

Strand Lighting

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Introduction

Strand Lighting Act6+ and Act3+ dimmer packs are compact, portable dimming units, designed for use in conjunction with lighting control consoles.

The basic Act6+ and Act3+ dimmer packs accept analogue (wire-per-dimmer) control inputs. The Multimux versions also accept DMX512 multiplexed digital, and D54 multiplexed analogue, control signals.

A basic dimmer pack may be upgraded to the Multimux version by adding a Multimux Module (catalogue number 76030).

Specifications

Power Requirements

Voltage 194 - 264 Volts AC.
Frequency 48 - 62 Hz.

Three phase + Neutral + Earth, or single phase + Neutral + Earth when phase link bar fitted.

Dimming Capacity

Act6+

Each pack contains six dimmers with two socket outlets per dimmer.

Maximum load 10A per dimmer - total 60A per dimmer pack.

[Resistive (tungsten) lamps loads only]

Minimum load 60W per dimmer.

Act3+

Each pack contains three dimmers with one socket outlet per dimmer.

Maximum load 20A per dimmer - total 60A per dimmer pack.

Loads may be resistive, or inductive - to a power factor of +0.5

Minimum load 250W per dimmer.

Control Inputs

Analogue 0V to -10V, or 0V to +10V, via 8 pin locking DIN connector.

USITT DMX512(1990) multiplexed digital control, via 5 pin XLR connector.

Strand Lighting D54 multiplexed analogue control, via 3 pin XLR connector.

(Multiplexed control inputs are only available when the optional Multimux Module is fitted).

Dimmer Test switches - switch any dimmer to a preset level.

Dimmer Output Connections

Act6+

Act6+ packs are available with a variety of socket outlets to suit different operating conditions and national standards. A version without sockets is also available. This version includes a removable panel which may be used for mounting outlets of any suitable type.

Act3+

Act3+ packs are fitted with a single phase 32A CEE17 socket outlet per dimmer.

Slave Output (Act3+ only)

Analogue 0V to +10V, with series diode and 1K Ω resistor, via 8 pin locking DIN connector.

(The Slave Output corresponds to control input circuits 4 to 6).

Power Supply Output

-14.5V DC via analogue control input connector.

[Intended for providing power to Strand Lighting LX control systems, or similar lighting control systems]

Maximum current - 100mA.

Physical Dimensions (unpacked)

Height	188mm.
Width	483mm.
Depth	280mm. (on Act3+ the output sockets protrude by 12mm).
Weight	10Kg (approximately)

Environment (Operating)

Temperature	0°C - 35°C
Relative humidity	0% - 90%
Condensation level	Zero

Act6+ and Act3+ packs are suitable only for use in a dry, internal environment.

Protection Classification IP30 (IEC529)

Installation



Warning

Hazardous voltages are used in Act6+ and Act3+ dimmer packs. Ensure that the mains supply is disconnected before opening the equipment for installation or servicing.

Dimmer packs should be installed and serviced only by suitably qualified personnel.

Act6+ and Act3+ dimmers may be installed in three manners:

- As free standing units (for temporary installations),
- Mounted on a wall (for permanent installations) - refer also to pages 6 and 12,
- Several packs mounted together in a rack (for hire or touring purposes).

Installation Notes

In order to enhance the reliability of the dimmers, it is recommended that they are operated within the following environmental limits:

Temperature	15°C - 25°C
Relative Humidity	60% - 80%
Condensation level	Zero

For absolute environmental limits, please refer to the Specifications section.

Act6+ and Act3+ dimmers are designed such that Earth leakage currents are minimised, allowing their use on mains power supplies protected by 30mA Residual Current Devices.

However, it should be noted that utilising RCD protection in dimming installations may present problems. Further information is available, as Marketing Fact Sheet number 2, from Strand Lighting if required.

The dimmers may emit a slight buzzing noise when in operation. They should be installed away from areas where such noise would be undesirable.

The physical dimensions of an Act6+ dimmer pack are shown in Figure 1. The dimensions of an Act3+ dimmer pack are identical (except for the overall depth as detailed).

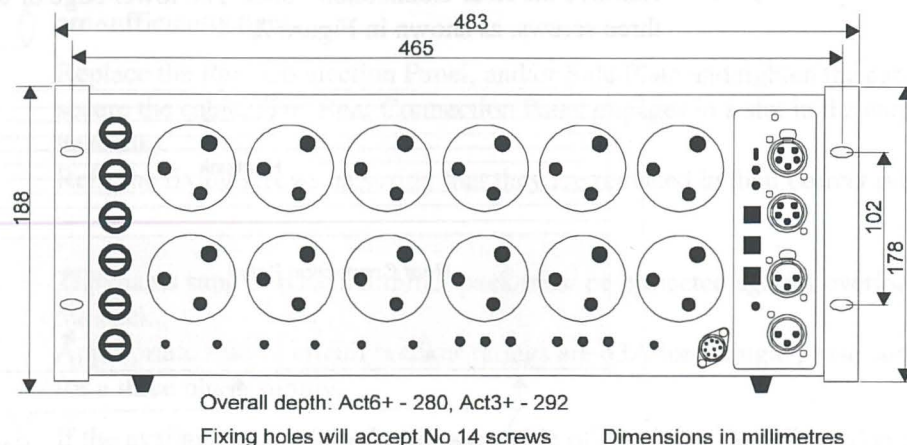


Figure 1. - Physical Dimensions

Mains Power Input Connections



Warning

Act6+ and Act3+ dimmer packs require a nominal mains input at 220/240V 50Hz AC. This supply may be either single or three phase (star only), depending on the method of connection. In either case separate Neutral and Earth conductors are required.

Act6+ and Act3+ dimmer packs must be Earthed for safety in operation.

In all cases, the Neutral conductor must have the same (or greater) rating, and cross-sectional area, as the Phase conductor(s). (Triac and thyristor dimmers operate using 'phase control', which renders the 'balancing' of loads across phases - and thus a reduction in Neutral currents - impossible).

Act6+ and Act3+ dimmer packs should be connected to their mains supplies via adequately rated plugs and sockets. Power input connectors must be rated at 60A (or more) for single phase operation, or 20A (or more) for three phase operation. These ratings may only be reduced if the devices protecting the mains supply are selected to limit the current drawn to the rating of the connectors. A recommended connector type is CEE17 / BS4343.

It is strongly recommended that the mains supply to the dimmers is taken via a local isolating switch, so that the supply may be easily disconnected for plugging and unplugging of load connectors, the replacement of fuses, and for service or maintenance.

All cables and protection equipment must be selected and installed in accordance with locally prevailing electrical regulations.

Cable Access

The mains input cable will enter the pack either via a Rear Connection Panel, or via one of the Side Plates - depending on the manner in which the pack is to be mounted: For wall mounting, side cable entry must be used, For rack mounting, rear cable entry must be used, For free standing, either side or rear cable entry may be used, although the rear cable entry is recommended.

Rear Cable Entry

Remove the Rear Connection Panel. The lower edge of this is secured to the base by three screws, as shown in Figure 2.

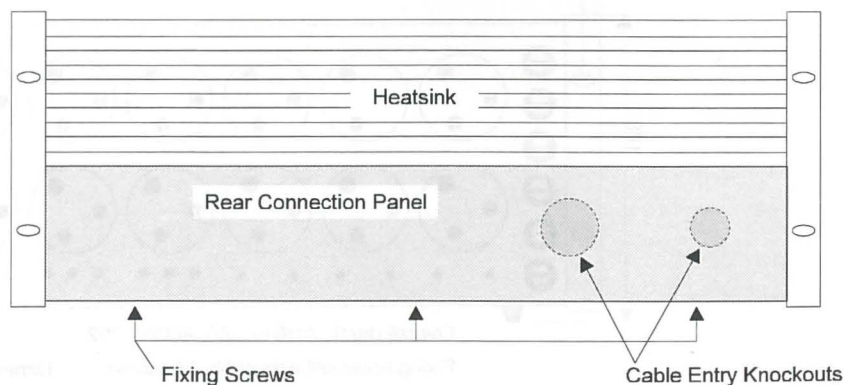


Figure 2. - Rear Connection Panel

Knockouts of 25mm and 32mm diameter are provided in the Panel to permit the mains cable to pass through. One of these should be removed and the hole fitted with a cable gland of the correct size.

Side Cable Entry

The use of the right hand cable entry hole (as viewed from the front of the pack) is not recommended, and when the Multimux Module is fitted, is not possible.

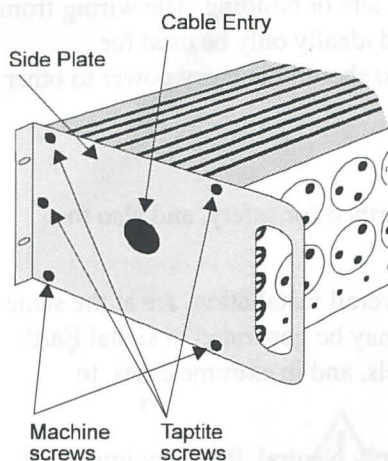


Figure 3. - Left Side Plate

Remove the selected Side Plate (secured to the pack chassis by two 'short' machine screws and to the heatsink by three Taptite screws as indicated in Figure 3).

A 32mm diameter cable entry hole is provided in each Side Plate. Remove the blanking plug from its hole, and fit a cable gland of the correct size.

Also remove the Rear Connection Panel, to allow access to the mains connection points.

The mains input is connected via a set of screw terminals, situated inside the pack, at the rear, towards the right hand side (looking from the rear of the pack). The terminals will accept cables of up to 16 mm² in size. If it is required to connect an Act6+ dimmer pack to a single phase supply, the link bar supplied with the pack should be used to join the three phase terminals together, as shown in Figure 4.



Do NOT fit the link bar when the pack is connected to a three phase supply.

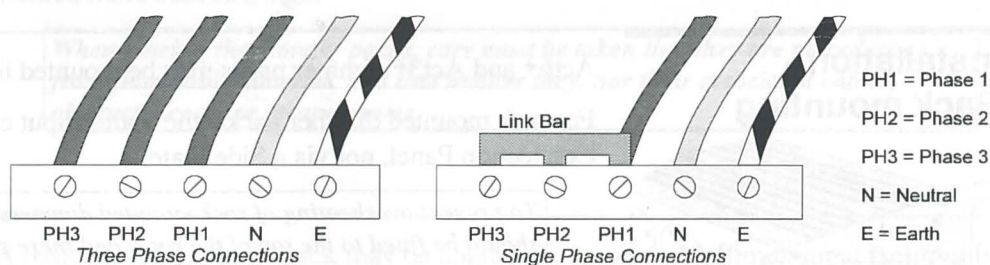


Figure 4. - Mains Connections

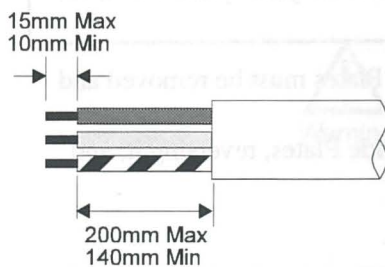


Figure 5. - Mains Cable Preparation

Prepare the cable for connection, by stripping back the insulation as shown in Figure 5, and pass it through the cable gland.

Connect the cable ends to the appropriate terminals, ensuring that the retaining screws are sufficiently tight.

Replace the Rear Connection Panel, and/or Side Plate and tighten the cable gland to secure the cable. (The Rear Connection Panel engages in a slot in the extruded heatsink).

Refit the fixing screws, ensuring that they are replaced in their correct positions.

Protection

The mains supply to each dimmer pack must be protected against overload, external to the pack.

Appropriate fuse or circuit breaker ratings are 63A for a single phase supply, and 20A for a three phase supply.

If the available mains supply is not capable of providing the full rated currents, the protection device rating must be reduced accordingly. It must then be noted that it will not be possible to use the dimmers with their maximum rated loads.

Protection systems on the supply to each dimmer pack should limit the potential fault current level to 1500A, or less.

Power Distribution

In order to achieve correct Earthing, and mains power distribution, it is recommended that all dimmers and lighting control equipment within the installation should draw their mains power from one central distribution point. Preferably, this point should be as close as possible to the mains power intake for the site or building. The wiring from the distribution point to the lighting equipment should ideally only be used for supplying power to that lighting equipment alone, and should not carry power to other appliances or equipment.

Earthing

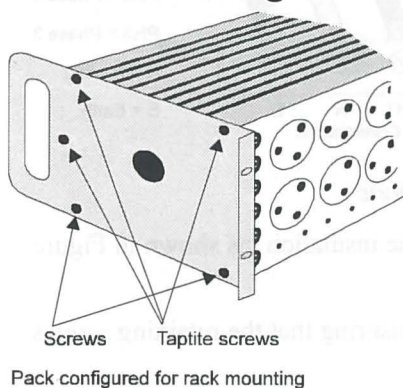
Act6+ and Act3+ dimmer packs must be properly Earthed for safety, and also to ensure correct operation.

It is essential that all Earth connections, within the overall installation, are at the same potential. If this is not the case, circulating currents may be generated in signal Earth connections, possibly leading to fluctuating light levels, and in extreme cases, to damage to wiring or equipment.

In a situation where the Earth is provided via the supply Neutral, it is very important that the control console and dimmers are powered from one central point. This should be the point at which the equipment Earths are connected to the supply Neutral, and to Earth itself.

If in doubt, please consult a Strand Lighting office, or an approved Service Provider.

Installation - Rack mounting



Act6+ and Act3+ dimmer packs may be mounted in a standard 'nineteen inch' rack.

For rack mounted dimmer packs, the mains input cable must pass via the Rear Connection Panel, not via a Side Plate.

To prevent overheating of rack mounted dimmers when in use, a fan, or set of fans, should be fitted to the top of the rack, and there should be a gap of about 10mm between adjacent packs to allow the flow of cooling air.

To ensure adequate cooling, the fan(s) should provide an airflow of about 16 litres per second across the top of each dimmer pack.

Before a dimmer pack may be rack mounted, the Side Plates must be removed and refitted with the mounting holes at the front.

This is achieved by removing one (either) of the two Side Plates, reversing it, and refitting it. (refer Figure 6.)

The other Side Plate should then be similarly reversed.

Do not remove both Side Plates at once, and take care not to trap any internal wiring as the Side Plates are re-fitted.

If required for a correct fit in the rack, the four feet may be unscrewed from the base of the pack.

When fixing the packs into the rack, leave a 10mm gap between adjacent packs to allow ventilation. (Mounting the packs on 178mm centres will give the correct spacing).

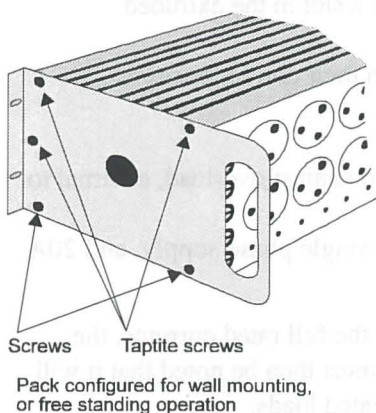


Figure 6. - Mounting Options

Installation - Wall mounting

Wall mounted Act6+ and Act3+ dimmer packs may be located one above the other, provided that a space of at least 150mm is left between each pack.

For wall mounted dimmer packs, the mains input cable must pass via one of the Side Plates (only the left hand end may be used in a pack with a Multimux Module).

The wall onto which the packs are to be mounted must be flat. If it is not, mounting rails or a sub-panel must be used between the wall and the dimmer packs.

If mounting directly onto a wall, this should be drilled and plugged to accept No. 14 screws.

The horizontal pitch of the fixing holes is 465mm, and the vertical pitch is 102mm. The packs should be supported whilst they are fixed in position.

After fixing, the packs should be checked to ensure that they are firmly and safely mounted.



Warning

As with all electrical installations, Act6+ and Act3+ dimmer packs should be mounted on an incombustible surface away from flammable items.

Installation - Free Standing

Free standing Act6+ and Act3+ dimmer packs may be stacked one on top of each other to save floor space. However, to ensure adequate cooling airflow, they should **not** be stacked more than two high.



Warning

When placing the dimmer packs, care must be taken that they are placed away from flammable material, and that neither they, nor their associated cables, obstruct access or escape routes.

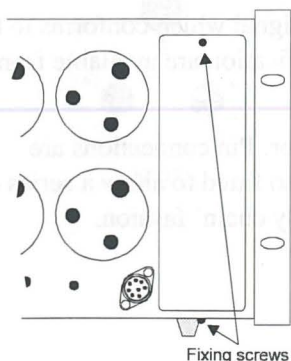
Installing the Multimux Module

A basic Act6+ or Act3+ pack may be upgraded to provide Multimux input facilities by the addition of a Multimux Module.



Warning

Before fitting the Multimux Module, disconnect the dimmer pack from its source of mains power.



Fixing screws

Figure 7. - Blanking Panel

The module fits into a space at the right hand end of the pack. In basic packs this space is covered by a blanking plate.

The blanking plate is retained by two screws, as shown in Figure 7. Remove these screws to allow removal of the plate.

Withdraw the blanking panel. Note that a cable is attached to the retaining bracket for the blanking panel by an adhesive pad. Gently pull this cable away from the pad.

Plug the cable onto the 10 pin connector at the rear of the circuit board in the Multimux Module, noting that the connector only fits in one orientation.

Taking care not to damage any wiring, slide the Multimux Module into the pack.

Fit the front top fixing screw, and 2 screws to retain the bottom of the module.

Connections

Control Connections

Figure 13 in the Operation section shows the front panel layouts and the location of the control connectors.

Analogue Input

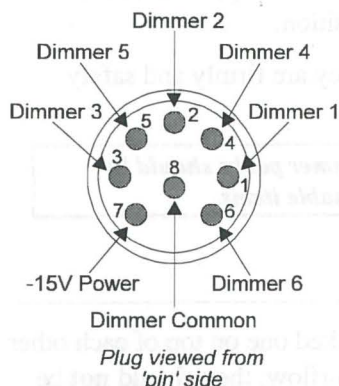


Figure 8. - Analogue Input Connections

The analogue control (wire-per-dimmer) input will accept either positive or negative control signals without the need for adjustment. The control signals must be within the ranges 0V (off) to +10V (full on), or 0V (off) to -10V (full on), with the control voltages being fed via a diode and a resistor (usually 10K Ω for -10V, and 1K Ω for +10V). These additional components are normally included in control systems and demultiplex units supplied by Strand Lighting.

The control input is via an eight pin 'DIN' socket on the front of the pack. Connector pin connections are shown in Figure 8.

The connector is of the 'locking ring' type; cables with the appropriate mating plugs may be obtained from Strand Lighting.

Other styles of 'DIN' plugs will mate with the connectors on Act6+ and Act3+, but the locking mechanisms may not function.

Slave Output (Act3+ only)

The Slave Output connection allows the control signals for dimmers 4, 5, and 6 from a Multimax Module (or the analogue control input) to be connected to a second Act3+ dimmer pack. This allows one Multimax Module (or analogue control cable) to be 'shared' between two Act3+ dimmer packs. The connections are as shown in Figure 8, with the exception that pins 4, 5, 6, and 7 are not connected.

The Slave Output from the 'master' dimmer pack should be connected to the Analogue Input of the 'slave' dimmer pack, via a short control cable. This control cable should be wired '1 to 1'. Suitable cables may be obtained from Strand Lighting.

Multiplexed Inputs

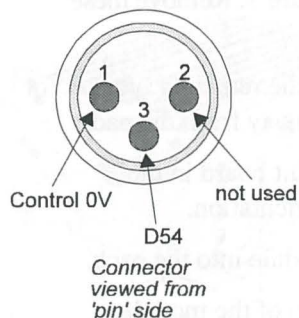


Figure 9. - D54 Input Connections

D54 Control

The D54 input will accept a multiplexed analogue control signal which conforms to the Strand Lighting specification for D54. Details of this specification are available from Strand Lighting on request.

The control input is via a three pin male XLR type connector. Pin connections are shown in Figure 9. A three pin female XLR connector is also fitted to allow a series of Act6+ and/or Act3+ packs to be connected together in 'daisy chain' fashion.

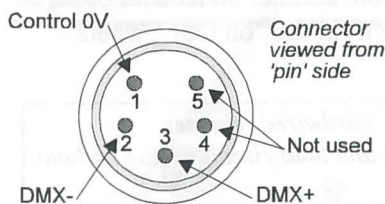


Figure 10. - DMX512 Input Connections

DMX512 Control

The DMX512 input will accept a multiplexed digital control signal which conforms to USITT specification DMX512 (1990). Details of this specification are available from USITT on request.

The control input is via a five pin male XLR type connector. Pin connections are shown in Figure 10. A five pin female XLR connector is also fitted to allow a series of Act6+ and/or Act3+ packs to be connected together in 'daisy chain' fashion.

It is recommended that Control connections are not plugged or unplugged when power is applied to the dimmer pack as this may cause any connected loads to flash up momentarily.

Termination

For correct operation of a dimming installation using DMX512, it is important to terminate the end of the DMX control line. A termination facility is included on the Multimux Module. The **TERM.** switch on the 'last' rack on the control line should be switched to the down position to apply the termination.

*The **TERM.** switch on all packs other than the last one on the control line must be set in the up (off) position - if more than one pack applies termination, the installation may not operate correctly.*

An LED indicator under the **TERM.** switch indicates, when illuminated, that the pack is applying DMX512 line termination.

Dimmer Outputs

Act6+

Dimmer output connections, on all styles of Act6+ dimmer packs (except the 'blank' version) are by means of two socket outlets, connected in parallel, per dimmer.

When operating from a three phase supply, dimmers 1 and 2 are connected to phase 1, dimmers 3 and 4 to phase 2, and dimmers 5 and 6 to phase 3.

Plug tops used for dimmer output connections must be of the correct type to match the socket outlets.

It is important that plugs are wired correctly. Figure 11 shows the various types of socket outlets fitted to Act6+ dimmer packs.

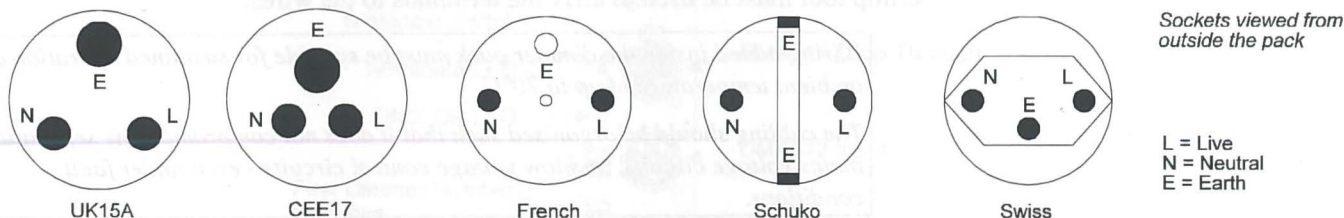


Figure 11. - Outlet Socket Connections

Act3+

Dimmer output connections on Act3+ dimmer packs are by means of a single CEE17 socket outlet per dimmer. Connections are as shown for CEE17 in Figure 11.

When operating from a three phase supply, dimmer 1 is connected to phase 1, dimmer 2 to phase 2, and dimmer 3 to phase 3.

Dimmer Outlets - Blank Packs

The 'blank' Act6+ pack allows the fitting of any suitable dimmer outlet connector(s). This may be appropriate for certain uses, eg. equipment for use 'on tour', where multi-pin connectors are often desirable.

The 'blank' Act6+ pack is not intended for use as a 'hardwired' dimmer. ie. it should not be connected directly to power inlet and load circuit wiring without the use of plug and socket connectors.

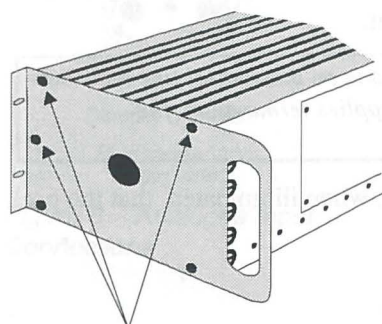


Warning

The fitting of outlet connectors to a blank Act6+ pack must be carried out by a suitably qualified electrician or electrical engineer.

Connectors for use with Act6+ dimmer packs must be rated to carry at least 10A at 240V AC. (415V AC for 3 phase).

The use of 'common' Neutral pins within multi-pin connectors is not recommended, and if common Earth pins are used, all the Earth pins in every connector must be joined together.



Remove these fixing screws only
(on each end)

End Plates will be
reversed if pack is
configured for rack
mounting

Figure 12. - Heatsink Fixing
Screws

Remove the three screws on each side (Refer Figure 12) which retain the heatsink assembly in place.

Lift off the heatsink assembly and place it on its back behind the pack, taking care not to damage or disconnect any of the internal wiring.

Remove the screws which retain the blank plate into the pack front panel, and gently withdraw the blank panel. Remove the nut which holds the panel Earth connection and release the connection. Take care not to lose the nut, or the two shake-proof washers.

Drill or punch appropriate holes into the blank panel to allow the chosen connector(s) to be fitted. Fit the connector(s) into the panel.

Connect the dimmers to the connector(s), using stranded cable of at least 1.5mm² in size.

The six dimmer output 'Live' connections are wired to a terminal block, positioned inside the pack, on the left side of the front panel. The terminal block is numbered to correspond to the dimmer numbers.

Connect Neutral and Earth wires from the outlet connector(s) to the mains input terminal bars. (Connections to the Neutral bar are made using crimp 6.3mm 'push-on' terminals, and connections to the Earth bar are made using M4 'ring crimp' terminals screw fixed to the bar).

The pack is supplied with a set of terminals attached to the terminal bars. These terminals are suitable for wire sized between 1.5mm² and 2.5mm². The correct type of crimp tool must be used to affix the terminals to the wires.

Wiring added inside the dimmer pack must be suitable for sustained operation at an ambient temperature of up to 70°C.

The cabling should be organised such that it does not compromise the separation of mains voltage circuits, and low voltage control circuits - even under fault conditions.

Connect a mains input cable into the pack as appropriate to the chosen mounting method.

Re-connect the Earth wire to the blank panel, before re-assembling the pack.

Operation

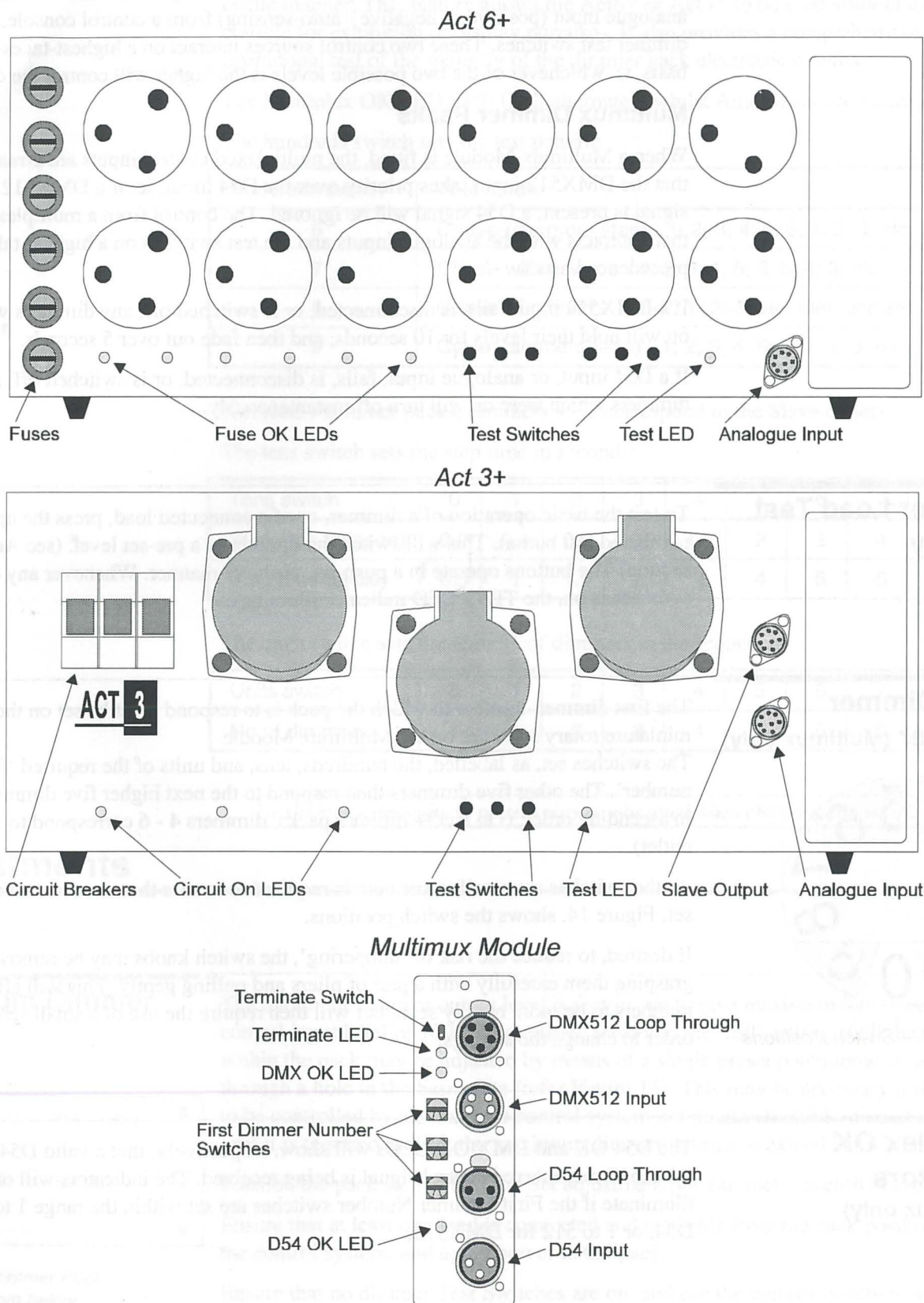


Figure 13. - Front Panel Layout

Dimmer Control

Basic Dimmer Packs

On a basic Act6+ or Act3+ dimmer pack there are two possible control sources: the analogue input (positive or negative - auto-sensing) from a control console, and the dimmer test switches. These two control sources interact on a highest-takes-precedence basis. ie. whichever of the two possible levels is the higher will control the dimmer.

Multimux Dimmer Packs

When a Multimux Module is fitted, the multiplexed control inputs are arranged such that the DMX512 input takes priority over the D54 input. ie. if a DMX512 control signal is present, a D54 signal will be ignored. The control from a multiplexed signal then interacts with the analogue inputs and the test switches on a highest-takes-precedence basis.

If a DMX512 input fails, is disconnected, or is switched off, any dimmers which were on will hold their levels for 10 seconds, and then fade out over 5 seconds.

If a D54 input, or analogue input, fails, is disconnected, or is switched off, any dimmers which were on will turn off instantaneously.

Dimmer Load Test Facility

To test the basic operation of a dimmer, or of a connected load, press the appropriate numbered test button. This will switch the dimmer to a pre-set level. (see Adjustments section) The buttons operate in a push-on, push-off manner. Whenever any one of the switches is on, the TEST LED indicator illuminates.

First Dimmer Number (Multimux only)

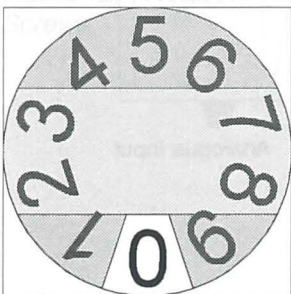


Figure 14. - Switch Positions

The first dimmer number to which the pack is to respond must be set on the three miniature rotary switches on the Multimux Module.

The switches set, as labelled, the hundreds, tens, and units of the required 'first dimmer number'. The other five dimmers then respond to the next higher five dimmer numbers, in ascending order. (On Act3+ dimmer packs, dimmers 4 - 6 correspond to the Slave outlet).

As the switches are small, some care is required to ensure that the correct numbers are set. Figure 14. shows the switch positions.

If desired, to reduce the risk of 'tampering', the switch knobs may be removed by grasping them carefully with a pair of pliers and pulling gently. This will allow the numbers to be more readily seen, but will then require the use of a small screwdriver in order to change the settings.

Multiplex OK Indicators (Multimux only)

The D54 OK and DMX OK LEDs will show, respectively, that a valid D54 or DMX512 multiplexed control signal is being received. The indicators will only illuminate if the First Dimmer Number switches are set within the range 1 to 384 for D54, or 1 to 512 for DMX512.

Auto Sequence Mode (Multimux only)

If the First Dimmer Number switches are set to numbers in the 600 - 999 range, the Multimux Module will automatically switch or fade the dimmers up and down in a cyclic manner. This feature allows the Act6+ or Act3+ to be used without a control console for exhibition or display purposes. It also provides a comprehensive operational test of the majority of the dimmer pack electronic circuits.

The Multiplex OK LEDs will flash alternately whilst Auto Sequence mode is active.

The hundreds switch sets the test pattern:

Hundreds switch	Test mode
6	Chase (dimmers step) - 1; 2; 3; 4; 5; 6; 1; 2; 3; etc.
7	Chase with bounce - 1; 2; 3; 4; 5; 6; 5; 4; 3; etc.
8	Chase with build - 1; 1+2; 1+2+3; etc. then unbuild
9	Cycle (dimmers fade) - 1; 2; 3; 4; 5; 6; 1; 2; 3; etc.

(On Act3+ dimmer packs, dimmers 4 - 6 correspond to the Slave outlet).

The tens switch sets the step time in seconds:

Tens switch	0	1	2	3	4	5	6	7	8	9
Step time (chases)	0.2	0.4	0.6	1	1.5	2	3	4	5	6
Step time (cycle)	0.5	1	1.5	2	3	4	5	6	8	10

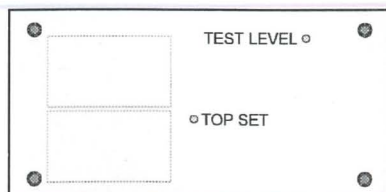
The units switch sets the number of dimmers in the sequence:

Units switch	0	1	2	3	4	5	6	7	8	9
No of dimmers	1	1	2	3	4	5	6	6	6	6

A slight discontinuity in pattern may be observed when changing the switch settings.

Adjustments

Maximum Dimmer Level



Base of Dimmer Pack
viewed from below

Figure 15. - Adjustment
Potentiometer Access Hole
Positions

The maximum dimmer output level is factory set to give maximum light levels for a control input level of 100%. If required, however, the 'full' setting of all the dimmers within the pack may be adjusted by means of a single preset potentiometer, accessible through a hole in the base plate (refer Figure 15). This may be necessary if the pack is to be controlled by an analogue control system not manufactured by Strand Lighting, or if it is required to limit the maximum dimmer outputs to extend lamp life.

Position the pack so that the Top Set adjustment potentiometer is easily accessible.

Ensure that at least one load is connected and is visible from the pack position, connect the control system, and apply power to the pack.

Ensure that no dimmer Test Switches are on, and use the control system to set a dimmer (with a load) to full level.

Using a small, **insulated** preset adjustment tool, turn the Top Set potentiometer clockwise until the light output begins to fall.

Turn the potentiometer anti-clockwise until the light output just reaches full, or the desired maximum level.

Return the pack to its normal location and operational state.

Test Level

The level to which dimmers are driven by the Test Switches is factory set to approximately 70% of full level. If required this level may be altered (between approximately 40% and 85%) by means of a single preset potentiometer, accessible through a hole in the base plate. (refer Figure 15).

Position the pack so that the Test Level adjustment potentiometer is easily accessible.

Ensure that at least one load is connected and is visible from the pack position, and apply power to the pack.

Press the Test Switch on a dimmer (with a load) so that it is on.

Using a small, **insulated** preset adjustment tool, turn the Test Level potentiometer until the required test level is observed at the load. (The potentiometer must be turned anti-clockwise to increase the level).

Return the pack to its normal location and operational state.

Accessories and Spare Parts

For information regarding accessories and spare parts for use with Act6+ and Act3+ dimmer packs, please contact a Strand Lighting office or an approved Dealer or Service Provider.

A list of dealers and Service Providers is available, on request, from Strand Lighting offices.

Service and Maintenance

Act6+ and Act3+ dimmer packs do not require routine maintenance other than external cleaning. However, in common with all electrical equipment, they should be periodically checked to ensure that they remain in good condition. Any repairs or maintenance to the internal electronics, or other circuitry, should only be carried out by authorised Strand Lighting Service personnel, or approved Service Providers.

Safety Tests

Act6+ and Act3+ dimmer packs are subjected to safety inspections and tests prior to despatch from the Strand Lighting factory.

If, as part of routine checks, the packs are to be subjected to electrical safety tests, applied using a 'standard' Portable Appliance Tester, the following points should be observed:

The nature of the electronic dimmer circuits means that an 'insulation test' using a voltage in the order of 500V will give a result of approximately 1.7M Ω . Although this may *appear* as a test failure, the apparently low resistance is normal for an Act6+ or Act3+ dimmer pack, and is *not* due to failing insulation. **User safety is not at risk.** (Any reading below 1.5M Ω indicates a problem which must be investigated).



Caution

A high voltage 'Flash' test must not be applied to an Act6+ or Act3+ dimmer pack.

A high current Earth continuity test must not be applied to the signal ground pins of the control input connector(s).

Self Tests

When power is applied to a Multimux Act6+ or Act3+ pack, the Processor in the Multimux Module (if fitted) runs a short series of tests. Whilst the tests are running, the DMX OK and D54 OK LEDs will both illuminate. In the unlikely event that one of the tests discovers an error, the DMX OK and D54 OK LEDs will flash together for a number of times, and then pause before repeating the flash sequence.

The number of flashes indicates the nature of the problem, and should be noted so that a Service Provider is more readily able to provide assistance in curing the problem. After repeating the flash pattern, the processor will attempt to operate normally.

Circuit Protection

Act6+

Act6+ outputs are protected individually by fuses. These fuses also serve to protect the dimmer electronics from overload.

On all versions of Act6+ dimmer packs the fuse type is 10A 32x6.3mm, HRC Quick acting (F), 250V.



If a fuse fails, investigate and correct the cause of the failure before replacing the fuse.

Always switch off the supply to the pack before replacing fuses.

Do NOT use fuses of types other than that specified.

Act3+

Act3+ outputs and dimmer electronics are protected by resettable circuit breakers.



If a circuit breaker trips, investigate and correct the cause of the problem before resetting the circuit breaker.

The internal dimmer control circuits of Act6+ and Act3+ are protected by a self resetting thermal fuse.