

*Lucentis*



BLACKWAVE  
PIXLDRIVE8 PRO CONTROLLER  
**QUICK START GUIDE**

EN

RELEASE V1.0

## **QUICK START GUIDE**

This PixlDrive8 Pro is the first product co-developed with KLSTR.

KLSTR is a universal hardware platform especially designed for lighting devices. With the purchase of a KLSTR enabled product you can control, configure and monitor all your KLSTR enabled products using our KLSTR application.

KLSTR is designed to simplify the control and configuration of lighting setups.

In this quick start guide we will show you how easy and intuitive the KLSTR application is.

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# GETTING PREPARED

## Download the desktop app

First of all you will need to download the KLSTR control application called KLSTR.CTRL. We are building and adding new features continuously, both on the device firmware and the application.

You can download the latest version of our application on [latest.KLSTR.tech](https://latest.KLSTR.tech). The application is available for Windows 10 and macOS.

## Installation

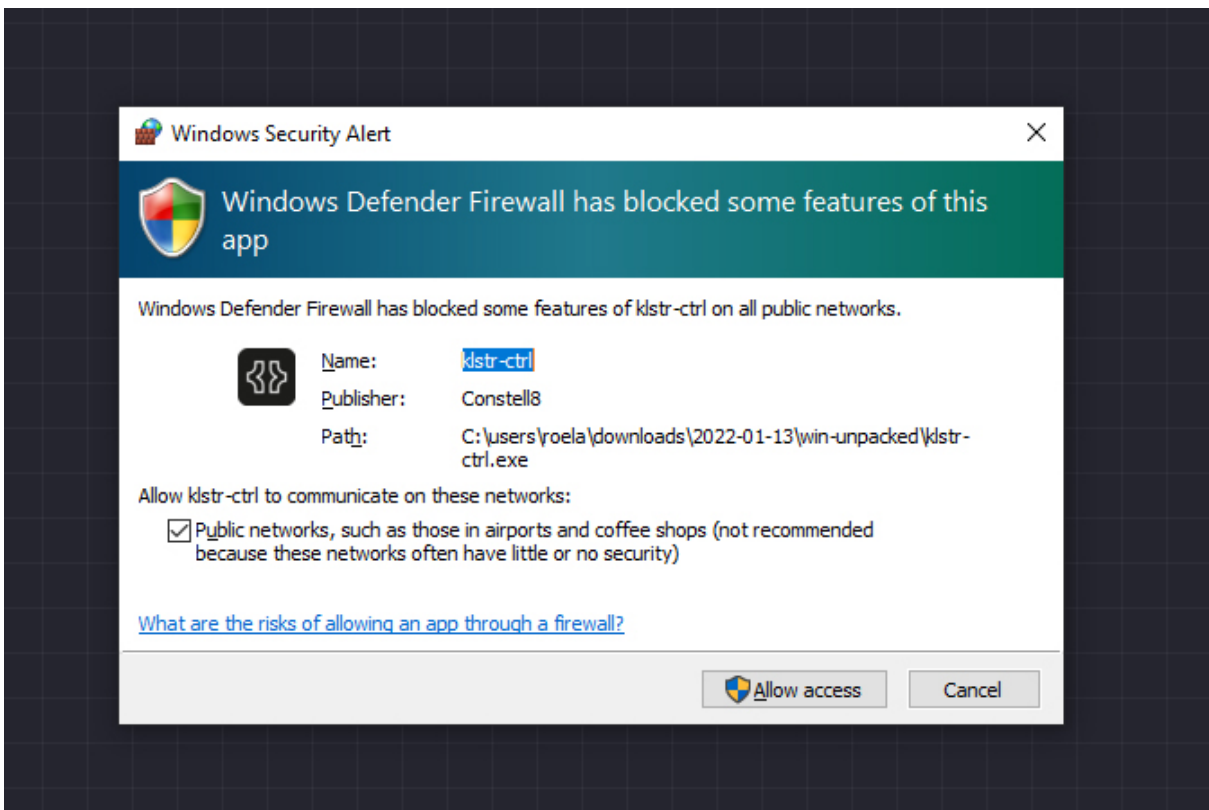
### Windows

First, download the zip archive containing the application and unzip it. Install the application by running the .exe file in the folder. After installation the application will launch itself.

### **Windows Firewall settings**

When you start the KLSTR application for the first time, Windows will ask you if the application is allowed to pass through the firewall.

Press the **ALLOW ACCESS** button.



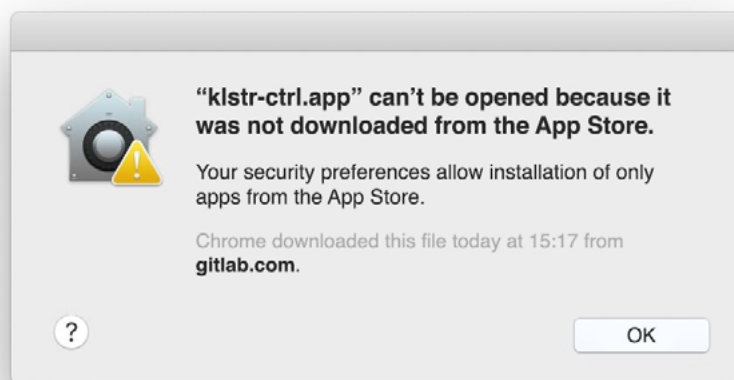
## macOS

First, download the dmg containing the application and mount it. Drag the application to the applications folder.



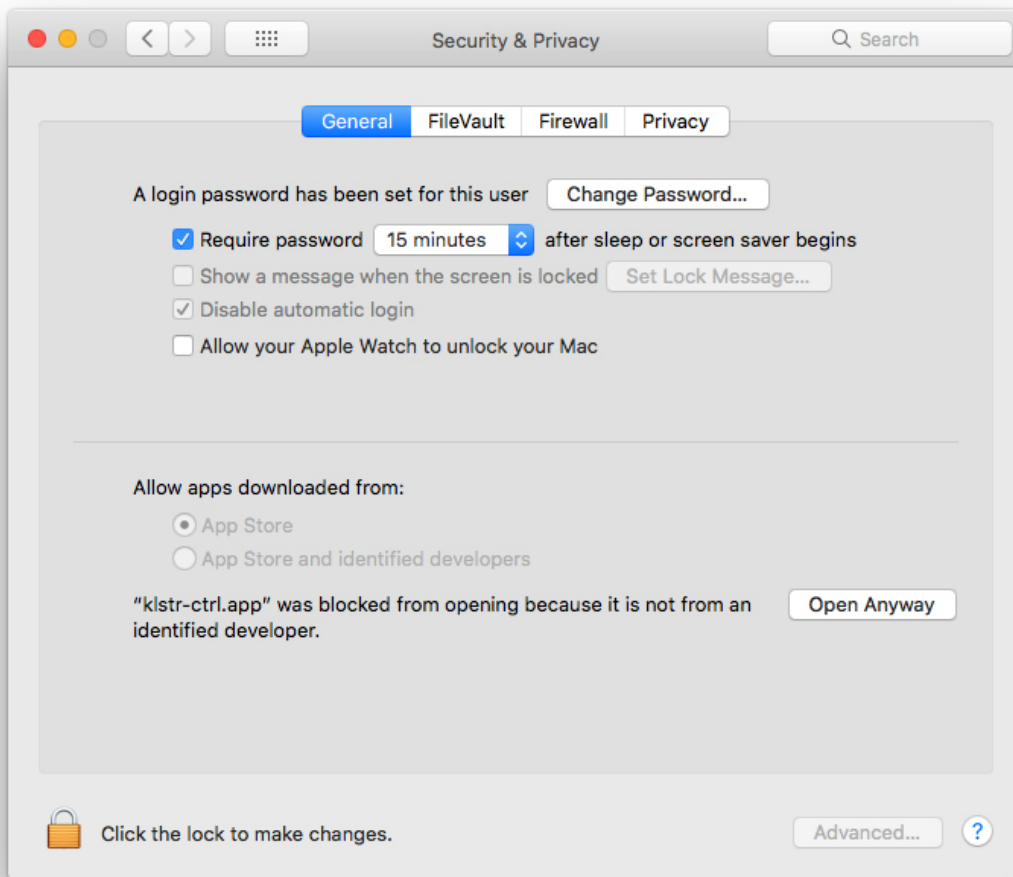
Go to your applications folder and open the application. When you start the KLSTR application for the first time, macOS might ask you if you want to open the application because it was downloaded from the internet. Confirm that.

Depending on your macOS settings, the application might not be permitted to start.



To fix this, open your SYSTEM PREFERENCES, go to SECURITY AND PRIVACY :

To fix this, open your SYSTEM PREFERENCES, go to SECURITY AND PRIVACY :



Click on "Open Anyway" to start the application.

# GETTING STARTED WITH KLSTR

## Connect your devices

### Ethernet

Every KLSTR.one device has 3 ethernet ports, referred to as port A, B and C.

KLSTR.one is built on a managed ethernet switch that allows you to connect your devices in every topology that suits you best.

There are a couple of rules to follow to optimize your system. We will quickly explain:

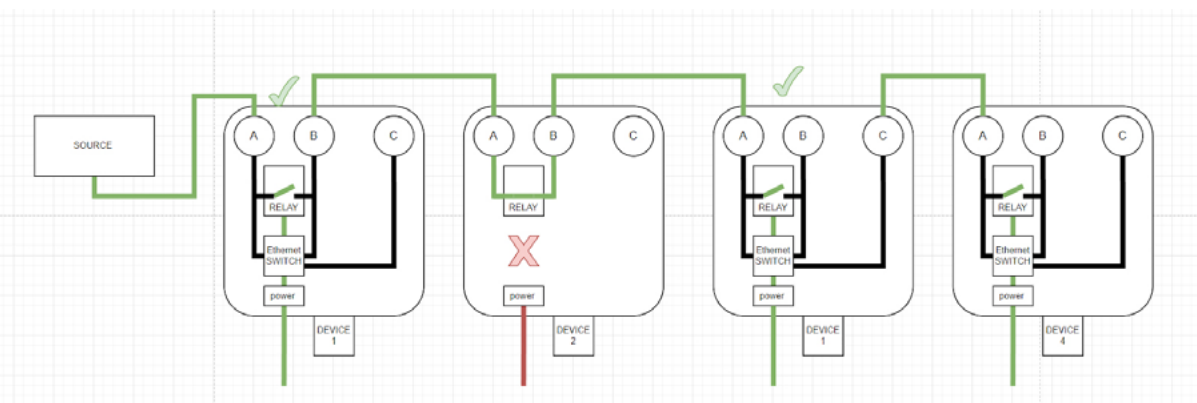
#### Daisy Chaining

The physical location of devices generally invites connections to make use of a daisy chain.

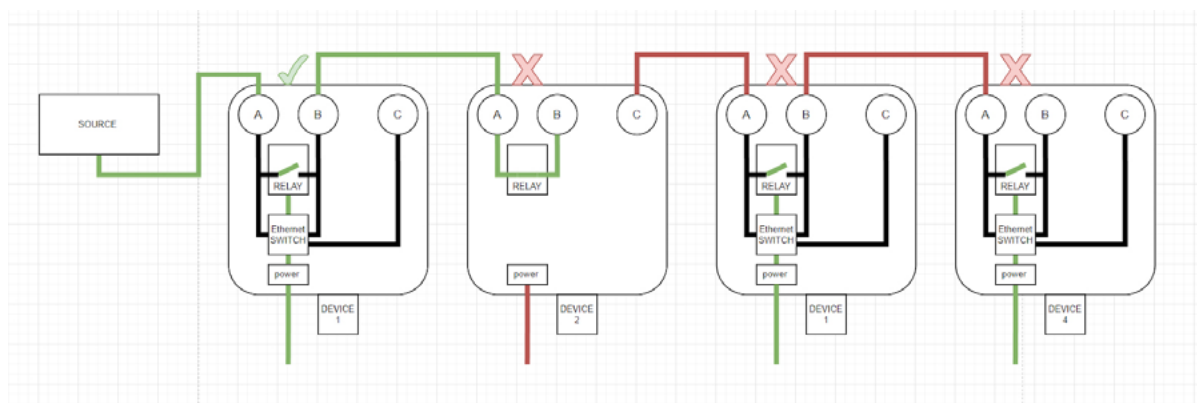
To forward data over ethernet, the device needs to have power. As a result, in case of an unpowered device in the chain, the devices “afterwards” in the chain will not be connected to the network.

Of course, that would be problematic in case of an unexpected power failure.

However, to allow users to safely connect devices in a daisy chain, port A and port B are fitted with an internal relay that physically connects port A to port B when the device is unpowered.



In the example above, the power of device #2 is interrupted. The internal bypass relay will close and physically connect port A to B: this means that port B from device #1 will be directly connected to port A of device #3 on the drawing.



In this example above, we've connected port C of device #2 to port A of device #3. Device #2 has a power malfunction. All devices further on the line 'after' device #2 are also impacted, because they are not connected to the network anymore. This could have been easily avoided by using port B on device #2 to connect it to device #3.

**>> One simple rule of thumb : when daisy chaining devices, only use PORTS A & B.**

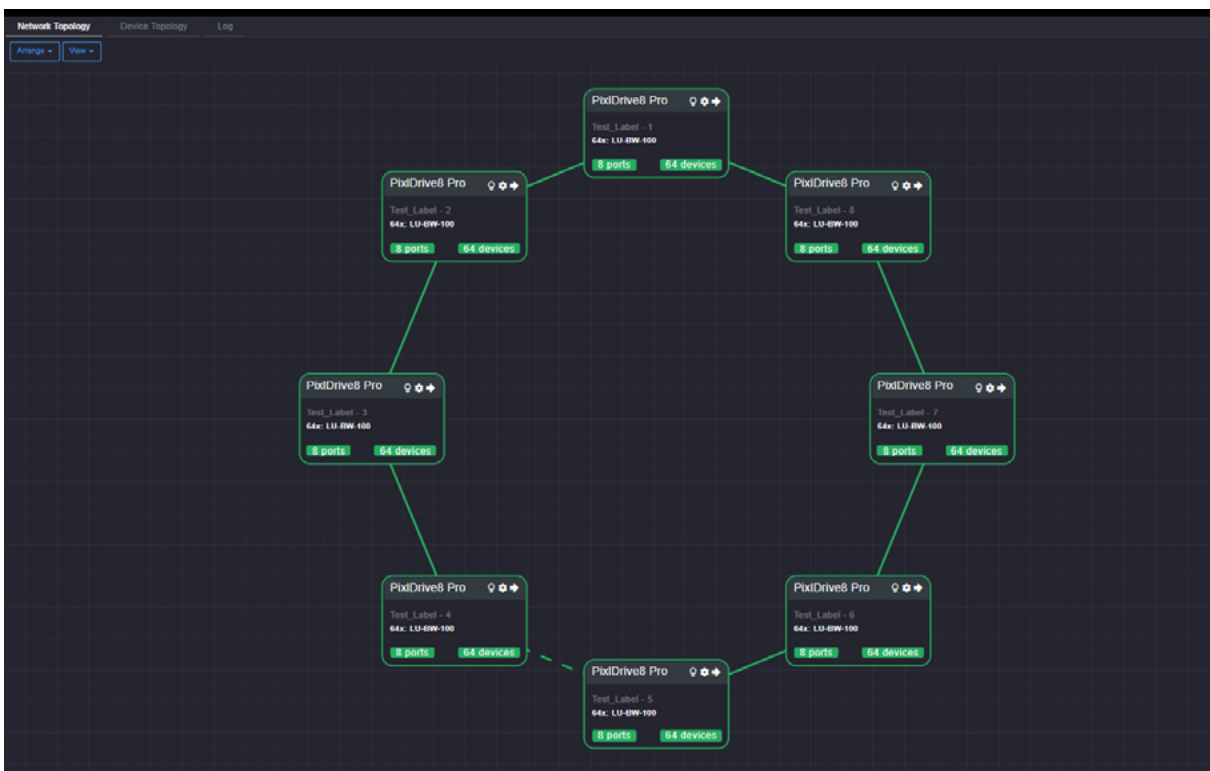
## Star and Ring topologies

Introducing the relay protects your ethernet based lighting system from power failure in your system, however it does not protect your setup against faulty cables, connectors that become loose or ethernet / dmx converters that malfunction.

With KLSTR.one we introduce real redundancy to your lighting rig by offering the possibility to create rings in your cabling.

In this example we connected 8 devices in a ring, daisy chaining the devices and connecting the last controller back to the first.

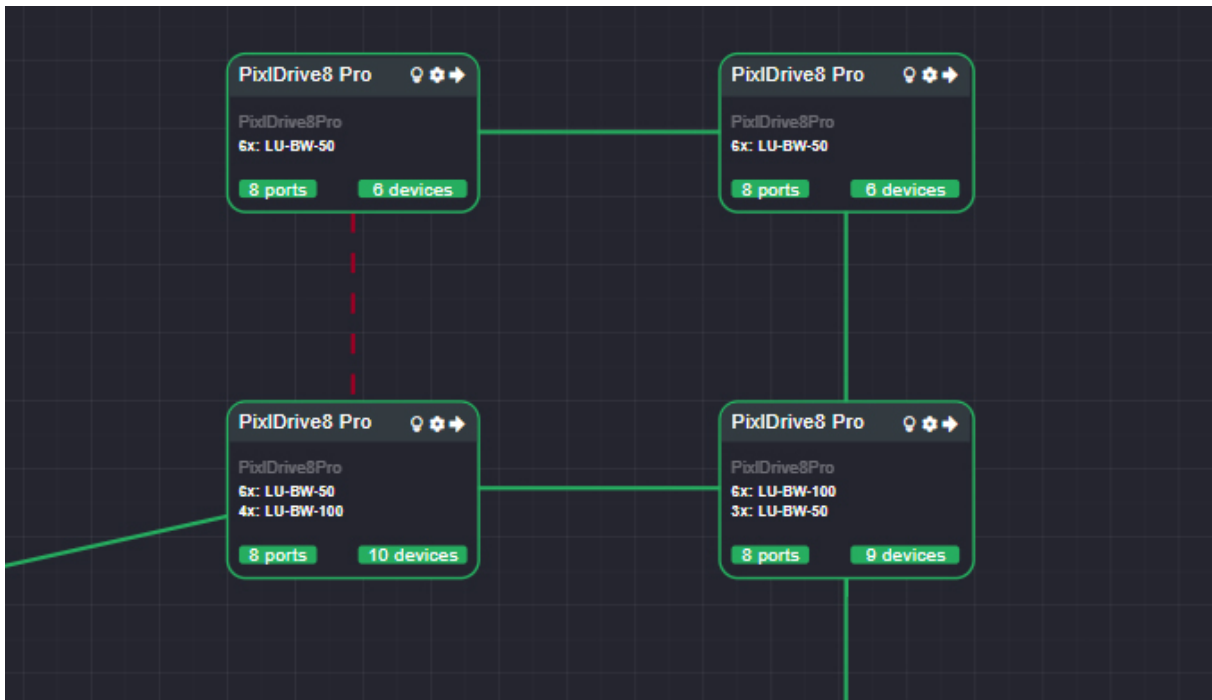
KLSTR will detect this ring configuration and will automatically configure ONE of these cables as a backup path. This will be indicated in the application as a green dotted cable.



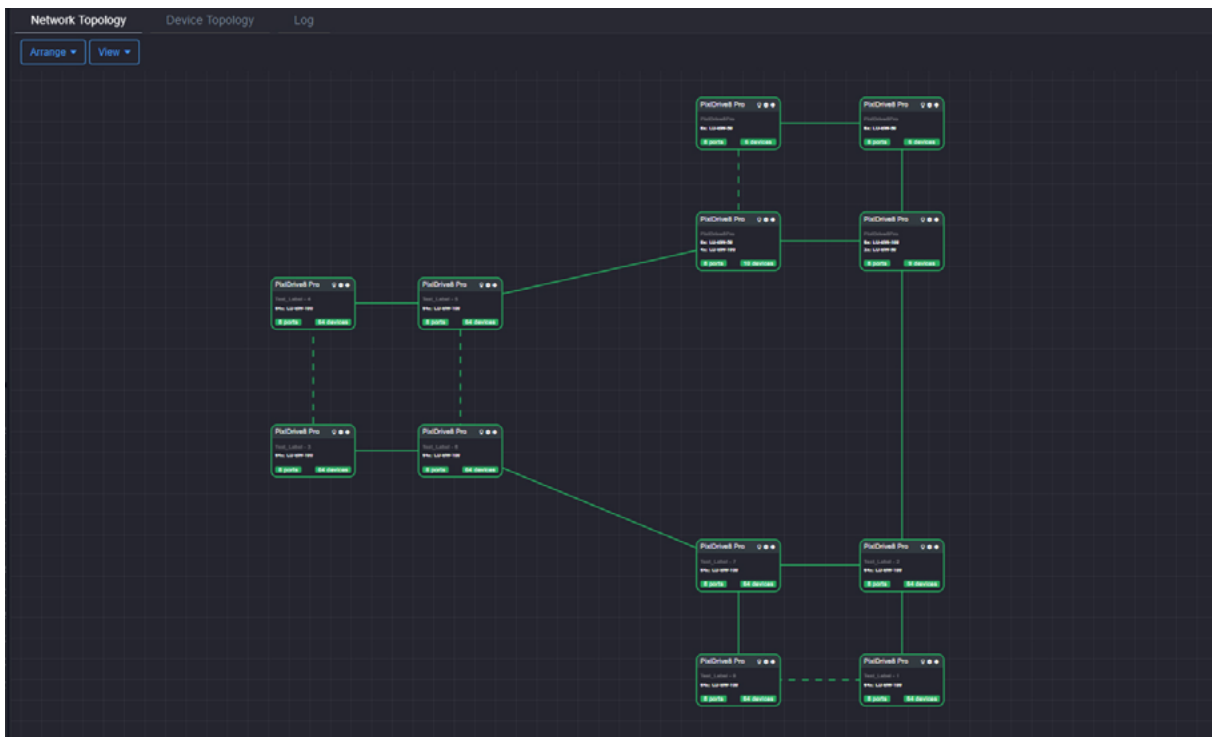


In case of a change in the cabling topology, KLSTR will activate this backup path and send the data through the other path.

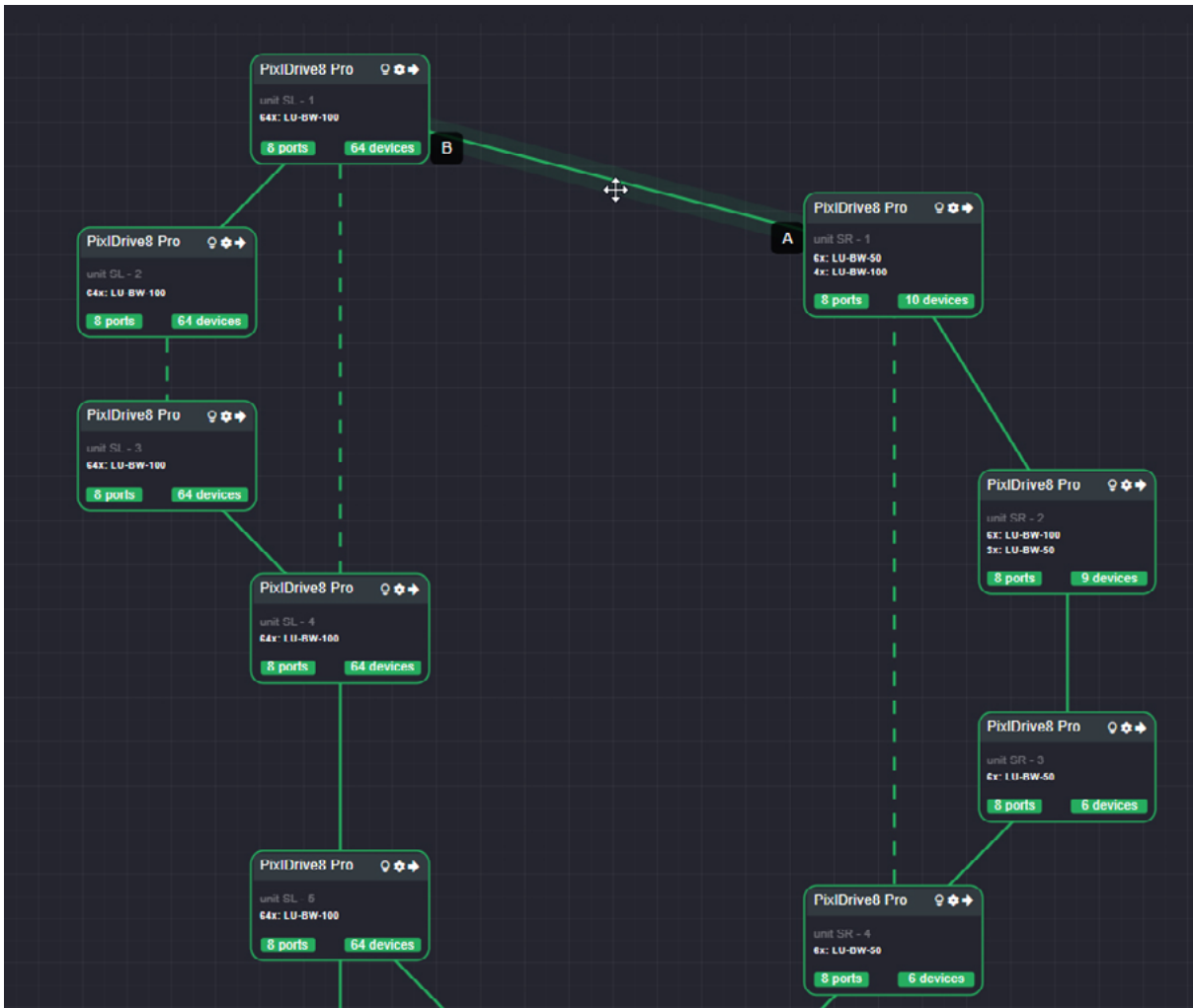
The broken cable will be indicated with a red dotted line.



Any combination of topology can be created. KLSTR will automatically configure the necessary connections to reach all devices and create all the necessary backup paths.



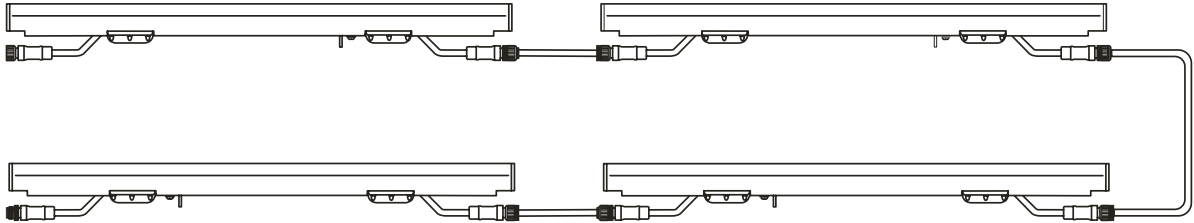
Keep in mind that connecting devices in a daisy chain behind a ring is best established with port A and B as we can still reach the device when in case of a power failure.



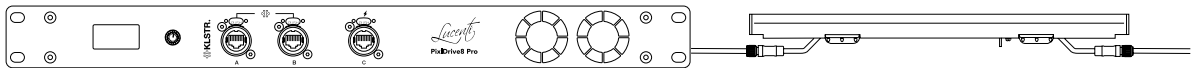
# PixlBus

A PixlDrive8 Pro controller sits between a power outlet and a collection of fixtures that understand the 'PixlBus' protocol. The PixlBus provides power and data to all connected fixtures. The following figures focus on connecting BlackWave Collection BW-100 and BW-50 bars to the controller.

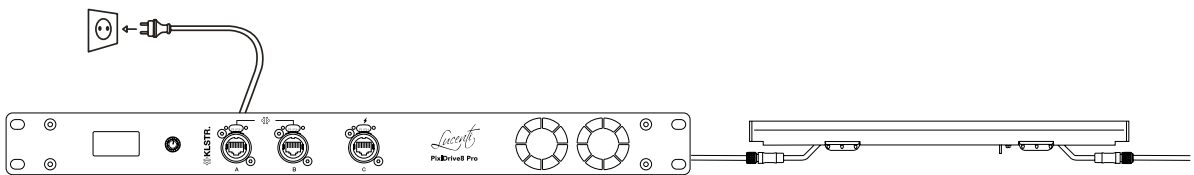
First connect all BlackWave pixel bars to each other.



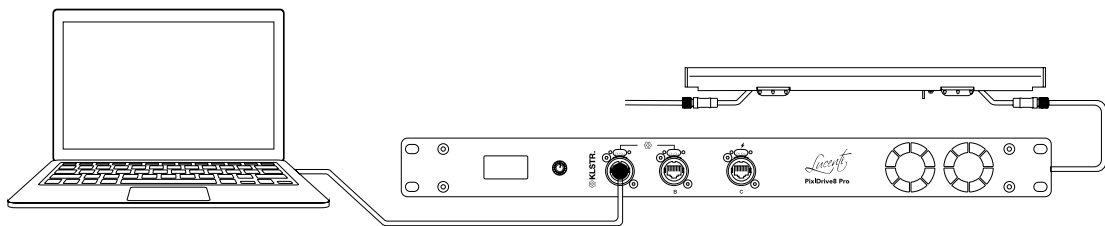
Connect the first pixel bar to the controller.



Connect the controller to an available power outlet.



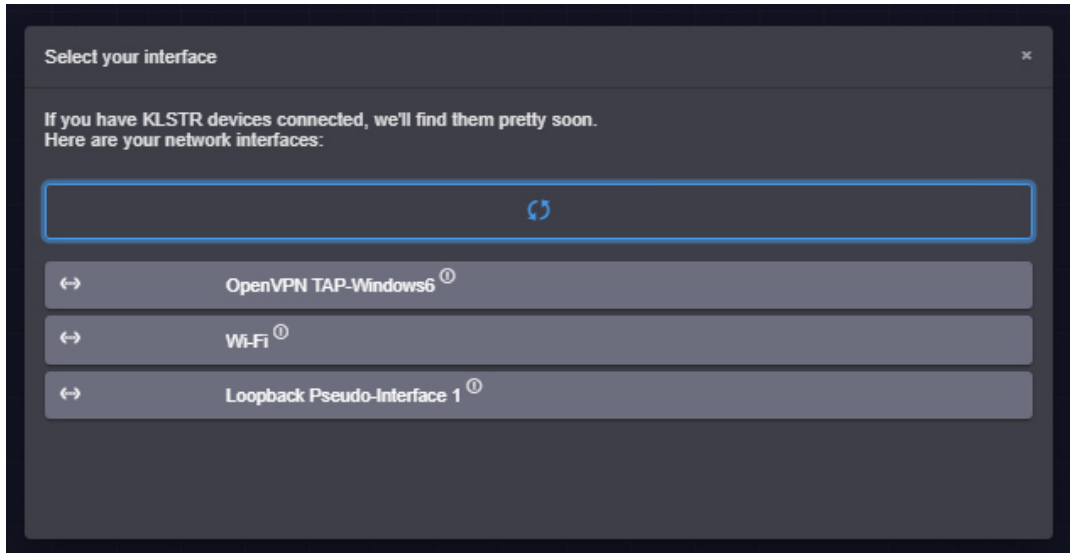
Connect the computer with the KLSTR application to the controller.



## Select interface

Connect the computer to the same ethernet network where your KLSTR devices are connected to each other. When you start the KLSTR.CTRL application, you need to select the ethernet interface where your devices are connected to.

In the top left side of your screen, open the **KLSTR** item in the menu and select **SELECT INTERFACE**.



The pop-up window which follows, allows you to select one of your available ethernet interfaces. Select the interface you want the KLSTR application to use.

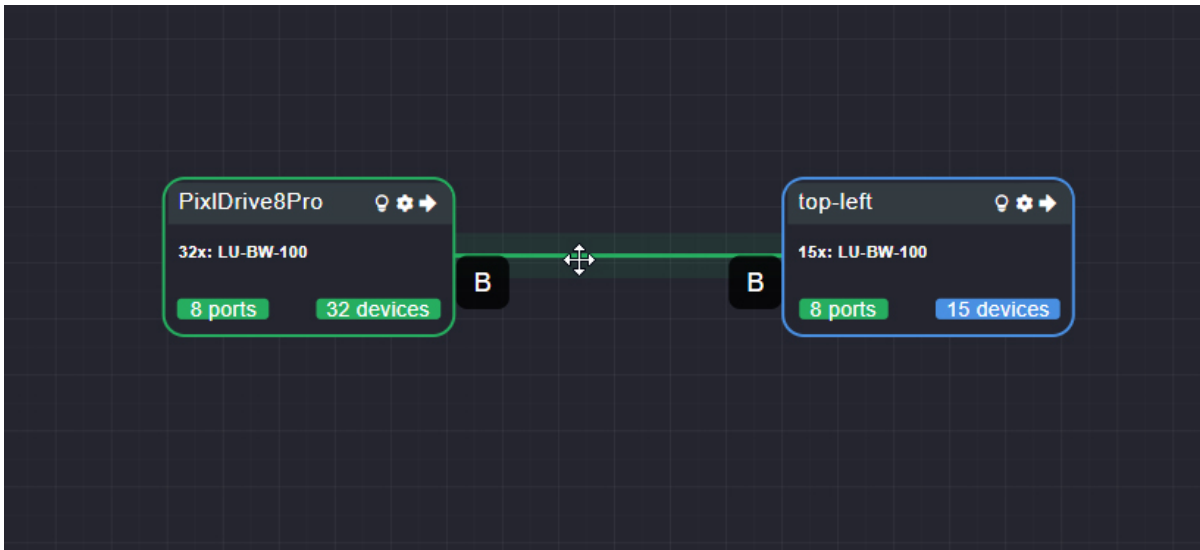
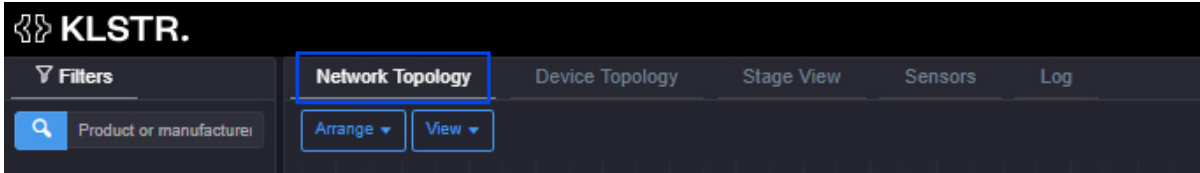
Automatically, KLSTR.CTRL will discover all connected KLSTR devices in your network. The application will bring you to the NETWORK TOPOLOGY window.

**Communication between the KLSTR application and the devices will take place over IPv6. No need to configure any ip settings of your computer.**

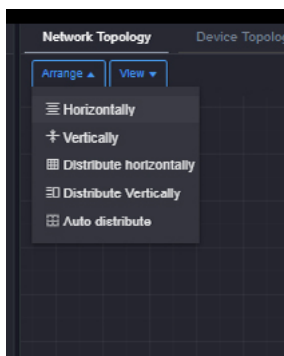
**TIP: When connecting your ethernet cable after you open up the SELECT INTERFACE menu: Press the reload button to see all your actual connected interfaces.**

## Network Topology view

The Network Topology tab will draw all your KLSTR devices in the network and show you the cables that interconnect KLSTR devices. When you point your mouse over one of the cables, it will show you from which port to which port your cable runs.



You can move devices on the screen to match their representation in the real world. The application is able to create a good starting point by selecting the “Auto distribute” function that can be found under the “Arrange” button.



All your devices will be distributed across the screen.

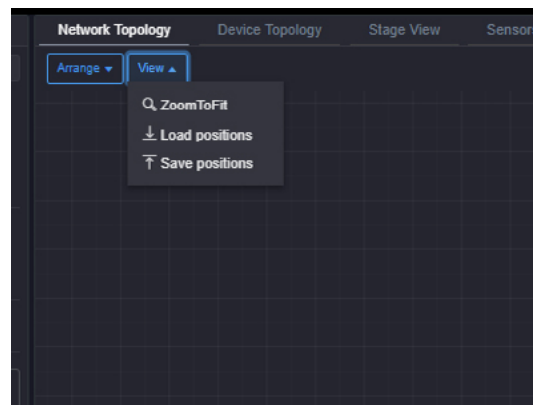
While holding the Shift button on your keyboard, you can drag with your mouse and select multiple devices.

If you select multiple devices, you are able to align them horizontally or vertically. This function makes it very easy to align devices that hang on the same truss or pipe.

To create a uniform look you are able to distribute the selection evenly by using the “Distribute horizontally” or “Distribute vertically” function found under the same button.

Once you’re done with creating the visual representation of your set you can save the location of the device on the grid by clicking on “Save positions”, found under the “View” button.

The grid locations are stored on the devices in the network, so when you restart the application or another user comes online, you can restore the screen by pressing the “Load positions” button.



## Network Devices and Subdevices

We distinguish two types of devices : the ones directly connected to the network (Network Devices) and the ones who are in need of an intermediary (Subdevices).

Examples of these intermediaries are DMX Nodes, Pixel converters or controllers like the Lucenti PixlDrive8 Pro. They act as a translator, making non-networked devices available on the KLSTR network.

The PixlDrive Pro 8 is capable of showing the connected order of the connected PixlBus devices.

First of all we need to give the pixelcontroller the command to start a discovery on all ports. Therefore we need to go to the device configuration menu.

# DEVICE CONFIGURATION

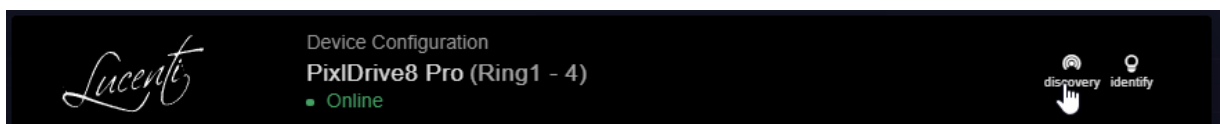
All configurations of a device can be accessed by pressing the gear symbol (⚙️). Click it, and the KLSTR application will open up the device configuration page.



## Discovery

The controller features intelligent enumeration and auto-addressing of all connected fixtures through the smart PixlBus. It suffices to connect all fixtures together, connect the first to a desired port on the controller and perform a discovery to let the system discover all fixtures and auto configure all necessary parameters. This process can take up to 4 seconds.

**To trigger the discovery process, Press the Discovery icon in the Configuration screen.**



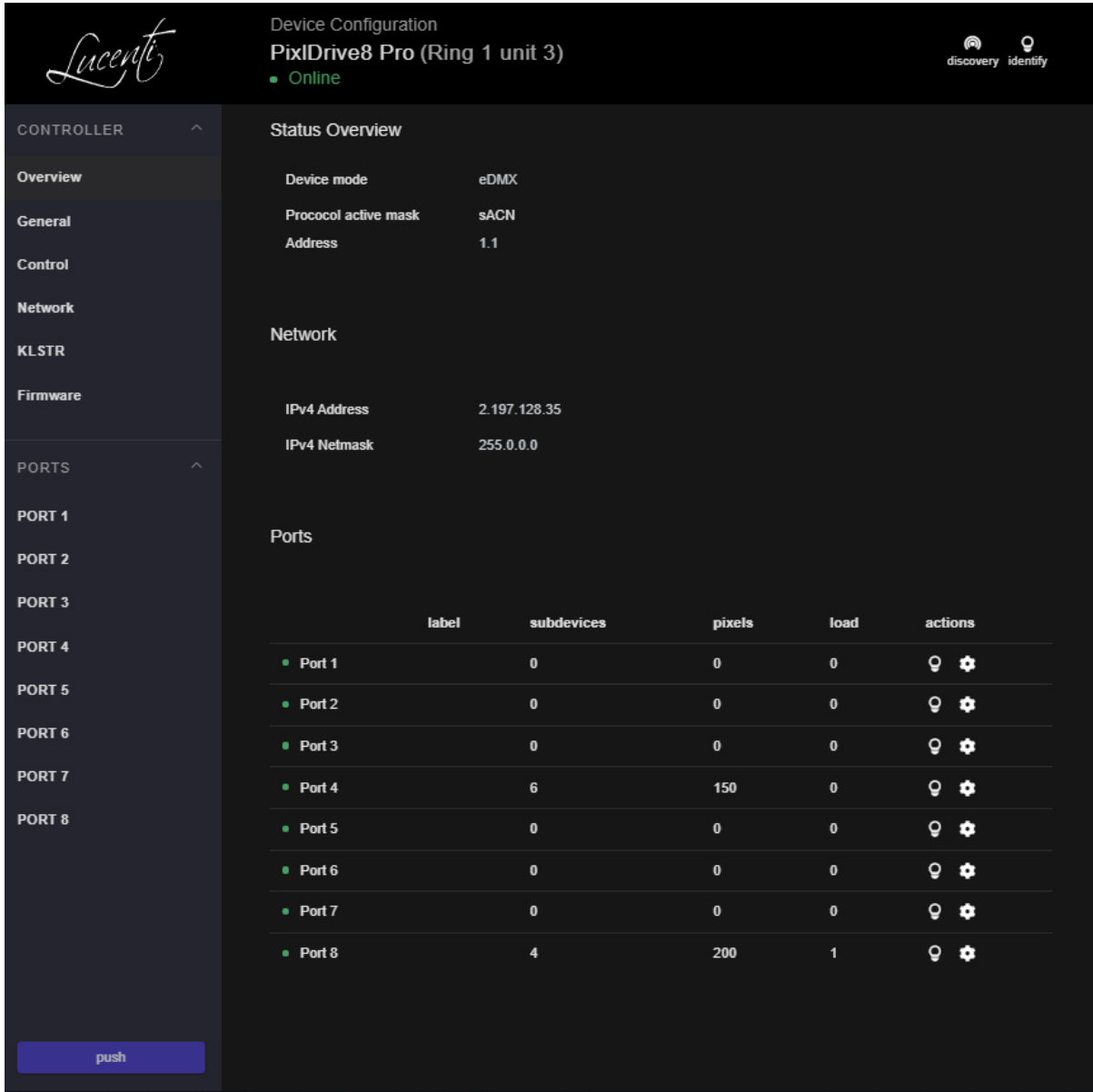
After a discovery:

- » All connected fixtures receive a unique and incremental PixlBus ID. The first fixture after the controller has ID 1, the second ID 2, ...
- » BlackWave pixel fixtures will display their ID on start-up using white LEDs.
- » The controller keeps an internal list of all connected fixtures, with their type and manufacturer, containing all necessary parameters such as pixel type and count.
- » A pixel map is automatically generated, reserving the necessary DMX universes and channels to drive each pixel of each connected fixture.
- » The controller is now ready for use.

# Overview

The overview will now show you the devices discovered on each port. Also, it will give you an overview of the current settings.

To easily identify all the devices behind a certain port, toggle the Lamp icon for the port you want to identify.



You can get port specific information by pressing the port tab on the left. This will open the port specific detail page.



# Port specific

Device Configuration  
PixlDrive8 Pro (Ring 1 unit 3)  
● Online

CONTROLLER

- Overview
- General
- Control
- Network
- KLSTR
- Firmware

PORTS

- PORT 1
- PORT 2
- PORT 3
- PORT 4
- PORT 5
- PORT 6
- PORT 7
- PORT 8

Summary

Label:

Status: ●

Status message: -

Subdevices: 6

Pixels: 150

Load

Port intensity:

Identify:

Power:

Subdevices

	type	fixture Id	pixel count	Address	actions	Message
● 1	LU-BW-50	<input type="text" value="1"/>	25	1.1	<input type="checkbox"/>	-
● 2	LU-BW-50	<input type="text" value="0"/>	25	1.101	<input type="checkbox"/>	-
● 3	LU-BW-50	<input type="text" value="0"/>	25	1.201	<input type="checkbox"/>	-
● 4	LU-BW-50	<input type="text" value="0"/>	25	1.301	<input type="checkbox"/>	-
● 5	LU-BW-50	<input type="text" value="0"/>	25	1.401	<input type="checkbox"/>	-
● 6	LU-BW-50	<input type="text" value="0"/>	25	2.1	<input type="checkbox"/>	-

push

To easily identify a single device, toggle the Lamp icon for the device you want to identify.

# Control

## Device mode

The controller can be switched to one of 4 different device operating modes. The controller will store and start up in the selected device mode after reboot.

### **eDMX**

Slave to external Ethernet DMX (eDMX) input.

The controller receives data from an external lighting controller or software.

Select the protocol you want to use.

Both **Art-Net** and **sACN** (E1.31) are supported, and can be selected both at the same time.

### **Merging**

When a device receives data from multiple sources on the same universe, KLSTR will merge them together (HTP). This allows you to use multiple sources at the same time, for example a lighting console and media server both sending data to the device, without the need for an external merging engine.

### **Start address**

The controller needs an address from where it will start assigning addresses.

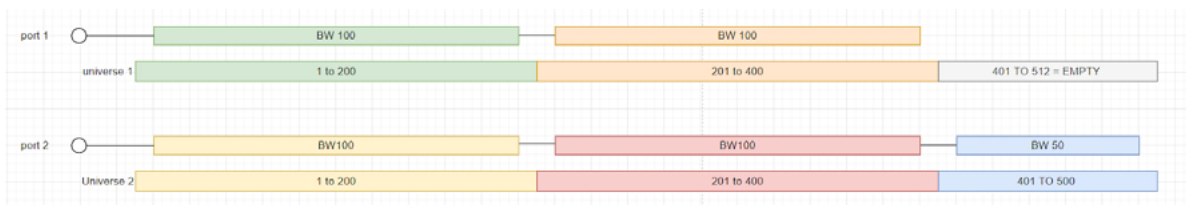
Enter the start address of a controller.

### **Dense mapping**

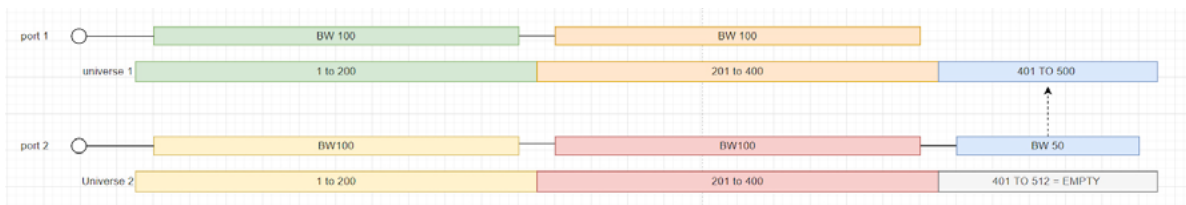
After the discovery process the controller will assign a starting address to each PixIBus device found on the ports.

This assignment will be done from port 1 to port 8 from the first device till the last.

starting at the start address and adding device by device as long as the device fit inside a universe. If the device does not fit in a universe it will jump to the next universe. This sometimes creates spaces at the end of the universe.



When dense mode is enabled, the controller will iterate a second time over the devices fitting all devices that have a small enough channel count at the end of the universe. This optimizes the number of universes a controller needs.



### **Effects Engine (standalone operation)**

The controller is equipped with a powerful internal effect engine that can dynamically generate colors and animations for all connected fixtures. Configuration options for the engine appear when the option is selected.

### **Test patterns**

The controller is equipped with a set of built-in test patterns that run on all connected fixtures. A list with all available test patterns appears when the option is selected.

### **Blackout**

Display black (no light) on all connected fixtures.

## Network

Communication between your KLSTR application and the device will be IPv6, no need to worry about IPv4 addresses.

**We highly recommend you to use sACN as input source when using eDMX.**

**With sACN you don't have to worry about IPv4 settings.**

**WHEN using Art-Net, make sure your lighting controller or media server is in the same IPv4 range as the devices.**

IPv4

IP Address: The current IPv4 address for the wired Ethernet connection.

Netmask:

The current IPv4 netmask address for the wired Ethernet connection.

## Firmware

The KLSTR technology will be constantly evolving, giving your devices new capabilities.

In order to do this, we will need to update the internal firmware from time to time.

Download the device firmware, select the firmware.

Once the upload is completed your system will restore like before.

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