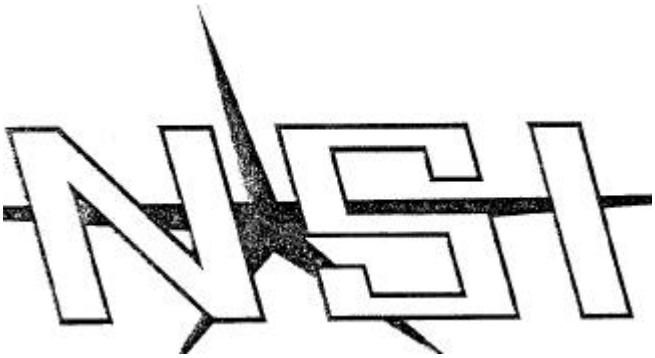


NRD 8000

ADDRESSABLE
DIMMER PACK

OPERATION MANUAL

INTRODUCTION

The NSI NRD 8000 is a rack mountable eight channel dimmer system that provides 1200 watts per channel or a maximum power capacity of 9,600 watts.

The NRD 8000 is fully user addressable allowing assignment of up to eight of a possible 128 channels. Microplex technology developed by NSI for the stage lighting industry, is the electrical marriage of microprocessor technology with digitally controlled multiplexing. This technology allows all NSI Lighting components to be connected with standard three conductor microphone audio cables or even audio snakes. System expansion is further simplified through the abi1ity to daisy chain additional dimmer packs to an existing system. This application of microplex technology makes system set up and operation easy and convenient. In addition, NSI Products are compatible with most other manufacturer's lighting products, which use the same microphone cable interface.

Our philosophy at NSI is to utilize only the highest quality components in the design and manufacturing of our products. Problems that often plague dimmers such as flickering lights, buzzing in audio equipment, and triac failure are minimized in NSI products. Each output of the NRD 8000 is fully filtered with industrial toroidal devices. In place of triacs, NSI only uses professional grade dual SCR's.

You can be confident your NSI Dimmer Packs feature the best in performance and reliability standards available.

SPECIFICATIONS

No. of Channels:	Eight
Power Output per Channel:	1200 Watts
Total Maximum Power Output :	9,600 Watts
Filtering:	(8) Toroidal Chokes 400 USEC.
Serial Control System:	**NSI** "Microplex"
Input Voltage To Response Time:	50 MSEC
Control Isolation:	1200 Volt HV
+ 15 V. DC -Available to Controller:	400 MA
Dimensions: HxWxD	5 1/4" x 19" x 10 1/4"
Mounting Spec. (from hole centers):	18 3/4 "

ADDRESSING

Each NSI dimmer pack is fully user addressable to receive any of 128 possible control channels. Control channels may be assigned in increments of four by addressing the NRD 8000 to receive them. To accomplish this simply position the address select switches as described in the following chart.

Note: *New Style units have six position dipswitches where as dipswitches 1-6 are indicated below. Old style units are functionally the same but offered 4 position dipswitches. Internal jumpers where as J1, J2 are indicated below.*

Channels	**1**	**2**	**3**	**4**	**5/J2**	**J1**
1-4	Off	Off	Off	Off	Off	N/A
5-8	On	Off	Off	Off	Off	N/A
9-12	Off	On	Off	Off	Off	N/A
13-16	On	On	Off	Off	Off	N/A
17-20	Off	Off	On	Off	Off	N/A
21-24	On	Off	On	Off	Off	N/A
25-28	Off	On	On	Off	Off	N/A
29-32	On	On	On	Off	Off	N/A
33-36	Off	Off	Off	On	Off	N/A
37-40	On	Off	Off	On	Off	N/A
41-44	Off	On	Off	On	Off	N/A
45-48	On	On	Off	On	Off	N/A
49-52	Off	Off	On	On	Off	N/A
53-56	On	Off	On	On	Off	N/A
57-60	Off	On	On	On	Off	N/A
61-64	On	On	On	On	Off	N/A
65-68	Off	Off	Off	Off	On	N/A
69-72	On	Off	Off	Off	On	N/A
73-76	Off	On	Off	Off	On	N/A
77-80	On	On	Off	Off	On	N/A
81-84	Off	Off	On	Off	On	N/A
85-88	On	Off	On	Off	On	N/A
89-92	Off	On	On	Off	On	N/A
93-96	On	On	On	Off	On	N/A
97-100	Off	Off	Off	On	On	N/A
101-104	On	Off	Off	On	On	N/A
105-108	Off	On	Off	On	On	N/A
109-112	On	On	Off	On	On	N/A
113-116	Off	Off	On	On	On	N/A
117-120	On	Off	On	On	On	N/A
121-124	Off	On	On	On	On	N/A
125-128	On	On	On	On	On	N/A

The NRD 8000 is actually two four channel dimmers coupled together to provide eight channels of dimming in a single rack mountable package. Each group of four channels has its own address switches. These controls channels are addressed in increments of four as outlined in the chart above.

IMPORTANT: All NSI dimmer packs are shipped from the factory addressed for channels 1 -4. Units must be readdressed (see chart above) before being capable of receiving any other channels.

AC OUTPUT RECEPTACLES

Dual standard Leviton AC outlet receptacles are provided for each channel of the NRD 8000. These receptacles provide power to the lamps in your lighting system. The amount of power supplied to these outlets control the intensity of the lights they drive. Multiplexed signals received from your NSI controller are translated into power levels to achieve desired light intensity. Each dual receptacle corresponds to a single channel with the maximum power capabilities described in the specifications section of this manual. Under no circumstance should maximum recommended power capabilities be exceeded. Exceeding the rating *may* be hazardous and will void your warranty. Most lamps, fixtures and rain lights may be connected to these outlets. *Do* not connect any other electrical appliances or equipment to the dimmer packs.

MICROPLEX INPUTS

Both male and female Microplex connectors may be used for input signals. Mico-plex technology allows your system to be connected using standard microphone cables or even audio snakes. Digitally coded signals may be received from your NSI controller or another dimmer pack. The Microplex system also provides D.C. phantom power to your controller. Up to 128 individual control channels plus phantom power to your controller may be transmitter through a single microphone cable.

MICROPLEX EXPANSION

The male and female Microplex connectors are wired in parallel allowing either one to be used for input or output of control signals. When used as an output, the Microplex connectors will provide control signals to another dimmer pack. This is called daisy chaining and makes expansion of your system easy. Up to 128 individual control signals may be sent through NSI dimmer packs via a standard microphone cable.

CONTROL STATUS INDICATORS

Individual yellow LED' s (Light Emitting Diodes) indicate when channels are active. This feature is an excellent trouble shooting tool in identifying possible problems with signal transmissions or defective lamps and fixtures

POWER ON INDICATOR

This green LED (Light Emitting Diode) will light whenever the dimmer pack is receiving AC power and functioning properly.

AUTO TEST

This built-in function allows you to connect and test lamps at full intensity without the need of a controller. When dipswitch 6 is off with a controller absent lamps will light to full intensity. Internal jumper J1 is used in place of dipswitch 6 on 4 dipswitch units.

CIRCUIT PROTECTION

The NRD 8000 is equipped with safety circuit interruption devices to ensure protection from overloading or shorted circuits. The NRD 8000 utilizes resetable external circuit breakers for each individual channel as well as internal fusing.

MOUNTING

The NSI NRD 8000 dimmer pack may be mounted in standard EIA 10” racks. The NRD 8000 is provided with two mounting flanges or ears designed for securing to the rack mounting rails. Most standard rack rails are already properly drilled to accept mounting 19” EIA standards for industrial equipment, however in some cases you may need to drill holes to accommodate your dimmer pack. When doing this ensure hole spacing is accurate before attempting to drill.

WIRING FOR AC POWER

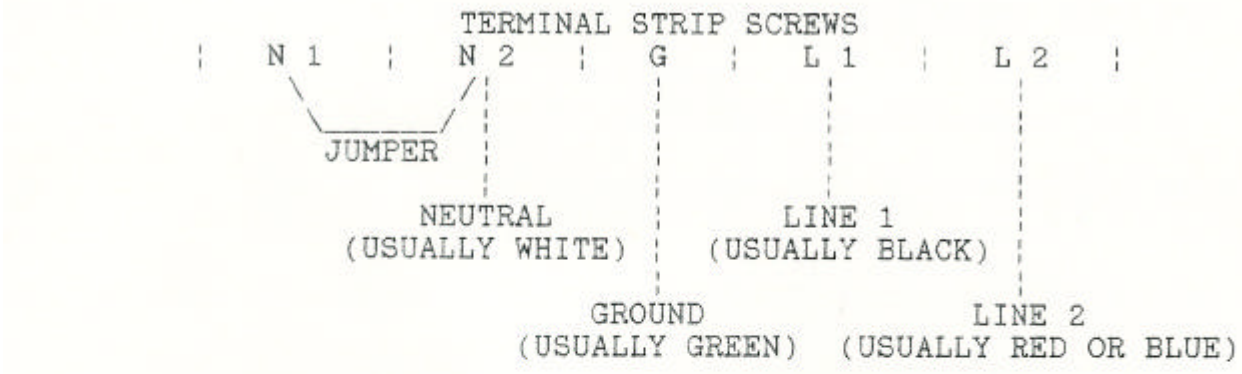
The NRD 8000 is equipped with a standard screw terminal connection to facilitate customer wiring for AC power. NSI recommends only qualified individuals with a knowledge of electricity attempt to wire the NRD 8000 to electrical power. NSI assumes no liability for personal injury, lamp failure, or other equipment damage when the unit is improperly connected to an electrical service or connected by unqualified personnel.

It is important to verify wiring before connecting or energizing the service main. Mis-wiring may cause the *3/10* amp internal power supply fuses to blow. Circuit damage and blown lamps may also result from improper wiring.

The NRD 8000 is actually two 4 channel dimmers coupled together for the flexibility of eight independent channels in one rack mount package. The NRD 8000 may be wired to achieve the maximum power rating of 1,200 watts per channel or a total of 9,600 watts. The system may also be configured to provide two 1,200 watt outputs to each of four channels for a total of 2,400 watts per channel by setting both addressing switches the same. It is important to know what your power requirements are before making connections to the dimmer.

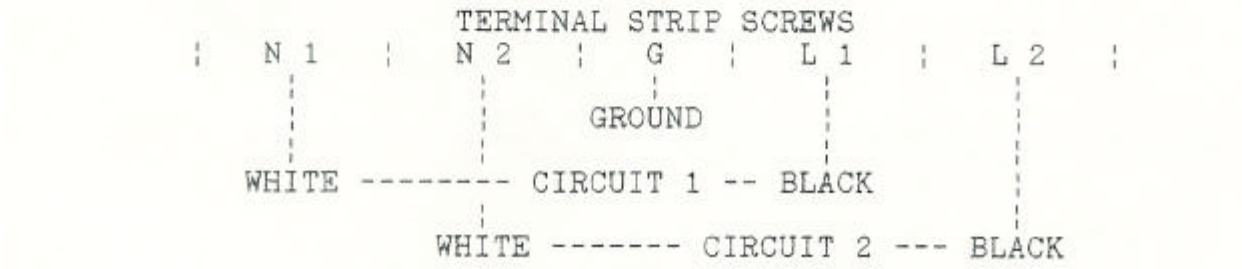
The NRD 8000 may be connected to either of the following types of electrical power services as illustrated below. It is recommended that a suitable power connector and cable (such as a standard 4 prong range or dryer plug) be attached to the unit for portable operation.

1. 240 VAC SINGLE PHASE (THREE WIRE SYSTEM)
   208 THREE PHASE (TWO LEGS OF STAR OR "Y" SYSTEM)



40 AMP SUPPLY TO ACHEIVE MAXIMUM RATED POWER

2. TWO 120 VAC SINGLE PHASE CIRCUITS



40 AMPS EACH CIRCUIT FOR MAXIMUM RATED POWER

NOTES:

Amperage requirements of power service may be reduced for decreased maximum power (ie. 30 amps for 1000w/channel).

ELECTRICAL SERVICE MUST BE FUSED AT 40 AMPS MAXIMUM

NEUTRAL WIRE MUST BE CONNECTED TO BOTH NEUTRAL TERMINALS

Double check for correct connection.

OPERATIONAL HINTS

1) Use a power source on a circuit separate from your audio system.

2) Ensure that the rating of the breaker or fuse for the power source chosen is adequate. The required rating (in amps) of the breaker or fuse may be calculated with the following formula:

$$I = P/E$$

Where I = the current (in amps)
P = the power (in watts)
and E = the voltage (in volts)

3) Always use quality 12 gauge (or heavier) grounded power cables for input power.

4) Always use quality 18 gauge (or heavier) grounded power cables for output power.

5) Avoid placing AC power cables or extension cords for lighting near sensitive audio cables (guitar cords, mic cables, audio snakes, etc.).

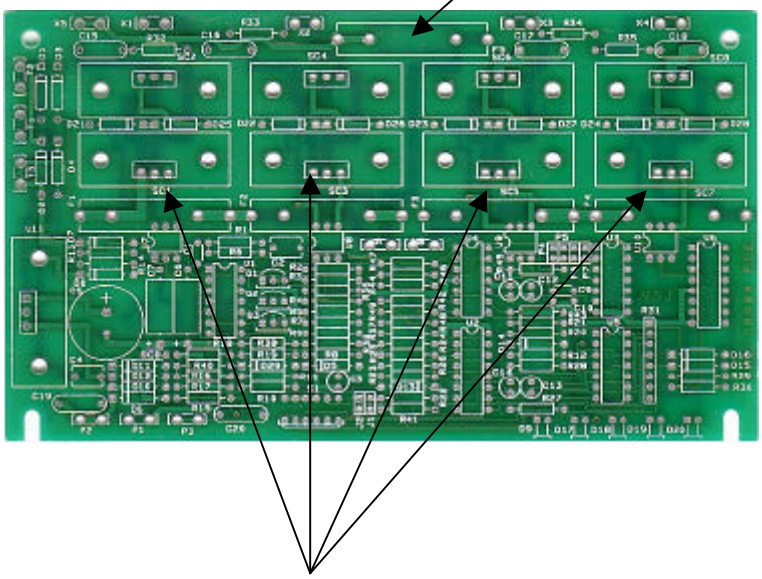
6) Avoid blocking the ventilation holes on the sides of your dimmer pack. It is very important your unit has this ventilation to avoid possible damage which may void the warranty.

TROUBLESHOOTING GUIDE

SYMPTOM	CHECK LIST
NO OUTPUT, LED INDICATORS SHOW STATUS OKAY	1. CHECK CHANNEL FUSES. (REFER TO DIAGRAM BELOW)
NO POWER	1. CHECK LINE FUSE (REFER TO DIAGRAM BELOW) 2. IF FUSE BLOWS AFTER REPLACEMENT CHECK TRANSFORMER.
LIGHTS ALWAYS OFF	1.CHECK CHANNELS FUSES 2. CHECK FIXTURE LAMPS 3. CHECK BLACKOUT FREATURE ON CONSOLE 4. CHECK DIPSWITCH ASSIGNMENT 5. CHECK MAXIMUM DIMMER ASSIGNMENT ON CONTROL CONSOLE 6. CHECK SOFTPATCH ON CONTROL CONSOLE
LIGHTS ON ALWAYS	1. CHECK DIP SWITCH ASSIGNMENT. 2. CHECK SIGNAL CABLE 3. CHECK MAXIMUM DIMMER ASSIGNMENT AT CONSOLE 4. CHECK OUTPUT MODE OF CONTROL CONSOLE.
LED INDICATORS ON DIMMER PACK FLICKER OR GLOW DIMLY.	1. TRANSMISSION LENGTH MAY BE A PROBLEM. GET CONSOLE CLOSER WITH A SHORTER CABLE TO VERIFY. REMEDY MAY BE THE USE OF 18 GAUGE CABLE OR AN EXTERNAL POWER SUPPLY AT THE CONSOLE. (CALL DEALER OR NSI TECHNICAL SERVICES FOR DETAILS). 2. CHECK PRE-HEAT SETTING OF CONSOLE.

Caution: Please disconnect power before removing cover for service as high voltage is otherwise present.

LINE FUSE
~ STANDARD 3/10 AMP SLO BLO



CHANNEL FUSE LOCATION
REPLACE WITH VALUES AS LISTED BELOW
ND4600 8 AMP FAST BLO
ND5000 15 AMP FAST BLO NRD 800015 AMP FAST BLO

IF PROBLEMS PERSIST CONT ACT YOUR NEAREST NSI AUTHORIZED DEALER OR NSI TECHNICAL SERVICES AT 800-864-2502 BETWEEN THE HOURS OF 8:00 AM TO 5:00 PM PST MONDAY THRU FRIDAY.

NSI CORPORATION LIMITED WARRANTY

NSI Corporation warrants new electronics products to be free from defective materials and workmanship for a period of two (2) years from the date of purchase to the original owner when purchased from an authorized NSI dealer.

The purchaser is responsible for completing and mailing to NSI, within 15 days of purchase, the warranty registration card enclosed with each product. NSI products that have been subject to accident, alteration, abuse, or defacement of the serial number are not covered by this warranty. The normal wear and tear of items such as knobs, jacks, and switches are not covered under this warranty.

If your NSI product requires service during the warranty period, NSI will repair or replace, at its option, defective materials provided you have identified yourself as the original owner of the product to NSI or any authorized NSI dealer. Transportation charges to and from an authorized dealer or the NSI factory for repair shall be the responsibility of the owner. All products returned to NSI must have factory authorization for return prior to shipping

NSI Corporation is not liable for any incidental or consequential damages resulting from defect or failure other than repairs of the NSI product subject to the terms of this warranty. This warranty gives you specific legal rights, and you may have other rights which vary from state to state. This warranty is expressly in lieu of all other agreements and warranties expressed or implied except as may be otherwise required by law.