IUV201 Handheld LED UV Curing Flood Lamp

Quick Start Guide

www.intertronics.co.uk/iuv201

adhesives, coatings, sealants & equipment
for your manufacturing and technology applications

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Thank you for purchasing the **IUV201 Handheld LED UV Curing Flood Lamp**

For optimum performance and results, please read this manual carefully. Ensure that all operators and personnel are adequately trained for use with this product.

This document is based on information available and correct at the time of publication. The statements, technical information and recommendations contained herein are based on knowledge we believe to be reliable, but they are not to be construed in any manner as warrantees expressed or implied. The user shall determine the suitability of the product for his intended use and the user assumes all risk and liability whatsoever in connection therewith.

Introduction

The **IUV201 Handheld LED UV Curing Flood Lamp** incorporates a high performance Phoseon LED UV flood lamp to which we have added a handle and button for ease of use for handheld applications, such as plastics bonding and temporary masking, where the area to be cured is hard to reach, too large or too complex for a static lamp.

Full specification is detailed here: www.intertronics.co.uk/iuv201

Prior to use

Please download and read the **IUV201 Instruction Manual**, which is found on the downloads section of www.intertronics.co.uk/iuv201. This includes more detailed operating and health & safety information, as well as the UKCA certificate.

Box contents

- IUV201 assembly, including Phoseon LED UV flood lamp, handle with switch and power supply
- IUVUV-SG10 protective goggles
- ADH1610 isopropyl alcohol cleaning wipes

Safety

Please ensure that this product is only used by trained and competent personnel. Every effort should be made to reduce the risk to the operator and those nearby by shielding them from the UV light emitted by the lamp. Additional appropriate PPE, such as protective clothing, gloves etc., should be deployed where necessary.

Operation

1. Plug the system into mains power and switch on
2. Switch the isolating switch on the power cable to the “ON” position
3. Holding the IUV201 lamp assembly, with the emitting window facing away from you, depress the finger switch fully
4. Keep the switch depressed until the material is cured or until your objective has been met. There is no timer

Maintenance

- Ensure that the emitting window is free of contamination as this could reduce the UV output - we recommend using ADH1610 wipes
- Do not attempt to disassemble – refer to the INTERTRONICS technical team

For assistance and enquiries, please contact one of our technical specialists:

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FireFly 25x10 Solid State UV LED Curing System

User Manual

Revision: 5.0
April 2019

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Contact Phoseon Sales for a Return Material Authorization (RMA)

Table of Content

Overview & Safety

UV Curing System Components

FireFly 25x10 UV Curing System requires the following components:

- FireFly UV Light Source
- DC Power Supply
- Electronic Control (PLC)

The product label on the FireFly 25x10 light source identifies the production model and configuration. See the example (pictured right):

- FireFly 25x10AC395-4W
  - Available in 2W/cm^2 or 4W/cm^2 versions
- 25 represents the UV emitting length in mm
- 10 represents the UV emitting width in mm
- AC defines unit as air-cooled
- 395 defines wavelength in nm
- 4W defines the peak output irradiance of 4W/cm^2

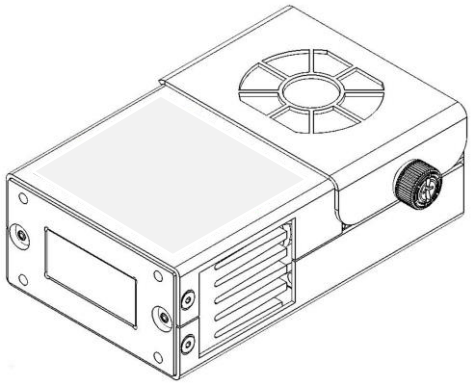


Figure 1.1: Safety Label Placement (safety label on product)

Note: Current specification on product label may vary based on product configuration

CAUTION: **The window frame may become a hot surface during UV operation.**

Product Safety Information

UV LED Curing Sources

Intended Use

Phoseon light sources and optional power supplies are supplied as “open type” equipment. These system components must be mounted within an enclosure that is suitably designed for the specific environmental conditions present for the final product, and appropriately designed to prevent personal injury resulting from accessibility to live parts.

Protective Guards

Phoseon light sources include protective guards to fully enclose electrical mechanisms that may cause operator harm during normal use. These fixed guards adhere to the appropriate international safety standards.

CAUTION: **Do not operate the light sources or the machine in which they are installed while any safety guards are open, loose, damaged, or missing.**

Phoseon light sources are classified as Risk Group 3 under IEC 62471 at a distance of 200mm.

Risk groups defined in IEC 62471:

Exempt – There is no photo-biological hazard for the end points in this standard.

Risk Group 1 – Low Risk. Does not pose a hazard due to normal behavioral limitations on exposure.

Risk Group 2 – Moderate Risk. Does not pose a hazard due to aversion response to very bright light sources or due to thermal discomfort.

Risk Group 3 – High Risk. May pose a hazard even for momentary or brief exposure.

WARNING: **DO NOT LOOK DIRECTLY AT THE UV LIGHT SOURCE WITHOUT WEARING UV SAFETY GOGGLES.**

Note: A portion of the UV light will be visible and will be a strong visual stimulus.

Minimum requirement: UVEX SCT-orange lens which reduces eye fatigue by absorbing blue and green light and allows the operator to clearly view components during curing and inspection processes while absorbing 99.9% of UV radiation and visible light up to 532nm.

Note: Phoseon UV LED products emit 90% or more of the total UV light energy in a narrow wavelength band:

Wavelength	Band
365nm	345 to 385nm
385nm	370 to 410nm
395nm	380 to 420nm
405nm	390 to 430nm

Hazard and Safety Notices

The symbols and labels in the following table are used in Phoseon's light source product documentation and on the product labels. Please familiarize yourself with the symbols and their meaning in order to avoid misuse of the product.

Table 1.1: Safety Notices

Symbol	English Description Safety Notices	French Description Consignes de Sécurite	Italian Description Avvertenze sulla sicurezza	German Description Sicherheits-hinweise	Spanish Description Notas de Seguridad	Dutch Description Veiligheids-aanduidingen	Polish Description Ostrzeżenia dotyczące bezpieczeństwa
	Attention Read manual for safety instructions	Attention Lisez les instructions de sécurité dans le manuel	Attenzione Leggere il manuale per le avvertenze sulla sicurezza	Achtung Bitte Vorsichtsmaß-nahmen in der Gebrauchsan-leitung lesen	Atención Lea el manual de Instrucciones de seguridad	Opgelet Lees handleiding voor veiligheids-voorschriften	Uwaga Zapoznaj się z zaleceniami bezpiec- zeństwa w instrukcji
	UV Light Read manual for safety instructions	Lumière UV Lisez les instructions de sécurité dans le manuel	Luce UV Leggere il manuale per le avvertenze sulla sicurezza	UV LICHT Bitte Vorsichtsmaß-nahmen in der Gebrauchsan-leitung lesen	Luz UV Lea el manual de Instrucciones de seguridad	UV-licht Lees handleiding voor veiligheids-voorschriften	Promieniowa- nie UV Zapoznaj się z zaleceniami bezpiec- zeństwa w instrukcji
	Hot Surface	Surface Chaude	Superficie calda	Heiße Oberfläche	Superficie Caliente	Heet oppervlak	Gorąca powierzchnia
	Warning RISK GROUP 3 UV EMITTED FROM THIS PRODUCT Avoid eye and skin exposure to unshielded product.	Avertissement Rayonnement UV À Risque de Groupe 3 Eviter l'exposition des yeux et de la peau sans protection adéquat.	Attenzione DA QUESTO PRODOTTO EMISSIONI UV DELLA CLASSE DI RISCHIO 3 Evitare l'esposizione di occhi e pelle al prodotto non schermato.	Warnung Dieser Strahler emittiert UV-Strahlung der Risikogruppe 3. Setzen Sie Haut und Augen nicht der Strahlung des nicht abgeschirmten Strahlers aus.	Advertencia RADIACION UV DE RIESGO GRUPO 3 EMITIDA POR ESTE PRODUCTO Evite la exposición de ojos y piel por el producto sin protección adecuada.	Waarschuwing UV-STRALING RISICOGROEP 3 UITGEZONDEN VAN DIT PRODUCT Vermijd blootstelling van ogen en huid aan niet-afgeschermd product.	Ostrzeżenie GRUPA ZAGROŻENIA 3 PRODUKT EMITUJE PROMIENIOW ANIE UV Unikać wystawiania skóry i oczu na działanie nieosło- niętego produktu.

Similar to the ANSI Z535.4 standard, the ISO 3864-2 standard defines the hazard severity panels as follows:

Yellow safety alert symbol Indicates possible human injury hazard exists.

DANGER signal word: used to indicate an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING signal word: used to indicate a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION signal word: used to indicate a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

Restriction of Hazardous Substances (RoHS)

Phoseon Technology declares, to the best of our knowledge based on available information conducted to us, that our light sources do not contain any homogeneous materials that:

- Contains lead (Pb) in excess of 0.1 weight -% (1000 ppm)
- Contains mercury (Hg) in excess of 0.1 weight-% (1000 ppm)
- Contains hexavalent chromium (Cr VI) in excess of 0.1 weight-% (1000 ppm)
- Contains polybrominated biphenyls (PBB) or polybrominated dimethyl ethers (PBDE) in excess of 0.1 weight-% (1000 ppm)
- Contains cadmium (Cd) in excess of 0.01 weight-% (100 ppm)

Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)

Phoseon Technology has determined our products are not subject to EU REACH directive registration requirements.

With regards to the projected candidate list of substances of very high concern (SVHC) – issued 10 October 2008, Phoseon Technology further declares that, to the best of our knowledge, our products do not contain any currently listed SVHC above the level 0.1% by weight.

Product Recycling

This symbol is an internationally agreed indicator that the product bearing it should not be disposed of as general waste or garbage which might end up in landfill sites, but should instead be returned to Phoseon for reuse or be disposed of in accordance with local laws.

Figure 1.1: Do Not Dispose in Trash Symbol

Setup & Installation

Refer to the following documents for detailed information regarding integration into OEM equipment.

Table 1.1: FireFly Documentation

FireFly	25x10
Product Specification	26872
Control Drawings	27365
Reducing Light Reflection	28658
Window Cleaning Instructions	27182
Declaration of Conformity	29321
Optional Power Supply	Mean Well www.meanwell.com 27508 (US power plug) 27509 (European power plug) PLN-60-48

With the exception of the 3rd party power supplies, the above documents are included in this manual and also available as individual documents on the Phoseon Customer Resource Center (CRC) website at www.phoseon-support.com.

If using the optional power supply, or any 3rd party power supply, refer to the manufacturer's website for up to date dimensions and specifications. Particularly note any derating needed for operation in the target environment.

Note: The Mean Well power supply has bare wires for the main input and 48Vdc output. The Phoseon part numbers are assembled with a power plug and 48Vdc connector for the FireFly 25x10.

Electrical

The FireFly light source requires a switching power supply with constant voltage output. The power supply tested by Phoseon for the FireFly light source is the Mean Well PLN-60-48. The Mean Well specifications can be used as a guideline for selecting a switching power supply with the following critical specifications:

- 48Vdc +/- 1V delivered to the light source from constant voltage output source
- Maximum ripple should be less than 0.2V peak-to-peak
- Refer to 26872 Product Specifications for input power requirements

A power supply should be used that provides a Safety Extra Low Voltage (SELV) output and that is certified by a notified body and / or CE mark.

FireFly 25x10

Product Specifications

Air Cooled

Phoseon UV LED SLM™ Technology

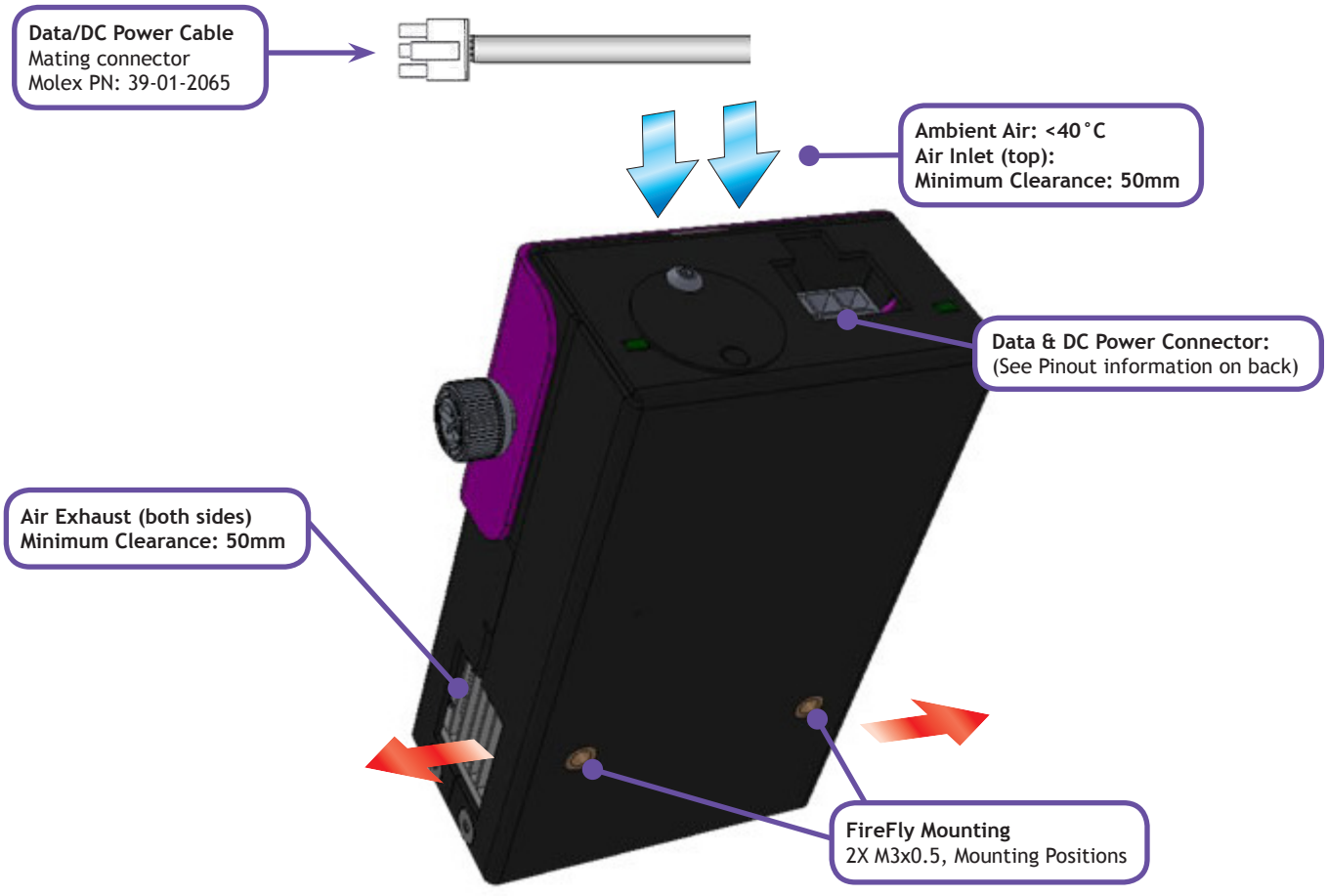
Phoseon Technology is the world leader in providing UV LED solutions for commercial and industrial applications. Phoseon's products deliver superior performance and real-world reliability for UV curing of adhesives, coatings and inks.

Phoseon's patented Semiconductor Light Matrix (SLM)™ technology encapsulates LEDs, arrays, optics and cooling to maximize UV LED curing performance. The FireFly product is ideal for small area and spot cure applications in the UV curing of adhesives, inks, electronic materials and biomedical materials.

Performance

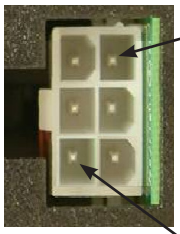
	365nm	395nm		405nm	
Peak Irradiance	**1.5W/cm²**	**4W/cm²**	**2W/cm²**	**4W/cm²**	**2W/cm²**
DC Power (Max)	36W / 0.75A	60W / 1.25A	40W / 0.83A	72W / 1.5A	48W / 1.0A
Emitting Window (mm)	25x10				

Light Source Setup



PLC Interface

The connector on the light source is used to provide power and control of the light source via a PLC, the connector Pin assignments are described below:



Power & Data Connector

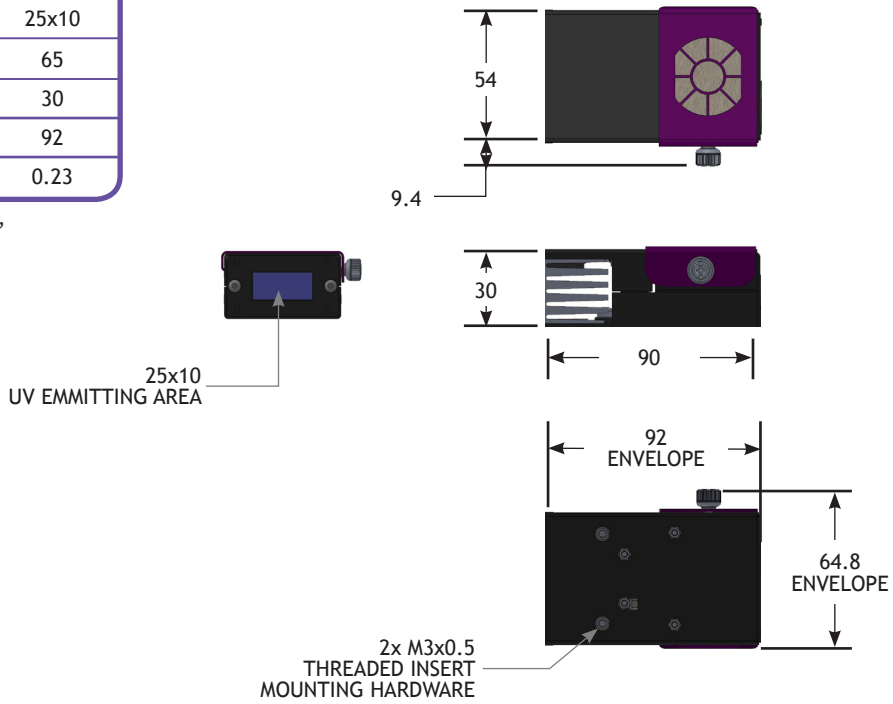
1. **No Connection required**: For testing connect to Pin 1 to Pin 2 to enable light source.
2. **Enable High**: (TTL Input) 0V to +0.4V (ground/open input) = OFF or +3.5V to +5.0V = ON
   Internal resistive load on this Pin is 110kohms.
3. **Thermal Fault Feedback**: (TTL Output)
4. 0V to +0.4V (ground) = Fault or +3.5V to +5.0V (open) = No Fault
   Maximum sink current on this Pin is 5mA.
5. **Ground**
6. **Ground**
7. **+48Vdc**

Dimensions

Units of measurement: mm

FireFly	
UV Emitting Window	25x10
L	65
W	30
H	92
Weight (kg)	0.23

See 27365 Control Drawing, FireFly 25x10 for details.



NOTES: UNLESS OTHERWISE SPECIFIED.

1. The FireFly is a UV light source powered by Semiconductor Light Matrix (SLM) technology.
2. The FireFly is air-cooled using an internal fan.

   Direction of airflow:
   The air enters thru the top of the unit and exhausts out the sides. Do not impede air exhaust, a minimum clearance of 0.39 inches [10.0mm] should be provided on both sides.

   Ambient air:
   The maximum ambient operating temperature is 104°F [40°C].
3. Light source weight not exceed: 0.4 lbs [181g]
4. Light source connector pin assignment:
   1 - +5VDC
   2 - ENABLE HIGH
   3 - THERMAL FAULT
   4 - GROUND
   5 - GROUND
   6 - +48VDC
5. Light source power requirements:
   2W/cm² version: +48 ± 1 VDC, up to 0.83A (40W max)
   4W/cm² version: +48 ± 1 VDC, up to 1.25A (60W max)
6. Mating connector (cable side) is Molex PN: 39-01-2065. When mated the connector protrudes .24 [6.2] beyond the light source.

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
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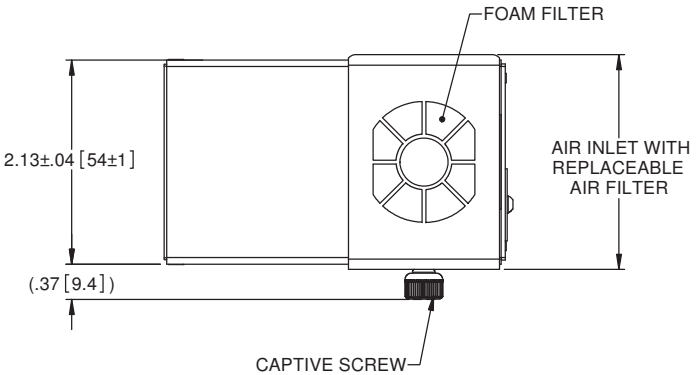
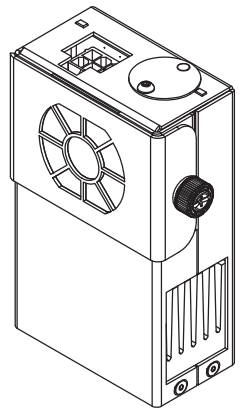
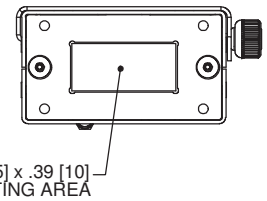
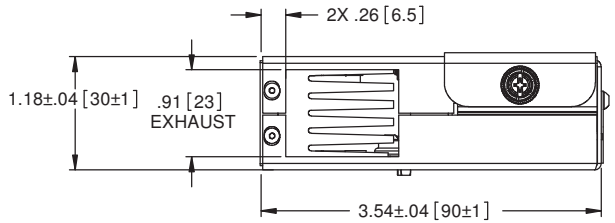
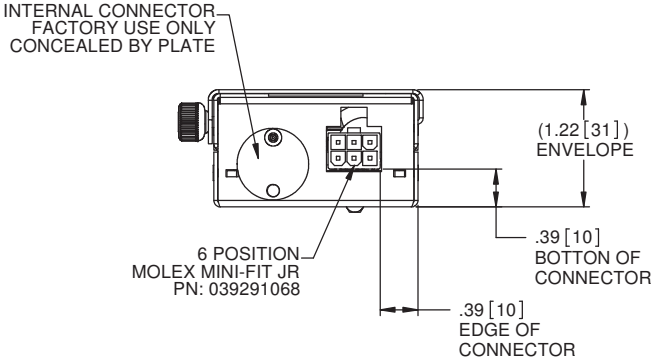
8E	2	NOTE 5 UPDATES	4/25/13	GT

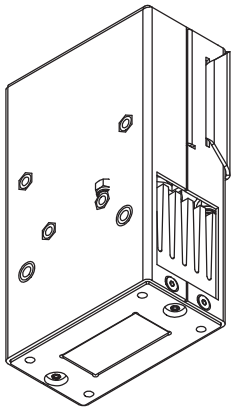


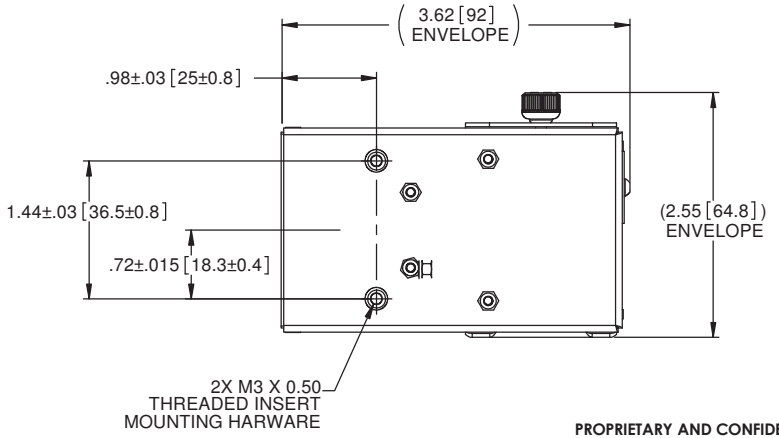












	NAME	DATE
DRAWN	D. PAYNE	01/25/2012
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		

DO NOT SCALE DRAWING

PHOSEON TECHNOLOGY

TITLE: CONTROL DRAWING, FIREFLY 25x10, 48V

SIZE	DWG. NO.	REV
C	27365	2

SCALE: | WEIGHT: | SHEET 1 OF 1

Reducing Light Reflection

Technical Note

Overview

One of the many benefits of UV LED technology is divergent light, meaning there is no focal point of the light output. This creates a longer exposure time for media traveling under the light source, and therefore typically higher dose for curing the adhesive, coating, ink or other UV curable material.

When the light source is mounted adjacent to a print head, there may be a concern when using very sensitive inks that light could reflect off the media into the print head and begin curing prematurely. This document describes techniques to reduce reflected light.

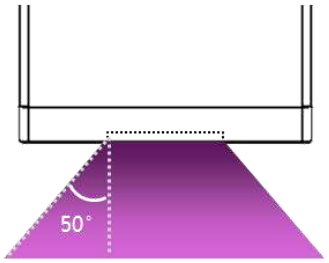
Note:

- The types of print media (surface roughness, reflectivity, color, etc.) will change the behavior and amount of any UV light reflection
- Increasing or decreasing the distance of the light source to the media changes the peak intensity of the UV and may affect cure speed
- Uses of recommendations in this document are done solely at the user's risk; Phoseon claims no responsibility for damage of any inkjet components

Light Output Angle

The typical half angle of light output from Phoseon UV LED light sources with a 20mm wide emitting window is approximately 50° from the edge of the glass.

For products with a 10mm wide emitting window, the half angle varies depending on the type of optic; please refer to the Optics Option Technical Note for more information regarding the shape of the light output.



Half Angle for 20mm products ~50°

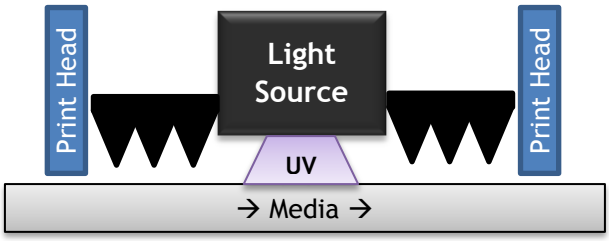
Reducing Light Reflection

To reduce the light reflection, the following techniques can be used:

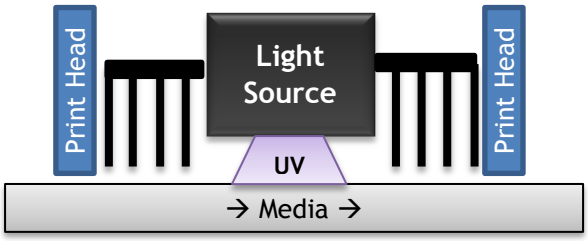
- Use materials around the light source that absorb or do not reflect UV (examples below) and avoid materials that are good UV reflectors such as bare Aluminum
  - Black anodized or black painted materials
  - Optical absorption and anti-reflective coatings
  - Thorlabs blackout materials, e.g. black metal foil (http://www.thorlabs.com)
  - Steel
- Increase surface roughness of materials between the light source and print head
  - Avoid smooth surfaces, which are good reflectors
  - Bead blasting or other roughening techniques reduce reflection of flat surfaces
- Use light traps or a baffles between the light source and print heads
  - Saw-tooth forms and straight-fins are good for capturing any reflected light
  - Increase number of grooves and increase depth of baffles
- Keep the light source close to the surface to reduce light spread

Light Baffle Examples (not to scale)

Adding a light baffle creates a surface to catch the reflected light beams and prevents them from reflecting (bouncing) off of other materials in the system and reduces the light spread.



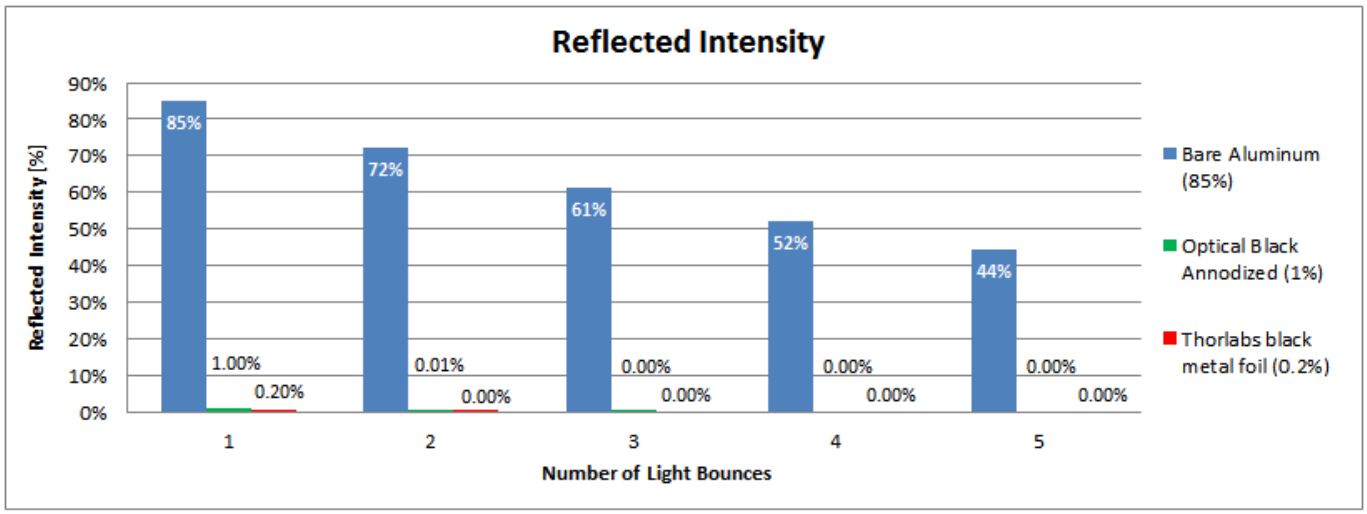
Saw-tooth form light baffle



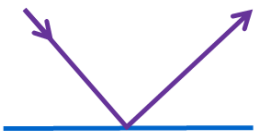
Straight-fin light baffle

Materials

As stated above, avoid reflective materials such as bare Aluminum, as it has a UV reflectivity rating of 85%, whereas a surface that has been anodized optical black has a UV reflectivity rating of 1% and the Thorlabs black metal foil has a rating of 0.2% (see chart below). The intensity of the light will decrease every time it reflects (or 'bounces') off of a surface.



The surface finish of the material also affects how the light spreads. A specular surface is a smooth, mirror-like finish that allows a light beam to remain intact as it reflects off of the surface. A diffuse surface is a rough, textured finish that scatters the beam, causing the beam to reflect in many different directions. An example of a specular surface could be a mirror or polished metal. An example of a diffuse surface could be paper or textured paint.



Specular Surface

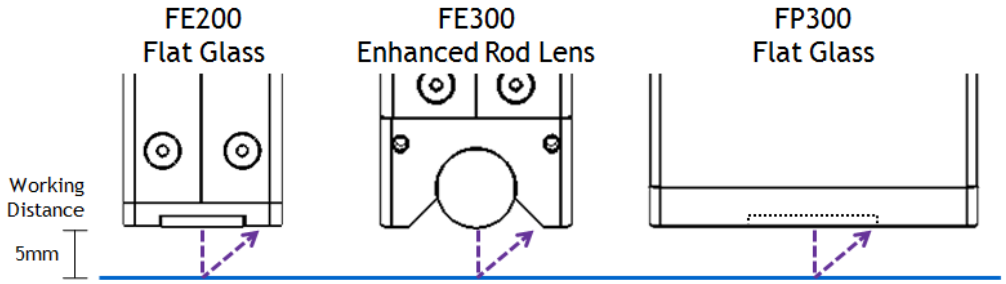
Diffuse Surface

Light Reflection Examples

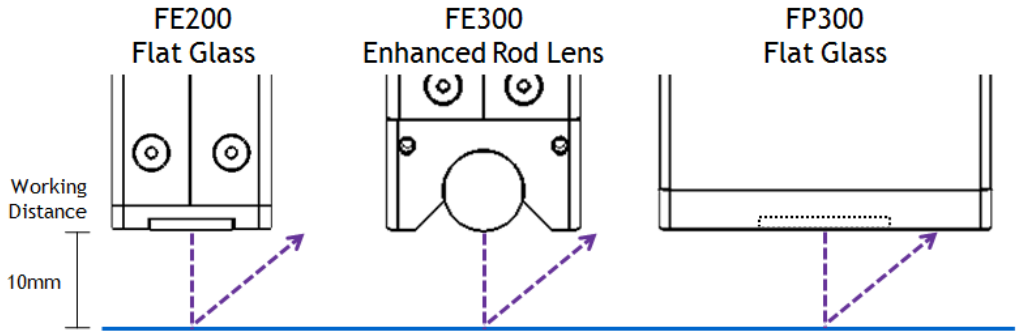
When curing with a reflective surface, like bare or polished aluminum, the size of the window frame and the working distance from the emitting window to the media, will affect how much light is allowed to reflect past the light source. Adding a light catch or shield that extends past the light source will catch some of this reflected light.

The amount of reflected light from a light source will vary based on the setup including:

- The peak intensity of the light source: directly correlates to the intensity of the reflected light, especially on a specular surface
- The type of window frame and optic: a focused light like the FE300 concentrates the light into a smaller area on the surface, where the FE200 Flat Glass and FP300 allows the light to spread due to the half-angle of the light output
- The working distance height between the light source and media: a larger working distance allows more room for the light to reflect past the emitting window frame
- The type of media surface: a highly reflective specular surface will reflect light more intensely than a non-reflective diffuse surface



Phoseon Product Examples at 5mm Working Distance

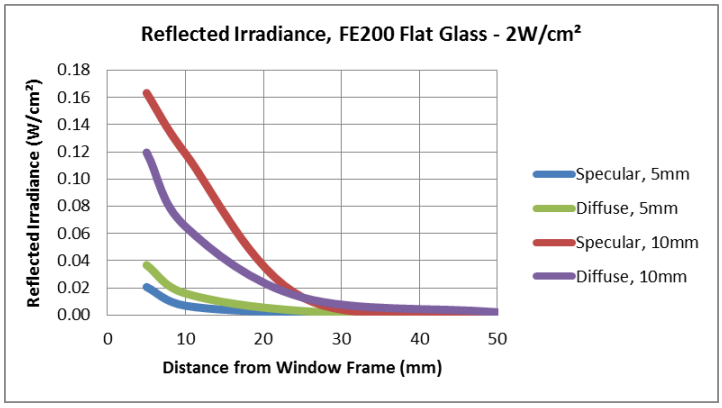


Phoseon Product Examples at 10mm Working Distance

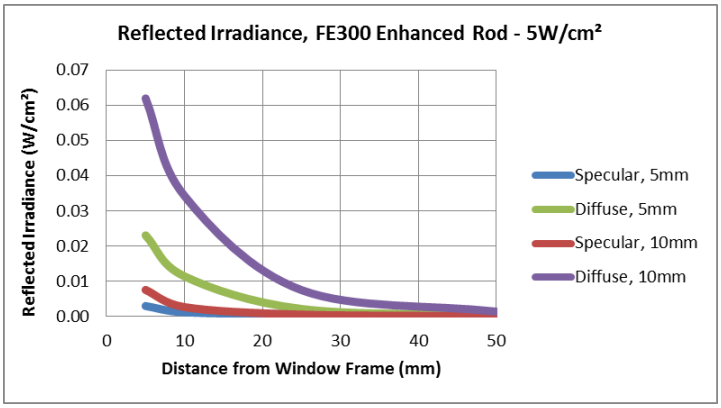
The charts below illustrate the irradiance values of reflected light with 3 different light sources; the FE200-2W/cm² with Flat Glass, the FE300-5W/cm² with Enhanced Rod Lens, and an FP300-20W/cm².

- The media is shown as a worst-case scenario with 100% reflectivity, meaning the media is not absorbing any of the UV energy, even if it is a specular or diffuse surface
  - For comparison, bare aluminum is 85% reflective as shown in the previous chart
  - In actual use, most surfaces will absorb some of the UV energy, which is either used to kick off a UV reaction (inks, coatings, or adhesives), or turns into heat
- The media is shown in two forms: a specular (smooth) surface and a diffuse (rough) surface

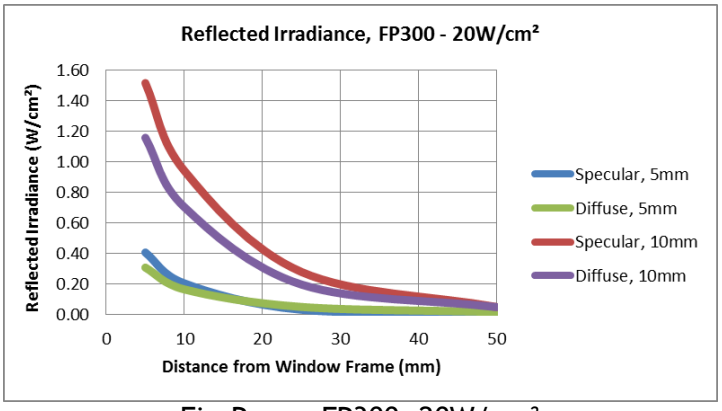
- Each media type is shown at two different working distances: 5mm and 10mm from the emitting window to the media
- The point of measurement for the reflected light is on the same plane as the emitting window at varying distances away from the edge of the light source (window frame, not the glass)



FireEdge FE200 Flat Glass, 2W/cm²



FireEdge FE300 Enhanced Rod, 5W/cm²



FirePower FP300, 20W/cm²

Observations from the charts above:

- The intensity of the light reflections from the FE200 are 10x less than the FP300, due to the difference in peak intensities (2W/cm² versus 20W/cm²)
- The FE300 has less intense light reflections and less specular reflection than the FE200 due to the Enhanced Rod Lens creating a narrower light output
- Other Phoseon products with 20mm emitting windows will have similar reflected irradiance patterns to the FP300, but the distance from the emitting window is different due to the width of the window frames

Air Flow

The FireFly light source has an internal cooling fan to properly cool the components. Do not restrict the airflow; it may be necessary to exhaust air to maintain proper airflow if the system is integrated.

- Minimum clearance of 50mm should be maintained for main air inlet and exhaust ports

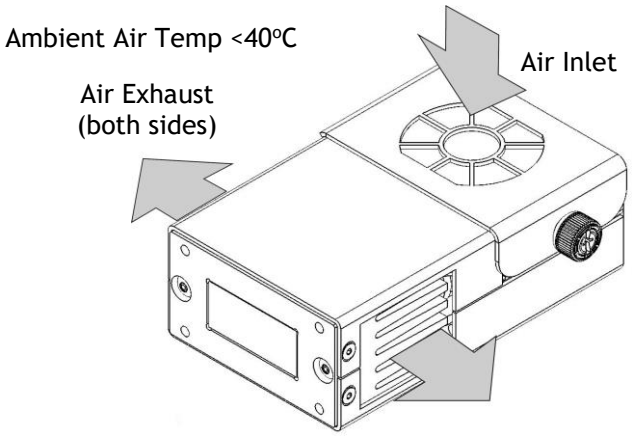


Figure 2.1: Airflow direction for FireFly light source

An optional air filter replacement is also available for the top air inlet, PN 25976, Multicomp PN MC32686, polyurethane foam, 45 ppi.

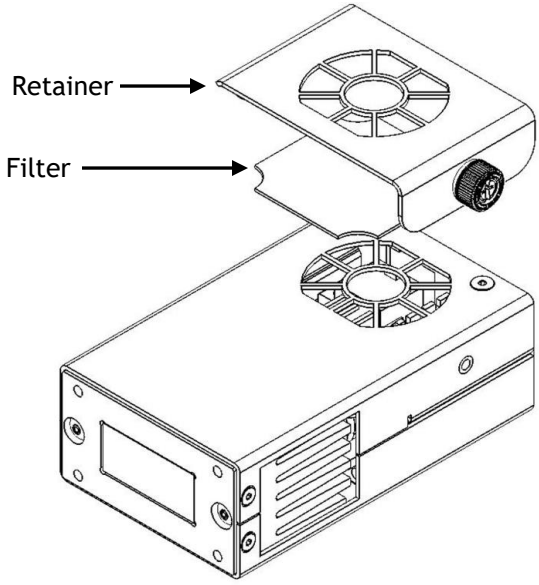


Figure 2.2: Optional FireFly light source parts

PLC Interface

The connector located on the back of the FireFly light source is ***for factory use ONLY***. **DO NOT** connect to this connector.

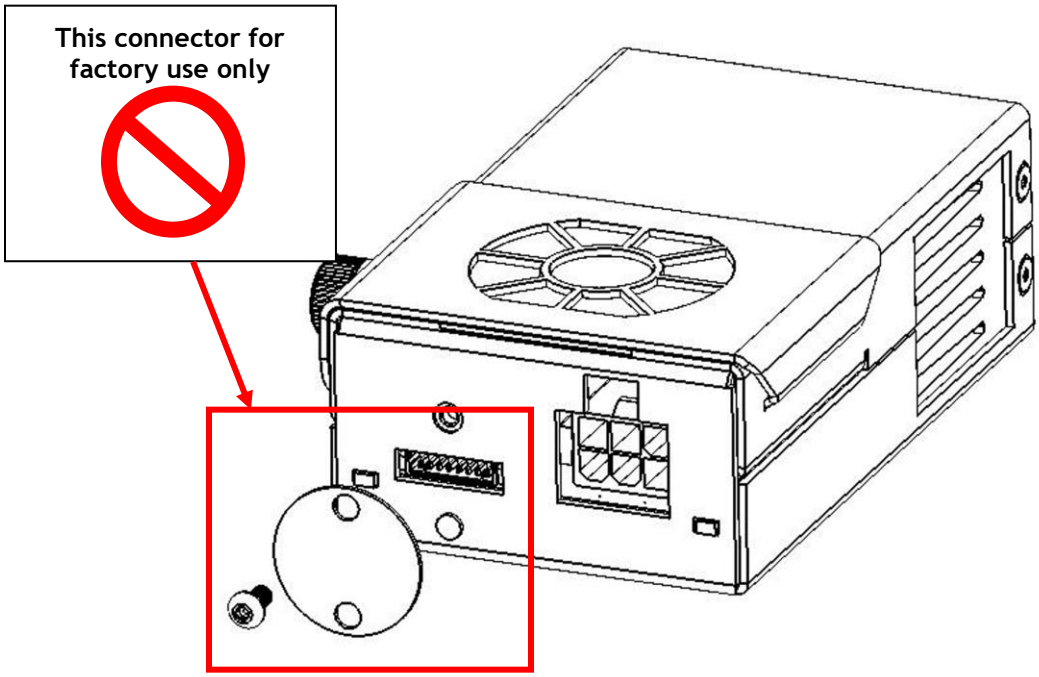


Figure 0.3: FireFly light source Factory Use Only Connector

DC Power Cable Connections for the FireFly Light Source

The FireFly light source is connected to the power supply through the Molex Mini-Fit Jr. 6-Pin connector. Pin 6 is the +48Vdc power input, and Pins 4 or 5 are Ground, which can be used for +48Vdc Return. Only one Pin is required for +48Vdc return, use Pin 4 or Pin 5.

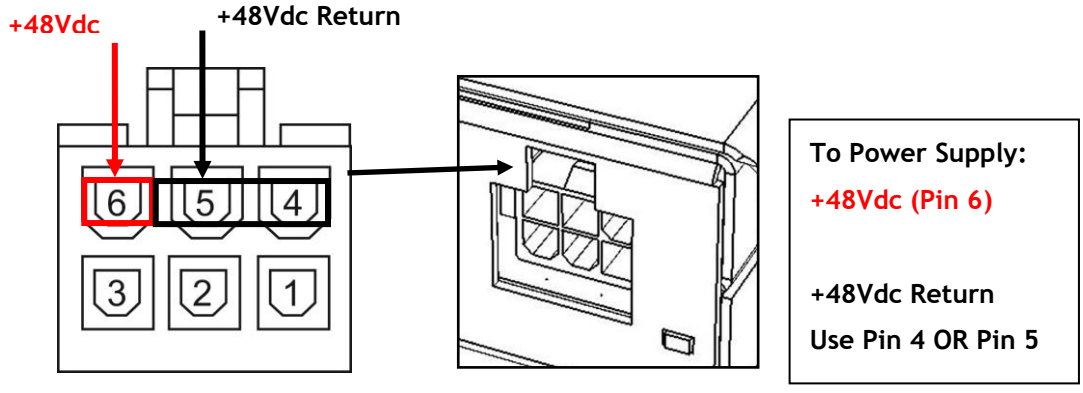


Figure 0.4: FireFly light source DC Connections

The mating Molex Mini-Fit Jr. connector, shown below, has Molex PN # 39-01-2165.

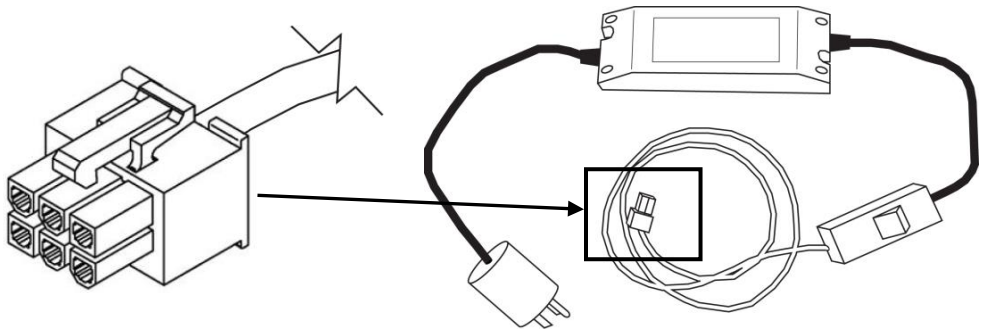


Figure 2.5: FireFly light source DC Cable Connector

If the optional power supply with DC cable is purchased from Phoseon, it includes an On/Off switch as shown below. The optional DC Cable has the mating Molex-Fit Jr. connector to connect the power supply to the light source.

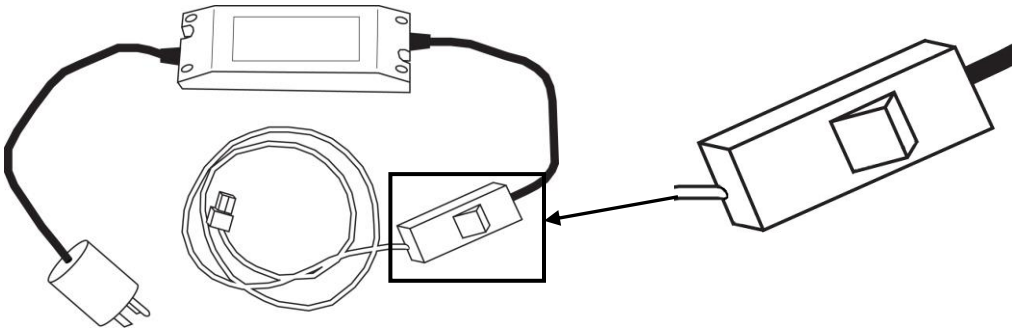


Figure 2.6: FireFly light source Optional Power Supply with On/Off Switch

FireFly Light Source Power Supply Setup

WARNING: **Only trained personnel, qualified installers, or service mechanics should install, start-up, and service this equipment.**

An example power supply system setup, using the Mean Well power supply, is shown for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Phoseon Technology cannot assume responsibility or liability for actual use based on the examples and diagrams.

CAUTION: **If providing your own power supply, please ensure it meets the specifications requirements in 26872 Product Specifications.**

Example Installation of Power Supply

The power supply used in this example has been functionally tested for use with Phoseon's products. Specific product specifications for this power supply are provided in 26872 Product Specifications. This example will cover the following:

Mounting Mean Well Power Supply Connecting

Mount the power supply in a position where both the AC and DC power cords will not be stressed and airflow to the power supply will not be impeded. Mounting information for the 60W power supply from Mean Well is provided by the vendor.

Connecting AC Power Cable to Mean Well Power Supply

If the optional power supply and cables were purchased from Phoseon, it includes a 2m long DC power cable (Binder Series 763 PN 78-3440-35-05 A-coded) with On/Off switch and AC connector (US connector shown).

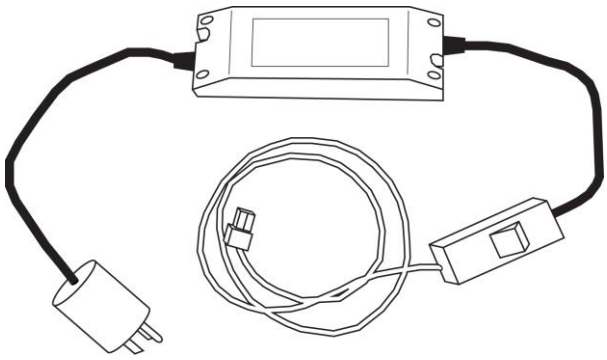


Figure 2.7: FireFly light source 60W Optional Power Supply with Cables

WARNING: Do not connect or disconnect the ac power line to the terminal strip with power applied.

If the optional Mean Well PLN-60-48 power supply was purchased from Phoseon without DC cable and AC connector, ensure the following AC connections are made:

- Protective Earth (Green/Yellow)
- AC/L (Brown)
- AC/N (Blue)

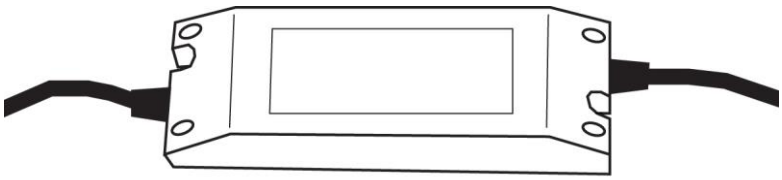


Figure 2.8: FireFly light source 60W Optional Power Supply with No Cables

WARNING: Do not connect or disconnect the DC cable harness to the light source while power is applied.

Verify DC Voltage for Mean Well Power Supply

Check the voltage output of the power supply and verify it is set correctly (+48Vdc measured at the light source). Adjust if necessary. If using the optional Mean Well power supply, the voltage can be adjusted using a potentiometer.

Operation

On/Off Control

The Light source is controlled through a simple voltage and can be turned on and off electronically. The light source does not require shutters and is enabled only when needed.

CAUTION: Any material exposed to UV, when not in motion, can reach high temperatures. Turn off the light source when not actively UV curing.

Irradiance vs. Temperature

The performance of the air cooled FireFly light source is directly impacted by the temperature of the ambient air. Irradiance will decrease slightly as the ambient air increases.

- An integrated temperature switch shuts down the emission of UV light when the light source has exceeded a safe operating temperature.
- The light source will shut off to prevent a thermal run away condition and a Thermal Fault signal will be output (Pin 3).
- When a temperature fault occurs, the light source will shut off automatically. The light source will turn back on automatically when the operating temperature has returned to an acceptable value.

CAUTION: Do not exceed the air temperature specifications as indicated in 26872 Product Specifications.

Irradiance as a Function of Distance

The UV emission from the UV light source diverges with distance away from the window glass. However it is important to note that as the distance between the media and the emitting window increases, the total energy (dose) delivered by the light source remains constant. Peak irradiance decreases as the working distance increases, but it is offset by an increase in the exposure area (light footprint), keeping the dose constant.

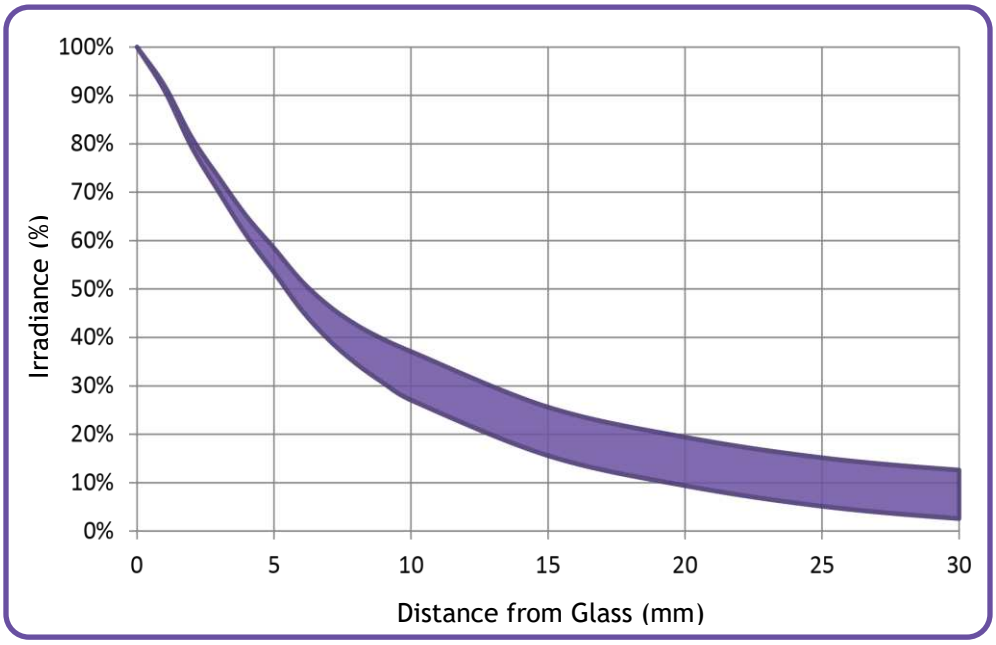


Figure 3.1: Irradiance as a Function of Distance

Service

For further details contact Phoseon Technology by phone at +1.503.439.6446 or email at customerservice@phoseon.com.

Troubleshooting Guide

Table 4.1: Troubleshooting Guide

Symptom	Component	Action or Cause
No Light is emitted from light source	Power Supply	Check that AC and DC cables are wired correctly to power supply. 1. If using Mean Well Power Supply, check that the green LED indicator is on and the fans are running. 2. Verify the power supply is plugged in to AC outlet. 3. Verify the voltage at the light source is +48Vdc at Pin 6 (return at Pin 4 or 5).
	Fault	If light source has thermally tripped, no light will be emitted until the light source returns to a safe operating temperature. **Note:** The fans will continue to operate if the light source has thermally tripped.
	Light Source with PLC Control	Check wiring to Molex Mini-Fit Jr. 6-Pin connector.

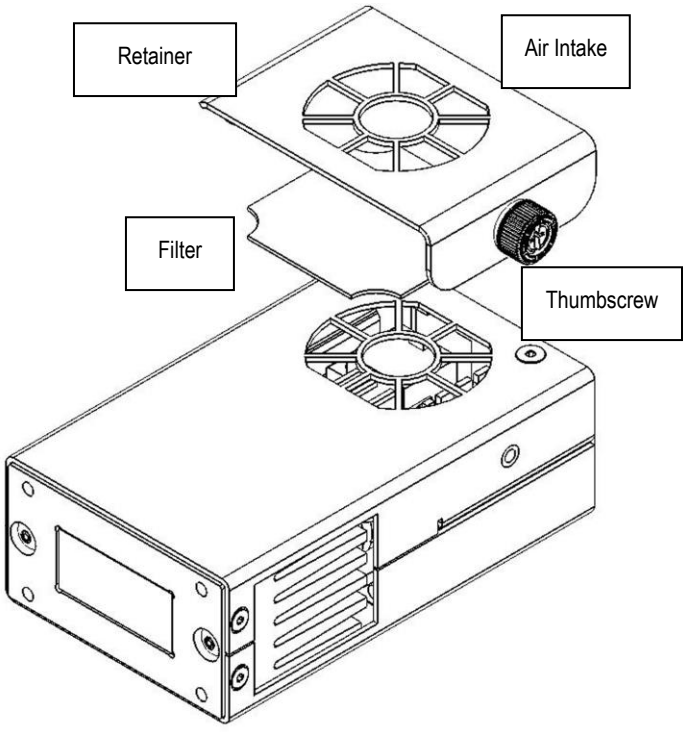
Air Filter Replacement

Clean the fan filter on an as-needed basis. The time interval will vary depending on the environment where the unit is installed.

1. Turn off the power to the light source and disconnect the power cord.
2. Unscrew the thumbscrew and remove the retainer by lifting up and then out.
3. Remove old filter and discard.
4. If needed, wipe the retainer with IPA using a soft cloth.

   CAUTION: Do not use abrasive scouring powders to clean the air filter. Never spray liquid into the fan filter while installed on the light source.

5. Clean the fan guard and retainer with a dry paper towel, if needed.
6. After drying the filter, place it back into the fan guard and secure the filter in place with the retainer.
7. Reconnect main power cord.
8. The light source can then be powered on.



Window Cleaning Instructions

User Guide

Phoseon requires inspecting and cleaning the emitting window of the light source for any debris or UV material on a regular basis, up to daily if needed, to maintain the quality of UV light output.

Note: Do not submerge the light source or spray any liquid directly onto the light source.

The materials needed to properly clean the Phoseon light source, can be purchased from most home improvement supply stores, paint stores, or auto-body repair shops.

Materials Needed:

- Dry Paper Towels
- Razor Blade and Handle
- IPA Pre-moistened Wipe
- Gloves: Vinyl and Sharp Resistant (i.e. Kevlar)
- Sharps Disposal Container

Instructions:

1. Disconnect DC Power from the light source.

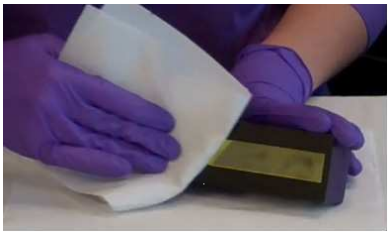
   CAUTION: Wearing vinyl gloves is recommended to avoid getting any uncured UV material on the skin.

2. Wipe down the glass with a dry paper towel to remove any uncured UV material.
3. Carefully scrape large debris off the window using the sharp edge of the razor.

   CAUTION: Wear sharp-resistant gloves.

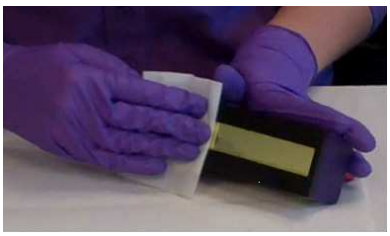
   Note: If the razor needs to be replaced, dispose of the razor blade in a properly marked sharps container.

4. Use the pre-moistened IPA wipe to remove any remaining dust or debris left on the window during the cleaning process.
5. Repeat steps 2 through 5 until the window is clear of all contaminants.
6. If needed, use a dry paper towel to wipe down the light source.



Wipe Glass

Scrape with Razor



Wipe with IPA

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www.phoseon.com

27182 Rev 7.0
February 2017

Declaration of Conformity

Product Identification

Brand	Phoseon Technology						
Product Family	**Product Models**						
FireEdge™	75x5 FE100 80x10 FE200 75x10 FE300 75x10 FE400 80x10 FE410 80x10	FE100 120x10 FE200 110x10 FE300 110x10 FE400 120x10 FE410 120x10	FE100 180x10 FE400 160x10 FE410 160x10	FE100 240x10 FE400 180x10 FE410 180x10	 FE400 240x10 FE410 240x10		
FireFlex™	75x50	150x50	225x50				
FireFly	25x10 50x20 FF200 25x20	25x20 75x20 FF200 50x20	25x25 150x20				
FireJet™	225x20 FJ100 75x20 FJ200 75x20 FJ240 75x40 FJ601 225x20 FJ605 300x20 FJ800 100x100	 FJ100 150x20 FJ200 150x20 FJ240 150x40 FJ601 300x20 FJ605 375x20	 FJ100 225x20 FJ200 225x20 FJ228 225x20 FJ240 225x40 FJ601 375x20 FJ605 450x20	 FJ100 300x20 FJ200 300x20 FJ240 300x40 FJ601 450x20 FJ605 525x20	 FJ100 375x20 FJ200 375x20 FJ601 525x20 FJ605 600x20	 FJ605 675x20	
FireLine™	125x20 350x20 FL200 75x10 FL400 125x20 FL440 125x40	150x20 450x20 FL200 125x10 FL400 150x20 FL440 150x40	225x20 550x20 FL400 225x20 FL440 225x40	300x20 675x20 FL400 250x20 FL440 250x40	 FL400 300x20 FL440 300x40		
FirePower™	FP200 150x20 FP300 150x20 FP501 300x20 FP601 300x20	FP200 225x20 FP300 225x20 FP501 350x20 FP601 350x20	FP200 300x20 FP300 300x20 FP501 450x20 FP601 375x20	FP200 350x20 FP300 350x20 FP501 525x20 FP601 450x20	FP200 450x20 FP300 450x20 FP501 600x20 FP601 525x20	 FP300 900x20 FP501 700x20 FP601 600x20	 FP601 675x20
StarFire™	100x20	150x20					
StarFire MAX™	75x20	150x20	225x20	300x20			

Manufacturer

Name: Phoseon Technology
Address: 7425 NE Evergreen Parkway, Hillsboro, Oregon 97124-5845
Country: United States of America

Means of Conformity

Phoseon Technology declares that the product listed as a result of its design and construction is in conformity with the essential requirements and provisions of the following Council Directives and standards:

Applicable Directives:

- 2014/35/EU (Low Voltage Directive)
- 2014/30/EU (Electromagnetic Compatibility)
- 2011/65/EU (RoHS2)

Standards Used to Verify Compliance:

- EN/IEC 61010-1 3rd Ed. (2010)
- EN 62471 (2008) IEC 62471 (2006)
- EN 61326-1 (2013)

Signature

Place: Hillsboro, OR

Signature: _____

Name: Craig Baldwin, Vice President of Operations

info@phoseon.com
www.phoseon.com

29321 Rev 13
March 2020

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UKCA Declaration of Conformity

The declaration of conformity is issued under the sole responsibility of the manufacturer

Part number: IUV201
Description: Handheld LED UV Curing Flood Lamp
Serial number:

Incorporating:

Part number	Description	Serial Number(s)
PHO28438	Phoseon FireFly 25x10mm Air-Cooled 4W 395nm LED Flood Lamp Mean Well PLN-60-48 110-240VAC to +48V Power Supply	

Intertronics declares that the product described above is in conformity with the relevant UK Statutory Instruments (and their amendments):

- Supply of Machinery (Safety) Regulations 2008
- Electromagnetic Compatibility Regulations 2016
- Electrical Equipment (Safety) Regulations 2016

References to the relevant designated standards used or references to the other technical specifications in relation to which conformity is declared:

- BS EN ISO 12100-1:2010 Safety of machinery. General principles for design. Risk assessment and risk reduction
- BS EN ISO 13849-1:2015 Safety of machinery. Safety-related parts of control systems. General principles for design
- BS EN ISO 60204-1:2018 Safety of machinery. Electrical equipment of machines. General requirements

The Technical File is held by Intertronics at the below address.

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