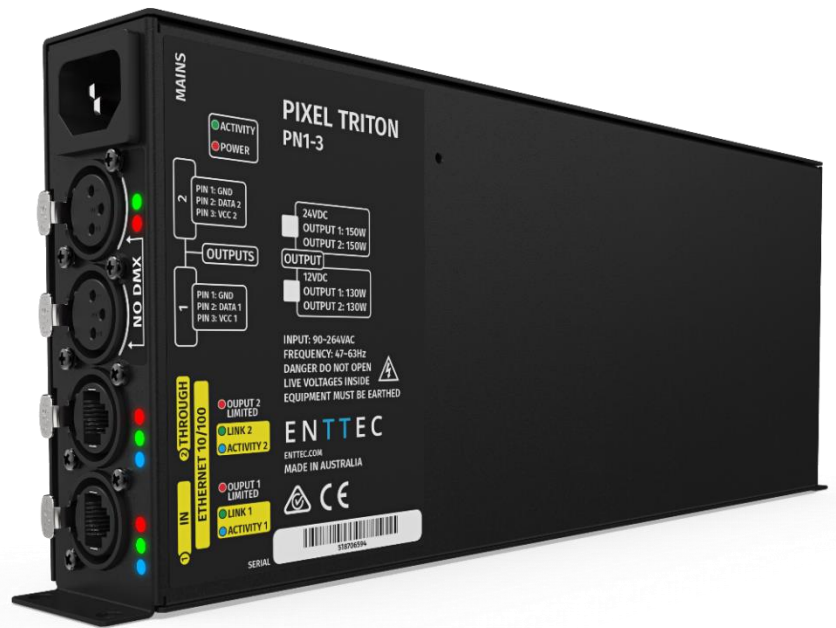


# Pixel Triton



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## Package Contents

- Pixel Triton (75020-12 or 75020-24)
- IEC power cord (country dependent plug)
- Read Me Card
- Two 3 PIN Pixel Breakout connector

## Safety Information

- This unit is intended for indoor use only.
- Do not expose this device to rain or moisture, doing this will void the warranty.
- Make all the connections before you plug in the mains power
- Do not remove the cover, there are no user serviceable components inside.
- Never plug this unit in to a dimmer pack
- Ensure proper earth connections
- Always be sure to mount this unit in an area that will allow proper ventilation. Allow about 6 inches (20 cm) between this device and a wall.
- Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, pay particular attention to the point they enter and exit the unit.

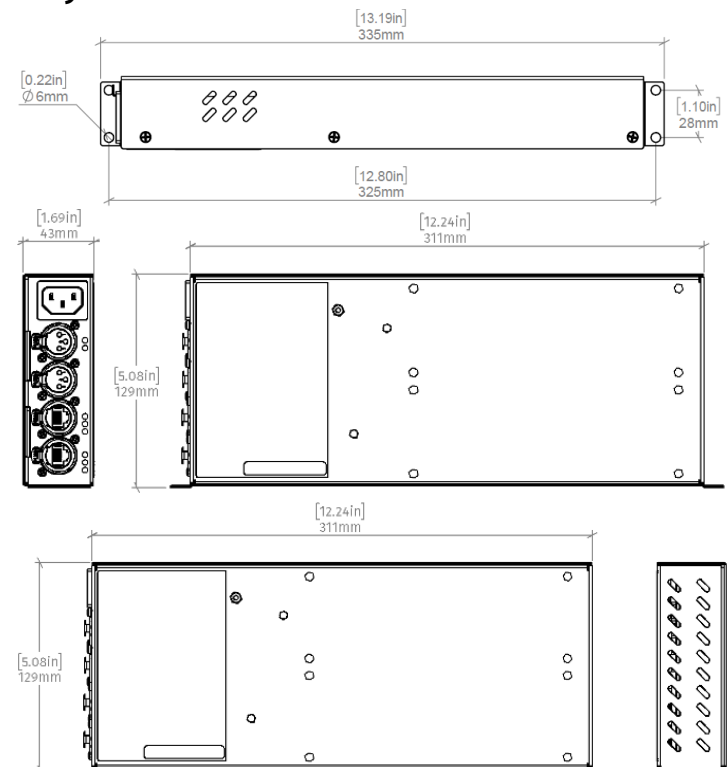
## LED Protocols Supported

- 9PDOT-8bit and 9PDOT-16bit
- WS2811, WS2812, WS2812B and WS2813
- SK6812
- TM1804, TM1812 and TM1814
- UCS2903 and UCS2904
- APA-104

### Note:

We cannot claim to support all led protocols, but if you do happen to find one that does work, and is not listed, please let us know, so we can update our documentation

## Physical Dimensions



## Software Features

- Web configurable
- Firmware updateable
- Supports the following DMX over Ethernet protocols:
  - Art-Net
  - Streaming ACN (sACN)
- Configurable Static or Dynamic (DHCP) IP (DHCP by default).
- Netmask and gateway updateable
- Supports up to 8 ethernet universes (maximum of 4 universes per output port)
- Configurable pixel ordering.
- Monitors and maintains device temperature
- Monitors and displays the power consumed by each output
- Detects and indicates when the power consumed by an output is on or above the recommended value
- Monitors and displays the network traffic for the DMX over ethernet protocol enabled:
  - Data packets received and sent
  - Last IP data received from
  - Poll packets received
  - Sync packets received
- Easily extendable network – daisy chain ethernet connection
- Web faders for instant testing of setup

## LED Status

Pixel Triton has 8 LED indicators:

- Power LED
- Device Activity LED
- Link and activity LED (each ethernet port)
- Output limit indicator for each output

### Power

- This LED is red in colour
- Indicates that the internal power supply is working, and the unit is ready to operate
- If the LED is off after the mains cable is connected to a working wall outlet, it means that there is a problem in the unit.

### Activity LED

- This LED indicates the status of Pixel Triton and should be constantly flashing. Operating status of the LED is as follows:

LED rate	Status
<b>0.5Hz</b>	Device functions normally
<b>Always on</b>	2 or more different IPs sending ethernet data to the same output universe

### Link 1 and Link 2

Each LED indicates a connection has been established using the corresponding ethernet port

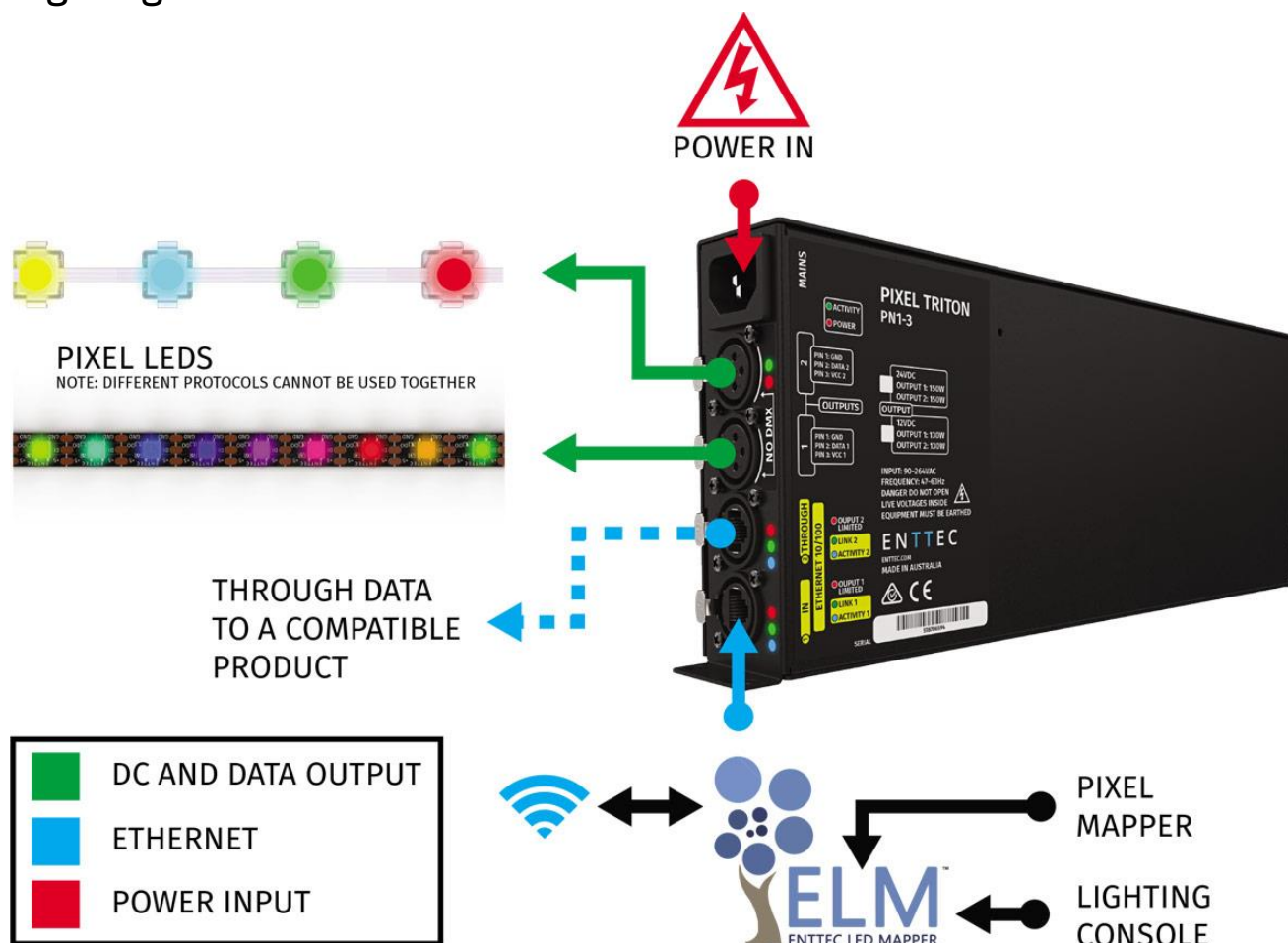
### Activity 1 and Activity 2

Shows transmit and receive activity of each ethernet port


### Output 1/2 limited

Indicates if the load, connected to the corresponding output port, is consuming or above the recommended operational power value

## Wiring Diagram



- Always check that the voltage and output of Pixel Triton matches that of the tape/dots, before connecting.
- Network delay: 96 micro seconds per unit, for a standard 600 bytes Art-Net packet (when connected in network daisy chain)
- Only one ethernet source must be used to drive the device at any single time.
- Connecting distance between Triton data output and tape/dots data input is highly dependent on cable quality, maximum suggested length is no more than 3 meters.
- Through connection can be made with any of the three models Pixel Port, Pixel Octo or Pixel Triton

Output 3-Pin Female XLR Pinout			
 <p>Female</p> <p><b>Not to be used as DMX output</b></p>	Pin 1	Ground	
	Pin 2	Data	
	Pin 3	12V Triton	+12 VDC
		24V Triton	+24 VDC



**Do not connect the Positive voltage of output 1 (VCC 1) to positive voltage of output 2 (VCC 2)**

## Default IP

Right out of the box, the Pixel Triton is factory configured to be a DHCP node, so you can plug it into your existing router, and it's good to go.

If router is unable or slow to assign an IP address to the driver the default static IP Address is used. Default static IP address is provided on a label in the box. However, one can easily calculate the IP address, using the MAC address as follows:

### 10.(byte 1). (byte 2). (byte 3)

#### Note

Where the three bytes are the last three bytes of the mac address in decimal.

For e.g.:

- If mac address is 0050C207C8A8 where last three bytes are 07, C8 and A8 default static IP for the above mac 10.7.200.168
- Where byte 1 07 is 7 in decimal
- Where byte 2 C8 is 200 in decimal
- Where byte 3 A8 is 168 in decimal

Using the IP address, one can access the built-in web-interface of the Pixel Triton via any modern web-browser. The web-interface allows the settings of the unit to be changed

## Finding IP Address Using NMU

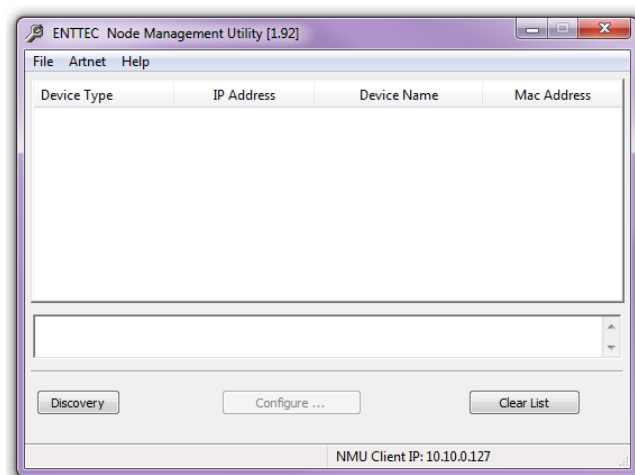
ENTTEC provides a free App (available for Windows and Mac) called NMU (Node Management Utility) that finds the Pixel Triton and displays its IP address.

#### Note:

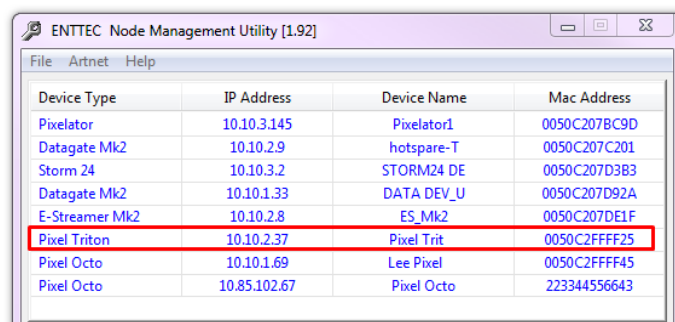
Pixel Triton is only supported by NMU V1.92 and above.

Please follow these steps:

1. Download NMU from [www.enttec.com](http://www.enttec.com)
2. Pixel Triton should be connected physically by an Ethernet cable to the same physical network (or router) as the computer on which you will run NMU.
3. Open NMU. If prompted with multiple network interfaces, select the correct one to which the Pixel Triton is connected to
4. Press the Discovery button, and wait till NMU finds all supported ENTTEC devices



5. Once found, select Pixel Triton and use the IP address to access the web-interface



## Web Configuration

Once setup, any Art-Net/sACN enabled software/app or a lighting control desk can be used to drive the Pixel Triton output.

Pixel Triton can be configured and controlled through a web browser, running on a computer system, located on the same Local Area Network.

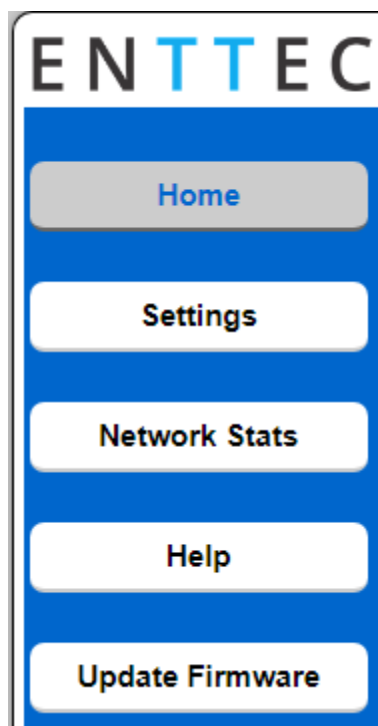
### Note:

Recommended web browser – Google Chrome

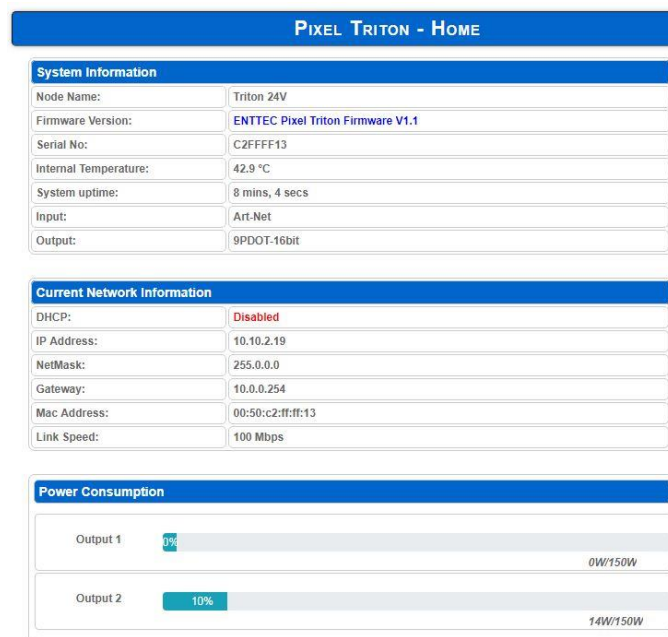
Either click on the underlined URL displayed in NMU or type the IP address (as detected by NMU e.g.: 10.10.2.19) into your web browser to access the web interface.



The left side menu allows all the Pixel Triton web pages to be accessed.



## Home



The Home page displays the following information:

- Device Name
- Firmware version on device
- Serial number of the device
- Internal temperature of the processor
- System uptime
- DHCP status – whether enabled
- IP address
- NetMask
- Gateway
- Mac Address
- Link Speed
- Input protocol set on device
- Output LED protocol set on device
- Graphical display of power consumption for each output

## Settings

The Settings tab allows an end user to do the following:

- Change a device name for identification
- Enable/disable DHCP
- Set a specific static IP address
- Set a specific static NetMask
- Set the input DMX Protocol
- Set the output LED Protocol
- Set the number of input universes
- Map a universe to the output
- Configure how colours are mapped to pixels
- Set number of pixels that are controlled
- Pixel grouping settings
- Test the device and/or tape using faders
- Reset to factory defaults
- Reboot device

## Network Stats

Network Summary	
Poll Packets Received:	250
Data Packets Received:	5892397
Sync Packets Received:	0
Last IP:	10.10.2.48
Last Port:	6454

The Network page shows statistics for the DMX protocol enabled. The information provided is:

- Poll packets received (ArtNET only)
- Last IP packets were received from
- Data packets received
- Sync packets received
- Last port data received from

## Update Firmware

In addition to providing a method to update the device firmware this tab shows the following:

- The boot version on the device
- The firmware version on the device
- The device mac address
- The device serial number
- DHCP status
- Device IP address

When the firmware page of a device is accessed, the NMU will display this unit in red

Pixel Port	10.10.4.8	Pixel Port	0050C207D6D3
Datagate Mk2	10.10.1.33	DATA DEV_U	0050C207D92A
Pixel Triton	10.10.2.18	Firmware Update Req'd.	0050C2FFFF12
Pixel Triton	10.255.255.19	HOPD Test	0050C2FFFF13



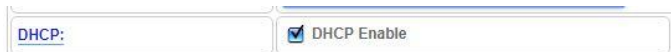
## General Settings Explained

### Node Name



Node name is used to identify the unit on the network. Any meaningful name can be used.

### DHCP

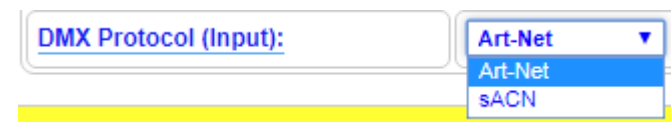


DHCP is enabled by default. When enabled, the router on the network, which the device is connected to, is expected to automatically provide the IP address to the unit. If no DHCP router/server is present on the network, the static IP address will be used. Triton will listen for DHCP on start-up.

Static IP Address Netmask and Gateway are only used if DHCP is disabled or is unavailable on the network.

Pixel Triton web-page will warn, if non-standard IP address or netmask is used.

### DMX Protocol



This setting allows the input DMX over Ethernet protocol to be picked. Available options:

- Art-Net
- sACN

## Output Settings

This setting specifies the LED protocol to be outputted by the device. If one or more Triton devices are daisy chained together, each can have a different LED protocol if needed.

## Pixel Mapping Options

### Definition of Pixel

For the purpose of this section, pixel refers to a single addressable unit of illumination controlled by 3 DMX channels (RGB tape or dots) or 4 DMX channels. (RGBW tape or dots)

### Pixel Order



Pixel ordering controls how the DMX channels are mapped to the primary colours on a LED. The option selected should match the order on the pixel tape or dots being used. The Pixel order selected, will also determine the number of pixels being driven at the output.

The default ordering assumes that both the DMX over Ethernet input and the led strip outputs are in RGB order.

### DMX Start Address

Selects DMX channel number, which controls the first pixel. When the universes/output is more than one, the DMX start address only applies to the first universes. However, where it applies, a start address offset may result in the split of a pixel. E.g R channel in first universe and GB channels in the seconds universe for a RGB LED.

For ease of pixel mapping we recommend offsetting the DMX start address as follows:

- Increments of 3 for RGB (1,4,7, 10)
- Increments of 4 for RGBW (1,5,9,13)
- Increments of 6 for RGB-16 bit (1,7,13,19)
- Increments of 8 for RGBW-16 bits (1,9,17,25)



## Universe/Output

Pixel Triton allows conversion of up to four universes of DMX over Ethernet to pixel data per output.

Both outputs could be specified to use the same universes, e.g. both outputs use universe 1,2,3 and 4

Each output can also be specified to use its own individual group of universes, e.g. output 1 uses universes 100,101,102 and 103 however output 2 uses 1,2,3 and 4 as shown in the image

	Output 1	Output 2
Universes/Outputs:	4	4
Universe 1:	100 (1 - 63999)	1 (1 - 63999)
Universe 2:	101 (1 - 63999)	2 (1 - 63999)
Universe 3:	102 (1 - 63999)	3 (1 - 63999)
Universe 4:	103 (1 - 63999)	4 (1 - 63999)

Only the first universe can be specified; the remaining universes, second, third and fourth are automatically assigned subsequent universes to the first one

Example 1:

If the first universe is assigned 25, the second, third and fourth universes will be automatically assigned 26, 27 and 28 as shown in the image below.

	Output 1
Universes/Outputs:	4
First Universe:	25
Second Universe:	26
Third Universe:	27
Fourth Universe:	28

Example 2:

When output 2 is driving 3 universes and first universe is specified to be 5, second and third universes are automatically assigned 6 and 7 as

shown in image below.

Output 2
3
5
6
7

## Mapped Pixels

This setting together with the Universe/Output and Group Pixel eventually determine the number of pixels that can be controlled at the output

## Group Pixels

Controls the number of pixels controlled by each DMX channel

Example:

	Output 1
Universes/Outputs:	1
First Universe:	0
Second Universe:	
Third Universe:	
Pixel Order:	RGB
Mapped Pixels:	170 Max
Group Pixels:	10

For the above image, when group pixel is set to 10, each DMX channel of universe 0 will control 10 pixels

## Maximum Pixels

This parameter is display only and shows the maximum pixels driven by an output

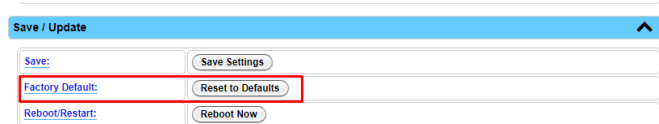
## Reboot Device

Factory Default:	Reset to Defaults
Reboot/Restart:	Reboot Now

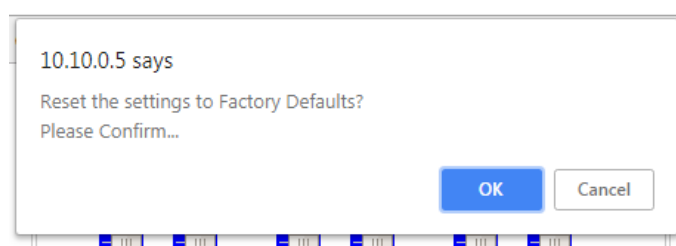
Reboot button, which is under settings pages restarts the unit

## Reset to Defaults

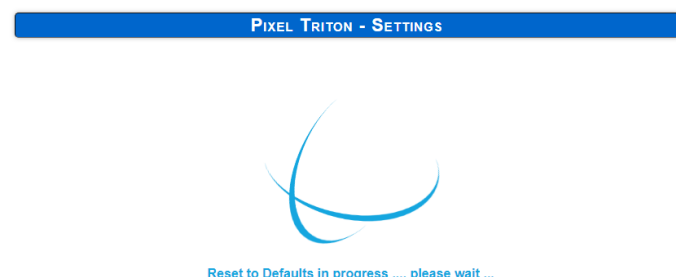
The reset to defaults command can be found under the Settings tab



Once the command is pressed, a pop-up would appear as shown in the image below:



Once confirmed, a loading screen will appear as shown in the image below:

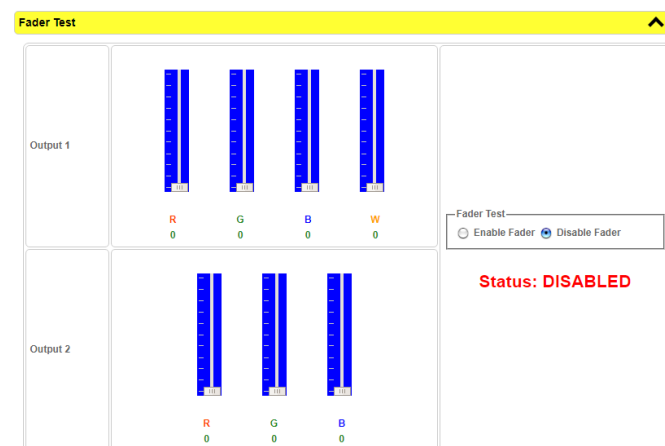


Once finished, the page will automatically refresh, and the following parameters will be updated to reflect the reset to defaults:

- DHCP enabled
- Static IP Address reset (IP address = 10.(byte 1).(byte 2).(byte 3) where the three bytes are the last three bytes of the mac address in decimal)
- Netmask reset to 255.0.0.0
- Gateway to 10.0.0.254
- DMX protocol to ArtNet

- LED protocol to WS2812B family of protocols
- Universe/output reset back to 4
- Pixel order set to RGB

## Fader Test



Pixel Triton has in-built web faders for instant testing of the setup at each output. When enabled, this feature switches on all LEDs controlled by the mapped pixels specified. The faders override any ArtNET/sACN input data.

The mapped pixels is the number of addressable units of illumination controlled by output data. It usually comprises of 3(RGB) or 4 (RGBW) dmx channels. Example: Mapped Pixels (RGBW)=128, 128 pixels will be controlled by the faders

The number of faders displayed per output depends on the pixel order selected. For the image shown above, output 1 has 4 faders as the pixel order selected is RGBW. However, output 2 has 3 faders as the pixel order assigned is RGB.

The faders will stop sending data if the disable fader radio button is selected.

## Fader Test when DMX Start Address is Changed

When the mapped pixels value is set to maximum (680 pixels for RGB or 512 pixels for RGBW), a change in DMX start address will affect the response of the fader test; the corresponding dmx channels starting from the last controlled LED (680<sup>th</sup> for RGB or 512<sup>th</sup> for RGBW) and going backwards will stop responding.

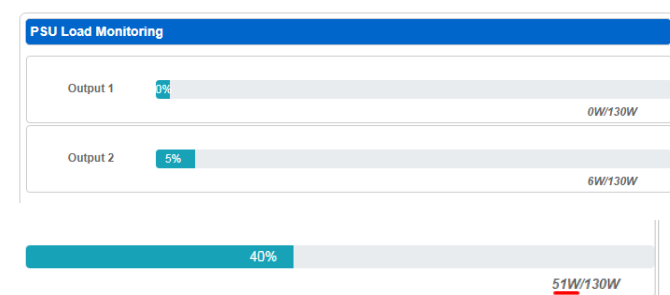
Example 1: Mapped Pixels (RGBW)=512, changing the DMX start address to 4 will cause 512<sup>th</sup> pixel to stop responding to the fader test.

Example 2: Mapped Pixels (RGB)=680, changing the DMX start address to 10 will cause the last 10 channels to stop responding to the fader test. That is, LEDs 680 down to 678 and one channel of 677<sup>th</sup> LED will stop responding to fader test

This phenomenon will not be observed if mapped pixels is less than the maximum.

## Power Consumption Indicators

Pixel Triton displays a power consumption graphic on the home page of the web interface.



The numerical power value underlined in the image is the sum of the:

- Power consumption of the internal circuits
- Power drawn through the output port when a load is connected.

### Note:

The tolerance of this displayed value is  $\pm 6\%$ .

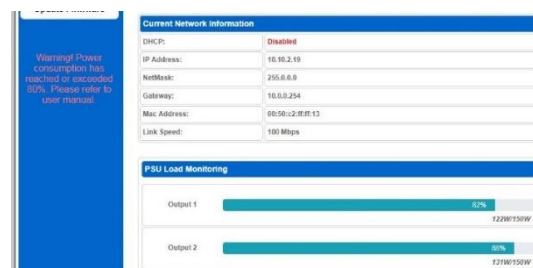
This numerical value is also shown as a percentage of power consumed out of the total available for each output as shown in the image.



The maximum power available for each XLR output is shown in the table below

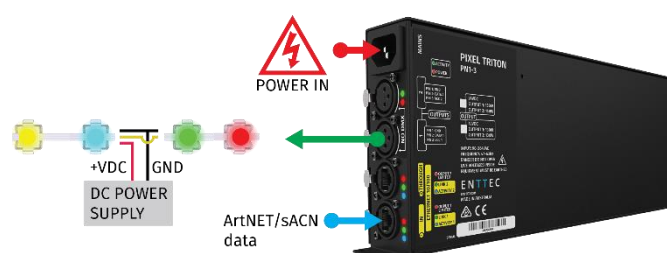
Product Part No.	Output Voltage	Maximum Power
75020-12	12V	130 W
75020-24	24V	150 W

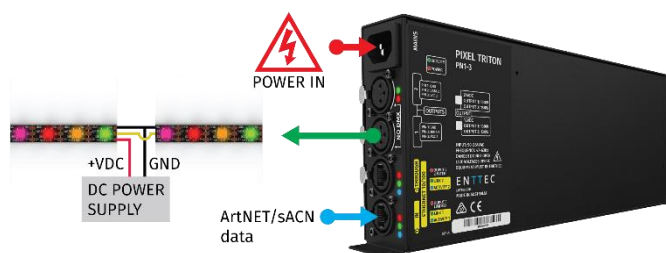
Pixel Triton has a feature, which informs a user when the power consumed through an output has reached or exceeded 80% of the allocated value; this is shown both on the web interface and through LED indicators.



All the above-mentioned features are aids for users to determine when to inject power using an external source.

Once the warning text is displayed, we recommend to power inject any additional tape or dots connected; as shown in the images that follow





## Note:

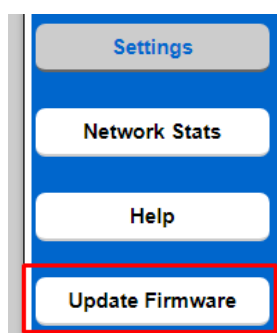
When using an external DC power supply for injection, common Ground is recommended to avoid flicker

Overloading the device, that is, attempting to draw more than the allocated power through an output will reduce the lifetime of the device.

When overloaded, the device will go to hiccup mode; where the power supply in the device will momentarily switch off, then after a second or so start up again. This will continue until the overload situation has been resolved.

## Update Firmware

It is strongly recommended that Pixel Triton is updated with the latest firmware, available on the ENTTEC website. This can be done using the Update Firmware page shown below



After selecting the correct file, click on the Update Firmware button and let the update proceed.

PIXEL TRITON - UPDATE FIRMWARE	
<b>Current System Information</b>	
Boot Version:	ENTTEC Pixel Triton Boot V1.1
Firmware Version:	ENTTEC Pixel Triton Firmware V1.1
Mac Address:	00:50:c2:ff:ff:13
Serial No:	c2ffff13
Link Speed:	100 Mbps
<b>Current Network Settings</b>	
DHCP:	enabled
IP Address:	10.10.4.11
<b>Update Firmware</b>	
Select firmware file:	<input type="button" value="Choose file"/> firmware.bin <input type="button" value="Update Firmware"/>
Update progress:	8%

Once finished, the page will automatically refresh, and device information will be updated to reflect the updated firmware.

PIXEL TRITON - UPDATE FIRMWARE	
<b>Current System Information</b>	
Boot Version:	ENTTEC Pixel Triton Boot V1.1
Firmware Version:	ENTTEC Pixel Triton Firmware V1.1
Mac Address:	00:50:c2:ff:ff:13
Serial No:	c2ffff13
Link Speed:	100 Mbps
<b>Current Network Settings</b>	
DHCP:	enabled
IP Address:	10.10.4.11
<b>Update Firmware</b>	
Select firmware file:	<input type="button" value="Choose file"/> firmware.bin <input type="button" value="Update Firmware"/>
Update progress:	Firmware updated successfully ... Rebooting unit now ...

## Note:

While the firmware is being updated, please do not power off the unit, please wait until the web interface is processing (up to a minute). If the web-page does not refresh automatically, please open the home page on the browser manually, and verify that the update has succeeded. By checking the firmware version as shown:

System Information	
Node Name:	Pixel Triton
Firmware Version:	ENTTEC Pixel Triton Firmware V1.1

## How to Recover Pixel Triton?

If the Pixel Triton:

- Crashes
- Is assigned an IP address that cannot be accessed by the local network or that cannot be discovered

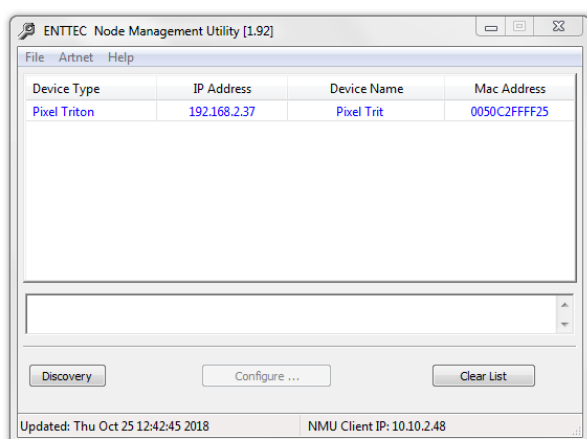
NMU can be used to recover the device as the unit does not contain a hardware reset button

### Note:

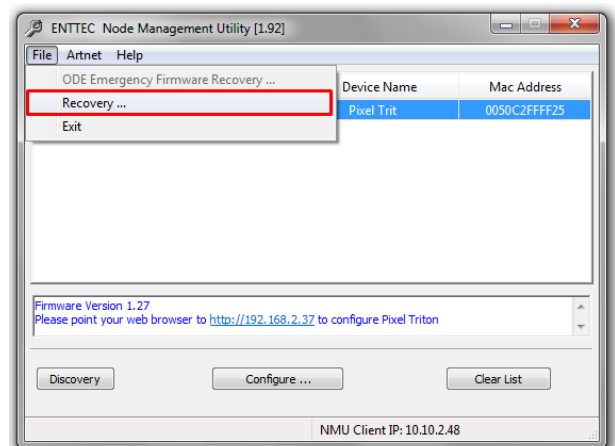
Pixel Triton is only supported by NMU V1.92 and above.

Please follow these steps:

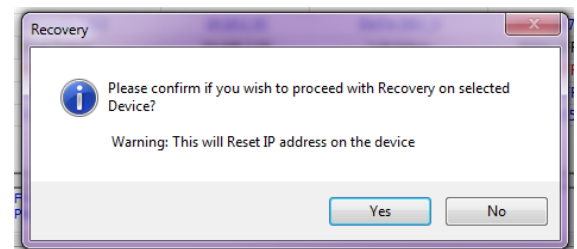
1. Pixel Triton should be connected physically by an Ethernet cable directly to the computer on which you will run NMU.
2. Open NMU. If prompted with multiple network interfaces, select the correct one to which the Pixel Triton is connected to
3. Press the Discovery button



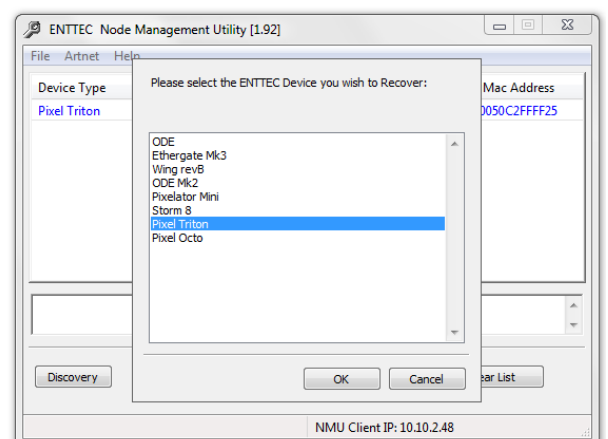
4. Once found, select Pixel Triton and use the Recovery option under the File tab

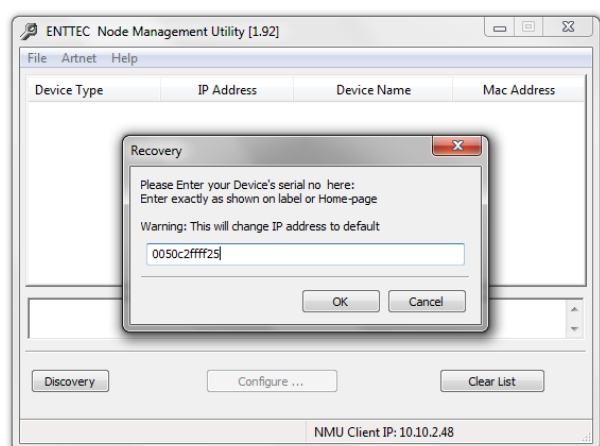


5. Press Yes when prompted to confirm



If not found select Pixel Triton as the device type to recover and type in the serial number of the device e.g.:0050C2FFFF25





## Note:

The IP address will be reset. IP address will be assigned by DHCP. If the unit does not get an IP address via DHCP the default static IP will be assigned

## Tips and Guidelines

### Choosing a Pixel Triton

When choosing a Pixel Triton consider the following:

- What is the voltage of the LED tape/Dots used?
- What is the power requirement of the display?

The maximum power limit and the output voltage for the Pixel Triton is provided in the table below:

Product Part No.	Output Voltage	Maximum Power	Maximum Current
75020-12	12V	130 W	10.83 A
75020-24	24V	150 W	6.25 A

### What can I do if Triton does not get an IP address via DHCP?

If the unit does not get an IP address via DHCP, please connect the unit to a router/server via an ethernet cable and restart the device.

### Can you run tapes and dots at the same time?

No, only one LED protocol can be selected to drive the output at a given time

### Can you operate tape/dots using the total power output of the product through one output port?

No, the maximum power per output is mentioned on the [Specifications](#) sections. Only tape/dots worth that value can be driven from each output

### What is the recommended minimum current carrying capacity of the XLR connector?

Product Part No.	Output Voltage	Rated current per contact on XLR connector
75020-12	12V	10.83 A
75020-24	24V	6.25 A

## Ordering Information

Part Number	Description
75020-12	Pixel Triton (12VDC)
75020-24	Pixel Triton (24VDC)

## Specifications

Item		Product Name	
		75020-12	75020-24
Input Voltage		90 – 264V AC	
Input Frequency		47 - 63 Hz	
Maximum Total Output Power		260 W	300 W
Maximum /output	Power	130W	150W
	Current	10.83A	6.25A
Supported Protocols		Artnet 1/2/3, sACN	
Output Protocols		WS2811, WS2812, WS2812B, WS2813, SK6812, TM1804, TM1812, UCS2903, UCS2904, APA-104, 9PDOT (8 – 16bit)	
Maximum Pixel count/output (RGBW)		512 RGBW pixels	
Maximum Pixel count/output (RGB)		680 RGB pixels	
Maximum DMX footprint/output		2048 channels	
Ambient Operating Temperature		-10 °C – 35 °C	
Relative Humidity		20% - 90% (Non-condensing)	
Connectors		2X RJ45 etherCON 1 X IEC connector 2X 3-Pin Female XLR	
IP Rating		IP20	
Cooling Method		Smart fan	
Weight (in kg)	Device	2.02	
	Boxed Device	2.35	
Dimensions (in mm)	Device	335(L) x 129(W) x 43(H)	
	Boxed Device	400(L) x 215(W) x 115 (H)	

Due to continuous improvements and innovations of all ENTTEC products, specifications and features are subject to change without notice.

## Accessories and Related Products

Part Number	Description
<b>70581-ARC</b>	ENTTEC LED Mapper Software (ELM) Architectural (512 Universes)
<b>70581-PRO</b>	ENTTEC LED Mapper Software (ELM) Professional (96 Universes)
<b>70581-STU</b>	ENTTEC LED Mapper Software (ELM) Standard (16 Universes)
<b>9PDOT (1-8)</b>	HI-RES SMART RGB PIXEL DOTS
<b>8PL60-F-12</b>	RGB PIXEL TAPE 60 LEDS/METER 12V - 5M Roll
<b>8PL30-F</b>	RGB PIXEL TAPE 30 LEDS/METER 5V - 5M Roll
<b>8PL60-F</b>	RGB PIXEL TAPE 60 LEDS/METER 5V - 5M Roll
<b>8PL144-2</b>	RGB PIXEL TAPE 144 LEDS/METER 5V - 2M Roll
<b>8PX60-4</b>	RGBW PIXEL TAPE 60 LEDS/METER 5V - 4M Roll
<b>8PXW60-4-B</b>	RGBW PIXEL TAPE 60 LEDS/METER 5V - 4M Roll Black No Coating
<b>8PX30-F</b>	RGBW PIXEL TAPE 30 LEDS/METER 5V - 5M Roll
<b>8PW60-F</b>	WWA (CTA+AMBER) PIXEL TAPE 60 LEDS/METER 5V - 5M Roll
<b>8PW30-F</b>	WWA (CTA+AMBER) PIXEL TAPE 30 LEDS/METER 5V - 5M Roll
<b>8P60-5-B</b>	Pixel tape 60 LEDS/METER 5V - 5M Roll Black No Coating
<b>73530-115</b>	8 x CV Driver, 19" Rack Shelf (115 VAC)
<b>73530-230</b>	8 x CV Driver, 19" Rack Shelf (230 VAC)

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