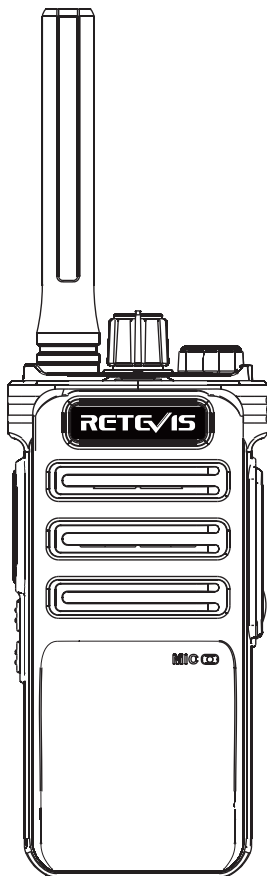


# RETAVIS



## RB89

### USER'S MANUAL

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For downloading further resources:  
Brochures, Software/Firmware, Manual etc, Pls contact  
your direct reseller first OR go to website [retevis.com](http://retevis.com) and  
check "support" in the each product link to download it.

# Warning

Please read this manual carefully before using this radio.

Please do not charge the radio in flammable, explosive, and no radio signal places (such as gas stations and the airport).

Please do not operate the radio without a license to the extent prohibitive by law.

Please do not expose to sunlight for long and keep away from heating equipment.

Please ensure this radio avoids any dusty, humid, and water-splashed place and avoids putting it near any heating distributor.

If the radio is burning or smoking, please remove the battery from the radio, and contact your seller.

The repair of this radio is in charge of professional technical; please do not disassembly by yourself.

## Charging notification

Use the charger specified by this radio model to charge the battery.

Please turn off the radio before charging.

Please charge for at least 5 hours the first time to achieve the best battery performance.

Please do not charge for a long time, nor if it will shorten the batteries' life. Stop charging when it is fully charging.

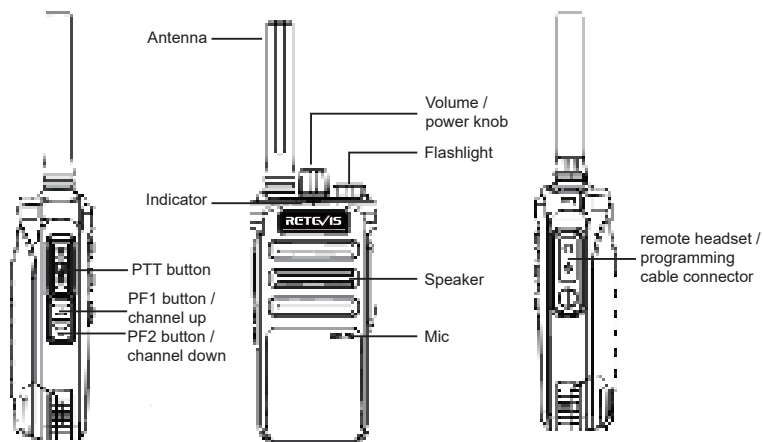
The charger can charge this radio's battery; please do not charge other batteries. It will injure the charger and batteries.

Please place the battery in a cool and dry place. Do not get close to the fire or exposed to the sun. Otherwise, there will be a safety hazard.

Please do not transmit in charging.

It is a normal phenomenon when charging heat.

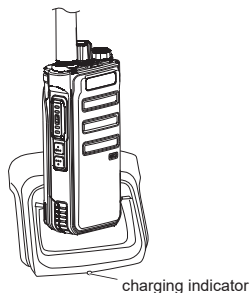
**Familiar with this radio.**



## **Charging instruction**

Charging mode:

Plug the radio into a charger. The indicator flash red in charging, and fully charging turns green.



## Function operation

### 1. Power on/off

1.1 Turn the Power switch/Volume control clockwise. You will hear a click indicating the transceiver is ON.

1.2 Turn the Power switch fully counterclockwise to turn the radio OFF.

### 2. Volume adjustment

2.1 In receiving status, clockwise the volume/power knob to increase volume.

2.2 In receiving status, counterclockwise the volume/power knob to down the volume.

### 3. Transmitting/Receiving

3.1 In standby status, press the PTT button to transmit in the current channel, and the indicator flashes red.

3.2 Release the PTT button to receive the call on the current channel; the speaker reads the voice, and the LED indicator turns green.

Notification:

To transmit voice, press and hold the PTT button and speak into the microphone 1-2 inches (2.5-5 cm) away from your mouth in a normal tone of voice. Keep the radio from your head and body at least 1 inch (2.5cm) in transmitting.

Please do not use it during many on-off actions; while the volume is adjusted to fit your listening feel the volume.

Before speaking:

Please set up the same frequency on the Transmitter and Receiver.

Please set up the same CTCSS/DCS code on the Transmitter and Receiver.

### 4. Selecting the Channel

In standby status, short press the PF1 or PF2 to switch the channel. You will hear and check the current channel number.

### 5. CTCSS/DCS Code

260 sets of CTCSS/DCS codes in total. You can set 50 sets of CTCSS codes and 105\*2 sets (N-phase and I-phase) DCS codes in the software.

### 6. Battery Low Alert

It reminds you that the battery needs recharging. The charging prompt will sound, and the red LED will blink. And now, transmitting and staying in standby and receiving mode is banned. Please recharge a new battery or charge the battery.

### 7. Squelch

The purpose of the Squelch is to decide the signal strength when turning on the radio speaker. The lower the Squelch, the back noise is higher, and the communication range is extended, the weaker the anti-interference capability. You can choose the 0-9 squelch level in the software. The default squelch level is 3.

### 8. VOX

VOX vice icon when the VOX feature is on. The walkie-talkie microphone detects sound input large enough, and the walkie-talkie will automatically start the launch and exit launch mode after stopping speaking.

8.1 The VOX function can be set up with programming software. (Menu check is always open, default off)

8.2 You can also turn on/off the VOX by PF1/PF2 button.

Defined the PF1/PF2 button is the VOX function in the software. (Default PF1)

Long press PF1 to turn on or off the VOX function

Long press PF1 button repeatedly to adjust the VOX level (1-9 levels optional, level 9 is the most sensitive and default level 3)

### 9. VOX delay

Defined the PF1/PF2 button is the VOX delay function in the software.

Long press the PF1/PF2 button repeatedly to adjust the VOX delay level. (Level 1-6 optional and delay 0.5-3 seconds)

### 10. Monitor

Defined the PF1/PF2 button is the Monitor function in the software.

Long press PF1/PF2 to turn on the monitor, and release to turn off the monitor.

### 11. Flashlight

Defined the PF1/PF2 button is a flashlight function in the software.

Long press PF1/PF2 to turn on the flashlight, and repeat to turn off the flashlight.

### 12. Emergency Alarm function

Defined the local emergency alarm or remote emergency alarm function in the software.

Defined the PF1/PF2 button is an emergency alarm function in the software.

Long press PF1/PF2 to turn on the emergency alarm function, and short press the PTT button to turn off.

### 13. Channel Lock

Defined the PF1/PF2 button is the key lock function in the software.

Long press the PF1/PF2 button to turn on the channel lock function after a beep, and the lock icon displays. Now

the channel is locked.

#### 14. Scan (Carrier Scan)

Defined the PF1/PF2 button is the Scan function in the software.

Long press the PF1/PF2 button, start scanning after a beep, receiving when scanning a valid signal, and re-enter the scanning mode after 5 seconds when the signal disappears.

Long press the PF1/PF2 button again, and turn off the scan function after a beep tone.

#### 15. TOT (Time out Timer)

To prevent certain users occupy long periods of the current channel in communication, users can activate the TOT function. The radio will stop transmitting and prompt a beep when users transmit continuously over the setting time in the current channel.

Set up the TOT time via programming software. 30-180 seconds (default is 60s) optional.

#### 16. Bluetooth Switch

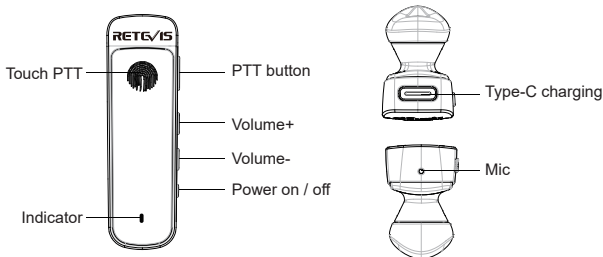
Defined the PF1/PF2 button is a Bluetooth switch in the software. (Default is PF2 button)

Long press the PF2 button and wait for the tone to turn on the Bluetooth while the Bluetooth icon display and flashes on the screen.

Long press the PF2 button and wait for the 'beep, beep' tone to turn off the Bluetooth function.

Note that the Bluetooth icon stops flashing in connecting status. Bluetooth icon flashing when the connection is broken.

#### Bluetooth headset operation instruction



#### 17. Bluetooth headset operation instruction

1. Power on/off button. Press this button for 1 second to power on, and long press for 3 seconds to power off.

2. + button to create the volume.

3. - button to decrease the volume.

4. PTT button.

A short press to transmit and release to cancel when connecting the radio.

B Short press to play/suspend and answer/hang up, and double-click to make calls when connecting to your phone.

Note, if you connect to your radio and phone simultaneously, it is invalid to transmit/cancel transmit on your radio when using your phone.

5. Touch PTT. Touch to transmit on your radio, release to stop transmitting.

6. Connect to a new device. In power-off status, press the power on/off button for 5 seconds into pairing mode.

7. Clear connection memory. In power-on status, combo 4 PTT button and hear a 'beep' to clear Bluetooth connection memory. After reboot, the Bluetooth headset goes into pairing mode automatically.

8. APP upgrade. In power-on status, combo 5 Power on/off button to enter APP upgrade mode.

9. Indicator:

Power on: Blue light.

Bluetooth has not connected: Blue light blinks rapidly.

Bluetooth is connecting: Blue light flashes a blink per 5 seconds.

Bluetooth pairing: Red blue lights flash.

In-call: Red light.

Low battery: Red light flashes a blink per 5 seconds.

Shutdown: Blinking red 3 times.

Charging: Red light.

Full charge: Red light off.

### 18. Pairing your radio with the Bluetooth headset operation steps

1. Press the power on/off button for 5 seconds on your Bluetooth headset in power-off status, red blue lights flash and go into pairing mode.
2. Press the PTT button and PF2 button to turn on your radio, blinking blue 4 times rapidly, 'beep, beep' and prompt the channel number, the Bluetooth icon flashing and go into pairing mode.
3. Once the pairing is established, the Bluetooth headset blinks per 5 seconds, and the Bluetooth icon stops flashing.

### 19. Wireless Copy

1. Open the Edit menu in the programming software-tick the wireless copy, and the factory default setting is ticked; The same frequency on the Transmitter and Receiver first.
  2. Press the PF2 button on the Receiver and turn on the radio, blue light flashes 4 times, 'beep, beep' and prompts the channel number to enter the wireless copy receiving mode.
  3. Press the PF1 button on Transmitter and turn on the radio, blue light flashes 4 times, 'beep, beep' and prompts the channel number to enter the wireless copy transmitting mode.
  4. Press the PTT button on Transmitter, red light when transmitting, and reboot to return to the wireless copy mode.
  5. Receiving the copy data on Receiver when blue light flashes, restored when completed.
- ▲: Support only the same radio solution.

## Factory setting

CH NO.	TX Frequency(MHz)	RX Frequency(MHz)	Code(Hz)	Power
1	462.5625	462.5625	67.0	High
2	462.5875	462.5875	118.8	High
3	462.6125	462.6125	127.3	High
4	462.6375	462.6375	131.8	High
5	462.6625	462.6625	136.5	High
6	462.6875	462.6875	141.3	High
7	462.7125	462.7125	146.2	High
8	467.5625	467.5625	D243N	Low
9	467.5875	467.5875	D032N	Low
10	467.6125	467.6125	D047N	Low
11	467.6375	467.6375	D051N	Low
12	467.6625	467.6625	D053N	Low
13	467.6875	467.6875	D065N	Low
14	467.7125	467.7125	D116N	Low
15	462.5500	462.5500	123.0	High
16	462.5750	462.5750	D743I	High
17	462.6000	462.6000	D332I	High
18	462.6250	462.6250	127.3	High
19	462.6500	462.6500	D243I	High
20	462.6750	462.6750	D606N	High
21	462.7000	462.7000	D731I	High
22	462.7250	462.7250	136.5	High
23	467.5500	467.5500	-	High
24	467.5750	467.5750	-	High
25	467.6000	467.6000	-	High
26	467.6250	467.6250	-	High
27	467.6500	467.6500	-	High
28	467.6750	467.6750	-	High
29	467.7000	467.7000	-	High
30	467.7250	467.7250	-	High

## Technical Indicators

Frequency range	GMRS
Channel number	30
Audio distortion	<5%
Operating temperature	-20 °C +50 °C
Antenna impedance	50Ω
Frequency stabilization	±2.5ppm
Maximum Deviation	Wideband: ≤5kHz; Narrowband: ≤2.5kHz
Stray radiation	TX≤0.25uW@-36dBm; RX≤2nW@-57dBm
Modulation mode	Wideband: 16KΦF3E; Narrowband: 11 KΦF3E
Emission current	≤1500mA
Receiver Sensitivity	Wideband: ≤0.25uV@-119dBm; Narrowband: ≤0.282uV@-118dBm
Adjacent Channel Selectivity	≥65dB
Spurious response rejection	≥55dB
Intermodulation	≥60dB
Working voltage	DC 7.4V



## RF ENERGY EXPOSURE AND PRODUCT SAFETY GUIDE FOR TWO-WAY RADIOS



**ATTENTION!**

Before using this radio, read this guide which contains important operating instructions for safe usage and rf energy awareness and control for compliance with applicable standards and regulations.

- **User instructions should accompany the device when transferred to other users.**
- **Do not use this device if the operational requirements described herein are not met.**

This two-way radio uses electromagnetic energy in the radio frequency (RF) spectrum to provide communications between two or more users over a distance. RF energy, which when used improperly, can cause biological damage.

All Retevis two-way radios are designed, manufactured, and tested to ensure they meet government-established RF exposure levels. In addition, manufacturers also recommend specific operating instructions to users of two-way radios. These instructions are important because they inform users of RF energy exposure and provide simple procedures on how to control it.

Please refer to the following websites for more information on what RF energy exposure is and how to control your exposure to assure compliance with established RF exposure limits: <http://www.who.int/en/>

Also, your Retevis user manual, or separate safety booklet includes information and operating instructions required to control your RF exposure and to satisfy compliance requirements.

### **Radio License(only applicable to licensed radio)**

Governments keep the radios in classification, business two-way radios operate on radio frequencies that are regulated by the local radio management departments (FCC, ISED, OFCOM, ANFR, BFTK, Bundesnetzagentur...). To transmit on these frequencies, you are required to have a license issued by them. The detailed classification and the use of your two radios, please contact the local government radio management departments.

Use of this radio outside the country where it was intended to be distributed is subject to government regulations and may be prohibited.

### **Unauthorized modification and adjustment**

Changes or modifications not expressly approved by the party responsible for compliance may void the user's authority granted by the local government radio management departments to operate this radio and should not be made. To comply with the corresponding requirements, transmitter adjustments should be made only by or under the supervision of a person certified as technically qualified to perform transmitter maintenance and repairs in the private land mobile and fixed services as certified by an organization representative of the user of those services.

Replacement of any transmitter component (crystal, semiconductor, etc.) not authorized by the local government radio management departments equipment authorization for this radio could violate the rules.

### **FCC Requirements:**

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

### **(Only Applicable to GMRS radio station):**

A valid individual license is required to operate a GMRS station. To obtain an individual license, an applicant must be eligible and follow the applicable rules and procedures established by FCC. The applicant must pay the required application and regulatory fees. Each individual license in the GMRS will normally have a term of ten years from the date of grant or renewal, and may be renewed pursuant to the procedures of FCC. To obtain a

GMRS operator license, you need FCC Form 605 & 159, we suggest visiting the FCC website at <https://www.fcc.gov/wireless/support/fcc-form-605>, which includes necessary instructions. More questions about the license application, please contact the FCC at 1-888-225-5322 or go to the FCC's website: <http://www.fcc.gov>. According to FCC rules, any individual who holds an individual license may allow his or her immediate family members to operate his or her GMRS station or stations. Immediate family members are the licensee's spouse, children, grandchildren, stepchildren, parents, grandparents, stepparents, brothers, sisters, aunts, uncles, nieces, nephews, and in-laws.

•(Only applicable to home)This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

#### CE Requirements:

•(Simple EU declaration of conformity) Shenzhen Retevis Technology Co., Ltd. declares that the radio equipment type is in compliance with the essential requirements and other relevant provisions of RED Directive 2014/53/EU and the RoHS Directive 2011/65/EU and the WEEE Directive 2012/19/EU; the full text of the EU declaration of conformity is available at the following internet address: [www.retevis.com](http://www.retevis.com).

#### •Restriction Information

This product can be used in EU countries and regions, including: Belgium (BE), Bulgaria (BG), Czech Republic (CZ), Denmark (DK), Germany (DE), Estonia (EE), Ireland (IE), Greece (EL), Spain (ES), France (FR), Croatia (HR), Italy (IT), Cyprus (CY), Latvia (LV), Lithuania (LT), Luxembourg (LU), Hungary (HU), Malta (MT), Netherlands (NL), Austria (AT), Poland (PL), Portugal (PT), Romania (RO), Slovenia (SI), Slovakia (SK), Finland (FI), Sweden (SE) and United Kingdom (UK).

For the warning information of the frequency restriction, please refer to the package.

#### •Disposal

The crossed-out wheeled-bin symbol on your product, literature, or packaging reminds you that in the European Union, all electrical and electronic products, batteries, and accumulators (rechargeable batteries) must be taken to designated collection locations at the end of their working life. Do not dispose of these products as unsorted municipal waste. Dispose of them according to the laws in your area.



#### IC Requirements:

Licence-exempt radio apparatus

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) l'appareil ne doit pas produire de brouillage;
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Transmit no more than the rated duty factor of 50% of the time. To Transmit (Talk), push the Push to Talk (PTT) button. To receive calls (listen), release the PTT button. Transmitting necessary information or less, is important because the radio generates measurable RF energy exposure only when transmitting in terms of measuring for standards compliance.

- DO NOT operate the radio without a proper antenna attached, as this may damage the radio and may also cause you to exceed RF exposure limits. A proper antenna is the antenna supplied with this radio by the manufacturer or an antenna specifically authorized by the manufacturer for use with this radio, and the antenna gain shall not exceed the specified gain by the manufacturer declared.
- DO NOT transmit for more than 50% of total radio use time, more than 50% of the time can cause RF exposure compliance requirements to be exceeded.
- During transmissions, your radio generates RF energy that can possibly cause interference with other devices or systems. To avoid such interference, turn off the radio in areas where signs are posted to do so.
- DO NOT operate the transmitter in areas that are sensitive to electromagnetic radiation such as hospitals, aircraft, and blasting sites.
- Portable Device, this transmitter may operate with the antenna(s) documented in this filing in Push-to-Talk and body-worn configurations. RF exposure compliance is limited to the specific belt-clip and accessory configurations as documented in this filing and the separation distance between head and the device or its antenna shall be at least 2.5 cm.

When worn on the body, always place the radio in approved clip, holder, holster, case, or body harness for this product. Use of non-approved accessories may result in exposure levels, which exceed the RF exposure limits.

#### **Hand-held Mode(if applicable)**

- Hold the radio in a vertical position with the microphone (and other parts of the radio including the antenna) at least 2.5 cm (one inch) away from the nose or lips. The antenna should be kept away from the eyes. Keeping the radio at a proper distance is important as RF exposure decreases with increasing distance from the antenna.



#### **Phone Mode(if applicable)**

- When placing or receiving a phone call, hold your radio product as you would a wireless telephone. Speak directly into the microphone. Do not use the equipment when you are driving

#### **Electromagnetic Interference/Compatibility**

NOTE: Nearly every electronic device is susceptible to electromagnetic interference (EMI) if inadequately shielded, designed, or otherwise configured for electromagnetic compatibility.

#### **Avoid Choking Hazard**



Small Parts. Not for children under 3 years.

#### **Turn off your radio power in the following conditions:**



- Turn off your radio before removing (installing) a battery or accessory or when charging battery.
  - Turn off your radio when you are in a potentially hazardous environments: Near electrical blasting caps, in a blasting area, in explosive atmospheres (flammable gas, dust particles, metallic powders, grain powders, etc.).
  - Turn off your radio while taking on fuel or while parked at gasoline service stations.
- To avoid electromagnetic interference and/or compatibility conflicts

- Turn off your radio in any facility where posted notices instruct you to do so, hospitals or health care facilities (Pacemakers, Hearing Aids and Other Medical Devices) may be using equipment that is sensitive to external RF energy.
- Turn off your radio when on board an aircraft. Any use of a radio must be in accordance with applicable regulations per airline crew instructions.

### Protect your hearing:



- Use the lowest volume necessary to do your job.
- Turn up the volume only if you are in noisy surroundings.
- Turn down the volume before adding headset or earpiece.
- Limit the amount of time you use headsets or earpieces at high volume.
- When using the radio without a headset or earpiece, do not place the radio's speaker directly against your ear
- Use careful with the earphone maybe possible excessive sound pressure from earphones and headphones can cause hearing loss

Note: Exposure to loud noises from any source for extended periods of time may temporarily or permanently affect your hearing. The louder the radio's volume, the less time is required before your hearing could be affected. Hearing damage from loud noise is sometimes undetectable at first and can have a cumulative effect.



### Avoid Burns



#### Antennas

- Do not use any portable radio that has a damaged antenna. If a damaged antenna comes into contact with the skin when the radio is in use, a minor burn can result.

#### Batteries (If appropriate)

- When the conductive material such as jewelry, keys or chains touch exposed terminals of the batteries, may complete an electrical circuit (short circuit the battery) and become hot to cause bodily injury such as burns. Exercise care in handling any battery, particularly when placing it inside a pocket, purse or other container with metal objects
- **BATTERY WARNING: KEEP OUT OF REACH OF CHILDREN**
- Store spare batteries securely
- If the battery compartment (if applicable) does not close securely, stop using the product and keep it away from children
- If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention
- Dispose of used batteries immediately and safely
- Long transmission
- When the transceiver is used for long transmissions, the radiator and chassis will become hot.

### Safety Operation



#### Forbid

- Do not use charger outdoors or in moist environments, use only in dry locations/conditions.
- Do not disassemble the charger, that may result in risk of electrical shock or fire.
- Do not operate the charger if it has been broken or damaged in any way.
- Do not place a portable radio in the area over an air bag or in the air bag deployment area. The radio may be propelled with great force and cause serious injury to occupants of the vehicle when the air bag inflates.

#### To reduce risk

- Pull by the plug rather than the cord when disconnecting the charger.
- Unplug the charger from the AC outlet before attempting any maintenance or cleaning.
- Contact Retevis for assistance regarding repairs and service.
- The adapter shall be installed near the equipment and shall be easily accessible

### Approved Accessories



- This radio meets the RF exposure guidelines when used with the Retevis accessories supplied or designated for the product. Use of other accessories may not ensure compliance with the RF exposure guidelines and may violate regulations.
- For a list of Retevis-approved accessories for your radio model, visit the following website: <http://www.Retevis.com>

## Guarantee

Model Number: \_\_\_\_\_  
Serial Number: \_\_\_\_\_  
Purchasing Date: \_\_\_\_\_  
Dealer: \_\_\_\_\_ Telephone: \_\_\_\_\_  
User's Name: \_\_\_\_\_ Telephone: \_\_\_\_\_  
Country: \_\_\_\_\_ Address: \_\_\_\_\_  
Post Code: \_\_\_\_\_ Email: \_\_\_\_\_

### Remarks:

- 1.This guarantee card should be kept by the user, no replacement if lost.
- 2.Most new products carry a two-year manufacturer's warranty from the date of purchase. Further details, pls read <http://www.retevis.com/after-sale/>
- 3.The user can get warranty and after-sales service as below:
  - Contact the seller where you buy.
  - Products Repaired by Our Local Repair Center
- 4.For warranty service, you will need to provide a receipt proof of purchase from the actual seller for verification

### Exclusions from Warranty Coverage:

- 1.To any product damaged by accident.
- 2.In the event of misuse or abuse of the product or as a result of unauthorized alterations or repairs.
- 3.If the serial number has been altered, defaced, or removed.



**Shenzhen Retevis Technology Co.,Ltd.**

7/F, 13-C, Zhonghaixin Science&Technology Park, No.12 Ganli  
6th Road, Jihua Street, Longgang District, Shenzhen, China

Web: [www.retevis.com](http://www.retevis.com)

E-mail: [kam@retevis.com](mailto:kam@retevis.com)

Facebook: [facebook.com/retevis](https://facebook.com/retevis)



MADE IN CHINA