USER MANUAL

IVL™ Photon by **MINUIT UNE**

Make the ordinary, extraordinary.

Revision of this manual: AD

Content

Dimensions

IVL Photon and Base Dimensions

All dimensions are given in millimetres.
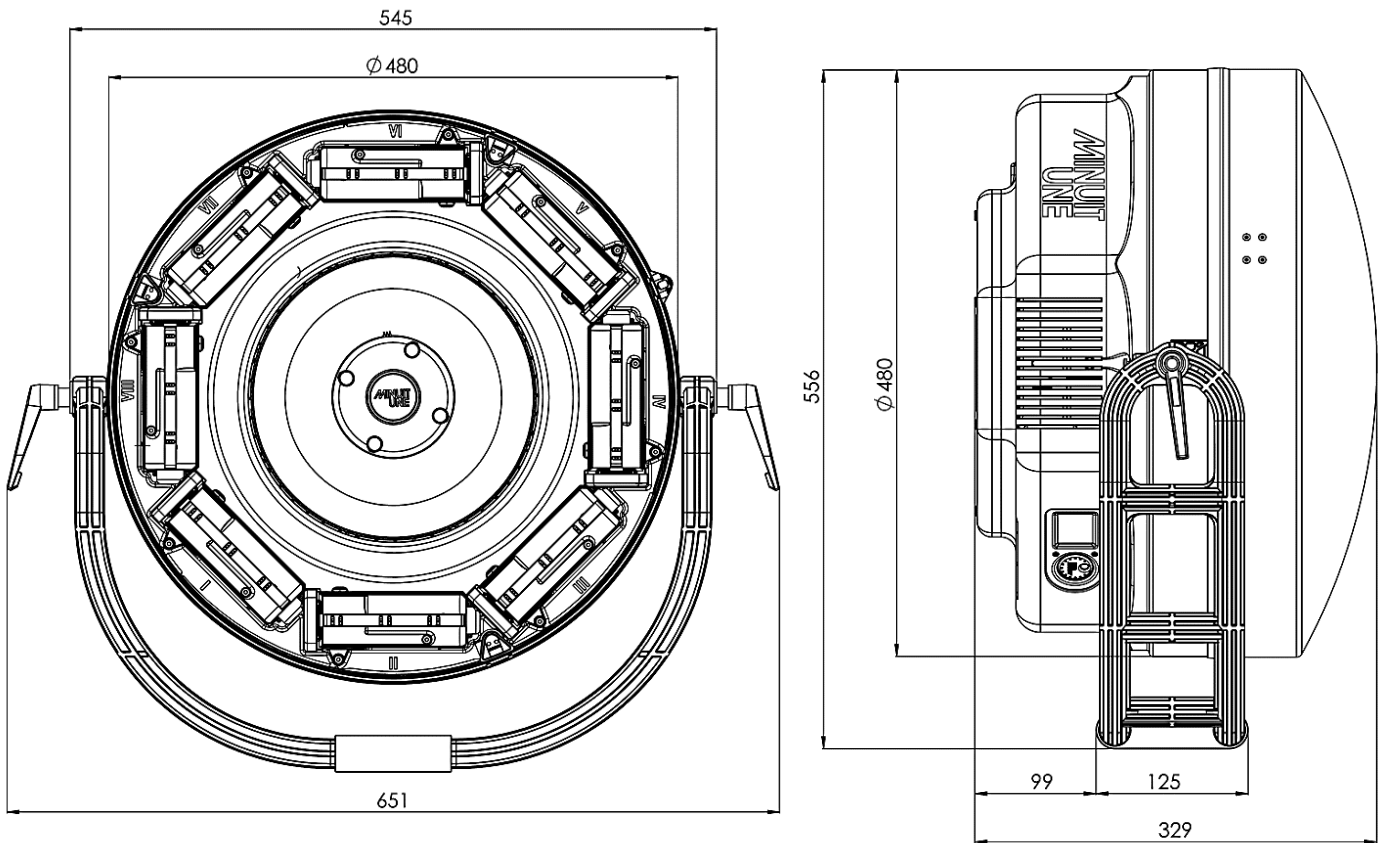
Important Safety Information

1.Read these instructions

2.Keep these instructions

3.Heed all warnings

4.Follow all instructions

5. Do not use this apparatus near water

6. Clean only with dry cloth

7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions

8. Do not install near heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Do not defeat the safety purpose of the grounding-type plug. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11. Only use the attachment/accessories specified by the manufacturer.

12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.

14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled, or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

15. Changes or modifications not expressly approved by Minuit Une could void the user's authority to operate the equipment.

16. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

17. The normal function of the product may be distributed by strong electromagnetic interference. If so, simply reset the product to resume normal operation by following the instruction manual

Risk Levels and Alert Symbols

Safety warnings, safety alert symbols, and signal words in these instructions indicate different risk levels

DANGER indicates an imminent hazardous situation which, if not avoided, **will result** in death or serious injury.

WARNING indicates a potentially hazardous situation which, if not avoided, **may result** in death or serious injury.

CAUTION indicates a potentially hazardous situation which, if not avoided, **may result** in minor or moderate injury.

NOTICE explains practices not related to physical injury. No safety alert symbol appears with this signal word.

Vital Precautions

<div style="border: 2px solid black;">

DANGER !

High voltage! Risk of blindness, electric shock and fire.

Read and understand all safety information and operation instructions before you operate or install the product or the system.

Not observing the safety information or general rules of safety may cause injury, blindness, burn hazards, electric shock, falls and death to yourself and others or damage to equipment.

Use solely and exclusively as described in the instructions.

Using the product in any other ways than specified in this manual is not permitted and can damage the product and lead to associated risks such as short-circuit, fire, electric shock, etc.

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Always electrically earth the fixture. Only use TN or TT one phase power supplies and a power plug according to IEC 60309-1 or a similar national standard.

Always use a power cord connected to a socket-outlet with earthing connection.

Always check that the local AC power matches the voltage and frequency range printed on the type label of the product before use.

Never use the cables for transportation. Never hang the product from its cables.

In case of visible or suspected damage to cables or housings, the product must not be operated any longer.

The product is not to be operated with the transparent globe not in place or if the transparent globe is in any way damaged.

The laser is never to be operated if the unit is defective or if the cover, or the Acrylic shape or seal is damaged.

Do not bypass or remove any safety feature of the product.

Any procedure or work on the product which is not described in this manual is not covered by product warranties.

Refer servicing to qualified service personal.

Any person in charge of servicing this product shall first receive service training by Minuit Une and/or by an official training center recognized by Minuit Une.

Any person in charge of servicing this product shall have read and understood all safety information and procedures in this user manual, and in the IVL Photon's service manual.

To obtain information about service training, service manual or about the closest training service center in your area, please contact Minuit Une.

</div>

General Safety Information

WARNING!

Humidity, Condensation and Moisture.

To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture. Do not use the product for 2h when it was exposed to big temperature differences as condensed moisture may damage the product electrically when switched on.

Never expose the product to dripping water or water splashes.

Never place an object filled with liquid (e.g. a vase or a bottle filled with liquid) on the product.

Do not bend the power cable directly after the connector. Water could immerse and cause short circuits and damage the connector.

WARNING!

Risk of electric shock and fire.

Socket outlets or external power switches used to supply the product with power must be located near the product and easily accessible to be able to isolate the product from power immediately.

The power cable must be equipped with a Neutral Powercon TRUE1 NAC3FX-W-TOP cable connector. You can install a suitable power plug on the power cord. Always use a power plug according to IEC 60309-1 or a similar national standard.

Disconnect the product from AC power before moving it or cleaning it.

To link several products to one power chain, please observe:

- This fixture has a maximal power consumption of 200W (for one unit)
- Always use an AWG 14 power input cable and AWG 14 power throughput cables.
- Never link more than 10 products to a power chain when using these cables.

Ensure that the airflow around the product is free and unobstructed.

Provide a minimum clearance of 0,3 m (1 in.) around fans and air vents.

No flame source, like a candlelight, should be placed on or nearby the product.

This product is intended to be used in temperate climate.

Do not operate the product if the ambient temperature is above 40° C (104° F) or below 0° C (32° F).

WARNING!

Risk of injury and damage through falls.
Always install the product as described in this manual.
Always follow the safety information when suspending the product. Always use a secondary attachment as described in this manual to prevent falls if the primary attachment fails.
Block access area during installation of the product due to risk of injury through fall.
Always work from a stable platform.

CAUTION!

Class 3R laser product according to IEC 60825-1:2014
Avoid direct eye exposure.
Do not look at laser devices with magnifiers, telescopes, binoculars or similar optical instruments that may concentrate the light output.
Please refer to ANSI Z136.1 "Standard for Safe Use of Lasers" for guidance on safe use. This publication is available from Laser Institute of America.
Extended source considered for laser Classification
Note that the national and local recommendations, regulations, standards and codes of practice in laser show are different from a country to another.
Please contact your provider or Minuit Une's legal service if you have any inquiries.

Intended use

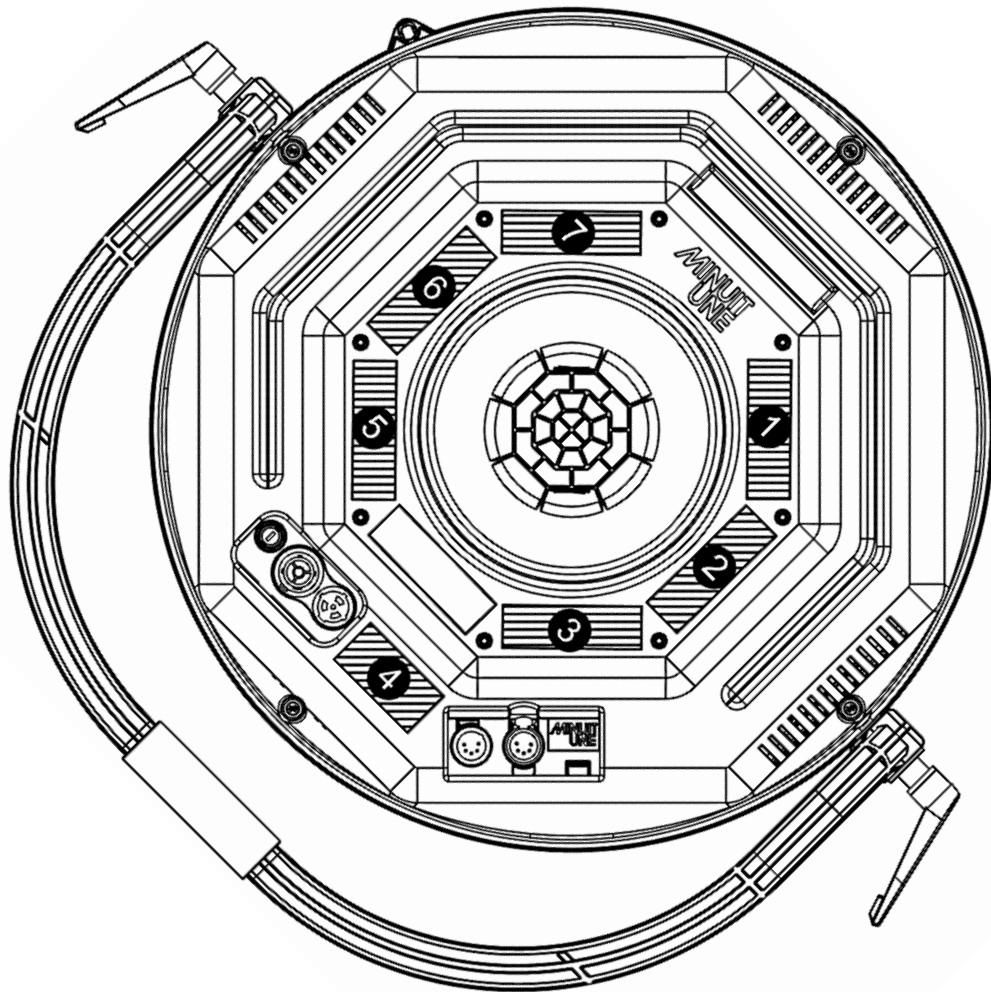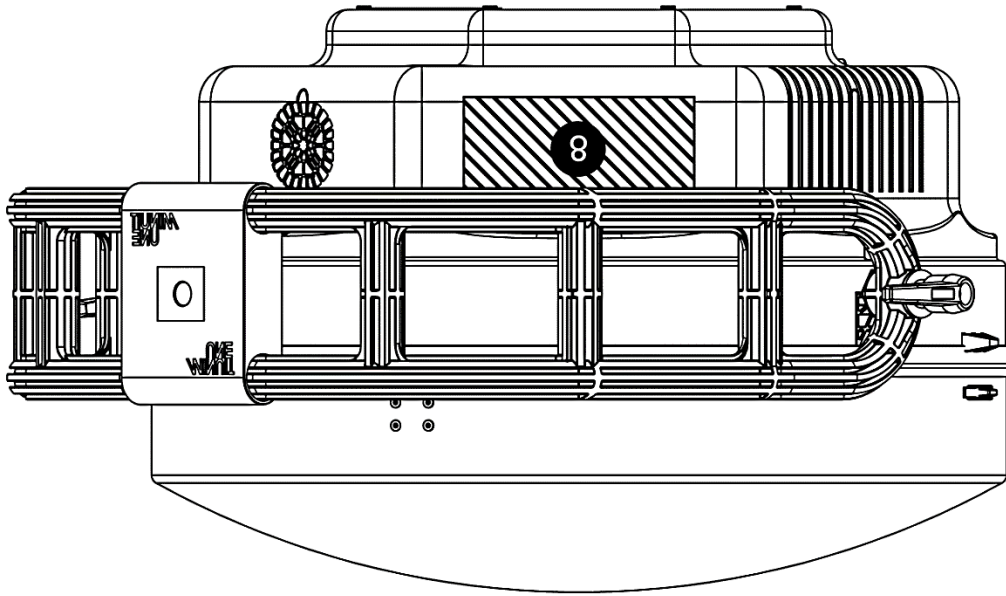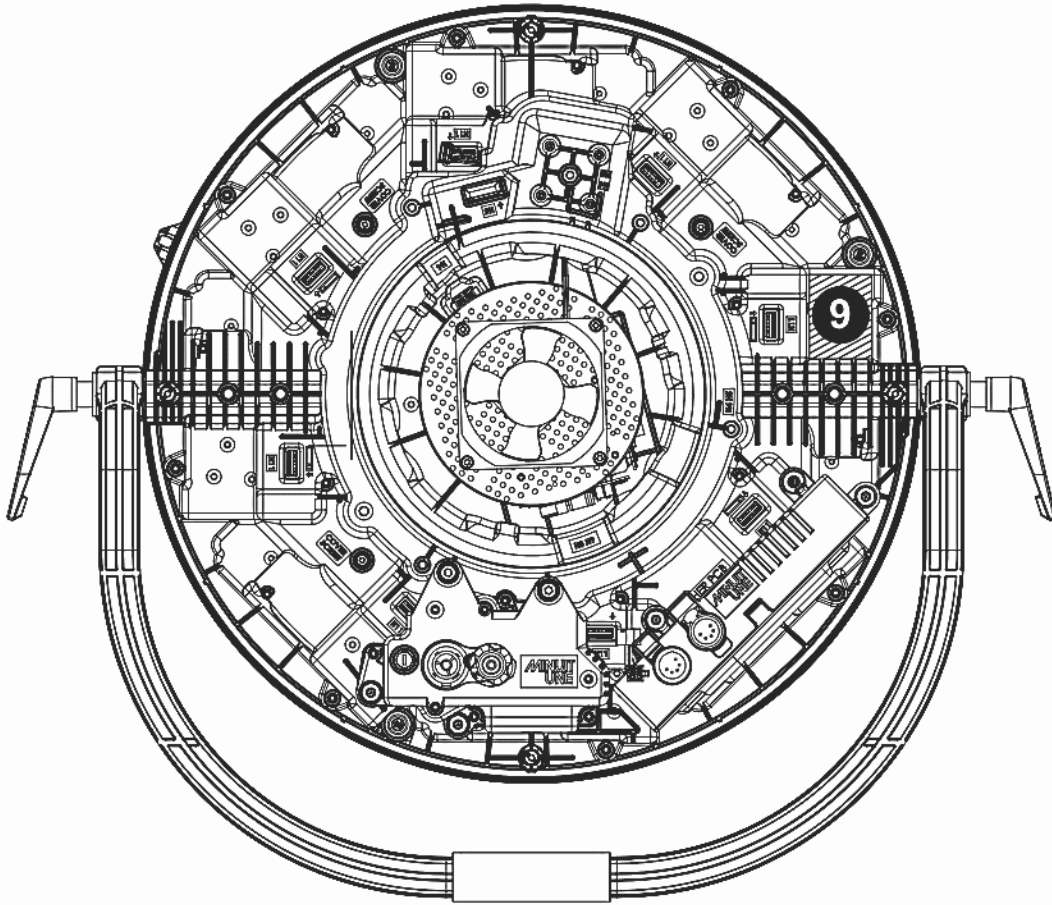# NOTICE

This product is intended for indoor use.
This product is intended to produce lighting effects in a dry environment at an ambient temperature below 40° C (104° F) and above 0° C (32° F).
This product fulfills national and international legal requirements.

Labelling diagram

1: Serial number label

BATCH: 3-4021
Serial Number: 30000103

30000103

2: FCC LABEL

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

CET APPAREIL EST CONFORME A LA PARTIE 15 DE LA NORME FCC POUR LES ETATS-UNIS AINSI QU'A LA NORME CANADIENNE ICES/NMB-003. L'UTILISATION DE CET APPAREIL (1) NE DOIT PAS PROVOQUER D'INTERFERENCE ET (2) TOLERE LES INTEREFERENCES EXTERNES, Y COMPRIS CELLES POUVANT PROVOQUER UN FONCTIONNEMENT ANORMAL DE L'APPAREIL.

3: SHOCK&FIRE LABEL

WARNING: SHOCK HAZARD - DO NOT OPEN.
AVERTISSEMENT: RISQUE DE CHOC ELECTRIQUE - NE PAS OUVRIR.
WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.
AVERTISSEMENT: NE PAS EXPOSER CE MATERIEL A LA PLUIE OU L'HUMIDITE AFIN DE REDUIRE LE RISQUE D'INFLAMMATION OU BIEN DE CHOC ELECTRIQUE.

4: RATING LABEL

(1 unit : 200 W max)

Input	Output	Fuse
100 - 240 V~	100 - 240 V~	T6.3AH250V
50/60 Hz	1 800 W max	
2 000 W max		

5: FDA LABEL

THIS PRODUCT COMPLIES WITH FDA PERFORMANCE STANDARDS FOR LASER PRODUCTS EXCEPT FOR CONFORMANCE WITH IEC 60825-1 ED. 3., AS DESCRIBED IN LASER NOTICE NO. 56, DATED MAY 8, 2019.

6: MARKING LABEL

7: MANUFACTURER LABEL

BRAND/MARQUE: **MINUIT UNE**
MODEL/MODÈLE: **IVL**™ **PHOTON**
READ CAREFULLY THE MANUAL AND INSTRUCTIONS BEFORE OPERATING THIS PRODUCT.
LISEZ ATTENTIVEMENT LE MANUEL ET LES INSTRUCTIONS AVANT D'UTILISER CE PRODUIT.
MINUIT UNE IS A BRAND OWNED BY ARTEFFECT SAS.
MINUIT UNE EST UNE MARQUE APPARTENANT À ARTEFFECT SAS.
104 AVENUE DE LA RÉSISTANCE 93100 MONTREUIL - FRANCE.
US Pat. No. US 9,618,173 B2   **MADE IN FRANCE**

8: LASER LABEL

LASER LIGHT AVOID DIRECT EYE EXPOSURE
CLASS 3R LASER PRODUCT
RAYONNEMENT LASER
EXPOSITION DIRECTE DANGEREUSE POUR LES YEUX
APPAREIL À LASER DE CLASSE 3R
450nm, 520nm, 638nm 330Hz, <23,2 µJ
EN/IEC 60825-1 ed. 3 2014

LASER APERTURE
OUVERTURE LASER

9: PROTECTIVE HOUSING LABEL

DANGER
CLASS 4 LASER LIGHT WHEN OPEN
AVOID EYE OR SKIN EXPOSURE
TO DIRECT OR SCATTERED
RADIATION

Introduction
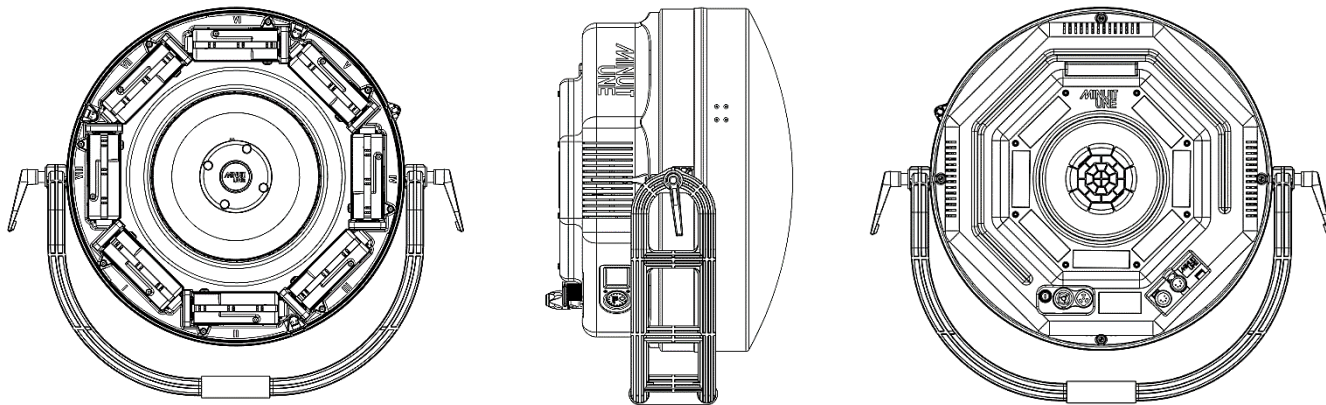
IVL^{TM} Photon makes the ordinary, extraordinary.

Lighting set-ups with many luminaires provide constantly renewed experiences during the whole show or event with decors, immersion, and advanced perspectives. Imagine now if it would be possible without having to use numerous fixtures. Imagine a luminaire allowing the widest range of atmospheres, on top of surprising the audience, starting with… a single unit. That is the IVL Photon. This technology-packed luminaire is the result of 5 years of R&D dedicated to giving smaller productions the magnitude of big arena experiences.

With its innovative moving core combined with the renowned 8 tilts system (2 sides by tilt, mirror and frost), the IVL Photon has 3 main outputs: immersive (mirror), decorative (frost) and creative punch (moving core).

A standard DMX control provides endless possibilities to customize the outputs to each moment: 9 gobos (creating from 1, 2, 4, 8, 16, 32, 64, 128 to 256 beams), dimmer and RGB control for each of the 8 mirror tilts, and an electronic shutter. Never had a luminaire allowed such a level of creativity while being so easy to use. IVL Photon can be incorporated into any kind of show or event thanks to its compact design, extreme versatility, and low logistics requirements.

Choosing the IVL Photon is proceeding to deliver quality and multiplicity while adding to extraordinary. It is exceeding the expectations without having to overdo and rely on the accumulation of less-versatile luminaires for the decorative and experiential part of lighting. In small and mid-sized venues, a few IVL Photons only already delivers the versatility needed: optimize your logistics and save on structures, transport, maintenance, time, power consumption and many other extra costs.

Choosing the IVL Photon is giving you the means to develop your notoriety.

Before using the product

1. Read the "Important Safety Information" on page 5 before doing anything with the product.
2. Unpack and ensure that there is no transportation damage before using the product. Do not attempt to operate a damaged product.
3. Check that no part shipped with the product is missing. The product is shipped with:
   - A Neutrik Powercon TRUE1 connector NAC3FX-W-top
   - A page with a QR code to download the user manual.
4. Install the neutrik powercon TRUE1 connector on an AWG 14 power cable with a power plug according to your local electrical regulation
5. Ensure that the voltage and frequency of the power supply match the power requirements of the product.

Note that whenever AC power is applied to the product, it will reset all effects and functions to their home positions. A reset usually takes approximately 10 seconds

Overview

Front View

TRANSPARENT GLOBE

360° SCANNING SYSTEM

MOVING CORE

TILT MODULE

ID NUMBER OF TILT

Bottom View

COOLING SYSTEM

BACK COVER SCREWS (X4)

ADJUSTING HANDLES (X2)

DMX CONNECTORS

POWER CONNECTORS
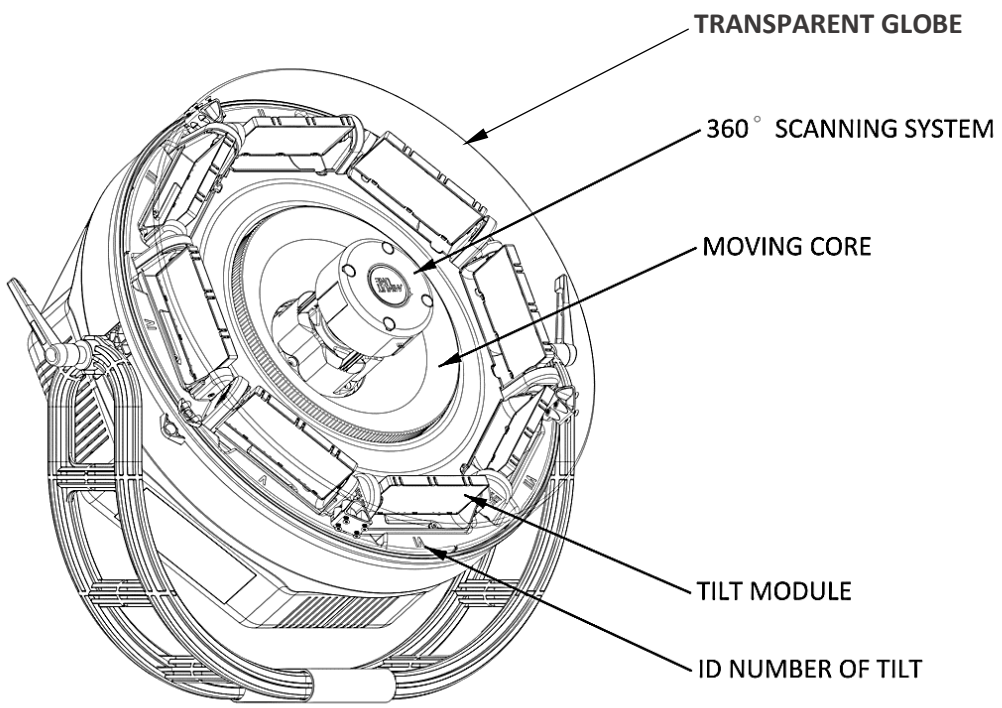
Side View

Fixture menu and connectors

Menu buttons

A rotative knob allows you to navigate in the menu and selects by clicking.

Display

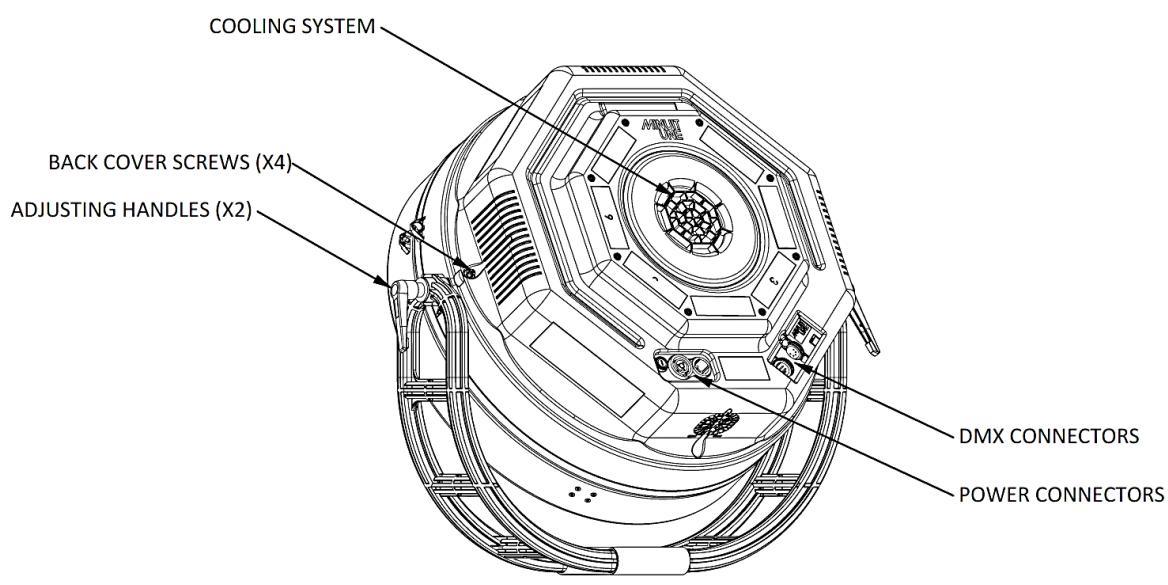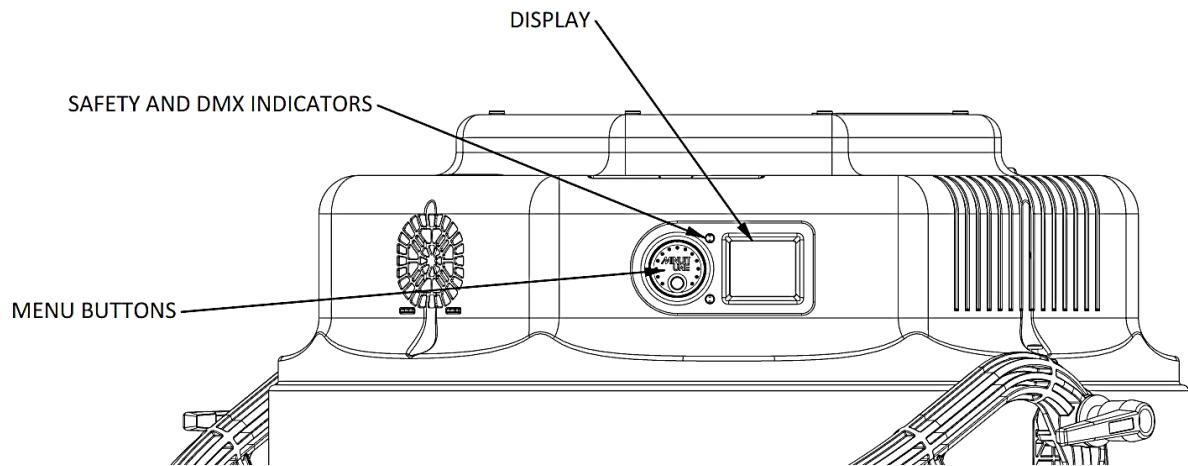The LCD Display shows fixture and menu information.

Indicator LEDs

safety indicator (red, left from display)	Lights up when the scanning speed reach 330Hz.
DMX interlock indicator (green, right from display)	Lights up green when a valid DMX signal is detected at the DMX input.

DMX connectors

The product is equipped with 5-pin XLR sockets DMX input and output (through to next fixture).

The pin-out of the XLR connectors is:

- pin 1 = shield
- pin 2 = cold (-)
- pin 3 = hot (+).

Pins 4 and 5 in the 5-pin XLR connectors are not used in the fixture but are available for possible additional data signals as required by the DMX512-A standard. Standard pin-out is pin 4 = data 2 cold (-) and pin 5 = data 2 hot (+).

Power Connectors

The product is equipped with two Neutrik Powercon TRUE1 connectors for power in power-in. and power-through. Use only Neutrik Powercon TRUE1 NAC3FX-W-TOP cable connectors to connect to power input sockets. Use only Neutrik Powercon TRUE1 NAC3MX-W-TOP cable connectors to connect to power throughout sockets.

Adjustable mounting yoke

The product is shipped with an adjustable mounting yoke to which rigging clamps can be attached.

Installation

<div style="border:1px solid black">

WARNING!

Always read the "Important Safety Information" on page5 before installing or operating the product.

The installation of this product must be validated by a qualified technician before it is operated.

When suspended above ground, the product must be secured with a secondary attachment to prevent injury or damage by falls if the primary attachment fails.

If suspended, the rigging structure must be able to bear a static suspended load that is ten times the weight of the product and all installed accessories, especially if the product is installed in a location where it may cause injury or damage if it falls.

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Placing the Product on a baseplate or on a stand

Always use a baseplate or a stand that is approved for the weight of the product.

The stand/baseplate must be securely fix to the adjustable mounting yoke using M12 screw, with minimal length 24mm, grade 8.8 steel minimum
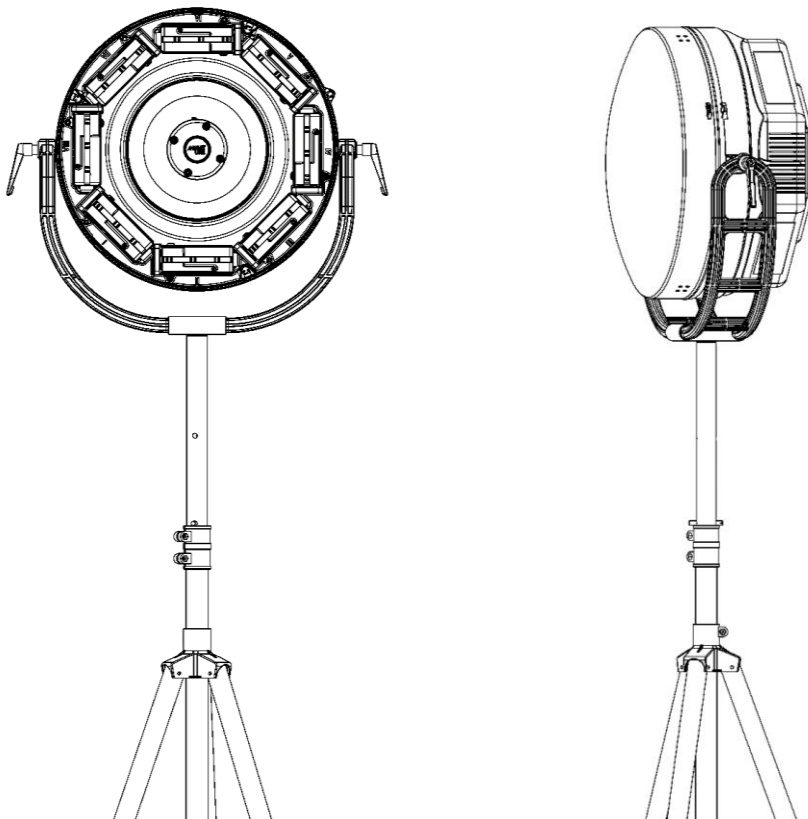
Mounting the Product on a Rigging Structure

The product can be fastened on a rigging structure using a clamp.

Always use a clamp that is approved for the weight of the product

Always use closed-type rigging clamp

The clamp must be securely fix to the adjustable mounting yoke using M12 screw, with minimal length 24mm, grade 8.8 steel minimum and fastened with self-locking nut.

Vertical rigging

If fastening the product on a vertical rigging structure, always keep the adjustable mounting yoke horizontal to the ground:
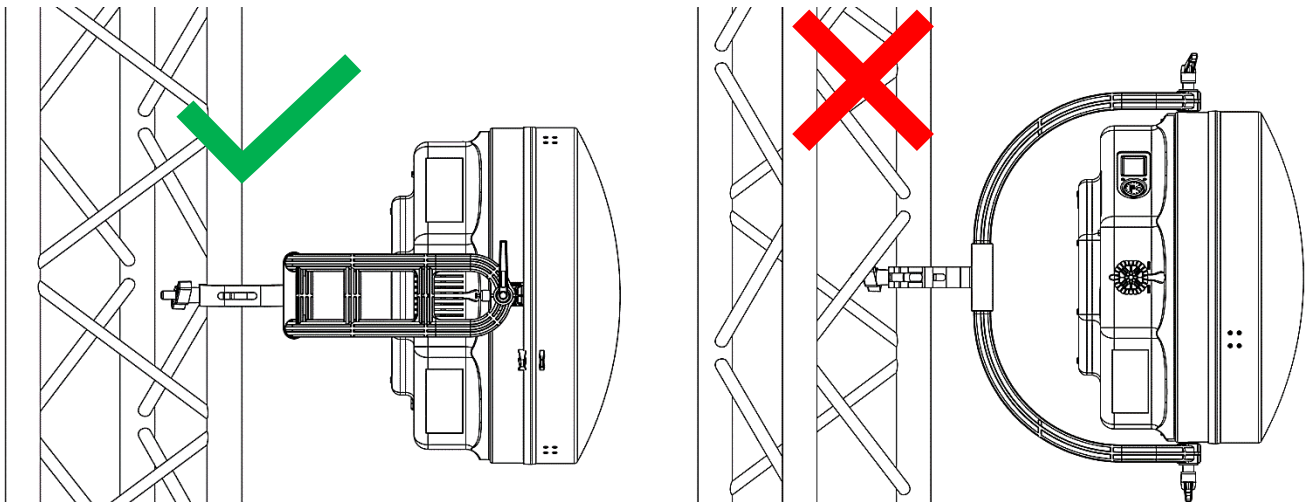
Horizontal rigging

You can also fasten the product on a horizontal rigging structure:
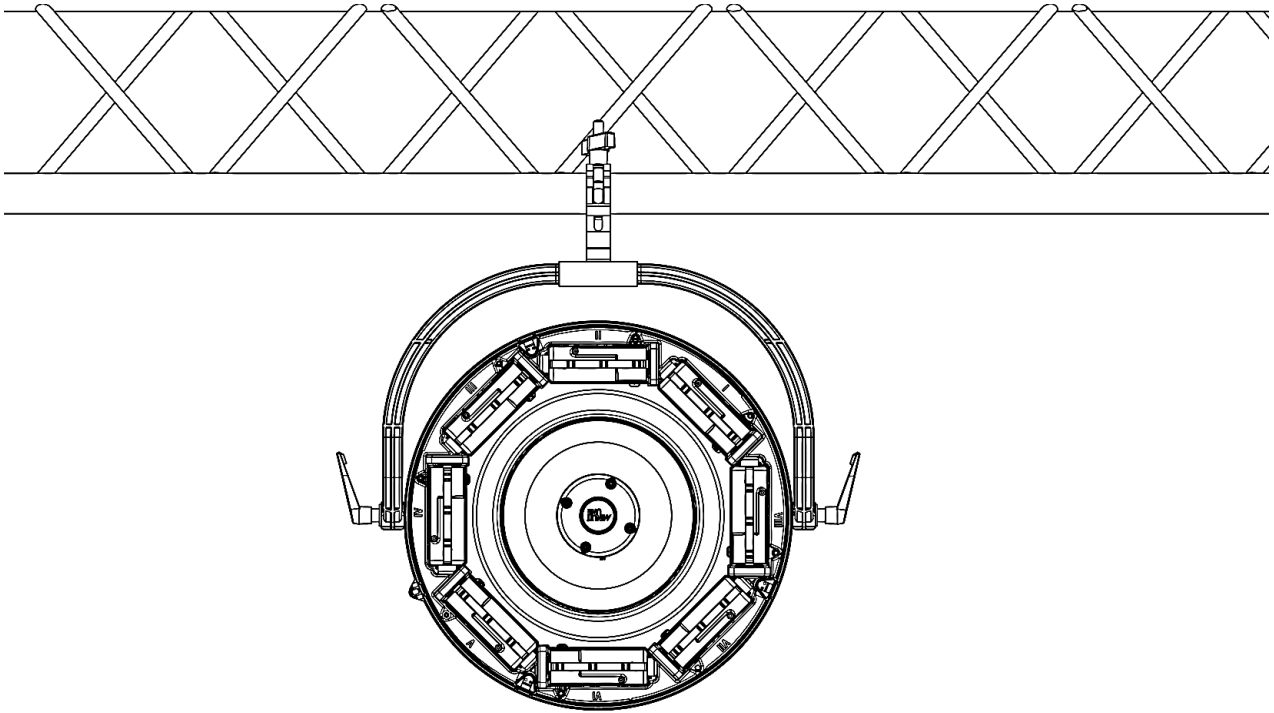
After fastening the product on a rigging structure, always secure the product with a secondary attachment in case of the rigging clamp fails.

Only use an approved safety cable that has been rated for the weight of the product.

Pass the safety cable through the adjustable mounting yoke and secure it to the rigging structure:

SAFETY CABLE
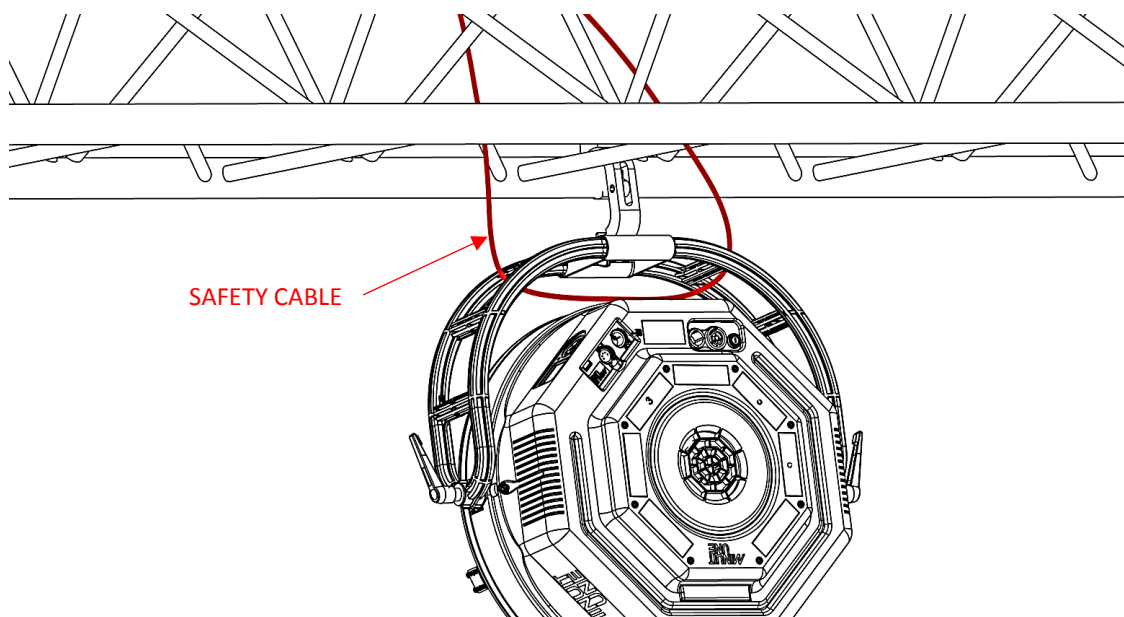
Choosing the orientation:

Using the two external handle you can then choose the orientation you want for the product.

Always tight back the handle after changing the orientation

Always untight and tight both handles when updated the orientation

AC Power

The product can be hard-wired to a building electrical installation if you want to permanently install it, or a power plug (not supplied) that is suitable for the local power outlets can be installed on the power cable.

If you install a power plug on the power cable, install a grounding type (earthed) plug with integral cable grip that is rated minimum 18 A at a suitable voltage for your local power system and which is compliant with your local and national requirement. . Follow the plug manufacturer's instructions and connect the wires in the power cable as shown in this table:

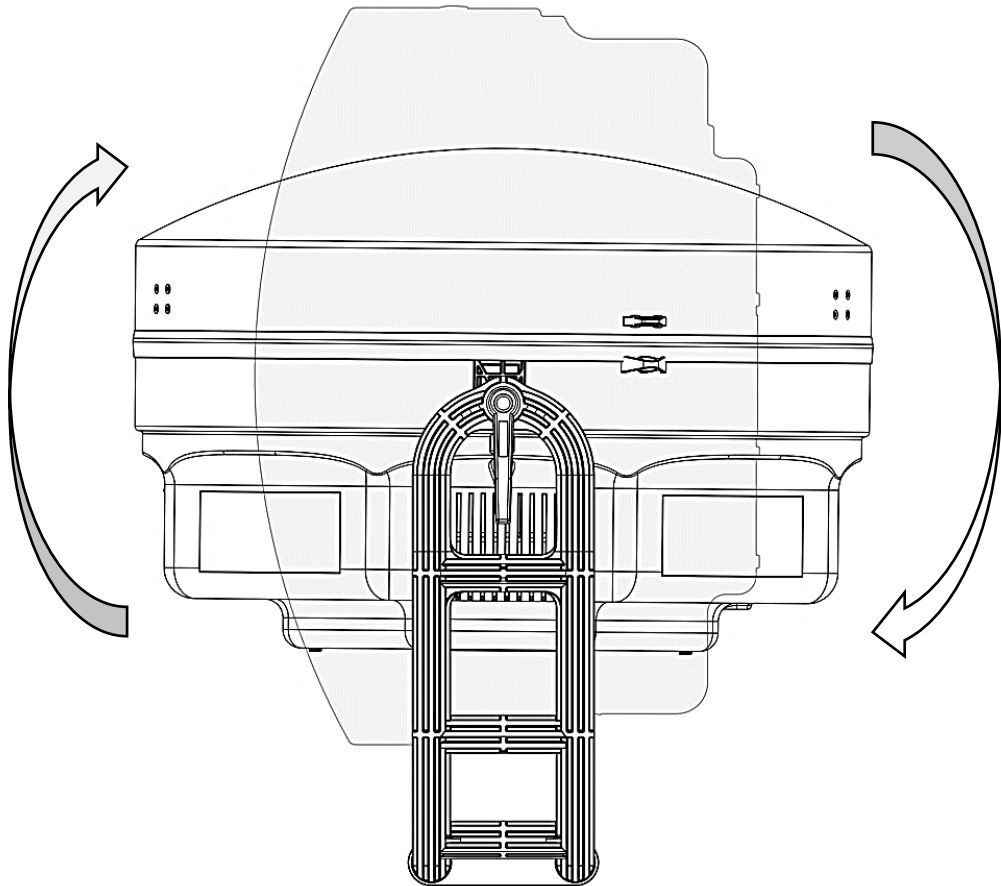|	Live or L	Neutral or N	Earth, Ground or ⏚
US system	Black	White	Green
EU system	Brown	Blue	Yellow/green

The product has an auto-ranging power supply that accepts AC mains power at 100-240 V at 50/60 Hz. Do not apply AC mains power at any other voltage or frequency to the product.

Linking Fixtures to Power in a Chain

The product has a power consumption of 200W max. Do not connect products to power in a chain that will exceed the electrical ratings of any cable or connector used in the chain. Connect only the same fixtures into an interconnected chain.

If you wish to connect IVL Photon products to power in a linked chain, you must obtain a AWG14 power input cable and AWG14 throughout cables.

Using these gauge cables, you can link maximum 10 IVL Photon.

Control Data Link

A DMX 512 data link is required to control the product via DMX. The fixture has a 5-pin XLR connector for DMX data input and output.

A single daisy chain can consist of up to 8 IVL photon. The total number of products in one 512-channel DMX universe is limited by the number of DMX channels required by the products. Note that if independent control of a product is required, it must have its own DMX channel range. Products that are required to behave identically can share the same DMX address and channels. To add more products or groups of products when the above limits are reached, add a DMX universe and/or split the daisy-chained link into branches using a powered DMX splitter.

Tips for a Reliable DMX Data Transmission

Use shielded twisted-pair cable designed for RS-485 devices: standard microphone cable cannot transmit control data reliably over long runs. 24 AWG cable is suitable for runs up to 300 meters (1000 ft.). Heavier gauge cable and/or an amplifier is recommended for longer runs.

A valid DMX signal is the safety interlock of the device. Please check, if every DMX cable used in the control data link is in perfect condition if the safety signal (red LED next to the screen) is switching on and off constantly whereas other products in the control data link are reacting correct on DMX commands.

The pin-out of the connectors is:

- pin 1 = shield
- pin 2 = cold (-)
- pin 3 = hot (+)

Pins 4 and 5 in the 5-pin XLR connectors are not used by the product but are available for possible additional data signals as required by the DMX512-A standard. Standard pin-out is pin 4 = data 2 cold (-) and pin 5 = data 2 hot (+).

To split the link into branches, use an opto-isolated, powered DMX splitter. Terminate the link by installing a termination plug in the output socket of the last product of a DMX data link. The termination plug, which is a male XLR plug with a 120 Ohm, 0.25-watt resistor soldered between pins 2 and 3, "soaks up" the control signal so it does not reflect and cause interference. If a splitter is used, terminate each branch of the link.

To Connect the Data Link

To connect the product to the DMX data link:

1. Connect the DMX data output from the controller to the closest product's male XLR DMX input connector.
2. Connect the first product's DMX output to the DMX input of the next product and continue connecting products output to input.
3. Terminate the last product on the link with a DMX termination plug.

Fixture Menu

The control knob next to the screen allow you to navigate in the menu.

Standby screen

If screen is black, press the knob to reach the standby screen

You can see on this standby screen:

- The dmx mode (mode 1)
- The dmx address (address 1)
- The laser temperature (which is fix to 30°)
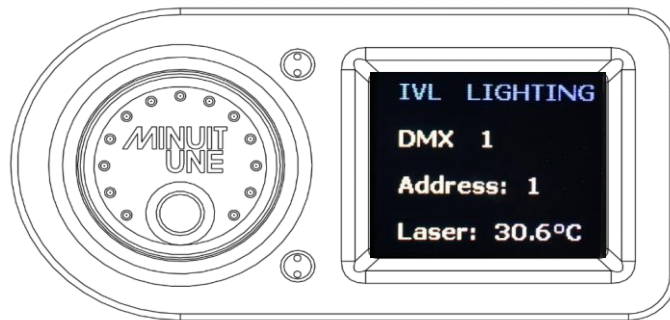
Main menu

If you press the knob, you the reach the main menu:
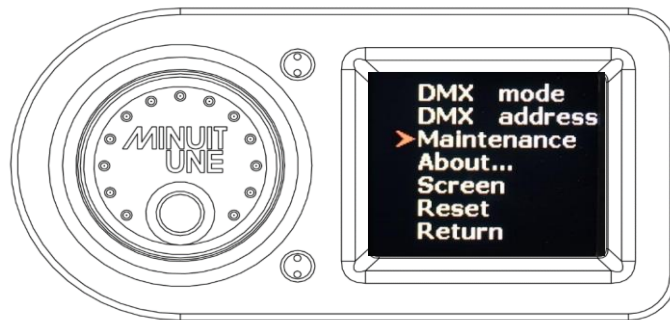
Dmx mode

In Dmx mode you can update the dmx mode of the product.

You have two mode available:

- Mode 1, which is the standard mode available to program the product
- Dmx debug, which is a really simplify mode for service people to debug the product I case of problem
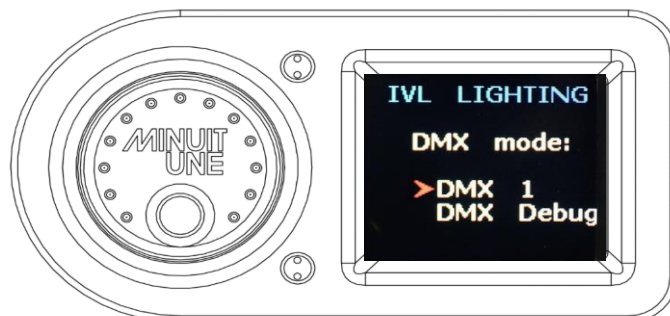
Dmx address

In Dmx address you can update the dmx address of the product:

To Select the dmx address you want, select each digit by turning the knob and click on it to pass to the next digit.
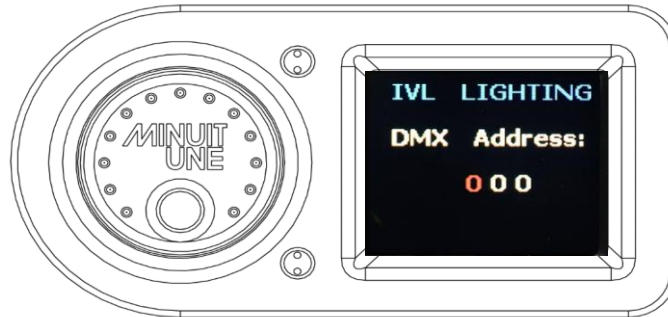
Maintenance menu

Clicking on maintenance in the main menu will open the maintenance menu:
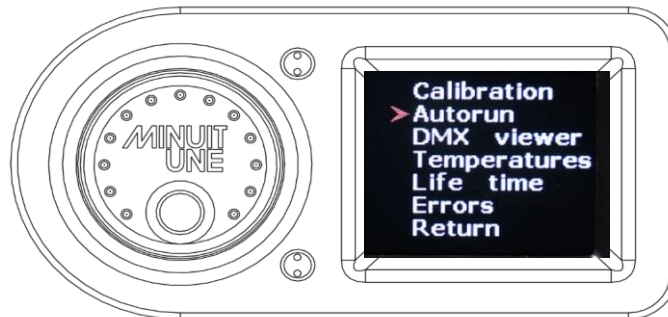
Calibration

In calibration you will find procedure to re-calibrate the product:
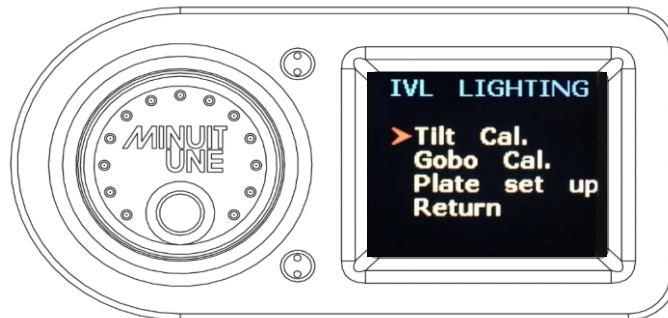
Autorun

In autorun you will find pre-set effect/function to test the product:
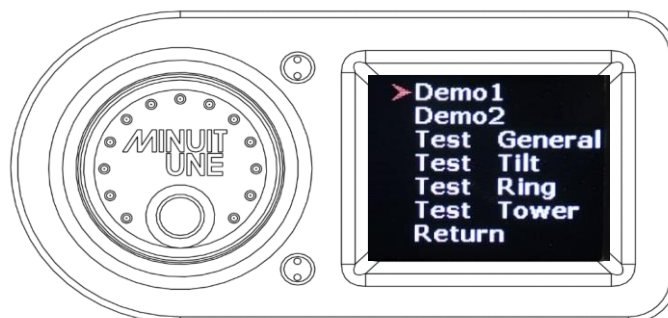
DMX viewer

In dmx viewer you can display all the realtime dmx data receive by the product:
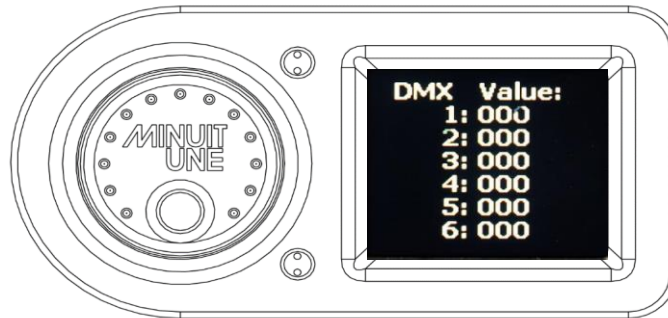
Temperatures, Life time and errors

Those menu are still under development

About… menu

In about you can display:

- software information
- maximal laser temperature recorded since day 1
- Life time of the product
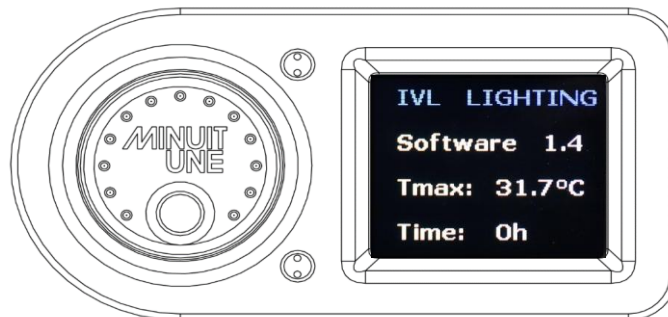
Screen menu

In screen menu, you can revert the screen menu.
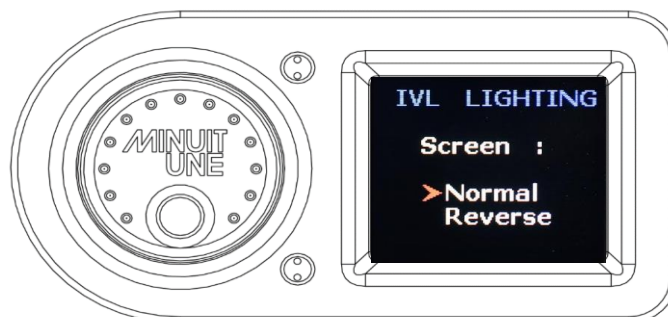
Reset menu

Clicking on reset allow you to do a manual reset of the product

Effects

Mirror side of the 8 tilts
an immersive output

o Wide coverage & directive perspectives
o 45° aperture by tilt
o Calibrated for immersion in 500 to 5000 people venues
o DMX control: tilt parameters on the console
     ON for tilt values between 50% and 100%

➢ Shape the space with 3D perspectives or create special moments with the right haze and darkness levels: offer an unbelievable immersive thrill to your audience.

Frost side of the 8 tilts
a decorative output

o A very smooth diffused output
o Adjustable at 180° - wide coverage
o From frost to mirror in 0,25sec
o DMX control: tilt parameters on the console
     ON for tilt values between 0% to 50%

➢ Highlight your venue or your stage with an infinity of decorative possibilities. Great at any time, at any occasion.

Moving Core
a creative punch

o A concentrated and directive frosted output with a variable diameter of diffusion
o Create a powerful ring of light from an audience perspective
o DMX control: zoom parameter on the console
     OFF for zoom values between 0% to 30%
     ON for zoom values between 30% to 100%.

➢ The output for brightest moments, which can also be used as a background effect. Either an all-new kind of creative blinder or surprising stroboscopic effect.

E-gobos control for beams programming with each output

9 e-gobos : 1, 2, 4, 8, 16, 32, 64, 128, 256 beams
Parameters: gobos size / gobos type / gobos rotation / gobos indexation
Controlling : width / number / speed of rotation / position of the beams

1 beam

2 beams

4 beams

8 beams

16 beams

32 beams

64 beams

128 beams

256 beams
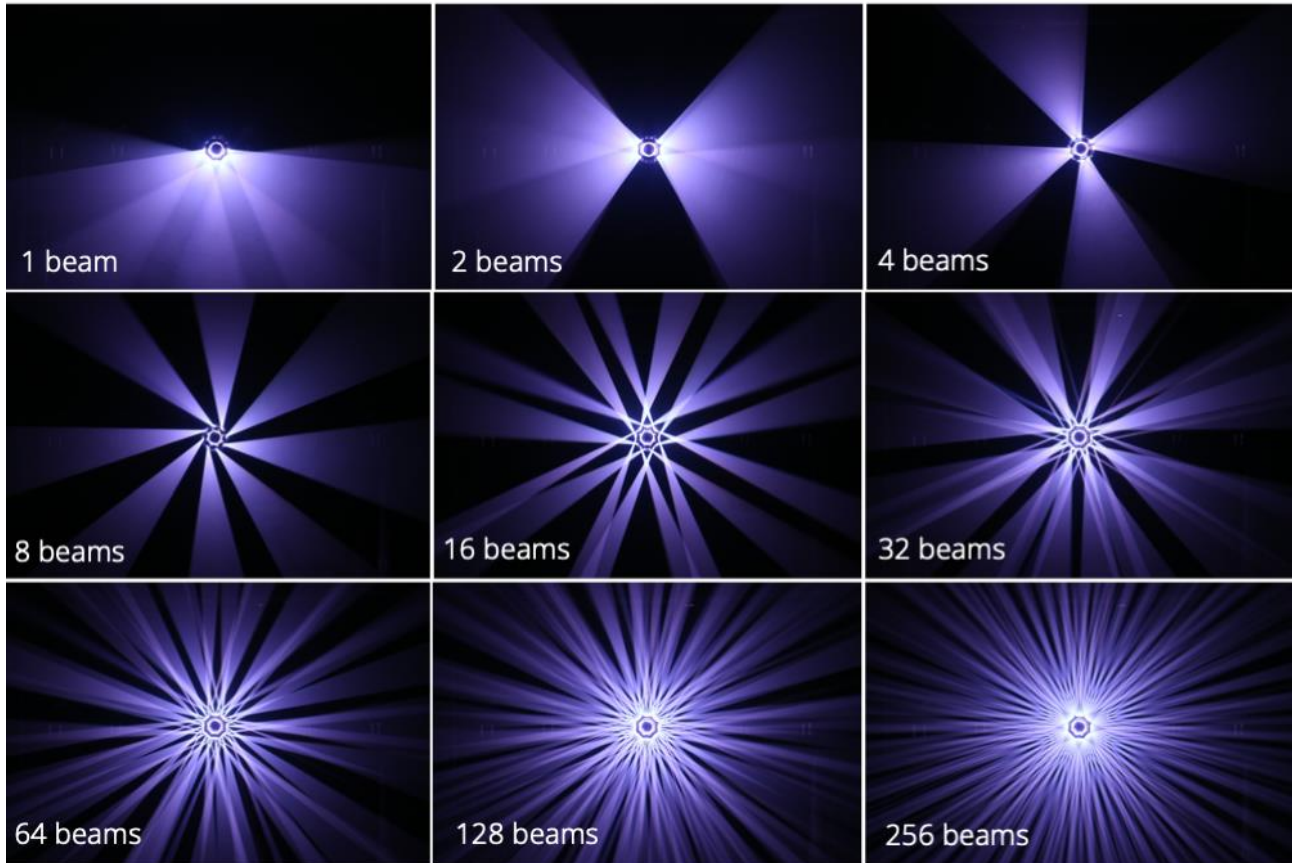
Independent controls allowed for each tilt:

- Position
- RGB
- Dimmer

One color per tilt

5 tilts on frost, 3 on mirror

5 tilts dimmer full, 3 at zero

Maintenance

CAUTION

Always disconnect the product from AC power before doing maintenance on it.
Always maintenance the product in a well-lit area where there is no risk of injury from falling parts, tools or other materials.

For Maintenance, the unit shall not be disassembled or opened.

Cleaning

Excessive dust, smoke fluid, and particle degrades performance, causes overheating and will damage the product. Damage caused by inadequate cleaning or maintenance is not covered by the product warranty.

The product, should be cleaned regularly to obtain maximum performance and brightness.

To clean the transparent globe:

1. Disconnect the product from AC power.
2. Clean the external part of the transparent globe. Always clean the acrylic components with a soft wipe and /or standard glass cleaner without alcohol and a lint-free cloth. Do not use products, solvents or abrasive materials for cleaning acrylic.

DMX Protocol

DMX Sheet – Single Mode – September, 21 2021

ch.	Function	Sub-Function	Percent Value	DMX Value	Default Value (%)	Remarks
1	Control	Off	0 > 9	0 > 23	100%	
		Reset motor	10>14	24>36		
		Reset source	15>20	37>51		
		Reset full	21 >25	52> 64		
		On - fast mode	26> 49	65 >125		
		On - normal mode	50 > 100	126 > 255		
2	Shutter (strobe) frequency	Open	0 > 5	0 > 14	0%	
		Closed	6 > 10	15 > 27		
		30 > 1440bpm	11 > 89	28 > 227		
		Open	90 > 100	228 > 255		
3	Shutter - duty cyle	Short > Long	0 > 100	0 > 255	50%	0% - Short bursts of light. 100% - Short bursts of blackout.
	E-Gobo / Beam control		**%**	**DMX**	**Default %**	
4	Number of beams (E-GOBO TYPE)	1 Beam	0 > 10.78	0 - 27	0%	
		2 Beams	10.78 > 21.76	28 - 55		
		4 Beams	21.76 > 32.75	56 - 83		
		8 Beams	32.75 > 43.73	84 - 111		
		16 Beams	43.73 > 54.71	112 - 139		
		32 Beams	54.71 > 65.69	140 - 167		
		64 Beams	65.69 > 76.67	168 - 195		
		128 Beams	76.67 > 87.65	196 - 223		
		256 Beams	87.65 > 100	224 - 255		
5	Index/offset (E-GOBO INDEX)	Index 0° > 360°	0 > 100	0 > 255	0%	
6	Index/offset fine (E-GOBO INDEX)	Index 0° > 360°	0 > 100	0 > 65535		
7	Rotation (E-GOBO ROTATION)	STOP ROT - Back to Index position	0 > 4.90	0 -12	0%	
		Clock-Wise Rot (Fast --> Slow)	4.90 > 48.04	13-122		
		Relative STOP	48.04 > 52.35	123-133		
		Counter-Clock-Wise Rot (Slow --> Fast)	52.35 > 95.10	134-242		
		STOP ROT - Back to Index position	95.10 > 100	243-255		
8	Beam size (E-GOBO SIZE)	0° > 360°	0 > 100	0 > 255	100%	
9	Beam size fine (E-GOBO SIZE)	0° > 360°	0 > 100	0 > 65535		
	Moving Core		**%**	**DMX**	**Default %**	
10	Reflector's Position (ZOOM)	0 > 61mm	0 > 100	0 - 255	0%	At 0% - Retracted inside the body of the fixture, doesn't intercept the light plan. At 100% - Moves up, and intercepts the light plan.
11	Reflector's Fine Position (ZOOM)		0 > 100	0 > 65535		
12	Reflector's Speed (ZOOM SPEED)	SLOW > FAST	0 > 100	0 > 255	0%	

			%	DMX	Default %	
		TILT 1	**%**	**DMX**	**Default %**	
13	Tilt 1	-180° > 180°	0 > 100	0 > 255	50%	Physically, Tilt #1 will be where the Screen panel of the fixture is located. Under 0° - Frost side of the tilts. Above 0° - Reflective side of the tilts.
14	Tilt 1 Fine	-180° > 180°	0 > 100	0 > 65535		
15	dimmer 1	Close > Open	0 > 100	0 > 255	0%	
16	red 1	0 > FF	0 > 100	0 > 255	100%	
17	green 1	0 > FF	0 > 100	0 > 255	100%	
18	blue 1	0 > FF	0 > 100	0 > 255	100%	
		TILT 2	**%**	**DMX**	**Default %**	
19	Tilt 2	-180° > 180°	0 > 100	0 > 255	50%	
20	Tilt 2 Fine	-180° > 180°	0 > 100	0 > 65535		
21	dimmer 2	Close > Open	0 > 100	0 > 255	0%	
22	red 2	0 > FF	0 > 100	0 > 255	100%	
23	green 2	0 > FF	0 > 100	0 > 255	100%	
24	blue 2	0 > FF	0 > 100	0 > 255	100%	
		TILT 3	**%**	**DMX**	**Default %**	
25	Tilt 3	-180° > 180°	0 > 100	0 > 255	50%	
26	Tilt 3 Fine	-180° > 180°	0 > 100	0 > 65535		
27	dimmer 3	Close > Open	0 > 100	0 > 255	0%	
28	red 3	0 > FF	0 > 100	0 > 255	100%	
29	green 3	0 > FF	0 > 100	0 > 255	100%	
30	blue 3	0 > FF	0 > 100	0 > 255	100%	
		TILT 4	**%**	**DMX**	**Default %**	
31	Tilt 4	-180° > 180°	0 > 100	0 > 255	50%	
32	Tilt 4 Fine	-180° > 180°	0 > 100	0 > 65535		
33	dimmer 4	Close > Open	0 > 100	0 > 255	0%	
34	red 4	0 > FF	0 > 100	0 > 255	100%	
35	green 4	0 > FF	0 > 100	0 > 255	100%	
36	blue 4	0 > FF	0 > 100	0 > 255	100%	
		TILT 5	**%**	**DMX**	**Default %**	
37	Tilt 5	-180° > 180°	0 > 100	0 > 255	50%	
38	Tilt 5 Fine	-180° > 180°	0 > 100	0 > 65535		
39	dimmer 5	Close > Open	0 > 100	0 > 255	0%	
40	red 5	0 > FF	0 > 100	0 > 255	100%	
41	green 5	0 > FF	0 > 100	0 > 255	100%	
42	blue 5	0 > FF	0 > 100	0 > 255	100%	
		TILT 6	**%**	**DMX**	**Default %**	
43	Tilt 6	-180° > 180°	0 > 100	0 > 255	50%	
44	Tilt 6 Fine	-180° > 180°	0 > 100	0 > 65535		
45	dimmer 6	Close > Open	0 > 100	0 > 255	0%	
46	red 6	0 > FF	0 > 100	0 > 255	100%	
47	green 6	0 > FF	0 > 100	0 > 255	100%	
48	blue 6	0 > FF	0 > 100	0 > 255	100%	
		TILT 7	**%**	**DMX**	**Default %**	
49	Tilt 7	-180° > 180°	0 > 100	0 > 255	50%	
50	Tilt 7 Fine	-180° > 180°	0 > 100	0 > 65535		
51	dimmer 7	Close > Open	0 > 100	0 > 255	0%	
52	red 7	0 > FF	0 > 100	0 > 255	100%	
53	green 7	0 > FF	0 > 100	0 > 255	100%	
54	blue 7	0 > FF	0 > 100	0 > 255	100%	
		TILT 8	**%**	**DMX**	**Default %**	
55	Tilt 8	-180° > 180°	0 > 100	0 > 255	50%	
56	Tilt 8 Fine	-180° > 180°	0 > 100	0 > 65535		
57	dimmer 8	Close > Open	0 > 100	0 > 255	0%	
58	red 8	0 > FF	0 > 100	0 > 255	100%	
59	green 8	0 > FF	0 > 100	0 > 255	100%	
60	blue 8	0 > FF	0 > 100	0 > 255	100%	

Specification

Measurements and weight

All dimensions are given in millimetres**.**

Dimensions of the circular housing: 481 x 481 x 327 mm³

Total dimensions of the fixture (adjustable yoke included): 649 x 556 x 327 mm ³

Weight: 16kg

Housing / Construction

Modular conception: conception subdivided into modules, which can be independently and quickly replaced.

Protection rating: IP20

Menu display: LCD colour screen

Low cleaning care: optical parts isolated from haze

Light Source

Class 3R laser product: extended source

Wavelength: 450nm,520nm,638m

Colours: smooth RGB spectrum

Nominal Beam diameter (1/e) at scanning vertex: 15mm

Beam divergence: >1,5mrad

Nominal Scan rate: 330HZ

Distance from scanning vertex to closest point of human access (NPHA): 241mm

Maximum output: 23,2 µJ

Central scanning system

Scanning motor: extensive lifetime brushless motor

Scanning angle: 360°

Mirror: R>98%

Safeguard: certified failed-safe

Mirror output

Mirror side of the tilt: 115 x 50 mm^2

8 independent mirrors: producing independent 8 light planes

Aperture by mirror: 42° linear aperture by tilt

Operating angle: 180°

Motorization: 8 steps to steps motors – 16 bits non-linear resolution

Movement: very smooth at low speed and extremely reactive

Maximum speed: from mirror to frost side in 0,25sec

Frost output

Frost side of the tilt: 115 x 50 mm^2 frost filter

8 independent frost filter: producing 8 independent frosted outputs

Aperture by mirror: very wide

Operating angle: 180°

Motorization: 8 to steps motors – 16 bits non-linear resolution

Movement: very smooth at low speed and extremely reactive

Maximum speed: from mirror to frost side in 0,25sec

Moving core output

Central circular frosted reflector: 50 mm high, 240 mm external diameter, 10 mm internal diameter

Length of vertical movement: 6 mm, 16 bits resolution

Speed: up to 60 mm/sec in standard mode / up to 15 mm/sec in fast mode

DMX

Number of channels: 60

2 options: standard or fast mode

Update: by micro-SD card

Electronical gobos: 9 e-gobos

RGB control: independent RGB control per tilt (x8)

Dimmer control: independent dimmer control per tilt (x8)

Zoom parameter: control of the moving core position
Strobe: control over the frequency of the pulse and the duration of the pulse

Beam Control (e-gobos)
Number of beams: 1 to 256
Control: intuitive gobo like system
Gobo type: number of beams
Gobo size: width of the beam
Gobo indexation: position of the beam
Gobo rotation: speed and direction of the beam

Power supply
Power supply unit: 100 to 240 Volts – 50/60Hz
Power: 200 Watt maximum

Cooling system/Thermal
Cooling: thermo electric cooling

Safety: protection against excessive temperatures

Nominal operating temperature of the laser source: 30°C

Installation
Adjustable mounting yoke: rigging clamps attachment point
Position: on a vertical rigging structure, adjustable mounting yoke horizontal to the ground
Safety: safety cable through the adjustable mounting yoke

Operating parameters
Maximum ambient temperature: 40°C (104°F)
Minimum ambient temperature: 0°C (32°F)

Connections
AC power input/output: Neutrik PowerCon True1
DMX data in/out : 5-pin locking XLR

Standards:
Safety:
    CB IEC60825-1:2014
    21CFR 1040
    ANSI Z136.1 "Standard for Safe Use of Lasers"
    CB IEC62368

EMC:
    EN55032 :2015+A11 :2020
    EN55035 :2017+A11 :2020
    EN IEC 61000-3-2 :2019
    EN61000-3-3 :2013+A1 :2019
    47CFR Part 15 Subpart B, 2020
    ICES-003 :Issue 7
    AS/NZS CISPR32, :2015

	Disposing of this product
	IVL products are supplied in compliance with Directive 2012/19/EC of the European Parliament and of the Council of the European Union on WEEE (Waste Electrical and Electronic Equipment), where applicable.
	Help preserve the environment! Ensure that this product is recycled at the end of its life. Your supplier can give details of local arrangements for the disposal of IVL products.