	Unidrive M600-M800 Firmware Programming Instructions

1 Summary

This document details how to upgrade the firmware of a Unidrive M600-M800. This includes upgrading control firmware via Unidrive M Connect and SPFlash and also gives details on upgrading other parts of the drive such as the onboard Ethernet interface, option modules and rating data.

Contents

2 Drive control board firmware

2.1 Upgrading from V01.00.00.00 to a more recent version

From V01.00.00.00 firmware onwards, there is a built in bootloader to allow drive firmware to be upgraded without the use of the Firmware Programmer box. **If a previous version of control board firmware is present, please see section "2.2 Upgrading to V01.00.00.00 from a previous version".**

This is accomplished using Unidrive M Connect V1.4 or later. If an older version of Unidrive M Connect is present, please download the latest version from the main Emerson website at: www.ctmanuals.info.

Please note that upgrading the drive firmware with Unidrive M Connect will not erase any onboard program on the drive.

2.1.1 Using Unidrive M Connect

As Unidrive M Connect will automatically detect available drives, minimal communication settings are required from the user.

Once connected to the required drive, please click on the "Change Firmware" button. This will open up a new dialog box as shown below:
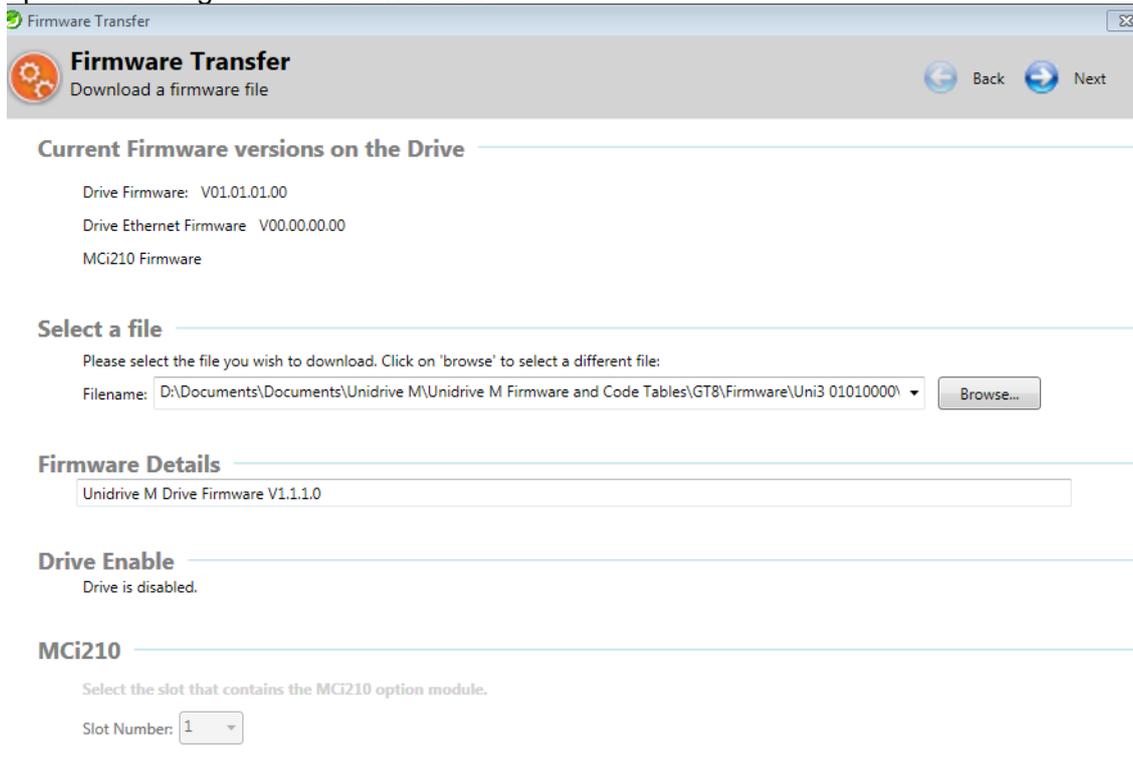

Firmware Transfer

🔴 **Firmware Transfer**
Download a firmware file   🔙 Back   ➡️ Next

Current Firmware versions on the Drive

    Drive Firmware: V01.01.01.00

    Drive Ethernet Firmware   V00.00.00.00

    MCi210 Firmware

Select a file

    Please select the file you wish to download. Click on 'browse' to select a different file:

    Filename: D:\Documents\Documents\Unidrive M\Unidrive M Firmware and Code Tables\GT8\Firmware\Uni3 01010000\ ▼   [Browse...]

Firmware Details

    Unidrive M Drive Firmware V1.1.1.0

Drive Enable

    Drive is disabled.

MCi210

    Select the slot that contains the MCi210 option module.

    Slot Number: 1 ▼

Under the "Select a file" section, please select the firmware file that is required. All firmware files will have a file extension of ".img" E.g. Uni3 01010100.img.
Once an appropriate firmware file is selected, Unidrive M Connect will detect the type of file e.g. drive control board firmware. Please note that the drive must be disabled to continue with the firmware upgrade.
Then click on the Next button on the top right corner and this will bring up the box shown below:
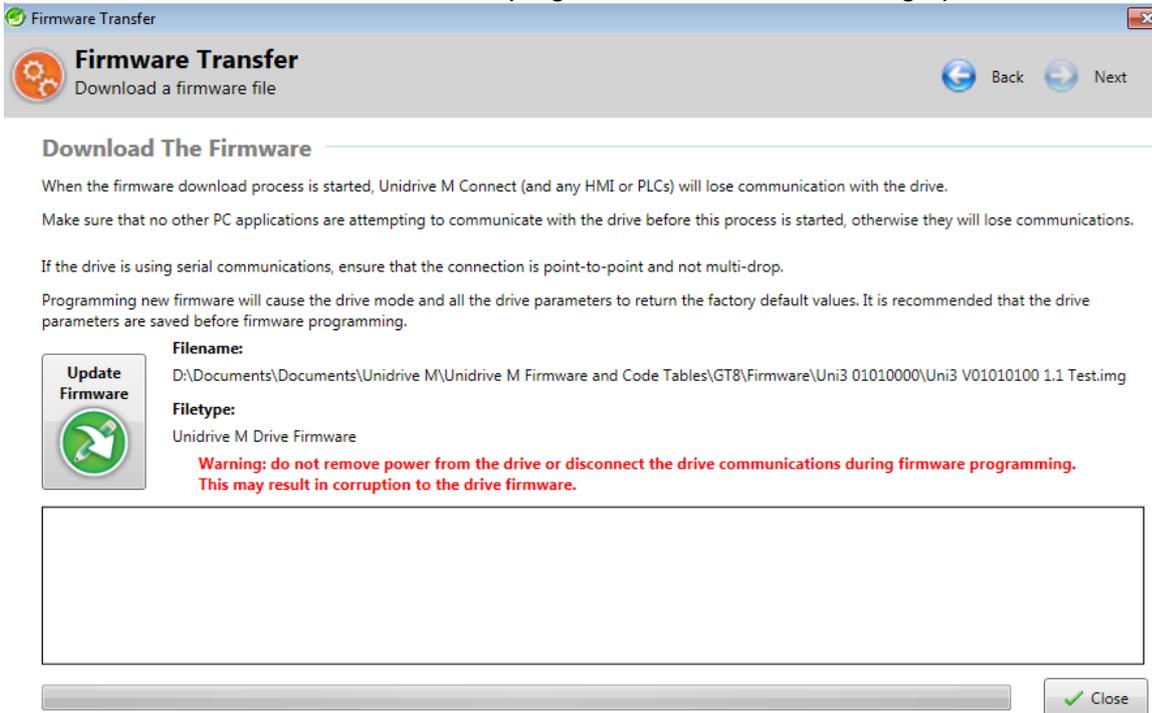
To begin the firmware upgrade, please click on the "Update Firmware" button on the left hand side. This will then automatically download the new firmware to the appropriate target and reset it.

Once complete, the window will display that it is complete as shown below:
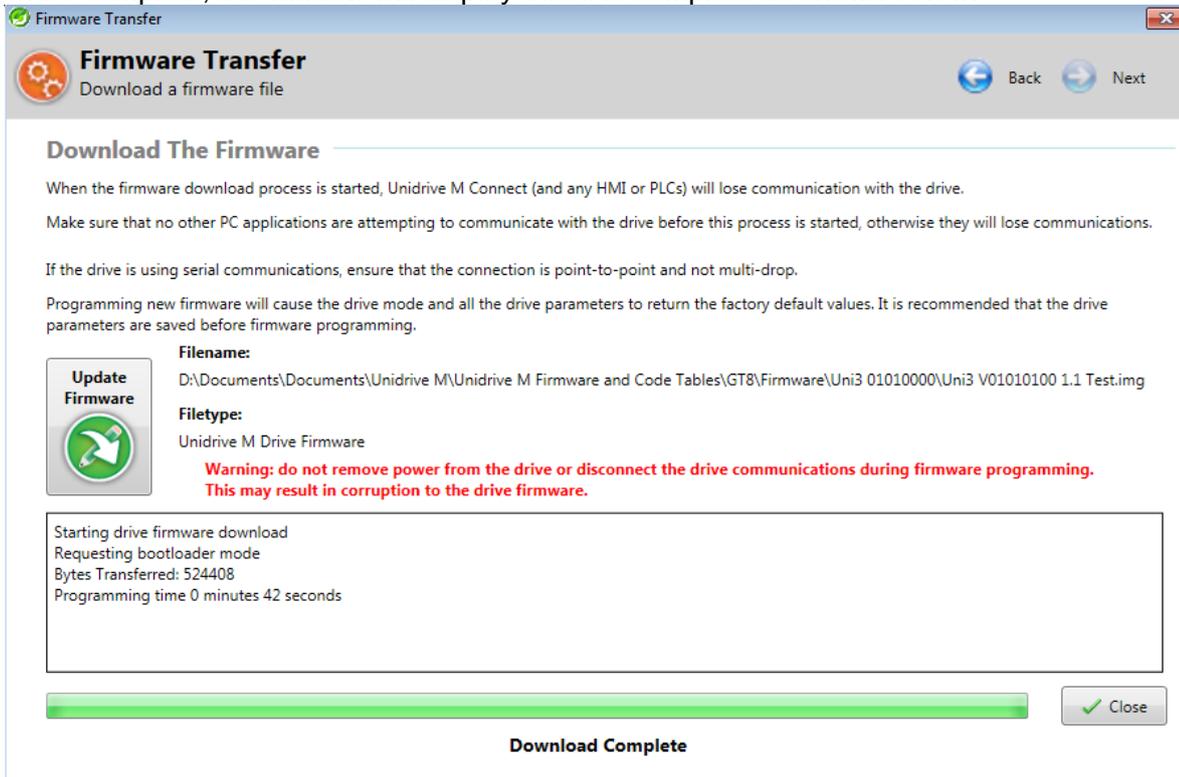
The target should now be ready to resume operation.

2.2 Upgrading to V01.00.00.00 from a previous version

If the current firmware version in the Unidrive M is V00.06.00.00 or earlier then the rating data **MUST** before updated before drive firmware is updated. For more information please see section 3 "Updating the drive rating data" in this document.

At present, it is only possible to update the rating data of the drive via RS485. If the drive in question already has V00.07.00.00 firmware or newer, it is not necessary to update the firmware unless explicitly stated in the drive firmware release notes.

SPFlash V2.4.14 or later is required to reprogram the firmware from any earlier version to V01.00.00.00. If you are unfamiliar with reprogramming a Unidrive M with SPFlash please refer to the document "Unidrive M Firmware Programming User Guide.pdf" which is available on the Unidrive M Resources pages of the Apps Portal.

2.2.1 Target file selection

Due to multiple derivatives of the Unidrive M being available, separate firmware files have been generated for each one. The file "Uni3 01000000 M70x.zip" contains the following target files.

- Uni3 01000000 M700.mot
- Uni3 01000000 M701.mot
- Uni3 01000000 M702.mot

To differentiate between drive derivatives, it is necessary to look at Pr *11.028* (Drive Derivative). There are currently 3 different drive derivatives in the field and can be distinguished as below:

Unidrive M700
There are two versions of Unidrive M700

> ***Unidrive M700 with Ethernet communications – Pr 11.028 = 1***
> These are true Unidrive M700 drives and were shipped from July 2012 onwards.
> The target file "Uni3 V01000000 M70**0**.mot" must be used.

> ***Unidrive M700 with 485 serial communications – Pr 11.028 = 0***
> These are very early Unidrive M700 drives and were shipped before July 2012. These are effectively Unidrive M701 drives.
> **It is important that the target file "Uni3 V01000000 M701.mot" is used.**

Unidrive M701 – Pr 11.028 = 2
The target file "Uni3 V01000000 M70**1**.mot" must be used.

Unidrive M702 – Pr 11.028 = 3
The target file "Uni3 V01000000 M70**2**.mot" must be used.

2.2.2 Important information

It is not possible to change the Unidrive M variant by programming it with different target file, i.e. it is not possible to program an M701 drive with the M702 target file.

If the incorrect target file is programmed into a drive, a permanent "Derivative ID" trip will be present on the drive. To clear this trip, the correct target file must be programmed into the drive.

If an early Unidrive M700 fitted with 485 serial communications (Pr **11.028**) is programmed with anything other than the "Uni3 V01000000 M70**1**.mot" target file, then no "Derivative ID" trip would occur, but no serial communications parameters would be available on the drive. For example, *Reset Serial Communications* (11.020) and *Serial Address* (11.023) to *Silent Period* (11.027) would not be available on the drive. Although serial communications would continue to work it would not be possible to change any of the serial communications setting including node address

and baud rate. The only way to correct this would be to return the drive to the Technical Support in Newtown.

3   Updating the drive rating data

3.1   Warning

If the current firmware version of the drive is V00.05.00.00 or V00.06.00.00, then an update for the rating data of the drive must be downloaded BEFORE the firmware file is downloaded to the drive.

Failure to do this will trip the drive on a "Power Data.6" trip. This will prevent the rating data being downloaded to the drive. If this does occur, V00.06.00.00 firmware should be downloaded to the drive and then the procedure below should be followed correctly.

Also note that, as with all firmware updates for all drives, this will erase any Onboard User Program currently stored in the drive's memory. An EEPROM Fail trip may also occur and cause the default values for the drive parameters to be loaded into the drive. Because of this, a backup of the Onboard User Program and drive parameters should be made to prevent any loss of data.

3.2   Programming Instructions

- To download the Rating Data, SPFlash V2.4.14 or later should be used. This is available on the Applications Portal under the Firmware tab.
- The CT Firmware Programmer IS NOT needed for upgrading the rating data of the drive as the update is performed via the serial communications port on the drive (currently SPFlash does not support the download with Ethernet communications).
- This requires the drive to be powered up either by the appropriate drive voltage or by +24V backup supply.
- The target to be used in SPFlash is "Unidrive M600-M800 Rating Data" as shown in the screenshot below.
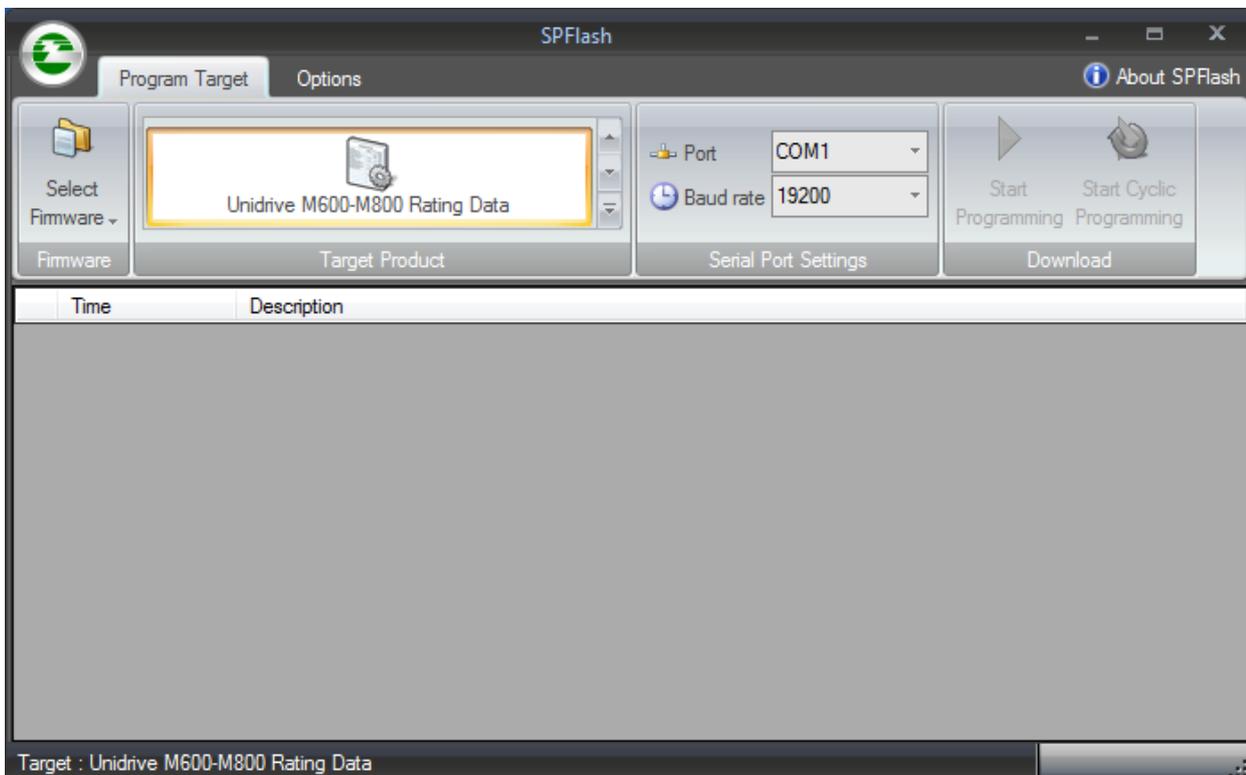
- The file to be used should have the extension of ".rta". When selecting the file, the selection field is defaulted to Target files (*.mot, *.hex, *.h86, *.bin). This should be changed to either All Files (*.*) or Rating Data files (*.rta) for the correct rating file to be selected. An example of the correct file would be "UnidriveMRatingData.rta".
- The next stage is to select the serial port settings. Because the drive is powered up, the CT Comms Cable must be connected between the computer and the 485 communications port on the drive.
- The communications settings to be used should be set by selecting the COM port that the CT Comms Cable is set up as and the currently used baud rate of the drive. The default value for this is 19200.
- Once the correct file, target and communications settings have been correctly set up, click on "Start Programming".
- SPFlash will then display the following window about the drive address settings. The node address of the drive should be entered here. The default value of 1 is already selected. Once the correct node address of the drive has been selected, click on "OK".
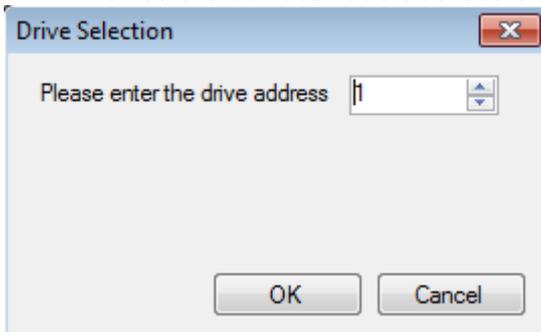
- The rating data then will download to the drive and the screenshot below indicates that the download has been successful.

21 December 2012