

Nebula-R Switch/Dimmer Pack

Theatrelight NZ has launched the new Nebula-R, a 12 channel SCR dimmer pack with added DMX controlled relays and enhanced firmware. Ideal for dimmed or hotpower distribution in theatres, concert halls and TV studios, the Nebula-R dimmer pack includes the following features in addition to the original Nebula dimmer pack:

- Flexible dimming or switching of incandescent, inductive, and capacitive loads including dimming of most mains-dimmable LED bulbs down to a single 4 watt LED bulb
- Every channel can be operated either as a Dimmer using robust pulse driven SCRs and toroidal choke, or as a lossless Switch using a heavy duty relay with contacts rated at 30 amps for reduced EMI switching of LED luminaires, moving lights, motors etc.
- When operating as a dimmer, each channel can be optionally set in the “**Lossless Power**” menu to switch on the relay when the dimmer is at Full. This connects the dimmer load directly to mains, with no losses from SCRs and chokes. This feature reduces power waste and ensures the unit runs cooler requiring less energy to maintain your dimmer room temperature.
- The switching relays can be operated by DMX with the On/Off switching level set at On: 95%, Off at 5%, with a choice of security On/Off delays from Instant up to 6 seconds, adjustable per channel
- The switching relays can be programmed to provide a staggered switch on at power up prevent high inrush currents tripping MCBs
- The switching relays can be permanently enabled or disabled to prevent any possible modification by DMX
- To prevent polarization or saturation of motors, transformers and similar inductive loads, the Nebula-R delivers the same power to the load in both the positive and the negative half cycles whether dimming or switching
- The Nebula-R firmware has high resolution (12 bit) fading for all dimmer curves with two special dimmer curves for smooth control of mains dimmable LED bulbs

A special feature of the Nebula-R module is the reduced interference switching of hotpower loads - weather resistive, capacitive or inductive:

- At switch On, the SCRs turn on when the AC cycle is at zero volts for minimum in-rush current surge in capacitive loads. Once the SCRs are fully on, the Relays close for lossless hotpower to the load
- At switch Off, the Relays release the load to the SCRs which then turn off when the load current reaches zero, eliminating any switch-off spike in inductive loads

This combination of switch On at zero volts and switch Off at zero current allows any type of load to be switched with minimum interference to audio and video equipment.



Nebula-R technical features include:

- 12 channels each of 10 amps, rated at 90-250VAC input 50/60Hz
- Lossless Power Option: Removes circuit and choke losses by activating the channel relay to a dimmer channel once it reaches 100%
- Mains and load options: Mains Input via 3 phase plug and cable/Output via ANZ 3 pin sockets, or Mains Input/Output via moving cage terminals. Other socket options such as Socapex, Harting etc available on request
- Channel overload protection by thermal/magnetic MCBs or 30mA RCBOs (MCBs with Earth Leakage protection)
- 19 inch Rack mount format, Dimensions: W 432 x H 133x D 387mm, Weight: 19.5kg

Technical Specifications

CONSTRUCTION

Epoxy powder coat over zinc plated steel case. Legend silk-screened in solvent and abrasion resistant two pot epoxy ink.

FORM

3u high, 19 inch rack wide, with removable mounting wings. Rear support wings are available for touring cabinets

ELECTRONICS

Flash microprocessor with internal EEPROM for long life storage of all parameters. Digitally controlled SCR, IGBT or Sinewave dimming module fitted depending on model. The internal Switch Mode power supply is rated at 90 vac to 265 vac, 45 to 65 hertz, and uses long-life 105 degree rated capacitors.

POWER SEMICONDUCTORS

Heavy duty SCRs, high frequency pulse driven.

POWER RELAYS

Long life, 30 amp rated contacts.

LCD DISPLAY

4 line, 20 character display, STN Blue with auto-dimming super-bright white LED backlight.

MCBs

6KA rated MCBs provide full overload and short-circuit protection of power devices.



FILTERING

Iron powder toroidal chokes for linear current rise and minimum EMI. Theatrelight can provide filtering to customer standard on request.

COOLING

Long life low voltage speed controlled fan. Fan speed is proportional to temperature.

DMX CONNECTION

USITT DMX-512 1990 Digital multiplex system requiring twin twisted shielded cable approved for RS-422/485 of up to 600 metres. Dimmer refresh rate is every 22 milliseconds. Each Nebula presents 1/10th normal RS-485 unit load, allowing reliable DMX operation.

POWER SUPPLY

Input: 90 to 265 volts AC, 1, 2 or 3 phase and Neutral, 45 to 65 Hz. Power consumption at no load is less than 5 watts.

EXTERNAL CONNECTIONS

- Output: 12 x 10amp channels
- Terminations: Moving cage terminals or cable input with socket outputs depending on model and destination country. Socapex output versions available. Special socket versions can be made to customer order.
- DMX Control Input: DMX-512 via gold plated 5 Pin XLR In/Thru connectors
- RS-485 Control Input: via RJ 45 connectors mounted on the rear panel. A 12 volt 200ma supply is provided for powering wall plate controllers.

