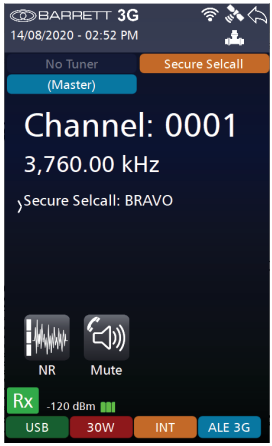
Sending a Secure Call

1. Select the channel to send the Secure call on (Beacon Call can be used to determine the best channel)
2. Listen for traffic on that channel. If traffic is not heard, continue.
3. Press CALL
4. Either:
   - Select Secure, enter the selcall ID of transceiver you wish to contact and press Enter, or
   - Choose a contact from the Contacts icon and then select Secure.
5. Listen for the secure call revertive tone from the called station which indicates the call was successful.



Note: The secure call revertive tone has a different sound to the revertive tones of the other call types.

If the revertive tone was not heard or was difficult to hear, try another channel and repeat the process.

Now the transceivers can communicate securely using a voice call. Other users on the frequency will only hear garbled speech.

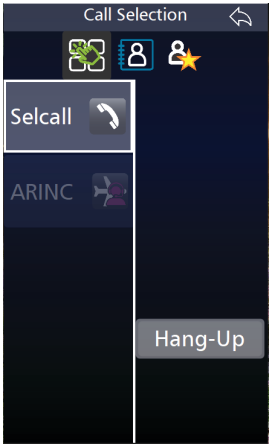
To exit secure mode, a Hangup call will need to be sent, or the BACK key pressed (disconnects local station only).

Hangup Call

When a call to a telephone interconnect base station has completed or a secure call link is complete, the operator should 'hang-up' by sending a hang-up call.

Sending a Hangup Call

1. Press CALL
2. Select Hangup and the Hangup call will be sent out. The transceiver will use the destination ID when sending the call from the initiating transceiver or the source ID when sending from the receiving transceivers. Listen for hang-up revertive tone which confirms the disconnect was successful.



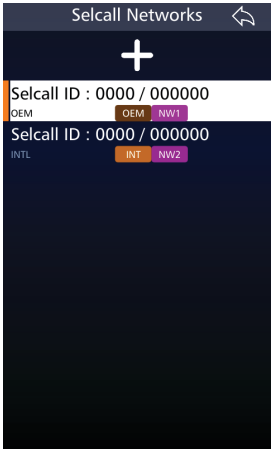
Selcall Networks

The Selcall Network screen is a list of the transceiver's 4 and 6 digit IDs on various HF networks. These are programmable and up to 5 networks can be stored on the transceiver.

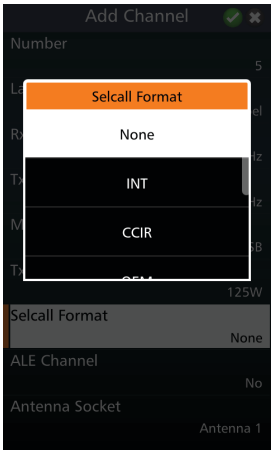
Creating a New Selcall Network

1. Access the menu via **Settings** and **Selcall**. Select **Selcall Networks**.

2. Tap the + symbol to create a new Selcall Network.
3. Selcall Network Alias refers to the name of the network on your transceiver. This is not read or transmitted by any external transceivers or displayed when you transmit.



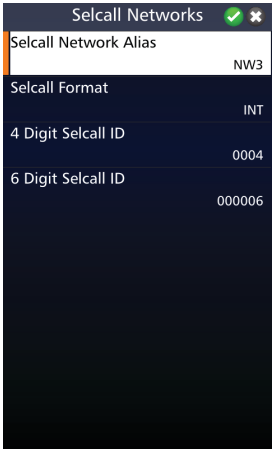
4. Selcall Format chooses whether the network transmits over INT, CCIR, OEM or RFDS frequencies. All transceivers in the network will need to be the same in order to transmit between each other.
5. The Selcall IDs on each network may be specific to each network. These will generally be provided by the network administrator.
6. Select the green tick and then Yes to save the Network.



Editing an Existing Selcall Network

To edit a Selcall Network, select the desired network and either tap the network or press ENT from the keypad.

The Selcall Network screen displays. Edit the details as described above (for Add a Selcall Network).

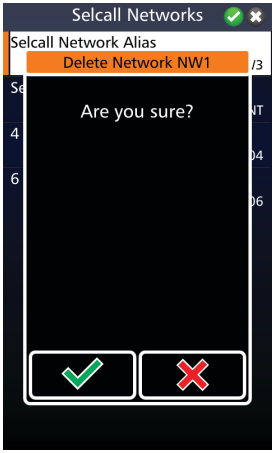


Deleting an Existing Selcall Network

Select the Selcall Network to be deleted, then tap and hold for three seconds.

A confirmation message displays.

Tap **Yes**.



BASIC SETTINGS 4

This chapter contains the following sections:

- System Information
- General Settings
- Audio Settings
- Display Settings

System Information

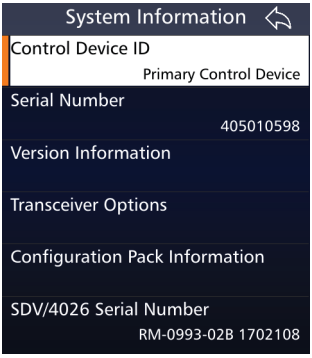
Select **System Info** from the Settings menu to display the System Information screen.

Head Device ID

This displays the name of the control head. This name is used to differentiate between primary and secondary heads.

Serial Number

This displays the transceiver's serial number.



Version Information

This menu provides software and firmware version numbers. Contact your Barrett provider for more information

Transceiver Options

This menu displays the installed options present in the transceiver. The image opposite shows all possible options.

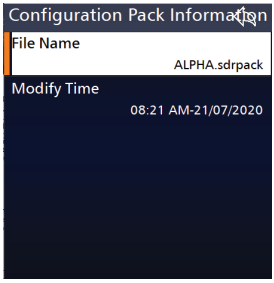
From this menu, option PINs (supplied by Barrett Communications) can be entered to activate inactive options.

To activate an inactive option, please contact Support at Barrett Communications at:

support@barrettcommunications.com.au.

Configuration Pack Information

This menu offers easy identification of the transceiver's current pack and when it was last updated.



SDV/4026 Serial Number

This provides the serial number of the SDV/4026 hardware module fitted in the transceiver.

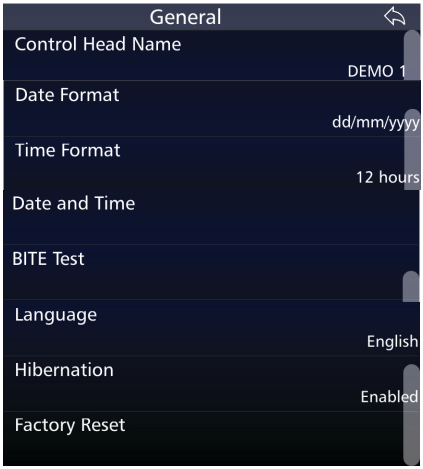
General Settings

Select **General** from the Settings menu to display the General Configurations screen.

A list of items that may be configured is displayed. To reveal more items, either swipe down on the touch screen or press ▼.

A brief description of each of the items which may be configured is described beneath the items.

The current status of each of the items is displayed on the right.



Modifiable name for the transceiver. This name will be used to refer to this transceiver on external networks.

Sets the format in which the date is displayed on the transceiver to one of five options.

Toggles the time format between 12 and 24 hour displays. This displays on the transceiver front panel.

Sets up the date, time and timezone displayed on the transceiver. Swipe up or down on the touchscreen to modify.

Built in Testing Equipment. Provides a basic indication of faults in the system. See Appendix 4, page 204.

Language of the transceiver's display.

Allows for a faster start up time. Enabled by default.

Will revert transceiver back to factory settings. All channel info, ALE2G/3G info, all security PINs and encryption keys will be cleared.

Audio Settings

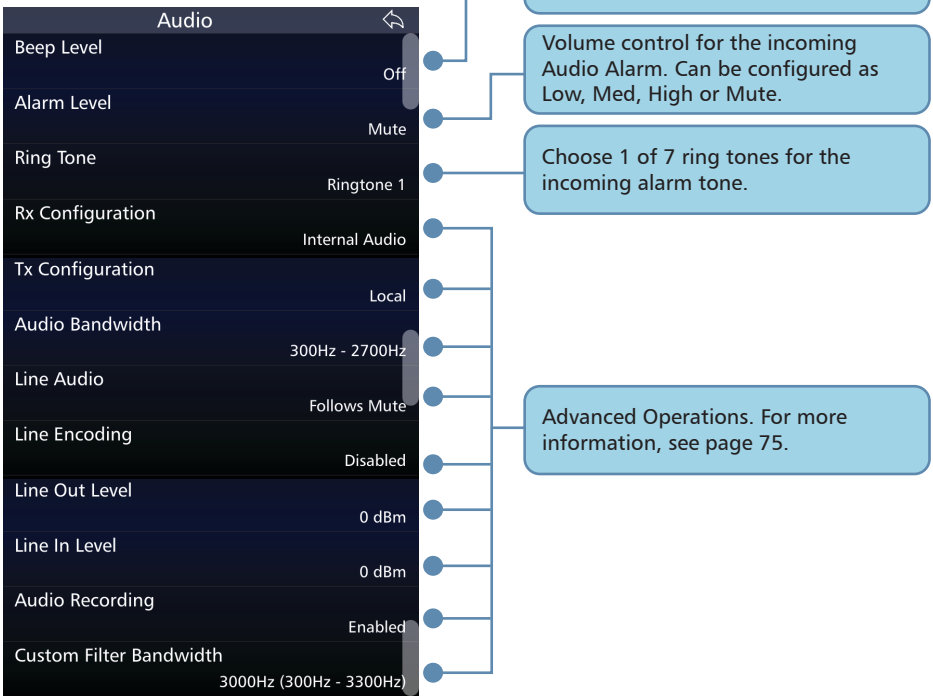
Tap **Audio** from the Settings screen to display the Audio screen.

A list of items that may be configured is displayed.

A brief description of each of the items is described beneath the items.

The current status of each of the items is displayed on the right.

To reveal more items, either swipe down on the touch screen or press .



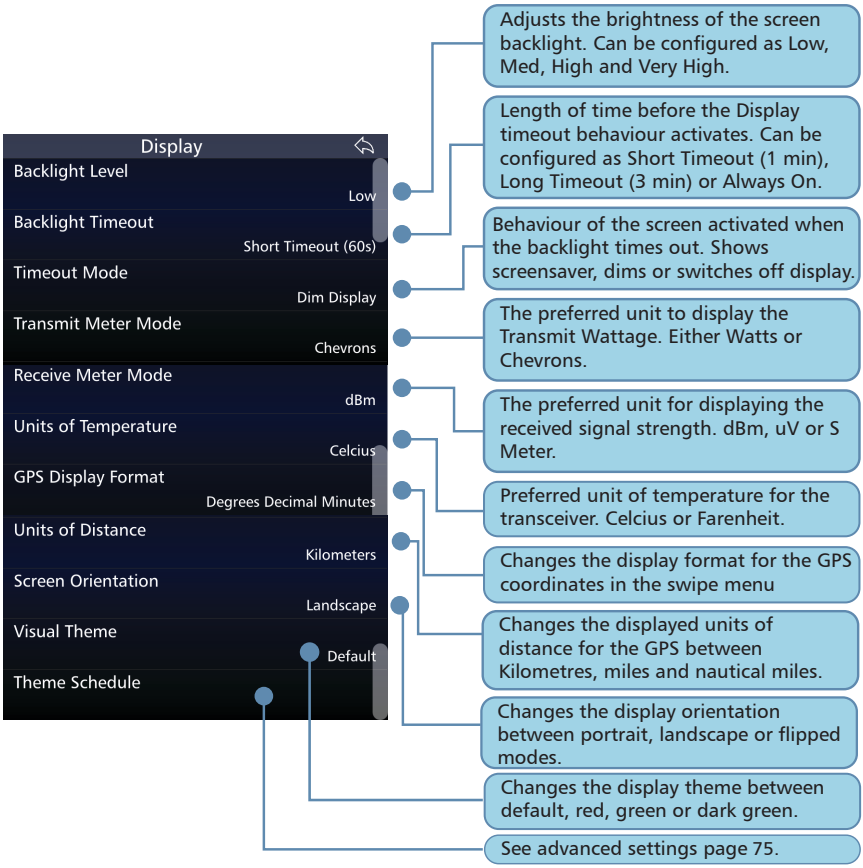
Display Settings

Tap **Display** from the Settings screen to display the Display screen.

A list of items that may be configured is displayed.

A brief description of each of the items is described beneath the items.

The current status of each of the items is displayed on the right.



PROGRAMMING 5

This chapter contains the following sections:

- Channel Programming
- Free Scroll Rx/Tx
- Programming via USB

Channel Programming

The programming of channels is restricted in some countries. In this situation, transceivers will be pre-loaded with a channel pack and this function will be locked in the transceiver menu.

If the transceiver is unlocked, there are three ways to program channels into the transceiver.

1. Manually through the transceiver's handset,
2. By inserting a USB storage device containing the appropriate files into the transceiver's USB socket (see page 73)
3. By using the Barrett Programming Software (P/N 4090-01-30). This option is not available in all countries. Please check with your Barrett dealer for your location. For more information on using the Barrett Programming Software, please refer to the Barrett 4000 Series Programming Software Manual (P/N BCM40503).

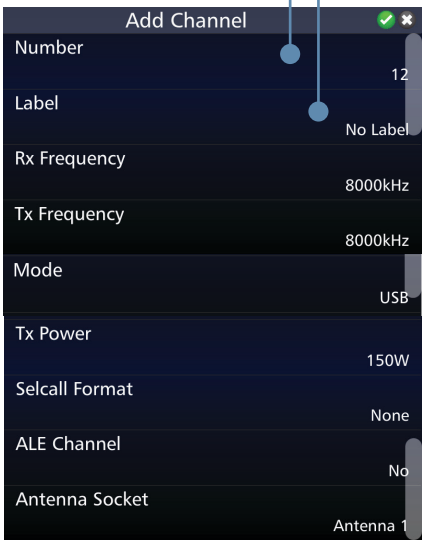
Programming Channels Through the Handset

Tap **Channels** from the **Settings** screen to display the Channels screen.

A list of currently used channels displays. Each channel shows its channel number, frequency, and channel label.

Adding a new channel

To add a channel, tap  to display the Add Channel screen.



Number designated for the channel. Usually the next available number.

Name designated for this channel. More detail below.

Desired receive frequency in kHz. Can be entered using the on-screen keypad.

Desired transmit frequency in kHz. Can be entered using the on screen keypad.

Mode of Modulation. Can be USB, LSB, CF, CW or AM. See Terms and Abbreviations on pg 4-5. Network Administrator designated.

Transmit power in Watts. Can be either 10, 30, 125 or 150W

Designates the Selcall IDs to be used on this channel, whether INT, OEM, CCIR, RFDS or an ID set to a network.

Displays ALE type. Covered in the ALE manual. 2G, 3G, 3G+, No.

Designated Antenna socket. Selects the antenna to be used for this channel. An additional antenna can be added using the Dual Port Antenna Switch Unit (P/N BCA40506). Viewable in mobile and base station formats only.

After configuring the above attributes, tap  to add the channel. A confirmation message displays. Tap **Yes**.

Editing a Channel

To edit a channel, select the desired channel by using the  and  keys from the Channel screen and either tap the channel or press  from the keypad.

The Channel Information screen displays. Edit the fields as desired.

Deleting a Channel

To delete a channel, tap and hold for three seconds the channel you wish to delete. A confirmation message displays.

Tap **Yes**.

Label

Channel labels are used to name a channel and remind a user what the channel is used for eg. UNHCR Geneva.

Channel Labels must be created under the labels menu before they can be applied to a channel.

Adding a New Label

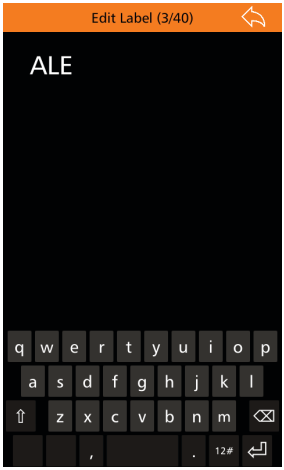
To create a new label, tap the  icon from the Settings<Labels menu.

Type the New Label using the on screen keyboard.

This label can now be added to a channel.

Settings Labels

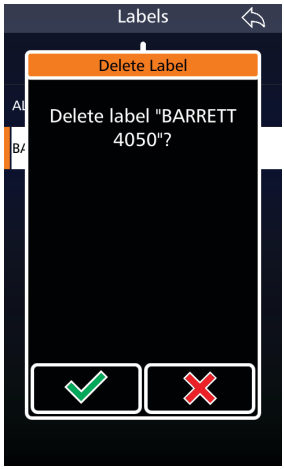
Editing an Existing Label



To edit a channel label from the Channel Labels' screen, select the label by using the and keys and either tap the label or press ENT from the keypad.

Use the keyboard to edit the name of the label, then tap to save.

Deleting an Existing Label



To delete a channel label from the Channel Labels' screen, select the channel label you wish to delete, then tap and hold for three seconds.

A confirmation message displays.

Tap **Yes**.

Mode

Network administrators designate usable channels and modes as one of the following:

USB - Upper Side Band.

LSB - Lower Side Band.

CF - Custom Filter.

CW - Continuous Wave (Morse code).

AM - Amplitude Modulation (not available in all countries).

Free Scroll Rx/Tx

Frequency Selection

Free Scroll Rx is a feature that allows a user to scroll through frequencies in a receive-only capacity. If the "Free Scroll Tx" option is enabled, pressing PTT will allow transmit on the selected frequency.

From the home screen tapping the channel frequency will open the Free Scroll function.

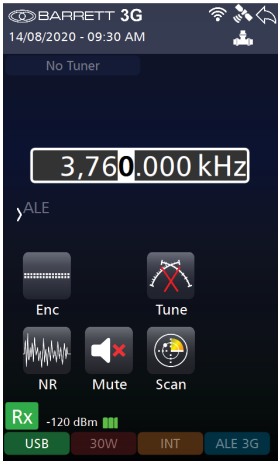
This can be navigated in two ways:

- The directional buttons

  The left and right arrow keys change which digit is highlighted.

  The up and down keys change the value of the highlighted digit.

- Tapping the digits



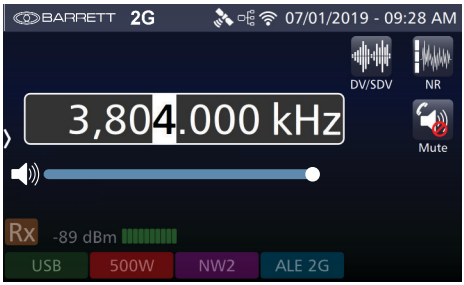
Note: The Free Scroll menu can be locked in the PRC-4090 Programming Software and, if locked, will not appear when the frequency is pressed.

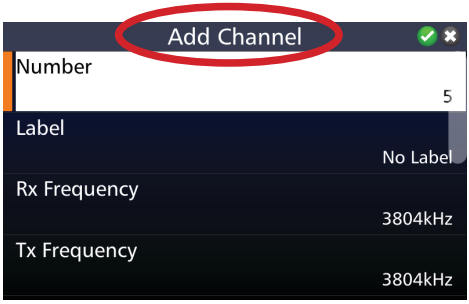
Adding a Channel from the Free Scroll screen

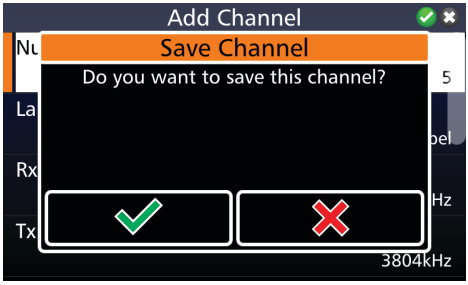
A channel can be added directly form the Free Scroll screen. When a desirable frequency is found, pressing enter on the front panel will allow the frequency to be added at the next available channel number.

All of the fields can be set, as when programming a channel from the channel menu (see page 66).

Press  to save the channel.







Free Scroll Scanning

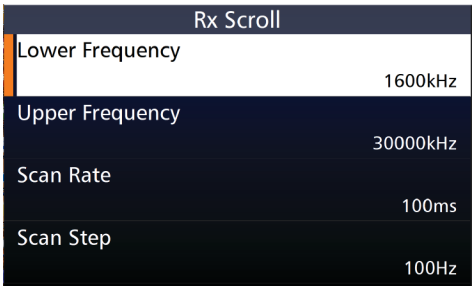
By holding the Scan icon, the scan settings for Free Scroll can be set.

Scan Rate indicates the time spent on each frequency.

Scan Step Indicates the interval between frequencies scanned.

Tapping the scan icon will initiate scanning.

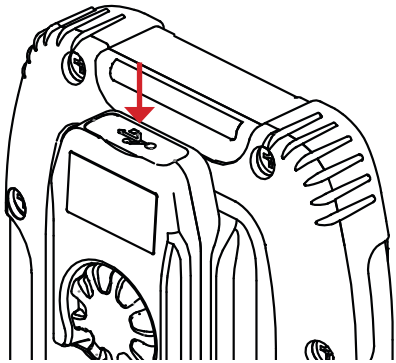
Scan



Programming Via USB

The transceiver configuration can be imported or exported as a "pack". This contains the channel configurations, ALE 2G/3G settings, scan tables, contacts and settings amongst other information.

Note: a valid USB storage device must be inserted to activate.



Exporting Settings to a USB

To export the device's configuration settings, insert a USB storage device into either a PRC-4090 Handset USB Interface (4090-01-27) or the Handset Docking Station (4090-05-03).

1. Tap **Settings**, then **Export**.

2. From the Export screen, tap **Export Configuration** to display the Configuration File Name screen.

   The default name displays. Use the keyboard to type an alternative name of the configuration file to export to the USB storage device.

   Tap  to save.

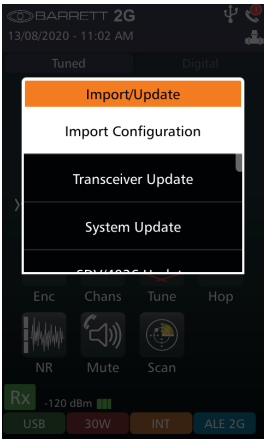
3. Enter an optional password to encrypt the exported pack.
4. The Export Configuration screen displays showing a progress bar confirming the progress of the export.

   When prompted, tap **OK** and remove the USB storage device.

Importing Settings from a USB

1. With a USB storage device inserted into the USB port, tap **Settings**, then **Import**.

   If the correct files are on the USB, the transceiver will recognise them and initiate the Import/Update screen.



2. To update the configuration settings (pack), tap **Import Configuration** from the Choose Action screen described above.

   The Choose a File screen displays.

   Select the required file to import.

   If a password was set up for the pack, this will be required for the import to complete.

   Confirm that the call history will be replaced when the new pack is loaded.

3. The import process will then begin automatically showing a progress bar. Remove the USB storage device when prompted.

4. The importing of a pack via USB is complete.

   Note: For transceivers that are installed with the ALE 2G Option only and no other Digital Voice Options, a shutdown and restart of the transceiver will be required once a pack has been installed.

ADVANCED OPERATION 6

This chapter contains the following sections in alphabetical order:

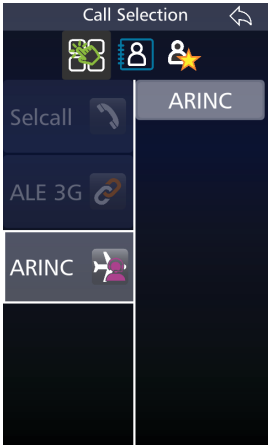
- ARINC Call
- Audio - Advanced
- Collective Call
- Digital Voice
- Frequency Hopping
- I/O Settings
- Modes
- Mute (Squelch)
- Network
- Noise Reduction (NR)
- RF Settings
- Scanning
- Screen Capture and Re-sync
- Security Settings
- Tuning
- Zeroise

ARINC Call

An ARINC call functions in much the same way as a Selcall. It is a hailing or alert system used exclusively to alert aircraft.

An ARINC ID is a sequence of two sets of 2 letters. Each pair must be entered alphabetically eg. AB-CD or CD-AB.

The interface does not allow invalid ARINC IDs to be entered and blanks out invalid characters.



Audio - Advanced

From the **Settings** menu, select **Audio**.

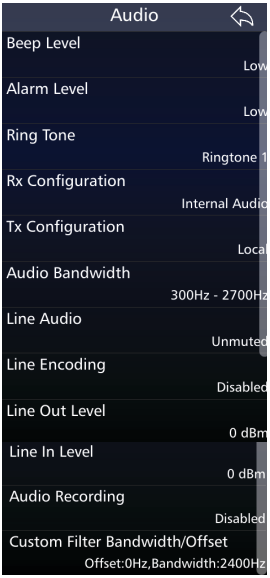
For information on Beep Level, Alarm Audio Level and Ring tones, see Basic Settings page 59.

Rx Configuration

This option sets whether the transceiver receives audio via the antenna or from the Line.

Selecting “Internal Audio” ensures the transceiver receives audio through the antenna.

For “External Audio”, the transceiver receives through the auxiliary socket’s 600 ohm balanced audio port. This can be used in many situations eg for a remote receiver in split site operations and audio is received from the remote site.



Tx Configuration

This option sets whether the PRC-4090 transmits to the antenna or down the line.

When set as “local” the transceiver transmits through the antenna.

When set as “remote”, the transmit audio is sent through the auxiliary socket’s 600 ohm balanced audio port.

Audio Bandwidth

This section allows the audio bandwidth to be tailored to an operator’s requirements.

Select either:

300 Hz - 2700 Hz: used for reduced bandwidth voice operation
300 Hz - 3000 Hz: standard voice and data operation
300 Hz - 3200 Hz: recommended for use with clover waveforms
300 Hz - 3400 Hz: recommended for use with digital voice and Stanag wave forms

Line Audio

This option sets the muting condition of the 600 ohm balanced audio line output on the rear auxiliary connector.

The line output can be set to Unmuted or Follows Mute. When set to Follows Mute, the line output is muted in the same manner as the speaker output and follows the mute condition currently in use. The line output is usually set to Unmuted when using data modems. Follows Mute should be selected when the transceiver is being used with 2062 crossgate.

Line Follows Digital Voice

When this is selected, the Line audio will also be processed through the Digital Voice hardware.

Line Out Level

This setting adjusts the output level of the auxiliary 600 ohm balanced audio output port.

Line In Level

This setting adjusts the input level sensitivity of the auxiliary 600 ohm balanced audio input.

Audio Record

This option is used to monitor conversations. It utilises the line audio to listen to the received and transmitted audio. Connect an appropriate device to record the conversation using a cable (up 1.2 m in length) with connection specification below.

21 Pin Auxiliary Connector	Description	3.5mm Jack Connector Pin
7	Summed Record Audio	Tip & Ring
8	Ground	Sleeve

Custom Filter Bandwidth

This section allows the audio bandwidth to be tailored to an operator's requirements when using a custom filter.

Collective Call

Collective calls comprise of all-calls, group calls and sub-group calls which involve calling a number of Selcall IDs simultaneously. This is not an individual button in the Selcall menu as a transceiver can group call as a number of call types. For information on other call types please refer to Chapter 3 - Selcall, page 29.

All call, Group call and Sub-group call must be enabled in the Barrett PRC-4090 HF SDR Programming Software (P/N 4090-01-30).

Sending a Group Call

It is recommended that transceivers should be programmed with a selcall ID ending in "0" as this is used for making group calls. When prompted to enter a Selcall ID for a chosen call type, the first digits represent the groups of IDs you wish to contact.

Four Digit format

All call

eg. Entering 2000 will contact every transceiver on the channel with an ID that begins with "2"

Group call

eg. Entering 2300 will contact every ID on the channel that begins with "23".

Sub-group Call

eg. Entering in 2310 will contact every ID that begins with "231"

Six Digit format

Same as above. No more than the last 3 digits can hold the 0 value.

eg. Entering 123000 will contact every transceiver beginning with "123"

Digital Voice (Encoding)


Encoding off


Encoding on

Encoding can improve the reliability of communications over noisy channels where reception of analogue voice can be very poor. Poor voice quality can be improved markedly by the use of digital voice modules to the point where barely usable frequencies are made clear. Secure Digital Voice allows users to encrypt their communications over HF therefore providing a secure HF network.

Both Digital Voice and Secure Digital Voice capability can be utilised in Barrett 4000 and 2000 series HF Transceivers using Barrett digital voice modules which are designated as:

DV	Digital Voice module with no encryption
SDV-56	Secure Digital Voice module with DES 56 encryption (No export licence required)
SDV-256	Secure Digital Voice module with AES 256 encryption (Export licence required)

Signal-to-noise ratio conditions can change during communications between HF stations. The digital voice modules have auto baud capabilities which automatically adjust baud rates up or down whilst communicating between the transceivers allowing the users to transmit and receive signals with optimal voice clarity.

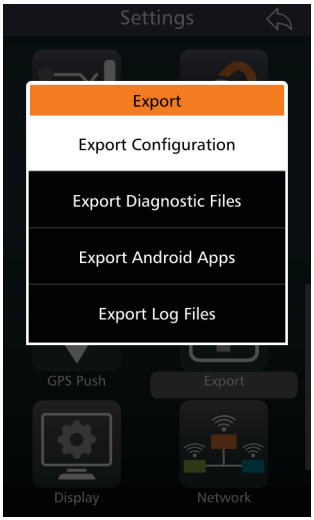
For more information on Digital Voice, please consult the Barrett HF Radio Digital Voice and Secure Digital Voice Operating Manual (P/N BCM40504).

Export

The export function of the PRC-4090 is predominantly used for diagnostic purposes and diagnostic and log files can be exported and sent to Barrett Communications.

The Android version of the Barrett 4000 Series Remote Control App can be downloaded directly from the transceiver head. For further information please consult the Barrett 4000 Series IP Connectivity Guide (P/N BCM40507).

Settings Export



Frequency Hopping

This option requires an Export Permit.

Frequency hopping can be used to limit performance degradation due to interference and to reduce the likelihood of interception. Frequency Hopping Spread Spectrum (FHSS) is a method of transmitting radio signals by rapidly switching a carrier among many frequency channels.

The transceiver employs a unique frequency hopping system that uses an external GPS.

Note: An external GPS must be connected and providing valid data for the frequency hopping system to operate.

Selecting the Hopping Band

Select a channel as per normal. This channel and mode is used by the transceiver to determine the hop band.

Entering the Hopping PIN

This code is entered under Settings < Security (see page 101). All of the transceivers that will be communicating on the same hopping band will need to have the same Hopping code.

Enabling and Disabling Hopping

1. Attach a GPS receiver to the transceiver using the hotshoe to GPS adapter cable.
2. Select a channel with a transmit frequency (i.e. not disabled).
3. Enter the Hopping Pin
4. Press the Hopping icon on the transceiver home screen to activate Hopping.

   Hopping voice communication can now be used.

Hop

Pressing the Hopping key for a second time (or pressing the back button) disables Hopping mode.

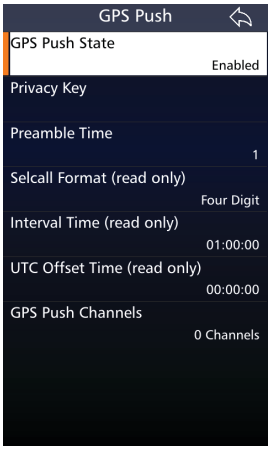
GPS Push

GPS Push is an additional option used in conjunction with the Barrett 4077 HF Map & Track Software and provides automated transmission of GPS location at set intervals. These intervals can be programmed using the Barrett 4000 Series Programming Software (P/N 4090-01-30).

For further information, please contact Barrett Communications.

GPS Push State

GPS Push state enables or disables the automatic transmission of the GPS location.



Privacy Key

This allows the input of the GPS privacy key. This privacy key allows the transmission to be DES56 encrypted, so long as the receiving station has the same privacy key in order to decrypt the transmission (DES56 encryption does not require export approval).

Preamble Time

Length of preamble transmitted at the start of the GPS Push call.

Note: Read Only items are set in the Barrett 4000 Series HF Programming Software. See the appropriate manual for more information.

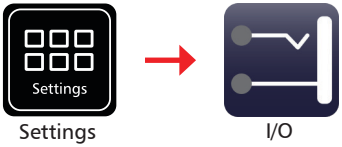
IO Settings

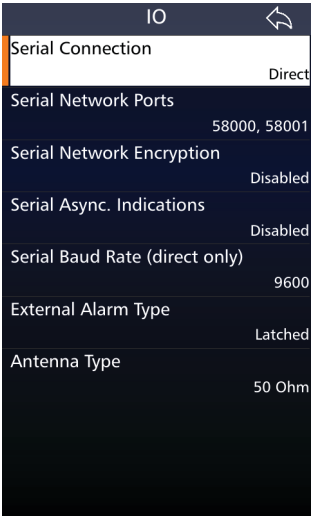
Tap **IO** from the **Settings** screen to display the IO screen.

A list of items that may be configured is displayed.

The current status of each of the items is displayed to the right.

To reveal more items, either swipe down on the touch screen or press .





Serial Connection

This selects whether the serial connection is made via a direct connection to the top hotshoe auxiliary connector on the PRC-4090 or via a network (WiFi or Ethernet - please see 4000 Series IP Connectivity/Networking Guide [P/N BCM40507]).

Serial Network Encryption

Enabling Serial Network Encryption secures information transfers over Serial networked connections. Disabling this feature removes any encryption from the Serial network.

Serial Out (async. Indications)

This setting enables or disables Serial status information output from the transceiver via the top hotshoe auxiliary connector.

Note: This command does not enable/disable Serial control of the transceiver when the Serial option is fitted. It is used to control the output of status information via Serial used by some external programs such as vehicle tracking.

Serial Baud Rate

This menu option allows the selection of the Serial Baud rate.

The Baud rate setting is dependent on the external device/application connected to the transceiver.

Tap **Serial Baud Rate** from the IO screen to display the Serial Baud Rate screen.

Select either: 9600 or 115200.

External Alarm Type

(Not applicable to the PRC-4090) This sets the action of the external alarm output when a Selcall is received by the transceiver. It can be set to either a pulse output (for use with a horn) where the output is activated 15 seconds on, 15 seconds off; or a constant output (for use with a rotating beacon). Both are reset by pressing BACK or the PTT button.

Select either: Latched or Pulsed.

Antenna Select Behavior

This master setting can override the pre-programmed channel antenna selection. This setting is designed to be used in conjunction with the PRC-4090 System Docking Station. This is not used for Manpack configurations.

Select:

Per Channel (default): Antenna selection operates as per channel programming.

Antenna 1: All channels, regardless of programming, will transmit/receive using Antenna 1.

Antenna 2: All channels, regardless of programming, will transmit/receive via Antenna 2.

Antenna 1

For Antenna 1 see page 24.

Antenna 2

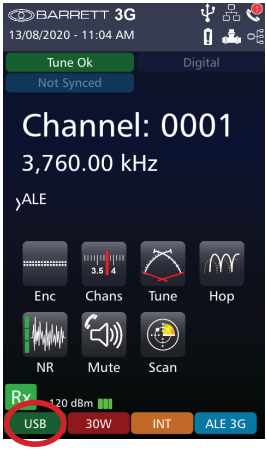
Note: 4075 Linear and 4075 Linear with ATU are not available for Antenna 2 Type.

Select an antenna type from the following:

Antenna Type	Select when...
Base Station	Base station antennas such as the Barrett 912 series are used. No tuning signals are emitted on channel change.
910 Mobile Ant	Using a Barrett 910 automatic tuning mobile antenna
911 Auto Tuner	Using a Barrett 911 automatic tuner
2019 Mobile Ant	Using a Barrett 2019 automatic tuning mobile HF antenna
2018 Loop Ant	Using the 2018 Mobile magnetic loop HF antenna
4011/4015 Auto Tuner	Using a Barrett 4011or 4015 automatic tuner
4017 Auto Tuner	Using a Barrett 4017 automatic tuner
OEM Tuner	3040 tuner compatible (non-Barrett product)
411 Auto Tuner	Using a Barrett 411 Automatic Tuner
Disabled	Antenna 2 not used

Modes

The current mode of transmission is displayed in the lower left hand corner (green background). The example opposite shows the transceiver in USB mode.



Pressing and holding the mode will allow an operator to temporarily change the mode to USB, LSB, CF, CW or AM* mode for the current channel

Note: The mode icon will only temporarily set the mode for a selected channel, reverting to that channel's programmed default mode after the channel is changed, or the transceiver is turned off.

For further information on setting up modes for channels, see page 69.

*AM mode is not available in all countries

Mute

The mute function suppresses the channel noise heard by the operator. It is designed to open (allow noise) when the transceiver detects audio, a large enough signal or a call (depending on the mute type selected).

Mute

There are three types of mute available from the Home Screen.

Press and hold the active mute icon to select from one of the following three mute types:

- Voice Mute — When using analogue voice, Voice Mute allows audio only when speech is detected on the selected channel. When Digital Voice is active, Voice Mute additionally opens for digital signals.

  Note: The voice mute sensitivity can be set to three levels.

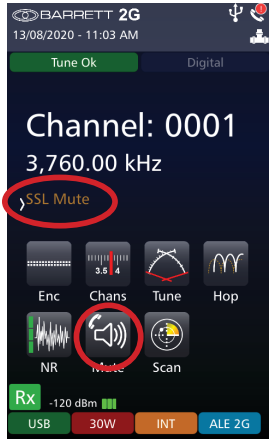
- SSL Mute — Allows audio only if signal strength exceeds the nominated threshold (analogue or digital signals).

  Note: The signal strength mute level can be set to three levels.

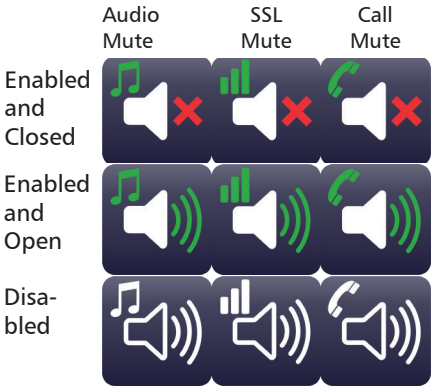
- Call Mute — Allows audio when a call is sent to the transceiver. When Digital Voice is also active, Call Mute allows audio only when digital voice traffic is detected.

The example opposite shows SSL Mute.

After two seconds, the Mute indicator is hidden and replaced by the channel label.



Each mute type has two primary mute states: Enabled or Disabled. However, the Enabled state can be either open or closed. Each of these states is further described below.



Enabled and Closed: No transmission audio is currently being detected by the transceiver. No sound is heard.

Enabled and Open: Transmission audio has been detected by the transceiver. This state is temporary and will automatically revert to mute Enabled and Closed state once audio is no longer detected.

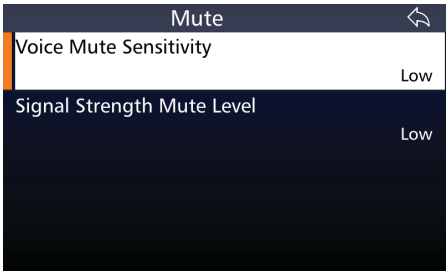
Disabled: Audio is not censored and all noise can be heard.

Tapping the mute icon will toggle the mute state between Enabled and Disabled.

Tapping **Mute** from the **Settings** Menu displays the Mute settings screen.

Voice Mute Sensitivity refers to the "hardness" of the voice mute and its sensitivity to voice activity on a channel.

Signal Strength Level refers to the level at which the mute (squelch) opens. When set to low, the mute will open on a relatively low level of received signal. For high, the mute will open for a relatively high level of received signal.



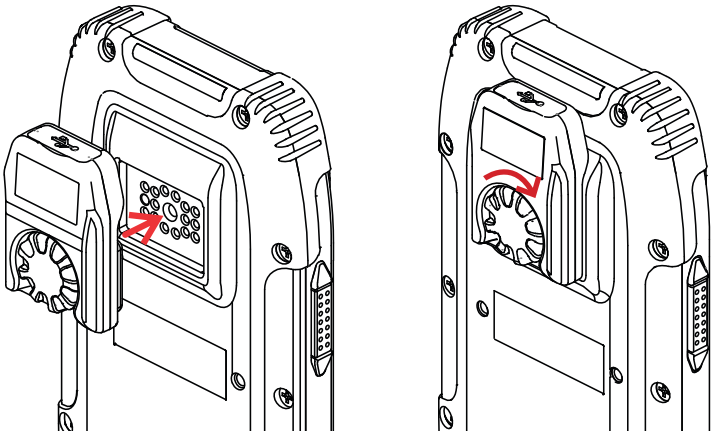
Network

This menu can be accessed from the **Settings** menu.

The PRC-4090 HF SDR Transceiver has the ability to interface with IP networks, allowing mobile cellular handsets, tablets and desktop PCs to connect directly to the transceiver via Ethernet or WiFi with the use of specialised adapters. For more information, see the Barrett IP Connectivity and Networking Guide (P/N BCM405007).

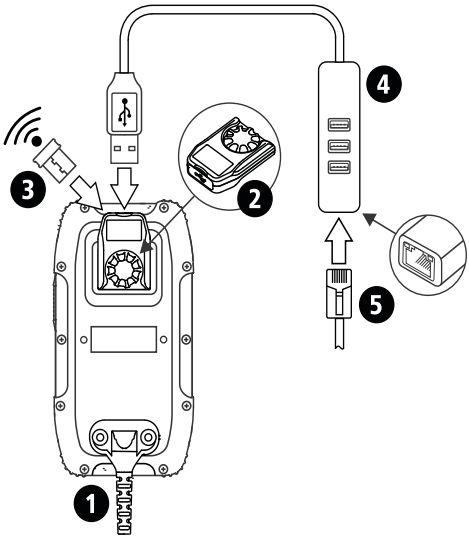
When using a 4050/4090 Control Handset without a docking station, a PRC-4090 Handset USB Interface (4090-01-27) must be attached to the rear of the handset.

The PRC-4090 Handset USB Interface is attached as shown in the diagrams below. Once in place, turn the wheel until unit is secure.



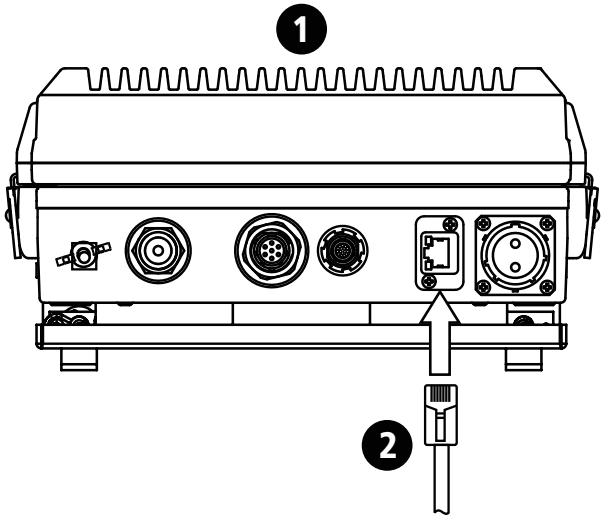
IMPORTANT: Ensure that the USB Interface Unit is attached BEFORE the USB device is inserted.

The diagram below shows the possible connections between the above PRC-4090 Control Handset and an IP network.



1	PRC-4090 Control Handset (P/N 4090-01-09)
2	PRC-4090 Handset USB Interface (4090-01-27)
3	WiFi Adaptor (P/N BCO40508)
4	USB to Ethernet Adaptor with USB ports (P/N BCA40505)
5	Ethernet (RJ45) cable

The diagram below shows the network connection from a Barrett PRC-4090 HF SDR Transceiver in Mobile configuration (P/N 4091-00-10).



1	Barrett PRC-4090 HF SDR Transceiver in Mobile configuration (P/N 4091-00-10)
2	Ethernet (RJ45) cable

Noise Reduction (NR)

Selecting **NR** from the handset allows the Digital Signal Processor (DSP) noise reduction depth to be adjusted to suit the operator's requirements.

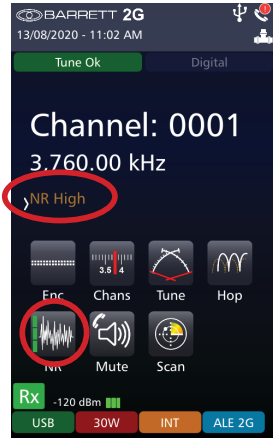
NR

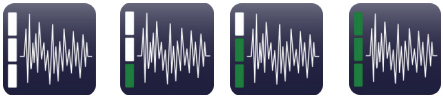
Tap **NR** from the Home screen to cycle through the options: Off, Low, Medium, or High.

The example shows an NR set to High.

After two seconds, the NR indicator is hidden and is replaced by the channel label.

When the noise reduction system is active (low, medium or high) the NR icon displays an indication of the setting.





NR Off | NR Low | NR Medium | NR High

RF Settings

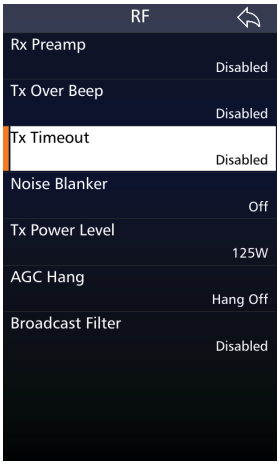
Tap **RF** from the **Settings** menu to access the RF menu.

A list of items that may be configured displays.

A brief description of each of the items is described beneath the items.

The current status of each of the items is displayed to the right.

To reveal more items, either swipe down on the touch screen or press .



Rx Preamp

Enables or disables the RF pre-amplifier. The pre-amplifier provides an additional receiver gain of 5 dB. Generally, the RF pre-amplifier is switched off when an automatic mobile antenna is in use as these antennas have a built-in RF pre-amplifier.

Tx Over Beep

When this option is selected, the transceiver transmits a short tone after the PTT button is released. The tone provides an audible indication to the Operator at the remote station that the local station has stopped transmitting.

Tx Timeout

When this feature is enabled, the transceiver will stop transmitting if the PTT button is held on for more than the allowed time limit eg. if the handset is accidentally wedged under a seat. Releasing and pressing the PTT button will re-enable transmission.

Set the maximum transmit time to either one, two, or three minutes. Alternatively, this transmit timeout can be disabled.

Noise Blanker

This setting allows the predictive noise blanker to be switched on or off. The noise blanker is useful to reduce repetitive vehicle related electrical interference eg. noise from a windscreen wiper motor.

Note: The noise blanker will not be effective in situations where for example, external power line noise is blanketing the receiver.

Select either: Off or On.

Note: In certain situations noise blankers can cause intermodulation in receivers. In these cases the noise blanker should be disabled.

Tx Power Level

This section sets the global RF power output for all channels in the transceiver.

Select either: 10 W, 30 W, 125 W, or 150 W in SDS mode.

Select either: 10 W, 30 W in Manpack mode.

AGC Hang

Automatic Gain Control (AGC) Hang delays the AGC system's gain response after a signal level decreases to zero. This prevents receiver noise for the hang period.

Select either: Hang Off or Hang AGC.

Broadcast Filter

With the Broadcast Filter enabled, strong broadcast signals below 1.6 MHz will be filtered out.

Select either: Disabled or Enabled.

Scanning

Scanning allows the transceiver to monitor several channels for incoming calls. For example, a station calling a station that is in scanning mode can send a Beacon Call on any channel knowing the station it is calling is monitoring all its available channels. A response from the scanning station will only occur on channels that are open for communication. It is particularly useful as the nature of HF signal propagation means that not all channels are available for communications at one time.

Stations in scan can also monitor channels for voice activity or signals received that have signal strengths over a preset level.

The transceiver will come out of scanning mode for the following reasons:

- A Selcall is received.
- Signal Strength Level (SSL) mute is selected and a signal with a level greater than the pre-set threshold is received.
- Audio (syllabic) mute is selected and a voice signal is detected.

The **Scan icon** on the Home screen, once pressed, initiates scanning according to the currently selected scan table, see Scan Settings page 97. If no scan tables are available a “No Scan Channels” error will be shown.

Scan

Whilst scanning, several options on the screen are hidden (Channels, Hop and Tune) and the Scan icon is animated.

To stop scanning, press BACK or the scan icon.

Pressing the Scan icon for longer than 1 second will bring up 1 of 3 possible screens:

- The Scan Settings menu (see page 97) when ALE 2G or 3G are not enabled.
- A list of the available ALE 2G Preset Maps when ALE 2G is enabled (See Barrett ALE 2G and 3G User Guide (P/N BCM40524)).
- A list of the ALE 3G Pool entries (See Barrett ALE 2G and 3G User Guide (P/N BCM40524)).

Scan Settings

To display the Scan Settings, select **Scan** from the **Settings** Menu.

Tap **Scan** from the Settings screen to display the Scan screen.

A list of items that may be configured is displayed. To reveal more items, either swipe up on the touch screen or press .

Scan Rate

This defines the rate of which the scanning should be performed.

Select the scan rate applicable to non-Selcall scan channels, either: 300, 500, 700, 1000, 1500, 2000, or 5000 ms.

Dwell Time

Select the length of time the transceiver dwells (waits) on a channel after scan has been stopped by signal strength level (if signal strength level mute is set) or voice activity (if audio mute is set).

Select between 1 and 10 seconds.

Resume Time

Set the time period after which the transceiver will automatically resume scanning from the last operation eg. after a key press or PTT.

Select either: Off, 1, 2, 3, 5, 10, 15, 20, or 30 minutes.

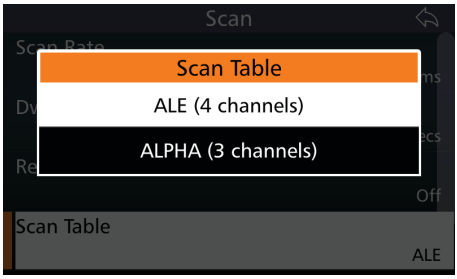
Scan Table

Select the Scan Table to be used when the transceiver is put into scan mode, or if enabled, when scan resume occurs.

There can be up to eight Scan Tables with 30 channels in each.

Note: When scrolling through the Scan Tables to make a selection, only Scan Tables with channels entered will display. If none of the Scan tables have any channel entries, the message "All Scan Tables Empty" displays.

Tap **Table Selection** from the Scan screen to display the Table Selection screen.



To reveal more items, either swipe up on the touch screen or press .

Each entry shows the name of the table and the respective number of channels.

Scan Tables

Note: All channels are displayed in numerical order within the scan table with respect to the entry number. There are a maximum of 30 entries in each table.

Tap **Edit Scan Tables** from the Scan screen to display the Selcall Scan Tables screen.

The example shows two scan tables which may be edited. Each table reveals the name of the table, the antenna, the number of channels in the table and the channel numbers.

Add a Scan Table

To add a Scan Table, tap  from Scan Settings < Edit Scan Tables.

Scan Table Name

This is the name of the scan table. Without setting this, the name will default to “TABLE”.

Scan Table Channels

Tap the checkboxes adjacent to the channels you wish to choose and then tap  .

After configuring the above items, tap  to add the table.

A confirmation message displays.

Tap **Yes**.

Delete a Scan Table

Select the table to be deleted, then tap and hold for three seconds.

A confirmation message displays.

Tap **Yes**.

Secure Display Mode

This mode stops the channel frequency being shown on the front panel. Channel frequencies are uneditable, as are labels. The pack and diagnostic information becomes irretrievable and cannot be exported.

This mode can only be enabled using the Barrett Communications 4000 Series Programming Software (P/N 4090-01-30).

Security Settings

This section is used to configure the security settings for the transceiver.

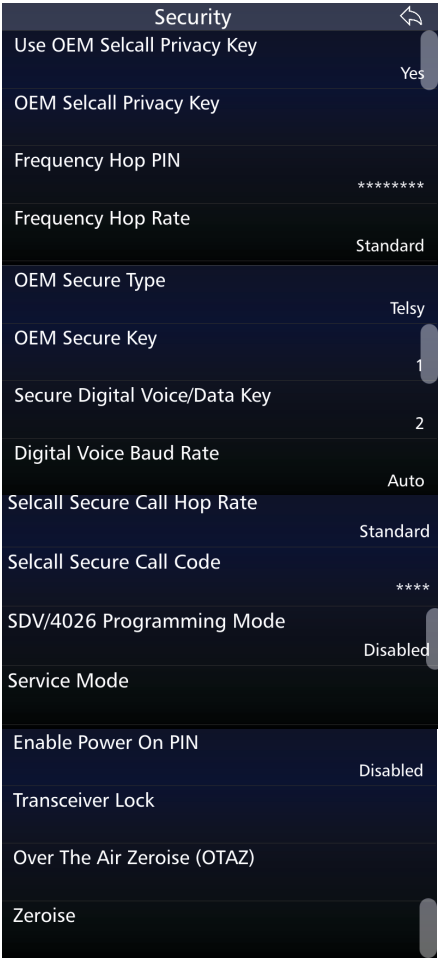
Tap **Security** from the **Settings** menu to access the Security menu.

A list of items that may be configured is displayed.

The current status of each of the items is displayed to the right.

This menu is dependant on the Options installed in a transceiver.

Settings Security



Use OEM Selcall Privacy Key

This setting indicates whether the OEM Selcall Privacy Key is active.

OEM Selcall Privacy Key

Turning this on allows data type Selcalls (Pagecall, GPS, Status, Telcall) on OEM channels to be encrypted with DES-56 encryption.

See page 31 for more information on OEM Selcall.

Frequency Hop PIN

The Hopping PIN (if the Frequency Hopping Option is enabled on the transceiver) is 8 digits long and is usually provided by a network administrator. The Hopping PIN determines the Hop bandwidth. For instance:

Hopping PINs 00000000 to 19999999 are used for hopping ± 2 kHz

Hopping PINs 20000000 to 49999999 are used for hopping ± 16 kHz

Hopping PINs 50000000 to 99999999 are used for hopping ± 128 kHz

Hopping up to ± 2 kHz is useful for narrow band antennas in situations such as antenna tuners in manpack operation.

Hopping up to ± 128 kHz can be used with wideband antennas such as base station broadband antennas.

Please note that all transceivers that wish to communicate via Hopping need to have the same Hopping PIN and frequency hop rate configured.

Note that once entered, the PIN can never be retrieved or viewed for security reasons.

Frequency Hop Rate

The Frequency Hop Rate changes the number of hops per second used by the encrypting algorithm.

Select either Standard (5 hops per second), Medium (15 hops per second) or High (25 hops per second).

OEM Secure Type

This displays whether a scrambler has been installed and the name of the scrambler.

OEM Secure Key

If keys are installed, keys can be selected from this menu.

Secure Digital Voice/Data Key

The Secure Digital Voice and Data Key is used for secure digital voice and 3G Data calls. Keys need to be entered into the transceiver's SDV module using the Barrett Communications Key Management Software.

Select between 1 and 255.

All transceivers in the network must have the same key number in order to communicate.

For more information, consult the Digital Voice manual (P/N BCM40504).

Digital Voice Baud Rate

The Digital Voice Baud Rate setting fixes the baud rate at 600/700bps, 1200bps, 2400bps or Auto. Setting this rate to Auto will allow the transceiver to automatically adjust the baud rate.

Selcall Secure Call Hop Rate

The Selcall Secure Call Hop Rate is the rate at which the secure call hopping moves between transmission frequencies. Unlike frequency hopping, it doesn't utilise GPS.

Select either Standard (4 hops per second) or High (15 hops per second).

Selcall Secure Call Code

Enter a four-digit number. Both the transmitting and receiving stations must have the same code.

SDV/4026 Programming Mode

If the transceiver is fitted with an SDV module, this option enables the SDV to be programmed.

Select either Disabled or Enabled.

When enabled, the functionality of the transceiver is disabled. After programming the SDV, reboot the transceiver.

For more information, consult the Digital Voice manual (P/N BCM40504).

Service Mode

A mode for use when servicing a transceiver. Only accessible by PIN.

Enable Power On PIN

Selecting this menu option allows a user to manually change whether the transceiver asks for a password upon start-up. This password is set using the Barrett 4000 Series Programming Software.

Transceiver Lock

The Transceiver Lock function locks a remote transceiver via Selcall and uses the remote transceiver's pre-set Transceiver Lock/OTAZ PIN. This function does not remove any settings and can be reversed by entering the Transceiver Lock/OTAZ PIN on the front panel of the transceiver.

Over the Air Zeroise (OTAZ)

OTAZ will clear the following information from a remote transceiver via a Selcall and the entry of the Transceiver Lock/OTAZ PIN for that station:

- all channel information
- all Options
- all ALE 2G and 3G information
- ALL security PINs apart from the Transceiver Lock/OTAZ PIN
- encryption keys

Zeroise

Zeroise will clear the following information from the local transceiver:

- all channel information
- all Options
- all ALE 2G and 3G information
- ALL security PINs apart from the Transceiver Lock/OTAZ PIN
- encryption keys

Remote Access Password

This allows a user to set a password used when accessing the transceiver remotely via serial or network connections e.g. when using the Barrett Remote Control App, the Desktop console or programming via PC.

Stealth Mode

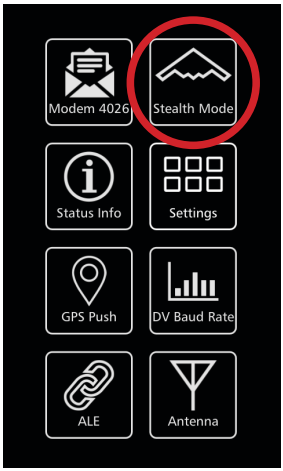
Stealth mode operates as a quiet or silent mode of operation. When active, all transceiver noises are muted, key lights are disabled and the backlight is set to the lowest setting.

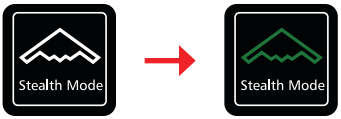
To enable stealth mode, tap the icon in the swipe menu.

When active, the icon will be green.

Pressing PTT while stealth mode is active will temporarily deactivate stealth mode, reinstating lights and audio.

Stealth mode will re-activate after 30 seconds of inactivity.





Off On