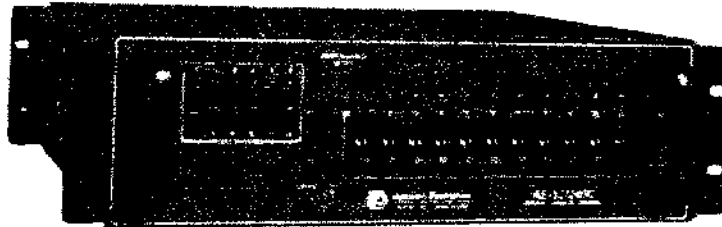


AE-12/2400

***Digital
Dimmer***



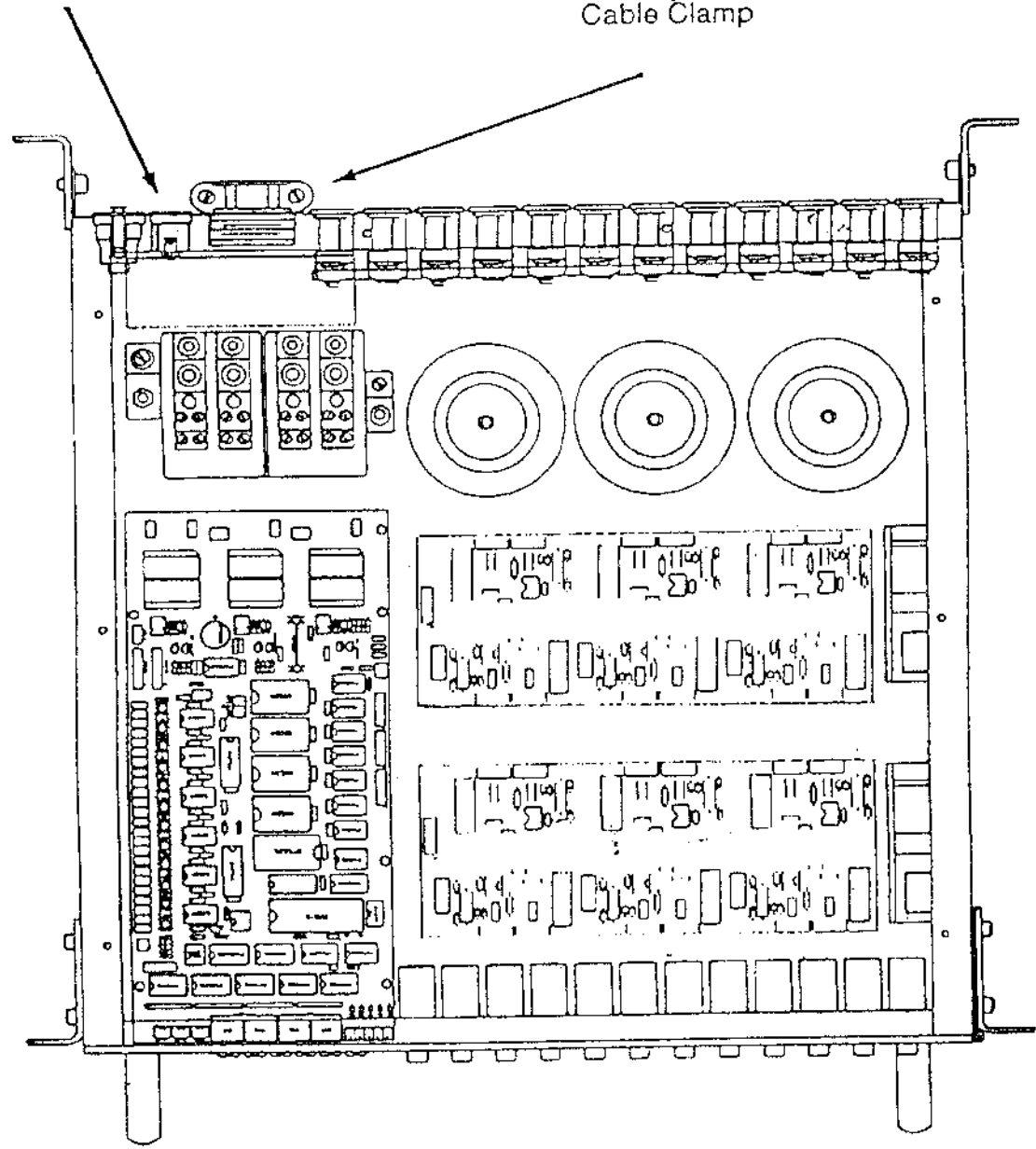
***Operational
Manual***



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0-10 vdc
Control Connector

Incoming Power
Cable Clamp



ELECTRICAL INSTALLATION CONTINUED

120/208vac, 3 PHASE, 4 WIRE (PLUS GROUND) MAY BE USED TO POWER THE DIMMER. Phase 1, Phase 2, and Phase 3 are the "hot" supply leads and are 120VAC reference to neutral. Each lead will draw 80 amps when under full load. With this type of power input, Neutral is a current carrying conductor. Five wires must be installed to the dimmer power terminals; Phase 1, Phase 2, Phase 3, Neutral, and Ground. Terminals are marked for easy identification. See Figure 2.

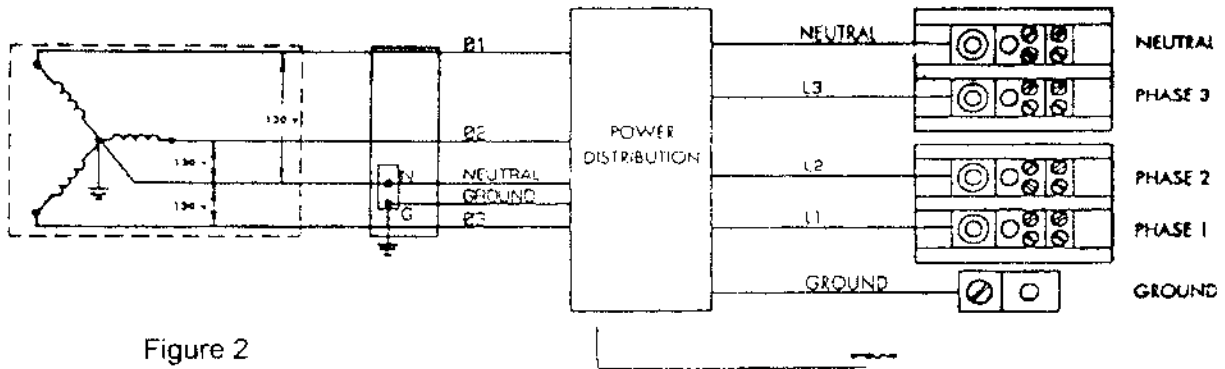


Figure 2

120/240VAC, single phase, 3 wire (plus ground) may also be used. This is accomplished by moving two wires from the Phase 2 terminal block to Phase 1 and Phase 3. These wires have a color indicator band to show correct positioning. The remaining #22awg Red wires should be moved to the Phase 1 terminal block also. Two jumpers on the CPU pcb must also be moved from J20, J21 to J22, J23. See Figure 4. With this type of power input, Neutral is a current carrying conductor. See Figure 3.

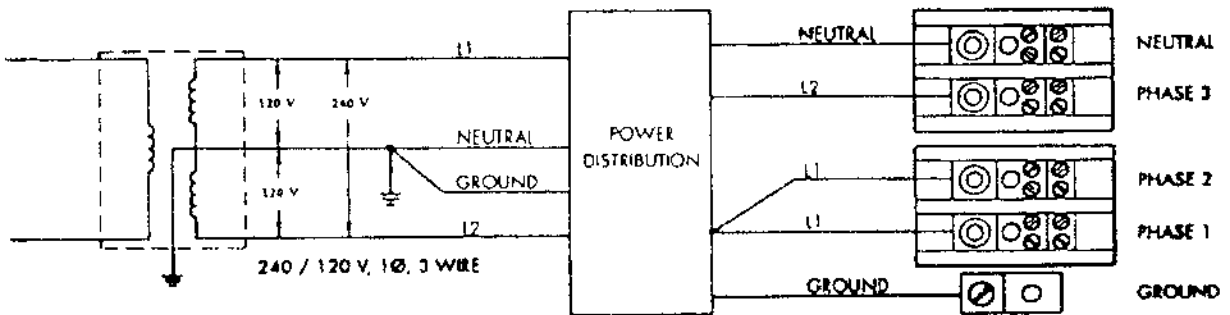


Figure 3

NOTE: INSTALLATION WIRE SIZE, TYPE AND ROUTING USED IN A PARTICULAR LOCATION SHOULD BE BASED ON THE CURRENT NATIONAL ELECTRICAL CODE AND APPLICABLE STATE AND LOCAL CODES. BECAUSE OF THE COMPLEXITY AND CONTINUAL REVISION OF THESE CODES, IT IS RECOMMENDED THAT INPUT POWER BE INSTALLED BY A LICENSED ELECTRICAL CONTRACTOR. APPLIED ELECTRONICS, INC. ASSUMES NO RESPONSIBILITY FOR THE SAFETY OR APPROPRIATENESS OF CUSTOMER INSTALLED WIRING.

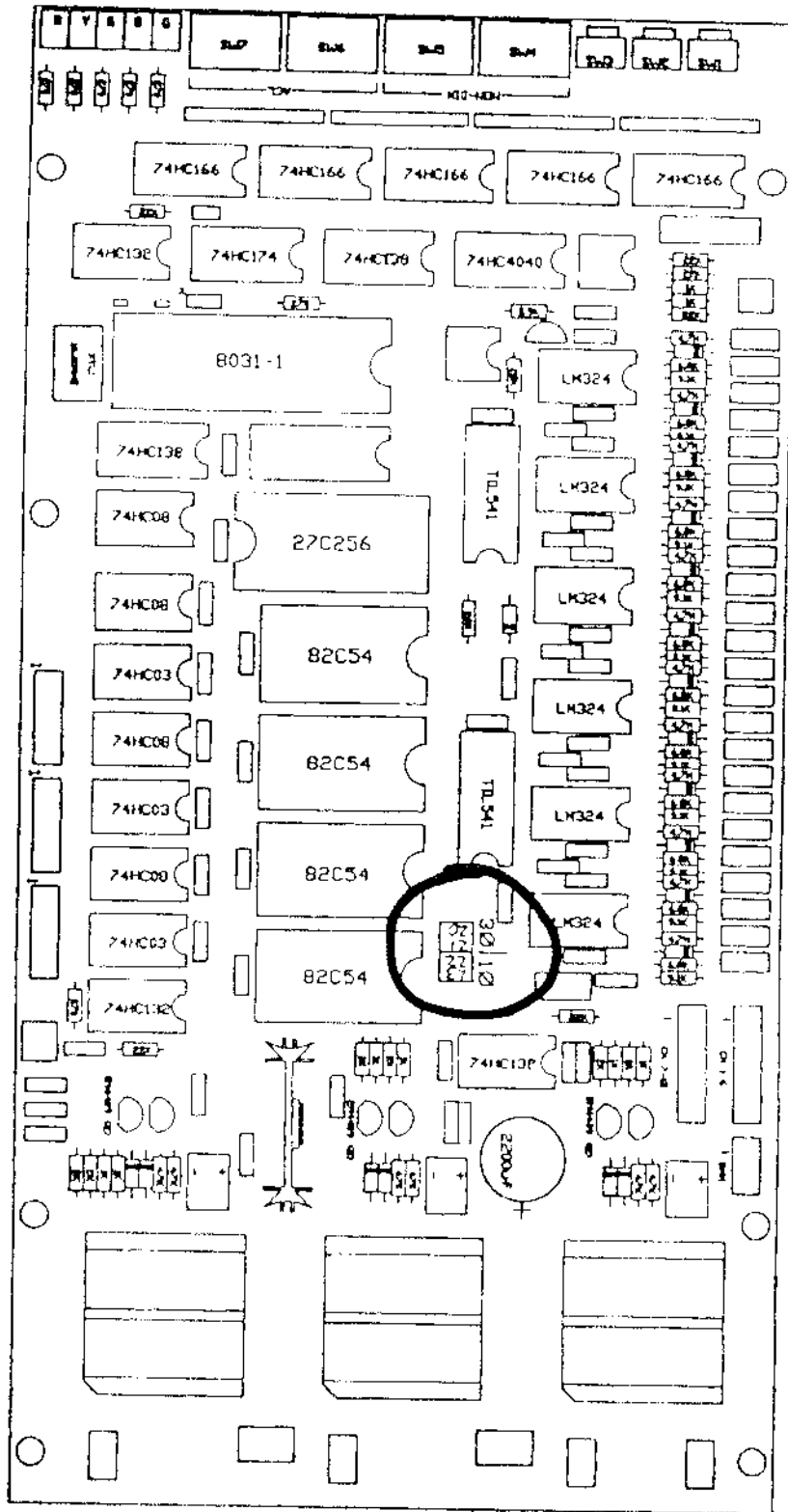


Figure 4

DIMMER OPERATION OVERVIEW

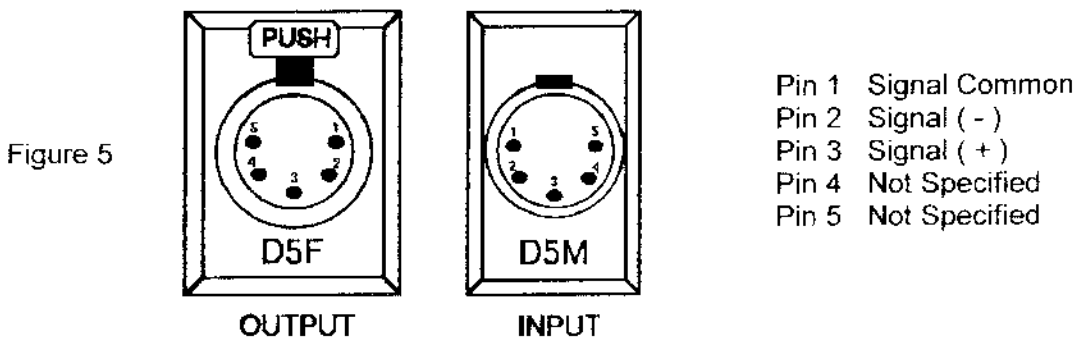
Some DMX512 dimmers utilize a DMX decoder inside the unit to produce analog signals to control ramp comparison circuits (basically an analog dimmer with a DMX decoder inside). Other DMX dimmers may output only 64 different lighting levels. Analog dimmers may fluctuate from dimmer to dimmer in response time, trim, and output voltage curve, especially with change in ambient temperature.

The AE 12/2400 is a true digital microprocessor controlled dimmer. Digital operation insures matched dimmer to dimmer and channel to channel performance. All 256 levels in the DMX512 protocol are supported in the AE 12/2400. (AE 12/1200)

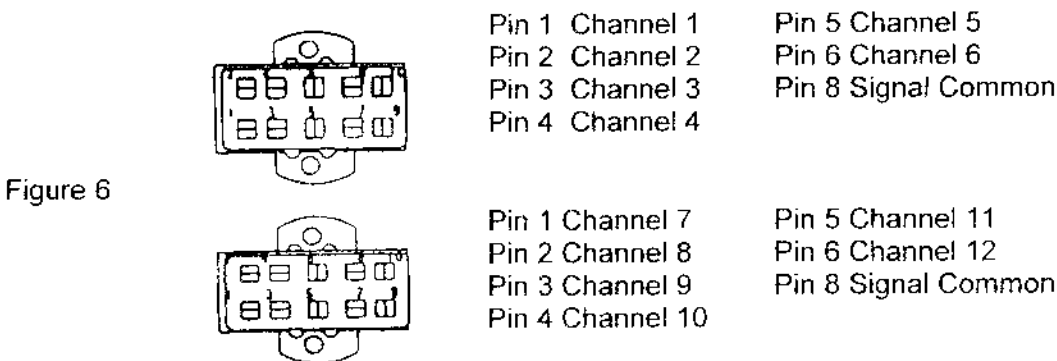
Analog 0-10 vdc signals are received via two 10 pin Cinch Jones connectors and DMX512 data is received from a 5 pin XLR connector. The microprocessor then selects the higher light level setting and uses this data to calculate SCR firing times for each channel. This allows use of either a DMX512 controller or a 0-10 vdc analog controller, which provided a useful back-up function. If DMX512 reception is lost, and a 0-10 vdc analog control signal is not present, the last received levels will be held indefinitely. If this occurs and a 0-10 vdc analog control voltage is received, stored DMX levels will be set to zero giving the analog controller total control.

OPERATION

1. **DMX Input Connector:** Male and female 5 pin XLR type connectors are provided as per the DMX512 specification. See Figure 5.



2. **Analog input connector:** Analog 0-10 vdc Input is received via two 10 pin Cinch Jones Type Connectors. See Figure 6.



3. **Phase Indicators:** The presence of incoming voltage on each of the three phases is indicated by Phase 1, Phase 2, Phase 3 Green LED's. These are after the technical power fuses and show voltage present from the three respective internal dimmer power supplies. If power is lost on one or two phases, lighting on the remaining powered phases will continue to operate.
4. **Test Switches:** A test switch is provided for each dimmer channel and may be used to aim lighting instruments without a controller. Pressing the test switch causes a microprocessor controlled soft change from the present controller level to full up. Pressing again turns the test switch off and causes a soft change back to the controller setting. This soft change feature is intended to reduce lamp failure from cold filament thermal shock. When in the test position and LED in the switch is lit.
5. **DMX512 Address Switches:** The DMX512 address switch found behind the front panel access door is used to set the channel starting address number. The addresses are set directly with a valid range of 001 to 999. The selected address will be the starting address of the first channel of the twelve channels in the dimmer. 000 is NOT a valid address.
6. **Valid DMX512 Indicator:** This indicator illuminates only if valid data for the address selected is being received. Example: if the switch address is 258 and the console only outputs channels up to 256, the indicator will not illuminate, data is not being received for that address. If DMX512 is lost, the indicator will flash for ten seconds. When incoming DMX512 data is lost, the last received data will be held (the lights will stay at the same brightness) until DMX data reception is restored or an analog control signal is received.
7. **Overvoltage Indicator:** This red LED will flash if the incoming AC voltage exceeds 140 vac. If this occurs, the microprocessor will cut off drive to the SCR's thus protecting the loads. Drive will return as soon as incoming voltage returns to a normal level.
8. **Channel Breakers:** Fully magnetic 10 amp circuit breakers protect against overloads and also serve as channel disconnect switches. This type of breaker is not affected by ambient temperature or cabling temperature rise.
9. **Load Indicators:** Presence of a load connected to a channel is indicated by a yellow LED.
10. **Drive Indicators:** A green LED on each channel lights in proportion to the drive signal being sent to the SCR's for that channel.
11. **Fuses:** Three 1/2 watt fuses are located behind the front panel on the hinged side.
12. **Non-Dim:** A six position dip switch allows a channel to be put into a non-dim mode. When selected, the channel will be off at 0-25% and at full on at 26% and greater.
13. **ACL:** This dip switch limits the output voltage to 28 volts RMS, thus allowing an ACL to be wired to the channel. There is no need to wire ACL's in series. Since an ACL draws about 9 amps each, a maximum of three ACL's can be patched per channel on the AE 12/2400.

PERFORMANCE SERIES DIGITAL DIMMERS

AE-12/1200
1200 watts per channel
14,400 watts total

AE-12/2400
2400 watts per channel
28,800 watts total

Technical Features:

- Fully Digital Microprocessor Control
- "SUPER CUBE" Short Resistant Back to Back SCR Power Module
- Simultaneous DMX512 and 0-10vdc Control - Higher Takes Precedence
- Automatic Microprocessor Reset
- Full Spec 255 Output Dimming Levels
- Easy 30 or 10 Balanced Changeover
- Fully Magnetic Circuit Breaker Protection
- Test Switches Force Soft Change to Full On
- DMX512 Live Address Selection to 1000 Channels
- LED Indicators: Phase 1, 2 and 3, AC Overvoltage, DMX512 Reception
- Internal Diagnostic "Heartbeat" LED
- Automatic Lamp Shutdown on Overvoltage
- Automatic Overtemp Shutdown
- Non-dim Feature for Each Channel
- ACL Switch for Each Channel

Both the AE-12/1200 and the AE-12/2400 Utilize two internal fans insuring continuous full load operation. Fully magnetic breakers and a short-resistant back-to-back "SUPER CUBE" SCR module team together to provide optimum protection at maximum performance. Diagnostic DMX LED shows if valid data is available on the selected address, and if console updating is at an acceptable rate. A front panel test switch for each channel forces a processor controlled soft change to full-on or back to the level set by controller. With the 28 volt output switch you will never have to wire ACL's in series again! Any channel is selectable for non-dim operation and/or 28 volt output.

Mechanical Features:

AE-12/1200

- Each Channel Individually Selected for ACL 28 Volt Output - Non-dim Function
- Front Accessible Switches - ACL, Non-dim, DMX Address - Fully Magnetic Breakers
- Fuse Protection for Each Phase
- Dual Fan "Super Cool" Design
- Weight 48 lbs.
- Dimensions 19" x 17" x 3.5"
- Rear Support Rack Ears Included
- 2 Rack Space Design

AE-12/2400

- Each Channel Individually Selected for ACL 28 Volt Output - Non-dim Function
- Front Accessible Switches - ACL, Non-dim, DMX Address - Fully Magnetic Breakers
- Fuse Protection for Each Phase
- Dual Fan "Super Cool" Design
- Weight 58 lbs.
- Dimensions 19" x 17" x 5"
- Rear Support Rack Ears Included
- 3 Rack Space Design



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**Warranty on all
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on parts and service**

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