RETEVIS

RT95

MOBILE RADIO

Instruction Manual

CONTENTS

1. FUNCTIONS & FEATURES

RT95 Mobile Radio has nice housing, stoutness & stability, advanced and reliable functions, perfect & valuable. This amateur mobile radio especially designs for drivers and it pursues philosophy of innovation and practicality. More functions as follows:

♦ Adopt superior quality material, better technology and high quality radiator to ensure stable and durable operation;
♦ 180 degree rotatable TFT LCD display;
♦ Full alloy body for heat radiation;
♦ Frequency mode and Channel mode for different operation requirement;
♦ Distribute buttons reasonably, convenient for operation;
♦ Separate band width setting for each single channel, Wide 25K, Middle band 20K, Narrow band 12.5K;
♦ 200 programmable memory channels,identified by enditing name;
♦ Separate CTCSS, DCS, DTMF, 5Tone setting for each single channel,rejecting extra calling from other radios;
♦ Various scan functions including CTCSS/DCS Scan function;
♦ Smart menu control and PC programming control;
♦ Voltage level protection;
♦ LCD brightless control;
♦ Automatic power on function;
♦ Main unit and microphone key lock function;
♦ 5Tone signaling for data transfer,alarm, all call, ANI, remote kill, remotewaken.
♦ DTMF-ANI or 5Tone-ANI for automatical calling recognition;
♦ Scrambler(Optional).

2. INITIAL INSTALLATION

2.1 Mobile Installation

To install the transceiver, select a safe, convenient location inside your vehicle that minimizes danger to your passengers and yourself while the vehicle is in motion. Consider installing the unit at an appropriate position so that knees or legs will not strike it during sudden braking of your vehicle. Try to pick a well ventilated location that is shielded from direct sunlight.
1.Install the mounting bracket in the vehicle using the supplied selftapping screws (2pcs) and flat washers (2pcs).

Car body

Washer (M5)
Tapping screw
(M5x20mm)

Mounting bracket
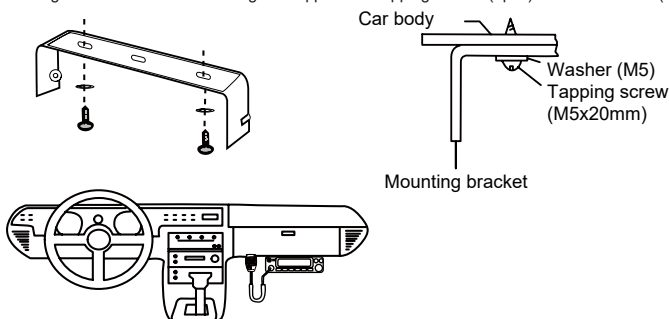
2.Position the transceiver, then insert and tighten the supplied hexagon SEMS screws.
♦ Double check that all screws are tightened to prevent vehicle vibration from loosening the bracket or transceiver.

2.2 DC Power Cable Connection

🔊 » Locate the power input connector as close to the transceiver as possible.
NOTE

2.2.1 Mobile Operation

The vehicle battery must have a nominal rating of 12V. Never connect the transceiver to a 24V battery.Be sure to use a 12V vehicle battery that has sufficient current capacity.If the current to the transceiver is insufficient,the display may darken during transmission,or transmitting output power may drop excessively.
1.Route the DC power cable supplied with the transceiver directly to the vehicle's battery terminals using the shortest path from the transceiver.
♦ We recommend you do not use the cigarette lighter socket as some cigarette lighter sockets introduce an unacceptable voltage drop.
♦ The entire length of the cable must be dressed so it is isolated from heat, moisture, and the engine secondary (high voltage) ignition system/ cables.
2. After installing cable, in order to avoid the risk of damp, please use heat-resistant tap to tie together with fuse box. Don't forget to reinforce whole cable.
3.In order to avoid the risk of short circuit, please cut down connection with negative (-) of battery, then connect with radio.
4.Confirm the correct polarity of the connections, then attach the power cable to the battery terminals; red connects to the positive (+) terminal and black connects to the negative (-) terminal.

♦ Use the full length of the cable without cutting off excess even if the cable is longerthan required. In particular, never remove the fuse holders from the cable.


Red

Black
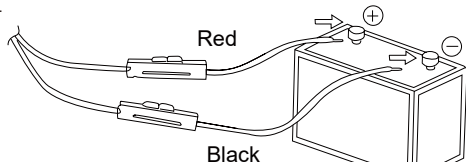
5. Reconnect any wiring removed from the negative terminal.
6. Connect the DC power cable to the transceiver's power supply connector.
♦ Press the connectors firmly together until the locking tab clicks.

2.2.2 Fixed Station Operation
DC power supply,Please contact local dealer to require.The recommended current capacity of your power supply is 12A.
1.Connect the DC power cable to the regulated DC power supply and ensure that the polarities are correct. (Red: positive, Black: negative).
♦ Do not directly connect the transceiver to an AC outlet.
♦ Use the supplied DC power cable to connect the transceiver to a regulated power supply.
♦ Do not substitute a cable with smaller gauge wires.

Regulated power supply

Red
Black

Regulated power supply

DC power cable with fuse holder
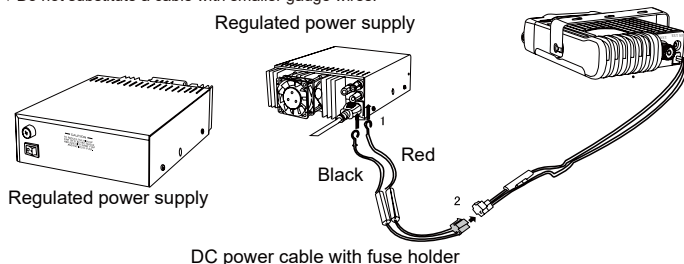
2.Connect the transceiver's DC power connector to the connector on the DC power cable.
♦ Press the connectors firmly together until the locking tab clicks.

NOTE » Before connecting the DC power to the transceiver, be sure to switch the transceiver and the DC power supply OFF.
» Do not plug the DC power supply into an AC outlet until you make all connections.

2.2.3 Replacing Fuses
If the fuse blows, determine the cause, then correct the problem. After the problem is resolved, replace the fuse. If newly installed fuses continue to blow, disconnect the power cable and contact your authorized **RETEVIS** dealer or an authorized **RETEVIS** servicecenter for assistance.
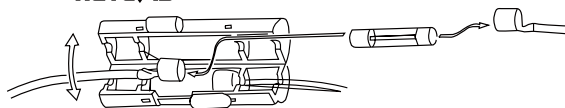
Fuse Location	Fuse Current Rating
Transceiver 10A	10A
Supplied Accessory DC power cable	10A

Only use fuses of the specified type and rating, otherwise the transceiver could be damaged.

NOTE » If you use the transceiver for a long period when the vehicle battery is not fully charged, or when the engine is OFF, the battery may become discharged, and will not have sufficient reserves to start the vehicle.Avoid using the transeceiver in these conditions.

2.3 Antenna Connection
Before operating,install an efficient, well-tuned antenna. The success of your installation will depend largely on the type of antenna and its correct installation. The transceiver can give excellent results if the antenna system and its installation are given careful attention.Use a 50 impedance antenna and low-loss coaxial feed-line that has a characteristic impdeance of 50,to match the transceiver input impedance,Coupling the antenna to the transceiver via feed-lines having an impedance

other than 50 reduces the efficiency of the antenna system and can cause interference to nearby broadcast television receivers,radio receivers, and other electronic equipment.

NOTE »Transmitting without first connecting an antenna or other matched load may damage the transceiver. Always connect the antenna to the transceiver before transmitting.
»All fixed stations should be equipped with a lightning arrester to reduce the risk of fire,electric shock,and transceiver damage.

The possible locations of antenna on a car are shown as following:

2.4 Accessories Connections

2.4.1 External Speaker

If you plan to use an external speaker,choose a speaker with an impedance of 8.The external speaker jack accepts a 3.5mm (1/8") mono (2-conductor) plug.
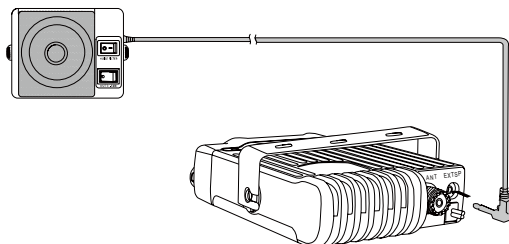
NOTE »External speaker adopt double port BTL, please care about the connecting way.
The speaker can not connect with the ground, otherwise the speaker will be fault.
The wrong connecting way as the following picture.

falsch

Boden
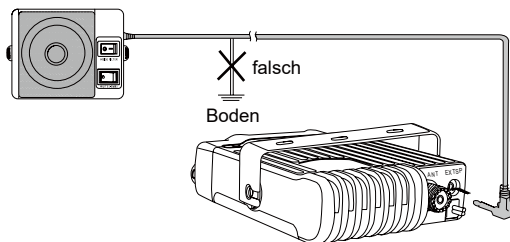
2.4.2 Microphone

For voice communications, connect a microphone equipped with an 8-pin modular plug into the modular socket on the front of the main unit. Press irmly on the plug until the locking tab clicks.

Microphone connector
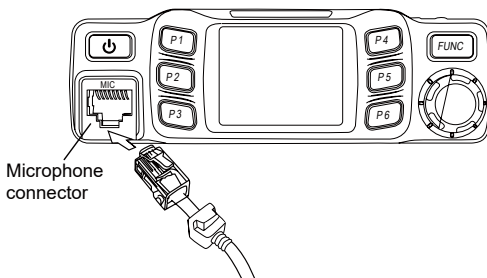
3. GETTING ACQUAINTED

3.1 Front panel
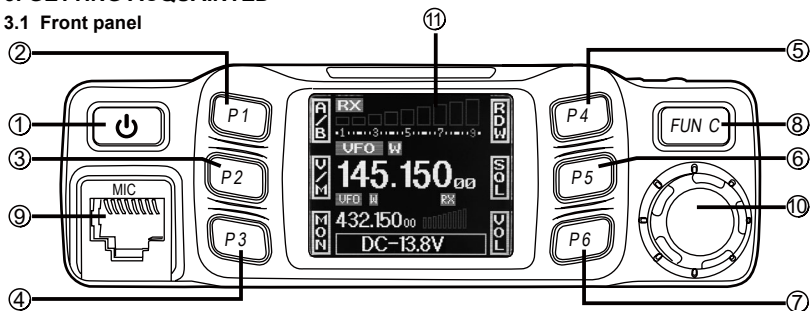
NO.	Key	Funktion
1	⏻	Power On/Off/Mute
2	PI	Self define key
3	P2	Self define key
4	P3	Self define key
5	P4	Self define key
6	P5	Self define key
7	P6	Self define key
8	FUNC	Function key/ function group key
9	MIC	Microphone Jack
10	◎	Channel switch/Push button/Key lock
11	LCD display	Display channel/frequency/function setting

3.2 Rear panel
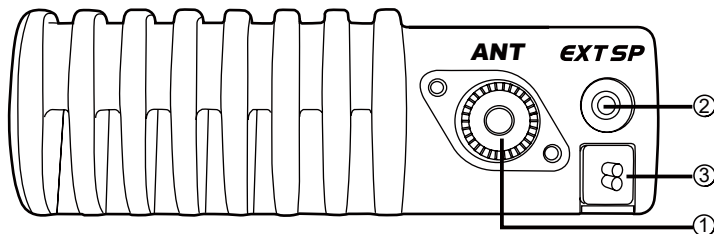
NO.	Key	Funktion
1	Antenna connector	Connect a 50 ohm antenna
2	Ex-Speaker Jack	Connect external speaker
3	Power cable	Connect a standard DC power cable

3.3 Display
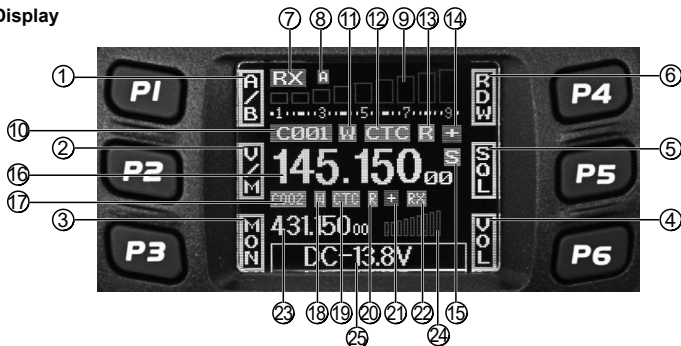
NO.	Funktion
1	Displays the self define function when press P1
2	Displays the self define function when press P2
3	Displays the self define function when press P3
4	Displays the self define function when press P4
5	Displays the self define function when press P5
6	Displays the self define function when press P6
7	Displays the main channel TX or RX status
8	Displays when Automatic power off function is on
9	Displays the main channel field strength
10	Displays main channel number in channel mode
11	Displays when set band width for main channel
12	Displays when main channel set CTCSS/DCS
13	Displays when main channel reverse function is on
14	Displays when main channel offset function is on
15	Displays when main channel is in scan list
16	Displays main channel frequency or name
17	Displays sub channel number in channel mode
18	Displays when setting band width for sub channel
19	Displays when current sub channel set CTCSS/DCS
20	Displays when sub channel reverse function is ON
21	Displays when sub channel offset function is ON
22	Displays when sub channel receive a signal
23	Display sub channel frequency or name
24	Displays signal strength of sub channel
25	Display voltage and menu setting

3.4 Microphone
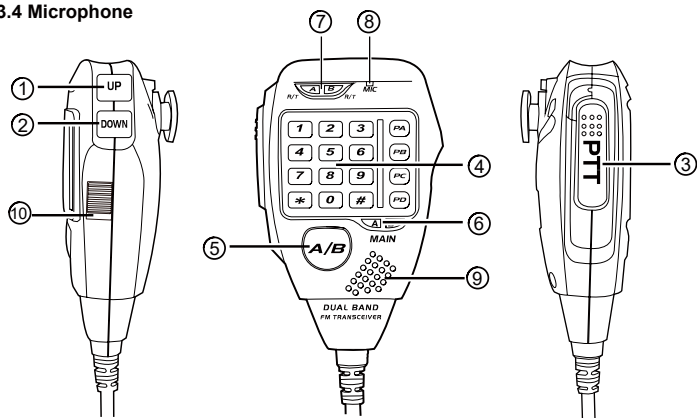
NO.	Key	Funktion
1	UP	Increase frequency, channel number or setting value
2	DOWN	DOWN Decrease frequency, channel number or setting value
3	PTT	PTT Press the PTT (Push-TO-Talk) key to transmit
4	Number Key	Number Key Input VFO frequency or DTMF dial out etc.
5	A/B band	A/B band Choose left band or right band as Main band
6	Band indicator	Band indicator The indicator light on for Main band
7	TX/RX indicator	TX/RX indicator Light green while receiving, Light red while transmitting
8	MIC	MIC Speak here during transmission
9	Speaker	Speaker When shut the speaker in the base, you can hear the calling by this speaker
10	Lock UP/DOWN	10 Lock UP/DOWN When this key is in up position, It is unlock UP/DOWN key, when this key is in down poisition, UP/DOWN key will be locked

MIC Connector Diagram(in the front view of connector)

- ⑧ Key Pad Serielle Daten
- ⑦ +5V
- ⑥ Down
- ⑤ UP
- ④ MIC GND
- ③ MIC
- ② PTT
- ① GND
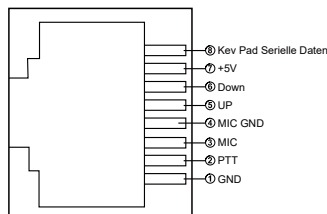
4.MODE SET

1.Display Mode

How to choose display mode by PC programming: In PC software's "Function Setup" menu, the "Display Mode" selection available setting: "Frequency" , "Channel" or "Name" How to choose display mode by radio menu: Please refer to "Display Mode" in Page 17.
A.Frequency mode: When set display as'Frequency", new setting of channel operation and shortcut operation can be temporarily used by user. Once the radio is turned off or switched to another channel, the temporary setting will be erased and back to initial settings.(As pic 1)

(As pic 1)

B. Channel Name Mode: When set display as "Name",it enters into Channel name mode. In this mode,it will display corresponding channel name when the current channel is edited with name. Otherwise, it will display frequency + channel number.(As pic 2)

C. Channel mode: When set display mode as "Channel" , it enters channel mode. If there is name for current channel , the LCD will display current channel name otherwise it shows current channel number.(As pic 3)

(As pic 2)   (As pic 3)
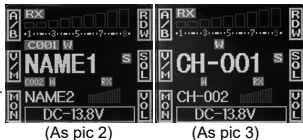
2. Working Mode

How to choose work mode by PC programming: In PC software's "Function Setup" menu, the "VFO/MR A" and "VFO/MR B" selection available setting: "VFO","MR.".

A. VFO Mode: This mode shows only frequency on the display. Shortcut operation and Channel setting will be changed & stored as the latest value. If the radio is turned off,the latest setting will not changed.In VFO mode, adjust the channel knob will adjust the frequency by pre-programmed step size.

B. "MR." Mode: Memory mode, In this mode, the radio will work by pre-programmed channels, ajust the channel knob will move the channel up and down.

📢🔊 » If transceiver programmed as channel mode and locked, you can't return to frequency mode by manual operation
NOTE   in the radio menu.

5. BASIC OPERATIONS

5.1 Switching the Power On/Off

1. Power On: in power off state press [⏻] , the LCD displays " RETEVIS " then willdisplays current frequency or channel.
2. Power Off: in power on state, press [⏻] for 2 seconds, the LCD displays "CLOSING",then the LCD display disappears.

5.2 Adjusting the Volume

1. In standby mode, short press the [PX] key programmed as VOL control, the LCD display "VOL:XX", then turn the channel switch to adjust volume level.
2. In standby mode, short press [⏻] to mute the speaker, the LCD display "AUDIO:MT",short press it again to return last volume level.

📢🔊 » During communication, volume level can be adjusted more accurate.
NOTE

5.3 Adjusting Frequency

1. By channel knob: In VFO mode, turn channel knob can adjust frequency, push channel knob,the matching charactor will flash,then turn channel knob to adjust the frequency by step size 1K, 10K, 100K, 1Mz or 10MHz.

📢🔊 » The microphone [UP]/[DOWN] key can also adjust the frequency, each press move one step size. hold the [DOWN]
NOTE   key can decrease one step size. if the channel knob is programmed as VOL function, users need press the PX key
         which programmed as FRQ function, when the LCD displays "VFO FREQ", turn channel knob to adjust frequency.

2. By number key: In VFO mode, you can input wanted frequency by the microphone number key. For example if want 145.125Mhz, just press key 1, 4, 5, 1, 2, 5, if want 145Mhz, just press 1, 4, 5. The input is invalid if the frequency is over range.

5.4 Adjust Channel

1. Adjust channel by channel switch: In channel mode, turn channel knob to adjust the channel, the [UP]/[DOWN] key in the microphone can also adjust the main channel.

📢🔊 » If there is an empty channel, the radio will jump over it to next channel. If the channel knob is programmed as VOL
NOTE   function, users need press the PX key which programmed as CH function, when the LCD displays "CH XX ", turn
         channel knob to adjust channel.

2. By number key: In CH mode, you can input wanted channel by the microphone input 3 numbers (001-200) , 001 stands for channel 1, 200 stands for channel 200. if input channel is an empty channel, the radio will report error and return to last channel.

5.5 Receiving

When the channel you are operating being called, the screen shows red RX and field strength in this way you can hear the calling.

📢🔊 » When the RX icon and field strength flashes,but can not hear the calling,it means current channel receive a
NOTE   matching carrier but unmatching signaling. Refer to CTCSS/ DCS CODE or Optional Signaling setup in Page 14).

5.6 Transmitting

Hold [PTT] and speak into microphone. the radio start transmit, the screen shows red TX and field strength.Hold the microphone approximately 2.5-5.0cm from your lips and speak to microphone in your normal speaking voice to get best timbre.

📢🔊 » Only available transmit on main channel.
NOTE

5.7 Switch between Main Channel and Sub Channel

This radio work by single channel dual watch , in standby, the frequency in the upper side is main channel and down side is sub channel, the transmit is available only on main channel.

1. Short press [FUNC] to switch function group, choose the [PX] key defined as A/B function.

2.Short press [PX] key defined as A/B function, then repratedly press this key or turn channel knob to switch main channel and sub channel, the LCD displays Main:XX.
3. Hold [PUSH] or [FUNC] key to store and exit, or wait 10 seconds the radio will store the setting and exit.

5.8 Switch between VFO and Channel Mode
1. Short press [FUNC] to switch function group, choose the [PX] key defined as V/M function.
2. Short press [PX] key defined as V/M function, then repeat press this key or turn channel knob to switch main channel and sub channel, the LCD displays V/M:XX.
3. Hold [PUSH] or[FUNC] key to store and exit, or wait 10 seconds the radio will store the setting and exit.

5.9 Channel Edit
1. In VFO mode, turn channel knob or the [UP]/[DOWN] key in microphone to adjust frequency.
2. Short press [FUNC] key to switch function group, choose the [PX] key defined as CDT function. Press [PX] key defined as CDT function to set CTCSS/DCS code. turn channel knob or the [UP]/[DOWN] key in microphone to choose CTCSS/DCS code.
3. Long press [FUNC] key to enter channel setting menu, to choose wanted setting.
4. Short press [FUNC] key to switch function group, hold the [PX] key defined as V/M function until the channel number flashes,if the channel number is red means current channel is valid, if the channel number is green, means current channel is empty.
5. Turn the channel knob or microphone [UP]/[DOWN] key to choose the channel number to be stored.
6.Hold the [PX] key defined as V/M function to confirm and store the channel ,the channel number stop flash and radio emits a beep sound,the channel is stored successfully.

5.10 Channel Delete
1. In channel mode, turn the channel knob or microphone [UP]/[DOWN] key to choose an unwanted channel.
2.Short ptess [FUNC] key to switch function group,choose the [PX] key defined as V/M function, press this key together with [FUNC] key for 2 seconds, current channel is
deleted and automatical jump to next channel.

5.11 CTCSS/DCS Encode and Decode Setup
1. Short press [FUNC] to switch function group, choose the [PX] key defined as CDT function.
2.Short press PX defined as CDT function,then repearebly short press this key set the currently channel if use CTCSS/DCS encode and decode.
3. When the LCD displays: RCDT:XXX, turn channel knob or press microphone [UP]/[DOWN] key to choose if add CTCSS/DCS decode signaling to current channel. Press [PUSH] button then turn channel knob or press microphone [UP]/[DOWN] key to choose wanted CTCSS/DCS decode signaling.
4. When the LCD displays: TCDT:XXX, turn channel knob or press microphone [UP]/[DOWN] key to choose if add CTCSS/DCS encode signaling to current channel. Press [PUSH] button then turn channel knob or press microphone [UP]/[DOWN] key to choose wanted CTCSS/DCS encode signaling.
5.CTCSS:62.5-254.1Hz plus one self define group. total 52 group.
DCS: 000N-777I total1024 groups.
N is positive code, I is inverse code.
Press FUNC key can choose positive or inverse code.
6. Hold [PUSH] or [FUNC] key to store and exit, or wait 10 seconds the radio will automatically store the setting and exit.

🔊 NOTE » Under channel mode,this operation can be temporarily used by user. Once the radio is turned off or switched to another channel, the temporary setting will be erased. If the channel setting programmed for valid, the temporary setting will keep valid until next change, turn off radio or switch to another channel, the temporary setting will not changed.

5.12 CTCSS Scan
In channel or VFO mode, short press [FUNC] to switch function group, choose the [PX] key defined as CDT funtion.short press this key to enter CTCSS code setting.when the LCD displays CTC, long press this key to enter CTCSS scan. turn channel knob or press microphone [UP]/[DOWN] key can change scan direction.Once finding a matching CTCSS signaling, it will stop 5 seconds then scan again, short press any key to exit CTCSS scan.

5.13 DCS Scan
In channel or VFO mode, short press [FUNC] to switch function group, choose the [PX] key defined as CDT function. short press this key to enter DCS code setting. When the LCD displays DCS, long press this key to enter DCS scan, turn channel knob or press microphone [UP]/[DOWN] key can change scan direction. Once finding a matching DCS signaling, it will stop 5 seconds then scan again, press any key to exit DCS scan.

5.14 Frequency/Channel Scan
Frequency Scan
In frequency (VFO) mode, this function is designed to monitor signal of all frequency points under each step size.
1. In VFO mode, short press [FUNC] key to switch function group, choose the [PX] key defined as SCN function.
2. Short press the [PX] key defined as SCN function to start frequency scan, the LCD displays "S".
3. Turn channel knob or press microphone [UP[DOWN] key can change scan direction.
4. Turn channel knob or press any key except microphone [UP][DOWN] key to exit.

Channel Scan
In channel mode, this function is designed to monitor signal of all channel.
1. In channel mode, press [FUNC] key to switch function group, choose the [PX] key defined as SCN function.
2. Short press the [PX] key defined as SCN function to start channel scan, the LCD displays: S.
3. Turn channel knob or press microphone [UP][DOWN] key can change scan direction.
4. Turn channel knob or press any key except microphone [UP]/[DOWN] key to exit.

5.15 Scan Skip
In channel mode, press [FUNC] key to switch function group, choose the [PX] key defined as SCN function. Hold this key to add into or delete from scan list.
1. When LCD displays:S, the current channel is in scan list.
2. When LCD not displays:S, the current channel is not in scan list.

5.16 Squelch off/ Squelch off Momentary
The [PX] key defined as MON function, can monitor the weak signal.
1. Press [FUNC] key to switch function group, choose the [PX] key defined as MON function.
2. Short press the [PX] key defined as MON function to turn squelch off / squelch off momentary, the LCD displays red "RX" icon.
Squelch off: press the [PX] key defined as MON to disable squelch, press [MON] key to resume squelch.
Squelch off momentary: hold the [PX] key defined as MON to disable squelch, release [MON] key to resume squelch.

5.17 KEYPAD LOCKOUT
Avoiding unintentional operation, this function will lock the keys except [PTT], [PUSH], [⏻] Keys.
1. Long press [PUSH] button, the downside of the LCD displays Key Lock, means the keypad is locked.
2. Long press [PUSH] button again, the downside LCD displays : Key Unlock, means the keypad is unlocked.

📢 » NOTE:When keypad lockout, except [⏻] key, [PUSH] button and [PTT] key is available, other keys are invalid .
NOTE

5.18 Transmit DTMF/5 Tone Signaling
If the current channel is with DTMF/5TONE signaling, hold PTT and [UP] key will transmit selected Pre-programmed signaling.

5.19 Transmit Tone burst frequency
Hold PTT and [DOWN] key will transmit selected Pre-programmed tone burst frequency.

5.20 Transmit DTMF by Microphone Keypad
Hold PTT, then input DTMF signaling by the microphone keypad.

6. FUNCTION MENU
1. Hold [FUNC] key to enter SELECT MENU interface.
2. Short press [P4], [P6] key or turn channel knob to choose menu list. Short press [P5] can fast turn page.
3. Press [PUSH] button to enter FUNC MENU setting.
4. Short press [P4], [P6] key or turn channel knob to choose wanted setting.

6.1 Beep
1. Enter FUNCTION MENU list, choose No.01 function.
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting. Off~5: 6 levels available. Off: Turn off BEEP function.
4. Press [PUSH] button or [P3] key to store setting and exit.

6.2 Frequency Step Size Setup
1. Enter FUNCTION MENU list, choose No.02 function.
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
Total 9 Channel step size available: 2.5K,5K,6.25K,10K,12.5K,20K,25K, 30K and 50K.
4. Press [PUSH] button or [P3] key to store setting and exit.

6.3 Display mode setup
This radio has 3 different display: Frequency+Channel and Channel name Tag mode.
1. Enter FUNCTION MENU list, choose No.03 function.
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
FRQ: Frequency+Channel mode.
CH: Channel mode.
NM: Channel+name mode+ Channel mode, If channel not named, it displays
Fequency + Channel mode, otherwise displays the channel name.
4. Press [PUSH] button or [P3] key to store setting and exit.

6.4 Squelch level Setup
This function use for setting RX signal strength, the calling will be heard only when reach setted level, otherwise the radio will keep mute.

1. Enter FUNCTION MENU list, choose No.04 function.
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
Off-9: Total 10 levels, OFF is lowest level, squelch is off.
4. Press [PUSH] button or [P3] key to store setting and exit.

6.5 Volume level setting
1. Enter FUNCTION MENU list, choose No.05 function.
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
1-36: total 36 levels available.
4. Press [PUSH] button or [P3] key to store setting and exit.

6.6 Password setting
After enable this function, must be input correct password then can turn on the transceiver.
1. Enter FUNCTION MENU list, choose No.06 function.
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
ON: Turn on password function.
OFF: Turn off password function.
4. Press [PUSH] button or [P3] key to store setting and exit.

6.7 Scan Dwell Time Setup
1. Enter FUNCTION MENU list, choose No.07 function.
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
TO: It pause for preset pause time when scanning a matching signal, then resume scan.
CO: It pauses once scanning a matching signal, and resume scan when signal disappears.
SE: It stops once scanning a matching signal.
4. Press [PUSH] button or [P3] key to store setting and exit.

6.8 Scan Pause Time Setup
1. Enter FUNCTION MENU list, choose No.08 function .
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
5S : It pauses 5s once scanning a matching signal, then resume scan.
10S : It pauses 10s once scanning a matching signal, then resume scan.
15S : It pauses 15s once scanning a matching signal, then resume scan.
Press [PUSH] button or [P3] key to store setting and exit.

6.9 AOP (Automatic power on setup)
When turn off AOP, the radio need press 〔⏻〕key to power on when connect with the power supply.
1. Enter FUNCTION MENU list, choose No.09 function.
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
ON : Enable AOP function.
OFF: Power off by manual.
4. Press [PUSH] button or [P3] key to store setting and exit.

6.10 Dual Watch setup
1. Enter FUNCTION MENU list, choose No.10 function
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting
ON: Enable Dual Watch function
OFF: Disable Dual Watch function
4. Press [PUSH] button or [P3] key to store setting and exit.

6.11 Backlight Brightless Setup
1. Enter FUNCTION MENU list, choose No.11 function
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose brightless level, 1-3 level available.
4. Press [PUSH] button or [P3] key to store setting and exit.

6.12 TOT(Time Out Timer)
The time-out timer limits continuous transmitting time. When transmit time last over
programmed value, the transmitting will stop and emit a prompt.
1. Enter FUNCTION MENU list, choose No.12 function
2. Press [PUSH] button, the menu value in LCD turns to green color
3. Turn channel knob to choose wanted setting.
1-30: 1-30 minutes range available by 1 minute/step

OFF: Turn off TOT function
4. Press [PUSH] button or [P3] key to store setting and exit.

6.13 APO (Automatic Power OFF)
Once APO is activated, the transceiver will be automatically switched off when the pre-set timer running out.
1. Enter FUNCTION MENU list, choose No.13 function.
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
30Min: Automatical power off after 30 minutes.
60Min: Automatical power off after 60 minutes.
120Min: Automatical power off after 120 minutes.
OFF: Automatical power off function is off.
4. Press [PUSH] button or [P3] key to store setting and exit.

6.14 Pilot Frequency
This function uses to start repeater. It needs a certain intensity Pilot Frequency to start
dormant repeater. As usual, no need to send pilot frequency again once repeater started.
1. Enter FUNCTION MENU list, choose No.14 function.
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
1000Hz: Pilot frequency 1000Hz
1450Hz: Pilot frequency 1450Hz
1750Hz: Pilot frequency 1750Hz
2100Hz: Pilot frequency 2100Hz
4. Press [PUSH] button or [P3] key to store setting and exit.

6.15 DIR (LCD display direction setup)
1. Enter FUNCTION MENU list, choose No.15 function.
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
FAIL: Revers display.
STAN: normal display.
4. Press [PUSH] button or [P3] key to store setting and exit.

6.16 Microphone Speaker
1. Enter FUNCTION MENU list, choose No.16 function.
2. Press [PUSH] button, the menu value in LCD turns to green color
3. Turn channel knob to choose wanted setting.
M&H: Turn on Main speaker and microphone speaker.
MAIN: Turn on Main speaker.
HAND: Turn on microphone speaker.
4. Press [PUSH] button or [P3] key to store setting and exit

6.17 RTDF (RX/TX dissimilar frequency Setup)
This radio has dissimilar frequency function, when this function is on the frequency in upside of LCD is RX frequency, and the downside frequency is TX frequency. You can revise the RX frequency by numberic key in microphone, you can revise TX frequency by the A/B key in microphone or the PX dey defined as A/B function.
1. Enter FUNCTION MENU list, choose No.17 function.
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
ON: Turn on RTDF function.
OFF: Turn off RTDF function
4. Press [PUSH] button or [P3] key to store setting and exit.

🔊 » Only can turn on RTDF function in VFO mode.
NOTE

6.18 VOX FUNCTION SETTING
1. Enter into FUNC Menu ,select menu 18.
2. Press PUSH to enter into menu setting,the menu value in LCD turns to green color.
3. Turn Channel knob to choose wanted setting.
ON: Enable VOX
OFF: Disabe VOX
4. Press [PUSH] button or [P3] key to store setting and exit.

6.19 VOX-L:VOX Sensitivity setting
1. Enter into FUNC Menu ,select menu 19.
2. Press [PUSH] to enter into menu setting,the menu value in LCD turns to green color.
3. Turn Channel knob to choose wanted setting.
1: high level   9: low level
4. Press [PUSH] button or [P3] key to store setting and exit.

6.20 VOX-T: VOX Delay Time setting
1. Enter into FUNC Menu ,select menu 20.
2. Press [PUSH] to enter into menu setting,the menu value in LCD turns to green color.
3. Turn Channel knob to choose wanted setting.
1: short delay time
9: long delay time
4. Press [PUSH] button or [P3] key to store setting and exit.

6.21 Reset Factory Default
If you radio seems to be malfunctioning because of wrong operation or setup, this function will be able to resume all setup and channels to factory default.
1. Enter FUNCTION MENU list, choose No.21 function.
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
ALL: All channel, signaling function setup resume factory default.
OPT: All function menu setup resume factory default except CHAN MENU.
4. Press [PUSH] button or [P3] key to store setting and exit.

7.CHANNEL MENU
1. Hold [FUNC] key to enter SELECT MENU interface.
2. Short press [P4] key, [P6] key or turn channel knob to choose menu list. Short press [P5].
key can fast turn page.
3. Press [PUSH] button to enter CHAN MENU list.
4. Short press [P4],[P6] key or turn channel knob to choose wanted setting.

7.1 RCDT (CTCSS/DCS Decode Setup)
1. Enter CHAN MENU, choose No.1 function.
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
OFF: Turn off CTCSS/DCS decode.
CTCSS: Choose CTCSS decode.
DCS: Choose DCS decode.
4. When choose CTCSS/DCS decode, press [PUSH] button to enter CTCSS/DCS decode
setup, then turn channel knob to choose wanted CTCSS/DCS decode.
DCS: 000N-777I, total 1024 groups.
N is positive code, I is inverse code.
Press [FUNC] key can choose positive or inverse code.
5. Press [PUSH] button or [P3] key to store setting and exit.

    🔊 » The working of CTCSS/DCS decode shall be work associated with the squelch mode setup. (Refer to Signaling
   NOTE Combination setup in page 22).

7.2 CTCSS/DCS Encode Setup
1. Enter CHAN MENU, choose No.2 function
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
OFF: Turn off CTCSS/DCS encode.
CTCSS: Choose CTCSS encode.
DCS: Choose DCS encode.
4. When choose CTCSS/DCS encode, press (PUSH) button to enter CTCSS/DCS
encode setup, then turn channel knob to choose wanted CTCSS/DCS encode.
CTCSS:62.5-254.1HZ,and one self-define group,total 52 groups.
DCS: 000N-777I, total 1024 groups
N is positive code, I is inverse code.
5. Press [PUSH] button or [P3] key to store setting and exit.

7.3 HIGH/MID/LOW Power Selection
1. Enter CHAN MENU, choose No.3 function.
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
HI: Choose high power level.
MI: Choose middle power level.
LO: Choose low power level.
4. Press [PUSH] button or [P3] key to store setting and exit.

7.4 5TENC (5TONE ENCODE SELECT)
1. Enter CHAN MENU, choose No.4 function;
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
0~99: Total 100 groups 5Tone encode for selection.
4. Press [PUSH] button or [P3] key to store setting and exit.

NOTE » 5Tone group name and connect shall be programmed by PC software. If the choose 5Tone encode has a group name, the LCD will display group name only.

7.5 T-DEC (Add Optional Signaling)

This transceiver has 2 optional signaling: DTMF/5Tone/. those signaling function similar to CTCSS/DCS signaling. When the receiver adds an optional signaling, the caller shall transmit matching signaling. DTMF and 5Tone signaling can be applied for other advanced features such as ANI, PTT ID, group call, select call, remotely stun, remotely kill waken…etc.
1. Enter CHAN MENU, choose No.4 function.
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
DT: means DTMF signaling is added.
5T: means DTMF signaling is added.
OFF: Turn off optional signaling.
4. Press [PUSH] button or [P3] key to store setting and exit.

NOTE » The working of optional signaling shall be work associated with the squelch mode setup. (Refer to Squelch Mode setup in page XX).

7.6 Signaling Combination Setup

This function can improve the level of blocking irrelative signals.
1. Enter CHAN MENU, choose No.6 function.
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
SQ:You can hear the calling when receive a mathcing carrrier.
CDT:You can hear the calling when receive a matchng carrier and CTCSS or DCS signaling.
TONE: You can hear the calling when receives matching carrier + optional signaling.
C&T: You can hear the calling when receives matching carrier + CTCSS/DCS + optional signaling.
C/T: You can hear the calling when receives any matching carrier or CTCSS/DCS or optional signaling.
4. Press [PUSH] button or [P3] key to store setting and exit.

NOTE » This settting is valid only when CTCSS/DCS signaling added.

7.7 Band-width Selection

Select suitable bandwidth in accordance with different local conditions
1. Enter CHAN MENU list, choose No.7 function
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
WID: band width is 25k(Wide band)
MID: band width is 20k(Middle band)
NAR: band width is 12.5k(Narrow band)
4. Press [PUSH] button or [P3] key to store setting and exit.

7.8 Frequency Reverse

With this function on, the transceiver will be able to communicate with a transceiver in
same network without through a repeater.
1. Enter CHAN MENU list, choose No.8 function
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
ON: Turn on reverse function
OFF: Turn off reverse function
4. Press [PUSH] button or [P3] key to store setting and exit

NOTE » Frequency reverse is turn on, the TX and RX frequency will be exchanged, the CTCSS or DCS signaling also will be exchanged if existed in current channel.

7.9 Talk Around

1. Enter CHAN MENU list, choose No.9 function
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting
ON: Turn on talk around function
OFF: Turn off talk around function
4. Press PUSH button or P3 key to store setting and exit.

NOTE » This function is hide when RTDF function is on.

7.10 Offset Freqency And Direction Setup

1. Enter CHAN MENU list, choose No.10 function
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting, press [FUNC] key to set the offset direction.
-: Minus offset, means transmitting frequency lower than receiving frequency.
+: Plus offset, means transmitting frequency higher than receiving frequency.
OFF: OFFSET is turn off.

VHF: 0 - 38 Mhz frequency avaiable.
UHF: 0 - 90 Mhz frequency avaiable.
4. Press [PUSH] button or [P3] key to store setting and exit.

🔊 » OFFSET frequency is adjusted according to step size setup. This function is hide when RTDF function is on.
NOTE

7.11 Editing Channel Name
After edit a name for a channel, if the display mode is channel name, the radio will display
the name edited in this menu. Otherwise it will display the frequency.
1. Enter CHAN MENU list, choose No.11 function
2. Press [PUSH] button, the menu value in LCD turns to green color.
3.Turn channel knob to choose wanted setting.Press [PUSH] to confirm and enter editing for next charactor.
4. Press [PUSH] button or [P3] key to store setting and exit.

🔊 » In Frequency (VFO) mode or RTDF function is on. ,this function will be auto-hidden.
NOTE

7.12 Busy Channel Lockout
Busy channel lockout is disable transmitting, once the channel is busy and you press [PTT], the raido will beep as warning
and get back to receiving.
1. Enter CHAN MENU list, choose No.12 function
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
BU: Signaling busy lockout, transmitting is inhibited when current channel receives a matching carrier.
RL: Signaling busy lockout, transmitting is inhibited when current channel receives a matching carrier but dis-matching
CTCSS/DCS code.
OFF: Busy channel lockout is disabled.Transmitting is allowed in any receiving status
4. Press [PUSH] button or [P3] key to store setting.

7.13 TX OFF
1. Enter CHAN MENU list, choose No.13 function
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
ON: TX allowed, press [PTT] to transmit
OFF: TX not allowed, only work in RX mode, press [PTT] will emit a beep.
4. Press [PUSH] button or [P3] key to store setting and exit

7.14 OWNID (SELF ID ENQUIRY)
1. Enter CHAN MENU list, choose No.14 function;
2. The LCD will display current channel DTMF ID or 5Tone ID.

8. KEYPAD MENU SETUP

8.1 Main unit keypad menu setup
1. Hold [FUNC] key to enter SELECT MENU interface.
2. Short press [P4] key, [P6] key or turn channel knob to choose menu list. Short press [P5] can fast turn page.
3. Press [PUSH] button to enter MINI KEY menu list.
4. Turn channel knob to choose wanted setting.
5. Short press [PUSH] button to choose wanted keypad group.
6. Short press [P1]~[P6] key to choose wanted self-define key.
7. Press [FUNC] to confirm and exit.

8.2 H-DIM Microphone keypad backlight setup
1. Hold [FUNC] key to enter SELECT MENU interface.
2. Short press [P4] key, [P6] key or turn channel knob to choose menu list. Short press [P5] can fast turn page.
3. Press [PUSH] button to enter HANDY KEY menu list.
4. Short press [P4] key, [P6] key or turn channel knob to choose wanted setting.

8.3 Microphone keypad backlight brightness Setup
1. Hold [FUNC] key to enter SELECT MENU interface.
2. Short press [P4] key, [P6] key or turn channel knob to choose menu list. Short press [P5] key can fast turn page.
3. Press [PUSH] button to enter HAND KEY menu list, choose No.1 function, press [PUSH] key to enter value setting, the
menu value in LCD turns to green color.
4. Turn channel knob to choose wanted setting, the microphone keypad has OFF-31, total 32 brightness levels. OFF means
turn off backlight brightness.
5. Press [PUSH] button or [P3] key to store setting and exit.

8.4 H-PA H-PD Microphone self-define keypad setup
1. Hold [FUNC] key to enter SELECT MENU interface
2. Short press [P4] key, [P6] key or turn channel knob to choose menu list. Press [P5] can fast turn page.
3. Press [PUSH] button to enter HANDY KEY menu list.choose NO.2-5 function, then press [PUSH] button to enter value

setting. the menu value in LCD turns to green color.
4. Turn channel knob to choose wanted setting.
5. Press [PUSH] button or [P3] key to store setting and exit.

9. DTMF SETTING

9.1 DTMF Encode group setting
1. Enter DTMF menu. choose No.1 function
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.1-16 total 16 groups DTMF encode for selection.
4. If choosed group is empty, Press PUSH to edit DTMF code, the LCD displays "= = = = = = = =".
5. Turn channel knob to choose wanted characator,press PUSH to confirm and move to next characator selection.
6. Press [P3] key to store setting and exit.

9.1 DTMF Encode Transmitting Time
1. Enter DTMF menu. choose No.2 function
2. Press [PUSH] button, the menu value in LCD turns to green color.
3. Turn channel knob to choose wanted setting.
50MS: The time for transmit a single DTMF encode and the interval is 50MS,
100MS: The time for transmit a single DTMF encode and the interval is 100MS,
200MS: The time for transmit a single DTMF encode and the interval is 200MS,
300MS: The time for transmit a single DTMF encode and the interval is 300MS,
500MS: The time for transmit a single DTMF encode and the interval is 500MS.
4. Press [PUSH] button or [P3] key to store setting and exit.

10. PROGRAMMING SOFTWARE INSTALLING AND STARTINGSOFTWARE I

Install USB Cable Driver Programme
1. Click start menu in computer, under "ALL PROGRAMS" menu, choose and click "USB To Com port" in MT95 program, install "USB To Com port" driver by indication.
2. Connect the optional USB Programming cable to USB port in PC with transceiver.
3. Double click MT95 shortcut or click MT95 inprocedure index of start menu, choose serial com port as indicated then click OK to start programming software.
4. According to instruction,select correct"COM Port", then click "OK" to start programming software.

📢》 » Even in same computer,the selective COM Port is different when USB cable connects with different USB port.
NOTE
You shall install software before connecting the USB cable line. Switch on transceiver before writing frequency.You had better not switch on or off the power supply of transceiver when it is connected with computer, otherwise, it will make transceiver unable to read or write frequency. In this case, you have to turn off programming software, pull out USB cable. then reinsert USB cable and open software, then rechoose COM Port, it will turn into normal operation. Therefore, please connect transceiver with computer after switching on the transceiver. Don't restart transceiver power when it is connected with computer.

11. MAINTENANCE
11.1 Default Setting after Reset

Frequency band	VHF	UHF
VFO frequency	145.150MHz	431.150MHz
Memory channel	--	--
Offset direction	--	--
Offset frequency	600KHz	5KHz
Channel step	10KHz	10KHz
CTCSS encode and decode	--	--
CTCSS tone frequency	88.5Hz	88.5Hz
DCS encode and decode	--	--
DCS Code	000N	000N
Output power	HI	HI
TOT	3	3
APO	OFF	OFF
VOL	28	28
Squelch Level	3	3

11.2 Trouble Shooting

Problem	Possible Causes and Potential Solutions
(1) Power is on, nothing appears on Display	+ and - polarities of power connection are reversed. Connect red lead to plus terminal and black lead to minus terminal of DC power supply
(2) Fuse is blown	Check and solve problem resulting in blown fuse and replace fuse with new fuse
(4) No sound comes from speaker	• Squelch is muted. Decrease squelch level. • Tone or CTCSS/DCS squelch is active. Turn CTCSS or DCS squelch off
(5) Key and Dial do not function	Key-lock function is activated. Cancel Key-lock function
(6) No Scan	Did not list the channel in the scan when programmed
The whole band with noise after programmed	The squelch has opened during programmed
Communication range was short, bad sensitivity	a. Check the antenna is well or not, and check the antenna port whether well connected. b. Antenna connector has debris or damaged. Whether set Low power
Can not talk with other members within the group	a. Frequency/channel different, pls modify b. CTCSS/DCS different, pls reset c. Out of the communication range

12. SPECIFICATIONS

GENERAL	
Frequency Range	EU VHF: 144-146MHz UHF: 430~440MHz US VHF: 144-148MHz UHF: 430~440MHz
Number of Channels	200 channels
Channel Spacing	25K (Wide Band) 20K(Middle Band) 12.5K (Narrow band)
Phase-locked Step	2,5KHz 5KHz 6,25KHz 10KHz 12,5KHz 20KHz, 25KHz 30KHz, 50KHz
Operating Voltage	13.8V DC ±15%
Squelch	Carrier/CTCSS/DCS
Frequency Stability	±2.5 ppm
Operating Temperature	-20~+60
Dimensions(mm)	124 (W) x 163(D) x 39 (H)
Weight	about 0.64Kg

NOTE » Specifications are subject to change without notice due to advancements in technology.

RECEIVER		
	Wide band	Narrow band
Sensitivity (12dB Sinad)	≤0.25μV	≤0.35μV
Adjacent Channel Selectivity	≥60dB	≥60dB
Audio Response	+1~-3dB(0.3~3KHz)	+1~-3dB(0.3~2.55KHz)
Hum & Noise	≥45dB	≥40dB
Audio distortion	≤5%	
Audio power output	>2W@8	

TRANSMITTER		
	Wide band	Narrow band
Power Output	25W / 15W / 5W	
Modulation	16KΦF3E	11KΦF3E
Adjacent Channel Power	≥70dB	≥60dB
Hum & Noise	≥40dB	≥36dB
Spurious Emission	≥60dB	≥60dB
Audio Response	+1~-3dB(0.3~3KHz)	+1~- 3dB(0.3~2.55KHz)
Audio Distortion	≤5%	

13. ATTACHED CHART
52 groups CTCSS Tone Frequency(Hz)

No.	Freq.(Hz)	No.	Freq.(Hz)	No.	Freq. (Hz)	No.	Freq. (Hz)	No.	Freq. (Hz)
1	62.5	12	94.8	23	136.5	34	177.3	45	218.1
2	67.0	13	97.4	24	141.3	35	179.9	46	225.7
3	69.3	14	100.0	25	146.2	36	183.5	47	229.1
4	71.9	15	103.5	26	151.4	37	196.2	48	233.6
5	74.4	16	107.2	27	156.7	38	189.9	49	241.8
6	77.0	17	110.9	28	159.8	39	192.8	50	250.3
7	79.7	18	114.8	29	162.2	40	196.6	51	254.1
8	82.5	19	118.8	30	165.5	41	199.5	52	Self-define
9	85.4	20	123.0	31	167.9	42	203.5		
10	88.5	21	127.3	32	171.3	43	206.5		
11	91.5	22	131.8	33	173.8	44	210.7		

1024 groups DCS Code

Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)	Code No.	DSC (Octal)
1.	000	2.	001	3.	002	4.	003	5.	004	6.	005	7.	006	8.	007
9.	010	10.	011	11.	012	12.	013	13.	014	14.	015	15.	016	16.	017
17.	020	18.	021	19.	022	20.	023	21.	024	22.	025	23.	026	24.	027
25.	030	26.	031	27.	032	28.	033	29.	034	30.	035	31.	036	32.	037
33.	040	34.	041	35.	042	36.	043	37.	044	38.	045	39.	046	40.	047
41.	050	42.	051	43.	052	44.	053	45.	054	46.	055	47.	056	48.	057
49.	060	50.	061	51.	062	52.	063	53.	064	54.	065	55.	066	56.	067
57.	070	58.	071	59.	072	60.	073	61.	074	62.	075	63.	076	64.	077
65.	100	66.	101	67.	102	68.	103	69.	104	70.	105	71.	106	72.	107
73.	110	74.	111	75.	112	76.	113	77.	114	78.	115	79.	116	80.	117
81.	120	82.	121	83.	122	84.	123	85.	124	86.	125	87.	126	88.	127
89.	130	90.	131	91.	132	92.	133	93.	134	94.	135	95.	136	96.	137
97.	140	98.	141	99.	142	100.	143	101.	144	102.	145	103.	146	104.	147
105.	150	106.	151	107.	152	108.	153	109.	154	110.	155	111.	156	112.	157
113.	160	114.	161	115.	162	116.	163	117.	164	118.	165	119.	166	120.	167
121.	170	122.	171	123.	172	124.	173	125.	174	126.	175	127.	176	128.	177
129.	200	130.	201	131.	202	132.	203	133.	204	134.	205	135.	206	136.	207
137.	210	138.	211	139.	212	140.	213	141.	214	142.	215	143.	216	144.	217
145.	220	146.	221	147.	222	148.	223	149.	224	150.	225	151.	226	152.	227
153.	230	154.	231	155.	232	156.	233	157.	234	158.	235	159.	236	160.	237
161.	240	162.	241	163.	242	164.	243	165.	244	166.	245	167.	246	168.	247
169.	250	170.	251	171.	252	172.	253	173.	254	174.	255	175.	256	176.	257
177.	260	178.	261	179.	262	180.	263	181.	264	182.	265	183.	266	184.	267
185.	270	186.	271	187.	272	188.	273	189.	274	190.	275	191.	276	192.	277
193.	300	194.	301	195.	302	196.	303	197.	304	198.	305	199.	306	200.	307
201.	310	202.	311	203.	312	204.	313	205.	314	206.	315	207.	316	208.	317
209.	320	210.	321	211.	322	212.	323	213.	324	214.	325	215.	326	216.	327
217.	330	218.	331	219.	332	220.	333	221.	334	222.	335	223.	336	224.	337
225.	340	226.	341	227.	342	228.	343	229.	344	230.	345	231.	346	232.	347
233.	350	234.	351	235.	352	236.	353	237.	354	238.	355	239.	356	240.	357
241.	360	242.	361	243.	362	244.	363	245.	364	246.	365	247.	366	248.	367
249.	370	250.	371	251.	372	252.	373	253.	374	254.	375	255.	376	256.	377
257.	400	258.	401	259.	402	260.	403	261.	404	262.	405	263.	406	264.	407
265.	410	266.	411	267.	412	268.	413	269.	414	270.	415	271.	416	272.	417
273.	420	274.	421	275.	422	276.	423	277.	424	278.	425	279.	426	280.	427
281.	430	282.	431	283.	432	284.	433	285.	434	286.	435	287.	436	288.	437
289.	440	290.	441	291.	442	292.	443	293.	444	294.	445	295.	446	296.	447
297.	450	298.	451	299.	452	300.	453	301.	454	302.	455	303.	456	304.	457
305.	460	306.	461	307.	462	308.	463	309.	464	310.	465	311.	466	312.	467

313.	470	314.	471	315.	472	316.	473	317.	474	318.	475	319.	476	320.	477
321.	500	322.	501	323.	502	324.	503	325.	504	326.	505	327.	506	328.	507
329.	510	330.	511	331.	512	332.	513	333.	514	334.	515	335.	516	336.	517
337.	520	338.	521	339.	522	340.	523	341.	524	342.	525	343.	526	344.	527
345.	530	346.	531	347.	532	348.	533	349.	534	350.	535	351.	536	352.	537
353.	540	354.	541	355.	542	356.	543	357.	544	358.	545	359.	546	360.	547
361.	550	362.	551	363.	552	364.	553	365.	554	366.	555	367.	556	368.	557
369.	560	370.	561	371.	562	372.	563	373.	564	374.	565	375.	566	376.	567
377.	570	378.	571	379.	572	380.	573	381.	574	382.	575	383.	576	384.	577
385.	600	386.	601	387.	602	388.	603	389.	604	390.	605	391.	606	392.	607
393.	610	394.	611	395.	612	396.	613	397.	614	398.	615	399.	616	400.	617
401.	620	402.	621	403.	622	404.	623	405.	624	406.	625	407.	626	408.	627
409.	630	410.	631	411.	632	412.	633	413.	634	414.	635	415.	636	416.	637
417.	640	418.	641	419.	642	420.	643	421.	644	422.	645	423.	646	424.	647
425.	650	426.	651	427.	652	428.	653	429.	654	430.	655	431.	656	432.	657
433.	660	434.	661	435.	662	436.	663	437.	664	438.	665	439.	666	440.	667
441.	670	442.	671	443.	672	444.	673	445.	674	446.	675	447.	676	448.	677
449.	700	450.	701	451.	702	452.	703	453.	704	454.	705	455.	706	456.	707
457.	710	458.	711	459.	712	460.	713	461.	714	462.	715	463.	716	464.	717
465.	720	466.	721	467.	722	468.	723	469.	724	470.	725	471.	726	472.	727
473.	730	474.	731	475.	732	476.	733	477.	734	478.	735	479.	736	480.	737
481.	740	482.	741	483.	742	484.	743	485.	744	486.	745	487.	746	488.	747
489.	750	490.	751	491.	752	492.	753	493.	754	494.	755	495.	756	496.	757
497.	760	498.	761	499.	762	500.	763	501.	764	502.	765	503.	766	504.	767
505.	770	506.	771	507.	772	508.	773	509.	774	510.	775	511.	776	512.	777

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

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

•User instructions should accompany the device when transferred to other users.

•Do not use this device if the operational requirements described herein are not met.

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

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

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

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(only applicable to licensed radio)

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

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

Unauthorized modification and adjustment

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

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

FCC Requirements:

This device complies with part 15 of the FCC Rules. Operation is subject to the 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.

(Only Applicable to GMRS radio station):

A valid individual license is required to operate a GMRS station. To obtain an individual license, an applicant must be eligible and follow the applicable rules and procedures established by FCC. The applicant must pay the required application and regulatory fees. Each individual license in the GMRS will normally have a term of ten years from the date of grant or renewal, and may be renewed pursuant to the procedures of FCC. To obtain a GMRS operator license, you need FCC Form 605 & 159, we suggest visiting the FCC website at https://www.fcc.gov/wireless/support/fcc-form-605, which includes necessary instructions. More questions about the license application, please contact the FCC at 1-888-225-5322 or go to the FCC's website: http://www.fcc.gov.According to FCC rules, any individual who holds an individual license may allow his or her immediate family members to operate his or her GMRS station or stations. Immediate family members are the licensee's spouse, children, grandchildren, stepchildren, parents, grandparents, stepparents, brothers, sisters, aunts, uncles, nieces, nephews, and in-laws.

•(Only applicable to industrial environment)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.

•(Only applicable to home)This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

CE Requirements:

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

•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.

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 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.
•General population/uncontrolled Radio, this radio is designed for and classified as "General population/uncontrolled Use".

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.
•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. 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.

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

Phone Mode(if applicable)
•When placing or receiving a phone call, hold your radio product as you would a wireless telephone. Speak directly into the microphone. Do not use the equipment when you are driving

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

Avoid Choking Hazard

Small Parts. Not for children under 3 years.

Turn off your radio power in the following conditions:

•Turn off your radio before removing (installing) a battery or accessory or when charging battery.
•Turn off your radio when you are in a potentially hazardous environments: Near electrical blasting caps, in a blasting area, in explosive atmospheres (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

WARNING
•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.

WARNING • 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.

WARNING **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.

WARNING •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

⚠️ **WARNING**

•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