



# LIGHTPLANE 2 UP + UNDER

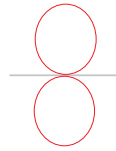
LP2UU | SUSPENDED, WALL



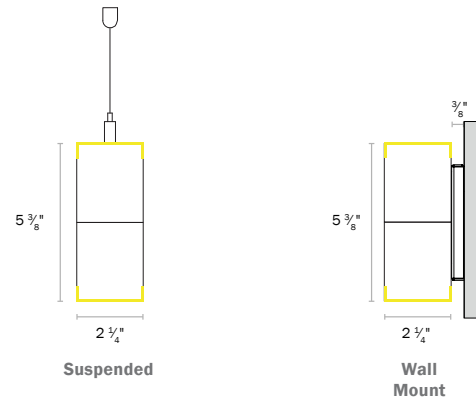
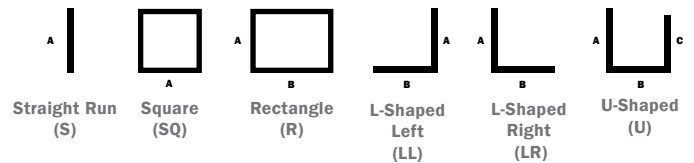
## SPECIFICATIONS

<b>PROFILE</b>	2" Aperture
<b>SIZES</b>	Configurable linear sections and shapes.
<b>LED OUTPUT</b>	140/ft - 1220/ft
<b>CCT/CRI</b>	2700K/3000K/3500K/4000K • 80 or 90+ CRI Tunable White (2700K – 6500K) • RGB and RGB+W
<b>DIMMING/ DRIVER</b>	Integral Driver: 0-10V, DALI, DMX, eldoLED, Lutron®, PoE (Molex, Igor, NuLEDs). Dimming to 0% for select models.
<b>POWER</b>	3.1W - 10.7W per ft
<b>INPUT</b>	120VAC, 277VAC, or 347VAC
<b>OPTICS</b>	Lambertian distribution, Flush and reveal lens options.
<b>FINISHES</b>	18 standard finishes at no extra charge. Custom finishes available.
<b>MATERIAL</b>	6061 Extruded Aluminum
<b>ENVIRONMENT</b>	Indoor/outdoor, dry or damp locations
<b>WELL/UGR</b>	See pages 6-7 for recommended options that contribute to meeting the WELL Building Standard™.

## DISTRIBUTIONS & PROFILES



DIRECT/INDIRECT  
LAMBERTIAN



Not to scale. Dimensions are nominal. Consult factory for CAD drawing



\*Safety and Performance information available on last page. Output and other specifications available on pages 8-9.

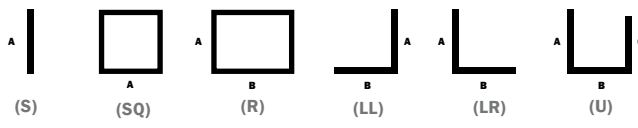
Rev 042523



**PRODUCT SPECIFICATION SHEET**

1	2	3a	3b	3c	4	5	6a	6b	6c	7	8	9	10	11a			
11b		11c		<b>EXAMPLE: LP2UUS – SQ5 – HI/90/3500 – V01 – EXT/R – MED/90/3500 – V01 – EXT/R – WH – UNV – EMC/1 – MLX – SB</b>													
					1	2	3	4	5	6	7	8	9	10	11a	11b	11c

1. BASE MODEL (CHOOSE 1)	2. SHAPE/LENGTH (CHOOSE 1 & ENTER LENGTH IN FEET) - FOR CUSTOM ANGLES, CONTACT ALW	3. LED LAMPING - DIRECT* (CHOOSE 1 FOR EACH)																								
QS <b>LP2UUS</b> 2" Suspended Direct & Indirect QS <b>LP2UW</b> 2" Wall Direct & Indirect	QS <b>S__</b> Individual/Straight Run Section (enter length in product code above, ex. S5) QS <b>SQ__</b> Square Configuration (enter side length A, ex: SQ5) QS <b>R__</b> Rectangular Configuration (enter side lengths A and B, ex. R5-7) QS <b>LL__</b> L-Shaped, Left Configuration (enter side lengths A and B, ex. LL5-7) QS <b>LR__</b> L-Shaped, Right Configuration (enter side lengths A and B, ex. LR5-7) QS <b>U__</b> U-Shaped Configuration (enter side lengths A, B, and C, ex. U5-7-4)  <small>*Lengths are nominal and may vary based on lamping and other specification selections. Consult ALW when exact lengths are required.            *Shape orientation (Looking from the Ceiling down to the floor)</small>	<table border="0"> <tr> <th>A. OUTPUT</th> <th>B. CRI<sup>1</sup></th> <th>C. CCT<sup>2</sup></th> </tr> <tr> <td>QS <b>LOW</b> (700 lm/ft)</td> <td><b>NO CRI/CCT<sup>3</sup></b></td> <td></td> </tr> <tr> <td>QS <b>MED</b> (960 lm/ft)</td> <td>QS <b>80</b></td> <td>QS <b>2700K<sup>10</sup></b></td> </tr> <tr> <td>QS <b>HI</b> (1220 lm/ft)</td> <td>QS <b>90</b></td> <td>QS <b>3000K</b></td> </tr> <tr> <td><b>RGB</b> (140 lm/ft)</td> <td><b>BIOS<sup>9</sup></b></td> <td>QS <b>3500K</b></td> </tr> <tr> <td><b>TUNE</b> (2700K-6500K, 90 CRI, 460/500 lm/ft)</td> <td><b>BIOS</b> (STATIC BIOS)</td> <td>QS <b>4000K</b></td> </tr> <tr> <td><b>RGBW</b> (3500K, White, 80 CRI, 250 lm/ft)</td> <td><b>BIOSD<sup>9</sup></b> (DYNAMIC BIOS)</td> <td></td> </tr> <tr> <td><b>CSTM</b>_____<sup>11</sup></td> <td colspan="2"> <small>(Enter lumens in product code above. Ex. 0100=100lm/ft)</small> </td> </tr> </table>	A. OUTPUT	B. CRI <sup>1</sup>	C. CCT <sup>2</sup>	QS <b>LOW</b> (700 lm/ft)	<b>NO CRI/CCT<sup>3</sup></b>		QS <b>MED</b> (960 lm/ft)	QS <b>80</b>	QS <b>2700K<sup>10</sup></b>	QS <b>HI</b> (1220 lm/ft)	QS <b>90</b>	QS <b>3000K</b>	<b>RGB</b> (140 lm/ft)	<b>BIOS<sup>9</sup></b>	QS <b>3500K</b>	<b>TUNE</b> (2700K-6500K, 90 CRI, 460/500 lm/ft)	<b>BIOS</b> (STATIC BIOS)	QS <b>4000K</b>	<b>RGBW</b> (3500K, White, 80 CRI, 250 lm/ft)	<b>BIOSD<sup>9</sup></b> (DYNAMIC BIOS)		<b>CSTM</b> _____ <sup>11</sup>	<small>(Enter lumens in product code above. Ex. 0100=100lm/ft)</small>	
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<sup>1</sup>For delivered lumens and watts, see 'Performance Details'  
<sup>2</sup>CRI/CCT options not applicable for TUNE, RGB, or RGBW lamping  
<sup>3</sup>Choose when TUNE, RGB, or RGBW is desired output  
<sup>4</sup>Static BIOS SkyBlue® 490nm LED is always on. Dynamic BIOS SkyBlue® 490nm LED can be tuned out with most LED driver and dimmer combinations. See pages 9-10 for details.  
<sup>9</sup>90 CRI only. 2700K is not available in BIOS options  
<sup>10</sup>Consult ALW for custom lumen packages.

4. DRIVER* (CHOOSE 1)	5. LENS - DIRECT*	6. LED LAMPING - INDIRECT* (CHOOSE 1 FOR EA.)	7. DRIVER - INDIRECT* (CHOOSE 1)																								
QS <b>V00</b> (dim to off) QS <b>V01</b> (0-10V, dim to 1%) QS <b>V05</b> (0-10V, dim to 5%) <b>LDE1</b> (Lutron ECOSYS1, 0-10V, dim to 1%) <b>P01</b> (ELV/TRIAC Dim to 1%) <b>TSERIES</b> (Lutron tuneable white) <b>ELDVO</b> (eldoLED 0/10V/0%) <b>ELDDW</b> (eldoLED dim to warm) <b>DALI</b> (DALI, dim to 0%) <b>DMX</b> (DMX, dim to 0%) <b>POEM</b> (POE Molex) <b>POEI</b> (POE IGOR) <b>POEN</b> (POE Nuleds) <b>POE*</b> (POE Ready)  <small>*See 'Driver', 'Sensor' and lamping charts for driver details and sensor compatibility.            *Choose desired PoE solution not listed. Contact customer service to review and confirm the PoE system of your choice.</small>	QS <b>EXT/R</b> Diffuse reveal lens.  <small>*Looking for an asymmetric lens? Refer to ALW's SP2.5 or SP4 fixtures.</small>	<table border="0"> <tr> <th>A. OUTPUT</th> <th>B. CRI<sup>7</sup></th> <th>C. CCT<sup>7</sup></th> </tr> <tr> <td>QS <b>LOW</b> (700 lm/ft)</td> <td><b>NO CRI/CCT<sup>8</sup></b></td> <td></td> </tr> <tr> <td>QS <b>MED</b> (960 lm/ft)</td> <td>QS <b>80</b></td> <td>QS <b>2700K<sup>10</sup></b></td> </tr> <tr> <td>QS <b>HI</b> (1220 lm/ft)</td> <td>QS <b>90</b></td> <td>QS <b>3000K</b></td> </tr> <tr> <td><b>RGB</b> (140 lm/ft)</td> <td><b>BIOS<sup>9</sup></b></td> <td>QS <b>3500K</b></td> </tr> <tr> <td><b>TUNE</b> 2700K-6500K, 90 CRI, 460/500 lm/ft)</td> <td><b>BIOS</b> (STATIC BIOS)</td> <td>QS <b>4000K</b></td> </tr> <tr> <td><b>RGBW</b> (3500K, White, 80 CRI, 250 lm/ft)</td> <td><b>BIOSD<sup>9</sup></b> (DYNAMIC BIOS)</td> <td></td> </tr> <tr> <td><b>CSTM</b>_____<sup>11</sup></td> <td colspan="2"> <small>(Enter lumens in product code above. Ex. 0100=100lm/ft)</small> </td> </tr> </table>	A. OUTPUT	B. CRI <sup>7</sup>	C. CCT <sup>7</sup>	QS <b>LOW</b> (700 lm/ft)	<b>NO CRI/CCT<sup>8</sup></b>		QS <b>MED</b> (960 lm/ft)	QS <b>80</b>	QS <b>2700K<sup>10</sup></b>	QS <b>HI</b> (1220 lm/ft)	QS <b>90</b>	QS <b>3000K</b>	<b>RGB</b> (140 lm/ft)	<b>BIOS<sup>9</sup></b>	QS <b>3500K</b>	<b>TUNE</b> 2700K-6500K, 90 CRI, 460/500 lm/ft)	<b>BIOS</b> (STATIC BIOS)	QS <b>4000K</b>	<b>RGBW</b> (3500K, White, 80 CRI, 250 lm/ft)	<b>BIOSD<sup>9</sup></b> (DYNAMIC BIOS)		<b>CSTM</b> _____ <sup>11</sup>	<small>(Enter lumens in product code above. Ex. 0100=100lm/ft)</small>		QS <b>V00</b> (0-10V, dim to 0%) <b>DMX</b> QS <b>V01</b> (0-10V, dim to 1%) <b>POEM</b> QS <b>V05</b> (0-10V, dim to 5%) <b>POEI</b> <b>P01</b> (ELV/TRIAC Dim to 1%) <b>POEN</b> <b>LDE1</b> (Lutron) <b>POE<sup>12</sup></b> <b>TSERIES</b> (Lutron tuneable white) <b>ELDVO</b> (eldoLED 0/10V/0%) <b>ELDDW</b> (eldoLED dim to warm) <b>DALI</b>  <small>*See 'Driver', 'Sensor' and lamping charts for driver details and sensor compatibility.            *Choose desired PoE solution not listed. Contact customer service to review and confirm the PoE system of your choice.</small>
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8. LENS - INDIRECT*	9. FINISH (CHOOSE 1)	10. VOLTAGE (CHOOSE 1)	11a. EMERGENCY OPTIONS (OPTIONAL, CHOOSE 1)
QS <b>EXT/R</b> Diffuse reveal lens.  <small>*Looking for an asymmetric lens? Refer to ALW's SP2.5 or SP4 fixtures.</small>	<b>STANDARD FINISHES</b> QS <b>AL</b> Anodized Aluminum QS <b>SW</b> Satin White QS <b>SB</b> Satin Black -- See chart on page 5 for more standard finishes. Manually type in the finish code (Ex: OB = Oil-Rubbed Bronze)  <b>SPECIAL ORDER FINISHES*</b> <b>RAL</b> _____ Specify RAL Classic Color (Ex: RAL 3003) - <b>CAT</b> _____ Specify Catalog Colors <b>CCM</b> _____ Custom Color Match  <small>*Manually type in the finish code for special order finishes.</small>	QS <b>UNV</b> Universal Voltage (120VAC-277VAC) <b>347</b> 347 Volt (Driver options may be limited. Not available with EMB)	QS <b>EMB/___</b> <sup>13</sup> Emergency Battery (indicate QTY – each battery powers 4ft. section @ 1492lm. Not available in 347 V) QS <b>EMC/___</b> <sup>13</sup> Emergency Circuit ( indicate QTY of 4ft sections to be illuminated by emergency circuit)  <small><sup>13</sup>For fixtures under 4ft in length, entire fixture will be illuminated with a proportional lumen output. Consult ALW for more details.</small>

CONTINUES ON NEXT PAGE

QS = QuickShip-qualifying option. For the entire luminaire configuration to be QuickShip-eligible, ALL options specified in the configuration must be ones notated with "QS".  
 NOTE: Maximum 800 ft. of QuickShip-eligible product per order.



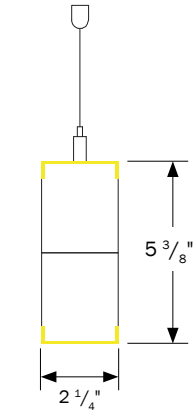
**PRODUCT SPECIFICATION SHEET CONT'D**

11b. SENSOR OPTIONS* (OPTIONAL, CHOOSE 1)	11c. ADDITIONAL OPTIONS* (OPTIONAL)	
<p><b>N</b> (None)</p> <p><b>WLN<sub>X</sub>/INT/___</b> (Cooper Wavelinx, integral)</p> <p><b>WLN<sub>X</sub>/___</b> (Cooper Wavelinx, remote)</p> <p>QS <b>ENL<sub>GHT</sub>/___</b> (Enlighted, remote)</p> <p>QS <b>ENL<sub>GHT</sub>/INT/___</b> (Enlighted, integral)</p> <p><b>VRF/___</b> (Lutron Vive, integral)</p> <p><b>VDO/___</b> (Lutron Vive, integral+ occ/daylight sensor)</p> <p><b>FCJS/___</b> (Lutron, remote)</p> <p><b>FCJS/S/___</b> (Lutron, remote + occ/daylight sensor)</p> <p><b>MLX/INT/___</b> (Molex POE, integral)</p>	<p><b>MLX</b> (Molex POE, remote)</p> <p><b>NLT/INT/___</b> (nLight wired, integral occ/daylight sensor)</p> <p><b>NLT</b> (nLight wired remote connection)</p> <p><b>NLTAIR/INT/___</b> (nLight AIR, integral)</p> <p><b>NLTAIR</b> (nLight AIR, remote connection)</p> <p><b>OS/PH/INT/___</b> (Acuity 0-10VDC integral occ/daylight sensor)</p> <p><b>OS/INT/HV/___</b> (Legrand Wattstopper High Voltage integral occ/daylight sensor)</p> <p>QS <b>OS/PH/HV/___</b> (Hubbel WASP remote occ/daylight sensor)</p>	<p>QS <b>SB</b> Seismic Bracing</p> <p>*Only compatible with suspended mount models.</p>
<p>*Quickship availability on occupancy and photocell/daylight sensors may vary. Contact ALW for more information.            *Default quantity is 1 sensor per 8ft. type alternate quantity into product code above if desired. Sensor descriptions available on page 12.            *Not all sensors are compatible with all drivers. See 'Driver', 'Sensor' and lamping charts for driver details and sensor compatibility.</p>		

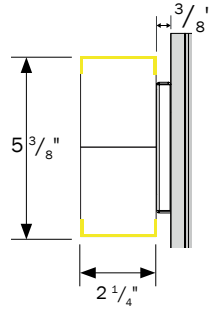
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 NOTE: Maximum 800 ft. of QuickShip-eligible product per order.



## MECHANICAL DIAGRAMS

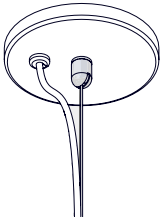


**LP2UUS  
SUSPENDED  
MOUNT**



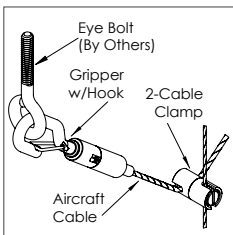
**LP2UW  
WALL MOUNT**

## SUSPENSION MOUNTING OPTIONS



### CEILING HARDWARE

- 4.5" canopy per power feed location. Canopy finish is always white. Contact ALW for alternate colors.
- Bullet mount,
- 8' aircraft cable
- 2" canopy (for use with T-bar mounting) per suspension point



### SEISMIC BRACING (SB)

Add-on hardware includes cable gripper with hook, 2-cable clamp and specified length of aircraft cable per suspension point.



## STANDARD FINISHES

Standard finishes are available at no additional charge.

### ALUMINUM



Anodized Aluminum  
QS

### BASIC POWDER COAT



Gloss White



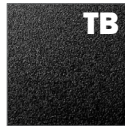
Satin White  
QS



Antimicrobial Satin White



Textured Matte White



Textured Matte Black

### METALLIC POWDER COAT



Silver Gray



Charcoal Gray



Copper

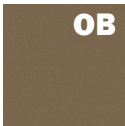


Brass

### SATIN ANODIZED EFFECT POWDER COAT



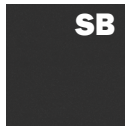
Clear Silver



Oil-Rubbed Bronze



Dark Bronze



Satin Black  
QS

### GLOSS POWDER COAT (80-95% GLOSS)



Orange  
RAL 2003



Red  
RAL 3020



Magenta  
RAL 4010



Blue  
RAL 5015

Contact ALW Quotes for sample paint finish swatches.

## SPECIAL ORDER FINISHES\*



### RAL CLASSIC COLORS (80-95% GLOSS): RAL\_ \_ \_ \_

Most RAL Classic Colors are available for a minimum setup fee. On your specification submittal choose your RAL color by entering the 4-digit RAL code (Ex: RAL 3003). See [www.alwusa.com/finishes](http://www.alwusa.com/finishes)



### CUSTOM COLOR MATCH: CCM\_ \_ \_ \_

Custom powder coat color matching is available for a premium setup fee. Consult [ALW](http://www.alwusa.com) for additional information.



### CATALOG COLORS: CAT\_ \_ \_ \_

The complete range of powder coat colors from [Tiger Drylac](#) and [ICI](#) catalogs are available for a minimum setup fee. Consult ALW for a catalog color you would like to specify.

\*An individual setup fee will apply to each unique Special Order Finish per purchase order.  
(ex: RAL 5023 and RAL 2008 are specified for multiple line items on a purchase order. 2x setup fees will apply)

\*Printed or on-screen colors are only approximations - consult actual Color Chip Set before specifying)



## SPECIFYING FOR THE WELL BUILDING STANDARD™ - WELL™

ALW is committed to providing the highest quality luminaires for a multitude of applications, with many versatile lighting solutions that contribute to satisfying the WELL Building Standard. Below is a quick guide to assist you in specifying appropriate product configurations for WELL features. Links to official WELL standards can be found [here](#).

### CIRCADIAN LIGHTING DESIGN FEATURE L03

The Circadian Lighting Design feature requires projects to provide users with appropriate exposure to light for maintaining circadian health and aligning the circadian rhythm with the day-night cycle.

To conform to these requirements, the project must meet one of the following 4 light level options (a, b, c, or d) below. These light levels are measured on the vertical plane at eye level of the occupant. The light levels are achieved at least between the hours of 9 a.m. and 1 p.m. and may be lowered after 8 p.m. at night.

DESIGNING WITH ELECTRIC LIGHT ONLY	DESIGNING WITH BOTH ELECTRIC LIGHT & DAYLIGHT	POINTS
a. At least 150 EML [136 melanopic equivalent daylight D65]	b. The project achieves at least 120 EML [109 melanopic equivalent daylight D65] with electric light and at least 2 points in Feature L05: Enhanced Daylight Access	1
c. At least 240 EML [218 melanopic equivalent daylight D65]	d. The project achieves at least 180 EML [163 melanopic equivalent daylight D65] with electric light and at least 2 points in Feature L05: Enhanced Daylight Access	3

Choose from a BIOS Static or BIOS Dynamic light engine to assist in a healthy, circadian lighting design. CCT, CRI, Luminous Flux Multipliers, and Melanopic Ratios are shown below for easy specification.

CIRCADIAN LIGHTING DESIGN (3PT MAX)	BIOS STATIC (BIOS)			BIOS DYNAMIC (BIOSD)			HOW TO SPECIFY
<b>CCT</b>	3000K	3500K	4000K	3000K	3500K	4000K	1. Select <b>BIOS</b> or <b>BIOSD</b> for <b>LED LAMPING</b> 2. Select the appropriate Lumen <b>OUTPUT</b> 3. Select the appropriate <b>CCT</b>
<b>CRI / R9</b>	83 / 80+	83 / 80+	83 / 80+	83 / 80+	83 / 80+	83 / 80+	
<b>LUMINOUS FLUX MULTIPLIER</b>	0.95	0.98	1.00	0.95	0.98	1.00	
<b>MELANOPIE RATIO (R)*</b>	0.70	0.80	0.90	0.74	0.83	0.95	See BIOS LED Lamping and Performance Details at the back of this spec sheet for lumen outputs, COI index values, and other additional information.

### GLARE CONTROL FEATURE L04

Glare is defined as excessive brightness of a light-source, excessive brightness-contrasts and excessive quantities of light. Glare has been associated with a host of health issues that range from visual discomfort and eye fatigue to headaches and migraines.

To conform to Glare Control requirements, each luminaire must meet one of the following options (a, b, or d) for regularly occupied spaces.

GLARE CONTROL CRITERIA (3PT MAX)	COMPLIANT	VALUE	HOW TO SPECIFY
a. Indirect (100% emission above horizontal)	✓	100%	1. Select <b>N</b> (None) for <b>LED LAMPING - DIRECT</b> 2. Select <b>any of the options</b> for <b>LED LAMPING - INDIRECT</b>
b. Unified Glare Rating (UGR)*	✓	If looking to meet UGR requirements, ALW recommends specifying the Superplane 2.5 (SP2.5) series products here: <a href="https://alwusa.com/products/superplane-2-5/">https://alwusa.com/products/superplane-2-5/</a>	
c. Shielding Angle	No	-	-
d. Max. Luminance (45°-90°) Max. Intensity (45°-90°)	✓	If looking to meet Max. Luminance and Max. Intensity requirements, ALW recommends specifying the Superplane 2.5 (SP2.5) series products here: <a href="https://alwusa.com/products/superplane-2-5/">https://alwusa.com/products/superplane-2-5/</a>	



**SPECIFYING FOR THE WELL BUILDING STANDARD™ - WELL™ (CONTINUED)**

**ELECTRIC LIGHT QUALITY - PART 1: COLOR RENDERING QUALITY + PART 2: FLICKER  
FEATURE L07**

Using light sources that have characteristics similar to daylight, including high color rendering and minimal flicker can improve comfort and well-being of users in a space and contribute to creating a healthy environment.

Part 1: Each luminaire must meet one of the following requirements (a or b) for regularly occupied spaces.  
 Part 2: Each luminaire must meet the IEEE 1789-2015 Standard Recommended Practice to manage flicker.

<b>PART 1 - ENSURE COLOR RENDERING QUALITY (1PT MAX)</b>	<b>COMPLIANT</b>	<b>VALUE</b>	<b>HOW TO SPECIFY</b>
a. CRI > 90	✓	CRI = 93 - 95	• Select <b>90</b> (90CRI) for <b>LED LAMPING</b>
b. CRI > 80 with R9 > 50	✓	CRI = 83, R9 > 90	• Select <b>BIOS</b> or <b>BIOSD</b> for <b>LED LAMPING</b>
c. IES Rf ≥ 78, IES Rg ≥ 100, -1% ≤ IES Rcs, h1 ≤ 15%	No	-	-
<b>PART 2 - MANAGE FLICKER (1PT MAX)</b>	<b>COMPLIANT</b>	<b>VALUE</b>	<b>HOW TO SPECIFY</b>
Meets IEEE 1789-2015 Standard Recommended Practice	✓	Modulation = 1% Flicker Frequency = 120 - 2000Hz	• Select <b>V05, V01, LDE1, DALI</b> or <b>DMX</b> for <b>LED DRIVER</b>



## PERFORMANCE DETAILS (DIRECT OR INDIRECT)

OUTPUT	DELIVERED LUMENS/FT	EFFICACY (LM/W)	WATTS/FT <sup>14</sup>	CRI OPTIONS	CCT OPTIONS
LOW <sup>15</sup>	700	Up to ~114	6.2	80 90	2700K (90CRI Only) 3000K 3500K 4000K 5000K
MED <sup>15</sup>	960		8.4		
HI <sup>15</sup>	1220		10.7		
TUNE	WW: 460, CW: 500	Up to ~119	8.4	90+	
RGB <sup>16</sup>	140	N/A	4.4	N/A	
RGBW <sup>17</sup>	RGB: 140 RGB+W: 250 White Only: 110		7.2	80 (White Chip)	2700K - 6500K

<sup>14</sup> Lumens/Watt and Watts/ft have been calculated assuming a driver efficiency of 85%. Depending on field conditions, actual measured values may fluctuate by 5-8%.

<sup>15</sup> Performance calculations are based on LM-79 test of HI output at 80 CRI and 4000K. LOW and MED calculations are extrapolated values.

<sup>16</sup> Performance calculations are derived from LM-79 test with all RGB LEDs illuminated (Red, Green, Blue).

<sup>17</sup> Performance calculations are derived from the following LM-79 tests: 1) RGB LEDs illuminated, 2) RGB+W LEDs illuminated, 3) White LED only illuminated.

## LAMPING OPTIONS

LED Lamping limitations exist due to heat. Please follow these guidelines when specifying.

		Indirect			
		NONE	LOW	MED	HI
Direct	NONE	x	✓	✓	✓
	LOW	✓	✓	✓	✓
	MED	✓	✓	✓	✓
	HI	✓	✓	✓	x



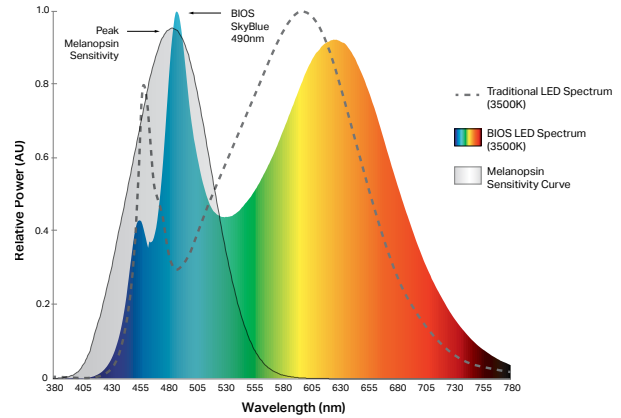


## BIOS OVERVIEW



BIOS SkyBlue® technology is designed to provide the specific circadian stimulus required to improve overall sleep by **featuring a distinct peak in the 'skyblue' spectral power at 490nm**. Unlike traditional white LEDs, BIOS SkyBlue® makes it possible to achieve **high EML (Equivalent Melanopic Lux) and Melanopic/Photopic ratios** without harsh CCTs or high, glare-inducing light levels.

BIOS light engines are available in **Static** or **Dynamic** options for use with a variety of applications. In Static light engines, the SkyBlue 490nm signal always remains on while the fixture is powered. Dynamic options include a dynamic board and Bio-Dimmer module to allow the user to dim-out the SkyBlue 490nm signal during night time hours.



	BIOS STATIC (BIOS)	BIOS DYNAMIC + BIO-DIMMING™ (BIOSD)
<b>DESCRIPTION</b>	490nm SkyBlue light signal always remains on while the fixture is powered.	Dynamic light engine with Bio-Dimming add the ability to fine-tune and dim-out the 490nm SkyBlue signal during night time hours or as desired.
<b>TYPICAL APPLICATIONS</b>	Environments typically occupied only during daylight hours (6am - 8pm) such as offices and schools.	Environments occupied for a 24-hour period such as hospitals, security facilities, behavioral health facilities, factories, etc.
<b>CONTROLS &amp; DIMMING*</b>	Works with any standard dimming controls (0-10V, Dali, EcoSystem, ELV, Triac, DMX, Wireless, etc.). BIOS melanopic ratio remains constant as you dim down the light intensity.	Works with any standard dimming controls (0-10V, Dali, EcoSystem, ELV, Triac, DMX, Wireless, etc.). BIOS SkyBlue® LED can be dimmed-out using a standard control/dimmer.

\*No unique wiring instructions required. However, Dynamic + Bio-Dimming™ option must be set up properly during initial startup to the desired light level setpoint. See installation guide for details.

### BIOS LED LAMPING DETAILS (STATIC OR DYNAMIC)

OUTPUT	DELIVERED LUMENS (LM/FT)	WATTS (W/FT)	EFFICACY (LM/W)	CRI OPTIONS
<b>LOW<sup>18</sup></b>	700	6.2	Up to ~114	82+
<b>MED<sup>18</sup></b>	960	8.4		
<b>HI<sup>18</sup></b>	1220	10.7		

### BIOS LED PERFORMANCE DETAILS

CCT	CRI (Ra) <i>Static BIOS</i> <i>Dynamic BIOS</i>	CRI (R9) <i>Static BIOS</i> <i>Dynamic BIOS</i>	DAYTIME M/P RATIO <sup>19</sup> <i>Static BIOS</i> <i>Dynamic BIOS</i>	NIGHTTIME M/P RATIO <sup>20</sup> <i>Static BIOS</i> <i>Dynamic BIOS</i>	COI <sup>21</sup> <i>Static BIOS</i> <i>Dynamic BIOS</i>
<b>3000K</b>	82	94	0.70	0.70	3.0
	83	90	0.73	0.45	3.3
<b>3500K</b>	83	91	0.80	0.80	3.1
	83	90	0.84	0.50	3.1
<b>4000K</b>	83	91	0.90	0.90	3.1
	83	90	0.95	0.55	3.1

<sup>18</sup>Performance calculations are based on LM-79 test of BIOS 4000K, HI output. LOW and MED calculations are extrapolated values.

<sup>19</sup>Melanopic to photopic (M/P) ratios are used to help calculate equivalent melanopic lux (EML) values which is the metric used for circadian lighting in the WELL™ Building Standard.

<sup>20</sup>Static LED nighttime M/P ratios remain the same as daytime M/P ratios as BIOS SkyBlue® always remains at full output.

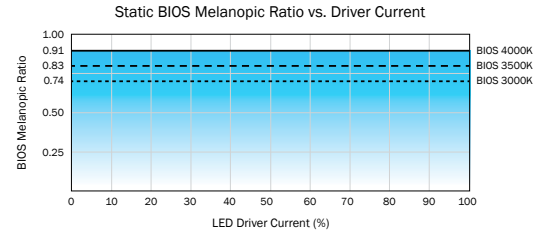
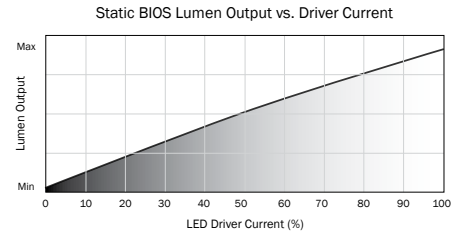
<sup>21</sup>BIOS SkyBlue® meets the Cyanosis Observation Index (COI) requirements for visual assessment of cyanosis, providing a COI up to 3.3.



## BIOS STATIC DIMMING CONTROL CHARACTERISTICS

DIMMER SETTING	LIGHT OUTPUT* (BIOS SKYBLUE® + WHITE LED)		BIOS + White LED Intensity Dimming
100%* (Full On)	100%		
99% - 51%	Linear Dimming 99% - 51%		
50%	Linear Dimming 50%		
49% - 0%	Linear Dimming 49% - 0%		

BIOS SkyBlue® LED and White LED dim with a 1-to-1 ratio.



\*While melanopic ratio remains constant, dimming/reducing light output will have an overall impact on Equivalent Melanopic Lux (EML). That is because  $EML = \text{Vertical Lux} * \text{melanopic ratio}$ . Therefore, if you reduce light levels by dimming the LEDs, you will reduce your effective EML, even when the melanopic ratio stays constant.

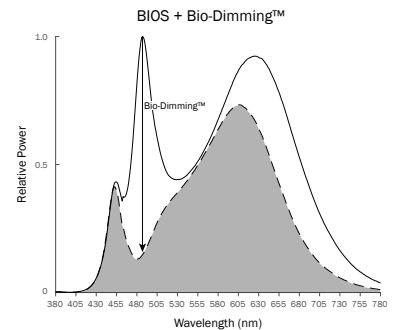
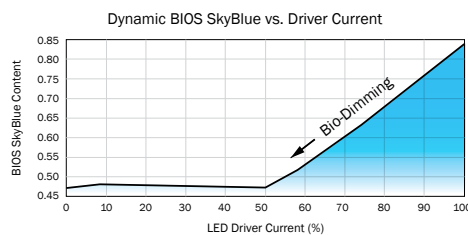
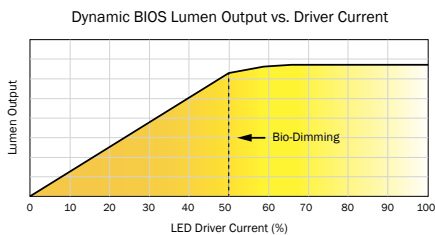
## BIOS DYNAMIC + BIO-DIMMING™ DIMMING CONTROL CHARACTERISTICS

DIMMER SETTING	BIOS SKYBLUE® LED	WHITE LED	LIGHT OUTPUT	
100%* (Full On)	100%	100%	100%	Bio-Dimming
99% - 51%	100% - 0%	100%	100% - 90%	
50%	NO BIOS	100%	~90%	White LED Intensity Dimming
49% - 0%	NO BIOS	100% - 0%	Linear Dimming 90% - 0%	

BIOS SkyBlue® maintained for maximum circadian impact.  
Light output remains relatively constant.

BIOS SkyBlue® removed to provide minimal circadian impact.  
White LED output dims linearly.

\*No unique wiring instructions required. However, Dynamic + Bio-Dimming™ option must be set up properly during initial startup to the desired light level setpoint. See installation guide for details.





**DRIVERS**

PRODUCT CODE	DESCRIPTION
<b>N</b>	None. Choose when indirect lambing is not desired.
<b>V00</b>	0-10V dimming down to 0% (dim to off).
<b>V01</b>	0-10V dimming down to 1%.
<b>V05</b>	0-10V dimming down to 5% (Down to 10% for TUNE lambing).
<b>P01</b>	Driver supports both TRIAC Forward Phase 2-Wire and ELV Reverse Phase 3-Wire dimming controls.
<b>LDE1</b>	(LDE1) Lutron Hi-lume 1% EcoSystem LED driver with Soft-on, Fade-to-Black dimming technology.
<b>TSERIES</b>	Lutron T-Series Tunable White Class 2 LED Driver (For use with Lutron Quantum Control Systems)
<b>ELDV0</b>	eldoLED 0/10V dimming down to 0% (when choosing nLight Air integral sensors a compatible eldoLED LEDcode version will be specified)
<b>ELDDW</b>	eldoLED 0/10V dim-to-warm dimming down to 0% (specify with TUNE LED lambing. Driver will be programmed with LightShape dim-to-warm setting)
<b>DALI</b>	DALI flicker-free dimming down to 0%.
<b>DMX</b>	DMX flicker-free dimming down to 0%.
<b>POEM</b>	Molex CoreSync PoE LED Driver. Contact ALW to assist with your project.
<b>POEI</b>	IGOR PoE LED Driver. Contact ALW to assist with your project.
<b>POEN</b>	NuLEDS PoE LED Driver. Contact ALW to assist with your project.
<b>POE</b>	Specify a PoE driver of your choice. Fixture comes with low voltage leads and no LED driver. Contact ALW to assist with your project

\*Most drivers can be programmed to specific dimming levels if desired. Contact ALW for specific dimming level requests. ALW lighting fixtures are intended for use with a wide range of sensors, lighting controls, LED drivers, and building management systems. If there are specific components required for your application that aren't listed on this spec sheet, please contact ALW customer support today to specify a compatible solution of your choice.

DRIVER/LED LAMPING COMPATIBILITY							
	STD	STD/BIOS	TUNE	RGB	RGB(W)	CA TITLE 24 JA8/JA10 <sup>22</sup>	IEEE P1789 & HD TV STUDIO <sup>23</sup>
<b>V00</b>	●	●	●			●	
<b>V01</b>	●	●	●			●	
<b>V05</b>	●	●	●			●	
<b>P01</b>	●	●	●			●	
<b>LDE1</b>	●	●				●	●
<b>TSERIES</b>			●			●	●
<b>ELDV0</b>	●	●	PER REQUEST			●	●
<b>ELDDW</b>			●				
<b>DALI</b>	●	●	●			●	
<b>DMX</b>	●		●		●	PER REQUEST	PER REQUEST
<b>POEM</b>			PER REQUEST			●	●
<b>POEI</b>			PER REQUEST			●	●
<b>POEN</b>			PER REQUEST			●	●

● - Indicates compatibility  
 \*Standard lambing (STD) -LOW/MED/HI

<sup>22</sup>Fixtures specified with 90CRI 2700K, 3000K, 3500K, and 4000K lambing with applicable LED drivers have the ability to conform to California Title 24 JA8 and JA10 Appendices

<sup>23</sup>The following drivers conform to IEEE P1789 Flicker Standard: 'IEEE Recommended Practices for Modulating Current in High-Brightness LEDs for Mitigating Health Risks to Viewers'. These drivers may also be installed in HD TV Studio applications utilizing high frequency camera equipment.



## SENSORS

	PRODUCT CODE	DESCRIPTION	Location
	<b>N</b>	None. Choose when sensors are not desired.	-
<b>COOPER WAVELINX</b>	<b>WLNK/INT</b>	Wavelinx Wireless integral occ/daylight sensor (WaveLinX part: OEM-WAA)	Integral
	<b>WLNK</b>	Fixture is built with 0/10V wiring to connect to Wavelinx Wireless sensors and power/relay packs (sensors and equipment not provided by ALW)	Remote
<b>ENLIGHTED™</b>	<b>ENLGH/INT</b>	Enlighted integral connected lighting smart sensor - occ/daylight/networking (Enlighted Part: SU-5E-CL)	Integral
	<b>ENLGH</b>	Enlighted® remote connected lighting smart sensor - occ/daylight/networking (Enlighted Part: SU-5S-H-CL)	Remote
<b>LUTRON VIVE</b>	<b>VRF</b>	Lutron® Vive integral RF wireless fixture control (Lutron Part: DFCSJ-OEM-RF)	Integral
	<b>VDO</b>	Lutron® Vive integral RF wireless fixture control + daylight/occ sensor (Lutron Part: DFCSJ-OEM-OCC)	Integral
	<b>FCJS</b>	Lutron® Vive remote RF wireless fixture control (Lutron Part: FCJS-ECO or FCJS-010)	Remote
	<b>FCJS/S</b>	Lutron® Vive remote RF wireless fixture control + daylight/occ sensor (Lutron Part: FCJS-ECO or FCJS-010, & FC-Sensor)	Remote
<b>MOLEX POE CORESYNC</b>	<b>MLX/INT</b>	Molex CoreSync PoE Integral Fixture-Mounted Sensor R - occ/daylight/temperature/humidity (Molex Part: 182091-1000)	Integral
	<b>MLX</b>	Molex PoE sensors for use with Molex/PoE drivers. Customer will need to determine who to purchase PoE equipment from	Remote
<b>NLIGHT WIRED®</b>	<b>NLT/INT</b>	Fixture is built with nLight Wired integral components specified by agency. Contact ALW to review project details.	Integral
	<b>NLT</b>	Fixture is built to connect to nLight Wired remote components specified by agency. Contact ALW to review project details.	Remote
<b>NLIGHT WIRELESS®</b>	<b>NLTAIR/INT</b>	Fixture is built with nLight Air (Wireless) components specified by agency. Contact ALW to review project details.	Integral
	<b>NLTAIR</b>	Fixture is built to connect to nLight Air (Wireless) remote components specified by agency. Contact ALW to review project details.	Remote
<b>VALUE SENSORS</b>	<b>OS/PH/INT</b>	Acuity 0-10VDC Integral occ/daylight sensor (Acuity Part: MSD 7 ADC WH) Automated Dimming Functionality Only. Manual Dimming not available. Customer to set sensor functionality in the field. Lowest dim level depends on driver.	Integral
	<b>OS/INT/HV</b>	Legrand Wattstopper <b>High Voltage</b> Integral occ/daylight on/off sensor (Part: FS-355) On/Off or Manual Dimming Functionality Only (based on occupancy and daylight). Connect fixture 0/10V wires to wall dimmer in the field. No Automated Dimming available.	Integral
	<b>OS/PH/HV</b>	Hubbell WASP <b>High Voltage</b> 0-10V remote surface mount occ/daylight sensor. 120/277/347VAC input (Hubbell Part: WSPDSMUNV) Automated Dimming Functionality: Connect fixture 0/10V wires to sensor in the field. Adjust occ/photo cell settings as desired. On/Off or Manual Dimming Functionality: Turn photocell functionality OFF. Cap off 0/10V wires on sensor. Connect fixture 0/10V wires to wall dimmer in the field.	Remote

\*All connected lighting sensors/systems must be programmed in the field by an electrical commissioner familiar with the system. Refer to the 'Sensor Compatibility' and 'Driver/Sensor Compatibility' charts to specify compatible sensors, LED lamping, and LED driver systems.



**SENSORS CONT'D**

SENSOR COMPATIBILITY								
PRODUCT CODE		SENSOR TYPE	MAX MT HT	CA TITLE 24	STD*	TUNE	RGB	RGB(W)
COOPER WAVELINX	WLN <sub>X</sub> /INT	OCCUPANCY/PHOTOCELL	15 ft	●	●			
	WLN <sub>X</sub>		15 ft	●	●			
ENLIGHTED™	ENLGH <sub>T</sub> /INT	OCCUPANCY/PHOTOCELL	15 ft	●	●	CUSTOM REQUEST		
	ENLGH <sub>T</sub>	OCCUPANCY/PHOTOCELL	40 ft	●	●	CUSTOM REQUEST		
LUTRON VIVE	VRF	WIRELESS CONTROL	12 ft	●	●			
	VDO	OCCUPANCY/PHOTOCELL	12 ft	●	●			
	FCJS	WIRELESS CONTROL	12 ft	●	●			
	FCJS/S/	OCCUPANCY/PHOTOCELL	12 ft	●	●			
MOLEX POE CORESYNC	MLX/INT	OCCUPANCY/PHOTOCELL TEMPERATURE/HUMIDITY	16 ft	●	●			
	MLX		16 ft	●	●	●	CUSTOM REQUEST	CUSTOM REQUEST
NLIGHT WIRED®	NLT/INT	OCCUPANCY/PHOTOCELL	15 ft	●	●			
	NLT		15 ft	●	●			
NLIGHT WIRELESS®	NLTAIR/INT	OCCUPANCY/PHOTOCELL	15 ft	●	●			
	NLTAIR		15 ft (average)	●	●			
VALUE SENSORS	OS/PH/INT	OCCUPANCY/PHOTOCELL	15 ft		●			
	OS/INT/HV	OCCUPANCY/PHOTOCELL	15 ft	●	●	■	■	■
	OS/PH/HV	OCCUPANCY/PHOTOCELL	45 ft	●	●	■	■	■

● - Indicates compatibility    ■ - On/off sensor functionality only

\*Standard lamping (STD) - MIN/LOW/MED/HI



**SENSORS (CONT'D)**

DRIVER/SENSOR COMPATIBILITY									
	WLNx/INT	WLNx	ENLGHt/INT	ENLGHt	VRF	VDO	FCJS	FCJS/S /	MLX/INT
V00	●	●	●	●			●	●	
V01	●	●	●	●			●	●	
V05	●	●	●	●			●	●	
P01									
LDE1					●	●	●	●	
Tseries									
ELDV0									
ELDDW									
DALI					●	●			
DMX									
POE/MOLEX									●
POE/IGOR	Sensor types will depend on the PoE system configuration. Contact ALW for details.								
POE/NULEDS	Sensor types will depend on the PoE system configuration. Contact ALW for details.								
POE/READY	Sensor types will depend on the PoE system configuration. Contact ALW for details.								

- - Indicates compatibility
- ▲ - Fixture can have automated dimming via sensor OR on/off functionality and manual dimming
- - On/off sensor functionality only

DRIVER/SENSOR COMPATIBILITY CONT'D									
	MLX	NLT/INT	NLT	NLTAIR/INT	NLTAIR	OS/PH/INT	OS/INT/HV	OS/PH/HV	NO SENSOR
V00						●	■	▲	●
V01						●	■	▲	●
V05						●	■	▲	●
P01							■	■	●
LDE1									●
Tseries							■	■	●
ELDV0		●	●	●	●	●	■	▲	●
ELDDW							■	■	●
DALI							■	■	●
DMX							■	■	●
POE/MOLEX	●								●
POE/IGOR	Sensor types will depend on the PoE system configuration. Contact ALW for details.								
POE/NULEDS	Sensor types will depend on the PoE system configuration. Contact ALW for details.								
POE/READY	Sensor types will depend on the PoE system configuration. Contact ALW for details.								



**PHOTOMETRICS**

OPTIC	POLAR PLOT (CD)	MTG HEIGHT	LIGHT LEVEL (FC)	SPACING CRITERION (SC) <sup>24</sup> (0° - 180°) (90° - 270°)	MAX INTENSITY (CD)	OUTPUT (LM/FT)
EXT/R		6 ft	22.7	1.24 1.18	816	1160.5
		8 ft	12.8			
		10 ft	8.2			
		12 ft	5.7			
		14 ft	4.2			
		16 ft	3.2			

\*Photometric calculations based on HI 4000K 80 CRI fixture combination. Actual results may vary in the field.  
 For footcandle and output multipliers refer to the [ALW IES File Multipliers Chart](#)  
<sup>24</sup>Spacing criterion refers to maximum distance luminaires can be spaced to provide uniform illumination on the working plane or surface.  
 Luminaire spacing = Spacing Criterion (SC) x Mounting Height (MH) (ex. 1.14 (SC) x 10' (MH) = 11.4' Luminaire Spacing).



## ADDITIONAL OPTIONS & SPECIFICATIONS

### LED PERFORMANCE

> 54,000 hours at 70% lumen maintenance, LM80 / TM-21

### HOUSING

100% recyclable, extruded architectural grade 6061 aluminum with a 0.08" minimum wall thickness.

### LENS OPTIONS

Extruded, twin-layered, high-impact acrylic. EXT is white and extra diffuse with minimal- to no-source visibility.



REVEAL LENS - EXT/R

### SAFETY & REGULATORY

Fixtures specified with 90CRI, 2700K, 3000K, 3500K, and 4000K lamping with applicable LED drivers have the ability to conform to **California Title 24 JA8 and JA10** Appendices. EldoLED drivers can conform to IEEE P1789 Flicker Standard: 'IEEE Recommended Practices for Modulating Current in High-Brightness LEDs for Mitigating Health Risks to Viewers'.

Contact [ALW customer support](#) today and we can help you with your project requirements..

ETL Listed (U.S. & Canada). Suitable for dry or damp locations. Conforms to UL std. 1598, Luminaires. Certified to CSA std. C22.2#250.0:2008 Ed. 3+G1;G2.

### WARRANTY

Limited 11-year warranty. Details: [alwusa.com/warranty](http://alwusa.com/warranty)

### OPERATING TEMPERATURE

Luminaire should be installed and operated **ONLY** in dry environments where the ambient temperature ranges from -4° F to 122° F ( -20° C to 50° C). Luminaire operation in environments outside the listed temperature range voids the warranty **AND** may damage the product or adversely impact lamp life, lumen output and color consistency.

### POWER CABLES

Power cables come standard in a transparent sheathing to match steel aircraft suspension cables. Please contact customer support if custom cables are required for your application. Power cables cannot be swapped in the field as it will void the ETL Safety Listing and Product Warranty.



### CONTROLS, SENSORS, & LED DRIVER

ALW lighting fixtures are intended for use with a wide range of sensors, lighting controls, LED drivers, and building management systems. Our component portfolio is continually expanding to adopt to the latest technologies and specification needs. We currently support integration with Lutron, Enlighted, nLight, Cooper Wavelinx, eldoLED, Molex PoE, NuLEDs PoE, Igor PoE, Osram, Philips, and more. If there's a component or system needed that you don't see on the spec sheet please contact [ALW customer support](#) today so we can review your requirements.

### WEIGHT

Approximately 3 lbs. per linear foot (not including downlight option). Weight may vary depending on mounting, downlight, and additional options selected.

### WOOD VENEER

Most ALW fixture configurations are available with [real wood veneer](#) as a custom request. Contact [ALW customer support](#) so we can help you with your custom wood veneer request.