



HOUSTON X

LSC's Monitoring and Remote Configuration Software

User Manual

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1 Product Description

1.1 About this Manual

This “HOUSTON X User Manual” describes the installation and operation of the HOUSTON X monitoring and control software.

Throughout this manual:

- A word in **BOLD** text represents a button on the screen.
- Emphasis is indicated by underlining.
- *Notes and hints are in italic font*

1.2 HOUSTON X Overview

HOUSTON X is a computer program that remotely monitors supported LSC devices for alarms such as over temperature, loss of phase supply, circuit breaker trip etcetera and brings those alarms to your immediate attention and it is also a remote configuration software tool that gives you the absolute authority to interrogate and instantly change parameters of supported LSC devices. HOUSTON X can be simultaneously run on multiple computers/devices. For example, one in the technical manager's office, one in the control bio-box and one at the stage manager's desk.

The HOUSTON X software is free (no cost) to download and install on as many computers as desired. It is currently available for Windows computers. A Mac version will be available in the future.

Each LSC device requires a license key to enable configuration via HOUSTON X. Some devices include a free license. Other devices require the purchase of an annual license to enable configuration via HOUSTON X. See section 3. All HOUSTON X compatible devices can be discovered in HOUSTON X as soon as they are connected, regardless of whether they are licensed or not.

Unlicensed devices only show basic information (DMX address, RDM ID, Status) and can be physically identified via HOUSTON X's “Identify” button which will give a visual response on the device.

Licensed devices add the ability to view and edit all the configuration data of the device. All status indicators from each device 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 occurrence. A large on-screen indicator gives an immediate visual of the status of the entire system. The colour green for the “all clear” no alarm status, red for new alarms and when all alarms have been acknowledged, the indicator changes to yellow. See section 0 for alarm indicators.

1.3 Supported LSC Devices

The following LSC devices support HOUSTON X.

- APS. Advanced Power distribution System
- GEN VI. Dimmer/Power Distribution
- MDR-DIN. DMX Splitter
- LED-CV4. LED Dimmer
- Mantra Mini. DMX playback
- UNITOUR. Premium Portable Power System
- UNITY. Installation Dimmer/Power Distribution
- Nex2-DIN. Ethernet (Art-Net, ShowNet and sACN)/DMX converter
- NEXEN. Ethernet/DMX convertor
- FilmPro. Dimmer

2 Typical Applications

Rental companies can use HOUSTON X to easily reconfigure devices before and after a hire. Rather than having to manually reconfigure multiple devices by hand, HOUSTON X can reconfigure multiple devices simultaneously. The process is quicker and less prone to user error than the old-fashioned manual method.

Dimmer racks can have the fade curve, min/max levels and channel modes altered remotely. The simple spreadsheet grid allows you to sort the information by column type, allowing for example, all the dimmers with a 120v dimmer curve to be grouped together, even when they are spread across multiple dimmers in a venue.

A common request a system technician gets is to power cycle a device in the rig. Sometimes a LED video panel, a computer or a moving light needs a hard reset which can be achieved by power cycling the device. When used in conjunction with LSC's APS (Advanced Power System) or UNITOUR devices, it allows the technician to remotely turn channels off and back on. This is ideal for hard power resets, as well as powering down devices when they are not required.

If a generator is being used, APS and UNITOUR will report the incoming voltage and/or phase variations to HOUSTON X for the technician to interpret and act upon before a major failure occurs.

HOUSTON X provides a simple overview of status and faults. New faults are "red", acknowledged faults are "yellow" and all good is "green"

2.1 Additional Device Features

Some LSC devices have additional functionality enabled when licensed to operate with HOUSTON X.

For example,

- GEN VI dimmers have additional dimmer curves available as well as one-click mode setting to set the unit to TruPower and AutoPower in one operation
- The LED-CV4 allows 8-bit or 16-bit mode selection, as well as power limits and fade curves
- The APS provides one-click mode selection for on/off/auto power/DMX control
- All devices allow the individual channels to be named for easy identification
- You can configure many individual devices as one larger device. For example, four 12 channel GEN VI dimmers can be configured as one 48 channel unit. Select all the channels, enter a base DMX address and HOUSTON X will patch all of the channels in order.

Refer to each devices "User Manual" for more information on specific features.

3 Connections/Protocols

HOUSTON X supports published “Industry Standard” protocols to communicate with the supported LSC devices.

The computer running HOUSTON X is connected to a network switch via wired or wireless infrastructure allowing the HOUSTON X computer to be located anywhere and still have complete control.

The LSC devices that HOUSTON X will monitor and control are also connected to the same network. Some LSC devices do not have an ethernet port so they must have their DMX/RDM signal connected to an interface that converts the DMX/RDM to Art-RDM (Art-Net with RDM) and this is connected to the network. The devices that require an interface are listed below together with some typical setups.

Hint: When choosing a network switch, LSC recommends the use of a NETGEAR managed switch.

3.1 Devices with direct Ethernet Connection

The following LSC devices use Ethernet (TCP/IP) so they can be directly connected to the HOUSTON X computer via a managed network switch.

LSC Device	License	Connection
UNITOUR (Portable Power System)	\$	Ethernet
UNITY (Dimmer/Power Distribution system)	\$	Ethernet
NEXEN (Art-Net, sACN, DMX converter)	\$	Ethernet
Mantra Mini (DMX playback unit)	\$	Ethernet

3.2 Devices requiring an Interface Connection

The following LSC devices do not have an ethernet port so they must be connected to the HOUSTON X computer via an interface that converts their DMX/RDM to Art-RDM. HOUSTON X connects to the ethernet port of the interface and the LSC device connects to the DMX port of the interface. See below for a list of suitable interfaces.

LSC Device	License	Connection
APS (Configurable Power Distribution)	\$	RDM
GENVI (Power Control and Dimmer)	\$	RDM
MDRD (DMX512/RDM splitter)	Free	RDM
LED-CV4 (4-channel LED dimmer)	Free	RDM

3.4 Interfaces

The following LSC devices can be used as a DMX/RDM to Art-RDM interface to allow other LSC devices to communicate with HOUSTON X.

Interface	License	Connection
NEXUS (Ethernet/DMX Converter)	Free	Ethernet-DMX/RDM
Mantra Mini (DMX playback unit)	Free	Ethernet-DMX/RDM
NEXEN (Ethernet/DMX Converter)	Free	Ethernet-DMX/RDM

The following 3rd party DMX/RDM to Art-RDM interfaces can also be used as a to allow LSC devices to communicate with HOUSTON X.

Interface	License	Connection
ELC	Free	Ethernet-DMX/RDM
Artistic License	Free	Ethernet-DMX/RDM
Luminex	Free	Ethernet-DMX/RDM
Strand	Free	Ethernet-DMX/RDM
Swission	Free	Ethernet-DMX/RDM
DMXking	Free	Ethernet-DMX/RDM
Madrix	Free	Ethernet-DMX/RDM

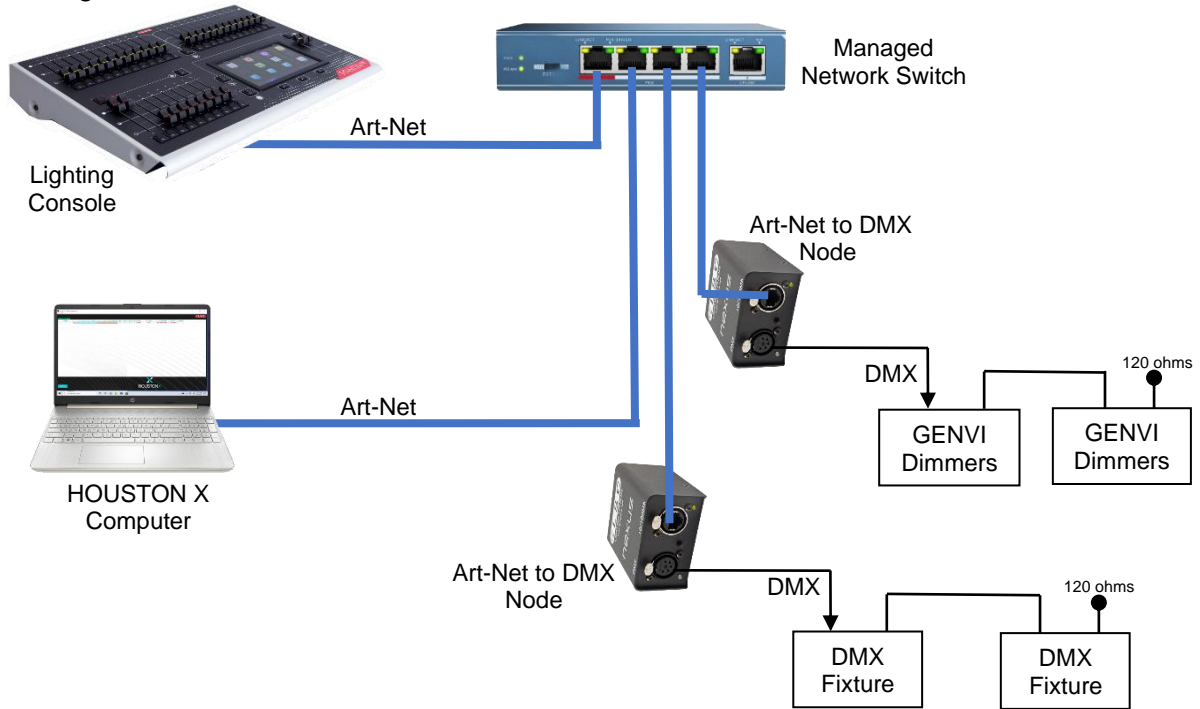
Note: Pathport interfaces do NOT support the industry standard Art-RDM protocol. Therefore, they cannot be used with HOUSTON X.

Hint: When using DMX-RDM, minimise the quantity of DMX devices that are connected to each DMX output because the RDM adds data which can slow down the response time of the connected devices. The DMX standard recommends a maximum of 32 devices per DMX port.

3.5 Typical Setups

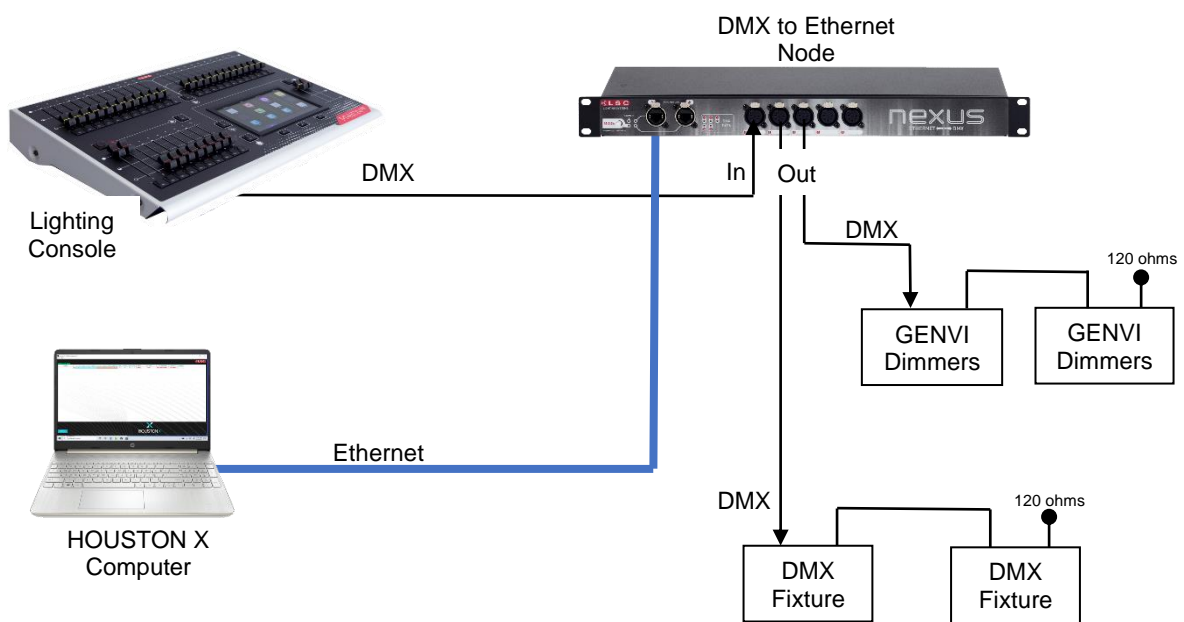
Simple Art-Net Setup

The Art-Net from the lighting console is connected to the Network Switch which feeds the Art-Net/DMX nodes. The nodes provide DMX to the rig. The HOUSTON X computer is also connected to the network allowing HOUSTON X to monitor and control all the GENVI dimmers in the rig.



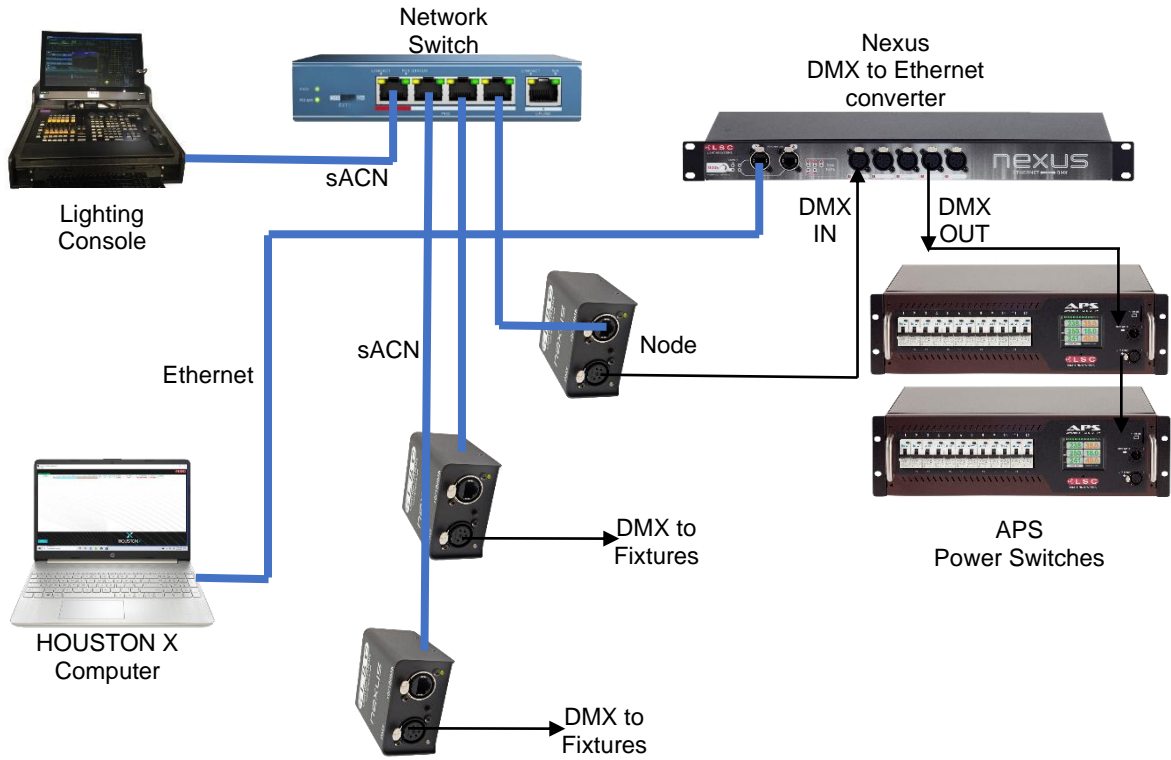
Simple DMX Setup

The lighting console controls dimmers and fixtures via DMX. The Nexus (DMX to Ethernet Node) converts the DMX/RDM to Ethernet which connects to HOUSTON X allowing it to monitor and control all the GENVI dimmers.



Simple sACN Setup

The Nexus passes the DMX/RDM from the node to the APS power switches but also converts the DMX/RDM to Ethernet which connects to HOUSTON X allowing it to monitor and control all the APS power switch channels.



4 HOUSTON X Software

4.1 Operating Platforms

Houston X is designed to run on Windows computers. Houston X can be run on multiple computers/devices around the venue. For example, one in the technical manager's office, one in the control bio-box and one at the stage manager's desk

In a future release, HOUSTON X will support the MAC operating system and will also provide the added convenience of mobile technology by supporting Android and iOS tablets. Carry your device with you and be alerted immediately when a fault occurs. Set or change parameters of the rig whilst you are on stage during rehearsals. No need for a hardwired connection.

4.2 Software License

Houston X is a free download, however each individual LSC device needs to be licensed to work with HOUSTON X. Some devices include a free license when purchased. Other devices require an license to enable configuration via HOUSTON X.

HOUSTON X will find unlicensed devices (allowing you to purchase a license for that device) and it also show basic information (DMX address, RDM ID, Status). The "Identify" function also works allowing you to find the device in question (see section 5).

Licensed devices also allow for all the configuration data of the device to be viewed and edited by pressing the [+] button next to the device's label column in its grid view tab. The exact data that can be edited will vary from device to device.

The cost of each device license varies. See section 4.7 for details on how to purchase, install and renew licenses.

A licenced device will work with an unlimited number of HOUSTON X clients. In a venue, this allows staff to use multiple house computers or even their own computer running HOUSTON X. A rental company can license all their inventory and renters have instant access running HOUSTON X on their own devices.

Existing LSC devices can be easily enabled for HOUSTON X by ensuring that their software is the latest version (which includes HOUSTON X connectivity). This approach means that even a 10 year old GENVI dimmer rack can work with HOUSTON X, simply by installing the latest software in the GENVI and buying a HOUSTON X license for it.

4.3 Download and Install Houston X

The HOUSTON X software is a free down from the LSC website.

On the LSC website (www.lsccontrol.com.au) click on "Devices" then "Control" then "Houston X". At the bottom of the screen click "Downloads" then click on the "Installer" for your operating system, either Windows or MAC. (MAC is a future release).

The software will download, however your operating system might warn you that "HoustonX Installer is not commonly downloaded". If this message appears, hover your mouse over this message and 3 dots appear. Click on the dots then click "Keep". When the next warning appears click "Show more" then click "Keep anyway".

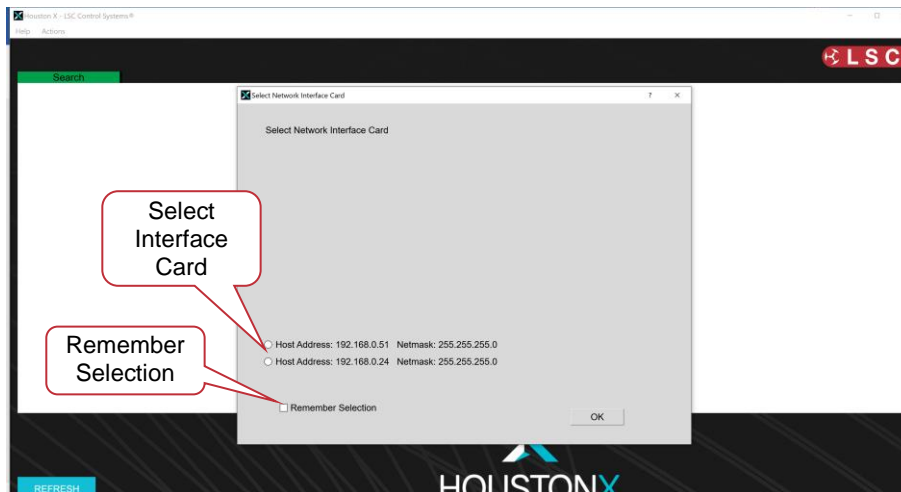
The downloaded file has the name "HoustonXInstaller-vx.xx.exe where x.xx is the version number. Open the file by clicking on it.

You might be advised that “Windows protected your PC”. Click “More Info” then click “Run Anyway”. The “Houston X Setup Wizard” opens. Click “Next” then follow the prompts to install the software answering “Yes” to any permission requests. Houston X will be installed in a folder named Program Files/LSC/Houston X.

To run the program double click “HoustonX.exe”.

4.4 Select Network Interface Card

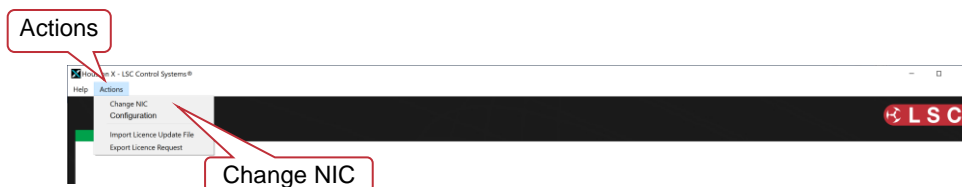
When you first run HOUSTON X, if the program detects more than one Network Interface Card on the computer it will open the “Select Network Interface Card” (NIC) window.



Click the card that is being used to connect to your lighting network. If you click “Remember Selection”, HOUSTON X will not ask you to select a card the next time you start the program.

4.4.1 Change Network Interface

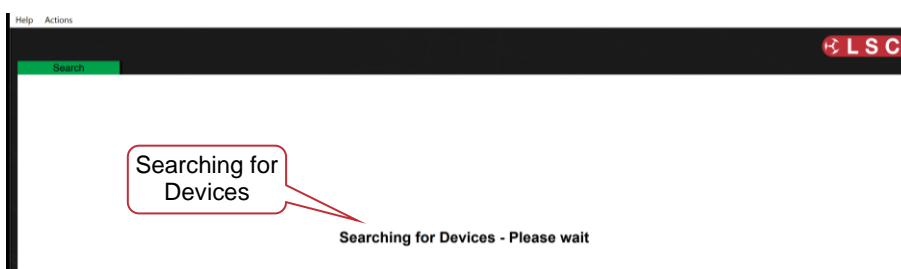
If you do need to change to a different “Network Interface Card”, click **ACTIONS**, **Change NIC** (Network Interface Card), **OK**.



Restart HOUSTON X and select the required Network Interface Card.

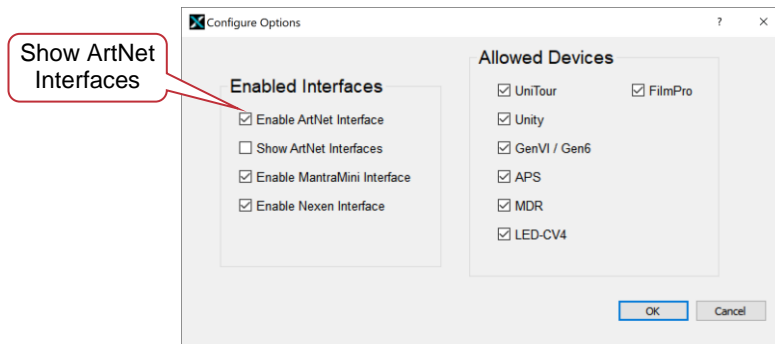
4.5 Device Discovery

Once installed and connected to the system, HOUSTON X will auto-discover all compatible LSC devices.



4.6 Configuration Options

You can select the devices and interfaces to be enabled or shown on HOUSTON X. From the main menu select **Actions, Configuration**.



The default settings are,

- All interfaces are “Enabled”
- “Show ArtNet Interfaces” is not “Enabled”
- All Devices are “Allowed”

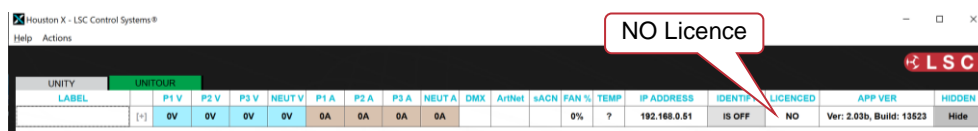
Un-tick the Devices that you do not want to see.

Un-tick the Interfaces that you do not want to enable. If any interface is not enabled, then all devices connected to that type of interface will not appear in a device Tab. For example, you might be using HOUSTON X in a venue that has devices in one location connected via Artnet interfaces and devices in another location connected via Nexen interfaces and they are all on the same network. You are only interested in the Nexen connected devices. Un-ticking “Enable ArtNet Interface” will turn off any ArtNet interfaces so that any RDM devices connected to those ArtNet interfaces will not be seen in HOUSTON X.

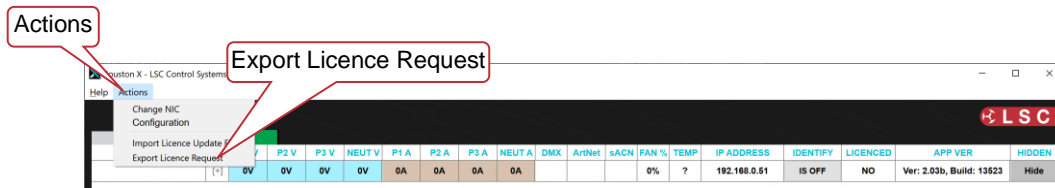
Enabling “Show ArtNet Interfaces” can be useful when interrogating or fault finding on the network. If HOUSTON X detects any ArtNet devices on the network and “Show ArtNet Interfaces” is enabled, HOUSTON X creates a tab (like a Device tab). Clicking on that tab shows a list of the interfaces. Each interface in that tab shows information about that interface and, depending upon the type, some functions can be controlled by HOUSTON X including the ability to see and change an ArtNet Interface’s IP address. Use caution if changing the IP address.

4.7 License Request

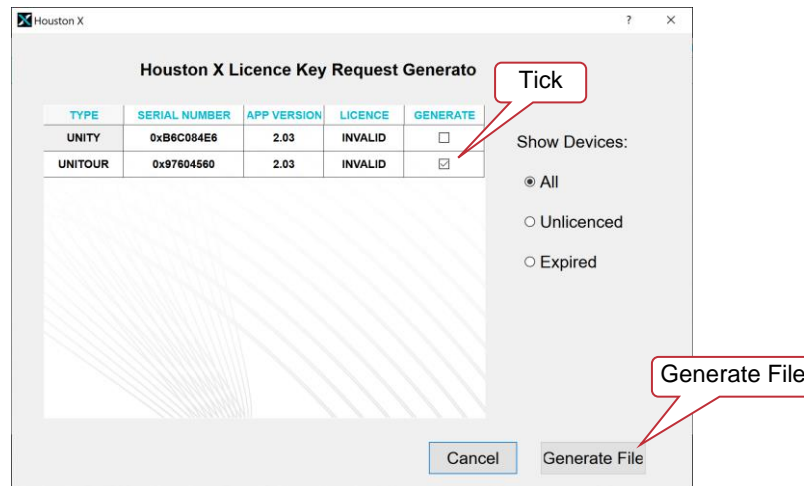
Un-licensed LSC devices are shown but cannot be expanded or controlled until they are licenced.



To purchase a HOUSTON X licence for a device, on the title bar click **Actions**, then **Export Licence Request**.



The “Licence Key Request Generator” opens,



Select the device that needs to be licenced by clicking its “GENERATE” box (to show a tick) then click **Generate File**. Name and save the file to a known location on your computer.

Email the file to houstonx@lsccontrol.com.au

LSC will contact you about the fee for the licence and upon receiving your payment will email a licence file to you.

On receipt of the Licence file, in HOUSTON X click **Actions**, then **Import Licence Update File**. Select the Licence file then click **Open**. The “Loading Licences to Devices” dialogue box shows the progress. Click **OK**.

The device now shows as licenced and can be accessed if allowed by the device. See “PIN Access” below.

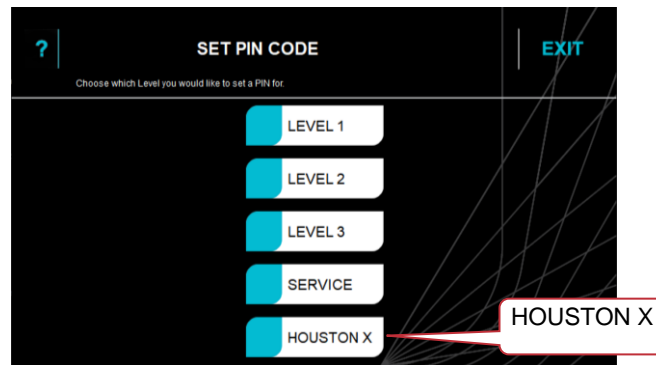
Note: The “Licence” cell in HOUSTON X will turn yellow when the licence has less than 1 week remaining.

4.8 PIN Access

When initially licencing or renewing a licence, each device requires you to enter a PIN. The PIN prevents unauthorised HOUSTON X access to the devices. Once this PIN is entered all the settings are displayed in HOUSTON X and can be edited.

The method of entering the PIN varies depending upon the device.

- In UNITY and UNITOUR devices, the PIN for HOUSTON X access is set using the touch screen menu on that device. On the touch screen, log in then touch **ADVANCED, SYSTEM SETTINGS, SET PIN CODES, HOUSTON X** and enter your desired PIN than touch **SAVE**. Repeat the PIN then touch **SAVE**.

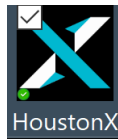


UNITY PIN Code Menu

- In all other LSC devices that require a licence, when the licence is activated in HOUSTON X, a pop-up window appears in HOUSTON X allowing you to enter a PIN code. The PIN that you enter is sent to the device and is stored in that device. To change the PIN, reload the license file, then enter a different PIN and this will replace the old PIN in the device.

5 HOUSTON X Operation

Open the HOUSTON X application on your computer.

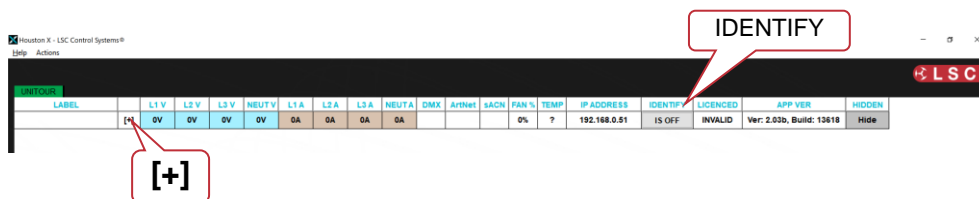


HOUSTON X searches for all valid devices connected to the computer over ethernet. All devices found (whether licensed or not) appear in the relevant device tabs (one per device type) at the top of the screen.

Click on a tab to see the details of that device. The device tabs can be re-arranged by clicking and dragging them left or right.



When a device tab is selected it shows the global settings for the device. It also allows you to identify the device by clicking the “IDENTIFY” **IS OFF** cell. The cell changes to **IS ON** and the device will indicate that HOUSTON X is identifying it by either displaying a message in its screen or flashing its LEDs, depending upon the device. This is particularly useful when multiple devices of the same type are in use. You can be sure that you are controlling the correct device.



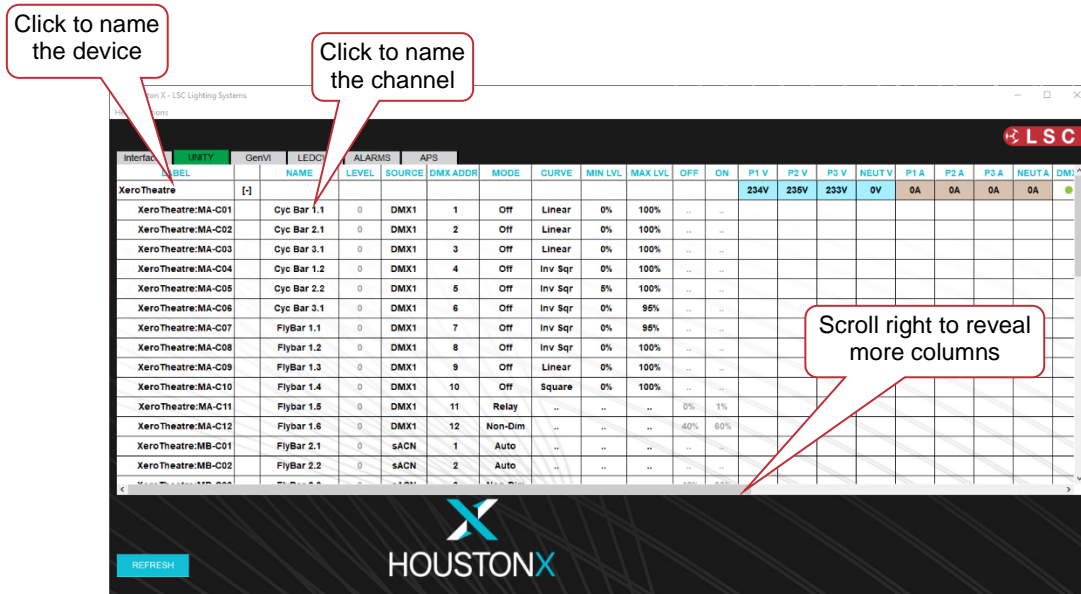
Click the **[+]** button to expand the display to show all the parameters of the device and allow the parameters to be edited as shown below. The spreadsheet-style user interface of HOUSTON X allows fast configuration of devices.

You might be required to enter a PIN to access the device. See section 4.8

Note: Unlicensed devices will have the [+] button ‘greyed’ out and clicking the button will pop-up a message explaining the device is unlicensed.

The “LABEL” of each device on the network can be named for ease of identification and the individual channels of each device can also be labelled which is useful for identifying what is connected to each output.

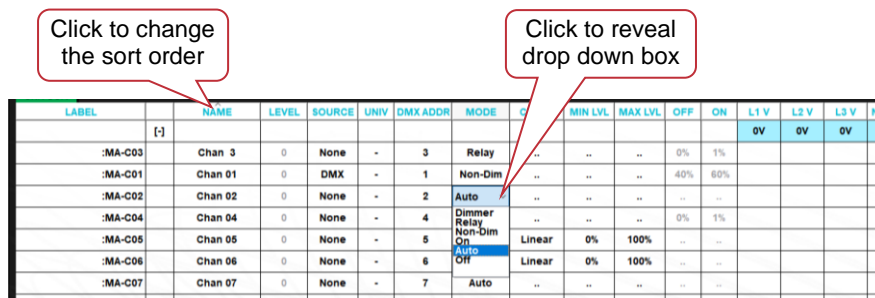
You can change the sorting order of any column by clicking on the column name.



Display expanded by clicking the [+] button

Click a cell to change the data in that cell. Some cells are Read-Only and cannot be edited.

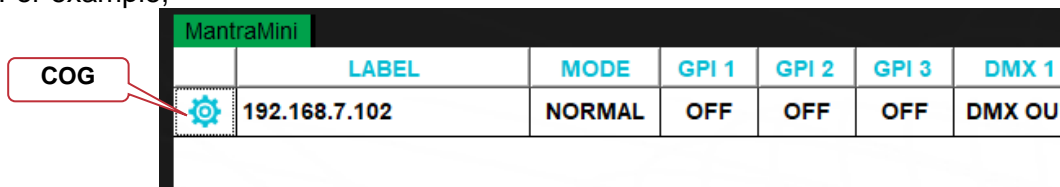
Some cells allow you to enter data directly such as a name or a DMX address and some cells will display a drop-down box allowing you to make a selection such as the operating mode of a channel or the curve of a dimmer.



You can also click and drag down a column to select a range of channels then use a single mouse click to change the curve, set the mode, patch a DMX address or change a channel from dimmer to switch mode, for all of the selected channels.

Some device tabs will include a “COG” symbol.

For example,



Clicking on the COG will open a “Settings” window that contains some buttons that are specific to that device. Typically, these buttons will include a “Reset” button and a “Reset to Defaults” button.

The changes that you make are automatically sent to the connected device. HOUSTON X continually polls all the devices for their data. When HOUSTON X next polls the device that had the new settings sent to it, the grid view will update. This ensures that what you see in HOUSTON X is the actual current data in that device.

There might be a slight delay before the changes are displayed in HOUSTON X, especially when the device is connected by RDM because the RDM data has low priority. Devices that connect via ethernet will update quickly.

5.1 Device Software Update

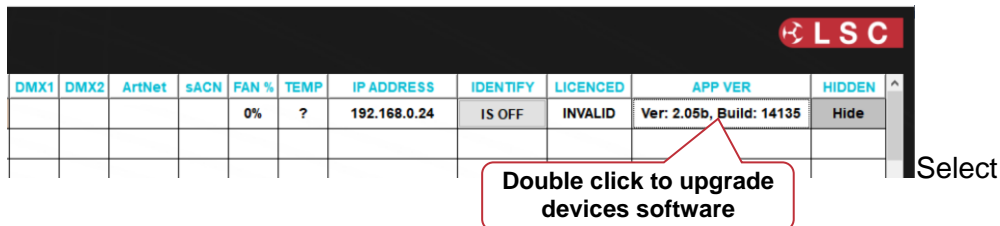
The following LSC devices can have their software updated via HOUSTON X.

- MDRD
- LED-CV4
- NEXEN
- FilmPro

The following LSC devices can have their software updated via HOUSTON X, but only if they are running Bootloader v2.05 or later.

- APS
- GENVI

Download the latest version of the devices software from the LSC website and save it to a known location on your computer. To upgrade the software, connect HOUSTON X to the device then select that devices tab in HOUSTON X. Double click in the cell that displays the current version (located below the “APP VER” label).



DMX1	DMX2	ArtNet	sACN	FAN %	TEMP	IP ADDRESS	IDENTIFY	LICENCED	APP VER	HIDDEN
				0%	?	192.168.0.24	IS OFF	INVALID	Ver: 2.05b, Build: 14135	Hide

The “Find Update File” window appears. Navigate to the location where you saved the downloaded software version then click **Open** and follow the on-screen instructions.

The following LSC devices cannot be updated via HOUSTON X.

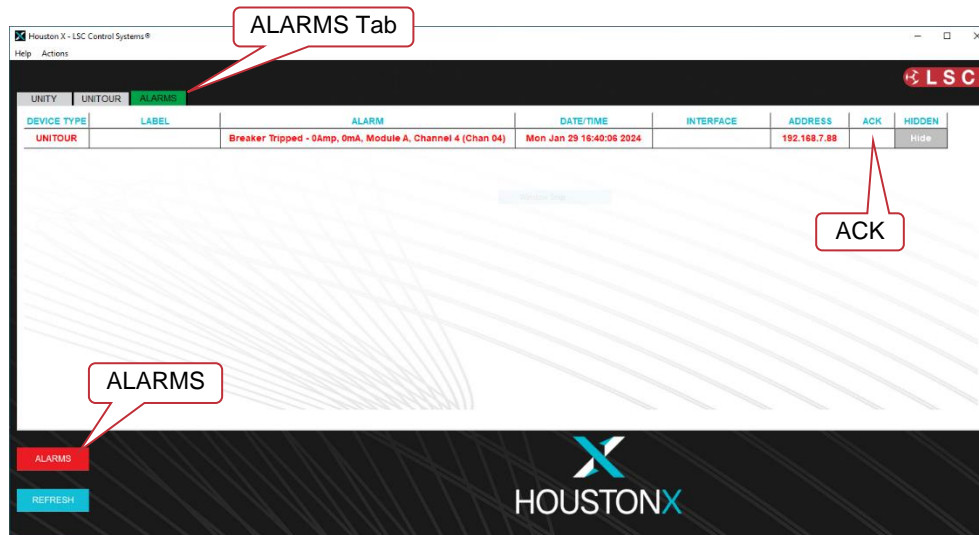
- UNITY
- UNITOUR
- Nexus

Refer to their individual User Manuals for software update instructions.

6 Alarms

HOUSTON X remotely monitors licensed LSC devices for alarms such as over temperature, loss of phase supply, circuit breaker trips, etcetera. The real-time monitoring of HOUSTON X shows this critical information for all connected devices no matter where they are located. You can see what is happening and detect potential issues before they become critical faults.

When an alarm occurs, the red “ALARMS” button appears at the bottom of the screen. Click the **ALARMS** button to open the ALARMS tab.

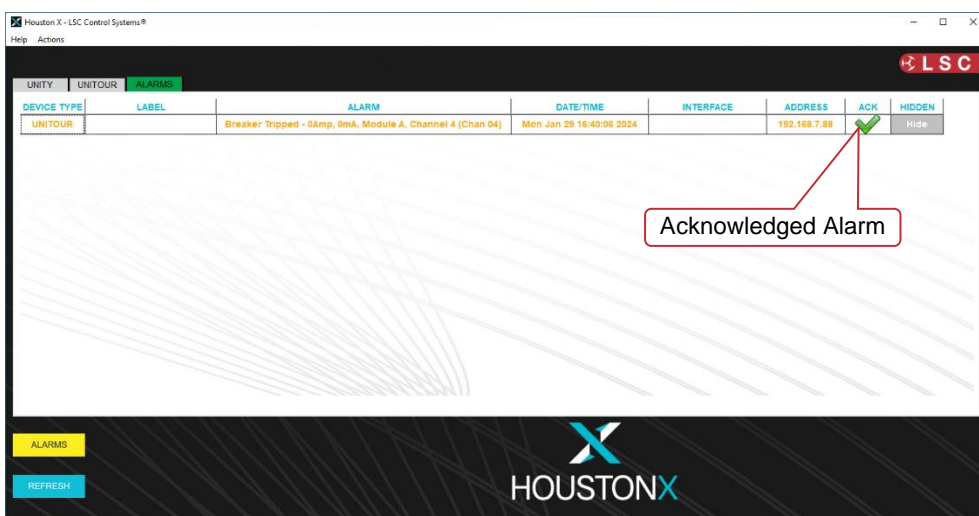


The alarm shows the device name, channel name, time and date of the fault along with a description of the issue.

6.1 Acknowledged Alarms

If the cause of the alarm cannot be immediately resolved (such as resetting a tripped breaker) you can “acknowledge” an alarm by clicking in its **ACK** cell. A green tick appears and the status of that alarm changes from red to yellow to signify that the alarm has been acknowledged.

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



7 Feature History

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

Release: v1.06 Date: 6-February-2024

- Added support for NEXEN portable devices
- Improvements to display and sorting of numeric values (i.e. DMX address, Max/Min levels). In the past these were all displayed as 3 digit numbers with leading zeros (eg. 001). They are now displayed in numerical order without requiring leading zeros.
- The display of AutoPower channels has been enhanced. The Level and DMX address items are now disabled if the channel is set to AUTO, ON or OFF. If the channel mode in ON or OFF, the DMX source is also hidden.
- The “Show ArtNet Interfaces” tab is now hidden by default. This tab is generally only required when fault finding new installations and is a ‘read-only’ tab – it is not possible to change anything. Some users found this confusing, particularly as some devices (i.e. NEXEN and Mantra Mini) act as both devices and interfaces, so the interface tab is now hidden unless the user explicitly enables it via the config menu.
- The ‘Searching for Interfaces’ message has been tweaked. On start-up it now shows a ‘Searching for Devices’ message, that disappears as soon as any LSC device has been discovered
- If there is no network connection, HOUSTON X now exits with a simple warning message, rather than continually asking the user to select a non-existent network adaptor

Release: v1.05 Date: 12-December-2023

- This version was never released to the public

Release: v1.04 Date: 11-August-2023

- It is now possible to push software updates to GENVI and APS from HOUSTON X via RDM. The units must have v2.05 bootloader installed for this functionality to operate
- Added support for NEXEN devices
- In cell editing has been vastly improved. It is no longer necessary to double click on a cell. Just select the cell and start typing
- Multi-cell selection and editing has also been improved

Release: v1.03 Date: 14-November-2022

- The universe labelling/numbering has been completely overhauled, to reduce confusion
- Alarms are now updated in the background, even if the tab is not visible
- Firmware updates to DIN devices are now significantly faster due to a new algorithm
- Missing/lost interfaces can now be removed from the tab

Release: v1.02 Date: 14-November-2022

- Art-Net universes are now numbered in simple decimal (1-32,768) instead of the legacy format (0.0.0 – 127.15.15)

Release: v1.01 Date: 14-November-2022

- This version was never released to the public

Release: v1.00 Date: 2-December-2021

- First Public Release (Windows only).

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