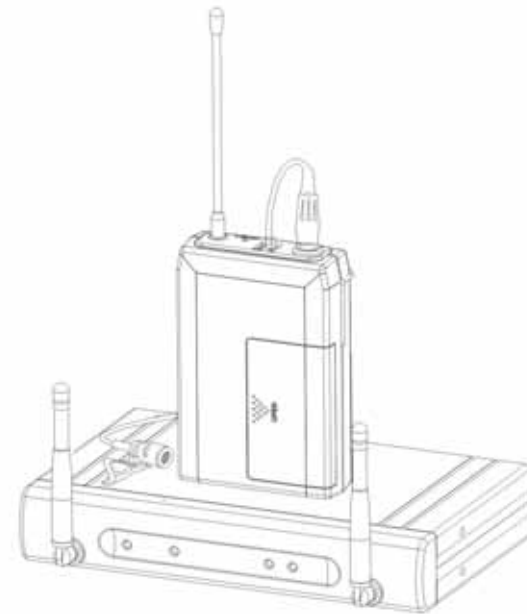


UHF BAND

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 15 or 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 transmitters 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.

9. System Feature

- Operating in UHF band frequency with synthesizer controlled.
- The wireless microphone system with 16 selectable frequencies via Phase Locked Loop (PLL) circuitry makes it easy to choose non-interfered channels.
- 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
- Frequency Stability : $\pm 0.005\%$
- Receiving Sensitivity : At 8 dB μ V over 80dB S/N ratio
- Image and Spurious Rejection : 80 dB minimum
- Selectivity : > 50dB
- Modulation Mode : FM
- IF Frequency : 1st: 56MHz; 2nd: 10.7MHz
- Tone Signal : 32.768KHz
- S/N ratio : > 94dB, at 48KHz deviation and 60dB μ V antenna input
- AF Response : 80Hz to 12KHz (± 3 dB)
- T.H.D. : Less than 1.0% (at 1KHz)
- Power Supply : DC 12V ~ 18V
- Audio Output : Balanced and unbalanced outputs for Single channel / Switching diversity (Mic.= -20dB / Line = 0dB)
- Current consumption : 150mA (Max.) A

Handheld/Bodypack Transmitter

- Carrier Frequency Range : UHF band
- RF Power Output : 10mW (max.)
- Oscillation Mode : PLL synthesized, 16Channel selectable
- Frequency Stability : $\pm 0.005\%$
- Maximum Deviation : ± 48 KHz with limiting compressor
- Spurious Emission : > 60dB below carrier frequency
- T.H.D. : < 1% (at 1KHz)
- Microphone Capsule : **Handheld:** uni-directional dynamic or uni-directional electret condenser unit
Lavalier: uni-directional electret condenser unit
- Tone Signal : 32.768KHz
- Battery : DC3V (2 x 1.5V AA size batteries) or DC 2.4V (2 x 1.2V AA size rechargeable batteries)
- Current consumption : 110mA at 3V

DESIGN AND SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

7.6 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 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 ϕ 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 receiver's channel setting.
- Play the instrument for testing and adjust the levels on your audio mixer or amplifier.

8. Troubleshooting

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 is set too high or too low. ➤ Check whether the interference comes from other wireless microphones, TV, radio and etc.

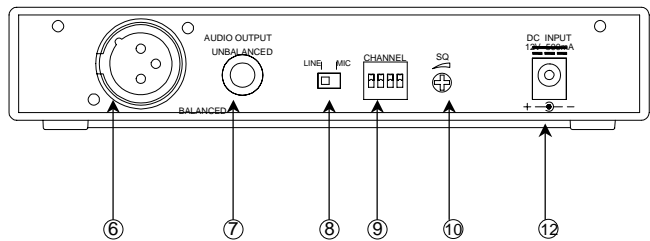
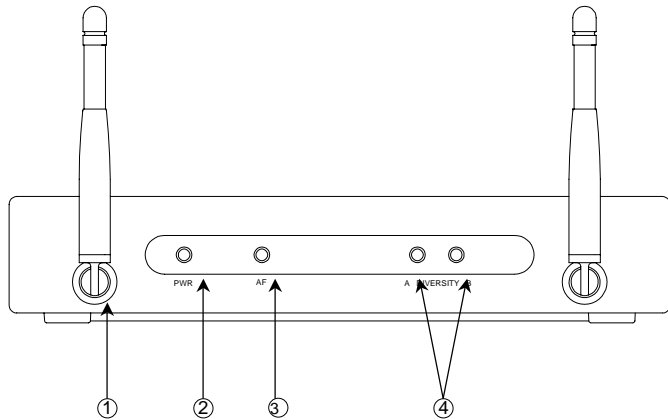
5. Product Description

5.1 Receivers

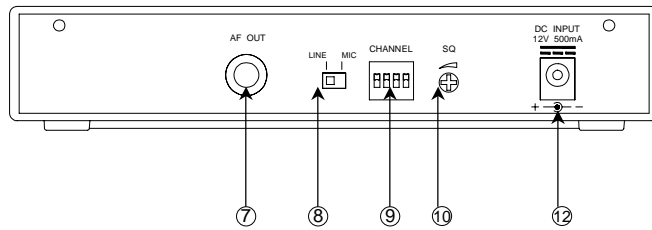
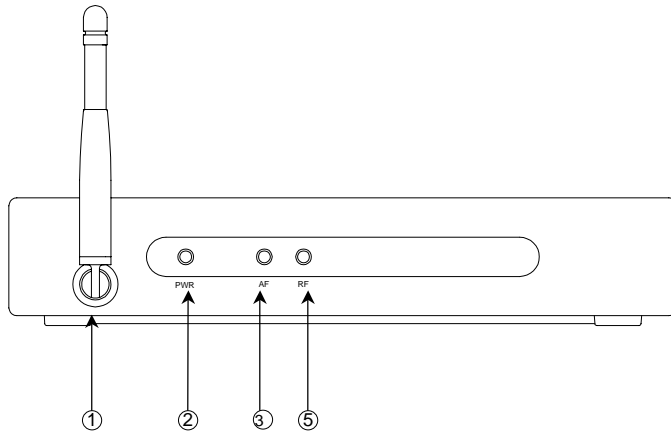
The receivers are used with our 15 or 16-channel selectable channels transmitters. (The number of frequency channels depends on local regulations.) The receiver operates in UHF band frequency with PLL synthesized control. Powered by 12V DC.

5.1.1 Single Channel, Mini Case

Switching Diversity, Front Fixed Antenna



5.1.2 Single Channel, Mini Case Non Diversity, Front Fixed Antenna



7.3 Setting up channel on receiver

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

- Use the AC adaptor to connect the DC input connector for on the receiver and check the frequency.
- The power LED lights when the receiver is ready to operate
- Adjust dip switch to set the channel
- If user need to set up a multi-receiver system, please keep your previous receiver-microphone pair power on. Then go on to next set up procedure.
- Make sure the receiver channel is same as the transmitter channel

7.4 Inserting batteries into the handheld / bodypack transmitter

- Push to open the battery cover and insert batteries into the battery compartment conforming to the polarity (+)(-) marks. The transmitter can not work with incorrectly inserted batteries.
- When push the ON/OFF switch to "ON" to switch the power on, the LED will flash momentarily.

If the battery has sufficient power, the LED flashes once. If the LED stays on, it indicates that the battery has insufficient power and should be changed soon. If the status LED fails to flash, the battery is either dead or not positioned correctly, and you should correct the positioning or change the battery.

- Push back the battery cover to click it shut.

7.5 Setting up the handheld transmitter

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

7. Setting Up

NOTICE: Prior to setting 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.

7.1 Connecting the receiver to power

- 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.

7.2 Connecting the receiver to an audio mixer or an amplifier

In order to make sure the sound quality and avoid distortion, please adjust the MIC/LINE switch according to following instructions.

When using a standard audio cable with XLR or 6.3φ phone plugs to plug into the MIC IN on the audio mixer or on the amplifier, please select the MIC/LINE switch to "MIC" position, the output level for unbalanced output is about at 100mV.

When using a standard audio cable with XLR or 6.3φ phone plugs to plug into the LINE IN on the mixer, please select the MIC/LINE switch to "LINE" position, the output level for unbalanced output is about at 1V.

For RS-80:

- When select the MIC/LINE switch to "MIC", please use a standard 6.3φ plug cable to connect the UNBALANCED connector on the receiver rear panel to an unbalanced MIC. input on the audio mixer or on the amplifier,
- When select the MIC/LINE switch to "MIC", please use a standard 3-pin XLR cable to connect the BALANCED connector on the receiver rear panel to an balanced MIC. input on the audio mixer or on the amplifier.
- When select the MIC/LINE switch to "LINE", please use a standard 6.3φ plug cable to connect the UNBALANCED connector on the receiver rear panel to an unbalanced line input on the audio mixer or on the amplifier.
- When select the MIC/LINE switch to "LINE", please use a standard 3-pin XLR cable to connect the BALANCED connector on the receiver rear panel to an balanced line input on the audio mixer or on the amplifier.

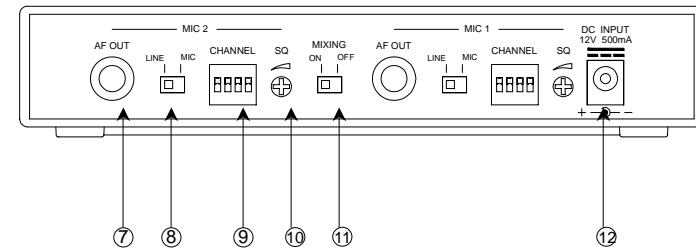
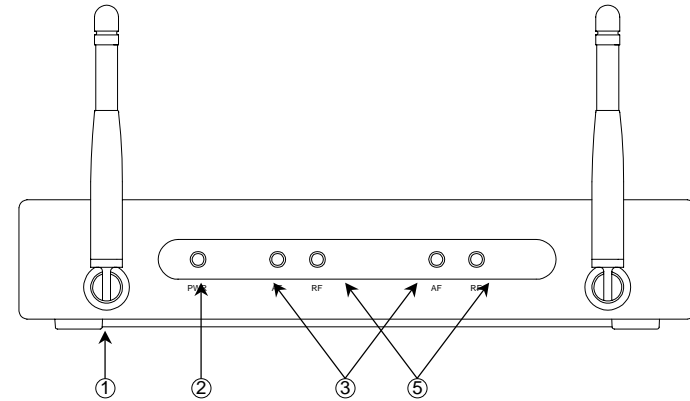
For RS-60 / RS-120:

- When select the MIC/LINE switch to "MIC", please use a standard 6.3φ plug cable to connect the UNBALANCED connector on the receiver rear panel to an unbalanced MIC. input on the audio mixer or on the amplifier,
- When select the MIC/LINE switch to "LINE", please use a standard 6.3φ plug cable to connect the UNBALANCED connector on the receiver rear panel to an unbalanced line input on the audio mixer or on the amplifier.

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

5.1.3 Dual Channel, Mini Case

Non Diversity, Front Fixed Antenna



WIRELESS	PRODUCT DESCRIPTION
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1. **Antenna:** Fixed-length UHF antenna permanently mounted either on the front panel..
2. **Power Indicator:** The indicator LED lights when the receiver is ready to operate.
3. **AF Indicator:** The indicator glows to indicate that audio signal has been received.
4. **Diversity A. B Indicator:** This LED lights to show that antenna has received the RF Signal.
5. **RF Indicator:** This LED lights to indicate that signal is being received
6. **Balanced Output:** 3-pin XLR connector provides balanced low-impedance output
7. **Unbalanced Output:** Unbalanced 6.3mm mono jack audio output for connecting to, e.g., a guitar amplifier.
8. **Mic/Line Switch:** Select output of XLR balanced connector or 6.3φ unbalanced phone jack. It can be set for microphone (-20dB) or line-level (0dB).
9. **Channel Selector:** 16 different selectable frequencies as below

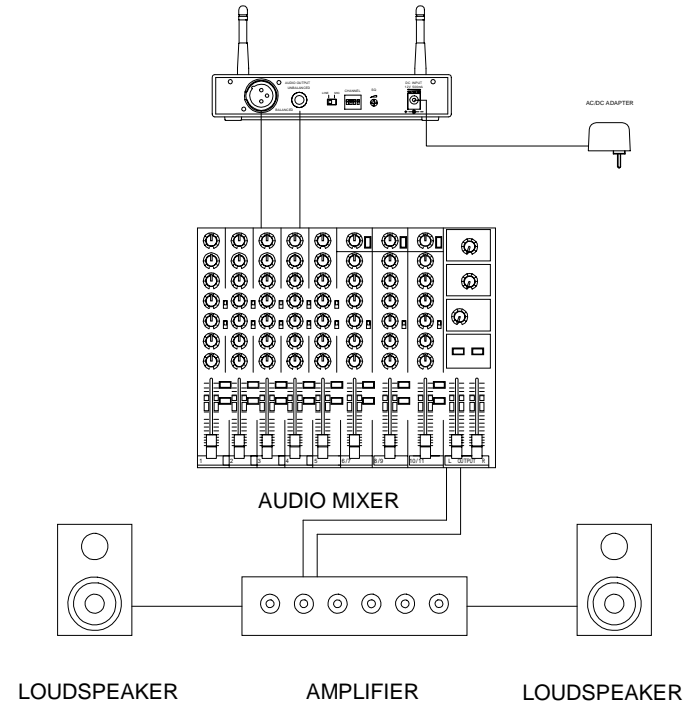
CH 1	CH 2	CH 3	CH 4
CH 5	CH 6	CH 7	CH 8
CH 9	CH 10	CH 11	CH 12
CH 13	CH 14	CH 15	CH 16

10. **Squelch Adj. :** The squelch adjusts 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.
11. **Mixing Switch:** When the MIXING switch is in the OFF position, the XLR output for channels 1 and 2 are separated. When the MIXING switch is in the ON position, the XLR output for channels 1 and 2 are mixed, so that both XLR outputs have combined signal from both channel 1 and channel 2.
12. **DC IN:** DC input connector for the supplied AC adapter.

BASIC CONNECTIONS	WIRELESS
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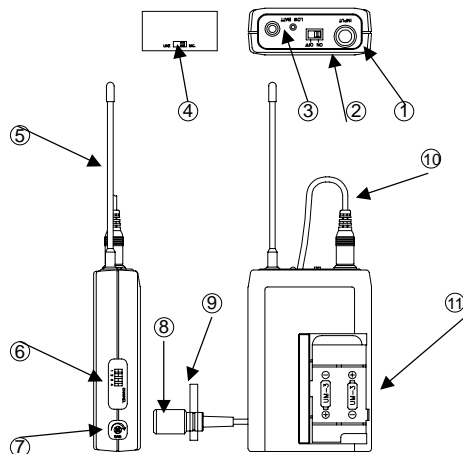
6. Basic Connections

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



5.3 Bodypack Transmitter

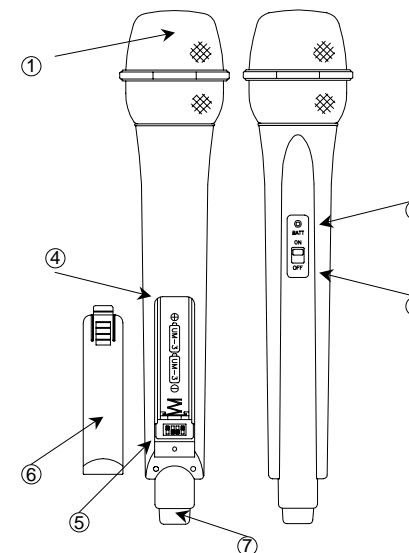
The bodypack transmitter operates in UHF band frequency with PLL synthesized control. UHF 16 preprogrammed selectable frequencies to avoid interference. Uni-directional condenser cartridges with different characters for various choices. Use 1.5V x 2 AA size dry or rechargeable batteries for low operating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



1. **Mini XLR /3.5φ connector:** The included electret lapel microphone is inserted into the connector on transmitter.
2. **On/Off Switch:** Turns transmitter power on and off.
3. **Low Battery LED:** LED indicates battery life status. Switching the power to "ON", the LED flashing once indicates that the transmitter has sufficient power. If the LED stayed on, it indicates that the battery has insufficient power and should be changed soon. If the status LED fails to flash, the battery is either dead or not positioned correctly, and you should correct the positioning or change the battery.
4. **Mic/Line Selector (optional for use with mini XLR connector) :** The switch sets the audio input either to microphone level or line level.
5. **Antenna:** Permanently connected, helical antenna.
6. **Channel Selector:** Changes transmitter Channel setting.
7. **Gain:** The rotary control adjusts the sensitivity of the transmitter's audio to the level of the connected lapel microphone or instrument.
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 jack or 3.5φ screw type plug cable to connect the transmitter.
11. **Battery Compartment:** Insert two AA batteries into the compartment and make sure that the polarity of batteries is correct.

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 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.
1. **Low Battery LED:** LED indicates battery life status. Switching the power to "ON", the LED flashing once indicates that the transmitter has sufficient power. If the LED stays on, it indicates that the battery has insufficient power and should be changed soon. If the status LED fails to flash, the battery is either dead or not positioned correctly, and you should correct the positioning or change the battery.
2. **On/off Switch:** Turns transmitter power on and off.
3. **Battery Compartment:** Insert two AA dry or rechargeable batteries into the compartment and make sure that the polarity of batteries is correct.
4. **Channel Selector:** Changes transmitter Channel setting..
5. **Battery Cover:** Unscrew to expose battery compartment and Channel selector.
6. **Antenna:** Built-in high gain helical antenna