

GAODIMIC[®]

DT228G SERIES

PRODUCT MANUAL

Digital UHF Wireless System

[Including DTT228-P & DTR228-1P / DTR228-1R]

06/2026

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1 Preface

This document is the product manual for the DT228G-P/R kit.

DT228G-P Portable Kit includes the following equipment:

Transmitter: DTT228-P plug-in transmitter.

Receiver: DTR228-1P single-channel plug-in receiver.

DT228G-P Rack-mounted Kit includes the following equipment:

Transmitter: DTT228-P plug-in transmitter.

Receiver: DTR228-1R single-channel rack-mounted receiver.

For the latest information on the above equipment, please visit the product website:

www.gaodimic.com

This PDF document contains some content automatically exported from an interactive HTML instruction set. Because some content and interactive elements cannot be rendered in PDF format, not all content and interactive elements may be included in the PDF. Users are advised to view it online to obtain the relevant URLs.

2 Knowledge Base

To operate this series of equipment, you must first understand the relevant technical specifications.

2.1 DT220 TECH



This is the codename for the GAODIMIC technology platform.

DT220 TECH is GAODIMIC's independently developed fourth-generation digital audio UHF wireless technology platform, integrating multiple technologies to enable the system to meet the technical requirements of the professional audio (PA) industry.

2.2 Wireless Channel Management Logic

This device follows the "Frequency Scheme & Region - Group - Channel - Frequency" logic.

a) Frequency Scheme & Region

To ensure the equipment meets the requirements of different countries and regions, the equipment firmware provides different frequency schemes to adapt to different regions.

Setting different frequency schemes will change the applicable frequency range.

This setting needs to be matched with the hardware version. For example, if the hardware only supports the 800MHz band, a frequency scheme outside the 800MHz band cannot be selected.

"Frequency Scheme" selection is done through the "Region" menu, which is a deep menu.

b) Group

The system has several channel groups (base on different region and firmware), and of 12 channels for each group.

c) CH (wireless channel):

Each channel is bound to a wireless frequency, and the wireless frequency points under the same group are recommended, which can avoid "intermodulation interference" effectively.

d) Frequency

Frequency can be changed by selecting a different CH (except for last group).

e) Customized Group

The last group is customized group, and frequency points of this group can be manually changed.

The transmitter and receiver must be set to the same Group and CH for work.

f) TX

Transmitter.

g) RX

Receiver.

2.3 Hybrid Power Technology

Hybrid Power is a technology with independent intellectual property rights from GAODIMIC.

After deploying this technology, the device can be equipped with various types of batteries, including AA batteries, 14500 lithium batteries, and 18650 lithium batteries. The device will automatically identify and intelligently switch circuits without requiring manual settings.

2.4 OTA

Over-the-Air.

Devices can be updated online via Wi-Fi, allowing for system/firmware updates without a wired computer.

This system can be upgraded via OTA technology for some specific models.

2.5 Intermodulation interference

- a) Two sets of device A & B are used at the same time, the strongest intermodulation interference frequency points are $2A-B$ and $2B-A$.
- b) Three sets of device A, B & C are used at the same time, the intermodulation interference frequency points are: $A+B-C$, $A+C-B$, $B+C-A$.
- c) If multiple sets of devices are used, more intermodulation interference frequency points will be generated. In this case, pilot tools or calculations are needed to avoid intermodulation interference.

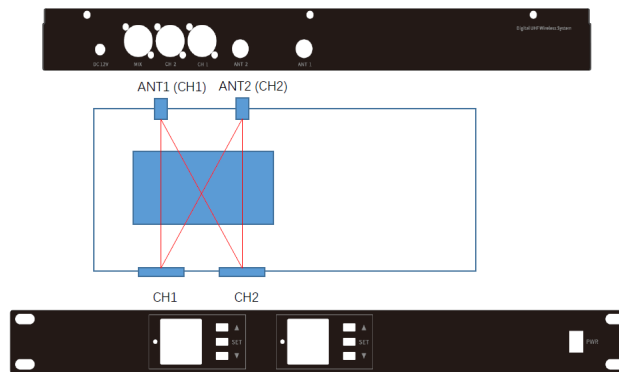
2.6 Antenna Diversity

Traditional true diversity comprises two parts: antenna diversity and circuit diversity.

Antenna diversity has two modes:

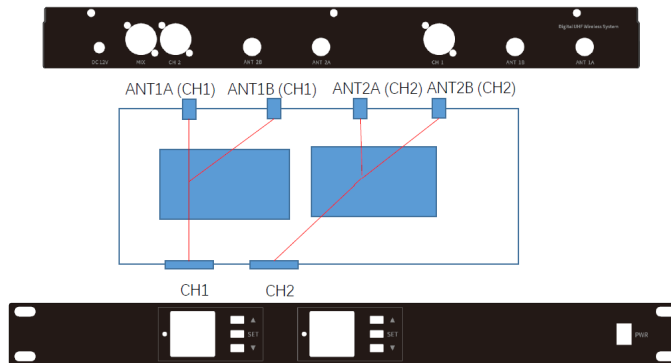
- a) Cross-backup antenna diversity.

The logical relationship between the antenna and the channel in this type of antenna diversity is as follows:



b) Main + Standby backup antenna diversity.

The logical relationship between the antenna and the channel in this type of antenna diversity is as follows:



3 Product information

3.1 Key Feature

- Digital audio UHF wireless technology.
- A noise floor voltage of 6mV, monitor-level floor noise control.
- Supports 24V and 48V phantom power.
- Frequency response 20Hz~20kHz, frequency response attenuation <2dB.
- Phase deviation 30°~-60°.
- Latency 4.17ms.
- Signal-to-noise ratio >123dB and Dynamic Range 120dB.
- Hybrid power technology, compatible with AA/14500/18650 batteries.
- Built-in antenna.
- TFT full-color screen.
- Effective transmission distance >100M (Rack mounted kit).
- Smart size and weight <100g

3.2 Frequency Bands

It is the responsibility of the user to inform themselves about the current local regulatory and certification requirements and to comply with them using wireless systems.

The license for the Base Station is available in the following versions:

Frequency Scheme Region Name	Certified Countries	Frequency Range	Groups Quantity
Europe	EU + EFTA	UHF (510 – 698Mhz)	9
CHN	China	UHF (510 – 698Mhz)	9
USA	USA	UHF (510 – 608Mhz)	5

CAN	Canada	UHF (510 – 608Mhz)	5
lineCzech	Czech Republic	UHF (510 – 698Mhz)	2
PER	Peru	UHF (500 – 698Mhz)	7
JPN	Japan	UHF (806 – 809Mhz)	2
Old Scheme*	EU + China	UHF (510 – 598Mhz) UHF (668 – 698Mhz)	7

* The Old Scheme was primarily used on earlier devices. This Frequency Scheme was retained to ensure interoperability between current versions of devices and earlier devices.

3.3 Comparison Between AT210PG & DT228G

AT210PG is the Digital UHF Wireless System, which bases on GAODIMIC® the 3rd Generation plus version of technology platform; and DT228G is the Digital UHF Wireless System, which bases on GAODIMIC® the 4th Generation version of technology platform.

When choosing GAODIMIC® products, users can refer to the table below for the differences between the AT210PG and DT228G to make the right choice.

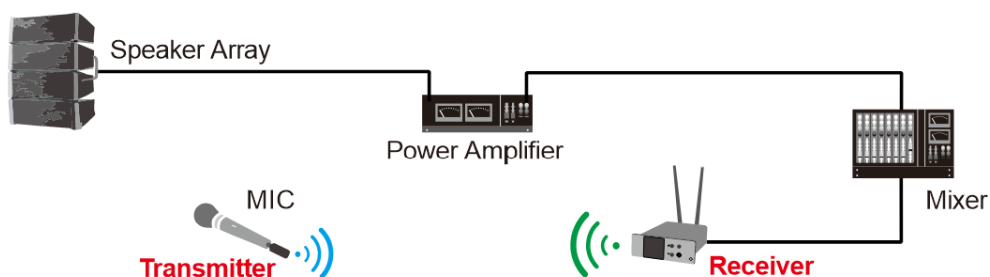
		
Series Model	AT210PG-P (Portable Kit) AT210PG-R (Rack Mounted Kit)	DT228G-P (Portable Kit) DT228G-R (Rack Mounted Kit)
TECH		
Platform	AT210 [Plus] Digital UHF Wireless Tech Platform	DT220 Digital UHF Wireless Tech Platform

	(Gen 3.5)	(Gen 4)
TX Model	AT210P-TP (Portable TX)	DTT228-1P (Portable TX)
RX Model	AT210P-RP (Portable RX)	DTR228-1P (Portable RX)
	AT210P-RR (Rack Mounted TX)	DTR228-1R (Rack Mounted TX)
Effective Bit	18Bit	20Bit
SN	102dB	123dB
Dynamic Range	102dB	123dB
Floor Noise	<20uV	≈6uV [Monitoring Class]
Effective Distance	Portable Kit: 50~60m Rack Mounted Kit: 100~120m	Same as left
Frequency	<2dB (20Hz~20KHz)	<3dB (20Hz~20KHz)
Response Attenuation	(Related to MIC impedance and phantom power)	(Related to MIC impedance and phantom power)
Phase Drift	30~-60 Degree (20Hz~20KHz)	Same as left
T.H.D	<0.03% (@1KHz)	Same as left
Latency	< 4ms	4.17ms
Antenna	Portable Tx: FPC Antenna	
	Portable Rx: FPC Antenna	Same as left
	Rack Mounted Rx: Stick antenna	
Hybrid Power	None	Supported
Power Supply		14500 Li-battery /
	14500 Li-battery	18650 Li-battery /
		AA battery
TX Battery Life (@48V)		> 12h (18650 Li-battery)
	>6h (14500 Li-battery)	> 6h (14500 Li-battery)
	>8h (Customized 14500 Li-battery)	> 8h (Customized 14500Li-battery)
		> 2h (AA battery)

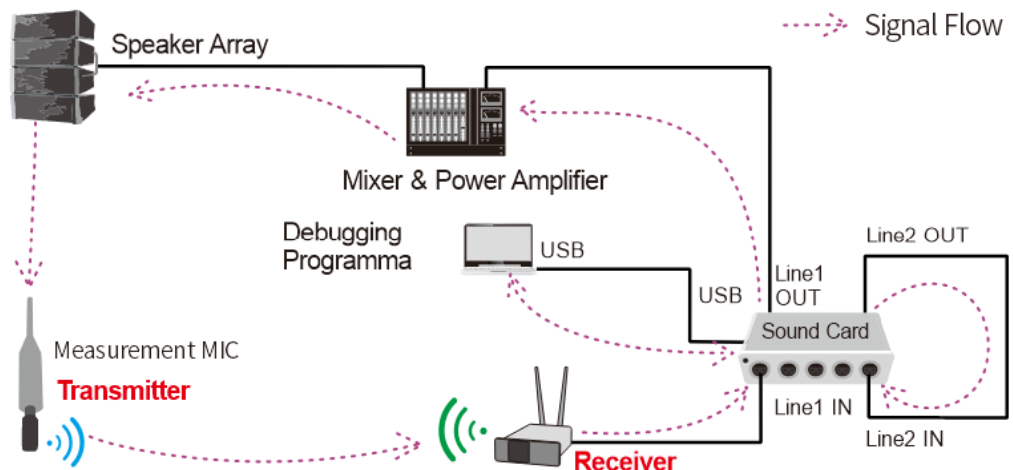
Screen	Portable Tx: OLED	
	Portable Rx: OLED	TFT High-resolution Screen
	Rack Rx: TFT	
OTA	Portable Tx: ✓	
	Portable Rx: ×	Same as left
	Rack Mounted Rx: ✓	
3D Gyroscope	✓	×
Laser Pointing	✓	×
UI	V2.0	V3.0
RX Overvoltage Protection	✓	✓
Others	Portable Tx & Rx: Slightly larger & longer .	
	Rack Mounted Rx: unchanged in size, push button switch.	
	The Frequency Attenuation (<60Hz) is 1dB larger.	

3.4 Topology for Usage

a) Audio Forwarding Scenario



b) Sound Measurement Scenario



3.5 Working Mode

This system has two operating modes:

- a) Normal Operating Mode.

This mode is entered upon normal power-on and performs normal functions.

- b) OTA Operating Mode.

This mode is entered by powering on using special methods. This mode provides the following functions:

- i. All functions of the normal operating mode.
- ii. Supports OTA upgrades. (Some models do not support this.)
- iii. Certain special functions required for research and development and testing.

3.6 References

- a) If no signal output with the condenser microphone, please check whether the phantom power supply is selected.
- b) The low-quality Li battery be adopted, its will interfere with the performance.
- c) When multiple sets of devices are used simultaneously, must care the issue of intermodulation interference.

- d) Some brands of MIC can interfere with poor signal shielding, and can try to the XLR extend tube to solution.
- e) If multiple sets of devices are working simultaneously, different groups and frequency points must be set between each group, and intermodulation interference frequency points must be avoided in order to operate normally. Otherwise, interference will occur.

4 Operation Instructions

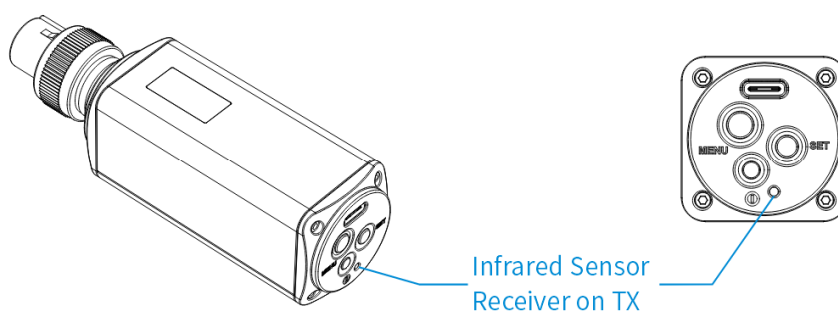
4.1 Automatic Pairing

Long press the MENU key between the transmitter and receiver to enter the mode;

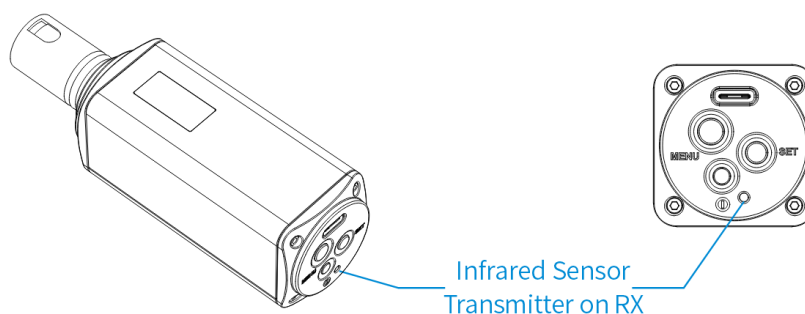
Align the receiver's "Infrared Transmitter" with the transmitter's "Infrared Receiver" to complete the pairing.

Once the function is enabled, the receiver will scan, automatically switch to the cleanest freq. point in the group, and then complete the action. If you need to set a specific frequency point, you must do it manually.

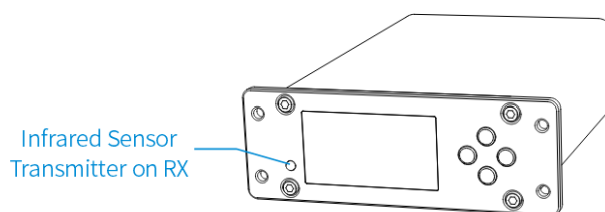
- a) The location of Infrared receiver sensor on the Transmitter DTT228-P



- b) The location of Infrared transmitter sensor on the Receiver DTR228-1P



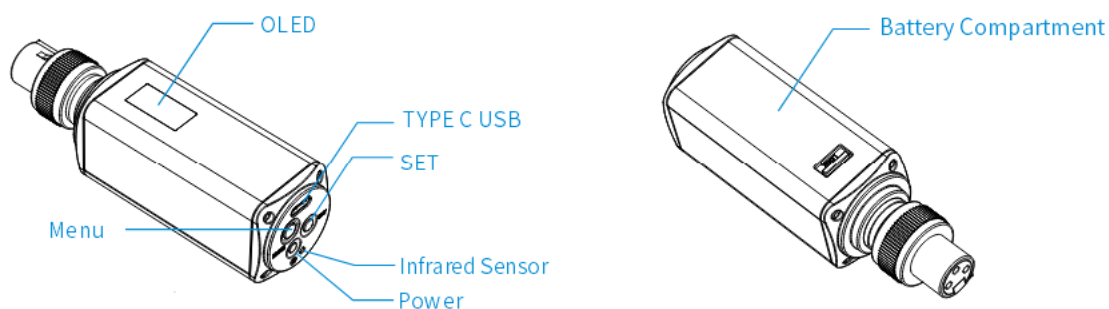
- c) The location of Infrared transmitter sensor on the Receiver DTT228-1R



4.2 Operation Guide for DTT228-P [TX]

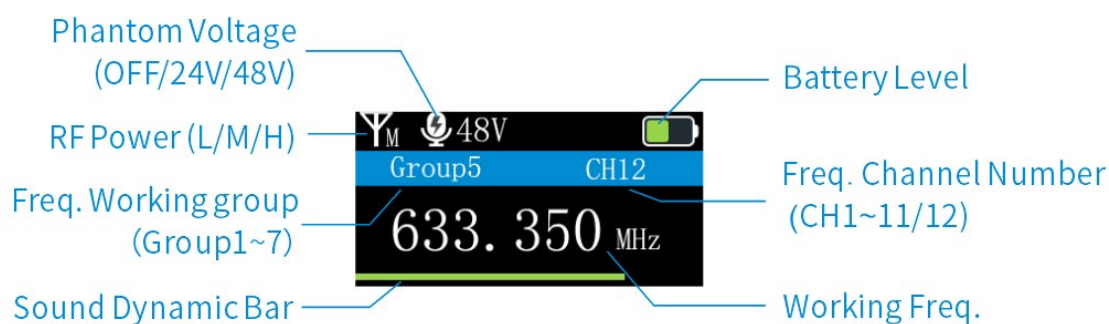
Plug-in Transmitter, Model: DTT228-P

4.2.1 Product Instructions



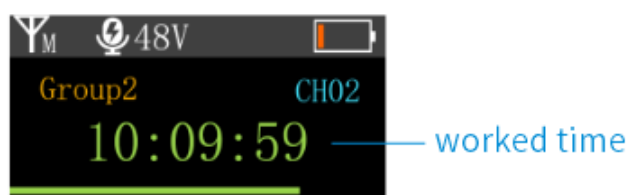
4.2.2 Operation Instructions

a) Main Homepage



b) Status Query Page

Short press SET key to enter.

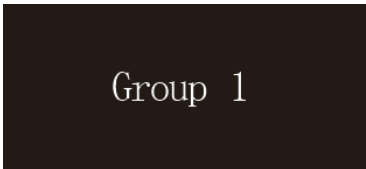


4.2.3 Setting Interface and functions

Briefly press the MENU button to enter the settings interface. The menus will cycle through in the following order. Press the SET button to make changes.

After all menus have been displayed, the system will cycle back to the main homepage.

If there is no operation, the system will return to the main homepage after 5 seconds.

Menu	Description
	Working Group Settings For different frequency scheme, the system will has different group quantity. The last group is customized. If you choose the last group, the “Frequency Setting” menu will be shown.
	Transmitting Channel Settings Change the Channel to modify the frequency.
	Customized Frequency Setting This menu only be activated, when the user choose the last group. User can modify the frequency for all channels.
	Audio Input Mode Line: MIC 24V: provide 24V phantom power supply for the microphone. MIC 48V: provide 24V phantom power supply for the microphone.

Gain 0dB	Voice Gain Setting Amplify the audio signal. The audio signal is doubled every 3dB. This can be understood as the volume level. Recommended setting: 9-12dB, at which points a good signal-to-noise ratio can be obtained.
RF Power High	Radio Frequency Power Setting High: 50mW Middle: 30mW Low: 10mW
Noise Gate Off	Noise Gate Setting Sound > Threshold: Door open, original sound passes through without loss. Sound < Threshold: Door closed, low-level noise is significantly attenuated (generally -60~-80dB, almost silent). Function: Cuts off background noise between instruments, crosstalk, environmental noise, and equipment current hiss. This setting will affect sound quality; use with caution.
Ver 9.10 Nov 18 2023	Information The firmware version and release time.

4.2.4 Specification of DTT228-P [TX]

Item	Parameters
Communication mode	Digital audio UHF wireless communication
Technology platform	DT220 TECH
Modulation method	PSK
Sampling	48K

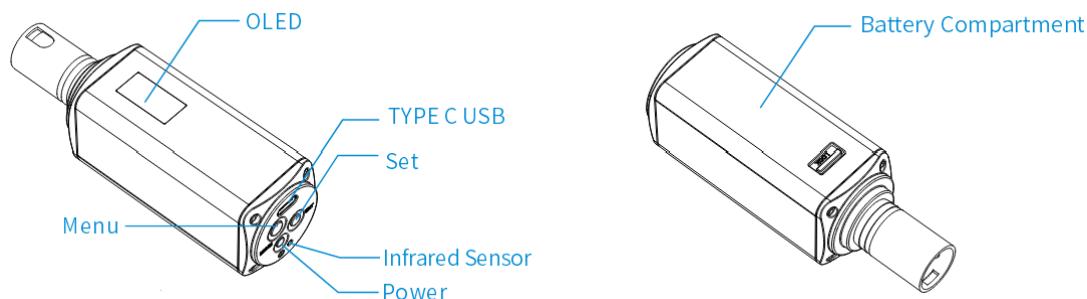
RF	High Level:	RF Power: 50mW
		EIRP: <17dBm
		ERP: <14.85dBm
	Middle Level	RF Power: 30mW
		EIRP: <14dBm
		ERP: <11.85dBm
	Low Level	RF Power: 10mW
		EIRP: <9dBm
		ERP: <6.85dBm
Distortion	<0.03% (@1KHz)	
frequency response	20Hz~20kHz	
Frequency response attenuation	<3dB (@off);	
	<3.5dB (@24V);	
	<4.5dB (@48V)	
	Loopback scenario, this item is related to the MIC impedance.	
Phase deviation	30°~-60° (20Hz~20kHz)	
Delay	4.17ms	
Maximum concurrency	32CH/100Mhz Band	
Number of bits	20-bit	
Signal-to-noise ratio	>123dB	
Dynamic range	>120dB	
Background noise	<6uV	
Effective transmission distance	> 50M (with DTR228-1P Portable RX)	
	> 100M (with DTR228-1R rack mounted RX)	
	Depending on radio environment and configuration	
Antenna	Built-in antenna	
Antenna gain	0dBi	
Screen	TFT full-color screen	

Phantom power	OFF / 24V / 48V
Power	AA Batteries (1.5V) *2; 14500 Lithium batteries (3.7V) *2; 18650 lithium batteries (3.7V) *1 (Hybrid Power Technology)
Power interface	Type C USB
Battery life (Speaking status)	>12h (@18650 lithium battery & 48V) >5h (@14500 lithium battery & 48V) >3h (@AA battery & 48V)
weight	88g (excluding batteries)
Dimension	124mm*34mm*34mm
Color	Black
Material	Engineering Plastics
Operating temperature	-5°C ~ 45°C (depending on the battery)
Storage temperature	-15°C ~ 45°C (depending on the battery)
Other functions	/ Infrared frequency pairing / OTA / Region settings

4.3 Operation Guide for DTR228-1P [RX]

Single Channel Plug-in Receiver, Model: DTR228-1P

4.3.1 Product Instructions



4.3.2 Operation Instructions

a) Main Homepage (without RF Linking)



b) Main Homepage (with RF Linking)



c) Status Page

Shot press SET Key to enter.



4.3.3 Setting Interface and functions

Briefly press the MENU button to enter the settings interface. The menus will cycle through in the following order. Press the SET button to make changes.

After all menus have been displayed, the system will cycle back to the main homepage.

If there is no operation, the system will return to the main homepage after 5 seconds.

Menu	Description
	Working Group Settings For different frequency scheme, the system will has different group quantity. The last group is customized. If you choose the last group, the “Frequency Setting” menu will be shown.

CH 01 668.550MHz	Transmitting Channel Settings Change the Channel to modify the frequency.
Set Freq. CH 02 669.550MHz	Customized Frequency Setting This menu only be activated, when the user choose the last group. User can modify the frequency for all channels.
Volume 9	Volume Setting Recommend setting: 0, at which points a good signal-to-noise ratio can be obtained.
Noise Gate Off	Noise Gate Setting. Sound > Threshold: Door open, original sound passes through without loss. Sound < Threshold: Door closed, low-level noise is significantly attenuated (generally -60~-80dB, almost silent). Function: Cuts off background noise between instruments, crosstalk, environmental noise, and equipment current hiss. This setting will affect sound quality; use with caution.
Scan Freq.	Scan Frequency Scan all frequencies in the group. The system scans all frequencies in the selected group, displays the signal strength at each frequency, and automatically hops to the optimal frequency. How to evaluate the scan results will be explained in a separate chapter of this manual.

Ver 9.10
Nov 18 2023

Information

The firmware version and released time.

4.3.4 Specification of DTR228-1P [RX]

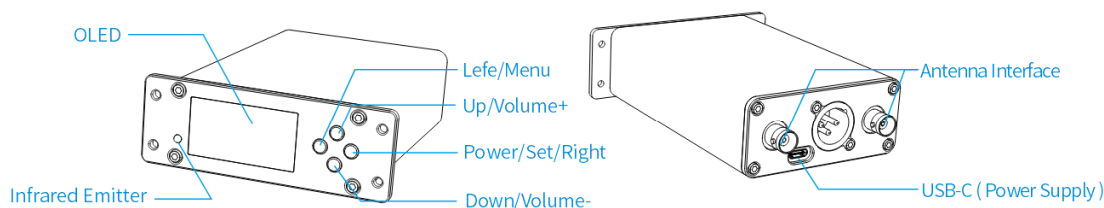
Item	Parameters
Communication mode	Digital audio UHF wireless communication
Technology platform	DT220 TECH
Modulation method	PSK
Sampling	48K
Distortion	<0.03% (@1KHz)
frequency response	20Hz~20kHz
Frequency response attenuation	<3dB (@off); <3.5dB (@24V); <4.5dB (@48V) Loopback scenario, this item is related to the MIC impedance.
Phase deviation	30°~-60° (20Hz~20kHz)
Delay	4.17ms
Maximum concurrency	32CH/100Mhz Band
Number of bits	20-bit
Signal-to-noise ratio	>123dB
Dynamic range	>120dB
Background noise	<6uV
Effective transmission distance	> 50M (with DTT228-P Portable TX) Depending on radio environment and configuration
Antenna	Built-in antenna
Diversity	None

Antenna gain	0dBi
Sensitivity	>-93dBm
Screen	TFT full-color screen
Power	AA Batteries (1.5V) *2; 14500 Lithium batteries (3.7V) *2; 18650 lithium batteries (3.7V) *1 (Hybrid Power Technology)
Power interface	Type C USB
Battery life (Speaking status)	>16h (@18650 lithium battery) >8h (@14500 lithium battery) >6h (@AA battery)
weight	69g (excluding batteries)
Dimension	124mm*34mm*34mm
Color	Black
Material	Engineering Plastics
Operating temperature	-5°C ~ 45°C (depending on the battery)
Storage temperature	-15°C ~ 45°C (depending on the battery)
Other functions	/ Infrared frequency pairing / Region settings

4.4 Operation Guide for DTR228-1R (RX)

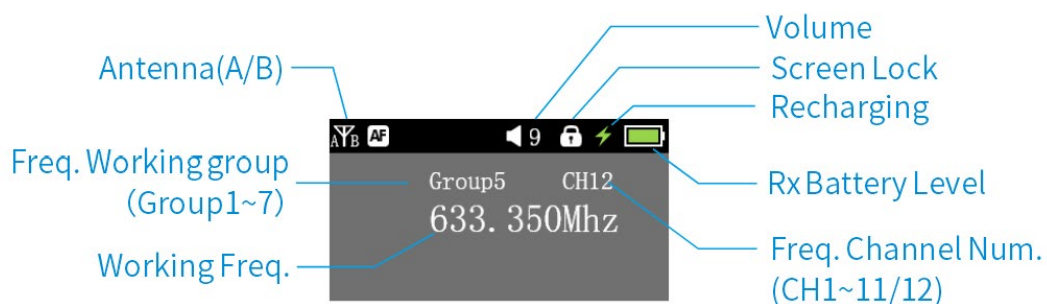
Single Channel Rack Mounted Receiver, Model: DTR228-1R

4.4.1 Product Instructions



4.4.2 Operation Instructions

a) Main Homepage (without RF Linking)



b) Main Homepage (with RF Linking)



c) Status Page

Shot press SET Key to enter.



4.4.3 Setting Interface and functions

Briefly press the red button on the panel briefly to enter; the menu will cycle through in the following order. Press the panel buttons briefly to make changes.

After all menus have been displayed, the system will cycle back to the main homepage.

If there is no operation, the system will return to the main homepage after 5 seconds.

Menu	Description
	Working Group Settings For different frequency scheme, the system will has different group quantity. The last group is customized. If you choose the last group, the "Frequency Setting" menu will be shown.

CH 01 668.550MHz	Transmitting Channel Settings Change the Channel to modify the frequency.
Set Freq. CH 02 669.550MHz	Customized Frequency Setting This menu only be activated, when the user choose the last group. User can modify the frequency for all channels.
Noise Gate Off	Noise Gate Setting. Sound > Threshold: Door open, original sound passes through without loss. Sound < Threshold: Door closed, low-level noise is significantly attenuated (generally -60~-80dB, almost silent). Function: Cuts off background noise between instruments, crosstalk, environmental noise, and equipment current hiss. This setting will affect sound quality; use with caution.
Antenna Power 9V150mA Off	Antenna Power Supply The receiver can provide phantom power supply for extend antennas. When this option is activated, the BNC connector on the back of the device will output 9V 150mA phantom power, allowing connection of an external planar antenna. See the following instructions for more details. If no external active antenna is connected, it is recommended to disable this option.

Scan Freq.

Scan Frequency

Scan all frequencies in the group.

The system scans all frequencies in the selected group, displays the signal strength at each frequency, and automatically hops to the optimal frequency.

How to evaluate the scan results will be explained in a separate chapter of this manual.

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Nov 18 2023

Information

The firmware version and released time.

4.4.4 Specification of DTR228-1R [RX]

Item	Parameters
Communication mode	Digital audio UHF wireless communication
Technology platform	DT220 TECH
Modulation method	PSK
Sampling	48K
Distortion	<0.03% (@1KHz)
frequency response	20Hz~20kHz
Frequency response attenuation	<3dB (@off); <3.5dB (@24V); <4.5dB (@48V) Loopback scenario, this item is related to the MIC impedance.
Phase deviation	30°~-60° (20Hz~20kHz)
Delay	4.17ms
Maximum concurrency	32CH/100Mhz Band
Number of bits	20-bit
Signal-to-noise ratio	>123dB

Dynamic range	>120dB
Background noise	<6uV
Effective transmission distance	> 100M (with DTT228-P Portable TX) > 300M (with DTT225-R Rack Mounted TX) Depending on radio environment and configuration
Antenna	Built-in antenna
Diversity	Ture Diversity
Antenna gain	0dBi
Sensitivity	>-93dBm
Screen	TFT full-color screen
Power	18650 lithium batteries (3.7V) *2
Power interface	Type C USB
Battery life (Speaking status)	>48h
weight	334g (excluding antenna)
Dimension	35mm*100mm*142mm
Color	Black
Material	Aluminum alloy + Plastics
Operating temperature	-5°C ~ 45°C (depending on the battery)
Storage temperature	-15°C ~ 45°C (depending on the battery)
Other functions	/ Infrared frequency pairing / Region settings

5 OTA Instructions

If necessary, users can upgrade their devices via OTA (Over-The-Air).

5.1 Warning regarding OTA



OTA upgrades carry certain risks; please proceed with caution.

Upgrading to the wrong firmware will render the device unable to boot.

5.2 Preparation

- a) An Android phone with normal Bluetooth function.
- b) Equipment of the brands affiliated to infoSVC Ruizhen Company to be upgraded.
- c) Download the OTA_Telink software installation package on your mobile phone.
- d) After downloading the corresponding bin program on your mobile phone.
- e) Upgrading using iOS phones is not currently supported.

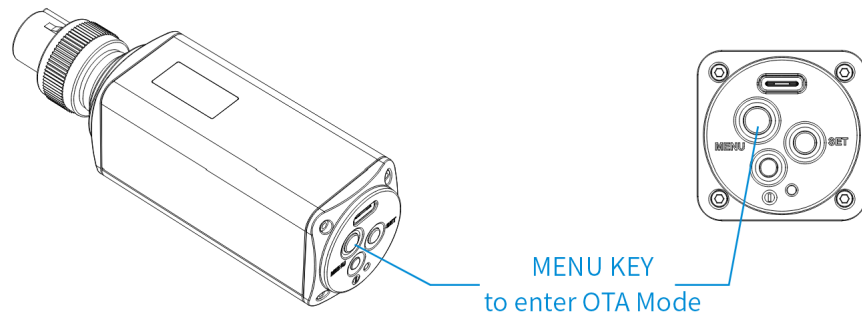
5.3 Step introduction

Download the OTA installation package and upgrade the Bin file – Install OTA – The target device enters OTA mode – Select the bin file and OTA upgrade

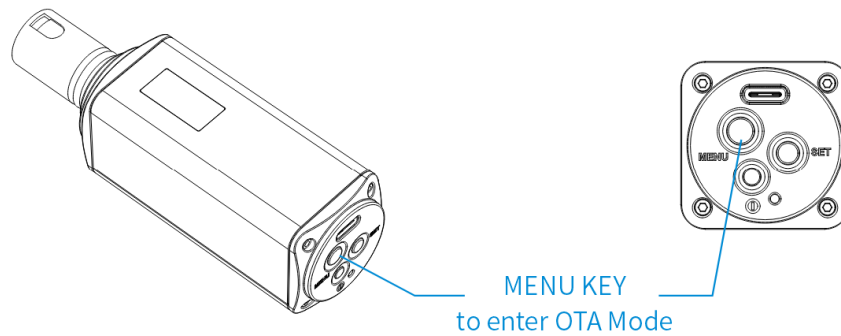
5.4 Preparation for upgrade

- a) Close the settings to be upgraded.
- b) Turn on the device to be upgraded and enter the upgrade mode through the following operations. There are differences in the operation of each equipment, which are mainly divided into three situations. Please perform the corresponding operation according to the product model. If you cannot confirm, please consult the manufacturer or local dealer:

- i. Method 2: Press and hold the "MENU" button while turning on the device.
The following products are suitable for this method:

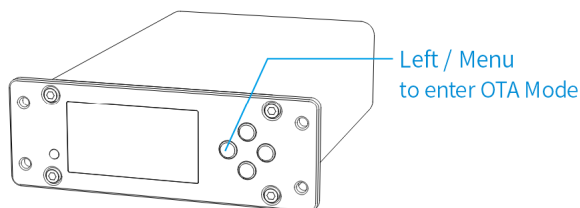


DTT228-P Portable TX



DTR228-1P Portable RX

- ii. Method 2: Press and hold the "Left" button on the DTR228-1R receiver and turn it on at the same time:



- c) After completing the above operations, the machine enters the OTA upgrade mode, and the OTA upgrade can be performed through the Bluetooth connection of the mobile phone.

5.5 OTA APP installation

- a) The OTA upgrade software name is: OTA_Telink.apk.

It can be downloaded through iweex, gaodumic official website:

[:http://www.gaodimic.com/OTA](http://www.gaodimic.com/OTA)

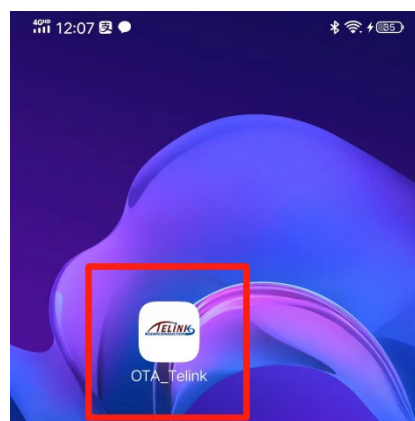


- b) Save the downloaded OTA_Telink software to your mobile phone and record the storage directory.



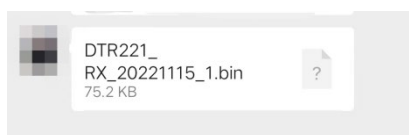
- c) Open the storage directory of the phone, find the OTA_Telink installation package, and change the file suffix name to "*.apk". (If the file name is "OTA_Telink.apk", this operation is not required).

- a) Click OTA_Telink.apk and install it on your phone.

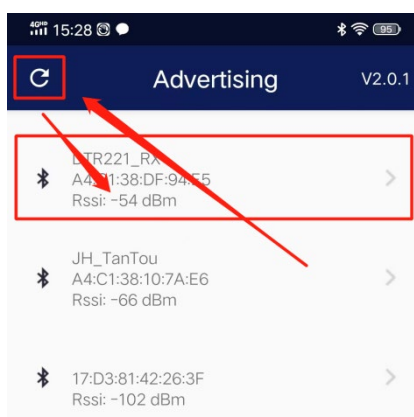


5.6 OTA upgrade

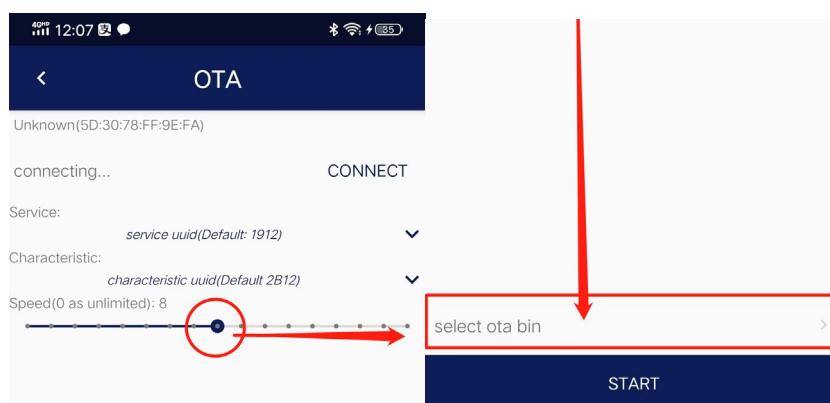
- a) Download the upgrade software package corresponding to the device



- b) Open the APP, refresh in the APP, select the device (the closer the phone is to the device, the greater the Rssi value), select the device with the corresponding name, there is usually only one device, the Bluetooth name of the grenade is generally GAODIMIC_DT228_TX, click to enter the next page



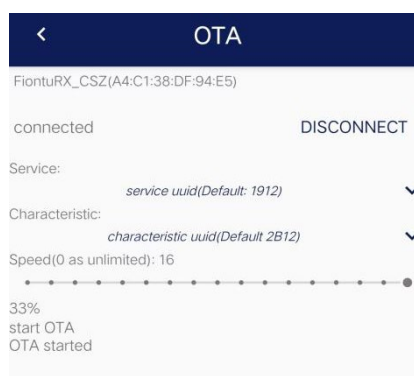
- c) Increase the speed to the highest level and click to select the saved bin file.



- d) Find the saved bin file in the path, select it, and click to start the upgrade.



- e) Wait for the progress to reach 100% to complete the upgrade



5.7 Declaration regarding OTA



- a) Under normal circumstances, if the OTA upgrade is interrupted midway, you only need to restart the operation. Equipment failure caused by the upgrade cannot be ruled out.
- b) OTA upgrades are risky, please make your own assessment.
- c) This document is only suitable for the upgrade of products owned by infoSVC Co., Ltd Company. The company reserves all rights of interpretation.

6 Troubleshooting

6.1 Problem regarding performance.

6.1.1 High-frequency noise problem after installing MIC.

Problem Description

The standard parameter Floor Noise of AT210P series products is 20uV, and the standard parameter Floor Noise of DT228 series products is 6uV.

If you encounter unacceptable noise during use, it may be caused by the following reasons, and you can perform corresponding operations to improve it.

a) Reason 1: The internal amplifier of the microphone is subject to radio frequency interference, especially condenser microphones.

Many microphones are not specially designed to resist radio frequency interference. Most of the additional noise we encounter at present is caused by the microphone receiving radio frequency interference. A large part of the microphones on the market are very sensitive to radio frequency interference, and different microphones are susceptible to interference in different frequency bands. Generally speaking, there are more cases of electromagnetic interference in the frequency band below 600MHz. When using the GAODIMIC M190-S measurement microphone normally, the noise situation is as shown in the video:

<https://nas.infosvc.cn:40443/drive/d/s/12IE91u0uE9jdgeTjgCA5p9u5POtcgng/HUo7yrwY8MqTdlwl0Yr0G9QuqT38rbuM-Yb6AM9ScKgw>

Recommended solutions

- i. Method 1: Use an XRL extension tube or XRL extension cable to move the microphone further away from the transmitter. (This method is not very beautiful, but it is very effective)
- ii. Method 2: Try changing the 650~690Mhz frequency (not applicable in some countries).

- iii. Method 3: Reduce the RF transmission power of the transmitter.
- iv. Method 4: We recommend using a microphone that is resistant to RF interference. Manufacturers such as Shure will specially launch microphone products that are resistant to RF interference. Acoustic measurement microphones recommended are Earthworks M23/M30; MELLab MYc-3.

b) Reason 2: There is a deviation in the impedance matching between the microphone and the transmitter.

The ambient noise picked up by the microphone is just within the DRE (dynamic enhancement) threshold range of the transmitter, which causes noise caused by the repeated switching of the DRE function.

Recommended solution

- i. Method 1: Adjust the gain of the transmitter.
- ii. Method 2: Turn off the Code DRE function of the transmitter. This function can improve the signal-to-noise ratio of the device. After turning it off, the cost performance of the entire system will be reduced by 3-6dB, but it will not affect the performance of the device in acoustic measurement.

The DRE menu is not a common setting item of the device. You need to enter the OTA mode to see the menu. If you enter the OTA mode, please refer to the relevant technical details.

If you enter the OTA mode and still cannot see the DRE option, please upgrade the device first.

If you perform an OTA upgrade, please refer to: <http://www.gaodimic.com/OTA-Upgrade?l=en>.

c) Reason 3: Possibility of damage to internal components of the equipment.

The vibration and harsh environment of long-distance transportation may cause damage to a small number of products.

Recommended solution

Contact the local dealer for replacement, or GAODIMIC directly.

6.1.2 Audio bleed sound problem.

Problem Description

Sometimes, improper volume settings on the transmitter and receiver by the operator will cause Audio bleed sound to appear.

Please refer to the following video link for the phenomenon:

https://nas.infosvc.cn:40443/drive/d/s/12IE70qZiFc1qECbIU50gcDDyurCbpx2/PkleCbOvq9p8KdFPLqFKJi5J3GZgT2l8-Tb_gcQWdKgw

Cause: The current digital audio algorithm is limited. This problem will be triggered when the volume of the transmitter and receiver are combined.

Recommended solution:

Set the volume of the receiver to greater than 7. It is recommended to set it to 7 to avoid adjusting the volume on the transmitter or receiver.

This solution will not reduce the performance of the entire system, because for the communication system, the pre-stage signal should be amplified as much as possible.

The volume is adjusted on the mixer or sound card, so that the signal-to-noise ratio of the entire system can reach the optimal state. Comparative test video link:

https://nas.infosvc.cn:40443/drive/d/s/12IE77GXXKcligzjiHm58qLVryE59vTp0/jJXQCJ8YmEZ2ByVQ20Oqu0PLdvh4Ge_m-YLAqZSidKgw-Tb_gcQWdKgw

6.1.3 Touching the transmitter with your hand will produce noise.

Problem Description

During use, holding the transmitter in your hand will generate electrical noise. The Problem Reference:

[video:https://nas.infosvc.cn:40443/drive/d/s/12IE7yuRJh2GcotaGx4R6x723XYpMpd7/HhUMkxax9Sw54JyCrAvCzFqPoCe-V4r8-RrGgAVadKgw](https://nas.infosvc.cn:40443/drive/d/s/12IE7yuRJh2GcotaGx4R6x723XYpMpd7/HhUMkxax9Sw54JyCrAvCzFqPoCe-V4r8-RrGgAVadKgw)

Reason:

Both AT210P and DT228 series products use built-in antenna + compact appearance structure design, and the shell is made of engineering plastic.

Advantages: Portable, very small, already the world's smallest professional UHF wireless system. No need to worry about antenna link damage. (Plug-in antenna, antenna interface is very easy to wear, when used frequently, only 1 year device life cycle.) Disadvantages: The built-in antenna is very close to the PCB circuit board, and the circuit board is easily affected by the electromagnetic wave reflection induction of the antenna.

If you hold the transmitter directly with your hand, it is equivalent to directly wrapping the antenna with a conductor, causing electromagnetic wave reflection, which is then sensed by the PCB circuit board and generates noise.

If you touch the transmitter with your hand or a conductor over a large area, it may cause current noise and may reduce the transmission distance.

Solution:

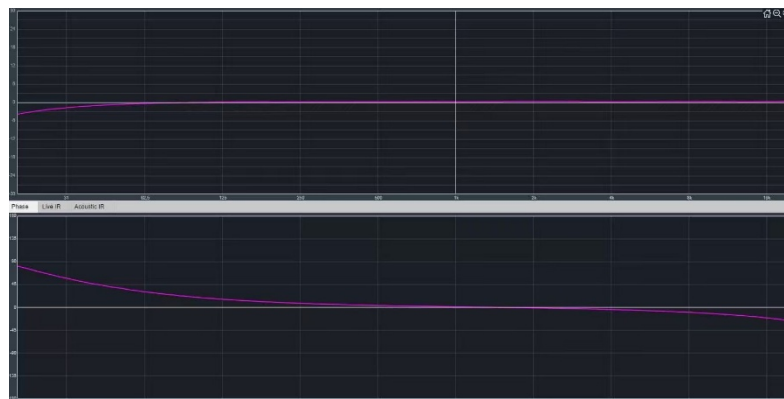
In normal use, try to avoid large-scale contact between your hand or a conductor and the transmitter.

6.1.4 The frequency response curve is not straight.

Problem Description

Under normal circumstances, the frequency response attenuation of the AT210P series is less than 2dB, and the frequency response attenuation of the DT228G series is about 3dB. Some customers reported that in actual use, they found that its performance was greater than this value, especially in the low-frequency area.

Some reports which is abnormal with the response from users, like the following pictures:



Solution:

- i. Method 1: Check the phantom power of the sound card or mixer, and turn off the phantom power.
- ii. Method 2: Under 24V phantom power conditions, the performance of the device will be better than that of 48V phantom power. In most acoustic measurement situations, you can consider using 24V phantom power, and the results are also acceptable.

6.1.5 Audio “Bu-bu-bu”bleed noise sound, with Shure SM58 MIC.

Problem Description

The user is using it for a wireless talkback mic mostly, but he wonders why this noise is there and if it can be fixed. The beginning of the audio is just the Tx with nothing connected and the second part is with a SM-58 connected to it.

The Noise sound recode:

<https://nas.infosvc.cn/drive/d/s/16BRi7th2MPyKJhoU2irP6I7DVtq7veR/T4txV-1dZR69CspJ791ujy6fEkpxZB8J-vrwAXsM7zww>

Solution:

Setting mistake. The function of “Codec DRE” function be enabled, which is a function for testing in some special scenarios.

Way to solve: Enter “OTA” Mode, find the menu of “Codec DRE”, and disable it.

This menu just will be shown on the firmware which released after Jun, 2025.

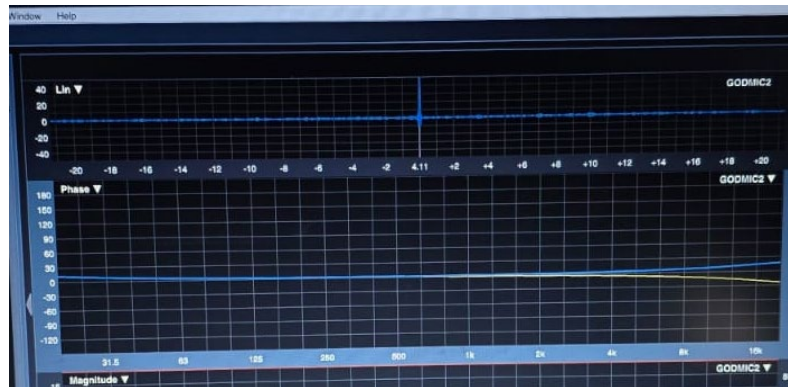
6.2 Problem regarding setting.

6.2.1 The phase curves on the test results are inconsistent.

Problem Description

Two devices, connected to the same sound source, the phase curves on the test results are inconsistent.

The problem description refer to the figure below.



Reason:

Phase offset is caused by time difference. The offset is the result of signal phase multiplied by sampling interval multiplied by time difference. The signal source of the sound card output you use is the same, but the sampling time of the two transmitters cannot be the same. Our sampling rate is 48Khz, which means there is 0.02ms between each sampling. The sampling time of the two transmitters cannot be equal. There will be a difference of less than 0.02ms. This time difference will cause the sampling to be at different points in a cycle of the sound wave (corresponding to different phases). This time difference has little effect in the low-frequency area, because the cycle of the low-frequency wave is very long, and the sampling has a slight time difference, which has little effect. However, in the 20Khz area, the difference is very large. If the sampling time difference of the two transmitters is exactly 0.01ms, it can cause a difference of exactly 180 degrees, which causes the phase inconsistency in the high-frequency area.

Solution

It is recommended that users sample different delay time inputs for different channels, and gradually adjust the delay time to make the phase curve consistent. If you input the same value for the two channels, the sampling time difference of the two channels will not change at all. Therefore, this phase difference will occur.

6.2.2 Group and frequency are inconsistent.

Problem Description

Group and frequency on the devices purchased twice are inconsistent. (Region setting problem)

Some customers have purchased our devices many times and found that the frequency planning on the second delivered device is different from the previous one. For example: the product purchased for the first time has the default frequency of 668.500Mhz, but the product purchased for the second time does not have this frequency to choose from.

Reason: Currently, GAODIMIC has provided products and technical support to users in 40+ countries around the world. We have to optimize our software (including our devices) to meet the needs of different users in different countries.

We enabled the latest firmware in 2025. This firmware version adds the "region" setting in the hidden menu. Our current default is the Europe region. At this time, the device will support 510-698Mhz, including 9 groups, each with 12 frequencies. The last group is a customizable frequency group.

Before this, the device did not have a "Region" menu, and the frequency planning of its device corresponded to the "Old Scheme" region option.

Solution:

- i. Method 1: For new versions of devices, users only need to change the region settings to get the same parameters as previous devices.

The Region menu is not in the common menu. It will only appear after entering OTA mode and activating "Factory Reset". Specific steps: Power on in OTA mode → Press the Menu key to jump to "Factory Reset" → Press the Select key to activate the reset function → The device will display "Region" → Select your region → Restart.

The region options and descriptions we currently support are as "3.1 frequency Bands", and will be updated in future:

- ii. Method 2: For older versions, you can upgrade the device you first purchased to the latest version of the firmware via OTA to obtain more wireless frequency band selection items.

For how to enter OTA mode, please refer to the previous content.

For how to perform OTA upgrade, please refer to

<http://www.gaodimic.com/OTA-Upgrade?l=en>.

6.2.3 Difference in floor noise between AT210P & DT228.

Problem Description

AT210P series Floor Noise is about 20uV, and noise can be heard when listening to headphones or listening at close range indoors. AT210P is suitable for acoustic measurement and audio transmission in outdoor scenes.

DT228 system has a great improvement in this aspect, Floor Noise is only 6uV. and the recommended use scenarios are: acoustic measurement, indoor and outdoor audio wireless transmission, concert instrument audio wireless transmission, studio scene closed headphone music sound wireless transmissio

The comparison between the two is as follows:

https://nas.infosvc.cn:40443/drive/d/s/12IE9RIP3BPMvIAVt8HGvw8czhtB7jrT/QKaTR8pacPflFdqmoVTC5Y_LX2nEAB_S-jbOg7PWdKgw.

6.2.4 How to solve the frequency scheme problem

Problem Description

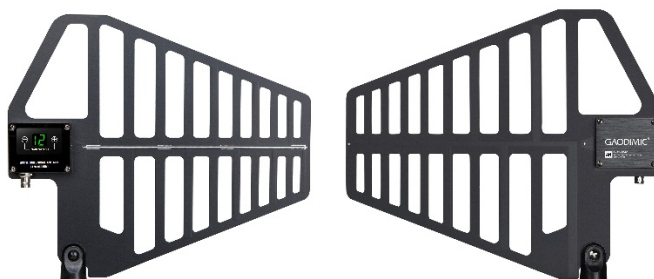
Digital UHF Wireless System - Rack Mounted Kit, is on an older firmware version, and I'm afraid that if I try to update the receiver, I won't be able to use it anymore, if I can't update the transmitter.

Solution

- i. Way1, Update your old rack mounted kit by OTA way.
- ii. Way2. the new Firmware have a region menu in OTA mode. this menu can help u to choose a freq scheme supports old version device.
when u Enter OTA mode, u can find a menu "Factory Restore". Activate this option by Set Key, the device will be restarted and will show "Region"
refer to "3.1 Frequency Bands" to set the option of Region.

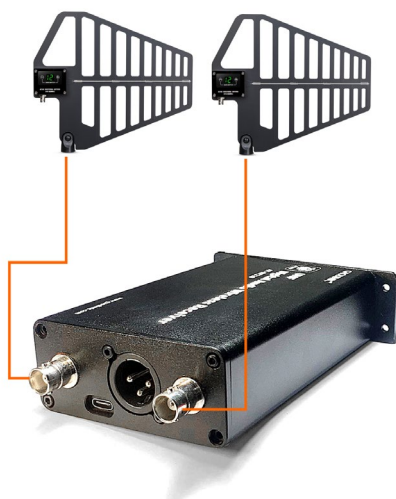
7 Optional Accessories

7.1 Active Directional Antenna

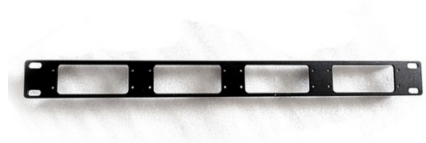


Item	Description
Model	ANT241P-D2
Applications	The DTR228-1R receiver supports power supply to an external antenna, which can be used to improve the signal reception range.
Frequency range	450MHz~970MHz
Receiving angle	70°
Gain	External -9dB~+12dB
Connect	BNC
Impedance	50Ω
Voltage	9~12V

Usage: Connect directly using the feeder cable, see the diagram below.



7.2 Rack Mounted Panel



Item	Description
Model	AC-PL01
Applications	Rack-mount receivers (DTR228-1R) can be installed on standard racks by AC-PL01. Each rack mounting panel can accommodate four receivers.

7.3 XLR Extension Tube



Item	Description
Model	AC-ET-XLR
Applications	Wired microphones with poor electromagnetic shielding may generate noise. Using this accessory can reduce the risk of noise generation.

8 Upgradeable Components

8.1 2 Channels Receiver [PE]



Item	Description
Model	DT248R-2PE
RX Code	PE [Performance]
Channels	2
Diversity	Cross Back-up Mode
Applications	Receivers compatible with 2-channel kits. Specifications are compatible with the DTT228-P transmitter.

8.2 4 Channels Receiver [PE]



Item	Description
Model	DT248R-4PE
RX Code	PE [Performance]
Channels	4
Diversity	Cross Back-up Mode
Applications	Receivers compatible with 4-channel kits. Specifications are compatible with the DTT228-P

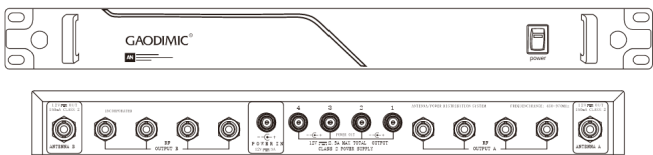
transmitter.

8.3 2 Channels Receiver [ST]

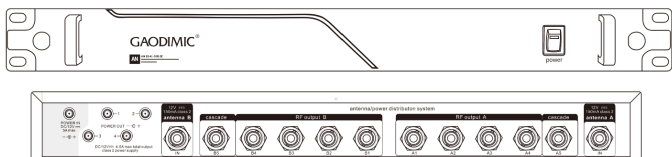


Item	Description
Model	DT248R-2ST
RX Code	ST [Stage]
Channels	2
Diversity	Main + Standby Back-up Mode
Applications	Receivers compatible with 2-channel kits. Specifications are compatible with the DTT228-P transmitter.

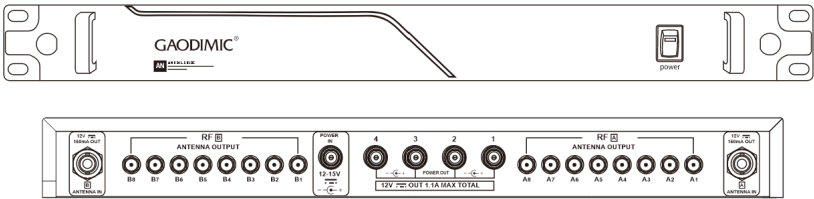
8.4 Antenna distributor



AND241-4R8C (4 Routes & 8 Channels)



AND241-5R10C (5 Routes & 10 Channels)
(Supports Cascade Port)



AND241-8R16C (8 Routes & 16 Channels)

Item	Description
Model	AND241-4R8C / 5R10C / 8R16C
Applications	Expansion Capability: Each unit allows 4-8 wireless receivers to use the same two antennas. Signal Loss Compensation: Signal strength attenuates when splitting the signal across multiple output ports. This system amplifies and compensates for this attenuation. Compatibility: Compatible with all wireless microphone receivers operating within the compatible frequency range. Power Output and Output Connectors: Up to multiple receivers can be chained together at the power output and powered from a single power source via the power output connector.

9 Warning



- a) Please use a qualified battery! If the battery is abnormal, stop the equipment immediately to avoid danger and damage!
-



- b) Avoid the equipment for a long time, or work at high temperature environment, avoid decline in performance, and even cause damage!
-



- c) Do not enable phantom voltage on the devices connected to the receiver. Although the devices have overvoltage protection circuits, there is still a possibility of burning out the receiver. This will also cause a decrease in overall system performance!
-

10 Declaration

GAODIMIC, iweex, and DT220 TECH are all brands under InfoSVC Co., Ltd.

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