



Digital Audio Wireless System

User Manual

EP-591U

Please read this user manual in detail before use

Notification



WARNING

In order to ensure the equipment reliability and the personnel safety, please observe the following during installation, use and maintenance:

- If you find any of the following abnormal conditions during use, please turn off the power immediately, unplug it and quickly contact your sales manager. Please stop using the machine, because it may cause fire or electric shock.
 - If smoke or strange odor is emitted from it
 - If water or metal objects fall into it
 - If it is dropped or the housing is damaged
 - If the wire is damaged (wire core exposed, disconnected, etc.)
- The machine contains high-voltage parts inside. Do not open the cabinet without professionals in order to avoid fire or electric shock. Any questions, please notify sales manager.
- Do not place cups, bowls, vases or other liquid-filled objects on it. Accidental spillage of liquid may cause fire or electric shock.
- Do not expose it to rain or any place that is wet or prone to water, which may cause electric shock or fire.
- Do not put metal, flammable materials or coin through the vents on the cover plate, as this may cause fire or electric shock.
- Do not place heavy objects on it, as the machine may fall and cause personal injury or property damage.
- Make sure the volume is turned down to the lowest before turning on the power, since high volume may damage your hearing.
- Do not continue to use the machine when the sound is distorted. This means malfunctions, which may cause high temperature and fire inside.
- If there is long-term accumulation of dust, please notify your sales manager to clean the machine regularly to avoid damage or fire.
- When replacing the battery, it is required to replace with the product of the same specification and ensure the correct installation to avoid electrical damage and explosion hazard.
- It is a Class III device that must be connected to a power socket with a grounding device to ensure that it is adequately grounded.

- It uses a power plug or appliance input socket as a disconnection device from the mains power supply. For safety, it must be disconnected when necessary.



- It is only suitable for safe use in areas with an altitude of 2000 meters and below.

Precautions

1. Installation environment

To ensure the normal heat dissipation of the host, please avoid poor ventilation, high temperature and direct sunlight during installation.

It is recommended for indoor use. Please place it in a cabinet or other place with good ventilation and heat dissipation. If you use the machine outdoors, please pay attention to waterproof, moisture and lightning protection measures.

Do not use it in places with wireless shielding equipment.

Do not install it in places subject to severe vibration, and do not place other devices on this machine.

2. Avoid electric shock and fire

Do not touch the machine and the power supply with wet hands.

Do not splash liquid on the machine, otherwise it may cause short circuit or fire inside.

Do not place other devices directly on top of the machine.

Non-professional personnel should not disassemble the machine by themselves to avoid damage and electric shock.

3. Transportation

The packaging has undergone shock-proof designs and experiments to ensure that the host will not be damaged accidentally during transportation. It is best to use the original packaging during transportation.

Do not move the host between over-cold and over-heated places to avoid condensation inside, otherwise it will affect the lifespan.

4. Please follow the warning instructions on the machine. These warning signs indicate:

	Only suitable for safe use at an altitude of 2000 meters and below
	Only suitable for safe use in non-tropical climates

5. Agreement

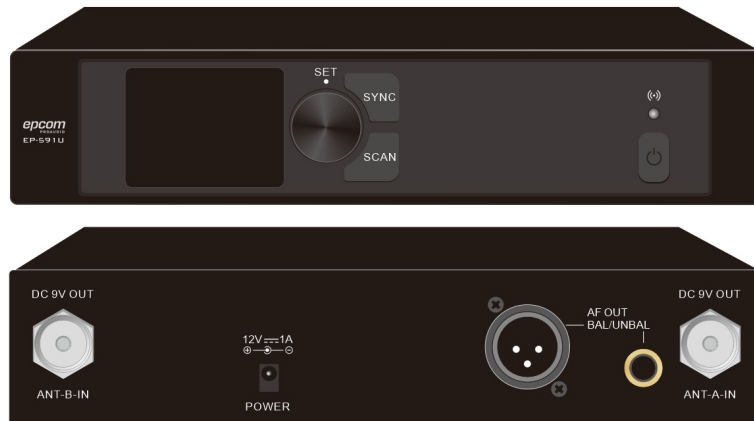
Please strictly follow the instructions in this manual. The software, hardware, and appearance will be constantly upgraded and updated. The above changes will not be notified. The manufacturer reserves the final interpretation right of this product manual.

Non-professional maintenance personnel do not disassemble the machine to avoid damage and electric shock.

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1.Product Description



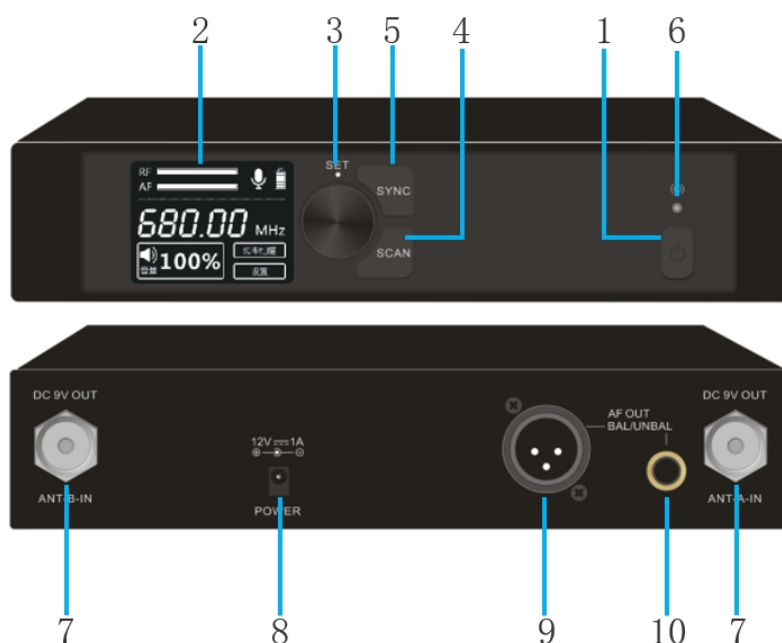
It is a digital wireless microphone system with a new solution architecture. With unique digital U-band transmission technology, pi/4-DQPSK modulation mode, the system uses ID code pilot technology to prevent cross-frequency interference, and frequency sweep to avoid interference, characterized by low bit error rate, stable transmission, and strong anti-interference ability. It can be widely used in conferences, training, public broadcasting, large-scale parties and other places.

2.Product Features

1. Adopt unique digital U-band transmission technology, pi/4-DQPSK modulation mode, strong anti-interference ability, low bit error rate and stable transmission.
2. Adopting a unique encryption method for audio transmission to protect the content of the meeting.
3. Adopting unique ID code foreign frequency technology can prevent frequency interference.
4. Support one-click frequency scanning to avoid interference; one-click infrared frequency matching, easy to operate.
5. Support reverb, high, middle and bass adjustments.
6. Support one channel of balanced output and one channel of unbalanced output.
7. The receiver uses a 2.2-inch TFT-LCD screen to display information more delicately.
8. The receiver panel is made with exquisite craftsmanship and is elegant and beautiful.
9. The transmitting power is adjustable, adjust the transmitting power as needed.

3.Function Introduction

Receiver Front/Rear Panel:



1. **Power button:** Press and hold the Power button to turn the receiver on and off.
2. **LCD display:** To display the system working status.
3. **SET button:** Press and hold the SET button to lock or unlock the screen. Pressing other buttons while the screen is locked will result in a prompt "Locked, please long press the unlock button to unlock". When the screen is not locked, short pressing the SET key will result in a flash in the relevant options that can be set (options with larger fonts). Under the flashing state, you can switch the relevant options via the knob. At this time, a short press on the SET key is equivalent to confirming the option. When the option is flashing, you can adjust the current parameters via the knob.
4. **SCAN frequency sweep button:** After pressing the SCAN button, the current frequency can be automatically adjusted. The result of the adjustment will be allocated based on the frequencies that are currently subject to less interference.
5. **SYNC IR pairing button:** After pressing the SYNC button, the IR light of the receiver will flash. While it is flashing, you can move the IR receiving port of the handheld microphone close to the IR light to complete the frequency pairing.
6. **IR emission indicator:** Used for frequency pairing with the handheld microphone.
7. **ANT-A-IN and ANT-B-IN:** Antenna terminals, used to connect the antenna.
8. **POWER:** DC 12V/1A power input port.
9. **AF OUT BAL:** Balanced output port, which can be connected to sound reinforcement equipment.
10. **AF OUT UNBAL:** Unbalanced output port, which can be connected to sound reinforcement equipment.

4.Operating Instructions

4.1.Power On/Off

Under Shutdown state, a long press on the switch will turn on the machine when it is energized, and the display will show "POWER ON", after which it can work normally; Under Startup state, a long press on the switch will turn off the machine, and the display will show "POWER OFF". When you let go, the screen turns off. The specific effect is as shown in Fig. 4-1 and Fig. 4-2:



Fig. 4-1 Receiver Power On Page



Fig. 4-2 Receiver Power Off Page

4.2.Main page and secondary page

The main page mainly displays: RF signal strength, AF language signal size, microphone status (On/Off), handheld microphone battery status, current frequency value, volume level, language switching option, Settings option. Through the Settings option, we can access the secondary page, which mainly displays the parameter settings of reverb (ratio, delay, level), equalization design, transmit power setting, Smart Mute setting, audio encryption setting, Chinese and English switching, and Return option. Switching between the main page and the secondary page can be done via the Settings option and the Return option. The specific effect is shown in the figures below:

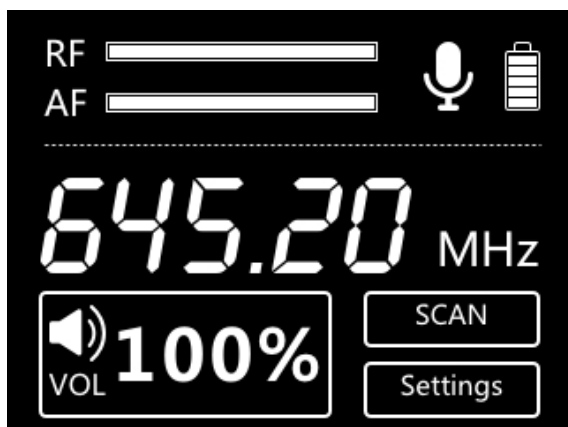


Fig.4-3 Main page



Fig. 4-4 Secondary page

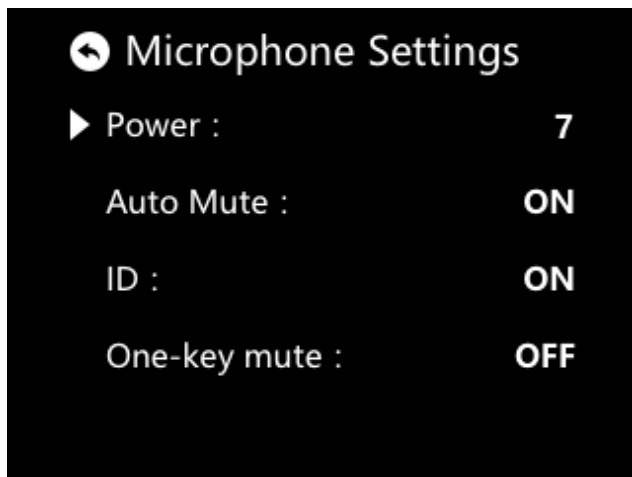


Fig. 4-5 Secondary page

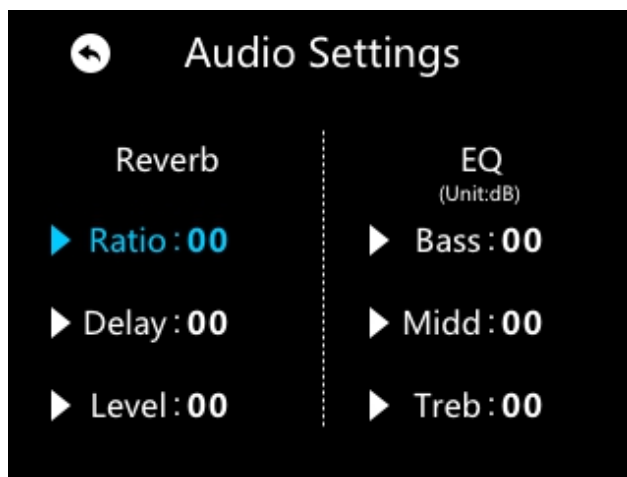


Fig. 4-6 Secondary page



Fig. 4-7 Secondary page

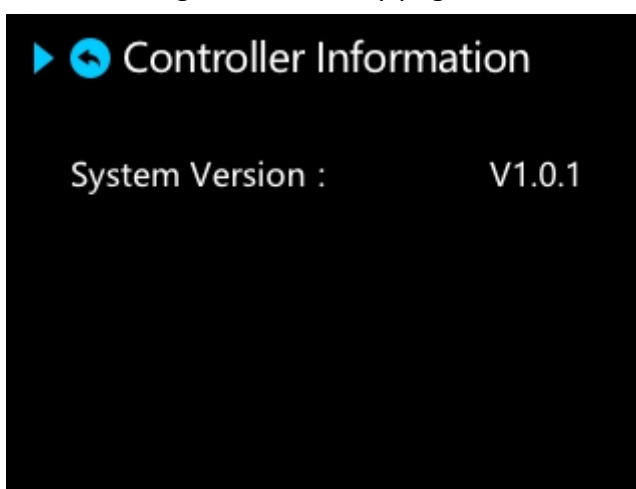


Fig. 4-8 Secondary page

4.3.RF and AF

The RF and AF white bar marks at the top of the home page of the receiver indicate the real-time status of RF and AF. RF represents the signal strength of the current direct communication between the transmitter and the receiver, and AF represents the volume level of the input sound from current microphone.

4.4.Frequency

The numerical mark on the home page of the receiver represents the frequency of the receiver, which is the frequency value of the current receiver. If the transmitter is not connected to the receiver, it needs to perform infrared frequency pairing for connection. After successful connection, the frequency of the transmitter and that of the receiver will be displayed as consistent. The frequency range supports 470MH-510MHz, 540MHz-590MHz, 640MHz-690MHz and

807MHz-830MHz adjustable.

4.5.Volume

The volume mark on the home page of the receiver indicates the current volume of the receiver. The higher the volume, the higher the output volume. The volume can be adjusted manually, with adjustment range from zero to 100%.

4.6.Microphone and battery level marks

The microphone and battery marks on the home page of the receiver indicates the working status and battery level of the transmitter. A lighted microphone mark indicates that the transmitter is ready for use, and the battery level mark shows the battery level of the transmitter currently connected to the receiver.

4.7.Frequency sweeping

Start sweeping from the current frequency and automatically adjust to a clean frequency subject to less interference.

4.8.Setting

Through the Settings option, we can access the secondary page.

4.9.Reverb

By adjusting the ratio, delay, and level, different sound effects can be achieved.

4.10.Balance

The low frequency, medium frequency and high frequency can be adjusted by $\pm 6\text{dB}$ respectively.

4.11.Transmit power

The intensity of the transmit power can be adjusted.

4.12.Smart Mute

The Smart Mute mode can be turned on or off. When Smart Mute is turned on, it will automatically mute after 5 seconds of sitting. The handheld microphone will automatically mute in

the event of accidents such as falling or throwing. Please note that the waistpack transmitter has no such function.

4.13.Audio encryption

The current audio encryption can be turned on or off . The encrypted audio will be more stable, with enhanced anti-interference ability.

4.14.One-key mute

After turning on One-key mute, the receiver automatically sends out infrared frequency pairing, and the handheld microphone will take effect after infrared reception; after that, when turning on One-key mute, the handheld microphone needs to be pressed 2 times in succession before entering or exiting the Mute state; when turning off One-key mute, the handheld microphone will not enter the mute state by double clicking.

4.15.Frequency pairing reminder

After adjusting the transmit power, Smart Mute, and audio encryption, frequency re-pairing is required for this feature to take effect. A prompt will be displayed every time the transmit power, Smart Mute, and audio encryption are adjusted.

4.16.Low battery alert

When the microphone has only one cell of battery left, the receiver display will remind the low battery, the display page will turn red with a low battery symbol and slogan. The specific effect is shown in the following figure:



Figure 4-16 Low battery reminder page

5.Product Specifications

Model	EP-591U
Frequency range	470MHz-510MHz、 540MHz-590MHz、 640MHz-690MHz、 807MHz-830MHz
Receive sensitivity	<-95dBm
THD+N	<0.1%
Maximum output	Balanced output 500mV, unbalanced output 1000mV
SNR	≥105dB (XLR)
Frequency response	20Hz~20kHz ±3dB
Antenna interface	BNC/Impedance 50 ohms
Power supply	DC 12V/1A
Working current	≤300mA
Dimensions (W×D×H)	214×223.5×52mm
Weight	1.32kg

6.Precautions for Use

1. Keep your hand in the middle of the microphone. Neither hold the head of the microphone, which will damage the frequency response, nor hold the tail of the microphone, which will affect the signal transmission.
2. Do not put two transmitters next to each other, so as to prevent the microphones from interfering with each other and affecting the transmission and reception of signals.
3. The microphone cannot be pointed directly at the speaker, which will cause positive feedback oscillation, commonly known as "howling".
4. The distance between the wireless microphone receiver and the transmitter should be kept at least 5 meters to minimize intermodulation interference.
5. The receiving range is related to many factors and varies greatly. If there is no large metal block in the transmission direction, it can achieve better transmission effect.
6. If the battery symbol flashes when the transmitter is in use, it means that the battery is low and needs to be replaced.
7. If the transmitter will not be used for a long time, please remove the battery from the base to avoid damage to the microphone due to battery leakage.

7.Troubleshooting

1. How to solve the problem when the wireless microphone signal is not good?

- (1) Handheld microphone power gear: adjust to HI high power, LO low power will affect the receiving distance;
- (2) Receiver antenna: blocked; the antenna fell down and was not erected; the antenna is close to metal objects or wires to affect the reception effect;
- (3) Receiver placement: The receiver should be placed on the top of the cabinet equipment, and should be far away from interference sources such as laptops and jukeboxes.

2. How to avoid interference as much as possible in a complex environment?

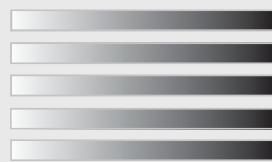
- (1) The receiver supports automatic frequency scanning function; in complex environments, it is recommended to use the frequency given by the automatic frequency scanning function first;
- (2) When it cannot be adjusted to a clean and non-interfering channel through the above operations, find the device with the source of interference and stay away from it: such as video matrix, video transmission box, network equipment, movie player, computer, jukebox, etc.

8.Management requirements for micropower radio transmitting equipment

Micropower radio transmitting equipment shall comply with the following regulations:

- 1.Comply with the specific terms and usage scenarios of the "Micropower Short-Distance Radio Transmitting Equipment Catalog and Technical Requirements", and usage methods such as control, adjustment and switching;
- 2.No unauthorized changes of use scenes, expansion of transmission frequency range, increase of transmission power (including additional installation of radio frequency power amplifiers), no unauthorized external antenna or change to other transmission antennas;
- 3.Shall not cause harmful interference to other lawful radio stations or propose any protection from harmful interference;
- 4.Shall be subject to interference from equipment for industrial, scientific and medical (ISM) applications radiating radio frequency energy or from other lawful radio stations.
- 5.If it causes harmful interference to other lawful radio stations, discontinue use immediately and take measures to eliminate the interference before further use;
- 6.For the use of micropower equipment in aircraft and in electromagnetic environmental protection areas such as airports, radio observatories, meteorological radar stations, satellite earth stations (including measurement and control, ranging, receiving and navigation stations), which are designated in accordance with laws, regulations and standards, the regulations of electromagnetic environmental protection and the competent authorities of the relevant industries shall be complied with;
- 7.It is prohibited to use any kinds of model remote controllers in an area with a radius of 5,000 meters around the center point of the airport runway;
- 8.Environmental conditions of temperature and voltage when micropower devices are used.

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