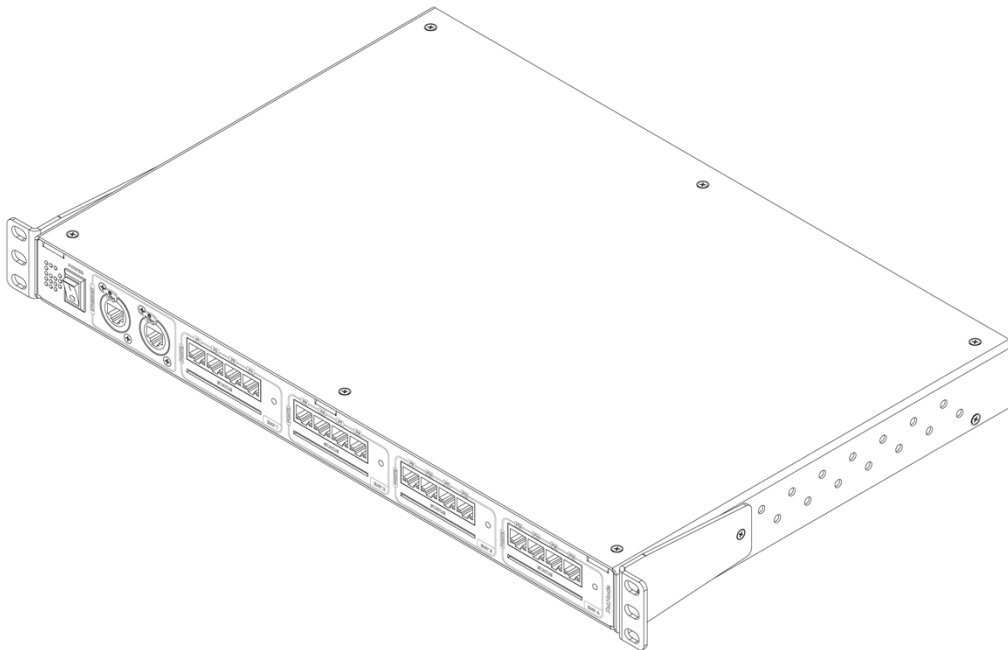


PXLNET CONTROLLER MANUAL



CTRLPIXEL96

CE **RoHS** **SPI** **DMX** **IP20**

THANK YOU FOR CHOOSING ACOLYTE AND DIGIDOT!

We strive to offer the latest technology in LED lighting control and we're constantly innovating and expanding our control platform. We're convinced that you have everything you need to create a truly mesmerizing, innovative piece of light art. Are you proud of the result? Then please share it with us. We love to see what you can do with our products!

The Acolyte and DiGidot teams

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INTRODUCTION

The PxLNet Controller is the most powerful rack-mounted pixel control system of its kind, with a built-in Gigabit switch for Art-Net and sACN and 16 DMX or PxLNet output ports in a professional 19 in. housing that guarantees optimal flexibility and performance for the most demanding projects. The PxLNet Controller converts Art-Net or sACN to SPI or DMX. It can output a staggering 96 universes (8 per port) in total. (Please refer to the performance guide to check the maximum number of universes you can configure per port.) A built-in web-based user interface allows the PxLNet Controller to be configured and managed by any computer with a web browser. Multiple PxLNet Controllers can be linked to control large-scale projects. The PxLNet output ports allow for long range SPI data -- up to 820 ft (250 m).

PRODUCT INFORMATION

BOX CONTENTS

1 PxLNet Controller
1 power cable
16 PxLNet Transceivers
1 spare fuse

NOTE: We take great care with our products and have a standard of quality control, but we advise you to double-check for missing or damaged items. In case of any missing or damaged items, please contact your supplier immediately. Never use damaged products!

TECHNICAL SPECIFICATIONS

Electrical

Input Voltage: 100-250 VAC, 50-60 Hz

Max. power consumption: 45W

Mechanical

Housing material: Aluminium

Dimensions: 17.36 x 11.81 x 1.69 in. | 441 x 300 x 43 mm (L x W x H)

(with 19-inch brackets) 19.06 x 11.81 x 1.69 in. | 484 x 300 x 43 mm (L x W x H)

Net device weight: 86.42oz | 2450 gr

PxLNet Node package weight: 98.77oz | 2800 gr

Mounting: 19 in. rack-mounted

Environmental

Operation Temperature (Tc): 32 to 122°F (0 to 50°C)

Max. ambient Temp. (Tamax): 104°F (40°C)

Storage temperature: -4 to 122°F (-20 to 50°C)

Max. operating relative humidity: 90% (indoor use only)

Protection

IP rating: IP20 (indoor use only)

Control

Input Protocols: Art-Net 1,2,3 & 4

sACN

Output Protocols:

Art-Net 1, 2, 3 & 4 (out/through)

DMX (16 outputs)

60+ SPI protocols (check supported ICs list online)

Ethernet:

RJ45 compatible, for 100/1000 Base-TX Ethernet

Programming & control:

PxLNet Controller web-based user interface

PxLNet Controller app

Any type of Art-Net or sACN Software/Device

(visit digidot.eu for a complete list of supported software)

Connectivity:

Connectors:

Power: C13, C14 (100-264 VAC)

Network:

2 x RJ45 bus

IO port:

16 x RJ45 bus (PxLNet)

Trigger input:

D-Sub and GPIO switch

Quality

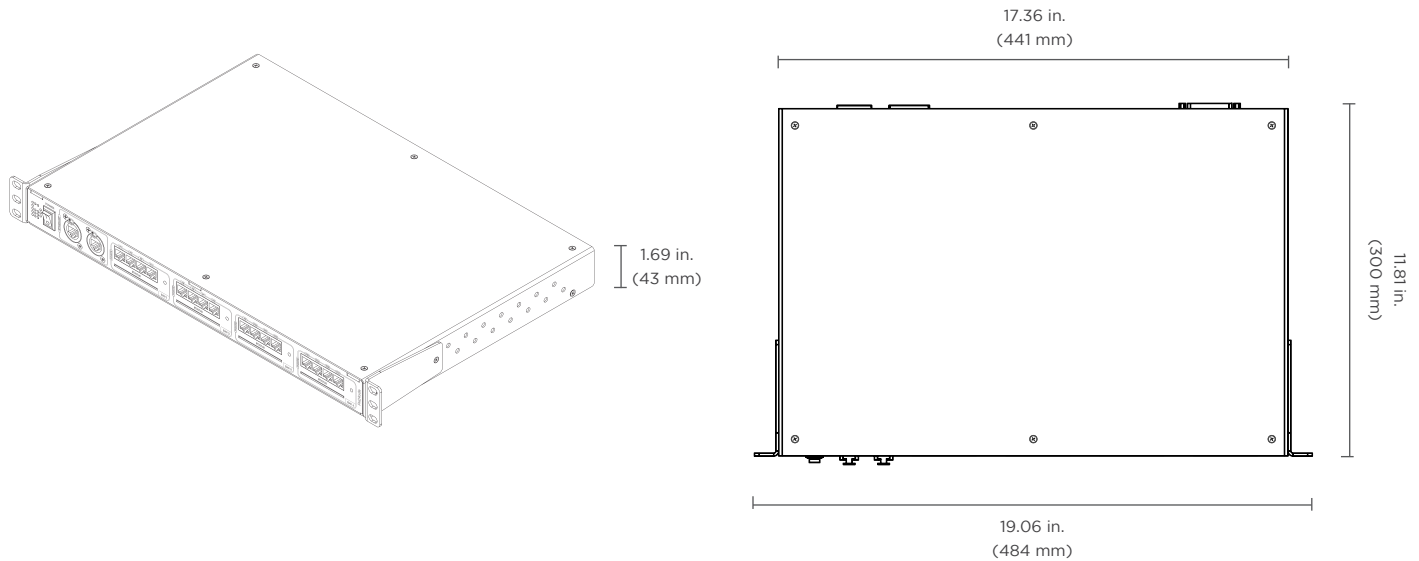
Warranty:

5-year factory warranty

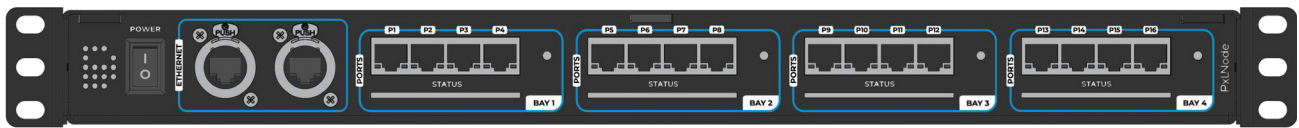
Compliances:

CE, RoHS

PRODUCT DRAWINGS



Front



Back



THE PXLNET CONTROLLER EXPLAINED

Art-Net or sACN controller required

For the PxlNet Controller to work in a live system setup, a third-party Art-Net or sACN software or console is required. PxlNet Controllers work with various professional grade software and consoles, such as: MADRIX, Pharos, ArKaos, Resolume Arena, MadMapper, POET, grandMA and many more. As long as the control software or console uses an industry standard Art-Net or sACN protocol, you can manage the PxlNet Controller.

Art-Net or sACN controller required

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Art-Net or sACN control software/platforms

When the setup process has been completed, the PxLNet Controller can be used with any type of Art-Net or sACN software or console. The PxLNet Controller can automatically be detected as an Art-Net or sACN device, depending on the software or console. To do so, an Input/output configuration must be completed first. Each PxLNet Controller needs to be configured with a unique IP address for unicasting. Assign a device name to the PxLNet Controller for easier recognition (see the Configuring the PxLNet Controller section).

Supported protocols (ICs)

The PxLNet Controller supports more than 60 protocols, including both 'Data' and 'DataClock' variants. All supported protocols can be found in the PxLNet Controller user interface. Go to Home > Settings > In/out configuration > Select a port drop down menu to open the protocol list.

Please visit digidot.eu/support/documentation for the latest overview of all supported protocols/ICs. For a more technical protocol overview and their performances, please check the documentation page in the performance guide.

KEY FEATURES EXPLAINED

More than 60 supported protocols

The PxLNet Controller supports more than 60 different control protocols, and new ICs are added frequently with software updates.

Up to 96 universes for SPI conversion

Depending on your PxLNet Controller version and license, you can output up to 96 universes, which is the equivalent of 49,152 control channels.

Onboard Gigabit switch

The onboard Gigabit switch allows a fast Art-Net or sACN input and output signal.

DMX Out

The I/O ports can also be configured as 16x DMX.

IP address filter

With this feature you can configure the PxLNet Controller to listen to a specific IP address when using Art-Net as input protocol. Signals from other IP addresses will be ignored.

Art-Net routing

You can route any of the incoming Art-Net universes to Art-Net outputs or SPI.

HTP merge signal inputs

It is possible to merge various input signals according to the HTP (Highest Takes Precedence) principle.

Incoming and outgoing signal monitor

This allows monitoring of all incoming and outgoing data, frame rate and network status.

Create segments

Create simple chase effects for a large number of pixels by creating segments of channels or LEDs and reduce the amount of input channels.

Daisy chainable

The two port ethernet switches with RJ45 connectors allow the PxLNet Controller to be daisy chained. (Daisy chaining more than 8 devices can cause network delays.) We recommend using a professional grade Gigabit network switch to split the network load.

Gamma correction

This is a function that corrects the input brightness. This amount of gamma correction changes not only the brightness, but also the ratio of red, green and blue. We recommend enabling this option if your input is a video or image file, or if you're using 16-bit LED ICs to make the dimming curve smoother if the brightness is low.

Adjustable fallback color

In case of absence or loss of the control signal, a fallback color can be set for every PxLNet Controller. You can also set the delay time before the fallback activates.

Online/offline firmware updates

We offer online updates which can be installed easily from the user interface. These updates can also be downloaded and installed if the PxLNet Controllers are not connected to the internet. You can download the PxLNet Controller software at digidot.eu/support/updates. Use the download link to get the file. You can upload the new firmware at <http://10.254.254.254/fwupdate.htm>. You can also change the '10.254.254.254' in the URL to the IP address of your PxLNet Controller. It is also possible to upgrade or downgrade multiple devices simultaneously by checking the 'Broadcast' option on the fwupdate page.

Output limiter

You can limit the output power to a pre-set brightness. There are two ways to do this:

Brightness limiter

This option limits the individual channels to a specific percentage. This means that every channel or LED will never exceed this percentage, e.g., limiting brightness to 50% means that all individual channels can never exceed 50% but the control range per channel will remain the same. The percentage is effectively applied to the input value for each channel.

Adaptive power limiter

This option limits the total average output of all channels combined to a specific percentage in order to decrease total power consumption. Individual channels may still output up to 100%, e.g., limiting power to 50% means that half of the channels can output 100% and the other half 0% or all channels at 50%, etc. If you try to output all channels at 75%, the output of all channels would be automatically limited to a total of 50% but would maintain ratios relative to each other.

WARNING: if you turn on a limiter, there will be less steps to dim, e.g., if a limiter is set to 50% and the IC is 8-bit (256 steps to dim), you will have 128 steps to dim remaining ($256 - (256/0.50=128)$).

16-bit dimming output

Whenever high-resolution dimming is required and supported by your IC, two input channels can be combined to one output channel to convert 8-bit to 16-bit dimming.

Configure LED color order

If an LED product has an alternative order of LED ICs or dyes, you can easily change the order of control channels in the user interface. The interface uses the default color order of the selected IC. You can configure R, G and B in any order with an optional W channel.

BEFORE INSTALLATION

Before installing our products it's important to note the following safety and installation instructions.

SAFETY INSTRUCTIONS

- Before installation and use of this product, read this manual carefully.
- Ensure these instructions are given to those responsible for installation and the end-user.
- Local electrical and safety rules and guidelines always overrule this manual.
- Acolyte and DiGidot Technologies B.V. cannot be held liable for improper handling, product installation, usage or storage.
- Installation should only be carried out by a professional and certified installer that is qualified to work on electrical installations.
- Do not conduct any repairs of the device (there are no user-serviceable parts inside). Any unapproved attempted repairs and/or product modifications will void product warranty. Acolyte and DiGidot Technologies B.V. cannot be held liable for any consequences.
- Repairs of this product may only be carried out by DiGidot Technologies B.V.
- Repairs and maintenance of the installation may only be carried out by qualified technicians.
- Always disconnect the mains power when working on a high voltage electric installation. Failure to do so may result in product damage or personal injury.
- Do not connect or modify this product in any way other than described in this manual.
- Never use a product that is visibly damaged or does not work correctly. Never use a product if it starts to smoke or if a crackling/sizzling noise is audible. If this is the case, disconnect the power to the device and contact your supplier immediately.
- The PxLNet Controller is designed for indoor use (dry locations) only. Exposure to rain or moisture may cause fatal damage to the controller and increase the risk of electrical shock.

MOUNTING OPTIONS

Install the PxLNet Controller properly in a 19 in. rack and protect the device from direct sunlight, rain and moisture. Make sure the device is installed and secured properly and that it cannot be moved. If you have any doubts regarding the environmental circumstances of your application, please contact your Acolyte or DiGidot Technologies B.V. prior to installation for further consultation.

WARNING

ThePxLNet Controller should not be subjected to extremely low air pressure (due to risk of component gas/liquid leakage). Keep the PxLNet Controller away from sunlight, rain or other moisture (due to risk of short circuit).

Do not use the PxLNet Controller outdoors or in humid environments (due to risk of short circuit). Provide enough circulation around the devices for cooling.


INSTALLATION AND WIRING

The PxLNet Controller is not designed to power LED lights, but to transmit signal/data to the LED lights/control ICs. An additional external power supply with properly rated output capacity is required to power the LED lights.

DATA INPUTS/OUTPUTS

In this section we will go through various wiring diagrams, depending on the Input/Output (I/O) configuration. The PxLNet Controller can send different SPI protocols (only one protocol simultaneously per bay). The ports can also be configured as DMX outputs, so there are many ways of connecting to the I/O ports. You can always verify your wiring in the 'How to connect' box of the input/output configuration page in the user interface.

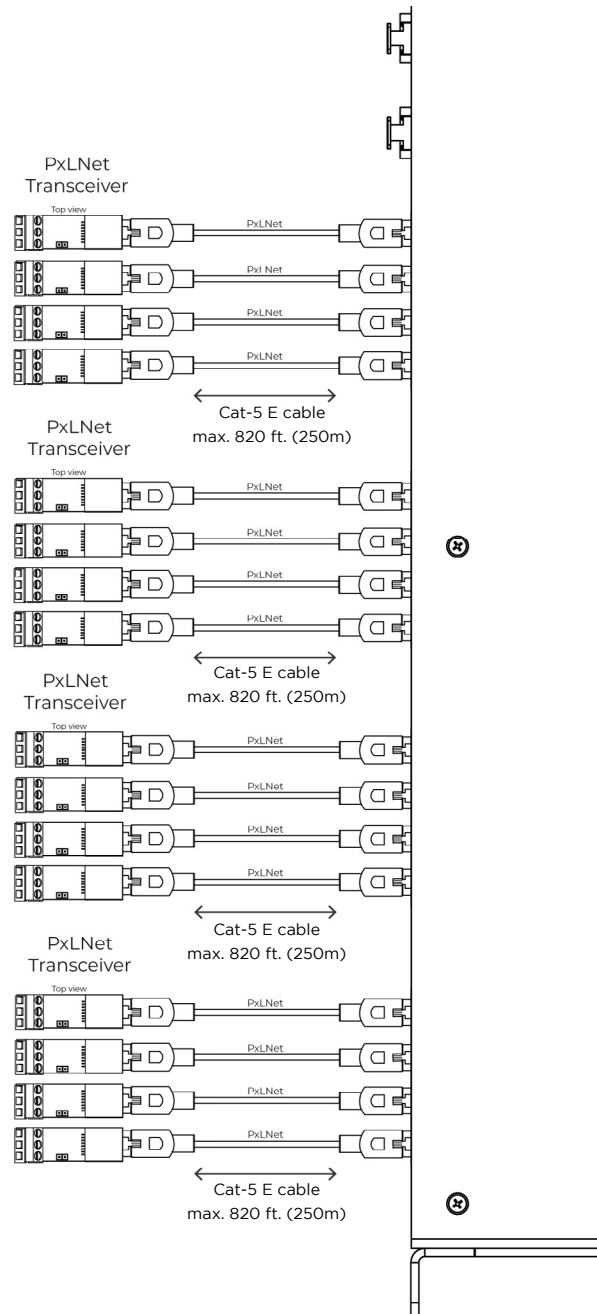
See the user interface or app at *Home > Settings > In/out configuration*

TIP: Make sure to select the correct device if you're using multiple devices and different I/O setups. You can use the highlight button  to identify your device.

16X SPI OUT

Average recommendation is max. 3 SPI universes per port (check the SPI performance guide for max. load per IC.)

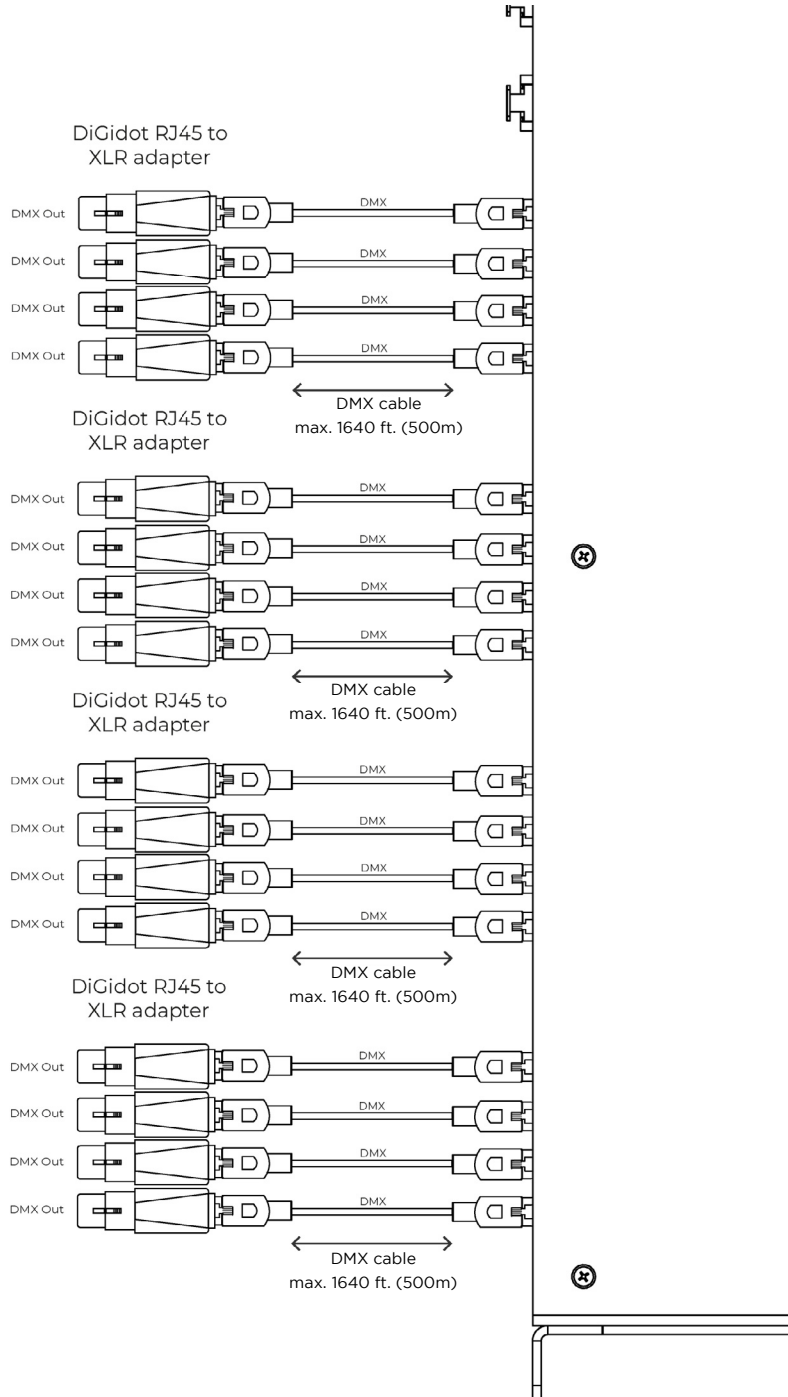
This option shows 16x SPI Data only outputs. To prevent timing issues, each SPI Ground wire must be the same length as the Data wire per output.



16X DMX OUT

Max. 512 channels per combined DMX port | DMX cable max. 1640 ft. (500 m)

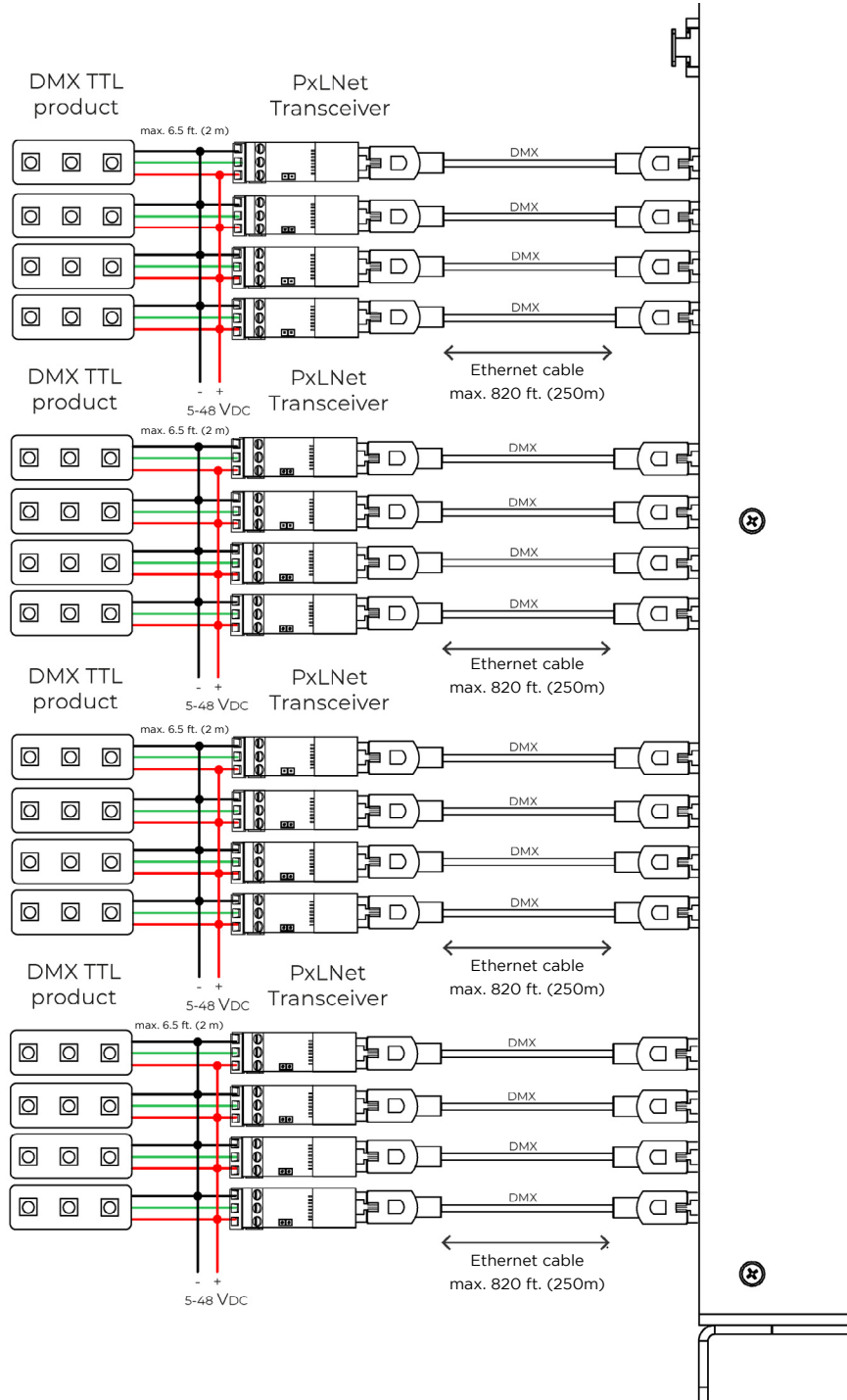
This option shows 16x DMX outputs. Every DMX signal requires a connected ground as indicated above. The cable should be a DMX cable with an impedance of 110 Ohm or a CAT6E (s/FTP recommended) or better.



16X DMX TTL

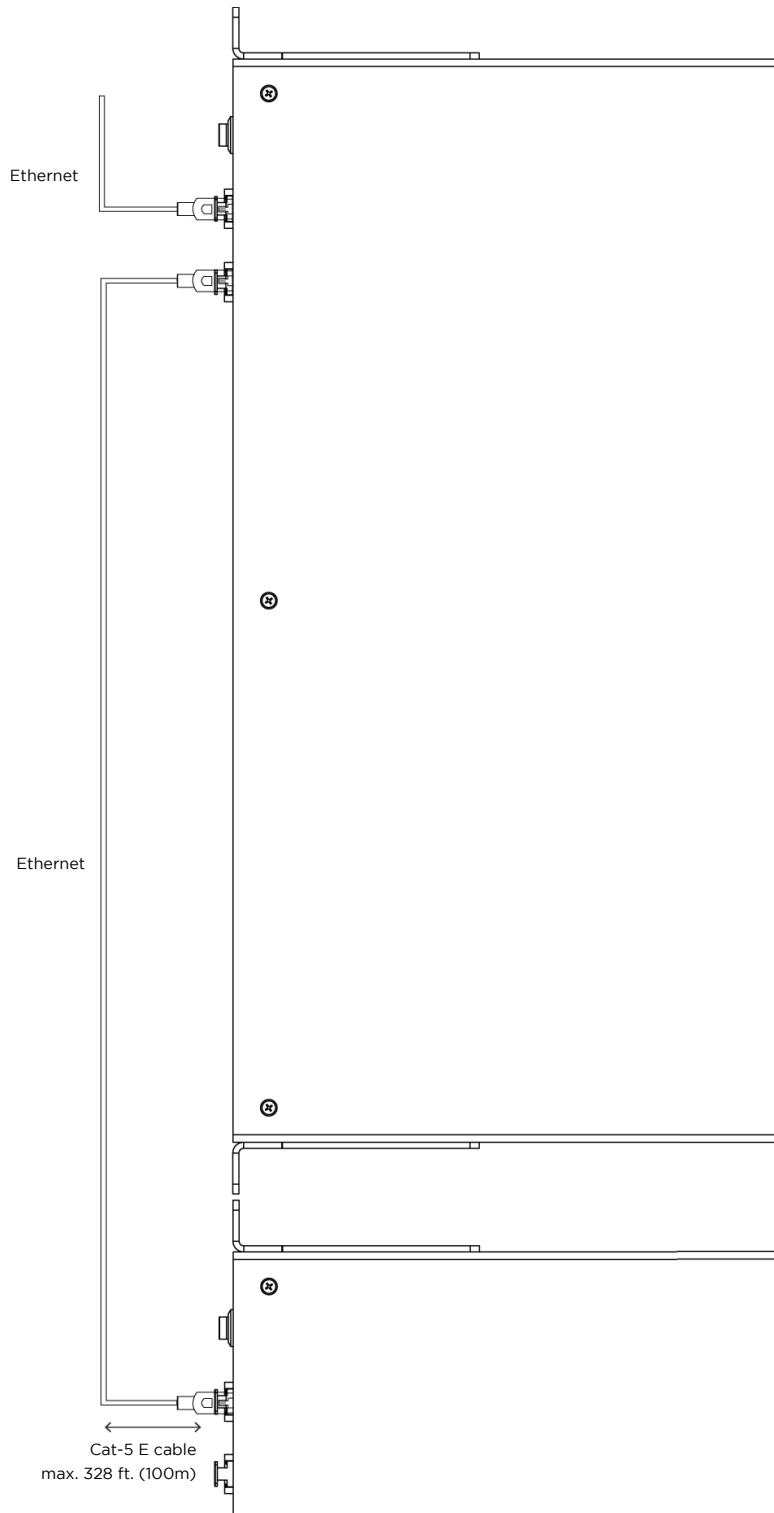
Ethernet cable max 820 ft (250 m)

This option shows 16x DMX TTL. Every DMX signal requires a connected ground as indicated above. The cable should be DMX cable with an impedance of 110 Ohm or CAT6 (s/FTP recommended) or better.



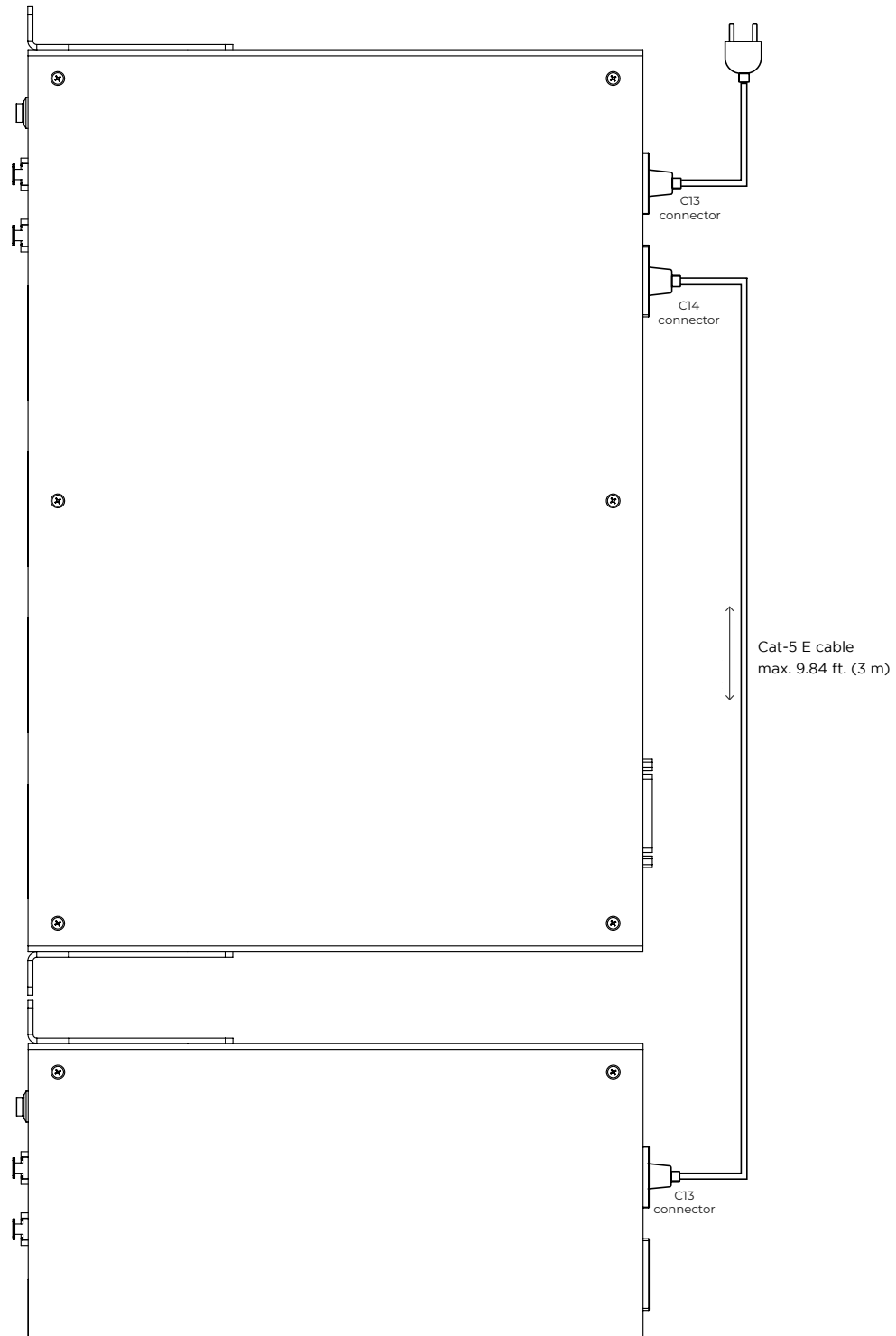
CONNECTING ETHERNET

The PxLNet Controller has a built-in Gigabit switch that allows multiple units to be daisy chained. We recommend that you daisy chain no more than eight PxLNet Controllers.



CONNECTING POWER

Connect the PxLNet Controller to a power source and switch the device on with the power switch on the front. You can also daisy chain the power cable with a C14 male to C13 female cable.



CONFIGURATION

QUICK START

The PxLNet Controller has a built-in Smart DHCP server. This will automatically set up a connection when the PxLNet Controller and a device are connected with Ethernet (wired) directly to a computer.

Accessing a PxLNet Controller works as follows:

1. Connect the PxLNet Controller to a power source. See the 'Connecting power' section.
2. Use an Ethernet cable (Cat 5E or better) to connect the PxLNet Controller to a network port of a computer.
3. Open your internet browser and go to *http://10.254.254.254*. If an account has been created to access the PxLNet Controller, the same username and password must be used in the app.

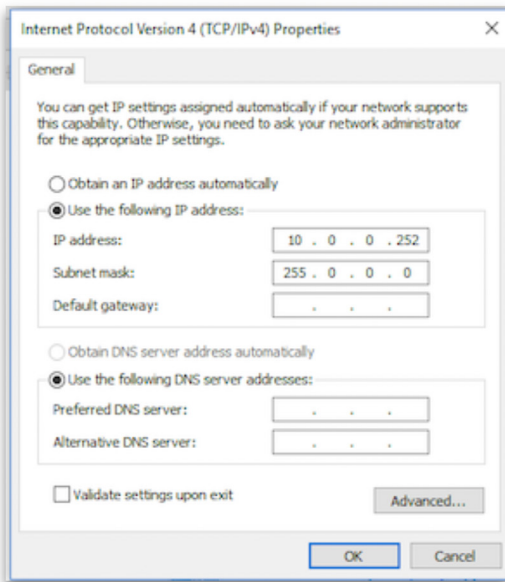
Configuring computer with a fixed IP address

This setup method can be skipped if you only want to access the PxLNet Controller web interface because the Smart DHCP server is enabled by default, and you can follow the steps in the previous section. A fixed IP address may be required if you want to connect a control system to the PxLNet Controller, such as a computer with MADRIX software. To set up a wired computer connection, power up the PxLNet Controller and use a CAT5E (or better), plug the network cable in one of the RJ45 network ports of the PxLNet Controller and into the computer's Ethernet port.

NOTE: Changing your Ethernet settings can prevent you from reaching the Internet and/or other devices in your network. To stay connected to the Internet and use the online update and upgrade functions, use a computer with multiple network connections (LAN or Wi-Fi). It's recommended that you write down your current network configuration in order to restore these settings after you have finished the configuration process if necessary. Some laptops switch between Wi-Fi or Ethernet. In these cases, you cannot have both connections simultaneously. This can be solved by using a third-party Ethernet dongle.

On Windows computers go to:

Control Panel > Network and Internet > Network and Sharing Centre > Ethernet > Properties > Internet Protocol Version 4 (TCP/IPv4) > Use the following network settings:



Network Settings example:

- IP address** 10.0.0.1
The static IP address of your computer
- Subnet mask** 255.0.0.0
Network range of your computer
- Default Gateway** (empty)
Router for Internet access

On Mac computers go to:

System Preferences > Network > Ethernet > Configure IPv4 > Manually > Use the following network settings:



Network Settings example:

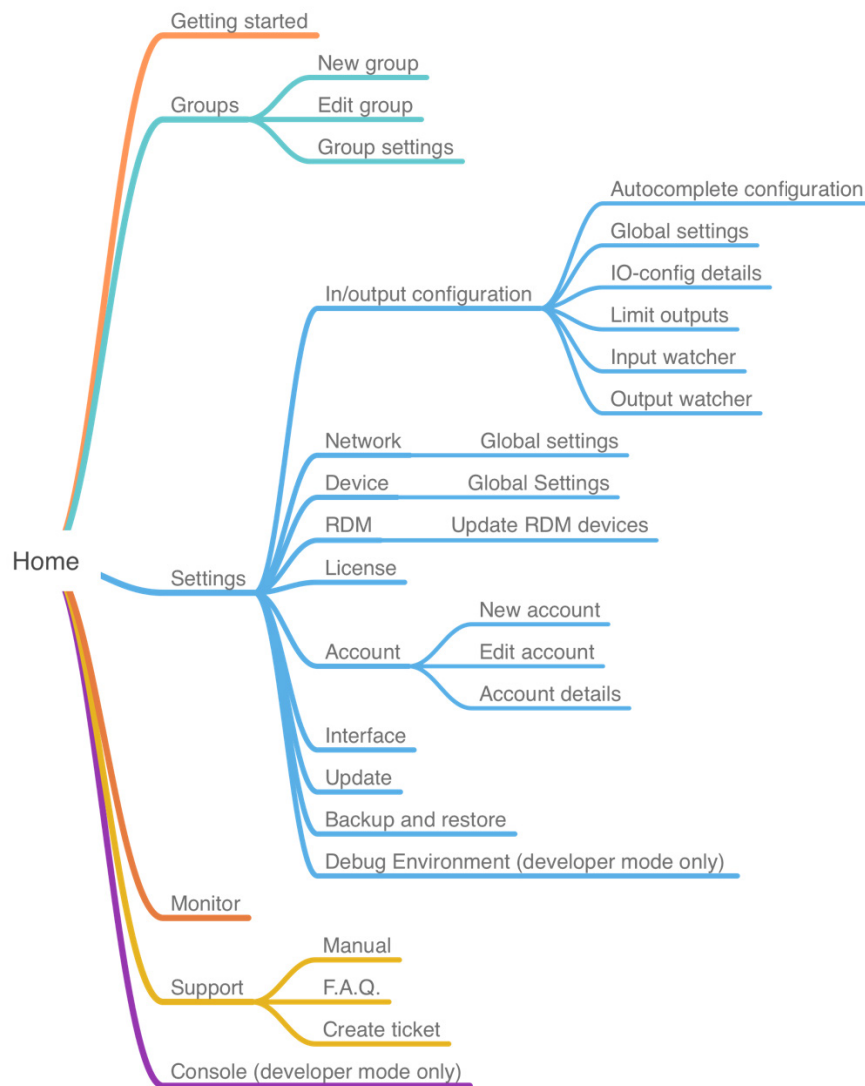
- IP address** 10.0.0.1
The static IP address of your computer
- Subnet mask** 255.0.0.0
Network range of your computer
- Router** (empty)
Router for Internet access

INTERFACE

The PxLNet Controller has a built-in web interface for configuration. The interface can be accessed through a web browser by using a wired ethernet using the IP address of the PxLNet Controller (default Ethernet IP address: 10.254.254.254).

Interface map

This map shows the internal menu structure of the PxLNet Controller.



Getting started

Home > Getting started

To get started quickly or if you're new to using the PxLNet Controller, we recommend using the 'Getting Started' wizard from the 'Home' menu. This wizard will guide you through all the essential steps to get the PxLNet Controller up and running:

1. Device and network settings
2. Device positioning (in the case of multiple devices)
3. Input/Output (IO) configuration
4. Security (Trigger security settings can be changed in the 'HTTP, UDP and OSC' sub menu on the 'Triggers' page.)

Open the user interface and go to the 'Getting started' wizard. Follow the instructions carefully and complete the wizard in order to get your system up and running quickly. If you need more information about a certain subject, you can open the information windows by clicking the blue 'i' icons. When the 'Getting started' wizard has been completed, your PxLNet Controller is ready to use.

Groups

Home > Groups

This function allows you to create specific groups of PxLNet Controllers. This makes the configuration, identification, testing, restarting and organizing of specific parts of your project or installation a lot easier.

Add a group

Home > Groups > click the '+' icon

Input fields

Name: Enter a name for this group.

Select devices: Check all devices that you want to add to this group.

Group settings

Home > Groups > submenu: Group settings

Auto select group at start-up:

In the group settings you can set up a device or group that is selected at the start-up of the app. This can be useful if you create a 'user' account that would only control those devices.

Hide single devices:

When you enable this option, single devices will be hidden in the 'My Devices' overview (select box in the top bar). Groups will not be affected by this option.

Monitor

Home > Monitor

In the Monitor function you will find relevant information such as Response time, Status, MAC addresses, IP addresses and so forth. This can be helpful when setting up your network, for troubleshooting or live monitoring of performance.

Response time

Response time shows the network message response time. When the Response time light is green, the network connection is working. When the Response time light is red, the PxLNet Controllers is not responding. Click on the "timeout" text to get more information about the timeout session.

Status

- Definitions of device statuses:
- Playing [scene name]: Device is playing a scene or playlist.
- Scene FPS
- Incoming FPS

Analog

This shows the incoming values of the analog ports.

Name

This is the device name.

MAC addresses

MAC addresses of device.

IP addresses

IP addresses of device.

Universe(s)

This shows the configured universe(s) that the PxLNet Controller listens to. There are two statuses:

- Red numbers indicate that no incoming signal data present.
- Green numbers indicate that an incoming signal is present. Click on the device universes to open the Art-Net or sACN watcher window to monitor the incoming channel values.

Port

This shows which ports have been configured as an output. If you click on a port, it will highlight the PxLNet Controller output until you click again.

Actions

Restart: will restart all devices that are currently displayed on the Monitor page.

Highlight: will highlight all configured outputs of all displayed devices on the Monitor page.

To select devices, click on the “ALL DEVICES” button (select box in the top bar) and select the preferred device or group.

Account

Home > Settings > Account

This page allows you to create accounts by enabling the accounts option. A popup will appear to create an ‘admin’ account. These login credentials will be asked if you try to log into the PxLNet Controller. After the ‘admin’ account is created, it’s possible to create accounts with different access levels. This can be used to restrict access to some parts of the interface for certain users. For example, a user might only be able to playback scenes and playlists. When a user (with ‘user’ rights) logs in, the user will automatically be redirected to the scene page.

Settings overview

Home > Settings

This page shows all the settings and device configuration.

Input & output configuration

Home > Settings > In/out configuration

On this page you can configure the inputs and outputs. Choose the output type for these ports. Then click the blue + icon of each port to add universes. To edit the output options, click the universe item. The PxLNet Controller can output one unique SPI protocol type simultaneously. If you select an SPI protocol for one port, this protocol will also be used for all other output ports from that bay.

Combining ports example:

Port P1 is set to Data+Clock out and will automatically be combined with port P2, because two separate data lines for a Data+Clock signal are required.

Art-Net out

This feature can be used to send or redirect incoming Art-Net to Art-Net out.

Click the '+' button to add Art-Net output universes. Select an input source and enter the number of channels that need to be sent.

Select 'Advanced settings' for more universe-specific settings such as starting address, IP address of the Art-Net source, 16-bit input and other output options.

Art-Net out universes can also be used to record from an Art-Net stream to play back later and send them over Art-Net again, so the PxLNet Controller can also be used as an Art-Net playback recorder.

Art-Net out channels are considered as output channels and will affect licensed channels.

Quick edit

Quick edit mode allows you to edit the configuration items, saving after all adjustments have been made. This speeds up the process when you must edit the universe number or channel quantity for multiple devices.

NOTE: The PxLNet Controller starts to count Art-Net universes at 0 (zero)! Some software or consoles, such as MADRIX, may start counting at universe 1.

TIP: Additional tools are available! In the top right menu, you will often find additional tools under the three dots in the top right blue bar.

Autocomplete configuration

Use this tool to copy the configuration of the first port of the first device to the selected ports/devices. The interface will show various autocomplete options, depending on your system setup.

Global configuration

This page offers advanced configuration item options that apply to all selected devices, such as:

- Gamma Correction
- Color profile
- Fallback options
- IP address filter

Input watcher

Input watcher is a useful tool that monitors incoming control signals. You can switch between Art-Net/sACN. Enter a specific universe that you want to monitor. (You can only watch the selected input protocol at the 'Input and output configuration' page.)

Limit outputs

On this page you can set the master brightness, the brightness limiter and the adaptive power limiter.

Brightness limiter

This option limits the individual channels to a specific percentage. This means that every channel or LED will never exceed this percentage, e.g., limiting brightness to 50% means that all individual channels can never exceed 50% but the control range per channel will remain the same. Effectively, the percentage is applied to the input value for each channel.

Adaptive power limiter

This option limits the total average output of all channels combined to a specific percentage in order to decrease total power consumption. Individual channels may still output up to 100%, e.g., limiting power to 50% means that half of the channels can output 100% and the other half 0%, or all channels at 50%, etc. If you try to output all channels at 75%, the output of all channels would automatically be limited to a total 50% but maintain ratios relative to each other.

Delete configuration

Deletes all IO configuration settings of selected devices.

In/out configuration item page

Home > Settings > In/out configuration > Universe item

Click on Port P1-P16 to select or change the output protocol. Click on the '+' symbol to add a universe to each port. Click on a universe item to change following settings:

Channels: Define the number of output channels.

Universe: Assign a universe number as input. Further configuration options are shown if you expand the 'Show advanced settings' option.

ADVANCED IO CONFIGURATION

Start-channel

This option allows you to enter an offset value of the starting channel that this universe listens to. By entering a start channel (0-511), all channel data before this channel offset will be skipped.

Example

Goal: You want to use channel 100 up to channel 200 as output channel 0-100. Configuration settings will be as follows:

* 'Start channel' is set to 100.

* 'Channels' is set to 200.

Explained: First, the start channel will shift 100 channels of the input. This will skip the first 100 channels of the universe. Then set the channels to 200, because 200 channels are required, starting after the first 100 skipped channels.

Create segments

This option combines multiple channels or LEDs to become one pixel/segment. Use this option when the amount of control channels needs to be reduced, if you want to create larger pixel segments or if multiple channels of an IC control the same channel (e.g., sometimes a 3 or 4 channel IC is used to control only white LEDs within one package or module).

Segment type

- Select a segment type from the dropdown menu.
- No segments - Disables segments (default)
- Create segments - Allows you to create your own segmentation
- RGB(W) LED segments - Link multiple LEDs together (e.g., channel 1 & 4 & 7, 2 & 5 & 8, etc.)
- Monochrome segments - Groups channels together (e.g., channel 1-3, 4-6, etc.)

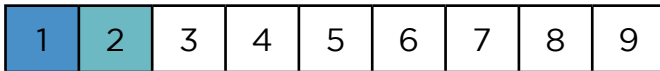
Examples

Repeating 3 RGB pixels: Output channels 1,2,3,4,5,6,7,8 and 9 will correspond to input channels 1, 2 and 3.

Number of linked channels

Repeat linked channels: 3

Input Channels



Output Channels

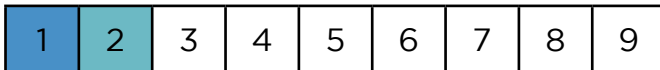


To convert a pixel product into simple '1,2,3,' chaser with less control channels: Copy the input channels 1,2,3 in the following order on the outputs.

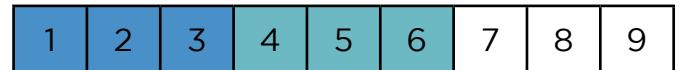
Number of linked channels

Repeat linked channels: 3

Input Channels



Output Channels



Increase pixel size/decrease channels: Combine/group multiple output channels into one to save input channels.

NOTE: Combining input channels will not reduce the number of output channels. The PxLNet Controller is always limited to the total amount of output channels corresponding to the license. The number of input universes is not limited.

Gamma correction

Gamma correction adjusts the overall brightness of the output. This option is used if you want to display videos and images or if you have a 16-bit output for finer control if the LED is low in brightness.

Color profile

Rearrange the LED color order (for example, from RGB to BGR). You can select a few standard conversion profiles or create your own custom profile. This might be required for some LED products. The PxLNet Controller uses the default color order from the technical documentation of a selected IC/SPI protocol.

Fallback color

This function allows you to select a color that will be sent to all output channels as soon as no incoming signal is detected for a specified amount of time.

Color

Enter an RGB(W) value between 0 and 255 per LED channel or use the color picker to select a color easily. If you use the color picker, you can also adjust the saturation and brightness by adjusting the sliders underneath. After selecting the fallback color, hit the # button in the center of the color picker to confirm your selection.

Timeout

Enter a delay/timeout in seconds when the fallback color becomes active after signal loss.

Advanced input

Further universe specific settings can be changed:

- Only accept signal from IP address: enter a dedicated IP address that this universe listens to.
- 16-bit input: When sending 16-bit data to the PxLNet Controller, two input channels are used for one color channel. If your IC does not support 16-bit and you want to convert 16-bit to 8-bit, please enable this option. If your input is 16-bit and your IC is too, it will be done automatically.
- Second input (HTP merge): This will merge the selected universes together and transmit the merged signals to the designated output. Enter the desired universe, start channel and the number of channels you want to merge.

Advanced output

Bypass master dimmer: Enable if you want this output not to be dimmed by a master dimmer or brightness trigger.

Max time until resend: When no signal is received within a given time the current output is resend to the ICs (LEDs). This is used to prevent data issues and IC timeout functions because some ICs will switch to a default color or sequence when no SPI is received for a certain duration. Reset this value to its default by pressing delete and generate a new universe again by selecting the blue + button of the specific P port.

When you are finished adjusting the advanced options, click 'save' to store the settings.

TIP: To quickly test your outputs, toggle all ports on to full white when clicking the bulb  icon.

Network settings

Home > Settings > Network

This page shows a tab for both Ethernet network-related settings of the PxLNet Controller.

MAC addresses

These are the unique device MAC addresses. Every bay on the PxLNet Controller gets its own MAC address. This address cannot be changed and is being used for identification and network communication.

ETHERNET CONFIGURATION

IP addresses

These are the ethernet IP addresses of the PxLNet Controller. Every bay on the PxLNet Controller gets its own IP address

Subnet-mask

The network range of your device.

Smart ethernet DHCP

Enable or disable the smart DHCP server. When enabled, the PxLNet Controller will assign IP addresses to devices that connect through ethernet. If a DHCP is already present on the network, it will be disabled internally if the DHCP server responds within a certain time window. If you've changed any ethernet settings, click the 'SAVE' button to store them.

Gateway

The gateway of the device.

Restart all

This will restart all devices in the network.

Global settings (multiple devices only)

This page offers global settings that will be applied to all selected devices, such as:

- Subnet mask
- Gateway
- Smart DHCP server

Device settings

Home > Settings > Device

This page shows the device settings of the PxLNet Controller.

Device name

The name of the device by which it can be identified.

Status Lights

The status LEDs can be dimmed in four levels:

- 100%
- 25%
- 10%
- 0% (off)

Ethernet Lights

Disable/enable the ethernet LEDs.

Actions

Restart - Restarts the PxLNet Controller.

License

Home > Settings > License

On this page you can view the license(s) of your PxLNet Controller device(s).

Diagnostic

Home > Settings > Diagnostic

This page will show relevant information to diagnose how a PxLNet Controller is performing.

ACTIONS

Global settings – This will open a settings page where it is possible to change the refresh interval.

1. File Browser – opens the file browser page of the PxLNet Controller
2. Trigger Watcher – opens the trigger watcher page of the PxLNet Controller

Filter

This will open a popup where it is possible to (de-)select views. This will also reduce the network load because the fields are not refreshed when deselected.

Global

This tab will show global information about the PxLNet Controller.

IO

This tab will show information about the Input and Output configuration of the PxLNet Controller. The items are focused on the refresh timings of the different configured items. The Input will update when there is new data available from the Art-Net, sACN or scene stream. The map will refresh when all data is available and matches the FPS. The output should always be refreshed within the configured timeout.

Network

This tab will show additional information about the connected ethernet ports and Wi-Fi.

Trigger

This tab will show the loaded triggers and if the PxLNet Controller will respond to external trigger calls.

Playback

The playback tab will show information about scenes and/or playlists playing. This tab will also show information about the FPS, total processed frames and skipped frames of the different input protocols.

Performance

This will show the different cycle durations. This tab can be used to monitor the performance of the PxLNet Controller.

Memory

The memory tab will show an overview of the used RAM and which managers are using it. It will also show the status of the SD card and, if mounted, the free space of the FAT partition.

Error

This tab will show the generated errors of the API and error items logged during the current session. These values will be reset after a reboot.

Interface settings

Home > Settings > Interface

This page offers a few user interface-related options. These settings are stored in your browser or the PxLNet Controller app.

Theme

You can choose 'Light' (default) or 'Dark' color mode.

Developer mode

This mode adds the 'Console' menu item to the Home page. This option opens a command editor which should only be used by advanced users or if instructed by our support team.

Update

Home > Settings > Update

When there is an internet connection, the user interface will automatically show if a firmware update is available. It's possible to update multiple devices at a time. Before updating, ensure that all connected devices have the same firmware version, that all devices are switched on and connected by wired Ethernet. Follow the update instructions from the interface.

Offline update

When no internet connection is available, you can download the latest update from our website and then manually upload it to the PxLNet Controller.

Open your web browser and go to <http://fwupdate.htm>. Click the 'Browse' button and locate the update file. Then Click 'Install' to start the update process (this may take a few minutes). You can also check the 'Broadcast' checkbox if you want to send the update to every device. (Make sure that you're not sending Art-Net or sACN if you choose to broadcast!)

After the update is complete, the PxLNet Controller status lights will return to idle state, fading blue to cyan. By default, the IP address of the PxLNet Controller is *10.254.254.254*. When you have configured a different IP address you can use that one as well.

Backup and restore

Home > Settings > Backup and restore

The PxLNet Controller has a backup feature that allows you to back up the settings from multiple devices. The backup can save accounts settings, network settings and device settings. There are two ways to create a backup:

Save backup: This will save the backup to the application memory in the browser/app. The backup will show as an option in the 'restore' options inside the interface.

Export backup (browser version only): This will create a backup that will be downloaded as a zip file. This zip file can be used at 'Upload backup file'.

Support overview

Home > support

This page shows all support items.

Node Manual

Home > support > Manual

This page shows the manual of the PxLNet Controller. The manual is always compatible with the connected PxLNet Controller firmware/interface. An internet connection is required to open this page.

F.A.Q.

Home > support > F.A.Q.

This page will load the F.A.Q. page from the DiGidot website to help you answer frequently asked questions. This page requires an internet connection.

Support Ticket

Home > support > Support ticket















On the support ticket page, you can fill in a form for any firmware/interface bugs, for a feature request or for other improvements for existing features. When reporting a bug, we recommend downloading a bug report (browser only) and selecting it at the 'Bug report file' input. This makes it easier to diagnose your problem. Any screenshot or video of the situation will also help. This page requires an internet connection.

TIPS & TROUBLESHOOTING

1. Double check all cables and connections.
2. Is the PxLNet Controller powered correctly?
3. Are the LEDs powered correctly?
4. Are all power supplies correctly connected to your mains power supply?
5. Is your network setup correct?
 - 5.1. Prevent IP address conflicts (same IP address across multiple devices)
 - 5.2. Ensure the subnet mask range is correctly set and that all IP addresses are within the appropriate range.
6. Are the inputs and outputs correctly configured?
 - 6.1. Ensure the correct IC/SPI protocol is configured.
 - 6.2. Ensure the patch of Art-net/sACN software is correct. Ensure that no fixtures are patched twice.
 - 6.3. Ensure that input and output match the system setup. Please note: Some software starts counting universes from 1 instead of universe 0.
7. Ensure no more than one browser session is open and connected to the PxLNet Controller.
8. Clear your browser cache or try incognito mode.
9. Refresh the interface by pulling down the top of the interface page. The pull-to-refresh action can be executed on the Scenes, Playlist, Account, Triggers, Input & output configuration, Network, License, Update, File browser and Device pages.
10. Perform a factory reset. Disconnect the power from the PxLNet Controller. Press and hold the onboard button on the front, then apply power and hold the button for at least 10 seconds. Once the status LEDs turn to blinking yellow, the factory reset is initiated. Once the status LEDs turn to solid yellow, you can release the onboard button. Resetting and rebooting will take 315 seconds. Please take into account that all settings such as the in/out configuration, network, device and account settings will be lost. Perform this reset for all four bays.

Status LEDs

The PxLNet Controller has a front view status LED indicator for every bay. There are several states of the device. Definitions for the status light indicators:

	Light colors	Category	Explanation
	Fading blue-cyan light	Informative	The PxLNet Controller is idle with a license.
	Fading blue-green	Informative	The PxLNet Controller is receiving an incoming signal (Art-Net, sACN).
	Fading blue-magenta	Informative	The PxLNet Controller is playing a scene.
	Fading blue-white	Informative	The PxLNet Controller is recording or processing a scene.
	Fading green-off	Informative	Settings were stored or a device was discovered.
	Fading white-off	Informative	The PxLNet Controller is updating the Wi-Fi firmware.
	Fading yellow-off	Informative	Preparing factory reset; keep button pressed until fading stops.
	Blinking white to cyan	Informative	Temporary Wi-Fi access point is activated.
	Blinking red for 3 seconds	Error	There is a general (temporary) unknown error.
	Alternating red	Error	The microSD card must be formatted.
	Alternating blue-red	Error	The PxLNet Controller system is frozen; a reset will be performed.
	Alternating red-yellow	Error	The internal battery is empty or has a problem.
	Alternating red-white	Error	The PxLNet Controller has crashed; a reset will be performed.
	Alternating purple-purple	Error	The self-test failed during startup.

NOTE: If there is a battery error (status lights are alternating from yellow to red for 3 seconds), contact DiGidot for further instructions.

No output signal from PxLNet Controller

Make sure that:

- The PxLNet Controller is powered.
- The master brightness and port limiters are not set to zero.
- The inputs and outputs are configured.
- The lighting fixtures/LEDs to be controlled are properly powered.

PxLNet Controller not receiving signal

Make sure that:

- The PxLNet Controller is powered and properly connected to the Art-Net or sACN console/computer.
- The network, input and output configuration of the PxLNet Controller device is properly set up.
- The computer/device that is sending signals is set up to match the network settings.
- The computer/device that is sending signals is set up to match the universe inputs.
- The incoming signal status can also be checked from the interface on the monitor page.

Art-Net/sACN software doesn't recognize the PxLNet Controller

Make sure that:

- The PxLNet Controller is powered and properly connected to the Art-Net console/computer.
- For the PxLNet Controller to be discoverable for any software, you need to ensure the network and one or more output(s) have been configured properly.
- The PxLNet Controller works with most well-known Art-Net consoles and software. Some Art-Net consoles only work in the 2.0.0.x range. Please configure your device in the same range if necessary. The computer/device that is sending signals is set up to match the universe inputs.
- If you try to discover devices from Art-Net software, the subnet mask of the console/computer must be identical to the subnet mask of all the PxLNet Controller device(s). If your console or software continues to fail to discover the PxLNet Controller, you can try to reboot your PxLNet Controller(s). If the problem still remains, please contact DiGidot support.

Factory reset

Some problems require a factory reset if nothing else seems to work. This returns the device to its factory default settings. The factory reset needs to be done for each bay. The factory reset will reset the input/output configuration, device settings, network settings and user accounts. After resetting, the device can be accessed through IP address <http://10.254.254.254>.

WARNING! Deleted settings cannot be restored. Please make a backup before resetting the device.

Factory reset procedure:

1. Disconnect the power to the PxLNet Controller.
2. While pressing the onboard button on the front, re-apply power to the device and hold the button for 5 seconds. Both status lights will blink yellow 5 times. When the yellow status light remains on, you can release the button. The device will reboot and is then ready to use. If you're not able to perform this reset due to accessibility and if the PxLNet Controller network is/can be connected to a computer with internet access, contact DiGidot support for remote assistance.

Having trouble with your PxLNet Controller setup?

If you have followed all the steps from the manual and are still having problems setting up the PxLNet Controller, visit our online support page or send an e-mail to support@digidot.eu. Please make a backup file and send it along with your email, as this will make trouble shooting for our engineers a lot easier.

If you can't connect to the PxLNet Controller user interface, try to access the user interface by opening Google Chrome, typing <http://10.254.254.254> in the address bar and pressing enter. If the user interface does not load or seems unresponsive, reload the page. If reloading doesn't resolve the problem, you need to:

- Make sure the PxLNet Controller is correctly connected to a power source per the wiring instructions.
- Make sure the device is connected to a computer or mobile device.
- Empty your browser cache.
- Check for IP conflicts.
- Check your network connection and network settings.

Make sure that the computer network is in the same range as the PxLNet Controller. For example, when your PxLNet Controller is configured to use the IP address "10.0.0.2" with subnet mask "255.0.0.0" your computer network needs to be in the same "10.x.x.x" range on subnet mask "255.0.0.0". You can test your network connection with the PxLNet Controller.

On Windows

Click the Start Menu > All Apps > Windows System > Command Prompt.

Or find the Windows Command Prompt by right clicking on the Start button > Command Prompt.

On Mac OS

Open the Utilities Folder > Applications folder and open the Terminal App

Or use Spotlight by clicking CMD + Spacebar and searching for Terminal App.

Type 'ping' and the IP address of the PxLNet Controller '*ping 10.254.254.254*' and then press the Enter key of your keyboard to ping the PxLNet Controller. A timeout will indicate a broken connection. If you still can't access your PxLNet Controller, the interface page is not loading correctly or the discovered devices are not added automatically, try to empty your browser cache and re-power and reload the user interface.

Forgot the username or password for the PxLNet Controller?

When you have lost your username or password you can perform a factory reset of the PxLNet Controller. The reset function will restore the factory settings, but information on the microSD (such as scenes, playlist and triggers) will not be erased. After resetting, you can access the device with its default IP address. If you have created a backup, you can restore the device configurations according to the backup & restore instructions.

Can't find your protocol/IC?

The PxLNet Controller supports most SPI protocols of all pixel controllers on the market. However, technology is evolving rapidly and we're not always the first to know when there's a new product IC chip with a new protocol. If you have or want to use an IC that is not listed in our supported ICs overview, please contact support@digidot.eu. We will do our best to support your IC with a new firmware update.

Some LEDs/colors are not responding correctly

This is a common issue that occurs when the voltage drops below a certain minimum. Please check the voltage at the end of the LED strip and note, for example, that if you're running a 5 VDC product, the data signal also runs at this level. If the voltage drops to 3.5 VDC, the ICs will not work properly and the data packets will become corrupted. The LEDs also require a certain minimum voltage (forward voltage), which varies per LED and color.

Reasons for voltage drops:

- The cable run between power supply and LED product is too long.
- The wire gauge between power supply and LED product is inappropriate.
- The design of an LED product does not allow for high enough currents to pass (copper lanes are too small or there is high resistance). Some LED strips, for example, cannot be daisy chained because of this. Contact Acolyte for technical specifications.

Based on the amount of current drawn (the number of simultaneous LEDs/colors being lit), the voltage may fluctuate and cause an intermittent fault. This means that in some cases everything might seem to work fine and sometimes when content or colors change, it might not.

Solutions:

Check the voltage with a voltage meter at the beginning of the line. If the voltage dropped at the beginning (compared to the PSU voltage), please shorten the supply cables, increase wire gauges or increase the supply voltage if possible (some power supplies have a voltage adjust potentiometer that can be used to increase the output voltage by a small percentage).

NOTE: Do not exceed the supply voltage at the beginning of your data line/first LED product
Re-supply voltage at some point (where the voltage drop measured is significant) before the faulty LEDs are visible (e.g., in the middle of the line) or at the end of the line.

NOTE: Re-supplying power must be done from the same power supply or, if another power supply is being used, all grounds of all power supplies must be connected to balance the ground potential. Don't connect the VCC from different power supplies.

TIP: Do not use excessive wire gauges to transfer data from the PxLNet Controller to the LED products, as this will only increase the risk of failures. Typically, we recommend using wire gauges for the data signal of 20-22 AWG (0.3-0.5 mm²).

FAQs

Please visit digidot.eu/support/faq for all frequently asked questions and further support.

ACCESSORIES

We offer various accessories for your installation. Please contact Acolyte to order the following accessories.

PxLNet Transceiver 2

- Operating voltage: 5-48 Vdc
- Two operating modes:
 - Receiving mode: Converts PxLNet to the original SPI protocol
 - Transmitting mode: Converts SPI protocol to PxLNet
- DMX to DMX TTL conversion
- Status LED indicators
- Signal range of 820 ft (250 m)
- Can be soldered directly to the beginning or end of most SPI-controlled LED strips
- RJ45 bus and solder pads for signal input

RJ45 Network Cable

- Spare RJ45 Network cable for connecting and daisy chaining the PxLNet Controller

RJ45 DMX Adapter

- Connects to a network cable that runs from a PxLNet Transmitter port and can be plugged in any DMX-controlled product with an XLR-3 socket.

For more Transceiver kits and accessories, please visit AcolyteLED.com.

VARIOUS

Online resources

For technical specifications, latest documentation, manuals, product information, support and upgrades, please visit *AcolyteLED.com* or *digidot.eu*.

Remarks

We've taken great care in writing this manual. However, if you encounter any discrepancies or something isn't clear, please contact us. This manual explains specific instructions based on firmware and interface versions mentioned in the 'Manual version' section.

Terminology

SPI	Serial Peripheral Interface: this is an interface bus used to send data between microcontrollers and IC's.
IC	Integrated Circuit: this is an electronic component which houses a readymade circuit that is able to perform one specific task. An IC can be placed separately on a PCB or integrated in an LED package to control/drive an LED or a segment/array of LEDs.
IC/SPI protocol	A type of control protocol that is used by an IC.
Scene	A scene can contain static and dynamic values that control specific channels.
Playlist	A playlist can also be referred to as a cue. It consists of multiple scenes that are played in a specific order according to pre-programmed parameters.
Action list	A sequence of actions triggered by a single trigger.
Universe	Typically, a universe is referred as one DMX control network consisting of 512 control channels, also typically associated with one DMX output. The PxLNet Controller also refers to a universe as one set of 512 control channels that belong to specific Art-Net, sACN or DMX universes. But when we mention more than one universe on one output, for example, we always refer to them as the amount of control channels and not necessarily as DMX universes.
I/O configuration	Input/Output configuration determines how and which signals are received by the controller and how the ports of the controllers are configured for sending a specific signal.
DMX	Digital MultipleX is a universal lighting control protocol which is standardized by USITT and ESTA/Plasa.
RDM	Is the implementation of Remote Device Management based on ANSI E1.20
Art-Net protocol	Is a UDP protocol that allows multiple DMX universes to be sent over an ethernet network and was standardized by Artistic License Holdings Ltd.
sACN protocol	Similar to Art-Net, sACN protocol is a UDP protocol that allows multiple DMX universes to be sent over an ethernet network and is standardized by the ANSI Standard E1.17-2006.

COMPLIANCES & EU DECLARATION OF CONFORMITY

This product was designed and produced by DiGidot Technologies B.V., Amsterdam, The Netherlands.

Country Of Origin is: The Netherlands. Official Certificates of Origin can be issued upon request.



CE MARKING

Hereby, DiGidot Technologies BV declares that the PxLNet Controller (also known as the DiGidot PxLNet Node) complies with and was tested according to essential requirements of all relevant CE directives. DiGidot Technologies BV is a registered DMX-RDM manufacturer at tsp.esta.org, under ID 00b6h. DiGidot Technologies BV registered Art-Net manufacturer at artisticlicence.com, under ID. 0xOfd0.



WARRANTY

This product has a carry-in manufacturer's warranty of 5 years which covers any design faults, production faults and component failures. Warranty is void if the product was installed or used incorrectly or not in accordance with this manual, and/or if the product was damaged due to external factors, modified or electrically overloaded. Warranty conditions of DiGidot Technologies B.V. apply. Warranty claims must be issued by email to support@digidot.eu.



DISPOSAL AND RECYCLING

This product should not be disposed of with other household waste. When you decide to dispose of this product and/or its battery, obey local environmental and recycling regulations.

FEEDBACK

Tell us all about your experience with the PxLNet Controller! The continuous development of this control platform is only possible thanks to feedback from our users. If you have any suggestions, please contact us by email: info@digidot.eu.

IMPRINT

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MANUAL VERSION

This manual version may predate the firmware version of your PxLNet Controller. Some functions may be different and new features may have been added. Please make sure that you're using the manual that matches your firmware version. This manual corresponds to the PxLNet Controller firmware version listed below this page.