KNG Series

M-150(LP)/M-400/M-500/M-800

Radio User's Manual

Many factors are taken into consideration when implementing features and functionality of KNG Series radios. Ease of use and customer requirements are among the most important to us. Most enhancements are achieved thru radio firmware updates.

Current firmware and radio editor versions, along with the latest user manuals and addendums, are available for download in the support section of the BK Technologies web site.

We recommend joining our e-mail list to keep informed of updates and enhancements on all your BK Radio products.

Visit us at:

www.bktechnologies.com

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Introduction

Congratulations on your purchase of the BK Radio KNG Mobile radio from BK Technologies.

The KNG APCO Project 25 radio offers an array of programmable functionality to help radio users get the most out of their portable communications. Check with your BK Radio dealer or communications officer for information on the programmed functions of your radio prior to operation.

This manual contains information concerning the operation procedures for the BK Radio KNG Mobile radio. The KNG has been designed to meet the tough requirements of today's communications environment. Please take a moment to read the information in this manual so you can get optimum performance from your new radio.

FCC Requirements

Your radio must be properly licensed by the Federal Communications Commission prior to use. Your BK Radio dealer can assist you in meeting these requirements. Your dealer will program each radio with your authorized frequencies, signaling codes, etc., and will be there to meet your communications needs as your system expands.

NOTICE: Effective January 1, 2013, private land mobile radios operating in the bands 150-174 MHz and 421-470 MHz must restrict effective transmitted bandwidth to 12.5 KHz (narrowband). Exceptions are allowed for marine and weather bands, and for explicitly-granted waivers from the FCC.

The KNG radio will operate in wideband mode only if the Tx frequency falls within the excepted bands, or if the user has selected the "Override Narrowbanding" option. This option can be legitimately elected only with FCC approval.

Safety Precautions

- Do not operate the transmitter in close proximity to blasting caps.
- Do not operate the transceiver in an explosive atmosphere (petroleum fuels, solvents, dust, etc.).
- Do not operate the transmitter if a person outside the vehicle is less than 6.3 feet (1.92 meters) from the antenna or touching the antenna.

RF ENERGY EXPOSURE AWARENESS AND CONTROL INFORMATION, AND OPERATIONAL INSTRUCTIONS FOR FCC OCCUPATIONAL USE REQUIREMENTS

BEFORE USING YOUR MOBILE 2-WAY RADIO, READ THE INFORMATION BELOW WHICH CONTAINS IMPORTANT OPERATING INSTRUCTIONS FOR SAFE USAGE AND RF ENERGY AWARENESS AND CONTROL INFORMATION FOR COMPLIANCE WITH RF ENERGY EXPOSURE LIMITS IN APPLICABLE

National and International Standards

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 FCC limits. This radio device is NOT authorized for general population, consumer, or any other use.

This 2-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 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 2-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 2-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

http://www.osha.gov/SLTC/radiofrequencyradiation/index.html

Federal Communications Commission Regulations

The FCC rules require manufacturers to comply with the FCC RF energy exposure limits for mobile 2-way radios before they can be marketed in the U.S. When 2-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 BK Radio 2-way radio has an RF exposure product label. Also, your BK Radio owner's and service manuals include information and operating instructions required to control your RF exposure and to satisfy compliance requirements.

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

The grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

Compliance with RF Exposure Standards

Your BK Radio 2-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 and ICNIRP exposure limits for occupational/controlled RF exposure environment at operating duty factors of up to 50% talk-50% listen and is authorized by the FCC for occupational use only. In terms of measuring RF energy for compliance with the FCC exposure guidelines, your radio antenna radiates measurable RF energy only while it is transmitting (during talking), not when it is receiving (listening) or in Standby Mode.

Your BK Radio 2-way radio complies with the following RF energy exposure standards and guidelines:

United States Federal Communications Commission, Code of Federal Regulations; 47 CFR §§ 1.1307, 1.1310, 2.1091 and 2.1093

American National Standards Institute (ANSI) / Institute of Electrical and Electronic Engineers (IEEE) C95. 1-1992

Institute of Electrical and Electronic Engineers (IEEE) C95.1-1999 Edition

RF Exposure Compliance and Control Guidelines

To control exposure to yourself and others and to ensure compliance with the RF exposure limits, always adhere to the following procedures.

Guidelines:

- User awareness instructions must accompany device when transferred to other users.
- Do not use this device if the operational requirements described herein are not met.

Operating Instructions:

Transmit no more than the rated duty factor of 50% of the time. To transmit (talk), push the Push-To-Talk (PTT) button. The red LED will illuminate when the radio is transmitting. To receive calls, release the PTT button. The red LED will extinguish when the radio stops transmitting. 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).

Transmit only when persons around the vehicle are at least 6.3 feet (1.92 meters) away from the vehicle with a properly installed antenna. This separation distance will ensure that there is sufficient distance from a properly installed (according to installation instructions) externally-mounted antenna to satisfy the RF exposure requirements in the standards listed above.

The AMBE® voice compression software included in this product is protected by intellectual property rights including patent rights, copyrights and trade secrets of Digital Voice Systems, Inc. The user of this software is explicitly prohibited from attempting to decompile, reverse engineer, or disassemble the object code, or in any other way convert the object code into a human-readable form. This software is licensed solely for use within this product. US Patent Nos. #6,912,495 B2, #5,870,405, #5,826,222, #5,754,974, #5,715,365, #5,701,390, #5,649,050, #5,630,011, #5,581,656, #5,517,511, #5,491,772, #5,247,579, #5,226,084, and #5,195,166.

Contact Information

For additional information on exposure requirements or other information, visit website http://www.bktechnologies.com.

Industry Canada Compliance

This device complies with Industry Canada's license-exempt RSSs. Operation is subject to the following two conditions:

(1) This device may not cause interference; and

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

WARNING:

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur)

approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée quivalente (p.i.r.e.) ne dépassepas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

The KNG-M Series Radio Transmitter has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Le présent émetteur radio (identifier le dispositif par son numéro de certification ou son numéro de modèle s'il fait partie du matériel de catégorie I) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Approved Antennas

	Antenna	Freq. Range	Impedance	Gain	Radiation	Polarization
M150 M150LP	MWV1365S	136 - 174Mhz	50 Ohms	Unity	Omni	Vertical
M400 M500	MWU4002S	380 - 520Mhz	50 Ohms	2 dB/0	Omni	Vertical
M800	MWV800	760 - 870Mhz	50 Ohms	5 dB	Omni	Vertical

Information and Options

Depending on model type, KNG radios operate in the VHF, UHF or 800MHz frequency band. Up to 5000 channels can be programmed into the radio. The channels may be divided into operating zones.

Zones can be designated as standard operating zones or command zones. Command zones are made of up of channels selected from standard operating zones.

Models

Model	Frequency
M150	136 - 174Mhz
M150LP	136 - 174Mhz (1W/50W Only)*
M400	380 - 470Mhz
M500	440 - 520HMz
M800	763 - 870Mhz

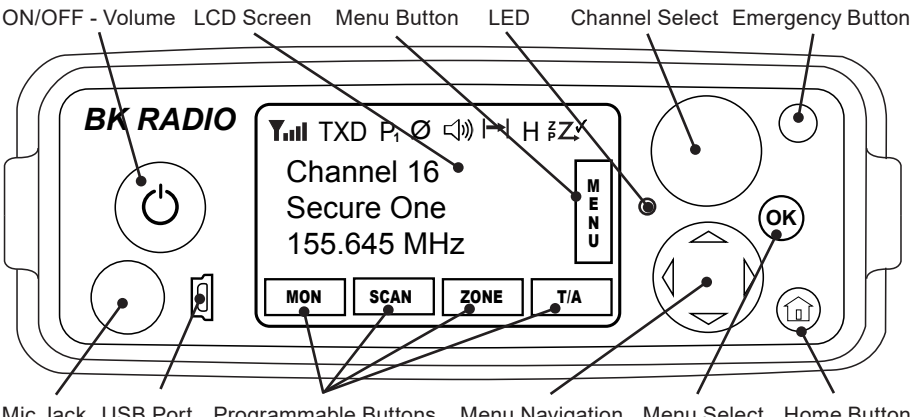
**Not compatible with KAA/KZA0154*

Options

Factory installed options are listed on a tag located on the back of your radio.

Number	Option
KZA0154	110 Watt (M150 only)
KZA0576	AES/DES Encryption
KZA0580	Over-the-Air Rekeying (OTAR)
KZA0569	P25 Trunking
KZA0592	Over-the-Air Programming (OTAP)
KZA0589	GPS Tracking

Radio Controls



On / Off / Volume: This control is both a push on/off button and a rotate volume knob. Pushing the button in and releasing will toggle the state of the mobile from on to off and back. Rotating this knob will increase or decrease the audio volume setting.

USB Port: This is a USB client port and is used for programming and configuring the radio with the PC Radio Editor.

LCD Touch Screen: The LCD screen is used to show radio status and operating condition as well as receive input from the user via programed buttons. Up to three lines of information can be displayed in the main display window. (See Display Options)

LED: The LED indicator is used to show various operational states such as active receive and active transmit.

Channel Select: The Channel Select knob may be programmed via PC to select channels or zones. Turn the knob to select the desired channel or zone.

Emergency Button: The orange programmable function button is typically assigned to the Emergency Operation mode, but it can be programmed for other functions as well. (See Button Options.)

Microphone Jack: Connector for attaching the microphone.

Programmable Buttons: Up to four touch-activated buttons can be programmed to the LCD display. (See Button Options.)

Menu Navigation: The menu navigation pad is used to navigate the menu system. Use the right/left buttons to highlight a menu selection. Press OK to select the currently highlighted menu item.

Home: Pressing the Home button returns the radio to the programmed home channel. When navigating a menu, pressing the Home button will exit the menu mode and return to normal radio operation.

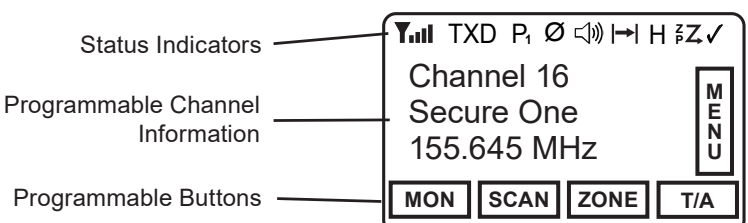
LCD Touch Screen

KNG mobile radios are equipped with a programmable touch sensitive display.

The bottom line of the display is populated with programmable buttons. Button functions are assigned using the PC Radio Editor. Buttons are toggled off or on by pressing the displayed icon.

The top line displays radio activity such as transmit and receive indications, scan operations, etc.

The middle section shows programmed information for the selected channel. (See Channel Information Display Options)



Status Indicators	
	Receiver Signal Strength
RXD, RXA	Receive Digital, Receive Analog, Hold Time Active
TXD, TXA	Transmit Digital, Transmit Analog
H	High Transmit Power
L	Low Transmit Power
P1, P2	Priority 1 Channel, Priority 2 Channel
∅	Selected channel is encrypted. Flashing when Rx incoming signal is encrypted
✓	Scanned Channel

(continued)

Status Indicators	
C Z	Channel Scan On
Z Z	Zone Scan On
P Z	Priority Scan On
D Z	Dual Mode Scan On
|→|	Repeater Talkaround Enabled
🔈	Monitor Mode
🔊	Open Audio
🔇	Voice Mute Enabled

Channel Information Display Options	
NOTE: Three channel information lines are programmable with PC Radio Editor. Displayed information in conventional mode may differ from trunked channels.	
Channel Label	Channel Label of Currently Selected Channel or Active Scanned Channel
Channel Number	Channel Number of Currently Selected Channel or Active Scanned Channel
Channel Number and Zone Label	Currently Selected Channel number and Currently Selected Zone Label
Frequency	Operating Frequency of Currently Selected Channel or Active Scanned Channel
Unit ID	Shows your P25 Unit ID While receiving, the ID of the radio transmitting the message is displayed If the received ID is programmed in your radio's Call List, the corresponding label will be displayed

(continued)

Channel Information Display Options (cont.)	
Received Talk Group ID	P25 Talk Group ID of the radio transmitting the message currently being received
Pick List Selection*	NAC, TGID or Code Guard currently selected from the programmable Pick Lists
Zone Label	Label of Currently Selected Zone
Zone # and Channel #	Currently Selected Zone and Channel Numbers
Zone Number	Currently Selected Zone Number
RX/TX Key	Currently selected encryption key
Subaudible*	Displays CxCSS value of received signal
DTMF*	Displays the DTMF tones of received signal
MDC*	Displays the MDC ID of received signal
*Conventional Channels Only	

Programmable Button and Menu Options

NOTE: Active functions are indicated by highlighted text.
SCAN = Active, SCAN = Inactive.

	Menu	Button	Label	Trunk	Conv
Accessory I/O Enable	x	x	**IO-EN**	x	x
Auxiliary 1/2/3	x	x	**AUX1/2/3**	x	x
Backlight	x	x	**LITE**	x	x
Call Alert	x	x	**ALRT**	x	x
Channel Add/Delete		x	**CHAN+/-**		x
Channel Scan	x	x	**SCAN**		x
Channel Scan List	x	x	**SCN+**		x
Channel Select	x	x	**CHAN**	x	x
Cloning	x		**-**		x
Control Lock	x	x	**LCK**	x	x

(cont.)

Programmable Button and Menu Options (cont)

	Menu	Button	Label	Trunk	Conv
Date and Time	x	x	**DATE**	x	x
Dual Mode Scan	x	x	**DSCN**	x	x
Dual Mode Scan List	x	x	**DSED**	x	x
Emergency[1]		x	**-**	x	x
Enhanced Scan	x	x	**ESCN**		x
GPS	x	x	**GPS**	x	x
Hang Up	x	x	**HANG**		x
Hard Power Down		x	**PWRD**	x	x
Home Channel		x	**HOME**	x	x
Inhibit	x	x	**INH**		x
Keyset Select	x	x	**KSET**		
Keypad Programming	x		**-**		x

(cont.)

Programmable Button and Menu Options (cont)

	Menu	Button	Label	Trunk	Conv
Menu		x	**MENU**	x	x
Minimum Volume	x	x	**VOL**	x	x
Monitor	x	x	**MON**		x
Nuisance Delete		x	**DEL**		x
Phone	x	x	**PHN**		x
Picklist - Rx CxCSS	x	x	**RXCG**		x
Picklist - Rx NAC	x	x	**RXNC**		x
Picklist - Talkgroup ID	x	x	**TGID**		x
Picklist - Tx CxCSS	x	x	**TXCG**		x
Picklist - Tx NAC	x	x	**TXNC**		x
Picklist-KEY*	x	x	**KEY**		x
Priority Channel	x	x	**PRI**		x

(cont.)

Programmable Button and Menu Options (cont)

	Menu	Button	Label	Trunk	Conv
Priority Scan	x	x	**PSCN**	x	x
Priority Scan List	x	x	**PSED**	x	
Radio Accountability Tone	x	x	**RAT**	x	x
Radio Check	x	x	**RCHK**		x
Radio Info	x		**-**	x	x
Rekey Request**	x	x	**RKEY**	x	x
Repeater Talkaround***	x	x	**T/A**		x
Send Alert Tone		x	**SNDT**	x	x
Send Signal		x	**SEND**		x
Site Display****	x	x	**STDS**	x	
Site Lock****	x	x	**STLK**	x	
Site Search****	x	x	**STSR**	x	

(cont.)

Programmable Button and Menu Options (cont)

	Menu	Button	Label	Trunk	Conv
Squelch Adjust	x	x	**SQL**		x
Surveillance Mode	x	x	**SURV**	x	x
Talkback		x	**TKBK**		x
Text Message	x	x	**TXT**		x
Two-Tone Select	x	x	**TONE**		x
Tx Digital/Analog	x	x	**TXAD**		x
Tx Inhibit	x	x	**-**	x	x
Tx Power	x	x	**PWR**	x	x
Tx Secure*	x	x	**SEC**	x	x
Unihibit	x	x	**UNINH**		x
Unit Call	x	x	**UNIT**	x	x
User Status	x	x	**STS**		x

(cont.)

Programmable Button and Menu Options (cont)					
	Menu	Button	Label	Trunk	Conv
Version	x		-	x	x
Voice Mute* **	x	x	MUTE		x
Zeroize Keys*	x	x	ZERO	x	x
Zone Scan	x	x	ZSCN		x
Zone Scan List	x	x	ZSC+		x
Zone Select	x	x	ZONE	x	x

[1]Emergency function can only be assigned to the orange button.

*Requires Encryption option.

** Requires Encryption and OTAR options.

***Works on a per-channel basis.

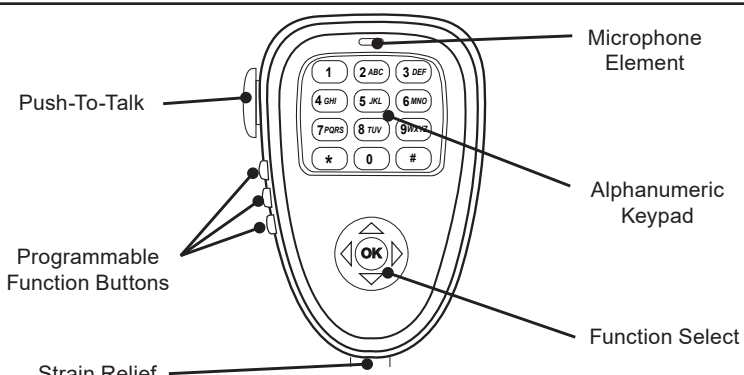
****Requires P25 Trunking option.

Microphone Installation & Controls

Many functions of the KNG Mobile can be controlled via the optional KAA0290 Smart Microphone.

KAA0290 functions include three programmable function buttons, an alphanumeric keypad and a function select switch.

IMPORTANT: To function correctly, the microphone must be plugged into the mic jack before powering on the KNG Mobile.



Push-to-Talk: Press and hold the PTT (Push-To-Talk) switch on the microphone to transmit.

Microphone Element: While transmitting, talk in a normal voice with the microphone approximately one to two inches from your mouth.

Function Buttons: The three function buttons on the left side of the microphone can be programmed via PC to access specific radio functions. (See Programmable Button Options.)

Alphanumeric Keypad: Depending on radio programming, the keypad can perform a variety of functions. Keypad functions can include DTMF tone generation, direct channel selection, direct P25 ID entry for unit-to-unit calling and field programming.

Function Select: The navigation pad is used to navigate the menu system. Use the right/left buttons to highlight a menu selection. Press OK to select the currently highlighted menu item.

Strain Relief Installation: As of November 2021, KNG-M microphones are shipped with a strain relief kit (KAA0687) to reduce the strain on the cable connector. For proper functionality, this should be installed 2-5 inches from the cable connector as shown in the picture:

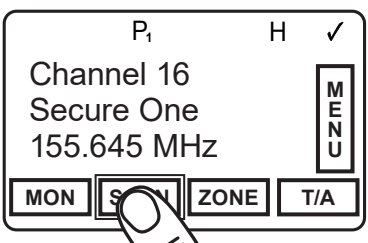
Function Selection

Most radio functions can be programmed as Touch Screen selections, microphone button selections or as part of a menu list.

NOTE: Items can be directly accessed from the Touch Screen or by using the navigation wheels on the front panel or microphone.

Touch Screen Selection

To toggle assigned Touch Screen functions on and off, or access the associated menu, press the desired function on the LCD touch screen.

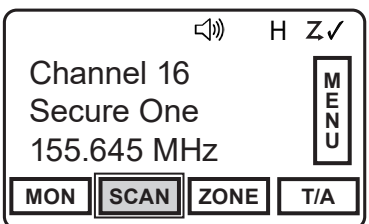


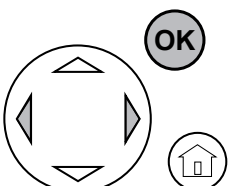
Navigation Wheel Selection

The navigation wheel on the radio front panel and microphone can also be used to toggle functions and access menu lists.

Use the right and left arrows to highlight the desired function. Press the OK button to open the menu or toggle the highlighted item.

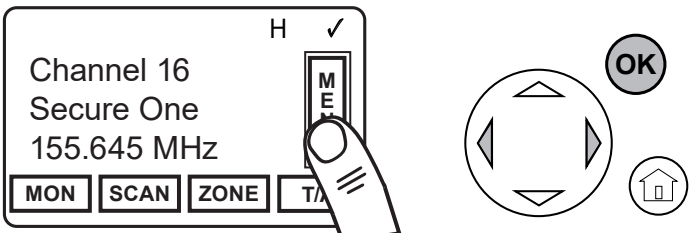
The active button will be highlighted.



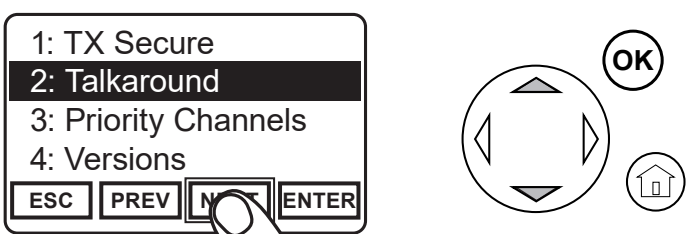


Menu Screen Selection

A list of additional functions are accessed by pressing the "MENU" button or highlighting “MENU” with the Navigation Wheel and pressing OK.

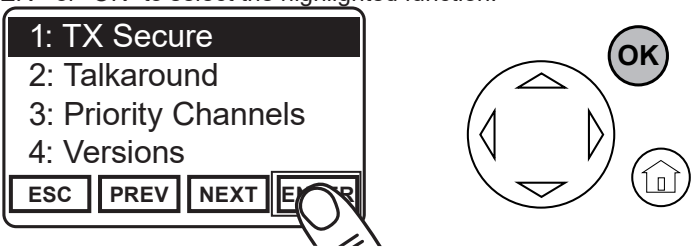


Use the “PREV” and “NEXT” buttons or Up/Down arrows to highlight the desired function.



NOTE: The list can be automatically scrolled by holding the Up/Down buttons

Use “ENTER” or "OK" to select the highlighted function.



When selected, a menu for the function will show in the display.
Use the “PREV” and “NEXT” buttons or Up/Down arrows to highlight the desire setting then “ENTER” or "OK" to select or set the function.

Exiting the Menu

To return to normal operation press the HOME button or press and hold “ESC”.

Channel/Zone Selection Options

The KNG can be programmed with up to 2048 individual channels. These channels can be divided into zones of one or more channels. Accessing a channel or zone depends on radio programming.

Channels or zones can be selected using the channel/zone select knob, by an assigned button or menu item or by direct keypad entry. More than one selection mode can be programmed.

Channel/Zone Selector Knob

When programmed with the default setting, the channel/zone knob is used to select a channel from the active zone. If programmed to select zones, zones will be selected with the knob.

Button/Menu Item Selection

If programmed to a button, pressing the button will display the list of available channels or zones. If programmed as a menu item, the lists can be displayed by selecting Zone Select or Channel Select from the menu list.

Use the Prev/Next or Up/Down buttons to scroll to the desired selection. Press "ENT" or "OK" to go to the highlighted zone or channel.

Alternatively, the number keys of the KAA0290 microphone can be used to jump directly to the desired channel or zone.

Press "ENT" or "OK" to go to the highlighted zone or channel.

Direct Keypad Entry

The numeric keypad may also be programmed to directly select channels or zones. Pressing a number will activate the zone or channel list.

Select the desired channel or zone and press "ENT" or "OK" to go to the highlighted zone or channel.

Select "ESC" to cancel the selection and return to the currently operating zone or channel.

Basic Operation

Receive

1. Turn power on by pushing and releasing the Volume knob. The radio will beep, indicating that it has passed its self test and is operational.
2. Set volume by pressing and holding the [MON] button, to hear squelch noise or by selecting “Monitor Mode” from the menu list and selecting "Open" . Turn the Volume knob to set a comfortable volume level. Press the [MON] button again or select desired monitor mode from the “Monitor” menu to stop squelch noise.
3. Select a channel zone (if applicable) by pressing the [ZONE] button or selecting “Zone Select” from the menu and scrolling to the desired zone. Press the “OK” button to return to Channel Select mode.
4. Select a channel by turning the Channel Selector knob. When the unstopped channel selector is rotated past the highest channel, the radio will return to the lowest channel. When rotated past the lowest (1st) channel, the radio will go to the highest channel.

Transmit

1. To transmit, press the PTT (Push-To-Talk) switch on the microphone. The TX annunciator appears on the display and the red Transmit indicator illuminates while the PTT is pressed.
2. Talk in a normal voice with the microphone approximately one to two inches from your mouth.
3. Release the PTT switch to stop transmitting.
4. If the TX annunciator does not appear and a tone is heard, you are on a receive-only channel or the channel is busy and Busy Channel Lockout is enabled. Turn the Channel Selector knob to an authorized transmit channel or wait until the channel is clear.
5. If the length of your transmission exceeds the preset Time-Out Timer setting, the transmitter automatically shuts off and a tone sounds. To continue the transmission, release the PTT switch, then press it again and continue talking.

Trunking Channel Basic Operation

Some KNG radios are equipped with optional P25 Trunking capability. To determine if your radio is trunking compatible, check the Options Label located on the back of the radio. “KZA0579” indicates the trunking option is installed.

Trunking parameters and functions can only be programmed by qualified persons via PC. Contact your system administrator or radio dealer for information on how your radio is programmed.

System Registration

If the radio is powered on when a trunking channel is selected, the radio will attempt to register with the selected trunking system.

The LED will flash twice upon successfully registering with the system and setting talkgroup affiliation.

If the affiliation was unsuccessful, the LED will continue to flash.

If the radio is not in range of the system, “Out of Range” will be displayed and an alert tone will sound every ten seconds.

If registration is refused or denied, a denied message and tone will appear briefly before switching to “Out of Range” mode.

After successful registration the programmed LCD display criteria is displayed.

Transmitting

When the PTT is pressed, a three beep Talk Permit Tone will be heard if the channel is available.

If there is no channel available the radio will emit a tone and display “BUSY”. Release the PTT.

The radio will remain in busy mode until the channel is available.

When the channel becomes available the three beep Talk Permit Tone will be emitted. Re-press the PTT to continue your call.

If the PTT is not pressed within two seconds of the Talk Permit Tone, the radio will return to normal standby mode.

Command Zone Operation

The KNG radio allows construction of Command Zones drawn from any of the programmed channels in standard operating zones. Each zone is designated as a Standard Operating Zone or a Command Zone with the PC Radio Editor software.

Building a Command Zone [CHAN+]

To build a Command Zone, the “Channel Add/Delete” function must be assigned to a programmable button.

While operating in a standard zone press the “CHAN+” button to add the currently selected channel to a command zone.

The list of available command zones will be displayed. Use the up/down arrows to select the zone to add the channel or use the number keys to move directly to the desired zone.

Pressing the “Enter” button copies the channel information to the first available channel slot in the selected command zone.

Example: If the command zone has three channels, the newly added channel will be channel four.

Editing a Command Zone [CHAN-]

When operating in a Command Zone, press the “CHAN-” button to remove the selected channel from the zone.

When a channel is deleted, the display momentarily shows “Channel Deleted”, and the following channels move up in the list. For example, if channel 5 is deleted, channel 6 becomes the new channel 5, channel 7 becomes the new channel 6, etc.

Press and hold the “CHAN-” button to remove all channels in the selected command zone.

NOTE: Modifications to a command zone channel, such as User Selected Tones, do not affect the original standard zone channel. Also, modifications to the original standard zone channel do not affect the command zone channel.

Code Guard/NAC Operation

Conventional Channels

Code Guard Receive

Analog channels programmed with a receive code guard will be heard only when the proper carrier frequency and Code Guard value is received. When the transceiver is in monitor mode, analog and mixed mode receive channels will also unmute even without the proper Code Guard being received.

Code Guard Transmit

Whenever transmitting on an analog channel, any programmed sub-audible Code Guard is transmitted. Depending on radio programming, the Code Guard can be the default tone assigned to the channel or a tone selected from the Code Guard Picklist (See Pick List Options.)

The frequency must be clear prior to transmitting on a Code Guarded channel. If the LED Indicator is blinking green do not transmit. Busy Channel Lockout can be programmed to disallow transmitting while a channel is busy.

1. Press the PTT switch.
   When the transmitter is on, the LED Indicator glows red and TX appears in the display.

2. Talk in a normal voice with the microphone one to two inches from your mouth.
3. Release the PTT switch to stop transmitting.

Analog Squelch Control

Sub-audible signaling (CTCSS/CDCSS) is used to allow a group of radios to be selectively called in an analog system. Programming the receive code guard equal to zero turns off this feature while receiving, and allows for Carrier Squelch operation, where the radio will unmute whenever a carrier is detected regardless of the transmitted Code Guard.

APCO Project 25 Digital Squelch Control

Network Access Codes (NACs) provide the digital equivalent of analog sub-audible signaling (CTCSS/CDCSS), allowing a group of radios to be selectively called within a system.

Users in the same area (using the same NAC) can be further divided into Talk Groups, with each group having its own Talk Group ID (TGID). Group Calls are made by designating both the users' NAC and TGID.

Each radio also has an individual P25 unit ID. A Unit-to-Unit call contains the addressee's NAC, and uses the addressee's P25 unit ID instead of the TGID.

When operating in Digital Mode, each channel can be programmed to use either Normal squelch or Selective squelch.

Normal squelch is used to mimic analog operation. Signals are only qualified with the programmed NAC. TGIDs and P25 Unit IDs are ignored. Each digital channel is programmed with a receive NAC and a transmit NAC. When an incoming signal's NAC matches the channel's programmed receive NAC, the radio unmutes. The default NAC is 293 (0659 decimal).

The digital equivalent of carrier squelch is achieved by programming the receive NAC = F7E (3966 decimal). The radio will unmute when a digital signal with any NAC is detected. The F7E (3966 decimal) NAC is reserved for receivers and is not allowed as a transmit NAC.

Selective squelch is used for processing Group Calls and Unit-to-Unit Calls. TGIDs are assigned on a per-channel basis. Users can be separated into Talk Groups with each group having its own TGID. Then, on channels programmed for Selective squelch, the incoming signal's NAC and TGID must match the channels programmed receive NAC and TGID for the radio to unmute. The default TGID is 1.

The TGID value FFFF (65535 decimal) is used to effect an "All Call". If the radio receives a signal with a matching NAC and the TGID = FFFF (65535 decimal), it will unmute. Also, if the radio's programmed TGID is FFFF (65535 decimal), it will open on any signal with a matching NAC, ignoring the incoming TGID. A TGID = 0 means "no one". If the radio is programmed with the TGID = 0, it will accept incoming group calls containing the "All Call" TGID, and correctly addressed Unit-to-Unit calls only.

Mixed Mode Operation

Conventional Channels

The receiver and transmitter are capable of operating in analog wide-band (25 kHz channel spacing), analog narrow-band (12.5 kHz channel spacing) and APCO Project 25 Digital Mode.

Each channel's Receive and Transmit Mode can be set independently as follows:

Mode	RX	TX
Analog	Receive qualified analog signals only	Transmit analog signals only
Digital	Receive qualified digital signals only	Transmit digital signals only
Mixed	Automatically receive qualified analog or digital signals	Transmit analog or digital signal, depending on the status of "TX Digital" switch

Digital receptions and transmissions will be indicated by illuminating the D annunciator in addition to the RX or TX annunciator.

Analog receptions and transmissions will be indicated by illuminating the A annunciator in addition to the RX or TX annunciator.

Mixed Mode Talkback

If Mixed Mode Talkback is enabled, transmissions initiated while hold time remains will be in the same mode as the received signal. Depending on programming, the RTX channel can be the main channel, a held scan or priority channel if Talkback Scan is enabled, or the Priority 1 channel if “TX on PR1” is enabled. TX Mode on the RTX channel must be set to MIXED.

Press the PTT while the RX indicator is shown

Mixed Mode Talkback transmissions will be in the same mode as the received signal, regardless of the status of the TX Digital switch.

The RTX channel and receive annunciators will be displayed for the duration of the timer.

Scan Options

Channel Scan [SCAN]

Conventional Channels

When on, Channel Scan monitors activity on the scan list channels in the currently operating zone. Scan operates only while the radio is not transmitting.

Channels designated as scan channels are identified by the ✓ symbol at the top of the LCD display.

When Channel Scan is on, the cZ symbol will be shown at the top of the LCD display.

When a signal is detected on a scanned channel, scanning stops and the message is received. The received channel is displayed in place of the selected channel.

Once the signal ends, the radio continues to monitor the channel for the preset scan delay time before it resumes scanning.

Channel Scan operation can be a button or menu list item. If assigned to a button, press and hold to add or remove selected channel from the scan list.

Channel Scan may be used in conjunction with Priority Scan operation (see Priority Scan).

Channel Scan List [SCN+]

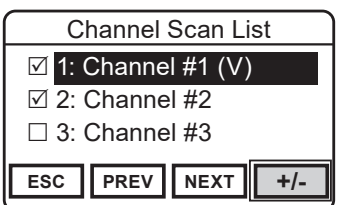
Conventional Channels

The Channel Scan List allows the radio user to add or remove channels from the list of channels to be monitored while channel scanning.

Channels designated as scan channels are identified by the ✓ symbol at the top of the LCD display.

Scan List operation can be assigned as a button or menu list item.

When Channel Scan List is assigned to a button, press the button to add or remove the selected channel from the scan list.



1: Voted Channel
2: Normal Scan Channel
3: Channel not scanned

When assigned as a menu item, open the menu and select the channel you wish to add or remove from the scan list. Press “+/-” to cycle between no scan, normal scan and vote scan. Channels in the scan list will be indicated with the ☑ symbol. Voted channels will display "(V)". Pressing "ESC" will save the selections.

In addition, normal scanned channels can be added or deleted by pressing and holding a button assigned "Scan".

(See also, Vote Scan)

Talkback Scan

Conventional Channels

If your radio is programmed for Talkback Scan, pressing PTT while a channel is active during the scan delay time remains, will cause the radio to transmit on the transmit frequency of the received channel. The "RX" indicator will be shown in the display while scan delay time remains.

Talkback Scan will not work if Priority Scan is on and your radio is also programmed to transmit on the Priority 1 channel. (See Priority Scan.)

Dual Mode Scan [DSCN]

Conventional and Trunking Channels

Dual Mode scan provides the ability to scan trunking and conventional channels simultaneously.

When Dual Mode Scan is turned on the DZ icon is displayed and the radio scans all channels in the dual mode scan list.

Dual Mode Scan can be assigned to a button or menu list item. For best operation, Dual Mode Scan should be assigned in both conventional and trunking global settings with the PC Radio Editor.

(See also Dual Mode Scan List)

Dual Mode Scan List [DSED]

Conventional and Trunking Channels

Dual Mode Scan List must be assigned as a button or menu item in order to allow user viewing or editing of the dual scan channel list.

Enhanced Scan [ESCN]

Conventional Channels

Enhanced Scan combines Priority Scan and Channel Scan to one switch/button. Enabling Enhanced Scan will turn on both Priority and Channel Scan.

Priority Scan/System Scan [PSCN]

Conventional Channels

Two channels can be designated as priority channels. When Priority Scan is on, these channels are monitored for incoming traffic. When a qualified signal is detected the speaker is opened to listen to the message.

If a message is detected on the channel designated as Priority 2, the radio will continue to monitor Priority 1 channel for activity. If activity is detected the radio will switch to the Priority 1 channel.

When used in conjunction with Channel Scan, the radio monitors the Priority channels and will switch from a scanned channel to the Priority channel if a qualified signal is detected.

Depending on radio setup, priority channels can be tied to the currently operating zone or can be assigned to a specific channel regardless of the operating zone.

Channels designated as Priority channels are identified by the P1 or P2 symbol at the top of the LCD display. When Priority Scan is on, the PZ symbol will be shown.

Priority Scan operation can be assigned as a switch, a button or a menu list item.

While Priority Scanning, Zone scan settings are disabled.

Trunked Channels
On trunked channels, the [PSCN] button is used to turn system scanning on or off.

Priority Channel Select [PRI]

Conventional Channels

Depending on programming, priority channels can be radio-wide (System) or zone specific (Zone). Radio-wide priority channels are monitored regardless of the current operating zone. (See Priority Scan for more details.)

When the function is enabled, the user can change the priority channels. Priority Channel Select can be assigned to a button or as a menu list item.

Selecting a System Priority Channel

Open the menu and select the System Priority channel you wish to change.

Press “ENTER” to open System Priority Channel menu.

Options:

Off - Disables the priority channel.

Use Main - Uses the selected channel as the priority channel.

Select - Assigns a specific channel as the priority channel.

To assign a specific channel as a System Priority Channel, highlight “Select” and press the “ENTER” button.

The Zone selection menu will be displayed.

Highlight the zone of the desired priority channel and press the “ENTER” button.

The Channel selection menu will then be displayed.

Highlight the desired channel and press the “ENTER” button to set the priority channel.

The display will return to the main Priority Channel Select menu.

Selecting a Zone Priority Channel

Open the menu and select the Zone Priority channel you wish to change.

Press “ENTER” to open Priority Channel menu.

Options:

Off - Disables the priority channel.

Use Main - Uses the selected channel as the priority channel.

Select - Assigns a specific channel as the priority channel.

To assign a specific channel as a Zone Priority Channel, highlight “Select” and press “ENTER”.

The Channel selection menu will be displayed.

Highlight the desired channel and press the “ENTER” button to set the priority channel.

The display will return to the main Priority Channel Select menu.

Vote Scan

Conventional Channels

Channels in a multicast conventional system can be added to the scan list and designated as “voted” channels. When a signal is received on a voted channel the radio checks all voted channels and selects the channel with the best signal.

If enabled, vote scanning takes place whenever the channel scan switch in on.

To edit the voted channel list, "Channel Scan List" must be assigned as a Menu item.

Open the Channel Scan List menu and select the desired channel.

Use the "+/-" button to cycle between the three states: off, scan and vote scan.

NOTE: Channel voting occurs only with Channel Scan and is disabled when Zone Scanning. Channels programmed as Vote channels are treated as normal scan list channels during Zone Scan operation.

Zone Scan [ZSCN]

Conventional Channels

With Zone Scan enabled, the radio scans all programmed scan channels in zones designated as Zone Scan zones whenever Channel Scan is on.

NOTE: Enabling Zone Scan while Channel Scan is off does not begin the scanning process. Scan is turned on or off with the Channel Scan switch.

When Zone Scan is on (and when the Channel Scan is also on), the ᶻZ symbol will be shown at the top of the LCD display. The icon is not displayed if only Zone Scan is on. Zone Scan operation can be a button or menu list item.

While Zone Scanning, Priority Scan settings are disabled.

If allowed, the scanned zone list can be edited by the radio user.
(See Zone Scan List).

Zone Scan List [ZSC+]

Conventional Channels

The Zone Scan List allows the radio user to add or remove zones from the list of zones to be scanned.

The Zone Scan List operation can be assigned as a button or menu list item.

When Zone Scan List is assigned to a button [ZSC+], press the button to add or remove the currently operating zone from the scan list.

When assigned as a menu item, open the menu and select the Zone you wish to add or remove from the scan list. Press “+/-” to add or remove. Zones in the scan list will be indicated with the ☑ symbol.

Pressing "ESC" does not abandon changes.

Scanning Code Guarded Channels

Conventional Analog Channels

When a signal is detected, scanning stops while the radio checks for the proper Code Guard value. If the signal contains the proper Code Guard value, the radio receives the message. Otherwise, the radio resumes scanning immediately.

Transmitting with Scan On

The radio transmits on the channel selected by the Channel Selector knob unless Talkback Scan is enabled (see Talkback Scan) or Priority Scan is on and Transmit on Priority 1 is enabled (see Priority Scan).

Encryption Operation

Conventional Digital and Trunking Channels Encryption equipped radios only. Option KZA0576 is required for secure communications.

The KNG may optionally be configured for Secure communication on channels operating in Digital Mode. No encryption is available for analog channels.

Required Setup

Radios that have the DES/AES factory option for encryption must have encryption keys loaded with an APCO Project 25 compatible key fill device such as the Motorola KVL 3000 Plus or KVL 4000 and using a BK Radio keyloader cable. The radio can hold up to 32 AES and/or DES keys.

After loading keys in the radio, the PC Radio Editor must be used to configure the radio's key table and to assign default transmit keys to each channel.

Radios that have the OTAR factory option support Over-the-Air Rekeying of encryption keys (OTAR). The PC Radio Editor must be used to enable OTAR and to mark the channel(s) that will communicate with the Key Management Facility (KMF). In addition, the radio must have key encryption keys (used only to encrypt other keys) loaded with an APCO Project 25 compatible key fill device such as the Motorola KVL 3000 Plus or KVL 4000 and using a BK Radio keyloader cable.

Transmit Secure [SEC]

When SEC is on, encrypted channels programmed for switchable encryption will transmit an encrypted signal.

NOTE: The SEC switch has no effect on channels programmed as Encrypted Only or Clear Only.

Channels in the Ready-to-Transmit Encrypted mode will display the ∅ symbol on the top line of the LCD.

When receiving an encrypted signal a flashing ∅ symbol will be displayed.

When transmitting or receiving an encrypted signal, the TX/RX LED will alternate blue.

Transmit Secure selection can be assigned as a touch screen button, menu list item or to a microphone function button.

Transmit Encryption Key Selection [KEY]

The radio can hold up to 32 DES or AES encryption keys. Each channel is assigned a default key for transmit. The key can be locked to the channel, or if programming allows, a transmit key other than the default key can be selected from the radio's Key Pick List.

To change an encryption key, open the KEY menu.
Programmed key labels will be displayed.

Select the desired key and press “ENTER”.

To return the key to the pre-programmed value select “Default”.

If a key is selected that has not been programmed, the radio will emit a three beep tone and display “Key Fail” before going to standby mode. The radio will not transmit but will beep and display “Key Fail” when PTT is pressed.

Encryption Keyset Selection [KEYST]

OTAR equipped radios only.

Selecting a keyset from the Pick List will cause the radio to use encryption keys from the selected keyset. User selectable pick list access can be assigned to a button or menu list item.

To change the encryption keyset, open the KEYST menu.
Programmed Keyset labels will be displayed.

Select the desired keyset and press “ENTER”.

Rekey Request [RKEY]

OTAR equipped radios only.

On radios equipped with over-the-air rekeying (OTAR), a radio user can manually request an encryption rekey from the Key Management Facility (KMF).

For a radio to receive encryption keys or keysets over-the-air, the selected channel must be designated as an OTAR channel via PC programming. Refer to your PC programming documentation for more information.

To request a re-key:

Open the Rekey Request menu.

Press the “YES” button to Request Keys, or press “ESC” to cancel the operation.

If the “YES” button is pressed while on a channel that has not been marked as an OTAR channel, the radio will beep and “NON-OTAR” will appear on the display.

If a successful rekey occurs, a tone will sound, and the display will momentarily show “REKEYED”.

Keyset Viewing and Selecting [KSET]

OTAR equipped radios only.

The radio can hold up to 8 encryption keysets. Only one keyset can be active at any time. The radio will receive messages encrypted with any of the keys in any of the keysets, but transmit keys can only be selected from the active keyset.

To change an encryption keyset, open the KEYST menu. Programmed keyset labels will be displayed. Select the desired keyset and press “ENTER”.

Zeroizing [ZERO]

The radio provides a method for the user to “panic-zeroize” all encryption keys. Zeroizing removes all encryption keys from the radio, including keys used for OTAR and Tactical OTAR operation.

Zeroize can be assigned as a button or menu list item.

Open the “Zeroize Keys” menu.

Press “YES” to erase all encryption keys or “ESC” to cancel the action.

When successfully removed the “Keys Removed” message will momentarily be displayed.

User Pick List Options

Conventional Channels

The KNG provides users the ability to select and assign Pick List functions to specific channels. Pick List Options can be assigned to a programmed button or as menu list items.

Available Pick List options include:

- Transmit Code Guards
- Receive Code Guards
- Transmit Network Access Codes
- Receive Network Access Codes
- Talk Group IDs
- Encryption Keys (see Encryption Operation)
- Encryption Keysets (see Encryption Operation)

TX/RX CxCSS Picklist [TXCG] [RXCG]

Conventional Analog or Mixed Mode Channels

Selecting a CTCSS/CDCSS Code Guard from the Pick List will assign the tone to the currently select analog or mixed-mode channel.

User assigned Transmit and Receive Code Guards are selected independently.

To change a Code Guard, open the RXCG or TXCG menu, select the desired tone and press “ENTER”.

To return the tone to the pre-programmed value select “Default”.

If allowed, picklist values can be changed through keypad programming.

TX/RX Network Access Code Picklist [TNAC] [RNAC]

Conventional Digital or Mixed Mode Channels

Selecting a Network Access Code (NAC) from the Pick List will assign the NAC to the currently select digital or mixed-mode channel.

User assigned Transmit and Receive NACs are selected independently.

To change a NAC, open the RXNAC or TXNAC menu, select the desired NAC and press “ENTER”.

To return the NAC to the pre-programmed value select “Default”.

If allowed, picklist values can be changed through keypad programming.

Talk Group ID Picklist [TGID]

Conventional Digital Channels

Selecting a Talk Group ID from the Pick List will assign the TGID to the currently select channel. All other channels are unaffected.

Open the menu of available TGIDs.

Select the desired Talk Group ID or, to return the TGID to the pre-programmed value, select “Default”.

Press “ENTER” to set the selection.

If allowed, picklist values can be changed through keypad programming.

Encryption Key Picklist [KEY]

Digital or Mixed Mode Channels
Encryption equipped radios only. Requires option KZA0576.

Selecting an Encryption Key from the Pick List will assign the key to all encrypted channels that do not have ‘Key Lock’ programmed. Locked key channels will continue to use the pre-programmed key.
(See Encryption Operation)

Keyset Picklist [KSET]

Digital or Mixed Mode Channels
OTAR equipped radios only. Requires option KZA0580 or KAA0580.

Selecting a Keyset from the Pick List will cause the radio to use encryption keys from the selected Keyset.
(See Encryption Operation)

Emergency Signaling

If programmed, the Orange button on the front panel is used to send an emergency call and/or emergency alarm on the programmed Emergency channel. If the emergency channel is assigned for digital operation, the emergency signal is broadcast using digital P25 protocol. If the assigned channel is analog, the emergency signal is broadcast using MDC protocol.

Sending an Emergency Call

Press and hold the button to initiate an Emergency Call mode. The radio will emit a series of beeps and "EMERGENCY" will flash on the display. The emergency transmission is not sent automatically.

Once Emergency Call is initiated, the PTT must be pressed to transmit the emergency message. Audio is also transmitted.

Receiving an Emergency Call

When the radio receives an Emergency Call, "EMERGENCY" and the incoming P25 ID or MDC number or label will be displayed during the reception. An alert tone will be emitted if the radio is programmed to do so.

Emergency Alarm (Emergency Alert)

Press and hold the button to initiate an Emergency Alarm mode.

Once Emergency Alarm is initiated, the emergency message is transmitted automatically. The radio will emit a series of beeps and "EMERGENCY" will flash on the display. "EMERGENCY" and the incoming P25 ID or MDC number or label will be displayed on the receiving radio. An alert tone will be emitted if the radio is programmed to do so.

NOTE: When the emergency alarm is broadcast for digital operation, the radio will not receive the signal while a scan is active (Priority, Channel, Zone) unless the following conditions are met: 1) the Data Mode for the Emergency Channel of the TX Radio (radio declaring the emergency) needs to be Repeated or Direct (not FNE); and 2) the Data Scan Hold Time on RX radios needs to be non-zero. Analog channels will work while scanning without any special settings on either radio.

Messaging Options

Digital Conventional P25 channels can be programmed to send and receive text messages and radio status messages.

Text messages can be selected from a pre-programmed list or manually entered using the radio keypad.

Status messages are pre-programmed only.

Text Messaging [TXT]

Conventional Digital Channels

Message types include predefined messages, manually entered messages or locally stored messages.

Predefined Messages - Predefined messages are programmed into the radio memory using the PC Radio Editor.

Manually Entered Messages - Text messages can be manually entered via the radio's keypad. (Can only function by enabling OTAR/Data on each channel through PC Radio Editor.)

Locally Stored Messages - Up to five manually entered messages can be stored in individual radios.

Storing Messages

To store a manually entered text message, press the “TXT” button or select “Text Message” from the menu.

Select “Store” from the menu an press “Enter”.

Use the keypad to enter the desired message and then press “Enter”.
(See keypad character table)

Select the storage slot for the message and press “Enter” to store the message.

Sending a Text Message

To send a text message, press “TXT” or select “Text Message” from the menu.

Select “Send” from the menu and press “Enter”.

Select Message Type

From the “Select Entry Type” menu, choose the type of message to send and press “Enter”.

Predefined List or Manual Entry List

When “Predefined List” or “Manual Entry List” is selected, a list of available messages is displayed.
Select the message to be sent and press “Enter”.

NOTE: When sending a predefined message the message ID is transmitted. The receiving radio will display the message programmed with the corresponding ID. If the receiving radio has no programmed message with the transmitted ID, “Text Message X” is displayed, where “X” is the received ID number.

Manual Entry

When “Manual Entry” is selected use the microphone's keypad to enter the desired message (see keypad character table). Press “Enter” to select the target radio.

Select Target Radio

Last Call - Select “Last Call” to send the message to same radio you last sent a text message. Press "SEND" to send the message.

Call List - Selecting “Call List” opens a list alias’ for pre-programmed Unit IDs. Select the desired target radio and press “Send” to send the message.

Unit ID - Select “Unit ID” to enter the P25 ID of the target radio.
Use the keypad to enter the ID then press “Send” to send the message

Broadcast - Select “Broadcast” to send the text message to all text enabled radios regardless of unit ID. Press “Send” to send the message.

Message Acknowledgement

When the text message has been received by the targeted radio, an alert tone will sound and the acknowledgment message will be displayed.

Press “OK” or wait for five seconds to return to normal radio operation.

If the targeted radio is unavailable, an alert tone will sound and the failed acknowledgement message will be displayed.

Press “RTRY” to resend the message.

Press “OK” or wait for five seconds to return to normal radio operation.

When sending a “Broadcast” message, no “text received” notification is shown. Only confirmation that the text has been broadcast will be displayed.

Receiving a Text Message

When an incoming text message is received an alert tone is sounded and the "Text Message Received" message is momentarily displayed. The top programmed display line will alternate between the programmed setting and “Text Message” until the message is read.

Reading the message

To read the message press the “TXT” button or select ‘Text Message” from the menu.

Select “Read” to view the message

Stored Messages

Up to five messages can be programmed into the “Manual Entry List” and are accessed from the “Select Entry Type” menu.

Short Message Update [MSG]

Conventional Digital Channels

Short Message Update is a way for the radio to transmit an enumeration that corresponds to a predefined message that is stored in other radios.

User Status Messaging [STS]

Conventional Digital Channels

Sending a Status Update

NOTE: When sending a message the message ID is transmitted. The receiving radio will display the message programmed with the corresponding ID. If the receiving radio has no programmed message with the transmitted ID “Status: Status X” is displayed, where “X” is the received ID number.

Select Status Message

Press the “STS” button or select “Status Update” from the menu.

From the “Select Status” menu, select the programmed message to send and press “Enter”.

Select Message Type

From the “Select Target Type” select the type of message to be sent.

Unit - Send the message to an individual radio ID.

Group - Send message to a group of radios using the Talk Group ID.

Dispatch - Send the message to a dispatch console.

Unit Call

Select Target Radio

Last Call - Select “Last Call” to send the message to the same radio you last sent a status message. Press “Send” to send the message.

Call List - Selecting “Call List” opens a list alias’ for the pre-programmed Unit IDs.

Select the desired target radio and press “Send” to send the message.

Unit ID - Select “Unit ID” to enter the P25 ID of the target radio. Use the keypad to enter the ID then press “Send”.

Group Call - Selecting “Group” opens the menu to send a status message to a group of radios with matching talk group ID.

Select “Enter” to manually enter the ID or “Select” to choose and ID from the pre-programmed talk group pick list.

Dispatch - Select “Dispatch” to send a status message to a dispatch console.

Message Acknowledgement

If the message has been received by the targeted radio, an alert tone will sound and the acknowledgment message will be displayed.

If the targeted radio is unavailable, an alert tone will sound and the failed acknowledgement message will be displayed.

Press “OK” or wait for five seconds to return to normal radio operation.

Receiving a Status Update

When an incoming status update is received an alert tone is sounded and the status message is momentarily displayed before returning to normal operation.

Paging and Call Alert

Conventional Two-Tone/DTMF/MDC1200 Paging [MUTE]

Conventional Analog Channels

The KNG can be programmed to receive two-tone, DTMF or MDC1200 pages on conventional analog channels.

Receiving a page

Select an analog or mixed-mode receive channel.

Turn on “Voice Mute” from the programmed button or menu item.

When voice mute is activated the icon is displayed.

The radio ignores all voice traffic until the proper tone sequence is received.

When a proper signal is received the radio will emit an alert tone and allow the audio to pass.

If Auto Reset is programmed, the radio will return to the muted standby mode when the time conditions have been met.

Call Alert Paging [ALRT]

Digital Channels

The KNG can be programmed to send and receive Call Alert messages on digital channels.

Sending a Call Alert

Press the “ALRT” button or open “Call Alert” from the menu.

Select Target Radio

Last Call
Select “Last Call” to send the message to radio which you last sent or received a call alert. Press “Enter” to send the message.

Call List
Selecting “Call List” opens a list alias’ for the pre-programmed Unit IDs.
Select the desired target radio and press “Enter” to send the Call Alert.

Enter ID
Select “Enter ID” to enter the ID of the target radio.
Use the keypad to enter the ID then press “Enter” to send the Call.

Receiving a Call Alert

When a Call Alert is received, an alert tone will sound and the incoming unit ID or alias is displayed for approximately 5 seconds.

The top display line will alternated between the programmed display information and a Call Alert Received message.

Select “Call Alert” to reset.

Radio Check [RCHK]

Conventional Digital Channels

The KNG can be programmed to check the availability of a KNG radio with a specific P25 ID.

Requesting a Radio Check

Press the “RCHK” button or open “Radio Check” from the menu.

Select Target Radio

Last Call
Select “Last Call” to send the request to the radio which you last sent a radio check request. Press “Enter” to send the query.

Call List
Selecting “Call List” opens a list alias’ for the pre-programmed Unit IDs.
Select the desired target ID and press “Enter” to send the query.

Unit ID
Select “Unit ID” to enter the P25 ID of the target radio.
Use the keypad to enter the ID then press “Enter” to send the query.

If a successful handshake is performed, an alert tone will sound and the "Unit Available" message will be displayed for approximately five seconds.

If no validation is received from the targeted radio, an alert tone will sound and the "No Response" message will be displayed for approximately five seconds.

Other Functions & Options

Many operational features and functions can be programmed for user selection and control. Items can be programmed as touch-screen buttons or to the three buttons available on some microphone models.

In addition to these quick set buttons, a menu of multiple functions can be accessed with a "MENU" button.

This section covers the operation of user accessible functions.

Backlight [LITE]

Conventional and Trunked Channels

Radio lighting can be adjusted using the backlight function.

To adjust the display press the "LITE" button or select "Backlight" from the menu.

Select the desired setting:

Auto - The display brightness adjusts automatically with ambient conditions.

Off - Display and microphone lighting are all turned off. Touch the bottom area of the display to turn the display back on.

Dim, Medium, Bright - Sets to a fixed brightness.

Cloning

Conventional Zones

The KNG Mobile radio can be set up to send or receive programmed information from other BK Radio products via a cloning cable available from BK Technologies.

Refer to the cloning cable instruction manual for cloning information between radios.

Control Lockout [LOCK]

Conventional and Trunked Channels

The KNG mobile offers two lockout settings, "Lock Keypad Only" and "Lock All Controls".

Unlocked - Disables Control Lockout on all touch screen and button operations.

Lock Keypad Only - Locks all touch screen and button operations except the three side buttons on the microphone.

Lock All Controls - Locks all functions programmed with the PC Radio Editor for lockout.

To enable the lock function press the "LOCK" button or select "Control Lock" from the menu.

Select the desired lockout setting and press "ENTER"

When attempting to access a locked function the radio will display a message with instructions to disable Control Lock. The navigation wheel on the radio front panel or microphone is used to unlock the controls.

To disable Control Lock press the left arrow button twice, then the right arrow button twice.

Date and Time [DATE]

Conventional and Trunked Channels

Displays the date and time. The edit button allows the user to change the date and time. The time will be stored in the radio when powered off, so long that it is not disconnected from a power supply.

Global Positioning [GPS]

Conventional Digital Channels.
Requires GPS Option KZA0589 or KAA0589.

To access GPS functions press the "GPS" button or select "GPS" form the menu.

Viewing GPS information

To view current coordinates open the GPS menu and select "GPS Information".

After acquisition, the current location is displayed in degrees, minutes and seconds.

Sending GPS information

Depending on radio programming, GPS information is sent by a variety of triggers.

PTT - After a digital transmission the GPS coordinates will be automatically transmitted.

Periodic - GPS coordinates are transmitted periodically using a programmed time.

Emergency - GPS coordinates are sent if the radio activates emergency.

Power on/off - GPS coordinates are sent once the radio powers up and acquires a position and also on power off.

User Request - To send GPS information, open the GPS menu and select "Transmit Request". From the Request menu select the desired target ID and press "Enter".

Hard Power Down [PWRD]

Conventional and Trunking Channels

When pressed, turns the radio completely off.

Home [HOME]

Conventional and Trunking Channels

When pressed, the radio returns to a preprogrammed channel that is configured in the PC Radio Editor.

Inhibit/Uninhibit [INH]/UINH]

Conventional Digital Channels

With “Inhibit” assigned to a button or menu function, a KNG Radio can temporarily disable other KNG radios using the targeted radio’s unit ID number.

The disabled radio can only be re-enabled by sending an “Uninhibit” command.

NOTE: Inhibited radios cannot be read with the PC Radio Editor.

Sending a command

To initiate an inhibit/uninhibit message, press the programmed button or select from the menu.

If prompted, use the keypad to enter the User or Administrator password. Press “ENTER” to open the menu.

Select Target Radio

Last Call

Select “Last Call” to send the message to same radio you last sent an inhibit or uninhbit message. Press “SEND” to send the message.

Call List

Selecting “Call List” opens a list of alias’ from the pre-programmed Unit IDs. Select the desired target radio and press “SEND” to send the message.

Enter ID

Select “Enter ID” to enter the P25 ID of the target radio.
Use the keypad to enter the ID and press “SEND” to send the message.

Message Acknowledgement

When the message has been received by the targeted radio, an alert tone will sound and the acknowledgment message will be displayed.

Press “OK” or wait for three seconds to return to normal radio operation.

If the targeted radio is unavailable, an alert tone will sound and the failed acknowledgement message will be displayed.

Press “RTRY” to resend the message.

Press “OK” or wait for three seconds to return to normal radio operation.

Keypad Programming

Conventional Systems, Zones and Channels

Much of the information stored in the KNG mobile radio can be edited using the KAA0290 Microphone. Four separate programming functions can be enabled with the PC Radio Editor.

Keypad programming selections can only be assigned as a menu item.

Open the menu as described in the Navigation section to select the information you want to edit.

Available programming functions are:

Keypad - Used to edit individual channel and zone information such as labels, frequencies, operating modes, etc.

Call List - Used to edit the P25 ID Call List entries.

CxCSS Pick List - Used to edit the list of user selectable Code Guard entries.

NAC Pick List - Used to edit the list of user selectable Network Access Codes.

Talkgroup ID Pick List - Used to edit the list of user selectable P25 Talk Groups

Refer to the Keypad Programming section for detailed information on how to edit programmed radio information.

Minimum Volume [VOL]

Conventional and Trunking Channels

Must be configured as "Customizable" in the PC Radio Editor to access through the radio. When pressed, changes the volume level at lower volumes. This allows the user to set their minimum volume to an audible level.

Monitor [MON]

Conventional Channels

There are three settings available for monitoring traffic on a selected channel.

Off - Requires NAC or Tone.

On - Monitors activity on selected frequency regardless of NAC or Tone.

Open - Open Squelch.

If assigned as a Touch Screen or function button, press the button to toggle On/Off. Press and hold for Open Squelch.

When assigned as a menu item, open the menu as described in the Navigation section and select the Monitor mode you wish to use. Press "ENTER" to select.

Nuisance Channel Delete [NUIS]

Conventional and Trunked Channels

Nuisance Channel Delete can be assigned as a touch screen item or on a microphone function button.

To temporarily remove a channel from the scan list, press the assigned button while the nuisance channel is being received.

To revert to the programmed scan list, turn off Scan, cycle radio power or select another zone or channel.

Phone [PHN] and Hang Up [HANG]

Conventional Channels

The Phone function is a way for a conventional radio to instruct the system to dial a phone number and begin a call with that radio. Using the Hang Up button allows the user to end that call.

Radio Accountability Tone [RAT]

Conventional and Trunked Channels

The Radio Accountability Tone transmits a preprogrammed sequence of DTMF tones when the RAT button is pressed and held. Must be programmed with a Radio Accountability Tone ID in the PC Radio Editor.

Radio Info

Conventional and Trunking Channels

Information about your radio can be viewed via the “Radio Info” menu item.

To review the information, open the Radio Info menu. Use the NEXT or PREV to view individual items.

Radio Info information includes:

UID - P25 Unit ID.

IP - IP Address of the radio.

OTAR Registered - Acknowledges if radio is registered to an OTAR system.

Up Time - Amount of time the radio has been on.

Repeater Talkaround [T/A]

Conventional Channels

In Repeater Talkaround (T/A) mode, the radio will transmit on the programmed receive frequency of the selected channel. When T/A is enabled the |→| icon will be displayed on the top line of the LCD.

NOTE: Channels programmed as receive only are not affected by the Talkaround selection.

Talkaround selection can be assigned as a touch screen button, menu list item or a microphone function button.

Send Alert Tone [SNDT]

Conventional and Trunking Channels

When pressed and held, the radio will transmit a 781.3Hz tone for the programmed duration. Duration can be set in the range from 0.5 to 5 seconds.

Send Signal [SEND]

Conventional Analog Channels

Activated by a long-press and is the 5-tone equivalent to emergency alarm. ANI Mode needs to be set to five-tone. Holding this button will send the five-tone signal.

Squelch Adjust [SQL]

Conventional Analog and Mixed Mode Channels

Squelch Adjust is used to change the signal strength required for the radio's speaker to unmute on a per channel basis.

Adjusting Squelch Level

Press the "SQL" button or select "Squelch Adjust" from the menu.

Select "Adjust Chan Squelch" form the menu.

Use the -/+ buttons to adjust the desired squelch level.

Press "ENTER" to set the level.

Resetting Squelch Level

Select "Reset Squelch" from the Squelch Adjust menu.

Select which channels to return to factory set squelch setting.

Selected Channel - Resets the selected channel.

Selected Zone - Resets all channels in the current operating zone.

All Channels - Resets all radio channels.

Site Display [STDS]

Trunking Channels

When selected, the Site Display functions shows information for the currently operating site.

Displayed information includes: Site ID, Site Alias and RSSI.

Site Display can be assigned as a button or menu list item.

Site Lock [STLK]

Trunking Channels

Site lock prevents the radio from searching for other sites by locking it to the currently selected site.

Site Lock can be assigned as a button or menu list item.

Site Search [STSR]

Trunking Channels

Site Search automatically searches and selects the best available trunking site.

Site Lock can be assigned as a button or menu list item.

Surveillance Mode [SURV]

Conventional and Trunked Channels

When Surveillance Mode is on, all audible indicators (beeps etc.) and lighting functions (LEDs and Display) are disabled. The LCD Touchscreen is set to the dimmest setting.

For best operation, Surveillance Mode should be assigned as a touch screen button or on a microphone function button.

To enable or disable surveillance mode, press the assigned button.

Transmit Digital [TXD]

Conventional Mixed Mode Channels

When Transmit Digital is on, channels programmed for selectable transmit mode will transmit in digital mode. When off, mixed-mode channels transmit in analog mode.

When transmitting in digital mode the display shows 'D' behind the TX indicator. In analog transmit, 'A" will follow the indicator.

Transmit Digital selection can be assigned as a touch screen button, menu list item or a microphone function button.

When assigned as a touch screen function, the "TXAD" button will be highlighted when in the Transmit Digital mode.

To switch transmit mode on mixed mode channels press the "TXAD" button or select "Tx Digital" from the menu and choose "Analog" or "Digital".

Transmit Power [PWR]

Conventional and Trunked Channels.

Transmit Power can be selected between the programmed high and low settings. The power output of the settings depend on radio options, model and editor settings.

When operating in the high power mode, "H" will be displayed on the top line of the LCD. In low power mode, "L" is displayed.

To change the transmit power setting, press the "PWR" button or select "Tx Power" from the menu and choose "High" or "Low".

Press "ENTER" to set the selection.

Two-Tone Select [TONE]

Conventional Analog Channels.

Allows the user to select from their two-tone list (programmed with the PC Radio Editor). Selecting an item will send the two-tone signal.

Versions

Conventional and Trunked Channels

Information about your radio can be viewed via the "Versions" menu item.

To review the information, open the Versions menu. Use the NEXT or PREV to view the installed revisions of individual items.

Version information includes:

Software: Date code of installed software firmware.

DSP: Date code of installed DSP firmware.

File Format: Currently installed file format.

BSP: Date code of installed BSP firmware.

PCB Revision: Installed printed circuit board revision number.

Date of Manufacture: Date of manufacture.

FIPSCOM Bootloader: Revision required for encryption installation.

FIPSCOM Application: Installed encryption source file.

Current version information can be found in the service section at www.bktechnologies.com.

Zone Select [ZONE]

Conventional and Trunked Channels

Zone Select allows the radio user to switch between programmed channel zones.

The Zone Select operation can be assigned to a touch screen button, menu list item or a microphone function button.

When Zone is assigned to the touch screen or as a microphone function button, press the button to open the menu of available zones.

When assigned as a menu item, open the menu as described in the Navigation section.

Select the Zone you want to use.

Press "ENTER" select the Zone.

Additionally, the channel select knob can be used to change the operating zone. Also, If enabled, a zone can also be accessed directly for the microphone keypad. (Refer to your PC Radio Editor documentation.)

(See also, Channel/Zone Selection Options.)

Keypad Programming Options

Conventional Channels, Zones and Systems Only

NOTE: Radio programming is to be performed only by authorized personnel. Any or all programmable functions are password protected to prevent unauthorized access.

Programmable categories include Individual P25 ID Quick Call/Receive List, User Tone List, User NAC List, User Talk Group ID List and Keypad Programming of Channel, Zone, Global and System parameters.

Entering Programming Mode

Select "Keypad Programming" from the Menu List.

Enter the User or Administrator password at the prompt.

Select programming menu from the list of available options:

Keypad - Used for programming Channel, Zone, System and Global radio information including frequencies, labels, priority scan rate, etc.

Call List - Used to edit labels and P25 IDs in the stored User Call List.

User Tones - Used to edit the 32 User Selectable CTCSS/CDCSS tones list.

User NACs - Used to edit the 32 User Selectable NACs list.

User TGIDs - Used to edit the 32 User Selectable TGIDs list.

Keypad Programming

Keypad programming consists of four sections:

Global - Settings that apply to all systems, zones and channels.

System - Applies to all conventional zone settings.

Zone - Settings that apply only to the selected zone.

Channel - Channel specific information such as frequencies, tones, etc.

Programming Global Parameters

Programmable Global Parameters include:

Display Top Line
Display Top Line Alt
Display Middle Line
Display Mid Line Alt
Display Bottom Line
Display Bot Line Alt
User Password
Dual Speaker
Control Lockout

Displayed Information

Information displayed on the three programmable display lines can be edited by selecting Top Line, Middle Line or Bottom Line from the Global menu.

Use the up/down buttons to select the desired displayed information for each line.

Alternating Display Information

All three display lines can be programmed to alternate displayed information.

Alternating displayed information on the three programmable display lines can be edited by selecting Top Line Alt, Middle Line Alt or Bottom Line Alt from the Global menu.

User Password

The User Password is used only for entering the keypad programming mode. The Administrator and Startup Passwords cannot be changed via the keypad.

Select "CLEAR" to reset the password to all zeros. Use the microphone keypad to enter a new six-digit password.

To edit individual digits select "EDIT". Use "PREV" and "NEXT" to highlight the digit to change. Use the microphone keypad to enter a new digit.

Select "ENTER" to set the password and return to the previous step.

Dual Speaker

When this option is on, audio is available on both the internal speaker and the speaker microphone speaker when attached.

Control Lockouts

Control lock with the "Lock All Controls" selection can be edited from the "Control Lockouts" menu.

Use the +/- button to add or remove items from the lockout list.

Items selected for lockout will display the ☑ symbol.

Programming System Parameters

Programmable System Parameters include:

System Priority Channels

Transmit on Priority 1 selection

P25 ID

Scan Hold Time

System Priority 1 Channel

A priority channel can be assigned on a system wide basis. If allowed, a system priority channel will be monitored during priority scan regardless of the currently operating zone.

When set to "Off", the Priority 1 Channel is designated by the currently selected zone setting. (See Programming Zone Parameters)

When set to "Use Main", the channel selected by the channel knob is the Priority 1 channel.

Choose "Select" to designate a specific channel as the System Priority 1 channel.

Use "PREV" and "NEXT" to highlight the Zone of the desired Priority channel. Press "ENTER" to set the zone.

Use "PREV" and "NEXT" to highlight the desired Priority channel. Press "ENTER" to finalize the selection.

Transmit on Priority 1

If Transmit on Priority 1 is "On", the radio will transmit on the programmed Priority 1 channel whenever priority scan is turned on.

Use "PREV" and "NEXT" to highlight the desired Operation. Press "ENTER" to finalize the selection.

System Priority 2 Channel

A priority channel can be assigned on a system wide basis. If allowed, a system priority channel will be monitored during priority scan regardless of the currently operation zone.

When set to "Off", the Priority 2 Channel is designated by the currently selected zone setting. (See Programming Zone Parameters)

When set to "Use Main", the channel selected by the channel knob is the Priority 2 channel.

Choose "Select" to designate a specific channel as the System Priority 2 channel.

Use "PREV" and "NEXT" to highlight the Zone of the desired Priority channel.

Press "ENTER" to set the zone.

Use "PREV" and "NEXT" to highlight the desired Priority channel.

Press "ENTER" to finalize the selection.

P25 Unit ID

The radio's P25 ID can be edited by selecting "P25 Unit ID".

Select "CLEAR" to reset the ID. Use the microphone keypad to enter the new ID.

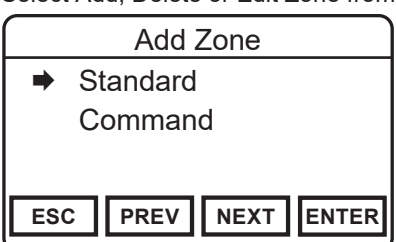
To edit individual digits select "EDIT". Use "PREV" and "NEXT" to highlight the digit to change.

Scan Hold Time

The Scan Hold Time allows the user to hear responses to calls before the radio resumes scanning. It also allows time for the user to respond to a call when Talk Back Scan or Mixed Mode Talk Back is enabled. The options are from 0.0s to 7.5s in increments of 0.5s.

Programming Zone Parameters

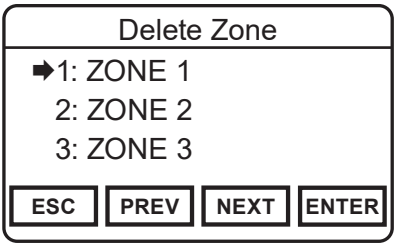
Select Add, Delete or Edit Zone from the Zone menu.



Add Zone

The option of adding a Standard Zone or a Command Zone is available. When selected, a new zone is added in the next available slot.

Example: If there are seven zones in the radio, the added zone will be zone eight.



Delete Zone

When selected the list of available zones is displayed. Choose the zone you wish to delete.

When a zone is removed all subsequent zones move up one spot.

Example: If there are seven zones in the radio and zone five is deleted, zone six now becomes zone five and zone seven becomes zone six.

Edit Zone

Programmable Zone Parameters include:

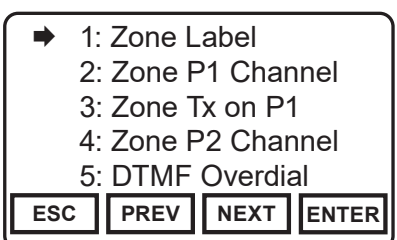
Zone Label

Zone P1 Chan

Zone Tx on P1

Zone P2 Channel

DTMF Overdial



Select Zone

1: Zone 1 Label
2: Zone 2 Label
➡ 3: Zone 3 Label

ESC | PREV | NEXT | ENTER

To edit zone parameters select "Zone" from the Keypad Programming menu.

Use "PREV" and/or "NEXT" to select the zone to be programmed.

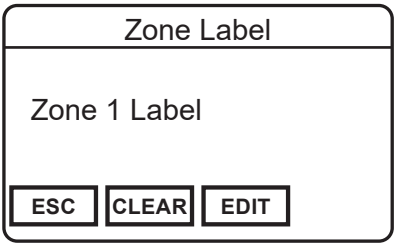
Press "ENTER" to open the Zone Parameters menu.

➡ 1: Zone Label
2: Zone P1 Channel
3: Zone Tx on P1
4: Zone P1 Channel
5: DTMF Overdial

ESC | PREV | NEXT | ENTER

Select the desired parameter with "PREV" and/or "NEXT".

Press "ENTER" to program the selection.

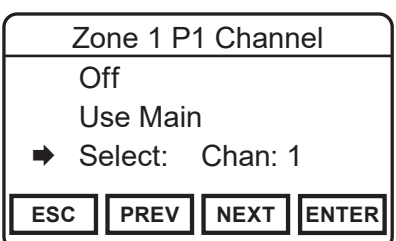


Zone Label

Select "CLEAR" to reset the label. Use the microphone keypad to enter a new alphanumeric label.

To edit individual digits select "EDIT". Use "PREV" and "NEXT" to highlight the digit to change.

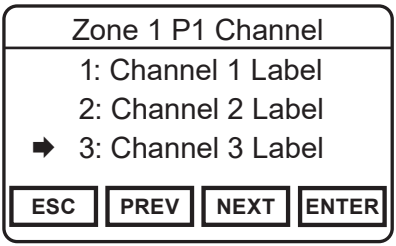
Select "ENTER" to set the label and return to the previous step.



Zone Priority 1 Channel

A priority channel can be assigned on a zone basis. If allowed, a system priority channel will be monitored during priority scan regardless of the selected zone settings. (See "System Priority Channel")

When set to "Off", Priority 1 is ignored.

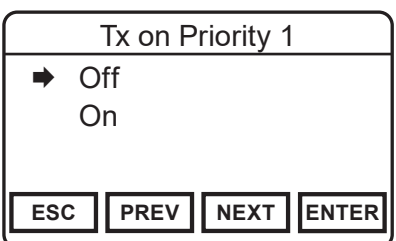


When set to "Use Main", the channel selected by the channel knob is the Priority 1 channel.

Choose "Select" to designate a specific channel as the Priority 1 channel.

Use "PREV" and "NEXT" to highlight the desired Priority channel.

Press "ENTER" to finalize the selection.

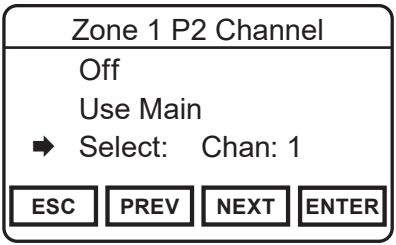


Transmit on Priority 1

If Transmit on Priority 1 is "On" the radio will transmit on the programmed Priority 1 channel whenever priority scan is turned on and that zone is active.

Use "PREV" and "NEXT" to highlight the desired Operation.

Press "ENTER" to finalize the selection.

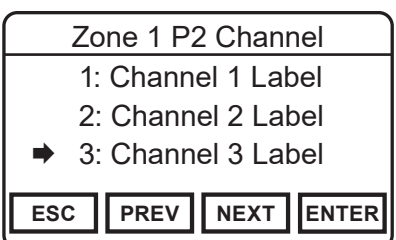


Zone Priority 2 Channel

A priority channel can be assigned on a zone basis. If allowed, a system priority channel will be monitored during priority scan regardless of the selected zone settings. (See "System Priority Channel")

When set to "Off", Priority 2 is ignored.

When set to "Use Main" the channel selected by the channel knob is the Priority 2 channel.

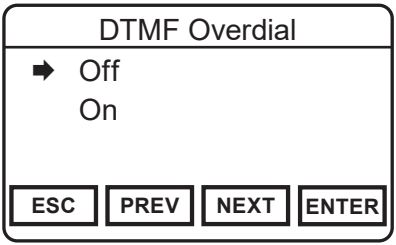


Zone Priority 2 Channel (cont.)

Choose "Select" to designate a specific channel as the Priority 2 channel.

Use "PREV" and "NEXT" to highlight the desired Priority channel.

Press "ENTER" to finalize the selection

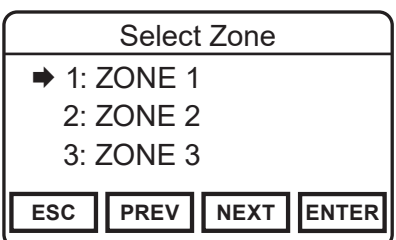


DTMF Overdial

If DTMF Overdial is "On", DTMF tones can be generated during transmit. Press the microphone keypad during PTT to send a the DTMF tone. Use the radio touchscreen to send A, B, C or D characters.

Use "PREV" and "NEXT" to highlight the desired Operation.
Press "ENTER" to finalize the selection.

Programming Channel Parameters



Add Channel

Select to add a new channel.

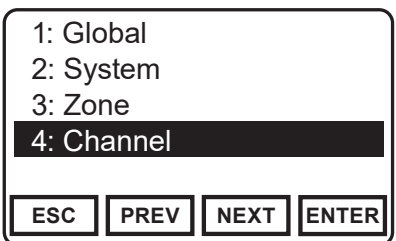
Choose the zone to which the channel is to be added.

Enter a valid channel index number of 1-5000.

NOTE: To access channels above channel sixteen, the radio must be programmed via PC for keypad channel select or "Channel Select" must be assigned as a button or menu item.

Delete Channel

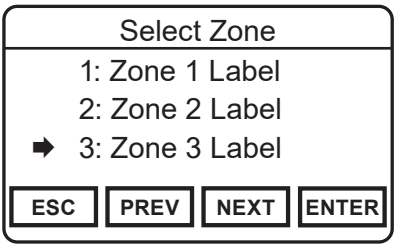
When selected, the list of programmed zones is displayed. Choose the zone of the channel you wish to delete. Then select the channel from the list.



Edit Channel

Programmable Channel Parameters include:

- Channel Label
- Receive Frequency
- Receive Mode
- Receive CTCSS/CDCSS Tones
- Receive Network Access Codes
- Digital Squelch Mode
- Analog Bandwidth
- Transmit Power
- Transmit Frequency
- Transmit Mode
- Transmit CTCSS/CDCSS Tones
- Transmit Network Access Codes
- Talkgroup ID

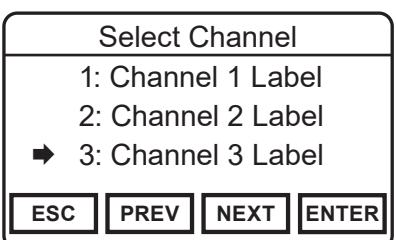


Accessing Channel Parameters

To edit channel parameters select "Channel" from the Keypad Programming menu.

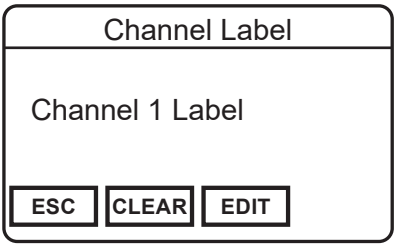
Use "PREV" and/or "NEXT" to select the zone of the channel to be programmed.

Press "ENTER" to select the zone.



Use "PREV" and/or "NEXT" to select the channel to be programmed.

Press "ENTER" to open the Channel Parameters Menu.

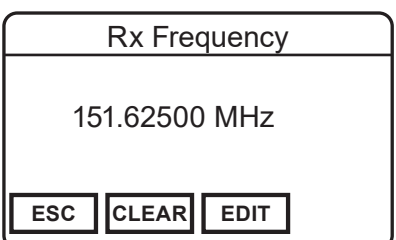


Channel Label

Select "CLEAR" to reset the label. Use the microphone keypad to enter a new alphanumeric label.

To edit individual digits, select "EDIT". Use "PREV" and "NEXT" to highlight the digit to change.

Select "ENTER" to set the label and return to the previous step.



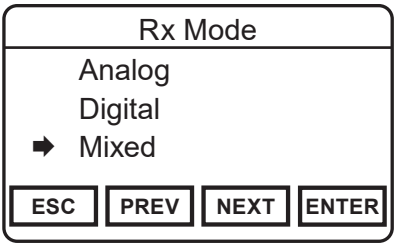
Receive Frequency

Select "CLEAR" to reset the frequency to all zeros. Use the microphone keypad to enter a new frequency.

To edit individual digits select "EDIT". Use "PREV" and "NEXT" to highlight the digit to change.

Select "ENTER" to set the frequency and return to the previous step.

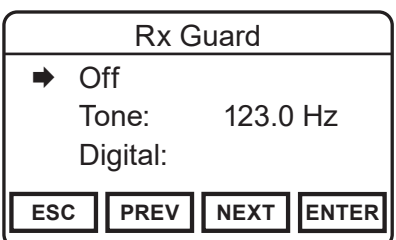
NOTE: Entering zero selects the lowest valid frequency for the model type.



Receive Mode

Use "PREV" and/or "NEXT" to select the desired mode.

Press "ENTER" to set the selection and return to the previous step.

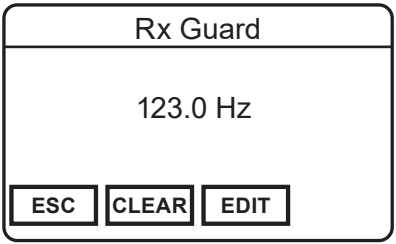


Receive CTCSS/CDCSS Code Guard

Receiver Code Guards only apply to analog or mixed mode operation. Code Guards can be subaudible tones or digital codes.

Select "Off" for analog signals to operate in carrier squelch mode.

Receive CTCSS/CDCSS Code Guard (cont.)

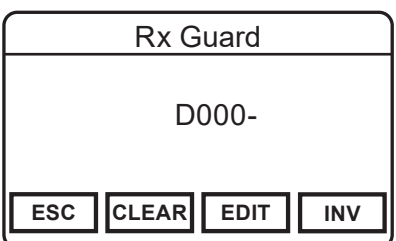


To enter a CTCSS tone, select "Tone" form the menu.

Select "CLEAR" to reset the tone to all zeros. Use the microphone keypad to enter a new frequency.

To edit individual digits select "EDIT". Use "PREV" and "NEXT" to highlight the digit to change.

Select "ENTER" to set the frequency and return to the previous step.

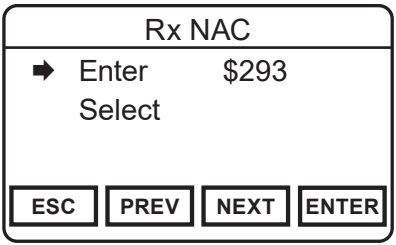


To enter a CDCSS value, select "Digital" form the menu.

Select "CLEAR" to reset the code to all zeros. Use the microphone keypad to enter a new code. Use "INV" to invert the code.

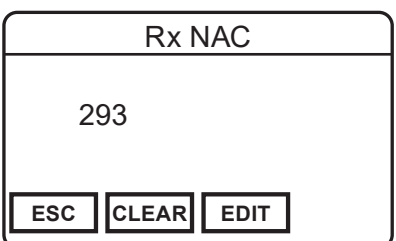
To edit individual digits select "EDIT". Use "PREV" and "NEXT" to highlight the digit to change.

Select "ENTER" to set the tone and return to the previous step.



Receive Network Access Code

Receiver NACs only apply to digital or mixed mode operation. NACs are programmed as three digit hexadecimal numbers. $F7E and $F7F are invalid NACs.



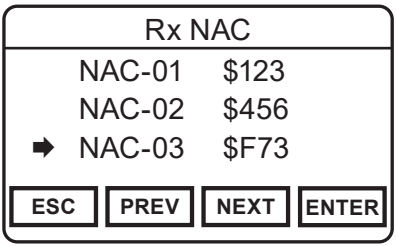
To program a NAC, select "ENTER".

Select "CLEAR" to reset the NAC to all zeros. Use the microphone keypad to enter a new three digit value.

To edit individual digits select "EDIT". Use "PREV" and "NEXT" to highlight the digit to change.

Select "ENTER" to set the NAC and return to the previous step.

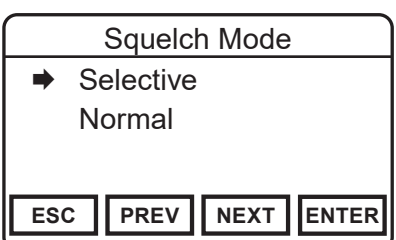
Receive Network Access Code (cont.)



To select a NAC from the programmed picklist, choose "Select" form the menu.

Use "PREV" and "NEXT" to highlight the desired NAC or press the number buttons on the microphone to go directly to a picklist slot.
(Pressing "5" will go to "NAC-5" in the picklist.)

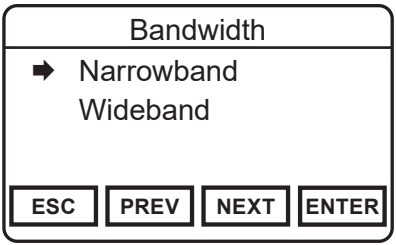
Select "ENTER" to set the NAC and return to the previous step.



Squelch Mode

Use "PREV" and "NEXT" to select Normal or Selective. (Selective squelch is required for Individual Calls and use of Talkgroup IDs.)

Select "ENTER" to set the mode.



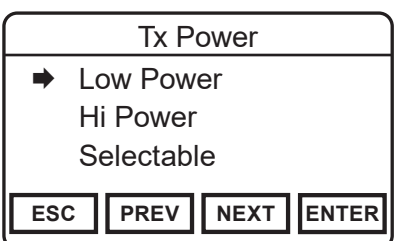
Analog Bandwidth

Bandwidth selection applies only to analog operation. Digital operation is always narrowband regardless of setting.

Use "PREV" and "NEXT" to select Narrowband or Wideband.

Select "ENTER" to set the mode.

(Please see "Notice" on Page 2.)



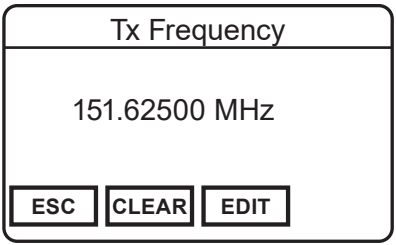
Transmit Power

Individual channels can be designated to always transmit in low or high power.

Use "PREV" and "NEXT" to select "Low" or "High" power.

Choosing "Selectable" allows the transmit power to selected by a programmed Tx Power switch.

Select "ENTER" to set the mode.



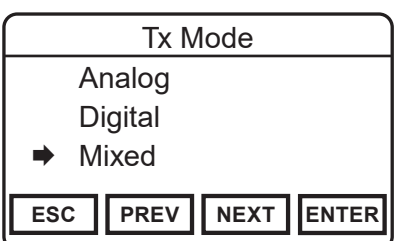
Transmit Frequency

Select "CLEAR" to reset the frequency to all zeros. Use the microphone keypad to enter a new frequency.

To edit individual digits select "EDIT". Use "PREV" and "NEXT" to highlight the digit to change.

Select "ENTER" to set the frequency and return to the previous step.

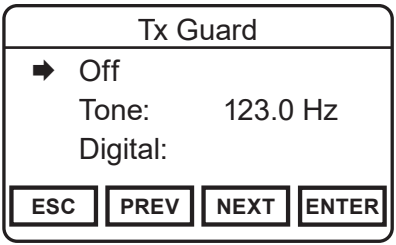
NOTE: Entering zero selects the lowest valid frequency for the model type.



Transmit Mode

Use "PREV" and/or "NEXT" to select the desired operating mode.

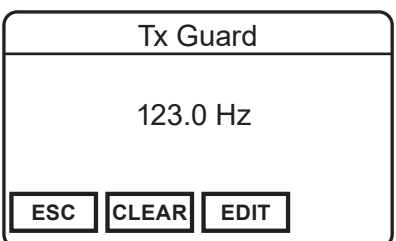
Press "ENTER" to set the selection and return to the previous step.



Transmit CTCSS/CDCSS Code Guard

Transmit Code Guards only apply to analog or mixed mode operation. Code Guards can be subaudible tones or digital codes.

Select "Off" to transmit with no Code Guard tone.



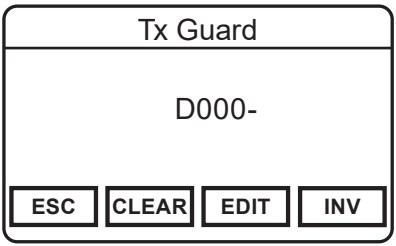
To enter a CTCSS tone, select "Tone" form the menu.

Select "CLEAR" to reset the tone to all zeros. Use the microphone keypad to enter a new frequency.

To edit individual digits select "EDIT". Use "PREV" and "NEXT" to highlight the digit to change.

Select "ENTER" to set the frequency and return to the previous step.

Transmit CTCSS/CDCSS Code Guard (cont.)

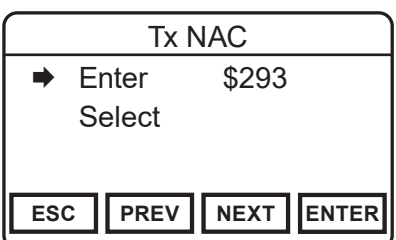


To enter a CDCSS value, select "Digital" form the menu.

Select "CLEAR" to reset the tone to all zeros. Use the microphone keypad to enter a new code. Use "INV" to invert the code.

To edit individual digits select "EDIT". Use "PREV" and "NEXT" to highlight the digit to change.

Select "ENTER" to set the tone and return to the previous step.

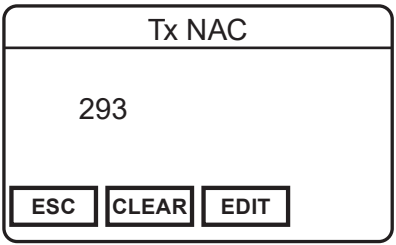


Transmit Network Access Code

Transmitter NACs only apply to digital or mixed mode operation. NACs are programmed as three digit hexadecimal numbers.

$F7E and $F7F are invalid NACs.

Transmit Network Access Code (cont.)

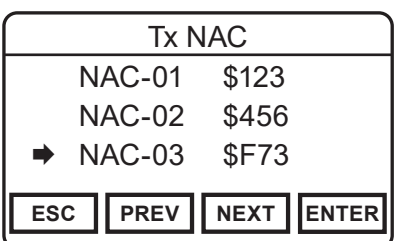


To program a NAC, select "ENTER".

Select "CLEAR" to reset the NAC to all zeros. Use the microphone keypad to enter a new three digit value.

To edit individual digits select "EDIT". Use "PREV" and "NEXT" to highlight the digit to change.

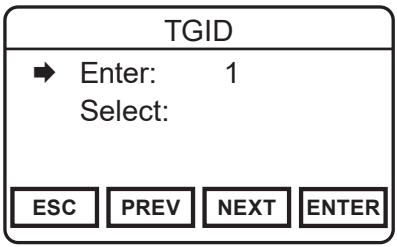
Select "ENTER" to set the NAC and return to the previous step.



To select a NAC from the programmed picklist, choose "Select" form the menu.

Use "PREV" and "NEXT" to highlight the desired NAC or press the number buttons on the microphone to go directly to a picklist slot.
(Pressing "5" will go to "NAC-5" in the picklist.)

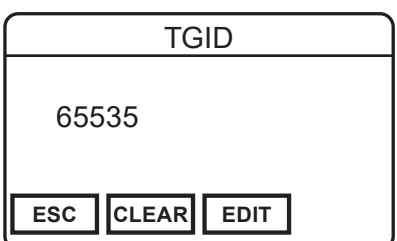
Select "ENTER" to set the NAC and return to the previous step.



Talk Group ID

The Talk Group ID applies only to digital or mixed mode operation.

TGID can be programmed from 1 to 65535.

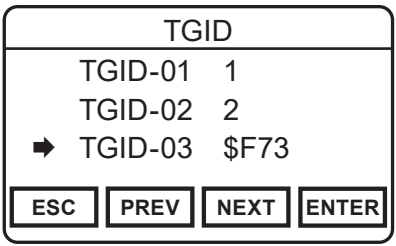


To program a TGID, select "ENTER".

Select "CLEAR" to reset the TGID to all zeros. Use the microphone keypad to enter the new TGID.

To edit individual digits select "EDIT". Use "PREV" and "NEXT" to highlight the digit to change.

Select "ENTER" to set the TGID and return to the previous step.



Talk Group ID (cont.)

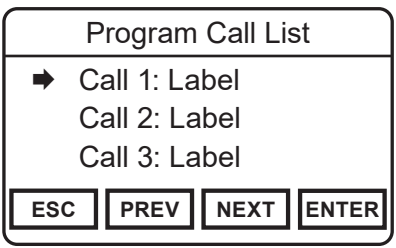
To select a TGID from the programmed picklist, choose "Select" form the menu.

Use "PREV" and "NEXT" to highlight the desired TGID or press the microphone number buttons to go directly to a picklist slot.
(Pressing "5" will go to "TGID-5" in the picklist.)

Select "ENTER" to set TGID and return to the previous step.

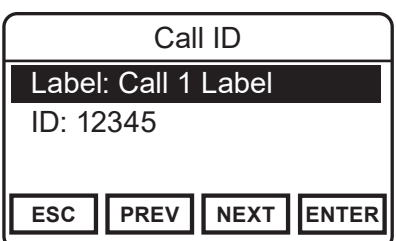
Call List Programming

To program the P25 Unit-to-Unit call list, select "Call List" from the Keypad programming menu.



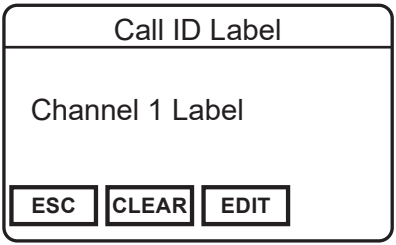
Use "PREV" and "NEXT" to highlight the desired Call List item or press the number buttons on the microphone to go directly to a picklist slot. (Pressing "5" will go to "Call 5" in the picklist.)

Select "ENTER" to select the item to be programmed.



Use "PREV" and "NEXT" to highlight the information you wish to program.

Select "ENTER" to select the item to open the item's programming window.

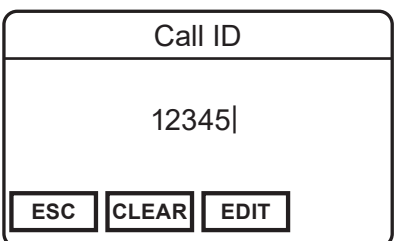


Programming the Unit Call Label

Select "CLEAR" to reset the label. Use the microphone keypad to enter a new label.

To edit individual characters select "EDIT". Use "PREV" and "NEXT" to highlight the character to change.

Select "ENTER" to set the label and return to the previous step.



Programming the Unit Call ID

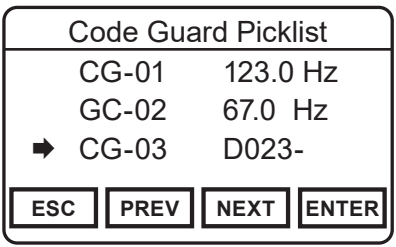
Select "CLEAR" to reset the P25 ID. Use the microphone keypad to enter the new P25 ID.

To edit individual digits select "EDIT". Use "PREV" and "NEXT" to highlight the digit to change.

Select "ENTER" to set the ID and return to the previous step.

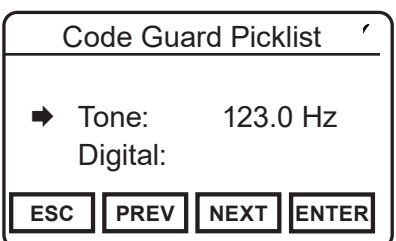
Code Guard Picklist Programming

To program the User Selectable Code Guard List, select "User Tones" from the Keypad programming menu.



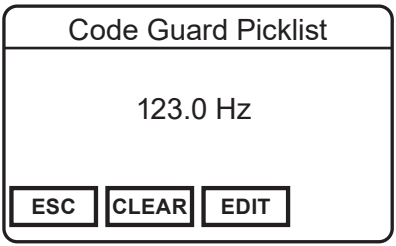
Use "PREV" and "NEXT" to highlight the Code Guard to be programmed or press the number buttons on the microphone to go directly to a picklist slot.
(Pressing "5" will go to "CG-05" in the picklist.)

Press "ENTER" to select the item to open the Code Guard menu.



To enter a CTCSS tone, select "Tone" from the menu.

To enter a CDCSS value, select "Digital" from the menu.

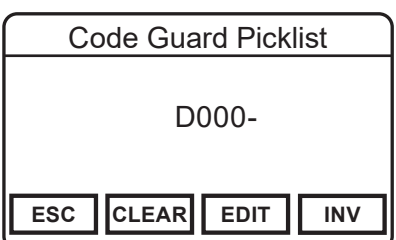


CTCSS Tone
To enter a CTCSS tone, select "Tone" form the menu.

Select "CLEAR" to reset the tone to all zeros. Use the microphone keypad to enter a new frequency.

To edit individual digits select "EDIT". Use "PREV" and "NEXT" to highlight the digit to change.

Select "ENTER" to set the frequency and return to the previous step.



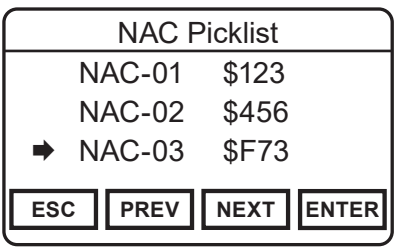
CDCSS Code
Select "CLEAR" to reset the code to all zeros. Use the microphone keypad to enter a new three digit tone. Use "INV" to invert the code.

To edit individual digits select "EDIT". Use "PREV" and "NEXT" to highlight the digit to change.

Select "ENTER" to set the code and return to the previous step.

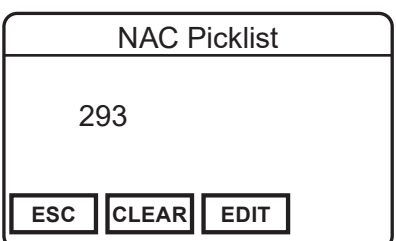
NAC Picklist Programming

To program the User Selectable NAC List, select "User NACs" from the Keypad programming menu. NACs are programmed as three digit hexadecimal numbers. $F7E and $F7F are invalid NACs.



Use "PREV" and "NEXT" to highlight the NAC to be programmed or press the number buttons on the microphone to go directly to a picklist slot.
(Pressing "5" will go to "NAC-05" in the picklist.)

Press "ENTER" to open the NAC editing screen.



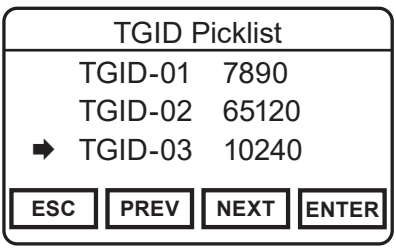
Select "CLEAR" to reset the NAC to all zeros. Use the microphone keypad to enter a new three digit value.

To edit individual digits select "EDIT". Use "PREV" and "NEXT" to highlight the digit to change.

Select "ENTER" to set the NAC and return to the previous step.

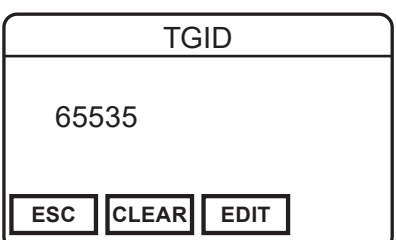
Talkgroup ID Picklist Programming

To program the User Selectable TGID List, select "User TGIDs" from the Keypad programming menu.



Use "PREV" and "NEXT" to highlight the TGID to be programmed or press the number buttons on the microphone to go directly to a picklist slot.
(Pressing "5" will go to "TGID-05" in the picklist.)

Press "ENTER" to open the TGID editing screen.



To program a TGID, select "ENTER".

Select "CLEAR" to reset the NAC to all zeros. Use the microphone keypad to enter a new three digit value.

To edit individual digits select "EDIT". Use "PREV" and "NEXT" to highlight the digit to change.

Select "ENTER" to set the ID and return to the previous step.

BK Technologies (BK Radio) Warranty Information

For the latest warranty information, visit:

https://www.bktechnologies.com/service-portal/factory-service/warranty

All repairs must be performed by an authorized BK Technologies service center during the life of the warranty. Except for duration and factory-only repair, extended warranties are identical to our standard 2 year warranty. Factory extended warranties cover all BK Technologies portables, mobiles and base stations and must be purchased at point of sale.

For information about your warranty contact BK Technologies:

Phone: (800) 648-0947.

Email: care@bktechnologies.com

If you need service, contact your BK Technologies dealer. If you find it impractical to have service provided by your dealer, contact the BK Technologies Technical Service Department at (800) 422-6281.

Repairs may be sent to the address below:

BK Technologies

Attention: Customer Service
7100 Technology Drive
West Melbourne, FL 32904

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