

RA89 User's manual

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NOTE: this equipment has been tested and found to comply with the limits for a Class B digital device, and is 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 radiates radio frequency energy. If not installed and used in accordance with the instructions, it 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 harmful interference to radio or television reception, which can be determined by turning off the equipment. 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.

Changes or modifications not expressly approved by the party responsible for compliance could void the use's authority to operate the equipment. 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.
- (2) This device must accept any the received interference, including interference that may cause the undesired operation.

Use Two Way Radio in the environment with the temperature between -10 °C and 40 °C. Otherwise, it may damage your two way radio. It can be operated under 2000m.

For this decision, head SAR and Body SAR were performed with the device configured in the positions according to EN62209-2:2010 and face-up SAR was performed with the device 25mm from the phantom, and Body SAR was performed with the device 0mm from the Phantom. Body SAR was also performed with the headset and belt clip attached and without.

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.

Main Functions

- DOT-MATRIX LCD DISPLAY
- · Power-on mode select able
- DTMF calling channels quick assignment
- Wide / Mid /Narrow bandwidth select-able
- 200 channels
- Dual band, dual wait, dual standby,
- Busy channel lock
- · Scan: frequency and CTCSS scan
- FM radio for 24 channels storage
- Multiple types for keys lock setting
 TOT
- Remote stun/ kill/ activate

- ANI
- PTT ID
- VOXBattery saving
- Scrambler
- Multi-Display mode
- DTMF
 Backling
- · Backlight brightness setting
- COMP
- 1750Hz tone
- 2 Tone/5 Tone
- CTCSS/DCS

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 disassemble the radio; the maintenance work should be done by technical experts 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 hospitals 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, keep away from its antenna at least 5cm.
- If the radio appears smelly or smoke, please shut off its power immediately and contact your local dealer.
- Do not transmit too long, otherwise, the radio may heat and hurt the user.

CHARGING BATTERY PACK

Charging Precaution

The supplied battery pack of this radio is a high-performance Li-ion with 7.4V standard voltage 2800mAh high capacity in a very compact package. Under normal use, the battery pack may be used for approximately 300 charge cycles and more, after which operating time may be expected to decrease. If you have an old battery pack which is displaying capacity which has become diminished, you should replace the battery pack with a new one.

Notice

- please do not short-circuit the battery terminals or expose them on fire. Do not disassemble the battery unauthorized.
- Charge the battery between temperature 10 °C and 45 °C. The battery can not be normally charged beyond this temperature range.
- Please turn off the transceiver when you charge it. Transmitting with the transceiver in charge will affect its normal charge.
- Do not unplug the Power Adapter or battery when it is charged.

- · If the battery pack lasts shortly even if it is full of power, it shows that the battery is depleted, please change the battery pack.
- · Please do not charge when the battery or the radio is wet. Please dry it with a cloth before charging to avoid any danger.

Warning: when the conductive metals fouch the battery terminals, such as jewelry, key or decorative chains, all the batteries are likely to cause damage to the items or cause personal injury. These conductive metals may form a short circuit and generate a heat. Deal with any battery carefully, especially when putting it into pocket, wallet or other metallic containers.

Charging Operation

After installing the battery pack, if the battery icon shows 🕻 🗋 , it means that the battery pack is out of power, Please charge it when it is power off. The indicator light of charger will show charging condition.

Indicator Display	Status
Red	Charging
Green	Completed

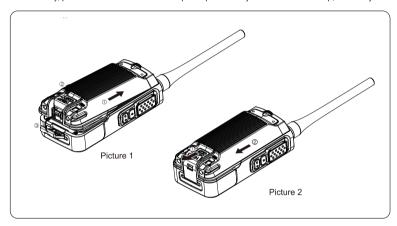
Battery Tips:

- The battery is not fully charged in the factory, please charge the battery before using it.
- Charge and discharge the battery twice or three times, the battery capacity will reach the best condition. When the battery capacity is low, please charge or change the battery.
- The battery lasts shortly even if it is fully charged. The battery is depleted, please contact your local dealer to buy a new authentic battery.

INSTALLATION OF ACCESSORIES

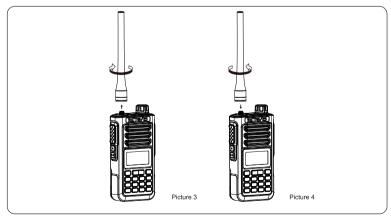
Battery Pack Installation

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



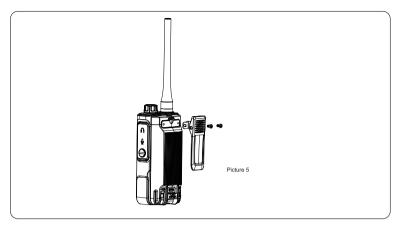
Install and Remove the antenna

- 1. Align the threaded end of the antenna and the threaded hole at the top of the radio, and rotate the antenna clockwise until it is tight. (Picture 3)
- 2. To remove the antenna, rotate it anticlockwise until the antenna spirals out. (Picture4)



Belt Clip Installation

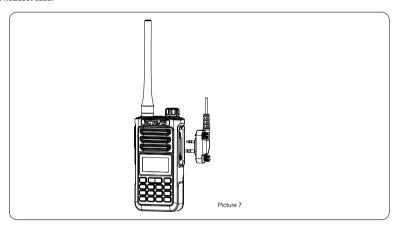
Align the two holds of belt clip and the two holes of the radios, fix them with the supplied M2.5*5 screws. Loosen the screw to remove the belt clip.



External Micro/Speaker Installation

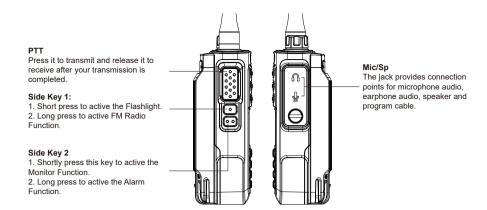
Open the cover of the Mic/Speaker Jack and insert the microphone/speaker plugs into the jack.

Note: using the external headset or Mic/speaker will affect the water-tightness performance of radio. If the external headset does not work, please use the headset case.



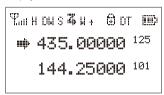
RADIO ILLUSTRATION





LCD DISPLAY

You will see various icons shown on the screen when the radio is turned on. The following table can help you identify icons' meaning which are displayed on LCD.



Icons	Description of functions			
Yl	Operating band signal & power meter			
Н	High TX power active			
DH	Dual watch/standby active			
S	RX power save active			
4	Scanning active			
н	Narrow/wide band mode active			
+	Repeater shift direction			
∄	Keypad lock			
DIT	DTMF signal active			
2Т	2 Tone signaling active			
5Ţ	5 Tone signaling active			
₽	Battery power indicator			
125	Channel number/Menu items number indicator			

KEYPAD FUNCTIONS

	[🗊]	[A/B]	[🔼]	[🔽]
Press key	Enter Menu mode/ confirm the setting	1.Switch the A or B frequency to be the "Operation" Band. 2.Exit Function.	Upper menu item, channel or frequency	Lower menu item, channel or frequency

	[1 scan]	[2 PRI]	[3 vox]	4 PWR	[5 so.]
Press key	Frequency/ Channel No. Entry "1"	Frequency/ Channel No. Entry "2"	Frequency/ Channel No. Entry "3"	Frequency/ Channel No. Entry "4"	Frequency/ Channel No. Entry "5"
Press	Enter scan menu	Enter priority TX mode setting	Enter VOX level setting	Enter high/low power setting	Enter squelch level setting

	[6 DN]	7 LED	8 ught	9 BEEP	[O cH]
Press key	Frequency/ Channel No. entry "6"	Frequency/ Channel No. Entry "7"	Frequency/ Channel No. Entry "8"	Frequency/ Channel No. Entry "9"	Frequency/ Channel No. Entry "10"
Press	Enter dual watch/ standby	Enter LED setting	Enter Backlight level setting	Enter Beep Tone	Enter DTMF 2T&5T

	*LOOK	#RADIO		
Press key	Press and hold key to start keypad lock.	Switch CH mode and VFO mode long press # to enter FM mode.		
	Press [F] + [*Lock] Enter TX/RX tone coder.	Press [F] + [#] to start emergency alert. Long press [#Radio] to enable FM radio.		

WORKING MODE

1)Frequency Mode (VFO)

Under this mode, you can use [] / [] key to change the frequency or input the frequency through the keypad directly, and store channels.

When the radio is under VFO mode, long press A/B to seek the frequency with CTCSS/DCS near. It will pair the frequency and CTCSS/DCS if the other radio press PTT. The radio (want to be copied) must keep on pressing PTT till the frequency and the CTCSS/DCS copied, or it may be seeking the end tone of the copied radio.

2)Frequency -Channel Mode (MR)

When you have stored a memory channel at least and under VFO mode, press [[] key to enter MR mode.

The frequency will be indicated on the display and the channel No. will be indicated on the right side. If the transceiver display name option is ON and the channel name is edited, it will show the name of the channel.

3)Channel Mode (CH)

When you have stored a memory channel at least, turn on the radio, press [] +33 to enter DIS MD and choose CH mode. Channel No. will be indicated on the display and if the transceiver display mode option is ON, it will show the name and the channel.

4)FM Radio Mode

The transceiver provides frequency 65.00-108.00MHz FM radio. Under this mode, you can choose the needed FM frequency directly. Scan frequency range and store your favorite channel. Long press [] to enter and exit FM radio mode.

5)MENU Mode

Press [F] KEY to enter MENU mode, there are 38 items in total.

6)RESET Mode

Press [🕞] +[3] [5] key to enter Reset mode, then press [🕞] key to enter. [💌] or [💟] key to select ALL/VFO/FULL.

1.ALL: initialize all settings.

2.VFO: initialize all settings under frequency mode.

3.FULL: initialize all settings under frequency and channel mode.

SET MENU MODE

No.	LCD Display	Available Values	Description of Function	
1	SCAN	1	Frequency/Channel Scan	
2	TX-SEL	EDIT/BUSY	Priority Transmit	
3	VOX LEV	1-7	VOX Level Setting	
4	POWER	HIG/LOW/MID	High/Low/Middle TX Power	
5	SQL	0-9	SQL level setting	
6	D.WAIT	ON/OFF	Dual Wait /Standby	
7	LED	ON/5S/10S/15S/20S/25S/30S/OFF	LED Display time	
8	LIGHT	1-7	Background Light level	
9	Веер	ON/OFF	Keypad Beeper Setting	
10	DT/2T/5T CH	1-16	Preset Channel Selection	
11	тот	OFF/30/60//270	Transmitter Timer out Timer	
12	BCLO	OFF/WAVE/CALL	Busy Channel Lock-out	
13	VOX.SW	ON/OFF	VOX Switch ON/OFF	
14	ROGER	ON/OFF	Transmit Over Beeper	
16	RX.SAV	1:1/1:2/1:4/OFF	Receive Saver	
17	SCAN.S	TO/CO/SE	Scan Mode	
18	AUTOLK	ON/OFF	Auto Keypad Lock	
19	VOICE	ON/OFF	Voice Prompt	

No.	LCD Display	Available Values	Description of Function
20	OPENSET	OFF/DC/MEG	Power-on Display
21	DC VOLT	1	Battery Power Voltage
22A	OFFSET	0.000-40MHz	Repeater Shift (Under VFO mode)
22B	DIS.NM	ON/OFF	Display Channel Name (Under CH mode)
23	C-CDC	OFF/67.0/D023N	TX/RX Tone coder
24	R-CDC	OFF/67.0/D023N	RX Tone coder
25	T-CDC	OFF/67.0/D023N	TX tone coder
26	S-D	+/-/OFF	Shift Direction
27	STEP	5K/6.25K//100K	VFO Step
28	N/W	WIDE/NARR/MIDD	Wide/ Narrow/ Middle Band
29	SEEK 67.0	1	CTCSS Scanning
30	SEEK D023N	1	DCS Scanning
31	Scrambler	ON/OFF	Voice Scrambler
32	LOCK MD	ALL/PTT/KEY/KEY+S	
33	DIS MD	FRE/CH/MR	Working mode setting
34	DW	ON/OFF	Dual Watch/monitor
35	Reset	ALL/VFO/FULL	Reset function
36	Radio VER	M B91.13 / T 23/03/08	
37	DIS.NM	-1A.@	Channel Name Editing
38	RX ENC	ON/OFF	RX Noise Cancellation

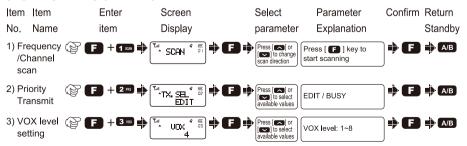
Menu Operations

3)Press [] to enter and then press [] or [] to select the desired setting.

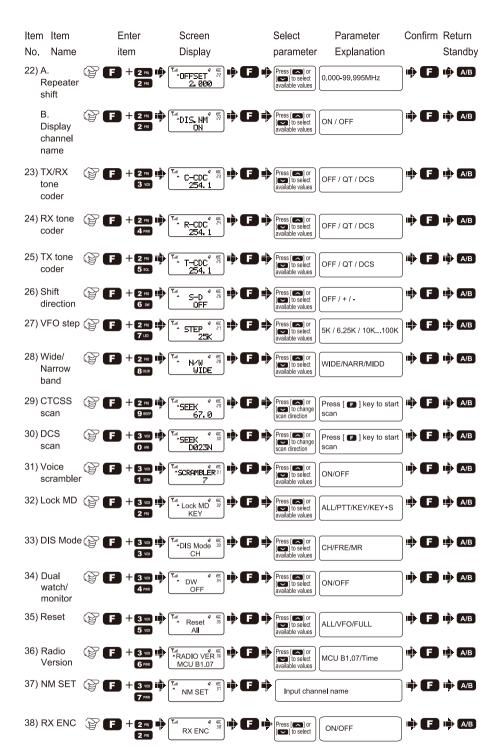
↑ MENU

4)Press [F] again to confirm.
5)Press [N] twice to exit and then return the standby mode.

SHORTCUT MENU OPERATION



Item Item No. Name	Enter item	Screen Display	Select parameter	Parameter Explanation	Confirm	Return Standby
4) TX power setting	(F) +4™ 📫	POW POW	Press [or or values	High / Low	†	∰ A/B
5) SQL level setting	(2) F +550 ±	SQL OS F	Press [or] to select available values	SQL level: 0~9	#	⊯ A/B
6) Dual wait/ standby	() F +6∞ m	ON TAIL ON THE PROPERTY OF THE	Press [or] to select available values	ON / OFF	•••	A/B
7) LED display mode	(F) + 7 ⁽²⁾ i	LED ST I	Press [or] or [] to select available values	ON/5S/10S/15S/20S 25S/30S/OFF	•••	A/B
8) Background light	₽		Press [or [] to select available values	1-7	•	I A/B
9) Keypad beeper	(F +9∞ i	BEEP G GS F	Press [or [or available values	ON / OFF	• •	i A/B
10) Automatic Number Identity	(F + 0™ 📫	OT CH	Press [] or select available value	1-16	• •	♣ A/B
11) Transmitter time-out timer	F +1 sm iip 1 sm	TOT " F	Press [or [or] or available values	OFF / 30 / 270s	• •	♣ A⁄B
12) Busy channel lock-out	F +1 504 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	BCLO E F	Press or to select available values	OFF / WAVE / CALL	•	♣ A/B
13) VOX switch	(F) + 1 sx 1 1 5x 1 5x 1 1 5x 1 5	Value Sur	Press [or [or [wailable values]	ON / OFF	• •	‡ A⁄B
14) Transmit over beeper	F +1 sza Lip 4 PAR	ROGER ROGER	Press [or	ON / OFF	 • 6	♣ A/B
16) Receive saver	F +1 sm in 6 sw	RX. SAU S	Press [] or [] to select available values	OFF / 1:1 / 1:2 / 1:4	•	‡ A/B
17) Scan mode	F +1 50% in 1 7 120	SCANS TO THE TOTAL SCANS TO THE	Press [] or [] to select available values	TO/CO/SE	† (3	i∰ A/B
18) Auto keypad lock	F +1 sm interpretation	AUTOLK E	Press [or] or [or] to select available values	ON / OFF	• •	I ♣ A/B
19) Voice prompt	F +1 su i	VOICE S	Press [or] or [or] to select available values	ON / OFF	# F	i ∯ A/B
20) Power-on display	F + 2 FR 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	OPN SET OFF	Press [or [or available values]	OFF / DC / MEG	#	i ‡ A/B
21) Battery power voltage	F +2 m +	. VLT	Press [or] or [or] to select available values	Show current voltage	•	A/B



DETAILED FUNCTION DESCRIPTIONS

1)Scan & Scan Mode Setting (SCAN&SCANS---MENU 1&17)

Functions: under VFO/MR/CH mode, the transceiver allows you to scan the entire current operating band and memory channels.

Enter Menu 1st and press [] key to start scanning.

Scanning operation is basically the same as each of the above modes. Before you begin, take a moment to select the way in which you would like the scanning to halt on a signal.

Enter Menu 17th to set scan mode. Default: TO.

Three options for the scan mode are available under VFO mode:

TO: In this mode, the scanning will halt on a signal it encounters, and will hold there for some time. If you do not take action to disable the scanning within the time period, the scanning will resume even if the stations are still active.

CO: In this mode, the scanning will halt on a signal it encounters, and will hold there if the stations are still active. And after the carrier has dropped, the scanning will resume.

SE: In this mode, the scanning will halt on a signal it encounters, it will not restart automatically; you must manually re-initiate scanning if you wish to resume.

2)Priority Transmit (TX.SEL—MENU 2)

Functions: This transceiver allows you to transmit on the sub band even if you are working on the operating band.

Enter Menu 2nd to select priority transmit band. Default: EDIT.

EDIT: It will transmit on the operating band.

BUSY: It will transmit on the band last talking used.

Note: this function only works on Dual Wait Mode. Menu 6th turn on Dual Wait

3) VOX Level & VOX Switch (VOX&VOX.SW--- MENU 3&13)

Functions: the VOX function provides automatic transmit/receive switching based on the voice that is input to the microphone. With the VOX switch ON, you do not need to press PTT key to transmit, and it is not necessary to use a VOX headset for VOX operation.

Enter Menu 13th to set VOX switch, Default: OFF.

Enter Menu 3rd to set VOX level, it has 7 grades.

The higher level is, the lower sensitive it will be.

This transceiver provides for adjustment of " Hang-Time" of the VOX (the transmit-receive delay after the cessation of speech) via program software.

Default: 2s.

4) TX Power Setting (POW--MENU 4)

Functions: you can select High/Low TX power according to your talking environment and need. When you store memories, you can store High and Low power settings separately in each memory.

Enter Menu 4th to set TX power.

High:10W, Middle:5W, Low: 1W, when you select Low power, the "L" icon will appear on the display.

5) Squelch Adjustment (SQL-- MENU 5)

Functions: Squelch system allows you to mute the background noise when no signal is being received. Not only does the Squelch system "standby" operation more pleasant, but also significantly reduces battery current consumption.

Enter Menu 5th to set SQL level. Default: 5.

6) Dual Wait/Standby (D. WAIT---MENU 6)

Functions: This transceiver allows you to receive the sub band signal even if you are working on the operating band. It could monitor the signal under both master and sub band at the same time.

Enter Menu 6th to set Dual Wait. Default: ON.

7) LED Display Mode (LED---MENU7)

Function: select the LED/Keypad Lamp mode.

Enter Menu 7th to select LED display mode. Default: 25s.

ON:The LED will always light if choose ON. You can set light time 5S,10S,15S,20S,25S,30S to disable the lamp.Illuminates the LED when any key is pressed.

OFF: Disable the LED lamp.

8) Background Light brightness (LIGHT---MENU 8)

Functions: Adjust screen brightness.

Enter Menu 8th to adjust screen brightness 1, 2, 3, 4, 5, 6, 7.

9) Keypad Beeper setting (BEEP---MENU 9)

Functions: enable/disable the keypad beeper.

Enter Menu 9th to set keypad beeper. Default: ON.

10) Preset Channel Selection (DT/2T/5T CH-MENU 10)

Functions: Preset the signal type (OFF/IDTMF/2T/5T) at software, by choosing 1-16 channel to achieve remote kill stun/activate/revive function.

Enter Menu 10th to choose 1-16 channel.

11) Transmitter Time-out-Timer (TOT-- MENU 11)

Functions: the TOT feature provides a safety switch which limits transmission to a pre programmed value. This will promote battery conservation by not allowing you to make excessively-long transmissions. In the event of a stuck PTT switch, it can prevent interference from other users as well as battery depletion.

Enter Menu 11th to set TOT.

Default: OFF.

12) Busy Channel Lock-out (BCLO--- MENU 12)

Functions: the BCLO feature prevents the radio's transmitter from being activated if a signal is strong enough to break through the "noise", squelch is present. On a frequency where stations using different CTCSS or DCS codes may be active, BCLO prevents you from disrupting their communications accidentally (because your radio may be muted by its own tone decoder).

Enter Menu 12th to set BCLO. Default: OFF.

OFF: Disable BCLO feature.

WAVE: the radios PTT will be prevented only the frequency is busy using.

CALL: the radio's PTT will be prevented only the frequency and tone coder is the same.

13) Transmit Over Beeper (ROGER---MENU 14)

Functions: sending a beeper to inform the receiver TX is over.

Enter Menu 14th to set ROGER, Default: OFF.

14) Receive Saver (RX.SAV--- MENU 16)

Functions: this feature significantly reduces quiescent battery drain, and you may not receive the full data burst.

Enter Menu 16th to set RX.SAV. Default: 1:2.

15) Auto Keypad Lock(AUTOLK & LOCK MD---MENU 18 &MENU 32)

Functions: in order to prevent accidental frequency change or inadvertent transmission, various aspects of the radio's keys and switches may be locked.

Enter Menu 32th to set LOCK MD, you can choose to lock AI/K+S/KEY/PTT.

When you switch AUTOLK ON, the keypad will be locked automatically if there is no key operations for 10 seconds.

If the radio is locked, press [***] key to unlock it. Also, you can lock it using [***] key manually.

16) Voice Prompt (VOICE---MENU 19)

Functions: enable/disable voice prompt.

Enter Menu 19th to set VOICE. Default: ON.

17) Power-on Display setting (OPN.SET&VLT--- MENU 20&21)

Functions: choose power-on display mode and edit power-on message

Enter Menu 20th to set OPN.SET.

DC: battery power voltage

MEG: power-on message

Enter Menu 21st to check battery voltage.

18) Repeater Shift setting (OFFSET&S-D---MENU 26)

Functions: repeater stations are usually located on mountaintops or other high locations, and provide a dramatic extension of the communication range for low-powered hand-held or mobile transceivers.

Under VFO mode, you can set the magnitude and direction of the repeater shift.

Enter Menu 22th to set magnitude of the repeater shift.

Available values: 0.00 ~ 40.00 MHz

Enter Menu 26th to set the repeater shift direction. Default: OFF.

19) Display Channel Name (DIS.NAME &NM SET---MENU 22 &37)

Function: switch channel name displays ON/OFF and edit channel name under MR/CH mode.

Enter Menu 22th to switch display channel name ON/OFF.

Enter Menu 37th to edit channel name, you also can edit it directly by programming software.

Using [] / [] to select character, and [•] to switch cursor position.

20) Tone coder & Tone Search Scanning & Tone calling (C-CDC & R-CDC &T-CDC &SEEK 67.0 & D023N---MENU 23 & 24 & 25 & 29 & 30).

Function 1: CTCSS/DCS Operation

Many repeater systems require a very-low-frequency audio tone that be superimposed on your FM carrier in order to activate the repeater.

This helps prevent false activation of the repeater by radar or spurious signals from other transmitters.

Enter Menu 23th/24th/25th to set TX&RX Tone coder/ RX Tone coder/ TX Tone coder.

1) Press [***] key to select CTCSS/ DCS/ OFF. After you choose CTCSS/ DCS, press [***] [***] key to choose the right group you need.

2) Press [#RADD] key to select DCS direction.

This transceiver has 50 groups CTCSS,104 groups normal/inverted DCS.

CTCSS TONE FREQUENCY (Hz)							
67.0	69.3	71.9	74.4	77.0	79.7		
82.5	85.4	88.5	91.5	94.8	97.4		
100.0	103.5	107.2	110.9	114.8	118.8		
123.0	127.3	131.8	136.5	141.3	146.2		
151.4	156.7	159.8	162.2	165.5	167.9		
189.9	192.8	196.6	199.5	203.5	206.5		
210.7	218.1	225.7	229.1	233.6	241.8		
250.3	254.1						

			DCS CODE			
023	074	172	265	371	503	662
025	114	174	266	411	506	664
026	115	205	271	412	516	703
031	116	212	274	413	523	712
032	122	223	306	423	526	723
036	125	225	311	431	532	731
043	131	226	315	432	546	732
047	132	243	325	445	565	734
	134	244	331	446	606	743
051	143	245	332	452	612	754
053	145	246	343	454	624	
054	152	251	346	455	627	
065	155	252	351	462	631	
071	156	255	356	464	632	
072	162	261	364	465	645	
073	165	263	365	466	654	

Function 2: TONE Search Scanning

In operating situations where you don't know the CTCSS/DCS tone being used by another station or stations, you can command the radio listen to the incoming signal and scan in search of the tone being used.

Enter Menu 29st/30nd to start CTCSS/DCS searching.

If the Tone scanning feature does not detect a tone or a code, it will continue to scan indefinitely. When this happens, it may be that the other station is not sending any tone.

You can press the PTT key to halt the scan at any time.

You also can press the MONI key during Tone scanning to listen to the (muted) signal from the other station. When you release the MONI key, Tone scanning will resume.

Tone Scanning works either in the VFO or MR modes.

Function 3: TONE Calling (1750Hz)

If the repeaters in your country require a 1750Hz burst tone for access (typically in Europe), you can press and hold Side Key 1 for 2s and the transmitter will automatically be activated, and a 1750Hz audio tone will be superimposed on the carrier. Once access to the repeater has been gained, you may release Side Key 1 and use PTT key to activate the transmitter.

21) VFO Step setting (STEP---MENU 27)

Functions: setting of the synthesizer steps.

Enter Menu 27th to set VFO step.

Available Values: 2.5/5/6.25/10/12.5/25/50/100kHz.

22) Wide/Narrow band selecting (N/W---MENU 28)

Functions: setting of wide/narrow bandwidth.

Enter Menu 28th to set bandwidth.

Available Values: Wide---25kHz/Middle---20kHz/Narrow---12.5kHz

Note: wide band is not available for USA and Canada version.

23) Scrambler (SCR-MENU 31)

Functions: only 2/5 tone version has this function.

This transceiver has 1 group of scramblers. It is accomplished by the addition of components to the original signal in order to make an extraction of the original signal difficult. And its voice companding technology will make the voice clearer in the noise environment. Enter Menu 31td to set scrambler group.

24) Dual Watch/Monitor (DW- MENU 34)

Function: Dual Watch feature makes transceiver can monitor the calling signal when FM radio is on and you won't miss any calling. Enter Menu 34th to set DW. Default: ON.

ADVANCED FUNCTIONS

1)EMERGENCY ALERT [F] + [#****]

Under standby mode, press [] to enter menu setting. LCD displays "MENU", then press [] to turn on emergency alert function, radio will transmit emergency ring, until you press PTT, it will exit.

2)KEYPAD LOCK SETTING

Under standby mode, press [a] for 2s to lock or unlock the keypad. " a " will be displayed at the top of LCD when keypad is locked. And you can Enter Menu 32th [LOCK MD] to set Keypad lock method: ALL/PTT/KEY/KEY+S lock.

3)TONE CALLING (1750 TONE)

To access a repeater, press and hold [Side key 1] for the amount of time specified by the repeater. The transmitter will automatically be activated, and a 1750Hz audio tone will be superimposed on the carrier. Once access to the repeater has been gained, you may release [Side key 1] and use the PTT key to transmit.

4) Channel Storage and Delete

Channel Storage

Under VFO mode, input the desired frequency by keypad directly or select one by pressing [\bigcirc] or [\bigcirc] . Long pres [\bigcirc], the digits blinks at the right top of LCD. Press number to input the desired channel directly, or

press [] or [] to choose the desired one, then press [] to save.

Note: after you input the desired channel number, if the channel number blinks, it means that this channel is already occupied, you can choose another one.

e.g.: to store the frequency: 450.325MHz with CTCSS: 151.4 to the channel 05, the steps are as follows: 1)Under VFO mode, input 450.325.

2)Press [\blacksquare] + [2m] [3m] or press [\blacksquare] + [4m] , then press [\blacksquare] to enter.

5)Press [A/B] to Exit.

7)Press [] [] to choose 05 directly.

Channel delete

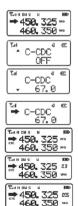
1) Under VFO mode, long press [F] , and the digit blinks at the right top of LCD

2) Press [] [] or input channel number you want to delete, then press [] to confirm.

3) After deleting, it will skip into the next channel, if you want to delete it, repeat the above operation.

5) FM RADIO FUNCTION

1) Turn On/Off FM Radio



™ENU.





2) Mode selection:

Under FM radio mode, press [[to switch between FM memory mode and FM frequency mode (this function is unavailable when there is no FM memory channel).

3) Frequency selecting

Under FM frequency mode, input the digits directly through keypad or press [] or [] to choose the desired frequency. Under FM memory mode, press [] or [] to choose the desired channel.

4) FM radio storage

Under FM frequency mode, long press [F] , the saved channel number blinks at the right of the screen. Press [] or [] to select the desired channel number press [] to confirm and then return to the receiving mode.

5) FM radio channel delete

Under FM frequency mode, long press [], the channel number blinks. Press [] or [] to choose the channel number you want to delete. Press [] to confirm. Repeat this operation, you can delete all memory channel 24 in maximum.

6) FM Radio Scan

Set a side key as the Scan function, under FM frequency mode, active the side key scan function, it will auto scan the FM frequency.

6) VFO offset setting.

Under VFO mode, enter Menu 22 to set magnitude of the repeater shift, enter menu 26 to set the shift direction, and enter menu 27 to change the synthesizer steps.

For example, if your frequency now is 445.0500MHz and you would like to set a frequency 444.4500MHz as transmit frequency, steps as below:

- 1. Under VFO mode, enter Menu 22 to set the offset at 0.6MHz, and press [F] to confirm.
- 2.Enter menu 26 to set shift direction at "- ", and press [F] to confirm.
- 3.Press PTT button will show transmit frequency at 444.4500MHz.

7) RX ENC (Environment Noise Cancellation) function

Audio sound active control is a signal-processing methodology that reduces the effective sound amplitude to improve signal-to-noise ratio (SNR) so that the unwanted noise is less perceptible. The ENC methodology is also called audio noise reduction (ANR). ENC or ANR is based on coherent acoustics that accurately replicate the original sound field in all its forms. This radio is equipped with the ENC (Environment Noise Cancellation) function and can help you hear clearly in the noisy environment.

RX ENC ON/OFF can be set from Menu 38.

8) One Key Frequency Pairing

When the radio is under VFO mode, long press the A/B key, and the radio will broadcast "Di" prompt sound, and the green light flashes slowly, transmitting (Press PTT) the radio (the one we want to pair). When the radio broadcasts "Di" prompt sound, the radio will finish pairing the current frequency and CTCSS. When the green light always lights up, save successfully. The channel paring is the same as the one key frequency pair.

Note: support pairing different brand walkie-talkies.

The radio (want to be paired) must keep on pressing PTT till the frequency and the CTCSS/DCS are paired, or it may be seeking the end tone of the paired radio.

Selected channel call

Press PTT and Side key 1(Flashlight button) to achieve remote kill/stun/active.

DTMF

When the signal of the channel selects the DTMF, press the PTT key and the side key 1 at the same time, the current channel will automatically check if the DTMF signaling is received and decode it. And achieve a corresponding function according to the received code. The function includes ANI display, and remote stun/waken/kill.

ANI Display:

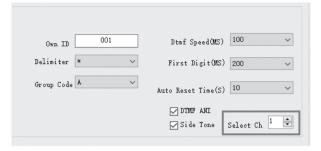
1.DTMF Encode type choose ANI



2.Input the caller ID, e.g., your radio ID is 001, the called radio ID is 003.



3.Select channel NO.



4.Choose DTMF signal

No.	Rx Fre	Tx Fre	Decode	Encode	Scramble	Power	B_Lock	Step	Vi de	Signal
1	445.02500	445.02500	OFF	OFF	OFF	Hig	OFF	12.5K	Wide	DTMF

5. Press the PTT key and side key 1 at the same time to turn on the ANI display function.

Remote stun, remote kill function

Stun code: when the radio receives the corresponding DTMF code, the radio will be remote stunned and disabled to transmit. Kill code: when the radio receives the corresponding DTMF code, the radio will be remote

killed and disabled to receive and transmit.

Waken code: release the state of stun/kill.

Select CH: the default channel when the DTMF is calling.

1.DTMF Encode type choose OFF, user can input the desired DTMF code directly.

DTMF MENU

Dtmf Enco	de	
No.	Туре	Code
1	ANI	003*001
	OFF	323457989012345
3	OFF	323457989012345#
4	OFF	423465789012345
5	OFF	423465789012345#
6		

2. In transmitting, input the remote kill/stun code for the radio which you want to remote kill/stun.

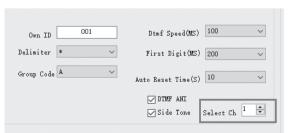
Stun Code	323457989012345	
Kill Code	423465789012345	

3.DTMF Encode

Remote receive code: remote stun code + # to waken radio which at stun state.

Remote receive code: remote kill code + # to waken radio which at kill state.

4.Select channel



Like above setting:

Channel 1: ANI display;

Channel 2: remote stun code;

Channel 3: remote waken from stun state;

Channel 4: remote kill code;

Channel 5: remote waken from kill state;

5.Signal choose DTMF

No.	Rx Fre	Tx Fre	Decode	Encode	Scramble	Power	B_Lock	Step	Wide	Signal
1	445.02500	445.02500	OFF	OFF	OFF	Hig	OFF	12.5K	Wide	DTMF

6.Remote kill/waken/stun operation.

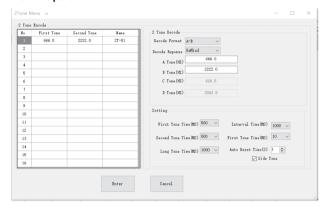
After setting like above, if you would like to achieve Radio A kill Radio B, there are two ways to achieve:

One: At programming software DTMF setting choose Ch 4. Then press the PTT and side key 1 to achieve remote radio B.

Two: At radio, choose Menu 10th—DT CH—Channel number choose 4. Then press the PTT key and the side key 1 to achieve remote radio B.

Similar operation for remote stun/waken.

2 TONE Operation



2 Tone encodes

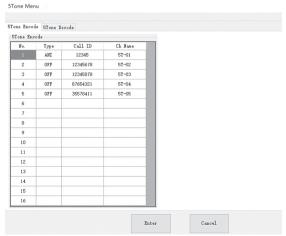
Input: the frequency of first tone and second tone.

Note: the frequency between the first tone and second tone should not be too similar to avoid the decoding being wrong.

2 Tone decodes

Decode Format: the combination of decode, for example: A-B, you should make sure the frequency of first tone is A, and second tone is B. Other combination is similar.

5 Tone Operation



5 Tone encode The writing way is the same as the DTMF.

5 Tone decode

Function: The function will be achieved when the radio receives the corresponding code.

Select: Turn on squelch.

Stun/kill: same with DTMF.
Wake: release the state of stun/kill.

TECHNICAL PARAMETERS

C	^	n	^	ra	ı
G	е	п	е	га	ı

Channel Number	200
Operating Voltage	7.4VDC
Operating Temperature	-10°C~+50°C
Weight	295g (battery and antenna included)
Dimension	126x62x43mm(not including antenna)

Transmitter

Frequency	144-148/420-450MHz US version;144-146/430-440MHz EU
Modulation Type	FM
Spurious Power	≤-15dB
Modulation Noise	<-40dB

Receiver

Frequency	144-148/420-450MHz US version
	144-146/430-440MHz EU version
	136-174/400-480MHz
Sensitivity	≤0.2 u V
Selectivity	≥65dB
Inter mediation	≥55dB
Audio power	> 500m W
Audio distortion	≤10%
Frequency Stability	5ppm
Current	standby: 60mA working:250mA
Audio response (300-3400Hz)	+7~-12.5dB

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



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/

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, 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.

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.



RF Exposure Compliance and Control Guidelines and Operating Instructions

•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.

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

To 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.

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.

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.



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.

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:		
Purchasing Date:		
Dealer:	Telephone:	
User's Name:	Telephone:	
Country:		
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.









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E-mail: kam@retevis.com Facebook: facebook.com/retevis



MADE IN CHINA

说明书要求

尺寸: 145*210mm

印刷:黑白印刷

装订: 胶黏钉

纸张材质: 双胶纸

本页无需印刷