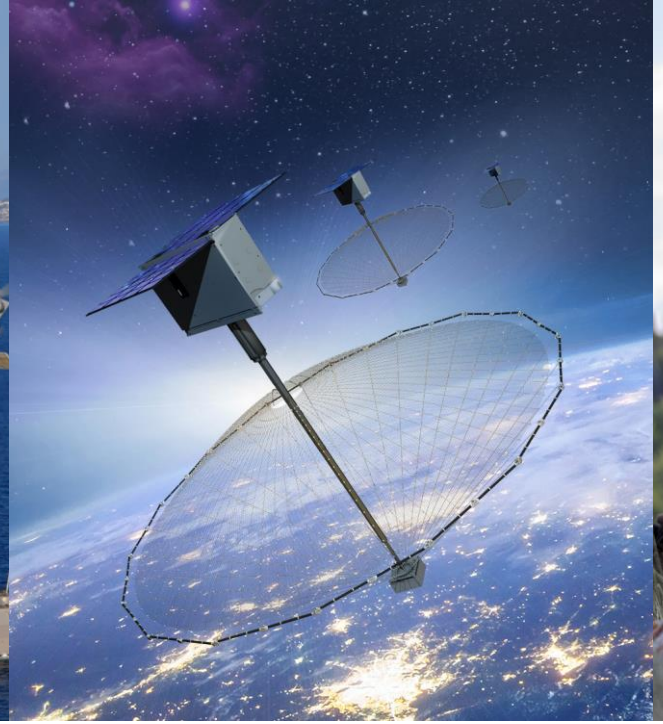
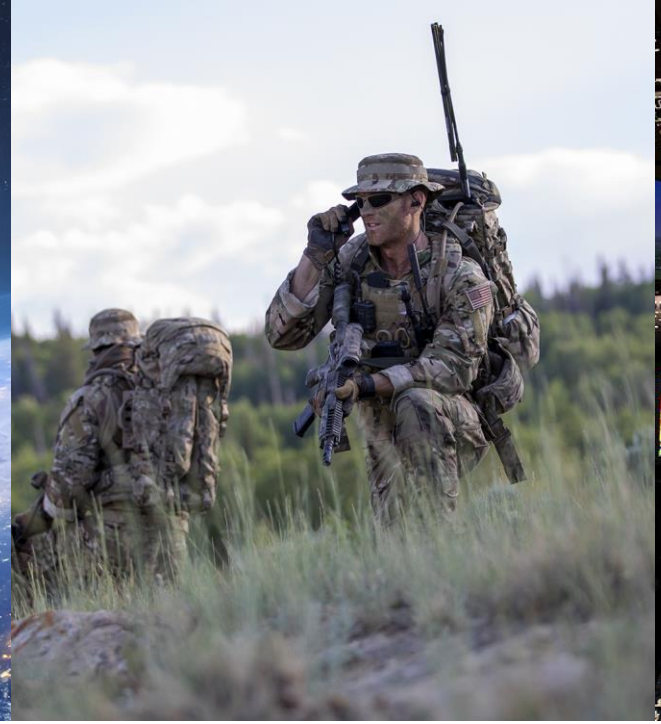



Use of U.S. DoD visual information does not imply or constitute DoD endorsement

L3HARRIS™

XL-SERIES MOBILE RADIO USER'S GUIDE

UCA UTAH COMMUNICATIONS AUTHORITY

ECP5125A

Wall Of Honor

Safety Guidelines and Training

To ensure bodily exposure to RF electromagnetic energy is within the FCC allowable limits for occupational use. Always adhere to the following basic guidelines:

- The push-to-talk button should only be depressed when intending to send a voice message.
- The radio should only be used for necessary work-related communications.
- The radio should only be used by authorized and trained personnel. It should never be operated by children.
- Do not attempt any unauthorized modification to the radio. Changes or modifications to the radio may cause harmful interference and/or cause it to exceed FCC RF exposure limits. Only qualified personnel should service the radio.
- Always use only authorized accessories (antennas, control heads, speakers/mics, etc.). Use of unauthorized accessories can cause the FCC RF exposure compliance requirements to be exceeded.

Common Hazards

The operator of any mobile radio should be aware of certain hazards common to the operation of vehicular radio transmissions. Possible hazards include but are not limited to the following:

- **Explosive Atmospheres** - Areas with potentially explosive atmosphere are often, but not always, clearly marked. **Turn the radio OFF** when in any are with potentially explosive atmosphere. It is rare, but not impossible that the radio or its accessories could generate sparks.
- **Electric Blasting Caps** - To prevent accidental detonation of electric blasting caps, DO NOT use two-way radios within 1000 feet (305 meters) of blasting operations. Always obey the “Turn Off Two-Way Radios” (or equivalent) signs posted where electric blasting caps are being used. (OSHA Standard: 1926.900).
- **Radio Frequency Energy** - To prevent burns or related physical injury from radio frequency energy, do not operate the transmitter when anyone outside of the vehicle is within the minimum safe distance from the antenna

Operating Rules and Regulations

Two-way radio systems must be operated in accordance with the rules and regulations of the local, regional, or national government.

In the United States, the XL mobile radio must be operated in accordance with the rules and regulations of the Federal Communications Commission (FCC).

When using a two-way radio, remember these rules:

- It is a violation of FCC rules to interrupt any distress or emergency message.
- The use of profane or obscene language is prohibited by Federal law.
- It is against the law to send false call letters or false distress or emergency messages.
- Using the radio to send personal messages (except in an emergency) is a violation of FCC rules.
- No changes or adjustments shall be made to the equipment except by an authorized or certified electronics technician.

The following conditions tend to reduce the effective range of two-way radios and should be avoided whenever possible:

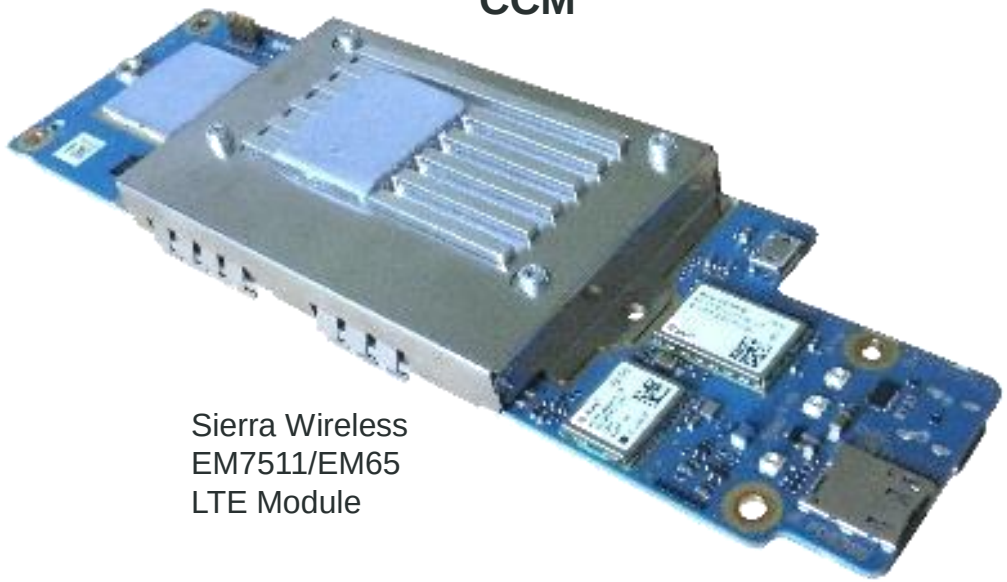
- Operating the radio in areas of low terrain, or while under power lines or bridges.
- Obstructions such as mountains and buildings.

Vehicle Communications Hub & XL Control Head

Hardware Option – LTE / Connected Core

- The LTE and Connected Core upgrade is the only hardware option to date for an XL mobile radio.
- The LTE module adds LTE to the mobile radio. Supports both US and International 4G cellular networks.
  - US - AT&T/FirstNet: B2, B4/B66, B5, B12, B14
  - US - Verizon: B2, B4, B5, B13
  - International - Telstra carrier network bands: B1, B3, B5, B7, B8, B28
- The mobile radio can be ordered with this option or upgraded in the field.
- The Connected Core Module (CCM) Hardware Provides:
  - Updated WIFI (IEE802.11 AC) AP/Client
  - Upgraded BT (BT4.2, LE) (future)
  - Upgraded Network Capability (Router)
  - Enhanced GPS
- The LTE / Connected Release kit will contain
  - LTE Module with dual SIM capability
  - Connected Core Module
  - Rear Connector Panel

CCM



Sierra Wireless
EM7511/EM65
LTE Module

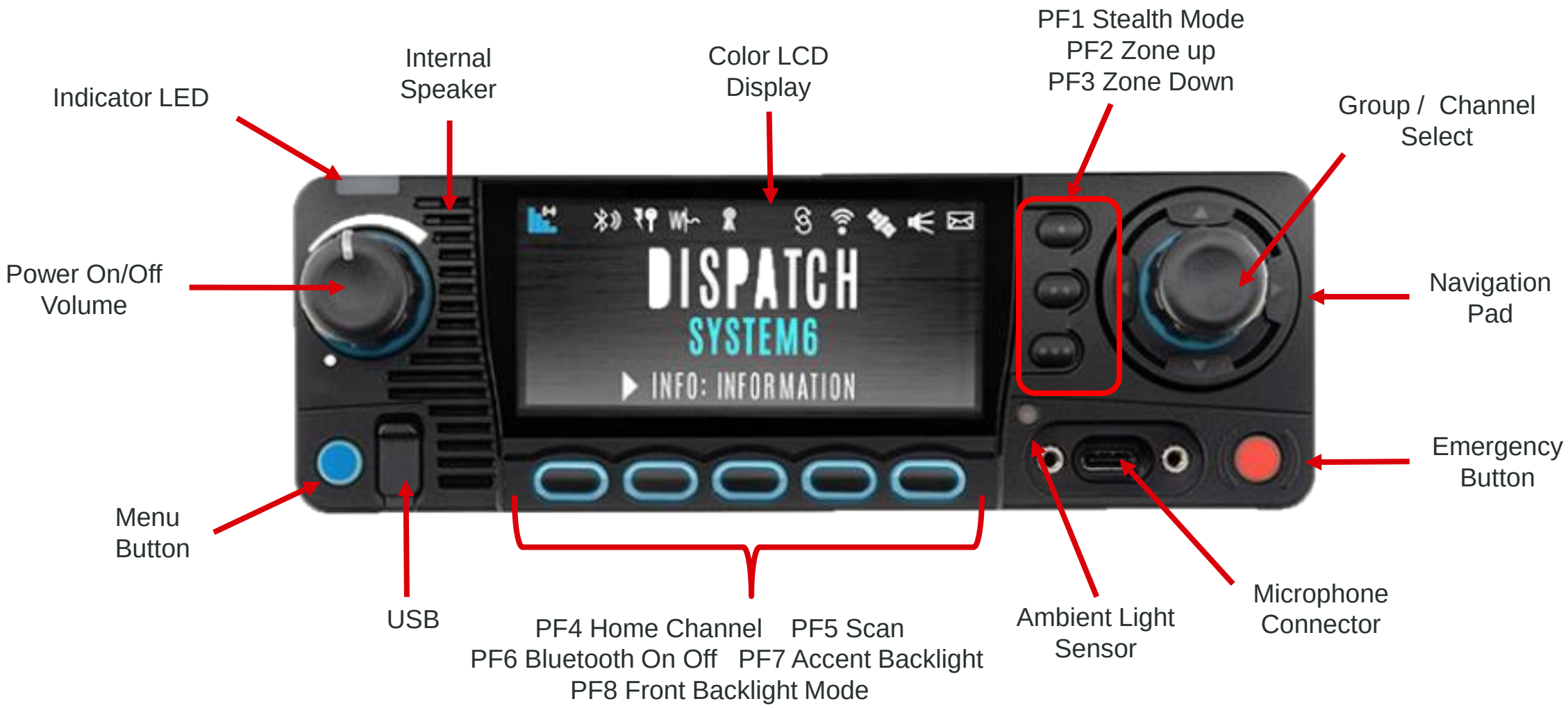
Benefits

- The XL Control Head is a networked device that uses a wired Ethernet connection to provide remote control of the VCH.
- Color LCD graphical user interface
- The control head also provides multiple audio interfaces to capture and play real-time audio.
- Controls and display are optimized so that users can keep their eyes on the road and still operate the radio.

Standard Control Head Features include:

- Wi-Fi (802.11B, G, N)
- Bluetooth 4.0
- Built-in Speaker
- Hi-visibility Color Display

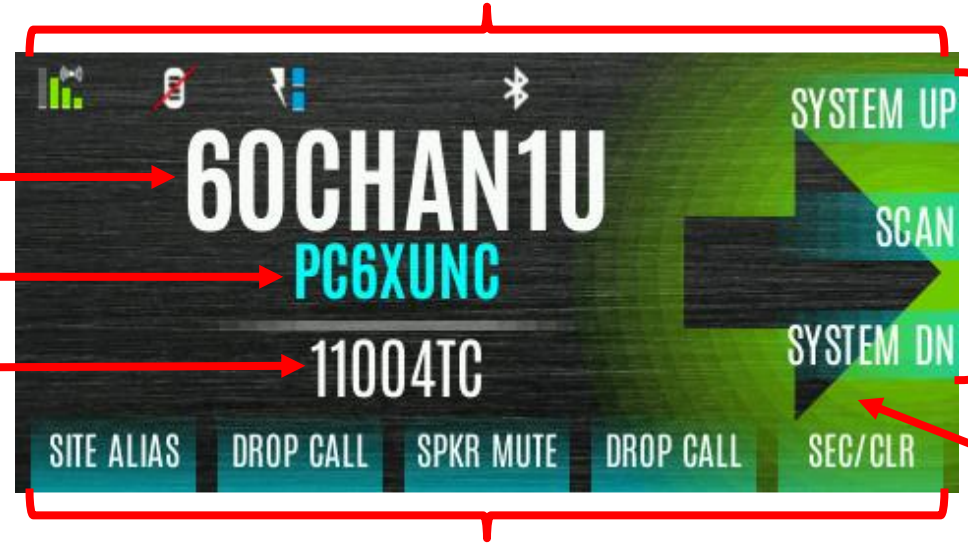
Radio Controls



Control, Indicators, and Connectors

Control / Indicator	Function
Power On/Off	Turn knob clockwise to power on the radio and increase volume
Volume Control	Turn counter-clockwise to decrease volume and power off the radio
Group/Channel	Selects the available groups or channels
Microphone Connector	Connection for hand-held microphone
Emergency Button	Declares and emergency
Navigation Pad	Navigates menu items In additions: •Press the left navigation button while on the idle display to access Channel information •Press the down navigation button while on the idle display to display the functions assigned to programmable buttons •Press the up navigation button to display Missed Call info •Press the right navigation button to end or reject an I-Call
Menu Button	From the Main Display, press this button to access the menu. Press this button while in a menu to return t the idle screen.
USB Connector	Connection to USB accessory (e.g., Programming Cable or USB accessory)
Function Buttons	Programmable dynamic keys that have their function labeled on the radio display beside each button.
Favorites Buttons	User-Programmable dynamic keys that can be assigned to a favorite Group or Channel. Alternatively, the button may have a function assigned to it. The label appears on the radio display above each button.
Indicator LED	Indicates radio Status: •Red = actively transmitting •Green = actively receiving •Orange = actively transmitting encrypted

Radio Display



Radio Icons

ICON	DESCRIPTION	ICON	DESCRIPTION	ICON	DESCRIPTION
	(Blue) Trunked Signal Strength		Bluetooth Enabled		Monitor On
	(Red) TX Power		Bluetooth Connected		VDOC
	(Green) Receive Signal Strength		Encryption Enabled		Receiving Data
	(No Color) Channel Idle		Global Encryption		Transmitting Data
	(Orange) Transmitting Encrypted		OTAR Disabled		Alert(s) Present
	Talkaround Enabled		OTAR Registered		Vote Scanning
	Failsoft		OTAR Registering		Scanning Enabled
	Vehicular Repeater		OTAR Rekeying		Emergency
	Vehicular Repeater Enabled		Transmit Power Level High		RX Mail

ICON	DESCRIPTION	ICON	DESCRIPTION	ICON	DESCRIPTION
	Wi-Fi Signal Strength Indicator		Transmit Power Level Low		Noise Cancellation Enabled
	Wi-Fi Network Currently Connected		RX Only		Fire Speaker Mic Attached
	Wi-Fi Network in Process of Connecting		Speaker Muted		Nuisance Channel
	LTE – Denied or Unknown Registration Status		TX Disabled		Conventional Site Unregistered
	Add New Wi-Fi Client		Tones Disabled		Conventional Site Registered
	Wi-Fi Clients Connected		PTT Disabled		Type 99 Enabled
	GPS Tracking		A wearable Bluetooth device is attached (e.g., Bluetooth Microphone)		Remote Application Active
	IP Address Unassigned		Ethernet Link Down		GPS Antenna Detached

Status Messages

- The radio may display various radio Status Messages during operation. Some are P25 Trunked and EDACS specific.

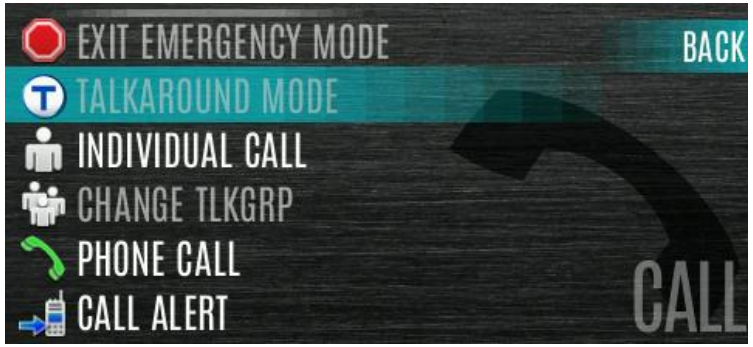
MESSAGE	DESCRIPTION
PTT DENIED	P25 Trunked and EDACS – The radio or talkgroup is not authorized to operate on the selected system and/or talkgroup
CALL QUEUED	P25 Trunked and EDACS – The system has placed the call in a request queue
SYSTEM BUSY	P25 Trunked and EDACS – The system is busy, no channels are currently available, the queue is full, or an individual call is being attempted to a radio that is currently transmitting
SCANNING	The radio is scanning
TX EMERGENCY	An emergency call is being transmitted
RX EMERGENCY	An emergency call is being received. The radio displays the unit name or unit ID
WIDE AREA SCAN	P25 Trunked and EDACS – The radio has entered the Wide Area Scan mode to search for a new system
INVALID TALKGROUP	P25 Trunked and EDACS – The current talkgroup is not valid for the current system. This could happen if the site denies registration due to an unrecognized talkgroup ID
INVALID UNIT	P25 Trunked and EDACS – The current unit is not valid for the current system
REGISTERING	P25 Trunked only – Displayed when the radio is performing a registration/affiliation on a P25 trunking site
CTRL CHANNEL SCAN	P25 Trunked and EDACS – The control channel is lost and the radio has entered the Control Channel Scan mode to search for the control channel (usually out of range indication)
BAND SCANNING	P25 Trunked – Only displayed if the system is configured for "EnhancedCC" mode of operation. When the radio cannot find a Control Channel in either the trunked frequency set or the list of discovered adjacencies, the radio can perform a full spectrum frequency scan to find a new Control Channel
MISSED CALL	P25 Trunked and EDACS – Another user has tried to call or page this radio. The user can view who the caller was by pressing the up navigation button
OTAR REKEY COMPLETE	OTAR Rekey operation completed successfully.

MENU

Menu

- Press the Menu button while on the idle display to access the menu.
  - When in a menu, press the Menu button to return to the idle display.
  - From a sub-menu press the left or right navigation buttons to scroll through other menus.
  - Press the up or down navigation button or rotate the Group/Channel Select knob to scroll through available options in a sub-menu.
  - Press the Group/Channel Select knob to choose, activate, or toggle the selected item; similar to an enter key.

Call & Scan Menu

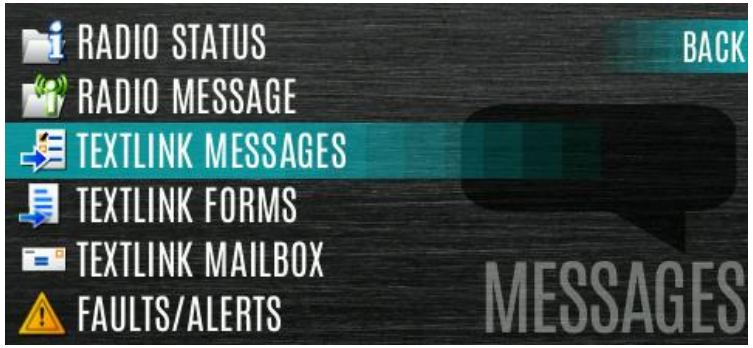


CALL MENU	
EXIT EMERGENCY MODE	Exit emergency
TALKAROUND MODE	Enable/Disable Talkaround
TONE ENCODE	Analog conventional only - Transmits a programmed tone sequence on the current radio system and channel
INDIVIDUAL CALL	Allows you to select an individual for an individual call
PHONE CALL	Allows the user to initiate a telephone interconnect call
CHANGE TLKGRP	Change the selected talkgroup
CALL ALERT	Select a group for Call Alert transmission
CHANNEL GUARD	Select the Transmit and/or Receive Channel Guard tone
AUDIO PLAYBACK	Replays the last recorded call

SCAN MENU	
START SCAN/STOP SCAN	Start or stop scan operation
SCAN LISTS	View/Edit available scan lists
ASSIGNED CUSTOM LIST	Create, View, and Edit Custom Scan List
SITE ROAMING	Enable/Disable Wide Area System Scan
SITE ALIAS	Select an Available site from this list to lock the radio to; i.e., prevent the radio from roaming. This as also known as Site Lock

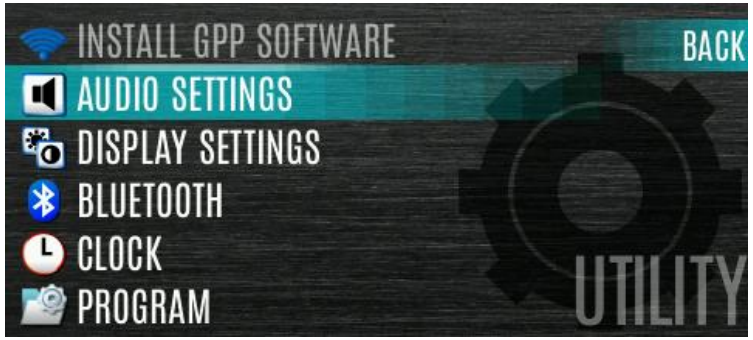
Security & Message Menu

SECURITY MENU	
ZEROIZE KEYS	Remove all encryption keys from the radio
ENCRYPTION	Enable/Disable encryption
GLOBAL ENCRYPTION	Enable/Disable Global Encryption
GLOBAL KEY	Select the Global Key. Only available if Global Encryption is Enabled
ACTIVE KEYSET	Select the Active Keyset
KEY LIST	View available key lists
OTAR	Enable/Disable Over-the-Air Rekeying (OTAR)
OTAR REKEY	Request that the KMF updates the keys in the radio



MESSAGE MENU	
RADIO STATUS	Used to send a status condition to the site without making a voice call
RADIO MESSAGE	Used to send a message to the site without making a voice call
TEXTLINK MESSAGES	Allows the user to send a Radio TextLink message
TEXTLINK FORMS	Allows the user to send a Radio TextLink form
TEXTLINK MAILBOX	Contains received Radio TextLink messages
FAULTS/ALERTS	Displays radio faults and alerts

Utility Menu



UTILITY MENU	
AUDIO SETTINGS	Master / Speaker / Noise Cancellation / PTT / Tones / Keypad Tones
DISPLAY SETTINGS	Color Scheme / Front Backlight / Front Brightness / Front Timeout / Front Display Off / Day/Night / LEDs
BLUETOOTH	Enabled (yes/no) / Discoverable (yes/no) / Volume Control (yes/no) / Bluetooth Speaker / External Speaker / Pairing MGMT
CLOCK SETTINGS	Time Format / Time Zone
GPS SETTINGS	GPS (Enabled/Disabled) / Position Info / Angular Units / Linear Units / Position Format / Situation Awareness Information / Situation Awareness Networking
PROGRAM	Activate Plan / Profiles
MAINTENANCE	Radio Info / Tests / PH2 LC Display / Display RSSI / TCXO Tuning / Feature Info
WIFI CLIENT	Power On / Add New
WIFI ACCESS POINT	Power / Client Count
ICON GLOSSARY	Defines icons displayed by the radio
USER LOGIN	Allows the user to enter a User ID and or Password to log into the P25 system
INSTALL GPP SOFTWARE	Select a GPP package to install
CHANGE LANGUAGE	Press the up or down navigation buttons until the desired language is highlighted and then press Menu/Select button
CHANGE PIN	Allows you to change your PIN
ZONE MENU	View or change zone/systems

Select Zones/System

- A System is a group of channels or talkgroups that share a common set of parameters as programmed using RPM2.
- A Zone is an OPTIONAL container that can hold channels or talkgroups from a variety of systems.
- To Select a zone/system via the menu:

Press the Menu button.

- Navigate to the **ZONE** menu. The currently selected zone/system will be highlighted. A personality can have up to 512 systems and up to 250 Zones.
- Scroll up or down to highlight the desired zone/system. The up and down buttons may be held to scroll repetitively, and the menu will wrap to allow quick access to a zone/system,
- Press the **VIEW** ZONE soft key to view channels in the zone/system or select the desired zone/system using the Group/Channel Select Knob.

Select Group/Channel

The radio can be programmed with 1,250 talkgroups or 1000 channels per personality. Use the Group/Channel knob to select groups/channels.

Group/Channel knob

Direct Channel Entry:

A button on the control head can be programmed for Direct Channel Entry, which allows the user to enter the talkgroup/channel number directly from the keypad.

The radio can be programmed for one of the following Direct Channel Entry options:

- When a Zone is selected on the radio, Direct Channel Entry performs a lookup using the currently selected system's group list
- When a Zone is selected on the radio, Direct Channel Entry performs a lookup using the currently selected Zone's system/group list.

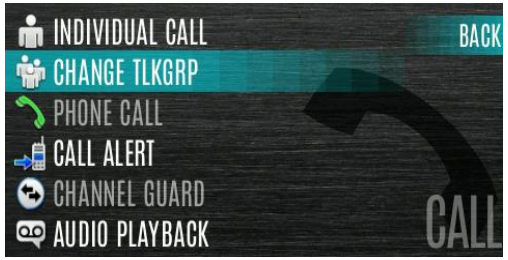
Transmit a group call

A talkgroup is a group of radios that you want to have private conversations with. These groups can be divided into areas such as state, region, county, or large special events.

- Turn the Channel/Group knob to select the
- A button on the control head can be programmed for DIRECT CHANNEL ENTRY to allow the user to enter the talkgroup/channel number. Press PTT to transmit. desired. Press PTT to transmit.

To transmit a group call (menu option):

– In P25 Conventional, the talkgroup for the selected channel may be overridden as follows:
– Press the Menu button.
– Navigate to the **CALL** menu.
– Scroll up or down to highlight **CHANGE TLKGRP** and press the Group/Channel Select Knob.
– Highlight the desired talkgroup and press the Group/Channel Selection Knob
– After selecting the new talkgroup, the radio returns to the idle display.
– Press the PTT button to transmit.



Receive a group call

When receiving a group call, the status area of the idle display toggles between the Unit Name and the Group Name of the transmitting radio. Note that if either of those names is not programmed the corresponding ID number is displayed.

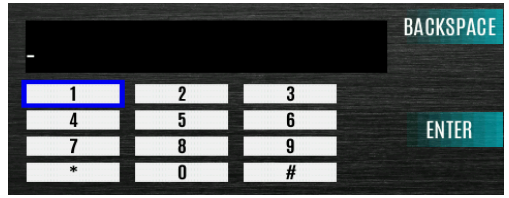
Transmit Individual Calls

Transmit an I-Call:

- Press Menu button to access the main menu.
- Navigate to the **CALL** menu.
- Scroll up or down to highlight **INDIVIDUAL CALL** and press the Group/Channel Selection Knob.
- Scroll up or down to highlight the unit to call and press the Group/Channel Selection Knob.

KEYPAD option:

- Select the **KEYPAD** to enter the Unit ID. Used the navigation keys and the Group/Channel Select Knob to enter the ID and press **Enter**.
- Press PTT to make the call. When transmitting an Individual Call, the radio displays the called radio's name or Unit ID. If the radio is programmed for Acknowledged Individual Call, the radio displays "CALL QUEUED" until the callee answers or rejects the call.
- After the callee answers, press PTT to respond.
- Press the right navigation arrow to end the call.



Receive Individual Calls

Receiving an Individual Call:

- When receiving an Individual Call, the radio displays the calling radio's name or Unit ID. The radio will also display "PRESS → TO END."
- Press PTT to respond or the right navigation button to END/REJECT the call. How long the radio remains in the Individual Call mode with no activity is programmable.
- The radio rings and indicates a missed call if you do not respond. The ring sounds until you press PTT, view the missed call menu using the up navigation key, change channel/group/system, or power cycle the radio.
- On the missed call screen, press the **DISMISS** soft key to clear the entry.

User Profiles

- XL-series radios support User Profiles. A User Profile is a grouping of preset configurations that allow the user to change radio operation based on the current activity/scenario.
- Up to 10 profiles can be programmed to the radio.
- When you activate a new personality, the selected Profile changes to None.
- A "Covert" Profile is installed on the radio by default. This profile cannot be modified or deleted. The following attributes apply when the Covert profile is active:
  - The speaker is enabled.
  - All tones are disabled.
  - Keypad tones are disabled.
  - Voice Annunciation is disabled.
  - The backlight is disabled.
  - The indicator LED is disabled.
  - All other attributes remain at their current value.

User Profiles (cont'd)

To change the currently selected Profile:

- Press the Menu button to access the menu.
- Navigate to the **UTILITY** menu.
- Scroll up or down to highlight **PROGRAM** and press the Group/Channel Select Knob.

- Navigate left or right until the **PROFILES** menu is displayed.
- Select the desired Profile and press the Group/Channel Select Knob.

A profile change persists across system/channel changes and power cycles.

Noise Cancellation

- XL Mobile radios feature L3Harris' proprietary noise suppression capability to provide clear and crisp voice quality in high-noise environments. This can be used in any mode, including analog and digital communications.
- The standard mic has two microphones; one located at the top (primary) and one on the bottom (secondary). When noise cancellation is enabled, voice is picked up by the upper microphone, and noise is picked up from the bottom microphone.
- In the case where noise cancellation is enabled and the bottom (secondary) microphone is blocked, the radio operates as though noise cancellation is turned off.

When using the noise cancellation feature, observe the following:

  - Verify **NOISE CANCELLATION** is enabled.
  - Talk within two (2) inches of the primary microphone.
  - Ensure the primary and secondary microphones are not covered.
  - Speak clearly, loudly, and with authority.
  - If necessary, it is o.k. to yell into the radio. The radio can handle loud input levels.

Voice Annunciation

When enabled via programming, Voice Annunciation provides audible feedback for various radio operations. The radio can be programmed to play an audio message for any or all the following. This message can be a pre-recorded (canned) message or a user-recorded message.

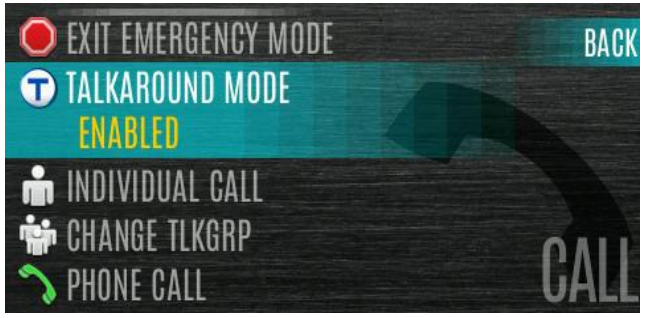
- Zone changes
- Channel changes
- System changes
- Encryption On/Off
- Noise Cancellation On/Off
- Scan On/Off
- Talkaround On/Off
- Monitor Mode On/Off

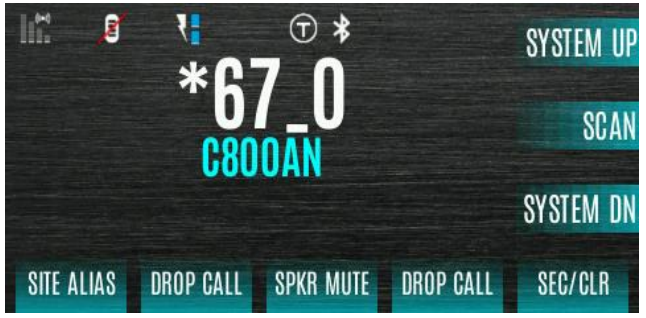
Talkaround

You can bypass the repeater system to communicate directly with other radios on your current channel's receive frequency. This is useful if you are out of range of a repeater or if a repeater is busy. You will need to be in range of the other radio.

To enable Talkaround:

- Press the Menu button.
- Navigate to the **CALL** menu.
- Scroll up or down to highlight **TALKAROUND MODE**.
- Press the Group/Channel Knob to toggle **TALKAROUND MODE** to **ENABLED**.
- The optional Talkaround icon (T) appears. Calls are made on the receive frequency until Talkaround mode is disabled via the **CALL** menu. Power cycling the radio does not disable Talkaround.





Call Alert (Page)

To send an alert:

- Press the Menu button.
- Navigate to the **CALL** menu.
- Scroll up or down to highlight **CALL ALERT** and press the Group/Channel Select Knob.
- Highlight the desired unit in the list and press the Group/Channel Select Knob, or select **KEYPAD** to enter the Unit ID.
- Press **PTT** to send the page.

Receive Alert:

- When receiving a Call Alert, the radio displays RX PAGE.
- Press the up navigation button to view.

Audio Playback

To playback the last received call from a button:

- Press the button programmed for audio playback. The last call received before the button was pressed is played each time the button is pressed.
- Additional incoming calls will be recorded in the background, but pressing the button continues to replay the captured call until reset.
- To reset the feature and allow a new call to be captured, press and hold the button until you hear a two-tone chirp. At this point, the button can be used to capture a new incoming call.

To playback a previously received call from the menu:

- Press the Menu button.
- Navigate to the **CALL** menu.
- Scroll up or down to highlight **AUDIO PLAYBACK** and press the Group/Channel Select Knob.
- Select the desired call from the list (the most recent call is at the top of the list) and press the Group/Channel Select Knob.
- The selected call will be played. Select INFO to display information about the highlighted call.

ENCRYPTION

Encryption

A button on the control head can be programmed to enable/disable encryption.

Turn encryption on or off via the Security Menu:

- Press the Menu button.
- Navigate to the SECURITY menu.
- Scroll up or down to highlight ENCRYPTION. Toggle encryption enabled/disabled by pressing the Group/Channel Select Knob. This option is grayed out if Encryption Mode in the radio's personality is programmed "Forced On."

Programmable Button:

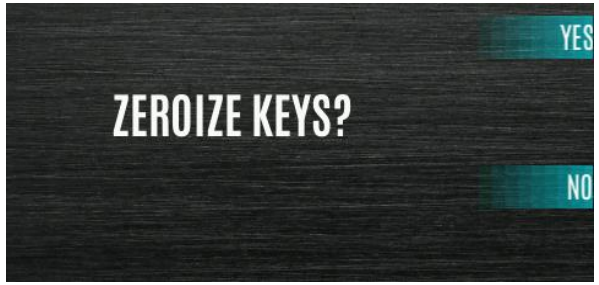
- Configure a programmable softkey with Radio Personality Manager 2 to turn on or off encryption.
  - If a channel is programmed to be encrypted, an optional key icon appears on the main display when encryption is enabled. The system must also be programmed for encryption.
  - When encryption is enabled and you use any channel not configured for encryption, the radio allows PTT. The signal is transmitted unencrypted.
  - Systems configured for Global Encryption (enabled in the Security menu) can display an optional Global Encryption icon in addition to or instead of a key icon.

Encryption (cont'd)

To zeroize keys from the radio:

- Press the Menu button.
- Navigate to the SECURITY menu.
- Scroll up or down to highlight ZEROIZE KEYS and press the Group/Channel Select Knob.

- Press the YES softkey to remove the keys. This will also remove the keysets.



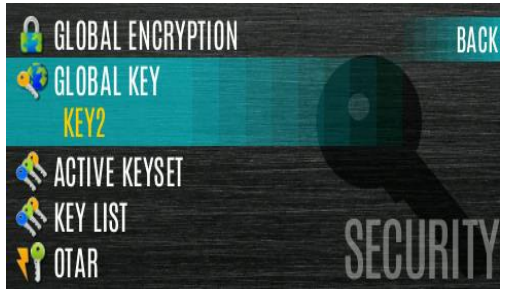
Encryption (cont'd)

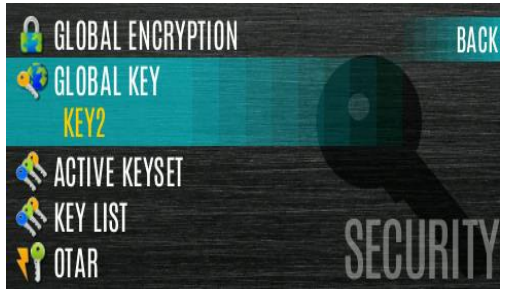
- Global Encryption can be enabled when encryption keys are loaded on the radio and the selected Zone/System is encrypted. When Global Encryption is enabled on the radio, a Global Key is used for all encrypted transmissions until:
  - Global Encryption is disabled.
  - A new personality is activated.
  - The active keyset is changed.
  - The system is changed.
- Global Encryption behavior is available on all channels that support encrypted communications.

Encryption (cont'd)

To enable Global Encryption and /or change Global Encryption Key:

- Press the Menu button.
- Navigate to the SECURITY menu.
- Scroll up or down to highlight GLOBAL ENCRYPTION and press the Group/Channel Select Knob.
- Press the up or down navigation buttons to highlight the desired Global Key and press the Group/Channel Select Knob to enable Global Encryption.
- To change the selected global key, scroll the up or down to highlight GLOBAL KEY on the SECURITY menu and press the Group/Channel Select Knob.
- Scroll up or down to highlight the desired global key and press the Group/Channel Select Knob.
- The optional global key icon is displayed on the main display.





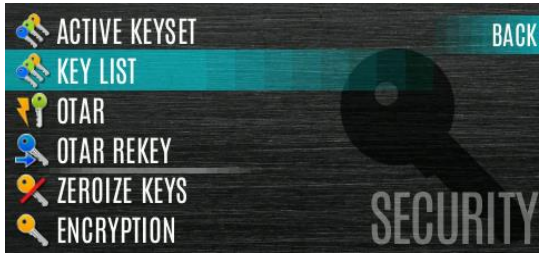
Encryption (cont'd)

To select a keyset:

- Press the Menu button.
- Navigate to the SECURITY menu.
- Scroll up or down to highlight ACTIVE KEYSET and press the Group/Channel Select Knob to toggle to the inactive keyset.

To view the key list:

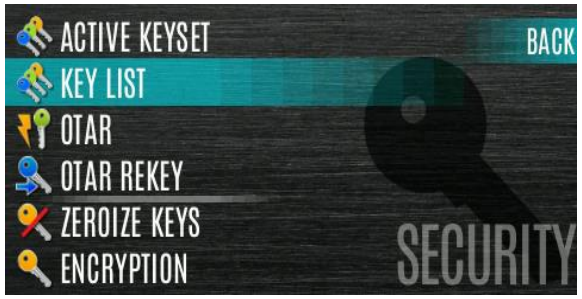
- Press the Menu button.
- Navigate to the SECURITY menu.
- Scroll up or down to highlight KEY LIST and press the Group/Channel Select Knob.
- The available key lists are displayed.



Encryption (cont'd)

To delete individual keys from a keyset:

- Press the Menu button.
- Navigate to the SECURITY menu.
- Scroll up or down to highlight KEY LIST and press the Group/Channel Select Knob.

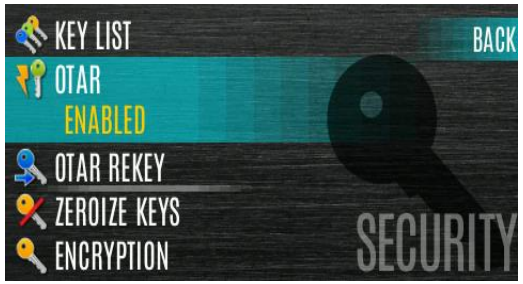


- The available key lists are displayed.
- Select the desired keyset and press the Group/Channel Select Knob to display the individual keys. Highlight the desired key and press the Delete softkey.

Encryption (cont'd)

To enable OTAR and request rekey:

- Press the Menu button.
- Navigate to the SECURITY menu.
- Scroll up or down to highlight **OTAR** and press the Group/Channel Select Knob to toggle **ENABLED/DISABLED**.



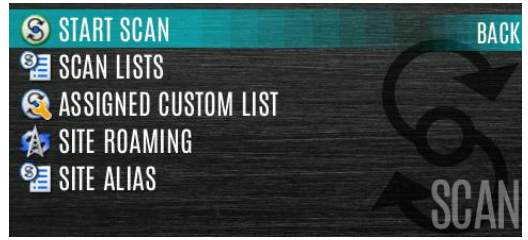
- Scroll up or down to highlight **OTAR REKEY** and press the Group/Channel Select Knob to request that the KMF update the keys in the radio. **OTAR REKEY** is only enabled if the radio has successfully registered for data operations. If enabled via programming, the radio plays an audible confirmation tone to indicate successful OTAR rekey.

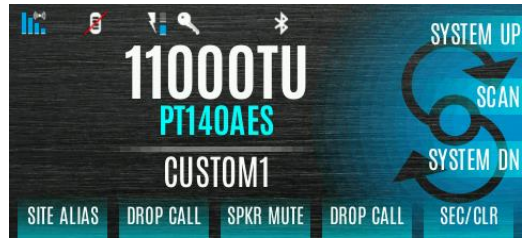
SCAN

Scanning

To start scan:

- Press the Menu button.
- Navigate to the **SCAN** menu.
- Scroll up or down to highlight **START SCAN** and press the Group/Channel Select Knob. **START SCAN** text changes to **STOP SCAN**.
- Press the **BACK** soft key to exit the scan menu.
- The scan icon is displayed on the idle display when scanning is enabled.

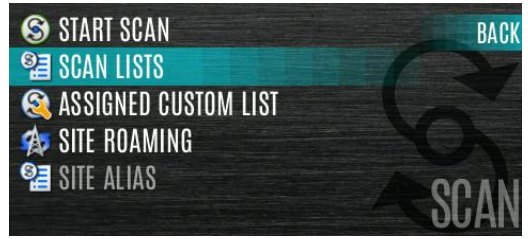




Scan List:

- Press the Menu button.
- Navigate to the **SCAN** menu.
- Scroll up or down to highlight **SCAN LISTS** and press the Group/Channel Select Knob.
- Scroll up or down to highlight the desired **SCAN LIST** and press the **START SCAN** soft key.

A button on the control head can be programmed to start/stop scan.



Scanning (cont'd)

To Stop Scan:

- Press the Menu button.
- Navigate to the **SCAN** menu.
- Scroll up or down to highlight **STOP SCAN** and press the Group/Channel Select Knob.
- Press the **BACK** soft key to exit the scan menu.

Scan List:

- Press the Menu button.
- Navigate to the **SCAN** menu.
- Scroll up or down to highlight **SCAN LISTS** and press the Group/Channel Select Knob.
- Press the **STOP SCAN** soft key.

A button on the control head can be programmed to start/stop scan.

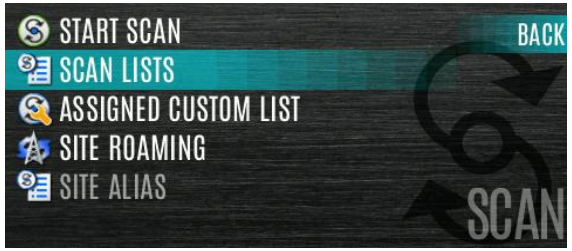
NOTE

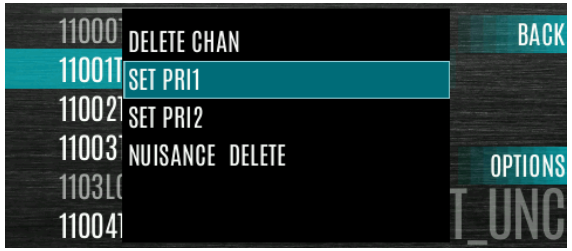
If button is programmed for start/stop scan, the menu for starting and stopping scan is disabled.

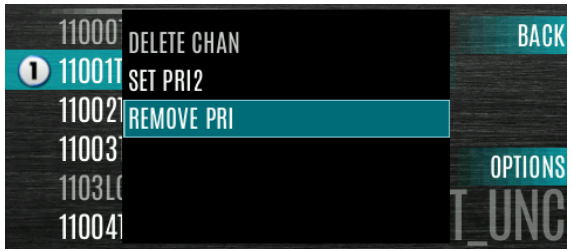
Scanning (cont'd)

Set or Remove Priority 1 and Priority 2 Channels:

- Press the Menu button.
- Navigate to the SCAN menu.
- Highlight SCAN LISTS and press the Group/Channel Select Knob.
- Scroll up or down to highlight the desired scan list and press the Group/Channel Select Knob.
- Press the up or down navigation buttons to highlight the desired channel/group.
- Press the OPTIONS soft key.
- Highlight SET PRI1 or SET PRI2 and press the Group/Channel Select Knob. A Priority 1 channel appears with a P1; a Priority 2 channel appears with a P2.
- Select REMOVE PRI to remove priority.



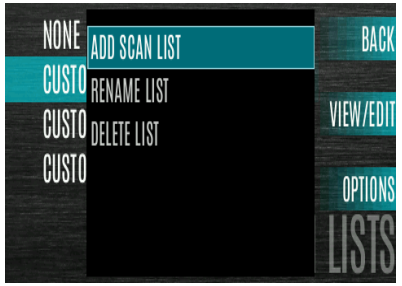




Scanning (cont'd)

To create a custom scan list at the radio:

- Press the Menu button.
- Navigate to the SCAN menu.
- Highlight ASSIGNED CUSTOM LIST and press the Group/Channel Select Knob.
- Press the OPTIONS softkey.
- Select ADD SCAN LIST.
- Highlight the newly added scan list and press the VIEW/EDIT soft key and then select EDIT SCAN LIST.
- Scroll left or right to display the desired system.
- Scroll up or down to highlight the desired group/channel and the OPTIONS softkey. From the options menu, you can add/delete channels from the scan list and set/remove Priority 1 and Priority 2 channels.

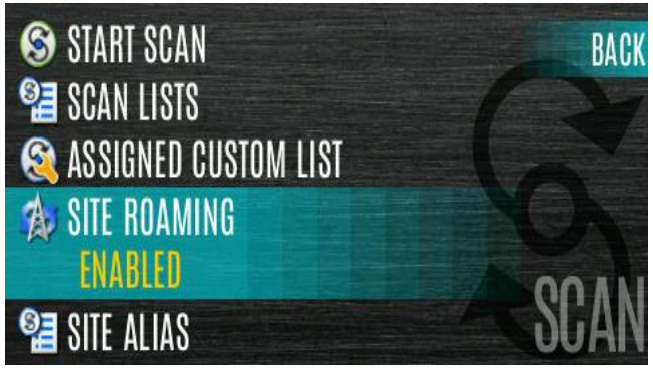


Scanning (cont’d)

Wide Area System Scan (WASCAN) causes the radio to roam across mobile systems when the currently selected system's control channel is lost. The radio will scan the control channels of other systems.

To enable/disable Wide Area System Scan:

- Press the Menu button.
- Navigate to the SCAN menu.
- Scroll up or down to highlight SITE ROAMING and press the Group/Channel Select Knob to toggle Wide Area System Scan ENABLED/DISABLED.
- Select BACK to exit the scan menu.

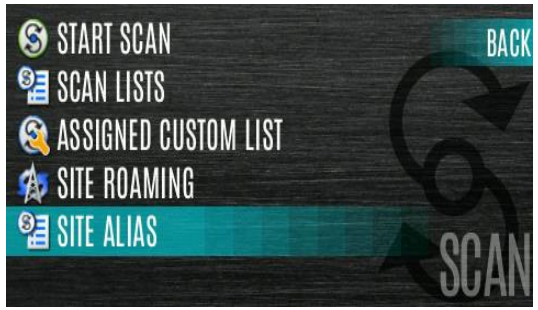


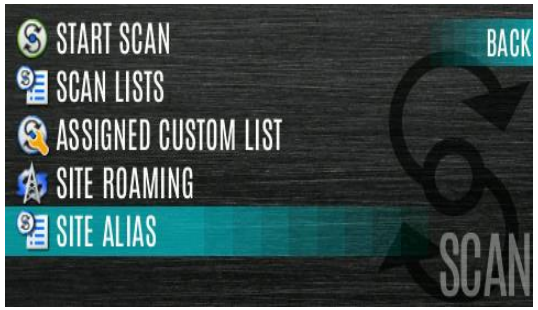
Scanning (cont'd)

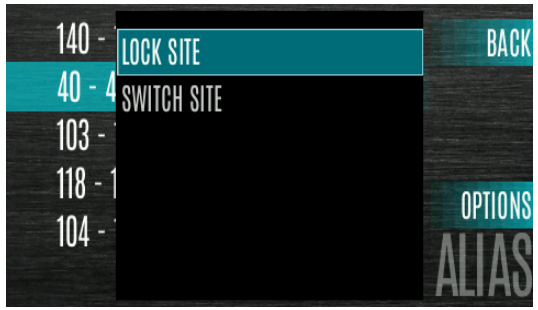
The Site Lock feature provides a list of available, adjacent sites that the user can lock the radio to. This restricts the radio from roaming between sites. Up to 512 sites can be programmed to the radio.

Site Lock:

- Press the Menu button.
- Navigate to the **SCAN** menu.
- Highlight **SITE ALIAS**.
- Press the Group/Channel Select Knob to display the list of available sites. If a Site Alias is programmed for the available site(s), it is displayed here. Otherwise, the system name is displayed.
- From the **OPTIONS** menu, select **LOCK SITE** or **SWITCH SITE**.





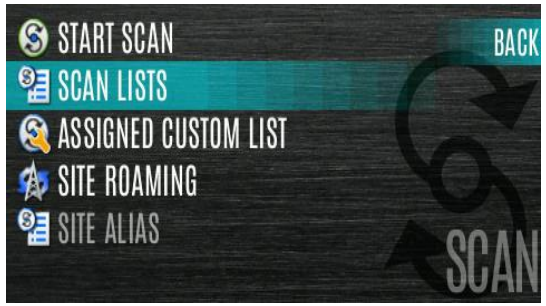


Nuisance Delete

A channel can temporarily be deleted from the scan list. The selected channel, priority 1, and priority 2 channels cannot be nuisance deleted. A button on the control head can be programmed for nuisance delete.

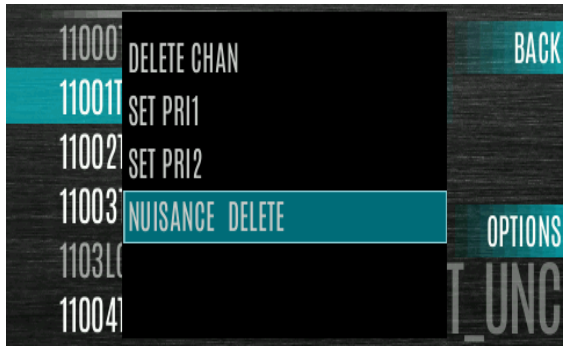
To perform a nuisance delete from the menu:

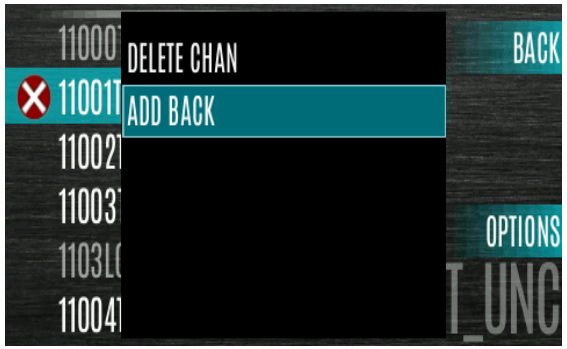
- Press the Menu button.
- Navigate to the **SCAN** menu.
- Scroll up or down to highlight **SCAN LISTS** and press the Group/Channel Select Knob.
- Scroll up or down to highlight the desired scan list. Press the Group/Channel Select Knob. When scanning is started, indicates the active scan list; when scanning is stopped, indicates the active scan list.
- Highlight the desired channel.



Nuisance Delete (cont'd)

- Press the **OPTIONS** soft key.
- Highlight **NUISANCE DELETE** and press the Group/Channel Select Knob.
- The ⊗ icon appears next to the channel and it will not be scanned.
- Highlight the channel, press the **OPTIONS** soft key, and select **ADD BACK** to add channel back to scan list. If you do not add the channel back to the list, the channel returns to the scan list when you cycle radio power or activate a personality.
- Press the **BACK** soft key to exit the channel list.
- Press the **BACK** soft key to exit the scan list display.





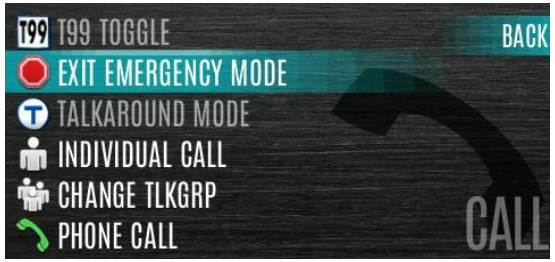
EMERGENCY

Emergency Operation

The radio can be programmed to enable emergency mode. Unit name displays on dispatcher console if an emergency signal is received from another radio on a digital channel.

Declaring an Emergency Call:

- Press and hold the emergency button on the control head. The length of time you need to hold the button is configured using RPM2.
- The emergency is indicated on idle display as shown below:
  - For digital channels, the radio transmits the talkgroup or radio ID to the dispatch console and receiving radio.
  - The radio can be programmed to have a dedicated emergency channel, which can be activated from analog or digital channels.
  - The radio can also be programmed to send an Emergency Alarm in addition to or in place of the emergency call (P25 modes).
- The radio goes through transmit and receive cycles if so configured. Speak into the microphone while the radio is transmitting or press PTT to talk.
- To exit emergency, power cycle the radio or select **EXIT EMERGENCY** from the CALL menu.
- If enabled via programming, you can clear an emergency by pressing the button programmed for the Monitor/Clear function and then the emergency button.



Emergency Operation (cont’d)

Receiving an Emergency Call:

When receiving an Emergency Call, an alert beep sounds (if tones are enabled) and an emergency indication is displayed. The unit ID and/or unit name of the unit in emergency is displayed. While the emergency display is active, press PTT to respond to the emergency caller.

Stealth Emergency:

The radio can be programmed with the following emergency behavior:

- No audio indications when declaring an emergency.

  Or

- No visual indications when declaring an emergency.

  Or

- No audio and no visual indications when declaring an emergency.

During stealth mode, the radio will not receive any type of call. Once the user presses the PTT button, the radio display and audio return to normal.

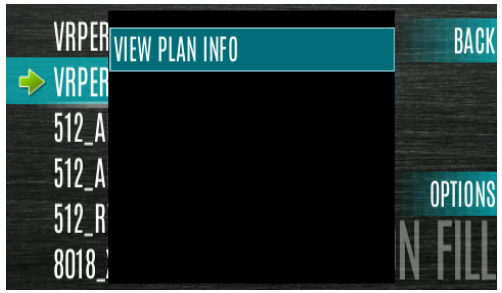
ADVANCE OPERATIONS

View/Change Personalities

Personalities contain radio programming information such as frequencies, channels, stations, and talk groups. Up to ten different personalities can be stored in the radio, but only one can be active at a time.

View Personalities:

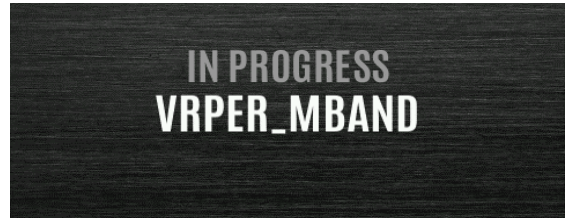
- Press the Menu/ button.
- Navigate to the **UTILITY** menu.
- Scroll up or down to highlight **PROGRAM** and press the Group/Channel Select Knob.
- An arrow indicates the currently active personality. Press the **OPTIONS** soft key.
- Select **VIEW PLAN INFO** to view.
- The radio displays the plan's filename. Personality information appears if populated using RPM2.



View/Change Personalities (cont'd)

Change Active Personality:

- Press the Menu button.
- Navigate to the **UTILITY** menu.
- Scroll up or down to highlight **PROGRAM** and press the Group/Channel Select Knob.
- Scroll up or down to highlight the desired personality and press the Group/Channel Select Knob. ➡ indicates the currently active personality.
- Press the **YES** soft key to confirm personality activation. If the personality has a power-up PIN, you are prompted to enter the PIN before activation continues.
- The **IN PROGRESS** screen is displayed while plan activation is in progress.
- If personality is activated, the radio displays **PLAN COMPLETE** followed by the name of the personality. Press the **OK** soft key.



Situational Awareness

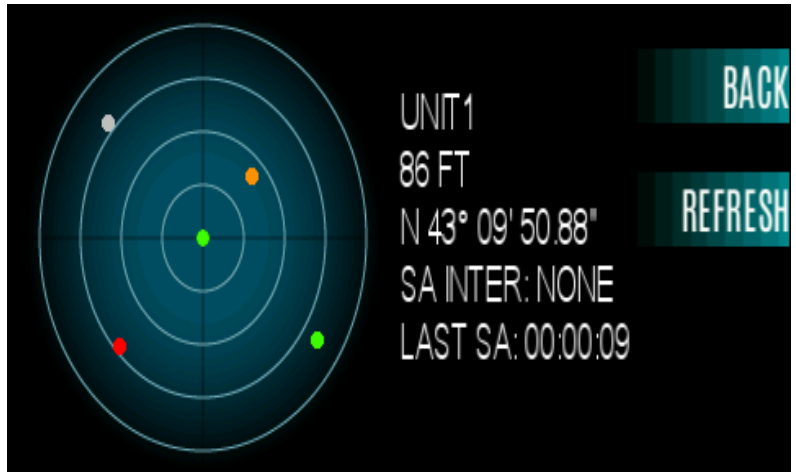
- **Situational Awareness is a feature in which the radio receives SA position from other units configured to send the SA packets. The SA display shows the positions of the other radios (units) relative to the radio. To make use of SA, all radios need to have a uniquely programmed Unit ID.**

To display Situational Awareness Info:

- Press the Menu button.
- Navigate to the **UTILITY** menu.
- Scroll up or down to highlight **GPS** and press the Group/Channel Select Knob.
- Select **POSITION INFO** and press the Group/Channel Select Knob.
- Press the **NEXT** soft key.

Situational Awareness (cont'd)

- Press the left or right navigation buttons to view the location of each unit. The color of each unit indicates its status as follows. Only one status can be shown at a time and are listed in priority order:
  - Grey – Unselected, no status
  - Red – Unselected, In Emergency
  - Blue - Unselected, Scanning
  - Green – Selected, no status
  - Green/Red – Selected, In Emergency
  - Green/Blue – Selected, Scanning

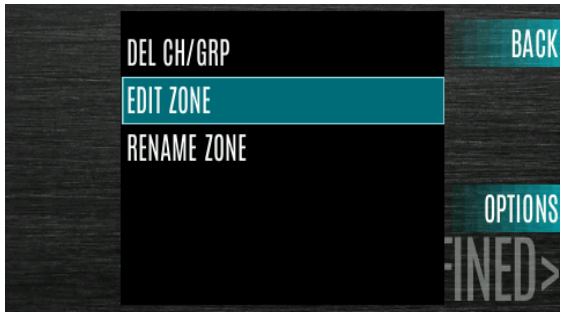


- GPS of this radio is shown by the center dot as follows:
  - Green – Tracking
  - Orange – Last known position
  - Red – Searching
- Press the up or down navigation buttons to zoom the display distance of current unit.
- Select **REFRESH** to update information or select **BACK**.

Command Tactical Zone

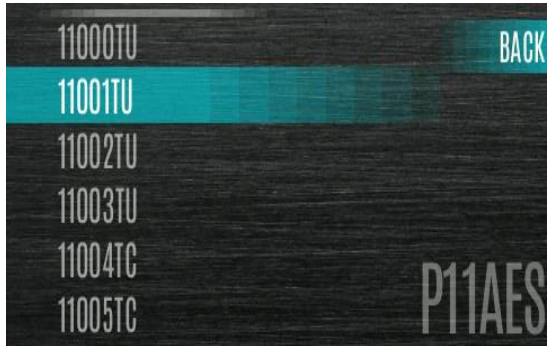
To create a User Defined Zone:

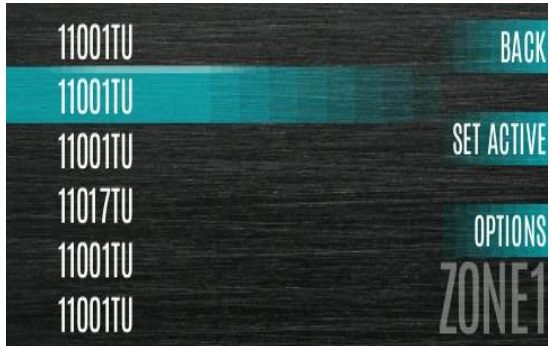
- Press the Menu button.
- Navigate to the **ZONE** menu.
- Scroll up or down to highlight <**USER-DEFINED**> and press the **VIEW ZONE** soft key.
- Press the **OPTIONS** soft key.
- Press the up or down navigation buttons to select **EDIT ZONE** to create a zone or select **RENAME ZONE** to name the User Defined Zone (up to 16 characters are allowed).
- Press the left or right navigation buttons to scroll through existing systems. Press the up or down navigation buttons to highlight desired channel/group.
- Press the Group/Channel Select Knob to add or remove channel/group.



Command Tactical Zone (cont'd)

- After adding all desired channels/groups, press the **BACK** soft key.
- Activate the User Defined Zone by selecting the **SET ACTIVE** soft key on the **USER DEFINED** screen, or by pressing the Group/Channel Select knob when the <**USER DEFINED**> zone is highlighted on the Zone menu.
- After a creating a User Defined Zone, select **OPTIONS** to edit the User Defined Zone, delete channels/groups, clear the zone, and rename the zone.



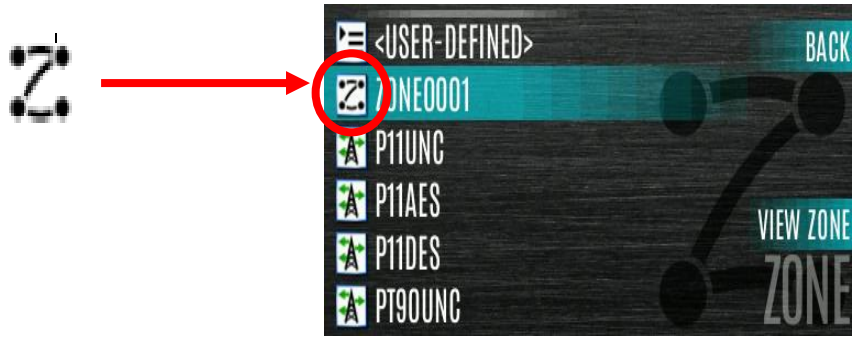


Mixed System Zone

- **Mixed System Zones are defined using RPM2 and cannot be edited on the radio. If a Mixed System Zone is not configured using RPM2, it will not appear on the radio. Up to 250 Mixed System Zones can be defined. You can view details about each channel/group. A user programmable button can be defined to scroll through just the mixed system zones.**

To View Mixed System Zones:

- Press the Menu button.
- Navigate to the **ZONE** menu.
- Scroll up or down to highlight the **desired zone** (**Zones are indicated by** **icon**) and select **VIEW ZONE** to view the groups/channels in the zone list.



Channel Info Menu

- **The Channel Information (CH INFO) menu displays information about the currently selected channel. The information displayed varies between conventional and trunked systems.**

To display channel information:

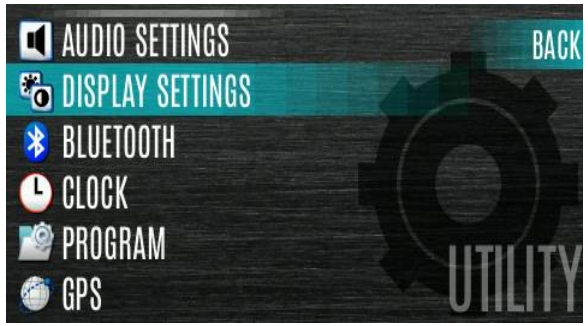
- Press left navigation button while on the idle display.
- Press the up or down navigation buttons to scroll through the programmed channel settings.

Audio Settings

- Press the Menu button.
- Navigate to the **UTILITY** menu.
- Highlight **AUDIO SETTINGS** and press the Group/Channel Select Knob.
- Scroll through available audio settings. Press the Group/Channel Select Knob to changes options as desired:
  - **MASTER MODE** - When Master Mode is enabled, the audio settings affect both the Control Head being modified and the XL mobile audio settings, including the volume knob. When Master Mode is disabled, audio settings only affect the Control Head that they are adjusted from.
  - **SPEAKER** - Mute or Unmute the speaker audio.
  - **NOISE CANCELLATION** - Enable or disable noise cancellation. Noise cancellation reduces background noise during transmit.
  - **PTT** - Enable or disable Push-To-Talk (PTT). Disable PTT to prevent accidental keying, such as when the radio is in a holster or you are getting into a car.
  - **TONES** - Enable or disable alert tones
  - **KEYPAD TONES** - Enable or disable keypad tones. When enabled, the radio plays a tone when a button on the keypad is pressed.
- Press the **BACK** soft key to exit menu.

Display Settings

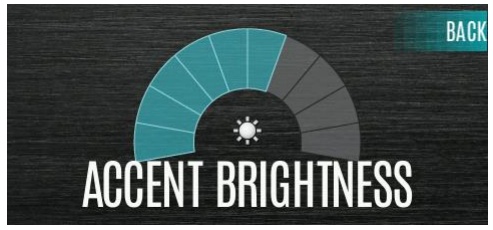
- Press the Menu button.
- Navigate to the **UTILITY** Menu.
- Highlight **DISPLAY SETTINGS** and press the Group/Channel Select Knob.
- Scroll through available display settings and press the Group/Channel Select Knob to change settings as desired:
  - FRONT **BACKLIGHT** - Turn front display backlight On, Off, Momentary, or Momentary (off). Momentary (off) is similar to momentary, but the backlight turns off completely and only comes on when the Group/Channel Select Knob is pressed.
  - **FRONT BRIGHTNESS** - Set brightness level of front display. Use the left or right arrow to adjust.

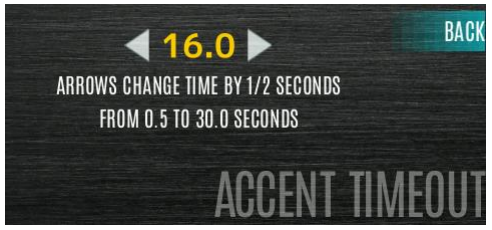


Display Settings (cont'd)

- **FRONT TIMEOUT** - Specify how long the radio needs to be inactive before the front display's backlight turns off. Press the left or right arrows to change this value.
- **FRONT DISPLAY OFF** - Turns the front display off completely. Press the Group/Channel Select Knob to turn the front display back on.
- **COLOR SCHEME** - Change the color scheme of the top and front displays for optimum viewing in day or night conditions.
- **ACCENT BACKLIGHT** - Turns the backlight for the control head buttons On, Off, or Momentary. When Momentary is selected, the button backlights come on at the beginning of a user interaction and stay on for a configurable length of time.
- **ACCENT BRIGHTNESS** - Change the level of brightness of the buttons on the XL mobile control head. Use the left or right arrows to change the brightness.
- **ACCENT TIMEOUT** - When ACCENT BACKLIGHT is set to Momentary, this value specifies how long the radio must be inactive before the button backlight turns off. Press the left or right arrows to change this value.
- **INDICATOR LED** - Toggle the indicator LED ON/OFF.

- Press the **BACK** soft key to exit the menu.





GPS Settings

- Press the Menu button.
- Navigate to the **UTILITY** menu.
- Highlight GPS and press the Group/Channel Select Knob.
- Scroll up or down through to highlight desired menu selections and press the Group/Channel Select Knob to change settings:
  - **GPS** - Enable or disable internal GPS.
  - **POSITION INFO**
  - **LINEAR UNITS** - Set unit of measurement of displayed linear units: STATUTE, METRIC, or NAUTICAL.
  - **ANGULAR UNITS** - Set unit of measurement of displayed angular units: CARDINAL, DEGREES, or MILS.
  - **POSITION FORMAT-** Set format of displayed position information: Latitude/Longitude Decimal Degrees (LAT LONG DD), Latitude/Longitude Degrees Minutes Seconds (LAT/LONG DMS), LAT/LONG DM, Military Grid Reference System (MGRS), or Universal Transverse Mercator (UTM).
- Press the **BACK** soft key to exit the menu.

Position Info

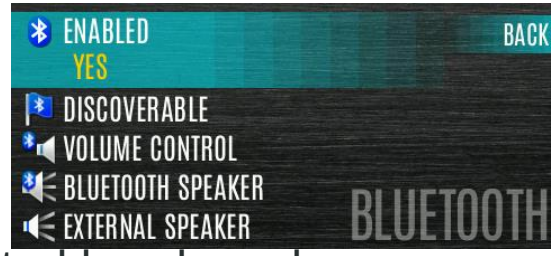
- Press the Menu button.
- Navigate to the **UTILITY** menu.
- Highlight **POSITION INFO** and press the Group/Channel Select Knob.

- Press the up or down navigation buttons to scroll through available location information.

Bluetooth

- Press the Menu button.
- Navigate to the **UTILITY** menu.
- Highlight **BLUETOOTH** and press the Group/Channel Select Knob.

- Highlight **ENABLED** and press the Group/Channel Select Knob to toggle **YES/NO**.



- A button on the control head can be programmed to enable/disable Bluetooth.

NOTE

The **BLUETOOTH** menu item only appears if enabled using RPM2 and if the feature is installed.

Pair Devices

- Press the Menu button.
- Navigate to the **UTILITY** menu.
- Highlight **BLUETOOTH** and press the Group/Channel Select Knob.
- Highlight **PAIRING MGMT** and press the Group/Channel Select Knob.
- Make sure device being paired is powered on and has discovery mode enabled to pair with the radio.
  - If no devices are found and Bluetooth is enabled, only the ADD NEW soft key is available. If devices are paired, the OPTIONS soft key appears.
- Press the **ADD NEW** soft key to select a device to pair.
- A list of available Bluetooth devices appears.

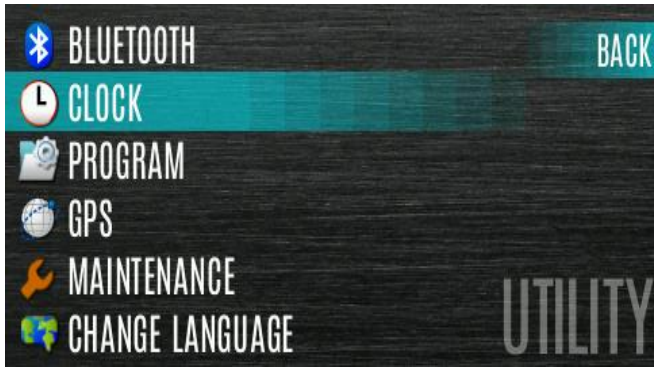
Pair Devices (cont'd)

- Press the REFRESH soft key to refresh the device list if the desired device does not appear.
- Press the up or down navigation buttons highlight the desired device and press the PAIR softkey.
- Pairing progress is displayed.
  - For Bluetooth 2.0 devices, a pin code screen appears.
  - Enter the pin code and select OK.
  - For Bluetooth 2.1 devices, a PASSKEY accept/deny screen appears. Select ACCEPT.
  - Accept the passkey on the Bluetooth 2.1 device as well.

- A PAIRING COMPLETE message appears when pairing is complete. Select OK. The paired device is then displayed in the PAIRED DEVICES list.

Clock Settings

- Press the Menu button.
- Navigate to the **UTILITY** menu.
- Highlight **CLOCK SETTINGS** and press the Group/Channel Select Knob.



- Scroll up or down and press the Group/Channel Select Knob to change settings as desired:
  - **TIME FORMAT** - Set 12 HOUR, 24 HOUR, 12 HOUR w/ DATE TOGGLE, 24 HOUR w/ DATE TOGGLE.
  - **TIME ZONE** - Set time zone relative to Universal Time Coordinated (UTC).
- Press the **BACK** soft key to exit.

Change Language

- Press the Menu button.
- Navigate to the UTILITY menu.
- Highlight CHANGE LANGUAGE and press the Group/Channel Select Knob.

- Highlight the desired language and press the Group/Channel Select Knob.

Radio Status

The status feature allows the radio user to send a status condition to the site without making a voice call. There can be up to 10 status conditions programmed into the radio. For each status defined, there is an ID and an alphanumeric name. The ID is sent to the site and the alphanumeric name appears on the radio display when the ID corresponds with the information programmed at the site.

To send a radio status:

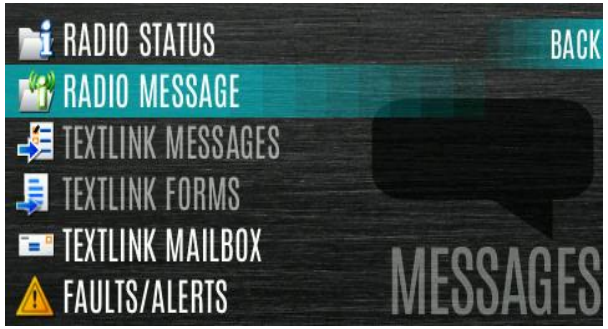
- Press the Menu button.
- Navigate to the **MESSAGES** menu.
- Highlight **RADIO STATUS** and press the Group/Channel Select Knob.
- Scroll up or down to highlight the desired message and press the Group/Channel Select Knob.

Radio Message

The message feature is used to send a message to the site without making a voice call. There can be up to 10 messages programmed into the radio. For each message defined, there is an ID and an alphanumeric name. The ID is sent to the site and the alphanumeric name appears on the radio display when the ID corresponds with the information programmed at the site.

To send a radio message:

- Press the Menu button.
- Navigate to the **MESSAGES** menu.
- Highlight **RADIO MESSAGE** and press the Group/Channel Select Knob.



- Scroll up or down to highlight the desired message and press the Group/Channel Select Knob.

Radio TextLink

Radio TextLink provides short text messaging functionality for radios. Due to the difficulty of entering text messages on a radio, predefined "canned" messages and predefined replies can be stored in the radio. To facilitate sending messages where information must be provided at send time, text message forms can also be stored in the radio

To send a canned Radio Textlink message:

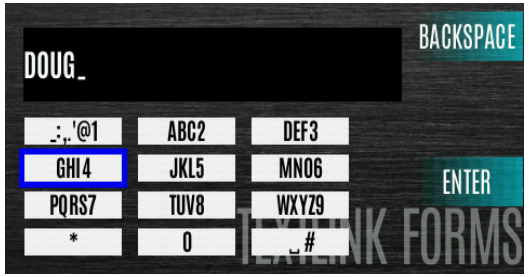
- Press the Menu button.
- Navigate to the **MESSAGES** menu.
- Highlight **TEXTLINK MESSAGES** and press the Group/Channel Select Knob.
- Press the left or right navigation buttons to display the desired message.
  - Press the Group/Channel Select Knob to send the message.
  - Select **CHG CALLEE** to change the destination for the message.
  - Select **TOD QUERY** to get the time of day.

Radio TextLink (cont'd)

Form messages are displayed and stored in the radio as a message in which each field to be filled is indicated by a question mark (?) followed by one or more asterisks (*). The number of asterisks indicates the maximum number of alphanumeric characters allowed for that field.

To send a Radio TextLink form:

- Press the Menu button.
- Navigate to the **MESSAGES** menu.
- Scroll up or down to highlight **TEXTLINK FORMS** and press the Group/Channel Select Knob.
- Scroll left or right to display the desired message and press the Group/Channel Select Knob.
- Enter text into blank field(s) (up to eight alphanumeric characters) and press the **NEXT** soft key.
- Select **SEND** to send the message. Select **CHG CALLEE** to change the destination for the message. Select **TOD QUERY** to get the time of day.



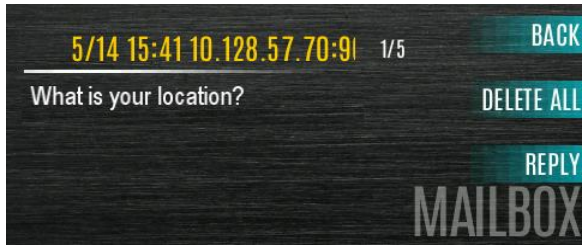
Radio TextLink (cont'd)

When the ✉ icon appears on the idle display, there are Radio TextLink messages waiting to be read.

To view received Radio TextLink messages:

- Press the Menu button.
- Navigate to the **MESSAGES** menu.
- Scroll up or down to highlight **TEXTLINK MAILBOX** and press the Group/Channel Select Knob.

- From the mailbox, you can delete messages, view details of messages, and reply to messages.



Care and Cleaning

HTU VIDEO

Keep the exterior of the radio equipment clean. This includes the radio, control head, microphone, and speaker. Periodically clean them using either the Light-duty cleaning procedure or in extreme cases the Heavy-duty cleaning procedure as described in the maintenance manual.

Do not use chemical cleaners, spray, or petroleum-based products. They may damage the radio housing. We recommend using Chemtronics® Electro-Wash® PR (ES-1603) or equivalent.

Do not spray cleaning solution directly on radio. To clean the radio in the speaker and microphone areas, carefully wipe these areas but prevent the cleaning solution from entering the speaker or microphone openings.

Course Evaluation

- Your feedback is important to us. Could you please take a couple minutes to complete the online class evaluation.
- Class Dates: June 27, 2024
- Course Number: 7R
- Instructor: Lewis Padgett

Information and descriptions contained herein are intended for training use only. The layout and presentation of this information is the property of L3Harris. This presentation may not be copied or reproduced by any means, or disseminated or distributed without the express prior written permission of L3Harris, Communication Systems, Technical Training, 221 Jefferson Ridge Parkway, Lynchburg, Virginia 24501.

Lewis Padgett

Specialist Technical Trainer

COMMUNICATION SYSTEMS / L3HARRIS TECHNOLOGIES

Office: +1 434 455 9459 / Mobile: 434-386-7890

L3Harris.com / Lewis.Padgett@L3Harris.com

221 Jefferson Ridge Parkway / Lynchburg, Virginia 24501 / USA

Copyright© 2019 L3Harris™