

# LS-Node

March 2019

# Introducción

LS-Node is the new range of network nodes from the **light**Shark family. Under the generic name LS-NODE, the range includes three different models - LS-Node1, LS-Node2 and LS-Node4 - . These multiprotocol RDM/DMX streaming devices are fully compatible with any lighting control or device that supports ArtNet or sACN standards.

At WorkPro we hope it meets all your expectations.

Thank you very much for trusting us.



## LightShark series user manual

By WorkPro

Equipson S.A.

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### Policy

This equipment complies with EMC Directive 2004/108/EC and LVD 2006/95/EC.

This product is approved by the following safety standards: EN 60950~1:2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013

AND EMC standards EN55022: 2010 EN61000-3-3: 2013 EN55020:2007+ A11 EN61000-4-2: 2009 EN61000-4-3: 2006 + A1+ A2

**ATTENTION:** Any modification or change made to this device, unless explicitly approved by Equipson SA, will void the authorization to use this device.

**NOTE:** 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.

For further details please contact: Equipson SA, AV El Saler nº14, Silla, Valencia, Spain. Telephone: +34 961 216 301 E-mail: support@equipson.es

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## 2-Configuration and Operation

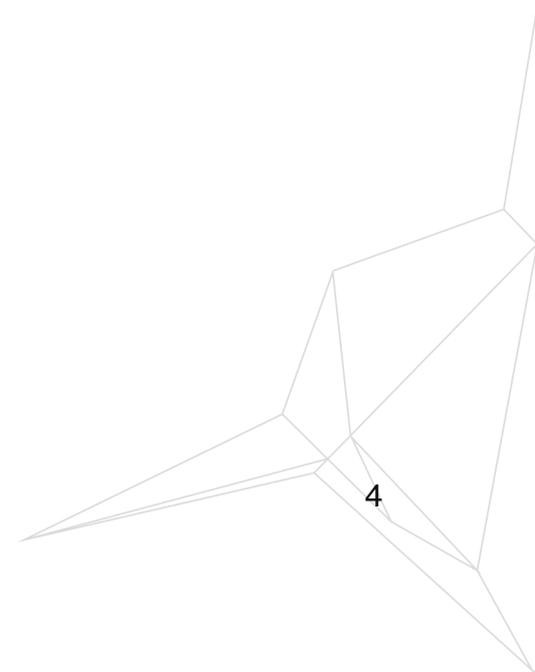
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# Sección 1: Introduction

## 1.1 Safety Instructions

Please read the following Safety Notes carefully before starting to work with the product. These notes include important safety information about installation, use, and maintenance.

- Before using this product, carefully read the instruction manual and keep it for future reference.
- You must use a power supply according to the voltage marked on the rear panel, you will void the warranty in case of using an inadequate voltage.
- Before connecting the device to the electric outlet ensure that the power cord is not damaged.
- Always connect the device to the power supply supplied in the box.
- Install the device in a flat and stable location.
- This product is rated IP20 so do not install near water or wetness, it is for indoor use only.
- Place the device away from heat sources such as radiators. Make sure there are no flammable materials near the device when it is in operation.
- Never connect the device to an electrical regulator or rheostat.
- To prevent the risk of shock, do not open or disassemble the unit.
- Never pull the power cord to turn off the device.
- If you install the device at a high place, please make sure that the bracket is properly fixed and secured.
- Equipson SA will not accept any liability for damage caused by unauthorized modifications or improper use of the device.
- If the device needs repair, contact Equipson SA or an authorized distributor.

## 1.2 Product Description

This series of small devices are available in the same format as ¼ rackmount LS-Core and are powered via USB-C or via PoE, which is useful when used in installations where they can be racked using the optional LS-AR 19 accessory.

All LS-Node devices have an integrated two-port Ethernet switch and are multiprotocol, supporting industry standards ArtNet and sACN.

LS-Node is fully compatible with LightShark consoles and can also be configured via a internal webserver, allowing users to configure parameters such as frame rate (15 to 40 hz), firmware updates, independent routing of DMX ports (any universe can be routed to any of the DMX ports independently) and usage modes.

All models have several usage modes:

- Single mode: RDM/DMX to ArtNet/sACN converter, configurable via web.
- Merger mode: where the LS-Node can receive different universes (via ArtNet/sACN or DMX) and merge them in the same output via HTP/LTP modes.
- Backup mode: when the LS-Node works in Backup mode with two connected consoles, the device can detect a connection loss from the main console and switch automatically to the Backup console, with a maximum latency of 3 seconds.

**NOTE** The Firmware version used to make this manual is v.0.19.

## 1.3 Box Content

The following items are included in the box:

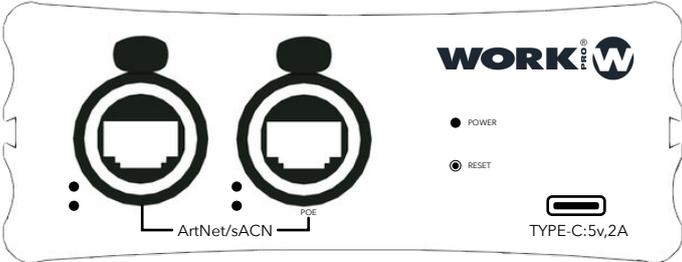
**LS-Node device:** Depending on model: LS-Node1, LS-Node2, LS-Node4.

**USB power cable ( 1m ):** connect one end to the LS-Node and the other end to the USB power adapter.

**USB Power Adapter:** To power the LS-Node, it includes different types of plugs for worldwide use. Simply select the correct adapter to plug it in.

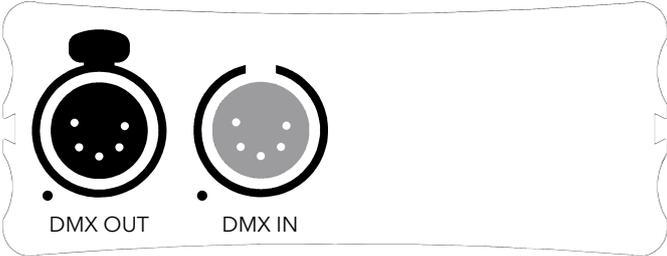
# 1.4 Product Overview

## Front view

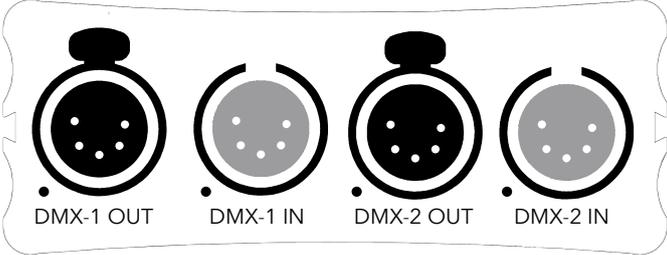


## Rear View

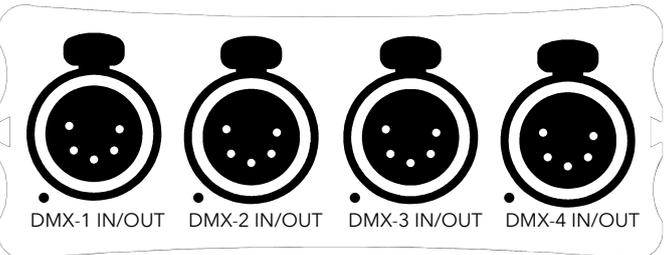
LS-Node 1.

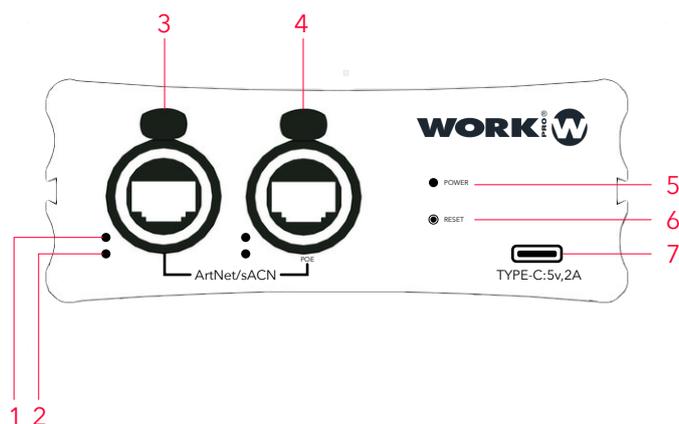


LS-Node 2.

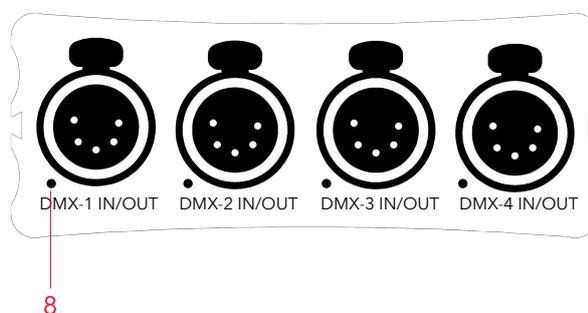


LS-Node 4.



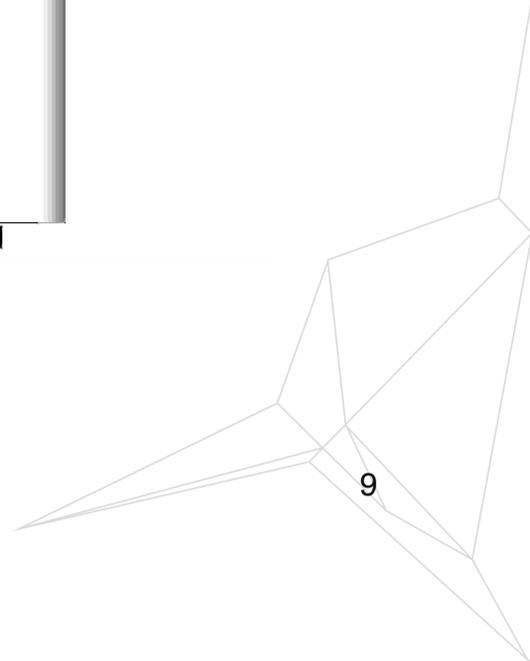
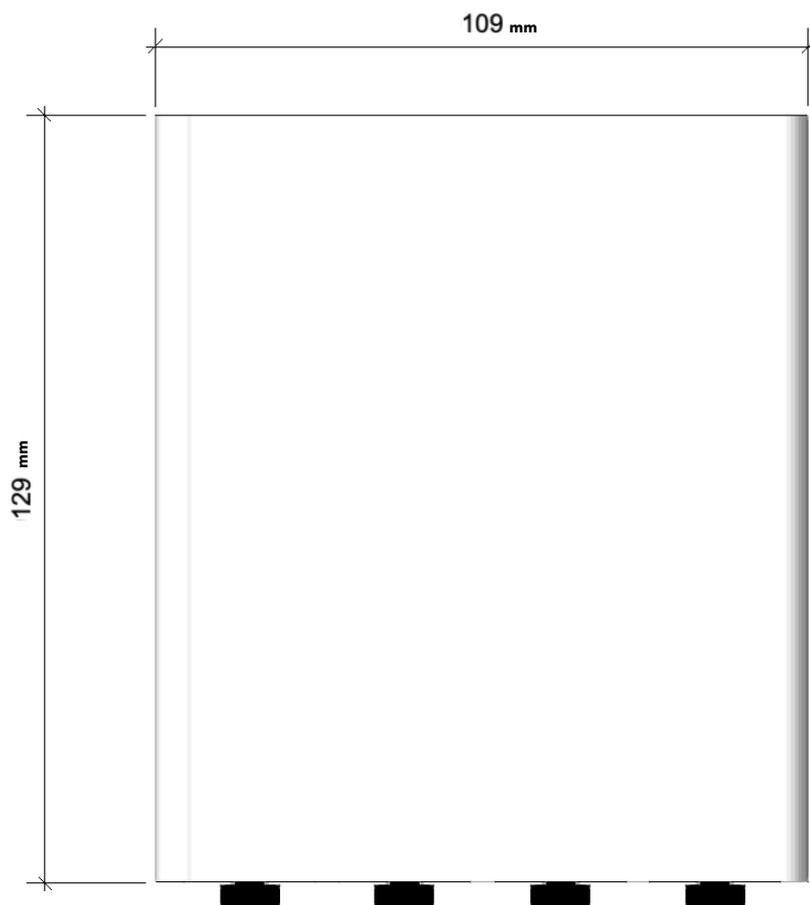
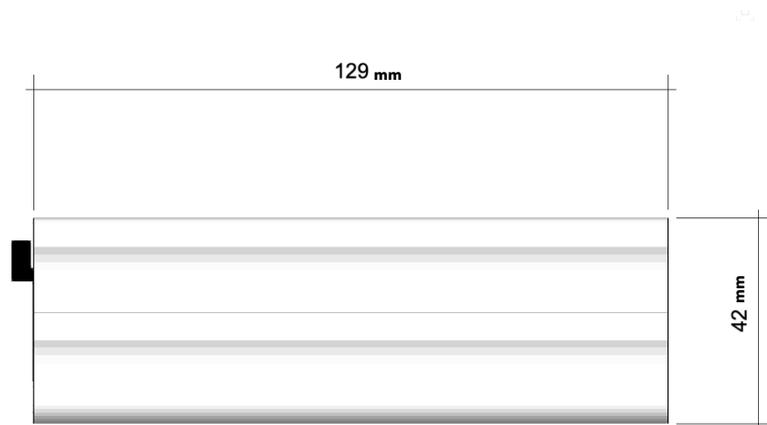


- 1:** Activity Led, if you receive Art-Net or sACN the led will flash quickly.
- 2:** Link Led, indicates that the ethernet port is connected to the network.
- 3:** Ethernet port A, which is a Neutrik etherCON connector with which to connect the node to the network.
- 4:** Ethernet port B, which is a Neutrik etherCON connector to connect the node to the network. The B port (unlike the A port) allows you to power the Node through P.o.E.
- 5:** Power LED, which is illuminated when the Node is connected to the USB-C power or to a P.o.E switch .
- 6:** Reset switch, allows you to return to the original factory configuration of the device.
- 7:** USB Type-C port, to supply power to the Node. It is possible to power it from the USB port of any computer or laptop, or a USB-C power supply. The device is supplied with a USB power supply and a USB Type A-C cable.



- 8:** Activity LED, the LED will illuminate Green when it is assigned an active universe.

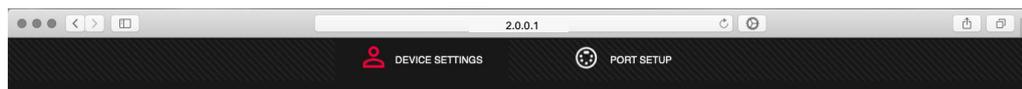
Product Dimensions



## Sección 2: Configuration & Operation

### 2.1 Web Server Access

LS-Node devices are configured through WebServer. To access, connect your LS-Node device to the LAN and from a laptop, tablet, or smartphone ... access the IP address **2.0.0.1**



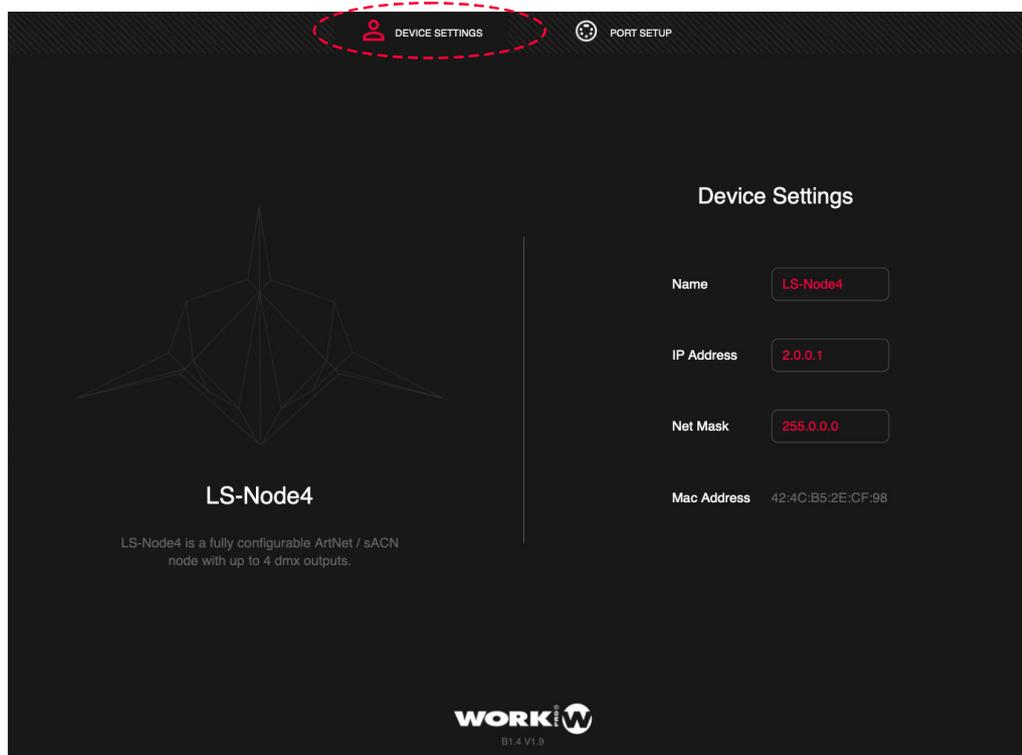
**NOTE** Note that the computer or tablet from which you want to connect must be in the same subnet as the nodes.

**NOTE** The use of Safari, FireFox, or Chrome web browsers is recommended.

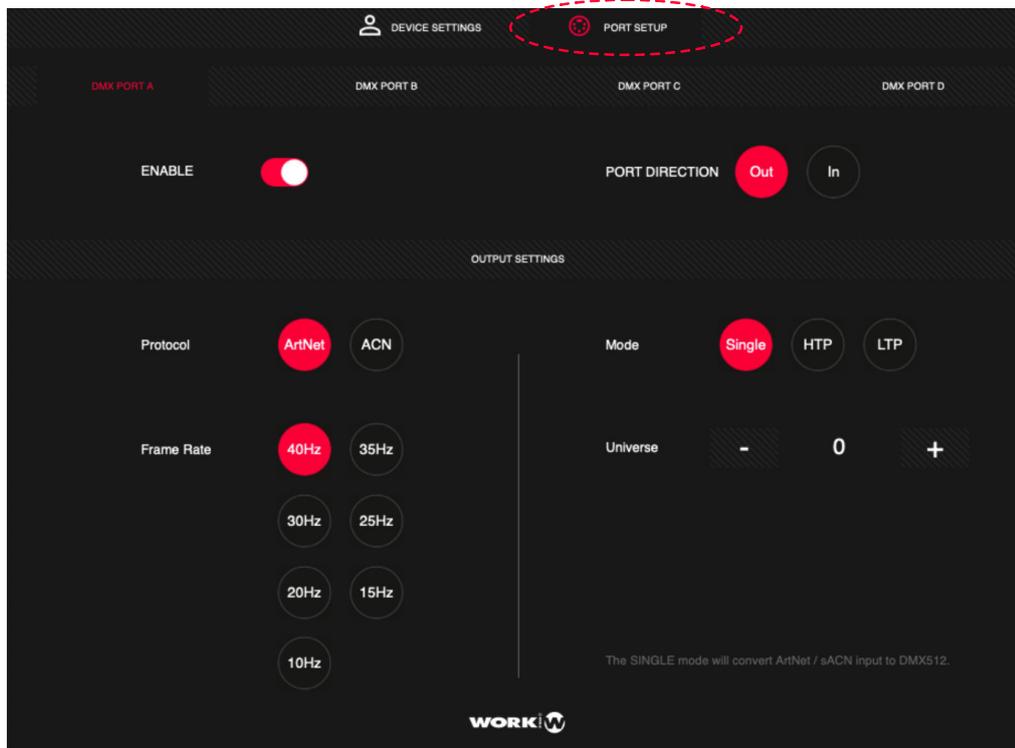
**NOTE** If you use iOS devices, the minimum software version required in iOS9

**NOTE** It is possible to configure LS-Node devices over the Internet, you only need to redirect port 80 on your router to the IP address of the device.

From the DEVICE SETTINGS window it is possible to adjust the IP address of the devices and their name.

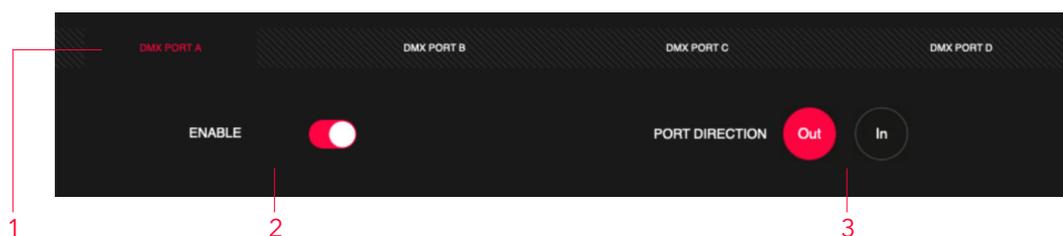


From the PORT SETUP window it is possible to configure each of the ports of the LS-Node devices.



## 2.2 Port Configuration

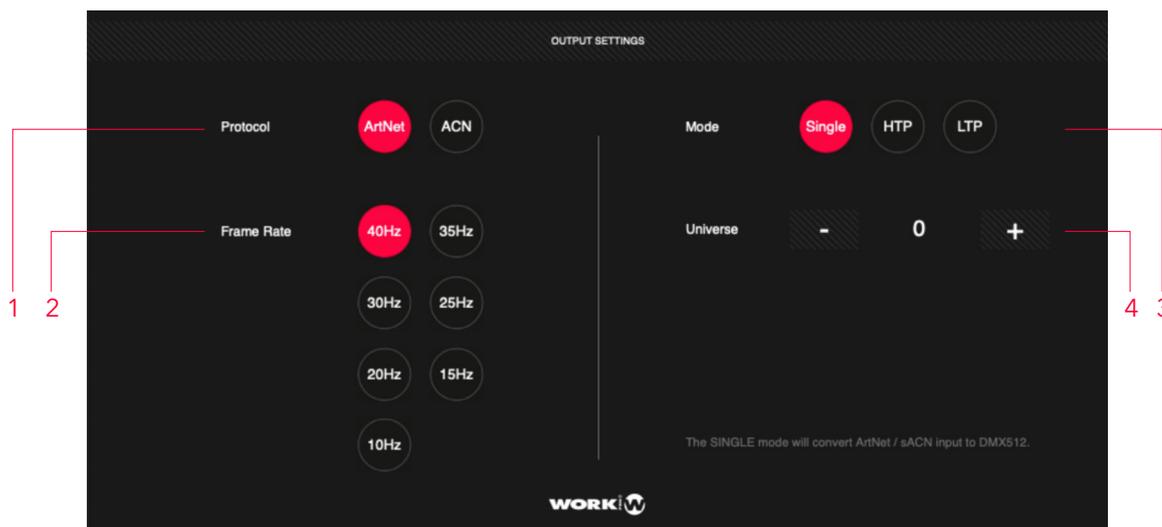
Select PORT SETUP window to configure each of the ports of the LS-Node devices.



**1:** Port selection, allows you to select between each of the different ports. Note that depending on the LS-Node model selected you will have access to more or less ports.

**2:** ENABLE, allows you to enable or disable each port independently.

**3:** PORT DIRECTION, allows you to select to configure each port independently as input or output. Note that the LS-Node 1 and 2 models have specific connectors for input or output, while the LS-Node4 uses the same connectors as input or output.



**1: PROTOCOL**, allows you to select between the different supported protocols.

*ArtNet* is a communications protocol for the transmission of the DMX512-A lighting control protocol and the remote device management protocol (RDM) over the user datagram protocol (UDP). It is used for communication between "nodes" (e.g. intelligent lighting devices) and a "server" (a lighting console or lighting control software for general-purpose computers).

*ACN* is a set of network protocols for the control of entertainment technology equipment, especially when used in live performances or large-scale installations. ACN is maintained by the Entertainment Services and Technology Association and its first official release was ANSI Standard E1.17- 2006 - Entertainment - Architecture for Control Networks. The standard was subsequently revised published as ANSI E1.17-2010.

ACN was initially designed to be placed over UDP/IP and will therefore work over most IP transports.

**2: FRAME RATE**, allows you to configure the DMX frame rate of the output ports. This option is only available when the port is configured as output.

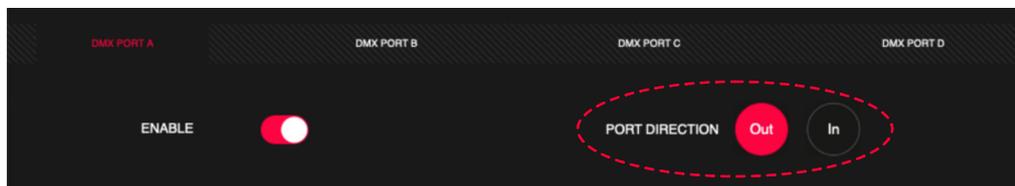
**3: MODE**, allows you to configure the working mode. Depending on how the port is configured the Port Direction will be displayed. Section 2.3 and 2.4 describe each of the possible configurations.

**4: UNIVERSE**, allows you to select the working universes. Depending on how it is configured the operating mode ( **MODE** ) you may see different options. Section 2.3 and 2.4 describe each of the possible configurations.

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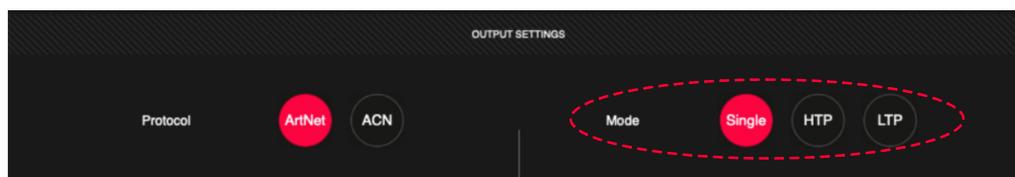
## 2.3 Setting ports as output

From the PORT SETUP window, select the port you wish to configure and set the "PORT DIRECTION" to "OUT".



By setting the port as output the LS-Node will convert the ArtNet or ACN information received on the network ports to DMX via the XLR-5 output ports. It is possible to configure the output mode ( MODE ) as SINGLE or as MERGER:

### Single Mode



In this mode the LS-Node functions as a simple node, converting the ArtNet/ACN input to DMX.



**Merger Mode**



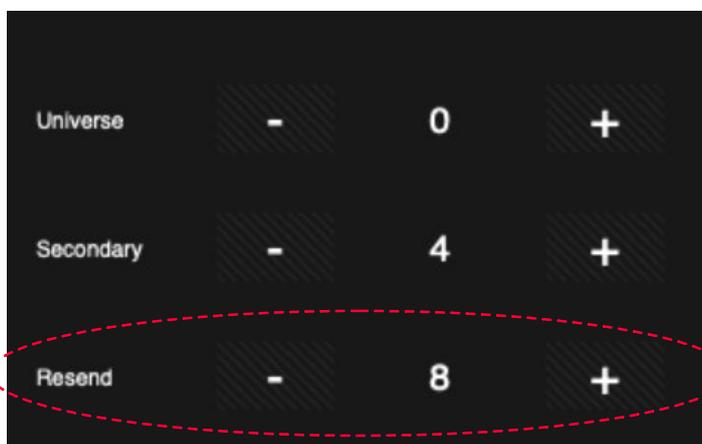
In this mode the ArtNet/ACN input of 2 universe is mixed and converted to DMX. When merging the two universes it is possible to select the type ( HTP or LTP ):

**HTP:** In this mode two universes are merged in one using the priority HTP ( Highest Takes Precedence ) processing the level of each of the channels. This mode is useful for controlling the same equipment with two different DMX controllers.

**LTP:** In this mode two universes will be merged into one using the LTP ( Latest Takes Preference ) priority forwarding universe A ( UNIVERSE ) or universe B ( SECONDARY ) to the DMX output depending on the input that had the last change of +/- 1 value in any of the channels.

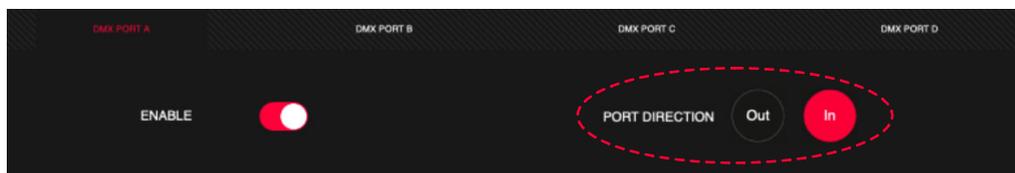


The LS-Node also allows a forwarding of the merger of Universe A (UNIVERSE) and Universe B (SECONDARY) to a third universe through ArtNet or ACN.



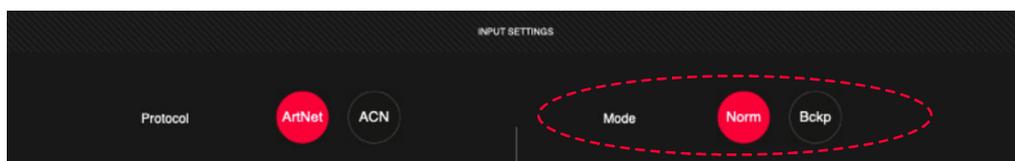
## 2.4 Setting ports as input

From the PORT SETUP window, select the port you wish to configure and set the "PORT DIRECTION" property to "IN".

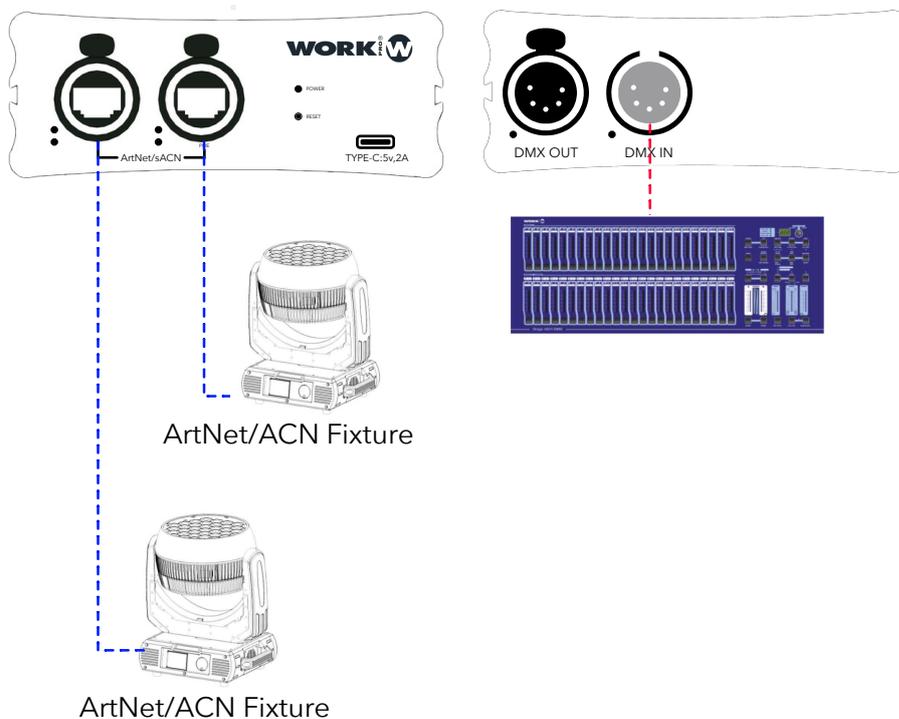


By configuring the port as input the LS-Node will convert DMX information received on XLR-5 input ports to Art-Net or ACN via Ethernet ports. It is possible to configure the output mode ( MODE ) as NORMAL or as BACKUP:

### Normal Mode



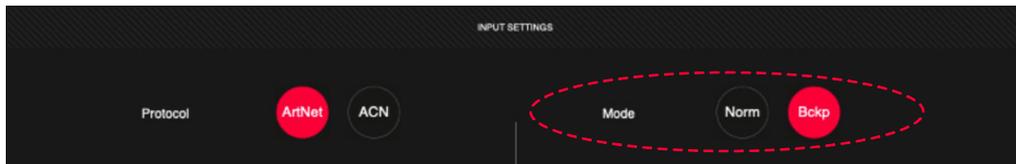
In this mode the LS-Node functions as a simple node, converting the ArtNet/ACN input to DMX.



## Backup Mode

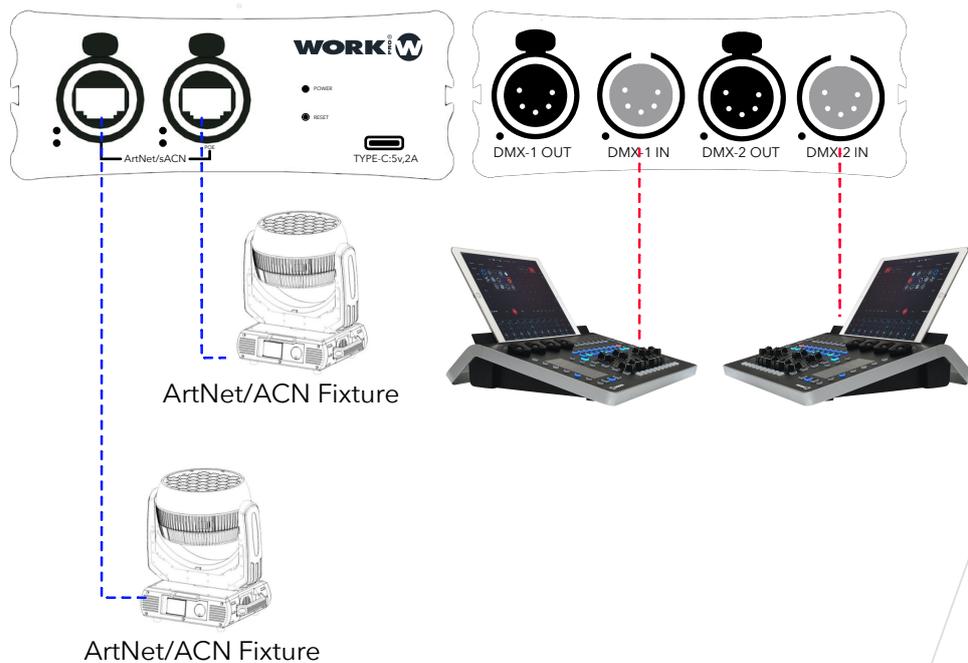
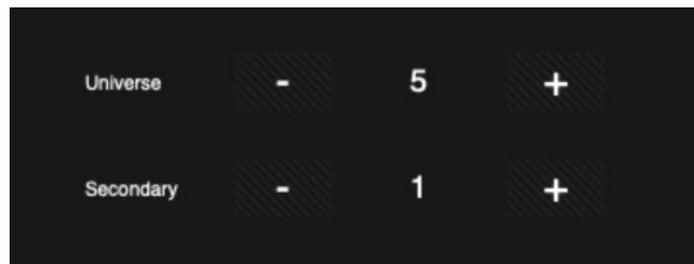
In this mode the LS-Node can be used to connect 2 consoles on the DMX input ports and send the signal from one of them via ArtNet or ACN. If the signal from one of the DMX inputs is lost, the LS-Node will automatically switch (after 3 seconds) to the second DMX input port.

If the signal returns the LS-Node will switch automatically again as soon as the first DMX frame is received.



Through UNIVERSE you can define the ArtNet/ACN universe to which the DMX signal received on the XLR-5 ports will be sent.

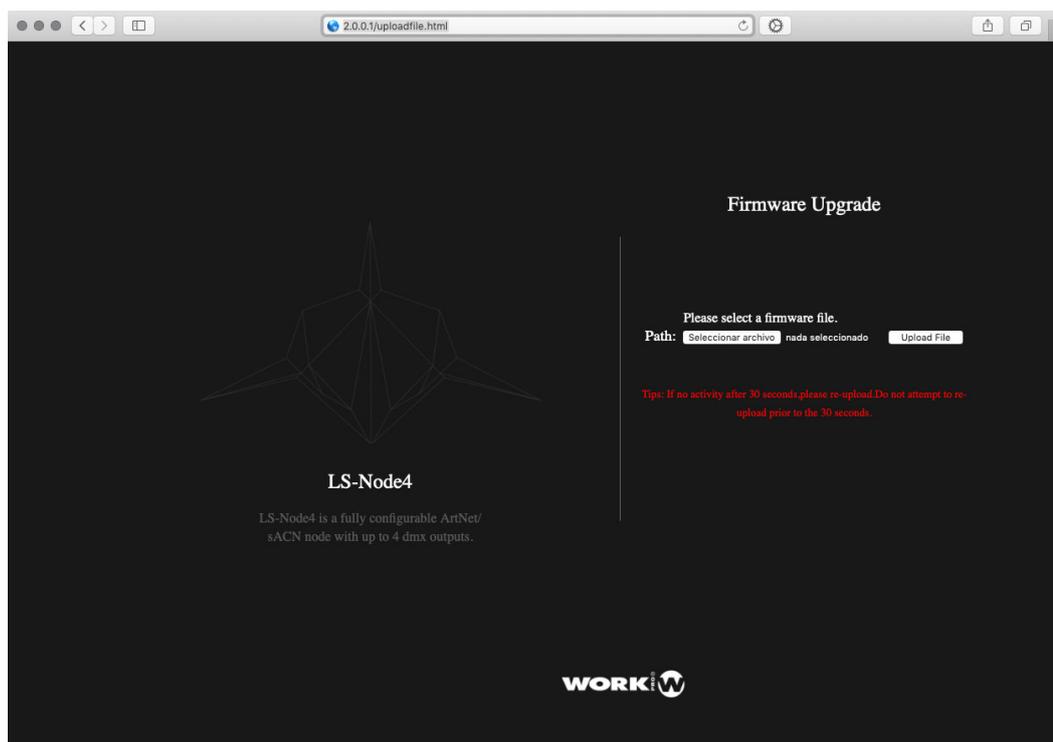
Through SECONDARY you can define the port to which it will switch in case the input signal of that port is lost.



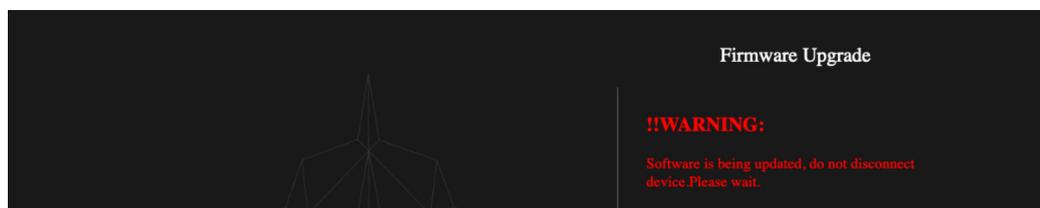
## Sección 3: Updating & Reset

### 3.1 Firmware Update

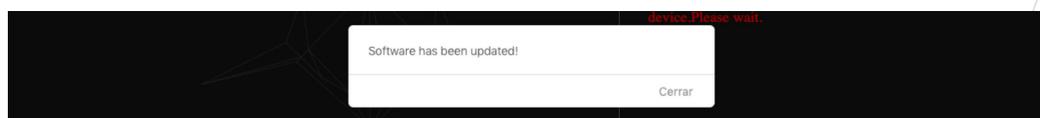
LS-Node devices allow firmware updates via the web server by connecting to the following address: <http://2.0.0.1/uploadfile.html>



The latest firmware update can be found on the WorkPro website. Please download it and click on the "SELECT FILE" button, you will be shown the file browser where you should select the downloaded firmware. Then press the "UPLOAD FILE" button.



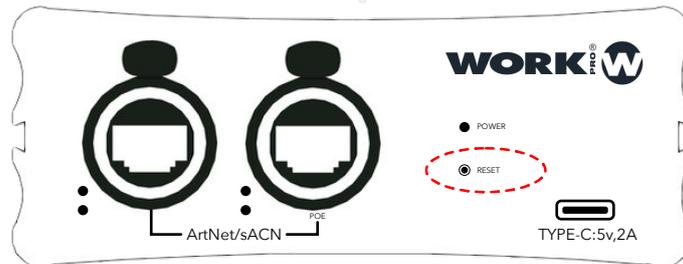
You should wait 30 seconds while the device is updated and restarted. Do not turn off or disconnect the device during this process. A confirmation message will be displayed when the update is complete.



## 3.2 Device Reset

It is possible to restore the LS-Node to its original factory state:

- 1-Connect the LS-Node
- 2-Keep the reset button pressed for 5 seconds
- 3-Release the button. The device will restart by loading the default values.



## Sección 4: Support

### 4.1 Support

In case you need assistance:

- If you are in Spain please contact Equipson S.A
- If you are in any other country, please contact your local distributor.

#### **CONTACT**

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