



SM5402



Operating
Instructions

About Your SM5402 Radio

Maxon's SM5402 mobile radio are Compatible, Conventional radio system operation. The SM5402 is capable of up to 208 channels 13 Groups per system in conventional operation.

The operation and functions for the SM5402 radios are described in this manual.

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

Application of some functions described in this manual is determined by the system you use. Your Maxon 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 Maxon Dealer.

About Maxon

Maxon is a world-respected name in professional FM two-way radio equipment operating in the UHF, VHF and 800 MHz frequencies; personal two-way communication devices, including the popular FRS (Family Radio Service) and GMRS radios; and a variety of wireless communication products (two-way voice messaging handsets, Wireless Local Loop terminals, etc.).

Safety Information

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 and Federal Communications Commission limits.

WARNING - The antenna shall be mounted in the centre of the vehicle roof, or trunk, to ensure a minimum separation distance of 110cm, or 60cm, respectively to persons who may stand close to the vehicle. And the antenna may only be mounted on metal body motor

vehicles or vehicles with appropriate ground planes. And must not be co-located or operation in conjunction with any other antenna or transmitter.

WARNING - This radio has been tested and complies with the FCC RF exposure limits for "Occupational Use Only." In addition, your FM radio complies with the following standards and guidelines with regard to RF energy and electromagnetic energy levels and evaluation of such levels for exposure to humans :

- 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.
- **DO not** operate the radio without a proper antenna attached, as this may damage the radio and may also cause you to exceed FCC RF exposure limits. A proper antenna is the antenna supplied with this radio by the manufacturer or an antenna specifically authorized by the manufacturer for use with this radio.
- ALWAYS use Maxon authorized accessories. Use of unauthorized accessories can cause the FCC RF exposure compliance requirements to be exceeded.
- **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.

The information listed above provides the user with the information needed to make him or her aware of RF exposure, and what to do to assure that this radio operates within the FCC RF exposure limits.

During transmissions, your Radio generates RF energy that can possibly cause interference with other devices or systems. To avoid such interference, turn off the radio in areas where signs are posted to do so.

WARNING - It is mandatory that radio installations in vehicles fueled by liquefied petroleum gas conform to the following standard: National Fire Protection Association standard NFPA 58 applies to radio installations in vehicles fueled by liquefied petroleum (LP) gas with LP gas container in the trunk or other sealed-off space within the interior of the vehicle. This standard requires that:

- 1 Any space containing radio equipment shall be isolated by a seal from the space in which the LP gas container and its fittings are located.
- 2 Remote (outside) filling connections shall be vented to the outside.

WARNING - DO not operate the transmitter of a mobile radio when someone outside the vehicle is within two feet (0.6 meter) of the antenna.

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

WARNING - DO not allow operate the transmitter in areas that are sensitive to electromagnetic radiation such as hospitals, aircraft, and blasting sites.

CAUTION - DO not operate the radio near electrical blasting caps or in an explosive atmosphere.

CAUTION - DO not operate the transmitter of any radio unless all RF connectors are secure and any open connectors are properly terminated.

All equipment must be properly grounded for safe operation.
All equipment should be serviced by a qualified technician.

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 Inforamtion

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

- Radio
- Microphone
- DC Power Supply Cord
- Radio Mounting Bracket and Hardware
- Microphone Bracket and Hardware
- Operating Instructions

SM5402 Features

- Conventional radio operation
- 9 character display with icons
- Wideband frequency separation
- Programmable output power
- Programmable 12.5 / 25 kHz channel spacing
- Multiple-function five button keypad
- Programmable On / Off hook function
- Talk Around
- Scanning
- Priority Scanning
- Look Back
- Scan list editing
- CTCSS / DCS / DTMF / 2-Tone / ANI (Conventional operation)
- Busy channel lockout
- Time-out timer

General

Performance Specifications	FTZ 17TR2049 July 88 TIA-603 IEC 68 Series EC 529 IP54 MIL STD 810 F	
Band (Tx & Rx)	(Switching range without retuning) UHF (U2) 440 – 470MHz	
Channel Spacing	12.5kHz, / 25kHz (programmable) (12.5, /25kHz switchable by CPU control)	
RF Output Power	45W nominal (+/-10%)	
Modulation Type	F3E	
Audio Power	6W (Internal 16W speaker)	
Intermediate Frequencies	45.1MHz First I.F., 455kHz Second I.F.	
Number of Channels	208	
Frequency Source	PLL Synthesiser	
Frequency Stability	+/- 2.5ppm	
Power Supply	13.8Vdc nominal 10.8Vdc minimum (extreme) 15.6Vdc maximum (extreme)	
Current Consumption	OFF	<10 A
	Standby (muted)	<140mA
	Unmuted with 25% AF power	<350mA
	Unmuted with 50% AF power	<450mA
	Unmuted with 100% AF power	<570mA
	Transmit @ 5W RF Low output	<5.0A

Transmit @ 40W RF Normal output <10.0A
Transmit @ 45W RF High output <11.0A

Environmental

Temperature Range

Operating	+15 to +35°C (nominal) -30 to +60°C (extreme),
Storage Temperature Range	-40 to +80°C (storage)

Humidity	EIA/TIA 603 (95%)
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Protection against ingress of dust and water	IEC 529 IP54
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Vibration	BS2011 : Part 2.1Fc IEC 68-2-6 Part 2.1Fd IEC 68-2-34
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Robustness	Mil Std 810 F
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ESD	20kV (C-MIC = 15kV)
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Physical Dimensions	175(W) x 158(D) x 48(H) mm
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Weight	1.44kgs
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Programmer	SMP 6001
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Reliability Analysis MTBF	15,000 Hours MIL-HDBK-217F. Ground benign. Parts stress method.
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MTTR	30 minutes average time to rework any SMD component and reassemble.
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Installation Safeguards

WARNING -DO NOT install the radio unit where it would interfere with the proper operation of automatic collision protection devices (air bags).

WARNING - DO NOT install the radio unit where it would likely cause injury in case of accident.

NOTE: The radio is not intended for operation in a positive ground vehicle.

1. Select a location for the radio where you can easily see and reach all controls,
 - A. including the microphone.
2. Using the radio mounting bracket as a template, mark with a pencil the locations
 - A. where the bracket securing screws will be placed.

NOTE -Before drilling holes in the vehicle, verify that there is nothing that could be damaged or get in the way by drilling and putting screws in this location. It is better to use existing passages in the dashboard, trunk, and floor for the routing cable, thus avoiding excessive drilling.

After drilling holes for the mounting bracket, attach bracket to the surface by using the two large Phillips head screws provided.

3. Install the radio unit to the bracket using the black screw knobs (located on each side of the radio) along with the two spring lock washers, and two large flat washers provided.

NOTE -Depending on the radio mounting location, it may be more convenient to install the microphone bracket before installing the entire radio unit.

4. Mount the microphone bracket to the most convenient side of the radio unit, using the two small Phillips head screws provided. There are two options for installing the microphone bracket, allowing the on-hook placement of the microphone from either the top or the front of the bracket.
5. Connect the DC power supply cord to the radio. If necessary, the power supply cord may be connected before mounting the radio unit to the radio bracket.
6. Push the modular microphone connector into the microphone jack (located in the front of the radio unit) until a click is heard.

CAUTION -Some electronic fuel injection, anti-skid braking systems, cruise controls, and vehicle

alarms may be prone to interference from radio frequency energy or may malfunction due to a lack of protection from RF energy. If the vehicle contains such equipment, consult your Dealer to get help determining whether the electronic equipment in the vehicle will operate properly when the radio is transmitting.

You must purchase an antenna for proper operation of the radio. Consult your Dealer to determine which antennas are suitable.

Description of Radio Components

- 1) On / Off - Volume Knob - Turns the radio on and / or off, and controls the audio level
- 2) Display – Back lighted display with icons and up to 9 alphanumeric characters
- 3) Up / Down Selection Buttons – Selects Systems, Groups, option functions
- 4) Mode Select Button - Toggles among Systems, Groups, Call missed (CALL) and display brightness (BRIGHT). Also returns radio to your Home system / Home Group
- 5) Option Select Button – Enables / disables optional radio functions, also enables scrolling when using the Up / Down Selection Buttons.
- 6) Scan Select Button – Enables / disables Scan functions; also toggles between Scan and Priority Scan modes
- 7) LED Indicator - Tri-colored light indicates status of radio
- 8) Speaker - 8 Ohm (please use symbol for OHM) internal speaker allows received messages to be heard
- 9) Microphone Connector - 8-pin, RJ-5 jack accepts microphone plug and is used for radio programming
- 10) External Auxiliary Connector - 3.5 mm jack is used for connecting an external speaker
- 11) High density DB-15 Connector - Option connector which supplies or receives audio levels. Can also be used with an external or internal radio modem to make the radio capable of sending or receiving mobile data information
- 12) Antenna Receptacle – Requires a 50 Ohm (please use symbol for OHM) load, PL-259 type (sold separately)
- 13) DC Power Cord – 13.8 VDC Polarized plug (for use in negative ground vehicles only)
- 14) Ignition Sense – (located on high-density DB-15 connector) Allows vehicle ignition to power radio on and off

- 15) Mounting Bracket with Hardware - Used to support the radio during installation
- 16) Microphone Hanger- Used to hang the microphone; also used to enable / disable CTCSS / CDDCS squelch functions

Display Icons and Indications

- S - Indicates scan mode is active
- P-Indicates Priority scan mode and assigned priority channel
- L -Low RF Power is active.

SM5402 Radio Operations

Power On / Off - Volume:

Turn the radio on by rotating the On / Off - volume control clockwise until you hear a click and, if enabled via Dealer programming, the self test “ alert” tone will be heard. SM5402Radio will briefly appear in the display. Turn the radio off by rotating the control counter clockwise.

Trunked Mode Operation

Your Maxon SM5402 Radio may be programmed to operate with both Trunked and Conventional modes. There are only a few differences in their operation and these are detailed as follows.

Channel Monitoring:

While on a Trunked System, channel monitoring is performed automatically by the radio transceiver. In accordance with the FCC rules, while operating on a Conventional System the channel must be monitored prior to transmitting. In both Trunked and Conventional Systems, operation may vary from System to System. Your Maxon Dealer will be able to assist with particular operational parameters and procedures for the various Systems and functions.

Trunked Mode Operation, Continued

System “ Handshaking”

In a Trunked System, when the P-T-T is pressed on the microphone, a “ Handshaking” routine occurs which establishes communications between the radio and Trunked System. When the LED indicator glows steadily red, voice transmission may begin. If your Maxon Dealer has enabled the “ Clear to Talk” tone option, the radio will emit a short tone signaling voice

transmission may occur. In Conventional Systems, there is no System “handshaking” and voice transmission may start immediately.

Transmitting

1. Rotate the On / Off - Volume control clockwise to turn the power on.
2. Adjust On / Off - Volume control further clockwise to increase the volume level.
Rotate counter clockwise to decrease volume level.
3. Select the desired System and Group using the Up/Down buttons located on the front of the unit.
4. Insure the microphone is secure in the Microphone jack located on the front of the unit, press and hold the P-T-T lever on the side of the microphone.
5. Listen for the “Clear to Talk” tone (or wait for the LED indicator to glow steady red) and begin talking. Hold the microphone 1 or 2 inches from your mouth, speak clearly and distinctly into the microphone area of the front grille.
6. Release the P-T-T lever as soon as the message is complete and listen for a response. The P-T-T lever must be pressed continuously while talking and released to listen.

Receiving

1. Turn power on and set the volume level as previously described.
2. Select the desired System and System Group.
3. When a message is received, the LED indicator will glow green.
4. Respond to message by removing the microphone from hook, then press the P-T-T lever on the side of the microphone. Press the P-T-T continuously while talking and release to listen.

If scanning modes are enabled be sure to respond before scanning resumes, if you do not, another call may be received and the selected System and Group may have to be changed. Scanning is indicated by scan mode icons. Refer to “Scan Modes” for more descriptive information.

Trunked Mode Operation, Continued

Transpond Mode

If Transpond has been enabled by your Dealer, your radio will automatically send (transpond) an acknowledgment to the System indicating that your radio has received a transmission. Transpond is a Dealer programmable feature.

Conventional Mode Operation

Your Maxon **SM5402** Radio may be programmed to operate in Conventional modes. Conventional mode may or may not require a Conventional repeater System. Radio to radio communications can also be accomplished in Conventional operation. How the Conventional mode is programmed is determined by your Dealer.

Transmitting

1. Rotate the On / Off - Volume control clockwise to turn the power on.
2. Adjust On / Off - Volume control further clockwise to increase the volume level. Rotate counter clockwise to decrease volume level.
3. Select the desired Conventional System and Group channel using the Up / Down buttons located on the front panel of the radio.
4. In a Conventional System it is necessary to monitor the channel for activity before a transmission. Monitor the channel by pressing the OPT (option) button located on the front panel and selecting monitor, once selected pressing OPT button once will begin monitor function, pressing OPT a second time will turn off monitor function. Monitoring of the channel can also be accomplished by observing the LED indicator for a solid yellow color. If solid yellow is observed, you must wait for the indication to leave before a transmission can be made.
5. Press and hold the microphone P-T-T lever on the side of the micro-phone, LED indication will glow red, hold the microphone 1 or 2 inches from you mouth, speak clearly and distinctly into the microphone area of the front grille.
6. Release the P-T-T lever as soon as the message is complete and listen for a response. The P-T-T lever must be pressed continuously while talking and released to listen.

Receiving

1. Turn power on and set the volume level as previously described.
2. Select the desired System and System Group channel.
3. When a message is received, the LED indicator will glow solid yellow or green depending if CTCSS tone or DCS has been programmed.
4. Respond to message by pressing the P-T-T lever on the side of the microphone. Press the P-T-T continuously while talking and release to listen.

If scanning modes are enabled be sure to respond before scanning resumes, if you do not, another call may be received and the selected channel may have to be changed. Scanning is indicated by the scan mode icons. Refer to “ Conventional Scanning” for more descriptive information.

Busy System Queuing

If enabled by your Dealer, Busy System Queuing will monitor the System for activity. Once the System becomes available the System will automatically be accessed and held for a period of time, determined by your Dealer, allowing you to transmit on the System. An audible indication will sound along with a flashing yellow LED indication when queuing has begun and again will sound when the System has been acquired. Busy System Queuing is available for both Trunked and Conventional System operation. The word QUEUING will also be shown in the display when busy system queuing has become active.

Multiple-Function Keypad Description

Your SM5402 Radio has five multiple function keypad buttons located on the front panel. An audible beep, if enabled by your Dealer, is heard each time an option button is depressed.

- * **Up / Down Arrow Keys** -These buttons will allow you to scroll Up or Down your preprogrammed Systems, Groups or option functions depending upon which button is pressed. A press and release will step once, a press and hold will scroll until button is released. All System and Group names will be shown in the display and are preprogrammed by your Dealer.
- * **Mode Button** -This button will allow you to return to your Home System / Home Group, or toggle between System, Group, Call Missed (CALL) and Display Brightness (BRIGHT). Press-and-release will toggle between System, Group, call and bright selection modes. A press and hold will tune to the Home System / Group. System and Group names will be displayed.

Multiple-Function Keypad Description, Continued

Call Missed

Call Missed mode, allows you to check for calls which you may have missed while away from your radio. Call Missed is a dealer program-mable function. A continuous flashing Phone Handset icon indicates a call or calls have been missed and are stored in the missed call list. To check for missed calls press and release the **MODE** button until the word CALL is shown in the display. Press the up or down buttons to view and select a call you desire to answer. Once selected pressing the P-T-T of the microphone will allow the missed call to be answered. Once answered that call will be removed from your call list. Up to 8 unanswered calls will be stored. Any new calls beyond 8 will be removed

from the list beginning with the oldest call. Pressing the mode button a second time will remove any unanswered calls and exit the call missed list.

NOTE: Scanning will be disabled when your call list is being accessed.

Display Brightness

Display Brightness mode, allows you to change the brightness of the display. To change the display brightness press and release the **MODE** button until the word BRIGHT is shown in the display. Press and release the up or down buttons to change the display brightness. There are 4 levels of brightness, continuously pressing up or down buttons will go back through your display brightness levels. Once selected the radio will return to the previously selected System or Group.

OPT (Option) - This button will allow you to enable or disable a selected optional function. A press and release, unless specified otherwise, will enable or disable the currently selected function Monitor (MONITOR), Auxiliary (AUXILIARY), Public Address (P/A), no option (NONE). A press and release followed immediately by a press and hold will allow selection of option functions using the up or down arrow buttons. Once option is shown in display a second key press of OPT will select option to be used under the OPT button indicated by the SCAN icon. If no button press is detected option will not be enabled and radio will resume previous operation. All option indications will be displayed by either an icon or in the LCD.

Scan Button - This button will allow selection between Scan and Priority scan modes. A press and release will enable normal scanning functions a press and hold will enable Priority Scan functions. A press and release will disable the selected Scan function. All indications will be displayed as icons, if normal scan is selected the **SCAN** icon will be shown. If priority scan has been selected both the **SCAN** and **P** icons will be shown.

Option Button Function Descriptions

Monitor

Monitor mode is only available for Conventional operation, if previously selected as the OPT button function, allows you to open the radios squelch to listen for activity before attempting transmission on a conventional Systems channel Group. Monitor also defeats CTCSS and CDDCS squelch functions. Monitor can be activated by a press and release of the OPT button opening the radios squelch. A second press and release of OPT button will close the radios squelch. When monitor is active the word MONITOR will show in the display.

Second press and release of OPT will deactivate horn and light function. The horn and light function can be used in conjunction with the Dealer programmable Call Missed feature. The call missed feature will store up to 8 unanswered calls.

Auxiliary

Auxiliary mode, if previously selected as the **OPT** button function, will enable or disable an external speaker option which may have been added to your radio. When activated by a press and release of **OPT** button the internal speaker to the radio will be disconnected and the externally attached speaker will become active. A second press and release will return to radios internal speaker. The auxiliary option can be activated with all other options with the exception of NONE. When other options are selected the attached external speaker will always be active until the other selected option is disabled.

Public Address

Public address mode, if previously selected as the **OPT** button function, allows the microphone to be used as a public address or intercom feature. When activated by a press and release of the **OPT** button the internal speaker to the radio will be disconnected and the externally connected Public address speaker will become active allowing only your voice transmission over the externally connected speaker. The radios transmitter and receiver will also be deactivated. A second press and release will return radio to normal operation. The word P/A will be show in the display when option is active.

Status Indicators and Audible Alert Tones

Your series has a sophisticated microprocessor control which provides a series of audible alert tones.

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

- Attempt to transmit on a System / channel that is already in use when busy channel lockout has been programmed into the radio.*

- Call Received.*
- Clear-To-Talk / Transmit, indicates you may now begin speaking. *
- Transmit not available, indicates you are denied transmit on that System / channel.*
- Busy System Queuing, indicates your radio has been placed in the queuing mode and is attempting to access the System.
- Out of Range, indicates you are out of range of the System.
- Time-Out-Timer, indicates you have exceeded the maximum transmission time.*
- Busy Channel Lockout, indicates transmission cannot occur while channel is active.*

* Indicates a function that is initially programmed into the radio by your Dealer. The majority of LED indications and audible alerts can be enabled or disabled by your Dealer via programming.

STATUS	DESCRIPTION	LED COLOR/ICON	AUDIBLE TONE	DISPLAY
Normal	Power On - Ready	Red, Yellow, Green -Flashing	Single Beep	
	Call Received	Yellow	Single Beep	
	Correct Call	Green	Single Beep	
	Transmit	Red		
	Busy Channel	Yellow		
	Transmit not Allowed	Yellow -Flashing	Busy Tone - Repeated	
	Priority	Icon		P
	Auxiliary	Icon - Flashing		(musical note)
System	Trunked or Conventional	Icon		SYS
	Clear to Talk	Red	Single Beep	
Trunked	Out of Range	Red, Yellow - Flashing	Two Beeps- Repeated	RANGE
Warning	Busy System Queuing	Yellow -Flashing	Single Beeps- every 10 seconds	QUEUING
	Busy System Accessed	Yellow -Flashing	Single Beeps -Repeated	
	Queue Time-out		Single Tone -2 seconds	
	Time- Out		Single Tone	TIME OUT

	-Timer			
	Horn and Lights	Green, Yellow - Flashing		HORN-LT

Status Indicators and Audible Alert Tones, Continued

STATUS	DESCRIPTION	LED COLOR/ICON	AUDIBLE TONE	DISPLAY
	Call Missed	Icon - Flashing		CALL / Flashing Phone handset
	Busy Channel Lock Out	Yellow	Busy Tone - Repeated	BUSY
Scanning	In Normal Scan Mode	Icon		SCAN
	In Priority Scan Mode	Icon		SCAN with P
	Scan List Editing			EDIT GRP, EDIT PRI or EDIT SYS
	In Scan List	Icon	Two Beeps	S or P
	Not in Scan List	No Icon	Two Beeps	

Scan Modes

Your SM5402 Radio may be programmed for one or more scan modes depending upon your Dealer programming.

LTR Manual Group Scan

To enable LTR manual Group scan, enter normal scan by a press and release of the scan button on the radios front panel. The scan icon will show in the display. In this scan mode the radio will scan all LTR receive Group IDs. Upon receiving the correct ID the radio will allow transmission on that Group ID until scanning resumes.

LTR Auto Group Scan

Operation is the same as for LTR Manual Group Scan with the exception you do not need to press the scan button. This function is pre-programmed by your Dealer.

Scan Modes, Continued

Conventional Group Scan

To enable Conventional Group Scan, press and release the scan button on the front panel. The scan icon will show in the display. A press and hold of the scan button will activate priority scan. A second press and release will turn scan off. Conventional Group Scan performs in the same manner as LTR manual group scan with the exception, ID codes are not required. Only those groups enabled in the group scan list will be scanned.

Editing Scan List

You as a user can edit your Priority your Group scan list and your System scan list. To activate Scan list editing, first determine if you will be editing your System scan list or your Group scan list. Select either System mode or Group mode using the mode button located on the front panel.

Once System or Group mode has been entered turn the radio off using the control knob. Press and hold the scan button and at the same time turn the radio power back on while continuing to hold the scan button. Your display will show one of the following:

EDIT GRP
EDIT SYS
EDIT PRI

Continue holding the scan button until the desired edit function is shown in the display. Once desired edit function is shown release the scan button. Use the up or down buttons to select the desired System or Group to add or delete from the scan list. Once selected press and release the mode button to add or remove from your list. The scan icon indicates if your selected System or Group has been added. When list is completed press and release the scan button to exit mode and resume normal radio operation.

Editing Scan List, Continued

If EDIT PRI has been entered only one channel Group can be used as a priority. Use the up or down buttons to select the desired Group to add or delete the priority channel. Once selected press and release the mode button to add or remove the priority channel. The P icon indicates if your selected Group has been added as the priority. When priority channel has been selected press and release the scan button to exit mode and resume normal radio operation.

Conventional Scanning

Your PM-200 series can be programmed for one of six different scan types, determined by your Dealer. To enable Scan or Priority scan functions, press and release the scan button for scan or press and hold for priority scan functions. Only those channel groups included in the scan list will be scanned.

During scan operations your radio will show dashed lines across the display. When a call is received or transmission is made the Group name will be shown in the display. When programmed for Priority Look Back your radio will show the selected channel Group name in the display instead of the dashed lines.

Talk Back Scan

RX: Your radio only receives calls from its scan list. After a scanned call is received the scan wait time will be active allowing you to pick up the microphone and answer the call. If the call goes unanswered scanning will resume after scan wait time has expired.

TX: Your radio will transmit only on its received scanned Group. After transmission is completed the scan delay time will become active allowing for a call to be immediately returned before scanning resumes.

Talk Back Scan is enabled by entering the scan mode and is indicated by the **SCAN** icon.

RX only/TX disable

RX: Your radio will only receive calls from the scan list.

TX: No transmissions are allowed. If transmission is attempted, an alert will be sounded.

RX only/TX disable scan is enabled by entering the scan mode and is indicated by the scan icon.

Priority TX Scan

RX: Your radio will receive calls from its selected scan list. After a scanned call is received the scan wait time will be active allowing you to pick up the microphone and answer the call. If the call goes unanswered scanning will resume after scan wait time has expired.

TX: During scan if a transmission is made your radio will transmit on the selected priority channel Group. If you receive a call from a scanned channel Group you will be able to transmit on that received channel.

Priority TX scan is enabled by entering the priority scan mode and is indicated by the scan and “P” icons.

Priority only TX

RX: Your radio will receive calls from its selected scan list. After a scanned call is received the scan wait time will be active allowing you to pick up the microphone and answer the call. If the call goes unanswered scanning will resume after scan wait time has expired.

TX: All transmissions will be made on the programmed priority channel.

Priority only TX scan is enabled by entering the priority scan mode and is indicated by the scan “ P ” icons.

Priority Look Back Scan

RX: When any channel Group other than the programmed priority channel Group is selected that selected channel Group will become the Look Back channel. Your radio will look back to the programmed priority channel Group. While the radio is receiving a call on its selected channel, it will look for a call from the programmed priority channel. If a call is detected on the priority channel, the radio will leave the current call and receive the priority call. When look back time expires, the radio will go back to the selected channel and resume priority look-back operation. After a scanned call is received the scan wait time will be active allowing you to pick up the microphone and answer the call. If the call goes unanswered scanning will resume after scan wait time has expired.

TX: The radio will only transmit on the selected channel Group or the scanned priority channel Group. After transmission is completed the scan delay time will become active allowing for a call to be immediately returned before priority look back resumes.

Priority look back is enabled by entering the priority scan mode and is indicated by the scan “ P ” icons.

Vacant Channel Scan

RX: Normal Scan operation.

TX: The radio will step through the scan list and transmit on the first non-busy channel.

Nuisance Delete

If a channel contained in the scan list is constantly being scanned because of unwanted “ chatter ” , you can temporarily delete the channel from your list by pressing the monitor button. Nuisance delete can only be initiated when scan is active and the radio is receiving the call on the channel to be deleted. Nuisance delete will be deactivated for all channels by turning scan off.

TMF Microphone Operation

The optional TMF microphone can be used in conjunction with your radio to operate on telephone interconnect systems, if programmed by your Dealer. The (Phone) icon will be displayed when an interconnect Group has been selected in the trunked mode, no icon will be shown for conventional operation. The microphone can be operated in an auto dial mode or manually operated and is back lighted for low light conditions. The microphone can also be used for DTMF applications other than telephone interconnect. Consult your Dealer for other application possibilities.

A telephone ringer will be heard when a telephone connection has been established or for an incoming call.

Auto Dial Operation

Up to 16 digits can be dialed when using auto dial. Follow these steps to place a call using auto dial.

1. Ensure you have selected the appropriate System with an interconnect Group.
2. Enter the desired number by pressing and releasing **0 –9**, * or # keys. The dialed numbers will appear in your radio display. # will be indicated as **P** in your display. **Note:** The # key is normally used to end, or hang up, an interconnect system. Consult your Dealer for exact system operation.
3. Press the **SND** key to send the dialed number.
4. When the called party answers, press the P-T-T of the microphone to answer. Release the P-T-T to listen for a response.
5. When the conversation has ended Press and hold the P-T-T of the microphone press and hold the # key for 1 or 2 seconds to end the call. Release the P-T-T when the call has ended.

Manual Dial Operation

1. Ensure you have selected the appropriate System with an interconnect Group.
2. Press and hold the P-T-T of the microphone and enter the desired number by pressing and releasing **0 –9**, * or # keys. The dialed numbers will appear in your radio display. # will be indicated as P in your display. **Note:** The # key is normally used to end, or hang up, an interconnect system. Consult your Dealer for exact system operation.
3. When dialing is complete release the P-T-T and wait for the called party to answer.
4. When the called party answers, press the P-T-T of the microphone to answer. Release the P-T-T to listen for a response.

5. When the conversation has ended Press and hold the P-T-T of the microphone press and hold the # key for 1 or 2 seconds to end the call. Release the P-T-T when the call has ended.

Clearing a Dialed Number

When a number has been accidentally entered during auto dial a press and release of the CLR key will delete an individual number. A press and hold of the CLR key will clear the entire dialed number.

To Store a Number in Memory

1. Dial the desired number. Entered number will show in the radio display.
2. Press and release the STR key.
3. Press and release any number 0 – 9 to store the number, * and # cannot be used for storing a number. STORed will show in the radio display indicating the number has been stored in memory under that key.

To Recall a Stored number from Memory

1. Press and release the RCL key.
2. Press and release the number key from which a number has been stored.
3. Press SND to dial the recalled number.

If a number has been accidentally recalled repeat steps 1. and 2. until the proper number has been recalled.

Clearing a Stored Number

1. Press and release the RCL key.
2. Press and release the number key from which a number has been stored. The stored number will show in the radio display.
3. Press and hold the CLR key to remove the stored number. A new number can now be entered and stored in that location.

FCC Licensing

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

Consult with your Maxon 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 serviceable items inside the radio. It is recommended that you return your radio to a qualified Maxon Dealer for any service or repairs.

Software Copyrights

The Maxon product(s) described in these operating instructions may include copyrighted Maxon software programs stored in semi-conductor memories or other media. Laws in the United States and other countries preserve for Maxon certain exclusive rights for copyrighted software programs, including the exclusive right to copy or reproduce in any form the copyrighted software program. Accordingly, the copyrighted Maxon software programs contained in the Maxon products described in this operating 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 **SM5402** 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.

Product Warranty

MAXON Dealer warrants that the Products and included accessories sold herein will be free from defects in workmanship or materials under normal use and service for a period of two (2) years from the date of purchase by the original end user, provided that the buyer has complied with the requirements stated herein. This warranty is offered to the initial end user and is not assignable or transferable. MAXON Dealer is not responsible for any ancillary equipment which is attached to or used in conjunction with Maxon products.

If the Product fails to function under normal use because of manufacturing defect(s) or workmanship during the two (2) years period following the date of purchase, it will be replaced or repaired at MAXON Dealer option at no charge when returned to the place of purchase. The defective unit must be accompanied by proof of the date of purchase in the form of a sales receipt.

The sole obligation of MAXON Dealer hereunder shall be to replace or repair the Product covered in this Warranty. Replacement, at MAXON Dealer option, may include a similar or higher-featured product. Repair may include the replacement of parts or boards with functionally equivalent reconditioned or new parts or boards. Replaced parts, accessories, batteries, or boards are warranted for the balance of the original time period. All replaced parts, accessories, batteries or boards become the property of MAXON Dealer.

MAXON Dealer shall have no obligation to make repairs or to cause replacement required through normal wear and tear or necessitated in whole or in part by catastrophe, fault or negligence of the user, improper or unauthorized alterations or 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.

The user is responsible for the payment of any charges or expenses incurred for the removal of the defective product from the vehicle or site of its use, for the transportation of the product to the place of repair, for the return of the repaired / replaced product to the site of its use and for the reinstallation of the product.

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 MAXON Dealer 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 U. S. A.