



FRS-B1

Operating Manual



ATTENTION

The BTECH FRS-B1 is a multitasking FRS transceiver that combines the latest technology in radio communication along with a sturdy mechanical frame. It is the ideal and most effective solution for leisure use with friends and family.

To help you ward off bodily injury or property loss that may arise from improper operation, please read all the information carefully before using our products.

FCC RF EXPOSURE

WARNING! It is up to the user to properly operate this radio transmitter to insure safe operation.

Do not use the radio with a damaged antenna. If a damaged antenna comes into contact with the skin, a minor burn may occur.

Please contact your local dealer for a replacement radio, if needed.

■ Hand-Held Operation (Held-to-Face)

This device was evaluated for typical hand-held (held-to-face) operations with a 1 inch spacing from the front of the radio. For hand-held operation, the radio should be held 1 inch from the user's face to comply with FCC RF exposure requirements.

■ Body-Worn Operation

This device was evaluated for body-worn operations with the supplied belt-clip accessory. (All necessary accessories are included in the package; any additional or optional accessories are not required for compliance with the guidelines.) Third party accessories (unless approved by the manufacturer) should be avoided as these may not comply with FCC RF exposure guidelines.

FCC PART15

■ FCC PART 15 COMPLIANCE

This device complies with Part 15 of the FCC rules. Operation is subjected to the two following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

PRECAUTIONS FOR BATTERIES

■ Charging Prohibitions

To protect you against any property loss, bodily injury or even death, be sure to observe the following safety instructions:

1. Do not charge or replace your battery in a location where fuels, chemicals, explosive atmospheres and other flammable or explosive materials are present.
2. Do not charge your battery if it is wet. Please dry it with a soft and clean cloth prior to charging it.
3. Do not charge your battery if it is suffering deformation, leakage and overheat.
4. Do not charge your battery with an unauthorized charger.
5. Do not charge your battery in a location where strong radiation is present.
6. Do not overcharge your battery as it may shorten the life of your battery.

■ Maintenance Instructions

To help your battery work normally or prolong its life, be sure to observe the following instructions:

1. Accumulated dust on charging connector may affect normal charging. Please use a clean and dry cloth to wipe it on a regular basis.
2. It is recommended to charge the battery between 5°C to 40°C. Violation of the said limit may cause battery life reduction or battery leakage.
3. To charge a battery attached to the product, turn it off to ensure a full charge.
4. Do not remove the battery or unplug the power cord during charging.
5. Do not dispose of the battery in a fire.
6. Do not expose the battery to direct sunlight for a long time or place it close to other heating sources.
7. Do not squeeze and penetrate the battery or remove its case.

■ Transportation Instructions

1. Damaged batteries must not be transported.
 2. To avoid short circuiting, separate the battery from metal bars or from each other, if two or more batteries are transported in one packaging.
 3. If the battery is attached, the radio should be powered off.
- The content of the shipment must be declared in the shipping documents and by a battery shipping label on the packaging. Contact your delivery service for local regulations and further information.

■ Precautions for Disposal

Once the service life of our products (including but not limited to radios and batteries) has ended, they shall not be disposed as household garbage. Dispose of and recycle our products in accordance with your local regulations.

MAINTENANCE

To be safe and sure:

- Do not disassemble or modify your radio in any way.
- Never change or replace anything in your radio except the batteries.

■ Care and Safety

Your FRS-B1 was designed to fulfill any warranty obligations and to be enjoyed for many years.

As for the device, we recommend you follow these suggestions:

- Do not attempt to open the unit. Non-expert handling of the unit may damage it and/or annul the warranty.
- When using regulated power supply, the power voltage must be 5V to avoid damages.
- High temperatures can shorten the life of electronic devices, and warp or melt certain plastics. Do not store the radio in dusty or dirty areas.
- Keep the radio dry. Rainwater or dampness will corrode electronic circuits.
- If it appears that the radio has a peculiar smell or emits smoke, please shut off its power immediately and remove the charger or battery from the radio.
- To clean the radio, use a soft, damp cloth. Do not use cleaners or solvents because they can harm the body of the unit and leak inside, causing permanent damage.
- Use a dry, lint-free cloth to clean the battery contacts.

■ Hazardous Environments

Do not operate the radio in hazardous environments as an explosion or fire may occur. Do not operate the radio near unshielded electrical blasting caps.

Under certain conditions, radios can interfere with blasting operations and may cause an explosion. Turn your radio OFF to prevent accidental transmission when in a blasting area or in areas posted: "Turn off two-way radio." Construction crews often use remote control RF devices to set off explosives.

Read this information before using the radio:

In August 1996 the Federal Communications Commission (FCC) of the United States with its action in Report and Order FCC 96-326 adopted an updated safety standard for human exposure to radio frequency electromagnetic energy emitted by FCC regulated transmitters.

Those guidelines are consistent with the safety standard previously set by both U.S. and international standards bodies. The design of the radio complies with the FCC guidelines and these international standards.

Never allow children to operate the radio without adult supervision and the knowledge of the following guidelines.

Package Contents

- 2 FRS-B1 transceiver
- 1 USB to AC Adaptor
- 1 USB to Dual USB-C Cable
- 2 Wrist straps
- 1 Two-way charger with USB-C port
- 2 Li-ion battery packs(1500mAh 3.7V)
- 2 Belt clips
- 2 Holsters
- 2 Earpieces
- 1 User Manual

Note: The number of the above materials may vary depending on the number of packages in your order.

Features and Specifications

- FRS transceiver (No license required)
- 22 FRS two-way channels
- Channel spacing: 12.5 KHz
- Vocal tuning
- Low battery alert
- 2 Pin Kenwood K1 accessory jack
- 260 Sub-codes (50 CTCSS Codes & 210 DCS codes)
- Up to 5 km range*
- Battery Life: up to 18 hours (under typical use conditions)
- Max Output power: $\leq 2W / (\leq 0.5W \text{ for channels } 8 - 14)$
- Channel monitor
- Channel scan
- Battery saver
- TOT (Time out timer)
- Type-C USB connector for charging
- Li-Ion 1500mAh battery pack
- 7 Weather channels

Note: *Range may vary depending on environmental and/or topographical conditions.

BATTERY RECHARGE

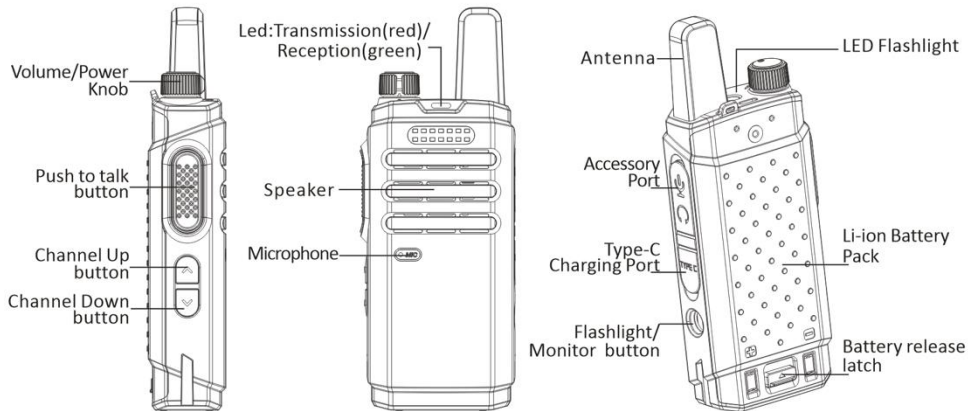
Your radio includes the Type-C USB charging cables (with AC adaptor) and battery packs. Follow these instructions to recharge your radio.

- 1) Plug the Type- C USB cable into the Type-C USB charging port on your radio. Connect the other end of the Type-C USB charger to a USB port or, using the AC adaptor, connect to a power outlet.
- 2) The LED will illuminate red while charging and will illuminate green when fully charged.
- 3) An empty battery will need to charge for 5 hours to be completely charged.

Note:

- *Use only the supplied battery and AC adapter or approved accessories from BTECH.*
- *Charge time may vary depending on the remaining battery life at the start of charge.*
- *The battery must be installed for the unit to operate, even if the unit is also connected to external power.*
- *If battery power is low, you cannot operate the radio even using external power. Allow the battery to charge before using. If you try to transmit while power is low, the radio will automatically turn off.*
- *To maintain the optimal battery life, allow no more than 6 hours charge for an empty battery.*
- *For fastest charging, turn off the radio before charging.*

GETTING ACQUAINTED



Note: Long press **The Flashlight/Monitoring** key to enter the monitoring state.

Long press the **Channel Up (▲)** key to lock or unlock the channel adjustments.

Long press the **Channel Down (▼)** key to turn on or off the channel scan function.

Press and hold the **Channel Up (▲)** and **Channel Down (▼)** keys at the same time to switch between weather reception mode and FRS communication mode.

OPERATIONS

Power on/off and volume adjustment

Rotate the power/volume knob clockwise to turn the radio on. Rotate the control clockwise or counterclockwise to adjust the volume level up/down, respectively. To turn the radio off, rotate the control counterclockwise until you hear a mechanical “click.”

Channel selection

In standby mode, press the **Channel Up (▲)** or **Channel Down (▼)** key to move up or down channels. When the voice prompt function is turned on, the corresponding channel number is broadcast by voice.

With the FRS-B1 turned on, press and hold the **Channel Up (▲)** key to lock or unlock the channel selection function. After the channel selection function is locked, channel switching will be prohibited, and pressing the **Channel Up (▲)** or **Channel Down (▼)** key will produce a tone signaling that channel changing is prohibited.

Transmission

To communicate, all radios in your group must be set to the same channel. Briefly press the **Flashlight/Monitor key** to enable the Monitor feature (which makes sure that the frequency you selected is not busy) then press the [PTT] key to transmit on the channel. Release the [PTT] key to receive. Only one user at a time can talk during radio communications, a red LED light will illuminate when you press the [PTT] key to talk and a green LED light will illuminate when you are receiving signal from another radio. **Note: You must release the [PTT] key in order to see the green LED light and know that you are receiving a signal from another radio.** Therefore, it is important not to transmit when you are receiving a communication and to use the transmission mode sparingly, so other users can talk. Transmission consumes a significant amount of energy and should therefore be used sparingly to prolong the battery life. If you can hear a station and they cannot hear you, or vice versa – you may have mismatching privacy tones enabled on your programming (CTCSS/DCS).

Scan

In standby mode, press and hold the **Channel Down (▼)** key, the voice prompt will say "Scanning On" then enter the scanning function. The green indicator light will flash quickly, and the radio will scan between the programmed channels. When an active carrier signal is scanned, it will stop at the channel until the signal disappears.

When the signal is scanned and stays, press and hold the [PTT] key to initiate a callback.

In the scanning mode, long press the **Channel Down (▼)** key, the voice prompt will say "Scanning Off" and exit the scanning mode.

Note: To enable the Scan function, program your radio using the optional PC03 accessory provided by BTECH, and the free programming software which is found at <https://baofengtech.com/download>.

Monitor

The Monitor feature is for excluding and opening the Squelch so you can listen to signals that are too weak to keep the Squelch permanently opened. Hold down the **Flashlight/Monitor key** to enable this function.

VOX

The VOX feature enables hands free conversations without using PTT. Simply speak in the direction of the microphone and the communication will be automatically activated. To use this feature, follow these steps:

- (1) Turn on the radio. Press the **Channel Up (▲) / Channel Down (▼)** key to select the 1st channel and turn off the radio.
- (2) Press and hold the PTT and **Channel Down (▼)** keys simultaneously to turn on the radio, the voice prompt will say "VOX On" or "VOX Off".

The VOX sensitivity can be adjusted to 5 different levels (1 through 5) through the programming software.

Level 1 is set by default and has the lowest VOX sensitivity, 5 has the highest.

With the programming software you can enable/disable the VOX feature and select the sensitivity levels.

Note: To use the VOX feature, program your radio using the optional PC03 accessory provided by BTECH, and the free programming software which is found at <https://baofengtech.com/download>.

Weather channel reception

7 weather channels are included in your default settings and can be received by the radio. In standby mode, press and hold the **Channel Up (▲)** and **Channel Down (▼)** keys at the same time to switch between weather forecast receiving mode and FRS communication mode. In weather channel mode, the reception and transmission of FRS channels are prohibited.

In FRS communication mode, press the **Channel Up (▲)** and **Channel Down (▼)** keys at the same time to enter the weather forecast mode, the voice prompt will say "WEATHER CHANNEL x," where "x" is a number between 1 and 7. Press the [▲] and [▼] keys to select the day channel.

Squelch

The Squelch function suppresses noises on free channels and allows for reception of weak signals. FRS-B1 has 10 different Squelch levels that can be set by programming software: 0 means that the Squelch is turned off; from level 1 to level 9, you will have different levels of noise reduction. The higher the level, the louder the Squelch. By default, the Squelch level of the FRS-B1 is 4. Make sure you do not set an excessively high squelch level because you may not be able to receive weaker signals. On the other hand, an excessively low Squelch value could enable the Squelch even when no signals are present.

Note: To use the Squelch function, program your radio using the optional PC03 accessory provided by BTECH, and the free programming software which is found at <https://baofengtech.com/download>. Once the Squelch level is programmed, it cannot be changed without reprogramming using the free software.

Transmit time out

The time out timer is able to be set at intervals between 30 seconds to 270 seconds through the programming software. This is to reduce accidental or long transmissions.

Note: This feature is disabled by default. To use the Time Out Timer, program your radio using the optional PC03 accessory provided by BTECH, and the free programming software which is found at <https://baofengtech.com/download>. Once the Time Out Timer is programmed, it cannot be changed without reprogramming using the free software.

260 Sub-codes

CTCSS and DCS tones are similar to access codes and enable the radio to communicate only with the users that are tuned to the same channel and are set with the same code. This would enable multiple groups to use the same channel, but each with their own separate tone separating the groups. For each channel, you can set up to 50 CTCSS tones and 210 DCS codes. The undesired signals coming from other stations set on the same frequency but with different CTCSS/DCS tones won't be received.

Note: To use the CTCSS/DCS tone feature, program your radio using the optional PC03 accessory provided by BTECH, and the free programming software which is found at <https://baofengtech.com/download>. Once the CTCSS/DCS tone is programmed, it cannot be changed without reprogramming using the free software.

Appendix A. – Technical Specifications

General Part

Frequency Range	FRS
Working temperature	-10°C to +40°C
Operation Voltage	DC 3.7 V $\pm$ 10%
Operation Mode	Simplex
Antenna Impedance	50ohm
Duty cycle	5/5/90%

Transmitter Part

RF Output Power	2W (1-7&15-22Channels) /0.5W(8-14Channels)
FM Modulation	11K0F3E@12.5KHz
Adjacent Channel Power	60dB @ 12.5KHz
Transmission current	$\leq$ 1000mA

Receiver Part

Receive Sensitivity	0.25 μ V (12dB SINAD)
Adjacent Channel Selectivity	$\geq$ 55dB@12.5KHz
Inter Modulation and Rejection	$\geq$ 55dB@12.5KHz
Conducted Spurious Emission	$\leq$ -57dB@12.5KHz
Rated Audio Power Output	0.75W @8 ohms
Receive current	$\leq$ 380mA
Rated Audio Distortion	$\leq$ 5%

NOTE: All specifications may be modified without prior notice or liability.

Appendix B. - FRS Frequency Chart (MHz)

CH.No	CH.Freq.	Power Output	CH.No	CH.Freq.	Power Output
1	462.5625	High	12	467.6625	Low
2	462.5875	High	13	467.6875	Low
3	462.6125	High	14	467.7125	Low
4	462.6375	High	15	462.5500	High
5	462.6625	High	16	462.5750	High
6	462.6875	High	17	462.6000	High
7	462.7125	High	18	462.6250	High
8	467.5625	Low	19	462.6500	High
9	467.5875	Low	20	462.6750	High
10	467.6125	Low	21	462.7000	High
11	467.6375	Low	22	462.7250	High

Appendix C. – Trouble shooting guide

Phenomena	Analysis	Solution
You cannot turn on the radio.	The battery may be installed improperly.	Remove and reattach the battery.
	The battery power may have run out.	Recharge or replace the battery.
	The battery may suffer from poor contact caused by dirty or damaged battery contacts.	Clean the battery contacts or replace the battery.
During receiving, the voice is weak or intermittent.	The battery voltage maybe low.	Recharge or replace the battery.
	The volume level may be low.	Increase the volume.
	The speaker maybe blocked.	Clean the surface of the speaker.
You cannot communicate with other group members.	The frequency or signaling type maybe inconsistent with that of other members.	Verify that your TX/RX frequency and signaling type are correct.
	You may be too far away from other members.	Move towards other members.
You hear unknown voices or noise.	You may be interrupted by radios using the same frequency.	Change the frequency or adjust the squelch level.
	The radio in analog mode maybe set with no signaling.	Request your dealer to set signaling for the current channel to avoid interference
You are unable to hear anyone because of too much noise and hiss.	You may be too far away from other members.	Move towards other members.
	You may be in an unfavorable position. For example, your communication may be blocked by high buildings or blocked in an underground area.	Move to an open and flat area, restart the radio, and try again.
	It may be the result of external disturbance (such as electromagnetic interference).	Stay away from equipment that may cause interference.
The radio keeps transmitting.	VOX may be turned on or the headset is not installed in place.	Turn off the VOX function. Check that the headphones are in place.

NOTE: If the above solutions cannot fix your problems, or if you may have other questions, please contact your dealer for additional technical support.

■ FCC Compliance Statements

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. Do not use this device when the antenna shows obvious damages. Hold this transmitter approximately 25 mm away from your face and speak normal with the antenna pointed up and away. Use the supplied belt clip for body-worn configuration as other accessories may not comply to the limits.

WARNING: MODIFICATION OF THIS DEVICE TO RECEIVE CELLULAR RADIOTELEPHONE SERVICE SIGNALS IS PROHIBITED UNDER FCC RULES AND FEDERAL LAW.

■ Licensing Information

Use of our radio in USA is subject to the rules & regulations of FCC. Changes or modifications not expressly approved by us may void the user authority granted by the FCC to operate this radio and should not be made. To comply with FCC requirements, transmitter adjustments should be made only by or under the supervision of a person certified as technically qualified to perform transmitter maintenance and repairs in the private land mobile and fixed services as certified by an organization representative of the user of those services. Replacement of any transmitter component (crystal, semiconductor, etc) not authorized by the FCC equipment authorization for this radio could violate FCC rules.

Note: Use of this radio outside the country where it was intended to be distributed is subject to government regulations and may be prohibited.

Important: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this device. Your radio is set up to transmit a regulated signal on an assigned frequency. It is against the law to alter or adjust the settings inside the radio to exceed those limitations. Any adjustments to your radio must be made by qualified technicians.

Disclaimer

The accuracy and completeness of the contents are sought in the process of compilation, but we do not bear any responsibility for possible errors or omissions. With the continuous development of technology, we reserve the right to change the design and specification of the product without notice. No copy, modification, translation or dissemination of this handbook may be made in any form without the prior written authorization of our department.



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