

ArtNet Multi PixxControl

User Manual



**ART
NET**
ETHERNET

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DMX [®]
4ALL

Description

The ArtNet Multi PixxControl is a compact ArtNet (DMX over Ethernet) interface which converts ArtNet directly on a control signal for various digital LED stripes.

With a standard RJ45 network connector the connection to the ArtNet is made.

Selectable LED controller

The used LED controller in the connected digital LED Stripe is selectable. Thus, a usage of various digital LED Stripes is possible.

Adjustable color sequence

The RGB color sequence is adjustable allowing universal usages. In addition, you can choose a SingleColor-Option where each pixel uses only one channel.

Adjustable pixel group

ArtNet Multi PixxControl supports pixel groups with an adjustable length. Each pixel group behaves like a single pixel controlled with 3 DMX channels. So, channels can be saved in extended installations.

Disengageable LED-Display

The ArtNet Multi PixxControl LED-Displays are disengageable by ArtNet command (AcLedMute) or time-controlled. This is helpful to avoid disturbing "points of light" especially on stages.

Easy Configuration

A user-friendly configuration via a web browser allows a fast and uncomplicated setting of all parameters. A special software is not required, a normal web browser is enough. Thus, the configuration from PC, Smartphone or Tablet device is possible at any time.

For easy setting of the IP-Address, we provide the IP Configurator as a PC-Tool or Android App available for free. This allows leaving the network settings unchanged and can easily configure the IP.

High quality and compact design

The ArtNet Multi PixxControl is designed with a 4-pin Neutrik-XLR-Connector in metal design inside a compact aluminium housing.

Use together with WiFi-Components

In conjunction with a WiFi-Bridge the ArtNet Multi PixxControl can be integrated into standard WiFi-Networks.

Firmware-Update-Function

For future updates the ArtNet Multi PixxControl has a Firmware-Update-Function. This can be started from the browser so no direct access to device is necessary!

Technical Data

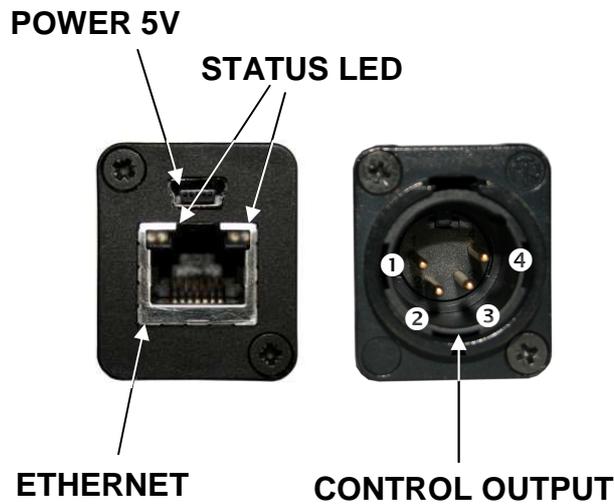
(Firmware Version 2.20)

Power Supply:	5V DC included in delivery
Connections:	RJ45 Ethernet / Art-Net™ 4 pin Neutrik XLR USB Mini-B only for power supply connection
Output protocol:	MagiarLED II flex, MagiarLED III flex, APA-102, SK9822 max. 2720 Pixel APA-101, APA-104, DycoLED PB3, DycoLED PC5, GS8208, INK1002, INK1003, LC8808, LPD1101, LPD1886 8Bit, LPD1886 12Bit, LPD6803, LPD8803, SK6812, SK6822, SM16703, TLS3001, TM1804, TM1812, TM1814, TM1829, TM1934, UCS1903, UCS1912, UCS2903, UCS2912, WS2801, WS2811, WS2812 (B), WS2813, WS2815, WS2818, WS2821, max. 1360 Pixel UCS9812 (8Bit Ctrl), UCS9812 (16Bit Ctrl) max. 850 Pixel DMX512, DMX1024
Color sequence:	RGB adjustable; SingleColor white, red, green, blue RGBW with UCS2912, SK6812
Pixel groups:	1 to 25 pixels / All
Gamma correction:	Selectable for LPD1886 12Bit, UCS9812 (8Bit controlled)
Dimensions:	75 mm x 26 mm x 35 mm

Included in delivery

- 1x ArtNet Multi PixxControl
- 1x 5V Power supply
- 1x 1m RJ45 Network cable 1:1
- 1x Quick guide (german and english)

Connection

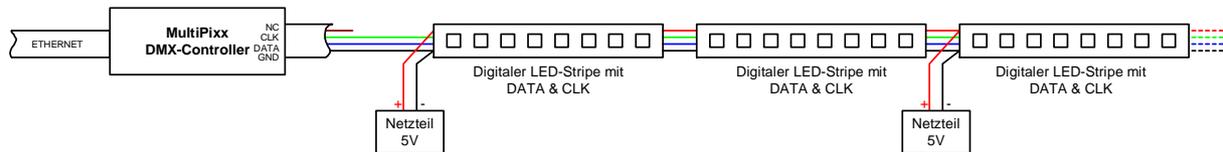


Control output assignment

LED-Type	PIN1	PIN2	PIN3	PIN4
APA-101 / APA-102	NC	CLK	GND	DATA
APA-104	NC		GND	DATA
Dyco LED PB3 / PC5	NC	CLK	GND	DATA
GS8208	NC		GND	DATA
INK1002 / INK1003	NC		GND	DATA
MagiarLED III	NC	CLK	GND	DATA
MagiarLED II	NC	CLK	GND	DATA
SK6812 / SK6822	NC		GND	DATA
SK9822	NC	CLK	GND	DATA
SM16703	NC	CLK	GND	DATA
TLS3001	NC	CLK	GND	DATA
TM1804 / TM1812 / TM1814	NC		GND	DATA
TM1829 / TM1934	NC		GND	DATA
LPD8803	NC	CLK	GND	DATA
LPD6803	NC	CLK	GND	DATA
LPD1886	NC		GND	DATA
UCS1903 / UCS1912	NC		GND	DATA
UCS2903 / UCS2912	NC		GND	DATA
UCS9812	NC		GND	DATA
WS2801	NC	CLK	GND	DATA
WS2811 / WS2812 (B)	NC		GND	DATA
WS2813 / WS2815 / WS2818	NC		GND	DATA
WS2821	NC	DMX-	GND	DMX+
DMX512	NC	DMX-	GND	DMX+
DMX1024	NC	DMX-	GND	DMX+

Connection examples for stripes with 2 signals (CLK+DATA)

Digital LED stripes with 2 control signals DATA, CLK and GND must be connected, e.g. for the WS2801 / MagiarLED flex

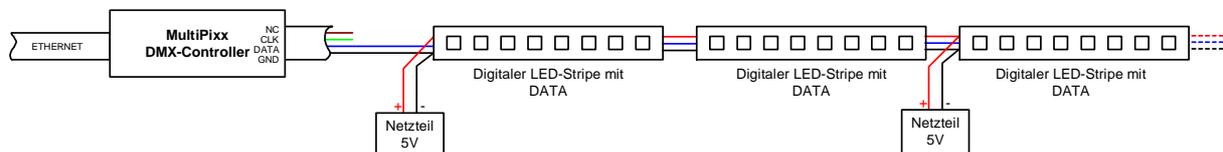


Recommended connection cable:

- PixxControl Cable TYPE-4
- PixxControl Cable Open-End

Connection examples for stripes with 1 signal (DATA)

Digital LED stripes with only 1 control signals DATA and GND must be connected, e.g. for the WS2811 / TM1804



Recommended connection cable:

- PixxControl Cable TYPE-3
- PixxControl Cable Open-End

Display

LED green

The green LED lights up if an Ethernet-connection exists.

LED yellow

The yellow LED lights up as soon as data will be received.

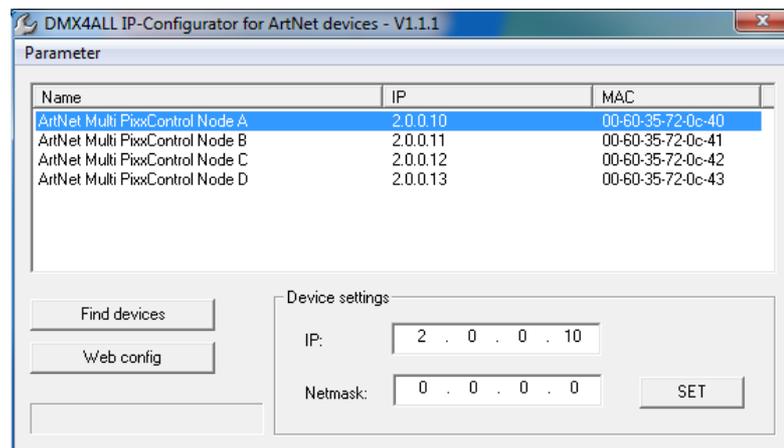
Configuration

The configuration of the **ArtNet Multi PixxControl** occurs via a Web-Interface which can be called with any web-browser.

Set the IP via IP-Configurator

The **IP-Configurator** allows to set the IP-Address and net mask also if the PCs net work setting is not in the range of the ArtNet Multi PixxControl.

- Install the software IP-Configurator
- Connect the ArtNet Multi PixxControl with the net work and turn it on.
- Start the software IP-Configurator



- The ArtNet Multi PixxControl is shown in the list
- Select the entry „ArtNet Multi PixxControl Node A“ (click)
- Enter the new IP and net mask
- Click SET

Set the IP via Web browser

The **ArtNet Multi PixxControl** has 4 ArtNet Nodes (A-D). Each of them is to configure. Call the web interface via the IP of the first node.

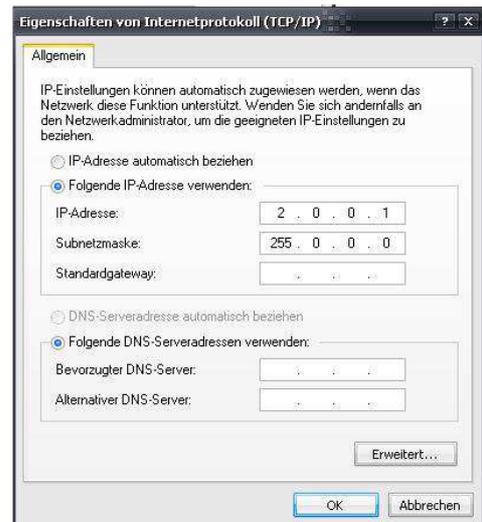
In the delivery condition the assigned **IP-Address** is **2.0.0.10** which can be used for the web-interface and ArtNet.

Set the net work card to this IP-Range to call the web browser via the IP-Address 2.0.0.10 .



The network setting of the computer must be set to the **IP-Address 2.0.0.1** and the **Subnet mask 255.0.0.0**.

Please take further details from the ArtNet-specifications.



Each node needs an own **IP-Address** so the assignment can occur clearly. Use in accordance to the ArtNet-Specifications the IP-Address 2.x.x.x or 10.x.x.x

Any other IP-Address can also be used e.g. 192.168.1.10 . In this case the net-mask has to be fitted to 255.255.255.0 !

Device Configuration

Within the web browser call the IP of the ArtNet Multi PixxControl (delivery status: 2.0.0.10) to get the following configuration side:

DMX 4ALL ArtNet Multi PixxControl

Main Settings

▶ Main Settings ▶ Output Port ▶ Service

Universe 1 - 4

IP Address: 2.0.0.10
Short Name: PixxControl
Long Name: ArtNet Multi PixxControl Node A
Net: 0
SubNet: 0
Port 0/1/2/3: 0 1 2 3

Universe 5 - 8

IP Address: 2.0.0.21
Short Name: PixxControl
Long Name: ArtNet Multi PixxControl Node B
Net: 0
SubNet: 0
Port 0/1/2/3: 4 5 6 7

Universe 9 - 12

IP Address: 2.0.0.22
Short Name: PixxControl
Long Name: ArtNet Multi PixxControl Node C
Net: 0
SubNet: 0
Port 0/1/2/3: 8 9 10 11

Universe 13 - 16

IP Address: 2.0.0.23
Short Name: PixxControl
Long Name: ArtNet Multi PixxControl Node D
Net: 0
SubNet: 0
Port 0/1/2/3: 12 13 14 15

Subnetmask

Netmask: 255.0.0.0

LED-Indicator

LED auto off

Save

User Information

The ArtNet Multi PixxControl is an Art-Net™ interface with a control output for different digital LED Pixel stripes.

The device provides four Art-Net™ Nodes with each 4 ports/universes.

You can give each node an own IP address, Shortname and Longname to differ the node in the network.

Please use in one ArtNet network the IP address 2.x.x.x or 10.x.x.x with the Netmask 255.0.0.0.

Other IP addresses like 192.168.1.x with Netmask 255.255.255.0 are also possible.

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Each Node needs an own **IP-Address**, so the assignment in the net work is clear. Use in accordance to the ArtNet-Specifications the IP-Addresses 2.x.x.x or 10.x.x.x .

Any other IP-Address can also be used e.g. 192.168.1.10 . In this case the net-mask has to be fitted to 255.255.255.0 !

Any name can be used for the ArtNet Node, so an easy distinction is available. The **Short-Name** is limited to 18 signs and the **Long-Name** is limited to 64 signs.

The ArtNet-Parameter **SubNet**, **Net** and **Port** must be set in accordance to the ArtNet-Specifications and define the aim for the DMX-Data.

The **Netmask** is to leave in accordance to the ArtNet-Specification on 255.0.0.0 .

The LEDs on the device shuts down after ca. 10 minutes operation with permanent net work connection if the option **LED auto off** is activated.

SAVE stores the configuration respectively restored the Factory Settings.



Using other IP-Addresses

The ArtNet Multi PixxControl works with any IP-Addresses.
You can use for your net work the usual IP-Addresses 192.168.1.x
In this case set the net mask to 255.255.255.0

LED-Type / Color sequence / Pixel group

By clicking Output Port the configuration for the output is called out:

The screenshot shows the 'ArtNet Multi PixxControl' software interface. The top navigation bar includes 'Main Settings', 'Output Port', and 'Service'. The 'Output Port' section is active, displaying a list of LED types under 'LED Type Selection'. Below this list are 'Advanced Options' and 'Sync Options'.

LED Type Selection:

- APA-101 ⓘ
- APA-102 ⓘ
- APA-104 ⓘ
- DycLED PB3 ⓘ
- DycLED PC5 ⓘ
- GS8208 ⓘ
- INK1002 / INK1003 ⓘ
- LC8808 ⓘ
- LPD1101 / LPD6803 ⓘ
- LPD8806 ⓘ
- LPD1886 8Bit ⓘ
- LPD1886 12Bit (8Bit controlled) ⓘ
- LPD1886 12Bit (12Bit controlled) ⓘ
- MagiarLED II flex ⓘ
- MagiarLED III flex ⓘ
- SK6812 / SK6822 ⓘ
- SK9822 ⓘ
- SM16703 ⓘ
- TLS3001 (8Bit controlled) ⓘ
- TI S3001 (12Bit controlled) ⓘ
- TLS3008 ⓘ
- TM1804 ⓘ
- TM1812 ⓘ
- TM1814 ⓘ
- TM1829 (Low speed) ⓘ
- TM1829 (High speed) ⓘ
- TM1934 ⓘ
- UCS1903 / UCS1912 ⓘ
- UCS2912 ⓘ
- UCS9812 (8Bit controlled) ⓘ
- UCS9812 (16Bit controlled) ⓘ
- WS2801 ⓘ
- WS2811 / WS2812(B) / WS2813 / WS2815 / WS2818 ⓘ
- WS2821 ⓘ
- DMX512 ⓘ
- DMX1024 ⓘ

Advanced Options:

Output: Universe 1-8

Color sequence: R-G-B

Pixel Group: 1

Channels: 510 ⓘ

Sync Options:

Enable ArtNet / Madrix Sync ⓘ

Save

User Information:

For RGB pixels:
Each LED needs 3 channels to control, so each universe have max. 170 pixels.
In this case, channel 1 - 510 of each universe can be used.

For RGBW pixels:
Each LED needs 4 channels to control, so each universe have max. 128 pixels.
In this case, channel 1 - 512 of each universe can be used.

The setting CHANNELS is normally 510 for RGB / 512 for RGBW or single color.
Decreasing this value appends the next universe before reaching the last channel in the universe.

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Select within **LED Type Selection** the LED-Type respectively the LED-Protocol according to the used LED-Stripe / LED-Chip.

Within **Advanced Options** several parameters are available depending to the selected LED-Stripe:

Output specifies how many DMX-Univeses are used per ArtNet.

Color sequence defines the color settings. A RGB-Color sequence or control of one color (SingleColor) is possible. If SingleColor is used, only one channel per pixel is used for control. According to the color selection the control occurs only for this color (e.g. running light blue or white all colors).

Pixel Group specifies the pixel group length. Each pixel group behaves like a single pixel, all pixel of a group are controlled in the same way.

Channels show the number of the used DMX-Channels in each universe.

Enable ArtNet / Madrix Sync synchronizes the output of several ArtNet-Devices by using the software MADRIX[®] or ArtSync.

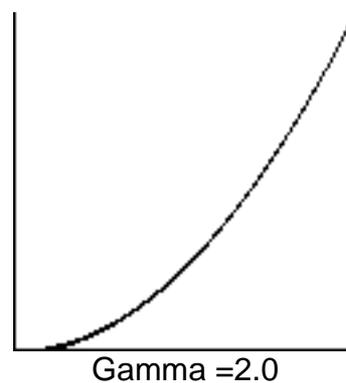
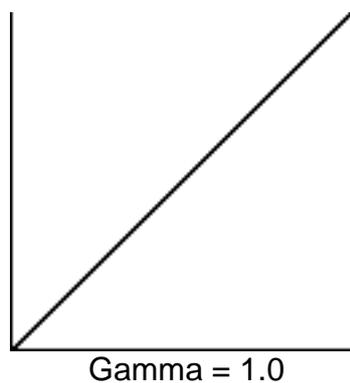
Freq.Factor allows a fitting of the output frequency in LED-Protocols with separated Data and Clock signals.

Master-Brightness fixes the global brightness.

Gamma specifies the gamma correction (1,0 / 1,2 / 1,4 / 1,8 / 2,0 / 2,2) which is available for the LED-Type LPD1886 12Bit (8Bit controlled) and UCS9812 (8Bit controlled).



The higher the gamma value, the more the output curve is curved:

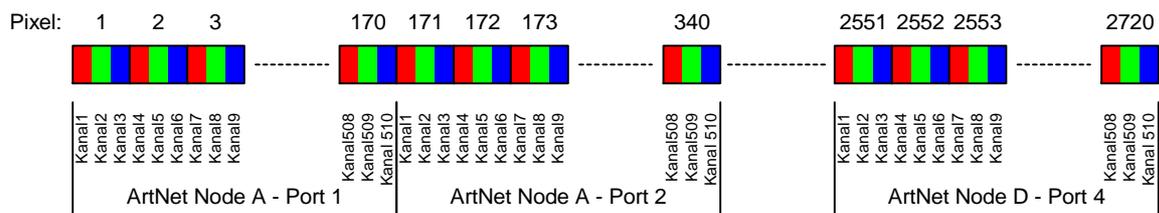


Pixel assignment

8-Bit Control

The **ArtNet Multi PixxControl** controls up to 2720 RGB-Pixel. Therefore 16 ArtNet ports will be used per 170 RGB-Pixel. At the 8-bit control one channel is used for R, G and B. This means each port (universe) can control 170 RGB pixels.

The single pixels are assigned to the ArtNet-Ports as follows:

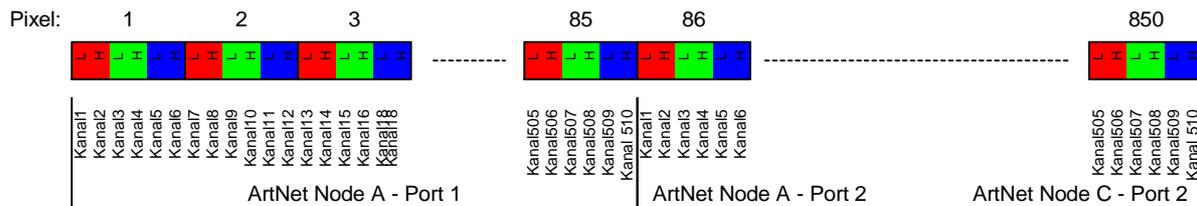


<u>ArtNet-Port</u>	<u>Pixel</u>
Node A1	1-170
Node A2	171-340
Node A3	341-510
Node A4	511-680
Node B1	681-850
Node B2	851-1020
Node B3	1021-1190
Node B4	1191-1360
Node C1	1361-1530
Node C2	1531-1700
Node C3	1701-1870
Node C4	1871-2040
Node D1	2041-2210
Node D2	2211-2380
Node D3	2381-2550
Node D4	2551-2720

16-Bit Control

The digital LED stripe UCS9812 can be used with 16-bit control for each color. For this stripe the **ArtNet Multi PixxControl** has the option UCS9812 (16-Bit Ctrl) what means that each color of a pixel is controlled by 2 channels. In this case one port (universe) can control up to 85 RGB pixels.

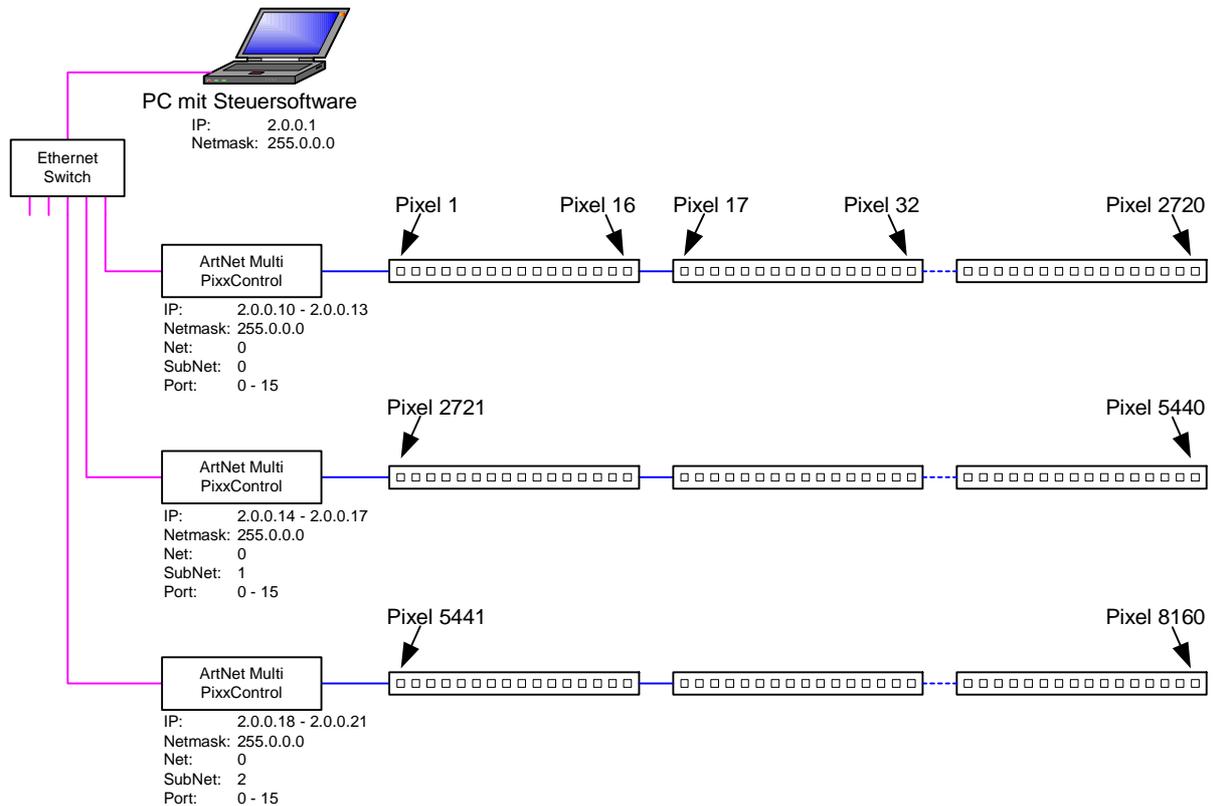
The single pixels are assigned to the ArtNet-Ports as follows:



ArtNet-Port	Pixel
Node A1	1-85
Node A2	86-170
Node A3	171-255
Node A4	256-340
Node B1	341-425
Node B2	426-510
Node B3	511-595
Node B4	596-680
Node C1	681-765
Node C2	766-850

Pixel assignment with several ArtNet Multi PixxControl

If more pixel should be controlled in one system than can be controlled with one **ArtNet Multi PixxControl** it is necessary to use more than one **ArtNet Multi PixxControl**. In this case the Ethernet signal must be shared over Ethernet switches.



For a clear pixel assignment, it is necessary to configure each **ArtNet Multi PixxControl**.

This Configuration bases on the ArtNet-Specifications (Net/Subnet/Port) and the Network-Specification (IP/Net mask).

An ArtNet Multi PixxControl has 16 ports capable to run up to 170 pixels. The ports are assigned to the connected pixels as described above.

Each port gets a port number from 0 to 15.

If the port numbers 0 to 15 are already assigned, the Subnet number must be increased. The Subnet number again uses the range of values 0 to 15.

After the Subnet number the Net number is to increase. For Net a range of 0 to 127 is available.

Furthermore, the network settings for the IP and the net mask must be made. ArtNet provides that an IP range to be used 2.xxx or 10.xxx. In this case the net mask is 255.0.0.0 .

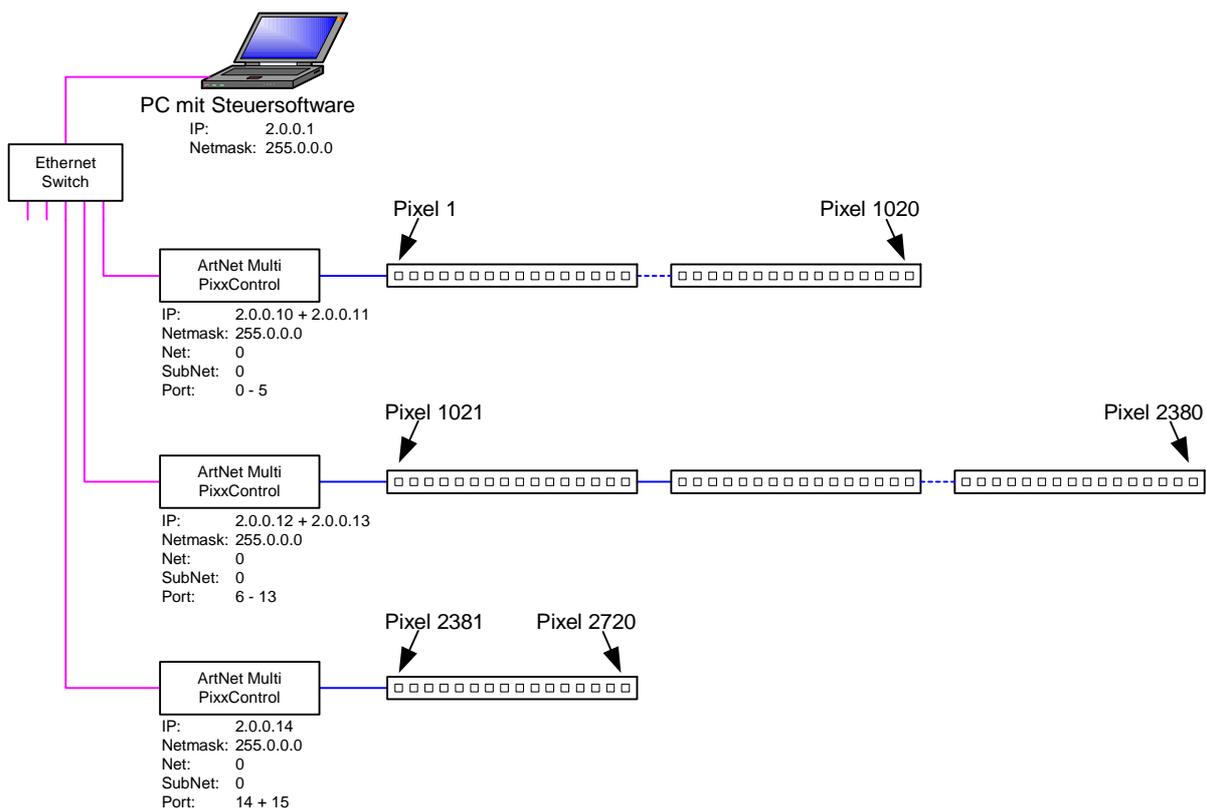
Each different IP-Address can also be used, such as 192.168.1.10. In this case, the net mask must be adapted to 255.255.255.0!



Due to the ArtNet-Specification up to 4 ports can be present in one node. Each node must be configured with its own IP address.

Because the ArtNet Multi PixxControl has 16 ports one device needs 4 adjusted IP-Addresses.

When not fully exploited ArtNet Multi PixxControl the Nodes / unused ports can be "skipped".



Universe assignment with MADRIX[®]

The software MADRIX[®] assigns the universes automatically to the **ArtNet Multi PixxControl** which are found in the net work with *Find Auto* as following:

$$\text{Universe} = (\text{Net} * 128) + (\text{SubNet} * 16) + \text{Port} + 1$$

Output characteristics for several LED-Protocols

LED-Protocol	max. Pixel	Updates / Hz (680 Pixel)	Updates / Hz (1360 Pixel)	Updates / Hz (2720 Pixel)
APA-101	1360	72	36	
APA-102	1360	78	42	
APA-104	1360	32	16	
DycoLED PB3				
DycoLED PC5	1360			
INK1002 / 1003	1360	32	16	
LPD6803				
LPD8803	1360	50	25	
LPD1886 8Bit	1360	50	27	
LPD1886 12Bit	1360	36	20	
MagiarLED III flex	2720	80	42	22
MagiarLED II flex	2720	120	60	30
TM1804	1360	23	11	
TM1812	1360	27	13	
TM1829	1360	30	15	
UCS1903 / UCS1912	1360	19	9	
UCS2903 / UCS2912	1360	19	9	
UCS9812 (8Bit controlled)	850	22	18 (850Pixel)	
UCS9812 (16Bit controlled)	850	24	19 (850Pixel)	
WS2801	1360	50	25	
WS2811 / WS2812(B) / WS2813	1360	32	16	
WS2815 / WS2818	1360	32	16	

Firmware Version: 2.22

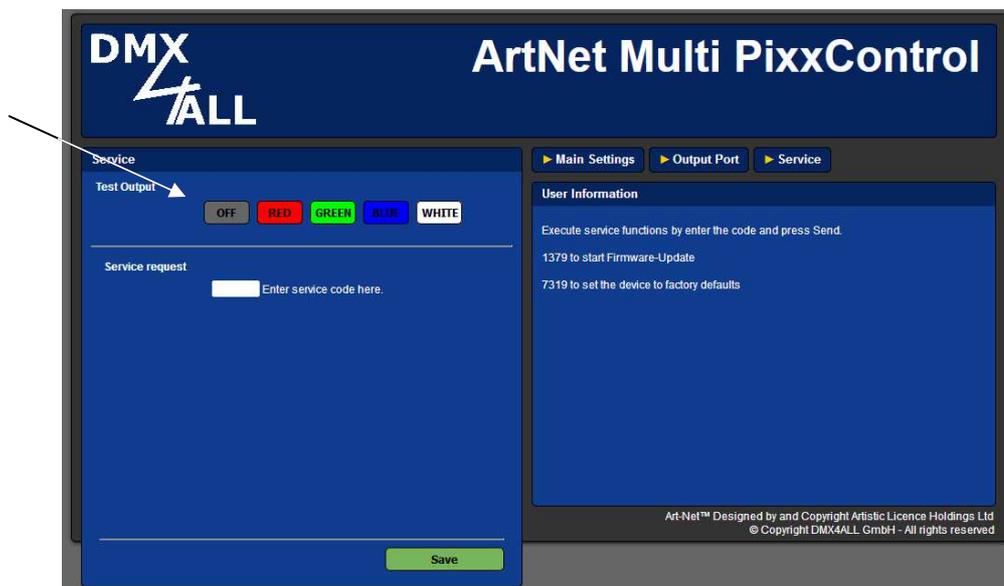
(Group = 1 / PixelFactor = 1.0)

Check connected LEDs

The **ArtNet Multi PixxControl** serves a test output to have an easy check for the connected LEDs.

The Service-Side shows a menu item Test Output with the button OFF, RED, GREEN, BLUE and WHITE.

By clicking the button the LEDs are controlled in the corresponding color.



No control signal may be send to the ArtNet Multi PixxControl for the test output! An external control signal has always priority over a test output.

Factory Reset

The **ArtNet Multi PixxControl** can be reset in to the delivery status.

Please proceed as follows:

- *Open Service* web browser
- Enter in the Service Request entry field the code „7319“ for Factory Reset
- Click *Save*
- Please wait following 10 seconds.

Alternatively the delivery status can be restored via the **DMX4ALL LAN-Updater**:

- Turn off the device (connect **no** power)
- Start software **DMX4ALL LAN-Updater**
- Generate net work connection to PC
- Turn on the device (connect power)
- Click within 3 seconds **FIND** in the DMX4ALL LAN-Updater
- Select the **ArtNet Multi PixxControl** from list
- Click **FACTORY RESET** in the DMX4ALL LAN-Updater
- The reset will be executed now and the LEDs flashes 3x simultaneously as confirmation.

Execute Update

The **ArtNet Multi PixxControl** has an Update-Function allowing the transfer for future Firmware-Versions.

Please proceed as follows:

- Turn off the device (connect **no** power)
- Start the Update-Software **DMX4ALL LAN-Updater**
- Generate net work connection to PC
- Turn on the device (connect power)
- Click **FIND** within 3 seconds in the DMX4ALL LAN-Updater
- The yellow LED flashes and the ArtNet Multi PixxControl is shown in the list of the DMX4ALL LAN-Updater.
- Select the **ArtNet Multi PixxControl** from list
- Click *Firmware-Update*
- Select and confirm Firmware-File (.bin)
- Wait until the update has finished



If an error occurs during the update you can begin again from the beginning at any time.

Alternatively, you can activate the firmware update via the web browser:

- *Open Service* within the Web browser
- In the Service Request Enter field please enter the Code „1379“ for Firmware Update
- Start the Update-Software **DMX4ALL LAN-Updater**
- Select the **ArtNet Multi PixxControl** from list
- Click *Firmware-Update*
- Select and confirm Firmware-File (.bin)
- Wait until the Update has finished
- Click *Back* in the web browser

Accessories

Several Digital LED-Stripe



Network Cable



ArtNet Multi PixxControl connection cable



CE-Conformity



This assembly is controlled by a microprocessor and uses high frequency. In order to maintain the properties of the module with regard to CE conformity, installation into a closed metal housing in accordance with the EMC directive 2014/30/EU is necessary.

Risk-Notes

You purchased a technical product. Conformable to the best available technology the following risks should not be excluded:

Failure risk:

The device can drop out partially or completely at any time without warning. To reduce the probability of a failure a redundant system structure is necessary.

Initiation risk:

For the installation of the board, the board must be connected and adjusted to foreign components according to the device paperwork. This work can only be done by qualified personnel, which read the full device paperwork and understand it.

Operating risk:

The Change or the operation under special conditions of the installed systems/components could as well as hidden defects cause to breakdown within the running time.

Misusage risk:

Any nonstandard use could cause incalculable risks and is not allowed.

Warning: It is not allowed to use the device in an operation, where the safety of persons depend on this device.

Disposal

Electronical and electronic products must not be disposed in domestic waste.



Dispose the product at the end of its service life in accordance with applicable legal regulations. Information on this can be obtained from your local waste disposal company.



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