

# HP71XEx Intrinsically Safe Digital Portable Radio User Manual

# **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:

HP71XEx Intrinsically Safe Digital Portable Radio

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# **Documentation Information**

# **Documentation Conventions**

# **Instruction Conventions**

Icon	Description	
<b>Ü</b> TIP	Indicates information that can help you make better use of your product.	
NOTE	Indicates references that can further describe the related topics.	
<b>A</b> CAUTION	ON Indicates situations that could cause data loss or equipment damage.	
<b>MARNING</b>	Indicates situations that could cause minor personal injury.	
<b>A</b> DANGER	Indicates situations that could cause major personal injury or even death.	

### **Notation Conventions**

Item	Description	Example
Denotes menus, tabs, parameter names,		To save the configuration, click <b>Apply</b> .
Boldface	window names, dialog names, and hardware	The <b>Log Level Settings</b> dialog appears.
	buttons.	Press the PTT key.
		The screen displays "Invalid Battery!".
 	Denotes messages, directories, file names,	Open "PSS.exe".
folder names, and parameter values.	Go to "D:/opt/local".	
		In the <b>Port</b> 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 UNM5800, refer to UNM5800 Operation Guide.
Courier New	Denotes commands and their execution results.	To set the IP address, run the following command:  vos-cmd - m name IP

# 1. Intrinsically Safe Radio Information

# **A** CAUTION

- Observe the following safety instructions when using the radio, so as to ensure safe and reliable operations. Failure to observe the instructions may result in danger or violation of applicable regulations.
- To avoid possible interference with blasting operations, keep the radio turned off when you are near electrical blasting caps, in a blasting area, or in areas posted "Turn off two-way radios". Obey all signs and instructions.

# 1.1 Compliance Standards

This radio complies with the following standards:

Standard	Edition	Issue Date	
IECEx (International)			
IEC 60079-0	Edition 7.0	2017	
IEC 60079-11	Edition 6.0	2011	
ATEX (EU)			
EN 60079-0	Edition 7.0	2018	
EN 60079-11	Edition 6.0	2012	
NEC (US)			
ANSI/UL 60079-0	Edition 7.0	2019	
ANSI/UL 60079-11	Edition 6.2	2018	
CEC (CA)			
CAN/CSA C22.2 No. 60079-0	Edition 4.0	2019	
CAN/CSA C22.2 No. 60079-11	Edition 6.0	2011	

# 1.2 Product Marking

# 1.2.1 IIC Product Marking

The explosion-proof certification and rating of the radio are displayed in the following table:

Certificate No.	Marking
	Ex ib I Mb
	Ex ib IIC T4 Gb
IECEx FMG 23.0016X	Ex ib IIIC T120°C Db
	IP66/IP68, −25°C≤Ta≤+60°C
	I M2 Ex ib I Mb
EM22 A TEV0022V	II 2G Ex ib IIC T4 Gb
FM23ATEX0033X	II 2D Ex ib IIIC T120°C Db
	IP66/IP68, −25°C≤Ta≤+60°C
	I M2 Ex ib I Mb
FN 4001 WEWOOD CW	II 2G Ex ib IIC T4 Gb
FM23UKEX0036X	II 2D Ex ib IIIC T120°C Db
	IP66/IP68, −25°C≤Ta≤+60°C
	Class I, Zone 1, AEx ib IIC T4 Gb
FM23US0069X	Zone 21, AEx ib IIIC T120°C Db
	IP66/IP68, −25°C≤Ta≤+60°C
	Ex ib IIC T4 Gb
FM23CA0051X	Ex ib IIIC T158°C Db
	IP66/IP68, −25°C≤Ta≤+60°C

# 1.2.2 IIA Product Marking

The explosion-proof certification and rating of the radio are displayed in the following table:

Certificate No.	Marking
IECEx FMG 23.0016X	Ex ib I Mb
	Ex ib IIA T4 Gb
	Ex ib IIIC T120°C Db
	IP66/IP68, −25°C≤Ta≤+50°C
	I M2 Ex ib I Mb
	II 2G Ex ib IIA T4 Gb
FM23ATEX0033X	II 2D Ex ib IIIC T120°C Db
	IP66/IP68, −25°C≤Ta≤+50°C
FM23UKEX0036X	I M2 Ex ib I Mb
	II 2G Ex ib IIA T4 Gb
	II 2D Ex ib IIIC T120°C Db

Certificate No.	Marking
	IP66/IP68, −25°C≤Ta≤+50°C
	Class I, Zone 1, AEx ib IIA T4 Gb
FM23US0069X	Zone 21, AEx ib IIIC T120°C Db
	IP66/IP68, −25°C≤Ta≤+50°C
	Ex ib IIA T4 Gb
FM23CA0051X	Ex ib IIIC T158°C Db
	IP66/IP68, −25°C≤Ta≤+50°C

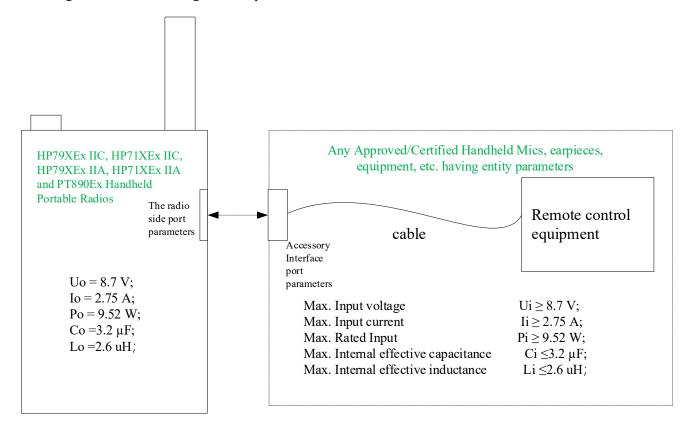
# 1.3 Specific Conditions of Use

- The radios shall only be used with Lithium-ion rechargeable battery pack identified as Hytera Communications Co., Ltd. part numbers BL1430-Ex or BL2105-Ex.
- Recharging of the Lithium-ion rechargeable battery pack shall only be performed in the non-hazardous area with a maximum ambient of 45°C using only battery chargers identified as Hytera Communications Co., Ltd. part numbers CH10L33, CH20L24 or MCL41.
- The radios shall only be used with optional remote speaker microphone accessory identified as Hytera Communications Co., Ltd. part number SM26N13P-Ex.
- The radios shall only be used with optional earpiece and microphone accessory identified as Hytera Communications Co., Ltd. part number EHN38P-Ex.
- The radios shall only be used with optional adaptor, identified as Hytera Communications Co., Ltd. part number Model POA203P-Ex.
- The radios may also be used with the option Leather cases, identified as Hytera Communications Co., Ltd. part numbers LCY028 or LCY029.
- The radios may be used with the optional carrying accessories, identified as Hytera Communications Co. Ltd. part numbers, Belt clip BC39, Strap RO04, Belt clip adapter POA211.
- The radios shall only be used with antenna identified as Hytera Communications Co., Ltd. part numbers: AN0141H07, AN0141H08, AN0141H09, AN0141H10, AN0141H11, AN0141H12, AN0141H13, AN0143H08, AN0153H08, AN0153H09, AN0153H10, AN0153H11, AN0153H12, AN0153H13, AN0153H14, AN0155H08, AN0155H09, AN0155H17, AN0155H18, AN0157H01, AN0157H02, AN0160H13, AN0160H17, AN0160H18, AN0167H07, AN0167H08, AN0167H09, AN0167H10, AN0167H11, AN0167H12, AN0167H13, AN0350H05, AN0350H06, AN0375H10, AN0375H11, AN0375H14, AN0375H15, AN0390H06, AN0390H07, AN0390H08, AN0390H10, AN0390H11, AN0405H11, AN0405H12, AN0405H15, AN0405H16, AN0415H13, AN0415H14, AN0415H15, AN0415H17, AN0415H18, AN0435H15, AN0435H16, AN0435H21, AN0435H22, AN0437H01,

AN0437H02, AN0437H06, AN0437H07, AN0485H10, AN0485H11, AN0485H15, AN0485H16, AN0838H08, AN0873H02, AN0873H03, AN0873H07, or AN0873H08.

# 1.4 Connection with Other Intrinsically Safe Equipment Specific Conditions of Use

When connecting the radio to other approved/certified equipment with energy limiting parameters, refer to the following connection block diagram and specific conditions of use.





- Connections to the radio side port shall only be made with an Approved or Certified Intrinsically Safe equipment having energy limitation parameters.
- The energy limitation parameters of the connected equipment shall have a Ui  $\geq$  8.7 V, Ii  $\geq$  2.75 A and a Pi  $\geq$  9.52 W. The connecting cable capacitance plus the Ci shall not exceed Co = 3.2  $\mu$ F and the connecting cable inductance plus the Li shall not exceed 2.6  $\mu$ H.

# 1.5 Warnings

### **Warnings**

- Substitution of components may impair Intrinsic Safety.
- Use only Hytera BL2105-Ex or BL1430-Ex battery.

- Do not charge the battery in hazardous location.
- Repaired only by Hytera or Hytera authorized Service Center.
- To prevent ignition of flammable or combustible atmospheres, read, understand and adhere to the manufacturer's live maintenance procedures unless there are no maintenance procedures.

### **Avertissements**

- La substitution de composants peut nuire à la sécurité intrinsèque.
- Utilisez uniquement la batterie Hytera BL2105-Ex ou BL1430-Ex.
- Ne pas charger la batterie dans un endroit dangereux.
- Réparation uniquement par Hytera ou un centre de service agréé par Hytera.
- Pour éviter l'inflammation d'atmosphères inflammables ou combustibles, lisez, comprenez et respectez les procédures d'entretien en direct du fabricant, sauf s'il n'existe pas de procédures d'entretien.

### 1.6 Caution

- Do not charge the battery in hazardous location.
- Do not detach, replace the battery or accessory in explosive dust atmospheres.
- Do not carry the radio into Zone 0 or Zone 20.
- Do not carry the battery alone to the hazardous atmosphere.
- Do not use the radio if its housing is damaged or cracked.
- Do not block or open the pressure adjustment hole on the radio.
- Do not use a damaged antenna. A minor burn may be caused when you touch a damaged antenna.
- Do not expose the radio to direct sunlight for a long time, nor place it close to a heating source.
- Do not attempt to disassemble, destroy, or short-circuit the battery. Never dispose of it in fire.
- Before using the radio in a hazardous atmosphere, ensure that the battery is installed on the radio tightly.
- Hold the radio upright and keep its microphone 2.5 to 5 centimeters away from your mouth during use.
- If you wear the radio, ensure that its antenna is at least 2.5 centimeters away from your body during transmission.

# 1.7 No Misoperations

Stop operating the radio and leave the blasting area immediately when the intrinsic safety or integrity of the radio is endangered, and deliver it to your local dealer for examination.

The safety or reliability of the radio may be endangered when:

The radio is stored improperly.

- The radio is faulty.
- The radio works with overload.
- The radio operates beyond the tolerance or threshold.
- The radio is damaged during transportation.
- The radio's housing is obviously damaged or cracked.
- The logo or characters on the radio are hard to be recognized.

### 1.8 Maintenance

Repaired only by Hytera or Hytera authorized Service Center.

Contact Person: Hytera Customer Service Center

Contact number: Tel: +86-755-2697299 Fax: +86-755-86137139

Contact Address:

Hytera Communications Co., Ltd.

Hytera Tower, Hi-Tech Industrial Park North, 9108# Beihuan Road, Nanshan District, Shenzhen, P.R.C., P 518057

# 1.9 Training Instructions

Contact Person: Hytera Customer Training Center

Contact number: Tel: +86-755-2697299 Fax: +86-755-86137139

Contact Address:

Hytera Communications Co., Ltd.

Hytera Tower, Hi-Tech Industrial Park North, 9108# Beihuan Road, Nanshan District, Shenzhen, P.R.C., P 518057

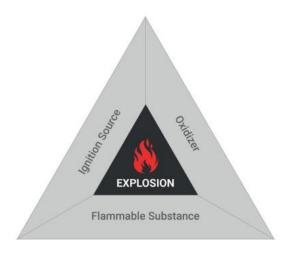
### 1.10 Hazardous Area Classification

### **Explosive Atmosphere**

An explosive atmosphere refers to the mixture with air, under atmospheric conditions, of flammable substances in the form of gas, vapor, or dust, which, after ignition, permits self-sustaining flame propagation.

### **Explosion**

An explosion is a rapid increase in volume and release of energy in an extreme manner, usually with the generation of high temperatures and the release of gases. There are three elements, which must be present to cause an explosion:



### Ignition Source

An element, which can cause a fire or explosion. Open flames, sparks, static electricity and hot surfaces are all possible ignition sources.

### • Flammable substance

Substance, which is itself flammable, or is capable of producing a flammable gas, vapor, or dust.

### Oxidizer

A kind of chemical whereby fuel is required to burn. An oxidizer must be present in sufficient quantity in combination with the flammable substance to produce an explosive mixture. The most common oxidizer is air  $(O_2)$ .

# **Intrinsically Safe**

Intrinsic safety "i" is a protection approach to make equipment safe to be used in hazardous location, which is based on limiting electrical energy and thermal to a level below that required to ignite a specific explosive atmospheres mixture. In hazardous locations, specially designed equipment must be used to protect against the potentially explosive atmospheres. These devices, which can be used in the potentially explosive environments without causing an explosion, are called Intrinsically Safe devices.

### Classification of Zones

According to the likelihood of a potentially explosive atmosphere, gas and dust atmosphere are categorized into three zones respectively:

Hazardous Substance	Present Continuously or for Long Periods or Frequently	Occur Periodically or Occasionally in Normal Operation	Not Likely to Occur in Normal Operation
Gas	Zone 0	Zone 1	Zone 2
Dust	Zone 20	Zone 21	Zone 22

- Zone 0: An area in which an explosive gas atmosphere is present continuously or for long periods or frequently.
- **Zone 1:** An area in which an explosive gas atmosphere is likely to **occur periodically** or **occasionally** in normal operation.
- **Zone 2:** An area in which an explosive gas atmosphere is **not likely to occur** in normal operation, but if it does occur, it will exist for a short period only.
- Zone 20: A place in which an explosive dust atmosphere, in the form of a cloud of dust in air, is present
  continuously, or for long periods or frequently.
- Zone 21: A place in which an explosive dust atmosphere, in the form of a cloud of dust in air, is likely to occur
  in normal operation occasionally.
- Zone 22: Area in which an explosive dust atmosphere, in the form of a cloud of combustible dust in air, is not likely to occur in normal operation but, if it does occur, will persist for a short period only.

### **Classification of Equipment Groups**

According to the ignition characteristics, flammable gases and dusts are categorized into the following groups:

Grou	ıр	Representative Materials
Group I (Mines)	/	Methane
	IIA	Propane
Group II (Gas)	IIB	Ethylene
	IIC	Acetylene and hydrogen
	IIIA	Fibers and flyings
Group III (Dust)	IIIB	Non-conductive dusts
	IIIC	Metal dusts

### Classification of Surface Temperature

According to the maximum temperature that may appear on the surface of equipment, the maximum surface temperature is categorized into six classes.

Temperature Class	Maximum Surface Temperature
T1	≤ 450°C
T2	≤300°C

Temperature Class	Maximum Surface Temperature
Т3	≤200°C
T4	≤ 135°C
T5	≤ 100°C
Т6	≤ 85°C

User Manual Packing List

# 2. 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

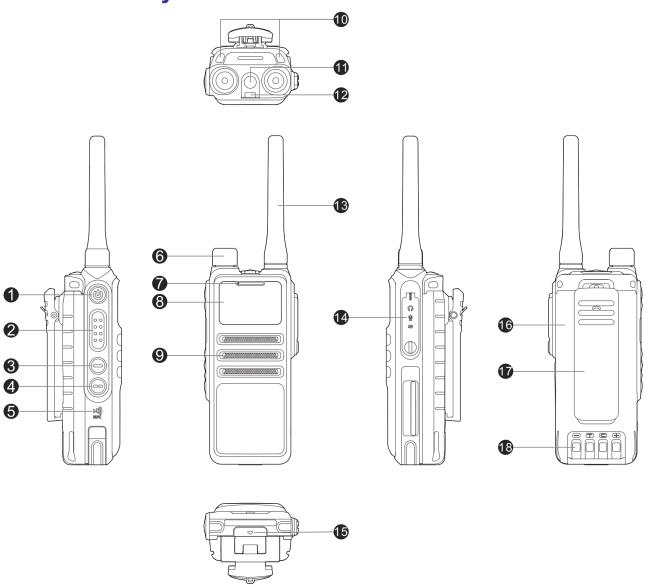


- Figures in this manual are only for reference.
- Check whether the frequency band marked on the antenna label matches that on the radio label. If not, contact your dealer.

Product Overview User Manual

# 3. Product Overview

# 3.1 Product Layout



No.	Part Name	No.	Part Name	No.	Part Name
1	On-Off Key	7	Microphone	13	Antenna
2	Push-to-Talk (PTT) Key	8	LCD Display	14	Accessory Connector
3	Side Key 1 (SK1)	9	Speaker	15	Battery Latch
4	Side Key 2 (SK2)	10	Strap Hole	16	Battery
5	NFC Tag	11	Top Key (TK)	17	Belt Clip
6	Smart Knob	12	LED Indicator	18	Charging Contacts

User Manual Product Overview

# 3.2 Programmable Keys

For enhanced convenience, you can ask your dealer to program the following keys as shortcuts to radio features: **TK**, **SK1**, and **SK2**. For details, consult your dealer.

Before Use User Manual

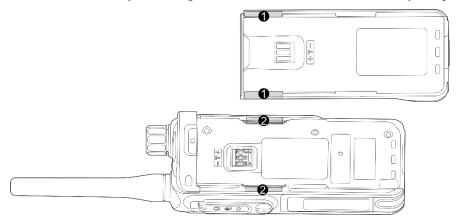
# 4. Before Use

# 4.1 Attach the Battery

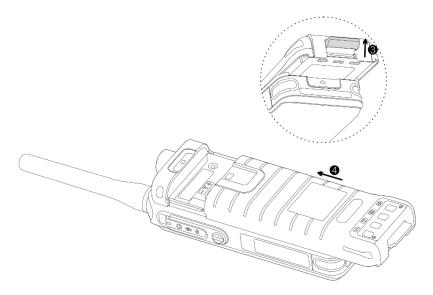


# **A** CAUTION

- Make sure the grooves on the battery are aligned with the guiderails on the sides of battery compartment, otherwise the guiderails may deform.
- 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.
- Align the grooves ① on the battery with the guiderails ② on the sides of the battery compartment.



Lift and hold the battery latch ③, and then slide the battery into the battery compartment ④ until you hear a click.



Release the battery latch.

**User Manual** Before Use



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

• During battery removal, slide the battery along the guiderails until the battery can no longer be moved, and then remove the battery. Otherwise, the guiderails may be damaged.

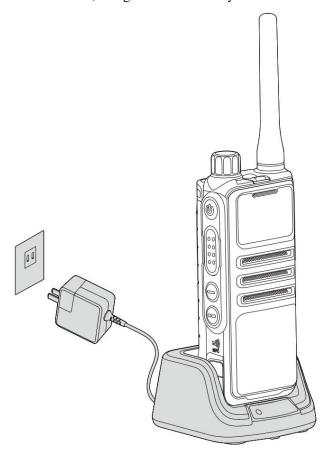
# 4.2 Charge the Battery

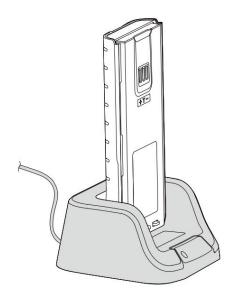


# **A** CAUTION

- Use the charger CH10L33, CH20L24, or MCL41 approved by the Company.
- Do not charge the radio in hazardous area.
- 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).
- It is recommended that the radio remains turned off during charging.

Before initial use, charge either the battery alone or the battery that is attached to the radio.





Before Use User Manual

You can learn about the charging status through the LED indicator on the charger.

LED Indicator	Charging Status
Glows red	The battery is being charged.
Glows green	The battery is fully charged.
Flashes red slowly	No battery is inserted to the charger.
Flashes red rapidly	The battery fails to be charged.

# 4.3 Attach the Antenna



# **A** 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.



**User Manual** Before Use

# 4.4 (Optional) Attach the Audio Accessory

If you purchase an audio accessory from the Company, you can attach it to the radio.



### **CAUTION**

- Keep the accessory connector cover properly after removing the cover.
- Place the accessory connector cover back and fasten the screw after removing the accessory.
- Do not attach the audio accessory in hazardous area.
- Loosen the screw on the accessory connector cover, and then remove the cover.



- Insert the audio accessory plug into the accessory connector. 2.
- Tighten the screw on the audio accessory plug. 3.

Before Use User Manual



# 4.5 Attach 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.





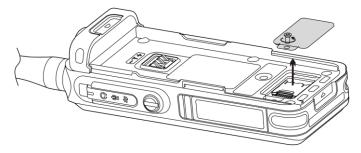
To remove the belt clip, press and hold the spring plate of the belt clip and push the belt clip upwards.

User Manual Before Use

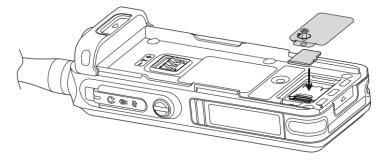
# 4.6 (Optional) Install the TF Card

If you purchase a TF card, you can install it on the radio.

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.



Basic Operations User Manual

# 5. Basic Operations

### 5.1 Turn On or Off the Radio

- To turn on the radio, long press (1) or reattach the battery.
- To turn off the radio, long press (1).

# 5.2 Adjust the Volume

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

# 5.3 Switch the Operation Mode

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

- Manual Switch
  - > Press the preprogrammed **Operation Mode Switch** key.
  - > If the Zone/Subgroup Switch Mode feature is turned on, you can switch the operation mode by rotating the Smart Knob.
- Auto Switch

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

To turn on this feature, press the preprogrammed Mode Auto Switch key.

### 5.3.1 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.

### Select a Zone

To select a zone, press the preprogrammed **Zone Up** or **Zone Down** key.

### Select a Channel

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

To select a channel, do any of the following:

- On the home screen, press and rotate the **Smart Knob** within 5s to select a channel.
- Press the preprogrammed Channel Up or Channel Down key.

User Manual Basic Operations

Press the preprogrammed Preset Channel key.



If the Voice Notify feature is turned on, the radio automatically announces the current channel upon poweron and channel change.

# 5.3.2 Trunking Mode

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

### **Select a Group or Private Contact**

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

- On the home screen, press and rotate the **Smart Knob** within 5s to select a group or private contact.
- Press the preprogrammed Group/Private Up or Group/Private Down key.

### Select a Subgroup

A subgroup consists of multiple groups or private contacts.

To select a subgroup, press the preprogrammed Subgroup Up or Subgroup Down key.

Status Indications User Manual

# 6. Status Indications

# 6.1 LCD Icon

Icon	Status
	More bars indicate more remaining battery power.
<b>136</b>	The radio is being charged.
	The battery power is running out.
	The battery power runs out.
٣×	<ul> <li>Conventional mode: The radio is standby or transmitting.</li> <li>Trunking mode: The radio is not registered to the base station.</li> </ul>
Tal	More bars indicate stronger signal.
	The radio works in low power mode.
H	The radio works in high power mode.
<b>₹</b> 0	An accessory is connected.
遉	The GPS feature is turned on, and valid positioning data has been received.
ນ	The GPS feature is turned on, but no valid positioning data has been received.
В	The BT feature is turned on.
·B·	A BT device is connected.
Δ	The radio is in emergency mode.
0	The radio stays on a site.
4	The radio is roaming.
ď	The Scrambler or Encryption feature is turned on.

User Manual Status Indications

lcon	Status
<b>=</b>	The Over the Air Encryption feature is turned on.
Ŗ	The Mode Auto Switch feature is turned on.
0	The radio is scanning or hunting.
•	The radio stays on an active channel.
Ð.	The radio stays on Priority Channel 1.
Ē	The radio stays on Priority Channel 2.
*	The radio has switched to the mixed channel.
"PL	The Non-Dedicated Trunk Station Control Channel (TSCC) feature is turned on.
ď	The TF card is abnormal.
<b>4</b>	The TF card is about full.
ä	The TF card is full.
•	The radio is recording the call.
<i>½</i>	An error occurs during call recording.
<b>Ø</b>	The Voice Activated Transmit (VOX) feature is turned on.
٥	The Monitor feature is turned on.
<b>(</b> )	The speaker is unmuted.
Ŋ.	The radio operates in silent mode.
D	The radio operates in profile 1.
E.	The radio operates in profile 2.
li.	The radio operates in profile 3.

Status Indications User Manual

lcon	Status
Ø	The radio operates in covert mode.
ļ.	The battery is overheating.

# **6.2 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	<ul> <li>Conventional mode: The radio is scanning or roaming.</li> <li>Trunking mode: The radio is hunting.</li> </ul>	
Flashes orange rapidly	<ul> <li>Conventional mode: The radio is operating in emergency mode.</li> <li>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.)</li> </ul>	
Glows orange	The radio is within call hang time. Within such a period, you can press and hold the <b>PTT</b> key to call back.	
Flashes blue every 3s	The BT feature is turned on, 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 turned off.	

User Manual Call Services

# 7. 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.



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

# 7.1 Call on Digital Channel

On a digital channel, you can initiate or receive the following types of calls:

- Group call: a call from an individual user in a group to all the other members in the group.
- Private call: a call from an individual user to another individual user.
- Broadcast call (preprogrammed by your dealer): a special group call in trunking mode, during which only the calling party can transmit voice.
- All call (preprogrammed by your dealer):
  - > Conventional mode: a call from an individual user to all the other users on the current digital channel.
  - > Trunking mode: a call from an individual user to all the other users in the network.

    Preprogrammed by your dealer, an all call can be either of 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.



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.

### 7.1.1 Initiate a Call

### Conventional Mode

- On the home screen, press and then rotate the Smart Knob to select the digital channel with preset contact, and then press and hold the PTT key.
- With the One Touch Call feature preprogrammed by your dealer, press the preprogrammed One Touch Call key, and then press and hold the PTT key.

Call Services User Manual

### **Trunking Mode**

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

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

### 7.1.2 Answer a Call

### Answer a Group/Broadcast/All Call

You can answer a group call, broadcast call, or all call without any operation.

### Answer a Private Call

- Conventional mode: You can answer a private call without any operation.
- Trunking mode:
  - > FOACSU

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

> Off Air Call Set-Up (OACSU)

The call is established automatically.

### 7.1.3 End a Call

### **Conventional Mode**

Private call or group call

No one presses the PTT key, and the call hang time expires.

All call

The calling party releases the PTT key.

### **Trunking Mode**

Group call or all call

The calling party hangs up or presses the preprogrammed Clear Down key.

Private call

Either the calling party or called party hangs up or presses the preprogrammed Clear Down key.

# 7.2 Call on Analog Channel

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

User Manual Call Services

# 7.2.1 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.

# 7.2.2 Call with Signaling

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

To initiate a call with signaling, press the preprogrammed One Touch Call key.

# 8. Supplementary Features

### 8.1 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: applicable to the low-noise environment, such as a quiet street.
- Meeting: applicable to the indoor environment that is relatively quiet.
- Outdoor: applicable to the high-noise environment, such as a highway.
- Custom: applicable to other situations.
- Covert Mode (preprogrammed by your dealer): applicable to special situations. The radio locks the screen and turns off all alert tones and LED indications, and outputs voice only through the audio accessory.

To switch the profile, press the preprogrammed **Profiles Switch** key.

To turn on Covert Mode, press the preprogrammed Covert Mode key.

# 8.2 Audio Settings

### 8.2.1 Mode Switch

You can set the radio to use the microphone or speaker 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	<ul> <li>When you transmit voice by pressing the PTT key of the radio, the radio uses the internal microphone.</li> <li>When you transmit voice through the audio accessory, the radio uses the external microphone.</li> </ul>	• To switch microphone options, press the preprogrammed Mic Set Switch key.
Only Internal	The radio uses only the internal microphone and speaker.	• To switch speaker options,
Only External	The radio uses only the microphone and speaker of the audio accessory, such as earpieces and remote speaker microphone.	spk Set Switch key.

	When audio accessories are connected, the radio uses the	
External First	external microphone and speaker. Otherwise, the radio uses	
	the internal microphone and speaker.	

### 8.2.2 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, press the preprogrammed **AI Noise Cancellation** key to turn on the feature.

### 8.3 Power Level

You can set the TX power level to high or low. High power can enhance the signal strength of the voice and increase the communication distance, while low power can save power.

To switch the power level, press the preprogrammed Adjust Power Level key.

### **8.4 VOX**

VOX allows the voice to trigger transmission. When the voice detected by the microphone reaches the value to trigger the transmission, the radio automatically transmits the voice without the **PTT** key pressed.

To turn on VOX, press the preprogrammed **VOX** key.

# 8.5 Scan

### 8.5.1 Conventional Mode

In conventional mode, the Scan feature allows you to listen to activities on other channels, keeping track of your team members. With this feature turned on, the radio scans according to the scan list. When detecting activities on a channel, the radio stays on the channel.

To turn on Scan, press the preprogrammed Scan key.

# **NOTE**

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

# 8.5.2 Trunking Mode

### **Pre-registration Hunt**

Before registering, the radio hunts through the control channels for available BS. Two hunting plans are adoptable:

- Fixed Trunking Station Control Channel (Fixed TSCC) (programmed by your dealer)
   When the radio has unified frequency plans, it can use the Fixed TSCC.
- Flexible Trunking Station Control Channel (Flexible TSCC).
   When the radio does not have unified frequency plans, it can use the Flexible TSCC. After being powered on, the radio automatically starts hunting.

### **Post-registration Hunt**

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

Hunt Mode	Description	Operation
Background Hunt	This feature allows an idle radio to keep detecting the signal strength of the registered BS. If the signal strength goes below the threshold level preset by the dealer, the radio will automatically hunt for and register with an adjacent BS with stronger signal strength.	
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.	Press the preprogrammed  Background Hunt,  HomeStation Hunt, or  Multi-site Handover key.
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 turned on by default.
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# 8.6 Positioning

The Positioning feature allows the radio to collect its location information through GPS. This feature is preprogrammed by your dealer.



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

#### 8.6.1 Voice w/Location

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

This feature is preprogrammed by your dealer, and configured in either of the following ways:

- When you press and hold the PTT key to transmit voice, the radio reports its location information at the same time.
- When you press and hold the PTT key to transmit voice, the radio reports its location information at regular intervals.

## 8.6.2 GNSS Report

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

#### **Conventional Mode**

You can report the location information to the control center in either of the following ways:

- Press the preprogrammed GNSS Report key.
- Request your dealer to configure the GNSS Report trigger condition as power-on/off, preset time, or distance interval.

The radio automatically reports the location information according to the trigger condition.

## **Trunking Mode**

With the GNSS Active Report feature preprogrammed by your dealer, the radio automatically reports the location information when reaching the preset time or distance.

If the radio is turned on with the GNSS Report in Voice feature, the radio will report the location information during a call.

#### 8.6.3 Quick GNSS

The Quick GNSS feature improves channel utilization and efficiency of data transmission. With this feature turned on, the system divides the report interval into different time slices with the same time length. Then the radio transmits location data according to the report order of its own time slices. In this way, location data of all radios under the same control station can be transmitted at the same interval.

If a digital channel is specifically configured for Quick GNSS by your dealer, this channel can only report Quick GNSS data, and cannot report voice, short data, RRS, or standard GNSS data.

#### 8.7 BT



# **A** CAUTION

- To derive optimal communication quality, it is recommended that you use the BT devices approved by the Company.
- To use third-party BT earpieces, you must pair them with the wireless ring PTT of the Company. Otherwise, transmission is unavailable through the earpieces.

The BT feature allows the radio to connect to a BT device for short-distance communication and data exchange.



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

#### 8.7.1 Turn On the BT Feature

You can turn on the BT feature in either of the following ways:

- Press the preprogrammed BT key.
  - After this feature is turned on, the LED indicator flashes blue every 3 seconds.
- Request your dealer to turn on the BT feature and the BT Always Discoverable feature.

After power-on, the radio automatically activates the BT feature and stays detectable for other BT devices.

#### 8.7.2 Connect a BT Device

Switch the BT device to the pairing status.

For details, refer to the *User Manual* of the BT device.

2. On the radio, press the preprogrammed **BT Pairing** key.

The radio searches for and connects to the BT device. After successful connection, the radio displays **B**, and the LED indicator of the radio flashes blue every 1.5 seconds.

You can also ask your dealer to configure connectivity between the radio and the BT device. With the connectivity configured, the radio automatically searches for and connects to the BT device.

## 8.7.3 Switch the BT Audio Output

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

## 8.8 One Touch Call

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

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

Mode	Description	Operation
Conventional mode	On an analog channel, you can initiate a call to a preset contact.  On a digital channel, you can do any of the following:  Initiate a group call, private call, or 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 to a private contact.	<ul> <li>To initiate a call on a digital channel, press the preprogrammed One Touch Call key, and then press and hold the PTT key.</li> <li>To initiate other services, press the preprogrammed One Touch Call key.</li> </ul>
Trunking mode	<ul> <li>Initiate a group call, private call, all call, broadcast call, or emergency call.</li> <li>Send a quick text message or status message.</li> </ul>	

### 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, press the preprogrammed Roam key

### 8.9.2 Trunking Mode

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

This feature is preprogrammed by your dealer.

## 8.10 Talk Around

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.

To switch between the direct mode and repeater mode, press the preprogrammed Talk Around key.

# 8.11 Squelch Level

In conventional mode, 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.

To adjust squelch level, press the preprogrammed Adjust Squelch Level key.

## 8.12 **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.

For operations of initiating, receiving, or ending a DGNA call, see 7.1 Call on Digital Channel.

# 8.13 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.

## **Manual Priority Interrupt**

To interrupt the ongoing activities, press the preprogrammed **Priority Interrupt** key.

## **Auto Priority Interrupt**

Auto Priority Interrupt	Triggered When You
Emergency Priority Interrupt	Initiate an emergency call.
Call Back Priority Interrupt	Press and hold the PTT key to call back.
Message Priority Interrupt	Send a message.
Radio Disable Priority Interrupt	Send the Radio Disable command.
All Call Priority Interrupt	Initiate an all call.

# 8.14 Security

# 8.14.1 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
Siren Only	The radio emits a siren but does not transmit any emergency signal to the control center.
Regular	The radio gives audible indications.
Silent	The radio gives no audible indication.
Silent w/Voice	The radio gives audible indication only upon receiving a call. Otherwise, the radio gives no audible indication.
Alarm w/Siren	The radio transmits the emergency signal to the control center, and then emits a siren.

In addition, you can ask your dealer to set any of the following emergency modes:

Emergency Mode	Description	Note
Call Only	It allows you to initiate an emergency call.	

Alarm w/Call	It allows you to send an emergency alarm and initiate an emergency call.	Siren Only or Alarm
Alarm	It allows you to send an emergency alarm.	w/Siren, you do not need to set the emergency mode.

#### Initiate an Emergency Call

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

With the Alarm w/Call To Follow feature 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.

#### **Answer an Emergency Call**

You can answer an emergency call without any operation.

### **End an Emergency Call**

- Calling party
  - > Press the preprogrammed **Emergency Off** key.
  - > Turn off the radio.
- Called party
  - Switch the channel.
  - > Turn off the radio.

# NOTE

With the Send Emergency Exit Message feature preprogrammed by your dealer, you can send an emergency exit message to the receiver when ending an emergency alarm or emergency call initiated by mistake.

#### 8.14.2 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 turn on Man Down, press the preprogrammed Man Down key.

#### 8.14.3 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 turn on Lone Worker, press the preprogrammed Lone Worker key.

## **8.14.4 Encrypt**

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

#### Turn On the Encrypt Feature

Press the preprogrammed Encrypt key.



If you turn on this feature, the radio will encrypt the current channel. When you switch to this channel next time, the radio automatically turns on the Encrypt feature.

## **Set the Encrypt Feature**

To use the encryption services, the transmitting radio and the receiving radio must turn on the Encrypt feature simultaneously with matching encryption key.

The encryption key is preprogrammed by your dealer.

## 8.14.5 TF Encrypt

The TF Encrypt feature allows the radio to encrypt the voice and data services with the TF card.

For highly sensitive communications, you can customize the encryption algorithm and key stored in the TF card.

To use the TF Encrypt feature, the radio must be configured with hardware encryption.

#### 8.14.6 TF Recorder

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

This feature is preprogrammed by your dealer.

## **Start Call Recording**

Press the preprogrammed Call Recording key.

## **Stop Call Recording**

You can stop call recording in either of the following ways:

- Manually: Press the preprogrammed Call Recording key again.
- Automatically: The radio will automatically stop recording when:
  - > A higher priority service interrupts the ongoing call.
  - > The TF card runs out of storage space.

#### Manage Recording Files

To manage recording files, do as follows:

- 1. Turn off the radio.
- 2. Long press the On-Off, TK, and SK2 key combination to enter the radio into U-disk mode.
- 3. Use a programing cable to connect the radio to the computer.

The TF card will appear as a U-disk drive in **This PC**.

- 4. On the computer, double-click the U-disk drive, and then open the "Recorder" folder.
- 5. Copy and paste the recording files in the folder to your computer.

The details of the recoding folder and recording files are as follows:

Name	Description	Naming Rule
Recording folder	Each folder can store a maximum of 200 recording files.	Record_xxxx, where xxxx represents the folder number, ranging from 0001 to 9999.
Recording file	Each recording file has a maximum duration of 5 minutes. If the recording exceeds this limit, it will be split into multiple files.	<ul> <li>xyyy_mmddhhmmss.zz</li> <li>xyyy:</li> <li>x: represents the recording type:</li> <li>R: on-site recording.</li> <li>C: call recording.</li> <li>yyy: represents the unique call ID.</li> <li>mmddhhmmss: represents the recording timestamp in the format of month, day, hour, minute, and second.</li> <li>Conventional mode: 0000000000 (default).</li> </ul>

Name	Description	Naming Rule
		> Trunking mode: real-time clock when the call is
		recorded.
		zz: represents the sequence number for split recordings.

# **NOTE**

- With the Automatic Recording Deletion feature preprogrammed by your dealer, the radio automatically deletes the earliest recording files when the TF card reaches its storage capacity.
- With the Recording Compression feature preprogrammed by your dealer, the radio can reduce the file size of recording without compromising audio quality.

## 8.14.7 Stun, Revive, and Kill

#### **Conventional Mode**

You can send the Radio Disable command to a private contact to disable its radio. The disabled radio is incapable of any function except the remote monitor. The disabled radio must be reprogrammed by the dealer or turned on by the Radio Enable command for reuse.

You can send the Radio Enable command to a private contact to restore its radio to normal use.

## **Trunking Mode**

When the radio is stunned by the dispatch station or trunking system, the radio cannot initiate or receive any network service (including calls), 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.

When the radio is killed by the dispatch station or trunking system, 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.

## 8.14.8 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.

With this feature 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 consecutive times, and then press SK1 again.

• When the radio is killed, the data in the radio will be erased automatically.

User Manual Troubleshooting

# 9. Troubleshooting

Phenomena	Analysis	Solution
	The battery may be installed improperly.	Remove and reattach the battery.
The radio cannot be	The battery power may have run out.	Recharge or replace the battery.
turned on.	The battery may suffer from poor contact caused by dirtied or damaged battery contacts.	Clean the battery contacts.
The make counct he	The radio cannot detect signal from the BS.	Make sure the radio is within the coverage of the BS.
The radio cannot be registered.	The radio may not be authorized.	Contact the BS manager to check that 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 ID is used by multiple radios.	Contact the BS manager to check that the ID is configured only to one radio 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.

Troubleshooting User Manual

There are unknown voices or sounds on	You may be interrupted by radios using the same frequency.	Change the frequency, or adjust the squelch level.
the channel.	The radio may be set with no signaling.	Set signaling for all member radios to avoid interference at the same frequency.
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	The battery power of the BT device may be low.	Recharge the BT device.
cannot be paired.	The BT device may be too far away from the radio.	Move the BT device close to the radio.
	The battery voltage may be low.	Recharge or replace the battery.
During receiving, the voice is weak,	The volume may be low.	Increase the volume or contact your dealer to turn the Mic AGC feature off.
discontinuous, or totally inactive.	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.

User Manual Troubleshooting

	You may be too far away from the group members.	Move close to other members.
	The signal may be weak.	Make sure call participants are within the communication range.
	The signal may be weak.	Make sure call participants are within the communication range.
There is too much noise and hiss.	The radio may be in an unfavorable position. For example, the signal may be blocked by high-rise 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 the Company or your local dealer for more technical support.

**Product Care** User Manual

# 10. Product Care

#### 10.1 Care

#### Radio



#### CAUTION

- Do not care or clean the radio in a hazardous area.
- If the product comes in contact with liquid, do not turn it on. Contact your local dealer or service center in time.

To ensure optimal performance and maximize product lifespan, follow these instructions:

- Do not disassemble the product.
- Do not drop, crush, or smash the product.
- Do not pierce or scrape the product, especially the interfaces and ventilation holes.
- Do not expose the product to extreme temperatures (below -20°C or above +55°C) for a prolonged period. For example, in hot days, do not leave the product with Li-ion or Li-polymer battery attached in a closed vehicle where no air conditioner works.
- Keep the product away from corrosive substances, such as salty water or corrosive gas.
- Close the accessory connector cover when no accessory is in use.
- Do not connect the product to other incompatible devices.
- Do not hold the product by its antenna.

To avoid liquid penetration into the product, follow these instructions:

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

If the product comes in contact with liquid, follow these instructions:

- Do not turn on the product.
- Do not connect any accessory or charger to the product.
- Do not use external heat sources (such as microwave and hair dryer) to dry the product.
- Do not insert the cotton buds or tissue into the interface.
- Use the clean and soft cloth to dry the water on the product surface, and then put the product to the well-ventilated place until it is fully dry.

User Manual Product Care

#### **Battery**

To ensure optimal performance and maximize battery life and lifespan, follow these instructions:

- Only use the charger approved by the Company to charge the battery.
- Keep the product turned off during charging.
- Do not use the product during charging.
- Charge the battery at the temperature from 0°C to 40°C.
- When the low battery alert appears, replace or charge the battery in time.
- When the battery is fully charged, disconnect the charger in time.
- Do not drop the battery.
- Do not expose the battery to water.
- To avoid short circuit, do not use conductive materials (such as iron wire) to touch the battery electrodes.
- Replace the battery in time when the battery reaches its end of life.
- Do not dispose of the battery with household waste.

# 10.2 Cleaning



- Before cleaning, turn off the product, remove the battery, and disconnect the cable, antenna, and accessory.
- Do not use chemical preparations such as stain removers, alcohol, sprays, or oil preparations.
- Do not directly spray the neutral cleanser on the product.
- Do not use the product before it is fully dry.
- After cleaning the accessory connector, put the cover back in place.

It is recommended that you clean the product regularly. During cleaning, check whether the components are damaged. If damages exist, contact your local dealer or the Company for service.

- 1. Use the non-metal brush to remove the dust or dirt from the product surface.
- 2. Use the lint-free cloth with proper neutral cleanser to clean the surface, screen, keys, knob, and interfaces.
- 3. Use another lint-free cloth with proper pure water to clean up the cleanser or residue.

**Product Care** User Manual



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

# 10.3 Sterilizing



# **A** CAUTION

- Before sterilizing, turn off the product, remove the battery, and disconnect the cable, antenna, and accessory.
- Do not directly spray the alcohol on the product.
- Keep the product away from the power supply and fire source.
- Do not use the product before it is fully dry.
- After sterilizing the accessory connector, put the cover back in place.

It is recommended that you sterilize the product regularly.

Use the lint-free cloth with proper rubbing alcohol (density  $\geq 70\%$ ) to clean up the product surface, screen, knob, keys, and interfaces.

# 10.4 Storing



# **A** CAUTION

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

When you store the product, follow these instructions:

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

# 11. Optional Accessories



# **A** 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.

Specifications User Manual

# 12. Specifications

Item	Description	
Frequency Range	<ul> <li>136–174 MHz</li> <li>330–400 MHz</li> <li>350–400 MHz</li> </ul>	
	● 400–480 MHz	
Channel Capacity	1,024	
Channel Spacing	12.5 kHz/20 kHz/25 kHz	
Operating Voltage	7.4 V DC	
Sensitivity	<ul> <li>Analog: 0.16 μV (12 dB SINAD); 0.14 μV (Typical) (12 dB SINAD)</li> <li>Digital: 0.16 μV/BER5%</li> </ul>	
RF Output Power	<ul> <li>◆ HP71XEx IIA:</li> <li></li></ul>	
Rated Audio Output Power	0.5 W	
Rated Audio Distortion	≤ 3%	
Operating Temperature	<ul> <li>Non-Ex area: -30°C to +60°C</li> <li>Ex area: -25°C to +60°C</li> </ul>	
Storage Temperature	-40°C to +85°C	

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Item	Description
Ex Battery	BL2105-Ex (2,150 mAh)
Battery Life (5-5-90 duty cycle, with Location turned off)	<ul> <li>HP71XEx IIA: 22 h</li> <li>HP71XEx IIC: 24 h</li> </ul>



All specifications are subject to changes without notice.

Abbreviations User Manual

# 13. 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
VOX	Voice Activated Transmit



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