Allen-Bradley
IMC 120 Plug-In Memory Cartridge

(Cat. Nos. 1771-HM and 1771-HMA)

Product Data

Introduction

The IMC 120 servo controller module includes a CMOS memory cartridge that provides user memory for the system. The memory cartridge stores system configurations and MML programs directly on the servo controller module.

You can easily plug the memory cartridge into any servo controller module. This lets you transport your programs and configuration information to a replacement servo controller module, without downloading from an offline development system, if one should happen to malfunction. This portability greatly reduces potential down-time.

The memory cartridge comes with in 2 sizes:

- 32K bytes (8K bytes actual user memory) Catalog Number 1771-HM

- 96K bytes (72K bytes actual user memory) Catalog Number 1771-HMA

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Both sizes feature an integral, changeable, lithium battery for back-up purposes. The battery typically provides 3.5 years of back-up in the event of power loss (1.4 years in a 60°C worst case environment).

Contents

This publication describes the functions and features of the IMC 120 plug-in memory cartridge. We arrange this information in the following order:

Installing Memory Cartridges

> ⚠ **CAUTION:** Follow these guidelines when you handle memory cartridges:

- Wear an ESD grounding wrist strap that provides a very high resistance path to ground

- When the memory cartridge is removed from the servo controller module, immediately put it into a static-protective bag

- Do not touch the internal connector or any part of the circuit board except when you are changing the battery

To install a memory cartridge into an IMC 120 servo controller module:

1. enable the battery on the memory cartridge

2. indicate the date that the battery is first enabled on the "Battery Installed" label (see figure 1)

3. insert the memory cartridge while the servo controller module is lying flat on a table

Enabling the Battery on the Memory Cartridge

To enable the battery, set the rocker switch SW 1 to BAT ON (see figure 1) using a ballpoint pen. 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.

Important: Failure to enable the battery results in:

- the red SYSTEM led on the servo controller module to light

- a battery low signal (bit 15 set in word 5 of block 0) to the PLC.

The servo 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.

Figure 1
Setting the Enable Switch on the Memory Cartridge
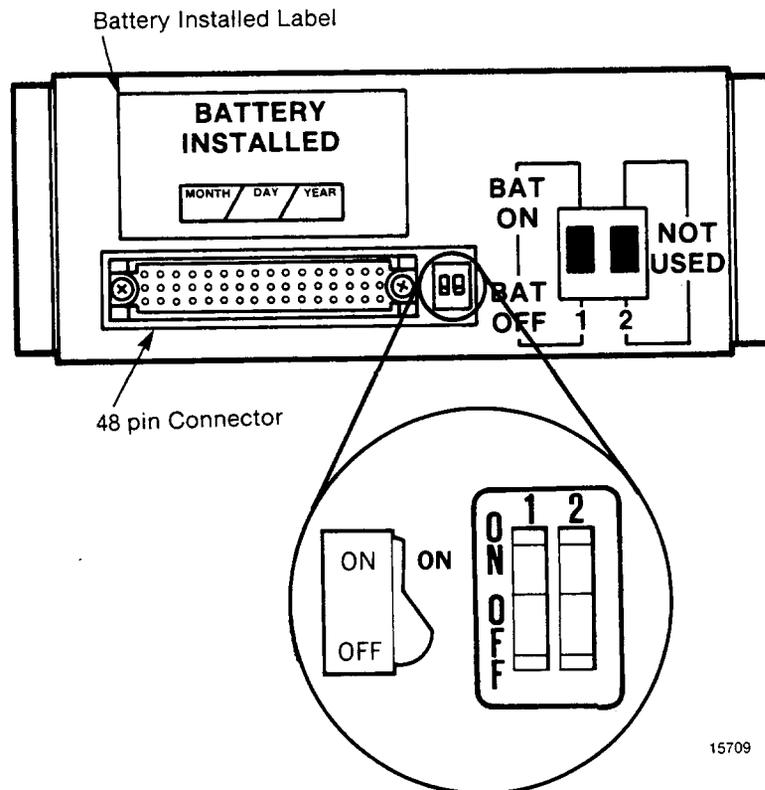
Inserting the Memory Cartridge

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

- the edge of the memory cartridge fits snugly into the side cover of the servo controller module
- the male and female parts of the 48 pin connector fit snugly

If you don't install the memory cartridge in the servo controller module, the red MEMORY LED lights on the servo controller when power is supplied to the system.

Important: If the servo controller module doesn't power up, (green RUN led isn't lit), 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.

Figure 2
How the Memory Cartridge Fits Into the Servo Controller Module
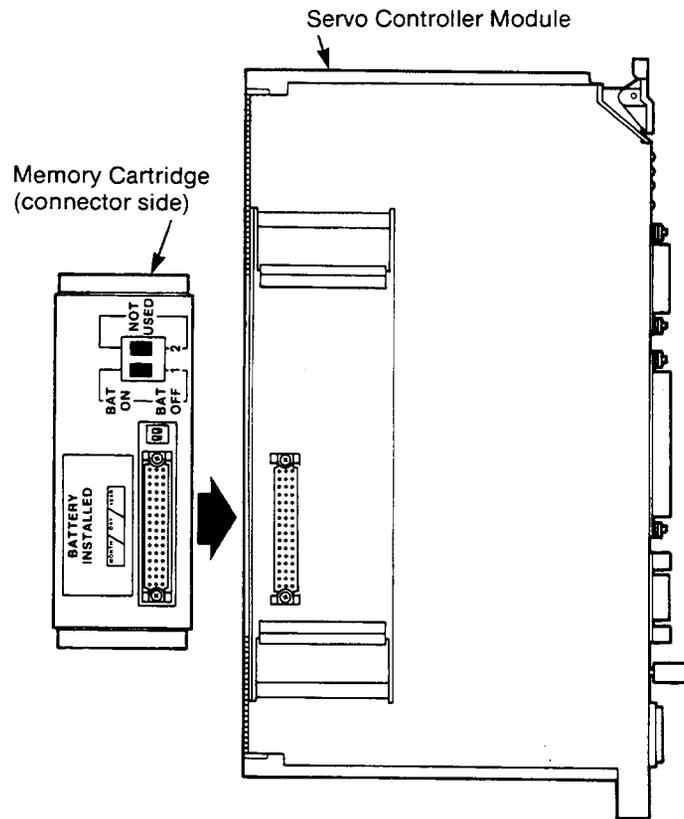
Checking the Lithium Battery

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

- its SYSTEM LED turning on

- the warning message #64, MEMORY CARD BATTERY LOW, displayed on the IMC 120 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 between 3.6V DC and 3.66V DC.

If your lithium battery has reached its low trip point, you should replace it immediately even though the remaining life is maybe several weeks. No guarantees can be made as to the remaining life expectancy of the cell.

Replacing the Lithium Battery

You may 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 120 Motion Control System Programming Manual (Publication 1771-6.5.51).

You can replace the lithium battery only if IMC 120 system is powered down and the servo controller module is removed from the 1771 chassis to allow access to memory cartridge.

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 servo controller module from the I/O chassis.

3. Unplug the memory cartridge from the servo 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.

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Figure 3
Circuit for Battery Swapping without Upload
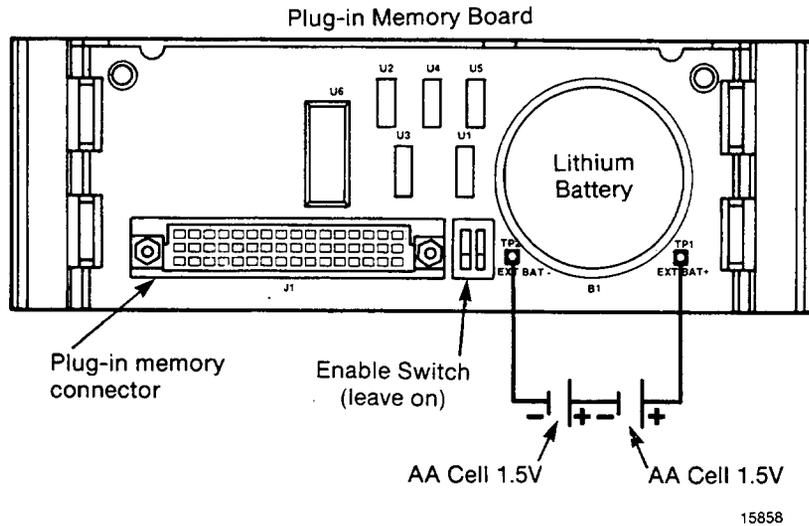
6. Connect external batteries to the supplied test points on the memory board.

   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.

If you lose memory during this procedure, you must download AMP parameters and your MML program from the off-line development system. Refer to the IMC 120 Motion Control System Programming Manual.

Publication 1770-2.19 entitled "PLC-3 Lithium Battery Information" provides other information on lithium battery relating to:

- handling
- storage
- transportation
- disposal
- potential hazards
- handling damaged batteries

> ⚠ **WARNING:** Follow the lithium battery information provided in publication 1770-2.19. If you fail to do so, you risk damaged equipment and personal injury.

Related Publications

For more information on the IMC 120 motion control system, please contact your local Allen-Bradley sales office, or refer to these related publications:

Catalog Number	Title	Publication Number
1771-HS	IMC 120 Motion Control System Installation Manual	1771-6.5.45
1771-PS7	120/220V AC Power Supply with User Power Data	1771-2.123
1771-HR	IMC 120 Resolver Excitation Module Product Data	1771-2.125
1771-HT	IMC 120 Termination Panel Product Data	1771-2.126
1771-HD	IMC 120 Handheld Pendant Operators Manual	1771-6.5.50
8100-HSKAR	IMC 120 Motion Control System Programming Manual	1771-6.5.51
1771-HCDOC	IMC 120 Motion Control System Installation Manual	1771-6.5.45
	IMC 120 Handheld Pendant Operators Manual	1771-6.5.50
	IMC 120 Motion Control System Programming Manual	1771-6.5.51

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