



*Artistic Licence*

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# *Cata-Lynx I/P*

User Guide



Please read these instructions before using the product.

This product has been designed & manufactured for professional use only. It should only be installed by a suitably qualified technician and in accordance with electrical regulations in the country of use.

Unless directed in the instructions there are no user serviceable parts inside the outer case of this product.

Always disconnect from the power supply when not in use.

Any specific IP rating, where appropriate, is given in the instructions. Unless otherwise stated this product is designed for indoor use only. If used outdoors it **MUST** be installed in an appropriate IP rated cabinet. Do not allow this product to be exposed to rain or moisture. Do not allow liquid to penetrate the product.

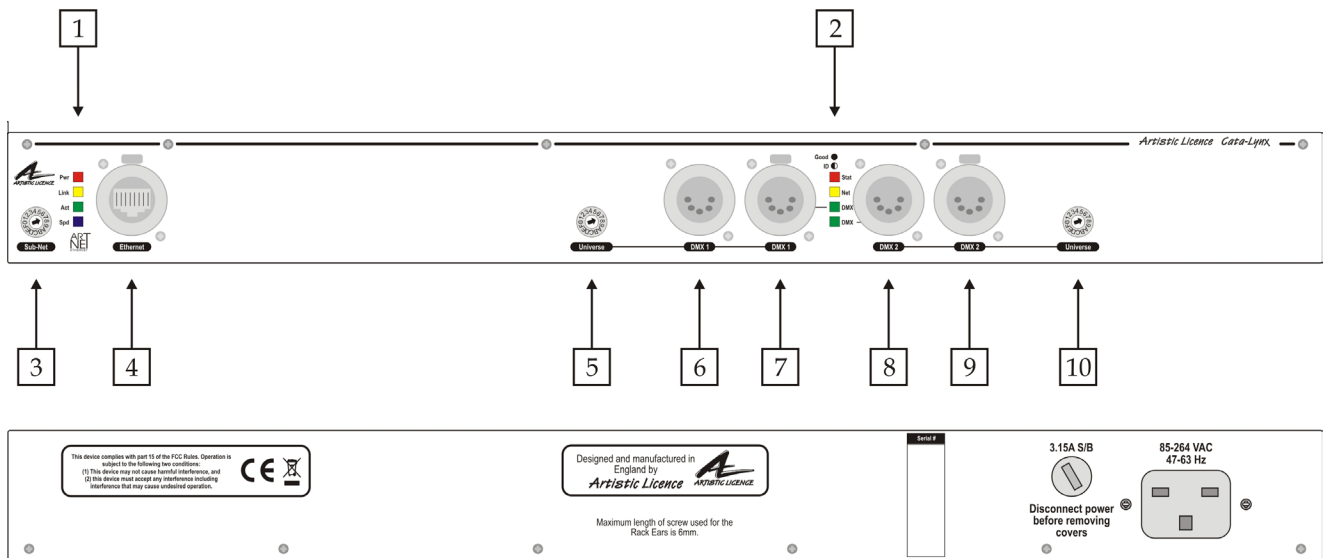
Please recycle all packaging.

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Download the user guide by scanning the following QR code:

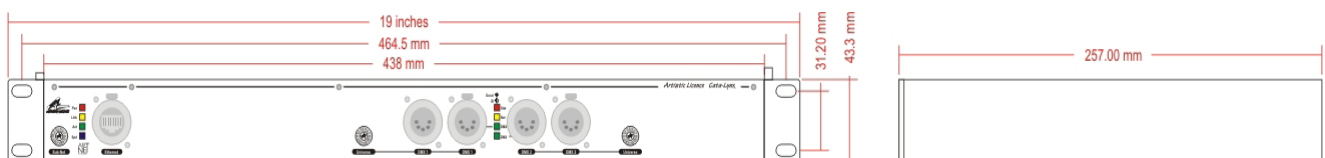


# Connections



Ref.	Type	Description
1	LED	Indicators for Ethernet
2	LED	Indicators for DMX
3	Configuration	Sub-Net Select
4	Data Connection	Ethernet
5	Configuration	Universe Select
6	Data Connection	DMX I/P 1
7	Data Connection	DMX loop-through
8	Data Connection	DMX I/P 2
9	Data Connection	DMX loop-through
10	Configuration	Universe Select
11	Fuse	Mains I/P Fuse
12	Power Connection	Mains I/P Connection

# Mounting Diagram



## Product Overview

Cata-Lynx I/P is a rack-mounted DMX512-to-Ethernet converter. It is capable of converting 2 DMX512 Universes to Art-Net. Each DMX512 input has an XLR loop-through connection.

All data connections, activity indicators and configuration wheels are located on the front of the unit.

The product is easily configured by dialling in the required Sub-Net and Universe address using the front panel wheel selectors. Alternatively, Cata-Lynx I/P can be remotely configured via the internal web-server or over the network using DMX-Workshop (free-of-charge software available from Artistic Licence). When used with Art-Net 3, DHCP is supported for automatic IP addressing.

Cata-Lynx I/P can be mounted in a 19" 1U rack enclosure using the supplied rack ears. It is supplied with a standard IEC mains connector.

## Summary of Key Features

- Single RJ45 port (Ethercon)
- 2 independent DMX512 inputs, compatible with all variants of DMX512 (including DMX512-A).
- XLR loop-through connection for each input
- Universal mains input
- Ethernet status indicators
- DMX port status Indicators
- Internal web-server for configuration (including support for DHCP when used with Art-Net 3).
- Sub-Net wheel
- Individual Universe wheels
- Detachable rack ears

## Power Supply & Earthing

The internal power supply requires an input in the range 90-250 VAC with an Earth connection. The mains fuse should only be replaced with a 3.15A slow blow fuse.

The table below summarises the internal Earth interconnection and isolation.

(Please note that we use the term Earth-Ground to avoid international confusions. In Europe Earth-Ground is called Earth; in the USA Earth-Ground is called Ground).

Circuit	Description	
Chassis	Bonded to Earth-Ground	
DMX512 Ports	Type	Ground referenced
	Pin 1	Connects to Internal Logic Ground
	Shell	The connector shell is connected to chassis
Ethernet	Type	Transformer isolated
	Screen	Connects to Earth-Ground via 75 Ohm resistance & 100 pF capacitance, as specified in IEEE standard
Internal Logic Ground	Connects to Earth-Ground via 10 Ohm resistance	

## Ethernet Connection

Cata-Lynx I/P has a single RJ45 (Ethercon) connection compatible with Art-Net (the public domain protocol invented by Artistic Licence). Cata-Lynx I/P requires Cat 5 cable or better and supports 10BaseT and 100BaseT.

### Ethernet Indicators

The LED data indicators (pictured on the next page) have the following meanings:

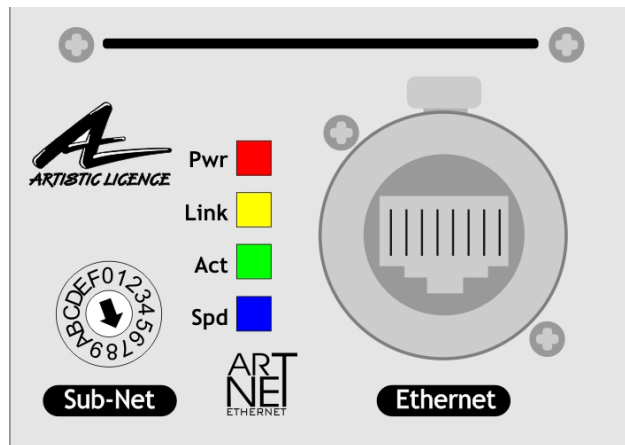
**PWR:** Power LED

**LINK:** ON if there is a valid link between this connection and another valid Ethernet device.

**ACT:** Flashes when there is data activity.

**SPD:** ON if this connection is running at 100BaseT, OFF if running at 10BaseT.

## Ethernet Indication



## DMX Inputs

Cata-Lynx I/P can convert a maximum of two Universes of data. Each port has a 5-pin XLR male input connector and a 5-pin XLR female DMX loop.

## DMX512 Wiring

XLR Pin (Convention)	Function	Colour	RJ45 Pin	Cable Colour
1	Ground	<b>Black</b>	7 & 8	White/Brown & Brown
2	Data -	<b>Blue</b>	2	Orange
3	Data +	<b>Red</b>	1	White/Orange

The DMX512-A standard specifies that Cat5 cable can be used to carry DMX data. The table above shows which cores should be used. It is recommended that Cat5E cable is used.

## DMX Indicators

The LED data indicators (pictured opposite) have the following meanings:

**STAT:** ON when unit is powered, flashing if hardware fault (see 'Error Messages').

**NET:** ON when network data is active.

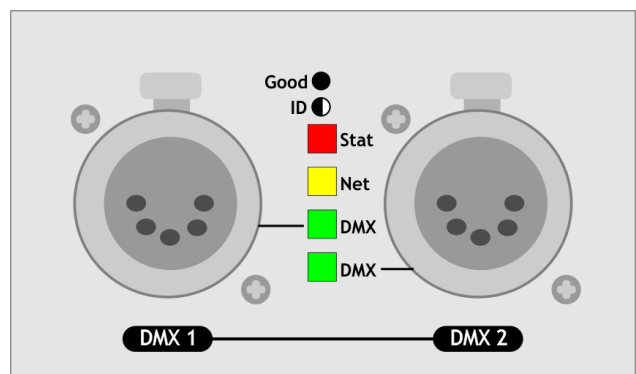
**DMX 1/2:** ON when data is received.

**Power-up:** During power-up, the LEDs will step sequentially.

**Boot-loader:** When in boot-loader mode (see page 8), all the LEDs will flash continuously.

If all the LED indicators flash 3 times, this means that changes to the wheel selectors are not honoured because the value has been set remotely (see 'Universe, Sub-Net and Net' opposite).

## DMX Indication



## Universe, Sub-Net and Net

Each universe being transmitted over ethernet needs to be distinguishable from other universes on the same network. For universe numbers up to 256 (the maximum

limit of Art-Net II), this is achieved by setting the (4-bit) Universe and Sub-Net numbers. The settings can be made via the Sub-Net and Universe wheel selectors (note that the Universe number of each DMX port can be set independently), or remotely (see 'Remote Configuration' below).

In contrast, Art-Net 3 can carry up to 32768 universes. To handle such large values, the concept of a 16-bit port address including a 'Net' field is introduced. The port address of each DMX512 universe is a number composed of the (Net)+(Sub-Net)+(Universe). Because the product has no 'Net' wheel selectors, configuration must be done remotely if a port address greater than 256 is required.

Note that settings made remotely override the wheel selectors on the front panel, in effect locking them out. If all the DMX indicators flash when a wheel selector setting is changed, this means that the product has been remotely configured.

## Remote Configuration

There are two ways of remotely configuring Cata-Lynx I/P. These are: 1) using DMX-Workshop or 2) using the product's internal web-server.

### DMX-Workshop

DMX-Workshop™ is a software application that runs on the Windows XP & Windows 7 platforms. It is free of charge and available via download from the Artistic Licence website.

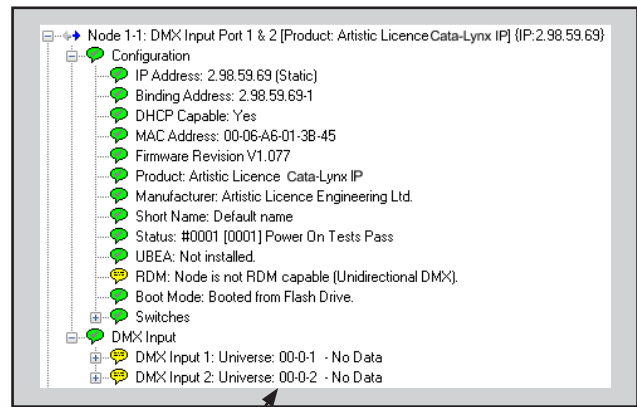
DMX-Workshop is a fully featured network management, analysis, configuration and diagnostics tool for Art-Net networks.

When Cata-Lynx I/P 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 port information, as shown in the screen-shot opposite.

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

### DMX-Workshop Node List



**Note port address structure:  
(Net)-(Sub-Net)-(Universe)**

- The 'Configure Node' option enables configuration of the Universe, Sub-Net and Net values. It also allows the user to give the device a short and long name.
- 'Copy to clipboard' enables all the node information to be pasted into a support request email.
- 'Indicators' enables selection of normal, locate or mute for the front panel LED indicators. Normal is the default behaviour, locate causes the selected port 'Stat' LED to flash, and mute turns off all the LEDs.
- 'Advanced' leads to 'Programme Upload' and 'Configure IP Address'. These are described in more detail below.

### Firmware Upgrades

The 'Programme Upload' option enables the user to upgrade the product's firmware. DMX-Workshop stores the firmware files in C:\Program Files (x86)\Artistic Licence\DMX-Workshop\Firmware\\*.alf. Selection of the desired file is made via a pop-up window that shows the available files. It is strongly recommended that the firmware upgrade be applied to all ports (check the 'Tick All' box in the next window).

### 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 is the network address and the remaining three bytes are 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 very useful additional feature of Cata-Lynx I/P is the ability to enable automatic IP address allocation on networks controlled by a DHCP server (check the 'Enable DHCP' box to activate this feature).

**Note that the default IP and static addressing (all ports) can be forced manually by setting all 3 wheel selectors to F and turning the power off then on again.**

## Web-Server

To configure Cata-Lynx I/P via the internal web-server, either type in the IP address of the product or, if your web-browser supports NetBios, then enter the name: http://catalynxip. To find the IP address, use DMX-Workshop or type "ping 2.255.255.255" in a command line window.

The internal web page shows the DMX port status and options to change the DMX and IP settings, as illustrated below.

## DMX Settings

The DMX Settings tab leads to the following configuration options:

- Set Net, Sub-Net & Universe values
- Enable/disable unicast
- Set the IP address if unicast enabled

**DMX Settings Detail**

## IP Settings

The configuration menu for the IP settings allows the user to set a custom IP address, Subnet Mask and Gateway IP. There is also an option to enable/disable DHCP for automatic IP addressing (see previous section 'IP Address Configuration').

**IP Settings Detail**

## Web Browser Homepage

## Module Info

The module info tab describes the jumper functionality (see below), and also provides some helpful information regarding the DMX data transmission.

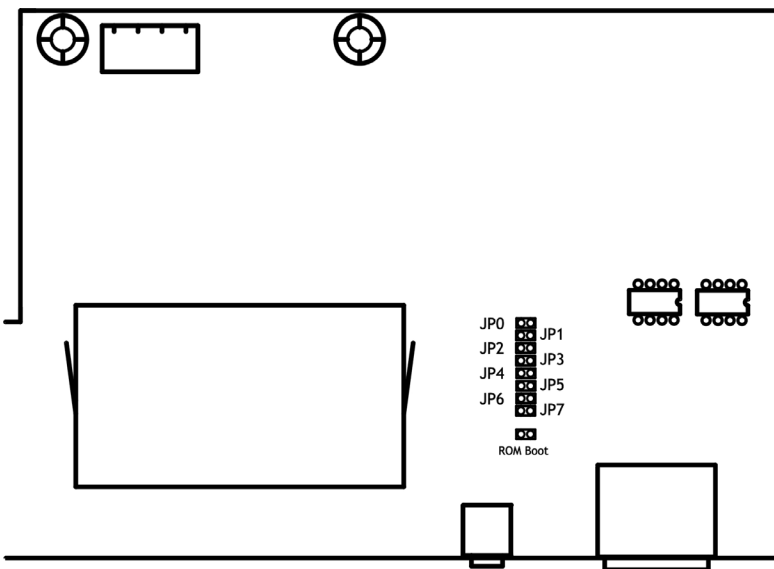


## Jumpers - Advanced Configuration

There are several advanced settings, beyond the scope of normal operation, that can be accessed by fitting the supplied jumpers over the configuration pins.

The pins can be found on the bottom left of the PCB. To fit a jumper follow the instructions below:

1. Disconnect the Power from the unit
2. Ensure you have adequate Anti-Static protection
3. Remove the top row of screws from the front panel
4. Remove the bottom row of screws from the rear panel
5. Carefully pull the two halves apart, about 10cm



Jumper	Option
JP0	For future use
JP1	For future use
JP2	For future use
JP3	HTTP server disabled (e.g. no web page functionality)
JP4	10.x.x.x IP addressing active (ignored when DHCP is active)
JP5	RDM disabled on all outputs
JP6	Inverts the low byte of the IP address
JP7	For future use
ROM Boot	Switch to boot-loader mode on power cycle

### ROM Boot Jumper

Cata-Lynx I/P has boot-loader firmware programmed into its ROM. This forces the product into a factory ROM mode ready for firmware upload. The boot-loader firmware allows the operating firmware (which is stored in the flash memory) to be upgraded over the network. It is not usually necessary to use this procedure as firmware uploads can be initiated directly using DMX-Workshop.

To force Cata-Lynx to start in boot-loader mode, link the ROM boot jumper and power-up the unit. Note that all the indicators will flash when in boot-loader mode. The firmware upgrade can then be made using DMX-Workshop.

If for any reason the upgrade needs to be aborted, or if the ROM boot jumper was connected in error, removing the jumper and powering up the unit will cause it to revert to the current installed firmware.



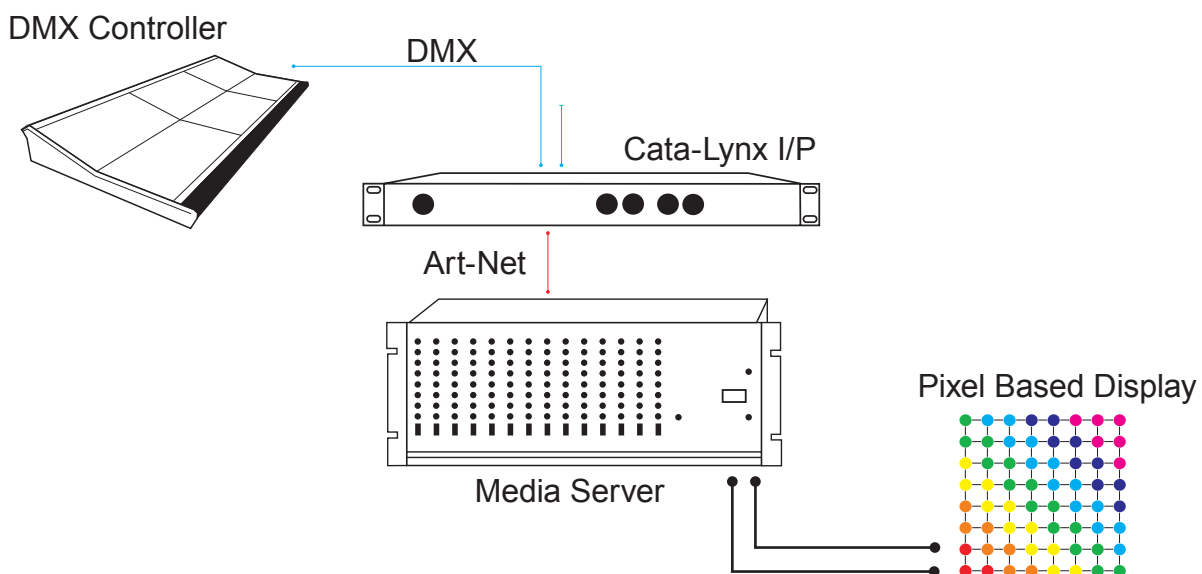
## Error Messages

On power-up, Cata-Lynx I/P goes through a number of self-checks to ensure that it is functioning correctly. If an internal fault occurs the DMX indicator LEDs are used to display an error code.

LED State	Description
Stat & All alternately flashing	SRAM Fault*
Net & All alternately flashing	E2Prom Fault*
Port 1 & All alternately flashing	System ROM Fault*

\*Contact Artistic Licence for advice.

## Application Diagram




The DMX controller is used to trigger a pre-programmed media server. Cata-Lynx I/P is used to convert DMX512 to Art-Net.

## Troubleshooting

Cata-Lynx I/P powers up but the all the LEDs are flashing continuously	<ol style="list-style-type: none"><li>1. This means that the unit has gone into boot loader mode. Uploading the latest firmware will allow the unit to function normally.</li></ol>
I changed my IP address and have lost all communication with the Cata-Lynx I/P	<ol style="list-style-type: none"><li>1. If the IP address of a device is changed such that it is out of the range the PC is on, you must then change the PC IP address to match. If you still cannot discover the device, you will need to reset all custom settings to put it back into the default IP range (2.x.x.x).</li></ol>
All the LED indicators flash three times when I change the Sub-Net or Universe wheels	<ol style="list-style-type: none"><li>1. If the Sub-Net or Universe values have been set remotely the front panel wheels are ignored. The LEDs flash to indicate this.</li></ol>
I have connected a Cata-Lynx I/P directly to a computer and there is no communication	<ol style="list-style-type: none"><li>1. Computer has incorrect IP address (IP address should be in the range 2.x.x.x).</li><li>2. Incorrect network cable (should be a 'cross-over').</li><li>3. A firewall is blocking transmitted/received data packets</li></ol>

# Cata-Lynx I/P Specification

<b>Mechanical</b> <ul style="list-style-type: none"><li>• Housing: 19" 1U rack enclosure</li><li>• Material: metal</li><li>• Overall dimensions: 1U (H) x 19" (W) x 257 mm (D)</li><li>• Weight: 2.3 kg</li><li>• Mounting: desktop or 19" rack (using supplied rack ears)</li><li>• Country of manufacture: UK</li></ul>	<b>Data Connections</b> <ul style="list-style-type: none"><li>• RJ45 Ethercon (1 no.)</li><li>• 5-pin male XLR DMX inputs (2 no.)</li><li>• 5-pin female XLR DMX loop (2 no.)</li></ul>
<b>Environmental</b> <ul style="list-style-type: none"><li>• Operating temperature: 0°C to 40°C</li><li>• Storage temperature: -10°C to +50°C</li><li>• Operating relative humidity (max): 80% non-condensing</li><li>• IP rating: IP20 indoor use only</li><li>• Certification: CE, FCC, WEEE, RoHS</li><li>• Warranty: 2-year (return to base)</li></ul>	<b>LED Indication</b> <ul style="list-style-type: none"><li>• Power / Ethernet Link / Data Activity / Speed</li></ul>
<b>Power &amp; Electrical</b> <ul style="list-style-type: none"><li>• Input voltage: 90-250 VAC</li><li>• Input connector: IEC C13 male</li><li>• Input power (max): 30 W</li><li>• Duty cycle: 80% @ 25°C</li><li>• Input fuse: 3.15A slow blow</li><li>• DC fuse: internal resettable fuse for control electronics</li></ul>	<b>Configuration</b> <ul style="list-style-type: none"><li>• Remote: Web-browser, DMX Workshop</li><li>• Manual: Wheels / Jumpers</li><li>• Configurable settings include:<ul style="list-style-type: none"><li>- Net, Sub-Net, Universe</li><li>- IP Address (DHCP)</li><li>- ROM boot</li></ul></li></ul>
<b>Ethernet</b> <ul style="list-style-type: none"><li>• Type: 10/100BaseT</li><li>• Isolation: 1 kV</li><li>• PoE: n/a</li></ul>	<b>Package Contents</b> <ul style="list-style-type: none"><li>• Cata-Lynx I/P</li><li>• User guide</li><li>• IEC mains lead</li><li>• Rack-ears</li><li>• Jumpers (for configuration pins)</li></ul>
<b>DMX512 Inputs</b> <ul style="list-style-type: none"><li>• Input mode: Ground referenced</li><li>• Input isolation: n/a</li><li>• Input ESD protection: +/- 12 kV</li><li>• Input voltage protection: +/- 80 V</li></ul>	<b>Ordering Info</b> <ul style="list-style-type: none"><li>• Product code: Cata-Lynx I/P</li></ul>
<b>Control</b> <ul style="list-style-type: none"><li>• Input Protocols: DMX512, DMX512 (1990), DMX512-A</li><li>• Output Protocols: Art-Net</li></ul>	

<p><b>CE Compliance</b> </p> <p>Cata-Lynx I/P is CE compliant</p>
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## Warranty

All products are covered from date of purchase by a two-year return to base warranty.

By return to base, we mean that the customer is responsible for all costs of transport to and from Artistic Licence.

Returns will not be accepted without prior authorisation. In order to discuss a request to return goods, please email:

[Sales@ArtisticLicence.com](mailto:Sales@ArtisticLicence.com)

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## Compliance

All Products manufactured or sold by Artistic Licence Engineering Ltd are fully compliant with the appropriate CE, FCC, and RoHS regulations. Product specific information is available on request.

### Waste Electrical & Electronic Equipment (WEEE)

Artistic Licence is a member of a WEEE compliance scheme and will happily recycle any of our products that you, at your expense, return to us.



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[www.ArtisticLicence.com/support.html](http://www.ArtisticLicence.com/support.html)

Due to our policy of continuing product improvement specifications are subject to change without notice

