HP78X Digital Portable Radio

User Manual

Hytera Communications Corporation Limited

Preface

Welcome to the world of Hytera and thank you for purchasing this product. This manual includes a description of the functions and step-by-step procedures for use.

To avoid bodily injury or property loss caused by incorrect operation, please carefully read the *Safety Information Booklet* before use.

This manual is applicable to the following product:

HP78X Digital Portable Radio (X may represent 2, 5, 6 or 8)

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FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. Verification of harmful interference by this equipment to radio or television reception can be determined by turning it off and then 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 different circuit to that of the receiver's outlet.
- Consult the dealer or an experienced radio/TV technician for help.

Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

Note: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Compliance with RF Exposure Standards

The radio complies with the following RF energy exposure standards and guidelines:

- United States Federal Communications Commission, Code of Federal Regulations; 47 CFR § 1.1307, 1.1310 and 2.1093
- American National Standards Institute (ANSI)/Institute of Electrical and Electronic Engineers (IEEE) C95. 1:2005; Canada RSS102 Issue 5 March 2015
- Institute of Electrical and Electronic Engineers (IEEE) C95.1:2005 Edition

RF Exposure Compliance and Control Guidelines and Operating Instructions

To control your exposure and ensure compliance with the occupational/controlled environmental exposure limits, always adhere to the following procedures.

Guidelines:

- Do not remove the RF Exposure Label from the device.
- User awareness instructions should accompany device when transferred to other users.
- Do not use this device if the operational requirements described herein are not met.

Operating Instructions:

- Transmit no more than the rated duty factor of 50% of the time. To transmit (talk), press the Push-to-Talk (PTT) key. To receive calls, release the PTT key. Transmitting 50% of the time, or less, is important because the radio generates measurable RF energy only when transmitting (in terms of measuring for standards compliance).
- Keep the radio unit at least 2.5 cm away from the face. Keeping the radio at the proper distance is important as RF exposure decreases with distance from the antenna. The antenna should be kept away from the face and eyes.
- When worn on the body, always place the radio in an approved holder, holster, case, or body harness or by use of the correct clip for this product. Use of non-approved accessories may result in exposure levels which exceed the FCC's occupational/controlled environmental RF exposure limits.

- Use of non-approved antennas, batteries, and accessories causes the radio to exceed the FCC RF exposure guidelines.
- Contact your local dealer for the product's optional accessories.

ISEDC Statement

The device has been tested and complies with SAR limits, users can obtain Canadian information on RF exposure and compliance.

Après examen de ce matériel aux conformité aux limites DAS et/ou aux limites d'intensité de champ RF, les utilisateurs peuvent sur l'exposition aux radiofréquences et la conformité and compliance d'acquérir les informations correspondantes.

This device complies with Innovation, Science and Economic Development Canada Compliance license-exempt RSS standard(s). Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

EU Regulatory Conformance

As certified by the qualified laboratory, the product is in compliance with the essential requirements and other relevant provisions of 2014/53/EU.

Please note that the above information is applicable to EU countries only.

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Documentation Conventions

Icon Conventions

Icon	Description
NOTE	Indicates references that can further describe the related topics.
CAUTION	Indicates situations that could cause data loss or equipment damage.
DANGER	Indicates situations that could cause major personal injury or even death.

Notation Conventions

Item	Description	Example
Boldface	Denotes menus, tabs, parameter names, window names, dialogue names, and hardware buttons.	To save the configuration, click **Apply**.
		The **Log Level Settings** dialogue box appears.
		Press the **PTT** key.
" "	Denotes messages, directories, file names, folder names, and parameter values.	The screen displays "Invalid Battery!".
		Open "PSS.exe".
		Go to "D:/opt/local".
		In the Port text box, enter "22".
>	Directs you to access a multi-level menu.	Go to **File** > **New**.
Italic	Denotes document titles.	For details about using the DWS, refer to *Dispatch Workstation User Guide*.
`Courier New`	Denotes commands and their execution results.	To set the IP address, run the following command: `vos-cmd - m name IP`

1. Packing List

Please unpack carefully and check that you have received the following items. If any item is missing or damaged, contact your dealer.

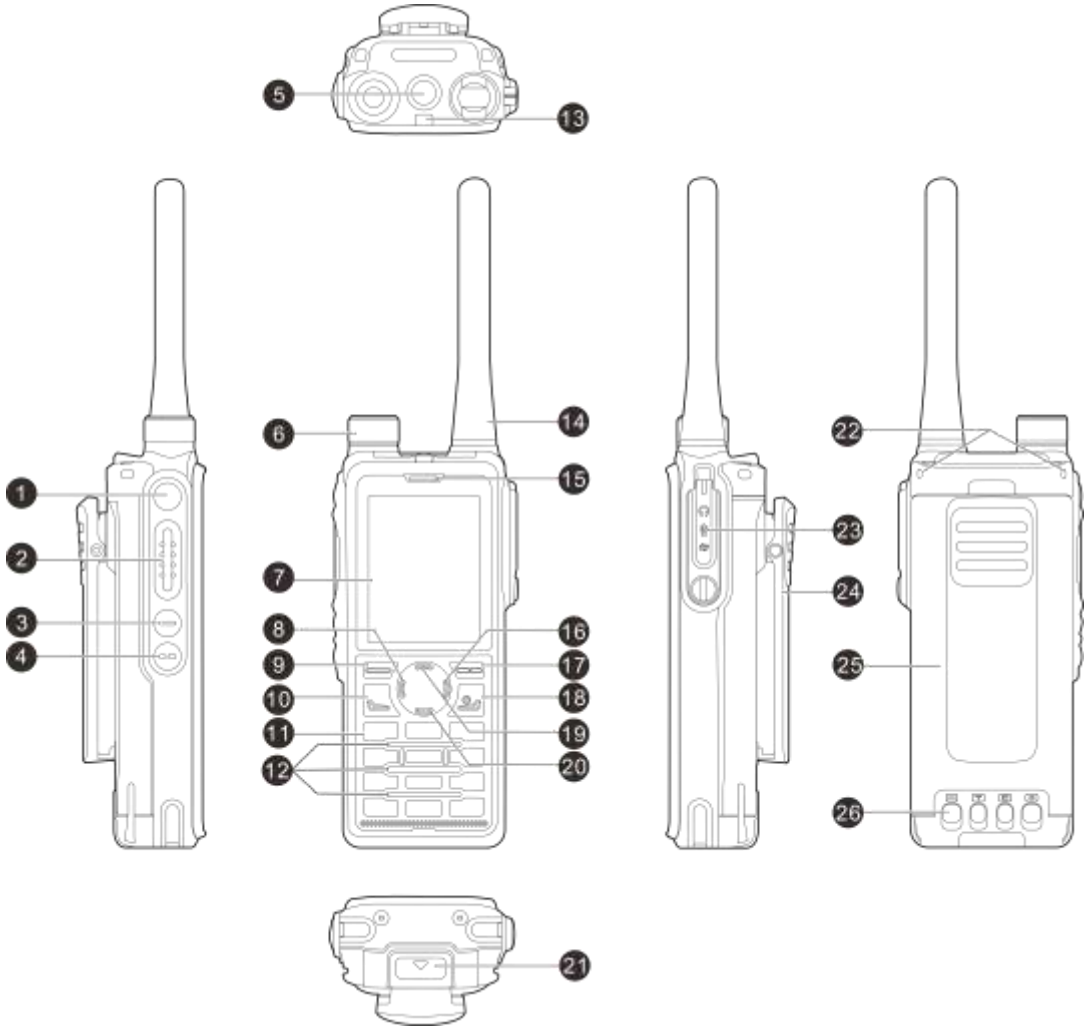
Item	Quantity (PCS)	Item	Quantity (PCS)
Radio	1	Antenna	1
Battery	1	Belt Clip	1
Charger	1	Strap	1
Power Adapter	1	Documentation Kit	1

NOTE

- Figures in this manual are only for reference.
- Check whether the frequency band marked on the antenna label matches that on the radio label. If not, contact your dealer.

2. Product Overview

2.1 Product Layout



NO.	Part Name	NO.	Part Name
1	Side Key 1 (SK1)	14	Antenna
2	Push-to-Talk (PTT) Key	15	Microphone
3	Side Key 2 (SK2)	16	Right Key
4	Side Key 3 (SK3)	17	Back/Subgroup Key
5	Top Key	18	On-Off/P2/End Key
6	Smart Knob	19	Up Key
7	LCD Display	20	Down Key
8	Left Key	21	Battery Latch
9	OK/Menu Key	22	Strap Hole

NO.	Part Name	NO.	Part Name
10	P1/Answer Key	23	Accessory Connector
11	Keypad	24	Belt Clip
12	Speaker	25	Battery
13	LED Indicator	26	Charging Contacts

2.2 Programmable Keys

For enhanced convenience, you can request your dealer to program the following keys as shortcuts to radio features: **TK**, **SK1**, **SK2**, **SK3**, **P1/Answer** key, **On-Off/P2/End** key, **Up** key, and **Down** key. For details, consult your dealer.

3. Before Use

3.1 Charging the Battery

⚠ CAUTION

- Use the approved charger to charge the battery.
- Read the *Safety Information Booklet* before charging.
- The remaining lithium-ion battery power is limited to 30% pursuant to the new lithium battery shipment regulation approved by the International Air Transport Association (IATA).

Before initial use, charge either the battery alone or the battery that is attached to the radio. It is recommended that the radio remain powered off during charging.

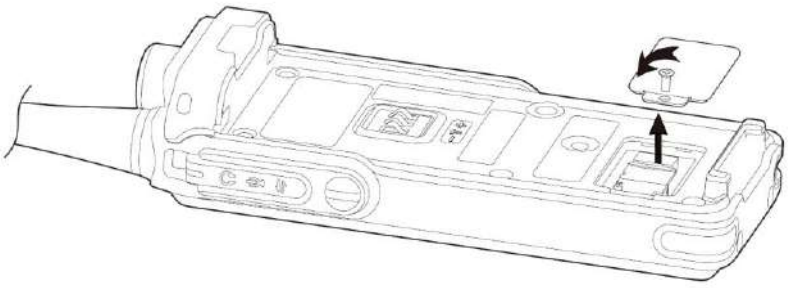
The LED indicator on the charger shows the charging status, as described in the following table.

LED Indicator	Charging Status
Glows red	The battery is being charged.
Glows orange	The battery is charged to 90% or above.
Glows green	The battery is fully charged.
Flashes red slowly	No battery is placed on the charger.
Flashes red rapidly	The battery fails to be charged.

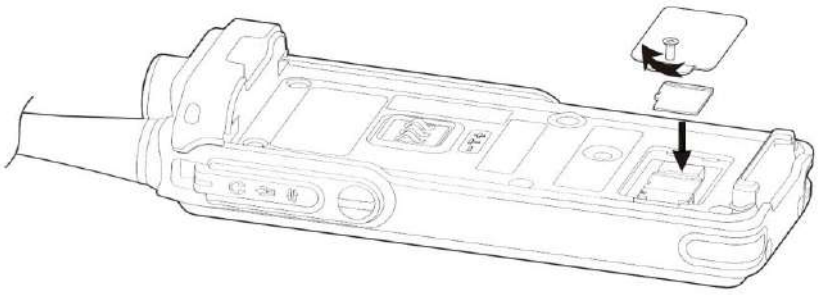
3.2 Installing the TF Card

If you purchase a TF card, you can use it to encrypt voice and data services. To install the TF card, do as follows:

1. Use a screwdriver to loosen the screw on the card slot cover, and then remove the card slot cover.

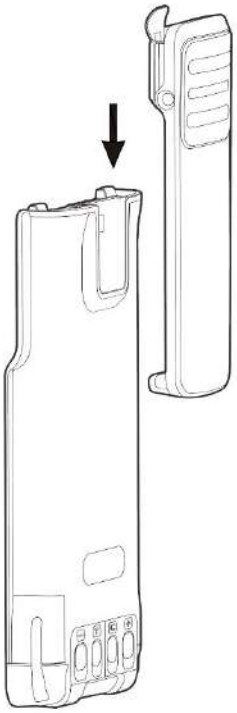


2. Install the TF card, put the card slot cover back in place, and then tighten the screw.



3.3 Attaching the Belt Clip

Align the holder on the belt clip with the groove on the battery, and then press the belt clip downwards into place.



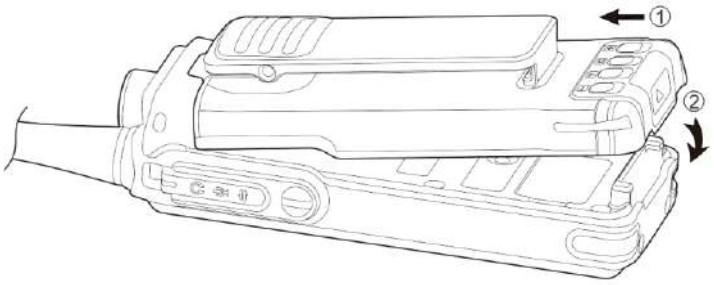
NOTE

You can press and hold the belt clip spring plate and push the belt clip upwards to remove it.

3.4 Attaching the Battery

CAUTION

- Use the approved battery to avoid the risk of explosion.
- Dispose of the used battery according to "Precautions for Disposal" in the *Safety Information Booklet*.



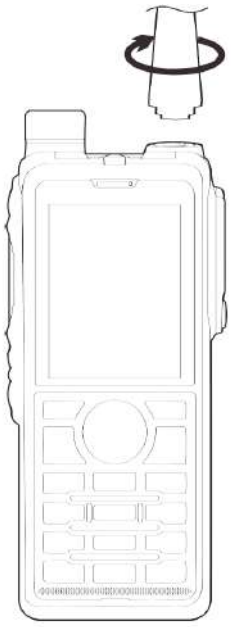
NOTE

To remove the battery, make sure that the radio is turned off, and then lift the battery latch.

3.5 Attaching the Antenna

CAUTION

Do not hold the radio by the antenna and swing it. This may affect the antenna performance and shorten the life span of the antenna.



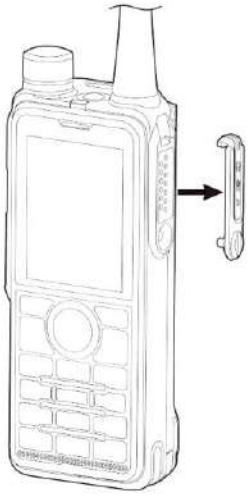
3.6 Attaching the Audio Accessory

CAUTION

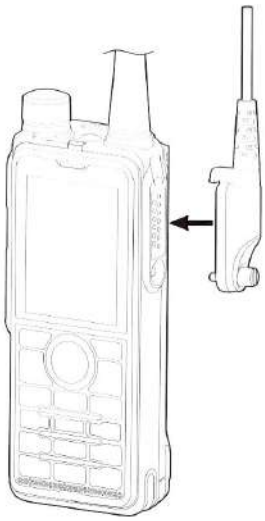
For optimal waterproof and dustproof performance, do as follows:

- Attach the accessory with care to avoid scraping the silicone rubber surrounding the accessory connector screw hole.
- Close the accessory connector cover and fasten the screw after removing the accessory.

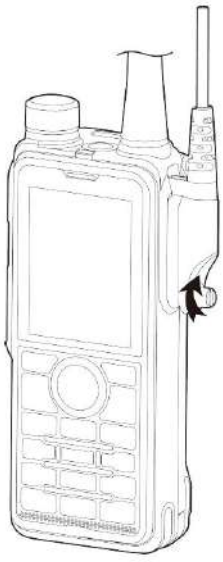
1. Loosen the screw on the accessory connector cover, and then remove the cover.



2. Insert the audio accessory plug into the accessory connector.



3. Tighten the screw on the audio accessory plug.



4. Basic Operations

4.1 Turning the Radio On or Off

- To turn the radio on, long press  or reattach the battery.
- To turn the radio off, long press .

4.2 Adjusting the Volume

Rotate the **Smart Knob** clockwise to increase the volume, or counter-clockwise to decrease the volume.

4.3 Locking or Unlocking the Keypad

When the keypad is not in use, it is recommended that you lock it to avoid unintended operations.

- Auto Lock

  a. Go to **Menu** > **Settings** > **Basic Settings** > **Keypad Lock**.

  b. Enable **AutoLock**, and then go to Timed to set the auto lock time.

  If you do not operate the radio or if the radio receives no call or message within the auto lock time, the keypad is locked automatically.

- Manual Lock or Unlock

  ➢ Press the preprogrammed **Keypad Lock** key.

  ➢ On the home screen, press the **OK/Menu** key, and then press .

- Keypad Lock Backup

  With this feature preprogrammed by your dealer, the radio automatically saves the last settings of keypad lock upon power-off.

NOTE

You can go to **Menu** > **Settings** > **Basic Settings** > **Keypad Lock** > **Optional Key** to set whether the following keys and knobs still work when the keypad is locked: **TK**, **SK1**, **SK2**, **PTT** key, **P1/Answer** key, **On-Off/P2/End** key, and **Smart Knob**.

4.4 Using the Keypad

You can use the keypad to enter contact aliases and IDs, or edit messages.

- To switch the input method between alphabetic mode and numeric mode, press .
- To enter special characters, press  in alphabetic mode.
- To enter a space, press  in alphabetic mode.

4.5 Switching the Operation Mode

The radio can operate in conventional mode, or digital trunking mode (preprogrammed by your dealer).

- Manual Switch
  - Go to **Menu** > **Mode**, and then select the mode.
  - Press the preprogrammed **Operation Mode Switch** key.
  - If the Zone/Subgroup Switch Mode feature is enabled, you can switch the operation mode by switching the contact through the menu or the **Smart Knob**.
- Auto Switch

  The Mode Automatic Switch feature allows the radio to automatically switch the operation mode, so as to ensure smooth communication in case of the radios in blind spot or the system failure.

  To enable this feature, go to **Menu** > **Mode** > **Auto Switch**, or press the preprogrammed **Mode Auto Switch** key.

4.5.1 Conventional Mode

In conventional mode, a zone is a group of channels within the same operational area. The radio receives and transmits data and voice on the selected channel.

Selecting a Zone

To select a zone, do either of the following:

- Go to **Menu** > **Zone**, select the zone, and then select **Set Default**.
- Press the preprogrammed **Zone Up** or **Zone Down** key.

Selecting a Channel

Before selecting a channel, make sure that the current zone contains the channel.

To select a channel, do one of the following:

- Press the **Smart Knob**, and then rotate the knob within 5s.
- Go to **Menu** > **Zone**, select the zone, and then select the channel.
- Press the preprogrammed **Channel Up** or **Channel Down** key.
- Press the preprogrammed **Preset Channel** key.

NOTE

If the Voice Notify feature is enabled, the radio automatically announces the current channel upon power-on and channel change.

4.5.2 Trunking Mode

In trunking mode, the radio automatically hunts for available base stations (BS). During hunting, the LCD displays "Hunting...". After registration, the radio can receive and transmit voice and data.

Selecting a Group or Private Contact

To select a group contact or a private contact, do one of the following:

- Press the **Smart Knob**, and then rotate the knob within 5s.
- On the home screen, press the **Back/Subgroup** key or go to **Menu** > **Subgroup**, select the subgroup, and then select the group or private contact.
- Press the preprogrammed **Group/Private Up** or **Group/Private Down** key.

Selecting a Subgroup

A subgroup consists of multiple groups or private contacts.

To select a subgroup, do either of the following:

- On the home screen, press the **Back/Subgroup** key or go to **Menu** > **Subgroup**, select the subgroup, and then select **Set Default**.
- Press the preprogrammed **Subgroup Up** or **Subgroup Down** key.

5. Status Indications

5.1 LCD Icons

Icon	Radio Status
	More bars indicate more remaining battery power.
	The battery power runs out. Recharge or replace the battery.
	The radio detects no signal.
	The number of bars indicates the signal strength.
	The radio operates in low power mode.
	The radio operates in high power mode.
	The keypad is locked.
	An accessory is connected.
	The GPS feature is enabled, and valid positioning data has been received.
	The GPS feature is enabled, but no valid positioning data has been received.
	The BT feature is enabled.
	A BT device is connected.
	The radio is in emergency mode.
	The radio stays on a site.
	The radio is roaming.
	The Scrambler or Encrypt feature is enabled.
	The Over the Air Encrypt feature is enabled.
	The Mode Automatic Switch feature is enabled.
	The radio is scanning or hunting.
	The radio stays on an active channel.
	The radio stays on Priority Channel 1.
	The radio stays on Priority Channel 2.
	The radio has switched to the mixed channel.
	The Non-Dedicated TSCC feature is enabled. (TSCC is short for Trunk Station Control Channel.)
	The Monitor feature is enabled.
	The speaker is unmuted.
	The radio operates in silent mode.
	The radio operates in profile 1.

Icon	Radio Status
	The radio operates in profile 2.
	The radio operates in profile 3.
	The radio operates in covert mode.
	The TF card is abnormal.
	There is/are new/unread message(s).
	The inbox is full.
	There is/are missed call(s).
	The Call Divert feature is enabled.

5.2 LED Indicator

LED Indicator	Radio Status
Flashes green	The radio is being turned on.
Flashes green slowly	The radio is standby in trunking mode.
Glows green	The radio is receiving.
Glows red	The radio is transmitting.
Flashes red	The radio is establishing a call in trunking mode. (This indication is applicable only to the calling radio.)
Flashes orange slowly	• Conventional mode: The radio is scanning or roaming. • Trunking mode: The radio is hunting.
Flashes orange rapidly	• Conventional mode: The radio is operating in emergency mode. • Trunking mode: The radio is establishing a Full Off Air Call Set-up (FOACSU) private call. (This indication is applicable only to the called radio.)
Glows orange	Call hang time: No voice is being transmitted or received during a call. Within such a period, you can press and hold the **PTT** key and speak.
Flashes blue every 3s	The BT feature is enabled, but no BT device is connected.
Flashes blue every 1.5s	A BT device is connected.
Flashes blue every 0.1s	The BT feature is being disabled.

6. Call Services

When you are speaking during a call, keep the microphone about 2.5 cm to 5 cm away from your mouth. This ensures optimal voice quality on the receiving radio.

NOTE

In trunking mode, if the radio is not registered or attached, or an empty group is selected, you cannot initiate a call.

6.1 Group Call

A group call is a call from an individual user in a group to all the other members in the group.

NOTE

In trunking mode, with the Auto Select Available Site feature preprogrammed by your dealer, the radio automatically registers with an unrestricted BS for successful call establishment when making a call to the restricted group.

6.1.1 Initiating a Group Call

Through Preset Contact

Press and then rotate the **Smart Knob** to select the digital channel or group contact, and then press and hold the **PTT** key.

Through Contact List

- Conventional Mode

  a. Press the preprogrammed **Contact List** or **Favorite Contact List** key, or go to **Menu** > **Contact** > **Contact/Favorite**.

  b. Select the group contact.

  c. Press and hold the **PTT** key.

- Trunking Mode

  - Press the **Back/Subgroup** key or the preprogrammed **Current Subgroup Contact** key, select the subgroup and group contact, and then press the **P1/Answer** key or the **PTT** key.
  - Press the preprogrammed **Contact List** key, or go to **Menu** > **Contact** > **Favorite**, select the group contact, and then press the **P1/Answer** key or the **PTT** key.

Through Manual Dialing

- Conventional Mode
  - With the group call dial permission preprogrammed by your dealer, on the home screen, enter the group ID, select **Group ID**, and then press and hold the **PTT** key.
  - With the Keypad Mode feature preprogrammed by your dealer, go to **Menu** > **Settings** > **Basic Settings** > **Keypad Mode**, and then select **On**. On the home screen, enter the group ID, select **Group ID**, and then press and hold the **PTT** key.
- Trunking Mode: On the home screen, enter the group ID, select **Group ID**, and then press the **P1/Answer** key, , or the **PTT** key.

NOTE

The group ID must comply with the dialing rules. For details, consult your dealer.

Through Call Logs

In trunking mode, you can initiate a group call through the call logs.

- Go to **Menu** > **Call Logs**, select the group call record, and then press the **P1/Answer** key or the **PTT** key.
- Press the preprogrammed **BackDial Call** or **ReDial Call** key, select the group call record, and then press the **P1/Answer** key or the **PTT** key.

Through One Touch Call/Menu

With the One Touch Call/Menu feature preprogrammed by your dealer, do as follows:

- In conventional mode, press the preprogrammed **One Touch Call/Menu** key, and then press and hold the **PTT** key.
- In trunking mode, press the preprogrammed **One Touch Call/Menu** key.

6.1.2 Receiving a Group Call

You can answer a group call without any operation.

6.1.3 Ending a Group Call

Conventional Mode

In conventional mode, a group call ends when the call hang time expires.

Trunking Mode

In trunking mode, a group call ends in any of the following cases:

- The call hang time expires.
- The calling party hangs up.
- The call duration exceeds the preset time.
- The BS signal is lost.
- A pre-emptive call or an emergency call occupies the channel.
- With the Clear Down feature enabled, the calling party changes the contact.

6.2 Private Call

A private call is a call from an individual user to another individual user.

6.2.1 Initiating a Private Call

Through Preset Contact

Press and then rotate the **Smart Knob** to select the digital channel or private contact, and then press and hold the **PTT** key.

Through Contact List

- Conventional Mode

  a. Press the preprogrammed **Contact List** or **Favorite Contact List** key, or go to **Menu** > **Contact**/**Favorite**.

  b. Select the private contact.

  c. Press and hold the **PTT** key.

- Trunking Mode

  - Press the **Back/Subgroup** key or the preprogrammed **Current Subgroup Contact** key, select the private contact, and then press the **P1/Answer** key or the **PTT** key.
  - Press the preprogrammed **Contact List** key, or go to **Menu** > **Contact** > **Favorite**/**Private**, select the private contact, and then press the **P1/Answer** key or the **PTT** key.

Through Manual Dialing

- Conventional Mode

  - With the private call dial permission preprogrammed by your dealer, on the home screen, enter the private ID, select **Private ID**, and then press and hold the **PTT** key.

- With the Keypad Mode feature preprogrammed by your dealer, go to **Menu** > **Settings** > **Basic Settings** > **Keypad Mode**, and then select **On**. On the home screen, enter the private ID, select **Private ID**, and then press and hold the **PTT** key.

- Trunking Mode: On the home screen, enter the private ID, and then press the **P1/Answer** key, , or the **PTT** key.

NOTE

The private ID must comply with the dialing rules. For details, consult your dealer.

Through Call Logs

- Conventional Mode: Go to **Menu** > **Call Logs**, select the private call record, and then press and hold the **PTT** key.
- Trunking Mode
  - Go to **Menu** > **Call Logs**, select the private call record, and then press the **P1/Answer** key or the **PTT** key.
  - Press the preprogrammed **BackDial Call** or **ReDial Call** key, select the private call record, and then press the **P1/Answer** key or the **PTT** key.

Through One Touch Call/Menu

With the One Touch Call/Menu feature preprogrammed by your dealer, do as follows:

- In conventional mode, press the preprogrammed **One Touch Call/Menu** key, and then press and hold the **PTT** key.
- In trunking mode, press the preprogrammed **One Touch Call/Menu** key.

6.2.2 Receiving a Private Call

Conventional Mode

You can answer a private call without any operation.

Trunking Mode

The operations vary with the setup mode of the private call.

- FOACSU

  When receiving a FOACSU private call, the radio rings and vibrates. To answer the call, press the **P1/Answer** key or the **PTT** key within the preset time.

- Off Air Call Set-Up (OACSU)

  The call is established automatically.

6.2.3 Ending a Private Call

Conventional Mode

In conventional mode, a private call ends when the call hang time expires.

Trunking Mode

In trunking mode, a private call ends in any of the following cases:

- The call hang time expires.
- The calling or called party hangs up.
- The call duration exceeds the preset time.
- The BS signal is lost.
- A pre-emptive call or an emergency call occupies the channel.
- With the Clear Down feature enabled, the calling or called party changes the contact.

6.3 All Call

- Conventional Mode

  In conventional mode, an all call is a call from an individual user to all the other users on the current digital channel.

- Trunking Mode

  In trunking mode, an all call is a call from an individual user to all the other users in the network.

  An all call has the following types:

  - Broadcast All Call: Only the calling party can transmit voice.
  - General All Call: Both the calling party and the called party can transmit voice.

To select the all call type, go to **Menu** > **Settings** > **Call Settings** > **All Call**, and then select **Broadcast Call** or **General Call**.

NOTE

The All Call feature is preprogrammed by your dealer.

6.3.1 Initiating an All Call

Through Preset Contact

In conventional mode, press and then rotate the **Smart Knob** to select the all call contact preset for the digital channel, and then press and hold the **PTT** key.

Through Contact List

In conventional mode, do as follows:

1. Press the preprogrammed **Contact List** or **Favorite Contact List** key, or go to **Menu** > **Contact** > **Contact**/**Favorite**.
2. Select the all call contact.
3. Press and hold the **PTT** key.

Through Manual Dialing

In trunking mode, on the home screen, enter the all call ID, and then press the **P1**/**Answer** key, , or the **PTT** key.

NOTE

The all call ID must comply with the dialing rules. For details, consult your dealer.

Through Call Logs

In trunking mode, press the preprogrammed **BackDial Call** or **ReDial Call** key, select the all call record, and then press the **P1**/**Answer** key or the **PTT** key.

Through One Touch Call/Menu

With the One Touch Call/Menu feature preprogrammed by your dealer, do as follows:

- In conventional mode, press the preprogrammed **One Touch Call/Menu** key, and then press and hold the **PTT** key.
- In trunking mode, press the preprogrammed **One Touch Call/Menu** key.

6.3.2 Receiving an All Call

You can answer an all call without any operation.

6.3.3 Ending an All Call

Conventional Mode

An all call ends when the calling party releases the **PTT** key.

Trunking Mode

In trunking mode, an all call ends in any of the following cases:

- The calling party releases the **PTT** key.
- The calling party hangs up.
- The call duration exceeds the preset time.
- The BS signal is lost.
- With the Clear Down feature enabled, the calling party changes the contact.

6.4 Broadcast Call (Trunking Only)

A broadcast call is a special group call, during which only the calling party can transmit voice.

NOTE

The Broadcast Call feature is preprogrammed by your dealer.

6.4.1 Initiating a Broadcast Call

Through Contact List

- Subgroup Contact List
  a. Press the **Back/Subgroup** key or the preprogrammed **Current Subgroup Contact** key.
  b. Select the subgroup and group contact.
  c. Set the call type to **Broadcast Call**.
  d. Press the **P1/Answer** key or the **PTT** key.
- Favorite Contact List
  a. Press the preprogrammed **Favorite Contact List** key, or go to **Menu** > **Contact** > **Favorite**.
  b. Select the group contact.

c. Set the call type to **Broadcast Call**.

d. Press the **P1/Answer** key or the **PTT** key.

Through Manual Dialing

On the home screen, enter the broadcast call ID, and then press the **P1/Answer** key, , or the **PTT** key.

NOTE

The broadcast call ID must comply with the dialing rules. For details, consult your dealer.

Through Call Logs

- Go to **Menu** > **Call Logs**, select the group call record, set the call type to **Broadcast Call**, and then press the **P1/Answer** key or the **PTT** key.
- Press the preprogrammed **BackDial Call** or **ReDial Call** key, select the group call record, set the call type to **Broadcast Call**, and then press the **P1/Answer** key or the **PTT** key.

Through One Touch Call/Menu

With the One Touch Call/Menu feature preprogrammed by your dealer, press the preprogrammed **One Touch Call/Menu** key.

6.4.2 Receiving a Broadcast Call

You can answer a broadcast call without any operation.

6.4.3 Ending a Broadcast Call

A broadcast call ends in any of the following cases:

- The call duration exceeds the preset time.
- The calling party hangs up.
- The BS signal is lost.
- A pre-emptive call or an emergency call occupies the channel.
- With the Clear Down feature enabled, the calling party changes the contact.

6.5 Include Call (Trunking Only)

An include call is a special group call during which another group is invited during the call hang time. An include call has the same Talk Priority and Clear Down feature as a group call.

The Include Call feature is preprogrammed by your dealer.

For operations of initiating, receiving, or ending an include call, see 6.1 Group Call.

6.6 Phone Call

A phone call is a call between a radio and a phone. After a repeater accesses the PSTN/PABX system through a PSTN/PABX gateway, the radio can communicate with the phone through the repeater.

6.6.1 Initiating a Phone Call

Through Contact List

- Conventional Mode

  a. Press the preprogrammed **Contact List** or **Favorite Contact List** key, or go to **Menu** > **Contact/Favorite**.

  b. Select the phone contact.

  c. Press and hold the **PTT** key.

- Trunking Mode

  a. Press the preprogrammed **Favorite Contact List** key, or go to **Menu** > **Favorite/Private**.

  b. Select the PSTN/PABX contact.

  c. Press the **P1/Answer** key or the **PTT** key.

Through Manual Dialing

- Conventional Mode: With the phone call dial permission preprogrammed by your dealer, on the home screen, enter the phone number, select **DTMF Dial**, and then press and hold the **PTT** key.
- Trunking Mode: On the home screen, enter the phone number, select **PSTN/PABX**, and then press the **P1/Answer** key, , or the **PTT** key to initiate a phone call.

> **NOTE**
> The phone number must comply with the dialing rules. For details, consult your dealer.

Through Call Logs

In trunking mode, you can initiate a phone call through the call logs.

- Go to **Menu** > **Call Logs**, select the PSTN/PABX call record, and then press the **P1/Answer** key or the **PTT** key.
- Press the preprogrammed **BackDial Call** or **ReDial Call** key, select the PSTN/PABX call record, and then press the **P1/Answer** key or the **PTT** key.

Through One Touch Call/Menu

With the One Touch Call/Menu feature preprogrammed by your dealer, press the preprogrammed **One Touch Call/Menu** key.

6.6.2 Receiving a Phone Call

Conventional Mode

When receiving a phone call, press the **P1/Answer** key (with the One-Key Connect feature enabled) or enter the connect code to join the phone system. Then you can answer the phone call.

Trunking Mode

When receiving a phone call, press the **P1/Answer** key or the **PTT** key to establish the call.

6.6.3 Ending a Phone Call

Conventional Mode

In conventional mode, a phone call ends in either of the following cases:

- The calling party hangs up.
- The called party presses  (with the One-Key Disconnect feature enabled) or enters the disconnect code.

Trunking Mode

In trunking mode, a phone call ends in any of the following cases:

- The call duration exceeds the preset time.
- The calling party hangs up.
- The BS signal is lost.
- A pre-emptive call or an emergency call occupies the channel.
- With the Clear Down feature enabled, the calling party changes the contact.

6.7 Call on Analog Channel

In conventional mode, you can initiate or receive a call on an analog channel with or without signaling.

6.7.1 Call Without Signaling

On an analog channel without signaling, you can initiate a call to all the other users on the channel.

On the home screen, press and then rotate the **Smart Knob** to select the channel, and then press and hold the **PTT** key.

6.7.2 Call with Signaling

On an analog channel with signaling, you can initiate a call to a specific contact on the channel. Do as follows:

1. Go to **Menu** > **Contact**, or press the preprogrammed **Contact List** key.
2. Select the contact.
3. Press and hold the **PTT** key or the preprogrammed **One Touch Call/Menu** key.

7. Message Services

The radio can send and receive short messages, which are classified into the following types:

- Text message: a message containing text or numbers
- Quick text message: a frequently used text message that can be created, edited, or deleted through the menu
- Status message: a predefined code that transfers the message content

7.1 Sending a Message

7.1.1 Through Message

1. Go to **Menu** > **Message** > **Msg New** > **New Msg**.
2. Select the contact in either of the following ways:
   - In the recipient text box, enter the contact ID, and then press # to switch the ID type.
   - Press the **OK/Menu** key to enter the contact list, and then select the contact.
3. Do either of the following:
   - To send a text message, enter the message content in the message text box.
   - To send a quick text message or status message (trunking only), select **Insert** to add the message.
4. Select **Send**.

7.1.2 Through Contact

- Conventional Mode
  a. Go to **Menu** > **Contact** > **Contact/Favorite**.
  b. Select the contact.
  c. Press the **OK/Menu** key to select **New Msg**.
  d. Enter the message content.
  e. Select **Send**.
- Trunking Mode
  a. Go to **Menu** > **Contact** > **Favorite/Private**.
  b. Select the contact.
  c. Select **New Msg**.

d. Enter the message content.

e. Select **Send**.

7.2 Replying to a Message

To reply to a message, do as follows:

1. Go to **Menu** > **Message** > **Msg**.
2. Select a conversation.
3. Select **Reply**.
4. Enter the message content in the message text box.

   Alternatively, select **Insert** to add a quick text message or status message (trunking only).
5. Select **Send**.

7.3 Editing a Message

To edit a message, do as follows:

1. Go to **Menu** > **Message** > **Msg**.
2. Select a dialog box.
3. Press the **Up** key, and then press the **OK/Menu** key.
4. Do one of the following:
   - Select **Forward** to forward the message.
   - Select **Delete** to delete the message.
   - Select **Delete All** to delete all messages with the contact.

8. Supplementary Features

8.1 Settings

Go to **Menu** > **Settings**, and then set radio parameters including **Basic Settings**, **Call Settings**, and **Security Settings**.

8.1.1 Basic Settings

Language

Go to **Basic Settings** > **Language**, and then select the display language.

Display

Go to **Basic Settings** > **Display**, and then set any of the following:

- Backlight

  The backlight is designed to illuminate the display and keypad.

  Go to **Backlight**, and then select **Off**, **Light**, or **Timed**.

- Night Mode

  The display modes include day mode and night mode. The screen brightness and user interface vary with the display mode.

  Go to **Night Mode** to switch between the two modes.

- Brightness

  Go to **Brightness**, and then select the screen brightness level.

  Lower level represents brighter screen.

Keypad Lock

For details, see 4.3 Locking or Unlocking the Keypad.

Date and Time

The radio displays the local time by default. If no time data is received, the radio displays "--:--".

Go to **Basic Settings** > **Date & Time**, and then do any of the following:

- With the Time Display feature preprogrammed by your dealer, select **Time Display** to enable or disable the display of time on the home screen, or in the call logs and message interface.

- With the Time View feature preprogrammed by your dealer, select **Time View** to view the current **Time**, **Date**, and **Week**.
- Select **Time Set**, and then modify the **Hour**/**Minute**/**Second**/**Year**/**Month**/**Day** to be displayed.
- Select **Time Format**, and then set the format to **24 Hour** or **12 Hour**.
- Select **Time Zone**, and then set the time zone.

Keypad Mode

With the Keypad Mode feature preprogrammed by your dealer, go to **Basic Settings** > **Keypad Mode**, and then do any of the following:

- Select **On** to enable the manual dialing on the home screen.
- Select **Off** to disable the manual dialing on the home screen.
- Select **One Touch Call/Menu** to trigger the One Touch Call/Menu feature by the numeric keypad.

Microphone and Speaker

The MIC & SPK feature allows you to select the microphone and speaker used by the radio for transmitting and receiving voice. With the audio accessory connected, you can switch the audio options. For details, see the following table.

Option	Description	Operation
Follow PTT	When you transmit voice through the **PTT** key of the radio, the radio uses the internal microphone. When you transmit voice through the audio accessory, the radio uses the external microphone.	● Through the menu 1. Go to **Basic Settings** > **MIC & SPK**. 2. Select **MIC Selection** or **SPK Selection**. 3. Select the audio option. ● Press the preprogrammed **Mic Set Switch** or **SPK Set Switch** key to switch the audio option.
Only Internal	The radio uses only the internal microphone and speaker.	
Only External	The radio uses only the microphone and speaker of the audio accessory, such as earpieces and remote speaker microphone.	
External First	When audio accessories are connected, the radio uses the external microphone and speaker. Otherwise, the radio uses the internal microphone and speaker.	

8.1.2 Call Settings

Power Level

You can set the TX power level to high or low.

Go to **Call Settings** > **Power Level**, and then select **High Power** or **Low Power**.

Talker Alias

With the Talker Alias feature preprogrammed by your dealer, you can do either of the following:

- Sending the Caller Alias

  Go to **Call Settings** > **Talking Alias**, and then enable or disable **Send Alias**.

  With the Send Alias feature enabled, you can send the radio alias when initiating a call. The called party can view the alias on the display and identify the calling party.

- Adding a Contact Automatically

  Go to **Call Settings** > **Talking Alias**, and then enable or disable **Auto Add Contact**.

  When the radio receives a call from unknown calling party with the Send Alias feature enabled, the radio will automatically save this number to the **Contact** list.

  In conventional mode, this feature is preprogrammed by your dealer. In trunking mode, you can select **Auto Add Contact**, and then enable or disable the feature.

Talk Around (Conventional Only)

The Talk Around feature allows you to continue communication in direct mode when the repeater malfunctions or the radio is out of the coverage of the repeater.

Go to **Call Settings** > **Talk Around**, and then enable or disable the feature.

Squelch Level (Conventional Only)

The squelch level refers to the squelch threshold required for the speaker of the radio to be turned on. The higher squelch level requires a stronger signal.

- Go to **Call Settings** > **Squelch**, and then select **Open**, **Normal**, or **Tight**.
- Press the preprogrammed **Adjust Squelch Level** key to adjust the level.

Compandor (Conventional Only)

The Compandor feature allows the radio to compress the voice signal when transmitting and decompress the audio when receiving to improve the audio quality.

Go to **Call Settings** > **Compandor**, and then enable or disable the feature.

ESN Check in Idle (Trunking Only)

The ESN Check in Idle feature allows the radio to respond to the ESN check from the trunking system when the radio is registering or after the radio has registered.

Go to **Call Settings** > **ESN Check In Idle**, and then do either of the following:

- Enable the feature.

  The radio responds to the ESN check both during registration and after registration.

- Disable the feature.

  The radio responds only to the ESN check during registration.

Call Priority (Trunking Only)

The Call Priority feature allows you to set the priority of all voice services except emergency calls. The priority levels include **Low**, **Medium**, **High**, and **Preemption** (with the Preemptive Call feature preprogrammed by your dealer).

When all channels are occupied, the call requests are put in a queue according to their priorities. When a channel is released, the call with a higher priority will be connected prior to the call with a lower priority.

During group call queuing, only the calling party receives the queuing prompt. During private call queuing, both the calling party and the called party receive queuing prompt. When the queue is full, the higher-priority calls can jump the queue, and the lower-priority calls will be extruded out (the system will prompt that it is busy) accordingly.

Go to **Call Settings** > **Priority**, and then select the priority level.

Any Call (Trunking Only)

The Any Call feature allows the radio to initiate a call to a contact whose ID is not in the contact list.

- Go to **Call Settings** > **Any Call**, and then enable or disable **Private ID**. With **Private ID** enabled, you can call any private contacts. With **Private ID** disabled, you can call only the private contacts in the contact list or emergency contact.
- Go to **Call Settings** > **Any Call**, and then enable or disable **Group ID**. With **Group ID** enabled, you can call any group contacts except that of the background group. With **Group ID** disabled, you can call only the group contacts in the contact list, dynamic group, or emergency contact.
- Go to **Call Settings** > **Any Call**, and then enable or disable **Phone**. With **Phone** enabled, you can call any PABX/PSTN contacts. With **Phone** disabled, you can call only the PABX/PSTN contacts in the contact list or emergency contact.

Call Divert (Trunking Only)

When the radio malfunctions or powers off, the Call Divert feature allows the radio to divert calls to a private or PABX/PSTN contact to ensure communications.

1. Go to **Call Settings** > **Call Divert** > **On/Off**.
2. Enter the divert ID.

8.1.3 Security

Power-on Password

This feature allows you to set the power-on password of the radio. If you enter the wrong password for the preset consecutive times, the radio cannot be used normally. Contact your dealer to reset the password.

1. Go to **Security Settings** > **Power on Password** > **On/Off**.
2. Enter the password twice.
3. Select **Confirm**.

Encrypt

The Encrypt feature provides end-to-end encryption for voice and data to protect your voice and data against eavesdropping.

Enabling the Encrypt Feature

If the radio is preprogrammed with this feature by your dealer, you can enable it in either of the following ways:

- Go to **Security Settings** > **Encrypt** > **On/Off**, and then enable the feature.
- Press the preprogrammed **Encrypt** key.

NOTE

In conventional mode, the Encrypt feature is enabled for the current channel. When switching to the channel, the radio automatically enables encryption.

Setting the Encrypt Feature

In conventional mode, you can add or select the encrypt key.

1. Add an Encrypt Key

   Go to **Security Settings** > **Encrypt** > **New Key**, specify the key-related parameters, and then press the **OK/Menu** key.

   The following table describes the key-related parameters.

Parameter	Description
Key ID	The ID for each key must be unique. The value ranges from 1 to 255.
Key Alias	The key alias is composed of letters, digits, and special characters.
Key Length	The key length can be 10 characters, 32 characters, or 64 characters.
Key Value	The key value is composed of digits and letters and within the key length.

2. Select the Encrypt Key

   Go to **Security Settings** > **Encrypt** > **Key List**, and then select the encrypt key.

In trunking mode, you can select the encryption type. Go to **Security** > **Encrypt** > **Encrypt Service**, and then set the encryption type to **Only Voice**, **Only Data**, or **Voice and Data**.

Man Down

The Man Down feature allows the radio to automatically enter the emergency mode in either of the following scenarios:

- The radio is inclined by an angle greater than the preset angle.
- The radio keeps motionless (including moving at a constant speed) longer than the preset time.

You can place the radio upright or move it to exit the emergency mode.

To enable this feature, do either of the following:

- Go to **Security Settings** > **Man Down**.
- Press the preprogrammed **Man Down** key.

Lone Worker

The Lone Worker feature allows the radio to automatically send an emergency alarm to your companion or the control center in either of the following scenarios:

- You do not operate the radio within the preset time.
- The radio does not transmit voice within the preset time.

You can press the keys, rotate the knob, or transmit voice to exit the emergency mode.

To enable this feature, do either of the following:

- Go to **Security Settings** > **Lone Worker**.
- Press the preprogrammed **Lone Worker** key.

TF Card Recorder

The Recorder feature allows you to record live sounds and calls to the TF card and manage the recording files stored in the TF card.

NOTE

The Recorder feature is preprogrammed by your dealer.

- Live recording

The Live Record feature allows you to record the sound in the current environment. The maximum recording time is 495 minutes.

- Enabling the Live Record feature

  Go to **Menu** > **TF Application** > **Recorder** > **Live Record**, and then press the **OK/Menu** key to enable the feature.

- Stopping recording

  - Press the **Back/Subgroup** key.
  - The radio automatically exits the recording when other services with higher priority occurs or the storage of the TF card is insufficient.

- Call recording

  The Call Record feature allows you to record the current call or all calls.

  - Enabling the Call Record feature

    - Press the preprogrammed **Call Record** key.
    - Go to **Menu** > **TF Application** > **Recorder** > **Call Record**, and then press the **OK/Menu** key to enable the feature.

  - Stopping the recording

    - Press the **Back/Subgroup** key.
    - Go to **Menu** > **TF Application** > **Recorder** > **Call Record**, and then press the **OK/Menu** key to disable the feature.
    - The radio automatically exits the recording when other services with higher priority occurs or the storage of the TF card is insufficient.

- Recording file management

  The File List feature allows you to manage recording files stored in **Record File List**. The file and file folder are described in the following table.

Item	Description	Naming Convention

Item	Description	Naming Convention
Recording file	The maximum duration of each recording file is five minutes. If the duration exceeds the limit, the recording file is divided into several files.	The recording file is named as "xyyy_mmddhhmmss.zz". ● "x" can be "R" or "C", representing live recording and call recording respectively. ● "yyy" is the number of a call. ● "mmddhhmmss" represents the recording time (month/day/hour/minute/second). ●In trunking mode, the time is the real time provided by the clock. ●In conventional mode, the time is "0000000000". ●"zz" represents the serial number of the files separated from a file.
Recording file folder	Each folder can store up to 200 recording files.	The folder is named as "Record_xxxx xxxx". The folder number "xxxx" ranges from 0001 to 9999.

To manage the recording files, do one of the following:

- To play back a recording file, select **Play**, and then press the **OK/Menu** key.
- To view the details of a recording file, select **View**, and then press the **OK/Menu** key.
- To delete a recording file, select **Delete**, and then press the **OK/Menu** key.
- To edit the name of a recording file, select **Edit**, enter the new name, and then press the **OK/Menu** key.

NOTE

- With the Auto Cover feature preprogrammed by your dealer, the radio automatically deletes the earliest recording file when the storage of the TF card is full.
- With the Compression feature preprogrammed by your dealer, the radio compresses the recording file without affecting the audio quality to save the storage of the TF card.

8.1.4 Checking the Product Information

- Go to **Menu** > **Settings** > **Device Information**, and then do any of the following:
  - Select **Device Status**, and then check the information of battery and TF card.
  - Select **Radio Information**, and then check the radio ID, serial number, model name, frequency range, and so on.

- With the QR Code feature preprogrammed by your dealer, select **ScanCode Download**, and then scan the QR code to quickly obtain the radio information.

8.2 Contacts

8.2.1 Creating a Contact

Through Contact Menu

- In conventional mode, go to **Menu** > **Contact** > **Contact** > **New Contact**, enter the alias and private ID/phone number, and then press the **OK/Menu** key.
- In trunking mode, go to **Menu** > **Contact** > **Private** > **New Contact**, enter the alias and private/PSTN/PABX ID, and then press the **OK/Menu** key.

NOTE

The alias and ID/number of each contact must be unique.

Through Call Logs

You can save a private ID to the contact list from the call logs. Do as follows:

1. Go to **Menu** > **Call Logs**.
2. Select the call log.
3. Select **New Contact** or **Add To Contact**.
4. Press the **OK/Menu** key.

8.2.2 Editing a Favorite Contact

Go to **Menu** > **Contact** > **Favorite**, or press the preprogrammed **Favorite Contact List** key to enter the favorite contact list, and then do any of the following:

- Select the favorite contact to view details or delete it.
- Select **Edit** to add or delete favorite contacts.
- In trunking mode, go to **Edit** > **Add Folder**, and then do any of the following:
  - Select **Add Contact** to add favorite contacts.
  - Select **Add File** to add subfolders.
  - Select **Delete Folder** to delete the folder.
  - Select **Delete All Contact** to delete all the contacts in the current folder.

- Select **Delete All File** to delete all subfolders.

8.2.3 Priority Group (Trunking Only)

With the Priority Group feature preprogrammed by your dealer, you can set the priority level of groups. When receiving a group service request in a voice call, the radio preferentially participates in the service of the group with a higher priority.

To enable this feature, go to **Menu** > **Settings** > **Group Settings** > **Priority Group** > **On/Off**.

You can set the priority of the group to level 1, level 2, or level 3. Larger number represents higher priority.

8.3 Profiles

The Profiles feature allows you to set the audio, alert tone, and vibration of the radio to suit your preference and work environments. The profiles include **General**, **Meeting**, **Outdoor**, **Covert Mode**, and custom mode.

- General: This profile is applicable to the low-noise environment, such as a quiet street.
- Meeting: This profile is applicable to the indoor environment that is relatively quiet.
- Outdoor: This profile is applicable to the high-noise environment, such as a highway.
- Covert Mode (preprogrammed by your dealer): This profile is applicable to special situations. The radio locks the screen and disables all alert tones and LED indications. The radio uses only an audio accessory to output voice.
- Custom: This profile is applicable to other situations.

8.3.1 Switching the Profile

- Go to **Menu** > **Profiles**, and then select the profile.
- Press the preprogrammed **Profiles Switch** key.

8.3.2 Setting the Alert Tone

1. Go to **Menu** > **Profiles**, and then select the profile.

   The corresponding **Setting** tab is displayed.

2. Go to **Setting** > **Tone**, and then do the following:

If You Want To…	Then…
Set all alert tones	• Select **Radio Tone** to enable or disable all alert tones. • Select **Radio Tone Volume**, and then select the volume level.

If You Want To…	Then…
	Higher level represents higher volume.
Set a single alert tone	1. Select **Single Tone**. 2. Select a kind of alert tone, and then do as follows: ➢ Select **On/Off** to enable or disable the alert tone. ➢ Select **Tone Volume**, and then select the volume level. Higher level represents higher volume.

8.3.3 Mic AGC

The Mic AGC feature allows the calling radio to control the voice output gain within a proper range during transmission, so as to provide improved voice with proper volume for the called radio. This feature ensures stable voice even in noisy environment.

With the Mic AGC feature preprogrammed by your dealer, go to **Menu** > **Profiles** > **Setting** > **Audio Set** > **Digital Mic AGC**/**Analog Mic AGC**, and then enable the feature.

8.3.4 Audio Mode

The Audio Mode feature allows the radio to adjust the strength of the audio signal upon receiving voice. In this way, this feature optimizes the quality of the received voice, and meets user demands in different scenarios.

Set the low/mid/high frequency gain as follows:

1. Go to **Menu** > **Profiles** > **Setting** > **Audio Set** > **Audio Mode**.
2. Select a kind of audio mode, or **User Defined**.
3. If you select **User Defined**, select **Low Freq. Gain**, **Mid Freq. Gain**, and **High Freq. Gain**, and then select a value.

Noise Cancellation

The Noise Cancellation feature allows the radio to automatically eliminate ambient noise when receiving or transmitting voice. This feature enhances the voice clarity, while also decreases the volume.

With this feature preprogrammed by your dealer, to enable the feature, do either of the following:

- Go to **Menu** > **Profiles** > **Setting** > **Audio Set** > **Noise Cancellation**.
- Press the preprogrammed **Noise Cancellation** key.

8.4 Scan

8.4.1 Conventional Mode

In conventional mode, the Scan feature allows you to listen to activities on other channels, keeping track of your team members.

Enabling the Scan Feature

- Go to **Menu** > **Scan** > **Scan On/Off**.
- Press the preprogrammed **Scan** key.

With this feature enabled, the radio scans according to the scan list preset for the current channel. The LCD displays , and the LED indicator flashes orange slowly. When detecting activities on a channel, the radio stays on the channel. The LED indicator glows green. If the radio stays on a non-priority channel, the LCD displays . If the radio stays on Priority Channel 1 or Priority Channel 2, the LCD displays or .

NOTE

If you do not want to hear activities on the channel, press the preprogrammed **Nuisance Temporary Delete** key to remove the channel from the scan list temporarily.

Setting the Scan List

The scan list is a list of up to 32 channels that the radio scans, which includes analog channels and digital channels. Go to **Menu** > **Scan**, select the scan list, and then do any of the following:

- Select **Add CH** to add a new channel to the list.
- Select **Set Default** to set the list as the default scan list for the current channel.
- Select **View Record** to view or manage all channels on the current list.

If you do not need to scan, you can delete all channels other than the current channel. If you want to preferentially hear the activities on a channel, you can select the channel, and then select **Set PrioCH-1** or **Set PrioCH-2**.

8.4.2 Trunking Mode

Pre-registration Hunt

Before registering, the radio hunts through the control channels for available BSs. Two hunting plans are adoptable: Fixed Trunking Station Control Channel (Fixed TSCC) and Flexible Trunking Station Control Channel (Flexible TSCC). When the radio has unified frequency plans, it can use the Fixed TSCC. When the radio does not have unified frequency plans, it can use the Flexible TSCC.

Go to **Menu** > **Scan** > **TSCC Hunt**, and then select the hunt mode.

Post-registration Hunt

After successful registration, you can press the preprogrammed **Manual Current Hunt** key to hunt again. To ensure seamless communications, you can enable the following hunt modes:

Hunt Mode	Description	Operation
Background Hunt	This feature allows an idle radio to keep detecting the signal strength of the BS with which it registers. If the signal strength goes below the threshold level preset by the dealer, the radio will automatically hunt for an adjacent BS with stronger signal strength and register with it.	● Go to **Menu** > **Scan**, and then enable **Background Hunt**, **Home Sta. Hunt**, or **Handover**. ● Press the preprogrammed **Background Hunt**, **HomeStation Hunt**, or **Multi-site Handover** key.
Home Station Hunt	In a BS overlapping area, this feature allows the radio operating on another channel to switch back to the home station channel when its signal strength reaches the preset threshold. It is recommended that you set your frequently used channel as the home station channel.	
Handover	The signal strength received from a BS may fluctuate due to position change and affect the communication quality of the radio. On such occasions, this feature allows the radio to automatically register with the BS with stronger signal.	
Vote Now	This feature allows the radio in idle to check the signal strength of the BS assigned in a broadcast call, and decide whether to register with the BS.	This feature is enabled by default.

8.5 Positioning

The Positioning feature allows you to collect the position information of the radio through satellites.

NOTE

This feature applies only to radios with GPS, COMPASS, or GLONASS.

8.5.1 Enabling the Positioning Feature

- In conventional mode, go to **Menu** > **Position** > **GPS On/Off**, **COMPASS On/Off**, or **GLONASS On/Off**, and then enable the positioning system.
- In trunking mode, this feature is preprogrammed by your dealer.

8.5.2 Selecting the Positioning System

The radio supports the following positioning systems:

- GPS
- COMPASS/GLONASS
- COMPASS/GLONASS+GPS

To select the positioning system, go to **Menu** > **Position** > **Position Sys**.

NOTE

This feature applies only to radios with COMPASS or GLONASS.

8.5.3 Viewing the Position

- Local Position

  Go to the **Menu** > **Position** > **Position**, and then view the position information of your radio (including longitude, latitude, time, date, and the number of satellites).

- Contact Position

  » In conventional mode, go to **Menu** > **Position** > **Query Location** > **Contact List** or **Manual Dail**, and then view the location information of a nearby private contact (including alias, direction, and distance).

  » In trunking mode, go to **Menu** > **Position** > **Query Neighbors**, and then view the location information of a nearby private or group contact (including alias, direction, and distance). The feature is preprogrammed by your dealer.

8.5.4 Sending a Position Message

In conventional mode, you can send a position message to a contact. Do as follows:

1. Go to **Menu** > **Position > Position** > **GPS Msg**.
2. Press the **OK/Menu** key to enter the contact list, and then select the contact.
3. Press the **OK/Menu** key to send the message to the contact.

In trunking mode, you can send a position message to the dispatch station (The feature is preprogrammed by your dealer). Do as follows:

1. Go to **Menu** > **Position** > **Msg with Position**.
2. Press the **OK/Menu** key to edit the message.
3. Press the **OK/Menu** key to send the message.

8.5.5 Call Location

During a call, if the transmitting radio is enabled with the Call Location feature, the receiving radio displays the location information of the transmitting radio when receiving valid positioning data.

Voice w/Location

The Voice w/Location feature allows the radio to report its location information when initiating a private call, a group call, or an emergency call.

Go to **Menu** > **Position** > **Call Location** > **Voice w/Location**, and then enable the feature.

Display Call Location

If the transmitting radio is enabled with the Voice w/Location feature and the receiving radio is enabled with the Display Call Location feature, the receiving radio displays the location information of the transmitting radio during a call.

1. Go to **Menu** > **Position** > **Call Location** > **Display Call Location**, and then enable the feature.
2. Go to **Menu** > **Position** > **Call Location** > **Display Type**, and then select **16 Azimuth & Dist.**, **Accur Azimuth & Dist.**, or **Talker Location**.

GPS Report

The GPS Report feature allows the radio to report its location information to the control center or trunking system.

- Conventional Mode

  In conventional mode, you can report the GPS data to the control center by pressing the preprogrammed **GPS Report** key. Alternatively, you can consult your dealer to configure the GPS trigger, allowing the radio to automatically report the GPS data upon power-on/off, or according to the preset time or distance interval.

- Trunking Mode

  In trunking mode, with the GPS Active Report feature preprogrammed by your dealer, the radio automatically reports the GPS data when reaching the preset time or distance.

  If the radio is enabled with the GPS Report in Voice feature, you can actively report GPS data during a call.

Quick GPS

Based on GPS standard time, the Quick GPS feature divides the GPS upload time into several equal-length time slices. These time slices are allocated to radios of different configurations for periodic upload and single upload. Each radio uses the same GPS upload time slice to upload GPS data, improving upload efficiency and reliability.

If your dealer configures the feature to a digital channel, the channel only reports the quick GPS data. The services of voice, short message, RRS, and conventional GPS report are not supported.

8.6 BT

CAUTION

- To derive optimal communication quality, we recommend that you use the BT devices approved by the Company.
- If BT earpieces of other companies are used, you must use them with the wireless ring PTT of the Company. Otherwise, transmission is unavailable through the earpieces.

BT is a wireless technology that supports short-distance communications and data exchange between devices. You can connect the radio to a BT device through the built-in BT module.

To enable the BT feature, press the preprogrammed **BT** key, or go to **Menu** > **BT**. After this feature is enabled, the LED indicator flashes blue every 3 seconds.

NOTE

The BT feature applies only to radios with the BT module.

8.6.1 Connecting a BT Device

1. Turn on the BT device and enter the pairing status. Refer to the accessory manual for details.
2. Search and connect to the BT device.
   - Go to **Menu** > **BT** > **Manual Search** > **Match PTT**/**Match Earphone**, enter the MAC address, and then press the **OK/Menu** key.
   - Go to **Menu** > **BT** > **Auto Search**, and then select the BT device from the detected device list.

After the radio is connected to the BT device, the LED indicator of the radio flashes blue every 1.5 seconds.

8.6.2 BT Audio Switch

With the BT device connected, you can press the preprogrammed **BT Audio Switch** key to switch the audio output device between BT earpiece and the radio.

8.6.3 Setting the BT

- Changing BT Name

  Go to **Menu** > **BT** > **My Device** > **BT Devices Name**, and then enter the new name.

- Setting Visibility

  Go to **Menu** > **BT** > **My Device** > **Always Detected**, and then enable the feature.

  Other BT devices can detect the radio.

8.6.4 BT Location

The BT Location feature is an indoor positioning technology. When the radio detects the BT beacon message, the radio will send the BT information to the dispatcher.

With the BT Location feature preprogrammed by the dealer, go to **Menu** > **BT** > **BT Location** to enable the feature.

8.7 One Touch Call/Menu

The One Touch Call/Menu feature allows you to quickly initiate a preset service by pressing the preprogrammed **One Touch Call/Menu** key.

The following table shows the services that can be implemented by this feature and the corresponding operations.

<table>
<tr><th>Mode</th><th>Description</th><th>Operation</th></tr>
<tr><td>Conventional Mode</td><td>On an analog channel, you can initiate a call to a 2-tone contact.
On a digital channel, you can do any of the following:
Initiate a group call, a private call, or an all call.
Send a quick text message or position message to a private or group contact.
Initiate an alert call, radio check, remote monitor, radio enable, or radio disable service.
Switch to a function menu or realize a function.</td><td rowspan="2">Use the numeric keypad to initiate the service.
Go to Menu > Settings > Basic Settings > Keypad Mode, and then select One Touch Call/Menu.
On the home screen, press the numeric key to initiate the service.
Press the preprogrammed One Touch Call/Menu key to initiate the service.
NOTE
When initiating a call on a digital channel, you need to press and hold the PTT key after pressing the One Touch Call/Menu key.</td></tr>
<tr><td>Trunking Mode</td><td>Initiate a group call, a private call, an all call, a broadcast call, or an emergency call.
Send a quick text, a status message, or a user-defined message.
Switch to a function menu or realize a function.</td></tr>
</table>

8.8 Quick Dial

On the home screen, the Quick Dial feature allows you to enable or disable a feature or switch to a function menu by manual dialing. This feature is available only when the keypad input is configured.

In conventional mode and trunking mode, on the home screen, press a numeric key (0–9) and then the **OK/Menu** key to adjust the power level, set the backlight, switch the operation mode, check the radio information, or enable/disable the alert tone.

In trunking mode, on the home screen, you can also press a numeric key (0–9) and then the **OK/Menu** key to view control channels. Additionally, you can enter several numbers, and then press the **OK/Menu** key to switch the BS, control channel, system code, or current talk group. For details, consult your dealer.

NOTE

In conventional mode, with the keypad input and Quick Dial feature enabled, you can do either of the following:

- On the home screen, enter "0", and the quick dial text box appears.
- Press # to switch between the contact text box and the quick dial text box.

  On an analog channel, the radio displays only the quick dial text box.

8.9 Roam

8.9.1 Conventional Mode

In conventional mode, the Roam feature allows you to enjoy seamless communication across sites.

With the Roam feature preprogrammed by your dealer, you can do either of the following:

Enabling the Roam Feature

Press the preprogrammed **Roam** key, or go to **Menu** > **Roam** > **On/Off**.

Setting the Roam List

A roam list contains a group of channels under monitoring. Each list contains up to 32 channels.

Go to **Menu** > **Roam** > **Roam List**, select a roam list, and then add or delete channels in the list.

8.9.2 Trunking Mode

The Roam feature allows the radio to be registered with a non-home BS or network when it is on move. When the radio detects signal, it initiates the registration.

This feature is preprogrammed by your dealer.

8.10 DGNA

The Dynamic Group Number Assignment (DGNA) feature allows you to initiate a call to or receive a call from a dynamic group temporarily created by a dispatch station. The created dynamic group is saved in a dynamic group menu on the radio.

The radio displays "DGNA Successful" when the dynamic group is added and "DGNA Deleted" when the dynamic group is deleted. You cannot use the dynamic group after it is deleted.

For operations of initiating, receiving, or ending a DGNA call, see 6.1 Group Call.

8.11 Priority Interrupt

The Priority Interrupt feature allows you to interrupt the ongoing activities (such as a call, a call hang status or remote monitor) on the current channel to release the channel, so as to initiate a new call or a new data service. This feature includes manual priority interrupt and auto priority interrupt.

8.11.1 Manual Priority Interrupt

Press the preprogrammed **Priority Interrupt** key to interrupt the ongoing activities.

8.11.2 Auto Priority Interrupt

Auto Priority Interrupt includes Emergency Priority Interrupt, Call Back Priority Interrupt, Message Priority Interrupt, Radio Disable Priority Interrupt, and All Call Priority Interrupt.

With this feature preprogrammed by your dealer, you can interrupt an ongoing call in one of the following ways:

- Press and hold the **PTT** key.
- Initiate an emergency call.
- Initiate an all call.
- Send a message.
- Send the Radio Disable command.

8.12 Emergency

The Emergency feature allows you to seek help from your companion or the control center in case of emergency. You can initiate an emergency call with the highest priority even when your radio is transmitting or receiving.

In emergency mode, the radio transmits at high power level by default. According to the emergency type preset by your dealer, the radio gives different indications. The available emergency types are as follows:

Emergency Type	Description

Emergency Type	Description
Siren Only	The radio emits a siren and displays ⚠ and , but does not transmit any emergency signal to the control center.
Regular	The radio gives visible and audible indications.
Silent	The radio gives no visible and audible indication.
Silent w/Voice	The radio gives audible indications only upon receiving a call. Otherwise, the radio gives no audible or visible indication.
Alarm w/Siren	The radio transmits the emergency signal to the control center, and then emits a siren and displays ⚠ and .

In addition, you can request your dealer to set one of the following emergency modes:

Emergency Mode	Description	Note
Call Only	It allows you to initiate an emergency call.	If the emergency type is Siren Only or Alarm w/Siren, you do not need to set the emergency mode.
Alarm w/Call	It allows you to send an emergency code and initiate an emergency call.	
Alarm	It allows you to send an emergency code.	

8.12.1 Initiating an Emergency Call

Press the preprogrammed **Emergency On** key to initiate an emergency call to the preset contact.

If the Alarm w/Call To Follow feature is preprogrammed by your dealer, you can speak into the microphone without pressing and holding the **PTT** key. If the preset voice cycles expire, you can press and hold the **PTT** key to initiate the emergency call again.

8.12.2 Receiving an Emergency Call

You can answer an emergency call without any operation.

8.12.3 Ending an Emergency Call

The calling party can end an emergency call in either of the following ways:

- Press the preprogrammed **Emergency Off** key.
- Turn off the radio.

The called party can exit an emergency call by switching the channel or turning off the radio.

8.13 Stun, Revive, and Kill

In trunking mode, when the radio is stunned by the dispatch station or trunking system, the radio displays "Radio Stunned". In this case, the radio cannot initiate or receive any network service (including calls and short messages), but retains features such as registration, revive, kill, and authentication. A stunned radio can restore to normal use when receiving the revive command from the dispatch station or trunking system. Then the radio displays "Revive Successful".

In trunking mode, when the radio is killed by the dispatch station or trunking system, the radio displays "Radio Killed". In this case, the radio is incapable of any function except power-on/off. To restore normal use, send the radio back to the Company.

The Stun, Revive, and Kill features are preprogrammed by your dealer by default and triggered by the dispatch station or trunking system.

8.14 Emergency Erase Data

The Emergency Erase Data feature allows the radio to erase encrypted data in case of emergency, so as to prevent unauthorized access. When erasing the data, the radio stops voice and data services and returns to the home screen.

If this feature is preprogrammed by your dealer, the encrypted data can be erased in the following cases:

- Press **SK1** and then the **PTT** key (within 1.5s) for two times, and then press **SK1** again.
- When the radio is killed, the data on the radio will be erased automatically.

9. Troubleshooting

Phenomena	Analysis	Solution
The radio cannot be turned on.	The battery may be installed improperly.	Remove and reattach the battery.
	The battery power may have run out.	Recharge or replace the battery.
	The battery may suffer from poor contact caused by dirtied or damaged battery contacts.	Clean the battery contacts.
The radio cannot be registered.	The radio cannot detect signal from the BS.	Make sure the radio is within the coverage of the BS.
	The radio may not be authorized.	Contact the BS manager to check if the radio is authorized in the network management system.
The radio is registered repeatedly.	The signal may be intermittent.	Make sure the radio is within the coverage of the BS.
The radio cannot establish a call.	The signal may be weak.	Make sure the radio is within the coverage of the BS.
No voice is heard after a call is established.	The radio ID may be repeated.	Contact the BS manager to check whether the radio ID is repeated in the network management system.
The called party disconnects repeatedly during communication.	The signal may be intermittent or weak.	Make sure the radio is within the coverage of the BS.
The voice is unclear.	The signal may be weak.	Make sure call participants are within the communication range.
There are unknown voices or sounds on the channel.	You may be interrupted by radios using the same frequency.	Change the frequency, or adjust the squelch level.
	The radio may be set with no signaling.	Set signaling for all member radios to avoid interference at the same frequency.
The keys do not work.	The keys may fail to function temporarily.	Restart the radio.
The LCD does not display any information.	The LCD may fail to function temporarily.	Restart the radio.
The positioning system cannot locate your position.	The radio may be at an unfavorable position, so no position signal is received.	Move to an open and flat area, and try again.
The BT device cannot	The battery power of the BT device	Recharge the BT device.

Phenomena	Analysis	Solution
be paired.	may be low.	
	The BT device may be too far away from the radio.	Move the BT device towards the radio.
During receiving, the voice is weak, discontinuous, or totally inactive.	The battery voltage may be low.	Recharge or replace the battery.
	The volume may be low.	Increase the volume or contact your dealer to turn the Mic AGC feature off.
	The antenna may be loosened or installed improperly.	Turn the radio off, and then remove and reattach the antenna.
	The speaker may be blocked or damaged.	Clean the surface of the speaker.
Communications with group members are unavailable.	The frequency or signaling type may be inconsistent with that of other members.	Set your TX/RX frequency and signaling to the same as that of other members.
	The channel type (digital/analog) may be set inconsistently.	Make sure all members are on the same digital/analog channel.
	You may be too far away from the group members.	Move towards other members.
	The signal may be weak.	Make sure call participants are within the communication range.
There is too much noise and hiss.	The signal may be weak.	Make sure call participants are within the communication range.
	The radio may be in an unfavorable position. For example, the signal may be blocked by tall buildings or frustrated in the underground areas.	Move to an open and flat area, and restart the radio.
	The radio may suffer from external disturbance (such as electromagnetic interference).	Stay away from the equipment that may cause interference.

If the above solutions cannot solve your problems, or you may have some other queries, please contact us or your local dealer for more technical support.

10. Product Care

10.1 Radio

⚠ CAUTION

If the radio is seriously wet inside, do not turn on it. Contact the dealer or maintenance center for maintenance in time.

To guarantee optimum performance as well as a long service life of the radio, follow the tips below:

- Do not disassembly the radio.
- Do not throw, crack, or hammer the radio.
- Do not pierce or scrape the radio, espeically the interfaces.
- Do not expose the radio to the extreme temperature.
- Keep the radio away from substances that can corrode it.
- Close the accessory connector cover when no accessory is in use.
- Do not connect the radio to the incompatible device.
- Do not hold the radio by its antenna.

To avoid liquid penetration into the radio, follow the tips below:

- Do not expose the radio to the environment with high temperature and high humidity.
- Keep the radio away from salty water, ionized water, alcoholic beverage, lotion, or other impure water.
- Before connecting the accessory or charger to the radio, ensure the radio and the interface are dry.

If the radio has been wet, follow the tips below:

- Do not turn on the radio.
- Do not connect the accesory or charger to the radio.
- Do not dry the radio by microwave, hair dry, or other external heat sources.
- Do not insert the cotton buds or tissue into the interface.
- Use the clean and soft cloth to dry the water on the radio surface, and then put the radio to the well-ventilated place until it is dry.

10.2 Battery

To guarantee optimum performance as well as a long service life of the battery, follow the tips below:

- Use the approved charger to charge the battery.
- Keep the radio turnned off during charging.

- Do not use the radio during charging.
- Charge the battery under the temperature from 0 ℃ to 45 ℃.
- When the low battery alert occurs, replace or charge the battery in time.
- When the battery is fully charged, disconnect the charger in time.
- Do not drop the battery by force.
- Do not make the battery wet.
- To avoid short circuit, do not use the conductive substance such as iron wire to touch the anode and cathode of the battery.

10.3 Cleaning

⚠ CAUTION

- Turn off the radio and remove the battery before cleaning.
- Ensure no external devices are connected to the radio.
- Do not use chemical preparations such as stain removers, alcohol, sprays or oil preparations.
- Do not directly spray the neutral cleanser on the radio.
- Do not use the radio before it is fully dry.
- After cleaning the accessory connector, put the cover back in place.

It is recommended to clean the radio regularly. During cleaning, you can check whether the components are damaged. If damages exist, contact the local dealer or the Company.

1. Use the non-metal brush to clean up the dust or dirt on the radio surface.
2. Use the lint-free cloth with proper neutral cleanser to clean the surface, screen, keys, knobs, and interfaces.
3. Use another lint-free cloth with proper pure water to clean up the cleanser or residue.
4. When cleaning the battery slot, use the non-metal brush to clean up the dust and dirt in the slot, and then use the dry and soft lint-free cloth to clean the contacts.

NOTE

If you want to clean the battery slot, use the non-mental brush to clean up the dust or dirt, and then use the dry and soft lint-free cloth to clean up the battery contacts.

10.4 Sterilizing

CAUTION

- Turn off the radio and remove the battery before sterilizing.
- Ensure no external devices are connected to the radio.
- Do not directly spray the alcohol on the radio.
- Keep the radio away from the power supply and fire.
- Do not use the radio before it is fully dry.
- After sterilizing the accessory connector, put the cover back in place.

It is recommended to sterilize the radio regularly. You can sterilize the radio by the following tips:

Use the lint-free cloth with proper rubbing alcohol (density ≥ 70%) to clean the radio surface, screen, keys, knobs, and interfaces.

10.5 Storing

CAUTION

- Turn off the radio and remove the battery before storage.
- Ensure no external devices are connected to the radio.
- The capacity and performance of the battery may degrade if the battery is not used for long time.

When storing the radio, follow the tips below:

- Keep the radio in the well-ventilated place with the temperature from –5℃ to 25℃ and with the humidity from 45% to 75%.
- Keep the radio away from the acidic and corrosive substances.
- Keep the radio away from the fire or other heat sources.
- Do not store the radio in direct sunlight.
- During storing, charge the battery once every three months, and care the battery once every six months.

11. Optional Accessories

CAUTION

Use the accessories approved by the Company only. Otherwise, we will not be liable for any loss or damage arising out of the use of unauthorized accessories.

Contact your local dealer for the optional accessories used with the product.

12. Abbreviations

Abbreviation	Full Name
AGC	Automatic Gain Control
DTMF	Dual-tone Multi-frequency
ESN	Electronic Serial Number
FOACSU	Full Off Air Call Set-Up
GPS	Global Positioning System
LCD	Liquid-Crystal Display
LED	Light-Emitting Diode
OACSU	Off Air Call Set-Up
PABX	Private Automatic Branch Exchange
PSTN	Public Switched Telephone Network
PTT	Push-To-Talk
SK	Side Key
TF	TransFlash
TK	Top Key
UI	User Interface

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Address: Hytera Tower, Hi-Tech Industrial Park North, 9108# Beihuan Road, Nanshan District, Shenzhen, People's Republic of China
Postcode: 518057
https://www.hytera.com