



**MOTOROLA SOLUTIONS**

User Guide

**CLS** SERIES TWO-WAY RADIO



6864110W15-FA

Models CLS1110 and CLS1410



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## Introduction

Thank you for purchasing a Motorola Solutions **GLS** Series Radio. Your radio is a product of Motorola Solutions' long experience as a world leader in designing and manufacturing communications equipment. The **GLS** Series radios provide cost-effective communications for businesses such as retail stores, restaurants, hotels, and schools. Motorola Solutions professional two-way radios are the perfect communications solution for all of today's fast-paced industries.

Please read this guide carefully so you know how to properly operate the radio before use.

### Package Contents

- **GLS** Series Radio
- Swivel Belt Holster
- Lithium Ion Battery
- Drop-In Charger with Transformer
- Quick Reference Guide

For product-related questions, please call:

**1-800-448-6686**

**Or Visit:**

[www.motorolasolutions.com/CLS](http://www.motorolasolutions.com/CLS)

## **ATTENTION**

Before using this product, read the RF energy awareness information and operating instructions in the Safety and General Information section of this guide to ensure compliance with RF energy exposure limits.

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# FCC Licensing Information

## Interference Information

This device complies with Part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

**GLS Series™** Business two-way radios operate on radio frequencies that are regulated by the Federal Communications Commission (FCC). To transmit on these frequencies, you are required to have a license issued by the FCC. Application is made available on FCC Form 601 and Schedules D, H, and Remittance Form 159.

To obtain these FCC forms, request document 000601 which includes all forms and instructions. If you wish to have the document faxed, mailed or have questions, use the following contact information.

<b>Faxed contact the Fax-On- Demand system at:</b>	<b>Mailed call the FCC forms hotline at:</b>	<b>Questions regarding FCC license contact the FCC at:</b>
1-202-418-0177	1-800-418-FORM 1-800-418-3676	1-888-CALL-FCC 1-888-225-5322 Or: <a href="http://www.fcc.gov">http://www.fcc.gov</a>

Before filling out your application, you must decide which frequency(ies) you can operate on. See “Frequencies and Code Charts”. For questions on determining the radio frequency, call Motorola Solutions Product Services at:

1-800-448-6686

Changes or modifications not expressly approved by Motorola Solutions may void the user's authority granted by the FCC to operate this radio and should not be made. To comply with FCC requirements, transmitter adjustments should be made only by or under the supervision of a person certified as technically qualified to perform transmitter maintenance and repairs in the private land mobile and fixed services as certified by an organization representative of the user of those services.

Replacement of any transmitter component (crystal, semiconductor, etc.) not authorized by the FCC equipment authorization for this radio could violate FCC rules.

Use of this radio outside the country where it was intended to be distributed is subject to government regulations and may be prohibited



# RF Energy Exposure Awareness and Control Information and Operational Instructions for Occupational Use

**NOTICE:** This radio is intended for use in occupational/controlled conditions where users have full knowledge of their exposure and can exercise control over their exposure to meet the occupational limits in FCC and International standards. This radio device is NOT authorized for general population consumer use.

This two-way radio uses electromagnetic energy in the radio frequency (RF) spectrum to provide communications between two or more users over a distance. It uses radio frequency (RF) energy or radio waves to send and receive calls. RF energy is one form of electromagnetic energy. Other forms include, but are not limited to, sunlight and x-rays. RF energy, however, should not be confused with these other forms of electromagnetic energy, which when used improperly, can cause biological damage. Very high levels of x-rays, for example, can damage tissues and genetic material.

Experts in science, engineering, medicine, health, and industry work with organizations to develop standards for safe exposure to RF energy. These standards provide recommended levels of RF exposure for both workers and the general public. These recommended RF exposure levels include substantial margins of protection.

All Motorola Solutions two-way radios are designed, manufactured, and tested to ensure they meet government-established RF exposure levels. In addition, manufacturers also recommend specific operating instructions to users of two-way radios. These instructions are important because they inform users about RF energy exposure and provide simple procedures on how to control it.

Please refer to the following websites for more information on what RF energy exposure is and how to control your exposure to assure compliance with established RF exposure limits:

<http://www.fcc.gov/oet/rfsafety/rf-faqs.html>

[www.who.int/en/](http://www.who.int/en/)

<http://responsibility.motorolasolutions.com/index.php/downloads/dow07-rfexposureassessmentstand>

## ***Federal Communication Commission (FCC) Regulations***

When two-way radios are used as a consequence of employment, the FCC requires users to be fully aware of and able to control their exposure to meet occupational requirements. Exposure awareness can be facilitated by the use of a product label directing users to specific user awareness information. Your Motorola Solutions two-way radio has a RF Exposure Product Label. Also, your Motorola Solutions user manual, or separate safety booklet includes information and operating instructions required to control your RF exposure and to satisfy compliance requirements.

## ***Compliance with RF Exposure Standards***

Your Motorola Solutions two-way radio is designed and tested to comply with a number of national and International standards and guidelines (listed below) for human exposure to radio frequency electromagnetic energy. **This radio complies with the IEEE (FCC) and ICNIRP exposure limits for occupational/controlled RF exposure environments at operating duty factors of up to 50% talk-50% listen and is approved for occupational use only.** In terms of measuring RF energy for compliance with these exposure guidelines, **your radio generates measurable RF energy only while it is transmitting (during talking), not when it is receiving (listening) or in standby mode.**

NOTE: The approved batteries, supplied with this radio, are rated for a 5-5-90 duty factor (5% talk-5% listen-90% standby) even though this radio complies with FCC occupational exposure limits and may operate at duty factors of up to 50% talk.

## Your Motorola Solutions two-way radio complies with the following RF energy exposure standards and guidelines:

- United States Federal Communications Commission (FCC), Code of Federal Regulations; 47 CFR et seq. & FCC, OET Bulletin 65
- Institute of Electrical and Electronic Engineers (IEEE) C95.1
- International Commission on Non-Ionizing Radiation Protection (ICNIRP)
- Ministry of Health (Canada) Safety Code 6 & Industry Canada RSS-102
- Australian Communications Authority Radiocommunications Standard et seq.
- ANATEL ANNEX to Resolution No. 303 et seq.

### ***RF Exposure Compliance and Control Guidelines and Operating Instructions for Two-Way Radio Operations***

To control your exposure and ensure compliance with the occupational/controlled environment exposure limits, always adhere to the following procedures.

- DO NOT remove the RF Exposure Label from the device.
- User awareness instructions should accompany device when transferred to other users.

#### **Two-Way Radio Operation**

- Transmit no more than the rated duty factor of 50% of the time. To transmit (talk), push the Push-To-Talk (PTT) button. To receive calls, release the PTT button. The PTT button may reside on the radio itself or may be hosted on approved wired or wireless (for example, a Bluetooth enabled remote Push-to-Talk button) accessories. Transmitting 50% of the time, or less, is important because this radio generates measurable RF energy exposure only when transmitting (in terms of measuring for standards compliance).

- In front of the face. Hold the radio in a vertical position with the microphone (and other parts of the radio including the antenna) at least one inch (2.5 centimeters) away from the nose or lips. Keeping the radio at a proper distance is important to ensure compliance.



NOTE: RF exposures decrease with increasing distance from the antenna.

- Body Worn Operation. When worn on the body, always place the radio in a Motorola Solutions-approved clip, holder, holster, case, or body harness for this product. Using approved body-worn accessories is important because the use of non-Motorola Solutions-approved accessories may result in exposure levels, which exceed the occupational/controlled environment RF exposure limits.
- Use only Motorola Solutions-approved supplied or replacement antennas, batteries, and audio accessories. Use of non-Motorola Solutions-approved antennas, batteries, and wired or wireless accessories may exceed the applicable RF exposure guidelines (IEEE, ICNIRP or FCC).
- For a list of Motorola Solutions-approved accessories for your radio model, visit the following website: <http://www.motorolasolutions.com/governmentandenterprise>

### ***Electromagnetic Interference/Compatibility***

NOTE: Nearly every electronic device is susceptible to electromagnetic interference (EMI) if inadequately shielded, designed, or otherwise configured for electromagnetic compatibility.

### **Facilities**

To avoid electromagnetic interference and/or compatibility conflicts, turn off your radio in any facility where posted notices instruct you to do so. Hospitals or health care facilities may be using equipment that is sensitive to external RF energy.

## **Aircraft**

When instructed to do so, turn off your radio when on board an aircraft. Any use of a radio must be in accordance with applicable regulations per airline crew instructions.

## **Medical Devices**

### **Pacemakers, Defibrillators or other Implanted Medical Devices**

Persons with pacemakers, Implantable cardioverter-defibrillators (ICDs) or other active implantable medical devices (AIMD) should:

- Consult with their physicians regarding the potential risk of interference from radio frequency transmitters, such as portable radios (poorly shielded medical devices may be more susceptible to interference).
- Turn the radio OFF immediately if they have any reason to suspect that interference is taking place.
- Do not carry the radio in a chest pocket or near the implantation site, and carry or use the radio on the opposite side of their body from the implantable device to minimize the potential for interference.

### ***Hearing Aids***

Some digital wireless radios may interfere with some hearing aids. In the event of such interference, you may want to consult your hearing aid manufacturer to discuss alternatives.

### ***Other Medical Devices***

If you use any other personal medical device, consult the manufacturer of your device to determine if it is adequately shielded from RF energy. Your physician may be able to assist you in obtaining this information.

## ***Use of Communication Devices While Driving***

Always check the laws and regulations on the use of radios in the areas where you drive.

- Give full attention to driving and to the road.
- Use hands-free operation, if available.
- Pull off the road and park before making or answering a call, if driving conditions or regulations so require.

## ***Acoustic Safety***

Exposure to loud noises from any source for extended periods of time may temporarily or permanently affect your hearing. The louder the radio's volume, the less time is required before your hearing could be affected. Hearing damage from loud noise is sometimes undetectable at first and can have a cumulative effect.

### **To protect your hearing:**

- Use the lowest volume necessary to do your job.
- Turn up the volume only if you are in noisy surroundings.
- Turn down the volume before adding headset or earpiece.
- Limit the amount of time you use headsets or earpieces at high volume.
- When using the radio without a headset or earpiece, do not place the radio's speaker directly against your ear.

## Operational Warnings



WARNING

### For Vehicle With Air Bags:

Refer to vehicle manufacturer's manual prior to installation of electronic equipment to avoid interference with air bag wiring.

**DO NOT** place a portable radio in the area over an air bag or in the air bag deployment area. Air bags inflate with great force. If a portable radio is placed in the air bag deployment area and the air bag inflates, the radio may be propelled with great force and cause serious injury to occupants of the vehicle.

## Operational Warnings (Continued)



WARNING

### Potentially Explosive Atmospheres

(Explosive atmospheres refers to hazard classified locations that may contain hazardous gas, vapors, or dusts.)

Turn off your radio prior to entering any area with a potentially explosive atmosphere unless it is a portable radio type especially qualified for use in such areas as Intrinsically Safe (for example, Factory Mutual, CSA, UL, or CENELEC).

**DO NOT** remove, install, or charge batteries in such areas. Sparks in a potentially explosive atmosphere can cause an explosion or fire resulting in bodily injury or even death.

The areas with potentially explosive atmospheres referred to above include fueling areas such as below decks on boats, fuel or chemical transfer or storage facilities, and areas where the air contains chemicals or particles such as grain, dust or metal powders. Areas with potentially explosive atmospheres are often, but not always, posted.

#### *Blasting Caps and Blasting Areas*

To avoid possible interference with blasting operations, turn off your radio when you are near electrical blasting caps, in a blasting area, or in areas posted: "Turn off two-way radio." Obey all signs and instructions.



## Operational Cautions



Caution

### Antennas

DO NOT use any portable radio that has a damaged antenna. If a damaged antenna comes into contact with your skin, a minor burn can result.

### Batteries

All batteries can cause property damage and/or bodily injury, such as burns, if a conductive material such as jewelry, keys, or beaded chains touches exposed terminals. The conductive material may complete an electrical circuit (short circuit) and become quite hot. Exercise care in handling any charged battery, particularly when placing it inside a pocket, purse, or other container with metal objects.

## ***Hazard Locations (Intrinsically) Safe Radio Information***

The Intrinsically safe approval unit refers to a product that has been approved as intrinsically safe by an approval agency (for example FM Approvals, CSA, UL, or Cenelec) and certifies that a particular product meets the Agency's applicable intrinsic safety standards for specific types of hazardous classified locations. A portable radio that has been approved for intrinsic safety will have Approval label attached to the radio to identify the unit as being Approved for specified hazardous atmospheres. This label specifies the hazardous Class/Division/Group along with the part number of the battery that must be used. The Intrinsically Safe Approval Label will be located on the portable radio unit.

## ***Operational Cautions for Intrinsic Safe Equipment***



Caution

- DO NOT operate radio communications equipment in a hazardous atmosphere unless it is a type especially qualified (for example, FM, UL, CSA, or CENELEC approved). An explosion or fire may result.
- DO NOT operate a radio unit that has been approved as intrinsically safe product in a hazardous atmosphere if it has been physically damaged (for example, cracked housing). An explosion or fire may result.
- DO NOT replace or charge batteries in a hazardous atmosphere. Contact sparking may occur while installing or removing batteries and cause an explosion or fire.

## ***Warnings for Radios Approved as Intrinsically Safe***

Radios must ship from the Motorola Solutions manufacturing facility with the hazardous atmosphere capability and the intrinsic safety approval labelling (FM, UL, CSA, CENELEC). Radios will not be upgraded to this capability and labeled once they have been shipped to the field.

A modification changes the unit's hardware from its original design configuration. Modifications can only be made by the original product manufacturer.



WARNING

- **DO NOT** replace or change accessories in a hazardous atmosphere. Contact sparking may occur while installing or removing accessories and cause an explosion or fire.
- Turn the radio off before removing or installing a battery or accessory.
- **DO NOT** disassemble an intrinsically safe product in any way that exposes the internal circuits of the unit.
- Failure to use an intrinsically safe approved battery or Approved accessories specifically approved for the radio unit may result in the dangerously unsafe condition of an unapproved radio combination being used in a hazardous location.
- Unauthorized or incorrect modification of the intrinsically safe approved Product will negate the approval rating of the product.
- Incorrect repair or relabeling of any intrinsically safe Agency-approved radio could adversely affect the Approval rating of the unit.
- Use of a radio that is not intrinsically safe in a hazardous atmosphere could result in serious injury or death.

## *Repair*



WARNING

**REPAIRS FOR MOTOROLA SOLUTIONS PRODUCTS WITH INTRINSICALLY SAFE APPROVAL ARE THE RESPONSIBILITY OF THE USER.**

Repairs to a Motorola Solutions FM approved radio product should only be done at a location that has been FM audited under the FM 3605 repairs and service standard.

Contact Motorola Solutions for assistance regarding repairs and service of Motorola Solutions intrinsically safe equipment.

A repair constitutes something done internally to the unit that would bring it back to its original condition. Items not considered as repairs are those in which an action is performed on a unit which does not require the outer casing of the unit to be opened in a manner that exposes the internal electrical circuits of the unit.

### ***Do Not Substitute Options or Accessories***

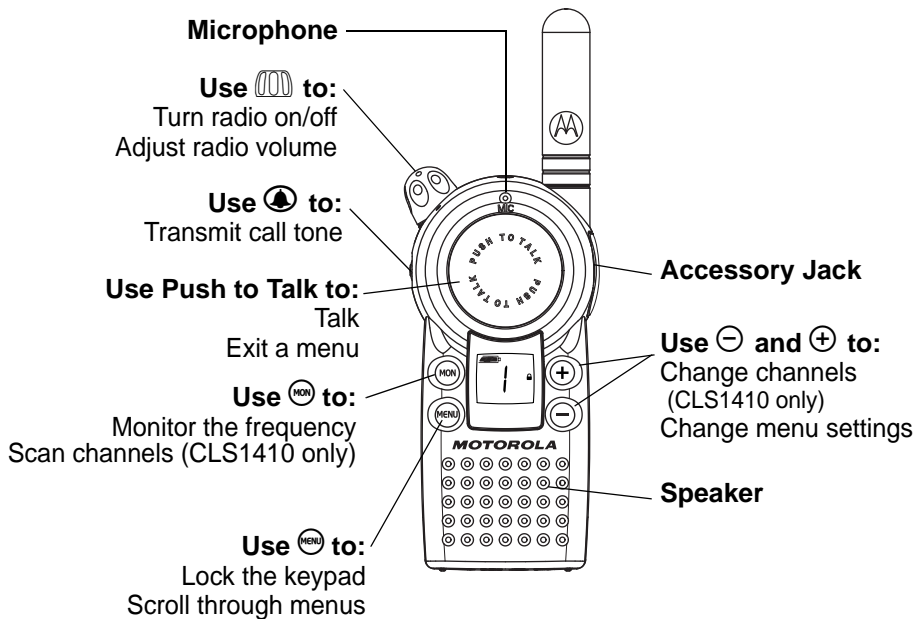
The Motorola Solutions communications equipment certified as intrinsically safe by the approving agency, (FM, UL, CSA, CENELEC) is tested as a complete system which consists of the listed agency Approved portable, Approved battery, and Approved accessories or options, or both. This Approved portable and battery combination must be strictly observed. There must be no substitution of items, even if the substitute has been previously Approved with a different Motorola Solutions communications equipment unit. Approved configurations are listed by the Approving Agency (FM, UL, CSA, CENELEC).

The Intrinsically Safe Approval Label affixed to radio refers to the intrinsically safe classification of that radio product, and the approved batteries that can be used with that system.

The manual PN referenced on the Intrinsically Safe Approval Label identifies the approved Accessories and or options that can be used with that portable radio unit.

Using a non-Motorola Solutions-intrinsically-safe battery and or accessory with the Motorola Solutions approved radio unit will void the intrinsically safe approval of that radio unit.

## Radio Controls



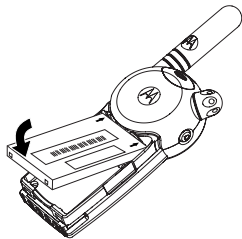
## Getting Started

### Installing the Batteries

Your radio uses a rechargeable Lithium Ion (Li-Ion) battery.

#### *Li-Ion Battery*

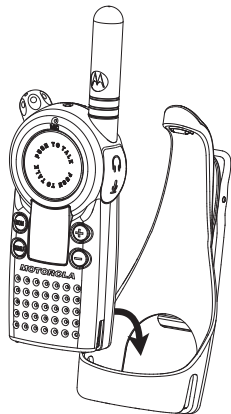
1. If the battery door is already in place, push down on the recess on the door and slide it off the radio.
2. Insert the battery, printed arrows first, into the battery compartment and press down to secure firmly in place.
3. Slide and snap the battery door into place.



## Installing the Swivel Belt Holster

1. Slide the bottom of the radio into the holster until it snaps into place.
2. To remove, push the tab on the holster and pull the radio away from the holster.

**Note:** In case of loss, please contact your point-of-sale or call 1-800-448-6686 to request replacement part.



Swivel  
Belt Holster

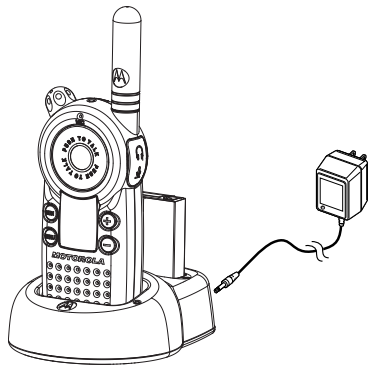
## Charging the Battery

Use only the charger supplied with the radio, or other **GL** Series power accessories. For optimum battery life, do not charge the battery for prolonged periods after it is fully charged. Charging the battery over the weekend is acceptable.

### Using the Drop-in Charger

1. Place the charger on a flat surface.
2. Insert the plug of the power cord into the jack on the charger.
3. Plug the cord into an AC outlet.
4. Turn the radio off. If the radio is on while charging, it will take longer to fully charge.
5. Insert the radio (with battery installed) into the front charging pocket.

**Note:** The radio will fit in the charger with the holster on.



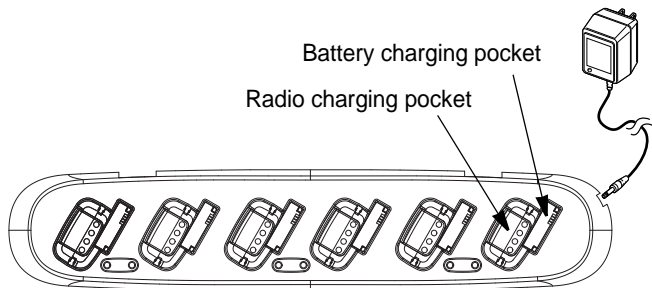
The drop-in charger will also sequentially charge a spare Li-Ion battery. The spare battery will not begin to charge until the radio battery is fully charged. Both batteries will charge in approximately 8 to 10 hours.



## Using the Multi-Unit Charger

The Multi-Unit Charger (MUC) allows drop-in charging of up to 6 radios or batteries. Batteries can be charged inside the radios or removed and placed in the MUC separately. Each of the 6 charging pockets can hold a radio or battery, but not both.

1. Place the charger on a flat surface.
2. Insert the power cord plug into the jack on the MUC.
3. Plug the cord into an AC outlet.
4. Turn the radio off.
5. Insert the radio or battery into the charging pocket.







### **Charging Status LEDs**

On the drop-in charger, the radio and battery charging pockets have their own LEDs. On the MUC, each of the 6 charging pockets has an LED. The LEDs are grouped into pairs to show which charging pockets are paired (for cloning, see page 46).

The LED is solid red when the battery is charging, and solid green when charging is complete.

### **Battery Meter**

The battery meter in the upper left corner of the display (see page 24) shows how much battery power is remaining.

Battery Type	3 Bars	2 Bars	1 Bar	Blinking
				
Li-Ion	100% – 70%	70% – 30%	30% – 10%	Final 10%

### **Battery Life**


Based on 5% transmit, 5% receive, 90% standby (standard duty cycle):

PMNN4497\_ (CLS Li-Ion 1800mAh) - 18.0 Hours

SNN5571\_ (CLS Li-Ion 1200mAh) - 12.5 Hours

## Turning Your Radio On and Off

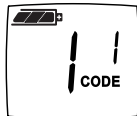
See page 17 for a basic radio diagram.

Turn  clockwise to turn the radio on, and counterclockwise to turn the radio off. When the radio is on, the transmit light on the top of the radio blinks every 3 seconds.


When you turn the radio on, the radio chirps and the display briefly shows all features and display segments.

The radio then displays the current channel (larger number in the center) and the frequency assigned to that channel (on the right indicated by **FREQ**).

The Interference Eliminator Code displays briefly (indicated by **PROG**), then the current channel remains displayed.

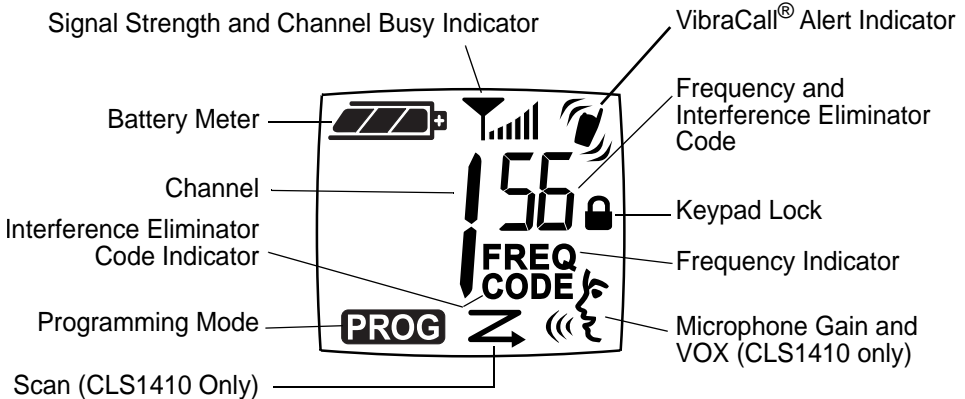


### Adjusting the Volume

Turn  clockwise to increase the volume, and counterclockwise to decrease the volume.



**Note:** Do not hold the radio too close to your ear when adjusting the volume.

### Reading the Display




# Talking and Receiving


## Basic Radio Operation

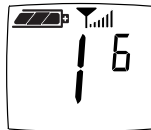
1. Press and hold  to check for channel activity. If you hear static, the channel is clear to use. Do not transmit if someone is speaking on the channel. Press  again to stop monitoring.
2. To talk, press and hold **Push to Talk** and speak into the microphone. Hold the radio 2 to 3 inches away from your mouth.
3. To listen, release **Push to Talk**.

The transmit LED on the top of the radio is red when transmitting.

## Signal Strength and Channel Busy Indicators

When there is activity on a frequency, the radio displays  and the transmit light blinks at a faster rate of once per second.

When there is activity on the same frequency and code as your radio (your radio is receiving), the radio displays  and a signal strength from 1 (weakest) to 6 (strongest). This can help determine when a radio is moving out of range.





**Note:** Obstacles that block the signal path may affect the strength of the incoming signal.

## Talk Range

Industrial	Multi-Level
Inside steel/concrete industrial buildings	Inside multi-level buildings
Up to 200,000 sq. ft.	Up to 15 floors





## Locking the Keypad

You can lock the keypad to avoid accidentally changing your radio settings.

1. Press and hold  for 3 seconds.
2. To unlock, press and hold  for 3 seconds.

## Monitoring a Channel





Monitoring allows you to check for activity on a channel.

1. Press and hold . If the channel is clear to use, you will hear static and  and  will display.
2. Press  again to stop monitoring.



## Scanning (CLS1410 Only)

You can scan up to 4 channels and frequencies. When the radio detects activity, it stops scanning and locks in on the active channel. This allows you to talk and listen to the person transmitting without changing channels.

1. To start scanning, briefly press .  
The scan icon  displays and the radio begins to scan the channels. When the radio detects activity, it stops on that channel and displays  and the channel number.
2. To talk to the person transmitting without switching channels, press **Push to Talk** within 5 seconds. If no transmission occurs within 5 seconds, scanning resumes.
3. To stop scanning, briefly press .

If you press **Push to Talk** while the radio is scanning, the radio transmits on the channel you were on before you started scanning.

### ***Skipping and Removing Channels While Scanning***

Scan has two temporary features to make it easier to use.

- Scan advance  
If the radio stops scanning on a channel you do not want to listen to, press ⊕ to resume scanning for the next active channel.
- Nuisance delete  
Press and hold ⊖ to temporarily remove a channel from the scan list. The channel return the next time you use the scan feature.



## Customer Programming Mode

Programming mode allows you to change the following settings on your radio:

- Channel
- Configure the operating frequency from a pre-programmed frequency list
- Interference eliminator code
- Call tones
- Microphone gain
- Scan list (CLS1410 only)
- Available channels (CLS1410 only)


### **Note:**

- To talk with someone on your two-way radio, the channel (CLS1410 only), frequency, and interference eliminator code must be the same on both radios.

## Factory Default Settings


Your radio is programmed at the factory to the following settings:

Channel	Frequency	
	CLS1110	CLS1410
1	2	2
2	Not available	8
3		5
4		6
Code	1	
Call Tone/ VibraCall®	Off (0)	
VOX	Not available	Off (0)
Microphone Gain	2 (medium sensitivity)	

To restore the factory settings, turn the radio on while holding **Push to Talk** and  for 3 seconds.





## Entering Advanced Configuration Mode

Advanced Configuration Mode allows you to configure special settings in your radio without the need of a computer.

Press and hold **Push to Talk** and  for 3 seconds while turning the radio on. The radio beeps and displays **PROG**, the channel number blinks, and the frequency (indicated by **FREQ**) and code (indicated by **CODE**) display alternately.





**Note:** If you press and release the **Push to Talk** button when programming CSL1410 models, you will return to the front of the Advanced Configuration Mode.

### Selecting a Channel (CLS1410 Only)

1. In advanced configuration mode, press  until the channel number blinks and the frequency and code display alternately (this is the first setting after you enter advanced configuration mode).
2. Press  or  to select the channel.
3. Press and hold **Push to Talk** to exit, or press  to continue programming.



### Configuring the Operating Frequency from a Pre-programmed Frequency List





1. In advanced configuration mode, press  until **FREQ** displays and the frequency number blinks.
2. Press  or  to select the frequency.
3. Press and hold **Push to Talk** to exit, or press  to continue programming.

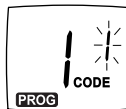


**Note:** See page 53 for information on frequencies for communicating with other business radios.

### ***Programming the Interference Eliminator Code***





The interference eliminator code helps minimize interference by providing code combinations that filter out static, noise, and unwanted messages.

1. In Advanced Configuration mode, press  until **PROG** displays and the code number blinks.
2. Press  or  to select the code (see page 56).
3. Press and hold **Push to Talk** to exit, or press  to continue programming.



### ***Programming the Available Channels (CLS1410 only)***


If you need fewer channels, you can reduce the number of available channels.


1. In Advanced Configuration mode, press  until **CH** displays and the channel number blinks.
2. Press  or  to select the number of channels you want available.
3. Press and hold **Push to Talk** to exit, or press  to continue programming.








**Note:** The radio retains settings for channels made unavailable.

## **Programming Call Tones and VibraCall® (CLS1410 only)**

Your radio can transmit call tones to other radios in your group so you can alert them that you are about to talk. Your radio is programmed at the factory with call tones turned off (set to ) , but you can change this setting to choose a distinctive call tone.

The VibraCall® feature is an additional call tone option that makes the CLS1410 radio vibrate briefly when it receives if you have not transmitted or received in the last 30 seconds. Select call tone 4 to turn VibraCall® on.  displays on the radio when VibraCall® is on.










1. In advanced configuration mode, press  until  displays.
2. Press  or  to hear and select the call tone. Select call tone 4 for VibraCall® (CLS1410 only).
3. Press and hold **Push to Talk** to exit, or press  to continue programming.

To transmit your call tone, press  on the side of the radio.



## Programming Microphone Gain











You can adjust the microphone sensitivity to suit different users or operating environments.

1. In advanced configuration mode, press  until  and  display.
2. Press  or  to select the sensitivity level:
  -  = High sensitivity, for quiet environments
  -  = Medium sensitivity (default)
  -  = Low sensitivity, for loud environments
3. Press and hold **Push to Talk** to exit, or press  to continue programming.



## Editing the Scan List (CLS1410 Only)

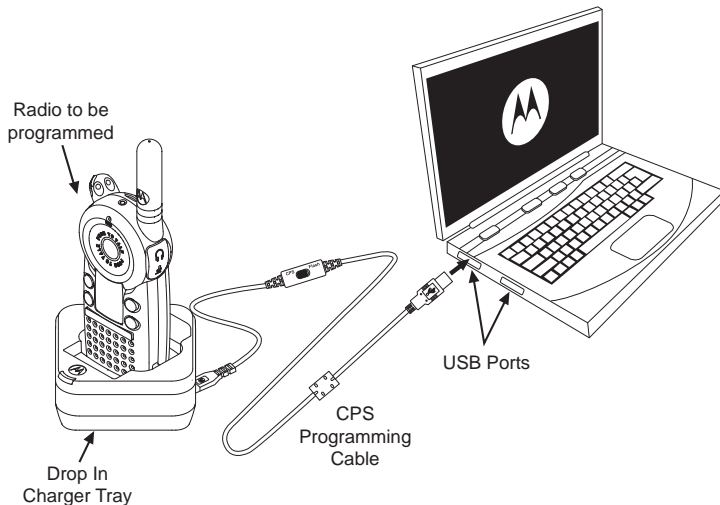
For faster scanning and to avoid hearing unwanted transmissions, you can edit the scan list to skip channels.

1. In advanced configuration mode, press  until  displays and the channel number and  or  blink.
2. Press  or  to select the channel you want to remove from the scan list.
3. Press  to display either  to include the channel or  to exclude the channel.
4. Press and hold **Push to Talk** to exit, or press  to continue programming.



## ***Programming with Customer Programming Software***

The easiest way to program or change features in your radio is by using the Customer Programming Software (CPS) and the CPS Programming Cable(\*). CPS Software is available for free as web based downloadable software at [www.motorolasolutions.com/CLS](http://www.motorolasolutions.com/CLS).



To program, connect the CLS Series radio via the Drop-in Charger Tray and CPS Programming Cable to your computer as shown in the picture above. Prior to programming, verify that the switch in the Programming Cable is in the 'Analog(\*\*)' position.

CPS allows you to easily program features such as frequency configuration, programming frequencies, PL/CTCSS codes, as well as other features such as: Call Tones, Reverse Burst etc. For more information, refer to Features Summary Chart Section.

**Note:** (\*) CPS Programming Cable P/N# is HKKN4027\_.

(\*\*) If your CPS Programming Cable is showing "CPS / Flash", make sure to position it to "CPS".

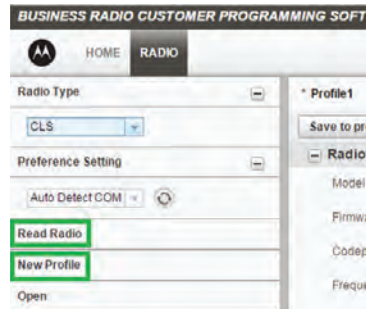


## CPS Basic Menu Instructions

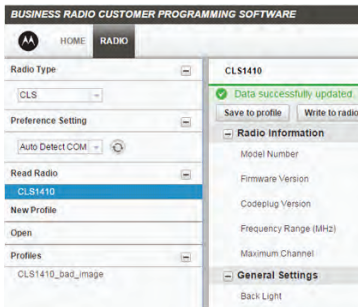
1. Open the CPS software and click on the “RADIO” top tab.
2. Click on the “READ” tab to read the radio(\*), or On the drop down menu “Radio Type”, select “CLS” if you want to open a new profile or an existing one.

**Note:** (\*) You only need to select the Radio Type, if you want to open a new or pre-determined profile. The CPS is smart enough to determine what model it is reading.

3. Click “Read Radio”. Radio sounds a series of beeps to indicate reading is in progress and will upload your radio profile settings, or Click “New Profile” to create customized profile based on the default profile.



- Once you have changed all the settings, click “Write to radio” in order to program your radio with the new settings. The CPS will display a window confirming the writing (programming of your radio) is successful. You can also save your profile at any time in order to use the same settings when programming other radios by clicking on “Save to profile”. This will save the profile to current default path in your computer. To specify a different path to save the profile, click on the “Save As” button.



## Feature Summary Chart

Features	Programmable via Advanced Configuration	Programmable via CPS	Default	Programming Tips
Backlight	No	Yes	5 sec	Enable or disable backlight by using CPS.
Call Tones	Yes	Yes	OFF	Advanced Configuration available for CLS Models by going into Advanced Configuration Mode(1). Values available are 0 (OFF), 1, 2, 3 and 4 (Vibrator). To enable/disable Call Tones press Call Button.

Features	Programmable via Advanced Configuration	Programmable via CPS	Default	Programming Tips
Channels	Yes	Yes	Model Dependant	You can select channels using the + or - button. You can also add or delete channels using the CPS. Note: Enabling/disabling channels via CPS automatically affects the Maximum Channels you are able to program via front panel.

Features	Programmable via Advanced Configuration	Programmable via CPS	Default	Programming Tips
Cloning Mode	Yes	No	Enabled	Enables radio to enter cloning mode in order to clone its profile settings into other radios (using Radio to Radio Cloning Cable or Multi-Unit Charger). Press PTT, MON while turning radio ON. Note: You can clone radios using the CPS.
Frequencies	Yes	Yes	Channel and Model Dependant	There are 56 UHF frequencies available. Use Advanced Configuration Mode (1) for configuration via the front panel radio programming. Refer to Frequencies and Codes Charts Section for details

Features	Programmable via Advanced Configuration	Programmable via CPS	Default	Programming Tips
Bandwidth Range	N/A	N/A	Model Dependant	Radios Bandwidth is fixed and non-programmable. Bandwidth Range for 1W radios: UHF 461-470 Mhz.
Codes, Interference Eliminator Codes (CTCSS/DPL)	Yes	Yes	Channel and Model Dependant	Use Advanced Configuration Mode for front panel radio configuration. There are 121 codes available. For details refer to Frequencies and Codes Charts Section.
Keypad Beep (or Keypad Tone)	Yes	No	On	Press - button while turning ON radio to enable/disable keypad beep.
Keypad Lock	Yes	No	UNLOCKED	Press and hold (MENU) button for 4 seconds to lock the radio keypad. To unlock, press (MENU) button for 4 seconds.

Features	Programmable via Advanced Configuration	Programmable via CPS	Default	Programming Tips
Low Battery Alert - Shutdown	N/A	N/A	On	Gives a sequence of loud and high beep tones to alert battery level is low. This a non-programmable feature.
Maximum Channels	Yes	Yes	Model and CPS programmable dependant	Use the Advanced Configuration Mode to get the Active Channels Menu option. Note: Default value is set to the maximum number of channels that the radio supports.
Microphone Gain Level	Yes	Yes	Medium (Level 2)	For front panel programming enter Advanced Configuration Mode (1).
Monitor	Yes	N/A	MON Button	Long Press MON to monitor and press SB1 again to release. Note: PL/DPL defeat feature should be disabled in order to monitor.

Features	Programmable via Advanced Configuration	Programmable via CPS	Default	Programming Tips
Nuisance Ch Delete	Yes	N/A	"-" Button	Press MON Button to start scanning and wait until the radio lands on the channel you want to delete. Long press "-" button to delete the channel. Note: The nuisance deleted channel will be restored into the scan list when the radio is turned OFF or you exit SCAN. One channel radio does not support scan.
Scan Advanced	Yes	N/A	"+" Button	Press MON Button to start scanning and wait until the radio lands on the channel you want to skip. Short press "+" button to skip the channel. One channel radio does not support scan.



Features	Programmable via Advanced Configuration	Programmable via CPS	Default	Programming Tips
Reset to Factory Defaults (2)	Yes	N/A	Enabled	Allows to restore radio's factory defaults. Press PTT, Menu simultaneously for 3 seconds while turning ON radio.
Reverse Burst	Yes	Yes	180	Reverse Burst eliminates unwanted noise (squench tail) during loss of carrier detection. Press PTT, Call Button simultaneously while turning ON radio to toggle between 180 or 240 or use CPS to select values 180 or 240.
Scan	Yes	Yes	MON Button	Short press MON button to enable/disable scan. One channel radio does not support scan.

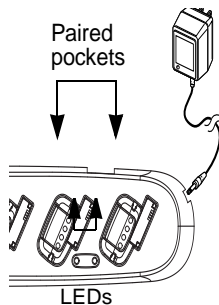
Note: To enter Advanced Configuration Mode, press and hold both PTT and MON simultaneously for 3-5. Short press Menu to get to the different programming options.

## Cloning Radio Settings

You can copy **GL** Series radio settings from one radio (the source) to a second radio using the Multi-Unit Charger (MUC) optional accessory. See the *MUC User's Guide* for more information.


You can clone only one radio at a time. A multi-channel radio can clone to a single-channel radio, but only the first channel is cloned. The MUC does not have to be plugged in for cloning, but both radios require charged batteries.


1. On the source radio, press and hold **Push to Talk** and **MON** for 3 seconds while turning the radio on. The radio beeps and displays **PROG**.
2. Place the source radio in one of the charging pockets.
3. Turn the target radio on and place it in the charging pocket that is paired with the pocket containing the source radio. There are 3 paired charging pockets as indicated by the 3 pairs of charging status LEDs.
4. Press and hold **MON** on the source radio. The source radio transmits its settings to the target radio. If cloning was successful, P or Pass or "F" for Fail displays on the source radio and the target radio displays all feature icons. If cloning was not successful, F or Fail displays on the source radio.
5. Turn the target radio off and back on again to use.
6. To clone another radio, repeat steps 3 and 4.
7. To exit programming mode on the source radio, press and hold **Push to Talk** until **PROG** no longer appears.



## Advanced Features


You can set the following features by pressing and holding additional buttons **while turning the radio on**.

To Do This	Press This Button While Turning the Radio On	Default Setting
Turn Keypad Tones On/Off Turns keypad beeps off for silent keypad operation.	⊖	On
Turn End-of-Transmission Tone On/Off If enabled, your two-way radio transmits a tone when you finish transmitting. If keypad tones are off and end-of-transmission tone is on, you will not hear the end-of-transmission tone, but it is transmitted.	⊕	Off
Turn Battery Save Mode On/Off Decreases attack time, which is the brief period of time between when the radio receives a transmission on its frequency and broadcasts audio. Turning battery save mode off decreases battery life by approximately 20%.	<b>Push to Talk</b>  ⊖	On

To Do This	Press This Button While Turning the Radio On	Default Setting
Restore Factory Defaults Returns radio to its original factory settings.	<b>Push to Talk</b> 	---

## Troubleshooting

Symptom	Try This:
No Power	Recharge or replace Li-Ion battery.
Message not transmitted	Make sure <b>Push to Talk</b> is completely pressed while transmitting. Recharge, replace, and/or reposition batteries. Verify the transmit light is illuminated while speaking. Verify Channel, Frequency, and Code settings are correct.
Hearing other noises or conversation on a channel	Frequency may be in use. Change on all radios if possible (see page 31 and 32).
Poor audio quality	Bandwidth does not match. For optimal audio quality when communicating with <b>GLS</b> Series radios, the bandwidth of other radios should be set to 12.5 kHz, if possible.
Limited talk range	Steel and/or concrete structures, heavy foliage, buildings, or vehicles decrease range (see page 26). Check for clear line of sight to improve range. Wearing radio close to body such as in a pocket or on a belt decreases range. Change location of radio.

Symptom	Try This:
<b>Message not received</b>	Confirm radios have the same channel, frequency, and interference eliminator code settings (see page 29). Recharge, replace, and/or reposition batteries. Move to another location. Obstructions and operating indoors or in vehicles may decrease range. Verify radio is not in scan mode (CLS1410 only, see page 27).
<b>Heavy static or interference</b>	Radios are too close. They must be at least 5 feet apart. Radios are too far apart or obstacles are interfering with transmission.
<b>Keypad locked</b>	Unlock by holding  for 3 seconds.
<b>Low batteries</b>	Recharge or replace batteries. Extreme operating temperatures affect battery life.
<b>Charger light does not come on</b>	Reinsert radio and/or battery. Clean battery and/or charger contacts. Verify that the charging pin on the transformer is inserted correctly into the drop-in charger.

**Symptom****Try This:**

**Low battery meter reading although new batteries are installed**

Verify radio is set to the correct battery type (see page 18).

**Cannot enter **PROG** mode**

Unplug audio accessories and retry.

**If Cloning Fails**

- A) Ensure that there is no debris in the charging tray or on the radio contacts.
- B) Ensure that the Target radio is turned ON.
- C) Ensure that the Source radios is in cloning mode.
- D) Ensure that the two radios are both from the same type (i.e : CLS Series), same region.

## Use and Care



Use a soft damp cloth to clean the exterior.

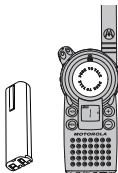


Do not immerse in water.



Do not use alcohol or cleaning solutions.

### If the radio is submerged in water...



Turn radio off and remove batteries.



Dry with soft cloth.



Do not use radio until completely dry.



## Frequencies and Bandwidths

These charts provide frequency information and are useful when using Motorola Solutions **GLS** Series radios with other business radios. Frequency Display Number is identical to Spirit M, GT, and S-Series frequency position (where applicable), but bandwidth may be different.

### UHF Frequencies

Display Number	Frequency (MHz)	Bandwidth
1	464.5000	12.5
2	464.5500	12.5
3	467.7625	12.5
4	467.8125	12.5
5	467.8500	12.5
6	467.8750	12.5
7	467.9000	12.5

Display Number	Frequency (MHz)	Bandwidth
8	467.9250	12.5
9	461.0375	12.5
10	461.0625	12.5
11	461.0875	12.5
12	461.1125	12.5
13	461.1375	12.5
14	461.1625	12.5

## UHF Frequencies (Continued)

Display Number	Frequency (MHz)	Bandwidth
15	461.1875	12.5
16	461.2125	12.5
17	461.2375	12.5
18	461.2625	12.5
19	461.2875	12.5
20	461.3125	12.5
21	461.3375	12.5
22	461.3625	12.5
23	462.7625	12.5
24	462.7875	12.5
25	462.8125	12.5

Display Number	Frequency (MHz)	Bandwidth
26	462.8375	12.5
27	462.8625	12.5
28	462.8875	12.5
29	462.9125	12.5
30	464.4875	12.5
31	464.5125	12.5
32	464.5375	12.5
33	464.5625	12.5
34	466.0375	12.5
35	466.0625	12.5
36	466.0875	12.5

## UHF Frequencies (Continued)

Display Number	Frequency (MHz)	Bandwidth
37	466.1125	12.5
38	466.1375	12.5
39	466.1625	12.5
40	466.1875	12.5
41	466.2125	12.5
42	466.2375	12.5
43	466.2625	12.5
44	466.2875	12.5
45	466.3125	12.5
46	466.3375	12.5

Display Number	Frequency (MHz)	Bandwidth
47	466.3625	12.5
48	467.7875	12.5
49	467.8375	12.5
50	467.8625	12.5
51	467.8875	12.5
52	467.9125	12.5
53	469.4875	12.5
54	469.5125	12.5
55	469.5375	12.5
56	469.5625	12.5

## Interference Eliminator Codes

Display Number	Code (Hz)
1	67.0
2	71.9
3	74.4
4	77.0
5	79.7
6	82.5
7	85.4
8	88.5
9	91.5
10	94.8
11	97.4
12	100.0
13	103.5

Display Number	Code (Hz)
14	107.2
15	110.9
16	114.8
17	118.8
18	123.0
19	127.3
20	131.8
21	136.5
22	141.3
23	146.2
24	151.4
25	156.7
26	162.2

Display Number	Code (Hz)
27	167.9
28	173.8
29	179.9
30	186.2
31	192.8
32	203.5
33	210.7
34	218.1
35	225.7
36	233.6
37	241.8
38	250.3

Carrier Squelch (0) disables interference eliminator codes.

## Digital Interference Eliminator Codes

Display Number	Digital Code
39	023
40	025
41	026
42	031
43	032
44	043
45	047
46	051
47	054
48	065
49	071
50	072
51	073
52	074
53	114

Display Number	Digital Code
54	115
55	116
56	125
57	131
58	132
59	134
60	143
61	152
62	155
63	156
64	162
65	165
66	172
67	174
68	205

Display Number	Digital Code
69	223
70	226
71	243
72	244
73	245
74	251
75	261
76	263
77	265
78	271
79	306
80	311
81	315
82	331
83	343

## Digital Interference Eliminator Codes (Continued)

Display Number	Digital Code
84	346
85	351
86	364
87	365
88	371
89	411
90	412
91	413
92	423
93	431
94	432
95	445
96	464

Display Number	Digital Code
97	465
98	466
99	503
100	506
101	516
102	532
103	546
104	565
105	606
106	612
107	624
108	627
109	631

Display Number	Digital Code
110	632
111	654
112	662
113	664
114	703
115	712
116	723
117	731
118	732
119	734
120	743
121	754

## Accessories

### Batteries

Part No.	Description
PMNN4497_	CLS Li-Ion Battery 1800 mAh
56557	CLS Li-Ion Battery 1200 mAh
HCNN4006_	CLS Li-Ion Battery 1200 mAh Bulk

### Audio Accessories

Part No.	Description
HKLN4599_	Earpiece w/PTT, Mic, Slim Plug, PVC Free
HKLN4601_	Dual Pin Surveillance w/PTT, Slim Plug, PVC Free
HKLN4604_	Swivel Earpiece w/PTT, Slim plug, PVC Free
HKLN4606_	Remote Speaker Mic w/PTT, Slim Plug, PVC Free
HKLN4608_	Transparent Acoustic Tube

### Carry Accessories

Part No.	Description
HCLN4013_	CLS Swivel Belt Holster

## Chargers

Part No.	Description
56553	CLS Drop-In Charger
56531	CLS Multi-Unit Charger

## Programming Accessories

Part No.	Description
PMLN7140_	CLS Programming Kit (*)
HKKN4027_	Business Radio CPS Cable Kit
HKKN4028_	Business Radio Cloning Cable Kit

(\*) HKKN4027\_ CPS Cable Kit must be used with the CLS Programming Cradle

**Note:** Certain accessories may be or may not be available at the time of purchase. For latest information on accessories, contact your Motorola Solutions point of purchase or visit: [www.motorolasolutions.com/CLS](http://www.motorolasolutions.com/CLS). For product-related questions, contact: 1-800-448-6686



# Warranty

## ***Limited Warranty for Motorola Solutions Personal Communications Products Purchased in the United States and Canada***

### ***I. What This Warranty Covers***

- Subject to the exclusions contained below, Motorola Solutions, Inc. warrants its telephones, pagers, and consumer and business two-way radios (excluding commercial, government or industrial radios) that operate via Family Radio Service or General Mobile Radio Service, Motorola Solutions branded or certified accessories sold for use with these Products (“Accessories”) and Motorola Solutions software contained on CD-ROMs or other tangible media and sold for use with these Products (“Software”) to be free from defects in materials and workmanship under normal consumer usage for the period(s) outlined below. This limited warranty is a consumer's exclusive remedy, and applies as follows to new Motorola Solutions Products, Accessories and Software purchased by consumers in the United States, which are accompanied by this written warranty.

### ***II. Products and Accessories***

- **Products and Accessories as defined above, unless otherwise provided for below.** One (1) year from the date of purchase by the first consumer purchaser of the product unless otherwise provided for below.
- **Decorative Accessories and Cases. Decorative covers, bezels, PhoneWrap™ covers and cases.**

Limited lifetime warranty for the lifetime of ownership by the first consumer purchaser of the product.

- **Business Two-way Radio Accessories.**

One (1) year from the date of purchase by the first consumer purchaser of the product.

- **Products and Accessories that are Repaired or Replaced.**

The balance of the original warranty or for ninety (90) days from the date returned to the consumer, whichever is longer. Two (2) years from the date of purchase by the first consumer purchaser of the product.

- **Two-way Radio.**

Two (2) years from the date of purchase by the first consumer purchaser of the product.

### **III. *Products and Accessories (Exclusions)***

- **Normal Wear and Tear.**

Periodic maintenance, repair and replacement of parts due to normal wear and tear are excluded from coverage.

- **Batteries.**

Only batteries whose fully charged capacity falls below 80% of their rated capacity and batteries that leak are covered by this limited warranty.

- **Abuse & Misuse.**

Defects or damage that result from: (a) improper operation, storage, misuse or abuse, accident or neglect, such as physical damage (cracks, scratches, etc.) to the surface of the product resulting from misuse; (b) contact with liquid, water, rain, extreme humidity or heavy

perspiration, sand, dirt or the like, extreme heat, or food; (c) use of the Products or Accessories for commercial purposes or subjecting the Product or Accessory to abnormal usage or conditions; or (d) other acts which are not the fault of Motorola Solutions, are excluded from coverage.

- **Use of Non-Motorola Solutions Products and Accessories.**

Defects or damage that result from the use of Non-Motorola Solutions branded or certified Products, Accessories, Software or other peripheral equipment are excluded from coverage.

- **Unauthorized Service or Modification.**

Defects or damages resulting from service, testing, adjustment, installation, maintenance, alteration, or modification in any way by someone other than Motorola Solutions, or its authorized service centers, are excluded from coverage.

- **Altered Products.**

Products or Accessories with (a) serial numbers or date tags that have been removed, altered or obliterated; (b) broken seals or that show evidence of tampering; (c) mismatched board serial numbers; or (d) nonconforming or non-Motorola Solutions housings, or parts, are excluded from coverage.

- **Communication Services.**

Defects, damages, or the failure of Products, Accessories or Software due to any communication service or signal you may subscribe to or use with the Products Accessories or Software is excluded from coverage.

#### **IV. Software**

- **Products Covered**

Software. Applies only to physical defects in the media that embodies the copy of the Software (e.g. CDROM or floppy disk).

- **Length of Coverage**

Ninety (90) days from the date of purchase.

#### **V. Software (Exclusion**

- **Software Embodied in Physical Media**

No warranty is made that the software will meet your requirements or will work in combination with any hardware or software applications provided by third parties, that the operation of the software products will be uninterrupted or error free, or that all defects in the software products will be corrected.

- **Software NOT Embodied in Physical Media**

Software that is not embodied in physical media (e.g. software that is downloaded from the internet), is provided “as is” and without warranty.

#### **VI. Who is Covered?**

This warranty extends only to the first consumer purchaser, and is not transferable.

#### **VII. How to Obtain Warranty Service Or Other Information?**

Contact your Motorola Solutions point of purchase.

### ***VIII. Software Copyright Notice***

The Motorola Solutions products described in this manual may include copyrighted Motorola Solutions and third party software stored in semiconductor memories or other media. Laws in the United States and other countries preserve for Motorola Solutions and third party software providers certain exclusive rights for copyrighted software, such as the exclusive rights to distribute or reproduce the copyrighted software. Accordingly, any copyrighted software contained in the Motorola Solutions products may not be modified, reverse-engineered, distributed, or reproduced in any manner to the extent allowed by law.

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**X. Patent Notice**

This product is covered by one or more of the following United States patents.

5896277 5894292 5864752 5699006 5742484

D408396 D399821 D387758 D389158 5894592

5893027 5789098 5734975 5861850 D395882

D383745 D389827 D389139 5929825 5926514

5953640 6071640 D413022 D416252 D416893

D433001

**XI. Export Law Assurances**

This product is controlled under the export regulations of the United States of America. The Governments of the United States of America may restrict the exportation or re-exportation of this product to certain destinations. For further information contact the U.S. Department of Commerce.

## CL Series Programming Quick Reference



Press and hold **Push to Talk** and **MEM** for 3 seconds while turning the radio on. The radio beeps and displays **PROG**, the channel number blinks, and the frequency (indicated by **CODE**) and code (indicated by ) display alternately.

### Set the Channel\*



Press **MEM** or **+**.

### Set the Frequency



Press **MEM** until **FREQ** displays.  
Press **MEM** or **+** to change the frequency.

### Set the Interference Eliminator Code



Press **MEM** until **CODE** displays.  
Press **MEM** or **+** to change the code.

### Set Available Channels\*



Press **MEM** until **CH** displays.  
Press **MEM** or **+** to select number of available channels.

\* CLS1410 Only

## GL Series Programming Quick Reference

### Set a Call Tone



Press until displays.  
Press or to select 1, 2, or 3 for audible call tones, 4 for VibraCall, or for off (default).

### Set the Microphone Gain



Press until and display.  
Press or to select:  
1 Low sensitivity  
2 Medium sensitivity  
3 High sensitivity

### Edit the Scan List\*



Press until displays and the channel number and or blink.  
Press or to select the channel, then press to select (include channel) or (exclude channel).