

1. Introduction

Thank you for purchasing this SmartShow NetDMX-PoE product, we hope it gives you many years of trouble-free use and enjoyment.

This User Guide will help you get started with connecting your NetDMX-PoE to a Network, configuring its IP Address, DMX and Pixel settings.

If you find a problem with the product (manufacturing defect or otherwise) please contact us on <mailto:sales@smartshow.lighting> and we will endeavour to assist you.

Our warranty terms and conditions are available at <https://smartshow.lighting/manufacturers-warranty/>
Please register your product with us at <https://smartshow.lighting/register>

2. Product Overview

The SmartShow NetDMX-PoE is an Art-Net/sACN(E1.31) to DMX512 interface, that can be powered directly from PoE (Power-over-Ethernet), or from a USB-C connection. It is capable of taking a single universe of Art-Net/sACN data from a wired Ethernet network and converting it to a differential DMX-512 output.

The NetDMX-PoE can deliver a user-interface (WebUI) directly to your browser, where you can configure Device IP, Protocol, DMX Speed and Pixel Settings. A single 5-pin DMX/XLR output socket is provided to connect directly to your target DMX system.

Alternatively, the device can drive standard Pixel Data using XLR pin 4, and/or provide up to 7W of 5V pixel power (taken directly from the PoE, or USB supply), using XLR pins 5.

IP & Operational Mode is indicated by a simple Red/Blue LED, PoE power is indicated by an Orange LED, and a Reset button is included to Reboot the device, or reprogram factory settings.

3. Specifications

- Meets IEEE802.3af PoE standard, providing a PoE signature and isolation
- Integrated 10/100M Ethernet Controller in either static IP or DHCP modes
- Consumes up to 4 Art-Net II/III/IV or sACN(E1.31) Universes (2048 channels)
- Meets E1.11-2008, USITT DMX512-A standard regarding DMX output
- Maximum Pixel ports : 1
- Maximum Differential DMX ports : 1
- DMX refresh rate adjustable between 44Hz, 35Hz and 25Hz
- RDM is not enabled

4. Parts Supplied

NetDMX-PoE Interface
0.5m USB-A to USB-C cable
NetDMX-PoE Quick Start Guide
35mm DIN Rail Mount (attached)
Flush mounting plate

5. Supported Pixel Types

GS8208, SK6812GRB, SK6812GRBW, UCS2903, UCS2904, WS2811, WS2812, WS2812B, WS2813, WS2815

6. Product Connections

The front face of the NetDMX-PoE has an Ethernet port (RJ45) and alternative power and programming port (USB-C)
The rear of the device shows the 5-Pin DMX/XLR Port

The connections on the XLR port are :

- 1. Ground/Common/0V
- 2. DMX-
- 3. DMX+
- 4. Pixel Output
- 5. Switchable 5V power output

7. LAN Ethernet Connection

From Factory settings, or when first plugged in from new, the NetDMX-PoE will be in DHCP Mode, this will allow it to communicate with a DHCP server on the network to negotiate a free IP address, the Mode LED will show solid Purple while negotiating an IP Address.

Once a DHCP IP address is acquired (this may take up to a 60 seconds), the device will immediately start to flash the IP as a series of Red and Blue signals on the Mode LED (see below for more detail on manually reading the IP)

This IP address can be entered into the URL bar of your browser and the NetDMX-PoE WebUI can be accessed. From here, you will be able to take the device out of DHCP mode and set it to static IP addressing, and even set the device to a specific IP of your choice

DHCP Failure : If the NetDMX-PoE is connected to the network in DHCP mode, and on power up the Mode LED stays purple for 60 seconds followed by a series of **FAST flashing REDs**, then this means the device was unable to acquire a DHCP IP address (maybe there isn't a DHCP server on the network) and therefore it will revert to using the last used STATIC IP address

8. Manually reading the Device IP

The NetDMX-PoE IP number is shown as a special sequence of flashes on the Mode LED on the front of the device.

The IP flash sequence is shown only once on power up (or after you press the reset button briefly)

Each RED flash will count a digit of the IP Number. A BLUE flash is shown between each count
A break in LED colour means 'next octet'

For example, displaying an IP octet of '192' would look like this :

R-b-----R-b-R-b-R-b-R-b-R-b-R-b-R-b-R-b-----R-b-R-b-[gap/no LED]
1 1 2 3 4 5 6 7 8 9 1 2

9. Other Indicators

RJ45 : The Green LED shows the current Network Link, The Yellow LED shows Network/IP Activity

Mode LED : Once the 'IP Flash Sequence' has completed, the Mode LED will either show Blue, or Red
Blue LED : ArtNet Mode (flashing means receiving, solid means waiting for data)
Red LED : sACN Mode (flashing/solid, as above)

PoE LED : If the PoE LED is lit (Yellow) then the device is receiving PoE power from the Ethernet

10. WebUI / Browser Configuration

Network Settings

Device Name

Name your device up to 30 alpha-numeric characters. This name will also appear in the Art-Net discovery process

Network Mode

You can select between STATIC and DHCP addressing.

When set to DHCP the IP Address field, and SubnetMask Class setting and the Gateway IP cannot be set

IMPORTANT : Please be aware that if using Static addressing the device needs to be on the same subnet as the network it is attached to, otherwise it cant be found

IP Address

It is possible to set the IP address of the NetDMX-PoE to almost any value.
Many Art-Net devices use standard IP addresses of 10.x.x.x or 2.x.x.x.
A value range of 0-223 can be used for the first octet, and 0-254 for the remaining 3 octets.

SubnetMask Class

Generally only Class A, B or C SubNetMasks are used:
Class A = 255.0.0.0/8
Class B = 255.255.0.0/16
Class C = 255.255.255.0/24

Gateway IP

Only the last octet is settable for the Gateway IP, if this is not required then leave the value set to 1

MAC Address

This is not adjustable and is a unique number assigned to the Ethernet controller

[Apply]

Save changes made.

Device Mode

Device Output Mode

This is the main selection of the operation of the device, it has 3 modes :

DMX Transmitter Node

The device will take ONE Universe (512 channels) and output it as DMX512 data on XLR pins 2 & 3 (no pixel data on XLR-4, no power on XLR-5)

4U Pixel on XLR-4

The device will take up to FOUR Universes of ArtNet/sACN and output the pixel data from XLR pin 4 (no power on XLR-5)

1U Pixel on XLR-4, and Power on XLR-5

The device will take ONE Universes of ArtNet/sACN and output the pixel data from XLR pin 4, with 5V PoE or USB power on XLR-5

[Apply]

Save changes made.

Protocol Setup

eDMX Protocol

Select either Art-Net or sACN(E1.31) to match the DMX Data Protocol coming from the host application or console.

DMX Universe (DMX Mode only)

The Universe value can be configured to match the requirements of your system.
Art-Net Universe range: 0-32767 (also shown as Net & Uni values).
sACN(E1.31) Universe range: 1-63999.

Note: An out-of-range value will result in an error message being displayed

DMX Refresh Rate (DMX Mode only)

DMX Output rate, select from 44Hz, 35Hz or 25Hz

Pixel (Start) Universe (Pixel Modes only)

The Universe value can be configured to match the requirements of your system.
Art-Net Universe range: 0-32767 (also shown as Net & Uni values).
sACN(E1.31) Universe range: 1-63999.

Note: An out-of-range value will result in an error message being displayed

[Apply]

Save changes made.

Pixel Configuration

Pixel Type

There are only two options, this will cover a vast number of pixel types

'WS' Covers most WS2812 style pixels, with a standard 400ns/800ns timing (WS2812b, GS8208, SK6812GRB/W, WS2813, WS2815)
'UCS' Covers most UCS290x style pixels, which have an alternative timing of 250ns/1000ns (WS2811, UCS2903, UCS2904)

Pixel Colours

This is NOT colour order.

If you have RGB WS2812 style pixels, just select '**RGB**'

If you have RGBW pixels (like SK6812RGBW or UCS2904) then you have two further options :

- If your host application is sending 4 channels of data per pixel (RGBW), then select '**RGBW**'
- If your host application sends just 3 channels (RGB) then select '**RGB+W**', and the White component will be interpolated from the RGB colours

Pixel Grouping

This selects the number times each pixel is repeated before moving onto the next one

For example:

- If you want ONE set of RGB channels to display as TWO RGB pixels, then put '**2**' for pixel grouping
- If you want ONE to ONE, then leave this set to '**1**'

The maximum Pixel Grouping value is 250

Universe Size

If your application is unable to set the size of the Universes, then a fixed universe size can be entered into the box.
This value will override any value that is sent by the application.

For example, if you are using WS2812 Pixels then this would normally occupy a maximum of 170 pixels per universe (or 510 channels).
If your application only every sends 512 channels per universe, then your colours will be out of order by 2 channels on each subsequent universe. Adjusting the universe size will correct this error and align all the colours correctly.

To restore the universe to automatically use the universe size sent from the application, enter '0' into the universe size box
Typical Universe Size values : 3-512 (0=Automatic)

[Apply]

Save changes made.

System Reboot Device

[REBOOT]

Reboots device as if you have just cycled the power

11. Manual Reboot

Pressing and releasing the RESET button for a short time will cause the device to restart

12. Factory Reset

Pressing and holding the RESET button will firstly show the MODE LED colour as purple, continue to hold, then after a further 5 seconds, the Mode LED will fast flash Red/Blue before resetting the device to factory defaults, and rebooting.

13. Multicast Support

When using sACN/E1.31 Multicast in DMX Mode, we recommend that your network switch is configured to properly forward multicast packets. This typically involves enabling a feature called IGMP snooping. Also ensure that any firewalls or security software on the receiving device or network are not blocking sACN multicast traffic on port 5568.

14. ArtNet Discovery & ArtSync

When the eDMX protocol is set to ArtNet, there is the ability to discover IP addressing and device configuration using Art-Net ArtPollRequest. Additionally, the when the device is in 4U pixel mode, the device will respond to an ArtSync command by synchronising the loading of the pixel data.

15. Dimensions & Weight

NetDMX-PoE (device only): 73mm length, 37mm wide, 31mm high. Weight: 90g
NetDMX-PoE (boxed): 130mm length, 103mm wide, 40mm high. Weight: 150g

16. Software Compatibility

NetDMX-PoE works with all free and commercial Art-Net/sACN compatible software:

Madrix, Resolume, MadMapper, Chamsys MagicQ, ELM, LightJams, LED Strip Studio, Jinx, XLights and many others.

17. Firmware Upgrades

From time to time, firmware upgrades will become available, the information of this will be available on the smartshow.lighting website and an upgrade package can be downloaded onto your windows PC, and deployed to your NetDMX-PoE to update it. More information will be supplied with the update itself. THIS user manual will automatically be updated with the new firmware.

18. Technical Support

email : sales@smartshow.lighting

19. Warranty enquiries

email : warranty@smartshow.lighting