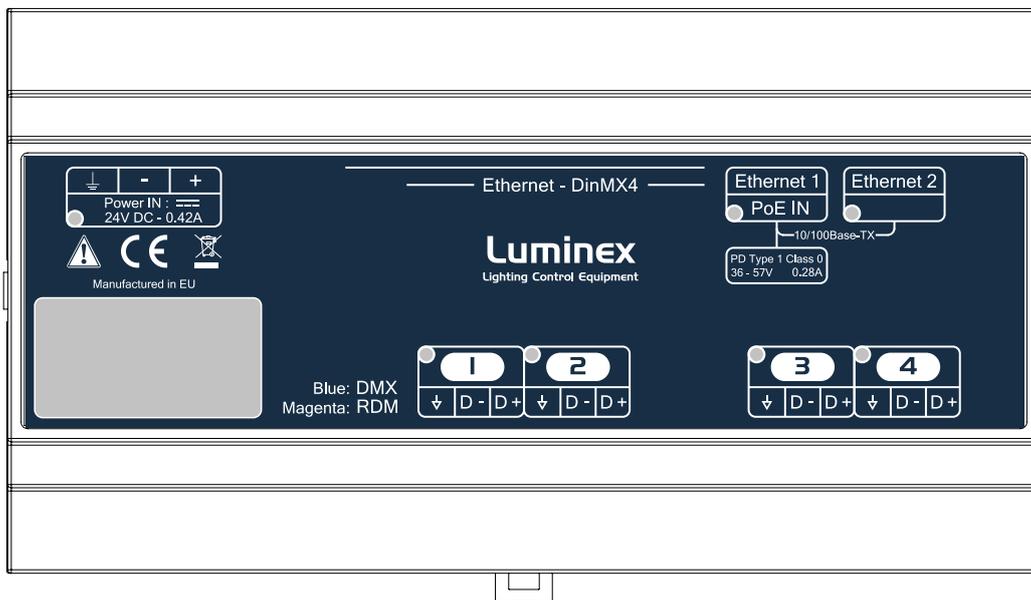


Ethernet - DinMX4



DIN Rail Ethernet <> DMX converter

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Ethernet - DinMX4 manual

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Safety Instructions



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

- Read Instructions - All the safety and operating instructions should be read before the appliance is operated.
 - Retain Instructions - The safety and operating instructions should be retained for future reference.
 - Heed Warnings - All warnings on the appliance and in the operating instructions should be adhered to.
 - Follow Instructions - All operating and user instructions should be followed.
 - Water and Moisture - Do not use the unit near water. Do not expose it to a humid environment. Do not spill any liquid over the unit. **DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE**
 - Cleaning - Disconnect the power cord to the unit before cleaning. Do not use any liquid or spray cleaner. Clean with a dry cloth.
 - Heat - The appliance should be situated away from heat sources such as radiators, heat registers, stoves or any apparatus that produce heat.
 - Power Sources - The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
 - Attachments / Options - Only use attachments/options specified by the manufacturer.
 - Object and Liquid Entry - Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through the openings.
- Servicing - The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.
 - Damage Requiring Service - The appliance should be serviced by qualified service personnel when:
 - A. Objects have fallen, liquid has been spilled into the appliance.
 - B. The appliance has been exposed to rain or moisture.
 - C. The appliance does not appear to operate normally.
 - D. The appliance has been dropped or the enclosure is damaged.

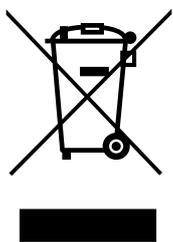
Compliance information

CE Compliance (EMC and Safety)



Luminex is authorized to apply the CE mark on this compliant equipment thereby declaring conformity to EMC Directive 2004/108/EC, Low Voltage Directive 2006/95/EC and 2011/65/EU ROHS directive.

Disposal of Waste Equipment by users in the European Union



This symbol on the product or its packaging indicates that this product must not be disposed of with other waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city recycling office or the dealer from whom you purchased the product.

EMC (Electromagnetic Compliance)

The Ethernet-DinMX4 complies with the following standards regulating interference and EMC:

- EN 55022
- EN 55024

Mains powered information technology equipment compliance

The Ethernet-DinMX4 complies with the following standard :

- EN 60950-1

Warranty information

Limited warranty

Unless otherwise stated, your product is covered by a two (2) years parts and labor limited warranty. It is the owner's responsibility to furnish receipts or invoices for verification of purchase, date, and dealer or distributor. If purchase date cannot be provided, date of manufacture will be used to determine warranty period.

Returning under warranty

Any Product unit or parts returned to Luminex LCE must be packaged in a suitable manner to ensure the protection of such product unit or parts, and such package shall be clearly and prominently marked to indicate that the package contains returned product units or parts. Accompany all returned product units or parts with a written explanation of the alleged problem or malfunction. Owner may contact its distributor or local dealer to receive a RMA document to attach to its shipment.

Freight

All shipping will be paid by the purchaser. Items under warranty shall have return shipping paid by the manufacturer only in the European Union.

Under no circumstances will freight collect shipments be accepted. Prepaid shipping does not include rush expediting such as air freight. Air freight can be sent customer collect in the European Union.

Warranty is void if the product is misused, damaged, modified in any way, or for unauthorized repairs or parts.

Registration

Use your favorite web browser, and visit <http://www.luminex.be/support.php?show=registration> to register your product online.

By registering, you become eligible to receive the following:

- Technical support information
- Software update and upgrade notices
- Hardware warranty information

In the box

1 x Ethernet-DinMX4

1 x operating manual (including warranty information and safety instructions)

1 x three pole connector for power

4 x three pole connector for DMX (only available for terminal block version).

Version

There are two versions of Ethernet-DinMX4 : Terminal block version and RJ45 version. The main difference resides in the DMX port type.

Ordering info :

- Terminal block version : LU 01 00042-TB
- RJ45 version : LU 01 00042-RJ45
- RJ45 Philips version : LU 01 00042-RJ45PHIL

Description

The Ethernet - DinMX4 is an Ethernet node that serves 4 x DMX512 outlets, compatible with the following protocols: DMX512, DMX512-A, RDM (ANSI E1.20), sACN (ANSI E1.31) and Art-Net™. All 4 outlets can be used as input or output. The two Ethernet links are 10/100BaseTx connections on RJ45 connector, located on the unit. The unit embeds a switch fabric, which offers installer to use the converter as an Ethernet repeater. All configuration can be done over Ethernet through a built in website. This all comes in a 9 unit DIN rail ABS enclosure.

Specification

Connectivity	
■ DMX	■ 4 x 3 poles terminal block or 4 x RJ45 (on demand)
■ Network	■ 2 x RJ45
■ Power	■ 1 x three poles terminal block
■ Mounting	■ DIN Rail (EN60715 (35/7.5 rail))
DMX Features	
■ Supported Protocols	■ DMX512 (1986 & 1990), DMX512-A, RDM ANSI E1.20
■ DMX Port Direction	■ Input or output (configurable)
■ DMX Port Isolation	■ Optic and galvanic isolation per port
■ DMX Port Termination/Biasing	■ ✓
■ DMX Timing	■ Framerate: 10/40fps / Break: 176-352 µs
Ethernet Features	
■ Supported Protocols	■ Art-Net™, sACN ANSI E1.31
■ Port Speed	■ 10/100Mbps
■ Port Sensing	■ Auto-negotiation, MDI /MDIX
Additional Features	
■ Merging Engine	■ ✓
■ Softpatch	■ ✓
■ Trigger System	■ ✓
■ ReRoute	■ ✓
■ Profile Manager	■ ✓
■ Snapshot	■ ✓
■ Monitoring Software	■ LumiNet Monitor V2
Status Report	
■ Ethernet Port Connection	■ Link and Activity LED
■ Power	■ LED indication
■ DMX	■ LED indication
Power Input	
■ Power Input	■ 24 VDC
■ Power Consumption	■ Maximum 10W / 0.42A
■ Power over Ethernet (PoE) support	■ ✓ PD Type1 Class 0

Environmental	
■ Operating Temperature	■ 0 to +50 °C (32 °F to 122°F)
■ Storage Temperature	■ -10 to +70 °C (14°F to 158°F)
■ Humidity (non condensing)	■ 5 to 95 % RH
Physical	
■ Enclosure	■ Standard DIN rail ABS enclosure
■ Dimensions (W x D x H)	■ 156.3 x 57.8 x 86 mm ■ 6.15" x 2.28" x 3.39"
■ Packaging	■ 305 x 215 x 110 mm
■ Weight	■ 0.27Kg
Approvals	
■ CE	■ ✓
■ EN 55022	■ ✓
■ EN 55024	■ ✓
■ EN 60950-1	■ ✓
■ RoHS Compliance	■ ✓

Luminex LCE operates a policy of continuous development. Luminex LCE reserves the right to make changes and improvements to any of the products described in this document above without prior notice. Specifications are subject to change without notice.

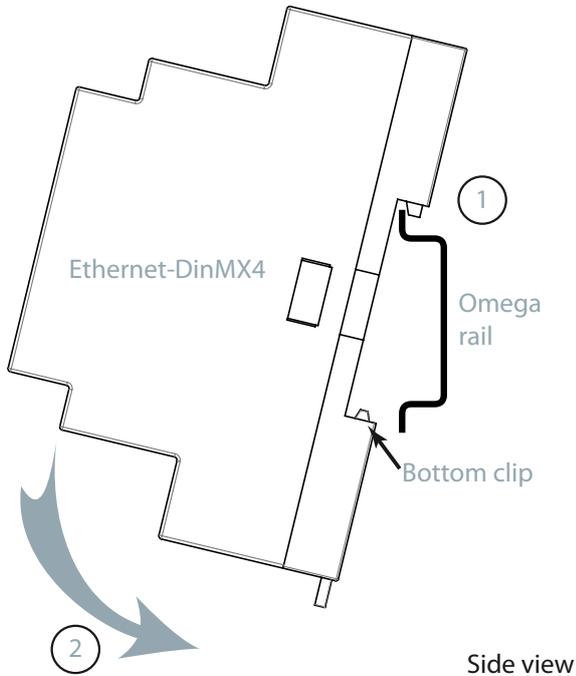
Installation



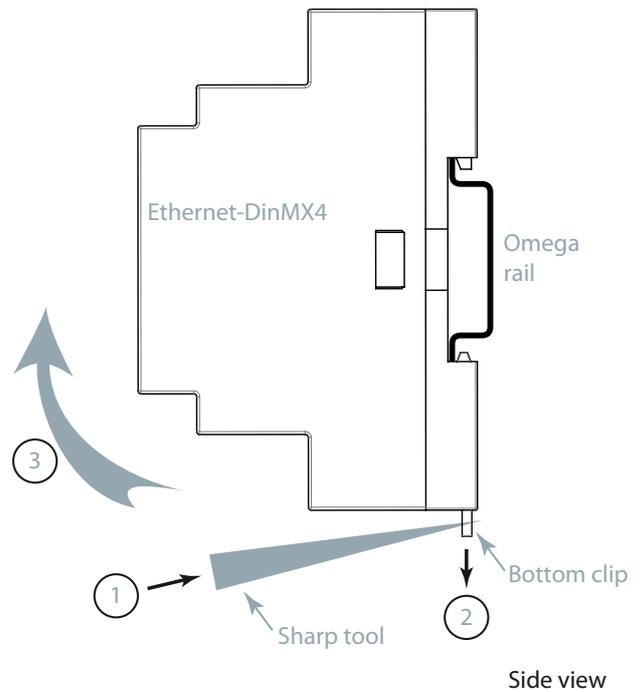
This equipment is intended to be used in a Restricted Access Location only.

Access can only be gained by SERVICE PERSONS or by USERS who have been instructed about the fact that, when the top cover is removed, bare parts at hazardous energy levels are accessible.

Access should be controlled with lock and key, or a security identity system controlled by the authority responsible for the location. Only authorized, well-trained professionals should be allowed to access the restricted access location.



The Ethernet-DinMX4 can be installed on any compliant omega rail (EN60715 (35/7.5 rail)). Simply insert the Ethernet-DinMX4 from the top (1) to the bottom (2), until you hear the bottom clip connection.

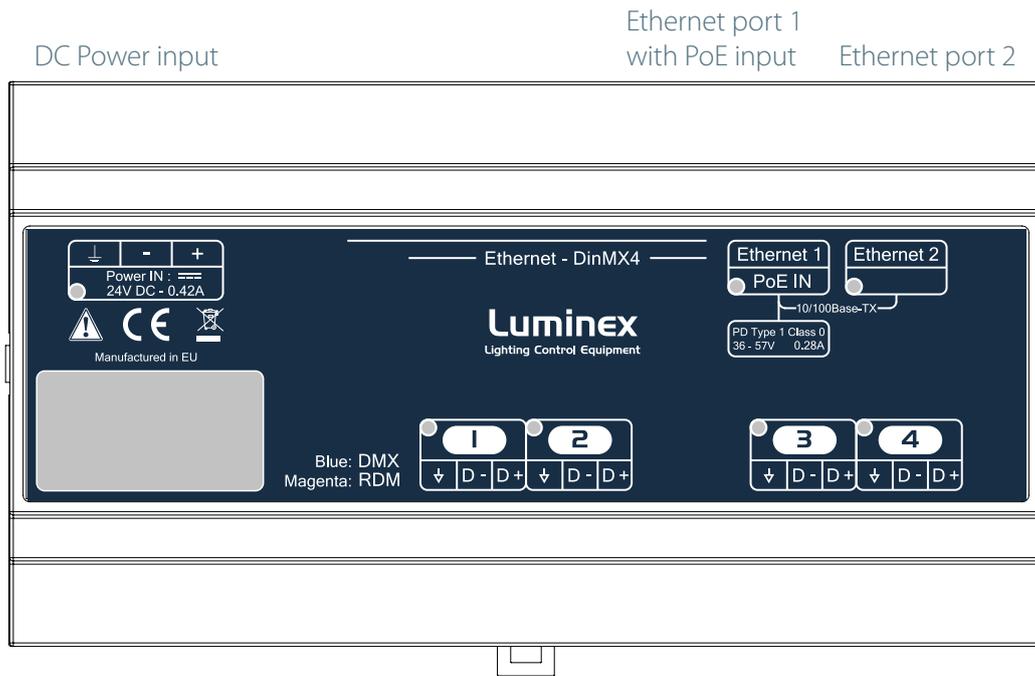


To remove the unit from the rail, use a sharp tool, and insert it in the hole of the bottom clip (1). Slightly push the clip to the bottom (2), in order to release the Ethernet-DinMX4 from the rail (3).

The units are 100% solid state and have been qualified to operate in a dry environment within a temperature range of 0°C to 50°C (32°F to 122°F) and a relative humidity range of 5% to 95% (no condensation).

Since the unit requires no user intervention once installed they are suitable for remote installation with all configuration and management taking place over an Ethernet network. However it is recommended that access can be gained in the unlikely event of a hardware failure.

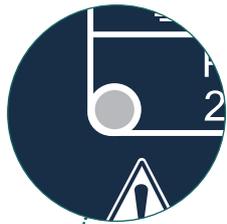
Layout



Front panel

DMX port 1 & 2

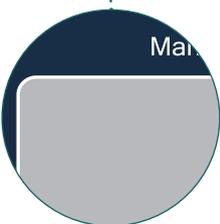
DMX port 3 & 4



Power status :
- On: Power ok
(from DC power or PoE)
- Blinking : Booting



Ethernet port status :
- On: Link ok
- Blinking: Activity



Device default settings



DMX port status :
- Blue: DMX activity
- Magenta: RDM activity

- 1 x Green LED for power status
- 2 x Green LED for Ethernet port status
- 4 x Blue / Magenta LED for DMX / RDM port activity
- 1 x Sticker with default settings (MAC and IP addresses, subnet mask, serial number)

Power

The Ethernet-DinMX4 can be powered in two different ways :

DC Power (24V)



A LPS (Limited Power Source) compliant with IEC 60950-1, EN 60950-1, UL 60950-1 or any equivalent national standard **MUST** be used, with an output voltage of 24V DC and a minimum output current of 0,42A (10 Watts). Such a power supply can be connected directly to the Ethernet-DinMX4 using the DC Input connector. The pins on this connector are marked as follow:

-  Earth (functional ground)
-  Power input ground (0v)
-  Power input 24V 

Luminex recommends to use the DSP10-24 power supply unit from TDK Lambda, or equivalent. Follow the installation instructions of the PSU

The power supply should be connected to the Positive and Signal ground inputs, ensuring the polarity is correct. The Ethernet-DinMX4 will typically consume 5W

Grounding

The Ethernet-DinMX4 has a dedicated functional earth terminal which should be connected to a suitable earth

PoE (Power over Ethernet)

The Ethernet-DinMX4 complies with the 802.1af standard. The units is a Class 0 Type 1 device (from 0 to 12.94 Watts), and can receive a voltage from 36 to 57V. Current consumption of the unit is 0.28A.

To power up the unit from PoE (PoE switch, PoE injector, PoE midspan...), the units needs to be connected to power source equipment through its left Ethernet port (indicated with PoE IN label) with a network cable (Category 5 minimum). The network cable should be AWG 24 minimum.



Power must not be disconnected during firmware updates to the Ethernet-DinMX4 as corruption of the data or firmware may occur, perhaps even rendering the unit inoperable.

Power redundancy

Because the Ethernet-DinMX4 can support two power sources (DC power or PoE), user can create a redundancy scheme, and thus provide a fault tolerant power architecture to the converter.

Power Redundancy			
First powered	Second powered	Result	Notice
PoE	DC	DC is backup	If PoE fails, DC will takeover, seamlessly.
DC	PoE	PoE is backup	PoE is backup but when DC fails, the PoE takes some time to start up which causes a power dip and the DinMX4 to reboot.

Disconnection



The Ethernet-DinMX4 can be powered through two power sources (PoE and DC power). It is thus important to disconnect both DC power and network to service the unit.

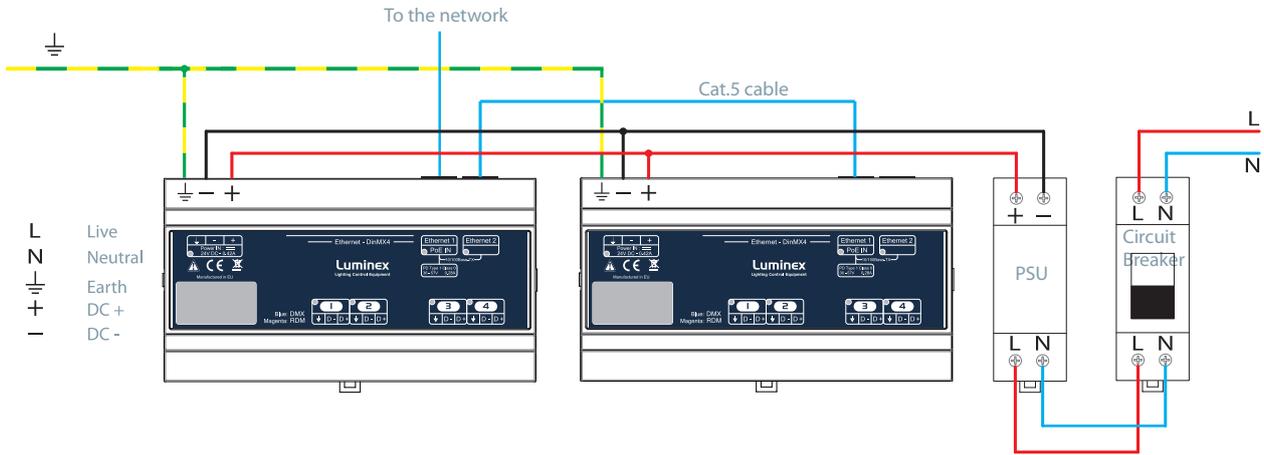
Data

Ethernet

Unit can be connected to an Ethernet network through its two Ethernet ports. However, if PoE is used to power up the unit, left hand side port must be used to provide both power and data to the unit.

The secondary port is then used to connect any other Ethernet device. Installer can use the Ethernet-DinMX4 to daisy chain another device to the unit (computer, or another Ethernet-DinMX4).

Mind the secondary Ethernet port of the Ethernet-DinMX4 DO NOT provide any power to the connected device. The daisy chained device should be powered through another source.



The above illustration shows an example of two daisy chained Ethernet-DinMX4. Both units are powered through DC power. Mind the power supply should be selected accordingly, to provide sufficient power to both units but still honoring the requirement of the PSU being a Limited Power Source

DMX / RDM

The Ethernet-DinMX4 is fitted with 4 DMX / RDM ports. All outlets are compliant with the DMX512-A timing specification and are terminated and rebiased. Depending on the model, DMX ports can be either 3 poles terminal blocks, or RJ45 socket.

To connect your DMX cable to the connectors, simply check the labels located on the front stickers.

Connect the wires as follow :

Icon	Three pole connector	RJ45	EIA/TIA Color	Function
		Pin 7&8 	White / Brown Brown	Ground
D-		Pin 2 	Orange	DMX Data -
D+		Pin 1 	White /Orange	DMX Data +

The Ethernet-DinM4 complies with the ESTA wiring scheme.

ESTA Wiring Scheme		
Pin	Wire color	DMX 512 function
1	White / Orange	Data 1 +
2	Orange	Data 1 -
3	White / Green	Data 2 + (Optional)
6	Green	Data 2 - (Optional)
4	Blue	Not assigned
5	White /Blue	Not assigned
7	White / Brown	Common reference for Data 1 (0v)
8	Brown	Common reference for Data 2 (0v)
	Drain	

In the case you don't use the second DMX line, Luminex recommends to still connect common reference for Data 2 to Pin 8, to avoid interferences.

Configuration

The complete device can be configured from an intuitive Web interface. You just have to browse to the IP address of the unit. If you do not know the IP address, you can quickly discover it on the front panel (bottom left default IP address), or by running Luminet Monitor V2 software (free downloadable tool), which shows all Luminex converters on the network. Each Ethernet-DinMX4 comes with an automatically calculated IP address. This makes sure not to have twice the same IP address when installing several Ethernet-DinMX4 on the same network.

Please check the computer, you use to browse, is set in the correct network address range. When you're not using a complete network setup (Ethernet switches, routers, WLAN, ...), you can also use either a cross Ethernet cable or straight Ethernet cable to directly connect the unit to your computer.

After all connections and setup on the computer are completed, open your favorite web browser (Luminex recommends Firefox) and enter the IP address you want to reach in the URL field : Http://X.X.X.X

Status

The screenshot shows the Luminex web interface. The top left has the Luminex logo and 'Lighting Control Equipment'. A sidebar on the left contains a 'Status' menu with sub-items: 'Set up' (node, global), 'Toolbox' (profile manager, snapshot manager, firmware upgrade), and 'Help'. The main content area is titled 'Status' and shows 'Active Profile: None'. Below this is a 'DMX Routing' table with columns: Direction, Protocol, Universe, Mode, IP Merge, Legend, Unicast, RDM, and Info. The table lists four outlets, all with 'output' direction, 'ArtNet' protocol, and 'disabled' mode. Below the table is a 'Global Settings' section with 'ID No: 001', 'Trigger universe: Disabled', and 'DMX details' (framerate: 36 Fps, break: 184 µS, Continuously). The 'Network Settings' section shows a 'Node' table with fields: IP (2.193.145.18), Netmask (255.0.0.0), Gateway, Port (0x1936), MAC (00:50:C2:9C:91:12), Short name (Default), and Long name (Default).

	Direction	Protocol	Universe	Mode	IP Merge	Legend	Unicast	RDM	Info
Outlet 1:	output	ArtNet	000 (0x00)	disabled	disabled	Outlet 1	NA		
Outlet 2:	output	ArtNet	001 (0x01)	disabled	disabled	Outlet 2	NA		
Outlet 3:	output	ArtNet	002 (0x02)	disabled	disabled	Outlet 3	NA		
Outlet 4:	output	ArtNet	003 (0x03)	disabled	disabled	Outlet 4	NA		

Node	
IP:	2.193.145.18
Netmask:	255.0.0.0
Gateway:	
Port:	0x1936
MAC:	00:50:C2:9C:91:12
Short name:	Default
Long name:	Default

Illustration 1: Status Page

You'll end up at the status page (Illustration 1) of the device. This page has a complete overview of the device settings. The overview shows the actual DMX and network setting / routing of the complete device.

The Web interface offers several languages. Select the language that fits your needs in the drop down menu located on the top right hand side of the Web page.

Setup

Choose one of the items in the sub menu to setup the device.

Once in a setup page, help is available on almost every field title. Just click on the question mark next to the topic. A pop up frame will display the overall information of each term displayed on the Web interface.

■ Node

To setup the node click on the appropriate sub menu item in the Setup navigation bar (**Node**).

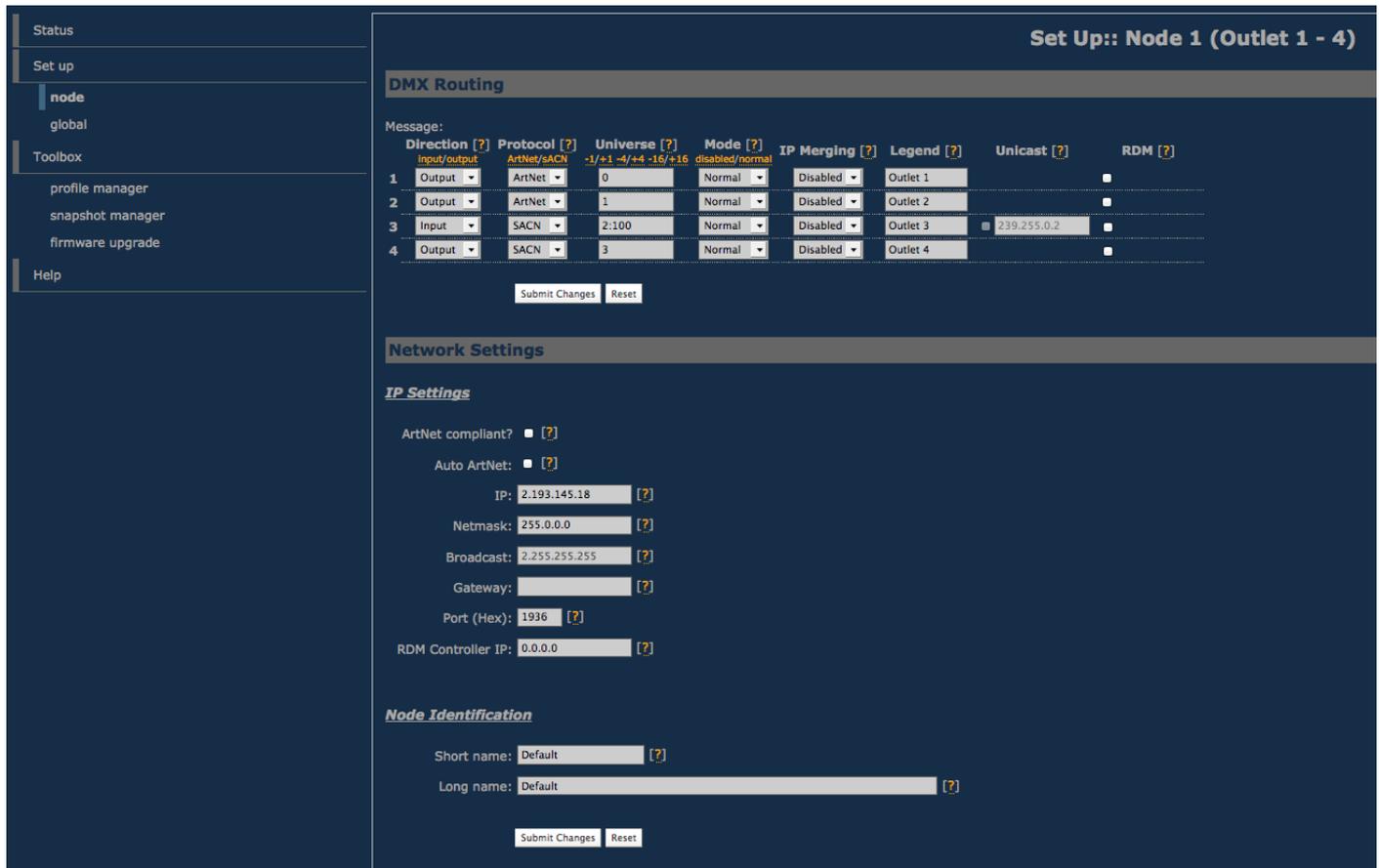


Illustration 2: Setting page

This is the main settings page (Illustration 2). You can setup every single outlet of the node, as input, output or reroute. Select the outlet's direction, mode, protocol and universe, enable/disable RDM traffic. Here you can also change the IP address, Netmask, port and the Art-Net™ short and long name indication.

All setting that are not applicable for the actual setting will be grayed out or marked as N/A (Not Applicable).

■ DMX Routing

To better understand the use of all features, let's define each category of this menu:

Direction : Set the direction you need to the outlet, either Input, Output or Reroute. Depending on your selection, some features won't be available in the other categories

Protocol : Determines the network protocol used for the outlet (Art-Net™ or streaming over ACN (sACN E1.31))

Universe :

ArtNet™: Enter here the universe number to use for addressing the DMX line on ArtNet. You can enter a numeric value between 0 and 32768. The Ethernet-DinMX4 supports ArtNet™ I, II and III protocols.

sACN : Enter here the universe number to use for addressing the DMX line on sACN. You can enter a numeric value between 1 and 63999. In case of an input, the priority of the universe can be set by adding a colon and the priority value. The priority level can go from 0 to 200. A higher level has a higher priority. (ex: 678:100 means universe 678 at priority level 100).

Mode : According to the direction you set on the outlet, this menu offers several modes :

Input:
Disabled : Outlet is disabled when not used, better for node performance.
Normal : Outlet set as normal input
Merge : Allow to merge 2 DMX streams.

When an odd outlet is configured as a merged input, the next even outlet will be automatically set as input as well.

Output:
Disabled : Outlet is disabled when not used, better for node performance.
Zero : Send all channels with a zero value (for test purpose only)
Normal : Normal output.

Reroute
Disabled : Outlet is disabled when not used, better for node performance.
Zero : Send all channels with a zero value (for test purpose only)
Normal : Normal output.

IP Merging : This special feature allows you to merge up to 4 different Art-Net™ or sACN streams through the network. The merging policy will be mainly applied on the output, except for IP backup.

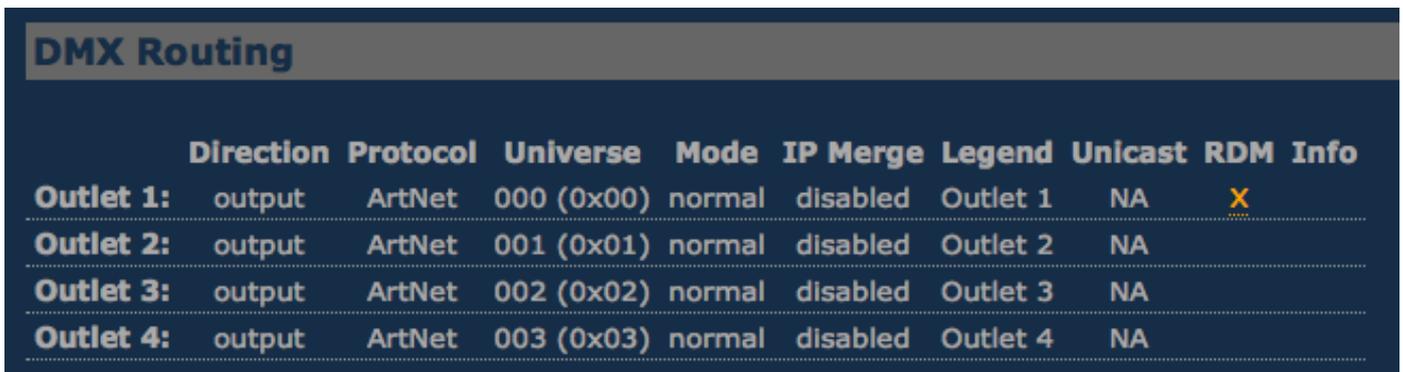
Legend : Set a legend to the outlet, useful to remind yourself what's connected to that outlet.

Unicast : Art-Net™ is originally a broadcast protocol, which means that each packet sent from a single source will be received by all actives equipment on the network. Unicast provides you to cast your data to a selected IP address, resulting in a better bandwidth management.

RDM : Enable / disable RDM. Enabling RDM allows RDM traffic to be transported from/to outlet over the network and back. The nodes will act as an unmanaged proxy device. When set as output it is also possible to enable Adaptive Discovery (AD). AD will continuously check for new and disappeared RDM devices on the output. Interweaving mode is also available when the converter DMX frame rate is set to a maximum of 34fps. The converter will interweave DMX and RDM packet seamlessly.

Once RDM is activated, you'll notice a cross in the status page (Illustration 3).

Click on this cross to see the list of discovered RDM devices (Illustration 4).



	Direction	Protocol	Universe	Mode	IP Merge	Legend	Unicast	RDM	Info
Outlet 1:	output	ArtNet	000 (0x00)	normal	disabled	Outlet 1	NA	X	
Outlet 2:	output	ArtNet	001 (0x01)	normal	disabled	Outlet 2	NA		
Outlet 3:	output	ArtNet	002 (0x02)	normal	disabled	Outlet 3	NA		
Outlet 4:	output	ArtNet	003 (0x03)	normal	disabled	Outlet 4	NA		

Illustration 3: Status page with RDM info



Illustration 4: RDM device pop up window

About Reroute

Reroute is a unique function added to the Ethernet-DMX firmware since version 4.1.5. Reroute allows you to convert Art-Net / sACN to Art-Net / sACN. The converter acts now at Ethernet level to convert Ethernet based lighting control protocols.

Once selected, the function adds a second row below the original row. Two protocol fields are now available. The top one represents the source protocol, the bottom one represents the destination protocol.

Example: if you wish to convert Art-Net universe 0 to sACN universe 1, simply set the fields as below (Illustration 5) :



Illustration 5: Reroute detail

By default, the converted protocol will be also associated to the corresponding outlet. So the converted protocol will be available on the associated DMX output.

However, it can be sometimes useful to use the connector as an input. Reroute also offers the ability to use the outlet as a DMX input. The DMX signal will then be merged with the converted protocol. To use the input function, simply click on the little blue icon, located on the left hand side of the row :

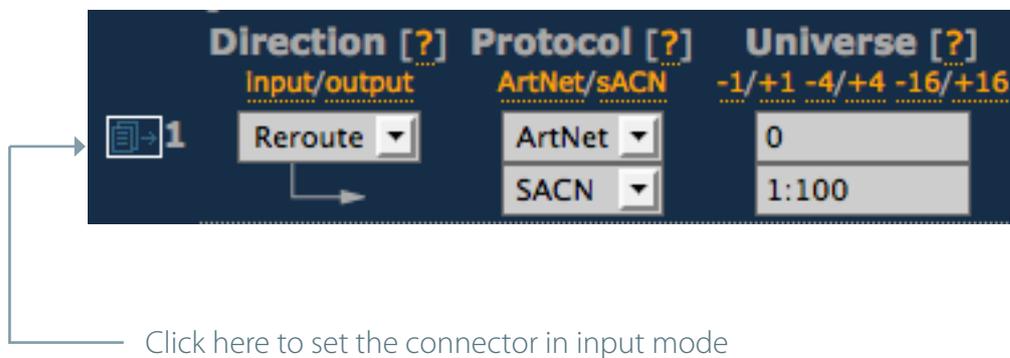




Illustration 6: Reroute input menu

By using the drop down menu, you can select here to merge the incoming DMX with the converted protocol using either HTP or LTP policy. Don't forget to submit changes ! Once all your reroute settings are made, don't forget to submit changes on the main page. The Reroute function can also be coupled with the merging engine of the converter. See the following chapter to discover the power of the Ethernet-DinMX4 merge engine.

Merging Policies

The Ethernet-DinMX4 firmware offers enhanced merging policies that fits to all kind of setup, even the most complex one !

4 available merging policies can be applied on your DMX network, in 2 main setup categories :

Local Merging : 2 different DMX streams are merged on the same physical device converter. The merging policy will be mainly set on input (Illustration 7).

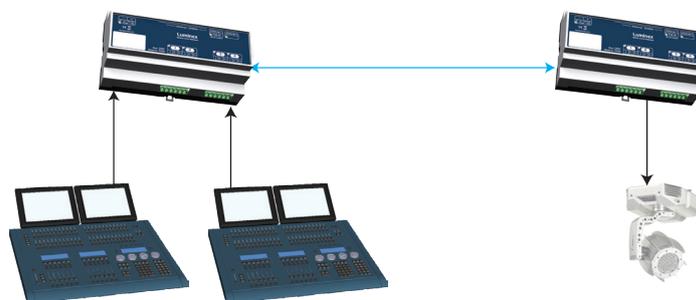


Illustration 7: Local merging

IP Merging : This special feature allows you to merge up to 4 different Art-Net™ or sACN streams through the network. The merging policy will be mainly applied on the output, except for IP backup.

Available policies :

- HTP : Highest Take Precedence; Commonly used to merge dimmer channels. Up to 4 Art-Net™ or sACN sources can be merged.
- LTP : Latest Take Precedence; Better suited when using moving lights. Up to 4 Art-Net™ sources can be merged.
- Backup : Can be used either on input or output. When used on input, this policy allows you to add a backup DMX console on the second input. When used on a custom output, the policy allows you to add a backup Art-Net™ or sACN source on the network.
- Custom : This is the most complete and efficient policy. This mode offers you to choose what policy to apply for each channel of each universe, and also to create a complete custom soft patch. By more, the merging policy can be remotely controlled triggered by DMX. Up to 2 Art-Net™ or sACN sources can merged thanks to that policy.

The available policies differs if you use either inputs or outputs.

Input (Local Mode)

	Direction	Protocol	Universe	Mode
Outlet 1	Input	ArtNet or sACN	1	Merge
Outlet 2	Input	ArtNet or sACN	Ch1	HTL, LTP, Backup, Custom
Outlet 3	Input	ArtNet or sACN	2	Disabled
Outlet 4	Input	ArtNet or sACN	3	Disabled

In this example (left converter of Illustration 7), the selected mode is “Merge”. The second outlet will automatically be set as a merged input.

You will not be able to configure a universe address for the second outlet, as the merged result will end at the universe address of the first outlet (primary input). Instead of a universe number, you will be able to set the starting DMX channel address (1-512).

This indicates from which channel address the second input has to be merged in. This offset is only available when using HTP or LTP policies. These rules will be applied on all channel of the whole universe.

If you choose “Backup”, a small blue icon will appears on the left side of “Outlet 2” label; then click on it, a pop up frame appears :

Illustration 8: Backup time settings

This menu (Illustration 8) lets you choose the backup time (from 400 to 9999ms). This time represents the delay from which the node will automatically switch to the backup outlet when invalid or no DMX is received anymore on the primary outlet.

Tick the box if you want the node to auto-recover as soon as valid data is available again on primary connector.

If you tick off the box, you will have to enable the trigger universe and select a recover channel (page 25).

If you choose “Custom” policy, a small blue icon will also appear on the left side of “Outlet 2” label; then click on it, a new pop up frame appears :

Universe channel	S1: Outlet 1 channel	S2: Outlet 2 channel	Mode
1	1	1	LTP
2	2	2	LTP
3	3	3	LTP
4	4	4	LTP
5	5	5	LTP
6	6	6	LTP
7	7	7	LTP
8	8	8	LTP
9	9	9	LTP

Illustration 9: Custom input pop up window

Click on **“Show Table”** button to see the complete soft patch available for this outlet.

- **Offset S1 & S2** : Enter a value for the desired offset of the starting channel for outlets 1 or 2; example, for channels 1 to start on the third channel, enter 3.
- **From – To** : this range lets you quickly set the policy you need on the channel range of your choice. example, if you need HTP policy on channels 23 to 145, enter 23 in the **“From”** field and **“145”** in the **“To”** field. Then select the HTP policy in the **“Mode”** drop down list, then press **“Set Default Mode”**.

Notice that following policies are available for each channel:

- Zero, HTP, LTP, S1 only (Source 1 only), S2 only (Source 2 only); S1 as Backup (Source 1 as backup), S2 as Backup (Source 2 as Backup).

The left column represent the resulting universe channel number streamed to the network. S1 column represents Source 1 channels and S2 column source 2 channels. It’s thus easy to understand that you can create your own soft patch by entering the channels of your choice in one of theses column.

Once your patch is created, click submit to close the window, then click submit again on the node page to record your settings.

Input (Remote DMX backup)

	Direction	Protocol	Universe	Mode	IPMerging
Outlet 1	Output	ArtNet or sACN	1	Normal	Disabled
Outlet 2	Input	ArtNet or sACN	1	Normal	Backup
Outlet 3	Input		2	Disabled	Disabled
Outlet 4	Input		3	Disabled	Disabled

This mode can be very useful in such application :

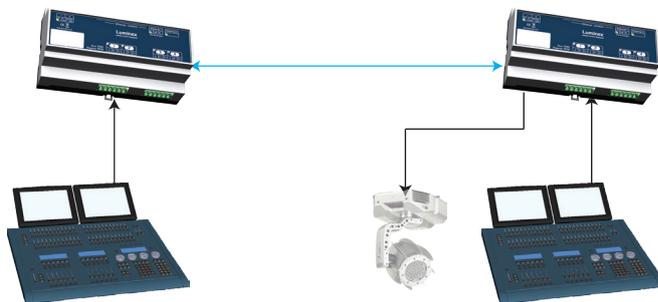


Illustration 10: Remote DMX backup

The right hand side lighting desk is used as a backup controller. This means that the right hand side converter will automatically switch to that outlet if no Art-Net™ or sACN packets are available on the selected universe (in that case universe 1). Select your backup time in the small pop up frame by clicking the left blue icon, then submit your changes.

Output (IP Merging)

	Direction	Protocol	Universe	Mode	IPMerging
Outlet 1	Output	ArtNet or sACN		Normal	HTP, LTP or Custom
Outlet 2	Input	ArtNet or sACN	1	Normal	Disabled
Outlet 3	Input		2	Disabled	Disabled
Outlet 4	Input		3	Disabled	Disabled

This mode can be very useful in the case of 2 network control sources located in different places in the network want to take control of the same DMX device at the same time.

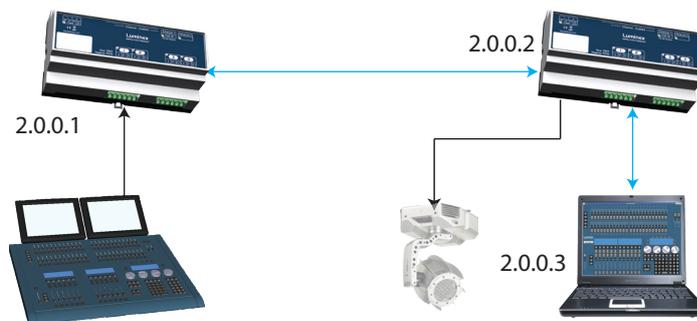


Illustration 11: Merge over the network

In this setup (Illustration 11), the right lighting software (S2) is used in the same time as the left lighting desk (S1). Both streams are merged through the final output on the right hand side converter.

The IP Merging mode provides the following policies when an outlet is set as output:

- HTP, for all outlet channels. Up to 4 Art-Net™ or sACN sources can be merged.
- LTP, for all outlet channels. Up to 4 Art-Net™ sources can be merged.
- Custom, to create a complete soft patch, to set merging policy for every single channel by IP source and protocol, and to use the enhanced trigger system. Two Art-Net™ or sACN sources can be merged.

If you choose “Custom”, click on the blue icon left sided to the “Outlet” label. A pop up frame appears (Illustration 12):

Config Outlet 1

DMX Output Custom IP Merging

IP / Universe Settings

IP source 1: Universe: [?]

IP source 2: Universe: [?]

Backup time (ms): Auto recover: [?]

Default Settings

Offset S1: Set offset 1 [?]

Offset S2: Set offset 2 [?]

From: To: [?]

Mode: Set default mode [?]

Trigger Chn: Set default trigger [?]

Output channel[?]	Source 1 channel[?]	Source 2 channel[?]	Mode[?]	Trigger[?]
1	1	-	S1 Only	-
2	2	-	S1 Only	-
3	3	123	HTP	-
4	4	4	LTP	-
5	5	5	LTP	-
6	-	6	S2 Only	-
7	-	7	S2 Only	-
8	8	128	HTP	-
9	9	129	HTP	-
10	10	10	LTP	-
11	11	11	LTP	-

Illustration 12: IP merge pop up window

You can find in this pop up frame similar features as when using the custom merging on outlets set as inputs. The main difference is about the following points :

- IP Source 1 & 2 : Here you can enter the 2 IP addresses assigned to your 2 control sources. In the case you don't know one of your source IP address, simply enter 0.0.0.0 in the address field.
- Universe : Here you can select the universes number and the protocol streamed by your control sources. This feature is very useful if the 2 sources don't use the same universe number or protocol.
- Protocol: select the protocol used by your respective source. The converter can merge different protocol, such as ArtNet or sACN,.
- Trigger channel. This feature allows you to remotely change the merging policy of one or several dedicated channels through a single DMX value. From anywhere on the network, you can by example swap from a "LTP" merge to a "S2 only" policy simply by using a different DMX trigger channel value. Enter here the DMX channel you want to use to remotely takeover control of the merging rule.

Once you've selected that channel, you'll need to reach the "Global" web page of the node to enable and select your Trigger universe. You'll also need to patch or assign a DMX trigger channel to your control source; here is the DMX chart of the Luminex DMX trigger channel :

- 0 - 7 Do nothing
- 8 - 15 Zero Out
- 16 - 23 HTP Merge
- 24 -31 LTP Merge
- 32 - 39 Source 1 Only
- 40 - 47 Source 2 Only
- 48 - 111 Reserved
- 112 - 119 Source 1 as backup
- 120 - 127 Source 2 as backup
- 128 - 255 Do nothing

Note : If you control the trigger channel from more than one source, never forget to send a "Do nothing" value once you've selected the desired policy. If you send 2 different values from 2 different sources for the same trigger channel, the converter won't stop swaping between those values, which increase the processor load of the converter.

Recover channel

If you have set one of a converter outlet in IP backup mode, the node will swap automatically to this outlet in case of DMX failure from the primary source. Once the primary source is back again available, the node will automatically swap back to that source if set in Auto-recover mode. We all know that it can be useful to decide when to swap back to the primary source (booting time of the controller + loading the right cue in case of a controller failure). Tick off the auto-recover box in the pop up window if you decide to work in manual recovery mode. Then you'll have to enable the trigger universe in the "Global" Web page and choose a recover channel. You now have the opportunity to choose to recover either each outlet one by one or all outlet in one shot.

Below is the Luminex recover channel DMX chart :

Value	Output	Merged Input pairs	Normal input
0 - 7	Do nothing	Do nothing	Do nothing
8 - 15	Recover outlet 1	Recover IP Backup	Recover IP backup
16 - 23	Recover outlet 2	Recover DMX backup	Recover IP backup
24 - 31	Recover outlet 3	Recover IP backup	Recover IP backup
32 - 39	Recover outlet 4	Recover DMX backup	Recover IP backup
40 - 47	N/A	N/A	N/A
48 - 55	N/A	N/A	N/A
56 - 63	N/A	N/A	N/A
64 - 71	N/A	N/A	N/A
72 - 79	N/A	N/A	N/A
80 - 255	Do Nothing	Do Nothing	Do Nothing

All those soft patches can be recorded or loaded from or to the converter by using "Load Patch" or "Export patch" buttons. Luminex node recognize .txt files. These are "TAB" separated files which can be edited using spreadsheet software (Excel, OO Calc,...)

■ Network Settings

You can enter here (Illustration 13) the desired Art-Net™ IP address and Netmask you want to use. If you're not confident with Art-Net™ IP setting, tick the "Art-Net™ compliant?" box for the node to warn you in case of mistake. Art-Net™ IP addresses usually look like 2.x.x.x or 10.x.x.x.

You're not obliged to work with Art-Net™ IP addresses. If you wish to work with usual IT IP addresses such as 192.168.x.x, simply enter the desired IP address. Please remember that your node will thus not be visible on the network from devices set with conventional Art-Net™ IP addresses (2.x.x.x or 10.x.x.x).

The gateway field is meant in the case your converter is set in routed network.

The Port field allows you to change the UDP port used on the network to transmit your UDP Art-Net™ packets. Luminex recommends no change to this value.

You can force the converter to communicate with one single RDM controller only. Enter here the IP address of the RDM controller.

Node identification :

Enter here a small and long name to easily identify your node on the network through a Web interface, Art-Net™ compliant softwares or Luminex LumiNet monitor.

Network Settings

IP Settings

ArtNet compliant? [?]

Auto ArtNet: [?]

IP: 2.193.145.18 [?]

Netmask: 255.0.0.0 [?]

Broadcast: 2.255.255.255 [?]

Gateway: [?] [?]

Port (Hex): 1936 [?]

RDM Controller IP: 0.0.0.0 [?]

Node Identification

Short name: Default [?]

Long name: Default [?]

Submit Changes Reset

Illustration 13: Network setting panel

■ Global Settings

Some global settings can be altered by clicking **Global** in the Setup sub menu.

Device Settings

ID No.: 001 [?]

Enable trigger: Disabled [v] Universe: 0 (00) [v] 0.0.0.0 [?]

Recover channel: - [?]

DMX Details

DMX framerate: 35 [v] Fps [?]

Break: 184 [v] μS [?]

DMX output time: Continuously [v] [?]

Miscellaneous

Verbose level: Show Warnings + Errors [v] [?]

Lock mode: No Lock [v] [?]

Locking code: **** [?]

Confirm code: **** [?]

Backlight auto off: [?]

Submit Changes [v] Reset [v]

Illustration 14: Global settings

Device Settings:

Here you can change the device's ID number which is indicated in LumiNet monitor.

You can also enable the Trigger universe to remotely control your merging policy through any DMX or ArtNet source. The node will listen to the specified universe entered in the universe field. You can also force the IP address of the source sending the trigger value. This can avoid strange behavior in the unlikely another controller would send this value on the same universe.

You can set your Recover channel if you use the manual recovery mode .

DMX details

The DMX frame rate setting for all outlets. This can be set from 20 to 40 frames per second. Break Time can be set from 176 to 352μs. Mind that if you wish to use the RDM interweaving technology, framerate needs to be set at a maximum of 34fps.

DMX Output time can be set to 1 – 10 minutes or continuously. This time sets how long an output remains outputting its last DMX levels after no valid DMX packet came in for that particular universe on Art-Net™ or sACN.

Miscellaneous

This part is about security and warnings :

Verbose level : Select if you want to see error and warning messages on the front end LCD or through the Web interface.

Lock Mode: select the security level you want to be applied on your Ethernet-DinMX4.

Password protected mode will guide you to set a password into the “locking code” field. Once the node is locked, you'll have to enter the 4 digit password through the Web interface password field. Use “Admin” as login.

Toolbox page

When clicking on Tools in the navigation bar, a sub menu appears. Choose one of the items in the sub menu.

Profile manager

The profile manager (Illustration 15) is able to store 40 profiles. All profiles are stored on the device. A preview of the complete configuration stored in a profile is shown when a profile is selected from the drop down list. When an empty profile is selected, no preview will be shown. Once a profile is selected you can choose to recall it, to save actual settings as a profile, or to delete the profile.

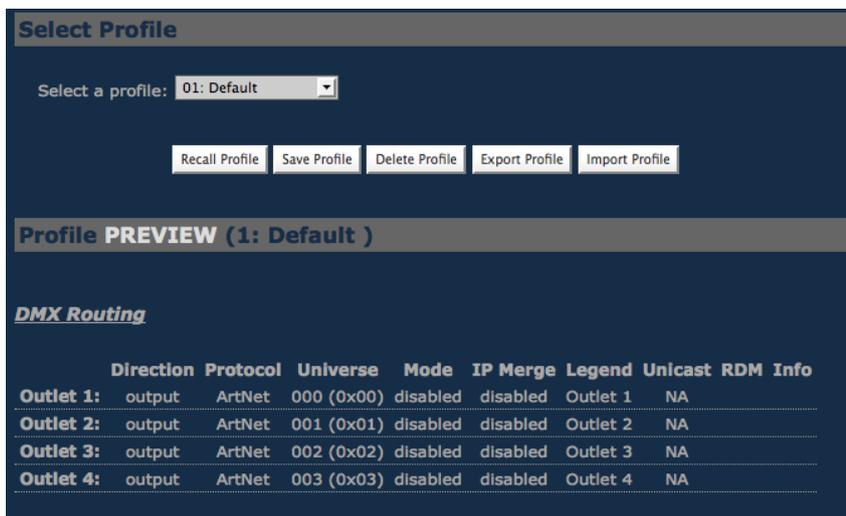


Illustration 15: Profile manager

When recalling a profile, another page will appear to ask whether to recall your network settings as well or only the outlet routings.

When saving a profile a next page will ask you to fill in a profile name.

Snapshot manager

The Ethernet-DinMX4 embeds a snapshot function (Illustration 16) that allows you to capture 3 lighting states (fixed values) per outlet. The snapshot function is only available for outlets set as single output.



Illustration 16: Snapshot manager

- **Auto load** : When this option is ticked and the outlet is set as a single output, then the unit will automatically load snapshot 1 at startup of the node. The DMX output will change as soon as Art-Net™ or sACN data arrives on the output. This feature is ideal for use in exhibition or expos.
- **Capture** : Captures actual output state as a static DMX snapshot when there is DMX running on the output. Simply press on one of the 3 captures available to snapshot the DMX output.
- **Execute** : Executes clicked snapshot and sets it on the DMX output when configured as a single output. The execute can't work if the associated universes runs on the network.
- **Edit** : Link to edit captured snapshot in a channel table (Illustration 17). Here you can directly edit and change channel values. You can also directly create your lighting state from that windows by inserting desired values, and recall the snapshot from the Web interface.

Static DMX Values For Outlet 1 Snapshot 1										
Channel	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0

Illustration 17: Snapshot edition

Capture recall

The Ethernet-DinMX4 offers a user friendly interface (Illustration 18) for users to easily recall the recorded snapshots from the Web interface. Type the following address to reach the execute buttons page, where w.x.y.z represents the Ethernet-DinMX4 address : http://w.x.y.z/cgi-bin/toolbox_outlet.cgi/

Example:

http://2.192.144.1/cgi-bin/toolbox_outlet.cgi/

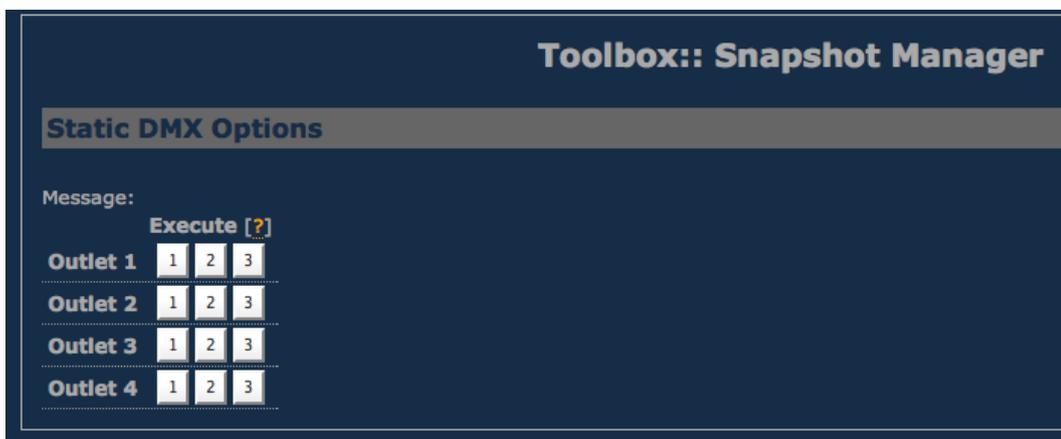


Illustration 18: Capture recall

Firmware upgrade

The firmware upgrade page (Illustration 19) allows you to select a downloaded firmware file and upload it to the device. This page shows the actual firmware version running on the unit below the file upload field. The latest firmware file can always be downloaded from the Luminex web pages.

[Http://www.luminex.be](http://www.luminex.be)



Power must not be disconnected during firmware updates to the Ethernet-DinMX4 as corruption of the data or firmware may occur, perhaps even rendering the unit inoperable.

To install the firmware on the Ethernet-DinMX4 follow these steps:

- Download the .zip file and save it on your hard disk.
- Extract the .zip file.
- Please read the "ChangeNote.txt" for latest release changes.
- Browse to the device's IP address with your favorite web browser.
- Click Toolbox -> Firmware upgrade.

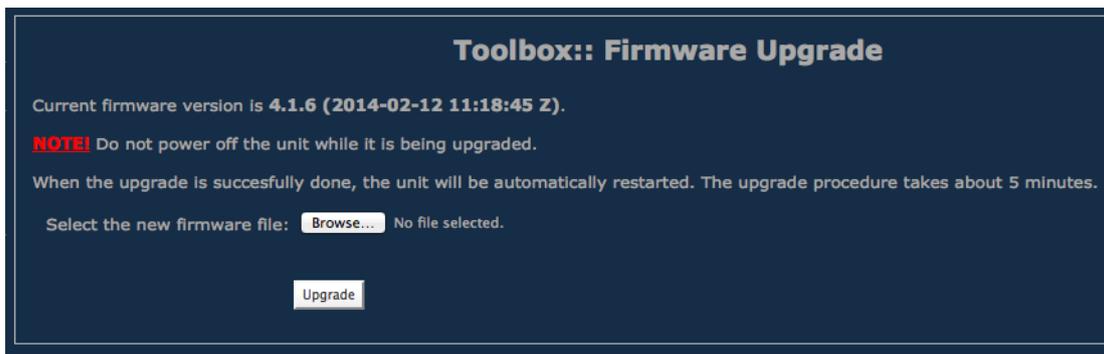


Illustration 19: Firmware upgrade page

- Browse to the extracted upgrade file on your hard disk (ethdinmx4_v4.X.X.bin), where X.X represents firmware version.
- Select the file and press on the "Upgrade" button.
- The upgrade file will be sent to the device.
- Wait until the device has rebooted. (until then the Power/Ok LED will be blinking). A solid Power LED on indicates your Ethernet-DinMX4 has been properly updated.
- Click now on Toolbox -> Firmware upgrade if the current version is set to the right version number. If the number is the same as mentioned with the file then the upgrade succeeded.

Troubleshooting

- The Power/OK LED is always blinking:

Your Ethernet-DinMX4 doesn't boot properly. Restart the unit by unplugging the power feed. If this doesn't help, contact your local dealer.

Please note the Power LED will be blinking during upgrade procedure, don't switch off the power during this step.

- My computer is connected to the node, but the Link/Activity LED of the Ethernet port is still off.

Check the Ethernet cable you're using, and check that each RJ45 on each side of the cable is properly inserted. Feel free to plug another cable to isolate the problem.

- I can't reach the Web interface of the Ethernet-DinMX4

Please check first the two previous steps. Then please be sure your computer is set in the same IP range than your Ethernet-DinMX4. Try to ping the unit with a dedicated application, such as a DOS session on Windows, or a terminal session on MAC. You can use LumiNet Monitor V2 to discover your Ethernet-DinMX4. If you can't see your device in LumiNet Monitor V2, please contact your local dealer.

Additional documentation

All additional documentation can be downloaded from our web pages in the support section :

<http://www.luminex.be>

--> Support

