Introduction

NetPixel-Mini will drive up to two Art-Net/sACN Pixel Universes (340 WS281x/SK6812/UCSxx/GS8208 Pixel-LEDs) over a wired Ethernet network. DMX Protocol Selection, Device IP, Art-Net/sACN Settings and LED configuration settings are adjustable directly from a Web-browser interface, a simple pixel test is also included. Power and Data connection is made by a 3pin pluggable screw connector. IP & Operational Mode is indicated by a simple Red-Blue LED, and a Reset button is included to Reboot the device, or reprogram factory settings.

Specifications

IEEE 802.3 compatible Ethernet Controller, Integrated MAC and 10BASE-T PHY
Isolated RJ45 Ethernet Connection
Dual Universe Art-Net II & III and sACN (E1.31) decoding pixel data at 25fps typical
Power Input : 5-24V across Power and Ground connections of 3pin plug, reverse protected
Pixel Data Output: **RGB:** Up to 340 (X1 mode), or 680 (X2 mode), **RGBW:** 256 (X1 mode) or 512 (X2 mode)

Parts Supplied

NetPixel-Mini Interface, 3-Pin Pluggable Screw connector, User Guide

Product & Pixel LED Connection

Power for the NetPixel-Mini can be tapped off the local Pixel power as long as it is within 5-24V range. Connect the Pixel Ground (OV) connection to the NetPixel-Mini 'GND' connection and connect the Pixel +Ve power to the PWR connection. Connect the Pixel strip Data-In (DI) to the 'Data' (Data-Out) connection of the NetPixel-Mini.

LAN Ethernet Connection

The NetPixel-Mini can be configured for almost any IP setting, although a default IP of 192.168.1.200 is supplied with the unit. In general this will match the subnet-IP of your home router/hub (192.168.1.x), if not then you can adjust your router subnet IP to 192.168.1.x. The NetPixel-Mini 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 IP

The NetPixel-Mini IP number is show on the flashing LED on the top of the device, and is repeated once on power up (or after you press the reset button briefly)

> Each **RED** flash will count a digit of the IP (blue is shown between each count).
> A break in led colour means 'next octet'

For example, displaying the first IP octet '192' would show:

```
R-b-----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
```

Browser Configuration Mode

To access the browser configuration, the NetPixel-Mini must be put in Configuration mode. Configuration mode is available only if there is no Pixel data being sent to the device. To activate Configuration mode you should open your PC browser (most browsers are supported) and type into the URL bar 192.168.1.200 and press return. A web-browser page for the device will appear with the following options:

Ethernet Settings & IP Configuration

IP Address: It is possible to set the IP Address of the NetPixel-Mini to any value within the class A/B/C range. Many Art-Net devices will use standard IP addresses of 10.x.x.x or 2.x.x.x
SubNet Mask: A choice of **A**(255.0.0.0), **B**(255.255.0.0) or **C**(255.255.255.0) are available
MAC Address: This is not adjustable and is a unique number created for the supplied unit
[SAVE] New IP configuration will not take place until NetPixel-Mini has power cycled, Reset, or Rebooted.

Protocol & Universe

Protocol: Select either Art-Net or sACN (E1.31) (unicast only) to match the DMX Data Protocol coming from the host application
Art-Net/sACN Universe: These values can be configured to match the requirements of your system.
   Art-Net Net: any value in the range 0-127
   Art-Net Universe: Art-Net : any value in the range 0-255
   sACN Universe: any Value in the range 1-32767
[SAVE]: New Art-Net/sACN settings will take immediate effect after they are saved.

Pixel Configuration

Pixel Options: [X1] will give 1:1 pixel output, whereas [X2] will double each pixel up. [DMX Mode] will create a RGB Tape simulation taking just 3 or 4 DMX channels to colour all the pixels the same, this option will allow you to set a 'DMX start Address' for the data
Pixel Type: WS281x (350/700ns) is the defualt pixel timing, selecting UCSxx will allow an alternate timing (250/1000ns) for other types of pixels. [RG-Swap] will swap the Red and Green order around in the pixel output. [RGB+W] will configure the device for 4 channel pixels, where white is used in addition to RGB.
Universe A Size: limit the number of channels associated with Universe A (will override any application setting)
Pixel Test: Buttons have been provided for testing connected Pixel LEDs. Pin RGB mode, pressing **[1]**,**[2]** or **[3]** will test individual RGB channels. In RGB+W mode, pressing **[1]**,**[2]**,**[3]** or **[4]** will test individual RGBW channels. Pressing **[Off]** will clear all colour channels. (press save after each selection)

Rebooting Device

Pressing [REBOOT] will restart the NetPixel-Mini interface (a bit like cycling the power)

ArtNet or sACN Status

After power-up (or reset/reboot) and once the IP has stopped flashing on the top of the NetPixel-Mini label, the LED will go to a steady colour. **BLUE = 'Art-Net'** mode, and **RED = 'sACN'** mode. Once data is correctly received and decoded by the device this Blue (or Red) colour will blink steadily

Private Wired Network Connection

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

To move NetPixel-Mini to a direct-wired network follow these instructions (MS Windows):
Go to Control Panel, select Network and Internet, then select Network and Sharing Centre
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 (eg 255.255.255.0) in the fields provided
NOTE : The IP Address entered here MUST match the NetPixel-Mini IP SUBNET for communications to work
Leave the DNS Settings blank, click OK then click Close
Plug in the NetPixel-Mini (if you haven't already done so)

Lets Animate !

Open your LED animation application, we suggest Jinx which can be downloaded from http://www.live-leds.de/

1. Configure Jinx to use your NetPixel-Mini device, by selecting it as an 'Art-Net or sACN' device type from the *'SetUp>OutputDevices'* menu
2. Ensure the Broadcast check box is not checked
3. Enter the IP number of your NetPixel-Mini interface (as you have set in the Web-browser configuration)
4. Select 510 channels, and set Net, SubNet and **First** Output Universe (as you have set in the config)
5. Click OK to save changes
6. For the **Second** Output Universe, add another device (as above) but with the NEXT Universe value. (the second Universe assumes it is one after the first Universe) – Note : sACN starts at universe ONE
7. Design your matrix size and shape within *'SetUp>MatrixOptions'*
8. Patch your matrix to the NetPixel-Mini universe(s) within *'SetUp>OutputPatch'*. Be careful to select the correct colour order for your LEDs, WS2812 are GRB, and NOT RGB, starting at channel zero.
9. Ensure BOTH universes are patched to different parts of the Matrix
10. *'SetUp>StartOutput'* to start the show.
11. Ensure NetPixel-Mini is in the same mode (Art-Net or sACN) as you have set in the application
12. Ensure your Pixels are connected to the data output, and powered following the correct connections.
13. Select the effect you want to see from Jinx channel effects and have fun !

Multiple Device Connections

If required, you can add several NetPixel-Mini to your network and have them controlled from the same application. Each NetPixel-Mini would need to have a different IP address (x.x.x.201, x.x.x.202, x.x.x.203 etc) and be added to your application as a new device and patched accordingly into its own area of the matrix. Your Ethernet connection can be split into several outputs using a simple and inexpensive Ethernet 4 or 8 way switch.

Factory Reset

If you need to fully reset the NetPixel-Mini back to factory defaults for any reason (you may have put the device on an unreachable IP address), then press and hold the RESET button for 5 seconds, the LED will turn purple for that 5 seconds, after which it will flash RED/BLUE many times, this will indicate that a full reset has taken place

Using RGBW (4-colour) LEDs

The NetPixel-Mini is able to output data to either RGB or RGBW LEDs (depending on your host application). RGB LEDs use 3 channels per pixel and RGBW LEDs use 4 channels per pixel. Since RGBW uses 4 channels and there is a maximum of 512 channels per universe on Art-Net/sACN/DMX, the maximum number of Pixel-LEDs that can be connected to one universe is 128. Ensure you select the correct Pixel Colour Order from within the browser Configuration.

Art-Net/sACN Unicast, Multicast & Broadcast mode

It is recommended that Unicast mode is used when sending Art-Net/sACN data to the NetPixel-Mini.
Using Art-Net Data broadcasting is not recommended

Art-Net Device Discovery & DHCP

There is the ability to discover IP addressing and device Information using ArtNetPoll, Some applications allow an Art-Net scan which will pickup the device details and make it quicker to configure. There is no DHCP function as IP addressing is Static only, utilising client port 6454.

Pixel-LEDs that can be driven from the NetPixel-Mini

WS281x, UCS1903, UCS290x, TM1804, SK6812, GS8208

Dimensions

Length : 72mm (including connector) – Width 25mm – Height 29mm

Software Compatibility

NetPixel-Mini works with all free and commercial Art-Net/sACN compatible software. For free software, Jinx is highly recommended, visit http://www.live-leds.de/ for more information.

Power Supply

It is recommended that you use a quality power source with this product, if powering the NetPixel-Mini independently, we recommend either a 5V or 12V supply capable of providing a minimum of 500mA

Technical Support

email : sales@smartshow.lighting

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