



Digital Lighting Systems, Inc.

SF804

8 Channel Super Fader
and Speller

8 x 4 amp Outputs

SF804-12/SF804-24/SF804-120/SF804-220

(SL804 Wiring Instructions Included)

DMX512 & animation controls

USER'S MANUAL

General Description

The **SF804** is an eight-channel single-phase AC lighting controller (Cross-Fader/Dimmer) capable of producing dazzling and spectacular light shows.

It consists of three circuit boards, the **INT04** logic board, a slave **INT-SL** board with LED output emulators for circuits 5-8, and the **LDM** load driver module board. The **INT04** and **LDM** circuit boards are interconnected by a 10-conductor low-voltage cable (**LVC**). The **INT04** and **INT-SL** are interconnected by a 6-conductor low-voltage cable (**LVC2**).

A functional block diagram of the **SF804** is shown in Figure 1. The **LDM** board contains the equivalent of eight solid-state relays (**SSR**) The **LDM** is configured as two sets of four dimmers, with each set of four sharing one power line feed. Each relay/dimmer is rated at a maximum output current of 4 Amperes. The **SSR** relays are controlled by low-voltage DC signals from the **INT04** SF logic board. These signals are optically-isolated by the **LDM** circuitry from all line voltage elements. The **INT04** logic board contains a powerful microprocessor programmed to generate 16 user-selectable light sequences or patterns at an adjustable rate (the **SF804** is also available with a "SPELLER" pattern or custom patterns upon request). A rotary selector on the **INT04** is used to select the chase pattern and a second one is used to set the rate or chase speed. Patterns and speed can be monitored by eight LED's that represent the outputs of the **SF804**. The **INT04** and **INT-SL** are mounted on the back of the front cover and derive their power from the 10 VAC step down transformer located on the LDM circuit board. All controls are accessible at the front panel. A single **SF804** Master can drive an additional **SL804-D-D** slave in order to meet higher load requirements.

Please contact the factory for additional information by telephone 1-877-264-8391 or email info@digitallighting.com

Table 1 - Terminals Definition

NAME	DESCRIPTION
1	Output Of Solid-State Relay #1
2	Output Of Solid-State Relay #2
3	Output Of Solid-State Relay #3
4	Output Of Solid-State Relay #4
5	Output Of Solid-State Relay #5
6	Output Of Solid-State Relay #6
7	Output Of Solid-State Relay #7
8	Output Of Solid-State Relay #8
H1	Hot Line Feed For Relays 1, 2, 3 & 4
H2	Hot Line Feed For Relays 5, 6, 7 & 8
N1-N8	Neutral Bus Connections.

Table 2 - Absolute Maximum Electrical Ratings

Electrical Characteristic	Terminal	Maximum
Relay Load Current	1 to 8	4 Amps.
Input Current For Relays 1 - 4	H1	20 Amps.
Input Current For Relays 5 - 8	H2	20 Amps.
Input Voltage	H1-H2	240 VAC, 1-Phase.

NOTE

Line Inputs H1 and H2 must be on the same electrical phase.

Figure 1 - SF804 Functional Block Diagram

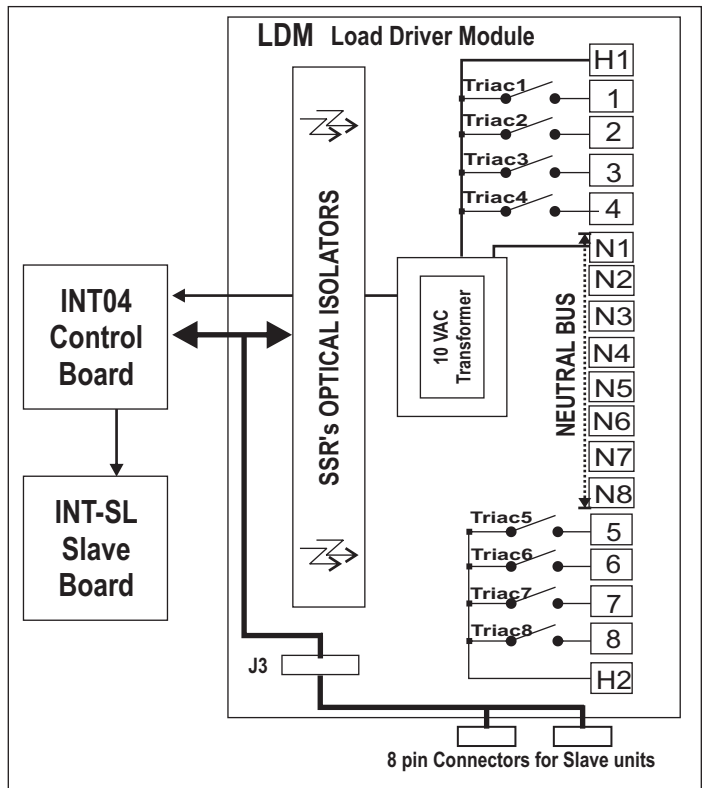


Figure 2 - SF804 Detail

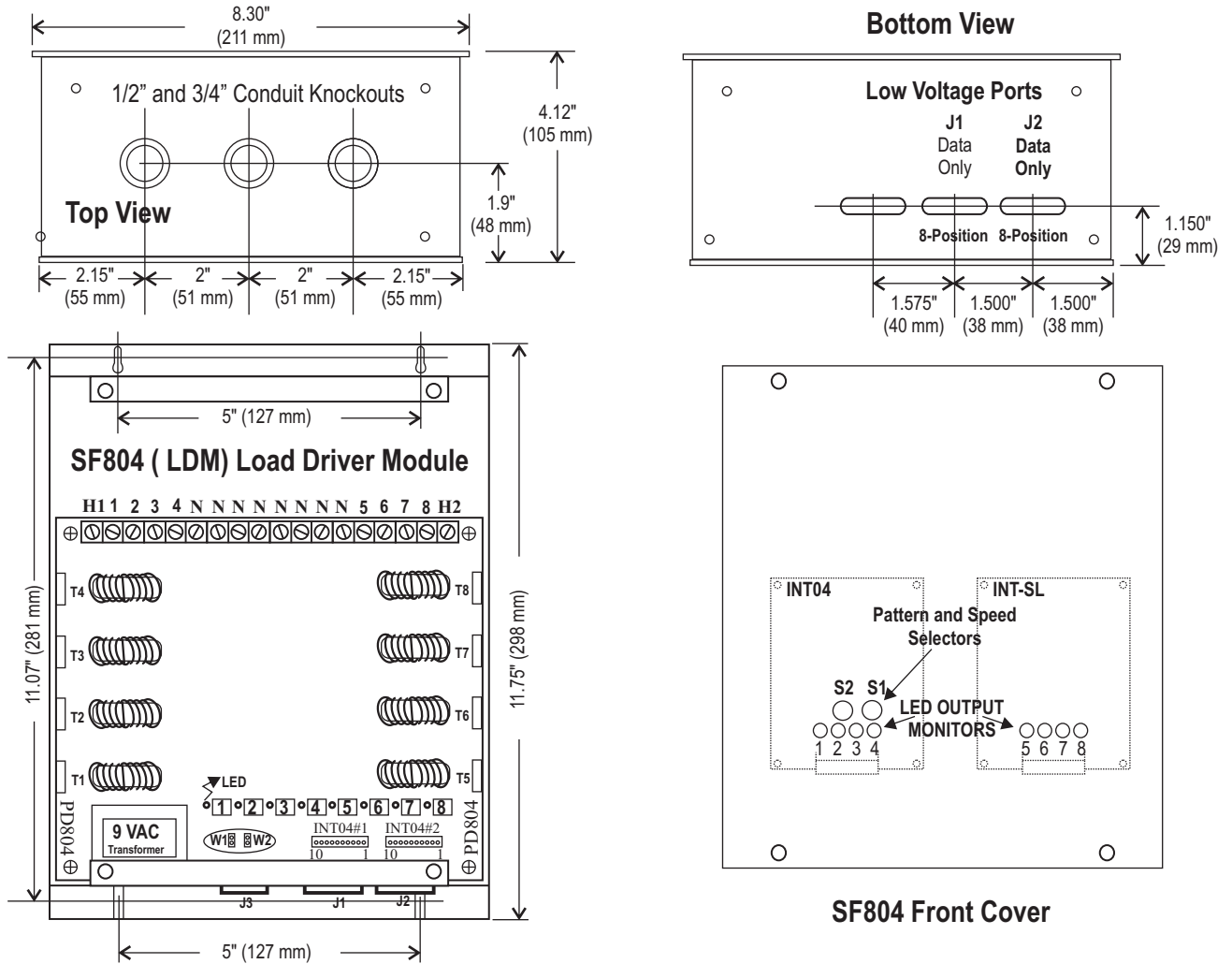


Figure 3 - SF804 INT04 and INT-SL Detail

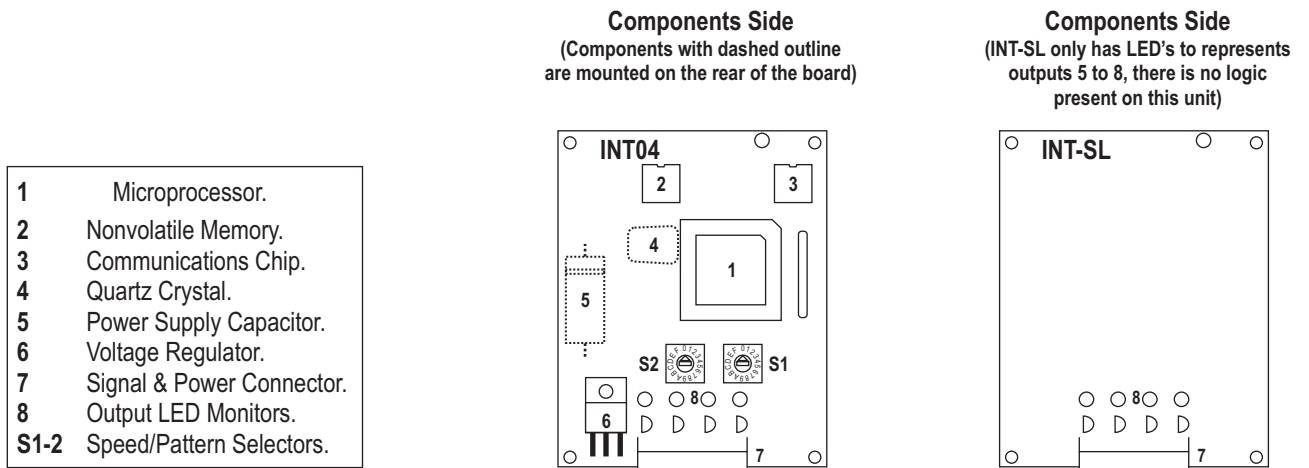


Table 3 - INT04 Circuit Legend

A- ENCLOSURE INSTALLATION

Install the **SF804** enclosure in a well ventilated area where the ambient temperature will remain between 40°F and 104°F for full load operation. The enclosure location can be near the electric service panel or close to the loads, whichever is more convenient.

B- LINE VOLTAGE WIRING

(Please refer to Figures 5, 6 & 7)

All Line and Neutral wires must have adequate gauges to carry the load and the common currents.

All wires must have Copper Conductors with 90°C Wire Insulation.

- ! Select two 20-Amp. breakers from the same 120 VAC phase in the service panel.
- ! Connect the above breakers to terminals H1 & H2 respectively. If the total load does not exceed 16 Amps., a single breaker may be used and terminals H1 & H2 may be jumpered together with a #12 AWG wire.
- ! Connect 2 Neutral wires from the service panel to N3 & N4 respectively.
- ! Bring a Common wire and a Return wire, from each of the loads to the **SF804**. A single Common wire may be used provided the wire gauge is adequate for carrying the required total load current.
- ! Connect the Common wires from load #1 through load #8 to any position on the Neutral Bus (N1 - N8).
- ! Connect the Return wires from load #1 through load #8 to terminals 1 through 8 respectively.

C- MASTER-SLAVE SYSTEM WIRING

The **SF804** can control an additional **SL804-D** slave. The slave contains the Load Driver Module (LDM) without the **INT04** logic control board. This configuration is helpful when the load capacity of the **SF804** master is exceeded and all loads must be synchronized together. The slave is daisy-chained to the master via two low-voltage 5-conductor cables (**JJ88**) provided by the factory. The **SF804** and **SL804-D** are wired identically.

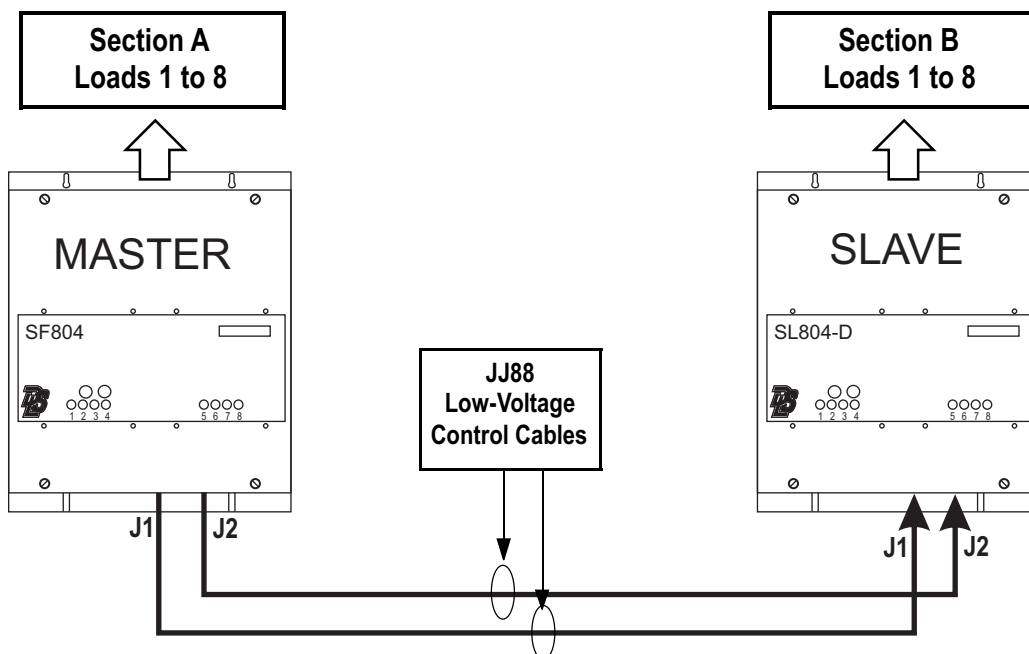


Figure 4 - SF804 to SL804-D - Master/Slave Connection

SF804-120 General Wiring Instructions for 120V version.

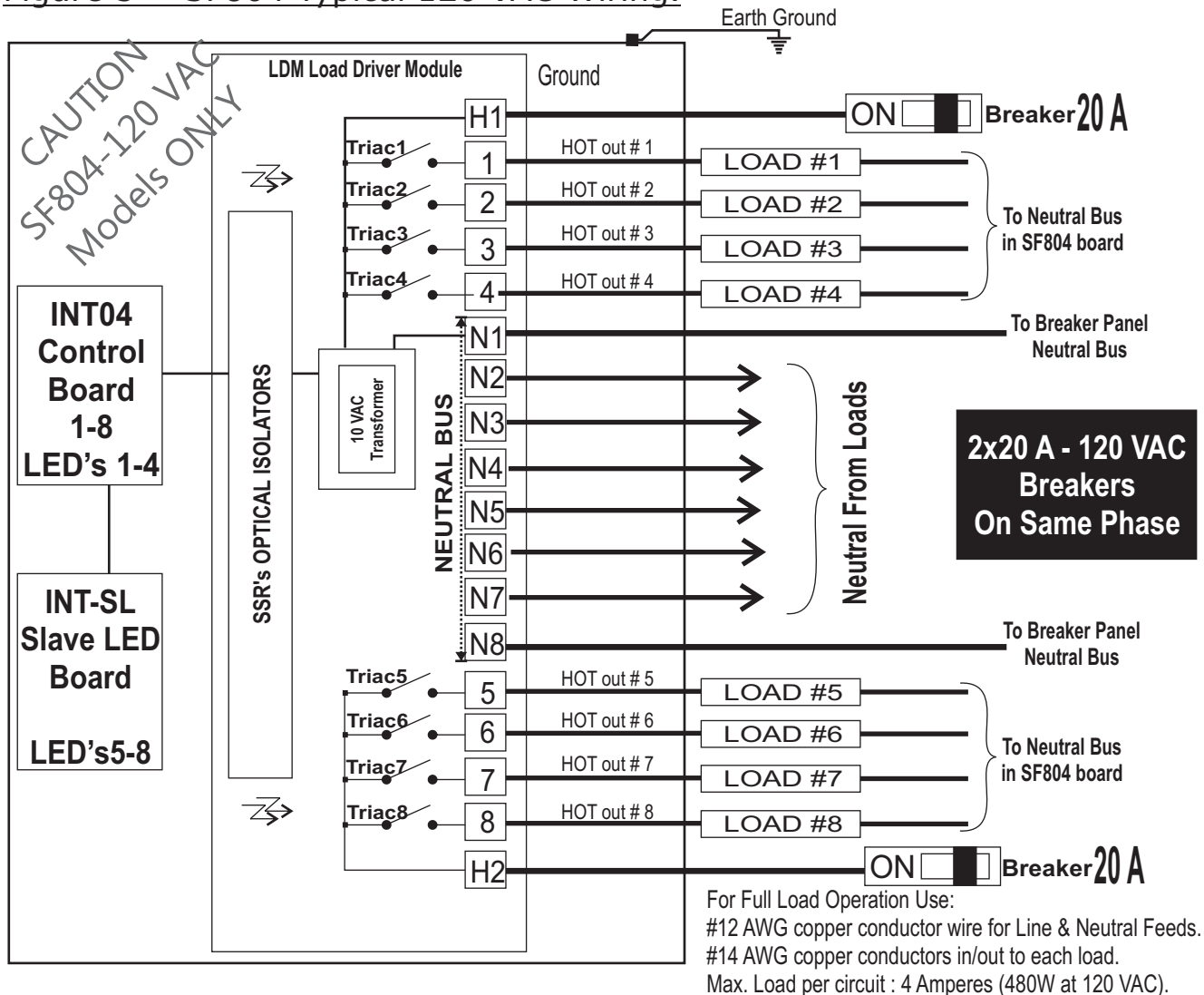
Wiring Notes

- **DO NOT EXCEED** 480 W (4 Amps.) per circuit output @ 120VAC.
- SF804 cross-fader packs may be fed by one or two 20 A (maximum) branch circuits and may have up to eight separately dimmed loads.
- Loads connected to outputs must be dimmable.
- **Both breakers must be on the same power phase.**
- **CAUTION: DO NOT** attempt to parallel outputs to increase capacity.
- Installations must conform to local and/or NEC code requirements.
- Each load must have its own Neutral wire for full load operation.
- All line voltage wires must have copper conductors of adequate Gauge with 90° C wire insulation.
- **POWER EACH LOAD DIRECTLY BEFORE CONNECTING IT TO THE SF804, TO ENSURE PROPER WIRING.**

NOTE

The **SL804-D** output wiring is identical to the **SF804**. **SL804-D** slaves do not have the **INT04** control board. The **SL804-D** Load Driver Module (LDM) does not have a transformer.

Figure 5 - SF804 Typical 120 VAC Wiring.



SF804-220 General Wiring Instructions for 220/240V version.

Wiring Notes

- **DO NOT EXCEED** 880W (4 Amps.) per circuit output @ 220VAC (or 960W @ 220VAC).
- SF804 cross-fader packs may be fed by one or two 20 A (maximum) branch circuits and may have up to eight separately dimmed loads.
- Loads connected to outputs must be dimmable.
- **Both breakers must be on the same power phase.**
- **CAUTION: DO NOT** attempt to parallel outputs to increase capacity.
- Installations must conform to local and/or NEC code requirements.
- Each load must have its own Neutral wire for full load operation.
- All line voltage wires must have copper conductors of adequate Gauge with 90° C wire insulation.
- **POWER EACH LOAD DIRECTLY BEFORE CONNECTING IT TO THE SF804, TO ENSURE PROPER WIRING.**

NOTE

The **SL804-D** output wiring is identical to the **SF804**. **SL804-D** slaves do not have the **INT04** control board. The **SL804-D** Load Driver Module (LDM) does not have a transformer.

Figure 6 - SF804 Typical 120 VAC Wiring.

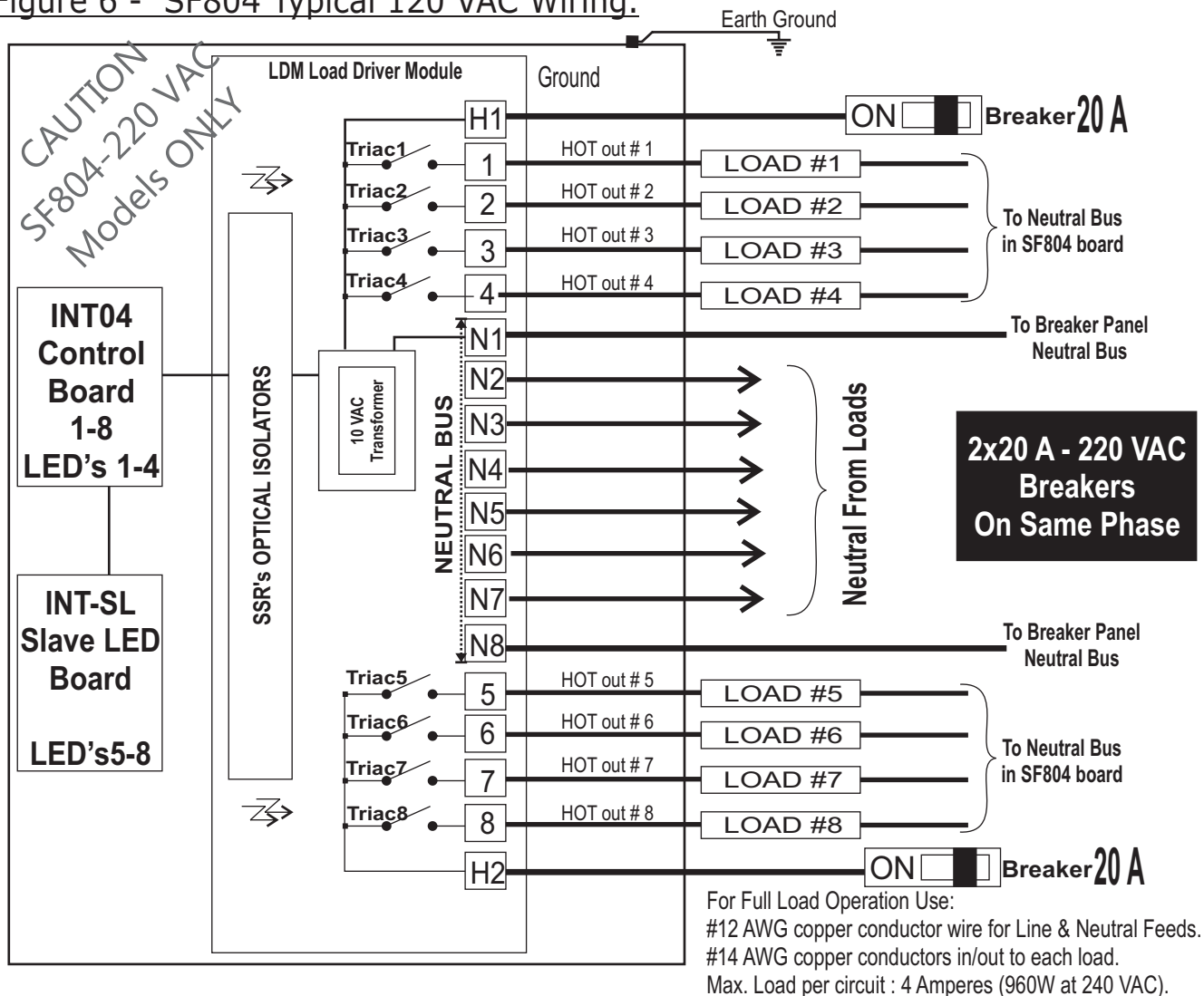
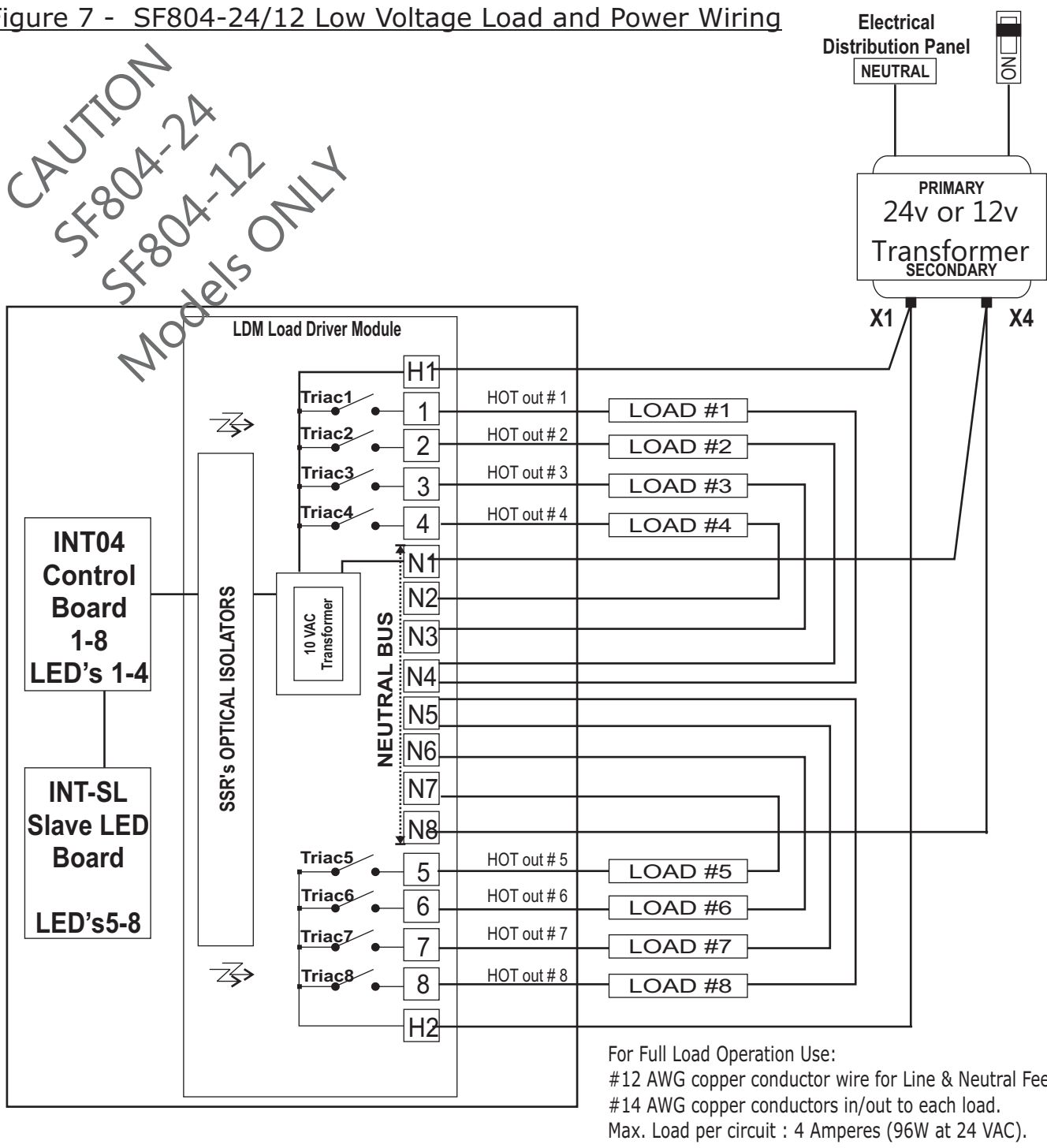


Figure 7 - SF804-24/12 Low Voltage Load and Power Wiring



NOTES

- 1 With SF804-24 you may use a single 24 VAC-800 VA or better transformer or two separate 24 VAC-400 VA or better transformers.
- 2 With SF804-12 you may use a single 12 VAC-400 VA or better transformer or two separate 12 VAC-200 VA or better transformers.
- 3 Follow transformer's installation & wiring instructions from manufacturer.
- 4 Maximum Load Per Output: 48 Watts at 12 VAC.
- 5 Maximum Load Per Output: 96 watts at 24 VAC.

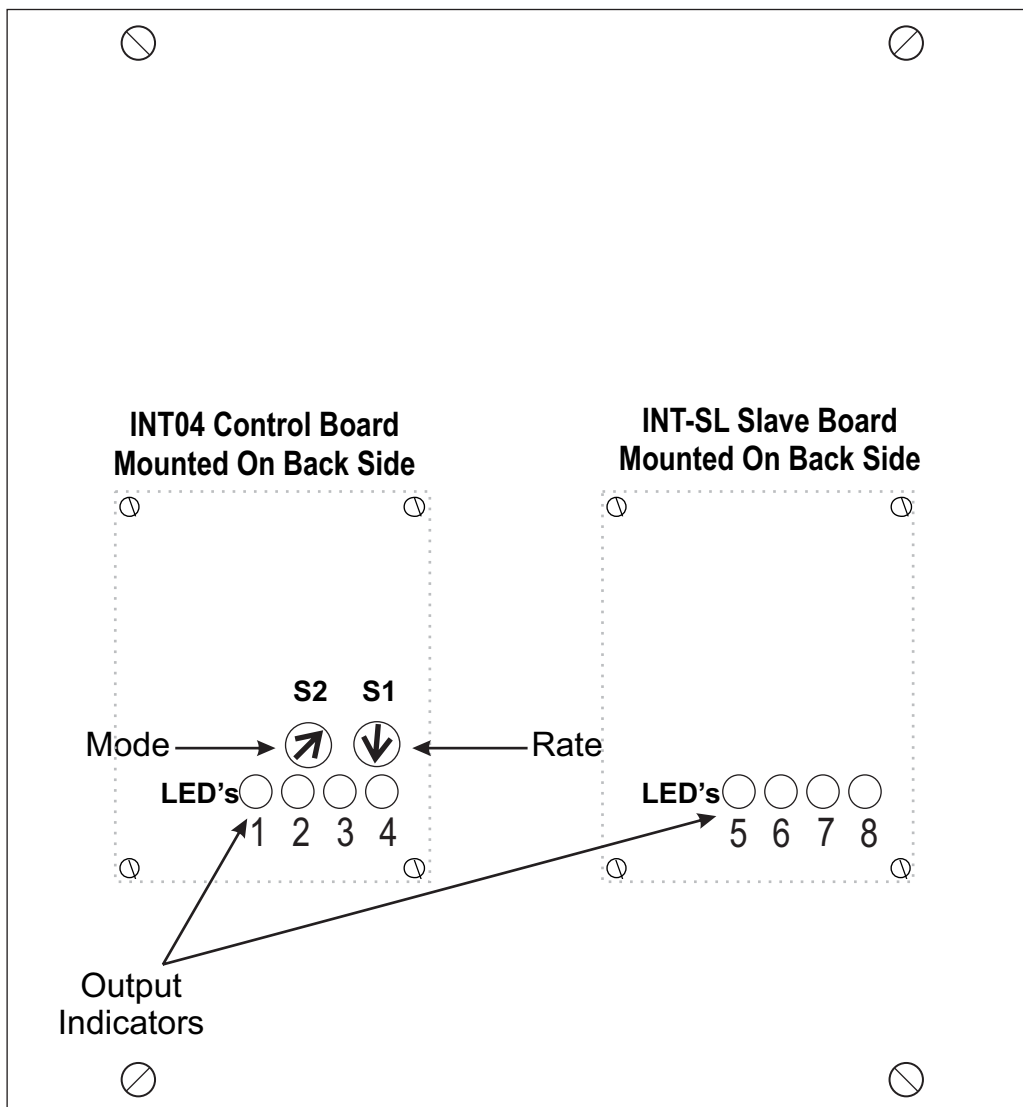
Controls

The controls consist of two rotary 16-position (**0-9** and **A-F**) selectors. **S2 (Mode)** is used for selecting the desired chase pattern. Positions **0** and **F** contain special patterns. The **SF804** outputs can be turned to static **ON** by selecting **F**. When **0** is selected, the **SF804** goes into an automatic pattern change mode. All other positions cause the **SF804** to play a single pattern indefinitely. **S1** is used to select one of 16 individual chase rates (**Rate**). Minimum speed is achieved by selecting position 0. Speed doubles with each subsequent selector position.

Indicators

LED indicators 1 to 8 indicate the status (On-Off) of their corresponding outputs.

Figure 9 - SF804 Front Panel Indicators and Control Selectors



CAUTION

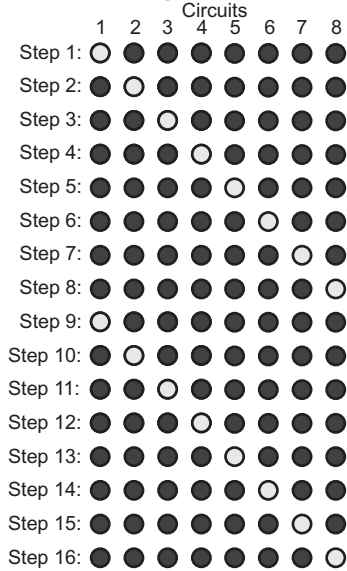
Use a small screw driver for adjusting selector positions in order to avoid damaging the tips.

SC804 Patterns

(Continued on Page 9)

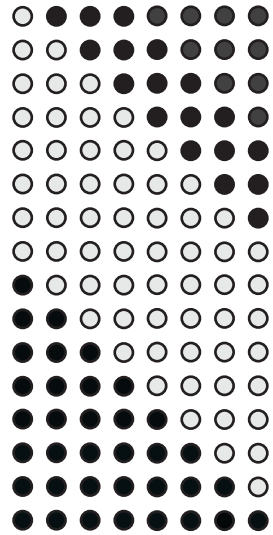
1

Light Chase



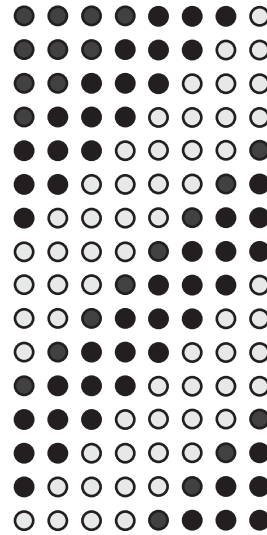
2

Fill & Swipe Forward



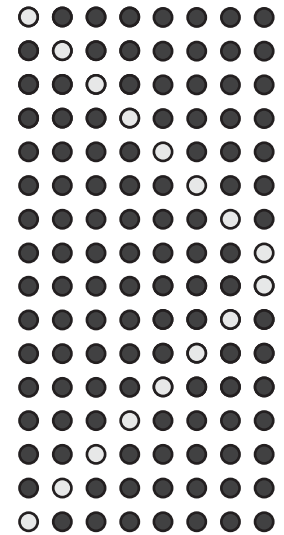
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Fill & Swipe Back



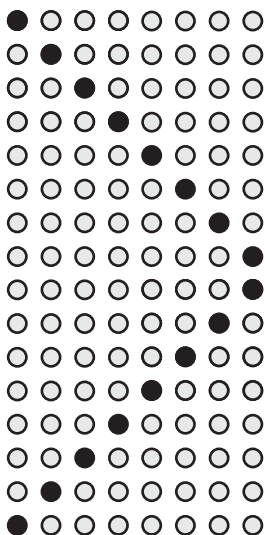
4

Light Bounce



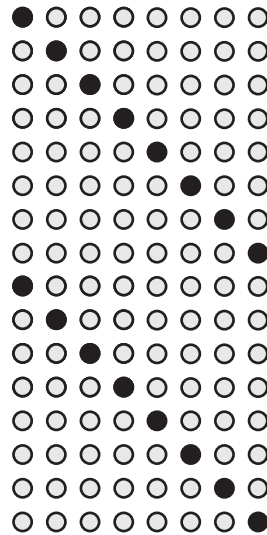
5

Dark Bounce



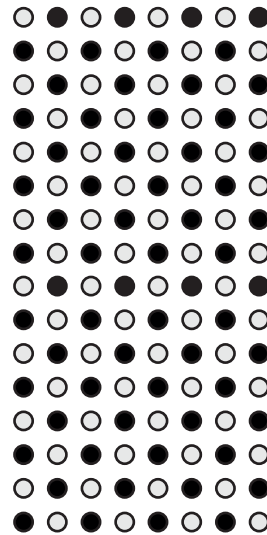
6

Dark Chase



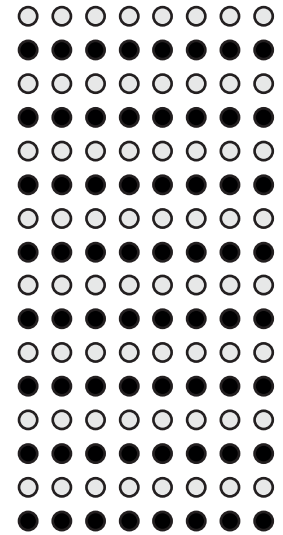
7

Flip-Flop



8

Flash All

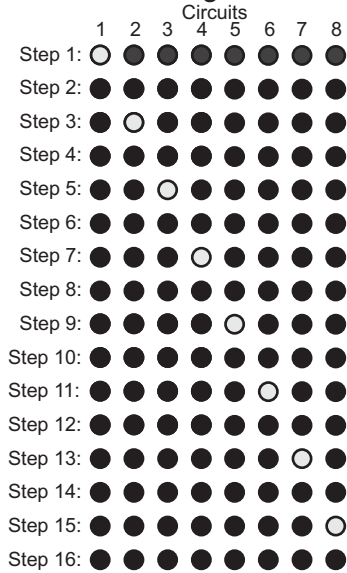


KEY: ○ ON
● OFF

SF804 Patterns Cont'd

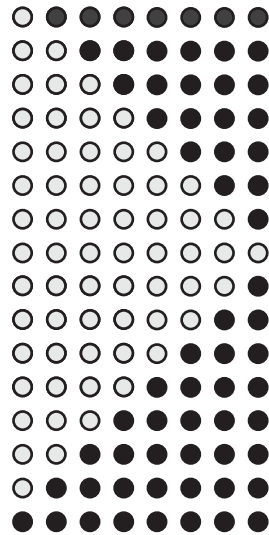
9

Flash Light Fade



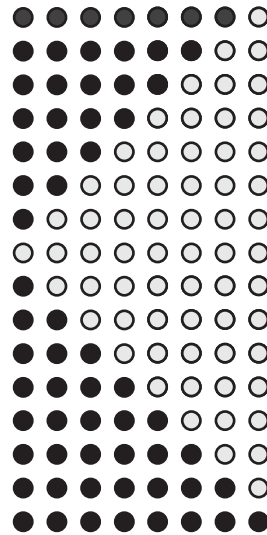
A

Spring Forward



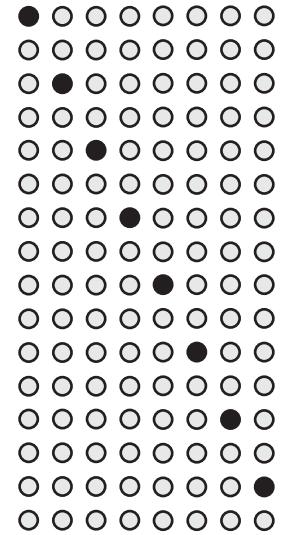
B

Spring Back



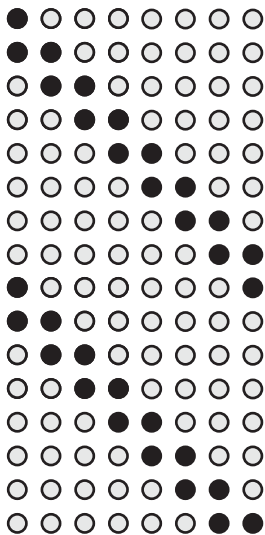
C

Flash Dark Fade



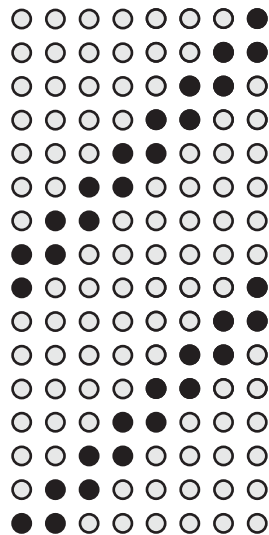
D

Crawl Forward



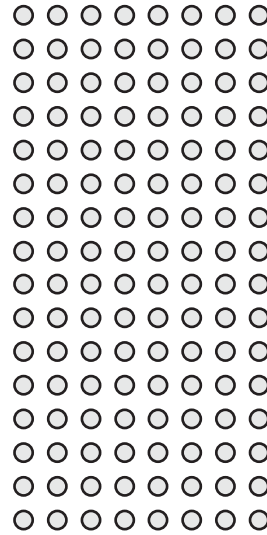
E

Crawl Back



F

ALL ON



O

AUTO

Auto Cycle
Patterns 1-F
4 x each
then repeat

KEY: ○ ON
● OFF

LIMITED WARRANTY

Digital Lighting Systems, warrants to the purchaser that its products have been carefully manufactured and inspected and are warranted to be free from defects of workmanship and materials when used as intended. Any abuse or misuse contrary to normal operation shall void this warranty.

Digital Lighting Systems' obligation under this warranty shall be limited to replacement or repair of any units as shall within one year of date of invoice from **Digital Lighting Systems**, prove defective; and **Digital Lighting Systems** shall not be liable for any other damages, whether direct or consequential. **The implied warranties of merchantability and fitness for a particular purpose are limited to the duration of the expressed warranty.** Some states do not allow the exclusion of the limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, you may also have other legal rights which vary from state to state.

Defective merchandise may be returned to **Digital Lighting Systems**, prepaid, after prior notification has been given and approval obtained for the return. To obtain prior approval for the return of the defective items, contact your local Digital Lighting Systems distributor, representative, or:

Digital Lighting Systems, Inc.

Attn: Customer Service Department
12302 SW 128 ct
Miami, FL 33186
(305) 264-8391



Digital Lighting Systems, Inc.
12302 SW 128 ct
Miami, FL 33186
www.digitallighting.com

Tel 305-969-8442
Fax 305-969-8675
e-m info@digitallighting.com

Upon request, replacement unit(s) will be shipped as soon as available. Unless immediate shipment of replacement merchandise is requested, **Digital Lighting Systems** will not ship replacement merchandise until defective merchandise is received, inspected, and determined to be defective.

No labor charges in connection with warranty problems will be reimbursed by Digital Lighting Systems without prior written approval from the factory.

Digital Lighting Systems distributors and representatives have no authority to change this warranty without written permission.

Digital Lighting Systems reserves the right to determine the best method of correcting warranty problems.

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