



# LUNA



**Art-Net Node / USB 2.0 DMX512 Interface**

# **MADRIX® LUNA – Quick Start Guide & Technical Manual**

4<sup>th</sup> Edition, Last Update: August 2016

**Thank you for purchasing MADRIX® LUNA!**

**Please read this guide carefully and thoroughly before using MADRIX® LUNA. Make sure that you fully understand all information.**

**This MADRIX® LUNA Quick Start Guide is written in English and German.**

Developed and made in Germany.

## **Imprint**

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## Package Contents

- 1x MADRIX® LUNA
- 1x Power cord (*IEC C13*)
- 1x USB 2.0 cable (*certified*)
- 2x Rack-mount brackets (*already mounted to the device*)
- 1x Quick start guide
- 1x CD-ROM incl. MADRIX® and USB drivers (*software license not included*)

**Please note:** Check the package contents and the condition of the interface after unpacking! Contact your supplier if something is missing or damaged. Do not use the device if it seems to be damaged!

## Safety Instructions And Limited Warranty

Two years of limited manufacturer's warranty are granted to the purchaser of this product. Warranty applies to constructional fault, material defect, or incorrect assembly the manufacturer has caused or is to be held responsible for. Warranty will be void if the interface is opened, modified, damaged through inappropriate handling and wrong usage, damaged through electric current (electricity), or damaged through any other cause.

**Please follow the instructions below to avoid mishandling, damage to the device, or personal injury:**



**WARNING! HANDLE WITH CAUTION! THE POWER SUPPLY / THE DEVICE WORKS WITH MAINS VOLTAGE (AC 100 V – 240 V).**



Beware that the interface works with electrical power. Only use the device in dry environments (indoor use). The IP Rating of the device is IP20. Do not use the interface in humid environments and avoid contact with water or any other liquids. Turn off the power if you are not using the device for a long time.

It is recommended to always use galvanic isolation (e.g. an opto-isolator/opto-coupler splitter). Avoid unwanted voltage on the DMX lines/cables at all times. Do not remove any parts from the unit including the plug ground pin or connect to an ungrounded circuit. Do not connect the unit to LEDs that are switched on. Only connect the unit to LEDs and controllers that are initially powered off.

There are no user serviceable parts inside or outside the interface. Repair service lies only within the responsibilities of the manufacturer. If the interface appears to be defective, please contact your dealer. After expiration of the warranty period you may contact your supplier or the manufacturer to have the unit repaired against payment of an individual service fee, if possible.

The interface has several ports and slots. Only connect or insert devices, cables, and connectors to the individual ports and slots using connectors of the same type as the port. Do not use inapplicable equipment. This device should be used by professionals. The device is not designed to be operated by non-professionals or children.

## End-Of-Life



This electrical device and its accessories need to be disposed of properly. Do not throw the device into normal trash or household waste. Please recycle packaging material whenever possible.

## Usage

In general, this device is designed to receive and distribute DMX512 data over Ethernet (Art-Net) or USB. It is a hardware interface to be connected towards various types of controllable lights or lighting controllers. Do not use the interface for any other, deviating purpose.

The device can be connected to and disconnected from the PC during use and without a reboot (Hot Swapping & Plug and Play). Multiple interfaces can be used at the same time.

## Technical Specifications

|                         |  |
|-------------------------|--|
| Power supply:           | AC 100 V – 240 V, 50-60 Hz, 0.4 A max., IEC C14 inlet                        |
| Power consumption:      | < 5 W during normal operation  |
| DMX512 (OUT):           | 4x / 8x / 16x 512 DMX channels output  |
| DMX512 (IN):            | 1x 512 DMX channels input  |
| DMX512 ports (OUT):     | 5-pin, XLR, female, NEUTRIK  |
| DMX512 ports (IN):      | 5-pin, XLR, male, NEUTRIK  |
| Ethernet (Art-Net):     | RJ45, 10/100 MBit/s, Auto MDI-X, NEUTRIK etherCON (compatible with 1 GBit/s) |
| USB port:               | USB 2.0, type B plug   |
| Case:                   | Metal enclosure, IP20  |
| Size:                   | 19" x 1U (LUNA 4 / LUNA 8)   19" x 2U (LUNA 16)                              |
| Dimensions (body only): | 76 mm x 440 mm x 44 mm (length x width x height)                             |
| Dimensions (total):     | 76 mm x 482.6 mm x 44 mm (length x width x height)                           |
| Dimensions (LUNA 16):   | 76 mm x 482.6 mm x 88 mm (length x width x height)                           |
| Weight:                 | 1.3 kg (LUNA 4)   1.4 kg (LUNA 8)   2.0 kg (LUNA 16)                         |
| Temperature range:      | -10 °C to 60 °C (Operating)   -20 °C to 70 °C (Storage)                      |
| Relative humidity:      | 20 % to 80 %, non-condensing (Operating / Storage)                           |



**THE DEVICE REQUIRES AC 100 V – 240 V TO WORK. DO NOT USE ANY OTHER VOLTAGE BECAUSE IT CAN DAMAGE THE DEVICE.**

## Power Supply

Be careful when handling the device and electrical power! To supply the unit with power, first connect the provided power cable to the unit ('Power') and then to a suitable power outlet. The device uses mains voltage (AC 100 V – 240 V)!



**CAUTION!**  
**RISK OF ELECTRICAL SHOCK. DO NOT OPEN THE UNIT.**

## Description Of Status LED Codes

The following tables describe the LED status codes on the front of the device.

| STATUS                   | POWER  |
|--------------------------|--|
| <i>Powered off</i>       | Power cable not connected. → The device has no power.  |
| <b>Permanently green</b> | Connected to power. → The power is on.                 |
| <b>Blinking green</b>    | Bootloader activated. → Reset the device (see page 7). |

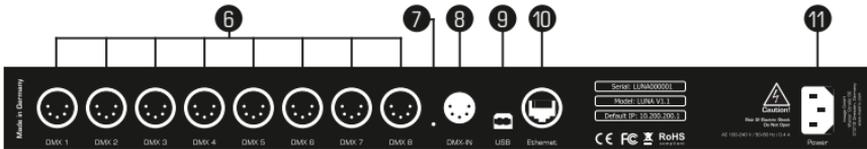
| STATUS                   | ETHERNET   | USB  |
|--------------------------|--|--|
| <i>Powered off</i>       | Ethernet not connected or the device has no power.                         | USB not connected or the device has no power.                    |
| <b>Permanently green</b> | Connected to Ethernet.<br>→ No data is sent or received over Ethernet.     | Connected to USB.<br>→ No data is sent or received over USB.     |
| <b>Blinking green</b>    | Communicating over Ethernet.<br>→ Sending or receiving data over Ethernet. | Communicating over USB.<br>→ Sending or receiving data over USB. |

| STATUS                | DMX-IN  | DMX-OUT  |
|-----------------------|---|--|
| <i>Powered off</i>    | DMX not connected or the device has no power.         | DMX not connected or the device has no power.        |
| <b>Blinking green</b> | Receiving data via DMX-IN.<br>→ The input port works. | Sending data to DMX-OUT.<br>→ The output ports work. |

# Connectivity



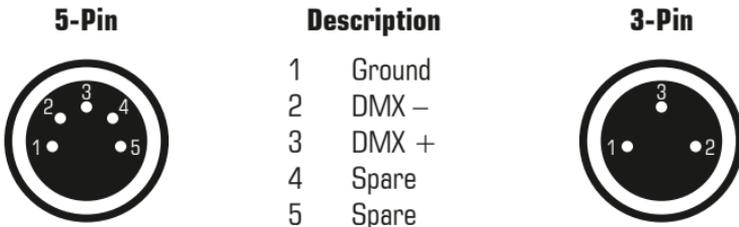
- |                            |                                  |
|----------------------------|----------------------------------|
| 1) Status LED for Ethernet | 6) XLR ports: DMX 1 – DMX 4/8/16 |
| 2) Status LED for USB      | 7) Reset button                  |
| 3) Status LED for DMX-IN   | 8) XLR port: DMX-IN              |
| 4) Status LED for DMX-OUT  | 9) USB port                      |
| 5) Status LED for Power    | 10) RJ45 Ethernet port           |
|                            | 11) Power socket                 |



**Note:** MADRIX® LUNA 8 is used above as example.  
MADRIX® LUNA 4 and MADRIX® LUNA 16 have a similar layout and functionality.

## 3-Pin And 5-Pin XLR Connector Layout

The images below outline the general pin layout of 5-pin and 3-pin XLR ports.



**Please note:** MADRIX® LUNA features 5-pin, female XLR connectors and one 5-pin, male XLR connector. Please use XLR adapters if necessary!

## IP Address And Other Device Information

You will find the following important information on the back side of the device:

- Serial number ('Serial')
- Hardware revision ('Model')
- Default and preconfigured IP address ('Default IP')

## Web Configuration

You can access various settings and information of MADRIX® LUNA using the built-in web configuration tool, in case that the device is connected to a network.

- Step 1) Connect MADRIX® LUNA and your computer to the same network.
- Step 2) Assign correct network settings in the Windows operating system.  
(Recommended: IP address 10.0.0.1 / Subnet mask 255.0.0.0)
- Step 3) Open your web browser and enter the IP address of MADRIX® LUNA.  
(You can find the default IP address on the back side of the device.)
- Step 4) The web configuration tool will be launched.  
You will have access to different settings, such as the IP address.

## Reset To Factory Default Settings

In rare cases you might need to do a reset to factory default settings:

- Step 1) Disconnect the device from power.
- Step 2) Use a suitable tool to press the reset button on the unit's back side.
- Step 3) Continue to press the reset button and connect to power again.
- Step 4) Continue to press the reset button and wait until all status LEDs on the front of the device flash repeatedly or wait 10 seconds.

**Please note:** Simply repeat these steps should the process fail.

## Using Any 3rd-Party Controller Via Art-Net

MADRIX® LUNA is a standard Art-Net node. Because of this, you can use the device with any application, console, or controller that supports Art-Net.

## Using MADRIX®

MADRIX® is a professional and advanced LED lighting control software. It is recommended to use MADRIX® in order to access all features of MADRIX® LUNA, including the USB connection, Art-Net, and MADRIX® Sync Mode. MADRIX® LUNA is fully supported by MADRIX® 2.14g, MADRIX® 3.2, or higher. (Art-Net support is already available with previous MADRIX® versions.)

**Please note:** In order to distribute data via MADRIX® LUNA using MADRIX®, a MADRIX® software license is required (sold separately)!

## MADRIX® 2.X Minimum System Requirements

2.0 GHz dual-core CPU, 1024 MB RAM, 500 MB free harddisk space, screen resolution of 1280 x 768, network card, USB 2.0. A sound card is optional (required for Sound2Light and Music2Light).

## MADRIX® 3.X Minimum System Requirements

2.0 GHz dual-core CPU, OpenGL 2.1 graphics card (NVIDIA recommended), 2 GB RAM, 1 GB free harddisk space, 1280 x 768 screen resolution, network card, sound card, USB 2.0.

## Supported Operating Systems

MADRIX® 2.X supports the following operating systems:

- Microsoft® Windows® XP (requires Service Pack 2)
- Microsoft® Windows® Vista
- Microsoft® Windows® 7
- Compatible with 32 bit and 64 bit

MADRIX® 3.X supports the following operating systems:



**Microsoft® Windows® Vista | 7 | 8 | 8.1 | 10**

Please keep the system up to date.

Compatible with 32 bit and 64 bit.

# Installing The MADRIX® Software And Drivers

Insert the CD that comes with MADRIX® LUNA into the CD-ROM drive of your operational computer. The MADRIX® software setup will load automatically. Follow the on-screen installation instructions as described below.



**PLEASE INSTALL THE SOFTWARE AND DRIVERS FROM THE CD BEFORE YOU CONNECT MADRIX® LUNA TO YOUR PC.**

First, please choose your preferred language and confirm with 'OK'. You may abort the process at any time by clicking 'Cancel'.



Second, the 'Welcome' window appears. Click 'Next >' to start the installation.

Third, the 'License Agreement' will be shown. It outlines the terms you are agreeing to when you install the software. You must accept these terms in order to continue. Please click 'I Agree'.

Fourth, the 'Choose Components' window allows you to select which items you want to install. A description is given for each item. The items 'MADRIX', 'MADRIX Interface Driver', and 'MADRIX KEY Driver' need to be selected and are the most important items for operating the MADRIX® LUNA. Click 'Next >'.



Fifth, the section called 'Destination Folder' allows you to select the location on your harddisk where the software will be installed. Please use the button 'Browse...' to choose a location and then click 'Install'.

The installation process may take a few minutes.

Sixth, when the 'Installation Complete' window appears, click 'Next >'.

Seventh, uncheck 'Run MADRIX' and then click 'Finish' to complete the installation process.

## Operating Modes

Four main operating modes are available to you when using MADRIX®:

- DMX-OUT via Ethernet network (Art-Net)
- DMX-OUT via USB
- DMX-IN via Ethernet network (Art-Net Remote)
- DMX-IN via USB

**Please note:** DMX-OUT and DMX-IN can be used at the same time.

## Using DMX-OUT Via Art-Net

You can connect MADRIX® LUNA over Ethernet network to the network card of the computer that runs the MADRIX® software. Data is distributed to the device over network cabling and sent to the XLR output ports ('DMX 1 – DMX 4/8/16').

Follow these quick steps to configure Art-Net in MADRIX®:

- Step 1) Connect LED controllers/fixtures to the XLR ports of MADRIX® LUNA.
- Step 2) Connect MADRIX® LUNA to power.
- Step 3) Connect MADRIX® LUNA to your computer using network cabling.
- Step 4) Assign correct network settings in the Windows operating system.  
(Recommended default settings:  
IP address 10.0.0.1 and Subnet mask 255.0.0.0)
- Step 5) Start MADRIX® and go to 'Preferences...' → 'Device Manager...' → tab 'Art-Net' and activate 'Enable'. Click on the search button (magnifying glass icon) and the device appears in the list.
- Step 6) In MADRIX®, go to 'Preferences...' → 'Device Manager...' → tab 'DMX Devices' to configure DMX output. Activate 'Enable' for each required port in the section 'Settings'.
- Step 7) In MADRIX®, configure your virtual LED matrix using 'Preferences...' → 'Matrix Generator...' or → 'Patch Editor...'.

For more information, please read the MADRIX® user manual.

**Please note:** The package contents do not include network cabling.

## Using DMX-OUT Via USB

You can connect MADRIX® LUNA directly over USB to the computer that runs the MADRIX® software. Data is distributed to MADRIX® LUNA via USB cabling and sent to the XLR output ports ('DMX 1 – DMX 4/8/16'). Follow these quick steps to configure USB output in MADRIX®:

- Step 1) Connect LED controllers/fixtures to the XLR ports of MADRIX® LUNA.
- Step 2) Connect MADRIX® LUNA to power.
- Step 3) Connect MADRIX® LUNA to a free USB 2.0 port of your computer using the provided USB cable.
- Step 4) Start MADRIX® and go to 'Preferences...' → 'Options...' → tab 'Devices USB'. Activate 'MADRIX LUNA' and click 'OK'.
- Step 5) In MADRIX®, go to 'Preferences...' → 'Device Manager...' → tab 'DMX Devices'. Activate 'Enable' for each required output port.
- Step 6) In MADRIX®, configure your virtual LED matrix using 'Preferences...' → 'Matrix Generator...' or → 'Patch Editor...'.

For more information, please read the MADRIX® user manual.

## Device Configuration In MADRIX®

### Web Configuration

You can access the web configuration through MADRIX® if Art-Net is configured. Go to 'Preferences...' → 'Device Manager...' → tab 'Art-Net'. Your device is shown in the list with its IP address. Select it and click on the HTTP Configuration button (HTTP icon). Your default web browser will be opened.

### MADRIX Device Configuration

In MADRIX®, go to 'Tools...' → 'MADRIX Device Configuration...'. A new window will open and the same settings from the web configuration will be available. For more information, please read the MADRIX® user manual.

## DMX Input Settings

If DMX-IN is used, MADRIX® LUNA will automatically send the data via Art-Net Remote to the network (when connected). Use the web configuration to change relevant settings (Art-Net Universe and Broadcast/Direct IP Mode). Receiving Art-Net Remote data or DMX-IN data via USB in MADRIX® requires further configuration. For more information, please read the MADRIX® user manual.

## Updates And Further Information

Digital documentation files are automatically installed with MADRIX®. More information about the software and how to connect MADRIX® LUNA is provided in the **MADRIX® Help And Manual**. You can access this user manual by pressing 'F1' on your keyboard while using the MADRIX® software, by navigating to the menu 'Help' → 'User Manual...', or online at [help.madrix.com](http://help.madrix.com)

The latest quick start guide and MADRIX® software, including drivers, firmware updates, and documentation, are available from [www.madrix.com](http://www.madrix.com)

## Support

In case of further questions concerning handling of MADRIX® LUNA or technical problems, please read the MADRIX® Help And Manual first, contact your dealer, or have a look at the website [www.madrix.com](http://www.madrix.com)  
You can also directly contact [info@madrix.com](mailto:info@madrix.com)

## CE And RoHS Declaration Of Conformity



The device complies with the requirements set forth in the council Directive of the law of the Member States relating to electromagnetic compatibility (2004/108/EC), the Low Voltage Directive (2006/95/EC), and the Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (2011/65/EU) (RoHS). The compliance with these three Directives has been evaluated in accordance with the following standards: DIN EN 55015; VDE 0875-15-1 (Nov. 2009) and DIN EN 61547:2010-03; VDE 0875-15-2.

## FCC Declaration Of Conformity



The device has passed the following tests of compliance:  
FCC (2003) - Title 47, Part 15, class A, Radio frequency devices.

This device 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.



