SFE ®

—Rugged-reliable Two-way Communications
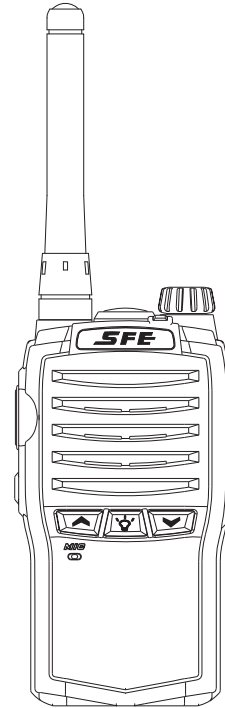
SD618 Series
Professional Two-way Radio

USER MANUAL

Introduction

Thank you for 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

Contents

Safety Information

Please read the following information carefully to become familiar with your new SFE two-way radio SD618:

◆　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 too 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.

◆　Do not place a radio in any area,such as in dusty,wet places or uneven surfaces.

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:

ITEM	QUANTITY
SD618 Two-way Radio	x1
Li-Ion Battery	x1
AC Adaptor	x1
Intelligent Charger Pod (optional)	x1
Antenna	x1
Wrist Strap	x1
Belt Clip	x1
User Manual	x1

■ Radio Diagram
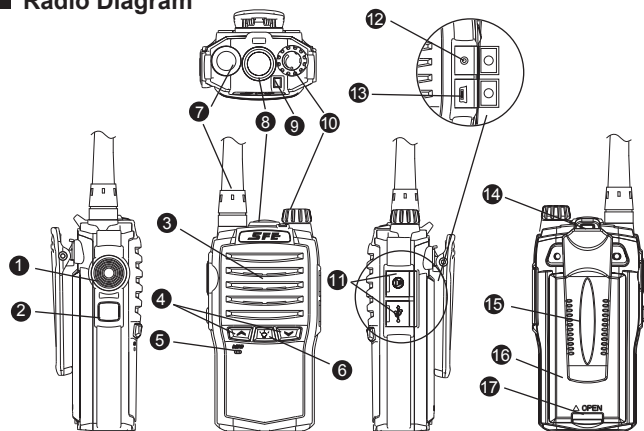
(1) PTT(Transmit Button)	(10) Power ON/OFF Knob
(2) Side Key(Programmable Function)	(11) Headset Cover
(3) Speaker	(12) Headset Jack
(4) "⌃" "⌄" Channel Switch	(13) Mini USB Jack
(5) Microphone	(14) Handstrap Hole
(6) Led Torch Switch	(15) Belt Clip
(7) Antenna	(16) Battery Cover
(8) Light&Charging Indicator	(17) Battery Push Button
(9) Status Indicator	

⚠ Caution:

Li-ion battery packs and flammable objects. Mishandling may cause the battery to rupture producing flames or extreme heat. Please take note of the following precautions.

● In order to avoid damage to the battery, only use the charger provided. The supplied charger is an intelligent charger and has automatic overload-protect functions built in.

● The optimal charging temperature is between 10°C and 35°C. Whencharging in temperatures below 10°C there may be a leakage of electrolyte which will damage the battery. If charging above 35°C, battery performance will be reduced.

● Do not recharge the battery pack if it is already fully charged as this will cause damage and shorten the life of the battery.

● Do not short-circuit the battery pack or dispose of in a fire. Never attempt to remove the casing from the battery pack.

● Do not immerse the battery in water or allow it to get wet by other means.

■ Battery Charging

1. If the Red LED flashes and the radio sound a beep every 30s after install the battery into radio, that means the battery is low. Please use the AC Adaptor supplied to charge the battery. Connect the AC adaptor to the USB Jack. (See Figure 1)

2. Please use the intelligent Charger Pod optional accessory to charge the battery. Connect the Ac adaptor to the charger pod. Place the battery into the charger(check the battery is properly in place).
(See Figure 2)

The red LED will begin to flash – 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.

AC 110~220V

Mini USB

Battery

DC 5V

Figure 1

Charging Indicator
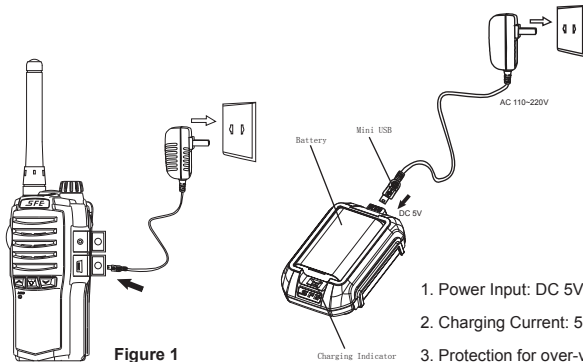
Figure 2

1. Power Input: DC 5V.

2. Charging Current: 500mA.

3. Protection for over-voltage,

   over-charge, short-circuit.

■ Installing/Removing the Battery Pack

Make sure the radio is turned off. Hold the top of radio body, push the battery button with finger along with the direction shown as ① , lift the battery cover, and remove it from behind. (See Figure 3)

①
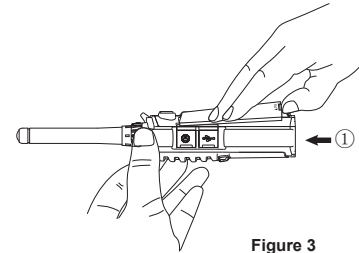
Figure 3

Place the rechargeable battery pack onto the back of the radio making sure the tabs are located correctly in the bottom of the radio and the battery retention catch is fully open (It will only fit in one way). Press the battery pack firmly against the radio body and close the battery retention catch clicking it firmly into place. (See Figure 4)
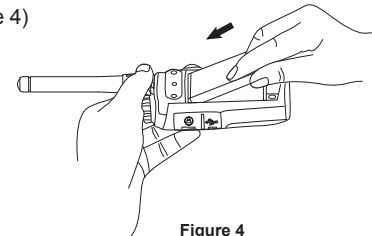
Figure 4

Snap the battery pack into place until you heard a click. Check that the battery pack fits tightly in place against the body of the radio.
(See Figure 5)
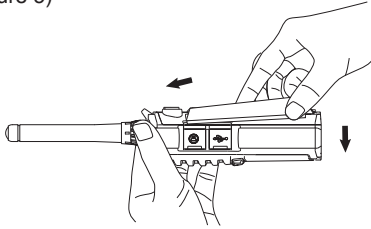
Figure 5

To remove the battery pack, pull open the battery retention catch and lift the battery pack from the body of the radio. (See Figure 6)
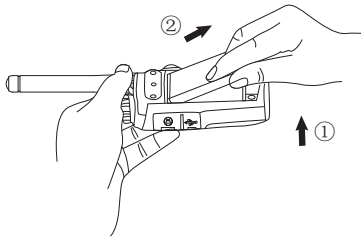
Figure 6

■ Installing/Removing the Antenna

Screw the antenna into the connector on the top of the radio by holding the antenna at its base and turning it clockwise until it is secure. (See Figure 7)

To remove the antenna, hold the antenna at its base and turn it counter-clockwise until it is released from the thread.

Figure 7

Note: S618PMR version is with fixed antenna, so if this is a S618PMR radio, the antenna is not allowed to installed or removed, please noted!

■ Installing/Removing the Belt Clip

Hold the Belt Clip to the back of radio taking care to line up the holes, insert the belt clip retention screws and tighten with a screwdriver. (See Figure 8)

To remove the Belt Clip, unscrew the screws (anti-clockwise) with a screwdriver and remove the belt clip.
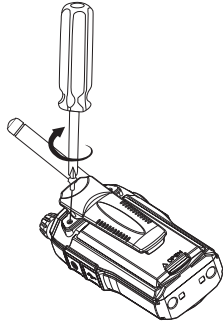
Figure 8

■ Installing an Earpiece
Turn the radio OFF. Open the Speaker/microphone plastic cover with your fingernail, and then insert the speaker/microphone plug into the SP/MIC jacks making sure it is all the way home, then turn the radio on. Remember to turn off the radio before removing the Earpiece. (See Figure 9)
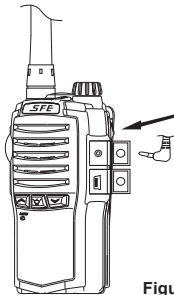
Figure 9

■ Power ON/OFF
Turn the On/Off/Volume knob clockwise to switch the radio ON.
Turn the On/Off/Volume knob counter-clockwise to switch the radio OFF.

■ Channel Selection
Press the channel button to select the required channel. The current channel number will be heard.

■ Volume Adjustment
Rotate the Volume knob to adjust the volume, clockwise to increase the volume and counter-clockwise to decrease it.
If your dealer programmed Monitor onto side key, you can press Monitor key to hear background noise while adjusting the volume level.

■ LED Torch
Press the LED Torch Switch, LED lights, press again to close it.
Press the LED Torch Switch for 3seconds, the LED will flash, press again to close it.

■ **Emergency Alert**

To activate the emergency alert, in standby status, long press the side key which programmed as "Emergency Alert" for 3 seconds until the radio emits alarm to your partner or systern. Repreat the above steps or re-power on the radio to exit.

■ **Receiving**

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

Note: If the transceiver has set at higher squelch level, it may fail to hear the calling. If the LED indicator turns green but cannot 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 then 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.

The side key can be re-assigend to any of the following functions by programming sofrware and you can select "short press" or "long press" (with long press duration 0.5-2.5 seconds) as per your request.

-None   -Zone Up   -Zone Down   -Power Adjustment
-Squelch OFF   -Monitor   -Talk Around   -Scan ON/OFF
-VOX ON/OFF   -Local Alarm   -Remote Alarm
-Remote Monitor   -Remote Stun   -Remote Kill
-Remote Activation

Functional Description:

None: No Functions
Zone Up: Switch to the previous zone(Range:Zone 1- Zone 4)
Zone Down: Switch to the next zone(Range:Zone 1- Zone 4)
Power Adjustment: Switch between HIGH/LOW power output
Squelch OFF: In analog mode,squelch will be ON after press the side key,press again to exit.
Note: This function is invalid in digital mode.
Monitor: In analog mode,press pre-programmed monitor key to open signaling squelch so that audio conversation can be heard when the signal is weak.
Note: This function is invalid in digital mode.
Talk Around: Press this programmed key,the RX frequency will be used in place of the TX frequency when transmitting.
Note: After Talk Around function is activated,both receiving frequency and receiving signaling will be used in place of the transmitting frequency and signaling when transmitting.

Scan ON/OFF: Press the programmed scan key to initiate radio scanning from the current channel,and scanning ascends through the channel numbers in scan list.The green/blue LED flashes when scanning proceeds,and solidly glows when a signal is received with signaling match on a channel.Press the scan key again to exit radio scanning.The scan status will not be memorized after the radio being restart. **JCL˙CB#C:：.**Œ‹e‹^¦Å‹•^¦‹ĉ^åÅ‹ã‹ĉ@Á‹æ]‹æ‹&^Éˆ¦‹^••Å‹ĉ@‹Á‹¦[*¦æ‹{^åÅ‹ĤÚÝÅ‹ÚÞĐ‹ØØÁ\^^Á‹Æ‹æ&‹ĉ‹æ‹Á‹¦Å‹æ‹æ‹|^Å‹ÚÝÁ‹}&‹ĉ‹}È**Bc˙Y.**V@‹æ‹Á‹}&‹ĉ‹}‹Æ‹Å‹ĉ‹æ‹ã‹Á‹ĉ@‹‹ĉˆ^‹æ^‹¦Å‹ĉ^åÅ‹ã‹ĉ@‹æ‹Á^æ]‹æ‹&^È‹Š[&‹æ‹ŒÆ‹æ‹{K¦^••Å‹ĉ@‹Á‹]¦[*¦æ‹{^åÁ^^ÁÆ‹æ&‹ĉ‹æ‹æ‹Đ‹æ‹ã‹æ‹|^Á[&‹æ‹Á‹æ‹æ‹{Á‹}&‹ĉ‹}Ě‹æ‹åã‹¦Á‹ã¦Á^{ã‹Á[}Ě‹ã‹ĉ^Á‹æ‹æ‹{Á‹ĉ[}^Á‹æ‹ĉ^¦Å‹æ&‹ĉ‹æ‹æ^‹åĚĉ@‹æ‹Á‹}&‹ĉ‹}Æ‹æ‹Á@‹|]˜|Á‹¦¦Á^{^¦*^}&^Á¦^•&˙^È

Remote Alarm:Ú¦^••Å‹ĉ@‹Á‹¦[*¦æ‹{^åÁ^^Á‹Æ‹æ&‹ĉ‹æ‹æ‹^Á^{[ĉ^åæ‹æ‹{Á˜}&‹ĉ‹}Å‹ĉ@‹Á‹¦Ä‹æ^-ã‹^åÅ‹æ‹æ‹ã‹æ‹Ě‹]}&^Å^{[ĉ^åæ‹æ‹{Á˜}&‹ĉ‹}Å‹æ&‹ĉ‹æ‹æ‹^åÁ•^&&‹•••˜||^Å‹ĉ@‹Å&‹æ‹|ã‹*Á‹æ‹åã‹¦Á‹ã¦Á^&^ã‹^Å‹æ&‹}[¸ ¦^ågement { ^••æ‹^Á^^}c from the pre-defined radio.

Note: This function is valid only in digital mode.

Remote Monitor: Press the programmed key to activate remote monitor function in the pre-defined radio,once remote monitor function activated successfully the calling radio will be able to monitor the conversation in the pre-defined radio.

Note: This function is valid only in digital mode.

Remote Stun: Press the programmed key to remote stun the pre-defined radio by sending remote stun code.Only receiving and is allowed for a stunned radio(Transmitting is prohibited).

Note: This function is valid only in digital mode.

Remote Kill: Press the programmed key to remote kill the pre-defined radio by sending remote kill code.Transmitting and receiving are prohibited for a killed radio,and can be revived only by PC software programming with revived code.

Note: This function is valid only in digital mode.

Remote Activation: Press the programmed key to remote revive the pre-defined radio having been stunned by sending remote revive code.

Note: This function is valid only in digital mode.

Basic Setting
Radio ID
Each radio can be assigned with an ID number,which is useful and can be identified by other users to place an individual call/group call or to send text info etc.ID Range:1-16776415.

Note: This function is valid only in digital mode.Remote monitor period(second):10-120s(optional)

Language Selection
User can select English or Chinese as display language and voice prompt language.

SQ(Squelch Level)
Squelch level can be programmed from level 0 to level 9,receiving sensitivity is the lowest when set in level 9.

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.

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:30-600s,steps:30s,default:180s.

Alert Tone Settings
Power ON Tone:ON/OFF selective,transceiver will emit tone "Deng Deng Deng..."when switched ON/OFF:

Lower Battery Alert:ON/OFF selective,transceiver will emit alert tone "Deng Di Deng..."If the power is lower than preset value,users should charge the battery or replace with a new battery in time,or the transceiver will stop transmitting if users continue using it.

3.Keypod Tone:ON/OFF selective

4.Digital Calling Tone:ON/OFF selective,in digital mode transceiver will emit an alert tone"Deng"automatically once after PTT pressed,this is used to alert its in digital mode and also transmitting is ongoing.

5.Channel Voice Prompt Tone:ON/OFF selective.

Channel Information

Zone Name

Users can input new name for zone 1 and zone2,the name can be programmed as number,symbol,English letter and Chinese character up to 9 digits.

Channel Name

Users can input new name for each channel,the name can be programmed as number,symbol,English letter and Chinese character up to 9 digits.

General Part

RX/TX Frequency: Users in able to input/change RX/TX frequency for each channel,and the frequency must be consistent with the frequency step rule and within frequency range.

Working Mode: Digital/analog mode is selective for each channel.

Output Power: High/Low power selective for each channel.

Transmitting Limit

Always Allow: Transmitting is always allowed.

Channel Free: Transmitting is allowed only when current channel is free.

CC(color code)Match: Transmitting is allowed only when color code of the incoming call is matched with the transceiver.

Bandwidth:12.5KHz for digital channel,12.5KHz/25KHz for analog channel.

Only RX: Only receiving is allowed for the current channel, transmitting is prohibited.

Digital Part

RX CC(Receiving color code): Transceiver will receive incoming call when receiving color code matched,RX CC is 0-15 selective by PC software programming.

TX CC(Transmitting color code):TX CC is 0-15 selective by PC software programming.

TX Contact(Transmitting Contact)

There are maximum 128 transmitting contacts for users to select, each transmitting contact can be programmed as individual call,group call or all call.

Dual Capacity Direct Mode(DCDM)

Dual Capacity Direct Mode(DCDM) feature supports two simultaneous subscriber transmissions within a 12.5KHz channel bandwidth for Direct Mode transmissions.The radios within the same group must use the same time slot so that the group using time slot 1 does not interfere with the group using time slot.When a 12.5KHz RF channel is configured for dual capacity direct mode,both time slots are available for independent and simultaneous radio call conversations.

RX Group List: This option is to configure receiving channel list to the current channel.When matched calling group ID from the list detected,the receiving transceiver will open the speaker to receive audio.

Voice Encryption: This function allows user to program voice encryption code to th current channel,conversation is allowed between radios only when same encryption code are programmed.Code Range:0-65535.

Time Slot Selection: This function is used for dual capacity direct mode(DCDM) and working through repeater, each digital channel can be configurate with time slot 1 or time slot 2.

Analog Part

RX Sub-tone Type/TX Sub-tone Type: None/CTCSS/DCS/Reverse DCS selective

Digital Contact(Valid only for digital channel) Individual call/Group call/All call are available for selection,the transceiver supports maximum 128 digital contacts.
This allows user to add digital contacts and input Alias containing numbers,symbols,letters and Chinese characters up to 9 bits,Range of numbers:1-16776415.

RX Group List(Valid only for digital channel)
This allows user to create/delete receiving group list by adding/deleting members(contacts),group list name can be changed to an Alias(up to 13 bits containing numbers,symbols,letters and Chinese characters). The transceiver supports maximum 32 receiving group lists and maximum 10 members to each group call list.

Scan List
This function allows user to create/delete scan list by adding/deleting channels to be monitored,scan list name can be changed to an Alias(up to 11 bits containing numbers,symbols,letters and Chinese characters).The transceiver supports maximum 8 scan lists and maximum 16 channels to each scan list.

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't 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 re-set it.
The radio receives unwanted transmissions	Change the channel of all the 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 buttons, control knob and radio body with a dry cloth when it has been unused for a long time or becomes dirty.

Specification

General	
Frequency range	400-480MHz/350-390MHz/136-174MHz
Channel capacity	32CH
Channel Zone	2 Zones
Channel spacing	12.5KHz/25KHz
Operating voltage	3.7V DC ±10%
Battery capacity	Li-Ion battery 1800mAh
Operating temperature	-20°C to + 60°C
Antenna impedance	50 Ω
Weight	about 126g (including battery and antenna)
Dimensions	90mmx46mmx27mm (exclude projection)

Receiving	
Frequency Senstivity	Analog:12dB SINAD:0.22uV Digital:5% BER:0.25uV
Adjacent-channel selectivity	65/60dB(25KHz/12.5KHz)
Inter-modulation	60/55dB(25KHz/12.5KHz)
Audio Output	≤1W
Hum&Noise	40dB

Transmitting	
Output Power	2W/1W
Modulation Limiting	±2.5@12.5KHz/±5.0@25KHz
Conducted Spurious Emission	-36dBM<1GHz/-30dBm>1GHz
FM Hum&Noise	45/40dB
Audio Distortion	≤3%
Frequency Stability	±1.5ppm
Analog Modulation	11KΦF3E@12.5KHz/16KΦF3E@25KHz
4FSK Digital Modulation	12.5KHzDta:7K60F10/7K60FXD
	12.5KHzVoice:7K60F1E/7K60FXE
Digital Protocol	ETSI TS 102 361-1,-2,-3

All stated specifications are subject to change without notice or obligation.

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

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.

This manual is special for transceiver SD618 series.