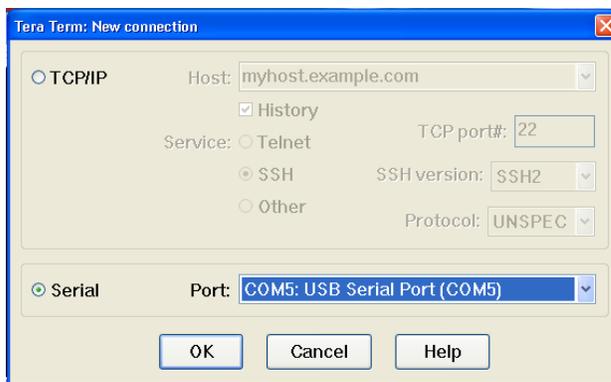


DCU-2 and DCU-3 Firmware Update Procedure

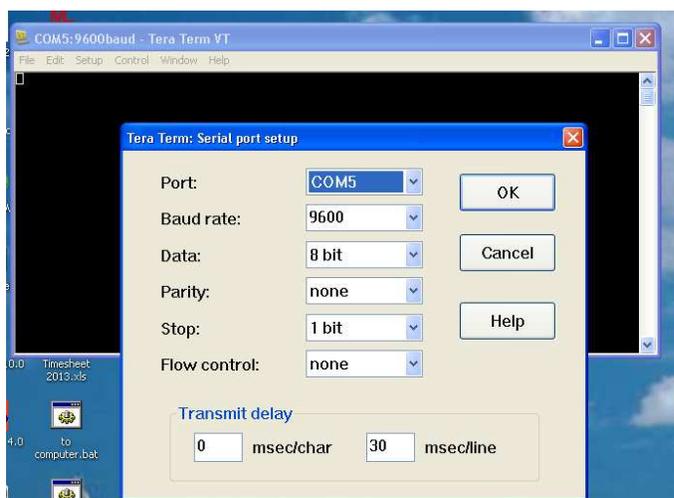
The DCU-2 and the DCU-3 can be upgraded by loading new firmware through the RS-232 or USB port. The computer will require a terminal program and an interconnect cable between the DCU-2 or 3 and the computer. These instructions are for Windows XP and Windows 7. They have not been tested with earlier versions of Windows, Windows Vista, Windows 8, or Apple products.

Windows XP has the terminal program Hyperterm built in but Windows 7 and newer does not so a program will have to be located. Tera Term has been used on both with good results. These instructions are specifically for Tera Term but the principle is the same for others.

- 1 Plug in the DCU2 or 3 to the computer and turn it on. Make sure the jumper on the board is set for the port on the controller you are using, either RS232 or USB.
- 2 Start Tera Term and select the **Serial** mode.
- 3 In the drop down box select the COM port that the DCU-2 or 3 is using. In other programs you will have to select the com port with whatever method the program uses.

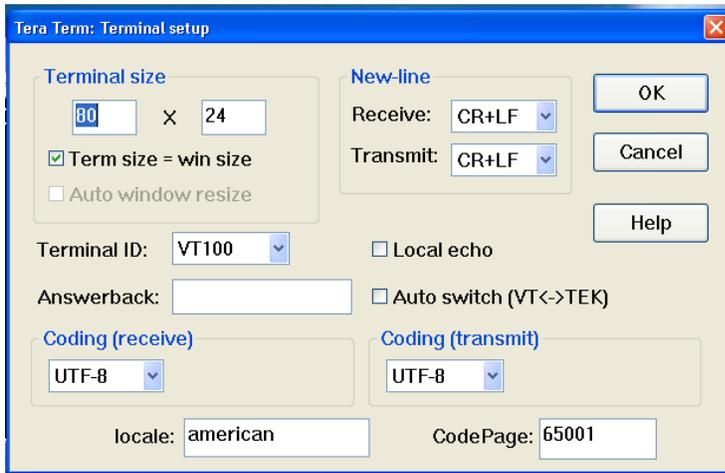


- 4 Click OK
- 5 Click the **Setup** menu then select the **Serial Port Setup**. The settings should be the COM port number, 9600 Baud, 8 data bits, none parity, 1 stop bit, and none flow control. Set the Transmit delay to 30 msec/line. Hit the ENTER key or click the OK button and return to the program.

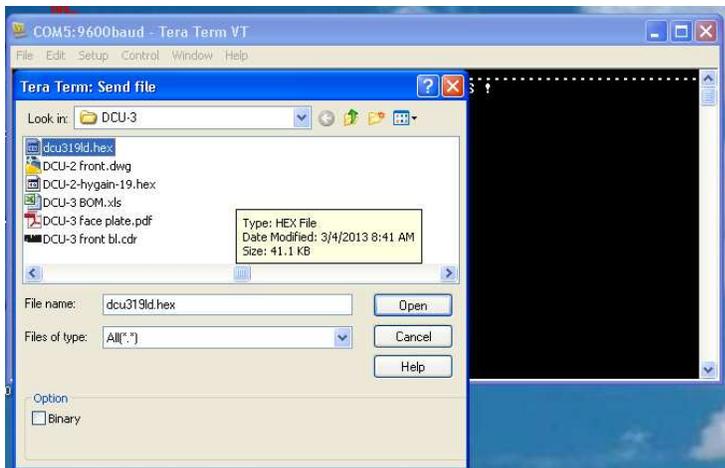


Other programs may have these settings in different screens.

- Click the **Setup** menu and select **Terminal setup**. Change the **New-Line** settings to **CR+LF** for both **Receive** and **Transmit**. Hit the **OK** button or Enter Key to return to the main screen. Other programs may have this information on other screens.

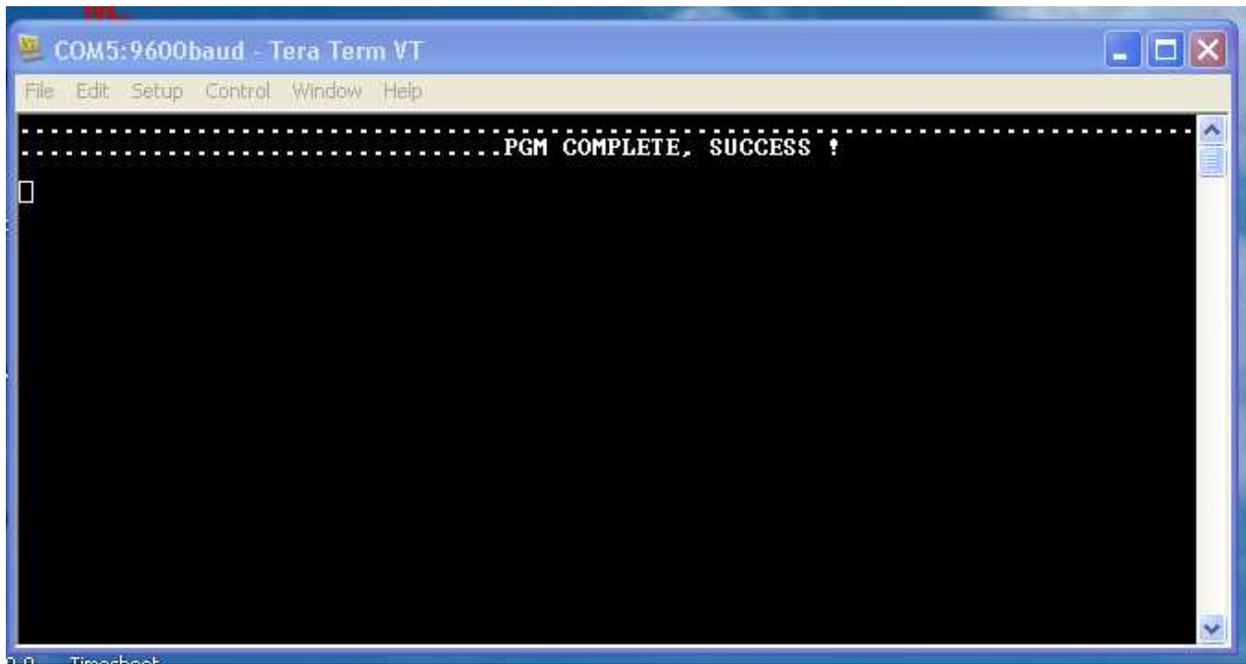


- Turn off the DCU-2 or 3.
- Download and save the firmware hex file from our web site and make note of where you have saved it.
- Click the **File** menu and select **Send File**. A lookup box will appear. Find the location where you have saved the firmware hex file. This will normally be somewhere in the My Documents directory. Highlight the file but do not click on the open button yet. In Tera Term *do not* use Transfer. Transfer uses specialized protocols that are not used here.



- Turn on the DCU2 or 3 and click the **Open** button. You have about 5-10 seconds to start the process. Other terminal programs may call the file sending program different names but is the same general process.

- 11 If everything is working you will see a series of dots on the screen then a COMPLETE message.



- The DCU2 or 3 will not show anything on the screen until the firmware installation is complete unless the installation is not working. If the installation did not work the terminal will not display the dots and the DCU2 or 3 will wake up normally. The terminal program may also display a message FAILURE: TIMEOUT!. The message indicates that the controller did not see the proper format file in the time it was waiting for the data.
- 12 The DCU-2 or 3 will then have a message that the EEPROM was reset and it will then wake up normally. The splash screen will show the new firmware version.
 - 13 Follow the instructions of the DCU-2 or DCU-3 and reset all of the parameters and recalibrate the rotator stops.

Tera Term can be found at <http://tssh2.sourceforge.jp/index.html.en> . Follow the instructions on the page for downloading and installation. Other programs are available and can be used as long as the settings are the same. Tera Term is not listed for use with Windows 8 and has not been tested with Windows 8.