

DMXking.com

USB DMX512-A Interface



USER MANUAL

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1. INTRODUCTION

The DMXking.com USB DMX512-A product is a robust single universe bi-directional interface communicating with the host computer over USB 1.1 or 2.0 ports. Device communication using FTDI virtual COM port (VCP) or direct (D2XX) drivers allows any mainstream OS to be used. Full RDM functionality is available.

MAIN FEATURES

- Supported operating systems: Windows 98, ME, 2000, XP, Vista, 7, Server 2003, Server 2008.
- Supported operating systems: Linux, Mac OS X, OS 9, OS 8.
- DMX512 Transmitter or Receiver.
- Tough metal enclosure.
- No external power supply required.
- ANSI E1.11-2008 and E1.20-2006 compliant (DMX512-A and RDM).
- E1.11 Higher Protection Level “DMX512-A Protected” device.
- Internal double buffered DMX512 streams resulting in zero lost frames.
- Firmware released under open source GPL license.

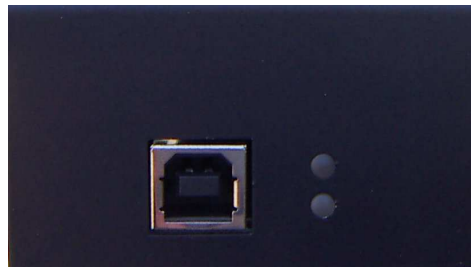
2. EXTERIOR VIEW

FRONT VIEW



Two 5pin XLR connectors for either DMX512-A input or output function. Note both connectors are wired directly together, this device cannot simultaneously send and receive DMX512 streams.

REAR VIEW



USB 1.1/2.0 type B socket and 2 green LEDs for status indication.

STATUS LED TABLE

Upper LED	Lower LED	Indication
Slow FLASH	OFF	Receive mode, no DMX512 stream detected. Power ON indication.
Slow FLASH	FLASH	Receive mode, DMX512 stream detected. Flash rate = DMX update rate.
Fast FLASH	OFF	Transmit mode, DMX512 stream received from computer. Flash rate = DMX rate.
Slow FLASH	Slow FLASH	Firmware update mode.
Fast FLASH	Fast FLASH	Firmware update completed.

3. USAGE EXAMPLES

DMX512 is the most commonly used lighting control protocol with roots in simple light dimming. These days almost any lighting or stage effect equipment may be controlled using DMX512 (with explicit exclusion of anything involving potentially dangerous situations) including moving lights, LED screens, fog machines and laser displays.

The DMXking.com USB DMX512-A unit is an entry level device intended for use with computer based show control software. It replaces an entire lighting console allowing the user to perform sophisticated shows with little more than a laptop. There are many free and commercial software packages available, select the Enttec USB Pro as your DMX device and enjoy!

<http://www.dmxcontrol.org/>

<http://www.freestyledmx.be/>

<http://www.chamsys.co.uk/default.asp?p=pcwingproducts.asp>

<http://www.showmagic.com/>

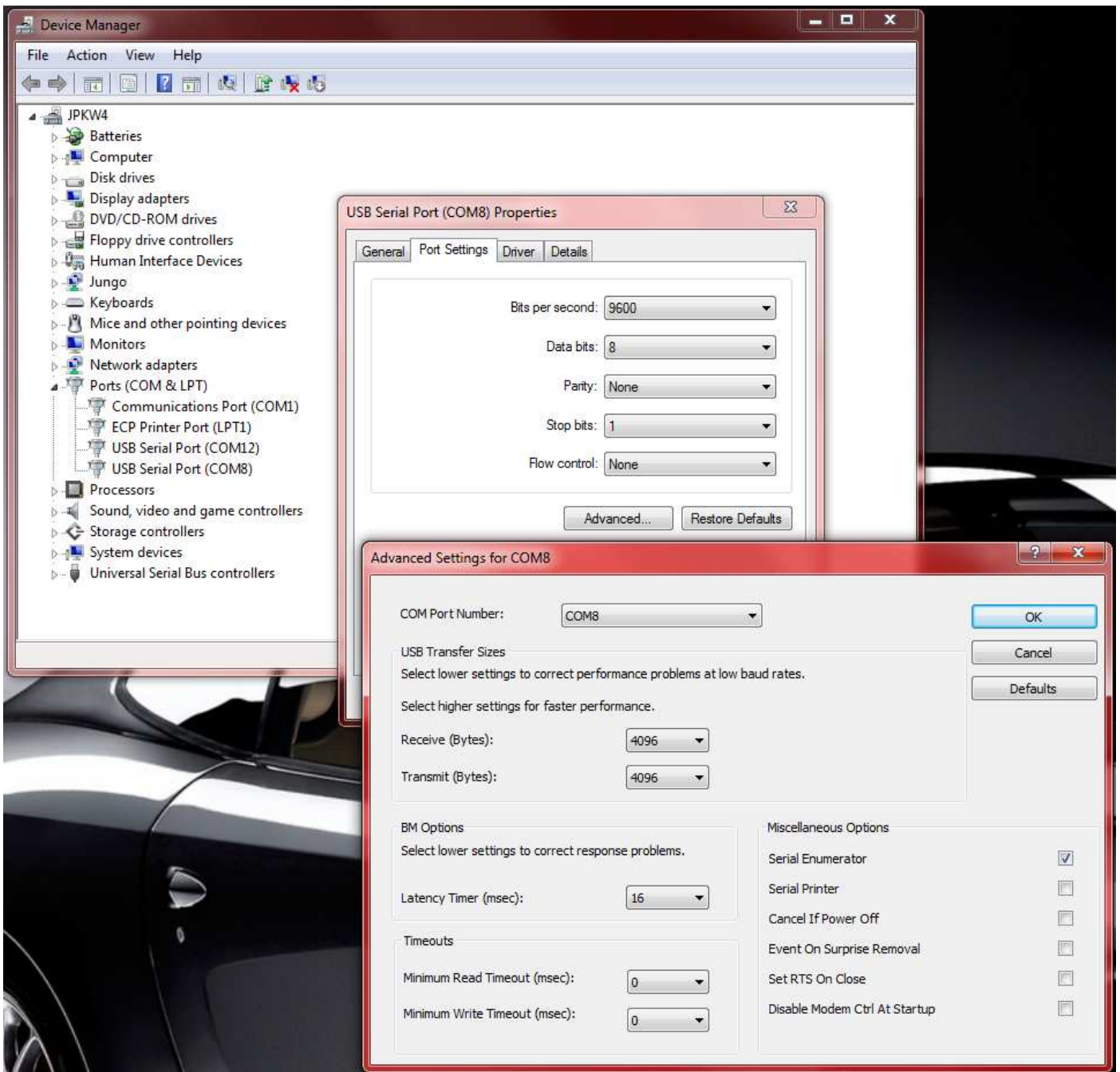
<http://www.lifact.com/>

4. INSTALLING THE FTDI DRIVER

To maximise compatibility with existing software an FTDI (www.ftdichip.com) FT245RL device provides USB device interfacing for the USB DMX512-A unit. Drivers are available directly from FTDI and in most cases the VCP (Virtual COM Port) driver should be used. The latest Windows driver will be available from DMXking.com however we recommend checking the FTDI site for updates.

Please refer to the installation guides at <http://www.ftdichip.com/Documents/InstallGuides.htm> and note the process involved installing 2 devices, a USB serial device followed by USB virtual COM port. All required driver files are included in the package.

Latest Windows version is 2.06.00 released on 3 November 2009.



On occasion you may wish to change the COM port number the USB DMX512-A unit has been assigned by Windows. This can be done through the Device Manager applet by right clicking on the USB Serial Port of interest (unplug/re-plug the unit if unsure which one) then select properties, Port Settings tab, Advanced button and finally choose the desired COM Port Number.

5. UPDATING FIRMWARE

A built in soft-AVRISP programmer permits updating of the Atmel ATmega644P microcontroller FLASH without any hardware beyond the USB DMX512-A unit itself. Users may utilise Atmel's programming tools or the DMXking.com firmware updater (Windows only – sorry).

HOW TO ENTER FIRMWARE UPDATE MODE

There are 3 methods used to activate firmware update mode:

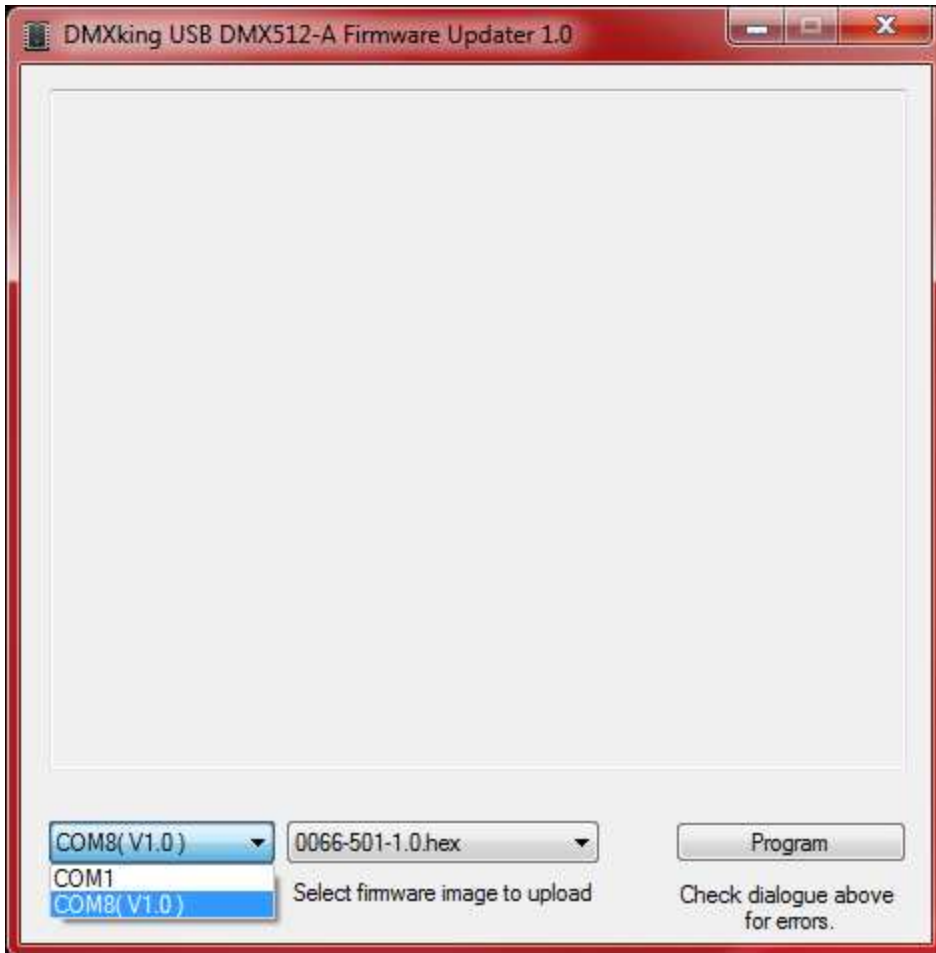
1. Execute firmware update command. The firmware updater utility does this for you.
2. Force boot loader by jumper across P3 pins 4&6 during power up (advanced users – not covered in this manual).
3. Blank or unrecognised firmware automatically forces boot loader (advanced users).

Firmware update mode is indicated by both upper and lower LEDs flashing slowly. Completion of programming is indicated by both LEDs flashing quickly. The only way to exit firmware update mode is by unplugging the USB DMX512-A unit and reconnecting.

FIRMWARE UPDATER APPLICATION

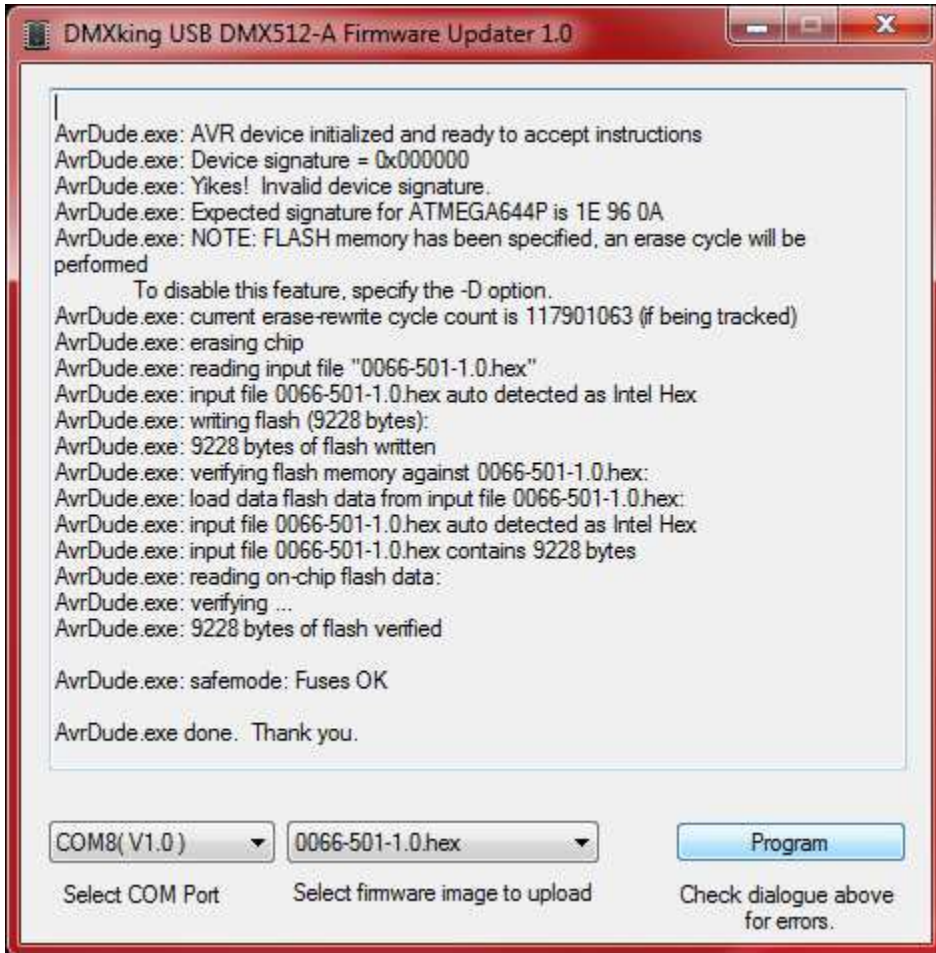
The USB DMX512-A firmware update utility is freely available from the DMXking.com website. Download, install and follow the instructions below:

1. Ensure that your USB DMX512-A unit is connected and the FTDI Virtual COM Port driver is installed.
2. Start the Firmware Updater application. It will automatically detect all COM ports, current firmware versions and available firmware files.
3. Select the applicable COM port, you may have more than one USB DMX512-A unit connected however only one at a time may be updated. Note COM1 or other non-USB DMX512-A serial ports will also show up on this list however only USB DMX512-A units will have existing firmware version numbers next to them.



4. Select the desired firmware version.
5. Click the Program button and observe progress bar. Programming takes around 5 seconds.

6. Check the message area for errors, specifically writing flash or verify errors. Ignore invalid device signature message.



Future firmware releases from DMXking.com will be in the form 0066-501-VersionMajor.VersionMinor.hex. You are of course free to upload other firmware images however we only provide support for official DMXking.com releases unless stated otherwise.

6. TECHNICAL SPECIFICATIONS

- Dimensions: 60x36x78mm (WxHxD)
- Weight: 0.22kg
- DMX512 connectors: 5-pin XLR (1x Male, 1x Female). Wired together with 1:1 pin mapping.
- Internal DMX512 line biasing termination.
- USB connector: USB type B socket
- DMX512 Frame Rate and Break Timing: Adjustable
- DMX512 Port Protection: DMX512-A Protected as per E1.11-2008

7. WARRANTY

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 one year from the date of shipment from an authorised DMXking.com distributor.

What is not covered

Failure due to operator error or incorrect application of product. Opening the unit voids the warranty.

What DMXking.com will do

DMXking.com will repair or replace, at its sole discretion, the defective hardware. Return shipping costs from our service facility in New Zealand shall be free of charge.

How to obtain service

Contact DMXking.com directly by email sales@dmxking.com or telephone +64(9)3794836.

8. DECLARATIONS (FCC & CE)

FEDERAL COMMUNICATIONS COMMISSION (FCC) DECLARATION OF CONFORMITY

Responsible Party: JPK Systems Limited
PO Box 493
Pukekohe 2340
New Zealand

declares that the product USB DMX512-A complies with Part 15 of the FCC rules.

Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

EEC DECLARATION

We

JPK Systems Limited
PO Box 493
Pukekohe 2340
New Zealand

declare under our sole responsibility that our product USB DMX512-A conforms to the requirements of Council Directives 89/336/EEC and 73/23/EEC and therefore complies with the requirements of Council Directive 73/23/EEC, (The Low Voltage Directive) on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits as amended by Article 13 of Council Directive 93/68/EEC

- EN 55103-1
- EN 50103-2
- EN 60065

Signed: Jason Kyle

Date: 8 March 2010

Position: Managing Director