BelFone

TM8250

Digital FM Transceiver Model

THANK YOU!

We are grateful you chose BelFone/ TalkPROseries professional radio communications products!

Since 1989, BelFone/ TalkPRO, are always engaged in research and exploration of radio communications technologies. 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 transceiver.

This manual is applicable to
DMR digital FM transceiver model: BF-TM8250 （SDC）

Precautions

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

◆ The recommended usage rate is 1 minute for TX and 4 minutes for RX. When the transceiver is used for transmission for many hours continuously, the radiator and chassis will become hot. Don't allow the rear panel of the transceiver to come in contact with the surface of low melting point /low Ignition point objects.

◆ 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 transceiver while you are driving may be against traffic laws, please prohibit using it .

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

◆ If you want to use this transceiver for secondary development, please contact with BelFone/ TalkPRO'stechnical engineer or dealer for technical assistance.

◆ Please keep the surface of transceiver clean and dry. Clean the transceiver using a cloth moistened with clean water and a mild dishwashing liquid.

Content

Supplied Accessories

Notes: The accessories listed below are covered by BelFone/ TalkPRO dealer and its authorized agents.

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 the dealer immediately.

Accessory

Items	Quantity
Microphone	1
Mounting bracket	1
Microphone hanger	1
DC power cable	1
Screws	4
Fuse	1
Instruction Manual	1
Warranty Card	1
Certificate	1

Microphone

Mounting bracket
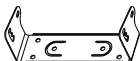
Microphone hanger

DC power cable

Screws

Fuse

Notes: Do not use accessories not specified by BelFone.

Installation of Accessories

Mobile Transceiver Installation

To install the transceiver, select a safe, convenient location inside your vehicle that minimizes danger to your passengers and yourself while the vehicle is in motion. Try to a pick well-ventilated location that is shielded from direct sunlight. Install the mounting bracket in the vehicle using the supplied self-tapping screws. Ensure that all hardware is tightened. Please use the specified mounting bracket and screws to install.
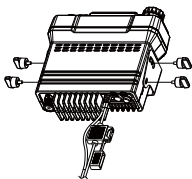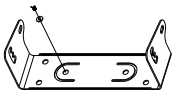
Antenna Installation

Before operating, you must first install an efficient, well-tuned antenna. The success of your installation will depend largely on the type of antenna and its correct installation. The transceiver can give excellent results if the antenna system and its installation are given careful attention.

The antenna for a base station shall be set in a high ground without obstacles around. The antenna for transceiver is suitable for installing in the center of the car roof. The use of an antenna with higher gain will obtain better coverage.
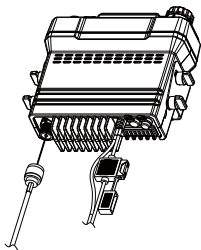
Notes:
- Use a low-loss coaxial feed line that also has a impedance of 50 Ω, to match the transceiver input impedance. Coupling the antenna to the transceiver via feed lines having an impedance other than 50 Ω reduces the efficiency of the antenna system and damage transceiver.
- Transmitting without first connecting an antenna or other matched load may damage the transceiver. Always connect the antenna to the transceiver before transmitting.
- All fixed stations should be equipped with a lightning arrester to reduce the risk of fire, electric shock, or transceiver damage.

Power Cable Connection

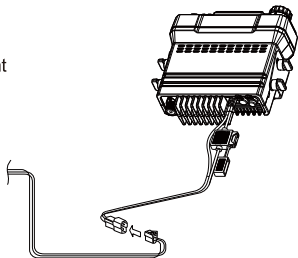Be sure to use a 12 V vehicle battery that has sufficient current capacity. If the current capacity to the transceiver is insufficient, the transmit output power may drop excessively and generate warning tone. Never connect the transceiver to a 24 V battery. If necessary to connect the transceiver to 24V power please select a specified DC-DC battery.

To prevent the risk of short circuits, disconnect other wiring from the negative battery terminal before connecting the transceiver.

Notes:
BF-TM8250 uses 12V ~ 13.8V DC power supply, never use 24V power supply to operate the transceiver. Before installed the device, please check the correct polarity and the voltage of the battery. Pay attention to connect and cut off the battery as following:
- using specified transceiver power cable to connect battery terminals; red connects to the positive (+) terminal and black connects to the negative (-) terminal, when connecting will be carefully to prevent the risk of short circuits.
- Confirm the correct and security of the connections, then turns on the power to operation.
- Do not remove the fuse holders from the cable, otherwise the incorrect connection may lead to the device get smoke.

Microphone Installation

Open the accessory jack cover, then align the arrows with the left of panel and plug, press firmly on the plug until the locking tab clicks. To pull microphone away from transceiver, pull the head of microphone latch out.
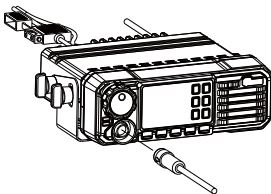
Fixed Station Installation

In order to use this transceiver for fixed station operation, you will need a separate 13.8 V DC power supply (not included). The recommended current capacity of your power supply is 15 A or more.
The power supply and fixed station can place in work table; also you can install it on wall by suitable bracket.
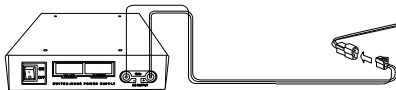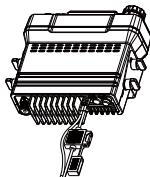
- Before finished all connections, please don't directly connect the transceiver to an AC outlet.
- Ensure transceiver and DC power are cut off.
- Connect the transceiver's DC power connector to the connector on the DC power cable and confirm the correct polarity of the connections. (Red: positive, Black: negative).
- Press the connectors firmly together until the locking tab clicks.

Note: For your transceiver to fully exhibit its performance capabilities, we recommend using the BF specified power supply.

Replacing Fuses

If the fuse blows, determine the cause, then correct the problem. After the problem is resolved, replace the fuse. If newly installed fuses continue to blow, disconnect the power cable and contact your authorized dealer or an authorized service center for assistance.
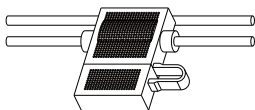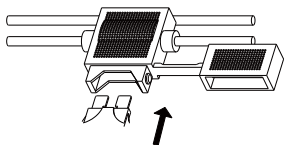
Getting Acquainted

Front panel
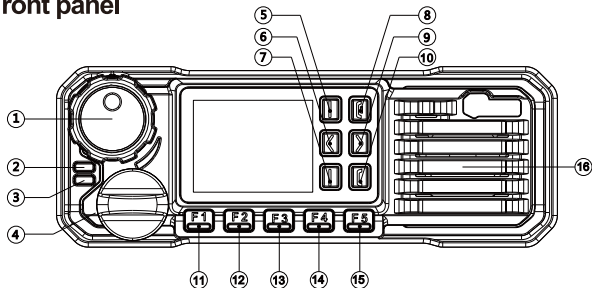
1	**Power Switch/Volume Adjust Key:** To switch the power on/ off or adjust the volume level.	9	**Right Key**
2	**GPS Indicator**	10	**Call Key**
3	**Receiving/Transmitting Indicator**	11	**Programmable Key F1**
4	**Microphone Jack**	12	**Programmable Key F2**
5	**Return Key**	13	**Programmable Key F3**
6	**Left key**	14	**Programmable Key F4**
7	**MENU Key**	15	**Programmable Key F5**
8	**Hang Up Key**	16	**Speaker**

LED Indicator

LED Name	LED Indicator	Transceiver Status
GPS Indicator	LED is off	No GPS chip or GPS chip is malfunction
	LED flashes green	Searching the GPS signal
	LED glows green	GPS data is effective
Receiving/Transmitting Indicator	LED glows red	Transmitting
	LED glows green	Receiving
	LED flashes red	Scanning or Roaming

Rear Panel
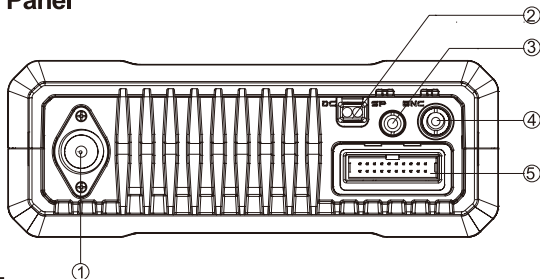
1. ANT
Connect an external antenna to this terminal. When making test transmissions,connect a dummy load inplace of the antenna. The antenna system or load should have an impedance of 50 Ω.
2. DC 13.8V
Connect to13.8 V DC power.
3. SP Headphone Jack
Connect audio accessory to fig.5 to use headphone
4. BNC
Connect to GPS antenna
5. PC Jack
To connect to PC,you must first connect the transceiver to your PC using an optional programming cable.

Microphone

1	Menu Key	8	Up Key
2	PTT Key	9	Right Key
3	Call Key: Press to transmit default call	10	Down Key
4	Microphone	11	Return Key
5	Numeric key	12	Hang Up Key
6	* Key： When text editing to delete	13	Manual Dial Key
7	Left Key	14	#Key： When text editing to switch input method
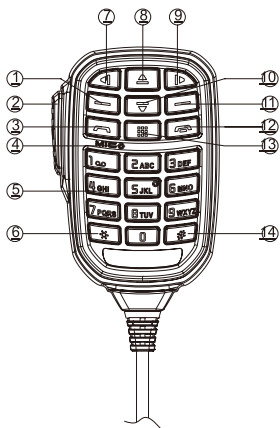
Basic Operation

LCD Icons

Icon	Description	Icon	Description
T T. T.T.l	Signal Strength	👥	Group Call ID
H L	High/Low Power	👥	All Call ID
🔔	Emergency Mode	📇	Root Menu
⊓	Digital Mode	📇	Contacts Menu
∿	Analog Mode	📞	Telephone Menu
⊓∿	D/A Channel	↻	Scanning Menu
📞	Missed Call	✉	SMS Menu
✉	Message Full	Z	Zone Menu
✉	Unread Message	📞	Call Log Menu
⊑	Connect to PC	🔧	Setting Menu
🔒	Keypad Lockout	✉	Read Message
🔔	Disable All Tone Alert	✉	Unread Message
📵	GPS On	✉	Message Send Successfully
🔊	Monitor/ Transient Monitor	✉	Message Send Failed
📶	Roaming	①	First Priority Scan Channel
☁	Connected	②	Second Priority Scan Channel
📇	Connected and registered on system	✔	Confirm
🔊	Audio Received	⊃	Return
🔑	Enable Encryption	✔	Selected
👤	Private Call ID		

Turning the power on /off

Rotate the power switch/volume adjust keys clockwise to turn the power on, an audio voice prompt the current channel name.
Rotate the power switch/volume adjust keys anti-clockwise to turn the power off.
Note: If you active power on password function via program software, each time you turn on transceiver, must be enter 6-digit passwords correctly, when 3 times wrong in input password continuously, after it transceiver must be kill, only reprogram it then device work normal. Please enable power on password with due care.

Adjusting the volume

After the transceiver is power on, you can 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.

Selecting a Zone

The radio supports up to 32 zones, each with a maximum of 16 channels, 32 zones all support up to 512 channels. You may select a desire zone through enter zone menu then handover zone.
Note: Press programmable key "Zone UP" or "Zone Down" to select zone.

Selecting a Channel

On standby status, Press   Key or   key to increase the channel number, and press   Key or   key to decrease channel number. While voice indication is on, selecting a channel will prompt channel name, if the current channel is invalid will sound a long beep.
Note: Press programmable key "Channel UP" or "Channel Down" to select channel.

Dual Modes Switching

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

mode.

Note: AD 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.

Button Setting

For enhanced convenience, you may program the buttonF1~F 5, 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	Unassigned	Not assigned with any function
2	Emergency On	To send emergency information
3	Emergency Off	To exit emergency mode
4	Adjust Squelch Level	Quick access to squelch level menu
5	TX Power High/Low	To switch High/Low Power quickly
6	Alert Call	Quick access to Alert Call menu
7	Call Logs	Quick access to Call Logs menu
8	Channel Up	Quick select a channel
9	Channel Down	Quick select a channel
10	Home Screen	Quick return to Home Screen
11	Boot Menu List	Quick access to Boot Menu List menu
12	Lone Worker On/Off	To enable or disable lone worker quickly
13	Contact List	Quick access to Contact List menu
14	Message	Quick access to Message menu
15	Monitor On/Off	To enable or disable monitor quickly
16	Monitor Momentary	
17	Keypad Lock	To enable or disable keypad lock quickly
18	Squelch Open	To enable or disable squelch quickly
19	Transient Squelch On	
20	Zone Up	Quick select a zone
21	Zone Down	Quick select a zone
22	Scan	To enable or disable scan quickly

23	Encrypt	To enable or disable encryption quickly
24	Talk Around	To enable or disable talk around quickly
25	One Touch Call 1-5	To quick transmit group call/ private call/call alert or preset SMS
26	Manual Dial	Quick access to Manual Dial
27	Covert Mode	To enable or disable covert mode quickly
28	Priority Interrupt	To interrupt activity of current channel forcibly
29	Preset Channel 1~4	Quick select a preset channel
30	Delete Useless Channel	To temporarily ignore unwanted channel activity
31	GPS On/Off	To enable or disable GPS quickly
32	Disconnect	To hang up current call quickly
33	Radio Check	Quick access to Radio Check menu
34	Remote Monitor	Quick access to Remote Monitor menu
35	Radio Disable	Quick access to Radio Disable menu
36	Radio Enable	Quick access to Radio Enable menu
37	Site Lock Switch	Quickly to enable or disable lock site function.
38	Manual Site Roam	Quickly to search the available site manually.
39	Digital/ Analog Switch	To temporarily switch channel mode to AD or DA
40	Telephone	Quick access to Telephone menu
41	System Status Query	To query the network and GPS position status in the online channel.
42	RFID Backlog Query	Quick to query the RFID backlog points.

Call

Each digital channel may be able to 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 initiate a call according to transmitter's channel default type, within hang time to call back depend on what has received; 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.

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.

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.

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.

Receive and respond to calls

On digital channel, while a private call is received, you may press the PTT key within the hang time to call back. If you do 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, you may press the PTT key within the hang time to call back; while an all call is received, you can't respond to an all call. On digital compatible analog channel, while receiving, the radio detect digital and analog signal (is must attach to CTCSS/CDCSS) simultaneously, if detected matching signal, within the hang time to call back.
Note: While enable channel free indication feature, if the transmitter release PTT key will with a tone.

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.

Functions and Operations

Contacts

Contacts list can contain a maximum of 512 members, including private call, group call, all call. On the contacts, you can view the all contacts, add new contacts, manual dialing.

1. Group Call/ All Call
While the contacts type as group or all call, you can select the menu to view number, send message or select to call out.
2. Private Call
While select a contact as private call, you can select the menu to call out, view number, 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 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.

4. Manual Dial
You can manually input the private number or group number for calling, after input number, then press PTT key to transmit. If select

private call, after input number, you can select the menu to call out or send SMS, send call alert, send remote monitor, send radio enable, send radio disable; if select group call, after input number, you can select call out or send SMS.

Telephone

On the telephone book, you can select the menu to view all contacts, add contacts, and telephone dialing. All Contacts can store up to 100 telephone contacts, which can be call out, viewed, edited, or deleted. When making a telephone call, you can select the contact list or enter the contact number manually and then press the Call key to initiate the call. During the telephone conversation, press the number or symbol on the keyboard directly for secondary dialing.

SMS

1. System Message

System message saves the short messages send by control center, the system message can save up to 50 received messages. Enter system message the unread message displays: ⬚ , read message displays: ⬚ . For each message, you can choose to Play or Forward.

2. New SMS

You can edit desired text message(140 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.

3. Preset SMS

Via programming software, user can save 10 entries text messages and a message contains 140 characters at most on preset SMS. You can choose to edit and send any entry.

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. Delete all will remove all messages on outbox.

5. 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. Delete all will remove all messages on inbox.

6. Drafbox

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

Call Log

1. Outgoing Call

The outgoing calls list can save up to 20 entries of private call, after selecting an entry, you can view the details or add it to contact list or delete it. Delete All will remove all outgoing calls.

2. Answered Call

The answered calls list can save up to 20 entries of private call, after selecting an entry, you can view the details or add it to contact list or delete it. Delete All will remove all answered calls.

3. Missed Call

The missed calls list can save up to 20 entries of private call, after selecting an entry, you can view the details or add it to contact list or delete it. Delete All will remove all missed calls

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   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, allow a user to view the scan group members or add a new member to the scan list, the list contains 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.

Site Roaming

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 site roaming menu can 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 32 zones, each of zone supports 16 channels, totally 512channels 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 perform basic settings for the transceiver.

●Language Set: 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, 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 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	To set whether the radio will give tone indication when the radio press PTT key to transmit.
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	To set whether the radio will give tone indication when
Tone	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 transmitting or receiving emergency information.
In and Out Network Tone	To set whether the radio will give tone indication as "In the network" or "Out of network" when the radio turn the power on.

●**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:
Via the programming software to set the time range after which the keypad will be locked, the available range: 5~60 seconds, the default time is 5 seconds;
Via the programming software to set optional keypad lock, the select keypad contains: Call Key, Hang Up Key, PTT Key, F1, F2, F3, F4, F5.

●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 feature, the radio will not give any audible or visible indication, via the programming software to select covert items, which is including: LED, Keypad Lock, Backlight.

●Work Alone: To enable or disable work alone feature via settings menu.

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

●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, by this time TX frequency the same as RX frequency. If switch channel, enable scan feature or restart radio will disable the feature.

●Set RTC: This option allows you to set the current date, week, time.

●Squelch Level: On the analog mode, this feature allows you to adjust the squelch level, you can set SQL1~9 or normally Open.

●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.

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.

●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 encrypt 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.

3. System Info

Via this feature, you can view the basic information of your radio, including ID number, Device Name, firmware version, CP version, RTC.

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 if connect counts or PTT counts is reached. 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.

Emergency

Digital Emergency

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, and won't play any voice calls that match receiving;

Silent with voice: The transceiver sends emergency alarm but no audio/ visual alert, but it play any voice call that match receiving.

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.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 icon 🔔 will show. Long press the programmable button [Emergency Off] to exit the alarm mode.

Work Alone

This feature 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 work alone feature:
●Go to [Settings] menu [Settings] [Work Alone]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 work alone feature:
●Go to [Settings] menu [Settings] [Work Alone]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

Audio Encryption

The voice encryption can encrypt your audio signals to guarantee the privacy of your communication, via the programming software user can select encryption type as XOR or Enhanced XOR. 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.

Pseudo Trunk

Only when the network feature is checked in the digital channel, the radio will login the system successfully for corresponding operation. At the same time, the current channel will not support scanning and general digital emergency alarm features.

Local Call

To activate the local call feature, the network feature must be enabled in the digital channel. When the local call item is checked via the programming software, the call initiated on current channel will transmit only under its repeater, but the response will depend on the received call type, then within the hang up time to call back. (In the network or out of network)

Patrol System

When the transceiver login the system successfully, that will support send emergency alarm information or position information to control center. User can activate the emergency alarm and tracking monitor feature via the programming software. When emergency alarm feature is enabled, the transceiver will automatically send voice and position information to the control center by pressing programmable button programmed as [Emergency On]. It can set alarm type, call contact, send times, auto monitor time and auto tracking time. When tracking monitor feature is enabled, the radio will continuously send position information to the control center according to the tracking interval and minimum distance.

Direct Mode Operation

If enable DMO 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.

Priority Interrupt

The priority interrupt feature allows you to interrupt the on-going call on current channel forcibly, a preemptive call can interrupt other on-going calls with lower priority to release the channel for itself. The voice priority is divided into low, medium and high, and emergency call priority is the highest. To transmit the Priority Interrupt command also can press the programmed [Priority Interrupt] key, in order to make the channel free for new call or message transmission.

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. Via the programming software, you can set the TOT as: 15~495 seconds,

TX Permission

Digital Channel

The feature limits the transmission when the PTT key is pressed when there is activity on the current channel. The transmission permission conditions can via programming software be set to: always, color code free and channel free. In always conditions, regardless of the channel conditions, when PTT is pressed, the transmission is performed directly; In color code free condition, the color code of the current channel is occupied, then press PTT to prompt the channel to be busy and prohibit transmission; In channel free, If current channel is active, press the PTT prompt: the channel is busy and transmission is prohibited.

Analog Channel

The feature limits the transmission when the PTT key is pressed when there is activity on the current channel. The analog busy channel lock can via programming software set to: always, channel free CTCSS / CDCSS. Regardless of the channel conditions in always condition, transmission is performed directly when the PTT is pressed; in the channel free condition, the current channel is active, press the PTT key to prompt the channel to be busy and prohibit transmission; in the CTCSS / CDCSS condition, the current channel receives the carrier When the CDCSS is the same, press the PTT key to indicate that the channel is busy and prohibit transmission.

Monitor

Monitor Momentary: On analog or digital channel, enable the Monitor feature to monitor current channel activities and receive weak signals. Long press the programmed [Monitor Momentary] key to activate the monitor function, the icon , 🔊 appears, release the key will exit monitor mode.
Monitor: Monitor momentary feature is the same as monitor, but press the [Monitor] key to enter monitor mode, the radio will remain on monitor mode until press it again to exit.
Squelch Level

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: 1~9, the default setting is level 3.

Compander

The compander can be enabled only for analog channel, Transmitter transmitted signals are compressed before signals are sent and received signals are expanded when they receive. This 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, 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.

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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 NOo.	Positive Code	Negative Code	CDCSS NOo.	Positive Code	Negative Code	CDCSS NOo.	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			

Specifications

General	
Frequency range	VHF:136-174 MHz; UHF:350-390/400-470 MHz
Zone Capacity	50
Channel Capacity	160
Channel Spacing	12.5KHz/25KHz
Operating Voltage	DC 13.8V(±20%)
Frequency Stability	±1.5ppm
Antenna Impedance	50Ω
Dimensions	175（L）*175（W）*63(H) mm
Weight	1435g
Transmitter	
RF Output Power	VHF/UHF High Power：25W VHF/UHF Low Power：10W
4FSK Modulation	Only Data：7K60FXD， Data and Audio:7K60FXE
FM Modulation	12.5 kHz：8K50F3E；25 kHz：16KΦF3E；
Modulation Limiting	+/- 2.5kHz @ 12.5kHz;+/- 5kHz @ 25kHz
FM Noise	-40dB
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+2™

Receiver	
Digital Sensitivity	5% BER：0.25 uV
Analog Sensitivity	0.25 uV (12 dB SINAD)
Intermodulation	65 dB
Adjacent Channel Selectivity	60 dB
Spurious Response Rejection	70 dB
FM Noise	-45 dB
Audio Response	+1/-3 dB
Audio output power	3W(Speaker)
Audio Distortion	3%(Typical)
Conducted Spurious Emission	-57dBm
GPS Accuracy	Horizontal Accuracy≤-10m （with well signal)
TTFF (Time To First Fix) Cold Start	< 1 minute （with well signal)
TTFF (Time To First Fix) Hot Start	< 10second （with well signal)
Environmental Specifications	
Operating Temperature	-20℃—+60℃
Storage Temperature	-30℃—+70℃
Humidity	MIL-STD-810C/D/E/F
Vibration & Shock	MIL-STD-810C/D/E/F

BelFone

RECYCLABLE PACKAGING