



How to Update Falcon Firmware using a 1K X-Modem

For models 8002, 8125 & 2006

The Falcon Bootloader Firmware resides in EPROM and provides three basic services (a permanent code, diagnostic commands and the ability to update firmware).

1. PERMANENT CODE

The Bootloader Firmware provides the Falcon with a permanent start up code that cannot be erased.

2. DIAGNOSTIC COMMANDS

It also provides some basic diagnostics for the hardware.

- **CLOCK** - Displays the clocks date & time for 5 seconds
- **TIME** - Displays the time. May be set with "TIME HH:MM"
- **DATE** - Displays the date. May be set with "DATE MM/DD/YY"
- **ERASE PRGM** - Erases the Flash Main Program
- **LOAD PRGM** - Loads the Flash Main Program – ASCII transfer
- **LOAD XMODEM** - Loads the Flash Main Program – Xmodem-1k transfer
- **RUN** - Runs the Flash Main Program
- **BLANK** - Blank checks the Flash Memory
- **ID** - Displays the Flash Main Program Revision
- **VPP** - Displays the measured Flash Programming voltage
- **VPP ON** - Turns on the Flash Programming voltage
- **VPP OFF** - Turns off the Flash Programming voltage
- **RLY1** - Turns on Relay #1
- **RLY2** - Turns on Relay #2
- **RLY OFF** - Turns off Relay #1 & #2
- **DIAG** - Starts the diagnostic test
- **CLS** - Clears the terminal screen
- **WD** - Stops the internal watchdog
- **"?"** - Displays the list of valid commands

3. UPDATING THE FLASH FIRMWARE

The Bootloader firmware is used to update the Flash firmware. Firmware updates can be uploaded via the RS-232 configuration port at 9600 baud (N, 8, 1). Connect a terminal emulator to the configuration port at 9600, N, 8, 1.

To start the update process, wait for the ten second delay window during power up and press any key to abort/stop the Flash Main Program from executing. If the Flash Main Program is already running, type **"EX"** to exit.

The Flash Main Program must be erased before an upload can be preformed. To erase the code, type the **"ERASE PRGM"** command. After a second or so, the screen will display **"OK"**.

FOR VERSION 3.X: Type the **"LOAD PRGM"** command. The Falcon should respond with a **"SEND FILE"** prompt. The file is uploaded using ASCII text protocol and a 50ms delay between lines - or the line pace character may be set to ACK (decimal 6). The file must be hex with an **.s19** extension.

For VERSION 4.X and 5.X: Type the **"LOAD XMODEM"** command. The file is uploaded using X-Modem-1k protocol. The file must be binary with a **.bin** extension.

After the file has been uploaded, enter the **"RUN"** command, or power down the Falcon and then turn it back on.