Evolaire™ Street and Area Luminaire

LED

PHILIPS
HADCO

sense and simplicity

Evolaire™

...Hadco's Evolutionary Luminaire.

Hadco's research investment in solid-state lighting sources is accelerating. Continuing improvements in LED technology are expected to provide increasingly affordable and environmentally friendly illumination that will revolutionize the way we use artificial light.

Reasons for LED:

- *energy savings*
- *lower cost of ownership*
- *sustainability*
- *5 year limited warranty**

Hadco is a Philips group brand and has been a leader in manufacturing high-performance, exceptional quality lighting products for over 50 years.

Hadco serves the Municipal/Utility, Commercial, and Residential lighting markets. Our lean, made-to-order philosophy and commitment to providing the lighting industry's shortest lead times allows us to consistently meet our customers' needs.

Hadco specializes in custom and modified products and utilizes the latest technologies available.

All products are manufactured to ISO 9001:2000 standards.

** reference www.HadcoLED.com for complete warranty information.*

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Evolaire™ Specifications . . .

Sealed, acrylic lens provides IP66 rating for LED panel assembly.

Gasketed, die-cast aluminum end cap provides tool-less access to power supply.

Extruded aluminum housing provides LED panel adjustability for (6) different angles and light distribution.

85-300 VAC, 50-60Hz Smart Select™ electronic driver.

LED panel assemblies constructed of extruded and die-cast aluminum and acrylic lens. IP66 rated and tool-less access.

Ideally Suited for Retrofit

- Mounts to existing poles and brackets.
- Wide voltage range, auto-sensing.
- No external input required for midnight dimming.
- 6 beam widths in one luminaire; adjustable panel angles.

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Cast aluminum mounting enclosure with access to terminal block.
("HT" mounting option shown)

Low Maintenance and TCO

- Tool-less LED array replacement.
- Tool-less power supply replacement.
- Automatic communication from LED arrays to power supply.
- Automatic adaption of power supply to future generations of LEDs.

OptiAC™ System and Extended Life

OptiAC power conversion technology ensures that every possible unit of energy is transformed into light.

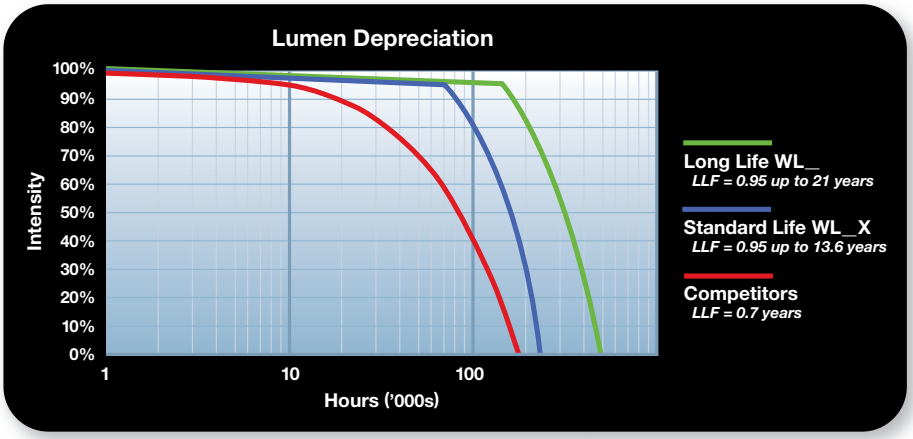
The OptiAC converter provides a conversion efficiency of 96% with a power factor of .98 and very low total harmonic distortion *(<10%)*. The unique age compensating algorithm ensures that photometric output is uniform over the long life of the fixture *(minimal lumen depreciation)*.

OptiAC goes a step further by automatically adapting to electrical inputs varying from 85 to 300 VAC.

- Power factor: 98%.
- System efficiency: 96%.
- LED aging compensation over 20 years.
- Light Loss Factor *(LLF)*: 0.95.
- Midnight dimming and motion sensing for added savings.
- Temperature compensation and protection.
- Auto sensing voltage range.

Forward Compatibility

Hadco fixtures are designed to be completely forward compatible. The modular design allows LED arrays to be easily slipped out and replaced. By design, the OptiAC converter will then automatically adapt to new array power specifications and adjust power flow instantly.



Specifications

- Die-cast and extruded aluminum construction.
- 70W to 200W HPS comparable performance.
- 33W to 100W of energy used *(<50% of comparable HID)*.
- 5mm low power, lighting grade LED devices, consume less than 1/10th of a watt each.
- Specialized aluminum core circuit board.
- Clear acrylic lens.
- Type II and III distribution patterns.
- 5000K color temperature *(CCT)*.
- 75 color rendering index *(CRI)*.
- Approximately 100,000* hours of operational life *(70,000 for "X" models)*.
- Operating temperature range -45°C to +45°C.
- Smart Select™ Electronic Driver. 85 to 300 VAC input; 50-60Hz; auto-sensing.
- UL, CSA and CE listed, IP66 rated.
- 5 year limited warranty.

** at 25°C ambient temperature.*

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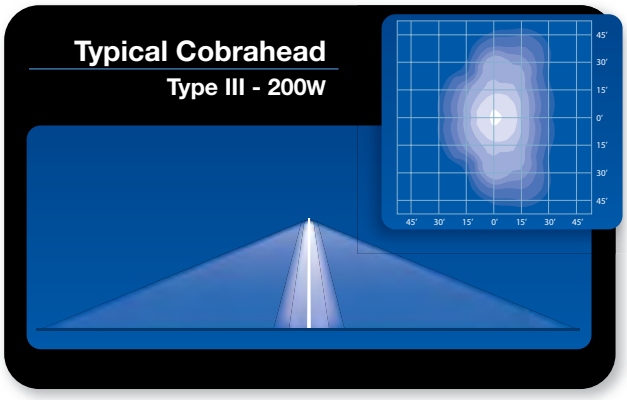
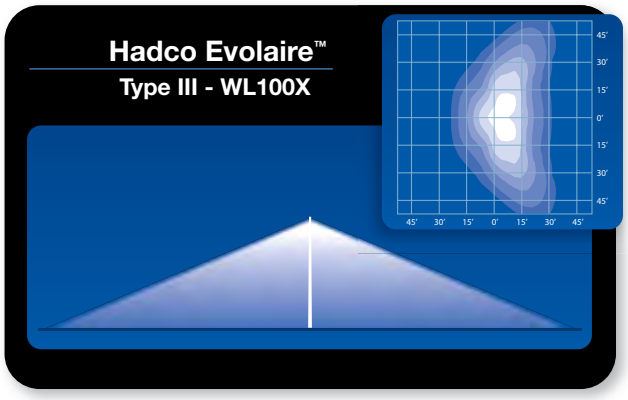
Lightspread Technology™

The core of Lightspread Technology is the unique, 6-position articulating head that is standard on each Hadco Evolaire luminaire.

The articulating head allows for precise positioning of the coverage area and all but eliminates hot spots and waste of light due to overlap or random spillage. The field of illumination is uniform and light intensity is nearly the same at a distance of 2.25 times the height of the lamppost as it is directly beneath the source.





Note: *In comparison, a typical sodium fixture will lose 40% of its light within the fixture head and 50% of the remaining light is focused in a hot spot directly below the lamp.*

IP66 Protection

"IP" is the rating degree used to express the ingress protection followed by two numbers.

"66"

First "6" represents no ingress of dust.

Second "6" represents no ingress of water.

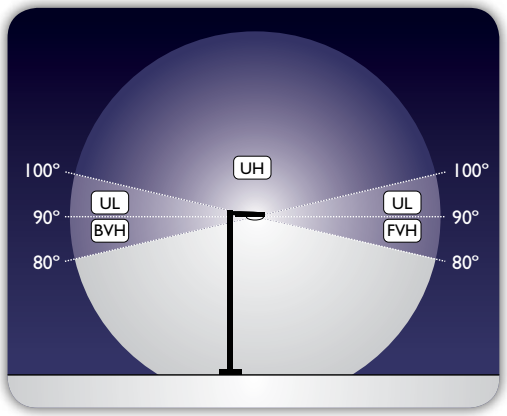
Distribution vs. Panel Angle *(spacing)*

Type III:
- 22.5° *(6x mounting height)*
- 18.0° *(5x mounting height)*

Type II:
- 13.5° *(4.5x mounting height)*
- 9.0° *(4x mounting height)*
- 4.5° *(3.5x mounting height)*
- 0.0° *(3x mounting height)*

Dark Sky Friendly at 0° LED Panel Angle

Hadco's goal is to be effective in stopping the adverse environmental impact on dark skies by providing a variety of products that will solve the effectiveness of night-time lighting. Hadco is doing what it takes to make a difference.



Uplight Classification Diagram
(See IESNA TM-15-07)

Outdoor lighting regulations should promote lighting practices consistent with energy conservation, safety needs, and preservation of the natural light environment. The goals for all lighting regulations should be to use minimum light levels to reduce wasted light, glare, and trespass.

Per IESNA TM-15-07 Luminaire Classification System (LCS), these luminaires in the flat panel setting produce 0° light in the UL and UH zones and less than 10° light in the FVH and BVH zones. See above diagram.

See www.HadcoLED.com for more information.

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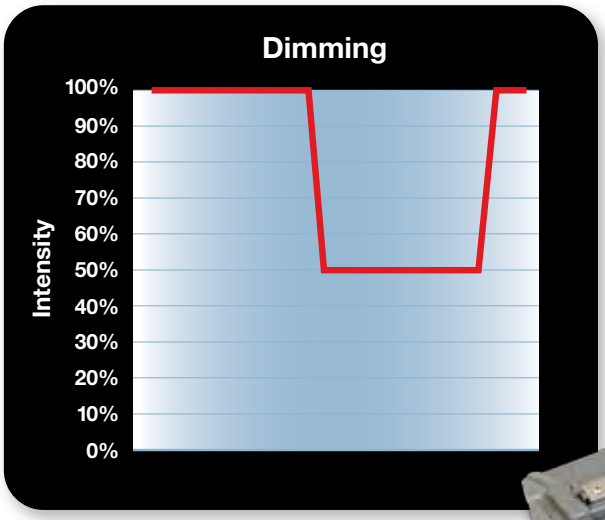
Midnight Dimming Controls



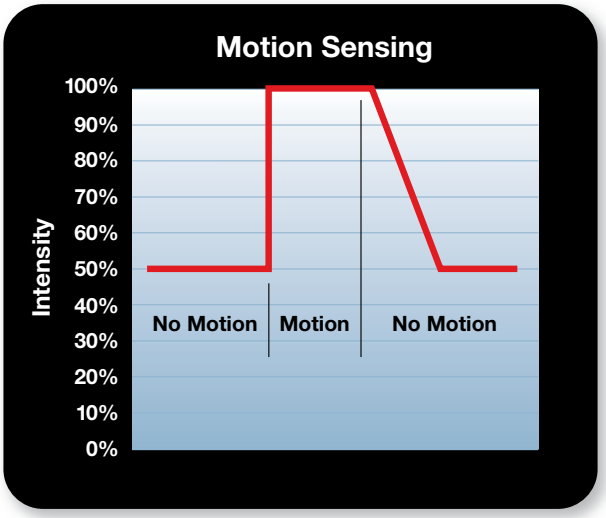
- 100% intensity at start-up.
- Gradual reduction to 50% intensity at approximately 11:30 pm.
- Gradual return to 100% intensity at 5:30 am *(if still dark)*.

Motion Sensing Option

- 50% intensity at start-up.
- 100% intensity upon reception of external motion sensor signal *(85 – 300 VAC)*.
- Gradual reduction back to 50% intensity 10 minutes after signal is removed.

Notes:

- *No external input required.*
- *Automatic compensation for winter and summer night durations.*
- *Runs completely off grid during daytime (no power draw).*

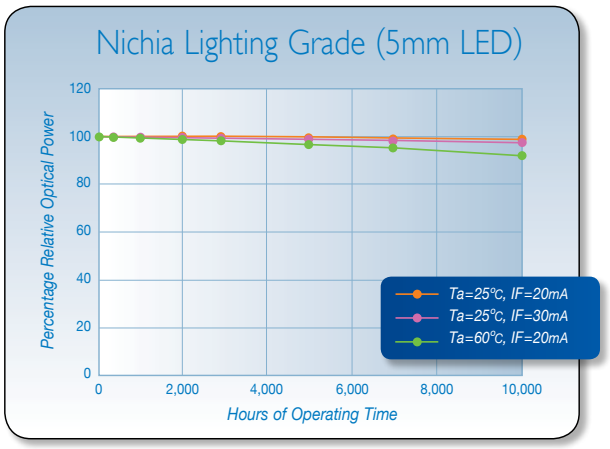


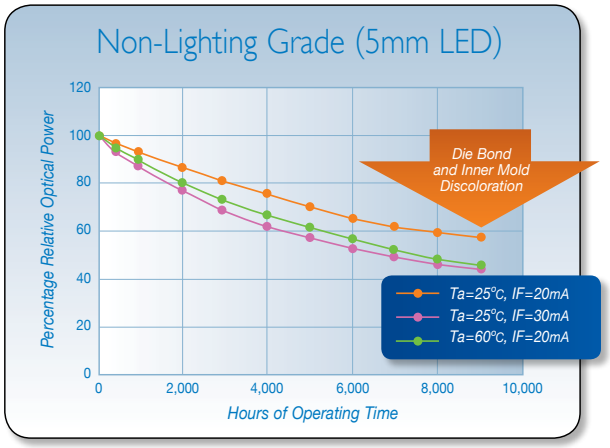
Not All 5mm LEDs are Created Equal

Lifetime Comparison

Unlike typical 5mm LED devices used as indicator lights, Hadco uses lighting-grade 5mm devices designed to last many times longer while maintaining efficiency. This is accomplished in part by replacing the standard epoxy resin used for the inner lens mold and die bond with a silicone hybrid resin.

This material change has a large effect on the life of the devices. The result, extremely minimal loss of efficiency due to discoloration of the device lens.

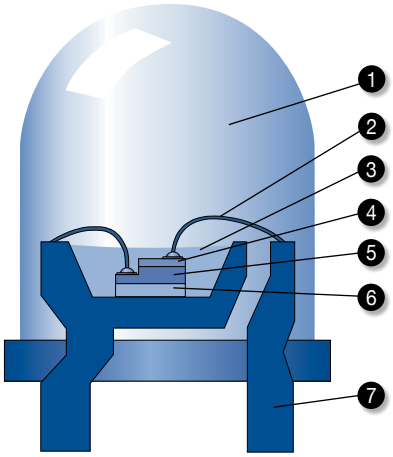




Nichia NSPW500DS is more stable in the lifetime.

Structure Comparison

Nichia NSPW500DS is different from conventional lamp type LEDs.



Number	Components	Non-Lighting Grade *(5mm LED)*	Nichia Lighting Grade *(5mm LED)*	Life Contribution
1	Lens	Heat Resistant Polymer	Heat Resistant Polymer	Small
2	Wire	Au	Au	None
3	Inner Mold	Epoxy Resin	Silicone Hybrid Resin	Large
4	Phosphor	YAG	YAG	None
5	Die	GaN	GaN	Small
6	Die Bond	Epoxy Resin	Silicone Hybrid Resin	Large
7	Lead	Cu Alloy and Silver Plating	Cu Alloy and Silver Plating	None

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Benefits

Energy Savings

Saving energy is an important factor to many communities and decision-makers. LED lighting offers the highest energy savings of any lighting source on the market. As a comparison to high-intensity discharge *(HID)* lamps, LED luminaires can save as much as 50-70% energy use.

"According to the U.S. Dept of Energy, no other lighting technology offers the same potential as LEDs to save energy and enhance lighting quality and reliability."
(Architectural SSL; p.37; November 2008)

Low Maintenance

A major factor in the total cost of ownership *(TCO)* of luminaires is the maintenance cost. LEDs can last for over 15 years *(at least 70,000 hours at 70% lumen maintenance)* compared to HID which has a significantly shorter lifespan, therefore a maintenance crew must be sent to re-lamp the HID luminaires as many as three times before a properly designed LED system needs to be replaced.

"With a 10- to 15-year lifetime that is at least triple that of current technologies, the maintenance advantages alone offer a street-smart argument for transitioning to LED-based systems."
(Philips; White Paper: Street Lighting)

Green

What does Green really mean? Many think of it in terms of the degree to which we are preserving our planet. One way to accomplish this is to reduce our "carbon footprint". The carbon footprint is thought of as the amount of carbon dioxide *(CO_2)* and greenhouse gasses released into the atmosphere by human activity or a product lifecycle. By switching to LED, the amount of CO_2 emitted by luminaires is drastically reduced. In addition, since LEDs are mercury-free and contain no hazardous materials they are environmentally safe and recyclable.

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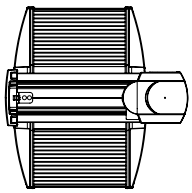
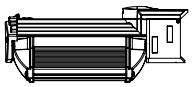
Ordering Guide: WL33/WL50X



WL33/WL50X
top view



WL33/WL50X
side view

Specifications

LED SPECIFICATIONS: 5mm lighting grade LED's robotically installed and precision aimed for optimal performance. Seperate panel assemblies can be adjusted in the field to achieve desired spacing requirements. OptiAC aging compensation offers over 20 years of life *(LLF: 0.95)*. Energy savings *(55-73%)*. System efficiency 95%. 75 CRI. Temperature compensation and protection. RoHS compliant, 100% recyclable.

CONTROLS: Mid-night dimming option. Motion sensing option.

HOUSING: Constructed of extruded and die-cast aluminum. Horizontal tenon mount accepts 1.5" O.D. to 2.38" O.D. tenon. Arm and wall mount is a single piece cast aluminum componet. Lens is clear acrylic sealed to IP66 rating. Tool-less replacement of driver and LED panel assembly.

FINISH: Thermoset polyester powdercoat, laboratory tested for superior weatherability and fade resistance.

ELECTRICAL ASSEMBLY: 33 watts to 50 watts of power consumption at 25 C ambient temperature. Smart Select electronic driver 85 to 300 VAC 50/60Hz, auto-sensing. 90% power factor. Operating temperature range -45 C to +45 C. OptiAC aging compensation algorithm ensures a uniform photometric output over the life of the product. Total harmonic distortion: <10%.

CERTIFICATIONS: UL Listed to U.S. safety standards for wet locations. CE, CSA Listed. RoHS, EN/IEC.

IP RATING: IP66: Dust-tight and sealed against direct jets of water and no ingress of dust. Will withstand 26.4 gallons of water per minute.

WIDTH: 15.75"

HEIGHT: 7"

LENGTH: 17.10"

MAX. EPA: 0.8 sq. ft.

MAX. WEIGHT: 13.3 lbs.

WARRANTY: 5 year limited warranty.

Please reference www.hadco.com for full specification sheets.

Ordering Example

WL33 HT A 3 MD N

PRODUCT CODE	MOUNTING	FINISH	†OPTICS	OPTIONS	PHOTO CONTROL
(**WL33**)*3 (**WL50X**)*4	(**HT**) *Horizontal Tenon* *1 (**R4**) *4" or 5" O.D. Round Pole* *2 (**R5**) *5" or 6" O.D. Round Pole* *2 (**S4**) *4" or 5" Square Pole* *2 (**W**) *Wall Mount*	(**A**) *Black* (**H**) *Bronze* (**I**) *Gray*	(**2**) *Type II* *6 (**3**) *Type III* *5	(**MD**) *Midnight Dimming* (**MS**) *Motion Sensing* (**N**) *None*	(**R**) *Twistlock Photo Control Receptacle* (**N**) *None*
( )	( )	( )	†(**3**)	( )	( )

*1 *1.5" to 2.38" diameter tenon; +/-5 degree adjustment.*
*2 *Order pole machined for this fixture.*
*3 *Up to 70W HPS comparable performance. 33 watts of energy consumed.*
*4 *Up to 100W HPS comparable performance. 50 watts of energy consumed.*
*5 *Panel angle: 22.5° (6x mounting height), 18° (5x mounting height).*
*6 *Panel angle: 13.5° (4.5x mounting height), 9° (4x mounting height), 4.5° (3.5 mounting height), 0° (3x mounting height).*

†Shipped as type 3 at 18° panel angle. Field adjustable to Type 2.

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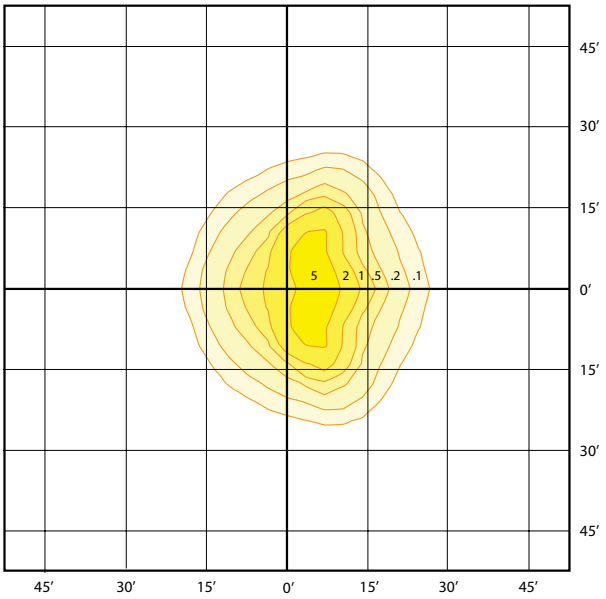
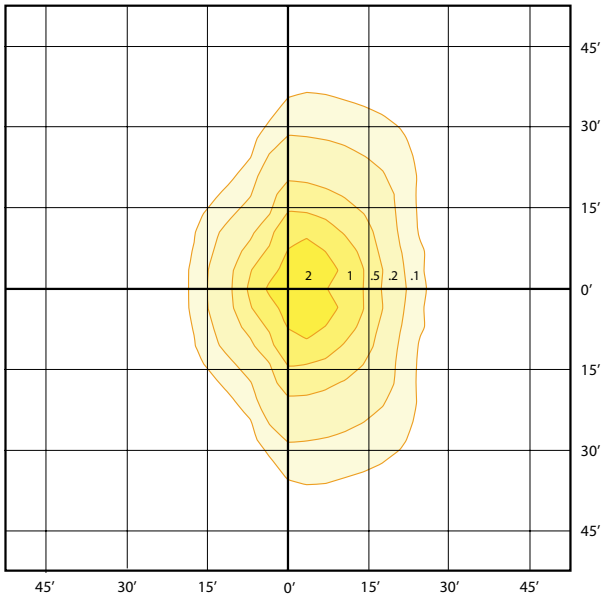
Photometrics: WL33/WL50X

WL33 - *TYPE II (angle - flat)*

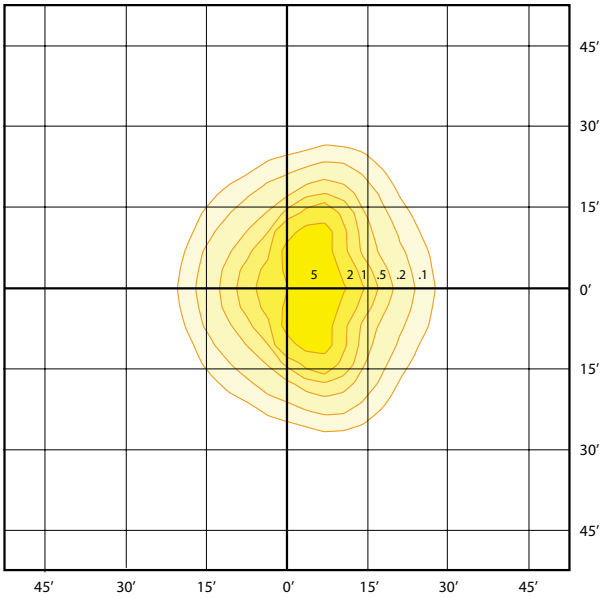


WL33 - *TYPE III (angle - max 22.5°)*

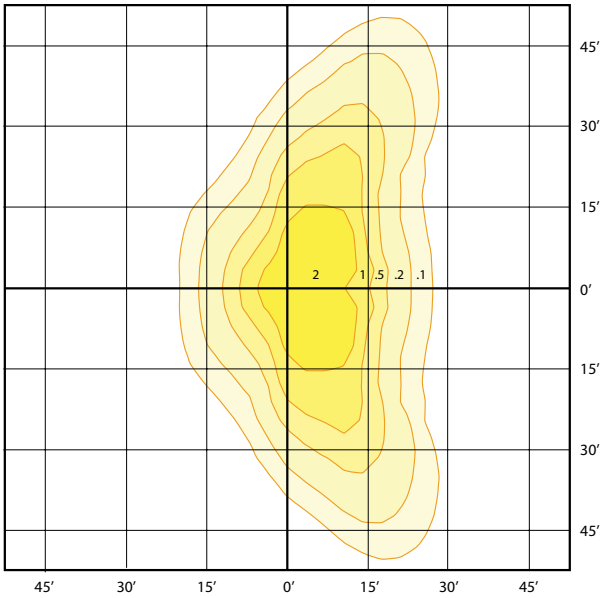


(10' Mounting Height)

WL50X - *TYPE II (angle - flat)*



WL50X - *TYPE II (angle - max 22.5°)*



(10' Mounting Height)

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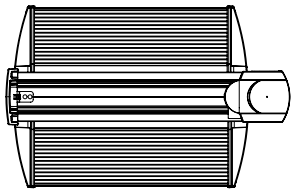
Ordering Guide: WL66/WL100X



WL66/WL100X
top view

WL66/WL100X
side view

Specifications

LED SPECIFICATIONS: 5mm lighting grade LED's robotically installed and precision aimed for optimal performance. Seperate panel assemblies can be adjusted in the field to achieve desired spacing requirements. OptiAC aging compensation offers over 20 years of life *(LLF: 0.95)*. Energy savings *(55-73%)*. System efficiency 95%. 75 CRI. Temperature compensation and protection. RoHS compliant, 100% recyclable.

CONTROLS: Mid-night dimming option. Motion sensing option.

HOUSING: Constructed of extruded and die-cast aluminum. Horizontal tenon mount accepts 1.5" O.D. to 2.38" O.D. tenon. Arm and wall mount is a single piece cast aluminum componet. Lens is clear acrylic sealed to IP66 rating. Tool-less replacement of driver and LED panel assembly.

FINISH: Thermoset polyester powdercoat, laboratory tested for superior weatherability and fade resistance.

ELECTRICAL ASSEMBLY: 66 watts to 100 watts of power consumption at 25 C ambient temperature. Smart Select electronic driver 85 to 300 VAC 50/60Hz, auto-sensing. 90% power factor. Operating temperature range -45 C to +45 C. OptiAC aging compensation algorithm ensures a uniform photometric output over the life of the product. Total harmonic distortion: <10%.

CERTIFICATIONS: UL Listed to U.S. safety standards for wet locations. CE, CSA Listed. RoHS, EN/IEC.

IP RATING: IP66: Dust-tight and sealed against direct jets of water and no ingress of dust. Will withstand 26.4 gallons of water per minute.

WIDTH: 15.75"

HEIGHT: 7"

LENGTH: 17.10"

MAX. EPA: 0.8 sq. ft.

MAX. WEIGHT: 13.3 lbs.

WARRANTY: 5 year limited warranty.

Please reference www.hadco.com for full specification sheets.

Ordering Example

WL66 HT A 3 MD N

PRODUCT CODE	MOUNTING	FINISH	†OPTICS	OPTIONS	PHOTO CONTROL
(**WL66**)*3 (**WL100X**)*4	(**HT**) *Horizontal Tenon* *1 (**R4**) *4" or 5" O.D. Round Pole* *2 (**R5**) *5" or 6" O.D. Round Pole* *2 (**S4**) *4" or 5" Square Pole* *2 (**W**) *Wall Mount*	(**A**) *Black* (**H**) *Bronze* (**I**) *Gray*	(**2**) *Type II* *6 (**3**) *Type III* *5	(**MD**) *Midnight Dimming* (**MS**) *Motion Sensing* (**N**) *None*	(**R**) *Twistlock Photo Control Receptacle* (**N**) *None*
( )	( )	( )	†(**3**)	( )	( )

*1 *1.5" to 2.38" diameter tenon; +/-5 degree adjustment.*
*2 *Order pole machined for this fixture.*
*3 *Up to 150W HPS comparable performance. 66 watts of energy consumed.*
*4 *Up to 200W HPS comparable performance. 100 watts of energy consumed.*
*5 *Panel angle: 22.5° (6x mounting height), 18° (5x mounting height).*
*6 *Panel angle: 13.5° (4.5x mounting height), 9° (4x mounting height), 4.5° (3.5 mounting height), 0° (3x mounting height).*

†Shipped as type 3 at 18° panel angle. Field adjustable to Type 2.

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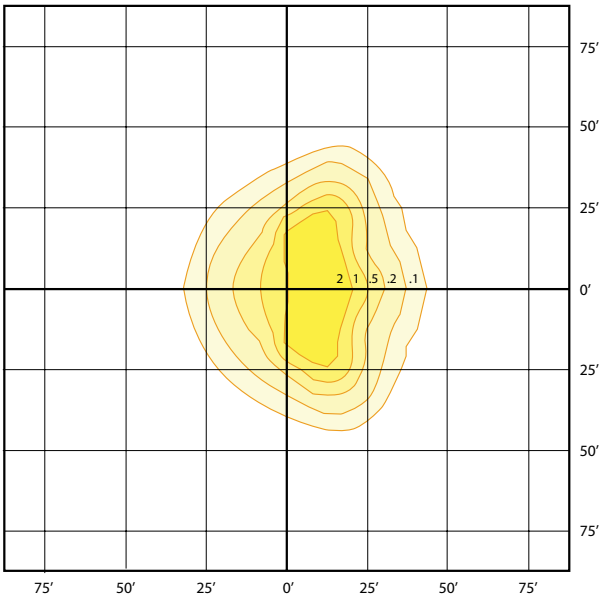
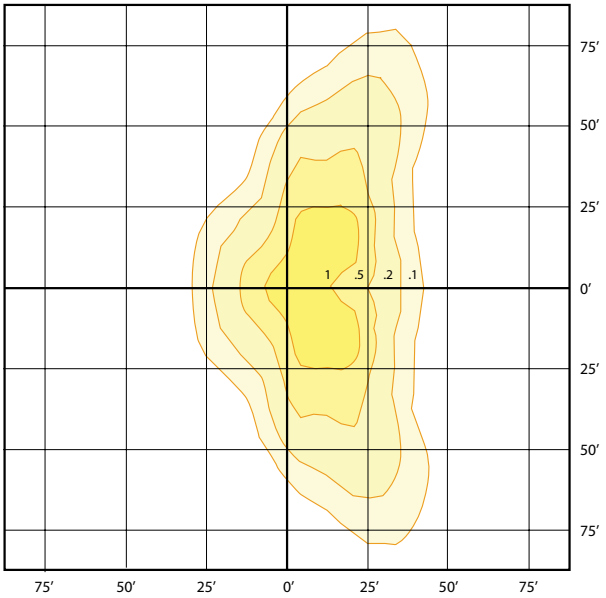
Photometrics: WL66/WL100X

WL66 - *TYPE II (angle - flat)*

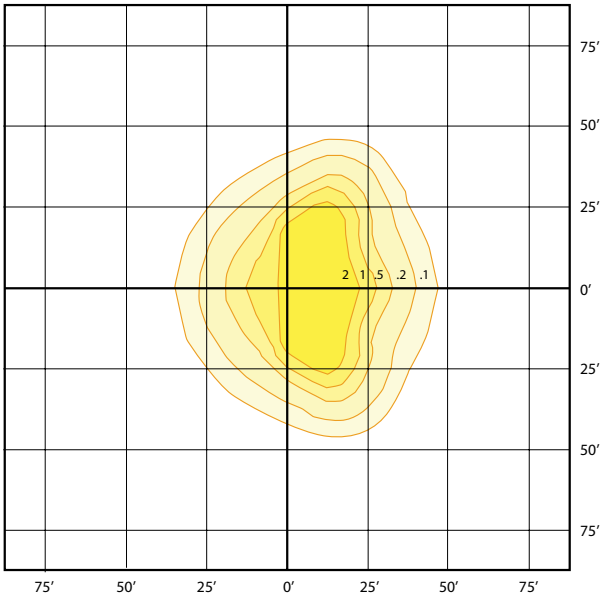


WL66 - *TYPE III (angle - max 22.5°)*

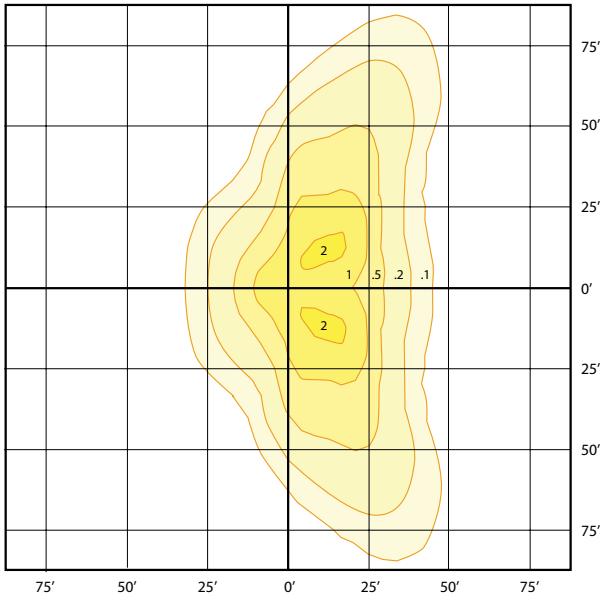


(20’ Mounting Height)

WL100X - *TYPE II (angle - flat)*



WL100X - *TYPE III (angle - max 22.5°)*



(20’ Mounting Height)

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Hadco is unique among outdoor lighting companies.

The experience that we bring to any project and our commitment to quality ensures that our fixtures stand out from the crowd.

We also recognize that it isn't just about illuminating a space, but instead about creating an environment. With our luminaires and accessories, combined with a wide range of site amenities products, you are able to create an environment and a sense of community, not just a point of light.

That is the Hadco difference.

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