THEATRELIGHT NZ

www.theatrelight.co.nz

Theatrelight NZ
PO Box 13-159, Onehunga, Auckland, New Zealand
6 Rowe St, Onehunga, Auckland, New Zealand
Tel: 64-9-622 1187, Fax: 64-9-636 5803,

SwitchPack DMX

The SwitchPack DMX is a reliable DMX controlled mains power supply for LED luminaires, moving lights, and other inductive and capactive loads. It is available in three versions: SwitchPack 1210 (12 channels at 10 amps), SwitchPack 1220 (12 channels at 20 amps) and SwitchPack 630 (6 channels at 32 amps), with terminal or a selection of socket backs.

SwitchPack 1210 and 1220:

SwitchPack 630

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The standard 19 inch rackmount case contains either 6 or 12 Solid State Relays for remote switching of loads by DMX control. Solid state relays generate very little electromagnetic interference compared to hard switched Relay contacts.

Features:

- Solid State Relays use dual SCRs (not Triacs)
- SCRs are continuous pulse train driven for no minimum load limitation requirement
- SCRs switch On at voltage zero cross to eliminate current surges at turn-on of capacitive loads (as caused by mechanical relay contacts)
- SCRs switch Off at current zero cross to eliminate voltage spikes at turn-off of inductive loads (as caused by mechanical relay contacts)
- Firing angle in each half-cycle (and hence energy) always maintained equal, and only positive and negative *pairs* of half-cycle energy are fed to the load This results in a very low DC component to protect magnetic transformers from core saturation and consequent fire hazard
- SCRs are voltage surge and spike protected
- Overload limited by thermistor (channels are switched off on long-term over-current to limit damage due to over-heating)
- Minimum volts loss to load - only 1.5 volts
- On or Off states may be controlled by DMX remotely, or locally from the internally lit front panel pushbuttons.
- When DMX controlled, channels turn at 60% and turn off at 40%. This hysteresis provides flicker-free On/Off switching
- Programmable security delays to prevent switch on off of critical loads
- Manually controlled channels On/Off state always restored on power up
- DMX controlled channels always power up Off
- Keyboard disable feature to prevent unauthorised operation
- Universal power supply: 90-240vac, 50-60 hertz.

Models:

SwitchPack 1210: 12 channels of 13 amp MCBs. Available with Aust/NZ socket back, Socapex back, terminal back, or to order
SwitchPack 1220: 12 channels of 20 amp MCBs. Available with Socapex back, terminal back, or to order
SwitchPack 630: 6 channels of 32 amp MCBs. Available with terminal back, or to order

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Switchpack DMX Operation

DMX Address setup

The DMX start address for each Switchpack is set by the 3 digit thumbwheel.

For example if the thumbwheel is set 001, then DMX channels 1-12 will control SwitchPack outputs 1-12 etc. A second SwitchPack should have its DMX start address set to 013, so its outputs follow DMX channels 13-24 etc.

Valid thumbwheel settings are 1-501 for the 12 channel version, and 1- 507 for the 6 channel version.

On/Off/DMX Mode set per channel:

Press any Key- the Channel cycles through 3 states:
1/ Channel always Off - Key LED blinks on briefly
2/ Channel always On - Key LED blinks off briefly
3/ Channel on DMX control- Key LED is either on or off (not blinking) depending the DMX control level for that channel

The DMX levels have hysteresis levels fixed at On at 60%, and Off at 40%. The behaviour is:

  If Off, the channel is only set On if the DMX level exceeds 60%
  If On, the channel is only set Off if the DMX level drops below 40%

The On time and Off response time depends on the security time settings described below.

DMX Security Modes (6 and 12 chn):
Enhanced security delays may be chosen so that received DMX levels are averaged over time. The longer time settings provide greater security to accidental changes in the SwitchPack outputs:

Hold two middle centre Keys for 2 secs, then release Keys on a short flash- the fast flashing LED shows the current DMX security setting:

LEDs	1	2	3	4	5	6
0-Full times (secs)	Instant	0.15s	0.3s	0.75s	1.5s	3s

Press a new Key 1-6 to change to a new DMX security setting.

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The new setting is displayed for a further 5 seconds, then after a short flash, normal display is restored.

Note the security times above are correct for a normal DMX refresh interval (~22msecs). These times may be longer if the DMX refresh rate sent by the control panle does not adhere to the DMX 1990 standard.

Keys Disable (6 and 12 chn):
Hold the two top centre Keys until you see a short flash of all mimic LEDs (about 2 secs): the keys are now disabled.
Any key press when keys are disabled gives a long error flash.
Keys Disabled state is shown by a chase up of LEDs 1-12 (1-6) every 10 secs.

Keys Enable (6 and 12 chn):
Hold the two bottom centre Keys until you see a short flash of all mimic LEDs (about 10 secs): the keys are now enabled.

Set all Channels On/Off/DMX (12 chn only)
Hold Key 1, then press:
Key 2 - after a short flash all Channels are set Off - all Key LEDs blink on
Key 3- after a short flash all Channels are set On - all Key LEDs blink off
Key 4- after a short flash all Channels are set to DMX control - All Key LEDs are either on or off (not blinking) depending on the DMX level

Parameter Save

5 minutes after any command change (such as Mode, DMX security, Keys enable/disable), the new parameters are saved to flash memory. Parameter save is shown by a chase up/down of all LEDs.

Phase A B C LEDs behaviour

LED On: correct phase power supply
LED Off: no phase power supply
LED Flashing: noisy or intermittent power supply

DMX LED behaviour

LED On: DMX ok
LED Off: no DMX connection
Intermittent Flash: noisy or intermittent DMX connection
Regular flash: DMX start address not in valid range of 1-501 (12 chn) or 1-507 (6 chn)

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DMX Start Address Thumbwheel

Valid DMX start address: 12 Chn: 1-501; 6 Chn: 1-507
Invalid DMX start address: 12 Chn: 0, 502-999; 6 Chn: 0, 508-999

If an invalid address is selected the start address defaults to 1.

DMX Fail behaviour
Last DMX levels retained until power off
All DMX levels initialised to zero at power on

Temperature LED behaviour with heatsink temperature:
LED Off: under 50 degrees C
LED 2 sec Flash: between 50 and 59 degrees C
LED On   between 60 and 69 degrees C
LED Rapid Flash   70 degrees C or over: all Channels are switched Off

Fan behaviour with heatsink temperature
30 degrees C: Fan starts at 50% speed
- then fan speed increases with each degree C to -
35 degrees C: Fan at 100% speed

The fan stays on for 10 minutes after the internal temperature drops below 30 degrees

SwitchPack behaviour at power on:
All LEDs set On for 1 second
Fan set On at 100% for 1 second
All Channels set Off for 1 second

SwitchPack behaviour 1 second after power on:
DMX LED shows DMX state
Phase ABC LEDs show power state
Temp LED shows temperature state
On/Off/DMX mode restored to the original settings before power off
DMX security mode restored to the original settings before power off
Keyboard enable/disable state restored to the settings before power off

Note: if power goes off before the 5 minutes timeout of Parameter Save above, the new settings will be lost.

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