SP-220, 230, 240,250 series

Synthesized Scanning Radio

FCC RF EXPOSURE COMPLIANCE REQUIREMENTS FOR OCCUPATIONAL USE ONLY

The Federal Communications Commission (FCC), with its action in General Docket 93-62, November 7, 1997, has adopted a safety standard for human exposure to Radio Frequency (RF) electromagnetic energy emitted by FCC regulated equipment. Maxon subscribes to the same safety standard for the use of its products. Proper operation of this radio will result in user exposure far below the Occupational Safety and Health Act (OSHA) and Federal Communications Commission limits.

DO NOT transmit for more than 50% of total radio use time (50% duty cycle). Transmitting more than 50% of the time can cause FCC RF exposure compliance requirements to be exceeded.
☐This radio is NOT approved for use by the general population in an uncontrolled environment. This radio is restricted to occupational use, work related operations only where radio operator must have the knowledge to control the user's exposure conditions for satisfying the higher exposure limit allowed for occupational use.
☐When transmitting, hold the radio in a vertical position with its microphone 2 inches (5 cm) away from your mouth.
☐The radio is transmitting when the red LED on the front of the radio is illuminated. You can cause the radio to transmit by pressing the PTT bar on the radio.
☐These are required operating configurations for meeting FCC RF exposure compliance. Failure to observe these restrictions mean violation.

Operating Instructions

About Your SP-220, 230, 240, 250 series Radio

Midland Radio Corporations Maxon brand SP-220, 230, 240, 250 series radio feature a 4 or 16 channel rotary switch. Operation and functions for the SP-220, 230, 240, 250 series are described in this manual.

We urge you to thoroughly read this manual before operating the radio.

Application of some of the functions described in this manual is determined by the system you use. Your Dealer will program your radio so that you have the greatest number of functions possible relative to your needs. Should you have questions regarding the operation of the radio please consult your Dealer.

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Safety Information

The Federal Communications Commission (FCC), with its action in General Docket 79-144, March 13, 1985, has adopted a safety standard for human exposure to Radio Frequency (RF) electromagnetic energy emitted by FCC regulated equipment. Maxon subscribes to the same safety standard for the use of its products. Proper operation of this radio will result in user exposure far below the Occupational Safety and Health Act and Federal Communications Commission limits.

WARNING - 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.

WARNING - DO NOT allow children to operate transmitter - equipped radio equipment.

CAUTION - DO NOT operate the radio near unshielded electrical blasting caps or in an explosive atmosphere unless it is a type especially designed and qualified for such use.

CAUTION - DO NOT press and hold the transmit switch (P-T-T) when not actually wishing to transmit.

NOTE: This radio operates in FCC regulated frequency bands. All radios must be licensed by the FCC before use. Because this radio contains a transmitter, Federal law prohibits unauthorized use or adjustments of this radio.

Unpacking Information

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Remove and carefully inspect the contents of your package(s) for the following items:

Radio
Battery Pack
Battery Charger
Battery Charger Power Supply
Antenna
Spring Belt Clip
Operating Instructions

If any items are missing, please contact your Dealer .

SP-220, 230, 240, 250 Series Features

· Wideband frequency separation

· 1 or 5 W programmable output power

· Programmable 12.5/25 kHz channel spacing

· Channel scan

· Priority channel scan

· CTCSS/DCS tone signaling

· Busy channel lockout

· Time-out timer

· Audio Companding

Description of Radio Components

1) **Antenna Receptacle**

2) **Rotary Encode switch**

3) **On/Off - Volume Control**

4) **Busy/TX/BT Indicator**

5) **Battery Latch**

6) **Push-To-Talk (PTT)**

7) **Scan Button**

8) **Speaker**

9) **Microphone**

10) **Accessory Connector**

11) **Belt Clip**

12) **Battery**

13) **Battery Charge Contacts**

Antenna Installation

Fasten the antenna to the radio by turning the antenna clockwise into the receptacle on top of the radio.

Installing and Removing the Battery Pack

To Install:
Position the guides of the battery in line with the radio battery guide rails and slide the battery into position until a click is heard.

To Remove:
Holding radio in one hand, push and hold battery latch button located in the upper right hand corner of the battery pack. Hold radio as if looking at the back of the unit. Hold radio firmly and slide battery in downward direction while pushing the battery latch button.

Attaching and Removing the Belt Clip

To Install:
Install belt clip onto the belt clip holder located on the battery. Locate slot location in belt clip and push belt clip onto battery until a click is heard.

To Remove:
Push and hold release button located at top of belt clip and slide clip off the battery.

Battery Charging and Care

To ensure peak performance from your radio, the battery pack must be fully charged. Proper care and charging will allow maximum performance and life of your battery pack.

The desktop charger provides 12 hours "slow" charging to one radio and one battery.

To receive maximum performance from your radio and battery periodically completely discharge and recharge the battery pack.

SP-220, 230, 240, 250 Series Operations

Power On-Volume
Turn the radio on by rotating the on/off - volume control clockwise until you hear a click and the self test "alert" tone.

Channel Select

The SP-220, 230, 240, 250 series is capable of 4 or 16 channels . To change channels turn the rotary switch following its track. If your radio has been programmed for Channel Scan you must enter the scan mode by pressing the scan button which is the first button located beneath the PTT button.

Transmit

<center>
CAUTION
OPERATION OF THE TRANSMITTER WITHOUT
A PROPER ANTENNA INSTALLED MAY RESULT IN
PERMANENT DAMAGE TO THE RADIO
</center>

1) Press the monitor button to monitor the channel for activity. To avoid interrupting another user, make sure the channel is clear before you begin transmitting.

NOTE: Federal Communications Commission Rules and Regulations require that you monitor a channel for activity before transmitting.

NOTE: The tri-color LED located on the top panel can help with channel monitoring. It will glow amber if RF activity is present; or green if the transmission has a CTCSS or DCS tone that matches a
tone programmed for receive in your radio. When this LED is not illuminated, the radio is indicating a "clear" channel.

2) When the channel is clear, hold the radio upright with the antenna vertical and the front microphone area about 2-3 inches from the mouth, keeping the antenna away from the face and eyes. Press and hold the P-T-T bar on the side of the radio, and speak slowly and clearly into the microphone area.

NOTE: The LED will glow red when transmitting. This indicator should be on continuously while the P-T-T bar is being pressed and the radio is transmitting. Should the red LED be "flashing", the battery needs to be recharged and transmission will cease. Recharge the battery before attempting   more than one transmission.

Receive
When you have finished transmitting, release the P-T-T bar to receive.

Power Off
When finished transmitting, receiving, monitoring, etc., turn the radio off by rotating the on/off-volume control fully counter-clockwise, to the detent position.

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Status Indicators and Audible Alert Tones

Your SP-220, 230, 240, 250 series has a sophisticated microprocessor control which provides a series of audible alert tones.

Upon initial power up, a quick melody indicates that the self-test of the microprocessor functions has been completed satisfactorily. A series of tones may be sounded with any of the following conditions:

· Attempt to transmit on a channel set for receive only
· Attempt to transmit on a channel that is already in use when busy channel lockout has been programmed into the radio *
· Transmitting time has exceeded time-out timer programmed length *
· Low battery condition
· Selecting a channel with no programmed frequency

* Indicates a function that is initially programmed into the radio by your Dealer.

NOTE: All audible tones can be programmed off for silent operation.

Status	Description	LED color	Audible Tone
Normal	Power On - Ready	**N/A**	**Melody**
	Call Received	Orange	N/A
	Correct Call	Green	N/A
	Busy Channel	Orange	N/A
	Transmit	Red	N/A
	Transmit not allowed	Red Flashing	Two beeps repeated
Scanning	Normal Scan mode	Green Flashing	N/A
	Priority Scan Mode	Green Flashing	
	Priority Look Back Scan Mode	Green Flashing	N/A
Warning	Low Battery	Red Flashing	3 beeps repeated
	Busy Channel lockout	orange	Single beep repeated
	TX Inhibit	N/A	Two beeps
	Time-out-timer	N/A	Single beep/3 beeps repeated
Error	EEPROM	N/A	Single beep repeated
	Unlock	N/A	Two beeps repeated

Scan Modes

Scanning is a Dealer programmable feature that allows you to monitor a number of channels. Your Dealer will help you define a scanning mode and your channel "scan list"

Normal Channel Scan
Once the scan list has been established you can initiate scan by a press and release of scan button, first button located beneath the PTT button. The top panel LED can be programmed to flash green as the radio is scanning.

If a conversation is detected on any of the channels in the scan list, the radio will stop on that channel and you will be able to hear the conversation. If programmed for normal scan TX you will be able to transmit on that active channel during the programmed scan delay time. The scan delay time is the amount of time the radio will stay on that channel once activity has ceased (Dealer programmable, 4-7 seconds is typical). The radio will resume scanning once the scan delay time has expired. Scanning will continue until the channel is changed.

Priority Channel Scan
A single channel may be programmed as the "Priority" channel. The radio will constantly monitor this channel while scanning and when the radio has stopped on an active channel. If a call is detected on the "Priority" channel, the radio will automatically move to, and remain on, the "Priority" channel for as long as the priority conversation takes place. "Priority" channel activity takes precedence over all other conversations.

Other Scanning Features

·**Scan Channel Delete:** To temporarily delete a channel from the scan list, simply press the monitor button while scanning and stopped on the channel to be deleted. This will remove that channel from the scan list until the channel is changed or the radio's power is reset. When power is restored or the scan list channel position is again selected, the original Dealer programmed scan list will be activated.

· **CTCSS/DCS Scanning:** The SP-220, 230, 240, 250 Series can be programmed by your Dealer to scan for tone. This will help block out unwanted calls.

· **Normal Scan TX:** Allows a transmission only after a call is received, depending on the programmed scan delay time. After the scan resumes, and a transmission is made, the radio will sound an alarm (two beeps), and will not allow a transmission.

- **Priority Scan TX:** Allows a transmission after a call is received depending on programmed scan delay time. The transmission will be made on the channel that the call was received. After the scan resumes, if a transmission is made, the radio will transmit on the programmed priority channel.

- **Priority Only TX:** Allows a transmission on the priority channel when scanning and not stopped on an active channel. The radio will always transmit on the priority channel if scanning or stopped on an active channel.

- **Receive Only Scan:** This allows only reception. If a transmission is made at any time, the radio will sound an alarm (two beeps) , and will not allow the transmission.

Licensing and Service Information

FCC Licensing
The Federal Communications Commission requires that the operator of this radio be properly licensed under the applicable Part and/or Parts of the FCC Rules and Regulations.

Consult with your Dealer, or contact the nearest FCC Field Office for information about obtaining a license.

Service
Do not tamper with internal adjustments. Damage to the equipment and/or improper operation may result. There are no user serviceable items inside the radio.

It is recommended that you return your radio to a qualified Dealer for any service or repairs.

Software Copyrights

The Maxon product described in this operating instruction manual may include copyrighted Maxon software programs stored in semi-conductor memories or other media. Laws in the United States and other countries preserve Maxon certain exclusive rights for copy-righted software programs, including the exclusive right to copy or reproduce in any form the copyrighted Maxon software program. Accordingly, the copyrighted Maxon software programs contained in the Maxon products described in this operating instruction manual may not be copied or reproduced without the express written permission of Maxon. Furthermore, the purchase of Maxon products shall not be deemed to grant either directly or by implication, estoppel, or otherwise, any license under the copyrights, patents or patent applications of Maxon, except for normal non-exclusive royalty free license to use that arises by operation of law in the sale of a product.

Maintenance

Your SP-220, 230, 240, 250 series radio is designed to be maintenance free. To keep your radio in good working condition:

Clean external surfaces with a clean cloth dampened in a solution of dishwasher detergent diluted in water. Apply the solution sparingly to avoid any moisture leaking into cracks and crevices. Do not submerge the radio. Use a non-metallic brush to dislodge stubborn particles, if necessary. Dry the surface thoroughly with a soft, lint free cloth.

DO NOT use solvents or spirits for cleaning - they may permanently damage the housing.

Clean the battery contacts on the back of the radio with a lint free cloth to remove dirt, grease, or other foreign material that may impede good electrical contact.

Limited Warranty

Midland Radio Corporation warrants the Maxon Product against defects in material and workmanship under normal use and service for a period of two (2) years from the date of delivery to the original end user, provided that the user has complied with the requirements stated herein. This warranty is not assignable or transferable. Midland Radio Corporation is not responsible for any ancillary equipment which is attached or used in connection with this product.

Midland Radio Corporation shall have no obligation to make repairs or to cause replacement required which result from normal wear and tear or necessitated in whole or in part by catastrophe, fault or negligence of the user, improper or unauthorized alterations, repairs to the Product. Use of the product in a manner for which it was not designed, or by causes external to the product. This warranty is void if the serial number is altered, defaced or removed.

Midland Radio Corporation's sole obligation hereunder shall be to repair or replace the product covered in the above warranty.

To receive warranty service, deliver or send the product, transportation and insurance prepaid, to the place of purchase along with your proof of purchase. Alternatively, call 1-8i6-241-8500 for other locations or authorization to return the product directly to Midland Radio Corporation.

THE EXPRESS WARRANTIES CONTAINED HEREIN ARE IN LIEU OF ALL OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED OR STATUTORY, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

FOR ANY PRODUCT WHICH DOES NOT COMPLY WITH THE WARRANTY SPECIFIED, THE SOLE REMEDY WILL BE REPAIR OR REPLACEMENT. IN NO EVENT WILL MIDLAND RADIO CORPORATION BE LIABLE TO THE BUYER OR ITS CUSTOMERS FOR ANY DAMAGES, INCLUDING ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES, OR FOR THE LOSS OF PROFIT, REVENUE OR DATA ARISING OUT OF THE USE OF OR THE INABILITY TO USE THE PRODUCT.

This warranty is void for sales and deliveries outside of the United States.

Midland Radio Corporation

1120 Clay Street

North Kansas City, MO. 64116