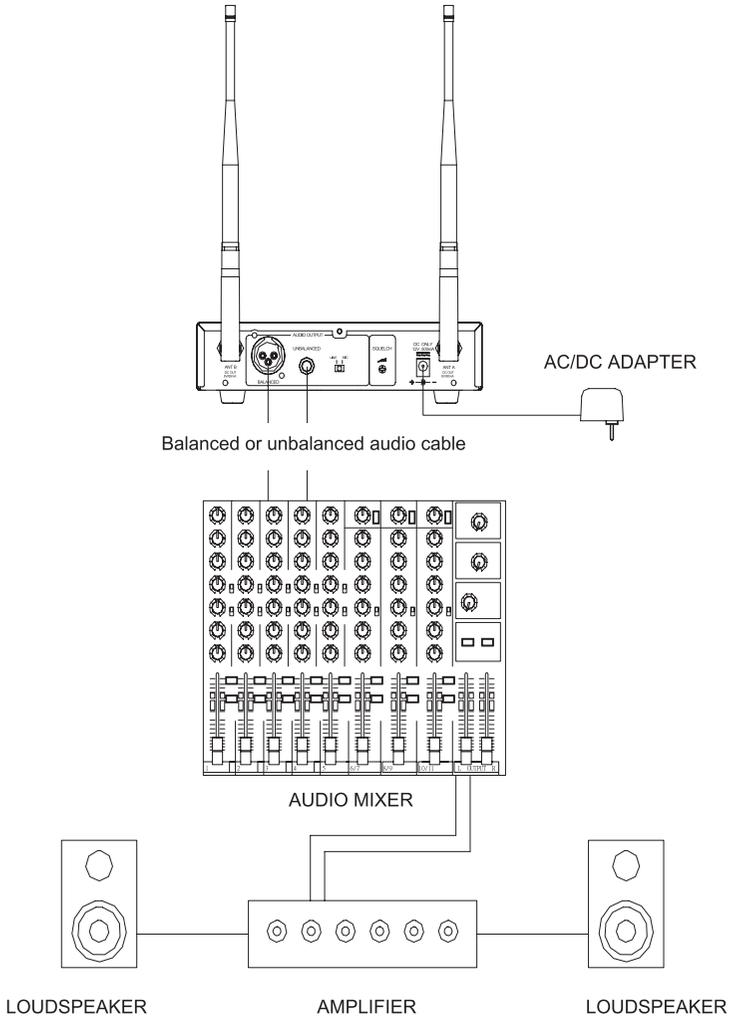
- Open the battery cover. Push the MIC/LINE switch to "MIC" and use the supplied screwdriver to adjust the GAIN at appropriate position.
- Plug the mini XLR connector of the microphone cable into the audio input connector on the bodypack transmitter.
- Switch the transmitter and hi-fi appliance (amplifier, tape deck etc.) power on.
- Adjust the channel setting of the transmitter according to the receiver's channel setting.
- Test the microphone and adjust the levels on your audio mixer or amplifier.

##### B. Connecting an instrument

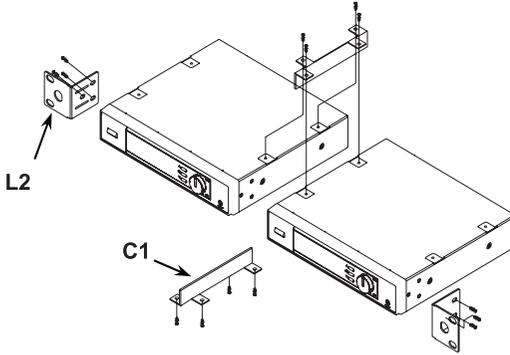
- Open the battery cover. Push the MIC/LINE switch to "LINE" and use the supplied screwdriver to adjust the GAIN at appropriate position.
- Plug the 6.3 $\phi$  phone plug of the optional guitar cable to the output jack on the instrument and the mini XLR into audio input connector on the bodypack transmitter.
- Switch the transmitter and hi-fi appliance (amplifier, tape deck etc.) power on.
- Adjust the channel setting of the transmitter according to the receiver's channel setting.
- Play the instrument for testing and adjust the levels on your audio mixer or amplifier.

## 7. Basic Connections

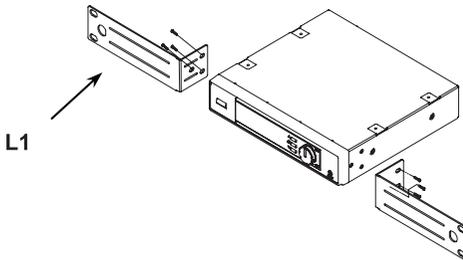
Connect the receiver output to the audio mixer or amplifier input, using a standard audio cable with 3-pin XLR connectors or 6.3 $\phi$  phone plugs. Never use the balanced and unbalanced audio outputs at the same time! This may cause signal loss or increased noise.



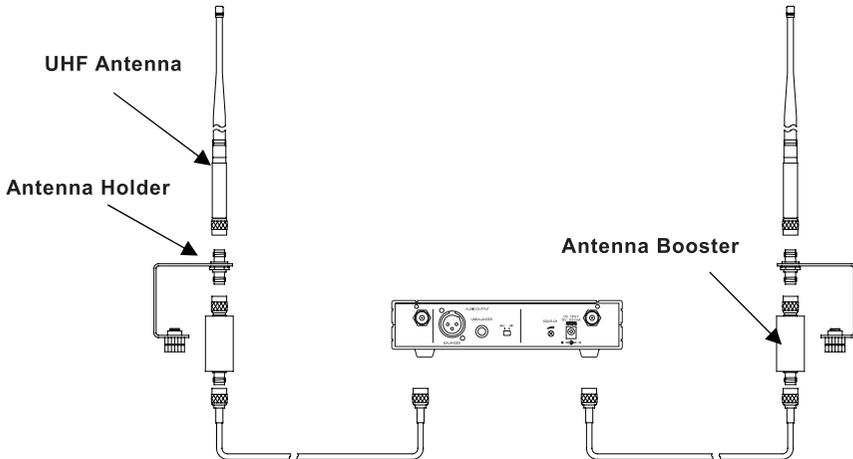
To combine two receivers in a 19" standard rack by using 2 short L type plastics racks (L2) and 2 metal connecting plates (C1). (Each system includes a L2 and a C1.)



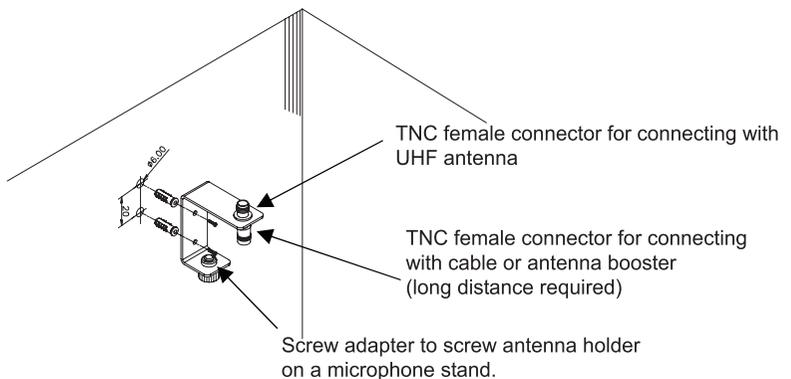
To mount a receiver in a 19" standard rack by using 2 L type long metal racks (L1). (L1 is an optional product, so please purchase extra in local shops.)



The antenna booster is highly recommended for long-distance purpose, such as in stadium or in auditorium. By means of antenna holder, the antenna and booster can put wherever you want. It is ideal design for multi-channel application. Antenna boosters are applied to the receivers, which have detachable antennas.



Antenna holder makes it easy to fix wherever for connection antenna and booster. It can be assembled on the mic stand or on the wall.



## 8. Trouble-shooting

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

## 9. System Feature

- 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 selectable frequencies via Phase Locked Loop (PLL) circuitry makes it easy to choose non-interfered channels.
- Auto-Scan technology for the operating easiest and fastest channel set-up.
- Diversity with two antennas to ensure the reception quality.
- Super high sensitivity, extremely low noise transmission and reception.
- SMT assembled PCB module ensures the quality and stability.

## 10. System Specification

### Receiver

- Carrier Frequency Range : UHF band 518 ~ 928MHz
- Oscillator : PLL synthesized
- Modulation : FM
- Frequency Stability :  $\pm 0.005\%$
- S/N ratio :  $> 94\text{dB}$ , at 48KHz deviation and 60dB $\mu\text{V}$  antenna input
- Maximum Deviation :  $\pm 48\text{KHz}$
- Image and Spurious Rejection : 80 dB minimum
- Receiving Sensitivity : 6 dB  $\mu\text{V}$ .
- Selectivity :  $> 50\text{dB}$
- AF Response : 50Hz to 15KHz
- T.H.D. :  $< 1\%$  (at 1KHz)
- IF Frequency : 1<sup>st</sup>: 243.95MHz 2<sup>nd</sup>: 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/Bod pack Transmitter

- Carrier Frequency Range : UHF band 518 ~ 928MHz
- RF Power Output : 10mW (max.)
- Oscillator : PLL synthesized
- Frequency Stability :  $\pm 0.005\%$
- Maximum Deviation :  $\pm 48\text{KHz}$  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 : DC 1.5V x 2 AA size batteries
- Current consumption : 120mA (MAX.)

\* The specification subject to change without notice.







