ADVATEK LIGHTS

Creative Digital Lighting Solutions

PIXLITE CONFIGURATION GUIDE

V1.4

Contents

1 – Introduction

The Advatek Assistant allows for easy and powerful configuration of your controller. Features such as the single discovery table allow the user to search for multiple controllers on the network and have them all appear in one place for easy monitoring and configuration. This also means there is no need to have to remember the individual IP addresses of any controllers which is ideal in larger setups.

Current versions of the Assistant and PixLite firmware even allow detection of PixLite controllers on totally different network ranges that have incorrect IP configuration. The controllers can then have their network settings updated to ones that are in the correct range to talk to your computer, with ease.

New advanced features like 'auto-complete' now also make channel configuration easier than ever before.

Important: The contents of this guide assume you are using the latest version of firmware on the PixLite device. Some settings and options shown here may be missing if you are not up to date. The latest version of the firmware is available from www.advateklights.com/resources.

2 – Assistant Requirements

The latest version of the Adavtek Lights Assistant (available from www.advateklights.com/resources) needs to be installed on your machine. The Assistant will operate on either OSX (MAC) or Windows (PC) based platforms.

You should always make sure you use the latest firmware and the latest Advatek Assistant for compatibility reasons.

3 – General Configuration

3.1 – Overview

Once all controllers are connected and powered on, open the Assistant. By default it will open the "Network Devices" tab shown in figure 1.

Clicking on the "Search" button will then discover any PixLite controllers currently connected to the LAN. Each controller will appear on its own row in the main discovery window showing the following information: Model, IP Address, Nickname, Firmware Version and Current Temperature. Double clicking on a controller in the list will then bring up a separate configuration window allowing you to configure that specific controller.

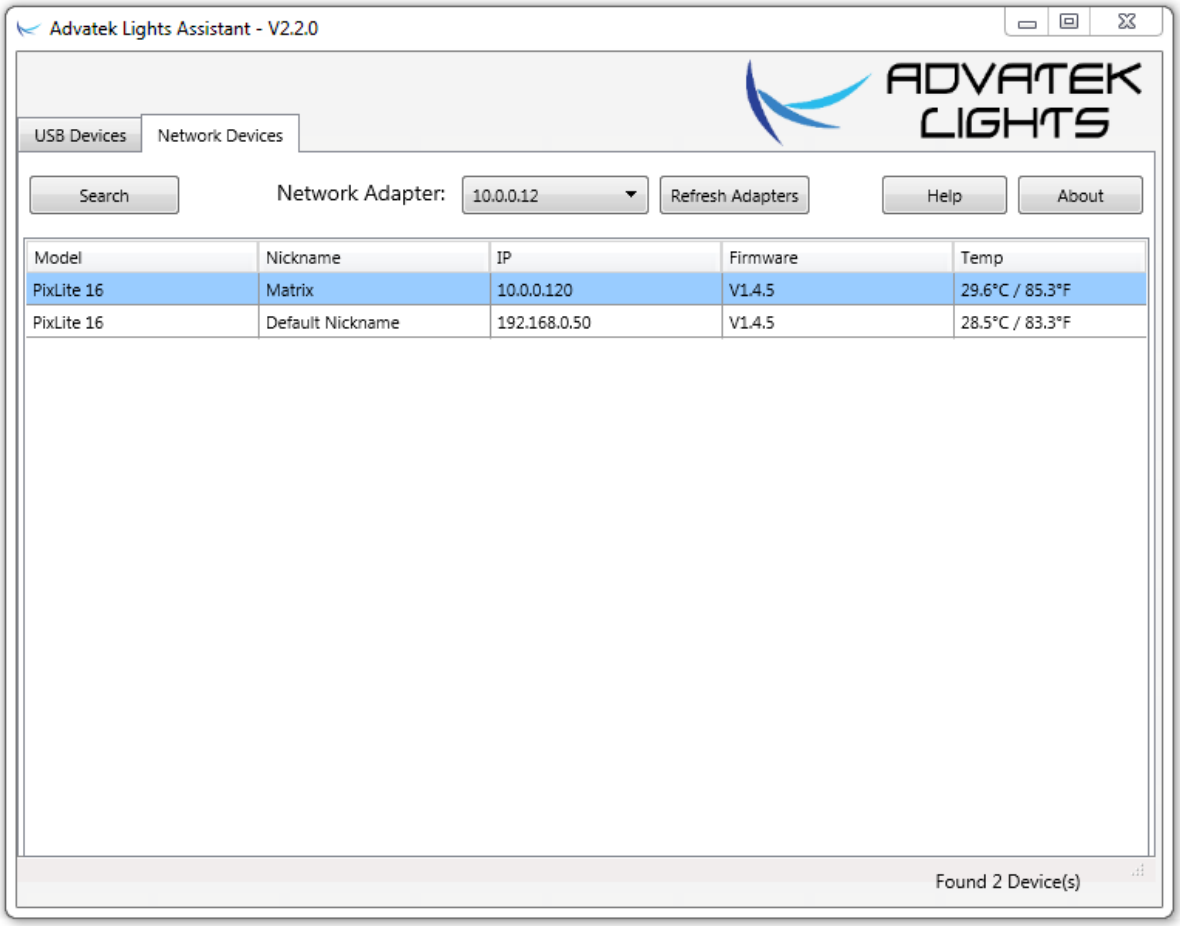


Figure 1

3.2 – Network Adapter Selection

At the top of the network devices tab you will see a drop down box showing one or more IP addresses. If there are none, it means an active network adapter was not detected on your PC. You must have one or more active cards to search for network devices.

If you have multiple network cards in your PC, such as a wireless card for your normal network and a wired card for your lighting network, you can select the one to search on here. Pressing the “Refresh Adapters” button will regenerate that list. This can be used if a network card is enabled/disabled or its IP settings are changed while the Assistant is running.

If multiple adapters are shown and you aren’t sure which one your PixLite is connected to, you can safely try them all.

3.3 – Controllers with Invalid IP Settings

Sometimes a PixLite controller may be connected to your network and have invalid IP settings. This is common when moving a controller to another network or using the controller for the first time, or you may have just forgotten the IP address. As of Advatek Assistant version 2.2.0 and PixLite firmware version V1.4.5 there is a solution to this.

The Assistant will still detect these controllers and add them to your controller list. You can see an example of this in figure 1. In this example our PC is set to 10.0.0.12 as shown in the adapter box and there's an already configured PixLite at 10.0.0.120. A brand new PixLite 16 has been connected to the network switch. As there is no router with DHCP capabilities on the network, the controller has used its default IP of 192.168.0.50 which will prevent us from properly operating the device. However if we double click on the new controller a message pops up as shown in figure 2.

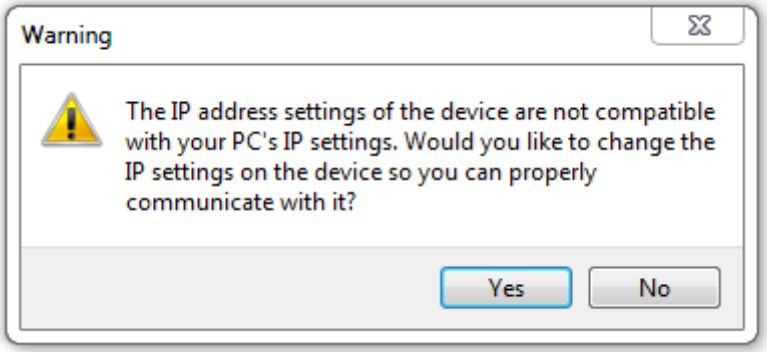


Figure 2

If we click yes to this we can now change the controller's IP settings to something in our network range without ever needing to change our computer's IP settings.

4 – Controller Configuration

4.1 – Basic Configuration

4.1.1 – Network

In this tab the user can specify the static IP address and subnet mask that the controller will operate on as well as the type of IP connection. If you wish to use the IP address that you manually type in, make sure to select the 'Static' button.

If you wish to let the controller be assigned an IP automatically by a router, select the 'DHCP' button. DHCP is the default mode of operation and will allow the controller to connect instantly to most home or corporate networks that have a router.

If you are connecting your controller directly to your PC or via a basic network switch on a network without a router, you will need to use a Static IP address.

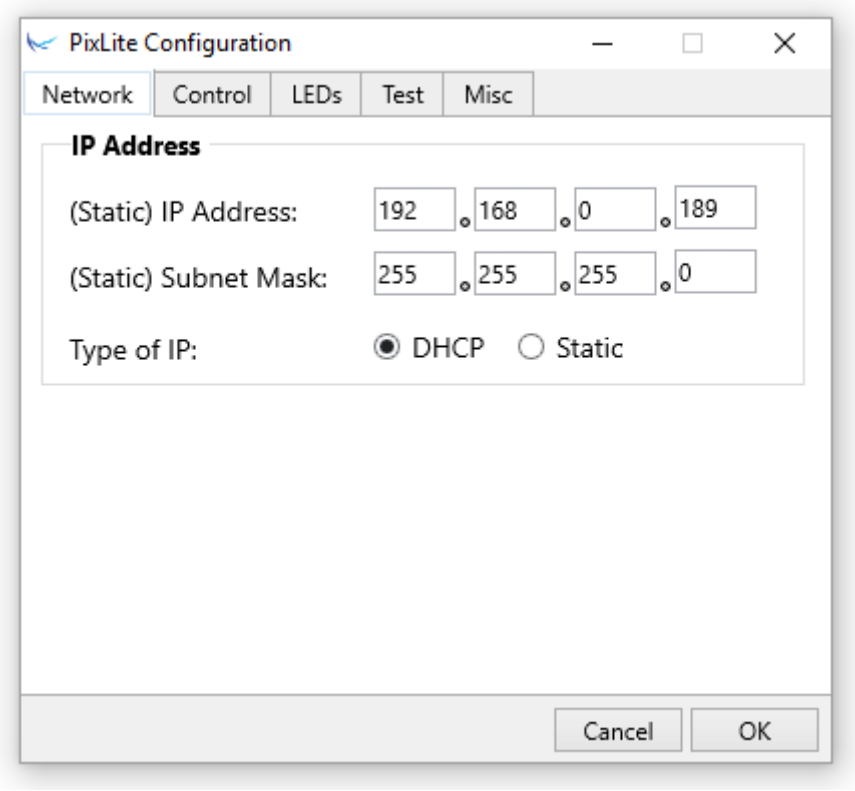


Figure 3

4.1.2 – Control

This tab allows you to automatically setup your pixel fixture very quickly by simply specifying the start universe, start channel and the number of pixels per output. The Assistant then automatically allocates the correct sequential universe addressing for all the pixels on all the outputs for you. This is very useful if your fixture has the same number of pixels on each of the outputs. If more specific control is needed for your application, the “Advanced” checkbox can be selected. Refer to section 4.2 of this guide for information on advanced settings.

The ‘Hold Last Frame’ checkbox allows you to tell the controller that it should continue to hold the last received data frame on all outputs if the controller stops receiving input data. Leaving it unchecked (default) will result in the controller timing out and blanking all outputs after a few seconds of not receiving any valid input data.

Lastly, the DMX512 outputs are also configured from this tab. Each of the four outputs can be turned on or off using the slider and the sACN universe of each DMX512 output can be specified.

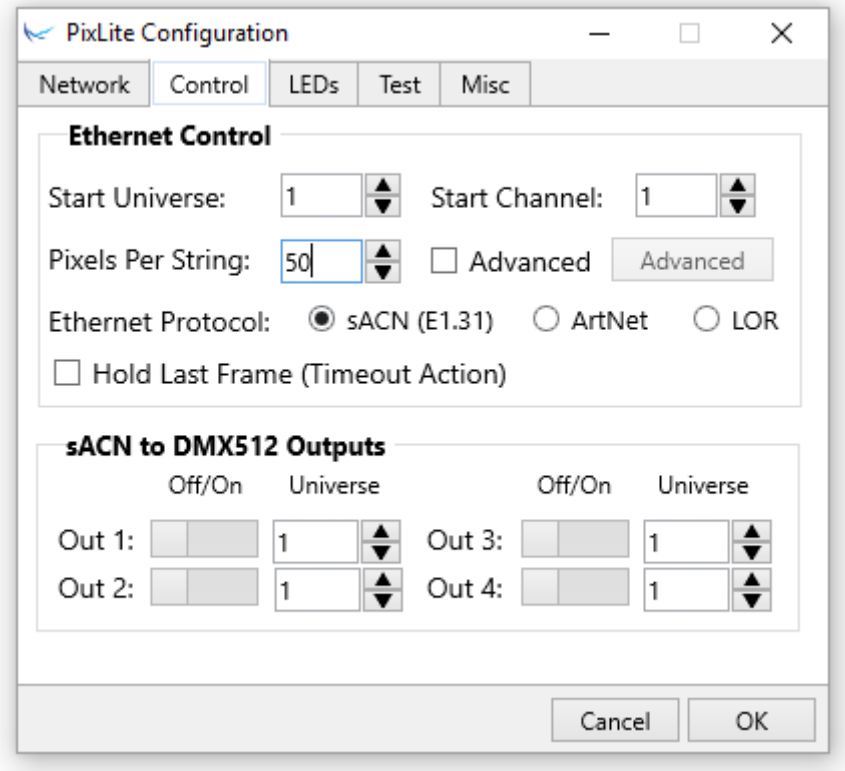


Figure 4

4.1.3 – LEDs

This tab allows you to select the type of pixel IC you wish to control, set the RGB color order and specify any gamma correction.

Chip Type

You can only operate a single pixel chip protocol from a single controller (eg. you can't run the WS2811 protocol on strings 1-8 and SM16716 on strings 9-16).

Long Range Controllers

If a 'Long Range' PixLite controller is being used, then there will be an option available under this tab to select either 'All' or 'Condensed' mode for the controller outputs. 'All' mode will use all 8 output jacks on the controller (2 data and 2 clock lines per jack) while 'Condensed' mode will only use the first 4 output jacks with 4 data outputs per jack. These options will be unavailable if you selected a chip type that has a clock line, as condensed mode is not possible under that circumstance.

Expanded Mode

If using a controller that supports expanded mode and you select a pixel type that is a single wire protocol with no clock line, then you will have the option to select expanded mode. This mode allows the clock output on each of the pixel outputs on the control board to function as a data output instead of a clock line. This doubles the number of physical data outputs available and also

increases the refresh rate. On a PixLite 16 MkII for example, your data outputs will go from 16 to 32 in expanded mode and the max pixels per data output will drop from 1020 to 510.

RGB Order

Under this tab you can also change the RGB color order of all the outputs simultaneously, or change it for individual outputs separately. This is useful if the lights you are using are not physically wired in the standard red, green, blue order. To change the order of all outputs at once simply select the order from the dropdown box. To change specific outputs only click the 'Advanced' checkbox and then click the 'Advanced' button to bring up the RGB configuration window for individual outputs.

Gamma Correction

Gamma correction is the method used for correcting the output of the LEDs so that they respond in a much more linear fashion when viewed by the human eye (the spectral response of the human eye is non-linear). This is particularly important when the LEDs are being faded, and also provides more accurate and vivid color representation. It can only be applied to pixels that have greater than 8-bit resolution, E.G. TLS3001. The Assistant provides a very easy to use slider system enabling you to easily set the gamma correction value for each RGB color. Typically a gamma-corrected value of 2.0 is a good place to start.

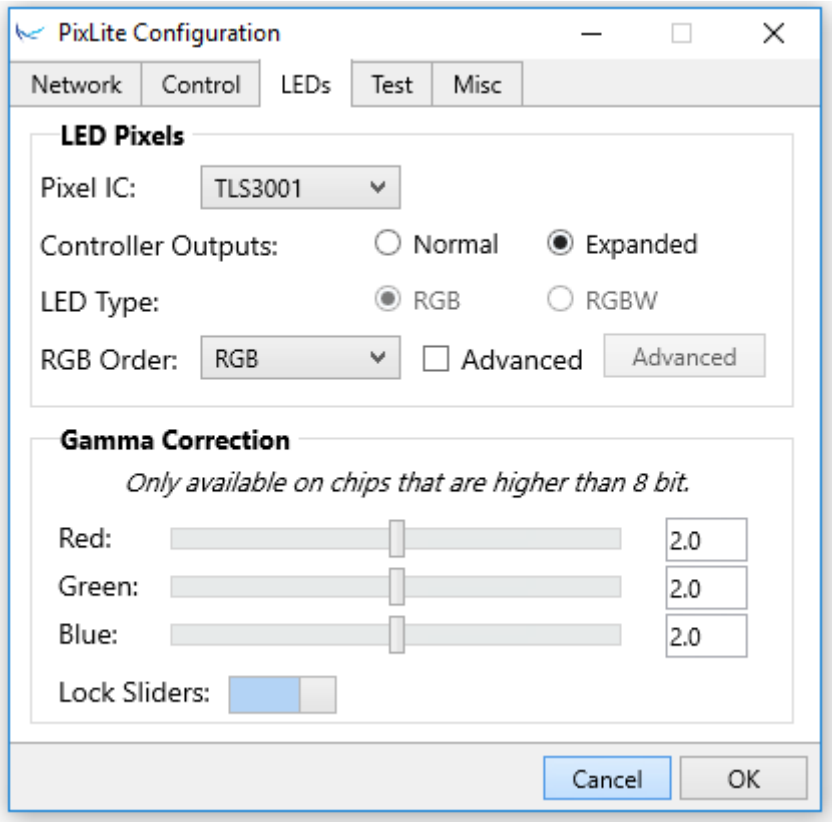


Figure 5

4.1.4 – Test

This tab allows you to remotely select a number of different hardware test modes on the controller that can help to determine if your pixels are connected correctly and are working as they should. Simply select the test you wish to run from the drop-down box and then press “set” to turn it on.
Note: Before running the tests the pixel type and outputs should be configured correctly or it will not work.

The test modes are listed below:

None (Live Data):

Test mode is not running and the pixels will be responding to live sACN (E1.31) or Art-Net data.

RGBW Cycle:

This will automatically cycle all pixel outputs through red, green, blue and white in sequence.

Individual Colors:

This will allow you to select a solid color of red, blue, green or white and will turn all pixels on to that color.

Custom Color:

This will allow you to select a custom color from the vertical bar and then hover over the shade palette for that color; all pixels will respond in real time to the changes.

Color Fade:

This test will automatically perform a continual colour fade on all pixels through the entire colour range.

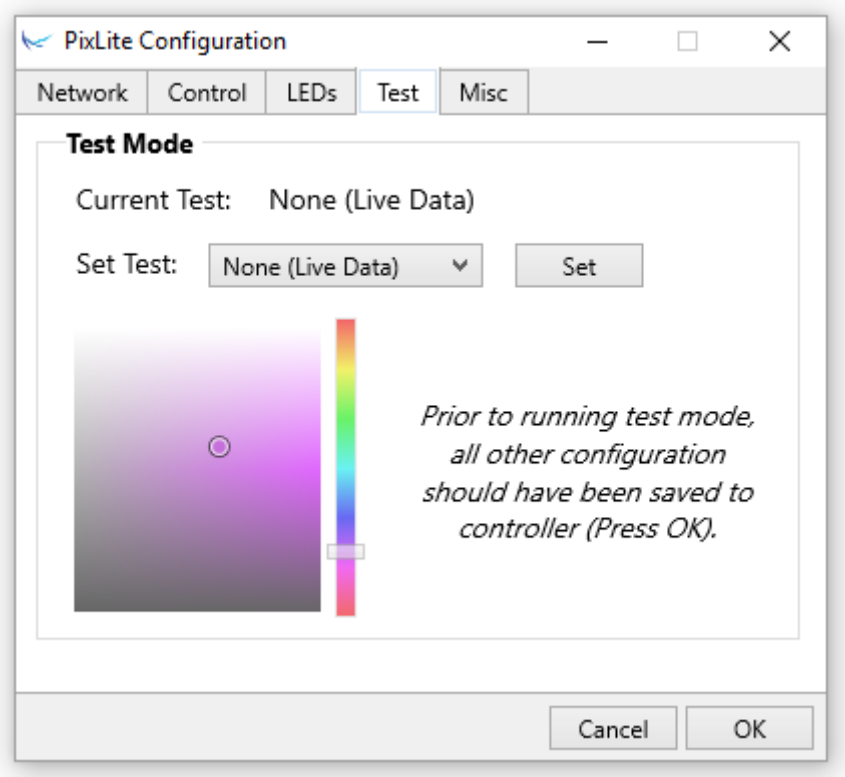


Figure 6

4.1.5 – Misc

This allows the user to assign a custom nickname to the controller, perform a firmware update and also displays the current bank voltage of each of the power bank(s).

It also allows the user to set the enclosure target temperature **if a fan is connected** to the auxiliary output on a PixLite controller. This is only available on some versions of the controller. For more information on how this feature works please refer to your specific hardware version's PixLite user manual. If the user manual does not talk about the auxiliary fan output then your controller does not support this feature.

For more information about how to perform a firmware update, please refer to the relevant section in the controller's user manual. If you can see the button below you will just have to click it and then browse for the downloaded firmware update '.hex' file.

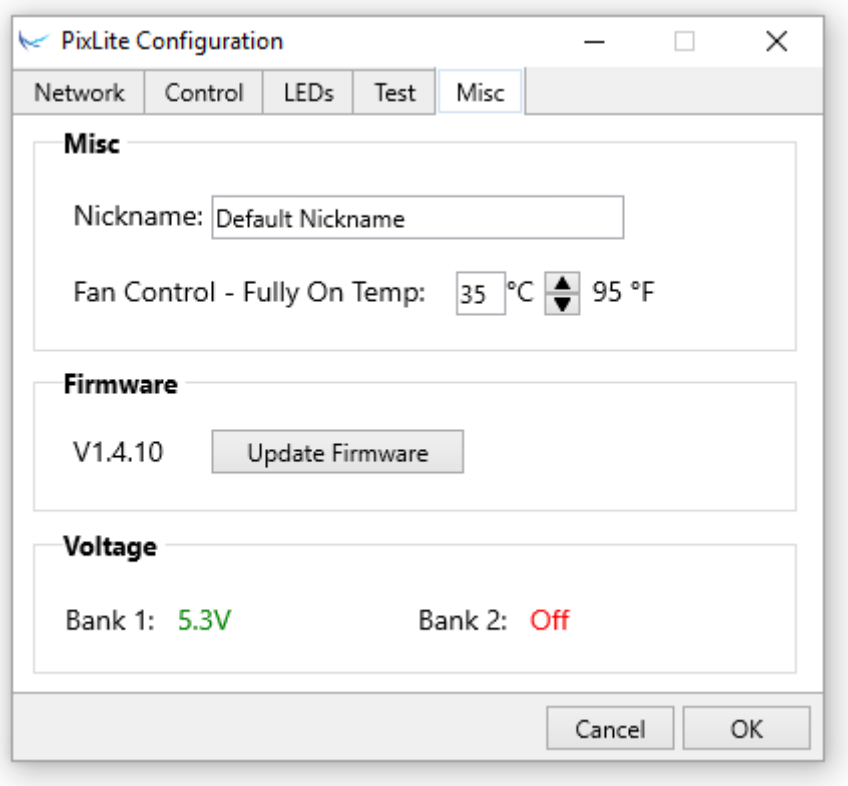


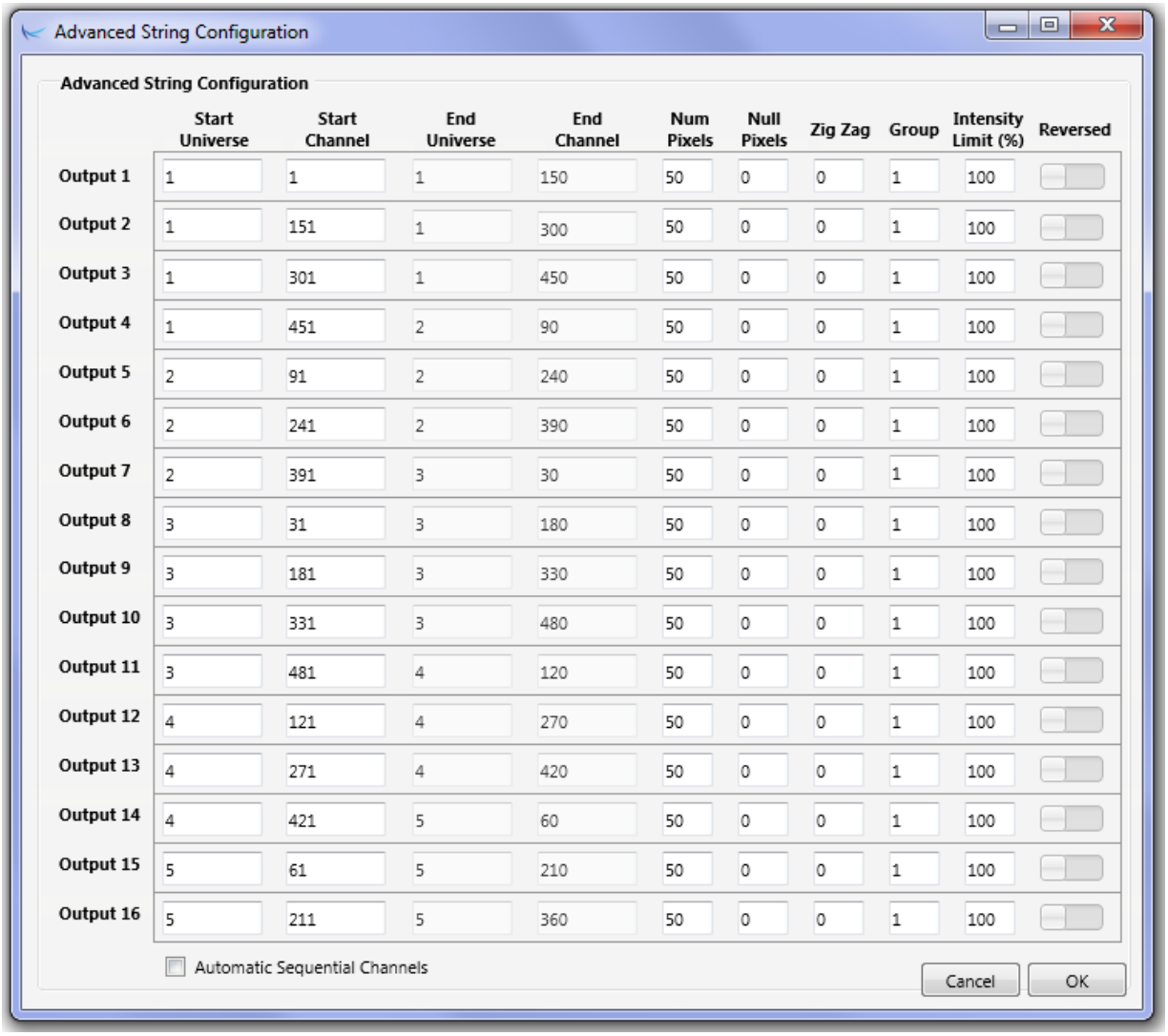
Figure 7

4.2 – Advanced Configuration

4.2.1 – Overview

Clicking on ‘Advanced’ checkbox and then the ‘Advanced’ button in the Control tab allows for advanced configuration of the individual outputs. Each output can have advanced parameters individually configured.

There are some automatic features that will help with understanding the channel usage range and with sequential addressing.



	Start Universe	Start Channel	End Universe	End Channel	Num Pixels	Null Pixels	Zig Zag	Group	Intensity Limit (%)	Reversed
Output 1	1	1	1	150	50	0	0	1	100	
Output 2	1	151	1	300	50	0	0	1	100	
Output 3	1	301	1	450	50	0	0	1	100	
Output 4	1	451	2	90	50	0	0	1	100	
Output 5	2	91	2	240	50	0	0	1	100	
Output 6	2	241	2	390	50	0	0	1	100	
Output 7	2	391	3	30	50	0	0	1	100	
Output 8	3	31	3	180	50	0	0	1	100	
Output 9	3	181	3	330	50	0	0	1	100	
Output 10	3	331	3	480	50	0	0	1	100	
Output 11	3	481	4	120	50	0	0	1	100	
Output 12	4	121	4	270	50	0	0	1	100	
Output 13	4	271	4	420	50	0	0	1	100	
Output 14	4	421	5	60	50	0	0	1	100	
Output 15	5	61	5	210	50	0	0	1	100	
Output 16	5	211	5	360	50	0	0	1	100	

Figure 8

4.2.2 – Channel Output Configuration

The advanced configuration permits an extremely flexible channel setup. The controller is capable of "connecting" the beginning of an output to any channel within any universe. Outputs can be connected to the same universe data as each other, be sequential to each other, or even be separated by hundreds of universes if required. **The key is to correctly match the universe outputs of your sequencer to the channel outputs you have configured for your PixLite controller**.

It should be noted that the PixLite controller only uses 510 channels out of a possible 512 in any Universe when using RGB pixels. It does this to avoid splitting a single pixel (3 channels) over 2 Universes which can lead to confusion (some software control programs do this as well.) If using RGBW pixels however, it uses the full 512 channels per Universe and should be configured as such in your lighting software.

The Assistant will show the last universe and channel that it uses for each output based on other entered parameters for that output like the number of pixels and grouping. This helps show you exactly what range of channels the output is using for your reference.

The user may also click on the 'Automatic Sequential Channels' checkbox at the bottom of the configuration window to enable auto-calculation of the start universes and channels for outputs 2 onwards. This feature is intended to help the user configure all their output channels even faster by automatically working out those fields based on other parameters already provided by the user.

4.2.3 – Null Pixels

Null pixels allow the controller to ignore or skip a specified number of pixels at the beginning of an output. This is useful when you want to extend the distance between controller and your actual lights, as the data signals used by pixel chips are not designed to travel over long distances.

Sometimes the signal between controller and first pixel gets degraded and causes problems such as flickering lights. In these cases inserting a "fake" (null) pixel between controller and first real pixel can help as they reproduce the signal on their output; remember that they will not actually light up as they are ignored by the controller.

Typical distances a signal will travel before requiring null pixels will depend on several factors including the type of pixel used, voltage and wire gauge. Typically it is a process of trial and error to determine how far you can go between pixels in a specific setup.

The PixLite treats null pixels as an entirely different parameter to normal pixels. So for example if you had 50 pixels in your pixel fixture and needed to insert 2 null pixels before the start, the 'Null Pixels' field for that output would need to be set to 2 and the 'Num Pixels' field would remain at 50 (even though there are 52 physical pixels in total on that output).

4.2.4 – Zig Zag

The zig zag feature allows for a simpler physical connection of pixels in certain circumstances where the pixels connect in alternating directions. For example the below matrix has 6 rows with 5 pixels in each. The simplest way to connect the data wires between rows is shown in figure 9. Unfortunately this results in every second row lighting up in reverse order as shown by the numbers which indicate the order pixels will light up in.

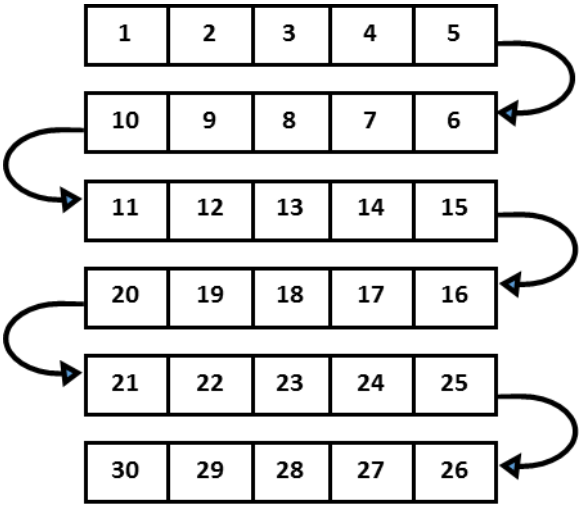


Figure 9

The zig zag feature of the PixLite allows this physical wiring to be *virtually* changed to the equivalent of wiring the pixels like figure 10. In this example, you would set the zig zag on the output to ‘5’ to achieve this effect.

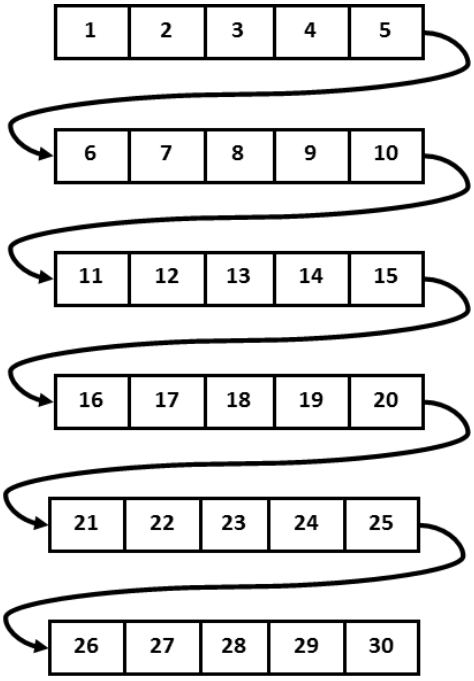


Figure 10

This feature is typically used in elements such as a matrix of pixels (like the example) or 'Megatrees' in Christmas lighting.

4.2.5 – Grouping

Grouping allows the user to specify how many physical pixels are grouped together and treated as one single pixel to the outside world. For example, if you had a pixel strip with physical 150 pixels on an output and entered 10 in the grouping field for that output, it would effectively turn that strip of 150 individual pixels into a strip of 15 individual 'pixels'. Each 'pixel' would now actually consist of a group of 10 physical pixels all grouped together as one single 'pixel' as far as your lighting control software or console is concerned.

4.2.6 – Intensity

This allows the user to specify a value between 0 and 100% for the brightness level of the pixels on a given output. Note that the brightness output is scaled based on the input level provided to the controller. This is used in circumstances where the lights are too bright for your application. If you set the Intensity limit to 50% for example, the PixLite would halve all incoming data values.

4.2.7 – Reversing

Turning on the reversed option tells the controller to light up the pixels in reverse order to the way that they are physically connected. This means the first pixel to light will actually be the last physical pixel on that output instead of the first physical pixel.

5 – Further Information and Support

For the latest more specific troubleshooting information and other help, you should refer to our online knowledgebase here: http://www.advateklights.com/support/kb

If you can't resolve your problem with the help of our knowledgebase, you can open a support ticket here for assistance: http://www.advateklights.com/support

You can also send an e-mail to support@advateklights.com and a ticket will be automatically created for you.

If you create your ticket through the website you will have the ability to login and manage past and existing tickets.