

TDFM-136B

BOOTLOADING PROCEDURE



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REVISION HISTORY [146598]				
REV	SECTION - PAGE -	DESCRIPTION	DATE	EDITED BY
N/C	(all pages)	Original Issue	March 26, 2014	J.K.
A	8	Update upgrade file name convention and clarify instruction steps	February 14, 2019	J.K.
B	8	Re-organize instruction to comply with software V2.X.X release of channel expansion and Front Panel software updated instructions	April 28, 2026	N.S

1.0 INTRODUCTION

This document describes the procedure to load software into the TDFM 136B radios.

Before starting, the current software version in the device should be checked. The device software version is displayed at power up.

Units that are capable of field upgrades have built in software that allows the software to be loaded via a serial port on the radio. This feature is known as the Bootloader.

Contact Technisonic for latest applicable versions of software for the product.

2.0 SETUP REQUIREMENTS

To upgrade TDFM-136B software, the following equipment will be required:

Unit to be upgraded with eligible firmware.

A PC computer with USB port.

A programming cable P/N 127504

A 24 - 28 volt power supply or source. (Aircraft power is not recommended)

Radio test jig TIL P/N 053654-1(Optional)

All Radios can have the software updated using the programming cable or, as an alternative, the Technisonic Radio Test Jig can be used with a straight serial cable to connect the unit to the PC.

Connect the TDFM-136B to a suitable 24 – 28V power supply.

Start the terminal program on the PC then turn on the power supply.

3.0 SETTING UP TERMINAL PROGRAM – TERA TERM

Note: The software update process requires the use of a serial terminal program in the PC.

Programs such as Hyper Terminal or Tera Term are good examples. For the purposes of this guide, Tera Term is used. Please refer to your software documentation for specifics on how to set up your terminal to perform these procedures.

The terminal program must be configured properly before the upgrade process can begin.

Open Tera Term in windows. You must first select the serial port connection.

Select the COM port associated with the TDFM-136B. In this example, we are using COM 4.

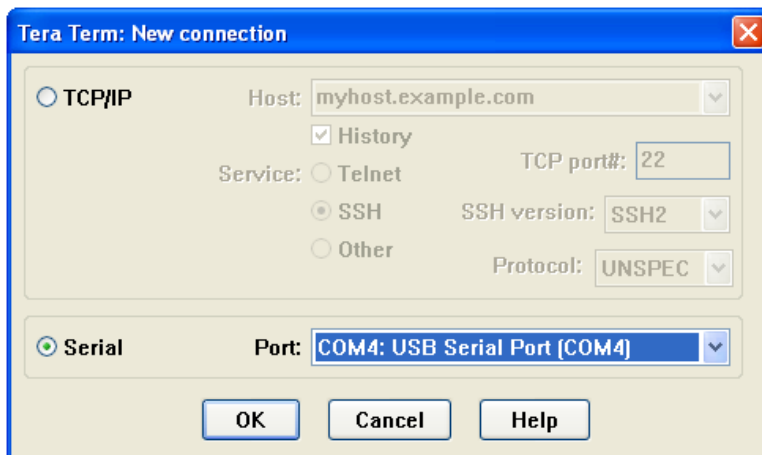


FIGURE 1: Connection Setup Tera Term

After creating the connection, enter Setup>Serial Port. The Serial port setup window will appear. Enter the Com port settings as shown in Figure 2. Click OK.

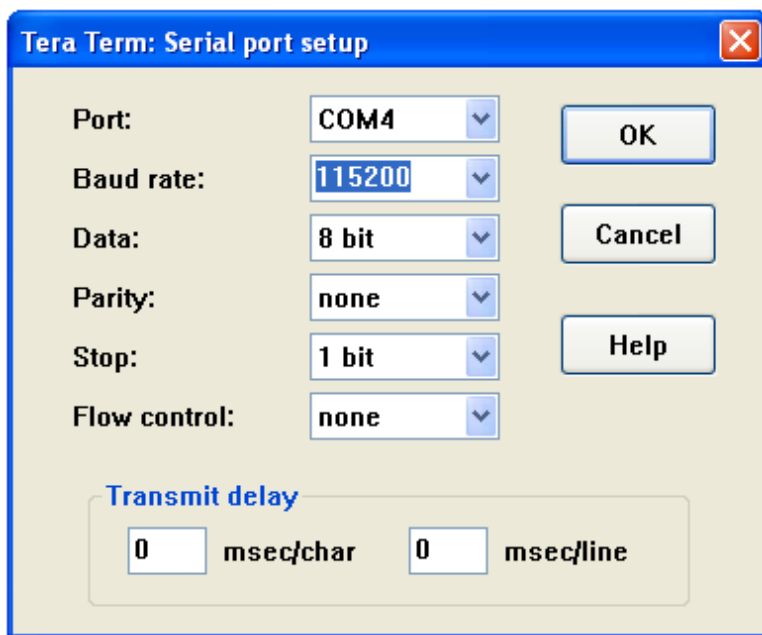


FIGURE 2: Required Com Port Settings

Save the connection configuration for future use. The terminal is now ready.

UPDATING RADIO SOFTWARE

4.0 Loading NEXUS RF Module Software Image With the USB Programming Cable

- a) On the TDFM 136B enter Command Level 5-6
- b) Scroll to SW Image – To Main. See Figure 10.



Figure 3: RF Image Update Screen

- c) On Tera Term select File>TRANSFER FILE>YMODEM>Send. See Figure 11

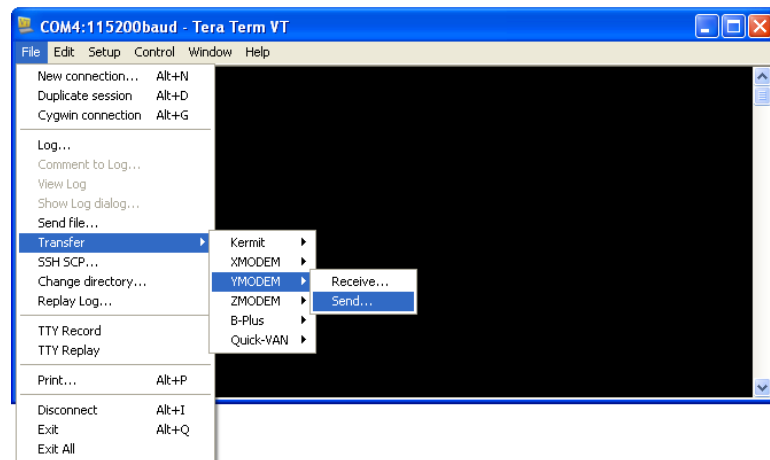


Figure 4: Tera Term Y-Modem Selection

- d) Locate the Software Image File for the NEXUS Module (ES0814_RL02_Rx_RadioBoardMain.bin) where x is the software version.
- e) Click Open.
- f) Press “Enter” on the TDFM 136B to start the transfer to the module.
- g) The YMODEM Send Dialog will appear. See Figure 12 and 13

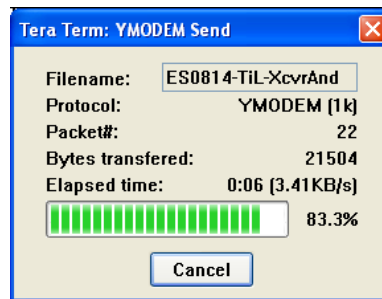


Figure 5: YMODEM Send Dialog



Figure 6: RF Image Progress

- h) Once complete, the unit will exit to the L5: Supervisor top menu.
- i) Press ESC twice to return to user level. Wait for screen to return to normal
- j) Enter Command Level 5-6 and select SW Image – To Guard
- k) Repeat steps c) thru i)

4.1 Loading NEXUS RF Module Data Image With the USB Programming Cable

- a) On the TDFM 136B enter Command Level 5-6
- b) Scroll to Data Image – To Main
- c) Repeat steps in 4.2 c) thru g). During file selection, instead select the Es0814-TiL_Rx_8141_Dev.bin where x is the software version
- d) Press ESC twice to return to user level. Wait for screen to return to normal.
- e) Return to L5- 6 and select Data Image – To Guard
- f) Repeat steps in 4.2 c) thru g) again selecting the Es0814-TiL_Rx_8141_Dev.bin where x is the software version
- g) Press ESC twice to return to user level. Wait for screen to return to normal.
- h) Steps e) and f) are only required if Hardware Setup file is included in the upgrade package
- i) Return to L5- 6 and select Data Image – To Main
- j) Repeat steps in 4.2 c) thru g). During file selection, instead select theEs0814_TiL_HardwareSetupDatabase.bin
- k) Press ESC twice to return to user level. Wait for screen to return to normal.
- l) Return to L5- 6 and select Data Image – To Guard
- m) Repeat steps in 4.2 c) thru g) again selecting the Es0814_TiL_HardwareSetupDatabase.bin
- n) Press ESC twice to return to user level. Wait for screen to return to normal.

4.2 Load the Front Panel MCU main Software

- To begin the process, the radio Front Panel must be put into the bootloading mode:
- With the unit off, press and hold the **7,2,3,0** keys and the **Guard Knob** simultaneously while turning the power on.



Figure 7 :Front Panel Bootloader 102

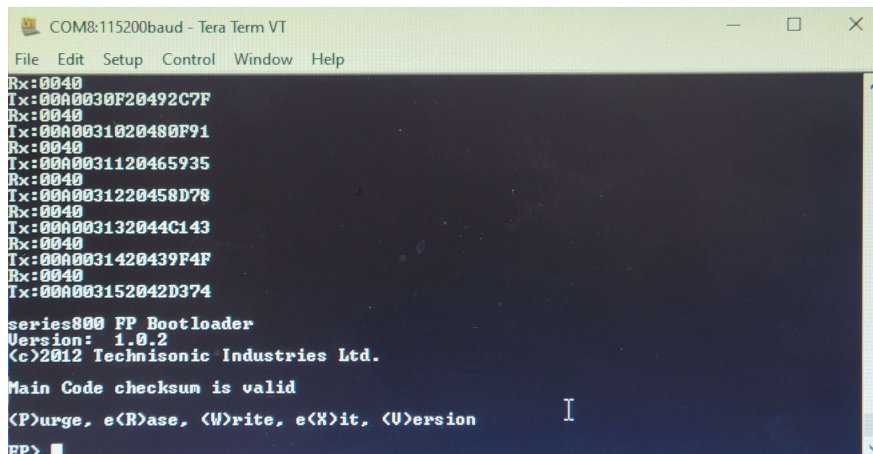


Figure 8: Tera Term FP Bootloader 102 readout

- At the Bootloader prompt, type “P” to Purge the unit.
- For the earlier PCB's **verify the Series800 FP (Front Panel) Bootloader version 1.0.2(No revision)** see figure 7 and 8.
- Press “W” to start the file download process.
- Go to “File” menu and select “Send file...”. Select the Front Panel main software (08S124_series800_Front Panel_Main_1.3.1.s19). See DataDepot for correct release to use.
- For new PCB's **verify the Series800 FP Bootloader version 1.0.2A** see figure 9 and10.



Figure 9: Front Panel Bootloader 102A

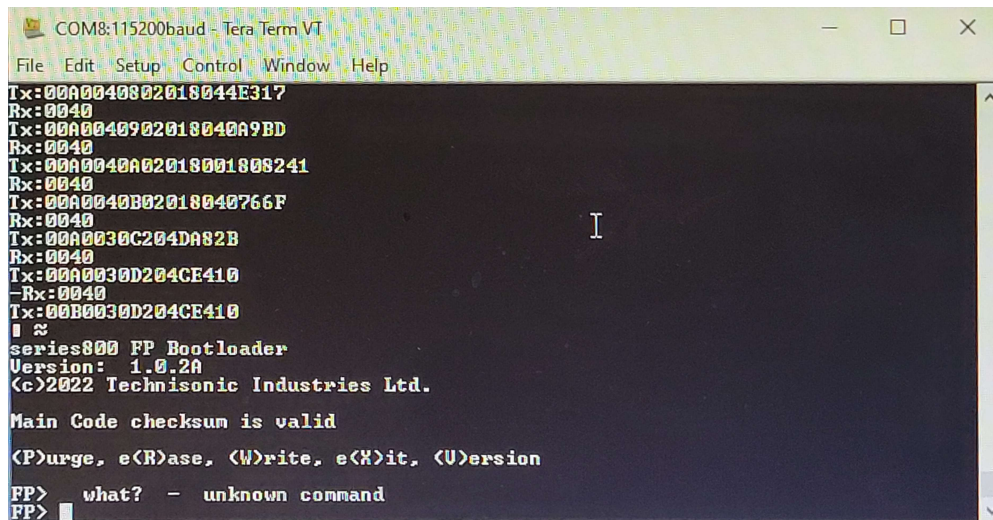


Figure 10: Tera Term FP Bootloader 102A readout

- h) Press "W" to start the file download process.
- i) Go to "File" menu and select "Send file...". Select the Front Panel main software (08S124_series800_Front Panel_Main_1.3.1A.s19). See DataDepot for correct release to use.
- j) Type "X" to exit and restart the Radio.

4.3 Loading Main Unit Software With the USB Programming Cable:

- a) To begin the process, the radio must be put into bootloading mode:
- b) With the unit off, press and hold the **7,2,3 & 0** keys simultaneously while turning the power on.
- c) The unit will display the bootloading mode message. See Figure 11.

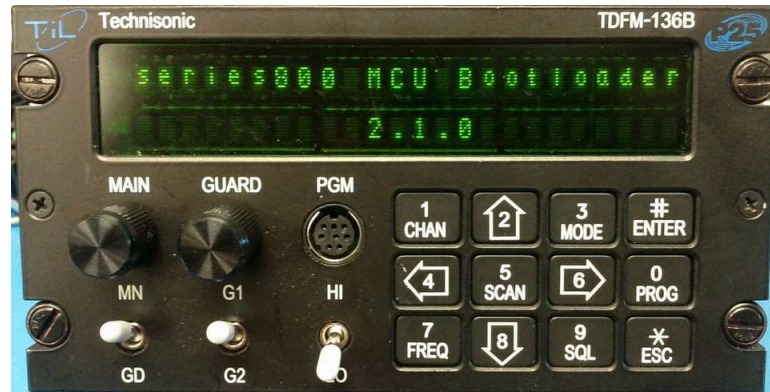


FIGURE 11: Bootloading Mode Display

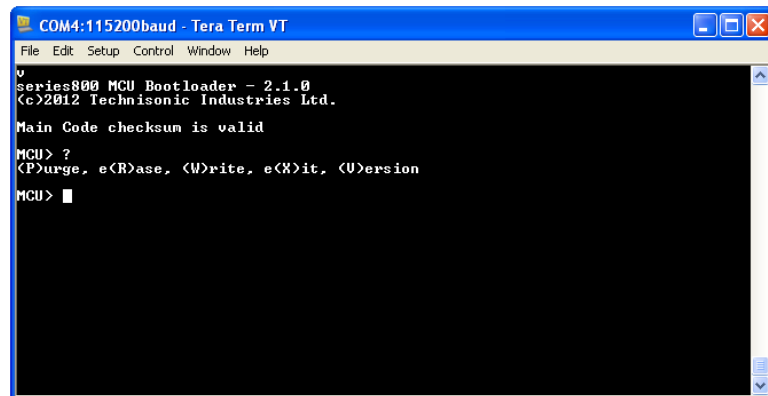


FIGURE 12: Bootload Command Menu

- d) At the Bootloader prompt, type "P" to Purge the unit.
- e) Then type "W" to start the file download process.
- f) When the bootloader is invoked, the radio will send the command menu to the terminal on the PC. See Figure 12.
- g) The old software must be purged before the new software can be loaded in.
- h) To erase the old software press "P" to purge the memory in the radio. This will clear all memory blocks needed for the software update.
- i) After the memory has been purged, the new software can be loaded.
- j) On the terminal menu press "W" for write. The terminal will display "Ready for S-Record..."

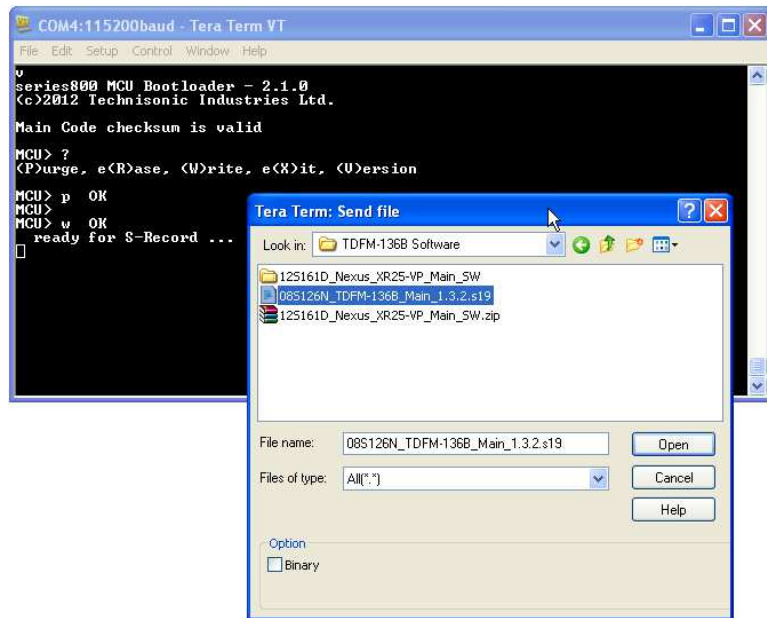


FIGURE 13: Browsing for New Firmware File

- k) On the terminal top bar select “File”, then select “Send File”. The file browse window should pop up. (See Figure 13)
- l) *NOTE: File names are displayed such as “08S126x_TDFM-136B_Main-x.S19” Where “x” is the current software version*
- m) Select the desired .s19 file and click Open.
- n) On the radio, a bar display will show the progress of the file loading into the radio.
- o) On the terminal program a stream of dots will be displayed as the data goes into the radio. Figure 8 shows the progress bar on the terminal while the download is in progress.

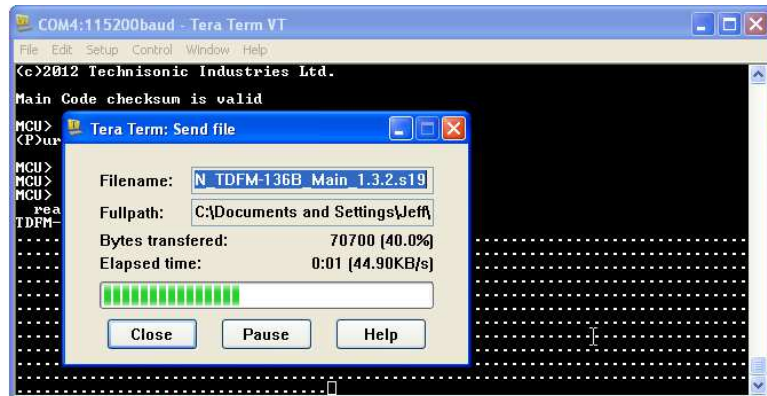


FIGURE 14: Downloading Software

- p) When the terminal program is finished transferring the data, the radio will display a “Done” message. The update is now complete. See Figure14

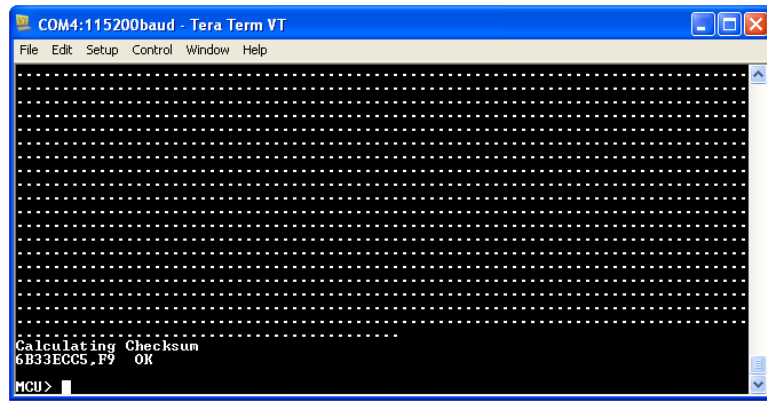


Figure 15: Download Complete

- q) To restart the new software, type in "X" on the terminal. The radio should reboot as per normal.
- r) *Note: In some instances, when the unit reboots after update, it may display a Hardware Failure. If this occurs, you will need to enter Level 5-5 (Hardware Setup) and re-enter your settings.*
- s) Cycle the power to the unit by holding the MAIN rotary encoder. You will see a Configuration Saved message, and the unit will power down.

5.0 FINAL CHECKS AFTER UPGRADE

The software update is complete. Disconnect the unit from the PC and power supply.

Verify the unit displays the correct Software version on boot-up and initializes both RF modules correctly without errors.

Tune to a known channel on each band. Verify that the unit will transmit and receive on the programmed channel.

The unit can now be returned to service