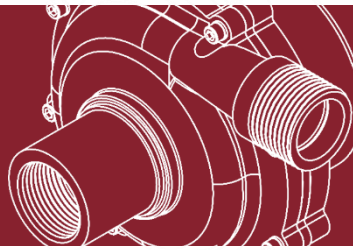
Moog RM30 Pump System: RMC051 Drive Bootloader Reprogramming Instructions



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Required Equipment/Software

(1) RMC051 Drive
(2) Windows-based desktop or laptop PC
(3) USB-to-RS485 COM port adapter – the adapter should be set up for 2-wire RS485 operation and ECHO OFF.
(4) HyperTerminal Communications software – I have had the most success on two communications programs, HyperTerminal and ExtraPuTTY. HyperTerminal came as resident software on Windows XP and earlier operating systems, but Windows ceased supplying this software in Windows 7 and later operating systems. It is possible to install and run the old HyperTerminal software on Windows 7, the only glitch being that the communications setup cannot be stored and recalled; this means that each time that HyperTerminal is started, it will be necessary to setup the baud rate, parity, etc., before using. Instructions for installing and using the old HyperTerminal software on Windows 7 can be found on the internet. Alternatively, HyperTerminal Private Edition, which is compatible with Windows 7, 8, Vista, and 10, can be purchased for a reasonable sum of money.
OR ExtraPuTTY Communications software – this software works as well as HyperTerminal and is available free as a download from the internet. The upside of using this program is that you are able to save a setup file making it easy to get up and going once the setup file is resident. The downside is the software is not as user- friendly as HyperTerminal when configuring and saving the setup file.
(5) The binary file to be programmed into the drive.
(6) A male DB9 mating connector for the ADDRESS SELECT connector with the BOOTLOAD pin 8 jumpered to the GND connection on pin 1.
(7) A female DB9 mating connector for the COMMUNICATIONS connector with wires from pins RS485+ on pin 3, RS485- on pin 7, and GND on pin 5.
(8) A power cable capable of supplying 230/240 VAC single-phase power to the drive.

Connections

(1) Connect the USB cable from the USB-to-RS485 adapter to a USB port on the PC. Connect the pin 3 RS485+ wire from the drive to the USB-to-RS485 adapter. Connect the pin 7 RS485- wire from the drive to the USB-to-RS485 adapter. Connect the pin 5 GND wire from the drive to the USB-to-RS485 ground.
(2) Plug the RS485 connector into the drive's male DB9 COMMUNICATIONS connector. Plug the BOOTLOAD select connector into the female ADDRESS SELECT drive connector.
(3) Start the terminal program that is being used. The program should be set up for 57600 baud, 8 data bits, 1 STOP bit, NO Parity, and NO Flow Control.

Instructions if Using HyperTerminal

(1) Start the HyperTerminal application on the PC. Immediately after starting, you will be asked to input a name for the New Connection. Enter anything you choose and hit ENTER or click the OK button. The "Connect To" window will then open. Click the arrow to the right of the Connect Using button for a dropdown menu of available COM ports, select the COM port that has been assigned to the adapter, and click OK. (Note that the correct COM port setting can be verified by navigating to Device Manager under Window's Control Panel and looking under Ports (COM & LPT) After selecting the COM port, the Port Settings window will open. Choose the settings shown above. Click Apply and OK. The Port Settings window will close leaving you in the main terminal window with the COM port open.

(2) Power on the drive.

(3) If everything is connected and working as it should be, the Main Menu text as displayed in Fig. 1 should appear in the HyperTerminal window.

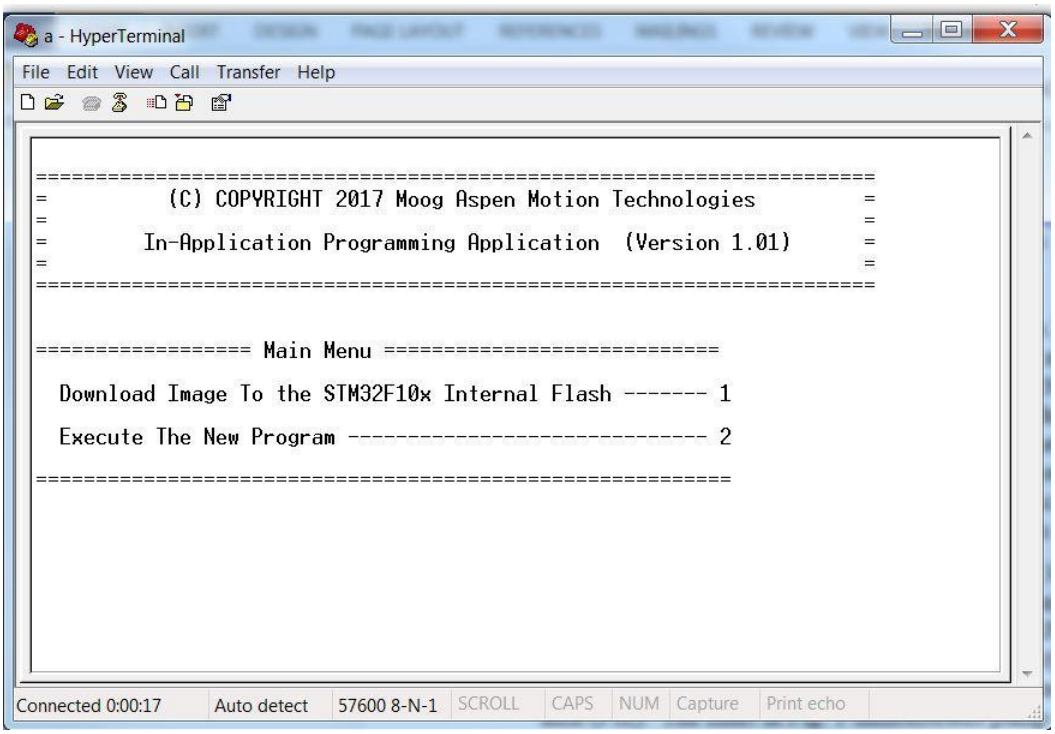

Fig. 1. Main Menu

(4) Type "1". The text in Fig. 2 will appear indicating that the drive is ready for the binary programming file to be downloaded. While waiting for the file to be downloaded, the drive will continue to march "C's" across the screen. At this point, the download can be aborted by typing "a".

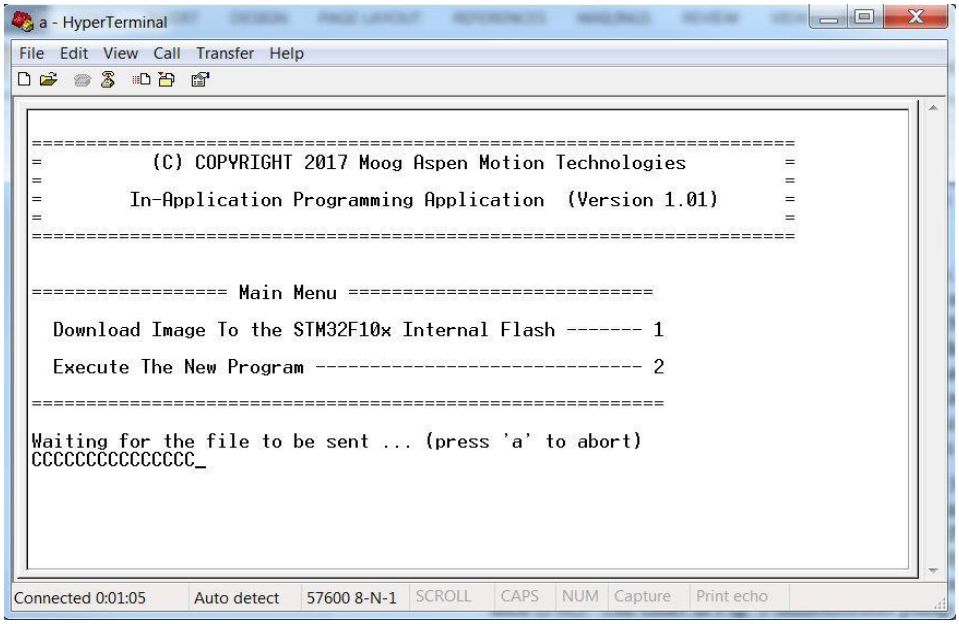

Fig. 2. Waiting for file download.

(5) Click on the "Transfer" menu button at the top of window and select "Send File…". The window shown in Fig. 3 will open prompting you for the file information. Using the dropdown menu, select the "Ymodem" Protocol, and then browse to and select the filename of the ".bin" binary programming file. Finally, click Send.

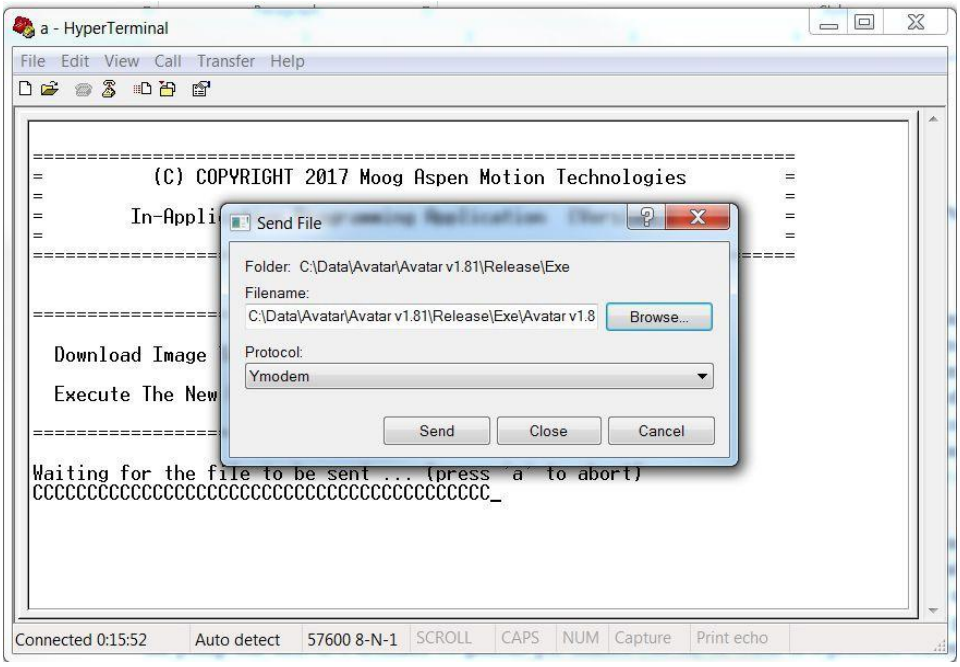

Fig. 3. Send File window

(6) A file download progress window as shown in Fig. 4 will open. When the download completes the progress window will close, and, if the programming was successful, the main terminal window, as shown in Fig. 5 (next page), will display the status of the programming operation along with a restated Main Menu

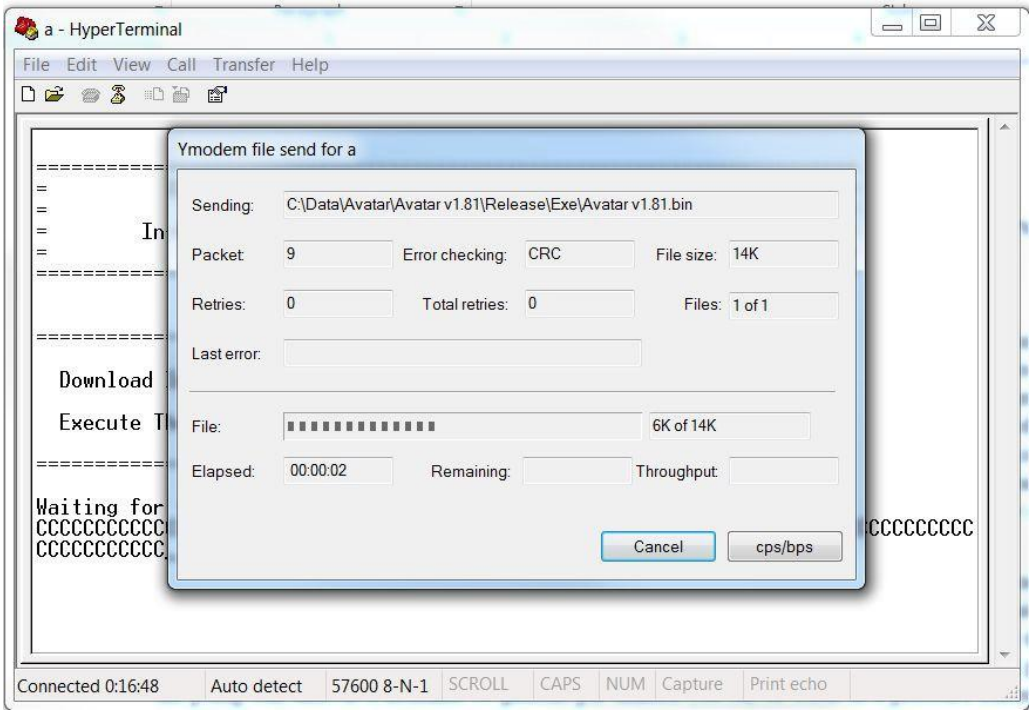

Fig. 4. Download progress window

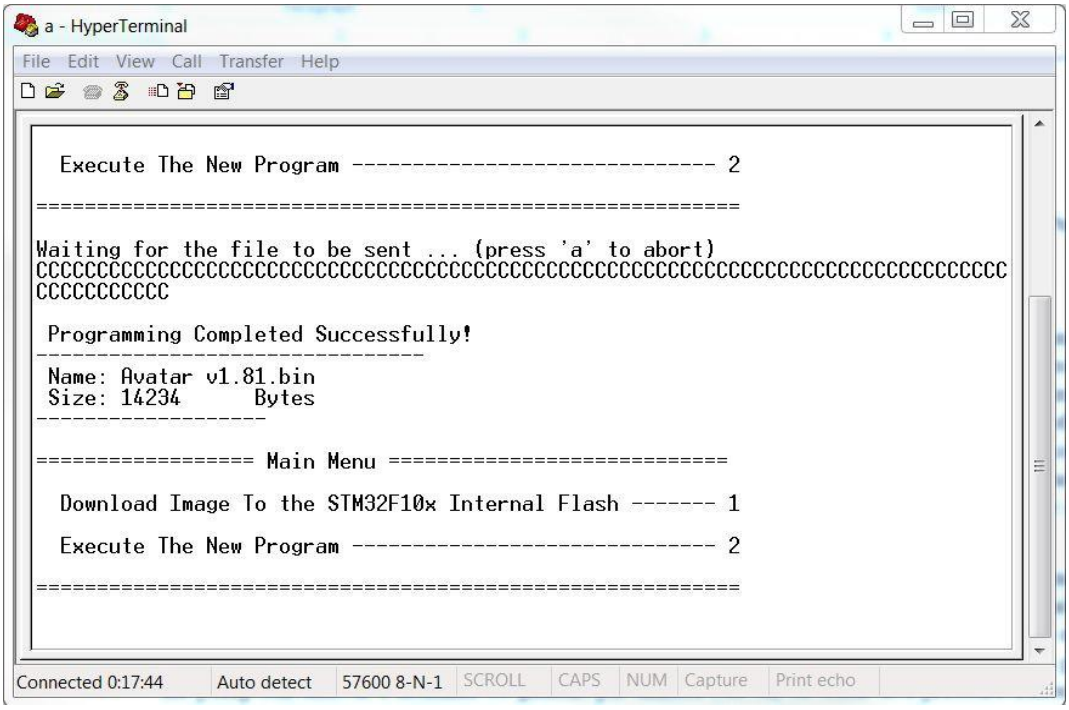

Fig. 5. Programming status

(7) Start the new applications program by first replacing the BOOTLOAD connector with an ADDRESS SELECT connector and then selecting "2" in the Main Menu. The drive will immediately start executing the new program (the screen does not change once this is done). If the BOOTLOAD connector is not replaced with an ADDRESS SELECT connector prior to selecting "2", the drive status LED will immediately start to blink out an address fault code. It will then be necessary to attach the correct ADDRESS SELECT connector and either: (1) broadcast an ADDRESS REACQUISITION Modbus command (see the Modbus Communications document), or (2) power off the drive and wait until the LED stops blinking before reapplying power.

(8) Close the PC's HyperTerminal application.

Instructions if Using ExtraPuTTY

(1) Start the ExtraPuTTY application. Fig. 6 shows the startup screen for the program. Click on the "Serial" button in the list of Connection Types at the top of the screen. If a configuration was not previously saved, select "Serial" at the bottom of the menu on the left side of the screen.

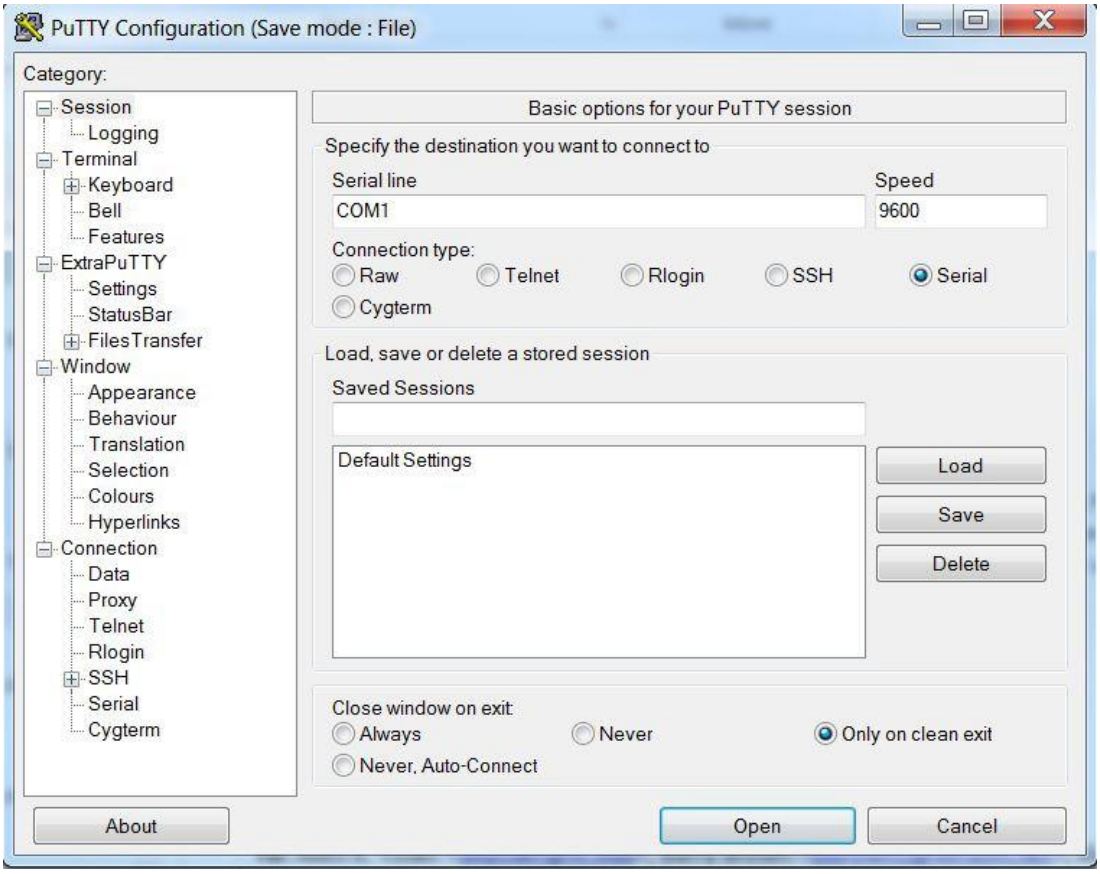

Fig. 6. ExtraPuTTY startup screen.

(2) Fig. 7 shows the ExtraPuTTY Serial setup screen. After choosing the correct COM port from the dropdown list, set up with the configuration parameters as shown. If you want to save the configuration before proceeding to programming, click on the "Session" button at the top of the left menu, and go to step (3). If not, click on the "Open" button at the bottom to open the Session screen, and proceed to step (4).

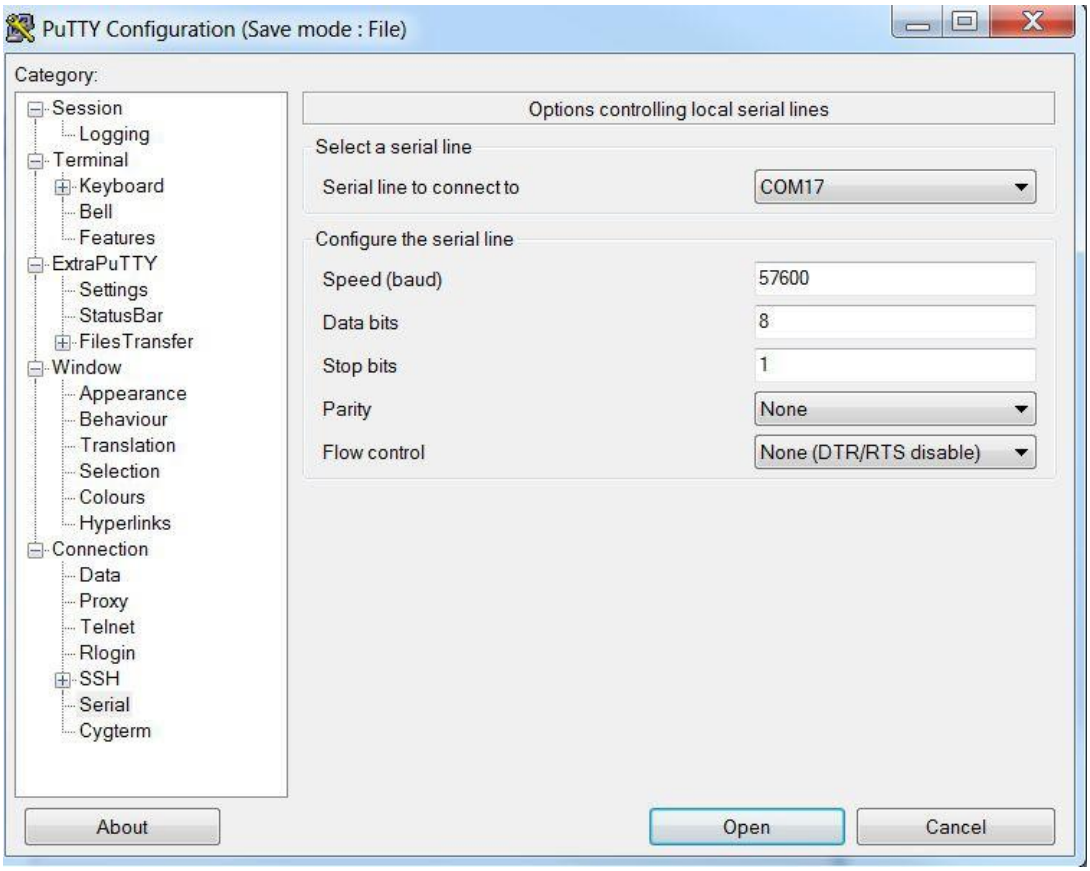

Fig. 7. Serial setup screen.

(3) Fig. 8 shows the startup screen with the correct COM port and baud rate shown. In order to save the configuration, type in a name for the configuration and click the "Save" button. Then click the "Open" button to open the Session screen.

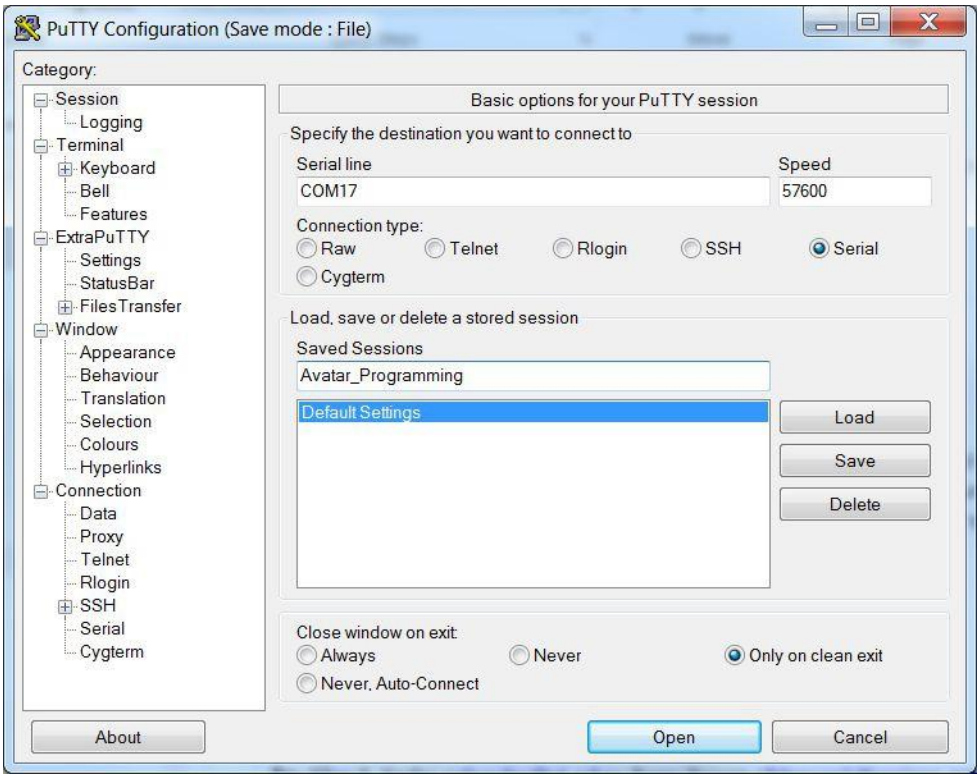

Fig. 8. Saving the configuration

(4) A blank Session screen as shown in Fig. 9 will then open. As described in the HyperTerminal directions, powerup the drive with the BOOTLOAD input grounded in the ADDRESS SELECT connector.

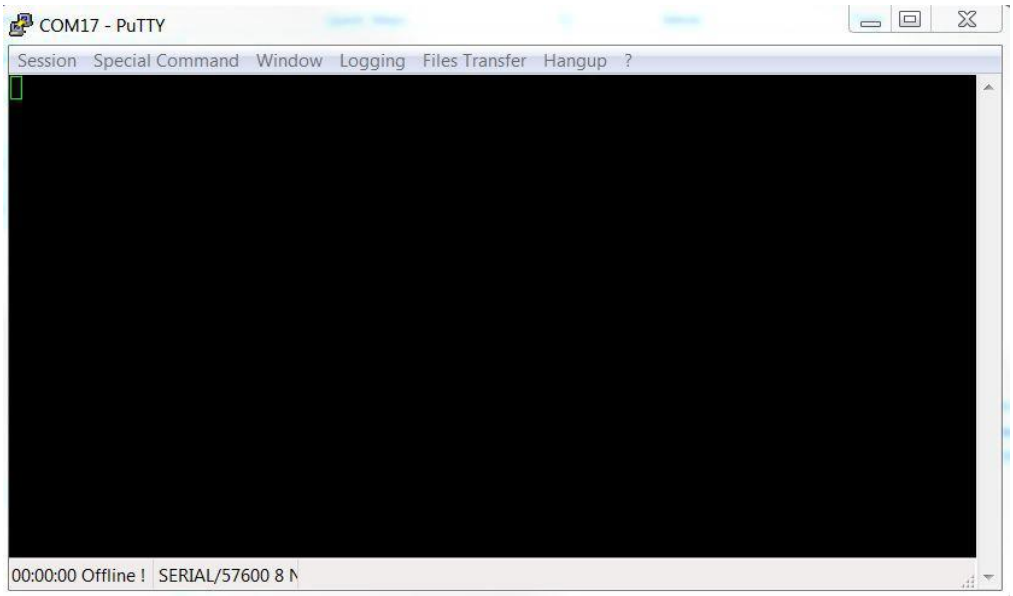

Fig. 9. Blank Session screen.

(5) Fig. 10 shows the Session screen with the programming menu. Selecting "1" will start the familiar march of "C's across the screen. Click on "Files Transfer" in the top menu, select "Ymodem" and Send. A window will open allowing you to browse to and select the ".bin" binary file to be programmed. After selecting the programming file, click "Open".

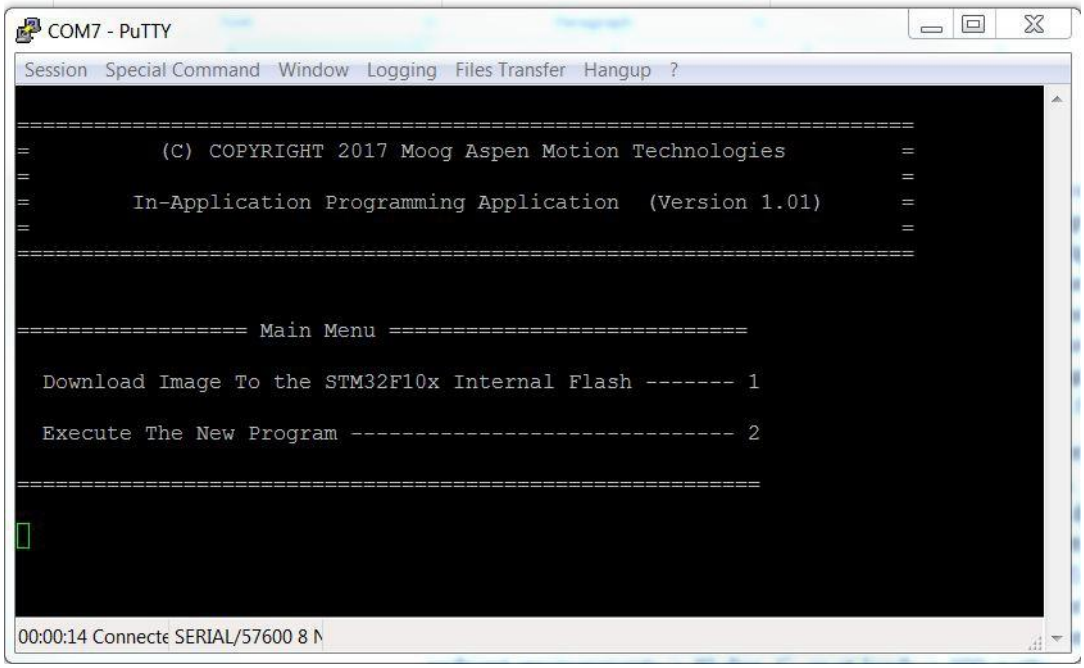

Fig. 10. Programming menu.

(6) Programming will start and a progress bar will be displayed as shown in Fig. 11. When programming completes, the progress window will close, and the Main Menu will be displayed along with the status of the programming operation. Follow the procedure discussed in section (7) of the HyperTerminal instructions to initialize and run the new applications program. Close the ExtraPuTTY application. Since the configuration has been saved, the next time that it is needed, merely select Load and then Open the saved configuration from the startup screen.

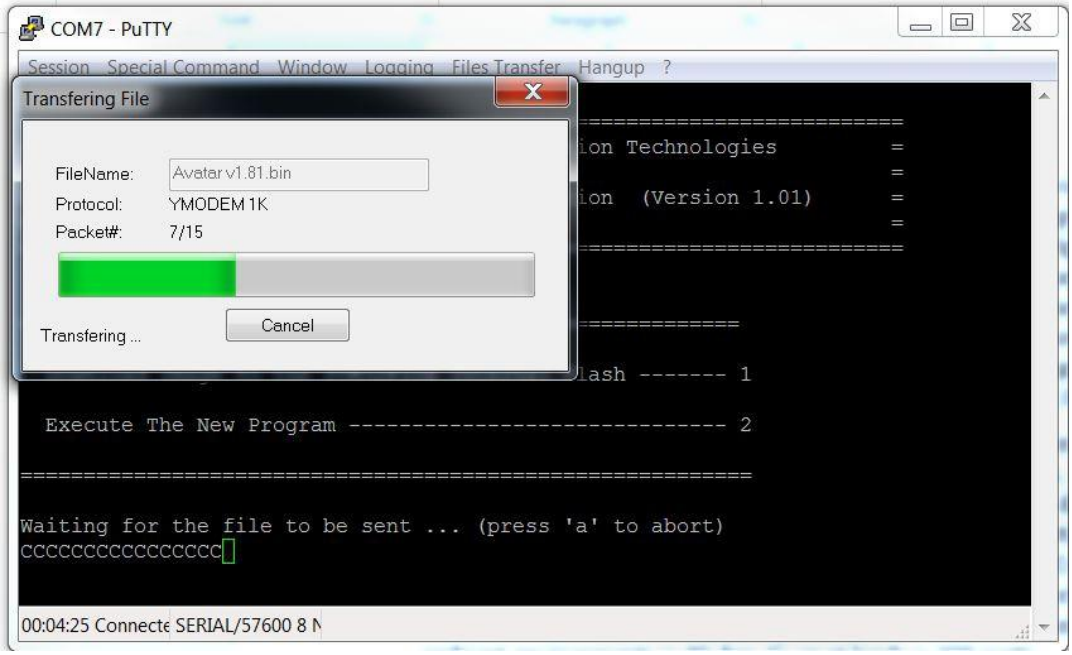

Fig. 11. Programming operation progress bar.

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or email us **em-motioncontrol@moog.com**