Using encryption

You may have access to encryption/scrambling if these options are enabled in your transceiver, and appropriate hardware fitted, if required.

Switching the secure feature on or off

The 2320 Handset has a hot key that accesses the secure feature directly. When you switch on secure mode, all encryptors/scramblers that are activated in your transceiver go secure. When AES-256 DV and data encryptors are used at the same time, they use the same secure key.

If you want secure to remain on at all times, you set this in **Settings** > **Security** > **Secure Start State**.

NOTE: For detailed information on setting up encryption and scrambling, please see the Reference Manual (Codan part number 15-04188-EN Issue 1).

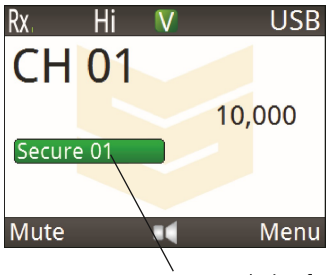
To switch the secure feature on or off:

- Press **8**|**SEC**.

  Secure is toggled on or off on both the active voice encryptor/scrambler and the active data encryptor, if available.

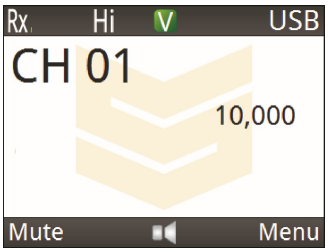
For CES-128 voice encryption you will see:

Secure (in Rx)

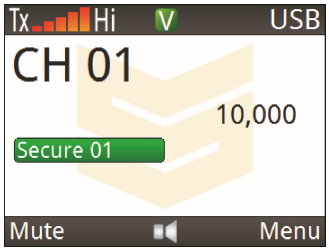


secure index for
CES-128 secure key

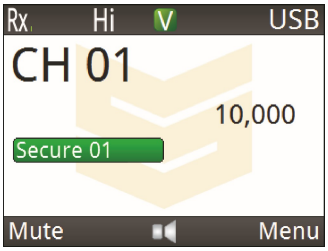
Clear (in Rx)



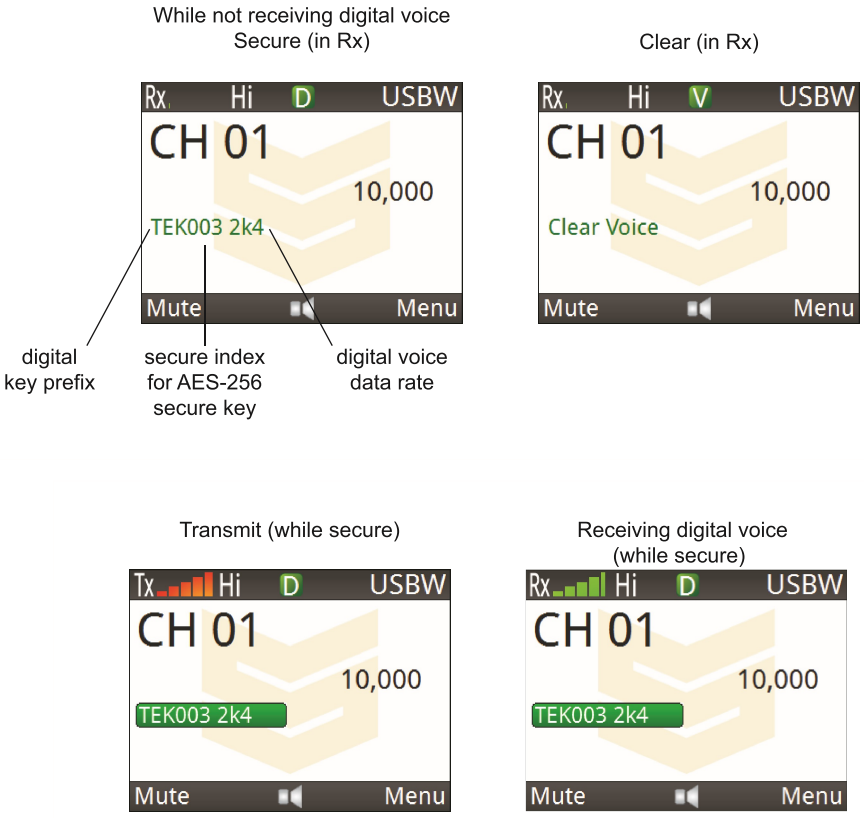
Transmit (while secure)



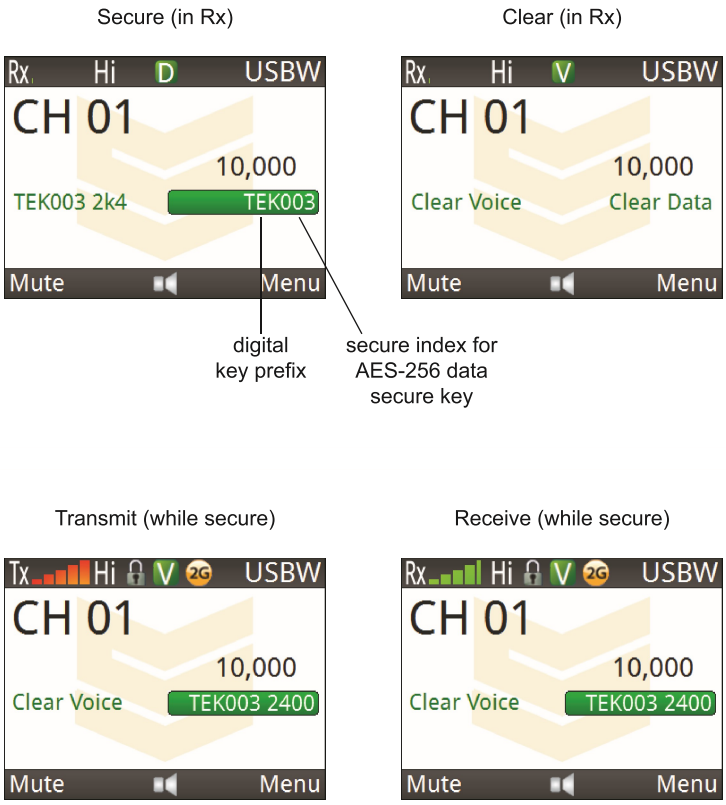
Receive (while secure)



For AES-256 digital voice you will see:

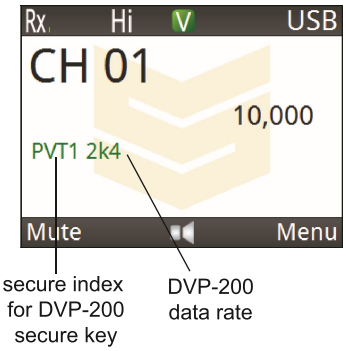


For AES-256 data encryption you will see:



For DVP-200 you will see:

Secure (in Rx)



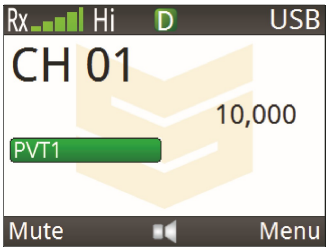
Clear (in Rx)



Transmit (while secure)



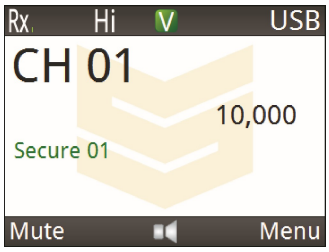
Receive (while secure)



NOTE: If you have more than one encryptor/scrambler available for activation, you can change to another encryptor/scrambler, if permitted.

- If you are using CES-128 voice encryption with a 2320 Handset, press ✱ to go to secure standby mode, if enabled and required.

Standby



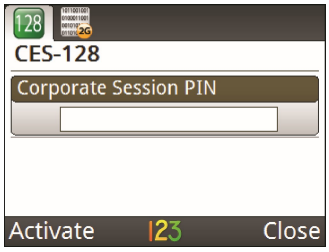
Entering a PIN for a secure session

If you have CES-128 voice encryption, you can enter a PIN for a secure session to provide additional privacy, if permitted. Stations must use the same PIN in the session for successful secure communications. The PIN may be entered as you go secure, or while in a secure session. The PIN is valid for the current secure session only.

CAUTION: You must re-enter a PIN each time you go secure if you want to use this additional privacy.

To enter a PIN for a secure session:

- Do *one* of the following:
  - From the main menu, select (**General**), then (**Secure**).
  - *Hold* **8**|SEC.



- Enter up to 4 digits.
- Press (**Activate**).

  The transceiver goes secure on the selected key.

Selecting a secure key

If an encryptor contains two or more keys, you have the option of selecting a different key for encryption, if permitted. When AES-256 DV and data encryptors are used together, the selected key is common to both.

NOTE: Secure keys can also be selected from the Codan Convoy Web Portal.

NOTE: With DVP-200, all 8 private keys will always be available for selection, and the public key will also be available if a successful public key exchange has been performed. However, these private keys may not be valid. In this case, the text in the status area will indicate the selected key, but it will flash in a similar manner as the DVP-200 front panel.

To select a secure key:

- Do *one* of the following:
  - From the main menu, select (**General**), then (**Secure**).
  - *Hold* **8**|**SEC**.
- Press or to scroll to the **Select Key Index** entry.



- Press ◀ or ▶ to select the secure key index that you want to use.

  Hold the key to scroll rapidly through the secure key indexes.

- Press ▬ (**Activate**).

  The transceiver goes secure on the selected key.

Adding a secure key

NOTE: Codan's Key Management Software may be used to generate secure keys and to fill the CES and AES DV and data encryptors. Codan Key Fill Software may be used to fill keys to these encryptors.

NOTE: VCOM is used to provide Codan virtual COM ports for programming secure keys via KMS/KFS over the USB connector on the control point.

NOTE: Only one application connected via VCOM may be serviced by the RFU at a time. Refer to *Using VCOM services* on page 117 for further details on this limitation.

NOTE: Secure keys can also be programmed from the Codan Convoy Web Portal or via a USB stick. Refer to *Upgrading the transceiver via a USB stick* on page 113 for more information about programming secure keys via a USB stick.

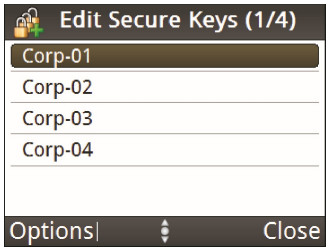
If you are permitted to add a secure key for a CES-128 or AES-256 encryptor via the user interface of the control point, the transceiver automatically selects the next empty secure index into which you can enter a secure key. You cannot select the secure key index.

NOTE: AES-256 DV and data encryptors use the same secure key.

NOTE: You cannot add keys for the DVP-200 via the control point, KMS/KFS, Codan Convoy or USB stick.

To add a secure key:

- Do *one* of the following:
  - From the main menu, select (**General**), then (**Secure**).
  - *Hold* **8**|**SEC**.
- Press ▲ or ▼ to scroll to the **Edit Keys** entry.
- Press ▶.



- Press (**Options**), scroll to **Add** , then press (**Select**).

  NOTE: If all secure key indexes contain a key, **Add** is not shown as an option.



- Enter the characters that you want to use for the secure key.
- Press (**Save**) to save the information.
- Press (**Close**).

Related links:

Using VCOM services on page 117

Using frequency hopping

You may have access to frequency hopping if the Opt Frequency Hopping (15-10629) sales option is enabled in the transceiver's firmware. Frequency hopping may be used in conjunction with CES-128 voice encryption, but may not be used in conjunction with Digital Voice or Data options.

Switching frequency hopping on or off

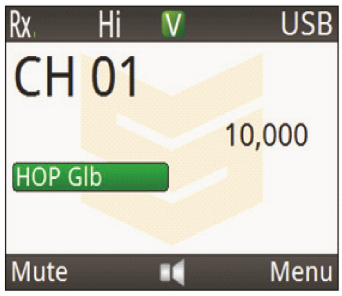
The 2320 Handset has a hot key that accesses the frequency hopping feature directly.

To switch frequency hopping on or off:

- Press **5**|**HOP**.

  Frequency hopping is toggled on or off.

Frequency hopping on



Frequency hopping off



NOTE: The transceiver may be scanning when frequency hopping is switched on.

NOTE: During frequency hopping, the voice mute in the transceiver may remain open.

NOTE: When frequency hopping is enabled, the transceiver must acquire new GPS synchronisation information after it is switched on. This may take longer than acquiring a new GPS position. During this time, scanning is prevented. Scanning starts as soon as the GPS receiver is synchronised.

- If the transceiver is waiting for correct GPS synchronisation to occur, the screen will display **No Sync** before it hopping starts:



NOTE: If you are not permitted to switch off frequency hopping at user level, the transceiver emits an error beep.

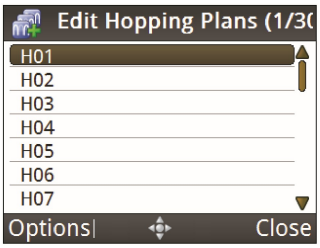
- Start a call as required.

Adding a custom hopping plan

NOTE: You must log in the proper access level to create/edit or select a custom hopping plan. Refer to the Reference Manual (Codan part number 15-04188-EN Issue 1) for further details.

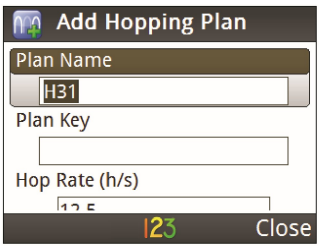
To create a custom hopping plan:

- Hold **5**|**HOP**, then press ▲ or ▼ to scroll to **Edit Plans** entry.
- Press ▶.



- Press (**Options**), scroll to **Add**, then Press (**Select**).

  NOTE: If the transceiver already has 31 custom hopping plans, **Add** is not shown as an option.



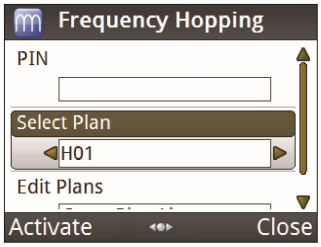
- Enter the name that you want to use for the hopping plan.
- Press ▼ to move to the **Plan Key** entry.
- Enter the key you want to use for the hopping plan.
- Press ▼ to move to the **Hop Rate** entry.
- Press ◀ or ▶ to select the bandwidth you want to use.
- Press (**Save**) to save the hopping plan.

Selecting a hopping plan

NOTE: You must log in the proper access level to create/edit or select a custom hopping plan. Refer to the Reference Manual (Codan part number 15-04188-EN Issue 1) for further details.

To select a custom hopping plan:

- Hold **5**|HOP, then press ▲ or ▼ to scroll to the **Edit Plans** entry.



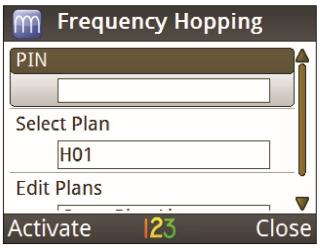
- Press ◀ or ▶ to select the hopping plan you want to use.
- Press ⌐ (**Activate**) to start frequency hopping on the selected hopping plan.

Using a PIN for a private communication session

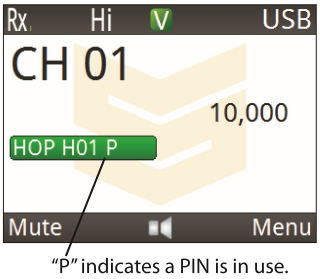
NOTE: You must log in the proper access level to use a PIN for frequency hopping. Refer to Sentry-H Reference Manual (Codan part number 15-04188-EN Issue 1) for further details.

To use frequency hopping with a PIN:

- Hold **5**|HOP, then press ▲ or ▼ to scroll to the **PIN** entry.



- Enter the PIN, up to 10-digits, that you have agreed to use with others for this session.
- Press ▬ (**Activate**) to start frequency hopping on the specified PIN.

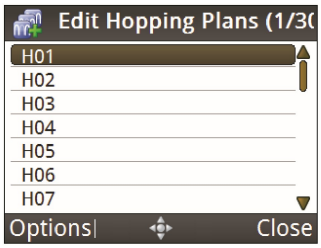


Editing an existing custom hopping plan

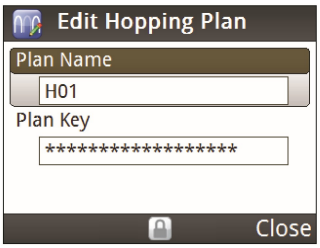
NOTE: You must log in the proper access level to create/edit or select a custom hopping plan. Refer to the Reference Manual (Codan part number 15-04188-EN Issue 1) for further details.

To edit a custom hopping plan:

- Hold **5**|HOP, then press ▲ or ▼ to scroll to the **Edit Plans** entry.
- Press ▶.



- Press ▲ or ▼ to scroll to the hopping plan that you want to update.
- Press (**Options**), scroll to **Edit**, then Press (**Select**).



- Press ▼ to move to the **Plan Key** entry.
- Press (**Save**) to save the hopping plan.

NOTE: The existing Plan Key value cannot be read. It can only be replaced.

Making and receiving calls

You can make all supported call types during frequency hopping using the ALE/CALM networks.

Frequency hopping is transparent to the normal operation of the transceiver.

Using a crosspatch

Overview of the 3031 Crosspatch

The 3031 Crosspatch is a device that connects an HF communication system with a VHF or UHF communication system.

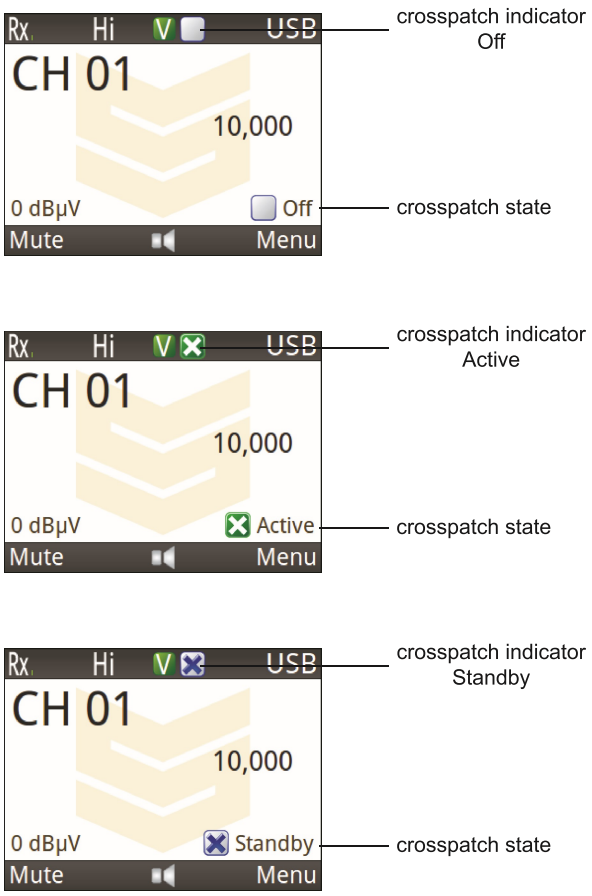
NOTE: The 3031 Crosspatch (Codan part number 08-06730-002) may only be used via the RFU GP port connector.

The operating mode of the crosspatch may be controlled directly by the transceiver, or by using DTMF commands on a DTMF-capable VHF/UHF transceiver.

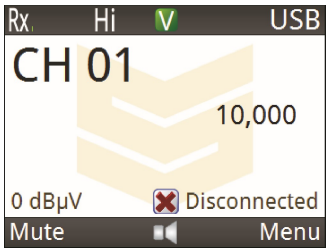
The crosspatch may be active, on standby, or switched off. The status of the crosspatch is shown in the status bar, and you can set the status to be shown in one of the status areas.

NOTE: For information on how to set up what is shown in the status areas, please see the Reference Manual (Codan part number 15-04188-EN Issue 1).

Figure 23: Crosspatch status



If the crosspatch is selected as the peripheral device for the GP port connector, but has been disconnected, the crosspatch indicator is no longer shown in the status bar of the channel screen.



Changing the operating mode of the crosspatch

To change the operating mode of the crosspatch:

- On the 2320 Handset, press **5**.

The crosspatch toggles between the following states:

- Off
- Active
- Standby

NOTE: If the status shows **Disconnected**, the crosspatch may not be connected.

Using Codan Convoy

Overview of Codan Convoy

Access to Codan Convoy is available if a cellular/satellite modem is connected to your RFU GP Port, and the selected RFU GP Port peripheral device is 'Cell/Sat Modem'.

NOTE: To use Codan Convoy, you need an active services contract with Codan.

Codan Convoy provides the following high-level capabilities over a cellular or satellite communications link:

- The ability to send/receive SMS messages to/from a mobile phone
- The ability to send/receive Web Messages to/from an internet based Web Portal

In addition, the transceiver can be managed from an internet based Web Portal, which includes the following capabilities:

- Secure key management (key programming and key selection)
- Positional awareness (GPS position poll/query and display on a map)
- Self test execution
- Sales option enabling/disabling
- Decommission/recommission requests
- Details queries (firmware versions and capabilities)

NOTE: For details regarding the special call types that Codan Convoy provides, please see the Reference Manual (Codan part number15-04188-EN Issue 1).

NOTE: For information on setting up a Codan Convoy session, please see the Reference Manual (Codan part number15-04188-EN).

Using an external power amplifier

Overview of the 3061 & 3062 power amplifiers

The 3061 and 3062 power amplifiers provide 500 W PEP and 1000 W PEP output power respectively, and are suitable for voice and data operation.

NOTE: Codan's power amplifiers are fully protected against all load conditions and excessive temperatures. They are capable of operating with a VSWR of up to 3:1 at a reduced output power. When excessive VSWR, or over temperature occurs, the amplifiers switch to by-pass mode in order to prevent permanent damage.

NOTE: In by-pass mode, the full output power of the attached Sentry-H transceiver is available as a backup to keep the station operational and on-air.

The external power amplifier is connected to the Sentry-H transceiver through the Antenna Control cable 08-07408-001. In order to transmit with the external power amplifier, you need to set the Tx power setting to **PA** by using the **6**|**TX PWR** key.

Inspecting the status of the power amplifier

The Sentry-H transceiver enables a user to easily inspect the operating status of a connected power amplifier. It retrieves the runtime status information from the power amplifier and presents it to the user after every transmission.

NOTE: This feature is only available if the control board of the power amplifier has a firmware version of 2 or higher. Refer to *Checking the power amplifier's control board firmware version* on page 112 for instructions about checking the power amplifier's control board firmware version.

There are two ways to view the status of the connected power amplifier. You can view it in the status areas, or in the HPA Status screen.

Displaying the power amplifier status in the status areas

To display the power amplifier status in the status areas:

- Set up one or more of the status areas to display the following status:
  - PA Temperature
  - Tx Power
  - Voltage
  - SWR

NOTE: For information on how to set up what is shown in the status areas, please see the Reference Manual (Codan part number 15-04188-EN Issue 1).

Viewing the power amplifier status in the HPA status screen

To view the power amplifier status in the HPA status screen:

- From the main menu, select (**General**), then (**HPA Status**).
- Press ▲ or ▼ to scroll through the power amplifier's status information.

Viewing the fault state of the power amplifier

When a fault condition occurs, the power amplifier will switch to by-pass mode to prevent permanent damage, and a pop-up message will be shown on the connected Sentry-H control point to indicate the fault condition.

NOTE: This feature is only available if the control board of the power amplifier has a firmware version of 2 or higher. Refer to *Checking the power amplifier's control board firmware version* on page 112 for instructions about checking the power amplifier's control board firmware version.

To view a power amplifier's fault conditions:

- From the main menu, select (**General**), then (**HPA Status**).
- Press (**Fault Info**).
- Press or to scroll through the current and historical fault conditions.

NOTE: The historical fault list will be cleared when the Sentry-H transceiver is switched off or restarted.

Clearing the fault state of the power amplifier

When a fault condition occurs, the power amplifier will switch to by-pass mode to prevent permanent damage. Clearing the fault condition will bring the power amplifiers back to active mode.

NOTE: This feature is only available if the control board of the power amplifier has a firmware version of 2 or higher. Refer to *Checking the power amplifier's control board firmware version* on page 112 for instructions about checking the power amplifier's control board firmware version.

To clear a power amplifier's fault conditions:

- From the main menu, select (**General**), then (**HPA Status**).

- Press (**Fault Info**).
- Press (**Clear**).

CAUTION: Clearing a fault condition may not fix the underlying hardware fault. If the fault condition returns, please contact Codan.

Checking the power amplifier's control board firmware version

You can check the firmware version of the control board of the power amplifier in two ways: from the power amplifier's serial number or from the HPA status screen.

The serial number can be found on the label stuck on the back of the power amplifier. If the build standard letter (the last alphabetical letter in the serial number) is B, it means the firmware version of this power amplifier's control board is 1. If the build standard letter is C, then the control board firmware version is 2.

To check the control board firmware version from the HPA status screen:

- From the main menu, select (**General**), then (**HPA Status**).

If the HPA is connected and operational and the HPA status screen prompts "HPA Controller not supported", it means the power amplifier's controller board firmware version is 1. Otherwise the control board firmware version will be displayed in this screen.

Upgrading the transceiver via a USB stick

Firmware packages for the transceiver or the RM50 module, frequency hopping plans, profiles from TPS System Programmer, and secure keys created by KMS may be loaded onto a USB stick, providing a portable method of upgrading transceivers in the field. You can also read a profile from a transceiver in the field. When the USB stick is connected to the control point, a selection menu is shown for various activities depending on the values set by your system administrator.

To manage profiles, firmware, and secure keys:

- Connect your USB stick to the control point using a standard USB A (female) to 2320 USB adaptor cable (Codan part number 08-07436-001).

  The USB stick is detected automatically. A **Select Task** icon () is now available in the main menu screen.

- Enter the correct admin PIN, if requested.
- Press ▲ or ▼ to scroll to the activity that you want to perform:
  - If you want to program a profile from the USB stick to the transceiver, select **Program Profile**.