LED Power Array™
A Universal LED Optical System for New Installations or to Retrofit Existing
LED Power Array™

The LED Power Array™ by Sun Valley Lighting allows you to control the energy saving light source with one of the most flexible optical systems ever created to harness the LED. Capable of being configured to produce specific distribution patterns or used as the illumination engine behind precision refractors, Sun Valley’s LED Power Array™ is THE robust solution for bringing the benefits of LED’s to traditional luminaires.
Sun Valley's family of traditional luminaires brings the feeling of community and personal intimacy to any project. Incorporating the ability to precisely control both the intensity and light distribution while maintaining the integrity of traditional luminaires is accomplished with the LED Power Array™ system. Combining timeless aesthetics and current illumination sources, Sun Valley Lighting remains at the forefront of streetscapes, parks and recreation projects, and downtown revitalization programs.
Individual LED Tubes

The heart of the Sun LED Valley Power Array™ is the individual LED tube. Each tube houses and protects the LED’s, circuit boards, wiring, and Micro-Reflector optics (used only in the Angled Tube Arrays). The heat from the LED is transferred through the vented circuit board to the radial heatsink while the light is emitted through the protective lens. The individual LED tubes vary in length depending on the number of LED’s and wattage of the system.

The side view of an LED tube with the Micro-Reflector Optics is shown to the right and illustrates the vertical light control of the raw LED output. Each individual tube is then aimed horizontally and vertically to form standard IES distribution patterns. These Angled Tube Arrays are ideal within light diffusing globes or lenses to manage glare and smooth the light distributions for maximum uniformity and wide throw.

The enlarged illustration below better shows how the Micro-Reflectors control Uplight and provide the necessary candlepower curve that is crucial to performance outdoor lighting.
**LED Tube Arrays**

**Angled Power Arrays**
These arrays utilize the proprietary Micro-Reflector Optics. Each LED tube is individually aimed horizontally and vertically and works in concert with the other tubes to create standard IES distributions. These arrays are used with a mild diffusing lens or globe.

Angled Power Arrays are available in four standard IES Distributions and are configured in either 8-Tube or 10-Tube arrays.

**Vertical Power Arrays**
These arrays are used to replace standard light sources within prismatic glass refractors, refractive globes, and diffuse or opal globes or lenses. Any application where the optical portion of the luminaire is dictated by a refractor or lens is best suited for the Vertical Power Arrays.

The Vertical Power Arrays do not utilize the Micro-Reflector. Instead, the raw distribution of the individual LED’s simulates the output of a standard lamp source. Individual tubes are aligned radially for symmetric output.

Vertical Power Arrays produce 360° of output and are configured in either 6-Tube or 8-Tube arrays.
LED Power Array™ & Lens Configurations

1. Angled Power Array With Clear Lens (Patterned, Stippled, or Sandblasted)

Optical control in this configuration is provided by the Angled Power Array. The uniquely aligned LED tubes with Micro-Reflectors produce IES type distributions (II, III, IV, and V) optimized for outdoor lighting. The Angled Power Array is designed to work in conjunction with a slightly diffusing lens to soften the distribution, provide glare control, and increase visual acuity.

2. Vertical Power Array With Prismatic Enclosure

The Vertical Power Array in this configuration replaces a standard lamp source. The LED tubes are aligned to provide a uniform radial light pattern utilizing the raw distribution of the LED’s to closely match the light or luminance output of a standard lamp source. Optical control and distribution are dictated by the refracting prisms of the lens or globe.
3. **Vertical Power Array Inside Prismatic Glass Refractor**

The Vertical Power Array in this configuration replaces a standard lamp source and provides a radially uniform light pattern with the internal Prismatic Glass Refractor. Optical control is provided by the internal refractor. A clear, smooth lens enclosure will provide a direct distribution from the refractor. A textured, stippled, or sandblasted lens enclosure will soften the distribution and add another layer of glare control to the configuration.

![Diagram of Vertical Power Array Inside Prismatic Glass Refractor](image)

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4. **Vertical Power Array With Opal Lens**

The Vertical Power Array in this configuration replaces a standard lamp source. The radial output of the Vertical Power Array provides even light across the opal globe. This is the desired configuration for a uniformly glowing lens or globe.

![Diagram of Vertical Power Array With Opal Lens](image)
LED Power Array™ Specifications

General Power Array Specifications - LED Power Array™ consists of a three-dimensional array of individual LED tubes fastened to a retaining plate. Each LED tube houses LED emitters mounted to a vented circuit board. The circuit boards are mechanically mounted to an extruded radial heatsink and transfer the heat away from the LED emitter to the heatsink. An acrylic lens and end cap protect the components within each LED Tube.

Angled Power Arrays For Non-Optical Lenses - Micro-Reflectors mounted around each LED produce precise beam patterns and control the raw output of each individual LED emitter. Each LED tube is uniquely aimed horizontally and vertically and combined to produce IES Distribution Types II, III, IV, and V. The retaining plate is field rotatable and secured with a lock nut. Angled Power Arrays are available with 8 or 10 tubes depending on lens or globe size.

Vertical Power Arrays For Prismatic Glass Refractors, Refracting Lenses or Globes, and Opal Lenses or Globes - 6 or 8 LED Tubes are Mounted to a retaining plate in equal radial increments for an even light distribution. The raw output of the LED emitter is utilized to simulate a standard light source while the lens or refractor provides the optical control.

LED Emitters - Luxeon Rebel ES emitters are mounted to vented and heat sinked circuit boards within each LED Tube. Emitters are driven at 350mA for 1 Watt each nominal output. LED’s are available in Standard Neutral White (CCT 4100K) or Optional Cool White (CCT 5500K) and Warm White (CCT 3000K).

LED Driver - UL and CUL recognized Constant Current LED drivers operate on input voltages from 120 – 277VAC, 50/60hz and are mounted to an aluminum bracket secured to the barrier plate. Terminal blocks facilitate wiring between the driver and optical arrays, and between driver and incoming supply. Driver is independently sealed and UL Listed for wet location. Consult Factory for High-Low and dimming options.

Consult Factory for Non-Standard Options.

<table>
<thead>
<tr>
<th>LED Tube Length</th>
<th>6 Tube Array # of LED's / Watts</th>
<th>8 Tube Array # of LED's / Watts</th>
<th>10 Tube Array # of LED's / Watts</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.5&quot; (4 LED)</td>
<td>24 / 28</td>
<td>32 / 37</td>
<td>40 / 46</td>
</tr>
<tr>
<td>5.0&quot; (6 LED)</td>
<td>36 / 41</td>
<td>48 / 55</td>
<td>60 / 69</td>
</tr>
<tr>
<td>6.5&quot; (8 LED)</td>
<td>48 / 55</td>
<td>64 / 74</td>
<td>80 / 92</td>
</tr>
</tbody>
</table>

* Max System Watts

(Specifications subject to change without prior notice.)
Retrofitting the LED Power Array™ into Non-Sun Valley Luminaires

The flexibility of the LED Power Array™ is ideally suited to be retrofitted to preinstalled fixtures. Globes or lanterns, base or pendant mounted can all be retrofitted with a standard or custom solution. With a few simple guidelines, the LED Power Array™ is an ideal solution for updating the illumination source the long-life, energy saving LED's.

Guideline Dimensions
These standard guidelines can help determine if an LED Power Array™ solution may be used. Custom solutions are available.

Accepted Procedure
The primary considerations for retrofitting the LED Power Array™ into non-Sun Valley luminaires are ease of conversion, thermal characteristics of the existing luminaire, and performance. To realize maximum benefit from the retrofit it is essential that a sample fixture from the site be sent to the factory. We will craft the retrofit module specifically for the project. Contact Sun Valley for the return procedure.
Photometrics

Type - II
Test: ITL64128 (IESNA LM-79-08)
Optics: Type-II Angled Array LED Power Array™
Lens: Clear Patterned Polycarbonate Acorn Globe
LED’s: 60 Luxeon Rebel Neutral White
Total Lumens: 4310.7
Total Input Watts: 80.4 @ 120 Volts

Max Candela Plot
2167 Candela at 71° Vertical, 74° Horizontal

LCS Zonal Lumens

Vertical Range

Frontlight
Backlight

<table>
<thead>
<tr>
<th>Vertical Range</th>
<th>%LL (Lumens)</th>
<th>%LL (Lumens)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low (0°-30°)</td>
<td>1.7 (74.9)</td>
<td>1.0 (43.1)</td>
</tr>
<tr>
<td>Medium (30°-60°)</td>
<td>22.2 (958.1)</td>
<td>8.7 (375.8)</td>
</tr>
<tr>
<td>High (60°-80°)</td>
<td>32.2 (1387.0)</td>
<td>10.1 (433.5)</td>
</tr>
<tr>
<td>Very High (80°-90°)</td>
<td>9.1 (390.4)</td>
<td>3.1 (134.6)</td>
</tr>
<tr>
<td>Total : 95.2% (3810.5)</td>
<td>22.9% (977.2)</td>
<td></td>
</tr>
</tbody>
</table>

Note: Percentages are Luminaire Lumens, “%LL”.

Typical Half

Backlight
Frontlight

Horizontal Distance in Units of Mounting Heights

Horizontal Footcandies at listed mounting heights

Lateral Distance in Units of Mounting Heights

Horizontal Footcandies at listed mounting heights

Vertical Plane
Horizontal Cone

Typical Half

Frontlight

Uplight Low (90°-100°) :  6.4% (274.5)  
Uplight High (100°+) :  5.5% (238.8)  
BUG Rating :  B1 - U3 - G3

Note: Percentages are luminare lumens, “%LL”.  

SUN VALLEY LTG.  www.usaltg.com
Photometrics

Type - III

Test: ITL64129 (IESNA LM-79-08)
Optics: Type-III Angled Array LED Power Array™
Lens: Clear Patterned Polycarbonate Acorn Globe
LED's: 60 Luxeon Rebel Neutral White
Total Lumens: 4248.5
Total Input Watts: 80.5 @ 120 Volts

Max Candela Plot
1953 Candela at 70° Vertical, 56.6° Horizontal

LCS Zonal Lumens

<table>
<thead>
<tr>
<th>Vertical Range</th>
<th>Frontlight</th>
<th>Backlight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low (0°-30°)</td>
<td>1.6% (67.5)</td>
<td>0.8% (34.9)</td>
</tr>
<tr>
<td>Medium (30°-60°)</td>
<td>22.0% (934.0)</td>
<td>6.7% (286.0)</td>
</tr>
<tr>
<td>High (60°-80°)</td>
<td>34.5% (1466.1)</td>
<td>7.6% (323.9)</td>
</tr>
<tr>
<td>Very High (80°-90°)</td>
<td>11.0% (468.6)</td>
<td>2.5% (107.5)</td>
</tr>
<tr>
<td>Total: 59.1% (2935.7)</td>
<td>17.6% (747.7)</td>
<td></td>
</tr>
</tbody>
</table>

Uplight Low (90°-100°): 6.9% (295.1)  BUG Rating: B1 - U3 - G3
Uplight High (100°+): 6.2% (264.1)

Note: Percentages are luminaire lumens, "%LL".
**Photometrics**

**Type - IV**

*Test:* ITL64130 (IESNA LM-79-08)

*Optics:* Type-IV Angled Array LED Power Array™

*Lens:* Clear Patterned Polycarbonate Acorn Globe

*LED's:* 60 Luxeon Rebel Neutral White

*Total Lumens:* 4220

*Total Input Watts:* 79.9 @ 120 Volts

**Max Candela Plot**

2215 Candela at 70° Vertical, 31.5° Horizontal

**LCS Zonal Lumens**

**Horizontal Distance in Units of Mounting Heights**

<table>
<thead>
<tr>
<th>Lateral Distance in Units of Mounting Heights</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.05</td>
<td>0.08</td>
<td>0.10</td>
<td>0.14</td>
<td>0.20</td>
</tr>
</tbody>
</table>

**Vertical Plane**

<table>
<thead>
<tr>
<th>Vertical Range</th>
<th>Frontlight (Lm)</th>
<th>Backlight (Lm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low (0°-30°)</td>
<td>1.9% (79.0)</td>
<td>0.7% (30.3)</td>
</tr>
<tr>
<td>Medium (30°-60°)</td>
<td>25.2% (1064.1)</td>
<td>5.1% (216.3)</td>
</tr>
<tr>
<td>High (60°-80°)</td>
<td>36.7% (1547.6)</td>
<td>5.4% (229.2)</td>
</tr>
<tr>
<td>Very High (80°-90°)</td>
<td>10.5% (441.8)</td>
<td>1.9% (78.8)</td>
</tr>
<tr>
<td>Total</td>
<td>74.3% (3135.5)</td>
<td>13.1% (552.82)</td>
</tr>
</tbody>
</table>

**Frontlight**

<table>
<thead>
<tr>
<th>Vertical Range</th>
<th>Up</th>
<th>Front</th>
<th>Back</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low (0°-30°)</td>
<td>18%</td>
<td>28%</td>
<td>37%</td>
</tr>
<tr>
<td>Medium (30°-60°)</td>
<td>10%</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>High (60°-80°)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very High (80°-90°)</td>
<td>6.5% (275.5)</td>
<td>BUG Rating:</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>8.6%</td>
<td>5.1%</td>
<td>6.1%</td>
</tr>
</tbody>
</table>

**Note:** Percentages are Luminaire Lumens, "ILL".
Photometrics

Type - V

Test: ITL64131 (IESNA LM-79-08)
Optics: Type-V Angled Array LED Power Array™
Lens: Clear Patterned Polycarbonate Acorn Globe
LED’s: 60 Luxeon Rebel Neutral White
Total Lumens: 4587
Total Input Watts: 80.3 @ 120 Volts

Max Candela Plot
1953 Candela at 70° Vertical, 56.6° Horizontal

LCS Zonal Lumens

<table>
<thead>
<tr>
<th>Vertical Range</th>
<th>Frontlight (%)</th>
<th>Backlight (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low (0°-30°)</td>
<td>1.3% (58.1)</td>
<td>1.3% (58.1)</td>
</tr>
<tr>
<td>Medium (30°-60°)</td>
<td>15.0% (689.1)</td>
<td>15.0% (689.1)</td>
</tr>
<tr>
<td>High (60°-80°)</td>
<td>21.2% (971.6)</td>
<td>21.2% (971.6)</td>
</tr>
<tr>
<td>Very High (80°-90°)</td>
<td>6.3% (289.5)</td>
<td>6.3% (289.5)</td>
</tr>
<tr>
<td>Total:</td>
<td>43.8% (2008.3)</td>
<td>43.8% (2008.3)</td>
</tr>
</tbody>
</table>

Note: Percentages are Luminaire Lumens, "%LL".

Horizontal Distance in Units of Mounting Heights

Uplight Low (90°-100°): 6.6% (303.7)  BUG Rating: B1 - U3 - G2
Uplight High (100°+): 5.8% (267.0)  BUG Rating: B1 - U3 - G2

Typical Hall
Angled Array with Clear Enclosure
Sun Valley Luminaires Reference

See Sun Valley Binder for complete specifications and ordering information.

SCALE: $\frac{3}{4}" = 1'$

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
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<tbody>
<tr>
<td>CHT</td>
<td>48 LED's Max.</td>
</tr>
<tr>
<td>CMP</td>
<td>80 LED's Max.</td>
</tr>
<tr>
<td>LAA1</td>
<td>48 LED's Max.</td>
</tr>
<tr>
<td>LAA2</td>
<td>48 LED's Max.</td>
</tr>
<tr>
<td>LAB1</td>
<td>48 LED's Max.</td>
</tr>
<tr>
<td>LAB2</td>
<td>48 LED's Max.</td>
</tr>
<tr>
<td>LAC1</td>
<td>48 LED's Max.</td>
</tr>
<tr>
<td>LAC2</td>
<td>48 LED's Max.</td>
</tr>
<tr>
<td>LAE1</td>
<td>80 LED's Max.</td>
</tr>
<tr>
<td>LAE2</td>
<td>48 LED's Max.</td>
</tr>
<tr>
<td>LAF1</td>
<td>80 LED's Max.</td>
</tr>
<tr>
<td>LAF2</td>
<td>48 LED's Max.</td>
</tr>
<tr>
<td>LAG1</td>
<td>80 LED's Max.</td>
</tr>
<tr>
<td>LAG2</td>
<td>48 LED's Max.</td>
</tr>
<tr>
<td>LAJ1</td>
<td>48 LED's Max.</td>
</tr>
<tr>
<td>LAJ2</td>
<td>48 LED's Max.</td>
</tr>
<tr>
<td>LCAD</td>
<td>80 LED's Max.</td>
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<td>LCADN</td>
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<tr>
<td>CCB</td>
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<td>LC30</td>
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<tr>
<td>LCC22</td>
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<td>LCC18</td>
<td>48 LED's Max.</td>
</tr>
<tr>
<td>LCC30</td>
<td>80 LED's Max.</td>
</tr>
<tr>
<td>LCCA</td>
<td>80 LED's Max.</td>
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<tr>
<td>LCD30</td>
<td>80 LED's Max.</td>
</tr>
<tr>
<td>LCD22</td>
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<tr>
<td>LCD18</td>
<td>48 LED's Max.</td>
</tr>
<tr>
<td>LCF</td>
<td>48 LED's Max.</td>
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</tbody>
</table>
LCG  80 LED’s Max.
LCGS  80 LED’s Max.
LCH1  80 LED’s Max.
LCH2  48 LED’s Max.
LCJ1  80 LED’s Max.
LCJ2  48 LED’s Max.
LCJ01 80 LED’s Max.
LCJ02 48 LED’s Max.
LCK1  80 LED’s Max.
LCK2  48 LED’s Max.
LCKM1 80 LED’s Max.
LCKM2 48 LED’s Max.
LCM  48 LED’s Max.
LCN1  80 LED’s Max.
LCN2  48 LED’s Max.
LCR  48 LED’s Max.
LCSC  80 LED’s Max.
LCSO  80 LED’s Max.
LCT  80 LED’s Max.
LCWA  80 LED’s Max.
LCWB  80 LED’s Max.
LCX1  80 LED’s Max.
LCX2  48 LED’s Max.
Vertical Array with Prismatic Enclosure
Sun Valley Luminaires Reference

See Sun Valley Binder for complete specifications and ordering information.

SCALE: 3/8” = 1’

Acrylic, Polycarbonate, or Glass Prismatic Enclosure

CTR  64 LED’s Max.
CTR  64 LED’s Max.
CTR  64 LED’s Max.
CTR  64 LED’s Max.

LAAR  64 LED’s Max.
LAAR  64 LED’s Max.
LAAR  64 LED’s Max.
LAAR  64 LED’s Max.

LAFR1  64 LED’s Max.
LAFR1  64 LED’s Max.
LAFR1  64 LED’s Max.
LAFR1  64 LED’s Max.

DSARB25  64 LED’s Max.
DSARB1  64 LED’s Max.
DSARB25  64 LED’s Max.
DSARB1  64 LED’s Max.
DSTR25  64 LED’s Max.
DSTR1  64 LED’s Max.
VNDL  64 LED’s Max.

SCALE: 3/8” = 1’
Vertical Array Inside
Prismatic Glass Refractor
Sun Valley Luminaires Reference
See Sun Valley Binder for complete specifications
and ordering information.

SCALE: $\frac{3/4''}{1'}$

- **CMP** 36 LED's Max.
- **LAA1** 36 LED's Max.
- **LAB1** 36 LED's Max.
- **LAC1** 36 LED's Max.
- **LAE1** 36 LED's Max.
- **LAF1** 36 LED's Max.
- **LAG1** 36 LED's Max.
- **LAJ1** 36 LED's Max.
- **LCAD** 36 LED's Max.
- **LCADN** 36 LED's Max.
- **LCB** 36 LED's Max.
- **LCC18** 36 LED's Max.
- **LCCA** 36 LED's Max.
- **LCD18** 36 LED's Max.
- **LCF** 36 LED's Max.
- **LCG** 36 LED's Max.

Clear Smooth Acrylic or Polycarbonate
Clear Textured, Stippled, or Sandblasted Acrylic or Polycarbonate

See Sun Valley Binder for complete specifications and ordering information.
Continued
Vertical Array with Opal Enclosure
Sun Valley Luminaires Reference

See Sun Valley Binder for complete specifications and ordering information.

SCALE: \( \frac{3}{8} " = 1' \)
Continued

<table>
<thead>
<tr>
<th>Model</th>
<th>LED Capacity</th>
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<tbody>
<tr>
<td>LCF</td>
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</tr>
<tr>
<td>LCG</td>
<td>64 Max.</td>
</tr>
<tr>
<td>LCGS</td>
<td>64 Max.</td>
</tr>
<tr>
<td>LCH1</td>
<td>64 Max.</td>
</tr>
<tr>
<td>LCH2</td>
<td>48 Max.</td>
</tr>
<tr>
<td>LCJ1</td>
<td>64 Max.</td>
</tr>
<tr>
<td>LCJ2</td>
<td>48 Max.</td>
</tr>
<tr>
<td>LCK1</td>
<td>64 Max.</td>
</tr>
<tr>
<td>LCK2</td>
<td>48 Max.</td>
</tr>
<tr>
<td>LCM</td>
<td>64 Max.</td>
</tr>
<tr>
<td>LCN1</td>
<td>64 Max.</td>
</tr>
<tr>
<td>LCN2</td>
<td>48 Max.</td>
</tr>
<tr>
<td>LCR</td>
<td>64 Max.</td>
</tr>
<tr>
<td>LCSC</td>
<td>64 Max.</td>
</tr>
<tr>
<td>LCSO</td>
<td>64 Max.</td>
</tr>
<tr>
<td>LCT</td>
<td>64 Max.</td>
</tr>
<tr>
<td>LCW</td>
<td>64 Max.</td>
</tr>
<tr>
<td>LCWA</td>
<td>64 Max.</td>
</tr>
<tr>
<td>LCWB</td>
<td>64 Max.</td>
</tr>
</tbody>
</table>

Continued on next page.
LCX1  64 LED’s Max.
LCX2  48 LED’s Max.

LCZ     64 LED’s Max.

RCGV22  64 LED’s Max.
RCGV18  64 LED’s Max.
RCGV14  48 LED’s Max.

LG24  64 LED’s Max.
LG22  64 LED’s Max.
LG18  48 LED’s Max.

RCGD22  64 LED’s Max.
RCGD18  64 LED’s Max.
RCGD14  48 LED’s Max.

RCGN22  64 LED’s Max.
RCGN18  64 LED’s Max.
RCGN14  48 LED’s Max.

RCGVS22  64 LED’s Max.
RCGVS18  64 LED’s Max.
RCGVS14  48 LED’s Max.

B800  24 LED’s Max.
B3300  24 LED’s Max.
B2300  24 LED’s Max.
B100  24 LED’s Max.
B8500  24 LED’s Max.

SCALE: \( \frac{3}{8}'' = 1' \)
LED Power Array™