

E4000 Flash Programming, HEX Version

For Main Board part numbers 601600-70X

Beginning February 1, 2020, all E4000s will incorporate a new main board with revised memory circuitry. This change does not affect the features and operation of the register in any way, but does affect the flash programming procedure used to update or repair the E4000 firmware. Each version of the board can only be programmed with the installer and files for that version. Full details are on the pages for the appropriate version. The new boards are physically interchangeable with the old boards and can be used to service older units, but the unit must then be programmed with the new procedure. The two versions will be identified as RB or HEX, based on firmware file names.

Determining the Version of an E4000 Main Board

E4000 Display - When the unit is turned on, a copyright date will briefly appear on the display. On the newer HEX versions, the date will be 2019. An earlier date will indicate RB (previous version).

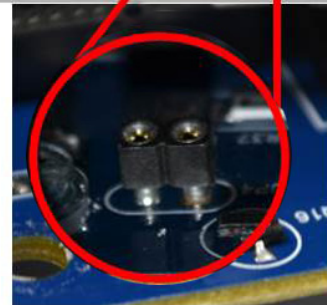
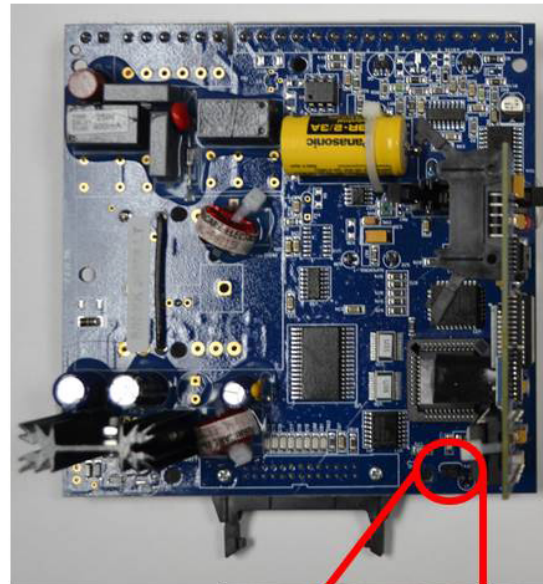
Ship Date - All units shipped on or after February 1, 2020, will be HEX version, as will any unit undergoing board replacement at the factory after this date.

Board appearance -The older board (RB version) has the JTAG connector adjacent to the display connector, and the battery (yellow cylinder) is closer to the center of the board. The HEX board does not have the JTAG connector, but has a two-position socket for the programming jumper, located near the rear of the unit on the same side as the display cable.

Old Board (600300-000)
RB Flash Files



New Board (601600-000)
HEX Flash Files

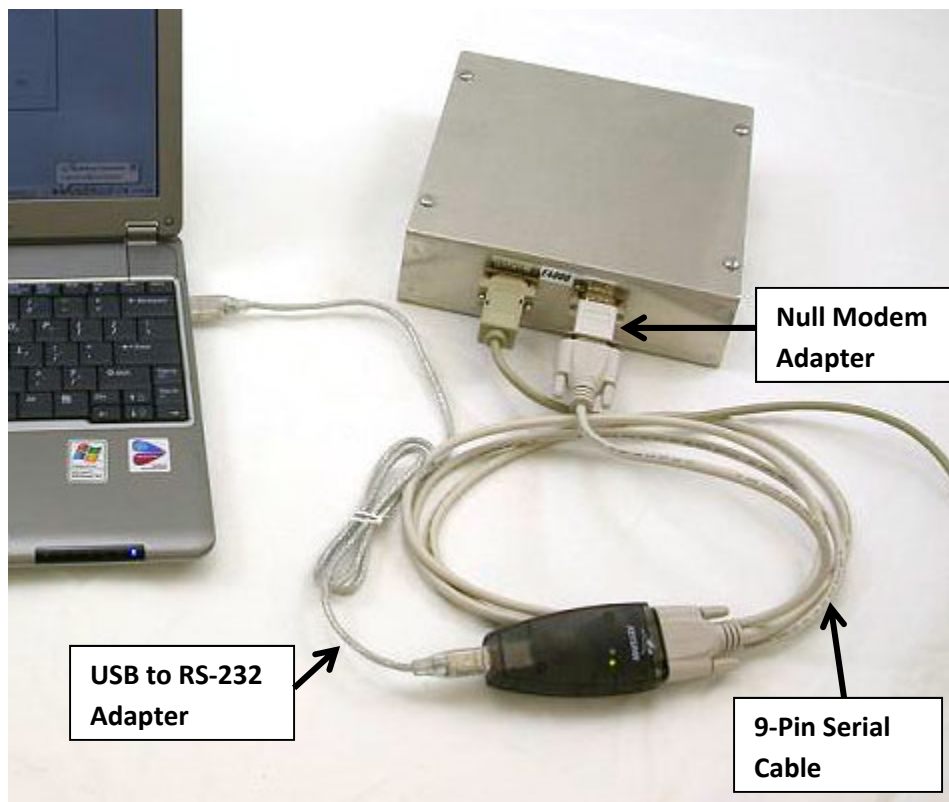


Flash programming procedure for 601600-70X, HEX version main boards

The HEX procedure does not require the use of the RLink programming device that is was used for previous version boards. Instead, connection is to the junction box with the same serial cable used for the E4000 configuration program.

Materials Required

1. USB to RS-232 Adapter
2. 9-Pin Serial Cable
3. Null Modem Adapter
4. ST1 Link Programming Software
5. E4000 Firmware Files (HEX Version)
6. E4000 wired to junction box

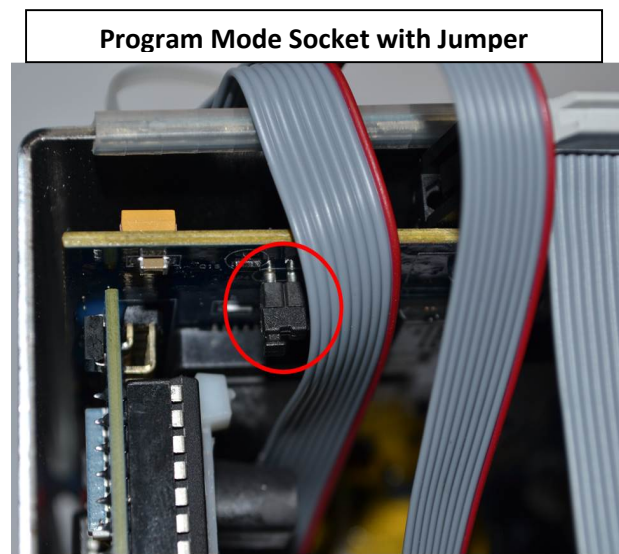
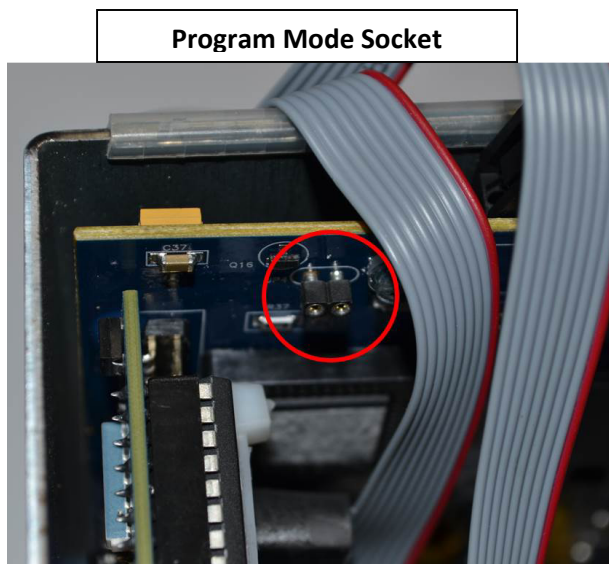


Enable Programming Mode

Programming mode is enabled by placing a jumper into the two-pin socket illustrated above. The jumper is included with the E4000 and is shown below.

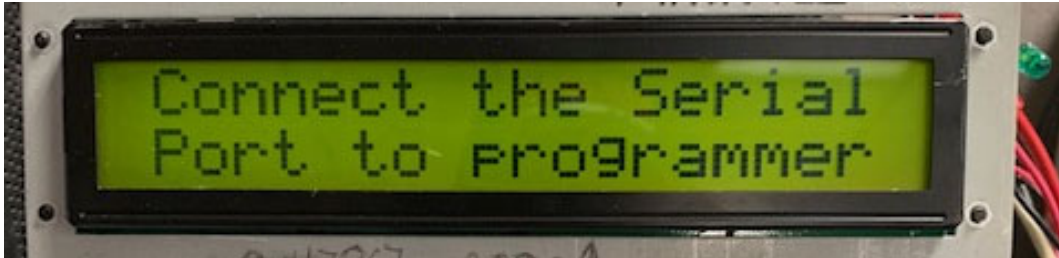


Remove the E4000 cover and locate the socket. It is located to the rear of the register, on the side where the display cable connects (left side when looking at the face of the register). With the power to the E4000 off, place the jumper into the socket.



Flashing the Firmware

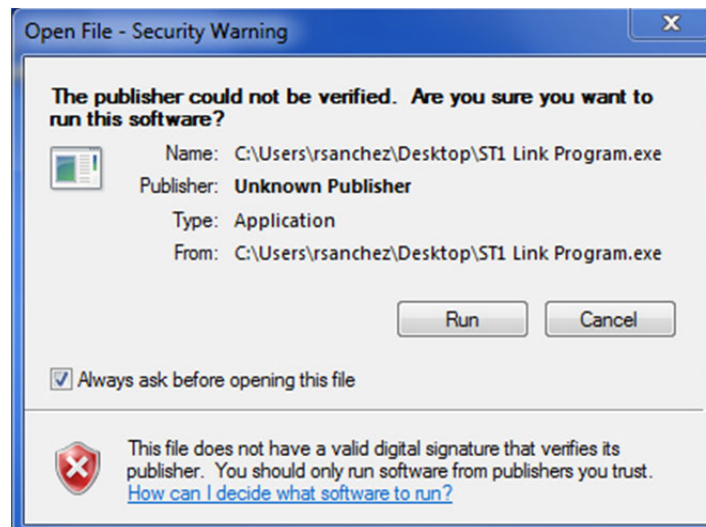
Turn on the register. The register will display a message saying “Connect the Serial Port to Programmer”.



Make sure the computer is connected to the junction box through the printer port, then open the program for the flash programming application, “ST1 Link Program”.

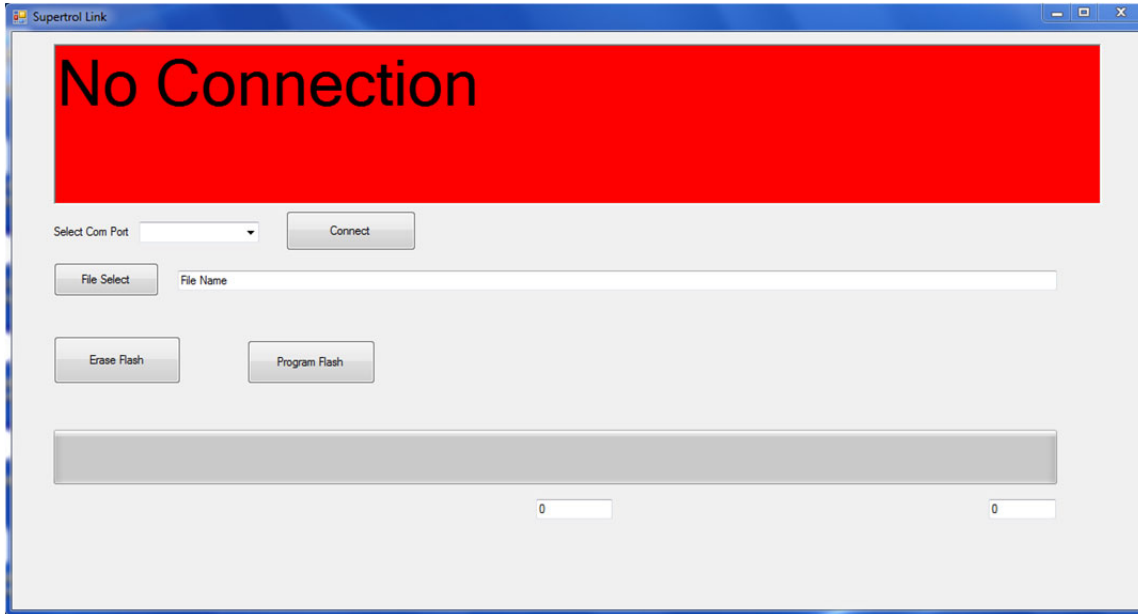


Select “Run” when the following dialog box appears..



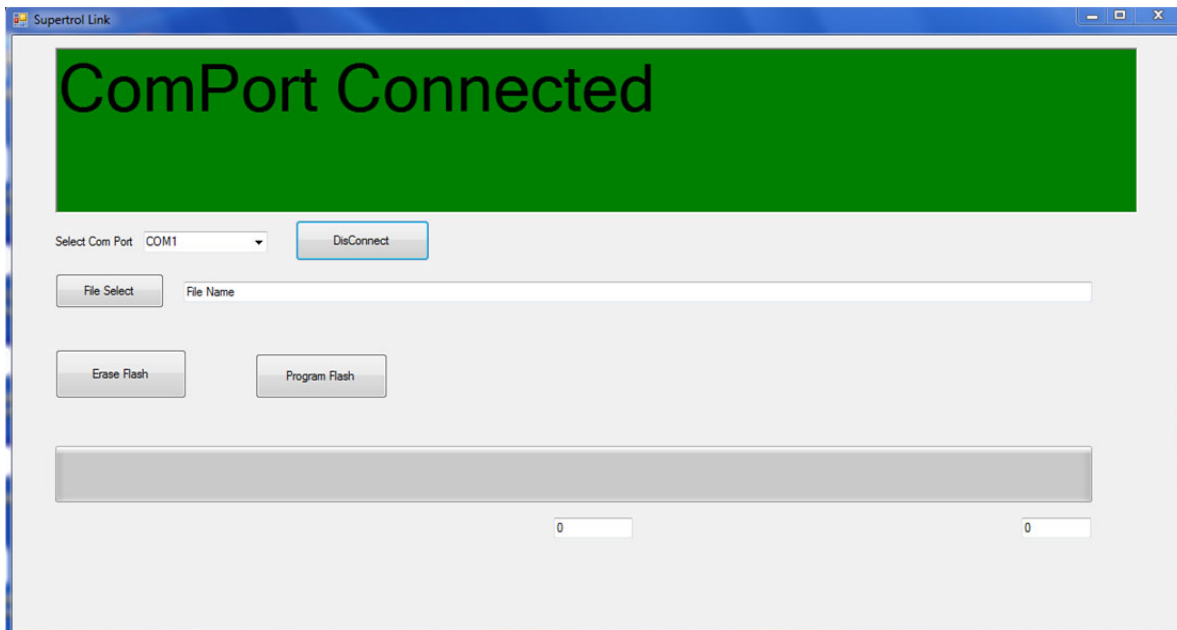


You will see the following screen.



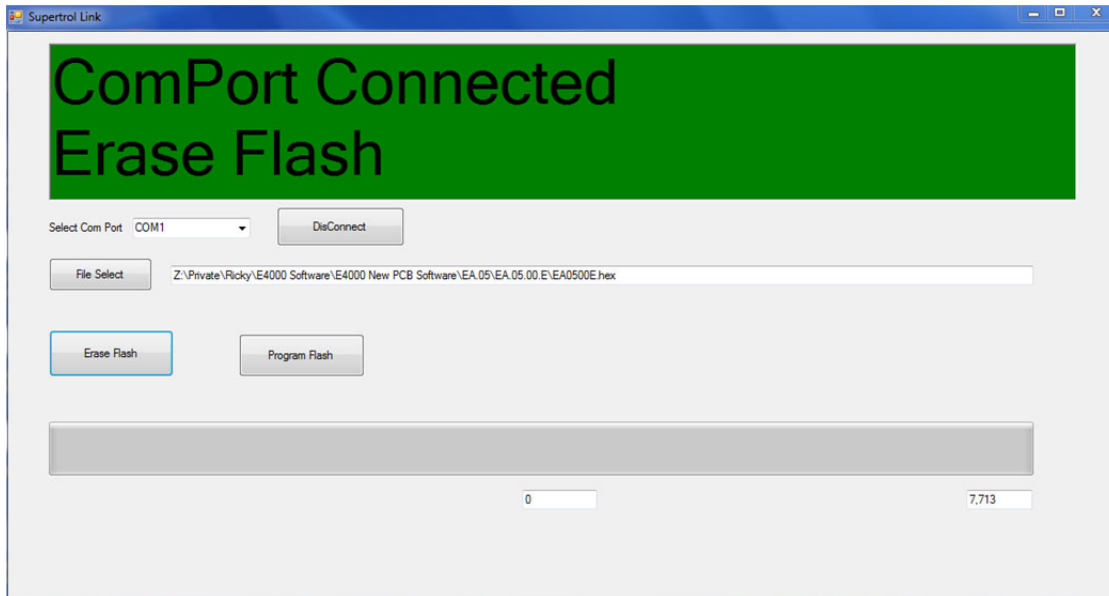
Under "Select Com Port", click the down arrow, select the com port assigned to the USB to RS-232 converter. Then click "Connect" to establish communication between the register and the computer.

The following screen should appear.

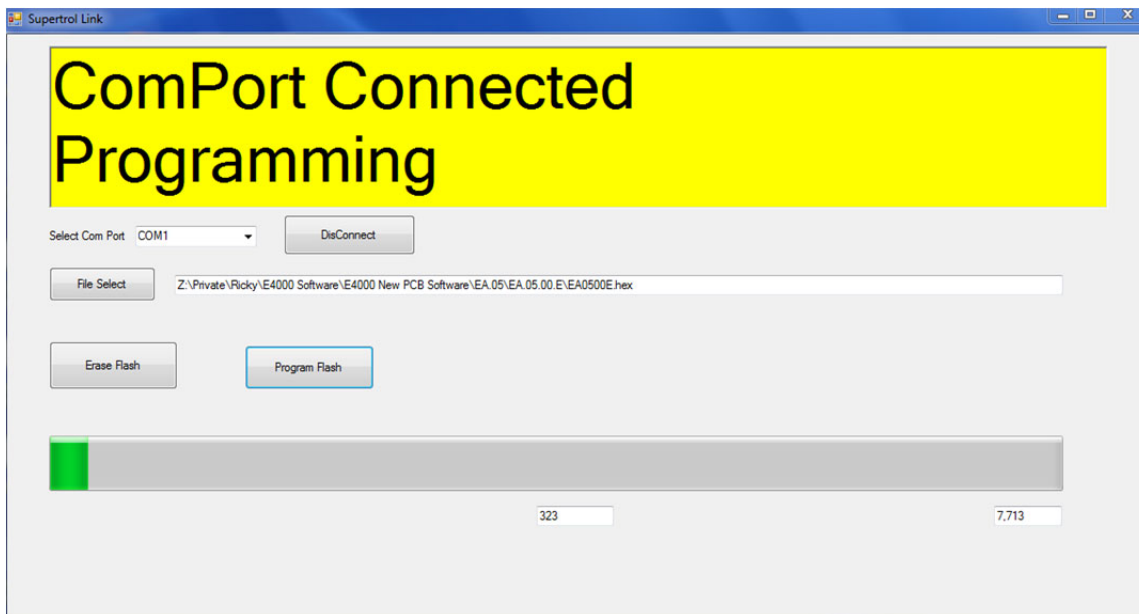




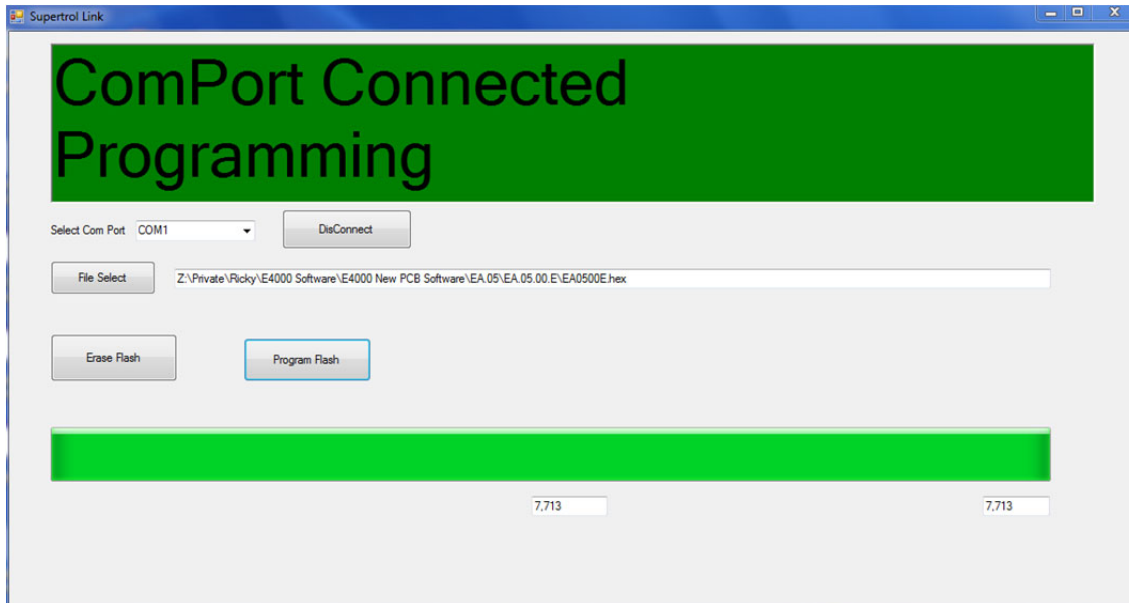
Now click “File Select”, to browse for the firmware file to be installed. The firmware filenames will end in “hex”. After the software is selected, click “Erase Flash”. This is what you should see, using firmware file EA.05.00.E as an example.



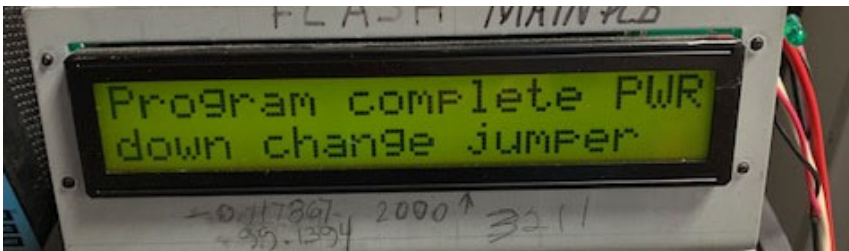
Now Select “Program Flash”. The number in the left box under the loading bar should now start counting up and the loading bar will start to grow to the right as seen below.



This should take around 6 minutes. (NOTE: This procedure takes longer than the previous method.) When programming is completed, both boxes under the loading bar should indicate the same number, as shown below.



The E4000 will now display a message saying "Program Complete PWR down change jumper". Displayed below.



Turn off the E4000, remove the jumper, and reinitialize the register .



Reinitializing the E4000

To reinitialize, simultaneously press the W&M switch, the UP button (white), and the Stop/Cancel button (red), while turning the register on. Hold the buttons until the unit displays a message saying "Initializing Unit", then release them.

To check to make sure the register downloaded correctly, turn register off then back on to make sure the firmware version is displayed as soon as the register turns back on.