RETEVIS

RT92

Digital Repeater
Instruction Manual
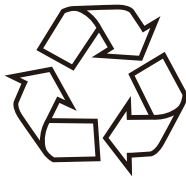
RECYCLED PACKAGING

CE FC RoHS Compliant

MADE IN CHINA

Dear Users,

Thanks for buying our digital repeater.

This Digital repeater (is briefly referred to repeater as below) is a 50W professional repeater, adopting the high performance radio frequency module, Control panel, Power supply module and Built-in duplexer (Optional).

The repeater use the modular design, with high performance and easy to maintain, convenient to update and the interface opening features.

The main functions of this repeater are wireless transferring, and it supports local PTT calling and other expanding functions, which is convenient for users to add other communication functions to communicate with other network.

Thanks for choosing our repeater, hope it will bring a lot of conveniences for your work and life.

Contents

User instructions

◆ Please read this manual carefully before using this product, so that you can more easily handle the operation of this machine. When you use this product, we think that you have read the instructions already.

◆ Please carefully keep this instruction for future reference.

◆ In order to safeguard the legitimate rights and interests of you, so please seriously truthfully fill in the user's warranty Card " when buying our products, and ask for the purchase vouchers.

◆ Because this product relates to upgrade and improve, the company reserves the rights of changing the soft specifications without prior notice at any time in this manual. This manual mentioned product specifications and information is only for reference.

◆ Final interpretation is owned by Abell company.

Safety Instruction

For the safety and effectiveness of your operation, please read bellow information carefully.

◆ High voltage and high temperature in the case, be careful for electric shock and burn.

◆ Maintenance work must be professionals and technicals, don't dismounting.

◆ Setting and install must be approved of the radio administrative department.

◆ Repeater has the ground terminal, which should be carefully ground for the safety and performance of the machine.

◆ The installation of the antenna must be the lightning protection measure, otherwise may cause serious lost.

◆ Please use the qualified antenna, anti-thunder, feeder, power divider to make sure the correct of installation

Open-package Inspection

Replace with " Please exercise care when opening the shipping box. Confirm that all items noted in the table have been included and are in good condition. If not then please contact your dealer."

Item	No.
Repeater	1
AC power supply line	1
USB data line	1
User manual	1

Product Introduction

Front panel introduction

Front view

Large view for front panel

Indicators Introductions

Indicator	Color	Functional description
TX	green	Always on, the repeater is transmitting signals
RX	green	Always on, the repeater is receiving signals
LNK	green	Always on, the link is successful
ERROR	red	On or flashes, error occured
DC	green	Always on, DC power supply equipment
POWER	green	TS B transmit
A、B	green	Digital time slot one receive signal, A light on. Digital time slot two, B light on.Analog doesn't light.

Tube Nixie (two bits) instruction

Including two bits eight segments tube nixie, the functions as below: a.Instruct current working channel number during working condition.
b.Use to display current menu option or some function parameter figures during key operation
c.Display current error code when the repeater appears warning.

Front panel board MIC interface

Front panel board MIC interface use to internet microphone, local PTT can be use as talking or use as base station to call.

Key function detailed description

| Button	Name	Menu guide function	Parameter editor function
C	C	1.short press back to last or root menu 2.long press back to standby mode and lock the keyboard	Clear or cancel current parameter value
◄	Left	1.Up level menu 2.Shortcut menu: decrease channel	Value decrease
►	Right	1. Next level menu 2. Shortcut menu, increase channel	Value increase
OK	OK	Enter next level menu	Confirm and save current parameter value
F1	F1	Function key 1 (software defines)	Figure 1
F2	F2	Function key 2 (software defines)	Figure 2
F3	F3/V_	1.Function key 3 (software defines) 2.Shortcuts menu: volume down	Figure 3
F4	F4/V+	1.Function key 4 (software defines) 2.Shortcuts menu: volume up	Figure 4

Back panel introduction

Rear view

Outside interface picture
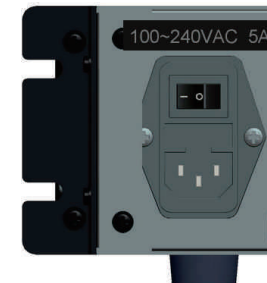
Power supply interface and switch picture

Rear panel port introduction

Port name	Function Declaration
USB	Connect with PC, use ain programming, software update.
EXT-I/O	Outside expand interface, including the signal connected with outside and control the Pin, use as specific expanding function. Outside look structure define the interface.
RJ11	Connect with PSTN telephone network or PABX internal telephone network, use as expanding interworking call with telephone network.
ANT/RX	Connect with antenna when duplexer installed, connect with transmit antenna when duplexer uninstalled.
AUX/TX	connect with transmit antenna when duplexer is uninstalled.

Rear panel EXT-I/O port definition

19 ● ● ● ● ● ● ● 26
10 ● ● ● ● ● ● ● 18
1 ● ● ● ● ● ● ● 9
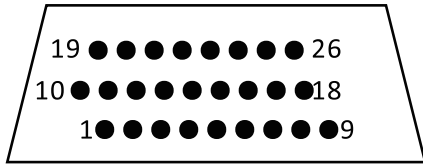
Pin No.	Definition	Function Declaration
Pin1	-13v	Power
Pin2	O_CLKX	CLKR output signal, opt coupler, LVTTL_3.3V
Pin3	UART3_RX	UART3_RX serial port
Pin4	IO_PTTI	PTTR input signal, opt coupler, LVTTL_3.3V
Pin5	SEL0_IN/SEL0_OUT	Expanding IO-0 LVTTL_3.3V
Pin6	DG	Digital
Pin7	AG	Analog
Pin8	EXT__IO_UF_OUT	Extend AF output
Pin9	EXT__IO_UF_IN	Extend MIC input
Pin10	+13v	12V_OUT 500mA_max
Pin11	IO_DX	DATAR peripheral equipment audio date (output)
Pin12	IO_FSX	FSR sync output
Pin13	IO_CLKR	CLKR input signal opt coupler, LVTTL_3.3V
Pin14	SEL1_IN/SEL1_OUT	Expending IO-1 LVTTL_3.3V
Pin15	DG	Digital
Pin16	AG	Analog
Pin17	NDET_OUT	Expanding port noise level (0-3V) (output)
Pin18	NDECT_IN	Expanding port noise level (0-3V) (input)
Pin19	UART3_TX	UART3_TX serial port transmit
Pin20	O_PTTO	PTT output signal opt coupler, LVTTL_3.3V
Pin21	IO_DR	DATAR peripheral equipment voice data

Pin No.	Definition	Function Declaration
Pin22	IO_FSR	FSR Signal Frame sync input
Pin23	DG	Digital
Pin24	AG	Analog
Pin25	RSSI_OUT	Extended port field intensity electrical level(0~3V)(input)
Pin26	RSSI_IN	Extended port field intensity electrical level(output)

Introduction of Functions

1).DMR digital audio transmit
When the RX port of the repeater receives the uplink RF signal, the repeater will control automatically TX port (excitation module and power amplifier) to transfer the signal under the condition of same color code, and prevent rogue users to activate and use the repeater.

2).Analog audio is available to be transferred.
The repeater can set RX and TX CDCSS and CTCSS in every channel according to users' need.

3). Support digital-analog detection at the same time Our repeater can support digital and analog signal detected at the same time, if the up-signal is digital, it will transmit follow the digital transmission rule, if the up-signal is analog, it will transmit follow the analog transmission rule.

4). DTMF modulation and demodulation
The hardware support DTMF and FSK modulation and demodulation channel, implement with software function module.

5). PSTN support
Support external phone call and DTMD dial call out phone appointment, and conduct voice transmission service with wireless terminals.

6). Channel reserve function
When the user loosen PTT button, repeater will continue to transmit for a while to reduce the delay time which cause by start the repeater circuit frequently. Channel reserve time can set up to one second to fifty seconds, step value is one second. (default value: six seconds)

7). IP network
Through the IP network, you can connect different R-80 repeaters from multiple places by the TCP/IP protocol, and the terminals can do voice communication and data communication to accomplish the larger coverage area.

8). Operating mode switch
Switch operating mode between the repeater mode and test mode through the software.

Repeater operation

1. Turn on/ off repeater
Press "power switch to the"-" to turn on, then the speaker will make a sound "Toot", the 'PWR' indicator turns on, the machine starts to work, and the system become stand-by condition.

2.Audio, data transmit
When the RX port of the repeater receives the uplink RF signal, the repeater will control automatically TX port (excitation module and power amplifier) to transfer the signal, which will enhance the received signal to increase communicate distance.

3. Indication of transfer
1) When the machine is working, "TX" and "RX" will light, and 'A' or 'B' indicators light up simultaneously, indicating the signal is digital. "A" light means Time slot 1 is during communication when, "B" light means time slot 2 is during communication.
2) When the machine is working, "TX" and "RX" will light, and 'A' or 'B' indicators doesn't light up, indicating the light is analog signal.

4. Panel key board and display

Key and Display

5. Key warning tone
1) Operate to modify working parameter and operate optional menu key, once "beep" sound informed.
2) Operate parameter error and operate invalid, twice "beep" sound informed.

6. Programming software operation
1) Connect the wire
Connect the equipment with PC by USB programming wire as below:
2) Set up the programming software package on PC, it will be set up automatically. Run the software
Turn on the power of repeater, and then run the software on PC after the repeater works. Click the channel parameter; you will see the window as below:
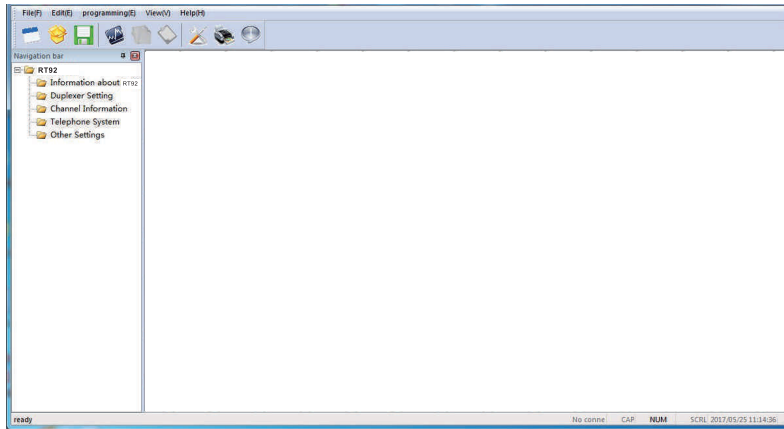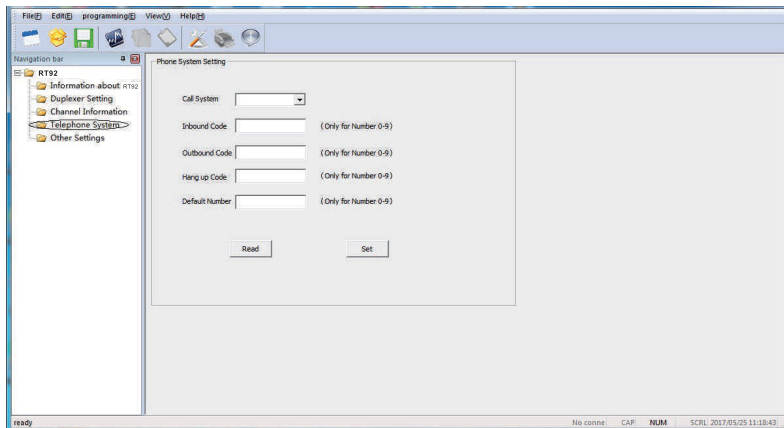
Please refer to "RT92 digital repeater software operation instruction manual" to set up channels in receiving and transmitting frequency, power, colour code and monitor, PTT and so on.

7. Two way radio calling

1).Repeater configuration

①Find "telephone system" in R-80 programme software, configuration as bellowed:


a) Calling settings: according need to set whether opening call for or not, default yes: available for call in or call out.

b) Call in password: when others call the repeater telephone number, they will need to input this password.

c) Call out password: when you need to call others telephone number, you need to input this password.

d) Hang up password: when the calling is over, the repeater need to input this password to hang up.

e) Embedded password: The repeater default calling out number.

②Only digital channel can use the telephone call function, and choose "Hand MIC Enable", transmit prior option: "wireless priority".
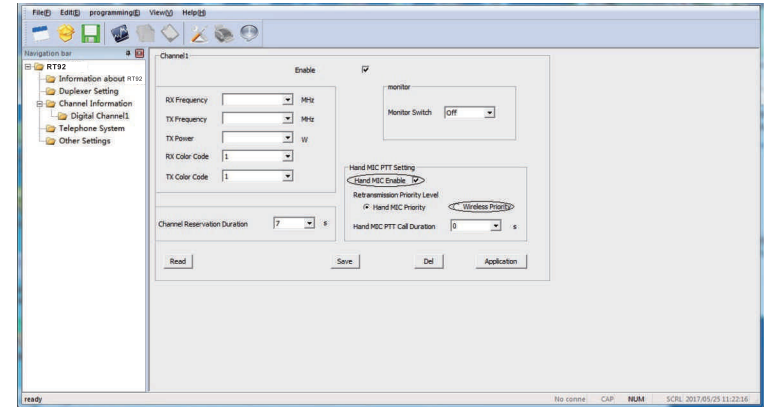
2) Two way radios' configuration

The repeater is compatible with most DMR radios on the market.

3) Answer and make a phone call

① handset makes a phone call (for example: call out password is: 222)

a) Dial any number: press the PTT button, input: call out password+ * + phone number + #. For example, call 26000000, firstly, press the PTT button, input 222+26000000 on two way radios' keyboard at the same time, then release PTT button, after a few second, you can see the radios send the phone call from the display, then you can have a call if other side answer.

b)Dial embedded number: press PTT buttons on two way radios, input call out password+ #, for example, the embedded number is 075526000000, firstly, press the PTT button, input 222# on keyboard, then release PTT, after a few seconds you can have a call with 075526000000.

② Handsets (repeater) answer the call (the call in password is: 111) If other side use the plane or phone to call the handsets (repeater), after get through you need to input call password+#(111#), then you can have a call.

③ Handsets (repeater) hang up the phone, (the hang up password is 333 etc): When the call is over, if the other side not hang up, the repeater will hang up itself, the operation is: press the PTT, then input: hang up password +# (333#).

Panel basic operation

1.Holding state

When the device starts to work, the panel enter holding state, and will display current channel number; the picture below is channel number 8.

2.Menu function

Panel function operation include: channel switching, monitor volume adjustment, monitor switch (P1), transmit power regulation (P2), password changing (P3), the channel switching and the volume adjustment are in shortcut menu, others are general function, operation mode is different, the operation process like below:
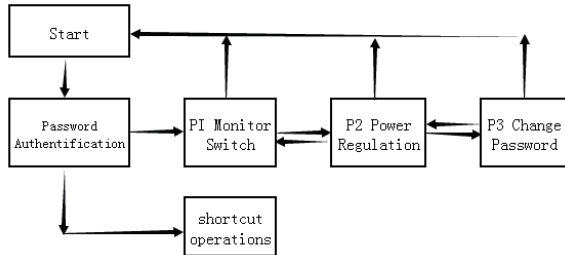
If the device does not open the password lock function, press "OK" button to pass password authentication process.

3.Password authentication

1)If the current state is menu lock state, press "OK" or shortcuts function button enter password authentication, the digital tube will display ▬ ▬ and shining, wait for you to enter password. The password consist of "1" "2" "3" "4" in any random order, six figures, corresponding button is F1 F2 F3◄ F4►

2)After input the password, press OK , if the password is correct will enter the menu "P1" or performs shortcuts, or will occur warning.

(Password authentication)

3)Press C before OK will remove the password number you input.

4)In any menu press C , the device will enter password lock up state and holding state.

5)Long time (more than 30 seconds) no button been press, the device will enter password lock up state and holding state.

4.Channel switching

Channel switching function is shortcuts menu function, directly press ◄ or ► to change the current channel, if the menu have password lock, you need the password authentication, channel number will display "01-99", when you press ◄ or ► , digital display shining, when you changing to target channel, then press OK to confirm, digital display stop shining, repeater will change to target channel to start work, press C back to holding state, and display the current work channel number.

5.Volume adjustment

Volume adjustment function as shortcut menu function, press F3◄ or F4► , changing speaker volume, the volume can be U1 to U8 level, U1 is the lowest, U8 is the highest, when you press F3◄ or F4► , the digital display will start to shine, when you adjust to target volume level, and press OK to confirm, the digital display will stop shining, the device monitor volume will be set up as target volume level. The follow picture display been set in U8 level, and will become effective when the next profession come, press C to come back to holding state.

(Volume adjustment)

6.Monitor switch

1)In the holding state, press OK to enter monitor switch menu, digital display "P1", and then press " ▶ " to enter menu option, press OK , then enter monitor switch set up operation interface.

2)Digital display "ON" or "OF" and shining, respectively represent turn on or turn off monitor switch.

3)Press OK to confirm, digital display stop shining, the value will be saved and become effective when the next profession come, press C to cancel the operation.

(Monitor open)

4)Press C again back to P1 menu interface.

7.Power regulation

In the P1 interface, press ◀ to enter power regulation menu option, digital display "P2", press ▶ back to P1 interface, press OK to enter power regulation set up operation interface, the process like below:

(P2 interface)

1)Digital tube alternately display current power level L1 to L9 and current level power value, "L1" responding to 5W, "L9" responding to 45W, the picture below shows the current power level is level 6, the input power is 30W.

2)Press ◀ or ▶ to decrease or increase the power level, digital tube alternately displays new level "L1 to L9" and responding power value.

3)Press OK to confirm, digital display stop shining, the value will be saved in the device, and become effective when the next profession comes, press C to cancel the operation.

4)Press C to cancel the operation.

(Power Level 6)

8.Password changing

In the P2 interface, press ▶ to enter password changing menu interface, the digital tube shows P3, you need verify old password before you change password, after the verification pass through, you can changing the password, and the default factory password is "1 1 1 1 1 1", the process like below:

(P3 Interface)

1)Press OK , firstly, password authentication, the digital tube shows ▬ and shining, the detailed process please refer to the "Password Authentication"

2)After the password authentication pass, will have a tone mean you are correct, and then you can start to set your new password.

3)Press any combination of F1 F2 F3 F4 , set new six figures password, and then press to confirm.

4)Repeat the up process, when these two times password are the same, the repeater will have a tone mean you are correct, the interface back to he P3 interface, mean the new password become effective, if the device have a warning alarm, which mean you are failed to set up a new password, please input the new password again.

5)Press ▣ to cancel the operation and press ▣ again to back to the original interface.

(Be prompted for the password)

Troubleshooting guide

Description	Reason	Solution
Boot problem	1.The power cord is in poor contact. 2.The power cord is broken. 3.The fuse of power supply and insurance board are broken. 4.Switching power supply failure	1.Re-plug the power cord 2.Replace the power cord 3.Replace the fuse 4.Replace the switching power supply
Programming software fails to connect	Control line is broken	Replace the control line.
Failed to set up a call	1.Frequency of transmission and reception, colour code of transmission and reception, retuned code, are different from the handsets. 2.Channel parameter beyond the diplexer working bandwidth, equipment trouble light will be light, the speaker will warning alarm, the fault code is 12; 3.Receive module failed, the fault code is 30, 31,32. 4.Stimulus module failed, the fault code is 20,21,22. 5.Control panel failed, the fault code is 40,41,42.	1.Inspect channel parameter: the repeater high frequency transmits, low frequency receives: repeater transmits frequency is corresponding to the handsets' receive parts, repeater's receive frequency is corresponding to the handsets' transmit frequency, the colour code and retuned code is the same with handsets. 2.Change the channel parameter in the frequency of diplexer work range or change the channel parameter frequency of the diplexer. 3.Replace the receive module 4.Replace the stimulus module 5.Replace the control panel.
Communication Distance become shorter	1.Antenna head be watered 2.Antenna is in poor connection 3.Frequency disruption 4.Repeater transmit power decrease 5.Receive module sensitivity decrease	1.Examine the antenna head, use the waterproof daub 2.Replace the antenna. 3.Find out the frequency disrupted or change. 4.Replace the power amplifier module. 5.Replace the receive module.
Indicator light no display, speaker no sound.	1.Flat cable broken. 2.The display board broken	1.Replace the flat cable. 2.Replace the display board.

When the repeater have some error, the error light will light up, the speaker will have a warning alarm, the digital tube will show the fault code. After the warning occur, firstly, check if the communication is OK, if don't, restart the repeater, if still not work, please contact with the dealer around you.
The fault code as below:

Alarm class	Alarm item	Fault condition	LED display code	sound
RF power amplifier	0.not detected RF power amplifier	I2C is blocked	10	
	1.E2PROM fault	I2C is blocked	11	
	2.RF power amplifier fault	PA_ERRLED=1	12	
	3.RF power amplifier overheat	PA_TEMPDECT>PA_CAP_TEMP	13	
	4.RF power amplifier overflowing	PA_CURRENT>PA_CAP_CURRENT	14	
	5.RF power amplifier overvoltage	PA_VO LTAGE>PA_CAP_V_MAX	15	
	6.RF power amplifier under voltage	PA_VO LTAGE<PA_CAP_V_MIN	16	
Stimulus module	0.not detected stimulus module	I2C is blocked, EX_PLLLD=0	20	
	1.E2PROM fault	I2C is blocked	21	
	2.Transmit frequency losing lock	EX_PLLLD=0	22	
Receive module	0.not detected receive module	I2C is blocked, EX_PLLLD=0	30	
	1.E2PROM have problems	I2C is blocked	31	
	2.receive frequency is locked.	RX-PLLLD=0	32	
Control panel	0.Control panel have some problems		40	
	1.E2PROM have problems		41	
	2.Ditital module fault	HR500_RESET_INT=0,SPI can not read	42	
Channel parameter fault	1.Transmit frequency is over range	Stimulus module parameter, power amplifier module, duplexer parameter	01	
	2.Receive frequency is over range	Receive module parameter	02	
	3.Board-band, narrow-band	Stimulus module parameter, receive module parameter	03	
	4.Transmit power is over range	Power module, duplexer parameter	04	

RF ENERGY EXPOSURE AND PRODUCT SAFETY GUIDE FOR PORTABLE 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.

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 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

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 (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.

!
WARNING

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.

!
WARNING

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.

⚠ **WARNING**

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

⚠ **WARNING**

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

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: