




## WDC-900

Digital and wireless  
conference  
discussion systems



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100% papier recyclé


Manual



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## Antenna Technical Index

Antenna Model:	R-40W	R-2.4C	R-20U
Frequency Range:	ISM2.4~2.483GHz	2400-2500MHz	600-800MHz
Standing wave ratio:	≤1.5	≤1.5	≤2.0
Input impedance:	50Ω	50Ω	50Ω
Gain:	5dBi	3-6dBi	7dBi(typical)
Polarization mode:	Vertical	Vertical	Vertical
Front to back ratio:	≥25dB	≥25dB	≥25dB
Horizontal lobe width:	120°	120°	80
Vertical lobe width:	55°	55°	60
Maximum power:	150W	150W	50W
Connector Type:	TNC	BNC	BNC
Dimension (mm):	150x101x1.6mm	100	210x180x44
Weight(g):	86	154	300

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#### DC-900 ZigBee Data Communication Converter

Working frequency range: ISM 2.4 ~ 2.483GHz  
Gain: 18dBm  
RF input port: TNC female  
Data communication bidirectional connection port: RJ45 interface  
Power supply: data and power lines integrated power supply  
Working temperature: -10 ° C ~ 55 ° C  
Dimensions (mm): 42x42x105  
Weight (g): 150  
Material: black plating aluminum (package)

#### R-22AU directional antenna

Frequency range: 520-960MHz  
Gain: 6dB  
Amplifier gain: 15dB  
Output: OIP3> 28dBm  
Connector port: BNC female  
Dimensions (mm): 258x263x1.6  
Weight (g): about 220

### Introduction

Thank you for choosing a discussion conference system produced by RELACART, and welcome you to join our thousands of professional users. Our more than 10 years of professional design and manufacturing experience ensure the excellent performance of our products in all aspects of quality, performance and stability.

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## 01 Safety Operation and Notice

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  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.
- This symbol "⚡" indicates that dangerous voltage constituting a risk of electric shock is present within this unit. 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.

P3

## 07 Technical index

### WDC-900 Digital And Wireless Central Controller Unit

Chassis Specifications: EIA standard 2U  
Power: AC100-240V50 / 60Hz  
Audio carrier range: 618-936MHz  
Bandwidth: 32MHz  
Modulation method: FM  
Power consumption: 30W  
Frequency response: 65Hz-18KHz ± 3dB  
Signal to noise ratio: > 100dB  
Distortion: <0.9%  
Maximum deviation: ± 45KHz  
Audio Output: XLR balanced output 4dBV  
6.3mm unbalanced output -1.8dBV  
RCA maximum output -1.2dBV  
Size (mm): 426 (W) x88 (H) x263 (D)  
Weight (kg): about 4.5

### WDC-900C Wireless Chairman Unit/ WDC-900D Wireless Delegate Unit

Power: DC3V  
Audio carrier frequency band: 618-936MHz  
Power consumption: 10mW  
RF output power: 8mW  
Frequency response: 65Hz-18KHz ± 3dB  
Harmonic radiation: <50dBm  
Maximum deviation: ± 45KHz  
Distortion: <0.5%  
Microphone type: capacitive cardioid pointing  
Microphone length (mm): 420 (default)  
Base Size (mm): 127 (W) x52 (H) x180 (D)  
Weight (g): about 1100  
Color: nickel black

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Frequency response: 65Hz-18KHz ± 3dB  
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Microphone type: capacitive cardioid pointing  
Microphone length (mm): 420 (default)  
Base Size (mm): 127 (W) x52 (H) x180 (D)  
Weight (g): about 1100  
Color: nickel black

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### 5.2 Digital wireless conference unit

Symptoms	Fault Cause	Solution
Unable to boot	The battery has no electricity	Replace the battery
	The battery is reversed	Properly connected battery
Cannot open to speech, the light does not shine	Whether working at normal control distance	Move the conference unit to the proper distance
	Data connection error	Restart the conference unit or host
	Battery is dead	Replace the battery
Cannot speak, light ring bright	Whether working at normal reception distance	Move the conference unit to the proper distance

Relacart introduced WDC-900, a pioneering wireless conference and discussion system in China, with professional design, perfect circuit structure and stable function. It can be used with Relacart VTS-1000 automatic video tracking system and central control system to realize functions diversity of modern high-tech conference. Operating in UHF band and Zigbee wireless communication technology, the digital and wireless discussion units produce high quality CD sound due to a very high fidelity circuit design. The system is protected against interference from other wireless equipments such as computers, mobile phones and blue-tooth devices. Set up easily and quickly with no impact on location, especially for historical locations, the benefits can be even more pronounced. One no longer has to worry about the damaging antique materials of a grand hall. No cables have to be laid or holes drilled, the RELACART WDC wireless discussion systems offer a professional and perfect solution for challenging locations.

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## 06 System troubleshooting

### 5.1 digital wireless conference system host

#### Functions:

- Zigbee wireless communication technology.
- Automatic channel search function.
- Have 16 frequency bands for users to choose.
- Control for up to 273 wireless discussion units and 2 chairman units, up to open simultaneous 4 discussion units.
- Bright LCD display operation screen, with Chinese and English Language menu for choosing, perfect function and easy operation.
- The system is perfectly protected against interference from other wireless equipments such as computers, mobile phones and blue-tooth devices.
- Antenna interface, used with the Relacart antenna system to transmit signals.
- Earphone monitor function.
- Couples of wireless conference systems can be installed in the same building.
- 19''(2U) housing for table top or rack mounting.
- Handgrips for easy transport.
- Easy to set up a temporary system, beautiful and tidy, no impact on the installation site.
- Optional for Automatic Video Tracking System VTS-1000 for automatic camera tracking.
- There are three conference operation modes for your choice:  
Automatic (with time limiting): allow one speaker only and can set the speaking time; When set speaking time over, the other unit will override the activated unit.  
Request: the operation of delegate unit should be approved by chairman unit  
FIFO: when the maximum number of speakers is reach, subsequent Talk key units with override of activated microphones.

Symptoms	Fault Cause	Solution
Turn on the power switch, cannot boot, power indicator does not light	The power cord is not plugged into a power outlet	Correctly connect the power cord and plug provided with the main unit to power on the main unit
	Fuse blown	Replace the fuse Please contact your local agent to replace the fuse
Insufficient sound reception or insufficient control distance	Wireless UHF receiving antenna, wireless 2.4G transceiver antenna is not connected or connected incorrect	Connect the antenna correctly
	There are obstacles in the transmission space	Remove or avoid obstacles
Phones no sound output	Volume adjustment knob is not adjusted	Adjust the volume to the appropriate position

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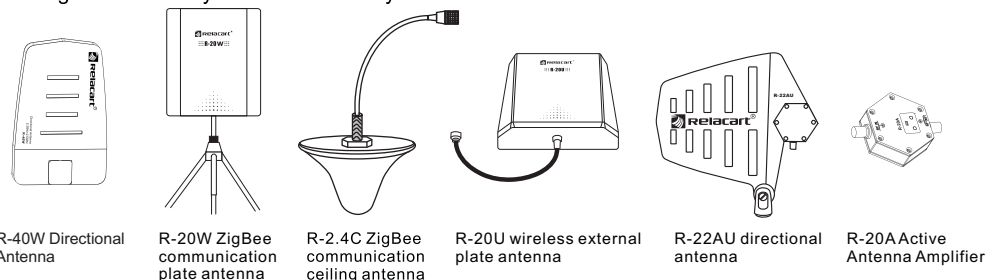
## 05 Optional accessories

Directional Antenna: R-40W / R-20U / R-2.4C

1. Super launch capability, stable distance up to 30M.
- 2 construction and installation is simple, installation from the application environment.
- 3 system excellent scalability, increase the meeting unit, you must increase the transmitting antenna.
4. Can be fixed installation (equip with directional bracket) or with triangular bracket installation.
5. The transmitting antenna is connected to the host via a coaxial cable, which is best not to exceed 15M in length.
6. Suitable for installation in the application environment.

The R-22AU points to the Antenna: Reliable, durable and rugged enough to provide the best reception in the required coverage. The gain setting is used to enhance the signal reception.

R-20A Active Antenna Amplifier: Provides gain amplification of the receiving antenna to compensate for signal attenuation over long distance links and to expand the operating range and stability of the wireless system.

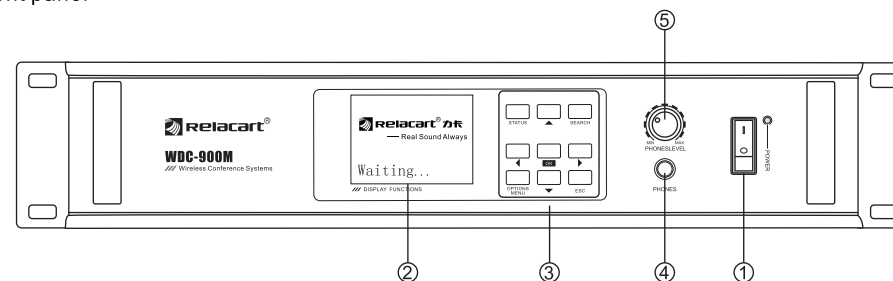


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## 03 System Function Overview

### 3.1 WDC-900M Central Controller

Front panel



- ① Power switch (with indicator light)
- ② LCD display screen
- ③ Function keys
- ④ Headphone monitor jack
- ⑤ Headphone volume control knob

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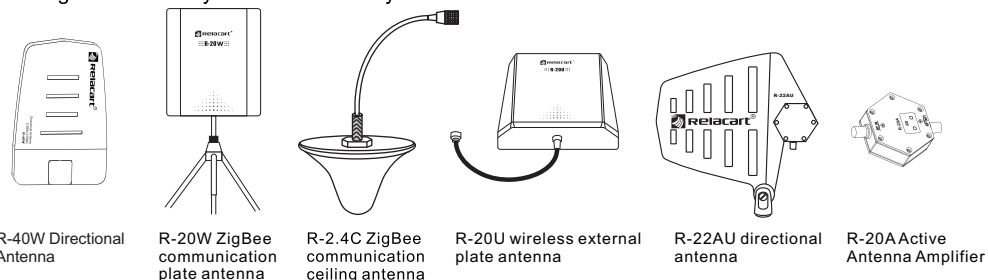
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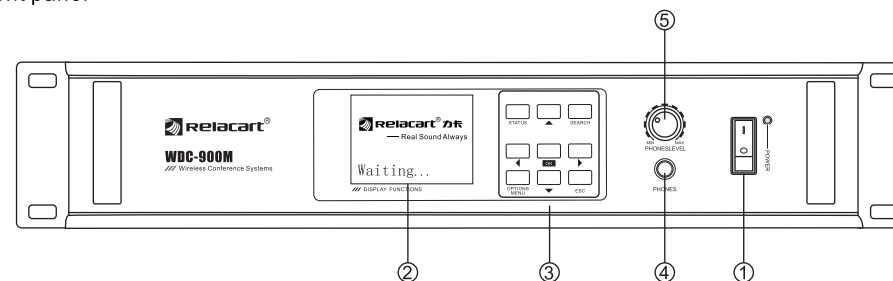


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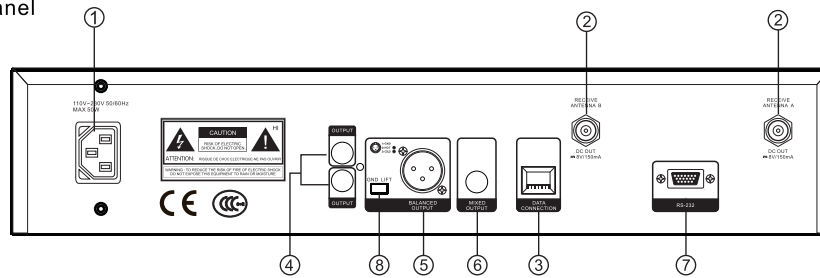
Front panel



- ① Power switch (with indicator light)
- ② LCD display screen
- ③ Function keys
- ④ Headphone monitor jack
- ⑤ Headphone volume control knob

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Rear panel



- ① Power input socket: Standard IEC socket, can work in 100-240V50 / 60Hz AC power supply.
- ② UHF audio signal receiving antenna port: can be connected to the UHF antenna BNC interface rubber antenna or R-20A antenna amplifier and R-20U / R-22AU external antenna to enhance signal reception distance.
- ③ ZigBee data communication signal output port: Connect the DC-900 data communication converter, and then through the DC-900 to connect to an external transmit / receive antenna.
- ④ RCA audio line output: can be directly connected to the mixer or recorder.
- ⑤ Balanced audio output jacks: XLR jacks can be connected to a mixer or amplifier audio input using a standard two-conductor shielded cable.
- ⑥ Unbalanced audio output jack: The 6.3mm jack can be connected to the unbalanced input of the mixer or amplifier using a standard unbalanced audio cable.
- ⑦ RS-232 interface: Connect automatic video tracking system VTS-1000 or other central control system.
- ⑧ Grounding switch: LIFT is ungrounded, GND is grounded.

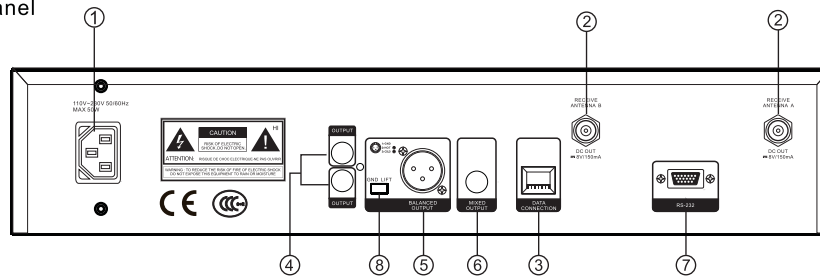
Affect the system wireless signal transmission's factors:

In order to ensure that the digital wireless conference system can work normally, all signal transmission must be uninterrupted. In addition to using sufficiently powerful transmitting and receiving antennas, their positions must be properly arranged so as to ensure uniform communication between all the wireless conference units in the conference venue consistent, strong enough wireless signal transmission. When planning a digital wireless conference system, you must consider the factors that affect signal uniformity and strength.

Wireless transceiver antenna installation:

Wireless transmission Non-directional, will not be affected by visible light transmission, so the launch antenna can be used outdoors, and because the launch is non-directional, the launch antenna is installed in the venue, try not to install the control Indoor, because the transmit antenna transmit power is only 10mW, penetration is relatively small, stable linear transmission distance of about 30 meters, Therefore, the use of transmitting antennas must be as close as possible to the wireless conferencing unit. When using the directivity antenna, the wireless conference unit is the most sensitive to receiving and receiving antennas. And the transmission of space cannot have obstacles. Transmit antenna, cannot have metal near the installation location.

Rear panel



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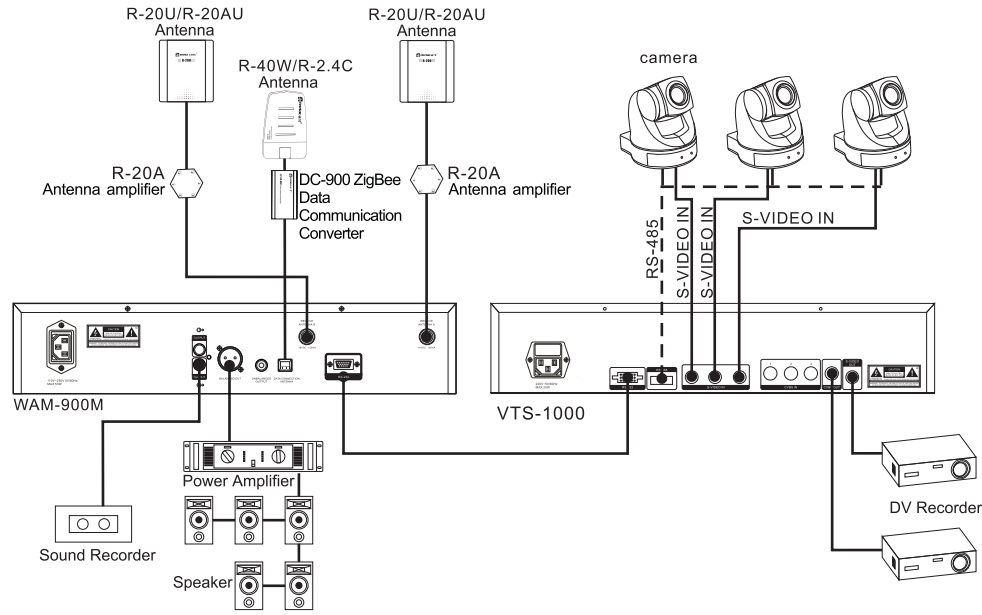
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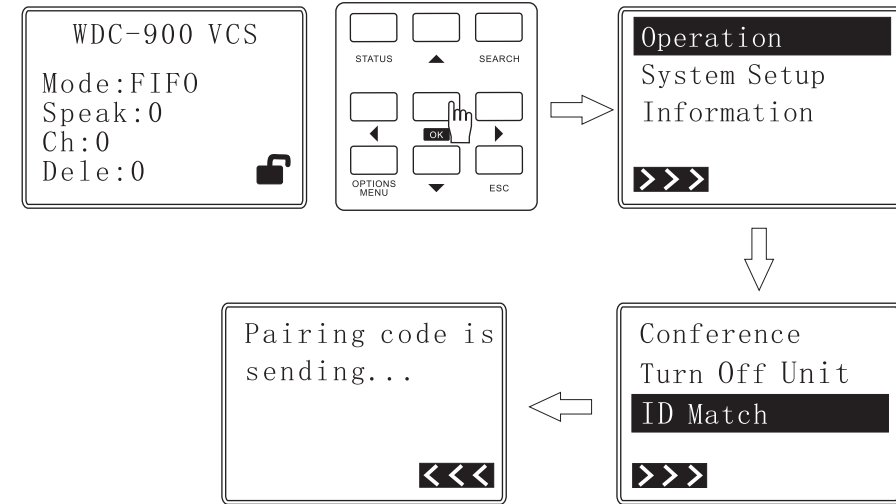
## 04 system application connection diagram



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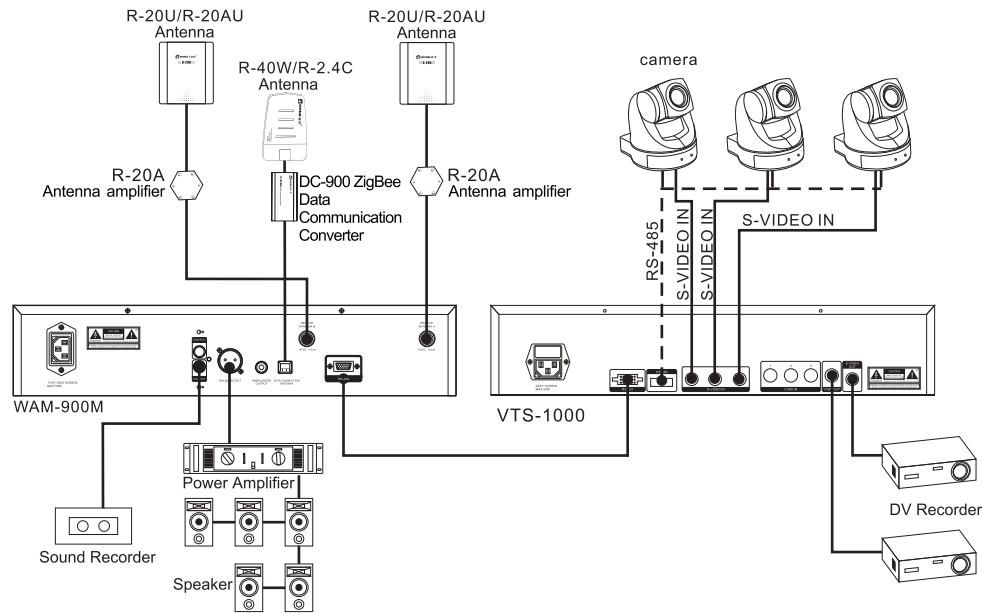
### System operation and function setting

1. Turn on the power switch of the WDC-900 host, as shown in the figure, press "OK" to enter the system menu interface, select "Operation" menu and select "ID Pairing" in the next menu.



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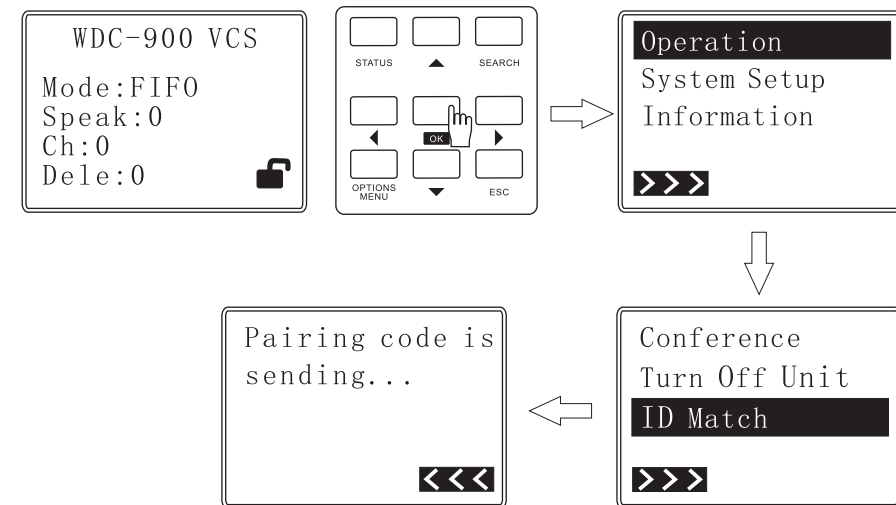
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P19

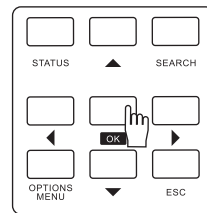
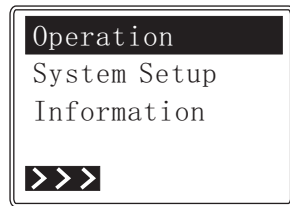
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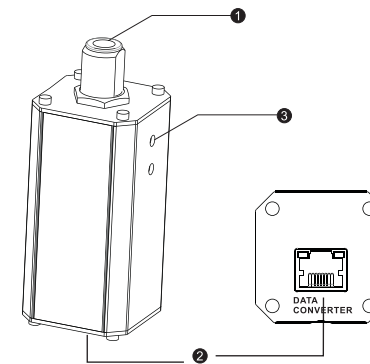


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2. Remove the matched chairman or delegate unit and press the power switch button on the back of the unit and the speak button on the front of the unit. A series of English letters will appear on the unit screen. After about 3 seconds, the unit screen will automatically display close, this time indicates that the WDC-900 host and the unit have been paired successfully.
3. After all the unit match are completed, press the "ESC" key on the panel to exit the ID pairing menu.
4. Re-open the unit's power switch, the unit automatically paired with the host is completed, the unit can work properly.
5. Press OK to enter the function main menu. "Operation" is the basic function setting. System Settings is the system function setting.

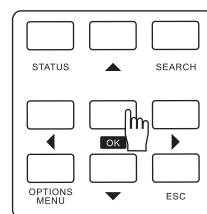
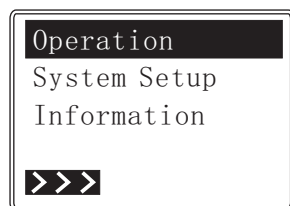


### DC-900 ZigBee Data Communication Converter Features Overview

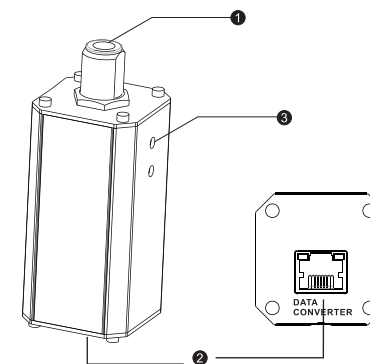


1. Antenna input port (N connector): External antenna connected to the TNC connector R-40W
2. Data communication bidirectional connection port: RJ45 interface, connected by the DC-900 to the WDC-900M host DATA CONNECTION ANTENNA output.
3. Screw port: wall mount screw screw.

2. Remove the matched chairman or delegate unit and press the power switch button on the back of the unit and the speak button on the front of the unit. A series of English letters will appear on the unit screen. After about 3 seconds, the unit screen will automatically display close, this time indicates that the WDC-900 host and the unit have been paired successfully.
3. After all the unit match are completed, press the "ESC" key on the panel to exit the ID pairing menu.
4. Re-open the unit's power switch, the unit automatically paired with the host is completed, the unit can work properly.
5. Press OK to enter the function main menu. "Operation" is the basic function setting. System Settings is the system function setting.

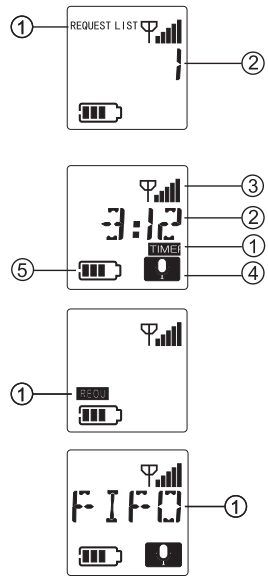


### DC-900 ZigBee Data Communication Converter Features Overview



1. Antenna input port (N connector): External antenna connected to the TNC connector R-40W
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3. Screw port: wall mount screw screw.

### WDC-900 unit function overview



a. Waiting for a speech  
1. "REQUEST LIST" indicates the number of waits for speech

2. "1" indicates the number of units the system is waiting to speak

b. Time-limit statement:

1. "TIMER" means the limited time speech mode

2. "3:12" indicates the remaining speaking time

3. Control signal strength (to maintain signal strength in more than one grid, to ensure that the system can work properly)

4. Making a statement

5. Battery power

c. Apply for a statement

1. "REQU" means to apply for speaking mode

d. First In, First Out:

1. "FIFO" means FIFO mode

### A.Operation

1. Conference operation modes:

a. Automatic (with time limiting): allow one speaker only and can set the speaking time; When set speaking time over, the other unit will override the activated unit.

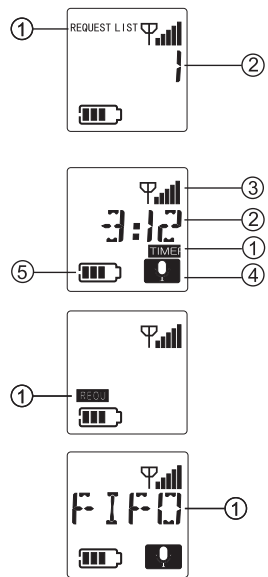
b. Request: the operation of delegate unit should be approved by chairman unit

c. FIFO: when the maximum number of speakers is reach, subsequent Talk key units with override of activated microphones.

2. Turn off all units: The main unit shuts down all unit power.

3. ID Matching: The unit ID matches the host.

### WDC-900 unit function overview



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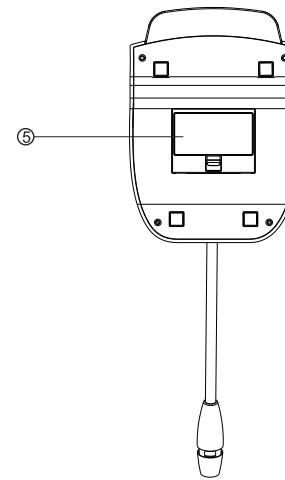
3. ID Matching: The unit ID matches the host.

**B. System Settings**

1. Conference mode settings: according to the meeting to choose different modes
2. RF frequency settings: set carrier frequency.
3. Shutdown Settings: "Turn Off All Units" means that the conference unit will also be turned off when the host is turned off. "Do not turn off all units" means that the conference unit will not be turned off when the unit is powered off.
4. Squelch Threshold Settings: According to the use of the scene to choose 0dB to 40dB
5. battery type: nickel-metal hydride batteries when using nickel-metal hydride batteries, cells using alkaline batteries choose alkaline.
6. Address Redistribution: Reset the IP address.
7. Language: "English" The system language is English, "Simplified" system language is Simplified Chinese.
8. Restore the default settings: Restore all the host factory settings

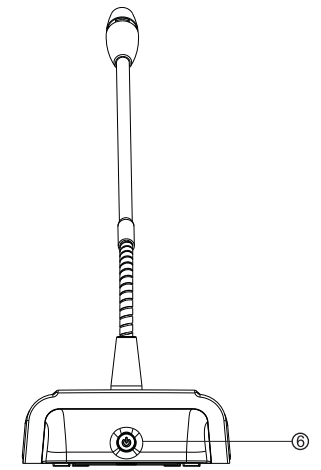
C: Information: "System Information" and our QR code

Bottom view



⑤ Battery Holder: Fill 2 AA batteries.

Rear view



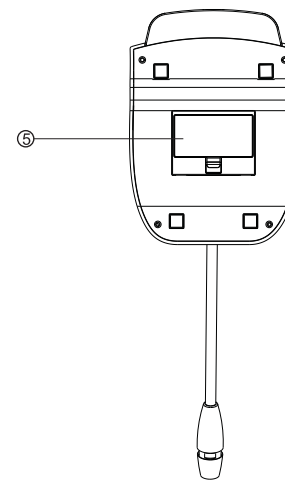
⑥ Battery switch (with indicator light): Press and hold the switch for 1.5 second to turn on the power of the unit. Press the power switch again for 3 seconds to turn off the unit.

**B. System Settings**

1. Conference mode settings: according to the meeting to choose different modes
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Bottom view



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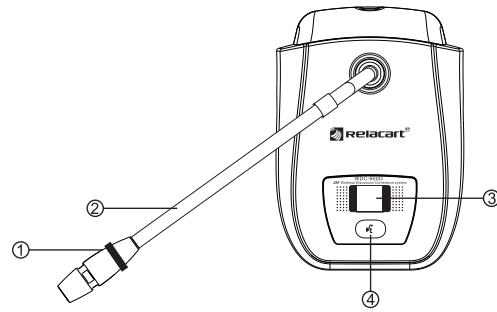
Rear view



⑥ Battery switch (with indicator light): Press and hold the switch for 1.5 second to turn on the power of the unit. Press the power switch again for 3 seconds to turn off the unit.

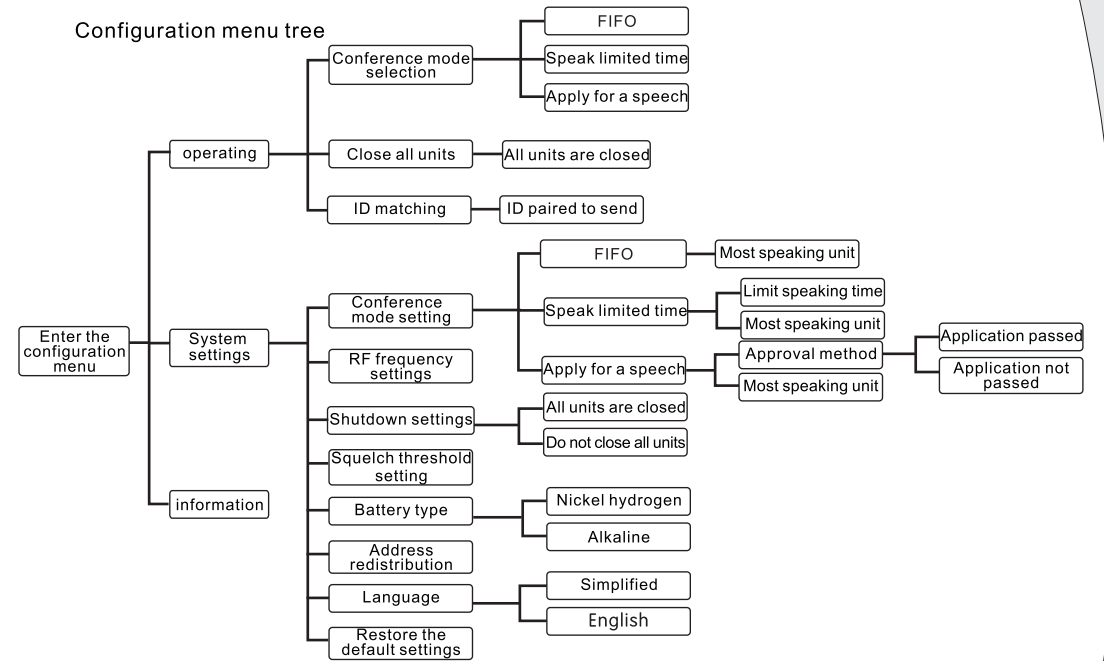
### 3.3 WDC-900D Dalegate unit

Top view



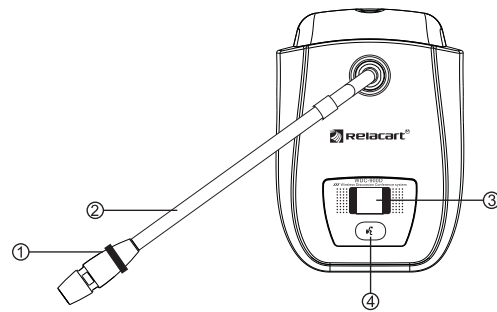
- ① Speak Ring: This blinks when you turn on the microphone. When this indicator flashes, it indicates that the battery voltage has dropped too low.
- ② Microphone rod: You can choose the standard length 420mm, or longer microphone rod.
- ③ LCD display screen: Display mode, battery power, control signal strength and the number of speakers are speaking. Fully and quickly understand all the system action information.
- ④ Speak key: When you press this key, the microphone speak indicates the aperture will be lit, and the microphone is also turned on. Press the key again, indicating that the aperture is off and the microphone is also turned off.

### Configuration menu tree



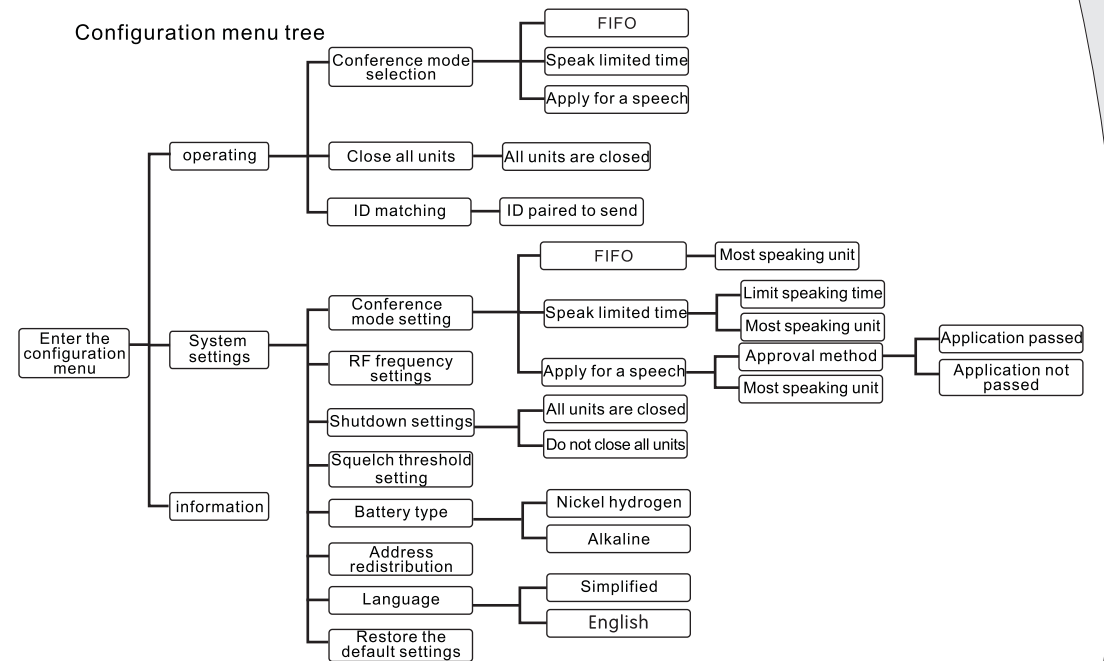
### 3.3 WDC-900D Dalegate unit

Top view



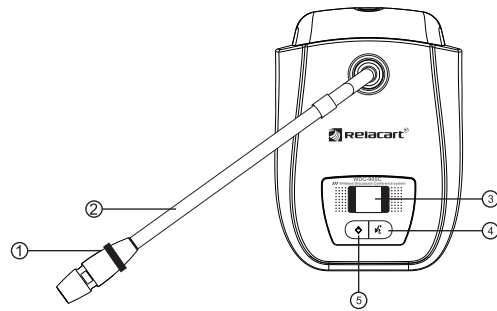
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### Configuration menu tree



### 3.2 WDC-900C Chairman unit

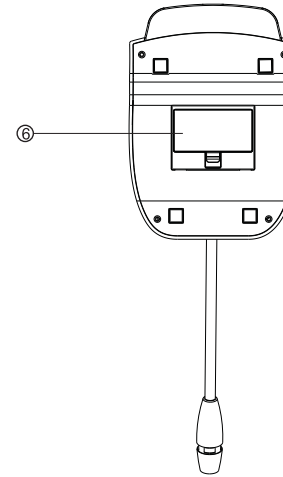
Top view



- ① Speak Ring: This blinks when you turn on the microphone. When this indicator flashes, it indicates that the battery voltage has dropped too low.
- ② Microphone rod: You can choose the standard length 420mm, or longer microphone rod.
- ③ LCD display screen: Display mode, battery power, control signal strength and the number of speakers are speaking. Fully and quickly understand all the system action information.
- ④ Speak key: When you press this key, the microphone speak indicates the aperture will be lit, and the microphone is also turned on. Press the key again, indicating that the aperture is off and the microphone is also turned off.
- ⑤ Priority speech key: Allow the chairman unit to switch off the delegate unit in use. The chairman unit may choose to approve or disapprove the speaking delegate unit when applying for speaking.

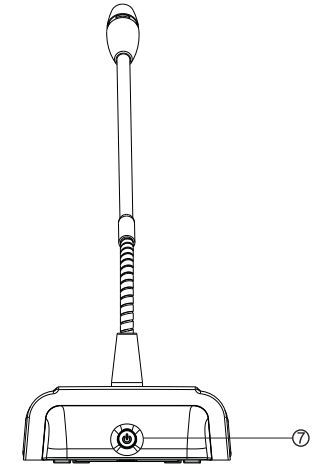
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Bottom view



⑥ Battery Holder: Fill 2 AA batteries.

Rear view

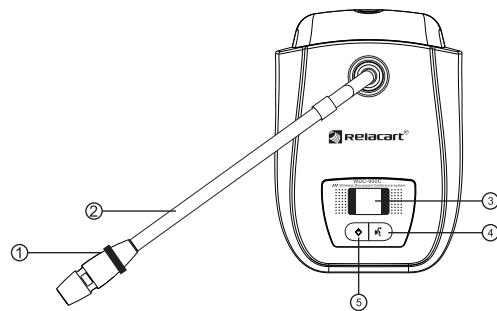


⑦ Battery switch (with indicator light): Press and hold the switch for 1.5 second to turn on the power of the unit. Press the power switch again for 3 seconds to turn off the unit.

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### 3.2 WDC-900C Chairman unit

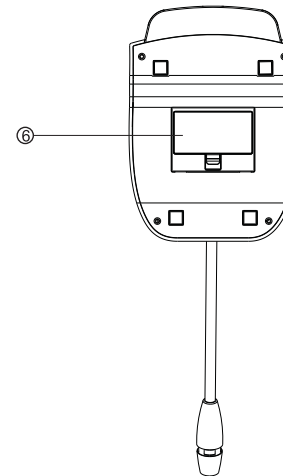
Top view



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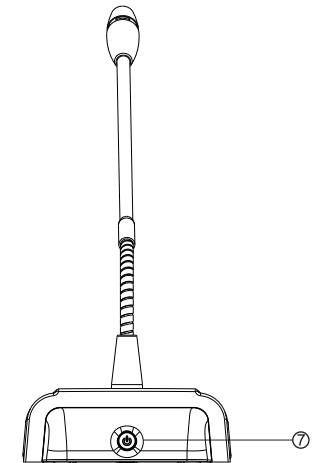
P13

Bottom view



⑥ Battery Holder: Fill 2 AA batteries.

Rear view



⑦ Battery switch (with indicator light): Press and hold the switch for 1.5 second to turn on the power of the unit. Press the power switch again for 3 seconds to turn off the unit.

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