LSC
CONTROL SYSTEMS



24 Channels



48 Channels

UNITOUR ®

Smart Power Distribution

with Optional Dimming

User Manual

GOOD DESIGN AWARD® WINNER

AUSTRALIAN MADE®

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Individual RMS/peak earth leakage current (ELC) monitoring per channel with programmable alarm warning level.

- Australian Patent #2022100070
- Australian Patent #2021215292
- EU Patent Application No. EP4233086
- US Patent Application No. 18/722,425

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1 Product Description

1.1 About this Manual

This “UNITOUR User Manual” describes the configuration and operation of the UNITOUR Modular Power System.
Throughout this manual:

- A word in **BOLD** text represents a button on the touch screen or a physical button.
- Emphasis is indicated by underlining.
- When referring to DMX, the actual DMX signal might be from the DMX input or from Art-Net or sACN.
- *Notes and hints are in italic font*

Illustrations in this manual show the “Deluxe” version of the UNITOUR. See section 1.4

1.2 UNITOUR Overview

UNITOUR is a premium portable power solution for video, audio and lighting for the events, touring, film and TV markets. It is a totally flexible unit for power control of conventional, LED or moving lights and provides perfect power solutions for LED video walls and audio systems.

UNITOUR is available with either 24 or 48 power output channels. The output channels are arranged in modules, each containing 12 channels.

Two types of output module are available,

- USMT. A 12 channel, 16 amp per channel, Switch Relay Module
- UDMT. A 12 channel, 16 amp per channel, Dimmer/Relay Switch Module

The “Switch Relay Modules” are best suited to audio and video users. The dual-mode, “Dimmer/Relay Modules” are best suited to lighting operators. The dimmers have the ability to control any load including LEDs, incandescent, neon and fluorescent fixtures.

Output channels can be operated in any of the following modes,

- AUTO POWER mode. These channels will act as power switches and they will be sequentially switched on, one output at a time, with a programmable time delay before the next circuit turns on. In this way the peak current drawn is always low and upstream supply breakers will not trip. The sequence is started either automatically by the presence of their selected control source or manually from the **LOCAL CONTROL** button on the touch screen. For example, if all the lighting and video equipment is powered from AUTO POWER channels that have the lighting control signal as their control source, they will be automatically switched on without any user intervention when the lighting console is turned on (and its output signal is detected) and be automatically switched off a few minutes (programable time) after the lighting console is turned off. See section 4.7.2

- SWITCH 60%-40% mode. The channel will act as a power switch and is individually switched by the DMX level of a slot to which it is patched. This is the best mode to provide remotely controlled power to lighting fixtures and AV equipment.

- RELAY 1%-0% mode. The channel will act as a power switch and is individually switched by the DMX level of a slot to which it is patched. Relay mode differs from switch mode in that it will switch on when its DMX level is 1% or higher This makes it particularly useful when the controlling device (lighting console) is programmed with long fade times. The “Relay” channel will switch on at the start of the up fade and switch off at the end of the down fade.

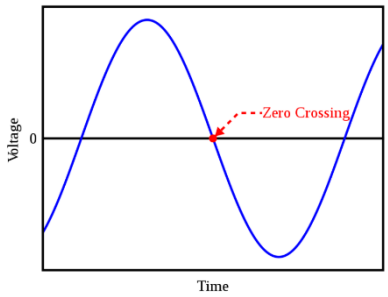
- ALWAYS OFF. The channel cannot be turned on by UNITOUR (except in “Emergency Mode”). See section 5. Warning, do not rely on this setting to isolate the power.

- ALWAYS ON. The channels will be sequentially switched on when power is applied to UNITOUR. The channel can only be switched off by its channel RCBO (circuit breaker).

- DIMMER mode. The channel acts as a dimmer and utilizes pulse transformer circuitry which allows it to control difficult loads including neon, motors and low wattage lamps as well LEDs and convention incandescent lamps. This mode is not available on USMT switch modules.

The UNITOUR is all about safety for both the operator and the equipment attached to it. The power to each output is switched by internal relays. This allows UNITOUR to provide protection by switching off the power in the event of a lost neutral or if the input voltage is excessive or too low (configurable settings). In addition, there is a 30mA RCBO (Residual Current Breaker with Over-current) per output providing earth leakage and current overload protection.

Nuisance circuit breaker tripping is overcome by using ZCSS (Zero Cross Soft Start) that switches on the relay as the mains voltage passes through the zero point of the sine wave.



The UNITOUR’s clever software provides real-time voltage and current monitoring per phase, as well as load current (RMS and Peak) and earth leakage current (RMS and Peak) monitoring per channel. The peak readings are logged with a time/date stamp, helping to identify the cause of a tripped breaker. Warning thresholds can be set to alert you when each channels earth leakage current or load current are approaching limits. This can help you to take measures to prevent a loss of power by redistributing loads or replacing faulty equipment before the breaker trips.

On large complex show systems, it is vitally important to monitor what is happening within your system, from anywhere. UNITOUR solves this issue and can be configured and interrogated locally on the built-in large touchscreen or remotely via LSC’s HOUSTON X monitoring and configuration software.

Pre-show, the UNITOUR racks can be configured without connecting them to 3-phase power. Just connect all the racks via a PoE Ethernet switch which powers the UNITOUR Head Module allowing local or network configuration.

An optional SMS service allows the UNITOUR to send a text message directly to a technician when specified alarms or warnings are triggered. Future feature.

1.3 Good Design Award

The Australian Good Design Awards are the highest honour for design and innovation in Australia.

The LSC UNITOUR received a prestigious Good Design Award Winner Accolade in the Product Design category in recognition for outstanding design and innovation.

The Good Design Awards Jury commented: “A innovative way of providing power at live event, the UNITOUR individually monitors all device outputs to give operators complete peace of mind. The modular design is commendable, as is the dimmable 'stealth' front panel.”

Dr. Brandon Gien, CEO of Good Design Australia and Chair of the Australian Good Design Awards said: “To be recognised with an Australian Good Design Award is a significant achievement, given the incredibly high standard of projects submitted in this year’s Awards. The Good Design Award is a valuable independent endorsement of professional design quality. It tells the world this project not only represents design excellence, but it also surpasses the criteria for design innovation and design impact.”

1.4 Sizes and Options

UNITOUR is available in 2 sizes.



24 Output Channels 48 Output Channels

Both sizes can be supplied as either standard or deluxe models (see section 1.4.2).

1.4.1 Options

The UNITOUR can be supplied with the following options,

Output Modules.
Two types of output modules are available. Each module provides 12 outputs.

- UDMT Dimmer/Relay Switch module. See section 1.7.4
- USMT Relay Switch module. See section 1.7.5

Main Switch.
The 48 channel model has a choice of main (input) switch,

- MCCB (Moulded Case Circuit Breaker)
- MCCB + RCD (Residual Current Device)

Output Connectors
There is a choice of output connectors,

- Socapex 19-pin
- Wieland 16-pole
- Wieland 10-pole

Road Case
The road-case can be supplied with either lift off lids or sliding doors.

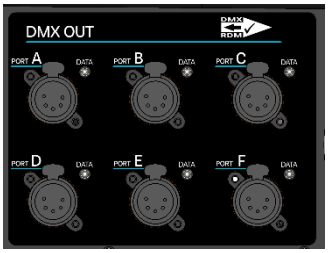
Patch panel
The 48 channel model can be supplied with an optional top mounted patch bay using Wieland GST18 connectors providing 2:1 parallel patching of every output plus two connectors and ammeter for load/lamp testing. Patch leads are available separately.

See section 9 for all specifications.

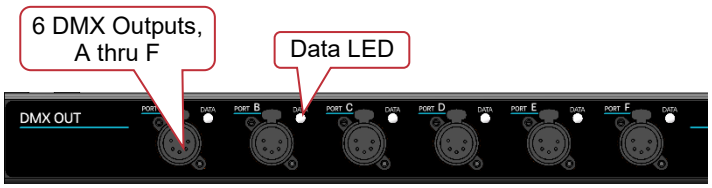
1.4.2 Deluxe Models DMX Outputs

Deluxe models of UNITOUR are fitted with an internal 6 port A/RDM/Ethernet to DMX512 converter supporting Art-Net and sACN and a DMX-RDM splitter.

The 6 outputs are on the rear of the UNITOUR rack. There is a "DATA" LED immediately adjacent to each output showing if that channel output is active. It flickers when DMX is transmitted.



24 Channel Version



48 Channel Version

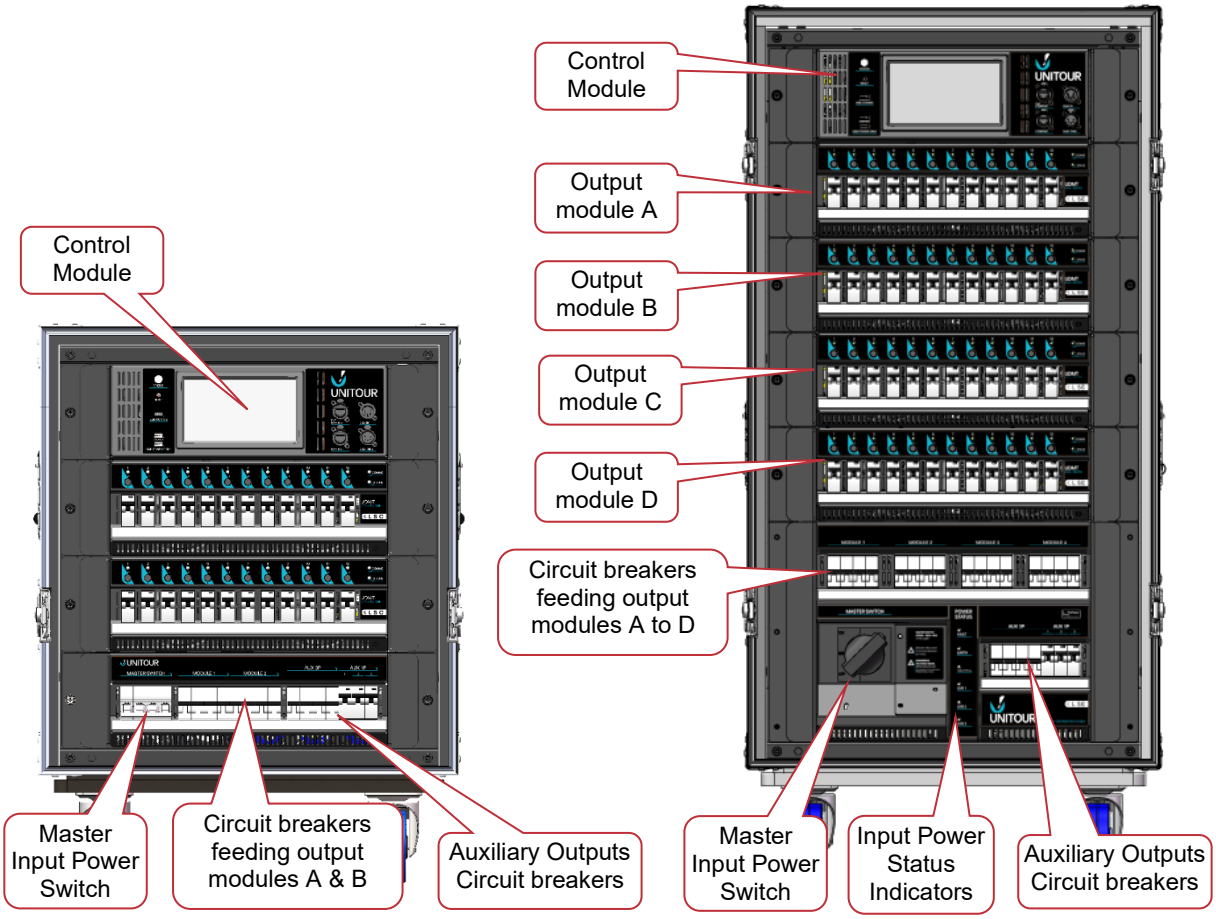
Deluxe Model DMX512-A Outputs

Each output can be individually configured to output DMX from any of the control signals that are being received by UNITOUR (Art-Net, sACN, DMX). See section 4.19 for details on how to assign input signals to the DMX outputs.

1.5 Warranty

LSC Control Systems warrants all products manufactured by LSC will be free from defects in workmanship and materials affecting normal use subject to the conditions and limitations provided in the limited warranty as described on the LSC website. Click here to view the LSC warranty.

1.7 Front Panel



24 Channel UNITOUR **48 Channel UNITOUR**

The top section contains the Control Module (also known as the UHM, Unitour Head Module). See section 1.7.1 below.

The centre section contains the output modules. Each module has either 12 switched output channels or 12 switching/dimmer output channels. Each output channel has its own RCBO circuit breaker. See section 1.7.3

The bottom section of the rack contains the following switches and breakers.

- Master 3-phase Input Power Switch with the following options:
  Australian and New Zealand models can have either a programmable MCCB 400A auto switch or a programmable MCCB 400A auto switch plus programmable RCD
  Export models can have either a hard wired input (no main switch), a programmable MCCB 400A auto switch or a programmable MCCB 400A auto switch plus programmable RCD
- Two 3-phase circuit breakers (24 channel model) or four 3-phase circuit breakers (48 channel models) that feed the output modules. These breakers should not be operated when their output modules are under load
- One 3-phase circuit breakers that feeds the 3-phase Auxiliary Output
- Three single phase circuit breakers that feed the three single phase Auxiliary Outputs

Unitours are fitted with red/green input “Power Status Indicators”. All indicators must be green before switching on.

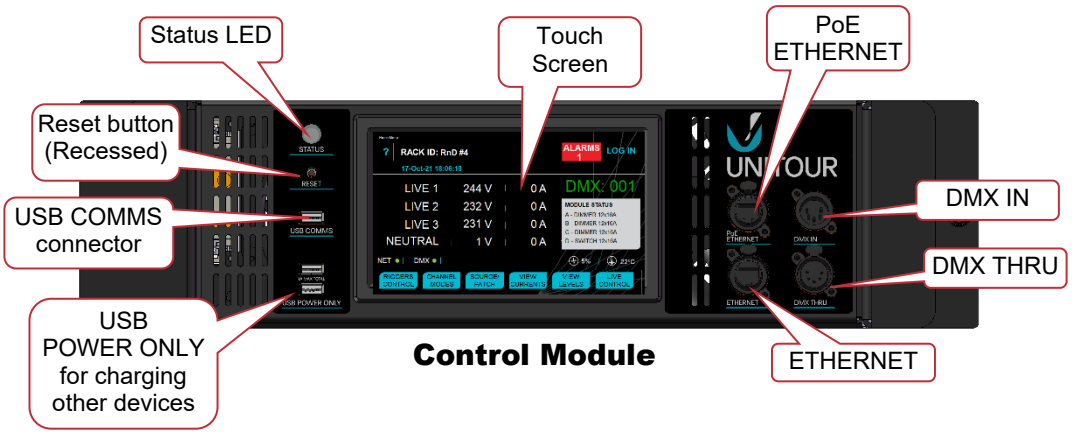
1.7.1 Control Module (UHM, Unitour Head Module)

The Control Module (also known as the UHM) is used to configure, control and monitor the UNITOUR rack and also to display the current system status and report any alarm conditions. It also acts as a control and reporting proxy to the outside world allowing all relevant information to be reported to LSC's HOUSTON X monitoring and configuration software.

The power to the Control Module is supplied from all 3 input phases via resettable thermal fuses located on the rear of the rack. The Control Module will continue to operate with only 1 input phase present.
Note: Early models were fitted with M205 6.3A/250VAC TYPE T (Anti-surge) 1.5kA B.C fuses.

The Control Module can also be powered by connecting PoE to the top Ethernet connector. See section 1.7.2.

The Control Module's touch screen menu system is fully described in section 4.



The Control Module has the following features:

- Status LED

Indicates the health of the system and its large size means it can be seen from a distance.

- Blue = Booting up/ not communicating with the touch screen processor
- Green = Good
- Solid Red = Control Module alarm
- Flashing Red = Alarm. See section 3
- Yellow = Acknowledged alarm. See section 3.1
- Purple = Persistent alarm, See section 3.2

- RESET Button

The (recessed) RESET button resets the operation of the Control Module. All settings and configurations are retained from the time that they were automatically saved.

- USB COMMS connector.

Used for the import and export of show files, configurations and software upgrades.

- USB POWER ONLY connectors.

Can be used to power or charge external devices.

- DMX IN, 5 pin XLR male connector.

DMX 512 is the industry standard for the transmission of digital control signals between lighting equipment. DMX is usually "looped" from one piece of equipment to the next. The end of the DMX line must be terminated. If the DMX line is not looped to other devices, then a DMX termination (110 ohms) must be plugged into the DMX THRU connector.

- DMX THRU, 5 pin XLR female connector.

It provides a loop output to feed other DMX equipment.

Hint: LSC recommends the use of RS485 data cable or shielded CAT5 cable for the DMX connections. Audio or Microphone cables must not be used.

- ETHERNET, RJ45 Ethercon connector.

Two connectors are provided for TCP/IP, UDP, sACN, Art-Net and other network protocols. The Control Module can also be powered by connecting PoE to the top connector. See section 1.7.2. below. The dual Ethernet connectors connect to an internal Ethernet switch allowing the daisy-chaining of multiple racks.

- Touch Screen.

The home screen shows a real time display of RMS voltage and currents across all 3 phases plus neutral within the rack. See section 1.8.6 for a full description of the Home screen. The touch screen menu system is used for the internal configuration and for local control. See section 4 for full descriptions of the UNITOUR menu system.

1.7.2 Setup without 3 Phase Power

The UNITOUR rack can be quickly and easily pre-configured in the factory or warehouse without the need for 3 phase power. It only requires a PoE Ethernet switch to connect to the Control Module which will power the Control Module allowing the UNITOUR to be configured using the touch screen or via LSC's HOUSTON X via a laptop or tablet.



Head Module Powered by PoE

1.7.3 Output Modules Overview

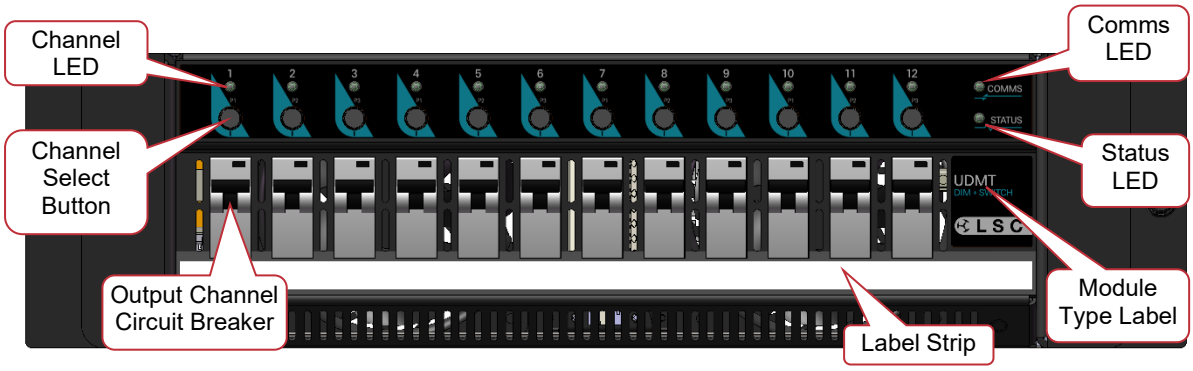
The UNITOUR can be supplied with two types of output module.

- UDMT = Dimmer/Relay Switch module
- USMT = Relay Switch module

The 48 channel UNITOUR rack is supplied from the factory with either hard wired output modules or Quick-Swap output modules. The 24 channel models have hard wired output modules.

The output module slot locations are labelled A to D (48 channels) or A to B (24 channel models) from top to bottom of the rack.

The area below the channel circuit breakers is provided to write a descriptive label for each output channel. It is Illuminated by dimmable LEDs. The intensity of the LEDs is controlled from the “LOCAL CONTROL” button on the touch screen.



Typical Output Module

The label on the right side of each module indicates the type of module:

- UDMT = Dimmer/Switch module
- USMT = Switch module

The Channel Select buttons have multiple uses.

- They can be used to select that channel for configuration or viewing when using either the “VIEW CURRENTS”, “CONFIGURE CURRENTS”, “VIEW LEVELS”, “DIMMER SETUP” or “VIEW CHANNELS” menus
- When the home screen is displayed, pressing any channel select button opens the “VIEW CHANNELS” menu with the selected channels information. Pressing the button again reverts to the home screen
- They can be used to force a channel into EMERGENY ON MODE. See section 5.

The Channel, Comms and Status LEDs are described in section 3.4

1.7.4 UDMT Dim + Switch Output Module

The UDMT provides 12 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 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.

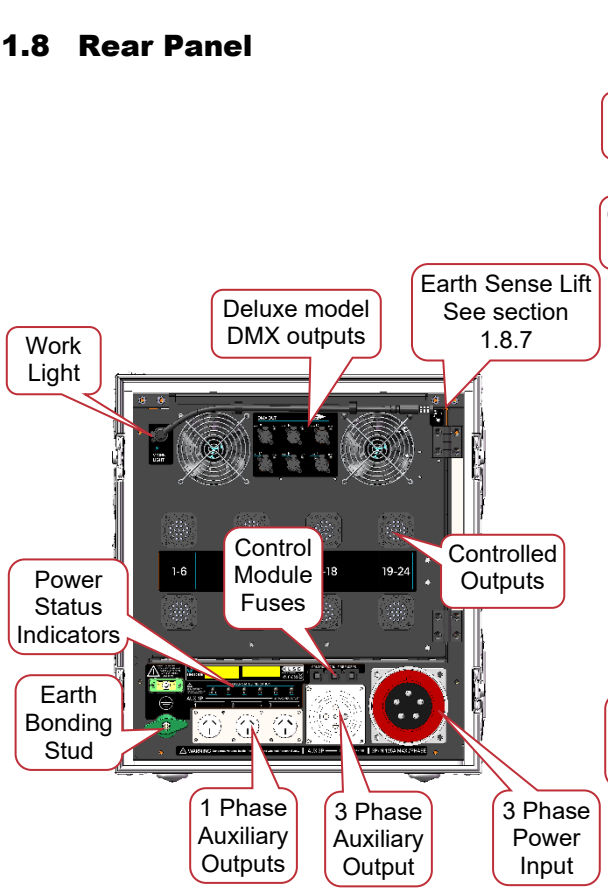
- The level of its DMX channel (Switch or Relay modes)
- Automatically switched on when the DMX control signal is present and off (after a programable delay of up to 60 minutes) when DMX is no longer present (AUTOPOWER mode)
- Always on
- Always off

See section 4.7

1.7.5 USMT Switch Output Module

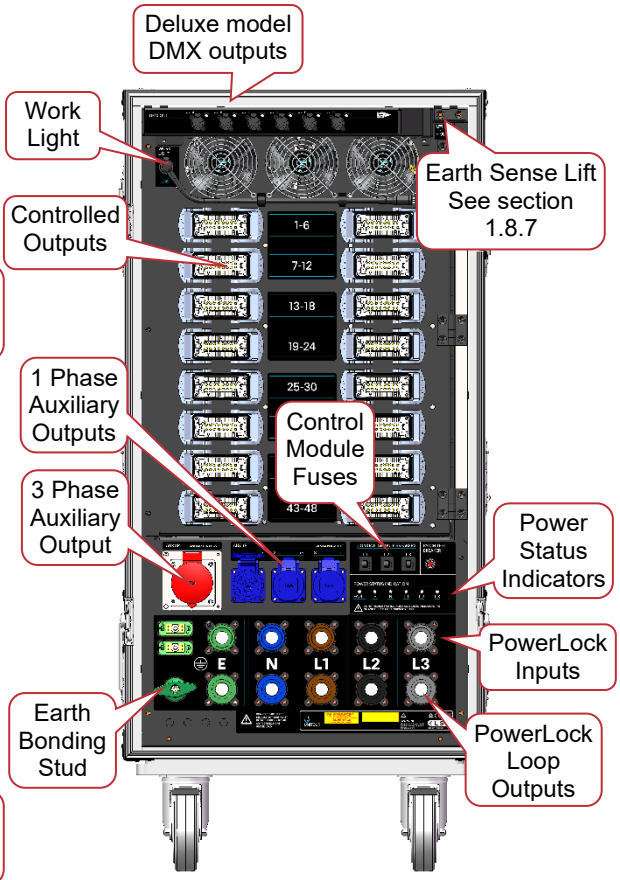
The USMT provides the same features as the UDMT above, but without the ability to dim making this module a more cost effective choice when dimming is not required.

1.8 Rear Panel



24 Channel UNITOUR

Shown with Socapex Output connectors

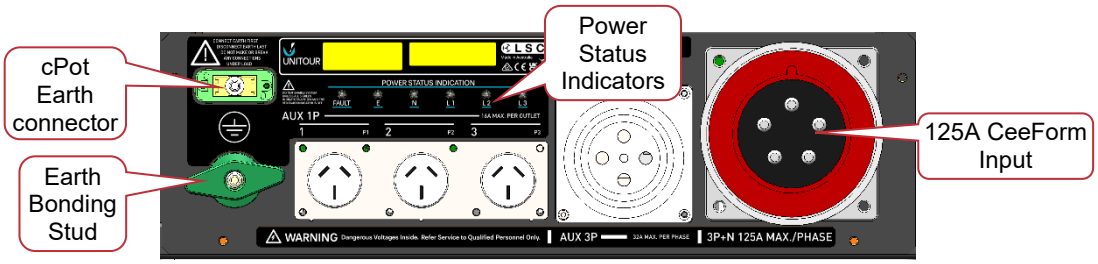


48 Channel UNITOUR

Shown with Weiland Output connectors

1.8.1 3 Phase Power Input, 24 Channel Model

The 24 channel model uses a 125 Amp CeeForm 3 phase input socket.



125 Amp CeeForm 3 phase Input

1.8.2 3 Phase Power Input, 48 Channel Model

The 48 channel model uses 400A PowerLock In and Thru connectors.



PowerLock Input Connectors

1.8.3 Power Status Indicators

The “Power Status Indicators” are located near the power input connectors and duplicated on the front of the 48 channels model. The FAULT indicator is red and the Earth, Neutral, L1, L2, L3 indicators are green.

If the system does not have a good Earth or Neutral connection or if there is a L (Phase) / Neutral swap or a L (Phase) / Earth swap of the PowerLock connectors, then the red “FAULT” LED comes on and a warning appears on the touch screen. The system cannot be operated until the problem is resolved and the red “FAULT” LED lights is off. A full power cycle must then be performed (all power removed and restored) to remove the warning message on the screen.

UNITOUR will operate with only 1 or 2 phases connected, provided that it has both a Neutral and an Earth connection.

1.8.4 Controlled Power Output Connectors

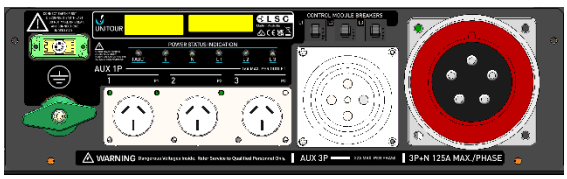
The UNITOUR can be supplied with the following output connectors,

- Dual (parallel wired) Socapex 19-pin with 6 circuits per connector.
- Dual (parallel wired) Wieland 16-pole with 6 circuits per connector.
- Dual (parallel wired) Wieland 10-pole with 6 circuits per connector.

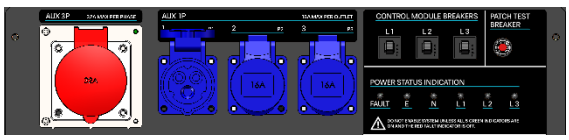
See section 7 for more details of the connectors.

1.8.5 Auxiliary Power Output Connectors

One 3-phase and three single-phase outlets are located on the rear panel, protected by individual RCD/MCBs located on the front panel.



Australian models are fitted with one 32A 3-phase outlet plus 3 x Australian 20A 3-pin single phase outlets protected by 16A RCBO’s.

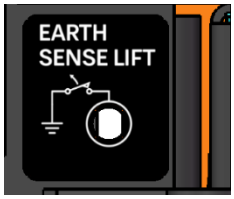


European models are fitted with one CEE 32A 3-phase outlet plus 3 x CEE 16A single phase outlets protected by 16A RCBO’s.

1.8.6 cPOT Connector

cPot earth connectors provide a fast and safe equipotential bonding connection for temporary and fixed installations.

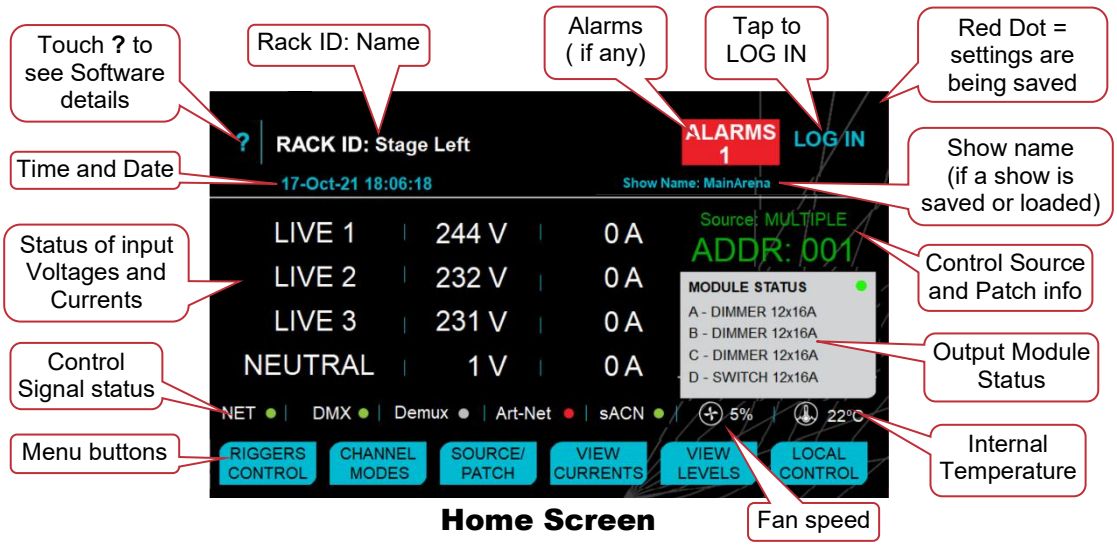
1.8.7 Earth Sense Lift



"Earth Sense Lift" (located at the top right of the rear panel) is used when performing "Portable Appliance Testing" (PAT). It removes any loading of the internal power status controller card which would upset earth isolation measurements. There is a microswitch behind the opening which should be pressed in with a small (preferably non-conductive) probe such as a pen. This temporarily interrupts the earth connection to the power status card so a correct isolation test can be run.

2 Home Screen

The “Home Screen” shows the following information.



Home Screen

The various areas of the Home Screen are described below beginning with “Help” in the top left corner and moving clockwise around the screen.

- ? (Help)

Tap **?** to see the software version, serial number and information about the output modules. Most other menus also have a **?** button that displays relevant information for that page.

- Rack ID

You can enter a descriptive name for the rack. See section 4.21.4.

- Alarms

If there are no alarms then this section of the screen will be blank. If an alarm occurs, the “ALARM” button will appear. Tap the **ALARM** button for details of the alarm(s). See section 3

- LOG IN

Tap to access the “Quick” setup wizard (see section 4.4) and the “Advanced” Main Menu (see section 4.12)

- A red dot momentarily appears in the top right corner when settings are being saved to the internal memory

- Show Name

A show name appears here when the UNITOUR setup had been saved as a Show file or a Show file has been loaded. See section 4.18

- Control Source and Patch information

If UNITOUR is being controlled by an external control signal (DMX, Art-Net, sACN etc), green text appears showing information about the control source and the rack address as follows,

  - If all channels are set to the same control source, it shows that source name. For example, “DMX”.

- If multiple external control sources are in use, it shows “Multiple”.
  *Hint: Tap the **SOURCE/PATCH** button to see the control source of each channel.*

- If all channels are patched to contiguous addresses, it shows the address of the first channel in the rack. Tap **ADRR** to change the DMX Block Address for the rack.

- If channels are not patched to contiguous addresses it shows “PATCHED”.
  *Hint: Tap the **SOURCE/PATCH** button to see the address of each channel.*

- Output Module Status

The Module Status pane on the right of the screen displays the module type (USMT or UDMT)) in black then the operating mode. Green = SWITCH ONLY or Blue = DIM-SWITCH.
In the top right corner of the pane is a green flashing heartbeat indicator that signifies that the Unity Head Module is operating correctly.

- Internal Temperature

Several temperature sensors are located inside UNITOUR and this displays the highest reading

- Fan Speed

The fan speed is automatically adjusted to maintain a safe operating temperature

- Menu Buttons

The menu buttons at the bottom of the home screen provide quick access to common settings and functions. See section 4.5.

- Control Signal Status

The status of the input control signals that are in use are shown above the menu buttons,

- Green – Signal good
- Red – Signal error
- Yellow –Signal missing
- Grey – Signal selected for use but has never been seen

If a control signal is not in use by any channel then nothing is displayed in its position.

- Input Voltages and Currents

The central section of the screen shows a real time display of the RMS voltage and currents of all 3 input phases (LIVE 1, LIVE 2 & LIVE 3) and the Neutral. Voltages that are outside of the set limits are shown in red (and the affected output channels will be automatically switched off). Currents that are in excess of the set warnings are shown in yellow. To set these limits, see section 4.20.

- When the home screen is displayed, pressing any channel select button (above each channels circuit breaker) opens the “VIEW CHANNELS” menu with the selected channels information. Pressing the button again reverts to the home screen

3 Alarms and Indicators

If the system is operating correctly, the area to the left of the LOG IN button on the home screen will be blank and the large “STATUS” LED to the left of the screen is green. If an alarm is detected the “STATUS” LED is 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.



There are 3 types of alarms:

- Active alarms are red
- Acknowledged alarms are yellow
- Persistent alarms are purple

To see details of the alarms, tap the **ALARMS** button and the “Alarms Menu” opens, listing all active, persistent and acknowledged alarms.



You can set which conditions will activate an alarm. See section 4.21.2

3.1 Acknowledged Alarms

If the cause of the alarm cannot be immediately resolved (such as resetting a tripped breaker) you can “acknowledge” an alarm by tapping its red **Alarm Details** line to select it (it turns blue) then tap **ACK**. The status of that alarm changes from red to yellow to signify that the alarm has been acknowledged. Tap **EXIT**.



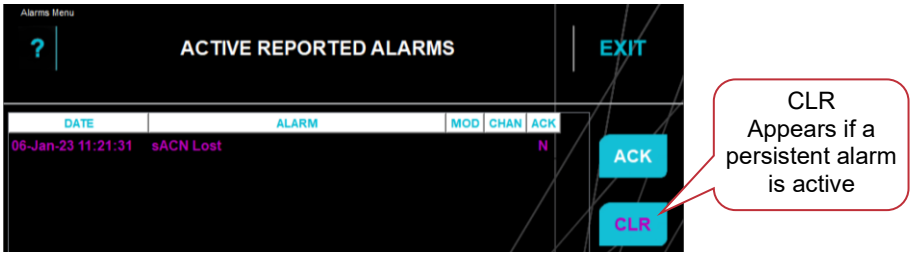
The yellow acknowledged alarm allows <u>any new alarms</u> to be immediately brought to your attention due to their red status.

3.2 Persistent Alarms

When an alarm is triggered, the red Alarm button appears on the home screen, 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 4.21.2) causes the alarm to remain on if the alarm condition disappears but the alarm changes to purple instead of disappearing. The purple alarm stays on until you manually clear it.



To clear persistent alarms, tap the **ALARMS** button.



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

The advantage of persistent alarms is 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.
You can set which alarms are persistent. See section 4.21.2.

3.3 Control Module STATUS LED

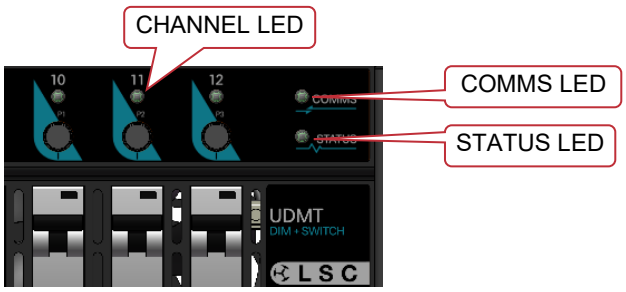


The Control Module Status LED indicates the following;

- Magenta = Booting up
- Green = Good
- Flashing Red = Alarm
- Solid Red = Control Module alarm
- Yellow = Acknowledged alarm
- Purple = Persistent alarm

See section 3 for more information on alarms.

3.4 Output Module LEDs



Comms LED

- Green = Normal operation
- Yellow = Error

Status LED

- Green = Normal operation.
- Flash Red = Input power fault. See section 3.6.
- Yellow = Over temperature warning
- Flashing Yellow = Software update in progress (Comms LED will be off)
- Red = Over temperature shutdown

Channel LEDs

- 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 state
- Red Double Flash = The output circuit breaker has tripped
- Red Single Flash = The input phase is out of voltage range or missing (every third channel will be flashing because every third channel is powered by the same phase)
- Orange Single Flash = The current warning (load or leakage) has been exceeded
- Magenta = The channel has been selected for configuration or viewing
- White = The channel has been forced ON (emergency mode). To turn off EMERGENCY MODE, press and hold the channels **SELECT** button for 1 second

3.5 Input Voltage and Current Limits

UNITOUR monitors the input voltages and currents of all 3 input phases (LIVE 1, LIVE 2 and LIVE 3) and the NEUTRAL.

If any input voltages are outside of the set limits, UNITOUR will protect the connected loads by switching off the relevant outputs (see section 8 for a list of which outputs are fed from each input phase) and activating an alarm. Voltages outside the limits are shown in red.

If any input currents above the limits they will activate an alarm. Currents above the limits are shown in yellow. The UNITOUR system is fully rated so it can supply full load current to all outputs. The alarm is provided for occasions when UNITOUR is connected to a limited current source.

See section 4.20 for details on how to set the limits.

Hint: You can also set load and leakage current warning alarms for each output channel. See section 4.9.1

3.6 Power Supply Connection Fault

If the system does not have a good Earth or Neutral connection then the DANGER ACHTUNG message appears. Follow the instructions in the message.

DANGER
ACHTUNG

POWER SUPPLY CONNECTION FAULT
All output channels have been automatically switched OFF.
The system has detected errors in the main power supply connection.
Outputs cannot be switched on until these have been corrected.
Check cabling and in particular Neutral and Earth connections.
Correct fault and repower unit.

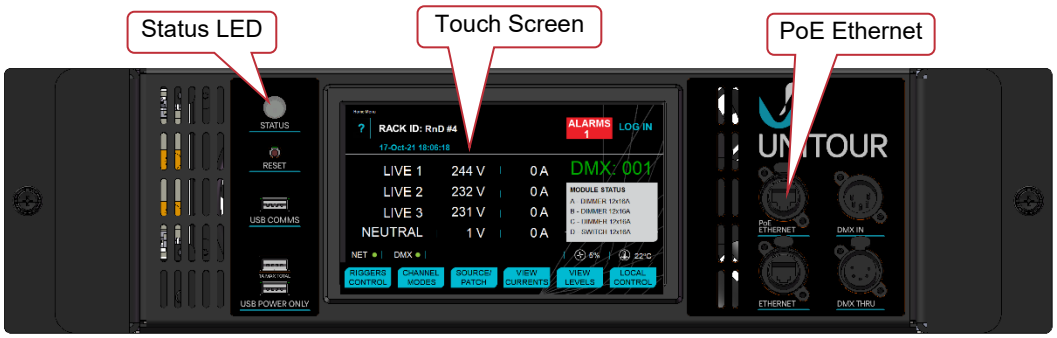
4 Configuring UNITOUR

4.1 Overview

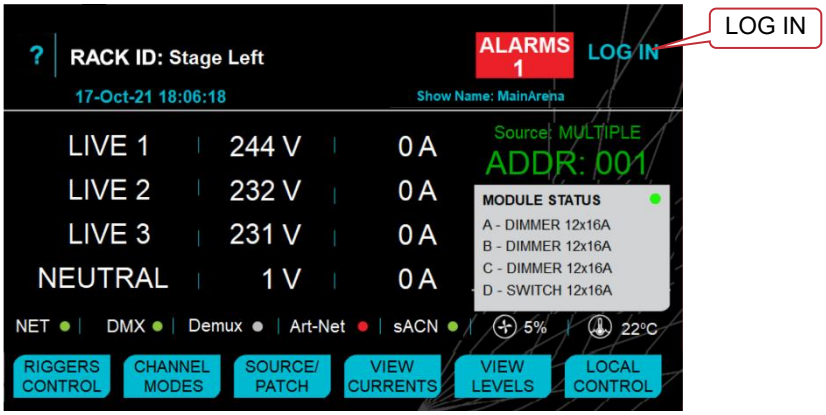
UNITOUR can be configured either,

- Locally using the menu system on the touch screen
- Remotely using LSC's HOUSTON X software. See section 6

UNITOUR can be configured without being connected to 3-phase power. Just connect a PoE Ethernet switch to the PoE Ethernet connector and the head module begins operating, allowing local (touch screen) or HOUSTON X (network) configuration.



4.2 PIN Access Levels



Home Screen

You can lock out menu levels by setting PIN codes to restrict un- authorised access. When no access PIN codes have been set you can access all menus except the "Service" level. To set a PIN code see section 4.21.1

The access levels are;

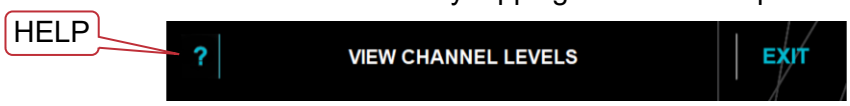
- USER. This level allows access to the 6 menu buttons at the bottom of the "Home Screen" and the "QUICK" setup wizard that is accessed from the LOG IN button
- ADVANCED. This level includes the USER level and adds access to the "ADVANCED" menu button when you "LOG IN"
- SERVICE. This level is always locked and requires a PIN. Contact LSC for access

If you tap a button and its level has been locked, you will be asked to enter the PIN then tap **UNLOCK**. The level remains unlocked until you lock it again.

To re-lock a level, tap **LOG IN**, **LOCK**.

4.3 Help

Help is available for most menu screens by tapping the **?** in the top left corner of the screen.



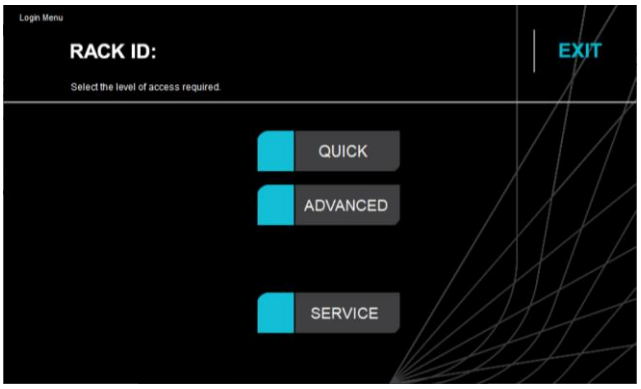
To close the help screen, tap anywhere within the help screen.

4.4 Quick Setup

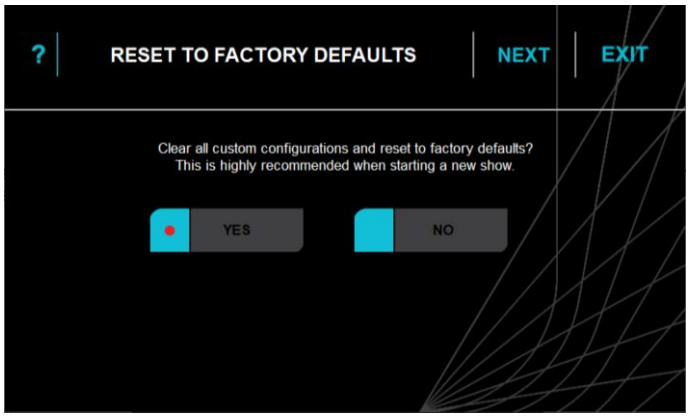
UNITOUR allows every output channel in the rack to have its own selectable control source, own Art-Net or sACN universe, its own DMX address, and its own operating mode. However, in most cases, the configuration is much simpler so UNITOUR provides a "Quick" setup that will guide you through the process to select a single control source for all channels and set their operating mode to AUTOPOWER, however it also allows you to choose any operating mode for each channel as described below. It also sets the DMX base address to 001.

Note: DMX Patching is only required when an external control source (DMX, Art-Net, sACN etc) will be used to control individual output channels. Channels set to AUTOPOWER do not need to be patched because they are automatically controlled by the presence or absence of their selected control source.

From the "Home Screen" tap **LOG IN** then tap **QUICK**.



When starting a new configuration, it is recommended that you clear any previous configuration and reset the UNITOUR back to the channel default settings. This will set all channels to "Auto Power" mode and "LOCAL" control. If you tap NO and do not do a reset, the output channels will remain in their last used configuration.



"Reset" is selected by default so tap **NEXT**.

UNITOUR can be fitted with two types of output modules,

- UDMT = Dimmer/Switch module
- USMT = Switch module

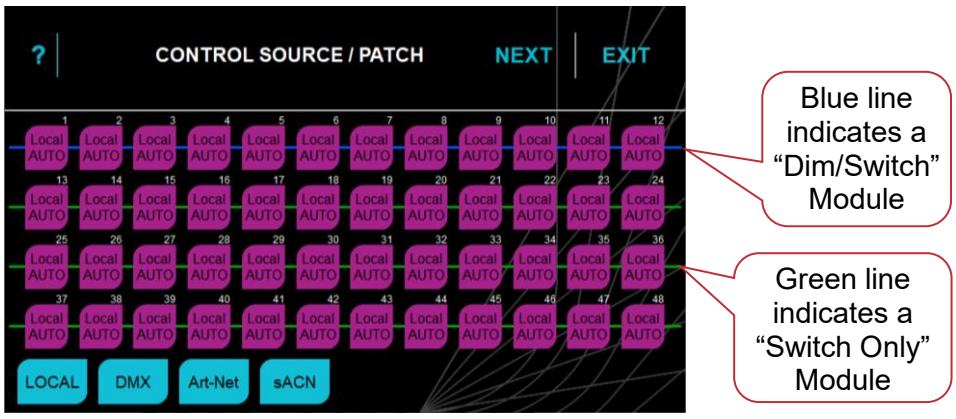
The Control Module interrogates the rack and looks for the modules that are fitted. If the rack is connected to 3-phase power, the output modules will be automatically recognised as either UDMT (Dim/Switch) or USMT (Switch) modules.

If the Control Module is only connected to PoE (Power over Ethernet) (no 3-phase power connected) or if there are “Quick-Swap” output modules missing, the Control Module will not see the output modules. The following menu will appear. You must then tell the Control Module what type of modules are or will be fitted.



Tap the type of module (Switch or Dimmer) that is or will be fitted in each module location, A through D (A and B in 24 channel models) from top to bottom of the rack. A module can also be disabled. Disabled modules do not appear in the menu screens or generate alarms.

Tap **NEXT** to set the control source for all channels.



All channels are automatically selected (magenta buttons). If you performed the “Reset to Factory Defaults”, all channels will be set to LOCAL control and AUTO power mode.

Select the required control source for all channels. The choices are:

- LOCAL control. Local is already selected by default so to accept that selection tap **NEXT**. All “AUTO” channels are now controlled from the touch screen’s **LOCAL CONTROL** button.

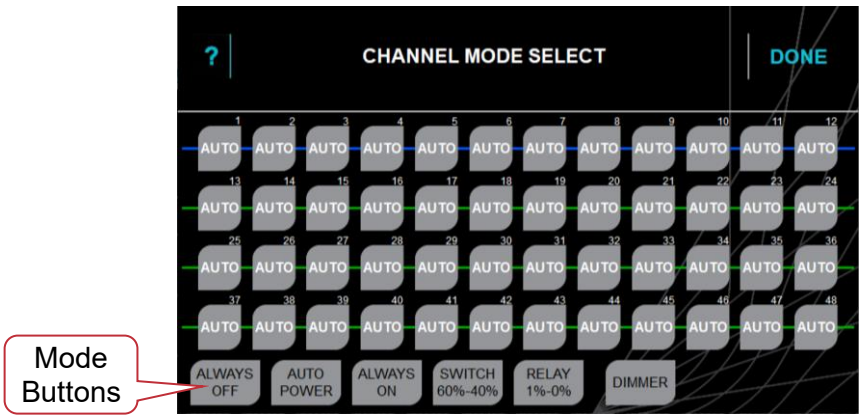
- DMX control. Tap **DMX**, **NEXT**. All “AUTO” channels are now controlled from the presence of a DMX signal (or the **LOCAL CONTROL** button).

- Art-Net control. Tap **Art-Net.** The “ARTNET” screen appears. Enter the Net, Subnet and Universe numbers. Tap **NEXT**, **NEXT**. All “AUTO” channels are now controlled from the presence of the selected Art-Net universe signal (or the **LOCAL CONTROL** button).

- sACN. Tap **sACN**. The “sACN” screen appears. Enter the sACN Universe number. Tap **NEXT**, **NEXT**. All “AUTO” channels are now controlled from the presence of the selected sACN universe signal (or the **LOCAL CONTROL** button).

Hint: If you want to use multiple control sources, use the “SOURCE/PATCH” button on the home screen.

The “CHANNEL MODE SELECT” screen appears.



The “CHANNEL MODE SELECT” menu has a button for each channel that shows its current mode. By default, all channels are set to AUTO Power mode and no channels are selected. To accept this setting tap **DONE**, however if you want any channels to operate in different modes, follow the directions below.

Hint: When no channels are selected, you can tap any of the “Mode” buttons at the bottom of the screen to identify all the channels that are set to the mode that you tap. The selected mode button and all the channels set to that mode (if any) will turn magenta.

To change the mode of a channel, tap its button to select it. Multiple channels can be selected. To select a range of channels, tap the **first channel** then **THRU** then the **last channel** in the range. Channels can also 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 using the buttons. To select a range of channels, press and **HOLD the first button** in the range then press the **last button** in the range. When a channel has been selected, the selection number on the touch screen lights magenta and the LED above the CHANNEL SELECT button on the output module lights magenta.

When the desired channels are selected, tap the desired mode button at the bottom of the screen. The available modes for each channel are,

- ALWAYS OFF. The channel cannot be turned on, except in “Emergency Mode”. See section 5. Warning. Do not rely on this setting to isolate the power.

- AUTO POWER. These channels will act as power switches and they will be sequentially switched on (to minimise in-rush currents) either manually from the **LOCAL CONTROL** button on the touch screen or, if their "Control Source" is set to DMX, Art-Net or sACN, they will be switched on by the presence of their control source. See sections 4.7.2 and 4.11 for more details

- ALWAYS ON. The channel cannot be turned off (except by turning off its channel circuit breaker). When power is applied, the channels will be sequentially switched on (in the same manner as channels set to "Auto Power" mode above) and will remain on whilst power is present.

- SWITCH 60%-40%. The channel will act as a power switch controlled by its selected control source, DMX, Art-Net or sACN. The channel is switched by the DMX level of a slot to which it is patched. When the level is 60% or higher the switch turns on. When the level drops below 40% the switch turns off. This is the best mode to provide remotely controlled power to lighting fixtures and AV equipment.

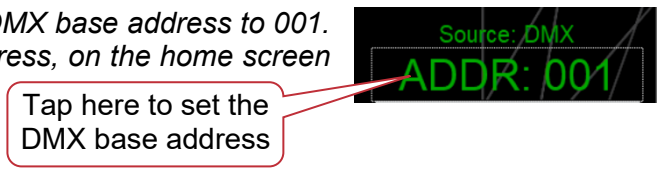
- RELAY 1%-0%. The channel will act as a power switch controlled by its selected control source, DMX, Art-Net or sACN. It is switched by the DMX level of a slot to which it is patched. When the level is 1% or higher the switch turns on. When the level drops to 0% the switch turns off. Relay mode is particularly useful when the controlling device is programmed with long fade times. The "Relay" channel will switch on at the start of the up fade and switch off at the end of the down fade.

- DIMMER (this mode is not available on USMT switch modules). The channel will act as a dimmer controlled by its selected control source, DMX, Art-Net or sACN. Its level is controlled by the DMX level of a slot to which it is patched. In dimming mode, the channel utilizes pulse transformer circuitry which allows it to control difficult loads including neon, motors and low wattage lamps as well dimmable LEDs and convention incandescent lamps.

When all channels are in the required mode tap **DONE**.

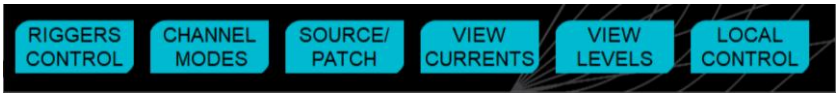
The settings that you choose in the "Quick" menu can always be changed by using the menu buttons at the bottom of the home screen as described below.

Note: The "Quick" setup wizard sets the DMX base address to 001. If you need to change the DMX base address, on the home screen tap the green ADDR text.



4.5 Home Screen Menu Buttons

The buttons at the bottom of the home screen provide instant access to the following commonly used functions.

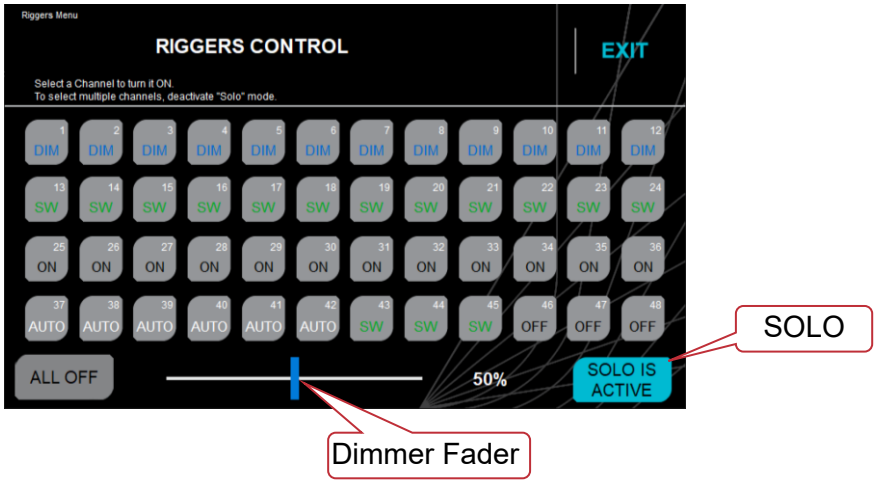


4.6 Riggers Control

From the "Home Screen" tap **RIGGERS CONTROL**. The "Riggers Control" provides a quick and simple method of testing channels using the touch screen or the **CHANNEL SELECT** buttons on the output modules to turn channels on or off or dim them if they are dimmer

channels. Riggers Control cannot be used to control channels that have their mode set as “Always OFF” or “Always ON”.

Riggers Control has two modes, “SOLO IS ACTIVE” or “SOLO INACTIVE”. Tap the **SOLO** button to toggle it between the two modes.



4.6.1 Solo is Active

When “Solo is Active”, only one channel at a time can be turned on.

- Tap a channel or press its **CHANNEL SELECT** button on its output module to turn it on. The channel select button turns magenta to show that the channel is on. Dimmer channels will turn on at the level set by the fader at the bottom of the screen.
- Tap another channel to turn it on and automatically turn off the previous channel.
- A channel that is on can be turned off by tapping that channel again.

“Solo” mode provides a fast method of identifying channels because the channel that you tap will be the only channel that is on (except for channels set to “Always ON”).

4.6.2 Solo Inactive

When “Solo is Inactive”, multiple channels can be turned on.

- Tap a channel or press its **CHANNEL SELECT** button to turn it on. Switch and Relay channel buttons turn green when on. Dimmer channel buttons turn blue when they are on and the level of the selected channel (magenta) can be set by the fader at the bottom of the screen.
- Tap an “on” channel to turn it off.

If you **EXIT** Riggers Control without tapping **SAVE**, all channels under riggers control will be released from its control.

To **EXIT** Riggers Control and maintain its current channel “on” settings, tap **SAVE**. The home screen “RIGGERS CONTROL” button changes to “RIGGERS ACTIVE”, telling you that channel(s) are still turned on by the riggers control.



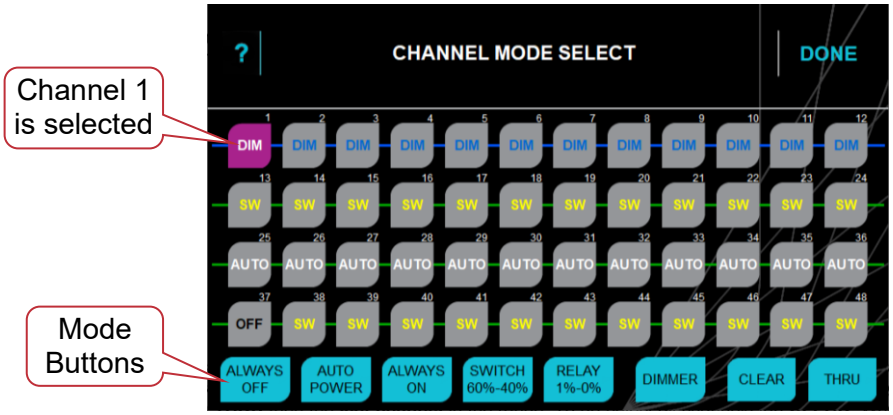
To release channels from Riggers Control, tap **RIGGERS ACTIVE**, then **EXIT** (without saving).

4.7 Channel Modes

From the “Home Screen” tap **CHANNEL MODES**.



The screen shows the mode of each channel, Always Off, Auto Power, Always On, Switch, Relay or Dimmer.



To change the “Mode” of a channel, tap the channel to select it. Multiple channels can be selected. A range of channels can be selected by tapping the **first channel** in the range then **THRU** then the **last channel** in the range. To de-select all channels tap **CLEAR**. When the required channels are selected, tap any ”Mode” button at the bottom of the screen to select that mode.

Channels can also be selected by pressing their **CHANNEL SELECT** button located above each channel’s circuit breaker. Multiple channels can be selected. To select a range of channels, press and **HOLD the first button** in the range then press the **last button** in the range.

When a channel has been selected, the channel on the touch screen lights magenta and the LED above the CHANNEL SELECT button on the output module lights magenta.

Hint: When no channels are selected you can tap any of the “Mode” buttons at the bottom to identify all of the channels that are set to the mode that you tap. The selected mode button and all of the channels set to that mode (if any) will turn magenta.

Each channel can be individually configured to operate in one of the following modes,

4.7.1 Always Off

The channel cannot be turned on, except in “Emergency Mode”. See section 5.
Warning, do not rely on this setting to isolate the power.

4.7.2 Auto Power

Auto Power is a feature that sequentially switches ON channels set to Auto Power mode. This helps to prevent nuisance tripping of circuit breakers due to high in-rush currents on power-up.
The start of the switch-on sequence (also known as a staggered start) can be either manually triggered from the touch screen by selecting the **LOCAL CONTROL** button or automatically triggered whenever the channels selected control signal is present. AutoPower channels with a control source do not listen to any specific DMX slot. Instead, they look for the presence of

the source DMX universe (DMX, Art-Net or sACN) according to the control source selected for that channel. The switch on sequence is started when they see a valid DMX signal from their selected source.
When the selected control source is no longer detected, the Auto Power channels are switched OFF.
The ”Stagger” time (the time between each Auto Power channel switching on) can be set and a “Hold Time” can be set to prevent channels being turned off if there is a short interruption to the control signal. See section 4.13

A pop-up warning on imminent AutoPower shutdown appears 30 seconds before a shutdown will occur to allow you to cancel or continue.

Channels whose “Control Source” is set to “Local” can only be manually triggered to start the switch on sequence or switched off by selecting the **LOCAL CONTROL** button.

4.7.3 Always On

The channel cannot be turned off (except by turning off its channel circuit breaker). When power is applied to the rack, these channels will be sequentially switched on (in the same manner channels set to “Auto Power” mode above).

4.7.4 Switch 60%-40%

The channel will act as a power switch controlled by its selected control source, DMX, Art-Net or sACN. It is switched by the DMX level of a slot to which it is patched. When the level is 60% or higher the switch turns on. When the level drops below 40% the switch turns off. This is the best mode to provide remotely controlled power to lighting fixtures and AV equipment.

4.7.5 Relay 1%-0%

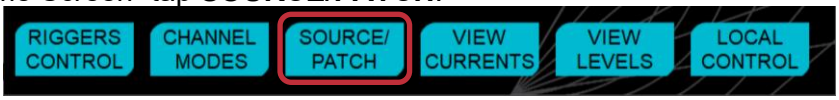
The channel will act as a power switch controlled by its selected control source, DMX, Art-Net or sACN. It is switched by the DMX level of a slot to which it is patched. When the level is 1% or higher the switch turns on. When the level drops to 0% the switch turns off. Relay mode is particularly useful when the controlling device is programmed with long fade times. The “Relay” channel will switch on at the start of the up fade and switch off at the end of the down fade.

4.7.6 Dimmer

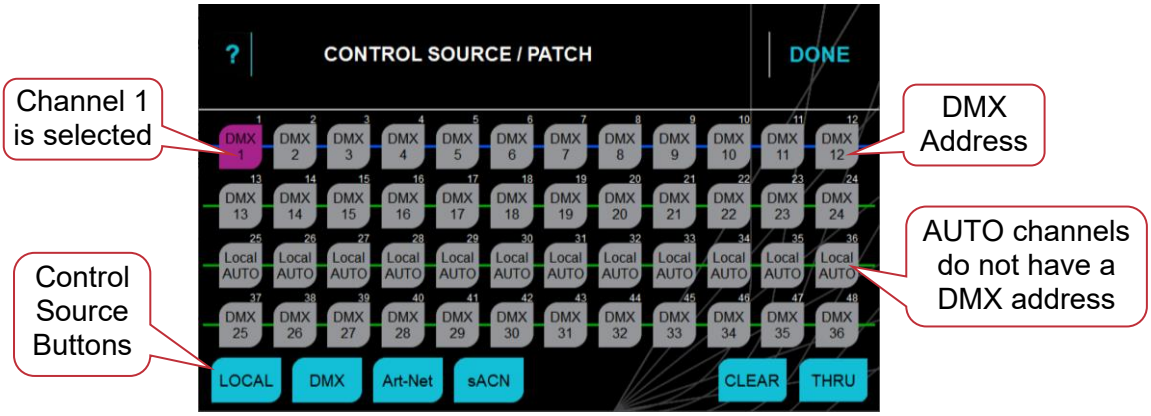
The channel will act as a dimmer controlled by its selected control source, DMX, Art-Net or sACN. Its level is controlled by the DMX level of a slot to which it is patched. In dimming mode, the channel utilizes pulse transformer circuitry which allows it to control difficult loads including neon, motors and low wattage lamps as well dimmable LEDs and convention incandescent lamps. This mode is not available on USMT switch modules.

4.8 Source / Patch

From the “Home Screen” tap **SOURCE/PATCH**.



The screen shows the control source and DMX address of each channel.



Each channel can be individually configured to be controlled by any of the following control sources.

- LOCAL (touch screen)
- DMX
- Art-Net
- sACN

Note: Channels *set to "ALWAYS OFF" or "ALWAYS ON" mode cannot have a "Control Source".*

The way that these sources control the 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 presence of the source DMX universe (DMX, Art-Net or sACN) according to the control source selected for that channel. When the channel sees a valid DMX signal from its source, the switch on sequence is started. See section 4.7.2.
  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 4.13.

  Channels set to "AUTO POWER" mode and controlled by DMX, Art-Net or sACN can also be controlled by using the **LOCAL CONTROL** button on the home screen.

  Channels set to "AUTO POWER" mode and "LOCAL" control can only be controlled by using the **LOCAL CONTROL** button on the home screen. See section 4.11

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

To change the "Control Source" of a channel, tap that channel to select it. Multiple channels can be selected. A range of channels can be selected by tapping the **first channel** in the range then **THRU** then the **last channel** in the range. To de-select all channels tap **CLEAR**.

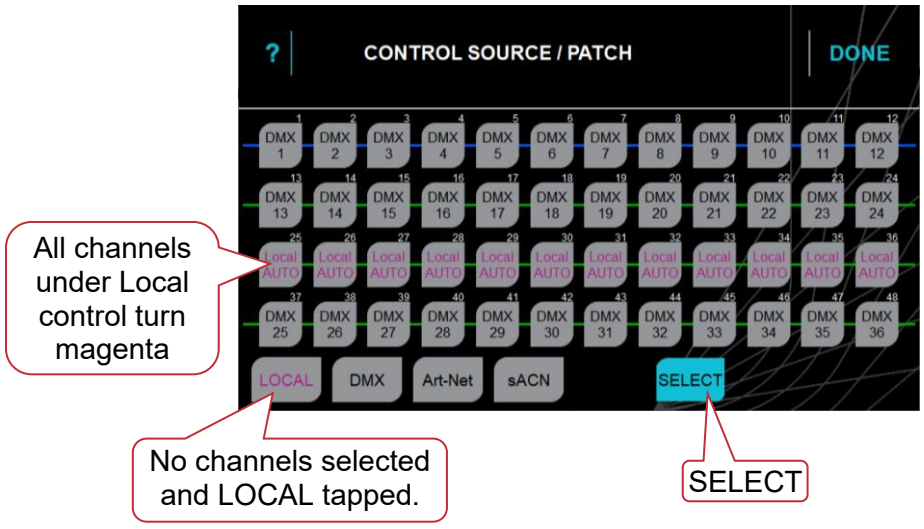
Channels can also be selected by pressing their **CHANNEL SELECT** button located above each channel's circuit breaker. Multiple channels can be selected. To select a range of

channels, press and **HOLD the first button** in the range then press the **last button** in the range.

When a channel has been selected, the channel on the touch screen lights magenta and the LED above the CHANNEL SELECT button on the output module lights magenta.

When the required channels are selected, tap a ”Control Source” button (at the bottom of the screen) to set that control source for the selected channels.

*HINT: When no channels are selected you can tap any of the “Control Source” buttons to identify all the channels that are set to the source that you tap. The text of the selected control source button and the text of all of the channels set to that source (if any) will turn magenta as shown in the example below, indicating that they are controlled by that source. In addition, if you want to change the source of those channels a **SELECT** button appears, allowing you to quickly select all of those channels and then select a different source.*



4.8.1 Local

From the “Home Screen” tap **SOURCE/PATCH**, select the required channels (as described above) then tap **LOCAL**.

Channels set to “LOCAL” control source can be switched on or off from the touch screen. From the home screen tap **LOCAL CONTROL**. See section 4.11

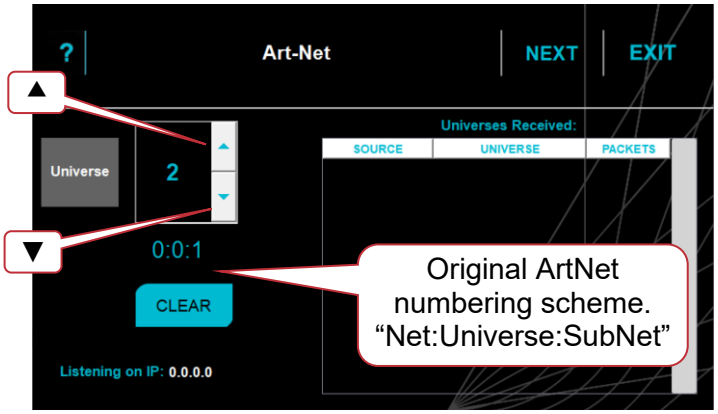
4.8.2 Art-Net

From the “Home Screen” tap **SOURCE/PATCH**, select the required channels (as described above) then tap **Art-Net**. Channels set to “Art-Net” are controlled by the level of the DMX slot in the Art-Net Universe to which they are patched.

UNITOUR 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). As of UniTour software version 1.05, Art-Net universe numbering has been changed to the more popular “1” based scheme.

For example, 0:0:0 is now 1, 0:0:1 is now 2 and 0:1:0 is now 17.

Both the original and new numbering systems are shown for ease of translation.



Any Art-Net universes currently on the network will appear in the "Universes Received" pane on the right of the screen. Tap the required ArtNet universe to select it.

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

When the correct ArtNet is selected tap **NEXT**. The "ENTER DMX ADDRESS" screen opens. See section 4.8.4 below.

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 4.21.1

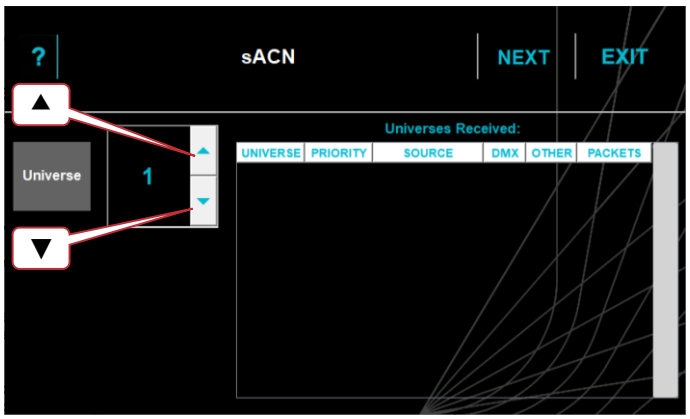
4.8.3 sACN

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

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

From the "Home Screen" tap **SOURCE/PATCH**, select the required channels (as described above) then tap **sACN**.

Channels set to "sACN" are controlled by the level of the DMX slot in the sACN Universe to which they are patched.



Any sACN universes currently on the network will appear in the “Universes Received” pane on the right of the screen. Tap the required 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.

Note: There is no limit on the quantity of universes that can be patched in a UNITOUR rack. This means that every channel of a rack could be patched to a unique sACN universe. However, this might not be achievable because your network switch might limit the maximum number of multi-cast (sACN) subscriptions allowed on a single port.

Hint: When choosing a network switch, LSC recommends the use of “NETGEAR AV Line” switches. They provide a preconfigured “Lighting” profile that you can apply to the switch so that it easily connects with sACN(sACN) and Art-Net devices.

When the correct sACN universe is selected tap **NEXT**. The “ENTER DMX ADDRESS” screen opens. See section 4.8.4 below.

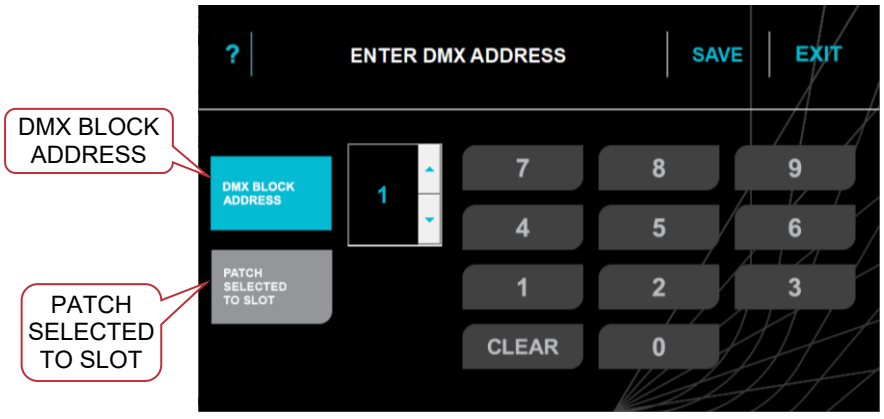
4.8.3.1 sACN Priority

sACN uses a priority system. The priority level is set by the sACN transmitting device. It can be set for an entire Universe (port) or it can be (optionally) set individually for each address (slot).

- If UNITOUR receives more than one sACN signal on the selected universe or optionally on the selected address (slot) it will only respond to the signal with the highest priority setting

- If multiple sACN sources with the same universe/address and priority level are received they will be merged on a HTP (Highest Takes Precedence) basis.

4.8.4 DMX Address



There are 2 methods for patching selected channels:

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. Tap **SAVE** to keep your setting and exit.

2. Touching **DMX BLOCK ADDRESS** patches multiple selected channels to sequential DMX slots. Select the DMX slot number for the first selected channel and each

subsequent selected channel will be patched to the next sequential DMX slot in the order that the channels were selected. Tap **SAVE** to keep your setting and exit.

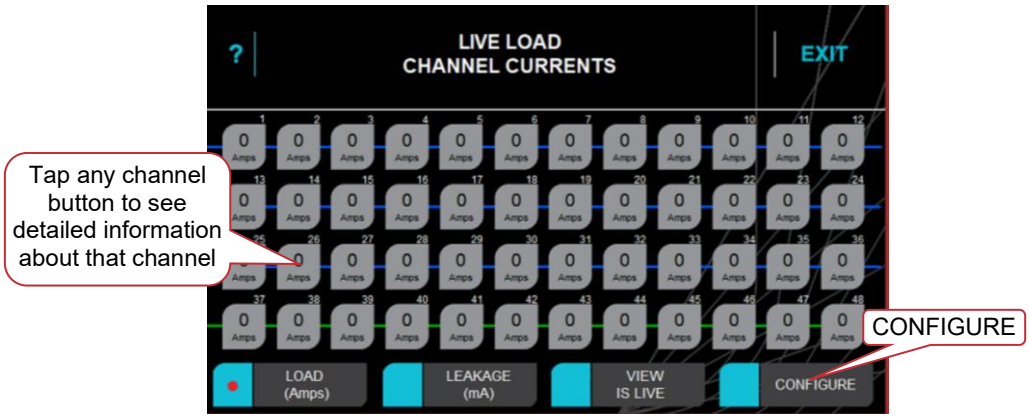
Hint: When all of the channels in the rack are "Block Addressed", the "Home Screen" displays the DMX address of the first channel in the rack. If any channels are individually patched to non-contiguous DMX addresses, the "Home Screen" displays the word "Patched".

4.9 View Currents

From the "Home Screen" tap **VIEW CURRENTS**.



UNITOUR monitors the load current and the earth leakage current of every channel. In addition, the peak value of the load current and the peak value of the earth leakage current are time stamped and stored.



View Currents Menu

- Tap **LOAD (Amps)** to view the load current of every channel.
- Tap **LEAKAGE (mA)** to view the earth leakage current of every channel.

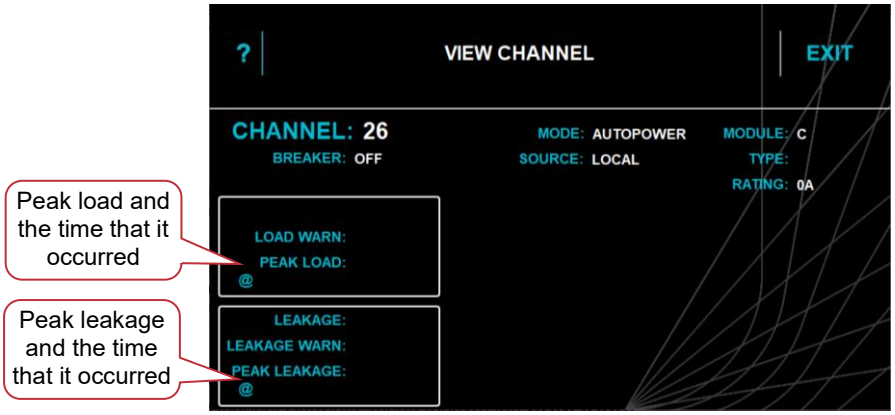
Tap either **VIEW IS LIVE** or **VIEW IS PEAK** to toggle between views. "View is Live" displays the real time RMS current value. "View is Peak" displays the highest value that has been recorded since the peak reading was last reset.

You can set a warning level from 1% to 100% for each channel's load current and a separate warning level for its earth leakage current. If the warning level is reached or exceeded, the value on the "Channel Currents" screen is displayed in yellow and an alarm is activated. See "Configure Currents" below.

If a channel breaker trips, the display for that channel shows turns red and shows the load and leakage currents that were present when the breaker tripped. This allows you to determine the cause of the breaker tripping, either excess load current or excess leakage current.

Tap a **Channel Button** on the screen to see detailed information about that channel including the times that the peak load current and peak leakage current occurred. This can also assist you in determining the cause of a tripped breaker.

Channels can also be selected by pressing their **CHANNEL SELECT** button located above each channel's circuit breaker on the front of the output modules.

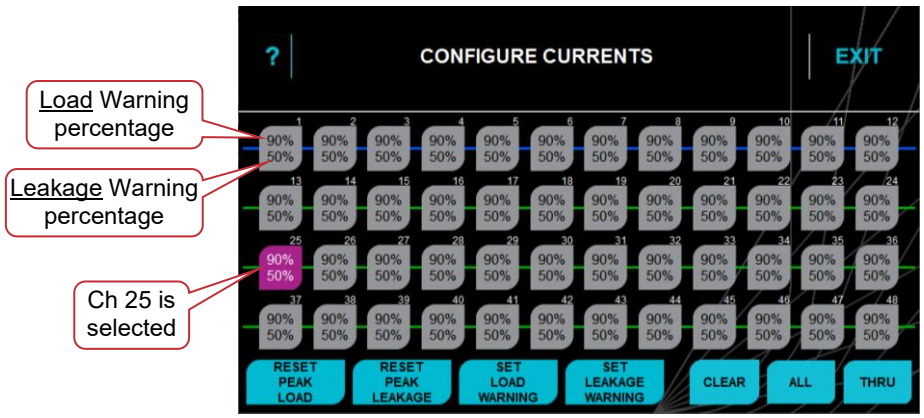


4.9.1 Configure Currents

In the “Channel Currents” menu (above) tap **CONFIGURE**.

The “Configure Currents” screen allows you to reset the stored peak load and peak leakage currents and to set the warning thresholds for load current and earth leakage current for each output channel.

Hint: You can also set current warnings for each input phase. See section 4.20



Tap a channel to select it. Tap again to de-select it. Multiple channels can be selected. A range of channels can be selected by tapping the **first channel** in the range then **THRU** then the **last channel** in the range. To select all channels, tap **ALL**. To de-select all channels tap **CLEAR**.

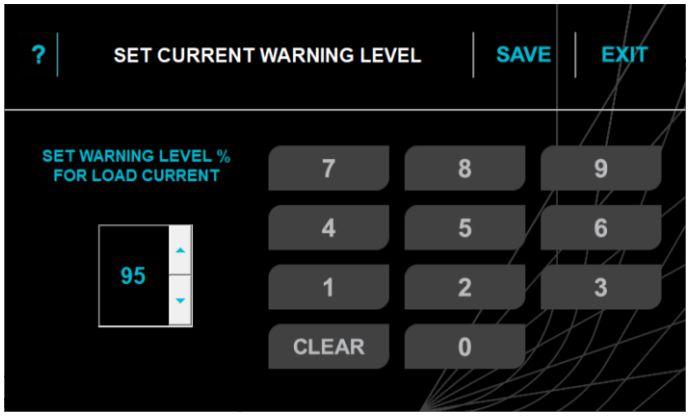
Channels can also be selected by pressing their **CHANNEL SELECT** button located above each channel’s circuit breaker. Multiple channels can be selected. To select a range of channels, press and **HOLD the first button** in the range then press the **last button** in the range.

When a channel has been selected, the channel on the touch screen lights magenta and the LED above the CHANNEL SELECT button on the output module lights magenta.

- To reset the stored peak load current of selected channels, tap **RESET PEAK LOAD**.
- To reset the stored peak leakage current of selected channels, tap **RESET PEAK LEAKAGE**.

You can set a warning level from 1% to 100% for each channels load current and a separate warning level for its earth leakage current. If the warning level is reached, the value on the “Channel Currents” screen is displayed in yellow.

- To set the load warning of selected channels, tap **SET LOAD WARNING**.
- To set the leakage warning of selected channels, tap **SET LEAKAGE WARNING**.

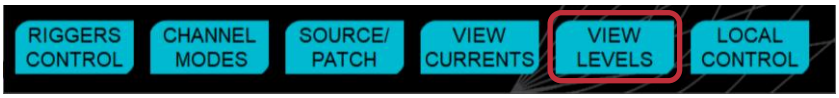


Enter the desired warning level from 1% to 100% then tap **SAVE**.
A value of 0% removes the warning from the selected channels.

Note: Warning thresholds are set as a percentage and not the actual current. This is especially important with leakage currents. The manufacturing tolerances of 30mA RCBO’s means that individual units might trip anywhere between 20mA and 30mA of leakage. This can make it difficult to know when an RCD is close to tripping. To overcome this problem, when the UNITOUR rack is manufactured, every RCD is tested to determine its trip current and this value is stored and used to calculate the percentage of the leakage current that will trip the RCD. The RCD will trip when the leakage reaches 100%. This allows you to accurately see how close each channel is to its limit and to set an appropriate alarm to warn you when the limit is approaching.

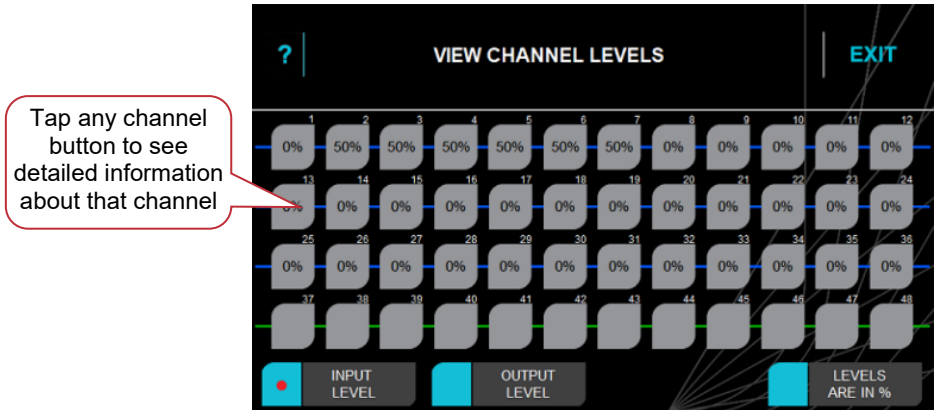
4.10 View Levels

From the “Home Screen” tap **VIEW LEVELS**.

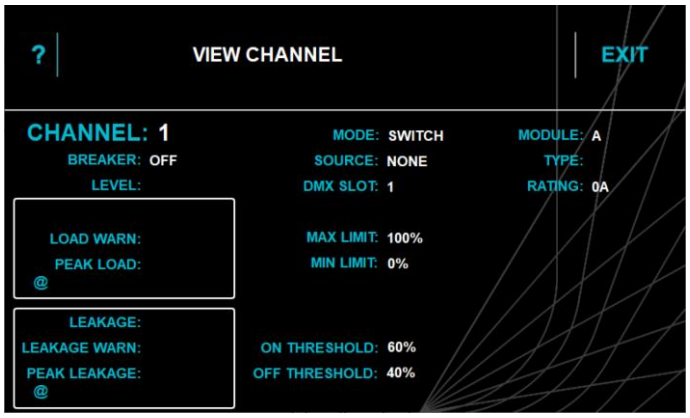


Tap to view either the **INPUT LEVEL** (control Signal) or **OUTPUT LEVEL** of all channels.

Output levels might be different to input levels, due to the effect of the switch thresholds of a switch or relay channel or the curve of a dimmer channel.

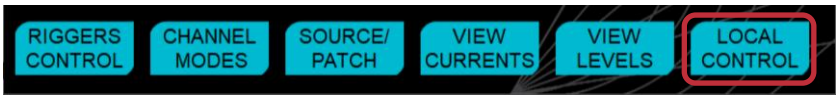


Tap a channel to see detailed information about that channel. Channels can also be selected by pressing their **CHANNEL SELECT** button located above each channel's circuit breaker. When a channel has been selected, the LED on the output module lights magenta and the screen shows the detailed information for that channel.

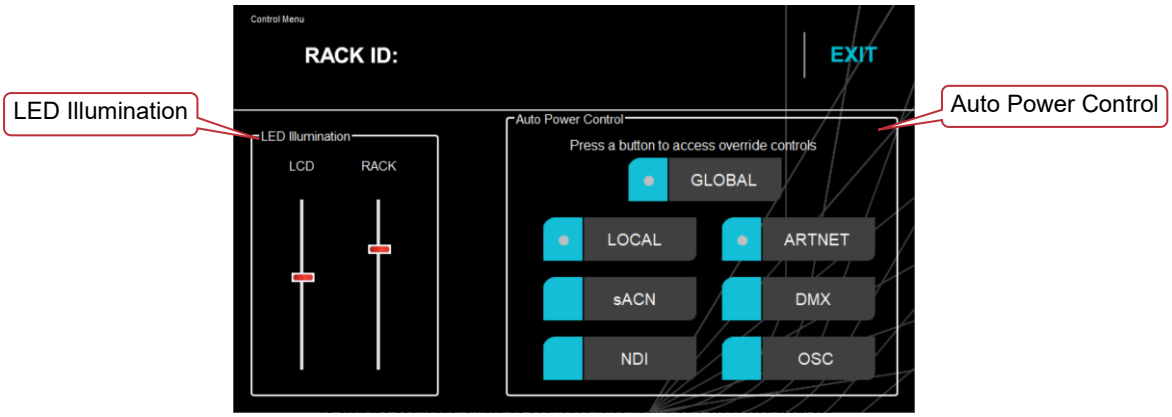


4.11 Local Control

From the "Home Screen" tap **LOCAL CONTROL**.



This menu allows you to control the brightness of the LED illumination and to switch the channels set to "Auto Power" mode on or off as described below.



4.11.1 LED Illumination

The “LED Illumination” pane has sliders that allow you to adjust the brightness of the LCD touch screen and the brightness of the rack illumination LEDs.

4.11.2 Auto Power Control

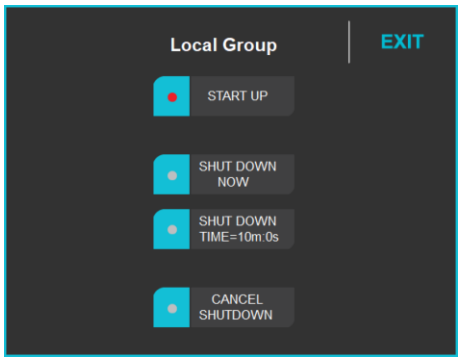
The “Auto Power Control” pane allows you manually start the switch on sequence or switch off channels that are set to “Auto Power” mode.

Auto Power channels set LOCAL are manually controlled from this menu.
Auto Power channels set to Art-Net, sACN, DMX, NDI or OSC control are automatically controlled by the presence or absence of their selected control source. This menu allows you to manually override the automatic operation.

The control is divided into groups based on their control source.

- **Global**. All Auto Power channels, regardless of their control source.
- **Local**
- **Art-Net**
- **sACN**
- **DMX**
- **NDI** (future feature)
- **OSC** (future feature)

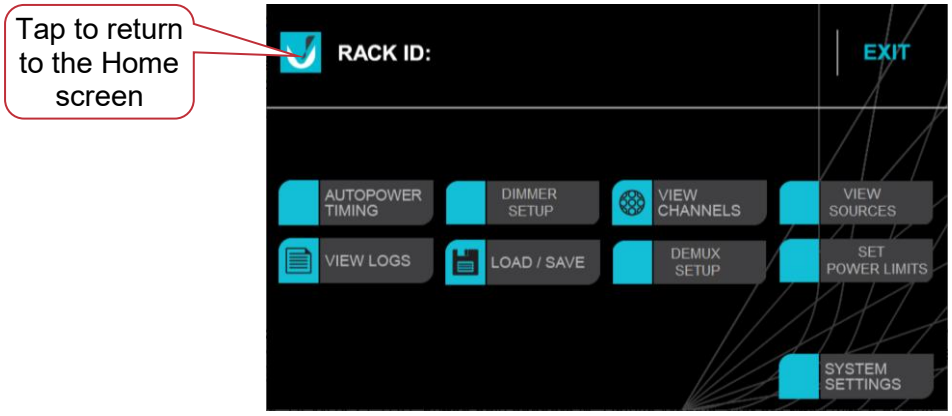
Tap a group to open its controls. For example, the “Local Group”.



- To start the sequential switch on sequence (also known as a staggered start) tap **START UP**.
- To immediately switch off all Auto Power channels in the group tap **SHUT DOWN NOW**
- To start a count-down timer for shutdown, tap **SHUT DOWN TIME**. The time reading in the button counts down the time to shut down. To set the shut down time, see section 4.13.
- To cancel a timed shut down tap **CANCEL SHUTDOWN**

4.12 Advanced Menu

From the “Home Screen” tap **LOG IN** then touch **ADVANCED**.



Advanced Menu

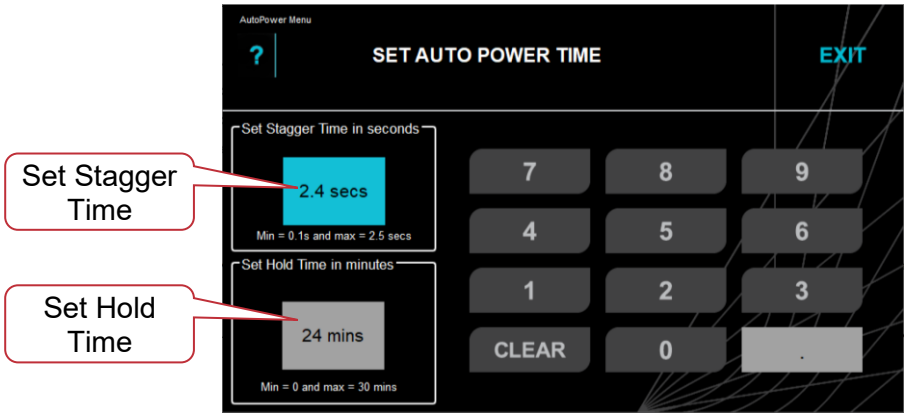
*Note: In all the following menus, the SAVE button only appears if you have altered a setting. The altered setting is only applied when you tap **SAVE**. To discard the changes and retain the original setting tap **EXIT**.*

The “DEMUX SETUP” button only appears in “Deluxe Models” that are fitted with a demux.

4.13 Auto Power Timing

AutoPower is a feature that sequentially switches ON channels set to Auto Power mode and channels set to “Always On”. This helps to prevent nuisance tripping of circuit breakers due to high in-rush currents on power-up. See section 4.7.2.
The start of the switch-on sequence (also known as a staggered start) of Auto Power channels can be either manually triggered from the touch screen by selecting the **LOCAL CONTROL** button (see section 4.11) or automatically triggered whenever the channels selected control signal is present.

To set the AutoPower time, from the “Home Screen” tap **LOG IN**, **ADVANCED**, **AUTOPOWER TIMING**.



4.13.1 Stagger Time

The “Stagger Time” is the time interval between each channel being switched on.

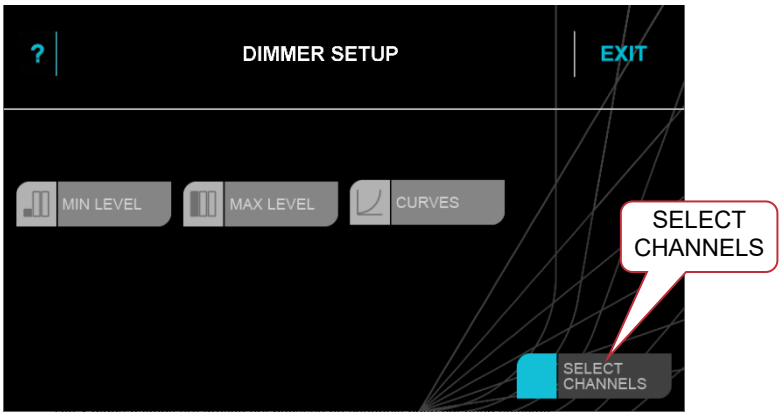
The default stagger time is 0.3 seconds but you can set the time any time from 0.1 to 2.5 seconds.

4.13.1 Hold time

AutoPower channels are switched off either manually from the touch screen by tapping the **CONTROL** button then **SHUT DOWN** or automatically if they have a control source and their control signal is no longer present.
A “Hold Time” can be set for the shut-down to prevent fixtures 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.
A pop-up warning on imminent AutoPower shutdown appears 30 seconds before a shutdown will occur to allow you to cancel or continue.

4.14 Dimmer Setup

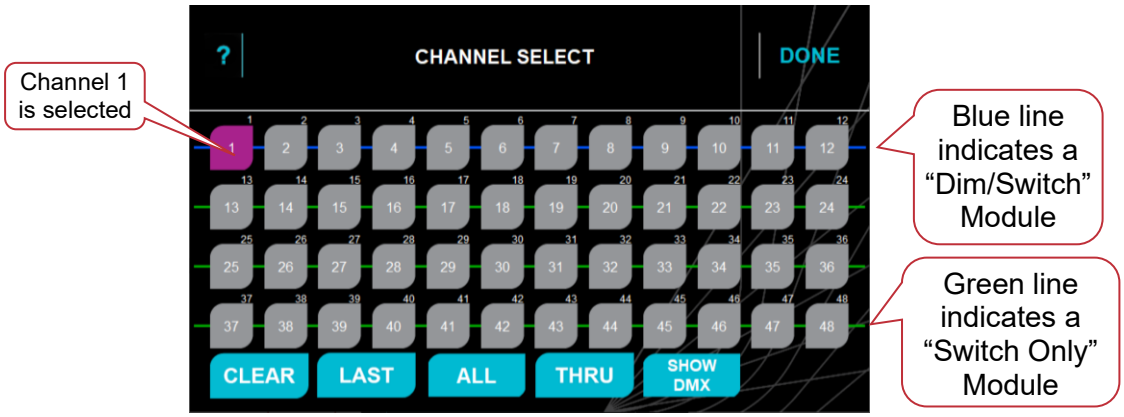
The “DIMMER SETUP” menu allows you to set the minimum level, maximum level and curve for the dimmer channel(s) that you have selected. From the “Home Screen” tap **LOG IN**, **ADVANCED**, **DIMMER SETUP**.



The 3 menu buttons are greyed out because no channels have yet been selected.

4.14.1 Selecting Channels

To select the channel(s) via the touch screen, tap **SELECT CHANNELS**.



The screen shows the number of each channel.
Tap **SHOW DMX**, to see the DMX slot number (yellow text) of each channel.
Tap a channel to select it. Tap again to de-select it. Multiple channels can be selected. A range of channels can be selected by tapping the **first channel** in the range then **THRU** then the

last channel in the range. Tap **ALL** to select all channels. Tap **CLEAR** to de-select all channels. Tap **LAST** to recall your previously cleared selection.

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

When the required channel number(s) are selected (magenta) tap **DONE**.

When a channel(s) has been selected, the buttons on the "Dimmer Setup" menu become active if the channel is located in a "Dimmer/Relay Switch" (UDMT) output module and its "Channel Mode" is set to "Dimmer".

The "Dimmer Setup" menu provides the following functions:

- MIN LEVEL
- MAX LEVEL
- CURVES

These functions are described in the following sections.

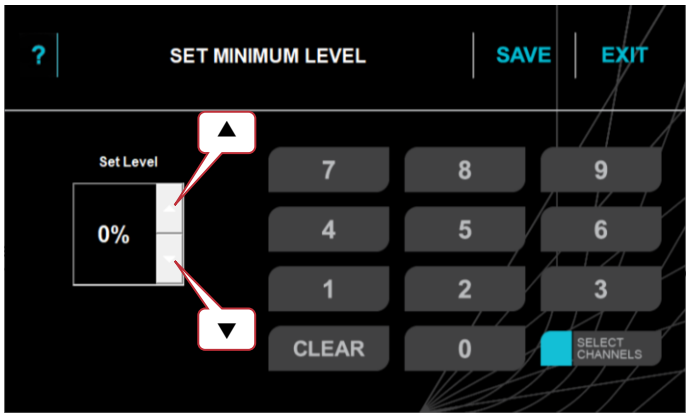
4.14.2 Min Level

Dimmer channels can have a minimum level. "Min Level" sets a low level threshold. If the control signal is below this level, the dimmer will be off.

To set a minimum level for a channel(s), from the "DIMMER SETUP Menu" tap **MIN LEVEL**. The previously selected channel(s) are still valid. If you want to change your selection tap **SELECT CHANNELS** or use the **CHANNEL SELECT** buttons located on the output modules to select the channel(s).

The screen shows the default minimum level. To see the actual minimum level setting for the channel, use the "View Channels" menu, see section 4.15.

Set the minimum level of the selected channels by either entering the number on the touchscreen keypad or tapping the ▲ or ▼ arrows.



4.14.3 Max Level

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

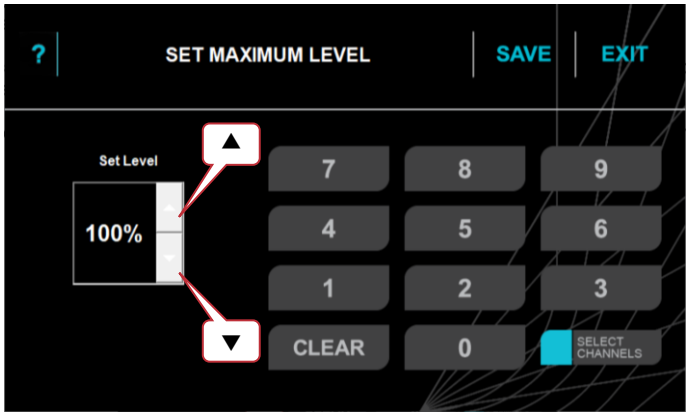
Note: The actual output voltage of the dimmer channel is dependent upon the dimmer curve. LSC recommends that you measure the output voltage (with a 240 volt load connected) to

determine the "Max" level setting you require for a specific maximum voltage. This procedure should only be carried out by suitably qualified personnel.

To set a maximum level for a channel(s), from the "DIMMER SETUP Menu" above tap **MAX LEVEL**. The previously selected channel(s) are still valid. If you want to change your selection tap **SELECT CHANNELS** or use the **CHANNEL SELECT** buttons located on the output modules to select the channel(s).

The screen shows the default maximum level. To see the actual maximum level setting for the channel, use the "View Channels" menu, see section 4.15.

Set the maximum level of the selected channels by either entering the number on the touchscreen keypad or using the ▲ or ▼ arrows.

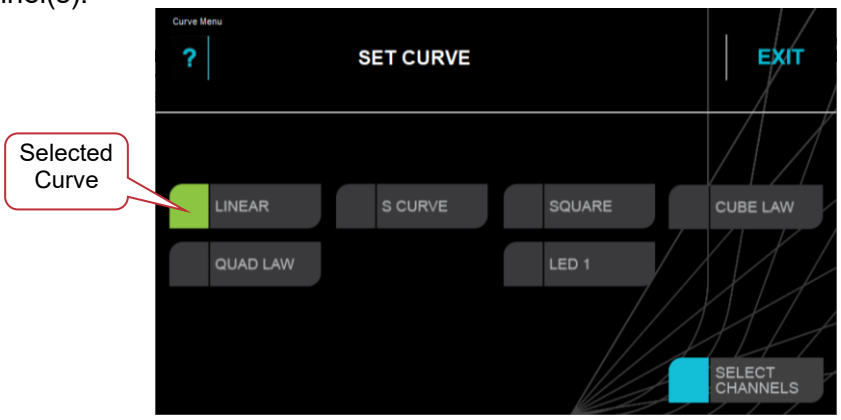


4.14.4 Curves

Dimmer channels can have a curve that sets the "transfer characteristic" between input control signal and channel output level. It defines how the dimmers output voltage responds to the control signal input.

UNITOUR 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 rig also has some other types of dimmers you can experiment to find which curve gives the best match to those dimmers.

To select a curve, from the "DIMMER SETUP Menu" above tap **CURVES**. The previously selected channel(s) are still valid. If you want to change your selection tap **SELECT CHANNELS** or use the **CHANNEL SELECT** buttons located on the output modules to select the channel(s).

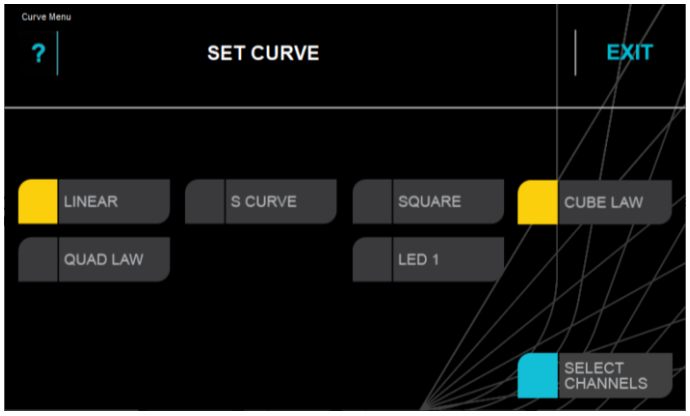


The choices are:

- **Linear** (Default)
- **S curve**
- **Square**
- **Cube Law**
- **Quad Law**
- **LED 1**

Tap a curve name to select it then tap **SAVE**.

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



Multiple channels are selected and they are using different Curves

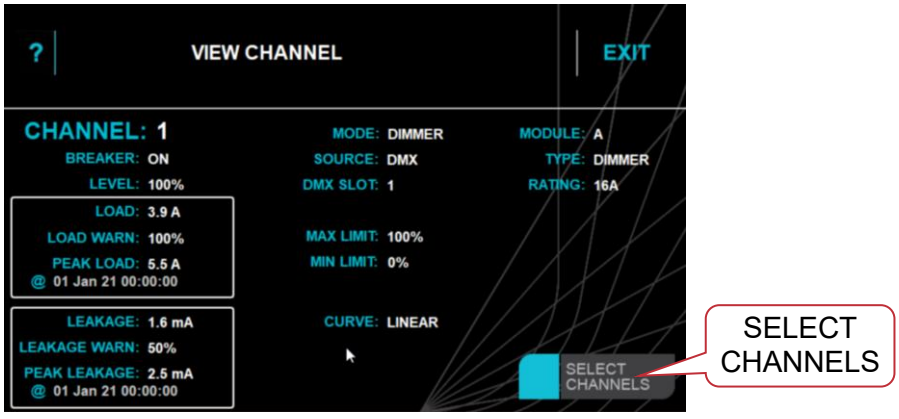
4.15 View Channels

The “View Channels” menu can be used to view all of the settings for the channel that you select.

From the “Home Screen” tap **LOG IN**, **ADVANCED**, **VIEW CHANNELS** then select a channel to view.
There are 2 methods available to select the channel to view:

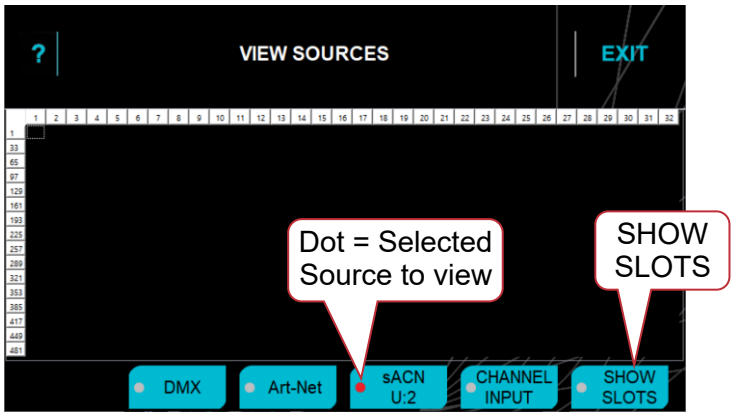
1. Tap **SELECT CHANNELS** then tap the channel number then tap **DONE**.
2. Press the **CHANNEL SELECT** button located above each channel’s circuit breaker on the output modules.

When a channel has been selected, the LED above the CHANNEL SELECT button on the output module lights magenta.



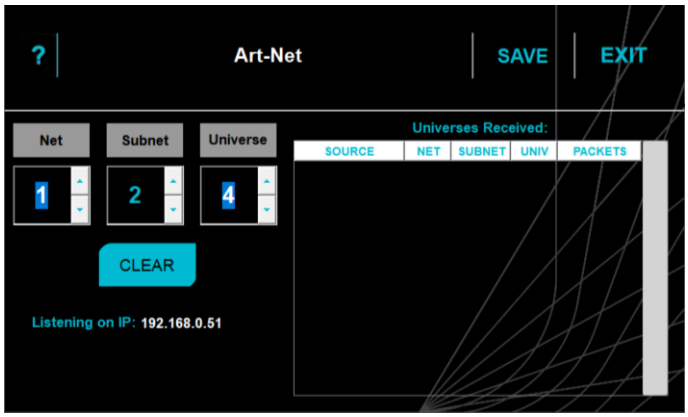
4.16 View Sources

From the “Home Screen” tap **LOG IN**, **ADVANCED**, **VIEW SOURCES**.
The “View Sources” menu can be used to view the DMX levels from the source that you tap at the bottom of the screen.



Tap **SHOW SLOTS** to see an overlay of all slot numbers in the selected source.

- Tap **DMX** to see the DMX levels.
- Tap **Art-Net** to open a new screen where you select the Net, Subnet and Universe to view.



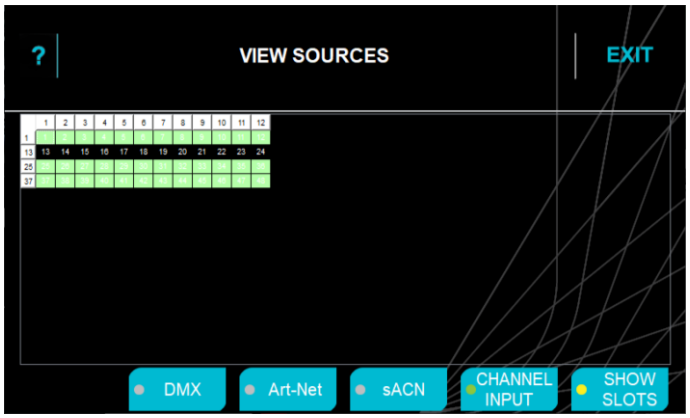
Make your selection then tap **SAVE**.

- Tap **sACN** to open a new screen where you select the sACN Universe to view.



Make your selection then tap **SAVE**

- Tap **CHANNEL INPUT** to display the values at the input of each UNITOUR channel.

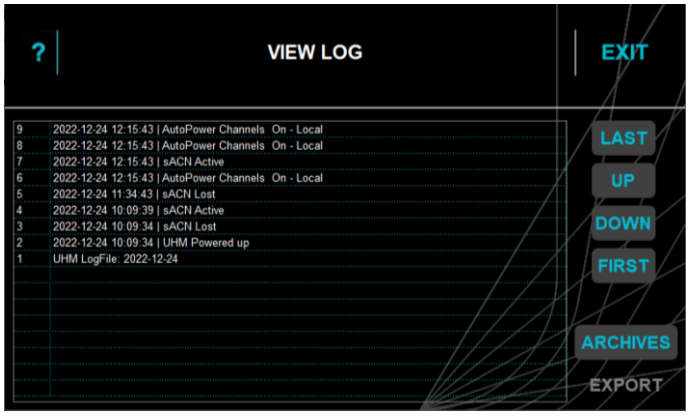


This can help you identify issues when the channel is incorrectly patched or it is set to ALWAYS OFF or ALWAYS ON.

Channels with no control source are shown in black.

4.17 View Logs

UNITOUR 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 4.21.2.
To view the events that have been logged, from the “Home Screen” tap **LOG IN**, **ADVANCED**, **VIEW LOGS**.



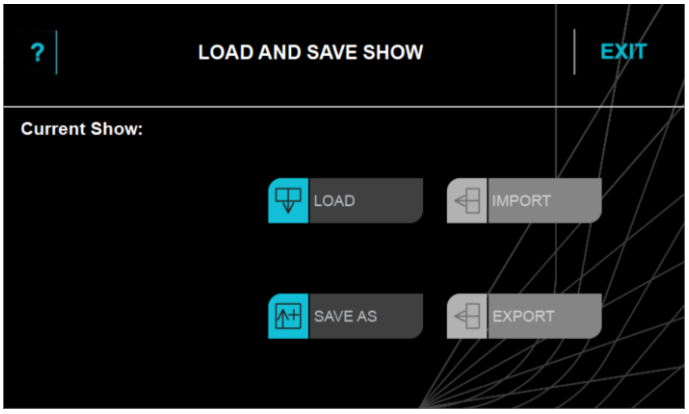
View Log

Log files are automatically archived at midnight every day. To view archived logs, tap **ARCHIVES**, tap on the desired archive file then tap **LOAD**.

4.18 Load/Save

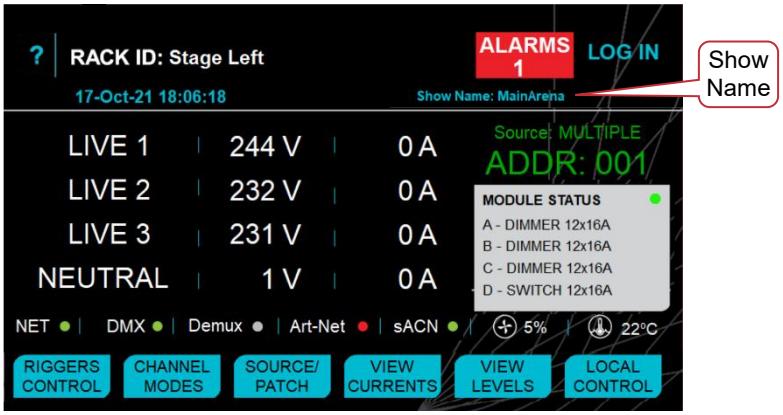
The user settings of a UNITOUR rack can be saved and recalled from the internal memory or they can be exported or imported from a USB memory stick. The file is known as a “show” and each show can be individually named using the pop-up on-screen keyboard.

To load or save a show, from the home screen tap **LOG IN**, **ADVANCED**, **LOAD/SAVE**.



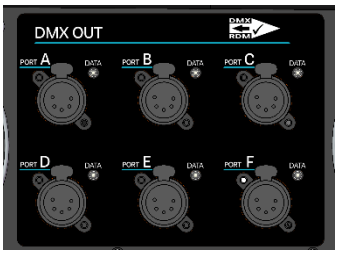
The “IMPORT” and “EXPORT” buttons are only active when a USB memory stick is plugged into the Control Module’s USB connector. The show is exported as a text file. The USB memory stick must be DOS formatted (FAT32).

The name of the current show is shown on the “Home Screen” screen.

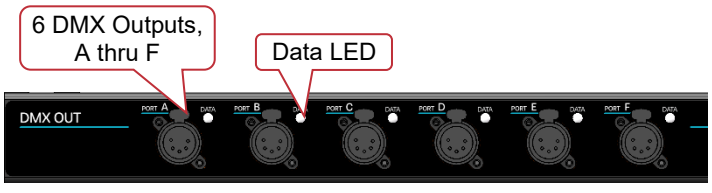


4.19 DMX Outputs / Demux Setup

Deluxe models of UNITOUR are fitted with an internal 6 port A/RDM/Ethernet to DMX512 converter supporting Art-Net and sACN and a DMX-RDM splitter. The 6 DMX512-A/RDM outputs are on the rear of the UNITOUR rack.



24 Channel Version



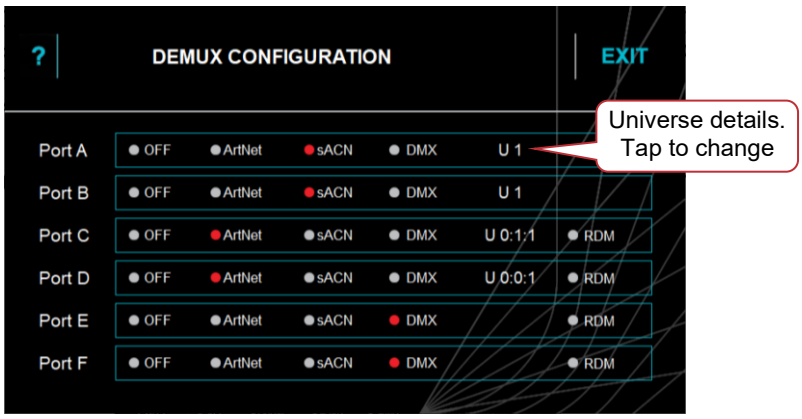
48 Channel Version

Deluxe Model DMX512-A Outputs

The 6 output ports are labelled A through F. Each port can be individually configured to output DMX from any of the control signals that are being received by UNITOUR (Art-Net, sACN, DMX) or can be set to OFF. All DMX512-A/RDM outputs are galvanically isolated to 1500 volts and short circuit protected.

There is a “DATA” LED immediately adjacent to each output showing if that channel output is active. It flickers when DMX is transmitted.

To configure an output, from the “Home Screen” tap **LOG IN**, **ADVANCED**, **DEMUX SETUP**.



- Tap a grey dot to enable that protocol on the port or set it to OFF
- A red dot indicates that the protocol has been selected but no signal is detected
- A green dot indicates the active state of the port

When either Art-Net or sACN are selected, the universe (U) details in use are shown. Tapping the universe details enables you to set the Universe.

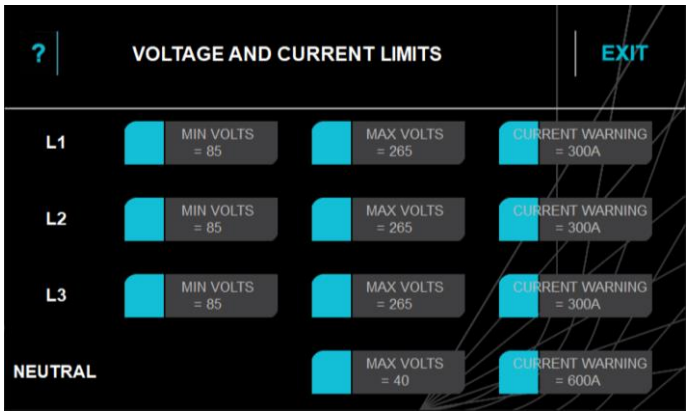
RDM (Reverse Device Management). Tap to enable. See section 11.5 for more information on RDM.

4.20 Set Power Limits

UNITOUR 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 activating an alarm and switching off all the outputs connected to a phase if its input voltages are outside of the set limits. Voltages outside the limits are shown in red.

UNITOUR monitors the input currents of all 3 input phases and the neutral. You can set a current warning alarm for each input phase and the neutral. An alarm is activated if a warning level is reached. Currents above the warning levels are shown in yellow. The UNITOUR system is fully rated so it can supply full load current to all outputs. The alarm is provided for occasions when UNITOUR is connected to a limited current source.

From the from the “Home Screen” tap **LOG IN**, **ADVANCED**, **SET POWER LIMITS**.

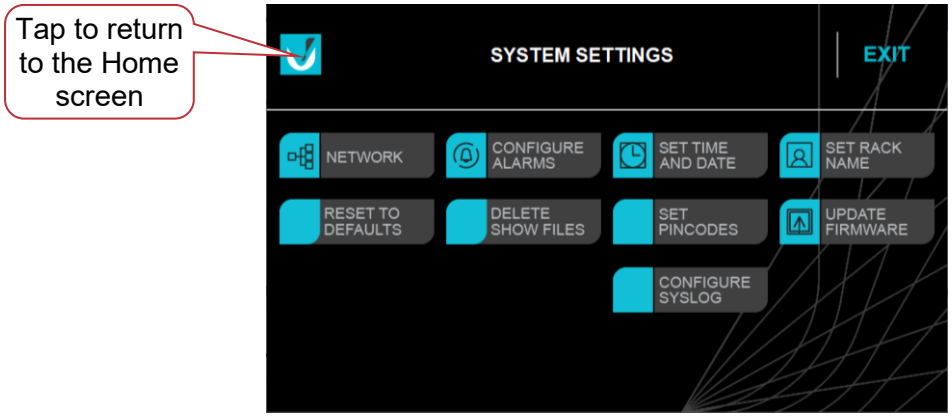


Tap a button to set its value. The defaults values are,

	Minimum Volts	Maximum Volts	Current Warning
L1, L2, L3	85V	265V	24 Channels = 150A 48 Channels = 300A
Neutral		40V	24 Channels = 125A 48 Channels = 600A

4.21 System Setting

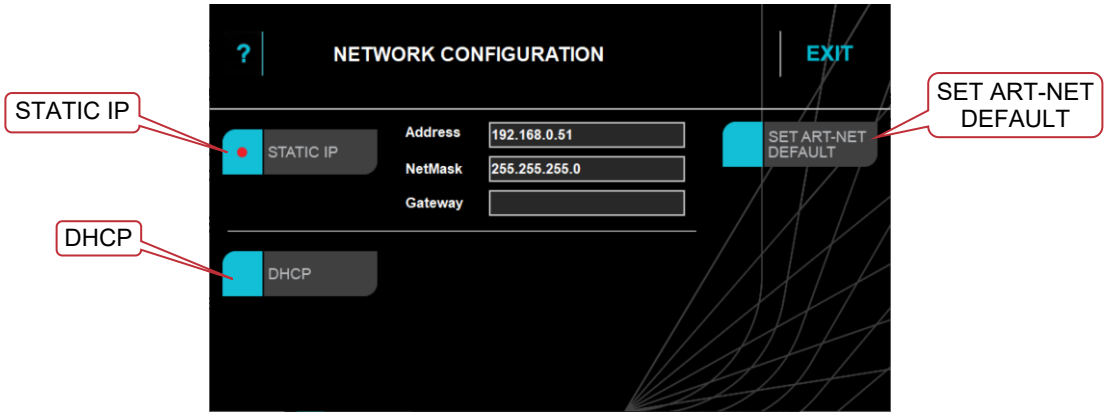
Tap **LOG IN**, **ADVANCED**, **SYSTEM SETTINGS**.



The System Settings are described in the following sections:

4.21.1 Network

Tap **LOG IN**, **ADVANCED**, **SYSTEM SETTINGS**, **NETWORK**.



This menu is used to select the IP address that is used for this UNITOUR 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.

Hint: If UNITOUR is set to DCHP, it will look for a DHCP server when it starts. It waits 10 seconds for a response. If there is no response, it times-out and sets an automatic IP address (169.x.y.z). This is as per the DHCP standard. Windows and Mac computers do the same

thing. Modern ethernet switches can take 90-120 seconds to boot up. If you apply power to UNITOUR and the ethernet switch at the same time, UNITOUR may boot up before the ethernet switch is transmitting the DHCP data. However, LSC products resend the DHCP request every 10 seconds. If a DHCP server comes online later, UNITOUR will then automatically change to a DHCP assigned IP address. This feature applies to all LSC products with internal ethernet.

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.

4.21.2 Configure Alarms

Tap **LOG IN**, **ADVANCED**, **SYSTEM SETTINGS**, **CONFIGURE ALARMS**.

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

HOUSTON X is LSC’s monitoring software (see section 6) and SYSLOG is a remote logging system (see section 4.21.1).



The left-hand column lists the “Conditions” that UNITOUR monitors. Scroll down to see more conditions.

- A green dot indicates that a condition change will be acted upon
- A grey dot indicates that a condition change is ignored

Tap a **DOT** to toggle it to green or grey. If you make a change the **SAVE** button appears.

ALARM column. If the selected condition changes, the large “STATUS” LED on the Control Module lights red and a Red Alarm button appears on the home screen. See section 3

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 magenta) when the alarm condition clears and it remains magenta 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

LOG column. If the selected condition changes, UNITOUR generates an entry into the Log file. The log can be viewed on the touch screen or exported to USB as a text file for viewing on a computer. See section 4.17.

SYSLOG column. If the selected condition changes, UNITOUR sends a condition change messages to a third-party Syslog server via the Syslog protocol. See section 4.21.1.

HOUSTON X column. If the selected condition changes, UNITOUR sends a condition change message to LSC's HOUSTON X monitoring software via the ethernet connection. See section 6.

Tap **SAVE** to keep the changes and exit. To discard the changes and retain the original setting tap **EXIT**.

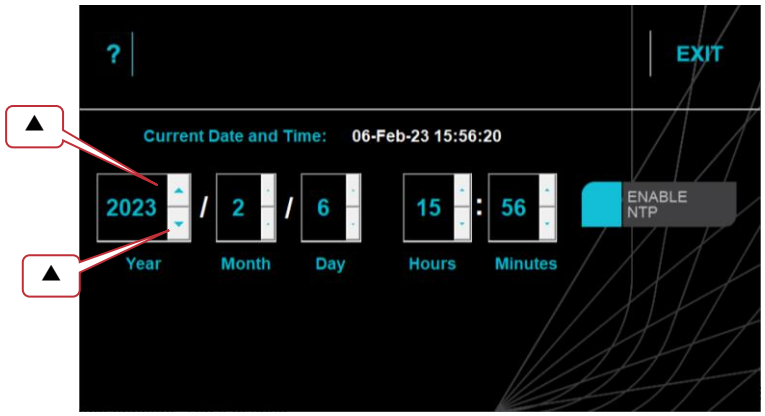
The default settings are listed in section 4.21.5.

4.21.3 Set Date and Time

UNITOUR has an internal clock that is used for various purposes such as logging the date and time of events and peaks.

The clock can be manually set or it can be automatically set by a network connection.

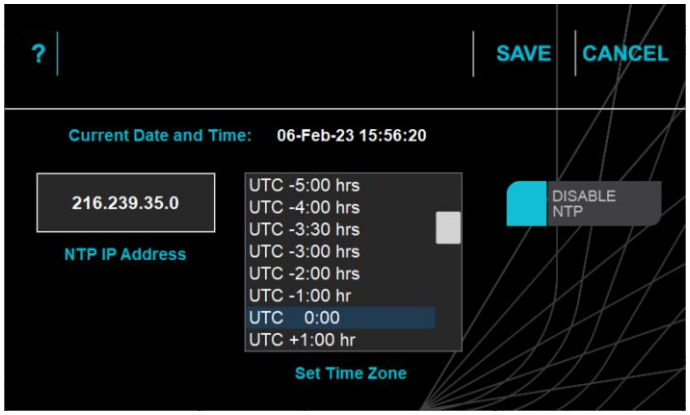
Tap **LOG IN**, **ADVANCED**, **SYSTEM SETTINGS**, **SET TIME AND DATE**.



Date Time

Tap the up ▲ or down ▼ buttons to change the date and time. If you make a change the **SAVE** button appears. Tap it to save.

Alternatively, to automatically set the date and time by a network connection tap **ENABLE NTP**. NTP (Network Time Protocol) is a networking protocol for clock synchronization over networks. If UNITOUR has an internet connection selecting NTP will set the time and date automatically. Alternatively, you can create your own NTP time server and run it on a private network.



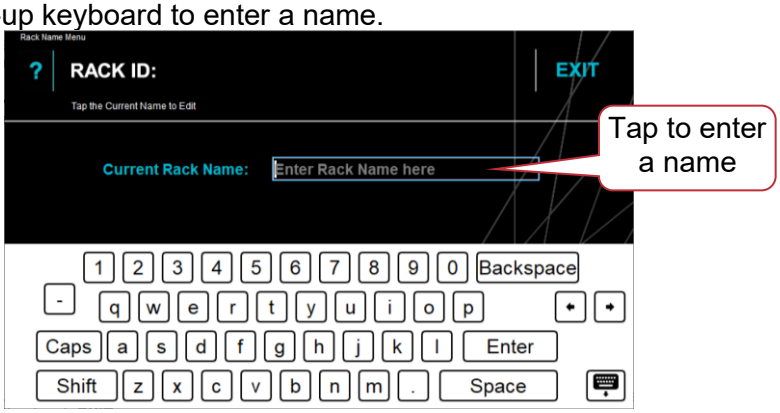
NTP Enabled

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

4.21.4 Set Rack Name

Every UNITOUR rack can be given a name. Names might indicate the physical location of the channels, for example, one rack might be named “Front of House” and another “Stage”.

Tap **LOG IN**, **ADVANCED**, **SYSTEM SETTINGS, SET RACK NAME**. Tap inside the name box then use the pop-up keyboard to enter a name.

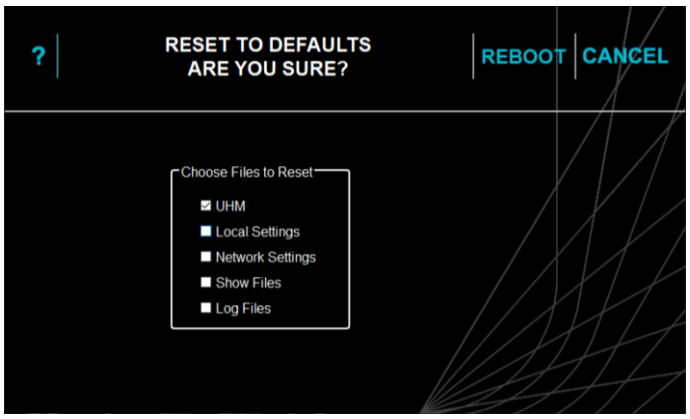


Rack Name

Tap **SAVE** to keep the changes and exit. To discard the changes and retain the original setting tap **EXIT**. The rack name is not saved or recalled in a show file.

4.21.5 Reset To Defaults

Tap **LOG IN**, **ADVANCED**, **SYSTEM SETTINGS**, **RESET TO DEFAULTS**.



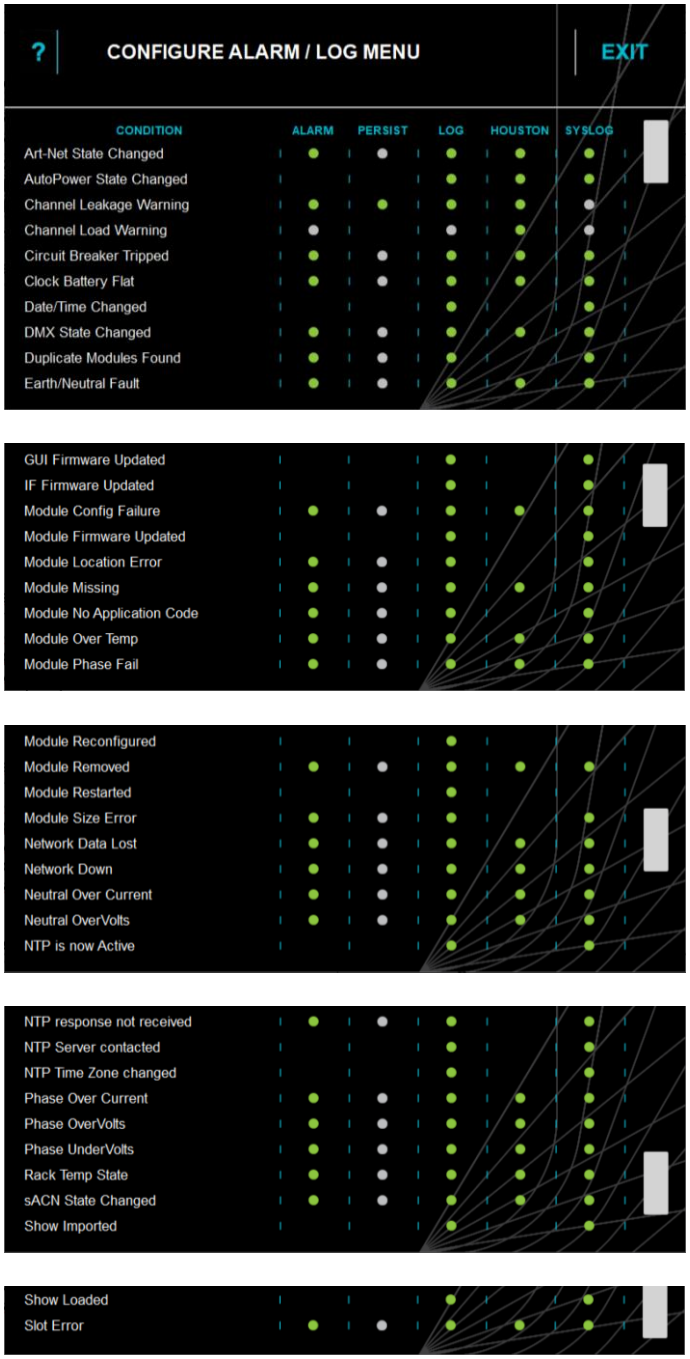
Tap (tick) each box to select the files that you want to reset then tap **REBOOT**.
The default settings for each file are,

UHM (Unitour Head Module) Defaults

Parameter	**Default Setting**
Switch Channels	Switch mode
Dimmer/Switch Channels	Dimmer mode
Control Source	DMX
DMX Address	Block address starting from DMX slot 1
Load Current warning	90%
Leakage Current warning	50%
Dimmer Minimum Level	0%
Dimmer Maximum Level	100%
Dimmer Curve	Linear
Demux Outputs A through F	Off
Rack Name	No Name

Local Settings Defaults

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



Default 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

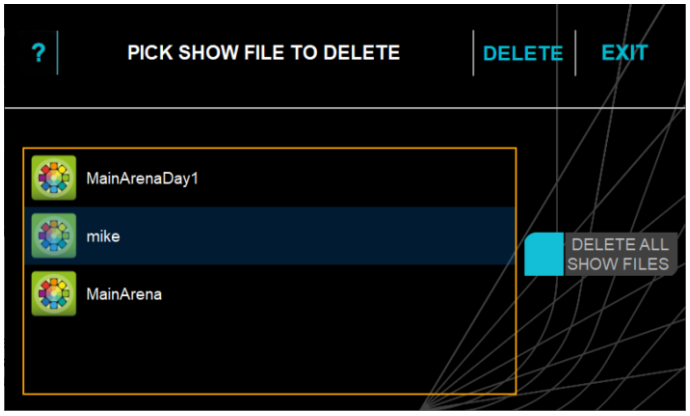
No show file is loaded. All existing show files remain in the memory

Log Files Defaults

All existing log files are deleted.

4.21.6 Delete Show Files

Tap **LOG IN**, **ADVANCED**, **SYSTEM SETTINGS**, **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**.



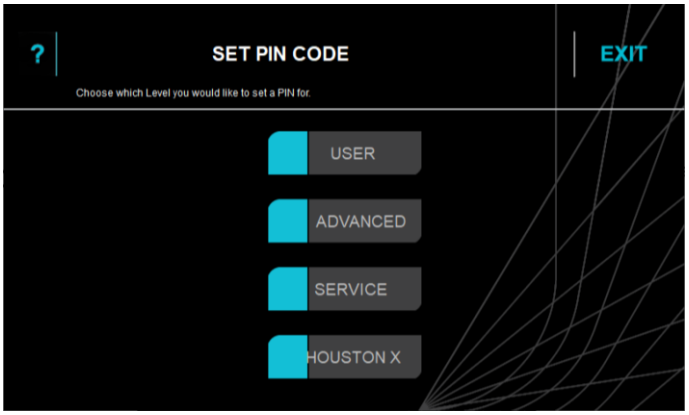
To save all show files to a USB stick before deleting them touch **SAVE TO USB STICK**. To delete all files, touch **OK**

4.21.1 Set PIN Codes

Access to UNITOUR can be restricted by PIN codes. Four access levels are provided.

- USER. This level locks the 6 menu buttons at the bottom of the “Home Screen” and the “QUICK” setup wizard that is accessed from the LOG IN button. Note: A PIN code must be set for the “ADVANCED” level before you can set a “USER” PIN
- ADVANCED. This level locks the “ADVANCED” menu button when you “LOG IN”
- SERVICE. This level is factory locked and always requires a PIN. Contact LSC for access
- HOUSTON. This level locks remote access via LSC’s HOUSTON X software. See section 6

UNITOUR ships with the “USER”, “ADVANCED” and “HOUSTON” levels unlocked. To set a PIN code, tap **LOG IN**, **ADVANCED**, **SYSTEM SETTINGS, SET PINCODES**.



Tap a level that you want to lock then use the keypad that appears to enter a 4 to 8 digit PIN then tap **SAVE**. Repeat the PIN then tap **SAVE**.

When logging into a locked level, enter the PIN then tap **UNLOCK**. The level remains unlocked until you lock it again. To re-lock the level tap **LOG IN**, **LOCK**.

4.21.2 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. Clearing the ADVANCED PIN also clears the USER PIN.

4.21.1 Update Software (Firmware)

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

The latest firmware for UNITOUR can be downloaded from http://unity.lsccontrol.com.au

Note. It is possible that if the update is interrupted at a critical point, the touchscreen may no longer operate. LSC strongly recommend having a USB hub and USB mouse available, so that it this occurs, the update can be repeated using the USB mouse and USB stick connected via the USB hub to the Control module.

Note. All outputs will be disabled (turned off) during the update process.
Note: The Update Software function is not available when the UCM is powered solely by PoE. This is to prevent the UCM and the UOM (output modules) software versions from getting out of sync.

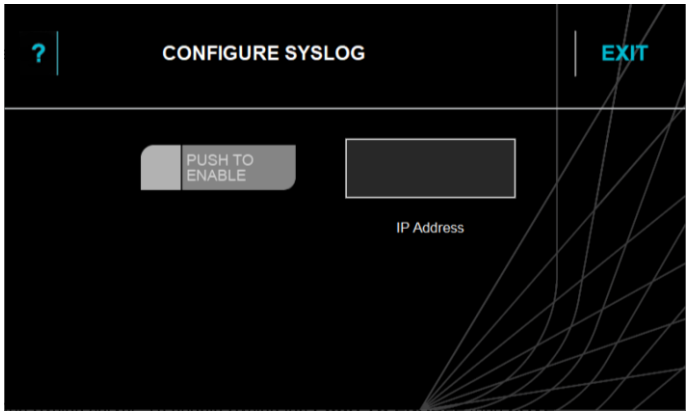
To install a software update, perform the following steps:

1. Copy the software release file (named UniTour_vNN.img where ‘NN’ is the software version number) onto a USB stick, in a folder labelled LSC.
2. Insert the USB stick into the UNITOUR head module “USB Comms” connector.
3. Ensure all output modules are powered up.
4. Navigate to the Update Firmware menu, **Log In**, **Advanced**, **System Settings**, **Update Firmware** and press **Yes** to start the upgrade.
   If there is more than one upgrade file on the USB stick, select the correct update file from the dialog box and then press **Yes**
5. The update status will be displayed, showing the individual items are being updated.
6. Once complete, the UHM and output modules will restart.

4.21.1 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 UNITOUR 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 set the IP address of the Syslog server.

Tap **LOG IN**, **ADVANCED**, **SYSTEM SETTINGS, CONFIGURE SYSLOG**.



Tap the box above “IP Address” then use the keyboard that pops up to enter the IP address of the Syslog server. To enable Syslog tap **PUSH TO ENABLE** then **SAVE**.

5 Emergency Mode

In the unlikely event that the UNITOUR does not respond to commands, you can manually force the any output channel into the ON state.

WARNING.

Only use this method of turning on a channel as a last resort. The following action will turn the channel on, even if the system has shut down the output due to a dropped neutral or over voltage input. Be aware that taking this action may result in damage to any connected equipment.

To force a channel into the EMERGENCY ON state, press and hold its channel **SELECT** button for more than 5 seconds.



The channel LEDs go White to show that the channel is in EMERGENCY ON mode.

To release a channel from EMERGENCY MODE, press and hold the channels **SELECT** button for 1 second.

Note: EMERGENCY mode works for all channels, even channels set to ALWAYS OFF.

6 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 UNITOUR over ethernet, using the same connector as sACN and Art-Net.

HOUSTON X monitors the state of every connected LSC professional product. All status indicators from each product are replicated in HOUSTON X. Any alarms, such as loss of DMX are reported in a single unified list with the date and time of the occurrence. If an alarm occurs the ALARM indicator appears in red. Alarms can be marked as "acknowledged" whilst the problem is being resolved, changing the indicator to yellow. Any new alarms will change the indicator to flashing red again. Once all alarms are cleared, the indicator disappears.

HOUSTON X can also control every compatible connected LSC product (GEN VI, APS, MDRD, LED-CV4, UNITOUR, UNITOUR). You can use it to set a DMX address, set a channel to dimmer or Switch (TruPower), check the temperature, test a channel (rigger's control), find DMX cabling faults etc. For example, you could recall the standard patch after a custom show with a few mouse clicks. Swapping shows is as simple as loading the config file and pushing a button.

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.

7 Output Connectors

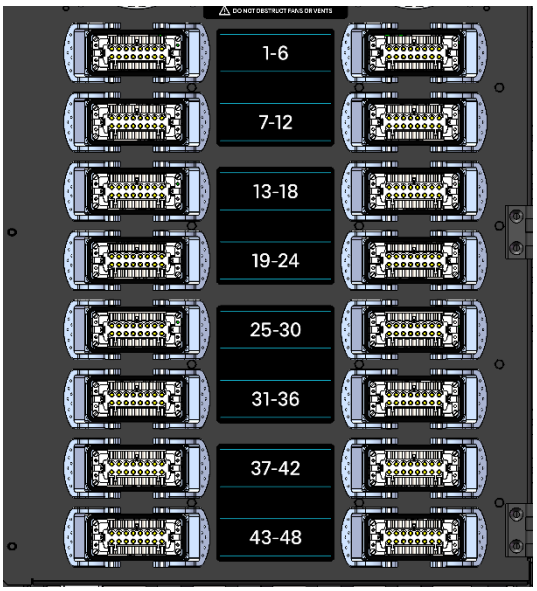
The UNITOUR can be supplied with the following types of power output connectors:

- Dual (parallel wired) Wieland 16-pole multipin sockets
- Dual (parallel wired) Wieland 10-Pole multipin sockets
- Dual (parallel wired) Socapex 19-pin multipin sockets

7.1 Dual (parallel wired) Wieland 16-pole Multipin Sockets

WARNING. Several wiring standards exist for the pin outs of Wieland multipin sockets. If in doubt, a suitably qualified person should check that your Wieland cables are wired to the same standard as your UNITOUR.

The outputs are paired horizontally



48 Channels

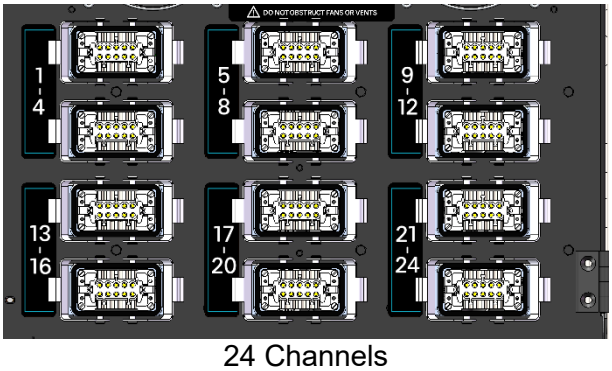
Output Circuit Numbers	
1-6	1-6
7-12	7-12
13-18	13-18
19-24	19-24
25-30	25-30
31-36	31-36
37-42	37-42
43-48	43-48

Note: Earth connection is via the clips on the side of the socket insert.

7.2 Dual (parallel wired) Wieland 10-pole Multipin Sockets

WARNING. Several wiring standards exist for the pin outs of Wieland multipin sockets. If in doubt, a suitably qualified person should check that your Wieland cables are wired to the same standard as your UNITOUR.

The outputs are paired vertically



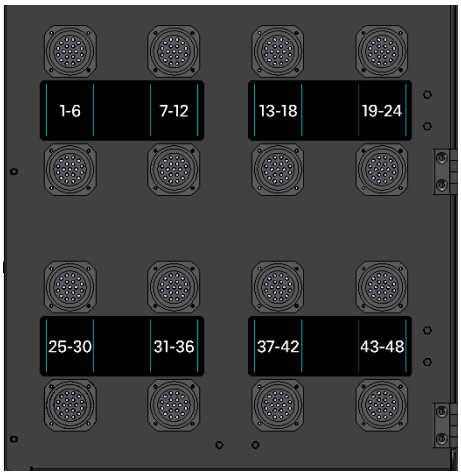
24 Channels

Output Circuit Numbers		
1-4	5-8	9-12
1-4	5-8	9-12
13-16	17-20	21-24
13-16	17-20	21-24

Note: Earth connection is via the clips on the side of the socket insert.

7.3 Dual (parallel wired) Socapex 19-pin Multipin Sockets

The outputs are paired vertically.



48 Channels

Output Circuit Numbers			
1-6	7-12	13-18	19-24
1-6	7-12	13-18	19-24
25-30	31-36	37-42	43-48
25-30	31-36	37-42	43-48

8 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, Live 1, Live 2 and Live 3.

The outputs of each UNITOUR 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

9 Specifications

Control	Control module (UHM) located at top of rack for easy access and programming 18cm active TFT colour display with inbuilt touchscreen recessed into chassis for mechanical protection Dual Ethercon connectors with internal Ethernet switch, to allow daisy-chaining of multiple racks for TCP/IP, UDP, sACN, Art-Net and other network protocols Single front panel mounted DMX in and thru connector of 5-pin XLR style connector Single front panel mounted USB Type A connector for configuration import and export and software upgrades, plus dual front panel mounted power-only USB Type A ports for device charging Large RGB status LED to indicate fault/OK condition of rack from a distance Real-time display of RMS voltage and currents across all 3 phases + neutral within the rack Internal configuration and control of all USMT (switch) and UDMT (switch/dim) modules Remote monitoring and configuration via LSC's HOUSTON X software suite Optional ability to send SMS messages to relevant personnel if a problem arises (Future feature) Neutral loss and over-voltage protection. The rack will shut down in the event of a dropped neutral until the fault is rectified, thus helping to protect attached equipment Configurable warning alarms for over-current, temperature, tripped breakers, phase loss and control signal loss
Mechanical	Fully clad flight case with removable front and rear lids fitted with high-quality hardware. Removable top lid fitted when patch option included Optional swing-and-fold door roadcase available on request Four slots for either USMT or UDMT Quick-Swap 12 channel modules each protected by 63A 4-pole MCB (MFBL type) Choice of dual (paired) Socapex 19-pin or Wieland 16-pole multipin outlets. Total 16 6-circuit connectors 400A 4-pole MCCB main circuit breaker (auto-switch) on input

	Optional programmable RCD module for 400A circuit breaker, controlled from UHM control module PowerLock 400A, 5-wire (TN-S) 230/415V supply in and thru CEE 32A 3-phase auxiliary power output socket; Australian models fitted with 32A 3-phase output socket protected by 32A 4-pole RCBO (Type A) Three CEE 16A single-phase auxiliary power output sockets; Australian models fitted with HPM 20A 3-pin output sockets each protected by 16A single-pole RCBO (Type A) M12 earth bond stud Five colour indicators located on front and rear of mains distro showing correct or bad connection of power supply Optional 2:1 patch module with Wieland ST18 in/out connectors (patch leads not supplied) plus two ST18 connectors and ammeter for load/lamp testing connectors
USMT smart power module	QuickSwap - user swappable 12Ch x 16A relay module Zero-cross switching of loads ensures that switched power circuits are turned on at the zero-cross point on the sinewave to minimise nuisance tripping of circuit breakers Auto-power staggered start-up to sequentially switch on user-selected channels from the touch screen or when a control signal is detected TCP/IP, UDP or DMX relay mode configurable per channel RCBO (Type A) protection per output circuit or neutral disconnect breakers upon request **Individual RMS/peak earth leakage current (ELC) monitoring per channel with programmable alarm warning level** **- Australian Patent #2022100070** **- Australian Patent #2021215292** **- EU Patent Application No. EP4233086** **- US Patent Application No. 18/722,425** Individual RMS/peak current monitoring per channel Circuit breaker trip detection per channel Circuit breakers and labelling stripe with dimmable stealth LED illumination
UDMT dimmer/TruPower module	QuickSwap- user swappable 12Ch x 16A dimmer/relay module where any channel can be selected as a dimmer or a switched relay

	Zero-cross switching of loads ensures that switched power circuits are turned on at the zero-cross point on the sinewave to minimise nuisance tripping of circuit Pulse Transformer Fired Dimming (PTFD) technology used for the control of complex loads including neon's, motors and low wattage practicals without the need for a dummy load Current Control Technology (CCT) circuitry to prevent nuisance tripping of breakers due to high inrush currents on power-up, particularly helpful to prevent thermal shock on cold filaments Dimmer circuitry utilising 8-bit or 16-bit dimming allowing precise control of mains powered LEDs RCBO (Type A) protection per output circuit or neutral disconnect breakers upon request **Individual RMS/peak earth leakage current (ELC) monitoring per channel with programmable alarm warning level** **- Australian Patent #2022100070** **- Australian Patent #2021215292** **- EU Patent Application No. EP4233086** **- US Patent Application No. 18/722,425** Individual RMS/peak current monitoring per channel with load detect Circuit breaker trip detection per channel Circuit breakers and labelling stripe with dimmable stealth LED illumination

10 Feature History

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

Release: v2.07

- No new features. Bug fixes only

Release: v2.06

- Never released to the public

Release: v2.05

- The channel indicator LEDs above the circuit breakers in each module now show the channel mode. If the channel is operating as a dimmer the LED will be blue when the channel is active. If the channel is switching (Auto/AlwaysOn/Relay/Switch) then LED will be green to indicate that it is safe to use with non-dim loads
- View Channels from the home screen. It is now possible to instantly enter the View Channel window from the GUI home screen. Pressing the channel selection button above the circuit breaker on any output module channel opens the View Channel window with the selected channel information. Tapping the button again reverts to the home screen
- sACN merge by slot/address implemented. Previous versions of software only allowed for priority per universe. This update now includes the optional ‘merge by address’ functionality
- Increased the maximum number of receivable sACN universes to a total of 32 universes. These are shared between the rack and the Demux module
- Art-Net universe numbering has been changed from the 0 based Net:SubNet:Universe convention to the more popular 1 based methodology. e.g. 0:0:0 is now 1, and 0:1:0 is now 17 The set and view source windows displays both the old and new numbering system for ease of translation
- The Art-Net IP address of the rack is now shown in the Sources menu to assist with diagnosing network issues
- The sACN source window now includes a list of available sACN universes on the network. (This functionality requires the source sending the sACN data to have implemented the universe broadcast packet, which some older consoles do not support)
- Modules set to Disabled in the GUI no longer report any alarms. This allows the user to turn off the RCBOs without creating irrelevant alarms and flashing LEDs
- The Module Status Window information has been updated to better reflect user requirements. The original design showed the module type installed, rather than the operational mode selected in the QuickStart menu. This was confusing for many users. The new design displays the module type (USMT or UDMT)) in black then the operating mode in Green/Blue (SWITCH ONLY or DIM-SWITCH)
- The default stagger start time has been reduced to 0.3s. The RnD team has determined that this is the best compromise between speed and protection from in-rush current tripping the upstream breaker
- The Update Software function is no longer available when the UCM is power solely by PoE. This is to prevent the UCM and the UOM (output modules) software versions from getting out of sync
- The [Firmware Update] button has been renamed to [Software Update] as this is a more recognised terminology
- Alarm messages now include the channel name for extra clarity
- When exporting the rack configuration setting to a USB stick (via the Reset To Factory Defaults menu), the folder created now uses the rack name instead of a generic name

- The Status LED now displays Blue if the interface cannot communicate with the main GUI processor. Previously this was shown as Magenta, which is now used to show a persistent alarm is active

Release: v2.04

- Alarms for disabled channels are now muted, so that the MCB can be turned on/off without generating spurious alarm messages
- The View Logs window has been updated to remove the scroll-bar for easier viewing of large log files
- The Head Unit to Modules communication interface has been refined to better cope with a user reset of the Head Unit. If for any reason the user resets the Head Unit, the output modules will now hold their last levels until communications are restored
- Additional log file information. The software version is now included in the log file start up message. A hidden heartbeat entry is added if no other events have occurred in the last 10 minutes

Release: V2.03

- Delete show files. A new button allows you to delete old show files
- Factory Reset. A new button allows you to rest the unit to factory defaults. There are several options as to which parts to reset
- 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
- AutoPower events now appear in the Log file with a date/time stamp
- Changed colour of Persistent alarms to Purple
- The firmware update functionality has been improved. Modules that are already up to date are now shown in Cyan, so it is clearer what has been updated and what stays the same
- The functionality of the NET indicator on the touch screen has changed. Previously it was green if there was any connection 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
- Channels that are forced on (hold down the channel select button on the module for >5s) are now shown with a white channel LED

Release: v2.02

- Support for the new UNITOUR24 rack added
- 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
- Added the ability to configure the rack with module/s not installed. For example, a 48 channel rack can be loaded with 3 modules for a total of 36 channels. This ensures the user does not see any ‘false’ Alarms that the 4th module is missing

Release: v2.01

- It is now possible to assign different Art-Net or sACN universes to each channel if required
- Always On channels now stagger start
- The AutoPower control panel now allows group and/or global override.
- The ethernet decoder GUI has been enabled

- PIN code locking has been tweaked; the advanced level cannot be locked unless the Quick level is also locked
- Alarms can now be made persistent. This allows transient alarms (for example, earth leakage or over voltage warnings) to remain displayed in the Alarms window until dismissed by the user
- 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 touring production with multiple racks to carry a single spare Dim/Switch module and use it as either a Dim/Switch or SwitchOnly module

Release: v1.01

- No new features. Bug fixes only

Release: v1.00First Public Release

11 Terminology

11.1 DMX512A

DMX512A (commonly called DMX) is the industry standard for the transmission of digital control signals between lighting equipment. It utilises just a single pair of wires on which is transmitted the level information for the control of up to 512 DMX slots.
As the DMX512 signal contains the level information for all slots, each piece of equipment needs to be able to read the level(s) of the slots(s) that apply only to that piece of equipment. To enable this, each piece of DMX512 receiving equipment is fitted with an address switch or screen. This address is set to the slot number to which the equipment is to respond.

11.2 DMX Universes

If more than 512 DMX slots are required, then more DMX outputs are required. The slot numbers on each DMX output are always 1 to 512. To differentiate between each DMX output, they are called Universe1, Universe 2, etcetera.

11.3 ArtNet

ArtNet (designed by and copyright, Artistic Licence Holdings Ltd) is a streaming protocol to transport multiple DMX universes over a single Ethernet cable/network.
UNITOUR 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).

11.4 sACN

Streaming ACN (sACN) is an informal name for the E1.31 streaming protocol to transport multiple DMX universes over a single cat 5 Ethernet cable/network.

11.5 RDM

RDM stands for Remote Device Management. It is an “extension” to DMX. Since the inception of DMX, it has always been a ‘one way' control system. Data only ever flows in one direction, from the lighting controller outwards to whatever it may be connected to. The controller has no idea what it is connected to, or even if what it's connected to is working, switched on, or even there at all. RDM changes all that allowing the equipment to answer back!

An RDM enabled moving light, for example, can tell you many useful things about its operation. The DMX address it is set to, the operating mode it is in, whether its pan or tilt is inverted and how many hours since the lamp was last changed.

But RDM can do more than that. It is not limited to just reporting back, it can change things as well. As its name suggests, it can remotely manage your device.

RDM has been designed to work with existing DMX systems. It does this by interleaving its messages with the regular DMX signal over the same wires. There is no need to change any of your cables but because RDM messages now go in two directions, any in-line DMX processing you have needs to be changed for new RDM hardware. This will most commonly mean that DMX splitters and buffers will need to be upgraded to RDM capable devices.

12 Compliance Statements

The UNITOUR from LSC Control Systems Pty Ltd meets all required CE (European) and RCM (Australian).

CENELEC (European Committee for Electrotechnical Standardization).

CE

Australian RCM (Regulatory Compliance Mark).

***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-