Nexus™ Products

User Manual

Revision: 8

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Table of Content

Nexus ONE™ Solid State UV LED Curing System

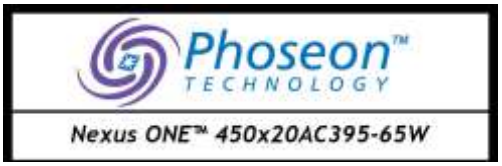
Overview and Safety

UV Curing System Components

The Nexus ONE™ system consists of the following components:

- Nexus ONE Light Source
- Nexus ONE Tower

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



- Nexus ONE is the product family
- 450x20 is the model number
  - 450 indicates the UV emitting length in mm
  - 20 indicates the UV emitting width in mm
- Configuration information follows the model number
  - AC defines the unit as air-cooled (WC defines the unit as water-cooled)
  - 395 defines wavelength in nm
  - 65W defines the total UV energy per 25mm

Figure 1.1: Safety Label Placement

(Safety label on front 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.**

CAUTION: **Nexus ONE air-cooled lamps emit noise in excess of 85 dB and is considered hazardous by the National Institute of Occupational Safety and Health. Appropriate ear protection is strongly recommended.**

Product Safety Information

UV LED Curing Sources

Intended Use

Phoseon light sources 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: Nexus ONE Documentation

Nexus ONE	300x20	375x20	450x20	525x20	600x20	675x20
Nexus ONE Product Specifications (Air-cooled)	51329					
Nexus ONE Product Specifications (Water-cooled)	52787					
Nexus ONE Control Drawings (Air-cooled)	52470	51455	51566	51634	52406	N/A
Nexus ONE Control Drawings (Water-cooled)	TBD	TBD	TBD	TBD	TBD	51853
Nexus ONE DC Power Cable	52078 (10AWG)		51680 (6AWG)			
Reducing Light Reflection	28658					
Water Cooling Requirements	28384					
Window Cleaning Instructions	27182					
Declaration of Conformity	53696					

With the exception of the 3rd party power supplies, the above documents are included in this manual and available as individual document 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 Nexus ONE lamps require the NX Tower which consist of PLC control, switching power supplies with constant voltage output and DC/Data cables.

120Vdc +/- 5V delivered to the light source from constant voltage output source.

2600 to 3960W minimum delivered to the light source based on configuration (see 51329/52787 Product Specifications).

Mechanical Installation

Refer to the Control Drawing for the specific Nexus ONE 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

The following mechanical installation sequence should be followed.

1. Lamp housing should be installed on the press prior to the inserting the lamp cassette.
2. Attach DC cable from the NX Tower to the lamp shell and tighten connector screws
3. Insert cassette into the shell and ensure the connector on the cassette latches firmly to the connector on the lamp housing.
4. Ensure the cassette is fully seated in the housing and tighten the faceplate screw.

Refer to the 51329/52787 Product Specifications document for the following information:

- DC power
- PLC Communication

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

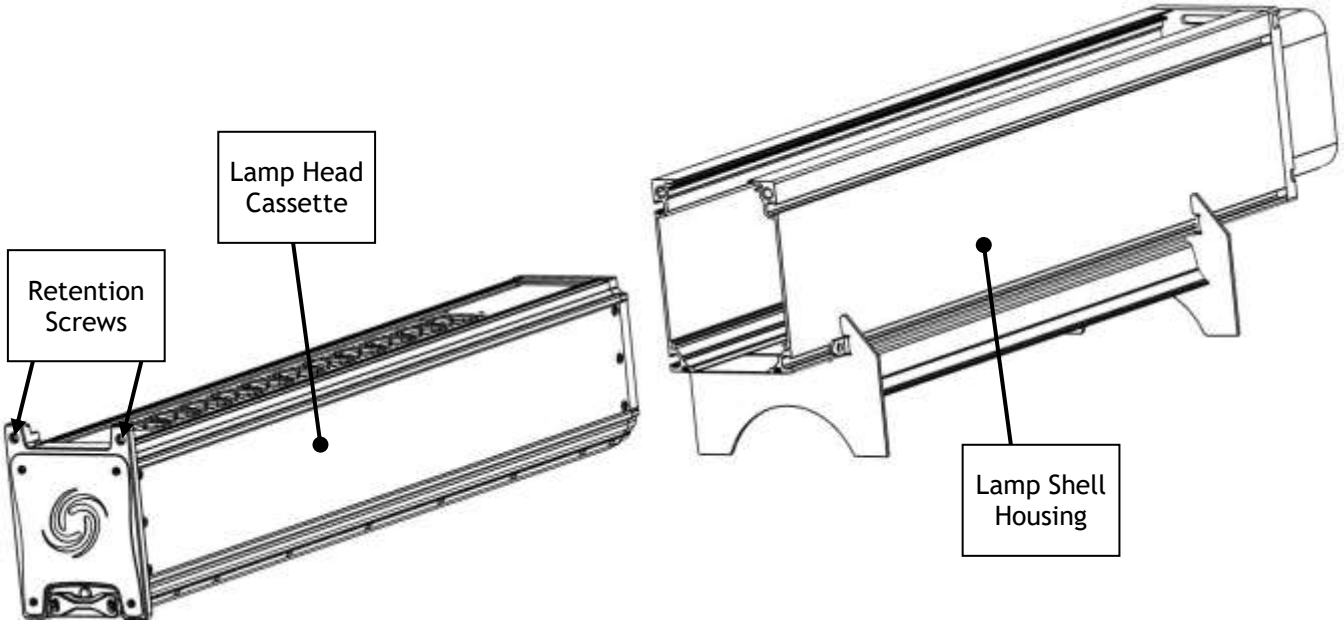


Figure 1.2: Mechanical Installation for Nexus ONE

Nexus ONE

Air-cooled Product Specifications

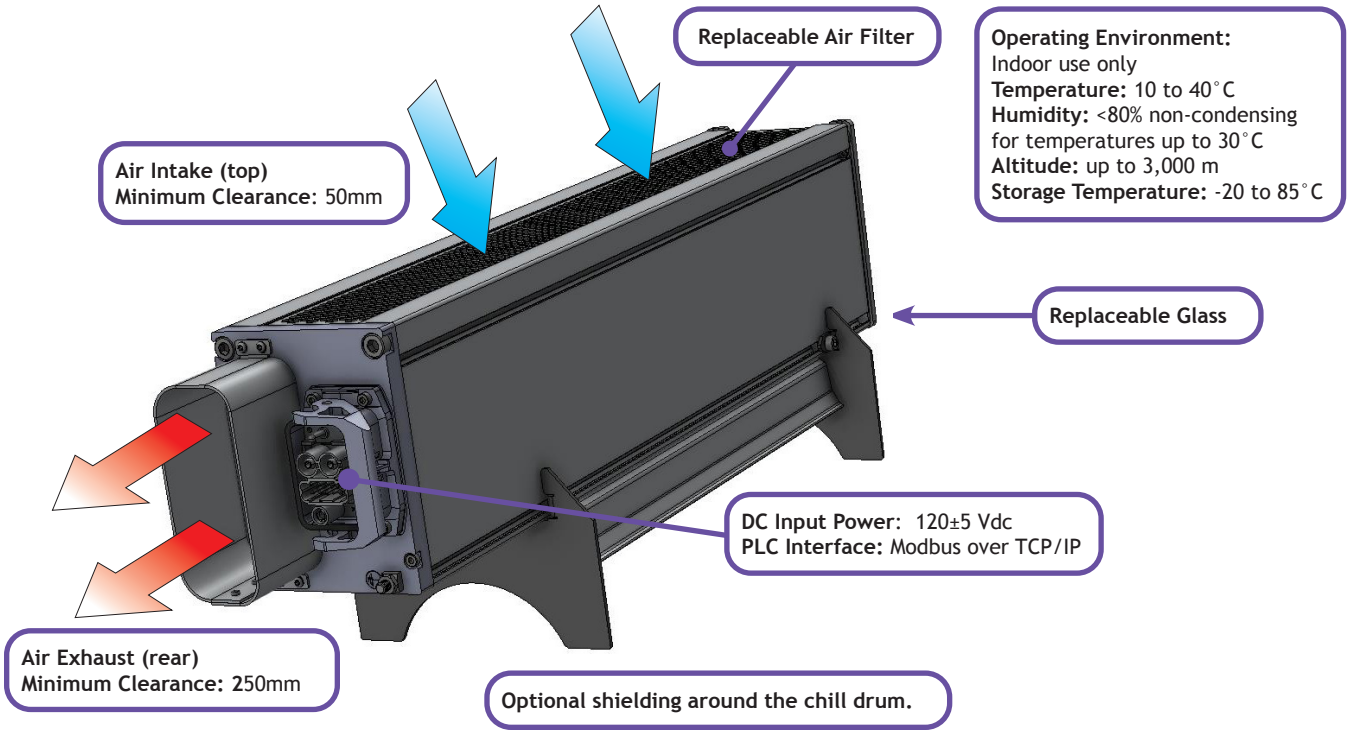
Air Cooled

Phoseon UV LED SLM™ Technology

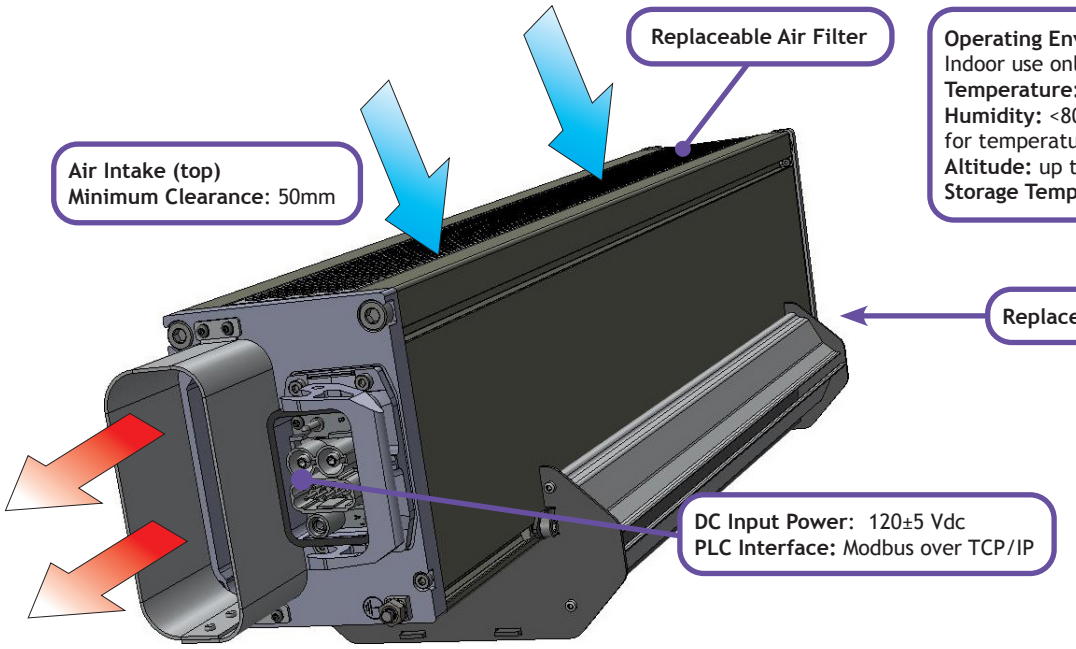
Phoseon Technology is the world leader in providing UV LED solutions for commercial and industrial applications. Phoseon's products deliver superior performance and real-world reliability for UV curing of adhesives, coatings and inks.

Phoseon's patented Semiconductor Light Matrix (SLM)™ technology encapsulates LEDs, arrays, optics and cooling to maximize UV LED curing performance. The Nexus ONE™ is an easily installed and maintained light source for use in high-performance Flexographic curing.

Light Source Setup (Chill Drum, optional shielding shown)



Light Source Setup (Flat Web, optional shielding shown)



Performance

Wavelength	395nm				
SLM™ Light Output Energy per Segment	65W				
Max. Web Width (mm)	300	375	450	525	600
120±5V Power In (Max)	2040W 17A	2600W 22A	3200W 27A	3960W 33A	4560W 38A

Phoseon Swirl Color Indicates Lamp State

UV OFF,
Station Disabled

UV OFF,
Station Enabled

UV ON

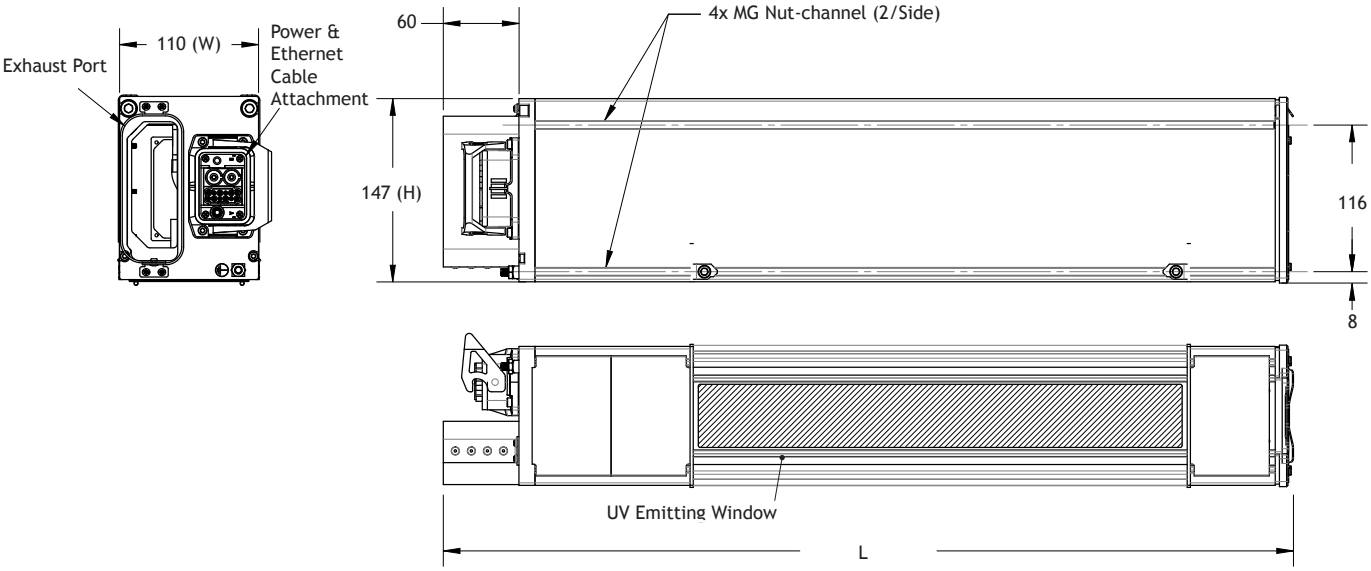
Warning

Fault

Dimensions

Units of measurement (rounded)*: mm

Nexus ONE					
Emitting Window	**300**	**375**	**450**	**525**	**600**
Length (L)	598	680	748	823	898
Width (W)	110	110	110	110	110
Height (H)	147	147	147	147	147
Weight (kg)	7	9	11	13	15



Nexus ONE

Water-cooled Product Specifications

Phoseon UV LED SLM™ Technology

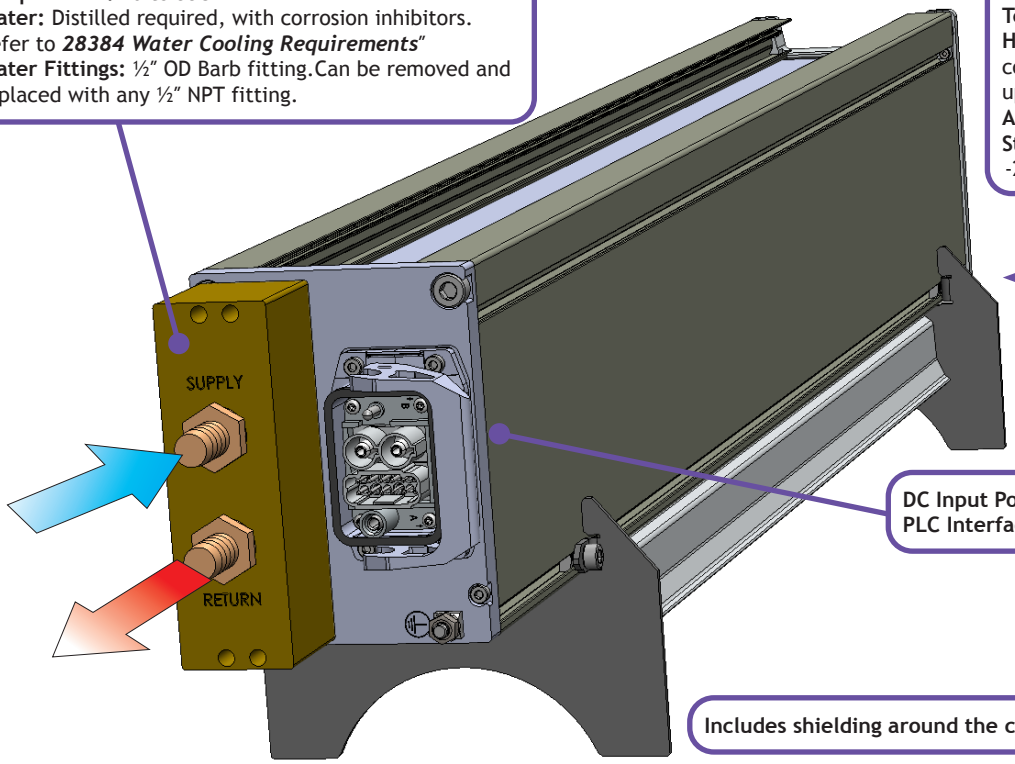
Phoseon Technology is the world leader in providing UV LED solutions for commercial and industrial applications. Phoseon's products deliver superior performance and real-world reliability for UV curing of adhesives, coatings and inks.

Phoseon's patented Semiconductor Light Matrix (SLM)™ technology encapsulates LEDs, arrays, optics and cooling to maximize UV LED curing performance. The Nexus ONE™ is an easily installed and maintained light source for use in high-performance Flexographic curing.

Light Source Setup (Chill Drum)

Cooling Liquid directly impacts product performance
Temperature: 20 to 35C
Water: Distilled required, with corrosion inhibitors. Refer to ***28384 Water Cooling Requirements***"
Water Fittings: ½" OD Barb fitting.Can be removed and replaced with any ½" NPT fitting.

Operating Environment:
Indoor use only
Temperature: 10 to 40˚C
Humidity: <80% non-condensing for temperatures up to 30˚C
Altitude: up to 3,000 m
Storage Temperature: -20 to 85˚C

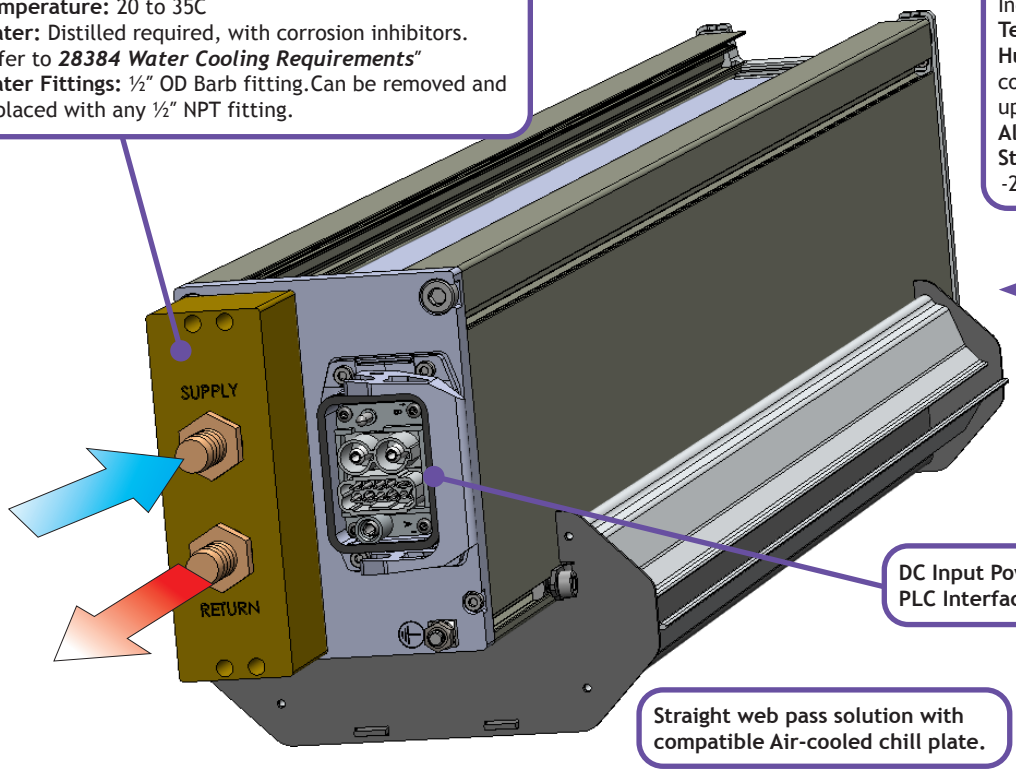


Replaceable Glass

DC Input Power: 120±5 Vdc
PLC Interface: Modbus over TCP/IP

Includes shielding around the chill drum.

Light Source Setup (Flat Web)



Performance

Wavelength	395nm
SLM™ Light Output Energy per Segment	90W
Max. Web Width (mm)	675
120±5V Power In (Max)	6400W/54A
Chiller/Cooler Capacity	4300W
Chiller/Cooler Flow Rate	8LPM
Pressure Drop (Typical)	1.8 Bar/ 26 psi

Chiller requirements

Chiller: 4300W @ 8LPM Flow (1 water-cooled lamp)	
1 Lamp	1.5 Ton Chiller
2 Lamps	3 Ton Chiller
3 - 4 Lamps	5 Ton Chiller
5 - 6 Lamps	7.5 Ton Chiller
7 - 8 Lamps	10 Ton Chiller
9 - 12 Lamps	15 Ton Chiller

Phoseon Swirl Color Indicates Lamp State

UV OFF,
Station Disabled

UV OFF,
Station Enabled

UV ON

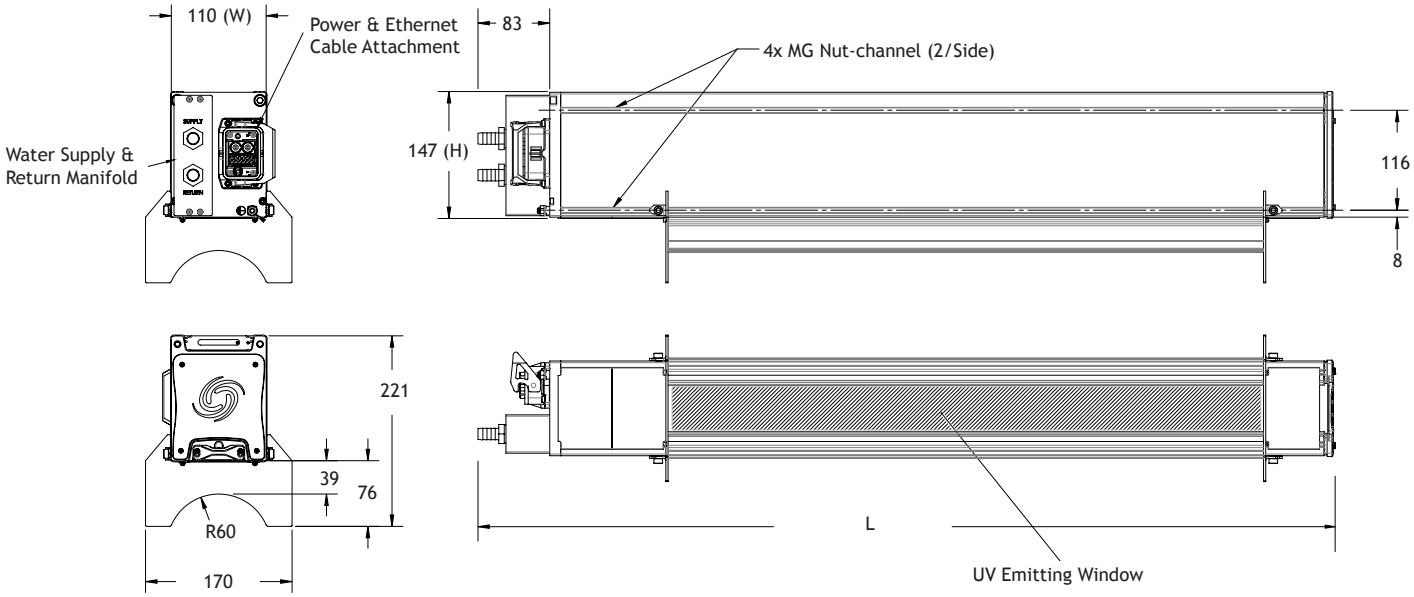
Warning

Fault

Dimensions (Chill Drum)

Units of measurement (rounded)*: mm

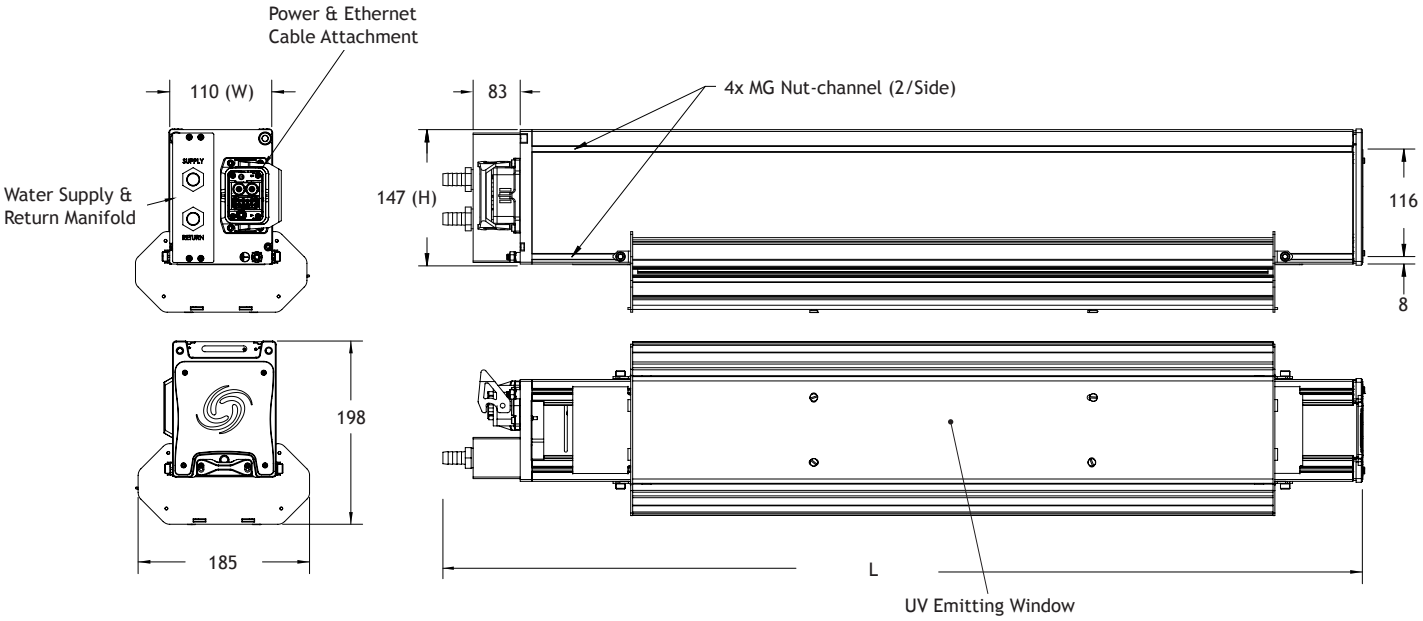
Nexus ONE	
Emitting Window	**675**
Length (L)	992
Width (W)	110
Height (H)	147
Weight (kg)	16
Overall Dimensions with Shielding (LxWxH)	992x170x221



Dimensions (Flat Web)

Units of measurement (rounded)*: mm

Nexus ONE	
Emitting Window	**675**
Length (L)	992
Width (W)	110
Height (H)	147
Weight (kg)	16
Overall Dimensions with Shielding (LxWxH)	992x185x198

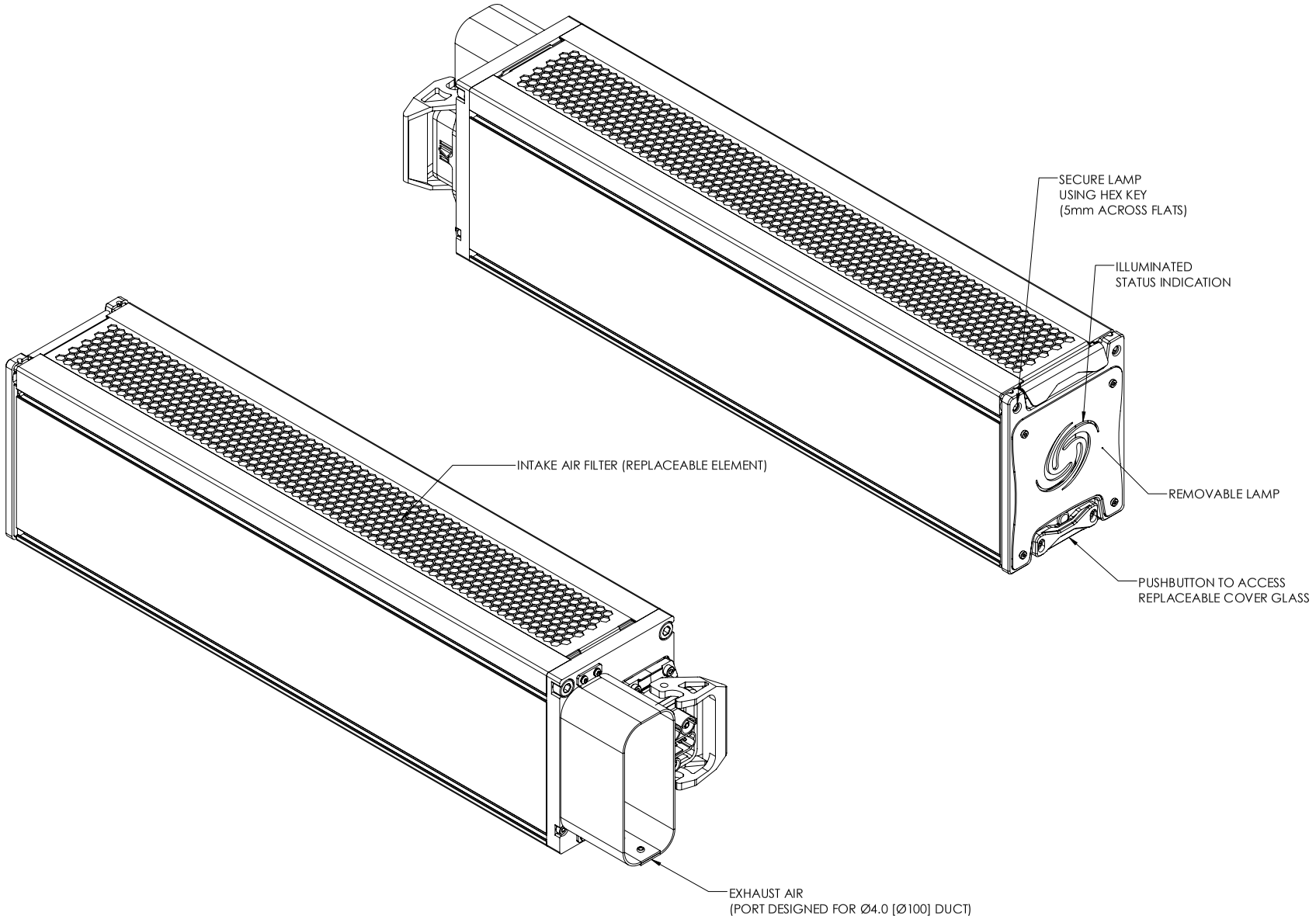


NOTES: UNLESS OTHERWISE SPECIFIED.

1. Mounting hardware:
   1.1. M6x1.0 Nuts in nut-channel grooves; do not bury screw tip into nut channel; maximum screw tightening torque is 177 inch lbs [20 N·m]

2. Reference Documents:
   2.1. 51329 Product Specifications

REVISIONS						
REV.	DESCRIPTION	ENGR	DATE	ECO	APPROVED	APPROVED DATE
1	INITIAL RELEASE	PH	03/20/2022	-----	JB	03/31/2022
2	REMOVE UV SHIELDING AND SHEET 3	PH	09/09/2024	-----	CL	09/10/2024



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FINISH: NONE

TITLE: CONTROL DRAWING, NX1 AC 300

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X.XX: ±0.010 [0.25]
X.XXX: ±0.005 [0.13]
ANGLE: ±1°

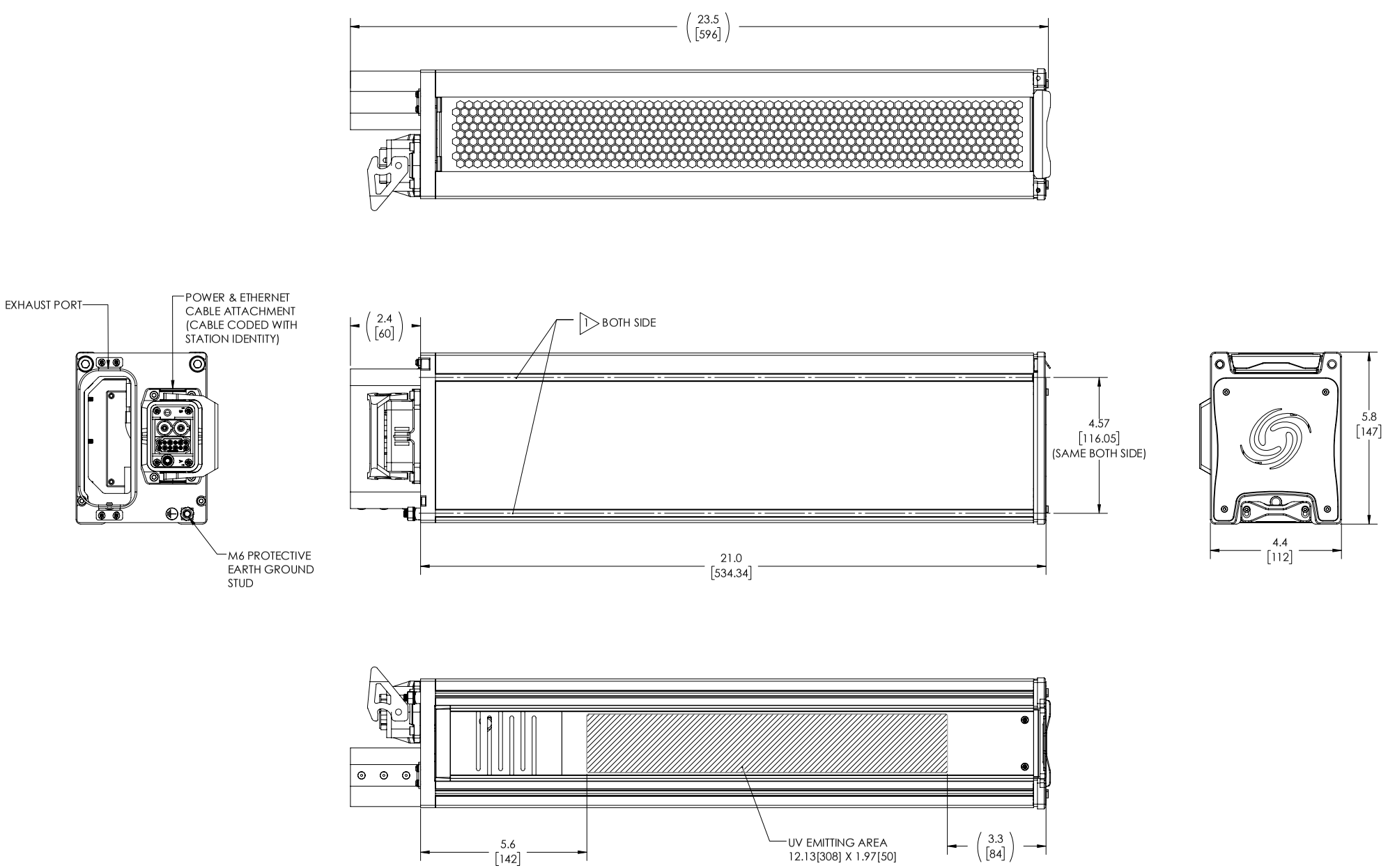
Phoseon TECHNOLOGY

PART NUMBER: 52470 REV. 2

ISSUED BY: PH ISSUE DATE: 9/6/2024

3D DATABASE: 52470 - Rev 2 - FG, NX1, 300x20 AC-65W.STEP

ASME/ANSI Y14.X | EGF-44275-01 | SCALE: 1:4 | SIZE: C | SHEET 1 OF 2



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NOTES: UNLESS OTHERWISE SPECIFIED.

1. Mounting hardware:
   1.1. M6x1.0 Nuts in nut-channel grooves; do not bury screw tip into nut channel; maximum screw tightening torque is 177 inch lbs [20 N·m]

2. Reference Documents:
   2.1. 51329 Product Specifications

REVISIONS						
REV.	DESCRIPTION	ENGR	DATE	ECO	APPROVED	APPROVED DATE
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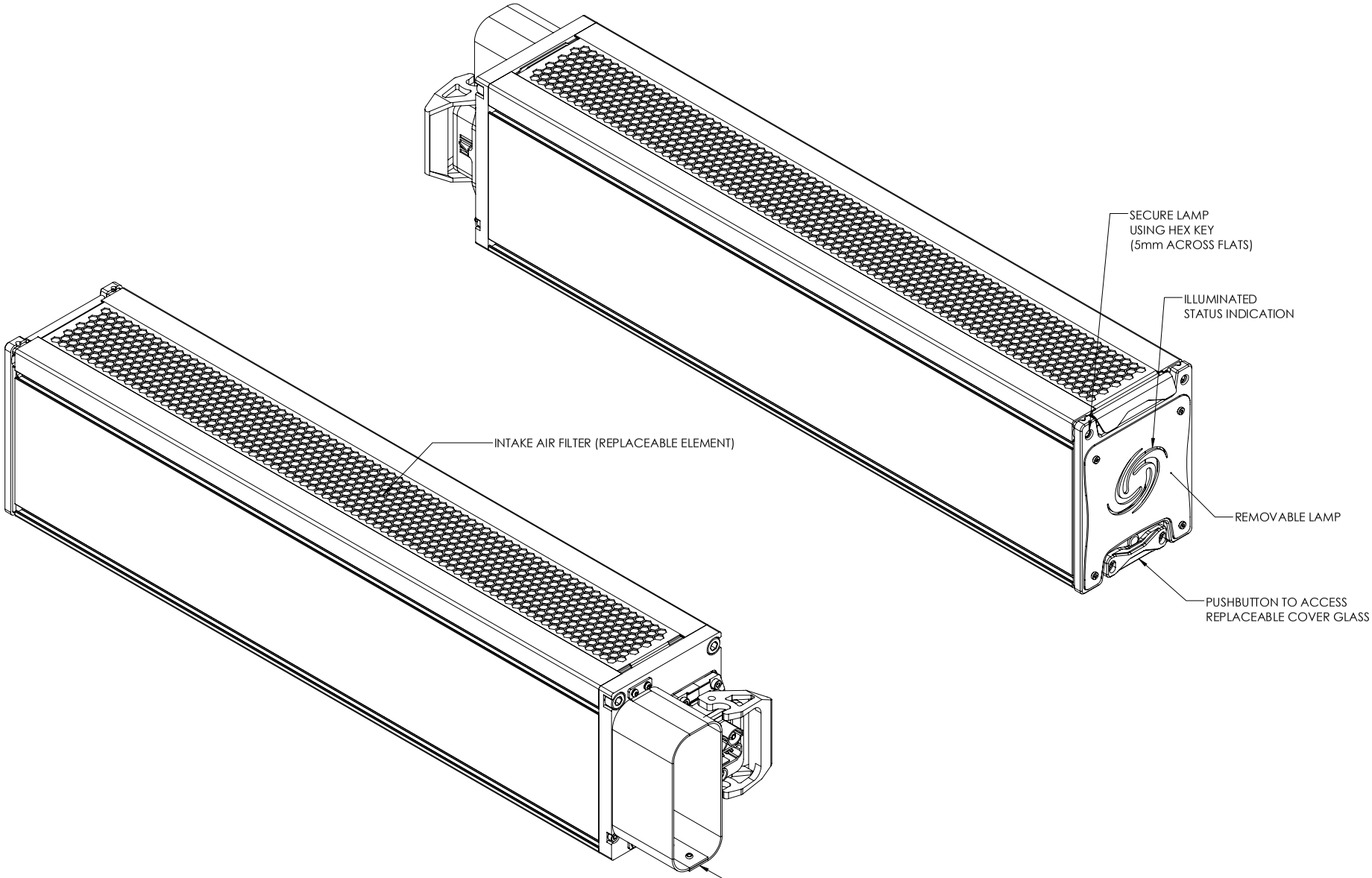

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FINISH: NONE

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ANGLE: ±1°

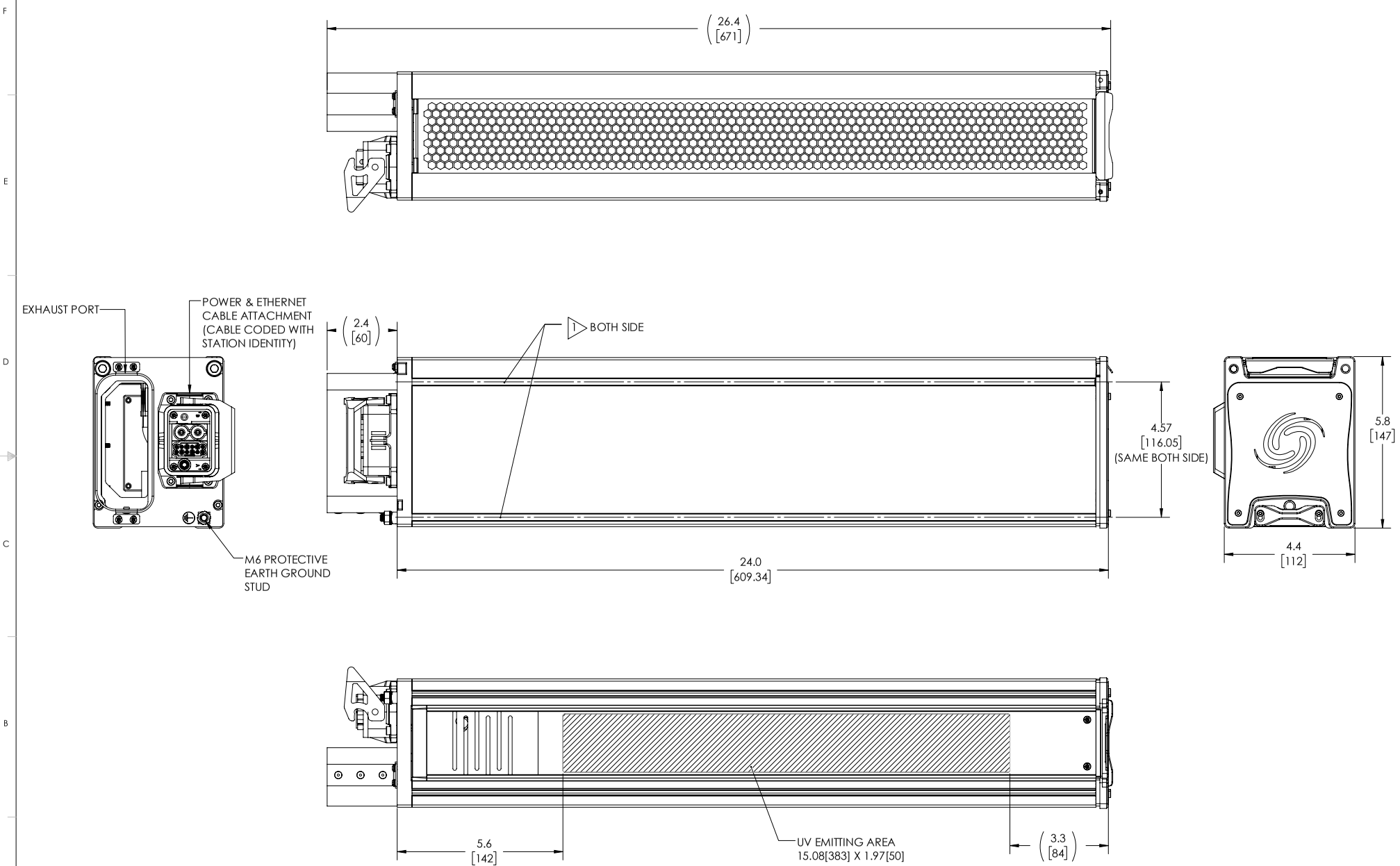
Phoseon TECHNOLOGY

PART NUMBER: 51455 REV. 4

ISSUED BY: PH ISSUE DATE: 9/6/2024

3D DATABASE: 51455 - Rev 4 - FG, NX1, 375x20AC-65W.STEP

ASME/ANSI Y14.X | EGF-44275-01 | SCALE: 1:4 | SIZE: C | SHEET 1 OF 2



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NOTES: UNLESS OTHERWISE SPECIFIED.

1. Mounting hardware:
   1.1. M6x1.0 Nuts in nut-channel grooves; do not bury screw tip into nut channel; maximum screw tightening torque is 177 inch lbs [20 N·m]

2. Reference Documents:
   2.1. 51329 Product Specifications

REVISIONS						
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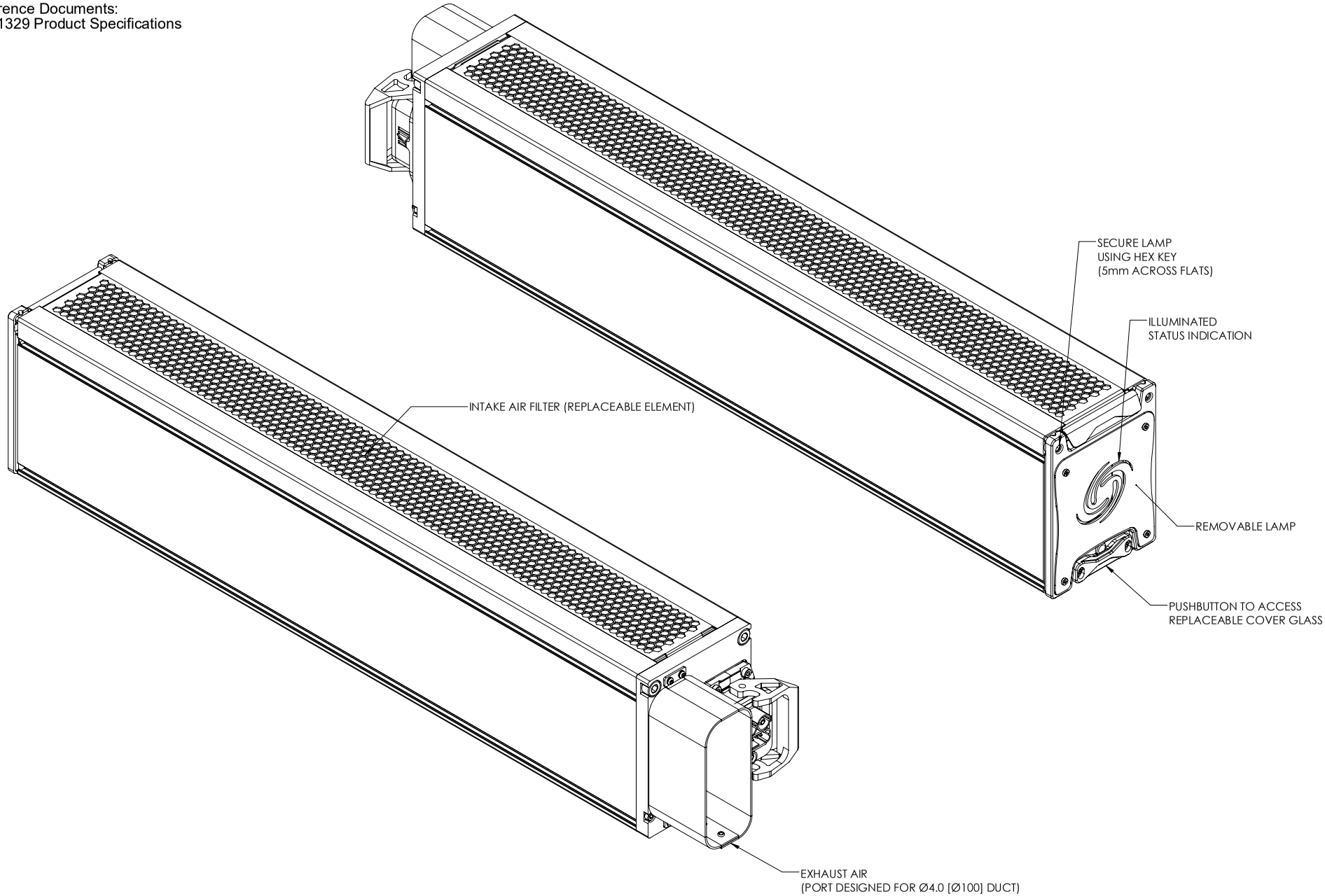

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FINISH: NONE

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TOLERANCES UNLESS OTHERWISE SPECIFIED
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X.XX: ±0.010 [0.25]
X.XXX: ±0.005 [0.13]
ANGLE: ±1°

Phoseon TECHNOLOGY

PART NUMBER: 51566 REV. 4

ISSUED BY: PH ISSUE DATE: 9/6/2024

3D DATABASE: 51566 - Rev 4 - FG, NX1, 450x20AC-65W.STEP

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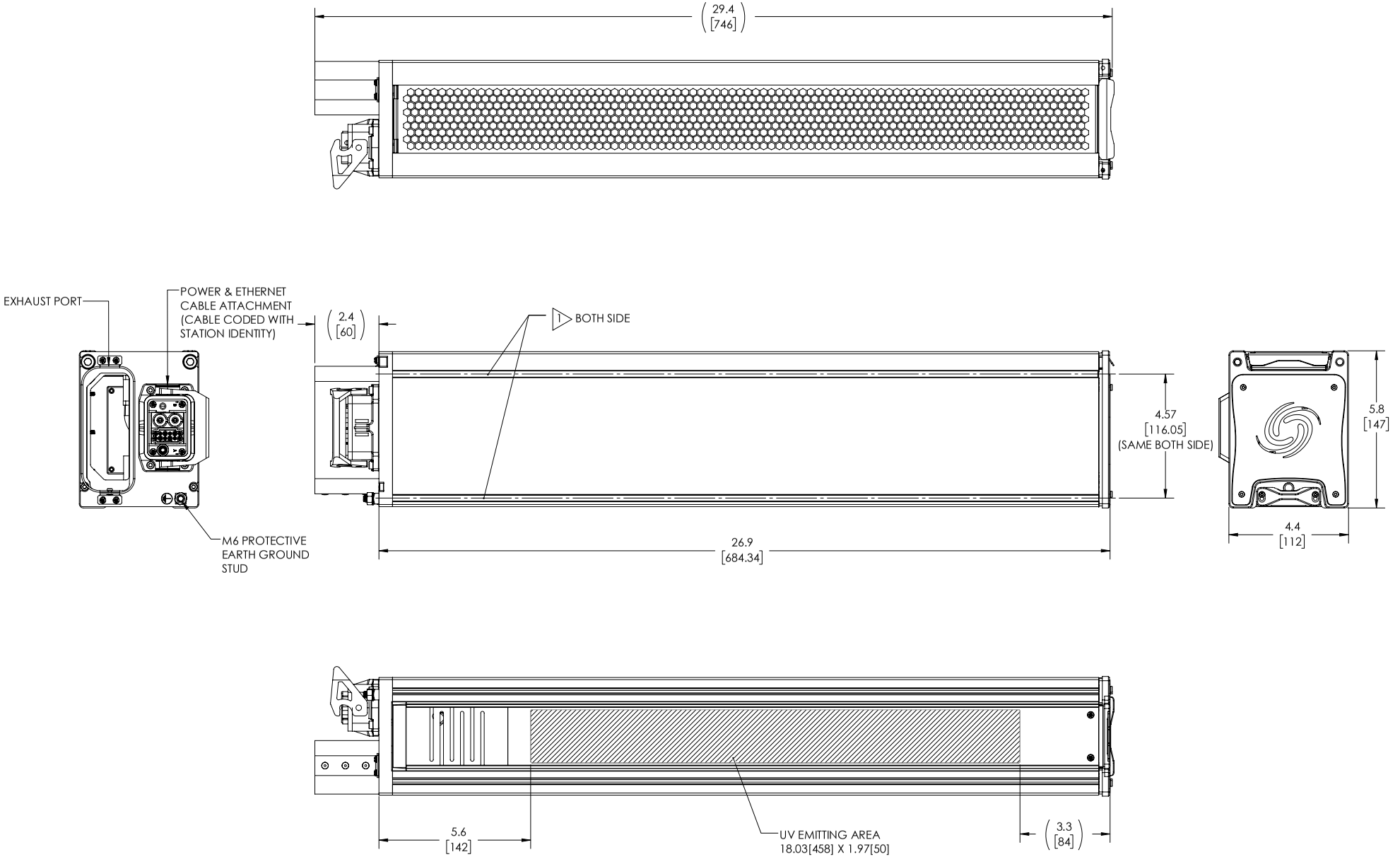

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DIM UNITS: IN [mm]
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ANGLE: ±1°

Phoseon TECHNOLOGY

PART NUMBER: 51566 REV. 4

ISSUED BY: PH ISSUE DATE: 9/6/2024

3D DATABASE: 51566 - Rev 4 - FG, NX1, 450x20AC-65W.STEP

ASME/ANSI Y14.X | EGF-44275-01 | SCALE: 1:4 | SIZE: C | SHEET 2 OF 2

NOTES: UNLESS OTHERWISE SPECIFIED.

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REVISIONS						
REV.	DESCRIPTION	ENGR	DATE	ECO	APPROVED	APPROVED DATE
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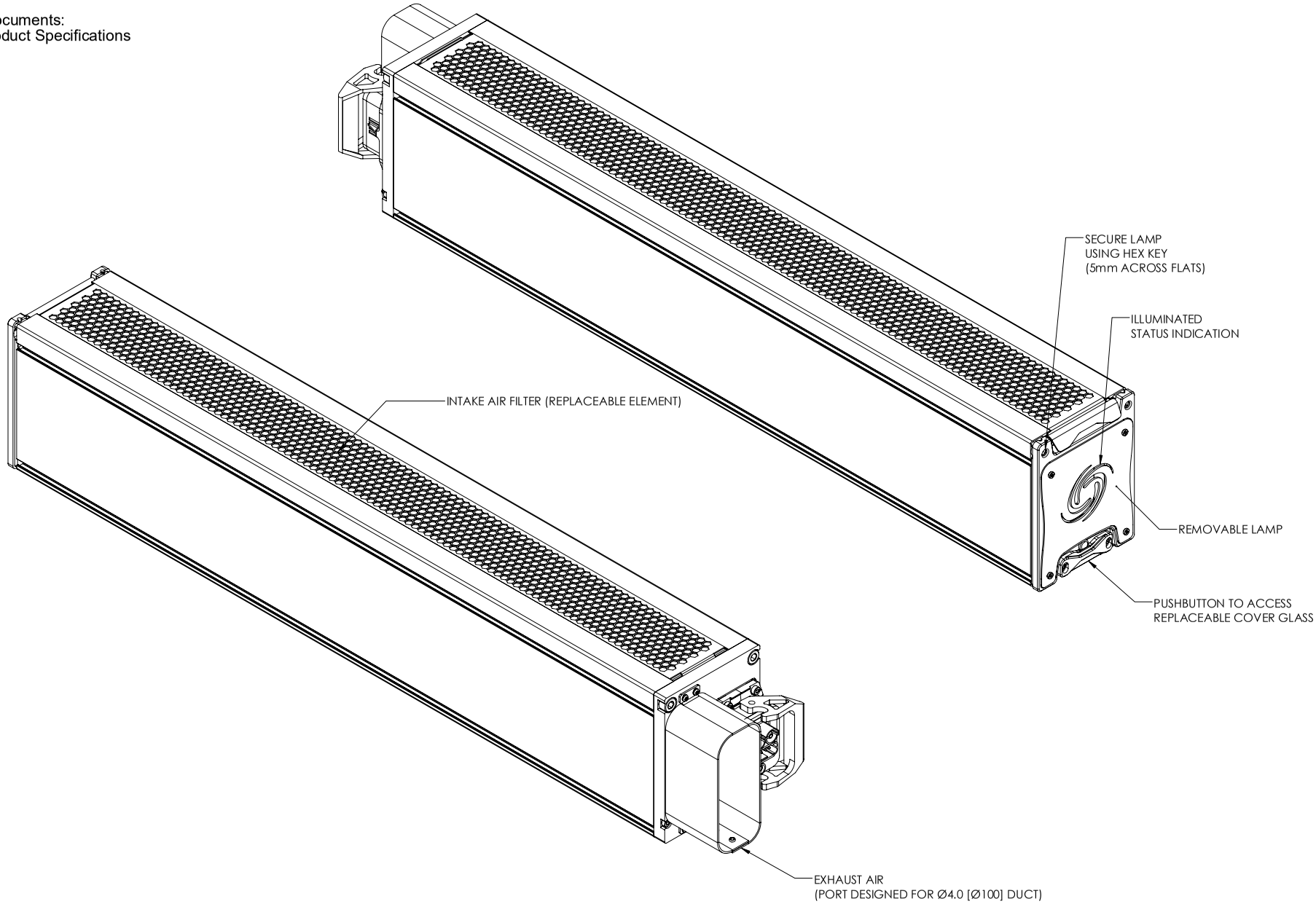

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X.X: ±0.020 [0.5]
X.XX: ±0.010 [0.25]
X.XXX: ±0.005 [0.13]
ANGLE: ±1°

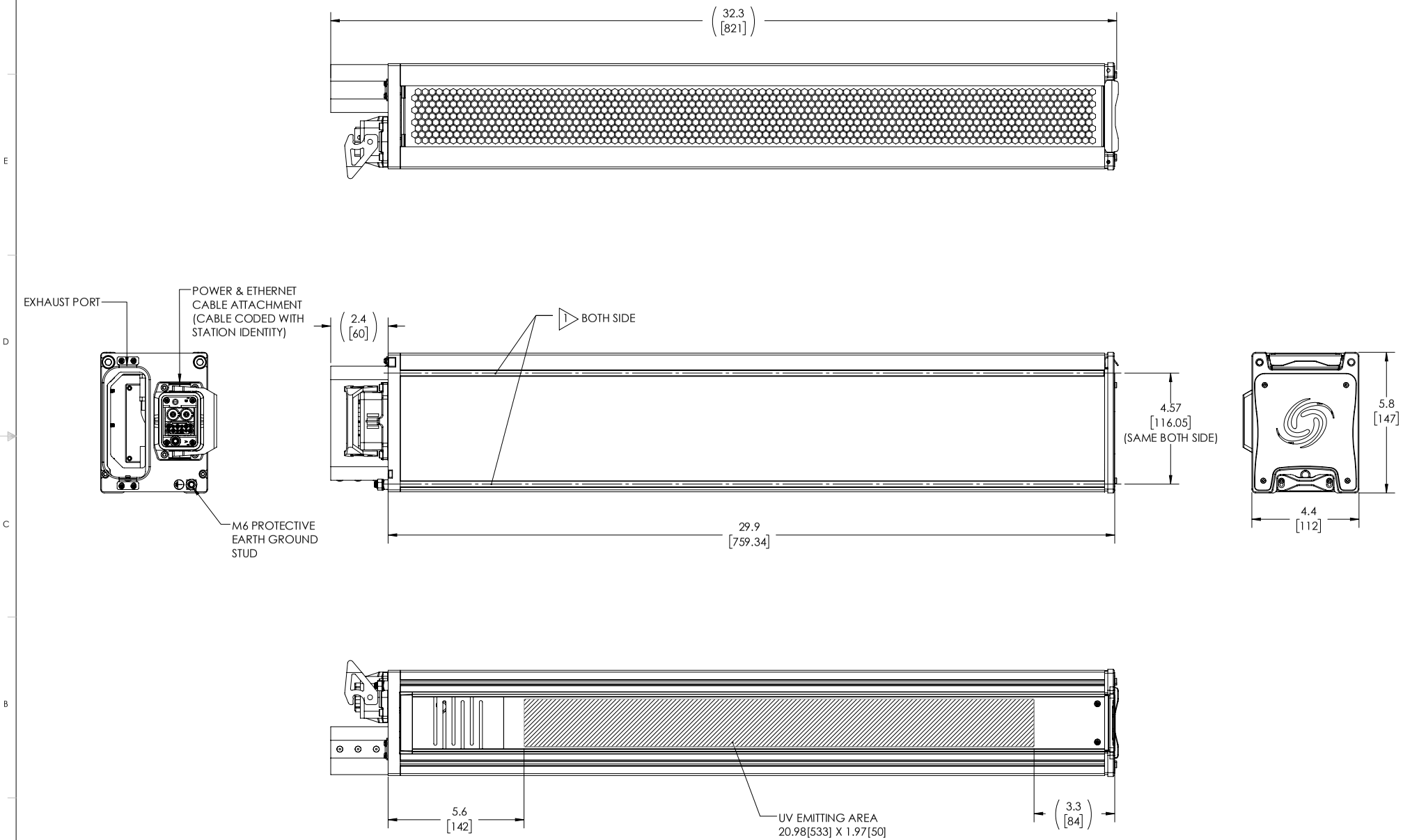
Phoseon TECHNOLOGY

PART NUMBER: 51634 REV. 4

ISSUED BY: PH ISSUE DATE: 9/6/2024

3D DATABASE: 51634 - Rev 4 - FG, NX1, 525x20AC-65W.STEP

ASME/ANSI Y14.X | EGF-44275-01 | SCALE: 1:4 | SIZE: C | SHEET 1 OF 2



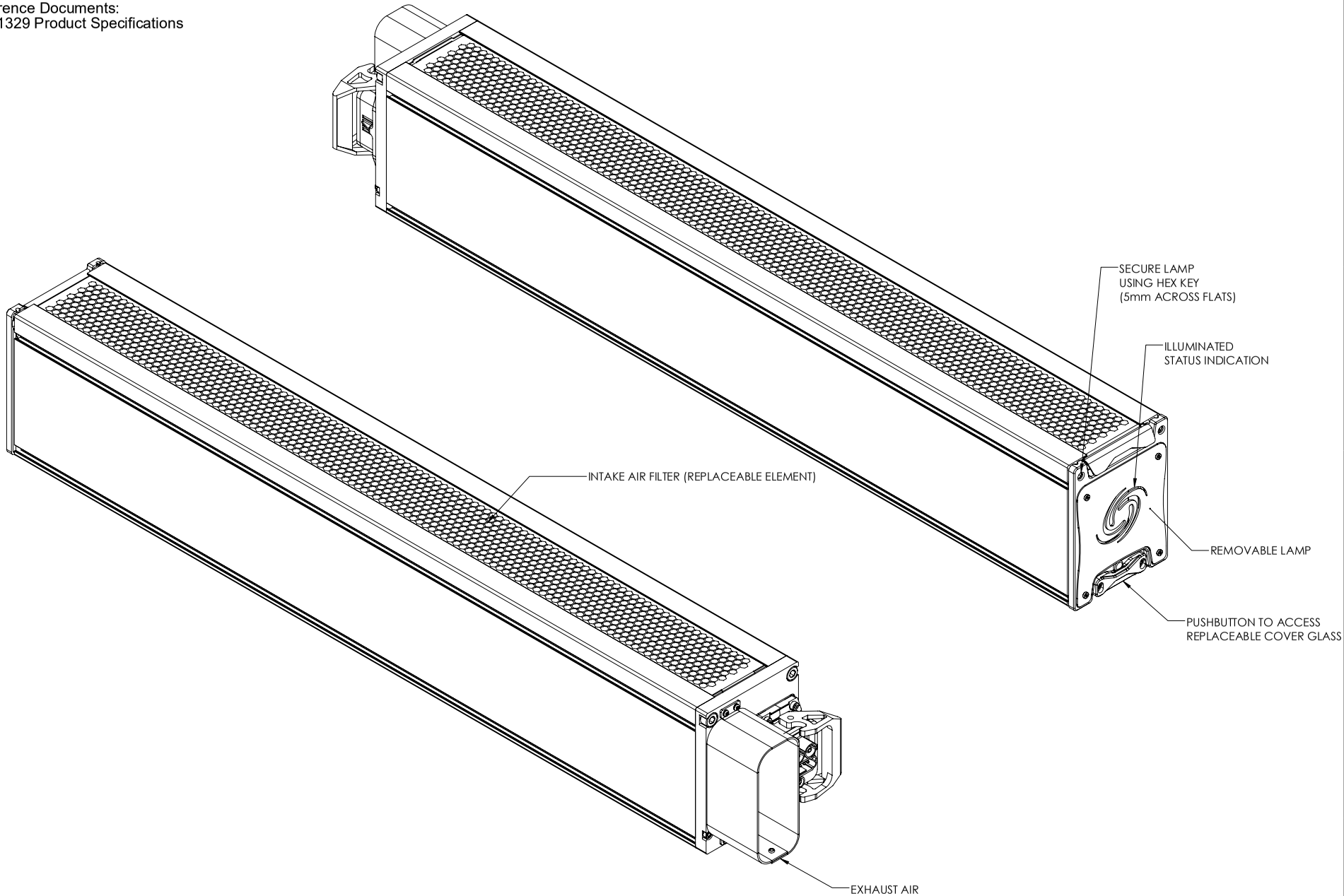
3RD ANGLE VIEW	MATERIAL: NONE	FINISH: NONE	TITLE: CONTROL DRAWING, NX1 AC 525
DIM UNITS: IN [mm] TOLERANCES UNLESS OTHERWISE SPECIFIED X.X: ±0.020 [0.5] X.XX: ±0.010 [0.25] X.XXX: ±0.005 [0.13] ANGLE: ±1°	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF PHOSEON TECHNOLOGY. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF PHOSEON TECHNOLOGY IS PROHIBITED.	Phoseon TECHNOLOGY	PART NUMBER: 51634 REV. 4 ISSUED BY: PH ISSUE DATE: 9/6/2024 3D DATABASE: 51634 - Rev 4 - FG, NX1, 525x20AC-65W.STEP ASME/ANSI Y14.X EGF-44275-01 SCALE: 1:4 SIZE: C SHEET 2 OF 2

NOTES: UNLESS OTHERWISE SPECIFIED.

1. Mounting hardware:
   1.1. M6x1.0 Nuts in nut-channel grooves; do not bury screw tip into nut channel; maximum screw tightening torque is 177 inch lbs [20 N·m]

2. Reference Documents:
   2.1. 51329 Product Specifications

REVISIONS						
REV.	DESCRIPTION	ENGR	DATE	ECO	APPROVED	APPROVED DATE
2	REMOVE UV SHIELDING AND SHEET 3	PH	09/09/2024	-----	CL	09/10/2024



3RD ANGLE VIEW

MATERIAL: NONE

FINISH: NONE

TITLE: CONTROL DRAWING, NX1 AC 600

DIM UNITS: IN [mm]
TOLERANCES UNLESS OTHERWISE SPECIFIED
X.X: ±0.020 [0.5]
X.XX: ±0.010 [0.25]
X.XXX: ±0.005 [0.13]
ANGLE: ±1°

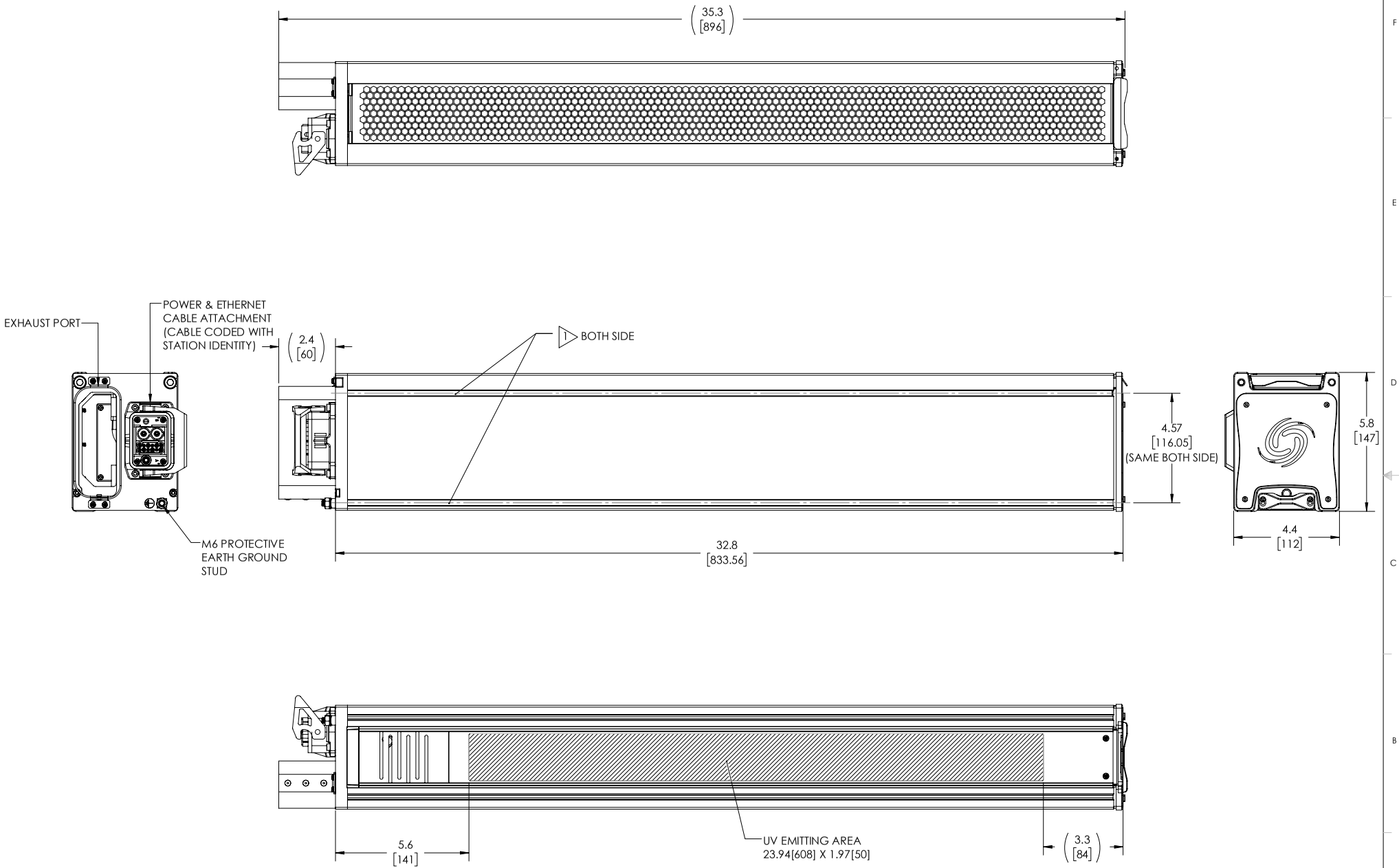
Phoseon TECHNOLOGY

PART NUMBER: 52406 REV. 2

ISSUED BY: PH ISSUE DATE: 9/6/2024

3D DATABASE: 52406 - Rev 2 - FG, NX1, 600x20 AC-65W.STEP

ASME/ANSI Y14.X | EGF-44275-01 | SCALE: 1:4 | SIZE: C | SHEET 1 OF 2



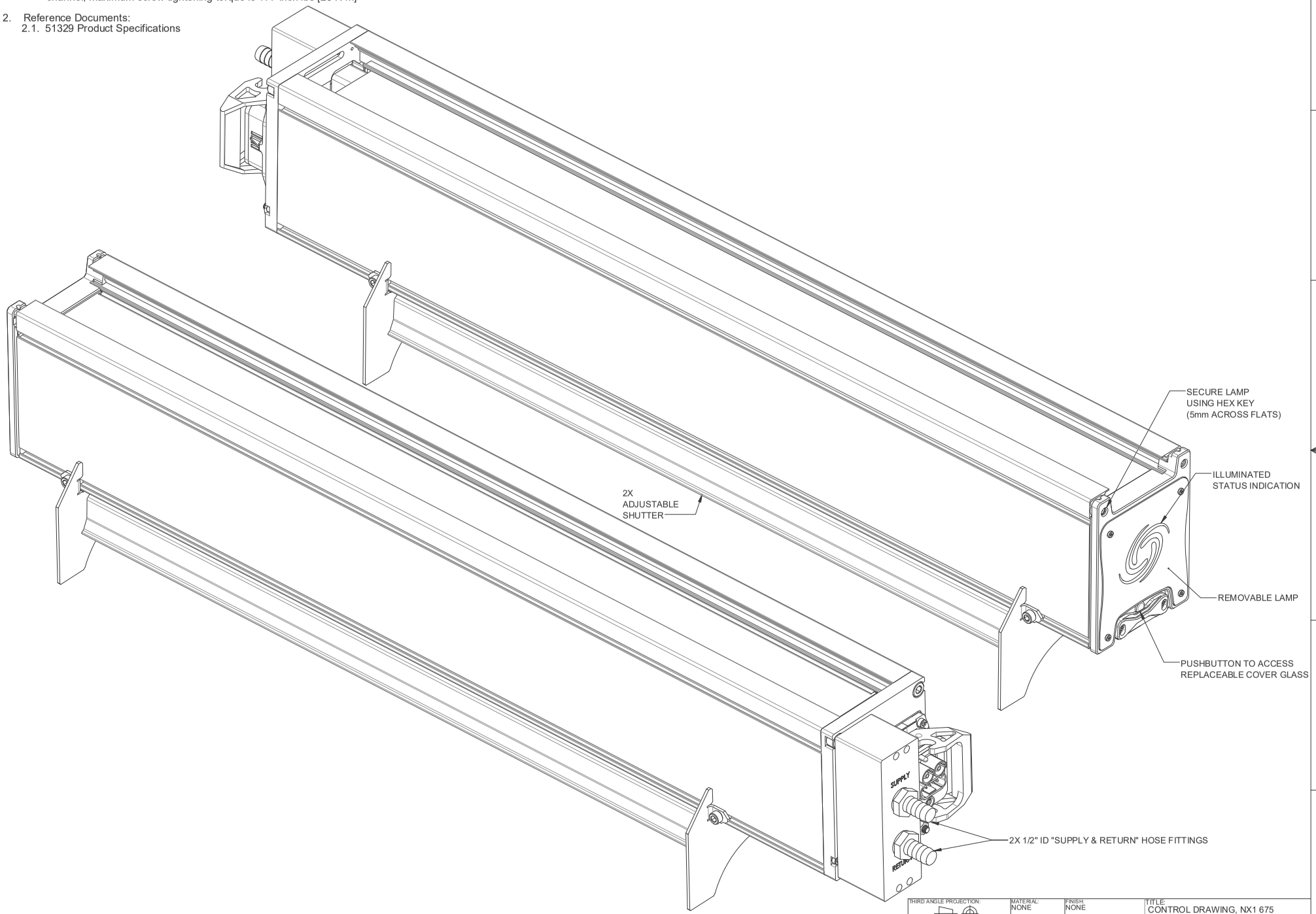
3RD ANGLE VIEW	MATERIAL: NONE	FINISH: NONE	TITLE: CONTROL DRAWING, NX1 AC 600
DIM UNITS: IN [mm] TOLERANCES UNLESS OTHERWISE SPECIFIED X.X: ±0.020 [0.5] X.XX: ±0.010 [0.25] X.XXX: ±0.005 [0.13] ANGLE: ±1°	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF PHOSEON TECHNOLOGY. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF PHOSEON TECHNOLOGY IS PROHIBITED.	Phoseon TECHNOLOGY	PART NUMBER: 52406 REV. 2 ISSUED BY: PH ISSUE DATE: 9/6/2024 3D DATABASE: 52406 - Rev 2 - FG; NX1; 600x20 AC-65W.STEP ASME/ANSI Y14.X EGF-44275-01 SCALE: 1:4 SIZE: C SHEET 2 OF 2

NOTES: UNLESS OTHERWISE SPECIFIED.

1. Mounting hardware:
   1.1. M6x1.0 Nuts in nut-channel grooves; do not bury screw tip into nut channel; maximum screw tightening torque is 177 inch lbs [20 N·m]

2. Reference Documents:
   2.1. 51329 Product Specifications

REVISIONS						
REV	DESCRIPTION	ENGR	DATE	ECN	APVD	APVD DATE
1	INITIAL RELEASE	PH	03/30/2022	-----	JB	03/31/2022
2	ADD FLAT WEB UVSHIELD OPTION; ADD SHEET 3	AEH	5/20/2022			5/20/2022



THIRD ANGLE PROJECTION:

MATERIAL: NONE

FINISH: NONE

TITLE: CONTROL DRAWING, NX1 675

DIM UNITS: IN [mm]
TOLERANCES UNLESS OTHERWISE SPECIFIED
X.X: ± .05 [1.5]
X.XX: ± .04 [1]
X.XXX: ± .02 [0.5]
ANGLE: ±1°

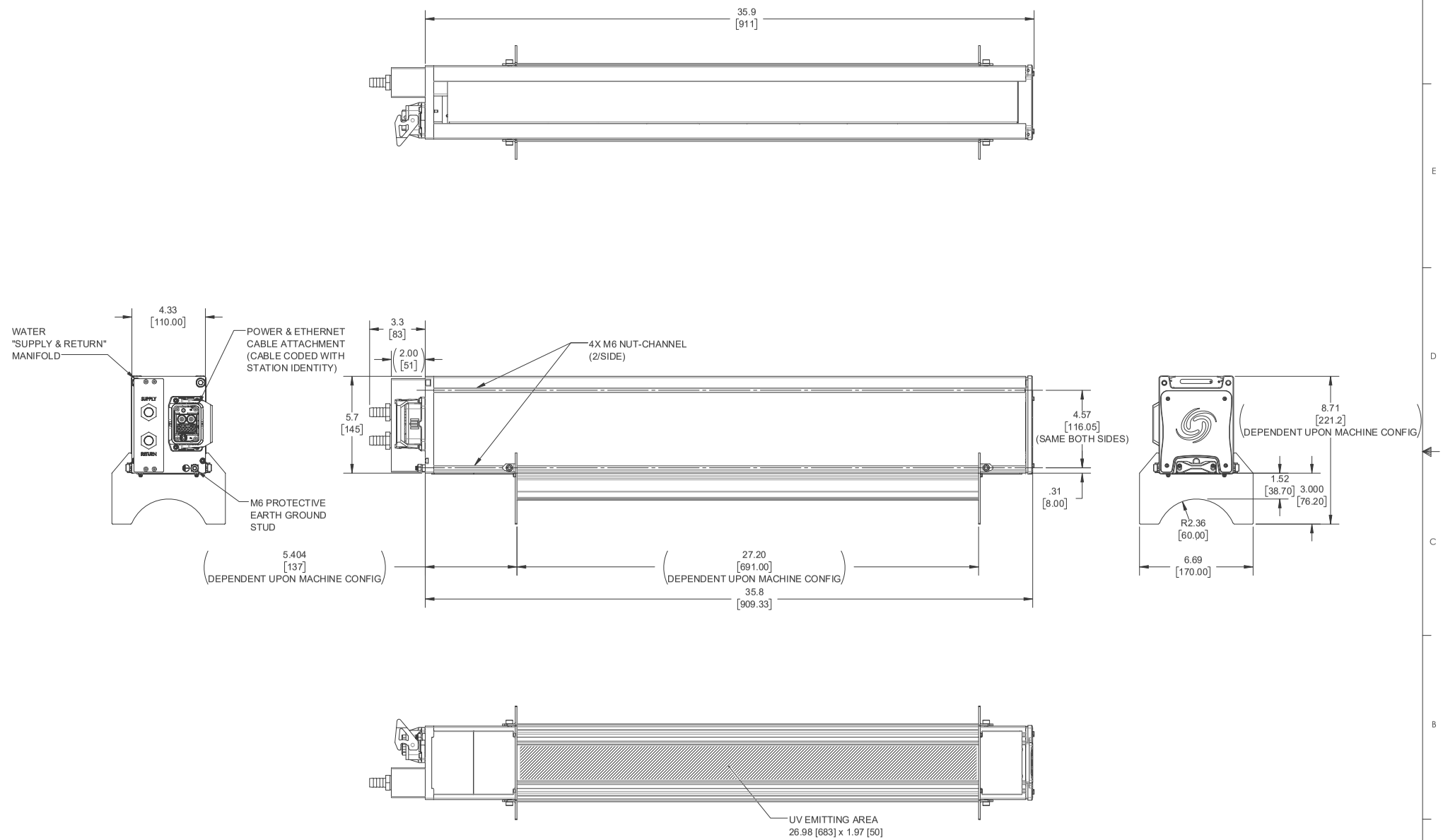
Phoseon TECHNOLOGY

PART NUMBER: 51853 REV. 2

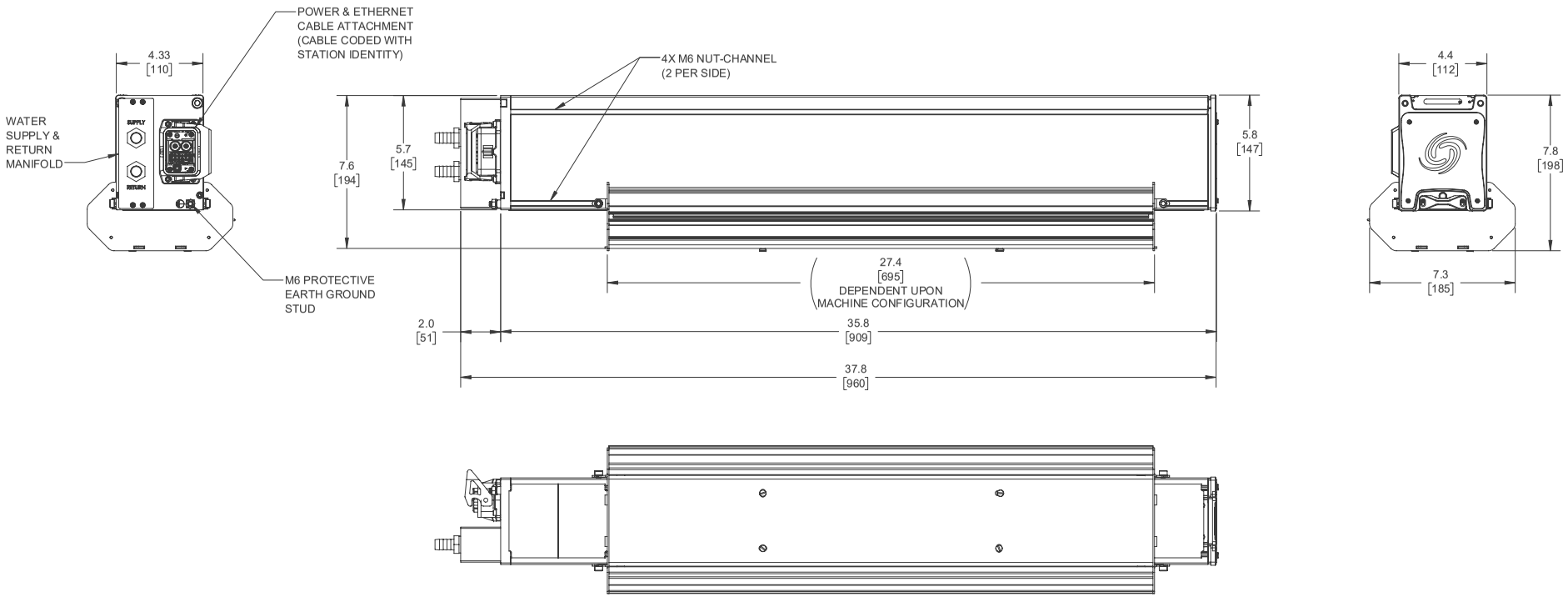
ISSUED BY: PH | ISSUE DATE: 3/30/2022

CAD FILE: 51853 - Rev 2 - FG, NX1, 675x20WC395-90W.STEP

ASME/ANSI Y14.X | EGF-44275-01 | SCALE 1:2 | SIZE C | SHEET 1 OF 3



THIRD ANGLE PROJECTION:	MATERIAL: NONE	FINISH: NONE	TITLE: CONTROL DRAWING, NX1 675
DIM UNITS: IN [mm] TOLERANCES UNLESS OTHERWISE SPECIFIED X.X: ±.06 [1.5] X.XX: ±.04 [1] X.XXX: ±.02 [0.5] ANGLE: ±1°	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF PHOSEON TECHNOLOGY. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF PHOSEON TECHNOLOGY IS PROHIBITED.	Phoseon TECHNOLOGY	PART NUMBER: 51853 REV. 2 ISSUED BY: PH ISSUE DATE: 3/30/2022 CAD FILE: 51853 - Rev 2 - FG, NX1, 675x20WC395-90W.STEP ASME/ANSI Y14.X EGF-44275-01 SCALE: 1:4 SIZE: C SHEET 2 OF 3



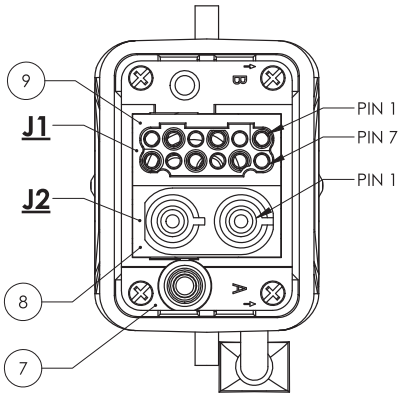
THIRD ANGLE PROJECTION:	MATERIAL: NONE	FINISH: NONE	TITLE: CONTROL DRAWING, NX1 675
DIM UNITS: IN [mm] TOLERANCES UNLESS OTHERWISE SPECIFIED X.X: ±.020 [0.50] X.XX: ±.010 [0.25] X.XXX: ±.005 [0.13] ANGLE: ±1°	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF PHOSEON TECHNOLOGY. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF PHOSEON TECHNOLOGY IS PROHIBITED.	Phoseon TECHNOLOGY	PART NUMBER: 51853 REV. 2 ISSUED BY: PH ISSUE DATE: 3/30/2022 CAD FILE: 51853 - Rev 2 - FG, NX1, 675x20WC395-90W.STEP ASME/ANSI Y14.X EGF-44275-01 SCALE: 1:4 SIZE C SHEET 3 OF 3

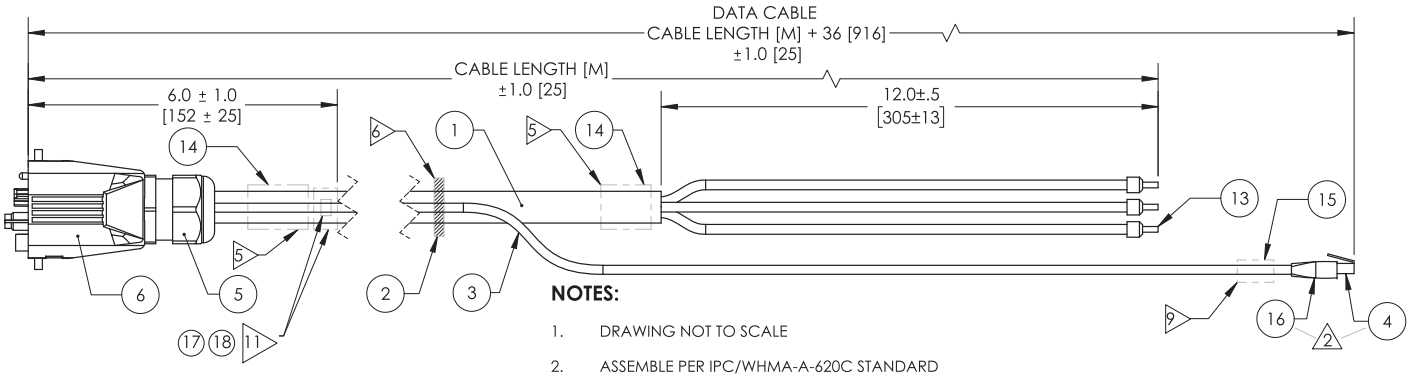
REVISIONS						
REV	DESCRIPTION	ENGR	DATE	ECN	APVD	APVD DATE
1	RELEASE FOR PRODUCTION	CD	8/31/21	PH4119	CS	9/15/21
2	RJ45 PLUG + BOOT, LABEL CHANGES	CD	10/26/2021	PH4153	PH	10/26/2021
3	TWO CLAMP ON FERRITES ADDED	JP	2/15/2022	PH4221	CD	02/22/2022

51860 - _ _ M- _ _

STATION #

CABLE LENGTH [M]





* OR PHOSEON APPROVED EQUIVALENT

Item	PHO PN	SL DESCRIPTION	MFR	MFR PN	QTY
1	51981	Cable, 3x6AWG, Unshielded	Helukabel *	62980	A/R
2	51988	Cable Tie, 0.3" W, 8.5" L, Blk	McMaster *	7130K44	A/R
3	51923	Cable, Cat5E, F/UTP, 4-pair, 26AWG Stranded	L-COM *	TFC2105	A/R
4	52077	Plug, RJ45, Shielded, CAT6, 24-26AWG	L-COM *	TDS8PC6	1
5	50225	Cable Gland, Nylon, 18-32mm, M32	Amphenol *	AIO-CSM32	1
6	36303	Housing, 6B, Straight, M32, PHX	Phoenix Contact	1412567	1
7	33389	Frame, 2-Module, Housing, 6B, Sleeve	Phoenix Contact	1182087	1
8	33494	Module, 2-Pin, 70A, 6B, Female, PH	Phoenix Contact	1417296	1
9	50224	Conn, Mod, Female, 12-POS, PH	Phoenix Contact	1414355	1
10	50223	Crimp, Contact, Female, 0.14-0.37mm Ag, PH	Phoenix Contact	1663394	12
11	50304	Lug, Adapter, NX1 Cable, 6AWG to 10AWG	Phoenix Contact	1636981	1
12	20153	(Loopback) Wire, 26 AWG, Black, TFE(19/38)Strd, 250	Alpha Wire *	2843/19 BK005	A/R
13	51861	Ferrule, 6AWG, BLU	American Elec *	11121160	3
14	51139	Label, Self Laminating Vinyl, Cable	Brady *	M-33-427	2
15	51510	Label, Self Laminating Vinyl, 1.00" x 0.75" x 0.375"	Brady *	M-48-427	1
16	52076	Boot, RJ45, 5.5mm OD	L-COM *	MPC45D55-BLK	1
17	34230	Ferrite, Tube, Clamp-on,.750", Blk	STEWARD*	28A5776-0A2	1
18	37333	Ferrite, Tube, Clamp on,9mm ID, 265ohms	Fair-Rite Products*	0443178281	1

NOTES:

1. DRAWING NOT TO SCALE
2. ASSEMBLE PER IPC/WHMA-A-620C STANDARD
3. ASSEMBLE EACH COMPONENT PER COMPONENT MFR'S PROCEDURES
4. WIRE CV6 LOOPBACK NET PER TABLE 2 AS DETERMINED FROM STATION #. LOOPBACK WIRING (ITEM 12) TO REMAIN WITHIN CONNECTOR HOUSING (ITEM 6). TERMINATE 1X OR 2X WIRES (ITEM12) INTO CRIMPS (ITEM10) AS NEEDED TO FACILITATE LOOPBACK NET "DAISY CHAIN"
5. LABEL ITEM 1 WHERE SHOWN USING FOLLOWING FORMAT WHERE X IS STATION NUMBER AND R IS REVISION #
   VENDOR NUMBER
   51860 - REV R
   LED X - 120VDC
6. FASTEN CABLE TIES (ITEM 2) EVERY 3ft[0.9M] ALONG CABLE TO SECURE ITEM 1 TO ITEM 3 AS REQUIRED
7. TERMINATE CABLE GND CONDUCTOR (ITEM1) CV9 TO FRAME (ITEM 7) VIA ADAPTER LUG (ITEM 11)
8. TEST CONTINUITY OF EACH NET ON ASSEMBLED CABLE PER NETLIST
9. LABEL ITEM 3 WHERE SHOWN USING FORMAT "LED X" WHERE X IS STATION NUMBER
10. TERMINATE RJ-45 (ITEM4) PER T-568B STANDARD
11. CLAMP ITEM 17 ON POWER CABLE AND ITEM 18 ON DATA CABLE

THIRD ANGLE PROJECTION:

MATERIAL: SEE BOM

FINISH: N/A

TITLE: STATION CABLE, NX1, 6AWG

DIM UNITS: IN [mm]
TOLERANCES UNLESS OTHERWISE SPECIFIED
X.X: ±.020 [0.50]
X.XX: ±.010 [0.25]
X.XXX: ±.005 [0.13]
ANGLE: ±1°

Phoseon TECHNOLOGY

PART NUMBER: 51860 REV. 3

ISSUED BY: C. DAILEY ISSUE DATE: 8/9/2021

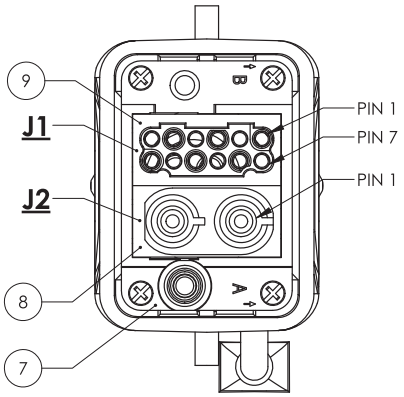
CAD FILE: 51860 REV 3 - Station Cable, NX1, 6AWG.STEP

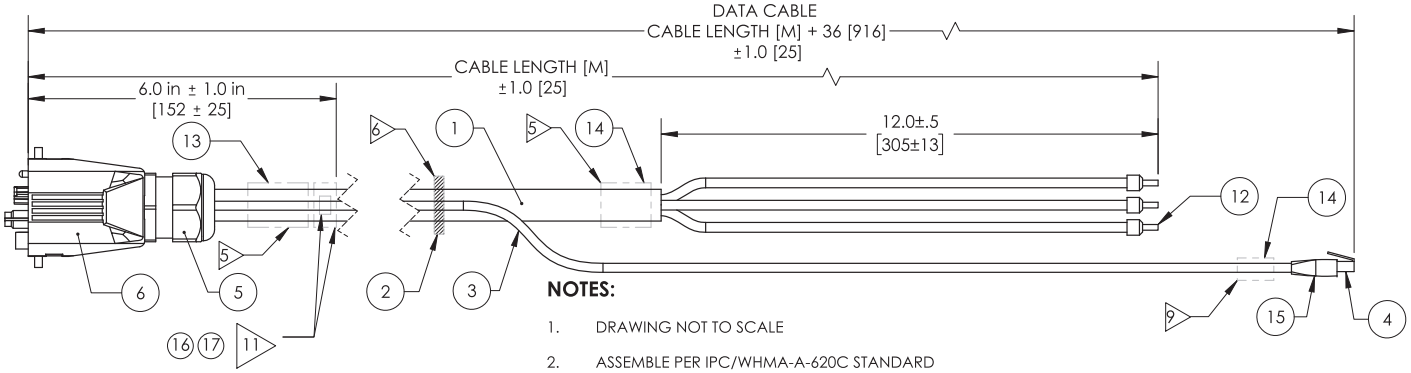
ASME/ANSI Y14.X | EGF-44274-01 | SCALE: 1:1 | SIZE: B | SHEET 1 OF 1

REVISIONS						
REV	DESCRIPTION	ENGR	DATE	ECN	APVD	APVD DATE
1	RELEASE FOR PRODUCTION	CD	10/26/21	PH4153	PH	11/9/21
2	TWO FERRITES ADDED TO CABLES	JP	02/15/22	PH4221	CD	02/22/2022

52078 - _ _ M- _ _

- STATION #
- CABLE LENGTH [M]





NOTES:

1. DRAWING NOT TO SCALE
2. ASSEMBLE PER IPC/WHMA-A-620C STANDARD
3. ASSEMBLE EACH COMPONENT PER COMPONENT MFR'S PROCEDURES
4. WIRE CV6 LOOPBACK NET PER TABLE 2 AS DETERMINED FROM STATION #. LOOPBACK WIRING (ITEM 12) TO REMAIN WITHIN CONNECTOR HOUSING (ITEM 6). TERMINATE 1X OR 2X WIRES (ITEM12) INTO CRIMPS (ITEM10) AS NEEDED TO FACILITATE LOOPBACK NET "DAISY CHAIN"
5. LABEL ITEM 1 WHERE SHOWN USING FOLLOWING FORMAT WHERE X IS STATION NUMBER AND R IS REVISION #

   VENDOR NUMBER
   52078 - REV R
   LED X - 120VDC
6. FASTEN CABLE TIES (ITEM 2) EVERY 3ft[0.9M] ALONG CABLE TO SECURE ITEM 1 TO ITEM 3 AS REQUIRED
7. TERMINATE CABLE GND CONDUCTOR (ITEM1) CV9 TO FRAME (ITEM 7) VIA ADAPTER LUG (ITEM 11)
8. TEST CONTINUITY OF EACH NET ON ASSEMBLED CABLE PER NETLIST
9. LABEL ITEM 3 WHERE SHOWN USING FORMAT "LED X" WHERE X IS STATION NUMBER
10. TERMINATE RJ-45 (ITEM4) PER T-568B STANDARD
11. CLAMP ITEM 16 ON POWER CABLE AND ITEM 17 ON DATA CABLE WHERE SHOWN

* OR PHOSEON APPROVED EQUIVALENT

Item	PHO PN	SL DESCRIPTION	MFR	MFR PN	QTY
1	52117	Cable, 3x10AWG, Unshielded, XLPE	Helukabel *	713285	A/R
2	51988	Cable Tie, 0.3" W, 8.5" L, Blk	McMaster *	7130K44	A/R
3	51923	Cable, Cat5E, F/UTP, 4-pair, 26AWG Stranded	L-COM *	TFC2105	A/R
4	52077	Plug, RJ45, Shielded, CAT6, 24-26AWG	L-COM *	TDS8PC6	1
5	52115	Cable Gland, Nylon, M32, 15-21mm	Phoenix Contact *	1411127	1
6	36303	Housing, 6B, Straight, M32, PHX	Phoenix Contact *	1412567	1
7	33389	Frame, 2-Module, Housing, 6B, Sleeve	Phoenix Contact	1182087	1
8	33494	Module, 2-Pin, 70A, 6B, Female, PH	Phoenix Contact	1417296	1
9	50224	Conn, Mod, Female, 12-POS, PH	Phoenix Contact	1414355	1
10	50223	Crimp, Contact, Female, 0.14-0.37mm Ag, PH	Phoenix Contact	1663394	12
11	20153	(Loopback) Wire, 26 AWG, Black, TFE(19/38)Strd, 250	Alpha Wire *	2843/19 BK005	A/R
12	51862	Ferrule, 10AWG, YEL	Ferrules Direct *	AD60012	3
13	51139	Label, Self Laminating Vinyl, Cable	Brady *	M-33-427	2
14	51510	Label, Self Laminating Vinyl, 1.00" x 0.75" x 0.375"	Brady *	M-48-427	1
15	52076	Boot, RJ45, 5.5mm OD	L-COM *	MPC45D55-BLK	1
16	54213	Ferrite, Tube, Clamp on, 13mm, 2800ohm	LAIRD*	28A2024-0A0	1
17	37333	Ferrite, Tube, Clamp on,9mm ID, 265ohms	Fair-Rite Products*	0443178281	1

THIRD ANGLE PROJECTION:

MATERIAL: SEE BOM

FINISH: N/A

TITLE: STATION CABLE, NX1, 10AWG

DIM UNITS: IN [mm]
TOLERANCES UNLESS OTHERWISE SPECIFIED
X.X: ±.020 [0.50]
X.XX: ±.010 [0.25]
X.XXX: ±.005 [0.13]
ANGLE: ±1°

Phoseon TECHNOLOGY

PART NUMBER: 52078 REV. 2

ISSUED BY: C. DAILEY ISSUE DATE: 10/26/2021

CAD FILE: 52078 REV 2 - Station Cable, NX1, 10AWG.STEP

ASME/ANSI Y14.X | EGF-44274-01 | SCALE: 1:1 | SIZE: B | 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.

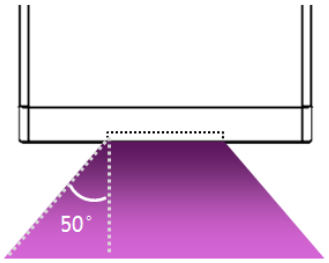
Note:

- 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°

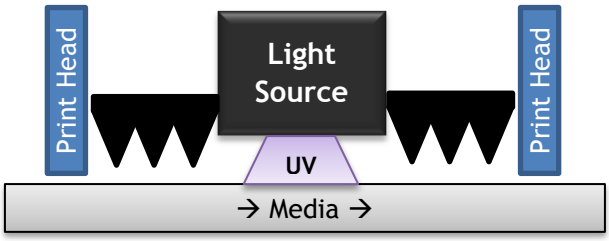
Reducing Light Reflection

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

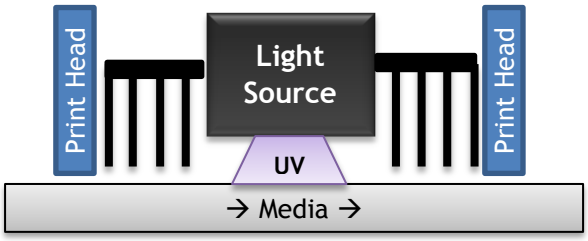
- Use materials around the light source that absorb or do not reflect UV (examples below) and avoid materials that are good UV reflectors such as bare Aluminum
  - Black anodized or black painted materials
  - Optical absorption and anti-reflective coatings
  - Thorlabs blackout materials, e.g. black 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.



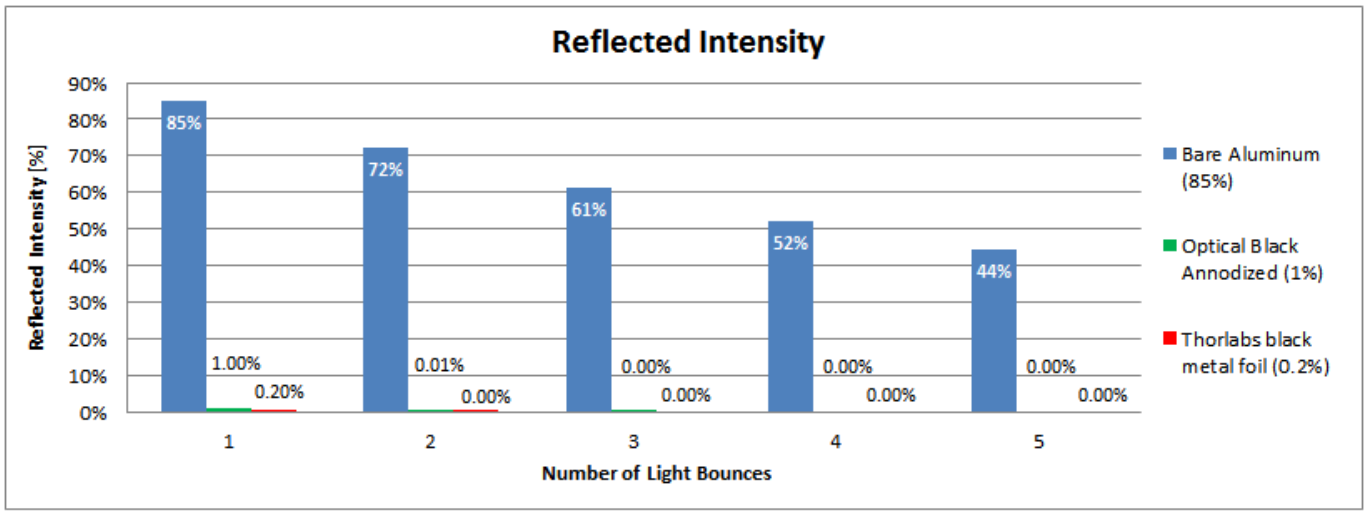
Saw-tooth form light baffle



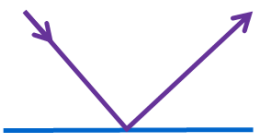
Straight-fin light baffle

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

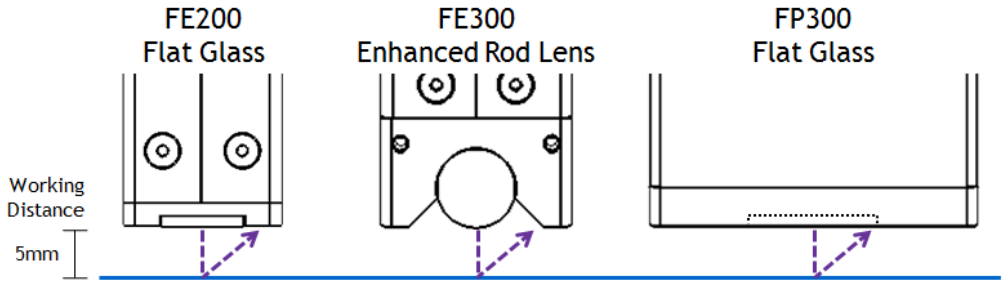
Diffuse Surface

Light Reflection Examples

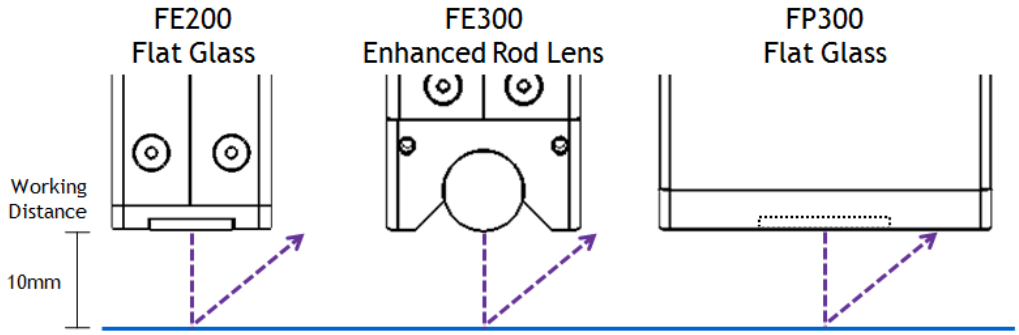
When curing with a reflective surface, like bare or polished aluminum, the size of the window frame and the working distance from the emitting window to the media, will affect how much light is allowed to reflect past the light source. Adding a light catch or shield that extends past the light source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

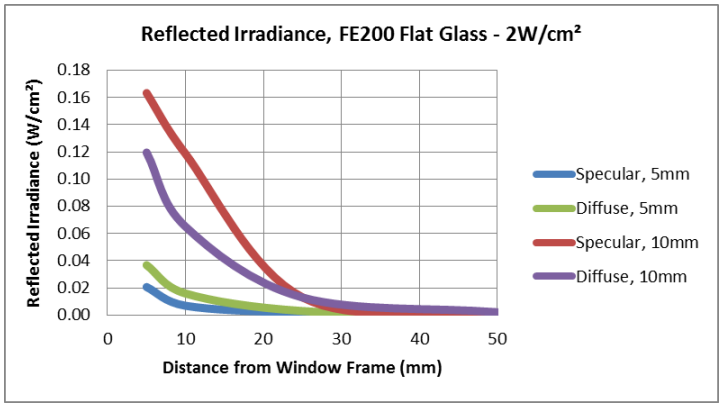


Phoseon Product Examples at 10mm Working Distance

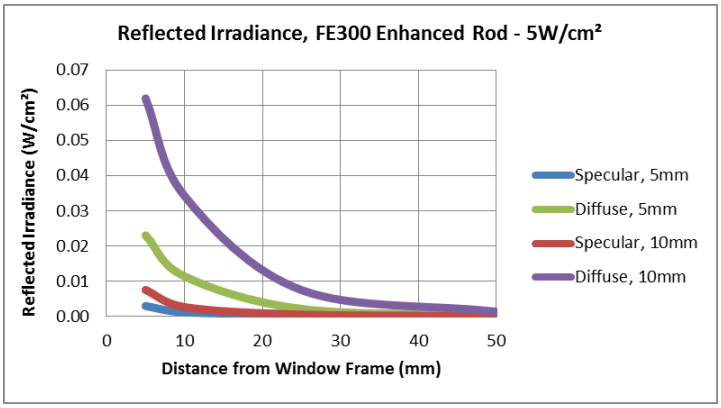
The charts below illustrate the irradiance values of reflected light with 3 different light sources; the FE200-2W/cm² with Flat Glass, the FE300-5W/cm² with Enhanced Rod Lens, and an FP300-20W/cm².

- 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

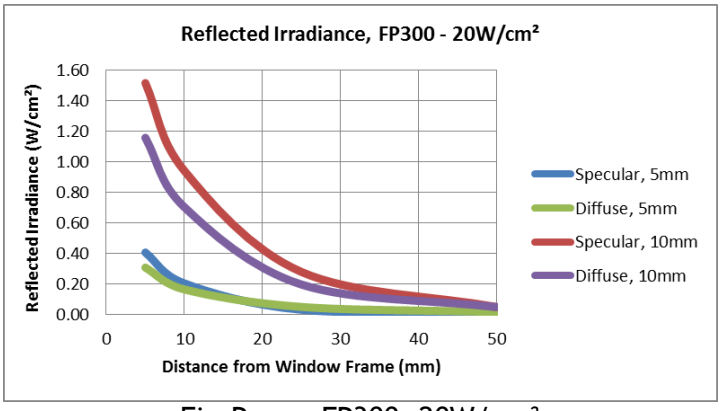
- Each media type is shown at two different working distances: 5mm and 10mm from the emitting window to the media
- The point of measurement for the reflected light is on the same plane as the emitting window at varying distances away from the edge of the light source (window frame, not the glass)



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 (Air-cooled Lamps)

The Nexus ONE air-cooled lamp 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:

- Periodic maintenance to clean or replace air filters is ***required*** to maintain proper airflow.
- Minimum clearance of 50mm should be maintained for air intake and 250mm for air exhaust.
- The optional side exhaust air deflector configuration (see *51329 Spec Sheet, Nexus ONE*) uses the same air filter as the standard Nexus ONE system.
- Air filter slides out the end opposite the DC connector.

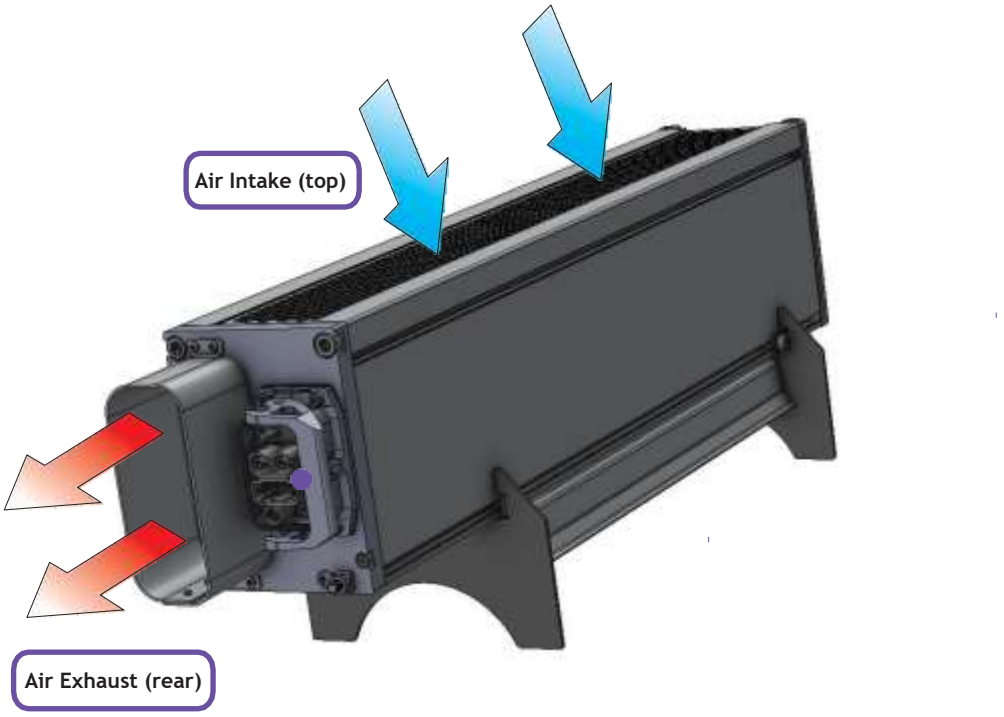


Figure 1.3: Air Flow Direction for Nexus ONE

The air-cooled lamp uses a filter assembly and must be purchased from Phoseon. The part numbers are: 51639 (375x20); 51640 (450x20); and 51641 (525x20). All air filter replacement kits for Nexus ONE are 5 per pack.

Water Cooling Requirements

Technical Note

Overview

Phoseon offers several water-cooled light sources. Water cooling is the most efficient way to remove excess heat from any device. Water cooling is a closed system, consisting of water channels internal to the light source, an external cooler or chiller, and the water lines connecting the two. The cooling water runs through the light source to transfer heat away from the UV LEDs, and the chiller or cooler then removes the excess heat from the water before it is circulated back to the light source.

Proper setup and regular maintenance of the water cooling system is a requirement of the Phoseon warranty. Failure to follow the requirements listed below can result in permanent damage to the light source. This document supersedes any recommendations or requirements in the Cooling Water or Water Condensation Hazard sections of the product manuals.

Warranty Requirements

The following requirements must be met to maintain the optimum performance of the light source. Failure to meet these requirements voids the warranty.

The water chiller must meet the flow rate and cooling capacity requirements of the Phoseon light source. Flow rates and cooling capacities are listed on the product specification sheets and in the OEM manuals.

- **Use distilled water only.** Do not use tap water or deionized water. They are harmful to the cooling system.
- **Use an anti-corrosion additive.** Water is very corrosive to metals, so protection against corrosion is essential.
- **Avoid conditions that cause condensation** to form on the water lines and inside the light source.
- **Use a flow switch** or other safeguard to insure the light source is not enabled without cooling water.

See below for additional details on these requirements.

Water Preparation

Use distilled water only

The minerals typically found in tap water are detrimental to the cooling system, and in extreme cases will cause complete blocking of the water channels inside the light source. Do not use deionized water in the cooling system. Deionized water is extremely corrosive, and will quickly degrade the water channels.

Use an anti-corrosive additive

Anti-corrosion additives are required to keep the water channels clear. Using distilled water alone reduces, but does not eliminate, the build-up of deposits in the channels due to galvanic corrosion. A convenient way to add anti-corrosion ingredients to the water cooling system is through the use of readily available coolants (anti-freezes). Most coolants contain proprietary anti-corrosion additives which are effective in preventing deposits. Simply verify that the coolant is specified to provide protection for multiple metals, including copper, aluminum and brass.

Phoseon has tested:

DowFrost™ Heat Transfer Fluid

- Concentration of Propylene Glycol: 96% before dilution
- Coolant/Distilled water mix: 25%-30% concentration, remainder distilled water

Coolant requirements:

- Type: DowFrost™ Heat Transfer Fluid or equivalent
- Concentration of Propylene Glycol: 96% before dilution
- Coolant/Distilled water mix: 25%-30% concentration, remainder distilled water
- Protection for multiple metals, including copper, aluminum and brass

Propylene glycol based coolant is also classified as non-toxic and is available worldwide. In addition, a coolant mixture of at least 25%, as required by Phoseon, eliminates the need for an algaecide. However, do not use a mixture of more than 30% coolant, as it will reduce the cooling capacity by too great an amount.

In some environments, a 25% to 30% concentration of coolant produces foam in the cooling water, lowering the cooling efficiency. If foam is present in the cooling water, an alternative is a 20% concentration along with an algaecide.

Phoseon has tested:

PolyScience Lab Algicide

General purpose lab algaecide.

- Dosage: 20 drops/gal
- 8 oz. (treats 400 gallons)

Be aware that the chiller manufacturer may require specific additives in order to remain under their warranty. Always check with the chiller manufacturer before using a coolant.

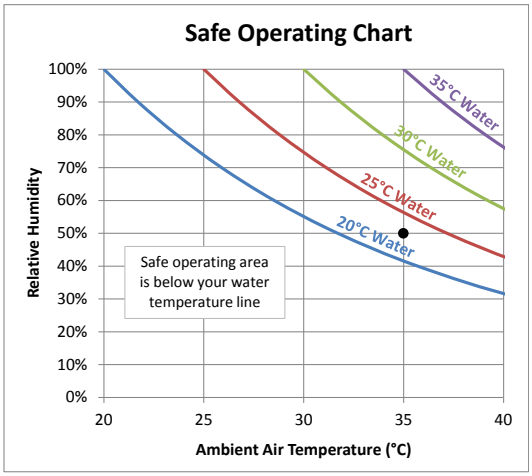
Understanding Condensation

Condensation must be avoided under all conditions. If water collects inside the light source or other equipment, permanent damage will result. It is therefore important to be aware of ambient conditions that lead to condensation.

Dew point

Condensation occurs when humid air makes contact with a colder surface. If the surface is cold enough, the air cools to the point where it can no longer hold its water vapor. This causes liquid water to form on the surface.

The temperature at which condensation occurs is known as the dew point. For any combination of ambient air temperature and relative humidity the dew point is predictable. Therefore the conditions under which condensation occurs can be avoided.



Note: Output irradiance will decrease <2% for every 10°C rise in water temperature. All Phoseon light sources are set at the factory using 30°C cooling water.

Risk conditions

Phoseon water cooled products are specified for operation with a water temperature of 20 - 35°C. Refer to the Safe Operating Chart at right. On this chart the water temperature lines indicate where the dew point matches the water temperature. Any combination of relative humidity and ambient temperature that is above a given water temperature line represents a condition where condensation can occur.

Phoseon recommends using a higher water temperature of 30 to 35°C to reduce the risk of condensation. As an example suppose the ambient conditions are 35°C and 50% RH, shown as a black dot on the chart. If the cooling water temperature is 20°C there is a risk of condensation. In this case increasing the water temperature to 25°C or higher will avoid condensation.

Look at your water lines for a quick way to determine if your current conditions are causing condensation. If the water lines coming from the chiller are forming condensation, increase the water temperature to eliminate condensation. Note that in extreme conditions, it may be necessary to reduce the ambient temperature and/or reduce the relative humidity to eliminate condensation.

Operating Requirements

Avoid conditions that cause condensation

The chart at right lists the operating environment specifications for Phoseon water-cooled light sources. Select a water temperature based on your maximum ambient air temperature and relative humidity. In addition, it is good practice to turn off the cooling water whenever the UV output is turned off for more than a few minutes. This allows the water channels to adjust to the ambient air temperature, reducing the chances of condensation.

Operating Environment	
Ambient Temp	10 to 40°C
Water Temp	20 to 35°C
Max Relative Humidity	Varies (See below)
w/ 35°C Water	<80% RH up to 37°C ambient <70% RH up to 40°C ambient
w/ 30°C Water	<80% RH up to 32°C ambient <55% RH up to 40°C ambient
w/ 25°C Water	<80% RH up to 27°C ambient <40% RH up to 40°C ambient
w/ 20°C Water	<80% RH up to 22°C ambient <25% RH up to 40°C ambient

Use a flow switch

As an added safety measure, the use of a water flow switch is required. A flow switch inserted at chiller's water path output will guard against enabling the UV output when the water flow is off. The output of a flow switch is a simple contact closure. By choosing a switch that matches the light source's Interlock or UV Override control pin function, the UV output is disabled when no water is flowing. The flow switch may be replaced by an equivalent function in an integrated control system.

Phoseon has tested:

Gems Sensors
Flow Switch part number:
129661 Normally open with no flow (3.7LPM)
129667 Normally closed with no flow (3.7LPM)
129666 Normally closed with no flow (1.9LPM)

Operation

On/Off Control

The UV output of the light source is enabled and disabled through the NX Tower Controls 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 Modbus TCP/IP. The output of the Nexus ONE varies linearly from 1% to 100% for intensity control.

Irradiance as a Function of Distance

The UV emission from the Nexus ONE 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.

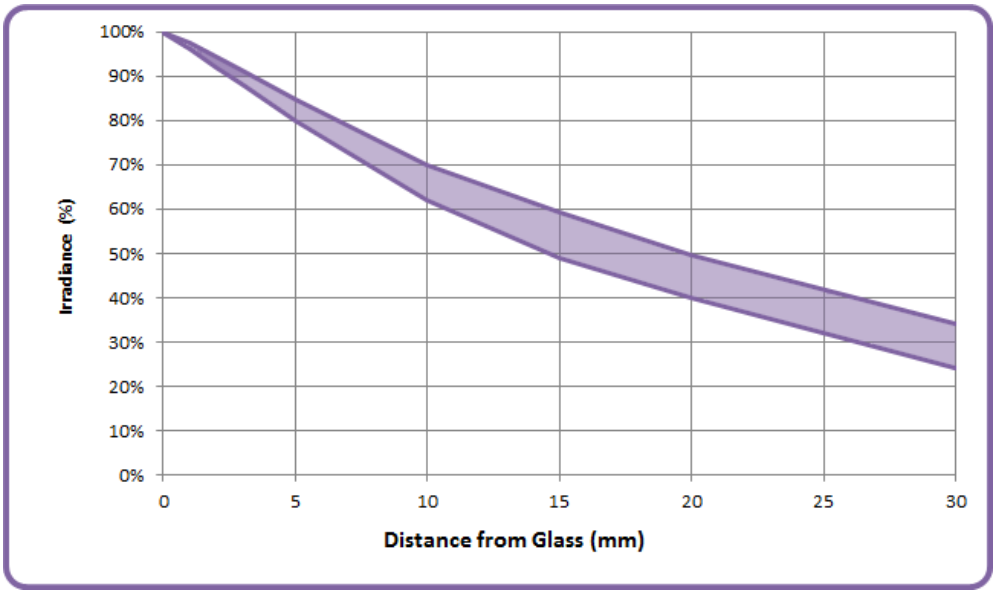


Figure 1.4: Irradiance as a Function of Distance

Service

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

Air Filter Replacement (Air-cooled Lamps)

Replace or clean the air 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. Using the handle on the Air Filter Assembly, pull assembly straight out.
3. Separate the Cover from the Base, remove the old air filter and replace with a new filter.
4. Reassemble the Air Filter Assembly.

   Note: There is a slot at the back end of the Base, where a protrusion on the Cover is inserted.

5. Slide the Air Filter Assembly back into place.

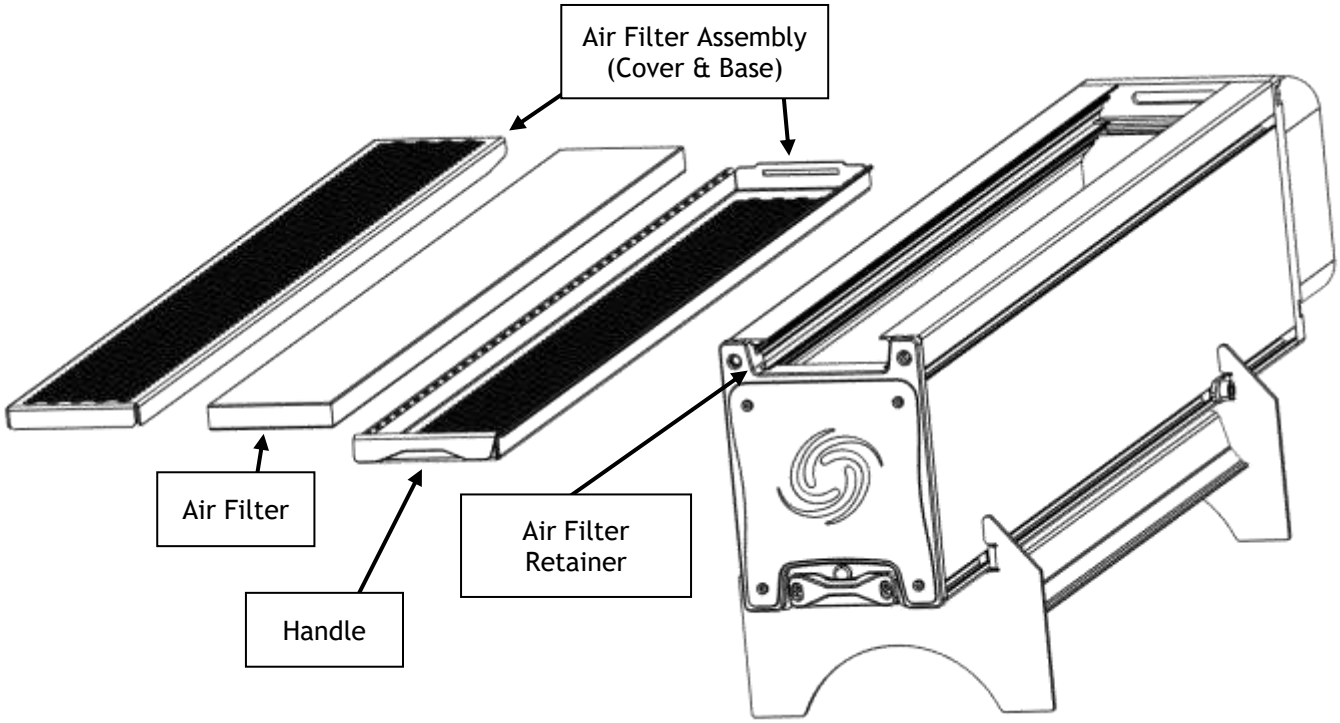


Figure 1.5: Nexus ONE Air Filter Assembly

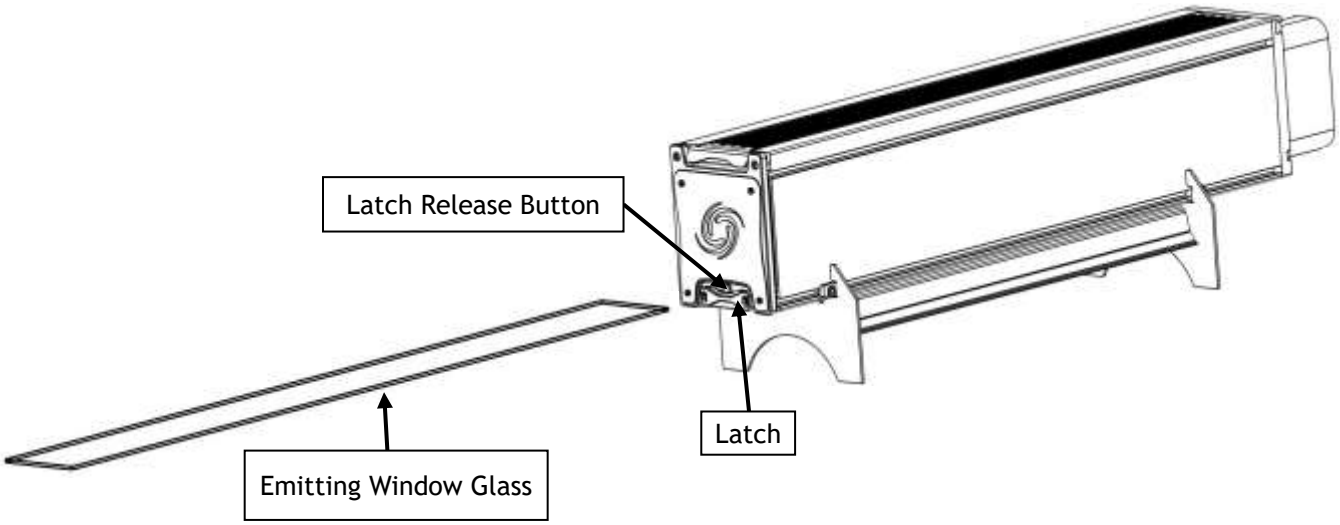
Emitting Window Glass Cleaning/Replacement

Clean Emitting Window Glass on an as-needed basis.

1. Turn off the power to the light source and disconnect the power cord.
2. Press and hold the Latch Release button and push the Latch towards the Release Button to open the Latch.
3. Carefully slide the glass out.
4. Clean or replace, as needed.

   Note: See *27182 Window Cleaning Instructions*, below, for appropriate glass cleaning materials.

5. Carefully slide the glass back into place.
6. Close Latch.



7. Figure 1.6: Nexus ONE Glass Assembly

Lamp Head Cassette Removal from Lamp Shell Housing

The Lamp Head Cassette may need to be removed from the Lamp Shell Housing for relocation or replacement.

1. Remove Air Filter Assembly, for air-cooled lamps (see Figure 4.1).
2. Disengage the Lamp Head Cassette from the Lamp Shell Housing by removing the retention Allen screws.
3. Carefully pull the Lamp Head Cassette out of the Lamp Shell Housing.
4. Relocate the Lamp Shell Housing if needed and carefully push the Lamp Head Cassette into the Housing.
5. Tighten the retention screws.

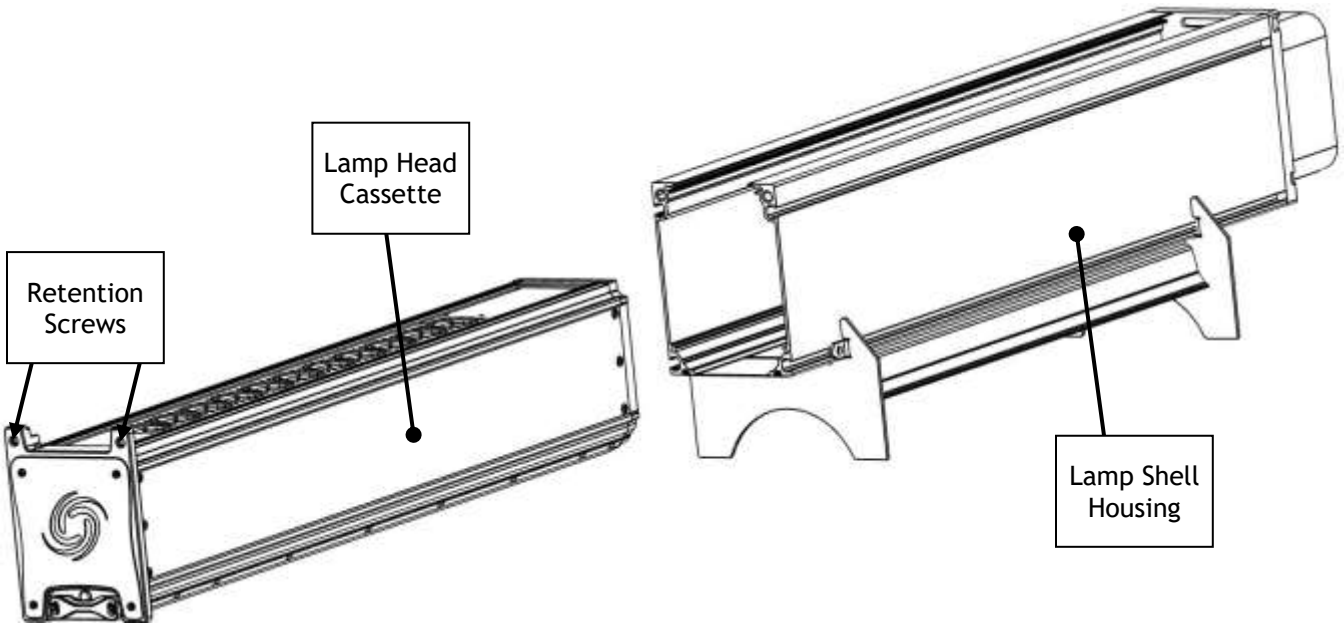


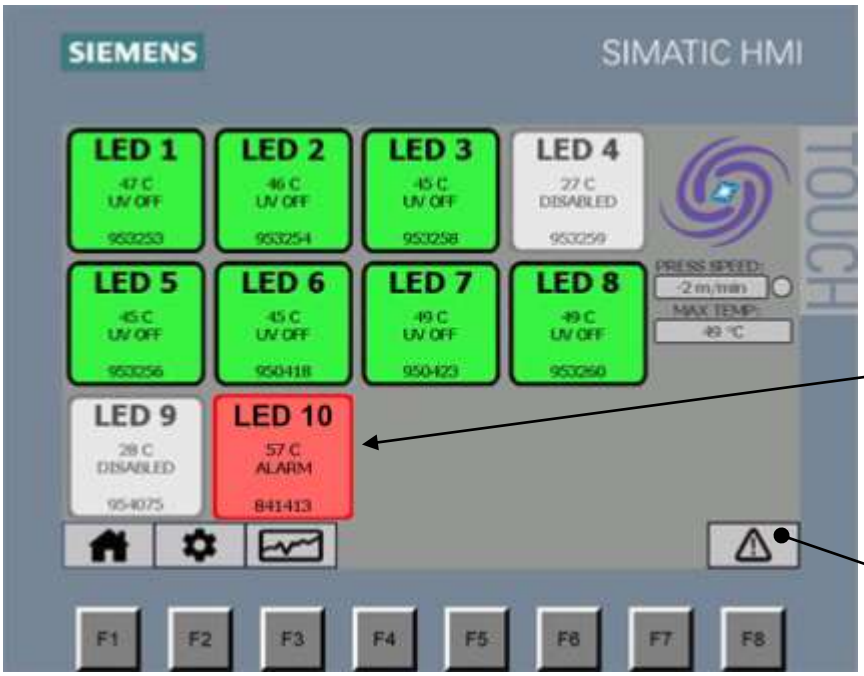
Figure 1.7: Nexus ONE Assembly

Troubleshooting Guide

The Phoseon swirl on the front of the lamp indicates Operating, Warning or Fault status as shown below. System HMI screen will display any fault.

UV OFF, Station Disabled | **UV OFF, Station Enabled** | **UV ON** | **Warning** | **Fault**

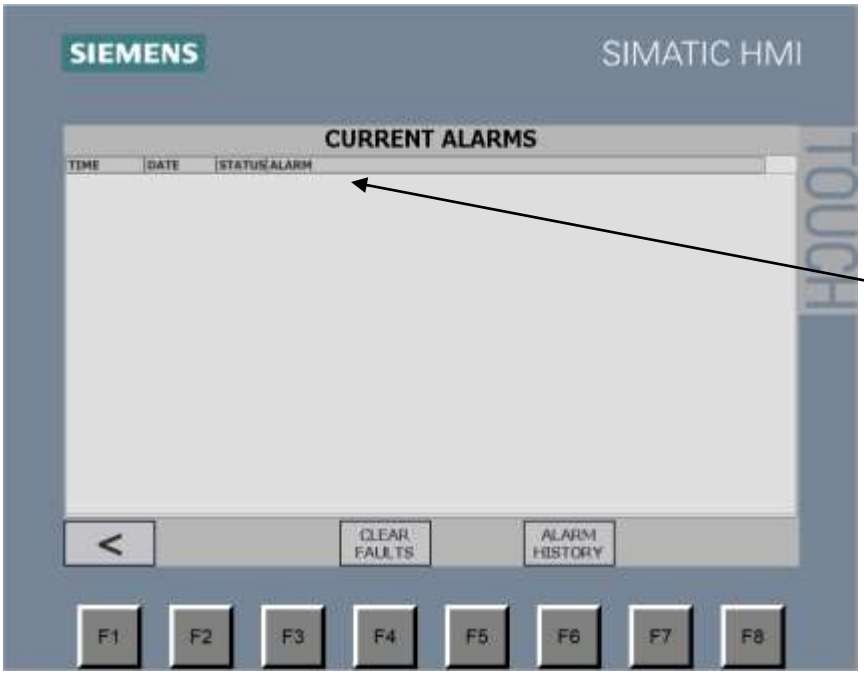
Home Screen



Swirl Color on the lamp matches the color indicated on the home screen. When RED or Orange alarms are present.

Caution Indicator is the button to display the current alarms.

Alarm Screen



Current listed alarms. See Table 1.2 for solutions.

Table 1.2: Troubleshooting Guide

Fault	Trigger	Disables UV? (Hard Fault)	Automatically Clears?	UV Re-Enables?	RGB LED Color	Notes
Over Voltage	Average Input Voltage >= 120Vdc +10% (132Vdc)	No (Soft Fault)	Yes	N/A	Orange	Threshold value can be modified in factory mode Fault clears when average input voltage falls below max threshold value
Under Voltage	Average Input Voltage <= 120Vdc – 10% (108Vdc)	Yes (Hard Fault)	Yes	No	Red	Threshold value can be modified in factory mode Fault clears when average input voltage rises above min threshold value
Lamp Over Temperature	Max heatsink temperature >= Max Temp Threshold	Yes (Hard Fault)	Yes	No	Red	Threshold values can be modified in factory mode Fault clears (UV re-enables) when max heatsink temperature drops below recovery temp threshold
Thermal Cycle Limit	Five consecutive thermal trips between power cycles	Yes (Hard Fault)	No	No	Red	Threshold value can be modified in factory mode Fault can be cleared by power cycle lamp or resetting thermal cycle limit count value to zero
No Water Flow	Water flow drops to point of sensor activating	Yes (Hard Fault)	Yes	No	Red	The existing flow sensor only indicates flow or no-flow (i.e., no flow rate values are reported) Fault clears when flow rate goes above threshold value dictated by sensor
LED WDT	LED watchdog timer feature enabled and timer value reaches 0	Yes (Hard Fault)	No	No	Red	This fault is enabled by default but can be disabled Fault can be cleared by setting LED WDT timer to a non-zero value, or disabling the feature
DB Comms	**Unable to reliably communicate with driver boards**	Yes (Hard Fault)	No	No	Red	Checks for status response timeouts and invalid (failed checksum) responses Fault can be cleared by issuing a 'clear faults' operation

Fault	Trigger	Disables UV? (Hard Fault)	Automatically Clears?	UV Re-Enables?	RGB LED Color	Notes
Blown Fuse	SLM Voltage <= 15V 2 seconds after enabling UV	Yes (Hard Fault)	No	No	Red	Only detected when UV is enabled Fault can be cleared by issuing a 'clear faults' operation
No Current	SLM current < 0.5A and SLM voltage > 103V 2 seconds after enabling UV	Yes (Hard Fault)	No	No	Red	Only detected when UV is enabled Fault can be cleared by issuing a 'clear faults' operation
Test Fault	Asserted by production operator	No (Soft Fault)	No	N/A	Orange	Only used in production Fault can be cleared by issuing a 'clear faults' operation

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.

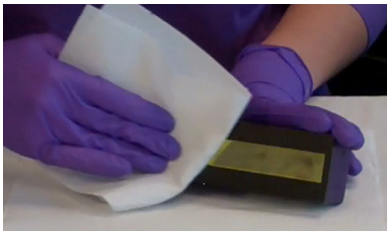
   CAUTION: Wearing vinyl gloves is recommended to avoid getting any uncured UV material on the skin.

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.

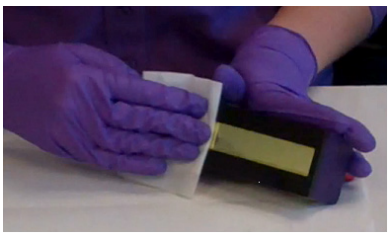
   Note: If the razor needs to be replaced, dispose of the razor blade in a properly marked sharps container.

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

Nexus™ Tower

Setup & Installation

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

Table 2.1: Nexus™ Tower Documentation

Nexus Tower	CABDWG-A	CABDWG-B	CABDWG-C
Nexus Tower Product Specifications	52112		
Nexus Tower Control Drawings	CABDWG-A	CABDWG-B	CABDWG-C
Declaration of Conformity	53696		

Nexus Tower

Product Specifications

Power & Control in a Flexible System

The Nexus Tower provides a configurable power and control system for Phoseon UV LED light sources, providing a complete solution for new installations and retrofit upgrades.

Nexus Tower Overview

Nexus Tower	
AC Input	400VAC 3ph + N + PE 50/60htz 184-264VAC 1PH + PE 50/60htz 184-264VAC 3PH + PE 50/60htz
External Features	Human Machine Interface (HMI) Main power On/Off Emergency-Stop button
Cables	12x Light Source DC and data cables 1x Press 1x Interface cable 1x Emergency-Stop input cable 1x Encoder input cable 1 x Remote User Interface power/control cables
DC Power Capacity	Up to 84kW, 120VDC For up to 12 Light Sources
Operating Environment	10 to 40˚C Operating Ambient Temperature <80% Relative Humidity, non-condensing Indoor Use Only
Storage Temperature	-20 to 85˚C
Remote Access	Remote monitoring and control from anywhere
Human Machine Interface (HMI)	7-inch or 4-inch remote touch screen display Single screen displays color coded status of all lamp stations Lamp station setup and configuration Press speed control Displays status of each lamp stations including: • Serial number • On/Off status • Temperature • UV on time • Power • Fault status

Tower Lamp Configurations

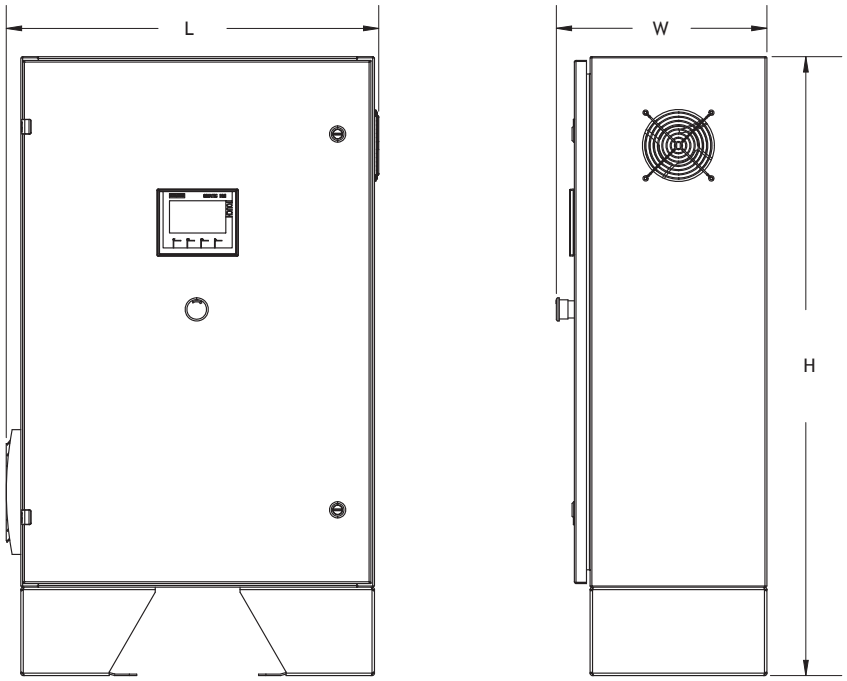
Number of Lamps	Tower Type A						Tower Type B						Tower Type C					
	Lamp Size (mm)						Lamp Size (mm)						Lamp Size (mm)					
	300	375	450	525	600	675	300	375	450	525	600	675	300	375	450	525	600	675
1	X	X	X	X	X	X												
2	X	X	X	X							X	X						
3	X	X							X	X	X	X						
4							X	X	X	X	X	X						
5							X	X	X	X	X	X						
6							X	X	X	X							X	X
7							X	X							X	X	X	X
8							X	X							X	X	X	X
9													X	X	X	X	X	X
10													X	X	X	X	X	X
11													X	X	X	X	X*	X*
12													X	X	X	X	X*	X*

*See Phoseon Sales Representative for Tower configuration

Dimensions

Units of measurement (rounded): mm

Nexus Tower				
	Tower Type A (Floor Mount)	Tower Type A (Wall Mount)	Tower Type B	Tower Type C
Length (L)	363	363	686	686
Width (W)	642	642	946	1556
Height (H)	1066	914	1585	1889
Weight (kg)	148	148	262	352



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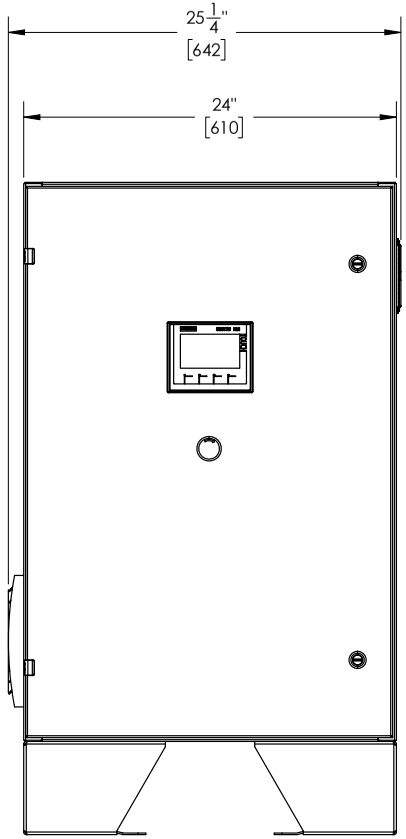
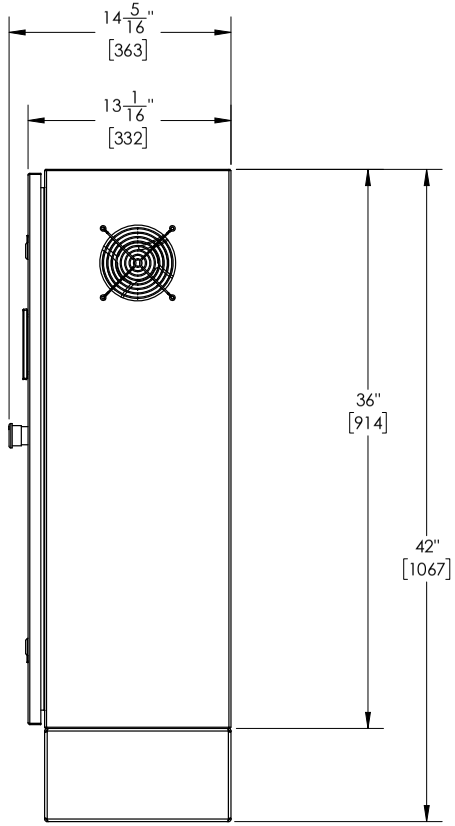
52112 Rev 4
August 2024

REVISIONS						
REV	DESCRIPTION	ENGR	DATE	ECN	APVD	APVD DATE
A	ENGINEERING RELEASE	AEH	04/21/2022	-		





NOTES:

1. CAD GEOMETRY IS BASIC, UNLESS OTHERWISE SPECIFIED. SEE CAD FILE INDICATED IN TITLE BLOCK. NOTIFY PHOSEON IF CAD FILE DOES NOT MATCH DRAWING.
2. MATERIAL: N/A
3. FINISH: N/A
4. MARK WITH PHOSEON PN, REV AND VENDOR NUMBER APPROX WHERE SHOWN
5. CLEAN AND REMOVE ALL OIL AND DEBRIS

DIM UNITS: IN [mm]
TOLERANCES UNLESS OTHERWISE SPECIFIED
X.X: ±.020 [0.50]
X.XX: ±.010 [0.25]
X.XXX: ±.005 [0.13]
ANGLE: ±1°

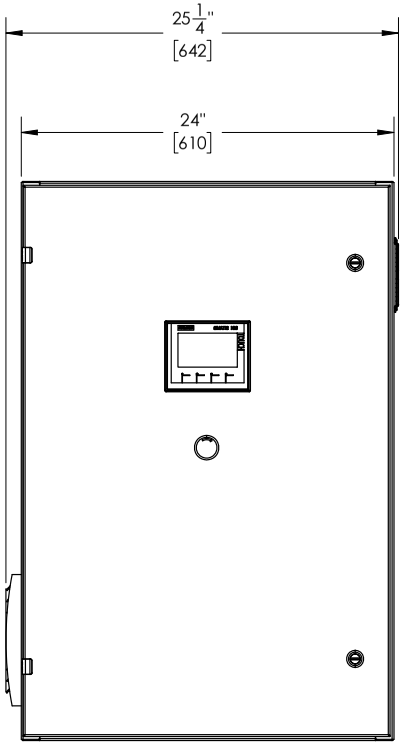
THIRD ANGLE PROJECTION:

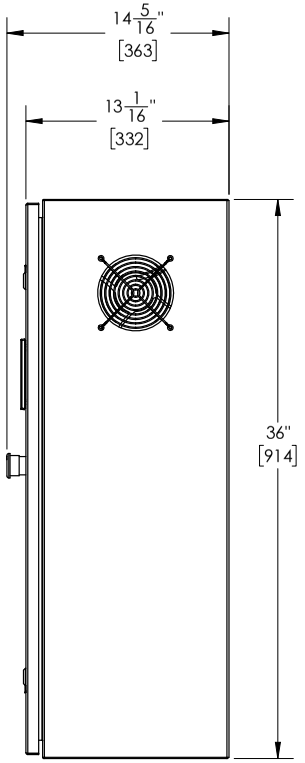
MATERIAL: SEE NOTES
FINISH: SEE NOTES

TITLE: CONTROL DWG - CABINET A-A

Phoseon TECHNOLOGY

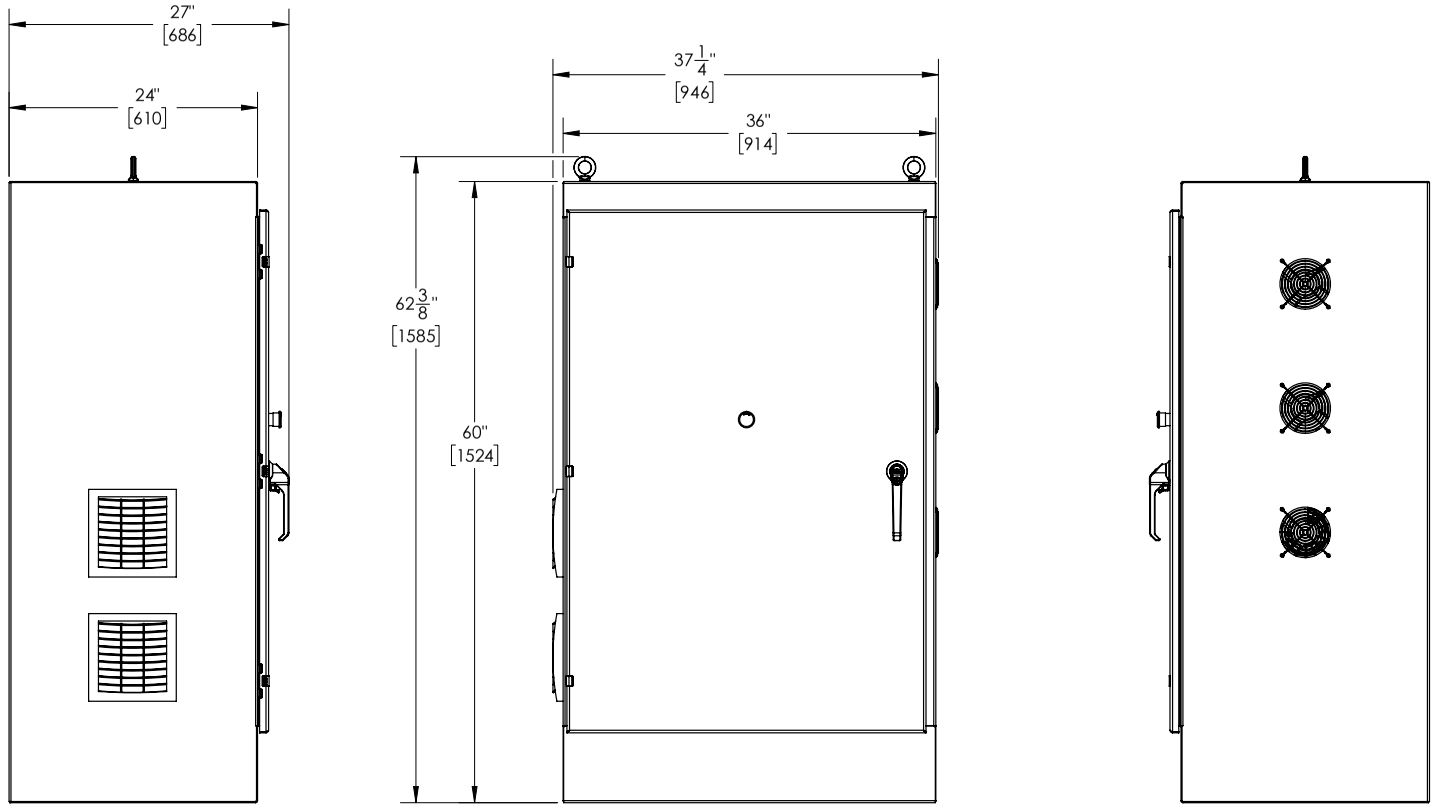
PART NUMBER: CABDWG-A-A REV. A
ISSUED BY: A HAYES ISSUE DATE: 04/21/2022
CAD FILE: CAB AA.STEP
ASME/ANSI Y14.X | EGF-44274-01 | SCALE: 1:8 | SIZE B | SHEET 1 OF 2





DIM UNITS: IN [mm] **TOLERANCES UNLESS OTHERWISE SPECIFIED** X.X: ±.020 [0.50] X.XX: ±.010 [0.25] X.XXX: ±.005 [0.13] ANGLE: ±1°	THIRD ANGLE PROJECTION:	MATERIAL: SEE NOTES	FINISH: SEE NOTES	TITLE: CONTROL DWG - CABINET A-A
	Phoseon TECHNOLOGY	PART NUMBER: CABDWG-A-A	REV. A	
		ISSUED BY: A HAYES	ISSUE DATE: 04/21/2022	
		CAD FILE: CAB AA.STEP		
		ASME/ANSI Y14.X | EGF-44274-01 | SCALE: 1:12 | SIZE: B | SHEET 2 OF 2		

REVISIONS						
REV	DESCRIPTION	ENGR	DATE	ECN	APVD	APVD DATE
A	ENGINEERING RELEASE	AEH	04/22/2022	-		



NOTES:

1. CAD GEOMETRY IS BASIC, UNLESS OTHERWISE SPECIFIED. SEE CAD FILE INDICATED IN TITLE BLOCK. NOTIFY PHOSEON IF CAD FILE DOES NOT MATCH DRAWING.
2. MATERIAL: N/A
3. FINISH: N/A
4. MARK WITH PHOSEON PN, REV AND VENDOR NUMBER APPROX WHERE SHOWN
5. CLEAN AND REMOVE ALL OIL AND DEBRIS

DIM UNITS: IN [mm]
TOLERANCES UNLESS OTHERWISE SPECIFIED
X.X: ±.020 [0.50]
X.XX: ±.010 [0.25]
X.XXX: ±.005 [0.13]
ANGLE: ±1°

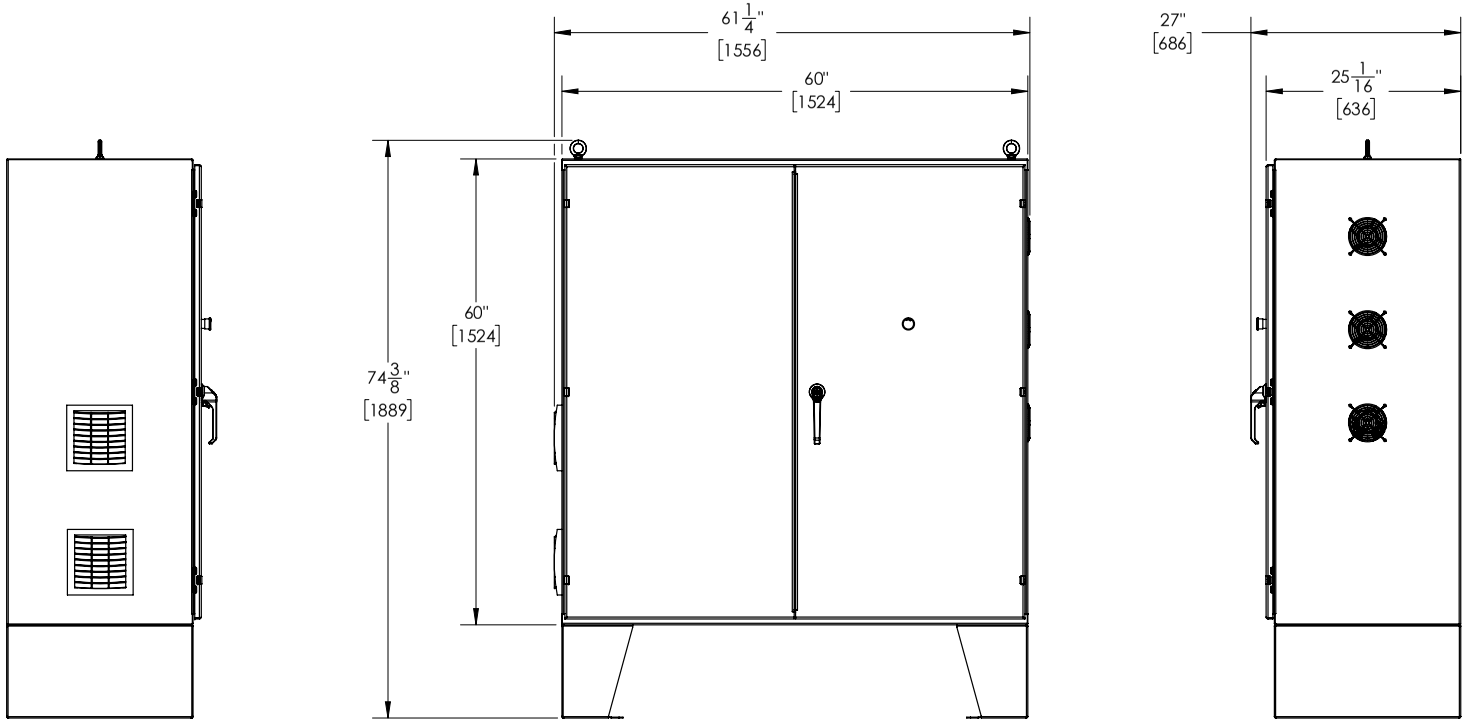
THIRD ANGLE PROJECTION:

MATERIAL: SEE NOTES
FINISH: SEE NOTES
TITLE: CONTROL DRAWING - CABINET B-A

Phoseon TECHNOLOGY

PART NUMBER: CABDWG-B-A REV. A
ISSUED BY: A HAYES ISSUE DATE: 04/22/2022
CAD FILE: CAB BA.STEP
ASME/ANSI Y14.X | EGF-44274-01 | SCALE: 1:12 | SIZE B | SHEET 1 OF 1

REVISIONS						
REV	DESCRIPTION	ENGR	DATE	ECN	APVD	APVD DATE
A	ENGINEERING RELEASE	AEH	04/21/2022	-		



NOTES:

1. CAD GEOMETRY IS BASIC, UNLESS OTHERWISE SPECIFIED. SEE CAD FILE INDICATED IN TITLE BLOCK. NOTIFY PHOSEON IF CAD FILE DOES NOT MATCH DRAWING.
2. MATERIAL: N/A
3. FINISH: N/A
4. MARK WITH PHOSEON PN, REV AND VENDOR NUMBER APPROX WHERE SHOWN
5. CLEAN AND REMOVE ALL OIL AND DEBRIS

DIM UNITS: IN [mm]
TOLERANCES UNLESS OTHERWISE SPECIFIED
X.X: ±.020 [0.50]
X.XX: ±.010 [0.25]
X.XXX: ±.005 [0.13]
ANGLE: ±1°

THIRD ANGLE PROJECTION:

MATERIAL: SEE NOTES
FINISH: SEE NOTES

TITLE: CONTROL DRAWING - CABINET C-A

Phoseon TECHNOLOGY

PART NUMBER: CABDWG-C-A REV. A
ISSUED BY: A HAYES ISSUE DATE: 04/21/2022
CAD FILE: CAB CA.STEP
ASME/ANSI Y14.X | EGF-44274-01 | SCALE: 1:16 | SIZE B | SHEET 1 OF 1

Installation/Mounting Instructions

Electrical enclosures larger than 24x36x12 inches are free standing floor mounted type enclosures. Enclosures with dimensions smaller than or equal to 24x36x12 are classified as wall mount type enclosures. Available mounting feet can be provided with wall mount type enclosures when required for floor mounting applications. Floor mounting a 24x36x12 enclosure do require bolted connection to a fixed resting location.

Note: Saginaw recommends using Mounting Feet SCE-ELMFK4 to wall mount their cabinet. For floor mounting, it is recommended using 1/4" (M6) or larger hardware to mount the stands to the floor.

Nexus Tower Product Label

Identifies the Serial No, Job/Drawing No, Manufacturing Location, Short Circuit Current, Total FLA, Voltage, Manufacturing Date, Phase, Environmental Type.

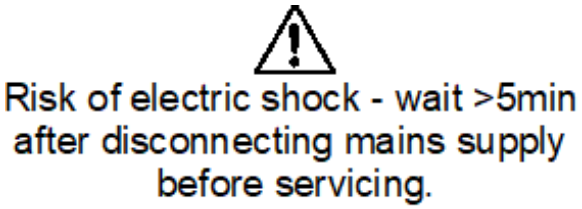
Electric Shock Hazard

Will cause severe injury or death. Disconnect, lock and tag out all power sources before opening unit. Check for multiple and remote disconnects.

CAUTION: To minimize potential electromagnetic interference, the Nexus Tower should be installed at least 30 m from third-party sensitive radio services (tower meets FCC Class A standard).

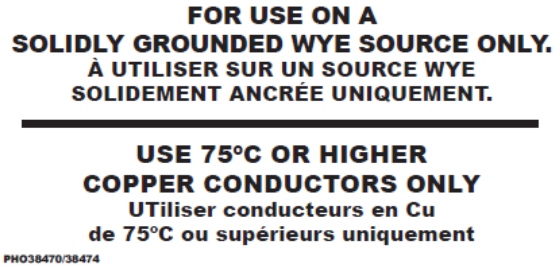
Residual Voltage Warning

Electrical enclosures displaying this warning contain AC capacitive line filters that require a safety voltage dissipation period.



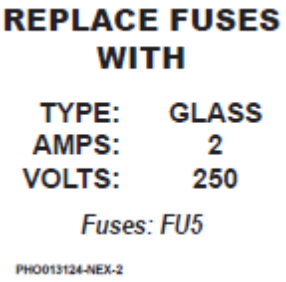
Grounding

Electrical enclosures displaying this label shall supply voltage source that is solid grounded using conductors with appropriate temperature rating.



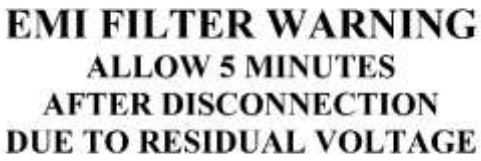
Fuse Labels

Fuse labels indicating Type, Amps and Volts will be placed on the inside of enclosure door. For label placement, refer to the panel's layout and schematics.



EMI Filter Warning

Enclosures with this warning label include Line Filters with capacitive loads. Capacitive loads shall be allowed at minimum five minutes after supply voltage is disconnected to drain stored electrical energy.



Torque Tightening Requirements

Torque label indicates the torque value for all fasteners in the control enclosure.

TORQUE TIGHTENING REQUIREMENTS				
BOLTED BUS JOINTS				
BOLT SIZE		LB*FT	BELLVILLE WASHER LB*FT	
1/4"		4	-	
5/16"		9	-	
3/8"		14	14	
1/2"		39	35	
5/8"		80	45	
SLOTTED HEAD SCREWS				
SCREW SIZE	AWG/ MCM	SLOT LENGTH	SLOT WIDTH	LB*IN
#4-#8	22-8	<1/4"	<.047	7
		1/4"		9
		<5/32"	>.047	9
		5/32-1/4"		12
		9/32		15
		>9/32		20
#10 AND LARGER	18-10	<1/4"	<.047"	20
	8			25
	6-3			35
	2			40
	18-10	>1/4"	>.047	35
	6-4			45
	3-1000			50
HEX HEAD SCREW				
EXTERNAL			INTERNAL (SOCKET)	
AWG/MCM	LB*IN		HEX SIZE	LB*IN
18-8	75		1/8"	45
6-4	110		5/32"	100
3-1	150		3/16"	120
1/0-2/0	180		7/32"	150
3/0-4/0	250		1/4"	200
250-350	325		5/16"	275
400-750	375		3/8"	375
800-1000	500		1/2"	500
>1000	600		9/16"	600
USE THE ABOVE TORQUE VALUES WHEN NOT PROVIDED ON DEVICES				

Mechanical Installation

An enclosure, regardless of its environmental rating, depends on four simple features that maintain the seal of the enclosure: gasket contact, location, compression, and fastener torque. Leakage may happen if any one of these features have been compromised, which may occur when components are added, altered, removed, or replaced.

An enclosure installed to equipment, wall, or concrete slab must be properly installed to have proper door alignment to maintain the seal to the enclosure body due to body twist. Securing to an uneven surface, wall, floor, or frame, will cause the body to twist and misalign doors; or on an unsupported enclosure, the weight of the door may cause body twist, as the entire load is carried by the hinge side while the latch side is entirely unsupported and visible in every enclosure, increasingly so on large wall mount and floor mount models with small flange construction prior to proper installation.

A properly installed enclosure will have an equal dimension on the left and right side when measured from the top of the door to the top of the enclosure. Any enclosure installed in a manner other than its intended purpose must be carefully evaluated and may need additional reinforcement or additional support to maintain its integrity.

Use proper rigging and lifting techniques with appropriate lifting and safety equipment. Maximum tower weight is 400 lb. Any eyebolt lifts need to be performed vertically from

each eye bolt. If you are unsure about proper rigging and lifting, please consult a certified rigging professional.

Note: Customer is responsible for mounting equipment. In general, mounting hardware needs to withstand a force of four times the weight of the equipment.

Electrical Installation

AC Input Wiring:

*Supplied by customer facility

Electrical enclosures supplied in the following voltages:

- 400VAC 3ph + N + PE 50/60htz
- 184-264VAC 1PH + PE 50/60htz
- 184-264VAC 3PH + PE 50/60htz

Enclosure:

- NEMA Type 3R, 12 and Type 13
- UL Listed Type 3R and 12
- CSA Type 3R and 12
- IEC 60529
- IP 55
- 24Vdc Control System
- CE compliance

DC Output Wiring:

- 120Vdc
- Up to 72Kw

Other:

- PLC controlled
- Ethernet Remote Access
- Dual Channel E-stop

Note: Electrical Panel Voltage Category: Category 2

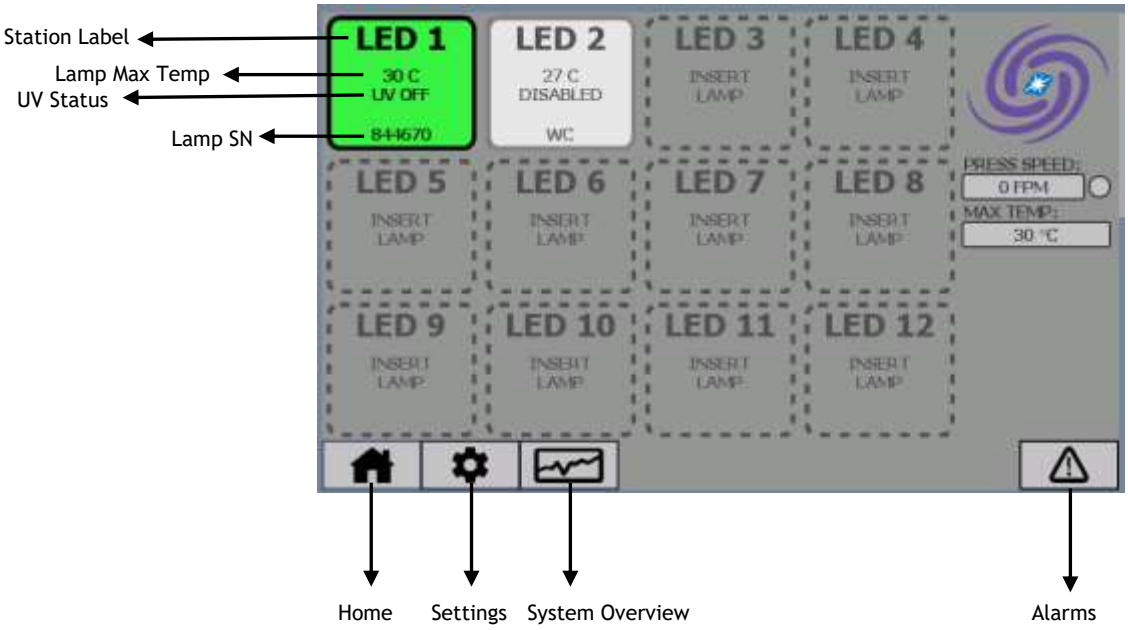
Ensure DC Cable terminals are connected properly. Lamp connector on the DC Cable should be connected to the connector on the lamp shell. Tighten connector screws after ensuring lamp and cable connectors are seated properly.

*****Breakers in the power supply/control panel should all be ON before any AC power is applied*****

Nexus Tower Operation

Human Machine Interface

Home Screen



This is the main Human Machine Interface (HMI) screen which shows an overview of all Nexus ONE™ lamps in the press. Each Nexus ONE station is represented by an individual graphic block. The behavior of the graphic represents the status of the lamp currently installed in that station. Station label, lamp maximum detected temperature, UV Status, and lamp serial number are displayed within the graphic. On the home screen, Press Speed and Maximum Detected Temperature are also shown.

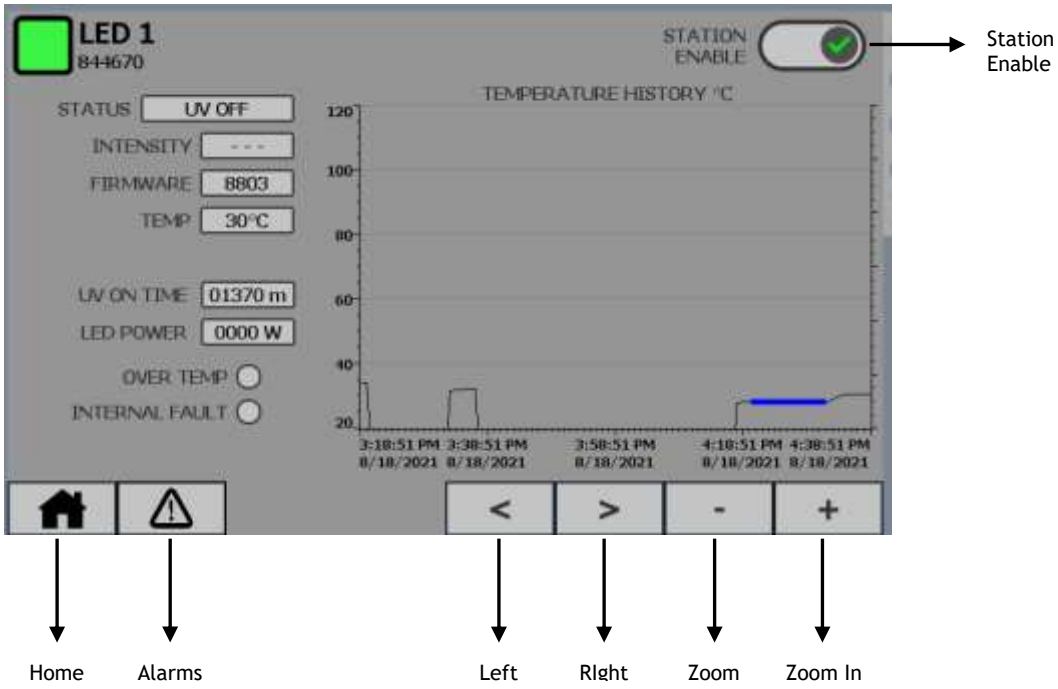
Note: The Nexus Tower supports up to 12 stations. If less than 12 stations are used, leave the unused stations as Disabled.

LED Detail

"LED" refers to each print station that has a Phoseon UV LED lamp, with each number representing the position of the Phoseon UV LED lamp on the press. This signal can be tied to a single lamp, corresponding to a print station, via the Press Enable signal.

Select 

to view detailed information for each Phoseon UV LED lamp installed on each print station.



This screen displays:

Station Label - Position of Phoseon UV LED on the press
Lamp Serial Number - Phoseon UV LED Lamp Serial Number
Status - Current lamp status
Intensity - Current lamp intensity
Firmware - Current Lamp Firmware Version
Temp – Current operating lamp temperature
UV ON Time - Total UV On Time of the installed lamp
LED Power - Current LED Power Use
Over Temperature Fault Present
Lamp Fault Present

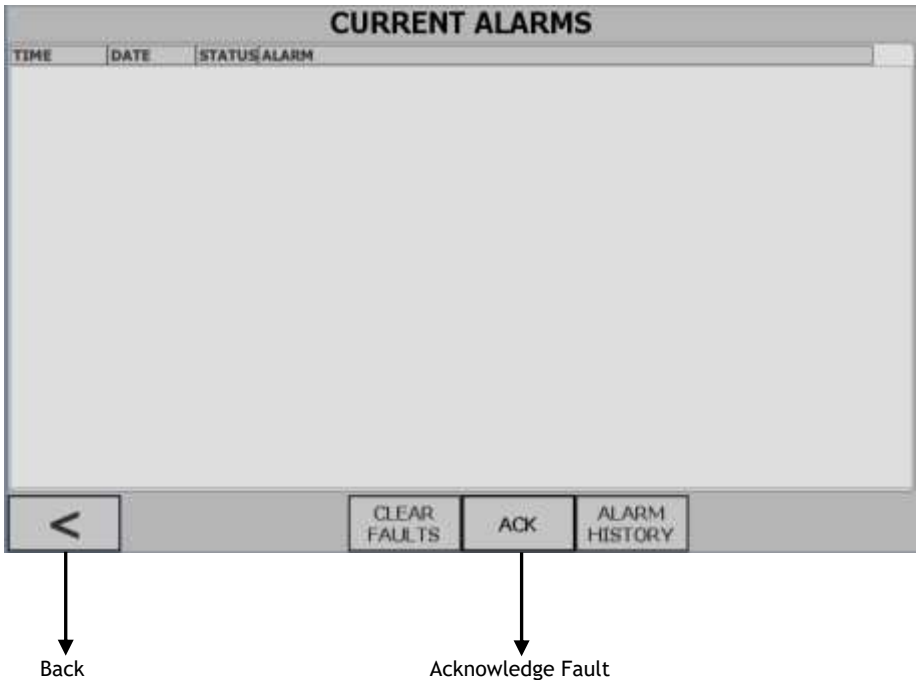
Screen also displays a temperature trend chart that stores the recent history of temperature. There are controls under the plot for navigation.

Select  to return to Main screen.

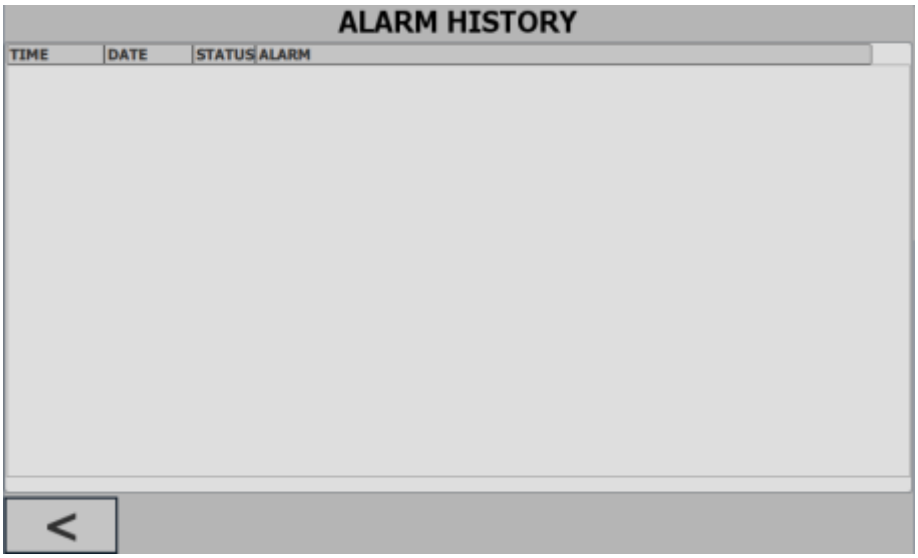
Alarms

Select  to view current alarms

The **Current Alarms** screen shows any system alarms or lamp faults that are current in an ALARM state.



Press on **Alarm History** to view a history of all alarms received in the system.

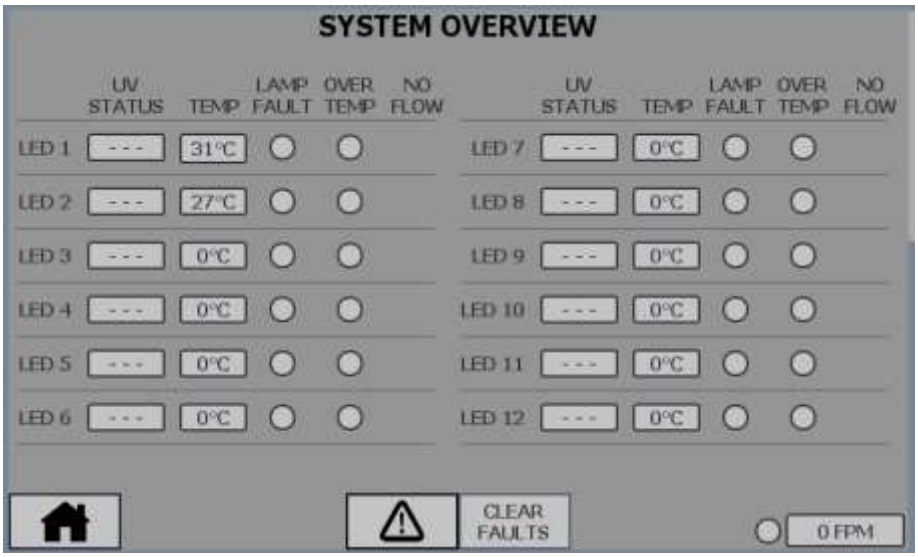


The Alarm History will also include entries when the alarm condition clears and when the alarm is acknowledged.

Select Back to go to the previous screen.

System Overview

Select  to view System Overview.

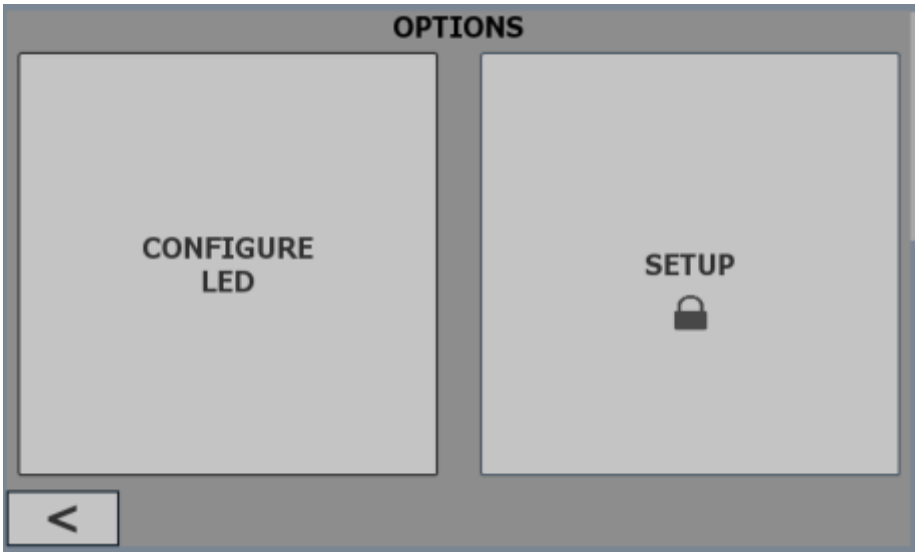


This screen provides an overview of all UV LED Light sources installed on the press and can be used to verify and test the input and output signals from the press and the light sources. Any outputs set while using this screen will reset once the user backs out of this screen. For each print station, it displays UV status, UV LED Lamp temperature and corresponding faults, if any.

Select Home to return to the Home screen.

Settings

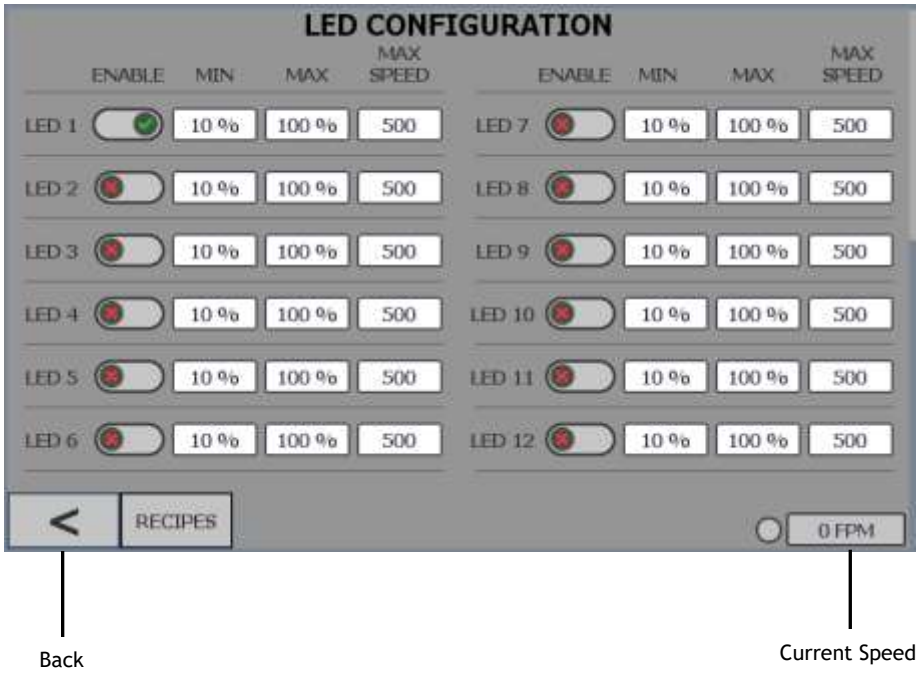
Select  to access the **Settings** screen.



Configure LED

Select CONFIGURE LED to reach the LED Configuration screen.

The **LED Configuration** screen allows the operator to Enable/Disable the station as well as adjust the Nexus ONE lamp intensity settings.

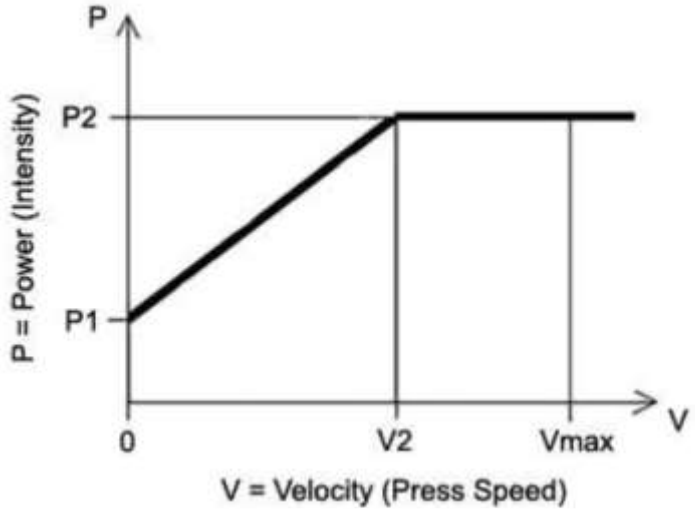


On this screen, you can adjust the Nexus ONE system performance to match the needs of an individual job. Toggle the button at each LED # to enable or disable that station.

Input Min and Max intensity values in terms of %. Configure Max speed for Maximum intensity setpoint.

The value displayed for “Current Speed” is the value from the machine control correlating to the current speed of the press. This value is scaled based on inputs from the press and the Press Speed as entered in the LED Configuration screen (See LED Configuration section). The units of this value can be set as m/min or ft/min in the System Setup screen.

Intensity Control can be scaled with Press Speed. All the white boxes on this screen can be set by the user. The intensity of the UV LED output scales with the press speed.



Min Intensity

P1 — Start Intensity of UV LED Output

Max Intensity

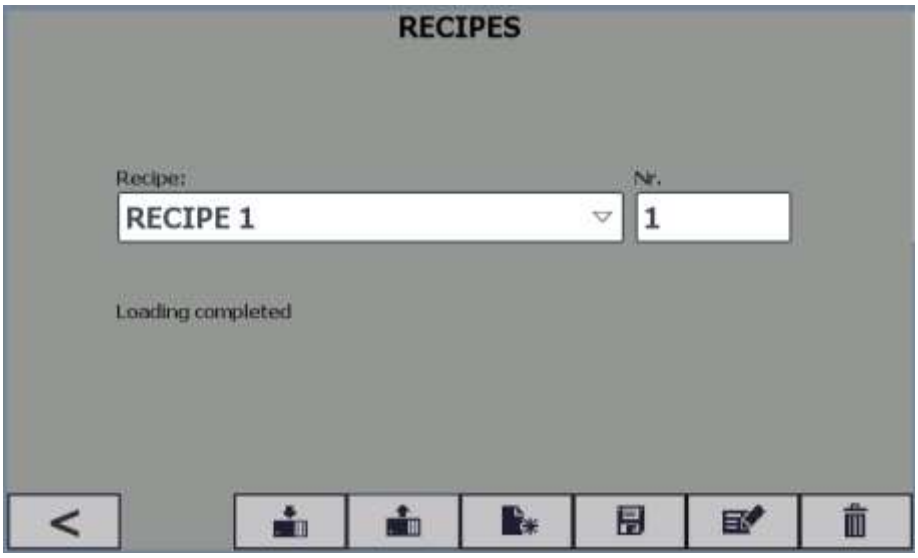
P2 — Maximum Intensity of UV LED Output

Max Intensity Setpoint m/min (or ft/min)

V2 — Speed at which light source reaches maximum intensity

Recipes:

On the Configure LED screen, select Recipes to access the Recipes screen.



Recipes can be used to store various Nexus ONE system configurations to be recalled and used later. The **Recipes** screen gives you the ability to create, save, delete, and rename recipes as well as loading and writing the recipe settings to the controller. For each station, the recipe stores:

Station Enable Status

Minimum Intensity

Maximum Intensity

Press Speed at Max Intensity

The configuration of each station's settings takes place in the LED CONFIGURATION screen - the RECIPE screen is used to save the current configuration or write an existing configuration to the Nexus ONE system controller. All adjustments of recipe settings must be done through the LED CONFIGURATION screen.

Creating a New Recipe:

- Create new Recipe using NEW RECIPE BUTTON
- Name the recipe appropriately (ie. blue labels)
- Save the recipe
- Navigate back to the LED CONFIGURATION screen and adjust all the LED configuration settings as desired
- On the recipe screen, use the UPLOAD CURRENT CONFIGURATION BUTTON to transfer the current LED configuration settings into the recipe.
- Save the recipe

Recall an Existing Recipe:

- Select the desired recipe on the RECIPES screen.
    - Use the DOWNLOAD RECIPE TO CONTROLLER button to transfer the configuration in the recipe to the controller.
    - Navigate to the LED CONFIGURATION screen and verify the configuration settings are correct

Editing an Existing Recipe:

- Select an existing recipe on the RECIPES screen.
    - Use the DOWNLOAD RECIPE TO CONTROLLER button to transfer the configuration in the recipe to the controller.
    - Navigate to the LED CONFIGURATION screen and adjust the LED configuration settings as desired.
    - Return to the RECIPES screen and re-load the current configuration into the currently selected recipe using the UPLOAD CURRENT CONFIGURATION BUTTON.
    - Save the recipe using the SAVE RECIPE BUTTON

Buttons:

BACK

DOWNLOAD RECIPE TO CONTROLLER

When an existing recipe is selected, this button is used to write the configuration in the recipe to the PLC. When a recipe is downloaded to the PLC, return to the LED CONFIGURATION screen to verify the configuration is correct.

UPLOAD CURRENT CONFIGURATION

This button takes all of the current settings from the 'LED Configuration Screen' and saves **them to the currently selected recipe.**

NEW RECIPE

SAVE RECIPE

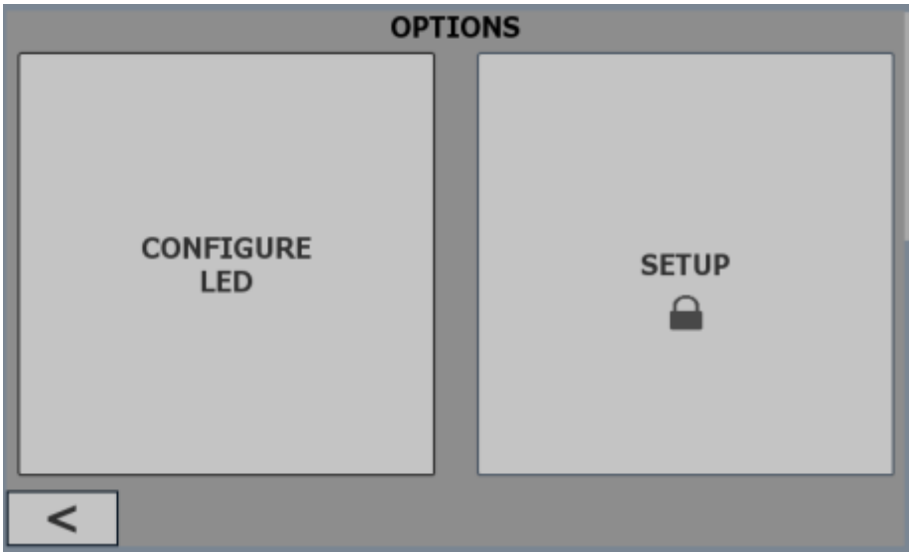
RENAME RECIPE

DELETE RECIPE

Select Back to reach the Options Screen.

System Setup

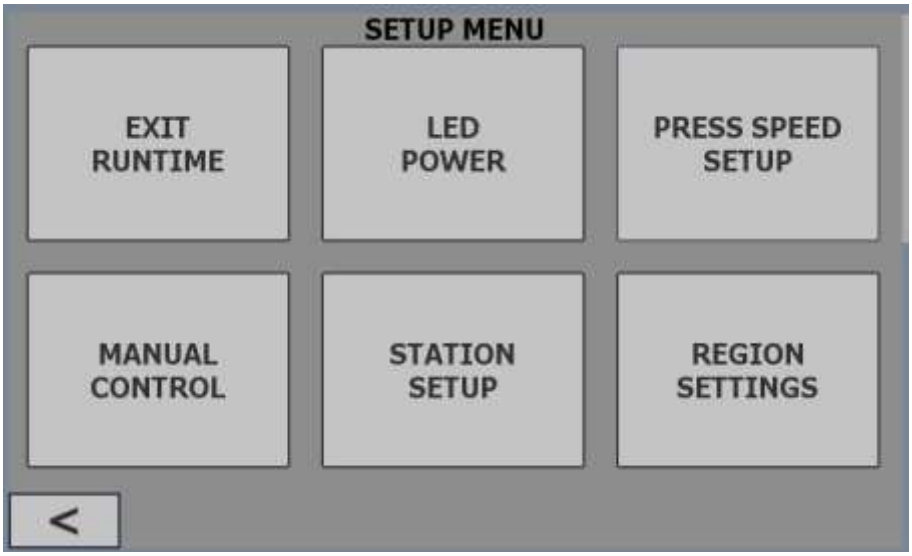
Click on  to access the Options screen.



Select SETUP. User and Password is required to access the SETUP screen.

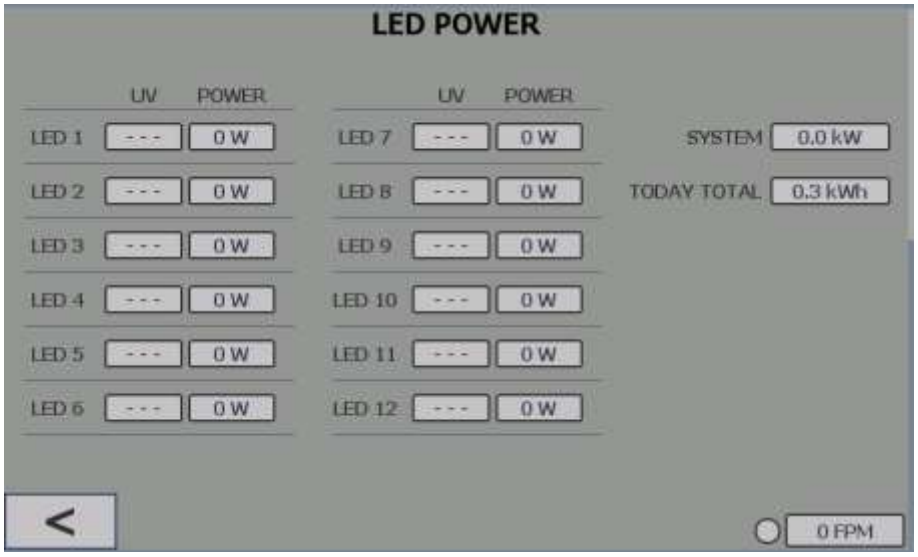
User = admin

password = 6446



LED Power:

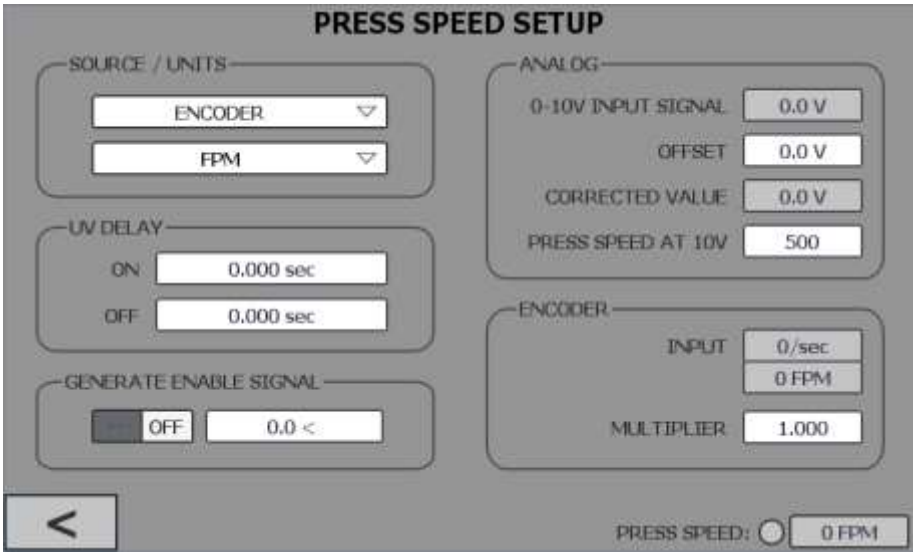
This page shows metrics related to power consumption of the LEDs in the system.



This number is not the lamp power draw - it is the power we are delivering to the UV LED lamp. Select BACK to go to SETUP Menu.

Press Speed Setup:

This screen shows various parameters to setup press speed.



SOURCE / UNITS: Let's you choose the source of the press speed signal. We support Analog (0-10V) as well as an external optical encoder. You can also select the press speed units here in either FPM or MPM

ANALOG: The raw input voltage is shown, and this setting allows the user to provide an offset to mitigate any steady-state error. The 'corrected value' displays the voltage with the offset included. The final setting, 'PRESS SPEED AT 10V' represents the speed of the press when the input voltage is 10V.

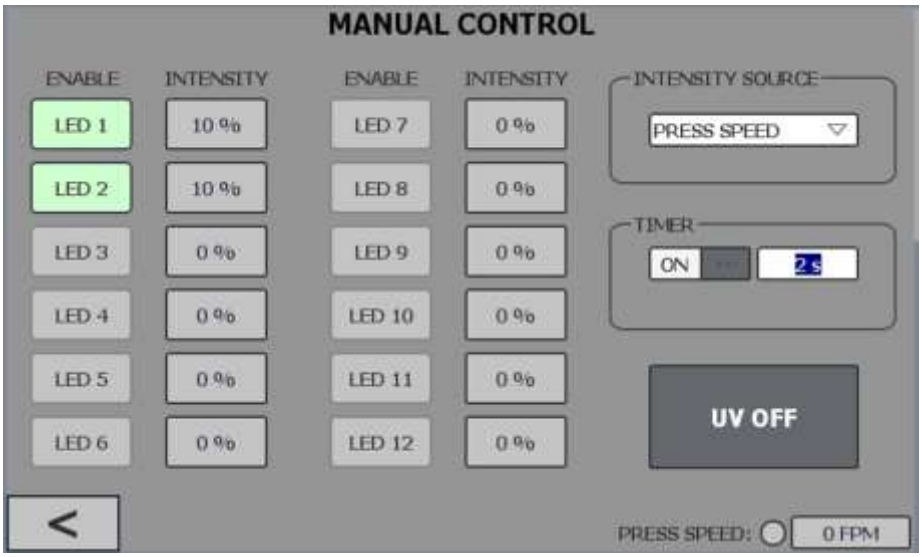
ENCODER: The encoder is intended to be mounted to a moving surface that represents the web speed, typically configured for a chill roller/drum that is carrying the web. If the encoder can't be mounted to a roller that carries the web, it can be mounted to a different rotating member of the press drivetrain. The 'Multiplier' field is used to scale the Encoder's signal to make up for any differences between this different rotating member and the drivetrain. Installing the encoder requires advanced understanding of the press setup as it requires understanding of the relationship between the surface speed at the location the encoder is installed and the web speed. From there, the multiplier can be determined.

UV DELAY: 'UV ON Delay' and 'UV OFF Delay' is specified to determine how long after the UV is enabled/disabled that the UV turns on/off respectively. Typically set to 0.

GENERATE ENABLE SIGNAL: If no digital enable signal is available from the press to trigger the MASTER ENABLE SIGNAL in the Nexus Tower, the press speed source can be used as a trigger. This setting is off by default. The user can also set the press speed threshold at which the enable signal is generated.

Select Back to go to the setup menu.

Manual Control



The Manual Control button takes the user to the Manual Control screen, which allows the operator to manually set the light source intensity and manually turn on the UV LED output without the press running.

Press Speed Source: By default, press speed can be selected as an intensity source. Intensity source can be changed to manual to enter pre-determined values. When "Manual" is selected as the intensity source, the intensity text boxes will allow you to enter a custom intensity for that station.

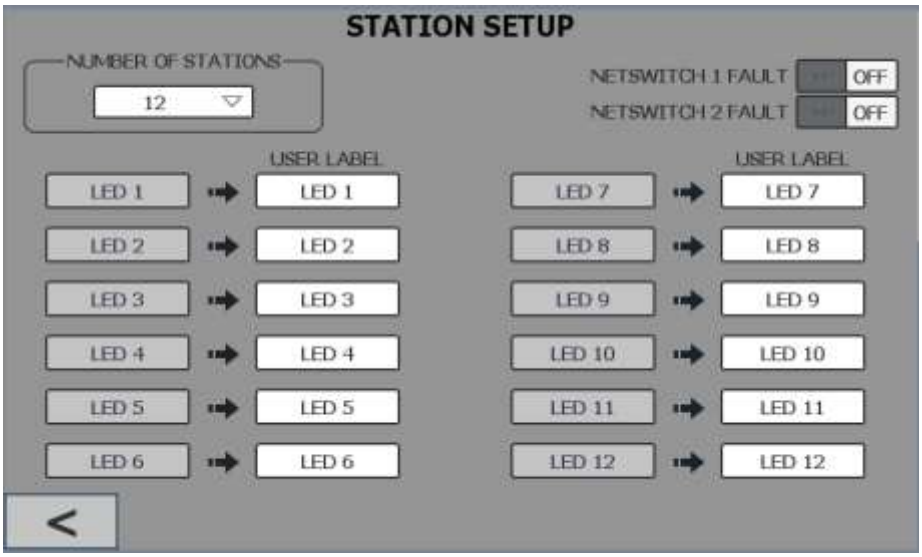
UV ON Timer: The UV ON Timer is on by default. This limits the amount of time that the lamps will be uv-on when they are UV-enabled using the button on this screen. Alternatively, the UV On Timer can be disabled and the lamps will remain UV-on until you turn them off with the button on the screen.

Select UV OFF to turn OFF all UV Light Sources on the press.

Note: When the features used on the Manual Control screen are enabled, they will remain active until the LED# are disabled. Use caution when enabling these features to ensure they are left disabled when not needed.

Select Back to go to the setup menu.

Station Setup



This screen allows you to adjust the total number of stations present in the press. When you select fewer stations, the associated graphics for the unused stations will be hidden.

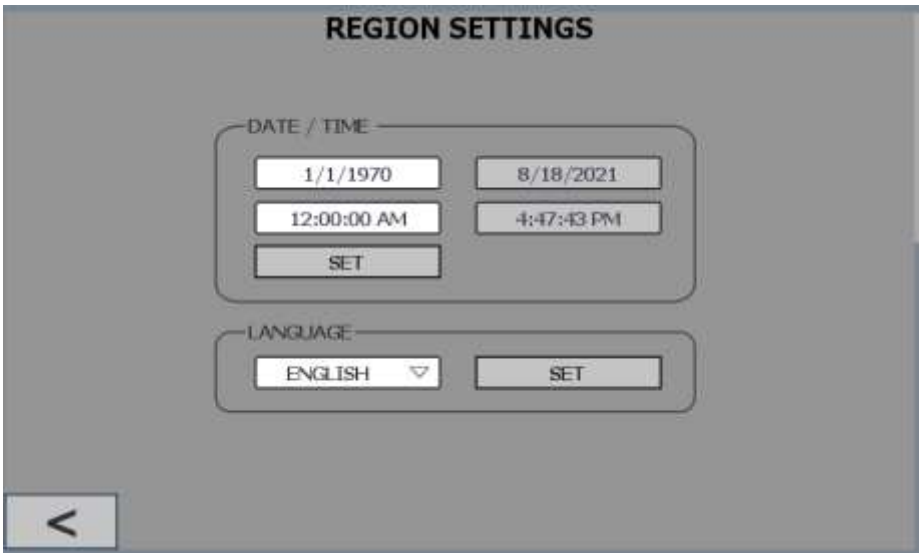
On this screen, 'USER LABEL' can be assigned to replace the labels for specific stations throughout the Nexus One HMI.

For example, if we are installing 5 lamps on a 12-station press and are replacing stations 2,3,7,8, and 12, we can re-name the stations to cater to any given Nexus ONE implementation. So, in this example the User Labels can be changed to:

SYSTEM LABEL	USER LABEL
LED 1	LED 2
LED 2	LED 3
LED 3	LED 7
LED 4	LED 8
LED 5	LED 12

Select BACK to go to SETUP Menu.

Region Settings



This screen is used to setup Date/Time/Language.

Select Back to go to SETUP menu.

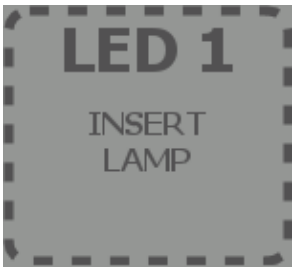
LED Blocks Color Schemes

Color schemes for various lamp states are shown in the LED blocks below.

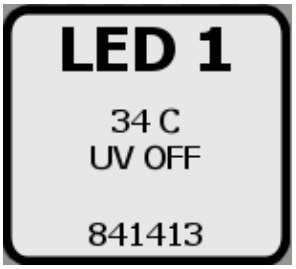
UV selected

UV ON

Disabled



No lamp found



UV OFF

Alarm

Warning

Declaration of Conformity (CE)

Product Identification

Brand	Phoseon	
Product Family	**Product Models**	
Nexus ONE™	FG, NX1 300x20AC395-65W FG, NX1 375x20AC395-65W FG, NX1 375x20AC365-50W FG, NX1 450x20AC395-65W FG, NX1 525x20AC395-65W FG, NX1 600x20AC395-65W FG, NX1 675x20WC395-90W FG, NX1 300x20AC395-65W_NH FG, NX1 375x20AC395-65W_NH FG, NX1 375x20AC365-50W_NH FG, NX1 450x20AC395-65W_NH FG, NX1 525x20AC395-65W_NH FG, NX1 600x20AC395-65W_NH FG, NX1 675x20WC395-90W_NH	
Nexus Tower	FG, NX Tower, 1stn, 300/375, IHMI, MNT, 208V FG, NX Tower, 1stn, 300/375, RHMI, 220VAC FG, NX Tower, 1stn, 300/375, RHMI, 400V FG, NX Tower, 2stn, 300/375, RHMI, 400VAC FG, NX Tower, 3stn, 300/375, RHMI, 400VAC FG, NX Tower, 4stn, 300/375, RHMI, 400VAC FG, NX Tower, 5stn, 300/375, RHMI, 400VAC FG, NX Tower, 6stn, 300/375, RHMI, 400VAC FG, NX Tower, 8stn, 300/375, RHMI, 400VAC FG, NX Tower, 9stn, 300/375, RHMI, 400VAC FG, NX Tower, 1stn, 450/525, RHMI, 208VAC FG, NX Tower, 1stn, 450/525, RHMI, 400VAC	FG, NX Tower, 2stn, 450/525, RHMI, 208VAC FG, NX Tower, 2stn, 450/525, RHMI, 400VAC FG, NX Tower, 3stn, 450/525, RHMI, 400VAC FG, NX Tower, 5stn, 450/525, RHMI, 400VAC FG, NX Tower, 6stn, 450/525, RHMI, 400VAC FG, NX Tower, 7stn, 450/525, RHMI, 400VAC FG, NX Tower, 8stn, 450/525, RHMI, 400VAC FG, NX Tower, 8stn, 450/525, RHMI, 400VAC FG, NX Tower, 6stn, 600, RHMI, 400VAC FG, NX Tower, 1stn, 675, RHMI, 208VAC FG, NX Tower, 1stn, 675, RHMI, 480V FG, NX Tower, 4stn, 675, RHMI, 480VAC

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 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