Hytera

DIGITAL PORTABLE RADIO

DIGITAL TRUNKING PORTABLE RADIO

Preface

Thanks for your favor in our product. This manual is helpful for you to quickly know how to use the product. For detailed features and operations, please refer to the *Feature Description and Operation Manual* along with the product.

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

Hytera

English

Icon Conventions

: Indicates functions that are available on digital channel only.

: Indicates functions that are available on analog channel only.

Functions marked with no icon are available on both analog and digital channels.

Disclaimer

Hytera Communications Corporation Limited (the Company) endeavors to achieve the accuracy and completeness of this manual, but no warranty of accuracy or reliability is given. All the specifications and designs are subject to change without notice due to continuous technology development. No part of this manual may be copied, modified, translated, or distributed in any manner without the express written permission of us.

We do not guarantee, for any particular purpose, the accuracy, validity, timeliness, legitimacy or completeness of the Third Party products and contents involved in this manual.

If you have any suggestions or would like to learn more details, please visit our website at: http://www.hytera. com.

RF Radiation Information

This product must be restricted to operations in an occupational/controlled RF exposure environment. Users must be fully aware of the hazards of the exposure and able to exercise control over their RF exposure to qualify for the higher exposure limits.

RF Radiation Profile

Radio Frequency (RF) is a frequency of electromagnetic radiation in the range at which radio signals are transmitted. RF technology is widely used in communication, medicine, food processing and other fields. It may generate radiation during use.

RF Radiation Safety

In order to ensure user health, experts from relevant industries including science, engineering, medicine and health work with international organizations to develop standards for safe exposure to RF radiation. These standards consist of:

● United States Federal Communications Commission, Code of Federal Regulations; 47CFR part 2 sub-part J;

● American National Standards Institute (ANSI)/ Institute of Electrical and Electronic Engineers (IEEE) C95. 1-1992;

● Institute of Electrical and Electronic Engineers (IEEE) C95.1-1999;

● International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998;

FCC Regulations

Federal Communication Commission (FCC) requires that all radio communication products should meet the requirements set forth in the above standards before they can be marketed in the U.S, and the manufacturer shall post a RF label on the product to inform users of operational instructions, so as to enhance their occupational health against exposure to RF energy.

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.

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), push 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 a Hytera-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 optional accessories of the product.

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 the following directives: 2014/53/EU, 2006/66/EC, 2011/65/EU, and 2012/19/EU.

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

Contents

Items in the Package

Please unpack carefully and check if all items listed below are received. If any item is missing or damaged, please contact your dealer.

❶ Radio   ❷ Battery   ❸ Belt Clip

❹ Antenna   ❺ Charger   ❻ Power Adapter

❼ Strap   ❽ Documentation Kit

> ✎ **Note:** The frequency band is marked on the label of antenna; if not, please refer to the label on the radio for frequency band information.

Product Overview

Product Controls
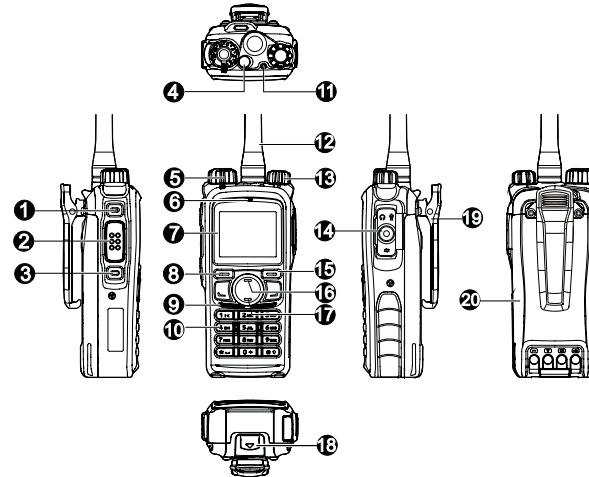
No.	Part Name	No.	Part Name	No.	Part Name	No.	Part Name
1	SK1 (Side Key 1)	6	Microphone	11	LED Indicator	16	Up Key
2	PTT (Push-to-Talk) Key	7	LCD Display	12	Antenna	17	Down Key
3	SK2 (Side Key 2)	8	OK/Menu Key	13	Power On-Off/Volume Control Knob	18	Battery Latch
4	TK (Top Key)	9	Speaker	14	Accessory Connector	19	Belt Clip
5	Channel Selector Knob	10	Numeric Keypad	15	Back Key	20	Battery

Programmable Keys

For enhanced convenience, you may request your dealer to program the **TK** (⚠), **SK1**, **SK2**, **P1** (⌐) and **P2** (⌐)) as shortcuts to certain functions. Please refer to the Feature Description and Operation Manual along with the product for more details.

⚠ **Caution:** The **TK** key is programmed with emergency feature by default (short press: Emergency On; long press: Emergency Off). It is programmable by your dealer.

LCD Icon

Icon	Name	Radio Status
▦	DTMF Keypad Icon	The DTMF keypad is active.
⑤	GPS Icon	The GPS feature is active, and valid GPS data is received.
↺		The GPS feature is active, but no valid GPS data is received.
▯	Battery Power Icon	More bars indicate more battery power.
∟	TX Power Icon	Low TX power for the current channel.
H		High TX power for the current channel.
⌇	Accessory Icon	An accessory is connected.
⊟	Work Order Icon	One or more new work orders are received.
DM	Operation Mode Icon	Direct Mode: Under this mode, radios communicate with each other directly.
RM		Repeater Mode: Under this mode, radios communicate with each other via a repeater.
◁	Monitor Icon	The Monitor feature is active.

| Icon	Name	Radio Status
⚠	Emergency Icon	The radio is in emergency state (except for silent emergency type) or an emergency call is received.
⊕	Roam Icon	The radio is roaming.
▤	Scrambler/ Encrypt Icon	The Scrambler/Encrypt feature is active.
↻	Scan Icon	The radio is scanning.
↻		The radio stays on a non-priority channel.
P₁		The radio stays on priority channel 1.
P₂		The radio stays on priority channel 2.
Ⓥ	VOX Icon	The VOX feature is active.
☎	Missed Call Icon	Missed call(s).
✉	Message Icon	New message/unread message.
✉		Inbox is full.
▽ₓ	RSSI Icon	No signal.
▽ᵢₗ		More bars indicate stronger signal strength.
◁)	Speaker Icon	The speaker is unmuted.
Ⓠ	LQO Icon	The LQO feature is active.
👤	Call/Contact Icon	● Indicates a private call in progress. ● Indicates a private contact in the contact list.
👥		● Indicates a group call in progress. ● Indicates a group contact in the contact list.
👥		● Indicates an all call in progress. ● Indicates an all call contact in the contact list.

LED Indicator

LED Indication	Radio Status
The LED indicator flashes green.	Powering on
The LED indicator glows green.	Receiving
The LED indicator glows red.	Transmitting
The LED indicator flashes orange slowly.	Scanning or Roaming
The LED indicator flashes orange rapidly.	Emergency
The LED indicator glows orange.	Call hung period. No voice is being transmitted or received on the traffic channel during a call. Within such period, you can hold down the **PTT** key to talk to the other party.

Before Use

Attaching the Battery
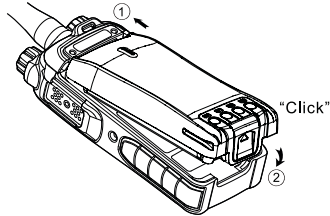
> 🖉 **Note:** To remove the battery, turn off the radio first, and then slide the battery latch upwards to unlock the battery.
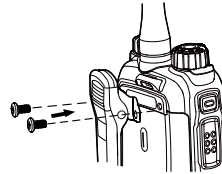
Attaching the Antenna

> ⚠ **Caution:** Do not hold the radio by its antenna, otherwise the performance and lifespan of the antenna will be reduced.

Attaching the Belt Clip

1. Remove the screws.
2. Align the screw holes on the belt clip with those on the radio's back, and then tighten the screws.

Attaching the Accessories
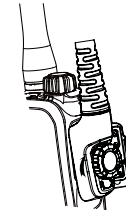
1. Open the accessory connector cover as shown below.

2. Align the accessory (such as an audio accessory, or a programming cable) plug with the accessory connector.

> ⚠ **Caution:** Do not scrape the silicone rubber surrounding the accessory connector screw hole, in order to ensure the waterproof performance of the radio.
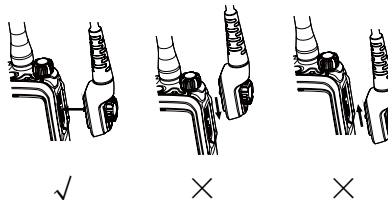
3. Tighten the screw on the plug.

Charging the Battery

> ⚠ **Caution:**
> ● Use the charger specified by the Company to charge the battery.
> ● Make sure the radio is powered off before charging. Read the Safety Information Booklet in advance to get necessary safety information.
> ● Charge a new battery for at least 5 hours before initial use for best performance.

Charge the Radio
(with battery attached)

Charge the Battery
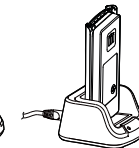
Charging Status Indication (on charger):

| LED Indication	Charging Status
The LED Indicator flashes red slowly.	Standby (no load)
The LED Indicator glows red.	Charging
The LED indicator glows orange.	90% charged
The LED indicator glows green.	Fully charged
The LED Indicator flashes red rapidly.	Charging failed

Checking the Battery Power

You can check the current battery power by holding down the programmed **Battery Power Indicator** key preset by your dealer. And release the key to exit. Battery power indications and alert tone are listed below:

LED Indication/Tone	Icon
The LED Indicator glows green.	
The LED Indicator glows orange.	
The LED Indicator glows red.	
The LED Indicator glows red and an alert tone sounds.	The battery runs low. Please recharge or replace the battery for proper radio operation

Basic Operations

Turning the Radio On/Off
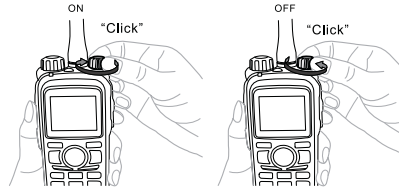
Adjusting the Volume

Selecting a Zone

A zone is a group of channels with the same property, which can facilitate convenient management over the channels. The radio supports 64 zones, each of which consists of up to 16 channels. Your dealer can program the zone for your specific needs.

You can select a zone through any of the following ways:

● Menu: Go to "Menu -> Zone", press the **Up/Down** key to select an appropriate zone, and then press the **OK** key to switch to the selected zone.

● Shortcut key: You can toggle to the appropriate zone by pressing the programmed **Zone Up** or **Zone Down** key preset by your dealer.

Selecting a Channel

> **Note:** If the Channel Notify feature is enabled by your dealer, the radio will announce the channel number upon channel switching.

Inputting via Keypad

You can input alias, call numbers and messages via the keypad of the radio. In the editing mode, you may do as follows.

● Press ⌗↑ to switch the text input methods between alphabetic mode and numeric mode

● In the alphabetic mode, press 1!< to input the special characters. But in the numeric mode, pressing 1!< will input the numeric digit 1

● In the alphabetic mode, press ✱⌴ to input the space. But in the numeric mode, pressing ✱⌴ will input the special characters

Locking and Unlocking the Keypad

When the keypad is not in use, you can lock the keypad to prevent accidental keypad operation. The following methods are available for you to lock or unlock the keypad:

● Key Combination: Press "**OK**+ ✱⌴ " to lock or unlock the keypad.

- Shortcut key: Press the programmed **Keypad Lock** key to lock or unlock the keypad.

- Menu: Go to "Menu -> Settings -> Radio Set -> Keypad Lock" and then select "Enable" or "Disable".

  » Enable: The keypad will be locked automatically if no operation is made within the preset time period. After the "Enable" option is selected, you can press the **Up/Down** key to set the Keypad Auto Lock Delay Time.

  » Disable: The keypad will not be locked automatically.

> **Note:** All keys on the front panel except for **P1** (⊔) and **P2** (⌐) will be locked by default. Moreover, you can go to "Settings -> Radio Set -> Select Locked Key" to configure the following lockable keys or knobs: **TK**, **P1**(⊔), **P2**(⌐), **SK1**, **SK2**, **PTT**, **Channel Selector Knob**, and **Volume Control Knob**.

Managing the Contact

Contact management allows you to view, edit, delete or add contacts.

Contact List

The contact list is used to save private call contact, group call contact, and all call contact information such as call alias, call type and call ID.

- Go to the "Menu -> Contact -> Contact List" menu to access the contact list.

- Press the programmed **Contact List** key to access the contact list.

In the "Contact List" menu, you can view, edit or delete the private contact. You can send to a private call contact the following commands: Alert Call, Radio Check, Remote Monitor, Radio Enable or Radio Disable. Please refer to the *Feature Description and Operation Manual* along with the product for details.

Favorite Contact 🔲

Favorite Contact is used to save the frequently used contacts.

- Go to the "Menu -> Contact -> Favorite Contact" menu to access the favorite contact list.

- Press the programmed **Favorite Contact List** key to access the favorite contact list.

In the favorite contact list, you can view, edit or delete the favorite contacts. You can send to a favorite contact the following commands: Alert Call, Radio Check, Remote Monitor, Radio Enable or Radio Disable. Please refer to the *Feature Description and Operation Manual* along with the product for details.

New Contact 🔲

New Contact is used to add a new contact to the contact list.

Go to the "Menu -> Contact -> New Contact" menu to access the relevant screen. Input the number and alias of a new contact and save it to the private contact list.
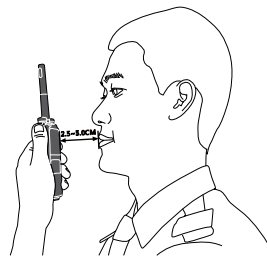
> **Note :**
> - The number and alias of a new contact must be unique.
> - You can also save the numbers from the Call Logs into the contact list.

Call Services

After the radio is powered on, you can make and receive calls. To ensure optimal volume of the receiving radio, keep the microphone about 2.5 to 5 centimeters away from your mouth when transmitting.

Private Call 🔲

Initiating a Private Call

When you initiate a private call, the radio will display the icon 📞. You can make a private call through any of the following ways:

Preset Contact

You may request your dealer to preset a regular private call contact for each digital channel.

In the home screen, hold down the **PTT** key to initiate a private call to the private contact preset for the current channel.

Contact List

1. Go to "Menu -> Contact -> Contact List".
2. Use the **Up/Down** key to select an appropriate contact.
3. Hold down the **PTT** key to initiate a private call.

Call Logs

1. Go to "Menu -> Call Logs -> Outgoing/Incoming/ Missed".
2. Use the **Up/Down** key to select an appropriate contact.
3. Hold down the **PTT** key to initiate a private call.

Manual Dial

1. Go to "Menu -> Contact -> Manual Dial".
2. Input the private call number using the numeric keypad.
3. Hold down the **PTT** key to initiate a private call.

> **Note :**
> ● If both the Private Call Manual Dial and Group Call Manual Dial are available, you can press ⌗⭡ to switch between the two dialing methods, and the radio will display the call type (Private ID/ Group ID).
> ● If the Default Numeric Key Selection feature is enabled by your dealer, you can enter a private call number in the home screen, and then hold down the **PTT** key to initiate a private call. However, if the DTMF keypad is enabled, the number entered in the home screen is a phone number. You can dial the private call number through the "Manual Dial" menu only.

Receiving and Responding to a Private Call

When you receive a private call, the radio will display the icon 📞, then you can listen without any operation.

You can hold down the **PTT** key to call back within the preset time. If you do not respond to it, the radio will display appropriate indications.

Group Call 🔵

Initiating a Group Call

When you initiate a group call, the radio will display the icon 📞. You can make a group call through any of the following ways. The operation is similar to initiating a private call.

Preset Contact

In the home screen, hold down the **PTT** key to initiate a group call to the group call contact preset for the current channel.

Contact List

1. Go to "Menu -> Contact -> Contact List".
2. Use the **Up/Down** key to select an appropriate contact.
3. Hold down the **PTT** key to initiate a group call.

Manual Dial

The operation is the same as initiating a private call.

Receiving and Responding to a Group Call

When you receive a group call, the radio will display the icon 📞 on the LCD. You can hold down the **PTT** key to call back within the preset time.

Call on Analog Channel (No Signaling) 〰️

To transmit on an analog channel, hold down the **PTT** and speak into the microphone. To receive, release the **PTT** key.

Please refer to the *Feature Description and Operation Manual* along with the product for operation description on how to make and receive calls on the analog channel with signaling.

Emergency Call

In case of emergency, you can use Emergency Call to ask for help from your companion or the control center. Emergency Call needs to be configured and enabled by your dealer. Please refer to the *Feature Description and Operation Manual* along with the product for details.

Message Services 🔵

Message Services allow you to edit and send a new message, to directly send a quick text message and to forward the messages saved in the InBox, OutBox and Drafts.

Text Message

1. Go to "Menu -> Message -> New Msg" to enter the relevant screen.
2. Type the text and press the **OK** key. You can save the text message to Drafts, or send it to a private call contact or a group call contact directly.
3. Select the contact or input the contact number manually.
4. Press the **OK** key to send the message. When the message is sent successfully, the radio will display the prompt "Send Success!".

Quick Text

Quick Text is the frequently used message preset by your dealer. You can send the quick text directly or edit this text before sending it.

InBox

The Inbox saves the received messages and marks each message with a corresponding icon to indicate its status.

● 📩 : Read text message.

- ⬇️ : Unread text message.

When the InBox is full, the radio will display the icon ✉️ , and the earliest message will be overwritten by the latest one automatically.

OutBox

The OutBox saves the sent messages and marks each message with a corresponding icon to indicate its status.

- 📝 : The text message is sent successfully.
- 📝❌ : The text message is not sent successfully. In this case, you can resend it.

When the OutBox is full, the earliest message will be overwritten by the latest one automatically.

Drafts

The Drafts saves the edited messages. When the Drafts is full, the earliest message will be overwritten by the latest one automatically.

After the message in the Drafts is sent successfully, it will be removed from the Drafts and be saved into the OutBox. If not sent successfully, the message will be saved into the Drafts and the OutBox.

Available Features

Available features of this radio are listed below. Please refer to the Feature Description and Operation Manual for detailed feature descriptions.

Feature Type	Detailed Feature
Basic Setting	• Password • Language • Indication: Backlight, Brightness, LED, Tone, Vibration • Audio: Mic AGC, Treble Boost, LQO, Audio Feedback Suppression • Scanning: Scan On, Scan Off, Scan List • Managing the Contacts: Contact List, Favorite Contact, New Contact • Other Features: Device Information, Power Level, VOX, One Touch Call/Menu, Renting, Programming, User Assignment ID, Covert Mode
Digital Features	• Voice Services: Group Call, Private Call, All Call, Phone Call • Message Services: New Msg, Quick Text, InBox, OutBox, Drafts • Control Services: Alert Call, Radio Check, Remote Monitor, Radio Enable, Radio Disable, Priority Interrupt, Time-out Timer (TOT) • Personal Security Services: Emergency Alarm, Man Down, Lone Worker • Encrypt • Network: Talk Around, Roam • Other Features: Pseudo Trunking

Feature Type	Detailed Feature
Analog Features	• Voice Services: Call without Signaling, Call with Signaling, Phone Call • Control Services: Compandor, Time-out Timer (TOT), Squelch Off, Squelch Level Adjustment, CTCSS/CDCSS • Personal Security Services: Emergency Alarm, Man Down, Lone Worker • Scrambler • Talk Around
Accessory-related Features	• BT • Positioning Service: GPS On/Off, Position View, GPS Msg, Time Zone, Query Location
API Features	• GPS Report • Radio Registration Service • Telemetry • Work Order

Troubleshooting

Phenomena	Analysis	Solution
The radio cannot be powered on.	The battery may be improperly installed.	Remove the battery and then reattach it.
	The battery power may 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.
During receiving, the voice is weak, discontinuous or totally inactive.	The battery voltage may be low.	Recharge or replace the battery.
	The volume level may be low.	Increase the volume by rotating the **Volume Control Knob**.
	The antenna may get loose or may be improperly installed.	Turn off the radio and reattach the antenna.
	The speaker may be blocked or damaged.	Clean the surface of the speaker.
You cannot communicate with other members.	The frequency or signaling 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 and analog) may be set inconsistently.	Make sure all members are on the same digital or analog channel.
	You may be too far away from the group members.	Move towards other members.
Irrelevant communication or noise is heard 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 noise is too loud.	You may be too far away from other members.	Move towards other members.
	You may locate in an unfavorable position. For example, your communication may be blocked by high buildings or frustrated in the underground areas.	Move to an open and flat area, and restart the radio to try again.
	You may suffer from external disturbance (such as electromagnetic interference).	Stay away from equipment that may cause interference.
The GPS cannot locate your position.	GPS signals may not be received due to unfavorable position.	Move to an open and flat area, and try again.
You cannot use the keys.	The keypad 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.

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

Care and Cleaning

To guarantee optimal performance as well as a long service life of the product, please follow the tips below.

Product Care

- Do not pierce or scrape the product.
- Keep the product far away from substances that can corrode the circuit.
- Do not hold the product by its antenna or earpiece cable directly.
- Attach the accessory connector cover when the accessory is not in use.

Product Cleaning

⚠️ **Caution:** Turn off the product and remove the battery before cleaning.

- Clean up the dust and fine particles on the product surface and charging piece with a clean and dry lint-free cloth or a brush regularly.
- Use neutral cleanser and a non-woven fabric to clean the keys, control knobs and front case after long-time use. Do not use chemical preparations such as stain removers, alcohol, sprays or oil preparations, so as to avoid surface case damage.
- Make sure the product is completely dry before use.

Optional Accessories

The following items are the main optional accessories for the product, and please consult your local dealer for more other accessories.

⚠️ **Caution:** Use the accessories specified by the Company only. If not, the Company shall not be liable for any loss or damage arising out of use of unauthorized accessories.