

**Thank you for your purchase of the product.
This multi-band radio will deliver instant reliable communication.
Please read this manual carefully before use!**

DM-8900

BEFORE PROCEEDING INSURE:

- Qualified technicians shall service this equipment only. Do not modify the radio for any reason.
- Use only original supplied or approved accessories.
- Turn off your radio prior to entering any area with explosive and flammable materials. Do NOT USE your transceiver at a gas/fuel station.
- For vehicles with an air bag, do not mount your radio in the area over an air bag or in the air bag deployment area.
- Do not expose the radio to direct sunlight over a long time, nor place it close to a heating source.
- If the unit emits smoke or an odor, you should immediately cut off the power supply. Then send the radio to the nearest service center or dealer.
- Do not operate the mobile transceiver on high power unless it is necessary. Do not transmit for long periods of time, as it may overheat the transceiver.
- Keep the unit away from dusty, damp and wet environments.
- Use the correct power supply (~13.8V); do not use incorrect or higher voltage (e.g. 24V).

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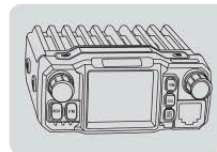
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GETTING STARTED

■ Unpacking and Inspecting

- Please check the packaging of your radio for any signs of damage.
- Carefully open the box, and confirm your received the items listed below.
- If you find the radio or the included accessories are damaged or lost, immediately contact your dealer.

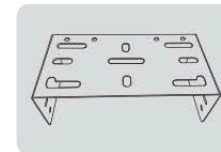
What's in the Box



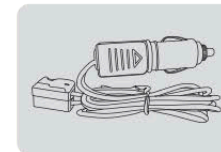
Mobile Radio



Microphone



Mounting Bracket

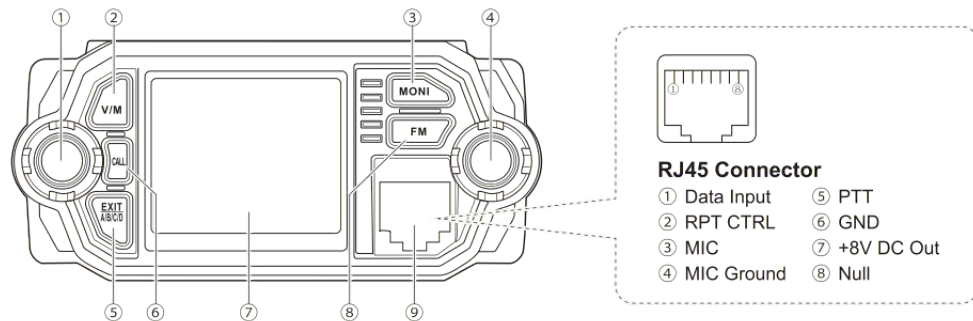


Power Cable



Mounting Screws
and Fuse

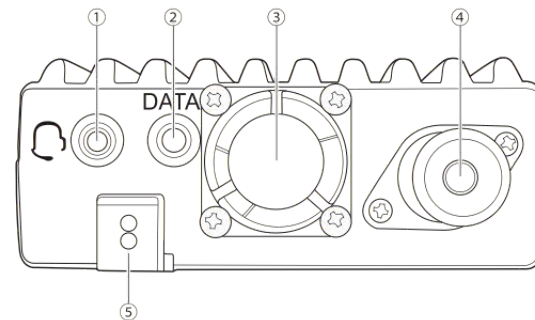
■ Overview of the Front Panel



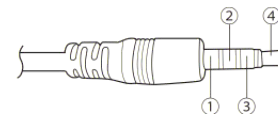
- ① Power, On/Off Press + Volume Knob
- ② V/M Mode Switch (Channel/Frequency)
- ③ Monitor function
- ④ Confirm Key Press + Main Selector (Menu Knob)
- ⑤ Exit Menu + A/B/C/D signal switching + alarm function
- ⑥ Call key
- ⑦ Display screen
- ⑧ FM radio function key
- ⑨ Microphone Connector

- []: when in standby, press to send caller ID (ANI) in the selected signaling mode; while transmitting, press to send activate signaling.
- []: press to turn on the squelch, repeat to turn off the squelch.
- []: press to switch between channel mode and frequency mode.
- []: press to choose between A,B,C or D frequencies --- Or exit function mode.
- []: press to enter and exit FM radio.

■ Overview of the Rear Ports



- ① TRRS Line Out: Includes PTT/Microphone/Audio-out/GND
- ② DATA, Programming Jack
- ③ Cooling Fan
- ④ SO-239 RF Antenna Connector: Connects to PL-259 Antennas
- ⑤ DC Power Input (13.8V–7A Peak)

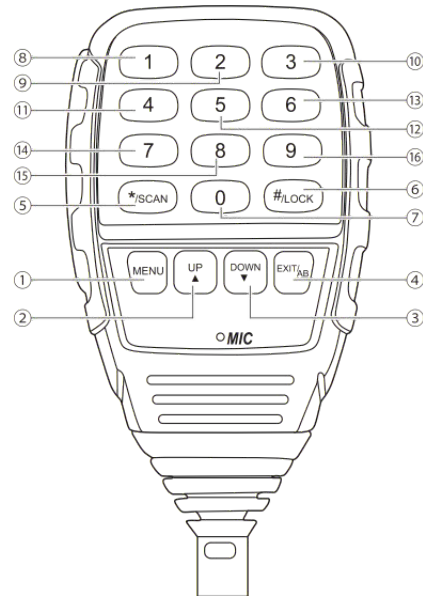


TRRS Line-Out Connector

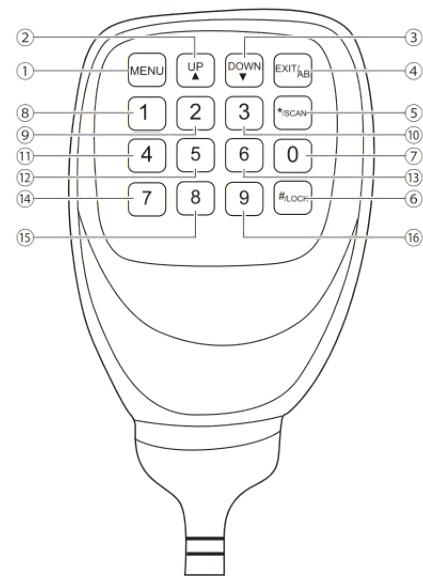
- ① GND
- ② SP
- ③ MIC
- ④ PTT

■ Hand Held MIC Keys and Description

- ① “MENU” : Function key
VFO/MR Toggle (Long Press)
- ② “UP” : Higher frequency
- ③ “DOWN” : Lower frequency
- ④ “EXIT” : Exit the AB channel switch
Alarm Activate (Long Press)
- ⑤ “*/SCAN” : Scanning function
- ⑥ “#/LOCK” : High / Low Power Toggle
Keyboard Lock (Long Press)
- ⑦ “0” : Number 0
- ⑧ “1” : Number 1
- ⑨ “2” : Number 2
- ⑩ “3” : Number 3
- ⑪ “4” : Number 4
- ⑫ “5” : Number 5
- ⑬ “6” : Number 6
- ⑭ “7” : Number 7
- ⑮ “8” : Number 8
- ⑯ “9” : Number 9



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VFO/MR Toggle (Long Press)
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- ⑪ “4” : Number 4
- ⑫ “5” : Number 5
- ⑬ “6” : Number 6
- ⑭ “7” : Number 7
- ⑮ “8” : Number 8
- ⑯ “9” : Number 9



■ Icon Descriptions

	Receive a signal; the fuller the signal bar, the stronger the signal		The recording space is full, covering the recording
	Dual-segment dual-guard mode is on		In digital mode, voice encryption function. In analog mode, the scrambling function is turned on.
	Voice-activated mode		Digital Mode
	Received new information		simulation mode
	Inbox is full		Transmit high power indication
	Prompt tone silent mode is on		Transmit low power indication
	Emergency alert function		Narrowband indication in analog mode
	Analog monitoring function		In analog mode, analog subtone and digital subtone
	Scan function is turned on		In dual-guard mode, A-band
	Keyboard Lock		In dual-guard mode, B-band
	The recording function is turned on, and the call content will be recorded.		

BASIC OPERATIONS

■ Keyboard input

You can enter user aliases, numbers and text messages through the keyboard of your hand. This machine supports Chinese/English input method and number input method.

- Press **[#]** to switch between different input methods.
- To enter special characters, please press **[1]** in Chinese or English mode.
- To enter a space, press **[0]** in Chinese or English input method mode.

⚠ Note: During the input process, if there is no content in the editing area, press the return key to return to the previous menu; if there is content in the editing area, press the return key to delete a character before the cursor until the editing area has no content. Press the return key to return to the previous menu. In the entered text, press the **[▲]/[▼]** key to move the cursor left/right.

■ Double standby double standby and double standby single standby

Method 1: Set up dual-segment dual-guard or dual-segment single-guard through CPS

Method 2: Press the **[MENU]** key to enter the main menu -> Settings -> Intercom Settings -> Double Guard -> (Double Segment Double Guard or Double Segment Single Guard)

When in dual-band dual-guard mode, the walkie-talkie can receive calls from either A-band or B-band.

When in dual-band single-stay mode, the walkie-talkie only receives calls from the waiting band. Press the band switch button to switch the waiting band, and the other band will be prohibited from receiving calls. The factory defaults to dual-band dual-stay mode. The icon will be displayed on the first line of the dual-segment dual-stay screen, but not on the dual-segment single-stay screen.

⚠ Note: The scan function does not work because the dual-segment dual-guard mode is in the A or B-band scan state.

■ VFO mode

Switch the current frequency band to VFO mode by setting the A or B band frequency of the walkie-talkie to VFO mode (display VFO) through CPS settings or short pressing the V/M key on the panel.

Method 1: Rotate the channel button to adjust the VFO frequency at a pre-programmed step frequency. Each rotation will increase or decrease the frequency according to the pre-set step frequency of your walkie-talkie.

Method 2: Enter the VFO frequency directly through the numeric keypad.

The following example assumes a 2.5 kHz frequency step. Enter a frequency of 403.02500 MHz on the main band.

1. Rotate the channel button clockwise to switch to frequency mode.
2. Type [4] [0] [3] [0] [2] [7] [5] [0] on the numeric keypad.

⚠ **Note:** You can switch between digital and analog mode by pressing [MENU] to enter the main menu -> Settings -> Channel Edit -> Channel Type.

■ Select a region

Zones make it easy to manage channels. Zones are groups of channels in which multiple available channels are combined.

Method: Select the area through the menu, please perform the following process:

1. Press the [MENU] key to enter the main menu -> Area -> Area List.
2. Press the [▲]/[▼] key to select a region.
3. Press the [MENU] key to select and confirm.

⚠ **Note:** This unit can store up to 1024 channels, which can be assigned to any area, and a maximum of 32 channels can be placed in one area.

■ Select a channel

Channels can be analog or digital channels.

Method 1: On the standby interface, rotate the channel button to select a channel.

Method 2: Enter the channel number through the [▲]/[▼] key of the hand.

Method 3: Enter the channel number through the numeric keypad of the hand.

For example, if you want to switch to channel 8, enter 08 to enter channel 8. Enter 05 to enter channel 5.

⚠ **Note:** The number of channels in this area needs to exceed the input channel number, otherwise it will stay in the original channel.

■ Creating new channels

New channels can be created through the CPS.

■ Call services

◇ Digital call

You can place or receive the following types of calls over digital channels:

- **A call:** A call from a single user to another single user.
- **Group call:** A call made by a single user in a group to all other members of the group.
- **All calls:** calls from a single user to all other users on the current channel.

1. Initiate the call

You can initiate a call using the following methods.

Method 1: On the standby interface, press and hold the [PTT] key to directly initiate a call to the pre-programmed transmit contact on the current digital channel.

Method 2: Select "Contact List" in the "Contacts" menu, select one of the contacts, and then press and hold the [PTT] button to initiate a call.

Method 3: Select "Call Record" in the main menu, enter the list of dialed calls/received calls/missed calls, select a call record, and then press and hold the [PTT] key to initiate a call.

Method 4: Select "Contact > Manual Dialing" in the main menu, press the [#] key to switch between individual call numbers or group call numbers, enter the number and press and hold the [PTT] key to initiate an individual call or group call.

Method 5: When the dealer configures the call object of [One-Key Call] as an individual call contact or group call contact or full call contact, press the pre-programmed [One-Key Call] key and then press and hold the [PTT] key to initiate a single call or group call or full call.

2. Receive and Respond to Calls

When the walkie-talkie is in digital mode, it can receive and respond to calls with the same frequency/color code/time slot. When answering a call:

- If the caller's DMR ID number is a programmed ID number in the receiver's digital contact list, the LCD screen will display the corresponding DMR ID/name/call type and incoming call icon according to the content in the contact list when answering the call.
- During the call, after the other party has finished speaking, you can press and hold the [PTT] button to reply.

3. End the call

- **Individual call/group call:** When neither party presses the [PTT] key to speak and the call hold time is exceeded, the end point will end the call.
- **Full call:** The caller releases the [PTT] button, and the end point will end the full call.

◇ Analog call

An analog call is a call initiated on an analog channel.

To transmit, press and hold the PTT key and speak into the microphone. To receive, release the PTT key.

■ Monitoring

Press the [MONI] key on the operation panel to enable this function, and press the key again to exit.

⚠ **Note:** In analog mode, if there is no signal, it will make noise when pressing the [Monitor] key.

■ Emergency Alert

The alarm function allows users to request assistance in times of crisis. Only when the channel is configured with an alarm system, long pressing the [CALL] key can trigger the alarm function. It can be programmed and set by CPS.

Alarm types are as follows:

1. **Prohibited:** Prohibit activation of the alarm function. This machine cannot transmit alarm signals, but can receive alarms from other walkie-talkies.
2. **Conventional:** When alerting, the walkie-talkie

first urgently calls the emergency alarm number, and then ends the call after 10 seconds and sends a remote alarm tone. At the same time, the local alarm tone will also sound. An emergency call is a call with the highest priority, which can interrupt the current ordinary call. The process of an emergency call is similar to that of a normal call, except that the interface display icon is different. Emergency alarm number: the call will be terminated after 10 seconds, with a remote alarm tone sent out and the local alarm tone activated simultaneously. Emergency call has the highest priority and can interrupt ongoing ordinary calls. The process of an emergency call is similar to that of a normal call, with only different icons displayed on the interface.

3. **Local alarm:** When alarming, the walkie-talkie will issue a sharp whistle to alert.

◇ Call the police

Press the pre-programmed [Emergency Mode On] key to initiate an alarm for the pre-programmed contact.

During an emergency call or alarm call, if the automatic emergency call function is turned on at the end point, you can speak without pressing

and holding the [PTT] key. When the number of automatic emergency calls exceeds the number of pre-programmed by the dealer, if you need to initiate an emergency call again, you can press and hold the [PTT] key.

◇ Answer the alarm

When you receive an emergency call, you can answer it without any action.

◇ End the alarm

The caller can end the alarm in the following ways:

Method 1: Long press the [CALL] button.

Method 2: Shut down.

⚠ **Note:** The called party can exit the alarm prompt by switching channels or shutting down.

■ Working alone

If you encounter an unexpected situation during solo work and cannot operate the walkie-talkie within the pre-programmed time, the walkie-talkie will automatically alert your partner or control center for assistance.

Enable separate work through CPS, and set

separate work response time and separate work reminder time

Individual work response time: The duration of no operation of the walkie-talkie enables the individual work function.

Alone work reminder time: Countdown to enter the separate work enable function.

■ Voice Actuation

Voice control means that the transmission function can be directly triggered through voice. When the voice detected by the microphone reaches the transmission conditions, the end point will automatically transmit the voice. You can speak directly without pressing the [PTT] button.

◇ On and off voice control

Method 1: Press CPS to turn on the voice control function.

Method 2: Press the [MENU] key to enter the main menu -> Settings -> Walkie-talkie Settings -> Voice Control Functions -> Voice Control Switch, turn on or off the voice control.

◇ Adjust Voice Actuated Gain

Set the sensitivity of the voice-activated emission

of the internal microphone. The larger the value, the higher the sensitivity. After the voice-activated function is turned on at the end point, the voice detected by the internal microphone reaches the size of the voice-activated emission, and the end point automatically transmits the voice.

Please set this parameter correctly according to the current environment, normal speech volume of end users, etc., so as to avoid frequent accidental triggering of voice control (high sensitivity) or difficult triggering of voice control (low sensitivity).

Press the [MENU] key to enter the main menu -> Settings -> Intercom Settings -> Voice Control Functions -> Voice Control Gain Level, select the gain level, and select the range 1-3.

◇ Voice delay

During the voice-activated transmission process, the end point will maintain the transmission state within the voice-activated holding time when the voice is not detected, so as to ensure that the end point will not stop emitting when the speech is paused. The value range is 300~ 5000ms, and the step value is 100ms. The default value is 800ms.

■ Encryption Settings

Encryption is the use of keys for end-to-end encryption of voice or data, and the recipient can decrypt only when the keys match, thus preventing voice and data from being eavesdropped, which is effective for digital channels.

◇ Encryption settings

How to turn on or off the encryption function is as follows:

Method: Set the encryption type and encryption group for the channel through CPS.

◇ Encryption type

The walkie-talkie can be assigned three encryption types. For encrypted voices to communicate normally, both parties must have the same encryption type and the same "encryption key value".

1. Basic encryption

For simple encrypted speech, the transmitter and receiver need the same key value to communicate normally, otherwise the sound will be noisy and cannot be heard clearly; the key value can be set to 1 to 10 letters or numbers.

2. ARC4 encryption

The transmitter and receiver need the same key value and the same key value serial number to communicate normally, otherwise the sound will be noisy and cannot be heard clearly or silently; the key value is fixed at 10 digits, and only numbers or capital letters A, B, C, D, E, F can be set.

3. AES256 encryption

The transmitter and receiver need the same key value and the same key value serial number to communicate normally, otherwise the sound will be noisy and cannot be heard clearly or silently; the key value is fixed at 64 bits, and only numbers or capital letters A, B, C, D, E, F can be set.

⚠ Note: If your walkie-talkie receives an encrypted call with different encryption keys or different key values and key serial numbers, you will hear a transmission confusion sound. Encryption is to enable encryption for the current channel. When switching to this channel, end point will automatically enable encryption.

■ FM (radio) function

Press the **[FM]** button on the operation panel to turn on or off the radio function.

After turning on the radio function, the radio search method is as follows:

1. Press the **[*]** key of the hand to automatically search for channels. If a valid channel is found, the search will be automatically stopped and the current frequency will be displayed. The frequency is switched between 64-108M. Press the Delta key to search with decreasing step frequency. Press the **[▼]** key to search with increasing step frequency.
2. After entering the radio mode, you can enter the frequency manually. If you need to enter the 90.4M frequency point, enter 904 on the keyboard, and if you need to enter 100.7, enter 1007 on the keyboard.
3. After entering the radio mode, select the menu key on the key panel to search by decreasing or increasing the frequency.

⚠ **Note:** In radio mode, the transmitter and receiver of the walkie-talkie have high priority.

■ Scrambling

The scrambling function is that the analog channel realizes encrypted communication by scrambling the voice signal. Only after the transmitter and receiver have turned on the same scrambling frequency can they answer the call normally and clearly on the current channel, so as to achieve the purpose of call confidentiality.

The scrambling function can be turned on or off through the CPS programming channel.

⚠ **Attention:** Make sure that the other radio you are communicating with uses the same scrambling mode.

MENU FUNCTION

■ Menu basic operation

1. Press the menu button on the panel or the menu button to enter the main menu.
2. Use the **[▲]/[▼]** keys to navigate to the sub-menu or options you require.
3. After selecting a given submenu or option parameter, you have two options:
 - To confirm the selection, press the **[MENU]** key, which will save your settings and return to the previous menu.
 - To cancel the changes, press the Back key, which will reset the menu item and return to the previous menu.

When this document describes menu operations, it only describes the order of menu items. For example, the path to the address book list is "Contacts -> Contact List".

Through the CPS software -> Basic Configuration -> Menu, it will allow you to turn on or off part of the walkie-talkie menu, check the menu options that need to be open to the walkie-talkie and write it to the walkie-talkie.

■ Contact person

In Math Channel mode, Contacts lists the contact information saved in the walkie-talkie, and the target contact ID can be selected from this list.

◇ Contact list

The contact list is used to save contact information.

You can identify the call type by the following icons:

- **A call:** A call between two independent walkie-talkies.
- **Group call:** A call from a single walkie-talkie to a group of walkie-talkies.
- **Full call:** A call from a single walkie-talkie to all walkie-talkies in the system.

It is allowed to set an ID for each digital call member, which is used to identify and communicate with the target walkie-talkie or group of walkie-talkies according to the call type. The meaning of the call ID is as follows:

- **Individual call ID:** is the device ID of the target

walkie-talkie (ID range is 1-16776415).

- **Group call ID:** used to identify a specific group (ID range 1-16776415).
- **Full call ID:** Fixed ID is 16777215.

Allows you to set an alias for each contact, allowing users to enter up to 16 English characters or 8 Chinese characters.

You can enter the contact list through the main menu "Contacts -> Contact List". You can do the following for contacts:

- **Full call contact:** Check the contact number (fixed ID is 16777215). Or press and hold PTT to initiate a full call.
- **Group call contacts:** Check contact properties and send short messages. Or press and hold PTT to initiate a group call.
- **Individual call contacts:** View contact properties, edit contact number and name, delete contacts and application functions, or press and hold PTT to initiate a call.

◇ New Contact

Users can add new contacts to their contact list through the New Contact menu.

- When entering a contact alias, you can switch

the input method with the [#] key.

⚠ **Note:** Menu New Contact can only create a call contact; group call contact and full call contact can be created through CPS.

◇ Manual dialing

You can directly enter the desired call ID to make a call. In the digital channel, you can switch between individual call numbers or group call numbers by pressing the [#] key, and the LCD screen displays the call type (individual call ID/group call ID).

For a call ID, you can also perform the following options for supplemental business functions:

1. **Tele-kill:** Send a tele-kill command to a contact, so that the walkie-talkie cannot be used normally. The function of the tele-killed walkie-talkie cannot be used. At this time, the walkie-talkie can only be activated by re-reading and writing the frequency through the CPS software or by activating the command (it can only be used after the function is enabled after a call is configured).
2. **Activation:** Send an activation command to a contact to restore its walkie-talkie to normal use

(it can only be used after configuring its function under a call).

3. **Call prompt:** Initiate a call prompt to a certain contact, and the other party can directly call back after seeing the prompt (it can only be used after the function is enabled under the individual call configuration).
4. **Walkie-talkie query:** Without interfering with the other party, initiate a walkie-talkie check on a contact to confirm whether the other party is turned on or using the current channel (it can only be used after configuring its function under a call).
5. **Remote monitoring:** Remotely activate the microphone of a contact to secretly monitor the other party's voice and background sound information (it can only be used after the function is enabled under the individual call configuration). With this feature, you can remotely monitor the sound activity near the target walkie-talkie.

■ Scanning

Scanning means that when the end point scans to a certain channel for activity, it will stay on that channel for listening. The scan list is a list of mon-

itored channels, and you can add or remove the scan list.

You can create up to 10 scan lists and maintain at least one scan list.

Each scan list has a maximum of 16 channels (including analog channels and digital channels), and the "current channel" in the scan list is a fixed channel, and you cannot delete the channel.

◇ Scan Switch

Start scan:

Method 1: A certain channel has enabled the "automatic scan" function and configured the scan list. When switching to this channel, the walkie-talkie will automatically start scanning (write frequency software settings).

Method 2: Press the [MENU] key to enter the main menu -> Scan -> Scan switch and turn on the scan function.

After scanning is turned on, the end point will scan according to the scan list, and the LCD screen will display the icon. When scanning to a channel with activity, the end point will stay on the channel to listen. Scan the dwell channel, and the LCD screen will display the icon.

Exit scan

Method 1: Press the menu key to exit the scan.

Method 2: Press the [MENU] key to enter the main menu -> Scan -> Scan switch and turn off the scan function.

◇ Scan List

The scan list is a set of channels that are being listened to. Through this menu, you can view each channel in the scan list.

Menu operation:

1. Press the [MENU] key to enter the main menu > > Scan function > > Set valid list.
2. Press the [MENU] key to enter the options, and press the [▲]/[▼] key to select a valid list.
 - **Select:** Enable the valid list.
Other scan settings can be set in the CPS.
 - **Scan suspension time:** Set the residence time of the host on the active channel, after which the host continues to scan and detect. It can prevent the host from not being active on a detected channel and immediately return to scan and detect.
 - **Transmission Suspension Time:** The delay time that allows the end point to transmit voice,

data, and auxiliary services on the current dwell channel.

■ Area

Areas can be convenient for users to manage channels. 64 channels can be added to each area. The walkie-talkie should reserve at least one area, and each area should reserve at least one channel.

⚠ **Note:** VFO frequency mode has no area menu.

◇ Select Area

Method 1: CPS selects a region to write to, and the LCD screen will display the selected region name.

Method 2: The menu operation is as follows

1. Press the [MENU] key to enter the main menu -> Area -> Area List.
2. Press the [▲]/[▼] key to select a region from the region list.
3. Select "Select", and the walkie-talkie will be changed to the selected area.

◇ Add Area

New regions can be added via CPS.

◇ Area add channel

Add channels to existing areas via CPS

■ Short Messages

In digital mode, users can edit text messages on the walkie-talkie and communicate with other users. The short message menu includes the following submenus:

- **Inbox:** Save the received short messages in the inbox.
- **New SMS:** After entering this menu, you can edit a new SMS, which can be entered up to 128 characters.
- **Outbox:** Save the sent short messages in the outbox.
- **Shortcut text:** In this menu, there are short messages pre-set by the dealer for you, which can only be written through CPS.
- **Draft box:** Save the edited short message in the draft box.

◇ View Messages

1. Instant viewing: When receiving a short message, press the [MENU] key to view the details.
2. Through the menu, select Inbox or Outbox in the "Short Message" menu, then select the short message to be viewed, and press OK to view the details.

◇ Send SMS

Send text messages

1. Select "New SMS" in the "SMS" menu to edit the text message.
2. Press the [MENU] key to select "Send", select the target contact or enter the contact number by manually dialing.
3. Press the [MENU] key to send the message.

Send shortcut text

1. Select "Default SMS" in the "Short Message" menu.
2. Press the [MENU] key to select "Send", select the target contact or enter the contact number by manually dialing.
3. Press the [MENU] key to send the message.