STC-903D

Digital Radio

SANCHAR
WIRELESS COMMUNICATIONS LTD.

INSTRUCTION MANUAL

THANK YOU

Thank you very much for choos ingour SANCHAR Digital DMR and Analog two way radio.

This radio adopts the latest advances in technology, providing reliable communication in today's demanding communication environment.

This radio offers both DMR digital and analog communication, introduces innovative DMR digital processing system to achieve high-audio quality and digital encryption. It offers great stability, and reliability, together with long distance communication STC-903D well as fashionable design and compact exterior lines. STC-903D has Recording (Optional), Voice Message, Digital Encryption, Emergency Alarm, Man Down Alarm (Optional), Work Alone, Vibration, Analog DTMF, 2TONE, 5TONE, CTCSS/DCS encode/decodefunctions.

When programming the radio, start by reading the factory software data, and then rewrite this data with your frequencyetc.,

to a new saved code plug, otherwise errors may occur.

» You can use the programming cable with a PC to program the frequency, channel type, power etc. your programming must comply with your FCC (or other country) license certification.

SANCHAR

UNPACKING AND CHECKING EQUIPMENTS

Unpack the radio carefully. We recommend that you identify the items listed in the following table before discarding the packing materials. If any items are missing or have been damaged during shipment, please contact the carrier or the dealers immediately.

SUPPLIED ACCESSORIES

Item Name	Quantity
Antenna	1
Li-ion Battery Pack	1
Battery Charger	1
AC Adaptor	1
Belt Clip	1
Hand Strap	1
Instruction Manual	
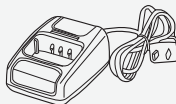
Antenna   Handstrap   Charger   Battery   Belt Clip

Note: For frequency band of antenna, please refer to label indicated in the bottom of the antenna.
Note: Car Charger and Sanchar Charger should be used together

1.3 OPTIONAL ACCESSORIES

Earphone

Li-ion Battery Pack

USB Programming

Car Charger

Battery Eliminator
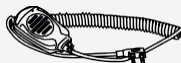
Speaker Microphone

Carrying Case

BATTERY INFORMATION

2.1   Charging the Battery Pack
The Li-ion battery pack is not charged at the factory; please charge it before use.
Charging the battery pack for the first time after purchase or extended storage (more than 2 months) may not bring the battery pack to its normal maximum operating capacity. Best operation will require fully charging/ discharging the battery two or three times before the operating capacity will reach its best performance. The battery pack life may be depleted when its operating time decreases even though it has been fully and correctly charged. If this is the case, replace the battery pack.

2.2   Charger Supplied
        Please use the specified charger provided by SANCHAR. Other models may cause explosion and personal injury. After installing the battery pack, and if the radio displays low battery with a red flashing lamp or voice prompt, please charge the battery.

2.3   Use Caution with the Li-ion Battery
        a.   Do not short the battery terminals or throw the battery into a fire. Never attempt to remove the casing from the battery pack, as SANCHAR cannot be held responsible for any accident caused by modifying the battery.
        b.   The ambient temperature should be between 5□-50□ (40˚F – 105˚F) while charging the battery. Charging outside this range may not fully charge the battery.
        c.   Please turn off the radio before inserting it into the charger. It may otherwise interfere with correct charging.

d.   To avoid interfering with the charging cycle, please do not cut off the power or remove the battery during charging until the green light is on.

e.   Do not recharge the battery pack if it is fully charged. This may shorten the life of the battery pack or damage the battery pack.

Do not charge the battery or the radio if it is damp. Dry it before charging to avoid damage.

BATTERY INFORMATION

WARNING:

» When keys, ornamental chain or other electric metals contact the battery terminal, the battery may become damage or injure a human. If the battery terminals are short circuited it will generate a lot of heat. Take care when carrying and using the battery. Remember to put the battery or radio into an insulated container. Do not put it into a metal container.

2.4   How to Charge

a.   Plug the AC adaptor into the AC outlet, and then plug the cable of the AC adaptor into the DC jack located on the back of the charger. The indicator light blinks orange and is then ready to charge a battery.

b.   Plug the battery or the radio into the charger. Make sure the battery terminals are good in contact with charging terminals. The indicator light turns to red--- charging begins.

c.   It takes approximately 2-4 hours to fully charge the battery. When the lamp lights green, the charging is completed. Remove the battery or the radio unit with its battery from socket

BATTERY INFORMATION

when charging a radio (with battery) the indicating lamp will not turn in to green to show the fully charged status if the radio is powered on. Only when the radio is switched off will the lamp indicate normal operation. The radio consumes energy when it is power-on, and the charger cannot detect the correct battery voltage when the battery has been fully charged. So the charger will charge the battery in constant voltage mode and fail to indicate correctly when the battery has been fully charged.

BATTERY INFORMATION

e. Charging Process

Charging Status	Indicator Status
Standby (Self-examine lights red 1second when power on)	None
Charging (Charge in a constant current)	Lights red for about 3 hours
Fully charged (Charge in a constant voltage)	Lights green

f. LED Indicator:

STATUS	LED
Self-Test When Power on	Red (for 1 second)
No Battery	Green
Charge Normally	Red
Fully Charged	Green
Trouble	Red blinks fast for a long time

Trouble means battery too warm, battery short-circuited or charger short-circuited

2.5 Normal ChargingTips

a. Self-Test:When powering on the charger,the red light turns on and then turns off and stays off, which means the charger has passed it self- test and it is ready to charge the battery. If the light remains orange or the red light blinks, it means the charger cannot pass it self-test and cannot charge the battery.

b. Trickle Pre-Charging: If red light blinks when the battery is inserted into the charger, it means that the battery voltage is low and the charger is trickle-charging the battery (Pre-Charging Mode). The charger will automatically turn into normal charging when the battery reaches a certain electric charge, and if the red light stops blinking, it means the battery voltage has reached a certain level, and the charger will charge the battery in normal mode.

BATTERY INFORMATION

Trickle charging (Pre-Charging Mode) time cannot last beyond 30 minutes. If the indicating lamps till blinks red after 30-minute

trickle-charging, it means that the charger cannot charge the battery correctly. Please check whether the battery or charger is damaged.

2.6 How to Store the Battery

a. If the battery needs to be stored, keep it in status of 80%discharged.

b. It should be kept in low temperature and dry environment.

c. Keep it away from hot places and direct sunlight.

PREPARATION

3.1 Installing / Removing the Battery

a. Match the two bottom grooves of the battery pack with the corresponding guides on the back of the radio and then push it.

To remove the battery pack, slide the release latch at the top away from the battery and remove the pack away from the transceiver [MONI] button. It is very helpful when you want to adjust the volume level and receive the weak signals.
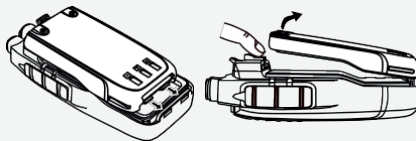
3.2 Installing / Removing the Antenna

a. Installing the Antenna: Screw the antenna into the connector on the top of the transceiver

by holding the antenna at its base and turning it clockwise until secure.

b. Removing the Antenna: Turn the antenna counter-clockwise to remove it.
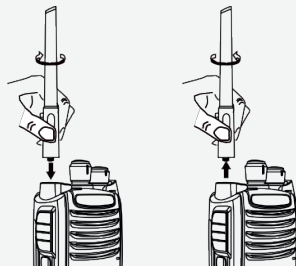
PREPARATION

3.3 Installing / Removing the BeltClip

a. **I**nstalling the Belt Clip: Place the belt clip above the corresponding holes on the back of the radio, and screw it into place clockwise with the two supplied screws.

b. Removing the Belt Clip: Unscrew counter-clockwise to remove the belt clip.
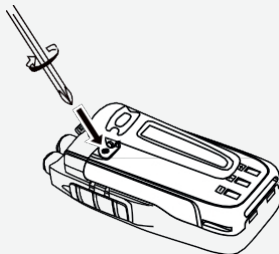
3.4 Installing the Additional Speaker /Microphone (Optional)

a. Pry open the rubber MIC-Headset jack cover and then insert the Speaker / Microphone plug into the double jack.

RADIO OVERVIEW

Antenna

Channel Switch

POWER/VOL

LED Status Indicator

Emergency Alarm
Key (PF3)

Speaker

MIC Input

PTT Button
Speaker/Mic Jacks

[PF1] top Key
[PF2] bottom Key
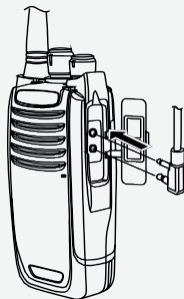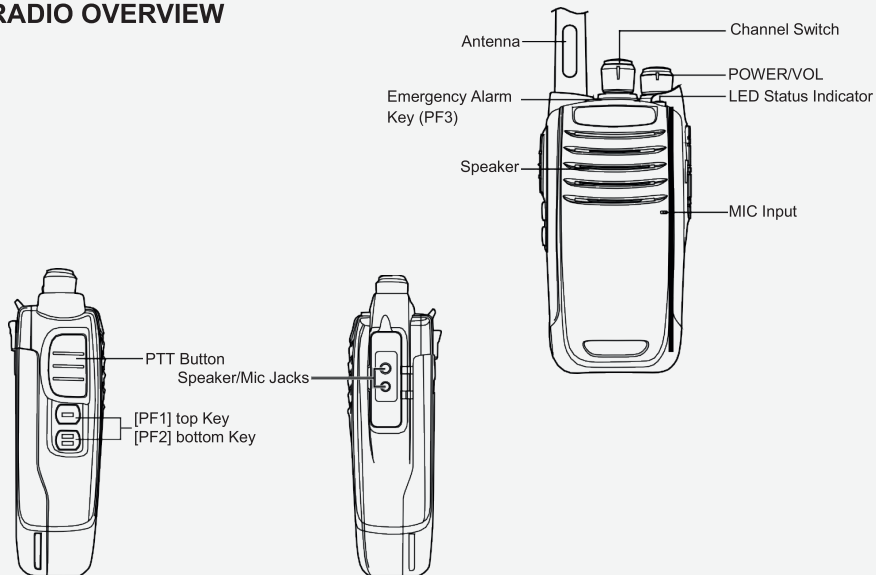
RADIO OVERVIEW

Status Indications

The top LED will help you to identify the current radio status.

LED Indication	Status
Flashes Red	*Low battery voltage*
Constant Red	*Transmitting*
Constant Green	*Analog Receiving*
Constant Cyan	*Digital Receiving*
Flashes Green	*Scan*
Constant Purple	*Save the programming data into radio*
Constant Orange	*Power on indication*

BASIC OPERATIONS

5.1 Power on the Radio

Turn on the radio by turning the [Power/Volume] switch clockwise till a click is heard, and the LCD displays will show a start-up message, and you will hear a beep after 7 seconds.

BASIC OPERATIONS

5.2 Adjust Volume

Rotate the [Power/Volume] knob to adjust the volume. Turn clockwise to increase the volume and counterclockwise to decrease the volume. The LCD display will show the volume status during an adjustment.

5.3 Select a Zone

Assign a key to Zone Switch function in CPS, press the key to select the zone.

5.4 Select a Channel

Turn the channel switch to select a channel.

5.5 Receiving and Responding to a Radio Call

When the radio is in the digital mode, it can receive and respond to a call with the same frequency/color code/ slot. When receiving a call:

a. If the radio is programmed with Call Alertin CPS-OptionalSetting-Alert

Tone, when receiving a call, the radio will ring briefly.

b. The blue LED lights up.

c. When the call is ended, you can press [PTT] to respond the call.

5.6 Making aCall

Turn the channel switch to choose a programmed channel.

Hold the radio vertical 2.5-5cm from your mouth, press the [PTT] key to start the call, the red LED lights up, if the radio is programmed with "talk permit", the radio will ring briefly, later you can start the talk. Release [PTT] key to receive the reply.

BASIC OPERATIONS

5.7 Monitor

In standby, press the [PF2] key to enter Monitor. When receiving matched carrier but the signaling / ID is unmatched or the signal is too weak, this function allows monitor the weak signal and signal with unmatched ID. Press the [PF2] key again to shut off speaker and return to standby.

When in analog mode, if no signal, it will emit noise when press the Monitor Key.

5.8 Emergency Alarm

Press top orange Alarm key to turn alarm function, then press this key again to return.

5.9 Man Down Alarm

In CPS - Public - Alarm Setting, check on the "Man Down" alarm box, it will enable the Man Down Alarm function.

When the function is on, the radio will start an alarm if the radio is falling to the ground. Raise the radio to stop the alarm.

Note: When GPS is on and positioning successfully, it will auto send out the GPS information when the radio starts the alarm.

5.10 Battery Voltage Test

Press the key programed as Voltage function to check the current battery voltage, press this key again to return.

a. Power off the radio firstly.

b. Then power it on while holding the [PTT] and the [PF1] button below the PTT at the sametime.

c. Release the keys until the indicator lights blue color.

d. The reset is done when radio finish reboot.

PROGRAMMABLE FUNCTIONS

Top orange key, PF1 and PF2 key are programmable in CPS, it allows you assign the key as short, Long1 or Long2 function.

1)Short : Press the programmed key to activate the assigned function. 2)Long 1: Hold pressing the programmed key until the radio emits "Du" beep, release the key to activate the assigned function

3)Long 2: Hold pressing the programmed key, do not release the key even when the radio emits "Du" beep, the radio will activate the assigned function.

Please refer to below assigned functions for the programmable key.

(1)   Voltage

Check the current battery capacity voltage.

(2)   Power Switch

Switch the power between super high, high, middle and low power.

(3)   Repeater

Switch between Talk Around and Repeater mode. Talk around function will make the radio disconnect with repeater, two radios can communicate directly without repeater.

(4)   Reverse

Turn on/off the frequency reverse function. Reverse function is only valid in analog channel, the RX/TX frequency and CTCSS/DCS encode/decode will exchange when turn on Reverse function.

(5)   Digital Encryption

Press the programmed key, radio will pronounce with turn on the Digital Encryption or the digital encryption group. Repeat press the key to choose the digital encryption group or turn off the function.

This function is only valid in repeater channel, the TX and RX radio must use same encrypt code.

(6) AnaCall

In Analog mode, press the programmed key to send the DTMF/5TONE/2TONE encode. This function is only valid for analog channel.

(7) VOX Level

Set up the VOX level, radio will pronounce the vox level.

VOX function will allow the user start the TX by voice instead of pressing PTT.

(8) Emergency Alarm

Press the programmed key to start or exit the emergency alarm.

Emergency alarm should be set up in CPS-Public-Alarm Setting first.

(9) Record Switch

Enable/disable the recording function.

The radio is with standard 30hours recording for RX/TX communication in digital mode.

Also it has optional 500hours or 1000hours digital/analog recording, please contact with your dealers for the options..

(10) Monitor

Monitor the weak signal or the signal with unmatched ID.

If you use this function in analog channel, the radio will emit the background noise.

(11) Send Alarm

In digital channel, press the programmed "Send Alarm" key, the radio will pronounce "alarm" and the

number , repeat press the key, the number will change between 1-5. Press PTT key to send out the selected alarm in current channel.

This function is only valid in digital channel.

(12) Hot Key1-6

Press the programmed hot key to activate the assigned function.

Hot key should be set up in CPS-Public-Hot key first.

(13) Work Alone

Turn on/off the work alone function. When work alone function is turned on, the radio will start alarm when the response time is reached. Press any key or voice transmit will shut off the alarm.

Work Alone function should be set in CPS-Public-Alarm setting first.

(14) Phrase Record

In digital channel, press the programmed "phrase record" key, the radio will pronounce "record" and the number, repeat press the key, the number will change between 1-25.

Stay at the selected number, press PTT to talk and start recording, release PTT to end recording.

It will allow you make 25records.

This function is only valid in digital channel.

(15) Phrase Playback/Delete

In digital channel, press the programmed "Phrase Playback/Delete" key, the radio pronounce "Record playback" and the number. Radio will start at the number with recording, it will pronounce the recording.

Press PTT key to transmit the recording at current channel. Hold pressing PTT key to delete the recording.

This function is only valid in digital channel.

(16) RX&TX Record Replay

Press the programmed "RX&TX Record Replay" key, the radio will pronounce the last TX or RX recording.

The radio is with standard 30hours recording for RX/TX communication in digital mode.

Also it has optional 500hours or 1000hours digital/analog recording, please contact with your dealers for the options.

(17) Next Zone/ PrevZone

Press the programmed key to switch the zone.

Maximum 16zones, each zone with maximum 16channels.

(18) Mic Level

Allow to switch the microphone gain level, total 5levels for optional.

(19) Mic Quality

Allow to adjust the sound to high pitch or low pitch, the RX radio will hear better sound.

This function is only valid in digital channel.

(20) Scene Mode

When radio is receiving, press the programmed "scene Mode" key to get best sound quality.

This function is only valid in digital channel.

(21) GPS Report

Press the programmed key to turn on or turn off the GPS function. This function is only valid in digital channel.

(22) Status InfoReport

Press the programmed key to turn on/off the function. The status information will be transmitted when the function is on.

This function is only valid in digital channel.

(23) Record Report

Press the programmed key to turn on/off the function. The phrase record will be transmitted when the function is on.

This function is only valid in digital channel

RESET
a. Power off the radio firstly.
b. Then power it on while holding the [PTT] and the [PF1] button below the PTT at the same time.
c. Release the keys until the indicator lights blue color.
The reset is done when radio finish reboot.

TROUBLE SHOOTING GUIDE

PROBLEMS	SOLUTIONS
The radio cannot be switched on or no display after being switched on.	A. Battery pack may not be installed properly. Remove the battery pack and install it again. B. Battery power may be insuficient. Recharge or replace the battery pack.
The battery doesn't last very long after charging	The battery is defective; please replace it with a new battery pack.
Cannot talk to or hear other members in your group.	1. Make sure the frequency and CTCSS are the same as other members. 2. Make sure you are within range, and not too far away from your member. 3. Make sure you are set in correct digital mode, and frequency. 4. In digital mode, make sure set correct code and encrypt group is used in current channel. 5. In digital mode, make sure set correct receiving contacts and receiving group isused.
Other voices from non-group members are heard on the channel	Analog: Change the CTCSS/DCS Tone, and make sure to change the tone on all radios in your group

ON-LINE SERVICE AND SUPPORT

The SANCHAR website provides additional information about obtaining service or support for the SANCHAR line of two-way radios and accessories. Visit: **www.sancharcomm.in**

Warning Notes

Every effort has been made to ensure that the information in this document is complete, accurate, and up to-date. SANCHAR Radio assumes no responsibility for the results of errors beyond its control. The manufacturer of this equipment also cannot guarantee that changes in the equipment made by non-authorized users will not affect the information in it.

FCC Licensing Information

This SANCHAR 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 1-888-CALL-FCC (1-888-225-5322).

SAFETY

The SANCHAR STC-903D DMR handheld transceiver has been carefully designed to provide you with years of safe, reliable operation. As with all electrical equipment, however, there are a few basic precautions you should take to avoid hurting yourself or damaging the radio:

•   Read the instructions in this handbook carefully. Be sure to save it for future reference.

•   Read and follow all warning and instruction labels on the radio and owner's manual.

•   Do not carry the transceiver by the antenna. This may damage the antenna or antenna

terminal. Grasp the handheld by its base (not the antenna) when you need to place or remove it.

•   Do not keep the radio with the antenna very close to, or touching exposed parts of the body, while transmitting. SANCHAR radios will perform best, if you speak 2-4 inches away from the microphone and the radio is vertical.

•   Be sure the "PTT" key is not pressed when you do not need to transmit.

•   Do not operate the radio near unshielded electrical blasting caps or in an explosive atmosphere.

•   Do not transmit without the antenna fitted on the radio. Though it is provided with a protection, it may damage the TX output final stage.

•   Respect the environment conditions. The radio is designed to be used in heavy environments, however avoid exposing it to extremely hot or cold temperature (out of the range between –20°C to +55°C). Do not expose the transceiver to excessive vibrations as well as dusty or rainy locations.

•   Never try to disassemble or service the radio by yourself (aside from the routine maintenance described in this handbook). It may cause damage   to the radio transceiver and void your warranty requiring extensive repair work. Always contact your local dealer for assistance.

•   Use only authorized accessories. Using non SANCHAR radio brand accessories may seriously damage your handheld transceiver and void your warranty**.**

•   Do not spillliquidof any kind in to your radio. If the transceiver gets wet, immediately dry it by a soft and clean cloth.

•   Switch the radio of before you clean it. Follow the directions described in the paragraph "Care and maintenance".

•   Handle the battery properly**.** Never place the LI-ion battery in your pocket

or purse with loose coins. This could result in short circuiting the battery.

- Be certain that your power source matches the rating listed for the supplied battery charger (AC adapter). If you are not sure, check with your authorized SANCHARdealer.

- Avoid damaging the power cable of the battery charger. Do not step on or place anything on it as this could result in a damaged charger power cord. This product complies with the requirements of the Council Directives 89/336/EEC and 73/23/EEC on the approximation of the laws of the member states relating to electromagnetic compatibility and lowvoltage.

WARNING

Your wireless hand-held portable transceiver contains a low power transmitter. When the Push-to-Talk (PTT) button is pressed it sends out radio frequency (RF) signals. The device is authorized to operate at a duty factor not to exceed 50% TX and 50% RX.

In August 1996, the Federal Communications Commission (FCC) adopted RF exposure guidelines with safety levels for hand-held wireless devices. To maintain compliance with the FCC's RF exposure guidelines, this transmitter and its antenna must maintain a separation distance of least 2 inches from your face. Speak in a normal voice, with the antenna pointed up and away from the face at the required separation distance. The belt clip is for storage purposes only.

AVOID TRANSMITING ON HIGH POWER WHILE RADIO IS ATTACHED

TO YOUR BELT. To transmit, hold the device away from your body and ensure the antenna is at least 2 inches from your body when transmitting.

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