

# USER MANUAL

## Gateway 4

### ETHERNET TO DMX GATEWAY



## Thank you

Thank you for choosing Gateway 4 by Zero 88 to fulfil your data distribution needs. We sincerely hope that your new product will bring you years of trouble-free service. We make great efforts to build in reliability and serviceability at every stage of our development and production processes and include a three-year limited warranty - giving you peace of mind for your investment.

Our extensive dealer network can also provide you with technical service and sales support in your local language no matter where you are in the world. If you have any questions, comments or problems our contact details can be found at [zero88.com/support](http://zero88.com/support)

Once again, thank you for choosing Zero 88.

## WARNING!

Zero 88 networking devices are designed for use within a dedicated, stand alone, private, local area network only, for the sole purpose of transmitting and/or receiving nonsensitive entertainment lighting control data. Although they utilize ethernet networking, these devices should not be connected to the internet.

## Introduction

Gateway 4 provides flexible DMX / RDM data distribution, converting four universes of Ethernet (sACN or Art-Net) into DMX512/RDM. The unit can be desk mounted or safely secured to a vertical or horizontal bar by adding a standard clamp onto one of two m10 mounting positions.

Gateway 4 is fully compatible with the latest protocols (sACN, Art-Net 4, LLRP, DMX & RDM), ensuring your distribution network is ready to meet your future demands. Gateway 4 is appropriate for permanent installations or as a flexible, adaptable rental & touring tool due to it's compact, rugged and scratch-resistant metal design.

When combined with any ZerOS console, Gateway 4 provides on-board configuration from the console, for a truly integrated system. Alternatively, the unit can be configured through an internal web server or via optional control software. DHCP enables automatic IP addressing; static IP and LLRP negotiation are also supported.

Gateway 4 is ideal for use alongside Splitter 8 and Gateway 8 to build a larger data distribution system.

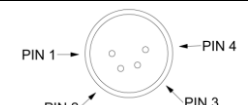
## Power

Gateway 4 can be powered from either an external PSU (9-48 VDC) or with PoE. The latter requires a suitable ethernet switch for the power source.

## WARNING!

Please reference wiring instructions if using external PSU. Gateway 4 is **not** compatible with Zero 88's legacy console PSUs.

Please note that the product should be powered via EITHER the DC power input or ethernet PoE, but not both (there is no option to failover from one power source to the other if both are connected).

DMX Connector	Pin	Desc.
	1	0 VDC
	2	Not Connected
	3	Not Connected
	4	9-48 VDC

## Ethernet connection

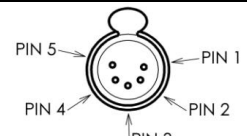
Gateway 4 has an RJ45 (etherCON) connector and supports Art-Net 4 and sACN (ESTA E1.31). Gateway 4 requires Cat 5 cable or better and supports 10BaseT and 100BaseT.

## DMX Outputs

Gateway 4 can output a maximum of four Universes of DMX512 data. There are four DMX/RDM output ports with female XLR5 connectors.

All outputs are electrocution protected against continuous connection to 425 VAC.

If network data or connectivity is lost, the device will hold last state.

DMX Connector	Pin	Desc.
	1	COM
	2	DMX -
	3	DMX +
	4	Not Connected
	5	Not Connected

## Universe Addressing

The universe (Port Address) is used to uniquely identify the DMX data on the network. Art-Net allows universe numbers in the range 0-32767. sACN allows universe numbers in the range 1-65535. For the avoidance of cross-protocol confusion, users are advised to number universes from 1.

## Merging

Gateway 4 can merge two streams of data to a DMX output. Depending on the settings, merge can operate as HTP/LTP or Priority.

In HTP (highest takes precedence), the levels of each channel in the two streams are compared and the highest value is used.

In LTP (latest takes precedence), the levels of each channel in the two streams is compared to the output; if there is a change, that level is output.

In Priority, the sACN Priority field defines which universe will be output.

## Art-Net

If two streams from different IP addresses are directed to the same Port-Address, merging will occur. If more streams are directed to the same Port-Address, they will be ignored.

## sACN

Merging can operate with both unicast and multicast data.

If two streams from different IP addresses are directed to the same universe, the priority field is checked and the stream with the highest priority is output. If the priority field in both streams is identical, merging will occur.

If additional stream(s) are directed to the same universe, any additional stream with higher priority will take precedence. If the priority is identical to the merging streams, it will be ignored.

	Source A	Source B	Condition	Output
1	Art-Net	Art-Net	Different IP addresses	Merge of A + B*
2	sACN	sACN	Identical priorities	Merge of A + B*
3	sACN	sACN	Different priorities	Highest priority

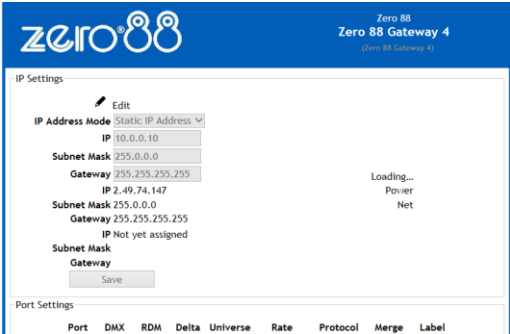
\*HTP or LTP as per user selection

Configuration

Configuration is achieved via the internal web server or via DMX-Workshop. In order to restore the product to its factory default state, hold down the reset button and cycle the power.

Web server

To configure Gateway 4 via the internal web-server, either type in the IP address of the product or, if your web-browser supports NetBios, type "Gateway4". To find the IP address, use DMX-Workshop.



IP Settings

The IP settings for the product are displayed in the top section of the screen. The Edit control allows the static IP, subnet mask and gateway to be configured. DHCP operation can be selected via DMX-Workshop.

The indicator meanings are as follows:

- Online: Green = live connection between browser & product; Red = connection lost
- Power: Green = powered; Flashing green = Identify; Red = Fault
- Net: Yellow = Link; Green = Art-Net or sACN activity

Port Settings

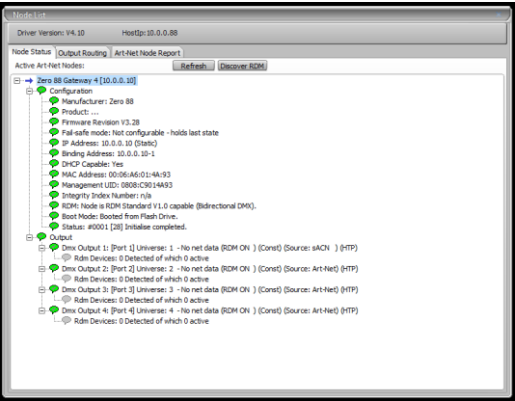
The settings for each DMX port can be configured via the web-browser using the following columns:

- Port: The DMX port number
- DMX: Green shows changing data
- RDM: Tick to enable RDM
- Delta: Tick to enable delta transmission (DMX frames are only sent when network data changes)
- Universe: Set the universe (port address) for this output
- Rate: Sets the DMX refresh rate:
  - High = 24 ms frame time
  - Medium = 32 ms frame time
  - Slow = 48 ms frame time
- Protocol: Select either Art-Net or sACN control over this output
- Merge: Select HTP or LTP merge when 2 controllers send data to this port (for more information, see 'Merging' section).
- Label: Editable field for port name

DMX-Workshop

DMX-Workshop™ is a fully featured network management, analysis, configuration and diagnostics tool for lighting networks. You can download the free software from the Artistic-Licence website.

When Gateway 4 is connected to a computer running DMX-Workshop, it should be detected and displayed as an Art-Net node (click the 'Node List' tab to verify this). The node can be expanded to show the configuration and DMX output information, as shown below.



Right-clicking on any entry brings up a menu that offers various functionality:

- The 'Configure Node' option enables configuration of the universe number (port address), protocol (Art-Net or sACN), sACN priority, failover mode, product name and port labels.
- 'Copy to clipboard' enables all the node information to be pasted into a support request email.
- 'Merge Controls' (selectable only on individual DMX outputs) enables the choice of LTP (latest takes preference) or HTP (highest takes preference) merge modes.
- 'Indicators' enables selection of normal, identify or mute for the LED indicators. Normal is the default behaviour, identify causes the power LED to flash, and mute turns off all the LEDs.
- 'RDM Devices' offers options for device discovery and configuration.
- 'Advanced' leads to 'Programme Upload' and 'Configure IP Address and DHCP' as described opposite.

IP Address Configuration

Choosing the 'Configure IP Address' in the 'Advanced' menu brings up a window that shows the IP and Subnet Mask.

The IP uniquely identifies any nodes or controllers on a network, while the Subnet Mask defines which part of the IP represents the network address and which part represents the node address. For example, a Subnet Mask of 255.0.0.0 means that the first byte of the IP defines the network address and the remaining 3 bytes define the Node address.

By default, the product has a static IP address in the range 2.x.x.x. There are situations in which the user may wish to change this - for example, a 192.168.x.x address is generally used in office environments.

A useful additional feature is the ability to enable automatic IP address allocation on networks controlled by a DHCP server (check the 'Enable DHCP' box to activate).

Squawk

On a complicated network it is not always easy to relate what is showing on screen to the physical location of the nodes. A single press of the factory reset button on Gateway 4 causes the product to send a message over the network to the console.

LED indication

Gateway 4 features various LED indicators, which give different informational signals depending on whether the product is booting up or in operational mode. The meanings are explained below.

During boot-up

- Power LED
  - Slow flashing green (1Hz) = booting normally
  - Slow alternating green/red (1Hz) = factory start (settings cleared)

During operation

- Power LED
- Static green = powered, normal operation
- Fast flashing green (5Hz) = identify\*\*
- Occulting green = remote programming command received
- Static red = fault condition
- Fast alternating green/red (5Hz) = product is not commissioned (return for service)
- Net & Link LED
- Yellow = network link established (but no lighting data)
- Green = Art-Net or sACN detected
- LEDs 1, 2, 3 & 4
- Green = Data activity
- All indicators
- Off = mute command received

This equipment is designed for professional lighting control and is unsuitable for any other purpose. It should be used by, or under the supervision of, an appropriately qualified or trained person.

E&OE. Cooper Lighting Solutions reserves the right to make changes to the equipment and specification described in this manual without prior notice.

