Dual Band
Two Way Radio

用户手册

User Manual

Notice

Please use the transceiver in compliance with local regulations.

A Note To Users

Thank you for purchasing the portable transceiver. We trust this transceiver will give you convenient and reliable communication for many years.

For the best experience, we advise that you read this manual completely before using your new transceiver.

Content

Security Information

To use this transceiver safely and efficiently, please read the following safety information.

- Refer service to qualified technicians only.
- Turn off the transceiver while refueling or while parked in a gasoline service station.
- Please turn off the transceiver where flammable gases or fumes may be present.
- Do not expose the transceiver to long periods of direct sunlight or extreme heat.
- Do not transmit for long periods, especially at high power. Doing so may damage the transceiver or cause the transceiver to overheat.
- Do not use the transceiver with a damaged antenna. Doing so may damage the transmitter.
- When using this transceiver, Please make sure the antenna is connected. Transmitting without an antenna may damage the final amplifier in the transmitter.
- Please keep at least 2in (5cm) away from the transceiver while transmitting.
- Turn off the power immediately if the transceiver emits peculiar odors or smoke and contact the nearest authorized dealer for service.

Accessories & Options

Welcome to your new transceiver. Please unpack it carefully and ensure that the below accessories are included. If you find any missing or damaged components, please contact your dealer immediately.

Supplied Accessories

Item	Qty
Portable transceiver	1
Antenna	1
Li-ion Battery Pack	1
Battery Charger	1
15V Adapter	1
Belt Clip	1
Lifting Rope	1
User Manual	1

Optional Accessories

USB Programming Cable	Programming software
Dual PTT Earphone	

Battery Information and Charge

1．Charging the battery pack

The battery pack is not charged at the factory; charge it before use. Initially charging the battery pack after purchase or extended storage will not bring the battery pack to its normal operating capacity.

After repeating the charge/discharge cycle two or three times, the capacity will increase to normal. You should charge or change the battery if you found the battery power is weak.

2．Battery model

Please use appointed battery**.** It might be exploded or hurt your body if you use other battery.

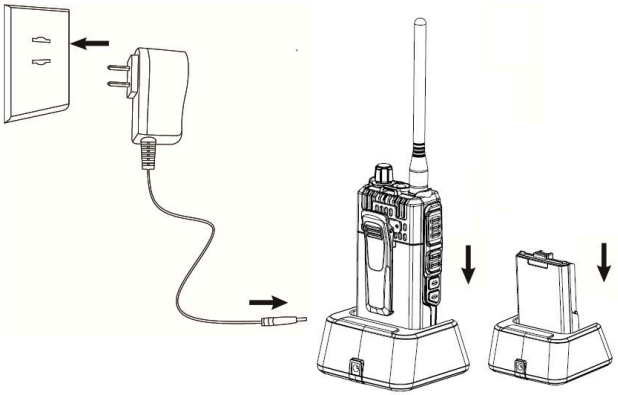
3. Caution

- Don’t short-circuit the terminals or put it in fire. Don’t attempt to open the unit.
- The ambient temperature should be between 0℃ to 40℃ while charging is in progress. Charging beyond this range may not fully charge the battery.
- Always switch OFF the radio equipped with a battery pack before charging. Using the radio while charging, it will interfere with correct charging.
- Don’t cut off the power or take off the battery during the charging process or else it will interfere with correct charging.

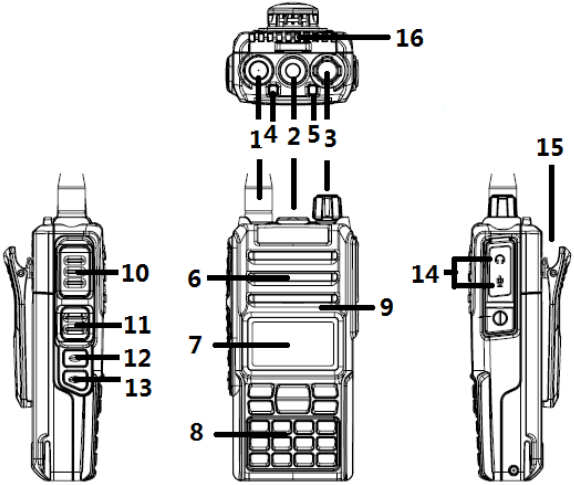
- The battery pack life is over when its operating time decreases even though it is fully and correctly charged. Replace the battery pack.
- Don't charge the battery pack if it is already fully charged or it will short the life of the battery.
- Don't charge the battery pack or radio while it is wet. Please wipe up it first to avoid danger.

4. Please charge the battery pack as follow:

- The charger must be connected to the 220 volt AC mains via the transformer supplied.
- Put the DC plug of the radio into the DC socket of the charger unit.
- Slide the battery or the radio with a battery pack into the charger.
- Make sure the battery pack contacts are in contact with the charging terminals, and the charger LED is on, it begins to charge.
- After charging the supplied battery pack for 5 hours, the charger light turns to green automatically after charging is completed. Remove it or the radio equipped with it from the charger.

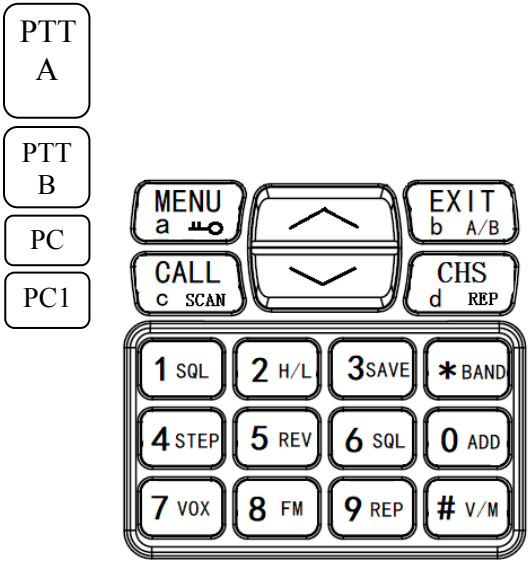


Getting Acquainted



① Antenna: A part which to transmit and receive signal.
② Torch
③ Power/Volume Switch
④ TX/RX indicate LED of Channel A
⑤ TX/RX indicate LED of Channel B
⑥ Speaker: For voice output
⑦ LCD display: Displays current frequency/channel and operations.
⑧ Keypad: Enters desired frequency/channel or operations by keypad
⑨ Microphone: For voice input
⑩ Push to talk A（PTT A）
Push PTT A to transmit a channel A signal, release to receive.
⑪ Push to talk B（PTT B）
Push PTT B to transmit a channel B signal, release to receive.
⑫ Programmable Key(PC)
This key can be programmed as user-define shortcut key by software.
⑬ Programmable Key(PC1)
This key can be programmed as user-define shortcut key by software.
⑭ Speaker/microphone jack, programming software jack
⑮ Belt Clip/Lifting Rope
⑯ Intelligent Fan

Keypad Operation



Keypad operation:

Keys	Function
1.Function Keys	
PTTA	Push to talk channel A
PTTB	Push to talk channel B

PC	Programmable key: PC
PC1	Programmable key: PC1
MENU	Press to access Menu, hold to lock keypad. When transmitting a DTMF Code, press this key to input A.
EXIT b A/B	Press to Exit or switch A/B; hold is a programmable key（Default: OFF）. When transmitting a DTMF Code, press this key to input B.
CALL c SCAN	Press to start a call; hold to start SCAN. When transmitting a DTMF Code, press this key to input C.
CHS d REP	Press to save a channel; hold to enable repeater function. When transmitting a DTMF Code, press this key to input D.
▲	Press to up, hold to go fast.
▼	Press to down, hold to go fast.
*BAND	Press to switch band, hold to start a call.
# V/M	Press to switch V/M, hold to start SCAN.
2. Numeral 0-9: Press to input frequencies, channel number, menu number, CT/DCS and other value.	

Numeral 1:SQL	Press and hold to Squelch Level, Press ▲/▼to select 0-9 level, press any key to confirm and exit.
Numeral 2: H/L	Press and hold to switch high/mid/low power
Numeral 3:SAVE	Press and hold to Enable/disable Save function.
Numeral 4:STEP	Press and hold to set frequency step, optional: 2K5/5K/6K25/10K/12K5/25K (Only in VFO mode)
Numeral 5:REV	Press and hold to enable/disable Reserve. The channel should set RPT+/RPT- and offset advanced. (Only i n MR mode)
Numeral 6:SQT	Press and hold to set squelch mode，OFF/CTC/NDCS/IDCS optional. Can input any CTCSS/DCS directly. Refer to attached Table CTCSS/DCS code.
Numeral 7:VOX	Press and hold to enable/disable Voice Operated Transmission
Numeral 8:FM	Press and hold to enable/disable FM Radio, Range：65-108MHz.
Numeral 9:RPT	Press and hold to preset repeater，SING/RPT-/RPT+. Can only be set in VFO Mode.
Numeral 0:ADD	Press and hold to Scan add, in MR/CH mode, current channel be scanned or not.

3.Speicial opening: hold a key to open the radio	
Power ON +V/M	Switch between VFO/MR mode and CH mode.
Power ON +MENU	Access to reset function: All reset/ Function reset/Delete current channel.
Power ON +▼	Displays full display word after power on.

Remarks:

1. Menu positioning method:

Press MENU key, and then choose menu item through ▲ ▼ keys, or input the menu item directly, two digits item number can input the two digits in rapid succession.

For example, press the [MENU] key+ [5]key to fast reach menu 5; press the [MENU] key, and then press [2]key+[3]key in rapid succession to fast reach menu 23.

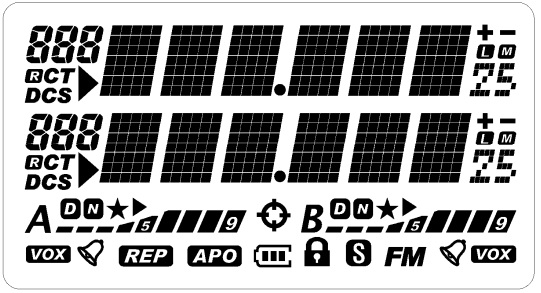
2. Call Operation:

Push PTTA to transmit a channel A code, Push PTTB to transmit a channel B code. DTMF code forms 1- 15 digits, range: 0-15, *, #, A, B, C, D {Input [A, B, C, D] by pressing [MENU, EXIT，CALL，REP]}. Press ▲ or ▼ key as a backspace key. Three ways to make a CALL:

- Press and hold the PTT key, enter the desired DTMF code to transmit the code;

- Fill DTMF code table in the software (There are 16 groups), press CALL key, the screen displays “CALL 0”, press the ▲ ▼ keys to select the code group, or directly enter the code group number and then send it by pressing the PTT key.
- Press the [CALL] key, the screen displays “CALL 0”, press the MENU key, displays “SEND”, enter the desired DTMF code and then press PTT key to send.

LCD Display



Icon	Feature Description	Operation Method
888	Memory Channel No.	A:001-511 B:001-511
R	Reverse enable	In VFO/MR mode, press and hold key 5 (Menu 33)

CT	CT enable	Menu08-09 RX Type and RX Tone, Menu10-11 TX Type and TX Tone；in VFO/MR mode: Press and hold key 6
DCS	DCS enable	The same as CT
▶	The Current Channel	Switch A/B Key
A B	When **A** displayed, Channel A stand by; When **B** displayed, Channel B stand by; When **AB** displayed, channel A and B both stand by.	To enable or disable dual waiting.(Menu7)
D	DTMF	Menu 06
N	Narrowband enabled	Menu52
★	Talk Around enabled	Or set Talk as PC/PE Shortcut key via Menu 26-28, and press the key to enable /disable Talk Around. (Menu45)
▸	Channel scan disabled	In VFO/MR mode, press and hold key 0

	Channel A and B signal strength. Indicate Power strength when transmitting, 9 grids for high power, 6 grids for mid power, 3 grids for low power. Indicate signal strength when receiving.	Push PTT A to transmit channel A Push PTT B to transmit channel B
	To be developed	---
	VOX enable	Press and hold key 7 (Menu 48)
	PTTID enable	Menu30
	Repeater enable	Press and hold [REP] key to enable /disable Repeater.
	Auto power off	Menu 01
	Power indicator	Black grid indicate full power
	Keyboard Lockout	Press and hold **M** Key for 2 Seconds
	Save power enabled	In VFO/MR mode, press and hold key 3
	FM enable	Press and hold key 8
	Offset enabled: RPT+	In VFO/MR mode, press and hold key 9

	Offset enabled: RPT-	and select via ▲ or ▼key. (Menu 35)
	Low power	In VFO/MR mode, press and hold key 2 and select via ▲ or ▼key. The two icons do not display when power is High. (Menu 29)
	Middle Power	
	Displayed frequency value, channel names, menu items, and other numbers, letters or symbols Information	----

Basic Operation

Power on/off

Rotate the Power/Volume Switch to power on/off. Three ascending tones will sound, indicating that the transceiver has powered on. The tones can be closed through Menu 24.

Adjusting Volume

When transceiver is power on, rotate it clockwise to increase volume, anticlockwise to reduce volume.

Select Frequency

1, In VFO mode, press ▲ key to increase frequency, press ▼ key to reduce volume. Or enter frequency direct by keypad. (Note: If you can't select your desired frequency, please press and hold key 4 to

modify step.)

2, In MR/CH mode, press ▲ key to increase channel, press ▼ key to reduce channel. Or enter channel number directly by keypad.

Transmitting and receiving

To transmit, press and hold the PTT key of the microphone and speak normally. Release the PTT key to stop transmitting.

High power: PTT A or PTT B both light RED LED;
Middle and Low power: PTT A lights Orange LED, PTT B Purple lights LED;
Receiving channel A light Green LED, receiving channel B lights Blue LED.

- Please use Low Power whenever possible. If the distance between you and the other station is short, low power (5 watts) should be adequate. Using low power or middle power when possible will not only use less power from your battery or power supply, but your transmitter will also produce less heat, increasing the life of your final amplifier.
- For best voice quality, hold the microphone about 2 IN (5 cm) away from your mouth and speak normally.

Programmable key settings

The PC, PE keys are user programmable. The keys can be programmed using Menus 26-28.

PC key has two programmable functions, accessed by a short press (press and release) or a long press (Press and hold for 1.5 seconds). PE key has one programmable function, accessed by a long press. Each of these functions is set in one of the programmable key menus.

Note: If you would like to change the hold time for Long Press, you may do so using the programming software.

You may set any of the programmable keys to perform the following functions:

Item	Programmable	Item	Programmable
1	OFF	9	EMG
2	FM	10	PTTID
3	Repeater	11	DTMF
4	MOLO	12	CALL
5	SQM	13	1750
6	HALF	14	SCRA
7	SCAN	15	TALK
8	LOW	16	REV

Function Menu Operation

Menu table

Menu	Display and description	Option

01	APO （Auto power off）	OFF/10M/20M/30M/40M/ 50M/1H/1H5/2H/4H/6H/ 8H/10H/12H/14H/16H
02	APRO （Audio Processing）	OFF/COMP/Scra/TXSc/RXSc (In A channel only: OFF/TXSc)
03	BC LO (Busy Lock)	ON/OFF
04	BEEP (Key Beep)	ON/OFF
05	Chsave (Save to MR)	A:001-199 B:001-199
06	DTMF	ON/OFF
07	DW （Dual Reception）	ON/OFF
08	RX Type （Decode type）	OFF/CTCSS/NDCS/IDCS
09	RX Type （Decode code）	CTC：55.0-255.0 NDCS：000N-777N IDCS：000I-777I
10	TX Type （Encode type）	OFF/CTCSS/NDCS/IDCS
11	TX Tone （Encode code）	CTC：55.0-255.0 NDCS：000N-777N IDCS：000I-777I
12	FM SCAN	FM SCAN enable/disable

13	FM SQL	0-9
14	FM DW	ON/OFF
15	FM BAND	87-108 MHz (US/Europe) 76-91 MHz (Japan) 76-108 MHz (world wide) 65-76 MHz （East Europe）
16	Font	BIG/SMAL
17	Half （The voice of Sub-channel is half of main-channel）	ON/OFF
18	Keylck （Keylock）	K+S/PTT/KEY/ ALL
19	Lamp C (Lamp color)	OFF Blue(Blue) Oran(Orange) Purp(Purple)
20	Lamp T (Lamp type)	OFF/KEY/CONT/ALL
21	NamSYS （Name System）	ON/OFF
22	NamCHA （Name Channel）	ON/OFF
23	NaEdit （Name Edit）	Channel name edit (Six Characters)
24	OpenBe （Open Beep）	ON/OFF

25	OpenDS （Open Display）	SYS/ ALL/NULL/User
26	PC L （PC long）	OFF/FM/REPE/MOLO/SQM/ HALF/SCAN/LOW/EMG/ Scra/DTMF/CALL/1750/ PTTID/TALK/REV
27	PC S （PC short）	
28	PE L （PE Long）	
29	Power	High/Low
30	PTT ID	ON/OFF
31	PTTSet (PTT Set)	A=B/ A！=B
32	RepSet	U<>V, U<V, U>V
33	Rev （Reverse）	ON/OFF
34	Roger	ON/OFF
35	RPT-D (Offset)	OFF/+RPT/-RPT
36	RPTSET (Offset value)	0.000-399.995
37	Savlev (Save level)	OFF/1/2/3/4
38	SCNMod (Scan mode)	CO/TO
39	SCNADD (Scan add)	ON/OFF

40	SCNTYP	ALL/32
41	SQL A (Channel A SQL)	0-9
42	SQL B (Channel B SQL)	0-9
43	Step	2.5K/5K/6K25/10K/12K5/25K
44	Tail	ON/OFF
45	Talk （Talk around）	ON/OFF
46	TOT (Time out Timer)	10S-120S/OFF
47	TxStop (Transmit Stop)	ON/OFF
48	VOX	ON /OFF
49	Vox D (Vox Delay)	1S/2S/3S/4S
50	Vox S (Vox Sensitivity)	1-8
51	VXB (Vox Stop when radio receiving)	ON/OFF
52	WIDNAR (Width/Narrow)	WID/NAR

01. [MENU+1] Auto Power Off (APO)

Auto Power Off will automatically turn the transceiver off after a set length of inactivity. This function is disabled (off) by default. The Auto Power

Off interval can be set to 10 minutes, 20 minutes, 30 minutes, 40 minutes, 50 minutes, 60 minutes, 90 minutes, 2 hours, 4 hours, 6 hours, 8 hours, 10 hours, 12 hours, 14 hours, or 16 hours. The transceiver displays a APO icon when APO function is enabled.

02．[MENU+2]APRO(APRO)

The audio processing menu allows you to set up the compander and voice scrambler. You can set this menu as :OFF, Compander(Comp), Scrambler (Scra) , TX Scrambler(TXSc), RX Scrambler(RXSc).

In A channel, you can only set this menu as: OFF or TX Scrambler(TXSc)

03．[MENU+3] Busy Channel Lock（BCLO）

When a Channel has the “BC LOCK” function enabled, the ability to transmit is disabled on that channel if it is active. You will again be able to transmit on the channel when the channel is quiet. This option can be set to “ON” or “OFF”. The default setting is OFF.

04．[MENU+4] Key Beep (BEEP)

This function determines whether pressing keys on the transceiver sound an audible confirmation beep when they are pressed. It can be set to “ON” or “OFF”. This feature is turned on by default.

05．[MENU+5]Channel Save（CHsave）

In VFO mode, store current frequency to XXX memory channel through this menu. Stored channel

number can be selected via ▲▼ key, press Menu key to confirm save and exit. There are two channel banks, each bank has 199 channels. VFO A stored to Channel A, VFO B stored to Channel B.

06．[MENU+6] DTMF Function

DTMF (Dual Tone Multi Frequency), dual tone multi-frequency, consists of high-frequency group and low frequency group, each group contains four frequencies. A high frequency signal and a low frequency signal superimposed to form a combined signal which representing a number. DTMF signaling has 16 codes, can be set freely. When a radio channel setting of the DTMF enabled, you can send DTMF codes by wireless control to achieve individual call, group call or RX Inhibition, RXTX Inhibition and other functions.

Dual-Tone Multi-Frequency (DTMF) is a signaling method in which two tones are combined to create one of 16 separate codes. These codes represent digits 0-9, plus *, #, A, B, C, and D. The transceiver can generate and decode DTMF sequences in order to control other equipment, remotely control or inhibit other transceivers, or page individual radio users or groups of users. Each channel can be individually programmed for DTMF signaling to be enabled or disabled. Note that if DTMF is disabled on a channel, it can neither be transmitted nor decoded.

✧ **Enable Or Disable DTMF Signaling**

1, In VFO / MR mode, select a frequency or memory channel to modify DTMF signaling. Alternatively, you can enable DTMF signaling in the programming software.

Note:

a), If the transceiver is in CH mode, you can not enable or disable DTMF signaling from the transceiver's front panel. In CH mode, this setting can only be modified from the programming software.

b), In MR mode, each memory channel can be independently set to have DTMF signaling enabled or disabled.

2, Access menu 06 and press the "MENU" key to open the menu, select "ON" or "OFF" to enable or disable DTMF signaling. The default setting is ON. Once you have made your selection, press the "MENU" key to confirm and exit.

✧ Individual call/ group call

Individual call: Using programming software, set the transceiver's individual ID code. This can be any code of up to 15 characters, using the digits 0-9, *, #, A, B, C, and D. The default transceiver individual call ID code is 1000.

Group Call: Using a group call character in any part of a radio calling sequence will call all radios in a specific calling group. The only radios in the group that will not automatically respond to a group call are transceivers which are either set to selective call only

or those which have receive or receive/transmit inhibit enabled. The group character may be *, #, A, B, C, or D. The default group character is A.
Consider the following example.

Set 10 transceivers as follows:

Item	Individual ID	Unite ID	Group ID.
Transceiver 1	80811	C	Group 1
Transceiver 2	80812	C	Group 1
Transceiver 3	80813	C	Group 1
Transceiver 4	80814	C	Group 1
Transceiver 5	80815	C	Group 1
Transceiver 6	80831	C	Group 3
Transceiver 7	80832	C	Group 3
Transceiver 8	80833	C	Group 3
Transceiver 9	80834	C	Group 3
Transceiver 10	80835	C	Group 3

Send the ID code: 80814 to call "Transceiver 4".
Send the ID code: 80832 to call "Transceiver 7".

Send the ID code: 8081C to call all transceivers in Subgroup 1.
Send the ID code: 8083C to call all transceivers in Subgroup 3.
Send the ID code: 808CC to call all transceivers in Group 1 and Subgroup 3 which are both in Group C.

✧ **DTMF code transmission mode:**

Fill in the DTMF call list in the programming software. In VFO / MR / CH mode, be sure that DTMF Mode is enabled.
1, Automatic transmission: Fill in the DTMF call list in the programming software. In VFO / MR / CH mode, be sure that DTMF Mode is enabled.
Press and hold the */CALL key, select an autodial slot from the list. Press the PTT key to send the selected DTMF sequence. (Note: Slots 0-9 can be entered directly, or press ▲ ▼keys to select. Slots 10-15 can only be selected by using the ▲ ▼keys.
2, Manual transmission: If the DTMF autodial list is empty, automatic DTMF transmission is disabled. However, you can manually enter a sequence of DTMF tones manually.

a. Press the “CALL” key, or press and hold the “*” key, and then press Menu key, enter your desired sequence of DTMF tones from the keypad. Finally, press the PTT key to transmit. You will hear the DTMF tones transmit if they were properly entered.

b. Press and hold PTT key and enter your desired sequence of DTMF tones from the keypad, then release the PTT key, you will hear the DTMF tones transmit if they were properly entered.

✧ **Remote RX Inhibition and RXTX Inhibition**

RX Inhibition: If RX Inhibit is enabled, the receiver will remain inactive until it receives the correct RX Enable code.

RXTX Inhibition: With RX/TX Inhibit enabled, the transceiver will be unable to receive or transmit until it receives the correct RX/TX Enable code.

07．[MENU+7]Dual reception（DW）

This setting determines whether the dual reception feature is enabled or disabled. With dual reception enabled, the transceiver will monitor and receive two frequencies at the same time. Select Menu 07 to modify this function, which can be turned ON or OFF. The default is ON.

08/09．[MENU+8/9]RX Type and RX Tone（RX Type/RX Tone）

Using Menus 08 and 09, you may determine what will open the transceiver's squelch. Set the "RX Type" option (Menu 08) to select the squelch mode:

OFF: Any signal on the channel will open the receiver's squelch.

CTCSS: Only a signal on the channel containing a

matching CTCSS tone will open the receiver's squelch.
NDCS: Only a signal on the channel containing a matching normal DCS code will open the receiver's squelch.
IDCS: Only a signal on the channel containing a matching inverted DCS code will open the receiver's squelch.
After you have selected the RX type in Menu 08, enter any CTCSS or DCS code you desired directly in Menu 09. That means you can enter a standard CTCSS/DCS(Refer to the following tables) or a non-standard CTCSS/DCS code in the range of:
CTC: 55.0-255.0
NDCS: 000N-777N
IDCS: 000I-777I

CTCSS standard frequency table (58 groups)

56.0	74.4	107.2	156.7	189.9	241.8
57.0	77.0	110.9	159.8	192.8	250.3
58.0	79.7	114.8	162.2	196.6	254.1
59.0	82.5	118.8	165.5	199.5	
60.0	85.4	123.0	167.9	203.5	
61.0	88.5	127.3	171.3	206.5	
62.0	91.5	131.8	173.8	210.7	
63.0	94.8	136.5	177.3	218.1	
67.0	97.4	141.3	179.9	225.7	

69.3	100.0	146.2	183.5	229.1	
71.9	103.5	151.4	186.2	233.6	

DCS Standard Code Table

017	053	125	172	251	315	411	462	565	703
023	054	131	174	252	325	412	464	606	712
025	065	132	205	255	331	413	465	612	723
026	071	134	212	261	332	423	466	624	731
031	072	143	223	263	343	431	503	627	732
032	073	145	225	265	346	432	506	631	734
036	074	152	226	266	351	445	516	632	743
043	114	155	243	271	356	446	523	645	754
047	115	156	244	274	364	452	526	654	
050	116	162	245	306	365	454	532	662	
051	122	165	246	311	371	455	546	664	

10/11. [MENU+1+0/1] TX Type and TX Code（TX Ty/TX Tone）

Similar to the settings for “RX Type” and “RX Tone” above, using Menu 10, “TX Type” and Menu 11 “TX Tone”, you may determine the CTCSS or DCS code that is used on a particular channel. You may need such a code in order to access a repeater system or other radio users who have CTCSS or DCS squelch enabled. You may set Menu 10 as follows:

OFF: Disable. The transmitted signal does not send any CTCSS or DCS codes.

CTCSS: Transmit a specified CTCSS tone.

NDCS: Transmit a specified normal DCS code.

IDCS: Transmit a specified inverted DCS code.

Use Menu 11 to set the desired CTCSS or DCS tone, using the same range as for Menu 09.

12．[MENU+1+2] FM SCAN（FM SCAN）

The FM Scan function determines whether the "▲▼" keys scan for active FM channels or simply tune the radio in 50 KHz tuning steps. Setting FM Scan to ON will increase tuning speed, as only active FM radio signals will stop tuning.

13．[MENU+1+3]FM SQL（FM SQL）

The FM SQL menu determines the sensitivity of the FM broadcast scan. The higher this setting, the stronger a signal must be in order for the scan to stop on a particular FM broadcast channel. Settings range from 0 (always on) to 9 (tightest squelch for scan). The default level is 5.

14．[MENU+1+4]FM Dual reception（FM DW）

The FM Dual Reception feature allows you to continue listening to an FM broadcast station at the same time as another signal from the transceiver is present. If this feature is disabled, a signal from the main transceiver will not heard when FM broadcast

radio reception. In either case, a signal will interrupt FM broadcast reception. This feature may be turned ON or OFF. The default setting is ON.

15．[MENU+1+5]FM BAND（FM BAND）

Base on the different FM frequency among countries, you can choose different FM frequency from the following FM band:
87-108 MHz (US/Europe)
76-91 MHz (Japan)
76-108 MHz (world wide)
65-76 MHz （East Europe）

16．[MENU+1+6]The display font（Font）

You can select the font size of the channel display through this menu. Select “BIG” to show both channels in a larger font. Choose “SMAL” to have the main channel in a larger font and the sub-channel in a smaller font(Just the last 3 digits in smaller font).
Not: The alias name can not display smaller font.

17．[MENU+1+7] The voice of Sub-channel is half of main-channel（Half）

When the “Half” enabled(ON), the voice of the Sub-channel is half of the main-channel when both two channels have signals in. So that you can know where the voice from.

18．[MENU+1+8]Key Lock（Keylck）

You may lock the transceiver controls by holding the “Menu” key for one second. When the lock is enabled,

the  symbol appears. Unlock the transceiver controls by again holding the “Menu” key for one second.
You can choose what controls are locked as follows:
KEY: Numeric and function keys, excluding the “Menu” key.
K + S: KEY +▲▼. Numeric +function keys + “▲▼” excluding the “Menu”.
PTT: PTT Key.
ALL: KEY + ▲▼ + PTT excluding “Menu” key.
Default is K + S.

19．[MENU+1+9]Lamp Color（Lamp C）

Four option: OFF, Orange, Blue, Purple.

20．[MENU+2+0]Lamp type（Lamp T）

You can set backlight behavior through Menu 20. Select from the following settings:
OFF: Backlight is disabled.
KEY: Backlight is active only when a key is pressed.
CONT: Backlight is always enabled.
ALL: Backlight is active when a key is pressed, or when the PTT is pushed.
The default setting is CONT.

21-23．[MENU+2+1/2/3]Setting Channel Names

Menu 21 determines whether the transceiver allows the user-defined channel names to be displayed. If it is enabled, channels would display user-defined channel name, if it is disabled, all user-defined channel names

would not be displayed.

Menu 22 determines whether a user-defined channel name will be displayed. Set this option to ON if you would like to see channel names instead of merely channel numbers. The default is OFF.

It may be helpful for you to name particular channels with meaningful labels, such as callsigns, cities, or channel use. Your channel names can be up to six characters long.

You can edit channel names using Menu 23. Access Menu 23, press key 2 to edit the first digit, press "▲▼" to select the character desired, then press key 2 to confirm and edit next digit, press key "EXIT" to backspace, after edit all digit desired, press key 3 to end edit and press Menu key to exit. The default label for any A channel is "NA-***". The default label for any A channel is "NB-***".You may use any of the characters in the following table in your channel names. You can press and hold "▲▼" key to go fast.

Edit Alias valid characters:

A	B	C	D	E	F	G	H	I	J	K	L
M	N	O	P	Q	R	S	T	U	V	W	X
Y	Z	[	¥	]	^	-	`	a	b	c	d
e	f	g	h	i	j	k	l	m	n	o	p
q	r	s	t	u	v	w	x	y	z	{	|
}	→	←	space	!	"	#	$	%	&	’	(

)	*	+	,	-	.	/	0	1	2	3	4
5	6	7	8	9	:	;	<	=	>	?	@

24．[MENU+2+4]Open Beep（OpenBe）

You can set whether the radio beep or not when it turned on. On: The radio has a beep tone when it turned on. OFF: No beep tone when turned on.

25．[MENU+2+5]Open Display（OpenDs）

You can select what displays when the transceiver first powers on by using Menu 25. Choose from the following options:

ALL: Boot displayed as full screen display.

SYS: Boot displayed as system welcome word.

User: Boot display as User-defined word.

You can set the user-defined word in the programming software.

NULL: Blank.

The default setting is USER.

26-28．[MENU+2+6/7/8] Custom Keys Set（PC/PE Key）

The PC/PE keys are user programmable. The keys can be programmed using Menus 26-28.

PC key has two programmable functions, accessed by a short press (press and release) or a long press (Press and hold for 1.5 seconds). PE key has one programmable function, accessed by a long press. Each of these functions is set in one of the programmable key menus.

29．[MENU+2+9]Power（Power）

To set transmit power：High/Mid/Low

30．[MENU+3+0]PTT ID（PTT ID）

PTT ID allows you to send a code that identifies your specific transceiver. The PTT ID code is defined in the programming software; the default ID is “123”.

You can also set whether PTT ID’s are spoken or displayed. If voice is selected, ID’s of up to five digits will be spoken. However, up to 14 digit ID’s can be displayed if voice ID’s are disabled.

Each channel stores whether the PTT ID is enabled.

The PTT ID can be sent:

1. At the beginning of the transmission: The ID is sent immediately when the PTT key is pressed.
2. At the end of the transmission: the PTT ID is sent when the PTT key is released.
3. Both: the PTT ID is sent both when the PTT key is pressed and again when it is released.

31．[MENU+3+1]PTT Set（PTTSet）

The PTT B can be set the same as PTT A, or not the same with PTT A through Menu 31. When PTT A=B, push PTT A or B, the radio transmit the signal for current channel; when PTT A!=B, push PTT A to transmit signal for channel A, push PTT B to transmit for Channel B. The default is :A!=B.

32．[MENU+3+2]Repeater Set（RepSet）

Repeater mode can be set through this menu, optional modes:

U<>V, U<V, U>V.

33．[MENU+3+3]Reverse（Rev）

The Reverse feature can only be enabled if Offset Frequency and RPT Type, are also set. The Reverse function swaps the receive and transmit frequencies so that you can hear another transceiver's calls directly rather than through a repeater. This would be useful in order to determine whether you can establish direct contact with a nearby station, freeing up the repeater for other uses.

To set the Reverse function, set Menu 33 to "ON". To return to normal operation, set Menu 33 to "OFF".

34．[MENU+3+4]Roger(Roger)

The transceiver can send a "Roger beep" to mark the end of a transmission. Select "ON" to enable this feature, or "OFF" to disable it. The default setting is OFF.

35/36. [MENU+3+5/6]Offset Frequency (RPT -D/RPTSET)

You can set a channel to use different receive and transmit frequencies. This is most useful for operating through a repeater, which receives on one frequency and then retransmits on another frequency from a higher antenna. This effectively provides systems using the repeater with greater communication range than they would achieve alone.

Setting these separate frequencies is accomplished by setting Menus 35 and 36. First, you will need to set the offset amount, which is the difference between the receive and transmit frequencies. The transceiver can accept offset values from 0.000 to 399.995 MHz.
In VFO Mode, select Menu 36. Enter the offset value using the number keys, or by using the "▲▼" keys.
Default: UHF(5MHz), VHF(0.6MHz).
Select the offset direction using Menu 35. Using the "▲▼" keys, select "RPT+" (positive offset, the transmit frequency is higher than the receive frequency), "RPT-" (the transmit frequency is lower than the receive frequency), or "SING" (no offset, only a single frequency is used).
Note: Offset frequency setting is only available in VFO mode. It cannot be set in already programmed memory channels. When using the programming software, you must specify both receive and transmit frequencies directly.

37．[MENU+3+7]Save level（Savlev）

There are four battery save levels:OFF/1/2/3/4.

38．[MENU+3+8] Scan Mode（SCNMod）

Scan mode allows you to monitor several channels more efficiently. Channels are scanned until activity is detected on a channel. Depending on the scan mode, scanning may continue after a specific length of time, or it will only continue when the channel is inactive.
Scan Mode: Select the scan mode in Menu38. There

are two modes:

- ✧ Time operated (TO): Scanning stops when an active channel is encountered. The scan will pause for five seconds, then scanning will continue, even if the channel is still active.
- ✧ Carrier operated (CO): Scanning stops when an active channel is encountered. Scanning resumes after two seconds of channel inactivity.
- ✧ The default setting is “TO”.

Note: Press any key except ▲ or ▼ to stop scanning.

Scan range: You may select two different scanning ranges:

- ✧ VFO frequency scan: All frequencies on the band will be scanned.

  In VFO mode, press “SCAN(#)” key to start scanning. The scan will begin at the current frequency and continue up the band. To reverse the scan direction, press the “▼” key. Scan up the band again by using the “▲” key. Press any other key to stop scanning.
- ✧ MR/CH scan: Scan only programmed memory channels in this mode. From MR/CH mode, press “SCAN(#)” keys to start scanning, scanning begins on the current channel and scans up to higher channel numbers. To reverse the scan direction, press the “▼” key. Scan up the band again by using the “▲” key Press any other key to stop scanning.

Note:

a) Each memory channel can be set to be blocked from scan through Scan Add. Press “ADD(0)” keys to enable or disable Scan Add. If Scan Add is disabled on a channel, that channel will be skipped during MR/CH scans. If a channel’s Scan Add is disabled, ▲will be indicated on the transceiver’s display.
b) MR/CH Scan is only available if two or more channels are programmed with Scan Add enabled.
c) Scan is only effective if the squelch is closed.

39．[MENU+3+9] Scan add（SCNADD）

Each memory channel can be set to be blocked from scan through Menu 39. If Scan Add is disabled on a channel, that channel will be skipped during MR/CH scans. A channel’s scan status will be indicated on the transceiver’s display.

40．[MENU+4+0] Scan Type（SCNTYP）

The scan type can be set to scan [ALL] or scan [32 channels] through Menu 39.

Scan [ALL]: scan all the memory channels in current channel.

Scan [32]: scan 32 channels which the current channel in（1-32，33-64，65-96，…,481-511）.

41．[MENU+4+1] Squelch Level A（SQL A）

The squelch circuit allows you to only hear desired

signals. If a strong enough signal is not present, the squelch circuit is closed, and you will hear no background noise. Higher levels of the Squelch level setting require stronger signals to open the squelch circuit. Set the squelch level to one appropriate to the amount of RF noise in your environment. A squelch setting that is too high may cause you to miss receiving a weaker signal, while too low a setting may cause you to hear more noise than you might want.
Set the Squelch Level of channel A using Menu 41. There are nine levels of squelch setting; the default level is 2.

42．[MENU+4+2] Squelch Level B（SQL B）

Set the Squelch Level of channel B using Menu 42. There are nine levels of squelch setting; the default level is 2.

43．[MENU+4+2]Step（STEP）

Step is the value in which the operating frequency increases or decreases with presses of the "▲▼" keys in VFO mode. Select the Step in Menu 43. Valid step sizes are 2.5, 5, 6.25, 10, 12.5, and 25 KHz. The default is 25 KHz.

44．[MENU+4+4] Tail Elimination（Tail）

The Tail elimination function eliminates the burst of background noise encountered at the end of a transmission. . Set Menu 44 to ON if you would like to enable this feature, or OFF to disable it. The default

is ON.

45．[MENU+4+5] Talk Around（Talk）

When the Talk around feature is enabled, the transmit and receive frequency and signaling mode are the same. This would be useful if two stations who are close together wish to temporarily use the output frequency of a repeater. Turn Menu 45 ON to enable this feature. The default is OFF.

46．[MENU+4+6] Time out timer（TOT）

You may use Menu 46 to specify a time-out timer for the transmitter. Setting such a timer would prevent accidental, lengthy transmissions where the transmitter does not properly unkey(a stuck PTT key, for instance). Not only could such transmissions be disruptive to other communications, they could damage the transmitter. Select Menu 45, and set the Time-Out Timer to OFF, or in 10-second intervals of up to 120 seconds. The default setting is 30 seconds.

47．[MENU+4+7] TX Stop（TxStop）

The TXStop function disables the transmitter when it is enabled. If TXStop is enabled, pressing the PTT key will issue an audible alert tone, indicating that you are unable to transmit. Select Menu 47, and set it to ON if you would like to enable this feature. The default setting is off.

48．[MENU+4+8]VOX（VOX）

VOX, or Voice-Operated Transmit, allows you to

transmit by simply speaking into the microphone. With VOX enabled, you won't need to press the PTT key to enable the transmitter. Use Menu 48 to turn VOX ON or OFF. The default is OFF.

49．[MENU+4+9] VOX D(Delay)

VOX Delay determines the delay to stop transmitting after you finish speaking. Set the VOX Delay in Menu 49. Too short a delay will cause the transmitter to unkey too frequently. Delay can be set from 1 to 4 seconds; the default setting is 3 seconds.

50．[Menu+5+0]VOX S (Sensitivity):

VOX Sensitivity determines the level of sound that is needed for the VOX to key the transmitter. You should experiment with VOX Sensitivity to find a level that is appropriate to your voice but does not trigger on the presence of too much other background noise. Set Vox S using Menu 50. There are eight possible levels. The default level is 3.

51.[Menu+5+1]VXB (VOX inhibited when receiving):

Set Menu 51 to ON if you do not want VOX active while the receiver is active. To avoid the receiver keying the VOX by mistake, it is probably a good idea to leave this setting at its default ON state.

52.[MENU+5+2] Wide and Narrow Bandwidth （WIDNAR）

You can set the channel bandwidth to “WIDE” or “Narrow” using Menu 52. Set this according to your country or radio service regulations. The default setting is WIDE.

User-defined Keys Menu

As previously mentioned the PC long, PC Short, PE long are user programmable. The three keys can be programmed using Menus 26-28.

Each of these keys has two programmable functions, accessed by a short press (press and release) or a long press (Press and hold for 1.5 seconds). Each of these functions is set in one of the programmable key menus.

Note: If you would like to change the hold time for Long Press, you may do so using the programming software.

You may set any of the programmable keys to perform the following functions:

OFF

The shortcut key is disabled

FM（FM）

Setting a shortcut to FM toggles the FM broadcast radio on or off.

Repeater Function（REPE）

Press the shortcut key to enable/disable repeater function when the key set as “REPE”.

Monitor Lock（MOLO）

Setting MOLO will open the squelch to allow you to listen for weaker signals. Pressing the MOLO shortcut will open the squelch, while pressing it again will

close the squelch again. If MOLO stays active for more than 10 seconds, squelch will automatically close.

SQ OFF Momentary（SQM）

If the SQM shortcut is enabled, pressing it will disable any CTCSS or DCS squelch, allowing any signal to activate the receiver. Pressing this key will issue an audible alert indicating the feature is active. Pressing the key a second time will sound a different alert to indicate that the receiver is in its normal state.

The voice of Sub-channel is half of main-channel （HALF）

Pressing the HALF shortcut will enable/disable the half function. When the “HALF” enabled(ON), the voice of the Sub-channel is half of the main-channel when both two channels have signals in. So that you can know where the voice from.

Scan（SCAN）

Pressing the SCAN shortcut will enable/disable a scan .

High/Low Power（LOW）

Pressing the LOW shortcut will toggle the power level between HIGH, MIDDLE and LOW power.

Emergency（EMG）

The EMG key will sound an emergency alarm. When this alarm sounds, the indicator LED’s will alternate

between flashing red and green and “TXSTOP” will display on the screen. This mode will remain in force until the PTT is pressed or the transceiver is powered down.

PTTID

The PTTID shortcut will toggle the PTTID function on and off.

DTMF Function（DTMF）

The DTMF shortcut will turn DTMF Mode on or off.

Call（CALL）

The CALL shortcut will toggle the CALL function on and off.

Transmit 1750Hz（1750）

The 1750Hz shortcut will transmit a 1750Hz burst tone when pressed.

Scrambler（SCRA）

The Scrambler shortcut will toggle the Scrambler function on and off.

Talk Around（Talk）

The Talk Around shortcut turns Talk Around mode on or off.

Reverse Frequency（Reverse）

The Reverse shortcut enables or disables Reverse frequency mode.

Reset Menu

All Reset(ALLRST)

All Reset resets the transceiver to all factory settings, leaving only the DTMF dial list untouched.)

To perform an All Reset, press and holding the Menu Key, rotate the Power Switch to power on the transceiver, the screen will display “ALL RST ". Press the Menu key again and the screen will display “RESET”. Press the Menu Key a third time, and the screen will display “Wait”. When the transceiver restarts, the reset is complete. Note: You may cancel the reset by pressing any key other than the “Menu” key when the “RESET” prompt appears.

Function Reset(FUNRES)

Function Reset will reset the transceiver to factory default settings, leaving memory channels and the DTMF list intact.

To perform a Function Reset, press and holding the Menu Key, rotate the Power Switch to power on the transceiver, the screen will display “ALL RST ". Press the ▲ or ▼ keys to select “FUNRST”. Press the Menu key again and the screen will display “RESET”. Press the Menu key a third time, and the screen will display “Wait”. When the transceiver restarts, the reset is complete. Note: You may cancel the reset by pressing any key other than the “Menu” key when the “Reset?” prompt appears.

Current Channel Delete (ChaDel)

Current Channel Delete will delete the current channel of the transceiver.

To perform a ChaDel Reset, press and holding the Menu Key, rotate the Power Switch to power on the transceiver, the screen will display “ALL RST ". Press the ▲ or ▼ keys to select “ChaDel”. Press the Menu key again and the screen will display “RESET”. Press the Menu key a third time, the screen will display next memory channel. That means the delete is complete. Note: You may cancel the reset by reboot the transceiver. MEMRST can’t be operated in VFO mode.

Special Function

Programming Password

A programming password can be pre-set to the transceiver through the software. When a password pre-set to a transceiver, the password should be input in the software, or the communication between the computer and the transceiver would be failed.

Lease Function

The Lease function can be set to limit how long a transceiver can be used. When the Lease Time expires, the transceiver will no longer operate, and the indicator LED will light continuously red. At this point, the user may only turn the transceiver power off. This function can only be reset with programming

software.

Remaining time: You can set the transceiver to display the time remaining for the transceiver lease. If the Lease function is enabled using the programming software, the startup display can be set to display the remaining lease time.

Lease Time: You may set the transceiver Lease Time through the programming software. The valid Lease Time range is from 1 minute to 255 days 24 hours, and 59 minutes.

Maintenance

Base Knowledge

This transceiver has been strictly and carefully calibrated and tested at the factory to ensure that it meets our stated specifications. Please refer any service issues to authorized repair facilities. Any tampering, user performed maintenance or adjustment of the transceiver will void your warranty. Please refer any service or maintenance concerns to authorized dealer.

Cleaning and Maintenance

1) Handle this equipment with care. Do not carry the transceiver by its antenna or external microphone.
2) Use a soft, clean, dry cloth to clean the transceiver.
3) When storing the transceiver, avoid temperature extremes of heat or cold. Extreme temperatures may shorten the life of the transceiver.
4) After prolonged use, the transceiver may require

cleaning. Use only mild detergents. Do not use any corrosive or harsh chemical cleaners. Using alcohol, oil or spray chemical agents may damage the transceiver casing.

5) Please use only approved antennas. Unauthorized antennas or modified accessories could damage the transceiver or violate regulations governing RF devices.
6) Please back up all settings and programmed data from your transceiver before sending it in for repair.
7) If your transceiver is defective or develops a problem, please send it only to an authorized service center. Please contact your local dealer for assistance.

Specification

Band	VHF/UHF Dual Band
TX Frequency	400~480MHz /136~174MHz
RX Frequency	400~520MHz/136~174MHz/ 200-260MHz/65-108MHz
Channel Capacity	512*2
Output Power	5W/10W/20W
Operation Mode	Half-Duplex
Dimension (L*W*H)	152×77×42mm
Weight	300g
Modulation Limitation	≤±5KHz
Spurious Radiation	60dB
TX Current	1A/1.8A/3.5A
Frequency Stability	±2.5PPM
Rx Sensitivity	<0.18μV
Modulation Type	F3E
Audio Power	≥400mW
Rated Voltage	12.6V

We strived to write content of the manual accurately and completely, but errors and omissions may still exist. We do not assume any responsibility. We keep right to change product design and specifications at any time. As technology develops, design and product specifications are subject to change without notice.


RECYCLABLE PACKAGING