

Allen Bradley Module
ABM-4010
User's Operation Manual

Version 2.05

Release Date 7.30.01



Document Revision 2.05

Release Date 7.30.01

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Anitech Systems Inc.

25021 Anza Drive, Valencia, CA 91355 USA

Phone (661) 257-2184 Fax (661) 257-2025

Email Mail@Anitech-Systems.com

Web <http://www.Anitech-Systems.com>

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Preface

Welcome to the Media Pro® ABM-4010 User’s Operational Manual. Highlighted in this manual are the component features, installation, configuration, software operation, programming reference, examples of typical applications, and technical support information.

This document is provided so users of the Media Pro® 4000 can gain an understanding of the system design and implementation techniques. It is assumed the reader has a basic knowledge of typical show elements and their control requirements. In addition, a basic understanding of programming concepts will help the user understand Anitech System’s powerful English based Media Pro® Control Language (MPCL).

For specific information about other Media Pro® 4000 products, please refer to the applicable user manual or on-line help system.

Related Publications

The following documents contain additional information concerning ASI Media Pro® 4000 products. To obtain a copy of any of the documents listed below, contact ASI or visit our website.

Document	Description
ABM – 4010	Allen Bradley Remote Input/Output Module (RIO)
AOM – 4010	Analog Output Module - 16 Channel
APC – 4020	Animation Programming Console
ASM – 4030/4020	Analog Servo Module - 8 Channel / 4 Channel with Compliance
DSM – 4020	Digital Sound Module with PCMCIA socket
HMR – 4000	Horizontal Module Rack - 5 Slot
ICM – 4020	Intelligent Control Module
IMC – 4020/4010	Integrated Module Controller
IOM – 4020	Input/Output Module - 16 Bit (24vdc)
LCM – 4020	Lighting Control Module (DMX 512)
SEM – 4020	Serial Expansion Module - 8 Channel (RS-232)
TCM – 4020	Time Code Module (SMPTE)
VMR – 4000	Vertical Module Rack - 18 Slot

System Requirements

- IBM PC compatible computer running Windows 95 / 98 environment with 1 serial port at 19.2Kbps.
- The PC should be at least Pentium 90 MHz, with a minimum of 16 Mbytes of Ram.
- The recommended minimum system is Pentium 400 MHz or faster with 32M RAM and a serial port at 115.2Kbps.
- An EPP 1284-1994 compatible parallel port is required for animation and is recommended for all other operations, but not required. Downloads for Animation and DSM sound files are much faster over the EPP parallel port.
- Approximately 12 Mbytes of disk space are required for the MP4000/APU4000 software. In addition, we recommend a minimum of 30 Mbytes storage for each show's application files. This size will vary depending on the show configuration and the size of the sound and animation files that may be required.

Getting Started

The Media Pro® 4000 Software is provided on a set of floppy disks. To install the files, follow these directions:

- Place disk 1 into the floppy drive. Open the Explorer and browse **FLOPPY [A:]**
- Double click on **SETUP... .EXE**
- Follow the on-screen installation instructions.
- The default directory **C:\MP4000** will be created and placed on the desktop.
- To enter the program, browse the directory and double click **MP4000.EXE**
- Current versions of the MP4000 software place an icon on the desktop, earlier versions (1998) do not.

Operating Environment

All Media Pro[®] Products are manufactured to the highest standards. With proper care and maintenance, they should provide many years of trouble-free service.

To ensure that your equipment has the longest life possible, it should be placed in an area with good ventilation and low humidity, out of direct sunlight and away from heat sources or lamps. Never expose equipment to moisture of any sort. Always maintain a dust, dirt and smoke free environment.

Always remember that high temperature is the enemy of all electronic equipment.

Environmental Conditions:

Recommended Operating:	10° to 32° C (40° - 90° F)
Storage Temperature:	-40° to 60° C (-4° - 140° F)
Relative Humidity:	0 to 95% (Without Condensation)

Warranty

Anitech Systems warrants this product to be free of manufacturing defects for 1 year from the date of purchase. At Anitech System's discretion, Anitech Systems will repair or replace a module that fails due to manufacturing defects.

The warranty does not cover shipping charges or modules damaged due to improper configuration, misapplication, misuse, abuse, accidents, or shipping damage.

Service Options

Obtain a Return Materials Authorization by contacting Anitech Systems.
The contact information for customer support follows:

E-mail	Mail@Anitech-Systems.com
Web	http://www.Anitech-Systems.com
Telephone	(661)257-2184
Fax	(661)257-2025

Non-Warranty Modules Returned for Repair-

Charges will be based on parts used, labor, and shipping charges. Make sure the product is properly packed and insured. Anitech Systems is not responsible for damage that occurs during shipment.

1

Section 1 – Introduction

This manual is a technical reference for the ABM-4010 Allen Bradley Module. It contains specifications, diagrams and instructions to help with the implementation of systems using this product.

1.1 Module Description

The ABM – 4010 provides Allen-Bradley remote input/output (RIO) network expansion for the Media Pro[®] 4000 system. It enables the user to directly communicate information to and from the PLC's data table using Rack I/O and/or Block transfers.

By connecting the Media Pro System to the RIO Network, the PLC communicates to the Media Pro as if it were a standard ¼ to full PLC rack of I/O. The PLC data is mapped to the Media Pro Input or Output Channel space providing control and communications to all the Media Pro resources. In addition, block transfers of up to 64 PLC words can be processed. Once the ABM is configured and connected to a PLC RIO network, the PLC can start, stop or reset cues, trigger DSM cards, update ASM cards or any other devices that are mapped to logical channel space.

1.2 Purpose and Intended Use

The ABM – 4010 provides Allen-Bradley remote input/output (RIO) network expansion for the Media Pro[®] 4000 system. It enables the user to directly communicate information to and from the PLC's data table using Rack I/O and/or Block transfers.

There are no quantity restrictions for the ABM-4010 Module. The MP4000 Software supports the configuration and use of this module.

See the Media Pro[®] 4000 User's Operation & Programming Manual for more information.

1.3 Specifications

- ☑ Addressable as ¼, ½, ¾, or full remote I/O rack.
- ☑ Supports Block Transfers up to 64 words.
- ☑ PLC Rack/Block Transfer space directly mapped to Media Pro Logical Channels.
- ☑ Data Mapping is configured in the Media Pro Rack Configuration.
- ☑ Remote I/O configuration by dip switches (rack size, starting group, RIO address, RIO Baud rate).

2

Section 2 – Preparation for Use

This section describes the board layout, jumper configurations, and switch setting selections. These user-defined configurations need to be set before the ABM-4010 will operate correctly.

2.1 Unpacking and Inspection

Inspect the shipping carton immediately upon receipt for evidence of mishandling during transit. If the shipping carton is severely damaged or water-stained, request that the carrier's agent be present when the carton is opened. If the carrier's agent is not present when the carton is opened and the contents are damaged, keep the carton and packaging materials for the agent's inspection.

It is suggested that all salvageable shipping cartons and packing material be retained for future use in the event the product must be shipped.

2.2 Installation Considerations

The ABM-4010 operates in **Adapter** mode on the Allen Bradley Remote I/O network. A product operating in Scanner mode (such as an A-B PLC) is required to control the RIO network.

Requires use of Allen-Bradley Remote I/O compatible cable (see section 3.3 Support Tools and Part Numbers for more information.)

2.3 User Configurable Jumpers and Options

There are two different revisions of the Allen-Bradley Module. Most of the Jumpers are the same for both revisions, the differences are noted in the following section. This information applies to jumpers and options that may be set by the end-user:

Figure 2-1a. ABM-4010 Rev D

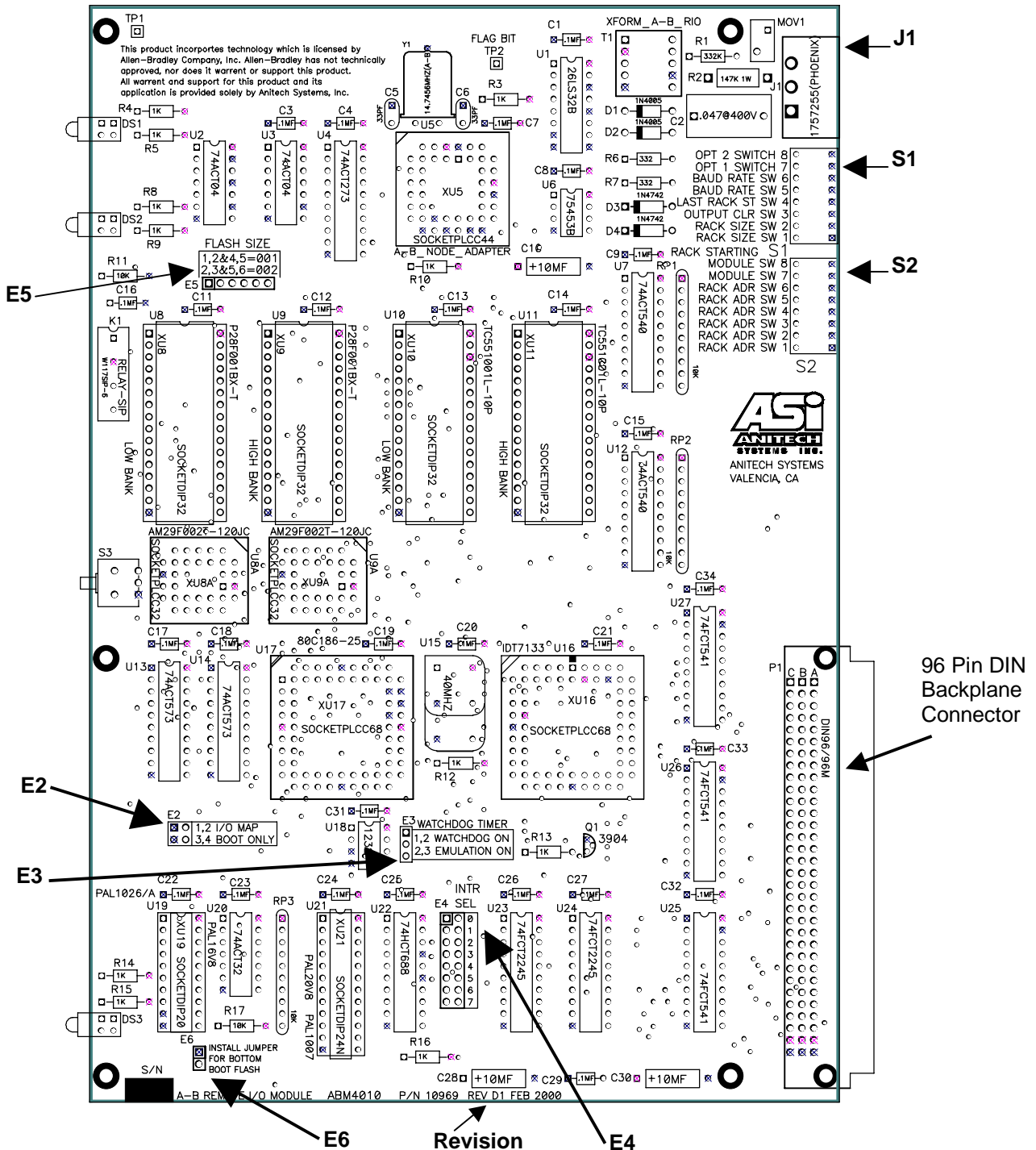
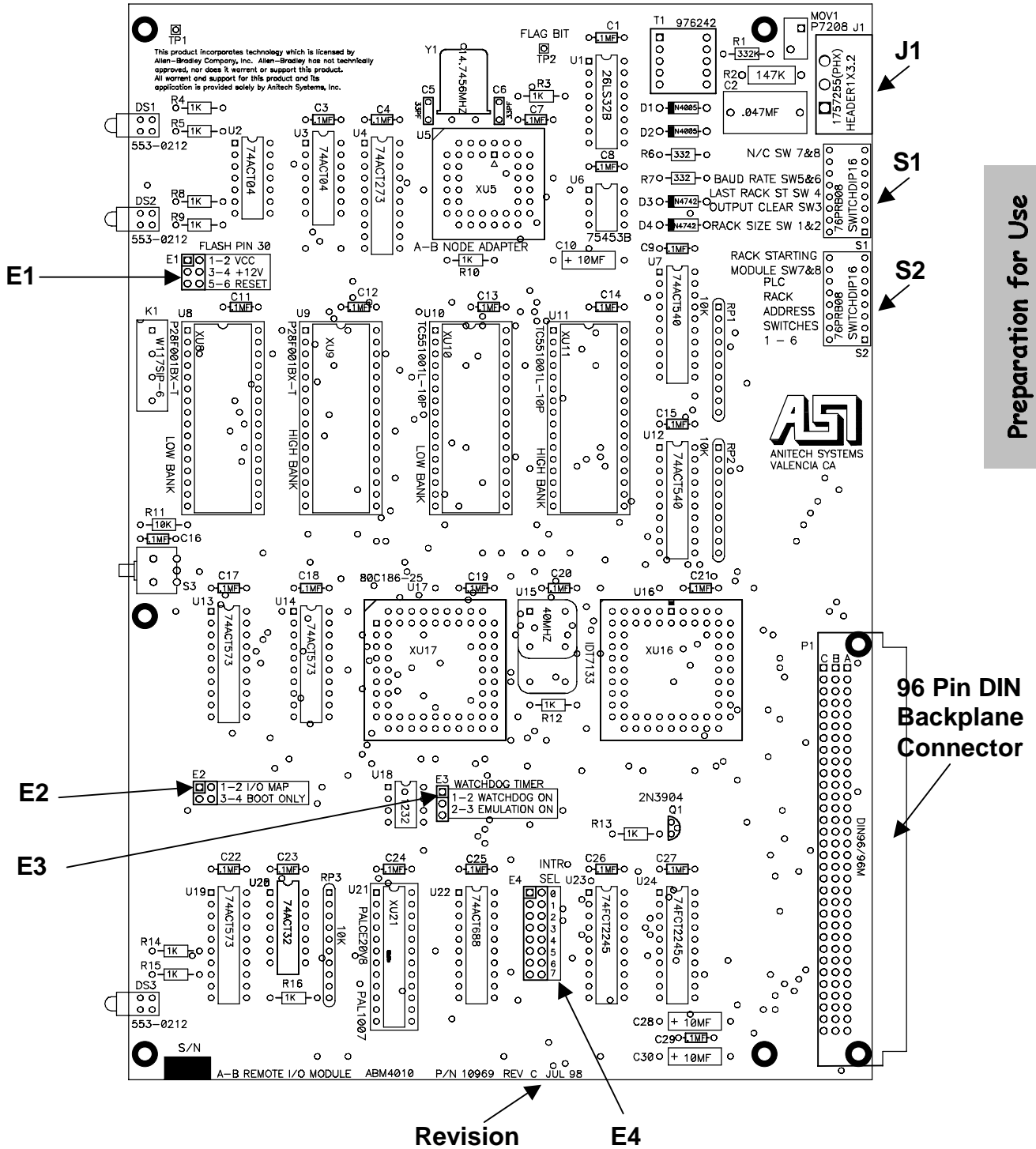


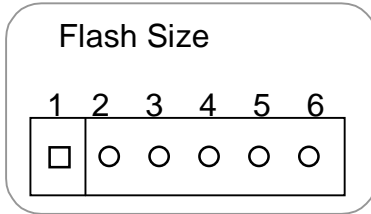
Figure 2-1b. ABM-4010 Rev C



2.3.1 Jumper Settings and Options

E5 Revision D Only

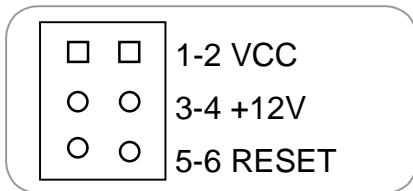
Flash Size



001 - shunt pins 1 – 2 and 4 – 5.
 002 - Shunt pins 2 –3 and 5 – 6.
 Factory configured for 001.

E1 Revision C Only

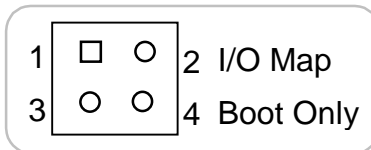
Flash Pin 30



For normal operation:
 1 – 2 Unused.
 3 – 4 For programming the Boot Flash.
 5 – 6 RESET (Factory Configured).

E2

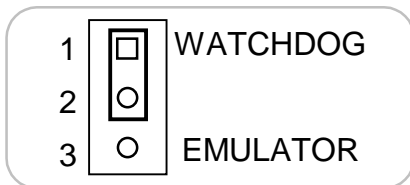
I/O Map and Boot Only



For normal operation:
 I/O Map Pins 1-2 should be open.
 Boot Only Pins 3-4 should be open.
 Factory configured.

E3

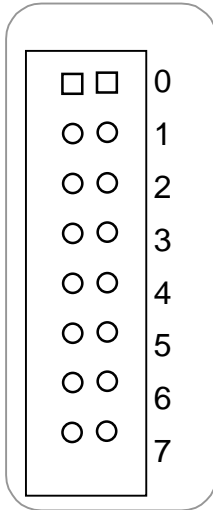
Watch Dog



For Normal operations, put shunt on pins 1-2.
 Factory configured.

E4

INTR SEL



For normal operations, no shunt installed.
Factory configured.

Preparation for Use

2.3.2 Switch Settings and Options

Following are two tables that describe the switch settings for the ABM-4010. Switch 1 is the function select options detailed in figure 2-6. Switch 2 is the address select options, detailed in figures 2-7a and 2-7b.

Figure 2-6. Switch 1 User Options

Switch Position								Function Selected
1	2	-	-	-	-	-	-	Select Rack Size
0	0	-	-	-	-	-	-	1/4 Rack
1	0	-	-	-	-	-	-	1/2 Rack
0	1	-	-	-	-	-	-	3/4 Rack
1	1	-	-	-	-	-	-	Full Rack
-	-	3	-	-	-	-	-	If Scanner Fault
-	-	0	-	-	-	-	-	Clear Data
-	-	1	-	-	-	-	-	Keep Last Data
-	-	-	4	-	-	-	-	Last Rack in Group
-	-	-	0	-	-	-	-	Not Last Remote I/O in Group
-	-	-	1	-	-	-	-	Is Last Remote I/O in Group
-	-	-	-	5	6	-	-	Remote I/O Baud Rate
-	-	-	-	0	0	-	-	57.6 Kbps
-	-	-	-	1	0	-	-	115.2 Kbps
-	-	-	-	0	1	-	-	230.4 Kbps
-	-	-	-	1	1	-	-	Not Supported
-	-	-	-	-	-	7	8	Unused Switches
-	-	-	-	-	-	0	0	Factory Setting
-	-	-	-	-	-	1	0	Not Used
-	-	-	-	-	-	0	1	Not Used
-	-	-	-	-	-	1	1	Not Used

0 = OPEN, OFF, NOT SELECTED 1 = CLOSED, ON, SELECTED - = NOT APPLICABLE

Figure 2-7a. Switch 2 User Options

Switch Position								Decimal	Octal	Hex
1	2	3	4	5	6	-	-			
0	0	0	0	0	0	-	-	0	00	00
1	0	0	0	0	0	-	-	1	01	01
0	1	0	0	0	0	-	-	2	02	02
1	1	0	0	0	0	-	-	3	03	03
0	0	1	0	0	0	-	-	4	04	04
1	0	1	0	0	0	-	-	5	05	05
0	1	1	0	0	0	-	-	6	06	06
1	1	1	0	0	0	-	-	7	07	07
0	0	0	1	0	0	-	-	8	10	08
1	0	0	1	0	0	-	-	9	11	09
0	1	0	1	0	0	-	-	10	12	0A
1	1	0	1	0	0	-	-	11	13	0B
0	0	1	1	0	0	-	-	12	14	0C
1	0	1	1	0	0	-	-	13	15	0D
0	1	1	1	0	0	-	-	14	16	0E
1	1	1	1	0	0	-	-	15	17	0F
0	0	0	0	1	0	-	-	16	20	10
1	0	0	0	1	0	-	-	17	21	11
0	1	0	0	1	0	-	-	18	22	12
1	1	0	0	1	0	-	-	19	23	13
0	0	1	0	1	0	-	-	20	24	14
1	0	1	0	1	0	-	-	21	25	15
0	1	1	0	1	0	-	-	22	26	16
1	1	1	0	1	0	-	-	23	27	17
0	0	0	1	1	0	-	-	24	30	18
1	0	0	1	1	0	-	-	25	31	19
0	1	0	1	1	0	-	-	26	32	1A
1	1	0	1	1	0	-	-	27	33	1B
0	0	1	1	1	0	-	-	28	34	1C
1	0	1	1	1	0	-	-	29	35	1D
0	1	1	1	1	0	-	-	30	36	1E
1	1	1	1	1	0	-	-	31	37	1F

0 = OPEN, OFF, NOT SELECTED 1 = CLOSED, ON, SELECTED - = NOT APPLICABLE

Preparation for Use

Figure 2-7b. Switch 2 User Options continued

Switch Position								Decimal	Octal	Hex
1	2	3	4	5	6	-	-			
0	0	0	0	0	1	-	-	32	40	20
1	0	0	0	0	1	-	-	33	41	21
0	1	0	0	0	1	-	-	34	42	22
1	1	0	0	0	1	-	-	35	43	23
0	0	1	0	0	1	-	-	36	44	24
1	0	1	0	0	1	-	-	37	45	25
0	1	1	0	0	1	-	-	38	46	26
1	1	1	0	0	1	-	-	39	47	27
0	0	0	1	0	1	-	-	40	50	28
1	0	0	1	0	1	-	-	41	51	29
0	1	0	1	0	1	-	-	42	52	2A
1	1	0	1	0	1	-	-	43	53	2B
0	0	1	1	0	1	-	-	44	54	2C
1	0	1	1	0	1	-	-	45	55	2D
0	1	1	1	0	1	-	-	46	56	2E
1	1	1	1	0	1	-	-	47	57	2F
0	0	0	0	1	1	-	-	48	60	30
1	0	0	0	1	1	-	-	49	61	31
0	1	0	0	1	1	-	-	50	62	32
1	1	0	0	1	1	-	-	51	63	33
0	0	1	0	1	1	-	-	52	64	34
1	0	1	0	1	1	-	-	53	65	35
0	1	1	0	1	1	-	-	54	66	36
1	1	1	0	1	1	-	-	55	67	37
0	0	0	1	1	1	-	-	56	70	38
1	0	0	1	1	1	-	-	57	71	39
0	1	0	1	1	1	-	-	58	72	3A
1	1	0	1	1	1	-	-	59	73	3B
0	0	1	1	1	1	-	-	60	74	3C
1	0	1	1	1	1	-	-	61	75	3D
0	1	1	1	1	1	-	-	62	76	3E
1	1	1	1	1	1	-	-	63	77	3F
-	-	-	-	-	-	7	8	Starting Group		
-	-	-	-	-	-	0	0	Beginning at 1 st quarter (Mod 0)		
-	-	-	-	-	-	1	0	Beginning at 2 nd quarter (Mod 2)		
-	-	-	-	-	-	0	1	Beginning at 3 rd quarter (Mod 4)		
-	-	-	-	-	-	1	1	Beginning at 4 th quarter (Mod 6)		

0 = OPEN, OFF, NOT SELECTED

1 = CLOSED, ON, SELECTED

- = NOT APPLICABLE

3

Section 3 – Installation

This section describes the considerations for installing the ABM-4010. Typical pinout information is provided.

3.1 Typical Installation Example

To install the ABM-4010, power down the system and Connect the Blue hose to the ABM in the same Polarity as it is on the PLC Processor.

Terminate the Remote I/O link as required by Allen-Bradley. Typically the first and last device (each end of the cable) will be terminated with a 150-ohm resistor. In most cases, the ABM-4010 would be installed in rack 0. *See Allen-Bradley Documentation for more information.*

3.2 J1 Field Connector Information

The ABM field connector is a 3 pin Phoenix connector (refer to the part list, section 3.3). The pinout for the field connector to the Allen-Bradley Unit is below:

ABM-4010 Pinout

Top Pin	Clear
Center Pin	Shield {Blue Hose (Belden 9463)}
Bottom Pin	Blue

3.3 Support Tools and Part Numbers

The following connectors or equivalents may be used:

Part	Number
3 pin Connector Plug	Phoenix - 1757022
Blue Hose: 20 awg, 78 ohm, Twinaxial Cable	Belden 9463

4

Section 4 – Module Operation

This section describes the operating modes of the Allen Bradley Module. It includes fault conditions, indicators, and troubleshooting information.

4.1 Normal Operations

- The Node status (Green) LED will be on when RIO communication is OK.
- The Rack Fault (Red) LED will be off when the PLC's RIO Rack fault bit is not set.
- The Data OK (Green) LED will be on when Valid RIO Packets are received.
- The Configuration Fault (Red) LED will be off when the ABM is correctly configured.

4.2 Fault Conditions

- ☑ The Node status (Green) LED will be off when No valid RIO frames received at this address.
- ☑ The Node status (Green) LED will blink when Retrying RIO communications, or when the PLC is in Program Mode.
- ☑ The Rack Fault (Red) LED will be on when PLC Remote I/O Fault bit is set.
- ☑ The Data OK (Green) LED will be off when Invalid RIO Packets are received, or no RIO Packets are received.
- ☑ The Configuration Fault (Red) LED will be on when the ABM Is not properly configured.

4.3 Indicators

Indication			Description	Probable Cause	Recommended Action
①	OFF	Node Status {Green}	RIO No data for this address	No Valid Frames Received at this RIO Address	
①	ON	Node Status {Green}	Normal Condition	RIO Communications are OK	
⦿	Blinking	Node Status {Green}	RIO Retry	Retrying RIO Communications, or the PLC is in Program Mode	
①	OFF	Rack Fault {Red}	Normal Condition	Not Faulted	
①	ON	Rack Fault {Red}	PLC RIO Fault	PLC has set the Remote I/O Fault bit.	Clear the RIO Fault bit in the PLC Processor Status File.
①	OFF	Data OK {Green}	Bad RIO Packet	Invalid RIO Packets	
①	ON	Data OK {Green}	Normal Condition	Valid RIO Packets	
①	OFF	Configuration Fault Indicator {Red}	Normal Condition	Configuration OK	
①	ON	Configuration Fault Indicator {Red}	Invalid Configuration	Wrong Switch Settings	Check and correct switch settings
①	OFF	PGM {Programming}	Normal Condition	The ABM is not in Program Mode.	
①	ON Solid	PGM {Programming}	Programming	The ABM is in Program Mode.	
⦿	Blinking	PGM {Programming}	Maintenance Forces Active	The ABM has Maintenance Forces Active.	If necessary remove Maintenance Forces.
⦿	Blinking Slow	COM {Communications, Green}	Normal Condition	The ABM is Running.	
⦿	Blinking Fast	COM {Communications, Green}	Normal Condition	The ABM is Receiving Animation Data or Commands from the ICM.	
①	OFF or ① ON Solid	COM {Communications, Green}	Abnormal Condition	The ICM is NOT Running.	1) Make certain that the ABM is fully seated in its slot. 2) Make certain that the Module Rack is Powered, and Turned on. 3) Make certain ICM is running, & no downloads are happening.

4.4 Troubleshooting

The following table identifies troubleshooting problems and solutions for the ABM-4010.

Problem	Solution
The Rack Fault (Red) LED is on	1 - Clear the RIO rack fault bit in the PLC Processor Status File.
	2 - The bit can also be cleared by putting PLC in Program, then back to Run.



Caution: Changing the PLC to Program Mode will stop normal PLC operations!

Problem	Solution
The Configuration Fault (Red) LED is on	1 - Verify that the DipSwitches on the ABM are set correctly.

5 Section 5 – Programming

This section describes the programming considerations of the Allen Bradley Module. It includes details of programmable functions and software configurations.

5.1 Module Programmable Functions

Data mapping is configured in the Media Pro Rack Configuration. The number of words and size of the rack is determined by the switches. A description of the switch settings is in section 2.3.2. The table below defines the switch setting parameters:

Figure 5.-1. Rack Size.

Size Selected	Media Pro® Bytes	PLC Words
¼ Rack	4	2
½ Rack	8	4
¾ Rack	12	6
Full rack	16	8

5.2 Software Configuration

The ABM must be correctly configured for proper operation. ABM configuration must be downloaded to the ICM to ensure proper operation. See the Media Pro® 4000 Software Programming Manual for more information.

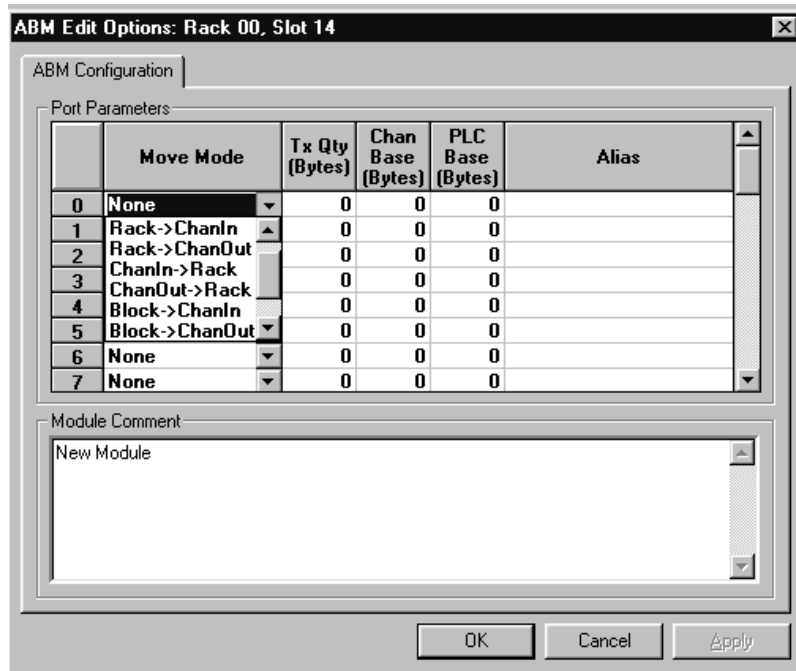
Configuring the Ports –

Enter the configuration information for the transfer of data with the Allen-Bradley unit. The parameters supplied will direct where the information will be placed.

Move Mode –

This specifies where the information will be sent to *or* received from. There are 8 different types of transfers to choose from. Refer to section 5.2.1 for a detailed explanation of transfers. A maximum of 32 transfers may be configured.

Highlight the desired port and left-click to view the pull-down menu. Select the configuration for the port and left-click.



Tx Qty (Bytes) –

Enter the number of bytes that will be sent to or received from the Allen-Bradley PLC. This may range from 1 to 128 Bytes (64 PLC Words) of information. The number of Tx Qty Bytes that may be sent or received is determined by the rack size set by Switch 2 (refer to section 2.3.2).

Note: Allen Bradley uses an octal system, the maximum number of PLC words is 64; however, the maximum number of bytes from the Media Pro® System is 128.

Chan Base (Bytes) –

Enter the number of the FIRST Channel in the Media Pro® that will send to or receive from the PLC.

PLC Base (Bytes) –

Enter the OFFSET number of bytes in the PLC to either receive or send the data. Each offset must be unique from the other offsets, and *cannot* overlap already specified offsets.

Alias –

Enter the Alias that will be used by the Media Pro® Cue to manipulate the data.

5.2.1 Data Transfer Examples

The chart below depicts the 8 different types of data transfer between the Media Pro® 4000 and the Allen-Bradley units. A few examples follow the chart, see diagram 5-3.

Figure 5-2. Data Flow between MP and PLC

Media Pro Channel	PLC Rack I/O	PLC Block I/O
Input ←	← Output	
Output ←	← Output	
Input →	→ Input	
Output →	→ Input	
Input ←	← Output (Byte 0 only)	← Output
Output ←	← Output (Byte 0 only)	← Output
Input →	→ Input (Byte 0 only)	→ Input
Output →	→ Input (Byte 0 only)	→ Input

Examples:

The examples shown are based on the premise of a FULL RACK beginning at the 1st QUARTER Starting Group. Switch settings are described in Section 2.3.2. For a more detailed explanation of configuration and rack assignments, refer to the Allen-Bradley Manual.

MP Channel Out to Rack

(Channel Base Byte) 100 sends 2 bytes (Tx Qty) of data to PLC rack with an Offset (PLC Base) of 2 Bytes. It will place the data in the 2nd word of the PLC.

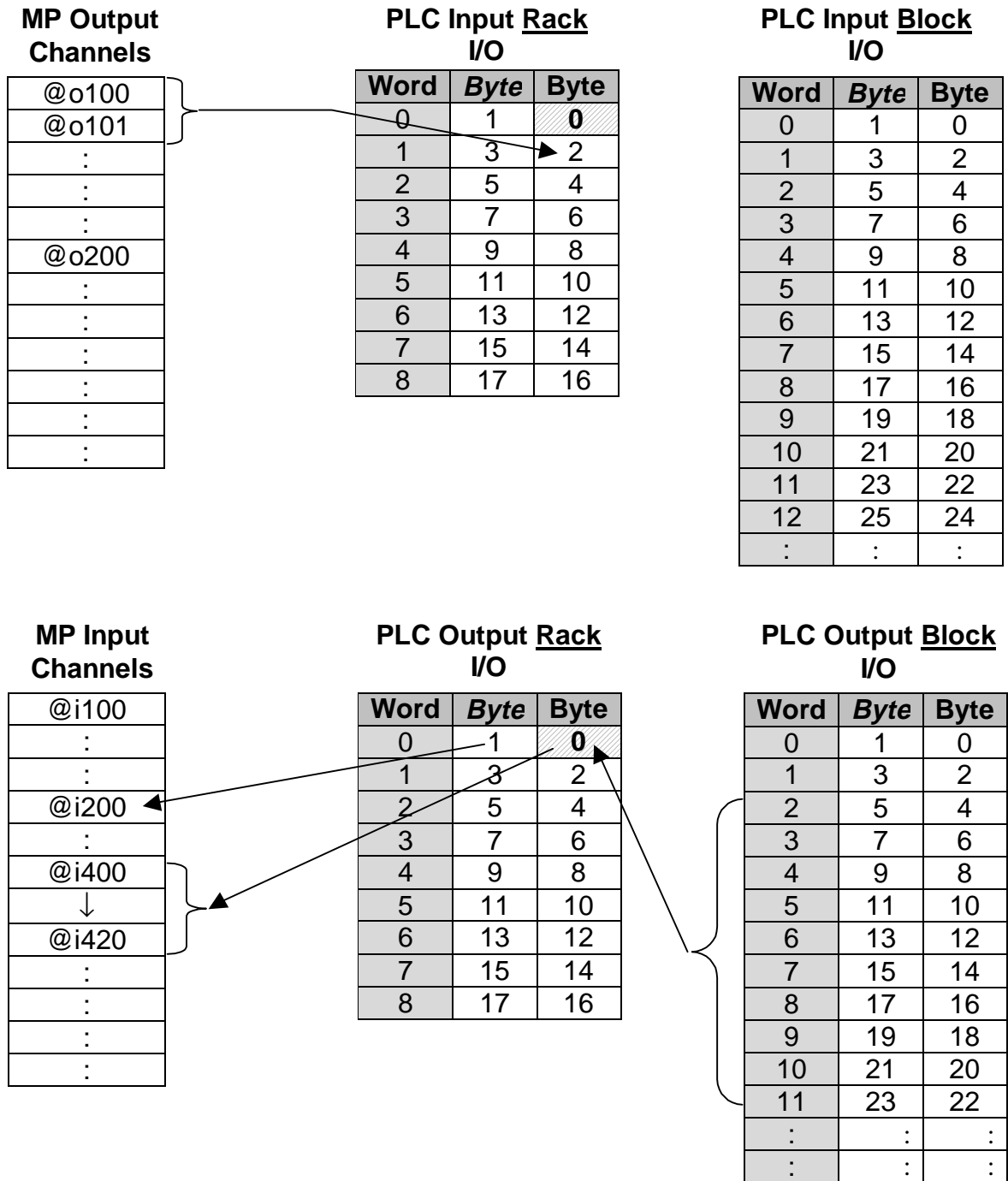
MP Channel In from Rack

(Channel Base Byte) 200 receives 1 byte (Tx Qty) of information from PLC rack with an Offset (PLC Base) of 1 Byte. It will place the data in the 2nd byte of the first word.

MP Channel In from Block

(Channel Base Byte) 400 sends 20 bytes (Tx Qty) of information to PLC rack with an Offset (PLC Base) of 5 Bytes. It will place the data in the 6th word of the PLC.

Figure 5-3. Information Transfers Between PLC and Media Pro®



5.3 Supported Command Formats

Commands are not used in the MPCL for the ABM, however, the ABM must be configured to map the PLC data to/from the Media Pro channels. The table below shows example configurations for the 8 possible types of RIO transfers.

Figure 5-2. PLC Mapping Examples

From	To	Qty	CHAN	PLC	Alias
PLC Output Rack →	Media Pro Channel In	1	600	0	Alias1
PLC Output Rack →	Media Pro Channel Out	16	601	0	Alias2
Media Pro Channel In →	PLC Input Rack	16	618	0	Alias3
Media Pro Channel Out →	PLC Input Rack	1	619	0	Alias4
PLC Output Block →	Media Pro Channel In	128	700	0	Alias5
PLC Output Block →	Media Pro Channel Out	1	828	0	Alias6
Media Pro Channel In →	PLC Input Block	1	829	0	Alias7
Media Pro Channel Out →	PLC Input Block	128	830	0	Alias8

Note: If any block transfers are used, the even byte of the 0 word is not available to the user, it is reserved for block transfers. Refer to the Allen-Bradley PLC Programming Reference for more information.

5.4 Application Example

There are several ways to use an ABM-4010. Below are some brief examples, (refer to the MP 4000 software programming manual for more information).

- ❖ Using the previous configuration as an example, ABM transfers perform control in several ways:
 - A cue could be configured to Play on i600.0 change to High.
 - When the associated bit changed in the PLC, the Cue would Play.
 - A cue could be configured to Reset on i600.1 change to Low.
 - When the associated bit changed in the PLC, the Cue would Reset.
 - A DSM Port could be configured for address o601, When the associated bit in the PLC changed, the Port would Stop, Play Track 1, Play Track 2, or Ramp.
 - When o601.0 is high the port's track would Stop playing,
 - When o601.1 is high the port's track 1 would Play,
 - When o601.2 is high the port's track 2 would Play.
 - When o601.3 is high the port's Ramp would be Up.
 - An IOM Port could be configured for Output address o602.
 - When the associated bit in the PLC changed, the IOM's Output would reflect that state. If o602.0 is a 1, the port's bit 0 would be on.
 - An IOM Port could be configured for Input address i618.
 - When the port's bit 0 is on, 618.0 would be on, and the associated PLC bit would also be on.

6 Section 6 – Appendix

The following pages contain technical briefs relating to this module. There are additional technical briefs on the ASI website and new briefs are added on an on-going basis. Please visit the website for updated information –

<http://www.Anitech-Systems.com>

Updated manuals are placed on the Web periodically. Please check to see if a more recent revision is available on the website. Revision numbers are located in the footer of the manual pages.

Also, a glossary of terms is in this section, for terms used by ASI as well as terms used in the Show Control Industry.

6.1 Saving Files from a Web Page without Displaying -

This is useful for retrieving a non-formatted page that is not intended for viewing:

From Internet Explorer® Browser

- 1 - Saving files from a Web page.
 - A) To save a file without opening it:
 - 1) **Right**-click on the link for the item you want, a pop-up menu appears,
 - (a) Select, then Left-click **Save Target As**
 - (b) Enter the desired folder and filenames and select **Save**

From Netscape® Communicator Browser

- 1 - Saving files without displaying them.
 - A) To save a file without viewing it:
 - 1) **Right**-click on the file's link to display a pop-up menu,
 - (a) Select, then Left-click **Save Link As**
 - (b) Enter the desired folder and filename and select **Save**

6.2 Power Specification for Continuous *Normal* Operation

The power usage and requirements for Media Pro® modules are depicted in the following table. It is important that ***both*** of the following considerations are evaluated for proper system configuration:

- ✓ The power usage of the modules does not exceed any *individual* maximum current and wattage.
- ✓ The sum of the modules do not exceed the supply *overall* maximum wattage.

ABM-4010, PCB 10969-D

Voltage	Current Requirements (Amps)			Wattage Requirements (VA)		
	Min	Typical	Max	Min	Typical	Max
DC						
+ 5	0.400	0.500	0.600	2.00	2.50	3.0
+ 12	0.000	0.000	0.030	0.00	0.00	0.4
- 12	0.000	0.000	0.030	0.00	0.00	0.4
+ 24	0.000	0.000	0.000	0.00	0.00	0.0
				2.0	2.5	4.

6.3 Downloading New Version of Firmware to a Module

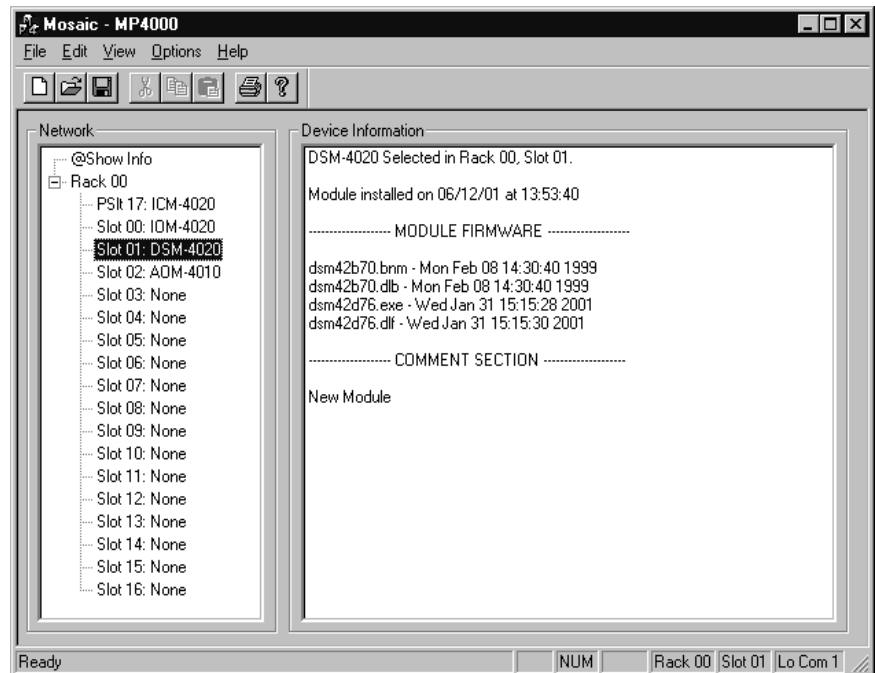
There may be circumstances where the firmware version of a module may need to be upgraded in the field. The information in this section will describe the process of downloading a new version of firmware from the Anitech Systems website and installing it into the module.

Verify Current Version –

- ✓ Open the MP4000 software.
- ✓ Click on the desired module.
- ✓ Module firmware versions are displayed in the Device Information section of the screen.

Download Firmware Code From Website –

- ❖ Visit the Anitech Systems website (www.anitech-systems.com).
 - Click on the Support link.
 - Scroll to the correct module type.
 - Highlight and select the Firmware column.
 - Select the correct module version.
 - Select the appropriate sub-file, this is dependant on the module revision level. (Refer to File Name Conventions in the Media Pro® 4000 manual, section 5.2.1, for a detailed explanation of firmware file names.)
 - When the file is selected, it needs to be saved to the disk. Since browsers vary, refer to the brief, "Saving Files from a WebPage without Displaying " in Section 6.1 of this manual.
 - ◆ Enter the Directory and Filename information on the pop-up Menu and press the Save button. The file will be saved to the disk.
- ❖ Also, carefully read the most recent ReadMeMP.txt. It is found on the website at the following address:
 - <http://anitech-systems.com/MP4000/manual/briefs/ReadMeMP.txt>
 - Exit the Website.



Return to the MP4000 Software –

➤ **Note:** Before attempting to download the firmware to a module, place the switch on the ICM front panel to the **Test** position. This will enable the rack to download faster and with minimal interference. Placing the switch in the test position affects the racks as described below:

- **Rack 0 (master)** – Allows the Rack to concentrate on the download information. Quits the cues and animation from running and stops the broadcast over the MP Net.
- **Other Racks (slaves)** – Still receives the information, but ignores it while the download is being performed.
- **NOTE:** When downloading to a slave rack over the MPNet, turn the **Rack 0 ICM** switch to the **Test** position in order to minimize interference and enable a successful download.

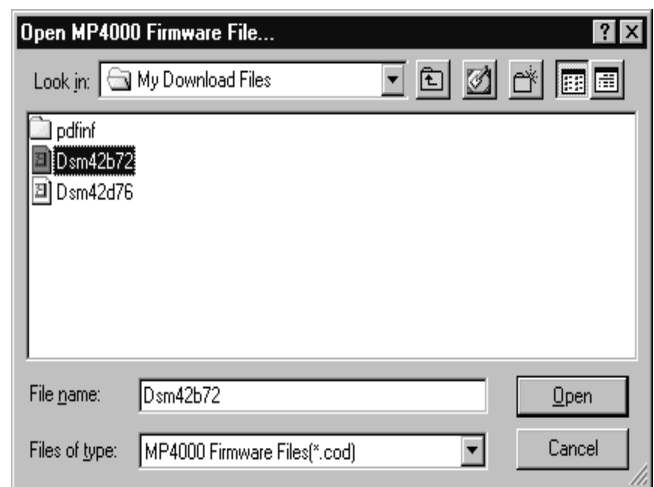
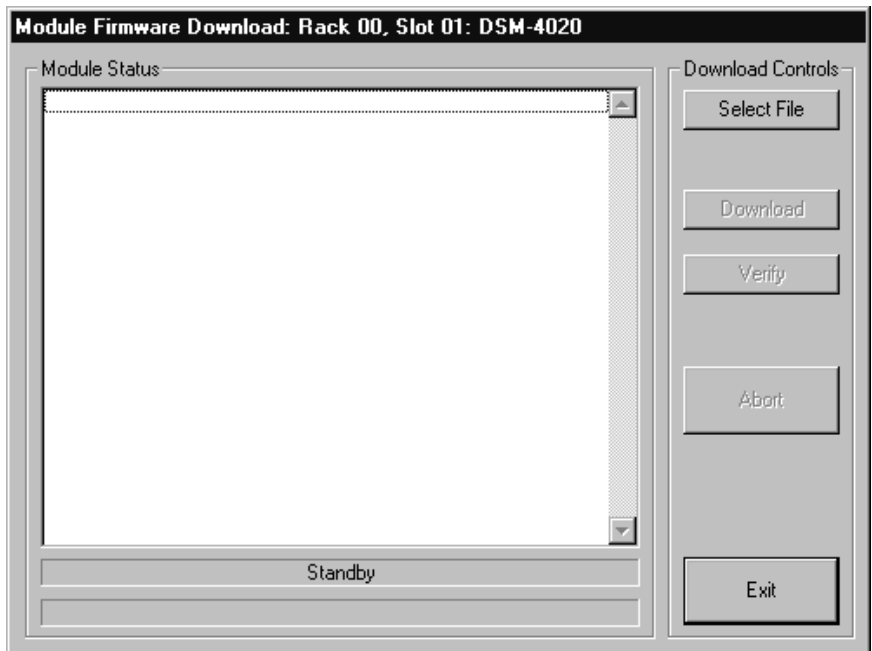
❖ Open the MP4000 software and select the **Showfile**.

❖ Highlight the module desired and left click. The module’s information is displayed in the **Device Information** section.

➤ Select **OPTIONS** from the Menu bar across the top of the MP4000 Menu screen.

- From the scroll down menu, highlight and select **MP4000 FIRMWARE**. The Download menu appears.

- In the **Download Controls** section of the menu, press the **Select File** button. A menu pops up for the selection of the file. Find the directory and filename, then double-click to select and open it.



Install the firmware Code in the Module –

- ❖ The download screen reappears and displays the firmware information in the Module Status section of the screen.

- ❖ Be Certain to Read the Description & Comment sections of the firmware information for considerations and restrictions of use.

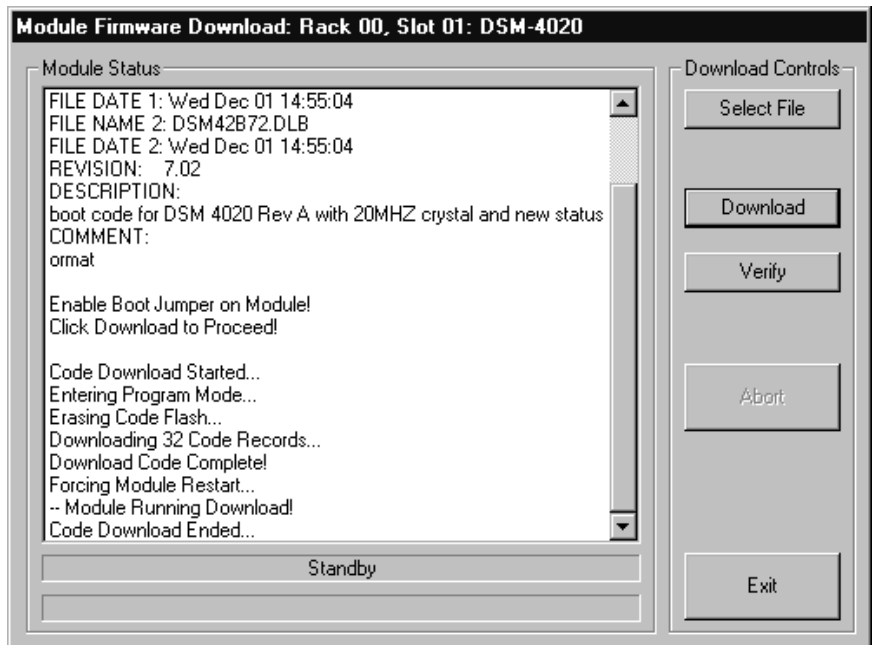
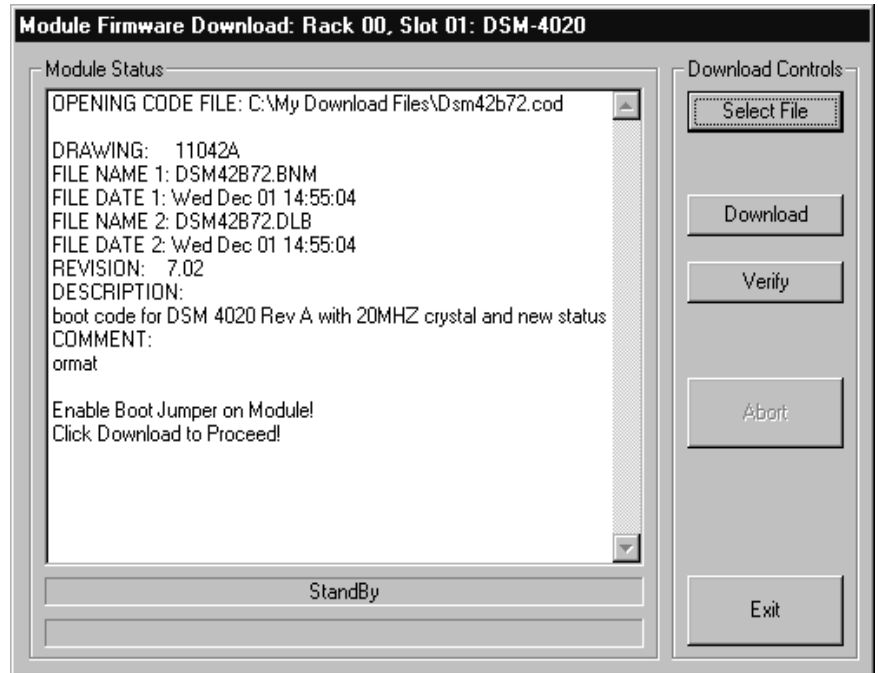
- ❖ Refer to the ReadMeMP file found on the Website.

- ❖ Press the **Download** button to proceed, or **Exit** to abort the operation.

- Once the Download has started, messages appear on the screen to detail the process that is taking place. When it is finished, **Code Download Ended** message is displayed.

- ❖ It is recommended to run a verify after the download on modules that have the option available. Press the **Verify** button and watch for the **Code Verify Ended** Message.

- If another download is necessary, then press the **Select File** button and repeat the download process for the next file needed.
- Press the **Exit** button to end the download process.



The new versions of the firmware will be displayed in the Device Information Pane of the MP4000 menu.

Glossary

ALIAS	English representation contained within single quotes that references an object.
.ani	Extension used for Animation files.
ASCII	A numeric code used by computers to represent characters.
BIT	A single logical or physical resource that can be either ON (true, 1) or OFF (false, 0).
COMMENT	Text following a semicolon on an event line within a cue, it is used to annotate the cue.
COMPLIANCE	Additional feedback applied according to the equations in the firmware and parameters supplied by the user that tends to reduce the output signal.
CONST	Constant
CONTACT CLOSURE	Completes a circuit. A voltage is applied to a reference pin of a bit's connector. When the switch is closed, the voltage is returned on another wire to the same bit, completing the circuit. When the switch is closed, the I/O pin gets voltage.
CUE	A list of up to 512 EVENTS containing verb, object, token, and variable items.
db	Decibel
E/S	Emergency Stop
EVENT	A single line of verb, object, token and parameter items contained in a CUE.
FET	Field Effect Transistor - an electronically controlled switch.
FLASH	Fast, electrically erasable, and programmable in the circuit non-volatile memory devices.
FW	Firmware
HMR	Horizontal Module Rack
HW	Hardware

ICM	Intelligent Controller Module
I/O	Input/Output
IOM	Input/Output Module
JMP	Push-on jumper, shunt - a small (approximately ¼” x 1/8” thick) piece of plastic with a metal insert. The jumper is set by pushing it down over a pair of pins.
KEY	A piece of hardware that keeps a module from being plugged into a slot that is wired and keyed for a different kind of module.
LABEL	A name, followed by a colon on a line of a CUE, used for a forward or backward jump.
LED	Light Emitting Diode (indicator, light, lamp)
MIDI	Musical Instrument Digital Interface
MPCL	Media Pro® Control Language
OBJECT	Term used to reference a resource within the Media Pro® system.
OFF	False, 0, Open
ON	True, 1, Closed
PARAMETER	The item that follows a token. The list of parameters is in section 3 of the MP4000 User’s Operation Manual.
PLC	Programmable Logic Controller
PORT	A resource on a module in case of the DSM. There are 2 ports.
P-P	Peak to Peak
RACK	A card cage containing Media Pro® 4000 Modules.
RESOURCE	A controllable device connected to or contained within the Media Pro® 4000 system.
RMS	Root Mean Squared
SLOT	A physical location in a RACK that contains a Media Pro® Module.

SMPTE	Refers to Society of Motion Picture & Television Engineers , and the standard for timing signals set by this group.
STRING	A collection of alphanumeric characters contained in double quotes, used with the DISPLAY command.
SW	Software
THD & N	Total harmonic distortion and noise
TOKEN	Reserved words for modifiers of the VERBs used in a cue event. The list of TOKENs is in section 3 of the MP4000 User's Operation Manual.
TYPE	The kind of OBJECT being referred to in a direct addressing statement. The list of TYPEs is in section 3 of the MP4000 User's Operation Manual.
VAC	Volts Alternating Current
VARIABLE	A 32-bit value that can contain a number used in a cue line. A variable may be assigned an ALIAS . There may be a maximum of 512 variables per system.
VDC	Volts Direct Current
VERB	Reserved words for the actions used in a CUE EVENT . The list of VERBs is in section 3 of the MP4000 User's Operation Manual.
VMR	Vertical Module Rack.
.wav	Extension used for WAVE files, contains sound data.
Z-RAILS	Two Z-shaped rails on the back of the rack, adjacent and parallel to the space for the I/O connectors on the Modules when the modules are inserted. The field connectors attach to the Z-rails.

