MP-4000 Series Two-Way Radio

User Guide

VHF
Transceiver
MP-4116
(Non-Display)
MP-4124
(Display)

UHF
Transceiver
MP-4416
(Non-Display)
MP-4424
(Display)

maxon®
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Table of Contents

Thank you for your purchase of the MP-4000 Series radio

1. Please read the User's Guide before operating the radio.
2. Radio function & specifications are subject to change without notice for product improvement.

1. In-Box Contents *(Subject to Change at Retailer's Request)*

Display or Non-Display Radio

Battery & Dual Slot Charger

DC Adapter

Belt Clip

Antenna

Radio Manual

Accessory Part Numbers

ACC-405N: Radio Programming Software

ACC-405RN: Radio Programming Software (Non-Display/Rotary Version)

ACC-3320E: Programming Cable (USB)

TSA-4260: 2,600mAH Li-ion battery pack

TSA-0400: Dual Slot Charger

TSA-041: VHF antenna 6"

TSA-044: UHF antenna 5¼"

TA-836X: Standard Speaker Microphone

TA-850X: Heavy Duty Speaker Microphone

TA-855X: Heavy Duty Speaker Microphone w/volume control

TA-817X: "D" Style earpiece w/PTT

TA-818X: "Discrete" Style earpiece w/PTT

TA-819X: "C" Style earpiece w/PTT

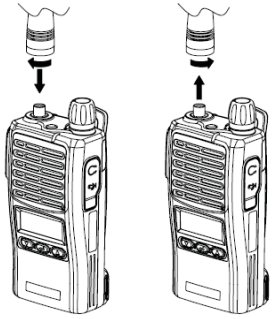
TA-50LC/80LC (Display): Leather Carry Case

TA-50NC/80NC (Display): Nylon Carry Case

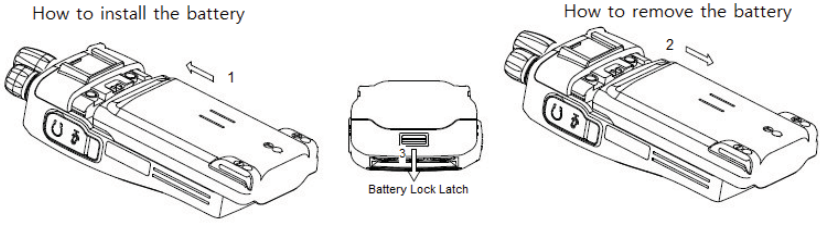
TSA-40BC: Spring Loaded Belt Clip

2. Operating Both MP-4000 Series Radios

Antenna Attachment and Removal: Turn the antenna clockwise to put on and tighten the antenna and then counterclockwise to loosen and take off the antenna as shown in diagram on right.



Battery Attachment and Removal:

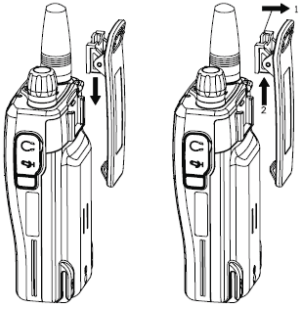


As shown the figure above, to install the battery, align the battery pack with the groove of the back of the radio and push up *(in the direction of arrow 1)* to attach the battery. Battery latch will click shut when locked.

To remove the battery, pull the battery lock down *(in the direction of arrow 3)* and slide the battery down and off of the radio.

Belt clip installation: Belt clip attaches to the back of the radio above the battery. To attach the belt clip, align the belt clip to the grooves on the back of the radio as shown and push it down *(arrow)*. Clip will “click” when locked.

Belt clip removal: To remove the belt clip, push the belt clip locking tab in *(direction 1)* & pull the belt clip up *(direction 2)* at the same time.



3. Battery & Charging Information

3.1 Safety Notes

1) The MP-4000 Series radios use a large capacity 2600 mAh Li-ion battery (TSA-4260).
   Use the original battery and charger to ensure you are using safe and reliable equipment.
2) Please use a fully charged battery before using the radio for best performance and safety.
3) Turn off the radio before charging the battery.

3.2 When to Charge Your Battery

When your radio has low battery power, the distance it can communicate becomes shorter and the radio performance is degraded. These are the radio's indicators to alert you to a low battery:

1) Non-display radio: Red LED will blink steadily if battery is low. Radio will automatically shut off if battery charge is too low to operate.
2) Display radio: Battery indicator icon and red LED will blink along with an alert tone. If the voltage gets too low, the radio will turn itself off with "Power OFF!" displayed and a series of beeps.

3.3 How to Charge

1) Plug the adapter of the TSA-0400 charger into a general AC120V power outlet.
2) Turn off the radio before charging.
3) Insert radio into the charging port with the charging contacts on the outside of the radio lined up with the contacts on the charger. LED will turn on when the connection is made. Charging is complete when the green LED is lit.

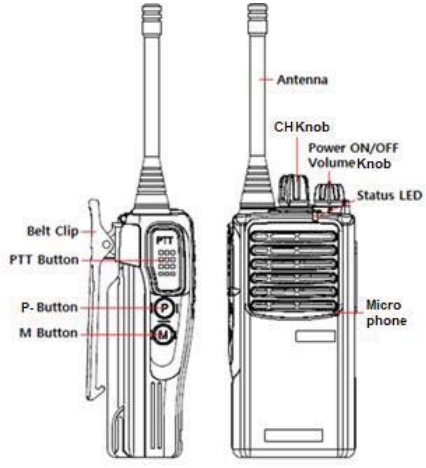
Status	LED indication
Charging	Red LED light
Charging Complete	Green LED light
Error Detected (Battery)	Red LED blinks

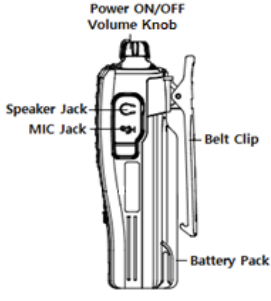
3.4 Charger (TSA-0400) Specification

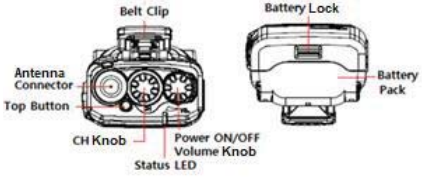
The TSA-0400 charger is designed to charge only the enclosed Li-ion battery.
Charger Specs:

- INPUT VOLTAGE : DC 12V, 1000mA
- BATTERY : TSA-4260 (2600mAh)
- QUICK CHARGING TIME: : Approx. 4.5 hours

4. Controls and Appearance of MP-4116/4416







Power ON/OFF Volume Knob
Turns radio on/off and adjusts audio volume level.

Channel Knob
Change channels by turning the channel knob clock-wise or counter-clockwise. A maximum of 16 channels can be inputted using the programmer. Voice announcement of the channel can be turned on/off with the radio programmer. If the channel is not assigned, the radio will beep.

PTT Button
Press the PTT button to transmit voice. Release the PTT button to receive voice. It is recommended to talk 2" to 4" away from the microphone.

P Button
Used to start and stop scan. Pressing and holding the button during power up places the radio into programming mode.

M Button
This button is used to monitor a channel for activity. When the LED blinks green, the channel is busy and pressing the monitor button allows you to hear the conversation.

TOP Button (Orange)
This is the Emergency Call button and can be enabled/disabled in the programmer. Pressing the button will activate an alarm on the radio itself and transmit the radio ID to other radios. This ID is setup in the DTMF Encoder of the programmer.

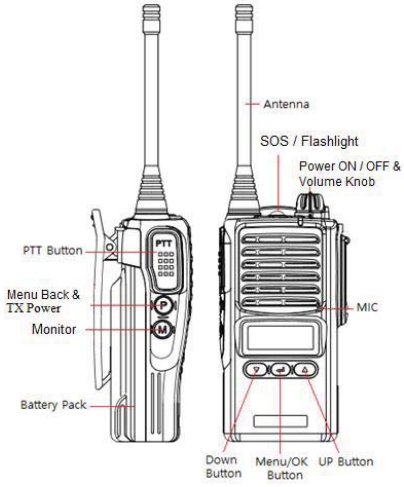
Speaker/MIC Jack
The accessory connector is used to connect an external speaker microphone or headset. It is also used for programming. Keep cover closed when not using accessories.

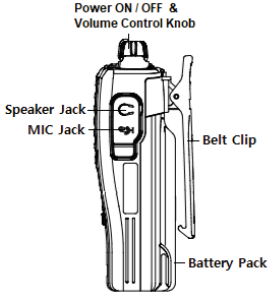
Status LED
Indicates if the radio is in standby, Rx or Tx mode. It also blinks when the battery is low.

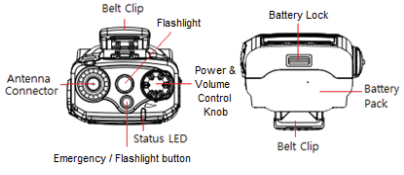
5. MP-4116/4416 Non-Display Functionality Chart

Function	Key & Setting	Status LED	Descriptions
Power ON/OFF	ON/OFF/Volume Control		"Chime" sound is heard.
Transmit (TX)	PTT Button	High/ Low Power: Red	Press PTT to transmit voice and tones.
Receive (RX)	Release PTT Button	Green	Green LED blinks if CTCSS or DCS tones are mismatched.
Channel Change	Channel knob		Turn the channel knob to the desired channel number. Option for Voice Announcement of channel number is available through radio programmer.
Adjustment of TX Output Power	H: PTT Button + P Button L: PTT Button + M Button	Red for PTT. Amber when switching to high power.	Press PTT first and toggle the power by pressing either "P" or "M".
SCAN	"P" Button		Searches the channels in the scan list for activity. When a channel is received, TX is allowed on that channel if PTT is pressed during the scan dwell time. When the timer expires, scan resumes and TX returns to the channel you've previously selected.
Monitor	Monitor Button(M)	Green	Opens up the receiver audio to check for channel activity.
BCL/BCLO	Setting in SW Program		Prohibits Tx when channel is busy. When PTT is pressed, a beep will sound.
TOT	Setting in SW Program		Controls transmission time. Can prevent user from accidental Tx.
Lone Worker	Setting in SW Program	Red	Used to transmit emergency alarm when the radio has not been used for a set period of time.
Emergency Button	On/Off Setting in SW Program		When you press the Emergency button, you will activate an emergency alarm siren on your radio and the radio will transmit the radio ID to your party.
Set Squelch	Button(P) + Button(M) + Power ON	Green LED blinks	After selecting your desired level (1~5) by the channel knob, press the PTT button and then turn radio off, then back on.

6. Controls & Appearance of MP-4124/4424 Display







Power ON/OFF Volume Control Knob
Turns radio on/off and adjusts audio volume level.

PTT Button (Push-To-Talk Button)
Press and hold the PTT button to transmit voice or tones and then release to receive.

Menu/OK/Enter (programmable button)
Used to make selections or enter menus.
A long press places the radio into scan mode.

P Button - Menu Back/Power (programmable button)
A short press will toggle the transmit power to high or low power. A short press when in a menu will move you one step back. Long press + Power ON will enter programming mode.

M Button - Monitor Button (programmable)
This button is used to monitor a channel for activity. A short press will open the squelch on the radio momentarily. A long press will open the squelch continuously.

Up/Down (programmable button)
Operates both as normal channel UP/DOWN button when not in a menu and also as an UP/DOWN selector when in a menu.

(SOS) Emergency Button & Flashlight
Short press will set off an emergency tone.
Long press of this button turns on/off the flashlight.

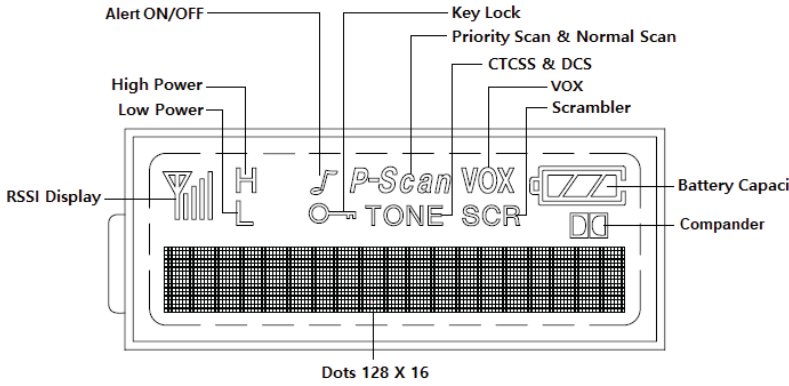
Status LED
① RX : Green LED
② TX : Red LED
③ CTCSS, DCS Mismatch (RX) : Green LED blinks
④ Low Battery: Red LED blinks with “beep” sound.

Speaker/MIC Jack
The accessory connector is used to connect an external speaker microphone or headset. It is also used for programming. Keep cover closed when not using accessories.

MIC
Talk 2” from the mic hole for optimum clarity.

7. Operating Instructions for MP-4124/4424 Display

LCD Descriptions & Icons



7.1 Power ON/OFF

Turn Power knob clockwise to power radio on. Radio backlight will turn on and you will hear a power on chime.

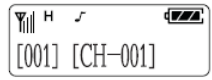
☞*Note: You may enter a special radio mode or programming mode when turning power on in conjunction with a button press. To get out of this state, just turn the radio off and then on again without pressing any buttons. Contact your dealer if you need more details.*

7.2 Transmit & Receive

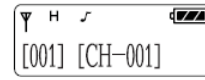
To transmit, press the PTT button on the left side of the radio. If DTMF Encode is set, voice communication will be interrupted for several seconds while the ID is sent. LED will turn red during transmission. It is recommended to talk 2" away from the microphone for clarity.

☞*Note: Certain programming parameters can affect transmit. These are:*

a. *BCL (Busy Channel Lockout) prevents transmit when the radio is receiving.*
b. *TOT (Timeout Timer) stops the radio from transmitting after a predetermined time.*
c. *TX Inhibit: Transmit is not allowed on a per channel basis.*



Reception



Transmission

The radio is in standby mode when the PTT button is not pressed. During reception, the LED will be green. You can adjust the volume with the Volume/Power knob.

7.3 Changing Channels

Up and Down buttons (▼, ▲) are used to change channels. When either button is pressed, a “beep” sound may occur and the channel number will either increase (▲) or decrease (▼).

7.4 Adjusting the Transmission Power

The user can change the transmission power - High Power or Low Power. By pressing Up button (▲) while PTT button is being pressed, the user can select “H” (High Power), or by pressing Down button (▼) the user can select “L” (Low Power). By selecting Low Power under optimal coverage conditions, the user can extend the battery use time.

7.5 Scan

Long press “Enter” button for 2 seconds in Standby mode to activate Scan function. After Scan function is activated, the radio will automatically search channels and detect a channel corresponding to the frequency. To deactivate Scan function, press “Enter” button once.

7.5.1 Normal Scan

In Scan mode, the screen displays “S” icon. When the scan list is S1, S2, S3, the radio does its channel scan in the sequence of S1, S2, S3, S1, S2, S3 ...
When you receive a signal, if you press UP(▲), it changes to the next scan channel. DOWN (▼) button will delete the receiving channel temporarily from the scan list at which time you can move to the next channel.

7.5.2 Priority Scan

In Scan mode, the screen displays “S” icon. The radio “Priority Scans” the channel in the sequence of P, S1, P, S2, P, S3…
When receiving a signal through the common channel, the radio scans the priority channel periodically and if it detects the Priority channel, it starts receiving the channel.

7.6 Key Lock function

If Key Lock has been programmed into the radio, short press the assigned button to enable it, long press to disable. When enabled the key icon will appear on the LCD. When the lock is on, all buttons are disabled except for the PTT and the Monitor buttons.

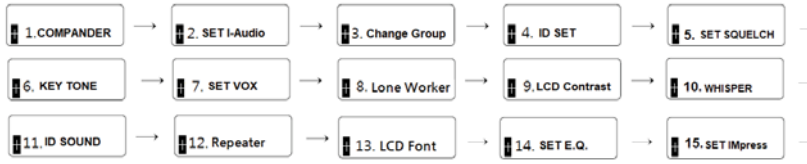
7.7 Emergency Call function

Press the orange button on the top of the radio to send out a distress alert. The radio itself will alarm several seconds then transmit an alarm over the air. This feature can be turned OFF/ON and adjusted with the radio programming software.

7.8 MP-4424/4124 Main Menu Mode

To enter the Main Menu where you can adjust the radio settings, short press the Menu/OK Button.

Using the (▼, ▲) buttons, scroll to the desired selection. Press Menu/OK to enter the selection, scroll with the up/down buttons and press Menu/OK to make the selection. To back out of the menu, short press the (P) button. This procedure can be used for all of the menu items.



1) Compander

Compander is used to reduce background noise for the transmitting radio. You can turn this on or off through this menu. You can also adjust this setting through your radio's programming software.

2) I Audio (Intelligent Compander)

I Audio removes the white noise when the radio is receiving.

3) Selecting Groups

The radio is designed to have a total of 1024 channels and 32 Groups. Channel allocation into the groups is assigned using the programmer. Selection of groups is performed on the radio.

4) Setting ID

Each radio can have its own ID, that when enabled, is transmitted via a 5-digit DTMF number. The receiving radios will display the ID. This can be enabled/disabled by the software or by the user.

5) Set Squelch

Squelch sensitivity level is selectable from 0 ~ 9. 0 will cause the radio to have open squelch while 9 is tight squelch. The tighter the squelch, the less range you will have. Default value is level 5.

6) Key Tone

Button sound has 3 adjustable settings through the radio menu (High, Low, OFF). If you select OFF, the note icon will disappear on the LCD.

7) VOX

VOX enables users to communicate without pressing the PTT button. There are 2 settings, first is Enable/Disable and the second one is the sensitivity level. The range is from 1 ~ 10 with 1 being the most sensitive.

8) Lone Worker

Lone Worker automatically transmits the emergency alarm sound if the radio user, does not press PTT within a predetermined time. The reminder time and the response time are both setup using the programming software. When activated, the radio emits an audible alarm and the light comes on. This is followed by a transmitted alarm for other to hear.

9) LCD Contrast

Select the Level (10~30) of LCD contrast with the Up/Down buttons (▼,▲). Save the selected

status by pressing the Menu/OK button. Increasing the level will make the screen darker.

10) Whisper Mode

Whisper function enables the user to transmit a loud volume even if he is whispering on the radio.

11) ID Sound

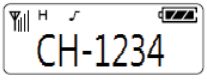
ID Sound sets the volume level of the DTMF tones being sent. There is a High and a Low setting.

12) Repeater

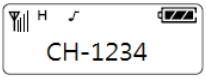
A repeater can be made by connecting 2 MP-4000 Series radios together. When the radios are setup for repeater mode, the first channel in each radio determines the RX and TX frequency of the repeater. The transmitted audio level from the repeater is set by the volume control on the RX radio. Contact your dealer for more information.

13) LCD Font

You can adjust the LCD font size through the settings menu on the radio. Select **"LCD Font**" in the settings menu. Select **Font Size?** "Y" to increase font size or "N" to decrease font size.



Enlarge font **(Y)**



Normal font (N)

14) Set E.Q

EQ (Equalizer) function adjusts the receive audio quality There are 4 preset settings to use.

Description	Characteristics	Remark
E.Q Sound 1	6dB/oct	Low-pitched tone
E.Q Sound 2	5dB/oct	
E.Q Sound 3	4dB/oct	
E.Q Sound 4	3dB/oct	High-pitched tone

16) Impress

This is used to clarify your voice transmission regardless of volume, direction, or the distance from the microphone.

8. Precautions & FCC

8.1 Precautions for Safe Operation of this equipment.

	Don't remove the antenna from the radio and don't modify the antenna or make any changes to the antenna. Strong electronic waves emitted from the radio can have an effect on the performance of the radio if the antenna is modified and can cause the radio to have a defect not covered under warranty.
	Don't use other manufacturer's accessories (such as rechargeable batteries, adapters, external speaker microphone and earphone, etc.). Unknown or unauthorized accessories may damage the radio and void the warranty.
	Don't disassemble or reorganize the radio. The disassembly or reorganization of your radio is punishable by law and can cause damage to the radio that will not be covered by the warranty
	Don't use frequencies you do not have a permit for.
	Avoid excessive shock to the radio. Don't place the radio where the direct sunlight and/or the high temperature occurs, battery damage can occur in this environment. Do not disassemble or damage the battery pack.

8.2 Do not use the radio where prohibited.

Your radio emits a strong electronic wave which may have an effect on the operation of other equipment and can also be affected by those other devices.

	Please turn off the radio before boarding an airplane. If you want to use the radio in the airplane, please follow the airplane and crew rules & instructions.
	If using radio in an area where medical equipment is being used, please get permission from relevant staff to prevent interference issues.
	Be careful when using your radio in a place where computers or other electronic devices are being used because the strong electronic waves from the radio can affect this equipment.

8.3 Safety Notes

Please read the following recommendations for safe and effective use of the radio.

- Please keep the radio away at least 1 inch from the body.
- Do not touch antenna if it is damaged. Risk of skin burn can occur if the outside surface of antenna gets stripped out.
- Please be careful when putting the battery in a pocket or a bag. If you contact a conductive metal to a battery terminal, there is a heat and fire risk to your radio.
- Please don't listen to the radio at a high-volume level when using earphones. Loud volume may have a lasting bad effect on your hearing.
- It is recommended to adjust the volume step by step to the level you want after you set the radio volume of the radio at a low level.
- Please don't remove or replace or charge or discharge the battery in an hazard area where sparks could cause an electrical fire.
- Turn off the radio in areas where there is a strong electromagnetic force.

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. 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 1 inches (2.5 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 thes e restrictions means violation.

This device complies with part 15 of FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference and (2) This device must accept any interference received, including interference that may cause undesired operation.

Warranty Card

Thank you for purchasing a MP-4000 Series radio.

1. This product has passed strict quality control and testing procedures

2. Warranty is one year from original date of purchase from an authorized Maxon Dealer.
   • Failure of the product under normal operating conditions, during the warranty period may be repaired by Maxon America free of charge.

3. For the following cases, service fees will be charged.
   • When repair occurs after the warranty period has passed.
   • When the product is damaged due to user's mishandling, abuse or improper operation.
   • When the product is damaged due to user's modification, attempted repair or otherwise access to sealed/non-user serviceable items.
   • When the product is damaged due to fire, pollution, earthquakes and any other natural or unnatural conditions, accidents, etc.

4. Personal information for radio:

Model No.		MP-4000 Series
Serial No.		
Purchase date		
Purchaser	Name	
	Address	

※ Please contact Maxon below for Return Merchandise Authorization (RMA) number before you send your radio back for service.

Maxon America

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