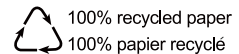




UR-223 Series

UR-223S SINGLE CHANNEL WIRELESS MICROPHONE SYSTEM
UR-223D DUAL CHANNEL WIRELESS MICROPHONE SYSTEM



Installation and Operation

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Thank you for choosing a RELACART professional wireless microphone system. You have joined thousands of other satisfied customers. Our years of professional experience of design and manufacturing to ensure our products' quality, performance and reliability.

01 Safety Operation and Notice

1. Please read instructions for safety operation carefully before installation and operation. Please save your safety operation guide for future reference.
2. Do not scratch, bend, twist, stretch or heat the power cord as this may cause damage to the power cord, resulting in a fire or electric shock.
3. Do not open the device shell, otherwise it may cause electric shock. If you need to repair, maintain or repair, please contact your local agent.
4. Do not touch the power plug with wet hands as this may cause a fire or electric shock.
5. Do not attempt to modify this device. Failure to do so may result in personal injury or product malfunction.
6. Do not use this equipment near water.
7. If the power cord is damaged (such as a broken wire or bare core), obtain replacement parts from your dealer. Continued use of the equipment with a damaged power cord may result in fire or electric shock.
8. To move the device he power, unplug the power cord, and unplug all connecting cables as this may damage the cable, resulting in a fire or electric shock.
9. Before cleaning the device, unplug the power cord and unplug all connecting cables. Please clean it with a dry soft cloth.
10. If the device is not in use for a long time, turn off the power, it is best to unplug the socket.
11. With the power plug and appliance coupler as the disconnecting device, it should be kept easy to operate.
12. For the safe use of the equipment and adequate ventilation, the minimum clearance around the equipment should be maintained at a distance of 5 cm or more.
13. DO NOT cover the Ventilation holes, such as: newspaper / fabric / curtains and other items.
14. Equipment should not be placed on a bare flame source, such as: lit candles.
15. Battery should not be exposed to sunshine, roasted or other high temperature overheating environment.
16. Do not throw the waste battery, please put in the designated bins.
17. Water protection rating: IPX0
18. The device can be used normally in tropical / temperate climates.
19. This product is only suitable for safe use at the altitude of 2000m and below.
20. This symbol “⚡” indicates that dangerous voltage constituting a risk of electric shock is present within this unit.
21. All Relacart products will be afforded one year free maintenance except for man-made damage, such as:
 - the device is damaged by man-made factors.
 - the device is damaged by improper operation.
 - some components are damaged or loss after the self-disassembly.

02 System Performance Feature

UR-223 Series are single/dual channel true diversity wireless microphone systems. The true diversity reception is more stable, with automatic dispatch, eliminate receive dead Angle, avoid fault frequency phenomenon. UR-223 Series of condensed the technology essence that Relacart accumulated over a long period. With advanced technology, sophisticated design, stable performance, with beautiful appearance, convenient operation and attractive price, with superior professional quality to win the market competition. This series is suitable for the nightclub of high requirements, multi-functional hall, hotel, conference room and small to medium performance.

Key Features:

- International EIA STANDARD 1/2U, 1U metal chassis, combined with new-style compact and elegance LCD display.
- Bright and easy-to-read LCD display shows working frequency or channel, RF/AF, diversity strengths; transmitter battery level, mute and built-in electronic volume.
- Super wide frequency range UHF 521.25MHz~936.85MHz, automatic frequency selection, CPU intelligent antenna diversity receiving.
- “AFS” Automatic frequency selection function, Press the “AFS” (Auto Frequency Selection) button 3S and the receiver will auto-scan and lock on to an open, interference-free frequency.
- Press [IR] button to upload automatically the receiver frequency to the transmitter.
- Stable PLL (Phase Lock Loop frequency control) circuit, combining “IP address” and “NOISE DETECTION” mute control function, can effectively separate the RF interference from computer equipment, song machine and DVD in the working environment.
- Four frequency group in total, 40 channels, providing more than 400 adjustable frequency for the users.
- 134MHz wide bandwidth transmitter, four different frequency groups (400 mics) can be exchangeable, greatly convenient for debugging and management.
- The handheld microphone: novel design, OLED display screen, showing battery level, working channel and frequency. The tube is made by durable alloy, effectively protecting the circuit element and battery rack, and with ergonomic grip.
- The new optimized circuit design, good sound quality, transmission distance is longer and more stable
- Precise low-power circuit design, use two AA alkaline battery, battery life is one time longer as common.
- Can match UH-222 handheld microphone, UT-222 bodypack transmitter.

03 Receiver Installation Method

Installation:

- ① For better operation the receiver should be at least 3ft (1m). above the ground and at least 3ft (1m). away from a wall or metal surface to minimize reflections.
- ② Attached a pair of UHF antennas to the antenna input jacks, the antenna are normally positioned in the shape of a " V " (both 45° from vertical) for best reception.
- ③ Keep antennas away from noise sources such as computer, digital equipment, motors, automobiles and neon lights, as well as away from large metal objects.
- ④ Keep open space between the receiver and transmitter for better reception.
- ⑤ The transmitter should be at least 6ft (2m). from the receiver.

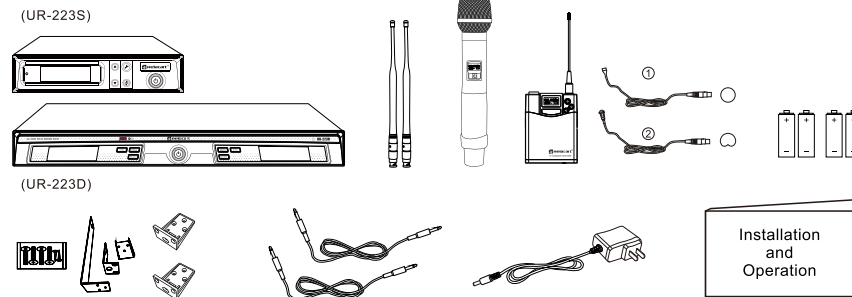
04 Packing List

UR-223S:

- ◆ Wireless microphone receiver *1
- ◆ Wireless transmitter *1
- ◆ BNC Antenna *2
- ◆ External power adapter * 1
- ◆ 1 meter audio cable *1
- ◆ 1.5V AA battery *2
- ◆ 1 U rack mount kit (screw) * 1 set
- ◆ Installation and operation * 1

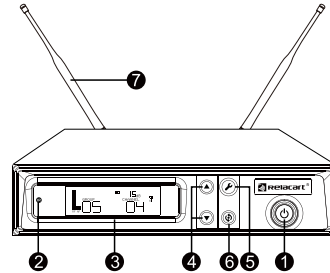
UR-223D:

- ◆ Wireless microphone receiver *1
- ◆ Wireless transmitter *2
- ◆ BNC Antenna *2
- ◆ External power adapter * 1
- ◆ 1 meter audio cable *2
- ◆ 1.5V AA battery *4
- ◆ 1 U rack mount kit (screw) * 1 set
- ◆ Installation and operation * 1

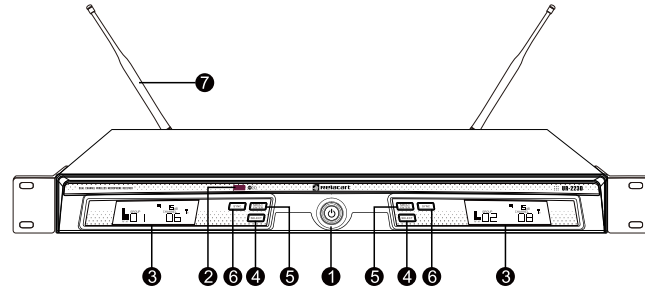


05 Receiver Front Panel Function Introduction

(UR-223S)



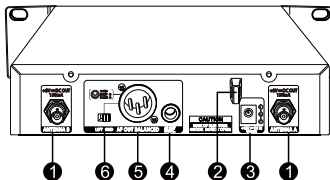
(UR-223D)



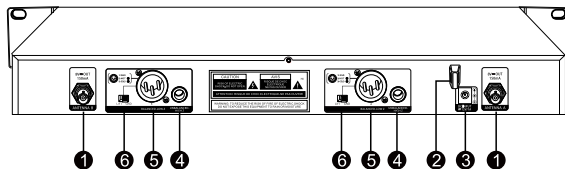
- ❶ Power switch: Turn on the receiver of power supply, long press to turn off the receiver.
- ❷ Infrared data transfer window (IR) : Transmit channel data from the receiver to the transmitter, so that they are in the same frequency, in order to realize the synchronization.
- ❸ LCD display: Display working channel or frequency, RF/AF, diversity strengths, transmitter battery level, mute and operation menu.
- ❹ “SELECT” (UR-223D) , “▲ / ▼” (UR-223S) allow control button: Press the allow button to edit the menu parameter values; UR-223D long press “SELECT” button or UR-223S long press “▼” button to enter [AFS] auto- scan function and the receiver will auto- scan and lock on to an open, interference-free frequency.
- ❺ “ENTER/MENU” (UR-223D) , “⏏” (UR-223S) button: Press to step through menus, choose operating frequency and select receiver function options.
- ❻ “SYNC” (UR-223D) , “Ⓢ” (UR-223S) button: When the infrared frequency window of the receiver and transmitter is aligned, press the “SYNC” (UR-223D) , “Ⓢ” (UR-223S) button, synchronization of transmitters via IR interface from receiver.
- ❼ 1/2 wavelength BNC antenna: Used to receive radio transmitter for transmission.

06 Receiver Rear Panel Function Introduction

(UR-223S)



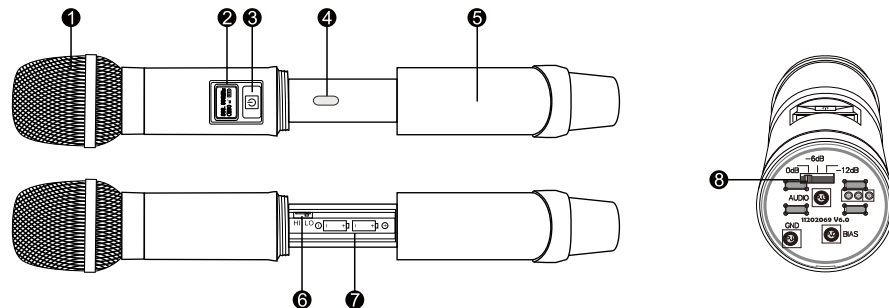
(UR-223D)



- ❶ RF antenna diversity BNC input connector: Suitable for connection of antenna A and antenna B, and supports DC 8V/150mA power output.
- ❷ Anti-pull device: used to fix the connecting cable of the external power adapter.
- ❸ DC IN socket: connect to external power adapter.
- ❹ Unbalanced audio output port (dual channel independent): The 6.3mm port can be connected to an aux- level input of a mixer or power amplifier.
- ❺ Balanced audio output port (dual channel independent): The XLR port can be used to connect a standard 2 conductor shielded cable the receiver output to a balanced microphone level input on a mixer.
- ❻ LIFT/GND switch: control XLR pin 1 whether is contact GND.

07 Transmitter Function Introduction

Handheld microphone (UH-222)

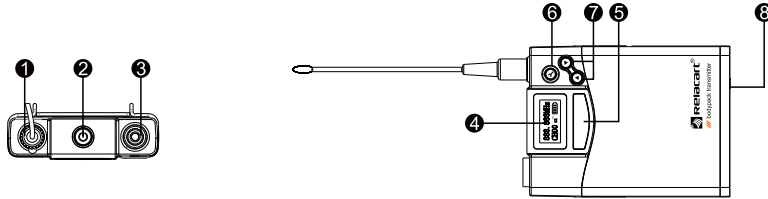


- ❶ Microphone Head: It is the important part to transfer sound into audio signal. The microphone head is separate to change other microphone head if needed.
- ❷ OLED display: Display the frequency, channel, lock and battery life. Battery indicator displays a maximum of 4 bar segments. When it leaves 1 bar segment, the batteries should be replaced immediately.
- ❸ Power Button/Mute Button: Press the power button to turn on the transmitter, press the power button 1.5 second enter the mute status, press one more time to close the mute function. Long press 3 seconds to turn off the transmitter.

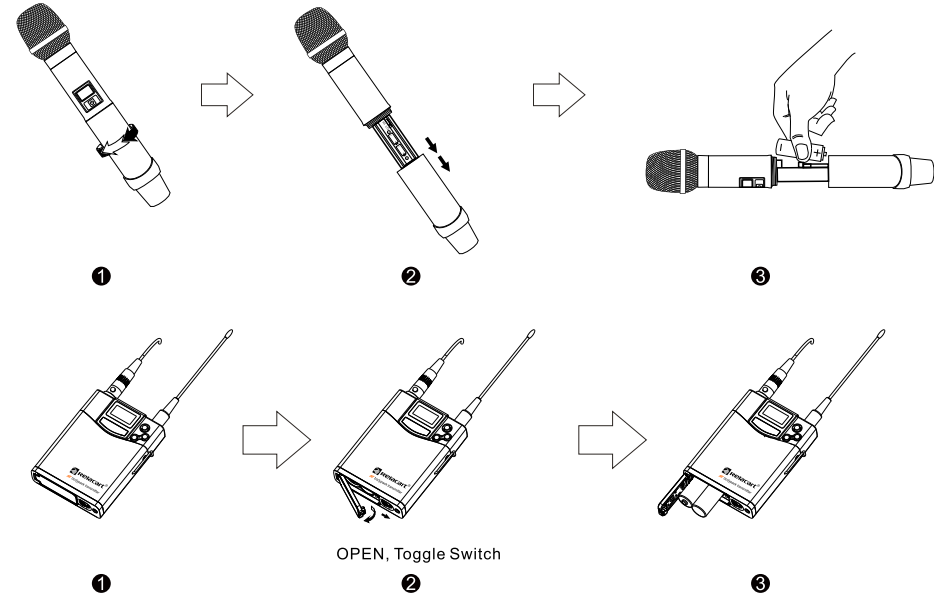
- ❹ Infrared data receiving window (IR): Synchronization of transmitters via IR interface from receiver.
- ❺ Battery Cover: Unscrew it can reveal the battery compartment; When installing, replacing or setting the infrared frequency, the battery cover must be opened.
- ❻ RF power switch: HI is 40 mW, LO is 10 mW.
- ❼ Battery Compartment: Insert 2 fresh 1.5V AA batteries. (Alkaline type is recommended. Please remember to replace both batteries.)
Warn: Observe correct polarity as marked inside the battery compartment to avoid damage to the internal electric parts.
- ❽ The audio gain switch: 3 optional (0dB, -6dB, -12dB), the factory default setting is 0dB (no attenuation); when the volume is too large, can according to the actual situation adjusted the gain (-6dB or -12dB).

08 Transmitter Battery Installation

Bodypack transmitter (UT-222)



- ❶ 3.5mm crimp type antenna: For transmitting a bodypack radio carrier.
- ❷ Power Button/Mute Button: Press the power button to turn on the transmitter, press the power button 1.5 second enter the mute status, press one more time to close the mute function. Long press 3 seconds to turn off the transmitter.
- ❸ TA4M/LEMO input jack: Connect to a microphone or instrument cable.
- ❹ OLED display: Display the frequency, channel, lock and battery life. Battery indicator displays a maximum of 4 bar segments. When it leaves 1 bar segment, the batteries should be replaced immediately.
- ❺ Infrared data receiving window (IR): Synchronization of transmitters via IR interface from receiver.
- ❻ “X” button: Press to enter the selection or confirmation menu.
- ❼ “▲/▼” allow control button: Press the allow button to edit the menu parameter values.
- ❽ Battery Compartment: Pull to open the battery door and insert 2 fresh 1.5V AA batteries. (Alkaline type is recommended. Please remember to replace both batteries.)
Warn: Observe correct polarity as marked inside the battery compartment to avoid damage to the internal electric parts.



09 System Setup

Receiver Setup

1. Make sure the transmitter is off before turning on the receiver.
2. Press the power switch on the receiver, LCD backlight will turn bright, and the normal display will be in 1-2 seconds. If the screen shows more than two signals, which means that there is a frequency interference from outside, please change the other operating frequency.
3. Change the operating frequency by manual or by auto-scan mold:
 - a) Set the operating frequency by manual: press "SELECT" (UR-223D), "▲/▼" (UR-223S) to change the frequency, after the selected frequency flashes 4 times, the receiver will enter the selected frequency and show it on the LCD screen.
 - b) AFS Auto Frequency Scanning: long press "SELECT" (UR-223D), "▲/▼" (UR-223S) or 3 seconds, the receiver will auto scan about 30 seconds and lock on to an interference-free frequency.
4. Enter the main menu: Long press "ENTER/MENU" (UR-223D), "↩" (UR-223S) button 3 seconds to enter the main menu. Press "SELECT" (UR-223D), "▲/▼" (UR-223S) button to select the following menu: SQUELCH (squench level control: 10 ~ 30dB), LIST (GR: 01-10, CH: 01-16), NAME (devices can be named freely), LEVEL (electronic volume adjustment: -12 ~ +9dB), AFS (Automatic frequency search), TOOLS (secondary menu Settings) and EXIT (exit menu Settings).
 - (1) **SQUELCH (squench level control)**: Selecting "SQUELCH", then touch "ENTER/MENU" (UR-223D), "↩" (UR-223S) Button to enter edit mode, the small data flashes to indicate

edit, touch "SELECT" (UR-223D), "▲/▼" (UR-223S) button to scroll through the available choice for the function. The squench level is adjustable in ten 10dB steps, providing a 30dB range. Press "ENTER/MENU" (UR-223D), "↩" (UR-223S) Button to confirm the desired choice, then LCD return to its previously displayed contents. Finally press "ENTER/MENU" (UR-223D), "↩" (UR-223S) to confirm.

(Receiver squench threshold is factory preset. When the transmitter too far away from the reception range or receiver does not receive enough transmit power, you can adjust by yourself. Note that unless absolutely necessary, please do not adjust the squench threshold, if adjusted too low will produce excessive noise, system operation will not stable.)

- (2) **LIST (devices can be named freely)**: Selecting "LIST", then press "ENTER/MENU" (UR-223D), "↩" (UR-223S) to enter edit mode, press "SELECT" (UR-223D), "▲/▼" (UR-223S) button, to change the group (01-10) and channel (01-16). According to the change of different channels, the group and channel are also different, Finally press "ENTER/MENU" (UR-223D), "↩" (UR-223S) to confirm.

- (3) **NAME (devices can be named freely)**: Selecting "NAME", then touch "ENTER/MENU" (UR-223D), "↩" (UR-223S) button to enter edit mode (System consented name is UR-223D /UR-223S), when the first number flashes, touch "SELECT" (UR-223D), "▲/▼" (UR-223S) arrow button to choose any number (0-9) or letter (A-Z) or character. After the first number has been picked up, press "ENTER/MENU" (UR-223D), "↩" (UR-223S) button, then the second letter flashes, and repeat the first step operation till the sixth letter is programmed.

Touch "ENTER/MENU" (UR-223D), "↵" (UR-223S) button to confirm the desired choice, then LCD returns to its previously displayed contents.

(4) LEVEL (electrical level adjustment -12 ~ +9dB): Selecting "LEVEL", then press "ENTER/MENU" (UR-223D), "↵" (UR-223S) to enter the edit mode, press "SELECT" (UR-223D), "▲/▼" (UR-223S) button, the adjustable electronic volume (-12 ~ +9dB). Finally press "ENTER/MENU" (UR-223D), "↵" (UR-223S) to confirm.

(5) AFS (auto frequency scan): Selecting "AFS" function, press "ENTER/MENU" (UR-223D), "↵" (UR-223S) button will auto scan about 30 seconds and lock on to an open, interference-free frequency. After finish scan LCD returns to its previously displayed contents.

(6) TOOLS (Secondary menu Settings):

1. DESKTOP (frequency, channel and name display): Selecting "DESK", then touch "SELECT" (UR-223D), "▼" (UR-223S) arrow button, "FREQUENCY" flashes, if stopping on "FREQUENCY", the LCD will display the RF frequency; touch "SELECT" (UR-223D), "▼" (UR-223S) arrow button, "CHANNEL" flashes, if stopping on "CHANNEL", the LCD will display the operational channel. Press "ENTER/MENU" (UR-223D), "↵" (UR-223S) Button to confirm the desired choice, then LCD return to its previously displayed contents. Finally press "ENTER/MENU" (UR-223D), "↵" (UR-223S) to confirm.

2. PILOT (pilot switch): Selecting "PILOT", then press "ENTER/MENU" (UR-223D), "↵" (UR-223S) to enter edit mode, press "SELECT" (UR-223D), "▲/▼" (UR-223S) button,

can select ON or OFF (on or off pilot). Finally press "ENTER/MENU" (UR-223D), "↵" (UR-223S) to confirm.

3. R-LOCK (lock operation): Selecting "R-LOCK", then touch "ENTER/MENU" (UR-223D), "↵" (UR-223S) button to enter edit mode, touch "SELECT" (UR-223D), "▲/▼" (UR-223S) arrow button, it displays "ON", if stopping on "ON", the system enters lock mode, the user can not use any button for any control; touch "SELECT" (UR-223D), "▼" (UR-223S) arrow button, it displays "OFF", if stopping on "OFF", the user can do any control by any button. Press "ENTER/MENU" (UR-223D), "↵" (UR-223S) button to confirm the desired choice, then LCD returns to its previously displayed contents.

R-LOCK ON: Press "ENTER/MENU" (UR-223D), "↵" (UR-223S) button in 3 seconds, touch "SELECT" (UR-223D), "▲/▼" (UR-223S) arrow button to choose R-LOCK, then press button, if stopping on "OFF", press "ENTER/MENU" (UR-223D), "↵" (UR-223S) button, system returns to normal setting.

4. REVISI (display version): Selecting "REVISI", then press "ENTER/MENU" (UR-223D), "↵" (UR-223S) to enter version mode, display current version information.

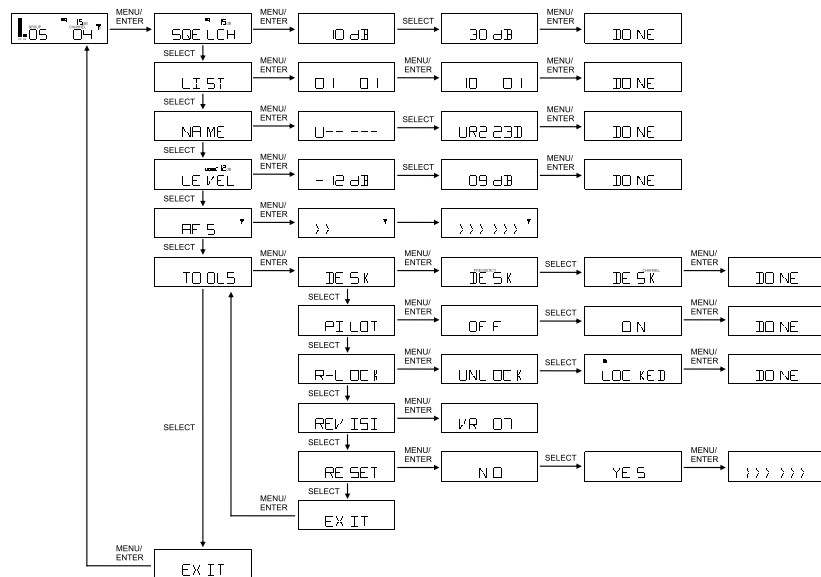
5. RESET (device reset): Selecting "RESET", then press "ENTER/MENU" (UR-223D), "↵" (UR-223S) to enter edit mode, press "SELECT" (UR-223D), "▲/▼" (UR-223S) button, can select YES or NO. Finally press "ENTER/MENU" (UR-223D), "↵" (UR-223S) to confirm.

6. EXIT: Exit the secondary menu Settings.

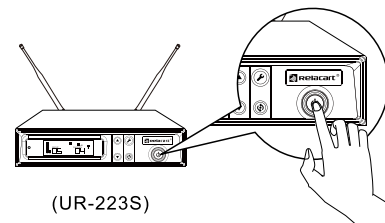
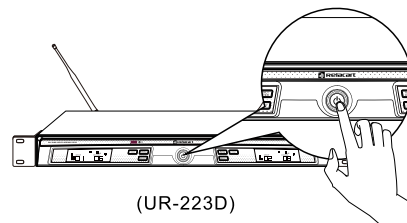
(7) EXIT : Exit the menu Settings and return to the main interface.


10 User-friendly Steps

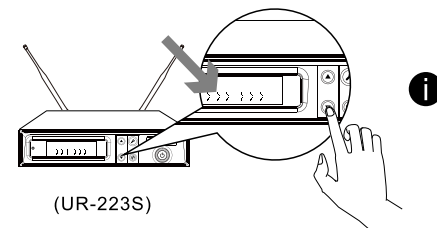
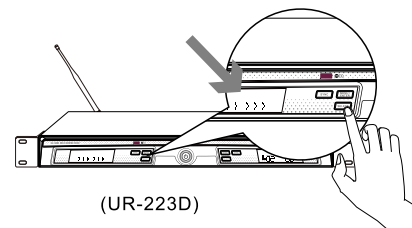
Operating menu of the Receiver:



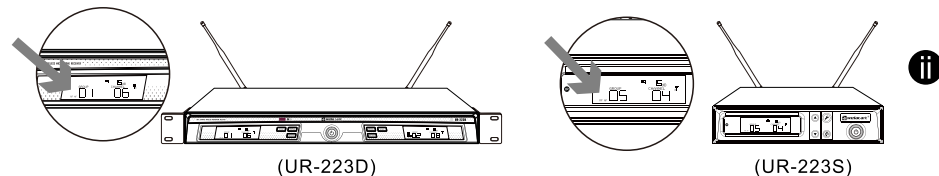
1. After connecting the antenna and the power cable, press the power button to turn on the receiver. When the display is lit, the power is turned on successfully. (As shown below)



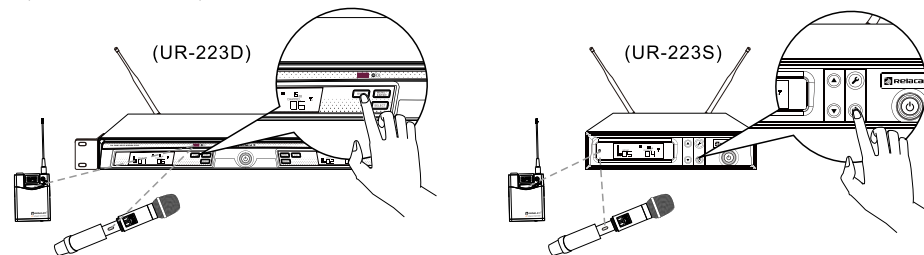
2. UR-223D Long press “SELECT” button on the receiver, UR-223S Long press “” button on the receiver to enter Automatic Frequency Search (AFS) function. (As shown below)



The searched channel automatically calculates the interference-free frequency. The “RF” light on the receiver display is 0 grid. If not, you can repeat this action until a clean channel is found. (As shown below)

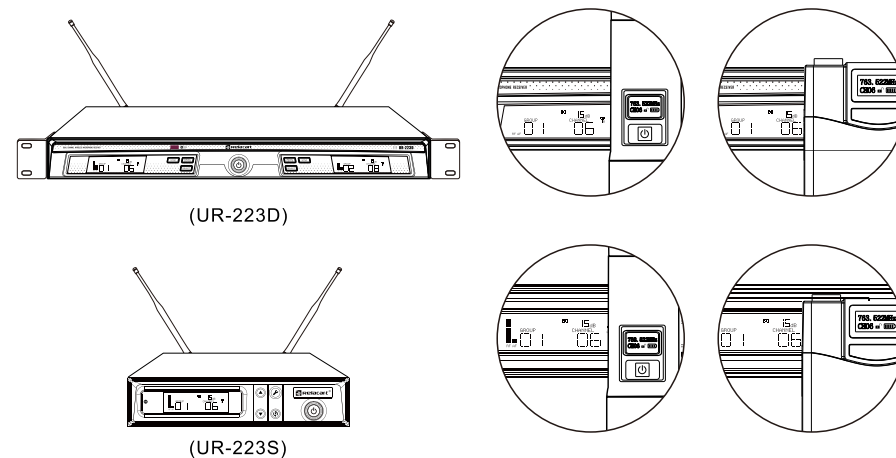


3. The transmitter's infrared window facing to the receiver IR port. Press the “SYNC” button. (As shown below)



Frequency alignment <15cm(6 in)

The frequency of the transmitter and the receiver are synchronized. When talking with the microphone, the “AF” signal in the display jumps to indicate that there is an audio output. (As shown below)



Channel display (receiver and transmitter display the same frequency)

11 Technical Specification

UR-223S Single Channel Receiver

Main Frame Size:	EIA standard 1/2 U
Receiving Channel:	Single Channel
Frequency Stability:	$\pm 0.005\%$ ($-10^{\circ}\text{C} \sim 50^{\circ}\text{C}$)
Carrier Frequency Range:	521.25MHz ~ 936.85MHz
Modulation Mode:	FM
Oscillation:	PLL synthesized
Sensitivity:	5dB μ V, S/N >60dB at 25 deviation
Bandwidth:	32MHz (It depends on the region)
Max Deviation Range:	$\pm 45\text{KHz}$
S/N:	>105dB
T.H.D:	<0.7% @ 1KHz
Frequency Response:	80Hz — 18KHz $\pm 3\text{dB}$
Operating Range:	60M typical (in open space)
Power Supply:	DC 12V/12W
Dimension (mm):	205 (W) x 206 (D) x 43 (H)
Weight:	Approximately 1.0kg

UR-223D Dual Channel Receiver

Main Frame Size:	EIA standard 1U
Receiving Channel:	Dual Channel
Frequency Stability:	$\pm 0.005\%$ ($-10^{\circ}\text{C} \sim 50^{\circ}\text{C}$)
Carrier Frequency Range:	521.25MHz ~ 936.85MHz
Modulation Mode:	FM
Oscillation:	PLL synthesized
Sensitivity:	5dB μ V, S/N >60dB at 25 deviation
Bandwidth:	64MHz (It depends on the region)
Max Deviation Range:	$\pm 45\text{KHz}$
S/N:	>105dB
T.H.D:	<0.7% @ 1KHz
Frequency Response:	80Hz — 18KHz $\pm 3\text{dB}$
Operating Range:	80M typical (in open space)
Power Supply:	DC 12V/12W
Dimension (mm):	410 (W) x 206 (D) x 43 (H)
Weight:	Approximately 1.9Kg

UH-222 Handheld Microphone

Carrier Frequency Range:	521.25MHz ~ 936.85MHz
Oscillation:	PLL Synthesized
Harmonic Radiation:	<45dBm
Bandwidth:	134MHz (It depends on the region)
Max. Deviation Range:	±45KHz
Microphone Element:	Dynamic/Condenser (removable)
RF Output Power:	10MW/40MW
Battery:	AA x 2
Current Consumption:	110mA (Typical)
Battery Current/Life:	Approximately 11 hours
Microphone Lengths (mm):	52 (Φ) x 255 (L)
Weight:	Approximately 235g (w/o battery)

UT-222 Bodypack Transmitter

Carrier Frequency Range:	521.25MHz ~ 936.85MHz
Oscillation:	PLL Synthesized
Harmonic Radiation:	<45dBm
Bandwidth:	134MHz (It depends on the region)
Max. Deviation Range:	±45KHz
Input Connector:	4-pin mini-XLR connector
RF Output Power:	10MW/40MW
Battery:	AA x 2
Current Consumption:	110mA (Typical)
Battery Current/Life:	Approximately 11 hours
Dimension (mm):	84 (H) x 66 (W) x 23 (D)
Weight:	Approximately 155g (w/o battery)