

MOVING iMAGE TECHNOLOGIES

INSTRUCTIONS

FOR

INSTALLATION, OPERATION, AND MAINTENANCE

OF

ALF

Architectural LED Fixture

Part number A000249-xxx

Manual Version 0.1

MOVING iMAGE TECHNOLOGIES, LLC.

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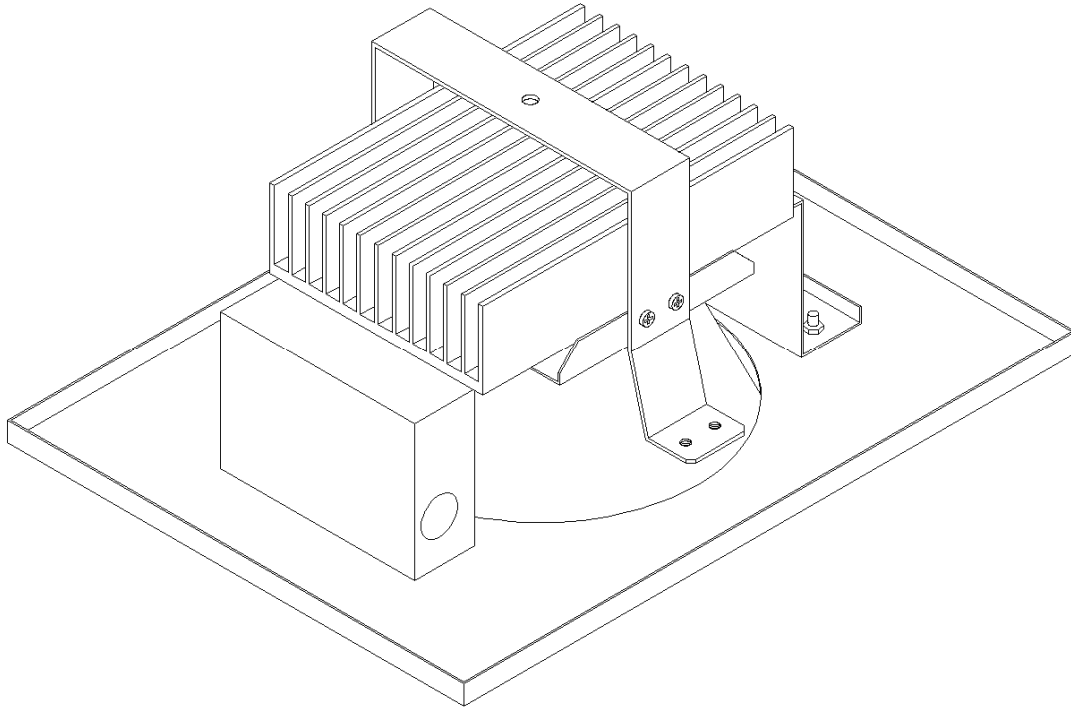
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Manual ALF



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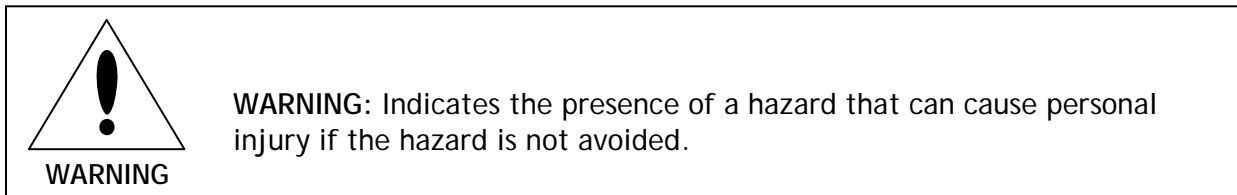
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1. INTRODUCTION & SAFETY

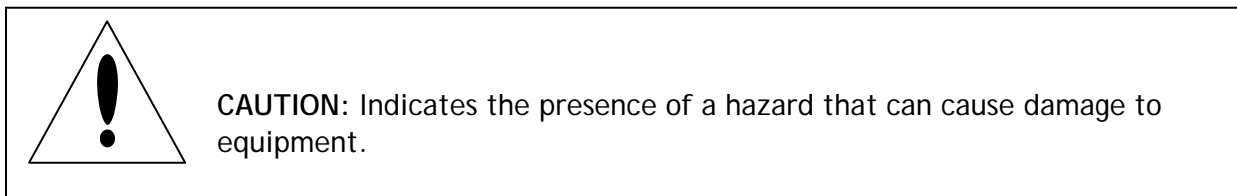
1.1 SPECIAL NOTICES

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

1.1.1 Warning



1.1.2 Caution



1.2 SAFETY

- ✓ AC lighting systems involve connection to high voltages ranging from 120V to 277V. This wiring must be done by licensed electricians or other personnel with appropriate training. **The technical information in this manual is provided for use by certified electricians and other qualified personnel ONLY.**
- ✓ **IMPORTANT:** Do not connect any part of these fixtures to AC voltage! These devices are powered by a 36VDC power supply and will be damaged by any higher voltage than this. There is minimal risk of electrical shock with the device connected as described in this manual.
- ✓ If the ALF unit is installed as part of an emergency lighting system there are safety implications as far as national and local fire safety rules that the installation must comply with. Consult all relevant national and local codes.

2. GENERAL DESCRIPTION

The MiT model ALF Architectural LED Fixture is an 8 inch diameter luminaire downlight intended for installation in a cinema auditorium, typically in a T-bar drop-ceiling. It accepts a 1.0V-10.0 DC control voltage conforming to the IEC 60929 1.0-10VDC Architectural dimming standard. It is optimized for use with the MiT A-LMS lighting controller system p/n A000230, however it will work equally well with any 1.0-10VDC dimmer or lighting controller with similar specifications.

The ALF incorporates a custom-designed driver PCB that when used with the A-LMS controller the unit will dim smoothly from 100% output to 0.1% brightness, i.e. a range in lumen output of 1000:1 (or more).

The ALF unit incorporates two lighting channels as standard. The first channel is the center LED element which is a 30-Watt module. This channel is intended for use with an audience present, and is normally supplied with a 2700K or 3000K color temperature for a pleasing warm white color. The second channel is three outer elements of 16 Watts each or 48 Watts total. This channel is intended for emergency use and for auditorium cleaning during intermission, and is normally supplied with 4000K color temperature LED modules as standard, to maximize visibility.

These fixtures use a 36VDC power source, ordered separately. The power supplies provided by MiT are universal AC voltage, 90-300VAC.

The ALF design uses LED modules rated for 50,000 hours under normal operating conditions. The LEDs should not require service during the life of the fixture.

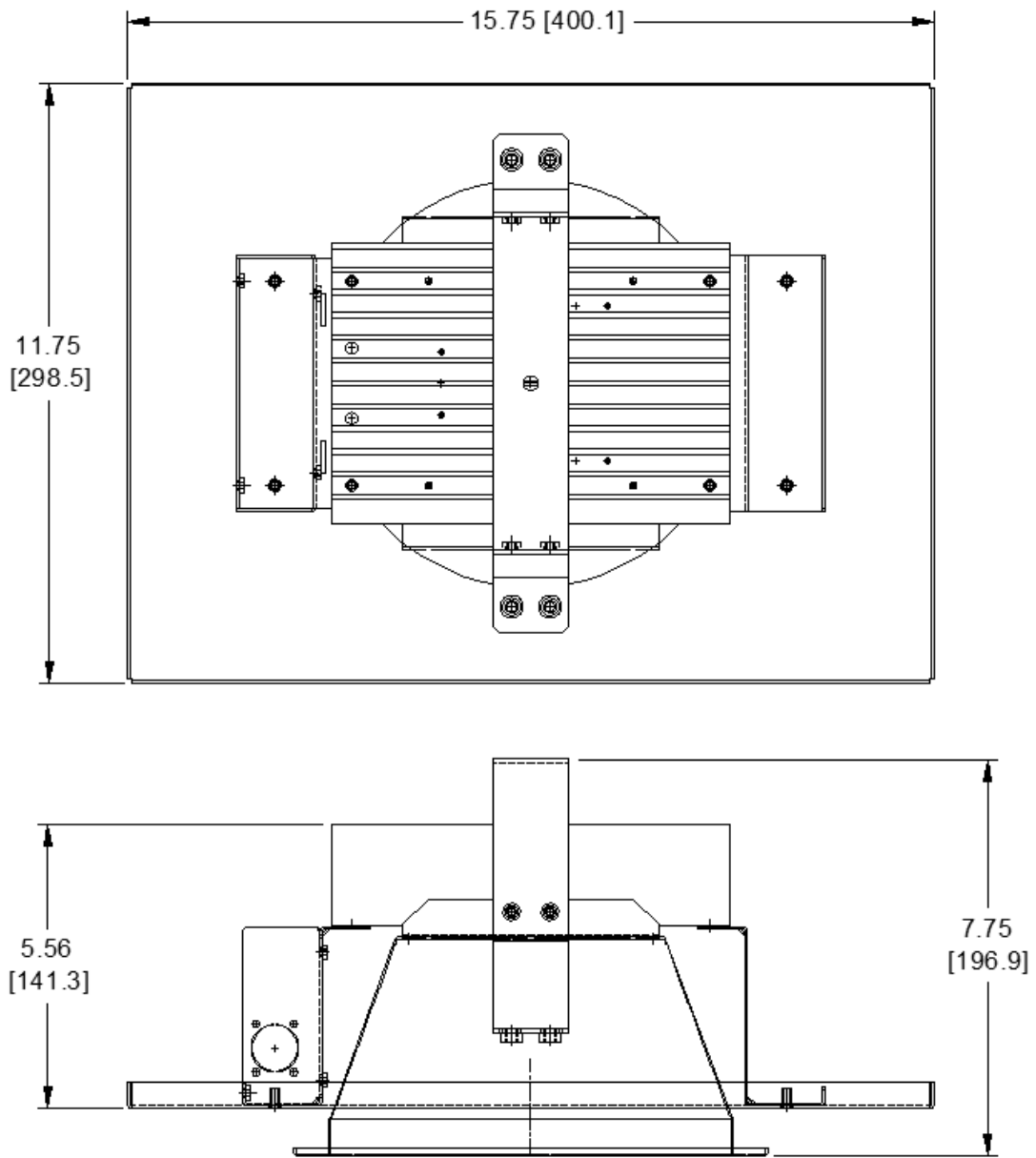


Figure 1-1 Outline

3. UNPACKING AND ASSEMBLY



CAUTION: Users are urged to read this instruction manual thoroughly and understand the procedures described herein before installing the system.



CAUTION: National and Local electrical codes should be observed at all times, where applicable.

3.1 Unpacking

Open and inspect the shipping carton as soon as possible after receiving it for any shipping damage. If damage is found, notify the freight company immediately.

The ALF is normally shipped two ALF units per carton, although if the customer has ordered an odd number of fixtures one carton will contain a single unit.

The contents of the carton typically contain the following items:

- This manual, document R000158
- (2) ALF lighting units, MiT p/n A000249-xxx
- (2) Hanging straps, MiT p/n C002265-001
- (4) Heavy duty T-grid support brackets, MiT p/n PM00322-001
- Assembly hardware

Note: The latter three items are included inside the carton but unassembled. Be careful not to discard these parts when discarding the packaging materials.

3.2 Assembly

Tools required:

- Philips #2 screwdriver
- Philips #3 screwdriver
- Lightweight gloves, cotton or similar

NOTE: The T-grid support brackets have sharp edges, we suggest the assembler wears light gloves when doing the assembly. These brackets are a standard commercial item, not manufactured by MiT, we have no control over the sharp edges!

Assembly Procedure:

1. Remove the ALF device from the carton, along with one hanging strap and two T-grid support brackets.
2. Using a Philips #2 screwdriver, install the hanging strap to the light fixture using the 4ea 10-32 screws provided. See Figure 3-1.

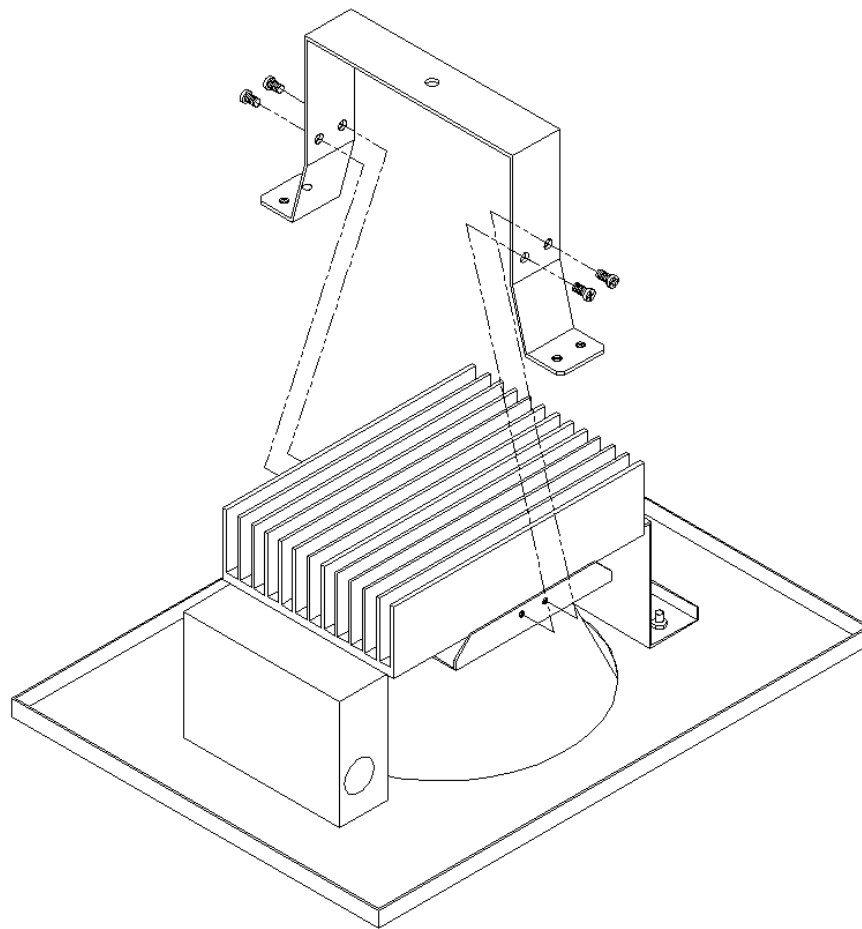


Figure 3-1

Assembly Procedure, cont.:

3. Using a Philips #3 screwdriver and the 4ea ¼"-20 screws and washers provided, install the T-grid support brackets to the hanging strap, approximately centered (they will be more precisely positioned during installation). See Figure 3-2.

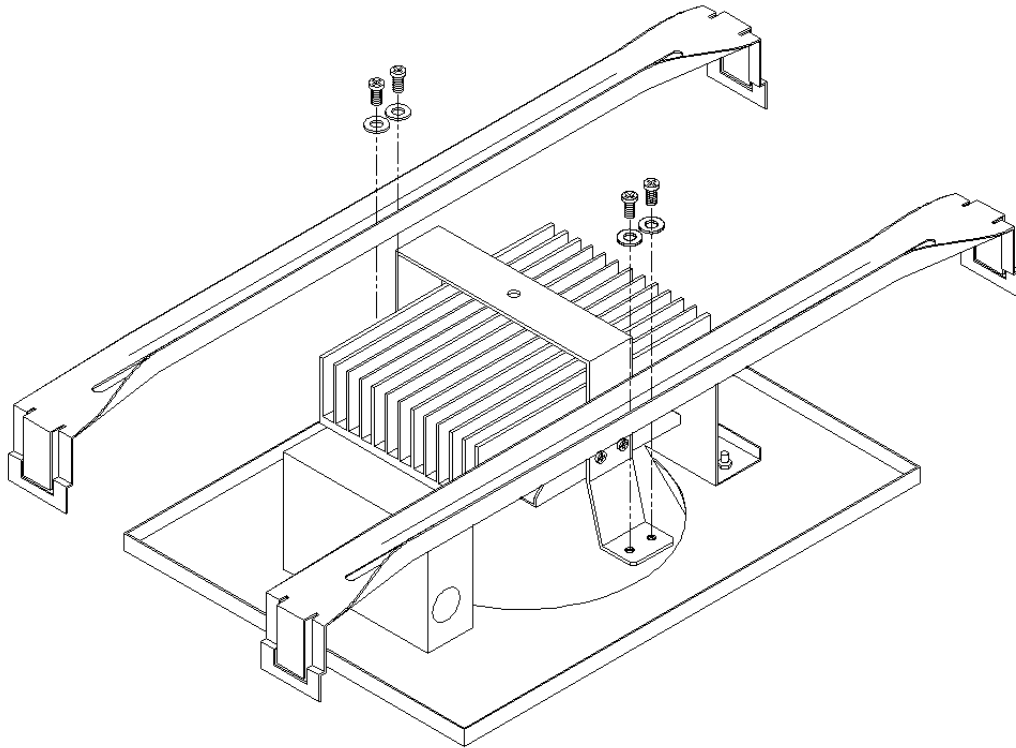


Figure 3-2

This completes the initial assembly of the unit prior to installation.

4 INSTALLATION AND WIRING

4.1 Installation

Important note: The ALF can not have insulation placed over the top of it! Doing so will cause the unit to overheat and prematurely fail, and voids the warranty. The insulation should have a 2-foot by 2-foot clear space centered on where the ALF will be located.

MiT recommends removing the ceiling tiles that will receive an ALF and mounting the ALF to the ceiling tile on the ground according to this procedure:

1. Cut an 8.00-8.50" round hole in the ceiling tile where the ALF is to be mounted.

Note: The MiT logo on the ALF carton is exactly 8.0 inches in diameter. If you cut that out just slightly outside the outer circle of the logo, it will form a template the right size for cutting the ceiling tile.

2. Using a #2 Philips screwdriver loosen the two screws holding the reflector approximately two turns. Then twist and remove the reflector from the ALF and set it aside. It isn't necessary to remove the screws completely.
3. Using a #3 Philips screwdriver Loosen the T-grid support brackets on the ALF slightly so they can slide.
4. Position the ALF unit centered over the hole cut in the tile.
5. Re-install the reflector and tighten the screws. This will locate the fixture on the ceiling tile exactly.
6. Position and tighten the T-grid support brackets.

The ceiling tile and ALF are now ready to be placed in the ceiling grid.

4.2 Electrical Wiring

There are 6 positions on the ALF terminal block connector as follows:

1. 36VDC +
2. 36VDC—
3. Ch A —
4. Ch A +
5. Ch B —
6. Ch B +

You will normally require 6 conductors to supply power and the control signals to the ALF. The cable supplying the 36VDC power is required to carry 2.5 Amperes per

fixture. For one or two fixtures fed by the same cable 18 AWG wire is sufficient. If three fixtures are on the same run, 16 AWG wire is required. MiT doesn't recommend powering more than three fixtures from the same cable because of the current requirements and subsequent wire gauge required.

The control channels are low current, 22 AWG wire is sufficient for them. It would be possible to use one 2-conductor 16 AWG cable for the power, and another 4-conductor 20-22 AWG cable for the control wires. However it's generally most convenient to use a single 6-conductor 16 AWG cable for both power and control.

MiT recommends that twisted pairs are used for these connections, one pair for the power, a second pair for the channel A input, and a third pair for channel B input. We also recommend that this cable is shielded for maximum immunity from noise and interference.

The following are sources of cable meeting these requirements:

Belden 1527A

Belden 1528A

Power Supplies and Switching

Each string of 2-3 fixtures requires its own power supply. See the Appendix for part numbers.

A relay is required to switch the power to the ALF. With the minimum control voltage of 1.0VDC supplied to the ALF, it will glow dimly. In order to completely extinguish the fixture the power must be interrupted. The companion to the ALF, the A-LMS controller has this relay switching function built-in. Other controllers may require an external relay to be added.

Wiring arrangements

Figure 4-1 shows typical wiring configurations used in different sized auditoriums, however this is subject to modification based on the ceiling height, optical characteristics needed, and the architectural design. A separate design guide for the ALF is available for theater architects.

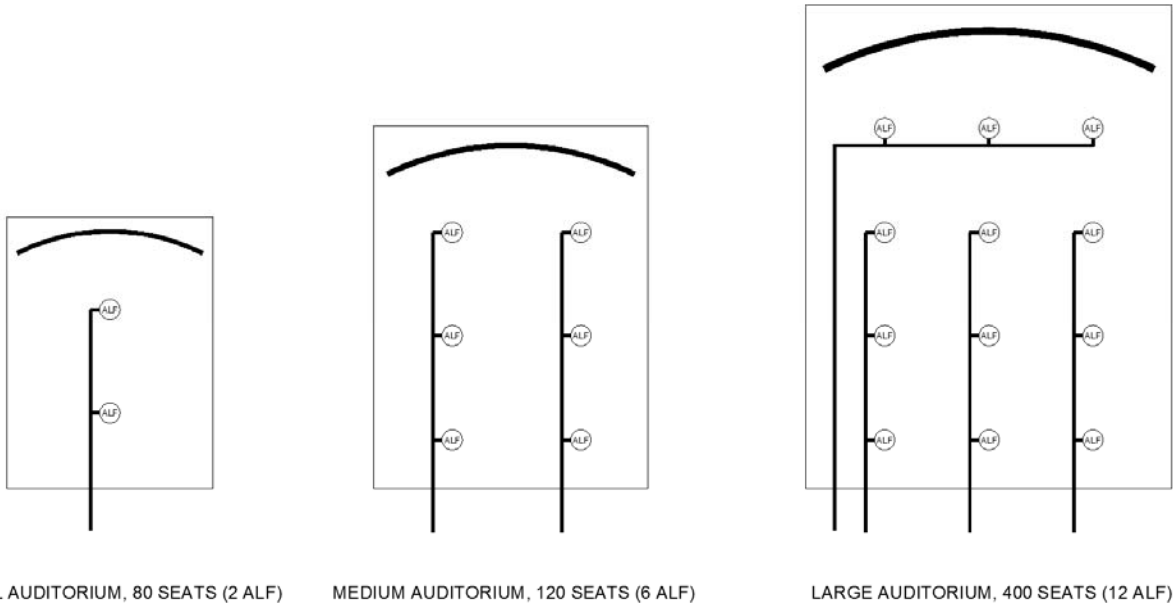


Figure 4-1

Use as Emergency Light

If the installation is intended to provide exit illumination for emergency use there are certain requirements of the wiring to be in compliance with safety codes. A typical wiring diagram is shown below in Figure 4-2, however this should be considered for reference only, the end user should refer to local safety requirements or consult an architect experienced with these requirements.

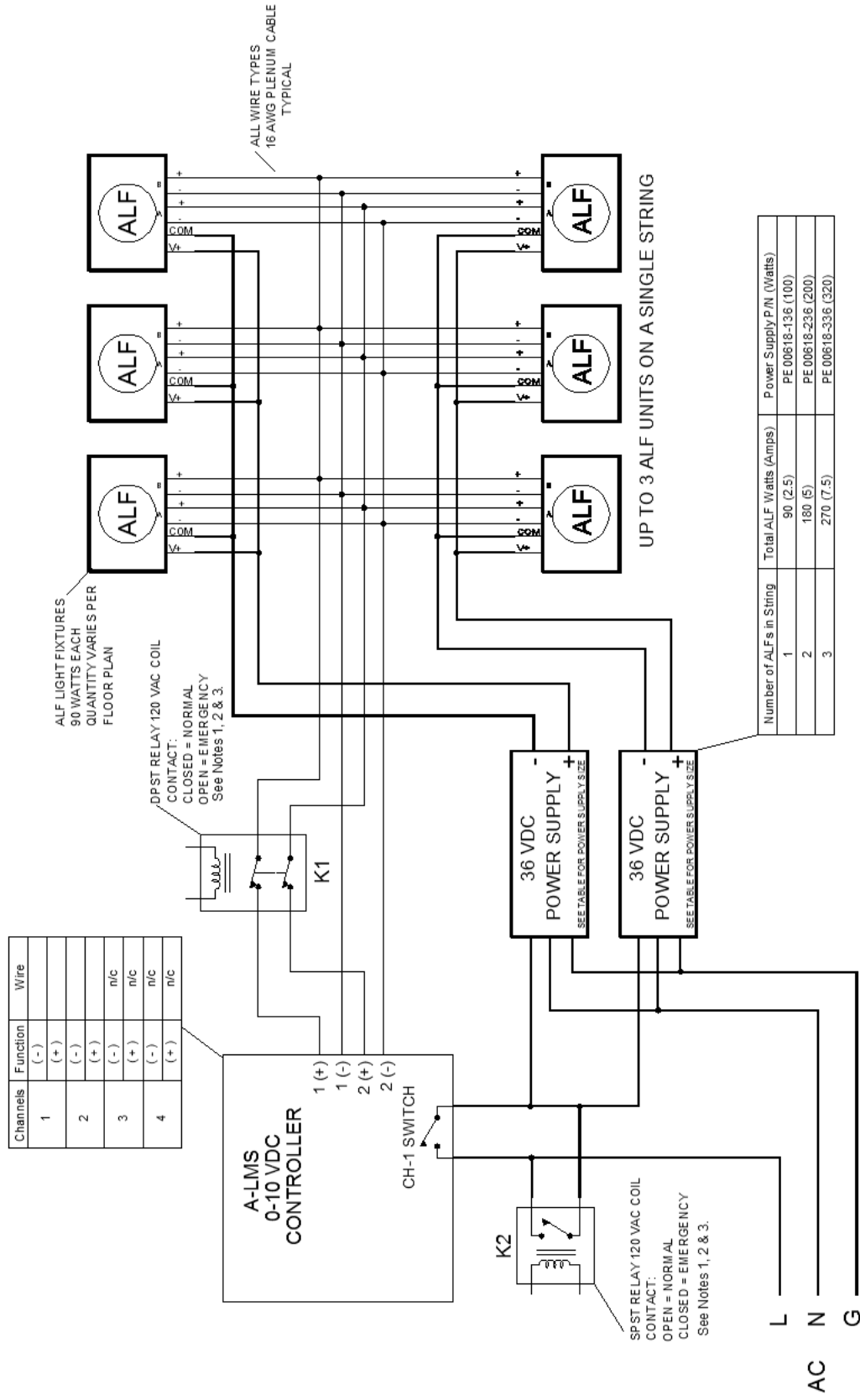


Figure 4-2

5

5. CONTROL INPUT

Control Input Electrical Drive Parameters

According to the IEC 60929 standard the dimming controlling device must sink current from the light fixture from its '+' terminal to its "—" terminal. The more current that is sunk from + to —, the lower the DC voltage will be and the less bright the LED channel output will be. This current sinking device can be a transistor collector, variable resistor, or other varying current path.

You may connect the control input to a simple rheostat or variable resistor instead of a dimmer that issues a control voltage. For a single fixture the value of the variable resistor should be 100K ohms at its maximum resistance. For a string of 3 fixtures you should use 500K.

The current load on one control input channel is approximately 400 microamps or 0.4 mA at 1.0 VDC input voltage.

Full Output on Open Control Circuit

In accordance with IEC 60929, if either Channel A or Channel B control line is unconnected at any time, that circuit will go to full 100% light output. If you don't require dimming of the fixture you may leave the control lines unconnected.

Appendix

Parts List, Schematics, and Warranty

MODELS AND PART NUMBERS

A000249-001	ALF, 90W, 2700K Center, 2700K Outer
A000249-002	ALF, 90W, 2700K Center, 4000K Outer
A000249-003	ALF, 90W, 3000K Center, 3000K Outer
A000249-004	ALF, 90W, 3000K Center, 4000K Outer

REPLACEMENT PARTS LIST

B000325-001	ALF Driver PCB, 2-channel
PE00618-136	Power Supply, 36 VDC, 100W Class 2(powers 1 fixture)
PE00618-236	Power Supply, 36VDC, 200W (powers 2 fixtures)
PE00618-336	Power Supply, 36VDC, 300W (powers 3 fixtures)

Other Documentation Available Separately

- Design Guide for architects
- Photometric data

Contact MIT engineering department for this documentation.

Standard Product Warranty

WARRANTY, DISCLAIMERS AND LIMITATION OF LIABILITY

Unless otherwise noted, all Moving Image Technologies products are covered by the warranty set forth in the following paragraphs.

The warranty is extended only to the purchaser of the Products directly from Moving Image Technologies, or an authorized dealer of Moving Image Technologies, as new merchandise. For a period of twelve (12) months from the date of original delivery to Buyer, the Products are warranted to be free from functional defects in materials and workmanship, provided they are operated under condition of normal use, and that repairs and replacements are made in accordance herewith. Moving Image Technologies does not warrant consumable components. The foregoing warranty shall not apply to Products that have been disassembled, altered or repaired other than by Moving Image Technologies (or by a Moving Image Technologies certified technician) or if the Product has been subject to abuse, misuse, negligence or accident.

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There are no express or implied warranties which extend beyond the warranties set forth above. Moving Image Technologies makes no warranty of merchantability or fitness for a particular purpose with respect to the products or any parts thereof.

This warranty is subject to change at any time without notice.

CONTACTING MiT

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:

- Model and serial number.
- Part name and part number, as shown in this manual.
- Original 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.