Digital Lighting Systems, Inc.

SC408

4 Channel “Super-Chaser” & Speller

(SC408-12/SC408-24/SC408-120/SC408-22)

(SL408 Wiring Instructions Included)

DMX & Animation

USER'S MANUAL

SC408-UM
Rev. E - 04/03

General Description

The SC408 is a four-channel single-phase AC lighting controller capable of producing dazzling and spectacular light shows.

It consists of two circuit boards, the INT04 logic board and the LDM load driver module board. The INT04 and LDM circuit boards are interconnected by a 10-conductor low-voltage cable (LVC).

A functional block diagram of the SC408 is shown in Figure 1. The LDM board contains the equivalent of four solid-state relays (SSR) The LDM is configured as two pairs of relays, with each pair sharing one power line feed. Each relay is rated at a maximum output current of 8 Amperes. The SSR relays are controlled by low-voltage DC signals from the INT04 SC 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 SC408 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 four LED's that represent the outputs of the SC408. The INT04 is mounted on the back of the front cover and derives its power from the 10 VAC step down transformer located on the LDM circuit board. All controls are accessible at the front panel. A single SC408 Master can drive four additional SL408 slaves 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
H1	Hot Line Feed For Relays 1 & 2
H2	Hot Line Feed For Relays 3 & 4
N1-N6	Neutral Bus Connections.

Table 2 - Absolute Maximum Electrical Ratings

Electrical Characteristic	Terminal	Maximum
Relay Load Current	1 to 4	8 Amps.
Input Current For Relays 1 & 2	H1	20 Amps.
Input Current For Relays 3 & 4	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 - SC408 Functional Block Diagram

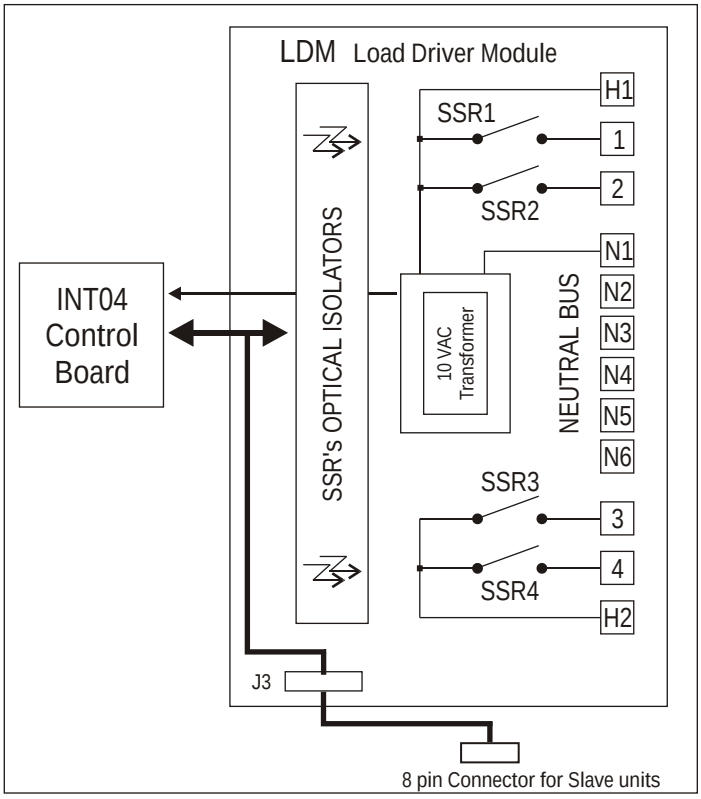


Figure 2 - SC408 Detail

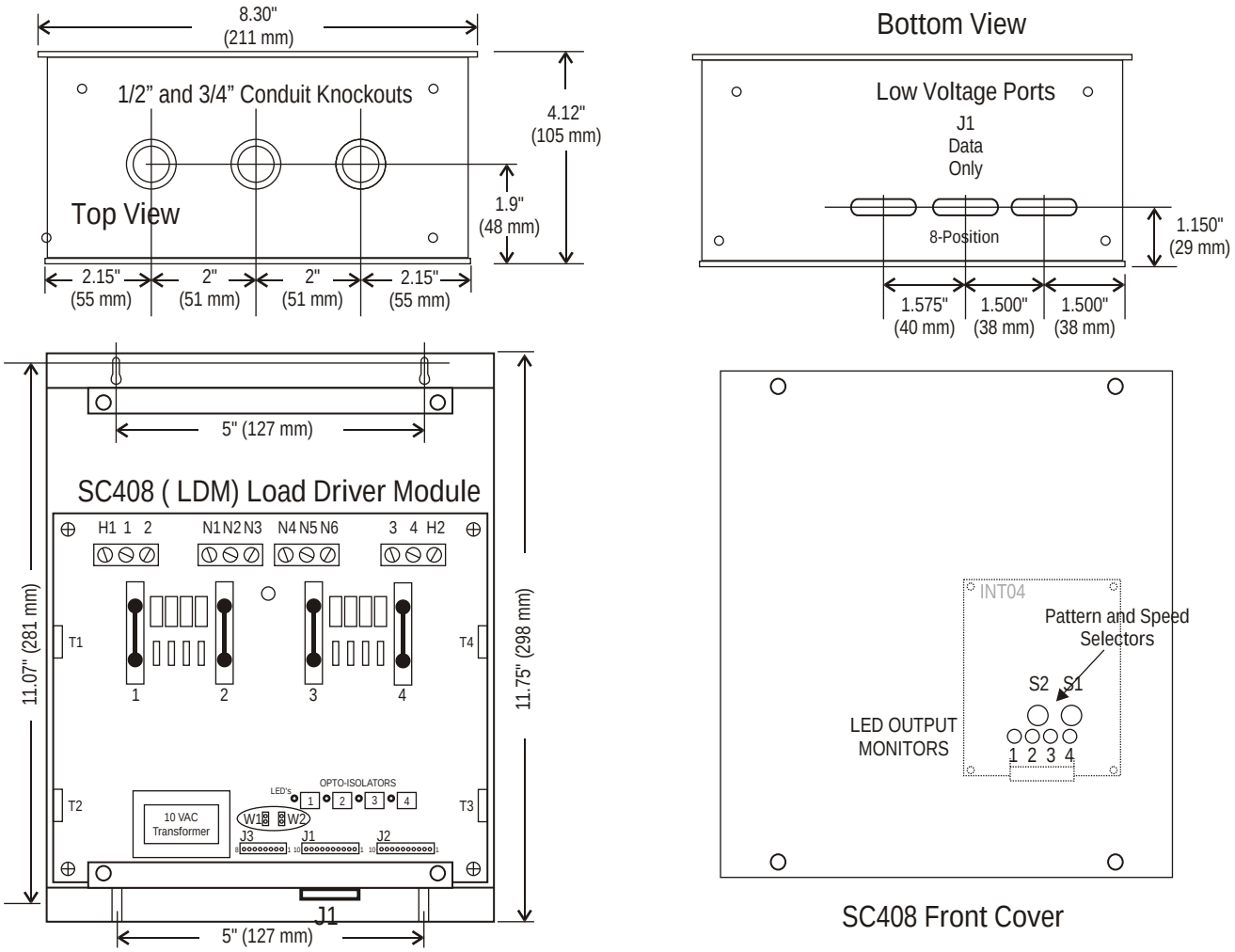


Figure 3 - SC408 INT04

Components Side
(Components with dashed outline
are mounted on the rear of the board)

Solder Side

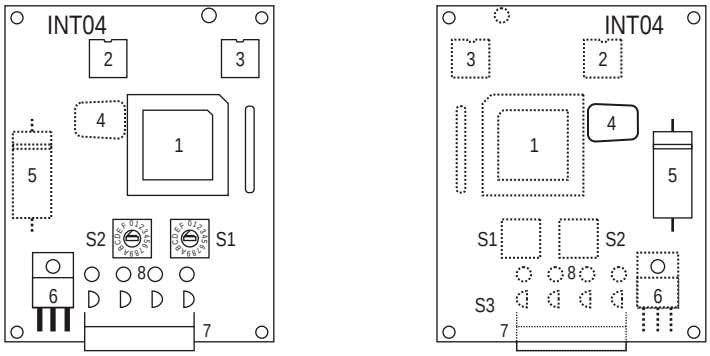


Table 3 - INT04 Circuit Legend

1	Microprocessor.
2	Nonvolatile Memory.
3	Communications Chip.
4	Quartz Crystal.
5	Power Supply Capacitor.
6	Voltage Regulator.
7	Signal & Power Connector.
8	Output LED Monitors.
S1-2	Speed/Pattern Selectors.

A- ENCLOSURE INSTALLATION

Install the SC408 enclosure in a well ventilated area where the ambient temperature will remain between 40ºF and 104ºF 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 90ºC 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 SC408. 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 #4 to any position on the Neutral Bus (N1 - N6).
- Connect the Return wires from load #1 through load #4 to terminals 1 through 4 respectively.

C- MASTER-SLAVE SYSTEM WIRING

The SC408 can control four additional SL408 slave units. The slaves contain the Load Driver Module (LDM) without the INT04 logic control board. This configuration is helpful when the load capacity of the SC408 master is exceeded and all loads must be synchronized together. The slave is daisy-chained to the master via low-voltage 5-conductor cables (JJ88) provided by the factory. The SC408 and SL408 are wired identically.

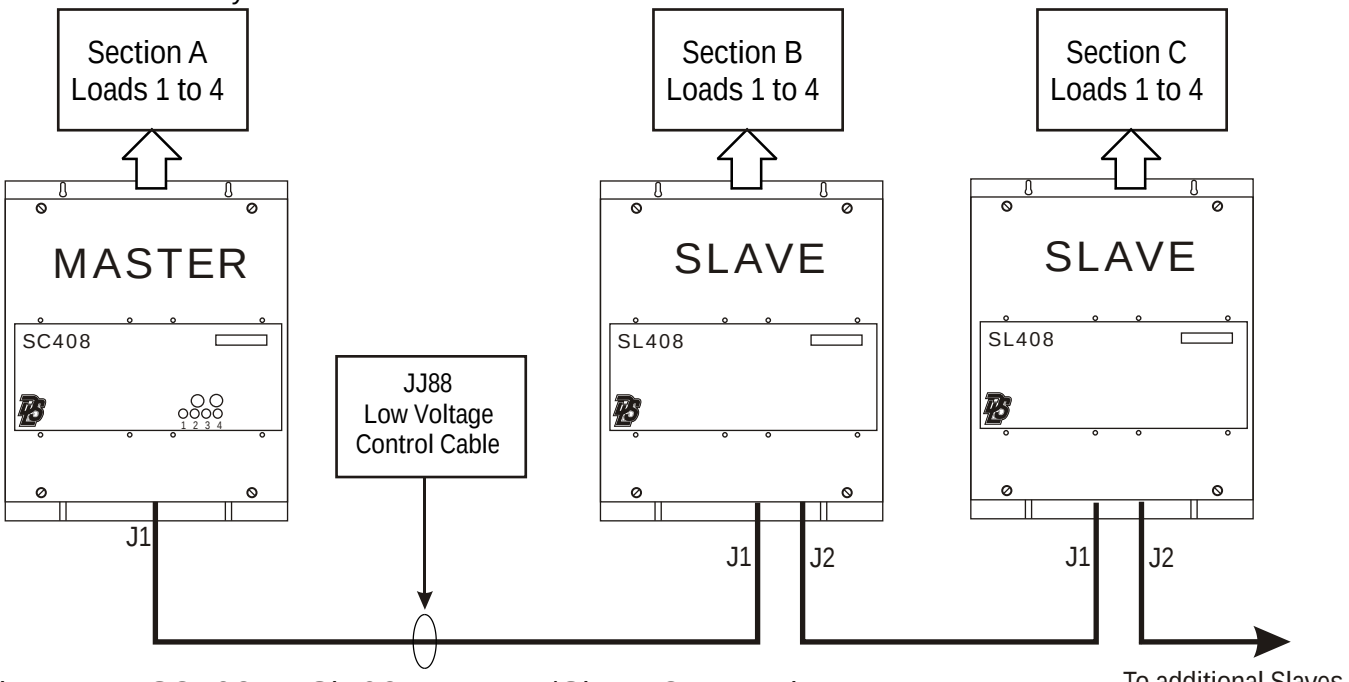


Figure 4 - SC408 to Sl408 - Master/Slave Connection

SC408-120 General Wiring Instructions for 120V version.

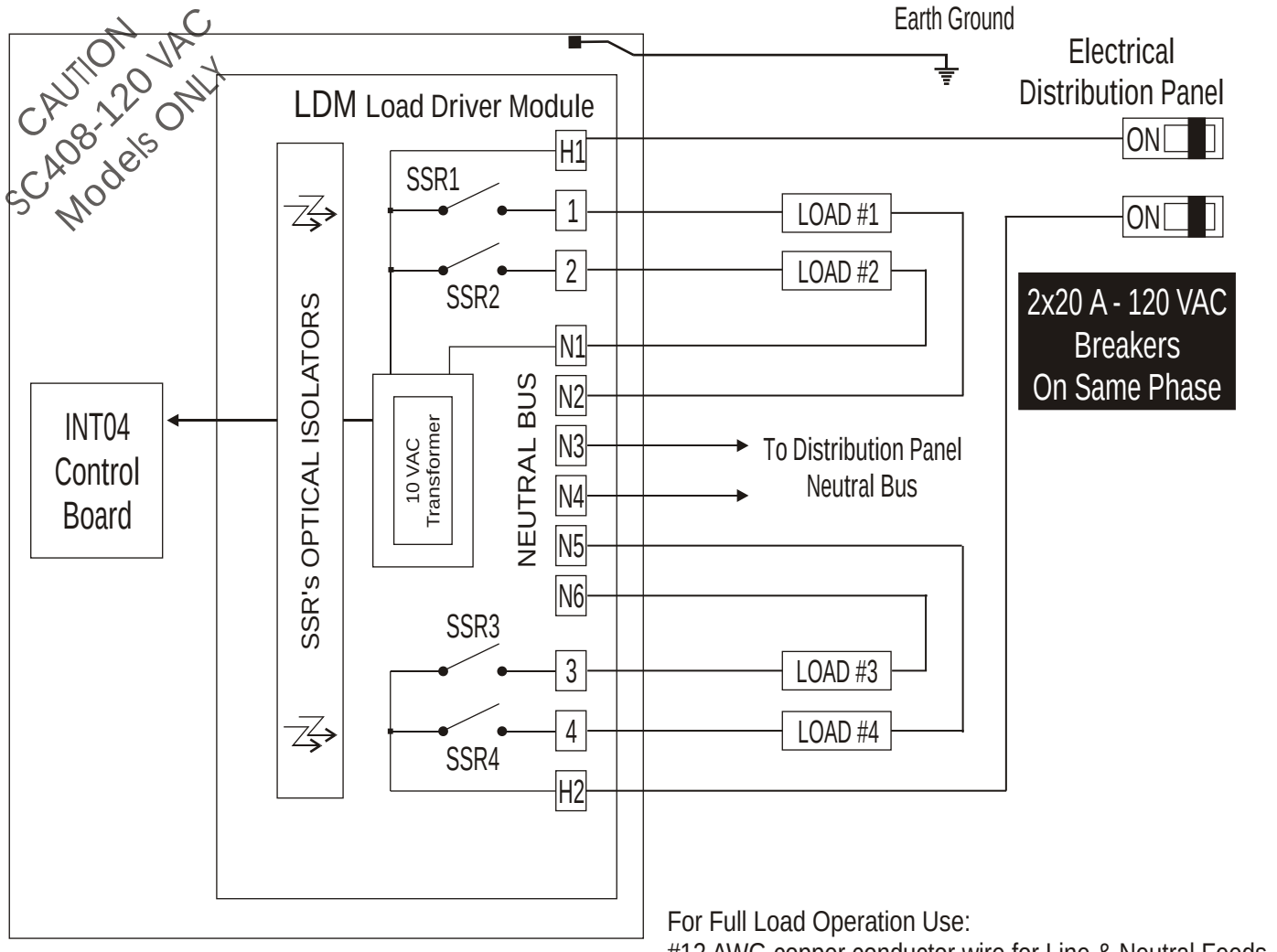
Wiring Notes

- DO NOT EXCEED 960 W (8 Amps.) per circuit output @ 120VAC.
- SC408 chaser packs may be fed by one or two 20 A (maximum) branch circuits and may have up to four separately switched loads.
- 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.

NOTE

The SL408 output wiring is identical to the SC408. SL408 slaves do not have the INT04 control board. The SL408 Load Driver Board (LDM) does not have a transformer.

Figure 5 - SC408 Typical 120 VAC Wiring.



For Full Load Operation Use:
#12 AWG copper conductor wire for Line & Neutral Feeds.
#14 AWG copper conductors in/out to each load.
Max. Load: 8 Amperes (960W at 120 VAC).

SC408-220 General Wiring Instructions for 220-240V version.

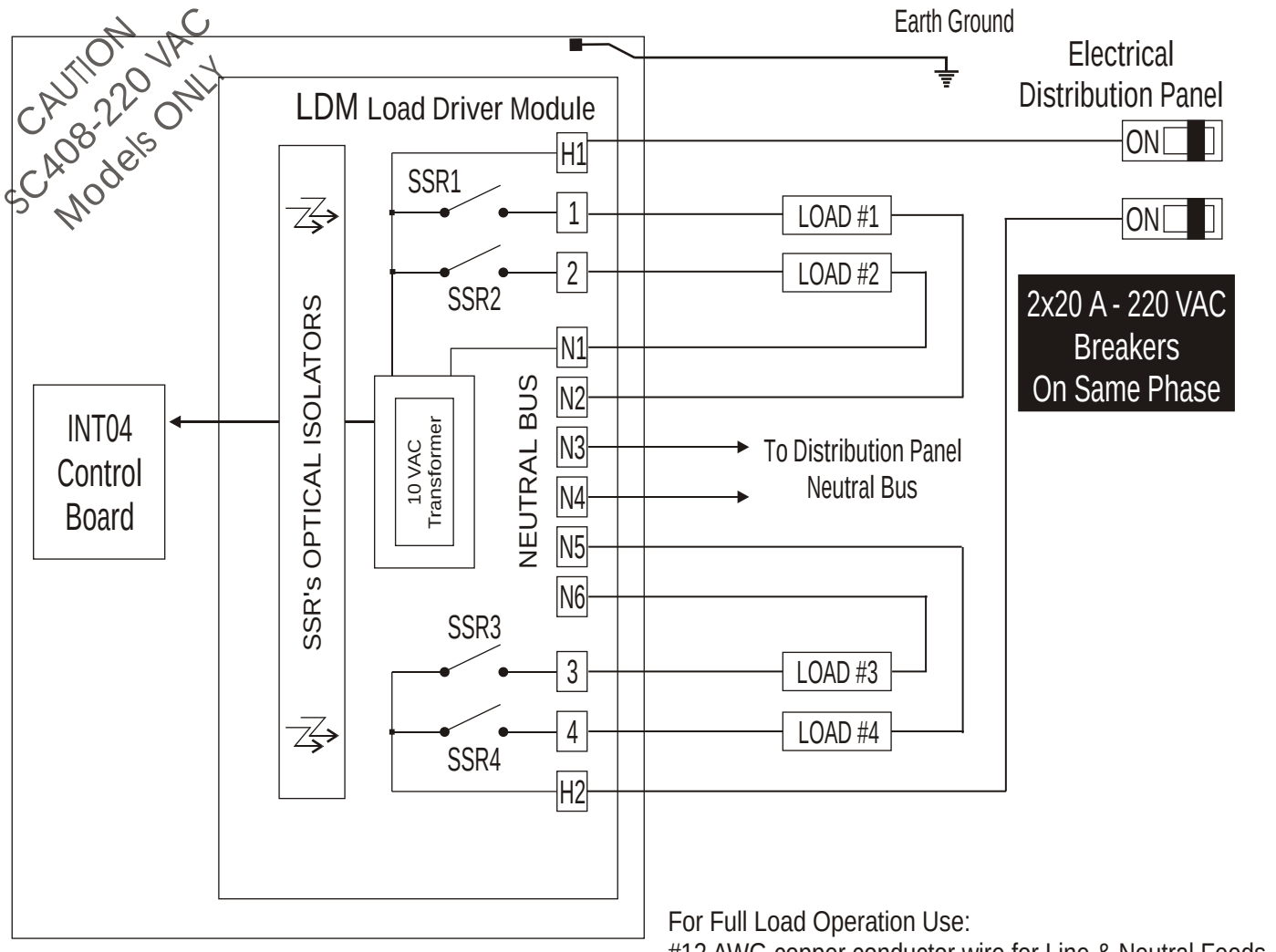
Wiring Notes

- DO NOT EXCEED 1920 W (8 Amps.) per circuit output @ 240VAC.
- SC408 chaser packs may be fed by one or two 20 A (maximum) branch circuits and may have up to four separately switched loads.
- 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.

NOTE

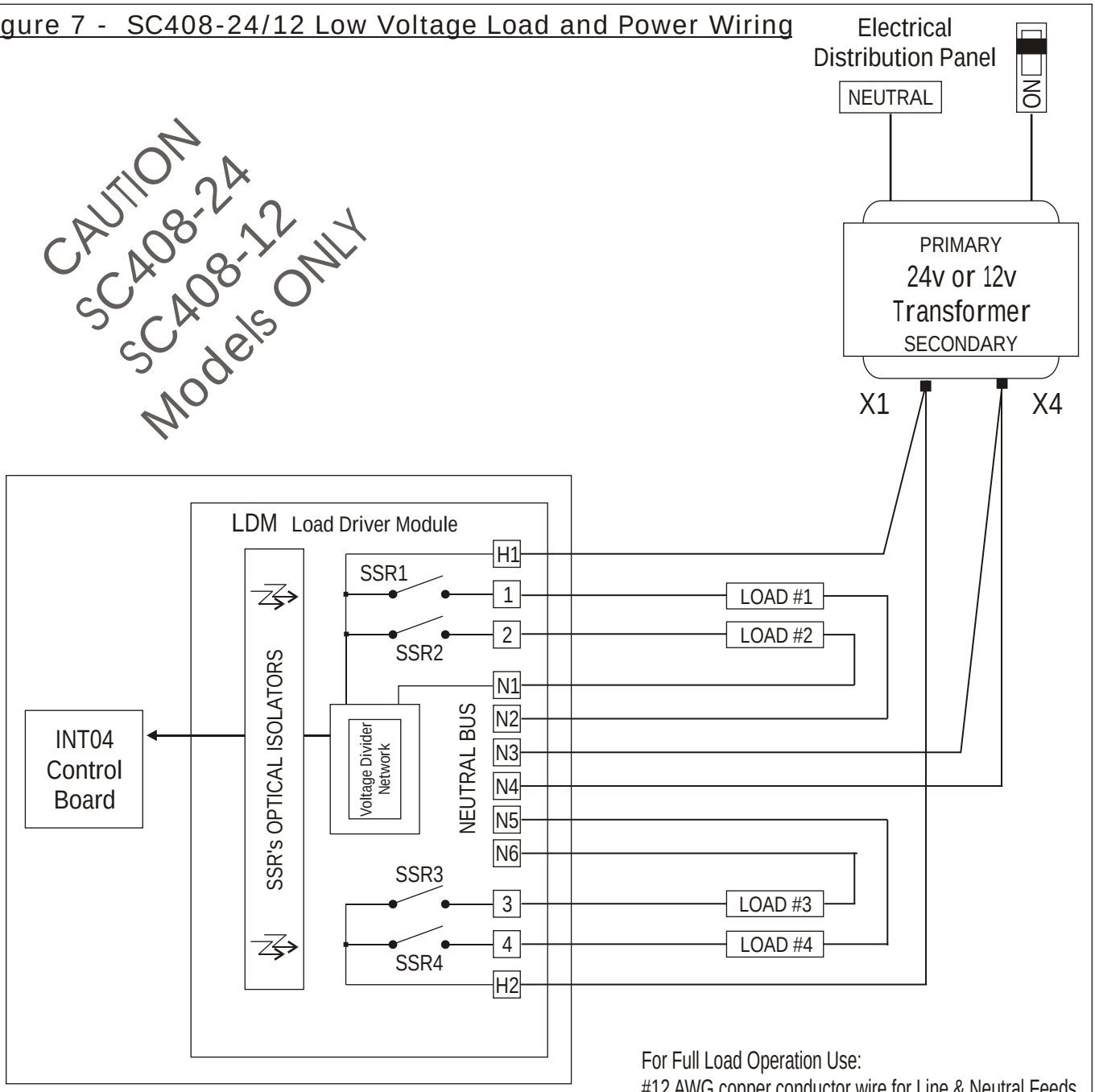
The SL408 output wiring is identical to the SC408. SL408 slaves do not have the INT04 control board. The SL408 Load Driver Board (LDM) does not have a transformer.

Figure 5 - SC408 Typical 220 VAC Wiring.



For Full Load Operation Use:
#12 AWG copper conductor wire for Line & Neutral Feeds.
#14 AWG copper conductors in/out to each load.
Max. Load: 8 Amperes (1920W at 240 VAC).

Figure 7 - SC408-24/12 Low Voltage Load and Power Wiring



For Full Load Operation Use:
#12 AWG copper conductor wire for Line & Neutral Feeds.
#14 AWG copper conductors in/out to each load.
Max. Load per circuit : 8 Amperes (192W at 24 VAC).

NOTES

1 With SC408-24 you may use a single 24 VAC-800 VA or better transformer or two separate 24 VAC-400 VA or better transformers.
2 With SC408-12 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: 96 Watts at 12 VAC.
5 Maximum Load Per Output: 192 watts at 24 VAC.

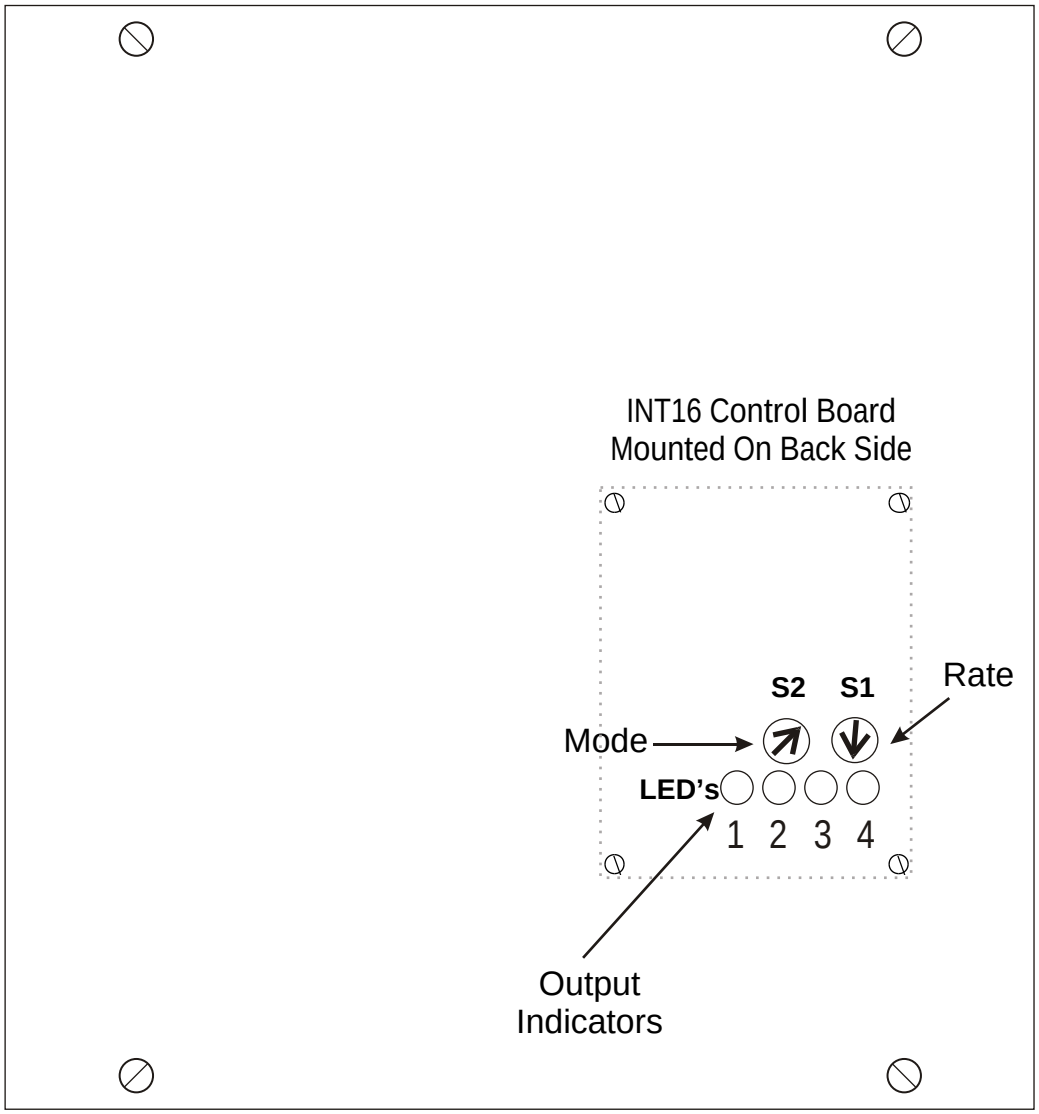
Controls

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 SC408 outputs can be turned to static ON by selecting F. When 0 is selected, the SC408 goes into an automatic pattern change mode. All other positions cause the SC408 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 4 indicate the status (On-Off) of their corresponding outputs.

Figure 9 - SC408 Front Panel Indicators and Control Selectors

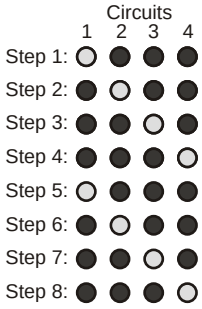


CAUTION

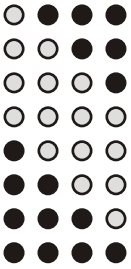
Use a small screw driver for adjusting selector positions in order to avoid damaging the tips.

Patterns for SC408

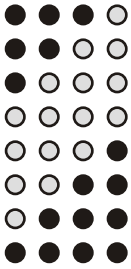
1 Light Chase



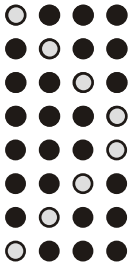
2 Fill & Swipe Forward



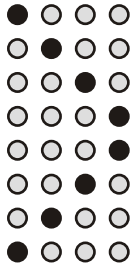
3 Fill & Swipe Back



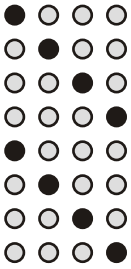
4 Light Bounce



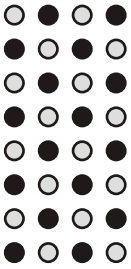
5 Dark Bounce



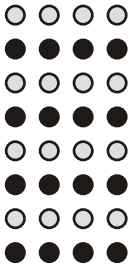
6 Dark Chase



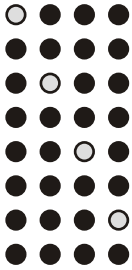
7 Flip-Flop



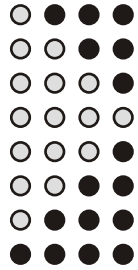
8 Flash All



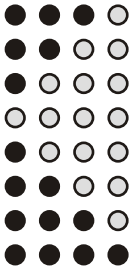
9 Flash Light Chase



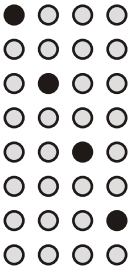
A Spring Forward



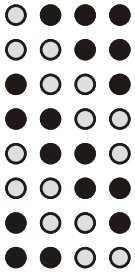
B Spring Back



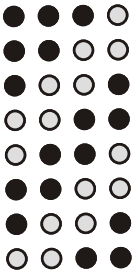
C Flash Dark Chase



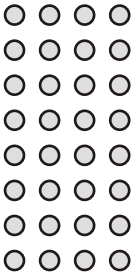
D Crawl Forward



E Crawl Back



F All On



0

Auto Cycle
Patterns 1-F
4 x each
then repeat

KEY: ○ ON
● OFF

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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
7588 NW 8th Street
Miami, FL 33126
(305) 264-8391

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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