TO CUSTOMERS

Thank you very much for using our two way radio. This radio of modern design is reasonable structure with stable functions. It is designed to meet different customers’ need for high quality with easy operation and perfect capability. We believe you are pleased with its nice shape and excellent performance.

This manual is suitable for using the model of RT47.

Product safety and RF Exposure for Two Way Radio:

Before using this Two way radio, please read the manual which contains important operating instructions for safe usage, RF Energy Awareness, control information and operational instructions for compliance with RF Energy Exposure limits in applicable national and international standards, and also read the operational instructions for safe use.
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 punished.
- Turn off the radio before entering flammable or explosive areas.
- Do not charge or change the battery in flammable or explosive areas.
- Turn off the radio before getting close to the blasting zone or detonator areas.
- Do not use radio whose antenna is damaged, touching of damaged antenna will cause heat injury.
- Do not attempt to open the radio, the maintenance work should be done by technical expert only.
- To avoid troubles caused by electromagnetic interference or 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 within the scope of the airbag deployment.
- Do not store 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 equipment

Welcome to use two-way radio. Carefully unpack the radio. We recommend you check the items listed in the following table before discarding the package. If any item is missing, please contact local dealer immediately.

Supplied accessories

- Li-on battery (1)
- Belt Clip (1)
- Charger (1)
- User’s Manual (1)

Getting familiar

- Antenna
- Power/volume knob
- Indicator light
  - It turns red in transmitting, and turns green in receiving.
  - It blinks red when the battery capacity is low.
- Speaker sound output
- Microphone sound input
- PTT switch
  - Press it to transmit, release to receive
- Mic/speaker jack/programming port
  - Used to connect headset or external programming cable, programmable via PC programming software
- Li-ion battery
  - For supplying power to radio
Side-key function
RT47 support the side-key assignment, it has following function for choose:
Monitor
Channel lock
Scan
VOX
The default function is: Side-key 1 short press for channel +, long press for Monitor
Side-key 2 short press for channel -, long press for lock

Basic Operation
1. Scan function
On the 16th channel, when the radio is allowed to be scanned, which can be set by the software, the radio will scan automatically from 1th to 16th which is defined as scan added. When there is signal in the scanning channel, it will stop in the channel for talk.

Note:
When there is signal in the scanning channel, it will stop in the channels for a talk and after 5 seconds it will continue to scan the next channel.
Please note that scan is only available when there are two or more than two memory channels and two or more scan added channels.

2. Battery save function
This function can be set by the software. Turn on this this function can make the standby time more longer

3. Scrambler
This function can be set via the RT47 software. Scramble is an way to encrypt the voice. When one radio is set the scrambler, TX voice will be set out with scrambler, other radio will received the signal only set the correct scrambler. Every channel can set individual scrambler.

4. VOX
Speak to the microphone in normal voice to transmit, no need to press PTT switch, turn VOX on/off though the software.

A: When VOX is on in your working channel.
   Speak to the microphone directly, it will transmit automatically.
   The radio stops transmitting when there is no voice, and waits for receiving.

B: When a headset with a microphone is used.
   When VOX is on, you should VOX again for the radio to identify voice volume.
   If the microphone is too sensitive, the noise around radio will start transmitting.
   If the microphone is not sensitive, the radio can not collect your voice, Please Adjust VOX level well to guarantee smooth communications.
5. Busy channel lock
You can turn on/off this function via software.
A: If the current channel does not have CTCSS/DCS, When there is signal, TX prohibited when you press PTT.
B: If the current channel does not have CTCSS/DCS, when there is signal which does not have CTCSS/DCS, TX prohibited when you press PTT.
C: If the current channels does not have CTCSS/DCS, when there is signal which have CTCSS/DCS, the radio will transmit when you press PTT.

6. TOT
The purpose of TOT is to prevent any radio from talking in one channel for a long time, and to prevent the transceiver from being damaged because of continuous transmission. If the transmitting time exceeds the TOT pre-set time, the radio will sound: Du, released PTT, the radio will back received mode.

7. Voice prompt
The default setting is English voice prompt, and you will know the working condition of the radio with voice prompt
1) The voice prompt can be selected "Chinese/English/Tone/OFF" through the menu "Voice/Beep Tone" of the "Optional Features" in the software for. When choosing "OFF", voice prompt turns off.

2) Channel annunciation: You will get to know the working conditions of current channel which is being operated.
3) Low battery alert: The radio will alert you when the battery capacity reaches the minimum operating voltage.

8. Squelch function
The squelch level will determine the signal strength to open the speaker of the radio. If the squelch level is lower, the background noise of the opening the radios speaker will be higher, and the corresponding communication range will be further, the the anti-interference capacity will be weaker.
The default level if level 5, can set via the RT47 software, from 0-9. Level0 is lowest
The level is higher, the squelch is more easy to be on.

9. CTCSS/DCS
CTCSS and DCS is the sub-audio signaling, to prevent the radio from receiving unwanted signal in the same channel.
When the CTCSS/DCS is set, then within the communication range, you can only receive signals from the same channel with the same CTCSS/DCS setting. When the CTCSS/DCS is not set, you will get all the signal from the same channel within the communication range.
You can set the CTCSS/DCS through the menu "QT/DQT ENC" or "QT/DQT DEC" of the "Channel information" in the software.
### Specifications

#### General
- **Model Number**: RT47
- **Frequency Range**: FRS
- **Channel Number**: 16
- **Working Voltage**: DC 3.7V
- **Working Temperature**: -10°C ~ +50°C
- **Antenna**: High gain antenna
- **Antenna Impedence**: 50Ω
- **Working Mode**: Simplex

#### Receiver
- **Sensitivity**: ≤ 0.2uV
- **Occupied Bandwidth**: ≤ 16KHz
- **Selectivity**: ≥ 65dB
- **Intermodulation**: ≥ 55dB
- **Audio power**: > 500m W
- **Audio distortion**: ≤ 5%
- **Frequency Stability**: 5ppm
- **Current**: 55mA (when standby) 150mA (when working)
- **Audio response**: +7~12.5dB
### Transmitter

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output power</td>
<td>≤ 2.0W</td>
</tr>
<tr>
<td>Modulation mode</td>
<td>16KF±3E</td>
</tr>
<tr>
<td>Spurious radiation</td>
<td>≤ 7.5uW</td>
</tr>
<tr>
<td>Modulation noise</td>
<td>&lt; -40dB</td>
</tr>
<tr>
<td>Modulation distortion</td>
<td>&lt; 5%</td>
</tr>
<tr>
<td>Frequency Stability</td>
<td>5ppm</td>
</tr>
<tr>
<td>Maximum deviation</td>
<td>≤ ±5KHz</td>
</tr>
<tr>
<td>Current</td>
<td>≤ 1000mA</td>
</tr>
<tr>
<td>Audio response (300-3000Hz)</td>
<td>+6.5~14dB</td>
</tr>
<tr>
<td>Adjacent Ch. power</td>
<td>≥ 65dB</td>
</tr>
<tr>
<td>Intermediation sensitivity</td>
<td>8~12mv</td>
</tr>
</tbody>
</table>

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

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

**Warnings**

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.

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 about 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/](http://www.who.int/en/)

**Local Government Regulations**

When two-way radios are used as a consequence of employment, the Local Government Regulations requires users to be fully aware of and able to control their exposure to meet occupational requirements. Exposure awareness can be facilitated by the use of a product label directing users to specific user awareness information. Your Retevis two-way radio has a RF Exposure Product Label. 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
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 condition that this device does not cause harmful interference. (Licensed radios are applicable): This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (Other devices are applicable)
1) This device may not cause harmful interference, and
2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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.
• 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), 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 or manual section.

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.

RF Exposure Information
• 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 user and the device or its antenna shall be at least 2.5 cm.
• Mobile Device, during operation, the separation distance between user and the antenna subjects to actual regulations, this separation distance will ensure that there is sufficient distance from a properly installed externally-mounted antenna to satisfy the RF exposure requirements.
• Occupational/Controlled Radio, this radio is designed for and classified as “Occupational/Controlled Use Only”, meaning it must be used only during the course of employment by individuals aware of the hazards, and the ways to minimize such hazards; NOT intended for use in a General population/uncontrolled environment.
• General population/uncontrolled Radio, this radio is designed for and classified as “General population/uncontrolled Use”.
RF Exposure Compliance and Control Guidelines and Operating Instructions

To control your exposure and ensure compliance with the occupational/controlled environment exposure limits, always adhere to the following procedures.

Guidelines:
• User awareness instructions should accompany the device when transferred to other users.
• Do not use this device if the operational requirements described herein are not met.

Operating Instructions:
• 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 50% of the time, or less, is important because the radio generates measurable RF energy exposure only when transmitting in terms of measuring for standards compliance.
• Transmit only when people outside the vehicle are at least the recommended minimum lateral distance away from a properly installed according to installation instructions, externally mounted antenna.
• When operating in front of the face, worn on the body, always place the radio in a Retevis approved clip, holder, holster, case, or body harness for this product. Using approved body-worn accessories is important because the use of Non-Retevis approved accessories may result in exposure levels, which exceed the IEEE/ICNIRP RF exposure limits.

Hand-held Mode
• 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
• When placing or receiving a phone call, hold your radio product as you would a wireless telephone. Speak directly into the microphone.

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

0-3 Small Parts. Not for children under 3 years.

Turn off your radio power in the following conditions:

WARNING
• 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 (inflammable 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.

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.

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

WARNING

WARRANTY CARD

Product model: ___________________ Date of purchase: ______________
Serial Number: ___________________ contact number: ______________
Seller: ___________________ contact number: ______________
Username: ___________________ contact number: ______________
Address: ___________________ Zip code: ______________

Warranty description:
1. The warranty card is saved by the customer as the warranty certificate, and the loss is not compensated.
2. This card must be stamped and dated for sale to take effect.
3. This card must not be altered. Please confirm that the warranty card serial number matches the purchase machine number, otherwise it will be invalid.
4. The warranty period is one year. Chargers, batteries, headphones, antennas and feeders are consumables, not covered by warranty.
5. Users can choose the following ways to get repair service:
   a. At the original purchase office.
   b. Our company is in the local special maintenance point.