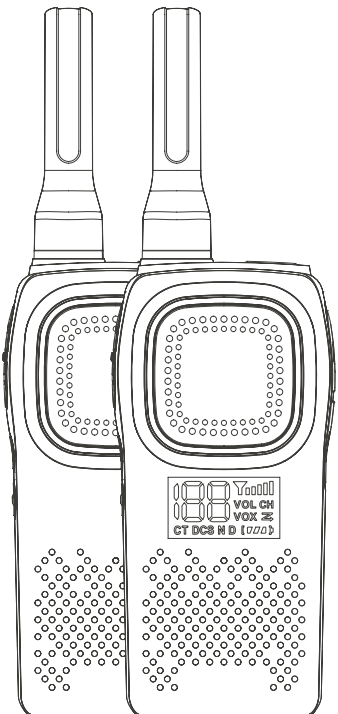
Digital Radio



User's Manual

335100413_RevA

To Users

Thank you for purchasing out product! This Manual (contains both analog and digital radios) is designed to make you quickly grasp the use of the device. In order to avoid physical injury or property loss due to improper operation, please read this Manual carefully before using the device.

Notice

The device meets the requirements of FCC PART 90, PART 97 and PART 15. Local laws and regulations shall be complied with when setting up or using the equipment, and corresponding qualifications and relevant procedures shall be obtained if necessary. Consulting the relevant authorities is suggested.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and 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 circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. this device may not cause harmful interference, and.
2. this device must accept any interference received, including interference that may cause undesired operation.

ISEDC RSS warning

This product meets the applicable Industry Canada technical specifications. / Le présent matériel est conforme aux specifications techniques applicables d'Industrie Canada.

Safety Information

In order to use the radio safely and efficiently, please read the following safety information:

- The radio can only be maintained by professional technicians. Do not disassemble the radio without permission.
- Only the batteries and chargers specified by our company can be used.
- To avoid problems caused by electromagnetic interference and electromagnetic compatibility, please turn off the radio in places where the "Please turn off the radio" sign is displayed, such as hospitals and other health care places. When taking the flight, please turn off the radio if the crew requests to do so.
- In vehicles with airbags, do not place the radio in the area where airbag deployment may be involved.
- Please turn off the radio before entering flammable or explosive environment.
- Do not replace or charge the battery in a flammable or explosive environment.
- Please turn off the radio before approaching the blasting area and the detonator area.
- Do not use the radio with damaged antenna. A damaged antenna

may cause minor burns when it comes into contact with the skin.

- Do not expose the radio to direct sunlight for a long time or place it near the heating Radio.
- If you wear a portable radio, make sure the antenna is at least 2.5 cm away from your body when the radio is transmitting.

WARNING: 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.

CAUTION:

Use the approved charger to charge the battery. The remaining lithium-ion battery is limited to 30% pursuant to the new lithium battery shipment regulation approved by International Air Transport Association (IATA). Before use, charge the battery. It is recommended that the radio remain powered off during charging.

Use of battery not recommend or replaced with incorrect type of battery may result in a risk of fire and explosion or personal injury.

Maximum ambient temperature around the power supply equipment including charger must not exceed 40˚C (104ºF) and device operating temperature not exceed 55˚C (131ºF).

RF Exposure Compliance and Control Guidelines and Operating Instructions

To control your exposure and ensure compliance with the occupational/ controlled environment

exposure limits always adhere to the following procedures.

Guidelines:

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

Operating Instructions:

- Transmit no more than the rated duty factor of 50% of the time.

To transmit (talk), push the Push-To-Talk (PTT) button. To receive calls, release the PTT button. Transmitting 50 % of the time, or less, is important because this radio generates measurable RF energy exposure only when transmitting (in terms of measuring for standards compliance).

- Hold the radio in a vertical position in front of face with the microphone (and the other parts of the radio, including the antenna) at least one inch (2.5 cm) away from the nose. Keeping the radio at the proper distance is important because RF exposures decrease with distance from the antenna. Antenna should be kept away from eyes.
- When worn on the body, always place the radio in approved clip, holder, holster, case, or body harness for this product. Using approved body-worn accessories is important because the use other manufacturer's non-approved accessories may result in exposure levels, which exceed the occupational/controlled environment RF exposure limits.
- If you are not using a body-worn accessory and are not using the radio in the intended use position in front of the face, then ensure the antenna and the radio are kept at least 2.5 cm (one inch) from the body when transmitting. Keeping the radio at the proper distance is important because RF exposures decrease with increasing distance from the antenna.
- Use only manufacturer's approved supplied or replacement antennas, batteries, and accessories. Use of non-manufacturer-name approved antennas, batteries, and accessories may exceed the FCC and IC RF exposure guidelines.
- For a list approved accessories please consult your local dealer for information.

EU Regulatory Conformance

As certified by the qualified laboratory, the product is in compliance with the essential requirements and other relevant provisions of the following directives: 2014/53/EU, 2011/65/EU, and 2012/19/EU. Please note that the above information is applicable to EU countries only.

European Union (EU) Waste of Electrical and Electronic Equipment (WEEE) directive:

The European Union's WEEE directive requires that products sold into EU countries must have the crossed out trash bin label on the product (or the package in some cases). As defined by the WEEE directive, this cross-out trash bin label means that customers and end-users in EU countries.

EU Frequency Range and the Max. Transmit Power

Frequency Range	446.0~446.2MHz
The Max. Transmit Power	0.5W

RF Radiation Information

1. This product is limited to occupational applications that can meet RF energy radiation requirements. The user must be fully aware of the RF radiation hazards and can take corresponding measures to meet the RF radiation limitation requirements.
2. Radio frequency (RF) refers to the electromagnetic frequency that can be radiated into space. It is a widely used technology in the fields of communication, medical treatment, and food processing. It will generate certain RF radiation during use.

EXPOSURE RF compliance et Lignes de contrôle et Instructions opérationnelles

contrôle et Instructions opérationnelles

Pour contrôler votre exposition et garantir le respect des limites d'exposition dans un environnement professionnel / contrôlé, suivez toujours les procédures suivantes.

Des lignes directrices:

• Ne retirez pas l'étiquette d'exposition RF de l'appareil.

- Les instructions de sensibilisation des utilisateurs doivent accompagner l'appareil lors de leur transfert à d'autres utilisateurs.
- N'utilisez pas cet appareil si les exigences opérationnelles décrites ici ne sont pas remplies.

Mode d'emploi:

- Ne transmet pas plus que le facteur de marche nominal de 50% du temps. Pour transmettre (parler), appuyez sur le bouton Push-To-Talk (PTT). Pour recevoir des appels, relâchez le bouton PTT. La transmission 50% du temps, ou moins, est importante car cette radio génère une exposition mesurable à l'énergie RF uniquement lors de la transmission (en termes de mesure pour la conformité aux normes).
- Tenez la radio en position verticale devant le visage avec le microphone (et les autres parties de la radio, y compris l'antenne) à au moins 2,5 cm du nez. Garder la radio à la bonne distance est important car les expositions RF diminuent avec la distance de l'antenne. L'antenne doit être tenue à l'écart des yeux.
- Lorsqu'il est porté sur le corps, placez toujours la radio dans un clip, un support, un étui, un étui ou un harnais de corps approuvé pour ce produit. L'utilisation d'accessoires approuvés par le corps est importante car l'utilisation d'accessoires non approuvés par d'autres fabricants peut entraîner des niveaux d'exposition qui dépassent les limites d'exposition aux RF des environnements professionnels / contrôlés.
- Si vous n'utilisez pas d'accessoire porté sur le corps et n'utilisez pas la radio dans la position d'utilisation prévue devant le visage, assurez-vous que l'antenne et la radio sont maintenues à au moins 2,5 cm (un pouce) du corps lors de la transmission. . Il est important de garder la radio à la bonne distance, car les expositions RF diminuent avec l'éloignement de l'antenne.

INFORMATION CONCERNING SAR FOR CE

Max. SAR Level(s) Measured	Limit (W/Kg)
0.164 W/kg 10g Head SAR 0.181 W/kg 10g Body SAR	2.0

INFORMATION CONCERNING SAR FOR FCC

Max. SAR Level(s) Reported	Limit (W/Kg)
0.85 W/kg 1g Head SAR 1.26 W/kg 1g Body SAR	8.0

Product Control

Display Guide

Channel display

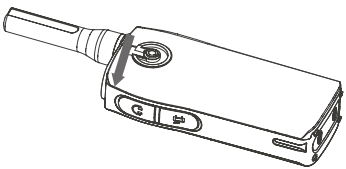
Signal strength		Battery Level icon	
VOL	Volume icon	VOX	VOX icon
DCS	DCS Code icon	CT	CTCSS Code icon
CH	Channel indication	D	Digital mode
N	Analog mode		Scan icon

Radio LED Indicators

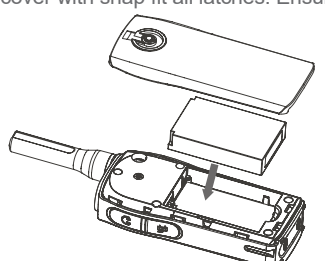
Radio Status	LED Indication
Standby	Green Slow Flash
Low Battery	Red Fast Flash
Transmit (TX)	Solid Red
Receive (RX)	Solid Green
Programming Mode (Read from Radio)	Red Fast Flash
Programming Mode (Write to Radio)	Red Fast Flash

Battery Installation

1. Use finger tip to pull the latch as shown in picture below to remove battery cover.

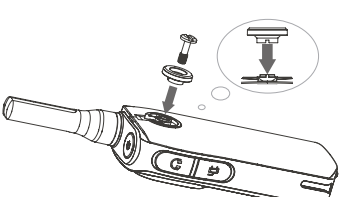


2. Put the battery pack into the battery compartment, close the battery cover with snap fit all latches. Ensure the battery cover is fully fix to radio.



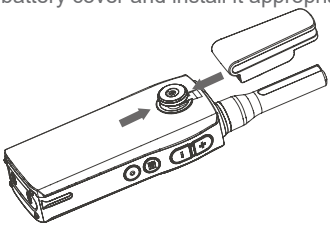
Note: To remove the battery pack, please turn off the radio first.

3. Install the belt clip holder using a coin or screwdriver as shown in the picture.



Belt Clip Installation

1. Align the guide groove of the belt clip to the belt clip holder on the battery cover and install it appropriately.



Note: The belt clip can be installed from any direction, clip on the belt, and the radio can rotate 180 degrees.

2.Take out the belt clip to the following angle with belt clip bottom face up, and remove it toward the top.

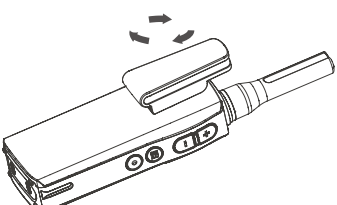


Figure 1

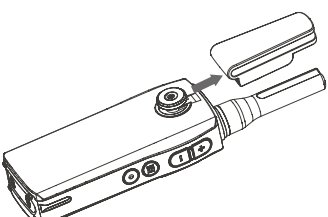
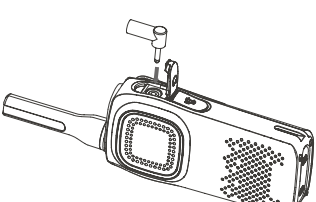


Figure 2

Accessory Installation



Step 1: Open the accessory connector cover.

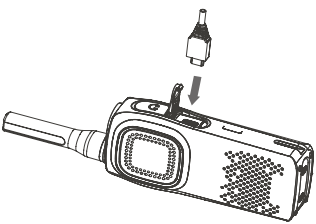
Step 2: Align the plug of the accessory (matching headset or programming cable) with the accessory connector.

Step 3: Insert the accessory properly into the accessory connector.

Charging Function

1. This device can support charging with charger tray or direct USB charging. During charging, the battery icon flashing on the display; when complete charging, the icon stops scrolling and shows battery full.

Device charging



USB charging

Charging precautions:

- Please use the matching charging base of the model for charging.
- When charging the device, it is recommended to turn off the radio first.
- To obtain the best battery performance, please charge for at least 5 hours for the first time.
- Do not charge the battery pack for a long time, otherwise it will shorten the battery pack life. When the battery is fully charged, please stop charging in time.
- The charger can only be used to charge the battery pack of the product. Do not use it to charge other battery packs, otherwise the charger and battery pack may be damaged.
- The battery pack should be stored in a cool and dry place after being fully charged. Do not expose the battery pack near the fire or to the sun, otherwise there are safety risks.

- During charging, it is not recommended to transmit the radio.
- The battery pack may slightly heat up during charging, which is a normal phenomenon.

Power On/Off

To turn on radio, press and hold [Power] key 3 seconds. To turn off radio, press and hold the [Power] key to turn off the radio and prompt tone will be sounded.

Check Channel and Battery Level status

In standby mode, press the power button to check Channel and Battery Level status.

Volume Control

press [+] or [-] key to increase or decrease the volume. the volume is adjustable from level 0 to 10.
Note: When press [+] again under the maximum radio volume, the speaker of radio will prompt an error sound. When the volume is adjusted to the minimum by pressing [-] key, the radio is muted.

Transmitting/Receiving

Hold the [PTT] key to transmit the signal of the current channel and the red LED indicator is on. Release the [PTT] key to receive the signal from the same channel, the speaker will make a call sound and the green LED indicator will be on.

Precautions for Radio Operation

- When the radio is transmitting, keep the radio in a vertical position,

and keep the microphone 2.5-5 cm away from the mouth. When transmitting, the radio should be at least 2.5 cm away from the head or body.

- Do not turn on/off the radio repeatedly during use, and adjust the volume to a level suitable for your hearing.
- Before using the radio for communication, please set the transmitter and receiver to the same frequency point.
- For the analog channel that requires intercom, please set the transmitter and receiver to the same sub-audio frequency.
- For digital channel,

1. If encryption is enabled for the digital channel that requires intercom, please set the transmitter and receiver to the same password.
2. For the digital channel that requires intercom, please set the transmitter and receiver to the same color code.

Menu Selection

1. The [Menu] key were set to (i) switch channel, (ii) set high/low power, and (iii) turn on/off scanning. Continue press menu button to enter to next function.
2. If the radio is not operated for 3 seconds or [PTT] key is pressed, it will exit the menu mode.

Channel Selection

In the standby state, press the [Menu] key once to enter the channel selection menu, and then press the [+] or [-] key to select the channel. The current channel number will be broadcast every time you select. There are 1-20 channels (analog)/1-32 channels (digital) to choose from. If the radio is not operated for 3 seconds or [PTT] key is pressed, it will exit the menu mode.

Channel Scanning

Press the [Menu] key twice to enter the channel scanning menu, press

the [+] or [-] key to start/stop channel scanning, and the speaker will give a voice prompt "Scan on" or "Scan off".During scanning, the digital radio scans the channels in the list and the current main channel. When any channel in the scan list is transmitting a signal, it will stay on that channel after scanning the signal. If press the [+] key again will skip the current channel and continue scanning. When scanning stop, if the radio is not operated for 3 seconds or [PTT] key is pressed, it will exit the menu mode.

High/Low Power Setting

Press the [Menu] key thrice to enter high/low power setting, and press [+] or [-] key again to switch high/low power. If the radio is not operated for 3 seconds or [PTT] key is pressed, it will exit the menu mode.

RSSI Values Display

- When transmitting at high power, the screen will display 5 grids of signal, as shown in figure:
- When transmitting at low power, the screen will display 3 grids of signal, as shown in figure:

TOT (Time out Timer) Function

In order to prevent some users from occupying the same channel for a long time, users can set to enable the TOT function. When the user's continuous transmission time on the current channel reaches the set time, the radio will stop transmitting and the speaker will give a time-limit prompt tone. You can set the time limit for transmitting by programming software. OFF, 30-300 seconds are available. When OFF is selected, the user can keep on transmitting.

Voice Control Function (preset by [Program] key)

1. Preset the [Program] key to [VOX On/Off] key through programming software.
2. Press the preset [VOX On/Off] key to turn on/off the voice control function. VOX levels can be preset through programming software: Level 1, Level 2, and Level 3, where Level 3 is the most sensitive. When the radio VOX function is on, the preset VOX level is used.

Monitoring mode (preset by [Program] key)

1. Preset the [Program] key to monitoring function through programming software.
2. Press and hold the [Program] key to enter monitoring mode and release the key to exit the mode.

Power Saving Function

The power saving function can be enabled/disabled by programming software.

Low Voltage Alarm Function

1. When the battery voltage is less than one grid (picture), the radio will prompt "Please charge" once (every 20 seconds) and the battery indicator will flash quickly. At this time, the radio cannot transmit and stays in standby and receiving modes only. Please charge the battery.
2. When the battery power is lower than the standby voltage, the radio will shut down automatically. Please charge the battery.

Program Key

1. Configure the functions of [Program] key through programming software.
2. The [Program] key of analog Mode includes the following functions: VOX On/Off, Monitoring Mode, Sub-audio Frequency On/Off.
3. The [Program] key of digital Mode includes the following functions: High/Low Power Switch, VOX On/Off, Monitoring Mode, One Touch Call, Emergency Alarm, etc.
4. Write the set parameters to the radio and press the corresponding [Program] key to enter the corresponding function.

CTCSS/DCS

1. Only analog mode can set CTCSS/DCS.
2. CTCSS/DCS can set via programming software.
3. Only both transmit and receive are set the same can talk to each other.

Tail Tone Elimination

- This function is only valid for analog channels:

1. When the tail tone elimination function is enabled, the receiver will not have tail tone after the transmission is completed; otherwise, there will be tail tone.
2. There are two types of tail tone elimination: 55HZ and 62HZ.

Setting/Changing Frequency

1. In direct mode (DM) mode, you can talk only when the transmitting frequency and receiving frequency are the same.
2. Digital radio: In DMR relay mode, the transmitting frequency and receiving frequency are different, but it needs to be used together with repeater.

Squelch Step (SQ)

1. SQ is only valid for analog channels.
2. After SQ is set to 0, the speaker will automatically turn on and be in the monitoring state.
3. The higher the SQ step, the better the noise floor suppression effect.
4. SQ can be configured through programming software only.

Radio Name Configuration and Modification

1. Enter the basic setting interface of programming software to configure or modify the Radio name.
2. Radio name can support: Letters, numbers, Chinese, special characters, etc.

Radio ID

1. The Radio ID is related to the private call contact, and the ID range is 1-16776415.
2. When using a private call contact to call the other party, enter the Radio ID of the other party and then call.

Reading/Writing Password Setting

1. To prevent information leakage, you can set the reading and writing password through CPS.
2. Each time you read or write, you must enter the correct 8-digit password before operating.
3. To cancel the password, clear the password and confirm.
4. To change the password, input the old password first, and then enter the new password to rewrite.
5. When you forget the password, you can resume the factory settings

or re-burn it.

DTMF Function

1. The DTMF interface of the programming software can configure the DTMF function, such as side tone, duration, interval time, online telegram code, offline telegram code, transmission start sound, transmission end sound, transmission start and end sound.
2. After the transmitter turns on the side tone, when the [PTT] key is pressed to transmit, the transmitter itself will also give DTMF sound;
3. DTMF coded content only supports numbers 0-9, letters: ABCD, and characters: * #.

Emergency Call

1. Configure functions of the alarm system through programming software, such as alarm channel, re-transmission times, and alarm type.
2. Emergency call supports the digital channel and analog channel.
3. Set the side button as the“Emergency Call” button in the “programmable button”.
4. When Analog or Digital channel triggers emergency call, an emergency call code will be sent. Emergency call will be automatically transmitted after remaining re-transmit call becomes 0, and automatic emergency calls will repeat transmit twice.
5. The transmitter will sound the alert tone after the emergency call is sent. Receiver side also will receive an alert tone after receiving the emergency call.

Digital Encryption

1. Add key through programming software, which only supports basic encryption, maximum 8 characters.
2. Supported characters include: numbers, uppercase letters, lowercase letters.

3. The same encryption template must be configured for transmitter and receiver for normal intercom, otherwise the speech content cannot be heard clearly.
4. The main purpose is to prevent the content of the speech from being monitored by other people at the same frequency.

Color Code

1. For digital channels, the color code must be same to call.
2. The color code range of this product can be set: 0-15.

Contacts

1. Contacts are only valid for digital channels.
2. There are three kinds of contacts: private call, group call and all call, which need to be configured through the programming software.
3. Different contacts configured on the same channel cannot communicate with each other.

Call Prompt (private call only)

1. Configure one touch call through programming software for private call contacts.
2. After write to programmable key, press the program key to trigger the call prompt.
3. After the transmitter triggers the call prompt, the receiver's LED indicator will flashing red.

One Touch Call(private call only)

1. Configure one touch call through programming software.
2. After write to programmable key, press the program key to trigger the one touch call.

3. The transmitter's red indicator stays on for a few seconds, and then press the [PTT] key to transmit.
4. The receiver's green indicator stays on for a few seconds, and then it can receive normally.

Remote Monitor(private call only)

1. Configure monitor feature through programming software.
2. Press the programmable key to monitor the other party remotely.
3. After successful monitoring, the green indicator will always be on, and the sound around the other party can be clearly monitored.
4. Remote monitoring time can be set to 10s-120s.

Remote Kill (private call only)

1. Configure remote kill feature through programming software.
2. Press programmable key to execute remote kill command.

Note: The other party cannot operate normally after remote kill, including intercom, menu operation and shutdown.

Activate (private call only)

1. The activation command is to remove kill status.
2. After sending activation command, it can change the other party from remote kill state to active state. After restarting, it can be used normally.

Backlight Time

1. Backlight refers to the timer when the LCD screen of the radio is on, and the screen is off after waiting for the set time in standby state.
2. The backlight options are: on, 5s, 10s, 15s, 30s, maximum 180s.
3. After the screen is off, the screen will be on when a signal is received.

4. Backlight time can be written directly by programming software.

Language Settings

1. Language supports: Chinese and English.
2. Language can be set by programming software.
3. After switching the language, all voice broadcast will be changed to the language.
4. The radio voice announcement is defaulted to English.

Optional Accessories

The main accessories of the Radio are included in the product packaging box. For more information about accessories, please consult your local dealer.
Note: Please use the accessories specified by our company. If you use unauthorized accessories, you shall be responsible for all the consequences.

Disclaimer

This manual strives for the accuracy and completeness of its content during the preparation. Repeated review has been carried out, and the company will not assume any responsibility for errors or omissions that may occur during the output and printing process. In addition, due to the continuous development of technology, the company reserves the right to change the product design and specification without prior notice.

Please out along with this line

GUARANTEE CARD

Model Number: _____

Serial Number: _____

Purchasing Date: _____

Dealer: _____ **Telephone**: _____

User's Name: _____ **Telephone**: _____

Address: _____ **Post Code**: _____

REMARKS:

1.This guarantee card to be kept by the user ,no replenishment if lost.

2.This guarantee card to be filled & chopped by the dealer,or it is invalid.

3.Don't alter the guarantee card,please confirm the serial number on the guarantee card is same as that on the machine.

4.Warranty void if seal broken.

5.1 year guarantee for product, 6 months for charger,battery and antenna .

6.The user can get repairing service from the following ways:

a.Go to the shop where you buy the machine

b.Our local repairing agent

Chop by Dealer