

DMXking.com

ultraDMX RDM Pro Interface



USER MANUAL

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1. INTRODUCTION

The DMXking.com ultraDMX RDM Pro product is a robust single universe bi-directional isolated DMX512 interface communicating with the host computer over USB. An onboard Atmel microcontroller ensures complete timing accuracy and no flickering effects no matter what your computer is doing. Device communication using FTDI virtual COM port (VCP) or direct (D2XX) drivers allows use of any mainstream OS. RDM functionality is also available by default, no firmware change required.

MAIN FEATURES

- Supported operating systems: Windows, Mac OS X, Linux.
- DMX512 Transmitter or Receiver.
- DMX transmit timing adjustment settings to “fix” issues with non-compliant DMX lighting gear.
- DMX receive rate throttling option to ensure receiving software isn’t overloaded with too many frames per second.
- 1500V isolation between USB and DMX512-A port
- Tough metal enclosure.
- Available with 3 pin or 5 pin XLR connectors, no adapter purchase required.
- No external power supply required.
- ANSI E1.11-2008 and E1.20-2010 compliant (DMX512-A and RDM).
- ANSI E1.11 Higher Protection Level “DMX512-A Protected” device. Survives over voltage conditions on DMX line.
- Internal double buffered DMX512 streams resulting in zero lost frames.
- Fully compatible with software suitable for ENTTEC USB Pro (except D-Pro sorry, use our Art-Net devices instead)
- Configuration utility (Windows .NET 3.5 – OS X version available Q3 2013).

2. EXTERIOR VIEW

FRONT VIEW



Two 3pin or 5pin XLR connectors for either DMX512-A **input** or **output** function. Note both connectors are wired directly together hence this device cannot simultaneously send and receive DMX512 streams however our ultraDMX Pro product is capable of this function.

REAR VIEW



USB-B socket and LEDs for status indication.

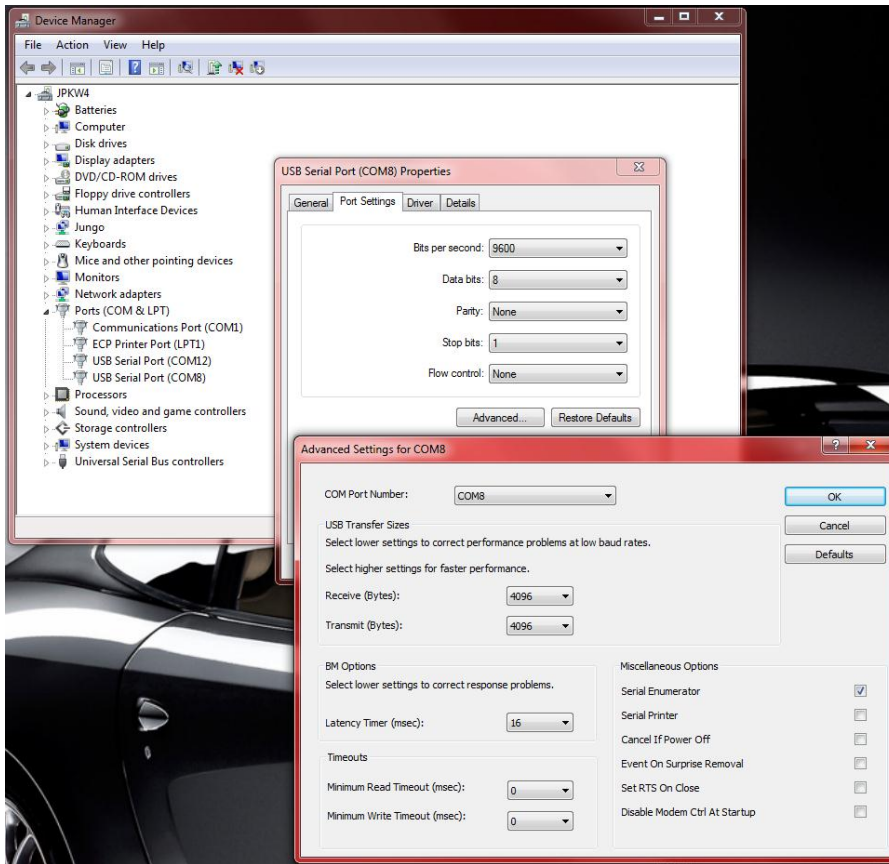
STATUS LED TABLE

Upper LED	Lower LED	Indication
OFF	Slow FLASH	Receive mode, no DMX512 stream detected. Power ON indication.
FLASH - Green	Slow FLASH	Receive mode, DMX512 stream detected. Flash rate = DMX update rate.
FLASH - Red	Slow FLASH	RDM message received.
OFF	Fast FLASH	Transmit mode, DMX512 stream received from computer. Flash rate = DMX rate.
Orange	Green	Firmware update mode initiated
Fast FLASH	Fast FLASH	Firmware CRC check failed.

3. INSTALLING THE FTDI DRIVER

To maximize compatibility with existing software an FTDI (www.ftdichip.com) FT245RL device provides USB 2.0 Full Speed interfacing for the ultraDMX unit. Drivers are available directly from FTDI and in most cases the VCP (Virtual COM Port) driver should be used although both D2XX and VCP are installed by default on Windows OS. The latest drivers are available from www.ftdichip.com/Drivers/VCP.htm

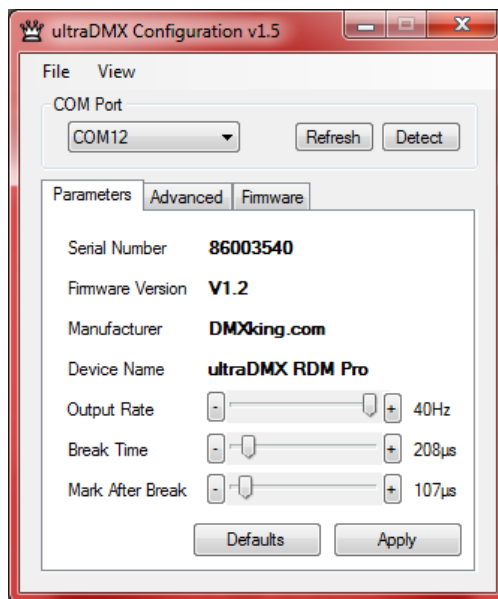
Please refer to the installation guides at www.ftdichip.com/Documents/InstallGuides.htm and note the process involved installs 2 devices, a USB serial device followed by USB virtual COM port. All required files are included in the driver installation file.



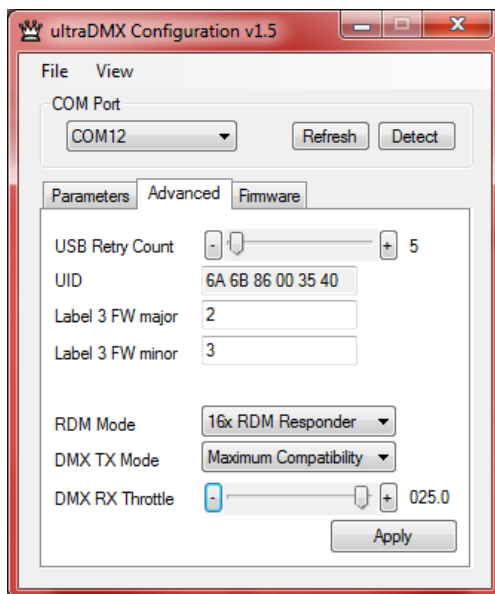
On occasion you may wish to change the COM port number an ultraDMX unit has been assigned by Windows. This can be done through the Device Manager applet by right clicking on the USB Serial Port of interest (unplug/re-plug the unit and observe if unsure which COM port) then select properties, Port Settings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

4. CONFIGURATION UTILITY

The ultraDMX Configuration utility provides access to DMX512 timing and other advanced parameters along with a simple DMX display control providing output/transmit and input/receive operation testing without any additional software.



The Advanced tab facilitates adjustment of some more specialized parameters. You can alter what the ultraDMX Pro unit reports when queried with a Label 3 command. This can be useful when software detects functionality based on the Label 3 'FW major' variable. Default settings are **Label 3 FW major = 2**, **Label 3 FW minor = 3** (report ENTTEC USB Pro RDM firmware).



Device **UID** cannot be altered and **USB Retry Count** should be left at 5 unless advised by DMXking.com support.

RDM Mode allows the ultraDMX RDM Pro to act as a standalone RDM Responder or simulated 16x RDM Responders for testing RDM Controllers. Note one in RDM Responder mode it is not necessary to connect the ultraDMX RDM Pro to a computer and instead it can be powered by a USB power supply/charger.

Options for **DMX TX Mode** will override parameters set by your lighting software resulting in guaranteed longer Break and MAB times along with slower DMX transmit rates and even extra delays between channel characters which some fixtures like the Chauvet ColorStrip need in order to function correctly.

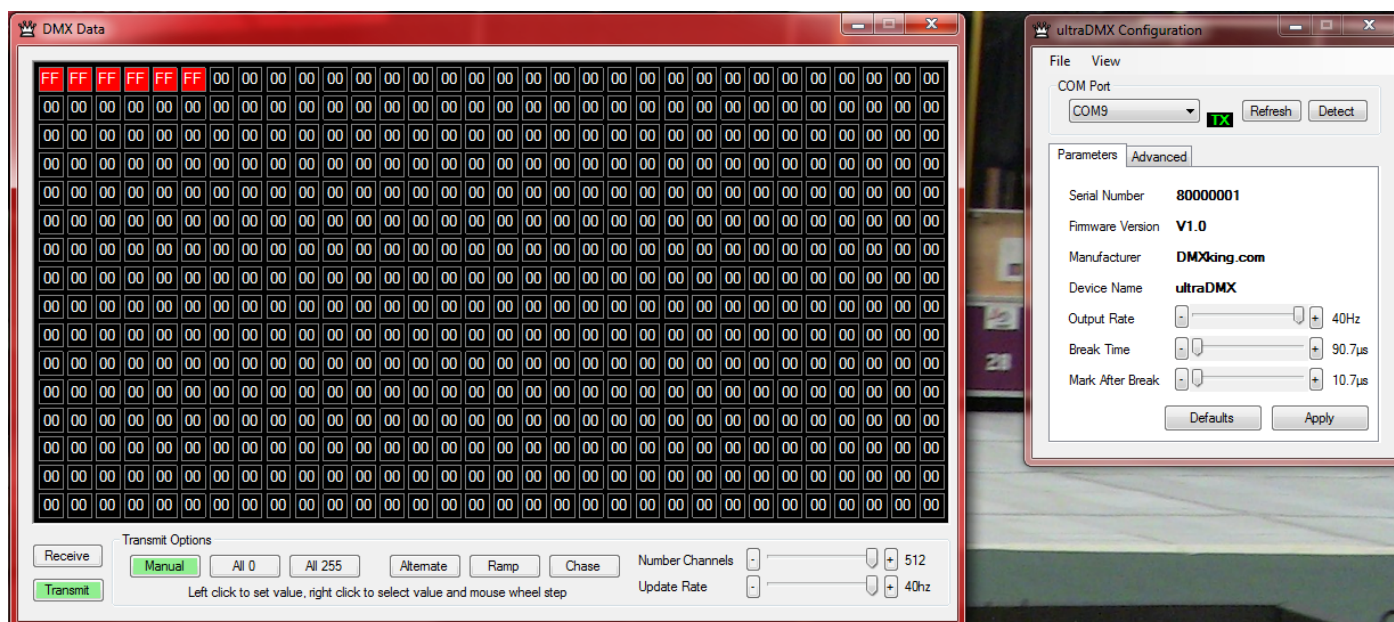
Normal	DMX Output is as per settings on Parameters tab
Maximum Compatibility (DMX Decelerator)	Half speed, extended Break/MAB and extra 44us inter-channel delay
Extended Break/MAB	DMX Break and MAB settings in Parameters are ignored
Half Output Rate	DMX Output rate from Parameters is halved
Half Output Rate + Extended Break/MAB	Combination of the 2 options above
2x Output Rate	DMX Output rate is 2x Parameters value but only if channel count allows
Ultra-Fast Update	DMX Output rate is dependent on channel count and can exceed 400 fps

DMX RX Throttle setting will selectively drop incoming DMX frames to produce the indicated frame rate being forwarded over USB. When set to None the full DMX RX rate is forwarded however some software applications may have issues handling high rates, Laser Show Designer QuickShow is known for this problem.

Select **View | DMX Display** for the simple DMX512 test control. To generate a DMX512 output stream click Transmit then select one of the 6 Transmit Options. When in Manual mode you can click on any of the channels (represented by small boxes with hexadecimal channel level inside) to set ON level and double click to set zero. The mouse scroll wheel adjusts a channel by a

defined increment. Channel number increases left to right, top to bottom and the roaming tool tip provides information about a specific channel.

Both the ON level and mouse wheel step can be set by right clicking anywhere within the black display area. Number of channels transmitted and the refresh rate can be adjusted using the applicable sliders adjacent to transmit options.



5. COMPATIBLE SOFTWARE

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

The DMXking.com ultraDMX RDM Pro unit is an entry level device designed 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 and by selecting the Enttec USB Pro as your DMX device compatibility is assured. Some software manufacturers have added support for DMXking.com interfaces so select this option where possible as additional features will be added in future firmware releases.

CONTROLLERS

LightFactory	http://www.lifact.com/
Lightjams - Live interactive control MIDI / TUIO / wii	http://www.lightjams.com/
Laser Show Designer QuickShow – Pangolin	http://www.pangolin.com/QS/
Venue Magic	http://www.venuemagic.com/
FreeStyler	http://www.freestylerdmx.be/
MagicQ – ChamSys (Windows, Mac, Linux)	http://www.chamsys.co.uk/download
LumiDMX	http://www.lumidmx.com/

LX Series (Mac OS-X)	http://lx.claudeheintzdesign.com/
QLC+ (Linux, Mac OS-X, Windows) <i>free</i>	http://qlcplus.sourceforge.net/
Q Lighting Controller (Linux, Mac OS-X, Windows)	http://qlc.sourceforge.net/
Martin M-PC Free Edition	http://www.martin.com/controllersupport/m-pc_software.html
ChromaKinetics StageConsole & tools	http://www.chromakinetics.com/DMX/
Visual Show Automation (VSA – Brookshire Software)	http://www.brookshiresoftware.com/
InGenius mLight – OSF Solutions	http://www.osfsolutions.com/
External for Max – Cycling 74 (Windows, OS-X)	http://www.nullmedium.de/dev/dmxusbpro/
ShowMagic	http://www.showmagic.com/
White Cat Lighting Board	http://www.le-chat-noir-numerique.fr/
TJShow	http://www.tjshow.com/
Chameleon Lighting Software (Mac)	http://www.maclightingsoftware.com/
LightsOn Framework (Mac OS-X)	http://www.usbdmx.com/LightsOn/
MADRIX – LED Lighting Control	http://www.madrix.com/
DMXControl	http://www.dmxcontrol.org/
vvv – a multipurpose toolkit	http://vvv.org/
StageSoft - CHROMA	http://www.stagesoft.com/chroma.html

MEDIA SERVERS / VJ

TroikaTronix - Isadora	http://troikatronix.com/isadora.html
ArKaos MediaMaster Pro, MediaMasterExpress, Media Server	http://www.arkaos.net/category/index.php?catid=2
Modul8 (Mac OS-X)	http://www.modul8.us/
Resolume Avenue 3	http://www.resolume.com/
MXWendler FXServer	http://www.mxwendler.net/Product.4.0.html

VISUALIZERS

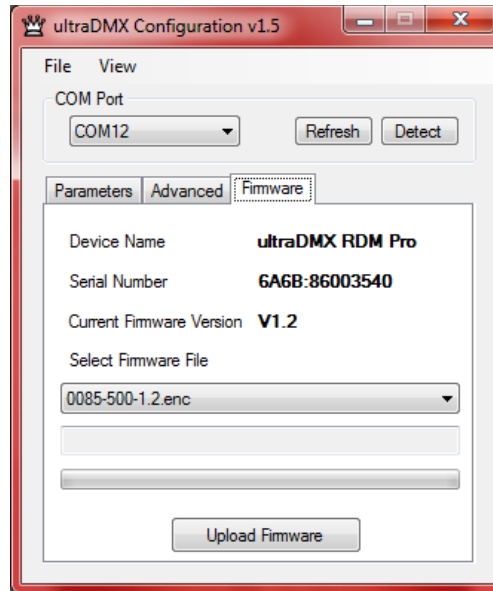
Capture	http://www.capturesweden.com/
WYSIWYG	http://www.cast-soft.com/
ESP Vision	http://www.espvision.com/
SoftPlot	http://www.stageresearch.com/products/SoftPlot9/SoftPlot9.aspx
LD Assistant	http://www.ldassistant.com/

6. UPDATING FIRMWARE

A built in boot loader permits updating of the ultraDMX RDM Pro firmware. Note only signed encrypted firmware files from DMXking.com can be successfully loaded.

FIRMWARE UPDATER

The ultraDMX Configuration utility includes a firmware updater function and the latest version contains all ultraDMX variant firmware files.



1. Close any applications that may be using the ultraDMX RDM Pro unit.
2. Start the ultraDMX Configuration application.
3. Select the applicable COM port, you may have more than one ultraDMX unit connected however only one may be updated at a time.
4. In the Firmware tab the device Serial Number is displayed. Check this matches the device you planned to update.
5. Select the Firmware File – usually the most recent file which should automatically be displayed first.
6. Click the Upload Firmware button and observe progress bar. Programming takes around 15 seconds, be sure not to disconnect the ultraDMX unit during this process.

Future firmware releases for this product will be in the form 0085-500-VersionMajor.VersionMinor.enc

7. TECHNICAL SPECIFICATIONS

- Dimensions: 60x36x78mm (WxHxD)
- Weight: 0.19kg
- DMX512 connector: 3 or 5 pin XLR Male & Female.
- Internal DMX512-A line biasing termination as per ANSI E1.20 RDM requirements.
- USB connector: USB-B socket with high retention
- DMX512 Frame Rate and Break Timing: Adjustable
- DMX512 Port Protection: DMX512-A Protected as per ANSI E1.11-2008

8. 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 authorized 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 (UTC+12)

9. 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 ultraDMX RDM Pro 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 ultraDMX RDM Pro 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: 16 December 2011

Position: Managing Director