

RETEVIS

DMR Digital Two Way Radio

RT10 USER'S MANUAL

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

Unpacking and Checking Equipment

Welcome to use our transceiver, before use, we suggest you:

- Check the packing box whether it has been damaged.
- Please unpack the box carefully, and check if it includes all items that supplied below. If any item is found missing or damaged during shipment, please notify your dealer.

Supplied Accessories

Quantity	Commodity
Transceiver	1
Antenna	1
Battery	1
Battery Charger	1
Belt Clip	1
Hand Strap	1
User Manual	1

Charging The Battery

Please use our company's official charger, and follow the steps below to charge the battery.

1. Connect the charger to the power supply socket.
2. Install the battery or the transceiver with battery, then the light turns red, indicating that the battery is being charged.
3. If the red light is off while the green light is on, this indicates that the battery is fully charged.
4. Unplug the charger from the power supply socket, and remove the battery.

Battery Information

The battery is not fully charged in the factory, please charge it before use.

charge the battery for the first time after purchase or extended storage (more than 2 months) may not bring the battery to its normal operating capacity. After repeating fully charge/distance cycle for two or three times, the operating capacity will reach the best performance.



Please do not continue charging when the battery is full-charged situation, otherwise will shorten the life of battery and reduce its feature.

Notice

1. The ambient temperature should be between 5°C and 40°C while charging. If beyond this temperature, battery can not be fully charged. So please prepare spare battery as backup during cold weather. Do not throw away those batteries which can not be used at this time, they may be used in normal temperature.
2. When the battery contacts is dirty or stains, this will affect the normal use of the battery charging, Please wipe clean and then start charge.

3. Before charging, turn off the radio, or it will affect the normal charging.
4. When the battery or radio is wet, do not charge the batterer. Please dry it before use.
5. After the battery has been properly charged, if the battery capacity still can not return to normal capacity, that means battery life is end, please replace it.

Battery Type

Please charge the battery with our company official battery. Use other battery types may cause explosion and injure people.

Safety Precautions

1. Do not throw batteries into fire.
2. Do not attempt to disassemble the battery pack housing.

Battery storage

1. Battery has the phenomenon of self-discharge, therefore,if the battery is not in use for a long time, please be fully charged first before storage, this is to void battery damage due to excessive self-discharge.
2. After a period of storage, battery needs to be charger, In order to avoid excessive battery from the battery capacity is reduced. Battery storage is recommended after 6 months battery charge.
3. Please note that the temperature and humidity of store battery. Keep the battery in a cool, dry conditions room to avoid battery self-discharge

Install and Remove Accessories

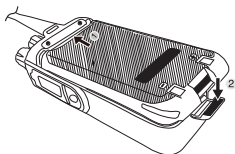
Install/Remove Battery Pack

Note:

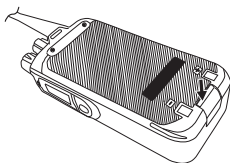
- Do not short circuit battery pack terminals or throw battery pack into fire.
- Do not try to remove the battery pack shell.
- Do not install battery pack under dangerous conditions, otherwise spark will cause explosion.

Insert the top part of the battery pack into the top 2 slots of the transceiver and then button the bottom's buckle . (1)

To remove the battery pack, make sure the transceiver has been turned off, and then open the bottom's buckle, Remove the battery when the batter pops up. (2)



(1)



(2)

Install Antenna

Hold the base of antenna, rotate it tightly into the connector of the top of transceiver clockwise. (3)

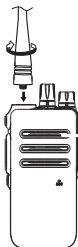
Install/Remove Belt Clip

If necessary, install the supplied screws into the belt clip at the back of battery pack for easy carry.

To remove the belt clip, directly remove the two screws only. (4)

Install Hand Strap

Install the hand strap at the middle circle of the transceiver. (5)



(3)

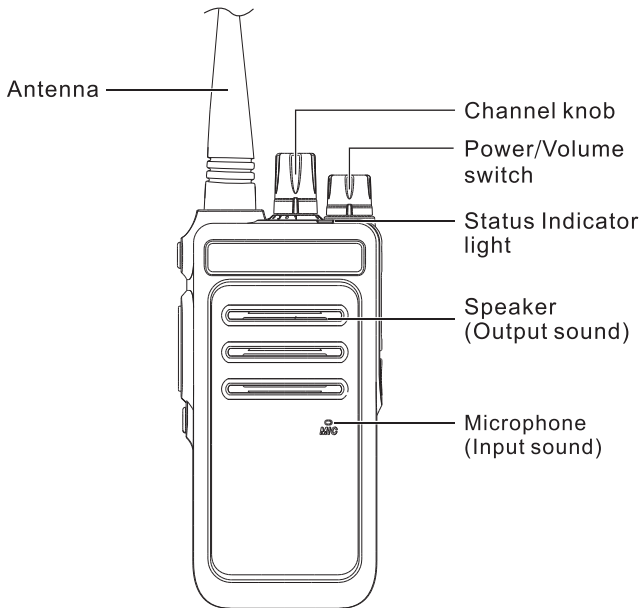


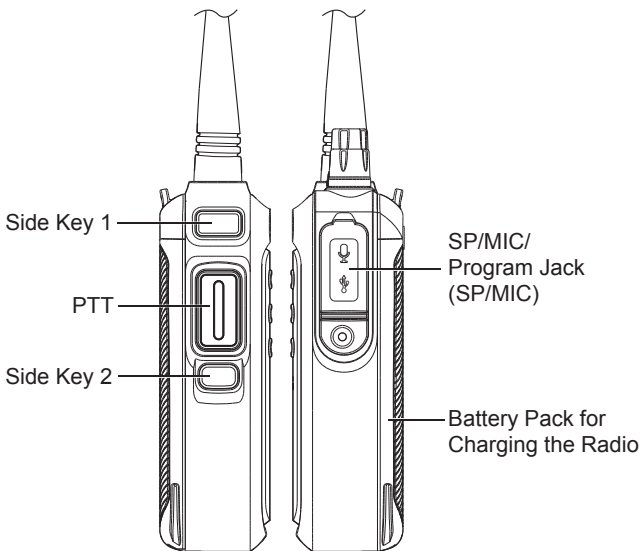
(4)



(5)

Getting Started





Remark: Different functions of Side Key 1, Side Key 2, which are used by the long press or a short press, can be defined by programming software.

The following functions can be defined:

Side Key:

Permanent Monitor/Zone Selection /Repeater/Talkaround /Battery Query Function /Scan/VOX/Local Alarm

Factory Default Setting :

Side Key 1: Long press activates Local Alarm, short press activates VOX

Side Key 2 : Long press activates Zone Selection, short press activates Permanent Monitor

Basic Operations

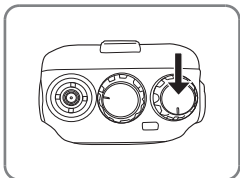
POWER ON and POWER OFF:

Rotate the knob clockwise until a “click” is heard, transceiver will have a short beep sound, indicating power on detecting success.

Attention:

If your transceiver is not power on, please check the battery, and confirm if the battery has been charged and installed correctly. If it still can not be turned on, please contact with the agent.

To turn off the transceiver, please rotate the power knob / Volume knob anticlockwise until a “click” is heard, then transceiver is power off.

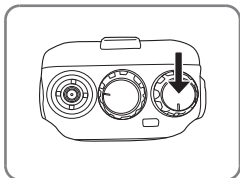


Adjust Volume

When the transceiver is power on, rotate the power switch / Volume knob to adjust the volume. Clockwise rotation to increase the volume; Anticlockwise rotation to decrease the volume. You can press the side key which is programmed MONITOR function to monitor the current volume.

Attention:

MONITOR key can be set to P1 or P2 Key according to the programming software.

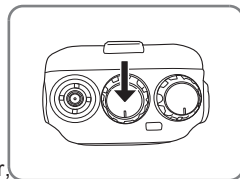


Channel Selection:

Rotation the channel knob to select the desired channel. This transceiver has 128 channels.

Attention:

There are eight zones in this transceiver,



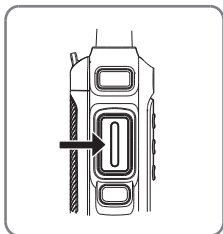
each zone has 16 channels, Zone can be selected by pre-programmed key.

Transmit

When going to transmit, press PTT key, keep microphone away from your mouth about 3-4cm, and speak in your usual tone.

Receiving

Release the PTT key to receive.
Adjust the suitable volume to get the best receiving result.



Function Specification

LED indicator

LED indicator shows transceiver's working status. Red light indicates the transceiver is transmitting.

Green light indicates the transceiver is on process of power on or is receiving non-encrypted signal or data, or is detecting air activity.

Call (PTT) key

Each channel in this transceiver can be set into a digital channel.

When in transmitting, press PTT key continuous will transmit signals to other transceivers continuously.

Press PTT to transmit and release PTT to receive. The microphone will be activated by pressing PTT

Receive and Transmit Call

Zone Selection

The zone is a group of channels. The transceiver supports at most eight zones, and each zone is not more than 16 channels

1. Press the key pre-programmed.

2. You will hear a notification sound , then radio will exchange from Zone 1 to Zone 8.

After selecting the intercom channel, talk group ID or user ID required Zone setting(If there are multiple Zones in the intercom).Rotary channel selector buttons to select the representative channel, talk group ID or user ID number.

Receive and Reply Call

You can received or reply call after finished channel / user ID or group ID's setting. When transmit transceiver, LED indicator turns red. When receiving message, the LED indicator turns green.

Receive and Reply Group Call

To receive a call from a user's group, the transceiver must be configured as belonging to that group.

- 1.LED indicator turns green.
- 2.Hold the transceiver vertically and keep about 1~2inches(2.5-5.0cm) away from mouth.
3. Press PTT key to respond the call, LED indicator turns red.
4. Release PTT key to receive.

Receive and reply Individual Call

Individual Call is one to one calling including two types: 1) Carry on Transceiver existence detection before calling; 2) Ready to call immediately.

When your transceiver has been chosen, LED indicator turns green. You can only select one type to set in to the transceiver.

When Receiving a Individual Call:

1. LED indicator turns green.
2. Hold the transceiver vertically and keep about 1~2inches(2.5-5.0cm) away from mouth.
3. Press PTT key to respond to the call, LED indicator turns red.
4. Release PTT key to receive.

Receive All Call

All Call is a call from an individual transceiver calls all transceivers in the same channel. It is used to announce something important that users must pay special attention to. When received all call, LED indicator turns green.

Notice: when receiving all call, if you turn to another channel, the transceiver stop to receive all call. During the all call, you can use any re-programmed key until the call finished.

Launch a Transceiver Call

You can choose a channel, user ID or group call with following methods.

- Channel Knob

Launch a Group Call

To launch a group call, the transceiver must be configured as belonging to that group.

1. Rotate channel knob, using activated group ID to select channel.
2. Hold the transceiver vertically and keep about 1~2inches(2.5-5.0cm) away from mouth.
3. Press PTT key to respond the call, LED indicator turns red.
4. Release PTT key to receive, when the target transceiver responds, LED indicator turns green.

Launch a Individual Call

1. Rotate channel knob, using activated group ID to select channel.
2. Hold the transceiver vertically and keep about 1~2inches(2.5-5.0cm) away from mouth.
3. Press PTT key to respond the call, LED indicator turns red.
4. Release PTT key to receive, when the target transceiver responds, LED indicator turns green.

Launch All Call

This functions allows you to transmit to all users in same channel. The transceiver must be programmed with this function, so that you can send information to every user who are under the channel.

1. Rotate channel knob, using activated all call group ID to select channel.
2. Hold the transceiver vertically and keep about 1~2inches(2.5-5.0cm) away from mouth.
3. Press PTT key to respond the call, LED indicator turns red.

Encryption Function

Encryption Setting (This function is effective for digital mode only)

According to the programming software setting, there are 10 groups at most to preset group encryption or encryption key (10 Byte) With pre-programmed key to start up / shut down encryption function.

Setting

Setting Squelch level

You can adjust the transceiver squelch level, filter low signal strength(unwanted calls) or the the channel of background noise is higher than the channel common values.

Set: 1-10 levels,the higher the level, the deeper the squelch, squelch deep filtration (unwanted) calls or background noise.

However, a call from a remote location may be also filtered out.

SPECIFICATION

Frequency Range	902-928MHz
Channel Number	128 Channels (8 Zones, 16 Channels/Zone)
Channel Spacing	Wide band: 25Khz Narrow band: 12.5Khz
Output power	1W
Antenna Impedance	50Ω
Operating Temperature	-20°C+60°C
Operating Voltage	DC7.4V

TRANSMITTER

Modulation	≤ -45dB
Spurious and Harmonics	-65dB
Free Time Slot Power	≤ -57dB
Audio Distortion	≤ 5%
Modulation BER(Bit Error Rate)	≤ 3%

RECEIVER

Sensitivity	≤ -123dBm @ 25K
Adjacent Channel Selectivity	≤ -65dB
Inter-modulation	≤ -55dB
Block	≤ -84dB
Spurious Response	≤ -70dB
S/N	45dB
Audio Output Power	750mW
Audio Distortion	≤ 5%

Troubleshooting

Symptom	Try This
No Power	<ul style="list-style-type: none">● Battery power may have run out, please update battery or recharge it.● Battery may not be properly installed, please take it off and re-install.
Battery lasts a short time after charge	<ul style="list-style-type: none">● The battery life is over, please replace new battery.
Can not talk to other members of your group	<ul style="list-style-type: none">● Verify transmitting is within effective operating range.● Verify channels, frequency and code setting are correct.
Hearing other conversation on a channel(not group members*)	<ul style="list-style-type: none">● Please change code settings. Including all two way radio settings of your group.
Transceiver continues to tweet	<ul style="list-style-type: none">● The transceiver channel is empty, please turn on another channel or use it after writing frequency by program software.

Warnings

RF ENERGY EXPOSURE AND PRODUCT SAFETY GUIDE FOR PORTABLE WALKIE TALKIE



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.

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/>

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), 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 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.
- 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.

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

rom 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



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 (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 so-und 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

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 CARD

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.

Please cut along with this line



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MADE IN CHINA

