

Introduction

NetDMX is an ArtNet/sACN(E1.31) to DMX512 interface. It is capable of creating a single universe differential DMX output from ArtNet/sACN over a wired Ethernet network. Device IP and ArtNet/sACN Settings are adjustable directly from your Browser interface, or from a USB/Serial Application. A single 3-pin DMX output plug is provided to connect directly to your target DMX system. Operational Mode is indicated by a simple 7 segment display.

Specifications

IEEE 802.3 compatible Ethernet Controller, Integrated MAC and 10BASE-T
Browser Configuration Server and UDP Client modes
Isolated RJ45 Ethernet Connection
Single Universe ArtNet II & III and sACN E1.31 decoding DMX512 data, outputting @ 40fps typical

Parts Supplied

NetDMX Interface 1 x USB-MiniUSB cable (for power, configuration & firmware upload) 1 x Ethernet Cable

Product Connections



LAN Ethernet Connection

The NetDMX can be configured for almost any IP setting, although a default IP of 192.168.1.201 is supplied with the unit. In general this will be a similar IP to your home router/hub, therefore the NetDMX can be connected directly to one of your router LAN Ports. Once connected it can be accessed from a PC that is also connected to that same Network.

Device Configuration

It is possible to configure your device in one of two ways, either directly from your PC Browser (if you are on a 192.168.1.x network) or via a Serial Configurator using the USB connection, this is useful for directly setting to an alternative network.

Browser Configuration Mode

To access the Browser Configuration, the NetDMX must be put into CONFIGURATION mode. Configuration mode is available for the first 10 seconds after power up, this is shown as a circulating symbol on the LED display. To activate Configuration mode you should open your PC browser (most browsers are supported) and type into the URL bar 192.168.1.201 and press return, hitting the return within the 10 second window will activate Configuration mode and will show a 'C' on the display (If you allow 10 seconds to elapse without any user intervention then the NetDMX will go directly into ArtNet mode 'A' or sACN mode 'S'). As long as the PC and NetDMX are connected to the same network at 192.168.1.201 the configuration interface should appear as follows:

DMX Protocol

Select either ArtNet or sACN (E1.31) to match the DMX Data Protocol coming from the host
[SAVE] New DMX Protocol settings will take immediate effect after they are saved to the NetDMX.

Ethernet Settings & IP Configuration

MAC Address: This is not adjustable and is a unique number created in conjunction with the serial number of the supplied unit

Device IP: It is possible to set the IP Address of the NetDMX to almost any value. Many ArtNet devices will use standard IP addresses of 10.x.x.x or 2.x.x.x, only values of 0-254 can be used, 255 is not allowed.

SubNet Mask: Normally this should be left at 255.255.255.0, which will cover most applications.

[SAVE Configuration] New IP configuration will not take place until NetDMX has its power cycled (or by pressing REBOOT). Saving the configuration will write the Device IP and SubNetMask values to the NetDMX internal memory, so on next power-up the new settings will be used.

Art-Net/sACN Settings

These values can be configured to match the requirements of your system. There is a total of 256 Universe values for ArtNet II and 32,768 for ArtNet III, and 63,999 for sACN

Net: any value in the range 0-127

SubNet: any value in the range 0-15

Universe: ArtNet : any value in the range 0-15 – sACN : any value in the range 1-15

[SAVE Configuration]: New ArtNet/sACN settings will take immediate effect after they are saved.

REBOOT DEVICE

Pressing [REBOOT DEVICE] will restart the NetDMX interface (a bit like cycling the power) and once again test for browser intervention (circulating symbol) before entering ArtNet streaming mode (indicated by 'A') or sACN streaming mode (indicated by 'S'). All newly saved settings (including IP values) will be used after reboot.

Private Wired Network Connection

It is highly recommended that you move the NetDMX away from your home network and onto a private wired network connected directly between your PC and the NetDMX device. Generally your home network (192.168.1.x) could have lots of traffic that could affect the consistency of ArtNet/sACN data, and may cause disturbances within your DMX data.

To move NetDMX to a direct-wired network follow these instructions (MS Windows):

Go to Control Panel, select Network and Internet, then select Network and Sharing Center

In the left hand column, click on 'Change Adapter Settings'

'Local Area Connection' should be shown, double click on it

Under the 'Networking' tab, select the line that says 'Internet Protocol Version 4 (TCP/IPv4)'

Then click 'Properties'

Click the radio button beside 'Use the following IP address'

Enter your required IP address & Subnet mask (255.255.255.0) in the fields provided

NOTE : The IP Address entered here MUST match the NetDMX IP address for communications to work

Leave the DNS Settings blank, click OK then click Close

Plug in the NetDMX (if you haven't already done so)

Serial Configuration Mode - Set-Up

Firstly, you will need to install the correct CH340 serial driver for the NetXX devices these can be found at :
Windows 7 - <http://www.arduined.eu/tag/windows-7/>
Windows 8 - <http://www.arduined.eu/ch340-windows-8-driver-download/>
Once installed, connect the NetDMX via the USB connection and allow the driver install to complete.
Make a note of the serial port number for the device (see Device manager/Com Ports/CH340 device)
If you haven't already got a Serial Communications application, we recommend HTComm for simplicity.
You can find HTComm at <http://www.hobbytronics.co.uk/ht-comm>
Set the **PORT number** to the ComPort that the NetDMX is connected to
The serial communications uses a serial settings of 9600 N/8/1, so set **Baud to 9600**
Ensure that the **checkbox for [CR] is set**, to allow a carriage return to be sent after any communications

Serial Configuration Mode - Use

To access the Serial Configurator, the NetDMX must be put into Configuration mode. Configuration mode is available for the first 10 seconds after power up, this is shown as a circulating symbol on the LED display. To activate Configuration mode you should type '?' in the HTComm chat window and press return, hitting the return within the 10 second window will activate Configuration mode and will show a 'C' on the display (If you allow 10 seconds to elapse without any user intervention then the NetDMX will go directly into ArtNet mode 'A' or sACN mode 'S'). In response to sending a '?' the device will respond with its Device Settings, and a Function Guide:

```
***** DEVICE SETTINGS *****
MAC Address   CA:EF:FF:1E:12:34
Device IP     192.168.1.201
SubNetMask    255.255.255.0
Starting Uni  (Net)0 (Subnet)0 (Uni)0
DMX Protocol  ARTNET
***** FUNCTION GUIDE *****
'i192.168.1.201<CR>'  Change local IP
's255.255.255.0<CR>' Change SubNetMask
'u0<CR>'             Change Start Uni
'a<CR>'             Change to Artnet Mode
'e<CR>'             Change to sACN(E1.31) Mode
'r<CR>'             Reboot device
'?<CR>'            Display settings & help
'$RESET<CR>'       Reset Defaults & Reboot
*** (ensure <CR> is enabled on send) ***
```

For example, pressing 'i2.0.0.1' and pressing return will change the device IP to 2.0.0.1

Changes can be made to IP, SubNetMask, Starting Universe and DMX protocol, for more information see 'Browser Configuration'

NOTE : It is recommended that you DO NOT have your DMX lights connected while operating the Serial Configurator since the DMX and Serial communications use the same data, ignoring this may result in unexpected results on your DMX lighting.

Multiple Device Connections

If required you can add several NetDMX to your network and have them controlled from the same application. Each NetDMX would need to have a different IP address (x.x.x.1, x.x.x.2, x.x.x.3 etc) and be added to your application as a new device and patched accordingly. Your Ethernet connection can be split into several outputs using a simple and inexpensive Ethernet 4 or 8 way switch.

ArtNet/sACN Unicast, Multicast & Broadcast mode

It is recommended that Unicast mode is used when sending ArtNet/sACN data to the NetDMX.
Limited & Directed Broadcasts are also accepted.

ArtNet Device Discovery & DHCP

There is the ability to discover IP addressing and device Information using ArtNetPoll, IP Scan is available on most software, if unavailable addressing can be done manually as described above. There is no DHCP function as IP addressing is Static, utilising client port 6454.

Dimensions

Length : 68mm (plus DMX cable) – Width 24mm – Height 24mm

Software Compatibility

NetDMX works with all free and commercial Art-Net/sACN(E1.31) compatible software.

Firmware Upgrades

From time to time we may issue revised firmware for our products. The latest firmware can be uploaded to any of our products using the XLoader tool plus the latest HEX file for the product. Please ensure that the firmware file matches the product you are downloading to.

XLoader can be provided on request or downloaded from our website www.smartshow.lighting
Unpack the zip file and run the XLoader executable
Select the '...' browse button and navigate to the hex file, and select it
Select the device as 'NetWS/SPI/DMX ArtNet Interface'
Select the COM port which the NetDMX is connected to (see Device manager/Com Ports/CH340 device)
Leave the BaudRate as 57600 and press UPLOAD
Once the upload is complete, there will be a notification

NOTE : Do not attempt to run XLoader and HTComm simultaneously.

Technical Support

email : bob.lynas@btinternet.com or sales@smartshow.lighting

Art-Net™ and sACN(E1.31) Designed by and Copyright Artistic Licence Holdings Ltd