Appendix C

Upgrading Data Logger Firmware

The Q-DL-2100 data logger firmware includes a bootloader program which allows for user upgrades of the firmware in the field.

To upgrade the firmware on the Q-DL-2100 data logger the user should follow these steps:

1. Obtain the latest QDL2100.bin firmware from Hydroinnova.

2. Turn off the data logger power and remove the SD card.

3. Copy the obtained QDL2100.bin file to the top level directory of an available SD card (this can be the SD card removed from the data logger in Step 2).

4. Insert the SD card containing the QDL2100.bin file into the data logger.

5. Turn on the data logger power.

6. The data logger's heartbeat LED should first flash rapidly for approximately 8-10 seconds while the firmware binary file is detected on the SD card and then copied into the data logger's program space. After successful copying of the firmware file, the data logger should reboot, executing the new firmware. The heartbeat LED should begin flashing at approximately a 1 second cadence for a few seconds. Then the data logger will execute a self test of the data acquisition system (with the second status LED on during the data acquisition process), after which time the heartbeat LED will begin flashing at a cadence of approximately once every 8 seconds.

7. The firmware is now upgraded.

Follow these additional steps to restore the data logger to full operation.

8. Turn the data logger power off.

9. Remove the SD card from the data logger.

10. Remove or rename the QDL2100.bin file from the SD card if the same SD card is to be used for data logger operation.

11. Reinsert an SD card with an appropriate QILogger.INI file on it (make sure the SD card does not contain a QDL2100.bin file in the top directory).

12. Turn on the data logger. The sequence described in Step 6 above should repeat, with the heartbeat LED rapidly flashing at startup while the bootloader searches for a QDL2100.bin file. If none is found, the data logger will run the resident firmware.

Note	Use of your terminal emulator may be helpful in verifying the operation and installation of the firmware as informational messages such as the firmware version number are displayed on the terminal interface upon data logger startup.