TYPE OF EXHIBIT:	SPX-400 USERS MANUAL
FCC PART:	2.1033 (c)(3)
MANUFACTURER:	RITRON, INC. 505 West Carmel Drive Carmel, IN 46032
MODELS:	SPX-400
FCC ID:	AIERIT19-450
DATE:	December 28, 2004
IC STANDARDS:	RSP-100, Issue 8, Section 7.2(b)
INDUSTRY CANADA:	1084A-RIT19450
MODELS:	SPX-400-CANADA

Included in this exhibit is a draft of the Users Manual for the Ritron Models SPX-400 UHF-FM Portable Transceiver. A copy of this manual will be included with every radio.

This manual provides the end user with operating instructions.

Signed: 

Kevin G. Matson - Project Engineer

Go Beyond Normal Limits...℠

RITRON®

WIRELESS SOLUTIONS

Preliminary Owner's Manual

Models: SPX-200
SPX-400

Note: Please read this manual carefully to ensure you know how to properly operate the radio before use.

Package Contents
Carefully unpack and check that all items have been enclosed.
- Radio & Antenna
- Ni-MH battery pack (1350mAh) & belt clip
- Desktop rapid charger (1350mAh) with adaptor
- Hand strap
- User's manual

For product-related questions and comments, please contact:

RITRON, INC.
505 W. Carmel Drive Carmel, IN 46032
P.O. Box 1998 Carmel, IN 46032
Ph: (317)846-1201 Fax: (317)846-4978 Email: ritron@ritron.com
Website: **www.ritron.com**

Contents

FCC Licensing Information
RITRON SPX Series professional two-way radios operate on radio frequencies that are regulated by the Federal Communications Commission (FCC). In order to transmit on these frequencies, you are required to have a license issued by the FCC. Application is made on FCC Forms 600 and 159.

Question regarding FCC license; contact the FCC at:
1-888-CALL-FCC
1-888-225-5322
Or: http://www.fcc.gov

Changes or modifications not expressly approved by Ritron, Inc. may void the user's 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 for distribution is subject to government regulations and may be prohibited.

Safety and General Information
RF Operational Characteristics
Your radio contains a transmitter and a receiver. When it is ON, it receives and transmits radio frequency (RF) energy. The SPX-200 VHF radios operate in the frequency range of **136-174 MHz**, the SPX-400 UHF radios operate in the frequency range of **400-470 MHz**. When you communicate with the **SPX-200**, the output power level is 1-5 watts, and with the **SPX-400**, the output power level is 1-4 watts

EXPOSURE TO RADIO FREQUENCY ENERGY
The SPX Series handheld radios generate RF electromagnetic energy during transmit mode. The transmit mode is active when the PTT switch is depressed. This radio is designed for, and classified as, "Occupational Use Only", meaning that it must be used only during the course of employment by individuals who are aware of the hazards and the ways to minimize such hazards. This series of radios is NOT intended for use by the "General Population" in an uncontrolled environment.
When used as directed, this series of radios is designed to comply with the FCC's RF exposure limits for "Occupational Use Only". In addition, they are designed to comply with the following Standards and Guidelines:

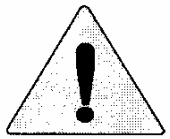
- FCC OET Bulletin 65, Edition 97-01, Supplement C, Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields.
- American National Standards Institute (C95.1-1992), IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.
- American National Standards Institute (C95.3-1992), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields-RF and Microwave.

To ensure that exposure to RF electromagnetic energy is within the FCC allowable limits for occupational use, always adhere to the following guidelines:

- Use only the antenna(s) available from RITRON for these models. DO NOT attempt to substitute any other antenna. DO NOT operate the radio without an antenna.
- Keep talk times as short and infrequent as possible. DO NOT depress the PTT button when not actually wishing to transmit. These radios are equipped with an internal timer to limit continuous transmit times. DO NOT exceed a 50% transmit duty cycle.
- When transmitting, hold the radio in front of the mouth at a distance of at least 4 inches. DO NOT hold the radio in such a manner that the antenna is next to, or touching, exposed parts of the body, especially the face or eyes while transmitting.
- In belt mounted applications, when transmitting, remove the radio from the belt and hold away from the body at least 4 inches.

- When using external headset accessories, hold the unit away from the body at least 4 inches while transmitting.
- DO NOT allow children to operate the radio.

Label (on the radio)



This radio complies with the FCC RF exposure limits for Occupational Use Only.

Antenna Care

Use only the supplied or an approved replacement antenna. Unauthorized antennas, modifications, or attachments could damage the radio and may violate FCC regulations.

Do not hold the antenna when the radio is "IN USE." Holding the antenna affects the effective range.

Two-way Radio Operation

When using your radio as a traditional two-way radio, hold the radio in a vertical position with the microphone two to three inches (5.0 to 7.5 cm.) away from the lips.

Approved Accessories

The following accessories can be used with the SPX Series portable.

1. RSM-3X Speaker/Microphone
2. AFS-150 Low Profile VHF antenna (SPX-200)
3. AFS-450 Low Profile UHF antenna (SPX-400)

Medical Devices

Pacemakers

The Advanced Medical Technology Association recommends that a minimum separation of 6 inches (15 centimeters) be maintained between a handheld wireless radio and a pacemaker. These recommendations are consistent with the independent research by, and recommendations of the U.S. Food and Drug Administration.

Persons with pacemakers should:

- ALWAYS keep the radio more than six inches (15 centimeters) from their pacemaker when the radio is turned ON.
- DO not carry the radio in the breast pocket.
- Use the ear opposite the pacemaker to minimize the potential for interference.
- Turn the radio OFF immediately if you have any reason to suspect that interference is taking place.

Hearing Aids

Some wireless radios may interfere with some hearing aids. In the event of such interference, you may want to consult your hearing aid manufacturer to discuss alternatives.

Other Medical Devices

If you use any other personal medical device, consult the manufacturer of your device to determine if it is adequately shielded from RF energy. Your physician may be able to assist you in obtaining this information.

Safety and General Use While Driving

Check the laws and regulations on the use of radios in the area where you drive.

Always obey them. When using your radio while driving, please:

- Give full attention to the driving on the road.
- Use hands-free operation
- Pull off the road and park before making or answering a call if driving.

Operational Warnings

For Vehicles with an Air Bag

Do not place a portable radio in the area over an air bag or in the air bag deployment area. Air bags inflate with great force. If a portable radio is placed in the air bag deployment area and the air bag inflates, the radio may be propelled with great force and cause serious injury to occupants of the vehicle.

Potentially Explosive Atmospheres

Turn off your radio prior to entering any area with a potentially explosive atmosphere, unless it is a radio type especially qualified for use in such areas as "Intrinsically Safe."

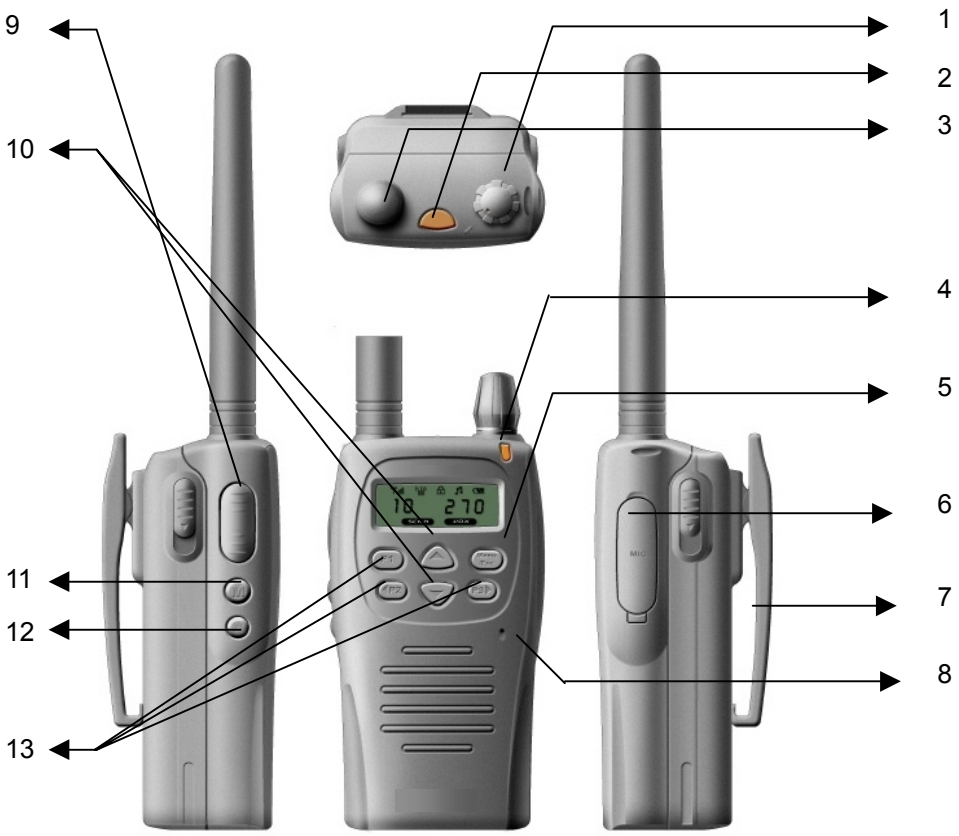
Do not remove, install, or charge batteries in such areas. Sparks in a potentially explosive atmosphere can cause an explosion or fire resulting in bodily injury or even death.

Note: The areas with potentially explosive atmospheres referred to above include fueling areas such as below decks on boats, fuel or chemical transfer or storage facilities, areas where the air contains chemicals or particles, such as grain, dust or metal powders, and any other area where you would normally be advised to turn off your vehicle engine. Areas with potentially explosive atmospheres are often but not always posted.

Save these Instructions

1. Do not expose the charger to rain or snow.
2. Do not operate the charger if it has received a sharp blow, or has been dropped or damaged in any way.
3. Do not disassemble the charger if it has received a sharp blow, or has been dropped or damaged in any way.
4. Never alter the AC cord or plug provided with the unit. If plug will not fit the outlet, have proper outlet installed by a qualified electrician. An improper condition can result in a risk of electric shock.
5. To reduce risk of damage to cord or plug, pull the plug rather than the cord when disconnecting charger from AC receptacle.
6. To reduce the risk of electric shock, unplug the charger from the outlet before attempting any maintenance or cleaning.
7. Use of an attachment not recommended or sold by Motorola may result in a risk of fire, electric shock, or personal injury.
8. Make sure that the cord is located so that it will not be stepped on, tripped over, or subjected to damage or stress.

Getting Started
SPX Series Radio Controls



DESCRIPTION

1. Power switch / Use (Power) to: Turn power On/Off Adjust radio volume

2. Emergency button: Mode to enter Emergency Key

3. Antenna connector: Connect the supplied antenna here (SMA connector)

4. TX / RX / Battery Indicator

Red	On	Transmitting
	Blinking	Low battery
Green	On	Receiving, monitoring
	Blinking	Different sub-tone when receiving
Orange	On	Initializing, programming and cloning

5. Menu button (Menu / Esc.)

6. Universal connector
Connect the external accessories (speaker / microphone, cloning cable & wall charger) (optional)

7. Belt clip

8. MIC.

9. PTT (Push-to-Talk) Button
Hold down to transmit, release to receive.

10. Channel Select Button (Up & Down buttons)
Select the desired channel with pressing Up and Down button, pressing and holding down more than 1 second makes the channel moving fast

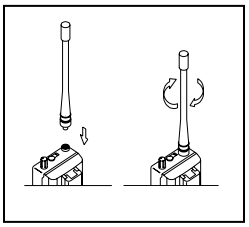
11. Monitor Button
Press to monitor. Holding down over 2 seconds keeps monitoring function on, and press shortly again or PTT Button to stop.

12. Lamp
This key illuminates the LCD and keys on the front panel.

13. Programmable Keys
These keys may be programmed as “Hot Keys” for various features.

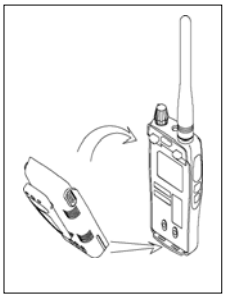
. .

Installing Antenna:



- Place the antenna into the antenna connector on the top of left hand side of the transceiver by holding the antenna at its base and turning clockwise until secured.

Installing the Nickel-Metal Hydride Battery
Your radio is powered by a NiMH battery, which provides up to 8 hours of usage (based upon 5% Transmit/ 5% Receive/ 90% Standby (standard duty cycle).



- Attach the battery matching the Ribbed Latch on the bottom of the radio.
- Position the battery by pushing the top back side of the battery.
- Securely snap the battery to the radio.

Charging with the charger
Charge the NiMH battery until the indication light turns green before using it for the first time, it will need up to 3 hours to charge fully.

- Make sure the radio is off.
- Plug the charger into an electric outlet. The light on the charger will glow red to perform charging.

NOTE: If the radio is On while charging, additional time is required to charge the battery

- Use only the Charger supplied with the radio, or other SPX Series accessories.

Turning On/Off Your Radio

- Turn the knob on the top of the radio clockwise to turn the radio On. Turn the knob counterclockwise to turn the radio Off.
- The radio beeps and the display briefly shows all features and display segments of your radio.
- The radio displays the current Channel and the Frequency assigned to that Channel or the alpha-numeric name.
- You can set the volume by adjusting the knob on the top of the radio.

NOTE: Do not hold the radio too close to your ear when the volume is at a high setting.

- If the **PASSWORD** function is programmed, "**PASSWORD**" will display on the LCD when the light power is turned on. To unlock the SPX Series, enter the correct password to activate.
- If the wrong password has been entered, "**ERROR**" will display on the LCD with radio remaining locked with an error sound.

Volume Control

Rotate the Power On/Off Control Switch clockwise to increase the volume and counter clockwise to reduce the volume. Rotate fully counter clockwise to turn transceiver off.

Operating Radio

To check Channel activity, press the monitor button: **M.** If you hear static, then the channel is clear to use. Do not transmit if someone is speaking on the channel.

- Press and hold **PTT** and speak into the radio. To maximize clarity hold the radio 2 to 3 inches away from your mouth.
- To listen for messages, release **PTT**.
- The ICON will appear on the LCD. If the Busy Channel Lock Out (BCLO) function is programmed, "BC" will appears on the LCD with a alarm (□-□-□). If Time-Out-Timer function is programmed, alarm (□□□□□) will be sound before 5 seconds of fixed time. After fixed time, "TOT" will appears on the LCD and then, change to receiving mode.

NOTE: The transmit light on the front right of the radio flashes every three seconds when the radio is On and is steady red when transmitting.

Signal Strength Indicator/Channel busy

The radio displays  when there is activity on the channel and the transmit LED flashes every second.

Receive

Choose the desired channel by pressing channel select button . The LED lights green when receiving. If the signal doesn't match the sub–tone programmed in your transceiver, the speaker will be muted and the LED will flash green. The ICON will appear on the LCD.

Channel Select

Select the desired channel by pressing Up▲ and Down▼ scroll button. Pressing and holding down more than 1 second will activate the channel to scroll faster with no sounds.

Key Lock On / Off

While holding the Menu Button, press **P1** Button more than 3 seconds simultaneously to select the key lock **ON** or **OFF**. The ICON appears on the LCD. This function prevents users from changing the channel inadvertently.

User Programmable Features:

1. **TX/RX Frequency**
2. **Select RX/TX Tone**
3. **2-Tone Encode**

User Program Mode

- To activate the Menu list for User Program Mode, you must press and hold the Menu/Esc button while you turn on the radio.
- The up/down arrow buttons will allow you to select the desired channel, and the P2 and P3 buttons will allow you to select the feature. The P1 button will be used to turn the feature On or Off, and the Menu/Esc button will save the selection.
-Once all programming is complete, to exit User Program Mode, turn the radio off and then back on.

TX/RX Frequency List (Refer to Table 1):

1. The user will place radio in User Programming Mode as per previous instructions.
2. The user will select the "channel number" they wish to program using the Up/Down arrows.
3. The user will select “Frequency Table” using the P2 and P3 buttons. The feature will be selecte d with the P1 button.
4 The user must will scroll through the list of frequencies with the 2 digit "code number" and "frequ ency or alpha tag" displayed using the Up/Down arrows.
5. When the user selects a specific "code number" and enters the selection via the "menu/esc" key, it will be assigned to the "channel number" (see step #2) the customer has selected.
6. When the user "exits" User programming mode, radio will only scroll through and display the num ber of channels that the user has "programmed".

CTCSS/CDCSS Tones (Refer to Tables 2 and 3):

1. Once in User Program Mode, the channel number will be displayed.
2. The user will select a Channel Number with the Up/Down arrows, after 3 seconds the first feature of the feature list will be displayed and the user can scroll through the feature list with the P2 or P3 buttons to find the CTCSS/CDCSS feature.
3. Once this feature is selected, pressing the P1 button will display the CTCSS/CDCSS list.
4. Using the Up/Down arrows the user can select a given code from the list.
5. Pressing the Menu/ESC button will save the selection for that Channel Number and bring the user back to the feature list. The selected CTCSS/CDCSS code number will be used for both TX and RX frequency.

2-Tone Encode:

1. Once in User Program Mode, the channel number will be displayed.
2. The user will select a Channel Number with the Up/Down arrows, after 3 seconds the first feature of the feature list will be displayed and the user can scroll through the feature list with the P2 or P3 buttons to find 2-Tone Encode.
3. Once the feature is selected, pressing the P1 button will display the list, and using the Up/Down arrows the user can select a given 2-Tone frequency pair from the list.
4. Pressing the Menu/ESC button will save the selection for that Channel Number and bring the user back to the feature list.

TABLE 1: PROGRAMMABLE FREQUENCY CODES.....

UHF Business Band

Code	Frequency	Color Dot	BW
01	467.7625	J	25
02	467.8125	K	25
03	464.5500	Yellow Dot	25
04	464.5000	Brown Dot	25
05	467.8500	Silver Star	25
06	467.8750	Gold Star	25
07	467.9000	Red Star	25
08	467.9250	Blue Star	25
09	469.2625		25
10	462.5750	White Dot	25
11	462.6250	Black Dot	25
12	462.6750	Orange Dot	25
13	464.3250		25
14	464.8250		25
15	469.5000		25
16	469.5500		25
17	463.2625		25
18	464.9125		25
19	464.6000		25
20	464.7000		25
21	462.7250		25
22	464.5000		12.5
23	464.5500		12.5
24	467.7625		12.5
25	467.8125		12.5
26	467.8500		12.5
27	467.8750		12.5
28	467.9000		12.5
29	467.9250		12.5
30	461.0375		12.5
31	461.0625		12.5
32	461.0875		12.5
33	461.1125		12.5
34	461.1375		12.5
35	461.1625		12.5
36	461.1875		12.5
37	461.2125		12.5
38	461.2375		12.5
39	461.2625		12.5

UHF Business Band

Code	Frequency	Color Dot	BW
40	461.2875		12.5
41	461.3125		12.5
42	461.3375		12.5
43	461.3625		12.5
44	462.7625		12.5
45	462.7875		12.5
46	462.8125		12.5
47	462.8375		12.5
48	462.8625		12.5
49	462.8875		12.5
50	462.9125		12.5
51	464.4875		12.5
52	464.5125		12.5
53	464.5375		12.5
54	464.5625		12.5
55	466.0375		12.5
56	466.0625		12.5
57	466.0875		12.5
58	466.1125		12.5
59	466.1375		12.5
60	466.1625		12.5
61	466.1875		12.5
62	466.2125		12.5
63	466.2375		12.5
64	466.2625		12.5
65	466.2875		12.5
66	466.3125		12.5
67	466.3375		12.5
68	466.3625		12.5
69	467.7875		12.5
70	467.8375		12.5
71	467.8625		12.5
72	467.8875		12.5
73	467.9125		12.5
74	469.4875		12.5
75	469.5125		12.5
76	469.5375		12.5
77	469.5625		12.5

VHF Business Band

Code	Frequency	Color Dot	BW
03	151.625	Red Dot	25
04	151.955	Purple Dot	25
05	151.925		25
06	154.540		25
07	154.515		25
08	154.655		25
09	151.685		25
10	151.715		25
11	151.775		25
12	151.805		25
13	151.835		25
14	151.895		25
15	154.490		25
16	151.655		25
17	151.745		25
18	151.865		25
24	151.700		12.5
25	151.760		12.5
26	152.700		25

*VHF MURS***

Code	Frequency	Color Dot	BW
01	154.600	Green Dot	25
02	154.570	Blue Dot	25
19	151.820	MURS	12.5
20	151.880	MURS	12.5
21	151.940	MURS	12.5
22	154.600	MURS	12.5
23	154.570	MURS	12.5

Notes

** MURS frequencies do not require an FCC license. All other frequencies require an FCC license.

- BW is the bandwidth in kHz.
- 12.5 kHz indicates a narrow band channel, 25 kHz indicates a wide band channel

CANADIAN FREQUENCY CODES .....

Canada Models UHF Business Band

Code	Frequency	Color Dot	BW
01	458.6625		25
02	469.2625		25

Canada Models VHF Business Band

Code	Frequency	Color Dot	BW
01	151.055		25
02	151.115		25

British Columbia Models VHF Business Band

Code	Frequency	Color Dot	BW
01	154.100		25
02	158.940		25

TABLE 2: INTERFERENCE ELIMINATOR PROGRAMMABLE QC TONE CODES .....

Code	Frequency	Code	Frequency	Code	Frequency	Code	Frequency
01	67.0	14	107.2	27	167.9	40	159.8
02	71.9	15	110.9	28	173.8	41	165.5
03	74.4	16	114.8	29	179.9	42	171.3
04	77.0	17	118.8	30	186.2	43	177.3
05	79.7	18	123.0	31	192.8	44	No Tone
06	82.5	19	127.3	32	203.5	45	183.5
07	85.4	20	131.8	33	210.7	46	189.9
08	88.5	21	136.5	34	218.1	47	196.6
09	91.5	22	141.3	35	225.7	48	199.5
10	94.8	23	146.2	36	233.6	49	206.5
11	97.4	24	151.4	37	241.8	50	229.1
12	100.0	25	156.7	38	250.3	51	254.1
13	103.5	26	162.2	39	69.4		

TABLE 3: DIGITAL INTERFERENCE ELIMINATOR PROGRAMMABLE DQC TONE CODES .....

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

Hot Keys

All Hot Key functions are PC programmable. All Hot Keys will have the option of “None” in their list of options. The following is a list of functions that may be programmed for Hot Keys P1(short), P1(long), P2(short), P2(long), P3(short0, and P3(long).

DTMF ANI – When the button is pressed momentarily (short) or for 3 seconds (long), the transmitter will be activated and the DTMF digits that are programmed for that channel will be transmitted.

5 Tone ANI – When the button is pressed momentarily (short) or for 3 seconds (long), the transmitter will be activated and the 5-Tone Code that is programmed for that channel will be transmitted.

Scan – When the button is pressed momentarily (short) or for 3 seconds (long), the unit will scan according to the scan feature set-up. SCN icon will be displayed. To exit the scan feature, press either Up/Down Channel Button. The SCN icon will not be displayed.

2-Tone Encode – When the button is pressed momentarily (short) or for 3 seconds (long), the transmitter will be activated and the 2-Tone that is programmed for that channel will be transmitted.

Weather Scan (VHF only) - When the button is pressed momentarily (short) or for 3 seconds (long), the unit will scan the 7 U.S. weather frequencies. SCN icon will be displayed. If the unit stops on the incorrect frequency, then a subsequent press will resume Weather Scan search for the next active frequency in the list of 7 freqs. To exit the Weather Scan feature, press either Up/Down Button. The SCN icon will not be displayed.

Key Lock – Pressing the button for Key Lock will disable all front panel buttons (including Menu/ESC key) except for the button programmed for Key Lock. The lock icon will be displayed. Pressing the button again will disable the function and the lock icon will not be displayed.

Talk Around – If using a repeater frequency, pressing the button for Talk Around will cause the radio to transmit on the receive frequency when the PTT is pressed. The “T” icon will be displayed. Pressing the button again will put the radio into normal operation and the “T” icon will not be displayed.

TX Power – Pressing the button will alternately switch the power level from low to high power. “High Power” or “Low Power” will be displayed momentarily. VHF: low power = 1 watt, high power = 5 watts, UHF: low power = 1 watt, high power = 4 watts.

None – A button that is programmed for “None” will have no effect when pressed.

PC Programmer

The following is a list of features that are PC programmable.

1. VOX

Internal Voice Operated Transmit allows you to operate in hands-free mode without pressing PTT**.** When the VOX feature is enabled, the VOX ICON appears on LCD with “VOX LEVEL XX”. The sensitivity level can be selected between 1(very sensitive) and 15 (less sensitive).

2. DTMF ANI

Once one of the “Hoy Keys” is selected for ANI operation, pressing that button will automatically cause the radio to transmit the programmed ANI sequence up to XX characters.

3. 5-Tone ANI

Once one of the “Hoy Keys” is selected for 5-Tone ANI operation, pressing that button will automatically cause the radio to transmit the programmed 5-Tone ANI sequence.

4. Scanning

Scan allows you to monitor other channels. When the radio detects activity, it stops scanning and locks in on the active Channel. This allows you to talk and listen to the person transmitting without changing channels.

Once one of the “Hoy Keys” is selected for SCAN operation, pressing that button will automatically cause the radio to scan all channels programmed for scan.

Priority scan channel

One channel can be selected as a priority channel. When scanning or receiving, if there is activity on the priority channel, the radio will automatically go to the priority channel until the activity is finished.

5. TX power (1W or 4W/5W) per channel

TX output power can be to Low 1W or High 4W(UHF) or 5W(VHF). You can select low to extend battery life or high to extend communication range.

6. Busy channel lockout

BCLO prevents users from transmitting if any activity is detected on the channel. If selected “BC” will appear on the LCD.

7. Power Saving Control

If after a predetermined time the transceiver has not entered either transmit or receive mode, it will

automatically go into power save mode. This feature will further increase your duty cycle.

OFF: Power Saver is disabled

PSC-NORM: Normal mode

PSC-ENH: Enhance mode

8. Talk around

Once one of the “Hoy Keys” is selected for Talk-Around operation, pressing that button will automatically cause the radio to transmit on the transmit frequency of the repeater system you are using. A ”T” will appear on the LCD.

9. Squelch Level

You can program which levels you wish to set appropriate squelch level.

LEVEL 00: Loose, LEVEL 8: Standard, LEVEL 15: Tight

10. Large Font Display

Font size for the LCD can programmed or either “Small” or “Large”.

11. Select RX/TX Tone

QC, DQC, or NONE sub-audible sub-tones may be programmed for each channel.

12. Select RX/TX Frequency

Pre-selected table frequencies or custom RX and TX frequencies can be programmed for each channel.

Additional Functions

1. LCD backlight

When you press Lamp button once, LCD backlight operates for 5 seconds

2. Low Battery Warning & Display

When the available capacity falls below 10%, the Battery ICON will flash with a warning sound. At this time it is recommended that you either change or re-charge the battery pack as early as possible. (Battery ICON indicates battery capacity)

3. Time–Out Timer (TOT)

This feature limits the amount of time you can continuously transmit on a channel. The time range is programmable from 0~250 seconds. There will be a short pre–alert warning tone 4 seconds prior to the end of the transmission, the transmission is then terminated and there will be a constant alert tone until you release the PTT Button.

4. Cloning

You can clone data to other transceiver using the cloning cable.

To enter programming mode, While holding Monitor button□, turn the Power switch□ at the same time.

Use and Care

- Use a soft damp cloth to clean the exterior.
- Do not immerse in water.
- Do not use alcohol or cleaning solutions

SPECIFICATIONS

Model		SPX-200	SPX-400
Frequency Range	TX / RX	136-156MHz (L) 146-174MHz (H)	400-430MHz (L) 440-470MHz (H)
Dimension		110(H) x 50.5(W) x 37.5(D) mm	
Weight (With Battery)		306g (0.71 lbs)	
Operating Voltage		DC 7.5V	
Operating Temp.		-30 ~ 60□	
Battery Life (5:5:90) Hi power: 5 watts(VHF) 4 watts(UHF) Low power: 1 watt		 1350mAh Ni-MH : 8hrs 1350mAh Ni-MH : 11 hrs	
Channels		128	
Privacy Codes		38 QC, 83 DQC, INVERT 83 DQC	
Band Width		12.5KHz /20 /25KHz programmable	
Audio Power (16Ω)		500mW ((Min.) (5% Distortion)	

- Specification is subject to change without prior notice

Troubleshooting

No Power

- Recharge or replace battery, reposition or replace

Message not transmitted

- Make sure PTT is completely pressed as you transmit.
- Recharge, replace and/or reposition batteries.

Limited talk range

- Steel and/or concrete structures, heavy foliage, buildings or vehicles decrease range. Check for clear line of sight to improve transmission.
- Wearing radio close to body such as in a pocket or on a belt decreases range. Change location of radio.

Message not received

- Confirm radios have the same Channel, Frequency, and QC/DQC tone.
- Recharge, replace and/or reposition batteries.
- Obstructions and operating indoors, or in vehicles, may interfere-- change location.
- Verify that the radio is not in Scan

Heavy static or interference

- Radios are too close, they must be at least five feet apart.
- Radios are too far apart or obstacles are interfering with transmission.

Low batteries

- Recharge or replace NiMH battery.
- Extreme operating temperatures affect battery life.

Charger light does not come on

- Check radio/battery is properly inserted and check battery/charger contacts to be sure they are clean and charging pin is inserted correctly.

Cannot activate VOX

- Feature not set and on. Sensitivity set to Level 1

RITRON, INC. LIMITED WARRANTY .....

WHAT THIS WARRANTY COVERS:

RITRON, INC. ("RITRON") provides the following warranty against defects in materials and/or workmanship in **RITRON Radios and Accessories** under normal use and service during the applicable warranty period (as stated below). "Accessories" means antennas, holsters, chargers, earphones, speaker/microphones and items contained in the programming and programming/service kits.

WHAT IS COVERED	FOR HOW LONG	WHAT RITRON WILL DO
SPX Series Portable	1 year*	During the first year after date of purchase, RITRON will repair or replace the defective product, at RITRON's option, parts and labor included at no charge.
Accessories	90 days*	**After date of purchase*

WHAT THIS WARRANTY DOES NOT COVER:

- Any technical information provided with the covered product or any other RITRON products;
- Installation, maintenance or service of the product, unless this is covered by a separate written agreement with RITRON;
- Any products not furnished by RITRON which are attached or used with the covered product, or defects or damage from the use of the covered product with equipment that is not covered (such as defects or damage from the charging or use of batteries other than with covered product);
- Defects or damage, including broken antennas, resulting from:
  - misuse, abuse, improper maintenance, alteration, modification, neglect, accident or act of God,
  - the use of covered products other than in normal and customary manner or,
  - improper testing or installation;
- Defects or damages from unauthorized disassembly, repair or modification, or where unauthorized disassembly, repair or modification prevents inspection and testing necessary to validate warranty claims;
- Defects or damages in which the serial number has been removed, altered or defaced.
- Batteries if any of the seals are not intact.

IMPORTANT: This warranty sets forth the full extent of RITRON's express responsibilities regarding the covered products, and is given in lieu of all other express warranties. What RITRON has agreed to do above is your sole and exclusive remedy. No person is authorized to make any other warranty to you on behalf of RITRON. Warranties implied by state law, such as implied warranties of merchantability and fitness for a particular purpose, are limited to the duration of this limited warranty as it applies to the covered product. Incidental and consequential damages are not recoverable under this warranty (this includes loss of use or time, inconvenience, business interruption, commercial loss, lost profits or savings). Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitation on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you. Because each covered product system is unique, RITRON disclaims liability for range,

coverage, or operation of the system as a whole under this warranty.

WHO IS COVERED BY THIS WARRANTY: This warranty is given only to the purchaser or lessee of covered products when acquired for use, not resale. This warranty is not assignable or transferable.

HOW TO GET WARRANTY SERVICE: To receive warranty service, you must deliver or send the defective product, delivery costs and insurance prepaid, within the applicable warranty period, to **RITRON, INC., 505 West Carmel Drive, Carmel, Indiana 46032, Attention: Warranty Department.** Please point out the nature of the defect in as much detail as you can. You must retain your sales or lease receipt (or other written evidence of the date of purchase) and deliver it along with the product. If RITRON chooses to repair or replace a defective product, RITRON may replace the product or any part or component with reconditioned product, parts or components. Replacements are covered for the balance of the original applicable warranty period. All replaced covered products, parts or components become RITRON's property.

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YOUR RIGHTS UNDER STATE LAW: This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Where This Warranty Is Valid: THIS WARRANTY IS VALID ONLY WITHIN THE UNITED STATES, THE DISTRICT OF COLUMBIA AND PUERTO RICO.