

**DMR**

BestHamRadio.com

**USER'S MANUAL**

HANDHELD DIGITAL TERMINAL

## To users

Thank you for your favor with our products.

We are dedicated to providing high performance and high stability radio communication products. This two-way radio is no exception. The radio is a DMR dual-slot digital walkie-talkie developed and produced by my team with 1024 memory channels, 800 memory Contact Person. In order to make you fully understand the various advantages of the radio performance and use and maintenance methods, please read this manual carefully.

## Main Features

UHF Full-Frequency Radio

Frequency range:UHF400.000-470.000MHz

DMO True2-Slot dual time slot

Direct mode dual-slot communication achieves two groups of calls at a frequency point at the same time, so that the communication efficiency is doubled and frequency resources are saved

Digital and analog compatible

Support DMR digital and analog two communication modes to ensure that the original analog products smooth transition to digital products to meet different communication needs

Digital signaling function

Rich calling modes that support DMR protocol, including single call, group call and all call; supports remote inhibit function and other applications

High sound quality

This digital two-way radio uses advanced AMBE +2™ voice processing technology to achieve high quality

High/low power switch

2W/0.5W power switch, Meets the power requirements of different call distances to save more energy

Alarm function

Supports general alarm and silent alarm in emergency situations

Digital mode supports the use of repeater

Side buttons can be customized without changing the user's operating habits

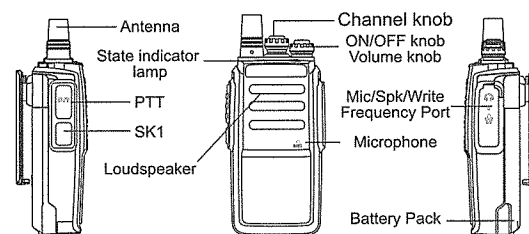
Customization function: GPS and Digital Audio Record

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## Familiar with this Product



[PTT] Transmit button	Switch between transmission and reception; when transmitting, press this button and speak to the microphone; release the button to receive.
Side button SK1	Short press to turn on the monitor function (only support analog channels). Press this key to switch to monitor mode and press it again to return to receiving mode.
	Long press to transmit power switching, Switching between high power and low power.

## Programmable Buttons

In order to improve the operational convenience, the function shortcut keys provided by this product are [SK1] key. For the specific function, please consult the distributor. For the detailed description of each function, please refer to the corresponding contents of "Function and Operation".

No.	Shortcut name	Purpose
1	None	No function is assigned to the preset button.
2	Transmit power	Quickly switch between high power and low power.
3	Emergency mode on	Quickly establish an emergency call. This is the recommended option for the orange button.
4	Emergency mode off	Quickly end an emergency call initiated outward.
5	offline	Quickly switch between repeater mode and offline mode.
6	Encryption on/off	Quickly turn on/off encryption for channel (only for digital mode).
7	VOX	Quickly turn on or off the VOX function.
8	One-touch calling	Quickly call key, After pressing the button to call, send the corresponding call, message or other application functions.
9	Contacts	Press this key to enter the digital contact list and initiate a call or call related functions
10	Zone increases	Press this key to switch to the previous zone.
11	Zone decrease	Press this key to switch to the next zone.
12	Zone switching	Quickly select the zone, allowing the user to switch between two zone.
13	Keyboard lock	Quickly lock the numeric keyboard. (PTT keys are not included)
14	Monitor	Quickly turn on or off the monitor function.

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No.	Shortcut name	Purpose
15	Battery power indication	Quickly access to battery power. The user can check the battery status by voice prompt.
16	Scan on / off	Quickly turn the scan function on or off.
17	Recording switch	(Based on firmware) Quickly turn the recording on or off.
18	playback of last recordings	(Based on firmware) Quickly to playback of last recordings.
19	playback of next recordings	(Based on firmware) Quickly to playback of next recordings.
20	1750Hz Signal	Fast Transmit 1750 pilot signal
21	Noise channel temporarily deleted	When scanning stops, press this key to temporarily delete the noise channel that is not needed temporarily. The channel will not be detected in the next scanning detection. When the walkie-talkie restarts scanning, the channel will be restored to the scanning list.
22	Time to broadcast	Press this button to broadcast the current time.
23	Flashlight	Press this key to turn on the flashlight, and press this key again to turn off the flashlight.
24	Individual	Press this key to turn on and off Individual Operation

Note: The same button short press and long press can achieve different functions, specific by the dealer settings.

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## Security and overview

### RF radiation information

This product is intended for professional applications that meet FCC RF radiation requirements. Users must be aware of the hazards of RF radiation and take appropriate measures to meet the requirements of RF radiation limit.

### Common sense in RF radiation

RF refers to the electromagnetic frequency that can be radiated into space. It is a technology widely used in the fields of communication, medical treatment and food processing. It will produce some RF radiation during use.

### Security in RF radiation

To ensure the physical and mental health of users, experts from science, engineering, medicine, health and industry, together with relevant organizations, have developed radio frequency radiation standards and guidelines, as shown below:

- United States Federal Communications Commission, Code of Federal Regulations; Vol 47, Part 2, Subsection J.
- American National Standards Institute (ANSI) / Institute of Electrical and Electronic Engineers (IEEE) C95. 11992 and 11999.
- Standard issued by the International committee on non-ionizing radiation protection (ICNIRP) in 1998.

### Federal communications commission regulatory requirements

In accordance with the regulatory requirements of the federal communications commission, terminals must comply with the regulations of the federal communications commission on radio frequency radiation limits, or they cannot be sold in the United States market. The manufacturer is required to inform users of the matters needing attention by putting labels on the products, so as to improve users' awareness of radiation prevention.

### Control and operating instructions of RF radiation

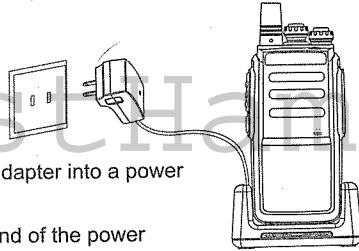
In order to maximize the performance of the product and to ensure compliance with the radiation limits in the relevant occupational or controlled environment of the above criteria, the sending time shall not exceed 50% of the rated factor and shall follow the instructions below:

- \_RF radiation is generated only during transmission (speech) rather than reception (listening) and standby.
- \_The distance between the terminal and the body during transmission should be at least 2.5 cm.

## Preparation before use

### Charging

Note: Be sure to ensure that the product is off when charging. Battery into the charger may be charging red flashing constantly flashing, this is the battery power is too low, the charger to protect the battery pre-charge process, is a normal phenomenon, Generally continue for 30 seconds to turn the red light of the normal state of charge.



1. Plug the power adapter into a power outlet;
2. Plug the other end of the power adapter into the socket on the back of the charging cradle;
3. Insert the battery or the battery-equipped product into the charging cradle correctly; the indicator light on the charging cradle shows the charging status. When the indicator light is red, it indicates the start of charging. When the indicator turns green, the charging is completed. The specific table below.

Indicator display	Current charge status
Red light	In charging
Green light	The charging is completed

Note: For best battery performance, charge for a minimum of 4 hours on first charge.

## Battery information

### •The first use of the battery

Since the battery is not fully charged at the factory, please charge the new battery before use. Under normal circumstances, the battery when used for the first time, need to charge 4 hours, lithium-ion battery charging using slow charge or fast charge can be performed when charging. It is recommended that the new battery be operated as above for the first three uses. When you find the battery power is low, you need to charge the battery.

### •Suitable battery type

Please use the specified battery for charging; use of other batteries may cause explosion, resulting in human injury.

### •Battery safety attention

1. Do not allow metal contacts (including coins, keys, jewelry, or other conductive materials) to be touched by the battery contacts or pole pieces. Otherwise,

the battery may short circuit, discharge, heat or leak, which may result in damage to the item or personal injury.

Therefore, be careful when handling any battery.

2. Do not short-circuit the battery terminals or discard the battery in a fire. Do not disassemble the battery pack. When the battery is discarded, please put into a dedicated battery recycling box.

#### ●Battery normal operation instructions

>Please charge the battery indoors, battery charging at room temperature best.

>Under normal circumstances, the charger indicator from red to green when the battery is fully charged, at this time the battery can be removed.

>You can charge when Battery installed in the walkie-talkie, but when charging is best to turn off the walkie talkie, to ensure that the battery is fully charged.

>Please do not charge the battery when the battery power is not used up (after the battery is exhausted, the voice prompt alarm will be given), which will shorten the service life of the battery.

>Do not put a fully charged battery back on the charger to "power up" again, as this operation significantly reduces the cycle life of the battery.

#### ●Extend battery life

>Battery performance will reduce below -20 °C temperature conditions. Prepare back-up batteries for use in colder weather. Please do not throw away cold batteries that cannot work. These batteries may be used at room temperature.

>Dusting the battery contacts may affect the battery life. Please wipe the contacts with a clean, dry cloth before inserting the batteries into the walkie-talkie.

#### ●Battery storage needs to know

1. Since the battery will have a self-discharge phenomenon, the battery when not in use for a long time, please fully charge the battery and then stored to avoid over-discharge of its battery to damage the battery.

2. When the battery is in storage, remove the battery to recharge when stored about 6 months. To avoid over-discharge of electrolyte affect battery capacity.

3. Pay attention to the temperature and humidity of the battery storage environment. Store the battery at room temperature in a cool, dry place to minimize self-discharge of the battery.

#### ●Battery Voltage & Power Indication

If the dealer has set the [battery power prompt] shortcut key for the product, you can press the shortcut key to check the remaining battery power by voice prompt:



Voice Prompt	Battery Power
High Power	Battery power is sufficient, Battery Voltage $\geq$ 3.8V
Medium Power	Battery power is normal, Battery Voltage about 3.7V
Low Power	Battery power is low, Battery Voltage $\leq$ 3.6V, If the battery voltage is lower than 3.5v, transmission is prohibited, but reception is not affected. Please charge or replace the battery as soon as possible

### LED Indicators

This product has LED indicators so you can easily grasp the current operating state.

Indicator status	Red on	Green on	Green flash
Product status	Transmitting	Receiving	Scanning

## Basic Operation

### Power on/off

To turn on the power, turn the [Power Switch / Volume Control] knob clockwise until you hear a "click" sound and a short beep sounds. To turn off the radio, turn the knob counterclockwise until you hear a click.

#### Note:

- 1.If the voice prompt is turned on,When power on or switching channels of voice prompt channel information.
- 2.If the voice prompt is turned off,There will be no voice prompt.

### Volume adjustment

Turn on the power, turn the [Power Switch / Volume Control] knob clockwise to increase the volume of voice reception, and turn counterclockwise to reduce the volume of voice reception.

### Selecting Zone

Zone is a channel group in which you can include channels with the same attributes (such as call type, digital mode and analog mode) in a zone, which makes it easy for you to manage existing channels.

The unit supports up to 250 regions, and each region contains up to 64 channels.

Select through the programming button:

If the dealer has set the [Zone Up] and [Zone Down] shortcut, you can press the shortcut to switch to the desired region.

**Note:**

Walkie-talkie should retain at least one area, and each area should retain at least one channel.

**Digital and analog channel switch**

Each channel in this product can be configured by the dealer as either an analog channel or a digital channel. If the current region contains digital channels and analog channels, you can switch channels to analog channels or digital channels.

**Select channel, user ID, group call ID**

After power on, if you have more than one region in the radio, select the desired region and turn the Channel knob to select the desired channel, user alias or ID, or the group alias or ID.

**Receive and reply group calls**

To receive a call from a user group, the transceiver must be configured to belong to the talk group.

1. When receiving a group call, The LED indicator light is green.
2. Hold the walkie talkie in its upright position and at a distance of 1 to 2 inches (2.5 to 5.0 cm) from the mouth. If the function of "channel leisure prompt sound" is enabled, when the release the [PTT] key, you will hear a short

prompt sound, indicating that the channel is leisure and waiting for your reply.

3. Press [PTT] key to reply the call, The LED indicator light is red.

4. Release the [PTT] key to receive.

5. If there is no voice activity for the scheduled time period, the call is terminated.

**Receive and reply single call**

A single call is an individual walkie-talkie call to another individual walkie-talkie.

1. When receiving a single call, The LED indicator light is green.

2. Hold the walkie-talkie in its upright position and at a distance of 1 to 2 inches (2.5 to 5.0 cm) from the mouth. If the function of "channel leisure prompt sound" is enabled, when the release the [PTT] key, you will hear a short prompt sound, indicating that the channel is leisure and waiting for your reply.

3. Press [PTT] key to reply the call, The LED indicator light is red.

4. Release the [PTT] key to receive.

5. If there is no voice activity for the scheduled time period, the call is terminated.

**Receive all call**

All call is an individual walkie-talkie call to all walkie-talkie on the channel. It is used to publish important notices that require special attention from users.

1. When receiving all call, The LED indicator light is green.
2. After the all call is terminated, The walkie-talkie goes into standby mode. If the function of "channel leisure prompt sound" is enabled, when the release the [PTT] key, you will hear a short prompt sound, Indicates that this channel is now available, but you cannot reply to a all call.

**Note:**

When you receive an all call, if you switch to another channel, the transceiver stops receiving the full call. During a full call, you will not be able to use any of the pre-programmed keys until the call is ended.

**Start a walkie-talkie call**

You can choose a channel, user ID or talk group in the following ways:

- Rotates the channel knob to select the channel
- Pre-programmed one-touch call button

**Use the channel to place a call****Initiate group call**

To initiate a call to a user group, the transceiver must be configured to belong to the talk group.

1. Rotate the channel knob to select the channel using the active talk group alias or ID.
2. Hold the walkie-talkie in its upright position and keep it at a distance of 1 to 2 inches (2.5 to 5.0 cm) from the mouth.
3. Press [PTT] key to the group call, The LED indicator light is red.
4. Release the [PTT] key to answer. When the target radio replies, the LED indicator will light green.
5. If the function of "" is enabled, when the release the [PTT] key, you will hear a short prompt sound, indicating that the channel is leisure and waiting for your reply. Press [PTT] key to reply, If there is no voice activity for the scheduled time period, the call is terminated.

**Start a single call**

1. Rotate the channel knob to select the channel using the active user alias or ID.
2. Hold the walkie-talkie in its upright position and keep it at a distance of 1 to 2 inches (2.5 to 5.0 cm) from the mouth.
3. Press [PTT] key to initiate a call, LED indicator light is red.
4. Release the [PTT] key to answer. When the target radio replies, the LED indicator will light green.
5. If the function of "channel leisure prompt sound" is enabled, when the release the [PTT] key, you will hear a short prompt sound, indicating that the channel is leisure and waiting for your reply. Press [PTT] key to reply,

If there is no voice activity for the scheduled time period, the call is terminated.

#### Start all call

This feature lets you signal all users on the channel. The walkie-talkie must be programmed to allow you to use this feature.

1. Rotate the channel knob to select the channel using the active full call group alias or ID.
2. Hold the walkie-talkie in its upright position and keep it at a distance of 1 to 2 inches (2.5 to 5.0 cm) from the mouth.
3. Press [PTT] key to initiate a call, LED indicator light is red.

#### Note:

Channel users cannot reply to all calls.

#### Use the one-touch call button to initiate a group call or a single call

One-touch calling features make it easy to group calls or single calls to predefined aliases or IDs. This function can be assigned to short programming or long programming keys.

You can assign only one alias or ID to a one-touch call key, and the walkie-talkie can have multiple programmed one-touch call keys.

1. Press the preprogrammed one-touch call button to initiate

a group or single call to a predefined alias or ID.

2. Hold the walkie-talkie in its upright position and keep it at a distance of 1 to 2 inches (2.5 to 5.0 cm) from the mouth.

3. Press [PTT] key to initiate a call, LED indicator light is red.

4. Release the [PTT] key to answer. When the target radio replies, the LED indicator will light green.

5. If the function of "channel leisure prompt sound" is enabled, when you release the [PTT] key, you will hear a short prompt sound, indicating that the channel is leisure and waiting for your reply. Press [PTT] key to reply. If there is no voice activity for the scheduled time period, the call is terminated.

#### Analog channel call

On the analog channel, hold down the [PTT] key and speak into the microphone, to transmit. Please release [PTT] key to receive.

#### Start a call

In the analog mode, the upper and lower line codes of DTMF can be configured by programming software, and the upper and lower line codes can be enabled in the analog channel. When the upper line code is enabled, the upper line code will be issued each time the [PTT] key is pressed, and the lower line code will be issued when the [PTT] key is released.

## Emergency alarm function

### Emergency alarm

In the event of an emergency, you can use this feature to ask your fellow or control center for help. Emergency alarm has the highest priority, you can alarm whether the walkie-talkie is transmitting or receiving.

#### Note:

Alarm initiator to exit the alarm mode, there are two cases:

- Turn off the radio to exit the whole machine alarm.
  - Press the preprogrammed [Emergency mode off] button to exit alarm.
  - In other ways, when exiting alarm mode, the alarm on the current channel can only be temporarily exited. When re-selecting the channel, the alarm will continue.
- The alarm function is enabled for you by the dealer (program path: "Edit -> Alarm -> DMR Emergency Alarm-> DMR System"). Before using this function, you need to understand the following concepts.

### Alarm Type

The radio prompts in different modes for different alarm types, as shown in the following table.

Alarm type	Description
Disable	Turn off alarm function
Only alarm sound	The walkie-talkie to a sharp alarm sound, and the control center will not receive the alarm signal.
Normal	When alarms, the walkie-talkie gives an audible and visual prompt.
Alarm whistle	After sending an emergency alarm signal to the control center, issue a local alarm sound. In the alarm state, there are sound and visual instructions.
Silent	When alarms, the radio will not give any audible or visual prompt. At the same time, no sound is made on any received audio.
Silence	When alarms, the radio will not give any audible or visual prompt. However, the radio sounds when you press and hold the PTT button to initiate a call or respond to a call.

### Alarm Mode

Except the alarm type "Disable", Only alarm sound, Alarm whistle", other alarm types support the following alarm modes. You can ask the dealer to select one of them (Note: The following methods use "Conventional" alarm type as an example).

Alarm mode	Description
Emergency alarm	Press and hold the [Emergency mode on] button to send an alarm tone to your partners or control center but can't talk to the other party.
Alarm call	press and hold the [Emergency mode on] button to send an alarm tone to your partners or control center, and then press and hold the [PTT] button to speak to the microphone, and your voice and surrounding background sound will be sent to the receiver.
Emergency call	Press and hold the [Emergency mode on] button to enter the emergency call. The product automatically activates the "emergency microphone". You can speak to the microphone, and your voice and the surrounding background sound will be sent to receiver.

### Send emergency alert

This feature allows you to send an emergency alert, which belongs to a non-voice signal and will trigger a prompt on another transceiver.

1. Press the pre-programmed [Emergency mode on] button.
2. The LED indicator light is red

3. When an emergency alert confirmation is received, an emergency call tone sounds and the LED flashes green.
4. The walkie-talkie exits the emergency alert mode. If your walkie-talkie is set to "silent," it will not any voice in emergency call mode.

### Receive emergency alert

1. When an emergency alarm is received, a prompt sound is issued, and the LED indicator flashes orange light
2. If enabled, your walkie-talkie will automatically acknowledge the emergency alert.
3. When the alarm sound, the LED indicator flashes as orange light. Press any key to stop the alarm sound. Disables the current emergency mode by switching channels or turning off the walkie-talkie.

### Send an emergency alert with voice follow

This feature allows you to send an emergency alert to another transceiver. After confirmation, your walkie-talkie microphone is activated automatically, allowing you to communicate with other radios without pressing the [PTT] key. This activated microphone status is called "Emergency Microphone". During the duration of emergency microphone, Except for the pre-programmed [Emergency mode off] key to cancel the alarm, Pressing any other key will remain in emergency mode, Until the emergency microphone duration is over

1. Press the pre-programmed [Emergency mode on] button. The LED indicator light is red.
2. After receiving the alarm confirmation from another walkie-talkie, The LED indicator light is red. The emergency microphone of the walkie-talkie automatically activates and transmits signals, speak clearly toward the microphone and until the end of the emergency microphone time.
  - If the emergency alert request fails, The walkie-talkie will continue to send out emergency calls.
3. Emergency microphone duration is over and signal transmission is stopped, The LED indicator light is orange and accompanied by local alarm sound, until the end of the receiving duration.
4. After the emergency microphone duration has expired, the walkie-talkie automatically stops emergency call status.

**Note:** Press the preprogrammed [Emergency mode off] button to exit emergency mode. Or remove the current emergency mode by switching channels

#### Receive emergency alert

The walkie-talkie receiving the emergency call must select a pre-programmed emergency channel and the emergency channel must be a group call.

1. The walkie-talkie receive the emergency alarm request, send out the alarm sound, The LED indicator light is orange.

2. When the alarm sound stops, the LED indicator will turn green, The walkie-talkie enter the receiving state, and answer the other party's speech until the end of the emergency microphone duration.
3. When the alarm sound is sounded, the LED indicator flashes orange light. Hold the walkie-talkie in its upright position and keep it at a distance of 1 to 2 inches (2.5 to 5.0 cm) from the mouth.
4. Press [PTT] key to reply the call, The LED indicator light is red.
5. Release the [PTT] key to receive.

#### Send emergency alert with call

This feature allows you to send an emergency alert to another transceiver. After confirmation, your walkie-talkie microphone is activated automatically, allowing you to communicate with other radios without pressing the [PTT] key. This activated microphone status is called "Emergency Microphone". During the duration of emergency microphone, Except for the pre-programmed [Emergency mode off] key to cancel the alarm, Pressing any other key will remain in emergency mode, Until the emergency microphone duration is over.

1. Press the pre-programmed [Emergency mode on] button. The LED indicator light is red.
2. The emergency microphone of the walkie-talkie

automatically activates and transmits signals, speak clearly toward the microphone and until the end of the emergency microphone time.

3. Emergency microphone duration is over and signal transmission is stopped, The LED indicator light is orange, until the end of the receiving duration.

4. During the reception period, you can answer the other party's call.

Note: Press the pre-programmed [Emergency mode off] button to exit the emergency mode.

#### Receiving Emergency alert

1. The walkie-talkie receive the emergency alert, the LED indicator light for green, The walkie-talkie enter the receiving state, and receiving the other party's speech until the end of the emergency microphone duration.

2. The LED indicator light off, Hold the walkie-talkie in its upright position and keep it at a distance of 1 to 2 inches (2.5 to 5.0 cm) from the mouth.

3. Press [PTT] key to reply the call, The LED indicator light is red.

Note: The remove the current emergency mode by switching channels or turn off the walkie-talkie.

#### Restart emergency mode

It can happen in two situations:

- When the transceiver is in emergency mode and changes channel, it will exit emergency mode. If an emergency alert is activated on the new channel, the transceiver resumes the emergency call.

- Press the preprogrammed alarm on key in the emergency call start / transmit state. This way the walkie-talkie will exit the status and restart the emergency call.

#### Exit emergency mode

The transceiver exits emergency mode when one of the following happened:

- Receive emergency alert confirmation (emergency alerts only), or
- The number of major attempts to send an alert has been reached, or
- Press Preprogrammed Alarm Off, or
- Press the [PTT] key.

Note: If the radio is turned off, it will exist the emergency mode. When you turn on again, the radio won't start resume emergency mode

#### Individual Operation

This feature is ideal for people who work alone. If you encounter unexpected situations during individual operation, you can't operate the radio in preset time. The radio will automatically send alarm to your partner or control center for help.



### 1. Turn on individual operation

>Through writing frequency software, this function is turned on when the radio is started.

>Press the preset [Individual Operation] shortcut to enable this function.

2. If you do not operate the radio in the preset response time, the radio will prompt before the response time is up (depending on the dealer settings). At this point, you can end the prompt with a valid physical operation (knob or button operation). When the response time is up, the radio will automatically turn on the alarm system of the current channel.

### 3. Turn off individual operation

>Turn this function off by writing-frequency software.

>Press the preset [Individual Operation] shortcut again to turn off this function.

Note: If you do not turn off the individual operation function before shutting down, the function is still active the next time you turn on the radio.

## Operation Guide

### Call

To ensure optimal reception volume, Please keep the microphone 2.5 cm to 5 cm away from the mouth.

### Digital channel call

You can make single call, group call and all call on the digital channel, and each digital channel can be preset by the distributor as a "Transmitting Contacts".

Call Type	Object	Description
Single Call	Single call contacts and Single call contacts	• The calling participant selects the same digital channel.
Group Call	Single call contacts and Group call contacts	• In standby mode, press the [PTT] key to initiate the call.
All Call	Single call contacts and All call contacts	• After receiving the call, Press the [PTT] key in the preset time to initiate a reply.

### Analog channel call

You can make a call to all users on the current analog channel in the same way as a digital channel call.

## Function list

Cate-gories	Function Name	Description
Public Function	Zone	The zone is a channel group, The unit supports up to 64 zone, and each region contains up to 16 channels.
	Transmission power	High:The transmission power of the current channel is high. Low:The transmission power of the current channel is low.
	Scan	A scan is a scan of a list of scans set on the current channel.Supports mixed analog and digital channel scanning
	Emergency Alarm	In the event of an emergency, you can use this feature to ask your fellow or control center for help. Emergency alarm has the highest priority.
	VOX	When the microphone detects that the voice reaches the level to trigger the voice-activated transmission, the walkie-talkie automatically transmits the voice.
	Busy Channel Lockout	The Busy Channel Lockout is prevent interference with other users that are transmitting on the same channel.
	Transmit time-out timer(TOT)	The TOT is over the time of a single transmits (the default is 60 seconds), the walkie-talkie will automatically terminate the transmits and issue a warning sound.If you need to transmits again, please transmits after the preset time.
	Power Save	The walkie-talkie enters the power save mode after preset time in standby mode.
Digital Function	Single Call	One-to-one call
	Group Call	One-to-many call within a group

Cate-gories	Function Name	Description
Digital Function	All Call	A call to all contacts on the current digital channel
	One-touch calling	One to one or one to many calls within a group through a shortcut key
	DMO True2-Slot	Direct mode dual-slot communication achieves two groups of calls at a frequency point at the same time
Analog Function	Analog channel call	One-to-many calls on the current analog channel.
	Squelch	The squelch turn on, the walkie-talkie always turn on the speaker
	Squelch level	The squelch level is normal open, normal and strengthened.If set to normally open, the walkie-talkie always turn on the speaker.
	Monitor	Monitor is to identify and listen for weak sounds in a speaker
	CTCSS/C-DCSS	When receiving CTCSS/CDCSS and transmitting CTCSS/CDCSS match, you can listen to the voice through the speaker.

Main technological specification	
Frequency range	UHF: 400-470MHz
Memory Channel	1024
Frequency Stability	±1.0ppm
Operating Temperature	-30°C ~ +60°C
Operating Voltage	DC 3.7V
Dimension	128*60*34mm (no including the antenna)
Weight	About 191g (Include in battery and antenna)
Transmission	
Output power	High:2W / Low:0.5W
Output Consumption	Analog≤1.2A Digital≤0.8A
FM modulation (wide/narrow)	16KHz F3E@25KHz / 11KHz F3E@12.5KHz / 141KHz F3E@20KHz
4FSK digital modulation	12.5KHz for data:7K60FXD 12.5KHz for data and voice :7K60FXE
Modulation Distortion	≤5%
Signal-to-noise(wide/narrow)	≥45dB@25KHz / ≥40dB@12.5KHz
Adjacent Channel power	≤-65dB/≤-60dB
Audio Response	+1 ~ -3dB
Antenna Port Spurious	9KHz-1GHz: ≤-36dBm 1GHz-12.75GHz: ≤-30dBm
Digital Protocol	ETSI-TS102 361-1,-2,-3
Vocoder type	AMBE+2™

Reception	
Analog receive sensitivity	-122dBm (12dB SINAD)
Digital receive sensitivity	-120dBm(BER≤5%)
Audio power	1W
Audio distortion	<10%
Audio response	+1 ~ -3dB
Signal imitation	≥70dB
Intermediation (Wide/ narrow)	≥62dB/≥58dB
Adjacent channel selectivity (Wide/ narrow)	≥65dB/≥60dB
Receive Current	≤380mA
PM noise	≥45dB@25KHz / ≥40dB @12.5KHz

Note: All specifications may be modified without prior notice or liability.

## Troubleshooting

Problem	Reason	Solution
The radio doesn't start.	The battery doesn't be installed correctly.	Remove and re-install the battery.
	The battery runs out.	Charging or change a new battery.
	The battery is poor contact causing by damaged or dirty.	Clearing the contact. Please get contact with our distributor to repair, if you cannot solve it.
The sound is small/intermittent, or on sound when receiving the signal.	Battery voltage is low.	Charging or change a new battery.
	The voice is too small.	Turn up the sound.
	The antenna is loose.	Turn off the radio and re-install the antenna.
	The speaker is damaged or dirty.	Clear the speaker. Please get contact with our distributor to repair, if you cannot solve it.
Cannot talk with the members in the same group	The frequency is different with other members.	Resetting the same frequency with them.
	In the different digital or analog channels	Correct to the same channel.
	Too far away from each other	Get close with each other
Single call or group call does not work in the digital channel	Be different in the frequency/channel/color code/ time slot	Setting the same frequency/channel/color code/ time slot
Other sound in the channel, which is not from the members	Interference from the same frequency	Change to new frequency, or correct the squelch
	The signal is not set yet.	Set the signal for all radio in the group
The loud noise	Be too away from other members.	Get close with other members.
	Poor location, such as blocked by tall buildings, or located in the basement	Move to open environment, restart the radio.
	Interfere by the environment or electromagnetic	Avoid the device interfering the radio

Note: As above method still cannot solve your problem, or you meet other problem, please get contact with local distributor to get the technological support.

### Maintenance and clean

To keep the performance and extend the service life, please note the content below for maintain the clear the radio.

#### ■ Maintenance

- >Do not store the radio in an environment containing a corrosive electronic circuit material.
- >Do not directly lift an antenna or an external microphone in the course of carrying or using a radio.
- >Cover the appendage interface cover, when attachments are not used.

#### ■ Clean

- >Please use clean, dry cloth or brush to wipe off the surface of the walkie talkie and the dust attached to the charging pole on a regular basis.
- >Wipe the radio on dirt with dust, lint free cloth, to prevent poor contact.
- >After long term use of radio, walkie talkie buttons, control knobs and chassis are easy to dirty. You can use neutral detergent (do not use strong corrosive chemicals) and wet cloth to clean. After cleaning, make sure the radio is completely dry; otherwise please do not use it.
- >When the walkie talkie does not in use, please attach the cover on the socket.

Note: Please turn off the radio and remove the battery before clearing

### Programming guide

The programming software and codeplug programming guide are available for download from BAOFENG website:

<http://www.baofengradio.com>

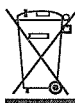
When programming this radio for the first time, it is recommended you first READ the radio with the software and then save this file for future reference as it contains the default programming and settings. In addition, after you READ this radio with software, first make you programming and frequency changes, then send this edited file back to your radio.

### Disposal of your Electronic and Electric Equipment

Products with the symbol (crossed-out wheeled bin) cannot be disposed as household waste. Electronic and Electric Equipment should be recycled at a facility capable of handling these items and their waste by products.

In EU countries, please contact your local equipment supplier representative or service center for information about the waste collection system in your country.

List of national codes					
AT	BE	BG	CY	CZ	DE
DK	ES	EE	FI	FR	GB
GR	HR	HU	IE	IT	LT
LU	LV	MT	NL	PL	PT
RO	SK	SI	SE	CH	IS
LI	NO	-	-	-	-



### Disclaimer

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