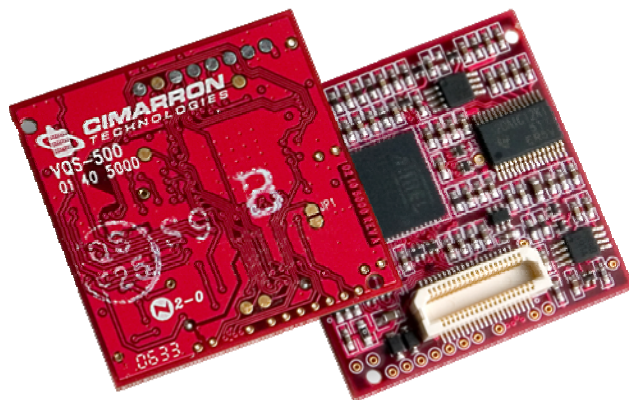# MODEL FVP-44

Rolling Code Encryption board for

VX-450 / VX-4500 / VX-4600

VERTEX/STANDARD RADIOS

Setup & Programming Manual

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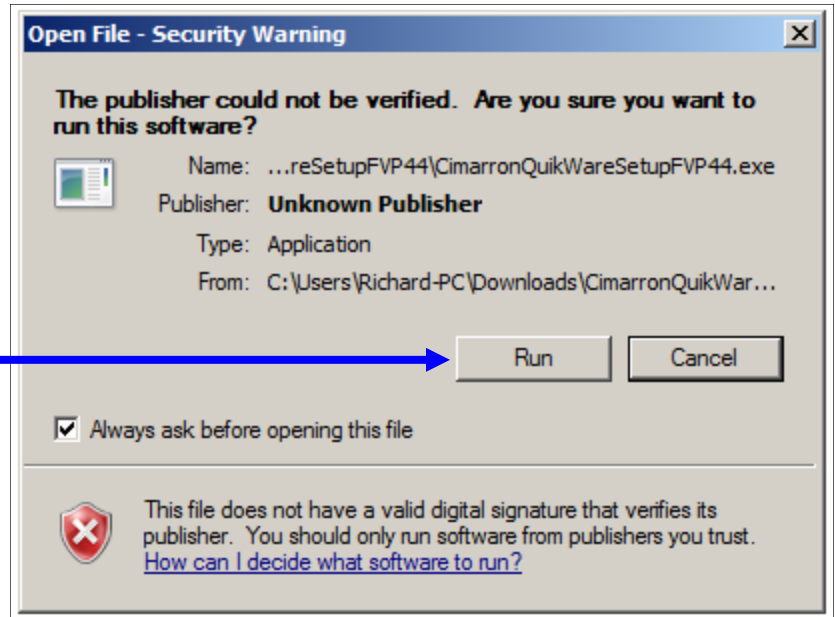www.cimtechcorp.com
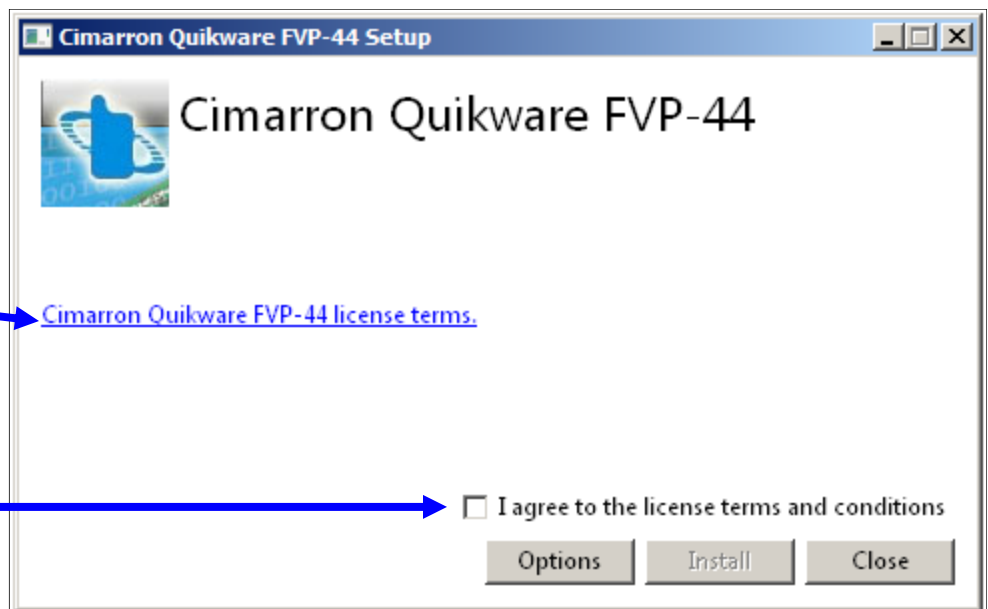
FVP-44 Programming Guide

Installation:

Running the installation program, CimarronQuikWareSetupFVP44.EXE, begins the program installation.

If you get this screen, click on Run.

Here you can click to view the general software license agreement

You will need to click and agree to the license before you can continue the installa-tion process.

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Installation:

The process will continue and quickly install is complete.

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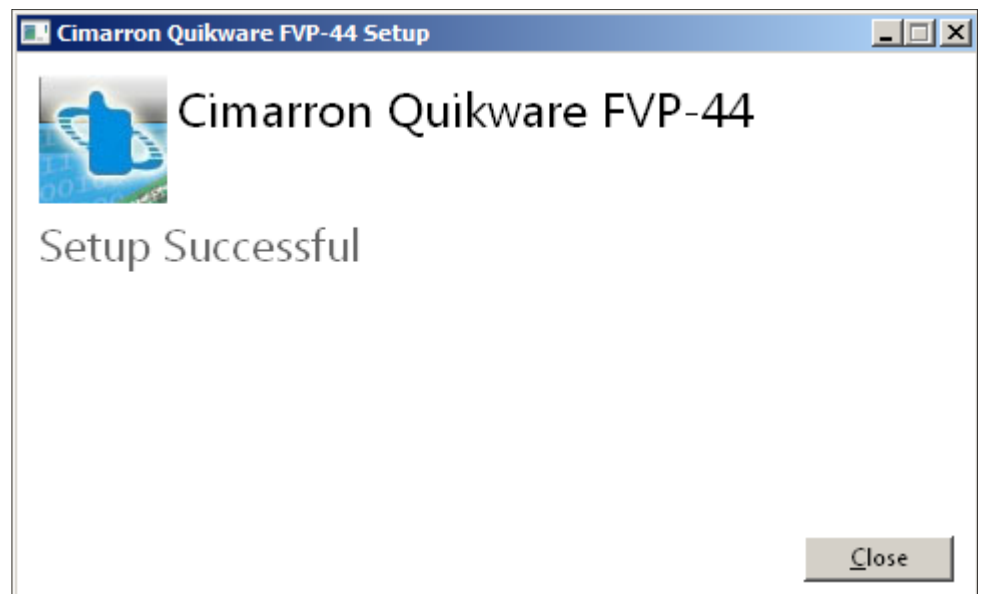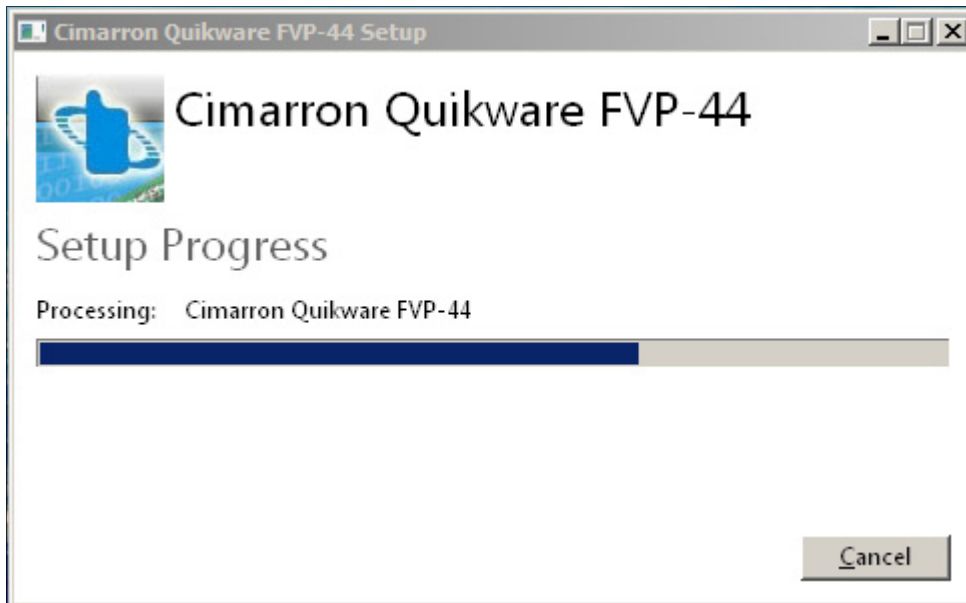
FVP-44 Programming Guide

Initial Setup:

From the Windows Start Menu, run the FVP-44 software
(Cimarron Quikware FVP-44)

This is the initial program screen. Before programming begins, please
setup the communications

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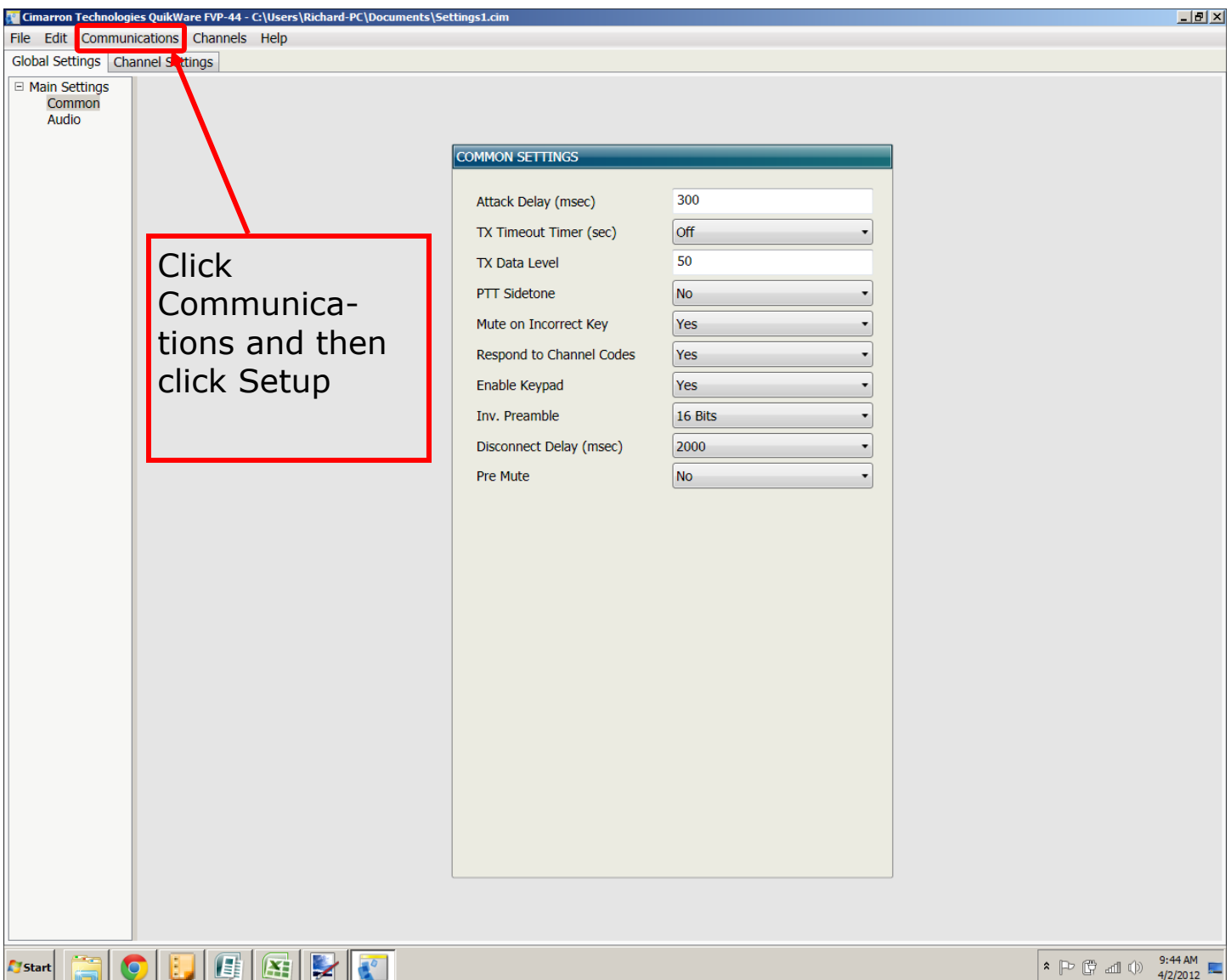800.487.7184 • ph. 760.738.3282 • fx. 760.480.0233
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Initial Setup:

Make sure to set your comm. Port to match where your programming cable is plugged into. Leave Baud Rate, Data Size, Parity & Stop Bits as default.

Set the handshake according to your programming cable:

Serial Port Settings

Current Device	FVP-44
Port	COM3
Settings Type	Factory Default
Baud Rate	4800
Data Size	8
Parity	None
Stop Bits	1
Handshake	DSR/DTR
Hardware Reflection	No

OK Cancel

Interface	Handshake Settings			
	None	CTS / RTS	DSR / DTR	XON / XOFF
CT-29 (VLP-1)	X	X	O	X
FIF-10A	X	X	X	O
FIF-12	O	X	O	X
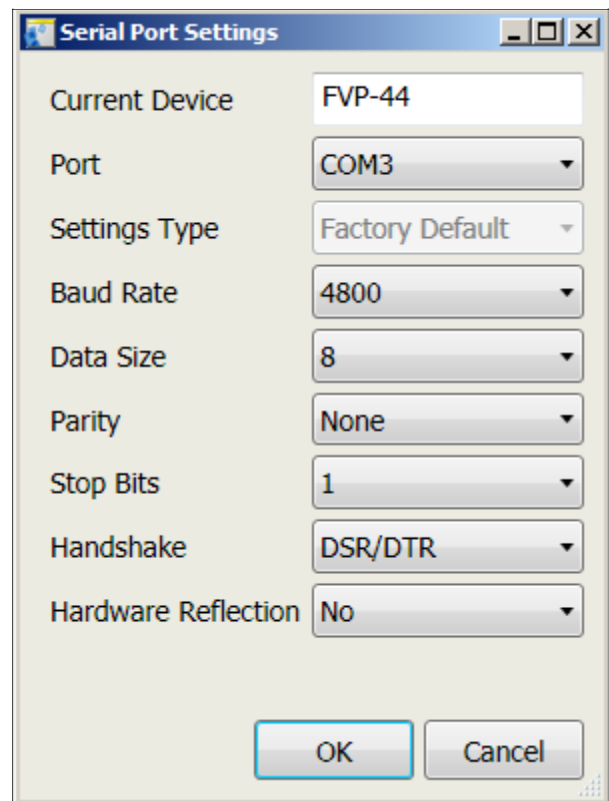
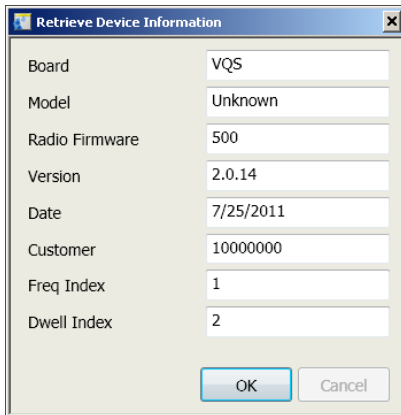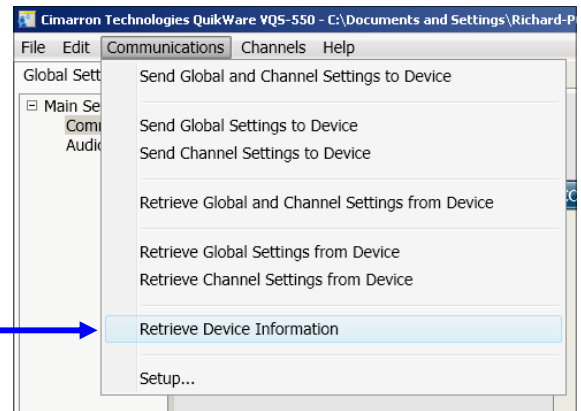# FVP-44 Programming Guide

Reading the FVP-44 current settings:

In order to communicate with the FVP-44, you must first put the radio into the Sub-Clone mode. To do this, press and hold the top orange button and the PTT while turning on the radio. If successful, the display will show SUBCLONE

Once the communications port is setup, you will need to Retrieve the Device Information. This will set the initial parameters correctly.

Cimarron Technologies QuikWare VQS-550 - C:\Documents and Settings\Richard-P

File   Edit   Communications   Channels   Help

Global Sett   Send Global and Channel Settings to Device

Main Se
     Com   Send Global Settings to Device
     Audi   Send Channel Settings to Device

               Retrieve Global and Channel Settings from Device

               Retrieve Global Settings from Device
               Retrieve Channel Settings from Device

               Retrieve Device Information

               Setup...

Retrieve Device Information

Board	VQS
Model	Unknown
Radio Firmware	500
Version	2.0.14
Date	7/25/2011
Customer	10000000
Freq Index	1
Dwell Index	2

OK   Cancel

Read from radio

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Common Settings Menu:

COMMON SETTINGS	
Attack Delay (msec)	300
TX Timeout Timer (sec)	Off
TX Data Level	50
PTT Sidetone	No
Mute on Incorrect Key	Yes
Respond to Channel Codes	Yes
Enable Keypad	Yes
Inv. Preamble	16 Bits
Disconnect Delay (msec)	2000
Pre Mute	No

Attack Delay (msec): The period of time from when the user keys the radio and the data begins to be transmitted. This delay allows the communications system to stabilize and be ready for transmission.

TX Timeout Timer: If the radio is held keyed up for greater than the selected time, the ID is transmitted and the radio is automatically unkeyed.

TX Data Level: Data deviation adjustment should not be performed until audio level adjustments have been completed. If audio adjustments are changed, data deviation must be readjusted. If the data output setting is too high for the microphone output gain level setting, data clipping will result.

PTT Sidetone: If programmed "Yes", a tone will sound through the local speaker to advise the user to hold off talking. This lets the user know that data is being sent and to not talk during this short initial period.

Mute on Incorrect Key: The "Mute on Incorrect Key" feature forces the host radio to disable receive functions during receipt of a coded transmission where the receiving key does not match the transmitting key. Plain text transmissions continue to be received as well as transmissions encoded using correct keys.

Respond to Channel Codes: If this parameter is set to No, the "channel settings" screen will have only one row to be used regardless of the channel the radio is on.

Enable Keypad: If set to "No", the VQS device will ignore radio front panel button presses. Keypad functionality will return to the host radio.

Inversion Preamble: The encryption initialization data burst has a preamble length that is programmable for 8, 16, 32, or 64 preamble bits. Longer preambles provide for more robust data transmissions but make the secure voice setup message take longer to transmit.

Disconnect Delay: The disconnect delay is the time to wait after losing carrier that the board will cease following the hopping sequence. This delay will permit momentary loss of carrier (due to fading, etc.) without losing synchronization with the hopping sequence. If a new MSK initialization burst is received during this delay period, the delay will be terminated and the new burst information will be followed.

Pre Mute: Pre Mute is used to eliminate the small amount of data that is heard in the local speaker before being recognized as data and being muted. Pre Mute EXPECTS all transmissions to be prefaced with data. So, the radio audio amplifier is muted when the radio is idle. When RX carrier is detected, the VQS board will keep the audio muted for the period of the programmed attack delay plus 100 mS. After that time elapses, the mute caused by Pre Mute is removed and is replaced by actual data mute. This function completely eliminates all received data from being presented at the local speaker.

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Audio Control Menu:

AUDIO CONTROL

Non-Inversion Gain Settings

Microphone Input (dB)	0
Microphone Output (dB)	5
AF Input (dB)	0
AF Output (dB)	5

Inversion Gain Settings

Microphone Input (dB)	0
Microphone Output (dB)	12
AF Input (dB)	0
AF Output (dB)	12

PTT Sidetone

Sidetone	400 Hz
Audio Level	50

Gain settings can range from -42 to +20 dB. There are a total of eight independent settings, four that affect levels with inversion taking place and four with inversion disabled.

Microphone Input gain level without inversion:
This parameter adjusts the transmit (microphone) analog CODEC input audio gain level for the output of the VQS Series devices when the inversion process is disabled.

Microphone Output gain level without inversion:
This parameter adjusts the transmit (microphone) analog CODEC output audio gain level for the output of the VQS Series devices when the inversion process is disabled. This setting also affects the level of Data Output. If the level is changed, be sure to recheck and readjust Data Output.

AF Input gain level without inversion: This parameter adjusts the receive (speaker) analog CODEC input audio gain level for the output of the VQS Series devices when the inversion process is disabled.

AF Output gain level without inversion: This parameter adjusts the receive (speaker) analog CODEC output audio gain level for the output of the VQS Series devices when the inversion process is disabled.

Microphone Input gain level with inversion: This parameter adjusts the transmit (microphone) analog CODEC input audio gain level for the output of the VQS Series devices when the inversion process is enabled.

Microphone Output gain level with inversion: This parameter adjusts the transmit (microphone) analog CODEC output audio gain level for the output of the VQS Series devices when the inversion process is enabled. This setting also affects the level of Data Output. If the level is changed, be sure to recheck and readjust Data Output.

AF Input gain level with inversion: This parameter adjusts the receive (speaker) analog CODEC input audio gain level for the output of the VQS Series devices when the inversion process is enabled.

AF Output gain level with inversion: This parameter adjusts the receive (speaker) analog CODEC output audio gain level for the output of the VQS Series devices when the inversion process is enabled.

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Channel Settings Menu:

File   Edit   Communications   Channels   Help

Global Settings | Channel Settings

Drag a column header here to group by that column.

Chan	Security Level	Key
1	None	0000000000000000
2	Level 1	0000000000000000 [...] Hex
3	Level 2	0000000000000000
4	Level 3	0000000000000000
5	None	0000000000000000
6	None	0000000000000000
7	None	0000000000000000
8	None	0000000000000000
9	None	0000000000000000
10	None	0000000000000000
11	None	0000000000000000
12	None	0000000000000000
13	None	0000000000000000
14	None	0000000000000000
15	None	0000000000000000
16	None	0000000000000000

Pass Phrase: [   ] Random

Generate Key   Cancel

Each channel with encryption enabled (Level 1,2 or 3) must have a Key. There are two ways to produce the Key.

1. You can enter a phrase which is easy to remember, for example, "Cimarron". Then, press the Generate Key button to generate the Key based on your phrase.

2. Or you can simply press the Random button to generate a random Key.

Security Level sets your encryption to Level 1, 2, 3 or None. The levels are generally how fast the frequency hopping is. Level 3 is the fastest and thus most secure although by nature, all three levels are very secure encryption.

You program the encryption per channel. These channels refer to the Vertex Standard radio channels.

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Channels Menu:

The default screen shows 16 channels. If you are using more than 16 channels, you can add more here.