

PROFESSIONAL DIGITAL TWO-WAY RADIO SYSTEM

# MOTOTRBO™ DGM SERIES CONNECT PLUS NUMERIC DISPLAY MOBILE USER GUIDE





# Declaration of Conformity

## DECLARATION OF CONFORMITY

Per FCC CFR 47 Part 2 Section 2.1077(a)



### Responsible Party

Name: Motorola Solutions, Inc.

Address: 1303 East Algonquin Road, Schaumburg, IL 60196, U.S.A.

Phone Number: 1-800-927-2744

Hereby declares that the product:

Model Name: **DGM 4100/DGM 4100+**

conforms to the following regulations:

FCC Part 15, subpart B, section 15.107(a), 15.107(d) and section 15.109(a)

### **Class B Digital Device**

As a personal computer peripheral, this device complies with Part 15 of the 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.

**Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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## Notes



## Important Safety Information

### RF Energy Exposure and Product Safety Guide for Portable Two-Way Radios

#### **ATTENTION!**

**This radio is restricted to Occupational use only.**

Before using this product, read the RF Energy Exposure and Product Safety Guide that ships with the radio which contains instructions for safe usage and RF energy awareness and control for compliance with applicable standards and regulation.

For a list of Motorola-approved antennas, batteries, and other accessories, visit the following website:

<http://www.motorolasolutions.com>

## Software Version

All the features described in the following sections are supported by the radio's software version **R01.06.30** or later.

Please check with your dealer or system administrator for more details of all the features supported.

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U.S. Pat. Nos. #5,870,405, #5,826,222, #5,754,974, #5,701,390, #5,715,365, #5,649,050, #5,630,011, #5,581,656, #5,517,511, #5,491,772, #5,247,579, #5,226,084 and #5,195,166.

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<http://www.motorola.com/businessonline>

Go to:

**MOL>Resource Center>Product Information>Manuals>MOTOTRBO>Connect Plus Trunking**

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## Getting Started

Take a moment to review the following:

How to Use This Guide . . . . .	page 1
What Your Dealer/System Administrator Can Tell You . . . . .	page 1
Powering Up the Radio . . . . .	page 2
Adjusting the Volume. . . . .	page 2

### ■ How to Use This Guide

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This User Guide covers the basic operation of MOTOTRBO Mobiles with Numeric Display that are equipped with a Connect Plus Option Board, and are operating in a Connect Plus zone.

However, your dealer or system administrator may have customized your radio for your specific needs. Check with your dealer or system administrator for more information.

### ■ What Your Dealer/System Administrator Can Tell You

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You can consult your dealer or system administrator about the following:

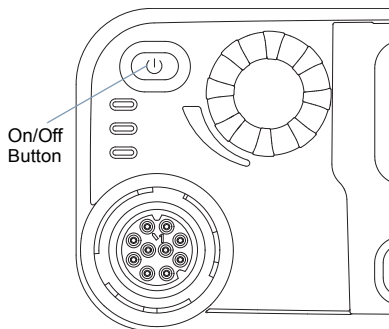
- Is your radio programmed with any preset conventional channels?
- Which buttons have been programmed to access other features?
- What optional accessories may suit your needs?

## ■ Powering Up the Radio

Press the **On/Off Button** briefly.

The green LED blinks and the numeric display screen lights up.

A brief tone sounds, indicating that the power up test is successful.



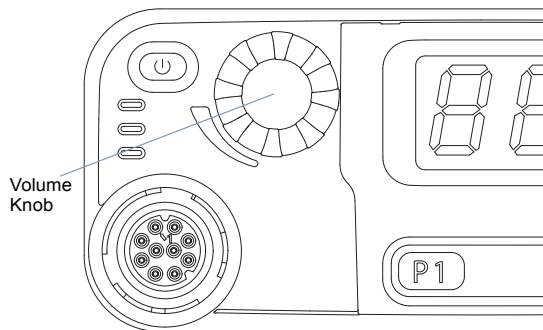
**NOTE:** There is no power up tone if the radio tones/alerts function is disabled (see **Turning Radio All Tones/ Alerts On or Off** on page 26).

If your radio does not power up, contact your dealer.

*To turn off the radio, press and hold the On/Off Button.*

## ■ Adjusting the Volume

To increase the volume, turn the **Volume Knob** clockwise.



To decrease the volume, turn this knob counterclockwise.

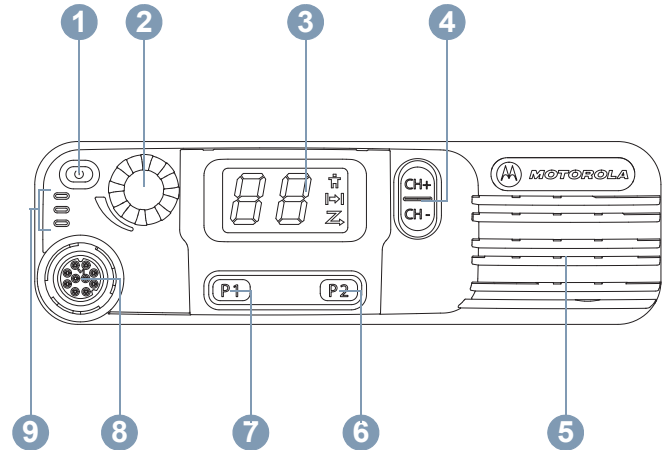
# Identifying Radio Controls

Take a moment to review the following:

Radio Controls . . . . . page 3  
 Programmable Buttons . . . . . page 4  
 Push-To-Talk (PTT) Button . . . . . page 5  
 Switching Between Connect Plus and Non-Connect Plus Modes . . . . . page 5

## ■ Radio Controls

- 1 On/Off Button
- 2 Volume Knob
- 3 Display
- 4 Channel Rocker
- 5 Speaker
- 6 Front Button P2\*
- 7 Front Button P1\*
- 8 Accessory Connector



9 LED Indicators

*\* These buttons are programmable.*

## ■ Programmable Buttons

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Your dealer can program the programmable buttons as shortcuts to **radio functions** or a maximum of six predefined **call types** depending on the duration of a button press:

- Press – Pressing and releasing rapidly (0.05 seconds).
- Long press – Pressing and holding for the programmed duration (between 0.25 second and 3.75 seconds).
- Hold down – Keeping the button pressed.

### Assignable Radio Functions

**Busy Queue Cancellation** – Exits the busy mode when a non-Emergency call in the Busy Queue was initiated. Emergency calls, once accepted into the Busy Queue, cannot be cancelled.

**Emergency** – Initiates an Emergency call or Emergency alert, and also cancels an Emergency call or Emergency Alert, if the Emergency request has yet to be transmitted.

**One Touch Call** – Initiates a predefined Call Alert, Private Call, or Quick Text message.

**Phone Exit** – Ends a Private Phone Call.

**Privacy On/Off** – Used to toggle transmit privacy On or Off for the currently selected channel position. The privacy setting only affects transmitted voice calls from this position, not received calls.

**Roam Request** – Requests to search for a different site.

**Scan** – Toggles Selectable Group Scan on or off.

**Site Lock On/Off** – When toggled on, the radio searches the current site only. When toggled off, the radio will search other sites in addition to the current site.

**Zone Toggle** – Allows radio user to toggle between Zone 1 and Zone 2.

### Assignable Settings/Utility Functions

**All Tones/Alerts** – Toggles all tones on or off.

**Power Level** – Toggles transmit power level between high and low.

**Horn/Lights** – Toggles horns and lights feature on or off.

## ■ Accessing the Programmed Functions

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You can access various radio functions through a short or long press of the relevant programmable buttons.

## ■ Push-To-Talk (PTT) Button

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The **PTT** button on the side of the microphone serves two basic functions:

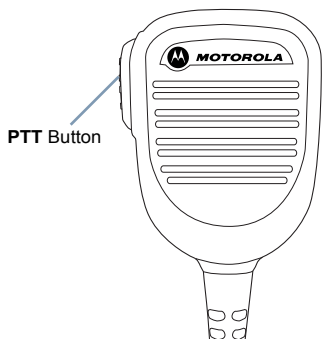
- While a call is in progress, the **PTT** button allows the radio to transmit to other radios in the call.

Press and hold **PTT** button to talk. Release the **PTT** button to listen.

The microphone is activated when the **PTT** button is pressed.

- While a call is not in progress, the **PTT** button is used to make a new call (see **Making a Radio Call** on page 13).

*If the Talk Permit Tone is enabled, wait until the short alert tone ends before talking.*



*During a call, if the Channel Free Indication feature is enabled on your radio (programmed by your dealer), you will hear a short alert tone the moment the target radio (the radio that is receiving your call) releases the **PTT** button, indicating the channel is free for you to respond.*

*You will also hear the Channel Free Indication tone if your call is interrupted.*

*You can turn off the Channel Free Indication tone by disabling all radio tones and alerts (see **Turning Radio All Tones/Alerts On or Off** on page 26).*

## ■ Switching Between Connect Plus and Non-Connect Plus Modes

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To switch to a non-Connect Plus mode, you must change to another zone, if programmed by your dealer or system administrator. Check with your dealer or system administrator to see if your radio has been programmed with non-Connect Plus zones, and what features are available while operating in non-Connect Plus zones.

## Identifying Status Indicators

Your radio indicates its operational status through the following:

LED Indicators . . . . . page 6  
 Audio Tones . . . . . page 7  
 Indicator Tones . . . . . page 7

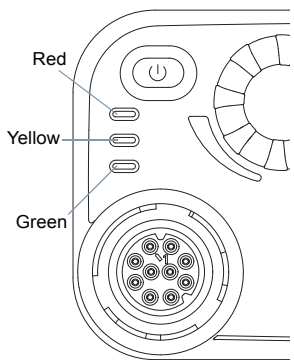
### ■ LED Indicators

LED indicators show the operational status of your radio.

**Blinking red** – Radio has failed the self-test upon powering up.

**Rapidly Blinking Red** – Radio is receiving an over-the-air file transfer (Option Board firmware file, Network Frequency file or Option Board Codeplug file), or upgrading to a new Option Board Firmware file.

**Blinking yellow** – Radio is receiving a Call Alert, or Scan is enabled.



**Rapidly blinking yellow** – Radio is searching for a new site.

**Solid green** – Radio is transmitting.

**Blinking green** – Radio is powering up or detecting activity over the air. LED blinks in an even pattern (blink, blink, blink) while monitoring the Control Channel or receiving unscrambled transmissions. LED blinks in an uneven pattern (blink, blink, pause) while receiving scrambled transmissions.

**NOTE:** When the green LED blinks, it indicates the radio detects activity over the air. Due to the nature of the digital protocol, this activity may or may not affect the radio's programmed channel.



## ■ Audio Tones

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Alert tones provide you with audible indications of the radio's status or the radio's response to data received.

**Continuous Tone** A monotone sound. Sounds continuously until termination.



**Periodic Tone** Sounds periodically depending on the duration set by the radio. Tone starts, stops, and repeats itself.



**Repetitive Tone** A single tone that repeats itself until it is terminated by the user.



**Momentary Tone** Sounds only once for a short period of time defined by the radio.



## ■ Indicator Tones

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High pitched tone

Low pitched tone



Positive Indicator Tone



Negative Indicator Tone

## Receiving and Making Calls

Once you understand how your MOTOTRBO Mobile is configured, you are ready to use your radio.

Use this navigation guide to familiarize yourself with the basic Call features:

Selecting a Site . . . . .	page 8
Selecting a Zone . . . . .	page 9
Selecting a Radio Channel, Subscriber ID, or Group ID . . . . .	page 10
Receiving and Responding to a Radio Call. . . . .	page 10
Making a Radio Call . . . . .	page 13

### ■ Selecting a Site

A site provides coverage for a specific area. A Connect Plus site has a site controller and a maximum of 15 repeaters. In a multisite network, the Connect Plus radio will automatically search for a new site when the signal level from the current site drops to an unacceptable level.

### Roam Request

A Roam Request tells the radio to search for a different site, even if the signal from the current site is acceptable.

This is programmed by your dealer.

Use the following procedure for a Roam Request.

#### Procedure:

- 1 Press the programmed **Roam Request** button.
- 2 You hear a tone, indicating the radio has switched to a new site.

### Site Lock On/Off

When toggled on, the radio searches the current site only. When toggled off, the radio will search other sites in addition to the current site.

Use the following procedure for Site Lock.

#### Procedure:

- 1 Press the programmed **Site Lock** button.
- 2 You hear a positive indicator tone, indicating the radio has locked to the current site.  
**OR**  
You hear a negative indicator tone, indicating the radio is unlocked.

## ■ Selecting a Zone

---

The numeric display mobile can be programmed with a maximum of two Connect Plus Zones and each Connect Plus zone contains a maximum of 16 assignable positions on the Channel Rocker. Each assignable Channel Rocker position can be used to start one of the following voice call types:

- Group Call
- Multigroup Call
- Site All Call
- Private Call

Non-Connect Plus zones can be used for analog mode or non-Connect Plus digital modes.

Use the following procedure to select a zone.

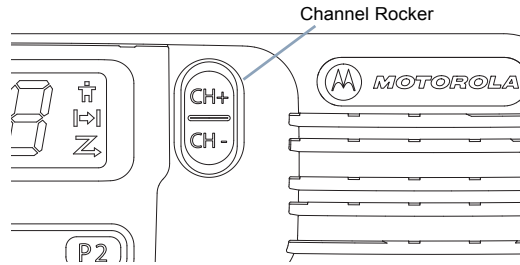
### Procedure:

- 1 Press the programmed **Zone Toggle** button.
  - 2 You hear a double tone, indicating the radio has switched from Zone 1 to Zone 2.  
**OR**  
You hear a single tone, indicating the radio has switched from Zone 2 to Zone 1.
- 

## 📄 Using Multiple Networks

If your radio has been programmed to use multiple Connect Plus networks, you can select a different network by toggling to the Connect Plus zone that is assigned to the desired network. These network-to-zone assignments are configured by your dealer through radio programming.

## ■ Selecting a Call Type



### Procedure:

Once the required zone is set (if you have multiple zones in your radio), press the Channel Rocker up or down to select the call type.

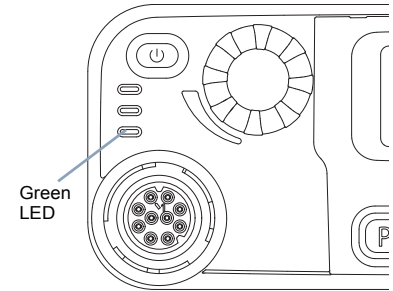
**NOTE:** When in Connect Plus mode, the Channel Rocker is used to select call types (for example, subscriber aliases or IDs, group aliases or IDs, Site All Call or Multigroup Call) within the current Connect Plus zone.

Changing the Channel Rocker to a different position causes the radio to re-register with the Connect Plus site. The radio registers with the Registration Group ID that has been programmed for the new Channel Rocker position.

## ■ Receiving and Responding to a Radio Call

Once the call type is set, you can proceed to receive and respond to calls.

*The green LED lights up solid green while the radio is transmitting and blinks green when the radio is receiving a call. The blinking pattern is even (blink, blink, blink) when receiving an unsecure (unscrambled) transmission. The blinking pattern is uneven (blink, blink, pause) when receiving a privacy-enabled (scrambled) transmission. To unscramble a privacy-enabled call, your radio must have the same Key Value and Key ID (programmed by your dealer), as the transmitting radio (the radio you are receiving the call from). See **Enhanced Privacy** on page 24 for more information.*



## Receiving and Responding to a Group Call

To receive a call from a group of users, your radio must be configured as part of that group.

### **Procedure:**

When you receive a Group Call:

- 1** The green LED blinks.  
If the Channel Free Indication feature is enabled, you will hear a short alert tone the moment the transmitting radio releases the **PTT** button, indicating the channel is free for you to respond.
- 2** Press the **PTT** button to respond to the call. The green LED lights up.
- 3** Wait for the Talk Permit Tone to finish (if enabled) and speak clearly into the microphone.
- 4** Release the **PTT** button to listen.
- 5** If there is no voice activity for a predetermined period of time, the call ends.

See **Making a Group Call** on page 13 for details on making a Group Call.

## Receiving and Responding to a Private Call

A Private Call is a call from an individual radio to another individual radio.

In the Connect Plus operation, the controller performs a presence check before setting up the call.

### **Procedure:**

When you receive a private call:

- 1** The green LED blinks.
- 2** If the Channel Free Indication feature is enabled, you will hear a short alert tone the moment the transmitting radio releases the **PTT** button, indicating the channel is free for you to respond.
- 3** Press the **PTT** button to respond to the call. The green LED lights up.
- 4** Wait for the Talk Permit Tone to finish (if enabled) and speak clearly into the microphone.
- 5** Release the **PTT** button to listen.
- 6** If there is no voice activity for a predetermined period of time, the call ends.

See **Making a Private Call** on page 13 for more details on making a private call.

## Receiving a Site All Call

This feature allows you to transmit to all users on the site that are not currently engaged in another call. It is used to make important announcements requiring the users' full attention.

### Procedure:

When you receive a Site All Call:

- 1 A tone sounds and the green LED blinks.
- 2 If there is no voice activity for a predetermined period of time, the Site All Call ends.  
If the Channel Free Indication feature is enabled, you will hear a short alert tone the moment the transmitting radio releases the **PTT** button, indicating the channel is now available for use.

*You cannot respond to a Site All Call.*

See **Making a Site All Call** on page 14 for details on making a Site All Call.

**NOTE:** During a Site All Call, you will **not** be able to use any programmed button functions until the call ends.

## Receiving and Responding to a Phone Call

**NOTE:** If Phone Call permission has been enabled for your radio and/or Group, you are able to respond to a telephone user. Check with your dealer or system administrator for more information.

## Phone Call as Private Call

### Procedure:

When you receive a Phone Call as Private Call:

- 1 You will hear ringing, depending on your radio's volume level and tone configuration.
- 2 Hold the radio vertically 1 to 2 inches (2.5 to 5.0 cm) from your mouth.
- 3 Press the **PTT** button to talk and release it to listen.
- 4 The Phone Call can be ended by the phone user or the radio user (if the radio has been programmed with the **Phone Exit** programmable button).
- 5 Press the **Phone Exit** programmable button to end the call.

## Phone Call as Group Call

Depending on your Group permission(s) in the system, a phone user can initiate or join a Group Call. The call operates just like other calls on the same Group. For more information, see the section called Receiving and Responding to a Group Call.

**NOTE:** The phone user cannot understand scrambled transmissions. It is recommended that the radio users should turn Privacy OFF while the Group Call has a phone user as participant.

## ■ Making a Radio Call

---

You can select a call type by using:

- Channel Rocker
- A programmed **One Touch Call** button (Call Alert, Private Call, or Text Message)

### Making a Call with the Channel Rocker

### Making a Group Call

To make a call to a group of users, your radio must be configured as part of that group.

#### **Procedure:**

- 1** Press the Channel Rocker up or down to select the group ID.

---
- 2** Press the **PTT** button to make the call. The green LED lights up.

---
- 3** Wait for the Talk Permit Tone to finish (if enabled) and speak clearly into the microphone.

---
- 4** Release the **PTT** button to listen. When the target radio responds, the green LED blinks.

---
- 5** If the Channel Free Indication feature is enabled, you will hear a short alert tone the moment the target radio releases the **PTT** button, indicating the channel is free for you to

respond. Press the **PTT** button to respond.

#### **OR**

If there is no voice activity for a predetermined period of time, the call ends.

---

### Making a Private Call

While you can receive and/or respond to a Private Call initiated by an authorized individual radio, your radio must be programmed for you to initiate a Private Call.

If this feature is not enabled, you will hear a negative indicator tone, when making a Private Call via the **One Touch Call** button or the Channel Rocker.

#### **Procedure:**

- 1** Press the Channel Rocker up or down to select the subscriber ID.

---
- 2** Press the **PTT** button to make the call. The green LED lights up.

---
- 3** Wait for the Talk Permit Tone to finish (if enabled) and speak clearly into the microphone.

---
- 4** Release the **PTT** button to listen. When the target radio responds, the green LED blinks.

---
- 5** If the Channel Free Indication feature is enabled, you will hear a short alert tone the moment the target radio releases the **PTT** button, indicating the channel is free for you to respond. Press the **PTT** button to respond.

**OR**

If there is no voice activity for a predetermined period of time, the call ends.

---

### **Making a Site All Call**

This feature allows you to transmit to all users on the site that are not currently engaged in another call. Your radio must be programmed to allow you to use this feature.

#### **Procedure:**

- 1 Press the Channel Rocker up or down to select the Site All Call ID.

---
- 2 Press the **PTT** button to make the call. The green LED lights up.

---
- 3 Wait for the Talk Permit Tone to finish (if enabled) and speak clearly into the microphone.

---

*Users on the site cannot respond to a Site All Call.*

### **Making a Multigroup Call**

This feature allows you to transmit to all users on multiple groups. Your radio must be programmed to allow you to use this feature.

#### **Procedure:**

- 1 Turn the Channel Rocker up or down to select the Multigroup ID.

---
- 2 Press the **PTT** button to make the call. The LED lights up green.

---
- 3 Wait for the Talk Permit Tone to finish (if enabled) and speak clearly into the microphone.

---

*Users on the groups cannot respond to a Multigroup Call.*



## Making a Private Call with the One Touch Call Button

The One Touch Call feature allows you to easily make a Private Call to a pre-defined Private Call alias or ID. This feature can be assigned to a short or long programmable button press.

You can **ONLY** have one ID assigned to a **One Touch Call** button. Your radio can have multiple **One Touch Call** buttons programmed.

### Procedure:

- 1 Press the programmed **One Touch Call** button to make a Private Call to the pre-defined target radio.
- 2 Press the **PTT** button to make the call. The green LED lights up.
- 3 Wait for the Talk Permit Tone to finish (if enabled) and speak clearly into the microphone.
- 4 Release the **PTT** button to listen. When the target radio responds, the green LED blinks.
- 5 If the Channel Free Indication feature is enabled, you will hear a short alert tone the moment the target radio releases the **PTT** button, indicating the channel is free for you to respond. Press the **PTT** button to respond.

### OR

If there is no voice activity for a predetermined period of time, the call ends.

## Making a Privacy-Enabled (scrambled) Call

Toggle privacy on by using the programmed privacy button. Your radio must have the Privacy feature enabled for the currently selected channel position to send a privacy-enabled transmission. When privacy is enabled for the currently selected channel position, all voice transmissions made by your radio will be scrambled. This includes Group Call, Multigroup Call, talk-back during scanned calls, Site All Call, Emergency Call, and Private Call. Only receiving radios with the same Key Value and Key ID as your radio will be able to unscramble the transmission. See **Enhanced Privacy** on page 24 for more information on privacy as well as instructions on enabling/disabling the feature.

## Busy Queue

When a call is initiated and approved with no available channels in Connect Plus mode, the call is placed in a queue. The call will proceed as normal when a channel becomes available.

**NOTE:** The radio will stay in "Busy" mode until the call is assigned, or until the user presses the **Busy Queue Cancellation** button. Check with the dealer or system administrator to find out if your radio has been programmed with a **Busy Queue Cancellation** button.

## Advanced Features

Use this navigation guide to learn more about advanced features available with your radio:

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## Home Channel Reminder

This feature provides a reminder when the radio is not set to the home channel for a period of time.

If this feature is enabled via the CPS, the Home Channel Reminder tone and announcement sound periodically when the radio is not set to the home channel for a period of time.

You can respond to the reminder by performing one of the following actions:

- Return to the home channel.
- Mute the reminder temporarily via the programmable button.
- Set a new home channel via the programmable button.

### Muting the Home Channel Reminder

When the Home Channel Reminder occurs, you can temporarily mute the reminder by performing the following action.

#### Procedure:

- 1 Press the **Mute Home Channel Reminder** programmable button.

## Setting a New Home Channel

When the Home Channel Reminder occurs, you can set a new home channel by performing one of the following actions:

### Procedure:

- 1 Press the **Reset Home Channel** programmable button.

## ■ Auto Fallback

---

Auto Fallback is a system feature that allows you to continue to make and receive non-emergency calls on the selected Group Contact in the event of certain types of Connect Plus system failures.

If one of these failures occurs, your radio attempts to roam to a different Connect Plus site. This search process may result in your radio finding an operable Connect Plus site, or it may result in your radio finding a “Fallback Channel” (if your radio is enabled for Auto Fallback). A Fallback Channel is a repeater that is normally part of an operable Connect Plus site, but is currently unable to communicate with either its site controller or the Connect Plus network. In Fallback mode, the repeater operates as a “stand-alone” digital repeater. Auto Fallback Mode supports non-emergency Group Calls only. No other call types are supported in Fallback Mode.

### Indications of Auto Fallback Mode

When your radio is using a Fallback channel, you will hear the intermittent “Fallback Tone” approximately once every 15 seconds (except while transmitting). You will also notice that your radio only permits **PTT** on the selected Group Contact (Group Call, Multigroup Call, or Site All Call). It does not allow you to make other types of calls.

## Making / Receiving Calls in Fallback Mode

Making calls in Fallback mode is similar to normal functioning. Simply select the group contact you wish to use (using the radio's normal channel selection method), and then press the **PTT** button to start your call. It is possible that the channel may be in use already by another group. If the channel is in use, you will receive a busy tone. You may select Group, Multigroup or Site All Call contacts using your radio's normal channel selection method. While the radio is operating on the Fallback Channel, the Multigroup operates just like other Groups. It is only heard by radios that are currently selected to the same Multigroup. Enhanced Privacy is supported in Fallback mode.

**NOTE:** Calls are heard only by radios that are monitoring the same Fallback channel and selected to the same Group. Calls are not networked to other sites or other repeaters.

Emergency voice calls or Emergency Alerts are not available in Fallback mode. If you press the emergency button in Fallback mode, the radio will provide an invalid key press tone.

Private (radio to radio) calls are not available in Fallback mode. If you attempt a call to a private contact, you will receive a denial tone. At this point you should select a desired group contact. Other non-supported calls include Remote Monitor, Call Alert, Radio Check, Radio Enable, Radio Disable, Text

messaging, Location Updates, and packet data calls.

Enhanced Traffic Channel Access (ETCA) is not supported in Auto Fallback mode. If two or more radio users press the **PTT** button at the same time (or at almost the same time), it is possible that both radios will transmit until the **PTT** button is released. In this event, it is possible that none of the transmissions will be understood by receiving radios.

## Returning to Normal Operation

If the site returns to normal trunking operation while you are in range of your Fallback repeater, your radio will automatically exit Auto Fallback mode. A registration "beep" will be heard when your radio successfully registers. If you believe that you are in range of an operable site (that is not in Fallback mode), you may press the Roam Request button (if programmed for your radio) to force your radio to search for and register on an available site. If no other site is available, your radio will return to Auto Fallback mode after searching is complete. If you drive out of coverage of your Fallback repeater, your radio will enter Search mode.

## ■ Selectable Group Scan

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This feature allows your radio to monitor and join calls in groups, other than the one currently selected by the Channel Rocker. If this feature is used, your radio will be programmed with a list of groups to scan when Selectable Group Scan, or Scan, is enabled. This is your scan list.

Scan can be turned on or off by pressing a programmed **Scan On/Off** button.

This feature functions only when the radio is not currently involved in a call. If you are presently listening to a call, your radio cannot scan for other group calls, and is therefore unaware they are in progress. Once your call is finished, your radio returns to the control channel time slot, and is able to scan for groups that are in the scan list.

### Turning Scan On or Off

If Scan is turned on, and you are not participating in a call, the yellow LED will continuously and slowly blink.

#### **Procedure:**

Scan is turned on or off using a programmed button.

- 2 Press the programmed **Scan On/Off** button.
  - 3 A tone sounds indicating that Scan has been turned on or off. When Scan is enabled, the tone's pitch increases. When Scan is disabled, the tone's pitch decreases.
- 

### Understanding Scan Operation

There are some circumstances in which you can miss calls for groups that are in your scan list. When you miss a call for one of the following reasons, this does not indicate a problem with your radio. This is a normal scan operation for Connect Plus.

- Scan feature is not turned on (check for slowly blinking yellow LED).
- You are participating in a call already.
- No member of the scanned group is registered at your site (Multisite systems only).

### Talking Back During Scanned Calls

If your radio scans into a call from your selectable group scan list, and if you press the **PTT** button during the scanned call, your radio's operation depends on whether Scan Talkback was enabled or disabled during radio programming. For more information on how your radio is programmed, please contact your radio dealer (or your radio system administrator).

**Scan Talkback Disabled:** Your radio leaves the scanned call and attempts to transmit on the contact for your currently selected channel position. After the call on your currently selected contact, the radio waits until its Scan Hang Timer expires before it joins another call from the selectable group scan list.

**Scan Talkback Enabled:** If you press the **PTT** button during the Group Hang Time of the scanned call, your radio attempts to transmit to the scanned group.

**NOTE:** If you scan into a call for a group that is not assigned to a channel position in your currently selected zone and you miss the call's Hang Time, you will have to switch to the proper zone and then select the group's channel position to talk back to that group.

## ■ Editing Priority for a Talkgroup

---

The Priority Monitor feature allows the radio to automatically receive transmission from the talkgroup with higher priority when it is in another call. A tone sounds when the radio switches to the call with higher priority.

There are two levels of priority for the talkgroups: P1 and P2. P1 has higher priority than P2.

**NOTE:** If Default Emergency Revert Group ID is configured in MOTOTRBO Connect Plus Option Board CPS, there are three levels of priority for talkgroups: P0, P1 and P2. P0 is the permanent Emergency Revert Group ID and the highest priority. Check with your dealer or system administrator for more information.

## ■ Call Alert Operation

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Call Alert paging enables you to alert a specific radio user to call you back when they are able to.

This feature is accessible via a programmed **One Touch Call** button.

### Receiving and Acknowledging a Call Alert

#### **Procedure:**

When you receive a Call Alert page:

- 1 You hear a repetitive tone. The yellow and green LEDs are blinking simultaneously.
-

- 2 Press the **PTT** button to start a Private Call to the radio that sent the Call Alert.

## Making a Call Alert with the One Touch Call Button

### Procedure:

- 1 Press the programmed **One Touch Call** button to make a Call Alert to the predefined ID.
- 2 The green LED lights up when your radio is sending the Call Alert.
- 3 If the Call Alert acknowledgement is received, a positive indicator tone sounds.

### OR

If the Call Alert acknowledgement is not received, a negative indicator tone sounds.

## ■ Emergency Operation

An Emergency call or Emergency Alert is used to indicate a critical situation. You can initiate an Emergency at any time even when there is activity on the current channel. Pressing the **Emergency** button initiates the programmed Emergency mode. The Emergency features may be disabled in your radio.

When your radio is selected to a Connect Plus zone, it supports three Emergency modes:

- **Emergency Call** – You must press the **PTT** button to talk on the assigned emergency time slot.
- **Emergency Call with Voice to Follow** – For the first transmission on the assigned emergency time slot, the microphone is automatically unmuted and you may talk without pressing the **PTT** button. The microphone will stay “hot” in this fashion for a time period programmed into the radio. For subsequent transmissions in the same Emergency call, you must press the **PTT** button.
- **Emergency Alert** - An Emergency Alert is not a voice call. It is an emergency notification that is sent to radios that are configured to receive these alerts. The radio sends an Emergency Alert via the control channel of the currently registered site. The Emergency Alert is received by radios in the Connect Plus network that are programmed to receive them (No matter which network site they are registered to).

Only **ONE** of the Emergency modes can be assigned to the **Emergency** button per Connect Plus zone. In addition, each Emergency mode has the following types:

- **Regular** – Radio initiates an Emergency call or Emergency Alert and shows audio and/or visual indicators.
- **Silent** – Radio initiates an Emergency call or Emergency Alert without any audio or visual indicators. The radio will suppress all audio or visual indications of the Emergency until you press the **PTT** button to start a voice transmission.
- **Silent with Voice** – The same as Silent operation, except that the radio will also un-mute for some voice transmissions.

**NOTE:** If your radio is programmed for “Silent” or “Silent with voice” emergency initiation, in most cases it will automatically exit silent operation after the Emergency Call or Emergency Alert is finished. The exception to this rule is when “Emergency Alert” is the configured Emergency Mode and “Silent” is the configured Emergency Type. If your radio is programmed in this manner, the silent operation will continue until you cancel silent operation by pressing the **PTT** button or the button configured for “Emergency Off”.

Emergency voice calls and Emergency Alerts are not supported when operating in Fallback mode. For more information see the **Auto Fallback** section on page 17.

## Initiating an Emergency Call

### Procedure:

To start a call on the Emergency group:

- 1 Press the programmed **Emergency** button. The Emergency Search Tone sounds. It is temporarily muted when the radio transmits or receives voice. The tone stops when the radio exits Emergency mode.

**NOTE:** The Emergency Search Tone is an optional feature, it can be enabled or disabled via the CPS programming software. This feature is disabled, if Silent Emergency is enabled. Check with your dealer or system administrator to determine how your radio has been programmed.

- 2 Hold the microphone 1 to 2 inches (2.5 to 5.0 cm) from your mouth and press the **PTT** button to initiate a voice transmission on the Emergency group.
- 3 When you release the **PTT** button, the Emergency call continues for the time allotted for the Emergency Call Hang Time. If you press the **PTT** button during this time, the Emergency call continues.

*If your radio is set to Silent, it will not provide any audio or visual indicators during Emergency mode until you press the **PTT** button to initiate a voice transmission.*

*If your radio is set to Silent with Voice, it will not initially provide any audio or visual indicators that the radio is in Emergency mode. However, your radio will un-mute for the transmissions of radios responding to your emergency. The emergency indicators will only appear once you press the **PTT** button to initiate a voice transmission from your radio.*

*For both “Silent” and “Silent with Voice” operation, the radio will automatically exit silent operation after the Emergency Call is finished.*



## Initiating an Emergency Call with Voice to Follow

Your radio must be programmed for this type of operation.

When enabled for this operation, when you press the programmed **Emergency** button, and when your radio receives the time slot assignment, the microphone is automatically activated without you needing to press the **PTT** button. This activated microphone state is also known as “hot mic”. The “hot mic” applies to the first voice transmission from your radio during the Emergency call. For subsequent transmissions in the same Emergency call, you must press the **PTT** button.

### Procedure:

To start a call on the Emergency group:

- 1 Press the programmed **Emergency** button. The Emergency Search Tone sounds. It is temporarily muted when the radio transmits or receives voice. The tone stops when the radio exits Emergency mode.

**NOTE:**The Emergency Search Tone is an optional feature, it can be enabled or disabled via the CPS programming software. This feature is disabled, if Silent Emergency is enabled. Check with your dealer or system administrator to determine how your radio has been programmed.

- 2 Hold the microphone 1 to 2 inches (2.5 to 5.0 cm) from your mouth and speak.

- 3 Microphone will remain active for the “hot mic” time specified in your radio's codeplug programming. During this time, the green LED lights up.

- 4 Press and hold the **PTT** button to talk longer than the programmed duration.

## Responding to an Emergency Call

Your radio does not show that you are receiving an Emergency call. Respond the same way as you would to group calls.

## Exiting Emergency Mode

If you initiate an Emergency call by pressing the programmed **Emergency** button, your radio will automatically be assigned a channel when one becomes available. Once your radio has transmitted a message indicating the emergency, you cannot cancel your Emergency call. However, if you pressed the button by accident or the emergency no longer exists, you may wish to say this over the assigned channel. When you release the **PTT** button, the Emergency call will be discontinued after the Emergency Call Hang Time expires.

If your radio was configured for Emergency with Voice to Follow, use the “hot mic” period to explain your error, then press and release the **PTT** button to discontinue the transmission. The Emergency call will be discontinued after the Emergency Call Hang Time expires.

**NOTE:** If the Emergency call ends due to the expiration of the Emergency Hang Time, but the emergency condition is

not over, press the **Emergency** button again to start over the process.

## Initiating an Emergency Alert

### Procedure:

- 1 Press the programmed **Emergency** button. The Emergency Search Tone sounds. It is temporarily muted when the radio transmits or receives voice. The tone stops when the radio exits Emergency mode.

**NOTE:** The Emergency Search Tone is an optional feature, it can be enabled or disabled via the CPS programming software. This feature is disabled, if Silent Emergency is enabled. Check with your dealer or system administrator to determine how your radio has been programmed.

- 2 Once the Emergency Alert is successfully sent and is being broadcast for other radios to hear, a positive indicator tone is played.

**NOTE:** If your radio is programmed for “Silent” or “Silent with Voice”, it will not provide any audio or visual indications that it is sending an Emergency Alert. If programmed for “Silent”, the silent operation continues indefinitely until you press **PTT** or the button configured for “Emergency Off”. If programmed for “Silent with Voice”, the radio automatically cancels silent operation when the site controller broadcasts the Emergency Alert.

## ■ Text Messaging Features

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### Sending a Quick Text Message

You can send Quick Text messages, programmed by your dealer, via the programmable button.

### Procedure:

- 1 Press the programmed **One Touch Call** button to send a predefined Quick Text message to a predefined ID.
- 2 The green LED lights up.
- 3 If the text message is transmitted successfully, a positive indicator tone sounds.

### **OR**

If the text message cannot be successfully transmitted, a negative indicator tone sounds.

## ■ Enhanced Privacy

---

If enabled, this feature helps to prevent eavesdropping by unauthorized users via a software-based scrambling solution. Only the voice portions of a call are scrambled. Your radio must have privacy enabled on the selected channel position to send a privacy-enabled transmission. While selected to a privacy-enabled channel position, the radio is still able to receive clear (unscrambled) transmissions. If your radio is

configured with a matching Key ID and Key Value, it can correctly unscramble voice transmissions, even when transmit Privacy is not enabled for the currently selected position.

There are several different ways that a channel position can become enabled (or disabled) for privacy. It can be enabled (or disabled) for privacy via radio programming, or it can be enabled (or disabled) for privacy by the radio user via the Privacy on/off button. When transmitting scrambled audio, the talk permit tone is slightly lower in pitch than it is when transmitting unscrambled audio.

### LED Operation

When transmitting, the green LED displays solid green, regardless of whether the transmission is scrambled or unscrambled. When receiving scrambled transmissions, the green LED will blink at an uneven rate (flash, flash, pause). This pattern repeats for the duration of the transmission. If the transmission is clear, then the green LED blinks at an even rate (flash, flash, flash). This pattern repeats for the duration of the transmission.

### Enable/Disable Privacy

Press the programmed Privacy On/Off button to toggle privacy on or off for the selected channel position.

When Privacy is toggled, “on”, the radio plays a tone that rises in pitch.

When Privacy is toggled, “off”, the radio plays a tone that falls in pitch.

**NOTE:** Toggling the privacy setting on or off affects the currently selected channel position only. The radio tracks the privacy setting (on or off) for each channel position separately.

## ■ Utilities

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### Setting the Power Level

You can toggle your radio’s power setting between high or low for each channel.

**Settings:** **High** enables communication with radios located at a considerable distance from you. **Low** enables communication with radios in closer proximity.

#### **Procedure:**

- 1 Press the programmed **Power Level** button.
  - 2 The radio plays a tone that rises in pitch when transmitting with high power.  
**OR**  
The radio plays a tone that falls in pitch when transmitting with low power.
-

## Turning Radio All Tones/Alerts On or Off

You can enable and disable all radio tones and alerts if needed.

### Procedure:

- 1 Press the programmed **All Tones/Alerts** button.

---

  - 2 You hear a single beep, indicating that all tones and alerts are on.  
OR  
You do not hear any beep. This indicates that all tones and alerts has been turned off.
- 

## Turning Horns/Lights On or Off

Your radio is able to notify you of an incoming Call Alert via the horns and lights feature. When activated, an incoming Call Alert sounds your vehicle's horn and turns on its lights. This feature needs to be installed through your radio's rear accessory connector by your dealer. In some cases, this feature may be permanently active. In this case, turning it on or off is not necessary.

When a call arrives, you have a programmed amount of time to respond before the Horns and Lights feature activates ("Delay Time"). If you respond to the call by pressing the **PTT** button or any other button on the radio before the programmed delay timer expires, the Horns and Lights feature will not be activated. If activated, Horns and Lights sounds for a programmed duration or until you respond by pressing a button on the radio.

In some cases, the radio may be programmed to sound the horns and lights indefinitely until you respond.

### Procedure:

- 1 Press the programmed **Horns/Lights** button.

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  - 2 You hear a tone that rises in pitch, indicating the horns and lights feature is on.  
**OR**  
You hear a tone that falls in pitch, indicating the horns and lights feature is off.
- 

## Setting the Text-to-Speech Feature

**NOTE:** The Text-to-Speech feature can only be enabled via the MOTOTRBO Customer Programming Software. If enabled, the Voice Announcement feature is automatically disabled, and vice versa. Check with your dealer or system administrator for more information.

This feature enables the radio to audibly indicate the following features:

- Current Channel
- Current Zone
- Programmed button feature on or off

Press the programmed **Voice Announcement** button to toggle this feature on or off.

## Accessories

Your radio is compatible with the accessories listed in this chapter. Contact your dealer for details.

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### ■ Antennas

- VHF, 136 – 144 MHz, 1/4 Wave, Through-Hole Mount, Mini-U (HAD4006\_)
- VHF, 146 – 150.8 MHz, 1/4 Wave, Through-Hole Mount, Mini-U (HAD4007\_)
- VHF, 150.8 – 162 MHz, 1/4 Wave, Through-Hole Mount, Mini-U (HAD4008\_)

- VHF, 162 – 174 MHz, 1/4 Wave, Through-Hole Mount, Mini-U (HAD4009\_)
- VHF, 146 – 172 MHz, 3.0 dB Gain, Through-Hole Mount, Mini-U (HAD4014\_)
- UHF, 403 – 430 MHz, 1/4 Wave, Through-Hole Mount, Mini-U (HAE4002\_)
- UHF, 450 – 470 MHz, 1/4 Wave, Through-Hole Mount, Mini-U (HAE4003\_)
- UHF, 470 – 527 MHz, 1/4 Wave, Through-Hole Mount, Mini-U (HAE4004\_)
- UHF, 406 – 420 MHz, 3.5 dB Gain, Through-Hole Mount, Mini-U (HAE4010\_)
- UHF, 450 – 470 MHz, 3.5 dB Gain, Through-Hole Mount, Mini-U (HAE4011\_)
- UHF, 470 – 494 MHz, 3.5 dB Gain, Through-Hole Mount, Mini-U (HAE4012\_)
- UHF, 494 – 512 MHz, 3.5 dB Gain, Through-Hole Mount, Mini-U (HAE4013\_)
- UHF, 403 – 527 MHz, 2.0 dB Gain, Through-Hole Mount, Mini-U (HAE6022\_)
- UHF, 450 – 470 MHz, 5.0 dB Gain, Through-Hole Mount, Mini-U (RAE4004\_)

**For DGM 4100+ GPS Models Only**

- Combination GPS/VHF, 136 – 144 MHz, 1/4 Wave, Through-Hole Mount, Mini-U (RAD4214\_)
- Combination GPS/VHF, 146 – 150.8 MHz, 1/4 Wave, Through-Hole Mount, Mini-U (RAD4215\_)
- Combination GPS/VHF, 150.8 – 162 MHz, 1/4 Wave, Through-Hole Mount, Mini-U (RAD4216\_)
- Combination GPS/VHF, 162 – 174 MHz, 1/4 Wave, Through-Hole Mount, Mini-U (RAD4217\_)
- Combination GPS/VHF, 146 – 172 MHz, 3.0 dB Gain, Through-Hole Mount, Mini-U (RAD4218\_)
- Combination GPS/UHF, 403 – 527 MHz, 2.0 dB Gain, Through-Hole Mount, Mini-U (HAE6019\_)
- Combination GPS/UHF, 470 – 527 MHz, 1/4 Wave, Through-Hole Mount, Mini-U (HAE6020\_)
- Combination GPS/UHF, 470 – 494 MHz, 3.0 dB Gain, Through-Hole Mount, Mini-U (HAE6024\_)
- Combination GPS/UHF, 494 – 512 MHz, 3.0 dB Gain, Through-Hole Mount, Mini-U (HAE6026\_)
- Combination GPS/UHF, 403 – 430 MHz, 1/4 Wave, Through-Hole Mount, Mini-U (PMAE4030\_)
- Combination GPS/UHF, 450 – 470 MHz, 1/4 Wave, Through-Hole Mount, Mini-U (PMAE4031\_)
- Combination GPS/UHF, 406 – 420 MHz, 3.5 dB Gain, Through-Hole Mount, Mini-U (PMAE4032\_)
- Combination GPS/UHF, 450 – 470 MHz, 3.5 dB Gain, Through-Hole Mount, Mini-U (PMAE4033\_)
- Combination GPS/UHF, 450 – 470 MHz, 5.0 dB Gain, Through-Hole Mount, Mini-U (PMAE4034\_)
- Fixed Mount GPS Active Antenna (PMAN4000\_)
- Window Mount GPS Active Antenna (PMAN4001\_)
- Magnetic Mount GPS Active Antenna (PMAN4002\_)

**Audio**

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- Telephone Style Handset (HMN4098\_)
- Desktop Microphone (RMN5050\_)
- Compact Microphone (RMN5052\_)
- Heavy Duty Microphone with Enhanced Audio (RMN5053\_)
- Visor Microphone with Enhanced Audio (RMN5054\_)

## ■ Cables

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- Power Cable to Battery, 10-foot (3-metre) Cable, 15 amp (1 – 25 Watt) (HKN4137\_)
- Power Cable to Battery, 10-foot (3-metre) Cable, 20 amp (1 – 45 Watt) (HKN4191\_)
- Power Cable to Battery, 20-foot (6-metre) Cable, 20 amp (1 – 45 Watt) (HKN4192\_)
- Mobile and Repeater Rear Accessory Connector Universal Cable (PMKN4018\_)
- Ignition Sense Cable (RKN4136\_)

## ■ Desktop Accessories

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- Radio Power Cable for GPN6145 (GKN6266\_)
- Desktop Tray without Speaker (GLN7318\_)
- Desktop Tray with Speaker (RSN4005\_)
- Switchmode Power Supply (1 – 25 Watt Models) (CE marked) (GPN6145\_)
- Mobile Mini-U Antenna Adapter, 8-foot (2.4-metre) Cable (HKN9088\_)
- Power Supply and Cable (25 – 60 Watt Models) (HPN4007\_)

- Power Supply and Cable (1 – 25 Watt Models) (HPN4008\_)
- US Line Cord (NTN7373\_)
- Euro Line Cord (NTN7374\_)
- UK Line Cord (NTN7375\_)
- Argentina Line Cord (NTN9246\_)
- Hardware Kit for Rear Accessory Connector (PMLN5072\_)

## ■ Mounting Kits

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- In Dash (DIN) Mounting Kit (RLN5933\_)
- Low Profile Trunnion Kit (RLN6077\_)
- High Profile Trunnion Kit (RLN6078\_)
- Key Lock Trunnion Kit (RLN6079\_)

## ■ Remote Mount Adaptor Kits

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- Mobile Remote Mount 5-Meter Cable Kit (PMKN4073\_)
- Mobile Remote Mount 3-Meter Cable Kit (PMKN4074\_)
- Mobile Remote Mount Adaptor Kit (PMLN5404\_)

## ■ Speakers

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- 13-Watt External Speaker (RSN4002\_)
- 7.5-Watt External Speaker (RSN4003\_)
- 5-Watt External Speaker (RSN4004\_)

## ■ Miscellaneous Accessories

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- Numeric Display Mobile Button Kit (Includes Buttons for Monitor, Scan, Backlight, and Talkaround) (HKNL4290\_)
- PL259/Mini-U Antenna Adapter, 8-foot (2.4-metre) Cable (HKN9557\_)
- Microphone Hang Up Clip (All Microphones) (HLN9073\_)
- Universal Microphone Hang Up Clip (All Microphones) (HLN9414\_)
- Push Button **PTT** (RLN5926\_)



## Limited Warranty

### **MOTOROLA COMMUNICATION PRODUCTS**

#### **I. WHAT THIS WARRANTY COVERS AND FOR HOW LONG:**

MOTOROLA SOLUTIONS INC. ("MOTOROLA") warrants the MOTOROLA manufactured Communication Products listed below ("Product") against defects in material and workmanship under normal use and service for a period of time from the date of purchase as scheduled below:

DGM Series Digital Mobile Radios	Two (2) Years
Product Accessories	One (1) Year

MOTOROLA, at its option, will at no charge either repair the Product (with new or reconditioned parts), replace it (with a new or reconditioned Product), or refund the purchase price of the Product during the warranty period provided it is returned in accordance with the terms of this warranty. Replaced parts or boards are warranted for the balance of the original applicable warranty period. All replaced parts of Product shall become the property of MOTOROLA.

This express limited warranty is extended by MOTOROLA to the original end user purchaser only and is not assignable or transferable to any other party. This is the complete warranty for the Product manufactured by MOTOROLA. MOTOROLA assumes no

obligations or liability for additions or modifications to this warranty unless made in writing and signed by an officer of MOTOROLA.

Unless made in a separate agreement between MOTOROLA and the original end user purchaser, MOTOROLA does not warrant the installation, maintenance or service of the Product.

MOTOROLA cannot be responsible in any way for any ancillary equipment not furnished by MOTOROLA which is attached to or used in connection with the Product, or for operation of the Product with any ancillary equipment, and all such equipment is expressly excluded from this warranty. Because each system which may use the Product is unique, MOTOROLA disclaims liability for range, coverage, or operation of the system as a whole under this warranty.

#### **II. GENERAL PROVISIONS:**

This warranty sets forth the full extent of MOTOROLA'S responsibilities regarding the Product. Repair, replacement or refund of the purchase price, at MOTOROLA'S option, is the exclusive remedy. THIS WARRANTY IS GIVEN IN LIEU OF ALL OTHER EXPRESS WARRANTIES. IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO THE DURATION OF THIS LIMITED WARRANTY. IN NO EVENT SHALL MOTOROLA BE LIABLE FOR DAMAGES IN EXCESS OF THE PURCHASE PRICE OF THE PRODUCT, FOR ANY LOSS OF USE, LOSS OF TIME, INCONVENIENCE, COMMERCIAL LOSS, LOST PROFITS OR SAVINGS OR OTHER INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR

INABILITY TO USE SUCH PRODUCT, TO THE FULL EXTENT SUCH MAY BE DISCLAIMED BY LAW.

### III. STATE LAW RIGHTS:

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LIMITATION ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION OR EXCLUSIONS MAY NOT APPLY.

This warranty gives specific legal rights, and there may be other rights which may vary from state to state.

### IV. HOW TO GET WARRANTY SERVICE:

You must provide proof of purchase (bearing the date of purchase and Product item serial number) in order to receive warranty service and, also, deliver or send the Product item, transportation and insurance prepaid, to an authorized warranty service location. Warranty service will be provided by MOTOROLA through one of its authorized warranty service locations. If you first contact the company which sold you the Product (e.g., dealer or communication service provider), it can facilitate your obtaining warranty service.

### V. WHAT THIS WARRANTY DOES NOT COVER:

- A) Defects or damage resulting from use of the Product in other than its normal and customary manner.
- B) Defects or damage from misuse, accident, water, or neglect.

- C) Defects or damage from improper testing, operation, maintenance, installation, alteration, modification, or adjustment.
- D) Breakage or damage to antennas unless caused directly by defects in material workmanship.
- E) A Product subjected to unauthorized Product modifications, disassembles or repairs (including, without limitation, the addition to the Product of non-MOTOROLA supplied equipment) which adversely affect performance of the Product or interfere with MOTOROLA's normal warranty inspection and testing of the Product to verify any warranty claim.
- F) Product which has had the serial number removed or made illegible.
- G) Rechargeable batteries if:
  - (1) any of the seals on the battery enclosure of cells are broken or show evidence of tampering.
  - (2) the damage or defect is caused by charging or using the battery in equipment or service other than the Product for which it is specified.
- H) Freight costs to the repair depot.
- I) A Product which, due to illegal or unauthorized alteration of the software/firmware in the Product, does not function in accordance with MOTOROLA's published specifications or the FCC type acceptance labeling in effect for the Product at the time the Product was initially distributed from MOTOROLA.
- J) Scratches or other cosmetic damage to Product surfaces that does not affect the operation of the Product.
- K) Normal and customary wear and tear.

## VI. PATENT AND SOFTWARE PROVISIONS:

MOTOROLA will defend, at its own expense, any suit brought against the end user purchaser to the extent that it is based on a claim that the Product or parts infringe a United States patent, and MOTOROLA will pay those costs and damages finally awarded against the end user purchaser in any such suit which are attributable to any such claim, but such defense and payments are conditioned on the following:

- A) that MOTOROLA will be notified promptly in writing by such purchaser of any notice of such claim;
- B) that MOTOROLA will have sole control of the defense of such suit and all negotiations for its settlement or compromise; and
- C) should the Product or parts become, or in MOTOROLA's opinion be likely to become, the subject of a claim of infringement of a United States patent, that such purchaser will permit MOTOROLA, at its option and expense, either to procure for such purchaser the right to continue using the Product or parts or to replace or modify the same so that it becomes non-infringing or to grant such purchaser a credit for the Product or parts as depreciated and accept its return. The depreciation will be an equal amount per year over the lifetime of the Product or parts as established by MOTOROLA.

MOTOROLA will have no liability with respect to any claim of patent infringement which is based upon the combination of the Product or parts furnished hereunder with software, apparatus or devices not furnished by MOTOROLA, nor will MOTOROLA have any liability for the use of ancillary equipment or software not furnished by MOTOROLA which is attached to or used in connection with the Product. The foregoing states the entire liability of MOTOROLA with respect to infringement of patents by the Product or any parts thereof.

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## VII. GOVERNING LAW:

This Warranty is governed by the laws of the State of Illinois, U.S.A.

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## Notes





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