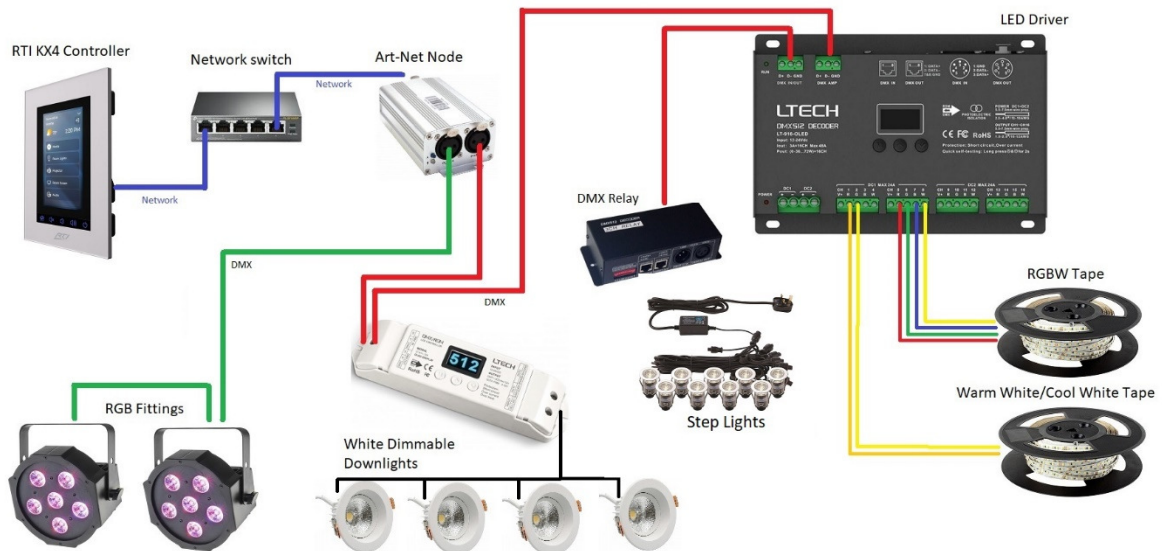# Artnet Lighting Driver

Setting up a simple Cinema Room lighting

In the image bellow we can see the components of the Cinema room lighting system that we want to control using RTI, Art-Net and DMX.


We have an RTI KX4 wall panel that acts as our processor. A network switch to power the KX4 via POE. An Art-Net node on the same network as the processor. Two LED par cans that throw colour onto the projection screen when there is no content being shown. 4 white downlights with a DMX decoder providing general lighting that needs to be faded down when the movie is showing. A kit of decking lights used as step lights. These are not dimmable as the power supply is part of the kit so we will use a DMX relay to switch them. Some Warm White/Cool White LED tape that is in a plaster cove around the edge of the room. Some RGBW tape that runs around a pelmet in the middle of the room. Both tapes are driven from an Ltech 16 channel driver. This setup demonstrates all the different types of fittings that the driver can accommodate.

Setting up the Art-Net node.

The driver has been tested using a Chauvet DMX-AN2 Art-Net node. This is a very economical unit and will give two DMX outputs if setup correctly. First find the Art-Net node on your network. By default the AN2 is set to IP address 2.0.0.1. Change this to an address on your network and browse to that address.

Fix the IP address and set the DMX universe to 1 for both outputs as shown. This will give you duplicate outputs that may save you having to use a DMX splitter or amplifier.
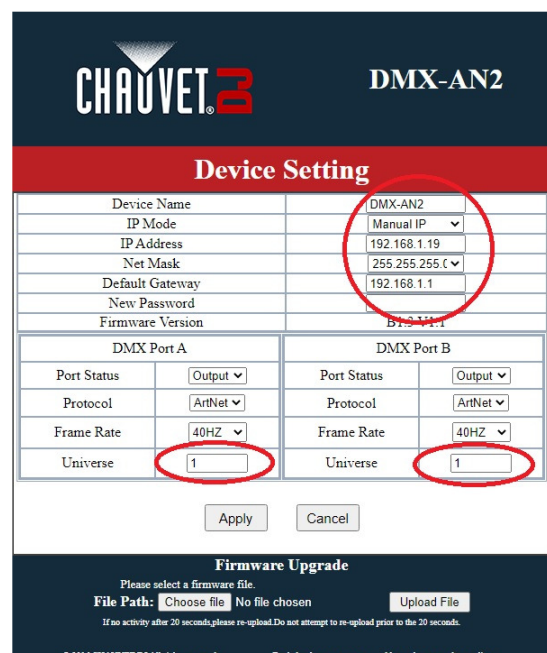
Choosing and setting DMX addresses.

Warning!!!

This driver will cause very high CPU usage if not setup correctly.

Art-Net requires that a constant stream of Art-Net packets is sent between the processor and the Art-Net node. This takes CPU time to calculate the value for each channel, build the packets and send them over the network. If we keep the packets as short as possible then there will not be any issues with CPU usage.

To do this, keep your fittings as close together as possible starting from address 1. If you only had one single channel fitting but put it at address 512, this would cause CPU usage issues. Using 100 channels on an XP-8s processor will use about 14% CPU according to XP Diagnostics. In the worst case if you had 20 RGBW fittings this would only use 20 x 4 = 80 channels if they all used adjacent DMX addresses.

We also need to make sure we don't have any address conflicts by having fittings on the same DMX address. Odd things will happen to your lighting levels if there is a conflict. The best option is to write out a quick table as bellow.

DMX Address	Fixture Name	Function
1	Downlights	Dimming Channel
2	RGB Par Cans	Red
3		Green
4		Blue
5	Step Lights	On/Off via DMX relay
6	Ltech Driver Output 1.1	Warm White/ Cool White Tape, Warm Channel
7	Ltech Driver Output 1.2	Warm White/ Cool White Tape, Cool Channel
8	Ltech Driver Output 1.3	Not Used
9	Ltech Driver Output 1.4	Not Used
10	Ltech Driver Output 2.1	RGBW Tape, Red
11	Ltech Driver Output 2.2	RGBW Tape, Green
12	Ltech Driver Output 2.3	RGBW Tape, Blue
13	Ltech Driver Output 2.4	RGBW Tape, White

As you can see above, we have actually waisted two channels at address 8 & 9 but this will be fine. Ideally we would swap over the RGBW and WW/CW tape and use two less channels. Our Art-Net packets will now only contain data for 13 channels. If we needed to reduce the number of channels further we could move the Downlights and the Step Lights to the address of the spare channels of the Ltech driver and shuffled all the addresses down.

Use the table to set the DMX addresses on the fittings and divers using the manufacturers instructions. Many fixtures have LED or OLED displays and buttons but some still use DIP switches.

Configure the driver.

Add your user license to the driver. The driver will function fully for two hours so you can test your system before purchasing. After two hours the driver will stop functioning. The timer resets after each reboot or upload.

Enter the IP address you previously set for your Art-Net node.

Give your room a name in the driver.

⊞ System Settings	
⊟ General Settings	
License Key	
⊟ Artnet Node Settings	
IP Address	192.168.1.19
Artnet Universe	1
⊟ Room Setup	
Room Name.	Cinema Room
Number of Fittings used. (Maximum 20)	5
Room, Fade Time	2000
Fitting 1 Name.	Downlights
Fitting 1 Type	Single Channel, Dimmable White. 1 DMX Channel.
Fitting 1 DMX address	1
Fitting 2 Name.	Pelmet
Fitting 2 Type	Red, Green, Blue, White.(RGBW). 4 DMX Channels
Fitting 2 DMX address	10
Fitting 3 Name.	Cove
Fitting 3 Type	Warm White / Cool White. 2 DMX Channels
Fitting 3 DMX address	6
Fitting 4 Name.	Screen
Fitting 4 Type	Red, Green, Blue.(RGB). 3 DMX Channels.
Fitting 4 DMX address	2
Fitting 5 Name.	Steps
Fitting 5 Type	Switched. 1 DMX Channel.
Fitting 5 DMX address	5

From the table above, enter the number of fittings in the design. In our case 5.

Enter the Name of each fitting. The fittings don't need to be in the order they appear in our table if the DMX addresses are set correctly. The names are used to populate a List that can be used in conjunction with the inbuilt Layer Switch. Use names that the user will understand.

Select the type of fitting depending on the capabilities of each fitting. There are 5 options.

1. Single Channel Dimmable White. This is best suited to our downlights that use one channel and are Dimmable.

2. Red, Green, Blue (RGB). This is suitable for three channel RGB tape or any fittings that use RGB.

3. Red, Green, Blue, White. Suitable for RGBW tape of fittings with RGBW. The white value is calculated in the driver from the RGB values. There is no separate white control.

4. Switched. These can be things like inductive loads, fittings with switch mode power supplies, projector lifts or motors.

5. Warm White/Cool White. Suitable for fittings with two tuneable white channels. Not to be confused with some of the new 'Dim to Warm' tapes.

Set the base DMX address for each fitting. Using the table of addresses will ensure you don't have any DMX address conflicts.

Once you have completed the driver configuration you can start to add buttons and sliders to control all the functions of the room.

Look at the example ID11 file that came with this document where this cinema room example is used.

Useful Links.

DMX Workshop is a software package that allows you to monitor Art-Net, setup Art-Net nodes and other useful Art-Net utilities.

https://artisticlicence.com/product/dmx-workshop/