

**More Optional Accessories of Retevis**  
**Optional Accessories**  
**Trouble shooting guide**  
**Specifications**

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## More Optional Accessories of Retevis



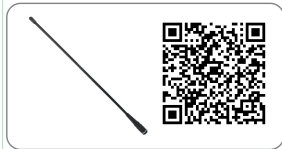
Speaker microphone



Finger PTT Headset



Acoustic Tube headset



Antenna



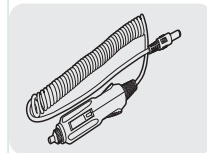
Throat mic



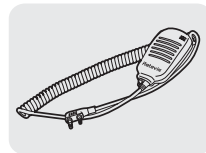
Programming cable

For more information, please visit our website: [www.retevis.com](http://www.retevis.com)

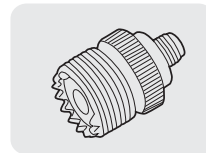
## Optional Accessories



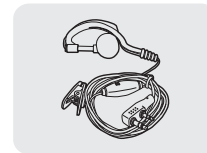
Vehicle Charger



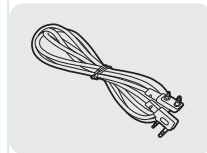
Speaker



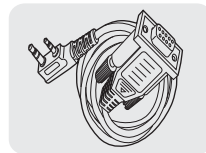
Antenna Adapter



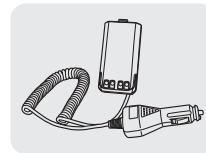
Earphone



Clone Cable



Program Cable



Eliminator



Software CD

Welcome to use *Retevis* two-way radio

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### Main Functions

- Monitor
- Battery save/low battery alarm
- Lone worker
- End-tone elimination
- Battery Indicator
- Side key programmable
- Talk around
- 32 channels
- Digital/analog double modes
- Read and write by computer
- TX High/low power selection
- Time out timer
- Chinese and English audio prompt
- Busy channel lockout
- Online update
- QT(analog mode)
- DQT (digital mode)
- Wide band/narrow band selection
- Encryption
- Single call,group call
- IP 67 waterproof
- VOX
- Zone Selectable
- CompatiableMOTOTRBO
- Series Tier I and II
- Ultra Power:10W
- Squelch



## **Contents**

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**Using tips  
Unpacking and checking equipments.**

## Using tips

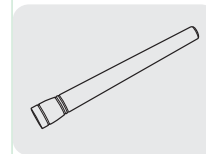
Please read the following brief instructions, non-compliance with these rules may cause danger or violate the law.

- Obey the local government regulation before using this radio, improper use may violate the law and be published.
- Turn off the radio before entering flammable or explosive areas
- Do not use radio whose antenna is damaged, touching of damaged antenna will cause heat injury
- Do not attempt to disassemble this radio; the maintenance work should be done by technical expert only
- To avoid troubles caused by electromagnetic interference of electromagnetic compatibility, please turn off the radio in places where have the banner "Do not use wireless equipment", such as hospital and other healthcare places.
- In the car with an airbag, do not put the radio under the direct sunshine or in hot areas.
- When you transmit with the radio, do keep away from its antenna for 5cm at least.
- If the radio appears smelly or smoke, please shut off its power immediately and contact
- with your local dealer
- Do not transmit too long, for the radio may heat and hurt the user.

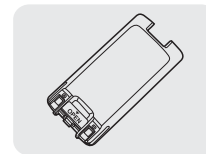
## Unpacking and checking equipments

Carefully unpack the radio. We recommend you check the items listed in the following table before discarding the package. If any item is missing or has been damaged during shipment, please contact us immediately.

### Supplied accessories:



Antenna (1)



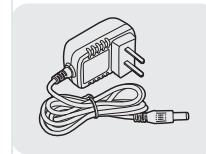
Li-ion battery (1)



Belt Clip (1)



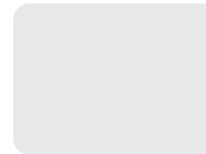
Charger (1)



Charger Adapter (1)



Verification (1)



User's Manual (1)

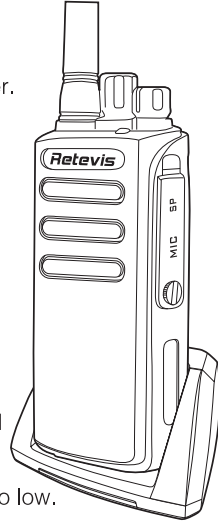
Note: The antenna frequency range please refers to the annular label at the bottom of antenna.

## Charging the battery

- Insert the AC adaptor plug in the AC power output socket
- Insert the battery or radio with battery vertically in a charger.
- Make sure the battery and charger terminal is in good contact, when the charging indicator light turns red, it starts charging.

### Note:

- Before inserting the battery, it is abnormal if the charging indicator blinks
- To change the battery for charging, please wait until the indicator is stable
- When the battery is well inserted, the indicator turns red and the charging is on the process, if the indicator blinks, then the battery is damaged or the temperature is too high or too low.



## Charging precautions:

The battery is not fully charged in factory, please charge before using it. Charge and discharge the battery for 2–3 times, the battery capacity will reach the best condition. When the battery capacity is low, please charge or change the battery.

## Applicable battery types

Please use the battery supplied by factory, it might cause the explosion or harm to human body.

### Notice:

Do not short-circuit the battery terminal or drop the battery in the fire. Do not disassemble the battery by yourself.

Charge the battery between temperature 0°C and 45°C. The battery can not be fully charged beyond this temperature range.

Do not unplug the power or battery when it is charged. The operating time becomes short even the battery is fully charged, the battery is exhausted, please replace the battery.

Please do not charge when the battery of the radio is wet. Please dry it with a cloth before charging to avoid any danger.

## Warning

When the conductive metals such as jewellery, key or decorative chains touch the battery terminals, all the batteries are likely to cause damage to the items or personal injury.

These conductive metals may form a short circuit and generate much heat. Do not deal with any battery carefully, especially when put it into pocket, wallet or other metallic containers.

## Assembling/disassembling the accessories

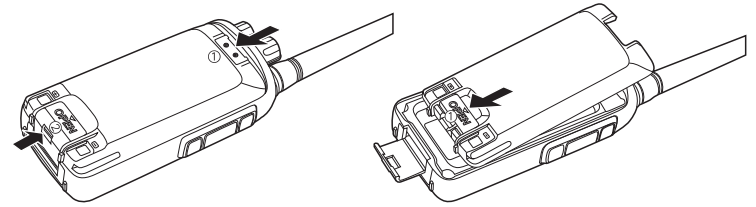
### Get familiar with this two way radio

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### Assemble/disassemble accessories

#### Assemble/disassemble battery

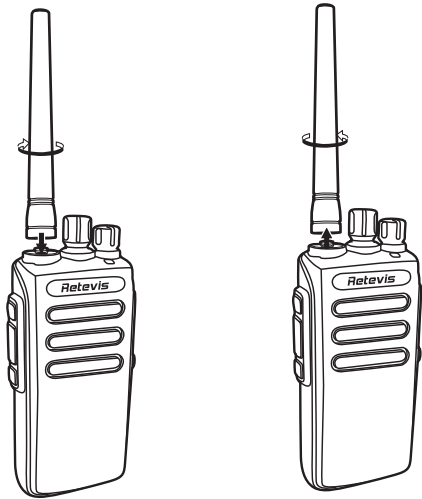
To install the battery into the battery positioning hole of radio bottom, the press the battery, make the button completely to lock battery. To remove the battery, please turn off the radio, and then push up the battery button of radio top, finally take off the battery.



## Assemble/disassemble antenna

Assemble: Hold the end of antenna and rotate the antenna clockwise to the antenna hole until it's tight

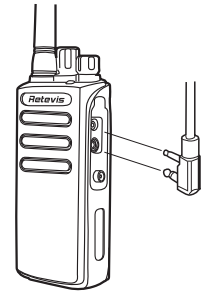
Disassemble: Rotate the antenna anticlockwise from the antenna hole.



## Earpiece jack/Programming cable jack

Open the earpiece cover, insert the earpiece into the earpiece jack.

User can use the software to program the radio by this jack, too.



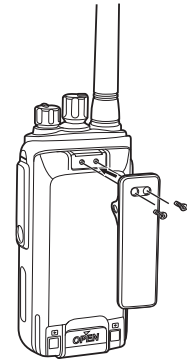
## Assemble/disassemble the belt clip

Assemble the belt clip

1. Remove the battery from the radio
2. Align the clamping slot of the belt clip to the mounting slot on the back of the battery, press the belt clip until it's tight.

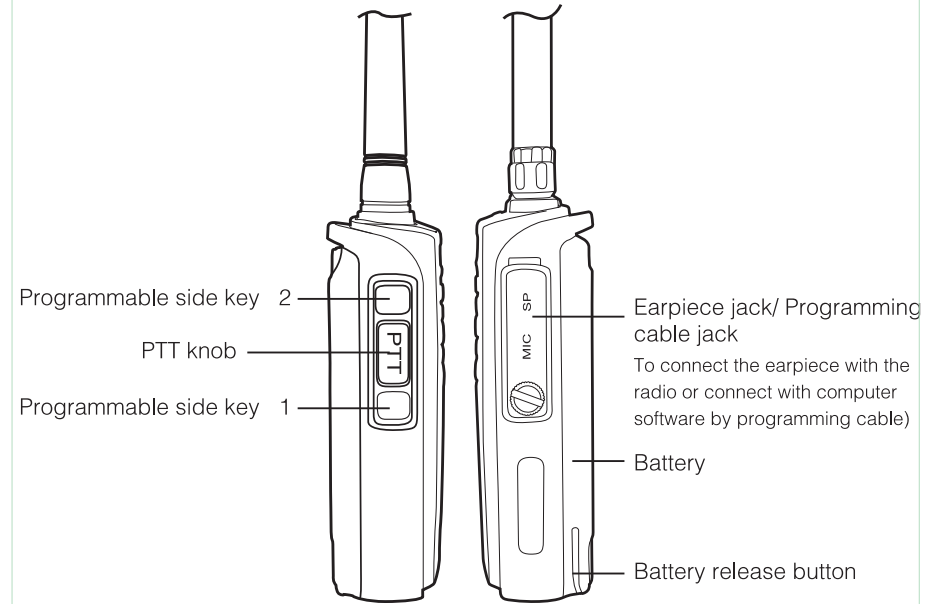
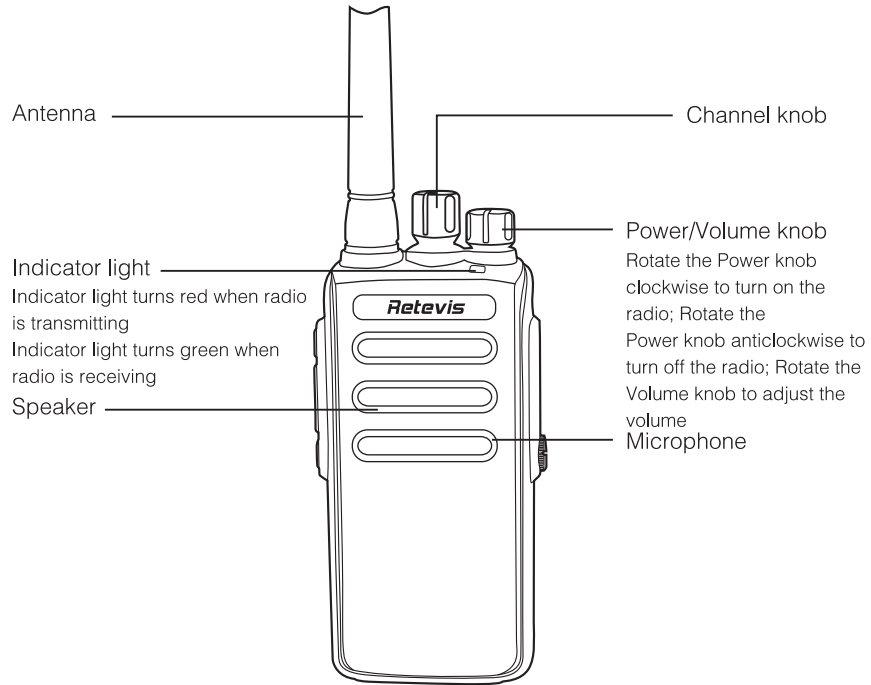
Disassemble the belt clip

1. Remove the battery from the radio
2. Pull out the belt clip





## Get familiar with this two way radio



**Notice:** In an emergency, users can press Programming side key 1 or 2 to activate the emergency call. Before using this radio, user should program the radio by matched software supplied by dealer.

## Programmable side key function Setting

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### Programmable side key function

User can set side key P1 and P2 as the programmable function key as following functions:  
Monitor (Analog ) Permanent Monitor (Analog) Encryption On/Off(Digital) Zone Selection  
BER Test (Digital) High/low Power Repeater/Talk around.

#### Monitor

Once user activates programmable side key as "Monitor", radio will make a squelch. This function is used to check if the current channel is occupied before communication. Monitor can release CTCSS/DCS temporarily. Also this function is used to receive the weak signal. Release side key to exit function

#### Permanent Monitor (Analog only)

Once user activates programmable function key as "Permanent Monitor", radio will monitor the chosen channel whether there someone is talking at the same channel. If not radio will make rustle.

#### Encryption

##### Digital only.

Only set the same encryption type of TX and RX can user communication with each other.

#### Zone Selection

Once user activates programmable function key as "Zone Selection" ,user can press this side key to select different zones programmed by software. Enter Zone2 when radio make the sound "Di" exit Zone2 when radio make the sound "DiDi".

**BER Test(Digital)**

User can activate programmable function key as "BER Test "to transmit the inspection code, inspection code is used to test radios which can decode by inspection code.

**High/low Power**

User can activate programmable function key as "High/low Power" to switch to high or low power.

**Repeater/Talk around**

User can activate programmable function key as "Repeater/Talk around" to switch to Repeater or Talk around .

Talk around: Two way radio's TX frequency and RX frequency become the same, TX signaling and RX signaling become the same.

**Setting****QT/DQT**

- 1) If user set the QT/DQT on one channel, user is able to ignore other calls on the same channel.
- 2) When users set QT/DQT on one channel, only receive the same QT/DQT can radio open the squelch. In the same way, only other people set QT/DQT the same as yours can they receive your call.
- 3) This radio has 50 groups of analog QT/DQT, 105 groups of digital QT/DQT available.

**Battery save**

In a period of time if user do not have any operation and not receiving data or measured effective carrier wave, radio will enter battery save mode, receiving circuit and DSP enter a low power state in cycle , which prolongs the use time of radio. Every time the radio is transmitting, according to the battery save mode settings, will send some pre carrier wave or voice head, in order to ensure that the sleep mode of the radio can be normally received. We call this time "Battery save mode delay time" ,which can be programmed by the programming software, ranging from 1S to 600S, the default value is 50S. Users can choose whether to open the battery save mode.

**Low battery alarm**

When the voltage is lower than 5.8V, the radio is always in a low battery state, the red light flashes every 2 seconds, and the radio makes the "low power" alarm, remind the end user to charge or replace the battery in time

**Communication setting****Analog communication**

Right click Zone1 to add the analog channel (Open software–Zone setting–Zone1)

Enter the channel setting

Select channel bandwidth: 12.5K or 25K

Set TX Frequency and TX Frequency

Set TX Enc QT/DQT and RX Dec QT/DQT

Set RX squelch mode

**Set the TX power**

Set the TX authority

Right click Zone1 to add the digital channel (Open software–Zone setting–Zone1)

Enter the channel setting, to set the Colour Code, only the same Colour Code can call on digital channel

Set TX Frequency and TX Frequency

Set the RX Group Lists (Correspond to TX Contacts)

Set the TX Contacts (Use can set the Call Type : Individual Call/Group Call /All Call)

Set the Tx Authority: Impolite

Set the In Call Creiteria: Allow TX

**Contacts**

Contacts only support digital mode

Write click **【 Digital Contacts 】** , and set the Call Type

Edit the corresponding ID

TX radio is able to select call the corresponding contacts

**RX Group Lists**

RX Group Lists only support digital mode

Select the contacts from RX Group Lists for group call(For the communication with TX radio)

**Encryption**

Select encryption type : Enhanced Mode0 /Enhanced Mode1

Set the Key No. and corresponding Key Value

Enter **【 Zone1 】** ,select digital channel, enter **【 RX Setting 】** ,tick the Encryption

Select one encryption key

Only the same encryption key can communicate

Frequency table  
Technical specifications  
Troubleshooting guide  
Warranty card

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### CTCSS standard frequency table

CTCSS			
1-67.0	14-103.5	27-159.8	40-199.5
2-69.3	15-107.2	28-162.2	41-203.5
3-71.9	16-110.9	29-165.5	42-206.5
4-74.4	17-114.8	30-167.9	43-210.7
6-79.7	19-123.0	32-173.8	45-225.7
7-82.5	20-127.3	33-177.3	46-229.1
8-85.4	21-131.8	34-179.9	47-233.6
9-88.5	22-136.5	35-183.5	48-241.8
10-91.5	23-141.5	36-186.2	49-250.3
11-94.8	24-146.5	37-189.9	50-245.1
12-97.4	25-151.4	38-192.8	
13-100.0	26-156.7	39-196.6	

**DCS standard group number**

DCS							
023	071	143	266	355	452	532	664
025	072	145	271	364	454	546	703
026	073	152	274	365	455	565	712
031	074	155	306	374	462	606	723
032	114	156	311	411	464	612	731
036	115	162	315	412	465	624	732
043	116	165	325	413	466	627	734
047	122	172	331	423	503	631	743
051	125	174	332	431	506	632	754
053	131	205	343	432	516	645	
054	132	212	346	445	523	654	
065	134	223	351	446	526	662	

**Specifications****General**

Frequency range	136–174MHz or 400–470MHz
More frequency available	450–520MHz 220–260MHz 245–245.9875MHz
Channel NO	32
Working voltage	7.2V
Working temperature	–30°C– +60°C
Storage temperature	–40°C– +80°C
Continuous working time	Analog:15 hours; Digital:25 hours
Battery capacity	2200Mah

## Receiver

Frequency range	136–174 or 400–470MHz
Channel spacing	12.5KHz/25KHz
Frequency stability	+/-1.0ppm
Analog sensibility	0.35 $\mu$ V/-116dB m(20dB SINAD) 0.22 $\mu$ V/-120dB m(Typical)
Digital sensibility	0.3 $\mu$ V/-117.4dB m(BER5%) 0.7 $\mu$ V/-110dB m(BER1%)
Spurious response	TIA03C:65dB ETSI:65dB
Adjacent channel selectivity	TIA603C:60dB@12.5KHz ETSI:60dB@12.5KHz
Spurious response suppression	TIA603C:70dB ETSI:70dB
Receiving spurious emissions	< -57dBm@1GHZ, > -47dBm@
Blocking	84dB
Rated audio power	1W
Audio response	+1dB~-3dB
Rated audio distortion	$\leq$ 3%

## Transmitter

Frequency range	136–174 or 400–470MHz
Channel spacing	12.5KHz/25KHz
Frequency stability	+/-1.5ppm
TX power	Low: 1W High: 10W
FM noise	-40dB@12.5KHz
Spurious emission	< -36dBm@1GHZ, > -30dBm@
Adjacent channel selectivity	-60dB@12.5KHz
FM modulation mode	12.5KHz:11F0F3E
4FSK digital modulation mode	12.5KHz(data only)7K60FX 12.5KHz(data+voice)7K60FX
Modulation limit	2.5KHz@12.5KHz
Audio response	+1dB~-3dB
Reted audio distortion	$\leq$ 3%
Digital protocol	ETSITSI02361-1,-1,-3
Vocoder type	AMBE+2TM

**Note:** Specifications will be revised without notice due to technical improvement.

Thank you !

**Trouble shooting guide**

<i>Troubles</i>	<i>Solution</i>
No Electrical Source	<ul style="list-style-type: none"> <li>● The battery has been exhausted. Replace or recharge the battery.</li> <li>● The battery is installed incorrectly. Remove it and install again.</li> </ul>
The operating time becomes short, even the battery is fully charged.	<ul style="list-style-type: none"> <li>● Replace the battery.</li> </ul>
Not able to communicate with the transceivers of the same group.	<ul style="list-style-type: none"> <li>● Confirm the QT/DQT is the same.</li> <li>● The distance is outside of range.</li> </ul>
The voice of another group can be heard.	<ul style="list-style-type: none"> <li>● Change all QT/DQT of the group.</li> </ul>
Other radios can not receive the TX signals or receive signals in a low volume.	<ul style="list-style-type: none"> <li>● Switch the volume knob to the highest level</li> <li>● The microphone may be damaged, send it to the local dealer for check.</li> </ul>
Noise is always heard.	<ul style="list-style-type: none"> <li>● The distance is outside of range. Turn on the radio in nearer range and try again.</li> </ul>

**Radio write frequency operation process**

**I. System Requirements**

Operating System :Windows98, Windows Me, Windows XP, Windows Vista, Windows7, Windows8

Hard Disk Space: At least 50MB of available .

The minimum memory: 64M

**II. Install the USB driver**

1. Find the USB drive which your system corresponded to
2. Click to install, successfully installation is ok

**III. Write frequency software installation**

Programming cable readying

1. USB Programming cable – need to install the driver before they write frequency
2. Serial port Programming cable does not need to install the driver, it can directly write.
3. If the USB driver has been installed successfully, the port will be at least 2 port.

Remove the cable, then one port will be disappeared, that is the correct port which we are find, then connect the cable and choose the correct port.

**Computer terminal preparations**

1. Open the computer, run the computer operating system.
2. Install the write frequency software which has been downloaded well or Install it From the programming softwar CD
3. installed, and open the write frequency software programming interface



## Radio end preparations

1. USB(or serial)Programming cable connect the computer end
2. The USB Programming cable pin is connected with one end of the walkie talkie programming interface
3. Ensure the walkie talkie under the condition of power, open it.

## IV. Write frequency software operating process

1. Find the software settings, open communication port, to ensure the communication port Option and computer connection port consistent (inconsistent will not read frequency) to solve the related problem
2. In the menu to find reading frequency and click in the window that appears can reading frequency
3. This process needs waiting for a while, after the completion of reading the progress bar shows the radio channels and frequencies that have been read into the current software
4. Modify the radio channel and frequency data, and other functional parameter data
5. Find the write frequency in the menu ,click the appeared window to confirm , complete the progress bare
6. if multiple radio needs the same frequency, frequency steps can be repeated to write

## V:Related problem solving

When reading or writing frequency of radio long time no response or a communication error?

1. check the write frequency line to find if it is damaged

2. check wether the write frequency line with computer serial port or radio interface is bad or loose
3. Check to find whether the radio battery is low or out of power , if this ,please replace the battery or charging the battery
4. Check whether the programming software is match with the current model
5. Please check whether the write frequency software port settings are assigned to the computer USB port
6. Please check whether the power is switched on the radio
7. Whether to choose the corresponding drive system and the correct installation

When writing the frequency is completed, found two radio cannot normal call or receive

1. Make sure whether the two walkie–talkie are in the same channel
2. Determine the same channel at the receiving end CTCSS, CDS and the transmitter is not the same
3. make sure whether the two radio ' volume is too low, if it is too low ,Turn on the volume
4. Please check whether the two walkie–talkies are open, or at low/no power status
5. Check wether The walkie–talkie installed antenna
6. check and confirm wether the communication distance is too far

**Note:**

1. This warranty card is only applicable to two-way radio of the above-listed model and serial number.
2. The warranty card is an important document for the end-user to enjoy warranty service, please keep it well.
3. The warranty card shall be filled and chopped by the dealer, or it is invalid.

Customer's name: \_\_\_\_\_ Gender: \_\_\_\_\_

Add and postal code: \_\_\_\_\_

Customer's Tel: \_\_\_\_\_

Model: \_\_\_\_\_

Serial number: \_\_\_\_\_

Purchasing date: \_\_\_\_\_

Invoice No.: \_\_\_\_\_

Dealer: \_\_\_\_\_ Stamp: \_\_\_\_\_

Add and postal code of the dealer: \_\_\_\_\_

Contact Tel: \_\_\_\_\_

Handling people: \_\_\_\_\_