



Lumec **HighFocus** LED high mast luminaires provide an energy saving, low-maintenance solution that provides managers and work crews with the freedom to focus on other tasks. HighFocus LED features scalable lumen packages and offers up to 97,380 lumens with up to 140 lumens per watt (Lm/W). Includes Service Tag, innovative way to provide assistance throughout the life of the product.

Project: \_\_\_\_\_  
 Location: \_\_\_\_\_  
 Cat.No: \_\_\_\_\_  
 Type: \_\_\_\_\_  
 Lamps: \_\_\_\_\_ Qty: \_\_\_\_\_  
 Notes: \_\_\_\_\_

### Ordering guide

example: HFL-276L1050NW-G1-2-HVU-DD-TLRD5-HS-GY3

Luminaire	LED Module	Optical System	Voltage	Driver and Dimming	Twist-Lock Receptacle	Surge Protection	Luminaire Options	Finish
<b>HFL</b>								
HFL HighFocus	<b>92L1050NW-G1</b> <b>184L700NW-G1</b> <b>184L1050NW-G1</b> <b>276L200NW-G1</b> <b>276L350NW-G1</b> <b>276L530NW-G1</b> <b>276L700NW-G1</b> <b>276L1050NW-G1</b>	<b>2</b> Type II <b>3</b> Type III <b>4</b> Type IV <b>5M</b> Type V Medium <b>5W</b> Type V Wide	<b>UNV</b> 120-277VAC <b>HVU</b> 347-480VAC <b>120<sup>6</sup></b> 120V <b>208<sup>6</sup></b> 208V <b>240<sup>6</sup></b> 240V <b>277<sup>6</sup></b> 277V <b>347<sup>6</sup></b> 347V <b>480<sup>6</sup></b> 480V	<b>Standard:</b> <b>DD<sup>1</sup></b> Dimmable driver 0-10V	<b>Standard:</b> <b>None<sup>4</sup></b> (leave blank)  <b>Optional:</b> <b>TLRD5<sup>3,4</sup></b> Receptacle for twist-lock photocell or shorting cap, 5-pin  <b>TLRD7<sup>3,4</sup></b> Receptacle for twist-lock photocell or shorting cap, 7-pin	<b>Optional:</b> <b>SP2<sup>5</sup></b> 20kV / 20kA Surge Protector	<b>HS</b> External house side shield  <b>HIS</b> Internal house side shield, snap-on, 1 per LED light engine  <b>PH8<sup>3,7</sup></b> Twist-lock Photoelectric Cell, UNIV (120-277VAC)  <b>PH8/347<sup>3,7</sup></b> Twist-lock Photoelectric Cell, HVU (347VAC)  <b>PH8/480<sup>3,7</sup></b> Twist-lock Photoelectric Cell, HVU (480VAC)  <b>PHXL<sup>3,7</sup></b> Twist-lock Photoelectric Cell, extended life, UNIV (120-277VAC)  <b>PH9<sup>3,7</sup></b> Shorting cap  <b>F1<sup>6</sup></b> Fusing, single (120, 277 or 347VAC)  <b>F2<sup>6</sup></b> Fusing, double (208, 240 or 480VAC)  <b>F3<sup>6</sup></b> Fusing, Canadian double pull (208, 240 or 480VAC)	<b>BK</b> Black finish  <b>BR</b> Bronze finish  <b>GY3</b> Gray finish  <b>WH</b> White finish

1. Please note these integrated features come standard with HighFocus luminaires.  
 2. Denotes programmable driver option. Not available with HVU (347-480VAC).  
 3. Use of photoelectric cell or shorting cap is required to ensure proper illumination.  
 4. HighFocus comes standard without a receptacle; to get a NEMA twist-lock receptacle, select either TLRD5 5-pin or TLRD7 7-pin option.

5. When SP2 option is selected you will get SP2 instead of standard SP1.  
 6. Specific voltage (120, 208, 240, 277, 347 or 480) must be specified with fusing options (F1, F2 or F3).  
 7. Includes TLRD5 unless TLRD7 is specified.

# HFL HighFocus

## High mast LED: 92, 184 and 276 LED

### Roadway

#### LED Wattage and Lumen Values

Ordering Code	Total LEDs	LED Current (mA)	Color Temp. <sup>3</sup>	Average System Watts <sup>1</sup>	Type 2			Type 3			Type 4		
					Lumen Output <sup>1,2</sup>	BUG Rating	Efficacy (LPW)	Lumen Output <sup>1,2</sup>	BUG Rating	Efficacy (LPW)	Lumen Output <sup>1,2</sup>	BUG Rating	Efficacy (LPW)
HFL-92L-1050-NW-G1-x	92	1050	4000	320	32,236	B3-U0-G3	101	31,642	B3-U0-G4	99	30,448	B3-U0-G5	95
HFL-184L-700-NW-G1-x	184	700	4000	428	49,146	B4-U0-G4	115	48,239	B4-U0-G5	113	46,419	B4-U0-G5	108
HFL-184L-1050-NW-G1-x	184	1050	4000	640	64,117	B5-U0-G5	100	62,935	B4-U0-G5	98	60,560	B4-U0-G5	95
HFL-276L-200-NW-G1-x	276	200	4000	167	23,054	B3-U0-G3	138	22,629	B3-U0-G3	135	21,775	B3-U0-G4	130
HFL-276L-350-NW-G1-x	276	350	4000	303	40,248	B4-U0-G4	133	39,505	B3-U0-G5	131	38,015	B3-U0-G5	126
HFL-276L-530-NW-G1-x	276	530	4000	468	58,228	B5-U0-G5	125	57,154	B4-U0-G5	122	54,997	B4-U0-G5	118
HFL-276L-700-NW-G1-x	276	700	4000	628	73,638	B5-U0-G5	117	72,280	B4-U0-G5	115	69,552	B4-U0-G5	111
HFL-276L-1050-NW-G1-x	276	1050	4000	965	95,707	B5-U0-G5	99	93,942	B5-U0-G5	97	90,397	B5-U0-G5	94

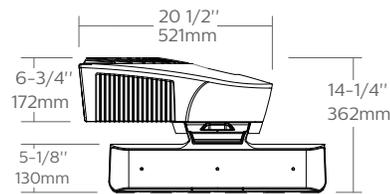
Ordering Code	Total LEDs	LED Current (mA)	Color Temp. <sup>3</sup>	Average System Watts <sup>1</sup>	Type 5W			Type 5M		
					Lumen Output <sup>1,2</sup>	BUG Rating	Efficacy (LPW)	Lumen Output <sup>1,2</sup>	BUG Rating	Efficacy (LPW)
HFL-92L-1050-NW-G1-x	92	1050	4000	320	32,559	B5-U0-G4	102	32,803	B5-U0-G2	103
HFL-184L-700-NW-G1-x	184	700	4000	428	49,638	B5-U0-G5	116	50,009	B5-U0-G2	117
HFL-184L-1050-NW-G1-x	184	1050	4000	640	64,760	B5-U0-G5	101	65,244	B5-U0-G2	102
HFL-276L-200-NW-G1-x	276	200	4000	167	23,285	B5-U0-G3	139	23,459	B4-U0-G2	140
HFL-276L-350-NW-G1-x	276	350	4000	303	40,651	B5-U0-G4	134	40,955	B5-U0-G2	135
HFL-276L-530-NW-G1-x	276	530	4000	468	58,811	B5-U0-G5	126	59,251	B5-U0-G2	127
HFL-276L-700-NW-G1-x	276	700	4000	628	74,376	B5-U0-G5	119	74,932	B5-U0-G3	119
HFL-276L-1050-NW-G1-x	276	1050	4000	965	96,666	B5-U0-G5	100	97,389	B5-U0-G3	101

1. Wattage and lumen output may vary by +/- 8% due to LED manufacturer forward volt specification and ambient temperature.  
Wattage shown is average for 120V through 277V input. Actual wattage may vary by an additional +/- 10% due to actual input voltage.

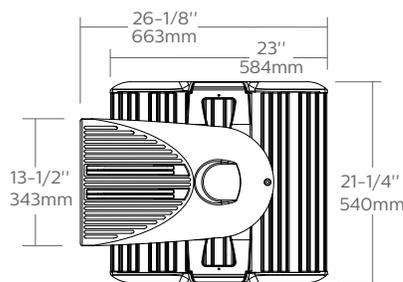
2. Lumen values based on photometric tests performed in compliance with IESNA LM-79.  
3. Warm white color temperature will result in decreased lumen output.  
Contact [signify.com/outdoorluminaires](http://signify.com/outdoorluminaires) for details or additional information.

#### Dimensions

Side View



Bottom View



**Weight - 2 Module:** 44 lbs  
19.96 kg  
**4 Module:** 60 lbs  
27.22 kg  
**6 Module:** 75 lbs  
34.02 kg

**EPA - 1.89 sq. ft.**

# HFL HighFocus

## High mast LED: 92, 184 and 276 LED

### Roadway

#### Predicted Lumen Depreciation Data

Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions. L<sub>70</sub> is the predicted time when LED performance depreciates to 70% of initial lumen output. Calculated per IESNA TM21-11. Published L<sub>70</sub> hours limited to 6 times actual LED test hours.

Ambient Temperature °C	Driver mA	Calculated L <sub>70</sub> Hours	L <sub>70</sub> per TM-21	Lumen Maintenance % at 51,000 hrs
25°C	1050 mA	>100,000 hours	>51,000 hours	>90%

#### Specifications

##### Housing

Made of a low copper die cast Aluminum alloy (A360) for a high resistance to corrosion, 0.100" (2.5mm) minimum thickness. Fits on a 2 3/8" (60mm) O.D. (2" NPS) by 5 1/2" (140mm) minimum long tenon. Comes with a zinc plated clamp fixed by 4 zinc plated hexagonal bolts 3/8-16 UNC for ease of installation. Provides an easy step adjustment of +/- 3° tilt in 3° increments. A single screw with sealing washer, hinged, removable door opens upward to provide access to electronic components and to a terminal block. Door is secured to prevent accidental dropping or disengagement. Electrical compartment rated IP65 seal per ANSI C136.25, provided with a pre-installed gasket. Complete with a bird guard installed which seals around tenon and protects against birds and similar intruders. ANSI label to identify wattage and source (included in box).

##### Light Engine

Composed of 4 main components:  
Heat Sink/ LED Module/Optical System/Driver

Electrical components are RoHS compliant, IP66 sealed light engines. LEDs tested by ISO 17025-2005 accredited lab in accordance with IESNA LM-80 guidelines in compliance with EPA ENERGY STAR, extrapolations in accordance with IESNA TM-21. Metal core board ensures greater heat transfer and longer lifespan.

##### Heat Sink

Anodized 6063-T5 Aluminum for a high resistance to corrosion, designed to ensure high efficacy and superior cooling by natural vertical convection air flow pattern always close to LEDs and driver optimizing their efficiency and life. Product does not use any cooling device with moving parts (only passive cooling). Wide openings enable natural cleaning and removal of dirt and debris. Entire luminaire is rated for operation in ambient temperature of -40°C / -40°F up to +40°C / +104°F.

##### LED Module

Composed of high performance white LEDs. Color temperature as per ANSI/NEMA bin Neutral White, 4000 Kelvin nominal (3985 +/- 275K or 3710K to 4260K), CRI 70 Min.

##### Optical System

Composed of high performance UV stabilized optical grade polymer refractor lenses to achieve desired distribution optimized to get maximum spacing, target lumens and a superior lighting uniformity. System is rated IP66. Performance shall be tested per LM-63, LM-79 and TM-15 (IESNA) certifying its photometric performance. 0% uplight and UO per IESNA TM-15.

*NOTE: Entire optical assembly rotatable, enabling alignment of asymmetric optics parallel with roadway to optimize optical performance.*

##### Driver

High power factor of 90% min. Electronic driver, operating range 50/60 Hz. Auto adjusting universal voltage input from 120 to 277 VAC or 347 to 480 VAC rated for both application line to line or line to neutral, Class I, THD of 20% max.

The current supplying the LEDs will be reduced by the driver if the driver experiences internal overheating as a protection to the LEDs and the electrical components. Output is protected from short circuits, voltage overload and current overload. Automatic recovery after correction. Standard built in driver surge protection of 2.5kV (min).

##### Integrated Features

**DD:** Dimmable driver 0-10V.

**SP1:** Surge protector tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line Ground, Line Neutral and Neutral Ground, and in accordance with U.S. DOE (Department of Energy) MSSSLC (Municipal Solid State Street Lighting Consortium) Model Specification for LED Roadway Luminaires Appendix D Electrical Immunity High Test Level 10kV / 10kA.

*Please note that these integrated features always come with HighFocus luminaires.*

# HFL HighFocus

## High mast LED: 92, 184 and 276 LED

### Roadway

#### Specifications (continued)

##### Driver and Luminaire Options

*NOTE: HighFocus LED high mast luminaires will be shipped controls ready when you select either 5-pin or 7-pin receptacle option; 0-10V dimming driver is standard. Contact your local Sales Representative for more information and for help with putting together the entire system solution.*

**TLRD5\***: Receptacle with 5 pins enabling dimming, can be used with a twist lock control node or photoelectric cell or a shorting cap.

**TLRD7\***: Receptacle with 7 pins enabling dimming additional functionality (to be determined), can be used with a twist lock control node or photoelectric cell or a shorting cap.

*Please note: Additional hardware will be required to utilize the additional 2 pins on this receptacle.*



**PH8\***: Twist-lock Photoelectric Cell, UNIV (120-277AC).

**PH8/347\***: Twist-lock Photoelectric Cell, HVU (347VAC).

**PH8/480\***: Twist-lock Photoelectric Cell, HVU (480VAC).

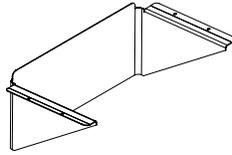


**PHXL\***: Twist-lock Photoelectric Cell, extended life, UNIV (120-277VAC).

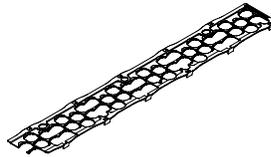


**PH9\***: Shorting cap.

*\* Use of photoelectric cell or shorting cap is required to ensure proper illumination.*



**HS**: External house side shield.



**HIS**: Internal house side shield, 1 per LED light engine.

**F1**: Fusing, single (for 120, 277 or 347VAC).

**F2**: Fusing, double (for 208, 240 or 480VAC).

**F3**: Fusing, Canadian double pull (for 208, 240 or 480VAC).

##### Luminaire Useful Life

Refer to IES files for energy consumption and delivered lumens for each option. Based on ISTMT in situ thermal testing in accordance with UL1598 and UL8750, System Reliability Tool, driver data and LED LM-80/TM-21, expected to reach 100,000 + hours with >L70 lumen maintenance @ 25°C. Luminaire Useful Life accounts for LED lumen maintenance AND all of these additional factors including: LED life, driver life, PCB substrate, solder joints, on/off cycles, burning hours and corrosion.

##### Wiring

The connection of the luminaire is done using a terminal block connector 600V, 85A for use with #2-#14 AWG wires from the primary circuit, located inside the housing. Due to the inrush current that occurs with electronic drivers, recommend using a time delay or slow blow fuse to avoid unnecessary and unwanted fuse blowing that can occur with fast acting fuses.

##### Hardware

All exposed screws shall be stainless for a high resistance to corrosion. All seals and sealing devices are made and/or lined with EPDM and/or silicone and/or rubber.

##### Finish

Color in accordance with the AAMA 2603 standard. Application of polyester powder coat paint (4 mils/100 microns) with  $\pm 1$  mils/24 microns of tolerance. The thermosetting resins provides a discoloration resistant finish in accordance with the ASTM D2244 standard, as well as luster retention in keeping with the ASTM D523 standard and humidity proof in accordance with the ASTM D2247 standard.

The surface treatment achieves a minimum of 2000 hours for salt spray resistant finish in accordance with testing performed and per ASTM B117 standard.

# HFL HighFocus

## High mast LED: 92, 184 and 276 LED

### Roadway

#### Specifications (continued)

##### LED products manufacturing standard

The electronic components sensitive to electrostatic discharge (ESD) such as light emitting diodes (LEDs) are assembled in compliance with IEC61340-5-1 and ANSI/ESD S20.20 standards so as to eliminate ESD events that could decrease the useful life of the product.

##### Vibration Resistance

The HFL meets the ANSI C136.31, American National Standard for Roadway Luminaire Vibration specifications for Bridge/overpass applications (Tested for 3G over 100,000 cycles by an independent lab).

##### Certifications and Compliance

cULus Listed for Canada and USA. Luminaire meets DOE and MSSLC Model Specification for LED Roadway Luminaires. HighFocus LED high mast luminaires are DesignLights Consortium qualified. Luminaire complies with or exceeds the following ANSI C136 standards: .2, .3, .10, .15, .18, .22, .25, .31, .37, .41.

##### Service Tag

Each individual luminaire is uniquely identifiable, thanks to the Service tag application. With a simple scan of a QR code, placed on the inside of the mast door, you gain instant access to the luminaire configuration, making installation and maintenance operations faster and easier, no matter what stage of the luminaire's lifetime. Just download the APP and register your product right away.

For more details visit: [signify.com/servicetag](https://signify.com/servicetag)

##### Limited Warranty

10-year limited warranty. See [signify.com/warranties](https://signify.com/warranties) for details and restrictions.

##### High Mast System

Lumec offers SkyMast raising and lowering device SMLS-G2 to accompany your HighFocus LED high mast luminaires. Visit our eCatalog or contact your local sales representative for more information.

