

***BAOFENG***<sup>®</sup>

**FRS Radio**

**T22**

**USER'S MANUAL**

# ATTENTION

The radio is a multitask FRS transceiver. Combining the latest technology in radio communication along with a sturdy mechanical frame, the radio is the ideal and effective solution for the professionals who need to stay in touch with the working team (in construction sites, buildings, shows, trade fairs or hotels) or for leisure users that just want to keep up 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. Please adhere to the following:

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

Please contact your local dealer for a replacement antenna.

### ■ 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 in order 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 might not comply with FCC RF exposure guidelines.

For body worn operation, this device has been tested and meets the Industry Canada RF exposure guidelines when used with Pofung accessories supplied or designated for this product. Use of other accessories may not ensure compliance with Industry Canada RF exposure guidelines.

Fonctionnement de l'appareil, lorsque porté sur le corps. Cet appareil a été testé et s'est avéré conforme aux normes d'Industrie Canada et approuvé pour le port sur le corps à l'aide des accessoires Pofung inclus et conçus pour cet appareil. L'utilisation d'accessoires ne respectant pas les exigences d'exposition RF d'Industrie Canada doit être évitée.

## **FCC PART15**

### **■ FCC PART 15 COMPLIANCE**

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

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

Avis de conformité à la FCC : Ce dispositif a été testé et s'avère conforme à l'article 15 des règlements de la Commission fédérale des communications (FCC). Ce dispositif est soumis aux conditions suivantes: 1) Ce dispositif ne doit pas causer d'interférences nuisibles et; 2) Il doit pouvoir supporter les parasites qu'il reçoit, incluant les parasites pouvant nuire à son fonctionnement.

Tout changement ou modification non approuvé expressément par la partie responsable pourrait annuler le droit à l'utilisateur de faire fonctionner cet équipement.

## 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 containing fuels, chemicals, explosive atmospheres and other flammable or explosive materials.
2. Do not charge your battery that is wet. Please dry it with a soft and clean cloth prior to charge.
3. Do not charge your battery 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. Overcharge shall always be prohibited for 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 under 5°C~40°C. Violation of the said limit may cause battery life reduction or even 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 to ensure a smooth charging process.
5. Do not dispose of the battery in fire.
6. Do not expose the battery to direct sunlight for a long time nor place it close to other heating sources.
7. Do not squeeze and penetrate the battery, nor remove its housing.

## ■ Transportation Instructions

1. Damaged batteries must not be transported.
2. To avoid short circuit, separate the battery from metal parts or from each other if two or more batteries are transported in one packaging.
3. The radio must be switched off and secured against switch-on, if the battery is attached.

The content of the shipment must be declared in the shipping documents and by a Battery Shipping Label on the packaging. Contact your hauler for the 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. Their recycling and disposal shall satisfy your local regulations.

## MAINTENANCE

To be safe and sure:

- Never open your radio's case.
- Never change or replace anything in your radio except the batteries.

## ■ Care and Safety

Your radio was designed to fulfill any warranty obligations and to enjoy this product for many years.

As for all the electronically devices, we recommend you to follow this few 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, take notice of power voltage that 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 damp will corrode electronic circuits.
- If it appears that the Radio diffuses peculiar smell or smoke, please shut off its power immediately and take off the charger or battery from the Radio.
- Do not transmit without antenna.
- To clean the radio, use a soft cloth dampened with water. 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. Explosion or fire may result. 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.

**WARNING!** 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.

## Programming software (optional)

Thanks to Programming software, it is possible to increase the performance of your radio or to reduce its functionality by disabling some of the default features (CTCSS, DCS, VOX...)

For further information, please consult the Programming software manual.  
Any attempt to change frequencies or output power of the radio invalidates the approval.

## PACKAGE CONTENTS

- 1 Radios
- 1 1500mAh Li-ion rechargeable battery pack
- 1 User manual
- 1 Belt clip
- 1 USB cable

Note: The number of the above materials may be depending on the number of packages.

## MAIN FEATURES

- FRS transceiver (No license required)
- 22 FRS two-way channels
- Channel spacing: 12.5 KHz
- Vocal tuning
- Low Battery alert
- 2-pin Kenwood accessory jack
- Output power:  $\leq 2W / \leq 0.5W$  (only 8-14 channels)
- Channel monitor
- Channel scan
- Battery save
- Li-Ion 1500mAh battery pack
- Type-C for charging

## BATTERY RECHARGE

The radio is equipped for using a 3,7V Li-ion rechargeable battery pack which can be recharged by connecting the USB cable to the radio and to a USB-charger (5V-1A). It takes 5 hours to fully recharge the radio.

For maximum battery life, we recommend charging the battery pack when the radio is off and the battery pack is fully discharged.

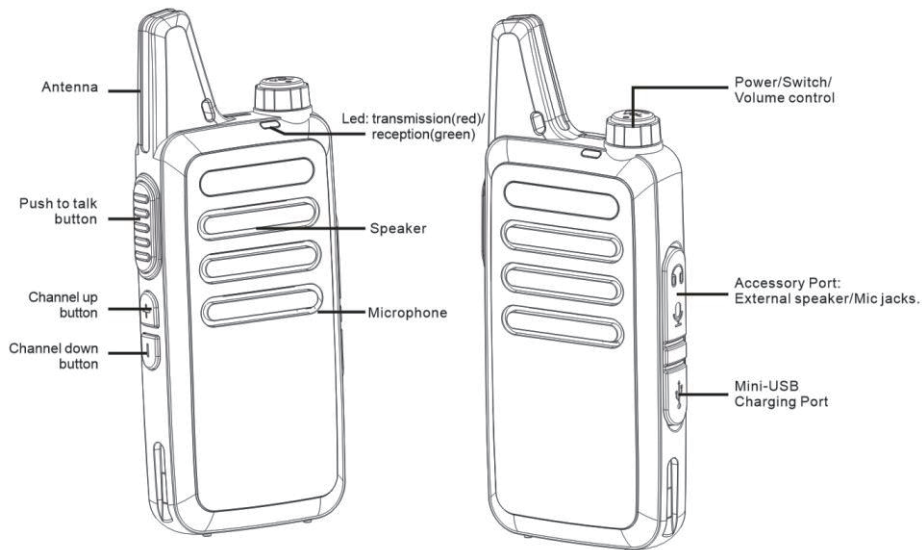
The Battery power saving feature enables a reduction in consumption of up to 50%. If it has been set, it automatically activates when the transceiver does not receive any signal for more than 5 seconds in order to save the battery life.

The Power saving function is activated by default and can be modified only by soft-ware.

**Note:** Using a different battery charger other than the one specified can cause damage to your device or may even cause explosions and personal injuries.



## GETTING ACQUAINTED



**NOTE:** Long press [Channel (-) ] key to enter the monitoring state .

## OPERATIONS

### Power on/off and volume adjustment

Rotate the Power/Volume knob clockwise to turn the radio on. Rotate the control clockwise /counter-clockwise to adjust the volume level as you prefer. To turn the radio off, rotate the control counter-clockwise till hearing a mechanical “click”.

### Channel selection

In standby mode, directly press the **Channel Up (+)/ Down(-)** key to step up or down to select the channel. When the voice prompt function is turned on, the corresponding channel is broadcast by voice.

### Transmission

To communicate, all radios in your group must be set to the same channel. Long press the **Channel Up (-)** to enable the Monitor feature and ensure the channel is clear, then press the [PTT] key to transmit. Release the [PTT] key to receive. Only one user can speak at a time, so avoid transmitting while someone else is talking and use transmission sparingly to allow others to communicate. Transmitting also consumes more power, so limiting transmission helps extend battery life. If you are unable to contact a station that you have no problems in receiving, the station may be using CTCSS tones or DCS codes.

### Monitor

The Monitor function temporarily disables the squelch so you can hear weak signals. Hold down the **Channel Up (-)** to activate Monitor.

## VOX

The VOX feature enables hands free conversations without using PTT: just speak in the direction of the microphone and the communication will be automatically activated. The VOX sensitivity can be adjusted in 5 different levels (1...5) through the programming software:

Level 2 is set by default and 5 is the lowest sensitivity.

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

**CPS programming path: Edit > VOX > VOX Level**

## Scan

To activate the Scan function, all 22 channels must first be programmed. Simply power on the radio while it is set to Channel 22, and scanning will start automatically.

Scanning will pause on any channel where a signal is detected. When you press the PTT button, transmission will occur on the most recently detected active channel.

Channel 22 is designated as the priority channel. As such, if no active channels are detected when you press PTT, the radio will default to transmitting on Channel 22.

## Squelch

The Squelch function suppresses noises on free channels and allows receiving even weak signals. The radio 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 is the level, the louder will be the Squelch. By default, the Squelch level of radios is set on level 4. Make sure you do not set an excessively high squelch level because in this case 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. Squelch must always be adjusted when no signals are present.

## TOT

The Time Out timer is settable from OFF sec to 300 sec. only through the programming software. This feature is disabled by default.

## CTCSS/DCS tones

CTCSS and DCS tones function like access codes, allowing the radio to communicate only with users on the same channel who have set the same CTCSS or DCS tone. Each channel can be programmed with up to 50 CTCSS tones or 210 DCS codes. Signals from other radios using the same frequency but different CTCSS/DCS codes will be ignored.

## Quick operation

Without CPS programming software, you can perform the following quick operations through the combination of **PTT + Channel Up (-)** :

On channels 5, press and hold the **PTT + Channel Up (-)** key to turn on the radio and toggle the VOX function on or off. A voice prompt will announce 'VOX ON' or 'VOX OFF'.

## SOS

Using CPS to program side-button functions: select Alarm ,then long-press the **Channel Down (-)**key to activate the alarm.

Alarm: The radio sounds an SOS alert locally.

## ON-LINE SERVICE AND SUPPORT

FCC Licensing Information This radio operates on Commercial/ Land Mobile frequencies which require a license from the Federal Communications Commission (FCC) for business, personal, education and recreational use. To obtain forms, call the FCC forms hotline at: 1-800-418-3676 or go to <http://www.fcc.gov> for questions concerning commercial licensing, contact the FCC at 1-888CALL-FCC (1-888-225-5322).

## Appendix A. – Technical Specifications

### General Part

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Frequency Range	FRS
Working temperature	-10°C to +40°C
Operation Voltage	DC 3.7 V $\pm$ 10%
Operation Mode	Simplex
Dimensions	136mm×56mm×28mm (with Antenna)
Weight	130g (Battery pack included)
Antenna Impedance	50ohm
Duty cycle	5/5/90%

### Transmitter Part

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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

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Receive Sensitivity	0.25 $\mu$ 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 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 antenna maybe loose or maybe installed incorrectly.	Turnoff the radio, and then remove and reattach the antenna.
	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 you may have some other queries, please contact your dealer for more technical support.

## Disclaimer

The accuracy and completeness of the contents are sought in the process of compilation, but we do not bear any responsibility for the 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 and dissemination of this handbook may be made in any form without the prior written authorization of our department.



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