RFWIZ.com

maxon®

Maxon America, Inc.

11535 W. 83rd Terrace, Lenexa, KS 66214
Toll-Free: 800-456-2071 (US Only)
Phone: 913-859-9515
Website: www.maxonamerica.com
Email: maxon@maxonamerica.com

Printed in Korea

USER MANUAL

VHF Transceiver
TM-2102 / TM-8102 / TM-8104

UHF Transceiver
TM-2402 / TM-8402 / TM-8404

maxon®
Maxon America, Inc.
11535 W. 83rd Terrace, Lenexa, KS 66214
www.maxonamerica.com

Table of Contents

1. Safety / Warnings 2
2. Features 5
3. Appearance of TM-2000 / TM-8000 Series Mobile Radio 6
4. Controls & Keys 7
5. Menu Description 15
6. Terminal Description 24
7. Specifications 26
8. Warranty Statement 28

1. Safety / Warnings

Notices

- Government law restricts the operation of unlicensed radio transmitters within government controlled territories.
- Illegal operation is punishable by fine or imprisonment or both.
- Refer service to qualified technicians only.

EXPLOSIVE ATMOSPHERES (GASES, DUST, FUMES, etc.)
Shut OFF the transceiver while refueling or while parked in gasoline service stations.
Do not carry spare fuel containers in the trunk of your vehicle if your transceiver is mounted in the trunk area

INJURY FROM RADIO FREQUENCY TRANSMISSIONS
Do not operate your transceiver when somebody is either touching the antenna or standing within two to three feet of it to avoid the possibility of radio frequency burns or related physical injury.

Precautions

Please read carefully the following precautions to prevent fire, personal injury, or transceiver damage:

- Do not attempt to configure your transceiver while driving, it is dangerous.
- This transceiver is designed for a 13.8V DC power supply. If installing radio into equipment using a 24V ignition system, voltage supplied to the radio must be reduced to below 16V DC to avoid damage to the radio.
- Do not put the transceiver in excessively dusty, humid or wet areas, nor unstable surfaces.
- Do not modify the transceiver for any reason.
- Please keep it away from interferential devices (such as TV, generator, medical devices, etc.)
- Do not expose the transceiver to long periods of direct sunlight nor place it close to heating appliances.
- If an abnormal odor or smoke is detected coming from the transceiver, turn OFF the power immediately. Contact an Authorized Dealer.
- Do not transmit with high output power for extended periods; the transceiver may overheat.
- Do not operate the transceiver when vehicle engine is stopped for extended periods. The vehicle engine may not be started due to low battery.
- Do not use incompatible accessories from other manufacturers. It could result in damage and or malfunction to the accessory and or to the radio.

Preparation

Electronic equipment in your vehicle may malfunction if they are not properly protected from the radio frequency energy which is present while transmitting.
Typical examples include electronic fuel injection, anti-skid braking, and cruise control. If your vehicle contains such equipment, consult the dealer in determining if they will perform normally while transmitting.

Power Cable Connection

The transceiver operates on 12V negative ground systems only! Check the battery polarity and voltage of vehicle before installing the transceiver.

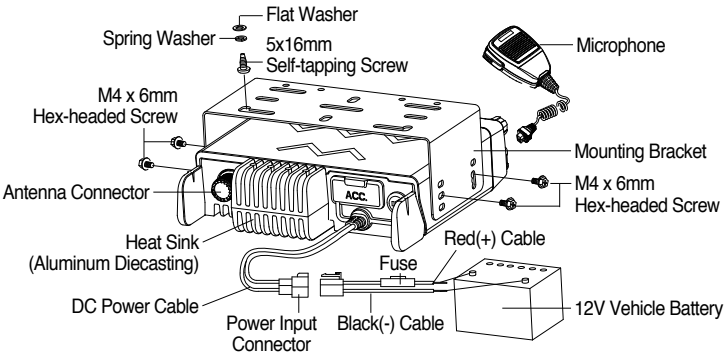
1. Check for an existing hole, conveniently located in the firewall, where the power cable can be passed through.
   • If no hole exists, use a circle cutter to drill a hole, then install a rubber grommet.
2. Run the power cable though the firewall and into the engine compartment.
3. Connect the red lead to the (+) battery terminal and the black lead to the negative (-) battery terminal.
   • Place the fuse as close to the battery as possible.
4. Coil the surplus cable and secure it with a retaining band.
   • Be sure to leave enough slack in the cables so the transceiver can be removed for servicing while keeping the power applied.

Installing the Transceiver

For passenger safety, install the transceiver securely using the supplied mounting bracket and screw set so the transceiver will not break loose in the event of a collision.

1. Mark the position of the hole in the dash, using the mounting bracket as a template. Using a 4.2mm (5/32 inch) drill bit, drill the holes, then attach the mounting bracket using the supplied screws.
   • Mount the transceiver within easy reach of the user and where there is sufficient space at the rear of the transceiver for cable connections.
2. Connect the antenna and the supplied power cable to the transceiver.
3. Slide the transceiver into the mounting bracket and secure it using the supplied hex-headed screws.
4. Mount the microphone hanger in a location where it will be within easy reach of the user.
   • The microphone and microphone cable should be mounted in a place where they will not interfere with the safe operation of the vehicle.

When replacing the fuse in the DC power cable, be sure to replace it with a fuse of the same value. Never replace a fuse with one that is rated with a higher value.



Connecting Microphone

1. Insert the microphone plug into jack on the front panel of the transceiver.
   • Be sure the tab on the microphone plug is facing the left hand side (Figure 1-2).
2. Mount the microphone on the microphone hanger where it will be within easy reach of the user.
3. To remove the microphone plug, press the tab on the connector while pulling the plug out of the transceiver jack.

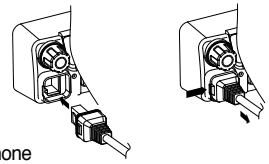


Figure 1-2) Installation and Removing of the Microphone

Supplied Accessories

Carefully unpack the transceiver and check that the items listed below are included in the package.

DC power cable with 15A Fuse 1
Mounting Bracket 1
Screw set
- 5 x 16 mm self-tapping screw 4
- Hex-headed screw with washer 4
- Spring washer 4
- Flat washer 4

Microphone (with cable) 1
Microphone hanger (with 4 x16 mm self-tapping screws) 1
User manual 1

2. Features

The followings are the main features of the TM-2000 / TM-8000 Series Mobile Radio:

- 128 x 32 Dots Graphic LCD
- 512 Channels and 32 Groups are Selectable.
- External Squelch Control
- Channel Spacing: 12.5 / 25kHz (12.5kHz for USA)
- Wide Band Coverage (VHF: 136~174MHz; UHF: 400~470, 450~520MHz)
- Call Guard Squelch of Standardized CTCSS / DCS
- Identification Origination (2 Tone and 5 Tone)
- Built-in Scrambler (Voice Inversion Type)
- Built-in Compander (Compressor and Expander)
- GPS Data Communication (Option)
- Normal Scanning / Priority Scanning
- BCL (Busy Channel Lock) / BCLO (Busy Channel Lock Override)
- 5W / 10W / 20W / 40W (UHF) / 50W (VHF) Power Switchable - TM-8000 Series
- 5W / 10W / 25W - TM-2000 Series
- Selectable Squelch Level (0~10)
- Time-Out Timer (TOT)
- Standard DTMF Encode and DTMF Decoder with ANI Function
- Programmable Home Channel Function
- Emergency & Built-in Emergency Microphone
- Talk Around
- Internal or External Speaker
- Remote Radio Stun / Revive (Uses 5 tone)
- Ignition Function / Horn Alert / Public Address
- 4W Front-Mounted Speaker
- Heavy-Duty Microphone
- Various Parameters and PC Downloading Methods
- Built-in D-SUB15 Accessory Connector
- PC Program Tuning

3. Appearance of TM-2000 / TM-8000 Series Mobile Radio

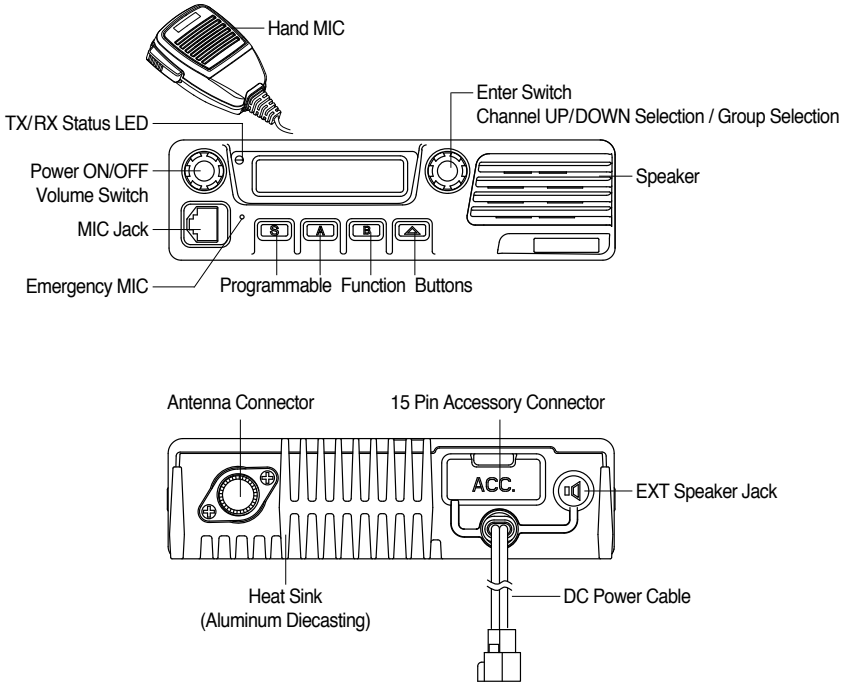


Figure 4-1) Appearance TM-2000 / TM-8000 Series

4. Controls & Keys

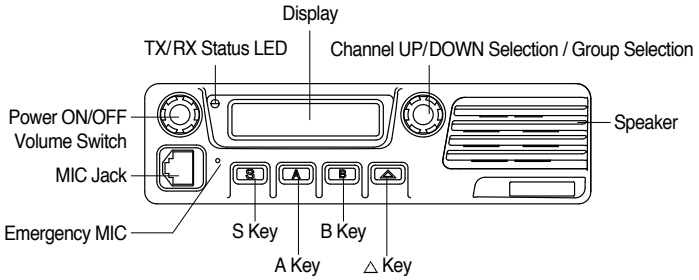
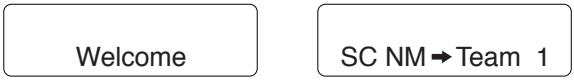


Figure 5-1) TM-2102 / TM-2402 / TM-8102 / TM-8402 Front Panel

Power ON / OFF Volume Switch & Squelch Control

Press and hold the knob over 2 seconds to turn the mobile radio on and off.



Rotate to adjust the volume level from 1 to 16. Turn it clockwise to increase the volume and counterclockwise to decrease the volume.

When the knob is pushed less than 2 seconds, Squelch can be changed.

Display

128 x 32 Dots Graphic LCD. Each icon indicates related operation.

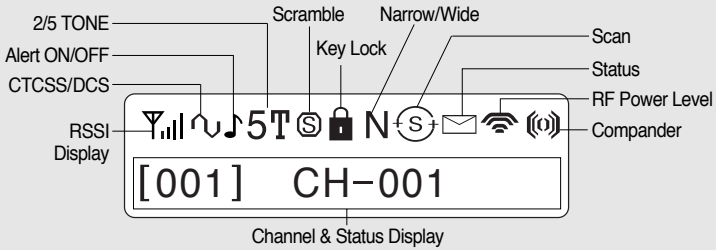


Figure 5-2) TM-2000 / TM-8000 Series LCD Indicator

Microphone Jack
Insert the microphone plug into this jack.

S Key
Press the key to activate its programmable function. The default setting is RF power/Selcall.

A Key
Press the key to activate its programmable function. The default setting is Key tone/Menu.

B Key
Press the key to activate its programmable function. The default setting is TX inhibit/Scan.

△ Key
Press the key to activate its programmable function. The default setting is Monitor. When in the Menu, a key press will step back one step. Also used as an exit key.

TX/RX Status LED
TX LED lights red while transmitting. RX LED lights green when receiving.

PTT Switch on Microphone
To send a voice transmission, press and hold the switch, and then speak into the microphone. Release PTT to receive.

4.1 Programmable Key Functions
Keys can be programmed with the functions listed below. Each key has the ability for two functions to be programmed, and are activated with a short press or long press. Please contact your dealer for further details on these functions.

Volume Adjustment
Rotate the volume knob clockwise to increase the volume and counterclockwise to decrease the volume. Maximum increment is 16 levels.

Channel Selection / Group Selection
Choose the wanted channel/group using the channel selector if it is programmed with a group.
To select a group, push the selector and rotate to the wanted group. Push the selector again to set the wanted group.

Channel Up	Talk Around ON/OFF	DTMF Buffer Clear
Channel Down	Fast Channel Mode	Scan Add/Remove
Monitor ON/OFF	TOT ON/OFF	Status Send
Key lock ON/OFF	BCL ON/OFF	Staus Receive Check
Scan Mode	Scramble ON/OFF	DTMF One Time Send
Selcall Mode	Compander ON/OFF	Voting Mode
TX Power Change	TX Inhibit ON/OFF	Squelch Change
Emergency	Key Tone ON/OFF	Group Charge
DTMF ON/OFF	TX Alert ON/OFF	
Horn Alert ON/OFF	*GPS ON/OFF	
Public Address ON/OFF	Menu	

*This function can be selected only when GPS is installed.

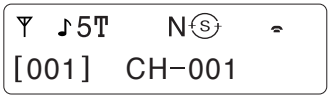
4.2 Operations of the radio-Contact your Dealer for information or assistance with these operations.

Power ON / OFF with Password Protection

If the radio is protected with a password, “PASSWORD INPUT” will appear on the display when power is initialized. To unlock the radio, enter the correct password.

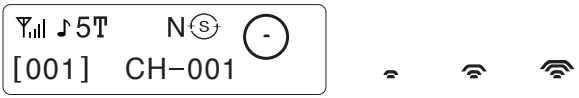
1. Choose a number by rotating the channel selector.
2. Press the channel selector to input the number.
3. Repeat steps 1 and 2 to enter the whole password.
   If no key is pressed within 10 seconds, the radio will return to the password protect state.
4. Press the channel selector for more than 1 second to complete the entry.

Transmitting



1. Choose the wanted group and a channel.
2. Press and hold the PTT switch, then speak into the microphone.
   For best sound quality at the receiving radio, hold the microphone approximately 1″(5~10cm) while speaking into the microphone.
3. Release the PTT to receive.
4. When communication is completed, return the microphone to its hanger.

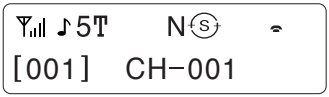
Power Adjustment



Step 1 Step 2 Step 3 Step 4

1. Press “S” button (default setting) or a button programmed as power control.
2. Rotate the selector to select one of 4 transmitting output power levels.
   The maximum output power is 40W for UHF (TM-8402 / TM-8404) and 50W for VHF (TM-8102 / TM-8104).
   The maximum output power is 25W for UHF (TM-2402) and 25W for VHF (TM-2102).

Receiving



1. Select the wanted group and channel
2. When a call is received, LED becomes green.
   The user should not press the PTT during the reception.

If tones are programmed without any matched tones, the radio will not receive properly. Sending and receiving signals are prohibited until the matched tone is received.

Enabling / Disabling Scan

To activate the Scan function, press the “B” key (default setting) or the key programmed as scan over 2 seconds. The scan icon appears on the display.
To stop the Scan, press and hold the “B” key (default setting) over 2 seconds or the key programmed as scan.

Normal Scan

The scan is processed in the sequence of channels when the radio is programmed. While the signal is being received, if you want to return to the scan list without listening to the call, press the “S” button. If you to delete a channel from the scan list during the receiving signal, press the button “A”.

Priority Scan

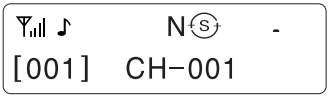
The priority scan is shown as “P-” in conjunction with the channel on the LCD. The priority scan is to check a receiving status between each scan channels per the following: P, S1, P, S2, P, S3. The priority channel is scanned periodically within the normal scanning and the priority is received prior to other signals. During the status of receiving a signal, the channel can be moved to next scan channel by up/down button. Furthermore, the channel of receiving signal can be deleted from the list of scan temporarily. When the priority is received, the channel can not be changed or deleted.

Key Lock

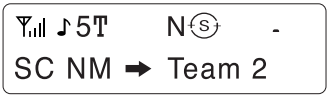
During standby, if a key programmed for key lock is pressed, the key lock icon will be shown on the display. The channel selector is halted along with the programmable keys. Only monitor and the volume control are functional.

SelCall

*With SelCall programmed, paging between individuals or groups can be available with 5 tones.
A maximum of 100 IDs’ can be stored in the list.
*To escape SelCall model, press and hold the channel selector over 2 seconds.



No SelCall operation



SelCall operation

1) Call on SelCall

ID selection

To initiate a call, press the “S” key over 2 seconds at default setting or the key programmed as SelCall. Rotate the selector to select the SelCall channel you want to call. If you want to call “ID: A” in the list, select “A” by pushing the selector.
And then push the selector to send the SelCall signal to the radio you want to call.
If the program is set as sending caller’s ID altogether, the receiving radio is shown with the caller’s ID on the display.

Communication using SelCall

Select the channel of the party you wish to talk to.
Push the PTT button and then caller's ID is transmitted on that channel.

Emergency

When a button programmed as emergency is pressed over 2 seconds, the alert signal is repeatedly transmitted in normal mode. When a radio is in 5 tone setting mode, the alert is transmitted with 5 tones.

Fast Channel

This function is activated when some channels in the channel list are selected as Fast channel by programmer and a button is pre-programmed as fast channel setting.
Rotate the selector to change channels. Only channels programmed as Fast channel with ICON "F" are shown in the display.

Stun / Revive

Stun status

When Stun/Revive function is programmed with SelCall ID, stunning a radio or reviving a radio can be activated by remote control.
When a radio programmed with Stun ID receives Stun ID from a control radio, all buttons and selectors of the programmed radio are locked. In this state, only PTT works for sending alert sounds.
Even if the power to the radio is reset it remains Stunned. The stun status is continued until it receives Revive ID.

Scramble (Voice Inversion)

This function is used to prevent eavesdropping and can only be utilized if this function is used on both the transmitting and receiving radios.

BCL / BCLO

This function is to limit sending signals to avoid interrupting others' communication when many radio users are on the same channel. If PTT is pushed while receiving a signal, an alert sounds with message shown on the display.

Time Out Timer (TOT)
This function is to prohibit a radio from occupying one channel for a long period of time.
An alert sounds when the TOT timer expires. Transmit stops even if the PTT button is depressed.
A penalty timer is used to allow the unit to cool before transmission can be repeated.

2-Tone
When 2-tone is matched between caller and receiver in the status of programmed 2-tone, normal communication is performed.

Horn Alert
This function is to alert people outside of the vehicle through external speaker when certain calls are received.

Public Address
This function is to route audio to an external speaker or similar external equipment.

Talk Around
When communication through repeaters is performed, this function is to allow communication among radios directly if a repeater is out of range or usage is not required.

4.3 Advanced Operations of the radio - Contact your Dealer for information or assistance with these operations.

Transmitting mode at TX channel during scan (Programmable)
1. Home: Sending signal is always on the channel from which scan was initiated.
2. Last Receive: Sending signal is on the last channel to receive a call.
3. Current Channel: Sending signal is on any channel within the scan list.
4. Priority Scan: When sending signal is initiated, it always transmits on the priority channel. When a call is received it will transmit on the received channel as long as it is within the Scan Dwell time. When scan resumes it transmits on the priority channel.
5. Priority Only: Anytime PTT is pressed, it transmits on the priority channel.

Hanger in Scan (Programmable)
Scan operates while a microphone hangs in the clip.
If the microphone is lifted up, scan stops during that time.

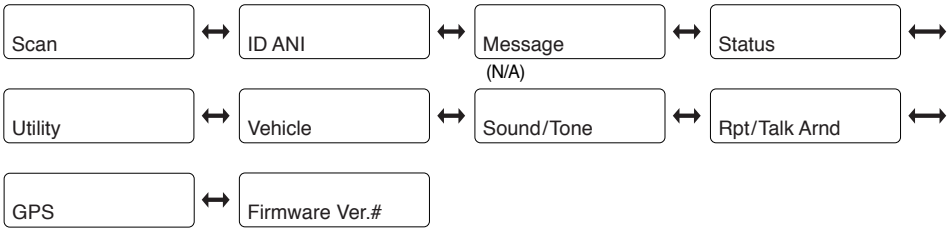
Off-Hook Monitor (Programmable)
When the microphone is on the hanger, the radio must receive CTCSS + carrier to open the audio.
When the microphone is off, the radio must receive carrier only to open the audio.

Voting (Programmable)

Used to select the strongest signal repeater for communication.
After a radio compare signals among repeaters, the repeater with strongest signal is selected for call.

5. Menu Description

To enter the menu, press and hold the channel selector knob for 2 seconds. The menu consists of 10 main menus along with various sub-menus. The main menu has a list such as SCAN, ID ANI, Message, Status Setting, Utility, Vehicle, Sound/Tone, RPT/Talk Ad, GPS Setting, Firmware Ver. and are selected by the rotation of the right knob. To execute a function press the knob in.



Main Menu Procedure

5.1 SCAN Setting

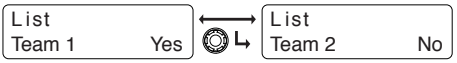
Consists of three sub-menus of List, Priority Use, and Priority List. The selection is made available by rotating the right knob and activate by pushing the knob in.

Scan sub-menu procedure

1) List

① The channel list of group and whether the channel is in the scan is displayed as Yes or No. To move among channels, rotate the right knob.

② Press the right knob to select Yes or No.



③ To return to upper menu, press the red button.

2) Priority Use

① Rotate the right selector knob to change Yes/No.

② Push the right selector knob to set, Back to upper menu.

③ To return to upper menu, press the red button.

3) Priority List

① The channel list in the group and whether the channel is set as priority is displayed as the sign of Yes or No. To change channel in the list, rotate the right knob.

② Rotate the right selector knob to change Yes/No.

③ To return to upper menu, press the red button.

5.2 ID ANI Setting

Consists of sub-menu of DTMF & Selcall. The selection is made by rotating the right knob and activate by pushing the knob in.

1) DTMF

① Rotate the right selector knob to select Yes or No.

② Press the knob to set.

③ To return to upper menu, press the red button.

2) SelCall

① Rotate the right selector knob to select Yes or No.

② Press the knob to set.

③ To return to upper menu, press the red button.

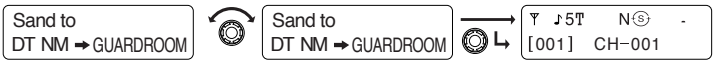
5.3 Status Setting

Consists of two modes similar to “Send” or “Receive Check”; pre-programmed status is sent to the ID to the channel receiving. And the receiving message can be checked. (Refer to menu table).

1) Send

① Display pre-programmed Status. Rotate the right selector knob to select a status to be sent, and press the knob to set.

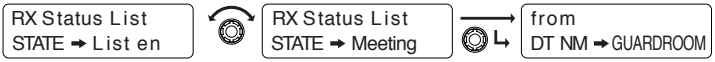
② Rotate the right selector knob to select the ID which you wanted to send the status, and press the knob to set.



③ After automatically getting out of the menu, the radio sends the status, with the receiver’s ID and a sender’s ID accordingly.

2) Receive Check

① Rotate the right selector knob to select the received status for reading, and press the knob to check the sender's ID.

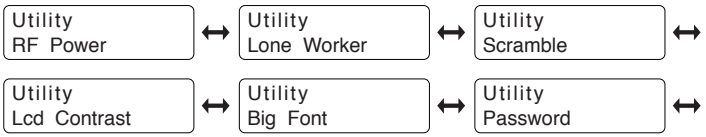


② To remove the received status, press the "S" button.

③ To erase all of the received status, press the "A" button and select Yes.

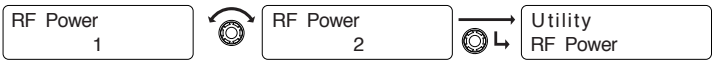
5.4 Utility Setting

Consists of six sub-menus of RF Power, Lone Worker, Scramble, LCD Contrast, Big Font, and Password. Rotate the right selector knob to select and press the knob to set.



1) RF Power

① Rotate the right selector knob to select one of the 4 power levels, and press the knob to set.

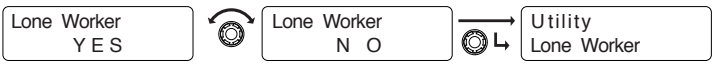


② To return to the upper menu, press the red button.

.

2) Lone Worker

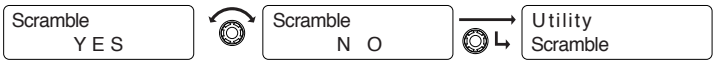
① Rotate the right selector knob to select and press the knob to set.



② To return to upper menu, press the red button.

3) Scramble

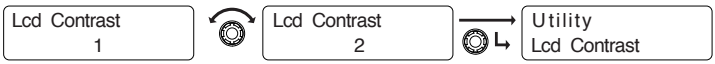
① Rotate the right selector knob to select and press the knob to set.



② To return to upper menu, press the red button.

4) LCD Contrast

① Rotate the right selector knob to select one of 20 steps and press the knob to set.



② To return to upper menu, press the red button.

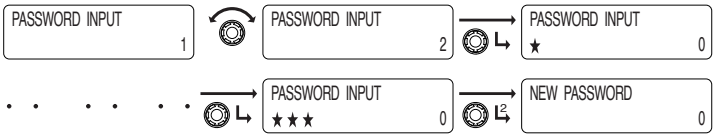
5) Big Font

① Rotate the right selector knob to select one of them such as “Name, Number, and Normal” and press the knob to set.

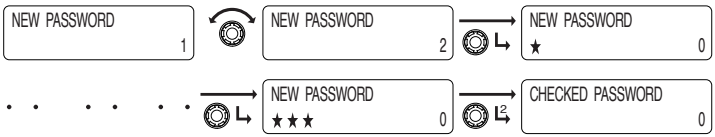
② To return to upper menu, press the red button.

6) Password

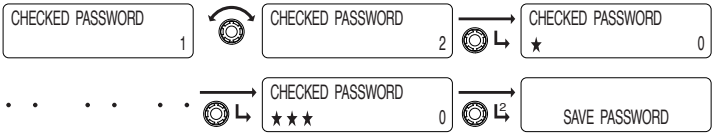
① When a Password is pre-programmed, “PASSWORD INPUT” is displayed on the LCD. Input the password by rotating the channel selector knob with a press to set the number. The 2nd set shows how to input a “NEW PASSWORD”.



② When a password is not programmed, “NEW PASSWORD” is shown on the LCD. Input the new password.

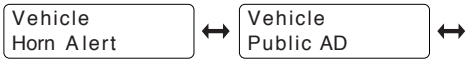


③ When “CHECKED PASSWORD” is shown, input new password once again.



5.5 Vehicle Setting

Consist of Horn Alert and Public Address. Rotate the right selector knob to select one of them and press the knob to set.



1) Horn Alert

① Rotate the right selector knob to select “Yes” and then press the knob to set.

② To return to upper menu, press the red button.

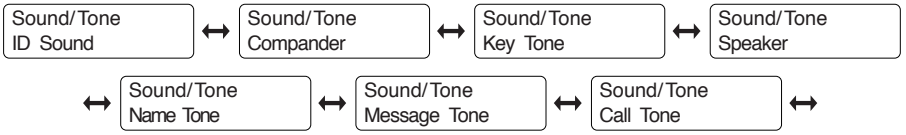
2) Public AD

① Rotate the right selector knob to select “Yes” and then press the knob to set.

② To return to upper menu, press the red button.

5.6 Sound / Tone

Consists of seven sub-menus of ID Sound, Compander, Key Tone, Speaker, Name Tone, MSG Tone, and Call Tone. The selection is made available by rotating the right selector knob and then pressing the knob to set.



1) ID Sound

① Rotate the right selector knob to select “Yes” and then press the knob to set.

② To return to upper menu, press the red button.

2) Compander

① Rotate the right selector knob to select “Yes” and then press the knob to set.

② To return to upper menu, press the red button.

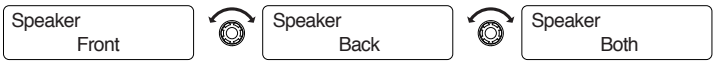
3) Key Tone

① Rotate the right selector knob to select “Yes” and then press the knob to set.

② To return to upper menu, press the red button.

4) Speaker

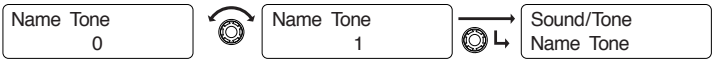
① Rotate the right selector knob to select Front, Back, or Both, and then press the knob to set.



② To return to upper menu, press the red button.

5) Name Tone

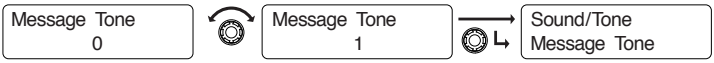
① Rotate the right selector knob to select preferred tone and press the knob to set.



② To return to upper menu, press the red button.

6) Message Tone

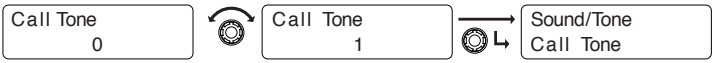
① Rotate the right selector knob to select preferred tone and press the knob to set.



② To return to upper menu, press the red button. .

7) Call Tone

① Rotate the right selector knob to select preferred tone and then press the knob to set.



② To return to upper menu, press the red button.

5.7 Repeater / Talk Around

Consists of two sub-menus for Repeater and Talk Around. The selection is made by rotating the right selector knob and then pressing the knob to activate.

1) Repeater

① Rotate the right selector knob to select “Yes” and then press the knob to set.

② To return to upper menu, press the red button.

2) Talk Around

① Rotate the right selector knob to select “Yes” and then press the knob to set.

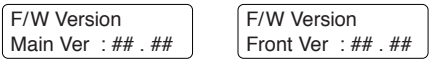
② To return to upper menu, press the red button.

5.8 GPS Setting

Consists of 4 sub-menus; Method, Interval, Sync Slots, and Slot No. Selection is done by the rotating the right selector knob and then pressing the knob to set.
To send your location data, you must first install a GPS unit onto the transceiver. Press the key programmed to transmit the GPS data of your location. Ask your dealer for details.

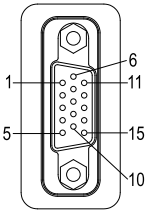
5.9 Firmware Version

Indicates the version of the Main & Front firmware:

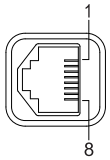


6. Terminal Description

D-SUB 15 Pin Connector

Pin No	Pin Name	Description	Specification	I/O	Remark
1	RX Signal Strength	DC Power Output	0.6~1.4V	O	After PCB Version XM1-R5 XM2-R3 XM4-R7 
2	IGN	Ignition Signal Input	Power ON : ↑8V Power OFF : ↓6V R79 is selection	I	
	LSP	Low Speed Data	R12 is selection		
3	EXT_SPK	Loudspeaker Output	4Ω, 4Watt	O	
4	AF_OUT	Audio Output	500mV	O	
5	EXT_MIC	Audio Input	5kΩ	I	
6	TXD/FCN1	TX Serial Data	3.3V TTL	O	
7	RXD/FCN2	RX Serial Data	3.3V TTL	I	
8	EXT_PTT	External PTT	3.3V(H) : PTT OFF 0V(L) : PTT ON	I/O	
9	F_AUDIO	IF IC Output	100mV	O	
10	COR/COS	Squelch Output	S.Q ON : 3.3V S.Q OFF : 0V	O	
11	EXT/INPUT	Programmable	High Impedance	I/O	
12	DC+5V	DC Power Supply	DC+5V Max 100mA	O	
13	HR1	Horn Alert Signal Output	Max 3A	O	
14	HR2	Horn Alert Signal Output	Max 3A	O	
15	GND	Ground	Ground	-	

Microphone Jack

Pin No	Pin Name	Description	Specification	I/O	Remark
1	MBL	Backlight of Microphone	-	O	
2	DC+13.6V	DC Power Output	13.6 ±5%	O	
3	GND	Ground	Ground	-	
4	PTT/TXD0	PTT/PC Serial Data	3.3V TTL	I	
5	ME	MIC Ground	MIC Ground	-	
6	MIC	MIC Signal Input	600 Ω	I	
7	HOOK/RXD0	HOOK/PC Serial Data	3.3V TTL	I	
8	DM	MIC Data Detection	High Impedance	I/O	

Speaker Jack (3.5mm Phone Jack) 4Watt/4 Ω

Pin No	Pin Name	Description	Specification	I/O	Remark
1	SPO	External Speaker Output	4Watt/4 Ω	O	
2	GND	Ground	Ground	O	

DC Input Power Connector

Pin No	Pin Name	Description	Specification	I/O	Remark
Red	DC+13.6V	DC Power Output	13.6 ±5%	I	
Black	GND	Ground	Ground	I	

Antenna Connector

Pin No	Pin Name	Description	Specification	I/O	Remark
		PL-259			
		Impedance is 50			

7. Specifications

7.1 TM-2102 / TM-8102 / TM-8104

General

Frequency Range	VHF: 136 ~ 174 MHz
Frequency Stability	±1.5PPM (-30 to +60℃)
Programmable Channels	512 Channels/32 Group
Channel Spacing	Dual Channel Spacing 12.5/25 kHz (12.5kHz USA)
Dimensions	103mm (H) x 52mm (W) x 32mm (D)
Weight	1.1Kg
Power Source	DC +13.6 ±5%
Current Drain (Maximum)	Receive Mode, Rated Audio Out -1A (Audio Max) Transmit Mode -11A Standby Mode - 300mA

Receiver

Sensitivity	0.25uV 12 dB SINAD
Squelch Sensitivity	0.22uV 10dB SINAD
Selectivity	65dB (12.5kHz), 70dB (25kHz)
Spurious and Harmonic Rejection	75dB
FM Hum and Noise	40dB (12.5kHz), 45dB (25kHz)
Audio Output Power	4 Watt Across an 4-ohm Load
Audio Distortion	Less than 5% at Rated Output
Audio Response	+1, -3 dB from 6dB per Octave De-Emphasis Characteristic from 300 ~ 3000Hz
IF Frequencies	21.4MHz and 455kHz
Input Impedance	50 ohms

Transmitter

RF Power Output	50/25/10/5Watt (TM-8102 / TM-8104) 25/20/10/5Watt (TM-2102)
Spurious and Harmonic	70dB
FM Hum and Noise	40dB (12.5kHz), 45dB (25kHz)
Audio Distortion	3% Maximum with 1kHz Modulation
Audio Frequency Response	+1, -3dB from 6dB per Octave Pre-Emphasis Characteristic from 300 ~ 3000Hz
Output Impedance	50ohms

7.2 TM-2402 / TM-8402 / TM-8404

General

Frequency Range	TM-2402 / TM-8402A / TM-8404A: 400 ~ 470 MHz TM-8402B / TM-8404B: 450 ~ 520 MHz
Frequency Stability	±1.5PPM (-30 to +60˚C)
Programmable Channels	512 Channels / 32 Group
Channel Spacing	Dual Channel Spacing 12.5/25 kHz (12.5kHz USA)
Dimensions	103mm (H) x 52mm (W) x 32mm (D)
Weight	1.1 Kg
Power Source	DC +13.6 ±15%
Current Drain (Maximum)	Receive Mode, Rated Audio Out - 1A(Audio Max) Transmit Mode - 11A Standby Mode - 300mA

Receiver

Sensitivity	0.25uV 12 dB SINAD
Squelch Sensitivity	0.22uV 10dB SINAD
Selectivity	65dB (12.5kHz), 70dB (25kHz)
Spurious and Harmonic Rejection	75dB
FM Hum and Noise	40dB (12.5kHz), 45dB (25kHz)
Audio Output Power	4 Watt Across an 4-ohm Load
Audio Distortion	Less than 5% at Rated Output
Audio Response	+1, -3 dB from 6dB per Octave De-Emphasis Characteristic from 300 ~ 3000Hz
IF Frequencies	45.3MHz and 455kHz
Input Impedance	50 ohms

Transmitter

RF Power Output	40/25/10/5Watt (TM-8402 / TM-8404) 25/20/10/5Watt (TM-2402)
Spurious and Harmonic	70dB
FM Hum and Noise	40dB (12.5kHz), 45dB (25kHz)
Audio Distortion	3% Maximum with 1kHz Modulation
Audio Frequency Response	+1, -3dB from 6dB per Octave Pre-Emphasis Characteristic from 300 ~ 3000Hz
Output Impedance	50 ohms

8. Warranty Statement

Maxon America, Inc. offers to the original end user:

Three (3) Year Limited Warranty on Maxon TM-2000/TM-8000 LMR Radios (separate warranty period on accessories).

One (1) Year Limited Warranty on Accessories (includes, but not limited to, batteries, antennas, belt clips, chargers, audio accessories, nylon cases, leather cases, microphones, etc.).

Maxon warrants each new radio product manufactured or supplied by it to be free from defects in material and workmanship under normal use and service for the time period stated, provided that the user has complied with the requirements stated herein. The warranty period begins on the date of purchase from an Authorized Maxon Dealer. This warranty is not assignable or transferable. This warranty is void if the product serial number is altered, defaced or removed. Maxon is not responsible for any equipment that is attached to or used in conjunction with our products.

During the warranty period, if the product fails to function under normal use, because of manufacturing defects or workmanship, it should be returned to the Authorized Maxon Dealer from which it was purchased. The Authorized Maxon Dealer will repair the product or return the product for repair to Maxon or its Authorized Repair Depot. The user is responsible for the removal of the product from a vehicle or any equipment attached to it, or other site of its use; transportation of the product to the Authorized Maxon Dealer; for the return of the repaired or replacement product to the site of its use and for the reinstallation of the product.

Maxon shall have no obligation to make repairs or replacement of product which results from normal wear and tear, or is necessitated by catastrophe, fault, or negligence of the user, improper or unauthorized alterations or repairs to the product, incorrect wiring, use for which it was not designed or by causes external to the product. Maxon's sole obligation shall be to replace or repair the product covered by the warranty. Replacement is done at Maxon's discretion and may consist of a similar or higher featured product. Repair may include the replacement of parts with functionally equivalent new or reconditioned parts. All replaced parts and accessories are warranted for the balance of the original time period. All parts and accessories that are replaced become the property of Maxon America, Inc.

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