HIRSCH
ELECTRONICS

Flashmaster Users Guide

October, 2011

Version 2, Revision B

Getting Help

If you encounter a problem that is not discussed in this guide and you need technical support, do the following:

1. Contact your local dealer or the provider of this product.
2. If your dealer is not available, contact Hirsch Technical Support directly. This can be done in a number of ways:

Mail: Hirsch Electronics Corporation
1900-B East Carnegie Avenue
Santa Ana, CA 92705-5520

Attn: Technical Services

Phone: (949) 250-8888
(888) 809-8880 or 877-HirschX (toll-free)

Fax: (949) 250-7362

Email: support@HirschElectronics.com

WWW: www.HirschElectronics.com

Whenever you call your local dealer or Hirsch, be sure to have your registration material, serial number and software version number available.

For future reference, record these numbers here.

Serial Number: _____

Rev: _____

Dealer: _____

Dealer Phone #: _____

CCM Rev/Version #: _____

Contents

Using the Flashmaster

The Hirsch Flashmaster expansion card expedites the task of updating CCM 7 module firmware on Hirsch controllers. While Velocity can perform flash downloading to controllers using its easy-to-use **Update CCM 7 Firmware** feature, it is time-consuming.

The Flashmaster card can greatly reduce the down-time required for controllers, especially when a large number of controllers are involved or are not yet deployed/installed.
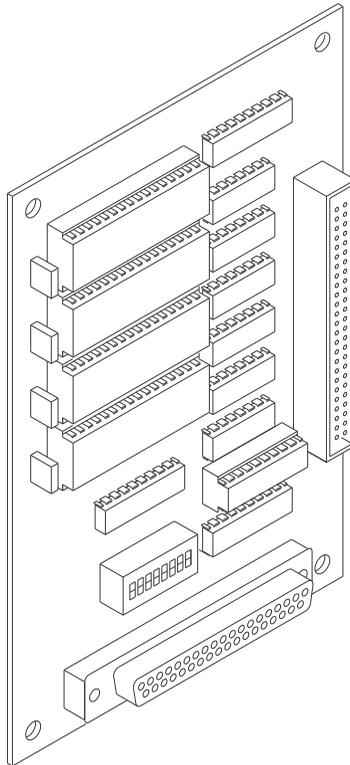
"Reflashing" the CCM 7 firmware transfers an updated version of the CCM's firmware to the ROM chip on the CCM module. This ROM is actually an EEPROM (Electrically Erasable Programmable Read-Only Memory) chip located on the CCM 7 module. This memory chip stores all of the basic DIGI*TRAC commands and instructions Hirsch's applications, Velocity and MOMENTUM, use to run the controller.

A second memory chip on the CCM 7, an SRAM (Static Random Access Memory) chip, holds the basic setups for the controller, including such information as time zone, door, and input settings. Unlike dynamic RAM chips, which cannot hold their data without a constant flow of electricity, SRAM chips can maintain their memory even when DC power is removed from the chip.

When we talk about reflashing memory, we mean the process of updating firmware in the CCM 7's ROM, not downloading data to the CCM 7's RAM.

Ordering the Flashmaster Board

To order the Flashmaster board, contact Hirsch Electronics using the information in "Getting Help" starting on page iii. Specify Hirsch Part # **CCM-FMB**.

Normal lead times and expedite fees apply.

Setting the CCM 7 Protection Jumper

Before reflashing the CCM module, make sure that the jumper on the module is properly set. The jumper is located next to the ROM chip as shown in the following illustration:
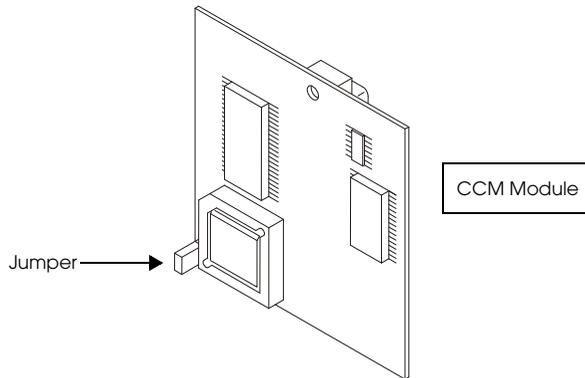
When this jumper is in place, the CCM 7 can be reprogrammed through flash downloading. However, when the jumper is removed, the CCM cannot be reprogrammed. Many high-security installations require that this jumper be removed so that the CCM 7 is completely safe from unauthorized reprogramming.

In order to enable the CCM 7 for updating the firmware using the Flashmaster board, make sure a jumper is placed on the pins in the location shown in the illustration above. In the factory default, the jumper is installed.

Setting Flashmaster DIP Switches

The DIP Switch bank on the Flashmaster is located above the module D-connector as shown in the following illustration:

DIP switch bank
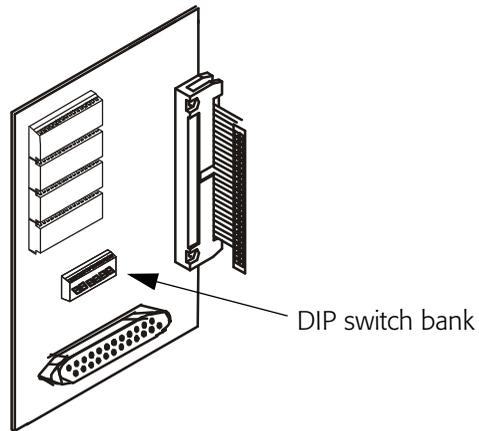
For the Portable Flashmaster Board:

● SW1-SW8 (all) to **OFF**.

For the Reflashing Station:

● SW1 to **ON**; set SW2-SW8 to **OFF**.

The factory default is SW1 **ON**, SW2-SW8 **OFF**.

Flashing Strategies

The way in which you will use the Flashmaster card depends on your system and how much you need to preserve CCM 7 memory.

There are two methods for flashing firmware to your CCM 7s.

Method 1 – Portable Flashmaster Board

This method is the most popular when controllers are already installed.

☞   *This method can be used on all DIGI*TRAC controllers except M1Ns.*

To use this approach:

1. Move the Flashmaster board to a controller.
2. Flash the CCM 7 that resides on the controller board.
3. Repeat Steps 1 - 2 for each controller.

To learn how to flash your existing CCM 7 using this method, go to "Method 1: Portable Flashmaster Board" starting on page 7.

Method 2 – Dedicated Reflashing Station

This method is advisable if the controllers are not yet installed or deployed. This technique is also the only way, aside from flash downloading through Velocity, to upgrade M1N controllers.

To use this approach:

1. Install the Flashmaster board in a dedicated controller.

    You can use any controller that has an EBIC connector, including the M2, M8, M16, or MSP. Because the M1N does not possess an EBIC connector, it cannot be used as a dedicated Flashmaster Reflashing Station.

2. Remove the CCMs from each controller requiring a firmware upgrade and place them in the Flashmaster's D-socket located on the Reflashing Station.

While there are advantages to this method, an unplugged CCM module quickly loses its static memory resulting in the loss of all credential and configuration information. Once the CCM module is remounted in its own controller, you will need to download the credential and configuration data from the Velocity server again.

For more on this, refer to "Method 2: Reflashing from a Station" starting on page 11.

Method 1: Portable Flashmaster Board

In this method, the Flashmaster board is moved from controller to controller as required to update CCM module firmware.

To use this method:

1. Go to the controller that needs reflashing and do this:
   - Turn all system power off.
   - Remove Molex connectors to the standby battery from the controller's motherboard.
   - Remove the Molex connectors to the AC power from the controller's motherboard.

2. Disconnect the expansion board EBIC-5 ribbon cable from the cable connector on the controller board. Leave the other end of the cable connected to the expansion board(s) currently mounted on the enclosure.

☛ **If you disconnect a code expansion board from the expansion board stack during this process, it deletes all codes from board memory.**

For best results, place your forefingers underneath the ribbon cable on either side of the connector and, using a rocking motion, tease the connector loose from its plug.

☞ *Don't yank the plug from the board since this can rip the ribbon cable. And don't use a screwdriver unless absolutely necessary since this can scratch and damage vital components on the motherboard.*

3. If required, reset DIP switches on the Flashmaster board to all switches (SW1-SW8) **OFF**.

4. If required, mount the Flashmaster board.

   This is normally not necessary: you can usually dangle the board (as long as it doesn't contact any other component) and it will work properly; however, if you require it, mount the board on one or two standoffs on the enclosure just to keep it stable.

5. Take the EBIC-5 cable that comes with your Flashmaster board and connect one of the five plugs pointing toward you to the Flashmaster board's edge socket as shown in the following illustration.

☞ *Make sure the red stripe on the ribbon cable is oriented down. This assures that the socket first in the connector as it is meant to.*

⚠ **Never hammer or pound the plug into the connector.**

6. Connect the socket pointing away from you to the cable connector on the controller board, as shown in the following illustration.

Connect one of the EBIC sockets pointing toward you to the edge socket on the Flashmaster board.

Flashmaster Card

Controller Board

Set the DIP switch bank on the Flashmaster to all switches OFF

Orient the red stripe on the EBIC ribbon so that it is on the bottom.
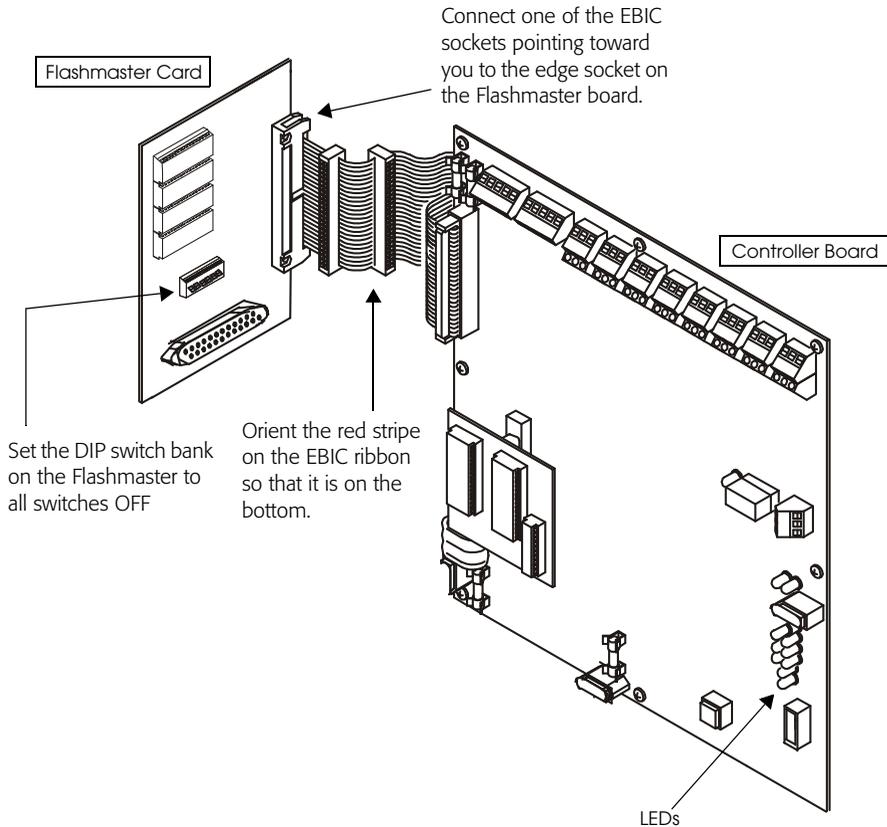
LEDs

7. Reconnect the controller's AC power and turn on the system power.

The LEDs on the controller board flash as the CCM 7 begins to accept the flash download from the Flashmaster. This pattern of lights continues for as long as it takes to complete the flash download.

8. Monitor the LEDs on the controller board until the light pattern indicates the flash download is complete.

When the flash download is complete, the light pattern on the controller board looks like the following illustration:

The TEST and ALARM lights flash alternately.
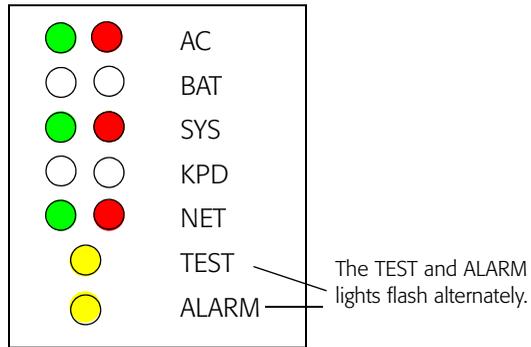
In other words:

	Green	**Red**	**Yellow**
AC	On	On	
BAT	Off	Off	
SYS	On	On	
KPD	Off	Off	

	Green	**Red**	**Yellow**
NET	On	On	
TEST			Flashing
ALARM			Flashing

When you see this arrangement of LEDs on the controller board, the firmware download to the CCM 7 is completed.

9. Turn all system power off, then remove the Molex connector to the controller's AC power from the controller board.

10. Disconnect and remove the Flashmaster board from the controller.

11. Reconnect the expansion stack to the controller board using the original EBIC cable.

12. Power up the controller.

The credential and configuration data should remain resident on the module. The latest firmware should now be installed on the module.

Method 2: Reflashing from a Station

Using this method, the Flashmaster board is attached to a controller which is then used as a centralized, dedicated Reflashing Station.

To set up a Reflashing Station:

1. Select the controller you want to use as the Reflashing Station.

   Ensure that the CCM module on the Reflashing Station's motherboard is installed securely and screwed down tight.

2. Turn off the controller's power in this way:
   - Turn all system power off.
   - Remove Molex connectors to the standby battery from the controller's motherboard.
   - Remove Molex connectors to the AC power from the controller's motherboard.

Hint: You can automate the process of turning the Reflashing Station on and off by inserting a simple switch in the power circuit.

3. Reset DIP switches on the Flashmaster to SW1 **ON**, SW2-8 **OFF**.

4. Mount the Flashmaster board at the top of the expansion board stack using standoffs or other fasteners.

If you disconnect a code expansion board from the expansion board stack during this process, it deletes all codes from board memory.

5. Connect one of the five EBIC-5 plugs pointing toward you to the Flashmaster board's edge socket as shown in the following illustration.

☞ *Make sure the red stripe on the ribbon cable is at the bottom of the ribbon. This assures that the socket fits in the connector as it is meant to.*

Never hammer or pound the plug into the connector.

If there are no EBIC ribbon cable plugs available, you can either disconnect one of the ribbon cable plugs from an existing expansion card, or replace your current ribbon cable with one that has more connectors, such as an EBIC-5.

Connect one of the EBIC sockets pointing toward you to the edge socket on the Flashmaster board.

Flashmaster Card

Controller Board

Set the DIP switch bank on the Flashmaster to 1 ON, 2-8 OFF

Orient the red stripe on the EBIC ribbon so that it is on the bottom.

LEDs
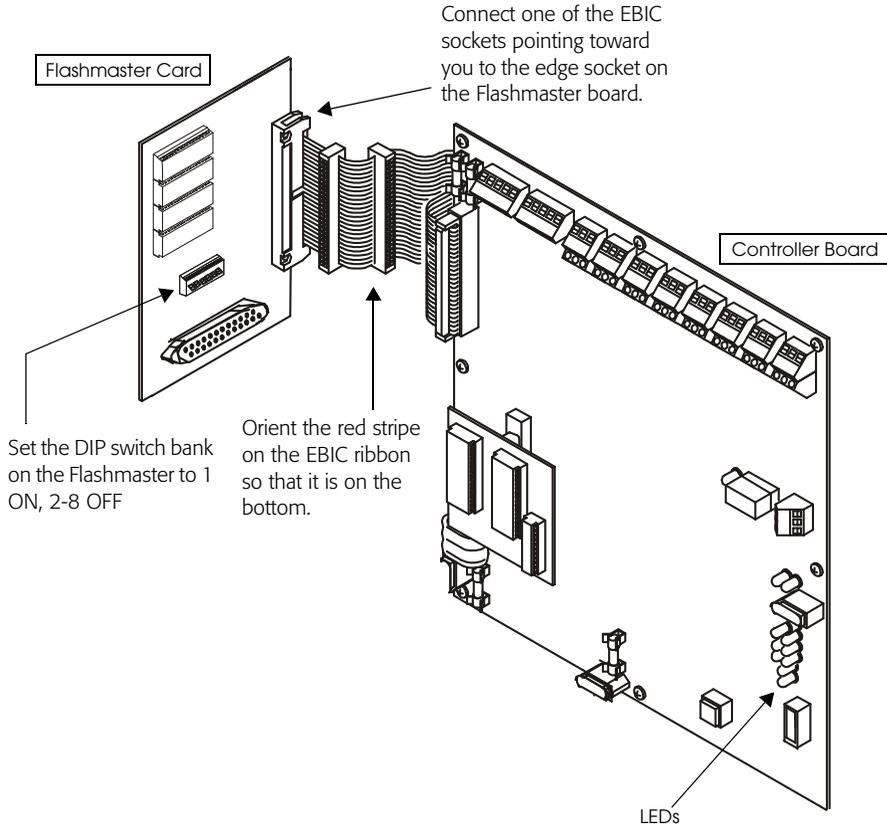
The station is now ready to reflash the required CCM modules.

Reflashing CCM 7 Modules

To reflash one or more CCM modules from a Station:

1. Remove the CCM modules you need to reflash from their controller boards.

   Usually there are screws holding the CCM in place. Unscrew these then insert your fingers underneath the module and pull up with gentle pressure.

2. Plug the first module into the D-socket on the Flashmaster card as shown in the following illustration.

Flashmaster Card

Insert the required CCM module into the Flashmaster connector
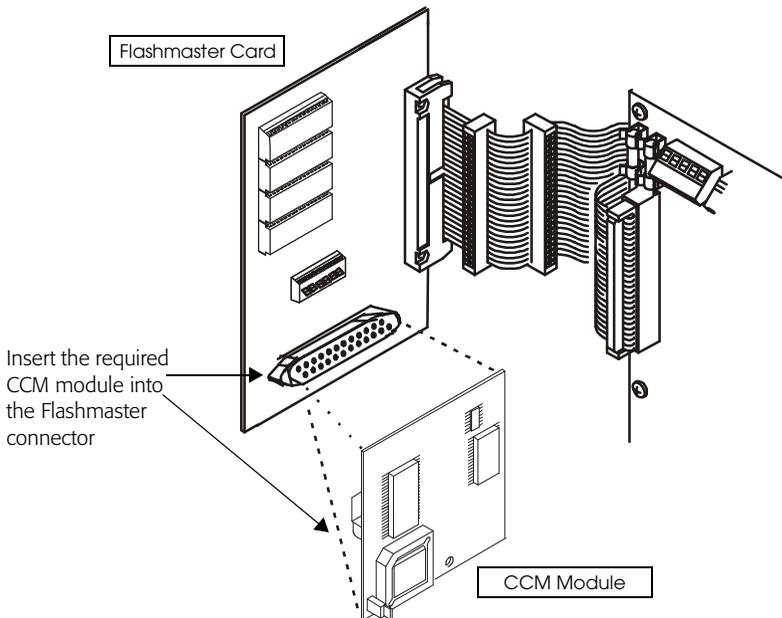
CCM Module

   Use gentle pressure to insert the CCM module on the Flashmaster card.

3. Reconnect the controller's AC power and turn on system power.

The LEDs on the controller board flash as the CCM 7 module begins to accept the flash download from the Flashmaster. This pattern of lights continues for as long as it takes to complete the flash download.

4. Monitor the LEDs on the controller board until the light pattern indicates the flash download is complete.

When the flash download is complete, the light pattern on the controller board looks like the following illustration:

The TEST and ALARM lights flash alternately.
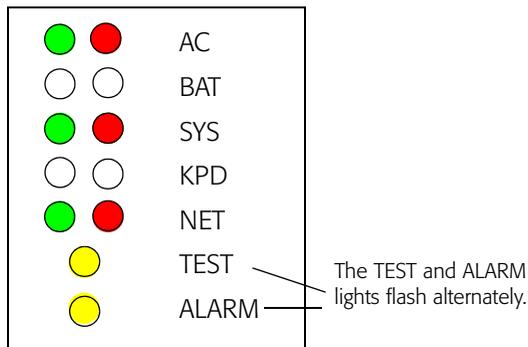
In other words:

	Green	**Red**	**Yellow**
AC	On	On	
BAT	Off	Off	
SYS	On	On	
KPD	Off	Off	
NET	On	On	
TEST			Flashing
ALARM			Flashing

When you see this arrangement of LEDs on the controller board, the firmware download to the CCM 7 is completed.

5. Turn all system power off, then remove the CCM module from the Flashmaster board.

6. Reinsert the CCM module into the socket on its appropriate controller board then reinsert and tighten the screws to secure the module.

7. Repeat Steps 1 - 6 for each CCM 7 module you need to reflash.

Upgrading the Flashmaster

When a new rev of the firmware is available for the Flashmaster board, do this:

1. Contact Hirsch using the information in "Getting Help" starting on page iii of this guide.
2. Order an upgrade service using the part number **CCM-FMB-U**.
3. Return the existing Flashmaster board to the factory.

The Hirsch factory will install new chips, test the unit, and return the unit to the customer. Normal lead times and expedite fees apply.