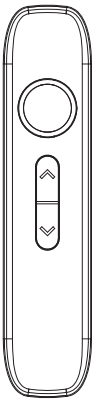
SFE®

—— Mini Two-way Radio



USER MANUAL

Quanzhou SFE Electronic Technology Co.,Ltd
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Web: www.sfecom.cn

成品尺寸：7x10.5cm

Introduction

Thanks for your purchasing this SFE two-way radio, a truly versatile, professional and durable radio that will provide reliable, high quality communication, even under harsh and demanding conditions, before operation and to obtain the best performance, please read this manual carefully to become familiar with the radio's features and uses.

Contents

Safety Information

Please read the following information carefully to become familiar with your new SFE two-way radio:

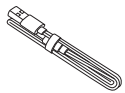
- Do not attempt to repair, disassemble or re-assemble the radio. Repair should only be carried out by a qualified Radio Engineer.
- In order to avoid electromagnetic interference, please turn off the radio in any areas where radio transmissions are not permitted e.g. Hospitals, Aircraft, etc.
- Do not place a radio in any area over, or in the deployment area of an Air Bag within a vehicle.
  Never operate the radio in potentially flammable and explosive atmospheres.
- Never replace or charge batteries in potentially flammable and explosive atmospheres.
- Do not operate the radio if its antenna is damaged.
- Do not expose the radio to long periods of direct sunlight, for example on the dashboard of a vehicle or close to heating appliances.
- When using your radio, try to keep it vertical and at a distance of 5~10cm from your mouth.
- Keep a distance of at least 2.5cm between the antenna and your head and body when transmitting.

Supplied Accessories

Please open the box carefully and check that the following items are included. If you find any items are missing or have been damaged during shipment, please contact your SFE dealer immediately.

Equipment and Accessories Supplied:

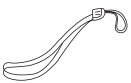
Radio Body (Internal Battery&Antenna)



Type-C Chargering Cable

Type-C Earphone

Adaptor



Hand Strap

User Manual

Battery Information

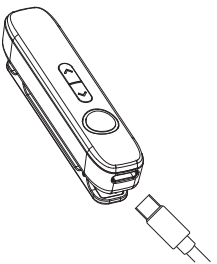
Caution

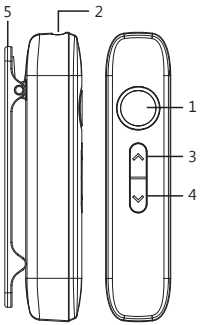
In order to avoid damage to the battery, only use the charger provided. The supplied charger is an 'intelligent' charger and has automatic and over-protect functions built in.
Do not short-circuit the battery pack or dispose of in fire.
The optimal charging temperature is between 10℃ and 35℃.
When charging in temperatures below 10℃ there may be a leakage of electrolyte which will damage the battery.
If charging above 35℃, battery performance will be reduced.

Type-C Charging Method

Connect the AC Adaptor to the Type-C Jack. The LED begin to flash RED-indicating that charging is in progress. The LED will turn GREEN when the battery is fully charged.

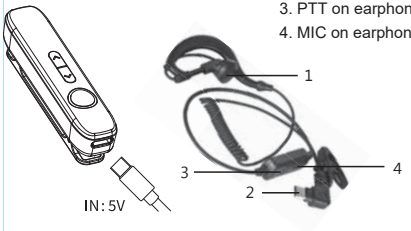
Note: When radio is in charging status, TX is inhibited.





1. POWER ON/OFF/ Chargering Indicator
2. Programming/Chargering/ Earphone Jack
3. Increase Volume/Channel+
4. Decrease Volume/Channel-
5. Fixed Belt Clip

1. Speaker on earphone
2. Type-C Jack/Interface
3. PTT on earphone
4. MIC on earphone



Power-on Key Setting

The power-on key can be re-assigned to any of the following functions by programming.
Customers can select it by short pressing.

Kindly note: If long press around 3seconds, the radio would power ON or OFF.

- NONE
- Channel Scan
- Channel Lock
- Battery Indicator
- Squelch OFF
- VOX ON/OFF
- Channel Broadcast

None: None operation functions

Squelch OFF: When the squelch is turned on, no matter how setup, the speaker can be forcibly turned on in this mode to listen to any sounds on the channel. If there is no audio signal on the channel, listen to the background noise; if there is an audio signal, listen to the audio. Press the [Squelch OFF] key to cancel the squelch function.

Channel Scan: A listening method used to hear calls on all channels. Press the key programmed as [Channel Scan] , the radio will scan the channel numbers in the queue one by one on time. While scanning, the green light flashes. When a signal is received on a certain channel and the signaling type matches, the status indicator light stays green. Press this key again to exit scanning.

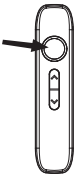
VOX ON/OFF: Press the key programmed as [VOX ON/OFF] to turn on or off the VOX. The VOX is invalid without plugging into headphones. If VOX is turned on, there is no need to press the call button, as long as the microphone of the radio detects a voice, it will automatically start transmitting to achieve VOX calls.

Channel Lock: Press the key programmed as [Channel Lock] to lock the current channel.

Channel Broadcast: Press the key programmed as [Channel Broadcast] to broadcast the current channel number.

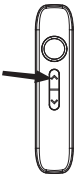
Battery Indicator: When need to know the remaining power of the radio, press the programmed [Battery Indicator] button, and the status indicator light will indicate the battery power through different colors. Press thi s key again to exit the battery indicator function. Status indicators of different colors indicate different battery storage capacities: 70%-100% blue light is on, 50%-70% red and blue lights are on at the same time, and 30%-50% red light is on.

■ Power ON/OFF



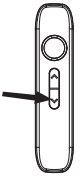
1. Power ON: Press and hold the power button for 2 seconds, two voice alerts “beep, beep” will be heard, the radio will flash blue light to indicate power on.
2. Power OFF: Press and hold the power button for 2 seconds, two voice alerts “beep, beep” will be heard, the radio with flash red and blue lights to indicate power off.

■ Volume Adjustment



1. Short press the [VOL+/CH+] key to increase the volume level;
2. Short press the [VOL-/CH-] key to decrease the volume level.

■ Channel Selection



If you enable the voice broadcaset function, the radio will broadcast the current corresponding channel number.
Long press the [VOL+/CH+] key to increase the channel from CH1 to CH16; long press the [VOL-/CH-] key to decrease the channel from CH16 to CH1.

■ Receiving

When radios receive any signal, the LED indicator will turn green, you can hear the calling.

Note: If the transceivers has set at higher squelch level, it may fail to heard the calling. If the LED indicator turns green but can not hear the calling, that means the signal is with matching carrier but dis-matching CTCSS/DCS.

■ Transmitting

Hold PTT to start transmitting. Please hold the microphone approximately 2.5~5.0cm from your mouth, and the speak into microphone in your normal voice to get the best timbre.

Note: The LED indicator will turn red when transmitting, release PTT to standby or receive callings.

■ CTCSS/DCS

Allow the user to select a specific CTCSS/DCS code per channel via programming software.

If CTCSS/DCS has been set on the current channel, CTCSS/DCS match is required for radio to unmute to an incoming signal.

If CTCSS/DCS is not set, the radio can receive calls from all users operating on the same frequency.

Your dealer may program the current channel with CTCSS/DCS, to prevent unwanted conversation on the same frequency.

This feature does not mean that your conversation will not be heard by others. Radios with the same CTCSS/DCS can receive calls from you.

■ Time-out Timer (TOT)

The purpose of the time-out timer is to prevent any caller from using a channel for an extended period and avoid any damage caused by long time transmission. Once a continuous transmission exceeds the preset time (Programmable by dealer), the transceiver will automatically stop transmitting and emit a warning tone until the PTT is released. Time-out timer range: 30-240s, steps: 30s, default: 180s.

■ TOT Re-Key Time

When this function is activated, transmission will be prohibited until TOT Re-Key Time expires, even if you have pressed the PTT key.

Range: 0~60S.

Default: 0

■ TOT Reset Time

If the time interval between two transmissions is less than the TOT Reset Time, they will be deemed as a continuous transmission.
When this function is activated, the TOT continuous even after PTT is released unless the TOT Reset Time has expired.

■ Busy Channels Lockout (BCL)

When the BCL function is enabled, the transceiver will not transmit on a channel that is already in use, to avoid disturbing other transceiver using the same frequency, Press the PTT on the busy channels, the radio will sound an alert tone and turn back to the receive mode.
Carrier: If BCL is set on the current channel, press the PTT key while the channel is already in use, and the radio will sound beeps without transmission.
CTCSS/DCS: If CTCSS/DCS and BCL are set on the current channel, press the PTT key while the channel is already in use, and the radio will sound beeps without transmission.

■ Battery Save

If this function is programmed by your dealer, the transceiver will automatically switch to battery save mode when there is no receiving and no operation for more than 10 seconds. When the transceiver receives an incoming signal or is used to transmit, the battery save mode switch off automatically. Battery save can be programmed ON/OFF by PC software programming.

■ Low Battery Alert

The RED LED flashes and the radio sounds “Please change the battery” every 30seconds, to alert the user to recharge the battery or replace it with a fresh one when the battery power runs low.

■ Dual Standby Channel

Once the radio turns on dual standby function, it can receive other signal from another dual standby channel on the current channel. After receiving the signal from the dual standby channel, it will transmit at the received standby channel frequency within 5 seconds. If none operation after more than 5 seconds, it will transmit at the current channel frequency again.
Note: Turnning ON or OFF the dual standby function or designating second standby channel is editable through programming software

Troubleshooting

Problem	Solution
The transceiver does not work when switched on.	The battery is low.Please recharge the battery pack and make sure the battery pack is properly fitted or insert a fresh battery, refit it if necessary. Swap the battery onto another radio to check if one is available.
The battery runs out in a short time.	The battery is no longer in good condition and needs to be replaced with a new one.
The radio can not communicate with other units in the same user group.	The radio is out of usable range, is not on the same channel, is not of the same model type, or the CTCSS/DCS/CC Code/Group ID settings and/or frequencies are incorrect and do not match. Please reset it.
The radio receives unwanted transmissions.	Change the channel of all radios in the required group to a quiet channel, or change CTCSS/DCS of all the radio in the required group.

Maintenance and Cleaning

Do not carry the transceiver by the antenna or attached audio accessories. Always turn the transceiver OFF when attaching or detaching audio accessories. Clean the button, control knob and radio body with a dry cloth when it has been unused for a long time or became dirty.

Frequency Range	400-470MHZ/446MHz/462MHZ/467MHZ
Channel Capacity	16Channels
Audio Distortion	≤5%
Carrier Tolerance	5ppm
Clutter Radiation	≤60dB
Adjacent channel Selectivity	25K≥65dB 12.5K≥60dB
Receiving Sensitivity	-122dBm (12dB SINAD)
Squelch Sensitivity	0.15uV
Power Output	0.5W
Emission Current	≤0.8A
Modulation Method	25K/16KΦF3E 12.5K/8KΦF3E

Note: PMR446 & FRS only support 12.5K, RF Power 0.5W max.

Sub-tone Table

50 Groups CTCSS

67.0	85.4	107.2	136.5	165.5	186.2	210.7	254.1
69.3	88.5	110.9	141.3	167.9	189.9	218.1	
71.9	91.5	114.8	146.2	171.3	192.8	225.7	
74.4	94.8	118.8	151.4	173.8	196.6	229.1	
77.0	97.4	123.0	156.7	177.3	199.5	233.6	
79.7	100.0	127.3	159.8	179.9	203.5	241.8	
82.5	103.5	131.8	162.2	183.5	206.5	250.3	

110 Groups DCS(N/I)

017	053	122	165	246	311	371	455	546	664
023	054	125	172	251	315	411	462	565	703
025	065	131	174	252	325	412	464	606	712
026	071	132	205	255	331	413	465	612	723
031	072	134	212	261	332	423	466	624	731
032	073	143	223	263	343	431	503	627	732
036	074	145	225	265	346	432	506	631	734
043	077	152	226	266	351	445	516	632	743
047	114	155	243	271	356	446	523	645	754
050	115	156	244	274	364	452	526	654	760
051	116	162	245	306	365	454	532	662	765

Warranty and Service

Quanzhou SFE Electronic Technology Co., Ltd warrants against defects in material or workmanship, for a period of 18 months for radio body, and for a period of 6 months for batteries and accessories, from the date of original purchase. This warranty is limited to repair or replacement of defective parts only and is not valid if the equipment has been tampered with, misused or damaged.

SAFETY STATEMENT INFORMATION

We declare that the radio is compliance with Radio equipment Directive (RED) 2014/53/EU. The device in the environment with the temperature between 0-40℃ and operating under 2000m, otherwise, it may damage your radio.

For this device, Head SAR and Body SAR was performed with the device configured in the positions according to EN 50566:2017 & EN IEC/IEEE 62209-1528:2021, and face-up SAR was performed with the device 25mm from the phantom, and Body SAR was performed with the device 0mm from the phantom. Body SAR was also performed with the headset and belt clip attached and without.

The maximum results of SAR (50% duty cycle) as follows:
Body back (0mm): 0.94W/Kg
Hand (0mm): 1.112W/Kg

CAUTION:
RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

FCC Warning Statement

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.

Compliance with RF Exposure Standards

The radio complies with the following RF energy exposure standards and guidelines:

- United States Federal Communications Commissin, Code of Federal Regulations; 47 CFR § 1.1307, 1.1310 and 2.1093.
- American National Standards Institute (ANSI)/ Institute of Electrical and Electronic Engineers (IEEE) C95.1:2005;Canada RSS102 Issue 5 March 2015.
- Institute of Electrical and Electronic Engineers (IEEE) C95.1:2005 Edition

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

FCC Regulatory Conformance

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) this device must accept any interference including received interference that may cause undesired operation.

The grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment.

Replacement of any transmitter component (crystal, semiconductor, etc) not authorized by the FCC equipment authorization for this radio could violate FCC rules.