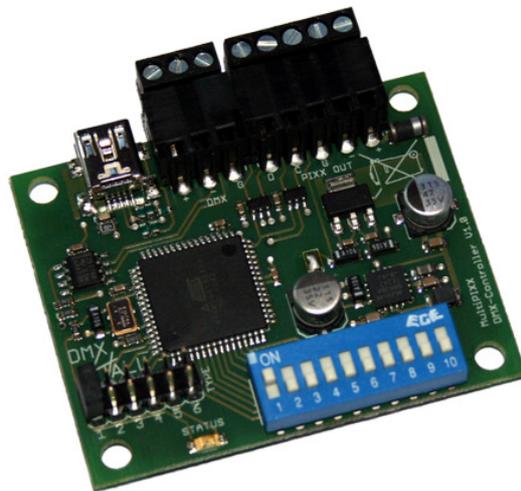# MultiPixx DMX-Controller

User Manual

DMX4ALL ®

Description

The **MultiPixx DMX-Controller** is especially designed for controlling digital LED Stripes or Pixel Stripes whereby each single LED is individually controllable.

By controlling via DMX the interface can control 170 pixels (RGB) individually.

So, running lights, gradients up to rainbow effects can be created.

The output is developed for connecting several digital LED Stripe types.
Due to the adjustable output-protocol this controller is applicable universal.
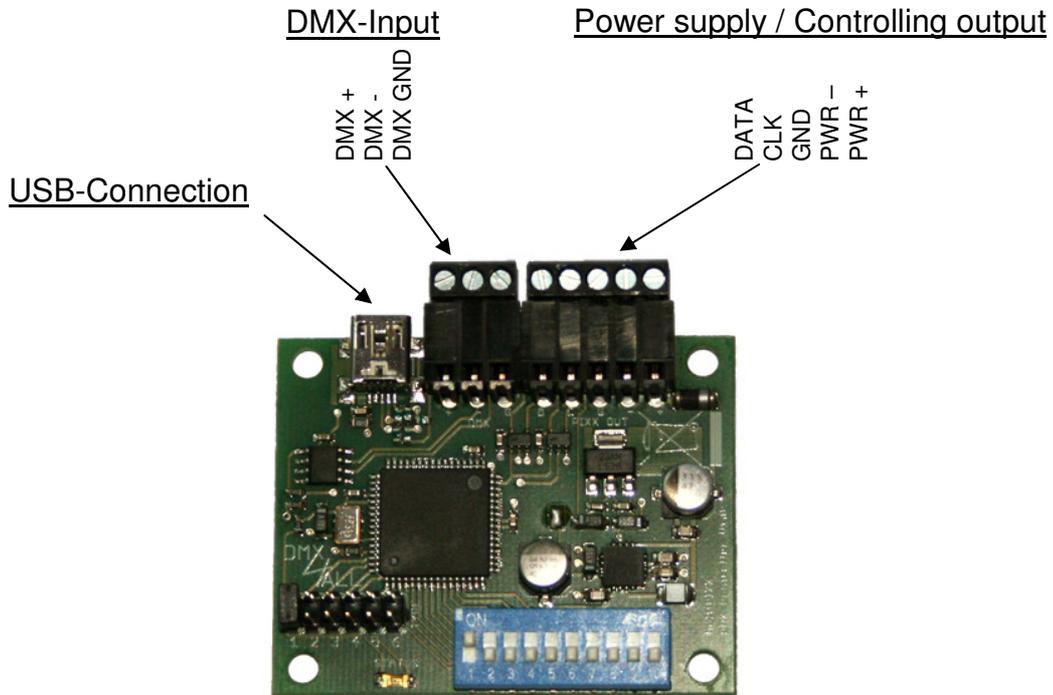
The MultiPixx DMX-Controller supports pixel groups with an adjustable length. Each pixel group is controlled by 3 DMX-Channels on the same way as a single pixel. Thus, longer digital LED Stripes with more than 170 pixels can be controlled.

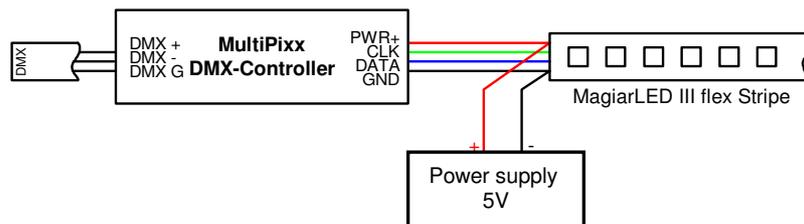An integrated update possibility allows controlling prospective LED Stripes.

Data sheet

Power supply:	5 - 12V DC / 100mA or via an USB-connection
DMX-IN:	up to 512 DMX-channels
Output:	Digital controlling signal for up to 170 RGB-Pixel individually
Output protocol: (Adjustable via jumper)	MagiarLED III flex, TM1804, TM1812, TM1829, WS2801, LPD8803, DycoLED, UCS1903, UCS9812, WS2811, WS2812, WS2812B, INK1002, INK1003, APA-101, APA-102, APA-104, LPD6803, LPD1886 8Bit, LPD1886 12Bit, UCS2912 RGBW
Color sequence:	adjustable
Pixelgroups:	adjustable (1 – 25 pixel)

Maximum Pixel / Pixelgroups:

Demo programs:	170 Pixel	
DMX-Mode:	170 Pixel	(RGB-Stripe)
	512 Pixel	(SingleColor-Stripe)

Dimensions:	58 x 54 x 14mm

Connection

DMX-Input

Power supply / Controlling output

DMX +
DMX -
DMX GND

DATA
CLK
GND
PWR –
PWR +

USB-Connection

Example for connecting Stripes with two controlling signals (CLK+DATA)

DMX

DMX +
DMX -
DMX G

MultiPixx
DMX-Controller

PWR+
CLK
DATA
GND

MagiarLED III flex Stripe

Power supply
5V

+   -

Example for connecting Stripes with one controlling signal (DATA)

DMX

DMX +
DMX -
DMX G

MultiPixx
DMX-Controller

V+
DATA
GND

E.g. LED-Stripe with TM1804

Power supply
5V
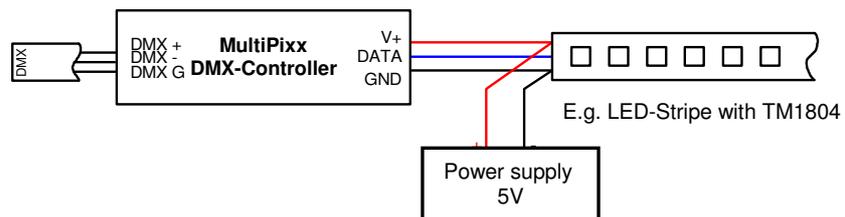
DMX-Addressing

The DMX-Starting address is adjustable via button 1 to 9.

Thereby switch 1 has the valency 2^0 (=1), switch 2 the valency 2^1 (=2) and so on until switch 9 has the valency 2^8 (=256). The switches showing ON represent in sum the starting address.

Switch 10 is reserved for the demo programs and must show OFF during the DMX-operation.
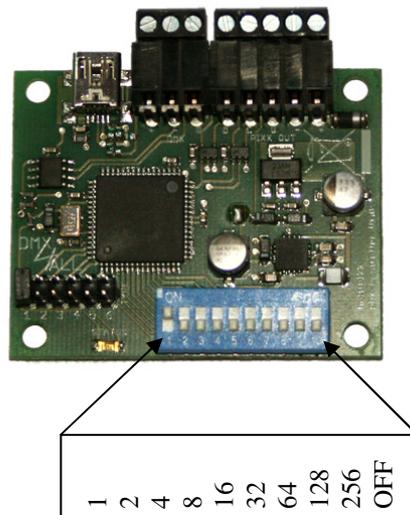
LED-Display-Codes

The integrated LED is a multifunctional display.

During the DMX-operation the LED lights permanently.

Furthermore the LED shows the current status. In this case the LED lights up in short pitches and hold off for a longer time. The number of flashing lights is equal to the event number:

Event number	Error	Description
1	No DMX-Signal	There is no DMX signal detected
2	Addressing error	Please check, if a valid DMX-starting address is adjusted via the DIP-switch
3	DMX-Signal error	An invalid DMX-input signal is detected. Exchange the signal pipelines at Pin 2 & 3 or use a rotated connecting lead.

Adjust the LED Stripe type

The type of the used digital LED stripes is adjustable as follows via a jumper:

Extended Settings are used

MagiarLED III flex

LPD1886 12 Bit (8-Bit controlled)

LPD1886 8 Bit

LPD1886 12 Bit (12-Bit controlled)
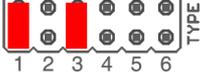
DycoLED / APA-101 / LPD6803
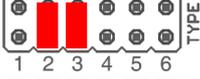
TM1804
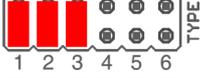
WS2801
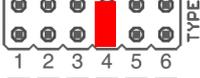
WS2811 / WS2812 / WS2812B / APA-104
INK1002 / INK1003 / SK6812 RGB
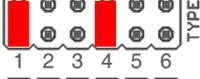
LPD8806

UCS1903

APA 102

TM1812

TM1829 (High speed)
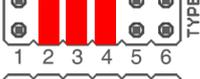
UCS9812 (8-Bit controlled)
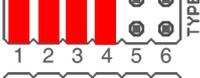
UCS9812 (16-Bit controlled)

UCS2912 – RGBW

TM1829 (Low speed)

Pixel Controlling via DMX

The **MultiPixx DMX-Controller** controls each RGB-Pixel with 3 DMX-Channels.

Each single DMX-Channel will be used for red, green and blue.

Beginning with the starting address the DMX-channels will be automatically assigned to the Pixel:

Starting address

| Pixel 1 - R | Pixel 1 - G | Pixel 1 - B | Pixel 2 - R | Pixel 2 - G | Pixel 2 - B | Pixel 3 - R |

DMX MODE-Channel

An additional MODE-Channel can be activated to build Pixel-groups (pixel sections) and to call up the demo programs via DMX.

⚠ Activate the MODE-Channel via the *Extended Settings*
(☑ Enable Mode-Channel).
Please take further details from chapter *Extended settings*

With the activated MODE-Channel the DMX-channel 1 determines the pixel sections length with the same color (DMX-value 1-127), thereby the maximum length is 127 pixels. The following DMX-addresses are meant for the color-settings. Thereby every single DMX-channel exists for red, green and blue.

Starting address

| Mode | Pixel 1 - R | Pixel 1 - G | Pixel 1 - B | Pixel 2 - R | Pixel 2 - G | Pixel 2 - B | Pixel 3 - R |

| Channel	Function	Value	
1	Mode	0	Pixel sections length = all pixel
		1-127	DMX-value = pixel sections length
		128-255	See demo program via DMX
2	Color	0-255	Pixel 1 red
3		0-255	Pixel 1 green
4		0-255	Pixel 1 blue
:::		:::	::: red/green/blue for each pixel

Single Color LED-Stripes

⚠️ Single color LED-Stripes are supported at Firmware V1.05 .
Please execute a Firmware-update if necessary.

For the configuration the DMX-Configurator from V2.2 is needed !

The **MultiPixx DMX-Controller** controls not only RGB-Stripes but single LED-Stripes, e.x. digital LED-Stripes with white LEDs or only one color for digital RGB-LED-Stripes.

In this case each pixel is controlled with only <u>one</u> DMX-Channel.

For a digital LED-Stripe with white LEDs the settings take place via jumper 6, as following:
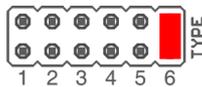
This setting must be done additionally to the LED-Stripe typesetting via jumper 1-5 !

The setting using only one color for digital RGB-LED Stripes has to take place within the extended setting.

Therefore please use the setting Color Single Red / Color Single Green / Color Single Blue:

☐ Color Single White
☐ Color Single Red
☐ Color Single Green
☐ Color Single Blue

⚠️ Please take further details from chapter *Extended Settings*

Extended Settings

⚠️ For the *Extended Settings* a USB-connection to PC with the program DMX-Configurator is necessary.

The *Extended Settings* allow using further functions of the MultiPixx DMX-Controller. These settings will be not performed via a jumper or button but via the software DMX-Configurator.

Please proceed as follows to perform the *Extended Settings*:

- Connect the MultiPixx DMX-Controller via USB to PC
  ⇨ A USB-cable with a MiniB-male is necessary (not included in delivery)
  ⇨ Install the driver if it exists not yet

- Start the program DMX-Configurator
  ⇨ This is available as download www.dmx4all.de

- Establish a connection with the MultiPixx DMX-Controller within DMX-Configurator

- Call up the menu *Settings➜ Hardware Settings*

- Here the *Extended Settings* can be carried out
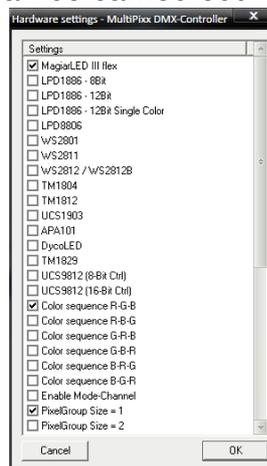
- Via clicking OK the settings will be transferred to and stored within the MultiPixx DMX-Controller

- Remove all jumpers for adjusting the LED-Stripe type to use the extended settings.

⚠️ To use the saved settings **no** jumper may be stick for the LED-Stripe type (Jumper 1-6).

Pixelgroups

Pixel groups are supported in the firmware V1.03 or higher.
If necessary, make a firmware update.

To configure the DMX-Configurator V2.0.7 or higher is needed !

The **MultiPixx DMX-Controller** supports pixel groups with an adjustable length. The length is set by using the extended settings.

Each pixel group is controlled by 3 DMX-Channels in the same way as a single pixel.

In accordance with the chosen LED-protocol a different number of pixel can be connected to the output (controlled pixel):

LED-Protocol	**max. Pixel/Pixelgroups**	**max. connected Pixel**
MagiarLED III	170	2048
MagiarLED II	170	4098
Dyco LED / APA-101	170	4098
TM1804	170	683
TM1812	170	683
TM1829	170	683
WS2801	170	2733
LPD8803	170	2733
LPD6803	170	4098
UCS1903	170	341
APA-102	170	2048
WS2811 / WS2812 (B) / APA-104	170	683
UCS9812 (8Bit controlled)	170	390
UCS9812 (16Bit controlled)	170	390
LPD1886 8Bit	170	911
LPD1886 12Bit (8Bit controlled)	170	911
LPD1886 12Bit (12Bit controlled)	170	683
UCS2912 - RGBW	128	512

Demo programs via DMX

⚠ Activate the MODE-Channel in the *Extended Settings* to use this function
(☑ Enable Mode-Channel).
Please take further details from chapter *Extended Settings.*

The predefined demo programs in the **MultiPixx DMX-Controller** can be called up
via the DMX-channel 1 (MODE-channel) from a DMX-value 128. The speed is
adjustable via DMX-channel 2.

Channel	Function	Value	
1	Mode	0-127	See *Pixel Controlling via DMX*
		128-135	8 color mix
		136-143	R-G-B
		144-151	RGB color star
		152-165	Single color star
		166-177	Wave 1
		178-189	Wave 2
		190-203	Snake
		204-217	Fecher
		218-231	Running Point 1
		232-239	Running Point 2
		240-246	Blink
		247-255	Rainbow
2	Color	0-31	White
		32-63	Red
3		64-95	Green
3		96-127	Blue
3		128-159	Yellow
3		160-191	Pink
3		192-223	Cyan
3		224-255	(Off)
3	Speed	0-255	Fast → Slow

Demo programs without DMX

The existing demo programs in the MultiPixx DMX-Controller can be called up via the switches and without DMX.

Set switch 10 on ON:
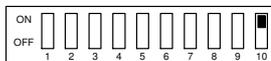
With switches 1 to 4 you can select the demo program.
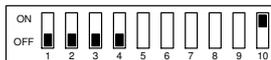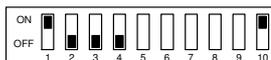
8-Color Mix	
R-G-B	
Stars RGB	
Stars single color	
Wave 1	
Wave 2	
Snake	
Fecher	
Running Point 1	
Running Point 2	
Blink	
Color change	
Rainbow	
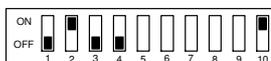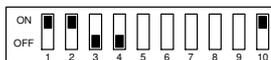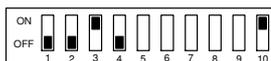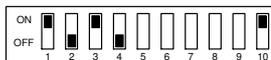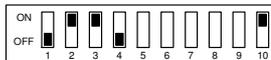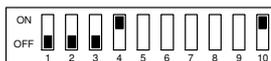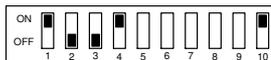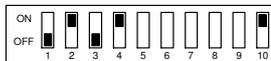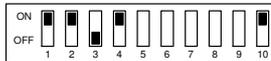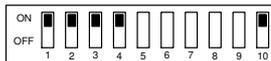
With switch 5, 6 and 7 the color will be selected.
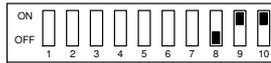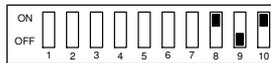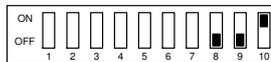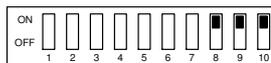
White
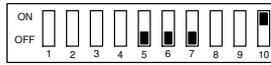
Red

Green
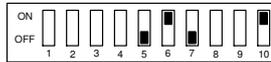
Blue
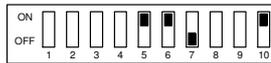
Yellow
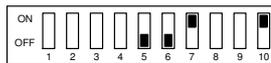
Pink
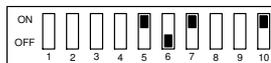
Cyan
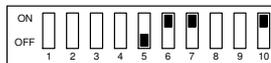
Black
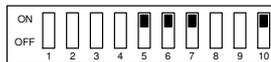
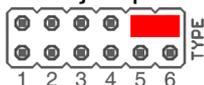With switch 8 and 9 the speed will be adjusted.

Slow

Fast

Execute the Firmware update

The **MultiPixx DMX-Controller** has an update-function which allows transferring prospective Firmware-versions**.**

Please proceed as follows:

- Turn off device

- Stick jumper as shown

- Turn on device

- Establish USB-connection to PC

- Start the update-software **DMX4ALL USB-Updater**

- Select the MultiPixx DMX-Controller Interface from the list

- Click *Firmware-Update*

- Select and confirm the Firmware-file (.bin)

- Please wait until the update is finished.

⚠ If an error occurs during the update you can begin from the start any time.

Equipment

Digital LED Stripes / Pixel Stripes
- MagiarLED III flex Stripe 72
- MagiarLED III flex Stripe 144
- Digital LED Stripe WS2811
- Digital LED Stripe WS2812(B)
- Digital LED Stripe LPD1886
- Digital LED Stripe INK1003
- Digital LED Stripe APA-104
- Digital LED Stripe UCS9812

Power supply 5 V / 6A

USB-cable A-male MiniB-male

CE-conformity

This assembly (board) is controlled by a microprocessor and uses high frequency (8MHz). To get the characteristics of the assembly in relation to the CE-conformity, an installation in a compact metal casing is necessary.

Risk-Notes

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

DMX4ALL

®

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