BelFone

www.belfone.com

# BF-TD516LF

**Digital PMR446 License Free Radio**

## Notice to the user

Government law prohibits the operation of unlicensed radio transmitters within the territories under government control.
Illegal operation is punishable by fine or imprisonment or both.

# THANK YOU!

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

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

**This manual is applicable to**

Digital PMR446 License Free Radio model:BF-TD516LF

## Warning!

- In explosive atmospheres(inflammable gas, dust particles, much powder area，etc.),please turn the power off.

## Precautions

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

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

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

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

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

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

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

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

# CONTENTS


**Supplied Accessories** ..... 01
**Installation of Accessories** ..... 02
**Getting Acquainted** ..... 06
**Basic Operation** ..... 08
Turning the Power On /Off ..... 08
Adjusting the volume ..... 08
Selecting a Channel ..... 08
Selecting a Zone ..... 08
Dual Modes Switching ..... 09
Call ..... 09
Button Setting ..... 10
**Functions and Operations** ..... 12
Scan ..... 12
Auto Scan ..... 13
Monitor and Permanent Monitor ..... 13
Message ..... 13
One Touch Call ..... 13
Talk Around ..... 14
TX Power ..... 14
Bandwidth ..... 15
Squelch Level ..... 15
Emergency ..... 15
Alone Worker ..... 16
Time-Out-Timer（TOT） ..... 16
Voice Encryption ..... 17
VOX ..... 17
Tone Alerts ..... 17
Reject Stranger Call ..... 18
TX Permission ..... 18
Battery Saver ..... 19
Low Battery Warning ..... 19
CTCSS/CDCSS ..... 19
**PC Mode** ..... 20
**CTCSS Frequency Table** ..... 21
**CDCSS Standard Code Table** ..... 22
**Specifications** ..... 23
**Statement** ..... 25

# Supplied Accessories

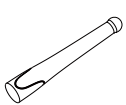
**Notes: The accessories listed below are covered by BelFone dealer、authorized BelFone agents or factories .**

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

## Accessories

| Items | Quantity |
|---|---|
| Antenna | 1 |
| Strap | 1 |
| Belt Clip | 1 |
| Screws | 1 |
| Charger | 1 |
| Li-ion Battery | 1 |
| User Manual | 1 |

Antenna

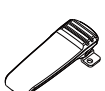


Strap

Charger

Li-ion Battery

Belt Clip

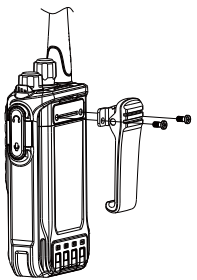


Screws

# Installation of Accessories

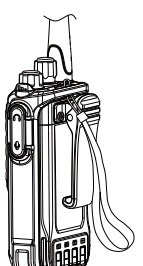
## Installation/ Removing the Belt Clip

Attach the belt clip using the two supplied 3*7mm binding screws.



## Attaching/Removing the Strap

Thread the hand strap to the loop back of your two-way radio.

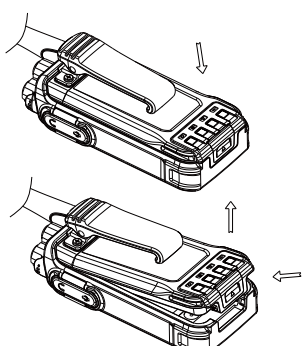


## Attaching/Removing the Battery

**Warning!**

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

Match the guides of the battery with the corresponding grooves on the upper rear of the radio, then press the battery until a click is heard to lock it in place.



To remove the battery, please turn the power off then press the release latch to unlock the battery pull the battery away from the radio.

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

## Battery Information

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

## Applicable Battery

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

## Battery Tips

● When charging your battery, keep it at a temperature among 5℃-40℃. Temperature out of the limit may cause battery leakage or damage.
● When charging a battery attached to a radio, turn the radio off to ensure a full charge.
● Do not cut off the power supply or remove the battery when charging a battery.
● Never charge a battery that is wet, please dry it with soft cloth prior to charge.
● Even if the battery is full charged, the operating time is noticeably shorter than normal performance; it is time to buy a new battery.

## To Prolong Battery Life

1. Battery performance will be greatly decreased at a temperature below 0℃ , a spare battery is necessary in cold weather, the cold battery unable to work in this situation may work under room temperature, so keep it for later use.
2. The dust on the battery contact may cause battery breakdown, please use a clean dry cloth to wipe it before attaching the battery to the radio.

## Battery Storage

1. Fully charge a battery before you store it for a long time, to avoid battery damage due to over-discharge.
2. Recharge a battery after several months' storage, to avoid battery capacity reduction due to over-discharge. (NI-MH batteries: 3 months, Li-Ion& Li-polymer batteries: 6 months)
3. Store your battery in a cool, dry place under room temperature, to reduce self-discharge.

## Charging the Battery

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

| Charger Status | Charger Indicator |
|---|---|
| Standby(No-load) | Charge Indicator glows green |
| Battery is charging | Charge Indicator glows red |
| Battery is fully charged | Charge Indicator glows green |

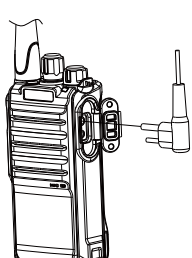
## Charging Steps:

1. Plug the AC connector of the switching power into the AC outlet socket.
2. Place the battery or the radio is attached with a battery in the charger.
3. Making sure the battery is connected to the charger, the charging process initiates when the charger indicator glows red.
4. The charger indicator glows green when the battery is fully charged, please remove the battery then.

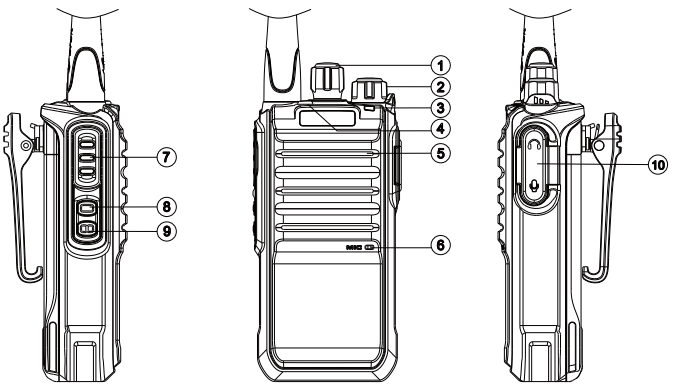
**Note: While charging the temperature out of the limit the LED indicator of charger will not light; if battery has damaged or battery is not connected to the charger correctly,**
**The LED indicator of charger also will not light.**

## Attaching the Speaker/Microphone

Open the accessory port cover, then align the plug with the accessory port and tighten the screw on the plug.



## Getting Acquainted



① **Channel Selector Knob**

Turn the knob to select channel 1-16.

② **Power Switch/Volume Adjust Keys**

Turn clockwise to switch the radio power on, when the radio is turned on, rotate clockwise to increased volume, counter- clockwise to decrease the volume. Turn counterclockwise fully to switch the radio off.

③ **LED Indicator**

When transmitting LED glows red, when receiving LED glows green; when un-programmed LED flashes red; when scanning LED flashes red.

④ **Orange Button**

Press to activate the programmable function. (The detailed consult to basic operation)

⑤ **Speaker**

⑥ **MIC**

⑦ **PTT Key**

Press and hold down the PTT key then speak into the microphone to transmit.

⑧ **Button 1**

Press to activate the programmable function. (The detailed consult to basic operation)

⑨ **Button 2**

Press to activate the programmable function. (The detailed consult to basic operation)

⑩ **MIC-SP-USB Jack**

Connect to optional speaker/MIC and USB programming cable.

# Basic Operation

## Turning the Power On /Off

Rotate the power switch/volume adjusting keys clockwise to turn the power on.

Rotate the power switch/volume adjusting keys anti-clockwise to turn the power off.

## Adjusting the Volume

After the radio 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 Channel

Turn the channel selector knob to select channel 1 to 16, rotate the knob clockwise to increase the channel number, or rotate the knob anti-clockwise to decrease the channel number.

**Note: If a channel is not programmed, LED indicator flash red and a prompt tone " no channel “sounds..**

## Selecting a Zone

The radio supports up to 2 zones, each with a maximum of 16 channels. You may select a desire zone by setting zone selection function to orange button, button 1 or button 2, then handover zone. While enable all tone alert, select zone will hear a channel number. For example: the current works in area 1, press the zone selection button, the prompt tone sounds "area 2".

## 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.**

## Call

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

### 1. Group Call

● If you want to transmit a group call, the radio must be set with group call contact and preset a group call contact for current digital channel, press PTT key to transmit a group call. Or you can set the One Touch Call key as group call feature, then press programmed key to transmit a group call. Release PTT key to receive.

### 2. Private Call

● If you want to transmit a private call, the radio must be set with private call contact and preset a private call contact for current digital channel, press PTT key to transmit a private call. Or you can set the One Touch Call key as private call feature, then press programmed key to transmit a 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 , while private call is failed, a low-pitched tone sounds. Release PTT key to receive.

### 3. All Call

● If you preset an all call contact for current digital channel. Press PTT key to transmit an all call;

## Receiving and Responding To a Call

When receiving a call, the LED indicator glows green. On digital channel, while a private call is received, you may press the PTT key within the preset time period to call back; on digital compatible analog channel or analog compatible digital channel, the radio detects both the digital signal and the analog signal (must have a subsonic) when receiving, and locks the corresponding channel mode when a matching signal is detected, you may press the PTT key within the preset time period to call back.

## Button Setting

For enhanced convenience, you may program the keys orange button,button1and button 2, short and Long press of a key can be assigned with different functions.

**Programmable keys are including functions listed below.**

● **Unassigned**: The key is not assigned with any function.

● **One Touch Call 1~6**: Allow user to initiate digital group call, digital private call, or send preset message or send call alert via the one touch call function. When sending SMS or call alert, press the key to complete the corresponding function immediately. When sending a call, press the PTT key within 5 seconds after pressing the key.

● **Emergency On/Off:** Allow user to make an emergency call.

● **Monitor**: Enable monitor function.

● **Scan On/Off:** Allow user to enable or disable the scan function.

● **All alert tone On/Off:** Allow user to enable or disable all alert tones.

● **Battery Indication**: It's convenient to know battery capacity. If battery strength level is 70%-100%, a "Power High "sounds; if battery strength level is 30%-70%, a "Power Middle" sounds; if battery strength level is 15%-30%, a" Power Low "sound.

**Note: If the battery gets lower, a "Please Charger" tone will sound, at the time press programmed" Battery Indicator" key, you can't hear battery capacity indication sound.**

● **Zone Toggle:** Allow user to change zones, if the radio contains 2 zones, press programmed button will be a zone number sounds. If the radio only add a zone, this feature is useless.

● **AD Switch:** To temporarily switch channel mode to AD or DA on digital analog compatible channel

● **High/Low Power:** User can switch the Tx power level between high and low power by pressing the programmed High/Lower Power key.

● **Repeater/Talk Around**: Allow radio set to connect through repeater or achieve standalone communication in talk around mode.

● **Vox On/Off:** If set vox level as 1 to 9 via programming software, press the programmed VOX on/off key to enable or disable the VOX feature. Press to activate the VOX feature a VOX on sounds; disable the VOX feature a VOX off sounds.

**Note: Plug the dedicated earpiece into the accessory jack of the radio, the VOX feature is effective.**

● **Nuisance Delete:** While scanning on, 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. When restart scanning, the nuisance channel will **return to scan list.**

● **Permanent Monitor:** Permanent monitor feature is the same as monitor, but permanent monitor feature only can be set as long press key. And you should long press the programmed Permanent Monitor key to exit this feature.

# Functions and Operations

## Scan

Scan is useful for monitoring signals on the radio channels, the channels include in the scan list. While scanning, the radio checks for a signal on each channel and only stops on a channel if a signal is present. Press programmed Scan on/off key to begin scanning, while scanning on, a “scan on” sounds, LED indicator flash red. While scanning off, a “scan off” sounds

Via programmable software to set it: Scan folder( Scan hang time) → A desired scan list → add available channel to members channel → a digital or analog channel to select scan list

● **Scan Hang Time :** When a signal is detected on a channel, scan pauses on that channel, the radio will remain on the busy channel until the signal is no longer present. When the signal “ drop out” the radio will remain on the channel momentarily before scan resumes. The delay time is programmed 500 to 10000 milliseconds.

● **Talk Back :** When a signal is detected on a channel, scan pauses on that channel, press PTT key can talk back on the channel if enable “Talk Back’ feature; if “Talk Back” isn’t checked, press PTT key may talk back on the designated channel.

● **First Priority Channel:** Select first priority channel from scan list of members channel. To begin scanning, the radio will automatically change to the first priority channel then detect other channel on the scanning sequence. You can set selected or a desired channel as first priority channel.

● **Second Priority Channel:** Select second priority channel from scan list of members channel. To begin scanning, the radio will automatically change to the first priority channel, then the second channel, at last detect other channel on the scanning sequence. You can set selected or a desired channel as second priority channel other than the first priority channel.

● **TX Designated Channel :** During scanning, Press PTT key will transmit on TX designated channel. You can set TX Designated Channel as Last Active Channel, Selected channel or a desired channel from scan list.

## Auto Scan

If Auto Scan feature is enabled for a channel, the radio will automatically enter scan mode when it is switched to this channel. To stop scanning, press programmed Scan On/Off key or switch to other channels. If return to the channel will enter scan mode directly.

## Monitor and Permanent Monitor

● **Monitor:** On analog or digital channel, enable the Monitor feature to monitor current channel activities and receive weak signals. Press the programmed Monitor key to activate the monitor function, if a signal is detected, until the signal is no longer present the radio will exit monitor mode.

● **Permanent Monitor:** Permanent monitor feature is the same as monitor, but long press the Permanent Monitor key to enter monitor mode, the radio will remain on monitor mode until long press it again to exit.

## Message

On digital channel and digital mode compatible channel, you can send preset messages by programmed one touch call key. Edit message text via programming software, the message list save up to 10 entries, and each of a message contains 140 characters at most.

## One Touch Call

On digital channel and digital mode compatible channel, one touch call feature contains: to send messages or transmit to a group call contact, to send messages or send call alert and transmit to a private call contact.

**●Group Call**

On one touch call menu, the call member select group call contact, and the call type select group call. Then the programmed key set as one touch call, press the programmed key a high-pitched tone sound, with 5 seconds press PTT key to transmit a group call.

**●Group Message**

On one touch call menu, the call member select group call contact, and the call type select short message, message text select from preset message list. Then the programmed key set as one touch call, press the programmed key to send a message to a group call.

● **Private Call**

On one touch call menu, the call member select private call contact, and the call type select private call. Then the programmed key set as one touch call, press the programmed key a high-pitched tone sound, with 5 seconds press PTT key to transmit a private call.

● **Private Message**

On one touch call menu, the call member select private call contact, and the call type select short message, message text select from preset message list. Then the programmed key set as one touch call, press the programmed key to send a message to a private call.

● **Call Alert**

On one touch call menu, the call member select private call contact, and the call type select call alert, then the programmed key set as one touch call, press the programmed key to send call alert to a private call.

## 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 is the same as to RX frequency. Press the programmed Repeater/Talk Around key to switch between repeater modes and talk around mode. Switch to talk around, a "talk around" sound; switch to repeater mode, a "repeater" sounds.

Via programmable software to set it: Channel folder → Zone → a digital or analog channel → Allow Talk Around

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

## TX Power

You can switch power levels to Low or High. If you communicate with radio located at a distant place please select High power; if you communicate with radio located at a close place please select Low power to save battery. Press the programmed High/Low Power key to switch between high power and low power. Switch to high power, a "high power" sounds; switch to low power, a "low power" sounds.

Press programmed High/Low power key to switch power level or select power level via programming software

Via programmable software to set it: Channel folder → Zone → a digital or analog channel → TX Parameters → Power Level

## Bandwidth

On analog mode, there are two types of bandwidth available, you can choose bandwidth as wide (25 KHz) or narrow (12.5 kHz) via programming software.

Via programmable software to set it: Channel folder → Zone → An analog channel →Bandwidth

## Squelch Level

On analog mode and digital mode compatible channel, this feature allows you to adjust the squelch threshold for the radio to receive audio. You can set squelch level as 0~9. High level requires stronger signal for the radio to un-mute.

Via programmable software to set it: Channel folder → Zone → an analog channel →Squelch Level

## Emergency

The digital channel and digital analog compatible channel support the emergency alarm function. In case of an emergency you can enter emergency mode to ask for help, short press programmed “Emergency on” key to send emergency information, to exit emergency mode, long press “Emergency off”. On regular type alarm, after send emergency information then receive ACK command or the alarm cycles expire, the radio will exit the emergency mode automatically. On silent type alarm, after send emergency information the n press PTT key to exit emergency mode.

Via programmable software to set it: Signaling Systems folder → Digital Red Alert → add system1 to set parameters → Channel folder → add Emergency system

● **Emergency Type:** Disable, Regular, Silent, Silent with voice, the Disable option is unable to transmit emergency information;

● **Emergency Mode:** Emergency Alarm, emergency alarm with call, emergency alarm with voice to follow.

● **Revert Channel:** Revert channel is used for digital emergency, only the channel default address is set as group call contact, the channel is available for revert channel.

●**Impolite Retries:** If the current channel is busy, press programmed key also can send emergency information, number of impolite retries can be set as 1to 15.

●**Polite Retries:** Only when the current channel is free, press programmed key to send emergency information, number of polite retries can be set as 0 to 14 and endless.

●**Hot MIC Duration:** If the emergency mode set as emergency alarm with voice to follow, after send emergency information, your voice and background noise to be transmitted automatically as you don't need to press PTT key within hot MIC duration.

**Note: while the short press is set as emergency on, the long press will be set as emergency off default.**

## Alone Worker

This function is useful for persons who work lonely and encounter an incident; you cannot press any keys or transmit audio within the preset period time. The radio will alarm automatically to ask help. Via the programming software to enable the feature, and setting work alone response time, work alone warn time, work alone response operation.

Via programmable software to set it: Signaling Systems folder→Work Alone→ Work Alone Enable→Work Alone Response Time→Work Alone Warn Time→ Work Alone Response Operation

## Time Out Timer (TOT)

The purpose of TOT is to prevent any user occupy a channel for an extended period. If a channel is busy, the time will be shorter. If the preset time expires, the radio will generate beep and terminate transmission automatically. Via programming software, you can set TOT as 15-495 second.

Via programmable software to set it: Channels folder → Zone → A digital or analog channel → TX Parameters → TOT-TOT Rekey Delay

## Voice 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 static or dynamic. If the encrypt feature is enabled, the transmitter and receiver will be set as the same encryption type and same voice encryption key, otherwise the receiver is mute.

Via programmable software to set it: General Settings folder →Voice Encryption Type→ Voice Encryption Key

**Note: This feature is effective on digital channel, if enable voice encryption feature, the voice encryption key must be 10 characters, there are including letters and numbers.**

## VOX

If enable VOX feature you can enjoy hands-free communication, the radio will automatically begin transmitting when you speaking, and terminate transmitting when you stop talking with no need of PTT press. You may set VOX level as1~8 or disable (Off). When the environment too much noise, VOX level will be higher, when the environment is quiet, VOX level will be lower. It allow user to set VOX delay as 500 to 10000 milliseconds. If the VOX level is set as off via the programming software, press programmed VOX on/off key can't enable VOX feature, if the VOX level is set as 1 to 8, press programmed VOX on/off key can enable or disable VOX feature

Via programmable software to set it: General Settings folder →VOX level→ VOX delay(ms)

**Note: The VOX feature shall work with a dedicated earpiece.**

## Tone Alerts

**Voice Indication**

If enable voice indication feature, the radio will give tone indication for channel change, zone change, power level switch, scan feature enable or disable, VOX on or off, low battery alert, repeater mode or talk around mode switch and etc.

**Channel Free Indication**

On digital mode, if enable Channel Free Indication feature, the receiver gives a high-pitched tone indication while the transmitter release PTT key to stop transmitting.

**Talk Permit Indication**

There are four options are available for Talk Permit Indication feature: None (the radio does not give any tone indication for transmission on analog and digital channel), Analog (the radio gives tone indication for transmission on analog channel), Analog & Digital (the radio gives tone indication for transmission on analog and digital channel), Digital (the radio gives tone indication for transmission on digital channel).

Via programmable software to set it: General Settings folder →Tone Alerts → Voice Indication → Channel Free Indication → Talk Permit Indication

## 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 should preset on address list.

Via programmable software to set it: General Settings folder →Reject Strange Call

## TX Permission

**Digital Channel**

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

Via programmable software to set it: Channels folder → Zone → a digital channel → TX Parameters → Admit Criteria

**Analog Channel**

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

Via programmable software to set it: Channels folder → Zone → An analog channel → TX Parameters → BCL

## Battery Saver

This feature allows an idler radio to automatically enter battery saver mode, the mode will extend battery service life, but response time may be delayed. You can set battery saver time ratio as : 1:1、1：2、1:3、1:4, the time rate is smaller, the power saving more evidently.

Via programmable software to set it: General Setting folder → Battery Saver

## Lowery Battery Alert

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

Via programmable software to set it: General Setting folder → Tone Alerts →RX low battery interval (sec)

## CTCSS/CDCSS

On analog channel and digital analog compatible channel, you can set unique CTCSS/CDCSS to guarantee the privacy of your communication, on digital compatible analog or analog compatible digital channel there must have a 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 frequency table or CDCSS code table, or input non-standard CTCSS/CDCSS manually.

Via programmable software to set it: Channels folder→ Zone→ An analog channel → TX Parameters to select encode→ RX Parameters to select decode

●**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 radio’s.

**Note**： **The radio approve of non-standard code, on analog mode, you can input non-standard code manually as you need.**

# PC Mode

At first, connecting the radio with computer by data line then turn on two-way radio; Secondly，start the software（BFP-DH300）that the data will be write or read by users.

# CTCSS Standard Frequency Table

| CTCSS No. | Freq. [Hz] | CTCSS No. | Freq. [Hz] | CTCSS No. | Freq. [Hz] | CTCSS No. | Freq. [Hz] |
|---|---|---|---|---|---|---|---|
| **1** | 67.0 | 11 | 94.8 | 21 | 131.8 | 31 | 186.2 |
| 2 | 69.3 | 12 | 97.4 | 22 | 136.5 | 32 | 192.8 |
| 3 | 71.9 | 13 | 100.0 | 23 | 141.3 | 33 | 203.5 |
| 4 | 74.4 | 14 | 103.5 | 24 | 146.2 | 34 | 210.7 |
| 5 | 77.0 | 15 | 107.2 | 25 | 151.4 | 35 | 218.1 |
| 6 | 79.7 | 16 | 110.9 | 26 | 156.7 | 36 | 225.7 |
| 7 | 82.5 | 17 | 114.8 | 27 | 162.2 | 37 | 233.6 |
| 8 | 85.4 | 18 | 118.8 | 28 | 167.9 | 38 | 241.8 |
| 9 | 88.5 | 19 | 123.0 | 29 | 173.8 | 39 | 250.3 |
| 10 | 91.5 | 20 | 127.3 | 30 | 179.9 | | |

# CDCSS Standard Code Table

| NO. | Normal | Inverted | NO. | Normal | Inverted | NO. | Normal | Inverted |
|---|---|---|---|---|---|---|---|---|
| 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 | 446.0-446.2MHZ |
| Channel Capacity | 32 |
| Zones | 2 |
| Channel Spacing | 12.5KHz/25KHz |
| Operating Voltage | DC7.4V (±20%) |
| Battery Capacity | 1800 mAh |
| Battery Life (5/5/90) | Digital 18 Hours; Analog 13 Hours |
| Frequency Stability | ±1.5ppm |
| Antenna Impedance | 50Ω |
| Dimensions (L×W×H) | 59.7 (L) *35 (W) *114 (H)mm |
| Weight | 264g(Including Battery) |
| **Transmitter** | |
| RF Output Power | 0.5W |
| 4FSK Modulation | 12.5kHz Only data: 7K60FXD 12.5kHz 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 | AMBE3000 |
| **Receiver** | |
| Digital Sensitivity | 5% BER: 0.25 uV |
| Analog Sensitivity | 0.25 uV (12 dB SINAD) |
| Intermodulation | 65dB |
| Adjacent Channel Selectivity | 60 dB |
| Spurious Response Rejection | 70 dB |
| FM Noise | -40dB |
| Audio Response | +1/-3 dB |
| Audio output power | 500m W |
| Audio Distortion | 3% (Typical) |
| Conducted Spurious Emission | -36dBm |

| | Environmental Specifications |
|---|---|
| Working Temperature | -20℃—+60℃ |
| Storage Temperature | -30℃—+85℃ |
| Vibration & Shock | MIL-STD-810C/D/E/F Standard |

## Statement

This manual is deemed to be compiled to be accurate and complete. For any doubt, please contact us. 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.

BelFone

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