Operator's Guide
SLD Series Dimmer Rack

Strand Part # 75600A, 75600A/CE, 75620A, and 75620A/CE

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Prefix

Thank you for choosing Strand Lighting SLD series dimmer racks. We trust that the equipment will meet all your dimming needs and will provide you with reliable service for many years.

Strand Lighting can assure you that every effort has been made to ensure that the equipment has been designed to meet the highest professional standards and that dimmer racks and their components have been assembled, inspected, and tested in accordance with our strict quality assurance program.

SLD series dimmer racks also comply with the requirements of UL, cUL, CE, and TUV.

Should you encounter any problems or difficulties with your dimmer racks, please contact the nearest Strand Lighting service representative. For a complete list of Strand Lighting offices and service centers, see the back of this manual or our Web site (**www.strandlighting.com**).

This manual describes the operation of for SLD series dimmer racks. A separate Installation Guide provided with the dimmer racks describes how to install the dimmer racks and perform initial setup procedures.

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Definition of Terms

This manual uses the following terms throughout:

channel A device controlling a dimmer or group of dimmers. Historically, there is a physical controller (such as a slider) for each channel. On most current control systems, channels are numbers accessed by a numeric keypad. Each channel can control multiple dimmers.

circuit A connection device and wiring for powering a lighting fixture from a dimmer.

circuit ID A unique four-digit numeric identity which you can assign to each dimmer. The circuit ID may be the same as the dimmer number, or may be a number used to indicate circuit location, phase, channel number, etc. This feature is useful for system wide control and Reporter™ Pro functions.

crossfade A fade that contains both an up-fade and a down-fade, or any fade where the levels of one cue are replaced by the levels of another cue.

dimmer A device controlling power to a lighting fixture. Two lights on the same dimmer cannot be separately controlled.

default The original factory settings.

DMX A protocol used to transmit data (usually dimmer information) from a lighting controller to a dimmer rack using a single cable to control all dimmers rather than a pair of wires for each dimmer.

fade A gradual change in stage levels from one set of intensities (“look”) to another.

fade time The time it takes for dimmer levels to go from their current levels to the levels in the selected preset, or DMX value. Each preset has its own fade time.

level A numerical value used to express the “brightness” of the load on a dimmer. Usually shown as %.

Micro-control An analog architectural control system for use with SLD series dimmer racks.

Outlook A digital architectural control system for use with SLD dimmer racks.

patch Historically, the process of physically connecting circuits to dimmers. Now usually refers to electronic assignment of dimmers to channels.

phase The three phases of the mains supply to which the dimmers are connected. Usually identified as phase 1, phase 2, and phase 3 in Europe and as phase A, phase B, and phase C in the United States.

preset A pre-defined setup of intensities for a set of channels, stored in memory for later replay. For Outlook applications, the SLD series dimmer rack processor module stores 8 programmable presets per room for up to 16 rooms. For SWC applications, the processor module stores 99 programmable presets. Preset 0 (ZERO) is always a blackout.

profile The relationship between a control level and the actual dimmer output. Also known as ‘dimmer law‘ or ‘curve’.

rack number A number used to uniquely identify each dimmer rack in a multiple rack system. Rack numbers are set from the front panel of the rack processor module, and are usually set by the installation engineer.

Reporter There are two reporting products that can operate with SLD dimmer racks. Reporter Pro is a program that runs under Microsoft Windows and lets you set up certain Strand Lighting dimmer racks and cabinets (including SLD racks). The Reporter for Consoles software for Strand 300 and 500 series lighting control consoles lets you record and display the status of all lights and record rack-based backup cues.

room An area separately defined for purposes of architectural lighting control (e.g., Outlook control stations). This is usually a room in the traditional sense (an indoor enclosed area) or a portion of a room that can be partitioned off. Each room may be separately and simultaneously controlled by the system.

SSR (Solid State relay) A power control device used in Strand dimmers that contains two silicon control rectifiers (SCRs), control circuitry, and optical isolation circuitry.

SWC (System Wide Control) A method of programming and controlling more than one dimmer rack simultaneously. A hand held controller lets you program and recall 99 presets, and control individual dimmers.

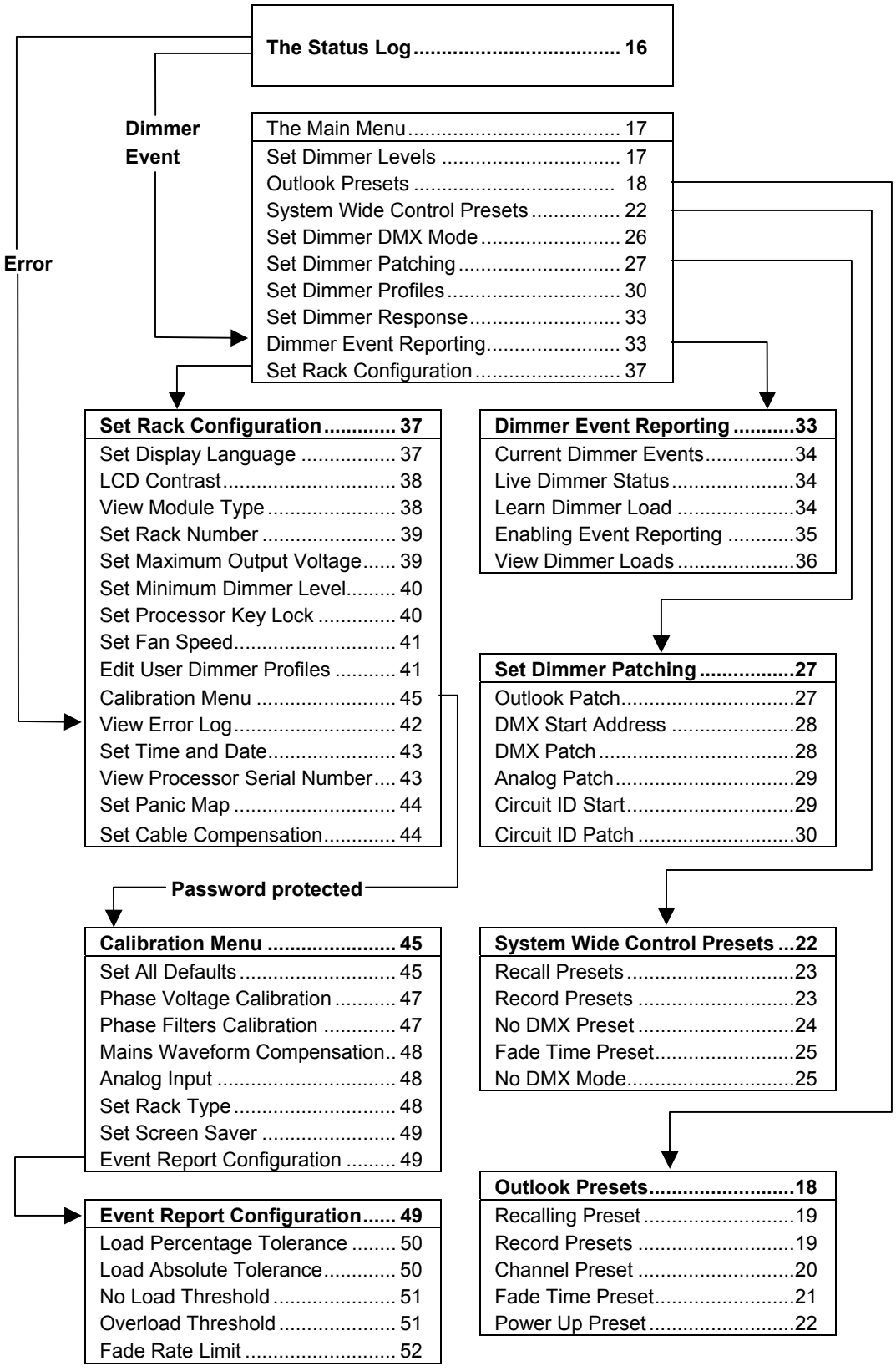
XCross The point in time when each individual phase passes through zero volts.

Contents

This manual describes the operation and setup of the dimmer rack. It does not contain information about installing the rack. See the separate *SLD Dimmer Rack Installation Manual* for detailed information concerning installation and wiring of the dimmer rack, then go to *Section 3 - Programming the SLD series Dimmer* Rack starting on page 15 in this manual for initial rack setup and, if necessary, see *Section 4 - Basic Troubleshooting* starting on page 53 of this manual.

Figures

Menu Structure



Section 1 - General

Summary Specification

Dimmer Rack

Capacity:	96-way rack: 48 Dimmer Modules (dual or single) 48-way rack: 24 Dimmer Modules (dual or single)
Supply:	90 to 264VAC, 3-phase, neutral + earth (Delta on request), 47 to 63 Hz
Max Current (per phase):	96-way rack: 800 amps (NA), 600 amps (Europe) 48-way rack: 400 amps (NA), 300 amps (Europe)
Dimensions:	96-way rack: Width 600mm (23.62 in), height 2050mm (80.70 in), depth 575mm (22.64 in) 48-way rack: Width 600mm (23.62 in), 1326mm (52.2 in), depth 575mm (22.64 in)
Weight:	96-way rack: 208 kg (459 lbs) empty and 344 kg (758 lbs) with all modules and electronics installed. 48-way rack: 137 kg (302 lbs) empty and 210 kg (463 lbs) with all modules and electronics installed.
Busbar Rating:	100,000 AIC
Control Circuit Isolation:	Optical isolation between high voltage and control electronics is 2500VAC. Control inputs are also isolated from the processor at 2500VAC, offering double optical isolation between the controller and high power circuits.
Storage Temp:	-40°C to 70°C
Operating Temp:	0°C to 35°C
Storage Humidity:	0% to 95% RH, non-condensing
Operating Humidity:	10% to 95% RH, non-condensing

Dimmer Modules

Rise time:	Standard choke: 500μs at 120V or 225μs at 230V Hi-Rise choke: 800μs at 120V or 350μs at 230V
Non-dim:	25A relay with no choke
RCD (GFCI):	Residual Current Device with circuit protection.
Circuit protection:	Appropriately sized fully magnetic circuit breaker of 10,000 AIC (15A, 20A, & 50A @ 120V) or 5000 AIC (15A, 25A & 50A @ 230V) fault current rating.
Output voltage:	Maximum full load voltage loss under normal operating conditions is 3 volts. Maximum output voltage for each dimmer can be limited through a software setting.
Load regulation:	Dimmers will maintain their output within +/- 1% of the set output with load changes from 1kW to the maximum rating of the dimmer.
Line compensation:	The system regulates dimmer outputs to within 1V over operating voltage range. Each dimmer is separately regulated.
Efficiency:	Minimum power efficiency for dimmers is 97% at full load. Maximum full load dimmer loss is 3V RMS. Contactor non-dim power efficiency is 99%.
DC component of output:	Less than 1 volt with tungsten loads from 60W to the maximum rating of the dimmer, at all control levels.
Input response time:	The response time (time between OFF and 100%) can be set to ‘Fast’ (30msec), ‘Medium’ (100ms), or ‘Slow’ (300ms). The default is medium (100ms).

Available Dimmer Modules

The following status reporting modules are currently available:

Description	Voltage	Type	Part #
15A Single Pole Dimmer		Dual	75700
15A Double Pole Dimmer		Dual	75701
15A Double Pole RCD Dimmer	230	Dual	75709
15A Single Pole Hi-Rise Dimmer		Dual	75702
15A Double Pole Hi-Rise Dimmer		Dual	75703
15A Double Pole Hi-Rise RCD Dimmer	230	Dual	75704
15A Single Pole Non-Dim Contactor	120	Dual	75745
15A Single Pole Non-Dim Contactor	230	Dual	75705
15A Double Pole Non-Dim Contactor	120	Dual	75746
15A Double Pole Non-Dim Contactor	230	Dual	75706
15A Double Pole Non-Dim Contactor RCD	230	Dual	75707
15A Single Pole Constant Voltage Module		Dual	75760
15A Double Pole Constant Voltage Module		Dual	75761
20A Single Pole Dimmer 120V	120	Dual	75710
20A Double Pole Dimmer 120V	120	Dual	75711
20A Single Pole Hi-Rise Dimmer	120	Dual	75712
20A Single Pole Non-Dim Contactor	120	Dual	75747
20A Double Pole Non-Dim Contactor	120	Dual	75748
20A Single Pole Constant Voltage Module	120	Dual	75763
20A Double Pole Constant Voltage Module	120	Dual	75764
5Kw Single Pole Dimmer	230	Dual	75720
5Kw Double Pole Dimmer	230	Dual	75721
5Kw Single Pole Hi-Rise Dimmer	230	Dual	75722
5Kw Double Pole Hi-Rise Dimmer	230	Dual	75723
5Kw Double Pole Hi-Rise RCD Dimmer	230	Dual	75724
5Kw Double Pole RCD Dimmer	230	Dual	75729
5Kw Single Pole Non-Dim Contactor	230	Dual	75725
5Kw Double Pole Non-Dim Contactor	230	Dual	75726
5Kw Double Pole Non-Dim Contactor RCD	230	Dual	75727
5Kw Single Pole Constant Voltage Module	230	Dual	74766
5Kw Double Pole Constant Voltage Module	230	Dual	74767
50A Single Pole Dimmer	120	Single	75730
10Kw Single Pole Dimmer	230	Single	75730/CE
50A Double Pole Dimmer	120	Single	75731
10Kw Double Pole Dimmer	230	Single	75731/CE
50A Single Pole Hi-Rise Dimmer	120	Single	75732
10Kw Single Pole Hi-Rise Dimmer	230	Single	75732/CE
50A Double Pole Hi-Rise Dimmer	120	Single	75733
10Kw Double Pole Hi-Rise Dimmer	230	Single	75733/CE
3Kw Fluorescent		Single	75775
3Kw Fluorescent RCD		Single	75766

Rack Components

SLD series dimmer racks are UL, cUL, CE, and TUV listed, freestanding units that can house up to 48 dual dimmer modules (96 dimmers), 48 single dimmer modules, or a combination of single and dual modules. Dimmer connectors in the rack are keyed so that higher amperage dimmer modules cannot be plugged into lower amperage slots.

The rack also houses a processor assembly containing a power supply module, an optional Ethernet module, and either one or two rack processor modules used to program and store the setup and preset data for each dimmer and to report on rack and load status to a console or remote PC. Forced-air cooling is provided by fan housings at the top and bottom of the rack.

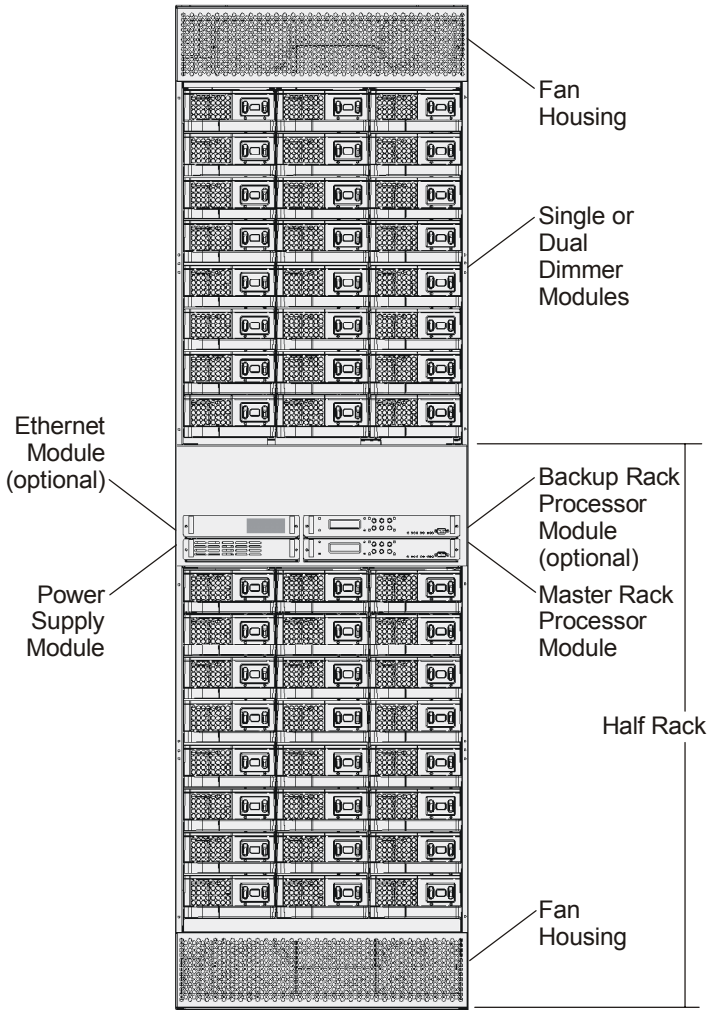


Figure 1 – SLD Series Dimmer Rack Fully Populated (doors removed)

Dimmer Modules

Dimmer modules can be easily inserted and removed from the dimmer rack and have the following protection.

- The mechanical arrangement of the rack and modules prevents the insertion of a module into a load termination connector corresponding to a smaller capacity.
- Dimmer module thyristor (SSR) drives are automatically turned off if the temperature exceeds a preset threshold.
- Each dimmer is protected by a fully magnetic circuit breaker of the appropriate current rating and rated for 100% switching duty. All circuit breakers are UL, cUL and CE recognized devices.

Solid State Relays (SSRs) are encapsulated units with isolated firing circuits and two silicon controlled rectifiers (SCRs). Isolation between power and control lines is 2.5kV.

SLD series dimmer modules are designed to provide the following performance characteristics:

- Capable of 'hot patching' cold, incandescent loads up to the full rated capacity with the control signal at full ON.
- The dimmer power efficiency is at least 97% at full load with a no load loss of 3V RMS for all dimmer modules.

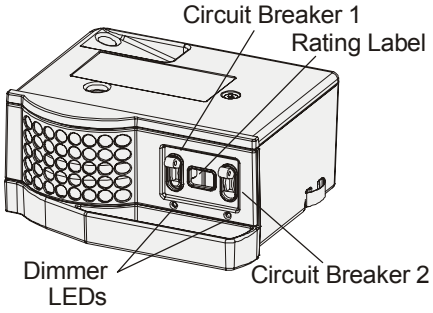


Figure 2 - Dual Dimmer Module

All SLD series dimmer modules, including contactor non-dims are load status reporting. Each dimmer reports a range of parameters to the rack processor module. The processor uses this information to create fault and diagnostic data used in the Dimmer Event Log.

Dimmer LEDs

A green status LED is located under each breaker on all dimmer modules. These LEDs perform a number of functions, as follows:

- **Luminaire Intensity**: The brightness of the LED represents the intensity of luminaires controlled by the dimmer output.
- **All LEDs Flashing**: The panic button has been pressed or the processor module has failed or is not fitted.
- **All LEDs on a Vertical Column Flashing**: Loss of AC supply to that column of dimmers.
- **Individual LEDs Flashing**: Dimmer overtemperature shutdown
- **LEDs Off**: Luminaire at 0% intensity.

Power Supply Unit

The Power Supply Unit supplies power to the cooling fans, Rack Processor Unit**s** and all low voltage electronic controls in the SLD series dimmer rack. It also supplies power to external Outlook and SWC wall stations, if used.

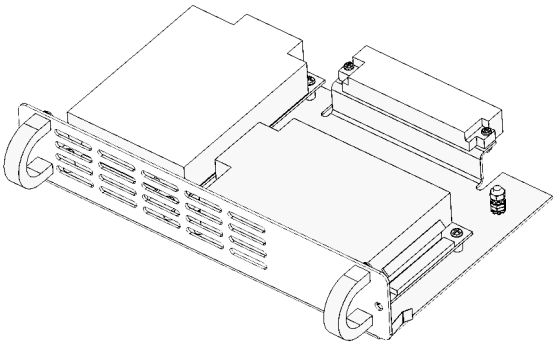


Figure 3 - Power Supply Module

Ethernet Module

The optional Ethernet module lets you include the rack in a Strand ShowNet network or other compatible Ethernet network.

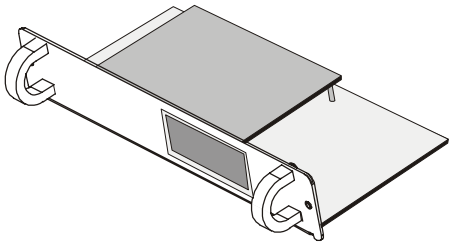


Figure 4 - Ethernet Module
Strand Part #75785

Rack Processor Module

The plug-in, fully digital, Rack Processor Module contains the main operator controls and displays comprising an LCD, associated menu keys and status LEDs.

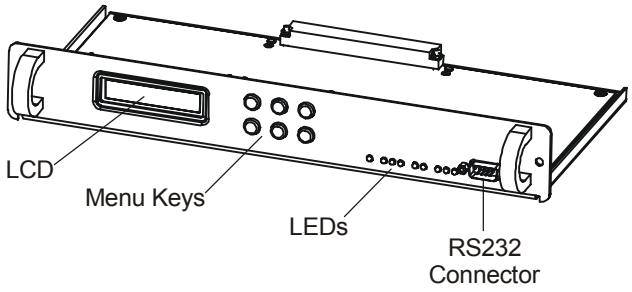


Figure 5 - Rack Processor Module

An optional second Rack Processor Module can be plugged into the processor assembly to provide full Redundant Tracking Backup (RTB). The backup processor automatically tracks all setup, preset and other commands of the main RPM and will automatically take over all communication and dimming controls if the main processor fails. If a backup processor is not specified, a blank plate is fitted.

Each Rack Processor Module has a 2-line x 16-character backlit LCD, menu keys to control menu functions and enter data, and nine LEDs that display the following conditions.

Normal Conditions (green LED)

- Active
- Phase 1
- Phase 2
- Phase 3
- DMX A
- DMX B

Abnormal Conditions (red LED)

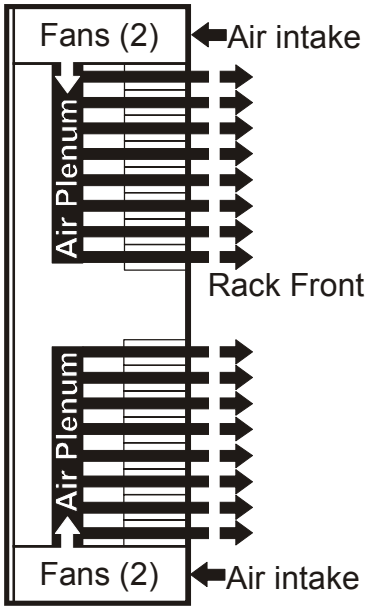
- Overtemperature
- Panic
- Module event

If Reporter Pro supervision is specified, your contractor will have wired a signal cable from the dimmer racks to a remote PC running Strand Lighting's Reporter Pro software. This will let you set up the rack remotely and monitor the status of all racks in your lighting system.

Alternatively, if you are using a Strand 300 or 500 series lighting control console with Reporter for Consoles installed, your console will report on the status of all dimmers in the SLD dimmer racks and will provide the facility to set up backup cues. See your console manual for Reporter for Consoles setup instructions.

An RS232 connector on the front of the rack processor module permits connection to a local PC for software upgrades. When using this connector, the Reporter Pro link from the rack to a remote PC is disabled.

Rack Ventilation



Adequate ventilation must be provided in order to maintain an ambient operating temperature of 0 to 35^{0}C and humidity of 10-90% non-condensing. Special attention should be paid to maintaining ambient temperature within these limits when racks are located in a small room.

Air flow is from the top and bottom of the rack, as shown in the diagram, supplied to an air plenum at the rear of the rack, by two axial fans and exhausted through the vents in the front of each dimmer module.

Removal of a dimmer module will affect the pressurization of the air plenum at the rear of the rack. Removed modules should be either replaced with spare modules or the slots filled with a filler module (Part No. 75780).

The optional status reporting software will report the current fan speed setting (Fan Fixed or Fan Variable). Overtemperature conditions are also indicated locally at the rack processor module by means of a warning LED. If the fan speed is set to Variable, an overtemperature condition will automatically set all fans to full on until the module temperature reduces below the threshold.

The fixed speed fan setting is for situations where changes in ambient noise are a problem. With this setting, the fans are always on full when the dimmer rack is on.

The variable speed fan setting minimizes noise and maximizes fan life. With this setting, the fan speed is automatically adjusted to ensure that the fans provide cooling to the rack only when required. Increases in fan speed take 1 minute with this setting, while decreases in fan speed take 10 minutes. Fans are automatically turned off when no dimmers are in use.

Note: *Activation of a Panic button, or Automatic Panic, (link LK8 on Termination Board set to Automatic Panic and the Processor Module**s** removed) will automatically set the cooling fans to full speed continuously.*

Section 2 - Operational Features

Rack Configuration

The following configuration items are usually programmed during commissioning, but can also be reprogrammed by the user.

- Processor module display is set to English, French, German, or Russian.
- Rack number (1-999). This number is used by the status reporting software.
- Panic selection and configuration
- Maximum output voltage (per dimmer): 20-250 volts (e.g. set to 105V for extended lamp life).
- Minimum level (per dimmer): 0% - 100% (e.g. set to 10% for aisle lights or large lamp preheat).
- Room and channel Patching (for applications using Outlook)
- Each dimmer can be patched to any valid DMX512 address number for the standard input A (DMX A) or input B (DMX B)
- Circuit ID—used by SWC and status reporting software.
- Record and recall presets (1-8, ON and OFF per room for Outlook control, and 0-99 per rack for System Wide Control).
- Define Preset Number or “Hold” condition on DMX failure.
- Define power-up preset per rack for Outlook architectural presets.
- Set LCD contrast.
- Error log accessible from the processor module or status reporting software.
- Individual dimmer reporting enable/disable.

Dimmer Configuration

Since the control electronics for all dimmers is in the processor module, several configuration items traditionally associated with the dimmer module can be set from the processor module front panel.

- The output response profile can be set to Linear, Square, S-Curve, Fluo-Electric (for electronic fluorescent ballasts), Fluo-Magnetic (for magnetic fluorescent ballasts), and Non-Dim. The two fluorescent settings let you set the top end voltage and the bottom end cutoff voltage. The Non-Dim setting lets you set the turn-on threshold for the non-dim. Five additional user programmable profiles are available through the *Set Rack Configuration* menu or from the optional status reporting software.
- Dimmer response (per dimmer): fast (30ms), normal (100ms) or slow (300ms). This determines a dimmer’s rate of response to a change in control level. Slow is usually set for large tungsten loads to reduce filament inrush, medium or fast for small loads.
- Dimmer control assignment (per dimmer) to the “combined” levels of Outlook preset, SWC preset, DMX A, DMX B, and analog (“Input”) or to a fixed level (0% - 99% or “Full”). The way in which the various input levels combine is also determined on a per dimmer basis by setting the dimmer DMX mode.
- A special smoothing algorithm is applied to small level changes to maintain smooth fades with long fade times.

Control Inputs

The following control inputs are available for dimmer control.

- DMX A and B inputs.
- Twelve analog inputs patchable to any dimmer.
- Remote Panic Input

Control Outputs and Communication Lines

The following outputs and communication lines are available from the SLD dimmer rack processor assembly.

- Variable fan speed control available to minimize acoustic noise.
- Master/backup processor communication line.
- Two SBus communication lines to control up to 96 dimmers.
- Communication line between the dimmer racks and a PC with Reporter Pro software.
- Communication lines suitable for use with Outlook™ and compatible architectural control stations.
- Communication lines suitable for use SWC (system wide control) for remote preset panels, A/V interface, and hand held programmer.
- RS232 port for updating the dimmer rack software from a local PC.

Load Status Reporting

All SLD series dimmer modules, including contactor non-dims are reporting modules. These dimmers report many dimmer status items back to the processor. The processor can then determine a wide range of faults and diagnostic data. Reported items include:

- Module type
- Module output current
- Module temperature

In addition, the rack processor calculates the module output voltage.

Safety Features

In order to minimize the impact of failures to any part of SLD series dimmer racks, a number of security features, some of which are optional, are provided.

Standard safety features for SLD series dimmer racks are:

- Convection cooling of all components with fan assist.
- Two fans each at the top and bottom of the rack for redundancy in case of one fan failure.
- Module over-temperature shutdown.
- The processor module can be set to hold the last dimmer levels forever, or to fade to a specified SWC preset after a preset interval in cases of DMX signal failure.
- Setup data is stored in non-volatile RAM.
- 2500V optical isolation of DMX A and DMX B inputs, SWC, Outlook and Reporter Pro communication.
- All, or selected dimmers in a rack can be set to either Off or full On when the external Panic button is pressed.
- Automatic Panic on removal of processor module. In racks with two processor modules, both modules must be removed to activate Panic.
- Keypad lock.

Optional safety features for SLD series dimmer racks include:

- Redundant tracking backup (requires a second processor module fitted to the rack). The backup processor automatically tracks the master processor and takes over control of the dimmer rack on failure of the master processor.
- Status reporting software (Reporter Pro or Reporter for Consoles) that lets you store setup data off-line.

System Wide Control (SWC)

SWC lets you control multiple SLD series dimmer racks from a single location. A hand held controller lets you program and recall all 99 presets, and control individual dimmers. 8 and 16 channel push-button stations let you record or recall any 8 or 16 of the 99 presets at each station. An audiovisual interface is also available to activate presets from external contacts. Contact Strand Lighting or see the *System Wide Control User's Manual* for details on how SWC works.

Outlook

Outlook is a comprehensive family of control stations designed for architectural applications needing a simple, flexible control solution with minimal installation and cabling costs. These control stations can access, modify, and recall lighting levels stored in the rack processor module. Outlook control station features and options include:

- Control up to 16 separate rooms, with up to 15 channels per room
- 8 preset scenes plus ON and OFF for each room
- Manual sliders (3, 6, 9, or 15 sliders per station) for direct control of individual circuits
- Record facility for saving slider levels for future push-button recall
- Programmable fade times between 0 and 4 minutes from Outlook control stations or 0 to 10 minutes from the processor module or status reporting software
- Record lockout facility for playback-only operation
- 1, 4, and 8 preset push-button stations
- Audiovisual interface
- Room combine stations for room partitioning

Reporter Pro Software

Reporter Pro software running on a PC under Microsoft Windows lets you control multiple SLD series dimmer racks. This software lets you remotely program all processor features, plus lets you download an additional 5 user programmable dimmer curves.

Reporter Pro software lets you access the raw load status information returned from the dimmers, plus other information including:

- Dimmer DMX mode
- Dimmer level (%)
- Dimmer load (W), load deviation, no load, and overload conditions
- Input line voltage per phase
- DMX A and DMX B input fail
- Rack overtemperature warnings and shutdowns

Reporter Pro software also lets you access the dimmer log.

Contact your Strand Lighting representative or see the *Reporter Pro Software User's Manual* for more details on how this software works.

Caution: Status reporting will not work correctly if you have a PC with Reporter Pro and a console with Reporter for Consoles connected and operating at the same time.

Reporter for Consoles Software

Reporter for Consoles software is a standard software package for use with many Strand Lighting consoles that lets you monitor multiple SLD series dimmer racks. It is used to monitor and report temperature, electronic status and system and load information. This software lets you monitor the status of all lamps on a rig and to easily record rack-based backup cues. For more information, see the user documentation supplied with your Strand Lighting control console.

Caution: Status reporting will not work correctly if you have a PC with Reporter Pro and a console with Reporter for Consoles connected and operating at the same time.

Section 3 - Programming the SLD series Dimmer Rack

Controls and Displays

You can access the range of SLD series dimmer rack programmable features using the Rack Processor Module keypad and 16 character, 2 line display. Menus can be shown in French, German, Russian, or English. English is the default language. It is assumed in this manual that English has been selected.

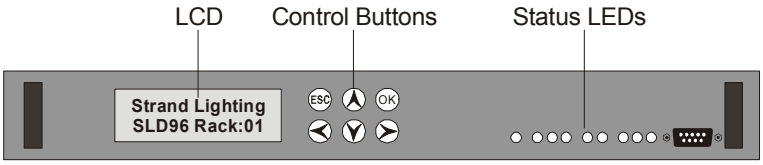


Figure 6 - Rack Processor Module Front Panel

The six control buttons, and the 16 character, 2-line LCD let you scan through the various menus and options and set the programmable features of the SLD series dimmer rack.

Key Lock

To avoid accidental or unauthorized use of the keys, you can lock the keypad. When the option is enabled, the processor keys are locked automatically after 10 minutes with no keyboard input. When disabled, the keys are unlocked. The factory default setting for this option is disabled. When locked, a key symbol is displayed on the right side of the default display.

To temporarily unlock the keys

- Press and hold ESC and OK simultaneously for 2 seconds. Unless the Set Processor Key Lock option is disabled, the keys will again lock after 10 minutes of no key activity.

Using the Menu Keypad

The default display appears if no keys are pressed for 10 minutes, unless one or more error conditions have occurred. If more than one error has occurred, they are displayed continuously in sequence.

Press ∧ or ∨ to cycle through the status menu, which shows a summary of the main rack statistics.

In general the rack processor keys do the following:

➢	Selects a sub-menu or moves the cursor to the next field or the next digit of a field. Displays with sub-menus have a ➢ in the lower right-hand corner
≺	Moves the cursor to the previous field or the previous digit of a field.
∨	Selects the next option in a menu or in a selected field.
∧	Selects the previous option in a menu or in a selected field.
OK	In fields that are not changed live, pressing OK sets the selected value. If you select **ALL** as a field option, you must use OK to action the change. If you are prompted to confirm changes, press OK to confirm the changes.
ESC	Returns the display to the previous menu level. If you are prompted to confirm changes, press ESC to discard the changes.

Field Types

There are three different types of field used in Rack Processor Module displays.

- Display fields
- Selection fields
- Scrolling fields

Display Fields

Display fields are used to display data that cannot be changed or to show a title field. When you use the ≺ or ≻ keys to move the cursor within a display, the cursor will skip display fields.

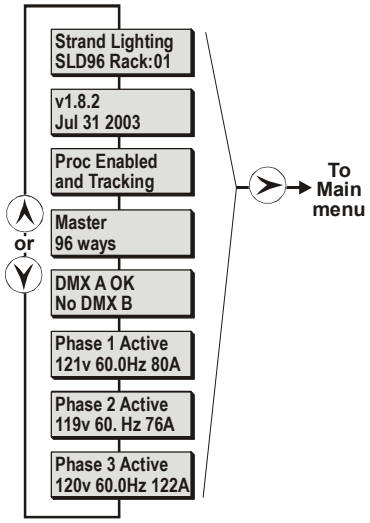
Selection Fields

When the cursor is located below the character of a selection field, you can use the ∧ or ∨ keys to change the field to one of the legitimate values permitted for the field. Selection fields can have text values, numeric values or both. Text values permitted in otherwise numeric fields are Off, Full and '-', (meaning 'none').

Scrolling Fields

When the cursor is located below one of the digits of a numeric field, you can use the ∧ or ∨ keys to change its value to one of the legitimate values permitted for that field digit. You can also use the ≺ or ≻ keys to move the cursor to another digit in the field and use the ∧ or ∨ keys to change its value. Text values for scrolling numeric fields include Off, Full, '-' (meaning 'none') and Hold.

The Status Log



The Status Log lets you quickly check the status of the rack, using the ∧ or ∨ keys to display each parameter in turn.

If one or more error conditions occur, the status display automatically shows the Error Log, (see *The Error Log* starting on page 55). If a Dimmer Event occurs, the Event Log is automatically displayed, (see *Dimmer Event Reporting* starting on page 33). Multiple errors or events are auto-scrolled.

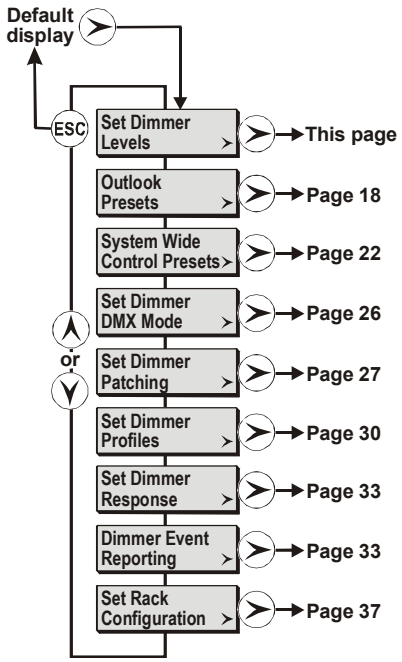
The Status log for each rack, lists the rack number and software version number, together with the information shown in the example.

The example shown is for a rack called Rack 1 running v1.8.2 software. A backup rack processor is fitted and is tracking the master processor. This rack processor is the master and is enabled. There are 96 dimmers. There is a DMXA input, but no DMXB input. The voltages, frequency, and current draw for each phase are shown.

Note: *When the backup and main processor are functioning, both displays should show "Tracking." When the system is properly tracking, data is continuously copied from the "Enabled" processor (Master) to the "Disabled" processor (Backup)*. Phase current will always be 0 (zero) on the backup processor.

The Status Log will return to the default display 5 seconds after the last key press.

The Main Menu



The main menu lets you access all the other menus for configuring SLD series dimmer racks.

To enter the main menu

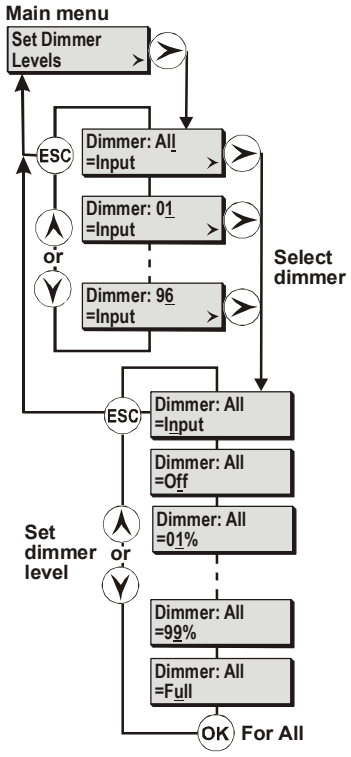
- From any of the status displays, Press ➢.

To return to the default display

- Press ESC.

Note: *If no dimmer event is registered, returning from the main menu brings you back to the display from which you called the main menu. If a dimmer event is registered you will return to the dimmer events display.*

Set Dimmer Levels



The *Set Dimmer Levels* menu lets you set individual dimmers directly from the processor module, regardless of the signal being received from presets and other inputs.

The default setting is **All=Input**. This setting lets the input signals from DMX inputs, analog inputs and presets to control the level of all dimmers in the rack.

Warning: *Since setting dimmer levels to something other than **'Input'** overrides the control inputs, including presets, you can easily lose control of dimmers by forgetting to set them back to 'Input'. The levels set in this menu are remembered even when you shut down the rack.*

You can use the *Set Dimmer Levels* menu to set dimmer levels in order to record SWC and Outlook presets where there is no conventional lighting control system.

To set a level for all dimmers

You can temporarily set the value of all dimmers in the rack to Off, Full, or any percentage value between 1% and 99%.

1. From the main menu, select *Set Dimmer Levels*.
2. Press ➢ ➢ and use ∧ or ∨ to select the level for all dimmers.
3. Press OK to set the dimmer levels.
4. Press ESC to return to the main menu, you will be asked to confirm the change.
5. Press OK to confirm, or ESC to cancel.

To set a level for one dimmer

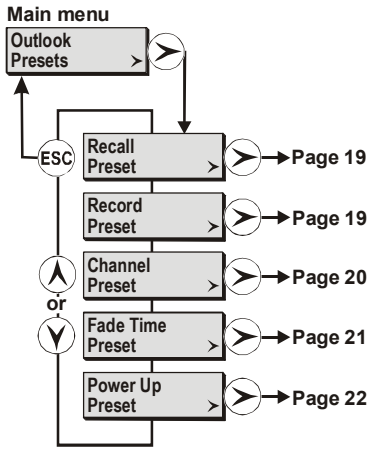
You can set the level of individual dimmers to Off, Full or any value between 1% and 99%.

1. From the main menu, select *Set Dimmer Levels*.
2. Press ➢ and use ∧ or ∨ to select the desired dimmer.
3. Press ➢ and use ∧ or ∨ to select the desired dimmer level. The level for the selected dimmer changes immediately.
4. Press ESC to return to the main menu. No confirmation is necessary when you modified the level for only one dimmer.

Note: *A cursor (_) is shown on the LCD to identify the field that will be modified when you press ∧ or ∨. You can use ≺ or ➢ to move the cursor between fields. You can also use ≺ or ➢ to move the cursor between digits in a field and increment or decrement any single digit.*

Note: *Setting the value of all dimmers will override any value set for individual dimmers.*

Outlook Presets



The *Outlook Presets* menu provides the facility to set all of the preset values associated with the Outlook architectural lighting control stations.

Note: *Before setting the Outlook presets, make sure that each dimmer is assigned to a channel in a room. See Set Dimmer Patching starting on page 27.*

There are 10 Outlook presets per room. Eight of them (1-8) are user programmable. Preset 0 is a non-recordable blackout state (off), preset 9 is all dimmers full on and MAN is the current slider setting being received from an active slider control station.

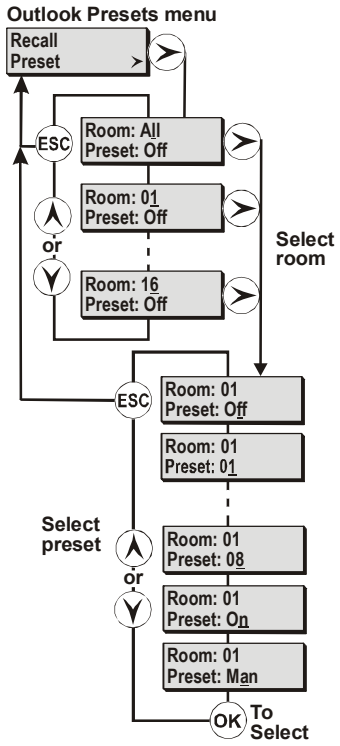
When you record a preset, you record dimmer levels as they appear in the room regardless of their control source.

Outlook presets and SWC presets are completely separate, and separately controlled, even though they may control the same dimmer. If you are using the SWC hand-held controller, SWC push-button controllers, or SWC A/V interface, see *System Wide Control Presets* starting on page 22.

Outlook presets can be recalled and added to the dimmer output on a ‘highest takes precedence’ (HTP) basis from the processor module or from a control station. Selecting a preset crossfades the output of the Outlook preset processor from the previously selected preset to the new preset in the programmed fade time.

Note: *If a dimmer has control input from sources other than Outlook Presets, the Dimmer DMX Mode setting for the dimmer determines what signals appear at the dimmer. If a dimmer is On from another source, you may not be able to fade it Off using Outlook Presets. Max Voltage and Min Level settings also affect dimmer levels.*

Recalling Preset



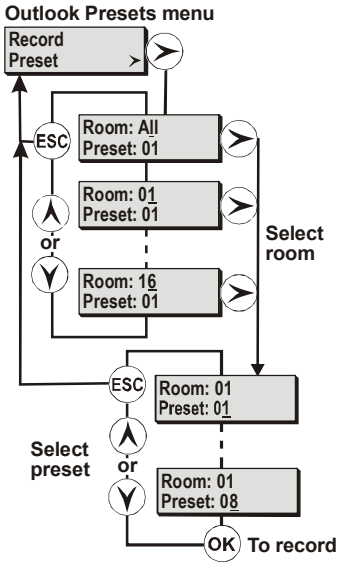
You can recall one of the preset lighting states at any time.

Note: 'Recall Preset' changes the live lighting state by activating an Outlook preset. It is not a "blind" viewing facility.

To recall a previously recorded Outlook preset

1. From the *Outlook Presets* menu, select *Recall Presets*.
2. Press ➢ and then use ∧ or ∨ to select a room number or All (all rooms).
3. Press ➢ and then use ∧ or ∨ to select the preset number (1-8) or set the selected room lights to On (all room lights On), Off (all room lights Off) or Man (room lights controlled by the room slider). The default setup is all dimmers set to OFF.
4. Press OK to change the lighting state.
5. Press ESC to return to the *Outlook Presets* menu.

Record Presets

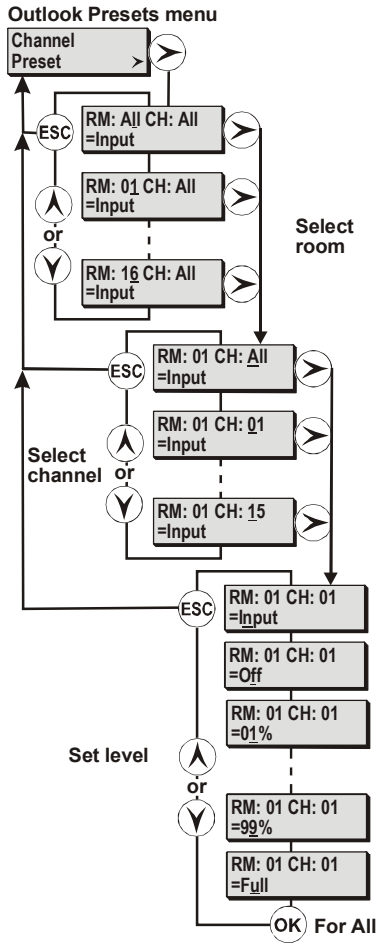


You can record the current dimmer output to any of the eight recordable Outlook presets per room.

To record an Outlook preset

1. Use any means of control to set up the lighting state.
2. From the *Outlook Presets* menu, select *Record Preset*.
3. Press ➢ and use ∧ and ∨ to select a room number (1-16) or All.
4. Press ➢ and use ∧ and ∨ to assign a preset number (1-8) to the lighting state.
5. Press OK to record the preset.
6. Press ESC to return to the *Outlook Presets* menu.

Channel Preset



You can set channel levels directly from the processor module by selecting a room and channel number and setting the channel level. This facility overrides all other control inputs to selected dimmers, and is handy for testing those dimmers and their loads.

Warning: *Since setting the values of individual, or all dimmers to a value other than 'Input' overrides the control inputs, including presets, you can easily lose control of dimmers by forgetting to set them back to 'Input' .The levels set in this menu are remembered even when you shut down the rack.*

Normally, all channel levels in all rooms are set to 'Input,' and presets control the dimmer levels. The relationships of the inputs to each other are determined by the *Dimmer DMX Mode* setting (see page 26).

The *Channel Levels* setting can be used to control dimmers recording into SWC and Outlook presets where there is no conventional lighting control system.

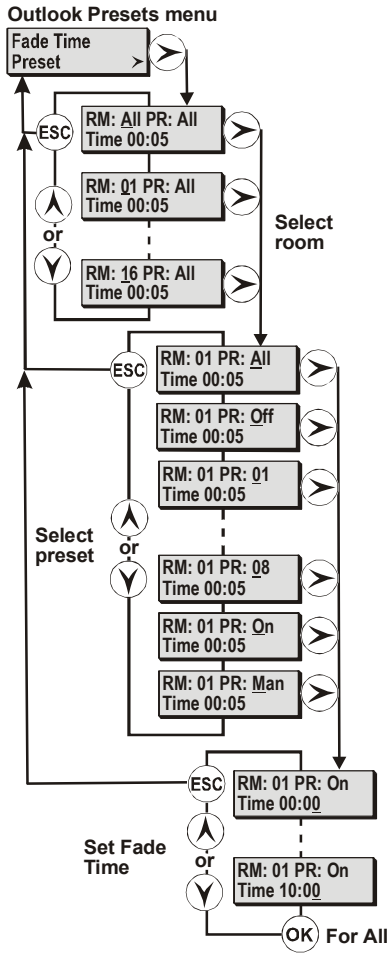
To set levels for all channels

1. From the *Outlook Presets* menu select *Channel Preset*.
2. Press ➢ and use the ∧ or ∨ to select a room number (1 to 16 or All).
3. Press ➢ ➢ and use ∧ or ∨ to select the required level (1-99, Off, Full, or Input).
4. Press OK to change the channel levels.
5. Press ESC to return to the *Outlook Presets* menu. You will be asked to confirm the change.
6. Press OK to confirm, or ESC to cancel the channel level change.

To set levels for one channel

1. From the *Outlook Presets* menu select *Channel Preset*.
2. Press ➢ and use the ∧ or ∨ to select a room number (1 to 16 or All).
3. Press ➢ and use ∧ or ∨ to select the channel for the selected room (1 to 15).
4. Press ➢ and use ∧ or ∨ to select the required level (1-99, Off, Full, or Input). The level for the selected channel changes immediately.
5. Press ESC to return to the *Outlook Presets* menu.

Fade Time Preset



You can set the fade time (up to 10 minutes) for all Outlook presets in all rooms, for all presets in a specified room, or for one preset at a time, by using the *Fade Time Preset* menu option. The default fade time for all presets (except manual faders) is 5 seconds.

To set a fade time for the manual faders, select the Man setting in the Preset (PR) field. With a zero second (default) time set, when you press 'Manual' or 'Take Control' on an Outlook slider station, the lighting instantly fades from the current level to the level set on the sliders. If a manual fade time is programmed, the channels fade from their current levels to the slider levels in the programmed time.

To set the fade time for all presets in all rooms

1. From the *Outlook Presets* menu, select *Fade Time Preset*.
2. Press ➢ repeatedly until the cursor is located under the time field.
3. Use ∧ or ∨ to set a fade time from 00.00 to 10.00 minutes in one-second increments, or use ≺ to move the cursor to the left and increment the fade time value faster.
4. Press OK to change the fade time.
5. Press ESC to return to the *Outlook Presets* menu. You will be asked to confirm the change.
6. Press OK to confirm, or ESC to cancel the fade time change.

Note: *This will not change the fade time setting for manual slider control (the Man preset).*

To set the fade time for all presets in one room

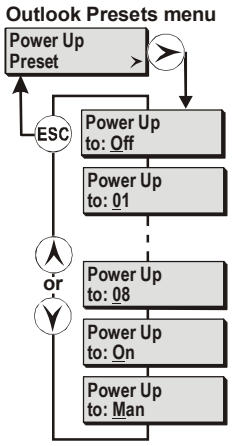
1. From the *Outlook Presets* menu, select *Fade Time Preset*.
2. Press ➢ and use ∧ or ∨ to select a room number (1-15).
3. Press ➢ repeatedly until the cursor is located under the time field.
4. Use ∧ or ∨ to set a fade time from 00.00 to 10.00 minutes in one-second increments, or use ≺ to move the cursor to the left and increment the fade time value faster.
5. Press OK to change the fade time.
6. Press ESC to return to the *Outlook Presets* menu. You will be asked to confirm the change.
7. Press OK to confirm, or ESC to cancel the fade time change.

Note: *This will not change the fade time setting for manual slider control (the Man preset).*

To set the fade time for one preset in a room

1. From the *Outlook Presets* menu, select *Fade Time Preset*.
2. Press ➢ and use ∧ or ∨ to select a room number (1-15).
3. Press ➢ to put the cursor under the Preset (PR) field.
4. Use ∧ or ∨ to select a preset number (1-8, On, Off, or Man).
5. Press ➢ to put the cursor under the time field.
6. Use ∧ or ∨ to set a fade time from 00.00 to 10.00 minutes in one-second increments, or use ≺ to move the cursor to the left and increment the fade time value faster. The fade time changes immediately.
7. Press ESC to return to the main menu.

Power Up Preset



You can select an Outlook preset that will always appear when the system is powered up (e.g., after a power failure). On power up, all rooms will fade to the selected preset (1-8, On, Off, or Man). The default preset is Off.

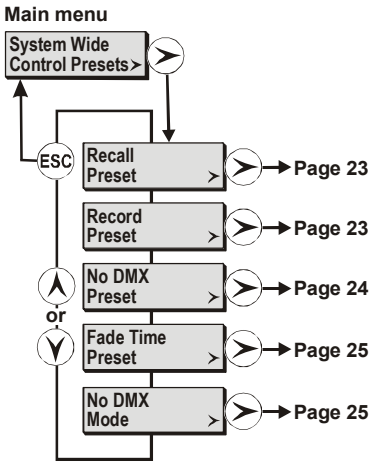
The No DMX SWC preset can act as an overall system power-up preset if desired. If a No DMX preset and a power-up preset are assigned, the dimmer levels will be combined according to the *Dimmer DMX Mode* settings (see page 26).

To set the power up preset condition

1. From the *Outlook Preset* menu, select *Power Up Preset*.
2. Press ➢ and use ∧ or ∨ to select a preset (1-8, On, Off, or Man).
3. Press ESC to return to the *Outlook Presets* menu.

The power up preset takes effect the next time that the system is powered up.

System Wide Control Presets



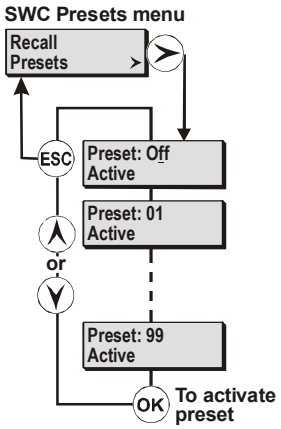
There are 99 user-programmable System Wide Control (SWC) presets per system, plus a non-recordable Off preset (blackout).

Outlook presets and System Wide Control presets are completely separated and separately controlled, even though they can control the same dimmers. For information on Outlook presets, see *Outlook Presets* starting on page 18.

Any System Wide Control preset can be added to the dimmer output on a highest takes precedence (HTP) basis, by activating it from a processor module, remotely from the SWC hand-held controller, or remotely from the Reporter Pro software. When you activate a System Wide Control preset, the system crossfades from any previously selected System Wide Control preset (or from a blackout).

Note: *SWC Presets are not the only source of control in an SLD series dimmer rack. If a dimmer has control input from other sources, the Dimmer DMX Mode setting for each dimmer determines what signals appear at the dimmer. If a dimmer is ON from another source, you may not be able to fade it OFF using SWC Presets. In addition, the dimmer levels are affected by Max Voltage and Min Level settings.*

Recall Presets



You can activate any one of the 99 System Wide Control presets or the Off preset using the *Recall Preset* menu option. By default the Off preset is active.

***Note:** 'Recall Preset' changes the live lighting state by activating the selected SWC preset. It is not a 'blind' viewing facility.*

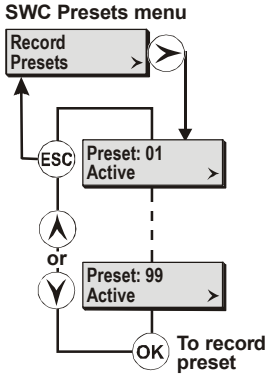
To recall a System Wide Control preset

1. From the main menu, use ∧ or ∨ to select *System Wide Control Presets*.
2. Press > and then use ∧ or ∨ to select *Recall Preset*.
3. Press > and then use ∧ or ∨ to select one of the 99 recordable SWC presets.
4. Press OK to activate the selected preset. Lights will fade to their new levels in the recorded fade time.
5. Press ESC to return to the *System Wide Control Presets* menu.

To switch System Wide Control presets off

1. From the main menu, use ∧ or ∨ to select *System Wide Control Presets*.
2. Press > and then use ∧ or ∨ to select *Recall Preset*.
3. Press > and then use ∧ or ∨ to select the Off preset.
4. Press OK.
5. Press ESC to return to the *System Wide Control Presets* menu.

Record Presets

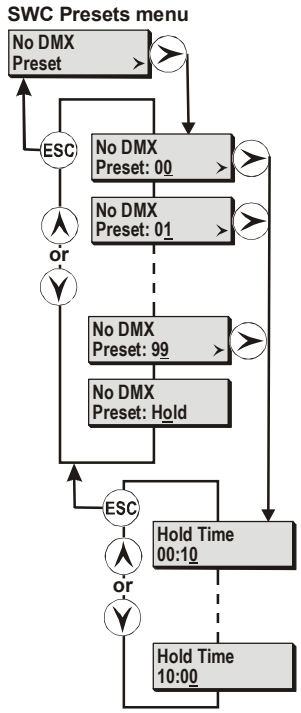


You can record the current dimmer output to any of the 99 recordable SWC presets.

To record a System Wide Control preset

1. Set up the lighting state using any means of control.
2. Use ∧ or ∨ to select *System Wide Control Presets* from the main menu.
3. Press > and then use ∧ or ∨ to select *Record Preset*.
4. Press > to select preset 1.
5. Use ∧ or ∨ to select the preset to record.
6. Press OK to record the preset.
7. Set up a new lighting state and repeat steps 5 and 6 as needed to record additional presets.
8. Press ESC to return to the *System Wide Control Presets* menu.

No DMX Preset



The No DMX Preset is the lighting state that the system will fade to in the event of loss of the DMX signal. You can set the No DMX preset to any of the 99 SWC presets or to 'Hold'. When set to 'Hold', the system holds the current levels on loss of DMX signal. The *Hold Time* menu is disabled if this option is selected. The default setting is **No DMX=00** (blackout). **No-DMX=Hold** is a useful safety feature in live performance situations.

Note: *Setting No DMX to Hold may cause problems if the dimmers are left ON after the control desk is turned OFF. Many desks produce unwanted signals as the power fails. When the desk is turned OFF, the dimmers are therefore susceptible to noise pick-up on the DMX Input, which can leave the dimmers unexpectedly ON. If you set No DMX to Hold, make sure that unattended dimmers are turned OFF.*

To set the No DMX Preset

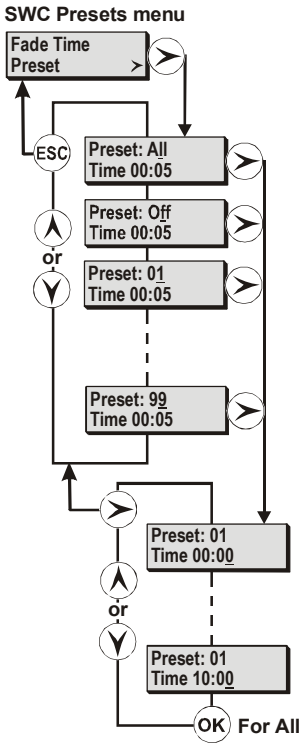
1. Use ⋀ or ⋁ to select *System Wide Control Presets* from the main menu.
2. Press ➢ and then use ⋀ or ⋁ to select *No DMX Preset*.
3. Press ➢ to show the No DMX options.
4. Use ⋀ or ⋁ to set the No DMX preset, which can be any of the recorded presets from 00 (blackout) to 99, or Hold.
5. When done, press ESC to return to the *System Wide Control Presets* menu.

If you select an option other than Hold, you can then set a Hold Time (default = 10 seconds), which determines how long the last condition will be held before fading to the No DMX Preset.

To set the Hold Time

1. From the *No DMX Preset* option, press ➢ to show the *Hold Time* menu.
2. Use ⋀ or ⋁ to set a time between 10 seconds and 10 minutes. You can use ➢ to position the underline cursor below tenths of seconds or minutes. The preset and hold time will take effect immediately.

Fade Time Preset



You can set the fade time for all SWC presets in the rack or for individual presets. By default all presets have a fade time of 5 seconds.

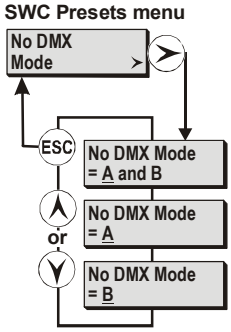
To set the preset fade time for all SWC presets

1. Use ∧ or ∨ to select *System Wide Control Presets* from the main menu.
2. Press > and then use ∧ or ∨ to select *Fade Time Preset*.
3. Press > > and then use ∧ or ∨ to set a fade time between zero (00:00) and ten minutes (10:00). You can use < to move the cursor to the left-hand digit, if required.
4. Press OK to set the fade time for all presets.
5. Press ESC to return to the *System Wide Control Presets* menu. You will be asked to confirm the changes.
6. Press OK to confirm, or ESC to cancel the changes.

To set the preset fade time for one System Wide Control preset

1. Use ∧ or ∨ to select *System Wide Control Presets* from the main menu.
2. Press > and then use ∧ or ∨ to select *Fade Time Preset*.
3. Press > to show the Preset Time options.
4. Use ∧ or ∨ to select a preset number (01-99 or off).
5. Press > to move the cursor to the time field and use ∧ or ∨ to set a fade time between zero (00:00) and ten minutes (10:00). You can use < to move the cursor to the left-hand digit, if required.
6. Press ESC to return to the *System Wide Control Presets* menu.

No DMX Mode

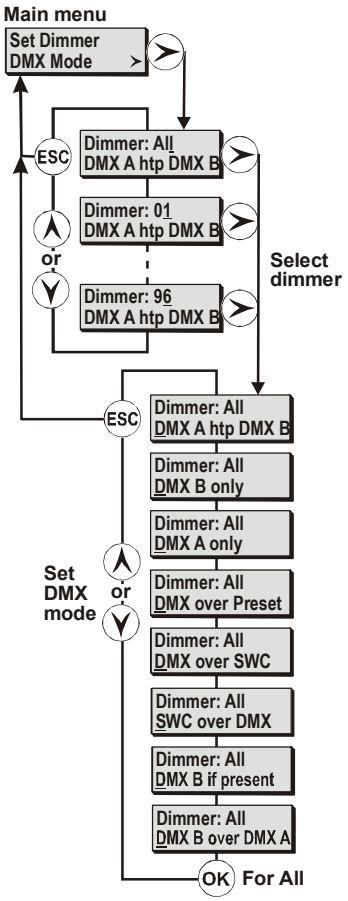


You can apply the No DMX Preset if signal is lost from DMX A, DMX B, or both by setting the No DMX Mode. The default No DMX Mode is A and B (both).

To set the No DMX Mode

1. Use ∧ or ∨ to select *System Wide Control Presets* from the main menu.
2. Press > and then use ∧ or ∨ to select *No DMX Mode*.
3. Press > to display the mode options and use ∧ or ∨ to select the desired mode (A, B, or A and B). The selected mode will take effect immediately.

Set Dimmer DMX Mode



You can set the way in which the various control inputs interact with each other to produce the dimmer output signal as shown below:

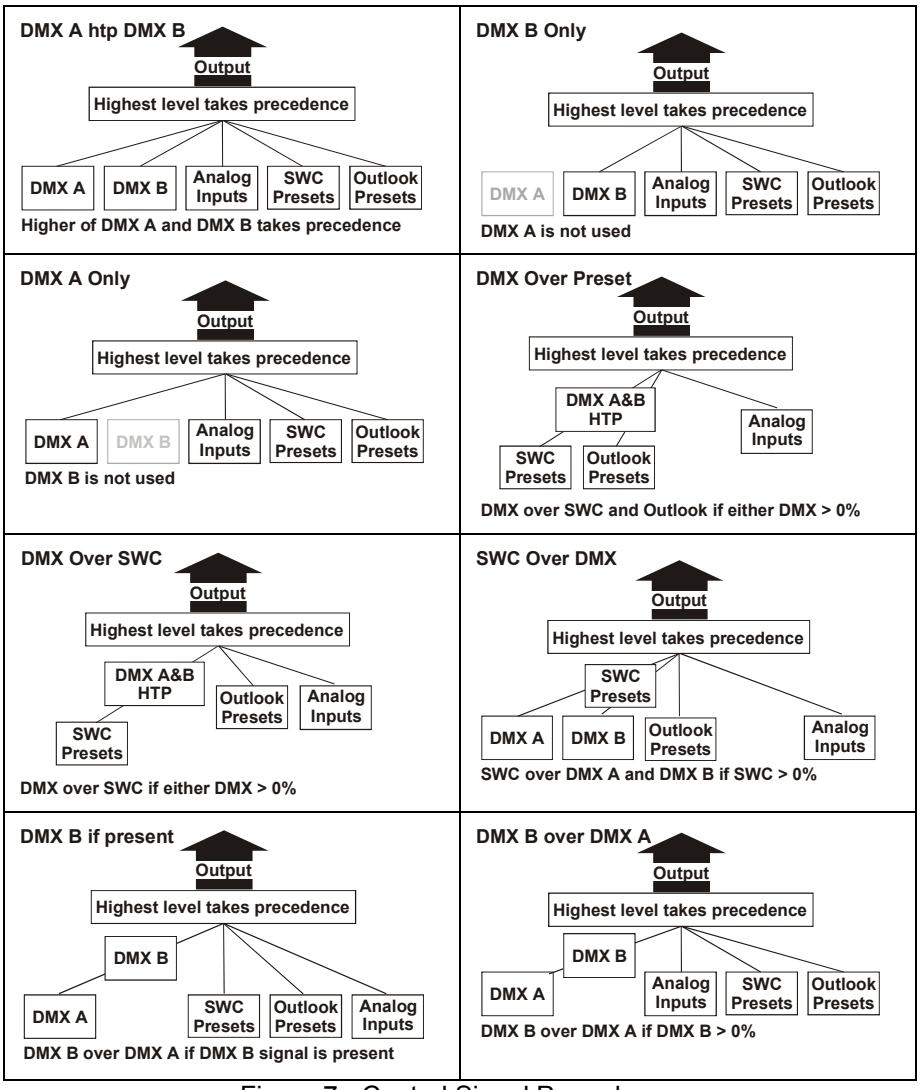


Figure 7 - Control Signal Precedence

To set the dimmer DMX Mode for all dimmers

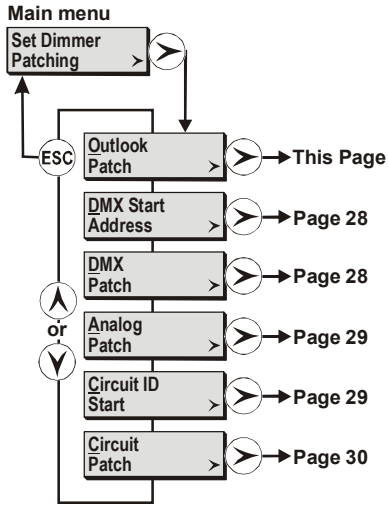
1. Use ↑ or ↓ to select *Set Dimmer DMX Mode* from the main menu.
2. Press → → and use ↑ or ↓ to select a DMX Mode.
3. Press OK to action the change.
4. Press ESC to return to the main menu. You will be asked to confirm the change.
5. Press OK to confirm the change or ESC to cancel the command.

To set the dimmer DMX Mode for one dimmer

1. Use ↑ or ↓ to select *Set Dimmer DMX Mode* from the main menu.
2. Press → and use ↑ or ↓ to select a dimmer.
3. Press → and use ↑ or ↓ to select a DMX Mode. The change takes effect immediately.
4. Press ESC to return to the main menu.

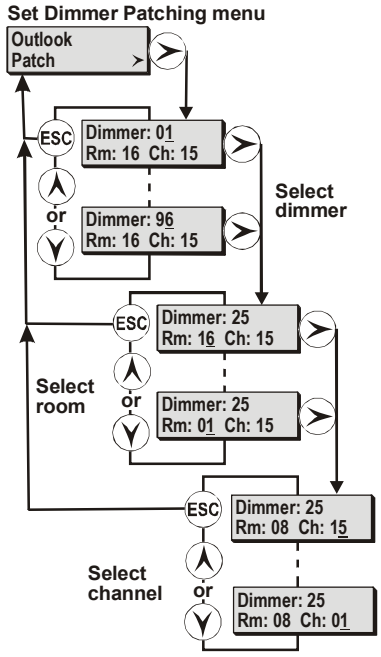
Set Dimmer Patching

The *Set Dimmer Patching* menu lets you assign dimmer numbers according to your own requirements.



Outlook Patch

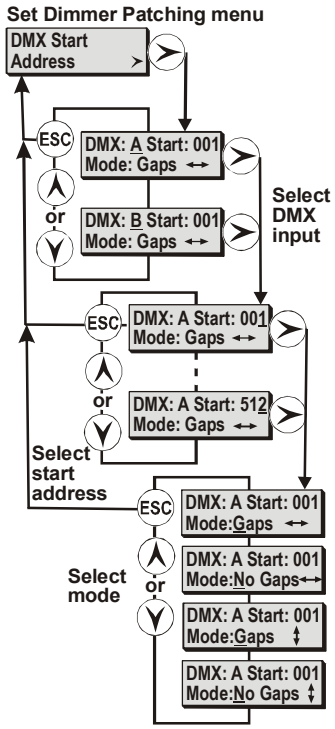
If you are using Outlook (or compatible) controllers, you can patch dimmers to specified channels in specific rooms. The Outlook Patch options allow you to set up the association between individual dimmers and channels within rooms. By default, all dimmers are set to Room 16, Channel 15.



To set up the Outlook patch

1. From the *Set Dimmer Patching* menu, select *Outlook Patch*.
2. Press ➢ and use ∧ or ∨ to select a dimmer number.
3. Press ➢ and use ∧ or ∨ to select a room.
4. Press ➢ and use ∧ or ∨ to select a channel. The Outlook patch takes effect immediately.
5. Repeat steps 2 through 4 as necessary to set the patch for additional dimmers.
6. When done, press ESC to return to the *Set Dimmer Patching* menu.

DMX Start Address



The *DMX Start Address* option lets you patch all dimmers in the rack sequentially after the specified *DMX Start* number. This is an easy way to assign the DMX patch without going through the slow process of assigning each dimmer individually.

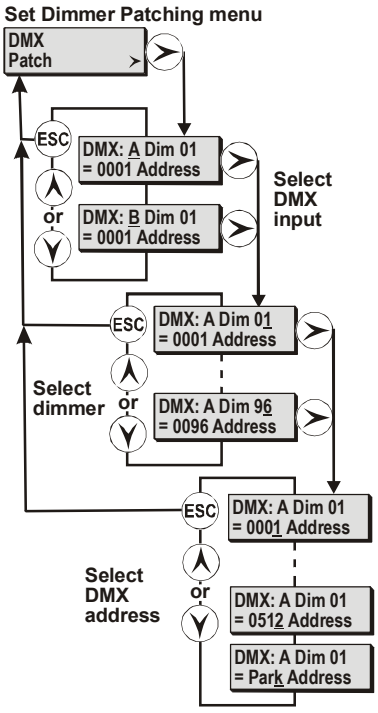
In most systems, dimmers are numbered consecutively throughout the system. The first dimmer in a rack is set to one number higher than the last number in the previous rack.

You can set the numbering mode to number all slots ("Gaps" means that there are DMX signals with no associated dimmer) or only number slots with dimmers present ("No Gaps" means that every DMX signal is assigned to an existing dimmer), and to number dimmers vertically or horizontally.

To set the DMX Start Address

1. From the *Set Dimmer Patching* menu, select *Start Address*.
2. Press ➢ and use ∧ or ∨ to select DMX A or DMX B.
3. Press ➢ and use ∧ or ∨ to set the start address.
4. Press ➢ and use ∧ or ∨ to select the numbering mode (Gaps or No Gaps and horizontal or vertical numbering).
5. Press ESC to return to the *Set Dimmer Patching* menu. You will be asked to confirm the changes.
6. Press OK to confirm, or ESC to cancel the changes.

DMX Patch



You can patch one or more dimmers to be controlled by one DMX signal. This lets you reassign dimmers to different DMX signals or group various sets of dimmers to be controlled by one DMX signal.

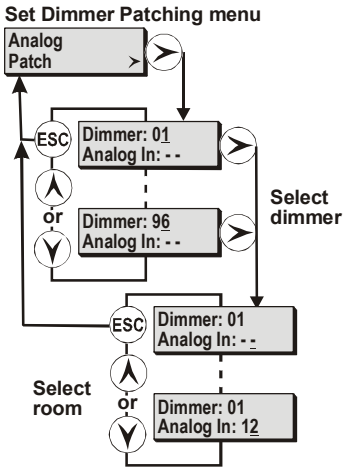
To patch dimmers to DMX signals

1. From the *Set Dimmer Patching* menu, select *DMX Patch*.
2. Press ➢ and use ∧ or ∨ to select either DMX A or DMX B.
3. Press ➢ and use ∧ or ∨ to select the dimmer number for the DMX input. You can use ➢ to position the underline cursor under digits to the left in order to set a high dimmer number.
4. Press ➢ and use ∧ or ∨ to select the DMX address for the dimmer.
5. Repeat steps 2 through 4 as necessary to patch other DMX inputs to dimmers.
6. Press OK to action the change.
7. Press ESC to return to the *Set Dimmer Patching* menu. You will be asked to confirm the changes.
8. Press OK to confirm, or ESC to cancel the changes.

To unpatch dimmers from DMX signals

You can unpatch dimmers by setting the DMX field to Park (press ∨ when the DMX address field is set to 001).

Analog Patch



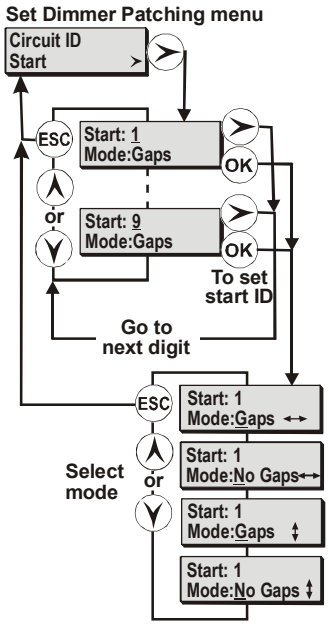
You can patch one or more dimmers to be controlled by any of the 12 analog inputs. Dimmers patched to analog inputs can also be patched to DMX signals.

Note: *Patching a dimmer to an analog input does not unpatch it from any DMX signals.*

To patch an analog input to a dimmer

1. From the *Set Dimmer Patching* menu, select *Analog Patch*.
2. Press ➢ and use ∧ or ∨ to select a dimmer.
3. Press ➢ and use ∧ or ∨ to select the analog input (1-12) that will control the dimmer.
4. Press OK to change the setting.
5. Repeat steps 2-4 as required for other analog inputs.
6. When done, press ESC to return to the *Set Dimmer Patching* menu. You will be asked to confirm the changes.
7. Press OK to confirm, or ESC to cancel the changes.

Circuit ID Start



The *Circuit ID Start Number* option lets you set a starting circuit number for each rack to uniquely identify each dimmer in a multiple rack installation. When you enter a Circuit ID Start number for the rack, the software automatically numbers the remaining circuits in the rack from the Circuit ID start number. This is an easy way to set up a rack so that circuit IDs are offset by a fixed amount from the DMX addresses.

If there are 90 dimmers in the first rack of a four rack installation, 96 in the second, 92 in the third and 94 in the fourth, you would leave the circuit ID Start number for the first rack at the default value of 1, set the start number for the second rack to 91, the third to 188 and the fourth to 281.

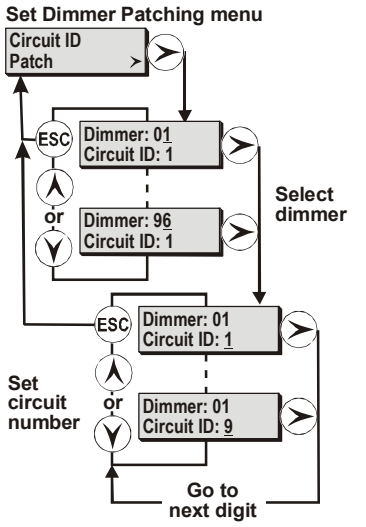
You can set the numbering mode to give all slots a circuit ID ("Gaps" means that there are circuit IDs with no associated dimmer) or only give IDs to slots with dimmers present ("No Gaps" means that every circuit ID is assigned to an existing dimmer), and to assign IDs vertically or horizontally.

Once each dimmer is allocated a unique circuit number, all dimmers can report any malfunction to the status reporting software.

To set a Circuit ID Start number

1. From the *Set Dimmer Patching* menu, select *Circuit ID Start*.
2. Press ➢ and use ∧ or ∨ to set the first digit of the start number (1 to 9).
3. Press ➢ to move the cursor to the next digit of the start number and use ∧ or ∨ to set the next number (1 to 9).
4. Repeat step 3 until you have entered the complete start number.
5. Use ∧ or ∨ to select the numbering mode (Gaps or No Gaps and horizontal or vertical numbering).
6. Press OK to action the change.
7. Press ESC to return to the Set dimmer patching menu. You will be asked to confirm the changes.
8. Press OK to confirm, or ESC to cancel the changes.

Circuit ID Patch



The *Circuit ID Patch* option lets you assign your own dimmer numbers independently of the *Start Number* or *Dimmer patch*.

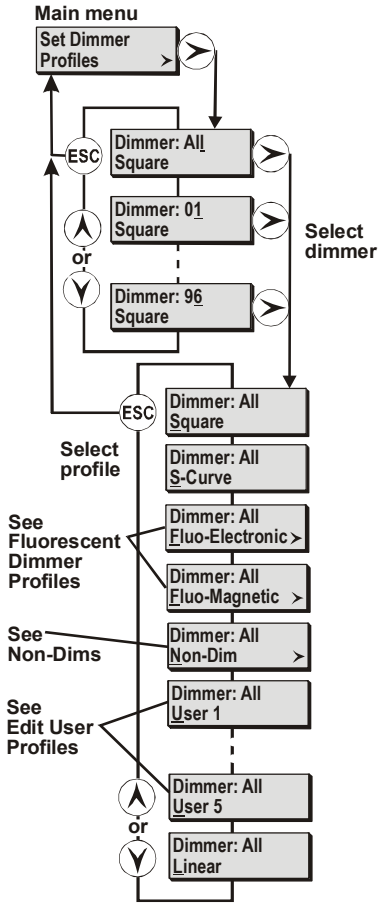
This is important when used with the SWC hand held controller or with the status reporting software. This facility lets you use your desk's channel numbering scheme, or even a geographic numbering scheme, (e.g. 100, 101, 102... 110, 111, 112 etc. when remotely controlling dimmers in a complete system.

To patch a circuit ID

1. From the *Set Dimmer Patching* menu, select *Circuit ID Patch*.
2. Press ➢ and use ∧ or ∨ to set the dimmer number.
3. Press ➢ and use ∧ or ∨ to set the first digit of the circuit ID (1 to 9).
4. Press ➢ to move the cursor to the next digit of the circuit ID and use ∧ or ∨ to set the next number (1 to 9).
5. Repeat step 4 until you have entered the complete circuit ID.
6. Repeat steps 2 through 5 for additional dimmers as required.
7. Press ESC to return to the *Circuit ID Patch* display.

Note: *When using Reporter for Consoles, the Circuit IDs should match the Output Number in the consoles patch. This allows fault reporting to be displayed against the correct output on the console.*

Set Dimmer Profiles



There are three incandescent, two fluorescent and one non-dim profile programmed into the Rack Processor Module that you can assign to dimmers for compatibility with other dimmers or specific application requirements. You can also select from one of five user-defined curves. The factory default is Square.

To set a dimmer profile

1. From the main menu, select *Set Dimmer Profiles*.
2. Press ➢ and use ∧ or ∨ to select an individual dimmer number or All.
3. Press ➢ and use ∧ or ∨ to set the dimmer profile to Square, S-Curve, Fluo-Electronic, Fluo-Magnetic, Non-Dim, one of the five user-defined profiles, or Linear.
4. If you selected one of the fluorescent profiles, set the top and cutoff voltages (see page 31). If you selected Non-Dim, set the non-dim threshold (see page 32).
5. Press OK.
6. Make any additional changes necessary to dimmer profiles.
7. Press ESC to return to the *Set Dimmer Profiles* menu.
8. If you made profile changes to all dimmers, you will be asked to confirm the changes. Press OK to confirm or ESC to cancel the changes.

Incandescent Dimmer Profiles

The graph below illustrates the relationship between input signals and output voltages for the incandescent profiles. In general, you can use Square for TV requirements, Linear for theatre use and S-curve for architectural installations, or when you need to match older dimmers.

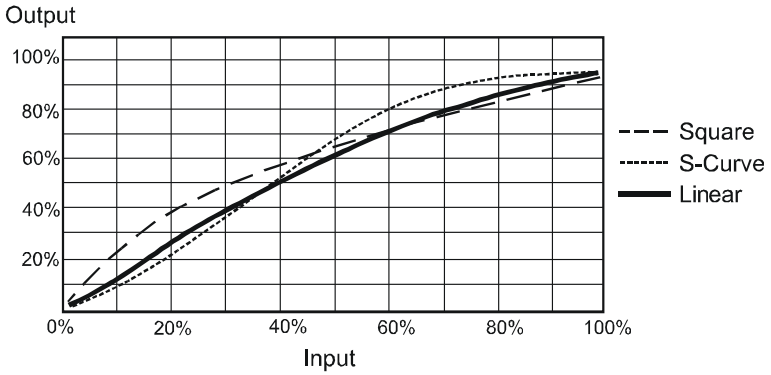
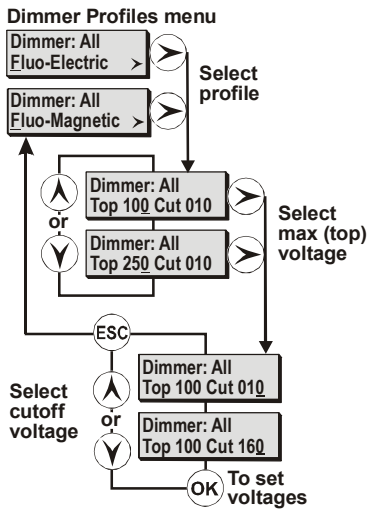


Figure 8 - Incandescent Dimmer Curves

Fluorescent Dimmer Profiles



SLD series dimmer racks support magnetic and electronic (phase-controlled) fluorescent ballasts. For optimum performance, set the appropriate fluorescent profile for each fluorescent dimmer. The Fluo-Magnetic profile creates a 1 second pause between when you turn the dimmer on and when voltage is applied to the fixture. The Fluo-Electronic profile applies a high voltage pulse to the fixture for one second when it is turned on. Both curves follow a “scaled” square law curve.

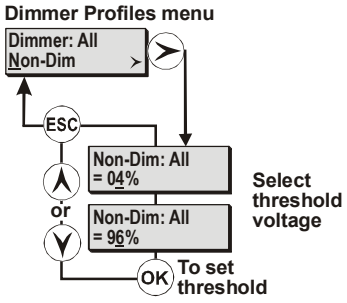
The setting for top end voltage and cutoff voltage are done the same way for magnetic and electronic ballast curves.

Fluorescent lamps operate best when the dimmer response is set to ‘Slow’ (see *Set Dimmer* Response on page 33).

Note: *For fluorescent ballasts with heater circuits, connect the heater circuit to a separate non-dim or contactor and patch the non-dim to the same channel as the fluorescent dimmer. The Fluo-Magnetic setting delays the start-up of the dimmed circuit so the heater circuit turns on first. This note does not apply when using 230 volt 4-Wire fluorescent modules, which include a contactor in the dimmer module.*

To set a fluorescent dimmer profile

1. From the main menu, select *Set Dimmer Profiles*.
2. Press ➢ and use ∧ or ∨ to select an individual dimmer number or All.
3. Press ➢ and use ∧ or ∨ to select Fluo-Electric or Fluo-Magnetic.
4. Press ➢ and use ∧ or ∨ keys to set the top voltage (**Top**) between 100 and 250volts. The default top voltage is 195.
5. Press ➢ and use ∧ or ∨ to set the cutoff voltage (**Cut**), between 10 and 160 volts. The default cutoff voltage is 080.
6. Press OK.
7. Make any additional changes necessary to dimmer profiles.
8. Press ESC to return to the *Set Dimmer Profiles* menu.
9. If you made profile changes to all dimmers, you will be asked to confirm the changes. Press OK to confirm or ESC to cancel the changes.



Non-Dims

You can assign a non-dim profile to a dimmer, thereby providing the facility to set a threshold percentage. Non-dims remain at ZERO when the controller is below the threshold percentage and at FULL when the controller is above the threshold percentage.

Note: *In order to keep dimmers from turning ON and OFF with slight voltage fluctuations, if the controller is set to the threshold value, non-dims are turned ON about 2% above the threshold percentage, and not turned OFF until about 2% below the threshold percentage.*

Contactor non-dim modules are automatically set with a non-dim profile.

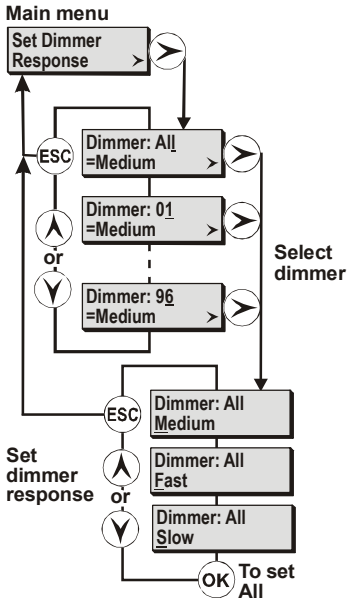
Note: *When dimmers are set to Non-Dim, they are still affected by the Max Voltage, Min Level and Response Time settings. For contactors, these settings are not applied.*

1. From the main menu, select *Set Dimmer Profiles*.
2. Press (➢) and use (∧) or (∨) to select an individual dimmer number or All.
3. Press (➢) and use (∧) or (∨) to set the dimmer profile to Non-Dim.
4. Press (➢) and use (∧) or (∨) keys to set the Non-Dim threshold percentage between 4% and 90%.
5. Press (OK).
6. Press (ESC) to return to the *Set Dimmer Profiles* menu.
7. Make any additional changes necessary to dimmer profiles.
8. Press (ESC) to return to the main menu.
9. If you made profile changes to all dimmers, you will be asked to confirm the changes. Press (OK) to confirm or (ESC) to cancel the changes.

User Defined Profiles

There are 5 profiles that you can define as needed. For information on how to set up and edit these profiles, see *Edit User Dimmer* Profiles starting on page 41.

Set Dimmer Response



The Response Speed of a dimmer is the rate at which it responds to increases or decreases in the control level. SLD series dimmer racks provide Fast (30ms), Medium (100ms), and Slow (300ms) response times, which you can assign to all dimmers or to any single dimmer. Slow is generally used for large lamp loads (e.g., 5kW fittings, such as QuartzColor Pollux), while Fast is used for the small lamp loads that you might use in a chase effect.

Note: *The 'Fast' setting, together with the accuracy of digital dimmers can cause very high inrush currents to flow. These may damage large lamp filaments and cause circuit breakers to trip. Only set dimmers to 'Fast' if necessary for a particular effect. Do not use 'Fast' for lamps that are 5Kw or higher.*

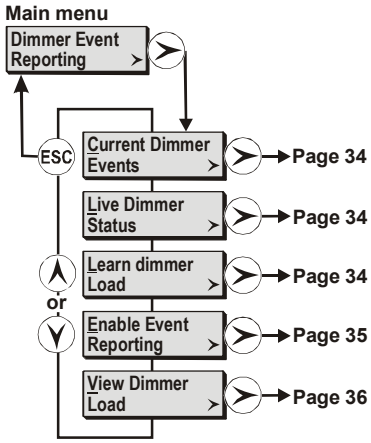
To set the dimmer response for all dimmers

1. From the main menu, select *Set Dimmer Response*.
2. Press ➤ ➤ and use ∧ or ∨ to set the dimmer response for all dimmers (Medium, Fast, or Slow).
3. Press OK to set the dimmer response.
4. Press ESC to return to the main menu. You will be asked to confirm the changes you just made.
5. Press OK to confirm or ESC to cancel the changes.

To set the dimmer response for one dimmer

1. From the main menu, select *Set dimmer Response*.
2. Press ➤ and use ∧ or ∨ to select a dimmer.
3. Press ➤ and use ∧ or ∨ to set the response for the selected dimmer (Medium, Fast, or Slow).
4. Press ESC to return to the main menu.

Dimmer Event Reporting



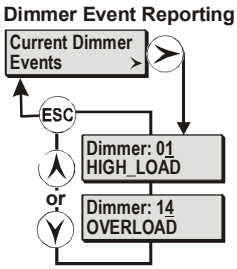
The *Dimmer Event Reporting* menu lets you see the current events for each dimmer, the live dimmer status statistics, lets the system "learn" the load characteristics of installed dimmers and lets you turn event reporting ON or OFF for any or all dimmers.

The defined dimmer events, in priority order, are shown below. The persistence rating is the length of time an event must remain in order to be reported. This minimizes false event reports. The settings for the various thresholds are under the *Event Report Configuration* item in the *Calibration* menu.

Event Mnemonic	Description	Persistence
OVERHEAT	Dimmer temperature >90° C	3 secs
NO_LOAD	Output current < load profile min. threshold and no load threshold	3 secs
OVERLOAD	Output current > dimmer maximum rating	10 secs
LOW_LOAD	Output current < load profile minimum threshold	3 secs
HIGH_LOAD	Output current > load profile maximum threshold	3 secs

With no dimmer events logged and no errors in the Error Log, the display will show the default display.

Current Dimmer Events



When dimmer events are logged, the display will change to show the number of dimmer events. In addition the Dimmer Event LED on the front of the rack processor module will be illuminated.

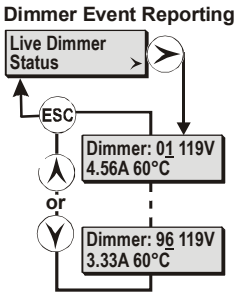
The number of events shown is automatically updated as new events occur. Dimmer events include dimmer overload, no load, etc.

To view dimmer events

1. From the main menu, select *Dimmer Events Reporting*.
2. Press ➢ and use ∧ or ∨ to select *Current Dimmer Events*.
3. Press ➢ and use ∧ or ∨ to view dimmer events for the selected dimmer.

Note: *If more than one event has been logged for a particular dimmer, only the most important event is displayed.*

Live Dimmer Status

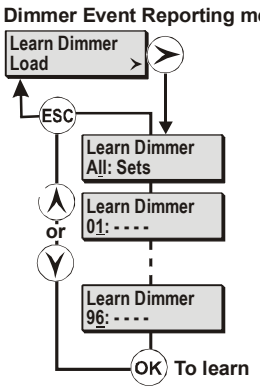


You can check the status of all dimmers in the rack using the *Live Dimmer Status* menu option. The live status display shows the voltage, current and temperature of each dimmer in turn.

1. From the main menu, select *Dimmer Events Reporting*.
2. Press ➢ and use ∧ or ∨ to select *Live Dimmer Status*.
3. Press ➢ and use ∧ or ∨ to view dimmer status for the selected dimmer.

Note: *The settings for the various thresholds associated with the Event Report are set up in the Event Report Configuration options in the Calibration menu (see page 49).*

Learn Dimmer Load



Some of the parameters reported by the processor module about dimmers (e.g., HIGH_LOAD) require a baseline for measurement. To create this baseline, you "learn" the dimmer loads. You can learn any or all of the dimmer loads in a rack using the *Learn Dimmer Load* function in the *Dimmer Event Reporting* menu.

Note: *Learning loads can be beneficial where loads are not moved around (such as in a long-running show or a saturated rig in a TV studio), as it lets you detect a failure of 1 lamp in 10 in a parallel arrangement. However, using this feature where loads are moved around (such as repertory theatre) requires considerable operational discipline, since you need to constantly relearn loads. All reporting features except load error detection and cable compensation are available without learning loads.*

To learn all loads in a rack

1. From the main menu, select *Dimmer Event Reporting*.
2. Press ➢ and use ∧ or ∨ to select *Learn Dimmer Load*.
3. Press ➢ and then OK to start learning loads for this rack. You will be asked to confirm this action.
4. Press OK to confirm or ESC to cancel the action.

Note: *When you learn loads by 'All Sets', the rack processor takes control of 1/4 of the dimmers in the rack at a time, increasing their level to full and then fading to zero over about 30 seconds. The voltage and current recorded at 100% is used to calculate the wattage of the loads. This procedure takes about 2 minutes.*

To learn the loads on a single dimmer

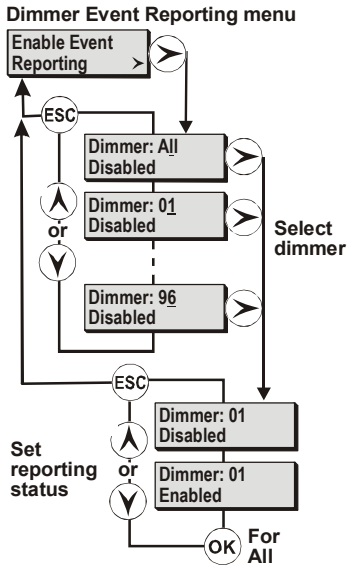
1. From the main menu, select *Dimmer Event Reporting*.
2. Press ➢ and use ∧ or ∨ to select *Learn Dimmer Load*.
3. Press ➢ and then use ∧ or ∨ to select a dimmer number.
4. Press OK to learn the loads on the selected dimmer.

Note: *You can "Unlearn" all dimmers using the Clear Learned Loads function under Set All Defaults (see page 45).*

To stop the learn process before it is completed

1. Press ESC. You will be asked to confirm the action.
2. Press OK to stop the learn process or ESC to continue.

Enabling Event Reporting



You can enable or disable event reporting on all dimmers or only on selected dimmers using the *Enable Event Reporting* function in the *Dimmer Event Reporting* menu. This function lets you turn off reporting for dimmers you already know have a problem.

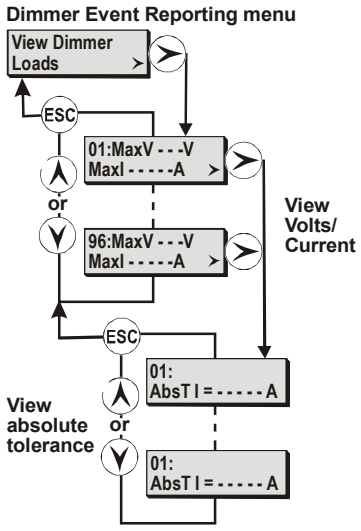
To enable or disable reporting for all dimmers

1. From the main menu, select *Dimmer Event Reporting*.
2. Press ➢ and use ∧ or ∨ to select *Enable Event Reporting*.
3. Press ➢ ➢ and use ∧ or ∨ to select *Enable* or *Disable*.
4. Press OK to enable or disable all dimmers.
5. Press ESC to return to the *Dimmer Event Reporting* menu.
6. When asked to confirm the changes you just made, press OK to confirm or ESC to cancel the changes.

To enable or disable reporting for one dimmer

1. From the Main menu, select *Dimmer Event Reporting*.
2. Press ➢ and use ∧ or ∨ to select *Enable Event Reporting*.
3. Press ➢ and use ∧ or ∨ to select a dimmer number.
4. Press ➢ and use ∧ or ∨ to select *Enable* or *Disable*.
5. Press ESC to return to the *Dimmer Event Reporting* menu.

View Dimmer Loads



You can view but not edit the current load statistics, determined when you use *Learn Dimmer Load*, by using the *View Dimmer Loads* menu item in the *Dimmer Event Reporting* menu. The first entry shows the maximum voltage (MaxV) and maximum current (MaxI). Pressing ➢ from this display shows the absolute tolerance of the current used for calculating load deviations (AbsT).

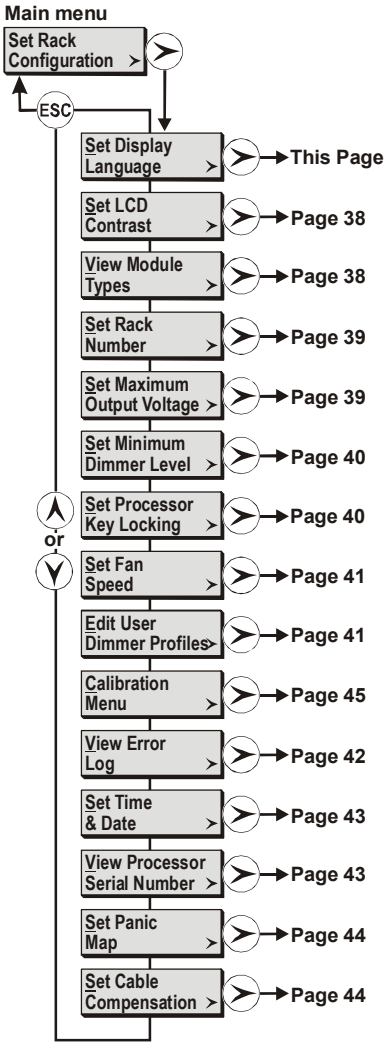
Absolute tolerance is a percentage of the maximum current (the default is 5%), so this tells you the minimum current deviation that the dimmer will detect. For example, if MaxI is 10A and AbsT is 5%, then the minimum current deviation the dimmer will detect is 500mA.

To view the load statistics

1. From the main menu, select *Dimmer Event Reporting*.
2. Press ➢ and use ∧ or ∨ to select *View Dimmer Loads*.
3. Press ➢ and use ∧ or ∨ to select a dimmer number. The maximum voltage (MaxV) and maximum current (MaxI) are shown when you select the dimmer.
4. To see the absolute tolerance (AbsT), press ➢. Then press ESC to return to the MaxV and MaxI values.
5. Press ESC to return to the *Dimmer Event Reporting* menu.

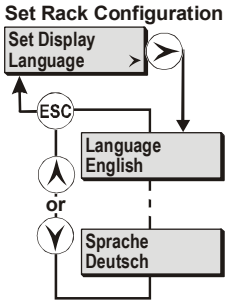
Set Rack Configuration

The *Set Rack Configuration* menu provides access to system functions for initial setup.



Set Display Language

By default, all LCD text is displayed in English. However, you can change the display language to Russian, German or French using the *Set Display Language* option in the *Set Rack Configuration* menu.

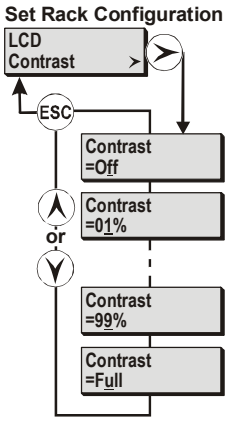


Note: *Languages available depend on the software build installed.*

To set the display language

1. From the main menu, select *Set Rack Configuration*.
2. Press ➢ and use ∧ or ∨ to select *Set Display Language*.
3. Press ➢ and use ∧ or ∨ to select the language.
4. Press ESC to return to the *Set Rack Configuration* menu.

LCD Contrast

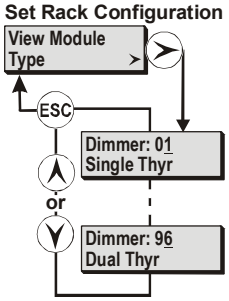


You can set the LCD contrast to suit the lighting conditions at the dimmer rack. By default, the contrast is set to 80%. The visible range will vary according to the environmental conditions.

To set the LCD contrast

1. From the main menu, select *Set Rack Configuration*.
2. Press ➢ and use ∧ or ∨ to select *Set LCD Contrast*.
3. Press ➢ and use ∧ or ∨ to select the contrast level (off, 1-99%, or Full).
4. Press ESC to return to the *Set Rack Configuration* menu.

View Module Type



The type of module installed in each module slot is automatically detected when the module is installed. This menu is view only.

If there is no module in a slot the dimmer will be reported as 'Not Present'.

Note: *Slots are numbered left to right and top to bottom. Each of the 48 slots in the rack is numbered as if the slot contained a dual module, i.e., all racks are numbered 1 to 96. When a single module is located in a slot, the module is allocated two adjacent dimmer numbers. The first dimmer in the pair will be reported as 'Not Present.'*

Dimmer types are displayed as follows:

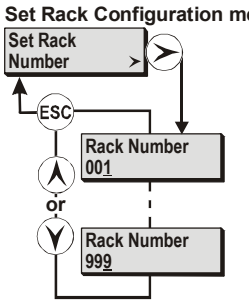
- Dual Thyristor
- 50A Thyristor
- 100A Thyristor
- Dual Contactor
- Dual Permanent
- 4-Wire Fluoresc

Note: *Dual modules may be 15A, 20A or 25A.*

To view the module type for a slot

1. From the main menu, select *Set Rack Configuration*.
2. Press ➢ and use ∧ or ∨ to select *View Module Types*.
3. Press ➢ and use ∧ or ∨ to select the dimmer number (0-96).
4. Press ESC to return to the *Set Rack Configuration* menu.

Set Rack Number

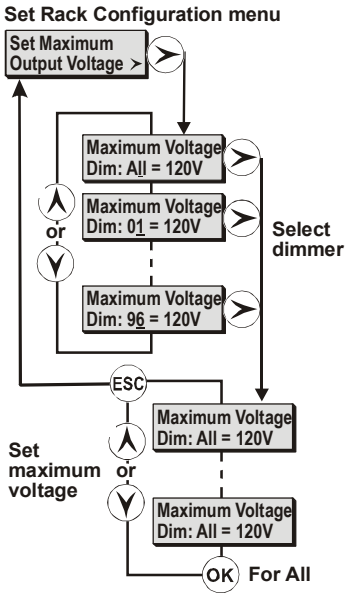


For multiple rack installations using the status reporting software or a SWC hand-held controller, you must set a unique rack number for each dimmer rack so that you can identify racks from the controller.

To set a rack number

1. From the main menu, select *Set Rack Configuration*.
2. Press ➢ and use ∧ or ∨ to select *Set Rack Number*.
3. Press ➢ and use ≺ or ➢ to select a digit, and then use ∧ or ∨ to set the number for that digit. Racks can be numbered from 1 to 999.
4. Press ESC to return to the *Set Rack Configuration* menu.

Set Maximum Output Voltage



You can set a maximum output voltage for any or all of the dimmers in the rack. For instance, you can set the maximum voltage lower than the rated voltage of your lamps for improved lamp life. If you have lamps or other equipment that operate at a lower line voltage, you can set the output from the dimmer to an appropriate voltage for the devices.

The maximum output voltage is applied to all dimmers and dimmers assigned as non-dims. It is not applied to contactor non-dims. You cannot use contactor non-dims for devices that need a maximum output voltage setting.

Note: *This function sets the dimmer output voltage, not the maximum control level applied to the dimmer.*

***Caution:* Be careful when using a maximum output voltage with dimmers set for PANIC. When panic is activated, full output voltage appears at the output of any dimmer or non-dim set for PANIC, regardless of how the maximum output voltage is set.**

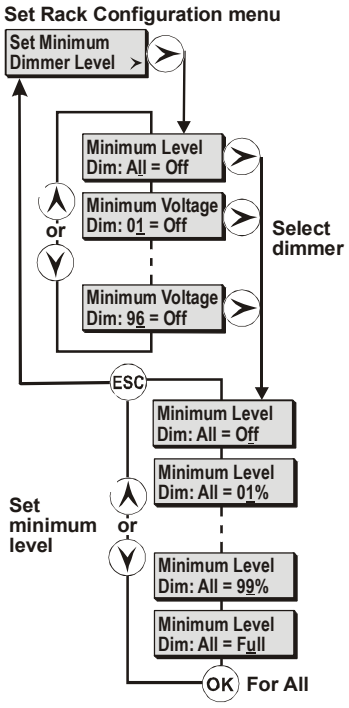
To set the maximum output voltage for all dimmers

1. From the *Set Rack Configuration* menu, select *Set Maximum Voltage*.
2. Press ➢ ➢ and use ∧ or ∨ to set a voltage between 20 and 250 volts. (The default maximum voltage is 230V or 120V).
3. Press OK to action the change.
4. Press ESC to return to the *Set Rack Configuration* menu. You will be asked to confirm the change of maximum voltage for all dimmers.
5. Press OK to confirm the change or ESC to cancel the change.

To set the maximum output voltage for one dimmer

1. From the *Set Rack Configuration* menu, select *Set Maximum Voltage*.
2. Press ➢ and use ∧ or ∨ to select a dimmer.
3. Press ➢ and use ∧ or ∨ to set a voltage between 20 and 250 volts. (The default maximum voltage is 230V or 120V).
4. Press ESC to return to the *Set Rack Configuration* menu.

Set Minimum Dimmer Level



You can set a minimum level for any or all dimmers. This can be used for security/safety lighting in locations where a minimum light level is required under all circumstances. This function can also be used as a preheat for large lamps. Minimum levels can be 1% to 99%, off, or full.

Note: *This function sets the minimum control level applied to the dimmer, not the minimum dimmer output voltage.*

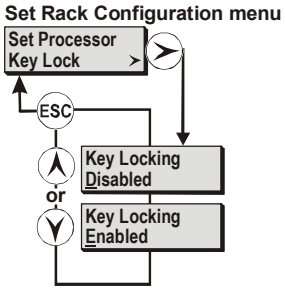
To set the minimum dimmer level for all dimmers

1. From the *Set Rack Configuration* menu, select *Set Minimum Voltage*.
2. Press ➢ ➢ and use ∧ or ∨ to set a minimum dimmer level (off, full, or 1%-99%) for all dimmers.
3. Press OK to set the minimum level for all dimmers.
4. Press ESC to return to the *Set Rack Configuration* menu. You will be asked to confirm the change of minimum level for all dimmers.
5. Press OK to confirm the change or ESC to cancel the change.

To set the minimum dimmer level for one dimmer

1. From the *Set Rack Configuration* menu, select *Set Minimum Voltage*.
2. Press ➢ and use ∧ or ∨ to select a dimmer.
3. Press ➢ and use ∧ or ∨ to set a minimum dimmer level (off, full, or 1%-99%) for the selected dimmer.
4. Press ESC to return to the *Set Rack Configuration* menu.

Set Processor Key Lock



To avoid accidental or unauthorized use of the keys, you can lock the keypad. When the option is enabled, the processor keys are locked automatically after 10 minutes with no keyboard input. When disabled, the keys are always unlocked. The factory default setting for this option is disabled. When locked, a key symbol is displayed in the bottom right corner of the default display.

To enable or disable the processor key lock option

1. From the main menu, select *Set Rack Configuration*.
2. Press ➢ and use ∧ or ∨ to select *Set Processor Key Locking*.
3. Press ➢ and use ∧ or ∨ to select *Disabled* (the default) or *Enabled*.
4. Press ESC to return to the *Set Rack Configuration* menu.

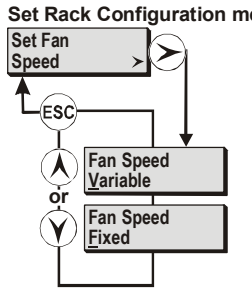
To enable the processor key lock option from the main menu

- From the main menu, press and hold ESC and OK simultaneously for 2 seconds. If key locking is enabled, the keypad will be locked and the key symbol displayed in the bottom right corner of the default display.

To temporarily unlock the keys

- Press and hold ESC and OK simultaneously for 2 seconds. Unless the *Set Processor Key Lock* option is disabled, the keys will again lock after 10 minutes of no key activity.

Set Fan Speed



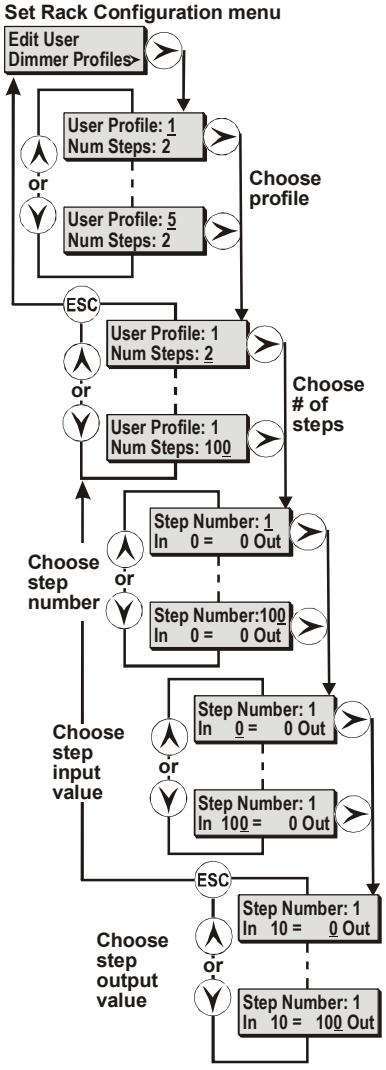
You can set the speed of the cooling fans to vary automatically to provide cooling as required, or to run at full speed continuously. Under normal operating conditions, the fans should be set to variable speed, as this will normally reduce noise and current consumption.

To set the fan speed

1. From the *Set Rack Configuration* menu, select *Set Fan Speed*.
2. Press ➢ and use ∧ or ∨ to set the fan speed control to Fixed or Variable.
3. Press ESC to return to the *Set Rack Configuration* menu.

***Note**: Activation of a Panic button, or Automatic Panic (link LK8 on Central Termination Card set to automatic panic and the Processor Module**s** removed), or detection of a module overtemperature condition, will automatically set the cooling fans to full speed continuously.*

Edit User Dimmer Profiles



This function lets you set up or edit the five user-defined dimmer profiles that may be applied using the *Set Dimmer Profiles* function of the main menu (see page 30). You can set input and output values for up to 100 steps for each user profile.

These curves initially contain 2 steps, at 0% and at 100%. To change a user profile from its default, specify the profile number, then the number of steps, and then edit the value for each of the steps.

Both 0% and 100% are counted as steps. To create a profile divided equally into 4 parts you need to specify 5 steps. As you enter new values, the software linearly interpolates between each pair of adjoining steps. To get a smooth profile, you will need to enter a considerable number of steps.

To set up, or edit user profiles

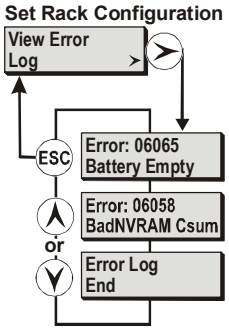
1. From the main menu, select *Set Rack Configuration*.
2. Press ➢ and use ∧ or ∨ to select *Edit User Dimmer Profiles*.
3. Press ➢ and use ∧ or ∨ to select the profile number (1-5).
4. Press ➢ and use ∧ or ∨ to select the number of steps to create in this profile (2-100).
5. Press ➢ to and select a step number (1-100).
6. Press ➢ and select an input percentage value (0-100).
7. Press ➢ and select an output percentage value (0-100).
8. Repeat steps 5-7 as needed to input and output values for all the steps in the profile.
9. Press ESC to return to the user profile selection screen. You will be asked to confirm creating the new profile.
10. Press OK to confirm the changes or ESC to cancel them.
11. Repeat steps 3-10 as needed to set additional user profile information.
12. Press ESC to return to the *Set Rack Configuration* menu.

Calibrating the Rack

The *Calibration* menu lets service representatives calibrate the rack for the status reporting software. This menu is password protected, and is discussed in detail starting on page 45.

Note: *You should not make any changes to options available in this menu unless specifically advised to do so by a Strand Lighting representative.*

View Error Log



The dimmer rack software monitors the system for faults and displays an error code on the LCD when a fault condition occurs. Each error has a unique error number and is logged internally and in non-volatile memory (see page 56).

Automatic error log display

If an error occurs when you are in any of the menus, the error will be displayed automatically when you press ESC to exit the menu.

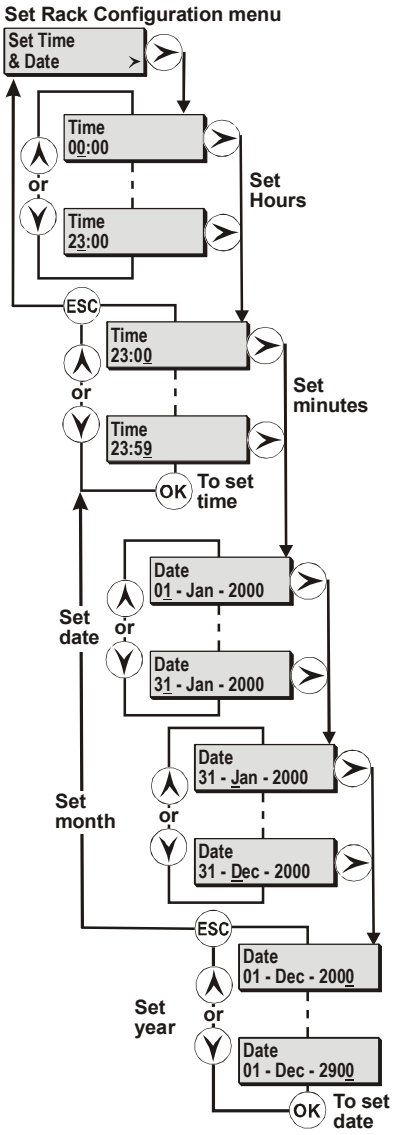
1. Use ∧ or ∨ to scroll through the error log.
2. Press ESC to escape from the error log back to the original menu. You will be asked if you want to clear the error log.
3. Press OK to clear the error log, or ESC to leave the errors in the log and return to the original menu.

To view the error log when it is not automatically displayed

1. From the *Set Rack Configuration* menu, select *View Error Log*.
2. Press ➢.
3. Use ∧ or ∨ to scroll through the error log.
4. Press ESC to return to the *Set Rack Configuration* menu. You will be asked if you want to clear the error log.
5. Press OK to clear the error log, or ESC to leave the errors in the log and return to the *Set Rack Configuration* menu.

Note: *if there are no entries in the error log, pressing ➢ to enter the log will do nothing.*

Set Time and Date



This function lets you set the system time and date, ensuring that all system reporting is time-stamped correctly. System time is set in 24-hour mode.

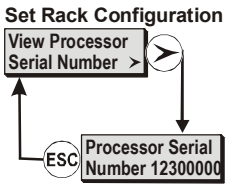
To set the system time and date

1. From the *Set Rack Configuration* menu, select *Set Time & Date*.
2. Press ➢. And use ∧ or ∨ to change the hours display.
3. Press ➢. And use ∧ or ∨ to change the minutes display.
4. Press OK.
5. Press ➢. And use ∧ or ∨ to change the date.
6. Press ➢. And use ∧ or ∨ to change the month.
7. Press ➢. And use ∧ or ∨ to change the year.
8. Press OK.
9. Press ESC ESC to return to the *Set Rack Configuration* menu.

Note: *You must press OK after each change, e.g., press OK after changing the time and after changing the date, otherwise the change will not be recorded.*

Note: *The system date will automatically change to the 29th February after midnight on the 28th of February each leap year.*

View Processor Serial Number

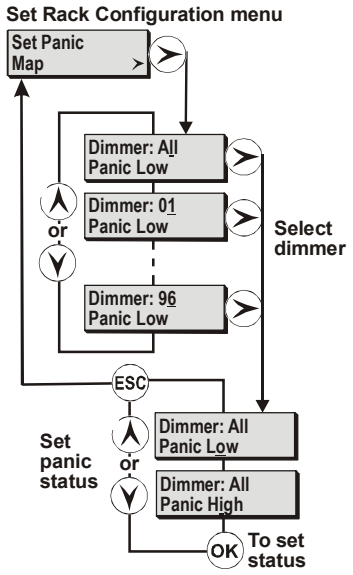


For referencing a specific rack processor to Strand Lighting, you may need to find its serial number.

To check the serial number of your rack processor module

1. From the *Set Rack Configuration* menu, select *View Processor Serial Number*.
2. Press ➢.
3. Press ESC to return to the *Set Rack Configuration* menu.

Set Panic Map



This function lets you set dimmers that will be set to full On (High) or Off (Low) when Panic is activated. Panic takes precedence over all other control inputs, and will set the dimmer output to High or Low irrespective of the Maximum Voltage setting for the dimmer.

To set all dimmers for Panic activation

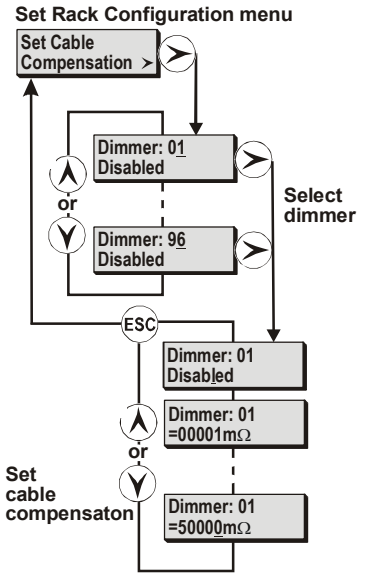
1. From the *Set Rack Configuration* menu, select *Set Panic Map*.
2. Press ➢ ➢ and use ∧ or ∨ to select panic status (High or Low).
3. Press OK to set the panic status for all dimmers.
4. Press ESC to return to the *Set Rack Configuration* menu. You will be asked to confirm your changes.
5. Press OK to confirm the changes or ESC to cancel them.

To set individual dimmers for Panic activation

1. From the *Set Rack Configuration* menu, select *Set Panic Map*.
2. Press ➢ and use ∧ or ∨ to select a dimmer number (1 to 96) or All.
3. Press ➢ and use ∧ or ∨ to select panic status (High or Low).
4. Repeat steps 2 and 3 as needed.
5. Press ESC to return to the *Set Rack Configuration* menu. You will be asked to confirm your changes.
6. Press OK to confirm the changes or ESC to cancel them.

Caution: The Panic states of High and Low are positive states controlled by Automatic Panic, or an external Panic switch. If a dimmer is set to 'Panic Low' the output is positively driven from its current value to 0%. Likewise, if a dimmer is set to 'Panic High' the output is positively driven to 100% as the result of panic activation.

Set Cable Compensation



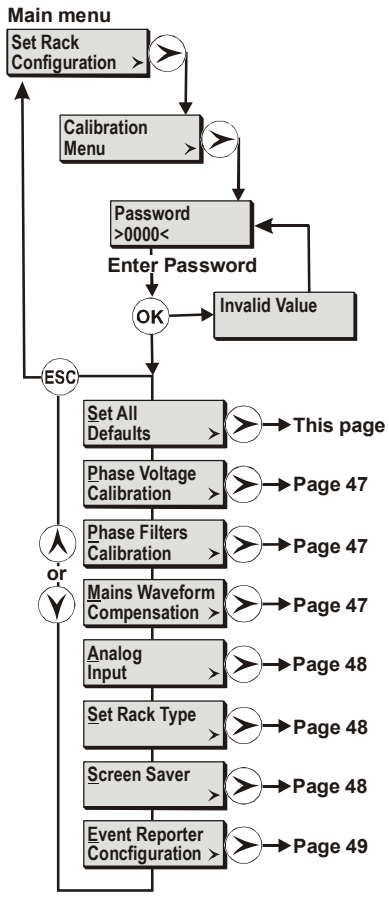
This function lets you set cable resistance (in milliohms) for each dimmer. To activate cable compensation, you must 'Learn' the dimmer loads so that the system knows what current will be drawn at each specified dimmer level, and therefore what voltage to add to the dimmer.

The default setting for cable compensation is *Disabled*.

To set the cable compensation for selected dimmers

1. From the *Set Rack Configuration* menu, select *Set Cable Compensation*.
2. Press ➢ and use ∧ or ∨ to select a dimmer number (1 to 96).
3. Press ➢ and use ∧ or ∨ to set the cable compensation to a value between 00001mΩ and 50000mΩ.
4. Repeat step 2 and step 3 as needed.
5. Press ESC to return to the *Set Rack Configuration* menu.

Calibration Menu



Calibration Menu functions are protected by a four-digit password. The Calibration Menu will not appear unless the password is entered.

To enter the *Calibration* menu

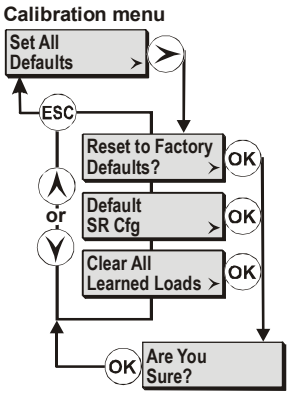
1. From the main menu, select *Set Rack Configuration*.
2. Press ➢ and use ∧ or ∨ to select *Calibration Menu*.
3. Press ➢ to display the password entry.
4. Use ∧ or ∨ to enter each digit of the password, pressing ➢ to move to the next digit.
5. Press OK.

If you enter an incorrect password the *Calibration* menu will not be displayed. Re-enter the password.

The SLD series dimmer rack password is 2606

Caution: The Calibration Menu is normally used only by a service representative of Strand Lighting. You should not make any changes to the options available in this menu unless advised to do so by Strand Lighting.

Set All Defaults



This option enables you to reset the system to the factory default settings, clear all the learned load profiles, or set only the event report configuration limits to their factory defaults.

To set the defaults

1. From the *Calibration* menu, select *Set All Defaults*.
2. Press ➢ and use ∧ or ∨ to select the default you want to set.
3. Press ➢. You will be asked to confirm changing the settings to defaults.
4. Press OK to reset settings to default or ESC to cancel the operation.
5. Press ESC to return to the *Calibration* menu.

The *Default SR Cfg* option lets you set only the defaults for the *Event Report Configuration* menu. The default tolerances for the *Event Report Configuration* menu are shown below.

The *Clear Learned Loads* option can be used if you decide that learning loads is too time consuming due to frequently changing loads. Clearing the learned loads will return the system to a simple load/no load sensing system.

Factory default settings are shown below.

Event Log Tolerances

Load % Tolerance	10% of expected load
Load Absolute Tolerance	5% of maximum learnt load
No Load Threshold	188mA for 20A modules, 250mA for 25A modules
Overload Threshold	110%
Fade Rate Limit	1000mv/mains cycle

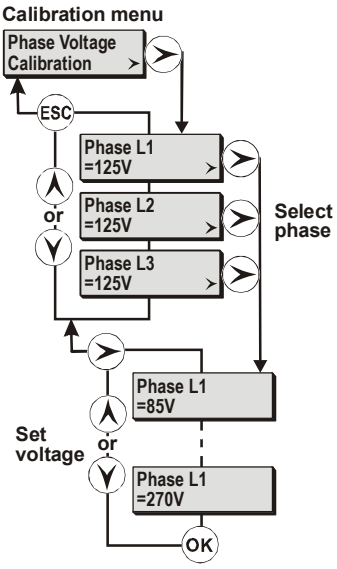
Dimmer Defaults

Dimmer Level	All = Input. Dimmers take level from control inputs.
Profile	All dimmers = square
Response	All dimmers = medium
Max Voltage	230V/120V
Min Level	Off
Fluorescent Topset	120V for 120VAC racks, 195V for 230V racks
Fluorescent Cutoff	40V for 120VAC racks, 80V for 230V racks
Non-Dim Threshold	5%
Dimmer DMX Mode	A htp B

Rack Defaults

Rack Number	1
Rack Language	English
Fan Speed	Variable
DMX Fail Preset	Off. On DMX fail, dimmers fade OFF after 10 secs.
DMX Fail Hold Time	10 secs.
Keypad Lock Enable	Disabled
DMX Patch	1...n sequential (DMX A and DMX B)
User Profiles	1:1 exact linear
Waveform Compensation	On
Analogue Patch	All inputs disabled and unpatched
Circuit ID Patch	1, 2, 3...n
SWC Fade Time	5 secs.
SWC Preset Levels	0
SWC Preset Number	Off
SWC Manual Levels	0
Outlook Fade Time	5 secs., except ON Preset, which is 0 secs. Manual fade time default is also 0 secs.
Outlook Preset Levels	P1= All Dimmers 100%, P2=85%, P3=70%, P4=60%, P5=50%, P6=40%, P7=30%, P8=20%
Outlook Power Up	Preset off. On power-up, no Outlook Preset activated.
Outlook Patch	All dimmers Room 16, Channel15
Outlook Room Links	All rooms unlinked
Panic Map	All dimmers set to Panic=Off
Screen Saver	On

Phase Voltage Calibration



This function lets you set the voltage of each phase of the supply against the measured voltage.

To view the voltage on each phase

1. From the *Calibration* menu, select *Phase Voltage Calibration*.
2. Press ➢ and use ∧ or ∨ to view the phase voltages as they are currently set.
3. Press ESC to return to the *Calibration* menu.

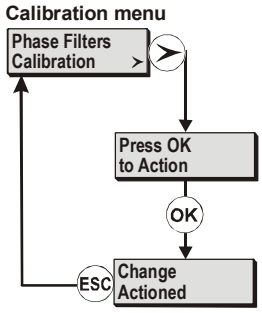
To set the phase voltage to the measured voltage

1. From the *Calibration* menu, select *Phase Voltage Calibration*.
2. Press ➢ and use ∧ or ∨ to select the phase to change.
3. Press ➢ and use ∧ or ∨ to set the voltage to the measured value.
4. Press OK to set the voltage.
5. Repeat steps 2 through 4 to set the other phase voltages.
6. Press ESC to return to the *Calibration* menu.

Caution: Do not adjust the Phase Voltage unless specifically advised to do so by a representative of Strand Lighting

Note: *When you remove or insert a backup rack processor, the measured phase voltage will increase or decrease by about 2% (about 5 volts for 230 volt systems or 2.4 volts for 120 volt systems). This is due to the additional load that the backup processor generates. To maintain accurate control of your rack, whenever a backup processor is inserted or removed you should recalibrate phase voltages.*

Phase Filters Calibration



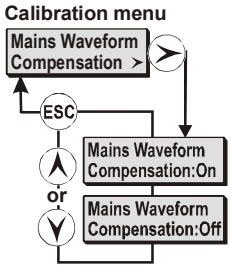
This function ensures that the processor module zero crossover time is synchronized with the mains. You must **not** activate this while a DMX signal is connected.

To calibrate the phase filters

1. From the *Calibration* menu, select *Phase Filters Calibration*.
2. Press ➢. You will be asked to confirm that you want to calibrate the phase filters.
3. Press OK to calibrate the phase filters.
4. Press ESC to return to the *Calibration* menu.

Caution: Do not adjust the Phase Filters unless specifically advised to do so by a representative of Strand Lighting.

Mains Waveform Compensation



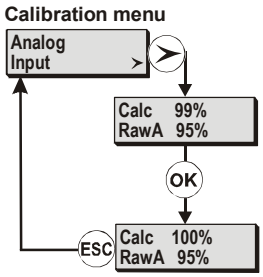
This function is designed to compensate for deformations in the shape of the supply waveform. The default setting is On.

To change the status of the Waveform Compensation

1. From the *Calibration* menu, select *Mains Waveform Compensation*.
2. Press ➢ and use ∧ or ∨ to select the waveform compensation status (On or Off).
3. Press ESC. To return to the *Calibration* menu. You will be asked to confirm the change to the waveform compensation setting.
4. Press OK to accept the new setting or ESC to cancel the change.

Caution: Do not adjust the Waveform Compensation status unless specifically advised to do so by a representative of Strand Lighting.

Analog Input



This function lets you set the Analog Input scaling factor such that a 100% output from the analog controls will be correctly read as 100% by the rack processor module. This factor is normally set on site during commissioning.

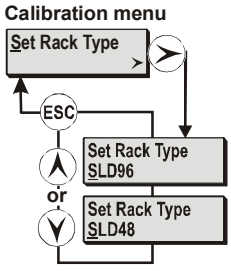
Two values are displayed as shown:

- '**RawA**' is the unscaled average of Analog Input channels 1 and 2.
- '**Calc**' is the RawA value scaled by the current Analog Input scaling factor.

To recalculate the analog input scaling

1. Set analog inputs 1 and 2 to FULL.
2. From the *Calibration* menu, select *Analog Input*.
3. Press ➢.
4. Press OK. The analog input scaling factor will be recalculated and the **Calc** value displayed as 100%.
5. Press ESC to return to the *Calibration* menu.

Set Rack Type



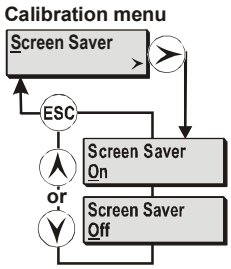
This function lets you set whether you have a 96-way dimmer rack (SLD96) or a 48-way dimmer rack (SLD48).

To set rack type

1. From the *Calibration* menu, select *Set Rack Type*.
2. Press ➢ and use ∧ or ∨ to set the rack type.
3. Press ESC to return to the *Calibration* menu.

Caution: Do not change the rack type unless specifically advised to do so by a representative of Strand Lighting.

Set Screen Saver



This function lets you turn the screen saver on and off. The screen saver is used to prevent the LCD from degrading over time.

To set the screen saver

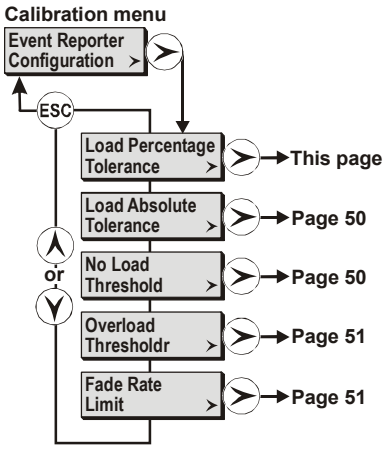
1. From the *Calibration* menu, select *Screen Saver*.
2. Press ➢ and use ∧ or ∨ to select On or Off.
3. Press ESC to return to the *Calibration* menu.

Configure the Event Reporter

The *Event Reporter Configuration* menu lets service representatives configure the event reporter. This menu is under the *Calibration* menu, and is discussed in detail starting on page 49.

Caution: Do not make changes to options in this menu unless specifically advised to do so by a Strand Lighting representative.

Event Report Configuration



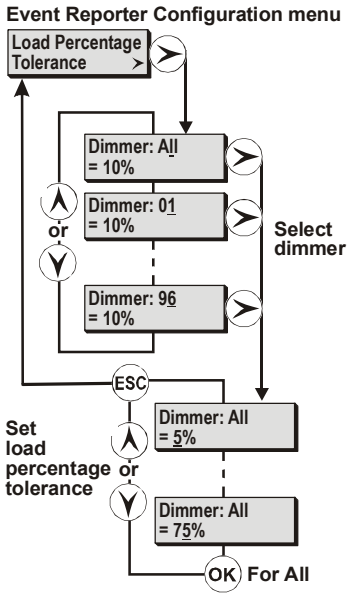
The *Event Report Configuration* menu lets you set the tolerances for the various parameters that are monitored by the dimmers. Any parameter measured as being outside the tolerance limits set in this function will result in a dimmer event being reported in the event log.

Caution: Do not make changes to options in this menu unless specifically advised to do so by a Strand Lighting representative.

To get to the Event Reporter Configuration menu

1. From the *Calibration* menu, select *Event Reporter Configuration*.
2. Press ➢ and use ∧ or ∨ to select the event to configure.

Load Percentage Tolerance



This function lets you set a load tolerance of between 5 and 75% of expected load for all dimmers, or selected dimmers in the rack.

To set the Load Percentage Tolerance for all dimmers

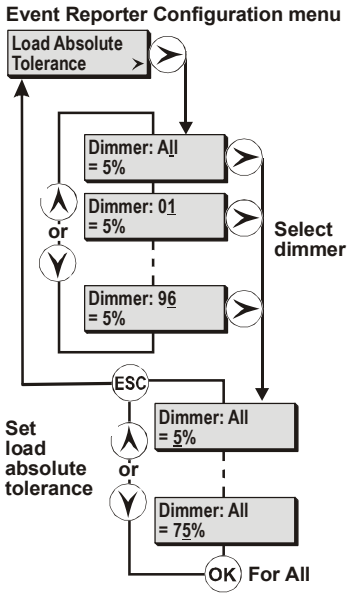
1. From the *Event Reporter Configuration* menu, select *Load Percentage Tolerance*.
2. Press ➤ ➤ and use ∧ or ∨ to set the tolerance for all dimmers to between 5 and 75%.
3. Press OK.
4. Press ESC to return to the *Event Reporter Configuration* menu.

To set the Load Percentage Tolerance for one dimmer

1. From the *Event Reporter Configuration* menu, select *Load Percentage Tolerance*.
2. Press ➤ and use ∧ or ∨ to select a dimmer (1-96).
3. Press ➤ and use ∧ or ∨ to set the tolerance for the selected dimmer to between 5 and 75%.
4. Press ESC to return to the *Event Reporter Configuration* menu.

Note: *The default Load Percentage Tolerance is 10% of expected load*

Load Absolute Tolerance



This function lets you set a load tolerance of between 5 and 75% of the maximum learnt load for all dimmers, or selected dimmers in the rack.

To set the Load Absolute Tolerance for all dimmers

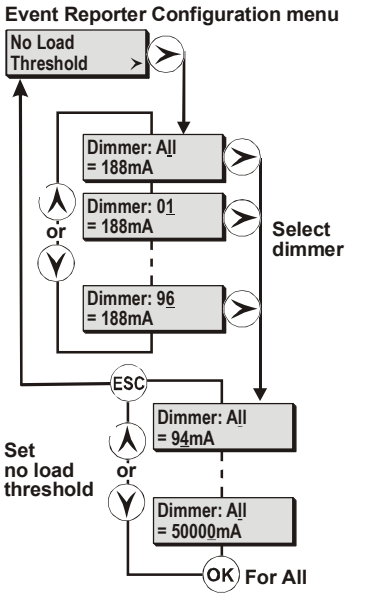
1. From the *Event Reporter Configuration* menu, select *Load Absolute Tolerance*.
2. Press ➤ ➤ and use ∧ or ∨ to set the tolerance for all dimmers to between 5 and 75%.
3. Press OK.
4. Press ESC to return to the *Event Reporter Configuration* menu.

To set the Load Absolute Tolerance for one dimmer

1. From the *Event Reporter Configuration* menu, select *Load Absolute Tolerance*.
2. Press ➤ and use ∧ or ∨ to select a dimmer (1-96).
3. Press ➤ and use ∧ or ∨ to set the tolerance for the selected dimmer to between 5 and 75%.
4. Press ESC to return to the *Event Reporter Configuration* menu.

Note: *The default Load Absolute Tolerance is 5% of maximum learnt load.*

No Load Threshold



This function lets you set up a threshold current value for all dimmers, or selected dimmers, below which a 'No Load' event report will be logged.

To set the no load threshold for all dimmers

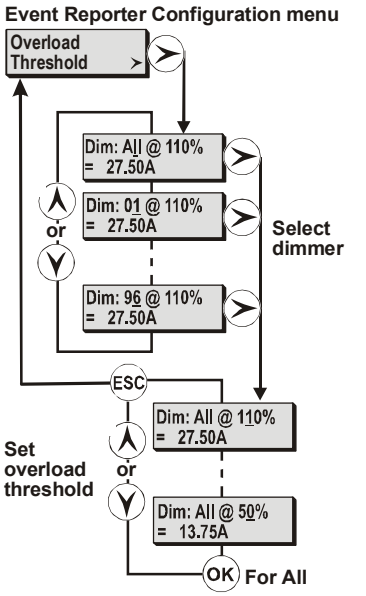
1. From the *Event Reporter Configuration* menu, select *No Load Threshold*.
2. Press ➤ ➤ and use ∧ or ∨ to set the no load threshold for all dimmers to between 94mA and 50,000mA.
3. Press OK.
4. Press ESC to return to the *Event Reporter Configuration* menu.

To set the no load threshold for one dimmers

1. From the *Event Reporter Configuration* menu, select *No Load Threshold*.
2. Press ➤ and use ∧ or ∨ to select a dimmer.
3. Press ➤ and use ∧ or ∨ to set the no load threshold for the selected dimmer to between 94mA and 50,000mA.
4. Press ESC to return to the *Event Reporter Configuration* menu.

Note: *The default No Load Threshold is 188mA for 20A modules and 250mA for 25A modules.*

Overload Threshold



This function lets you set up a threshold current percentage for all dimmers or selected dimmers above which an Overload event report will be logged.

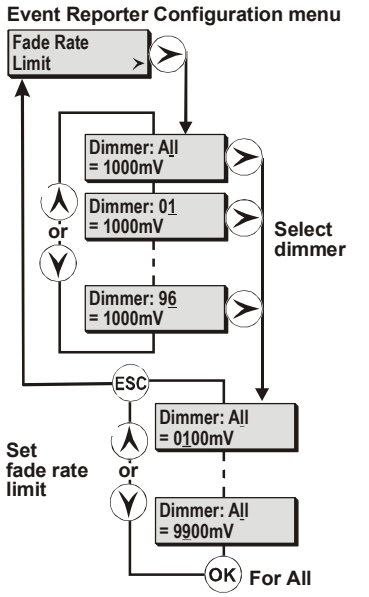
To set the overload threshold for all dimmers

1. From the *Event Reporter Configuration* menu, select *Overload Threshold*.
2. Press ➤ ➤ and use ∧ or ∨ to set the overload threshold for all dimmers to between 50% and 110%.
3. Press OK to set the threshold percentage.
4. Press ESC to return to the *Event Reporter Configuration* menu.

To set the overload threshold for one dimmer

1. From the *Event Reporter Configuration* menu, select *Overload Threshold*.
2. Press ➤ and use ∧ or ∨ to select a dimmer.
3. Press ➤ and use ∧ or ∨ to set the overload threshold for the selected dimmer to between 50% and 110%.
4. Press ESC to return to the *Event Reporter Configuration* menu.

Fade Rate Limit



This function lets you set up a fade rate limit for all dimmers, or individual dimmers, beyond which load errors are not reported. The fade rate limit can be set between 100mV and 9900 mV per mains cycle, representing the maximum rate of change of output voltage per mains cycle.

To set the fade rate limit for all dimmers

1. From the *Event Reporter Configuration* menu, select *Fade Rate Limit*.
2. Press (➤) (➤) and use (∧) or (∨) to set the fade rate limit for all dimmers to between 100mV and 9900mV.
3. Press (OK).
4. Press (ESC) to return to the *Event Reporter Configuration* menu.

To set the fade rate limit for one dimmer

1. From the *Event Reporter Configuration* menu, select *Fade Rate Limit*.
2. Press (➤) and use (∧) or (∨) to select a dimmer.
3. Press (➤) and use (∧) or (∨) to set the fade rate limit for the selected dimmer to between 100mV and 9900mV.
4. Press (ESC) to return to the *Event Reporter Configuration* menu.

Section 4 - Basic Troubleshooting

General

This section provides basic troubleshooting procedures for SLD series dimmer racks. It does not provide comprehensive maintenance data, but lets you solve simple problems and helps Strand Lighting with initial data when these procedures are not effective.

For best system operation, do a routine check and cleaning once per year unless the operating environment is unusually harsh or dirty. Please consult Strand Lighting Field Service if you are in doubt about the frequency of maintenance required for your system. Service and maintenance operations other than routine checks and cleaning are seldom required. In case of problems, and in order to save time, follow the procedures outlined in this section before calling Strand Lighting. Take note of the results of each step, as you will be asked this information if you call a Strand Lighting service representative. In order to avoid miscommunication, ensure that the person contacting Strand Lighting is the person doing the tests. All servicing except dimmer and mechanical components should be performed by sub-assembly replacement.

Control Signal Flow

The following diagram illustrates the control signal flow through the dimmer rack. It is included to show how the programmable settings interrelate.

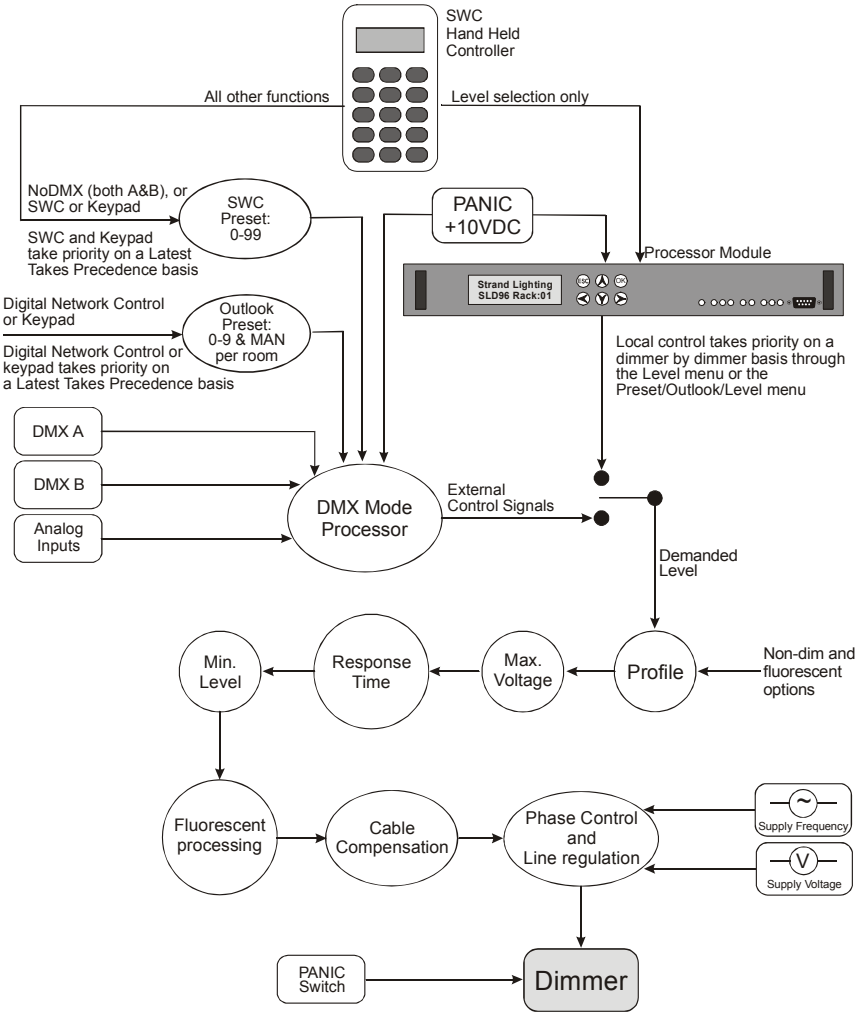


Figure 9 - Control Signal Flow

Notes on control signal flow

1. The Outlook Presets, SWC Presets, DMX and Analog inputs are all active at the same time. The Dimmer DMX Mode setting determines how these inputs interrelate (see *Section 3 - Programming the SLD series Dimmer* Rack starting on page 15).
2. The keys on the Rack Processor Module override all external control signals.
3. PANIC activation overrides everything. Dimmers will be set to their configured panic level (full ON or OFF) when the external PANIC switch is activated. The PANIC signal also forces the Rack Processor Module to stop driving dimmers.
4. Cycle-by cycle voltage and frequency compensation is built in.

Failure and Status LEDs

The LEDs on the front of each Rack Processor Module are the first level of diagnostics and provide immediate visual status indication. The nine LEDs on the front of the Processor Module indicate the following:

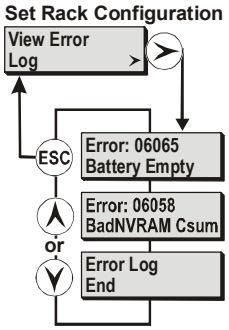
- **Active** (green): This Rack Processor Module is controlling the dimmers. The backup Rack Processor Module LED will be extinguished unless a failure of the master processor causes automatic changeover.
- **Phase 1** (green): Phase 1 power is present and within tolerances.
- **Phase 2** (green): Phase 2 power is present and within tolerances.
- **Phase 3** (green): Phase 3 power is present and within tolerances.
- **DMX A** (green): DMX A signal is present and OK.
- **DMX B** (green): DMX B signal is present and OK.
- **Module Event** (red): A dimmer module error has been reported.
- **Overtemp** (red): Flashes to indicate rack is about to go into overtemperature condition. If fans are set to variable, they are switched to full on at this time. LED on steady indicates overtemperature condition.
- **Panic** (red): Panic mode is activated.

Dimmer LEDs

A green status LED is located under each breaker on all dimmer modules. These LEDs perform a number of functions, as follows:

- Luminaire Intensity: The brightness of the LED represents the intensity of the luminaires controlled by the dimmer output.
- All LEDs Flashing: The Panic button has been pressed or loss of DC supply to the dimmer rack processor.
- All LEDs on a Vertical Column Flashing: Loss of AC supply to that column of dimmers.
- Individual LEDs Flashing: Dimmer shutdown on overtemperature.
- LEDs Off: Luminaires at 0% intensity.

The Error Log



Dimmer rack software monitors the system for faults and will display an error code on the LCD if a fault condition occurs. Each error has a unique error number as shown in the Error Messages table below, and is logged internally and in non-volatile memory.

Warning: An error appearing in the error log indicates a serious problem, which should be reported to Strand Lighting. Do not ignore error log entries. Write down the error number, find the software version, and contact your Strand Lighting service agent or dealer.

Automatic error log display

If an error occurs when you are in any of the menus, the error will be displayed automatically when you press ESC to exit the menu.

1. Use ∧ or ∨ to scroll through the error log.
2. Press ESC to escape from the error log back to the original menu. You will be asked if you want to clear the error log.
3. Press OK to clear the error log, or ESC to leave the errors in the log and return to the original menu.

To view the error log when it is not automatically displayed

1. From the *Set Rack Configuration* menu, select *View Error Log*.
2. Press (➢).
3. Use (⋏) or (⋎) to scroll through the error log.
4. Press (ESC) to return to the *Set Rack Configuration* menu. You will be asked if you want to clear the error log.
5. Press (OK) to clear the error log, or (ESC) to leave the errors in the log and return to the *Set Rack Configuration* menu.

Error Messages

The following table provides a list of possible error messages, together with a description of the error.

Error Status Messages

Message	Description
Invalid Error Code	An invalid error code has been received
Error nnnnn	An error occurred (see codes below)
Tests OK	All Tests OK
Please Birth!	The processor should be re-birthed
Release EXIT key	Release EXIT key
Finished testing	All tests have been completed
Error Log Empty	There are no errors in the error log
Error Log End	You have reached the end of the error log
Error Log Start	You have reached the start of the error log
Testing ... Wait	Tests are in progress
Test OK	All tests have passed
Setting Database	The database is being initialized
Clear Error Log?	Do you want to clear the error log?

Error Messages

n = number c = character

Code	Message	Description
04224	A/D Timeout	A/D faulty
04225	A/D Timeout	A/D faulty
04226	Dghtr ID Unknown	Daughter ID Unknown
04227	Conf Lvn Unknown	Config Link Unknown
04228	Volt RtgChanged > MaxVoltsReset	Volt Rating Changed
04229	Wiring Changed > SlotMap Reset	Wiring Type Changed
04230	Phasing Changed > SlotMap Reset	Phases Fitted Changed
04231	RackTypeChanged > SlotMap Reset	Rack Type Changed
04233	Main ID Unknown	Main Processor ID Unknown
04234	Co Proc Reset	Co Processor Reset
04235	Co Proc Missing	Co Processor Missing
04480	LCD Failed	LCD failure
04481	ANSI error	Invalid escape sequence

n = number c = character

Code	Message	Description
05632	Invalid Db Rqst > nn nn nn nn nnnn	Invalid database request
05762	Clock Access	TOY Clock access error
06016	I2C bus error	I2C bus error
06017	R/W FailCalib > EEAdd: nnW:nnR:nn	EEPROM write error
06020	RT ClockStopped	Real Time Clock stopped
06021	RT ClockFast	Real Time Clock running fast
06022	Proc A/D NotConv	Processor A/D not converting
06023	Proc A/DFailure > Half-Way=n.nnV Min:n.nnMax:n.nn	Processor A/D failure on reading Half-Way signal
06024	A/D No Conv	A/D not converting
06025	A/Dfailure Half-Way=n.nn Min:n.nnMax:n.nn	A/D failure on reading Half-Way signal
06026	A/D No Conv	A/D not converting
06027	A/DFailure > Half-Way=n.nnV Min:n.nn Max:n.nn	UPP5 A/D failure on reading Half-Way signal
06028	An.InputMuxFail > An.Mux n = n.nnV Min:n.nnMax:n.nn	Analogue Input Multiplexer failure
06029	PrecRectBoard n > Reading=n.nnV Min:n.nnMax:n.nn	Precision Rectifier on Board 1/2 error
06030	Real RMSMainsEr Phase n=nnnV Min:nnnVMax:nnnV	Real RMS mains input error
06031	LCD ContRegistr > Reg:nn W:nnR:nn	LCD Controller Test write/read error
06032	Battery Not Det > Reading=n.nnV Min:n.nnMax:n.nn	Battery missing
06033	X-Cross GrossEr > Phase n nnn.nHz nnn.nHz nnn.nH	Zero Cross gross error
06034	X-Cross Not Sym > Phase n O:nnnnusE::nnnnus	Zero Cross not symmetrical
06035	X-Cross MainsEr > Phase n nnn.nHz nnn.nHz nnn.nHz	Zero Cross Mains error
06036	Panic IPStuckLo	Panic test input signal stuck low
06037	Panic IPStuckHi	Panic test input signal stuck high
06038	ExtCon nn StuckLo	External Contact signal stuck low
06039	ExtCon nn StuckHi	External Contact signal stuck high
06040	10V ISO Level > Reading =n.nnV Min:n.nnMax:n.nn	Isolated 10V level error
06041	An.In nn StuckLo	Analogue Input stuck low
06042	An.In nn StuckHi>DimOutnn	Analogue Input stuck high
06043	Bad Ser.Config	Serial setup given wrong configuration data
06044	RS232 No Tx > Tx c	RS232 no transmitter activity
06045	RS232 No Rx > Tx c Rx c	RS232 no receiver activity
06046	RS232 NoRxNow TX c Rx c	RS232 data received when not expected

n = number c = character

Code	Message	Description
06047	RX232 Rx Bad Tx ccccccccccccc Rx ccccccccccccc > Tx Data cccccccc Rx Data cccccccc	RS232 corrupt data received
06048	RS485 No Tx Tx c	RS485 no transmitter activity
06049	RS485 No Rx	RS485 no receiver activity
06050	RS485 Rx Bad > Tx c Rx c Tx Data c > Rx Data c	RS485 corrupt data received
06055	Bad EE Csum > Now:nn Ref:nn	EEPROM calculated checksum does not match stored value
06056	BadFLASHCsum > Now:nnnnRef:nnnn	FLASH calculated checksum doesnot match stored value
06058	BadNVRAMCsum > PnnAnnnnW:nnR:nn	Bad NVRAM checksum
06059	FLASH no NMI	FLASH NMI not detected during write
06060	FLASH NMI det	FLASH NMI was incorrectly detected
06061	FLASH Bad wrt	FLASH write was bad
06063	SRAM Pattern > A:n:nnnnW:nnR:nn	SRAM pattern test failure
06064	NVRAM Pattern > A:n:nnnnW:nnR:nn	NVRAM pattern test failure
06065	Battery Empty > Reading=n.nn Min:n.nnMax:n.nn	Battery empty
06066	RT ClockNo Int	No real time clock interrupt detected
06067	Main CalData ??	Main calibration data may be suspect
06068	Fan1 outError	Fan1 test error
06069	Fan2 outError	Fan2 test error
06070	X-Cros n Timeout	Zero Cross n timeout error
06071	MFilt n Error	Mains Filter error
06072	Pwr FailStuckLow	Power Fail input stuck low
06075	NVRAM no NMI	NVRAM NMI not detected during write
06076	NVRAM NMI det	NVRAM NMI was incorrectly detected
06077	An.In nnStuckHi > An.Out nn	Analogue input stuck high
06078	SlaveTx No Tx	Slave tx error
06079:	SlaveRx No Rx	Slave rx timeout error
06080	SlaveRx Bad > Tx Data cccccccc Rx Data cccccccc	RS485 corrupt data received
06082	SlaveClkStuck Lo	Slave clock line stuck low
06083	SlaveClkStuck Hi	Slave clock line stuck high
06084	SlaveRstStuck Lo	Slave reset stuck low
06085	SlaveRstStuck Hi	Slave reset stuck high
06087	FanFailnStuckLo	Fan Fail input stuck low
06088	FanFailnStuckHi	Fan Fail input stuck high
06089	PANIC swStuckHi	Panic input stuck high

n = number c = character

Code	Message	Description
06090	PANIC swStuckLo	Panic input stuck low
06091	An.In nn Shorted > DimOut nn	Analogue Input Shorted
06404	NMI Detected > Ad=n nnnn	Unexpected NMI
06658	In delay=nnnnnn > Lo/Hi=nnnn/nnnn	Phase delay out of range
06659	EEP LoadError	Can't load from calibration EEPROM
06660	EEP SaveError	Can't save to calibration EEPROM
06661	EEP CsumError	Invalid checksum in calibration EEPROM
06662	CAL CsumError	Invalid checksum in main calibration EEPROM
06663	CAL DataUpdated	Cal Data updated from EEP
10170	StackRAMfailPat	Stack RAM pattern test failure
10496	A/D busy	A/D stuck busy
10497	Invalid opcode > Ad=n nnnn	Invalid opcode
10498	Stack under > Ad=n nnnn	Stack underflow
10499	Stack overflow > Ad=n nnnn	Stack Overflow
10500	Assert failed > File: ccccccccccc Line: nnnn	Assert failed
17282	smx: ccb not rd	smx: ccb not ready
21377	smx init lnk	smx: link
21379	smx: init sys	smx: init. system
23168	Wbox nnnn	Wall box Error
23296	Reporter nnnn	Reporter Error
23552	Arch Err nnnn	Architecture Wbox Error
26241	Wdog nn timeout	Watchdog timed out

Startup Errors

If you are installing a system that has been on-site for a long period of time (more than 5 months) or have had the dimmer rack turned OFF for a long period of time, the battery may be low. You may get an error #06065 (battery empty), or this error with an additional error #06058 (bad NVRAM checksum)

Battery Empty

This error by itself informs you that the battery is low (less than 3.0VDC). If you do not also have the error #06058, no information has been lost. Clear the error log and leave the dimmer rack ON for at least 12 hours.

Bad NVRAM Checksum

This message informs you that the data stored in non-volatile RAM on the processor has been corrupted. The message will appear if the battery voltage drops below 2.2VDC. At this level, data cannot be maintained. When the system is powered up, the memory is checked to make sure that it has not changed. If it has, the system automatically resets all data to the default values. You will need to reprogram the rack if this message is displayed.

Note: *Before programming, you should re-birth the processor. See Re-birth the Processor on page 61.*

Loading New Software

The dimmer rack software is stored in Flash ROM and can be updated on site from a PC running MS-DOS. In order to perform a software reload, you require the following items:

- An SLD series dimmer rack processor module.
- An IBM compatible PC with COM1 or COM2 serial port.
- An RS232 serial reload cable.

Connecting the PC

Connect the PC to the rack processor module using a standard PC serial extension cable (9-way male 'D' type connector to 9-way female 'D' type connector).

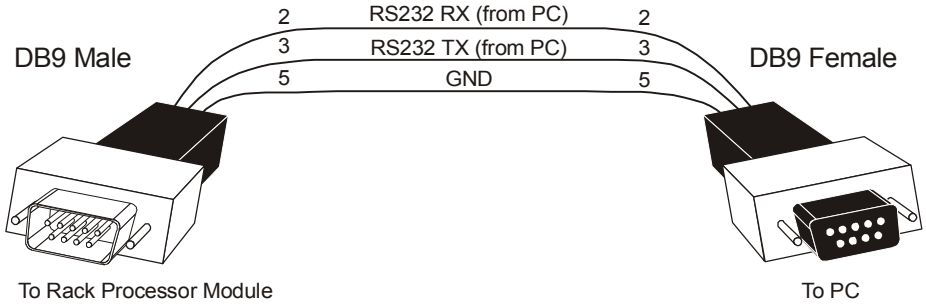


Figure 10 - RS-232 Cable

Put the Rack into Reload Mode

1. Press and hold ◄, ►, and ▲.
2. When the rack processor module is in reload mode, the LCD will be blank and you can release the keys.

Caution: When reloading software on a rack with a backup rack processor module, the backup module must be disabled by disconnecting it. Entering reload mode automatically enables the rack processor module and would cause electrical contention or even damage if the backup module was left connected.

Load the Software

1. Turn the PC ON and make sure that it is in DOS.
2. Switch to the directory that contains the reload software.
3. Run crccheck to check files are ok
4. Type "load", then ENTER to start the reload process. This command will use the COM1 port. If you want to use the com2 port, type "load /COM2" instead. If you have problems loading the software, type "load /?" for a list of options. The load process will take a few minutes.

If error messages are displayed during software loading, write them down and contact your nearest Strand Lighting service department.

Note: *If the rack has a master and backup processor, you must load the new software into each processor while the other processor is removed from the rack. Two processors should never be inserted together as master and backup unless they contain the same version of software.*

Re-birth the Processor

After installing new software you should re-birth the processor. This ensures that all information is returned to its default factory settings. After re-birthing the software you must recalibrate the phase filters and phase voltages.

Note: *If you have Reporter Pro software you can save the dimmer rack configuration to your PC before re-birthing and restore it to the rack processor once this process is completed. For information on how to do this, see the online help that came with your Reporter Pro software. Even if you save the configuration, you must at least recalibrate the phase filters and phase voltages after re-birthing the processor.*

To re-birth the processor

1. If you have Reporter Pro software, save the rack configuration to a PC. For information on how to do this, see the online help that came with your Reporter Pro software.
2. Remove the processor from the rack.
3. Fit a jumper on link 15 (marked LK15) at the right edge of the processor board.
4. Insert the processor into the rack. The database initializes itself and the serial number entry menu appears.
5. Press ➢ repeatedly until menu changes to the time display.
6. Press ➢ ➢ to get to the date display.
7. Press ➢ ➢ ➢ to run the tests. Once the tests are finished you will be prompted to press a key.
8. Press ESC. The display should read “Birth – No error.”
9. Remove the processor from the rack.
10. Remove the jumper you installed earlier on LK15.
11. Replace the processor into the rack.
12. If you saved the rack configuration to a PC, restore it. For information on how to do this, see the online help that came with your Reporter Pro software.
13. Recalibrate the phase filters and phase voltages (see *Phase Voltage Calibration* and *Phase Filters Calibration* starting on page 47.)

Replacing Major Parts

The modular design of SLD series dimmer racks and the immediate visual identification of a faulty module by means of the processor module LEDs and LCD allows for rapid replacement of a faulty module while the system is in operation. The system is designed so that any failure will usually disable, at most, a single dimmer, or rack processor module.

Dimmer modules may be removed after turning OFF the circuit breakers for the module, without the need to turn OFF the dimmer rack. You can replace the dimmer module with one of the same rating and type to verify that the problem is in the dimmer module and not in the rack, lamp, or load wiring.

Replacing Dimmer Modules

To replace a dimmer module

1. Switch OFF the circuit breakers on the suspect dimmer module.
2. Pull the dimmer module straight out of the dimmer rack.
3. Ensure that the circuit breakers on the replacement module are switched OFF.
4. Fit the replacement dimmer module by firmly pushing it into its slot. Do not force the module into position.
5. Switch ON the circuit breakers on the replacement module.

Replacing a Rack Processor Module

Rack processor modules may be unplugged live and replaced in an emergency, however, the rack should normally be switched off for this operation.

If you have only one rack processor module in your dimmer rack, but have more than one rack, you may be able to substitute a module from a less important rack for a faulty module in a critical rack. Otherwise you will have to fit a new module.

If you have Reporter Pro software and have saved the configuration information for the rack, you can download the configuration information from the PC to the replacement rack processor module. For information on how to do this, see the online help that came with your Reporter Pro software.

Note: *When you remove or insert a backup rack processor, the measured phase voltage will increase or decrease by about 2% (about 5 volts for 230 volt systems or 2.4 volts for 120 volt systems). This is due to the additional load that the backup processor generates. To maintain accurate control of your rack, whenever a backup processor is inserted or removed you should recalibrate phase voltages.*

Fault Finding

If a failure occurs, you can speed up fault isolation by considering the following categories of malfunction.

- Major rack problems common to all dimmers or to a whole phase.
- Dimmer problems associated with a single dimmer.
- Dimmer problems not related by phase or rack.

Establish the fault location by interchanging dimmer modules as required. You can swap modules between racks or within a rack providing they are of the same type and rating.

Rack Faults

Symptom: None of the lights will come on

1. Make sure that all three phase LEDs are illuminated. If not, make sure that power to the rack is isolated.
2. Make sure that **'DMX A'** and/or **'DMX B'** LEDs are illuminated, as appropriate. If not, make sure that connectors are secure at both ends, and, using an ohmmeter, make sure that signals and shield are not shorted. If they are not shorted, the most likely cause is an open circuit somewhere along the line.
3. Make sure the DMX mode is correctly set (see page 26).
4. Make sure the DMX start number and/or patch is correctly set (see page 28).

Symptom: Some lights cannot be turned off

Since SLD series dimmer racks take their level control signals from multiple sources, you need to make sure that none of the signals are present.

1. Make sure that the lights are not controlled by a PANIC switch and the switch is turned ON
2. Make sure that presets are not being called up from a hand-held control or wall station.
3. Make sure that the dimmer level is not being set manually from the rack processor module (see page 17).
4. Make sure that an Outlook or SWC preset controlling the lights is not switched ON (see page 19 or 23).
5. Make sure that a minimum level is not set for the dimmer. You cannot switch OFF a dimmer with a minimum level set (see page 40).
6. Make sure that the **DMX A** and **DMX B** LEDs are illuminated, as appropriate. Loss of DMX signal may have caused the lights to go into No DMX preset (see page 24).
7. Make sure that the Outlook power-up preset is not set for the dimmers in question (see page 22).

If all control signals appear to be OFF the problem may be a faulty dimmer module. Check using the rack keypad *Set Level* menu to isolate the module from all external control. Swap the dimmer module to verify the problem.

Symptom: ***The lights flash or become erratic. The DMX A or DMX B LED goes ON and OFF erratically.***

Problems can be caused by over-terminating the line, or not terminating the line at all. Make sure that the last rack in the control run, and only this rack, is terminated. For more information about rack termination, see the *SLD Dimmer Rack Installation Manual*.

Symptom: ***The lights occasionally flash or misbehave.***

This may be caused by interaction with other systems. Try to isolate the occurrence of the problem and tie it in with activity in other parts of the building. Arc welding or unsuppressed motors (elevators, other large motors, etc.) can cause mains disturbances or corruption of control signals. The SLD series rack processor module is highly immune to such problems, but in extreme cases interference can occur.

If you can leave all dimmers ON long enough for one of the disturbances to happen, use *Set Level* in the main menu to set All dimmers to a given (low) level from the processor module keypad. This isolates the external control signals and allows observation of the dimmers alone. If the problem still occurs, then it is a mains-borne interference. The solution will be to reroute the feeder cables to

another supply (if at all possible), or suppress the offending equipment. If, however, the problem goes away, then it may be in the signal wiring (see above), the routing of the wiring (make sure it is not near noisy equipment), or a fault in the control desk

Symptom: ***The hand-held control or wall station operates erratically.***

The wiring between the dimmer racks and control system is similar to the hand-held or wall station wiring. The same apply.

Symptom: ***Panic state not activated on Panic***

- Check Panic Map settings (see page 44).
- Improper Panic station wiring. Check wiring from Panic station.

Symptom: ***Cooling fans are not working.***

Check the fans by setting *Fan Speed Control* in the *Set Rack Configuration* menu to *Fixed*. The fans should come ON immediately. When this setting is Variable, the fan speed is automatically adjusted to ensure that either, or both fans, provide the cooling to the rack as, and when required. Make sure that the fan connector is firmly connected.

Symptom: ***Cannot control dimmers from a single control station.***

- Incorrectly wired control station. Check wiring from the control station to the rack.
- Defective control station. Swap control station with a known good control station to verify problem. Replace the defective station.
- Defective processor module. Replace the processor module.

Symptom: ***Cannot control dimmers, but PANIC is working.***

- Incorrectly seated processor module. Reseat the processor module.
- Defective processor module. Replace the processor module.

Symptom: ***One rack doesn't work properly, the others do.***

This can be caused by the wiring faults as described above. It may also be caused by incorrect programming. It is quite easy to set a dimmer to a level from the keypad, and in so doing disable DMX control. Setting the level from the keypad verifies electrical operation of the dimmer regardless of control system.

An extreme example of a wiring fault is a loose power connection to the rack. Loose neutral connections in particular cause havoc!

Symptom: ***Some dimmers don't appear to work.***

Use the *Set Dimmer Level* menu to check dimmer operation (see page 17).

- If the dimmer fails to work, and all load wiring and connected load has been tested, then the dimmer module will require service.
- If the dimmer works from the keypad, but not from the control desk, make sure that the START NUMBER and PATCH are set correctly.

Make sure that the Dimmer DMX Mode and Profile settings for the dimmer are correct.

Symptom: ***Lights reach 100% intensity with control setting at less than 100%.***

Maximum voltage is set incorrectly (see page 39).

Symptom: ***Lights don't appear to track each other in fades.***

This can be caused by using different dimming curves on each dimmer or setting dimmers to different max. output voltages. The keypad can be used to set ALL dimmers in a rack to the same profile and voltage to rectify the problem (see pages 30 and 39).

Symptom: ***Lights don't reach 100% intensity.***

Max Voltage is set incorrectly (see page 39).

Individual Dimmer Problems

Problems related to individual dimmers are due to one of the following:

- Dimmer Circuit Breaker is OFF
- Load wiring is disconnected
- Burned out lamp in fixture
- Too much load on dimmer caused circuit breaker to trip
- Short circuit in load wiring or fixture caused circuit breaker to trip
- Defective dimmer (probably the thyristor block)

Load circuits are protected by fully magnetic circuit breakers in the dimmer module. These safeguard the thyristors in case of a dimmer overload or short-circuit in the load. Although you can quickly reset a circuit breaker to turn a circuit back ON, you should always first determine what caused the circuit breaker to trip.

Although the circuit breakers are rated for continuous operation at full nominal current, occasional "nuisance" tripping may occur when running a dimmer close to or at its rated maximum load, especially in improperly ventilated dimmer rooms.

Make sure that the problem is not in the load or load wiring by shifting the load to another dimmer.

Verify the bad power module by swapping it with an identical known good unit. If the problem moves, replace or repair the power module.

Make sure that all of the connectors and cables between the dimmer rack and the processor module are seated correctly.

Check for bent connectors on the power supply module.

Check for problems in any external analog circuitry by measuring the DC voltage from the suspected analog input to GND. When the dimmer is supposed to be at 100%, this voltage should be about +10VDC (subject to the calibration programmed for that input).

Reporting Problems

Before troubleshooting for specific troubles which may be encountered with dimmer reporting, all other power module problem categories should be investigated.

Caution: Status reporting will not work correctly if you have a PC with Reporter Pro and a console with Reporter for Consoles connected and operating at the same time. Disconnect one or the other before proceeding.

Symptom: ***Dimmer keeps generating load profile errors.***

The load profile % and abs tolerances have probably been set too tight. Set them back to default by using the "Default SR Config" option in the *Set All Default* item of the *Set Rack Configuration* menu (see page 45). If this fails, try widening these variables a little at a time until the problem goes away (see page 50). Please consult Strand Field Service before adjusting these variables.

Symptom: ***Can't control a dimmer, though it has output***

The dimmer is currently being learnt (see page 34)

Fluorescent Dimmer Problems

Before troubleshooting for problems specific to fluorescent circuits, investigate all other power module problem categories.

Fluorescent lamps operate best when the dimmer response is set to "Slow." See *Set Dimmer* Response on page 33 for how to change this setting.

Periodic Maintenance

Periodic maintenance should be done every six to twelve months, depending on the environmental conditions. Full details of maintenance procedures are beyond the scope of this manual. However, a basic checklist is provided summarizing the procedures. Users wishing to carry out periodic maintenance themselves should contact Strand Lighting field service for details.

1. Disconnect the rack from power or turn OFF power to the rack.
2. Inspect the dimmer rack for loose connections and build-up of dust that could impede airflow. Tighten any loose connections found at this time.
3. Vacuum out any excessive dust build-up in the dimmer rack, while power to the rack is shut down.
4. Reconnect the rack, turn ON power and make sure that all dimmers work correctly. Check the Panic switch to make sure that it turns ON the selected dimmers.
5. Make sure that the fans are operational. If not, trouble shoot as necessary and replace or repair the defective fan.
6. Make sure that ventilation to the rack has not been blocked.
7. Exercise all circuit breakers by turning them ON and OFF several times. The arc produced when the circuit breakers engage and disengage will clean corrosion and dust off of the contacts. The lights for the dimmers should be ON when you do this.

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Offices and Service Centers

World Wide Web: http://www.strandlighting.com

Berlin
Strand Lighting GmbH Ullsteinstrasse 114-142, Haus C, Berlin D-12109, Germany
Tel: +49 30 707 9510, Fax: +49 30 707 95199
E mail: service@strand-lighting.de

Hong Kong
Strand Lighting Asia 20/F Delta House, 3 On Yiu Street, Shatin, N.T., Hong Kong.
Tel: +852 2757 3033, Fax: +852 2757 1767
E mail: service@stranda.com.hk

London
Strand Lighting London Unit 3 Hammersmith Studios, Yeldham Road
Hammersmith, London W68JF
Tel: +44 (0)208 735 9790, Fax: +44 (0)208 735 9799
E mail: service@stranduk.com

Los Angeles
Strand Lighting Inc 6603 Darin Way, Cypress, CA 90630, USA.
Tel: +1 714 230 8200, Fax: +1 714 899 0042
E mail: service@strandlight.com
US Service & Support: +1 800 4 STRAND (+1 800.478.7263)

Moscow
Strand Lighting Moscow Novinsky Boulevard 20A, Buildings 3-6, Moscow 121069, Russia
Tel: +7 095 234 42 20, Fax: +7 095 234 42 21
E mail: service@strand-lighting.de

Paris
Strand Lighting France 1 Rue de l'Arc de Triomphe, Paris 75017, France
Tel: +33 15 805 1130, Fax: +33 144 09 0233
E mail: service@stranduk.com

Rome
Strand Lighting Italia srl Via delle Gardenie 33, 00040 Pomezia-Roma, Italy
Tel: +39 06 919 631, Fax: +39 06 914 7136,
E mail: service@stranduk.com

Toronto
Strand Lighting - Eclairages Strand Lighting Canada 2430 Lucknow Drive #15, Mississauga, Ontario, L5S 1V3, Canada
Tel: +1 905 677 7130 or +1 800-387-3403, Fax: +1 905 677 6859,
E mail: service@strand.ca