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INSTRUCTION MANUAL

RS-589

DUAL-BAND HANDHELD
TRANSCEIVER



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Main Functions Features:

- High Power Output: 10W, HI/MI/LO Power Selective
- Dual-frequency range, Dual-band, Dual Display and Stand-by

Functions

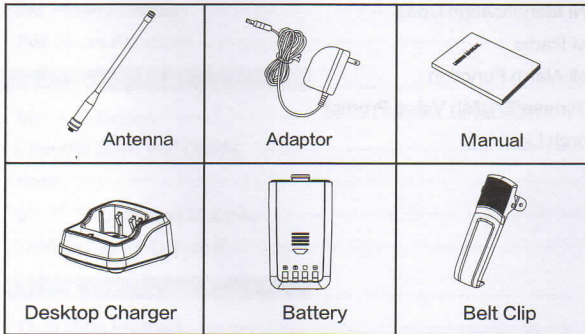
- LCD Display with 2 Line Dot-matrix, 3 Colors Backlight Selectable
- 128 Memory Channels
- Multi-functional Scan
- Local/Remote Emergency Alarm Function
- Wide/Narrow Band Compatible
- VOX Voice-operated Transmitted
- 1750Hz Tone Code Function
- CALL Function
- CTCSS/DCS/DTMF Encode and Decode
- ANI Identification Code
- FM Radio
- Fell Alarm Function
- Chinese/English Voice Prompt
- Torch Light



■ Supplied Accessories

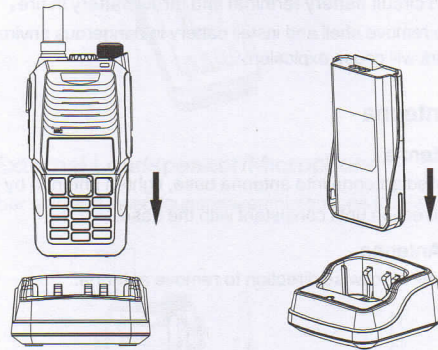
Please carefully unpack the product and check the main equipment and accessories listed in the following table. If any items are missing or have been damaged during shipment, please contact the dealer immediately.

Accessories	Quantity
Antenna	1
Adaptor	1
Manual	1
Desktop Charger	1
Battery	1
Belt Clip	1



■ Charging the Battery

1. Well connect adaptor cable and desktop charger, connect adaptor to AC power, light up charger orange light for 2 seconds then out.
2. Insert battery or transceiver with battery into battery groove, make sure well connected and stable.
3. Charger red light on or flashing, charging start. Green light on when full charging.

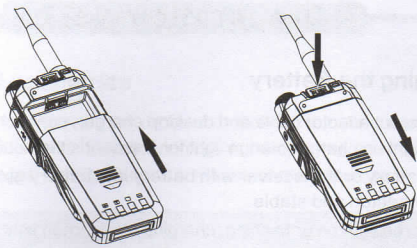


※Notice:

It is suggested to power off before charging, or else battery status can't be well judged by charger.

■ Install/Remove Battery Pack

1. Lay battery pack in the battery groove, press battery bottom and push forward until hearing clicked sound, so battery pack fixed well.
2. Press "PUSH" clip on top and lightly pull downward to remove battery pack.



※Notice:

- Never short circuit battery terminal and throw battery in fire.
- Never try to remove shell and install battery in dangerous environment, electric spark will cause explosion.

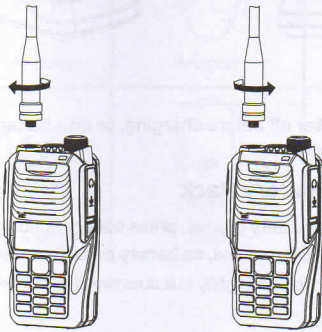
■ Install Antenna

◆ Install Antenna

Insert supplied antenna into antenna base, tighten antenna by rotating in clockwise direction until consistent with the base.

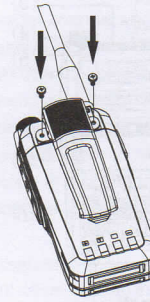
◆ Remove Antenna

Rotate in anti-clockwise direction to remove antenna.



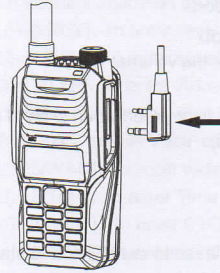
■ Install Belt Clip

Remove battery first and aim belt clip at two screw holes on transceiver, then screw on by screwdriver. Unscrew to remove belt clip.

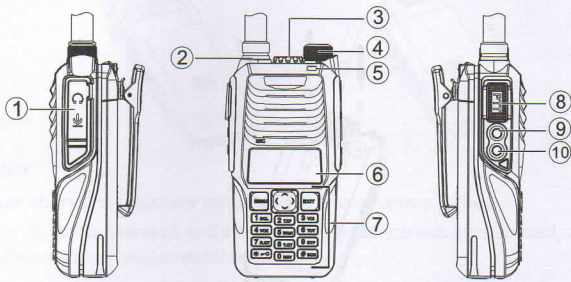


■ Install External Loudspeaker/Microphone

Open rubber plug and insert loudspeaker/microphone into jacks.



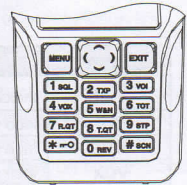
External View

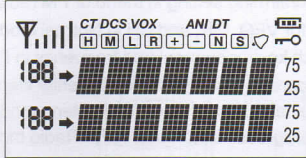


- ① **Loudspeaker/Microphone Jack**
For external loudspeaker/Microphone.
- ② **Antenna Base**
For inserting supplied antenna.
- ③ **Torch Light**
To achieve torch light function.
- ④ **[PWR/VOL]Control Knob**
For power on/off and adjust the volume.
- ⑤ **Status Indicator Light**
Light red when transmitted, light green when U band received, and light blue when V band received.
- ⑥ **LCD Screen**
- ⑦ **Keyboard**
- ⑧ **[PTT]Key**
Press to transmit signal, release to switch receive status.
- ⑨ **[MONI]Key**
Press to open torch light, hold this key and squelch circuit off, and we can hear background noise.
- ⑩ **[PF]Programmable Key**
Use for CALL, 1750, DTMF Dial, Emergency Alarm, Talk around (TFR) setting.

Keyboard description and shortcut operation

- [MENU]**: Short press to enter menu mode, long press to enter or quit FM radio mode. For confirming setting in menu or FM radio mode.
- [EXIT]**: Switch key for VFO, MR, and CH in Normal mode; Exit key in Menu mode; Switch key for channel and frequency in FM Radio mode.
- [<]**: Channel progressive increase or frequency step increase in Normal mode; Menu item upward selection in Menu mode; Channel or frequency progressive increase in FM Radio mode.
- [>]**: Channel progressive decrease or frequency step decrease in Normal mode; Menu item downward selection in Menu mode; Channel or frequency progressive decrease in FM Radio mode.
- []**: Main/auxiliary frequency switch in Normal mode; Menu item value revised in Menu mode; Radio channel save in FM Radio mode.
- []**: Single/Dual band standby switch in Normal mode; Menu item value revised in Menu mode; Radio channel delete in FM Radio mode.
- [0]~[9]**: Use for manually key in frequency and DTMF dial.
Menu Function shortcut operation as follows:
Press [MENU]+[0/REV], to enter reverse frequency setting;
Press [MENU]+[1/SQL], to enter squelch level setting;
Press [MENU]+[2/TXP], to enter Hi/Lo power setting;
Press [MENU]+[3/VOI], to enter voice number function setting;
Press [MENU]+[4/VOX], to enter Voice-operated transmitted function setting;
Press [MENU]+[5/W&N], to enter wide/narrow band setting;
Press [MENU]+[6/TOT], to enter Time Out Timer setting;
Press [MENU]+[7/R.QT], to enter CTCSS/DCS receive setting;
Press [MENU]+[8/T.QT], to enter CTCSS/DCS transmit setting;
Press [MENU]+[9/STP], to enter frequency step setting.
- [*]**: Co-operate with DTMF, long press [*] key for 2 seconds, to enter keyboard lock ON/OFF.
- [#]**: Co-operate with DTMF, long press [#] for 2 seconds, to enter scan mode. For automatic frequency search in FM radio mode.



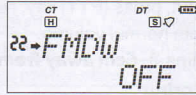
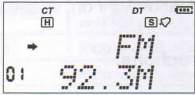


Icon	Description
	Indicate signal strength when receiving and transmitting
CT	Inco shows when setting CTCSS
DCS	Inco shows when setting DCS
VOX	Inco shows when setting voice-operated transmitted function
ANI	Inco shows when open DTMF signaling
DT	Inco shows when open Dual-band standby
	Battery life indicator
H M L	Indicate transmitting power level H-high power, M-medium power, L-low power
R	Inco shows when open reverse frequency function
+	Inco shows when open positive offset, except for talk around
-	Inco shows when open negative offset, except for talk around
N	Inco shows when setting as narrow band
S	Inco shows when open power saving function
	Inco shows when open prompt tone function
	Inco shows when keyboard locked
188	Show channel number, function menu
	Show current working main band

- ◆ **Power On**
Rotate [PWR/VOL] control button in clockwise direction to power on, and a beep prompt tone.
- ◆ **Volume Adjustment**
Press Monitor key [MONI], while rotate [PWR/VOL] to adjust volume.
- ◆ **Main/auxiliary Band Selection, single/dual-band stand-by convert**
Transmit and receive function for main band, only receive function for auxiliary band.
Press [←] key to choose main band, band with arrow indication is main band, and without arrow indication is auxiliary band. When on dual-band stand-by status, press [→] key and “DT” icon disappeared in screen means switch to single-band stand-by. When on single-band stand-by status, press [←] to choose main or auxiliary band; When on single-band stand-by status, press [→] key and “DT” icon appeared in screen means switch to dual-band stand-by.
- ◆ **PTT Transmitted**
If want to call out, press [PTT] key, red indication light on, speak on the microphone with normal volume.
※ **Notice: Keep lips 3~5cm away from microphone.**
- ◆ **Signal Monitoring**
For weak signal or channel with CTCSS/DCS, long press monitor key [MONI] to monitor signal.
- ◆ **Torch Light Function**
Press [MONI] key to enter torch light mode, press [MONI] again to enter torch light blinking mode, press [MONI] key again to shut down torch light function.
- ◆ **Keypad Lock Function**
Press [*] key for 2 seconds to lock keyboard in unlock state;
Press [*] key for 2 seconds to unlock keyboard in lock state.
- ◆ **FM Radio Function**
 - Long press [MENU] key for 2 seconds to enter FM radio status, first line shows FM, second line shows current frequency; Long press [MENU]

key again for 2 seconds to exit FM radio status.

- When in FM Radio status, Press [▲] key to upward seek radio station, then press [#] to automatically upward seek, and stop at station with signal; Press [▼] key to downward seek radio station, then press [#] to automatically downward seek, and stop at station with signal. Also we can key in radio frequency directly by numeric keypad.
- When in FM Radio status, press [F] key to save current frequency to specify channel, press [▲] or [▼] key to select channel to be saved, then press [MENU] to confirm save; Press [] key to delete current frequency, press [▲] or [▼] key to select channel to be deleted, then press [MENU] to confirm delete; Press [EXIT] to conduct frequency/channel switch.
- When in FM Radio status, will automatically return to transceiver status when in transmitting or long press [MONI] key, then automatically return to FM radio status after signal disappears for 10 seconds. Also we can set whether monitor transceiver signal in FM radio status by menu No.22 "FMDW", if on, then will automatically back to transceiver status when signal detected, then automatically return to FM radio status after signal disappears for 10 seconds.



◆ Fell Alarm Function

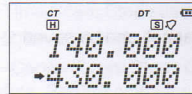
Open fell alarm function by Menu No.20 "FALL" setting, will automatically check transceiver direction. If transceiver inclines and level angel is less than 40 degree for 10 seconds, equipment will be in alarm status and issue alarm voice. And stop alarm when back to vertical stand for 2 seconds.

■ Modes Selection

There are three kinds of display modes can be chosen: Frequency, Channel and frequency channel modes, can be switched by pressing [EXIT] key.

※Note: By co-operation of Main/Auxiliary Switch Key[] and Mode Switch Key [EXIT] to have different modes coexist.

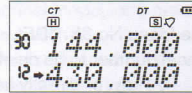
LCD Screen "↔" Points to main frequency or channel, another is auxiliary frequency.



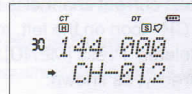
Means Main/Auxiliary Frequency both in frequency mode



Means Main/Auxiliary Frequency both in channel mode

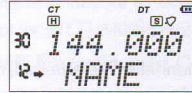


Means Main/Auxiliary Frequency in frequency channel mode



Means Auxiliary Frequency in frequency channel mode, Main frequency in channel mode

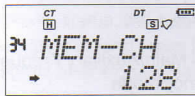
※Note:In channel and frequency channel modes, we can have user-defined name by Menu No.33 "CHNAME", it is shown as below:



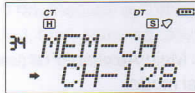
Channel Save and Delete

Channel Save

In frequency mode, choose required frequency and other setting such as CTCSS/DCS/offset etc. in main frequency. After setting, press [MENU] key, choose Menu No.34 "MEM-CH" then [MENU] key again, screen shows channel number to be saved at the bottom, choose channel number by [←], [→] key, or directly key in number. If there is "CH-" icon on the left, means current channel has saved content. Press [MENU] to save and quit, then saved channel can be checked, or press [EXIT] key to quit directly, as shown:



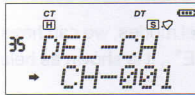
Idle channel, can be saved



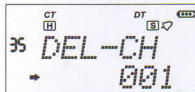
With content in channel, can not be saved

Single Channel Delete

In standby mode, press [MENU] key, choose Menu No.35 "DEL-CH" then [MENU] key again, screen shows channel number to be deleted at the bottom, choose channel number by [←], [→] key, or directly key in number. If there is CH- icon on the left, means current channel is saved channel which can be deleted, if there is no CH- icon on the left, means current channel is idle channel, cannot be deleted. Press [MENU] to confirm delete, or press [EXIT] key to quit directly, as shown:



This channel is saved channel, can be delete



This channel is idle channel, cannot be delete

Reset Mode

- Power off, meanwhile press [PTT] and numeric key [1] then power on, enter "VFO" reset mode, hold on for 2 seconds and release, VFO frequency and function content be deleted.
- Power off, meanwhile press [PTT] and numeric key [2] then power on, enter "Full" reset mode, hold on for 2 seconds and release, all saved channel content be deleted.

Scan

Scan Mode

Choose scan mode by editing Menu No.21 "SC-REV" . Three scan mode selection (TO—Time Scan/CO—Carrier Scan/SE—Search Scan).

- TO—Time Scan: Stop scanning when detects a signal. Stay for 5 seconds then go on scanning, even signal exists.
- CO—Carrier Scan: Stop scanning when detects a signal until signal vanishes. Restart scanning after signal vanishes for 5 seconds, unless new signal detected during delay time.
- SE—Search Scan: When detect a signal, stay at this channel and quit scanning.

Channel Scan

In channel mode, long press [# SCN] key to enter channel scan. Use [↵] [↶] to switch scan direction([↶] plus, [↵] minus). Hold [PTT] or [MONI] key, transceiver works in current channel, release and stay for 5 seconds, it will go on scanning, press other keys except for [PTT] [MONI] key to end scanning and return to standby channel.

Full-range Scan

In frequency mode, press [# SCN] key to enter channel scan function, current frequency within bandwidth range, gradually increase or decrease by frequency step, use [↵] [↶] to switch scan direction([↶] plus, [↵] minus). Hold [PTT] or [MONI] key, transceiver works in current channel, release and stay for 5 seconds, it will go on scanning, press other keys except for [PTT] [MONI] key to end scanning and return to standby channel.

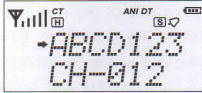
DTMF Encode and Decode

Utilize DTMF to achieve transceiver selective call, group call function.

◆ Manual Call:

Press [PTT] key and hold, then use keyboard to key in corresponding characters, including 0~9,A,B,C,D,*,*.,#.

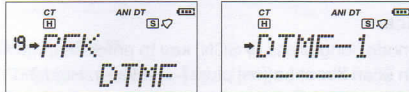
※Note:Press [PTT] key and hold, then press[MENU], [(), ()], [EXIT], to key in A,B,C,D.



◆ Automatic Code Call

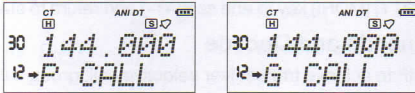
We can save DTMF number (maximum 16 bits) separately into 8 automatic dial locations by PC programming software. When need to call out, press [PF] programmable key at side, use [] [] key to select saved DTMF number, then press [PTT] to call out.

※Notice:When making automatic code call, need to set [PF] programmable key as DTMF dial key to achieve DTMF call.



◆ DTMF Receive

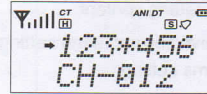
●When local transceiver ID number received, we can hear prompt tone, and "P CALL" displayed in the screen, means successfully call; When group call code received, we can hear prompt tone from transceiver, and "G CALL" displayed in the screen, means successfully call. We can press [PTT] key to response or directly listen to the other side information. If do not receive signal or transmit for around 30 seconds, we can hear "Du" tone, transceiver will automatically quit the call.



● Local transceiver ID code, group call code need to be set by PC programming software.

◆ ANI Personal Identification Code

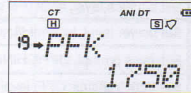
We need to add ANI call information while making DTMF call if we want other side to know our own ID Code, which means key in other's ID code, add *, then own ID code, as 3 digits, for example: DTMF call 123*456, 123 is other's ID code, and 456 is our own ID code, and screen displays 456 in other's transceiver.



◆ Transmit 1750Hz Signal

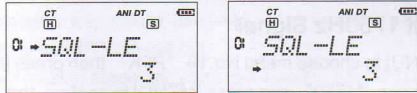
Press [MENU] to choose menu No.19 "PFK" then press [MENU] to enter editing, choose "1750" and press [MENU] to confirm, then we can set [PF] programmable key as 1750 dial key. Press [PF] programmable key to transmit 1750Hz.

※Notice: We can set [PF] programmable key as 1750 dial key by programmable software.



■ Operation Method

- ① In stand-by status, press [MENU] key to enter menu interface, first line shows menu item name, second line shows current parameter set value, arrow on left side points to current menu serial number.
- ② Press [←], [→] key to switch menu items or press 0-9 to enter corresponding menu items directly.
- ③ Press [MENU] key to enter selected menu item, meanwhile left side arrow points to second line menu parameter setting.
- ④ Press [(),] key to switch menu setting content
- ⑤ Press [MENU] key to confirm and save current menu setting, and return to step ① to conduct other menu items setting.
- ⑥ Press [EXIT], [PTT] or wait for 10 seconds to quit menu interface.



■ Menu Function Description

Serial No.	Name	Options	Functions
0	REV	OFF*1	Switch on or off reverse frequency mode, when switch on, receiving and transmitting frequency reversed.
1	SQL-LE	0-9	Set squelch level, level 0-9 selectable
2	TXP	HIGH/MID/LOW	Set power level, high/mid/low selectable.
3	VOICE	OFF/CHINES/ENGLISH	Set voice prompt, OFF/CHINESE/ENGLISH.
4	VOX	OFF/1/2/3/4/5	Set VOX transmit: OFF, level 1-5 selectable, higher level with more sensitive.
5	WN	WIDE/NARROW	Set Wide/Narrow band.
6	TOT	OFF/30S/60S/~1270S	Set TOT: OFF/30S-270S selectable.
7	R-CTSS	OFF/67.0HZ-254.1HZ	Set receiving CTCSS frequency. Press [() or] key to choose CTCSS frequency; Use numeric keypad to key in CTCSS frequency directly; Press [# SCN] to conduct CTCSS scan.
8	T-CTSS	OFF/67.0HZ-254.1HZ	Set transmitting CTCSS frequency. Press [() or] key to choose CTCSS frequency; Use numeric keypad to key in CTCSS frequency directly.

Serial No.	Name	Options	Functions
9	STEP	5.00K/6.25K/10.00K/12.50K/25.00K/50.00K/100.00K	In frequency mode, press [() or] key, frequency changes as frequency step set, also scan as frequency step set.
10	R-DCS	OFF/D023N-D754N	Set receiving DCS code. Press [() or] key to choose DCS code; Use numeric keypad to key in DCS code directly; Press [*] key to change DCS direction N/I; Press [# SCN] to conduct DCS scan.
11	T-DCS	OFF/D023N-D754N	Set transmitting DCS code. Press [() or] key to choose DCS code; Use numeric keypad to key in DCS code directly; Press [*] key to change DCS direction N/I.
12	SAVE	OFF/ON	Switch on/off power save function.
13	AUTOLK	OFF/ON	Switch on/off automatic keypad lock, when switch on, will automatically lock keypad if no operation in 10 seconds.
14	BEEP	OFF/ON	Switch on/off prompt tone.
15	ABR	OFF/ON	Switch on/off automatic backlight function, OFF/ON/AUTO selectable, when switch off(Menu No.15), backlight will be on with setting color.
16	WT-LED	OFF/ORANGE/BLUE/PURPLE	Set backlight color, OFF/ORANGE/BLUE/PURPLE selectable, when switch off(Menu No.15), backlight will be on with setting color.
17	VR-LED	OFF/ORANGE/BLUE/PURPLE	Set V band receiving backlight color, OFF/ORANGE/BLUE/PURPLE.
18	UR-LED	OFF/ORANGE/BLUE/PURPLE	Set U band receiving backlight color, OFF/ORANGE/BLUE/PURPLE.
19	PFK	DTMF/CALL/TALARM/1750/TFR/LALARM	Set [PF] programmable key function at side. DTMF-DTMF automatic dial; CALL-CALL ring; TALARM-Remote emergency alarm; 1750-1750 dial; TFR-Talk around function (Hold this key to achieve this function); LALARM-Local emergency alarm.
20	FALL	OFF/LARM/TARM	Set fell alarm function. OFF/LARM-Local Alarm/TARM-Local and Remote Alarm.
21	SC-REV	SE/TO/CO	Set scan mode, SE-Search scan/TO-Time scan/CO-Carrier scan.
22	FMDW	OFF/ON	Set whether monitor transceiver signal in FM Radio mode, when switch on, will return to transceiver channel when signal received, then back to FM Radio mode after no signal for 10 seconds.

Serial No.	Name	Options	Functions
23	BCL	OFF/ON	Switch on/off busy channel lock, when switch on, not allow to transmit when signal exists.
24	ROGER	OFF/ON	Switch on/off roger beep tone, when switch on, roger beep tone transmitted while release [PTT], meanwhile we can hear roger beep tone from loudspeaker.
25	TX.SEL	BUSY/EDIT	Set main/auxiliary channel selected mode, BUSY-busy channel/EDIT-manual selection. When BUSY set, channel which receives signal will automatically switch to main channel; When EDIT set, only we can manually choose main/auxiliary channel.
26	VOT	0.5S/1.0S/1.5S/2.0S/3.0S	Set VOX transmit delay time.
27	PTTID	OFF/SOT/EOT/BOTH	Set PTT ID transmit mode, OFF-PTT ID not transmitted/SOT-ID transmitted when press PTT/EOT-ID transmitted when release PTT/BOTH-ID transmitted when press and release PTT.
28	DST	OFF/ON	Switch on/off DTMF tone, when switch on, we can hear tone while DTMF transmitted.
29	ANI	OFF/ON	Switch on/off Personal Identification function.
30	OFFSET*2	00.000-69.995MHz	Set offset frequency. Key in offset frequency by numeric keypad.
31	SFT-D*2	OFF/-/+	Set offset direction, OFF-switch off offset function/- transmitted frequency equals to received frequency minus offset frequency/+transmitted frequency equals to received frequency plus offset frequency.
32	SW-NM	OFF/ON	Switch on/off channel name display function.
33	CHNAME	-----	Edit channel name. Press [↵] to cancel and re-key. Channel name can be edited only in channel mode or frequency channel mode.
34	MEM-CH	001-128/CH-001-CH-128	Save channels.
35	DEL-CH	001-128/CH-001-CH-128	Delete channels.
36	STE	OFF/ON	Switch on/off tail tone elimination.
37	PONMSG	FULL/BATT/MSG	Set power on display, FULL-full screen display/BATT-battery voltage display/MSG-power on information display (Can be programmed by software).

*1--Reverse frequency function is temporary set, set value not saved, so not fixed set option.

*2--Offset (frequency, direction) for main channel can be set only in frequency display mode, cannot be set in channel or frequency channel mode.

Appendix

◆ 50 Groups of CTCSS Frequency

Unit:Hz

67.0	85.4	107.2	136.5	165.5	186.2	210.7	254.1
69.3	88.5	110.9	141.3	167.9	189.9	218.1	
71.9	91.5	114.8	146.2	171.3	192.8	225.7	
74.4	94.8	118.8	151.4	173.8	196.6	229.1	
77.0	97.4	123.0	156.7	177.3	199.5	223.6	
79.7	100.0	127.3	159.8	179.9	203.5	241.8	
82.5	103.5	131.8	162.2	183.5	206.5	250.3	

◆ 105 Groups of DCS Code

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

◆ **General Specifications**

Frequency Range: 136-174MHz/400-480MHz
 Modulation Type: 16k0F3E(Wide band)/8k5F3E(Narrow band)
 Memory Channels: 128
 Frequency Step: 5KHz/6.25KHz/10KHz/12.5KHz/
 25KHz/50KHz/100KHz
 Operating Temperature: -20°C ~ +60°C
 Frequency Stability: ± 2.5ppm
 Voltage Rating: DC7.4V
 Battery Capacity: 2600mAh (Li-Pol)
 Antenna Impedance: 50Ω
 Dimension: 61mm (W) × 125.5mm (H) × 36.5mm(D)
 Weight: 280g (With Battery, Antenna and Belt Clip)

◆ **Transmitter**

RF Power: 10W/5W/1W
 Max Frequency Deviation: ± 5kHz(Wide band), ± 2.5kHz(Narrow band)
 Audio Distortion: ≤ 5%
 Adjacent Channel Power: ≥ 65dB(Wide band), ≥ 55dB(Narrow band)

◆ **Receiver**

Sensitivity(12dB SINAD): ≤ 0.2 μV
 Adjacent Channel Selectivity: ≥ 55dB(Wide band), ≥ 50dB(Narrow band)
 Intermodulation Rejection: ≥ 55dB(Wide band), ≥ 50dB(Narrow band)
 Common Channel Inhibition: ≥ -8dB
 Blocking Characteristic: ≥ 85dB

Series No.	Troubles	Troubleshooting
1	Power-on no response.	<ul style="list-style-type: none"> ● Battery life exhausted, please replace battery or charge. ● Battery not installed correctly, please remove and reload.
2	The battery is easily exhausted after full charging.	<ul style="list-style-type: none"> ● Battery pack life is ending, please replace it.
3	Cannot contact with group members.	<ul style="list-style-type: none"> ● Communication distance out of effective range. ● Different frequency or CTCSS/DCS/DTMF signals are used, please reset it.
4	Hear other voice (not from the same group) in the channel.	<ul style="list-style-type: none"> ● Please change CTCSS/DCS/DTMF signal. ● Meanwhile reset CTCSS/DCS/DTMF signal for all the group members.
5	Short communication distance.	<ul style="list-style-type: none"> ● Please check whether antenna is well connected. ● Please check whether the antenna is original. ● Please check whether battery voltage is normal. ● Adjust squelch level.