

Q u a n t u m D e s i g n



**Quantum Design
Control Area Network
(QDCAN)**

FlashLoader User's Manual

Part Number 1101-051-01, A1

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U.S. Patents

4,791,788 Method for Obtaining Improved Temperature Regulation When Using Liquid Helium Cooling
4,848,093 Apparatus and Method for Regulating Temperature in a Cryogenic Test Chamber
5,053,834 High Symmetry DC Squid System
5,110,034 Superconducting Bonds for Thin Film Devices
5,139,192 Superconducting Bonds for Thin Film Devices
5,311,125 Magnetic Property Characterization System Employing a Single Sensing Coil Arrangement to Measure AC Susceptibility and DC Moment of a Sample (patent licensed from Lakeshore)
5,319,307 Geometrically and Electrically Balanced DC Squid System Having a Pair of Intersecting Slits
5,647,228 Apparatus and Method for Regulating Temperature in Cryogenic Test Chamber

Foreign Patents

U.K. 9713380.5 Apparatus and Method for Regulating Temperature in Cryogenic Test Chamber
Canada 2,089,181 High Symmetry DC Squid System
Japan 2,533,428 High Symmetry DC Squid System

C O N T E N T S

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Using the FlashLoader Utility

1.1 Introduction

This appendix contains the following information:

- Section 1.2 presents an overview of the FlashLoader utility software.
- Section 1.3 explains how to download an FCF file from the PC to a QD CAN module.

1.2 Overview of the FlashLoader Utility

The low-level instructions for operating a Quantum Design (QD) CAN module are executed by an embedded microprocessor that resides inside the module. These low-level instructions are part of an application program that is commonly referred to as the module firmware. The module firmware coordinates all the module functions. For example, the module firmware receives high-level instructions (e.g., a **Set Field** command) over the CAN bus from software running on the PC. The firmware implements these instructions by directly controlling the electronics within the module (e.g., setting a voltage level on a digital-to-analog converter or turning on a transistor).

The CAN module is programmed with its firmware by loading the firmware file onto flash ROM located inside the module. This makes it possible to easily reprogram the module firmware as QD creates new features or refines the original program. These new versions of the module firmware will be made available to owners of QD systems in an electronic form known as a Flash Configuration File, or an FCF file for short. Quantum Design will notify you when there is an update and how to obtain the file.

You will use the FlashLoader utility program to download FCF files between the PC and the QD CAN modules. In this chapter, the FlashLoader utility is illustrated in terms of the Model 3120, but the instructions apply to any QD CAN module.

The FlashLoader utility communicates with the modules through the CAN bus. To use the FlashLoader utility, you must have installed the appropriate CAN card and drivers and connected the PC to the QD CAN devices.

To start **FlashLoader**, double-click on `FlashLoader.exe` (Figure 1-1), which is located in the `QDCAN` folder (`C:\QDCAN\`).



Figure 1-1. FlashLoader icon and file name

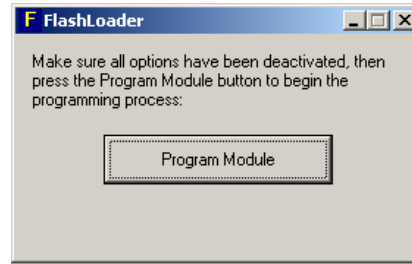


Figure 1-2. Main dialog box of the FlashLoader utility

When the utility starts, the main dialog box for the **FlashLoader** will open (Figure 1-2). You will use the **Program Module** button in this dialog box to download flash configuration files (FCF files) from the PC to the module, as is explained in the following sections.

1.3 Downloading an FCF File from the PC to a CAN Module

The instructions below explain how to download an FCF file from the computer to a QD CAN module by using the **Program Module** button in the main **FlashLoader** dialog box.

1. Verify that all equipment options have been deactivated.
2. If necessary, start the **FlashLoader** utility (double-click on `C:\QDCAN\FlashLoader.exe`).
3. Click on the **Program Module** button in the main **FlashLoader** dialog box (Figure 1-2).
4. The **Select A Flash Configuration File To Download ...** dialog box (Figure 1-3) will open so that you can specify the name and location of the FCF file that is to be downloaded to the CAN module.
5. Select a file name and location and click on the **Open** button.
6. The **Choose Node ...** dialog box (Figure 1-4) will open, with a section that lists the available modules and **OK** and **Cancel** buttons. The number listed with a module is its node address on the CAN bus.

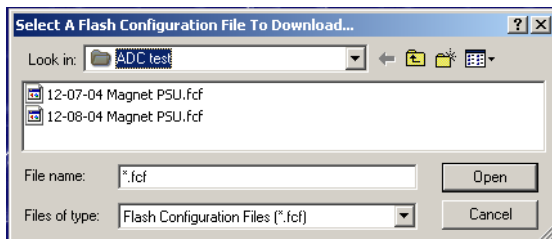


Figure 1-3. Select the Flash Configuration ... dialog box for downloading FCF files to a CAN module.

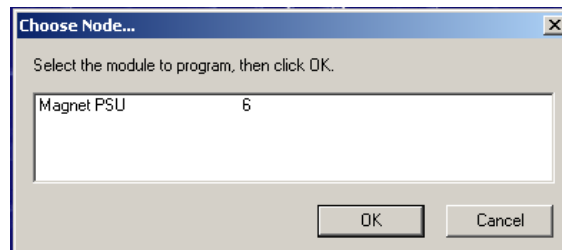


Figure 1-4. **Choose Node ...** dialog box

7. Select the appropriate module and click on the **OK** button. (In the following example, we chose the Magnet PSU module, which is at node address 6.)

The **FlashLoader** utility will compare the contents of the FCF file with the node you chose, and the **FCF File Information** dialog box (Figure 1-5) will open with a summary of the results.

8. Verify the information in the **FCF File Information** dialog box and click on the **Yes** button. (If the information indicates the wrong module was selected, the **No** button will return you to the main **FlashLoader** dialog box so that you can select the correct module.)



Figure 1-5. Fcf file information dialog box

9. The FlashLoader program will begin downloading the FCF file to the module (i.e., programming the module) and the **Programming Module ...** dialog box (1-6) will open, reporting on the module programming process.
10. When the programming has been completed, the **Module Programming Complete ...** dialog box (Figure 1-7) will open with final instructions. As noted, the module must be restarted before you can use the new firmware
11. Select **Yes, I want FlashLoader to restart the module now** and click on the **Finish** button.

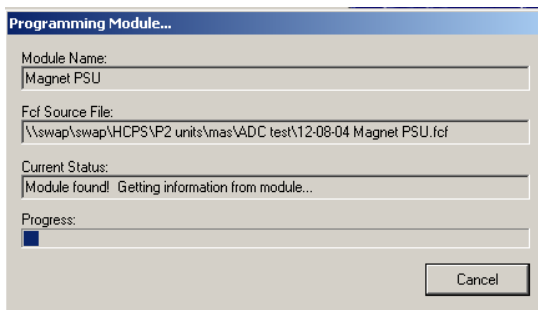


Figure 1-6. Programing Module ... dialog box

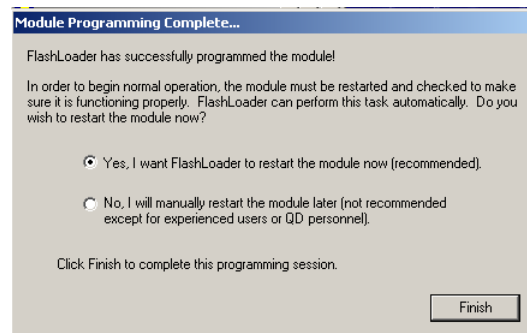


Figure 1-7. Module Programming Complete ...

12. A **FlashLoader** popup dialog (Figure 1-8) will appear and report on the final stage of the programming procedures, indicating whether the FCF file has been successfully downloaded or programmed.

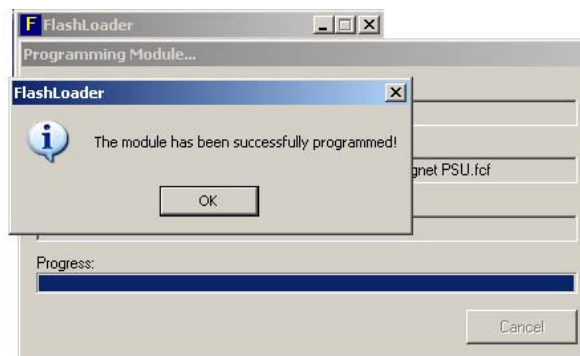


Figure 1-8. Module programming was successful.

13. Click on the **OK** button at the bottom of the **FlashLoader** popup dialog to return to the main **FlashLoader** dialog box.

