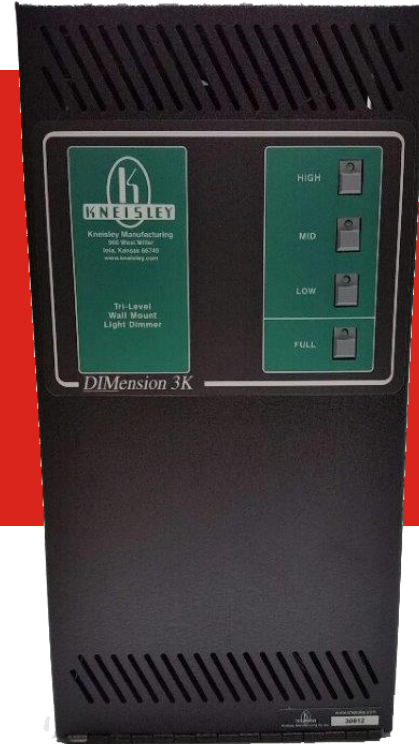


# DIMension 3K Three Stage Light Dimmer

## *Installation and Operation Manual*



- For use with LED or incandescent lighting.
- Three light levels plus a full brightness emergency level.
- Low current, ground-to-select control lines.
- High current dual SCR for ruggedness and reliability.
- Fade defeat for quick and easy light level adjustment.
- Works with low voltage lighting transformer loads.



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## **CONTACT INFORMATION**

Kneisley Manufacturing can be reached by telephone from 8:00am to 5:00pm, Monday - Friday if you have any questions or need technical support regarding the dimmer or any other Kneisley product. You can reach us at 620-365-6628.

Kneisley is also available via email at [sales@kneisley.com](mailto:sales@kneisley.com).

Visit the Kneisley Manufacturing website at [www.kneisley.com](http://www.kneisley.com).

## **LIMITED WARRANTY**

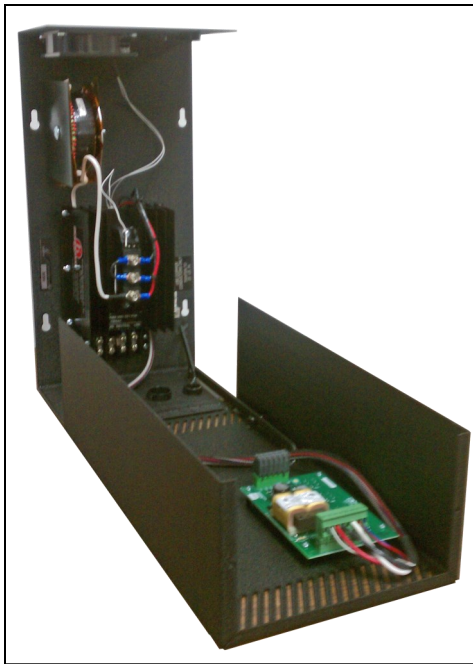
Kneisley products and accessories are warranted against malfunction or failure due to defects in workmanship or materials for a period of one year from the date of shipment. If a problem occurs during the warranty period, the unit will be repaired or replaced at our option, without charge for materials or labor. If air freight is requested by the dealer, the difference between air and ground charges will be billed to the dealer. This limited warranty does not cover products that have been abused, altered, modified or operated on in conditions that differ from those specified. Prior factory approval is required on all returns. Returned equipment or defective parts must be shipped freight prepaid to us by the dealer or end user. Our limited warranty does not cover damages resulting from an accident, misuse or abuse, lack of responsible care or failures not attributable to manufacturing defects, except as provided herein. Kneisley Manufacturing Co, Inc. makes no warranties, express or implied, including warranties of merchantability or fitness for a particular purpose.

**RETURN POLICY:** Factory authorization **MUST** be obtained before returning any product. A 15% restocking charge will be issued on unused equipment (in original box) that is returned for credit. Credit is issued to the dealers account. The credit may be used against future purchases. No cash transactions are offered. All returns must be shipped freight prepaid by the dealer. Equipment returned without a factory Return Authorization (RA) will be refused.

## INTRODUCTION TO THE DIMMER

The Kneisley DIM 3K is a three stage light dimmer for cinema lighting control. The DIM 3K is available as a fully enclosed wall mount version, with or without manual override pushbuttons. In 2011 there were two major changes made to improve the dimmer. The box enclosure is now hinged for easy access to the interior, and the two control boards have been modified into one. This dimmer is ruggedly constructed and is designed with the highest quality parts for reliable operation and long life. The dual SCR output is very conservatively rated and is capable of far more current than the rated load current of the dimmer. Adequate heat sinking is provided which results in moderate temperature rise even at the full rated load.

## INSTALLATION



### Mounting

Mount the DIM 3K in a well ventilated location to avoid overheating. Even though the DIM 3K is conservatively rated, excess ambient temperature can add to the normal temperature rise of the product and can possibly lead to premature failure. Do not block airflow around the heat sink area as this will cause excessive temperature rise.

### Electrical Connections

The DIM 3K has no built in circuit breakers or fuses, and you **MUST** supply a circuit breaking device (in the LINE side) of the proper rating for your load. Remember that for a continuous load, circuit breakers should be run at about 80% of their current rating.

To determine your current requirements, divide the total lighting wattage by the line voltage to get the load current. **This is the current at the rated line voltage.** Since the lights will rarely be run at full line voltage, the actual current will be less in normal operation.

For example, a 3000 Watt load at 120VAC pulls about 25 Amperes of current. If you plan to set the HIGH lights level to the full line voltage, your circuit breaker would need to be rated at 30 to 35 Amperes. If you are going to set the HIGH lights level to around 100VAC, then the normal current will be less, and the breaker could be rated at about 25 Amperes.

The line, neutral and load connections are made to the terminal strip mounted on the chassis at the end of the heat sink. Make sure that the wire gauge used is rated for the load current. **Use copper conductors ONLY. Make sure that all connections are tight and secure. The terminals should be torque**

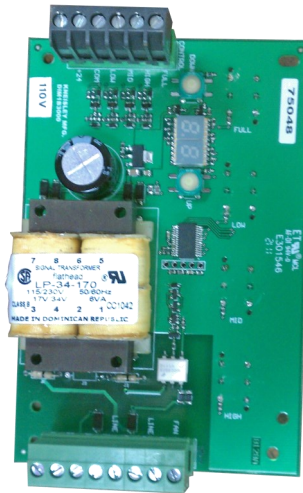
to 20 in.-lbs. The high load current can cause problems if connections are not properly made. See the images following for the LINE, NEUTRAL and LOAD connections.

## Control Wires



To Load Hot  
To Load Neutral  
To 120 VAC Neutral  
To 120 VAC Line

## Control Circuit Connectors



For the most reliable and stable operation, it is highly recommended that each dimmer be fed from its own breaker in the distribution panel, and that SEPARATE neutrals be run from each dimmer all the way back to the distribution panel. This will help to minimize the possibility of EMI from the dimmer affecting other equipment, as well as EMI from

other equipment affecting the dimmer operation. Try to keep all of the dimmers on the same phase and OFF the phase that is used for the sound systems for minimum noise.

### Control Circuit Connections

Control wiring is very straightforward and is low voltage (less than 28 VDC) and low current (less than 50 mA). Use any type of low voltage hookup wire, but shielded is recommended

for best immunity to possible false triggering from external interference. (Belden 8723 would be a good choice.) The HIGH, MID, or LOW terminal must be momentarily connected to the COM terminal to select the desired light level. Usually this is done by connecting to relays in automation systems. Alternatively, pushbutton switches could be used for manual selection of light levels. **The relays or switch contacts must be isolated with no external voltages applied to them. The application of external voltages to the dimmer control terminals may result in damage to the dimmer.**

The FULL terminal is used to place the dimmer instantly in the full brightness mode. This is useful for emergency situations such as a fire alarm. This terminal requires a latching connection to the COM terminal. As long as the connection is closed between the FULL and COM terminals, the lights will stay at full brightness mode.

### User Programming

The dimmer has three light levels which must be adjusted for each individual theatre. Full is permanently set to 100% of the line voltage for maximum brightness. Factory preset levels for High, Medium and Low are 72%, 40% and 20% of maximum brightness, respectively. (Output voltages for High, Medium and Low are approximately 100V, 55V and 25V, based on 120V input.) With the power on, press the "Up" or "Down" programming buttons momentarily and the display will flash "AA", indicating to adjust amplitude.

Fade will be disabled during the programming mode. Press and release the High, Medium or Low switch to select which setting to adjust. For fine adjustment, press "Up" or "Down" programming buttons to change the ones digit. For coarse adjustment, press and hold the associated High, Medium or Low switch and press "Up" or "Down" button to adjust the tens digit. Repeat steps to set the other light levels.

When the desired settings have been entered, press and hold one of the switches, then at the same time press one of the other switches momentarily. New settings will be stored in the memory and fade will be enabled.

### **Operation**

There are no usual operation requirements because, in most cinemas, the dimmers are controlled by the automation system. The only operator accessible controls are the manual override pushbuttons on the wall mount unit. If the installer has installed some other type of manual control, please refer to the instructions given by the installer or cinema manager on the proper operation. Usually the only time that requires operator intervention is if the automation system has failed and the booth is being run manually. Pressing the appropriate pushbutton will select the desired light level.

### **Safety Test**

1. Set ohmmeter to 2K range.
2. Positive lead to LINE terminal, negative lead to chassis. Ohmmeter should read (OL).
3. Positive lead to NEUTRAL terminal, negative lead to chassis. Ohmmeter should read open (OL).
4. Ohmmeter leads between LINE and NEUTRAL. Ohmmeter should read 195 ohms. If not, check 24AWG B&W wires on SCR.
- 5. Unplug from AC line.**
6. Remove test light and AC test cord.
7. CHECK ALL SCREWS FOR TIGHTNESS.
8. Install 6-position green connector (wires exit away from board).

### **Factory Settings**

1. Full is permanently set to 100% of line voltage, maximum brightness (120V)
  2. High is preset to 72% of maximum brightness (100V).
  3. Medium is preset to 40% of maximum brightness (55V).
  4. Low is preset to 20% of maximum brightness (25V).
- \*Please note that Output Voltage is approximate for 120V input.

### **Functionality Test**

*Take care when QC'ing these units as 120V are present at various places and is easily accessible, creating a **SHOCK HAZARD**.*

Do NOT Plug into AC line until the procedure tells you to do so:

1. Connect test fixture to LOAD and LINE terminal. (Test bulbs between LOAD & NEUTRAL, AC power between LINE & NEUTRAL).
2. Plug in AC line.
3. Confirm a slow power up to full brightness (High setting).
4. Press the Medium switch and confirm 10 second fade to medium setting.
5. Press the Low switch and confirm 10 second fade to low setting.
6. Press the Full switch and confirm the test light goes to full brightness instantly (no fade).

7. Press the Low switch and confirm the test light goes to low setting instantly (no fade).
8. Press the Full switch and confirm the test light goes to full brightness instantly (no fade).
9. Press the High switch and confirm immediate shift to low setting (or other setting previous to Full) followed by a 10 second fade to high setting.
- 10. Unplug from AC line.**
11. Remove test light and AC test cord.
12. CHECK ALL SCREWS FOR TIGHTNESS.
13. Install 6 position green connector (wires exit away from the board).

### **Field Program**

1. Connect the test fixture to the LOAD and LINE terminal. (Test bulbs between LOAD & NEUTRAL., AC power between LINE & NEUTRAL.)
2. Plug in AC line.
3. Light will fade from off to full brightness (High setting), in 10 seconds.
4. Press "Up" or "Down" programming buttons momentarily. The display will flash "AA", indicating adjust amplitude. Fade will be disabled during the programming mode.
5. Press and release High, Medium, or Low to select which setting to adjust.
6. For fine adjustment, press "Up" or "Down" programming buttons to change the ones digit.
7. For coarse adjustment, press and hold the associated High, Medium or Low switch and press "Up" or "Down" to adjust the tens digit.
8. Repeat steps 5 - 7 to set the other light levels.
9. When the desired settings have been entered, press and hold one of the switches. At the same time, press one of the other switches momentarily. The new settings will be stored in memory and fade will be enabled.

### **Normal Switch Operation**

1. Upon applying power, the unit will default to the High setting.
2. Pressing Medium or Low switches will cause the light to change to the new setting in a 10 second fade.
3. Pressing the Full switch will cause the light to immediately change to full brightness (line voltage).
4. Pressing previous selection, while in Full, will cause the light to immediately revert to the previous setting. Pressing a switch other than the previous selection, while in Full, will initiate a 10 second fade to the newly selected level.