

DMXking LeDMX4 MAX Smart Pixel Controller Driver



DMXking LeDMX4 MAX Smart Pixel Controller Driver User Manual

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DMXking LeDMX4 MAX Smart Pixel Controller Driver



Product Information

Specifications:

- Product Name: LeDMX4 MAX
- Compatibility: Art-Net and sACN/E1.31 protocols
- Output: Up to 8A per output port terminal block
- Hardware and Firmware Versions: Refer to the product label for details
- Firmware Updates: Regular updates are available

Product Usage Instructions

1. Introduction:

The LeDMX4 MAX is designed for use with computer-based show control software or expansion of lighting console outputs. It is compatible with Art-Net and sACN/E1.31 protocols, making it ideal for LED pixel installations.

2. Hardware and Firmware Versions:

Check the product label for specific details on hardware and firmware versions. Firmware updates are recommended to ensure all product features are available.

3. Main Features:

Contact DMXking technical support for additional advice on power injection for LED installations. The LeDMX4 MAX can provide up to 8A per output port terminal block.

4. Connections LeDMX4 MAX:

Refer to the front panel label for connection instructions. Ensure proper connection of LED pixel strips or strings to the output ports.

5. Status LED Table:

LED	Protocol	Link/Act	Port 1	Port 2	Port 3	Port 4		
Status	Protocol activity	Flash Red = Art-Net/sACN, Solid Red = Bootloader mode	Network activity	Green = Link, Flash = Traffic	Pixel port 1 activity	Pixel port 2 activity	Pixel port 3 activity	Pixel port 4 activity

FAQ:

- **Q: How do I update the firmware of LeDMX4 MAX?**

A: Firmware updates are released regularly. To update the firmware, visit the DMXking website and download the latest firmware version for LeDMX4 MAX. Follow the provided instructions for firmware updates.

- **Q: What should I do if I encounter issues with LED pixel brightness?**

A: Ensure proper power injection at various points along the pixel strip/string/array, especially when running pixels at full brightness. Contact DMXking technical support for guidance on addressing brightness issues.

INTRODUCTION

Thanks for purchasing a DMXking product. We aim to bring you high-quality products with great features we know you'll appreciate. DMXking MAX series devices are Art-Net and sACN/E1.31 protocol compatible and designed for use with computer-based show control software or expansion of lighting console outputs. There are many free and commercial software packages available. <http://dmxking.com/control-software>.

In many LED pixel installations, especially where the majority of pixels may be running simultaneously at full brightness, it is necessary to inject DC power at various points along the pixel strip/string/array. Although the LeDMX4 MAX can only provide up to 8A per output port terminal block this is not a limitation since currents higher than that will require power injection along the strip anyhow.

HARDWARE AND FIRMWARE VERSIONS

From time to time minor hardware changes occur in our products usually small feature additions or unseen optimizations. The table below lists LeDMX4 MAX product variants. Check the product label for P/N details.

Part Number	Feature addition
0129-1.0	Initial product release

****Errata**** P/N 0129-1.0: Button S1 is marked FORCE B/L and S2 is marked FACTORY RESET. Functions are swapped. Use FORCE B/L for FACTORY RESET.

Firmware updates are released on a semi-regular basis. We recommend updating to the latest available firmware version so all product features are available. Please take note the user manual reflects latest firmware version features unless otherwise noted.

Firmware Version	Comments
V4.0	Initial release. RDM support is disabled.
V4.1	Improved port LED intensity. Fixed startup hangs with certain SD cards.
V4.2	DMX-IN recording issue fix. ArtNet subnet broadcast traffic issue fix – resolves the problem of being unable to scan for (L)eDMX MAX units.
V4.3	Initial release with USB DMX support.
V4.4	Extension to 6 universes per pixel port. The problem with the I/O port triggering is resolved, earlier firmware versions will not function correctly.
V4.5	Extensions to DMXking USB DMX protocol. Required update for USB DMX functionality.
V4.6	Art-Net TimeSync. ArtPollReply changed to a single universe per message. Art-Net RDM functionality enabled. DMX512 timing parameters are adjustable. Art-Net UDP Port was adjustable. Art-Net RDM Controller optional fixed IP and adjustable UDP Port. Diagnostics messages priority enhancements.

MAIN FEATURES

- Wide input power range 5-24Vdc.
- Power from USB-C (pixel power outputs excluded)
- USB DMX functionality in addition to Network ArtNet/sACN
- OEM board available for integration into your custom LED designs
- DIN rail and wall mount using built-in clips
- Static or DHCP IPv4 network addressing
- Supported operating systems: Windows, MacOS, Linux, iOS, Android
- 4 Independent pixel output ports each with 8A supply capability
- 2 Independent DC power inputs
- 1x DMX512 IN/OUT port
- Directly drives WS2811, WS2812, WS2812B, WS2813, WS2815, WS2822S UCS1903, UCS2903, UCS2912, UCS8903, UCS8904, PL9823, TM1934, APA101, SK9822, APA102, APA104, APA106, APA107, NS107, INK1002, INK1003, SM16703, SK6812, WS2801, LPD6803, LPD8806, DMX512-P and many more compatible LED strips
- Selectable clock/data rate to suit long cables or fast output
- Up to 1020 RGB pixels or 768 RGBW pixels per output spanning 6 DMX universes (4080 RGB pixels / 24 universes per LeDMX4 MAX)
- Up to 510 16bit RGB pixels or 384 16bit RGBW pixels per output
- Automatic RGB, RGBW colour order correction or raw mapping options
- Per pixel intensity control for APA102/SK9822 utilizing the 5bit current pre-regulator
- Master Level control independent of incoming universe streams
- Flexible Full Mapping option for outputs permitting any start address and zig-zag corrections of RGB, RGB16, RGBW and RGBW16 pixel types
- Alternate Full Mapping and Master Level changeover with sACN Priority threshold
- Null pixel support for longer runs to the first active pixel

- Art-Net broadcast, Art-Net II,3 & 4 unicast, sACN/E1.31 Multicast and sACN Unicast support
- HTP Merging of 2 Art-Net or sACN sources in any combination
- Merge 2 streams of Art-Net/sACN or DMX input -> Pixel universe output
- DMX512 Input Port -> Pixel universe output
- sACN Priority take over for multi-tier controller arrangements
- Mix and match ArtNet with sACN merge/priority sources
- User configuration of Art-Net Node short and long names
- Fully compatible with *ALL* software and hardware that supports Art-Net I, II, 3 & 4 and sACN protocols
- Works with your existing console if Art-Net or sACN external nodes are supported
- Universe Sync Art-Net, sACN and Madrix Post Sync
- Recording and playback to microSD card (not included). See eDMX MAX Record/Playback manual
- Standalone show playback without a computer or network connection
- Internal clock with optional battery backup for timed playback. NTP time sync.
- Configuration utility with basic Art-Net output/input test functionality

IMPORTANT:

In many LED pixel installations, especially where the majority of pixels may be running simultaneously at full brightness, it is necessary to inject DC power at various points along the pixel strip or string. Although the LeDMX4 MAX can only provide up to 8A per output port terminal block this is not a limitation since currents higher than that would require power injection along the strip anyhow. Contact DMXking technical support for additional advice.

eDMX MAX translates Art-Net 00:0:0 to Universe 1 (i.e. offset by 1) so there is an easy mapping between sACN/E1.31 and Art-Net.

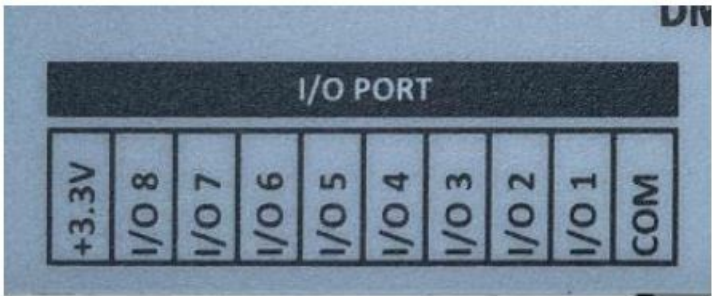
CONNECTIONS

LEDMX4 MAX

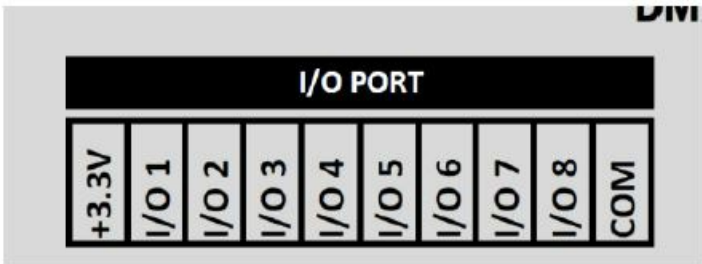


- DC Power Input x2 – Supply polarity marked on board. Note supply voltage is marked. Pay careful attention!
- Ethernet 10/100Mbps RJ45 socket
- 4x 4way 3.5mm pitch pluggable terminal blocks for pixel strip outputs. GND, Clock [CK], Data [DA], V+
- 1x 3way 3.5mm pitch pluggable terminal block for DMX512 port.
- 1x 10way 3.81mm pitch pluggable terminal block for I/O triggering. See eDMX MAX Recorder Manual.
- Warning not all pixel strips/products use the same wire color code. Double-check check the signal names match wire colours.

LEDMX4 MAX FRONT PANEL LABEL ERROR



Note earlier production units have incorrect I/O Port labelling where I/O 1 – 8 are flipped 8 – 1. The above image shows the incorrect label.



Corrected label is shown above.

STATUS LED TABLE

LED	Indication
Protocol	Protocol activity. Flash Red = Art-Net/sACN. Solid Red = Bootloader mode
Link/Act	Network activity. Green = Link, Flash = Traffic
Port 1	Pixel port 1 activity
Port 2	Pixel port 2 activity
Port 3	Pixel port 3 activity
Port 4	Pixel port 4 activity

USB DMX OPERATION

DMXking MAX series devices include USB DMX functionality alongside Ethernet lighting protocols ArtNet/sACN.

SOFTWARE COMPATIBILITY

- Software packages for USB DMX use either a Virtual COM Port (VCP) driver or a specific D2XX driver. DMXking MAX series uses VCP which is more universal than FTDI D2XX, especially across different operating systems, however, this has created some compatibility issues with existing software packages using the latter. We are working with software developers still using D2XX to encourage updating their code to utilize VCP instead and also leverage DMXking USB DMX protocol extensions that allow multiple universe operations.
- Check <https://dmxking.com/> for the DMXking MAX series USB DMX-compatible software list.

DEVICE CONFIGURATION

Previously DMXking USB DMX capable devices did not require DMX port configuration for DMX-IN mode as this was automatically selected by certain USB DMX messages. This has changed in DMXking MAX series devices which now require explicit DMX-OUT or DMX-IN port configuration along with selecting which port to forward over USB DMX to allow multi-port devices to function with complete flexibility.

DMX PORT MAPPING

Simple USB DMX protocol output messages are automatically mapped to the physical DMX512 ports regardless of the configured universe.

USB DMX SERIAL NUMBER

For software compatibility reasons a BCD serial number is calculated from the MAX device hardware MAC address using the lower 3 hexadecimal bytes converted to a decimal number. Software that has been updated for MAX series devices will display the hardware MAC address.

DEFAULT CONFIGURATION

- LeDMX4 MAX units ship with default static IP address settings. Please reconfigure for your local area network requirements before use.
- The default configuration is for WS2811/2812 pixel output with automatic RGB colour order correction and 1 DMX universe mapping to 170 RGB pixels per output.

Network Tab

Parameter	Default Setting
Network Mode	Static IP
IP Address	192.168.0.113
Subnet Mask	255.255.255.0
Default Gateway	192.168.0.254
IGMPv2 Unsolicited Report	Unchecked

Settings Tab

Parameter	Default Setting
Update Rate	30Hz – Universe Sync will override.
Master Level	255 – Full output intensity.
Alternate Master Level	255 – Full output intensity.
Alt. mapping priority threshold	0 – Alternate Mapping Disabled.

Port Tabs (1-4)

Parameter	Default Setting
Pixel Type	WS2811
Pixel Count	170
Null Pixels	0
Color Order	GRB
Primary Start Universe	1,2,3,4 (Ports 1,2,3,4 respectively)

Primary Start Channel	1
Primary Pixel Group Size	1
Primary ZigZag	0
Primary Direction	Normal (unticked)
Alternate Start Universe	1,2,3,4 (Ports 1,2,3,4 respectively)
Alternate Start Channel	1
Alternate Pixel Group Size	1
Alternate ZigZag	0
Alternate Direction	Normal (unticked)

Port Tab A (DMX512 port)

Parameter	Default Setting
Async Update Rate	40 [DMX512 frames per second]. Universe Sync will override.
Port Operation Mode	DMX-OUT
Timeout all sources	Unchecked
Channel Offset	0
Fixed IP	0.0.0.0 [Only for DMX IN – Unicast to 1 IP address only]
Merge Mode	HTP
Full DMX Frame	Unchecked
Broadcast Threshold	10 [Art-Net II/3/4 unicasting up to 10 nodes]. Set to 0 for Art-Net I broadcast on DMX IN ports.
Unicast IP [DMX-IN]	0.0.0.0
sACN Priority [DMX-IN]	100
RDM Discovery Period [DMX-OUT]	0s / RDM Disabled
RDM Packet Spacing [DMX-OUT]	1/20s
DMX-OUT Failsafe Mode	Hold Last
Recall DMX Snapshot at startup	Unchecked
DMX512 Universe	1 [Net 00, Subnet 0, Universe 0] Note: sACN Universe 1 = Art-Net 00:0:0

CONFIGURATION UTILITY

- Download eDMX MAX Configuration Utility from <https://dmxking.com/downloads-list>.
- User manual for the utility [https://dmxking.com/downloads/eDMX MAX Configuration Utility User Manual \(EN\).pdf](https://dmxking.com/downloads/eDMX%20MAX%20Configuration%20Utility%20User%20Manual%20(EN).pdf).

TECHNICAL SPECIFICATIONS

- **Dimensions:** 106mm x 90mm x 32mm (WxDxH).
- **Weight:** 140 grams.
- Power input 5-24Vdc
- UCB-C power input – for control electronics only, no USB-C power routed to pixel ports.
- Control electronics power simultaneously sourced from USB-C, pixel port 1&2 power input, and pixel port 3&4 power input.
- Control electronics power requirements: 5Vdc @ 200mA, 12Vdc @ 100mA.

- Maximum continuous current per output 8A
- Buffered 5V Clock and Data lines with over-voltage fault protection
- WS2811, WS2812, WS2812B, WS2813, UCS1903, UCS2903, UCS2912, UCS8903, UCS8904, PL9823, TM1934, APA101, APA102, SK9822, APA104, APA106, APA107, INK1002, INK1003, SM16703, SK6812, WS2801, LPD6803, LPD8806, DMX512-P, P9813, GS8208, TM1814, TM1914A, TLS3001 pixel types and equivalents supported. Note many pixels have the same protocol timing as those listed. Check with DMXking support
- Fast 800kHz and slow 400kHz data rates supported for WS2811 / APA104
- SPI pixels can be clocked at 500kHz, 1MHz, 2MHz and 4MHz
- Up to 1020 RGB pixels / 6 DMX universes per output
- Ethernet 10/100Mbps Auto MDI-X port
- Art-Net, Art-Net II, Art-Net 3, Art-Net 4 and sACN/E1.31 support.
- Universe Sync Art-Net, sACN and Madrix Post Sync.
- Both HTP and LTP merging of 2 Art-Net/sACN streams on Port A
- HTP merging of 2 Art-Net/sACN streams on Pixel ports
- sACN Priority
- IPv4 Addressing
- IGMPv2 for multicast network management
- Operating temperature -10°C to 50°C non-condensing dry environment

WHERE DO I BUY LED PIXELS

There are many sources for LED pixels in strips and other formats. Pretty much all of it comes out of China and it can be more cost-effective to source through sites such as Aliexpress which provides individual item sales without much effort.

Try these Aliexpress stores or direct from a manufacturer:

- <https://kinggreen.aliexpress.com/store/713947>
- <https://www.aliexpress.com/store/701799>
- <http://www.shiji-led.com/Index/index.html>.

FREQUENTLY ASKED QUESTIONS

- **Q: Does DMXking recommend any particular type of pixels or control ICs?**

A: We highly recommend APA102/SK9822 pixels because they have a higher clocking rate and an additional 5-bit master current control. This helps with smooth fades at a reduced Master Level.

- **Q: What is DMX512P? Is this DMX512?**

A: Yes and No. More No than Yes. Someone thought it would be a good idea to use DMX512 signalling for pixel control but it makes no sense and creates confusion because it's not a differential signal like real DMX512. Connect DMX512P pixels to the Pixel Ports only so the signal levels are appropriate.

- **Q: How big should my power supply be?**

A: It depends on the pixel count, output intensity, and how many pixels will be lit simultaneously. Often power supplies are oversized when calculations are done assuming all pixels might be on at full intensity. There is no straight answer and per-pixel current consumption should be ascertained from the product datasheet.

- **Q: Why do my pixels start going pink instead of white further along the strip?**

A: What's happening is the power supply voltage is dropping and generally blue LEDs will drop in current first since they have the highest forward voltage. This is simply $V=IR$ and different strips will exhibit different results because their conductor resistance might be higher/lower. By injecting power again (from the same power supply or another power supply) along the strip at intervals it is possible to mitigate the voltage drop effects. Higher voltage strips/pixels (12V or 24V) are usually less susceptible to colour fade issues.

- **Q: What happened to the 5V and 12-24V LeDMX4 PRO versions?**

A: These have been merged in the new eDMX MAX product so there is no longer a supply option that works from 5V up to 24Vdc.

- **Q: Is it possible to control pixel outputs from DMX512 rather than Art-Net/sACN over the network?**

A: Yes but there's only 1 DMX512 port and thus 1 DMX Universe available so you're constrained in how many pixels can be controlled. Of course, using Full Mapping mode with >1 Pixel Group size it's possible to stretch that 1 universe a little further. Just configure Port A as DMX-In sACN on the same universe you've configured a pixel output.

- **Q: I'm using WS2813 pixels with dual signal wires. What should I connect to the LeDMX MAX pixel port?**

A: Only the DATA IN wire from the pixel strip should be connected to DA on the LeDMX MAX. Do not connect the DATA OUT return wire to anything.

- **Q: The power supply I purchased has exposed AC input terminals. Is this safe?**

A: No. Unless you are suitably qualified please defer all AC mains wiring to applicable professionals. Safety first.

- **Q: My question doesn't appear here.**

A: Ask your distributor for technical support. Maybe it'll appear in the next user manual too.

WARRANTY

[DMXKING.COM](https://dmxking.com) HARDWARE LIMITED WARRANTY

- **What is covered**

This warranty covers any defects in materials or workmanship with the exceptions stated below.

- **How long coverage lasts**

This warranty runs for two years from the date of shipment from an authorized DMXking distributor.

- **What is not covered**

Failure due to operator error or incorrect application of product.

- **What DMXking will do?**

DMXking will repair or replace, at its sole discretion, the defective hardware.

- **How to obtain service**

Contact your local distributor <https://dmxking.com/distributors>.

ACKNOWLEDGEMENTS

Art-Net™ Designed by and Copyright Artistic Licence

DECLARATIONS


The LeDMX4 MAX has been tested against applicable standards and certified compliant as below.

Standard	
IEC 62368-1	Audio/Video and ICTE Safety Requirements
IEC 55032	Radiated Emissions
IEC 55035	EMC Immunity Requirements
FCC Part 15	Radiated Emissions
RoHS 3	Restriction of Hazardous Substances








Certification	Country
CE	Europe
FCC	North America
RCM	New Zealand/Australia
UKCA	United Kingdom

DMXking.com • JPK Systems Limited • New Zealand 0129-700-4.6.

Documents / Resources

	<p>DMxking LeDMX4 MAX Smart Pixel Controller Driver [pdf] User Manual LeDMX4 MAX Smart Pixel Controller Driver, LeDMX4 MAX, Smart Pixel Controller Driver, Pixel Controller Driver, Controller Driver, Driver</p>
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References

-  [HOME](#)
-  [Control Software](#)
-  [HOME](#)
-  [DISTRIBUTORS](#)
-  [DOWNLOADS](#)
-  [KINGGREEN Official Store - Amazing products with exclusive discounts on AliExpress](#)
-  [Ray wu's store - Amazing products with exclusive discounts on AliExpress](#)

- [User Manual](#)

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