



HP50X 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:

HP50X Intrinsically Safe Digital Portable Radio (X may represent 2, 5, 6, 8, or 9)

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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.

ISED 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 conformités 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.

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.

Operational Instructions and Training Guidelines

To ensure optimal performance and compliance with the occupational/controlled environment RF energy exposure limits in the above standards and guidelines, users should transmit not more than 50% of the time and always adhere to the following procedures:

- RF energy will be generated only when the radio is transmitting.
- The radio must be 2.5 centimeters away from human body when transmitting.

Hazardous Locations Certification Information

Compliance Standards

- UL 913, 5th Ed. February 21, 1997
- CAN/CSA C22.2 No. 157-92 (R2016) +Upd1 +Upd2
- ANSI/TIA-4950-A, Rev. May 13, 2014
- UL 121201, 9th Ed., Rev. September 15, 2017
- CAN/CSA C22.2 No.213, 3rd Ed. April 2021

Equipment marking

- Class I, Division 1, Groups C-D, T4
- Class II, Class III, Division 1, Groups E-G, T135°C
- Class I, Division 2, Groups A-D, T4

Ta: -20°C to +60°C

Certificate Number

SGSNA/24/SUW/00066X

No Misoperations

Stop operating this product and leave the explosive atmosphere immediately when the safety or integrity of the product is endangered, and deliver it to your local dealer for examination.

These items may endanger the product's safety or integrity:

- The radio is stored improperly;
- The radio is faulty;
- The radio works with overload;
- The radio's operational error or threshold value is out of allowed range;
- The radio is damaged during transportation;
- The radio's housing is obviously damaged or cracked;
- The radio logo or model is hard to be recognized.

Safety Instructions



Caution: To protect you against any property loss, bodily injury or even death, be sure to observe the following safety instructions:

- Use only the Ex-battery BL2301-Ex specified by the Company. The use of other batteries may result in Ex-protection (intrinsic safety) failure.
- Charge the battery in a non-hazardous area only with the designated charger.
- Do not remove the battery from the radio in a hazardous area.
- Do not carry any standby battery into a hazardous area.
- Use the accessories specified by the Company only. Do not replace the accessories in a hazardous area.
- Do not use a damaged antenna. If a damaged antenna comes into contact with your skin, a minor burn may result.
- Do not expose the radio to direct sunlight for a long time, nor place it close to a heating source.
- Hold the radio upright and keep its microphone 2.5 to 5 centimeters away from your mouth during use.
- If you wear a radio on your body, ensure its antenna is at least 2.5 centimeters away from your body during transmission.
- Do not attempt to repair and service the radio, batteries and its accessories. Please contact your dealer for repair and servicing.
- Do not disassemble or redo the radio. Unauthorized modification of the radio may result in termination of Ex-protection (intrinsic safety) of the radio.
- Improper usage of the product other than it is intended to be used for will impair safety of the product, yourself and surrounding environment.

Renseignements sur l'homologation des endroits dangereux

Normes de conformité

- UL 913, 5th Ed. February 21, 1997
- CAN/CSA C22.2 No. 157-92 (R2016) +Upd1 +Upd2
- ANSI/TIA-4950-A, Rev. May 13, 2014
- UL 121201, 9th Ed., Rev. September 15, 2017
- CAN/CSA C22.2 No.213, 3rd Ed. April 2021

Marquage de l'équipement

- Classe I, Division 1, Groupe C-D, T4
- Classe II, Classe III, Division 1, Groupe E-G, T135°C
- Classe I, Division 2, Groupe A-D, T4

Ta: -20°C à +60°C

Numéro de certificat

SGSNA/24/SUW/00066X

Mauvaises utilisations à éviter

Arrêtez d'utiliser ce produit et quittez l'atmosphère explosive immédiatement si la sécurité ou l'intégrité du produit sont compromises, puis retournez-le à votre revendeur local pour vérification.

Voici la liste des éléments susceptibles de compromettre la sécurité ou l'intégrité du produit:

- La radio n'est pas stockée correctement.
- La radio est défailante.
- La radio fonctionne en surcharge.
- La valeur de seuil ou d'erreur de fonctionnement de la radio se trouve en dehors de la plage autorisée.
- La radio est endommagée au cours du transport.
- Le boîtier de la radio est visiblement endommagé ou fendillé.
- Le logo ou le modèle de la radio sont difficilement reconnaissables.

Instructions de sécurité



Avertissement: Pour vous protéger contre la perte de biens, les blessures corporelles ou même les risques mortels, assurez-vous de suivre les instructions de sécurité suivantes:

- N'utilisez que la batterie Ex BL2301-Ex spécifiée par l'Entreprise. L'utilisation d'autres batteries peut entraîner une défaillance de la protection Ex (sûreté intrinsèque).
- Chargez uniquement la batterie dans une zone ne présentant aucun risque, à l'aide du chargeur prévu à cet effet.
- Ne retirez pas la batterie de la radio dans une zone à risques.
- Ne transportez pas de batterie de rechange dans une zone à risques.
- Utilisez uniquement les accessoires spécifiés par l'Entreprise. Ne remplacez pas les accessoires dans une zone à risques.
- N'utilisez pas une antenne endommagée. Si une antenne endommagée entre en contact avec votre peau, vous risquez des brûlures superficielles.
- N'exposez pas la radio à la lumière directe du soleil pendant une période prolongée. Ne la placez pas à proximité d'une source de chaleur.
- Tenez la radio en position vertical et gardez le micro à une distance de 2,5 à 5 cm de votre bouche pendant son utilisation.
- Si vous transportez une radio, assurez-vous que son antenne se trouve à une distance minimale de 2,5 cm de votre corps au cours de la transmission.
- N'essayez pas de réparer et d'entretenir la radio, les batteries et les accessoires. Veuillez contacter votre revendeur pour la réparation et l'entretien.
- Ne démontez pas la radio, ne la modifiez pas. Toute modification non autorisée de la radio peut compromettre la protection Ex (sûreté intrinsèque) de la radio.
- Une utilisation incorrecte du produit, autre que dans le cadre de l'utilisation prévue, peut compromettre la sécurité du produit, votre sécurité et celle de votre environnement.
- Ne transportez pas la radio dans des zones 0 et 20. Veuillez ne pas utiliser la radio en dehors des plages de température de fonctionnement spécifiées pour ce produit.



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Documentation Information

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.

Notation Conventions

Item	Description	Example
Boldface	Denotes menus, tabs, parameter names, window names, dialog names, and hardware buttons.	To save the configuration, click Apply .
		The Log Level Settings dialog 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 .
<i>Italic</i>	Denotes document titles.	For details about using the UNM5800, refer to <i>UNM5800 Operation Guide</i> .
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

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

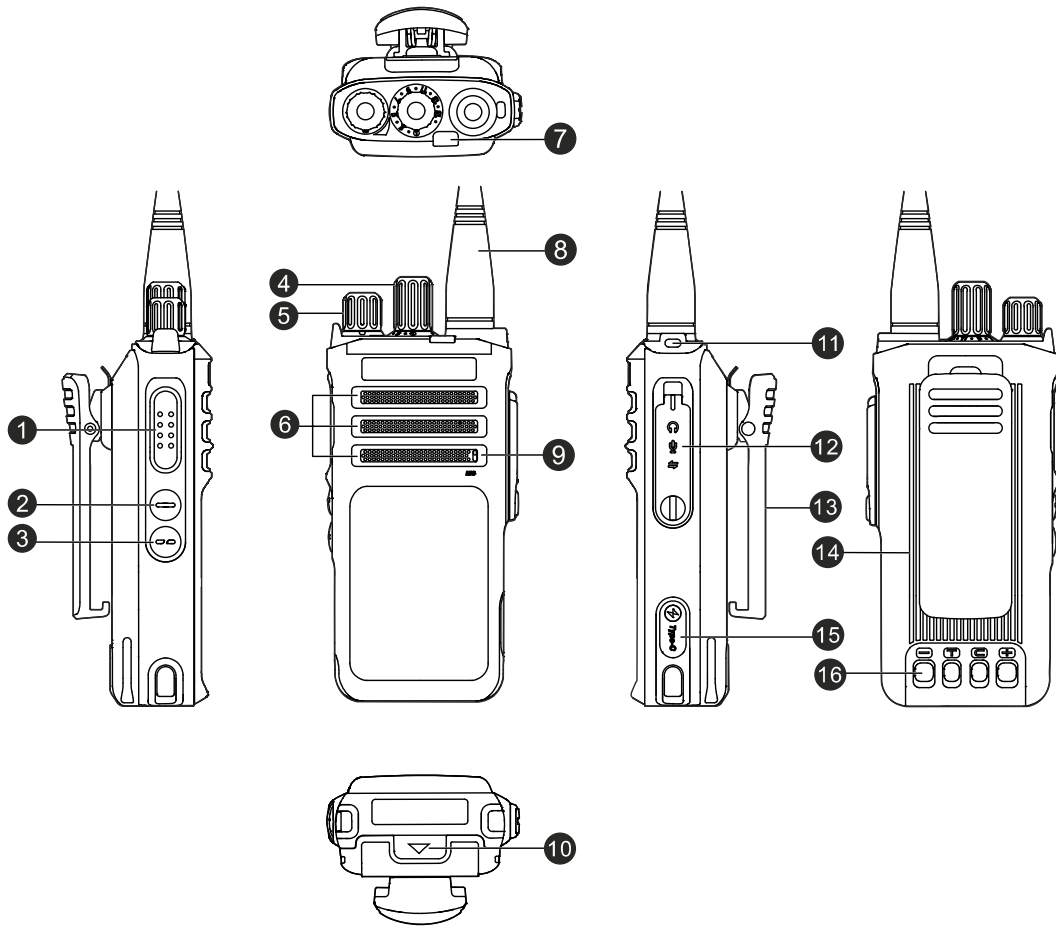
Item	Quantity (PCS)	Item	Quantity (PCS)
Radio	1	Antenna	1
Battery	1	Belt Clip	1
Charger	1	Strap	1
Power Adapter	1	Documentation Kit	1

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

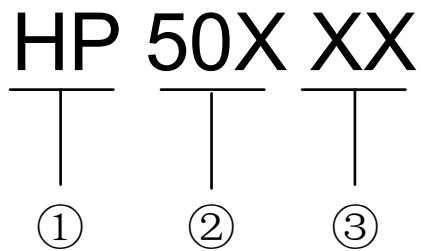


No.	Part Name	No.	Part Name	No.	Part Name
1	Push-to-Talk (PTT) Key	7	LED Indicator	13	Belt Clip
2	SK1 Key*	8	Antenna	14	Battery
3	SK2 Key*	9	Microphone	15	USB Type-C Port
4	Channel Selector Knob	10	Battery Latch	16	Charging Contacts
5	On-Off/Volume Knob	11	Strap Hole	/	/
6	Speaker	12	Accessory Connector	/	/

 **NOTE**

The asterisk symbol (*) indicates the programmable key. To assign features to programmable keys, contact your dealer.

2.2 Model Description



No.	Description
①	HP indicates Hytera portable radio.
②	50X indicates the products series.
③	XX indicates the frequency range such as UHF 1, or VHF.

3. Before Use

3.1 Charge the Battery

CAUTION

- 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.

- Use the charger to charge the battery alone or the battery attached to the radio.

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 placed on the charger.
Flashes red rapidly	The battery fails to be charged.

- Connect the radio with battery attached to the power adapter, power bank, or PC through the USB Type-C cable.

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

LED Indicator	Charging Status
Glows red	The battery is being charged.
Flashes red rapidly	The battery fails to be charged.
Glows green	The battery is fully charged.

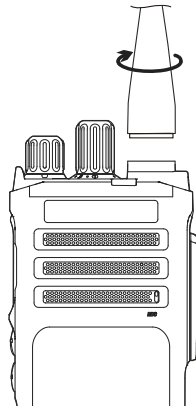
NOTE

If the battery has not been used for a long time, charge the battery with the charger until it is fully charged.

3.2 Attach the Antenna

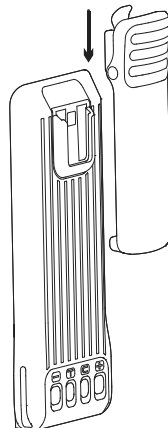
CAUTION

- Do not install or remove the antenna in hazardous area.
 - 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.
-



3.3 Attach the Belt Clip

1. Align the holder on the belt clip with the groove on the battery.
2. Press the belt clip downwards into place.



NOTE

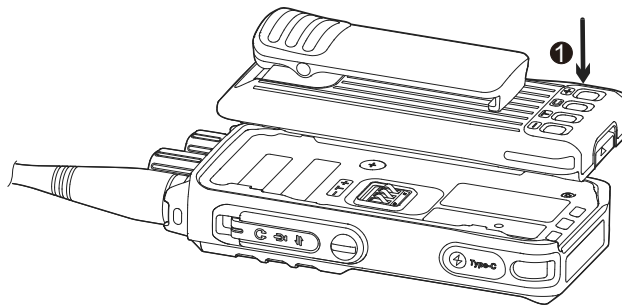
To remove the belt clip, press and hold the spring plate and push the belt clip upwards.

3.4 Attach the Battery

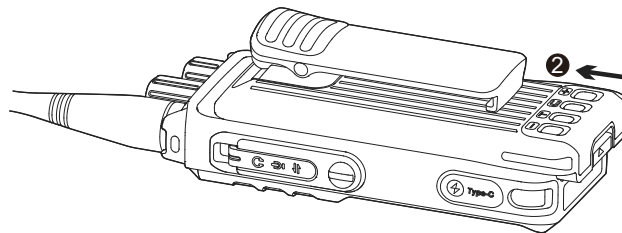
CAUTION

- Do not attach or remove the battery in hazardous area.
- 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*.

1. Align the battery with the battery slot.



2. Press and push the battery into the battery slot until you hear a click.

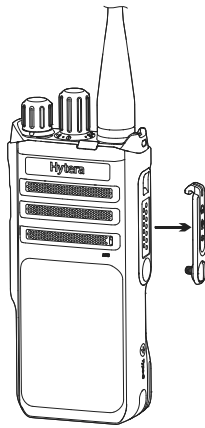


3.5 Attach the Audio Accessory

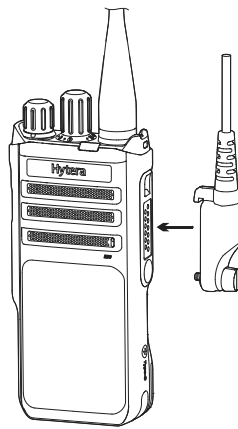
CAUTION

- Do not attach or remove the audio accessory in hazardous area.
- For optimal waterproof and dustproof performance, do as follows:
 - When you attach the accessory, do not scrape or damage the silicone rubber surrounding the screw hole on the accessory connector.
 - After you remove the accessory, close the accessory connector cover and fasten the screw.

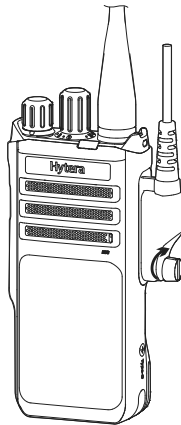
1. Loosen the screw on the accessory connector cover, and then remove the cover.



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

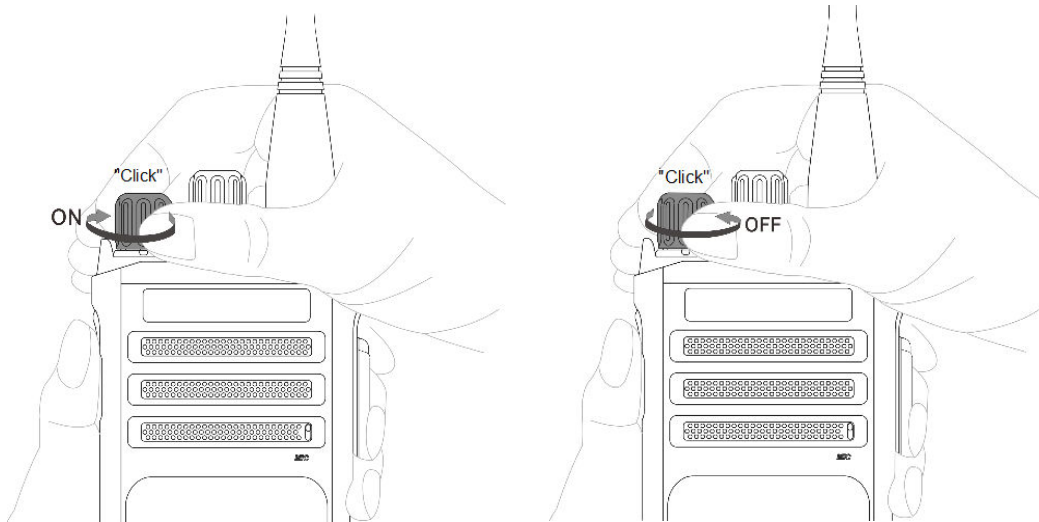


3. Tighten the screw on the audio accessory plug.

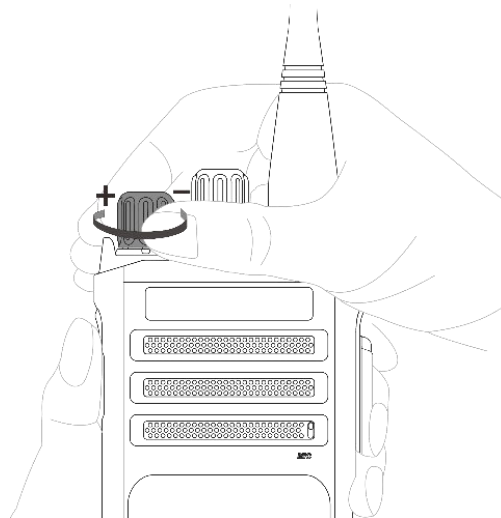


4. Basic Operations

4.1 Turn On or Off the Radio



4.2 Adjust the Volume



4.3 Select a Zone

A zone is a group of channels within the same operational area.

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

4.4 Select a Channel

The radio receives and transmits voice and data on the selected channel. Before selecting a channel, make sure that the current zone contains the channel.

To select a channel, do any of the following:

- Rotate the **Channel Selector** knob.
 - Press the preprogrammed **Channel Up** or **Channel Down** key.
 - Press the preprogrammed **Preset Channel** key.
-

 **NOTE**

With Voice Broadcast turned on, the radio audibly notifies the current channel when you switch channels or turn on the radio.

5. LED Indicator

You can learn about the radio status through the LED indicator.


LED Indicator		Radio Status
Flashes green		The radio is being turned on.
Glowes green		The radio is receiving.
Glowes red		The radio is transmitting.
Flashes orange slowly		The radio is scanning or roaming.
Flashes orange rapidly		The radio is operating in emergency mode.
Glowes orange		<ul style="list-style-type: none"> ● Digital mode: The radio is in the call hang time. In this case, no voice is being transmitted or received during a call. Within such a period, you can press and hold the PTT key to speak. ● Analog mode: The radio is in the auto reset time.
Flashes blue	Every 3s	BT is turned on, but no BT device is connected.
	Every 1.5s	A BT device is connected.
	Every 0.1s	BT is being turned off.

6. Call Services

To ensure optimal voice quality on the receiving radio, keep the microphone 2.5 cm to 5 cm away from your mouth during speaking.

6.1 Call on Digital Channel

On the digital channel, you can initiate the following calls to the preset contacts:

Call Type	Description
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.
All Call	<p>A call from an individual user to every user on the current digital channel.</p> <p> NOTE To preprogram All Call, contact your dealer.</p>

6.1.1 Initiate a Call

- Initiate a call to the preset contact on a channel
 - a. Select a digital channel according to [4.4 Select a Channel](#).
 - b. Press and hold the **PTT** key.
- (Optional) Initiate a call to the preprogrammed contact
 - a. Press the preprogrammed **One Touch Call** key.
 - b. Press and hold the **PTT** key.

6.1.2 Answer a Call

You can answer a call without any operation.

6.1.3 End a Call

- The private call or group call ends when the call hang time expires.
- The all call ends when the calling party releases the **PTT** key.

6.2 Call on Analog Channel

You can initiate or receive a call on an analog channel with or without signaling.

6.2.1 Call Without Signaling

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

1. Select an analog channel according to [4.4 Select a Channel](#).
2. Press and hold the **PTT** key.

6.2.2 Call with Signaling

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

Press the preprogrammed **One Touch Call** key.

7. Safety and Security

7.1 Emergency

The Emergency feature allows you to seek help from your companion or the control center in case of an 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 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 an audible indication.
Silent	The radio gives no audible indication.
Silent w/Voice	The radio gives an 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 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 alarm and initiate an emergency call.	
Alarm	It allows you to send an emergency alarm.	

7.1.1 Initiate an Emergency Call

To initiate an emergency call to the preset contact, press the preprogrammed **Emergency On** key.

If Alarm w/Call To Follow 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 an emergency call again.

7.1.2 Answer an Emergency Call

You can answer an emergency call without any operation.

7.1.3 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 Send Emergency Exit Message preprogrammed by your dealer, if you accidentally initiate an emergency alarm or emergency call, you can send an emergency exit message to the called party upon exiting emergency mode.

7.2 Lone Worker

Lone Worker 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.

7.3 Encryption

Encryption provides end-to-end encryption to protect your voice and data against eavesdropping.

7.3.1 Turn on Encryption

Press the preprogrammed **Encrypt** key.

NOTE

If you turn on this feature, the radio will encrypt the voice and data on the current channel. Whenever you switch to the current channel, the radio automatically turns on the Encrypt feature.

7.3.2 Set Encryption

To use the encryption services, both the transmitting radio and the receiving radio must turn on Encryption simultaneously with matching encryption key. The encryption key is preprogrammed by your dealer.

7.4 Radio Disable and Enable

- Radio Disable

You can send a Radio Disable command to remotely disable a radio. Once disabled, this radio becomes inoperable but can still be monitored remotely.

- Radio Enable

You can enable the disabled radio again to resume normal operation by either of the following methods:

- Send a Radio Enable command to the radio.
- Program the radio again.

8. Basic Settings

8.1 Audio Settings

8.1.1 Switch the Audio Routing

You can set audio routing for voice transmitting or receiving. With the audio accessory connected, you can switch the audio options.

Option	Description	Operation
Follow PTT	<ul style="list-style-type: none"> When you press the PTT key on the radio to transmit voice, the radio uses the internal microphone. When you transmit voice through the audio accessory, the radio uses the external microphone. 	<ul style="list-style-type: none"> Press the preprogrammed Mic Set Switch key to switch the microphone audio option. Press the preprogrammed SPK Set Switch key to switch the speaker 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 the radio is connected to an audio accessory, the radio uses the external microphone and speaker. Otherwise, the radio uses the internal microphone and speaker.	

8.1.2 Turn on AI-based Noise Cancellation

AI-based Noise Cancellation allows the radio to automatically eliminate ambient noise when receiving or transmitting voice. This feature enhances the voice clarity, but also slightly decreases the volume.

To turn on AI-based Noise Cancellation, press the preprogrammed **AI-based Noise Cancellation** key.

8.2 Positioning

Positioning allows the radio to collect its location information.

NOTE

- Positioning is available only for radios with GPS, BDS, or GLONASS.
- To turn on Location, contact your dealer.

8.2.1 GPS Report

GPS Report allows the radio to report its location information to the control center.

Manual

Press the preprogrammed **GPS Report** key.

Automatic

You can consult your dealer to configure the GPS trigger conditions. After configuration, the radio can automatically report the GPS data upon power-on/off, at the preset time, or at specified distance interval.

8.3 BT

CAUTION

- To derive optimal communication quality, it is recommended 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, the earpieces cannot transmit the voice.

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

NOTE

BT applies only to radios with the BT module.

8.3.1 Turn on BT

Manual

Press the preprogrammed **BT** key.

Automatic

You can consult your dealer to turn on BT Always Discoverable. This allows the radio to automatically turn on BT and keep the radio stay discoverable by other BT devices upon power on.

8.3.2 Connect to a BT Device

Only after the connection between the radio and the BT device is established, the radio can automatically search and connect to this BT device.

NOTE

To establish the connection between the radio and the BT device, contact your dealer.

8.3.3 Switch BT Audio

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

9. PMR Features

NOTE

To pre-configure features in this chapter, contact your dealer.

9.1 Power Level

Power Level allows you to set the TX power level to high or low.

- High: The radio can support long-distance communications while consuming more battery power.
- Low: The radio can support short-distance communications while saving battery power.

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

9.2 Scan

Scan allows you to listen to activities on other channels, keeping track of your team members.

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

With Scan turned on, the radio scans according to the scan list, during which the LED indicator flashes orange slowly.

When detecting activities on a channel, the radio stays on the channel, during which the LED indicator glows green.


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.

9.3 One Touch Call

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

You can choose any of the following preset services:

Channel Type	Service	Operation
Analog channel	Initiate a call to a 2-tone contact.	Press the preprogrammed One Touch Call key.
Digital channel	<ul style="list-style-type: none"> ● 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. 	 NOTE To initiate a call on a digital channel, you must press and hold the PTT key after pressing the preprogrammed One Touch Call key.

	<ul style="list-style-type: none"> ● Initiate an Alert Call, Radio Check, Remote Monitor, Radio Disable, or Radio Enable service to a private contact. 	
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9.4 Roam

Roam allows you to enjoy seamless communication across sites or networks.

To turn on or off Roam, press the preprogrammed **Roam** key.

9.5 Talk Around

Talk Around 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 direct mode and repeater mode, press the preprogrammed **Talk Around** key.

9.6 Squelch Level

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 the Squelch Level, press the preprogrammed **Adjust Squelch Level** key.

9.7 Priority Interrupt

Priority Interrupt 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 that you can initiate a new call or data service on this channel.

Manual Priority Interrupt

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.

Auto Priority Interrupt	Triggered When You...
All Call Priority Interrupt	Initiate an all call.

9.8 Scrambler

Scrambler allows the radio to invert the frequency spectrum of transmitted audio signals. Only the receiving radio with the same Scrambler settings can restore the audio signals. This prevents eavesdropping and ensures communication privacy.

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

10. 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 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 radio cannot be located.	The radio may be at an unfavorable position, so no GPS signal is received.	Move to an open and flat area, and try again.
The radio cannot pair with the BT device.	The battery power of the BT device may be low.	Recharge the BT device.
	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.
	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.

Phenomena	Analysis	Solution
The radio fails to communicate with group members.	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.
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.

11. Product Care

11.1 Radio

CAUTION

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 for a prolonged period.
- 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.

11.2 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.
- Do not dispose of the battery with household waste.

11.3 Cleaning

CAUTION

- 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, keys, knob, and interfaces.
3. Use another lint-free cloth with proper pure water to clean up the cleanser or residue.

NOTE

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

11.4 Sterilizing

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, knob, keys, and interfaces.

11.5 Storing

CAUTION

- Before storing, turn off the product, remove the battery, and disconnect the cable, antenna, and accessory.
 - Long-term storage may affect battery capacity and performance.
-

When you store the product, follow these instructions:

- Keep the product in the well-ventilated place with the temperature from -40°C to $+85^{\circ}\text{C}$ and 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.

12. 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 radio.

13. Specifications

Item	Description
Frequency Range	<ul style="list-style-type: none"> ● 136–174 MHz ● 400–470 MHz
Channel Capacity	256
Channel Spacing	12.5 kHz/20 kHz/25 kHz
Operating Voltage	7.4 V DC
Explosion-proof Rating	<ul style="list-style-type: none"> ● Class I, Division 1, Groups C-D, T4; ● Class II, Class III, Division 1, Groups E-G, T135°C; ● Class I, Division 2, Groups A - D, T4; Ta: –20°C to 60°C
Sensitivity	<ul style="list-style-type: none"> ● Analog: <ul style="list-style-type: none"> ➢ 0.18 μV (12 dB SINAD) ➢ 0.16 μV (Typical) (12 dB SINAD) ● Digital: <ul style="list-style-type: none"> 0.18 μV/BER5%
RF Output Power	<ul style="list-style-type: none"> ● UHF: 4 W/1 W ● VHF: 5 W/1 W
Rated Audio Output Power	0.5 W
Rated Audio Distortion	≤ 3%
Operating Temperature	–20°C to +60°C
Storage Temperature	–40°C to +85°C
Ex Battery	BL2301-Ex (2400 mAh, typical)
Battery Life (5-5-90 duty cycle, high TX power at digital mode)	<ul style="list-style-type: none"> ● With Location turned on: 21 h ● With Location turned off: 23 h

 **NOTE**

All specifications are subject to changes without notice.

14. Abbreviations

Abbreviation	Full Name
GPS	Global Positioning System
LED	Light-Emitting Diode
PTT	Push-To-Talk
SN	Serial Number
SK	Side Key



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