

Version History

No.	Date	Version	Revised Content	Editor	Reviewer	Remarks
1	2026.04.231	V1.0.0	First release	Chenwanling		

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 !

Since 1989, Belfone has been engaged in research and exploration in the field of radio communication technology for decades, and has a global leading position in the field of private network communication technology. Based on research and development design, adapt to the modern complex communication environment, It is able to customize specific communication solutions according to different industry characteristics. High-performance, high-quality products that can control the overall situation, while providing smart dispatching and command communication.

This manual is applicable to

BP860Ex series

Instructions before Use

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

◆ It is recommended to use 1 minute for TX and 4 minutes for RX, when the radio is used in the transmission mode for many hours continuously, the radiator and chassis will become hot, allow the rear panel of the radio to contact a surface of low melting point /low Ignition point.

◆ Don't expose the radio to direct sunlight for a long periods of time. Also, don't place the radio on sources of extremely heat, humid, dusty area, or unstable surfaces.

◆ In areas where the use of radio devices is restricted or warned, please obey the regulation and turn off the radio.

◆ Use of the radio while driving may be against traffic laws in some countries, please check local traffic laws before using the radio while driving.

◆ If there is any problems with the radio, please turn the radio off immediately.

Then contact the local dealer/technician. Do not modify this radio unless instructed by this manual. Please find a certified technician to repair it.

◆ If secondary development is required, please contact BelFone or the local dealer for technical assistance.

◆ Please keep the surface of radio clean and dry. To clean the radio, use a

damp fabric soaked in mild washing liquid.

Explosion Proof Introduction Function

Before using the explosion-proof radio, please be sure to follow the relevant information and safety regulations contained in the following operating instructions, to ensure safe and reliable operation in the described environment, avoid possible dangerous consequences or violations of applicable regulations

Scope of Application

This digital explosion-proof radio conforms to GB/T3836.1-2021 and GB/T3836.4-2021 standards. It is an intrinsically safe equipment, used in gas

environment Zone 1 and Zone 2, equipment category II, explosion-proof equipment used in other explosive gas environments except coal mine gas environment, temperature group T4, equipment protection level Gb.

Classification of hazardous areas:

Dangerous substances	Long term existence (More than 1000 hours/year)	Exists during normal operation (10-1000 hours/year)	Only exists when abnormal (Less than 10 hours/year)
Gas	Zone 0	Zone 1	Zone 2

Intrinsic safety devices refer to products that have been approved by certification authorities and are considered inherently safe, proving that a specific product meets the applicable intrinsic safety certification standards of that authority. They can be used in specific hazardous locations, such as petrochemical enterprises, fuel or chemical production, transportation and storage sites, cruise ship warehouses, etc. Due to the requirement of intrinsic safety circuits that sparks and thermal effects generated under specified experimental conditions cannot ignite the specified explosive gas mixture, it is currently the safest explosion-proof type.

Failure Warning and Response Measures

When the intrinsic safety or integrity of the radio is compromised, please immediately stop any operation on the radio and leave the explosion area, and avoid reuse. The radio must be sent to the manufacturer for inspection. The security and reliability of radio will be threatened in the following cases:

- ◆ There is obvious damage or rupture on the shell.
- ◆ Exceeding the allowed tolerance or threshold values.
- ◆ The nameplate or text on the body is difficult to recognize
- ◆ The radio exceeds the load limit.
- ◆ Improper storage.
- ◆ The radio has malfunctioned.
- ◆ The radio is damaged during transportation.

Safety Regulations

Any person using the radio must carefully read and comply with the standard safety regulations to avoid improper operation or damage to the radio:

- ◆ Explosion proof battery packs cannot be disassembled or replaced in explosive environments, nor can they be charged;
- ◆ Only use designated chargers to charge batteries outside of hazardous areas;
- ◆ Only use accessories designated by the company;
- ◆ Do not bring spare batteries into hazardous areas;
- ◆ External plug-in devices without explosion-proof certification cannot be used in explosive environments;
- ◆ Do not use the damaged radio, as the damaged antenna may cause slight burns when contacting the skin;
- ◆ Do not expose the radio to direct sunlight for a long time or place it near the

heating device;

- ◆ It is strictly prohibited to bring radio into Zone 0 of dangerous area;
- ◆ It is strictly prohibited to disassemble the radio or replace the battery or accessories of the radio in dangerous places;
- ◆ It is strictly prohibited to disassemble or modify the radio certified by explosion-proof testing institutions in any way. Only the original manufacturer of the radio can carry out modifications within the scope permitted by the explosion-proof testing institution. Unauthorized modifications will result in the invalidation of the explosion-proof certification of the radio.

Unpacking and Device Inspection

Note: The following instructions regarding unpacking are only for BelFone's distributors, and service agencies or factories authorized by BelFone.

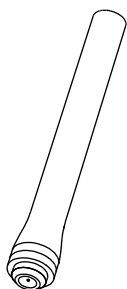
After carefully unpacking the radio, identify the items listed in the table below. If any items are missing or have been damaged during shipment please contact dealer or BelFone immediately.

Accessories

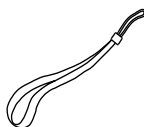
Items	Quantity
Antenna	1
Strap	1
Belt Clip	1
AC Adapter	1

Charger	1
Li-ion Battery	1
User Manual	1
Warranty Card	1
Certificate	1

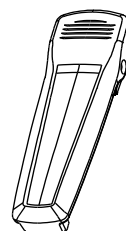
Antenna



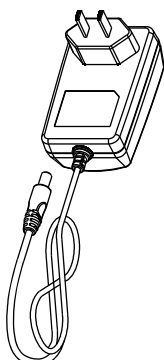
Strap



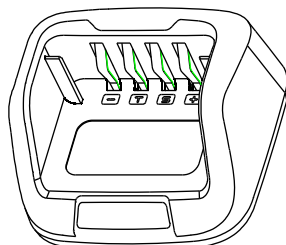
Belt Clip



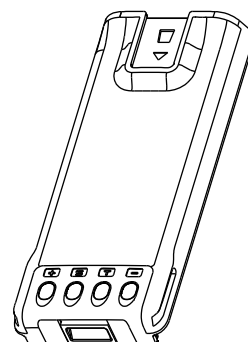
AC Adapter



Charger



Li-ion Battery

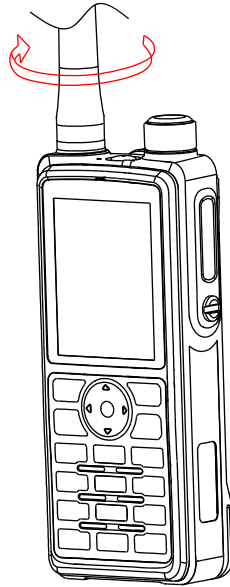


Installation of Accessories

Installation / Removing the antenna

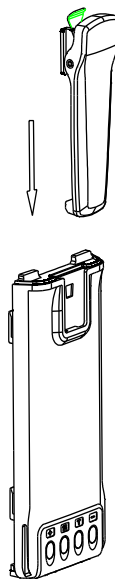
Hold the antenna base, then screw it into the connector on the top of the radio until fasten.

Turn the antenna anti-clockwise to remove it.



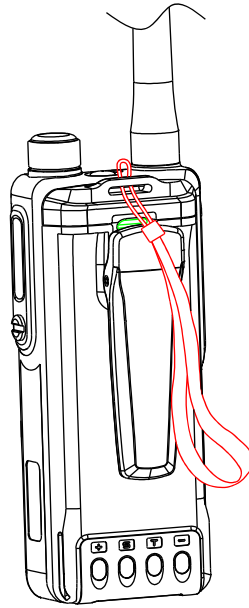
Installation/ Removing the belt clip

Align the belt clip with the groove on the back of the radio and press it down.



Attaching / Removing the strap

Thread the hand strap to the loop back of the radio.

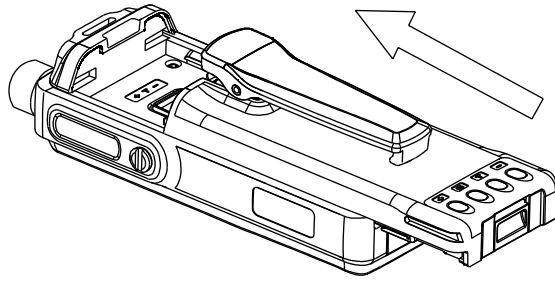


Attaching / Removing the Battery

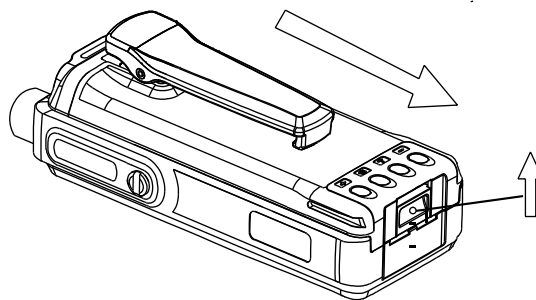
Warning !

- ◆ Don't short-circuit the battery, which may cause damaged or catch fire;
- ◆ Never attempt to remove the casing from battery, the battery terminals may short circuit;
- ◆ 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 latch to unlock the battery and pull the battery away from the radio.



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

Battery Information

The new battery hasn't been fully charged before shipped, please charge more than 5 hours at the first use. The maximum battery capacity and performance is achieved after three full charge/discharge cycles. If 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 the battery, keep it at a temperature among 5°C—40°C. Temperature out of the limit may cause battery leakage or damage.
2. Prior to charge a battery with the radio, it is recommended to turn the radio off.
3. Avoid cut off the power supply or remove the battery during charging.
4. Please ensure that the battery is charged in a dry state before charging.
5. Please change the battery when working time is shorten than normal performance even if the battery is fully charged.

Extend Battery Life

1. The battery performance will be decreased under 0°C. Please prepare a spare battery in cold weather. A battery not work properly in a cold environment does not mean that it is damaged. Please keep the battery and reconfirm at room temperature.
2. The dust on the battery contact point may cause battery faulty, please cleaning it by a dry cloth before using.

Battery Storage

1. Fully charge a battery before storing 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 the 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:

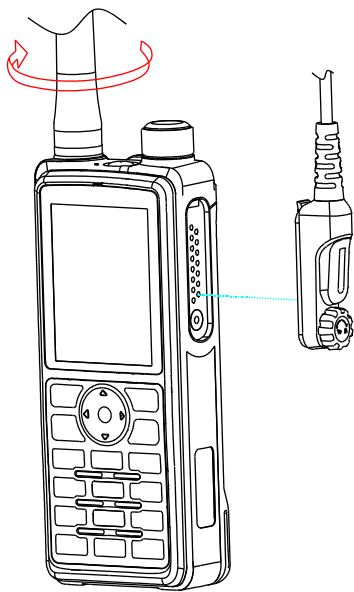
1. Plug the connector of the AC adapter into the AC outlet socket.
2. Place the battery or the radio attached with a battery in the charger.
3. Make sure the battery is connected to the charger, the charging process initiates when the charger indicator glows red.
4. The charger indicator glows green when the battery 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.

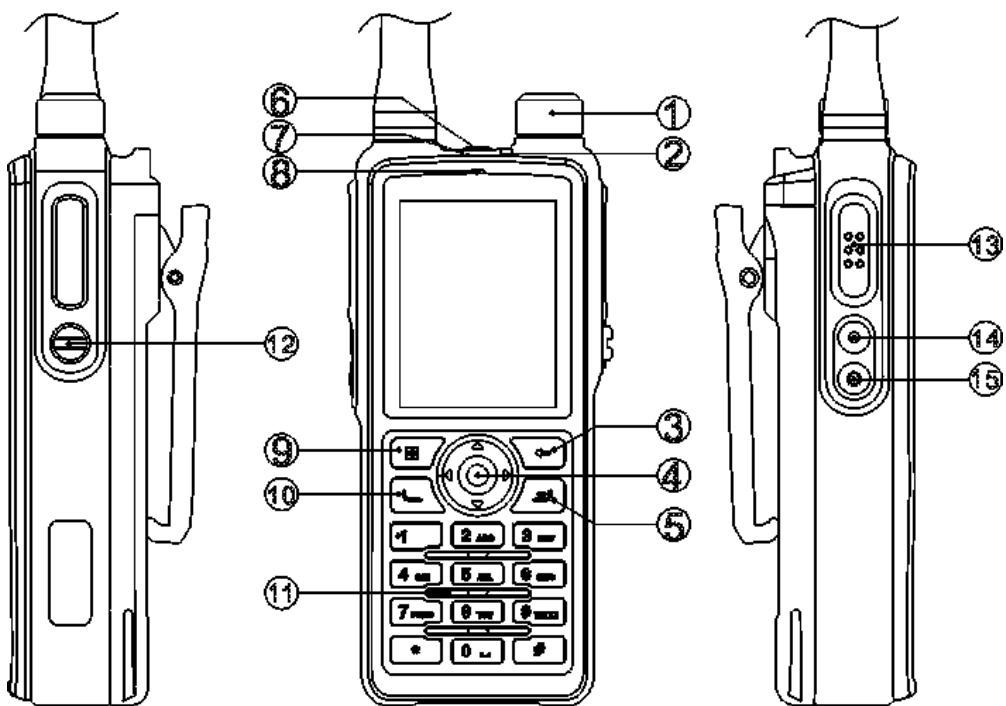
Attaching the speaker/microphone

Rotate the screw of the accessory jacket cover counterclockwise to remove the accessory jacket cover, then align the plug with the accessory jacket and

tighten the screw on the plug.



Getting Acquainted



①	Power switch/volume adjust keys	⑨	OK key
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②	LED Indicator	⑩	P1 Key
③	Return Key	⑪	Speaker
④	Direction key	⑫	MIC-SP-USB Port
⑤	P2 Key	⑬	PTT Key
⑥	Orange Button	⑭	Side Button 1
⑦	MIC2 (Duplex mode)	⑮	Side Button 2
⑧	MIC1		

Basic Operation

LCD Icons

	Signal strength		Site roaming menu		Keypad locked
			Zone menu		All alert tones disabled
	Emergency		Settings menu		Voice call
	Scan on		Accessory menu		Recording
	Missed call		The inbox/outbox is full		
	Digital mode		Unread message		Duplex mode
			Monitoring		Half-duplex mode
			Connect to USB		Roaming on
			VOX on		Battery level
	Private call		Earphone is		Configured

			connected		
	Group call				First priority scan channel
	All call		Message read		Second priority scan channel
	Contacts menu		Message unread		Single frequency repeater
	SMS menu		Message send successfully		Ad Hoc mode
	Call log menu		Message send failed		Channel locked
	Scanning menu				Encryption on

Turning the power on /off

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

Then long press the power switch/volume adjusting keys about 2 seconds to power off, the screen displays: power off.

Adjusting the volume

After the radio powered on, short press the power switch/volume adjust keys to switch the function of the key as volume mode, then rotate it to adjust the volume level, rotate the knob clockwise to increase the volume, or rotate the knob anti-clockwise to decrease the volume.

Note: Volume adjustment can only be performed when the default knob function is set as

both or only volume by programming software.

Selecting a Channel

Short press the [power switch/volume adjust keys] to switch the function to channel 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. It can also press the direction key up or down to select a channel. While all tone alert is enabled ,change channel and a channel number will sound.

Note: Channel selection can only be performed when the default knob function is set as both or only channel by programming software.

Select a Zone

The radio supports up to 128 zones, each with a maximum of 64 channels, all 128 zones can support up to 1024 channels. Select a desired zone through zone menu or set zone selection function to orange button, button 1 or button 2, then handover zone. While all tone alert is enabled, select zone and a channel number will sound.

Voice Call

Each digital channel may initiate a private call, a group call or an all call. To transmit press and hold down the PTT key, LED indication glows red, speak

into the microphone (In half duplex mode speak into microphone 1, and in duplex mode speak into microphone 2), hold the palm microphone approximately 3 to 4 centimeters away from mouth.

Private Call

If the feature “private call ACK” is enabled, the called needs to press the answer button before establishing the call

- (1) If a private call contact is preset for current digital channel., press PTT key to set up the private call;
- (2) Enter contacts menu to select the private call number, then press PTT key to set up the private call;
- (3) Enter manual dial menu under contacts menu, or in the home interface with keyboard allows input, directly input a private call number, then press PTT key to set up the private call;
- (4) Enter call log menu and select the private call number, then press PTT key to set up the private call;

Group Call

- (1) If a group call contact is preset for current digital channel, press PTT key to set up the group call;
- (2) Enter contacts menu to select the group call number, then press PTT key to set up the group call;

- (3) Enter contacts menu and go to manual dial menu, input a group call number, then press PTT key to set up the group call;;

All Call

- (1) If an all call contact is preset for current digital channel, press PTT key to set up the all call;
- (2) Enter contacts menu to select the all call number, then press PTT key to set up the all call;

One Touch Call

In digital mode, users can set 0-9, * and # on the numeric keypad, and set private, group or all call contacts to the corresponding numeric keys. Long press the numeric keys to enter the call interface and then press "PTT" to directly initiate a call.

Duplex Call

The radio supports one-to-one full duplex call which the call initiator and receiver can simultaneously send and receive voice. Full duplex call only applies to private call, and the working channels of the transmitter and receiver must be configured for "voice duplex" working mode.

Reject Stranger Call

On digital mode, if reject strange call feature is enabled, while the call ID not

exist in the contacts list, the call cannot be set up. When inputting a strange number to initiate a call, the radio will prompt that the number does not exist in the contacts. When a strange number calls in, the LED indicator light turns green, but there is no voice. (When receiving group calls or all calls, if the caller's device ID does not exist in the contacts , it cannot be accessed)

Receiving and Calling Back

On digital channel, while a private call is received, press the PTT key within the hang time to set up the private call and then to talk each other. If there is not respond to a received private call within the hang time, the radio will display the missed call icon; while a group call is received, press the PTT key within the hang time to call back; while an all call is received, it cannot respond to an all call.

Button Setting

For enhanced convenience, all the buttons in the configuration list can be programmed, 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	Send emergency information, only set short press on orange button

3	Emergency Off	Exit emergency mode, only set long press on orange button
4	Adjust Squelch Level	Switch squelch level as normally open, normal or tight
5	Alert Call	Quick access to Alert Call menu
6	Battery Indicator	Quick view battery capacity
7	Call Logs	Quick access to Call Logs menu
8	Channel Up	Quick select a channel
9	Channel Down	Quick select a channel
10	Frequent Contacts	Quick access to Frequent Contacts menu
12	Home Screen	Quick return to Home Screen
13	Boot Menu List	Quick access to Boot Menu List menu
14	Lone Worker On/Off	Enable or disable lone worker quickly
15	Man Down On/Off	Enable or disable man down quickly
16	Contact List	Quick access to Contact List menu
17	Message	Quick access to Message menu
18	Monitor On/Off	Enable or disable monitor quickly
19	Monitor Momentary	Enable or disable transient monitor quickly
20	Keypad Lock	Enable or disable keypad lock quickly
21	Squelch Open	Enable or disable squelch quickly
22	Transient Squelch Open	Enable or disable transient squelch quickly
23	Zone Up	Quick select a zone
24	Zone Down	Quick select a zone
25	Scan	Enable or disable scan quickly
26	VOX	Enable or disable VOX quickly
27	Encrypt	Enable or disable encryption quickly

28	Talk Around	Enable or disable talk around quickly
29	One Touch Call 1-5	Quick transmit group call/ private call/call alert or preset SMS
30	Manual Dial	Quick access to Manual Dial
31	Covert Mode	Enable or disable covert mode quickly
32	Priority Interrupt	Interrupt activity of current channel forcibly
33	Preset Channel 1~4	Quick select a preset channel
34	Delete Useless Channel	Temporarily ignore unused channel activity
35	Vibration Setting	Enable or disable vibration quickly
36	Record Sound On/Off	Enable or disable record quickly
37	Disconnect	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		
	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.
48	Channel Lock	Quickly to enable or disable channel lock function.
49	Noise Reduction	Enable or disable noise reduction quickly.
50	Phone Book	Quick access to Phone Book menu

51	System Status Query	On network channel, quickly check the radio network and position status.
52	Net On/Off	Quickly to enable or disable network function.
53	Disable All Switch	Quickly to enable or disable the mute function.
54	Board Trans Mode	Quick access to Back-to-Back Transmit Mode menu

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;

Features not mentioned above may unsupported temporarily in the radio.

Functions and Operations

Contacts

Contacts list can contain a maximum of 1000 members, including private call, group call, all call. The contact menu includes frequent contacts, all contacts, new group or contacts, manual dial options.

1. Group Call

While the contacts type is Group Call, select the menu to view its ID or send message.

2. Private Call

While the contact type is Private Call, select the menu to 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 to respond the transmitter if communication is available.
Device Check	This function can check if the target radio is active in the system without sending 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, the microphone of the target radio will be activated to monitor its activities.
Device Enable	Allow a user to send "Device enable" command to the killed radio and revive it.
Device Disable	Allow a user to send the Radio Disable command to a kill a radio , except remote monitor, all other functions will be disabled, The radio must be reprogrammed to restore or

	the radio receive “device enable” command to revive.
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●**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. All Call

While the contacts type is All Call, select the menu to view its ID 16777215.

4.New Group

It allows to create a new group via menu, input the name then press confirm key to save, and it also allows to add contacts, edit the group name or delete it.

5. New Contact

It allows to add a private call or group call contact to the contact list. Firstly , input number, the available number range is 1~16776415; then edit name, press “*” key to delete, press “#” to switch input method, name input 16 characters at most. After adding a contact successfully, it will be found on contacts list.

6. Manual Dial

It allows to 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.

Telephone

On the telephone book, it allows to view telephone contacts list, add new contacts, and manual dial. Contacts list can store up to 100 telephone contacts, which can be viewed, edited, or deleted. To make a telephone call, select the contact list or enter the contact number manually and then press the call out key to initiate the call. During the telephone conversation, press the number or symbol on the keyboard directly for secondary dialing.

Note: The telephone function is only supported in the SDC/SVT version.

SMS

1. New SMS

It allows to edit desired text message(255 characters at most) and send it to a Private Call contact or Group Call contact. When editing a message, press “# ”key for switching input method, press “*” key for deletion and modification, press direction 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, select a contact from the address list which the message is sent to or manually dial a number to send. It can also be stored in the draft box.

2. Preset SMS

Via programming software, user can save 10 text messages and each message contains 255 characters at most on preset SMS. The preset SMS can be temporarily edited before sending or directly sent.

Note: Preset text messages also can be assigned to one touch call, and press the programmed key to send messages

3. Inbox

The Inbox can save up to 50 received messages. In Inbox the unread message displays: , read message displays: . For each message, it can perform any of these operations: Reply, Forward and Delete.

4. Outbox

Outbox can save up 20 sent messages. If the message is successful sent, it displays , and supports forward or delete operations; If the message is failed, it displays , and supports resend, forward or delete operations.

5. Draft box

Draft box can save up 20 sent messages, it supports edit, send or delete operations.

Call Logs

1. Outgoing Calls

The radio will record all recent private calls made in digital mode. The outgoing calls list can save up to 20 private calls, select an entry to view the

details or add it to contact list or delete it.

2. Answered Calls

The radio will record all recent private calls received in digital mode. The answered calls list can save up to 20 private calls, select an entry to view the details or add it to contact list or delete it.

3. Missed Call

The radio will record all recent private calls missed in digital mode. The missed calls list can save up to 20 private calls, select an entry to view the details or add it to contact list or delete it.

Scanning

1. Scan On/Off

For scan to work, the current channel must be added to the scan list and the list must contain 2 channels at least. Scanning allows the radio 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. If the scan function is enabled, the icon  and scan group name appear on the home screen and LED indicator flashes red. When activities are detected on a channel, the radio will stay on the channel to receive current activities and LED indicator flashes green. If unwanted call is received 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, switching 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. A user can view the scan group members or add a new member to the scan list, the list contain 16 channels at most. Also it allows to edit the members as priority channel,  indicates priority channel 1,  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 Connection system. If enabled, the radio can communicate via any site in the IP Site Connection system, thus ensuring seamless communication in the system. After the feature enabled, the icon  will appear. On roaming channel, enter roaming menu to enable or disable it, set site lock or unlock, and start roam automatically.

Note: It allows the user to associate one of a scan list or roam list to the current channel, but not allows to enable both features at the same time.

Zone

The radio supports up to 128 zones, a zone supports 64 channels, totaling 1024 channels support. Enter "Zone" menu to select a desired zone or press programmed [Zone Up] [Zone Down] key to select a zone.

Note: The radio contains 2 zones at least that you can switch the 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:** Allows 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:** Set the backlight parameters, the radio supports three modes: on, off or automatic. while "automatic on" is selected, the light will become dark within preset time not operating the key, and the light will keep on all the time when "on" is selected, the backlight will be disabled when "off" is selected.
- Tone/Alerts:** Set tones and tone volume level for the radio, the following tones can be set:

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. Digital: The radio gives tone indication for transmission on digital channel.
Voice End Tone	Set whether the radio will give tone indication when the radio ends receives voice.
Private Call Tone	Set whether the radio will give tone indication when the radio receives a private call.
Group Call Tone	Set whether the radio will give tone indication when the radio receives a group call.
Call End Tone	Set whether the radio will give tone indication when the radio releases PTT key and the hang time expires.
SMS Tone	Set whether the radio will give tone indication when the radio receives a message.
Call Alert Tone	Set whether the radio will give tone indication when the radio receives a call alert.
Prior Channel Tone	Set whether the radio will give tone indication when scan function is enabled and the radio receives activity on priority channel.
Keypad Tone	Set whether the radio will give tone indication when key is pressed.
Channel Tone	Set whether the radio will give tone of channel name when a channel or a zone is selected.
Low Battery	Set whether the radio will give tone indication when the

Tone	radio battery gets low.
Power On/Off Tone	Set whether the radio will give tone indication when the radio turns the power on or off.
Emergency Alarm	Set whether the radio will give tone indication when the radio transmits or receives emergency information.

- **Vibration:** 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.

Note: The vibration function is an optional feature.

- **VOX:** While this function is enabled, users can enjoy hands-free communication. The radio will automatically begin transmitting when speaking, and terminate transmitting when stopping talking with no need of PTT press. Allow user to set the VOX level and VOX delay via menu. When VOX is on it indicates : .

Note: The VOX feature is only activated by plugging in a headphone.

- **Keypad Lock:** Allow a user to enable or disable keypad lock via menu. While Keypad is locked it indicates: , and keypad operation is not allowed . Press the key "OK +# " to unlock.

Note: The keyboard auto lock delay time can be set the programming software.

- **Man Down:** Enable or disable man down function via settings menu
- **Power-on Password:** If power-on password feature is enabled via programming software, the password can be modified by this menu. First input the old password correctly, then input a new password twice to 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 is power on, the screen displays BelFone Logo and device name; while the Intro screen is disable, the screen only displays device name.

●**Covert Mode:** If enabled, the radio will be totally silent without any UI indication.

●**Lone Worker:** Enable or disable lone worker function via settings menu

●**Talk Around:** When the repeater malfunctions, or the radio is out of repeater's range, communications can be continued in talk around mode. While enabled, the screen displays:  , by this time TX frequency will be set the same as to RX frequency. Switching channel, enabling scan feature or restarting radio will disable the feature.

Note:

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

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

●**Channel Lock:** Allow a user to lock the channel via the menu. If channel is locked , it indicates:  , and remains in the current channel, rotating the channel knob cannot switch to other channels.

●**Noise Reduction:** Enable or disable noise reduction function via settings menu.

●**Set Date and Time:** View real time or modify the time via settings menu.

2. Channel Settings

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

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

●**Sending Timeout:** Set current channel TOT, the available time range is 15 to 495(s), the time 0 is off.

●**TX/ RX Frequency:** Set TX or RX frequency of current channel, and only when current channel displays frequency that this option is available.

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

●**Color Code:** Set current channel color code, the available value range is 0~15, if TDMA direct mode feature is enabled, the color code range is 0~14.

●**Slot Selection:** 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:** Set the encryption feature of current channel, if enabled, the icon  appears, and encrypt key can be manually typed or select from the

encryption key list. When creating a new key, first edit the key name and then edit the key. The key name consists of Chinese characters, uppercase and lowercase letters, numbers or symbols, and the key is composed of uppercase and lowercase letters or numbers. The key length is 10 characters.

●**TX Contacts:** Select a contact from all contacts list as current channel default address.

●**RX Group List:** Set current channel RX group list.

●**Single Frequency Repeater:** Set current single frequency repeater feature, it can be enabled or disabled.

●**Ad Hoc Network:** Set current Ad Hoc network feature, it can be enabled or disabled it.

3. System Info

View the basic information of the radio, including battery status, RSSI, my number, device name, firmware version, CP version, UI version information.

Accessory

3. Voice Recording

When voice recorder is enabled, it will continuously record all transmitted and received signals. In the recording list menu, users can view or play the recording. In the shortcut search menu, the recordings can be searched based on the call type or date. Also it can be read to the programming software and played on the PC.

Note: Recording is an optional feature.

Emergency

Digital Emergency

In case of an emergency the user 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: The transceiver does not send emergency alarm. After the transceiver enters the emergency status, the siren only sounds locally, and the icon  appears.

Regular: The transceiver sends emergency alarm but no audio 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, and alarm tone sounds locally.

Emergency Alarm Mode:

Emergency Alarm: The transceiver will exit emergency mode while ACK is received or the maximum retries expires it will.

Emergency Alarm with Call: The transceiver will remain in alarm and call mode while ACK is received or the maximum retries expires, and pressing PTT can transmit an emergency call.

Only Emergency Call: The transceiver enters emergency mode and remains on the emergency call interface, pressing PTT can transmit emergency all.

1. **Initiating Emergency Alarm:** Short press the orange button which is programmed as [Emergency On] to send emergency information, LED indicator glows red, the icon  shows in the status bar and LCD displays: Sending Alarm.
2. **Initiating an emergency call:** When the emergency mode is set as emergency alarm with call, after entering emergency state, press PTT key to initiate an emergency call, and the LCD displays: Emergency Call. If the Alarm with call to follow is enabled via the programming software, user can talk without having to press PTT key.
3. **Exiting Emergency Alarm:** The transmitter can long press the orange button which is programmed as [Emergency Off] to exit emergency state, or if the emergency alarm retry count is used up, the transceiver will exit alarm mode automatically in some alarm mode. The receiver can only long press the orange button programmed as [Emergency Off] to exit emergency mode.

Lone Worker

This function is useful for persons who work alone situation. When the user encounters an incident and doesn't press any keys or transmit audio within the preset period time, the radio will alarm automatically to ask help.

Man Down

When this feature is enabled, the radio will automatically send an alarm for help if it is positioned aslant or keeps motionless long time. If the trigger type is set as Only Lean, and the radio tilts to a specified degree within a preset period, the radio will give alerts. To terminate such alerts, put radio upright otherwise it will enter Emergency mode; If the trigger type is set as Only Motion Detection, and the radio stays motionless within a preset period, it will enter Emergency mode.

Encryption

The encryption feature can encrypt the audio and data to guarantee the privacy of the communication, via the programming software encryption type can be set as XOR, enhanced XOR, ARC4 or AES256. XOR and enhanced XOR encryption only encrypt the audio . If the encrypt feature is enabled, icon  appears, the transmitter and receiver should be set as the same encryption type and same encryption key, otherwise the receiver cannot get the normal audio and data.

Note: This function is available only in digital operation

TDMA Direct Mode

If enabled, 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 direct mode feature is enabled, the radio 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 can the radio 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.

Note:

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

If the single frequency repeater feature to current channel is enabled, the Ad Hoc network feature will not be available 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.

Note:

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

If the Ad Hoc network feature to current channel is enabled, the single frequency repeater feature will not be available at the same time.

Ad hoc network is an optional feature.

Networking Feature

The radio supports registration to the network system, and can adapt to the Belfone Smart Dispatching Connection(SDC) System or the Smart Virtual Trunking(SVT) system to realize the interconnection communication under the networking mode. The network mode can be selected as SDC or SVT mode. In "SDC" mode, the channel will not support scanning, roaming and normal digital emergency alarm functions. When the channel is in different receiving and transmitting frequency, the network mode can be selected as "SVT", which will not support functions such as scanning, roaming and normal digital emergency alarms, color codes, etc. Channel slot will be defaulted to pseudo trunk, transmitting slot defaulted to none, and priority interrupt defaulted to check.

Note: The network feature is only valid for the SDC/SVT version.

Local Call

The local call can be effective only when the network function is enabled in digital channel. Check the local call, the call initiated by the radio is forwarded only under its repeater, and the callback mode during receive hang-up time is

based on the type of incoming call (in the networked or not).

Note: The local call feature is only valid for the SDC/SVT version.

Patrol System

Set whether the radio can activate emergency alarm and track monitor function in online status. When emergency alarm is enabled, the radio will automatically send voice and position information to the system by pressing the alarm key.

When track monitor is enabled, the radio will continuously send position information to the system according to the set polling time and minimum distance.

Note: The patrol system feature is only valid for the SDC/SVT version.

Radio Priority-Based Interrupt

The call priority feature is allowed to interrupt the on-going call on current forcibly. This means 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, all call priority interrupt 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 it 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 from occupying 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 to transmit if it is already in use. If "always" is set, whenever pressing PTT key the radio can transmit directly; If "color code free" is set, the radio will be unable to transmit on the channel if a radio with the color code is already in using the channel. If "channel free" is set, the radio will be unable to transmit on the channel if the channel is already in use. If the channel is busy, press PTT key a warning tone will sound.

Voice With Location Information

When the transmitter is configured with the "voice with location information" function, location information will be sent simultaneously with the voice. When both sides have valid location data, the receiver's communication interface will display the transmitter's location information.

Noise Reduction

The noise reduction function can filter out environmental noise, accurately

obtain human voices in noisy environments, so that the receiver can hear a clear and loud voice.

Battery Saver

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

Low Battery Warning

When the battery gets low, LED indicator glows red and there will be a warning tone: “low battery” , please replace the battery or charge the battery in time, otherwise the radio will turn off automatically while battery is too low.

Monitor

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 to enable the monitor feature, the radio will remain on monitor mode until press it again to exit.

Adjusting the Squelch Level

If two radios are at a close distance and the signals are strong, squelch level can be adjust higher; If two radios are at a long distance and the signals are weak, squelch level can be adjust lower, the appropriate squelch level depends on the ambient RF noise conditions.

Componder

This background feature allows higher clarity of signals, avoiding excessive noise.

Troubleshooting

Phenomena		Solution
1.	The radio cannot be powered on	Remove and reattach the battery ,then power the radio on.
		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.
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	Cannot communicate with other members.	Set 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	Cannot locate position	Move to an open and flat area, and restart the position feature.

Note: If the above solutions cannot fix the problems, or there are some other queries, please contact BrIFone or local dealer for more technical support.

Specifications

General	Frequency range	UHF : 400-480MHz
	Channel Capacity	1024
	Zones	128
	Channel Spacing	12.5KHz
	Operating Voltage	DC 7.4V(±20%)
	Battery Life (5/5/90)	Digital 19 hours
	Frequency Stability	±0.5ppm
	Antenna Impedance	50Ω
	Display Screen	LCD screen, 320 * 240 pixels, 262000 colors, 2.4 inches, 10 lines
	Weight	359g(include battery)
Transmitter	Recording (optional)	≤24hours
	RF Output Power	3.5 Watts
	4FSK Modulation	12.5kHz only data : 7K60FXD 12.5kHz data and audio : 7K60FXE

	Modulation Limiting	+/- 2.5kHz @ 12.5kHz;
	Conducted Emission	-36 dBm≤1GHz/-30 dBm≥1GHz
	Adjacent Channel Power	≤-60dB
	Audio Response	+1/-3 dB
	Audio Distortion	≤3%
	Digital Voice Coder Type	AMBE or Compatible NVOC
Receive r	Digital Sensitivity	0.22μV /BER5%
	Intermodulation	65dB@12.5/25kHz
	Adjacent Channel Selectivity	60dB@12.5kHz/70dB@25kHz
	Spurious Response Rejection	70dB@12.5/25kHz
	Audio Response	+1/-3 dB
	Rated Audio output power	1.0W
	Max Audio output power	2.5W
	Audio Distortion	≤3%
	Conducted Spurious Emission	-57dBm
Environ mental Specific ations	Operating Temperature	-30°C ~ +70°C
	Storage Temperature	-40°C—+85°C
	ESD (electrostatic protection level)	IEC61000-4-2(Level 4) ± 8kV (contact discharge)

		± 15kV (air discharge)
	Humidity	MIL-STD-810H standard design
	Vibration & Shock	MIL-STD-810H standard design
	Dustproof & waterproof	IP68 standard design

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

Statement

This manual is compiled to be accurate and complete for operator's use. For any doubt, please contact Belfone. We will give you professional answers. As radio communication technologies develop rapidly, Belfone reserves the right to change product design and specification without prior notice to consumers.

FCC Caution:

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.

IMPORTANT NOTE:

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.

Safety Information for Radios

Your wireless handheld portable transceiver contains a low power transmitter. When the talk button is pushed, it sends out radio frequency (RF) signals. The device is authorized to operate at a duty factor not to exceed 75%. In August 1996, the Federal Communications Commissions (FCC) adopted RF exposure guidelines with safety levels for handheld wireless devices.

Important

FCC RF Exposure Requirements: For body-worn operation, this radio has been tested and meets the FCC RF exposure guidelines when used with accessories supplied or designated for this product. Use of other accessories may not ensure compliance with FCC RF exposure guidelines. Use only the supplied antenna. Unauthorized antennas, modifications or attachments could damage the transmitter and may violate FCC regulations.

Normal Position

Hold the transmitter approximately 25 mm from your face and speak in a normal voice, with the antenna pointed up and away.