LSC
CONTROL SYSTEMS

UNITY
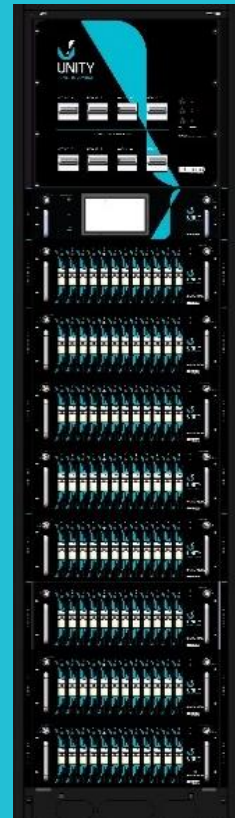## POWER TO CONTROL

Unity Modular Power System
User Manual

48 Channels

96 Channels

Version V 2.03
March 2023

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Contents

1　Product Description

1.1　About this Manual

This "UNITY User Manual" describes the configuration and operation of the UNITY Modular Power System.

The separate "UNITY Installation Guide" describes the installation of the UNITY Rack and the connection of all circuits.

Throughout this manual:

- A word in **BOLD** text represents a button on the touch screen or a physical button
- Emphasis is indicated by <u>underlining</u>
- When referring to DMX, the actual DMX signal might be from one of the two DMX inputs or from Art-Net or sACN
- *Notes and Hints are in italics*

1.2　UNITY Overview

UNITY is a modular hybrid dimming/power cabinet system designed for the next generation of lighting and power control in permanent installations. It combines traditional dimming with the latest technologies of LED control and direct power relays. UNITY provides the perfect solution for new installations and as a retrofit for an outdated system. With the ability to control any load including LEDs, incandescent, neon and fluorescent fixtures, UNITY also allows you to set any channel to become a TruPower relay, perfect for powering moving lights, AV equipment and special effects.

UNITY consists of a floor mounted installation rack that contains all external connection terminals and internal power distribution. No rear access to the rack is required. The rack has one dedicated slot at the top for the UNITY Control Module (UCM) and multiple slots for the output modules below. The following types of output modules are available:

- UDM – 12 channel 10 amp Dimmer/Relay Switch module
- UDM – 12 channel 16 amp Dimmer/Relay Switch module
- UDM – 6 channel 25 amp Dimmer/Relay Switch module (factory fitted option requires special slot allocation)
- ULM - 12 channel 6 amp LED Dimmer/Relay Switch module
- USM - 12 channel 10 amp Switch Relay module
- USM - 12 channel 16 amp Switch Relay module

The system is not dependent on the UCM for normal operation because the output module configuration settings are stored locally in each output module. In addition, the input control signals are directly connected to each output module and not routed through the UCM.

1.3　UNITY Racks

There are two rack sizes available:

- The UIR48 (UNITY Installation Rack) accommodates 4 output modules giving a total of 48 output channels.
- The UIR96 accommodates 8 output modules giving a total of 96 output channels.

<u>Note</u>: Ordering a UDM 6 channel 25 amp module reduces the total channel count of the rack by 6 channels. The slot for the 6 channel 25 amp module is a factory fitted option and is not interchangeable with other output modules.

The slots below the UCM can be fitted with any combination of output modules and any type of output module can be fitted in any output module location with exception of the 6 channel module.

8 Circuit breakers feeding output modules

UCM Control module

Output module A

Output module E

Output module H

4 Circuit breakers feeding output modules

UCM Control module

Output module A

Output module D

UIR48

UIR96

3 phase circuit breaker feeding Output Module A

3 phase circuit breaker feeding Output Module E

UCM module power fuses

LED indicators showing presence of 3 Input Phases

Top section of UIR 96 Rack

The top section of the rack contains the 3-phase circuit breakers that feed each output module. These breakers should not be operated when their output modules are under load.

The power to the UCM is supplied from all 3 input phases via fuses located on the front of the rack. The UCM will continue to continue to operate with only 1 phase present. The UCM fuse type is M205 6.3A/250VAC TYPE T (Anti-surge) 1.5kA B.C.

1.4 UCM UNITY Control Module

The top module location in the UNITY rack is reserved for the UCM (UNITY Control Module). Unique keying prevents any other type of module being inserted in the top position.

The UCM is used to configure, control and monitor the dimmers, LED dimmers and switch modules located below it. It also acts as a control and reporting proxy to the outside world. All relevant information can be reported to a central controller either via LSC's HOUSTON X reporting system or via RDM (Remote Device Management). RDM monitors and controls the rack as a whole and reports all modules as a single unit.

The touch screen is used to configure the system and to display the current system status and report any alarm conditions. The UCM touch screen menu system is fully described in section 3.

Unity Control Module

The (recessed) **RESET** button resets the operation of the UCM. All settings and configurations are retained.
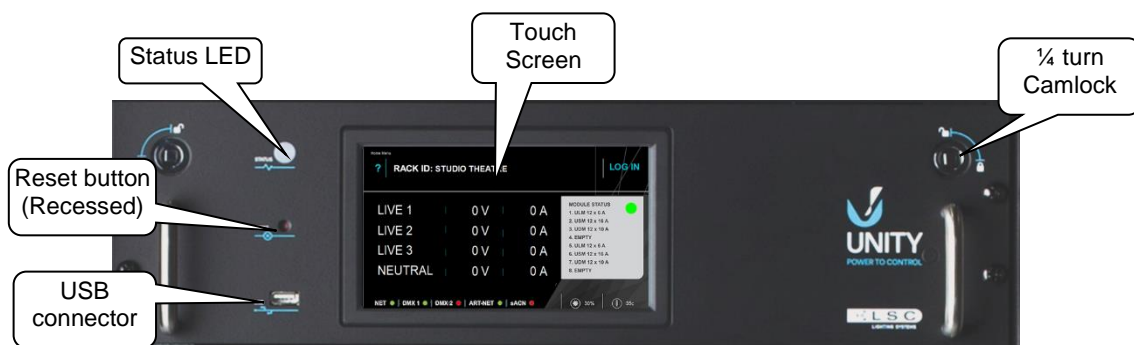
The USB connector allows for the import and export of show files, configurations and software upgrades.

1.4.1   Status LED

The Status LED indicates the health of the system.
- Magenta = Booting up
- Green = Good
- Solid Red = UCM alarm
- Flashing Red = Alarm. See section 3.2
- Yellow = Acknowledged alarm. See section 3.2.1
- Purple = Persistent alarm, See section 3.2.2

1.5 Output Modules

The module locations below the UCM can be fitted with any type of output module. You can use the menu system to specify that only a particular type of output module will operate in a specific location. See section 3.17.10.

The exception is the 6 channel 25 amp UDM which can only be fitted in specifically factory wired location. Unique keying prevents any other type of module being inserted in a 6 channel location and likewise the 6 channel module cannot be fitted into any other location.

All modules utilise self-aligning connectors and are locked into position using two front panel quarter-turn camlocks. The camlocks are fitted with switches which automatically turn off all output loads from the module when a camlock is in the open position. This feature enables you to "hot swap" modules as loads are automatically turned off when the camlocks are opened and turned back on when the camlocks are closed. Do not operate the 3-phase circuit breakers that feed each output module when their output modules are under load.

The output module slot locations are labelled A to D (48 channel models) or A to H (96 channel models) from top to bottom of the rack.
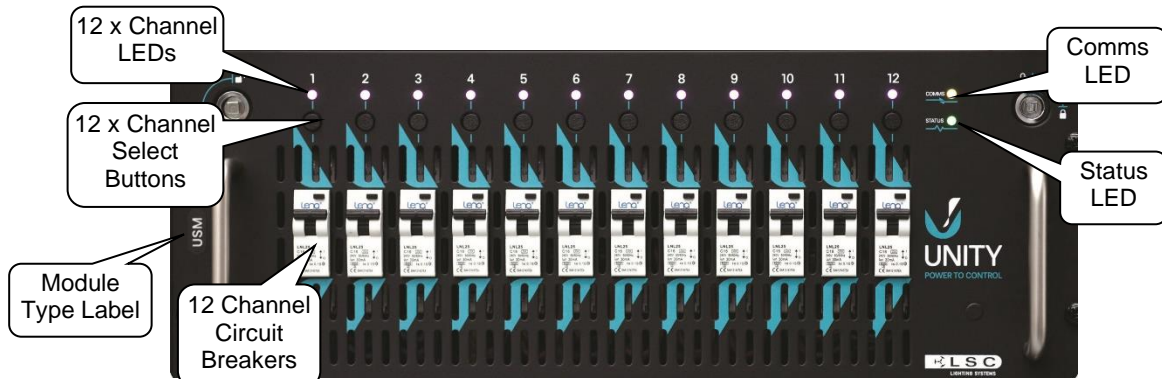
Typical Output Module

The label on the left side of each module indicates the type of module:
- UDM = Dimmer/Relay Switch module
- ULM = LED Dimmer/Relay Switch module
- USM = Relay Switch module

1.5.1 Comms LED

The Comms LED on an output module indicates the following:
- Green = Normal operation. Either DMX1, DMX2, ArtNet or sACN input control sources are being received at the module.
- Yellow = Loss (or error) of input control sources.
- Red = The module is not currently configured for any input control sources.

1.5.2 Status LED

The Status LED on an output module indicates the following:
- Green = Normal operation.
- Yellow = One of the Camlocks is open. Module operation is suspended. No outputs from that module will operate.
- Red = Loss of internal communications.
- Red Double Flash = The module is in an incompatible slot.

1.5.3 Channel LEDS

The Channel LED on each output channel indicates the following:
- Blue = Dimmer mode. The intensity mimics the output level of the dimmer.
- Green = Switch mode. It is either On or Off to mimic the output.
- Red Double Flash = The output circuit breaker has tripped.
- Red Single Flash = The input phase is missing or out of range (for example, low volts).

1.5.4 Channel Select Buttons

The Channel Select buttons have multiple uses.
1. When using the "Channel Config" menu on the touch screen, they can be used to select that channel for configuration.
2. When using the "View Channel" menu on the touch screen they can be used to select that channel for viewing.
3. Channel ON/OFF. Press and HOLD (for 5 seconds) to manually turn the channel on. Tap to turn it off. This can be used to temporarily turn on a channel for testing purposes.

1.5.5   UDM UNITY Dimmer Module

The UDM (UNITY Dimmer Module) provides 12 (or 6) output channels. Each channel can be individually configured for either dimming of traditional incandescent lamps or relay power switching.

In dimming mode, the module utilizes pulse transformer circuitry which allows it to control difficult loads including neon, motors and low wattage lamps, without the need for a dummy load. The dimmer circuitry also employs high quality and virtually silent 10/16A chokes with a Rise Time of 220µS (measured between 10% and 90% at 50% output level into maximum rated load).

In switching mode, the module uses LSC's "TruPower" technology that bypasses the dimmer circuitry and directly connects the output circuit to the incoming power via a mechanical relay. It also uses "Current Control Technology" where power switching occurs when the mains voltage is at zero volts (zero crossing point) to prevent nuisance tripping of breakers. The operation of each power switching relay can be controlled by either the level of its DMX channel or automatically switched on when the DMX control signal is present and off (after a programable delay of up to 60 minutes) when DMX is no longer present. See section 3.6.6.

1.5.6   ULM UNITY LED Dimmer Module

The ULM (UNITY Led Module) provides the same features as the UDM above but is specifically designed to dim leading edge phase controlled dimmable mains powered LED's using LSC's patented LED drive technology.

1.5.7   USM UNITY Switch Module

The USM (UNITY Switch Module) provides the same features as the UDM above but without the ability to dim making this module a more cost effective choice when dimming is not required.

1.5.8   Replacing Modules

To remove a module, use the supplied Camlock key to rotate each Camlock a quarter of a turn.

The camlocks are fitted with switches which automatically turn off all output loads from the module when a camlock is in the open position. This feature enables you to "hot swap" modules as loads are automatically turned off when the camlocks are opened and turned back on when the camlocks are closed.

If an output module is replaced with another module of the same type it will automatically be configured with the settings from the previous module as stored in the UCM.
If a module is plugged in and after a short period it has seen no communications from the UCM (because the UCM is missing of faulty) it will activate itself with the last configuration it had.

A module location can be configured from the UCM even with the module missing. When the module it plugged in it will be updated accordingly.

2   Quick Start Guide

2.1   Overview

All configuration of the system is performed either locally via the touch screen on the UNITY Control Module or remotely using LSC's HOUSTON X software, see section 4. When configuring a new installation with a large quantity of racks and channels that have complex setups it can be quicker to use HOUSTON X than to use the touch screen.

2.2   Basic Configuration Steps

The basic steps to configuring UNITY output channels using the touch screen are,
1. Select the channels
2. Select their operating mode
3. Select their control source/patch
The steps are listed below:

2.2.1   Channel Modes

Does the load need dimmed or switched power?
UNITY allows every channel in the rack to have its own selectable operating mode. However, in most installations, groups of channels are usually in the same mode.

For example, channels 1 to 12 might all be set to "Dimmer" mode and the rest of the channels set to "Switch". If this the case in your installation you can select the channels for a particular mode and set them all in one operation.

Touch **LOG IN**, **LEVEL 1**, **CHANNEL SETUP**.

To select the channels for dimmer mode touch, **SELECT CHANNELS**. Touch the required channels then **DONE**. Use the **THRU** button to select a range of channels.
Touch **CHANNEL MODES**.
To set the selected channels to dimmer mode touch **DIMMER** then **SAVE**.
Note: Dimmer mode is not available on channels in a USM (UNITY Switch Module)

To select the channels for switch mode touch, **SELECT CHANNELS**. Touch the required channels then **DONE**.
To set the selected channels to switch mode there are several mode choices:
- **SWITCH 60%-40%** (control signal above 60%=ON and below 40%=OFF). This is the most used setting for power switching.
- **RELAY 1%-0%** (control signal above 1%=ON and 0%=OFF). This setting is often used when the controlling device uses fade times so that the switching occurs at the start of the fade.
- **ALWAYS OFF** (the channel is always OFF)
- **ALWAYS ON** (the channel is always ON)
- **AUTOPOWER** (channel is ON when its selected control signal is present)

Make your selection then touch **SAVE**.

See section 3.6 for a detailed description of "Channel Modes".

Hint: It is a good idea to save your settings. See section 3.15

2.2.2   Source/Patch.

Which input source will control the channel?
UNITY allows every channel in the rack to have its own selectable input source. However, in most installations, the same input source is used for all the channels in the rack. If this the case

in your installation you can connect <u>all the channels to an input source</u> (and patch all the channels if necessary) in the one operation.

From the "Channel Setup" menu touch **SELECT CHANNELS**, **ALL** (channels), **DONE**.
To select the <u>input source</u> for the <u>selected channels</u> touch **SOURCE/PATCH**. The choices are:
- **DMX 1**
- **DMX 2** (UNITY provides 2 separate DMX connections from which to choose).
- **sACN**. (DMX over Ethernet)
- **ArtNet**. (DMX over Ethernet)
- **No Source**. (The channel is OFF)

See section 3.7 for a detailed description of "Input Source" selection.
Touch your required source then touch **SAVE**.

If sACN or ArtNet are selected as an input source, UNITY will ask you to select the Universe then touch **NEXT**.

Which slot number (DMX address) will control each UNITY channel?
UNITY allows every channel in the rack to have its own selectable DMX address. However, in most installations, the DMX addresses within a rack will be contiguous numbers. If this the case in your installation you can patch all the channels in the rack in one operation.

Enter the **DMX address (slot) number** for the <u>first channel in the rack</u> then touch **DMX BLOCK ADDRESS**, then **SAVE**. The first channel is patched to the entered DMX slot number and each subsequent selected channel is patched to the next sequential DMX slot

Note. Channels set to "AutoPower" do not need to be patched as the mere presence of their selected control source will switch on the power. See section 3.6.6.

See section 3.7 for a detailed description including how to individually patch channels.

Note. To use sACN or Art-Net protocols, Unity must have a valid IP address and NetMask set in order to work correctly. When using Art-Net, it is essential that the IP address is set to be compatible with the address on the device sending the Art-Net packets. See section 3.17.1
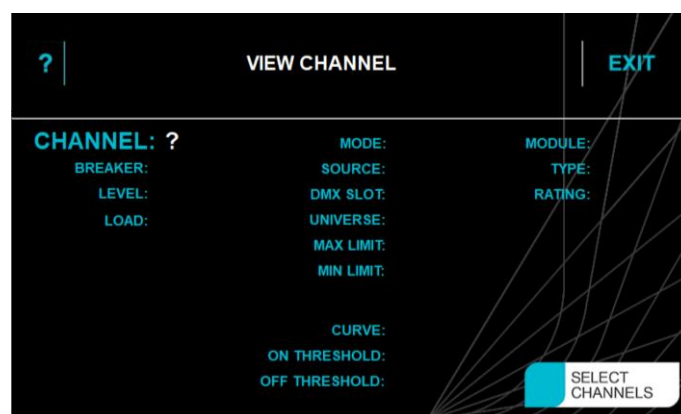
2.2.3   Optional Settings

The following optional settings are available for each channel when operating in dimmer mode:
- Minimum Level. See section 3.9
- Maximum Level. See section 3.10
- Dimmer Curves. See section 3.11

2.3   Channel Settings View

To see the settings of an output channel, from the "Main Menu" touch **VIEW CHANNELS**.

There are 2 methods available to select the channel to view:

1. To select a channel via the screen, touch **CHANNELS** then touch the channel number then **DONE**.
2. To select a channel via the **CHANNEL SELECT** button (located above each channel's circuit breaker on the output modules), press the channel's button.

2.4 Channel Test (Riggers Test)

To temporarily turn ON a channel for testing purposes, press and HOLD its **CHANNEL SELECT** button (located above the channel's circuit breaker) for 5 seconds. The channels LED (above its "channel select" button) turns white to indicate this mode.

To return the channel to normal operation, momentarily TAP its **CHANNEL SELECT** button.

3   Menu System

3.1   Overview

The UNITY Control Module (UCM) touch screen is used to configure and interrogate the UNITY system.
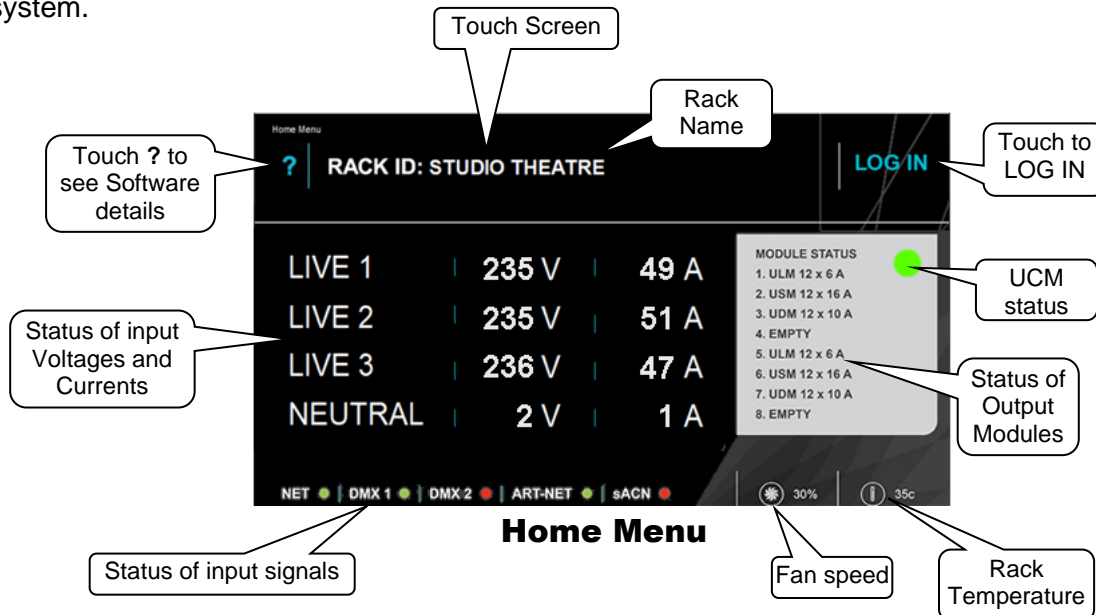
Home Menu

The "Home Menu" shows the input voltage and load current of each of the three input power phases (LIVE 1, LIVE 2 and LIVE 3) and the NEUTRAL. The "Module Status" pane on the right shows the type of output modules that are fitted and the "UCM status".
- Flashing green = UCM OK
- Red = UCM fault

The bottom of the screen shows the Network connection (NET).
- Green = Network traffic is flowing
- Red = There is a physical connection but no data

Next to the NET, the status of the input source control signals that are in use are shown.
- Green = Signal present.
- Red = Signal selected but NOT present
- Blank space = the signal has not been selected as a control source for any channel

The fan speed and rack temperature are also displayed.

Touch **?** to see the "About Menu" showing the software version and serial number.

The "Rack ID" can be used to display a name or user information for the rack. See section 3.17.1.

3.2   Alarms

If the system is operating correctly, the area to the left of the LOG IN button will be blank. If an alarm is detected the "STATUS" LED lights red and a Red Alarm button appears on the touch screen. If multiple alarms are present, the number in the button shows the quantity of active alarms.
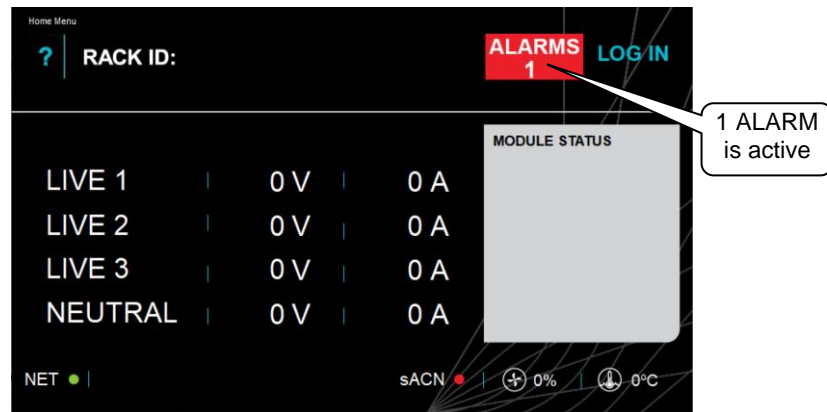
To see details of the alarm touch **ALARMS 1**.

3.2.1   Acknowledged Alarms

If the cause of the alarm cannot be immediately resolved you can "acknowledge" the alarm by touching the red **alarm details** text to select it (it turns blue), then touch **ACK**. The status changes from red to yellow. Touch **EXIT**.

Acknowledged Alarm

The yellow acknowledged alarm allows <u>any new alarms</u> to be immediately brought to your attention due to their red status.

3.2.2   Persistent Alarms

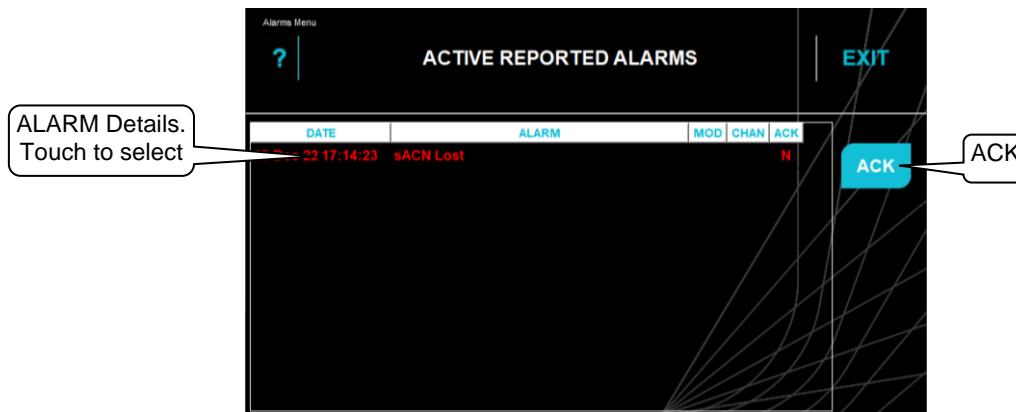When an alarm is triggered, the red Alarm button appears, but if the alarm condition rights itself, the red Alarm button disappears. You might not have been looking at the rack and missed seeing the alarm. The "PERSIST" option in the "Alarm Settings" (see section 3.17.2) causes the alarm to remain on if the alarm condition disappears, but the alarm changes to purple instead of disappearing. This means that short term alarms, such a momentary loss of DMX or a momentary spike of input voltage can be easily discovered (including the time that the alarm occurred) because the purple alarm stays on until it is manually cleared.

To clear persistent alarms, touch **ALARMS**.
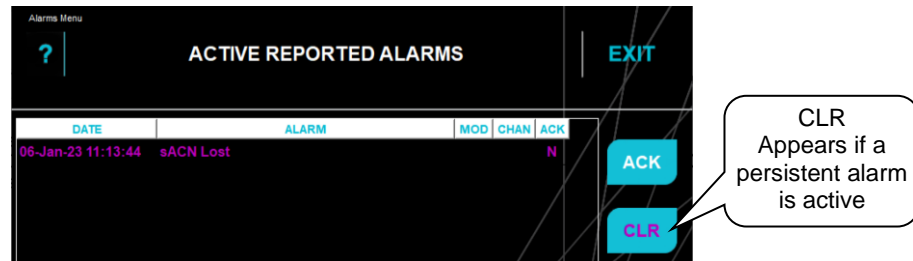
The CLR button appears on the Alarms Menu when there is a persistent alarm. Tapping **CLR** clears all persistent alarms.

You can set which conditions will activate an alarm and which alarms are persistent. See section 3.17.2.

3.3 Log In

Touch **LOG IN** to access the menus. Four access levels are available:
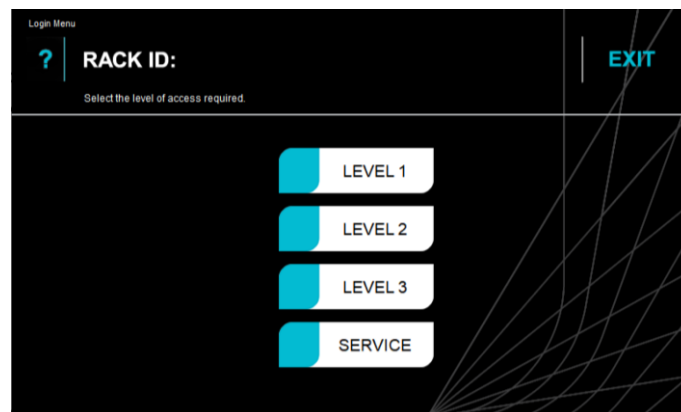
Login Menu

UNITY ships with levels 1, 2 and 3 all set to the same access. You can set the amount of access that is allowed in each level (see section 3.17.9) and protect each level with a PIN (see section 3.17.4).

The "Service" level always requires a PIN. Contact LSC for access.

Touch the access **LEVEL # (1, 2 or 3)** that you require and the "Main Menu" screen opens.
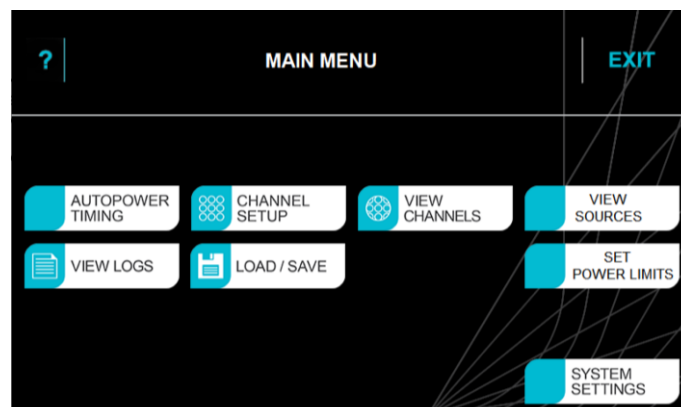
Items that are not available in the access level that you have selected are greyed-out and cannot be selected. If you need access to a greyed-out item, **EXIT** then log in at a higher access level.

These functions of the Main Menu are described in the following sections.

*Note: In all the following menus, the SAVE button only appears if you have altered a setting. The altered setting is only applied when you touch **SAVE**. To discard the changes and retain the original setting touch **EXIT**.*

3.4 AutoPower Timing

Many lighting fixtures such as LED's and moving fixtures require a constant source of non-dimmed (switched) power when they are operating.
AutoPower is a feature that <u>automatically</u> switches ON selected channels whenever their selected <u>control signal is present</u> on the input to UNITY and switches them OFF when the lighting controller is turned off and the control signal is no longer present. A channel set to AutoPower does not listen to any specific DMX slot. Instead, it looks for the presence of the source DMX universe (DMX1, DMX2, Art-Net or sACN) according to the <u>input control source selected for that channel</u>. When it sees a valid DMX signal from this source it turns the channel on.

The turning on of channels is staggered to minimise in-rush current. The "AutoPower Timing" menu sets this stagger time.

A "Hold Time" can be set to prevent fixtures being turned off if there is a short interruption to the DMX signal. The "AutoPower Timing" menu sets this hold time duration.

To set the Auto Power times, from the "Main Menu" touch **AUTOPOWER TIMING**.
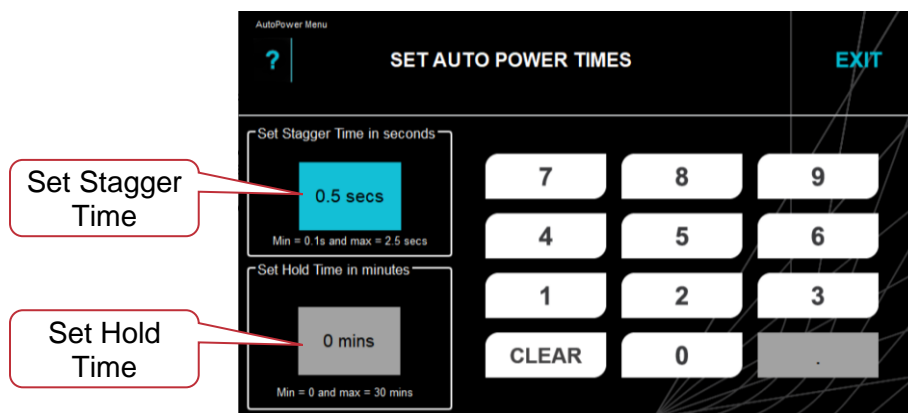
Note: The AutoPower Timing menu only sets the stagger time and hold time. The channels that are to be automatically switched on and off need to be set to "AutoPower" mode in the "CHANNEL SETUP" menu. See section 3.6.6.

3.4.1   Stagger Time

The "Stagger Time" is the time interval between each "Auto Power" channel being switched on. The default stagger time is 0.5 seconds but you can set the time any time from 0.1 to 2.5 seconds.

3.4.1   Hold time

A "Hold Time" can be set for the shut-down to prevent "Auto Power" channels being turned off if there is a short interruption to their control signal. The "Hold Time" can be set to any value from 0 to 30 minutes. When the control source is no longer detected the hold time starts counting

down. If the control signal returns whilst the timer is running, the timer is stopped and reset. If the control signal is again no longer detected, the timer starts counting down again.

If the timer expires without the control signal returning the Auto Power channels are turned off.

3.5 Channel Setup

The "CHANNEL SETUP" menu allows you to set the parameters for the channel(s) that you have selected. From the "Main Menu" touch CHANNEL SETUP.
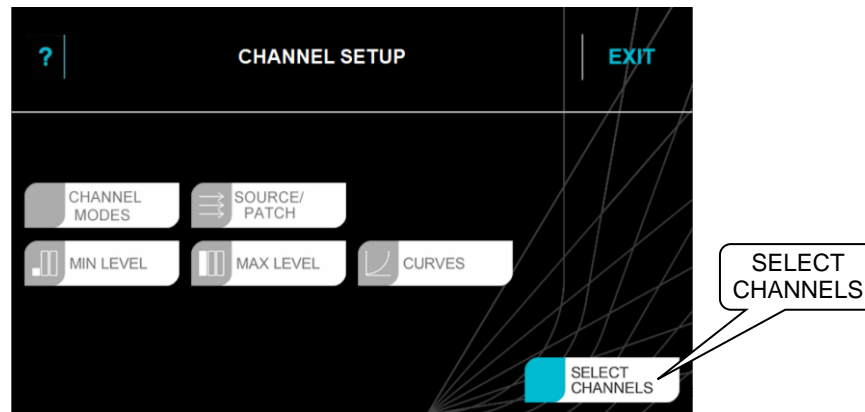
The menu buttons are greyed out and cannot be selected because no channels have yet been selected. See "Selecting Channels" below.

3.5.1   Selecting Channels

There are 2 methods available to select the channel(s):

Method 1.
To select the channel(s) via the touch screen, touch **SELECT CHANNELS**.
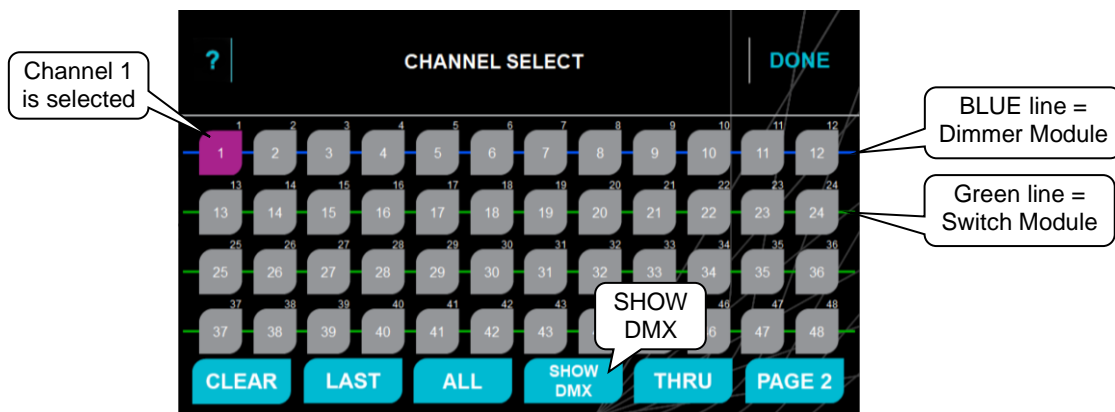
Hint: The coloured lines on the screen show the type of module fitted in the slot.
- *Blue line = UDM or ULM Dimmer Module.*
- *Green line = USM Switch Module.*

To see the DMX address instead of the channel number touch **SHOW DMX**.

To see the channel number instead of the DMX address touch **SHOW CHANNELS**.

Touch a channel to select it. Touch again to de-select it. Multiple channels can be selected. A range of channels can be selected by touching the **first channel** in the range then **THRU** then the **last channel** in the range. Touch **PAGE 2** to access higher channel numbers on 96 channel models. Touch **CLEAR** to de-select all channels. Touch **LAST** to recall your previous selection. Touch the required channel number(s) then touch **DONE**.

Method 2.
Channels can be selected by pressing their **CHANNEL SELECT** button located above each channel's circuit breaker on the front of the output modules.
Multiple channels can be selected. To select a range of channels using the CHANNEL SELECT buttons on the output modules, press and **HOLD the first button** in the range then to the **last button** in the range.

When a channel has been selected, the selection number on the "Channel Select" touch screen lights purple and the LED above the CHANNEL SELECT button on the output module lights purple.

When a channel(s) has been selected, the buttons on the "Channel Setup" menu become active.

The "Channel Setup" menu provides the following functions:
- CHANNEL MODES
- SOURCE/PATCH
- MIN LEVEL
- MAX LEVEL
- CURVES

These functions are described in the following sections.

3.6 Channel Modes

Every channel can be independently set to operate as either a dimmer or a switch with several switch options as described below. The USM (UNITY Switch Module) cannot operate as a dimmer.

If no channels are selected the "CHANNEL MODE" button will be greyed out. Touch **CHANNELS** or use the **CHANNEL SELECT** buttons located on the output modules to select the channel(s). If you had previously selected a channel(s) then that selection is still valid and the "CHANNEL MODE" button will be active.

To select the mode for the selected channels, from the "CHANNEL SETUP Menu" touch **CHANNEL MODES**.
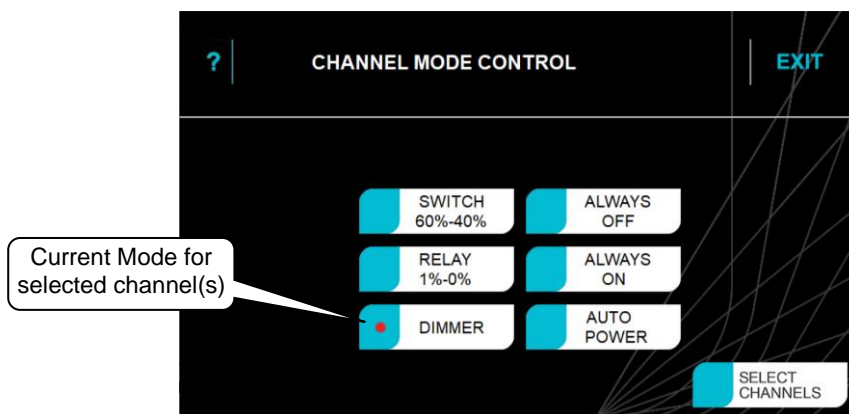
Touch a mode button for the desired mode as described below. A red dot indicates that all the selected channels are in that mode. Touch **SAVE**.

Note: If <u>multiple channels</u> are selected and they currently have <u>different modes</u> selected, then all the modes in use are indicated in yellow as shown below.

Yellow = modes in use for selected channels

3.6.1   SWITCH 60%-40%

SWITCH is used for devices that need to be switched OFF or ON such as LED fixtures, motors or discharge lamps. The switch is controlled by the level of the DMX slot to which it is patched. When the level of the DMX signal rises above 60% the switch turns on. When the level of the DMX signal drops below 40% the switch turns off. Switch mode is the most commonly used setting for a power switching channel that is controlled by its DMX level.
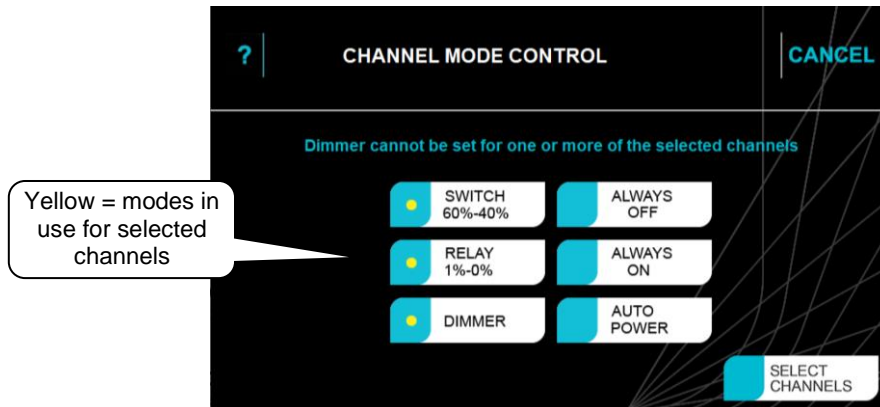
3.6.2   RELAY 1%-0%

RELAY is used also for devices that need to be switched OFF or ON. It is similar to "SWITCH" but uses different thresholds for switching. When the level of the DMX signal is 1% or higher the switch turns on. When the level of the DMX signal drops to 0% the switch turns off. Relay mode is particularly useful when long fade times are used by the controlling device because the "Relay" channel will switch on at the start of the up fade and switch off at the end of the down fade.

3.6.3   DIMMER

To set the selected channel to dimmer mode touch **DIMMER** then **SAVE**. You can also select a minimum and maximum level plus a curve for a dimmer channel. See sections 3.9, 3.10 & 3.11.

3.6.4   ALWAYS OFF

The channel cannot be turned on, except in "Channel Test Mode". See section 2.4.
<u>Warning, do not rely on this setting to isolate the power.</u>

3.6.5   ALWAYS ON

Channels set to this mode are always ON. The channel cannot be turned off (except by turning off its channel circuit breaker). When <u>power is applied to the rack</u>, these channels will be sequentially switched on (using the same "Stagger Time" as the channels set to "AutoPower" mode described below).

3.6.6   AUTO POWER

This mode can be used to automatically and sequentially power up DMX controlled fixtures (LED Pars, moving lights, smoke machines etc) when the lighting console is turned on and outputting DMX and then power them off again 1 to 60 minutes (selectable hold time) after the lighting console is turned off. Sequential switching helps to prevent nuisance tripping of circuit breakers due to high in-rush currents on power-up. It is designed to make life easier for operators, whilst ensuring that DMX controlled fixtures are automatically powered off at the end of a show.

A channel set to "Channel(s) AutoPower" does not listen to any specific DMX slot. Instead, it looks for the presence of the source DMX universe (DMX1, DMX2, Art-Net or sACN) according to the <u>input control source for that channel</u>. When it sees a valid DMX signal from this source it turns the channel on.

A "Hold Time" can be set to prevent fixtures being turned off if there is a short interruption to the DMX signal and to allow for a cool down period for the fixtures. The "AutoPower Timing" menu sets this hold time duration. The time between each channel turning on (stagger time) can also be set. See section 3.4.

3.7 Source/Patch

Each channel can be individually configured to be controlled by any of the following control sources.
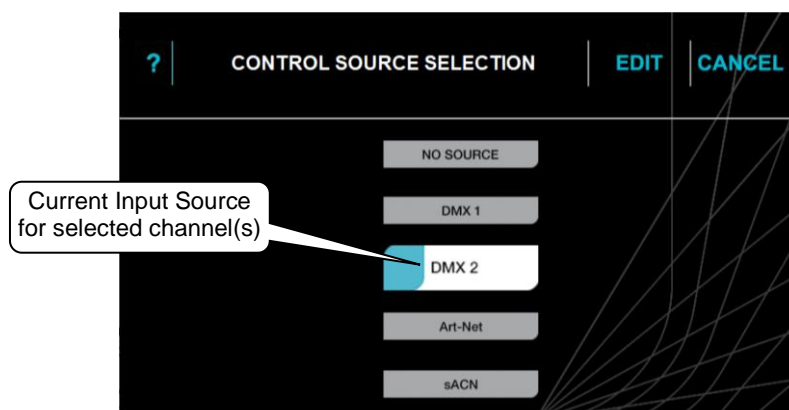
- No Source
- DMX 1
- DMX 2 (UNITY has two DMX inputs)
- Art-Net
- sACN

Note: Channels *set to "ALWAYS OFF" or "ALWAYS ON" mode automatically have their control source" set to "No Source".*

The way that a source controls a channel depend upon the selected "mode" of each channel (as set in the "CHANNEL MODES" menu).

- Channels set to "AUTO POWER" mode and controlled by DMX, Art-Net or sACN do not listen to any specific DMX slot. Instead, each channel looks for the <u>presence</u> of the source DMX universe (DMX, Art-Net or sACN) according to the <u>control source selected for that channel</u>. When the channel sees a valid DMX signal from its source, the switch on sequence is started. See section 3.6.6.
  When the selected control source is no longer detected, the Auto Power channels are switched OFF. A "Hold Time" can be set to prevent channels being turned off if there is a short interruption to the control signal. See section 3.4.1.

- Channels set to either "SWITCH 60%-40%", "RELAY 1%-0%" or "DIMMER" modes and controlled by DMX, Art-Net or sACN respond to the <u>DMX level</u> of their address in their control signal. If there is a <u>loss of an input control source</u> (DMX, ArtNet or sACN), then the Dimmer, Switch and Relay channels that are controlled by that source will <u>hold their last level indefinitely</u> until the source returns or the input power is switched off.

From the "CHANNEL SETUP Menu" touch **SOURCE/PATCH**.

If the current input source is correct you can change the DMX address by touching **EDIT** and following the patching instructions below**.**

Note: If <u>multiple channels</u> are selected and they currently have <u>different input sources</u> selected, then all the input sources in use by those channels are indicated in yellow as shown below.
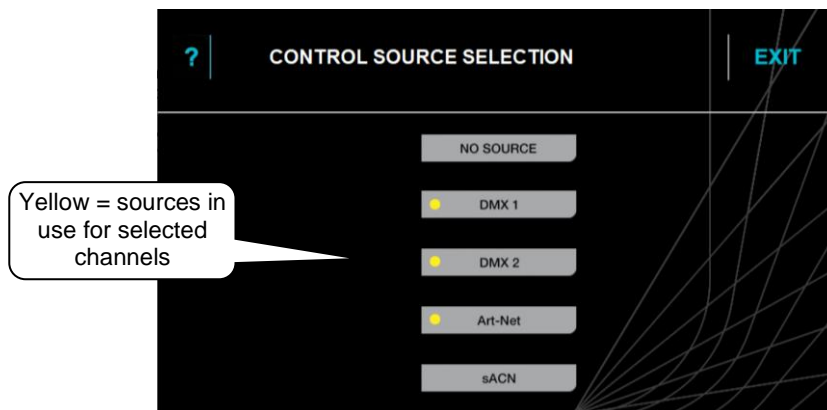
Select the desired input control source for the selected channels.

The choices of input source are:

3.7.1   No Source

From the "Source/Patch" menu touch **NO SOURCE** then touch **SAVE.** The channel is OFF.

3.7.2   DMX 1

UNITY has 2 DMX input connections available and the selected channels will be controlled by the signal on DMX 1.

From the "Source/Patch" menu touch **DMX 1** then touch **SAVE** and the "ENTER DMX ADDRESS" screen opens.

Select the DMX slot number by either entering the number on the touchscreen keypad or using the ▲ or ▼ arrows.
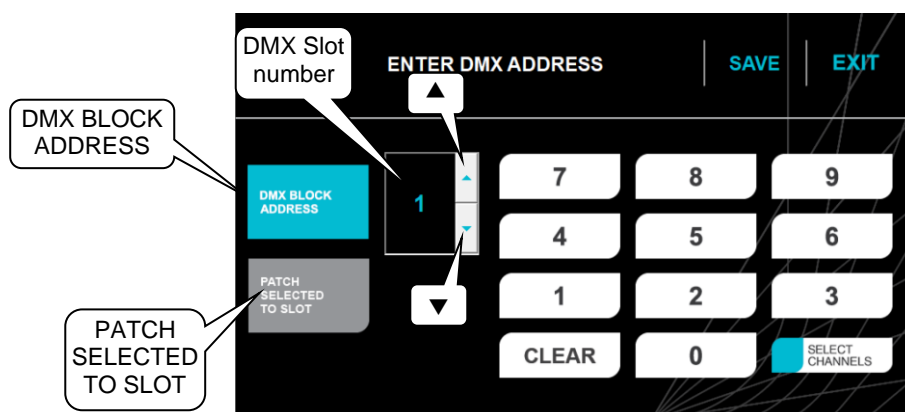
There are 2 methods for patching:

1. Touching **PATCH SELECTED TO SLOT** patches the selected channel(s) to the selected DMX slot number. Multiple channels can be selected and all will be patched to the same DMX slot number. Touch **SAVE** to keep your setting and exit.

2. Touching **DMX BLOCK ADDRESS** patches <u>multiple selected channels</u> to <u>sequential DMX slots</u>. Select all the channels to be sequentially patched. Select the DMX slot number for the first selected channel and each subsequent selected channel will be patched to the next sequential DMX slot. Touch **SAVE** to keep your setting and exit.

   In most installations, all of the DMX addresses within a rack will be contiguous. If this the case, in the "Channel Select" menu choose **ALL** channels, then **enter the DMX address (slot) number** for the <u>first channel in the rack</u> then touch **DMX BLOCK ADDRESS**. Touch **SAVE** to patch all channels in the rack and exit.

3.7.3   DMX 2

This is similar to DMX 1 above, but uses the signal on the DMX 2 input connector.

3.7.4   Art-Net

The selected channels will be controlled by the Art-Net universe that you select. UNITY supports Art-Net v4. There are 128 Nets (0-127) each with 256 Universes divided into 16 Subnets (0-15), each containing 16 Universes (0-15).

From the "Source/Patch" menu touch **Art-Net** then touch **SAVE** and the "Art-Net" screen opens.
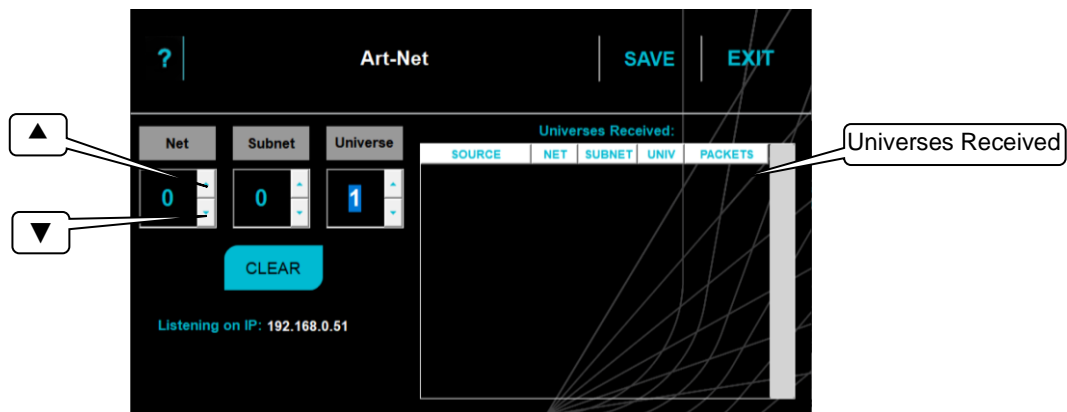
Any Art-Net universes currently on the network will appear in the "Universes Received" pane on the right of the screen. Tap the required received ArtNet universe to automatically enter it into the "Net", "Subnet" and "Universe values.
To manually enter the ArtNet values, tap the up ▲ or down ▼ arrows to set the "Net", "Subnet" and "Universe values.

Note: If you are using Art-Net I or Art-Net II, leave the Net setting at 0 (zero) and only use the Subnet and Universe settings.

When the correct ArtNet is selected tap **SAVE**. The "ENTER DMX ADDRESS" screen opens. Select the DMX slot number by either entering the number on the touchscreen keypad or using the ▲ or ▼ arrows.

There are 2 methods for patching:

1. Touching **PATCH SELECTED TO SLOT** patches the selected channel(s) to the selected DMX slot number. Multiple channels can be selected and all will be patched to the same DMX slot number. Touch **SAVE** to keep your setting and exit.
2. Touching **DMX BLOCK ADDRESS** patches <u>multiple selected channels</u> to <u>sequential DMX slots</u>. Select all of the channels to be sequentially patched. Select the DMX slot number for the first selected channel and each subsequent selected channel will be patched to the next sequential DMX slot. Touch **SAVE** to keep your setting and exit.

   In most installations, all of the DMX addresses within a rack will be contiguous. If this the case, in the "Channel Select" menu choose **ALL** channels, then **enter the DMX address (slot) number** for the <u>first channel in the rack</u> then touch **DMX BLOCK ADDRESS**. Touch **SAVE** to patch all channels in the rack and exit.

If there are multiple Art-Net sources with the same priority, they are merged using HTP (Highest takes Precedence).

Note. When using Art-Net, UNITOUR must have a valid IP address and NetMask entered in the "Network Settings" menu in order for Art-Net to work correctly. It is essential that the IP address is set to be compatible with the address on the device sending the Art-Net packets.
In UNITOUR's network setup menu, the option to set the IP address is offered based on the ArtNet recommendations when using a 2.0.0.0. address range. See section 3.17.1

3.7.5   sACN

Streaming ACN (sACN) is an informal name for the E1.31 streaming protocol to transport multiple DMX universes over a single Ethernet cable/network.

From the "Source/Patch" menu touch **sACN** then touch **SAVE** and the "sACN" screen opens.
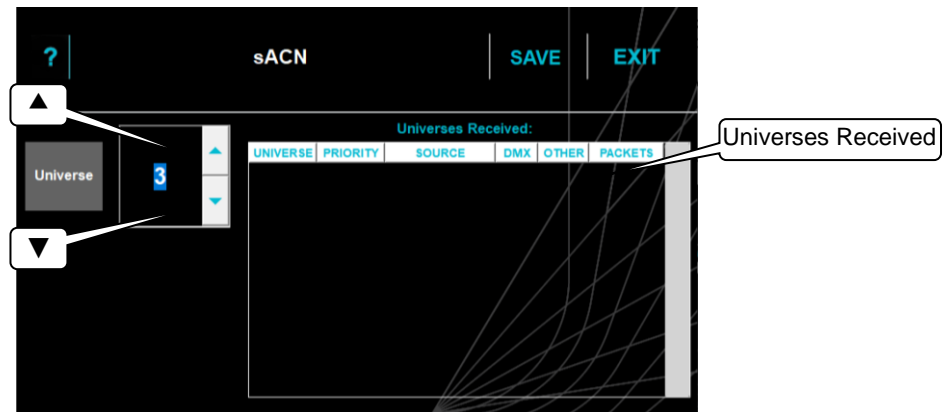
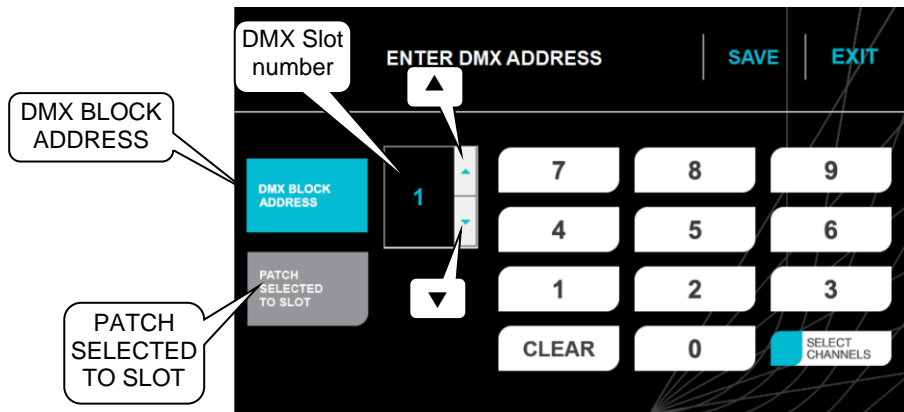Any sACN universes currently on the network will appear in the "Universes Received" pane on the right of the screen. Tap the required received sACN universe to automatically enter it into the "Universe" pane.

To manually enter the sACN universe, tap the up ▲ or down ▼ arrows.

If you select a universe that the system is not currently setup to receive, a temporary one is added so you can see it. For example, if U1 is patched and being received it will be shown in the list. If U3 is being sent but not patched it will not be seen in the list. Selecting the Universe button to 3 will now show it being received.

When the correct sACN universe is selected tap **SAVE**. The "ENTER DMX ADDRESS" screen opens.

Select the DMX slot number by either entering the number on the touchscreen keypad or using the ▲ or ▼ arrows.

There are 2 methods for patching:

1. Touching **PATCH SELECTED TO SLOT** patches the selected channel(s) to the selected DMX slot number. Multiple channels can be selected and all will be patched to the same DMX slot number. Touch **SAVE** to keep your setting and exit.
2. Touching **DMX BLOCK ADDRESS** patches multiple selected channels to sequential DMX slots. Select all of the channels to be sequentially patched. Select the DMX slot number for the first selected channel and each subsequent selected channel will be patched to the next sequential DMX slot. Touch **SAVE** to keep your setting and exit.

   In most installations, all of the DMX addresses within a rack will be contiguous. If this

the case, in the "Channel Select" menu choose **ALL** channels, then **enter the DMX address (slot) number** for the <u>first channel in the rack</u> then touch **DMX BLOCK ADDRESS**. Touch **SAVE** to patch all channels in the rack and exit.
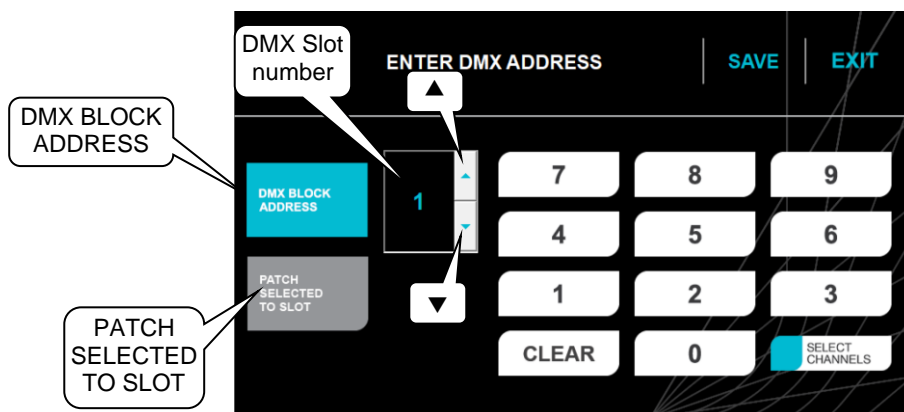
sACN uses a priority system. The priority level is set by the sACN transmitting device. If UNITOUR receives more than one sACN signal on the selected universe it will only respond to the signal with the highest priority setting.

If there are multiple sACN sources with the same priority, they are merged using HTP (Highest Takes Precedence).

Note: To use sACN, UNITOUR must have a valid IP address and NetMask set in order to work correctly.

3.8 Multiple Rack Numbering

Channel numbers in each rack number from top to bottom of the rack. If more than one rack is installed, each rack has the same channel numbers but each rack usually has different DMX addresses. Therefore, when patching DMX slots, the first rack's DMX slot numbers will match their channel numbers. The second and subsequent racks DMX slot numbers will continue from the last DMX slot of the previous rack as shown in the following table.

UIR48	Rack 1		Rack 2	
	Channels	DMX Slots	Channels	DMX Slots
Module 1	1-12	1-12	1-12	49-60
Module 2	13-24	13-24	13-24	61-72
Module 3	25-36	25-36	25-36	73-84
Module 4	37-48	37-48	37-48	85-96

3.9 Min Level

This only applies to dimmer channels.
"Min Level" sets a low level threshold. If the control signal is below this level, the dimmer will not respond and the output will remain at this level.
If no channels are selected the "MIN LEVEL" button will be greyed out. Touch **CHANNELS** or use the **CHANNEL SELECT** buttons located on the output modules to select the channel(s). If you had previously selected a channel(s) then that selection is still valid and the "MIN LEVEL" button will be active.

To set a minimum level for a channel(s), from the "CHANNEL SETUP" menu touch **MIN LEVEL**. Set the minimum level by either entering the number on the touchscreen keypad or using the ▲ or ▼ arrows then touch **SAVE**.
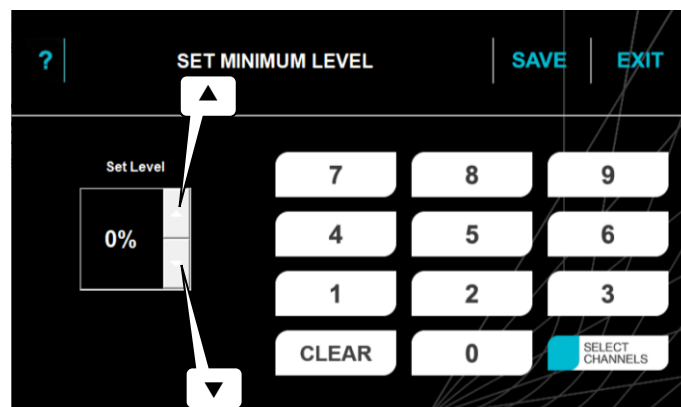
3.10 Max Level

This only applies to dimmer channels.
"Max Level" sets the level of the dimmer output when its control signal is set to maximum. For example, setting this value to 90% will extend the life of a lamp as it never operates on full voltage or setting it to 50% provides 115 volt output.

Note: The actual output voltage is dependent upon the dimmer curve. LSC recommends that you measure the output voltage (with a 240 volt load connected) to determine the "Max" level setting you require for a specific maximum voltage. This procedure should only be carried out by suitably qualified personnel.

If no channels are selected the "MAX LEVEL" button will be greyed out. Touch **CHANNELS** or use the **CHANNEL SELECT** buttons located on the output modules to select the channel(s). If you had previously selected a channel(s) then that selection is still valid and the "MAX LEVEL" button will be active.

To set a maximum level for a channel(s), from the "CHANNEL SETUP" menu touch **MAX LEVEL**. Set the maximum level by either entering the number on the touchscreen keypad or using the ▲ or ▼ arrows then touch **SAVE**.
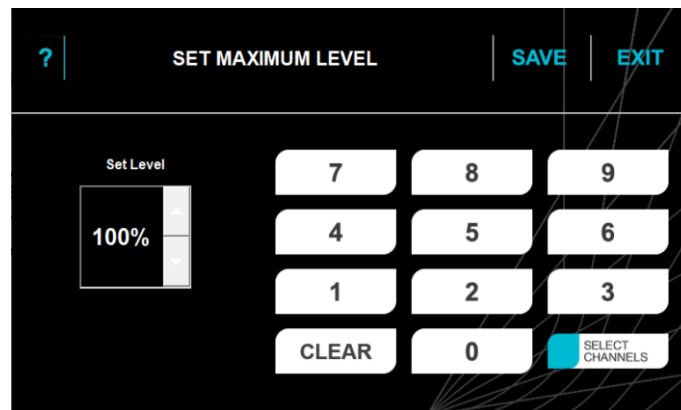
3.11 Curves

This only applies to dimmer channels.
A curve is the "transfer characteristic" between input control signal and channel output level. It defines how the dimmers output voltage responds to the control signal input.
UNITY provides several different curves and each has a different response. You can try each curve to see which one gives you the most linear results for you lighting fixtures. If your installation already has some dimmers installed you can experiment to find which curve gives the best match to your existing dimmers.

If no channels are selected the "CURVES" button will be greyed out. Touch **CHANNELS** or use the **CHANNEL SELECT** buttons located on the output modules to select the channel(s). If you had previously selected a channel(s) then that selection is still valid and the "CURVES" button will be active.

To select a curve, from the "CHANNEL SETUP Menu" touch **CURVES**.
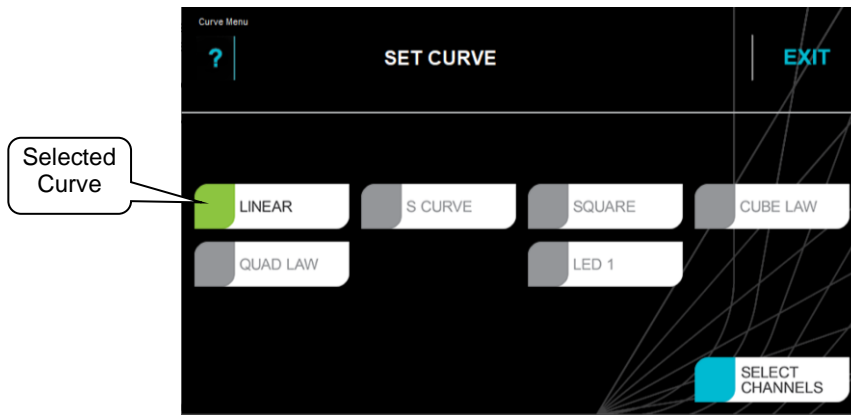
The choices are:
- **Linear** (Default)
- **S curve**
- **Square**
- **Cube Law**
- **Quad Law**
- **LED 1**

Touch a curve name to select it. The selected curve has a green flag. Touch **SAVE**.

If multiple channels are selected and they have currently have different curves selected, then all the curves in use have yellow flags as shown below.
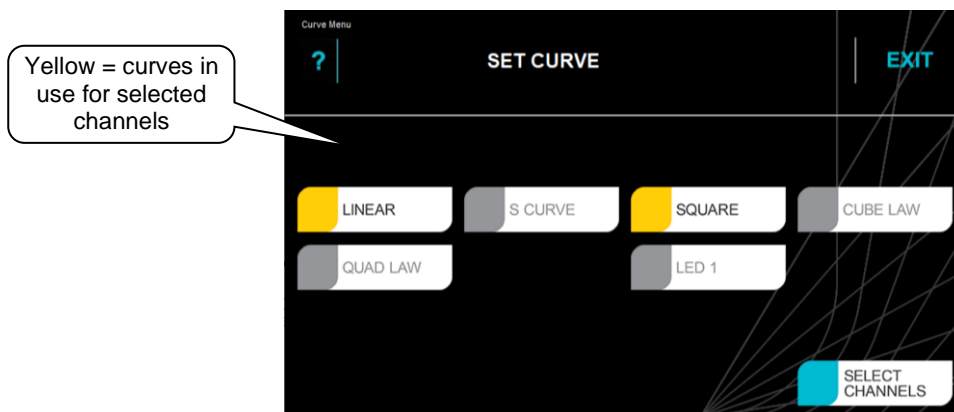
3.12 View Channels

The "View Channels" menu can be used to view all the settings for the channel that you select. From the "Main Menu" touch **VIEW CHANNELS**.
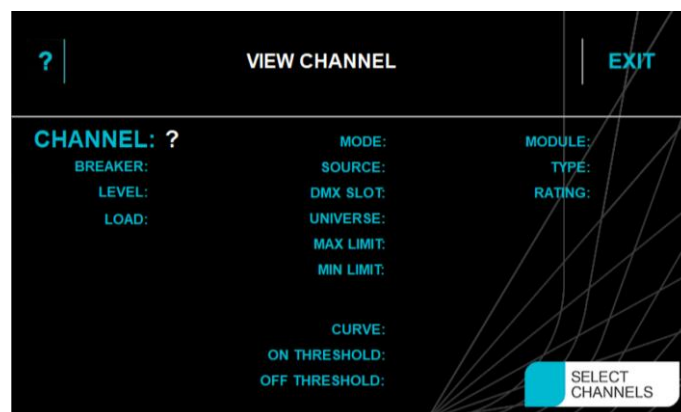
To view the current settings for a channel either touch **SELECT CHANNELS** to select the channel via the touch screen or you can select a channel by pressing the **CHANNEL SELECT** button located above each channel's circuit breaker on the front of the output modules.

3.13 View Sources

The "View Sources" menu can be used to view the DMX levels from the source that you touch at the bottom of the screen.
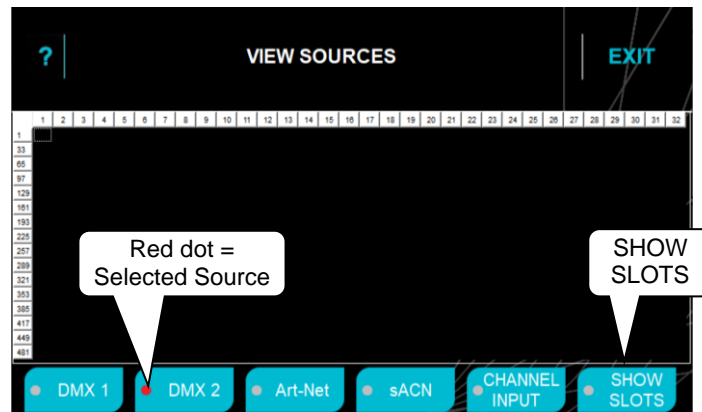
Tap **SHOW SLOTS** to see an overlay of all slot numbers in the selected source.

- Tap **DMX 1** to see the DMX levels on DMX input 1.

- Tap **DMX 2** to see the DMX levels on DMX input 2.

- Tap **Art-Net** to open a new screen where you select the Net, Subnet and Universe to view. The screen shows all of the universes being received.
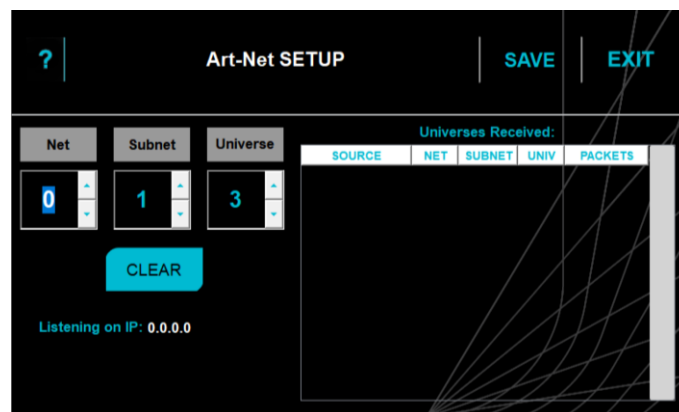
Make your selection then tap **SAVE**.

- Tap **sACN** to open a new screen where you select the sACN Universe to view. The screen shows all of the universes being received.

Make your selection then tap **SAVE**

- Tap **CHANNEL INPUT** to display the values of the control signal at the input of each UNITY channel. Channels with no control source are shown in black.

Black = No Control Source
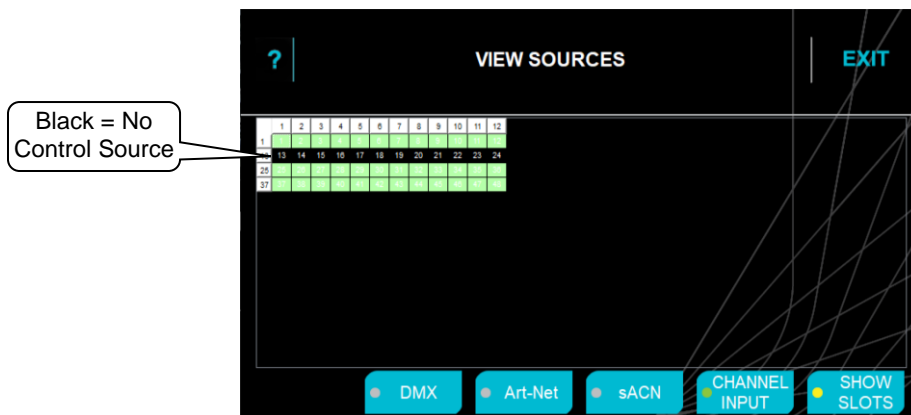
The CHANNEL INPUT screen can help you identify issues when the channel is incorrectly patched or if it is set to ALWAYS OFF or ALWAYS ON because its source is black.

3.14 View Logs

UNITY automatically recognises condition changes that occur in the system and stores them in a log. You can select the types of condition changes that will generate an entry into the log. See section 3.17.2.
To view the events that have been logged, from the "Main Menu" touch **VIEW LOGS**.
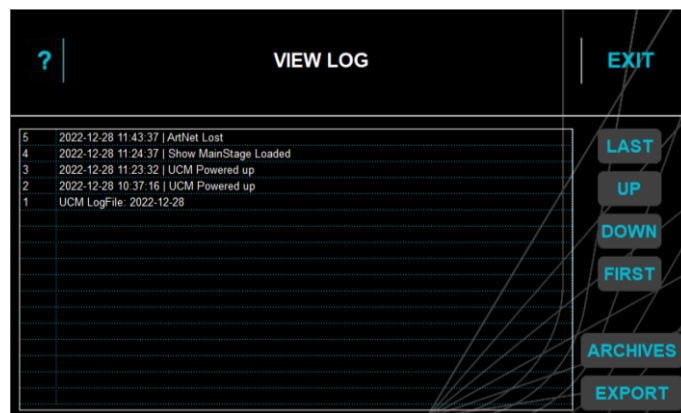
Log files are automatically archived at midnight every day. To view archived logs, touch **ARCHIVES**.

3.15 Load/Save

The user settings of a UNITY rack can be saved and recalled from the internal memory or they can be exported or imported from a USB memory stick. The file is known as a "show" and each show can be individually named using the pop-up on-screen keyboard.
To load or save a show, from the "Main Menu" touch **LOAD/SAVE**.
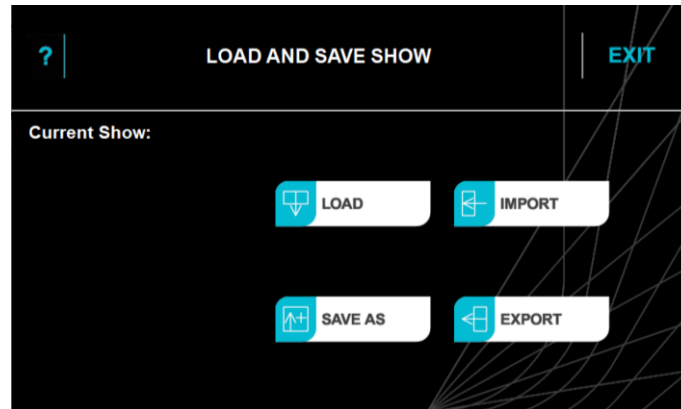
The "IMPORT" and "EXPORT" buttons are used when a USB memory stick is plugged into the UCM's USB connector. The USB memory stick must be DOS formatted (FAT32).

3.16 Set Power Limits

UNITY monitors the input voltages of all 3 input phases (L1, L2 and L3) and the Neutral. You can set voltage limits that will protect the connected loads by switching off the relevant outputs and activating an alarm if the input voltages are outside of the set voltage limits. Excessive current will activate an alarm.

From the from the "Main Menu" tap **SET POWER LIMITS**.
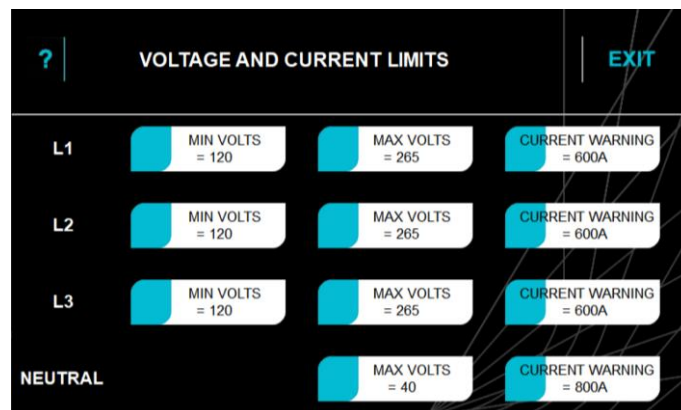
Tap a button to set its value.

See section 3.17.2 for the default values. The current warning defaults are dependent upon the size of the rack.

3.17 System Setting

From the "Main Menu" touch SYSTEM SETTINGS
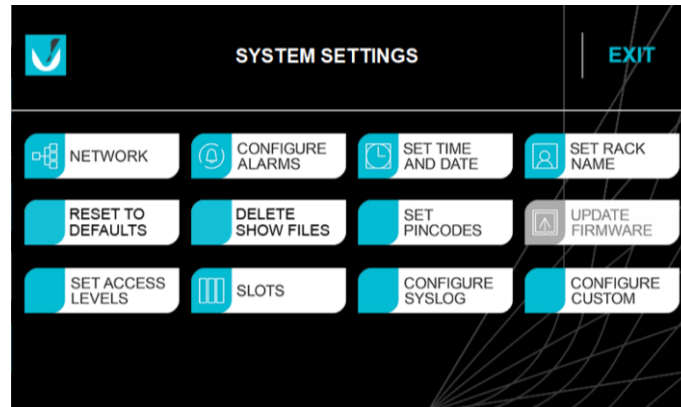
The System Settings menu buttons are described in the following sections:

3.17.1   Network

From the "System Settings" menu touch **NETWORK**.
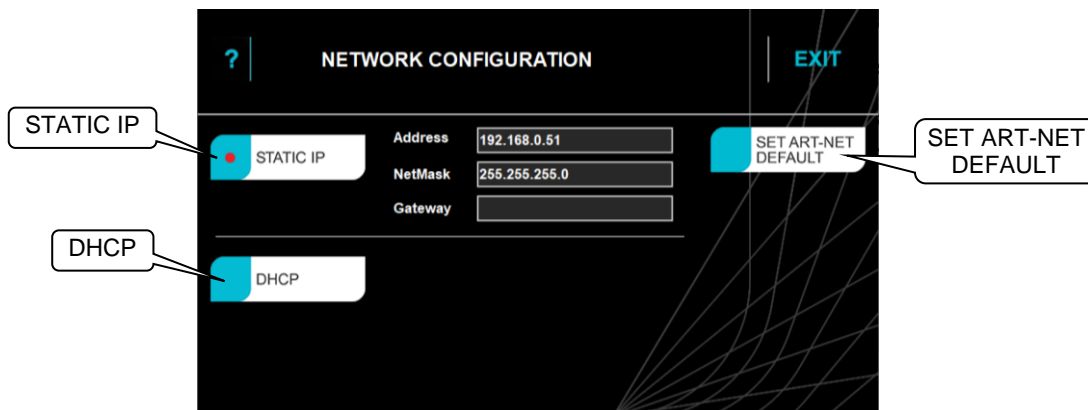
This menu is used to select the IP address that is used for this UNITY rack. The network address can be set manually (known as a Static IP) or it can be automatically assigned by your network using a DHCP server. The setting of IP addresses is dependent on the network being used and the choice of static or DHCP and other network parameters is beyond the scope of this document.

- To manually enter a network touch STATIC IP and enter the Address and NetMask. If you touch either the "Address", "NetMask" or "Gateway" fields, a pop up keyboard allows entry of the required settings.
- To have a network address automatically assigned, touch **DHCP**.
- To automatically enter the network settings for Art-Net, tap **SET ART-NET DEFAULT**. This will give the system an address in the Art-Net range. The address will be 2.x.y.z where the x.y.z is calculated from the unique MAC address of the network interface card. This allows many ArtNet devices to start up on the same network where there is no DHCP and each device will have a unique IP.

Touch **SAVE** to keep your settings and exit.

Note. To use sACN or Art-Net protocols, UNITOUR must have a valid IP address and NetMask set in order to work correctly. When using Art-Net, it is essential that the IP address is set to be compatible with the address on the device sending the Art-Net packets.
Streaming ACN utilizes multicasting and as such the actual IP address in use is generally irrelevant.

3.17.2   Configure Alarms

The "Configure Alarms" menu lists all the "conditions" that UNITY continuously monitors and allows you to select which conditions will trigger an ALARM or generate an entry into the UNITY LOG or send a message to SYSLOG or HOUSTON X when a change in condition is detected.

From the "System Settings" menu touch **CONFIGURE ALARMS**.

The left-hand column lists the "Conditions" that UNITY monitors. Scroll down to see more conditions.

- A green dot indicates that a condition change message will be sent.
- A grey dot indicates that a condition change is ignored.
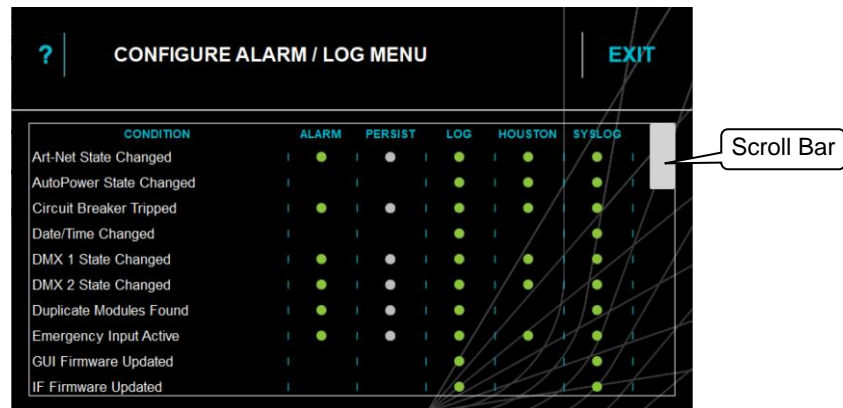
Touch a dot to toggle it to green or grey.

> ALARM. If the selected condition changes, the "STATUS" LED on the UCM lights red and a Red Alarm button appears on the touch screen. See section 3.2

> PERSIST column. When "Persist" is not active and an alarm is triggered, the Red Alarm button appears on the home screen. If the alarm condition rights itself and it has ceased to be an alarm, then the Red Alarm button disappears. The "PERSIST" option allows you to make an Alarm stay on (but turn purple) when the alarm condition clears and it remains purple until you clear or acknowledge it. This allows short term alarms such a momentary loss of DMX or similar to be easily discovered. A persistent alarm can be interrogated and cleared by tapping the ALARM button on the home screen. See section 3.2.2

> LOG. If the selected condition changes, UNITY generates an entry into the Log file. The log can be viewed on the UCM. See section 3.14.

> SYSLOG. If the selected condition changes, UNITY sends a condition change messages to a third party Syslog server via the Syslog protocol. See section 3.17.11.

> HOUSTON X. If the selected condition changes, UNITY sends a condition change message to LSC's HOUSTON X monitoring software via the ethernet connection. See section 1.1.

Note: Depending on how your system is configured, the HOUSTON or SYSLOG columns might not be shown.

Touch **SAVE** to keep the changes and exit. To discard the changes and retain the original setting touch **EXIT**.

3.17.1 Set Date and Time

UNITY has an internal clock that is used for various purposes such as logging the date and time of events. The clock can be manually set or it can be automatically set by a network connection. From the "System Settings" menu touch **SET TIME AND DATE**.
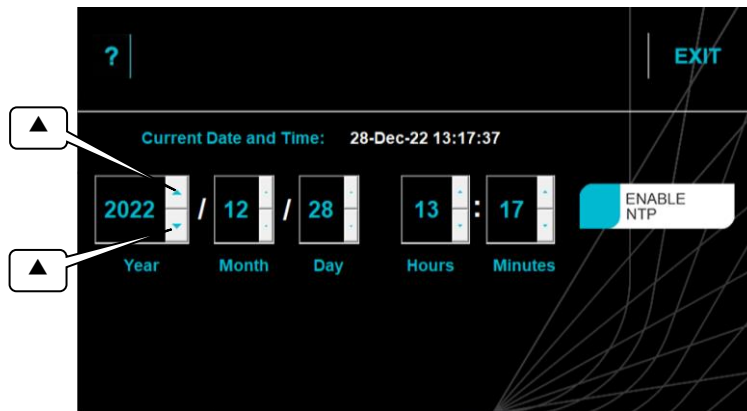
Touch the up ▲ or down ▼ buttons to set the date and time then touch **SAVE**.

Alternatively, to automatically set the date and time by a network connection touch **ENABLE NTP**. NTP (Network Time Protocol) is a networking protocol for clock synchronization over networks. You can connect UNITY to an NTP server or you can create your own NTP time server and run it on a private network.

NTP Enabled

Touch the box above "NTP IP Address" then use the keyboard that pops up to enter the IP address of the NTP server.
Touch the UTC time zone for your location (scroll the list if necessary) then touch **SAVE** to keep the changes and exit. To discard the changes and retain the original setting touch **EXIT**.

3.17.1 Set Rack Name

Every UNITY rack can be given a name. Names are most useful when multiple UNITY racks are installed.

Names might indicate the physical location of the channels, for example, one rack might be named "Studio Theatre" and another "Front of House".

Names might indicate the DMX addresses. Channel numbers in each rack number from top to bottom of the rack. If more than one rack is installed, each rack has the same channel numbers but each rack has different DMX addresses. Therefore, the rack name can be used to show the DMX address range for that rack.

For example:

Rack 1			Rack 2		
Channels	DMX Slots	**Rack Name**	Channels	DMX Slots	**Rack Name**
1-48	1-48	**DMX 1-48**	1-48	49-96	**DMX 49-96**

From the "System Settings" menu touch **SET RACK NAME**. Touch inside the name box then use the pop-up keyboard to enter a name.

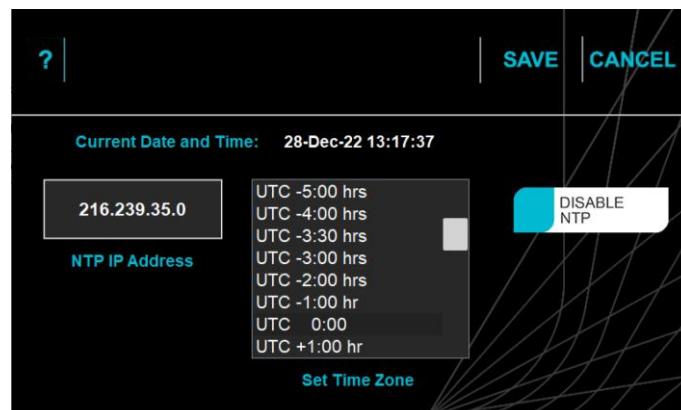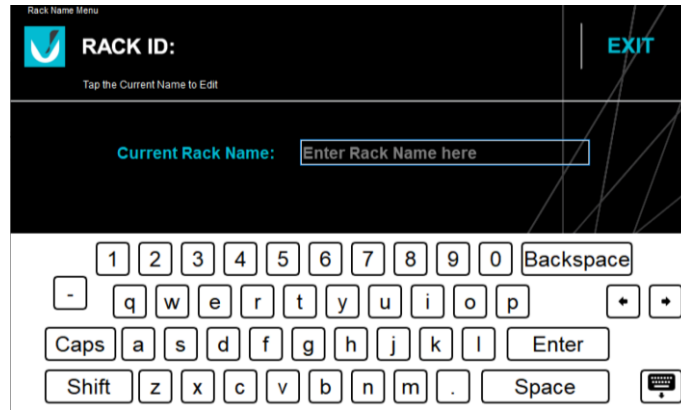Touch **SAVE** to keep the changes and exit. To discard the changes and retain the original setting touch **EXIT**.

3.17.2   Reset to Defaults

From the "System Settings" menu touch **Reset to Defaults**.
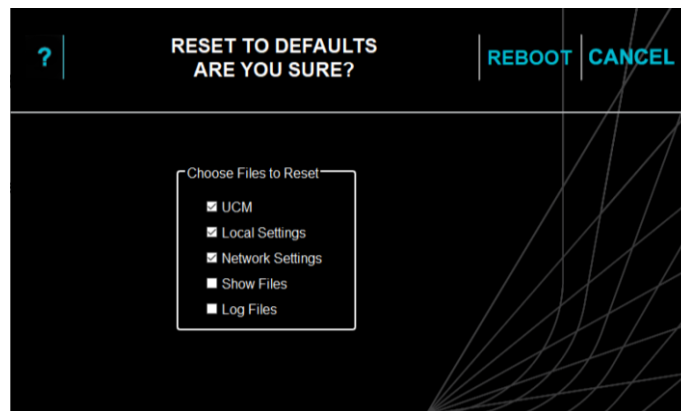
Tap each box to select the files that you want to reset to defaults as listed below. When any files are selected the "Reboot" button appears. Tap **REBOOT**.
The default settings for each file are,

UCM (UNITY Control Module) Defaults

Parameter	Default Setting
Switch Channels	Switch mode
Dimmer/Switch Channels	Dimmer mode
Control Source	DMX 1
DMX Address	Block address starting from DMX slot 1
Dimmer Minimum Level	0%
Dimmer Maximum Level	100%
Dimmer Curve	Linear
Rack Name	No Name

Local Settings Defaults

Parameter	Default Setting
Minimum Volts	85V
Maximum Volts	265V
Current Warning	24 Channels = 150A
	48 Channels = 300A
	96 Channels = 600A
Neutral Max Volts	40V
Neutral Current Warning	24 Channels = 125A
	48 Channels = 600A
	96 Channels = 800A
Alarms/Logs	See below for alarm and log default settings

CONFIGURE ALARM / LOG MENU   EXIT

CONDITION	ALARM	PERSIST	LOG	HOUSTON	SYSLOG
Art-Net State Changed	●	●	●	●	●
AutoPower State Changed			●		●
Circuit Breaker Tripped	●	●	●		●
Date/Time Changed			●		●
DMX 1 State Changed	●	●	●	●	●
DMX 2 State Changed	●	●	●	●	●
Duplicate Modules Found	●	●	●		●
Emergency Input Active	●	●	●	●	●
GUI Firmware Updated				●	●
IF Firmware Updated				●	●

CONDITION	ALARM	PERSIST	LOG	HOUSTON	SYSLOG
Module Camloc Open	●	●	●	●	●
Module Config Failure	●	●	●	●	●
Module Firmware Updated			●		●
Module Location Error	●	●	●	●	●
Module Missing	●	●	●	●	●
Module No Application Code	●	●	●		●
Module Over Temp	●	●	●	●	●
Module Phase Fail	●	●	●	●	●
Module Reconfigured			●		●
Module Removed	●	●	●	●	●

CONDITION	ALARM	PERSIST	LOG	HOUSTON	SYSLOG
Module Restarted				●	
Module Size Error	●	●	●		●
Network Data Lost	●	●	●	●	●
Network Down	●	●	●	●	●
Neutral OverVolts	●	●	●	●	●
No Load on Channel	●	●	●		●
NTP is now Active					●
NTP response not received	●	●	●		●
NTP Server contacted					●
NTP Time Zone changed			●		●

CONDITION	ALARM	PERSIST	LOG	HOUSTON	SYSLOG
Rack Temp State	●	●	●	●	●
sACN State Changed	●	●	●	●	●
Show Imported			●		●
Show Loaded			●		●
Slot Error	●	●	●	●	●
UCM Camloc Open	●	●	●	●	●
UI Started					●

Default Alarm Settings

Network Settings Defaults

Parameter	Default Setting
Static IP or DHCP	Static IP
Address	2.x.y.z where the x.y.z is dependent on the interface MAC address.
Netmask	255.0.0.0
Gateway	

Show Files Defaults

No show file is loaded. All existing show files are deleted.

Log Files Defaults

All existing log files are deleted.

3.17.3   Delete Show Files

From the "System Settings" menu touch **DELETE SHOW FILES**.
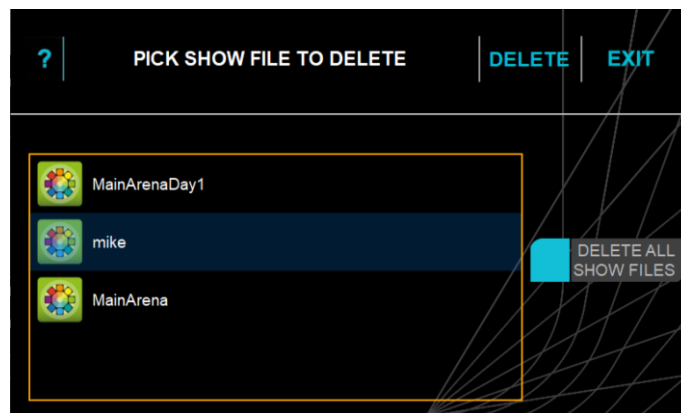
To delete a single show file, tap on the file name to be deleted and the "DELETE" button appears. Tap **DELETE**.

To delete all show files tap **DELETE ALL SHOW FILES**.

To save all show files to a USB stick before deleting them touch **SAVE TO USB STICK**. To delete all files, touch **OK**.

3.17.4   Set PIN Codes

When you **LOG IN** to UNITY there are four access levels available:

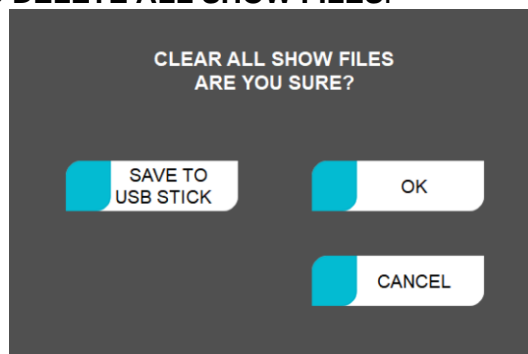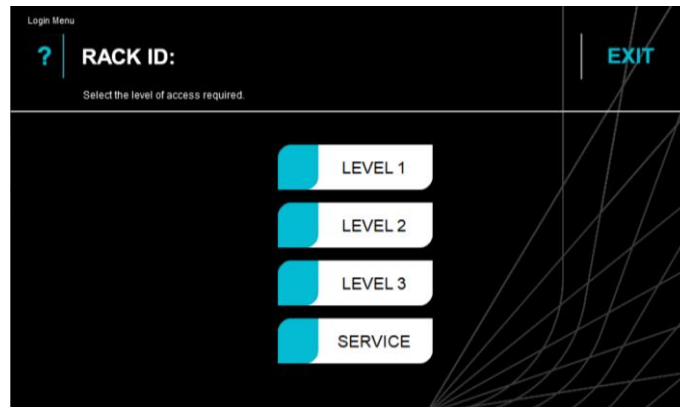You can allocate the menu screens that can be accessed by each level. See section 3.17.9. UNITY ships with levels 1, 2 and 3 all unlocked. You can protect each level with a PIN code. The "Service" level always requires a PIN (contact LSC) for access.

From the "System Settings" menu touch **SET PINCODES**.
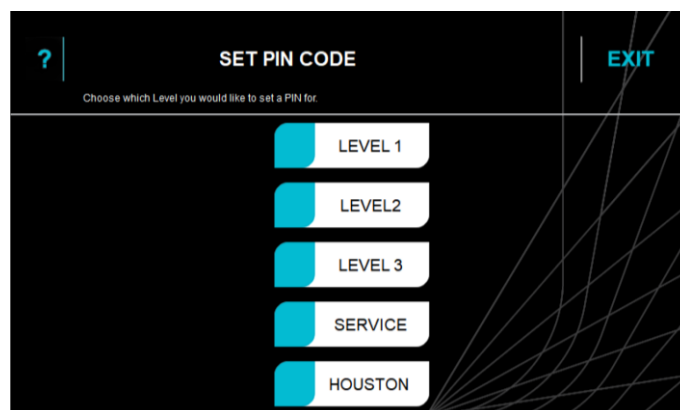
Touch the **LEVEL #** that you want to lock. HOUSTON is LSC's remote monitoring and configuration software. See section 4 for more information about HOUSTON X
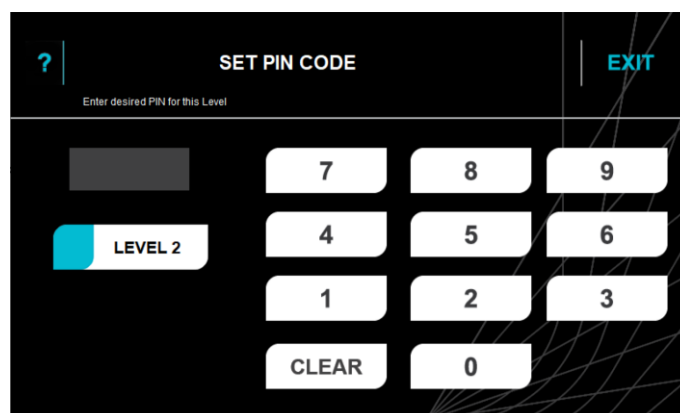
Use the keypad to enter a 4 to 8 digit PIN then touch **SAVE**. Repeat the PIN then touch **SAVE**. When logging into a locked level, enter the PIN then touch **UNLOCK**.

3.17.5   Removing PIN codes

To remove a PIN from a level and leave it unlocked, set the PIN to 0000. No PIN is required when set to 0000.

3.17.6   Update Firmware

LSC Control Systems has a corporate policy of continuous improvement to its products. The UNITY software (firmware) is subject to this policy as new features are added and existing features improved. The software version of your UNITY can be checked from the Main Menu by touching **?** in the top left corner of the "Home Menu".

Touch **?** to see the software version

Home Menu

Software version

The latest software for UNITY can be downloaded from http://unity.lsccontrol.com.au
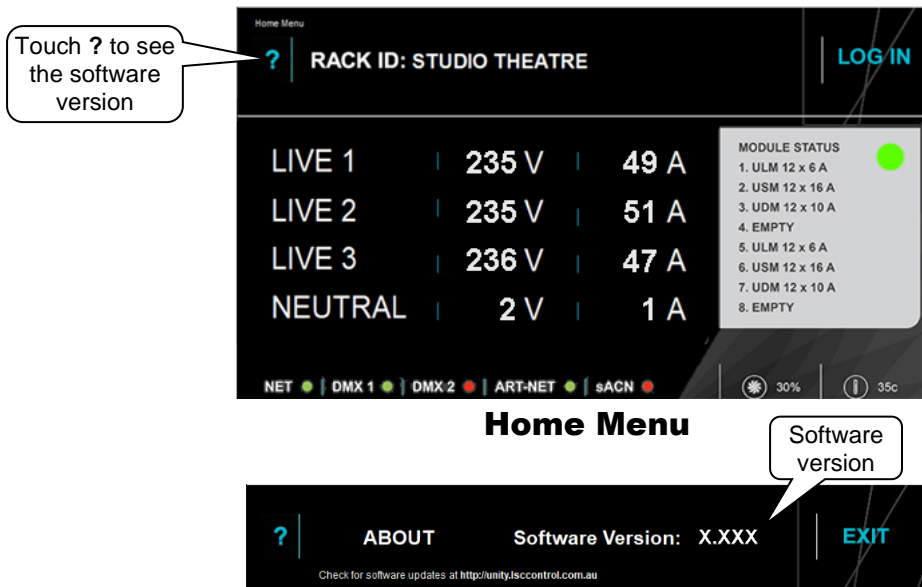
Note: All outputs will be disabled (turned off) during the update process.

3.17.7   UNITY v1.xx to v2.xx Firmware Update

<div align="center">

VERY IMPORTANT

</div>

The v2.03 firmware release for UNITY is a major rewrite of the UNITY software. The software is now unified with the UNITOUR product, allowing for faster and more reliable development now and into the future. It also introduces many new features. See section 6 for new features.

The v2.03 software also uses a new upgrader, which is incompatible with the v1.xx upgrader.

Upgrading from v1.xx to v2.03 requires that you carefully follow the instructions to ensure a smooth upgrade.

If one or more steps below are not followed correctly then the system can still be recovered, but it will take longer and require some simple tools and a computer with a micro SD card reader. Contact techsupport@lsccontrol.com.au for details on this process.

Tools required
- USB hub
- USB mouse
- USB memory stick (formatted as FAT32)
- Paper clip (to press the recessed Reset button)

Instructions
1. Download the v105tov203.zip file from the LSC website.
   https://www.lsccontrol.com.au/product/60/unity/#downloadLoc

2. Create a folder on the USB stick titled LSC

3. Unzip the three files into the LSC folder of the USB stick.
   The three files are;
   - UnityCM_v2.01.upd
   - UnityXM_v2.00.upd
   - UnityPi_v2.03.img

4. Connect the USB hub to front USB port on the UCM module.

5. Plug the USB mouse and USB stick into the USB hub.
   Check that the mouse works, then put it aside until steps 9/10 below.
   IMPORTANT: If you do not have a working mouse and USB hub – then the upgrade will stall halfway through the process and cannot be completed. The rack will NOT be usable without additional tools and a computer.

6. Disconnect all input data (DMX1, DMX2, ethernet).
   The modules will not upgrade if there is DMX, ArtNet or sACN data being processed.

7. Navigate to the **Update Firmware** menu.

8. Upgrade the Dimmer/Switch modules first.
   On the touch screen, tap on each of the 4 or 8 modules buttons to select them and then tap the **Update** button.
   Select the UnityXM_v2.00.upd file and tap **ok**.
   This may take 2-3 attempts as there is a bug in v1.05 updater that can cause the update to stall in the middle of the file transfer.
   If the progress bar stalls for more 5 seconds, press the cancel button and repeat.
   If any module/s fails to update, repeat for those modules

Do NOT go onto the next step until ALL the modules have been upgraded.

9. Upgrade the UCM Interface next.
   On the touch screen, tap on the UCM interface button and select the UnityCM_v2.01.upd file.
   After the GUI says the file has uploaded, the status LED will chase RGBCMY whilst the Interface updates.

   When the update is complete, the Status LED will change to steady Magenta. This indicates that the Interface is running but can no longer communicate with the GUI application. The GUI needs to be updated for communications to be restored.
   This means that the touchscreen will not respond until after step 10 is completed.

   After the status LED turns steady Magenta, use the USB mouse to press the **Cancel** button.

10. Upgrade the UCM App last, using the UnityPi_v2.03.img file.
    Using the mouse, select the option to upgrade the UCM App
    This process takes 2-3 minutes.
    After the update is complete, click on the **green tick** to finish the update.

11. Once the UCM has restarted and the home screen appears, press the **Reset** button to restart the UCM module.

12. Disconnect the USB hub, mouse and memory stick.

13. Press the **?** button on the Home screen and check that the following software versions are installed.
    UNITY
- Software Version: 2.03
- Build Number: 13626
- Interface Firmware Version: 2.01
- Modules   Version 2.00

14. Test the system for normal operation.

Note: All show configuration data will be maintained and all existing shows should load and operate normally.

3.17.8 Downgrading from v2.03 to v1.05

If you need to revert to v1.05, the process is simple.

1. Use this link to download the file named: Unity_v1.05rollback.upd.
   https://www.dropbox.com/sh/97z6zan261xy69d/AACeSDS6Vtt_pDkr85Yf5vlra?dl=0

2. Copy the file to the LSC folder on the USB stick

3. Log in and tap the **Upgrade Firmware** button.
   Hint: The button has moved to a new location on the "System Settings" menu.

4. Select the Unity_v1.05rollback.upd file from the list box.

5. The process is fully automatic.
   - The modules will be downgraded first.
   - Then the interface.
   - Then the GUI.

If any of the modules fail to downgrade, press the **Cancel** button <u>BEFORE</u> the interface is downgraded. Repeat the process from step 3.

6. After the downgrade has completed. Press the **Reboot** button on the touch screen to restart the rack in v1.05 software.

3.17.9 Set Access Levels

When you **LOG IN** to UNITY there are four access levels. The "Service" level is always locked. You can allocate the menu screens that can be accessed by each level. UNITY ships with levels 1, 2 and 3 all set to the same access.

To set the access for a log-in level, From the "System Settings" menu touch **SET ACCESS LEVELS**.

A green dot indicates that the menu name is accessible from that level or a higher level. Touch a dot to toggle it to green (access) or grey (no access). Scroll down to see more menu names. Touch **SAVE** to keep the changes and exit. To discard the changes and retain the original setting touch **EXIT**.

3.17.10   Slots

The output module slot locations in the UNITY rack are labelled A to D (48 channel models) or A to H (96 channel models) from top to bottom. Any type of output module can be fitted in any location but you can also specify that a particular slot will only accept a particular type of module.

If you specify a particular type and a different type is inserted, the module will not operate.

Note: *The 6 channel module has a factory wired dedicated location that cannot be changed.*

From the "System Settings" menu touch **SLOTS**.
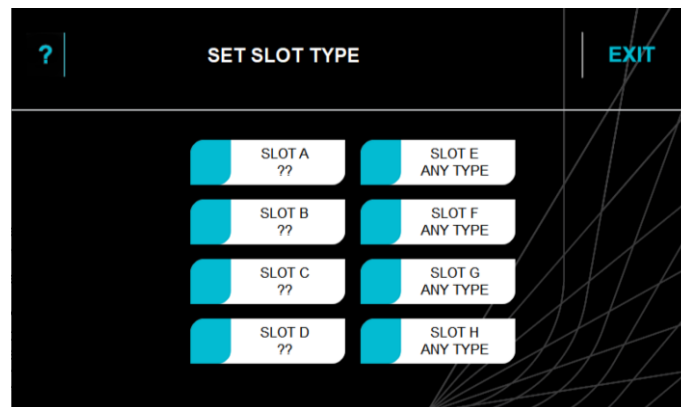
To specify that only a particular type of module can be fitted to a specific slot touch the button for that slot.

For example, touch **SLOT A**. The slot choice menu opens:

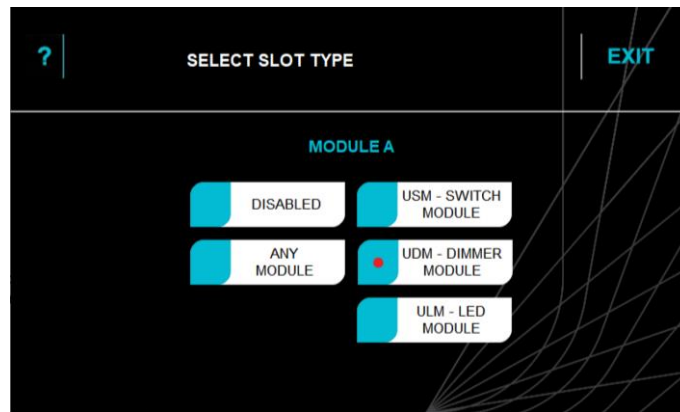Touch the type of module for that slot then touch **SAVE**.

3.17.11   Configure Syslog

SYSLOG is a standard for message logging. It allows separation of the software that generates messages, the system that stores them and the software that reports and analyses the data. This allows a single computer to monitor any number of UNITY racks on a network and store their log messages and act on them if desired.

The "Configure Syslog" menu allows you to either enable or disable Syslog messages and also set the IP address of the Syslog server.

From the "System Settings" menu touch **CONFIGURE SYSLOG**.
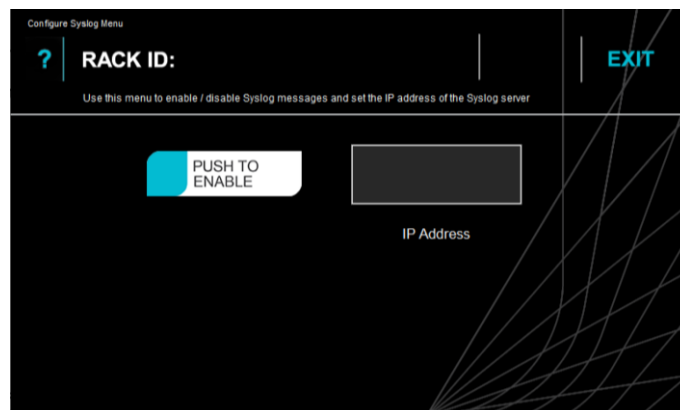
Touch the box above "IP Address" then use the keyboard that pops up to enter the IP address of the Syslog server. To enable Syslog touch **PUSH TO ENABLE** then **SAVE**.

3.17.12   Configure Custom

LSC can customise UNITY by adding custom features for specific applications or venues. Contact LSC or refer to your venue specific documentation for details.

4   HOUSTON X

HOUSTON X is a LSC's monitoring and remote configuration software tool that works with LSC's professional product range. HOUSTON X connects to UNITY over ethernet. It can be used to remotely configure multiple UNITY racks and it also monitors all status indicators and alarms.

HOUSTON X is a free download however each LSC product needs a license to be controlled by HOUSTON X. Contact LSC or your local LSC agent for more details on HOUSTON X.

5   Phasing

In 3 phase power systems it is desirable that the output loads are distributed as evenly as is practical between the 3 input phases.
The outputs of each UNITY output module are fed from the following input phases:

Output Channel	Input Phase
1	1
2	2
3	3
4	1
5	2
6	3
7	1
8	2
9	3
10	1
11	2
12	3

6   Feature History

The new features added to UNITY in each software release are listed below:

Release: V2.03
Major Update. The v2.x code combines the original UNITY v1.x codebase with the new UNITOUR software, providing many new and improved features. Due to the combining of the two products, a number of buttons in the UNITY software have been moved to a different location on the screen.
Major New Features:
- The software update process has been completely rewritten. There is now one update file to load which updates the GUI, interface and all modules. It also automatically skips any devices that are already up to date. As this is the first version with the new Updater, v2.03 must be installed as separate components using the old install method.
- New dark colour scheme for easier viewing in low light conditions.
- The Art-Net/sACN functionality has been extended. It is now possible to assign different Art-Net or sACN universes to each channel if required. The old [Configure Art-Net] and [Configure sACN] buttons have been removed from the GUI. Configuration of these options in now done in the Channel Setup window, using the [Input Source] button.
- sACN Merging. If there are multiple sACN sources with the same priority, they are merged using HTP.
- Art-Net merging. If there are multiple Art-Net sources, they are merged using HTP.
- A new View Sources screen allows the user to view any of the inputs (DMX1, DMX2, Art-Net or sACN) and see the entire 512 channels of data in real time.

- A new "Set Power Limits" screen allows the user to set min/max voltage and max current limits for each phase of the rack. If these are exceeded the rack will shut down that phase.
- Alarms can now be made persistent. This allows transient alarms (for example over/under voltage) to remain displayed in the Alarms window until dismissed by the operator. Persistent alarms are shown in purple.
- A Dim/Switch module can now be used to replace a Switch module without any need to reconfigure the rack. This is to allow a venue with multiple racks to hold a single spare Dim/Switch module and use it as either a Dim/Switch or Switch Only module.
- Always On channels now stagger start.
- Channels can now be to Always Off, to disable them.
- Delete show files. A new screen allows the user to delete old show files.
- Factory Reset. A new screen allows the user to reset the unit to factory defaults. There are a number of options as to which parts to reset, including whether to reset network settings and delete show and/or log files.
- The functionality of the "Network" LED has changed. Previously it was green if there was any hardware to a network. Now it only shows green if there is network traffic flowing. If there is a physical connection, but no data, it will remain red.
- Additional logging data. The log file now includes additional items including, AutoPower events, DMX/Art-Net/sACN connection/loss and software update information.
- Archived log files are now loaded automatically when selected, reducing the number of buttons presses required.
- The Configure Alarms window now allows for specific alarms to be enabled/disabled with regards to HOUSTON X.

There are also many minor tweaks and enhancements that are too numerous to mention.

Release: v1.09 Date: 28 July 2020
No new features. Bug Fixes only.

Release: v1.08 Date: 24 March 2020
Addition of 6-channel unit to family.
Addition of more Houston X functionality.

Release: v1.07 Date: 2018 Software
No new features. Bug Fixes only.

Release: v1.06 Date: 2018
No new features. Bug Fixes only.

Release: v1.05 Date: 28-Jun-2018
No new features. Bug Fixes only.

Release: v1.04 Date: 15-Dec-2017
Diagnostic functionality increased.

Release: v1.03 Date: 10-Nov-2017
AutoPower function added.
TruPower function added.

Release: v1.02 Date: 9-Sep-2017
Fans are now controlled depending on channel utilisation. This caters for situations like one channel is on full. This would not normally cause the overall temperature to increase thus the fan speed would also not increase. With this change, the fan speed is also dependent on channel utilisation so one channel on at full will cause the fan speed to increase.

Release: v1.01 Date: 7-Sep-2017
First Official Release.
UDM code added.
Test routines updated.

Release: v1.00 Date: 18-Aug-2017
PT release for initial installation.

7   Compliance Statements

UNITY from LSC Control Systems Pty Ltd meets all required CE (European), RCM (Australian) and UKCA (United Kingdom) standards.

CENELEC (European Committee for Electrotechnical Standardization).

CE

Australian RCM (Regulatory Compliance Mark).

UK Conformity Assessed.

UK
CA

WEEE *(Waste Electrical and Electronic Equipment).*

The WEEE symbol indicates that the product should not be discarded as unsorted waste but must be sent to separate collection facilities for recovery and recycling.

For more information about how to recycle your LSC product, contact the dealer where you purchased the product or contact LSC via email at info@lsccontrol.com.au

You can also take any old electrical equipment to participating civic amenity sites (often known as 'household waste recycling centres') run by local councils. You can locate your closest participating recycling centre using the following links.
- AUSTRALIA http://www.dropzone.org.au.
- NEW ZEALAND http://ewaste.org.nz/welcome/main
- NORTH AMERICA http://1800recycling.com
- UK www.recycle-more.co.uk.

-   END -