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ALLEN-BRADLEY

Allen-Bradley CMOS Memory Cartridge (Cat. No. 1771-HM3A)

Installation Data

To The Installer

This document provides information on:

- important pre-installation considerations
- installing the memory cartridge
- replacing the battery
- specifications

Initial Handling

The memory cartridge is shipped in a static-shielded bag to guard against electrostatic damage. Observe the following precautions when handling the module.

Electrostatic Discharge Damage

WARNING: Under some conditions, electrostatic discharge can degrade performance or damage the module. Observe the following precautions to guard against electrostatic damage.

- Wear an approved wrist strap grounding device, or touch a grounded object to discharge yourself before handling the module.
- Do not touch the internal connector or any part of the circuit board except when you are changing the battery
- If you configure or replace internal components, do not touch other circuit components inside the memory module. If available, use a static-free work station.
- When not in use, keep the memory module in its static-shielded bag.

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Installing the Memory Cartridge

To install a memory cartridge into an IMC 123 motion controller module, you must:

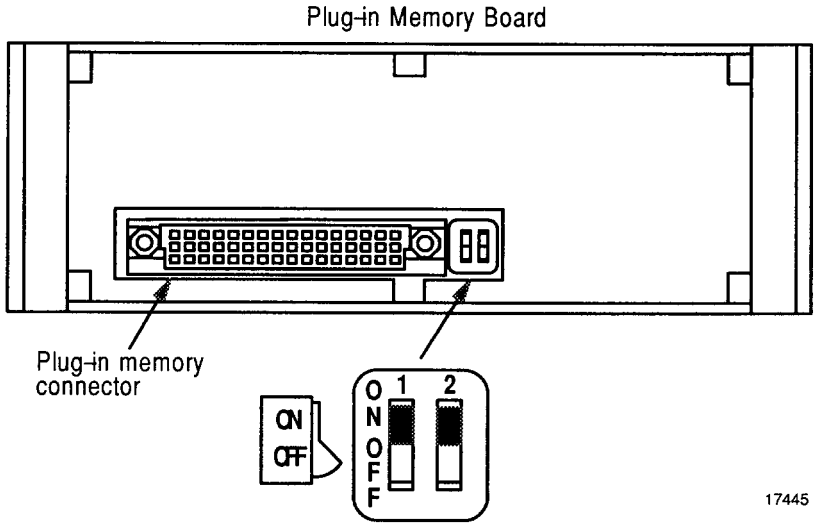
1. enable the battery on the memory cartridge
2. indicate the date that the battery is first enabled on the "Battery Installed" label (figure 1)
3. insert the memory cartridge while the motion controller module is lying flat on a table

Enabling the Battery on the Memory Cartridge

Use a ball point pen to set rocker switch SW1 to the BAT ON position (1 and 2 on) (figure 1). This switch is accessible through the cover of the memory cartridge.

CAUTION: Do not use a pencil because a broken tip could short out circuitry causing failure of the module.

Figure 1
Setting the Enable Switch on the Memory Cartridge



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Important: Failure to enable the battery results in:

- the red SYSTEM led on the motion controller module to light
- a battery low signal (bit 15 set in word 5 of block 0) to the PLC

The motion controller module still functions (its green RUN LED is still lit) but stored MML programs and AMP parameters are lost when power is removed from the system.

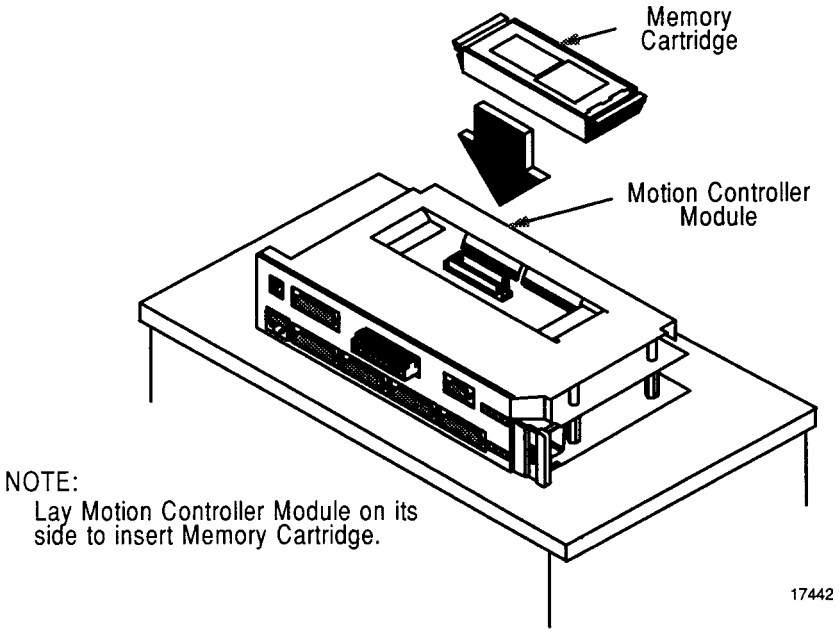
Inserting the Memory Cartridge

Figure 2 shows how the plug-in memory cartridge fits into the motion controller module. Make sure that:

- the motion controller module lies on a flat surface
- the edge of the memory cartridge fits snugly into the side cover of the motion controller module
- the male and female parts of the 48 pin connector fit snugly

If the memory cartridge is not installed in the motion controller module, the red MEMORY LED on the motion controller will light when power is supplied to the system.

Figure 2
How the Memory Cartridge Fits Into the Motion Controller Module



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Important: If the motion controller module doesn't power up (green RUN LED not on) when power is applied or the red MEMORY LED turns on, you may have bent a pin on the connector while inserting the memory cartridge. Remove the module and check the pins on the connector if this occurs.

Checking the Lithium Battery

If the lithium battery has reached the low voltage trip point, the motion controller module informs you through either:

- its SYSTEM LED turning on
- the warning message #641, MEMORY MODULE BATTERY WEAK, displayed on the IMC 123 handheld pendant
- a battery low signal (bit 15 set in word 5 of block 0) to the PLC.

Important: The battery check low trip point is typically 3.10V DC. Normal battery voltage is 3.6V DC. If your lithium battery has reached its low trip point, you should replace it immediately even though the remaining life is typically several weeks. No guarantee can be made as to the remaining life expectancy of the cell.

Replacing the Lithium Battery

You can replace the lithium battery only if IMC 123 system is powered down and the motion controller module is removed from the 1771 chassis to allow access to memory cartridge.

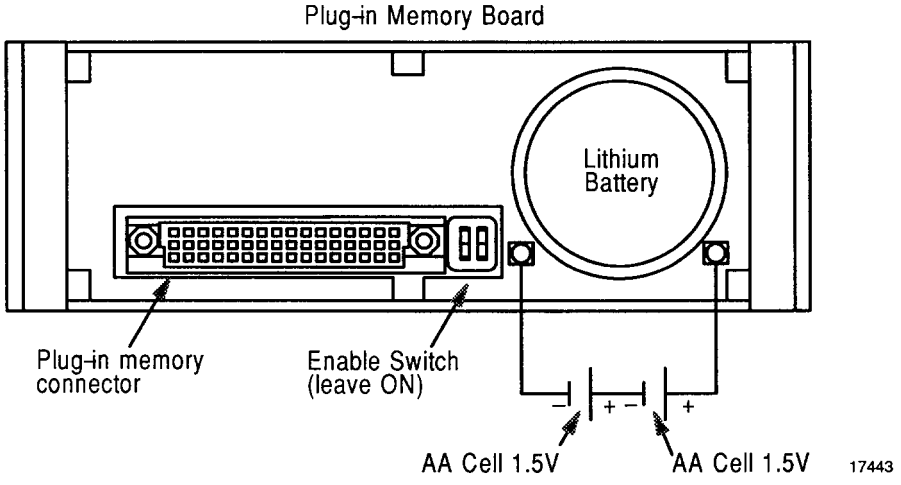
Important: You will lose your MML programs and AMP parameters when you swap the old battery for the new one unless you first upload your MML programs and AMP parameters to an off-line development system. Refer to the IMC 123 Programming Reference Manual (Publication 1771-6.5.51) for uploading MML programs, or the IMC 123 AMP Reference Manual, publication 1771-6.7.1, for uploading AMP parameters

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If your off-line development system is not available for upload and download, use the following procedure to replace the battery and maintain MML and AMP files:

1. Power down the host PLC.
2. Remove the motion controller module from the I/O chassis.
3. Unplug the memory cartridge from the motion controller module. Pry up on the slots to disassemble.
4. Remove the printed circuit board containing the memory from the plastic case.
5. Use two 1.5V AA cells as a power source to backup CMOS memory while you change the battery. Figure 3 shows the circuit for this battery and its connections to the memory board.

Figure 3
Battery Connections on the Memory Board



6. Connect external batteries to the supplied test points on the memory board.

Important: If you inadvertently connect the batteries in reverse order, the cartridge is not harmed, but the MML program and AMP parameters will be lost.

7. Remove old battery and install new battery.
8. Remove external batteries.
9. Re-assemble memory cartridge.

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If you lose memory during this procedure, you must download AMP parameters (see the IMC 123 AMP Reference Manual) and your MML program (see the IMC 123 Programming Manual) from the off-line development system.

WARNING: Lithium batteries require certain specific handling procedures as defined by law. Follow the lithium battery information provided in publication 1770-2.19. If you fail to do so, you risk damaged equipment and personal injury. Publication 1770-2.19, “PLC-3 Lithium Battery Information”, provides information on handling, storage, transportation, disposal, potential hazards, and handling of damaged batteries

Specifications

Catalog Number	1771-HM3A
Memory Size	128Kbytes/64K word (85Kbyte actual user memory)
Memory Type	CMOS
Backup Battery Type Estimated Life	Replaceble Lithium 3.5 years of backup at normal temperature (1.25 years at 60°C worst case)
Environmental Conditions Operational Temperature Storage Temperature Relative Humidity	0 to 60°C (32 to 140°F) -40 to 85°C (–40 to 185°F) 5 to 95% (without condensation)

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Related Publications

For more information on the IMC 123 motion control system, please contact your local Allen-Bradley sales office, or refer to the following publications in the IMC 123 Motion Control Documentation Set (Catalog No. 1771-H3DOC):

Title	Publication Number	Catalog Number
IMC 123 Motion Control System Installation Manual	1771-6.2.3	
IMC 123 Handheld Pendant Operator's Manual	1771-6.5.60	
IMC 123 Motion Control System Programming Manual	1771-6.4.1	1771-H3DOC
IMC 123 AMP Reference Manual	1771-6.7.1	
ODS Reference Manual	MCD-5.1	

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