



FireJet™ FJ240

*Solid State UV LED Curing System
User Manual*

Revision: 8
April 2024

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For Technical Assistance Contact:

Phone +1 503 439 6446 • Fax +1 503 439 6408

Email: customerservice@phoseon.com

Website: www.phoseon.com

Contact Phoseon Sales for a Return Material Authorization (RMA)

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Overview and Safety

UV Curing System Components

The FireJet™ FJ240 system consists of the following components:

- FireJet FJ240 Light Source
- DC Power Supply
- Control

The product label on the FJ240 light source identifies the production model and configuration. See the example (pictured right):

- **FireJet** is the product family
- **FJ240 150x40** is the model number
 - **150** indicates the UV emitting length in mm
 - **40** indicates the UV emitting width in mm
- Configuration information follows the model number
 - **AC** defines the unit as air cooled
 - **395** defines wavelength in nm
 - **8W** defines the peak irradiance in W/cm²



Figure 1.1: Safety Label Placement (safety label on back of 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	French Description	Italian Description	German Description	Spanish Description	Dutch Description	Polish Description
	Safety Notices	Consignes de Sécurité	Avvertenze sulla sicurezza	Sicherheits-hinweise	Notas de Seguridad	Veiligheids-aanduidingen	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 Vorsichtsmaßnahmen in der Gebrauchsanleitung lesen	Atención Lea el manual de Instrucciones de seguridad	Opgelet Lees handleiding voor veiligheidsvoorschriften	Uwaga Zapoznaj się z zaleceniami bezpieczeństwa 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 Vorsichtsmaßnahmen in der Gebrauchsanleitung lesen	Luz UV Lea el manual de Instrucciones de seguridad	UV-licht Lees handleiding voor veiligheidsvoorschriften	Promieniowa- nie UV Zapoznaj się z zaleceniami bezpieczeństwa 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 PROMIENIOWANIE UV Unikać wystawiania skóry i oczu na działanie nieosłoniętego 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.

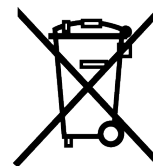


Figure 1.1: Do Not Dispose in Trash Symbol

Setup & Installation

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

Table 2.1: FJ240 Documentation

FireJet FJ240	75x40	150x40	225x40	300x40	375x40
Product Specifications	31798				
Reducing Light Reflection	28658				
Control Drawings, 12W/cm²	31817	31816	32626	39383	39644
Control Drawings, 16W/cm²	TBD	39949	39947	51076	39644
DC Power Cable, 2m	27680	26883-02M			
Window Cleaning Instructions	27182				
Declaration of Conformity	29321				

Optional Power Supply	75x40	150x40	225x40	300x40	375x40
8W/cm ² : 365nm 12W/cm ² : 385, 395, 405nm	Mean Well www.meanwell.com RSP-1500-48		Mean Well www.meanwell.com RSP-3000-48		Mean Well www.meanwell.com RSP-5000-48
16W/cm ² : 385, 395, 405nm	Mean Well www.meanwell.com RSP-1500-48	Mean Well www.meanwell.com RSP-3000-48		Mean Well www.meanwell.com RSP-5000-48	

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.

Electrical

The FireJet FJ240 system requires a switching power supply with constant voltage output. The power supplies tested by Phoseon for use with the FJ240 systems are listed in the table above. The Mean Well specifications can be used as a guideline for selecting a switching power supply with the following critical specifications:

48VDC +/- 4V delivered to the light source from constant voltage output source.

700 to 2100W minimum delivered to the light source based on configuration (see 31798 Product Specifications).

Maximum ripple should be less than 1V peak-to-peak.

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 marked.

Requirements for FJ240 Light Sources Configured End-to-End

Power requirements are based on the individual modules when configured end-to-end. For example, three FJ240 150x40 units can be used to create a 450x40 emitting window. Each module will have a dedicated DC power input based on the requirements defined above.

The control signal can be daisy-chained for up to 5 light sources.

When scaling end-to-end, ensure the mounting bracket takes the tolerance stack into account.

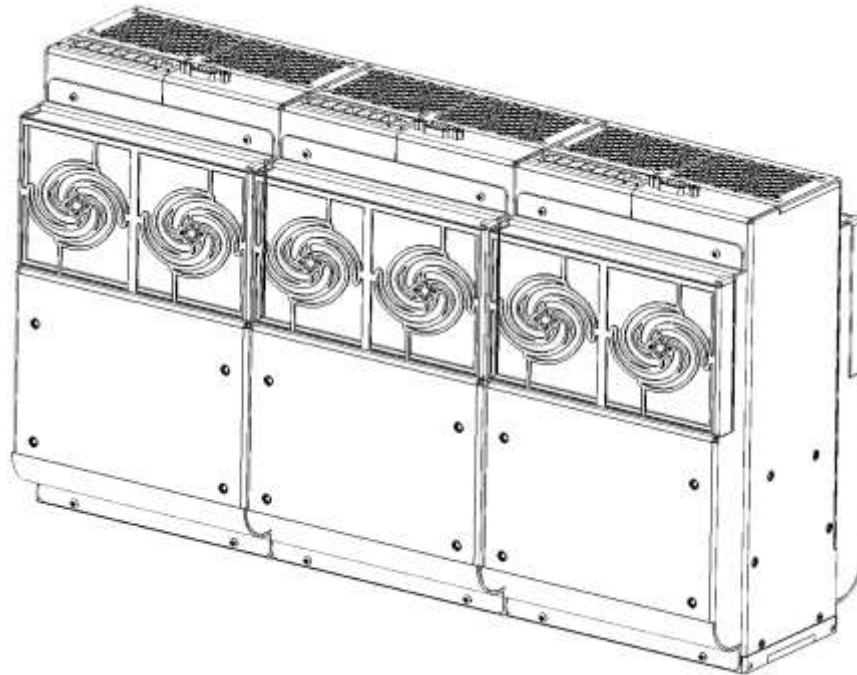


Figure 2.1: Configuring FJ240 End-to-End

Mechanical Installation

Refer to the Control Drawing for the specific FJ240 model for detailed dimensions and mounting point information. Make special note of the following information listed on the Control Drawing:

- Quantity and size of mounting hardware
- Maximum depth of mounting hardware

Refer to the 31798 Product Specifications document for the following information:

- DC power/Data connector (manufacturer and model)
- DC power/Data connector Pinout

CAUTION: The light source may be damaged if these specifications are not followed.

FireJet FJ240

Product Specifications



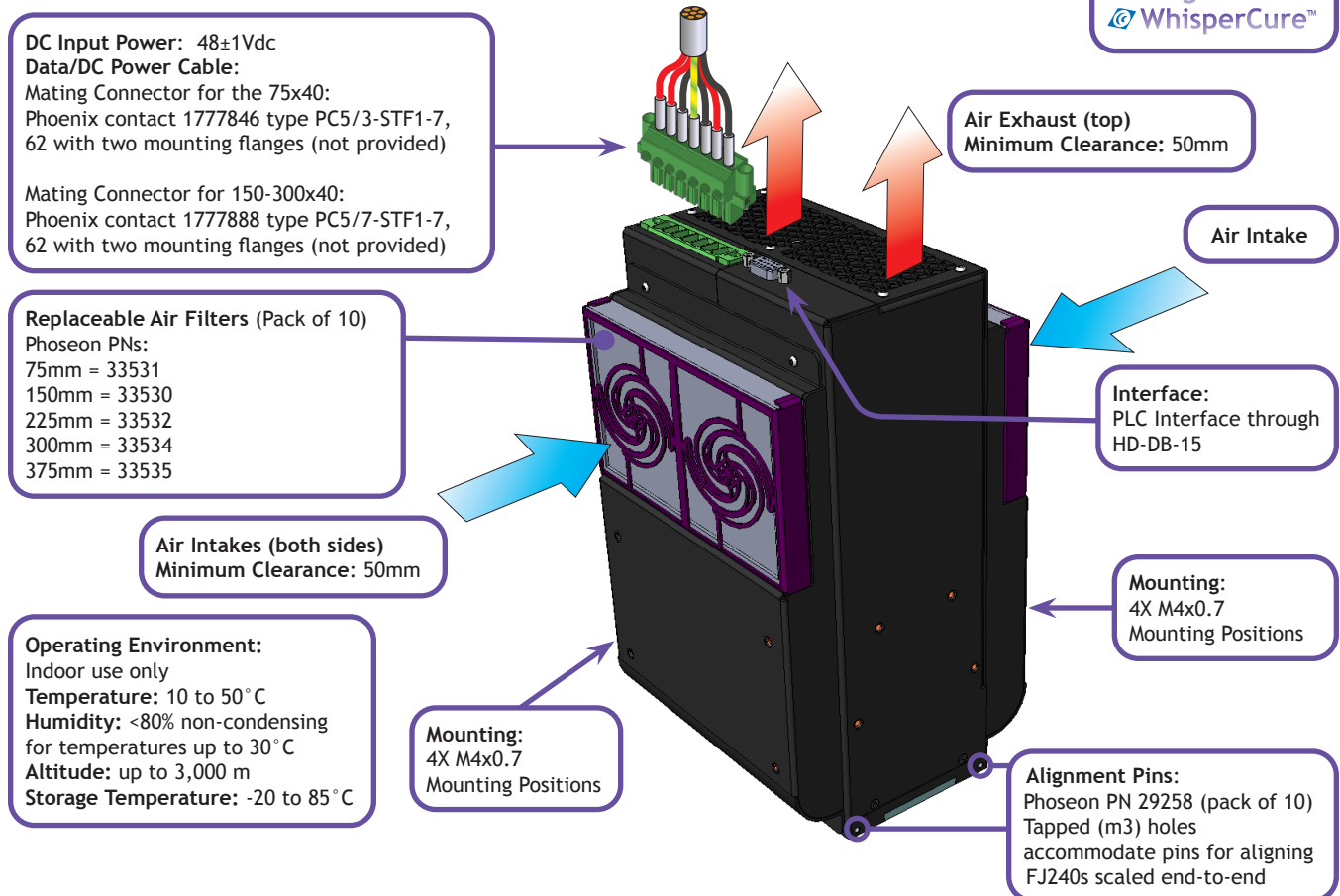
Phoseon UV LED SLM™ Technology

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 FireJet light source is for use in high-performance curing.



Light Source Setup



Performance

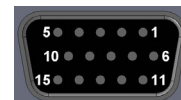
Wavelength	385, 395, 405nm									
Peak Irradiance	12W/cm ²					16W/cm ²				
Emitting Window (mm)	75x40	150x40	225x40	300x40	375x40	75x40	150x40	225x40	300x40	375x40
UV Power (Watts)	300	600	900	1200	1500	400	800	1200	1600	2000
48V Power In (Max)	768W 16A	1536W 32A	2304W 48A	3072W 64A	3840W 80A	1008W 21A	2016W 42A	3024W 63A	4032W 84A	5040W 105A

Wavelength	365nm				
Peak Irradiance	8W/cm ²				
Emitting Window (mm)	75x40	150x40	225x40	300x40	375x40
UV Power (Watts)	200	400	600	800	1000
48V Power In (Max)	720W 15A	1440W 30A	2160W 45A	2880W 60A	3600W 75A

PLC Interface

The female HD-DB-15 connector is used to control the light source via PLC.

Data
Connector



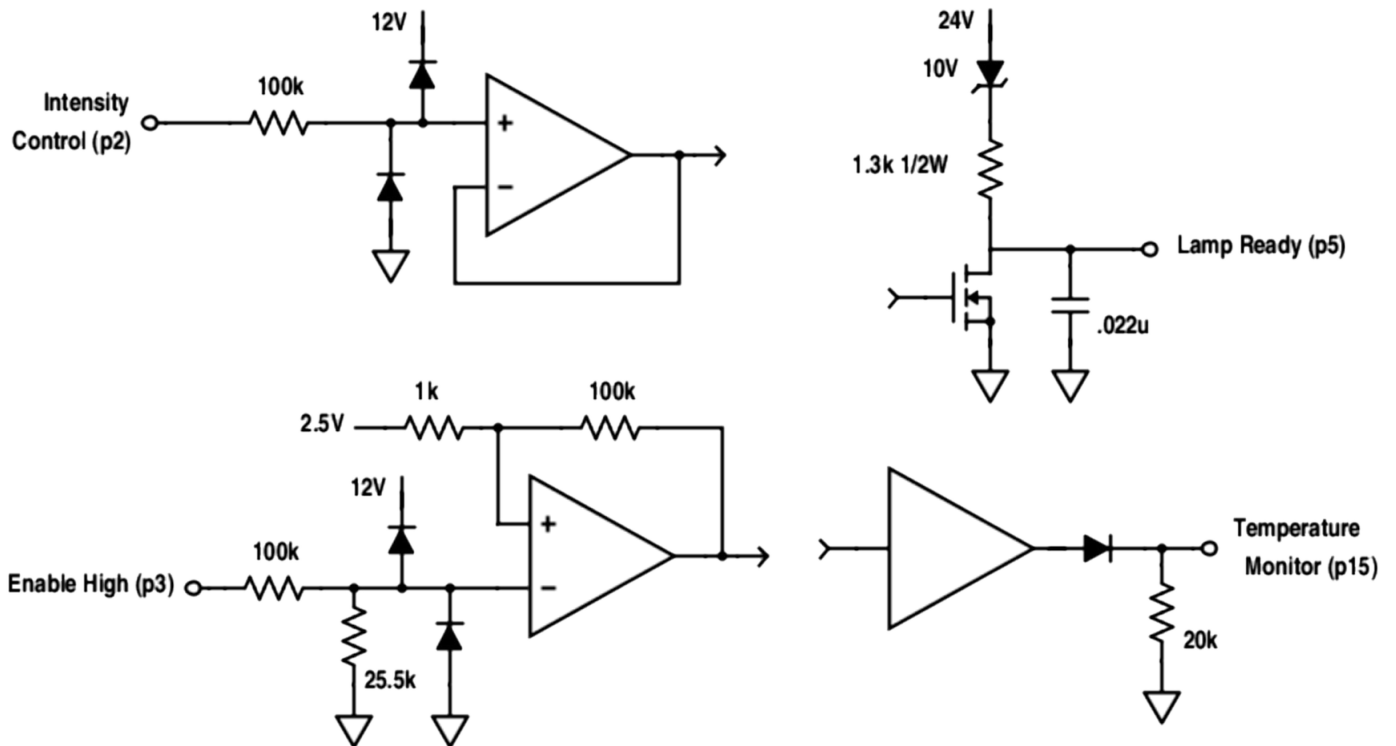
- | | | |
|---|--|---|
| <p>1* Do Not Use</p> <p>2 Intensity Control: (Voltage Input)
1V = 10% of full power
10V = 100% of full power
Internal resistive load on this Pin is 100kΩ</p> <p>3 Enable High: (24V PLC Input)
0 to 6V (ground/open input) = OFF or
16 to 24V = ON
Internal resistive load on this Pin is 125kΩ</p> <p>4* Do Not Use</p> <p>5 Lamp Ready: (24V PLC Output)
0 to 6V (ground) = Not Ready or
16 to 24V (open) = Ready
Internal resistive load on this Pin is 1.3kΩ
Sink Current Maximum = 6mA
Should be connected to high impedance input</p> | <p>6* Do Not Use</p> <p>7+ Interlock: (24V PLC Input)
0 to 6V = UV Emission Allowed or
16 to 24V = UV Emission Stopped
Internal resistive load on this Pin is 10kΩ</p> <p>8 Ground</p> <p>9 Ground</p> <p>10 Ground</p> | <p>11 Fault: (24V PLC Output)
0 to 6 (ground) = Fault or 16 to 24V (open) = No Fault
Internal resistive load on this Pin is 1.3kΩ
Sink Current Maximum = 6mA
Should be connected to high impedance input</p> <p>12 RS485 Communication: Serial -</p> <p>13 RS485 Communication: Serial +</p> <p>14 Ground</p> <p>15 Temperature Monitor: (Voltage Output)
Voltage proportional to SLM heat sink temperature 0.1V = 1°C
This value should not exceed approximately 8V</p> |
|---|--|---|

Pins may be tied together to control multiple light sources from a single DB-15 interface with the following exceptions:

* Leave these Pins open (unconnected).

+ The interlock Pins must not be tied together across multiple light sources. Each interlock must be connected to independent circuits.

The equivalent circuits inside the FJ240 UV light source are shown below:

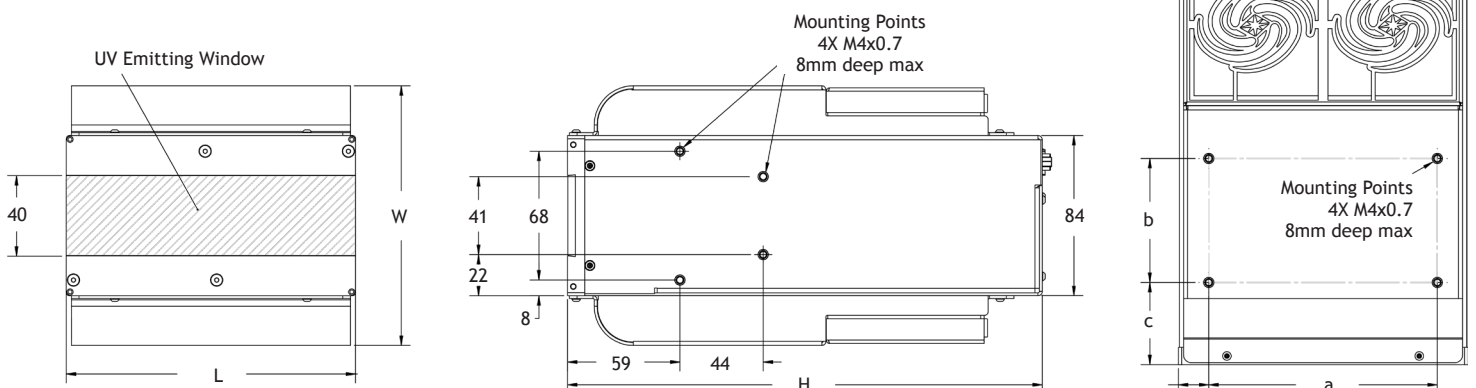


Dimensions

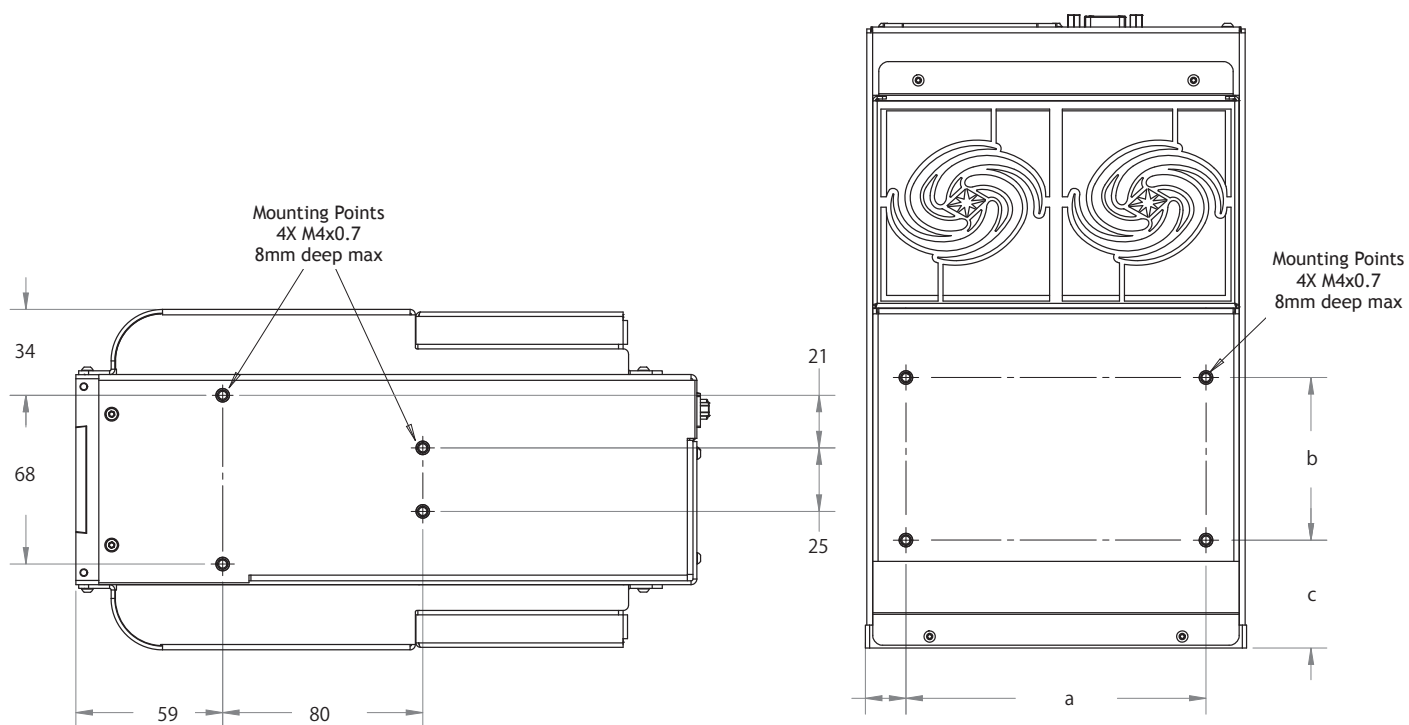
Units of measurement: mm

FJ240					
UV Emitting Window	75x40	150x40	225x40	300x40	375x40
a	56	120	120	240	379
b	65	65	65	65	65
c	43	43	43	43	43
Weight (kg)	1.3	2.2	3.2	4.2	5.2
Overall Dimensions LxWxH	77x136x249	152x136x249	228x136x249	303x136x249	379x136x249

Mounting Points, 12W



Mounting Points, 16W



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.

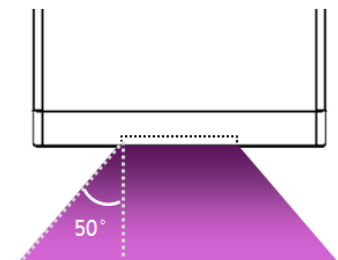
Note:

- 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 $\sim 50^\circ$

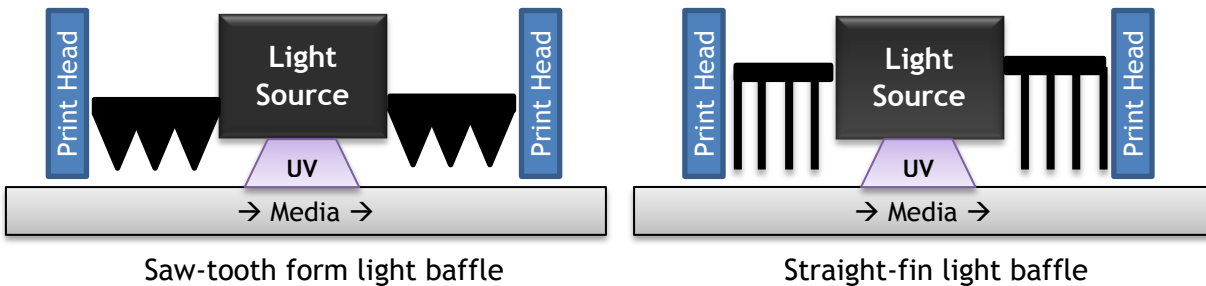
Reducing Light Reflection

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 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

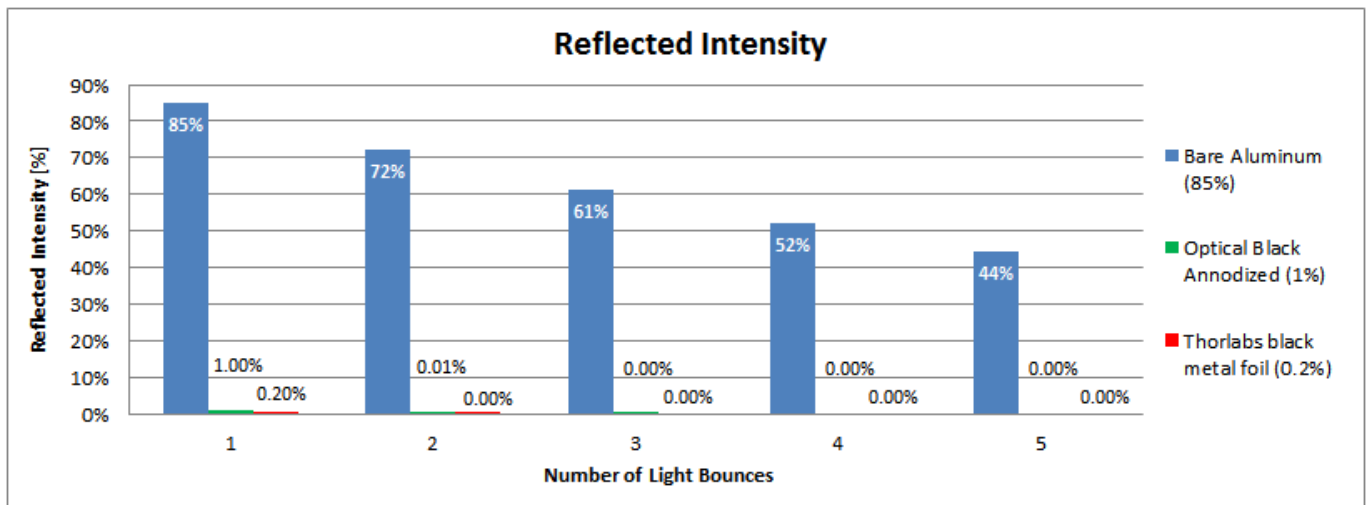
Light Baffle Examples (not to scale)

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.

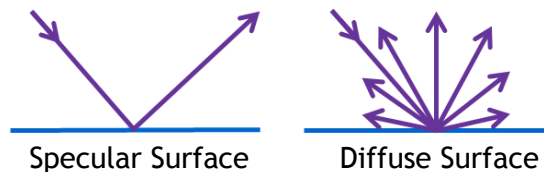


Materials

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.

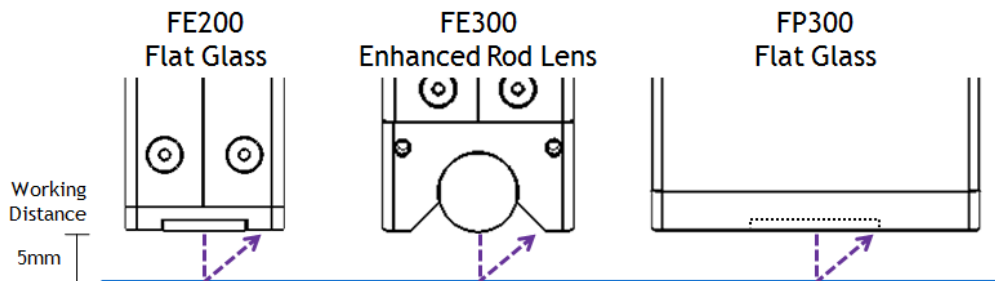


Light Reflection Examples

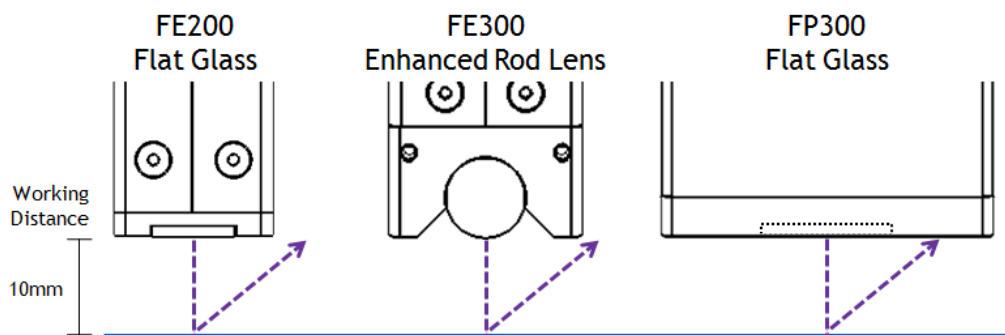
When curing with a reflective surface, like bare or polished aluminum, the size of the window frame and the working distance from the emitting window to the media, will affect how much light is allowed to reflect past the light source. Adding a light catch or shield that extends past the light source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

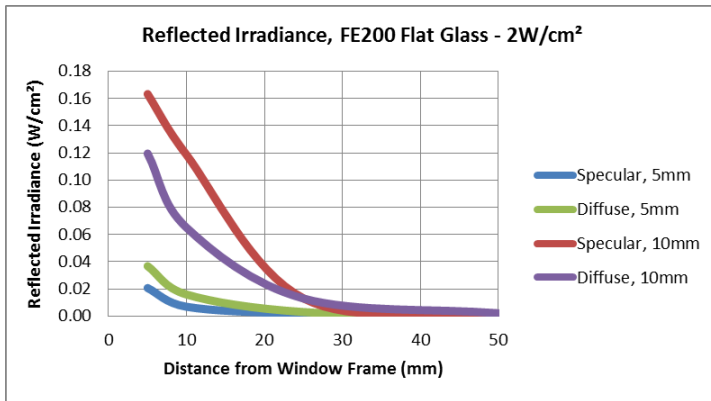


Phoseon Product Examples at 10mm Working Distance

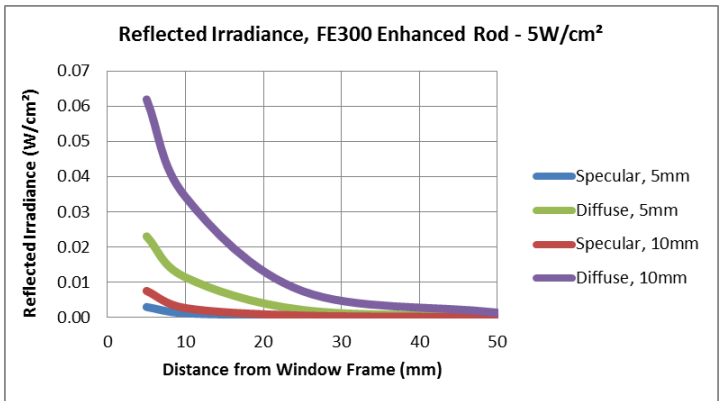
The charts below illustrate the irradiance values of reflected light with 3 different light sources; the FE200-2W/cm² with Flat Glass, the FE300-5W/cm² with Enhanced Rod Lens, and an FP300-20W/cm².

- 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

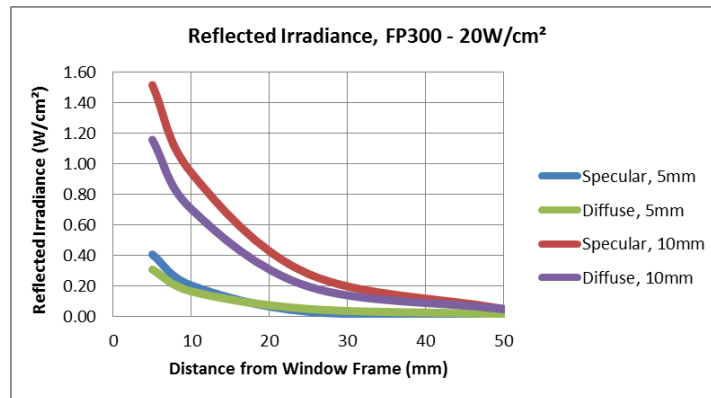
- Each media type is shown at two different working distances: 5mm and 10mm from the emitting window to the media
- The point of measurement for the reflected light is on the same plane as the emitting window at varying distances away from the edge of the light source (window frame, not the glass)



FireEdge FE200 Flat Glass, 2W/cm²



FireEdge FE300 Enhanced Rod, 5W/cm²



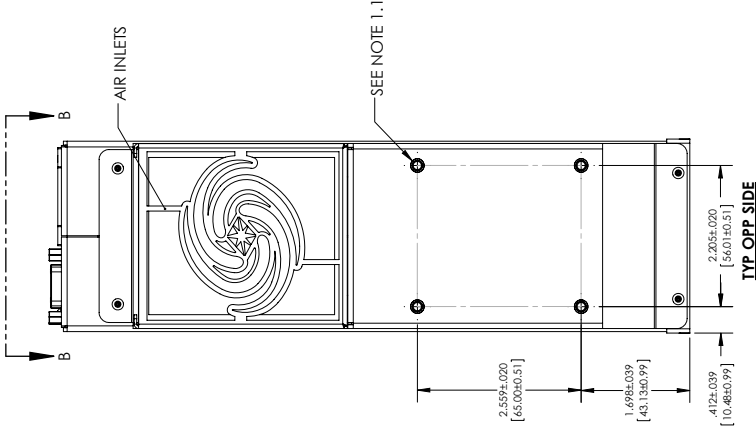
FirePower FP300, 20W/cm²

Observations from the charts above:

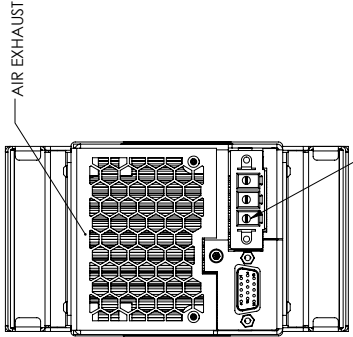
- The intensity of the light reflections from the FE200 are 10x less than the FP300, due to the difference in peak intensities (2W/cm² versus 20W/cm²)
- The FE300 has less intense light reflections and less specular reflection than the FE200 due to the Enhanced Rod Lens creating a narrower light output
- 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

NOTES: UNLESS OTHERWISE SPECIFIED.

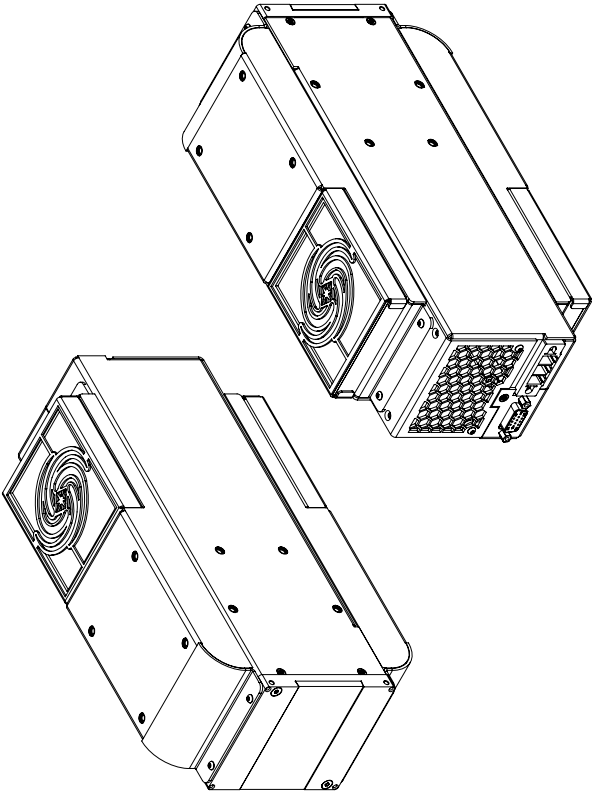
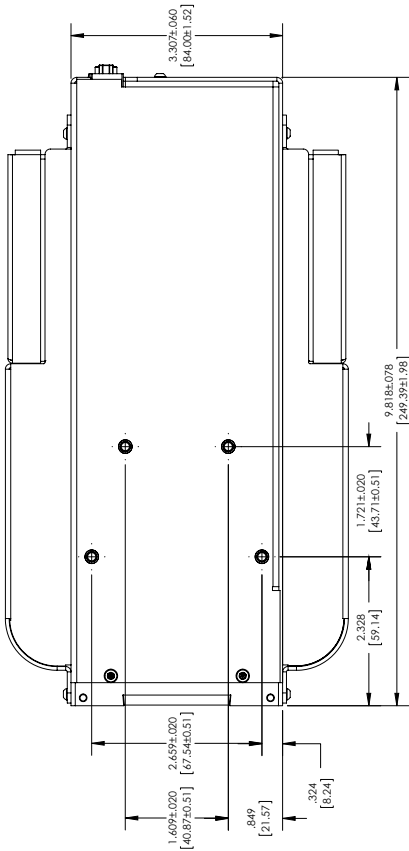
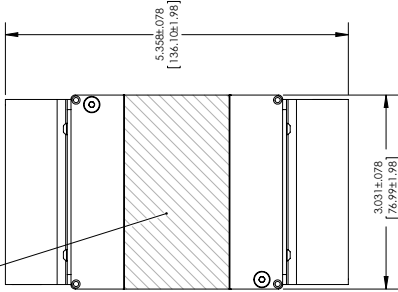
1. Mounting hardware:
 - 1.1. M4x0.7 Tapped holes; maximum screw length in insert is 8mm with a maximum screw tightening torque of 3.5 Nm [31 inch lbs].
2. Reference Documents:
 - 2.1. 31798 Product Specifications



UV EMITTING WINDOW AREA
2.95[75] X 1.57 [40]



SECTION B-B
SCALE 1:1.5



REVISIONS

REV.	DESCRIPTION	ENGR	DATE	ECO	APPROVED	APPROVED DATE
1	INITIAL RELEASE	PH	10/12/2015	1880	GM	03/28/2016

3RD ANGLE VIEW

PHOSEON TECHNOLOGY

CONTROL DRAWING, F1240 75X40

PART NUMBER: 31817

REV. 1

ISSUED BY: PH

ISSUE DATE: 10/12/2015

3D DATABASE 31817 - CONTO DOWING 1240 75X40 3BP

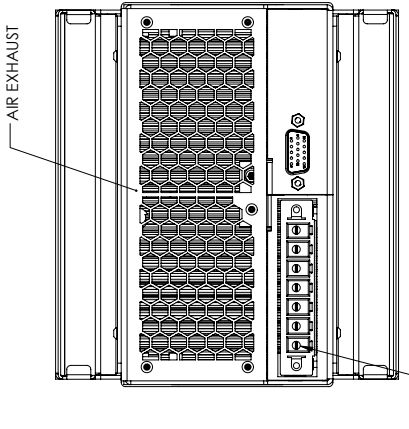
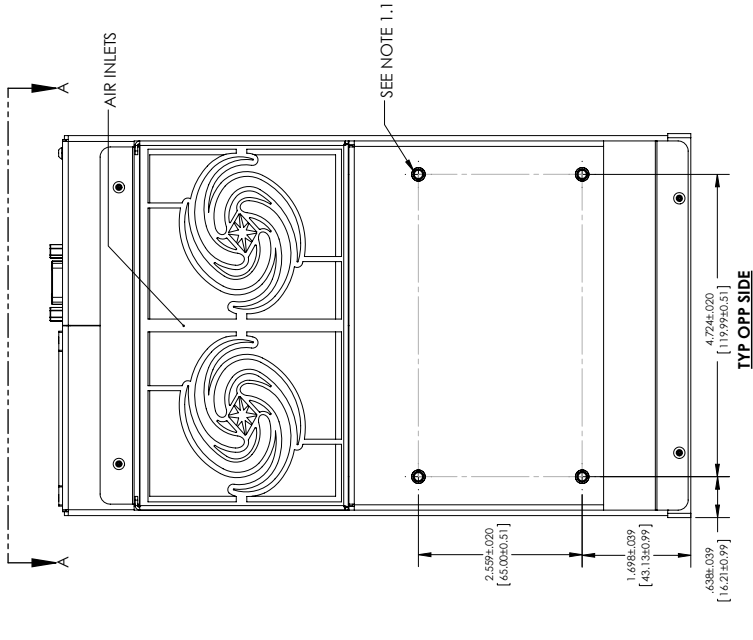
AXONOMETRIC SCALE 1:1.5

PHOSEON TECHNOLOGY

NOTES: UNLESS OTHERWISE SPECIFIED.

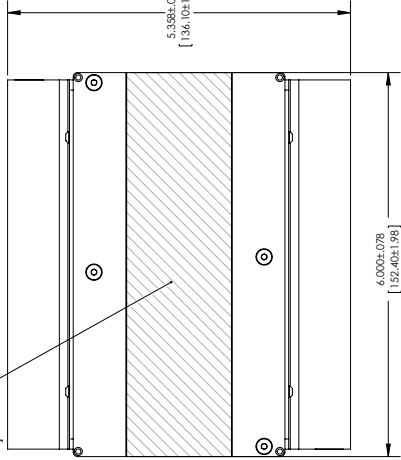
1. Mounting hardware:
 - 1.1. M4x0.7 Tapped holes; maximum screw length in insert is 8mm with a maximum screw tightening torque of 3.5 Nm [31 inch lbs].
2. Reference Documents:
 - 2.1. 31798 Product Specifications

REVISONS				
REV.	DESCRIPTION	ENGR	DATE	ECO APPROVED DATE
1	INITIAL RELEASE	PH	10/12/2015 1880	GM 03/28/2016

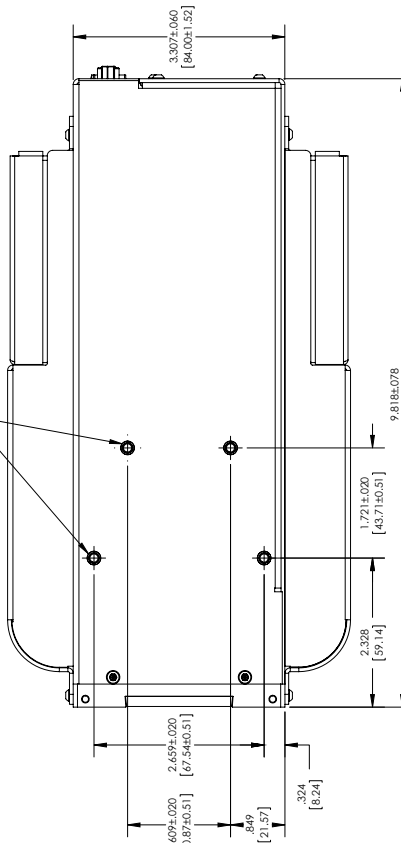


SECTION A-A
SCALE 1:1.5

UV EMITTING WINDOW AREA
5.90(1.50)X1.57(40)



SEE NOTE 1.1



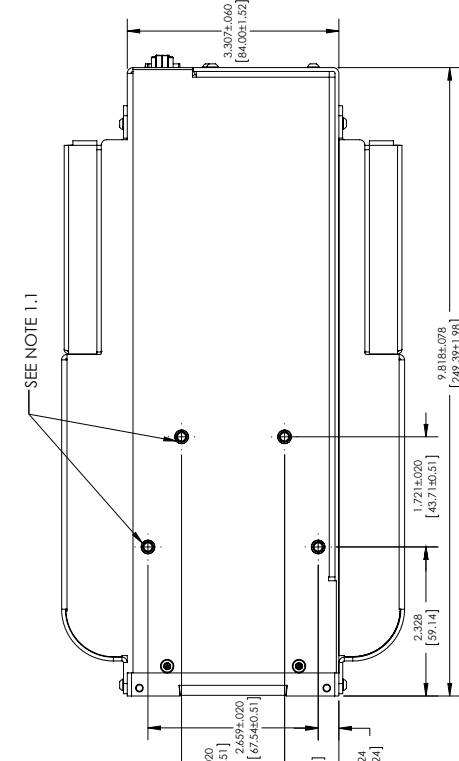
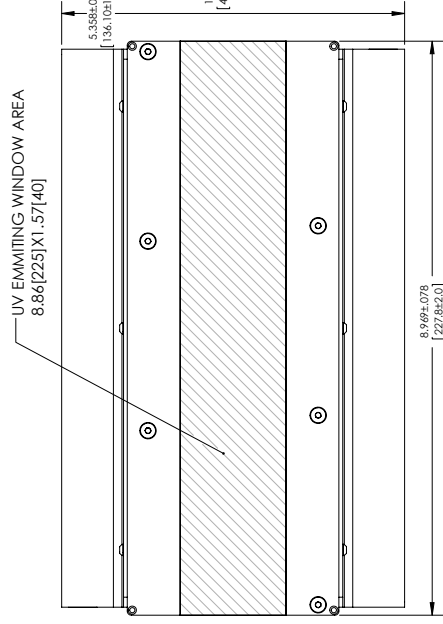
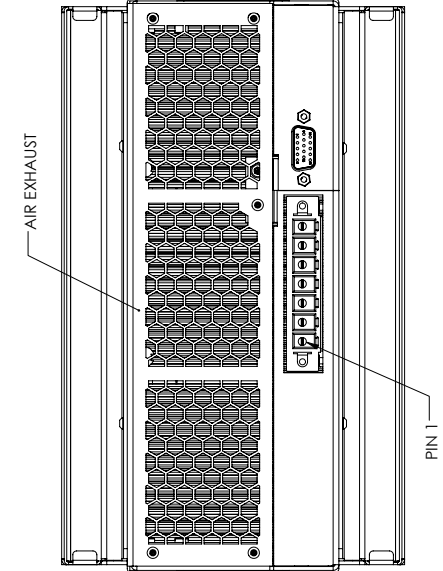
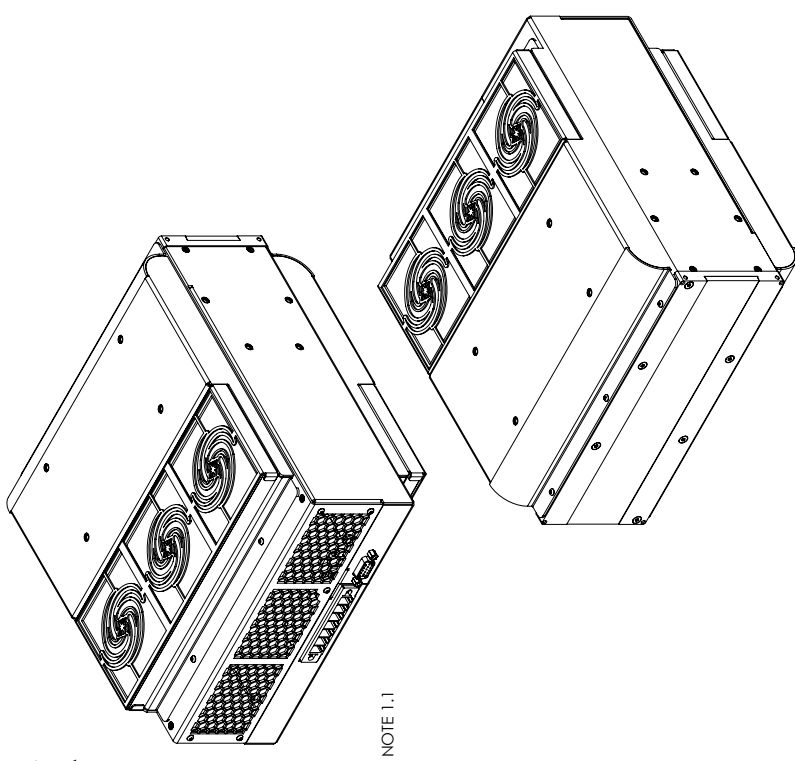
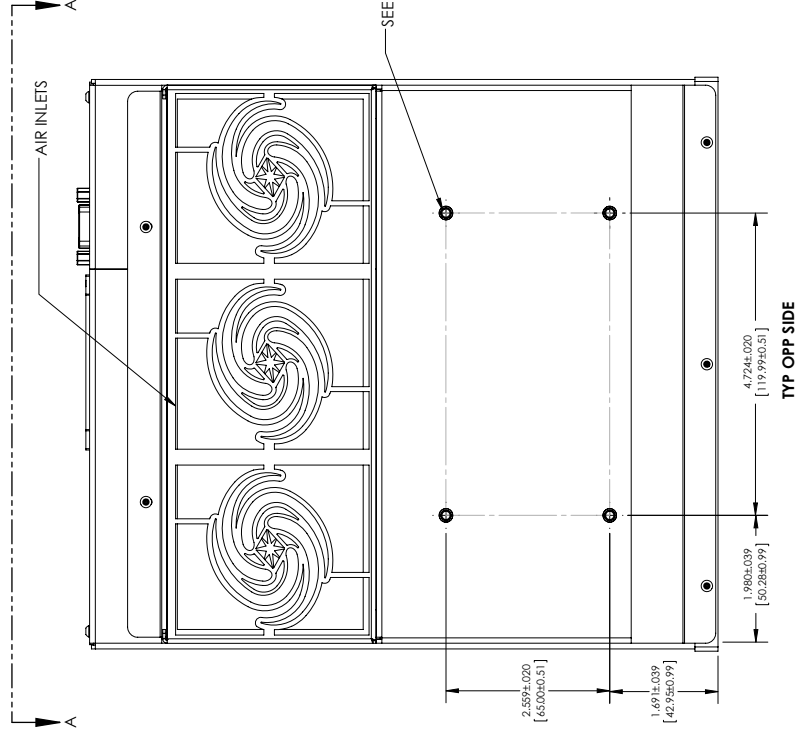
3RD ANGLE VIEW	ARTERIAL	INSIDE	TITLE
NONE	NONE	NONE	CONTROL DRAWING, F/240 150X40

PHASEON TECHNOLOGY	PART NUMBER: 31816	REV. 1
ISSUED BY: PH	ISSUE DATE: 10/12/2015	
3D DATABASE: 31816 - CONTROL DRAWING, F/240 150X40		
ADDITIONAL TEXT: TGP4407501 SCALE: 1:1.5 SEE C/D SHEET TOP		

REVISIONS

1. Mounting hardware:
 - 1.1. M4x0.7 Tapped holes; maximum screw length in insert is 8mm with a maximum screw tightening torque of 3.5 Nm [31 inch lbs].
2. Reference Documents:
 - 2.1. 31798 Product Specifications

REVISIONS					
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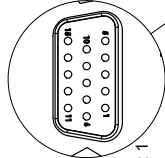


SECTION A-A
SCALE 1:1.5

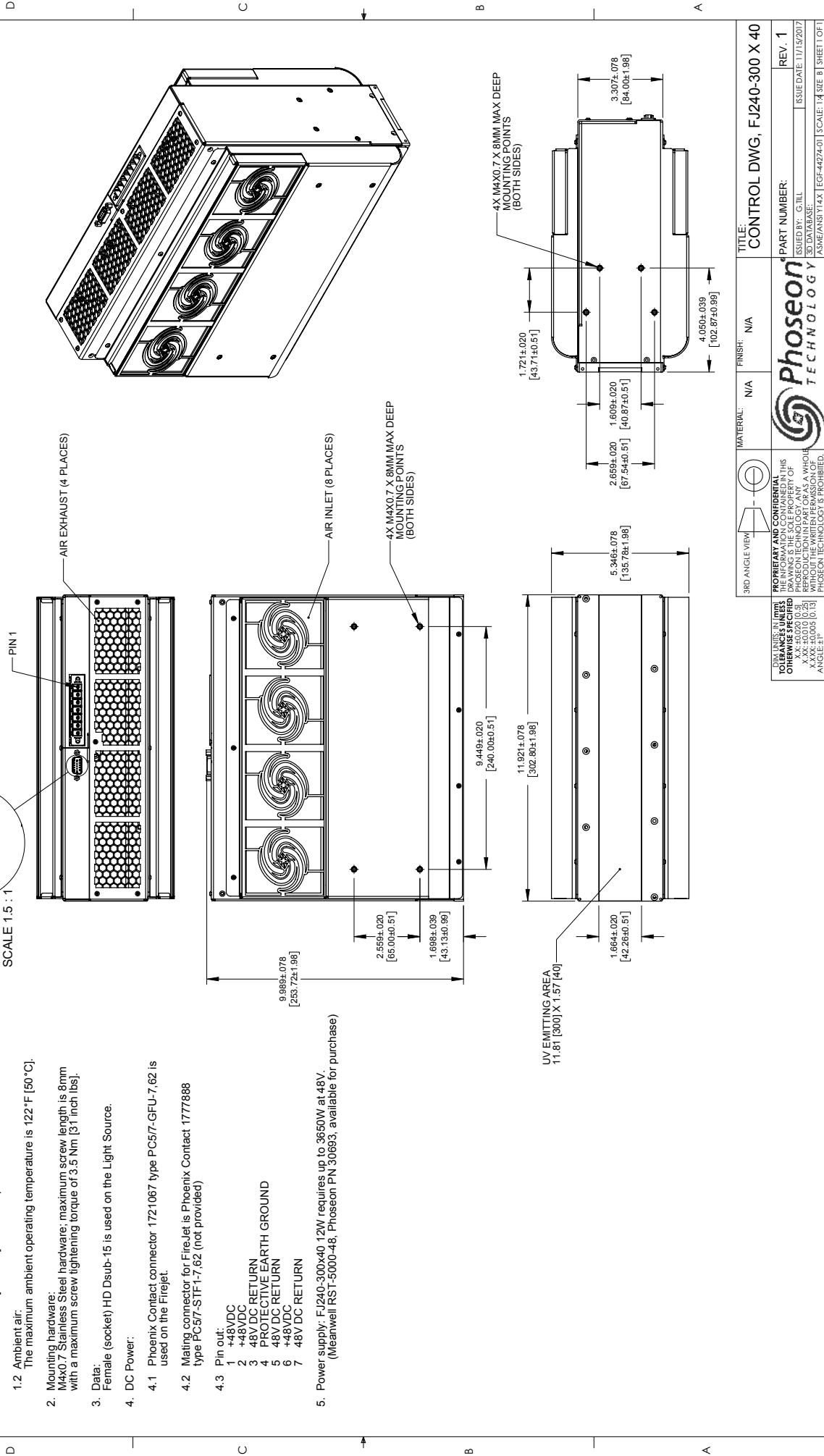
 3RD ANGLE VIEW	 NONE	 NONE	Phoseon TECHNOLOGY	CONTROL DRAWING: F.1240.223x40	32626	REV. 1	12/01/2016
TOUCHARS (S) IN THE ORDERED PICTURE	PROPORTION AND CONFORMATION THE INFORMATION COINCIDES WITH DRAWING IN THE SCOPY OF THE ORDERED PICTURE	REPRODUCTION IN PART OR AS A WHOLE IS PROHIBITED WITHOUT THE PRESENT TECHNOLOGICAL PROVISIONS AND REQUIRED	ISSUED BY PH 12/01/2016	CONTROL DRAWING: F.1240.223x40	32626	REV. 1	12/01/2016

NOTES: (Unless otherwise specified)

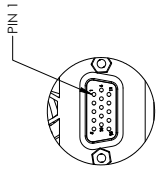
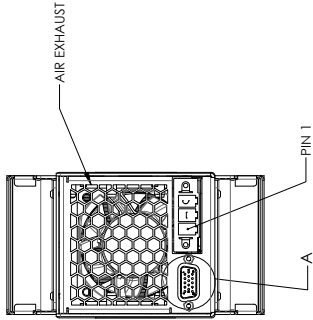
1. The FireJet is air-cooled using an internal fan.
 - 1.1 Clearance: Do not impede air inlet or exhaust; a min clearance of 2.00-inches [50.8mm] should be provided.
 - 1.2 Ambient air:
The maximum ambient operating temperature is 122°F [50°C].
2. Mounting hardware:
M4x0.7 Stainless Steel hardware; maximum screw length is 8mm with a maximum screw tightening torque of 3.5 Nm [31 inch lbs].
3. Data:
Female (socket) HD Dsub-15 is used on the Light Source.
4. DC Power:
 - 4.1 Phoenix Contact connector 1721067 type PC5/7-GFU-7.62 is used on the FireJet.
 - 4.2 Mating connector for FireJet is Phoenix Contact 1777888 type PC5/7-STF-1.7.62 (not provided)
- 4.3 Pin out:
 - 1 +48VDC
 - 2 +48VDC
 - 3 48V DC RETURN
 - 4 PROTECTIVE EARTH GROUND
 - 5 48V DC RETURN
 - 6 +48VDC
 - 7 48V DC RETURN
5. Power supply: FJ240-300x40 12W requires up to 3650W at 48V.
(Meanwell RS1-5000-48; Phoscon PN 30693; available for purchase)



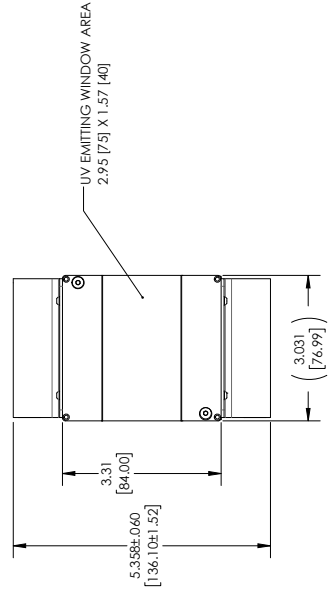
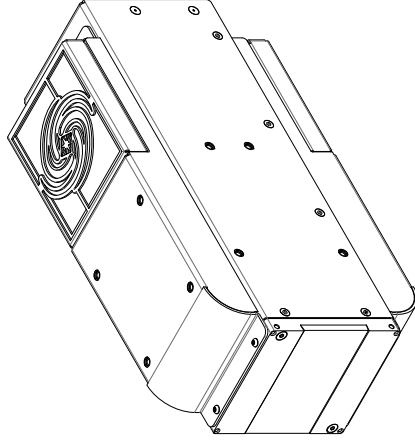
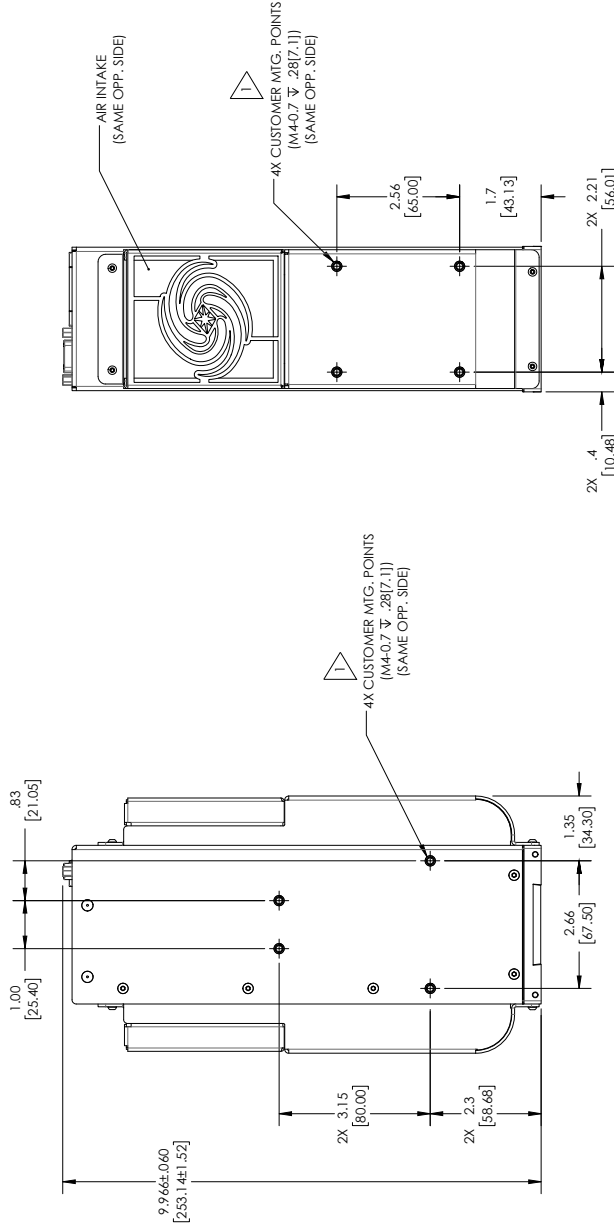
DETAIL A
SCALE 1.5 : 1



REVISIONS					
REV	DESCRIPTION	ENGR	DATE	ECN	APVD DATE
1	INITIAL RELEASE	AT	12/17/2020	-	PH 12/17/2020



DETAIL A
SCALE 1:1

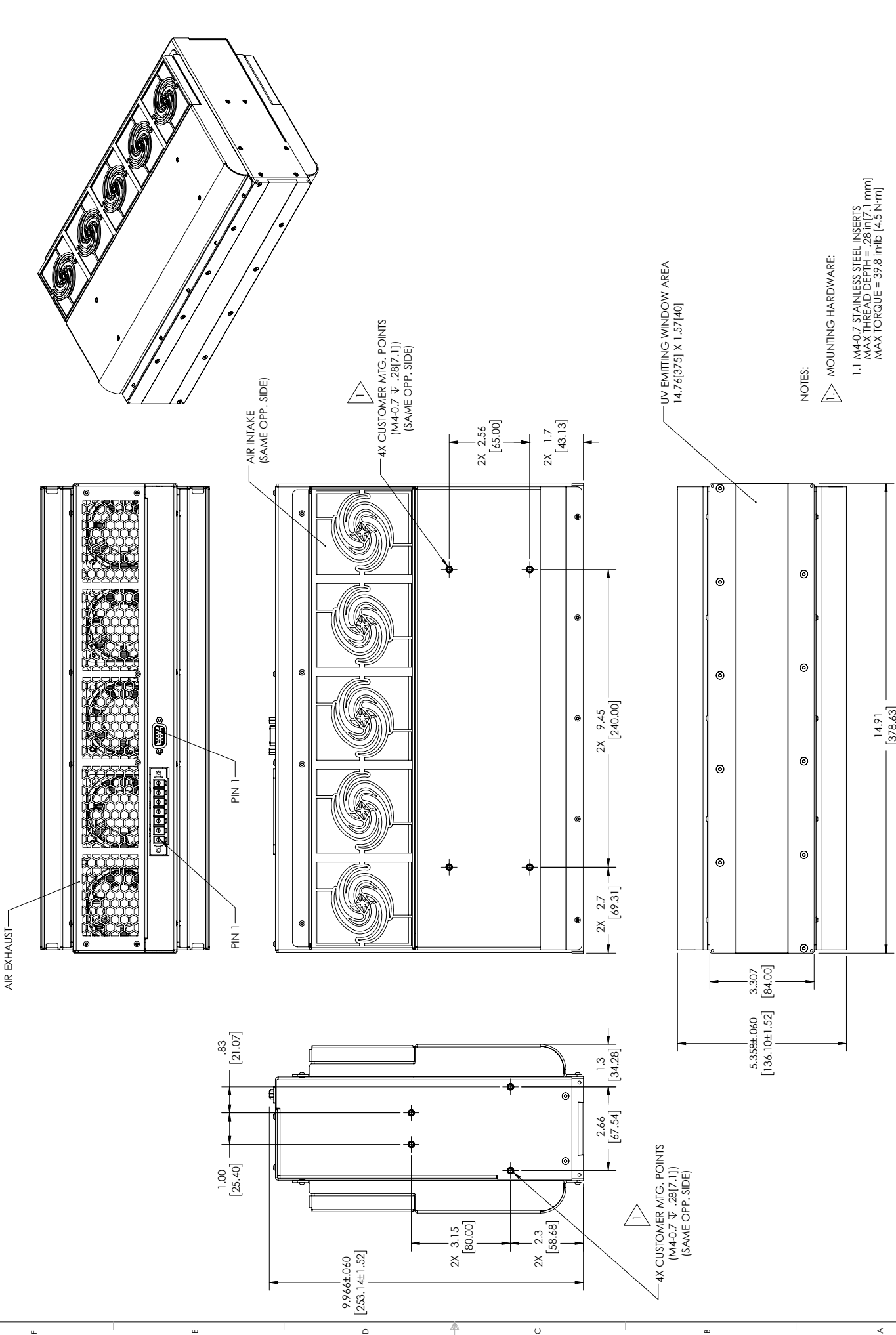


NOTES:

1. MOUNTING HARDWARE:
M4-0.7 STAINLESS STEEL INSERTS
MAX THREAD DEPTH = 28 in [7.1 mm]
MAX TORQUE = 39.8 in-lb [4.5 N-m]
2. REFERENCE DOCUMENT:
31798 - FIRE JET FJ240 SPEC SHEET

TOLERANCES UNLESS OTHERWISE SPECIFIED: DIMENSIONS IN INCHES XXX ±.005 (0.13) ANGLES ±1°		 PHASED ANGLE PROJECTION FIRST ANGLE AND CONFORMITY UNLESS OTHERWISE SPECIFIED PHASED TECHNOLOGY WITHOUT THE WRITTEN PERMISSION PHASED TECHNOLOGY IS PROHIBITED	MATERIAL: N/A	FINISH: N/A	TITLE: CONTROL DRAWING, FJ240 75, GEN 2	
PART NUMBER: 51169			 Phaseon TECHNOLOGY			
ISSUED BY: A. JARAS						
CONTROL: 51169-REV1 - CONTROL DRAWING FJ240 75, GEN 2						
ISSUE DATE: 12/17/2020						
REV. 1						

REVISONS				
REV.	DESCRIPTION	ENGR	DATE	ECO
1	INITIAL RELEASE	AF	03/30/2020	3587
				APPROVED DATE
				03/31/2020



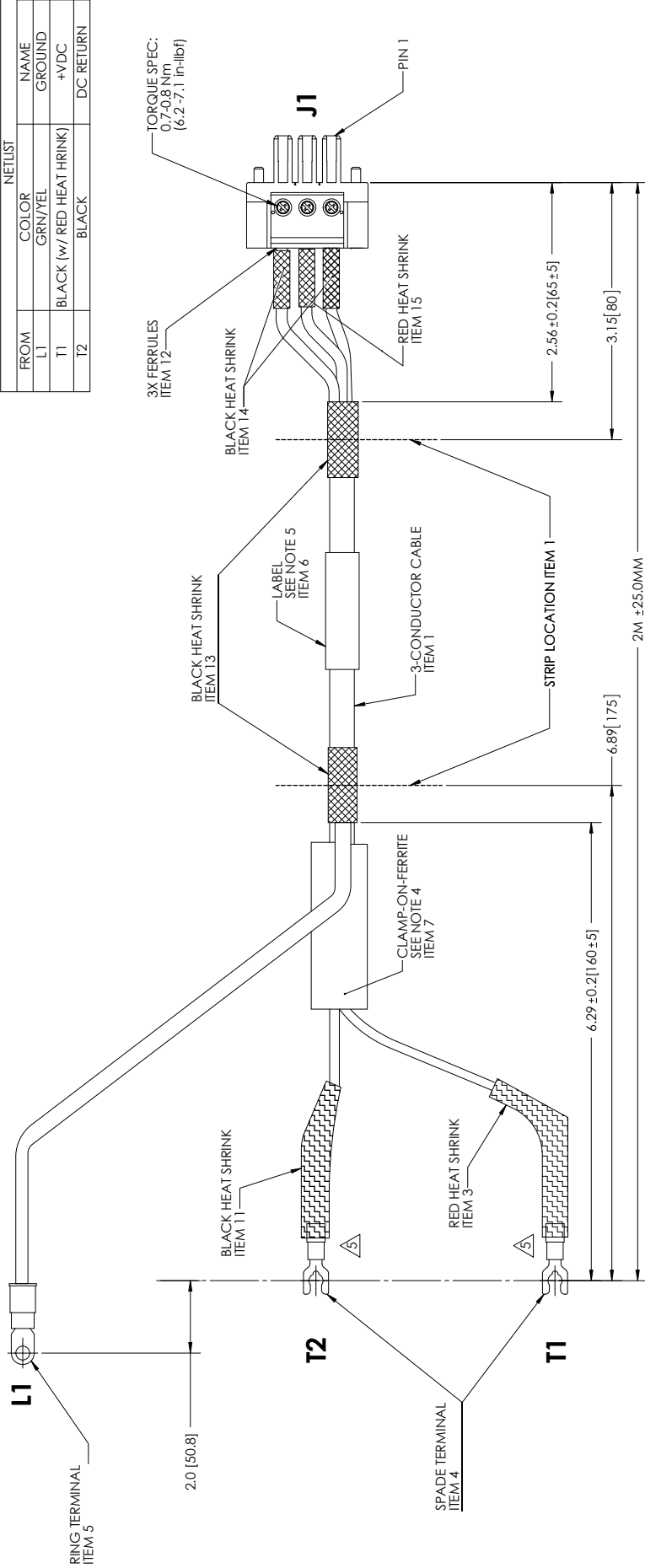
3RD ANGLE VIEW	SYMBOL	MATERIAL	FINISH	TITLE
		N/A	N/A	CONTROL DRAWING, F1240 375, GEN2

3RD ANGLE VIEW	SYMBOL	MATERIAL	FINISH	TITLE
		N/A	N/A	CONTROL DRAWING, F1240 375, GEN2

3RD ANGLE VIEW	SYMBOL	MATERIAL	FINISH	TITLE
		N/A	N/A	CONTROL DRAWING, F1240 375, GEN2

NOTES: UNLESS OTHERWISE SPECIFIED.

- CABLE ASSEMBLY SHALL BE ASSEMBLED PER COMPONENT MANUFACTURER'S RECOMMENDED PROCEDURES. ALL CRIMPED WIRE TERMINATIONS SHALL PASS MANUFACTURER'S CRIMP HEIGHT AND PULL TEST REQUIREMENTS.
- TOLERANCE:
DIMENSIONS LESS THAN 3.00 [76.2mm] SHALL BE: .XX = +/- .10 [2.5mm]
DIMENSIONS BETWEEN 3.00 [76.2mm] AND 12.00 [304.8mm] SHALL BE: .XX = +/- .25 [6.4mm]
DIMENSIONS BETWEEN 12.01 [304.8mm] AND 36.00 [914.4mm] SHALL BE: .XX = +/- .50 [12.8mm]
ALL DIMENSIONS GREATER THAN 36.00 [914.4mm] SHALL BE +/- 1% OF SPECIFIED LENGTH.
- TEST CABLE ASSEMBLY CONTINUITY FROM PIN TO PIN.
- THE CLAMP-ON-FERRITE MUST FIT FIRMLY AROUND THE CABLE ASSEMBLY. A TIE WRAP OR HEAT SHRINK TUBING OR A NYLON SPACER CAN BE USED UNDER THE CLAMP-ON-FERRITE.
- PART MARKING: LABEL WITH PHOSEON PART NUMBER AND REVISION WHERE SHOWN.
- PLACE M4 BUTTON HEAD SCREW (ITEM 8) AND M4 WASHER (ITEM 9) INTO 2X3 PRESS-TO-CLOSE PLASTIC BAG (ITEM 10). SECURE THIS BAG TO THE CABLE USING CLEAR TAPE.



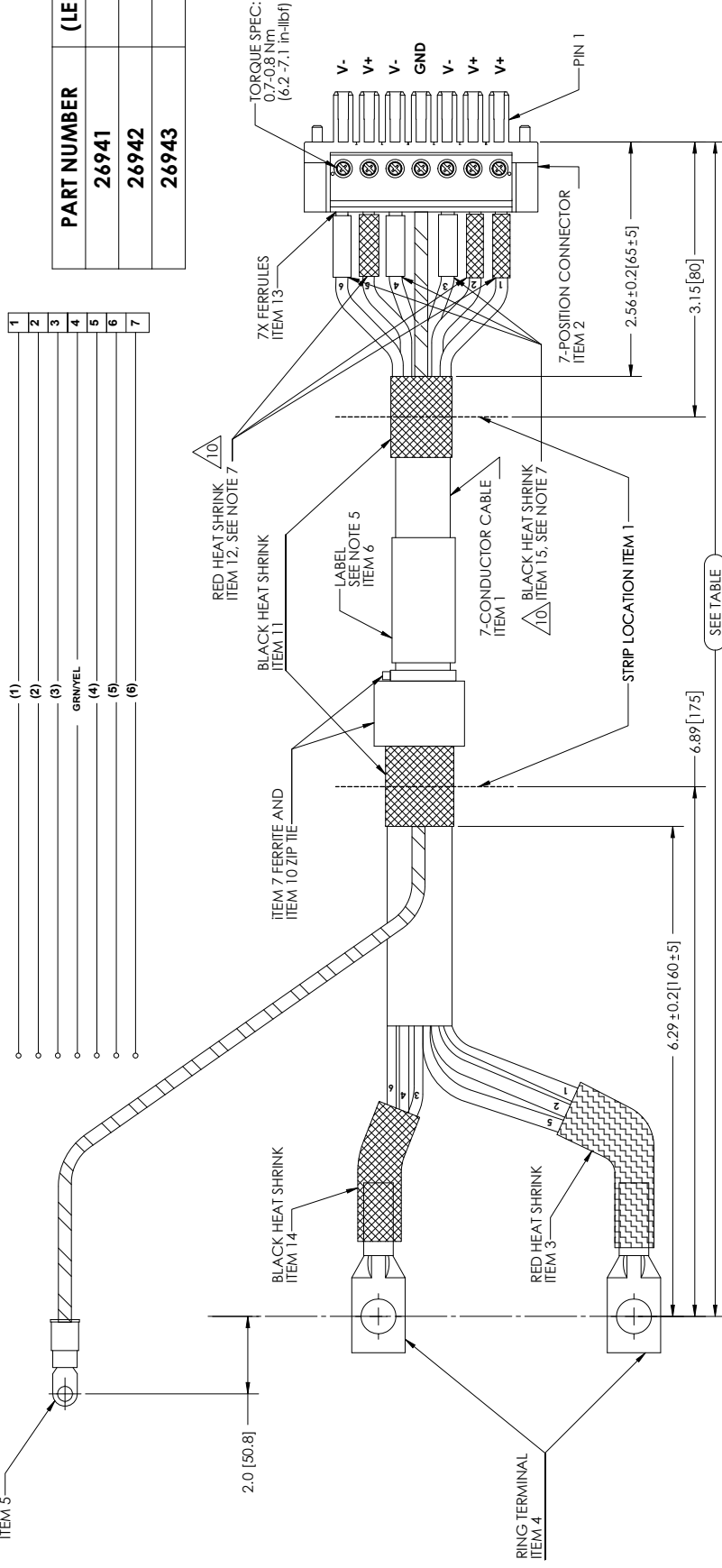
NETLIST			
FROM	COLOR	NAME	TO
L1	GRN/YEL	GROUND	J1-3
T1	BLACK (w/ RED HEAT SHRINK)	+VDC	J1-2
T2	BLACK	DC RETURN	J1-1

ITEM	QTY	USE	DESCRIPTION	MFR	MFG PN	PHOSEON PN
1	L	INCH	CABLE, 3 COND, 12 AWG, BLACK, W/GND	IGUS	CH130-60-03	19797
2	1	EA.	CONN. PLUG, TERM BLK, 3-POS, 7.62	PHOENIX	PC-3/3STF-1.7.62	27037
3	2	INCH	Tubing, Heatshrink, 3/16" Red w/Adh	3M	EPS-300, 3/16" RED	28078
4	2	EA.	Conn. Snap Spade, #18, 10-12AWG	Molex	19099-0048	19531
5	1	EA.	TERM. CRIMP, RING, 10-12 AWG, #8 STUD, YELLOW	MOLEX	190700145	10659
6	1	EA.	LABEL, SELF-LAMINATING, 1 X 3/4	HELLERMANN TYTON	TAG91-105	10568
7	1	EA.	FERRITE, TUBE BOX CLAMPON, 0.5", BLACK	DIG-KEY (STEWART)	28A2024-0A2	19709
8	1	EA.	SCREW, M4x6MM, BUTTON, SS	MCMMASTER-CARR	92095A188	18205
9	1	EA.	WASHER, M4, INTERNAL TOOTH, LOCK	MCMMASTER-CARR	93925A250	15240
10	1	EA.	BAG, 2 X 3 ZIP LOCK	MCMMASTER-CARR	1939711	20322
11	5	INCH	Tubing, Heatshrink, 3/16" Blk w/Adh	3M	EPS300 3/16" BLK	28659
12	3	INCH	FERRULE, NON-INSULATED, 12 AWG, 0.47" L	MCMMASTER-CARR	9681K125	27013
13	AS NEEDED FOR FULL COVERAGE	INCH	Tubing, Heatshrink, 3/16" Blk w/Adhesive	3M	EPS-300 1/2 BLACK	27696
14	AS NEEDED FOR FULL COVERAGE	INCH	Tubing, Heatshrink, 3/16" 100 Blk	3M	FP-301 3/16" BLK 100	26363
15	AS NEEDED FOR FULL COVERAGE	INCH	Heatshrink, 3/16" Red	3M	FP-301 3/16 RD 250	20056

FINISH: SEE BILL OF MATERIALS TABLE		MATERIAL: SEE BILL OF MATERIALS TABLE	
APPLICABLE 3D DATABASE		TITLE:	
ANSI/ASME Y14.X		CABLE, DC, 2m, FJ200, 75X20	
DATE: 5/3/2012		DRAWING/PART NO:	
APPRVD BY: BGH		27680	
TOLERANCES UNLESS OTHERWISE SPECIFIED		SCALE: 1:2	
3RD ANGLE VIEW		SHEET 1 OF 1	
X.XX X.XX X.XX ANGLE		REV. 5	

REV. #		DWG CHANGE		REV. #		ECO #/APP	
REV.		DWG CHANGE		DESCRIPTION		ENGR	
10	x			ADDED ALT ITEM 1 MFG; ADDED ITEM 15; ADDED NOTE 7; UPDATED PHOEXEN TEMPLATE		PH	2575/GM
11	x			UPDATE FOR INTERNAL MANUFACTURE; REPLACE ITEM 4 & 7, UPDATED NOTE 4, CONVERT TO TABLE DWG		DVF	3601/CS
12	x			UPDATE ITEM 4 FROM SAWG TO SAWG COMPONENT; UPDATE ITEM 7, MOVE FERRITE PLACEMENT, REMOVE 1 ZIP 1IE, CHANGE QTY ITEM 14,		DVF	3774/CS

PART NUMBER	(LENGTH IN METERS)
26941	2M
26942	4M
26943	6M



NOTES: UNLESS OTHERWISE SPECIFIED

1. CABLE ASSEMBLY SHALL BE ASSEMBLED PER COMPONENT MANUFACTURER'S RECOMMENDED PROCEDURES. ALL CRIMPED WIRE TERMINATIONS SHALL PASS MANUFACTURER'S CRIMP HEIGHT AND PULL TEST REQUIREMENTS.
2. TOLERANCE:
DIMENSIONS LESS THAN 3.00 [76.2mm] SHALL BE: $XX \pm .10$ [2.5mm]
DIMENSIONS BETWEEN 3.00 [76.2mm] AND 12.00 [304.8mm] SHALL BE: $XX \pm .15$ [6.4mm]
DIMENSIONS BETWEEN 12.00 [304.8mm] AND 36.00 [914.4mm] SHALL BE: $XX \pm .50$ [12.8mm]
ALL DIMENSIONS GREATER THAN 36.00 [914.4mm] SHALL BE $\pm 1\%$ OF SPECIFIED LENGTH.
3. TEST CABLE ASSEMBLY CONTINUITY FROM PIN TO PIN
4. THE CLAMP ON FERRITE CORE MUST FIT FIRMLY AROUND THE CABLE ASSEMBLY. SECURE THE FERRITE CORE IN POSITION WITH A TIE WRAP AROUND THE CABLE SIDE INDICATED IN DRAWING.
5. PART MARKING: LABEL WITH PHOSEON PART NUMBER AND REVISION WHERE SHOWN
6. PLACE M4 BUTTON HEAD SCREW (ITEM 8) AND M4 WASHER (ITEM 9) INTO 2X3 PRESS-TO-CLOSE PLASTIC BAG (ITEM 10). SECURE THIS BAG TO THE CABLE USING CLEAR TAPE.
- IF ITEM 1 IS HELUKABEL CABLE, USE ITEM 15 BLACK HEATSHRINK TO IDENTIFY GROUND PINS 3, 4 AND 6 AS SHOWN.
IF ITEM 1 IS MUELLER CABLE, USE ITEM 12 RED HEATSHRINK TO IDENTIFY POSITIVE PINS 2 AND 4 AS SHOWN.

ITEM	QTY	USE	DESCRIPTION	MFG	MFG PN	PHOSEON PN
1	L	INCH	CABLE, 7 CONDUCTOR, 12 AWG	HELUKABEL	89931	26944
APPROVED ALTERNATE FOR ITEM 1						
1	L	INCH	CABLE, 7 CONDUCTOR, 12 AWG, BLK	MUELLER	2601207	35665
2	1	EA.	CONN. PLUG, TERM BLK, 7 POS, 7.62	PHOENIX	PC-517-STFL-7.62	26886
3	2	INCH	TUBING, HEATSHRINK, 1/2", RED, WITH ADHESIVE	3M	EPS-300 1/2" RED	27695
4	2	EA.	Conn, Term RECT Tong, 6 AWG #3-8	PANDUIT	LCB6-38-L	39737
5	1	EA.	TERM, CRIMP, RING, 10-12AWG, #8 STUD, YELLOW	MOLEX	190700145	10659
6	1	EA.	Label, Info, WireMarker, 1.5"x4.0"	BRADY	CPN-7825	36263
7	1	EA.	Core, Ferrite, hinged, 210 ohm	LAIRD-SIGNAL	28A5776-0A2	19716
8	1	EA.	SCREW, M4X6MM, BUTTON, SS	MCMASTER	92095A188	18205
9	1	EA.	WASHER, M4, INTERNAL TOOTH, LOCK	MCMASTER	93925A250	15240
10	1	EA.	BAG, 2 X 3, ZIP LOCK	MCMASTER	1959T11	20322
11	5	INCH	TUBING, HEATSHRINK, 3/4", BLK, WITH ADHESIVE	3M	EPS-300, 3/4", BLK	15821
12	3	INCH	HEATSHRINK, 3/16"; RED	3M	FP-301 3/16 RED 250'	20056
13	7	EA.	FERRULE, NON-INSULATED, 12 AWG, 0.47" L	MCMASTER	9681K29	27013
14	2	INCH	Tubing, Heatshrink, 1/2", BLK w/Adhesive	3M	EPS-300 1/2" BLACK	27696
15	3	INCH	Tubing, Heatshrink, 3/16" Blk w/Adh	3M	EPS300 3/16 48"	26859

Air Flow

The FJ240 has internal cooling fans 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.

- Notes:**
- Regular maintenance to clean or replace air filters is **required** to maintain proper airflow.
 - Minimum clearance of 50mm should be maintained for air inlets and exhaust ports.
 - When replacing the Air Filter Assemblies (one on each side of the light source), the plastic frame attached to the air filter must be pointing away from the body of the light source and towards the outside of the Air Retainer.

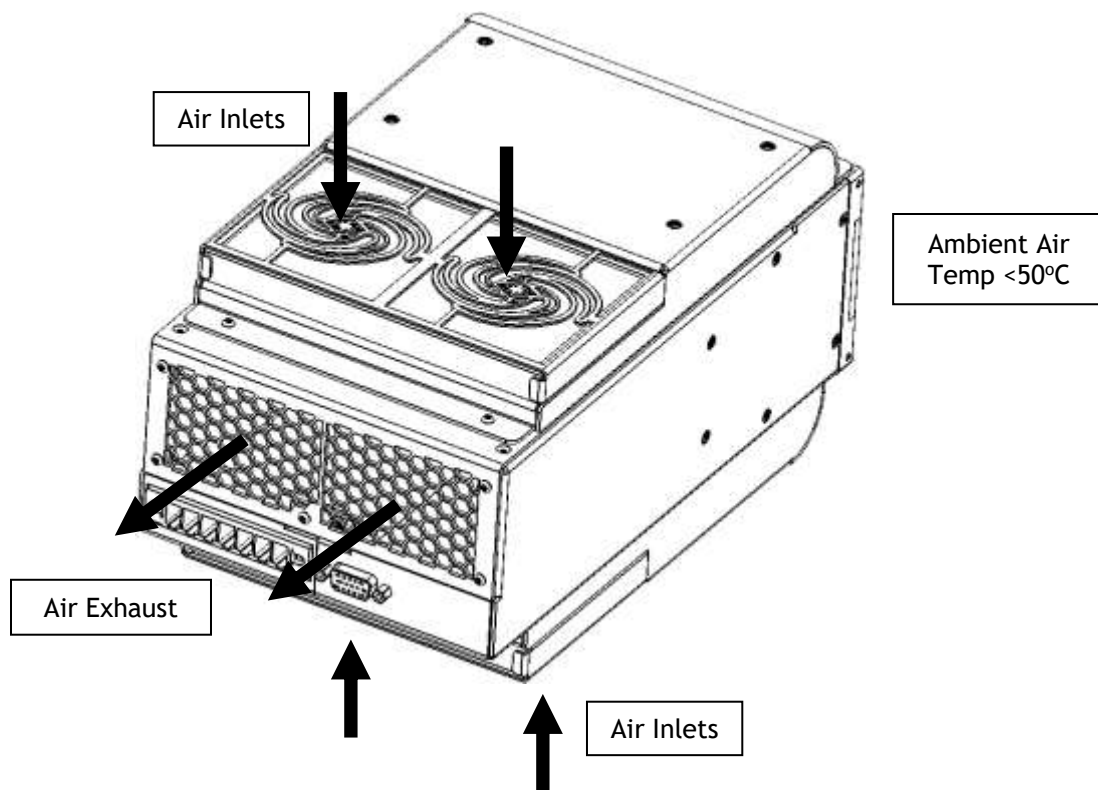


Figure 2.2: Air Flow Direction for FireJet FJ240

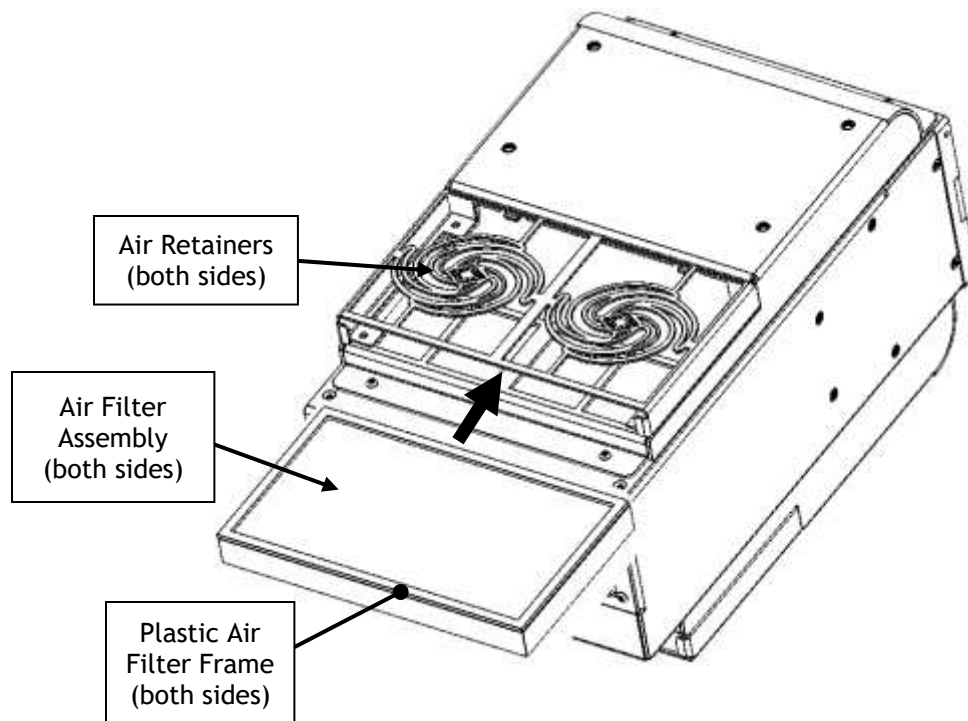


Figure 2.3: FireJet FJ240 Air Filter Assembly

The air filter assemblies are located on both sides of the FJ240. The air filter assembly consists of two components: Filter and Retainer, as shown in Figure 2.3. Replaceable air filters can be purchased from Phoseon: PN 33531 (75x40mm: Pack of 10); PN 33530 (150x40mm: Pack of 10); or PN 33532 (225x40mm: Pack of 10).

PLC & RS485 Control

The light source can be controlled via a PLC (Programmable Logic Controller) using the HD-DB-15 connection. (See 31798 Product Specifications)

The light source can also be controlled via the RS485 interface on the HD-DB-15 connector. (See 28027 FireJet FJ200 Series RS485 Control Manual)

Connecting an Interlock

The FJ240 has the capability to support a customer supplied interlock circuit. This is useful for situations where the function of the light source is tied to an enclosure or distance above a conveyor, where the UV emission should be stopped when a door is opened or if the light source is raised a specified distance above a conveyor. An external interlock circuit is not required for light source operation. If no interlock is present, simply connect Pin 7 to Ground to disable this feature.

If the light source is connected to an external customer defined interlock circuit, then this circuit should be tied to Pin 7. When +16V to +24V is applied to Pin 7 (or the Pin is open), the UV emission is stopped. When 0V to +6V is applied to Pin 7, UV emission is allowed per the enable and intensity settings of the other Pins.

Note: If applied voltages are outside the regions defined, for example applied voltage is between 6V and 16V, the behavior of the FJ240 is not defined.

Connecting Multiple Light Sources

If multiple light sources are used and controlled together, the following Pins can be “AND” tied together so that one DB-15 interface can be used to control all the light sources in unison:

- Pin 2 (Intensity Control)
- Pin 3 (Enable)
- Pin 5 (Lamp Ready)
- Pins 8,9,10 & 14 (Grounds)
- Pin 11 (Fault)
- Pin 15 (Temperature Monitor)

CAUTION: DO NOT tie together the following Output signal Pins:

- Pins 1, 4, 6, 7

Operation

On/Off Control

The UV output of the light source is enabled and disabled through a simple PLC level voltage on the rear connector and is turned on and off electronically. The light source does not require external shutters and is enabled only when needed.

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

Intensity Control

The intensity of the UV output is controlled through an analog voltage on the rear connector. The valid range of this voltage is 1 to 10Vdc. 10Vdc corresponds to 100% output irradiance and UV power and 1Vdc corresponds to 10% output irradiance and UV power.

The output of the FJ240 varies linearly from 10% to 100% for intensity control voltages between 1Vdc and 10Vdc. Below 1Vdc the output irradiance is held at a constant minimum value below 10%. If zero UV output is desired, the Enable line should be pulled low. Performance of the FJ240 below 1Vdc and above 10Vdc is not specified.

Lamp Ready & Fault Feedback Output

The status of the FJ240 is given by the state of the Lamp Ready and Fault Feedback lines on the rear connector. Both the Lamp Ready and Fault Feedback are high when the FJ240 is in the Ready state, meaning the UV output may be enabled through the Enable line. If Lamp Ready is low, the FJ240 is in the Not Ready state, indicating the UV output will not enable.

The Not Ready state is caused by one or more of the following conditions:

- The FJ240 DC power supply is turned off
- The FJ240 DC power supply is providing a voltage too low for proper operation
- The FJ240 is in thermal shutoff due to excessive internal temperatures - the Fault Feedback line will be low
- An error has been detected in the current drive to the LED array - the Fault Feedback line will be low

Refer to the Troubleshooting Guide later in this manual for help identifying the cause of the Not Ready state.

Irradiance as a Function of Distance

The UV emission from the FJ240 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.

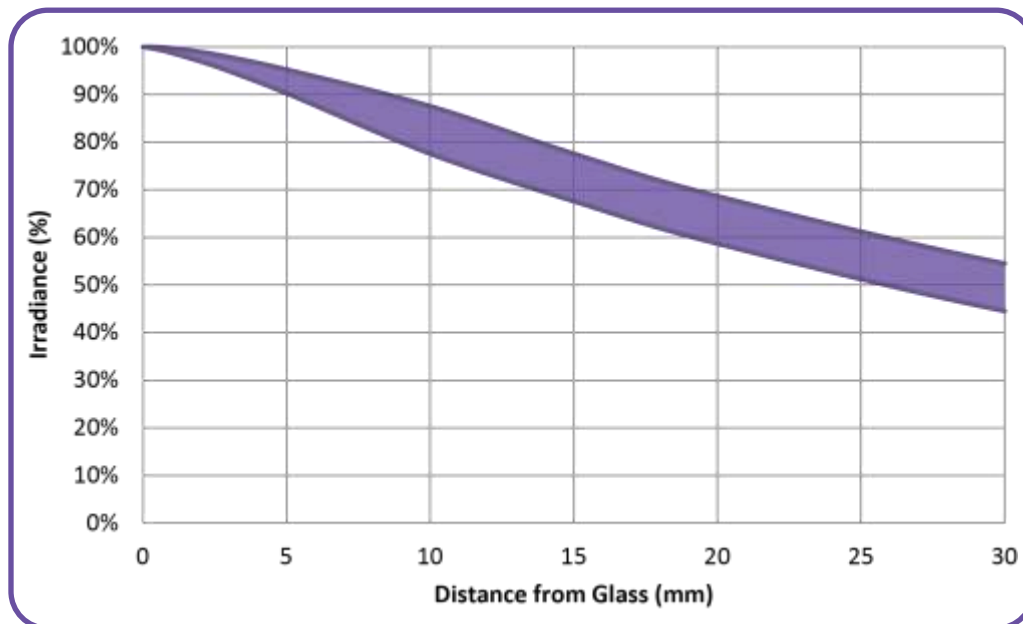


Figure 3.1: Irradiance as a Function of Distance

Monitoring Temperature

The performance of the FJ240, which is an air-cooled system, will be directly impacted by the temperature of the ambient air, in the environment where the light source is being operated. Irradiance will increase slightly at cooler operating temperatures, for example at initial system start up, and decreases slightly with warmer operating temperatures.

Therefore, a temperature monitoring device has been integrated into the system to help monitor light source temperature during operation. The device inside the unit outputs a voltage signal of 0 to 10.5VDC to Pin 15 which corresponds to 100mV per degree Celsius. For example, a reading of 2.55V equates to 25.5°C.

Phoseon recommends that the customer monitor the temperature through the HD-DB-15 connector (Pin 15). If the reported temperature changes by more than 10 to 15 degrees from steady state operating conditions, this could indicate a problem and the environmental conditions should be inspected. See Troubleshooting Guide for more information.

In addition to monitoring the system temperature, a separate temperature switch has been integrated into the light source to shut 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.

Note: 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. A maximum of five thermal cycles are allowed. After this the lamp must be reset by disconnecting the DC power. After any thermal shutdown has occurred, determine and correct the cause before returning to normal operation of the system.

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

Note: The Lamp Ready LED is either green or yellow and is located on the PCBA, visible through air exhaust.

Symptom	Lamp Ready LED (Green or Yellow)	p5 Lamp Ready	p7 Interlock	p11 Fault Status	p15 Temperature Output	Root Cause	Recommended Action	RS485 Logging
Lamp Ready, No Active Faults, Not Enabled	On	Hi	Lo	Hi	X	No Fault	Apply +24V on Pin 3 to enable. If control signals are in question, isolate the lamp from the control system, and connect Pin 3 directly to Pin 6. If lamp operates, then it is was not receiving the correct enable signal from the controller.	No FW log entry
Lamp Not Ready, No Active Faults UV OFF if Enabled	Off	Lo	Hi	Hi	X	Interlock is Open	Connect Pin 7 to ground	No FW log entry
Lamp Not Ready, No Active Faults UV ON if Enabled	Off	Lo	Lo	Hi	X	Over Voltage, Input Voltage > 53V	Adjust DC power input to lamp (48±1VDC) Note: fault is not logged for first 10 seconds when DC power is applied, fault response is within 1 second of detection after the initial 10 seconds.	Event Code 5:Flt-inputV_hi
						Under Voltage, Input Voltage < 43V	Adjust DC power input to lamp (48±1VDC) Note: fault is not logged for first 10 seconds when DC power is applied, fault response is	Even Code 6:Flt-inputV_lo

Symptom	Lamp Ready LED (Green or Yellow)	p5 Lamp Ready	p7 Interlock	p11 Fault Status	p15 Temperature Output	Root Cause	Recommended Action	RS485 Logging
							within 1 second of detection after the initial 10 seconds.	
Lamp Not Ready, Active Fault UV OFF if Enabled	Off	Lo	Lo	Lo	>11	LM35 Temperature Sensor, FW controlled: Over temperature > 110°C	DO NOT SHUT-OFF DC Power Ensure air inlet and exhaust have at least 50mm clearance. Ensure ambient air temperature is ≤50°C, and filters are not clogged. Fault status will clear and UV will turn on (if enabled) when the light source has cooled down to ≤ 4.0V on Pin 15.	Event Code 3:Flt-FW_overtemp
						Airpax Temperature sensor, HW switch: Over temperature > 110°C		Event Code 2:Flt-temp_intrlck
Lamp Not Ready Active Fault UV Off or Only Partially On if Enabled	Off	Lo	Lo	Lo	<11	Blown Fuse	Shut off DC power Contact Phoseon	Event Code 1:Flt-blown_fuse
Lamp Not Ready Active Fault UV On When Not enabled DC Current Drawn When Not Enabled						False Current Detected		Event Code 4:Flt-False_I

Note: Green LED is located on the PCBA, visible through air exhaust.

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.

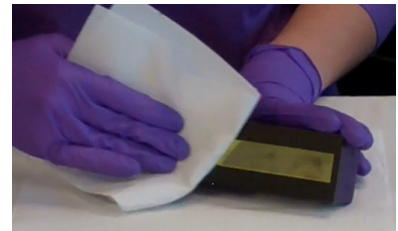
CAUTION: Wearing vinyl gloves is recommended to avoid getting any uncured UV material on the skin.

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.

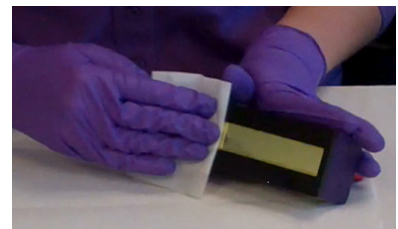
4. Use the pre-moistened IPA wipe to remove any remaining dust or debris left on the window during the cleaning process.
5. Repeat steps 2 through 5 until the window is clear of all contaminants.
6. If needed, use a dry paper towel to wipe down the light source.



Wipe Glass



Scrape with Razor



Wipe with IPA

Declaration of Conformity (CE)

Product Identification



Brand	Phoseon						
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	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 ONE 75x20 FJ100 75x20 FJ100 G2 75x20 FJ240 75x40 FJ601 225x20 FJ605 300x20 FJ800 100x100 FJ801 100x100	ONE 150x20 FJ100 150x20 FJ100 G2 150x20 FJ200 150x20 FJ240 150x40 FJ601 300x20 FJ605 375x20	FJ50 225x20 ONE 225x20 FJ100 225x20 FJ100 G2 225x20 FJ200 225x20 FJ200SLD 225x20 FJ228 225x20 FJ240 225x40 FJ601 375x20 FJ605 450x20	ONE 300x20 FJ100 300x20 FJ100 G2 300x20 FJ200 300x20 FJ240 300x40 FJ601 450x20 FJ605 525x20	ONE 375x20 FJ100 375x20 FJ100 G2 375x20 FJ200 375x20 FJ240 375x40 FJ601 525x20 FJ605 600x20	FJ605 675x20	
FireLine™	125x20 350x20 FL200 75x10 FL400 125x20 FL400SLD 125x20 FL440 125x40	150x20 450x20 FL200 125x10 FL400 150x20 FL400SLD 150x20 FL440 150x40	225x20 550x20 FL400 225x20 FL400SLD 225x20 FL440 225x40	300x20 675x20 FL400 250x20 FL400SLD 250x20 FL440 250x40	FL400 300x20 FL400SLD 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
KeyPro™ Explorer	25x10						
StarFire™	100x20	150x20					
StarFire MAX™	75x20	150x20	225x20	300x20			

Manufacturer

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

Means of Conformity

Excelitas Technologies 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 61010-1:2010/A1:2019/AC:2019-04/A1:2019
- EN 62471 (2008) IEC 62471 (2006)
- EN 61326-1 (2013)

Signature

Signature (electronic): Rob Gomeau

Name: Rob Gomeau, Director of Operations

Place : Hillsboro, OR