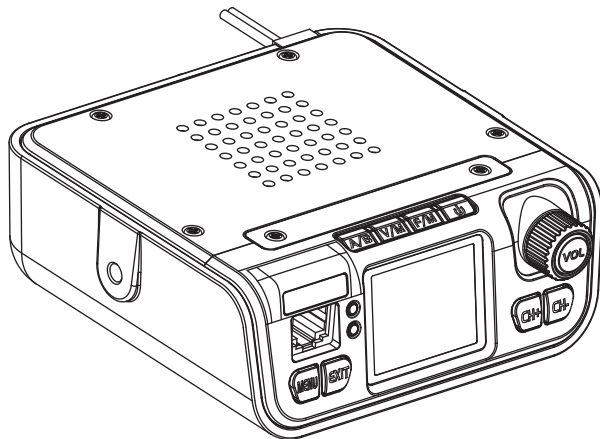




AMATEUR RADIO USER'S MANUAL

Thank you very much for purchasing this AMATEUR RADIO.
Our company believes that this product will meet your
demanding requirements for both voice and data
communications.

Points to note:

Please observe the following precautions to prevent fire, personal injury or damage to the mobile radio.

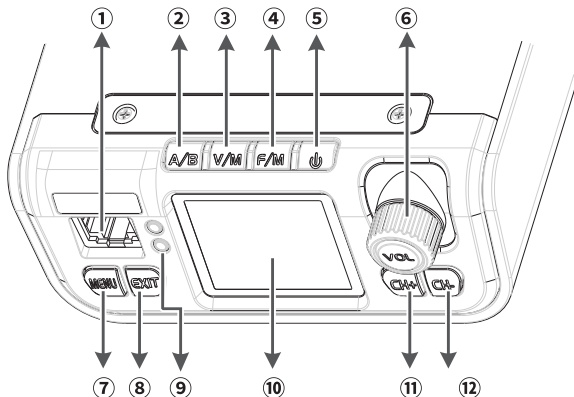
- When driving, please do not try to set the mobile radio, otherwise it will lead to dangerous consequences.
- The mobile radio is designed to use a DC power supply of $13.8V \pm 15\%$!
- Please do not transmit with high power output for a long time. Otherwise, the mobile radio may overheat, shortening the service life of itself.
- Please do not expose the mobile radio to the sun for a long time, and do not place it near heating appliances.
- Please do not place the mobile radio in extremely dusty, humid and water splashed places, and do not place it on an unstable surface.
- If you find abnormal smell or smoke from the mobile radio, you should immediately turn off the power of the mobile radio and contact the local dealer.
- Using the mobile radio while driving may violate traffic laws. Please check or consult the local traffic control department, and obey the local traffic regulations.
- Forbidden to be transmitted without connect to the antenna

Main feature

Full frequency channels + 3000 memory channels
Equipped with color 128*160 LCD display
FM function
Computer programming function
Two modes of digital DMR and analog
Continuous Tone Coded Squelch System (CTCSS~50 groups) or Digital Code Squelch (DCS~104 groups x 2) function
Encryption function
Remote monitoring function
Firmware upgrade
GPS function
Bluetooth function

- ★ The digital DMR mode of this mobile radio is divided into straight-through mode, relay mode, and true dual-slot mode.

Familiar with this product

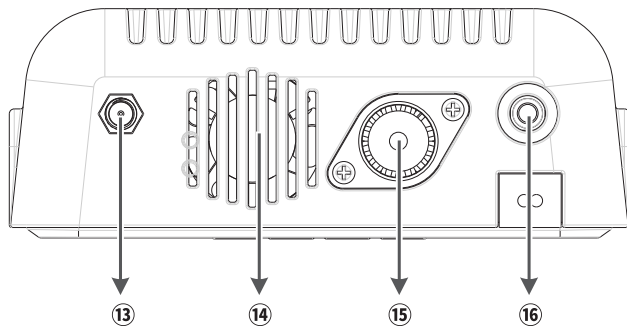


- ① Hand microphone and programming interface port
- ② Working frequency band/single and double waiting switching
- ③ Full frequency channel/digital analog switching
- ④ FM button ⑤ Power switch key ⑥ Volume Knob
- ⑦ Menu/OK key ⑧ Exit/Lock key ⑨ Transmitter indicator light

⑩ Display screen

⑪ Channel frequency increase key

⑫ Channel frequency down key



⑬ GPS antenna port

⑭ Fan

⑮ Antenna end

⑯ External speaker port

Basic Operation

1、Power button

Long press to power on/off

2、MENU button

Menu/OK key

3、A/B key

1. Short press to switch the working frequency band
2. Long press to switch between single standby or dual standby

4、V/M button

1. Short press to switch frequency channel mode
2. Long press to switch between analog and digital modes (only works in frequency mode)

5、FM button

Turn the FM function on and off

6、EXIT button

1. Short press for return operation
2. Long press to lock and unlock the button

7、CH+ CH-key

1. Switch channel or frequency in standby mode
2. Switch menu options in menu mode

8、VOL+ VOL-key

1. Switch volume level in standby mode
2. In menu mode, switch between left and right when inputting data

9、PTT button (launch button)

Transmitting and receiving conversion key: when transmitting, press this key and speak into the microphone; release this key when receiving

Menu Explanation

I. Contacts this menu mainly sets the functions related to contacts:

1. Contacts list

- A. Display all contacts, then press 【 MENU 】 to enter the next menu
 - a. Supplementary service (only for single call)
 - ① Walkie-talkie detection: Detect whether the mobile radio of this single call number is in the receiving state

- ② Call prompt: Send a signal to the mobile radio with this single call number, and the receiver will prompt
- ③ Remote monitoring: the receiver can be automatically transmitted, that is, the other party can be monitored
- ④ Remote kill: Remote kill the receiver
- ⑤ Activation: wake up the remote-killed radio
- ⑥ View GPS positioning
- b. Details: view the name and number of this contact
- c. Edit contacts:
 - ① Enter number: Change contact number
 - ② Enter an alias: Change contact name
 - ③ Save: Save the changed data
- d. Delete: delete this contact
- e. Send information: After entering the editor, you can send information to this contact

2. Create a new contact

- A. Enter the number: Set the number of the new contact
- B. Input alias: set the name of the new contact
- C. save: save contacts

3. Manual dialing

- A. Manual number reporting: After entering the private call number, press PTT to temporarily send the personal call of the number

II . Short message (Msg) This menu mainly sets the function of short message

1. Create a new short message
 - A. Can input 150 characters (Chinese characters are two characters), press the hand microphone [*] to delete the previous character, press [#] to switch the input method
 - B. Press 【 MENU 】 to enter the next menu
 - a. Find contacts: find a send message in the currently stored contacts
 - b. Input number: input single call number, send message
 - c. Insert common phrases: Insert the content of the shortcut text into the editing interface
 - d. Save text message: Save the edited information to the draft box
 - e. Exit the editor: Exit to the short message interface
2. Shortcut text
 - A. Lists all the shortcut texts, corresponding to the preset text messages of the writing software
 - B. Press 【 MENU 】 to enter the next menu
 - a. Display content: display and process all the content of the shortcut text
 - b. Add common phrases: add shortcut text

- c. Edit: edit the current shortcut text
- d. Delete: delete the currently selected shortcut text
- e. Send: send shortcut text

3. Inbox

- A. List all received text messages
- B. Press **【 MENU 】** to enter the next menu
 - a. Reply: Reply to the sender
 - b. Forward: Forward the content to others
 - c. Delete: delete the text message
- C. Delete All: delete all inbox lists

4. Outbox

- A. List all sent text messages
- B. Press **【 MENU 】** to enter the next menu
 - a. Find contacts: find a send message in the currently stored contacts
 - b. Input number: input single call number, send message
 - c. Insert common phrases: Insert the content of the shortcut text into the editing interface
 - d. Save text message: Save the edited information to the draft box
 - e. Delete text message: delete this text message
 - f. Exit the editor: Exit to the short message interface

5. Draft boxes

- A. List all saved text messages
- B. Press [MENU] to enter the next menu
 - a. Find contacts: find a send message in the currently stored contacts
 - b. Input number: input single call number, send message
 - c. Insert common phrases: Insert the content of the shortcut text into the editing interface
 - d. Save SMS: Save the edited information to the draft box
 - e. Delete text message: delete this text message
 - f. Exit the editor: Exit to the short message interface

III . Call Log: This menu mainly sets the functions related to call log:

- 1. Dialed calls
 - A. Lists all saved placed calls
 - B. Press [MENU] to enter the next menu
 - a. View detailed information
- 2. Received calls
 - A. Lists all saved placed calls
 - B. Press [MENU] to enter the next level menu
 - a. View detailed information

3. Missed calls

- A. Lists all saved placed calls
- B. Press [MENU] to enter the next level menu
 - a. View detailed information

IV. Scan edit and set scan list

1. Scanning switch: Turn on scanning. In channel mode, the working channel needs to have a scanning list to scan, frequency mode direct scan
 2. Scan list to set the channels added by each scan list, 16 channels can be added
 - A. Press [MENU] key to view the channel number added to each scan list
 - B. Press the [MENU] key again to add or delete members of the list or delete the list
 - C. Add channel: add the channel to the list, the same channel cannot be added repeatedly
 - D. Remove the channel: remove existing members
 - E. Delete the list: delete that area list
 3. Add a scan list, a total of 16 scan lists can be added
- Note: Public can not use this Amateur device.

V. Zone

1. Area list: There are 16 areas in total, each area can add 16 channels

- A. Press the [MENU] key to view the channel number added in each area
 - B. Press the [MENU] key again to add or delete members of the list or delete the list
 - C. Add channel: Add the channel to the list, the same channel cannot be added repeatedly
 - D. Remove the channel: remove existing members
 - E. Delete the list: delete that area list
2. Add area: add area in order until full

VI. Setting

- 1. Overall machine settings: set some functions of the entire machine
 - A. Squelch level
 - a. Set the squelch opening strength of the analog channel
 - B. Power saving settings
 - a. Set power saving on and power saving ratio
 - C. Although the calling and receiving IDs are different, the call can still be kept
 - a. Digital channel transmit contact selection
 - b. Off: Transmit to the contact that is set when transmitting
 - c. 1S~10S: If the transmission operation is carried out within ten seconds after receiving the call, it will automatically call back the ID just transmitted, and after this time, it will still send a signal to the default contact ID

- D. Transmit channel
 - a. EDIT: Transmit in the current working frequency band channel
 - b. BUSY 1S~10S: Transmit on the channel where the signal is received, and transmit on the working channel if the time exceeds the set time
- E. Language selection
 - a. Set Chinese and English display
- F. Backlight
 - a. Backlight time setting
- G. Prompt sound
 - a. Set the key prompt sound
- H. Keyboard lock
 - a. Set the keyboard to lock automatically or manually
 - b. Auto-lock is enabled, if no button is operated within 15 seconds, the button will be locked automatically, and the display will display a lock icon appears
- I. Prompt sound for the end of transmission
 - a. Prompt sound for the end of transmission (valid for analog channels)
- J. GPS switch
 - a. Turn on and off the GPS function
 - b. After opening, there will be a star map BIAO on the top of the main interface

- K. End sound elimination
 - a. Turning off means not decoding tail codes, and turning on means decoding tail codes (analog channel is valid). It is recommended to open
- L. Bluetooth switch
 - a. Turn on and off the Bluetooth function (the Bluetooth icon is displayed)
- M. Bluetooth pairing
 - a. After confirming, the Bluetooth is in the re-pairing state (the Bluetooth icon changes color after connection)
- 2. Band A Settings: Channel function settings related to Band A
- 3. Band B settings: Channel function settings related to frequency band B (some settings are only available for digital channels, and some are only available for analog channels. When setting, automatically hide the uncorresponding options)
 - A. Area selection
 - a. Click OK to enter, use the up and down keys to select the area
 - B. Receive GPS information
 - a. Choose whether the machine will receive GPS information sent by other machine

- C. Send GPS information
 - a. Select whether to send the GPS information of the machine
- D. Stepping frequency
 - a. Set the stepping frequency of full frequency mode
- E. Transmitting power
 - a. Set the transmit power
- F. Wide and narrowband
 - a. Set the channel bandwidth of the analog channel
- G. Transmit time limit
 - a. set the emission duration
- H. Mute code
 - I. Receive mute code (display digital and analog tone icon)
- J. Transmit mute code
 - a. The mute code setting takes effect at the same time when receiving and transmitting
 - b. Press [*] to switch between analog sub-tone and digital sub-tone
 - c. Press [#] to switch the forward and reverse of the digital tone
- K. Busy ban (set the transmission authority of the analog channel)
 - a. Allowed to launch: can be launched in any case
 - b. Carrier: can not transmit when there is a carrier signal
 - c. Subtone match: cannot emit when the subtone matches
 - d. Do not launch: can not launch

- L. Transmission authority (set the transmission authority of the digital channel)
 - a. Prohibition of launch: Prohibition of launch under any circumstances
 - b. Impolite launch: launch in any case
 - c. Courtesy of CC codes: Cannot transmit when CC matches
 - d. Courtesy to all: Cannot transmit when there is a carrier signal
- M. Frequency difference direction
 - a. Set the frequency difference direction in frequency mode
- N. Color code
 - a. Only with the same color code can you make a call
- O. DMR mode
 - a. Direct mode: regardless of time slot, point-to-point call
 - b. Relay mode: repeater forwarding mode
 - c. True double time slot: point-to-point call, distinguish between time slot 1 and time slot 2
- P. Time slot
 - a. Set the repeater time slot, or the true dual time slot talk time slot
- Q. No group call reception
 - a. When a is turned on, it means that any contact can be received and the call can be made
 - b. Off means that the received contact needs to be in the receiving group list to make a call

- R. Encryption type
 - a. Common encryption
 - b. Enhanced encryption
- S. Encryption group
 - a. Normal call can only be made when the encryption type and encryption group are consistent
- 4. Device information: version information of the vehicle
 - A. Record the software version, frequency band and other information of the mobile radio

VII. Attachments

- 1. GPS
 - A. The location of the machine (display the location information of the machine, only satellite positioning can enter)
Enter to display the longitude, latitude and altitude of the machine
 - B. Received GPS information
Receive location information from other devices
- 2. Radios
 - A. Radio interface display
 - a. The upper right corner shows the radio monitor [DW]
 - b. The lower left corner displays the radio working mode, channel mode or full frequency mode
 - c. Shows the radio frequency in the middle

- d. Press the hand microphone [*] to scan, only in frequency mode can do that
- B. Press [MENU] to enter the next menu
 - a. Turn off: Turn off radio
 - b. Mode Selection: Select frequency mode or channel mode
 - c. Monitor Selection: Turn on/off radio monitor
 - d. Channel Storage: If “CH” is in front of the frequency channel number, it means the channel already has a frequency assigned to it.

VIII. Special operations

1. Firmware upgrade function

- A. Install and open the upgrade program, connect the walkie-talkie to the computer by using a programming cable, select the port, and click connect
- B. [A/B] +[CH+] Power on, the red light turns on to enter the firmware upgrade mode, click Software Update to enter the upgrade

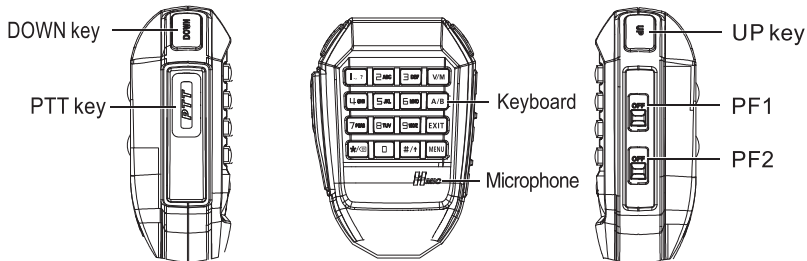
2. Restore factory settings

- A. PTT+MEUN+Power on to enter initialization settings
- B. Press [MENU] again to confirm recovery
- C. Note: This operation cannot be restored, so it is only necessary to restore the factory settings when the data is wrong

3. Bluetooth pairing

- A. Select ON for the Bluetooth switch in the machine settings, and the small Bluetooth icon will be displayed.
- B. Bluetooth pairing in the machine settings, click OK
- C. Turn on the Bluetooth headset in the pairing state (the red and blue lights flash alternately), and the Bluetooth will automatically pair and connect. After the connection, the Bluetooth icon on the car host will change color, and the Bluetooth headset will flash once every 5 seconds.

Handheld Micphone Operation



01. PF1

Keyboard lock key

02. PF2

keyboard light key

03. UP key

- a. Switch channel or frequency in standby mode
- b. Switch menu options in menu mode

04. DOWN key

- a. Switch channel or frequency in standby mode
- b. Switch menu options in menu mode

05. * key

menu special operations, such as deleting the previous character; during subtone setting, switch CTCSS and DCS etc.

06. #key

special menu operations, such as switching input methods; switching forward and reverse of DCS when setting subtones, etc.

07. V/M key

- a. Short press to switch frequency channel mode b. Long press to switch analog or digital mode (only works in frequency mode)

08. A/B keys

- a. Short press to switch working frequency band b. Long press to switch single standby or dual standby work

09. MENU key

Menu/Confirmation key

10. EXIT key

- a. Short press to return operation
- b. Long press to lock or unlock the button

11. MIC

Microphone

12. PTT

Press the PTT button and the walkie-talkie enters the transmitting state.

The main technical indicators of the mobile radio

Technical Indicators		
Frequency Range	Scanning:136-174MHz,400-520MHz VHF Receiving:136-174MHz UHF Receiving:400-520MHz BT/BLE:2402-2480MHz GPS:1575.42MHz FM:76-108MHz Transmitting: 144-148MHz, 420-450MHz(Amateur Band)	
Channel Spacing	Wide Band	25KHz
	Narrow Band	12.5KHz
Operating Voltage	13.8V±15%	
Frequency Stability	± 2.5ppm	
Working Temperature	-10~+55 ℃	
Receiving Part		
	Wide Band	Narrow Band
Sensitive (12db SINAD)	≤0.25uv	≤0.35uv
Digital Receive Sensitivity	0.22uv	
Adjacent Channel Selectivity	≥70db	≥60db

Audio Response	+1~-3db(0.3~3KHz)	+1~-3db(0.3~2.55KHz)
Audio Distortion	≤5%	≤5%
Transmitting Part		
	Wide Band	Narrow Band
Digital Magnitude Error	< 1%	
Modulation	16K Φ F3E	11K Φ F3E
Adjacent Channel Power	≥70db	≥60db
Signal to Noise Ratio	≥40db	≥36db
Spurious Response	≥70db	≥70db
Audio Response	+1~-3db(0.3~3KHz)	+1~-3db(0.3~2.55KHz)
Audio Distortion	≤5%	≤5%
Modulation Limitation	< ± 5KHz	< ± 2.5KHz

GUARANTEE CARD

Model Number: _____

Serial Number: _____

Purchasing Date: _____

Dealer: _____ Telephone: _____

User's Name: _____ Telephone: _____

Address: _____ Post Code: _____

REMARKS:

1. This guarantee card to be kept by the user, no replenishment if lost.
2. This guarantee card to be filled & chopped by the dealer, or it is invalid.
3. Don't alter the guarantee card, please confirm the serial number on the guarantee card is same as that on the machine.
4. One-year guarantee, charger, battery, earphone, antenna and feeder line are not under guarantee.
5. The user can get repairing service from the following ways:
 - a. Go to the shop where you buy the machine
 - b. Our local repairing agent

Federal Communications Commission (FCC) Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide Reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

. Increase the separation between the equipment and receiver.

. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

. Consult the dealer or an experienced radio/TV technician for help.

Warning: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

RF exposure statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 40cm between the radiator&your body.