

Thanks for buying the transceiver.

This transceiver offers latest design, multi-functionality, stable performance and easy operation. We believe you will be pleased with the high quality and dependable features for all your communication needs.

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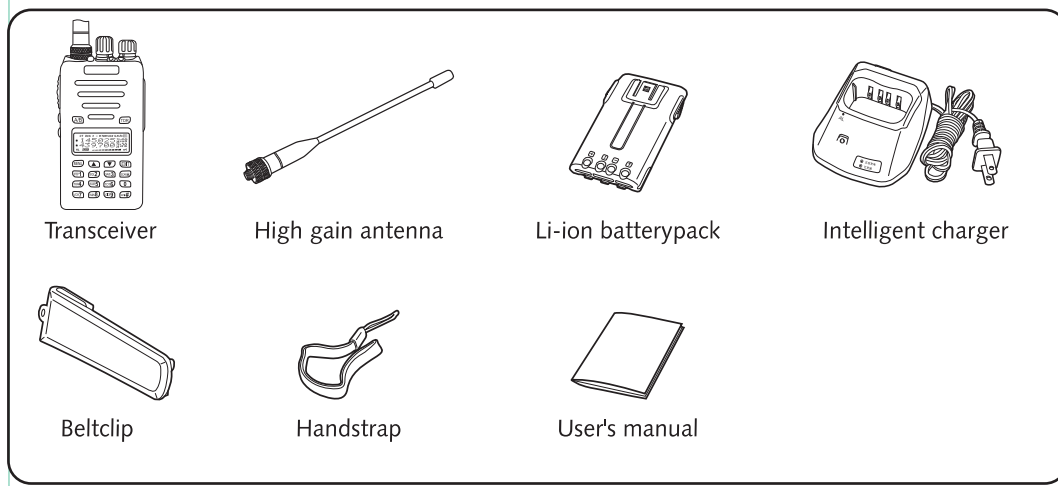
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Unpacking and checking of your equipment

Professional FM Transceiver

Carefully unpack the transceiver. We recommend that you identify the items in the following table before discarding the packing material. If any items are missing or have been damaged during shipment, please notify your dealer.

Supplied accessories



Description of functions

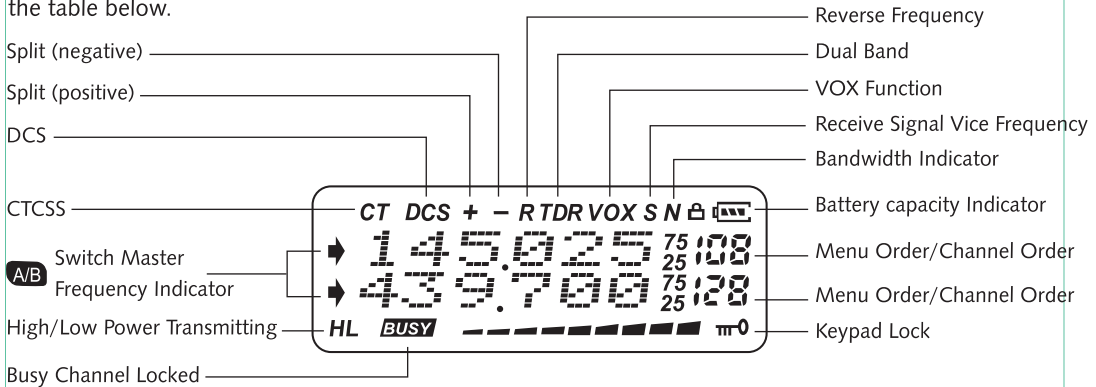
1. Dual Band, Dual Frequency, Dual Display and Dual Standby
 2. Frequency Range (can be suitable for different countries or areas):
136-174MHz & 350-470MHz (Rx / Tx), 136-174MHz & 400-480MHz (Rx / Tx),
136-174MHz & 420-520MHz (Rx / Tx), 136-174MHz & 400-470MHz (Rx / Tx),
136-174MHz & 245-250MHz (Rx / Tx), 136-174MHz & 216-280MHz (Rx / Tx),
136-174MHz & 225-226MHz (Rx / Tx), 136-174MHz & 430-440MHz (Rx / Tx).
 3. Working Mode: U-V, V-V or U-U available
 4. Same Channel: VHF T x & UHF Rx or UHF T x & VHF Rx available
 5. DTMF Encoding
 6. Digital FM Radio (76-108MHz)
 7. CTCSS/DCS Frequency Scan
 8. Output Power: 5W VHF /4W UHF
 9. Memory Channel: 128 channels
 10. VOX Function
 11. Stopwatch Function
 12. 105 groups DCS and 50 groups CTCSS
 13. Voice Prompt
 14. SOS Function
 15. Wide/Narrow Bandwidth Selection (25KHz / 12.5KHz)
 16. Channel number, Channel + Frequency or Channel name display mode available
- 02

17. Reverse Frequency
18. Multi-functional Scan
19. Priority Scan Function
20. Bright Flashlight Illumination
21. Step (5/6.25/10/12.5/25KHz/50KHz/100KHz)
22. High/Low Power selection (5W/1W)
23. High Capacity Li-ion Battery
24. Intelligent Charger
25. Offset Frequency setting (0-69.950MHz)
26. Frequency Shift Direction Setting
27. Busy Channel Lockout
28. Power on Display (Battery-V/Full Screen/Other Characters)
29. Low-battery Voice Prompt
30. Start and/or End Transmitting Beep Prompt
31. Transmit Overtime Prompt
32. Keypad Locked (Auto / Manual)
33. Add Scanning Channel Function
34. High/Low power switchable when transmitting
35. Computer Programmable
36. Wire-clone Function
37. Menu/Channel Reset

Getting Started

LCD display

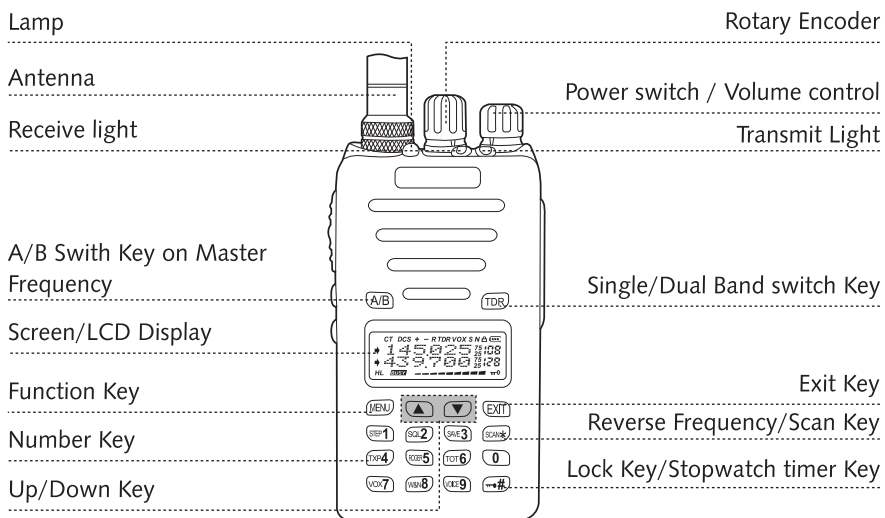
On the display you will see various indicators that show what function you have selected. Sometimes you may not recall what those indicators mean, or how to select them, in such a case, you can refer to the table below.



Note:

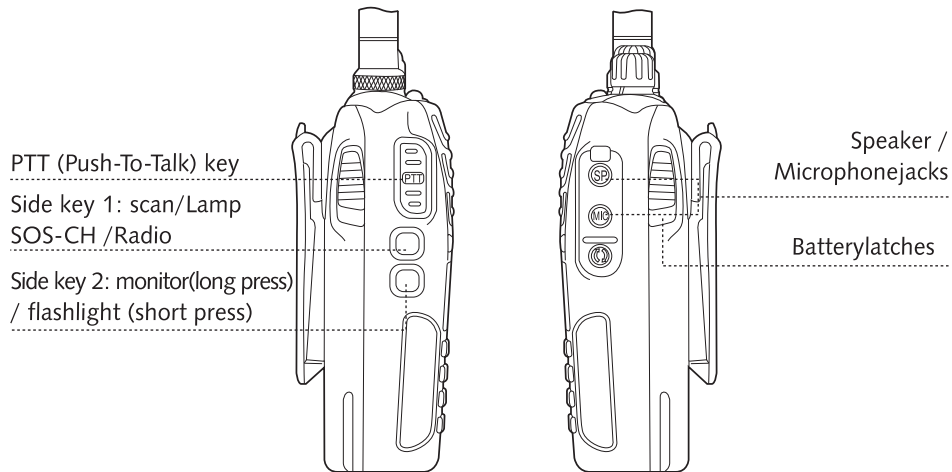
- Battery pack power indicator (full)
- Battery pack power indicator (exhausted)
- Battery pack power indicator (remaining)
- Receive signal meter

Description of transceiver



- Note:** Speedy switch on work mode (**MENU** + **TDR**)
 Speedy re-start the transceiver (**MENU** + **A/B**)

Getting Started



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■ **Speed Search**

Press ▲ or ▼ key to set each Function or Parameter, it can search quickly.

■ **Single/Dual Band Switch**

Press **TDR**

Single Band ⇄ Dual Band

■ **Speedy Re-start Transceiver**

In standby, press **MENU** + **A/B**, then LCD displays **STEP**. Press **MENU** to confirm, and then the transceiver re-starts.

■ **A/B Switch**

Press **A/B** to select the master frequency. The frequency displaying arrowhead is master frequency; the frequency without displaying arrowhead is vice frequency. The master frequency can be used for transmitting and receiving, and the vice frequency is only for receiving. When vice frequency receives, the screen displays " S ".

■ **Scan key**

Press slightly to set Reverse Frequency ON/OFF while press 2 seconds to active scan.

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Getting Started

Side key 2

Press slightly to turn ON/OFF the lamp while press 2 seconds to set Squelch ON.

1750Hz Burst Tone

Sometimes, 1750Hz Burst tone is required to carry out some other specific functions. This transceiver has 1750Hz Burst tone to help you.

How to use

In transmitting, press side key PF1, the transceiver transmit 1750Hz Burst tone. The time pressing side key PF1 determined how long will transmit 1750Hz Burst tone. Release side key PF1 to end transmitting 1750Hz Burst tone.

Shortcut operation sheet

Professional FM Transceiver

| Function order | Function name | Enter function set | Screen display | Select parameter | Selectable parameter explanation | Confirm | Return to standby | See page |
|----------------|------------------------------|--------------------|----------------|--|--|---------|-------------------|----------|
| 1 | Setting frequency step | MENU → STEP1 | | MENU → Press ▲/▼ key Select parameter | 7 kinds of frequency steps 5K/6.25K/10K/12.5K/25K /50K/100K | MENU → | EXIT | P14 |
| 2 | Setting squelch level | MENU → SQL2 | | MENU → Press ▲/▼ key Select parameter | Squelch level from 0 to 9 | MENU → | EXIT | P15 |
| 3 | Setting batterypack savemode | MENU → SAVE3 | | MENU → Press ▲/▼ key Select parameter | ON: Turn on save function OFF: Turn off save function | MENU → | EXIT | P15 |
| 4 | Selecting transmit power | MENU → TXP4 | | MENU → Press ▲/▼ key Select parameter | H: High power (VHF 5W/UHF 4W) L: Low power (1W) | MENU → | EXIT | P16 |
| 5 | Transmit voice prompt | MENU → ROGER5 | | MENU → Press ▲/▼ key Select parameter | OFF: turn off this function, without any voice prompting. BOT: press PTT, voice prompt when begin transmitting EOT: release PTT, voice prompt when end transmitting BOTH: press and release PTT, voice prompt | MENU → | EXIT | P16 |
| 6 | Transmit overtimer | MENU → TOT6 | | MENU → Press ▲/▼ key Select parameter | TOT has 40 levels in steps of 15 seconds. OFF: Turn off TOT | MENU → | EXIT | P17 |
| 7 | Setting VOX | MENU → VOX7 | | MENU → Press ▲/▼ key Select parameter | VOX has levels from 1 to 10 OFF: Turn off VOX transmission | MENU → | EXIT | P17 |
| 8 | Setting bandwidth | MENU → WBN8 | | MENU → Press ▲/▼ key Select parameter | WIDE: 25KHz NARR: 12.5KHz | MENU → | EXIT | P18 |
| 9 | Voice Prompt | MENU → VOICE9 | | MENU → Press ▲/▼ key Select parameter | CHINES: Chinese voice prompt ENGLISH: English voice prompt OFF: Turn off voice prompt | MENU → | EXIT | P18 |

Shortcut operation sheet

| | | | | | | |
|----------------------------|-------------------------|---------------|---|---|-------------|------------|
| 10 Transmit overtime alarm | MENU → STEP1 → 0 → | TOA TOR 5 | MENU → Press ▲ or ▼ key Select parameter | 1 to 10 levels with 1 second each OFF: turn off TOA | MENU → EXIT | P18 -19 |
| 11 Setting Beep prompt | MENU → STEP1 → STEP1 → | BEEP ON | MENU → Press ▲ or ▼ key Select parameter | ON: Turn on Beep prompt function OFF: Turn off beep prompt function | MENU → EXIT | P19 |
| 12 Power on display | MENU → STEP1 → SOL2 → | PONMSG OFF | MENU → Press ▲ or ▼ key Select parameter | OFF: Full screen display BATT: Battery voltage display MSG: WELCOME | MENU → EXIT | P20 |
| 13 Busy Channel Lockout | MENU → STEP1 → SAVE3 → | BCL OFF | MENU → Press ▲ or ▼ key Select parameter | ON: Turn on BCL OFF: Turn off BCL | MENU → EXIT | P20 |
| 14 Keypad Lock | MENU → STEP1 → TXP4 → | AUTOLK OFF | MENU → Press ▲ or ▼ key Select parameter | ON: Turn on Autolock OFF: Turn off Autolock | MENU → EXIT | P21 |
| 15 Receiving CTCSS | MENU → STEP1 → RCGR5 → | R-CTC OFF | MENU → Press ▲ or ▼ key Select parameter | 50 groups CTCSS (67.0Hz -254.1Hz) OFF: Turn off CTCSS | MENU → EXIT | P22 |
| 16 Transmitting CTCSS | MENU → STEP1 → TOT6 → | T-CTC OFF | MENU → Press ▲ or ▼ key Select parameter | 50 groups CTCSS (67.0Hz -254.1Hz) OFF: Turn off CTCSS | MENU → EXIT | P22 |
| 17 Receiving DCS | MENU → STEP1 → VOX7 → | R-DCS OFF | MENU → Press ▲ or ▼ key Select parameter | 105 groups DCS (D023N-D754N) OFF: Turn off DCS | MENU → EXIT | P23 |
| 18 Transmitting DCS | MENU → STEP1 → WAX8 → | T-DCS OFF | MENU → Press ▲ or ▼ key Select parameter | 105 groups DCS (D023N-D754N) OFF: Turn off DCS | MENU → EXIT | P23 |
| 19 Scan mode | MENU → STEP1 → VOICE9 → | SC-REV TO | MENU → Press ▲ or ▼ key Select parameter | 3 kinds of Scan modes TO: Time scanning mode CO: Carrier mode 1 scan SE: Carrier mode 2 scan | MENU → EXIT | P24 |

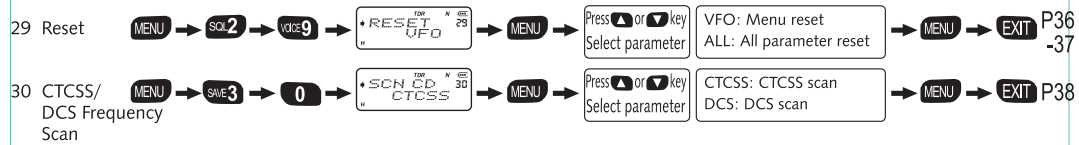
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|--|-----------------------|---------------------|---|---|-------------|------------|
| 20 Scan/Lamp SOS-CH/Radio/(Side key 1) | MENU → SOL2 → 0 → | PF1 RADIO | MENU → Press ▲ or ▼ key Select parameter | SCAN: Activate scan LAMP: Turn on Lamp SOS-CH: SOS function RADIO: Turn on FM radio OFF: Inactivate | MENU → EXIT | P24 -27 |
| 21 Working mode | MENU → SOL2 → STEP1 → | CH-MDF FREQ | MENU → Press ▲ or ▼ key Select parameter | This transceiver has two working modes available: 1. Frequency mode (FREQ) 2. Channel mode Three kinds of channel mode available: ① Channel (CH) ② Frequency + Channel number (CH FREQ) ③ Channel name (NAME) | MENU → EXIT | P27 -28 |
| 22 Auto backlight | MENU → SOL2 → SOL2 → | ABR ON | MENU → Press ▲ or ▼ key Select parameter | ON: Turn on backlight OFF: Turn off backlight | MENU → EXIT | P29 |
| 23 Offset Frequency | MENU → SOL2 → SAVE3 → | OFFSET 000000 | MENU → Press ▲ or ▼ key Select parameter | 0-69.950MHz available | MENU → EXIT | P30 -31 |
| 24 Frequency shift Direction | MENU → SOL2 → TXP4 → | SFT OFF | MENU → Press ▲ or ▼ key Select parameter | + Positive direction - Negative direction OFF: Turn off frequency shift direction | MENU → EXIT | P31 |
| 25 Stopwatch | MENU → SOL2 → RUB5 → | SECOND OFF | MENU → Press ▲ or ▼ key Select parameter | ON: Turn on Stopwatch function OFF: Turn off Stopwatch function | MENU → EXIT | P32 |
| 26 Edit Channel name | MENU → SOL2 → TOT6 → | CHNAME _ _ _ _ _ | MENU → Press ▲ or ▼ key Select parameter | Channel name should be with in 26 letters (A to Z) and 10 numbers (0 to 9), six maximum | MENU → EXIT | P32 -33 |
| 27 Memory Channels | MENU → SOL2 → VOX7 → | MEM-CH CH-001 | MENU → Press ▲ or ▼ key Select parameter | 128 channels available | MENU → EXIT | P34 -35 |
| 28 Dlete channel | MENU → SOL2 → WAX8 → | DEL-CH CH-001 | MENU → Press ▲ or ▼ key Select parameter | 128 channels available | MENU → EXIT | P35 |

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Shortcut operation sheet



- Speed Search ▲ / ▼ (See page 07)
- High/Low power can be changeable when transmitting (See page 16)
- SOS-CH (SOS function) (See page 25)
- DTMF encoding (See page 39)
- Priority scan function (See page 41)
- Set Reverse Frequency **SCAN*** (See page 41-42)
- Low-battery voice prompt (See page 42)
- Transmit overtime prompt (See page 42)
- Adding scanning channel function (See page 42)
- Wire clone function (See page 43)
- Working with repeater (See page 43-44)

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How to operate

Professional FM Transceiver

Menu Locked function

To avoid operating menu often, you can set Menu Locked function on through the programming software, see the following operation steps:

1. Setting password of switching Channel and frequency mode.
2. Set the working mode as Channel mode
3. Turn off operating menu under channel mode.

When you want to operate Menu functions, input the password you set, then switch to frequency mode.

NOTE

- » When the transceiver is on dual standby (TDR appears), the frequency that is displayed by the arrowhead is master frequency, the other one is vice frequency. When vice frequency receives, the LCD displays " S ". In dual standby, the master frequency is used for transmission; the vice frequency only can be used for receiving.
- » Master Frequency Setting
In dual standby, press **A/B** to select the master frequency.
- » This transceiver with dual frequency and dual displaying function, it can display two different RX and TX frequencies at the same time under Frequency mode, while display two different channel frequencies and relative parameters at the same time under Channel mode.

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How to operate

NOTE

» Under Frequency/Channel mode, Band A and B switchable through **A/B** key, if shows A, all the operating of channel or frequency is on band A, while shows B operating on band B.

Under Frequency mode: the following Nine functions can be set respectively on both Band A and Band B-

» frequency step, output power, squelch level, channel bandwidth, CTCSS, DCS, Frequency shift direction, Offset frequency, and Channel displaying mode.

» **Under Channel mode:** setting following seven functions on both Band A and B is invalid-Stepping transmit output power, CTCSS, DCS, channel bandwidth, frequency step, frequency shift direction and Offset frequency.

Setting Frequency Step (STEP) ----- MENU 1

In standby, press **MENU** + **STEP1**, the screen displays 

Press **MENU** to enter, it shows '12.50K', press **▲** / **▼** to select the desired step, then press **MENU** to confirm, press **EXIT** return to standby.

This transceiver has seven frequency steps available: 5.00KHz, 10.00KHz, 12.50KHz, 25.00KHz, 50.00KHz and 100KHz.

Setting Squelch Level (SQL-LE) ----- MENU 2

This function means turn on the squelch when the signal is strong while turn off the squelch when the signal is weak. Set the same codes and turn on the squelch, the device will 'sounds'. Setting the level too high may not receive the weak signals, while setting too low may receive the noise or other no desired signal.

NOTE

» This transceiver has ten (0~9) levels available, and 0 means turn on the squelch, from 1 to 9 levels shows different levels of noise reduction. Higher level, louder squelch. The intensity of receiving signal is accordingly higher.

In standby, press **MENU** + **SQL2**, the screen displays 

Press **MENU** to enter, it shows '5', press **▲** / **▼** to select the desired squelch level, then press **MENU** to confirm, press **EXIT** return to standby.

Setting Battery Save Mode (SAVE) --- MENU 3

To save battery, this function can turn off the receiver a certain time then turn on to check the signal.

In standby, press **MENU** + **SAVE3**, the screen displays 

Press **MENU** to enter, it shows 'ON', press **▲** / **▼** to select turn ON/OFF the battery save mode. press **MENU** to confirm, then press **EXIT** return to standby.

How to operate

Selecting Transmit Power (TXP) --- MENU 4

In Frequency mode, press **MENU** + **TXP4**, the screen displays 

Press **MENU** to enter, it shows 'HIGH', press **▲** / **▼** to select HIGH/LOW power, then press **MENU** to confirm, press **EXIT** return to standby.

This transceiver has 5W and 1W output power selectable. Transmitting output power can switch high/low temporarily. In transmission, press **TDR** key can switch the output power (switch between high and low power). Before powering off, the output power is the switched one. It will resume the previous power after powering on again.

Setting Begin/End Transmitting Voice Prompt (ROGER) --- MENU 5

This function means to select transmitting voice prompt way:

OFF: turn off this function, without any voice prompting.

BOT: press PTT, voice prompt when begin transmitting

EOT: release PTT, voice prompt when end transmitting

BOTH: press and release PTT, voice prompt

In standby, press **MENU** + **ROGER5**, the screen displays 

Press **MENU** to enter, it shows 'OFF', press **▲** / **▼** to select OFF/BOT/EOT/BOTH, then press **MENU** to confirm, press **EXIT** return to standby.

16

Transmit Over Timer (TOT) --- MENU 6

TOT is designed to prevent transmitting the transceivers too long. When operating exceed the preset time, it will stop transmitting and a warning sound can be heard.

This transceiver can be set in 40 levels with 15 seconds each, between 15 and 600 seconds.

In standby, press **MENU** + **TOT6**, the screen displays 

Press **MENU** to enter, it shows '60', press **▲** / **▼** to select the desired transmitting level, then press **MENU** to confirm, press **EXIT** return to standby.

Setting VOX (VOX) --- MENU 7

When the voice shows, the transceiver will switch to transmit mode automatically.

As the VOX should check the voice, transmitting will be a little delaying, and the beginning voice may not be transmitted.

In standby, press **MENU** + **VOX7**, the screen displays 

Press **MENU** to enter, it shows 'OFF', press **▲** / **▼** to turn OFF VOX function or select VOX level (1~10), then press **MENU** to confirm, press **EXIT** return to standby.

NOTE

» The higher VOX level the higher volume required.

How to operate

Setting Wide or Narrow Bandwidth (WN) --- MENU 8

In standby, press **MENU** + **WN8**, the screen displays

Press **MENU** to enter, it shows 'WIDE', press **▲** / **▼** to select WIDE/NARROW bandwidth, then press **MENU** to confirm, press **EXIT** return to standby.

Setting Voice Prompt (VOICE) --- MENU 9

In standby, press **MENU** + **VOICE9**, the screen displays

Press **MENU** to enter, press **▲** / **▼** to select Chinese, English or OFF voice prompt, press **MENU** key to confirm, press **EXIT** return to standby.

NOTE

» If you want to turn off all prompt of keyboard, must turn off MENU 9 and MENU 11 at the same time.

Setting Transmit Overtime Alarm (TOA) --- MENU 10

Turn on TOA function, when your transmission reached the preset TOT (transmit over time), the transceiver will alarm and TX indicator flash.

This transceiver can be set from 1 to 10 TOA level with 1 second each. 1 level means the transceiver prompt 1 second before transmitting reached to TOT.

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In standby, press **MENU** + **STEP1 0**, the screen displays

Press **MENU** to enter, it shows '5', press **▲** / **▼** to select OFF/1~10 Level, then press **MENU** to confirm, press **EXIT** return to standby.

Beep Prompting Function (BEEP) --- MENU 11

Beep prompting function is prompting the confirmed operation, wrong operation or malfunction.

We kindly suggest you to turn on this function to avoid any possible malfunction.

In standby, press **MENU** + **STEP1 STEP1**, the screen displays

Press **MENU** to enter, it shows 'ON', press **▲** / **▼** to select turn ON/OFF the beep prompting function, then press **MENU** to confirm, press **EXIT** return to standby.

NOTE

» If MENU (9) – Voice prompt function turn on, it will be priority.

How to operate

Setting Power-on Message (PONMSG) --- MENU 12

The power on message of this transceiver as following:

OFF: Full display

BATT-V: display the current battery voltage

MSG: display 'WELCOME'

In standby, press **MENU** + **STEP1** **SOL2**, the screen displays 

Press **MENU** to enter, it shows 'OFF', press **▲** / **▼** to select OFF/BATT-V/MSG, then press **MENU** to confirm, press **EXIT** return to standby.

Busy Channel Locked (BCL) --- MENU 13

This function is to prevent the interference of other communicating channels. If the selected channel was occupied, press [PTT], the transceiver can not transmit.

In frequency mode, press **MENU** + **STEP1** **SWE3**, the screen displays 

Press **MENU** to enter, it shows 'OFF', press **▲** / **▼** to select ON/OFF this function, then press **MENU** to confirm, press **EXIT** return to standby.

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Setting Keypad Locked (AUTOLK) --- MENU 14

This transceiver has Auto-lock and Manual-lock available.

ON: Turn on keypad locked function, it will locked automatically if without any operation within 15 seconds. Press ***->#** more than 2 seconds to unlock the keypad.

OFF: Turn off auto-locked function.

NOTE

>> Manually lock: in standby press ***->#** more than 2 seconds to lock keypad while press ***->#** more than 2 seconds again to unlock.

In standby, press **MENU** + **STEP1** **TXP4**, the screen displays 

Press **MENU** to enter, it shows 'OFF', press **▲** / **▼** to select ON/OFF this function, then press **MENU** to confirm, press **EXIT** return to standby.

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How to operate

Setting Receiving CTCSS (R-CTCSS) --- MENU 15

Setting CTCSS/DCS can ignore the unwanted signals from other members working with the same frequency. Only with the same CTCSS/DCS codes can communicate.

In Frequency mode, press **MENU** + **STEP1** **ROGER5**, the screen displays 

Press **MENU** to enter, it shows 'OFF', press **▲** / **▼** to turn OFF this function or select 67.0Hz to 254.1Hz CTCSS code, then press **MENU** to confirm, press **EXIT** return to standby.

NOTE

» This transceiver has 50 groups CTCSS, see appendix (1) CTCSS frequency sheet.

Setting Transmitting CTCSS (T-CTCSS) --- MENU 16

In standby, press **MENU** + **STEP1** **TOT6**, the screen displays 

Press **MENU** to enter, it shows 'OFF', press **▲** / **▼** to turn OFF this function or select 67.0Hz to 254.1Hz CTCSS code, then press **MENU** to confirm, press **EXIT** return to standby.

NOTE

» This transceiver has 50 groups CTCSS, see appendix (1) CTCSS frequency sheet.

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Setting Receiving DCS (R-DCS) --- MENU 17

In Frequency mode, press **MENU** + **STEP1** **VOX7**, the screen displays 

Press **MENU** to enter, it shows 'OFF', press **▲** / **▼** to turn OFF this function or select D023N to D754I DCS code, then press **MENU** to confirm, press **EXIT** return to standby.

NOTE

» This transceiver has 105 groups DCS, see appendix (2) DCS frequency sheet. In it DXXXN (between D023N to D754N) means Positive code while DXXXI (between D023I and D754I) means Negative code.

Setting Transmitting DCS (T-DCS) --- MENU 18

In Standby mode, press **MENU** + **STEP1** **W&W8**, the screen displays 

Press **MENU** to enter, it shows 'OFF', press **▲** / **▼** to turn OFF this function or select D023N to D754I DCS code, then press **MENU** to confirm, press **EXIT** return to standby.

NOTE

» This transceiver has 105 groups DCS, see appendix (2) DCS frequency sheet. In it DXXXN (between D023N to D754N) means Positive code while DXXXI (between D023I and D754I) means Negative code.

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How to operate

Setting Scan Mode (SC-REV) --- MENU 19

This transceiver has three scan modes:

TO: When receiving signals, it will go on scanning without any operation within 5 seconds.

CO: It will stop scanning when receiving signals, while go on scanning after signal disappeared 3 seconds.

SE: When receiving signals it will stop scanning.

In Standby mode, press **MENU** + **STEP1** **VOICE 9**, the screen displays 

Press **MENU** to enter, it shows 'TO', press **▲** / **▼** to select TO/CO/SE scan mode, then press **MENU** to confirm, press **EXIT** return to standby.

Setting Scan / Lamp / SOS-CH / Radio Function on Side key 1 (PF1) --- MENU 20

There are four functions available on the side key 1 of this transceiver:

SCAN: Scan function

LAMP: Lamp function

SOS-CH: SOS function

RADIO: FM radio function

OFF: Turn off functions

1. Scan function:

In standby mode, press Side key 1 enter to Scan mode (scan mode can be set through MENU 19 -Scan Mode Setting), press any key to stop scanning.

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In Standby mode, press **MENU** + **SQ2** **0**, the screen displays 

Press **MENU** to enter, press **▲** / **▼** to select SCAN, then press **MENU** to confirm, press **EXIT** return to standby.

2. LAMP function:

In standby mode, press Side key 1 to turn on the Lamp, press again to turn off.

In Standby mode, press **MENU** + **SQ2** **0**, the screen displays 

Press **MENU** to enter, press **▲** / **▼** to select LAMP, then press **MENU** to confirm, press **EXIT** return to standby.

3. SOS-CH (SOS function):

In emergency, it can transmit the "wu...wu..." SOS signals to the outside through the appointed Channel or Frequency in Band A or Band B, meanwhile, the transceiver will sound "wu...wu..." and the light flashes. It will transmit signals every 5 minutes, lasting for 10 seconds each time.

When transmitting SOS signal, press any key to exit.


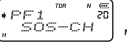
On the interval of transmitting, if carrier signal appears, it starts receiving, after the carrier signal disappears, the transceiver will go on transmitting SOS-CH (SOS function). Press any key to exit.

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How to operate

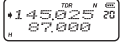
NOTE

- » In case that SOS-CH frequency you set is not the master frequency. When enters SOS alarm function, the transceiver automatically set SOS-CH on the master frequency, and will not resume.
- » Please press **A/B** key to reset the master frequency.

In standby, press **MENU** + **SOL2** **0**, then screen displays , then press **MENU** to enter, press **▲** / **▼** to choose SOS-CH submenu, the screen displays , press **MENU** again to confirm, press **▲** / **▼** to choose Band A or Band B, then press **MENU** to confirm, the transceiver sounds "wu...wu..." , meanwhile the RED/GREEN/FLASHLIGHT flashing, it means set SOS-CH function ON.

Through the above setting, in standby, press PF1 side key, to transmit SOS signal.

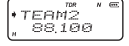
4. RADIO function:

- **Turn on the Radio:** In standby mode, press Side key 1 to turn on. The screen displays , it will search the radio stations automatically when the green light flashing, and will stop until searched. You can listen the radio.
- **Tune the radio stations:** In Radio mode, press **SCAN***, the radio will tune the stations automatically and the green light flashing at the same time, it will stop tuning while searched the station. You can also press **▲** / **▼** to turn the radio stations.

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- **Store the radio stations:** When searching the station, press **MENU**, the screen displays , then you can input any number key between **STEP1** and **VOICE9**. The station will be stored into the transceiver's chip, you can listen this station next time.

The transceiver has two groups radio-channels storable. When storing, the default is on the 1st group storage.

E.g. if you want to store 88.1MHz into the 1st group Channel 8, just press **MENU** + **W&B8**. If you want to store this frequency into the 2nd group Channel 8, firstly, you should select the 2nd storage, press **→#**, the screen displays , then switch to the 2nd storage, then press **MENU** + **W&B8** to store into the 2nd group Channel 8.

For the stored station, under the Radio mode, press number key 1 to 9 to listen it. Use **→#** to select the stored stations in 1st and 2nd storage.

- **Exit the Radio:** Press Side key 1 again to exit the radio mode.

NOTE

- » When you are listening to the radio, the current frequency or channel still working. Once received signals it will return to the transceiver communicating. After signals disappeared 5 seconds return to Radio mode.
- » When you are listening to the radio, press **EXIT** to check the standby frequency. Press PTT to transmit, 5 seconds later it will return to the Radio mode automatically.

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How to operate

Working Mode (CH-MDF) --- MENU 21

This transceiver has two working modes available:

1. Frequency mode (FREQ)
2. Channel mode

Three kinds of channel mode available:

- ① Channel (CH)
- ② Frequency + Channel number (CH FREQ)
- ③ Channel name (NAME)

NOTE


- » Only input the shift password can change Frequency mode into Channel mode, while change among the three kinds of channel mode without inputting password.
- » To set the shift password via programming software.
- » Set the password with six "0" is invalid (turn off the Shift password function) while set not full of "0" is valid.

Frequency (FREQ) and Channel mode changeable

① Invalid password

In standby, press **MENU** + **SOL2** **STEP1**, then press **▲** / **▼** to choose working mode press **MENU** to confirm.

② Valid password

In standby, press **MENU** + **SOL2** **STEP1**, then press **▲** / **▼** to choose working mode press **MENU** to confirm, the screen displays six short line 
Input the password, the transceiver shift to the selective mode.

NOTE

- » Channel mode and channel name mode can shift only after stored at least one channel and one named channel.

Setting Auto Backlight (ABR) --- MENU 22

In standby, press **MENU** + **SOL2** **SOL2**, the screen displays 

Press **MENU** to enter, it shows 'ON', press **▲** / **▼** to select ON/OFF auto backlight function, then press **MENU** to confirm, press **EXIT** return to standby.

NOTE

- » When the function sets "ON" for opening the auto backlight, it means only when you press the number key, the backlight is opened. The backlight is closed when transmitting or receiving.
- » Shortcut Switch on Frequency Mode and Pure Channel Mode
In standby, press **MENU** + **TDR** key to switch the mode. Without password, you can switch it directly.
Otherwise, you have to input the password firstly.

How to operate

Setting Offset Frequency (OFF-SET) --- MENU 23

Offset frequency means the difference between Tx and Rx frequency. This transceiver's offset frequency range is between 0 to 69.950MHz.

In standby mode, press **MENU** + **SOL2** **SAVE3**, the screen displays 

Press **MENU** to enter, then press **▲** / **▼** to select offset frequency or input the offset frequency through key pad directly press **MENU** to confirm, press **EXIT** return to standby.

Setting frequency shift direction and offset frequency only in Frequency mode, as for receiving and transmitting in different frequencies.

Operating steps:

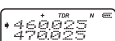
1. Set the working frequency
2. Set the frequency shift direction and offset frequency.

E.g.: In frequency mode, the transceiver needs to work on receiving frequency 450.025MHz and transmitting frequency 460.026MHz

In Frequency mode, input **TXP4** **RCR5** **0** **0** **SOL2** **RCR5** then press **MENU** + **SOL2** + **TXP4** + **MENU** to select positive direction (+), press **MENU** + **EXIT**, then press **MENU** + **SOL2** + **SAVE3** + **MENU** + **▲** / **▼** to choose 10.000+ **MENU** + **EXIT**, the frequency shift direction and offset frequency set.

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The screen displays ,

press PTT to transmit and the screen displays .

Release PTT the screen displays ,

it means receiving frequency is .

and transmitting frequency is .

Setting Frequency Shift Direction (SFT-D) ---- MENU24

Shift direction means that:

1. The transmit frequency is higher than receive frequency. This is called positive offset (+).
2. The transmit frequency is lower than receive frequency. This is called negative offset (-).
3. Turn off frequency shift

In standby mode, press **MENU** + **SOL2** **TXP4**, the screen displays 

Press **MENU** to enter, press **▲** / **▼** to select +/-/OFF, then press **MENU** to confirm, press **EXIT** return to standby.

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How to operate

Setting Stopwatch Timer (SECOND) --- MENU 25

In standby mode, press **MENU** + **SOL2** **5**, the screen displays 

Press **MENU** to enter, it shows 'OFF', then press **▲** / **▼** to turn ON/OFF this function, press **MENU** to confirm, press **EXIT** return to standby.

Using the stopwatch timer:

When this function is ON, press **→#** to start counting, while press any key to stop. Press **→#** again to start counting.

NOTE

» Stop counting, press any key (except **→#** key) to exit stopwatch timer function.

Channel Name Edit (CHNAME) --- MENU 26

Edit Channel name:

1. Channel name should be within 26 letters (A to Z) and 10 numbers (0 to 9).
2. Channel name should be less than six length.
3. When selecting (-) means the bit is blank.

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Edit method:

1. Via programming software.
2. Via keypad of transceiver.

Editing:

1. At least one channel should have been stored.
2. The transceiver should be in Channel mode.
3. Enter channel name edit, press **▲** to select character while press **▼** to select edit position.

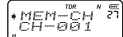
Edit step:

1. Firstly please set the work mode as NAME display way.
2. Select the desired edit channel, press **MENU** + **SOL2** + **TOT6** + **MENU**, the screen displays six '-' symbols, press **▲** to select characters and press **▼**, then press **▲** again to select the second characters, after selecting the sixth character press **MENU** to confirm, press **EXIT** to exit. The screen displays the channel name and also the channel number on top right corner.

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How to operate

Setting Memory Channels : Setting Co-Channel and Dis-Channel (MEM-CH) --- MENU 27

In Frequency mode and in standby, you can input the desired storing frequencies and each parameter. press **MENU** + **SOL2** **VOX7** , the screen displays 

Press **MENU** to enter, press **▲** / **▼** to select channel, then press **MENU** to store, a voice prompt means receiving stored. Press **EXIT** to exit, the current channel is co-channel. If you need to store dis-channel, repeat the above operation, another voice prompt means sounds – transmitting stored.

E.g.: setting 450.025MHz as receiving frequency and 460.025MHz as transmitting frequency which stored in CH-20, then set as following:

1. In Frequency mode, input **TXP4** **RECE5** **0** **0** **SOL2** **RECE5** + **MENU** + **SOL2** **VOX7** + **MENU** , then press **SOL2** **0** or **▲** / **▼** to select CH-20, press **MENU** to confirm, voice prompt means receiving stored, then press **EXIT** .
2. Input **TXP4** **TOT6** **0** **0** **SOL2** **RECE5** + **MENU** + **SOL2** **VOX7** + **MENU** + **MENU** , voice prompt means transmitting stored, then press **EXIT** .
3. The dis-channel is stored.

NOTE

- » If the stored channels need to set the CTCSS/DCS codes, you should set it before you stored, in case to stored into channel with frequency.
- » Transmitting store only can store transmit frequency.
- » Manual store, in frequency mode, only desired storing channel is empty can set receiving and transmitting store, or only can set transmitting store. If the channel had been edited, it can set receiving and transmitting store only after deleting the channel.
- » Besides manual store, via programming software can also set the functions and parameters.

Deleting Channel (DEL-CH) ----- MENU 28

In standby mode, press **MENU** + **SOL2** **W&N8** , the screen displays 

Press **MENU** to enter, and press **▲** / **▼** to select the desired deleted channel, then press **MENU** to confirm, the selected channel and message are deleted, press **EXIT** return to standby.

How to operate

Setting Reset ---- MENU 29

This transceiver has two resets available - VFO and ALL messages.

When you use RESET VFO, all function parameters will return to default set.

When you use RESET ALL, the transceiver's all settings return to default set.

1. MENU Reset (VFO):

In standby mode, press **MENU** + **SQ2** **VOICE9**, the screen displays 

Press **MENU** to enter, and press **▲** / **▼** to select VFO, then press **MENU**, the screen displays , press **MENU** again to confirm, and the screen displays .

After set Reset, the transceiver will auto power off and reboot again.



2. All messages Reset (ALL)

To avoid disoperation, you can set the password of ALL messages Reset (ALL) for this transceiver through Programming software. All messages reset will only work after the right password is input. Pls see the Programming software for the setting of password, 6 figures, while setting "000000" means cancelling the password lock function.

(1). Setting password as "000000"

In standby, press **MENU** + **SQ2** **VOICE9**, the screen displays 


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Press **MENU** to enter, and press **▲** / **▼** to select ALL, press **MENU**, the screen displays , then press **MENU** again to confirm, the screen displays , when the reset is finished, the transceiver will automatically turns off and reboot again.

(2). Setting password as "XXXXXX" (E.g.: 123456)

In standby, press **MENU** + **SQ2** **VOICE9**, the screen displays 

Press **MENU** to enter, and press **▲** / **▼** to select ALL, press **MENU**, the screen will displays 

at this time input the six figure password (e.g.: 123456), the screen displays 

the transceiver will start resetting. After reset is finished, transceiver will automatically turns off and restart.

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How to operate

CTCDD/DCS Frequency Scan ----- MENU 30

This function is to scan all CTCSS or DCS frequencies to confirm if the transmitting party has the CTCSS or DCS frequencies to transmit. When CTCSS or DCS frequencies are not matched between you and other members in the same group, you can use this function to confirm CTCSS or DCS frequencies.

When the transceiver is in receiving, press **MENU** + **SAVE** **3** **0** , the screen displays 

Press **MENU** to enter, the arrowhead points to "CTCSS". Press **▲** / **▼** select to scan CTCSS or DCS.

And then press **MENU** to confirm, it starts scanning CTCSS/DCS frequencies.

NOTE

- » This function can not work under the channel mode.
- » The function can not start up without detecting signals.
- » Press **▲** / **▼** or turn code switch to reverse the scanning direction.
- » When identifying CTCSS or DCS frequencies, the identified frequency will display on screen. In this moment, you can press **MENU** instead of present CTCSS or DCS frequencies temporarily. If you need direct replacement, please enter CTCSS menu (Menu 15 & Menu 16) or DCS menu (Menu 17 & Menu 18) to save and confirm. Otherwise, the value will come back to the prior one after restoration.
- » Only when the band that the arrowhead points receives signal, the transceiver can enter CTCSS/DCS frequency to scan.

DTMF Encoding

MENU , **▲** , **▼** , **EXIT** are corresponding to A, B, C, D on DTMF

Please follow the below steps to dial up manually:

1. Press PTT key to transmit.
2. In the meantime of transmission, press the key, and the corresponding DTMF tone is sent out.

NOTE

- » The transceiver transmits the corresponding tone, which can be monitored by the speaker.

ANI ID Code Edit, ANI ID Code Transmit, ANI ID Code Transmit Delay and Setting DTMF Sidetone

NOTE

- » The above functions in this transceiver only can be edited by our programming software.

ANI ID Code Edit

ANI ID Code can be edited by 6 digits, which is made up of A, B, C, D and 0-9.

ANI ID Code Transmit

How to operate

Switch of ANI ID Code Transmit means that when you are communicating, press [PTT] key every time, the ANI ID CODE will be auto or manual transmitted. Selecting ON means automatically transmit, OFF means manually transmit.

ANI ID Code Transmit Delay

ANI ID Code Transmit Delay means when you are communicating, press [PTT] key every time to delay transmit ANI ID Code automatically.

The longest time of ANI ID Code auto transmit delay is 3seconds, which is divided into 30 levels and 100ms per level.

Setting DTMF Sidetone

DTMF sidetone gives you the opportunity to switch on or off the speaker and hear the relative DTMF tone when transmit DTMF.

There are 4 options on setting sidetone:

- ① Key Tone: In transmitting, press number key to open the sidetone.
- ② ANI ID Code Transmit Sidetone: Opening sidetone when the transceiver transmits ANI ID code.
- ③ Key tone + ANI ID Code Transmit Sidetone: In transmitting, opening side tone by number key or during transmitting ANI ID code.
- ④ Turn off Sidetone: In encoding, all sidetone turns off.

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Setting Priority Scan Function

If you want to monitor the other frequency and check the certain preferred frequency at the same time, you can set Priority scan function.

E.g.: Scan six channels: CH1, CH2, CH3, CH4 and CH5 as the common scanned channel, and CH6 set as the priority scanned channel. Scanning sequence as following chart:

CH1 – CH6 – CH2 – CH6 – CH3 – CH6 – CH4 – CH6 – CH5 – CH6

If the transceiver checks the signal on "Priority Channel", it will call out its frequency.

Select the priority channels via programming software.

Setting Reverse Frequency Function

When using reverse frequency function, the transmitting and receiving frequency of transceiver will interchange, and the CTCSS and DCS encode and decode will interchange either.

Operating reverse frequency function:

In standby mode, press **SCAN** to turn on the reverse frequency function; press **SCAN** again to turn off.

In Frequency Mode:

1. If the menu setting turns on

How to operate

2. If your transceiver permits reset

The editing method of the above two functions: via software

Low-voltage Battery Voice Prompt

When the battery pack has low voltage, the transceiver will sound "low battery pack", and the LED will flash every 5 seconds and a "click" sounds.

Transmit Overtime Prompt

When transceiver transmits beyond the limited time, there will be a sound warning "transmit overtime", and stop transmitting. Press PTT to transmit again. (Setting Transmit Over Timer pls see page 16)

Adding Scanning Channel

NOTE

- » Channel scan only according to scan list which had been added.
- » Edit method: Strictly via programming software.

Wire Clone Function


| | | |
|-----------------|--|--|
| Using wireclone | Switch sourceradio on, after you have connected the targetradio to the sourceradio via the cloningcable, push the [MONI] key and the sourceradio starts cloning. | LED is flashing red during cloning. LED goes out in case of successful cloning. LED glows continuous red in case of cloning failure. |
| | Targetradio | LED is flashing green during cloning. LED will switch OFF when cloning complete. |

Working with Repeater

This transceiver has two working modes while working with repeater.

- ① Frequency mode working with repeater ② Channel mode working with repeater

1. Frequency mode working with repeater

- ① Press **A/B** to choose band A, set the Tx frequency and sub-tones which need to work with the repeater.
- ② Press **A/B** to choose band B, set the Rx frequency (if the repeater has TX sub-tones, you can also set sub-tones in band B).
- ③ Press **MENU** + **TDR**, frequency mode working with repeater set. The TDR disappeared but the screen displays "  ". And then press **A/B** again, the setting is finished.

How to operate

2. Channel mode working with repeater

- ① Edit the Tx & Rx frequency and sub-tones on the channel which need to work with repeater.
- ② In channel mode, and call out the above edited channel, press **A/B** to set this channel as the current one.

How to Use the Intelligent Charger

1. Insert the AC plug into the outlet (AC: 90-240V), the charger indicator flashes, it means enter charging standby .
2. Insert the battery into the charger, the RED indicator turns on, it means charging, while GREEN indicator turns on, it means fully charged.

NOTE

- » When insert the exhausted battery pack into the charger, it pre-charge the battery pack in trickling charge, meanwhile, the RED light flashing and lasts 10 to 20 minutes, then enter normally charging with RED light on, it will turn to GREEN when fully charged.
- » Tricking charge the exhausted battery pack in case to protect the Li-ion battery.

Trouble shooting

Please check carefully if your transceiver has problems by following this chart.

If you maintain to have trouble you can reset your transceiver and very often this will eliminate your problem.

| Problem | Solution |
|--|---|
| Cannot power on, no power | <ol style="list-style-type: none">1. The battery may exhausted, pls change the new battery or re-charge.2. The battery install incorrect, pls take out the battery and re-install. |
| Battery life not long | <ol style="list-style-type: none">1. The battery life is over, pls change a new battery.2. Not charging completely, be make sure fully charged before take out. |
| Receive light turn on but no sounds | <ol style="list-style-type: none">1. Make sure the volume is highest2. Make sure the CTCSS/DCS code is the same with other members. |
| Keypad do not work | <ol style="list-style-type: none">1. Make sure the keypad is locked or not.2. Make sure any other key stuck. |
| In standby, it will auto-transmit without pressing PTT | Make sure VOX function is ON or not, and its level is set too low or not. |

Trouble shooting

| Problem | Solution |
|---|--|
| Some functions can not be stored | Make sure work in Channel mode. Some functions can be set only via programming software in Channel mode. |
| Receive other groups signal while communicating | Pls change another CTCSS/DCS code of your group. |

Technology parameter

Professional FM Transceiver

Appendix 1

| CTCSS | | | | | | | | | |
|--------------|------|----|-------|----|-------|----|-------|----|-------|
| 1 | 67.0 | 11 | 94.8 | 21 | 131.8 | 31 | 171.3 | 41 | 203.5 |
| 2 | 69.3 | 12 | 97.4 | 22 | 136.5 | 32 | 173.8 | 42 | 206.5 |
| 3 | 71.9 | 13 | 100.0 | 23 | 141.3 | 33 | 177.3 | 43 | 210.7 |
| 4 | 74.4 | 14 | 103.5 | 24 | 146.2 | 34 | 179.9 | 44 | 218.1 |
| 5 | 77.0 | 15 | 107.2 | 25 | 151.4 | 35 | 183.5 | 45 | 225.7 |
| 6 | 79.7 | 16 | 110.9 | 26 | 156.7 | 36 | 186.2 | 46 | 229.1 |
| 7 | 82.5 | 17 | 114.8 | 27 | 159.8 | 37 | 189.9 | 47 | 233.6 |
| 8 | 85.4 | 18 | 118.8 | 28 | 162.2 | 38 | 192.8 | 48 | 241.8 |
| 9 | 88.5 | 19 | 123.0 | 29 | 165.5 | 39 | 196.6 | 49 | 250.3 |
| 10 | 91.5 | 20 | 127.3 | 30 | 167.9 | 40 | 199.5 | 50 | 254.1 |

Appendix 2

DCS

| | | | | | | | | | |
|----|-------|----|-------|----|-------|----|-------|----|-------|
| 1 | D023N | 16 | D074N | 31 | D165N | 46 | D261N | 61 | D356N |
| 2 | D025N | 17 | D114N | 32 | D172N | 47 | D263N | 62 | D364N |
| 3 | D026N | 18 | D115N | 33 | D174N | 48 | D265N | 63 | D365N |
| 4 | D031N | 19 | D116N | 34 | D205N | 49 | D266N | 64 | D371N |
| 5 | D032N | 20 | D122N | 35 | D212N | 50 | D271N | 65 | D411N |
| 6 | D036N | 21 | D125N | 36 | D223N | 51 | D274N | 66 | D412N |
| 7 | D043N | 22 | D131N | 37 | D225N | 52 | D306N | 67 | D413N |
| 8 | D047N | 23 | D132N | 38 | D226N | 53 | D311N | 68 | D423N |
| 9 | D051N | 24 | D134N | 39 | D243N | 54 | D315N | 69 | D431N |
| 10 | D053N | 25 | D143N | 40 | D244N | 55 | D325N | 70 | D432N |
| 11 | D054N | 26 | D145N | 41 | D245N | 56 | D331N | 71 | D445N |
| 12 | D065N | 27 | D152N | 42 | D246N | 57 | D332N | 72 | D446N |
| 13 | D071N | 28 | D155N | 43 | D251N | 58 | D343N | 73 | D452N |
| 14 | D072N | 29 | D156N | 44 | D252N | 59 | D346N | 74 | D454N |
| 15 | D073N | 30 | D162N | 45 | D255N | 60 | D351N | 75 | D455N |

DCS

| | | | | | | | | | |
|----|-------|----|-------|----|-------|----|-------|-----|-------|
| 76 | D462N | 82 | D516N | 88 | D606N | 94 | D645N | 100 | D723N |
| 77 | D464N | 83 | D523N | 89 | D612N | 95 | D654N | 101 | D731N |
| 78 | D465N | 84 | D526N | 90 | D624N | 96 | D662N | 102 | D732N |
| 79 | D466N | 85 | D532N | 91 | D627N | 97 | D664N | 103 | D734N |
| 80 | D503N | 86 | D546N | 92 | D631N | 98 | D703N | 104 | D743N |
| 81 | D506N | 87 | D565N | 93 | D632N | 99 | D712N | 105 | D754N |

Technology specification

| | | |
|--|---|--|
| Frequency Range (can be suitable for different countries or areas): | 76-108 MHz (Rx) 136-174MHz & 350-470MHz (Rx / Tx), 136-174MHz & 420-520MHz (Rx / Tx), 136-174MHz & 245-250MHz (Rx / Tx), 136-174MHz & 225-226MHz (Rx / Tx), | 136-174MHz & 400-480MHz (Rx / Tx), 136-174MHz & 400-470MHz (Rx / Tx), 136-174MHz & 216-280MHz (Rx / Tx), 136-174MHz & 430-440MHz (Rx / Tx). |
| Memorychannels | 128 channels | |
| Operating Voltage | 7.4V | |
| Operating Temperature | -30°C to + 60°C | |
| Working Mode | Co-channel or Dis-channel simplex | |
| Output Power | VHF: 5W / UHF:4W | |
| Modulation | F3E(FM) | |
| Max. Frequency Deviation | ≤ ±5KHz | |
| Spurious Radiation | < -60dB | |
| Frequency Stability | ±2.5 ppm | |
| Receive Sensitivity | < 0.2 μV | |
| Audio Output power | ≥ 500mW | |
| Dimension | 58 X 105 X 39 (mm) | |
| Weight | 250g | |

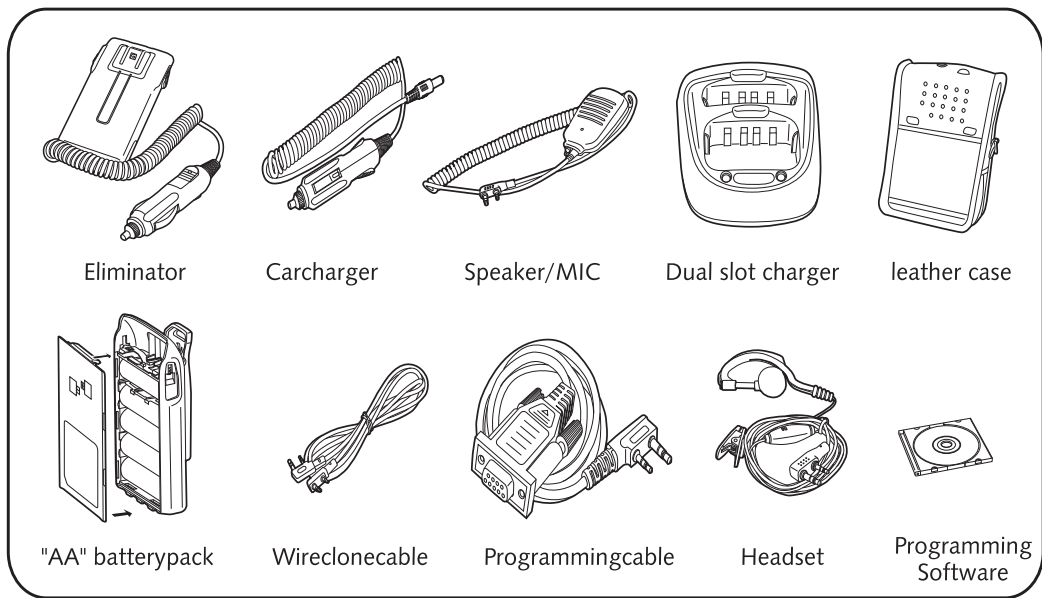
NOTE

» Specifications are subject to change without notice.

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Optional accessories

Professional FM Transceiver



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Announce

Endeavors to achieve the accuracy and completeness of this manual, but is not liable for any possible emission and printing errors. All the above specifications are subject to change by without prior notice.

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