BelFone

www.belfone.com

BF-S50

FM TRANSCEIVER

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

FM transceiver model: BF-S50

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.

Supplied accessories

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

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

Accessories

Items	Number	Quantity
Antenna	BF-RA502	1
Strap	BF-RL501	1
Li-ion Battery	BF-A21	1
Charger	BF-B21	1
Belt Clip	BF-BS503	1
Screws		1
User Manual		1

Antenna

Strap

Charger

Li-ion Battery

Belt Clip

Screws

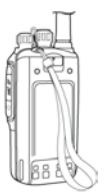
Installation of Accessories

Attaching/Removing the belt clip

Attach the belt clip using the two supplied 3*4mm binding screws.

Attaching/Removing the Strap

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



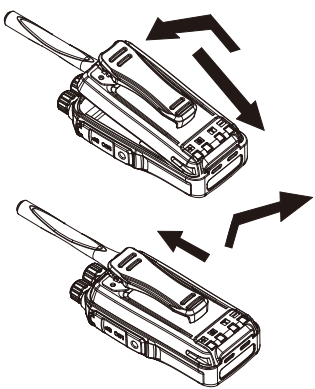
Attaching/Removing the Battery

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 two corresponding grooves on the bottom of the radio, press the battery down 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 and pull the battery away from the radio.



Usage of battery

The original battery was active before leaving factory,please charge the battery before use it.Charging/discharging two-three times will make battery's capacity to the best state.

To reduce battery power consumption, please take battery from radio when you are not going to use the radio, then keep the battery in cool and dry place.

when you need to store the battery for long time,please take battery from radio Please discharging the battery if possible

Please store the battery at shady(tempurature lower then 25 ℃ and dry place.

Features for li-ion battery

The capacity will be reduced after repeat charging and discharging
The capacity will also have burn-in phenomenon(battery capacity will be reduced).
The battery will be charged at highest capacity when it is charged at shady and cool place(lower them 25℃)
The battery will be burn-in much more easily then it is stored at high temperature, it is short the using life.Please don't not keep the battery inside car and nearby heater device.
If the battery using life is shorten, please replace new battery even the current battery is full charged. If you continue to charging and discharging, it may cause electrolyte leakage and cause Smoke or explosion.

Charging Li-ion battery

When the battery alarm low battery indicator, it means low battery,please charge the battery in time, or it will effect your normal useage.
Notice: The environment temperature should be 0°C to 40°C. if you are charging out of this range, it may effect battery's normal charing.

Charging steps:

- Please insert charger into 220V AC socket.
- Please correct put the battery or radio with battery into the charger.
- Please make sure battery and charging plat is well connected.It means starting charging when the charger LED shows RED.It means finished charging when the charger LED shows GREEN.

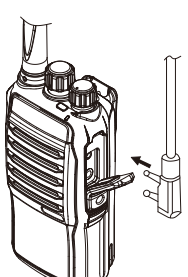
Notice:The charger LED light can not on after the battery and charger is well connected, it may indicate:battery broken, environment temperature is too high or too low.

Warning

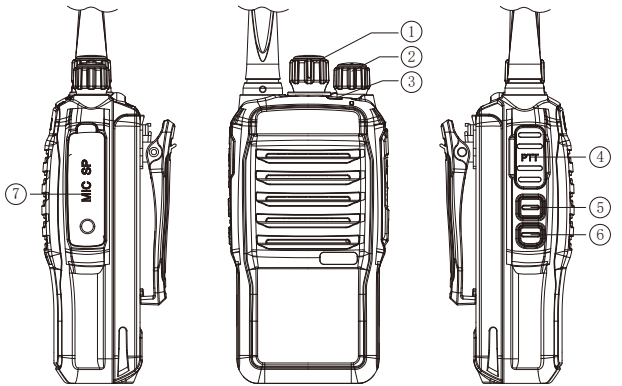
● Please don't charge battery excessively
Please stop charging if the battery still can not be full charged within regular time(4-6 hours),or battery will be overheating and smoke explosion or burst into flames.
● Please don't put batter into Microwave lamp and high pressure vessel
Battery will be overheating and smoke explosion or burst into flames.
● Please keep away the battery which is broken and leaky to avoid explosion.
If battery is leaky(or smell pungent),please take it far away from flammable and explosive areas.
● Please don't use abnormal battery.
If battery is deformation or shows abnormal for any reason,please take battery away from charger or radio, stop use it.
● Please use the specific charger
Please use the specific charger which is original from factory, it will be much more safe,scientific and reasonable to charge this model battery.

Attaching the Speaker/Microphone

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



Buttons and Functions



① **Channel Selector Knob**

Turn the knob to select channel 1-16 and it will have relative voice indicator

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 battery is low battery flash one time red;when battery votalge is higher then 9v,it keeps flash red.

④ **PTT**

When press PTT and speak to MIC to make transmitting

⑤ **High/low power switch button**

When press this button, you can switch high/low power

⑥ **SCAN**

When press this button, you can open/close scan function

⑦ **MIC-SP plug**

Connect with extra speaker/MIC, or connect with programming cable you can program radio with your PC

The function introduction and 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.

Notice：You can press MONI to monitor backgroud noise, you can adjust the volume according with it.

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,

Voice indicator:the radio will use the voice indicator to indicate current channel.

Make Transmitting

1. Firstly,make sure there is not other radio is transmit at your current channel.
2. Press PTT and speak to MIC.

1). To get best audio,please keep 3-4cm away from MIC and use normal tone to speak

2). When press PTT, LED shows RED, it means transmitting

3.When release PTT, radio exit transmitting state and go into receiving state.

Make Receiving

● When your radio's current channel is called by others, LED shows GREEN, you can receive the calling.

● If the calling signal is weak and you set the higher squelch level, you will not receive the calling.
● If our radio is programmed with QT/DQT,you can only hear the calling with has the same QT/DQT. You can not hear other callings.

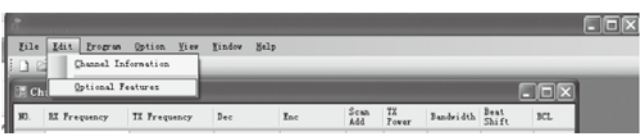
Programming

Please use the specific programming cable, connect radio with PC, open program software BF-S50.

The function introduction and programming

Optional Features

Open program software,from“edit”choose“optional features”



Squelch Level:0-9

Squelch function is used when your radio dose not receive signal,it can make speaker silence.when you close squelch,you will hear the background noise.when open squelch, you will not hear the background noise.
Squelch can set as 10 levels,0 level will close squelch function, the default setting is 3 level. When close squelch, radio will continue make“swish ”noise. The higher level,the higher squelch, but as the squelch level is higher, radio’s receive ability will reduce.If you choose higher squelch level, you will not hear the weak signal;if you choose the lower squelch level,the signal will appear with background noise. Please set the squelch level according with your using enverionment.

VOX（This function is only available when connect with earphone）

VOX function can enable you to transmit without press PTT, after this function is active, radio can be active via voice,radio will stop transmit after voice stop.VOX level is 1-9 or close.
Press MONI and turn on power on knob, radio flash red and green flight alternatively, then press MONI, VOX level increase, press SCAN, VOX level reduce.You can increase your VOX level when you are in noise environment;you can reduce VOX level when you are in quite environment.When VOX is adjusted suitable level, re-power on radio, VOX will be set well.When you are setting VOX level,press PTT, VOX function will be close. You can also set VOX level in Optional Features from specific program software.

Notice:when adjust VOX level,MIC recognize voice,LED shows red, radio dose not transmit.

Voice Prompts

Voice Prompts is used when you turn channel knob, radio will announce channel number, you can choose None,Chinese, English from program software.

Language

You can choose Chinese or Engilsh from program software.Please make the setting Option-Language to choose the language you want.

Scan

Scan is used for monitor signal on radio.When scanning, radio will scan all channel's signal and stop at channel which has signal.
If scan with signal, radio will stop at current channel until this signal disappear.Scan will regain when the signal disappear 5 seconds,unless it get the new signal within this delay time.The operation list below:

● When you want to start scan,please press SCAN 1 second,hear one"Beep"tone radio LED shows green,it means start scan.Scan is start from current channel, going with higher channel number, circle scan. When the signal come in, it stops at this channel.

● When you want to stop scan,please press SCAN 1 second, hear two "Beep"tone,radio LED stop flashing green, it back to the channel before scanning.

● During scanning(no signal received),press MONI,you can receive last time's scan channel signal
● During scanning(no signal received),press PTT, you transmit last time's scan channel frequency
● If scan with signal, press PTT,transmit current scan's channel frequency.

High/Low power switch

This radio enable high/low power switch, high power is 4w, low power is 0.5w.You can swich high/low power from sidekey button. When hear one"Beep"tone, radio is at low power;when hear two"Beep"tone, radio is at high power.You can also set the high/low power from proram software.

Bandwidth setting

This radio enable wide/narrow bandwidth option function,you can choose wide 25khz or 12.5khz from program software.
Notice:two radio's bandwidth must be same, or the communication between two radio will get problem.

This radio enable wide/narrow bandwidth

According with each channel's offset, you can set microprocessor system clock frequency,it can avoid the interrupt signal when receiving signal.Radio use microprocessor to deal with multi-function,it may cause jumbly micro-noise, if you have this noise,please open this function.you can set it from program software.

Busy Channel Lockout（BCL）

This function is to avoid user receive unlicense signal or send signal to busy channel, to keep channel clean and avoid interruption.
Please set BCL from program software, you can choose QT/DQT or carrier. When choose carrier,if carrier is occupied, it will go to BCL, if carrier is free,it will

relieve BCL.
When choose QT/DQT,if carrier is occupied and use same QT/DQT, it will go to BCL, if carrier is free, it will relieve BCL.
When press PTT,if this channel is using, your radio will make alarm and you can not make transmitting. Release PTT, it can stop alarm, recover to receive mode.

CTCSS and CDCSS

When your channel is program this function, you can only hear the radio which has the same signal, the rest calling can not be hearing.
This function can shield needless calling.though using CTCSS/CDCSS seems you has your special channel,but if other radio has the same setting of CTCSS/CDCSS , they can hearing your calling.

CTCSS/DCS Standard Frequency Table

QT No.	Freq [Hz]	QT No.	Freq [Hz]	QT No.	Freq [Hz]	QT 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		

CTCSS/DCS Standard code table

023	114	174	315	445	631
025	115	205	331	464	632
026	116	223	343	465	654
031	125	226	346	466	662
032	131	243	351	503	664
043	132	244	364	506	703
047	134	245	365	516	712
051	143	251	371	532	723
054	152	261	411	546	731
065	155	263	412	565	732
071	156	265	413	606	734
072	162	271	423	612	743
073	165	306	431	624	754
074	172	311	432	627	

Specifications

	General
Frequency range	UHF:400-480MHz
Channel capacity	16
Channel spacing	25 KHz /12.5 KHz
Working temperature	-20℃ ~ +60℃
Antenna impedance	50Ω
Power voltage	DC 7.5V(±20%)
Battery capacity	2500mAh
Frequency stability	≤±2.5 ppm
Dimension	193*60*36mm
Weight	253g(with battery)
	Transmitter
RF Output Power	High:4W Low:1W
Modulation	16K0F3E(Wide)/8K50F3E(Narrow)
Spurious and harmonics	≤-36dBm
FM Noise	≤-40dB
Audio distortion	≤5%
Adjacent power	≥65 dB(Wide)/60 dB(Narrow)
Modulation limitation	≤5KHz(Wide)/2.5KHz(Narrow)
	Receiver
Sensitivity	≤0.2μV(Wide)/ 0.25μV (Narrow)
Adjacent Channel Selectivity	≥60dB(Wide)/ 55dB (Narrow)
Intermodulation Rejection	≥60dB(Wide)/ 55dB (Narrow)
Spurious Response Rejection	≥60dB(Wide)/ 55dB (Narrow)
Signal to Noise Ratio	≥45dB(Wide)/ 40dB (Narrow)
Audio Output Power	0.5W
Audio distortion	≤5%

Statement

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

BelFone

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RECYCLABLE PACKAGING