

- 128 CHANNELS
- HI/MID/LO POWFR OUTPUT
- HANDS-FREE VOX
- LOW BATTERY ALERT
- FM RADIO

BUILT IN CTCSS/DCS

USER MANUAL

▶ PRECAUTIONS

- Refer service to qualified technicians only.
- Turn off the transceiver while taking on fuel or while parked in a gasoline service station.
- ♣ Do not expose the transceiver to long periods of direct sunlight, nor place it close to heating appliances.
- ♣ If it appears that the transceiver diffuses peculiar smell or smoke, please shut off its power immediately, then contact with the nearest dealer.
- ♣ Don't keep the transceiver transmitting too long .It may be too hot to hurt body or damage the transceiver itself.
- Please turn off the transceiver before entering the inflammable and explosive environment.

CHECKING EQUIPMENT

Welcome to use our transceiver.

- Please check if any damage to the packing box before use.
- Carefully unpacks the transceiver. We recommend that you identify the items listed in the following table. If any items are missing or have been damaged during shipment, please inform dealers.

Supplied accessories

ITEMS	QUANTITY
Rubber Antenna	1
Li-ion Battery pack	1
Battery Charger	1
Adaptor	1
Belt Clip	1
Users' Manual	1

BATTERY MESSAGE

- Charging the battery pack

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

After repeating the charge/disch arge 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.

- Battery model

Please use the appointed battery. It is likely to explode or hurt your body if you use other battery.

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°C to 40°C while charging is in progress. Charging beyond this range may not fully charge the battery.
- Always switch OFF the transceiver equipped with a battery pack before charging. Using the transceiver 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 recharge 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 transceiver while it is wet. Please wipe up it first to avoid danger.

- Charging Operation

If the battery indicator is like that $\ \ \ \ \ \ \ \ \ \$,it means the battery is out of power, please charge it.

Please use the charger appointed by . The indicator light of the charger can show you the charging status.

INDICATOR LIGHT DISPLAY	STATUS
RED	CHARGING
GREEN	CHARGING COMPLETED

- Please charge the battery pack as follow

- The charger must be connected A.C. main power via transformer supplied.
- Put the DC plug of the transformer into the DC socket of the charger unit.
- Slide the battery or the transceiver with a battery pack into the charger.
- Make sure the battery pack contacts are in cont act with the charging terminals, and the charger LED is on, it begins to charge.
- After charging the supplied ba ttery pack for 3 hours, remo ve it or the transceiver equipped with it from the charger. The charger light turns to green automatically after charging is completed.

CAUTION

- It is abnormal to see the indicator light of the charger glisteningly before sliding the battery pack into the charger.
- Don't replace the battery pack until the indicator light is stable.
- Make sure contact well, it indicates charging if the indicator light is red, and It means the battery pack is damaged or the environment temperature is too high or too low if flashing.

▶ MAINTENANCE

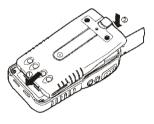
- Don't carry the transceiver by the antenna or microphone directly.
- Use a soft, clean, dry cloth to clean the transceiver.
- Please cover the speaker/microphone jacks with the supplied cover when the transceiver is not used.
- The keypad, knob and case will become dirty after long use, you can use the soft detergent and cloth to clean it.

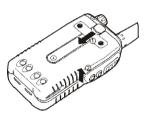
INSTALLING ACCESSORIES AND OPTIONAL

Installing/removing the battery pack

Match the three grooves of the battery pack with the corresponding guides on the back of the transceiver then slide it After that press the upper of the battery pack until a click sounds.

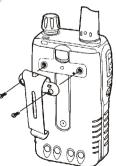
To remove the battery pack, pull back on the release latch and slide the pack away from the transceiver.





Installing/removing the belt clip

If necessary, attach the belt clip using the two supplied screws. You can screw it to remove the belt clip.



- Installing/removing the antenna

Screw the antenna into the connector on the top of the transceiver by holding the antenna at its base and turning it clockwise until secure.

Turning or spiraling the antenna counterclockwise to remove the antenna.





Installing the speaker/microphone

Open the cover of the speaker/microphone jack to insert the speaker/microphone plugs into the jacks.



Installing the wrist strap

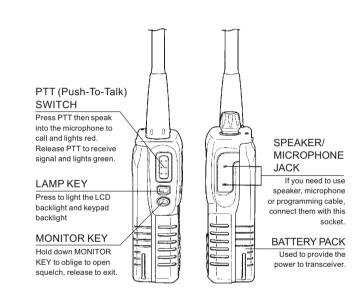
If necessary, you can install a wrist strap to the back of the transceiver.



GETTING ACQUAINTED

INTRODUCTION





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▶ Operation Instructions

-1. Functions

- 1. Direct view LCD manual operaion
- 2.Rechargable 7.2V lithium battery
- 3. Frequency direct entry or PC programming
- 4. Frequency mode and channel memory mode
- 5. Output power: H:5.0W. L:1.0W
- 6. Auto power off
- 7. Power save function
- 8.Busy lock
- 9. Keypad tone
- 10.Battery power display
- 11.FM radio
- 12.Backlight control
- 13.Keypad locked
- 14.Hello display
- 15. Name display and name setting
- 16.Shift frequency
- 17.Hello/message/voltage display selection when turn on
- 18.Roger tone
- 19.Scan method
- 20. Noisy cancellation
- 21.TX inhibit
- 22.VOX
- 23.Wide/narrow band selection
- 24.CTCSS/DCS mode selection
- 25.CTCSS/DCS code selection

- 2. Icon display & description

	ICON	FUNCTION	OPERATION
1	6	Keypad locked	[F] (two seconds)
2	888	Memory menu	[V/M]
3	O	Turn off automatically	Use MENU 01
4	8	Keypad tone	Use MENU 06
5		Offset direction	Press[F],[5] two times.
6	•	Offset direction	[F],[5]
7	CT	CTCSS	[F],[6]
8	DCS	DCS	[F],[6]
9	G	Function select	[F]
10	DW	Monitor when receive FM radio	Use MENU 9
11	LOW	Mid/low power	[F],[2]
12	SAV	Save power	Use MENU 04
13	VOX	VOX turned on	Use MENU 24
14	(III)	Battery power display	
15	FM	Radio turned on	[F],[8]

3. Short-cut operation:

- (1) [F]+[1], select the squelch level from 0-9
- (2) [F]+[2], select high power, mid power or low power
- (3) [F]+[3], select the scan type(TO/CO)
- (4) [F]+[4], frequency step selection
- (5) [F]+[5], frequency shift selection
- (6) [F]+[6], CTCSS/DCS mode selection

- (7) [F]+[7], tone squelch code selection
- (8) [F]+[8], FM radio
- (9) [F]+[9], menu mode

▶ MENU SETTING

- What is menu?

MENU includes the various setting of the transceiver. You can change some content in the menu list to meet your require.

A.How to use the menu?

- 1. Press [] key, you will see " ["flashing, then press [] to enter the MENU MODE.
- 2. Press[] / [] to select the menu item you need.

B.MENU LIST

MENU ITEM	DISPLAY	SETTING
1	APO(automatically power off)	OFF, 1-15 hours
2	BATSAV (battery save)	ON/OFF
3	BCLO(busy channel lockout)	ON/OFF
4	BEEP(keypad tone)	ON/OFF
5	DC VLT(show the volt)	Display the current volt
6	DW(monitor when open the FM radio	ON/OFF
7	LAMP(control the backlight)	OFF/CONT/KEY
8	LOCK (lock method)	K+S/PTT/KEY/ALL
9	MSGSET (message setting)	Edit by yourself

MENU ITEM	DISPLAY	SETTING
10	NAME (name display method)	FREQ/ALPHA
11	NM SET (name setting)	Edit by yourself
12	OFFSET	VHF(00.000-37,995 MHz) UHF(00.000-6.995 MHz)
13	OPNMSG (the message when turn on)	OFF/DC/MSG
14	ROGER(waming tone when finished speaking)	ON/OFF
15	SCN MD (scan method)	TO/CO
16	STE	ON/OFF
17	TOT (time-out timer)	OFF, 1-7 minutes
18	TXSTOP (stop transmitting)	ON/OFF
19	VOX	ON/OFF
20	VOX D (VOX delay)	1S, 2S, 3S, 4S
21	VOX S (vox sensitivity)	1-8
22	WIDENAR (wide/narrow band)	NARROW/WIDE

C.MENU LIST OPERATION

1.Automatically power off (APO)

APO is one of background function. It monitor the buttons and knobs if it is activity. The transceiver will be power off automatically after a preset time.

- "APO" will be flashing and you will also hear a warning tone one minute before power off.
- (1) Use the 1st menu (APO) to open (1-15 hours) or close this function.

you turn off squelch function or stop changing any setting.

•Open squelch function or changing any setting within preset time when APO function, timer will be reset. Timer will start form 0 when

2.Busy channel lockout (BCLO)

If transceiver receives signal, it will not transmit to avoid interfering the busy channel.

You can use the $3\,{}^{th}$ menu to open or close this function.

3.Keypad sound (BEEP)

The transceiver will sound beep while you press one key on the keypad.

You can use the 4^{th} menu to open or close this function.

4. Current voltage display (DC VLT)

You can enter the 5th menu to get the current voltage display.

5.Monitor the received signal when the FM radio is opened (DW)

The transceiver will close the FM radio automatically once received a signal if you open DW function. You will see "FM" flashing on the LCD and the transceiver begins to receive the signal. FM radio will work again five minutes after stopping receiving the signal. You will not receive the signal while the FM radio is working once

6.BACKLIGHT CONTROL (LAMP)

you close this function.

You can use the 7th menu to control the backlight of keypad and LCD.

- 1. OFF: The backlight will be off whatever operation
- KEY: The backlight will be on and keep five seconds whatever operation. The backlight will cut off automatically if no operation. You can press [LAMP] to cut off the backlight immediately.
- 3. CONT: keep the backlight on even no operation.

7.Lock method (LOCK)

Hold down [] for two seconds you can lock the key you don't want to use. There are four types of lock methods. You can use the 8^{th} menu to control the button.

- 1. K+S: Lock the keypad and up/down selected key
- 2. PTT: only lock the PTT button to avoid transmitting wrongly.
- KEY: only lock the keypad to avoid pressing the keypad unconsciously.
- 4. ALL: lock all the button so as not to do any operation.

8.Message set (MSGSET)

You can set the display content on LCD when turn on the transceiver.

There are five alphanumerics characters at most.

menu.

 After pressing [], you will see "] "flashing on the LCD, then press [] to enter the menu mode to select the 9th

- 2. Press [] to edit the content. The first character is flashing, you can use the [] / [] to select "0" ~ "9", "A" ~ "Z", "-", " "," + "," ∗ " or a space.
- 3. Press [9 stl] edit the second character.
- 4. Repeat the second and the third step to finish the edit.
 - Press [📆] back to delete or reedit the previous character.
 - If you want to cancel the original message, you can press the [www] key to reedit.

9.Frequency display type (NAME)

You can use the 10th menu to select the frequency display type.

- 1. ALPHA: show the frequency you edit.
- 2. FREQ: show the frequency

10.Message set (NM SET)

You can edit the chan nel name by yourself (five alphanumerics characters at most).

- 1. Press [] you will see " I flashing on the LCD, then press] key to enter the menu mode to select the 11th menu.
- 2. Press [] to edit the content. The first character is flashing, you can use the [] / [] to select "0" ~ "9", "A" ~ "Z", "-", " ", " + " and " * ".
- 3. Press [951] to edit the second character.
- **4.** Repeat the second and the third step then press [) to finish the edit.

11.Select offset frequency

This function is used to determine the difference between sending frequency and receiving frequency.

- 1. Press [], you will see The flashing on the LCD, then press [100] to enter the menu mode.
- 2. Select the 12th menu (OFFSET).
- 3. Press [], then input the needed frequency.
 - Range from 136MHz to 174MHz (VHF) or 400 to 470MHz (UHF).
- 4. Press [] to store and exit.

12. Opening message (OPNMSG)

You can use the 13th menu to select the OPNMSG display type.

- OFF: Turn on normally, enter the frequency mode or channel mode directly.
- 2. DC: Display the current voltage when turn on the transceiver.
- MSG: Display the message you edited when turn on the transceiver.

13. Warning tone when finish speaking (ROGER)

You can enter the $14^{\mbox{th}}$ to open/close the warning tone when finish speaking.

14.Scan type (SCN MD)

You can enter the 15th menu to select the scan type (TO/CO).

15.STE

This function can clear the noise when finishing speaking.

This function takes much advantage for earphone user. You can use the $16^{\,\mathrm{th}}$ menu to open/close this function.

NOTICE

 You can use this function on the base of your partners also open STE function.

16.Time-out timer (TOT)

17.Tx stop (TXSTOP)

You can set the tran sceiver not transmit to avoid transmitting wrongly or somebody unauthorized to transmit. You can enter the 18th menu to open/close this function.

18.Vox (VOX)

You don't need to press PTT button to transmit. It will transmit or stop transmitting automatically once you speak or stop speaking. You can enter the 19th menu to open/close this function. You will

see VOX icon on the LCD once this function is opened.

You should adjust the vox gain level when you use a earphone to communicate.

19.Vox Delay (VOX D)

In order to avoid the transceiver return to received mode soon so we can not hear the last speaking.

You can adjust the VOX delay time. Please enter the 20^{th} menu then use the [\bigcirc]/[\bigcirc] to select the delay time(1s,2s,3s,4s).

20.Vox sensitivity (VOX S)

21.Wide/narrow band (WIDNAR)

You can enter the 22^{th} menu to select the band you need (WIDE/NARROW).

22.Select offset direction

Select needed receiving frequency then press [], [], repeat to operate will switch among, +, - and simplex.



23. Select offset frequency

This function is used to determine the offest between TX frequency and RX frequency.

1. Press [] key, you will see " [" flashing on the LCD, then

press [\P set] key to enter the $12^{th}\,menu.$

- 2. Select the 12^{th} menu (OFFSET).
- 3. Press [\blacksquare] key then input the offset frequency.
 - Range from 00.000MHz to 37.995MHz (VHF) or 00.000 to 69,995 MHz (UHF).
- 4. Press [] key to store and exit.
- 5. Press any key to exit except [$_{\mbox{\scriptsize for}}$], [LAMP] and [MONI] key.

24.CTCSS/DCS

Sometimes you may only want to receive the call from appointed person. CTCSS/DCS can make you not receive the call from other body who use the same frequency. CTCSS/DCS is the squelch audio signal. You can choose it from the 50 groups of CTCSS and 107 groups of DCS.

How to use CTCSS/DCS

- 1. Press [\blacksquare], [\blacksquare] open or close the CTCSS/DCS function.
- This transceiver provides seven type of CTCSS/DCS mode for you to select.
 - a. OFF: No CTCSS/DCS while sending or receiving
 - b. TONE: Get CTCSS only while sending
- c. CTCSS: both get CTCSS while sending and receiving
- d. D CODE :get DCS only while sending
- e. DCS: Both get DCS while sending and receiving
- f. T DCS:CTCSS while sending ,DCS while receiving
- g. D TSQL:DCS while sending ,CTCSS while receiving

CAUTION

• You will see icon " GT "or " GGS " on the LCD when this function is opened

25. Select CTCSS/DCS frequency

- 1. Press [], [] to open the CTCSS/DCS function.
- 2. Press [], [] to select the mode you need.
- 3. Press [] to confirm the mode you select.
- 4. Press [] and [Toss] key to receive the CTCSS/DCS.
- Press [♠]/ [♠] to choose the CTCSS/DCS frequency you need.
- 6. Then press [] key to choose the CTCSS/DCS frequency for transmitting, press [] / [] to select.
- 7. Press [] key to finish your setting.

26. Store on the single channel and repeater channel

- 1. Under the VFO mode, you can select the frequency you need.
- You can use [♠]/[♠] to select the memory channel number to store.
- 4. Press [VIM] key to finish the store.
 - The frequency you selected and other data will be store on the memory channels
 - If something is stored on the memory channel, new things will replace it.
 - It means something have been stored on the memory channel if the memory channel number, is flashing.

27. Memory channel mode

- 1. Press [viiiii] to enter the memory channel mode.
 - The memory channel which used the lastest setting.
- 2. Press []/[] to select the memory channel you need.
 - You can not call a blank memory channel.
 - Please press [VIM] key again if you want to back to VFO mode.

28. Delete memory channel

- 1. Select the memory channel you want to delete.
- 2. Turn off the transceiver.



- \bullet The menu will appear on the LCD.

29. Name memory channel

You can use five alphanumeric characters to name the memory channel. Call a name memory channel, its name will be on the LCD to replace the frequency you stored. The name may be repeater name, city name or person's name.

- 1. Select the memory channel need to name.
- Press [] / [] to enter menu mode, select the 11th memory name mode.
 - The first character is flashing.
- 3. Press [♠]/[♠] to select the first character.

 "0" ~ "9", "A" ~ "Z", " ", " _ ", " + ", " * ", or a space.
- 4. Press [9 set] key.
 - The second character is flashing.
- 5. Repeat the step 3 and step 4, you can input five characters at most.
 - After selecting the fifth character, you dont need to press [9 set] key.
 - If you want to clear the foregoing character, you can press [7005].
 - If you want to reedit, you can press [VIM] to clear it.
- 6. Press [] to finish setting.

30.Switch Memory channel name/channel display

After storing the memory channel name, you can switch to memory channel name and channel. So you can know the frequency on memory channel.

- Press [], [] to enter the menu mode and select the 10th menu.
- 2. Please refer to the menu function and setting instruction about the operation step.

31. Channel display function

The transceiver only displays the channel number not frequency if this function is opened.

- 1. Press [] key and rotate the power knob at the same time to turn on the transceiver.
 - •The menu will appear on the LCD.
- 2. Press [♠]/[♠] key to select the M-ONLY menu, then press [♠] to finish setting.

CAUTION

 You can not open this function if you never store frequency on memory channel.

32.Initialize memory

If your transceiver has a fault, maybe you can intialize memory to solve the problem. Please remember, you need to reedit the memory channel after initializing memory. Else, initializing memory is the shortcut to clear all memory channels.

■ Part reset

1. Press [], and rotate the power knob at the same time to tum on the transceiver

- The menu will appear on the LCD.
- 2. Press [♠]/[♠] key to select the SETRST menu, then press [♣] key two times to finish the setting.

SAVE (III

■ All reset

This function is to initialize all setting.

- Press [] key, and rotate the power knob at the same time to turn on the transceiver.
 - •The menu will ap pear on the LCD.
- 2. Then press [key two times to finish the setting.



33 SCAN

Scanning is applicable to monitor your need frequency without manual.

This transceiver provides general scan as follow:

SCAN TYPE	SCAN RANGE
VFO FREQUENCY SCAN	All frequency can be used
MEMORY CHANNEL SCAN	The frequency stored on the memory channel

: Scan Type

You have to select one of the scan types before using the scan function.

■ Time-operated scan (TO)

After the transceiver lock in a busy channel about five seconds, the transceiver begins scanning other channel even the signal is receiving.

■ Carrier-operated scan (CO)

The transceiver will lock in one busy channel until there is no a ctivity, and then it begins scanning other channel. There are two seconds delay between signal disappears and scan again.

CAUTION

 Press [MONI] button to stop scanning, release [MONI] button to recover scan.

34. Select scan recover method

- 1. Press [], [] to enter menu mode.
- 2. Select the menu (SCN MD).
- 4. Press [] key to finish setting.
- 5. Press any key except[], [LAMP], [MONI] and []/
] to exit the menu.

35.VFO scan

VFO frequency scan can scan the range from the lowest frequency to the highest frequency.

- 1. Under the VFO mode, press [], [], [] key to begin scanning.
 - Scan begins from the current frequency.
- 2. If you want to cancel the VFO scan, you can press any key except [LAMP], [MONI] and [◆] / [◆].

36.Memory channel scan

Memory channel scan can scan all the memory channel stored data. \\

1. Press [$\boxed{}$] keyto enter the memory channel scan mode.

- 2. Press [[],[3son] key to begin scan.
 - Scan from the channel last call
 - If you want to change the scan direction, you can press [] key
 (frequency increase) or press [] (frequency decrease).

37.Lock the memory channel

You can lock the memory channel you dontwant to monitor during the scan.

- 1. Call the memory channel you want to lock.
- 2. Press [], [Lest] key to open or close the locked function.

38.Keypad Lock

This function is used to prevent from touching the keypad by mistake.

- - The lock icon will appear on LCD when this function is opened.

39.Input by keypad directly

You can input the number directly to select the frequency or memory channel you need.

The time for you to input should during 10 seconds.

40.Frequency input

- 1. Select the VFO mode.
- 2. Press the number key on keypad in turn to input the frequency you need

41. Memory channel number input

- - the memory channel used the last time will be called.
- $2. \ Press \ number \ key \ to \ input \ the \ memory \ channel \ numbers. (3 \ bits).$

42.Lamp function

Press [LAMP] key to light the LCD and keypad. After releasing the [LAMP] key about five seconds if no operation the lamp will be cut off automatically. Press any key except [LAMP], the LCD will be lighted again and the five seconds timer begins to work. The light will be cut off once you press the [LAMP] key. If you want to keep the light on, press [] [] to enter the menu, then use the [] / [] key to set the 7th menu.

43.FM radio function

- Press [], [] key, the FM radio function will be opened, and the current frequency of the FM radio will appear on the LCD.
- You can press [♠]/[♠] key to adjust the frequency of the FM radio. You can also input the frequency by keypad directly. (Frequency range is from 87.500 to 107.975MHz).
- 3. You can use the power/volume knob to adjust the volume.
- 4. If you want to close the FM radio function, press [], [] key to close this function.

44. Save stations

- 1. Under the VFO mode, select the transceiver frequency you need.
- Press [] key, you will see "] " is flashing on the LCD.
 One memory channel no. appears.
- 3. You can use the [] / [] key to select the memory

channel no. you need to store.

- 4. Press [vim] key to finish the store.
 - The frequency you selected and other relatived data will be stored on the memory channel.
 - If something is stored on the memory channel, new things will replace it.
 - It means something have been stored on the memory channel if the memory channel no. is flashing.

45.FM radio memory channel

On the FM radio memory channels, you can store the station to the memory channel. There are twenty-five FM radio memory channels in this transceiver.

- 1. Press [vm] to enter the FM memory calling mode.
- The FM radio channel which used the last time will be calling.
- 2. Use [\(\bigcirc \)] / [\(\bigcirc \)] to select the channel you need.
 - You can not call the blank FM memory channel.
 - If you want to recover the VFO mode, you press the [www] key again.

46. Change the frequency stepping

- 1. Select the VFO mode
- 2. Press [], [step] key, the frequency stepping appear.
- 3. Press [\(\bigcap \)] / [\(\bigcap \)] key to select the frequency stepping you need.
- 5, 6.25, 10, 12.5, 25, 37.5, 50 and 100 KHz for you to select.
- 4. Press any key except [LAMP] and [MONI] to finish your setting.

SPECIFICATION

Frequency range	136~174MHz 4	00~470MHz
Working temperature	-20~+60℃	
Channel numbers	128 channels	
Operate Mode	Simplex or Semi-duplex	
Dimension	98 X 53 X 30 mm	
Weight	220g(including battery pack)	
Power Output	1W/2W/5W	
Modulation	FM (F3 E)	
Max Frequency Deviation	≤±5 KHz	
Remain wave	<-60 dB	
TX current	0.7A/1.0A/1.6A	
Frequency Stability	±2.5 ppm	
RX sensitivity	< 0.18 uV	
Audio power	≥400 Mw	
Standby current	46 mA (20 mA when save power status)	

CAUTION

• Specification subject to change without notice.