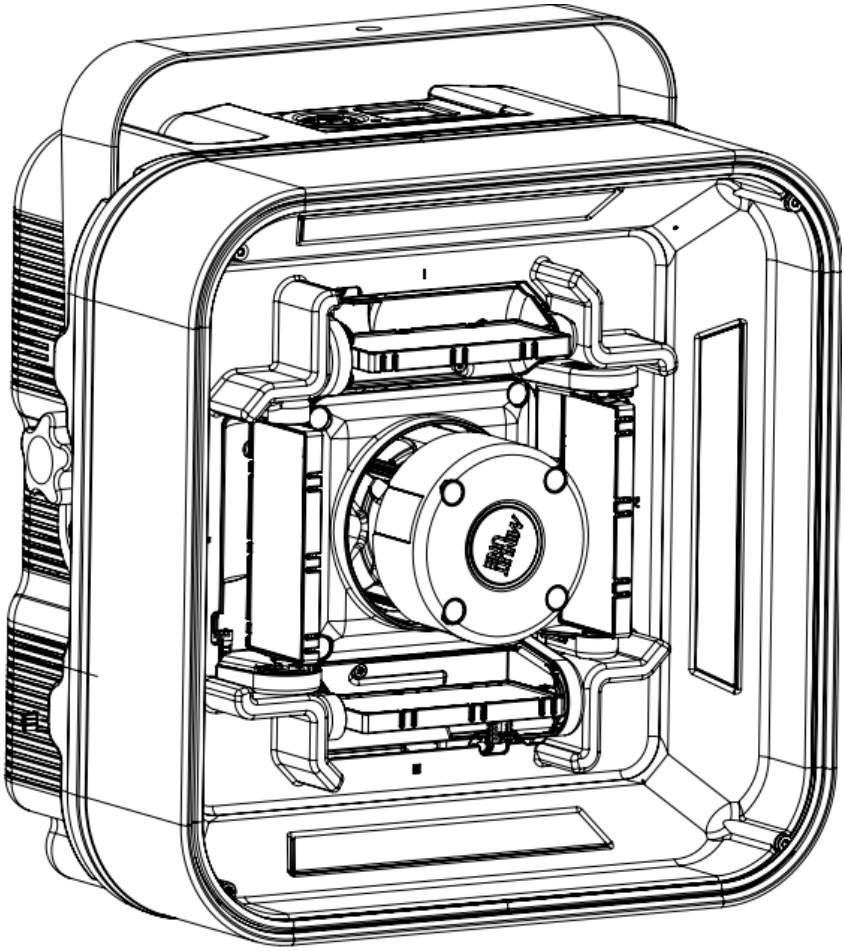
USER MANUAL

IVL™ dice by MINUIT UNE



Endless excitements in a compact housing.

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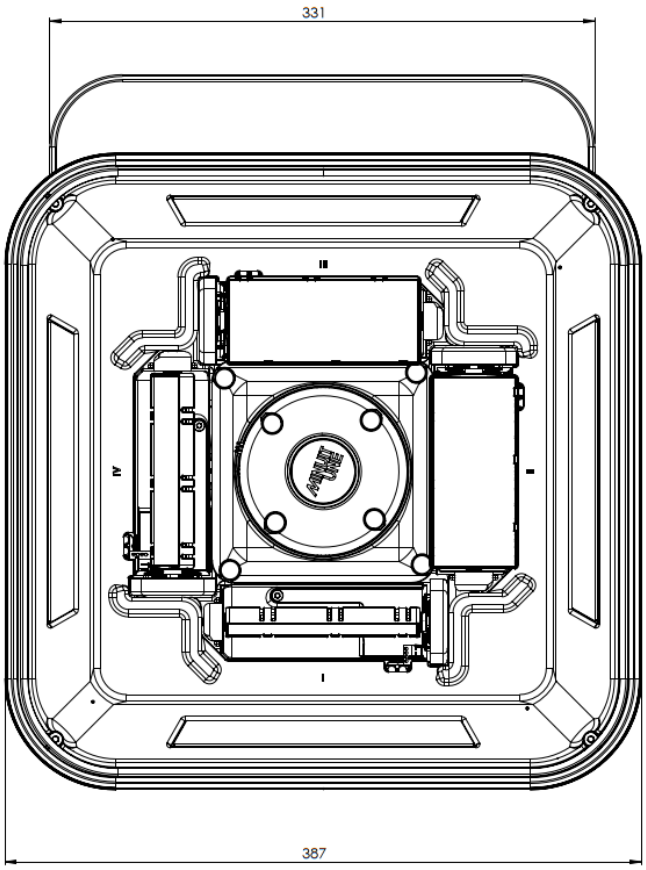
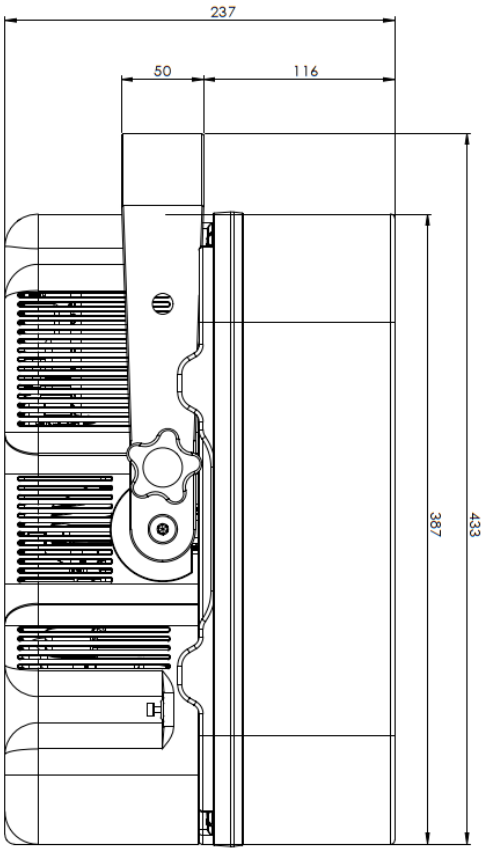
Dimensions

IVL Dice 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

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 Dice'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.

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.

Never use oil base smoke machine. Oil can cause shirt circuit on electronic part of the product.

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.
Avoid direct camera 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.

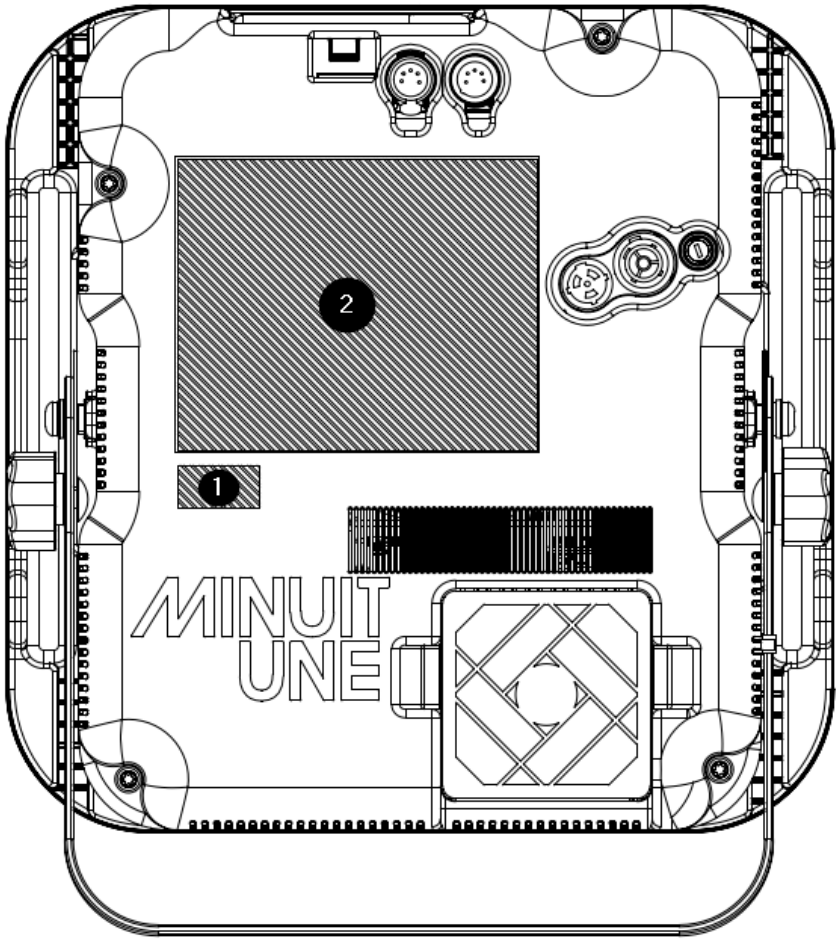
Intended use

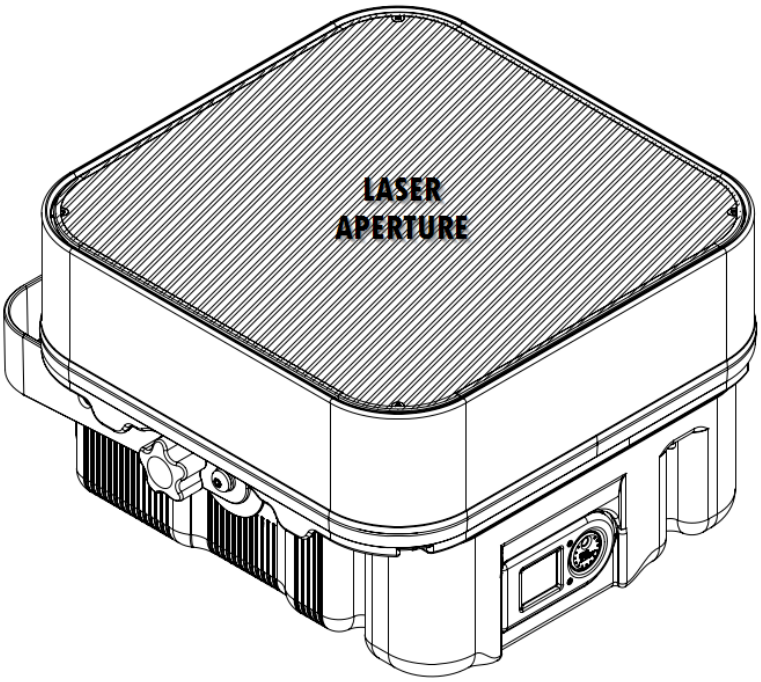
NOTICE

This product is intended for indoor use only.
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 is intended to be use in haze environment for maximizing effect. The use of haze machine with neutral fluid like MDG ATMe is recommended to maximize lifetime of the product. On the contrary the use of oil-based smoke machine is to avoid and will cause damage to the product on long term. Warranty will be void if excess oil is found in the product due to insufficient cleaning.

Avoid direct camera exposure
This product fulfills national and international legal requirements.

Labelling diagram



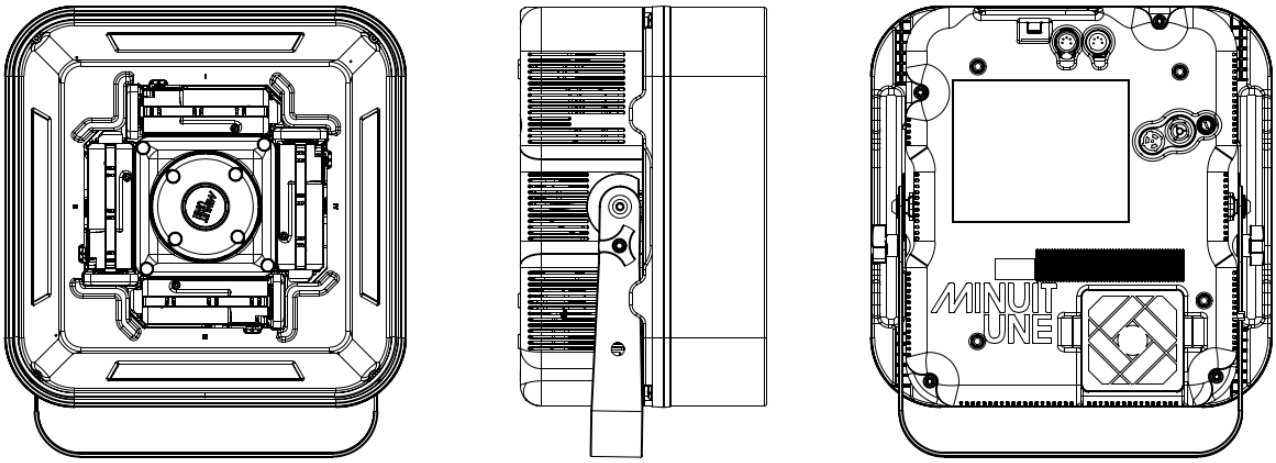


1: Serial number label

2: MAIN MANUFACTURER LABEL

Introduction

IVL™ Dice: a new scale for volumetric lighting



8 cm (15 inch) , 10 kg (22 lbs), 200 W, 49 DMX channels. Endless excitements in a compact housing.

A very wide space coverage with a very small footprint, opening limitless perspectives of captivating lighting installation in small and mid-sized venues.

Fill the space with an IVL Dice set up, surrounding the artist and audience, in a symphony of mesmerizing beams, enveloping shapes, smooth movements, and vivid colors.All constantly evolving. Whether above a stage or a dance floor, the IVL Dice is very easy to install at multiple points and in various configurations. An IVL Dice installation creates strong geometric shapes, structuring your space in ways similar to larger setups, but without the need for extensive volume, structure and quantity.

With no moving head and a light weight of 10 kilograms, the IVL Dice fits easily, adapting seamlessly to various venue configurations. With four independent light planes, created by four motorized mirrors arranged closely together, the IVL Dice provides exceptional space coverage from a small footprint, making the room or stage appear larger. With a 90-degree aperture per tilt, the IVL Dice units easily combine to further enhance the range of perspectives.

On the back side of the tilt, there’s a movable frosted output, capable of illuminating a small venue. When the tilt goes flat, it reveals static frosted edges, offering even more possibilities.

Its DMX control allows access to 9 beam patterns with an electronic gobbo system. 1 beam, 2 beams, 4, 8, 16, 32, 64, 128, and up to 256 beams. With control over beam sizes, indexing, and rotation for each pattern. With 2 dimmers per tilt, 2 RGB parameters per tilt. Complemented by a shutter. a set up of IVL Dice never ceases to amaze.

Wide range of vivid colors. smooth waves of beams, transforming shapes. the sensation that a greater number of fixtures are in action.

The IVL Dice sets a new scale for volumetric lighting.

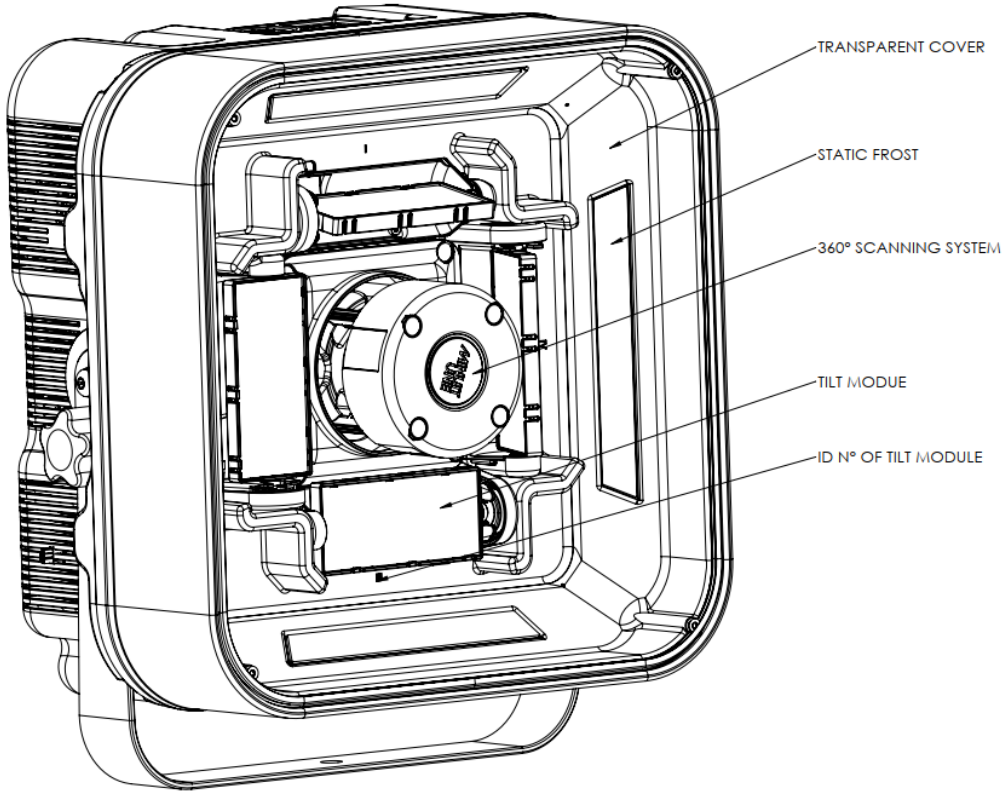
Before using the product

1. Read the “Important Safety Information” on page 5 before doing anything with the product.
2. Unless explicitly stated by Minuit Une, do not dismantle the modules, as this will invalidate the warranty.
3. Damages resulting from improper handling of the product, insufficient cleaning, or from transportation arranged by the customer, are not covered by the warranty of the product.
4. Unpack and ensure that there is no transportation damage before using the product. Do not attempt to operate a damaged product.
5. 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.
6. Install the neutrik powercon TRUE1 connector on an AWG 14 power cable with a power plug according to your local electrical regulation
7. Ensure that the voltage and frequency of the power supply match the power requirements of the product.

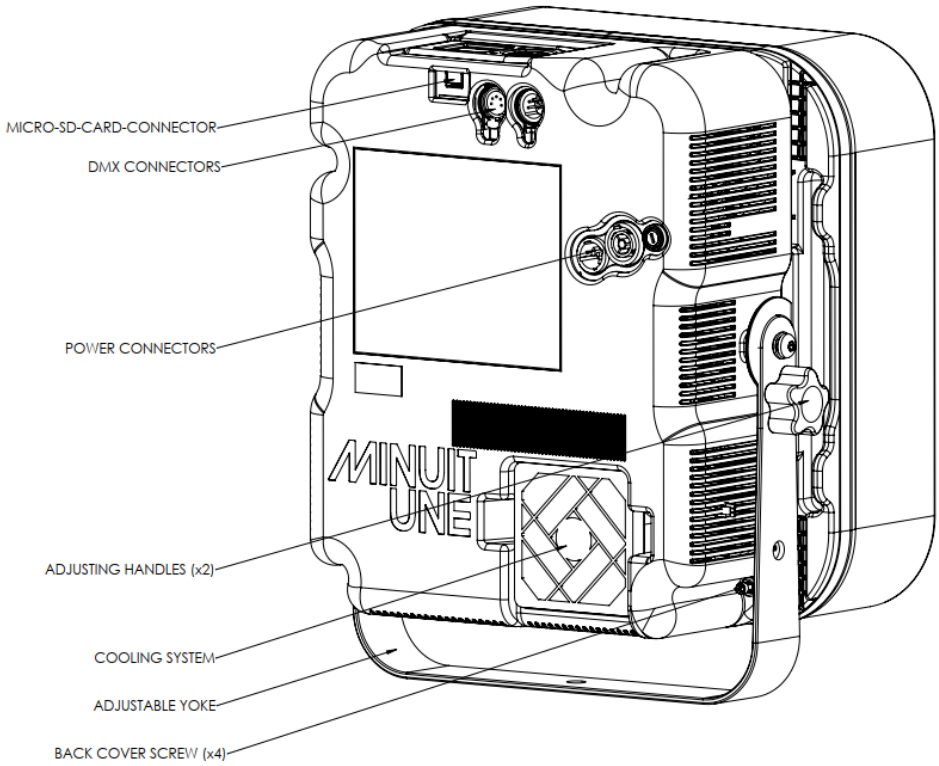
Note that whenever AC power is applied to the product, it will reset all effects and functions to their home positions. A reset usually takes approximately 10 seconds

Overview

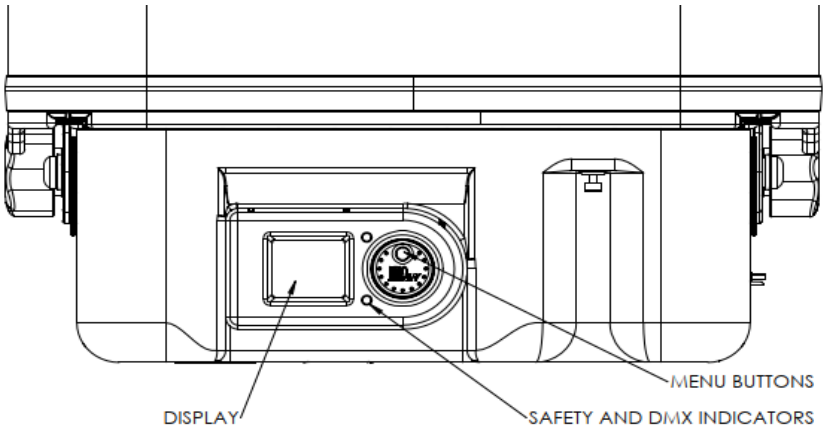
Front View



Bottom View



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.

Transportation requirement

TRANSPORTATION REQUIREMENT

Damages caused by inadequate transportation are not covered by the product warranty.

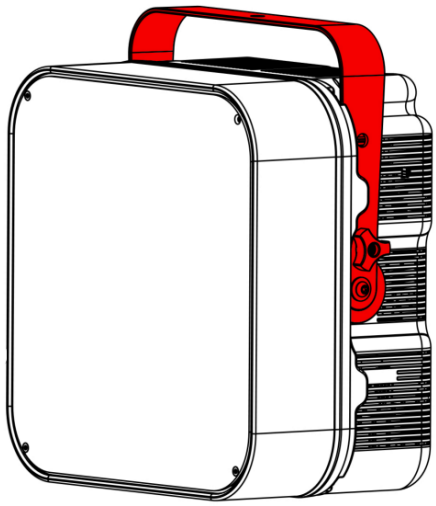
Always transport IVL dice with manufacturer packaging or appropriate flight case

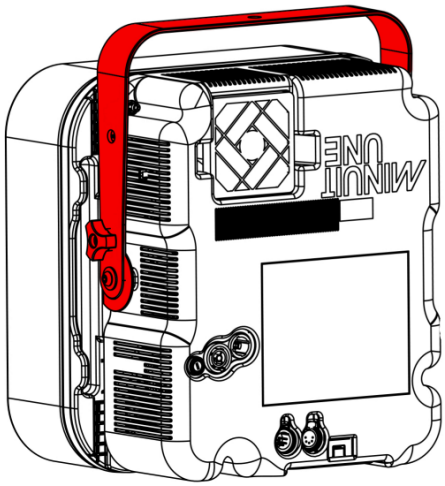
Appropriate flight case must never hold the product by applying pressure on the yoke or on the handle (indicated in red below)

Yoke and handle must always remain free.

Minimal foam thickness in the flight case must be 5cm.

If any of above flight case requirement are not respected, warranty of the product will be void.





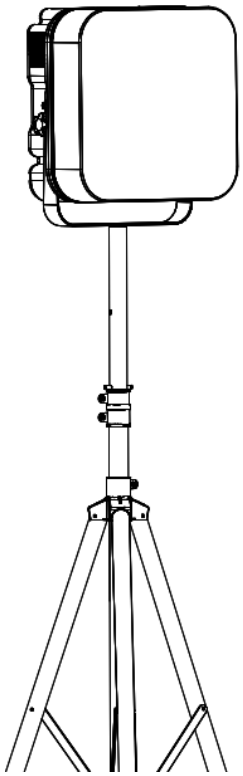
Installation

> 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.

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.

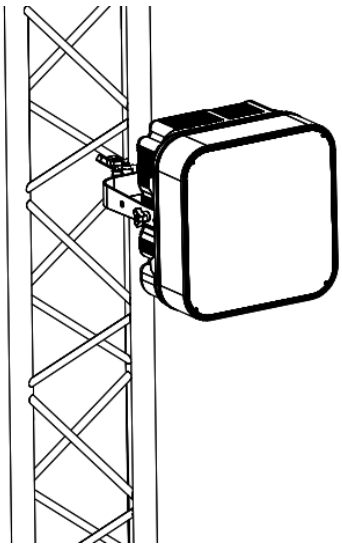
Always use a clamp that is approved for the weight of the product

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.

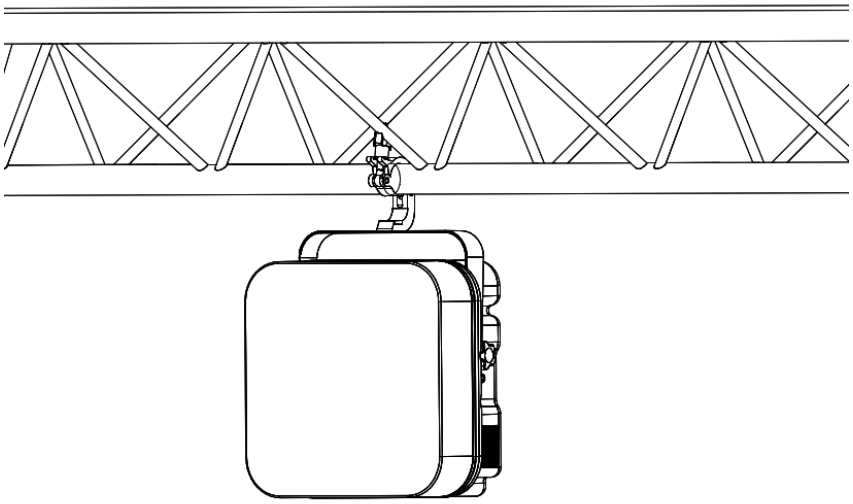
Vertical rigging

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:

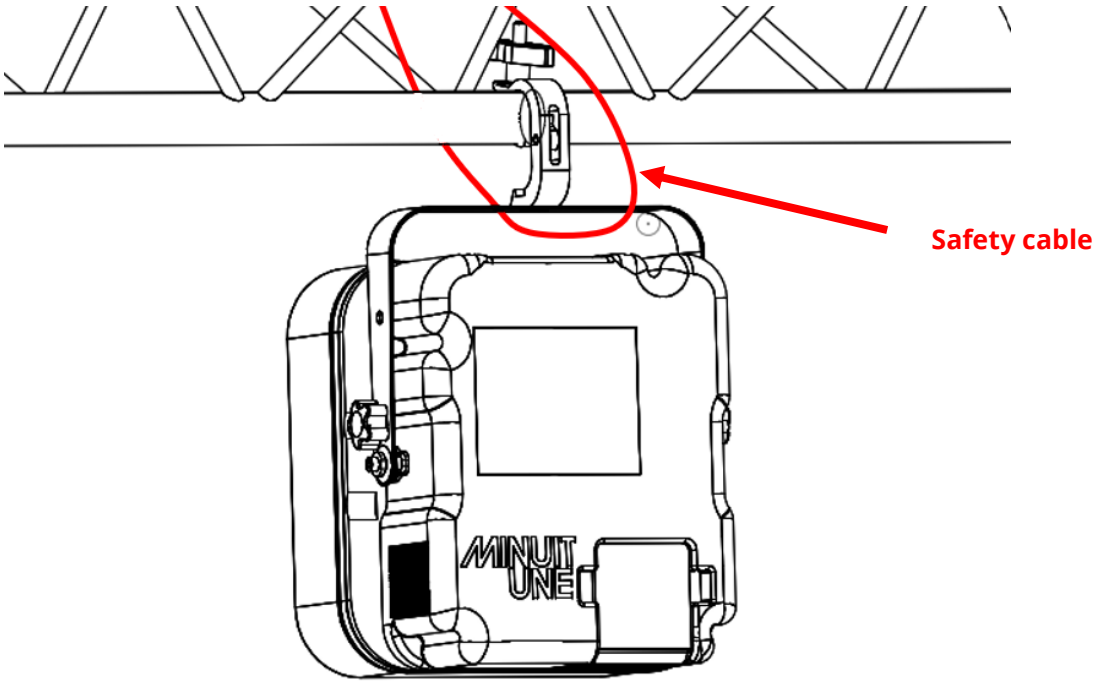


Safety cable

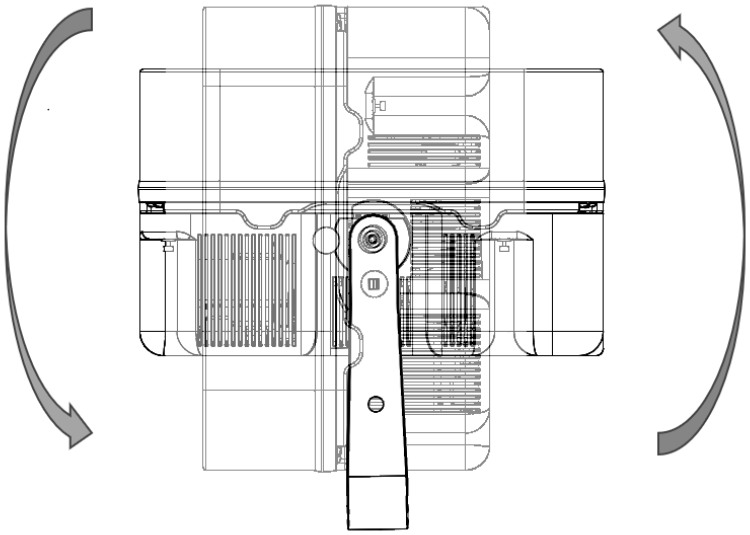
After fastening the product on a rigging structure, always secure the product with a secondary attachment in case of the rigging clamp fails.

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:



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

DANGER!

High voltage! Risk of electric shock and fire.

Read the "Important Safety Information" on page 5 before connecting the product to AC mains power.

Always connect the product directly to AC power.

Use only a Neutrik Powercon TRUE1 NAC3FX-W-TOP cable connector to connect the power cable to the power input socket. Use only a Neutrik Powercon TRUE1 NAC3MX-W-TOP cable connector to connect the power link cable to the power throughput socket.

Only use the power cable provided by the manufacturer with the product.

Socket outlets or external power switches used to supply the product with power must be located near the product and easily accessible so that the product can easily be disconnected from 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 Dice 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 Dice.

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 dice. 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

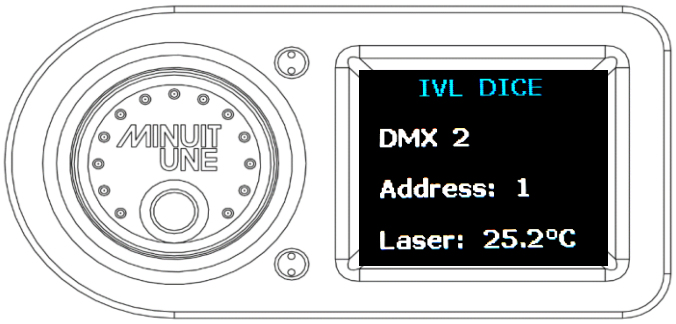
The control knob next to the screen allow you to navigate in the menu.

Standby screen

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

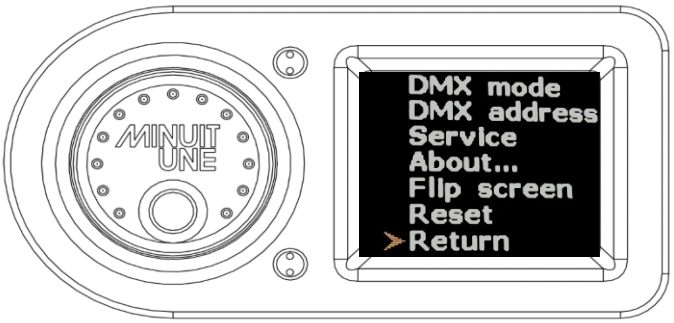
You can see on this standby screen:

- The dmx mode (mode 1)
- The dmx address (address 1)
- The laser temperature (which is fix to 25°)



Main menu

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

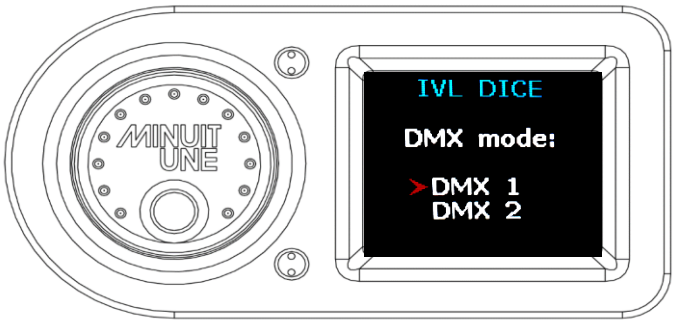


Dmx mode

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

You have two mode available (see in the dmx protocol chapter at the end of this manual) for more detailed information):

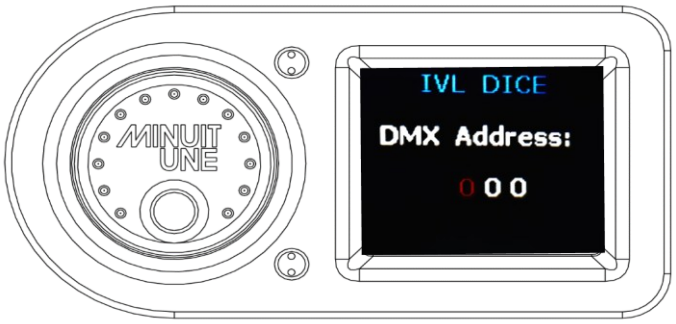
- Mode 1, which has 1 color and dimmer by tilt mirror
- Mode 2, which has 2 color and dimmer by tilt mirror



Dmx address

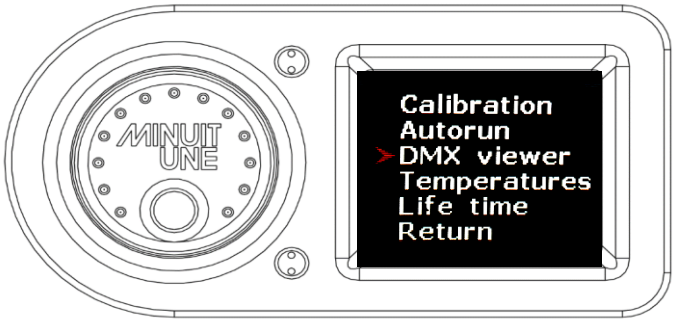
In Dmx address you can update the dmx address of the product:

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



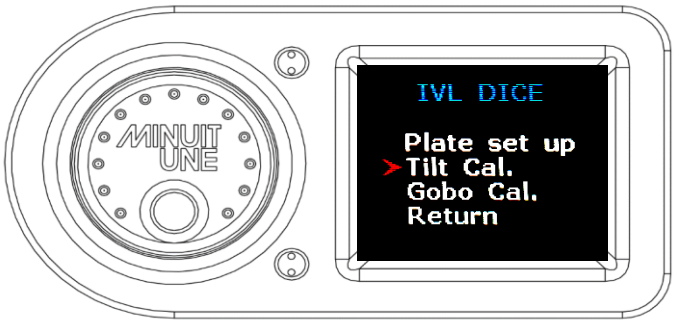
Service menu

Clicking on service in the main menu will open the service menu:



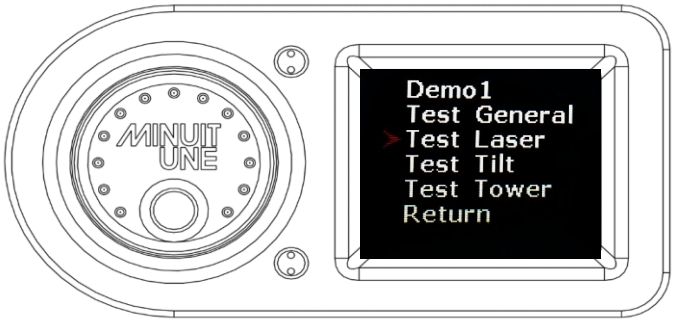
Calibration

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



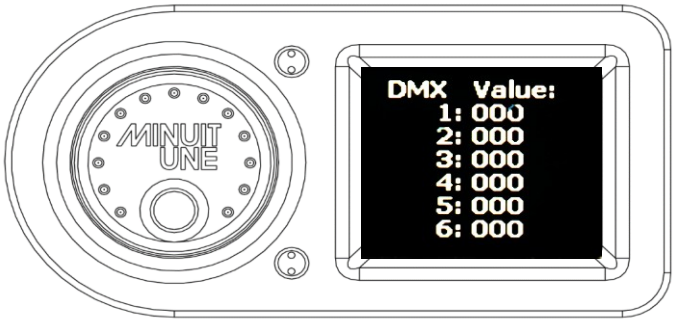
Autorun

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:

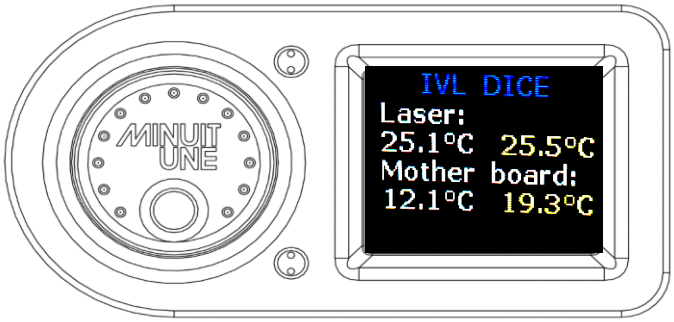


Temperatures

In temperatures menu you will be able to track the laser temperature and the mother board temperature.

On the left in white you have the live temperature.

On the right in yellow you have the maximal reccorded temparture for this module

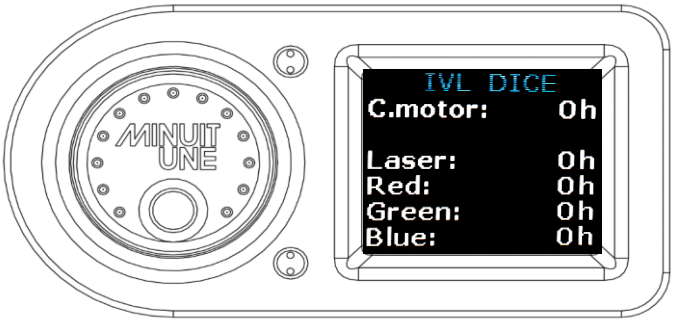


Life time

In life time menu you can track life time of the different modules

C.motor is reccording the lifetime of the scanning system (reccorded on the mother board)

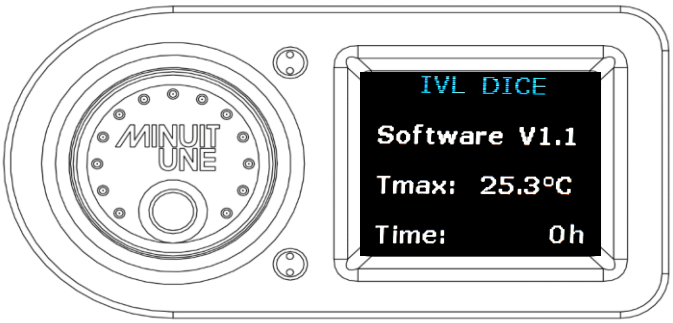
Laser, red, green and blue is reccording the life time of each RGB diode of the laser module



About… menu

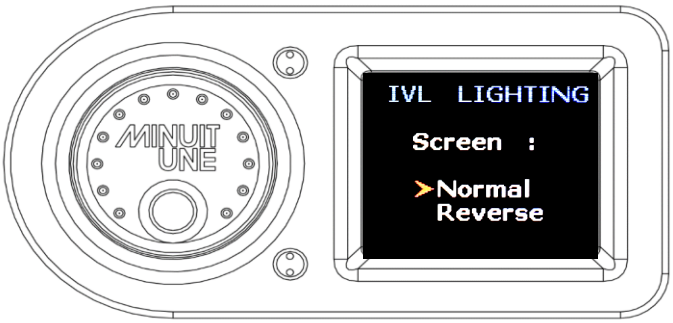
In about you can display:

- 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.

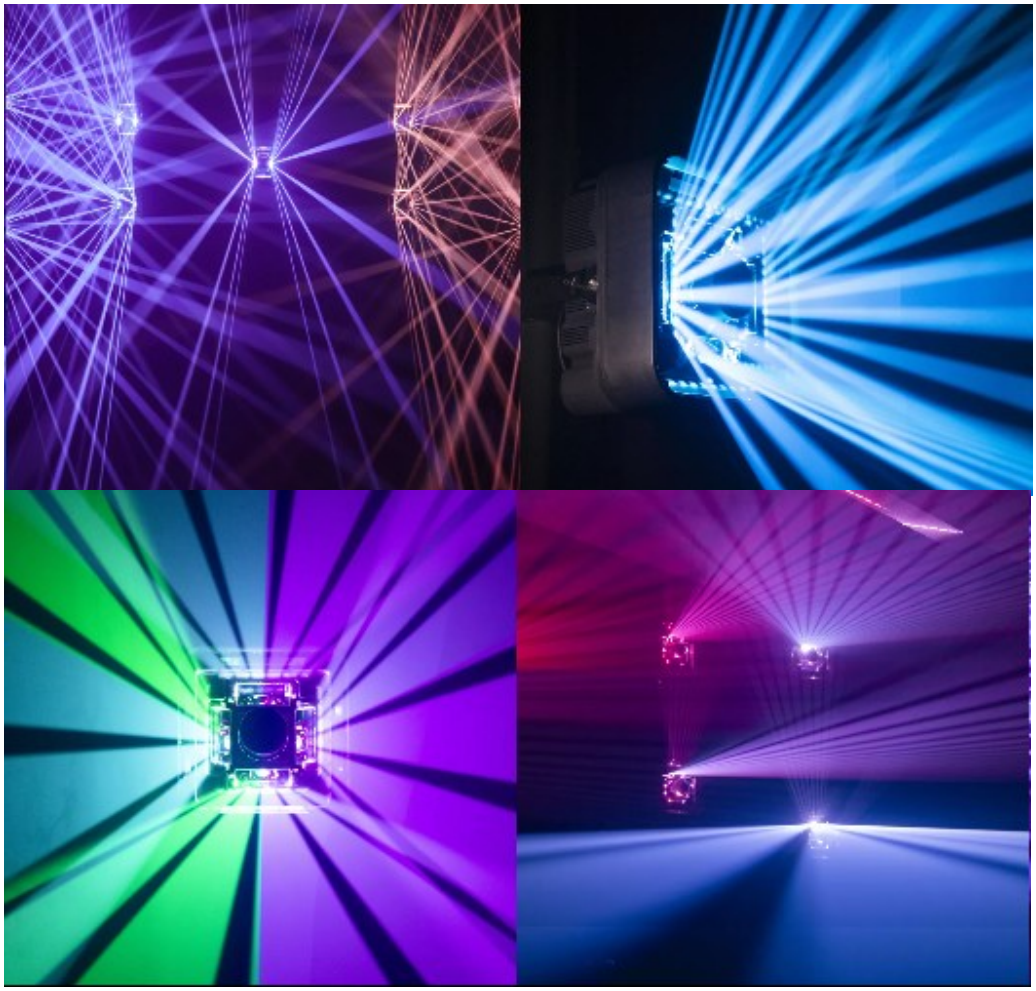


Reset menu

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

Effect and quick start show files

Its DMX control allows access to 9 beam patterns with an electronic gobbo system. 1 beam, 2 beams, 4, 8, 16, 32, 64, 128, and up to 256 beams. With control over beam sizes, indexing, and rotation for each pattern. With 4 90° aperture tilt, 2 dimmers per tilt, 2 RGB parameters per tilt. Complemented by a shutter, a set up of IVL Dice never ceases to amaze.



The IVL Photon's QuickStart Showfiles will allow you to save valuable time when working with and programming the fixtures, providing you with a plug-and-play solution.

Download from our website, IVL support page, and merge the quickstart showfiles into your existing ones, and have numerous layouts, presets, effects and live busking pages ready to go!

https://minuitune.com/ivl-support/#fixtures-and-effects-library

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.

This product is intended to be use in haze environment for maximizing effect. The use of good haze machine with neutral fluid like MDG ATMe is recommended to maximize lifetime of the product. On the contrary the use of oil-based smoke machine is to avoid and will cause damage to the product on long term.

Warranty will be void if oil trace is found in 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 cover:

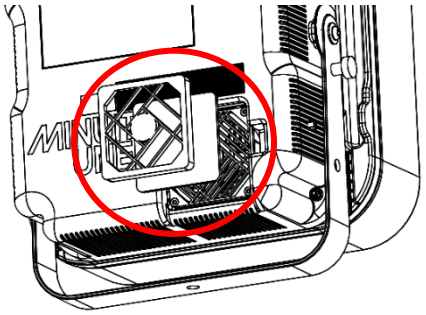
1. Disconnect the product from AC power.
2. Clean the external part of the transparent cover. Always clean the acrylic components with a soft wipe and /or standard glass cleaner without alcohol and a lint-free cloth. Do not use products, solvents or abrasive

To clean the fan filter:

If fan filter and fan are not cleaned regularly, airflow could be obstructed and causes overheating which will degrade performance and could cause damage to the product.

Fan filter

1. Remove the housing of the fan filter and the fan filter.
2. Wash the filter with warm water with a little mild detergent until it is clean.
3. Let the filter dry completely. Do not install a damp filter as moisture damages the fixture.
4. Install the fan filter back.



Fan blade

If there is a lot fog fluid residues on the fan blades, this section describes how to clean the fans inside

1. Remove the housing of the fan filter and the fan filter.
2. Clean the fan blades by using a bent nose pliers with the same microfiber cloth
3. Install the fan filter back.

DMX Protocol

Ch. Mode 1	Ch. Mode 2	Function	Sub-Function	Percent Value	DMX Value	Default Value (%)	Remarks
1	1	Control	OFF	0 > 9	0 > 23	100%	
			Reset Motor	10 > 14	24 >36		
			Reset Source	15 > 20	37 > 51		
			FULL Reset	21 > 25	52 > 64		
			ON – Fast Mode	26 > 49	65 > 125		
			ON – Standard Mode	50 > 100	126 > 255		
2	2	Shutter Frequency	Open	0 > 5	0 > 14	0%	
			Closed	6 > 10	15 > 27		
			30 > 1440 BPM	11 > 89	28 > 227		
			Open	90 > 100	228 > 255		
3	3	Shutter Duration	Short > Long	0 > 100	0 > 255	50%	The strobe duration – Closer to 0% will be short bursts of light. Closer to 100% will be longer bursts of light.
4	4	Number of Beams (E-Gobo Type)	1 Beam	0 > 10	0 > 27	0%	
			2 Beams	11 > 21	28 > 55		
			4 Beams	22 > 33	56 > 83		
			8 Beams	34 > 43	84 > 111		
			16 Beams	44 > 54	112 > 139		
			32 Beams	55 > 65	140 > 167		
			64 Beams	66 > 76	168 > 195		
			128 Beams	77 > 87	196 > 223		
			256 Beams	88 > 100	224 > 255		
5	5	Index / Offset (E-Gobo Index)	Index 0° > 360°	0 > 100	0 > 255	0%	
6	6	Index / Offset FINE (E-Gobo Index)	Index 0° > 360°	0 > 100	0 > 65535		
7	7	Rotation (E-Gobo Rotation)	Stop ROT (Index Active)	0 > 4.90	0 > 12	0%	When ROTATION is active, the Index parameter is NOT Active.
			CW ROT (Fast → Slow)	4.91 > 48.04	13 > 122		
			Relative STOP (Index NOT Active)	48.05 > 52.35	123 > 133		
			CCW ROT (Slow → Fast)	52.36 > 95.10	134 > 242		
			Stop ROT (Index Active)	95.11 > 100	243 > 255		
8	8	Beam Size (E-Gobo Size)	0° > 360°	0 > 100	0 > 255	100%	100% = Full light plan visual 0% = No light plan visual
9	9	Beam Size FINE (E-Gobo Size)	0° > 360°	0 > 100	0 > 65535		
10	10	TILT 1	-180° > 180°	0 > 100	0 > 255	50%	
11	11	TILT 1 FINE	-180° > 180°	0 > 100	0 > 65535		

12	12	Dimmer 1A	Close > Open	0 > 100	0 > 255	0%	
	13	Dimmer 1B	Close > Open	0 > 100	0 > 255	0%	
13	14	RED 1A	0 > FF	0 > 100	0 > 255	100%	
	15	RED 1B	0 > FF	0 > 100	0 > 255	100%	
14	16	GREEN 1A	0 > FF	0 > 100	0 > 255	100%	
	17	GREEN 1B	0 > FF	0 > 100	0 > 255	100%	
15	18	BLUE 1A	0 > FF	0 > 100	0 > 255	100%	
	19	BLUE 1B	0 > FF	0 > 100	0 > 255	100%	
16	20	TILT 2	-180° > 180°	0 > 100	0 > 255	50%	
17	21	TILT 2 FINE	-180° > 180°	0 > 100	0 > 65535		
18	22	Dimmer 2A	Close > Open	0 > 100	0 > 255	0%	
	23	Dimmer 2B	Close > Open	0 > 100	0 > 255	0%	
19	24	RED 2A	0 > FF	0 > 100	0 > 255	100%	
	25	RED 2B	0 > FF	0 > 100	0 > 255	100%	
20	26	GREEN 2A	0 > FF	0 > 100	0 > 255	100%	
	27	GREEN 2B	0 > FF	0 > 100	0 > 255	100%	
21	28	BLUE 2A	0 > FF	0 > 100	0 > 255	100%	
	29	BLUE 2B	0 > FF	0 > 100	0 > 255	100%	
22	30	TILT 3	-180° > 180°	0 > 100	0 > 255	50%	
23	31	TILT 3 FINE	-180° > 180°	0 > 100	0 > 65535		
24	32	Dimmer 3A	Close > Open	0 > 100	0 > 255	0%	
	33	Dimmer 3B	Close > Open	0 > 100	0 > 255	0%	
25	34	RED 3A	0 > FF	0 > 100	0 > 255	100%	
	35	RED 3B	0 > FF	0 > 100	0 > 255	100%	
26	36	GREEN 3A	0 > FF	0 > 100	0 > 255	100%	
	37	GREEN 3B	0 > FF	0 > 100	0 > 255	100%	
27	38	BLUE 3A	0 > FF	0 > 100	0 > 255	100%	
	39	BLUE 3B	0 > FF	0 > 100	0 > 255	100%	
28	40	TILT 4	-180° > 180°	0 > 100	0 > 255	50%	
29	41	TILT 4 FINE	-180° > 180°	0 > 100	0 > 65535		
30	42	Dimmer 4A	Close > Open	0 > 100	0 > 255	0%	
	43	Dimmer 4B	Close > Open	0 > 100	0 > 255	0%	
31	44	RED 4A	0 > FF	0 > 100	0 > 255	100%	
	45	RED 4B	0 > FF	0 > 100	0 > 255	100%	
32	46	GREEN 4A	0 > FF	0 > 100	0 > 255	100%	
	47	GREEN 4B	0 > FF	0 > 100	0 > 255	100%	
33	48	BLUE 4A	0 > FF	0 > 100	0 > 255	100%	
	49	BLUE 4B	0 > FF	0 > 100	0 > 255	100%	

Specification

Measurements and weight
All dimensions are given in millimetres.
Dimensions of the housing: 384 x 384 x 238 mm^3
Total dimensions of the fixture (adjustable yoke included): 384 x 433 x 238 mm^3
Weight: 10,6kg

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,635m
Colours: smooth RGB spectrum
Nominal Beam diameter (1/e) at scanning vertex: 17±1mm
Beam divergence: ⩾ 1.8mrad
Nominal Scan rate: 330Hz
Distance from scanning vertex to closest point of human access (NPHA): 155mm
Maximum output: 38 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
4 independent mirrors: producing independent 4 light planes
Aperture by mirror: 84° linear aperture by tilt
Operating angle: 105°
Motorization: 4 stepper 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
4 independent frost filter: producing 4 independent frosted outputs
Aperture by mirror: very wide
Operating angle: 105°
Motorization: 4 stepper 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

DMX
Number of channels in mode 1: 33
Number of channels in mode 2: 49
2 options: standard or fast mode
Update: by micro-SD card

Electronical gobos: 9 e-gobos
RGB control: independent RGB control per tilt
Dimmer control: independent dimmer control per tilt
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: +25°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 temperature
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
CB IEC62368-1 :2018

EMC:

EN55032 :2015+A11 :2020+A1 :2020
EN55035 :2017+A11 :2020
EN IEC 61000-3-2 :2019+A1 :2021
EN 61000-3-3:2013+A1 :2019+A2 :2021
47CFR Part 15 Subpart B
ICES-003 :Issue 7october 2020
J55032(H29)
AS/NZS CISPR32, :2015+A12020

	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.