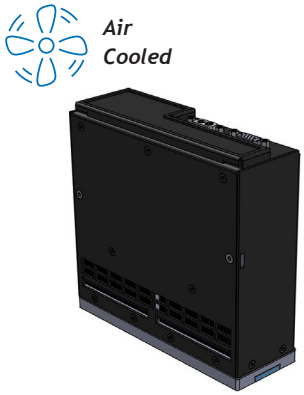
# FireJet™ ONE

## *Product Specifications*

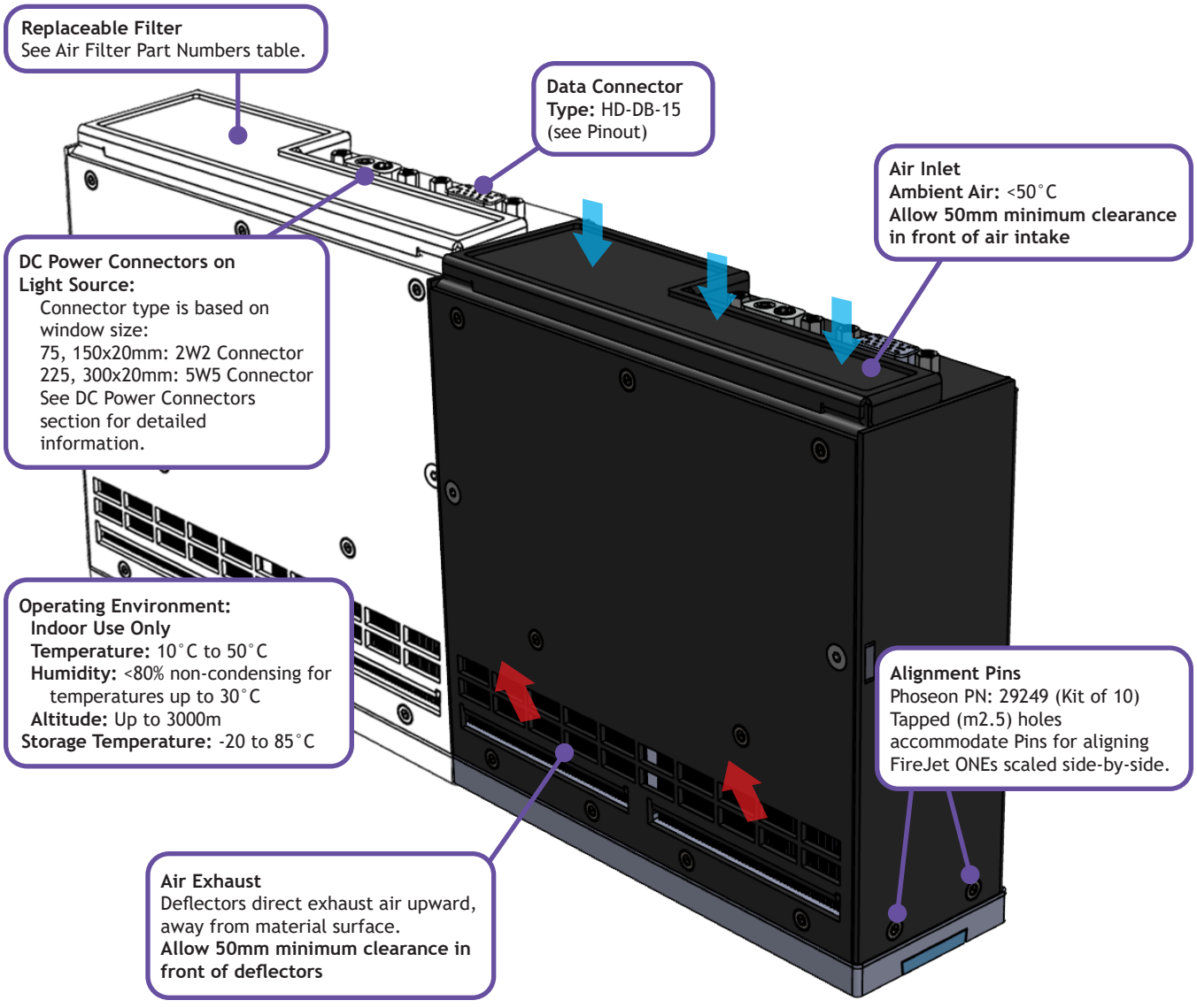
### Phoseon UV LED SLM™ Technology



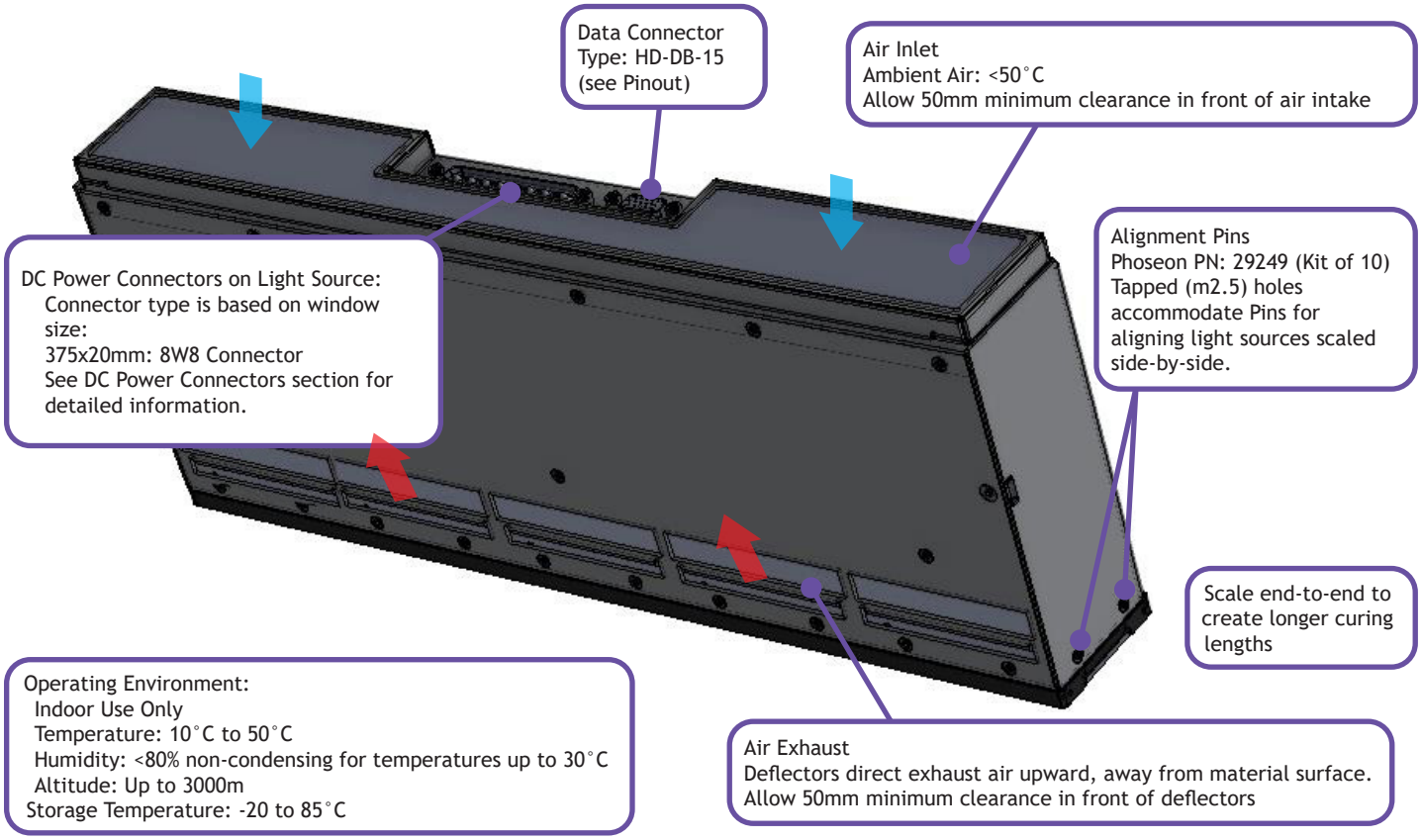

Phoseon Technology is the world leader in providing UV LED solutions for commercial and industrial applications. Phoseon's products deliver superior performance and real-world reliability for UV curing of adhesives, coatings and inks.

Phoseon's patented Semiconductor Light Matrix (SLM™) technology encapsulates LEDs, arrays, optics and cooling to maximize UV LED curing performance. The small footprint and end-to-end scalability of the FireJet™ ONE makes it an ideal solution for a variety of applications, including: wide format; and large single pass applications.

### Light Source Setup (75, 150, 225, 300x20mm Windows)



## Light Source Setup (375x20mm Window)




| | Air Filter Part Numbers | | | | |
|---|---|---|---|---|---|
| **Window Size** | 75x20 | 150x20 | 225x20 | 300x20 | 375x20 |
| **Kit Part Number (6 filters/kit)** | 39680 | 39681 | 39682 | 39683 | 39684 |

## Performance

| | 385, 395, 405nm | | | | |
|---|---|---|---|---|---|
| **Peak Irradiance** | 20W/cm² | | | | |
| **Emitting Window (mm)** | 75x20 | 150x20 | 225x20 | 300x20 | 375x20 |
| **Maximum Fan Capacity** | 50 CFM | 100 CFM | 150 CFM | 200 CFM | 250 CFM |
| **48V Power In (Max)** | 672W, 14A | 1344W, 28A | 2016W, 42A | 2688W, 56A | 3360W, 70A |
| **Typical UV Emitting Power** | 205W | 412W | 620W | 825W | 1018W |
| **DC Connector Type** | 2W2 | 2W2 | 5W5 | 5W5 | 8W8 |

| | 365nm | | | | |
|---|---|---|---|---|---|
| **Peak Irradiance** | **12W/cm²** | | | | |
| **Emitting Window (mm)** | 75x20 | 150x20 | 225x20 | 300x20 | 375x20 |
| **Maximum Fan Capacity** | 50 CFM | 100 CFM | 150 CFM | 200 CFM | 250 CFM |
| **48V Power In (Max)** | 600W, 12.5 A | 1200W, 25 A | 1800W, 37.5 A | 2400W, 50A | 3000W, 62.5 |
| **Typical UV Emitting Power** | 125 W | 250 W | 375 W | 500 W | 625 W |
| **DC Connector Type** | 2W2 | 2W2 | 5W5 | 5W5 | 8W8 |

## Typical Dose*

| | Typical Dose at 20W/cm² (385, 395, 405nm) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Process Speed (ft/min)** | 10 | 32.8 | 50 | 82 | 100 | 164 | 200 | 246 | 250 | 300 |
| **Process Speed (m/min)** | 3.05 | 10 | 15.24 | 25 | 30.48 | 50 | 60.96 | 75 | 76.2 | 91.44 |
| **Dose (mJ/cm²)** | 5429.5 | 1656 | 1086.6 | 662.4 | 543.3 | 331.2 | 271.7 | 220.8 | 217.3 | 181.1 |

| | Typical Dose at 12W/cm² (365nm) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Process Speed (ft/min)** | 10 | 32.8 | 50 | 82 | 100 | 164 | 200 | 246 | 250 | 300 |
| **Process Speed (m/min)** | 3.1 | 10 | 15.2 | 25 | 30.5 | 50 | 61.0 | 75 | 76.2 | 91.4 |
| **Dose (mJ/cm²)** | 3257.7 | 993.6 | 652.0 | 397.4 | 326.0 | 198.7 | 163.0 | 132.5 | 130.4 | 108.7 |

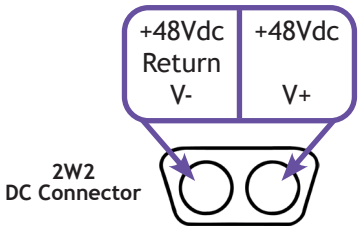
*(+/-10%) at 100% Intensity and 5mm working distance

## DC Power Connectors

The male Dsub connector is used to provide power to the light source.

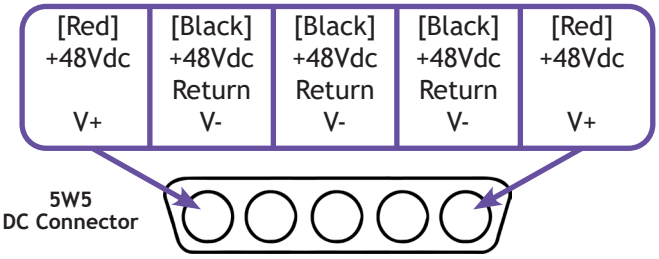
### *2W2 Connector (75, 150x20mm windows)*

**Mating DC Connector Options**
2W2 Female Dsub connector
**FCT PN:** F2W2SC-K121
Input Voltage: 48±4Vdc
**Mating Connector on Cable:**
**FCT PN:** F2W2PC-K120 (Connector)
152-FMP007S103 (Socket)
152-FMP007P103 (Plug)
**Phoseon Kit PN:** 39598



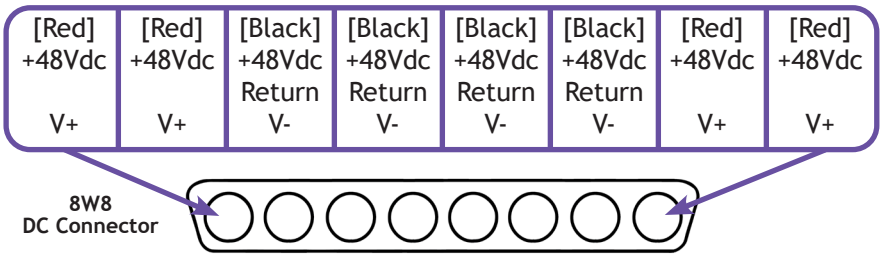

### *5W5 Connector (225, 300x20mm windows)*

**Mating DC Connector Options**
5W5 Female Dsub connector
**Connector Housing:** FCI PN DB5W5SA00LF
**Female Contacts:**
FCI PN 8638PSS4005LF (40A Max Solder Contacts) or FCI PN 8638PSC4005LF (40A Max Crimp Contacts)
**Phoseon Custom Backshell Kit PN:** 32968
**Female 40A 5W5 with Solder Contacts:**
Norcomp PN 680S5W5203L401
**Custom Backshell Components** plus hardware



*8W8 Connector (375x20mm window)*

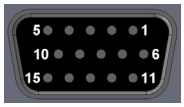
**Mating DC Connector Options**
8W8 Female Dsub connector
**MFR:** Amphenol
**MFR PN:** DCO8W8P543H40LF
**Input Voltage:** 48±1Vdc
**Mating Connector on Cable:**
**Connector**
**MFR:** Amphenol
**MFR PN:** DC8W8SA00LF
**Socket**
**MFR:** Conec
**MFR PN:** 132C11039X
**Hood**
**MFR:** ITT Cannon
**MFR PN:** 980-2000-353




## PLC Interface

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

Data Connector




1 **Do Not Connect**

2 **Intensity Control:** (Voltage Input)
0.5V = 5% of full power,
10V = 100% of full power
Internal resistive load on this Pin is 100kΩ

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

4 **Do Not Connect**

5 **Lamp Ready:** (24V PLC Output)
0 to 6V = Not Ready *or*
16 to 24V = Ready
External resistive load on this Pin must be ≥10kΩ

6 **Do Not Connect**

7 **Do Not Connect**

8 **Ground**

9 **Ground**

10 **Ground**

11 **Do Not Connect**

12 **RS485 Communication:** Serial -

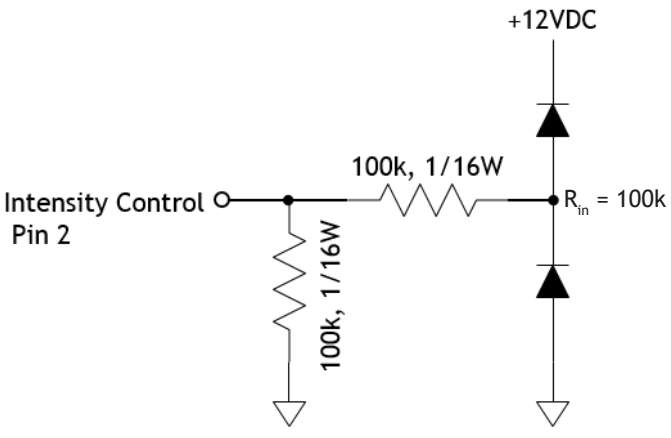
13 **RS485 Communication:** Serial +

14 **Ground**

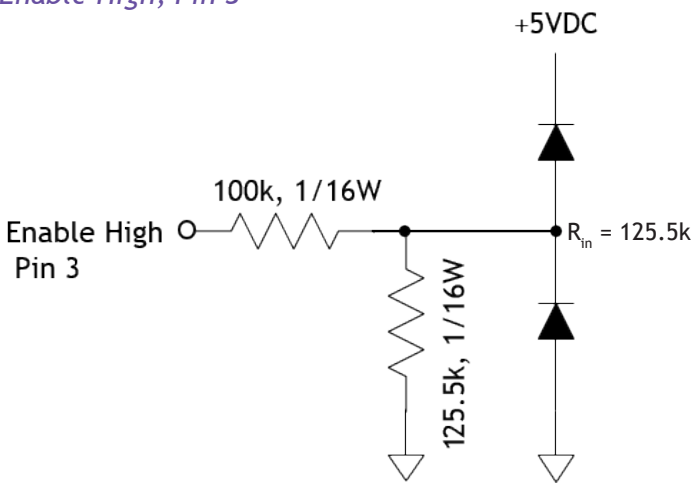
15 **Temperature Monitor:** (Voltage Output)
Voltage proportional to SLM heat sink temperature 0.1V = 1°C
External resistive load on this Pin must be ≥10kΩ

The equivalent circuits inside the FireJet ONE UV curing source are shown below:

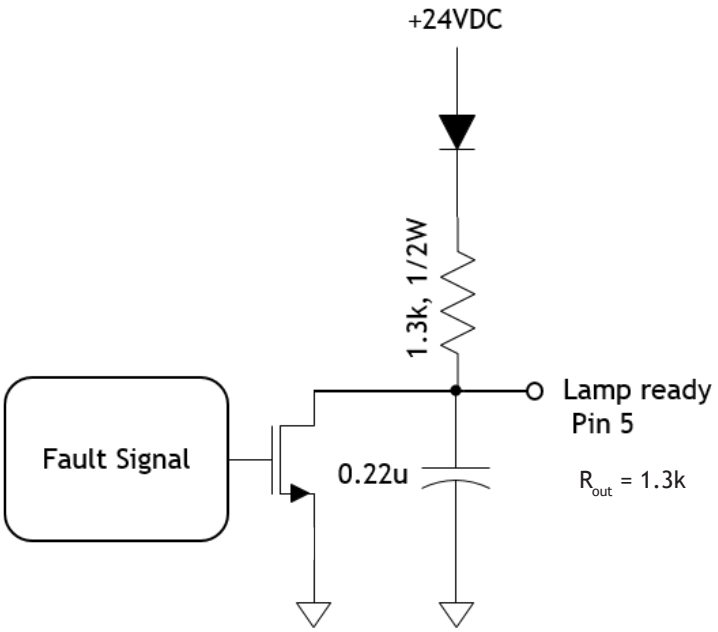
*Intensity Control, Pin 2*



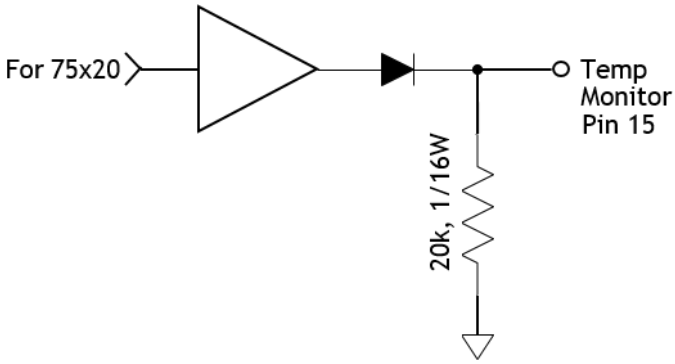

*Enable High, Pin 3*



### *Lamp Ready, Pin 5*




### *Temperature Monitor, Pin 15*




- For FireJet ONE 75x20mm, $R_{out}$ = 20k
- For FireJet ONE 150x20mm, $R_{out}$ = 10k (two output modules parallel)
- For FireJet ONE 225x20mm, $R_{out}$ = 6.7k (three output modules parallel)
- For FireJet ONE 300x20mm, $R_{out}$ = 5k (four output modules parallel)
- For FireJet ONE 375x20mm, $R_{out}$ = 4k (five output modules parallel)

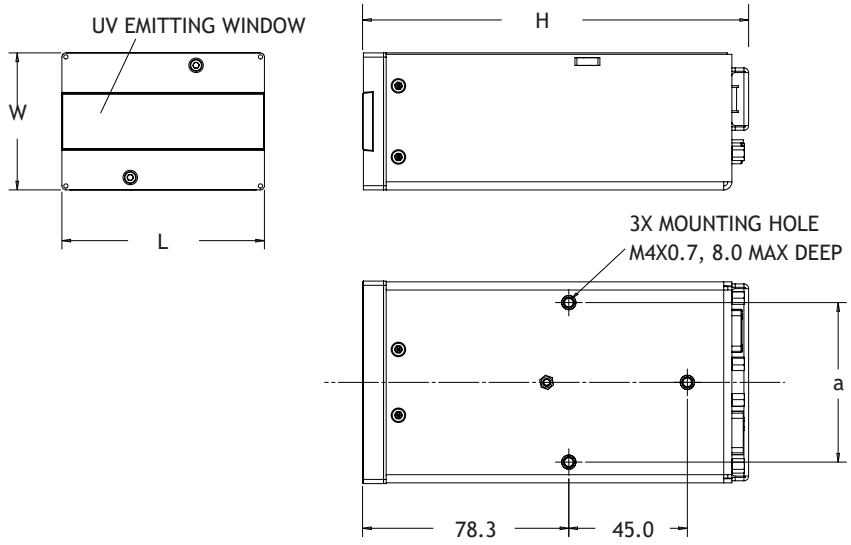
## Dimensions

**Units of measurement:** mm

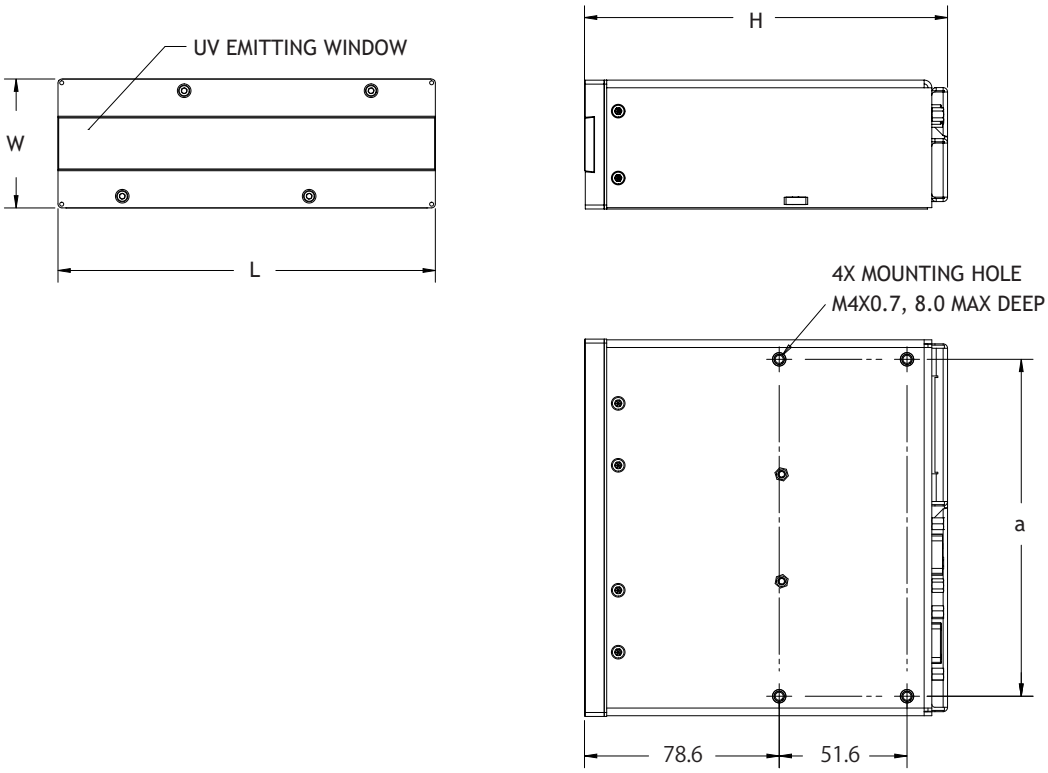
| FireJet ONE | | | | | |
|---|---|---|---|---|---|
| **UV Emitting Window (mm)** | 75x20 | 150x20 | 225x20 | 300x20 | 375x20 |
| **L** | 76.8 | 152.3 | 227.8 | 303.2 | 379 |
| **H** | 147.0 | 147.0 | 147.0 | 147.0 | 149 |
| **W** | 52.0 | 52.0 | 52.0 | 52.0 | 52 |
| **a** | 60.6 | 136.0 | 211.7 | 165.8 | 362 |
| **Weight (kg)** | 0.5 | 1.0 | 1.5 | 2.0 | 2.5 |

**Note:** Mounting holes differ between window sizes. See light source control drawing for specific mounting points and complete dimensions.

### *75x20mm Windows*



## *150, 225, 300x20mm Windows*




## *375x20mm Window*