

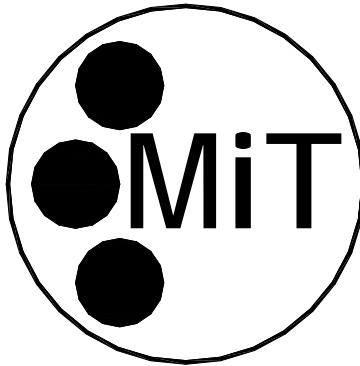
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# MOVING iMAGE TECHNOLOGIES

## INSTRUCTIONS

FOR

INSTALLATION, OPERATION, AND MAINTENANCE

OF

## M4800 Dimmer

Manual Version 0.1

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## Operator's Manual M4800 Dimmer

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## TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1. INTRODUCTION	<b>2</b>
2. GENERAL DESCRIPTION	<b>4</b>
3. INSTALLATION PROCEDURES	<b>6</b>
4. PRINCIPLES OF OPERATION	<b>10</b>
5. MAINTENANCE	<b>14</b>
6. MODEL NUMBERS AND CONFIGURATION	<b>15</b>

## 1. INTRODUCTION

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### 1.1. CONTENTS OF THE MANUAL

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This manual contains installation, operation, and operator maintenance procedures for MiT M4800 Dimmer. The material covered includes:

- general description
- installation procedures
- principles of operation
- maintenance
- model numbers and configuration

### 1.2. PURPOSE OF THE MANUAL

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This manual provides information suitable for various purposes. For details on operating the projector and for general information, see:

- Section 2: General Description
- Section 3: Installation and Assembly
- Section 4: Principles of Operation
- Section 5: Periodic Maintenance
- Section 6: Model numbers and configuration


### 1.3. SPECIAL NOTICES

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Three kinds of specific notices are used within this manual to emphasize information.


#### 1.3.1. WARNING

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	<b>WARNING:</b> Indicates the presence of a hazard that can cause personal injury if the hazard is not avoided.
<b>WARNING</b>	


#### 1.3.2. CAUTION

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	<b>CAUTION:</b> Indicates the presence of a hazard that can cause damage to projection system.
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#### 1.3.3. NOTE

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	<b>NOTE:</b> Provides additional information.
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## 2. GENERAL DESCRIPTION

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The M-SERIES Cinema Lighting Dimmer is a dimmer specifically optimized for cinema theater applications. It can be supplied with up to four 2400 Watt lighting circuits (channels) and be remotely controlled by cinema projection equipment. Some models are provided with a fast acting 20Amp magnetic circuit breaker for each channel. Dimmer channel settings may be recorded in the dimmer and then activated as presets comprised of multiple channel settings. Presets are activated by external switch closures. A table at the end of this manual gives a description of the different model numbers. Additional models can be supplied for 220 VAC operations.

The unit is intended for wall mounting. M-SERIES dimmers are for INDOOR USE ONLY.

### 2.1. POWER REQUIREMENTS

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The M-SERIES dimmer requires a hot power feed line for each lighting circuit (channel), a common neutral, and an earth ground. Each of these feeds must be powered by a circuit providing a minimum of 20 Amps and is dedicated to one of the units lighting circuits. The power feed for channel 1 also powers the unit's internal electronic circuitry. The internal circuitry is protected by a replaceable 1/2 Amp, 250 Volt, fast acting fuse. The M-SERIES dimmer may be operated from either single phase or three phase power and may be switched between these power types by the user.

## 2.2. CONTACTING MiT

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To order parts or request information from MiT, use the address, telephone number, or fax number given on the inside front page of this document. When contacting MiT be prepared to provide:

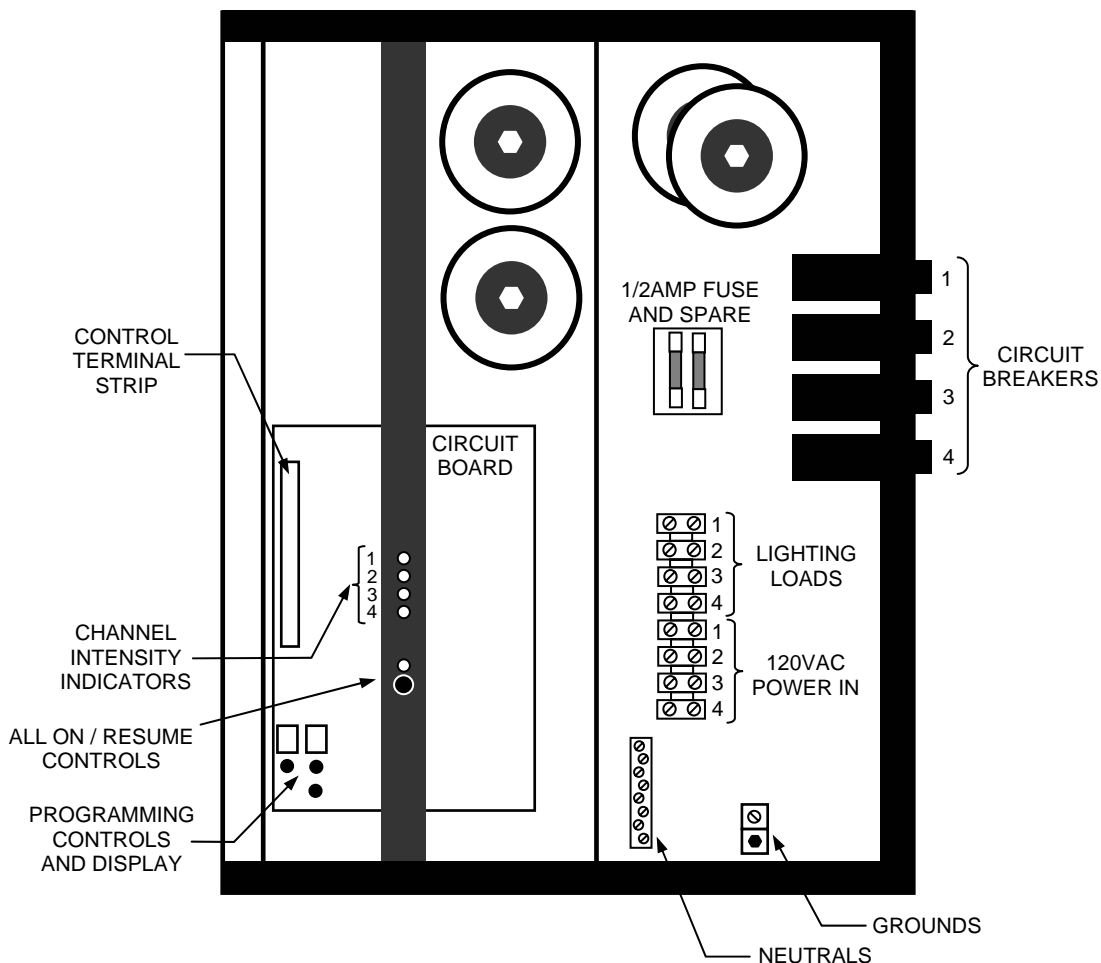
- M-Series dimmer name and serial number.
- Part name and part number, as shown in this manual.
- Purchase order number.

The purchase order number is essential for replacement parts requested under warranty. MiT issues credit for defective parts received. Please request a Return Authorization number from MiT for any defective parts.



## 3. INSTALLATION PROCEDURES

### 3.1. M-SERIES FRONT VIEW (Cover Removed)

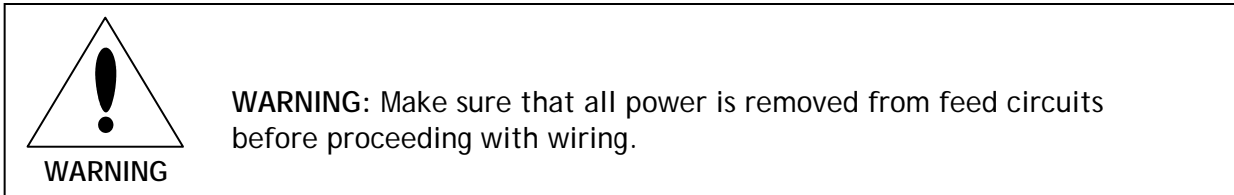


#### 3.1.2. Location and mounting

The unit is to be wall mounted using the mounting holes provided in the chassis. Orient the unit such that the circuit board is in the lower left area of the chassis. The unit may (but is not required to be) spaced out from the wall approx. 1 inch. This may be desirable if the unit must be used in a location with a high ambient temperature. Standard sized knockout holes are provided in the edges of the chassis for wiring. Be sure that the vent holes in the chassis and cover are not obstructed since they are needed for proper cooling

### 3.1.3. Input power connections

---



Connect power input leads to the upper terminal strip positions as indicated on the terminal strip labels. A hot feed line is needed for each channel. Associated NEUTRALS are to be connected to the NEUTRAL bar provided. An earth ground is also needed. A ground lug is provided. The terminal strip connection torque specification is 16 lb.-in. max. The minimum wire size is AWG#12. Consult the applicable electrical codes for your location for exact wire specifications. The power terminal connections are intended for copper wire only.

This unit will work on either single or three phase power. Any dimmer channel may get power from any phase.

### 3.1.4. Load connections

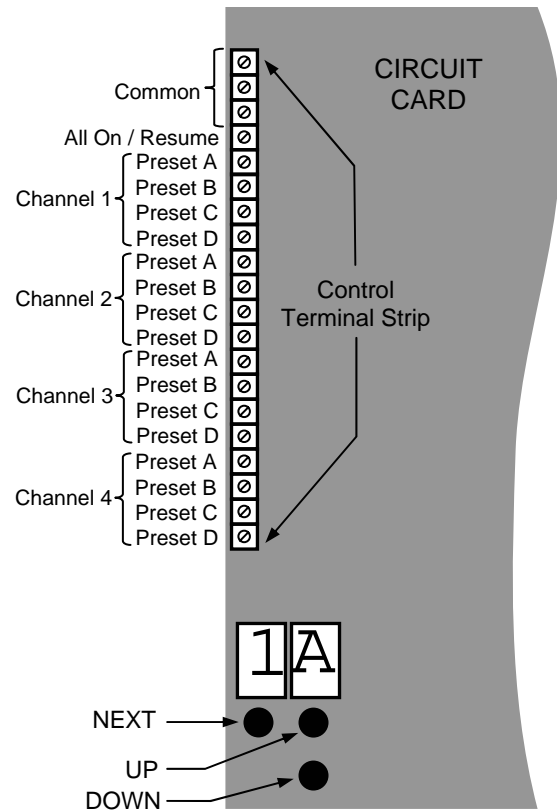
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The M-SERIES dimmer is intended for incandescent lamp loads. You can connect up to 2400 Watts of lighting to each channel. Connect lighting loads to the lower terminal strip positions as indicated by the label. The neutral bar and ground lug may be used for lighting loads. The terminal strip connection torque specification is 16 lb.-in. max.

### 3.1.5. Remote switch connections

#### REMOTE SWITCH CONNECTIONS

A control terminal strip located on left side of the low voltage section of the printed circuit board is provided for connecting external switch control signals. In general, a common signal (circuit ground) is sent from the terminal strip to a momentary contact of a remotely located switch. The switch closure is returned to other positions on the M-SERIES dimmer control terminal strip to activate four preset channel intensity levels for each of 4 lighting conditions to be activated.



### **3.1.6. Initial set up**

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Set up of the M-SERIES dimmer is done using the 2 LED indicators and the 3 push buttons located at the bottom of the low voltage section of the inside of the unit. Using these controls you can set the intensity of each of the lighting channels for each of the four available presets. You can also adjust the preset up and down fade times. The final use for these controls is to set the unit to operate correctly for the type of input power being used for the unit. See the section "PROGRAMMING THE UNIT" for specific instructions concerning set up.

### **3.1.7. Set up for a single phase power installation**

---

Press the NEXT button repeatedly until P2 appears on the LED indicator. This tells the unit which phase circuit 2 is getting its power from, hence P2 (phase - Channel 2). Use the UP/DOWN buttons to set the right hand indicator to "A". Do the same for P3 and P4 (phase - Channel 3) (phase - Channel 4)

### **3.1.8. Set up for a three phase power installation**

---

Hold down the NEXT button until P2 appears on the LED indicator. Use the UP/DOWN buttons to set the right hand indicator to "B" or "C". If the unit does not fade smoothly between preset levels or some of the channels seem to operate in an OFF/ON only fashion then you should change this setting to the other three phase choice (B or C).

## 4. PRINCIPLES OF OPERATION

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### 4.1. Circuit Breakers

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Some models of the M-SERIES dimmer do not use circuit breakers. If it does - there is a 20 Amp magnetic circuit breaker for each dimmer channel located on the right side of the unit. To operate a channel, the associated circuit breaker must be closed. Channel numbers for the circuit breakers are labeled on the unit. If a circuit breaker will not remain closed then there is an overload at the lamps for that channel which MUST be corrected before operation can continue

### 4.2. Indicators

---

There is a LED indicator for each channel on the cinema dimmer front panel. They provide an indication of the current lighting intensity for the associated channel.

### 4.3. Manual all on / resume operation

---

The "All On / Resume" control may be activated by its push button on the unit front panel. This function overrides all other channel controls. It sets all channels to maximum intensity, and remains in effect until the button is pushed again. At that time the unit will "Resume" normal operation (return to the intensity settings provided by the normal control signals). The LED located above the button is ON when "All On" operation is in effect.

### 4.4. General theater operation

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During theater operation, the lighting is usually controlled by "automation cues" from the projection equipment. The M-SERIES dimmer is designed to activate preset lighting conditions in response to these controls.

A typical scenario is described in the following table. The table is for an installation where a four channel unit is used. M-SERIES dimmer channels 1 and 2 are connected to the stage lights and M-SERIES dimmer channels 3 and 4 are connected to the house lights.

The 3% intensity level shown for some of the settings in the table essentially results in no light from the lamps but keeps the lamp filaments warm which extends the lamp life

ACTIVITY or PRESET	HOUSE LIGHTING Channel 1	HOUSE LIGHTING Channel 2	STAGE LIGHTING Channel 3	STAGE LIGHTING Channel 4
A Opening and Seating	90% (5 sec. Fade)	90% (5 sec. Fade)	90% (5 sec. Fade)	90% (5 sec. Fade)
B Trailers, Previews, and Commercials	50% (15 sec. Fade)	50% (15 sec. Fade)	3% (15 sec. Fade)	3% (15 sec. Fade)
C Main Feature	3% (5 sec. Fade)	3% (5 sec. Fade)	3%	3%
D Credits and Closing	60% (10 sec. Fade)	60% (10 sec. Fade)	3%	3%

#### 4.5. Programming the unit

The LED's will alternate between the FUNCTION (channel/preset level and preset fade) and its VALUE (intensity and fade time). There are 2 digits and 3 buttons to control everything. Press the NEXT button to advance through each FUNCTION. Press the UP and DOWN buttons to change the VALUE for the alternately displayed FUNCTION.

Note that the 100% intensity value on the LED display is indicated by "FL" (full).

SYMBOL	FUNCTION	VALUE
1A	Channel 1 Preset A intensity	0-100% intensity
1b	Channel 1 Preset B intensity	0-100% intensity
1C	Channel 1 Preset C intensity	0-100% intensity
1d	Channel 1 Preset D intensity	0-100% intensity
2A	Channel 2 Preset A intensity	0-100% intensity
2b	Channel 2 Preset B intensity	0-100% intensity
2C	Channel 2 Preset C intensity	0-100% intensity
2d	Channel 2 Preset D intensity	0-100% intensity
3A	Channel 3 Preset A intensity	0-100% intensity
3b	Channel 3 Preset B intensity	0-100% intensity
3C	Channel 3 Preset C intensity	0-100% intensity
3d	Channel 3 Preset D intensity	0-100% intensity
4A	Channel 4 Preset A intensity	0-100% intensity
4b	Channel 4 Preset B intensity	0-100% intensity
4C	Channel 4 Preset C intensity	0-100% intensity
4d	Channel 4 Preset D intensity	0-100% intensity
1 <sup>↑</sup>	Channel 1 Up fade time	1-99 seconds (applied to all presets)
1 <sup>↓</sup>	Channel 1 Down fade time	1-99 seconds (applied to all presets)
2 <sup>↑</sup>	Channel 2 Up fade time	1-99 seconds (applied to all presets)
2 <sup>↓</sup>	Channel 2 Down fade time	1-99 seconds (applied to all presets)
3 <sup>↑</sup>	Channel 3 Up fade time	1-99 seconds (applied to all presets)
3 <sup>↓</sup>	Channel 3 Down fade time	1-99 seconds (applied to all presets)

4 <sub>↑</sub>	Channel 4 Up fade time	1-99 seconds (applied to all presets)
4 <sub>↓</sub>	Channel 4 Down fade time	1-99 seconds (applied to all presets)

You can STOP HERE, or continue and set the individual up/down fade times. If individual times do not need to be set then proceed to P2-P4 Channel Input power phase selection.

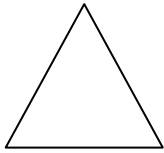
TO SET THE INDIVIDUAL UP/DOWN FADE TIMES (or skip this section) These settings will over-ride the fade up/down settings in the previous section.

SYMBOL	FUNCTION	VALUE
.A1	Channel 1, Preset A - up fade time	1-99 seconds
A1	Channel 1, Preset A - down fade time	1-99 seconds
.b1	Channel 1, Preset B - up fade time	1-99 seconds
b1	Channel 1, Preset B - down fade time	1-99 seconds
.C1	Channel 1, Preset C - up fade time	1-99 seconds
C1	Channel 1, Preset C - down fade time	1-99 seconds
.d1	Channel 1, Preset D - up fade time	1-99 seconds
d1	Channel 1, Preset D - down fade time	1-99 seconds
.A2	Channel 2, Preset A - up fade time	1-99 seconds
A2	Channel 2, Preset A - down fade time	1-99 seconds
.b2	Channel 2, Preset B - up fade time	1-99 seconds
b2	Channel 2, Preset B - down fade time	1-99 seconds
.C2	Channel 2, Preset C - up fade time	1-99 seconds
C2	Channel 2, Preset C - down fade time	1-99 seconds
.d2	Channel 2, Preset D - up fade time	1-99 seconds
d2	Channel 2, Preset D - down fade time	1-99 seconds
.A3	Channel 3, Preset A - up fade time	1-99 seconds
A3	Channel 3, Preset A - down fade time	1-99 seconds
.b3	Channel 3, Preset B - up fade time	1-99 seconds
b3	Channel 3, Preset B - down fade time	1-99 seconds
.C3	Channel 3, Preset C - up fade time	1-99 seconds
C3	Channel 3, Preset C - down fade time	1-99 seconds
.d3	Channel 3, Preset D - up fade time	1-99 seconds
d3	Channel 3, Preset D - down fade time	1-99 seconds
.A4	Channel 4, Preset A - up fade time	1-99 seconds
A4	Channel 4, Preset A - down fade time	1-99 seconds
.b4	Channel 4, Preset B - up fade time	1-99 seconds
b4	Channel 4, Preset B - down fade time	1-99 seconds
.C4	Channel 4, Preset C - up fade time	1-99 seconds
C4	Channel 4, Preset C - down fade time	1-99 seconds
.d4	Channel 4, Preset D - up fade time	1-99 seconds
d4	Channel 4, Preset D - down fade time	1-99 seconds

Set the Input Power Phase for each dimmer channel. This must be set correctly or dimmers will behave erratically during the operation.

P2	Channel 2 Input power phase	A, B, or C
P3	Channel 3 Input power phase	A, B, or C
P4	Channel 4 Input power phase	A, B, or C

For P2-P4, set to A, B, or C depending on which phase each channel gets its power from. For single phase power set P2, P3, and P4 to "A".



**NOTE:**  
Setting the phase incorrectly is the number one cause for problems with this product



## 5. MAINTENANCE

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**WARNING**

**WARNING: RISK OF ELECTRICAL SHOCK!**

There are lethal voltages present in this product when power is applied to its feed circuits. The cabinet should be opened only by qualified electrician

The only user servicable part in the M-SERIES dimmer is the Type ABC, ½ Amp, 250 Volt, fast acting fuse. A spare fuse is provided with the unit. The fuse may be replaced **ONLY** with an identical fuse.



**WARNING**

**WARNING:** Make sure that all power is removed from feed circuits before changing the fuse.

Service by other than the manufacturers authorized agents may void your warranty.

The best way to prolong the life of your unit is to keep it cool, clean, and dry. It is important that the cooling intake and exit vent holes are clean and unobstructed.

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# 6

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## 6. MODEL NUMBERS AND CONFIGURATION

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The table below shows the number of channels and circuit breaker information for each model number.

MODEL NUMBER	DESCRIPTION
M4800-1	2 Channels X 2400W, 100-132V, 60HZ
M4800-2	2 Channels x 2400W, 200-240V, 50Hz

An additional suffix also appears in the model number. This suffix is either -1 for a 120VAC unit or -2 for 240VAC unit.

For one and two channel versions, only the components, indicators, and connection points for the applicable channels will be present in the unit.

# Standard Product Warranty

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