Notice to the user

Government law prohibits the operation of unlicensed radio transmitters within the territories under government control.

Illegal operation is punishable by fine or imprisonment or both.

THANK YOU

We are grateful you choose BelFone series professional radio communications products!

Since 1989, BelFone has been always engaging in research and exploration of radio communications technologies, In order to lead intelligent technologies in the industry. We still make every effort to research and design products according to modern complicated communications environment, and we offer complete and customized communication solutions to clients. Our products will satisfy you because of its excellent performance and outstanding communications strength. No matter what field you are in. You will be Satisfied with the radio.

This manual is applicable to

VHF/UHF digital FM transceiver model: BF-TD930

.

Fujian BelFone Communications Technology Co.,Ltd.

ADD: A-15 Huaqiao Economic Development Zone, Shuangyang, Luojiang, Quanzhou, Fujian, China

WARMING !

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

Note: 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.

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 of Belfone's or other manufacturer's non-approved accessories may result in exposure levels, which exceed the FCC's 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 name approved supplied or replacement antennas, batteries, and accessories. Use of non-manufacturer-name approved antennas, batteries, and accessories may exceed the FCC RF exposure guidelines.

• For a list approved accessories please consult your local dealer for information.

BE	BG	CZ	DK	DE	EE	IE	EL
ES	FR	HR	IT	CY	LV	LT	LU
HU	MT	NL	AT	PL	PT	RO	SI
SK	FI	SE	NO	IS	LI	CH	TR

Precautions

It's important that the operator is aware of and understands hazards common to the operation of any radio .Please observe the following safety precautions to prevent radio damage or personal injury. The following precautions shall be observed during operation, service and repair of this radio.

◆The recommended usage rate is 1 minute for TX and 4 minutes for RX, when the radio is used for transmission for many hours continuously, the radiator and chassis will become hot, allow the rear panel of the radio to contact surface of low melting point /low Ignition point object;

◆Don't leave the transceiver in direct sunlight for a long time, don't place the transceiver on extremely heat, damp, dusty area, and don't put it on unstable surfaces;

◆When restriction or warnings are posted regarding the use of radio devices, please obey the regulation turn the transceiver power off;

◆Use of the radio while you are driving may be against traffic laws, please prohibit using it;

◆If you notice any problems on the radio, please turn off at first. Then contact with local dealer. Do not modify this radio unless instructed by this manual or refer service to a qualified licensed or certified technician only;

◆If you want to use the machine for secondary development, please contact with BelFone's technical engineer or dealer for technical assistance;

◆Please keep the surface of radio is clean and dry, clean the radio using a cloth moistened with clean water and a mild dishwashing liquid.

Contents

Supplied Accessories

Notes: The accessories listed below are covered　by BelFone dealer、authorized BelFone agents or factories .

After carefully unpacking the transceiver, identify the items listed in the table below. If any items are missing or have been damaged during shipment please contact with dealer immediately**.**
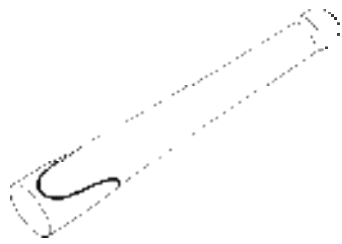
Accessories

Items	Number	Quantity
Antenna		1
Strap		1
Belt Clip		1
Charger		1
Li-ion Battery		1
Screws		1
User Manual		1
Warranty Card		1
Certificate		1

Antenna　　　　　　　**Strap**　　　　　　　**Belt Clip**
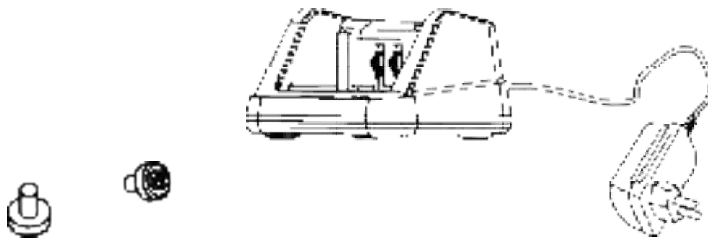
Screws   Charger   Li-ion Battery

Installation of Accessories

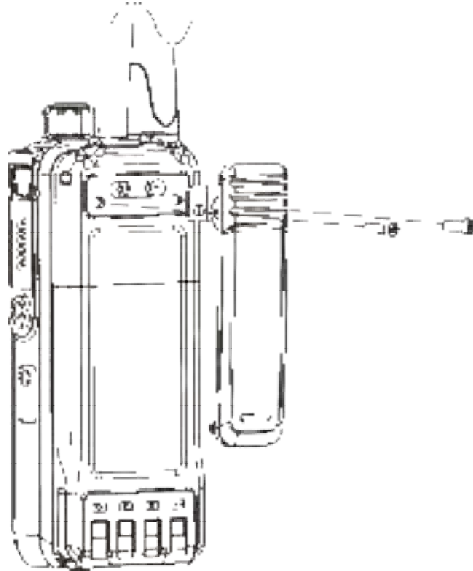## Installation/ Removing the Antenna

Hold the supplied antenna by its base, then screw it into the connector on the

top panel of the radio until fasten.

Turn the antenna anti-clockwise to remove it.

Installation/ Removing the Belt Clip

Attach the belt clip using the two supplied3 * 4mm binding screws.

Attaching/Removing the Strap

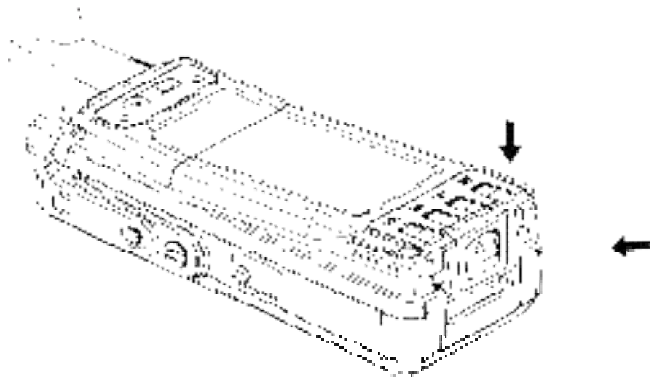Thread the hand strap to the loop back of your two-way radio.
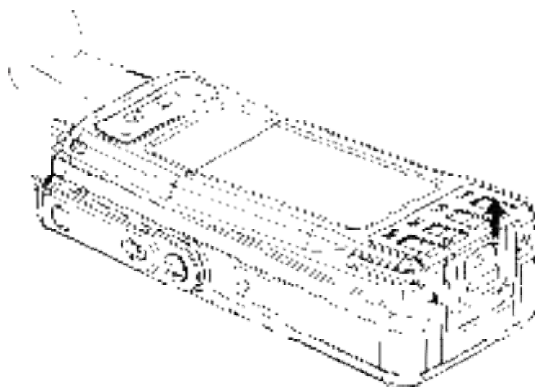
Attaching/Removing the Battery

> **Warning !**
>
> 1. Don't short-circuit the battery, it may cause the battery damaged or burst into flame;
> 2. Never attempt to remove the casing from battery, that avoid to short the battery terminal;
> 3. Battery is flammable objects, don't throw it into fire or don't use it on dangerous area.

Match the guides of the battery with the corresponding grooves on the upper

rear of the radio, then press the battery until a click is heard to lock it in place.

To remove the battery, please turn the power off then press the release latch

to unlock the battery pull the battery away from the radio.

Note: Don't attach / remove the battery if the radio turned on.

Battery Information

New battery is shipped not fully charged from the factory, please charge your battery before using it, charging a new battery for 5 hours before initial use. The maximum battery capacity and performance is achieved after three full charge/discharge cycles. If you notice the battery power runs lows, please recharge the battery.

Applicable Battery

To reduce the risk of injury, please only use the battery and charger specified by BelFone, other batteries may burst, causing bodily injury and property damage.

Battery Tips

1. When charging your battery, keep it at a temperature among 5℃ to 40℃. Temperature out of the limit may cause battery leakage or damage.

2. When charging a battery attached to a radio, turn the radio off to ensure a full charge.

3. Do not cut off the power supply or remove the battery when charging a battery.

4. Never charge a battery that is wet, please dry it with soft cloth prior to charge.

5. Even if the battery is full charged, the operating time is noticeably shorter

than normal performance; it is time to buy a new battery.

To Prolong Battery Life

1. Battery performance will be greatly decreased at a temperature below 0℃, a spare battery is necessary in cold weather, the cold battery unable to work in this situation may work under room temperature, so keep it for later use.

2. The dust on the battery contact may cause battery breakdown, please use a clean dry cloth to wipe it before attaching the battery to the radio.

Battery Storage

1. Fully charge a battery before you store it for a long time, to avoid battery damage due to over-discharge.

2. Recharge a battery after several months' storage, to avoid battery capacity reduction due to over-discharge.(NI-MH batteries:3 months, Li-Ion& Li-polymer batteries: 6 months)

3. Store your battery in a cool, dry place under room temperature, to reduce self-discharge.

Charging the Battery

Use only the charger specified by the manufacturer, the charge indicator indicates the charging progress.

Charger Status	Charger Indicator
Standby(No-load)	Charge Indicator glows green

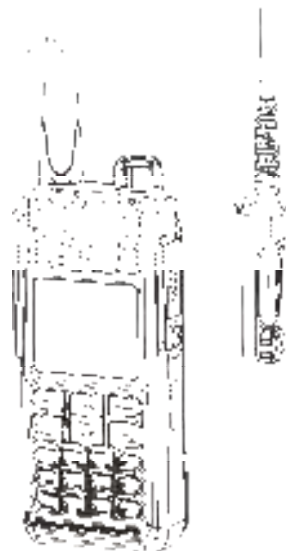| Battery is charging	Charge Indicator glows red
Battery is fully charged	Charge Indicator glows green

Charge Steps:

1. Plug the AC connector of the switching power into the AC outlet socket.

2. Place the battery or the radio is attached with a battery in the charger.

3. Making sure the battery is connected to the charger, the charging process initiates when the charger indicator glows red.

4. The charger indicator glows green when the battery is fully charged, please remove the battery then.
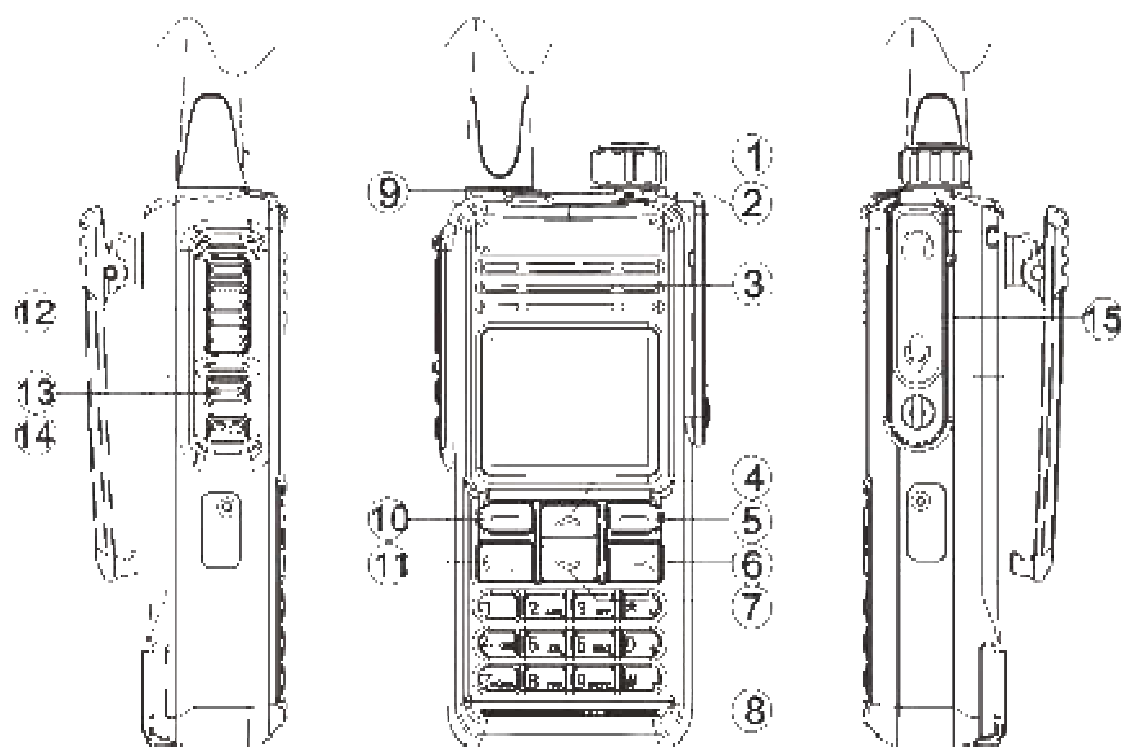
Note: While charging the temperature out of the limit the LED indicator of charger will flash red and green; if battery has damaged or battery is not connected to the charger correctly, the LED indicator of charger also will flash red and green.

Attaching the Speaker/Microphone

Anticlockwise loosen the screw on the accessory connector cover to uncover the connector, align the accessory plug with the connector and tighten the screw on the accessory plug.

Getting Acquainted

①	Power switch/volume adjust keys	⑨	Orange Button
②	LED Indicator	⑩	OK Key
③	Speaker	⑪	P1 Key

④	Direction Up	⑫	PTT Key
⑤	Return Key	⑬	Side Button 1
⑥	P2 Key	⑭	Side Button 2
⑦	Direction Down	⑮	MIC-SP-USB Port
⑧	Microphone（MIC）		

Basic Operation

LCD Icons

	Signal Strength		A&D Mode		Encryption On
H/L	High /Low Power		The inbox/outbox is full		Keypad Locked
	Emergency		Unread message		Disable All Alert Tones
	Scan On		Moniting		Receiving Voice
~	Analog Mode		Connect to USB		Duplex Mode
	Missed Call Log		VOX On		Simplex Mode
	Digital Mode		Earphone is connected		Roaming On
	D&A Mode		GPS On		Battery Capacity
	Private Call		Call Log Menu		Message Send Failed
	Group Call		Setting Menu	✓	Configured

	All Call		Scan Menu		First Priority Scan Channel
	Contacts Menu		Read Message		Second Priority Scan Channel
	SMS Menu		Unread Message		Single Frequency repeater feature is enabled
	Zone Menu		Message Send Successfully		Ad Hoc feature is enabled

Turning the power on /off

Long press the power switch/volume adjusting keys about 2 seconds to turn the power on, the power on tone will sound.

Then long press the power switch/volume adjusting keys about 2 seconds to turn the power off.

Adjusting the volume

After the radio is power on, you can switch the function of power switch/volume adjust keys as volume mode, then rotate the power switch/volume adjust keys to adjust the volume level, rotate the knob clockwise to increase the volume, or rotate the knob anti-clockwise to decrease the volume.

Note: On programming software, only the default knob function is set as both or only volume, you can rotate the knob to adjust the volume level.

Selecting a Channel

Short press the [power switch/volume adjust keys] to switch the function to knob mode then rotate it to select a channel. Rotate the knob clockwise to increase the channel number, or rotate the knob anti-clockwise to decrease the channel number; also press the direction up or down key to select a channel, while enable all tone alert ,handover channel will hear a channel number.

Note: On programming software, only the default knob function is set as both or only channel, you can rotate the knob to select a channel.

Select a Zone

The radio supports up to 128 zones, each with a maximum of 64 channels, 128 zones all support up to 1024 channels. You may select a desire zone through enter zone menu or setting zone selection function to orange button, button 1 or button 2, then handover zone. While enable all tone alert, select zone will hear a channel number.

Dual Modes Switching

If current channel mode is D/A compatible, press side button 【Digital/Analog Switch】 function to switch the channel mode. The current channel mode is digital compatible analog , press 【Digital/Analog Switch】 button to switch to analog compatible digital mode; the current channel mode is analog

compatible digital, press 【Digital/Analog Switch】 button to switch to digital compatible analog mode.

Note: Digital/Analog Switch function only switching the channel mode temporarily, while you restart the radio or rotate channel selector knob, the current channel will resume to default mode.

Call

Each digital channel may can transmit a private call, a group call or an all call; on analog channel press and hold down the PTT key to transmit. On digital compatible analog channel press PTT key, if is not within hang time to transmit analog call, within the preset time period to call back; On analog compatible digital channel press PTT key, if is not within hang time to transmit digital call, within the preset time period to call back; To transmit press and hold down the PTT key, LED indication glows red, speak into the microphone, hold the palm microphone approximately 3 to 4 centimeters away from your mouth.

Private Call

If the feature "private call ACK" is enabled, to transmit a private call need to confirm whether it is power on or activate on the current channel.

（1） If you preset a private call contact for current digital channel. Press PTT key to transmit a private call;

（2） Enter Contacts menu to select the private call number you want to call,

then press PTT key to transmit a private call;

（3） Enter Contacts menu and go to manual dial menu or press programmed "Manual Dial" key, input a private call number you want to call, then press PTT key to transmit;

（4） Enter Call Log menu to select the private call number you want to call, then press PTT key to transmit a private call;

（5） You can set the One Touch Call key as private call feature, then press programmed key to transmit a private call.

Group Call

（1） If you preset a group call contact for current digital channel. Press PTT key to transmit a group call;

（2） Enter Contacts menu to select the group call number you want to call, then press PTT key to transmit a group call;

（3） Enter Contacts menu and go to manual dial menu or press programmed "Manual Dial" key, input a group call number you want to call, then press PTT key to transmit;;

（4） You can set the One Touch Call key as group call feature, then press programmed key to transmit a group call.

All Call

（1） If you preset an all call contact for current digital channel. Press PTT

key to transmit an all call;

（2） Enter Contacts menu to select the all call number you want to call, then press PTT key to transmit an all call;

Duplex Call

The radio supports full duplex mode communication that is you can transmit and receive at the same time. Only the current channel of transmitter and receiver are set as duplex mode that you can make a full duplex call.

Reject Stranger Call

On digital mode, if enable reject strange call feature, while the call ID not exist in the contacts list, it's unable to transmit or receive. When received group call or all call, the device ID of transmitter and group call ID or all call ID must be preset on address list.

Receiving and Calling Back

On digital channel, while a private call is received, you may press the PTT key within the preset time period to call back. If you do not respond to a received private call within the preset time period, the radio will display the missed call icon; while a group call is received, you may press the PTT key within the preset time period to call back; while an all call is received, you can't respond to an all call. While receiving, the radio detect digital and analog signal (is must attach to CTCSS/CDCSS) simultaneously, if detected matching signal, within

the preset time period to call back.

Calls on Analog

On analog channel, press and hold down the PTT key to transmit, release PTT

key to receive.

Button Setting

For enhanced convenience, you may program the all buttons, short and Long

press of a key can be assigned with different functions.

Programmable keys are including functions listed below:

No.	Shortcut Keys	Description
1	Undefined	Not assigned with any function
2	Emergency On	To send emergency information, only set short press on orange button
3	Emergency Off	To exit emergency mode, only set long press on orange button
4	TX Power High/Low	To switch High/Low Power quickly
5	Adjust Squelch Level	To switch squelch level as normally open, normal or tight
6	Alert Call	Quick access to Alert Call menu
7	Battery Indicator	Quick view battery capacity
8	Call Logs	Quick access to Call Logs menu
9	Channel Up	Quick select a channel
10	Channel Down	Quick select a channel
11	GPS Data Upload	Quick send GPS data to center.

12	Top Contacts	Quick access to Top Contacts menu
13	Home Screen	Quick return to Home Screen
14	Boot Menu List	Quick access to Boot Menu List menu
15	Lone Worker On/Off	To enable or disable lone worker quickly
16	Man Down On/Off	To enable or disable man down quickly
17	Contact List	Quick access to Contact List menu
18	Message	Quick access to Message menu
19	Monitor On/Off	To enable or disable monitor quickly
20	Monitor Momentary	
21	Keypad Lock	To enable or disable keypad lock quickly
22	Squelch Open	To enable or disable squelch quickly
23	Transient Squelch Open	
24	Zone Up	Quick select a zone
25	Zone Down	Quick select a zone
26	Scan	To enable or disable scan quickly
27	Vox	To enable or disable vox quickly
28	Encrypt	To enable or disable encryption quickly
29	Talk Around	To enable or disable talk around quickly
30	One Touch Call 1-5	to quick transmit group call/ private call/call alert or preset SMS
31	Manual Dial	Quick access to Manual Dial
32	Covert Mode	To enable or disable covert mode quickly
33	Priority Interrupt	To interrupt activity of current channel forcibly
34	Preset Channel 1~4	Quick select a preset channel
35	Delete Useless Channel	To temporarily ignore unused channel activity

36	Vibration Setting	To enable or disable vibration quickly
37	GPS On/Off	To enable or disable GPS quickly
38	Disconnect	To hang up current call quickly
39	Radio Check	Quick access to Radio Check menu
40	Remote Monitor	Quick access to Remote Monitor menu
41	Radio Disable	Quick access to Radio Disable menu
42	Radio Enable	Quick access to Radio Enable menu
43	Site Lock Switch	Quickly to enable or disable lock site function.
44	Manual Site Roam	Quickly to search the available site manually.
45	Digital/ Analog Switch	To temporarily switch channel mode to AD or DA
46	Single Frequency Repeater	Quickly to enable or disable Single Frequency Repeater function.
47	Ad hoc network	Quickly to enable or disable ad hoc network function.

Note:

● The [orange key] is programmed as the emergency key by default, the short press of [up arrow key] is programmed as the channel up key by default, the long press of [up arrow key] is programmed as the zone up key by default; the short press of [down arrow key] is programmed as the zone down key by default; the long press of [down arrow key] is programmed as the zone down key by default; the short press of [OK key] is programmed as the root menu key by default; the short press of [Back key] is programmed as the home screen key by default;

● If the features is not mentioned above that the radio may unsupported temporarily.

Functions and Operations

Contacts

Contacts list can contain a maximum of 1000 members, including private call,

group call, all call. On the contacts, you can view the frequent contacts or all

contacts, add new group or contacts, manual dialing.

1. Group Call **/ All Call**

While the contacts type as Group or All Call, you can select the menu to view

its ID or send message.

2. Private Call

While select a contact as Private Call, a private call can view its detail, send

control service, send message, edit name or number, delete, control services are

including:

Control Services	Description
Call Alert	Call alert is used for prompting the private receiver; ask them respond to transmitter if communication is available.
Device Check	This function can check if the target radio is active in the system while don't send any tone alert to the target device.
Remote Monitor	Allow a user to send a "Remote Monitor" request to the target device via menu. If the request is successful, you

	can enable the microphone of the target radio, and monitor its activities.
Device Enable	Device Enable: Allow a user to send "Device enable" command to the target killed device, to allow it to be used normally.
Device Disable	Allow you to send the Radio Disable command to a private contact to disable its radio, except remote monitor, all other functions are disabled, The radio must be reprogrammed for reuse or enabled by the Radio Enable command.

●**Edit Name:** Modify the name of a private call contact. Press" *" key to delete, press "#" to switch input method, name input 16 characters at most.

●**Edit Number:** Modify the number of a private call contact, the available number range is 1~16776415. (if private call contact is set as channel default address or call number on one touch call, its unable to edit number)

●**Delete:** Delete unwanted contacts from the address list, if private call contact is set as channel default address or call number on one touch call, its unable to delete.

3. New Group

Allow you to create a new group via menu, input the name then press confirm key to save, and you can edit the name or delete it.

4. New Contact

You can add a private call contact to the contact list. When edit name, press" *"

key to delete, press "#" to switch input method, name input 16 characters at

most; then input number, the available number range is 1~16776415. After

add a Private Call contact successfully, on contacts list will show new contact.

5. Manual Dial

You can manually input the private number or group number for calling, on

manual dial menu, press * key can switch input private or group number, then

press PTT key to transmit.

SMS

1. New SMS

You can edit desired text message(255 characters at most) and send it to a

Private Call contact, Group Call contact or All Call contact, when editing a

message, press "# "key for switching input method, press "∗" key for deletion

and modification, press up or down key to switch input cursor. For non-numeric

input method, key "1" is a symbol key. Key "0" is a space key. After the

message is edited, you can select a contact from the address list which the

message is sent to or manually dial a number to send to.

2. Preset SMS

Via programming software, user can save 10 text messages and each

message contains 255 characters at most on preset SMS. You can choose to

edit and send any entry.

Note: Preset text messages also can assign to one touch call, and press the

programmed key to send messages

3. Inbox

The Inbox can save up to 50 received messages. Inbox the unread message

displays: , read message displays: . For each message, you can

choose to perform any of these operations: Reply, Forward and Delete.

4. Outbox

Outbox can save up 20 sent messages. If sent message is successful displays

, you can choose to forward or delete it; If sent message is failed displays

, you can choose to resend, forward or delete.

5. Draftbox

Draftbox can save up 20 sent messages, you can choose to edit, send or

delete.

Call Logs

1. Outgoing Calls

The outgoing calls list can save up to 20 private calls, after selecting an entry,

you can view the details or add it to contact list or delete it.

2. Answered Calls

The answered calls list can save up to 20 private calls, after selecting an

entry, you can view the details or add it to contact list or delete it.

3. Missed Call

The missed calls list can save up to 20 private calls, after selecting an entry,

you can view the details or add it to contact list or delete it.

Scanning

1. Scan On/Off

While current channel add scan list and the list contain 2 channels at least, you

may enable the feature. Scanning allows the device to search the scan list

connected to the current channel to locate qualified channel for receiving or

voicing. If the scan list contains priority channel, the priority channel will be

scanned more frequently than a non-priority channel. While enable scan

function, the icon Z and scan group name appear on the home screen, LED

indicator flashes red, when activities are detected on a channel, the radio will

stay on the channel to receive current activities, LED indicator red green. If you

don't want to receive activities on the channel, press the programmed

[Nuisance Delete] key to remove the channel from the scan list temporarily. To

exit the scanning process, enter scan menu, switch channel or press the

programmed Scan key.

Note:

- If the channel enables the feature "Auto Scan" via the programming software, switch

  to the channel will enter scanning automatically;

- While programmed key is programmed as Scan on/off, press it to enable scan

  feature.

2. View / Edit

Allow a user to view/edit the scan list via menu, allows a user to view the scan group members or add a new member to the scan list, the list contain 16 channels at most. Also you can edit the members as priority channel, ① indicates priority channel 1, ② indicates priority channel 2, each scan list may contain two priority channels at most.

Roam

This feature allows the radio communicate between available sites in the IP Site Connect system. If enable, the radio can communicate via any site in the IP Site Connect system, thus ensuring seamless communication in the system. If current channel enable roam function, icon appears, during roaming, LED indicator flash red. On roaming channel, enter roaming menu can enable or disable it, set site lock or unlock, and start roam automatically.

Note: allows the user to associate one of a scan list or roam list to the current channel, but can't enable both feature at the same time.

Zone

The radio supports up to 128 zones, each of zone supports 64 channels, totally 1024 channels supported. Enter "Zone" menu to select a desired zone or programmed [Zone Up] [Zone Down] key to select a zone.

Note: The radio contains 2 zones at least that you can switch a zone.

Settings

1. Settings

Allow a user to configure basic settings for the radio.

●**Language:** The radio supports two languages: Chinese and English.

●**LED indicator:** Allow a user to enable or disable the LED indicator via menu.

All LED indicators including: TX LED, RX LED, Scan/ Roam LED, Low Battery

LED, Call Hang LED.

●Backlight: To set the backlight parameters, you can select on, off or

automatic, while you select automatic on, the light will become dark after

preset time you don't operate the key, and the light will keep on all the time

when the backlight is on, the backlight is off will disable the backlight.

●Tone/Alerts: To set tones and tone volume level for your radio, you can set

the following tones:

Types	Description
Tone Disable	If tone disable is on, all alerts will be off except emergency alarm.
Call Out Tone	Off: The radio does not give any tone indication for transmission. On: The radio gives tone indication for transmission on both analog and digital channels; Analog: The radio gives tone indication for transmission on analog channel; Digital: The radio gives tone indication for transmission on

	digital channel.
Voice End Tone	To set whether the radio will give tone indication when the radio ending receives voice.
Private Call Tone	To set whether the radio will give tone indication when the radio receives a private call.
Group Call Tone	To set whether the radio will give tone indication when the radio receives a group call.
Call End Tone	To set whether the radio will give tone indication when the radio release PTT key and the hang time expires.
SMS Tone	To set whether the radio will give tone indication when the radio receives a message.
Call Alert Tone	To set whether the radio will give tone indication when the radio receives a call alert.
Prior Channel Tone	To set whether the radio will give tone indication when enable scan function and the radio receives activity on priority channel.
Keypad Tone	To set whether the radio will give tone indication when press key.
Channel Tone	To set whether the radio will give tone of channel name when select a channel or select a zone.
Low Battery Tone	To set whether the radio will give tone indication when the radio battery gets low.
Power On/Off Tone	To set whether the radio will give tone indication when the radio turn the power on or off.
Emergency Alarm	To set whether the radio will give tone indication when the radio transmits or receives emergency information.

● **Vibration:** To enable or disable vibration feature, if it is enabled, the radio will

vibrate for an incoming private call, a new message or a call alert.

●**VOX:** While this function is enabled, you can enjoy hands-free communication. The radio will automatically begin transmitting when you speaking, and terminate transmitting when you stop talking with no need of PTT press. Allow user to set the VOX level (level 1-8) and VOX delay(0.5~10second) via menu.VOX on indicate by : .

Note: The VOX feature only is used if you are using a supported headphone.

●**Keypad Lock:** Allow a user to enable or disable keypad lock via menu. While Keypad locked indicate: , that you can't operate the keypad if the button locked . Press key to unlock.

Note:

- **You can set the keypad lock delay time via the programming software, the available range: 5~60 seconds;**

- **You can set the optional keypad lock via the programming software , the optional keypad including: orange key , side button 1, side button 2, dial key, hang up key, PTT, channel knob, volume knob, knob key.**

●**Man Down:** To enable or disable man down function via settings menu

● **Power-on Password:** If enable power-on password feature via programming software, you can modify the password by this menu. First you need input old password correctly, then input a new password twice the same, that will modify the password successfully.

Note: This menu is effective if power on password is set via programming software.

●Boot Interface: Allow a user to enable or disable the boot screen via menu. If the Intro screen is enabled, while the radio power on, the screen display BelFone Logo and device name; while the Intro screen is disable, the screen only displays device name.

●Covert Mode: If enable covert mode function, the radio will be totally silent without any UI indication. Via the programming software you can set other convert item, there are: LED, Keypad Lock, Backlight, Vibration.

●Lone Worker: To enable or disable lone worker function via settings menu

●TX Power : Allow a user to change the power level, there are two levels available: high (indicated by) and lower (indicated by).

●Talk Around: When your repeater malfunctions, or when radio is out of repeater's range, you can continue to communicate in talk around mode. While enable talk around feature, the screen displays: , By this time TX frequency the same as to RX frequency. If switch channel, enable scan feature or restart radio will disable the feature.

Note:

● **To enable this function, TX frequency should be different from RX frequency, and the channel will set as allow talk around on the programming software.**

● **Press the programmed Talk Around key to switch DM mode and RM mode.**

2. Channel Settings

Channel configure function is used to modify the current channel parameters, on digital channel, it allows you to modify Channel Name, Sending Timeout, RX/TX frequency, Color Code, Slot Selection, Encrypt Setting, TX contacts, RX Group List; on analog channel to modify Channel Name, Sending Timeout, RX/TX frequency, Subsonic, Single Freq Repeater and AD Hoc network.

●**Channel Name:** To set current channel alias, it contains 16 characters at most.

●**Sending Timeout:** To set current channel TOT, the available time range is 15 to 495, the time 0 is off.

●**TX/ RX Frequency:** To set TX or RX frequency of current channel, and only current channel display frequency that this option is available.

●**Subsonic:** To set the RX or TX subsonic type and values of current channel

Color Code: To set current channel color code, the available value range is 0~15, if enable TDMA direct mode feature, the color code range is 0~14.

●**Slot Selection:** To set current channel time slot, the available time slot is: Slot 1, Slot 2, Virtual Cluster TX slot Auto, Virtual Cluster TX slot 1, Virtual Cluster TX slot 2;

●**Encrypt Setting:** To set the encryption feature of current channel, if enable encryption feature, the icon appears, and you can add encrypt key or select a encrypt key from the encryption key list.

●**TX Contacts:** To select a contact from all contacts list as current channel default address;

●**RX Group List:** To set current channel RX group list.

●Single Frequency Repeater: To set current single frequency repeater feature, you can enable or disable it.

●Ad Hoc Network: To set current Ad Hoc network feature, you can enable or disable it.

3. System Info

With this option, you can view the basic information of your radio, including battery status, my number, device name, firmware version, CP version, UI version.

Accessory

GPS

The transceiver supports GPS location, and the satellite positioning function allows you to view your location information, location data include time, date, longitude, latitude, speed, altitude, and number of available satellites. While enable location, the icon appears, and the radio receives effective location data, that will transfer its positioning information automatically to the control center, the trigger condition contains: button, power on, power off, time, distance, boot password error, be remote monitor, be kill, report interval time, report interval distance, PTT counts, connect counts. Location data also can

be manually transmitted to an individual user. The radio also supports query

location information of another radio user if obtains the query command.

GPS data compressed feature: via the programming software can enable the

data compression feature, which can reduce the capacity of data transmission

and improve the efficiency of data transmission.

Note: The RFID and Recording features of accessory are unsupported temporarily.

Digital Emergency

In case of an emergency you can enter emergency mode to ask for help, for each

emergency mode, there are five emergency types and three emergency modes

available.

Emergency Type:

Siren Only: After the transceiver enters the emergency status, the siren only

sounds locally, and the icon appears.

Regular: The transceiver sends emergency alarm and audio/ visual alert, and the

icon appears.

Silent: The transceiver sends emergency alarm but no audio/ visual alert, the

speaker will be muted when receiving speech signal.

Silent with voice: The transceiver sends emergency alarm but no audio/ visual

alert, when receiving speech signal the speaker will turn on to receive call.

Alarm Whistle: The transceiver sends emergency alarm, you will sound alarm tone

locally and display the icon■.

Emergency Alarm Mode:

Emergency Alarm: In this mode, you can send alarm information, while receive ACK or reach the maximum retries will exit emergency mode.

Emergency Alarm with Call: You can press programmed" Emergency On/Off" key to send emergency information, then press PTT to transmit an emergency call.

Only Emergency Call: You can press programmed" Emergency On/Off" key to enter emergency mode and the control center will not receive any alarm signal except press PTT key to transmit emergency all.

1. **Sending Emergency Alarm:** Press the programmable button which is programmed as [Emergency On] to send emergency information, LED indicator glows red, the icon■will show in the status bar and LCD displays: Sending Alarm.

2. **Initiate an emergency call:** When the emergency mode as emergency alarm with call, after enter emergency state, press PTT key to initiate an emergency call, the LCD displays: Emergency Call. If the Alarm with call to follow is enabled via the programming software, that allows user to talk without having to press PTT key.

3. **Exiting Emergency Alarm:** The transmitter long press the programmable button which is programmed as [Emergency Off] to exit emergency state or the emergency alarm retry count is used up, the transceiver will exit alarm mode

automatically. While the receiver only long press the programmable button programmed as [Emergency Off] to exit emergency mode.

Analog Emergency

Emergency alarm on analog channel only supports the emergency type as siren only, to enter emergency alarm state, short press the programmable button programmed as [Emergency On], the siren will sound locally and the iconwill show. Long press the programmable button [Emergency Off] to exit the alarm mode.

Lone Worker

This function is useful for persons who work lonely and encounter an incident; you cannot press any keys or transmit audio within the preset period time. The radio will alarm automatically to ask help.

1. **There are three modes to enable lone worker feature:**

    ●Go to [Settings] menu →[Settings] → [Lone Worker]→On

    ● Press the programmable button programmed as [Lone Worker On/Off] to enable it;

    ●Via the programming software, Lone Worker On/ Off item is checked.

2. **To disable lone worker feature:**

    ● Go to [Settings] menu →[Settings] → [Lone Worker]→Off

● Press the programmable button programmed as [Lone Worker On/Off] to disable it

● Via the programming software, Lone Worker On/ Off item is not checked

Man Down

When this feature is enabled, the radio automatically sends an alarm for help if it is positioned aslant or keeps motionless long time. If the trigger type is set as Only Lean, the radio tilts to a specified gradient（30°,45°,60°）within a preset period, the radio gives alerts, you can terminate such alerts by put radio upright otherwise it will enter Emergency mode; If the trigger type is set as Only Motion Detection, the radio stays motionless within a preset period, it will enter Emergency mode, via the programming software to enable this feature and to set parameters.

1. There are three modes to enable man down feature:

●Go to [Settings] menu →[Settings] → [Man Down]→On

● Press the programmable button programmed as [Man Down On/Off] to enable it;

●Via the programming software, Man Down On/ Off item is checked

2. To disable man down feature:

● Go to [Settings] menu →[Settings] → [Man Down]→Off

● Press the programmable button programmed as [Man Down On/Off] to

disable it;

● Via the programming software, Man Down On/ Off item is not checked

Encryption

The encryption feature can encrypt your audio signals and data to guarantee

the privacy of your communication, via the programming software user can

select encryption type as XOR, enhanced XOR, ARC4, AES256 or dynamic

encryption. XOR and enbanced XOR encryption only encrypt the audio signals.

If the encrypt feature is enabled, icon 🔑 appears, the transmitter and

receiver will be set as the same encryption type and same encryption key,

otherwise the receiver is mute.

1. **To enable the encryption feature**

● Go to [Settings] menu →[Channel Settings] → [Encrypt Setting]→ [Encrypt

Switch] →On

Press the programmable button programmed as [Encrypt] to enable it;

2. **New Encrypt Key**

Select "New Encrypt Key" from "Encrypt" menu, and then edit name and key,

the encrypt name supports 16 characters at most, the encrypt key supports 10

characters at most.

3. **Encrypt Key**

To select an encrypt key from the key list when the encryption feature is enabled.

Note: This feature is effective on digital channel.

TDMA Direct Mode

If enable TDMA direct mode, the members in the same group call must use the same slot, one frequency supports calls in two slots synchronously in order to avoid interfering communications in the other slot.

Note: This function is available only in digital operation.

Pseudo Trunk

While slot is set as pseudo trunk, and one time slot is already occupied, it can transmit and receive on the other free time slot. If the pseudo trunk TX time slot is set as none, both time slot 1 or time slot 2 can transmit; if the pseudo trunk TX time slot is set as 1, press PTT key to transmit voluntary only in time slot 1; if the pseudo trunk TX time slot is set as 2, press PTT key to transmit voluntary only in time slot 2. The TX time slots set is invalid for replying

Note: In order to guarantee the stability of communication, the transmitter and the receiver will enable pseudo trunk function at the same time.

Direct Mode with Different Frequency

If enable direct mode feature you can transmit with different frequency directly, only the transmitter and receiver are set direct mode simultaneously and the TX frequency of the transmitter is the same as the RX frequency of the receiver, you can directly communicate in DM mode.

Single Frequency Repeater Feature

The radio supports single frequency repeater feature, with this feature enabled, the icon: appears. The single frequency repeater feature allows the radio in direct mode to receive services on one time slot and then forwards them on the other, using the same frequency and code. In this way, the feature expands the communication coverage and saves frequency resources.

To enable or disable the single frequency repeater feature, do as follows:

1. Go to MENU→Settings→Channel Settings→Single Freq Repeater→ On/ Off→and then select On or Off.

2. Press the programmable button programmed as [Single Frequency Repeater] to enable or disable it.

Note:

- **The voice frame check feature must be ticked of current channel if the single frequency repeater feature will be enabled;**

- Allows the user to enable the single frequency repeater feature to current channel, but can't enable the Ad Hoc network feature at the same time.

Ad Hoc Network Feature

The radio allows the user to enable the Ad Hoc network feature to expand the long distance transmission and coverage of radio's signal. With this feature enabled the icon: appears, in this way, the current channel can't initiate a confirmed private call or other with acknowledge service.

To enable or disable the Ad Hoc Network feature, do as follows:

1. Go to MENU→Settings→Channel Settings→ Ad Hoc Network feature → On/ Off→and then select On or Off.

2. Press the programmable button programmed as [Ad Hoc Network feature] to enable or disable it.

Note:

● The voice frame check feature must be ticked of current channel if the Ad Hoc network feature will be enabled;

●Allows the user to enable the Ad Hoc network feature to current channel, but can't enable the single frequency repeater feature at the same time.

● Ad hoc network is an optional feature.

Networking Feature

The radio supports to login the system for corresponding operation, the system contains belfone intelligence connection system or trunking system. If the radio has registered with the system successfully that can realize the interconnected communication under the networking mode.

Note: The networking is an optional feature.

Radio Priority-Based Interrupt

The call priority feature allows you to interrupt the on-going call on current forcibly, a higher priority call can interrupt other on-going calls with lower priority to release the channel for itself. There are 4 voice priorities available, level 1 is lower, level 3 is higher, and emergency call is the highest. Interrupt feature is divided into priority interrupt manually and priority interrupt automatically. The emergency priority interrupt, message priority interrupt, kill priority interrupt are belong to priority interrupt automatically.

● **Priority Interrupt Manually:** Press the programmed [Priority Interrupt] key to terminate the ongoing activity on the current channel forcibly, so as to initiate a new call or a new service.

●**Priority Interrupt Automatically:** In this way, the priority interrupt is triggered by the call priority level, if the priority level of current service is higher will interrupt the ongoing activity automatically.

●**Emergency Priority Interrupt:** If there is an active call on current channel, and a user with higher priority level to send emergency service will terminate the ongoing activity automatically.

● **Message Priority Interrupt:** If there is an active call on current channel, and a user with higher priority level to send a short message will terminate the ongoing activity automatically, so as to make sure the message is sent successfully.

●**Kill Priority Interrupt:** If there is an active call on current channel, and a user with higher priority level to send kill command will terminate the ongoing activity automatically, so as to make sure the kill command is sent successfully.

●**All Call Priority Interrupt:** If there is an active call on current channel, and a user with higher priority level to initiate an all call will terminate the ongoing activity automatically.

Note: This function is available only in digital channel.

Time Out Timer (TOT)

The purpose of TOT is to prevent any user occupy a channel for an extended period. If a channel is busy, the time will be shorter. If the preset time expires, the radio will generate beep and terminate transmission automatically.

TX Permission

Digital Channel

This feature can restrict the channel if it is already in use you will be unable to transmit. There are three options available: always, color code free, channel free, if choose always, whenever press PTT key to transmit directly; If choose color code free, you will be unable to transmit on the channel if the color code is already in use; If choose channel free, you will be unable to transmit on the channel if it is already in use. If the channel is busy, press PTT key a warning tone will sound.

Analog Channel

This feature can restrict the channel if it is already in use you will be unable to transmit. There are three options available: off, carrier, CTCSS/CDCSS, if choose Off, whenever press PTT key to transmit directly; If choose carrier, you will be unable to transmit on the channel if the channel is being used by others; If choose CTCSS/CDCSS, you will be unable to transmit on the channel if it is already in use and the CTCSS/CDCSS code in use. If the channel is busy, press PTT key a warning tone will sound.

Battery Saver

This function allows an idler radio to automatically enter battery saver mode, the mode will extend battery service life, but response time may be delayed.

You can set battery saver time ratio as: 1:1, 1:2, 1:3, 1:4, the default setting is

1:2.

Low Battery Warning

When your battery gets low, LED indicator glows red and with a warning tone:

"Please Charge" , please replace the battery or charge the battery in time. The

radio will turn off automatically while battery is too low.

Monitor

On analog or digital channel, enable the Monitor feature, the icon: appears.

Press and hold down the programmed [Monitor Momentary] key to activate the

monitor function, release the key to exit monitor mode; or press programmed

[Monitor On/Off] key enable the monitor feature, the radio will remain on

monitor mode until press it again to exit.

Adjusting the Squelch Level

On the analog mode, this feature allows you to adjust the squelch threshold

required for the radio to un-mute. If two radios at a close distance, the signals

is strong, squelch level can be adjust higher; If two radios at a long distance,

the signals is weak, squelch level can be adjust lower, the appropriate squelch

level depends on the ambient RF noise conditions. You can set SQL level as:

Normally Open, Normal, Strengthen.

Compander

The compander can be enabled only for analog channel, transmitted signals are compressed before being sent and received signals are expanded when they receive. This background feature allows higher clarity of signals, avoiding excessive noise.

CTCSS/CDCSS

On analog channel, you can set unique CTCSS/CDCSS to guarantee the privacy of your communication, on digital compatible analog channel or analog compatible digital channel, is must attach to CTCSS/CDCSS. If CTCSS/CDCSS has been set on the current channel, CTCSS/CDCSS match is required for the radio to receive an incoming signal. You can select a CTCSS/CDCSS from CTCSS standard frequency table or CDCSS standard code table.

Decode: Only when receiver receives a call containing matching the decode, you can hear the call;

Encode: Signal that you transmit will only be heard by parties whose CTCSS/CDCSS signaling matches your transceiver.

CTCSS Frequency Table

CTCSS No.	Freq. [Hz]	CTCSS No.	Freq. [Hz]	CTCSS No.	Freq. [Hz]	CTCSS No.	Freq. [Hz]
1	67.0	14	103.5	27	159.8	40	199.5
2	69.3	15	107.2	28	162.2	41	203.5
3	71.9	16	110.9	29	165.5	42	206.5
4	74.4	17	114.8	30	167.9	43	210.7
5	77.0	18	118.8	31	171.3	44	218.1
6	79.7	19	123.0	32	173.8	45	225.7
7	82.5	20	127.3	33	177.3	46	229.1
8	85.4	21	131.8	34	179.9	47	233.6
9	88.5	22	136.5	35	183.5	48	241.8
10	91.5	23	141.3	36	186.2	49	250.3
11	94.8	24	146.2	37	189.9	50	254.1
12	97.4	25	151.4	38	192.8		
13	100.0	26	156.7	39	196.6		

CDCSS Standard Code Table

CDCSS NO	Positive Code	Negative Code	CDCSS NO	Positive Code	Negative Code	CDCSS NO	Positive Code	Negative Code
1	D023N	D023I	29	D174N	D174I	57	D445N	D445I
2	D025N	D025I	30	D205N	D205I	58	D464N	D464N
3	D026N	D026I	31	D223N	D223I	59	D465N	D465N
4	D031N	D031I	32	D226N	D226I	60	D466N	D466I
5	D032N	D032I	33	D243N	D243I	61	D503N	D503I
6	D043N	D043I	34	D244N	D244I	62	D506N	D506I

7	D047N	D047I	35	D245N	D245I	63	D516N	D516I
8	D051N	D051I	36	D251N	D251I	64	D532N	D532I
9	D054N	D054I	37	D261N	D261I	65	D546N	D546I
10	D065N	D065I	38	D263N	D263I	66	D565N	D565I
11	D071N	D071I	39	D265N	D265I	67	D606N	D606I
12	D072N	D072I	40	D271N	D271I	68	D612N	D612I
13	D073N	D073I	41	D306N	D306I	69	D624N	D624I
14	D074N	D074I	42	D311N	D311I	70	D627N	D627I
15	D114N	D114I	43	D315N	D315I	71	D631N	D631I
16	D115N	D115I	44	D331N	D331I	72	D632N	D632I
17	D116N	D116I	45	D343N	D343I	73	D654N	D654I
18	D125N	D125I	46	D346N	D346I	74	D662N	D662I
19	D131N	D131I	47	D351N	D351I	75	D664N	D664I
20	D132N	D132I	48	D364N	D364I	76	D703N	D703I
21	D134N	D134I	49	D365N	D365I	77	D712N	D712I
22	D143N	D143I	50	D371N	D371I	78	D723N	D723I
23	D152N	D152I	51	D411N	D411I	79	D731N	D731N
24	D155N	D155I	52	D412N	D412I	80	D732N	D732N
25	D156N	D156I	53	D413N	D413I	81	D734N	D734I
26	D162N	D162I	54	D423N	D423I	82	D743N	D743I
27	D165N	D165I	55	D431N	D431I	83	D754N	D754I
28	D172N	D172I	56	D432N	D432I			

Troubleshooting

Phenomena	Solution

1.	The radio cannot be powered on	Remove the battery and then reattach it.
		Recharge or replace the battery.
2	During receiving, the voice is week, discontinuous or totally inactive.	Increase the volume level.
		Turn off the radio and reattach the antenna.
		Check the battery voltage, if the voltage is low please recharge or replace the battery.
3.	The voice is unclear.	Modify the frequency to avoid be interrupted by radios using the same frequency.
		On analog channel, you can adjust the squelch level or set CTCSS/CDCSS
4	The noise is too loud	Move towards other members.
		Move to an open and flat area, and restart the radio.
		Stay away from equipment that may cause interference.
5	You are cannot communicate with other members.	Set your TX/RX frequency and signaling to the same as that of other members.
		Move towards other members.
		On digital channel, verity the device ID of transmitter and receiver are the same.
6	GPS cannot locate your position	Move to an open and flat area, and restart the GPS feature.

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

Specifications

General	
Frequency Range	136~174 MHz / 400MHz～480MHz
Channel Capacity	1024
Zones	128
Channel Spacing	12.5KHz /25 KHz 25KHz only for CE
Operating Voltage	DC 7.4V (±20%)
Operating Voltage	2300mAh
Frequency Stability	±0.5ppm
Working Temperature	Charging	0℃~40℃
	Discharging	0℃~55℃
Dimensions	56(L)*33(W)*129(H)mm
Weight	315g（including battery）

Receiver	
Sensitivity	Analog：0.28μV（12dB SINAD） Digital：-116dBm /BER1%
Adjacent Channel Selectivity	60dB@12.5kHz/70dB@25kHz
Intermodulation	65dB@12.5/25kHz
Spurious Response Rejection	70dB@12.5/25kHz
Blocking	84dB
Audio Output Power	1.0W（8Ω Load）

Audio Distortion	≤5%
Transmitter	
RF Output Power	High Power：4W Low Power：1W
Conducted Spurious Emission	-36dBm<1GHz/-30dBm>1GHz
Modulation Limiting	±2.5kHz@12.5kHz/±5.0kHz@25kHz
FM Noise	40dB@12.5kHz/45dB@25kHz
Audio Distortion	≤5%

Note:

1. The max working temperature including: master radio, battery and power adaptor;

2. Please turn off the power of the radio before charging, and prohibit operating the radio while charging;

3. All specifications are tested according to applicable standards, and subject to change without notice due to continuous development.

Statement

Our Company endeavors to achieve the accuracy and completeness of this manual, if you have any question, you can contact with us, we will make a detailed answer to you in time. All the above specifications and design are subject to change without prior notice due to continuous development.