

**Quick Reference Guide
for Setting Up the
CR2XX and RF4XX Radios**

**Dec. 23, 2003
V01**

Introduction

The radio settings for the CR2XX and the RF4XX (software version B4.424) must be set the same or communication will not be successful. As received from the factory, the settings for these devices are not the same; therefore, they must be changed before communication can take place. The following information can be used as a quick reference for setting up both devices.

CR205 Setup Procedures

1. Ensure that 12 VDC power is to supplied to the CR2XX.
2. Connect the CR2XX to a COM port on your computer using a standard 9 pin serial cable.
3. Open PakCom; the CR2XX Settings/Tools tab should be the active window. Select the option button for the COM port on your computer to which the CR2XX is attached. Press the **Connect** button to establish communication with the datalogger. Press the **Read Address** button to get the current CR2XX address. (If the correct address is not displayed in this field, you will be unable to communicate with the datalogger in the following steps.)
4. Go to the Radio Settings/OS Download tab.
5. Enter the "Radio Address"(valid settings 0-1023).
6. Enter the "Radio Net Address" (valid settings 0-63).
7. Enter the "Radio Power Modes" (8 choices).
 - **RF_ON** - radio is always on, 20 mA continuous current drain; does not transmit wakeup header
 - **RFpinEn** - radio is under program control; does not transmit wakeup header
 - **RF1_Sec** - radio wakes up every second for 100 msec looking for wakeup header; does not transmit wakeup header
 - **RF8_Sec** - radio wakes up every 8 seconds for 100 msec looking for wakeup header; does not transmit wakeup header
 - **RF1S_LH** - radio wakes up every second for 100 msec looking for wakeup header; transmits a 1.2 second wakeup header
 - **RF8S_LH** - radio wakes up every 8 seconds for 100 msec looking for wakeup header; transmits a 8.2 second wakeup header
8. Enter the "Radio Hop Sequence" (valid settings 0-6).
9. Select the **Save Settings** button to send values to the CR2XX.

*Note: If the CR2XX's Radio Power Mode is set to RF_ON or RFpinEn, the RF4XX's Standby Mode must be set to **24 mA no delay** or communication will not be successful between the two devices. This is accomplished using the Standard Setup menu (option 1), as described in the following RF4XX setup procedures.*

RF4XX Standard Settings Setup Procedures

To configure the RF400, you will need to set the radio address, net address, hop frequency, and the standby current.

1. Ensure that power is supplied to the RF4XX.
2. Connect the RF4XX to a COM port on your computer using a standard 9 pin serial cable.
3. Open PakCom.
4. Go to the Radio Settings/OS Download tab.
5. Press the **Terminal/OS** button; this opens up PakOS.
6. From the Device menu, select the RF4XX.
7. Select the appropriate communications port from the COM Port menu and press the **Open Port** button.
8. Push the **Program** button on the RF4XX. The PakOS screen should look like Figure 1 below.
9. Push the **Get Settings** button to collect the current station settings, note; the Predefined Settings field will read None.

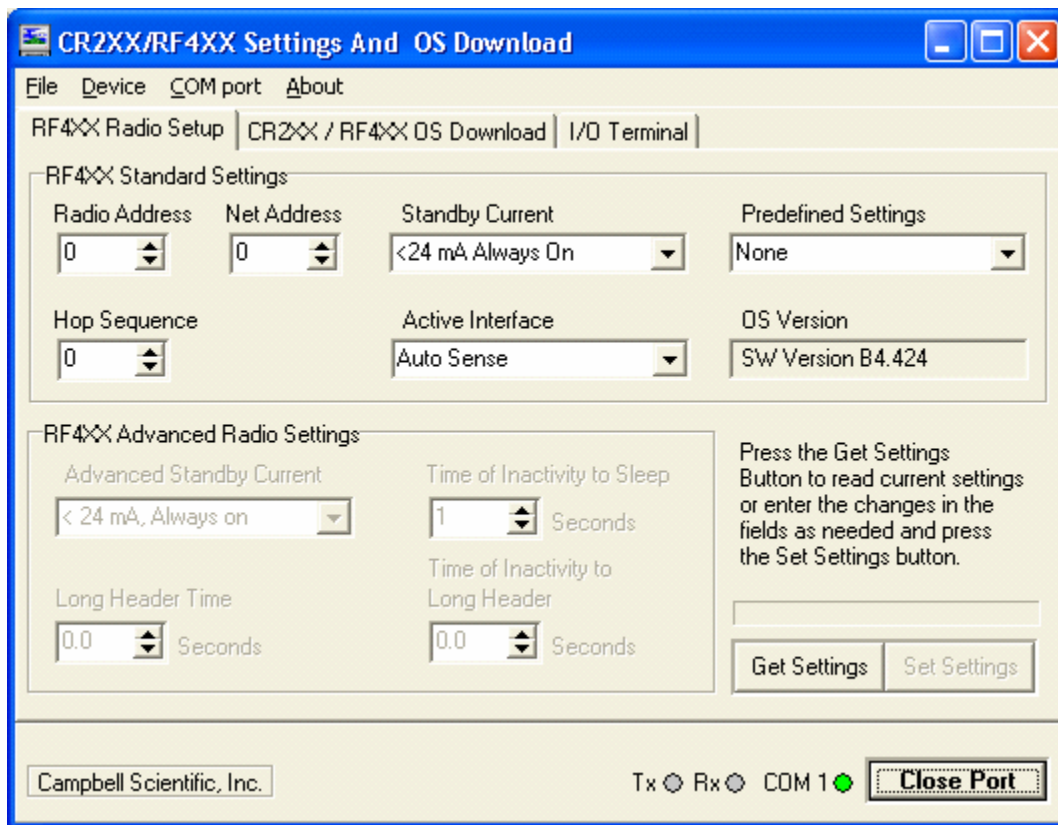


Figure 1. RF4XX Setup Main Menu

Setup Option 1, Predefined Settings

The Predefined Settings screen is shown in Figure 2 below.

1. The Active Interface should be set to **AutoSense** if the RF4XX will be connected to a computer or an array based CSI datalogger (e.g., CR10X). The Active Interface should be set to **Datalogger CSDC** if the RF4XX is connected to a table based CSI datalogger (e.g., CR10X-TD).

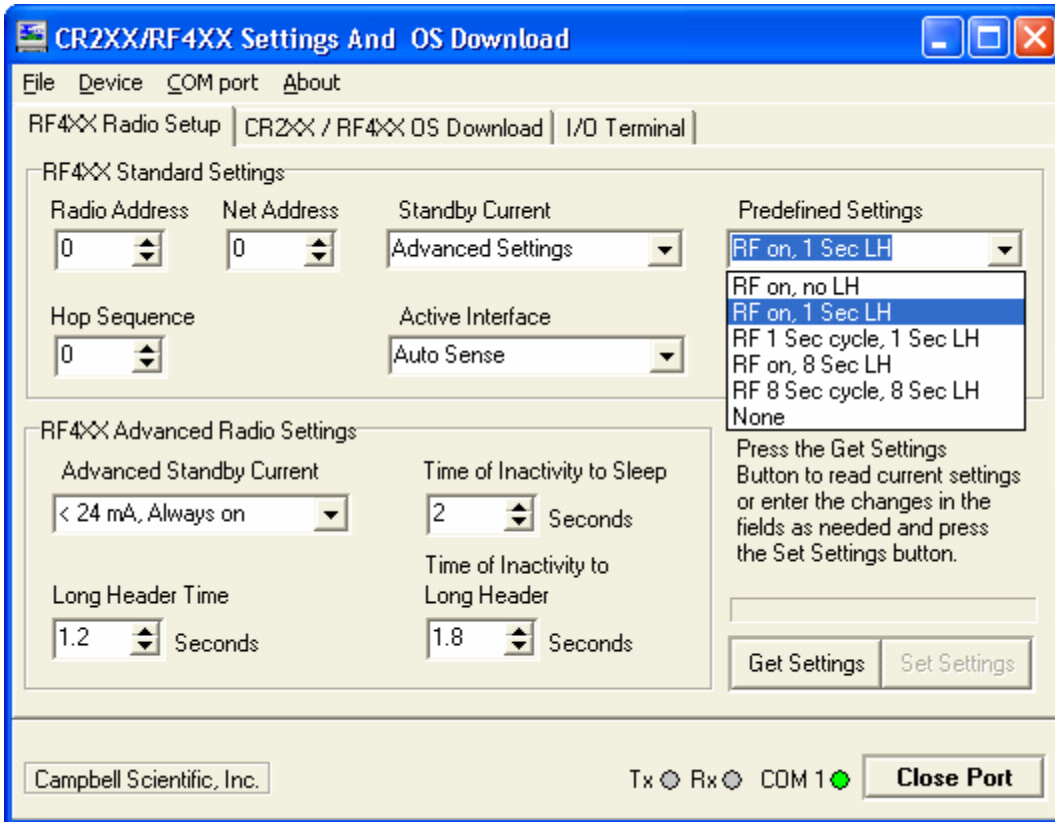


Figure 2. Predefined Settings

2. The Net Address, Radio Address, and Hopping Sequence must match the settings of the CR2XX that you want to communicate with. Type the number associated with each setting and enter the desired value.
3. Select the appropriate **Predefined Setting** to match the CR2XX, see Table 1.
4. Push the **Set Settings** button to send the configuration data to the RF4XX.
5. Push the **Close Port** button and close window.

Table 1. Menu Option for RFXX Radio Setup

CR2XX Setting	RF4XX Predefined Setting
RF_ON	RF on, no LH
RFpinEn	RF on, no LH
RF1_sec	RF on, 1Sec LH
RF1S_LH	RF 1 Sec cycle, 1 Sec LH
RF8_sec	RF on, 8 Sec LH
RF8S_LH	RF 8 Sec cycle, 8 Sec LH

Setup Option 2, RF4XX Advanced Radio Settings

1. Set the **Predefined Settings** to none.
2. The Active Interface should be set to **AutoSense** if the RF4XX will be connected to a computer or an array based CSI datalogger (e.g., CR10X). The Active Interface should be set to **Datalogger CSDC** if the RF4XX is connected to a table based CSI datalogger (e.g., CR10X-TD).
3. In the RF4XX Advanced Radio Settings part of the screen, enter values for each of the settings, based upon the Radio Power Mode you chose for the CR2XX and the desired power mode for the RF4XX. See Table 2 below and Figure 3.
4. Push the **Set Settings** button to send the configuration data to the RF4XX.
5. Push the **Close Port** button and close window.

Table 2. Advanced Setup Options for RF4XX Radios

CR2XX Setting	RF4XX Setting	Standby Mode	Time of Inactivity to Sleep	Time of Inactivity to Long Header	Long Header Time
RF1_sec	< 24 mA, Always On	0	50	50	12
RF1S_LH	< 2 mA, 1 Sec Cycle	4	50	50	12
RF8_sec	< 24 mA, Always On	0	50	50	82
RF8S_LH	< .4 mA, 8 Sec Cycle	7	50	50	82

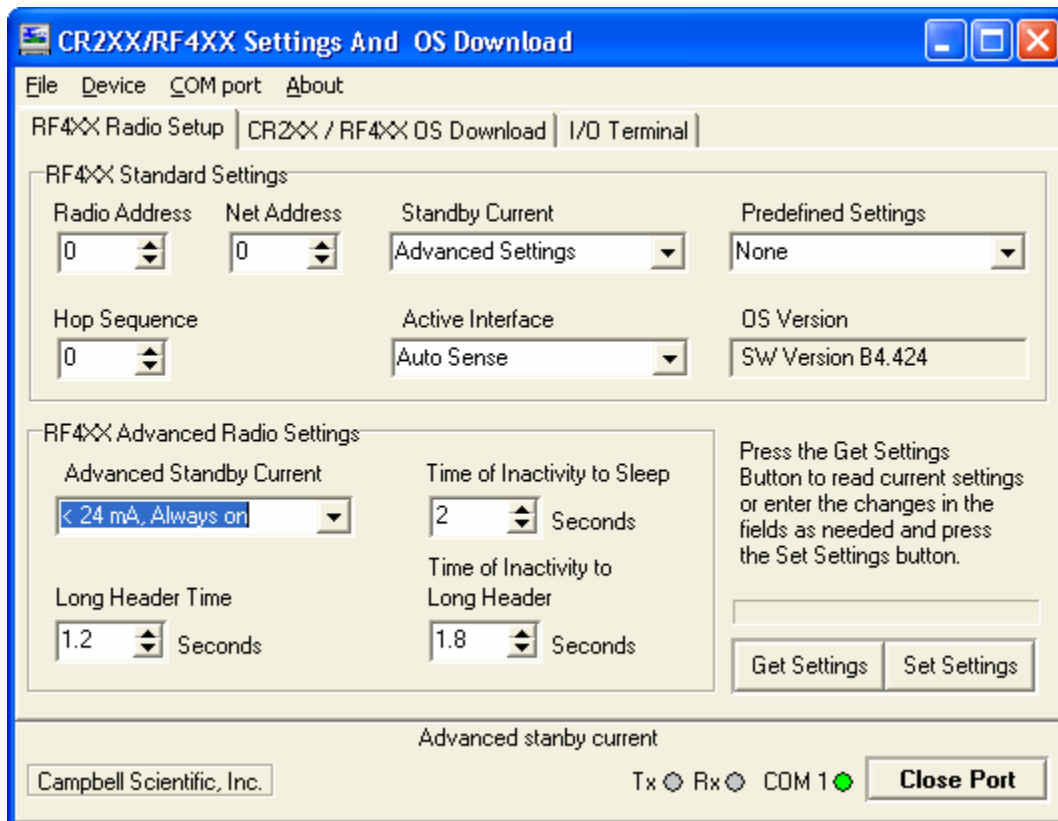


Figure 3. RF4XX Advanced Radio Settings

Alternate Setup Procedure; I/O Terminal Tab, (or through HyperTerm)

To configure the RF400, you will need to set the radio address, net address, hop frequency, and the stand-by mode.

1. Ensure that power is to supplied to the RF4XX.
2. Connect the RF4XX to a COM port on your computer using a standard 9 pin serial cable.
3. Open PakCom.
4. Go to the Radio Settings/OS Download tab.
5. Press the **Terminal/OS** button; this opens up PakOS.
6. From the Device menu, select the RF4XX.
7. Select the appropriate communications port from the COM Port menu and press the **Open Port** button.
8. Push the **Program** button on the RF4XX. The PakOS screen should look like Figure 4 below.

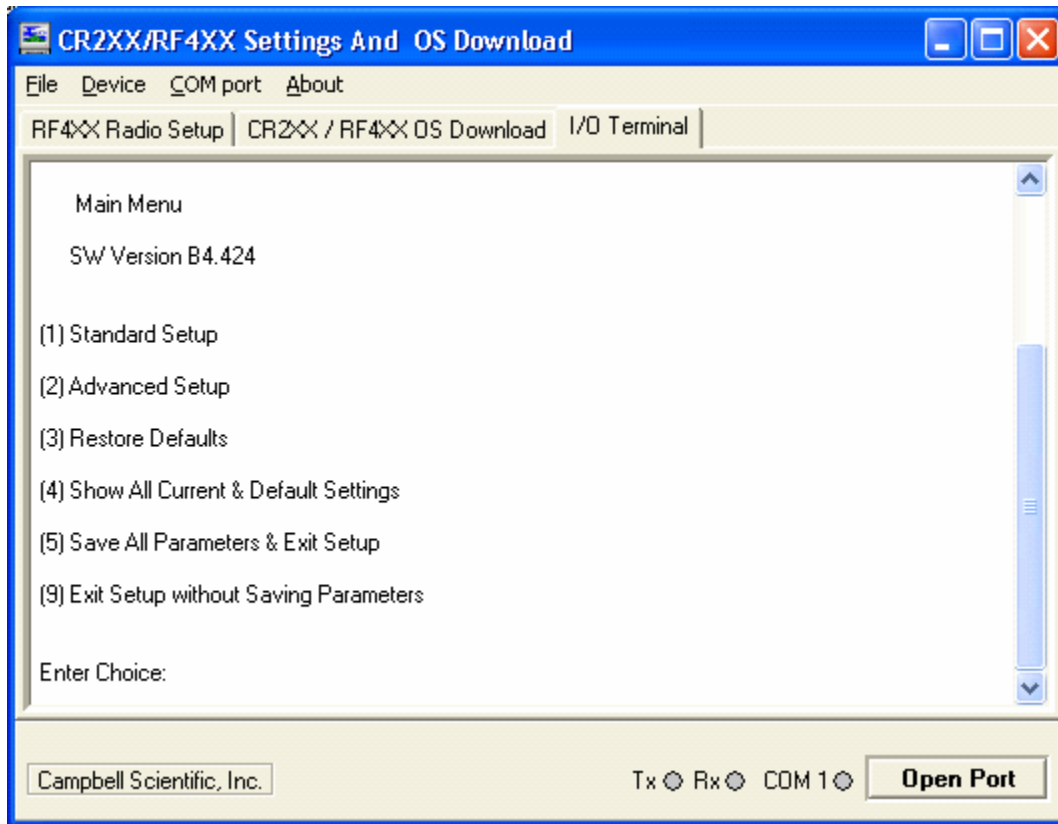


Figure 4. RF4XX Setup Main Menu

You will need to select either the Standard Setup menu (1) or the Advanced Setup menu (2), depending upon the Radio Power Mode that you selected for the CR2XX. See Table 3 below.

Table 3. Menu Option for RFXX Radio Setup

CR2XX Setting	RF4XX Setup Option
RF_ON	Standard Setup, Option 1
RFpinEn	Standard Setup, Option 1

CR2XX Setting	RF4XX Setup Option
RF1_sec	Advanced Setup, Option 2
RF1S_LH	Advanced Setup, Option 2
RF8_sec	Advanced Setup, Option 2
RF8S_LH	Advanced Setup, Option 2

If you selected **RF_ON** or **RFpinEn**, enter 1 for the Standard Setup menu. For all other options, enter 2 for the Advanced Setup menu.

Setup Option 1, Standard Setup Menu

The Standard Setup menu is shown in Figure 5 below.

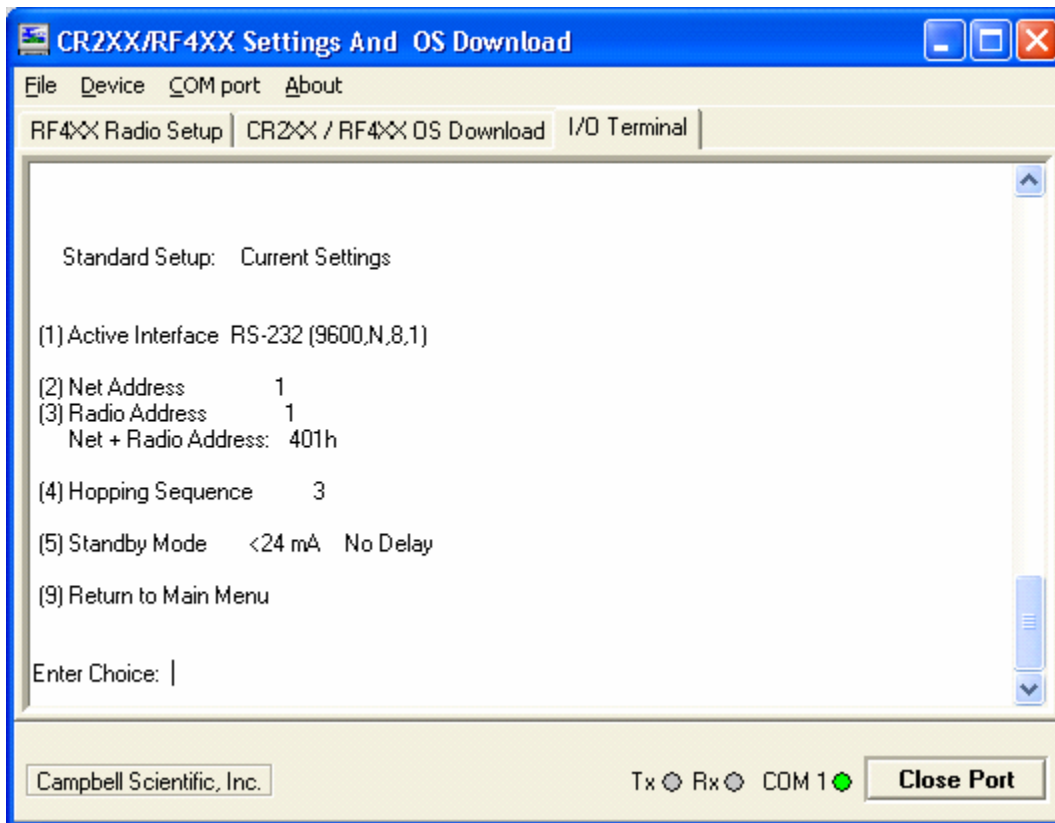


Figure 5. Standard Setup

1. Enter 1 to set the Active Interface. The Active Interface should be set to **AutoSense** if the RF4XX will be connected to a computer or an array based CSI datalogger (e.g., CR10X). The Active Interface should be set to **Datalogger CSDC** if the RF4XX is connected to a table based CSI datalogger (e.g., CR10X-TD).

2. The Net Address, Radio Address, and Hopping Sequence must match the settings of the CR2XX that you want to communicate with. Type the number associated with each setting and enter the desired value.
3. The Standby Mode is the same thing as the Radio Power Mode in the CR2XX. The Standby Mode should be set to **24 mA no delay**.
4. Enter 9 to return to the Main menu.
5. Enter 5 to save the changes and exit Setup.

Setup Option 2, Advanced Setup Menu

1. Press 1 to enter the Radio Parameters mode.
2. Press 2 for Radio Standby Modes.
3. Enter values for each of the settings, based upon the Radio Power Mode you chose for the CR2XX and the desired power mode for the RF4XX. See Table 4 below. Examples for each mode also follow.
4. Enter 9 to return to the Main menu.
5. Enter 5 to save the changes and exit Setup.

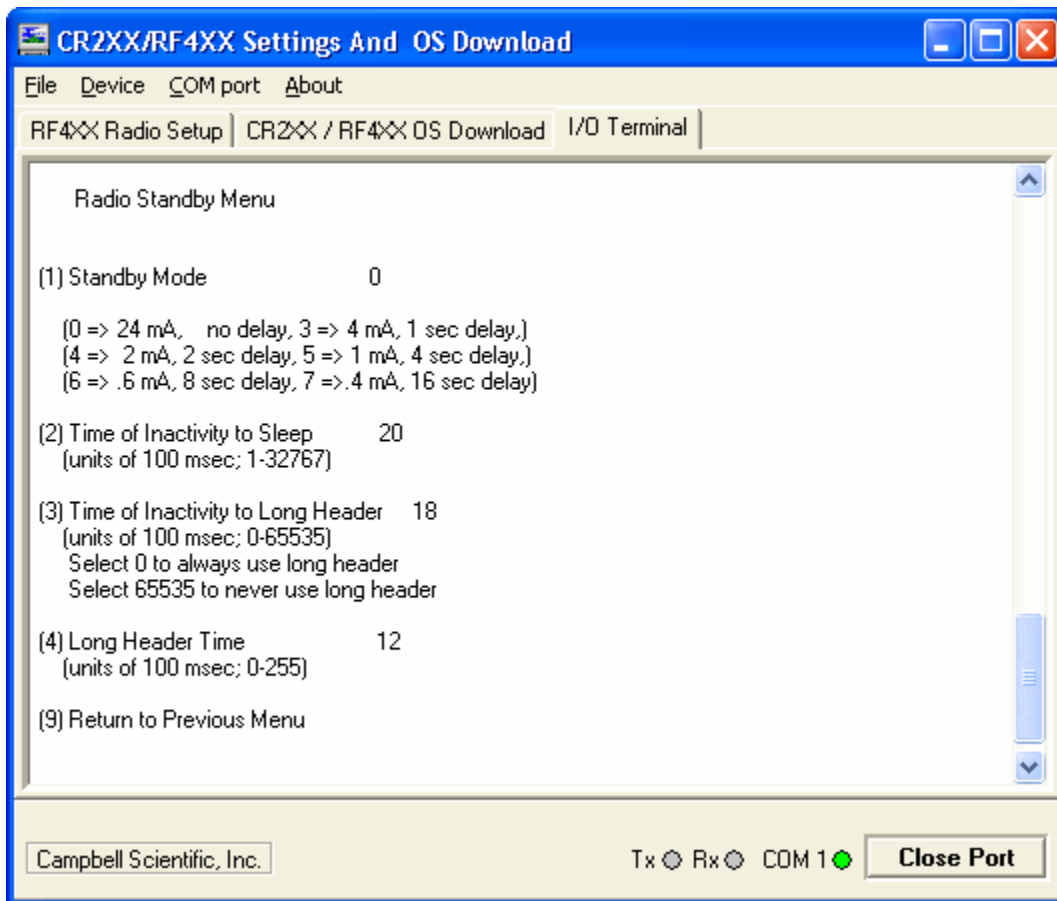
Table 4. Advanced Setup Options for RF4XX Radios

CR2XX Setting	RF4XX Setting	Standby Mode	Time of Inactivity to Sleep	Time of Inactivity to Long Header	Long Header Time	Example Number
RF1_sec	24 mA, no delay	0	50	50	12	1
RF1S_LH	2 mA, 2 s delay	4	50	50	12	2
RF8_sec	24 mA, no delay	0	50	50	82	3
RF8S_LH	0.4 mA, 16 s delay	7	50	50	82	4

Example 1.

CR2XX = RF1_sec

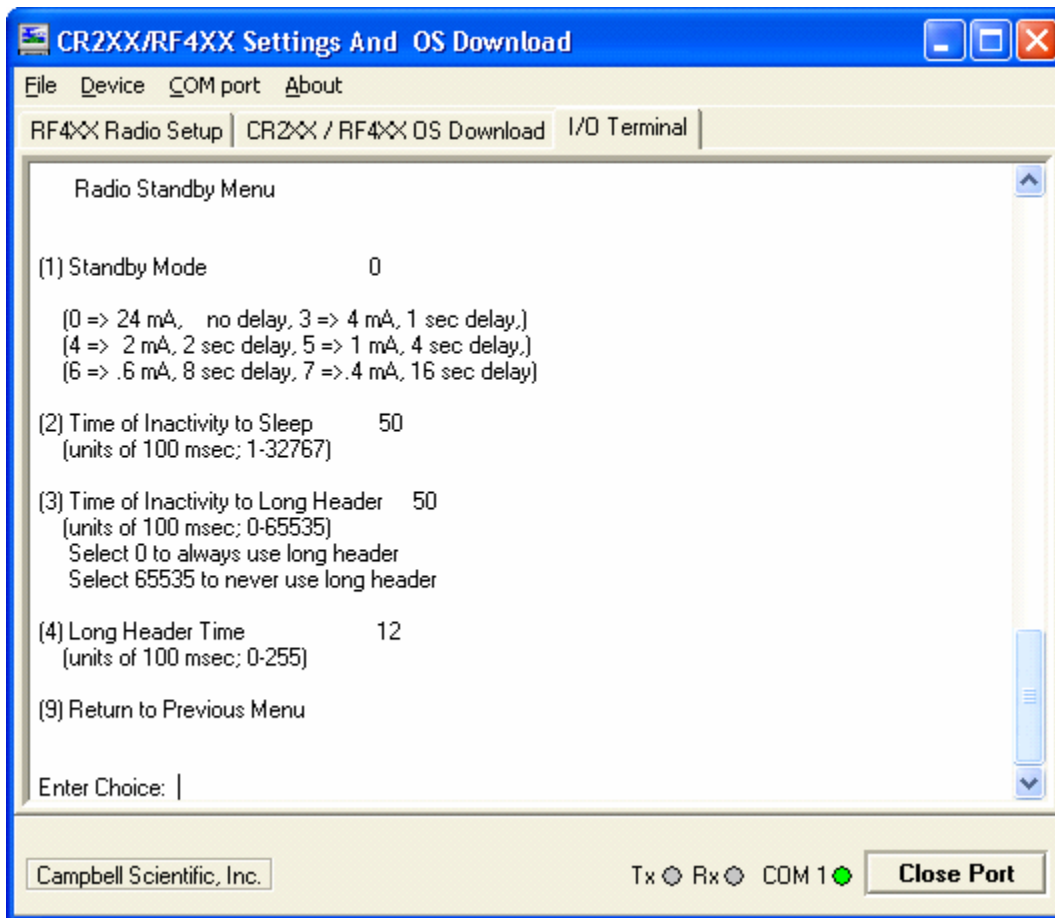
RF4XX = 24 mA, no delay



Example 2.

CR2XX = RF1S_LH

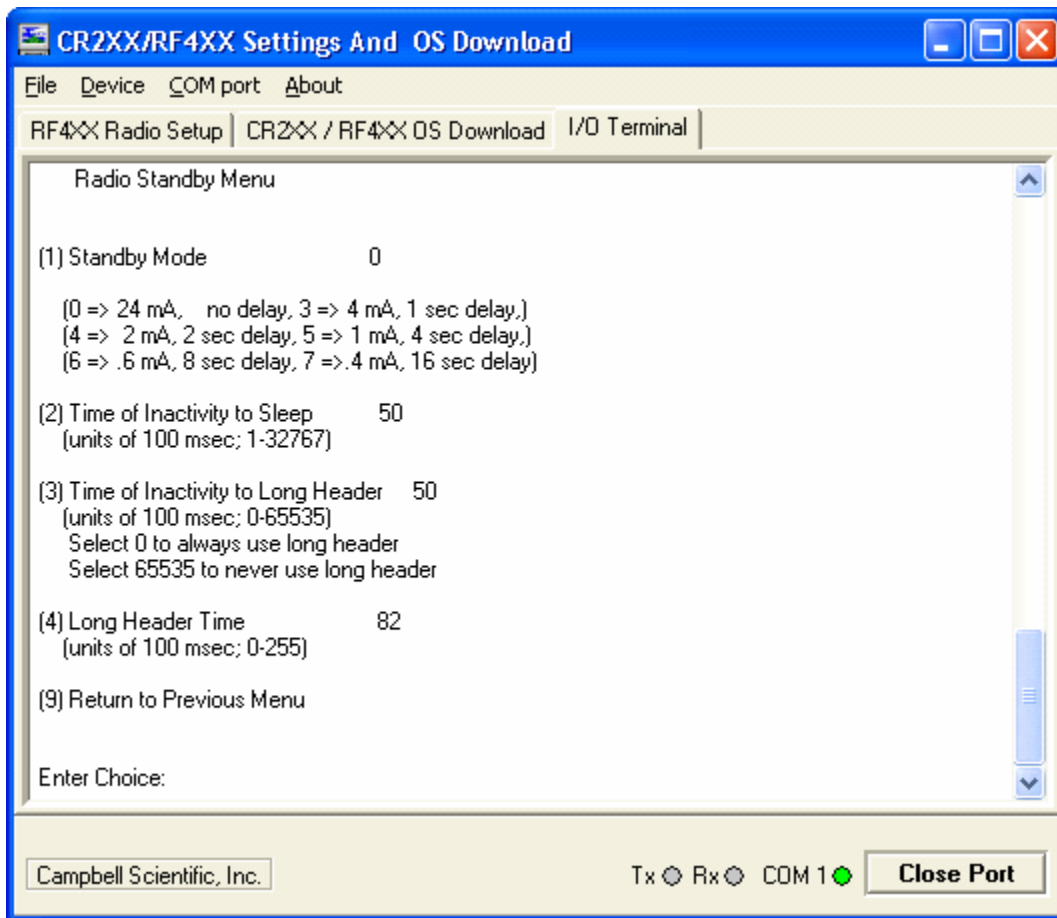
RF4XX = 2 mA, 2 sec delay



Example 3.

CR2XX = RF8_sec

RF4XX = 24 mA, no delay



Example 4.

CR2XX = RF8S_LH

RF4XX = 0.4 mA, 16 sec delay

