PLANET
LIGHTING

FOCUS REMOTE

MANUAL

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1.0 Introduction

Please read this manual carefully before proceeding to install or operate the Product.

User safety

The Product information and warnings described in this document are likely to assist in the protection of the Service Personnel and the Operator from injury, however these must not be relied on as the only reference or processes for user and personnel safety. Operators and Service Personal should also follow their local and workplace safety processes and Organisations strive to improve upon safety processes with their staff. Where there is conflicting or confusing advice or an absence of relevant information, we recommend seeking out further advice or instruction from a supervisor, supplier or another suitable expert.

Conformity

The manufacturer declares that this Product is suitable for use in underwater fish farming industries.

Validity of manual

This installation manual is valid for the following models:

- Focus 600 sea cage light
- Uno
- Uno Panel

Customer service and support

Please contact your supplier for any further details you may require regarding the Product including its packaging, transport, installation and for any requests for technical and electrical diagrams. You can also contact Planet Lighting directly at: support@planetlighting.com

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Translations

The original language of this manual is English. For all other translations, reference must be made to the original manual language.

1.1 Glossary of terms

TERM	DEFINITION
PRODUCT	The equipment to which this manual refers includes the following: Focus sea cage light, Uno integrated housing, driver and control unit, and the Uno Panel. For ease of description, this manual may refer to this equipment as the "Product".
WE / US	The manufacturer and company Planet Lighting.
OPERATOR	Person handling the equipment (e.g. professional aquaculture personnel, non-expert person assisting the aquaculture processes).
RESPONSIBLE ORGANIZATION	Entity accountable for the use and maintenance of the equipment (e.g. an aquaculture farming operation). Preparation and training are included in use.
SERVICE PERSONNEL	Individuals or entities accountable to the responsible organisation that install, assemble, maintain or repair the equipment. In certain circumstances, the safety of such persons depends on their knowledge and training and ability to take appropriate precautions when gaining access to hazardous parts of the Product assembly. By way of example only, the following professional figures are deemed as SERVICE PERSONNEL: • Mechanical or Structural Engineer (for the suspension works) • Electrical Engineer, or other Electro-technical expert qualified to work as an electrician (for the electrical works) • Technician (employee of manufacturer or distributor) trained by Planet Lighting to conduct in-field refurbishments.

1.2 Graphic signs and symbols used in this manual

The following safety measures and warnings should be observed during Product installation, use and servicing.

To emphasize their importance, a number of safety precautions are repeated throughout the manual. Follow the safety precautions before using or repairing the Product. Carefully abiding by the safety precautions improves the ability to use the Product safely and correctly and helps prevent incorrect maintenance which could be hazardous and cause damage. The safety measures are approximate and not exhaustive; the Operator, the Responsible Organization and the Service Personnel must develop their capacities to upgrade and integrate them.

Indications such as DANGER, WARNING and CAUTION, preceded by the symbol  indicate the level of risk to which the SERVICE PERSONNEL, the RESPONSIBLE ORGANISATION and the PRODUCT could be exposed.

DANGER: indicates an immediately hazardous situation which could result in death or serious injuries.

WARNING: indicates a potentially hazardous situation that could result in death or serious injuries.

CAUTION: indicates a potentially hazardous situation which could result in moderate or light injuries and Product damage.

 This triangular symbol together with the explanation alongside (shown above) indicates the type of hazard to be dealt with.

1.3 Warnings and safety notices

	TERM	DEFINITION
	**CAUTION**	This manual is an integral part of the Product, subsequent amendments and supplements. Read and keep this manual close to the Product.
	**CAUTION**	Planet Lighting disclaims all liability for any injury to persons or damage to things caused by the Product having been installed by persons who are not "SERVICE PERSONNEL".
	**CAUTION**	The RESPONSIBLE ORGANIZATION is entirely responsible for Product installation activities. No costs or responsibilities relating to the installation and/or commissioning of the Product may therefore be traced back and/or in any case attributed to Planet Lighting.
	**CAUTION**	 **CAUTION – Poor Earth Management Can Cause Severe Corrosion by Electrolysis** The electrical system at the farm site must adequately manage the electrical earth for all devices. Any damage caused to the Product as a result of poor earth management will not be warranted.
	**DANGER**	 **DANGER – Risk of Electric Shock** Turn off the light BEFORE commencing any maintenance. The electrical system MUST NOT be powered when divers are in the water or when net cleaners or other machinery are in use. Ensure the Uno housing is completely POWERED OFF before conducting maintenance operations in the cage. If you are concerned about startling fish, press and hold button for manual soft-stop over 5 minutes. Once lights are off, cut power to the equipment.
	**DANGER**	 **DANGER – Risk of Electric Shock** The electrical system at the farm site must conform to the applicable local standards, and any national regulations. A master switch must be installed with fuse or thermal magnetic circuit breaker to be able to interrupt power to the Product.

	TERM	DEFINITION
	DANGER	**DANGER – Risk of Permanent Eye Damage** DO NOT look into the light fitting when powered. The LED emits extremely bright light which can cause damage to the retina. Lights should be operated underwater only.
	DANGER	**DANGER – Authorised Service Personnel ONLY** ONLY AUTHORISED SERVICE PERSONNEL should carry out maintenance on Planet Lighting products. For your safety, always follow your workplace policy or procedure or contact a supervisor if you are unsure.
	DANGER	**DANGER – Risk of Electric Shock** Power off equipment IMMEDIATELY if signs of damage. If equipment is suspected damaged by machinery or force, operators should take steps to ensure the system is completely powered off before commencing salvage, fault finding or repair actions.
	DANGER	**DANGER – Risk of Burns or Permanent Injury** **Do Not Run Light Out-Of-Water** DO NOT operate the Product out-of-water under any circumstances. The Focus sea cage light is designed to run UNDERWATER ONLY. Open water under 20°C is required to maintain a compliant running temperature. The heat sink is NOT designed to cool when operated out-of-water. Operation out-of-water may lead to BURNS or PERMANENT INJURY. Operation out-of-water can also damage the product and void warranty.

1.4 Warranty and liabilities

Planet Lighting disclaims all liability with regard to unreliable Product operation in any of the following cases:

- **Installation, authorised modifications and repairs have not been performed by SERVICE PERSONNEL.**
- **The Product has not been used for its intended purpose and in conformity with these operating instructions.**
- **The Product is run whilst out of water.**
- **The electrical system supplying the lights does not deliver an input voltage within the range specified.**
- **The electrical system supplying the lights does not comply with local laws and regulations.**
- **The electrical system does not adequately manage the electrical earth, thus causing corrosion via electrolysis.**
- **Where modifications or adjustments have been made to the Product without permission from us.**
- **Where the Focus light has been connected to or powered by a device other than a device manufactured by us and designed for the Product.**

1.5 Structural changes or variations

No arbitrary structural changes, modifications or variations to the Product are permitted without prior written authorisation of Planet Lighting. In case of the Product having been tampered with, the warranty shall be invalidated and the manufacturer disclaims all liability for any injuries or damage caused to the OPERATOR, the RESPONSIBLE ORGANISATION and the SERVICE PERSONNEL.

1.6 Operator qualification

The following qualification requirements are based on the definitions given under the 'Glossary of Terms' (section 1.1) The qualification requirements for various tasks relating to the Product are as follows :

Installation:	SERVICE PERSONNEL
Use:	OPERATOR
Cleaning:	OPERATOR
Routine maintenance:	SERVICE PERSONNEL
Special maintenance:	SERVICE PERSONNEL
Disposal:	RESPONSIBLE ORGANISATION and SERVICE PERSONNEL

1.7 Environmental Considerations

Packaging

Cardboard boxes containing Product. Dispose of these in compliance with national directives applicable for waste disposal.

Transport and Storage

Product transport is done by land, sea or air. The Product must be packaged, transported and stored (warehoused) in a dry premises within the following range:

Temperature (°C): -15 / +60

Place of installation

The environment where the Product is started up must have the following characteristics:

Air Temperature (Uno housing only) (°C): -40 / +40

Water Temperature (lighting fitting only) (°C): -15 / +25

Recycling

Design of the Product takes into account the materials used in the manufacture of components. This is to ensure when it reaches its end of life, the disposal method with the lowest or least negative impact, on human health and the environment is selected.

Unlike the sources of traditional light, LED's do not contain mercury, toxic gases, filaments or fragile parts. Due to the fixture being over 95% recyclable and there being no Bulbs/Globe changing during the Focus life of >36,000 hours, your environmental footprint will be significantly reduced.

When your Product reaches the end of its life, contact Planet lighting or our local agents to learn about recycling options. The Focus light must be disposed of properly according to local laws and regulations.

2.0 General information

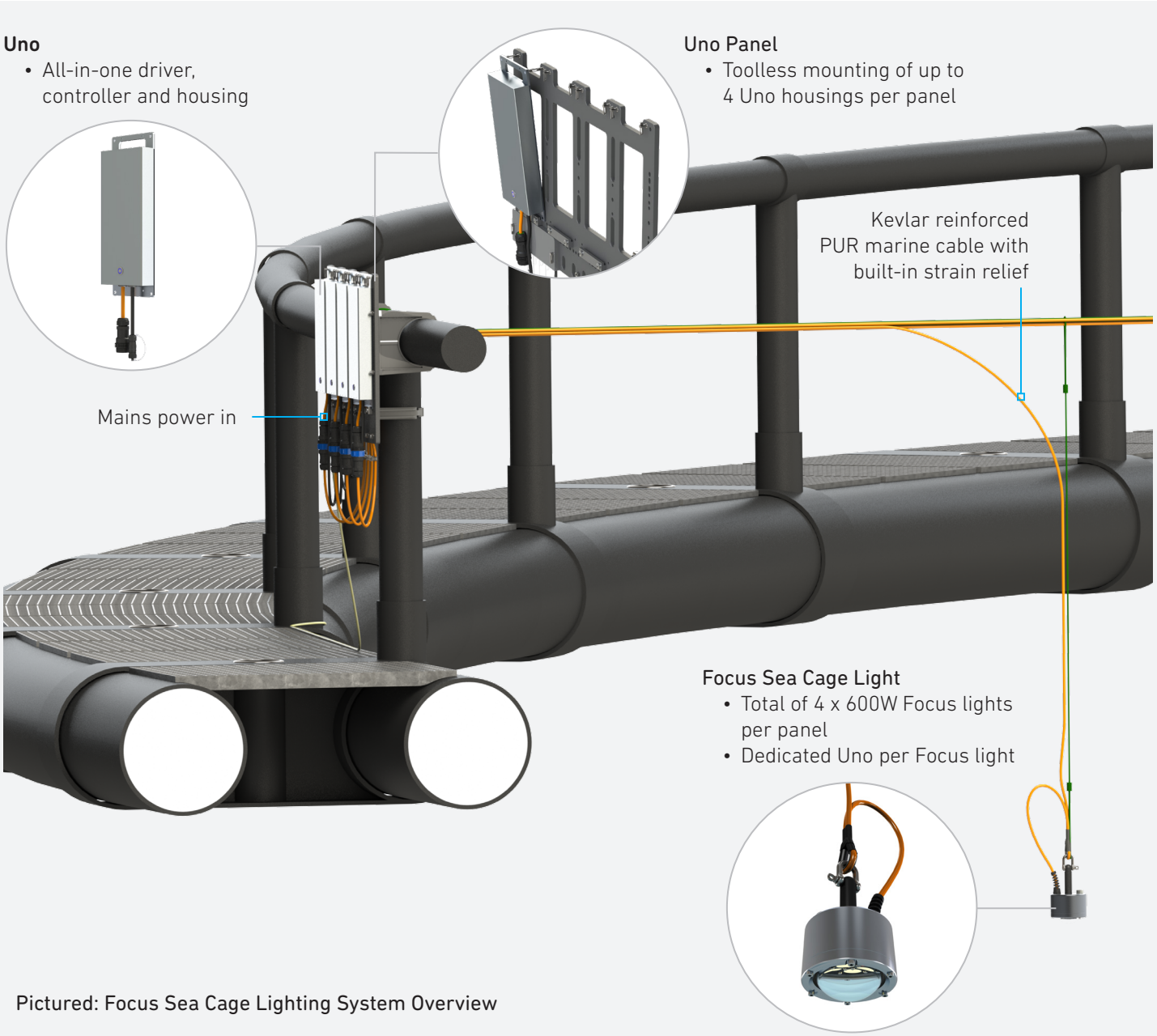
This installation manual describes how to install, operate and maintain the Focus sea cage lighting system components from Planet Lighting (referred to throughout this document as the 'Product'). Prior to installation please carefully read through all the instructions in this manual.

2.1 Product definition

The Product is the Focus sea cage lighting system and its components, a state of the art underwater LED aquaculture lighting system. The Product is designed to deliver the highest performance in the most compact and light weight package available. The Product's robust, lightweight and highly efficient design provides a fish lighting solution which is easy to use and limits maintenance to deliver class-leading low operational costs and headache-free operation.

Manufacturer

The Product is designed and manufactured in Australia by award-winning lighting manufacturer, Planet Lighting (established 1911). Planet Lighting is a renowned worldwide supplier of cutting edge solid state lighting devices, primarily for aquaculture, architectural and medical applications. We have a proven track record in supplying LED sea cage lighting solutions since 2012 and have a constant commitment to product improvement. We would like to hear from you, should you have any enquiry, comment or special lighting need. We are proud to support our products with great service and a long warranty.



Pictured: Focus Sea Cage Lighting System Overview

System Components

The Focus system is made up of three (3) main component groups: the Focus sea cage light, the Uno, and the Uno Panel. In the following sections we will define each of these groups in greater detail.

Focus

High performance underwater sea cage light

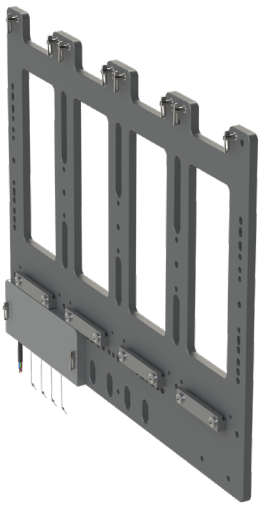
Uno

All-in-one housing, driver, and controller unit

Uno Panel

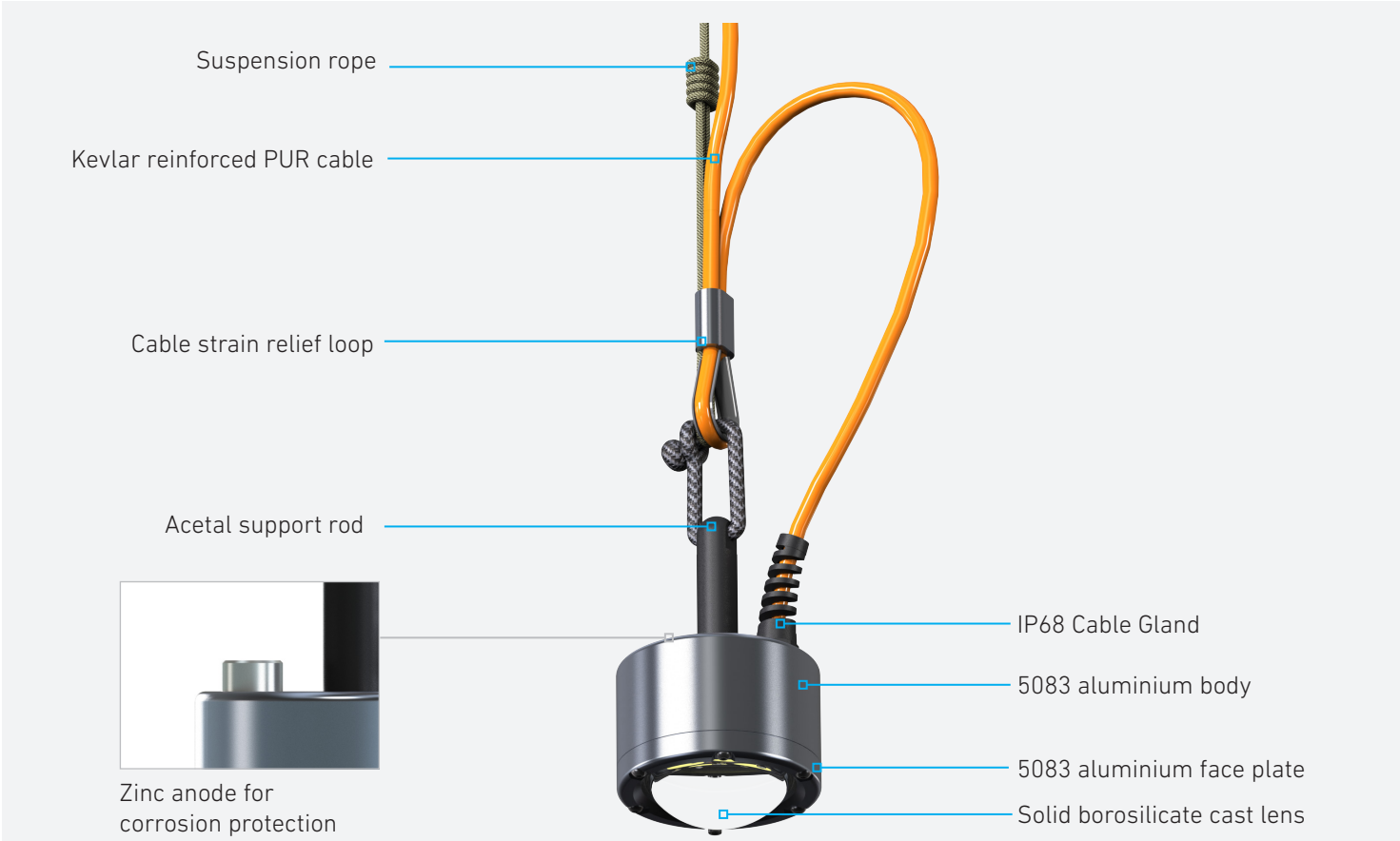
Holds up to 4 Uno housings.

Please note, contact us or your supplier regarding bracket solutions for your sea cage.



2.2 Focus - Component Overview

The Focus sea cage light is an exceptionally compact, high performance and robust underwater light with a beam distribution optimised for fish production.



Pictured: Focus Sea Cage Light Features

Specifications

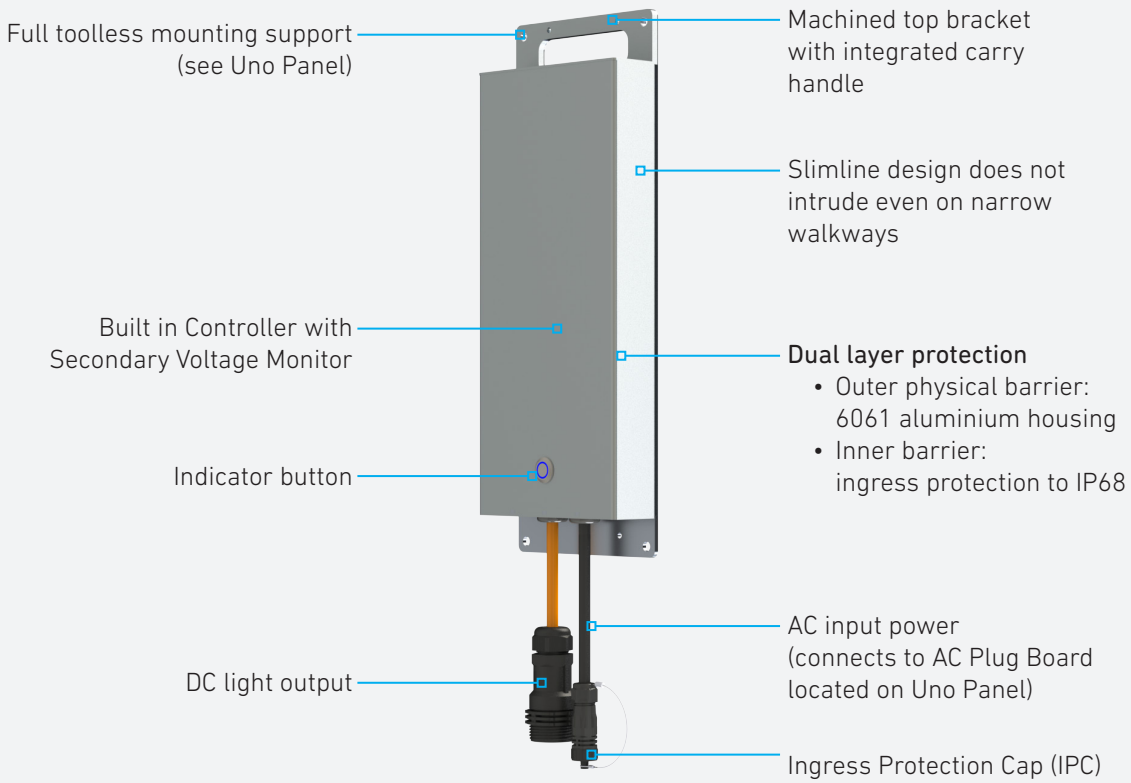
Weight	2.4 kg
Size	125 mm (W) x 215 mm (H)
Cross-sectional area	13600 mm^2
Beam distribution	Circular 120˚
Power consumption (W)	600
DC Output Voltage Range	190 - 230V DC
DC Output Operating Current Range	0.2 - 2.4A

Features

- Superior LED technology designed for the sea cage
- Ultra compact and lightweight form
- Ultimate efficiency of up to 150 lumens per watt
- Focused, downwelling 120° beam angle light creates a more natural environment for fish and improves efficiency
- Ultra durable and low maintenance with robust, anti-corrosion features and materials
- Plug & Play simplicity - designed for easy use with our remote gear Uno: a slimline, all-in-one driver, controller and housing.

2.3 Uno - Component Overview

Uno is an ultra compact all-in-one housing, controller unit and easily replaceable power supply for the Focus sea cage light. Precision engineered and made in Australia, Uno is exceptionally robust yet slimline and lightweight. Uno features advanced added safety features and salmon-appropriate soft start & stop built in.



Pictured: Uno

Specifications

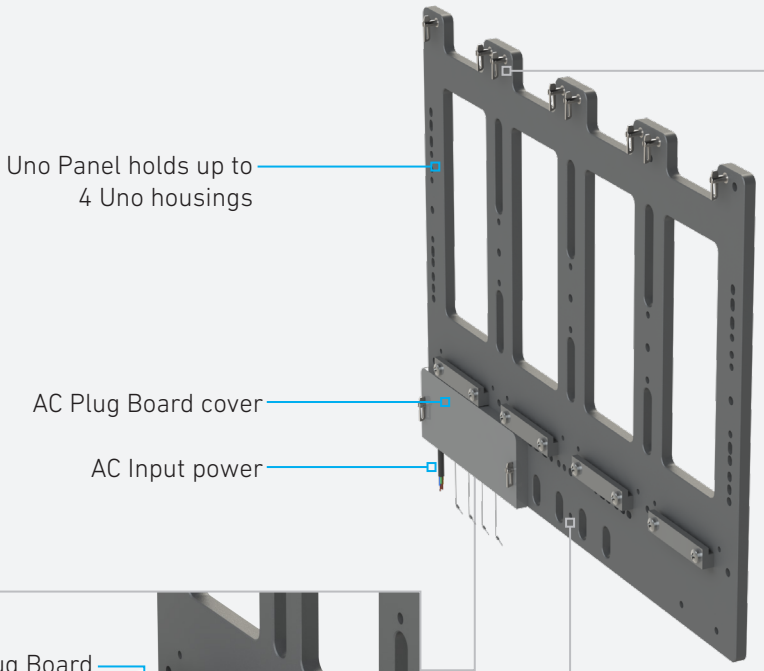
Weight	5.2 kg
Size	168 mm (W) x 460 mm (H) x 51 mm (D)
Indicator Light	Blue LED
Input Voltage	90-305 Vac (or 127-250Vdc if DC Primary)
DC Output Socket	1 x 3 pin with blue dust cap
See installation section for further electrical detail.	

Features

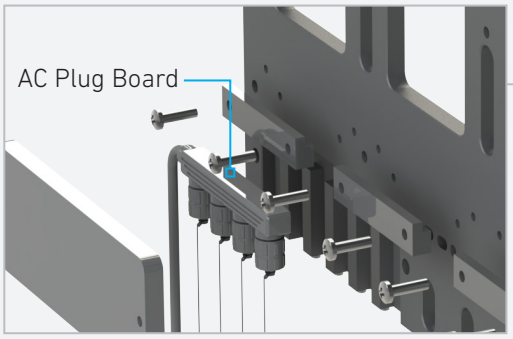
- Slimline design keeps walkways clear
- Lightweight design for easy handling
- Robust purpose-built enclosure with superior thermal management
- Advanced IP68 water ingress protection and design
- Built in Secondary Voltage Monitor for added safety
- Preprogrammed soft start and manual soft stop
- Easy installation. Plug & Play operation with our Focus sea cage light.

2.4 Uno Panel - Component Overview

Designed and manufactured specifically for Uno, Uno Panel holds up to 4 Uno housings. Each Uno Panel may have one or two supply circuits (see our AC plug board options) and is available with a range of clamps and bracket kits to secure to any sea cage design.



Toolless install and removal



IP68 AC Plug Board and connections are protected inside a removable cover.

Secure cable strain relief
with drip loop design

Uno Panel complete with 4 Uno housings

Features

- Purpose-built for Uno; holds up to 4 Uno housings.
- Toolless mounting for easy Uno install and removal
- Robust, weather-resistant HDPE
- Lightweight and easy to handle
- Supports secure strain relief
- Available with a range of clamps and bracket kits to suit any sea cage

2.5 Key Features

Strain Relief and Cable Management

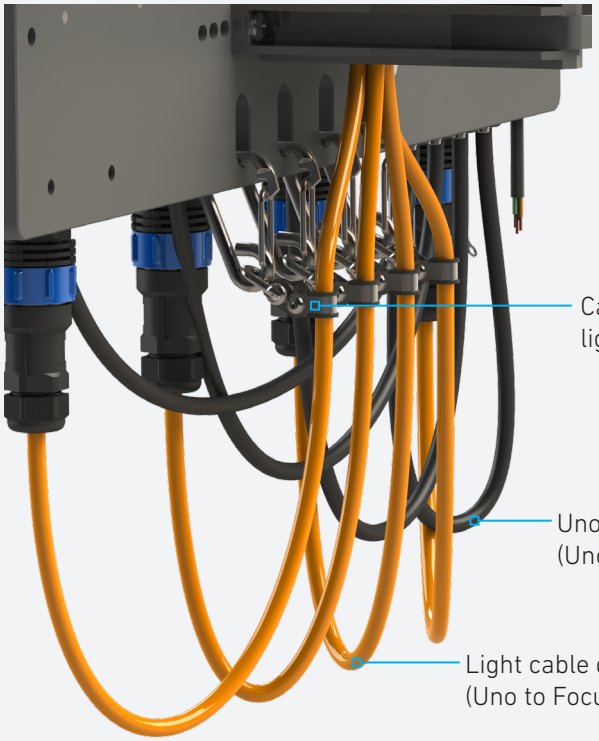
The Focus sea cage lighting system comes equipped with a high quality dual strain relief system and smart cable management to support system durability and reliability.

Strain Relief

Integrated strain relief for enhanced cabling protection from housing to light.

Uno Panel Cable Management

Uno Panel provides 2 sets of drip loops when correctly installed: One drip loop set for the AC supply cables (black) and another for the lighting cables (orange). This design provides additional protection from water ingress, as water will run down the cable away from the connections to the bottom of the drip loop.

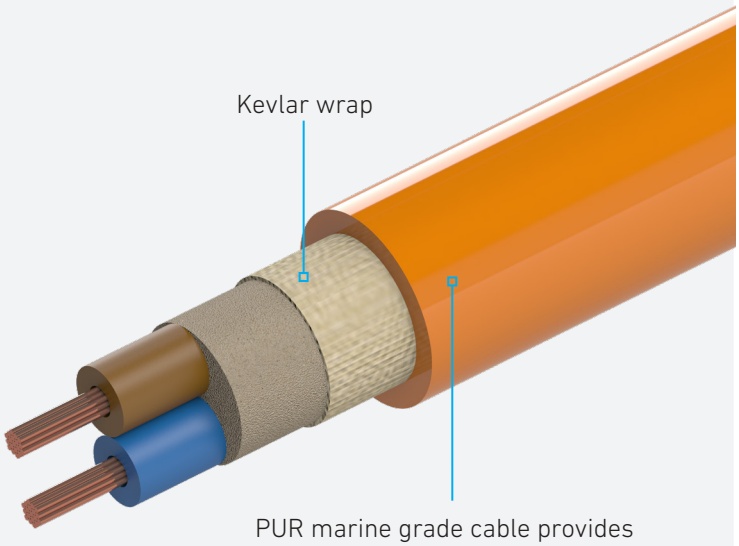


Cables

Focus is designed to endure tough sea cage conditions. Our custom cable specification has been developed to ensure the utmost durability, with a thick TMPU (PUR) outer sheath around a Kevlar wrap.

PUR marine grade cable

Ultra strong and flexible custom specified cabling featuring extra-thick polyurethane wall, Kevlar wrap for tension relief and a conductor at 1.5mm^2 (exceeds class 5).



PUR marine grade cable provides ultra durability and reliability

Built-in Controller

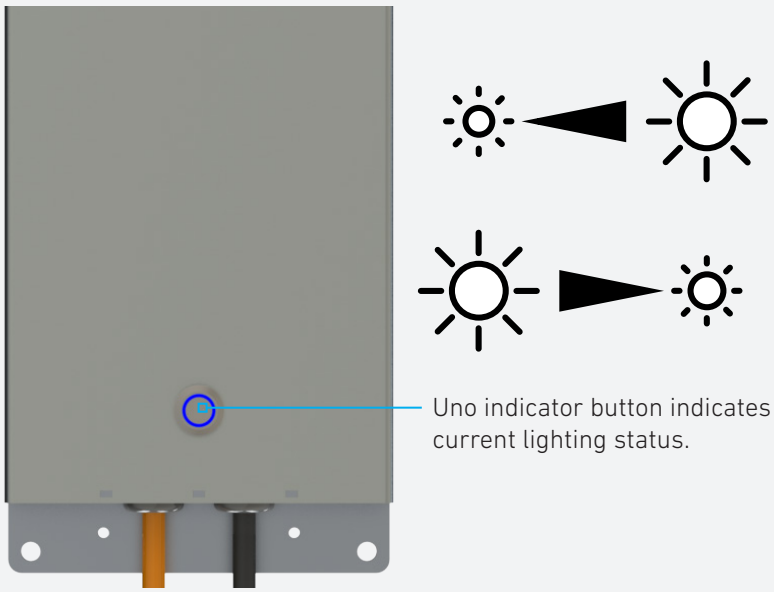
Uno is an all-in-one housing, controller and driver for the Focus sea cage light. The controller within an Uno housing provides a preprogrammed Soft Start function as well as a Manual soft stop. See below and section 4.0 Operation for more details.

Preprogrammed Soft Start

Soft start is provided as standard, to benefit fish health. When powered on, the Uno controller runs a dimming program starting at 10% of maximum output. Brightness is slowly increased at a linear rate to 100% over 30 minutes. While the soft start program is running, the Uno indicator button will pulse from DIM to BRIGHT to indicate ramp up mode. When soft start is complete, the indicator button remains steady on at full brightness.

Manual Soft Stop

A manual soft stop feature dims the lights from BRIGHT to OFF over a 5 minute period. The soft stop feature is useful for bringing lights down gently before powering the system off, for example in preparation for net cleaning activities, or before divers enter the water.



Uno indicator button indicates current lighting status.

Built-in Controller with Soft Start and Soft Stop

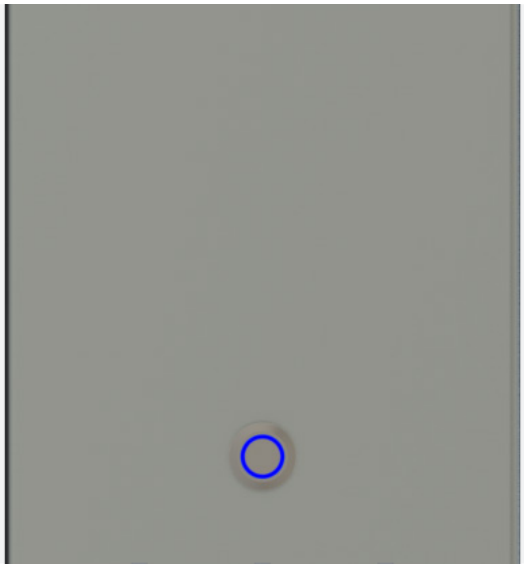
Preprogrammed soft start and manual soft stop come standard to help prevent fish stress. The Uno indicator button indicates the current lighting status: Soft Start or Soft Stop mode by pulsing DIM to BRIGHT or BRIGHT to OFF, and full brightness achieved by STEADY ON.

Secondary Voltage Monitor (SVM)

Uno includes a safety feature called a Secondary Voltage Monitor (SVM). If the voltage monitor detects an out of voltage range condition, it will disable the lighting circuit and flash its indicator in error mode. *See 4.0 Operation to 4.3 Uno Indicator Button Status* to confirm your Focus light state as well as troubleshoot abnormal operation.

Uno Secondary Voltage Monitor (SVM)

The built-in Secondary Voltage Monitor (SVM) is designed to monitor output voltage operations of the driver and indicate if a voltage range error was detected. In this event the indicator will flash rapidly in ERROR mode, and the connected light will be disabled.



Easy Installation, Storage and Removal.

Every component of the system is compact and lightweight for safe and easy handling while installing, removing or servicing the equipment.

Heavy Duty. Without the Heavy Lifting

A Focus light and an Uno housing pack and ship together in a stackable, collapsible crate. The crate can be reused for easy handling when installing, removing, storing or servicing the equipment.

Pictured: Focus light, Uno housing and cabling pack neatly into individual stackable crates.

2.6 Electrical Detail

General Electrical Warnings

⚠ **DANGER: If you observe faulty or damaged electrical equipment, and if it is safe to do so, turn OFF.**

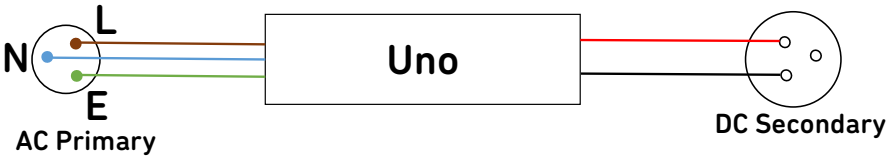
⚠ **DANGER! Risk of burns and permanent injury. Do not run lights out-of-water. Ensure the Focus light is submerged before operating the light or commencing any maintenance.**

⚠ **WARNING: Water ingress through damaged or improperly fitted Ingress Protection Caps can cause electrical hazards. Ensure caps are tightly fitted to avoid water ingress.**

Uno [UH1]

Specifications Per Uno Unit

Weight:	5.2 kg
Dimensions:	168 mm (W) x 460 mm (H) x 51 mm (D)
Indicator Lights:	Blue LED indicator
DC Output Sockets:	1 x 3 pin with blue Ingress Protection Cap. Product code: H-CFB-600
Power:	Each unit draws maximum 600W



Wiring Schematic

AC Input Specifications

PARAMETER	VALUE	NOTES
Input Voltage (V)	90-305Vac	90-305Vac (or 127-250Vdc if DC Primary)
Input Frequency (Hz)	47-63 Hz	
Leakage Current (mA)	0.7	IEC60598-1; 240Vac/ 60Hz, grounding effectively
Input AC Current (A)	5.0	Measured at 100% and 120 Vac input.
	2.5	Measured at 100% and 230 Vac input.
Inrush Current (A^2s)	4.7	At 220Vac input, 25°C cold start, duration=7.64 ms, 10%Ipk-10%Ipk. See Inrush Current Waveform for the details.
Power Factor	0.9	At 100-277Vac, 60%-100% Load (360-600W)

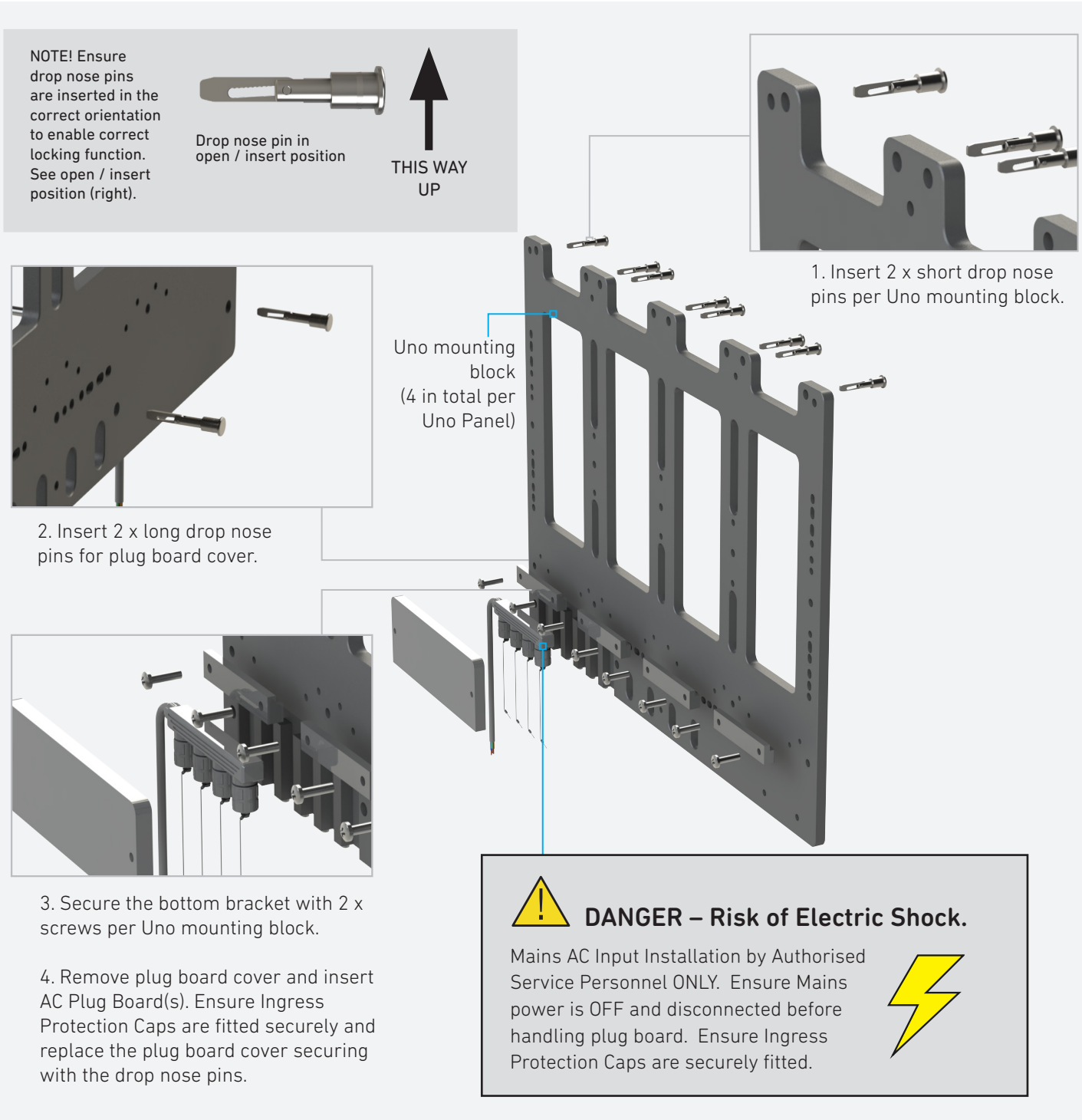
3.0 Installation

3.1 Uno Panel Assembly

⚠ **DANGER: Risk of electric shock – Mains AC Input Connection by Authorised Service Personnel ONLY. Ensure that Mains Power AC is turned OFF and disconnected BEFORE attempting installation and before handling the AC Plug Board. Ensure that all unused plug board outlets have Ingress Protection Caps securely fitted.**

The Uno Panel is shipped flat-packed and requires assembly. Use the following steps and diagram for assembly. All parts for assembly are provided and include:

- 8 x screws
- 8 x short drop nose pins (Uno)
- 2 x long drop nose pins (AC Plug Board)



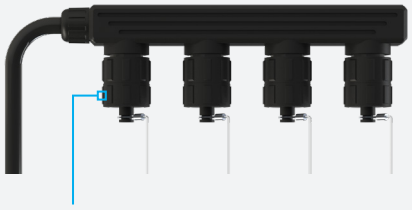
Pictured: Uno Panel assembly (exploded view).

Uno Panel Assembly – Instructions:

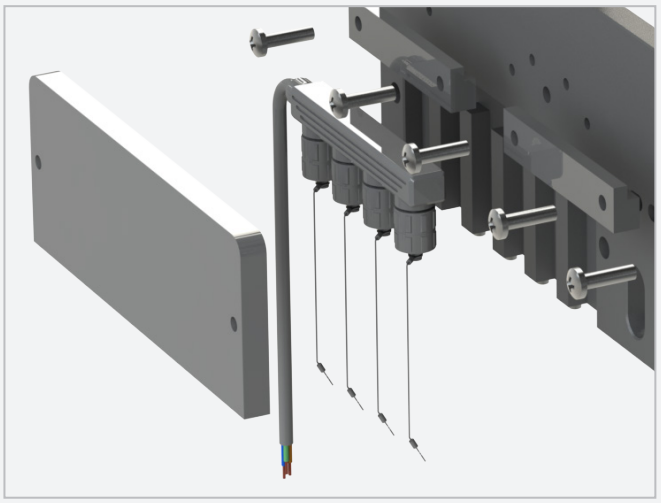
- Step 1: Insert 8 x short drop nose pins into the top of the Uno Panel in the holes provided. There are 2 x drop nose pins per Uno mounting block. Ensure drop nose pins are inserted in the correct orientation to enable correct locking function.
- Step 2: Insert 2 x long drop nose pins into the AC Plug Board holes on the Panel. This will secure the plug board cover.
- Step 3: Use the provided 8 x screws to secure each of the 4 Uno bottom mounting blocks as shown, using 2 screws per mounting block.
- Step 4: *If you are NOT inserting the AC Plug Board into the Uno Panel at this time:* secure the plug board cover with the drop nose pins. *If you are inserting the AC Plug Board during this assembly:* with the plug board cover removed, insert the plug board(s), ensuring that Ingress Protection Caps are securely fitted on the plug board outlets then replace the plug board cover securing with the drop nose pins.

DANGER – Risk of Electric Shock.

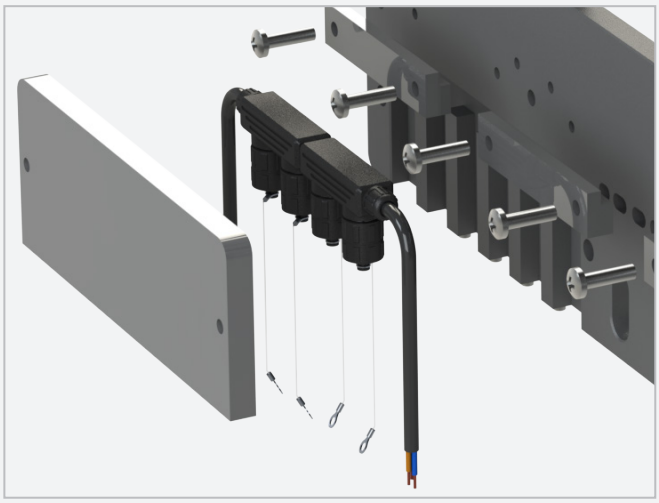
Mains AC Input Installation by Authorised Service Personnel ONLY. Ensure Mains power is OFF and disconnected before handling plug board(s). Ensure Ingress Protection Caps are securely fitted.



Ensure Mains power is OFF and disconnected before handling plug board(s) and that Ingress Protection Caps (IPCs) on unused outlets are securely fitted.



AC Plug Board model: UP1-PB-4 (1 x 4 socket)



AC Plug Board model: UP1-PB-2 (2 x 2 socket)

Pictured: AC Plug Board model options (expanded view). Plug boards are placed within the Uno Panel behind the removable plug board cover.

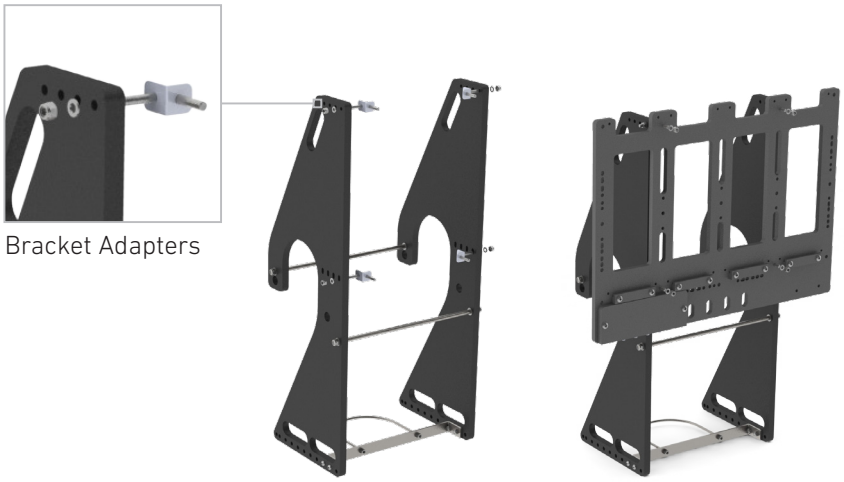
Mounting Bracket Solutions for Uno Panel

We can recommend a range of mounting bracket solutions for the Uno Panel. Some are available as a parts purchase, including solutions for mounting legacy equipment. Please contact us or your supplier for more information.

HDPE (Legacy Upgrade)

We offer an adaptor to mount a Uno Panel onto a legacy H-MBP mounting bracket. The adaptor fits any bracket which can hold a 4x600 cabinet including both low & high mount H-MBP designs.

Part number: UP-BKA-MBP

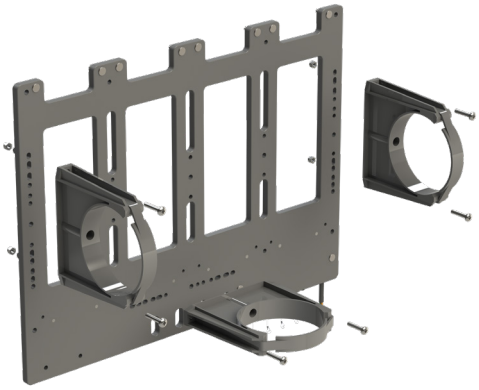


Bracket Adapters

HDPE Pens (New Installations)

A range of pipe clamps can affix the Uno Panel to the rail. Each clamp requires a stainless steel screw and nyloc nut. Please note, pipe clamps are not available through Planet Lighting. Contact your local suppliers.

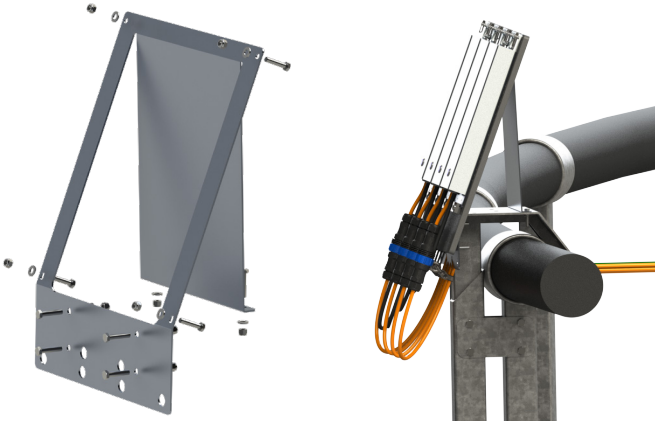
For our Norway customers, a range of pipe clamps are available from Ahlsell which can be sized to fit the handrail and stanchion of your cage.



Aqualine Pens with Universal Bracket (New Installations)

We offer a custom solution for the Aqualine Universal Bracket for Extra Equipment. This bracket combination works with Aqualine cage optional equipment and keeps the equipment high above the water.

Part Number: UP-BK-AUB

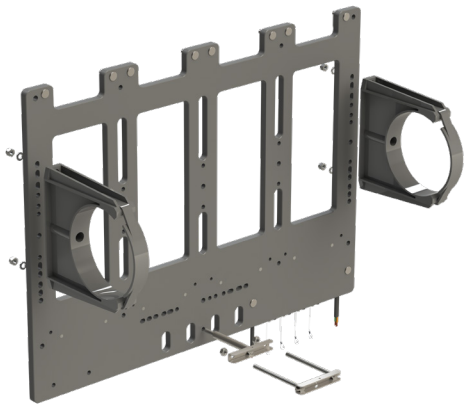


UP-BK-AUB
(exploded view)

Aqualine Pen Handrail Mount (New Installations)

For customers using Aqualine pens without the Aqualine Universal Bracket, we offer a bracket kit solution to fit the 80x60mm steel stanchion used in the aqualine cage design. Extra pipe clamps are required for the handrail, similar to a HDPE pen.

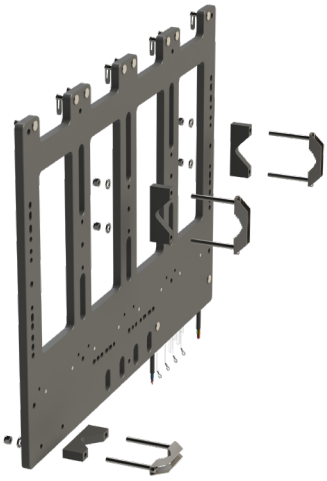
Part Number: UP-BK-AS



Steel Pens

For boxes mounted to handrails and scaffolds on steel cages we can provide 316 Stainless Steel standard couplers. Allows secure attachment to a range of tube and pipe sizes

Part number: UP-BK-M



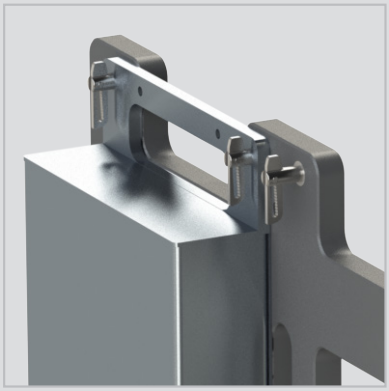
3.2 Uno Housing Installation

⚠ **DANGER: Risk of electric shock – Ensure that Mains Power AC is turned OFF and disconnected BEFORE attempting installation of the Uno housing and BEFORE handling AC Plug Board(s) or connectors.**

⚠ **CAUTION: Risk of injury and product damage – Ensure that the Uno Panel is firmly secure on the rail with your chosen bracket solution.**

Your Uno unit is Plug & Play and has a toolless design for easier installation. Follow the steps and diagrams for each Uno unit you are installing ensuring you observe the mentioned cautions.

1. Insert the Uno housing into a mounting block on the Uno Panel



2. Secure the Uno with 2 x short drop nose pins, rotating and locking each pin into place at 90 degrees as shown

3. Check the Uno housing is secured to the Uno Panel as pictured.

⚠ **CAUTION – Risk of injury and product damage.**

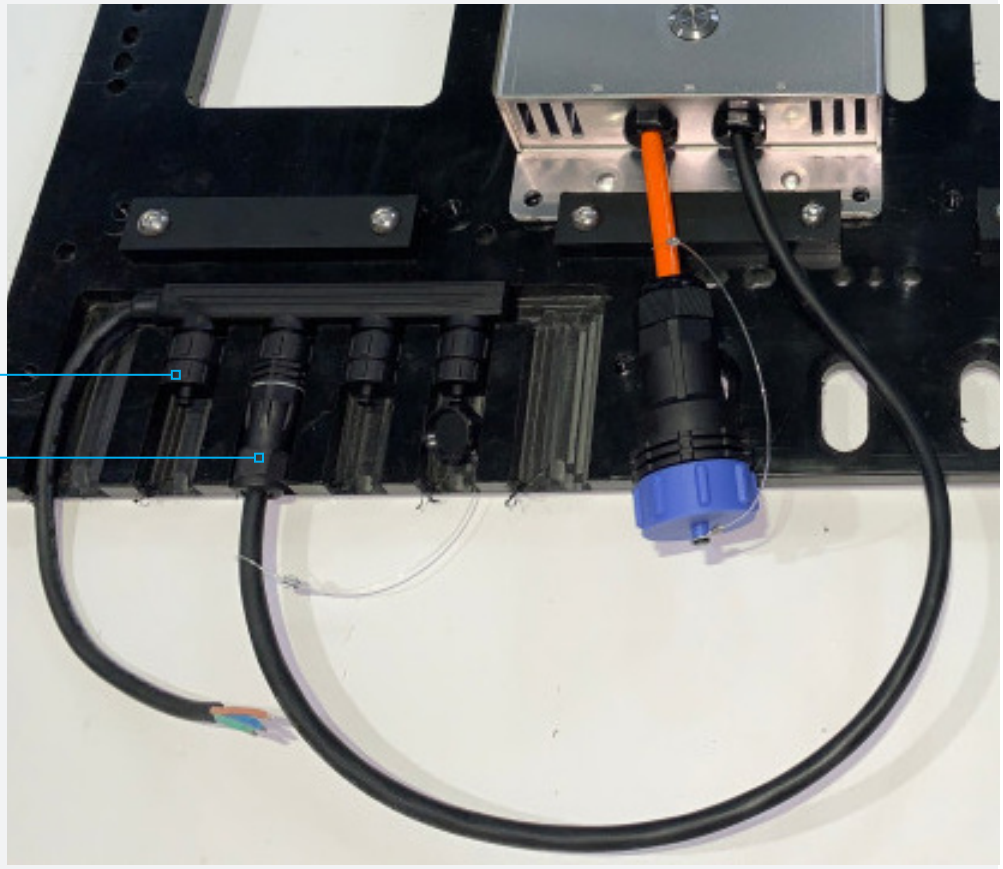
Ensure that the Uno Panel is firmly secure on the rail with your chosen bracket solution.

1. Mounting your Uno housing - Instructions:

- Step 1: Insert the bottom of the Uno housing into the mounting block on the Uno Panel.
- Step 2: Align the top holes of the housing with the drop nose pins on the Uno Panel. Place the Uno housing through the drop nose pins until it is flush against the Uno Panel and secure by rotating and locking each pin.
- Step 3: Check the Uno unit is secure on the Panel.

Ingress Protection Caps should be secured on all outlets not in use

Plug in Uno AC input cable connector into the plug board



DANGER – Risk of Electric Shock.

Mains AC Input installation by Authorised Service Personnel ONLY. Ensure Mains power is OFF and disconnected before handling plug board(s). Ensure Ingress Protection Caps are securely fitted.

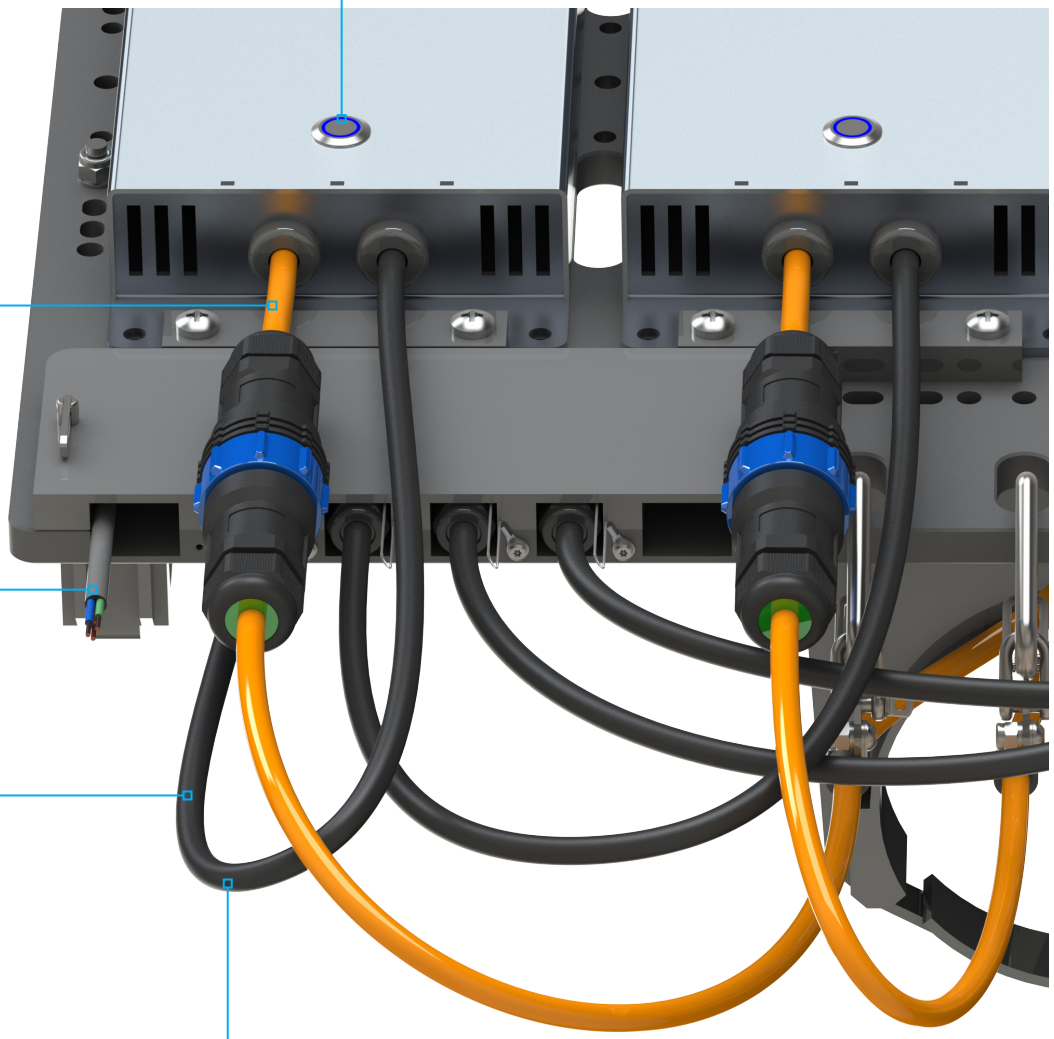
Pictured: Photo of Uno AC input Cable connected to AC Plug Board socket on Uno Panel (plug board cover removed).

2. Connecting your Uno AC input cable – Instructions:

- Step 1: Ensure Mains power is OFF.
- Step 2: Remove the plug board cover and plug in the Uno AC input cable connector into a plug board socket.
- Step 3: Ensure Ingress Protection Caps are in place on all outlets not in use.
- Step 4: Replace the plug board cover.

Power Connectors

Each Uno housing has a DC Output socket for powering one Focus light, and a built-in AC input cable. The AC connector connects to the plug board on the Uno Panel (see below).



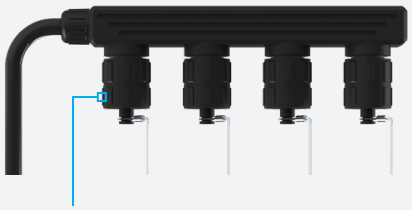
Pictured: The underside of the Uno housing and Uno Panel.

AC Plug Board(s)

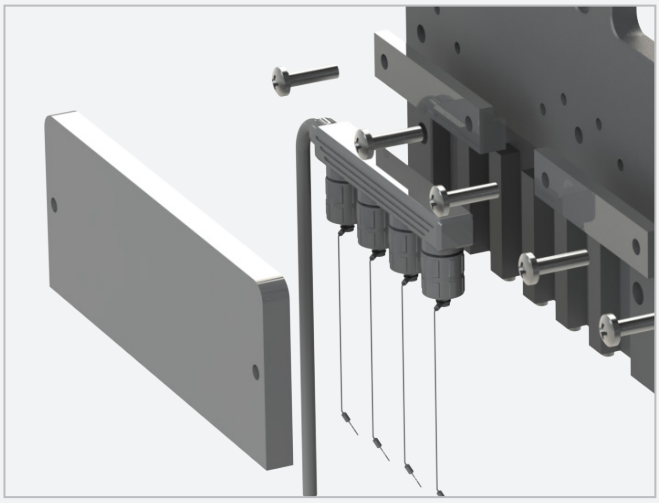
Two plug board choices provide AC installation options. AC Plug Board parts are supplied "ready to wire". Selection and installation of a connector suitable for marine use is the responsibility of the electrical installer. The Uno Panel allows choice in supply circuit design, supporting either a single 4-outlet plug board (1x4) or two 2-outlet plug boards (2x2). See Part numbers: UP1-PB-4 and UP1-PB-2 in the Parts Catalogue (section 8.0).

DANGER – Risk of Electric Shock.

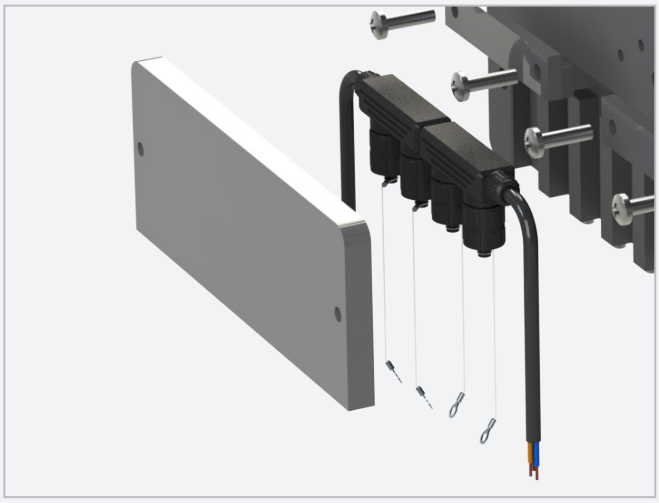
Mains AC Input Installation by Authorised Service Personnel ONLY. Ensure Mains power is OFF and disconnected before handling plug board(s). Ensure Ingress Protection Caps are securely fitted.



Ingress Protection Caps (IPCs) must be fitted securely on all outlets not in use.



AC Plug Board model: UP1-PB-4 (1 x 4 socket)



AC Plug Board model: UP1-PB-2 (2 x 2 socket)

Pictured: A plug board located within the Uno Panel provides the AC input into each Uno unit.

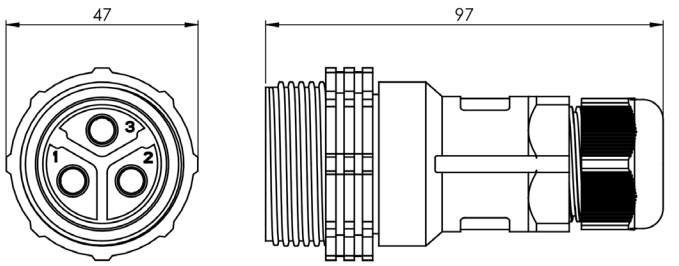
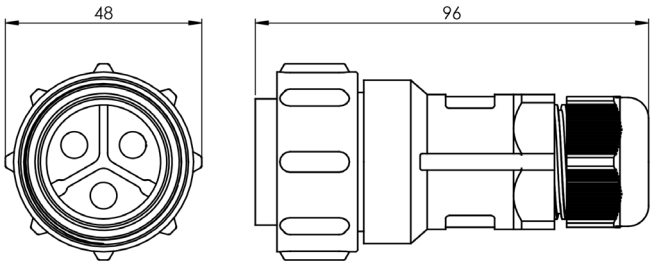
DC Connectors and cables

⚠ **CAUTION: DO NOT disconnect or connect light fittings if the Uno indicator button light is on.**

⚠ **CAUTION: Make sure Ingress Protection Caps are fitted at all times when cables are disconnected from the fittings.**

⚠ **CAUTION: DO NOT connect any equipment other than a Focus 600 light to the DC Output of an Uno.**

Lighting output connectors are typically supplied with the Uno housings for DC output power connection. These connectors are 32A, IP68, UV Stabilised, CE & ROHS compliant. The Uno uses a proprietary connector for lighting outputs by design. No other electrical equipment can be connected to this circuit.

	
DC Output - Panel Mounted - Plug Connector (3 pin (active, neutral, earth)	**DC Output - In-line - Socket Connector** (3 pin (active, neutral, earth) This connector features a coloured collar, which indicates the wattage of the light: Blue is for 600W; Yellow is for 300W.

Typical Assembly

Typical 4 x Uno setup (4 x 600W) Output

The picture (right) shows a typical 4 x 600W Focus setup.

Uno units are mounted to the Uno Panel. Uno AC connectors are plugged into the Uno Panel AC Plug Board. Lights are connected to the Uno DC outputs and strain relief carabiners locked onto the panel.

All DC output sockets have Ingress Protection Caps attached with lanyards to the Uno housing. These must be screwed onto the sockets if no plug is installed.

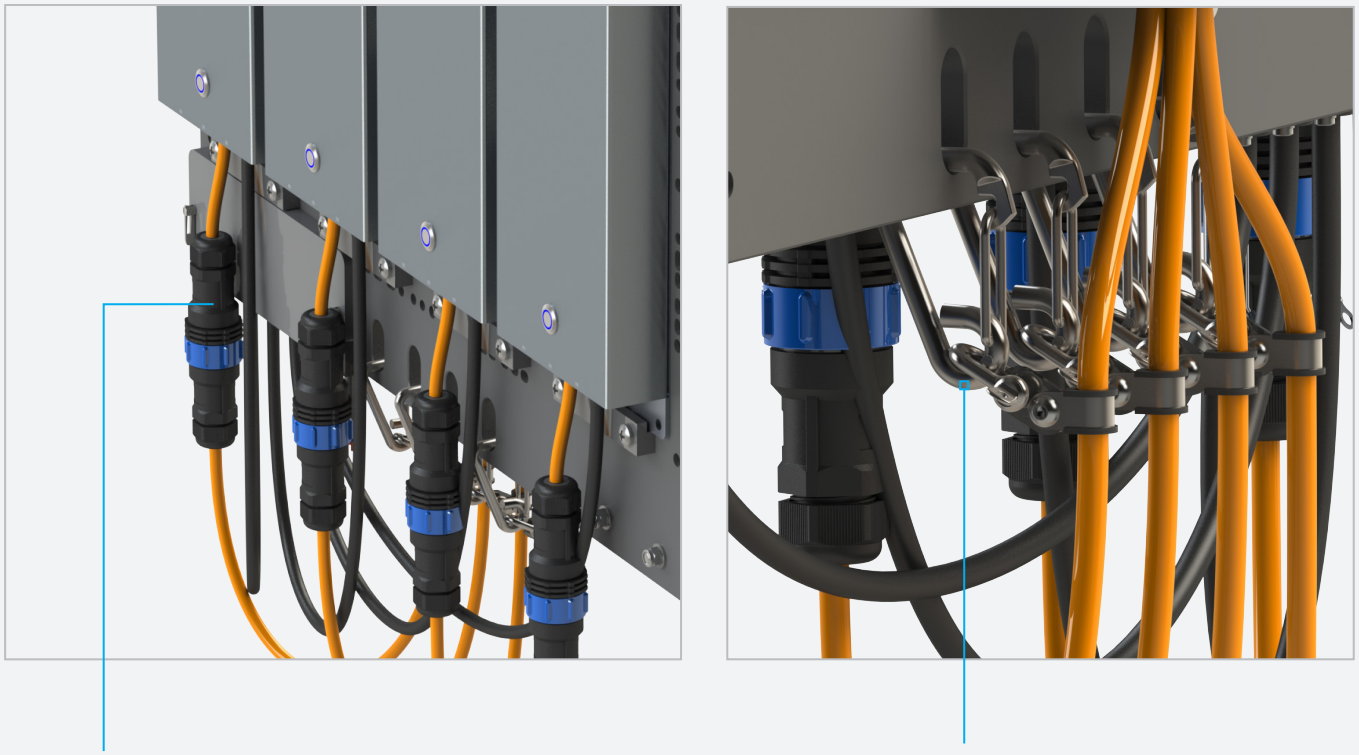
3.3 Focus Installation

⚠ **DANGER! Risk of electric shock. Ensure that Mains Power AC is turned OFF and disconnected BEFORE attempting installation of the Focus sea cage light.**

⚠ **DANGER! Risk of burns and permanent injury. Do not run lights out-of-water. Ensure the Focus light is submerged before operation.**

⚠ **DANGER – Risk of Electric Shock.**

Ensure Mains AC is OFF and disconnected BEFORE attempting installation.



Pictured: Connections at front of Uno Panel (left) and strain relief carabiner as seen from back of panel (right)

Installing your Focus Sea Cage light - Instructions:

- Step 1: Ensure Mains power is OFF.
- Step 2: Ensure Focus light is suspended as required and fully submerged in open water.
- Step 3: Connect the Focus light connector to the DC output connector.
- Step 4: Connect the strain relief carabiner on the light cable to the Uno Panel.
- Step 5: Ensure all connections are secure and that Ingress Protection Caps are secure on unused outlets.

3.4 Electrical Installation (QUALIFIED SERVICE PERSONNEL ONLY)

⚠ **DANGER! – Risk of electric shock. Mains AC Input Installation by Authorised Service Personnel ONLY. Ensure Mains power is OFF and disconnected before handling Plug Board(s) and that Ingress Protection Caps are securely fitted.**

⚠ **DANGER! The electrical system at the farm site must conform to the applicable national standards and regulations. A master switch must be installed with fuse or thermal magnetic circuit breaker to be able to interrupt power to the Product.**

⚠ **DANGER! AC Supply MUST be protected by a correctly installed and maintained ground fault protection: GFI / RCD/ RCCB or equivalent. We recommend using appropriate strain relief for the AC cabling.**

⚠ **WARNING! – Risk of product damage. The electrical system at the farm site must adequately manage the electrical earth for all devices. Any damage caused to the Product as a result of poor earth management will not be warranted.**

General note about electrical installation

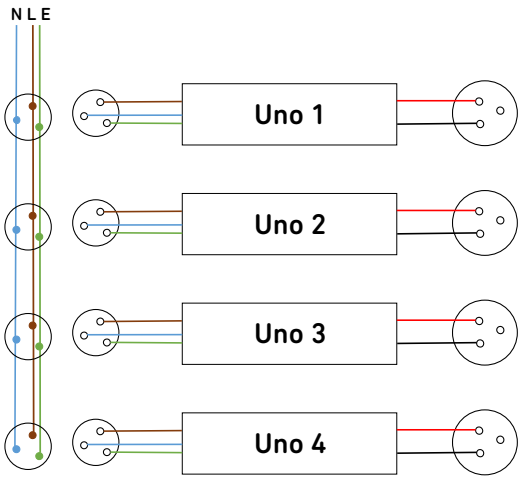
Appropriate AC Connector choices and installation methods are farm specific and should be determined by your Authorised Installer, and should adhere with any applicable national standards and regulations. Please carefully consider your farm layout and power distribution needs, observing the Product specifications and requirements.

Maximum power demand for installation

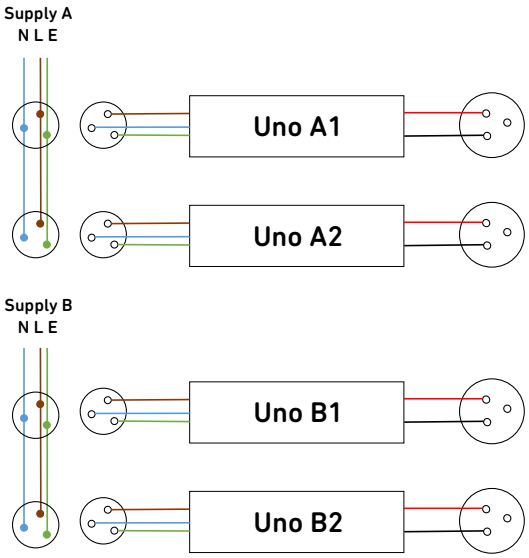
The maximum power demand for installation is 2400W at your given voltage. Each Uno unit draws a maximum 600W.

AC Plug Board options

AC Plug Board options are available to purchase separately. We provide 1 x 4 socket and 1 x 2 socket plug boards for connections at the Uno Panel.



1 x 4 Electrical Installation



2 x 2 Electrical Installation

⚠ **DANGER – Risk of Electric Shock.**

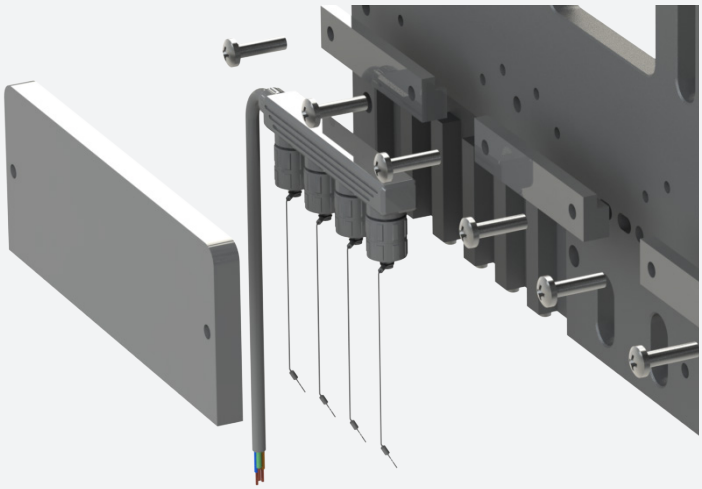
AC Supply MUST be protected by a correctly installed and maintained ground fault protection: GFI / RCD/ RCCB or equivalent. We recommend using appropriate strain relief for the AC cabling.

DANGER – Risk of Electric Shock.

Mains AC Input Installation by Authorised Service Personnel ONLY. Ensure Mains power is OFF and disconnected before handling plug board(s). Ensure Ingress Protection Caps are securely fitted.

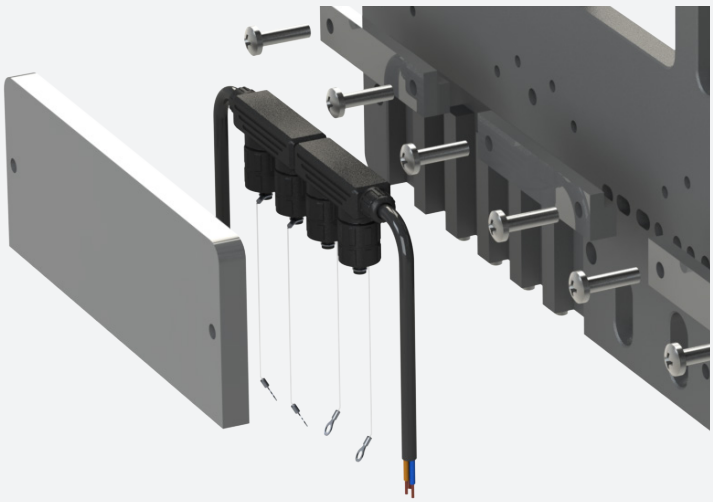
Plug Board model: UP1-PB-4 (1 x 4 socket)

The pictured 1 x 4 AC plug board connects up to 4 Uno units at maximum 2400W.



Plug Board model: UP1-PB-2.
Pictured to the right as a 2 x 2 socket configuration

The pictured (right) AC plug board configuration of 2 x 2 sockets can also connect up to 4 Uno units at a maximum 2400W (1200W per AC Plug Board).



NOTE! Each output will require minimum 600W up to a potential maximum of 2400W (4 x 600W units)

4.0 Operation

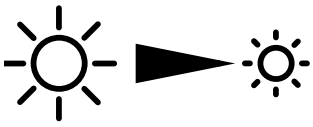
4.1 Normal Operation

⚠ **DANGER! Risk of burns or permanent injury. Do not run lights out-of-water. Ensure the Focus light is submerged before operation.**

Normal Operation Description

Once AC power is supplied to the system, the lights soft start automatically. During soft start, lights will begin their ramp up phase starting at 10% and increasing to full 100% brightness over 30mins. The Uno indicator button will appear dim early in the ramp up phase, however eventually it will pulse with more intensity from DIM to BRIGHT as the ramp up proceeds. Once full output is achieved, the indicator button will remain bright and steadily lit.

> **NOTE! If you lose mains power during the ramp up phase, the Focus light will restart its soft start from the beginning once reconnected – starting from its dimmest point at 10% brightness.**



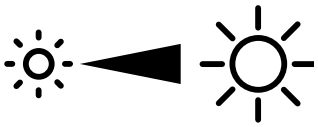
Turning a light OFF begins the Manual Soft Stop ramp down phase.

Turning OFF a Light Manually | Manual Soft Stop

When the Focus light is ON, begin a manual soft stop of the light by pressing and holding the indicator button on the Uno for approximately 4 seconds. The light will begin its ramp down phase decreasing in brightness to OFF, and the indicator button will dim and pulse over time from BRIGHT to OFF.

> **Note, a manual ramp down phase is at a quicker rate than a soft-start. A manual soft-stop from full brightness will take approximately 5 minutes.**

> **NOTE! A soft-start (ramp up) or soft-stop (ramp down) phase of the light can be cancelled and reversed by pressing and holding the Uno indicator button. See more details below.**



Turning a light ON manually begins a Soft Start from its last position.

Turning ON a Light Manually (After a Manual Soft Stop)

When the Focus light is OFF, push and hold the Uno indicator button for 4 seconds. The Focus light will turn ON and begin its ramp up phase from its last brightness position. The indicator button will slowly pulse from DIM to BRIGHT at increasing intensity until full output is achieved.

> **Note, if the Focus light has previously completed a ramp down phase to OFF, pressing and holding the indicator button will begin the usual soft start over 30 minutes.**

4.2 Uno Secondary Voltage Monitor (SVM)

⚠ **DANGER! Risk of burns and permanent injury. Do not run lights out-of-water. Ensure the Focus light is submerged before operation.**

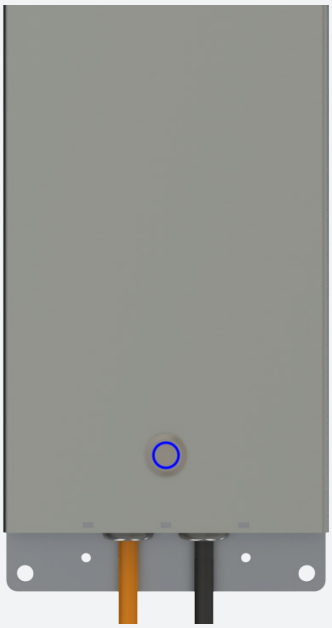
⚠ **DANGER! Risk of electric shock. Power OFF equipment immediately if signs of physical damage.**

How does the Uno Secondary Voltage Monitor (SVM) Work

Each Uno housing has its own secondary voltage (DC) monitor observing the voltage output of the driver. The SVM has a pre-programmed (built-in) range of voltages considered normal for operation. Voltages outside of these parameters will trigger ERROR mode, shutting off the Focus light. The SVM will indicate an error with the Uno Indicator button flashing rapidly. *The SVM, will continue to keep the affected Focus light OFF until BOTH:*

a) the Error (out-of-voltage range problem) is resolved, AND

b) the SVM is reset



The Uno Indicator button shows the status of the attached Focus light - see *4.3 Uno Indicator Button Status*

When is the Uno Secondary Voltage Monitor Active

The SVM is a feature of the Uno controller board. The controller board requires mains power. The board begins working as soon as mains power is turned ON. Note, the board must be powered for the SVM feature to work, and to perform other controller functions.

How do I determine the status of the Uno SVM

See 4.3 *Uno Indicator Button Status.*

How do I reset the SVM once I have resolved the issue.

Push the flashing Uno Indicator button to reset the SVM. If the voltage issue is resolved, the Focus light will return to its previous brightness state. If the voltage issue remains and the flashing Uno Indicator button won't turn ON and remain bright and steady lit in 10 sec, this will indicate an issue with the driver or Uno.

How does a power outage or a power cycle of the Uno affect the controller and Focus light?

The controller does not save its state when powered off. This means a Focus light coming up from a power outage will always run an automatic soft start – going through its usual 30 minute ramp up from 10% to 100% brightness. However, if an error is detected during ramp up, and the error is then resolved and the SVM reset (see above), then the SVM will bring the Focus light up to the correct ramp level. Similarly, if a light is replaced after ramp up and then reset then the light will hard start at 100% as the powered SVM remembers its programmed light output level.

4.3 Uno Indicator Button Status

Uno Indicator Button Status

The Uno Indicator button shows the status of the Focus light. This includes ramp up / ramp down states and any error states determined by the secondary voltage monitor. Understanding the indicator code status will help you confirm the Focus light state as well as troubleshoot abnormal operation.

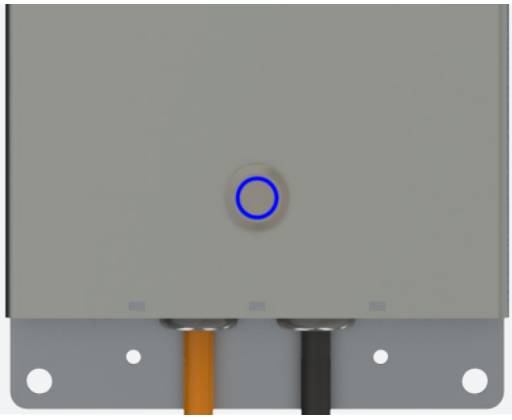
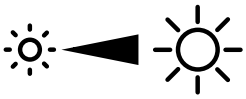
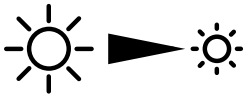


Table: Uno Indicator Button Status

INDICATOR CODE	STATUS	DESCRIPTION
 Pulsing from dim to bright	**Ramp Up Phase** Light is dimming up to full brightness.	• Normal operation on powerup (auto soft start). • Normal operation on manual dimming up. • The SVM has not detected errors.
 Pulsing from bright to dim	**Ramp Down Phase** Light is dimming down to off.	• Normal operation for dimming down after manual soft stop. • The SVM has not detected errors.
 On steady	Light has dimmed up to full brightness and is running normally.	• Normal operation at full brightness. • The SVM has not detected errors.
 Flashing / blinking rapidly	⚠ Light is in ERROR mode and needs attention. See manual section *Uno Secondary Voltage Monitor (SVM).*	• ⚠ The SVM has detected an error. The affected Focus light is effectively shut OFF. Proceed to troubleshoot. Once the ERROR has been corrected, press the indicator button. The light will then return to its previous output state. Typical causes of ERROR are a disconnected light, cut light cable or water ingress to light or connector. While Mains Power is ON, the SVM Indicator will remain flashing to indicate an error with its connected driver / Focus light.

5.0 Maintenance

5.1 Maintenance Task Schedule

⚠ **DANGER! Risk of electric shock. Turn off the light BEFORE commencing any maintenance. The electrical system MUST NOT be powered when divers are in the water or when net cleaners or other machinery are in use. Ensure the Uno housing is completely POWERED OFF before conducting maintenance operations in the cage. If you are concerned about startling fish, press and hold button for manual soft-stop over 5 minutes. Once lights are off, cut power to the equipment.**

⚠ **DANGER! Risk of electric shock. ONLY Authorised Service Personnel are permitted to carry out maintenance on Planet Lighting products. Planet Lighting disclaims all liability for any injury to persons or damage to things caused by the Product having been installed or maintained by persons who are not "Authorised Service Personnel".**

⚠ **DANGER! Risk of electric shock. POWER OFF equipment immediately if signs of damage. If equipment is suspected damaged by machinery or force, operators should take steps to ensure the system is completely powered off before commencing salvage, fault finding or repair actions.**

⚠ **DANGER! Risk of burns and permanent injury. DO NOT run lights out-of-water under any circumstances. The Focus sea cage light is designed to run UNDERWATER ONLY. Open water under 20°C is required to maintain a compliant running temperature. Operation out-of-water may lead to BURNS or PERMANENT INJURY. Operation out-of-water can also damage the product and VOID WARRANTY. Ensure the Focus light is submerged before operation.**

⚠ **DANGER! Risk of electric shock. Ingress Protection Caps (IPC) are installed on the Product to protect outputs from dust and water ingress. Plug Board and DC outputs not in use MUST have Ingress Protection Caps securely fitted. Leaking caps can cause BURNS, FIRE and product DAMAGE.**

⚠ **DANGER! DO NOT look into the light fitting when powered. The LED emits extremely bright light which can cause damage to the retina.**

⚠ **WARNING! The disinfectants/cleaning agents may contain substances harmful to health: use disinfectants only recommended by your health authorities and follow the manufacturer's user instruction carefully.**

⚠ **CAUTION! Operating lights out of water will damage the light fittings.**

⚠ **CAUTION! Do not use abrasive products, petrol, paint thinners, alkaline detergent, acidic cleaning agents or aldehydes. Make sure the proportions of the detergents/cleaning agents are accurate based on manufacturers instructions.**

Regular maintenance is an important contributor to user safety, normal operation and to prolonging the life of the Product. Observe the above warnings and always ensure your workplace safety procedures are followed when carrying out maintenance tasks. The following periodic maintenance tasks are recommended.

Monthly Maintenance

TASK	DESCRIPTION	ACTION
UNO HOUSING AND PLUG BOARD		
Check Ingress Protection Caps (IPCs)	Unused sockets and connectors must have their caps TIGHTLY fitted to prevent water ingress. Replace cap or plug board if damaged.	Check / replace
CABLES, POWER AND CONNECTORS		
Check for cable damage	Check the full length of cable for kinks, nicks, or cuts. Replace if damaged.	Check / replace
Check cable strain relief	Ensure strain relief carabiner is correctly secured to protect all lighting cables. Check strain relief on supply cables where applicable.	Check / replace
LIGHT FITTINGS		
Check biofouling	Check for build up of biofouling on the aluminium light body and the lens. Heavy biofouling may reduce cooling and lifetime of the LED.	Check / clean
Check for water ingress	Visually inspect the lens, looking for signs of water ingress.	Contact supplier
Check sacrificial anodes	Check the outer surface of the anode for evidence of corrosion. Replace anode if there is significant loss of material.	Check / replace

Quarterly Maintenance (Every 3 Months)

TASK	DESCRIPTION	FREQUENCY
CABLES, POWER AND CONNECTORS MAINTENANCE		
Check contacts for corrosion	Remove the plug from the socket and inspect the contact pins for signs of corrosion. If corroded or damaged, replace the unit.	Check / replace unit
Check cable install	Check that the cable is installed as per the original plan. Check that cables are secure, out of the way and that cable strain relief is installed and protecting electrical lines.	Improve cable management on site
LIGHT FITTINGS		
Check mineral build up	Mineral build up (e.g. salt) around the cable gland, front plate or lens should be cleaned away to prevent minerals working into seals. Take care not to damage parts when cleaning.	Clean
Check corrosion on body	If anodes are lost, corrosion may impact the body of the luminaire. Replace anodes immediately to prevent further damage. Excess pitting due to corrosion around the seals can cause water ingress. Away from seals, moderate corrosion will not reduce the performance of the product.	Check / replace

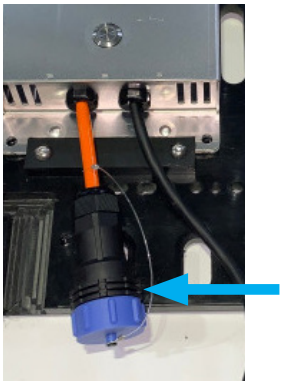
5.2 Maintenance Task Definition

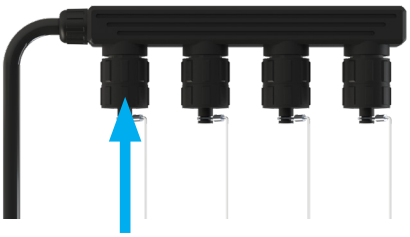
Control gear (Uno and Plug Board) Maintenance

Check Ingress Protection Caps

Sockets and connectors not in use should have an Ingress Protection Cap installed to protect the contents from ingress. These caps must be tightly fitted to prevent water ingress.

⚠ **WARNING! Water ingress at the socket can cause electrical shorts, and possible fire.**





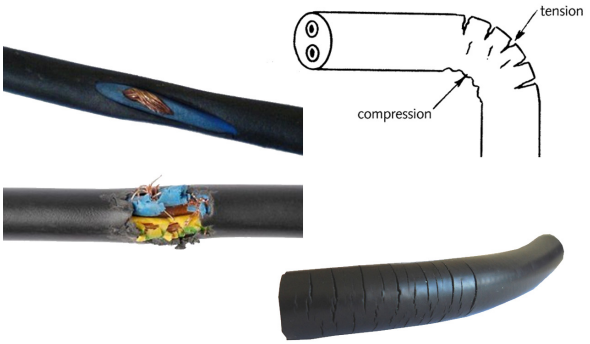
Cables and Connectors Maintenance

⚠ **WARNING: DO NOT attempt to clean cables with a sharp object or knife.**

Check for cable damage

This check is to ensure that the cable is intact and undamaged. Inspect entire length of cable for nicks, kinks, tension cracks, compression folds, stretched or crushed portions. If there is damage, replace the cable.

⚠ **WARNING! DO NOT attempt to clean the cable with a sharp object or knife.**



Check cable install

This check is to ensure that the cable is correctly installed. The cable should be clipped, or taped to suspension ropes to constrain and control the cable route. Cables should be neatly routed and constrained to avoid unwanted damage, tangles, and trip hazards.

Check contacts for corrosion

This check is to ensure that no corrosion is occurring to the contact points within the plug and socket assembly.

Undo the locking nut, and remove the plug from the socket. Inspect the both the male pins in the plug attached to cable, and the female socket mounted to the box. If corrosion is present order replacement parts, and replace immediately.

Light Fittings

⚠ **DANGER: Permanent eye damage. Do not look into lights during operation.**

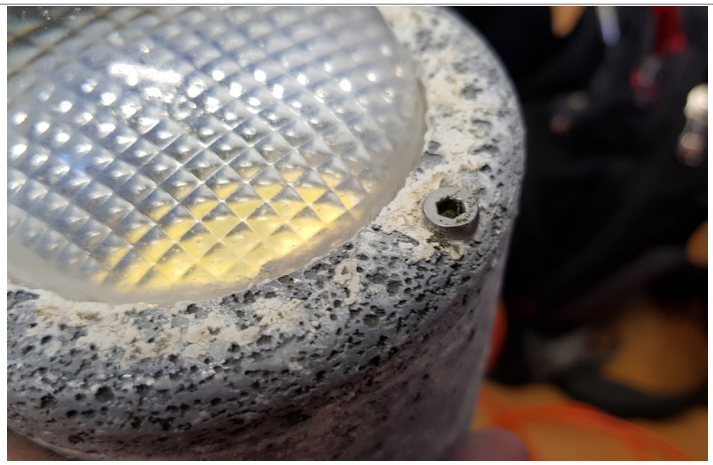
⚠ **DANGER: Risk of Electric Shock and Injury. Turn OFF the light before commencing any cleaning or maintenance.**

⚠ **WARNING: The disinfectants/cleaning agents may contain substances harmful to health: use disinfectants only recommended by your health authorities and follow the manufacturer's user instruction carefully.**

⚠ **CAUTION: Do not use abrasive products, petrol, paint thinners, alkaline detergent, acidic cleaning agents or aldehydes. Make sure the proportions of the detergents/cleaning agents are accurate based on manufacturers instructions.**

⚠ **CAUTION: Operating lights out of water will damage the light fittings.**

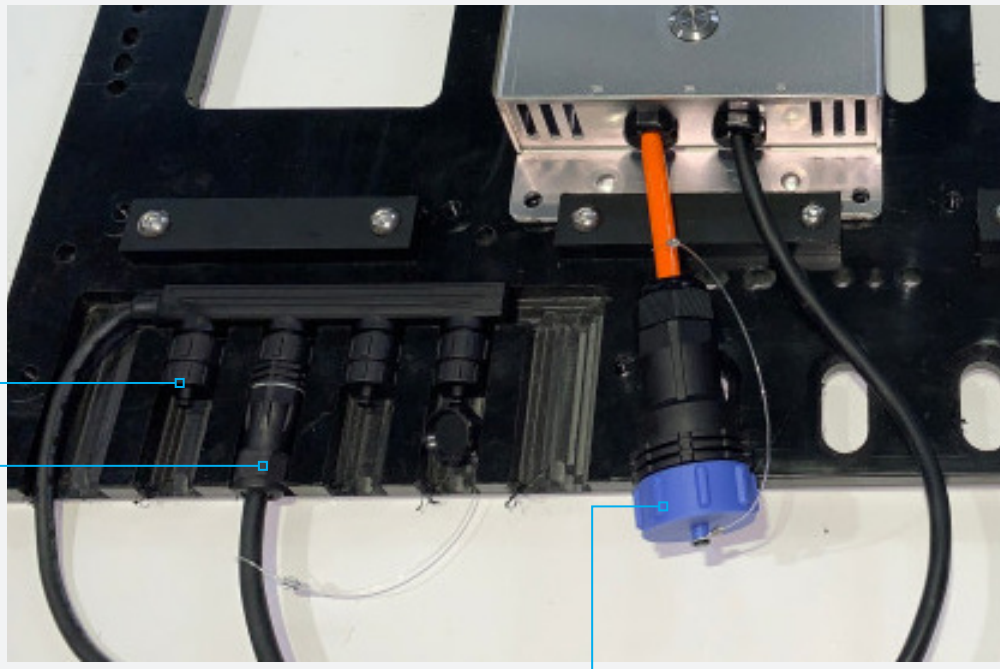
Check biofouling This check is to ensure that the external surfaces of the light fitting are free of biofouling. Biofouling can insulate the light, preventing proper cooling of the LED reducing its lifetime and potentially leading to product damage. To clean, wiping or pressure cleaning with water is the preferred method. Avoid use of abrasive or chemical agents, which may damage the oxide layer.	
Check anode for corrosion Inspect the anode, looking for evidence of corrosion. Replace the anode if the corrosion is severe. If unusually rapid change for your site is observed, check earth management on site.	
Check for water ingress This check is to ensure that no water has found its way into the light fitting. To do this, turn the light off and closely inspect the fitting by looking into the lens at the front. Look for water inside the LED chamber. Condensation or droplets inside the lens are a problem if there is sufficient water inside the lens to trickle down when the light is held sideways. In the event of water ingress, replace the fitting and return to the manufacturer.	

Check for mineral build up Mineral build up (for example, salt) around the cable gland, front plate or lens should be cleaned away to prevent minerals working into seals. Take care not to damage parts when cleaning.	
Check for corrosion on body If anodes are lost, corrosion may impact the body of the light. Replace anodes immediately to prevent further damage. Excess pitting due to corrosion around the seals can cause water ingress. Note that moderate corrosion away from seals will not reduce the performance of the product.	

6.0 Product Removal

⚠ **DANGER: Risk of electric shock – Ensure that Mains Power AC is turned OFF and disconnected BEFORE attempting removal of the Uno housing and BEFORE handling AC Plug Board(s) or connectors.**

Follow the bellow steps and diagrams for each Uno unit you are removing or replacing.



Ingress Protection Caps should be secured on all outlets not in use.

Plug in Uno AC input cable connector into the plug board

Unplug the Focus light connector from the Uno DC output and attach its Ingress Protection Cap (pictured here in blue)

⚠ DANGER – Risk of Electric Shock.

Ensure Mains power is OFF and disconnected before Product removal and that Ingress Protection Caps are securely fitted on all unused outlets.

Pictured: Photo of Uno AC input cable connected to AC Plug Board socket on Uno Panel (plug board cover removed).

1. Unplugging the Uno Connectors

- Step 1: Ensure Mains power is OFF.
- Step 2: Remove the plug board cover and unplug the Uno AC input cable connector from the Plug Board socket.
- Step 3: Ensure Ingress Protection Caps are in place on all outlets and connectors not in use.
- Step 4: Replace the plug board cover.

2. Removing your Uno housing - Instructions:

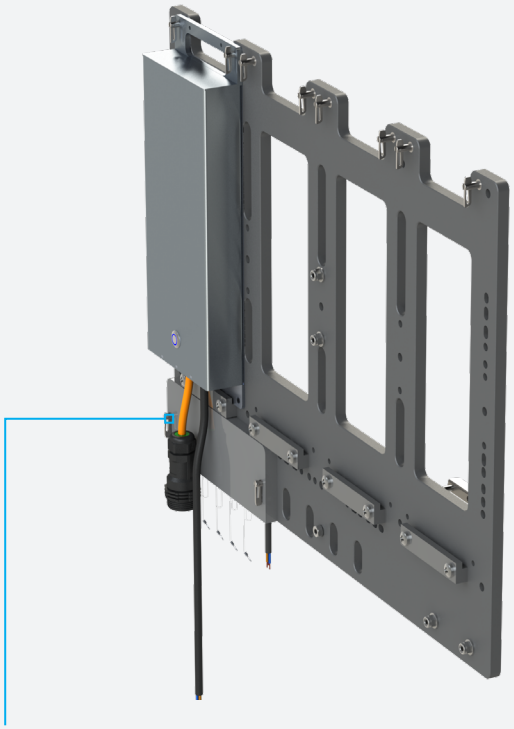
- » Step 1: Before removing the housing, ensure that the Uno DC output and AC input connectors have been safely disconnected from the Focus light and Plug Board.
- » Step 2: Unlock and rotate the drop nose pins that are securing the top of the Uno housing to its mounting block until they are pointed directly outwards.
- » Step 3: Pull and lift to remove the Uno housing from its pins and mounting block as shown.

Pictured: Removal of the Uno housing from the Uno Panel

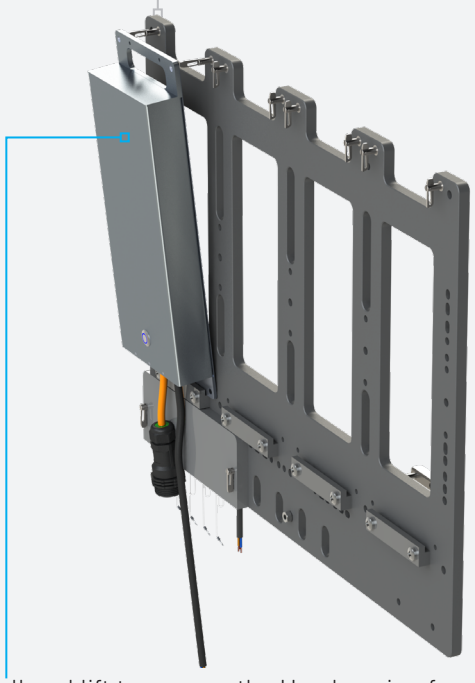
DANGER – Risk of Electric Shock.

Ensure Mains AC is OFF and disconnected BEFORE attempting Product removal.

Unlock and rotate the drop nose pins that are securing the top of the Uno housing to its mounting block until they are pointed outwards



Before removing the housing, ensure the Uno DC output and AC input connectors have been safely disconnected from the Focus light and the AC Plug Board



Pull and lift to remove the Uno housing from its pins and mounting block as shown

7.0 Product Storage

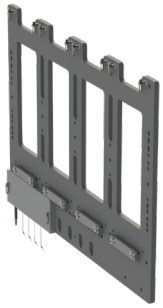
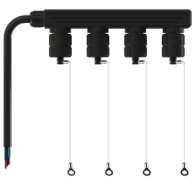
The Product has been designed for portability and easy storage. The Focus light and its Uno housing pack neatly into a standard stackable crate allowing them to be transported and stacked for storage in a suitable location.

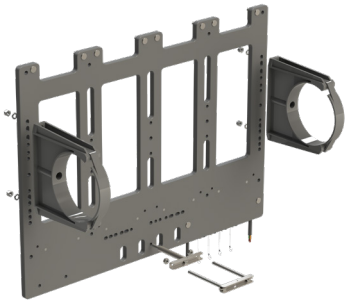
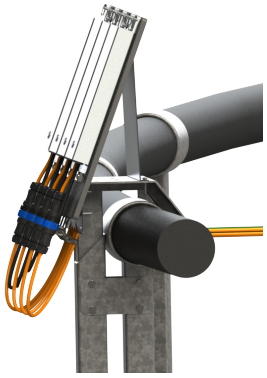
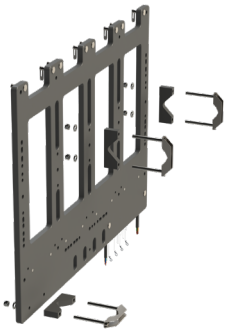
Heavy Duty. Without the Heavy Lifting

A Focus light, Uno unit and 40m of cabling fit into a standard stackable and collapsible packing crate.

8.0 Parts Catalogue

See our parts listing below and contact your supplier regarding availability.

PART NUMBER	DESCRIPTION	
UP	Uno Panel	
UH	Uno	
L5-600-65-120-40B	Focus sea cage light 600W	
L5-UH1-40	Focus light on 40m cable, UH1 Uno housing packed & shipped in a crate	
UP1-PB-2	1x2 socket AC plug board	
UP1-PB-4	1x4 socket AC plug board	

PART NUMBER	DESCRIPTION	
UP-BK-AS	Aqualine Pen custom bracket for the 80x60mm steel stanchion at the bottom of the panel.	
UP-BK-AUB	Custom bracket for the Aqualine, Universal Bracket Mount. Works with Aqualine cage optional equipment and keeps the equipment high above the water.	  UP-BK-AUB (exploded view)
UP-BKA-MBP	Uno Panel Bracket Adaptor Kit for legacy H-MBP bracket designs. The adaptor fits any bracket which can hold a 4x600 cabinet including both low & high mount H-MBP designs.	 Bracket Adapters  
UP-BK-M	316 Stainless Steel standard couplers bracket kit. For mounting Uno Panel to handrails and scaffolds on steel cages. Provides secure attachment to a range of tube and pipe sizes	

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