

## Introduction

AirPixel ONE is a Wifi ArtNet/sACN(E1.31) to WS281x/UCS (NRZ) Driver interface. It is capable of receiving up to 16 DMX universes when in 'Unlocked Mode', or 4 universes when in Standard Mode, and up to 512 channels per universe. The data is then converted into continuous NRZ data streams that will appear on the outputs. There are four screw terminal outputs with a common ground (along Ground/Supply input), sending up to 4 universes consecutively on each output. Network connection can be made by utilising a special Join-A-Network mode. Device IP, ArtNet/sACN, Pixel Test and settings are adjustable directly from a second browser interface once the Wireless Network Connection has been made. Product Firmware updates can be sent over-the-air.

## Specifications

Browser Configuration Server and UDP Client mode  
Four or Sixteen Universe ArtNet II & III and sACN E1.31 decoding DMX512 data to WS281x/UCS pixel data  
Radio Module : Wireless standard 802.11 b/g/n, Frequency range 2.4-2.5 GHz  
Power input : 5-24V applied to PWR/GND input  
Typical Pixel Data Output : 4 outputs sending typical 4 universes at 25FPS

## Parts Supplied

AirPixel-ONE Interface    1 x 3dBi Jointed/Swivel Antenna    1 x 7 way plug-in screw terminal block

## Status LEDs

**Network Select** : Flashing RED=APMode, not connected – Flashing GREEN=APMode, connected  
**Network Connect** : Flashing RED=ClientMode, not connected – Flashing GREEN=ClientMode, connected  
**Pixel Data Streaming** : Flashing BLUE=ArtNet/sACN data being received that matches universe selection group

## Access-Point Connection

On first power-up (when the device has not been set up before), it will appear as an Access Point(AP). If you check your list of wireless network connections you will find the device in the list as 'AirPixel xxyy' (where xxyy are the last two octets of the device mac). The devices 'Network Select' LED will be flashing RED. Select the device from the list of wireless network connections and enter 'smartshow' for the password. Once connected the 'Network Select' LED will be flashing GREEN.

```
[Laptop/PC] <--- direct wifi connection ---> [AirPixel in APMode : 192.168.4.1]
```

## 'Join A Network' Configuration Page

To access the 'Join A Network' configuration page, type into the URL bar '192.168.4.1' and press return :

### Network Credentials

**Network SSID:** Enter the name (SSID) of the wireless router for the network you wish to join  
**Network PASS:** Enter the password (PASS) for the above network.  
**[SAVE]** The above SSID and Password will be saved so that next time the device reboots, the connection will be made automatically (unless the Network/Pass cannot be verified)  
**[CONNECT]** This will allow the device to connect to the Network as specified above, the device will close down its Access-Point/'join-a-network' connection and restart as a Network Client/Node. The 'Network Connect' LED will flash RED before changing to flashing GREEN which confirms the connection to your chosen Wireless Network.

### Desired Device IP

**IP Address:** It is possible to set the IP Address of the AirPixel 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.  
*Note : If you change this IP address, the new IP address will be the one that will allow you access to this configuration page next time you reboot. Also take care to only change to an IP address that you actually have access to.*  
**SubNetMask:** Normally this should be left at 255.255.255.0, which will cover most applications.  
**[SAVE]** Saving the configuration will write the Device IP and SubNetMask values to the AirPixel's internal memory, so on next power-up the new settings will be used.

## Resuming Network Connection

Once the device has connected to your chosen Network (Flashing 'Network Connect' Green LED), then you should disconnect your Laptop/PC from the AirPixel's AP-Mode (it might automatically do this anyway), and then manually connect your Laptop/PC back to your existing Network (Same SSID as above)

```
[Laptop/PC] <--- wifi ---> [ROUTER] <--- wifi ---> [AirPixel in ClientMode : 192.168.1.200]
```

**Note :** If the 'Network Connect' LED stays flashing RED then you have not been able to connect to your desired network (you may have entered the SSID & PASS incorrectly). If you cycle the power to the device you will start in AP mode once again, the device will do this until a confirmed network connection has been made.

## Browser Configuration Mode

**Note :** Access to the Browser Configuration page is only available when ArtNet/sACN data is NOT streaming to the device over the network, therefore access can only be granted when the 'Network Connect' LED is flashing GREEN.

To access the browser configuration page, type into the URL bar the Network IP Address (this will be default value '192.168.1.200' unless you have changed it from within the 'Join-a-Network' page) and press return. The configuration interface should appear as follows:

### Network

The page should announce the currently connected network name as 'Connected to..' and RSSI value (received signal strength indication as received at the AirPixel)  
**Deleting Network Connection:** Pressing [DELETE] will remove the details of the currently connected network from the device, this may be required if you want to move from one wireless router to another. The next time you power up the device it will go into Access-Point mode again which will allow a new SSID & PASS to be entered.  
**IP Address:** It is possible to set the IP Address of the AirPixel 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. *Note : If you change this IP address, the new IP address will be the one that will allow you access to this configuration page next time you reboot. Also take care to only change to an IP address that you actually have access to.*  
**SubNetMask:** Normally this should be left at 255.255.255.0, which will cover most applications.  
**MAC Address:** This is not adjustable and is a unique number created when the device was manufactured.  
**[SAVE]** New IP configuration will not take place until the AirPixel has its power cycled, or by pressing [Reboot].

### Protocol Set-Up

**DMX Protocol:** Select either ArtNet or sACN (E1.31) to match the DMX Data Protocol coming from the host application  
**Start Universe:** These values can be configured to match the requirements of your system.  
**Net(ArtNet Only):** any value in the range 0-127  
**Sub(ArtNet Only):** any value in the range 0-15  
**Uni(Universe):** ArtNet : any value in the range 0-15. sACN : any value in the range 1-63999  
**[SAVE]:** New ArtNet/sACN settings will take immediate effect after they are saved.

## Universe Sizes

If your application is unable to set the size of the Universes, then each universe size (3-512) can be entered into the boxes, one for each available universe. If your device has not yet been feature Unlocked then you will only see Output A 1/2/3/4. If your device is fully unlocked then you will see Outputs A/B/C/D. Pressing **[SAVE]** will save all the current universe sizes entered

## Pixel Test

Buttons for testing connected Pixel-LEDs, all four output connections are tested at the same time. Pressing **[1],[2]** or **[3]** will test individual GRB channels. Pressing **[1],[2],[3]** or **[4]** will test individual GRBW channels. Pressing **[X]** will clear all colour channels.

## Pixel Type

There are two available pixel types, and these are quite broad settings, WSXXXX give output data typical of WS2811/12/13/15, SK6812 and GS8208 style pixels, whereas UCSXXXX will give timings typical of UCS19xx/29xx style pixels  
**[SAVE]:** New pixel stype settings will take immediate effect after they are saved.

## REBOOT

Pressing **[REBOOT]** will restart the AirPixel Device (a bit like cycling the power). All newly saved settings will be used after reboot.

## Firmware Upload

Pressing **[FWUpload]** will allow new firmware to be sent to the device using the current connection (see further details below)

## RSSI During Data Streaming

While data is being streamed to the device the BLUE LED will flash, its rate is determined by the strength of signal that it is receiving from the router, A fast flash ~2/sec means good signal strength, and will slow to ~1/sec for poor signal strength

## Universe Manager

Unlike other multi-output devices, AirPixel ONE has the ability to deal with different sized universes. Therefore any universe can be any length and AirPixel will work out the best way to output the data. All you need to do is set the number of channels per universe in the hosting software (channels=3\*pixels for RGB pixels).

**16 Universe (Unlocked Mode):** each output has the following Universe numbers assigned to it :

A=Universe 1-4, B=Universe 5-8, C=Universe 9-12, D=Universe 13-16.

You don't have to send ALL universes for a particular output. See example below:

```
OutputA (Brown) : [Uni-1...][Uni-2.....][Uni-3][Uni-4.....]
OutputB (Red)   : [Uni-5.....][Uni-6.....]
OutputC (Orange): [Uni-9.....][Uni-10.....][Uni-11][Uni-12..]
OutputD (Yellow): [Uni-13.....]
```

**4 Universe (Standard Mode):** Each output will produce the same buffered output and is configured to Universe 1-4 only.

## Device restart, Configuration Reset & Full Factory Reset

There are 3 levels of reset that can be initialised by pressing the switch inside the 'Reset' hole on the faceplate:

**Device Restart:** A short press and release will restart the AirPixel regardless of which mode it is in

**Configuration Reset:** (This will restore the devices IP back to 192.168.1.200/255.255.255.0 in ArtNet Mode on universe 0:0:0 for WS281x pixels, but will **NOT** delete the connection to the Wifi Access Point). Press and hold the reset button while you see the following sequence: red.. red/red.. red/red/blue.. green/green/blue, then RELEASE

**Full Factory Reset:** This will restore all the settings back to the defaults (see above) additionally will delete the SSID and Password credentials and disconnect the device from the network (if connected), the device will then start in Network Select Mode awaiting connection to a PC. To activate, run the above HOLD sequence TWICE in succession WITHOUT releasing the reset key until the end.

**Note:** If you have upgraded to Unlocked mode this will NOT be deleted on any reset

## Upgrading to Unlocked Mode

Please contact SmartShow UK if you would like to purchase the upgrade code to unlock the additional 12 Universe of AirPixel ONE

## ArtNet/sACN Unicast, Multicast & Broadcast mode

It is recommended that Unicast mode is used when sending ArtNet/sACN data to AirPixel ONE.

## ArtNet Device Discovery & DHCP

There is the ability to discover IP addressing and device Information using ArtNetPoll, if unavailable, addressing can be done manually as described above. There is no DHCP function as IP addressing is Static, utilising client port 6454 for ArtNet and 5568 for sACN.

## Flashing Status LEDs on power up

If the Network Select and Network Connect LEDs are both flashing RED on power up then there has been a terminal fail and the device will need to be returned back to SmartShow UK for diagnosis.

## Dimensions

Length : 100mm (plus adjustable antenna) – Width 50mm – Height 20mm

## Software Compatibility

AirPixel ONE 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.

## Firmware Uploads

From time to time we may issue revised firmware for our products. The latest firmware can be uploaded wirelessly to AirPixel ONE, for this you will need the .Bin firmware file. Please ensure that the firmware file matches the product you are downloading to. For AirPixel 'over-the-air' firmware upgrades, there are several options depending on your operating system :

**Windows :** Use Chrome Browser

**Mac OSX and iOS :** support is already built in, no any extra software required

**Linux :** Avahi <http://avahi.org/>

Firmware uploads can be initialised by pressing [FWUpload] found at the bottom of the Browser Configuration Page. Now open your browser. Type '[device ip]/update' into the URL bar and press return. Pressing [Browse] will allow you to select the required '.bin' file you wish to upload to AirPixel, once selected press [Upload]. Once the upload is complete a message will show it is complete and rebooting (the browser page may timeout at this point). DO NOT disconnect AirPixel, the device will require up to a minute to transfer its data internally and reboot, during this time no LEDs will be shown, but once complete the device should go back to connecting to your current network and the GREEN network connect LED will be flashing. The upload success can be tested by accessing the browser configuration page and checking the new firmware version number.

**Note :** If you press [FWUpload] from within the browser configuration page and decide not to go ahead with it, no damaged has been done and recycling the power to the device will resume normal operation.

## Technical Support

email : [sales@smartshow.lighting](mailto:sales@smartshow.lighting)

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