Products: Model 2018 and Model MMU-1600-1

Title: **How to Upgrade the Firmware of Monitors**

Release Date: November 19, 2004

Revised Date: March 10, 2006

Scope: This bulletin applies to the Model 2018 Conflict Monitor and the dash 1 version of the Model MMU-1600 (also known as the DSP version).

There are two ways to determine if an MMU-1600 is a DSP version:

1. There are twelve (12) OPTIONS switches on the front of the monitor. Earlier versions have eight (8) OPTIONS switches.

2. The front panel LEDs do not protrude through the holes and there is a clear film covering over the holes.

The firmware for the main microprocessor in the MMU-1600 and the 2018 can be upgraded via the front panel mounted RS-232 port. The most current version of firmware is available on the Reno A & E website (www.renoae.com) and can be found in the Support section. Firmware upgrades to the monitor are accomplished through the use of the RaeComM software, version 02.01.00 or greater, which is also available on the Reno A & E website in the Support section.

There are three (3) separate firmware files for the main microprocessor in the monitor that can be upgraded.

Main Code: This is the code (firmware) that runs the monitor under normal conditions. In most cases, this is the only file that needs to be upgraded.

Secondary Boot Loader: This is the code that is responsible for allowing firmware upgrades if the main code is corrupt or becomes corrupt during the programming process.

Primary Boot Loader: This is the code that is responsible for allowing firmware upgrades if the secondary boot loader is corrupt.   This file can only be upgraded by a user with factory level privileges.

The two boot loaders exist to allow the monitor to recover from problems during the upgrade process (power fail during programming, computer crash during programming, etc.). They should not need to be upgraded, but provisions have been made in the event that they do.

To upgrade the main code:

1.   Ensure that RaeComM version 02.01.00 or greater is installed on the computer to be used during the upgrade process.

2.   Download the latest main code file for the monitor to be upgraded from the Reno A & E website (www.renoae.com).

3.   Connect the monitor to the computer using a straight through cable. A DB-9 extension cable works well to provide a link between the computer's serial port and the monitor's communication port. If the computer being used to perform the upgrade does not have a DB-9 serial port a USB adapter may be required to connect the monitor to the computer.

4.   Start the RaeComM software. When the LOGIN screen appears, press ENTER or click on the OK button.

5.   Ensure that the RaeComM software can communicate with the monitor to be upgraded. This should be automatic. The CONFIG file should have the AUTO IDENTIFY MONITOR activated.

If the circled information in the graphic below does not show up on the screen and the IDENTIFY on the menu bar is not grayed out, then you must click on the IDENTIFY button. Like the circled fields in the graphic below, your screen will then contain the monitor's data.
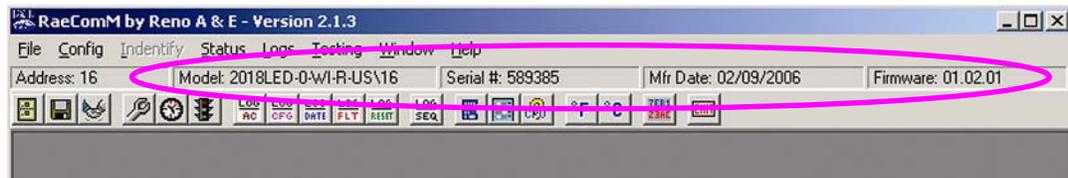
6.   Open the CONFIG menu and choose UPGRADE FIRMWARE.

7. On the Upgrade Firmware form that appears, click on the file folder icon next to the file name.
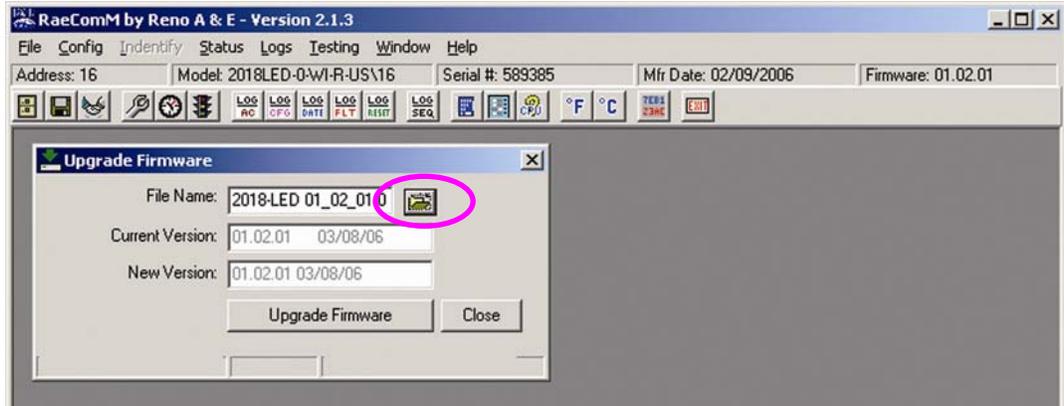
8. Select the file that was just downloaded from the Reno A & E website.

9. If the file you selected is the correct file for the monitor connected to the computer, the Upgrade Firmware form will show the version of firmware currently in the monitor and the version that is about to be transferred.
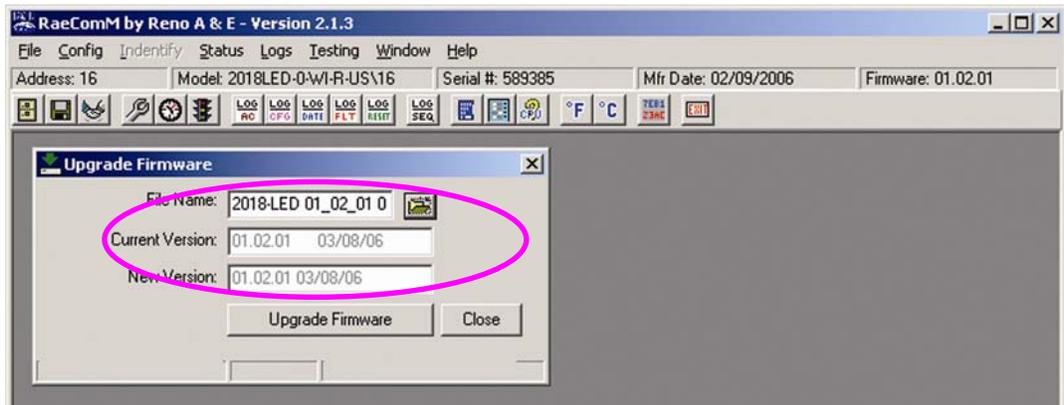
10. If this is correct, click on the UPGRADE FIRMWARE button and the transfer process will begin.
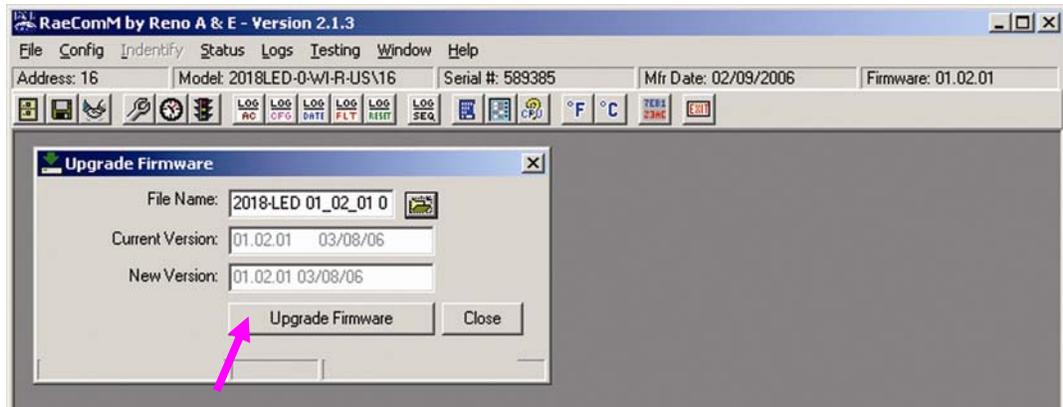
11. If an error is encountered once the transfer process has begun, RaeComM will automatically retry the transfer process up to five (5) times. Do not cycle power to the monitor if an error is encountered. Attempt the transfer again.

12. Once the transfer process is complete, cycle power to the monitor to begin running the new code.
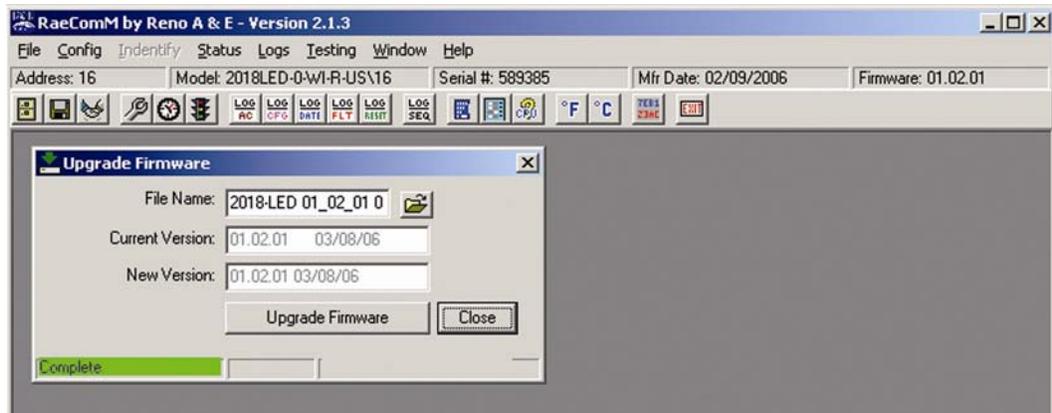
IMPORTANT: Do not interrupt power to the monitor during the transfer process. This will corrupt the firmware being transferred.

Each firmware file is encrypted and contains information identifying what model monitor it can be used in and what type of firmware it is. This ensures that the user cannot inadvertently upgrade a monitor with the incorrect firmware and that the firmware file has not been tampered with.