

# Versalux LED

High Performance Unexcelled Versatility



Patents Pending

U.S. ARCHITECTURAL  
LIGHTING

## Versalux LED



Product versatility is a design advantage when continuity of design is a project consideration. Whether in the variety of mounting configurations, the wide selection of lumen/wattage packages, or the light distribution requirements, Versalux LED offers solutions through versatility.

Versalux LED is designed for both arm and post top mounting applications as well as wall mounting. Versalux LED further works well for canopy mounting due to a unique housing design that produces strong convection currents which create the air flow required to cool both the **VLED®** solid state components and the drivers. Generous vents in the module support frame accept the cool air input while the module's warm air flows out through the screened side vents in the side walls of Versalux LED.



The result is a versatile luminaire which accepts a wide variety of **VLED®** Module sizes and multiple drive currents to achieve illumination levels and LED life expectancies that will satisfy the most demanding projects.



### Housing

The heavy-walled housing provides long term durability under the harshest environments. The unitized sidewall and canopy construction adds rigidity to the luminaire and makes it ideal for canopy installations where robust fixtures are required.

### Convection Vents

Air drawn in through the slotted Versalux LED Housing creates convection currents that lower the luminaire's internal temperature, thereby increasing the life and lumen output of the LED. The openings are perforated to keep out birds and larger objects and are protected by the "over-hang" design of the Housing.

### ∇LED® Optical Module

The ∇LED® Optical Module optimizes LED performance by optically controlling the output of each LED for beamspread and placement. The module is sealed to meet an IP67 rating and is designed to conduct heat away from the individual components and convect that heat into the Versalux LED Housing.

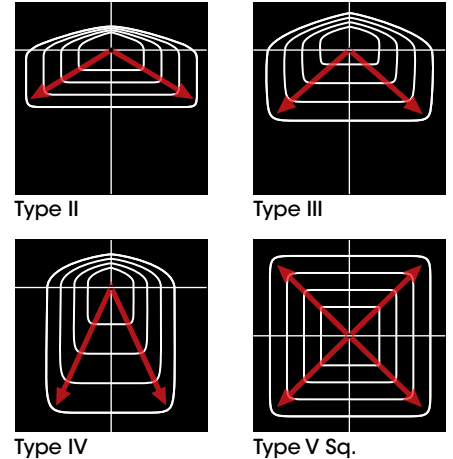
### ∇LED® Module Lens Frame

The Lens Frame encases the ∇LED® Optical Module and has large slotted openings around its perimeter. These openings allow cooling air to be drawn into the Housing and across the ∇LED® Module and cooling fins across the top to lower the operating temperature of the LED's. The warmer air is vented out the Convection Vents creating a continuous air flow.

Offering Solutions  
Through Versatility

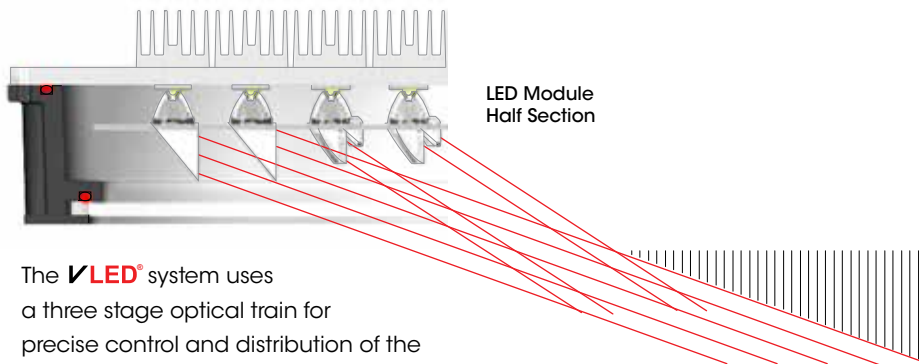
# VLED® Optics

Patent Pending See VLED® Catalog for a complete presentation on the VLED® System.



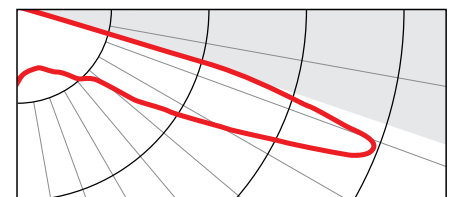
U.S. Architectural Lighting's VLED® Optical Module takes advantage of the intrinsic properties of LED's, size and source directionality to produce light levels comparable to HID sources that consume twice as much power. For example: An 80LED module driven at 700mA has a system power draw of 167 watts and produces the same footcandle levels as a 400 watt MH lamp which consumes 460 watts when the ballast/lamp power draw is considered. The entire VLED® Optical Module is completely sealed against the elements to insure maximum performance throughout the life of the LED's.

The individual optical components of the VLED® Module are aimed to produce standard site/area and roadway distributions with a minimum of glare and a maximum of efficiency.



The VLED® system uses a three stage optical train for precise control and distribution of the raw LED light: Capture 100% of the raw LED light; Collimate all of the light downward; and Vector the light outward to the area to be illuminated.

Max CP Curve for 120 VLED® Module



0% of Total Light Output occurs at or above 90° vertical.

Less than 4% of Total Light Output occurs above 75°.



## How LED's Work

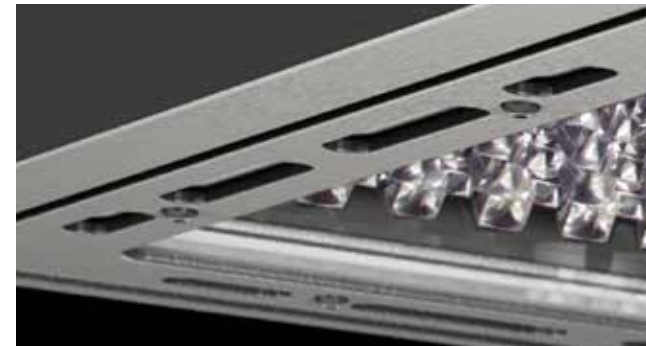
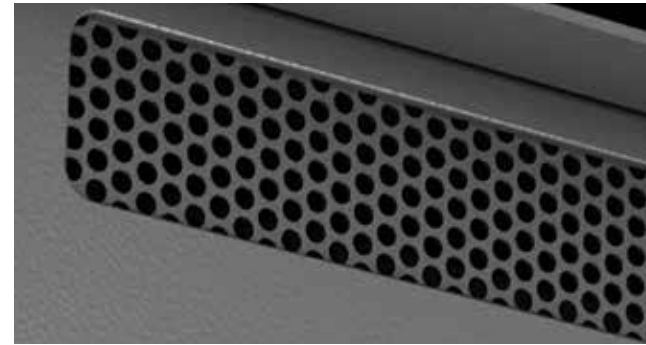
LED light levels can be controlled by varying either the voltage applied to the LED (constant voltage LED's) or by varying the current applied to the LED (constant current LED's). The **VLED®** Optical Module utilizes constant current LED's operating at 350mA to 700mA. At 350mA, each LED produces about 130 lumens.

To increase the light level of the **VLED®** Module without adding LED's, we increase the drive current above 350mA. However, as the drive current (and thus system wattage) is increased, heat generated by the LED's is also increased and the LED's become less efficient.

Heat is the enemy of LED's in 2 significant ways: One, shortened life, and two, the greater the heat, the greater the reduction of light levels that are produced.

Apart from heat, LED's also become less efficient as the drive current is increased as an intrinsic part of how they operate. While nothing can be done to change the loss of efficiency due to the increased power applied to the system, much can be done to mitigate the problems due to heat. This is where the Versalux LED by U.S. Architectural shines.

- Heat produced by the component LED's is conducted away from the circuit boards by the backing plate milled to a flatness of <.003" in 12" (eliminating the need for thermal pastes) and the frame of the **VLED®** Optical Module, all cast as a single piece insuring excellent heat conductivity.
- That heat is then convected into the Versalux LED Housing by the unitized frame and the heat sinks of the **VLED®** Optical Module.
- The heat in the Versalux LED Housing is dissipated by air flow drawn in through the generous openings in the **VLED®** Module Lens/Support frame and out the protected, Convection Vents on the upper wall of the Versalux LED Housing.

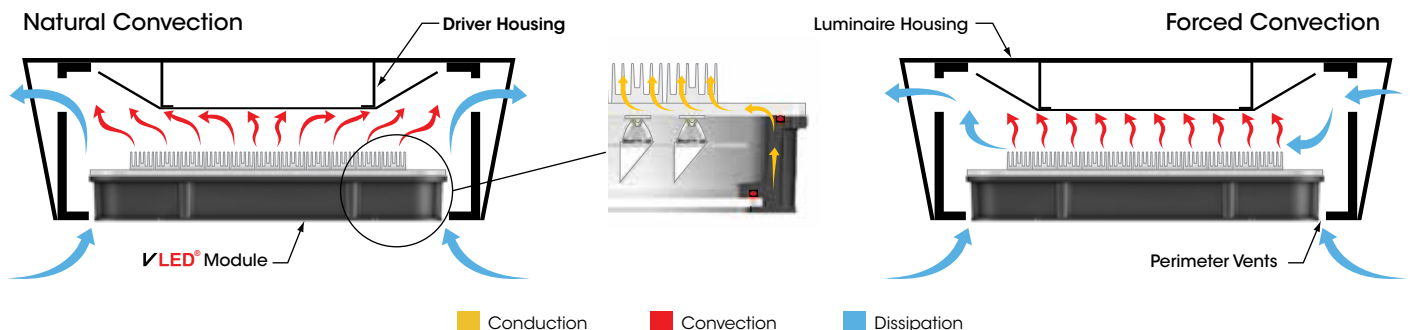


VERSALUX LED SERIES				
Number of LEDs	Total Current	Input Watts	Initial Lumens **	Approx. HID Equivalent
120*	525 mA	192 W.	14,713 - 15,375	400
120*	350 mA	130 W.	10,634 - 11,112	250 - 320
80	700mA	167 W.	12,408 - 13,005	400
80	525 mA	130 W.	9,994 - 10,444	175 - 250
80	350 mA	85 W.	7,131 - 7,452	150 - 175
64	700mA	134 W.	9,927 - 10,405	175 - 250
64	525 mA	108 W.	7,393 - 8,257	175
64	350 mA	70 W.	5,255 - 5,898	100
48	700mA	109 W.	7,515 - 8,131	175
48	525 mA	79 W.	5,871 - 6,557	100 - 150
48	350 mA	55 W.	4,241 - 4,760	70 - 100

\* Available in Arm and Post Top Mounts only.

\*\* Preliminary Average Initial Lumens.

### Conduction + Convection + Dissipation (Air Flow) = Maximum LED Illumination and Life Expectancy



# Specifications

**Fixture Housing** - Unitized 0.125" heavy wall aluminum construction. Upper side vents are protected with perforated aluminum panels. Side vents and bottom lens frame vents provide passive and forced convective cooling of the **VLED** module. Internal driver compartment is gasketed and sealed

## Fixture Mountings -

**Arm** - One piece heavy wall extruded aluminum with internal draw bolt guides. Arm is secured to housing and pole with stainless steel draw bolts.

**Wall Mount** - Corrosion resistant cast aluminum construction. Arm is supplied with removable aluminum side cover for easy access to electrical components.

**Post Top Arms** - Four (4) 1" Square extruded aluminum arms welded to a cast aluminum pole top fitter. Arm assembly is mechanically attached to castings welded to either side of the housing.

**Canopy Mount** - Formed aluminum wiring compartment to facilitate surface mounting with surface conduit. Knock-outs for (4) 1/2" and 3/4" conduit provided.

**Finish** - Electrostatically applied TGIC Polyester Powder Coat on substrate prepared with 20 PSI power wash at 140°F. Four step sand blast and iron phosphate pretreatment for protection and paint adhesion. 400°F bake for maximum hardness and durability. Texture finish is standard.

**VLED Optical Module** - Low copper A356 alloy (<.2% copper) cast aluminum housing. Integrated clear tempered 3/16" glass lens sealed with a continuous silicone gasket protects emitters (LED's) and emitter Reflector-Prism optics, and seals the module from water intrusion and environmental contaminants. Module is sealed to meet an IP67 rating. LED's are available in standard Neutral White (4000K), or optional Cool White (5000K) or Warm White (3000K). Each emitter is optically controlled by a Reflector-Prism injection molded from H12 acrylic (3 types per module; one from 0° - 50°; one from 50° - 65°; one from 65° - 72°). Each Reflector-Prism has indexing pins for aiming and is secured to an optical plate made of matte black anodized aluminum. The optical plate locates every Reflector-Prism over an emitter. Reflector-Prisms are secured to the optical plate with a UV curing adhesive. The Reflector-Prisms are arrayed to produce IES Type II, III, IV, and V-SQ distributions. The entire Optical Module is field rotatable in 90° increments. Both module and drivers are factory wired using water resistant, insulated cord. Lens, module and drivers are field replaceable.

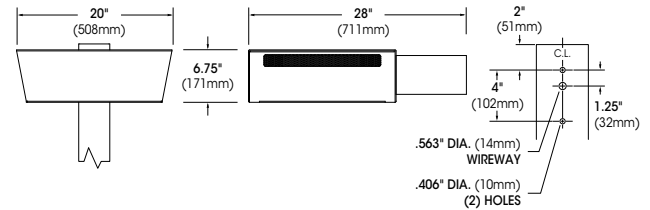
**Driver** - driver is UL and cUL recognized mounted on a single plate and factory prewired with quick-disconnect plugs. Constant current driver is electronic and has a power factor of >.90 and a minimum operating temperature of -40°F. Drivers accept an input of 120-277V, 50/60Hz. (0 - 10V dimmable driver is standard. Driver has a minimum of 3KV internal surge protection.)

**External Surge Protection** - 20KVA surge protector supplied for installation at pole hand hole or other point outside of fixture. Surge protector will open circuit at end of life to protect luminaire.

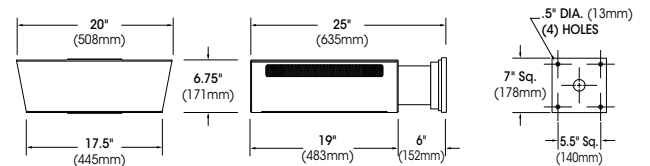
## Dimming Option -

**Switch Controlled Hi/Lo Dimming (HLSW)** - Provide driver utilizing a 0V - 10V dimming interface signal internal to luminaire. Connection to external AC switching device provided by others switches the LED illumination level between 50% - 100%. Switching devices are AC load switching and can be a motion sensor.

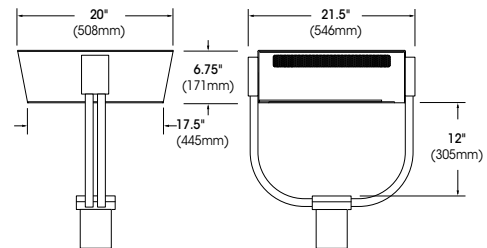
**Versalux LED Arm**  
48/64/80/100/120 **VLED**  
EPA 1.43



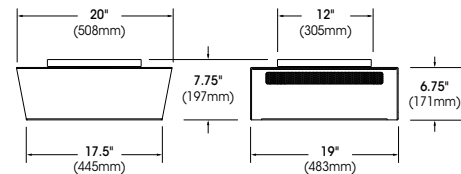
**Versalux LED Wall Mount**  
48/64/80 **VLED**  
EPA 1.43



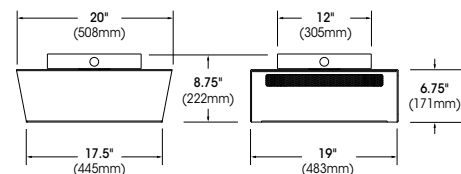
**Versalux LED Post Top**  
48/64/80/100/120 **VLED**  
EPA 1.66



**Versalux LED Canopy Mount (Standard)**  
48/64/80 **VLED**  
EPA 1.14



**Versalux LED Canopy Mount (Wire Box)**  
48/64/80 **VLED**  
EPA 1.24



See **VLED** Catalog for a complete presentation on System.

SCALE: 1/2" = 1'-0"

# LED Electrical Guide

✓LED Module # of LEDs	Drive Current (milliamps)	Initial Lumens*	L70 Lifetime** (Hours)	System Input Watts	Max Input Amp @120V	Max Input Amp @277V	Max Input Amp @347V
<b>48LED</b>	350mA	4,241 - 4,760	>100,000	55	0.46	0.20	0.16
<b>64LED</b>	350mA	5,255 - 5,898	>100,000	70	0.59	0.26	0.21
<b>80LED</b>	350mA	7,131 - 7,452	>100,000	85	0.77	0.31	0.25
<b>120LED</b>	350mA	10,634 - 11,112	>100,000	130	1.10	0.47	0.38
<b>48LED</b>	525mA	5,871 - 6,557	>100,000	79	0.66	0.29	0.23
<b>64LED</b>	525mA	7,393 - 8,257	>100,000	108	0.90	0.39	0.32
<b>80LED</b>	525mA	9,994 - 10,444	>100,000	130	1.09	0.47	0.38
<b>120LED</b>	525mA	14,713 - 15,735	>100,000	192	1.60	0.70	0.56
<b>64LED</b>	700mA	9,927 - 10,405	>100,000	134	1.12	0.49	0.39
<b>80LED</b>	700mA	12,408 - 13,005	>100,000	167	1.40	0.61	0.49

\*Lumen Output bases on previous LM79 tests with similar products.















\*\*L70 Lifetime Hours far exceed 100,00 based on TM-21 projections. TM-21 only suggests using 6X the test time, which is currently 54,000 hours. At 54,000 hours, all of the above have a Lumen Maintenance greater than 90%. See Lumileds DR05-2-1 for further LM-80 information.

See VRS-LED spec sheet at [www.usaltg.com](http://www.usaltg.com) for additional details and expanded LED Electrical Data.

All LED data for Neutral White (4000K CCT) LED's.

## Ordering Information

Spec/Order Example: VRS LED/VLED-V-SQ/120LED 350mA-CW 277/PT/RAL7004

MODEL	OPTICS	LED MODE			MOUNTING	FINISH	OPTIONS
<input type="checkbox"/> VRS LED	<input type="checkbox"/> TYPE II VLED-II 	<input type="checkbox"/> 120LED <sup>1</sup>	<input type="checkbox"/> 700mA	<input type="checkbox"/> NW (4000K)* <small>*STANDARD</small>	<input type="checkbox"/> 1 	<input type="checkbox"/> BLACK RAL-9005-T	<input type="checkbox"/> HIGH-LOW DIMMING FOR HARDWIRED SWITCHING OR NONINTEGRATED MOTION SENSOR ..... HLSW
	<input type="checkbox"/> TYPE III VLED-III 	<input type="checkbox"/> 100LED <sup>1</sup>	<input type="checkbox"/> 525mA	<input type="checkbox"/> CW (5000K)	<input type="checkbox"/> 2-180 	<input type="checkbox"/> WHITE RAL-9003-T	<input type="checkbox"/> INTERNAL HOUSE SIDE SHIELD ..... HS
	<input type="checkbox"/> TYPE IV VLED-IV 	<input type="checkbox"/> 80LED	<input type="checkbox"/> 350mA	<input type="checkbox"/> WW (3000K)	<input type="checkbox"/> 2-90 	<input type="checkbox"/> GREY RAL-7004-T	<input type="checkbox"/> EXTERNAL HOUSE SIDE SHIELD ..... EHS
	<input type="checkbox"/> TYPE V VLED-V-SQ 	<input type="checkbox"/> 64LED	CONSULT FACTORY FOR OTHER LED COLORS		<input type="checkbox"/> 3-90 	<input type="checkbox"/> DARK BRONZE RAL-8019-T	<input type="checkbox"/> PHOTO CELL + VOLTAGE (EXAMPLE: PC120V) ..... PC+V
		<input type="checkbox"/> 48LED			<input type="checkbox"/> 120	<input type="checkbox"/> 4-90 	<input type="checkbox"/> GREEN RAL-6005-T
		1 - AVAILABLE IN ARM AND POST TOP MODELS ONLY. NOT AVAILABLE IN 700mA.			WALL MOUNT		<input type="checkbox"/> TWIST LOCK RECEPTACLE ONLY ..... TPR
		VOLTAGE			<input type="checkbox"/> WM 	FOR SMOOTH FINISH REPLACE SUFFIX "T" WITH SUFFIX "S" (EXAMPLE: RAL-9005-S)	
		<input type="checkbox"/> 208			YOLK MOUNT		<input type="checkbox"/> SINGLE FUSE (120V, 277V) ..... SF
		<input type="checkbox"/> 240			<input type="checkbox"/> PTA 	<input type="checkbox"/> DOUBLE FUSE (208V, 240V, 480V) ..... DF	
		<input type="checkbox"/> 277			<input type="checkbox"/> PTB 	CONSULT FACTORY FOR CUSTOM COLORS	
		<input type="checkbox"/> 340			CANOPY MOUNT		
		<input type="checkbox"/> 480			<input type="checkbox"/> CMS (STANDARD) 		
					<input type="checkbox"/> CMWB (WIRE BOX) 		

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